# EAGLE GOLD PROJECT

## WATER LICENCE QZ14-041

## QUARTZ MINING LICENSE QML-0011

## 2018 ANNUAL REPORT

*Version 2019-01*

*MARCH 2019*

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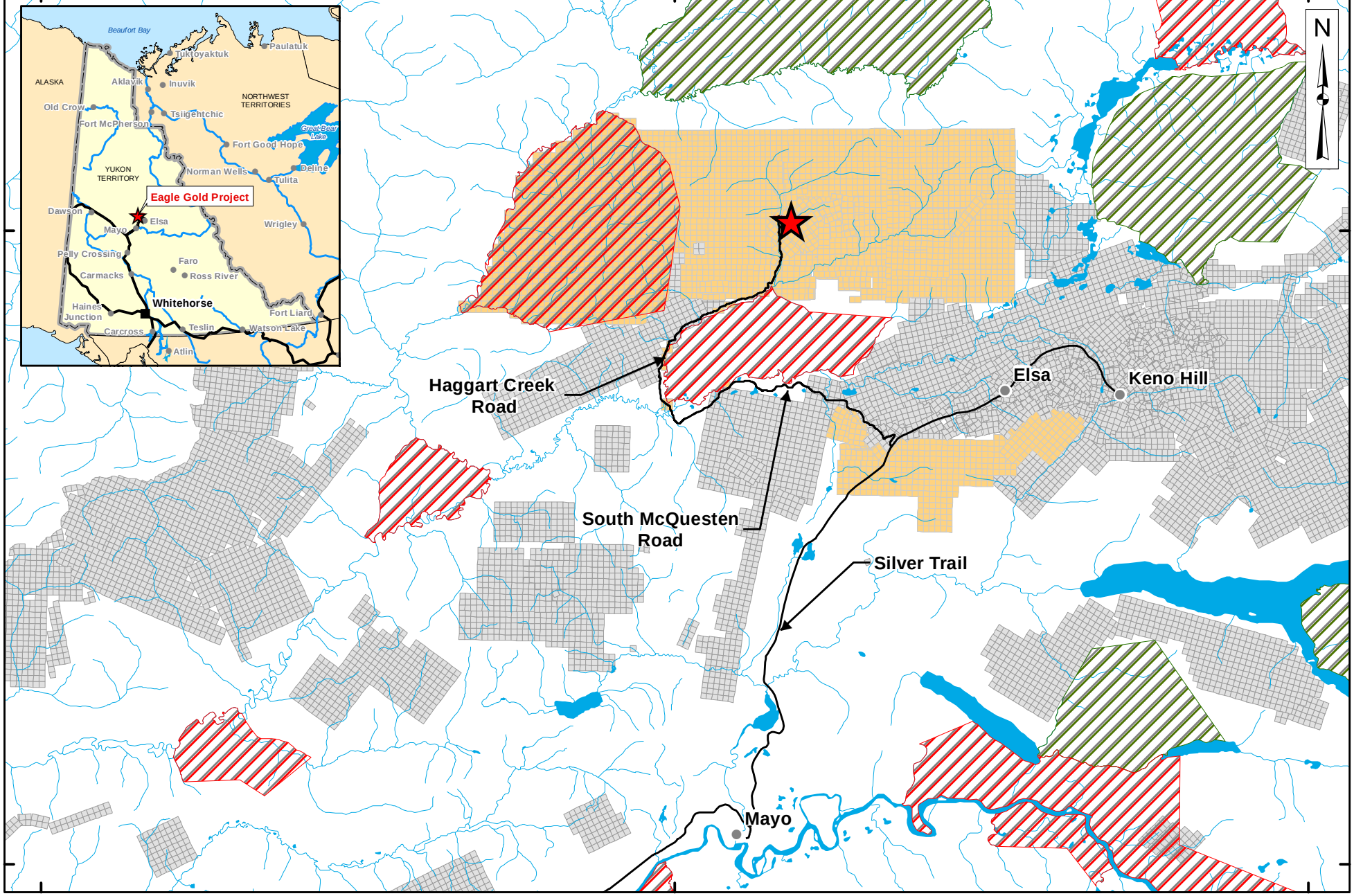
# 1 INTRODUCTION

StrataGold Corporation (SGC), a directly held-wholly owned subsidiary of Victoria Gold Corp., has proposed to construct, operate, close and reclaim a gold mine in central Yukon. The Eagle Gold Project ('the Project') is located 85 km from Mayo Yukon using existing highway and access roads (Figure 1.1-1). The Project will involve open pit mining and gold extraction using a three-stage crushing process, heap leaching, and a carbon adsorption, desorption, and recovery system over the mine life (Figure 1.1-2).

The Project is being operated in accordance with the terms of the Type A Water Use Licence (WUL) QZ14-041 and the Quartz Mining License (QML) QML-0011. The reporting period for this Annual Report is from January 1 to December 31, 2018 and serves to report on both WUL and QML conditions and associated management plans. The specific requirements for the Annual Report as outlined in the respective licences are summarized in Appendix A.

On July 14, 2017, SGC provided written notice of its intent to commence works on Phase I of the Project construction program on August 15, 2017, as required by Clause 23 of the WUL, and Paragraph 3.2 of the QML. Construction work continued through 2018, including:

- Partial Lower Dublin South Pond construction including completing embankment, spillway and installing liner;
- Project access road upgrades to improve safety;
- Advancement of Project engineering and design;
- Enlargement of camp to full construction phase capacity.
- Continued clearing, grubbing and grading for site infrastructure.
- Upgrade of existing site roads by widening and grading to provide access to construction areas, and construction of temporary construction trails and site roads.
- Transmission line work from Silver Trail tap point (the South McQuesten Substation) to site including clearing and grubbing of right of way (RoW), assembly and installation of structures, and stringing the 69kV conductor.
- Beginning construction of the site sub-station and the site electrical distribution system.
- Heap Leach Facility (HLF) Phase I Construction, including development of the HLF confining embankment, Phase 1 liner placement and heap leach piping installation.
- Partial erections of buildings including crushing and screening plant, Adsorption, Desorption and Recovery (ADR) Plant and the Overland Conveying System.



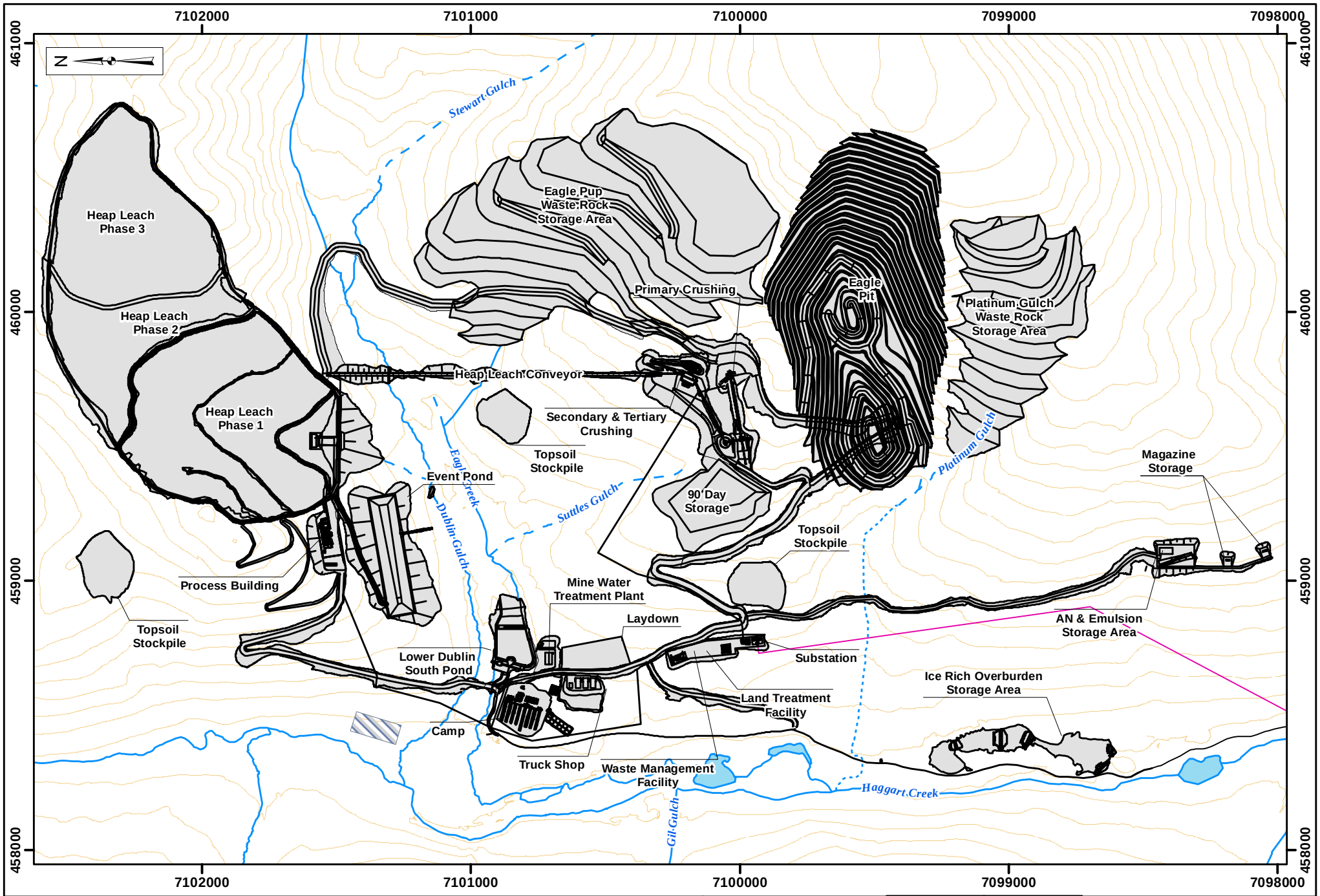

Legend:

- Eagle Gold Project
- StrataGold Claims
- Other Claims
- Town / Village
- Road
- Watercourse
- Category A Settlement Land
- Category B Settlement Land

StrataGold Corporation

0 3 6 12 Kilometres

| Projection: | Drawn By: | EAGLE GOLD PROJECT YUKON TERRITORY |
|---|---|---|
| NAD 83 Zone 8N | HC | |
| Date: | Figure: | Project Location |
| 2017/03/28 | 1.1-1 | |




Legend:

- Facility
- EagleGold69kV_Lines
- Reserved Area
- Perennial
- Ephemeral
- Intermittent
- Waterbody
- Contour (25m)

StrataGold Corporation

0 125 250 500
Metres

| | | |
|---|---|---|
| Projection: NAD 83 UTM Zone 8N | Drawn By: HC | EAGLE GOLD PROJECT YUKON TERRITORY |
| Date: 2019/03/31 | Figure: 1.1-2 | Site General Arrangement |

# 2 SITE ACTIVITIES

Work on the Project during the period of this report included facility construction only. No activities related to Production or the Production Phase of the Project were undertaken. The general arrangement of the Project relative to drone imagery captured in late October 2018 is provided in Figure 2.1-1. Appendix B provides as built designs, status reports, and quality assurance and quality control records for the facilities discussed within this Section 2.

## 2.1 OVERVIEW OF CONSTRUCTION

### 2.1.1 Summary of Construction Activities

By the end of 2018 mine construction was estimated at 60% complete and remained on track for delivery of first gold in H2 2019. Earthworks required for the first year of mining in 2019 were substantially complete, concrete works were 93% complete, structural steel was 32% complete, and mechanical contractors were mobilized to site to support installation activities in the ADR Plant and in the secondary and tertiary crushing facility. Approximately 950,000 construction hours were expended during 2018. Table 2.1-1 depicts specific construction activities conducted during each month of 2018.

**Table 2.1-1: 2018 Construction Schedule**

| Activity | Start | Finish | 2018 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | J | F | M | A | M | J | J | A | S | O | N | D |
| **Mine Equipment Assembly** | **Jul-18** | **Mar-19** | | | | | | | | | | | | |
| 200mm Rotary Drill - Assembly & Commissioning | Aug-18 | Sep-18 | | | | | | | | | | | | |
| 22m$^3$ Front Shovel - Assembly & Commissioning | Jul-18 | Aug-18 | | | | | | | | | | | | |
| 144t Haul Trucks - Assembly & Commissioning | Aug-18 | Oct-18 | | | | | | | | | | | | |
| **Camp Complex Phase 2** | **May-18** | **Jun-19** | | | | | | | | | | | | |
| Camp Bypass Road | May-18 | Jun-18 | | | | | | | | | | | | |
| Camp Bypass Road - Cut to Fill & Surfacing | May-18 | Jun-18 | | | | | | | | | | | | |
| Camp Complex | May-18 | Jun-19 | | | | | | | | | | | | |
| Camp Complex - Dorms E, F, H, I Remediation | May-18 | Jul-18 | | | | | | | | | | | | |
| Camp Complex - Drill & Commission Backup Well | Jul-18 | Jul-18 | | | | | | | | | | | | |
| Camp Complex - Install & Commission Potable WTP | Jul-18 | Aug-18 | | | | | | | | | | | | |
| Camp Complex - Erect ERT Foldaway Building | Sep-18 | Oct-18 | | | | | | | | | | | | |
| **Lower Dublin South Pond** | **Aug-17** | **Mar-19** | | | | | | | | | | | | |
| LDSP – partially commissioned | May-18 | May-18 | | | | | | | | | | | | |
| **Surface Water Ditches** | **Oct-18** | **Mar-19** | | | | | | | | | | | | |
| Ditch A - Excavation & Rip-Rap | Oct-18 | Feb-19 | | | | | | | | | | | | |
| Lower Ditch B - Excavation & Rip-Rap | Nov-18 | Jan 19 | | | | | | | | | | | | |
| **Laydown Pads** | **May-18** | **Aug-18** | | | | | | | | | | | | |

| Activity | Start | Finish | 2018 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | J | F | M | A | M | J | J | A | S | O | N | D |
| Batch Plant - Cut to Fill | May-18 | Jun-18 | | | | | | | | | | | | |
| HME Assembly Pad - Cut to Fill | May-18 | Jun-18 | | | | | | | | | | | | |
| Warehouse and Shop Pad - Cut to Fill | Jul-18 | Aug-18 | | | | | | | | | | | | |
| Waste Management Pad - Cut to Fill | Aug-18 | Aug-18 | | | | | | | | | | | | |
| Substation/Fuel/WM Pad - Cut to Fill | Aug-18 | Aug-18 | | | | | | | | | | | | |
| **Process Plant Area** | **Apr-18** | **Aug-18** | | | | | | | | | | | | |
| Process Plant Pad - Topsoil Removal | Apr-18 | Apr-18 | | | | | | | | | | | | |
| Process Plant Service Road - Clearing & Top Soil Removal | May-18 | Jun-18 | | | | | | | | | | | | |
| Process Plant Pad - Excavate (Fill to pads, roads, HLF & stockpile) | May-18 | Aug-18 | | | | | | | | | | | | |
| Process Plant Pad - Install Liner & Backfill | Jun-18 | Jul-18 | | | | | | | | | | | | |
| Process Plant Service Road - Ditching & Surfacing | Jul-18 | Aug-18 | | | | | | | | | | | | |
| **ADR Plant** | **Jul-18** | **Jun-19** | | | | | | | | | | | | |
| ADR Plant Building Envelope | Jul-18 | Mar-19 | | | | | | | | | | | | |
| Process Plant Building - Concrete Installations | Jul-18 | Oct-18 | | | | | | | | | | | | |
| Process Plant Building - Erect Pre-Engineered Building Steel | Nov-18 | Dec-18 | | | | | | | | | | | | |
| Process Plant Building - Install Overhead Cranes | Dec-18 | Dec-18 | | | | | | | | | | | | |
| Process Plant Building - Install Wall & Roof Cladding | Nov-18 | Dec-18 | | | | | | | | | | | | |
| Process Plant Building - Install Utility Supports | Dec-18 | Jan-19 | | | | | | | | | | | | |
| Carbon Adsorption | Oct-18 | Apr-19 | | | | | | | | | | | | |
| Carbon Adsorption - Erect Structural Steel | Oct-18 | Oct-18 | | | | | | | | | | | | |
| Carbon Adsorption - Set Carbon Columns & Screens | Oct-18 | Nov-18 | | | | | | | | | | | | |
| Carbon Adsorption - Install Pumps & Samplers | Dec-18 | Feb-19 | | | | | | | | | | | | |
| Electrowinning & Refining | Dec-18 | May-19 | | | | | | | | | | | | |
| Electrowinning & Refining - Interior Architectural | Dec-18 | Jan-19 | | | | | | | | | | | | |
| Barren Solution Storage & Distribution | Nov-18 | Jun-19 | | | | | | | | | | | | |
| Barren Solution Storage & Distribution - Structural Steel | Nov-18 | Nov-18 | | | | | | | | | | | | |
| **Crusher Area** | **Mar-18** | **Jun-19** | | | | | | | | | | | | |
| Earthworks | Mar-18 | Aug-18 | | | | | | | | | | | | |
| Crushing Area Pads - Clearing & Topsoil Removal | Mar-18 | Apr-18 | | | | | | | | | | | | |
| Crusher Service Road - Cut-to-Fill (Ph2) | Mar-18 | Apr-18 | | | | | | | | | | | | |
| Crusher Bypass Road - Cut-to-Fill | Mar-18 | Apr-18 | | | | | | | | | | | | |
| HLF Rd/Primary Crusher Apron - Cut to Fill | Apr-18 | May-18 | | | | | | | | | | | | |
| HLF Rd - Stabilization Work | Jun-18 | Jun-18 | | | | | | | | | | | | |
| Primary Crusher Apron - Cut to Fill Resumption | Jun-18 | Jun-18 | | | | | | | | | | | | |

| Activity | Start | Finish | 2018 J | F | M | A | M | J | J | A | S | O | N | D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Secondary/Tertiary Crushing Area Pads - Cut to Fill | May-18 | Jul-18 | | | | | | | | | | | | |
| Crusher Access Road & Extension - Cut to Fill & Surfacing | Apr-18 | Jul-18 | | | | | | | | | | | | |
| Primary Crusher & Transfer Corridor cut to fill | Jun-18 | Jul-18 | | | | | | | | | | | | |
| Ore Transfer & Reclaim Area - Cut to Fill | Jun-18 | Jul-18 | | | | | | | | | | | | |
| 90-Day Storage Pad/Laydown Area - Cut to Fill | Jul-18 | Aug-18 | | | | | | | | | | | | |
| Primary Crushing | Aug-18 | Jun-19 | | | | | | | | | | | | |
| Primary Crushing - Concrete Installations | Aug-18 | Nov-18 | | | | | | | | | | | | |
| Primary Crushing - Structural Steel & Mechanical Rough Set | Dec-18 | Feb-19 | | | | | | | | | | | | |
| Primary Crushing - Install Primary Crusher Discharge | Dec-18 | Mar-19 | | | | | | | | | | | | |
| Primary Crushing - Interior Mechanical Installations | Dec-18 | May-19 | | | | | | | | | | | | |
| Coarse Ore Handling & Reclaim | Aug-18 | May-19 | | | | | | | | | | | | |
| Coarse Ore Handling - Reclaim Tunnel Installation | Sep-18 | Oct-18 | | | | | | | | | | | | |
| Coarse Ore Handling - Concrete Installations | Aug-18 | Oct-18 | | | | | | | | | | | | |
| Coarse Ore Handling - Structural Steel & Mechanical Rough Set | Dec-18 | Feb-19 | | | | | | | | | | | | |
| Secondary & Tertiary Crushing | Jul-18 | May-19 | | | | | | | | | | | | |
| Sec/Ter Crushing - Concrete Installations | Jul-18 | Nov-18 | | | | | | | | | | | | |
| Sec/Ter Crushing - Interior Steel & Rough Set | Oct-18 | Feb-19 | | | | | | | | | | | | |
| Sec/Ter Crushing - Secondary Steel, Grating & Handrail | Nov-18 | Apr-19 | | | | | | | | | | | | |
| Sec/Ter Crushing - Mechanical Installations | Nov-18 | May-19 | | | | | | | | | | | | |
| Transfer Conveyors | Oct-18 | May-19 | | | | | | | | | | | | |
| Transfer Conveyors - Concrete Installations | Oct-18 | Nov-18 | | | | | | | | | | | | |
| Transfer Conveyors - Install CV-016 | Dec-18 | Apr-19 | | | | | | | | | | | | |
| Tertiary Stockpile | Aug-18 | Mar-19 | | | | | | | | | | | | |
| Tertiary Stockpile - MSE Wall Installation | Aug-18 | Sep-18 | | | | | | | | | | | | |
| Tertiary Stockpile - Concrete Installations | Sep-18 | Nov-18 | | | | | | | | | | | | |
| **Fine Ore Conveying** | **Jun-18** | **Aug-19** | | | | | | | | | | | | |
| Overland Conveyor ROW (8m) | Jun-18 | Sep-18 | | | | | | | | | | | | |
| Ore Preparation Pad - Cut to Fill | Sep-18 | Oct-18 | | | | | | | | | | | | |
| Fine Ore Conveying - Concrete Installations (Ore Transfer Pad) | Oct-18 | Nov-18 | | | | | | | | | | | | |
| Fine Ore Conveying - Erect Transfer Tower Steel | Nov-18 | Nov-18 | | | | | | | | | | | | |
| **Explosives Storage Area** | **Jul-18** | **Mar-19** | | | | | | | | | | | | |
| AN Service Road - Cut to Fill | Jul-18 | Aug-18 | | | | | | | | | | | | |
| Explosives & Magazine Storage Pads - Cut to Fill | Aug-18 | Aug-18 | | | | | | | | | | | | |
| **Heap Leach Facility** | **Aug-17** | **Jul-19** | | | | | | | | | | | | |

| Activity | Start | Finish | 2018 J | F | M | A | M | J | J | A | S | O | N | D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Heap Leach Facility - Embankment | Mar-18 | May-19 | | | | | | | | | | | | |
| HLF Embankment - Excavate Ice & Snow in HLF Footprint | Mar-18 | Apr-18 | | | | | | | | | | | | |
| HLF Embankment - Install Underdrain Headers | Jun-18 | Aug-18 | | | | | | | | | | | | |
| HLF Embankment - Foundation Works | Apr-18 | Jun-18 | | | | | | | | | | | | |
| HLF Embankment - Excavate & Dispose of Unsuitable Materials | Jul-18 | Aug-18 | | | | | | | | | | | | |
| HLF Embankment - Place Fill | Aug-18 | Oct-18 | | | | | | | | | | | | |
| HLF Embankment - Pregnant Solution Pump Concrete | Nov-18 | Nov-18 | | | | | | | | | | | | |
| Heap Leach Facility - In-Heap Pond | Apr-18 | Jun-19 | | | | | | | | | | | | |
| HLF In-Heap Pond - Clear & Grub | Apr-18 | Apr-18 | | | | | | | | | | | | |
| HLF In-Heap Pond - Strip Topsoil | Jul-18 | Aug-18 | | | | | | | | | | | | |
| HLF In-Heap Pond - Install Underdrain Headers | Aug-18 | Sep-18 | | | | | | | | | | | | |
| HLF In-Heap Pond - Install Underdrain Laterals | Aug-18 | Sep-18 | | | | | | | | | | | | |
| HLF In-Heap Pond - Install Liner | Sep-18 | Jan-19 | | | | | | | | | | | | |
| Heap Leach Facility - Pad Construction (EL 995m) | Nov-18 | Aug-19 | | | | | | | | | | | | |
| HLF Pad Construction - Stripping & Shaping | Nov-18 | Jan-19 | | | | | | | | | | | | |
| Heap Leach Facility - Events Pond | Apr-18 | Jun-19 | | | | | | | | | | | | |
| Event Ponds - Clear & Grub | Apr-18 | Apr-18 | | | | | | | | | | | | |
| Event Ponds - Strip & Stockpile Topsoil | Jul-18 | Aug-18 | | | | | | | | | | | | |
| Event Ponds - Excavate & Dispose of Unsuitable Material | Aug-18 | Nov-18 | | | | | | | | | | | | |
| Event Ponds - Cut to Fill Events Pond Embankment | Oct-18 | Nov-18 | | | | | | | | | | | | |
| **Access Road Upgrades** | **Mar-18** | **Jun-18** | | | | | | | | | | | | |
| Site Access Road - Access (Snow Clearing) | Mar-18 | Mar-18 | | | | | | | | | | | | |
| Secret Creek Culvert Replacement | Apr-18 | May-18 | | | | | | | | | | | | |
| Haggart Creek Access Road Improvements (Phase 2) | Mar-18 | Jun-18 | | | | | | | | | | | | |
| **Power Supply** | **Jul-18** | **Apr-19** | | | | | | | | | | | | |
| Power Supply - 69 kV Transmission Line | Jul-18 | Jan-19 | | | | | | | | | | | | |
| 69kV Transmission Line - Line Flagging & ROW Clearing | Jul-18 | Nov-18 | | | | | | | | | | | | |
| 69kV Transmission Line - Foundations & Civil Work | Sep-18 | Jan-19 | | | | | | | | | | | | |
| 69kV Transmission Line - Assemble & Install Structures | Sep-18 | Jan-19 | | | | | | | | | | | | |
| 69kV Transmission Line - String 69 kV Conductor | Oct-18 | Jan-18 | | | | | | | | | | | | |
| 69kV Transmission Line - String Fibre | Oct-18 | Jan-19 | | | | | | | | | | | | |
| **Ancillary Facilities** | **Aug-17** | **Jun-19** | | | | | | | | | | | | |
| Shops & Warehouses | Jul-18 | Sep-18 | | | | | | | | | | | | |
| Fuel Storage & Distribution - Various Locations | Oct-17 | Mar-19 | | | | | | | | | | | | |

| Activity | Start | Finish | 2018 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | J | F | M | A | M | J | J | A | S | O | N | D |
| Assay Laboratory | Feb-19 | Mar-19 | | | | | | | | | | | | |
| Waste Management - Various Locations | Aug-17 | Apr-19 | | | | | | | | | | | | |

#### 2.1.1.1 Mine Equipment Assembly

Primary mobile mining equipment required for the Production Phase of the Project was delivered to site in Q3 2018. Two CAT 6040 front shovels, 11 CAT 785 haul trucks and the two 200mm rotary drills were assembled and commissioned.

#### 2.1.1.2 Camp Complex Phase 2

All major components of the camp complex required for the full construction team were installed and made operational in 2018. The work undertaken included the mobilization and connection of additional dorm units, drilling and commissioning of a backup potable water supply well, installation and commissioning of the potable water treatment plant, expansion of the septic system, and the installation of the Emergency Response Team foldaway building. The only remaining activity related to the camp complex is the installation of the mine dry to support the Production Phase team.

The arrangement of the Camp Complex at October 15, 2018 is provided in Photo 2.1-1.



**Photo 2.1-1: Camp Complex at October 15, 2018**

### 2.1.1.3 Water Management Infrastructure

Construction activities related to the Lower Dublin South Pond (LDSP) and Ditches A and B continued in 2018. Ditches A and B excavation and rip rap armoring installation began. Final ditch completion, including construction of the inlets into the LDSP is scheduled for March 2019. To support water management for the Production Phase of the Project, HDPE pipe was procured with fusing and installation planned for Q1 2019. The work will include final completion and tie-in of the ditches to the LDSP. The status of the LDSP in early fall 2018 is depicted in Photo 2.1-2, and the construction of a lower reach of Ditch A during late October 2018 is shown in Photo 2.1-3.



**Photo 2.1-2: Lower Dublin South Pond at September 28, 2018**



**Photo 2.1-3: Ditch A Excavation - October 30, 2018**

#### 2.1.1.4 Erosion and Sediment Control

Through 2018, earthworks and construction activities were supported by the implementation of sediment and erosion control measures. Measures taken were in accordance with Section 6.2 of the Project's *Construction and Operations Water Management Plan*, and included:

- Proper staging of construction activities to mitigate erosion and the potential entrainment of sediment.
- Slope stabilization and channel protection as necessary in the sediment basins, ditches, and unstable disturbed slopes and surfaces.
- Installation of silt fences downslope of construction areas and/or material stockpiles to prevent sediment migration downslope.
- Construction of sediment basins and exfiltration basins in key areas to accept collected runoff and groundwater seepage as needed.
- Construction of diversion ditches on site to channel non-contact water away from the construction areas.
- Daily monitoring of construction activities by environmental department staff and EPCM contractors, with a focus on recently disturbed sites following precipitation events; and
- Maintenance and repair of erosion and sediment control infrastructure as required.

Figure 2.1-2 depicts the locations of site infrastructure used to control runoff and erosion and provide for sediment control.

### 2.1.1.5 Site Road and Pads

Clearing, grubbing and grading for site roads and pads to support construction work areas continued in 2018. Site roads for accessing the HLF, Events Pond, ADR Plant, crushing facilities, reclamation stockpiles, waste management facility, substation, open pit and explosives storage areas were completed during the year. Laydown pads were primarily completed in 2017 with minor additional work undertaken in 2018 to maintain the existing areas. Figure 2.1-1 provides an overview of all site construction infrastructure and facilities including site roads and pads.

Laydown and facility pads were largely completed in 2018 with the exception of the Production Phase explosives storage area pads.

### 2.1.1.6 Process Plant Area

The ADR plant pad was fully cleared and excavated to final grades in mid-2018 (Photo 2.1-4). In the immediate location of the ADR Plant, the HDPE liner was installed and backfilled which then allowed for concrete installations and the erection of the pre-engineered building (Photos 2.1-5, 2.1-6 and 2.1-7).

By the end of the reporting period, wall and roof cladding, the overhead cranes, structural steel, utility supports, carbon columns and screens, and interior architecture were completed (Photo 2.1-8).



**Photo 2.1-4: ADR Pad Preparation at July 27, 2018**



**Photo 2.1-5: ADR Concrete Preparation at August 19, 2018**



**Photo 2.1-6: ADR Plant Overhead Crane Placement at October 7, 2018**



**Photo 2.1-7: ADR Plant Exterior Cladding at October 13, 2018**



**Photo 2.1-8: ADR Pad and Building at November 15, 2018**

### 2.1.1.7 Crushing Circuit

During the period described in this report, substantial progress was made on the crushing circuit with facility pad development, concrete installations, structural steel and mechanical rough setting all taking place. Photos 2.1-9 to 2.1-19 depict the crushing facility construction stages through 2018, beginning with initial clearing and grubbing, pad development, concrete foundation pouring to building erection.



**Photo 2.1-9: Primary Crusher Pad Clear and Grub at April 16, 2018**



**Photo 2.1-10: Scale and Doze at Secondary Crusher Pad at May 26, 2018**



**Photo 2.1-11: Turnover Survey of Primary Crusher Pad at August 1, 2018**



**Photo 2.1-12: Placing Material for Secondary Crusher MSE Wall at August 15, 2018**



**Photo 2.1-13: Concrete Pour at Secondary Crusher - August 20, 2018**



**Photo 2.1-14: Concrete Pour at Primary Crusher - August 23, 2018**



**Photo 2.1-15: Rebar Installation at Primary Crusher - August 29, 2018**



**Photo 2.1-16: Secondary Crusher Progress - October 6, 2018**



**Photo 2.1-17: Primary Crusher Progress - October 7, 2018**

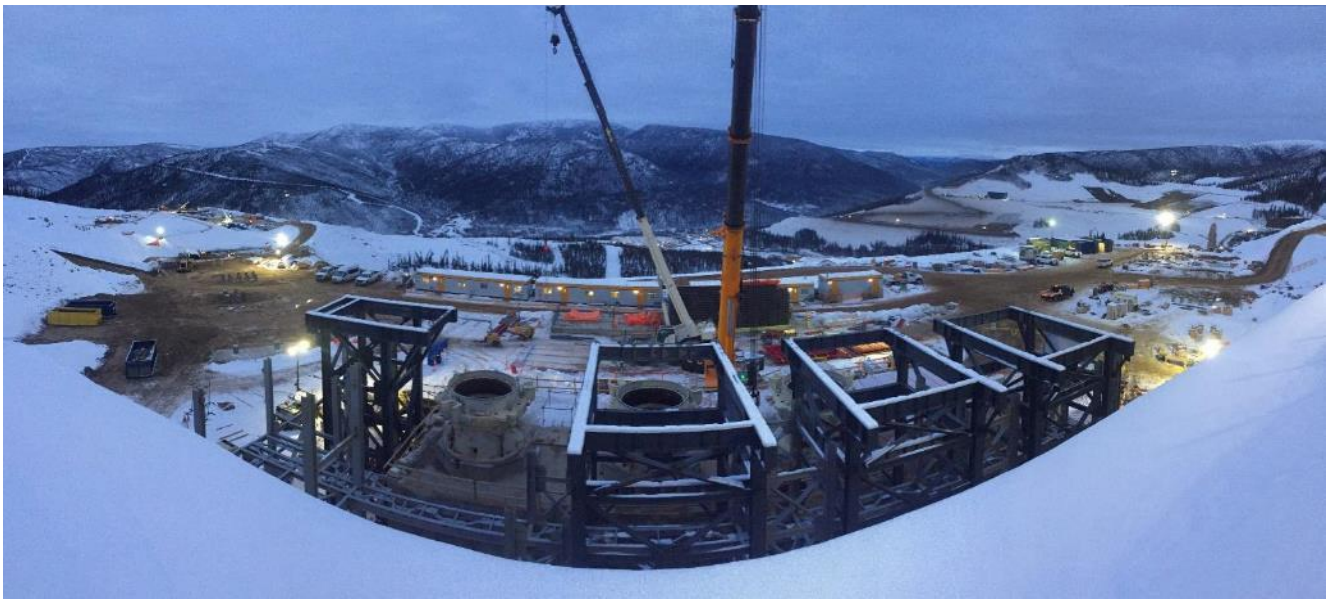


**Photo 2.1-18: Secondary Crusher Progress - November 28, 2018**



**Photo 2.1-19: Primary Crusher Progress - December 7, 2018**

### 2.1.1.8 Overland Conveyor

The area of the overland conveyor was cleared grubbed and graded in preparation for structure installations in early 2019 (Photos 2.1-20 to 2.1-22).



**Photo 2.1-20: Clearing and Grubbing for Overland Conveyor and Ore Preparation Pad - August 30, 2018**



**Photo 2.1-21: Overland Conveyor Grading - October 9, 2018**



**Photo 2.1-22: Overland Conveyor Grading - November 12, 2018**

#### 2.1.1.9 Explosives Storage Area

In the later part of 2018, clearing, grubbing and preliminary grading was undertaken of the service road to the proposed ammonium nitrate and emulsion storage area and the service road to this location (Photo 2.1-23).



**Photo 2.1-23: AN Road Development - October 2, 2018**

### 2.1.1.10 Heap Leach Facility

Clearing and grubbing in the area of the HLF embankment, In-Heap pond area and Events Pond continued in 2018 to support final construction and operation of these facilities in H2 2019 (Photos 2.1-24 and 2.1-25). The program continued with foundation preparation activities (including installation of the underdrain system) and advanced to foundation works for the embankment and fill placement (Photos 2.1-26 to 2.1-29). Liner placement was undertaken within certain areas of the HLF.




**Photo 2.1-24: HLF Embankment Toe Excavation - June 3, 2018**



**Photo 2.1-25: HLF Service Road - June 6, 2018**



**Photo 2.1-26: HLF Grading and Fill Placement - September 6, 2018**



**Photo 2.1-27: In-Heap Pond Shaping - September 8, 2018**



**Photo 2.1-28: HLF Sump Access Ramp - November 24, 2018**



**Photo 2.1-29: HLF West Bank Clearing - December 12, 2018**

### 2.1.1.11 Access Road Upgrades

General maintenance and upgrade activities on the site access road continued during the period of this report. The major works undertaken during 2018 was the replacement of the culvert crossing at Swede Creek. The

culvert replacement began in late April (Photo 2.1-30) and was completed in early May (Photos 2.1-31 and 2.1-32).




**Photo 2.1-30: Placement of New Culvert at Swede Creek - April 22, 2018**



**Photo 2.1-31: Rip Rap Placement on Swede Creek - May 3, 2018**



**Photo 2.1-32: Swede Creek Culvert Inlet - May 10, 2018**

### 2.1.1.12 Power Supply

Construction of the transmission line was substantially completed in 2018 with vegetation clearing, foundation and civil work, assembly and installation or structures and stringing of the 69kV line undertaken during the reporting period (Photos 2.1-33 to 2.1-36).

Final works to prepare the line for energizations are expected to be finalized in Q1 2019.



**Photo 2.1-33: Transmission Right of Way Clearing - August 27, 2018**



**Photo 2.1-34: Erection of Dressed Structures - October 19, 2018**



**Photo 2.1-35: Transmission Right of Way Vegetation Management - October 24, 2018**



**Photo 2.1-36: H-Frame Structure at South McQuesten River - January 1, 2019**

### 2.1.1.13 Ancillary Facilities

Various ancillary facilities and structures were constructed during the period of this report including warehouses (Photos 2.1-37 and 2.1-38), fuel storage and distribution, and waste management facilities (Photos 2.1-39 and 2.1-40).



**Photo 2.1-37: Warehouse Installation - September 5, 2018**



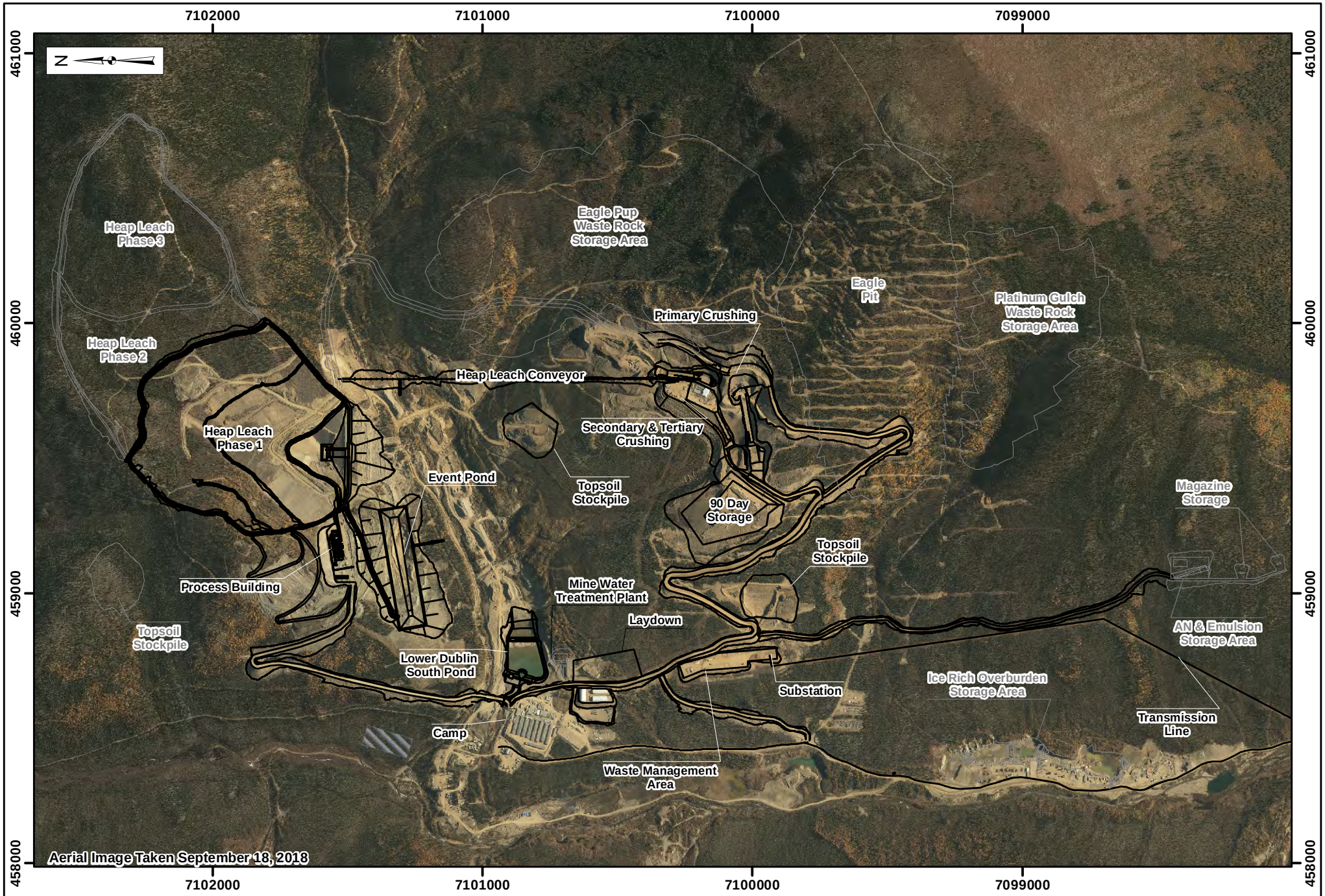
**Photo 2.1-38: Warehouse - November 11, 2018**



**Photo 2.1-39: Waste Management Pad - June 17, 2018**



**Photo 2.1-40: Incinerator, Waste Management Build and Pad - October 15, 2018**




Legend:

2018 Construction Areas

Reserved Area

Future Construction

StrataGold Corporation

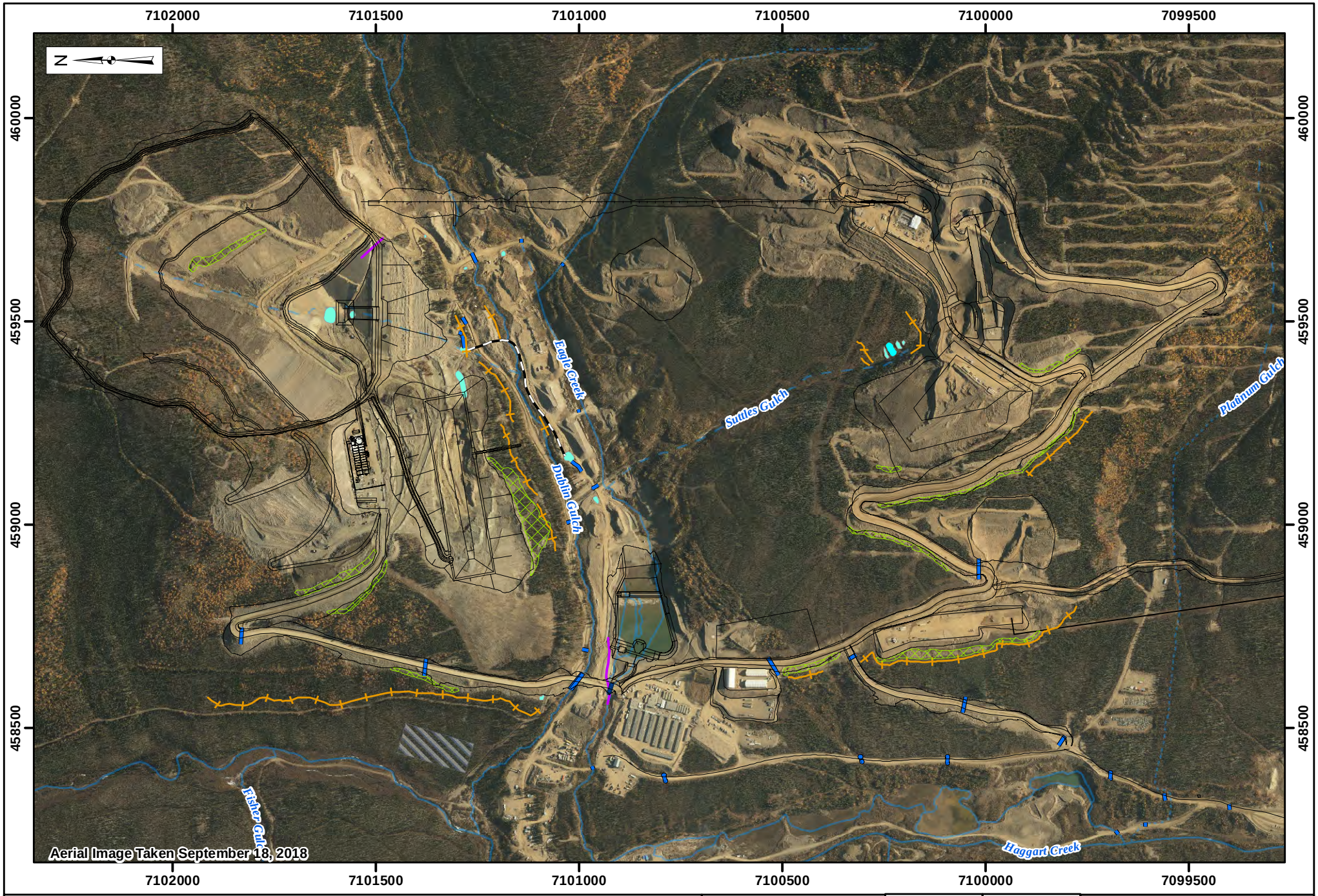
0 125 250 500

Metres

| Projection: | Drawn By: |
|---|---|
| NAD 83 UTM Zone 8N | JK |
| Date: | Figure: |
| 2019/04/01 | 2.1-1 |

**EAGLE GOLD PROJECT**
**YUKON TERRITORY**

**General Arrangement of Eagle Gold Mine in October 2018**




Legend:

- Sediment Basin
- Pipe
- 2018 Construction Areas
- Culverts
- Siltfence
- Reserved Area
- Ditches
- Vegetation Windrow

StrataGold Corporation

0 75 150 300
Metres

| Projection: | Drawn By: | EAGLE GOLD PROJECT YUKON TERRITORY |
|---|---|---|
| NAD 83 UTM Zone 8N | JK | |
| Date: | Figure: | 2018 Construction Sediment and Erosion Control |
| 2019/04/01 | 2.1-2 | |

## 2.2 OVERVIEW OF MINING

No mining or production activities authorized by the Type A WUL QZ14-041 nor the QML-0011 has taken place. Mining or production activities are scheduled to commence in 2019.

During operations, the open pit will be developed using standard drill and blast technology. Ore will be transported from the open pit by haul truck and delivered to the first stage crushing plant (the primary crusher), situated on the north side of the open pit rim. Waste rock will be removed from the open pit by haul truck and delivered to one of two WRSAs (Platinum Gulch or Eagle Pup WRSAs) or will be used as haul road and infrastructure construction material.

Ore will be crushed to a passing 80 percent (P80) particle size of 6.4 mm in a 3-stage crushing process. All three crushing stages will be located north of the open pit. Ore will be conveyed between the primary crushing station and the secondary and tertiary crushing stations by covered conveyor or enclosed conveyor gallery. After the tertiary crushing stage, ore will be transported by covered conveyor to the HLF area where the ore will be stacked on the heap leach pad via a series of portable conveyors and finally a radial stacking conveyor.

Gold extraction will utilize cyanide heap leaching technology. Process solution containing cyanide will be applied to the ore to extract gold and will then be collected by the HLF leachate collection and recovery system.

Gold-bearing “pregnant” solution (pregnant leach solution [PLS]) will be pumped from the HLF to the gold recovery plant. Gold will be recovered from the PLS by activated carbon adsorption and desorption, followed by electro-winning onto steel cathodes, and on-site smelting to gold doré. This process is referred to as the adsorption, desorption, and recovery (ADR) process. The gold-barren leach solution that remains after passing through the carbon columns will be re-circulated back to the HLF.

### 2.2.1 Ore, Waste and Gold Production

For the reporting period, no material has been removed from the proposed open pit and no gold production has occurred. The total amount of ore and waste to be removed from the open pit over the life of the Project is approximately 86 Mt and 90 Mt, respectively (Table 2.2-1). Figure 2.2-1 shows ore and waste scheduled to be removed from the open pit by year.

Upon the commencement of open pit development, waste rock is scheduled to go to one of two areas:

- Platinum Gulch WRSA: The Platinum Gulch WRSA will be filled within the first three years of production and contain approximately 21.2 Mt.
- Eagle Pup Waste WRSA: The Eagle Pup WRSA will contain the remaining life of mine waste rock.

**Table 2.2-1: Mine Production Schedule**

| | ←Construction | | Operations → | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Year** | **2018** | **2019** | **2019** | **2020** | **2021** | **2022** | **2023** | **2024** | **2025** | **2026** | **2027** | **Total** |
| **ORE MINED** | | | | | | | | | | | | |
| Ore to Crusher (kt) | 0 | 0 | 3,486 | 10,933 | 10,949 | 10,948 | 10,932 | 11,031 | 11,071 | 10,973 | 5,677 | **86,000** |
| Ore Grade (g/t) | - | 0 | 0.7 | 0.7 | 0.8 | 0.76 | 0.77 | 0.69 | 0.65 | 0.59 | 0.58 | **0.69** |
| Contained (koz) | 0 | 0 | 85 | 247 | 293 | 273 | 282 | 262 | 244 | 221 | 113 | **2,020** |
| Recovered (koz) | 0 | 0 | 66 | 187 | 219 | 209 | 203 | 188 | 169 | 154 | 79 | **1,474** |
| **WASTE MINED** | | | | | | | | | | | | |
| Eagle Pup Waste (kt) | 0 | 0 | 0 | 0 | 5,148 | 18,536 | 15,019 | 9,320 | 7,138 | 7,845 | 5,837 | **68,843** |
| Platinum Gulch Waste (kt) | 0 | 1,725 | 2,595 | 6,575 | 10,357 | 0 | 0 | 0 | 0 | 0 | 0 | **21,252** |
| **Total Waste Mined (kt)** | - | 1,725 | 2,595 | 6,575 | 15,505 | 18,536 | 15,019 | 9,320 | 7,138 | 7,845 | 5,837 | **90,095** |
| **TOTAL MATERIAL MINED (kt)** | - | 1,725 | 6,081 | 17,508 | 26,454 | 29,484 | 25,951 | 20,351 | 18,209 | 18,818 | 11,514 | **176,095** |

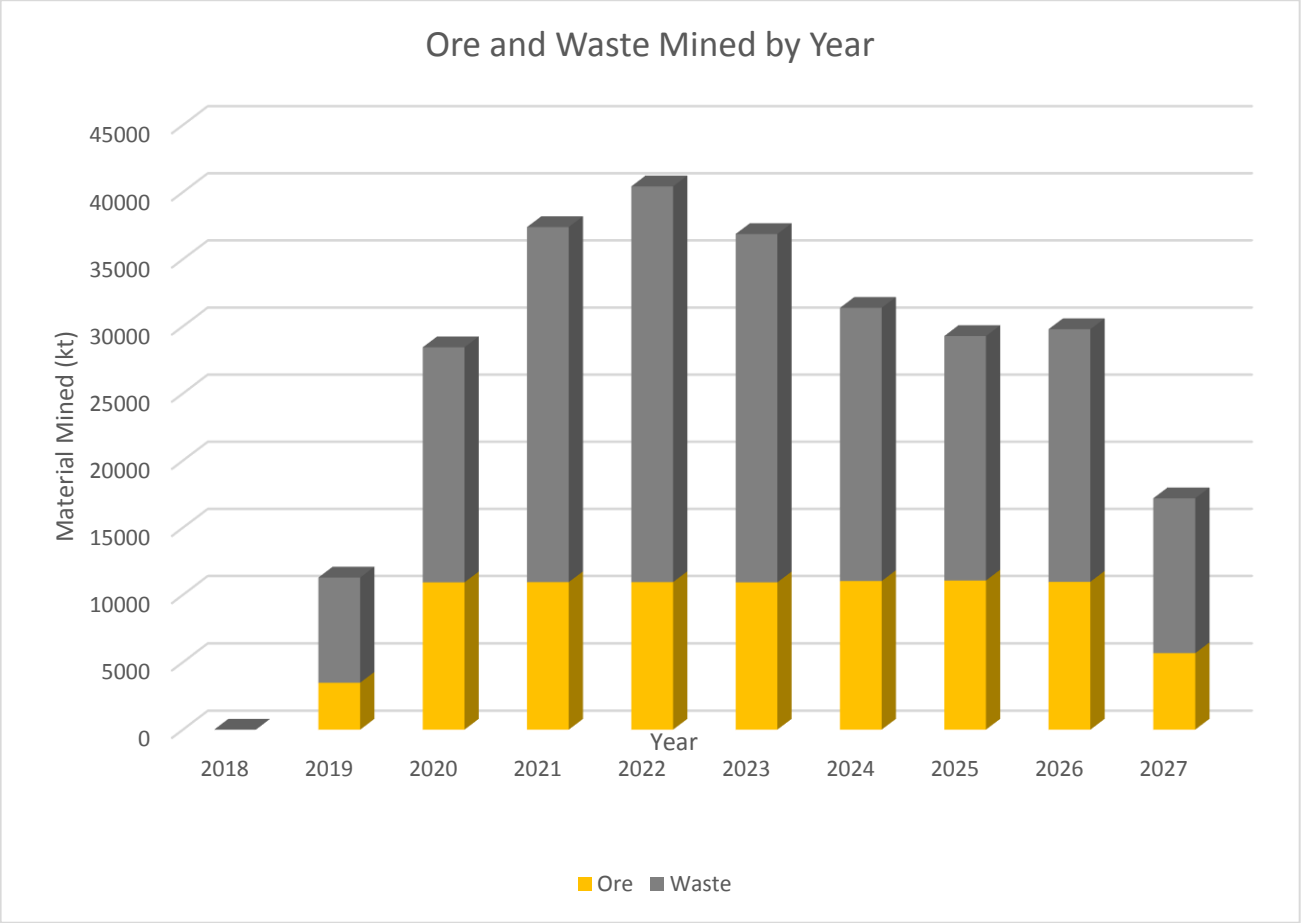



**Figure 2.2-1: Ore and Waste Mined by Year Reserves and Mine Life Update**

## 2.2.2 Reserve and Mine Life Update

A mineral resource and reserve estimate for the Eagle Pit was prepared in 2016 and publicly disclosed in the "NI 43-101 Feasibility Study Technical Report for the Eagle Project, Yukon Territory, Canada" (FS) prepared by JDS Energy & Mining Inc. (JDS), published September 12, 2016. The mineral resource estimate has been classified as "Measured", "Indicated" and Inferred" according to the Canadian Institute of Mining and Metallurgy (CIM) "CIM Standards on Mineral Resources and Reserves: Definitions and Guidelines" (May 2014). The current Eagle mineral resources (Table 2.2-1) are reported as in-pit resources at a cut-off grade of 0.15 g/t Au.

**Table 2.2-2: Constrained Eagle Deposit Mineral Resources Estimate**

| Classification | Quantity (Mt) | In situ Gold Grade (g/t) | Contained Gold (koz) |
|---|---|---|---|
| Measured | 29.4 | 0.81 | 761 |
| Indicated | 151.3 | 0.59 | 2,870 |
| **Combined** | **180.7** | **0.63** | **3,631** |

| Classification | Quantity (Mt) | In situ Gold Grade (g/t) | Contained Gold (koz) |
|---|---|---|---|
| Inferred | 17.4 | 0.49 | 276 |

Source: JDS 2016.

**NOTES:**

1. Eagle Deposit Mineral Resources estimate only
2. Mineral Resources are estimated at a cut-off of 0.15 g/t Au
3. Gold price used for this estimate was US$1,700/oz
4. High-grade caps were applied as per the text of JDS 2016
5. Specific gravity was estimated for each block based on measurements taken from core specimens
6. Resources are In-pit resources as defined by pit parameters described in the text of JDS 2016
7. Mineral Resources are not Mineral Reserves and do not have demonstrated economic viability. There is no certainty that all or any part of the Mineral Resources estimated will be converted into Mineral Reserves. The estimate of Mineral Resources may be materially affected by environmental, permitting, legal, title, taxation, socio-political, marketing, or other relevant issues
8. The quantity and grade of reported Inferred Resources in this estimation are uncertain in nature and there has been insufficient exploration to define these Inferred Resources as an Indicated or Measured Mineral Resource and it is uncertain if further exploration will result in upgrading them to an Indicated or Measured Mineral Resource category

Mineral reserve estimates (Table 2.2-3) are based on the mineral resource estimate, and developed by determining the optimum and practical mining method. Cut-off grades were then determined based on appropriate design criteria and the adopted mining method (JDS 2016).

**Table 2.2-3: Eagle Deposit Mineral Reserve Estimate**

| Classification | Quantity (Mt) | Diluted Gold Grade(g/t) | Contained Gold (koz) |
|---|---|---|---|
| Proven | 27 | 0.80 | 685 |
| Probable | 90 | 0.62 | 1,778 |
| **Total** | **116** | **0.66** | **2,463** |

Source: JDS 2016.

**NOTES:**

1. Eagle Deposit Mineral Resources estimate only
2. Mineral Reserves are included within Mineral Resources

The reserve and mine life update since the FS discussed herein has not been presented to any regulatory body for formal consideration within the context of any regulatory approval. The discussion below has been provided to comply with the annual reporting requirements of the existing licenses for the Project.

On December 5, 2018 an update to the Eagle Gold mineral resource was undertaken by the company with the assistance of Independent Qualified Person Marc Jutras, P.Eng., M.A.Sc., Principal, Ginto Consulting Inc. The resource update resulted in a 12.4% increase in Measured and indicated gold ounces as well as a 2.4% increase in gold grade. The resource update includes all Eagle and Eagle proximal drilling completed after the 2016 FS–discussed above. The first principles re-estimation of the Eagle gold domain and grade validates the Eagle model and resulted in increased gold grade, tonnage and total gold ounces. The resource increased 450,000 oz gold in the Measured and Indicated categories. Gold grade remains consistent with the 2016 Resource Estimate published in the FS. Table 2.2- provides the 2018 Eagle Mineral Resource Estimate.

**Table 2.2-4: Eagle Mineral Resource* Estimate at a 0.15 g/t Au Cut-Off - Effective November 16, 2018 - Inclusive of Mineral Reserves**

| Classification | Quantity (t) | Average Gold Grade (g/t) | Contained Gold (oz) |
|---|---|---|---|
| Measured | 36,061,386 | 0.715 | 828,971 |
| Indicated | 162,658,881 | 0.622 | 3,252,813 |
| **Combined (Measured + Indicated)** | **198,720,267** | **0.639** | **4,082,573** |
| Inferred | **12,780,597** | **0.498** | **204,631** |

* Mineral resources are not mineral reserves and do not have demonstrated economic viability. There is no certainty that all or any part of the mineral resources estimated will be converted into mineral reserves. The estimate of mineral resources may be materially affected by environmental, permitting, legal, title, taxation, socio-political, marketing, or other relevant issues. The CIM definitions were followed for the classification of indicated and inferred mineral resources. The quantity and grade of reported inferred mineral resources in this estimation are uncertain in nature and there has been insufficient exploration to define these inferred mineral resources as an indicated mineral resource and it is uncertain if further exploration will result in upgrading them to an indicated mineral resource category. The updated Resource was constrained in the 2016 FS Resource pit

# 2.3 PROPOSED DEVELOPMENT & PRODUCTION IN 2019

## 2.3.1 Construction

Construction activities in 2019 are intended to support the start of the Production Phase with a goal of producing first goal in H2 2019. A detailed schedule of 2019 construction activities is provided in Table 2.3-1. The current schedule is subject to contractor and material availability, regulatory approvals and ongoing consideration of workforce loading and capital deployment.

**Table 2.3-1: 2019 Construction Schedule**

| Activity | Start | Finish | 2019 | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | J | F | M | A | M | J | J | A | S | O |
| **Mine Equipment Assembly** | **Jul-18** | **Mar-19** | | | | | | | | | | |
| 16M Grader - Assembly & Commissioning | Jan-19 | Jan-19 | | | | | | | | | | |
| 993K Front End Loader - Assembly & Commissioning | Jan-19 | Feb-19 | | | | | | | | | | |
| D10T Track Dozer - Assembly & Commissioning | Mar-19 | Mar-19 | | | | | | | | | | |
| Small Rock Drill - Assembly & Commissioning | Mar-19 | Mar-19 | | | | | | | | | | |
| **Camp Complex Phase 2** | **May-18** | **Jun-19** | | | | | | | | | | |
| Camp Complex | May-18 | Jun-19 | | | | | | | | | | |
| Camp Complex - Install Mine Dry | May-19 | Jun-19 | | | | | | | | | | |
| **Lower Dublin South Pond** | **Aug-17** | **Mar-19** | | | | | | | | | | |
| LDSP - Ditch B inlet construction | Feb-19 | Mar-19 | | | | | | | | | | |
| **Surface Water Ditches** | **Oct-18** | **Mar-19** | | | | | | | | | | |
| Ditch A - - Excavation & Rip-Rap and inlet construction | Oct-18 | Feb-19 | | | | | | | | | | |
| Ditch A - Pipe Fusing & Installation | Feb-19 | Mar-19 | | | | | | | | | | |
| Ditch C - Excavation & Rip-Rap | Feb-19 | Mar-19 | | | | | | | | | | |

| Activity | Start | Finish | 2019 J | F | M | A | M | J | J | A | S | O |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **ADR Plant** | **Jul-18** | **Jun-19** | | | | | | | | | | |
| ADR Plant Building Envelope | Jul-18 | Mar-19 | | | | | | | | | | |
| Process Plant Building - Install Utility Supports | Dec-18 | Jan-19 | | | | | | | | | | |
| Process Plant Building - Interior Partitions & Finishes | Mar-19 | Mar-19 | | | | | | | | | | |
| ADR Plant Building Utilities | Jan-19 | Jun-19 | | | | | | | | | | |
| ADR Plant Utilities - Install Air Compressors | Jan-19 | Feb-19 | | | | | | | | | | |
| ADR Plant Utilities - Place & Energize E-House | Jan-19 | Feb-19 | | | | | | | | | | |
| ADR Plant Utilities - Install Fire Suppression | Jan-19 | Mar-19 | | | | | | | | | | |
| ADR Plant Utilities - Run Compressed Air Piping | Feb-19 | Mar-19 | | | | | | | | | | |
| ADR Plant Utilities - Erect Process/Fire Water Tank | Mar-19 | Mar-19 | | | | | | | | | | |
| ADR Plant Utilities - Install & Verify Fire Detection Devices | Apr-19 | Apr-19 | | | | | | | | | | |
| ADR Plant Utilities - Install Security Infrastructure | May-19 | Jun-19 | | | | | | | | | | |
| ADR Plant Control System | Mar-19 | Jun-19 | | | | | | | | | | |
| ADR Plant Control System - Install Control Rooms | Mar-19 | Mar-19 | | | | | | | | | | |
| ADR Plant Control System - Installation | Mar-19 | Jun-19 | | | | | | | | | | |
| Carbon Adsorption | Oct-18 | Apr-19 | | | | | | | | | | |
| Carbon Adsorption - Install Pumps & Samplers | Dec-18 | Feb-19 | | | | | | | | | | |
| Carbon Adsorption - Install Piping | Jan-19 | Mar-19 | | | | | | | | | | |
| Carbon Adsorption - Electrical | Jan-19 | Apr-19 | | | | | | | | | | |
| Carbon Adsorption - Instrumentation | Mar-19 | Apr-19 | | | | | | | | | | |
| Acid Wash, Elution & Carbon Regen | Jan-19 | Apr-19 | | | | | | | | | | |
| Acid Wash, Elution & Carbon Regen - Mechanical Installation | Jan-19 | Feb-19 | | | | | | | | | | |
| Acid Wash, Elution & Carbon Regen - Install Piping | Mar-19 | Apr-19 | | | | | | | | | | |
| Acid Wash, Elution & Carbon Regen - Electrical | Mar-19 | Apr-19 | | | | | | | | | | |
| Acid Wash, Elution & Carbon Regen - Instrumentation | Mar-19 | Apr-19 | | | | | | | | | | |
| Reagent Systems | Jan-19 | Mar-19 | | | | | | | | | | |
| Reagent Systems - Mechanical Installations | Jan-19 | Mar-19 | | | | | | | | | | |
| Reagent Systems - Electrical | Feb-19 | Mar-19 | | | | | | | | | | |
| Reagent Systems - Mechanical Installations | Mar-19 | Mar-19 | | | | | | | | | | |
| Electrowinning & Refining | Dec-18 | May-19 | | | | | | | | | | |
| Electrowinning & Refining - Interior Architectural | Dec-18 | Jan-19 | | | | | | | | | | |
| Electrowinning & Refining - Mechanical Installations | Feb-19 | Apr-19 | | | | | | | | | | |
| Electrowinning & Refining - Electrical | Apr-19 | May-19 | | | | | | | | | | |
| Electrowinning & Refining - Instrumentation | Apr-19 | May-19 | | | | | | | | | | |
| Barren Solution Storage & Distribution | Nov-18 | Jun-19 | | | | | | | | | | |
| Barren Solution Storage & Distribution - Install Barren Solution Pumps | Jan-19 | Feb-19 | | | | | | | | | | |

| Activity | Start | Finish | 2019 J | F | M | A | M | J | J | A | S | O |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Barren Solution Storage & Distribution - Interior Piping | Feb-19 | Mar-19 | | | | | | | | | | |
| Barren Solution Storage & Distribution - Barren Solution Boiler | Mar-19 | Apr-19 | | | | | | | | | | |
| Barren Solution Storage & Distribution - Electrical | Apr-19 | May-19 | | | | | | | | | | |
| Barren Solution Storage & Distribution - Instrumentation | Apr-19 | May-19 | | | | | | | | | | |
| Barren Solution Storage & Distribution - Overland Piping | May-19 | Jun-19 | | | | | | | | | | |
| **Crusher Area** | **Mar-18** | **Jun-19** | | | | | | | | | | |
| Primary Crushing | Aug-18 | Jun-19 | | | | | | | | | | |
| Primary Crushing - Structural Steel & Mechanical Rough Set | Dec-18 | Feb-19 | | | | | | | | | | |
| Primary Crushing - Cladding & Architectural | Feb-19 | Feb-19 | | | | | | | | | | |
| Primary Crushing - Install Primary Crusher Discharge | Dec-18 | Mar-19 | | | | | | | | | | |
| Primary Crushing - Install Fire Protection Systems | Feb-19 | Apr-19 | | | | | | | | | | |
| Primary Crushing - Interior Mechanical Installations | Dec-18 | May-19 | | | | | | | | | | |
| Primary Crushing - Electrical & Instrumentation Installations | Feb-19 | May-19 | | | | | | | | | | |
| Primary Crushing - MSE Wall Installation | Apr-19 | Jun-19 | | | | | | | | | | |
| Coarse Ore Handling & Reclaim | Aug-18 | May-19 | | | | | | | | | | |
| Coarse Ore Handling - Structural Steel & Mechanical Rough Set | Dec-18 | Feb-19 | | | | | | | | | | |
| Coarse Ore Handling - Mechanical | Mar-19 | May-19 | | | | | | | | | | |
| Coarse Ore Handling - Install CV-002 (Stockpile Feed) | Jan-19 | Feb-19 | | | | | | | | | | |
| Coarse Ore Handling - Transfer Tower #1 Structural Steel Installation | Jan-19 | Feb-19 | | | | | | | | | | |
| Coarse Ore Handling - Install CV-003 (Winter Feed) | Mar-19 | Mar-19 | | | | | | | | | | |
| Coarse Ore Handling - Install CV-013 (Secondary Feed) | Jan-19 | Apr-19 | | | | | | | | | | |
| Coarse Ore Handling - Reclaim Tunnel Structural Backfill (Part 2) | May-19 | May-19 | | | | | | | | | | |
| Secondary & Tertiary Crushing | Jul-18 | May-19 | | | | | | | | | | |
| Sec/Ter Crushing - Erect East Wall Columns & Girts | Jan-19 | Feb-19 | | | | | | | | | | |
| Sec/Ter Crushing - Place Overhead Crane | Feb-19 | Feb-19 | | | | | | | | | | |
| Sec/Ter Crushing - Erect N/S/W Wall Columns & Girts | Jan-19 | Feb-19 | | | | | | | | | | |
| Sec/Ter Crushing - Pre-Assemble & Erect Roof | Feb-19 | Mar-19 | | | | | | | | | | |
| Sec/Ter Crushing - Wall Cladding | Feb-19 | Mar-19 | | | | | | | | | | |
| Sec/Ter Crushing - Roof Cladding | Mar-19 | Mar-19 | | | | | | | | | | |
| Sec/Ter Crushing - Place E-Houses & Transformers | Mar-19 | Mar-19 | | | | | | | | | | |
| Sec/Ter Crushing - Erect Fire Water Tank | Mar-19 | Apr-19 | | | | | | | | | | |
| Sec/Ter Crushing - Building Services (Lights, Heat, FW) | Mar-19 | Apr-19 | | | | | | | | | | |
| Sec/Ter Crushing - Interior Steel & Rough Set | Oct-18 | Feb-19 | | | | | | | | | | |
| Sec/Ter Crushing - Secondary Steel, Grating & Handrail | Nov-18 | Apr-19 | | | | | | | | | | |
| Sec/Ter Crushing - Mechanical Installations | Nov-18 | May-19 | | | | | | | | | | |

| Activity | Start | Finish | 2019 | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | J | F | M | A | M | J | J | A | S | O |
| Sec/Ter Crushing - Electrical & Instrumentation Installations | Mar-19 | May-19 | | | | | | | | | | |
| Transfer Conveyors | Oct-18 | May-19 | | | | | | | | | | |
| Transfer Conveyors - Erect Transfer Tower #2 | Mar-19 | Mar-19 | | | | | | | | | | |
| Transfer Conveyors - Erect Transfer Tower #3 | Mar-19 | Apr-19 | | | | | | | | | | |
| Transfer Conveyors - Install CV-017 | Jan-19 | Apr-19 | | | | | | | | | | |
| Transfer Conveyors - Install CV-016 | Dec-18 | Apr-19 | | | | | | | | | | |
| Transfer Conveyors - Electrical & Instrumentation | Apr-19 | May-19 | | | | | | | | | | |
| Transfer Conveyors - Install CV-019 | Mar-19 | May-19 | | | | | | | | | | |
| Tertiary Stockpile | Aug-18 | Mar-19 | | | | | | | | | | |
| Tertiary Stockpile - Erect Stockpile Cover | Feb-19 | Mar-19 | | | | | | | | | | |
| **Fine Ore Conveying** | **Jun-18** | **Aug-19** | | | | | | | | | | |
| Fine Ore Conveying - Install Lime Silo | Jan-19 | Jan-19 | | | | | | | | | | |
| Fine Ore Conveying - Place Transformers & E-House | Mar-19 | Mar-19 | | | | | | | | | | |
| Fine Ore Conveying - Erect Transfer Tower #4 | Apr-19 | May-19 | | | | | | | | | | |
| Fine Ore Conveying - Install CV-022 (Overland) | Jan-19 | May-19 | | | | | | | | | | |
| Fine Ore Conveying - Electrical & Instrumentation | Apr-19 | May-19 | | | | | | | | | | |
| Fine Ore Conveying - Install CV-023 (Heap Feed) | Apr-19 | May-19 | | | | | | | | | | |
| Fine Ore Conveying - Assemble & Test Grasshopper Components | Jul-19 | Aug-19 | | | | | | | | | | |
| **Explosives Storage Area** | **Jul-18** | **Mar-19** | | | | | | | | | | |
| AN Storage Facility - Foundation Preparation | Jan-19 | Feb-19 | | | | | | | | | | |
| AN Storage Facility - Building & Equipment Installation | Feb-19 | Mar-19 | | | | | | | | | | |
| **Heap Leach Facility** | **Aug-17** | **Jul-19** | | | | | | | | | | |
| Heap Leach Facility - Embankment | Mar-18 | May-19 | | | | | | | | | | |
| HLF Sump - Install Monitoring Vault | May-19 | May-19 | | | | | | | | | | |
| Heap Leach Facility - In-Heap Pond | Apr-18 | Jun-19 | | | | | | | | | | |
| HLF In-Heap Pond - Install Liner | Sep-18 | Jan-19 | | | | | | | | | | |
| HLF In-Heap Pond - Install PLS Sump Piping | Apr-19 | May-19 | | | | | | | | | | |
| HLF In-Heap Pond - Install LDRS & PLS Pump Casings | May-19 | Jun-19 | | | | | | | | | | |
| HLF In-Heap Pond - Install PLS Collection Piping & Place Overliner | May-19 | Jun-19 | | | | | | | | | | |
| Heap Leach Facility - Pad Construction | Nov-18 | Aug-19 | | | | | | | | | | |
| HLF Pad Construction - Stripping & Shaping | Nov-18 | Jan-19 | | | | | | | | | | |
| HLF Pad Construction - Construct Interceptor Ditch | Jan-19 | Feb-19 | | | | | | | | | | |
| HLF Pad Construction - Complete Underdrain System | Jan-19 | Mar-19 | | | | | | | | | | |
| HLF Pad Construction - Install Liner System | May-19 | Jul-19 | | | | | | | | | | |
| HLF Pad Construction - Install Solution Collection Piping | Jun-19 | Aug-19 | | | | | | | | | | |

| Activity | Start | Finish | 2019 | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | J | F | M | A | M | J | J | A | S | O |
| HLF Pad Construction - Place Overliner | Jun-19 | Aug-19 | | | | | | | | | | |
| Heap Leach Facility - Events Pond | Apr-18 | Jun-19 | | | | | | | | | | |
| Event Ponds - Snow Clearing & Preparation | Mar-19 | Mar-19 | | | | | | | | | | |
| Event Ponds - Install LDRS Pump Casings & Backfill | Apr-19 | Apr-19 | | | | | | | | | | |
| Event Ponds - Install Liner System | Apr-19 | May-19 | | | | | | | | | | |
| Event Ponds - Install Spillway Armouring | May-19 | May-19 | | | | | | | | | | |
| Event Ponds - Install Spillway & Pond Fencing | Jun-19 | Jun-19 | | | | | | | | | | |
| Heap Leach Facility - Pregnant Solution Pumping | Jun-19 | Jul-19 | | | | | | | | | | |
| Pregnant Solution Pumping - Install PLS Pumps & Header | Jun-19 | Jul-19 | | | | | | | | | | |
| Pregnant Solution Pumping - Install Overland Piping | Jun-19 | Jul-19 | | | | | | | | | | |
| **Power Supply** | **Jul-18** | **Apr-19** | | | | | | | | | | |
| Power Supply - 69 kV Transmission Line | Jul-18 | Jan-19 | | | | | | | | | | |
| 69kV Transmission Line - Foundations & Civil Work | Sep-18 | Jan-19 | | | | | | | | | | |
| 69kV Transmission Line - Assemble & Install Structures | Sep-18 | Jan-19 | | | | | | | | | | |
| 69kV Transmission Line - String 69 kV Conductor | Oct-18 | Jan-18 | | | | | | | | | | |
| 69kV Transmission Line - String Fibre | Oct-18 | Jan-19 | | | | | | | | | | |
| Power Supply - 13.8kV Distribution | Jan-19 | Feb-19 | | | | | | | | | | |
| 13.8kV Distribution - Substation Feeders to OH Crossing | Jan-19 | Feb-19 | | | | | | | | | | |
| 13.8kV Distribution - Overhead Line to ADR | Jan-19 | Feb-19 | | | | | | | | | | |
| 13.8kV Distribution - Overhead Line to Crusher | Jan-19 | Feb-19 | | | | | | | | | | |
| Power Supply - 69 kV On-Site Substation | Feb-19 | Apr-19 | | | | | | | | | | |
| 69 kV On-Site Substation - Assemble & Oil Transformers | Feb-19 | Feb-19 | | | | | | | | | | |
| 69 kV On-Site Substation - Place Balance of Equipment | Mar-19 | Mar-19 | | | | | | | | | | |
| 69 kV On-Site Substation - Electrical Installations | Mar-19 | Mar-19 | | | | | | | | | | |
| 69 kV On-Site Substation - Install Yard Fencing | Apr-19 | Apr-19 | | | | | | | | | | |
| Power Supply - 69 kV McQuesten Substation | Jan-19 | Apr-19 | | | | | | | | | | |
| 69 kV McQuesten Substation - Install & Test | Jan-19 | Apr-19 | | | | | | | | | | |
| 69 kV McQuesten Substation - Telecom & Controls | Mar-19 | Apr-19 | | | | | | | | | | |
| 69 kV McQuesten Substation - Tie in Power Lines | Apr-19 | Apr-19 | | | | | | | | | | |
| Power Supply - 13.8kV On-Site Power Generation | Feb-19 | Apr-19 | | | | | | | | | | |
| 13.8kV On-Site Power Generation - Place Generators & E-House | Feb-19 | Feb-19 | | | | | | | | | | |
| 13.8kV On-Site Power Generation - Mechanical Tie-Ins | Feb-19 | Mar-19 | | | | | | | | | | |
| 13.8kV On-Site Power Generation - Electrical & Control Tie-Ins | Mar-19 | Apr-19 | | | | | | | | | | |
| **Ancillary Facilities** | **Aug-17** | **Jun-19** | | | | | | | | | | |
| Shops & Warehouses | Jul-18 | Sep-18 | | | | | | | | | | |
| Fuel Storage & Distribution - Various Locations | Oct-17 | Mar-19 | | | | | | | | | | |

| Activity | Start | Finish | 2019 J | F | M | A | M | J | J | A | S | O |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Assay Laboratory | Feb-19 | Mar-19 | | | | | | | | | | |
| Waste Management - Various Locations | Aug-17 | Apr-19 | | | | | | | | | | |
| **Commissioning** | **Sep-18** | **Sep-19** | | | | | | | | | | |
| Utilities | Apr-19 | Jun-19 | | | | | | | | | | |
| 69kV On-Site Substation - Pre-Operational Testing | Apr-19 | Apr-19 | | | | | | | | | | |
| 13.8kV Power Supply - Generator Commissioning & Load Testing | Apr-19 | Apr-19 | | | | | | | | | | |
| 13.8kV Power Supply - Generator Power Available (5MW) | | Apr-19 | | | | | | | | | | |
| 69kV Power Supply - YEC Power Energized at McQuesten | | Apr-19 | | | | | | | | | | |
| 69kV Power Supply - Integrated System Commissioning | May-19 | Jun-19 | | | | | | | | | | |
| 69kV Power Supply - On-Site Grid Power Available | | Jun-19 | | | | | | | | | | |
| Crushing | May-19 | Jul-19 | | | | | | | | | | |
| Primary Crusher - Construction Release | | May-19 | | | | | | | | | | |
| Coarse Ore Handling System - Construction Release | | May-19 | | | | | | | | | | |
| Overland Conveying - Construction Release | | May-19 | | | | | | | | | | |
| Transfer Conveyors - Construction Release | | May-19 | | | | | | | | | | |
| Secondary/Tertiary - Construction Release | | May-19 | | | | | | | | | | |
| Coarse Ore Handling System - Pre-Operational Testing | May-19 | Jun-19 | | | | | | | | | | |
| Overland Conveying - Pre-Operational Testing | May-19 | Jun-19 | | | | | | | | | | |
| Primary Crusher - Pre-Operational Testing | May-19 | Jun-19 | | | | | | | | | | |
| Transfer Conveyors - Pre-Operational Testing | May-19 | Jun-19 | | | | | | | | | | |
| Secondary/Tertiary - Pre-Operational Testing | May-19 | Jun-19 | | | | | | | | | | |
| Introduce Material to Crushing Circuit | | Jul-19 | | | | | | | | | | |
| Leaching & Gold Plant | Apr-19 | Oct-19 | | | | | | | | | | |
| ADR Plant & Pumping Systems - Construction Release | | May-19 | | | | | | | | | | |
| ADR Plant & Pumping Systems - Pre-Operational Testing (Closed Loop) | Apr-19 | Jun-19 | | | | | | | | | | |
| HLF In-Heap Pond Ready for Ore | | Jun-19 | | | | | | | | | | |
| Introduce Cyanide Solution to Heap Leach Pad | | Jul-19 | | | | | | | | | | |
| In-Heap Pond Ore Stacking | Jul-19 | Oct-19 | | | | | | | | | | |
| ADR C4 Commissioning - First Pour | Aug-19 | Aug-19 | | | | | | | | | | |
| First Gold Produced | | Sep-19 | | | | | | | | | | |

### 2.3.2 Commissioning and Operation

In 2019, the Project will be transitioned from construction to operations. To support transitioning from construction to the commissioning phase a formal handover process commences. The handover includes the provision of construction area turnover packages that include all QA/QC, verification and testing documents developed to date. The handover from construction to commissioning follows a certification process as listed below:

- Construction release (C1 Certification)
- System testing of equipment (C2 Certification)
- Wet commissioning (C3 Certification Process Systems Only)
- Site wide integration test run with ore/leach solution (C4 - all Systems)
- Ramp up to sustainable operation (C5)

The certification process is shown below in Figure 2.3-1.




| Function | | Construction Release | Pre-Commissioning | | Commissioning | Ramp-Up |
|---|---|---|---|---|---|---|
| Stage | Commissioning Planning and Setup | C1: Construction Release | C2: System Testing of Equipment | C3: Wet Commissioning | C4: Systems Integration Test Run/Ore Commissioning | C5: Ramp-Up to Sustainable Operations |
| Activity | | Equipment Inspection (Construction Checksheets) | Equipment inspection and testing | System testing | Process start up and testing | Ramp-up |
| Conditions | | Non-energized equipment | Equipment and PCS Energized | Inert materials (water, air) | Process materials (Ore, reagents) | Process materials (Ore, reagents) |
| Example Tasks | | Wiring point to point, cable insulation tests | Loop Tests | Interlock check | Run systems with process materials | Increase throughput to design rate |
| | | Pressure Pipe Tests | Valve Tests | Energize water and air headers | Run complete plant to stability | Complete Performance Testing |
| | | | Motor Function Tests and Run-ins | Pumping system tests with water | | |
| Responsible Person | | Construction Manager | Commissioning Manager | | Project Manager / Commissioning Manager | |
| Responsible Team | | Construction Team | Commissioning Team | | Operations Team / Commissioning Team | |
| Completion Milestone | | Mechanical Completion | System ready for Wet Commissioning | Systems are Ready for Ore/Tie-in | Systems ready for performance testing | Sustainable Operations Achieved |

**Figure 2.3-1: Certification Process**

Specific requirements for each stage in the certification process must be met for the Project site in general to ensure that equipment and process functionality have been achieved.

# 2.4 DESCRIPTION OF WATER USE AND DEPOSIT OF WASTE

## 2.4.1 Description of Water Use

During 2018, groundwater was required for camp operations between March 15 and December 31. Water to supply the camp was sourced from the existing groundwater well located immediately north of the main camp.

The daily volume of water withdrawn from the camp supply well is shown in Figure 2.4-1, and remained below the QZ16-016 daily limit of 157 $m^3$/day.

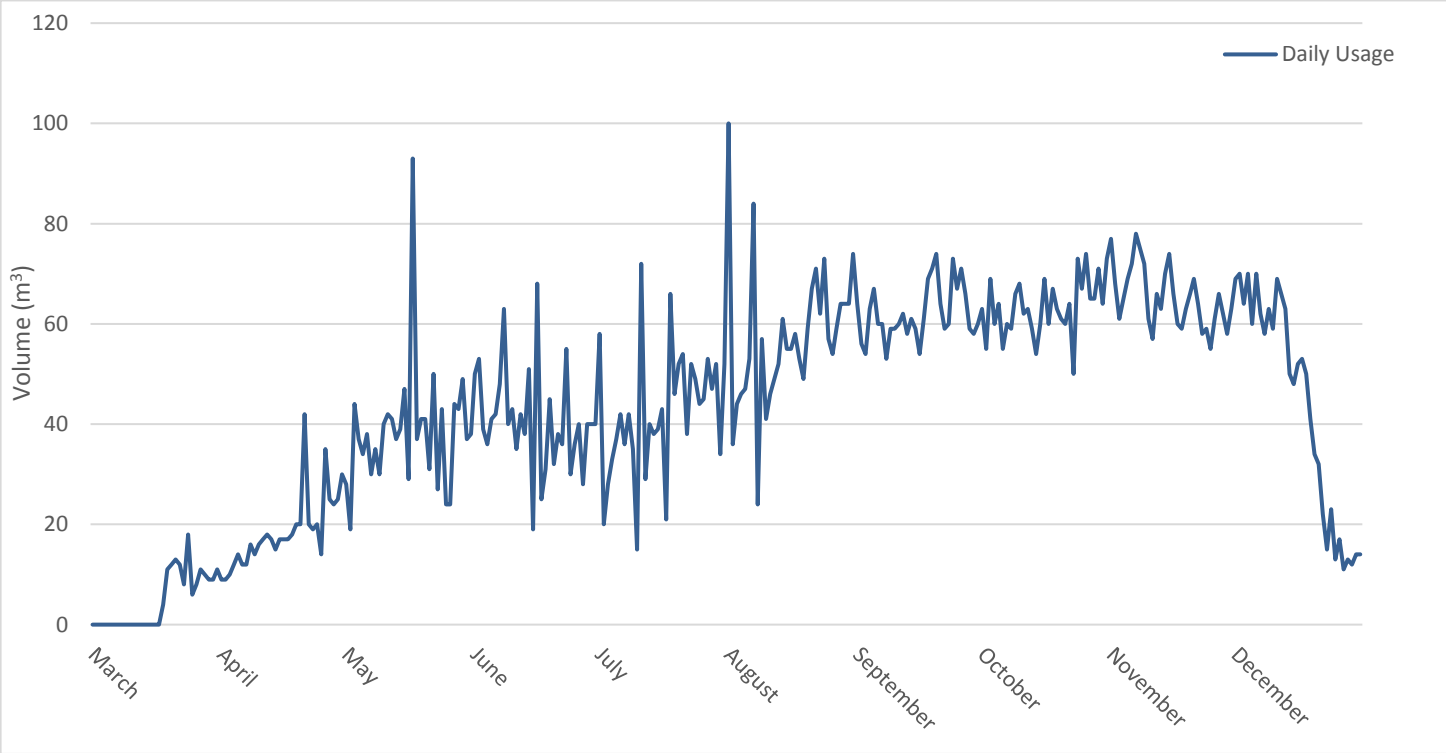



**Figure 2.4-1: Daily Camp Water Usage**

Water was also used for dust suppression and concrete (Figure 2.4-2). Water for dust suppression was sourced from the LDSP between June 20 and October 4, 2018. Water from the LDSP and groundwater was used for concrete production between August 1 and December 14, 2018. There was no water required for process solution or gold elution. Water use remained below the QZ14-014 daily limit of 4,432 $m^3$

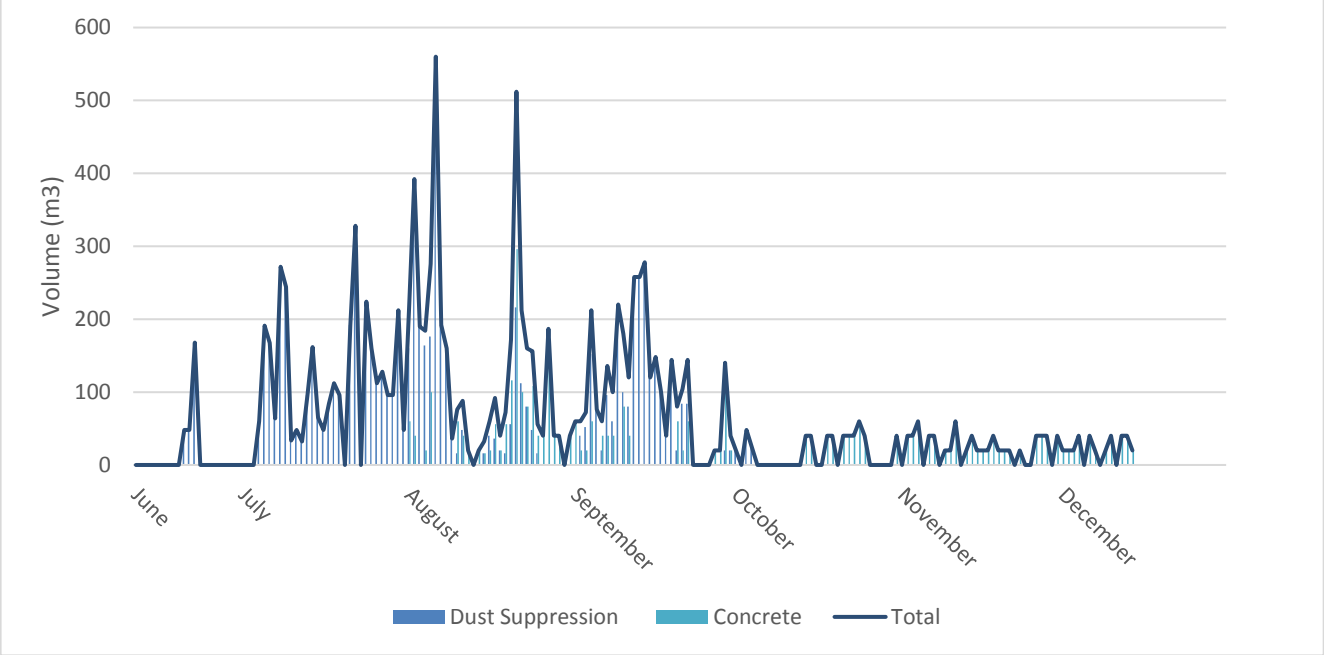



**Figure 2.4-2: Daily Dust Suppression and Concrete Water Usage**

## 2.4.2 Deposit of Waste

There was no deposit of a waste, as defined by the licence, during the construction phase of the Project. All sediment-laden water during the 2018 program has been managed with a combination of exfiltration basins and sediment and erosion control measures such as silt fences.

# 3 ENVIRONMENTAL MONITORING

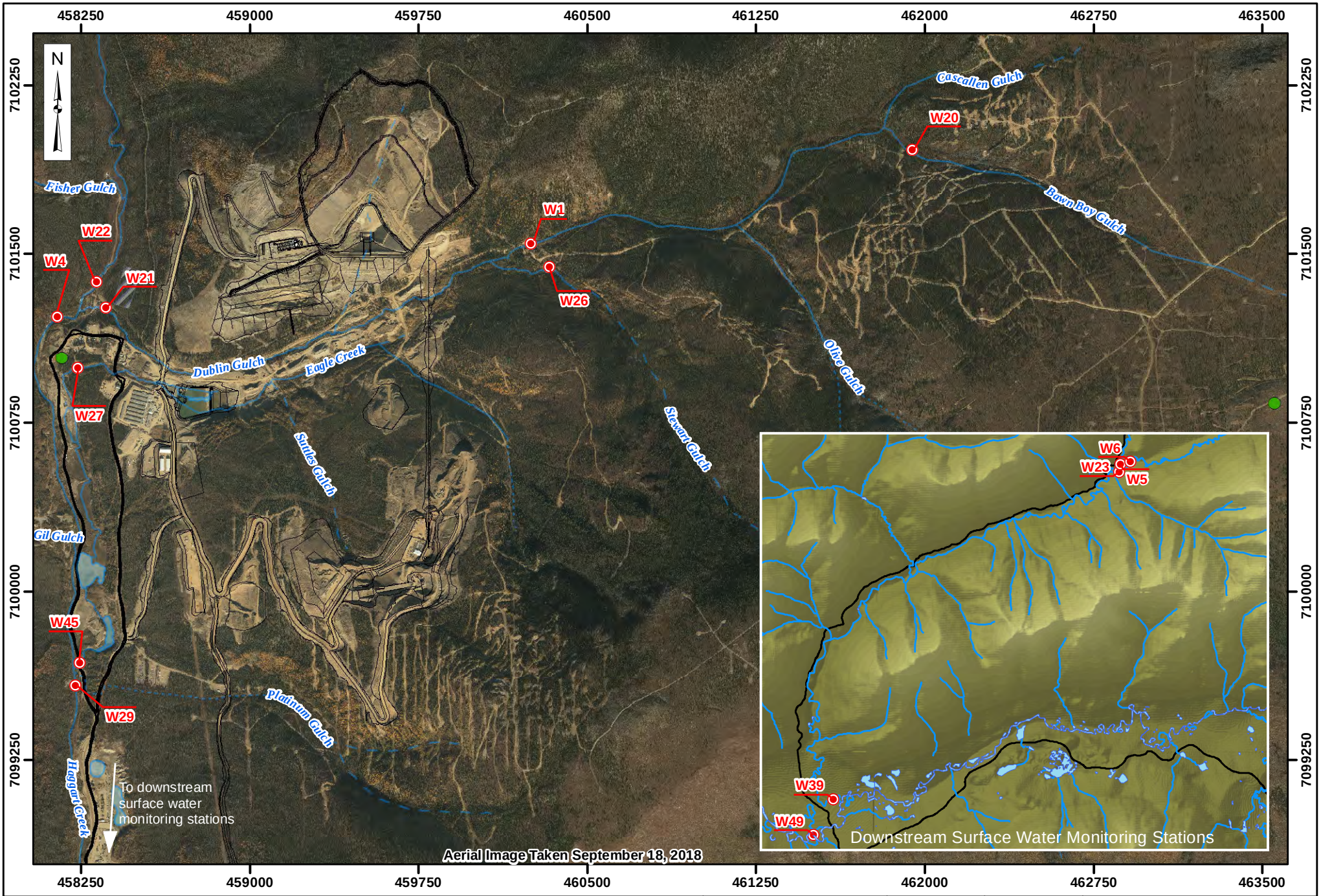
## 3.1 SURFACE WATER HYDROLOGY

The *Streamflow Monitoring Report - 2018 Update* included as Appendix C presents a summary of baseline streamflow data collected for the Project since August 2007, including hydrometric information summarized in previous reports (Stantec 2012; Knight Piésold 2013 and Lorax 2016) and data collected in 2018. Figure 3.1-1 shows the locations of Project hydrometric stations monitored and Table 3.1-1 presents station monitoring records and drainage information for automated stations (stations collecting continuous water level data).

**Table 3.1-1: Automated Project Hydrology Stations Records and Drainage**

| Station | Station Name | Record Period | Drainage Area ($km^2$)[a] | Median Basin Elevation (m)[a] | Notes |
|---|---|---|---|---|---|
| W1 | Dublin Gulch above Stewart Gulch | 2007 – 2018 | 6.8 | 1,303 | Continuous discharge time-series |
| W4 | Haggart Creek below Dublin Gulch | 2007 – 2018 | 76.9 | 1,125 | Continuous discharge time-series |
| W5 | Haggart Creek above Lynx Creek | 2007 – 2018 | 97.5 | 1,091 | Continuous discharge time-series |
| W6 | Lynx Creek above Haggart Creek | 2007 – 2018 | 100.9 | 1,049 | Continuous discharge time-series |
| W21 | Dublin Gulch below Event Ponds | 2018 | 10.1 | 1,216 | Continuous discharge time-series |
| W22 | Haggart Creek above Dublin Gulch | 2007 – 2018 | 66.8 | 1,113 | Continuous discharge time-series |
| W26 | Stewart Gulch | 2007 – 2018 | 1.3 | 1,183 | Continuous discharge time-series<br>Manual data only for 2007–2009, 2011 |
| W27 | Eagle Creek near Camp | 2007 – 2018 | 2.7 | 1,037 | Continuous discharge time-series<br>Manual data only for 2007 |
| W29[b] | Haggart Creek below Eagle Creek | 2010 – 2015 | 86.1 | 1,112 | Manual measurements for 2010<br>Continuous data thereafter |
| W45 | Eagle Creek at Mouth | 2010 – 2015 | 86.1 | 1,112 | Continuous discharge time-series |

**NOTES:**
a. Source of drainage area and median basin elevation: Knight-Piésold, 2013
b. No continuous water level data are available for this station for 2016-2017




Legend:

- Surface Water Monitoring Station
- Climate Station
- 2018 Construction Areas
- Reserved Area
- Perennial
- Ephemeral
- Intermittent

StrataGold Corporation

0 0.5 1 2 3 4
Kilometers

| | | | |
|---|---|---|---|
| Projection: NAD 83 UTM Zone 8N | Drawn By: JK | **EAGLE GOLD PROJECT YUKON TERRITORY** | |
| Date: 2019/04/01 | Figure: 3.1-1 | **2018 Construction Surface Water Monitoring Stations** | |

### 3.1.1 Surface Water Hydrology Monitoring

Streamflow data for the nine stations listed in Table 3.1-1 are presented in Appendix C in the following formats:

- Monthly tables showing average, maximum and minimum 15-minute discharge values ($m^3/s$);
- Monthly tables showing average discharge ($m^3/s$), average unit yields ($L/s/km^2$) and total runoff (mm);
- Time-series plots of continuous average daily discharge ($m^3/s$) and spot flow measurements ($m^3/s$), and;
- Time series plots of average daily unit yields ($L/s/km^2$), by year.

Station W45 only has a water level record for 2018. A preliminary rating curve and continuous discharge could not be developed due to changes that occurred in the vicinity of the station which affected the stage/discharge relationship. The station will be re-installed in 2019.

Issues were encountered with the stage records for 2018 at W27 (flume, water level record issue) and W29 (datalogger failed). Technical issues with W27 flume condition (installed in 2011) due to slow degradation of flume condition (due to recurring icings) and questionable datalogger data (sediment infilling stilling well) resulted in the loss of continuous water level data for 2018. Therefore, only manual measurements are available for this year. Further, there are now three consecutive years with no continuous water level at W29. This station is located in a highly mobile channel that has not reached equilibrium yet, following historical placer mining disturbances, and is therefore challenging to gauge. This streamflow gaging station will be relocated farther downstream in 2019.

Tables 3.1-2 to 3.1-10 below compare the complied streamflow summary statistics (average, minimum and maximum flows) for 2018 to the same statistics compiled over the full period of baseline record. All values are in $m^3/s$. For all stations except W27, flows fall within the normal range of flows for minimums, maximums and average flows. For W27, all measured flows are low and close to but above recorded minimum flows for each month. The reduced flows are directly associated with the diversion of the upper watershed (primarily Eagle Pup) into lower Dublin Gulch to facilitate work in and around the LDSP.

**Table 3.1-2: W1 Comparison of 2018 Summary Statistics to Baseline Record**

| Year | Variable | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2018 | Average | -- | -- | -- | -- | 0.27 | 0.12 | 0.06 | 0.12 | 0.08 | 0.05 | -- | -- |
| | Maximum | -- | -- | -- | -- | 0.42 | 0.47 | 0.15 | 0.31 | 0.13 | 0.13 | -- | -- |
| | Minimum | -- | -- | -- | -- | 0.17 | 0.04 | 0.03 | 0.03 | 0.02 | 0.02 | -- | -- |
| All Years | Average | -- | -- | -- | 0.02 | 0.22 | 0.1 | 0.09 | 0.09 | 0.09 | 0.09 | 0.07 | -- |
| | Maximum | -- | -- | -- | 0.1 | 1.3 | 0.47 | 0.35 | 0.31 | 0.56 | 0.72 | 0.09 | -- |
| | Minimum | -- | -- | -- | 0.002 | 0.001 | 0.025 | 0.001 | 0.017 | 0.008 | 0.00003 | 0.05 | -- |

**Table 3.1-3: W4 Comparison of 2018 Summary Statistics to Baseline Record**

| Year | Variable | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2018 | Average | -- | -- | -- | 0.24 | 1.99 | 1.27 | 0.69 | 1.09 | 0.69 | 0.49 | -- | -- |
| | Maximum | -- | -- | -- | 0.59 | 5.74 | 2.62 | 2.12 | 4.16 | 1.09 | 1.25 | -- | -- |
| | Minimum | -- | -- | -- | 0.15 | 0.14 | 0.6 | 0.38 | 0.38 | 0.26 | 0.3 | -- | -- |
| All Years | Average | -- | -- | -- | 0.24 | 2.02 | 1.02 | 0.82 | 0.87 | 0.89 | 0.8 | 0.85 | -- |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Maximum | -- | -- | -- | 0.59 | 7.03 | 5.41 | 4.83 | 6.65 | 2.7 | 5 | 1.15 | -- |
| | Minimum | -- | -- | -- | 0.15 | 0.06 | 0.31 | 0.09 | 0.16 | 0.02 | 0.02 | 0.56 | -- |

**Table 3.1-4: W5 Comparison of 2018 Summary Statistics to Baseline Record**

| Year | Variable | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2018 | Average | -- | -- | -- | -- | 4.92 | 1.95 | 0.86 | 1.61 | 1.01 | -- | -- | -- |
| | Maximum | -- | -- | -- | -- | 11.42 | 4.8 | 3.15 | 6.82 | 1.71 | -- | -- | -- |
| | Minimum | -- | -- | -- | -- | 1.47 | 0.74 | 0.35 | 0.32 | 0.5 | -- | -- | -- |
| All Years | Average | -- | -- | -- | -- | 3.05 | 1.39 | 1.03 | 1.03 | 1.02 | 1.01 | -- | -- |
| | Maximum | -- | -- | -- | -- | 17.27 | 6.14 | 6.88 | 6.82 | 4.2 | 4.9 | -- | -- |
| | Minimum | -- | -- | -- | -- | 0.82 | 0.26 | 0.23 | 0.16 | 0.12 | 0.08 | -- | -- |

**Table 3.1-5: W6 Comparison of 2018 Summary Statistics to Baseline Record**

| Year | Variable | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2018 | Average | -- | -- | -- | -- | -- | 1.15 | 0.67 | 1.24 | 0.76 | -- | -- | -- |
| | Maximum | -- | -- | -- | -- | -- | 3.2 | 3.13 | 4.88 | 1.22 | -- | -- | -- |
| | Minimum | -- | -- | -- | -- | -- | 0.47 | 0.28 | 0.27 | 0.38 | -- | -- | -- |
| All Years | Average | -- | -- | -- | -- | 3.23 | 1.21 | 0.98 | 1.13 | 1.19 | 0.99 | 0.9 | -- |
| | Maximum | -- | -- | -- | -- | 17.95 | 6.77 | 7.12 | 5.35 | 4.25 | 5.17 | 1.79 | -- |
| | Minimum | -- | -- | -- | -- | 0.57 | 0.14 | 0.04 | 0.27 | 0.25 | 0.11 | 0.39 | -- |

**Table 3.1-6: W21 Summary Statistics for 2018 Preliminary Discharge Record**

| Year | Variable | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2018 | Average | -- | -- | -- | -- | -- | 0.11 | 0.07 | 0.2 | 0.1 | 0.06 | -- | -- |
| | Maximum | -- | -- | -- | -- | -- | 0.29 | 0.27 | 0.35 | 0.19 | 0.25 | -- | -- |
| | Minimum | -- | -- | -- | -- | -- | 0 | 0.01 | 0.13 | 0 | 0 | -- | -- |

**Table 3.1-7: W22 Comparison of 2018 Summary Statistics to Baseline Record**

| Year | Variable | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2018 | Average | -- | -- | -- | -- | 3.33 | 1.54 | 0.72 | 1.02 | 0.6 | -- | -- | -- |
| | Maximum | -- | -- | -- | -- | 7.26 | 3.55 | 2.25 | 3.74 | 0.93 | -- | -- | -- |
| | Minimum | -- | -- | -- | -- | 1.95 | 0.67 | 0.35 | 0.34 | 0.32 | -- | -- | -- |
| All Years | Average | -- | -- | -- | 0.61 | 1.9 | 0.88 | 0.68 | 0.8 | 0.78 | 0.7 | 0.94 | -- |
| | Maximum | -- | -- | -- | 1.45 | 20.63 | 5.29 | 3.2 | 3.93 | 2.85 | 3.33 | 1.34 | -- |
| | Minimum | -- | -- | -- | 0.13 | 0.19 | 0.1 | 0.002 | 0.19 | 0.11 | 0.06 | 0.56 | -- |

**Table 3.1-8: W26 Comparison of 2018 Summary Statistics to Baseline Record**

| Year | Variable | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2018 | Average | -- | -- | -- | -- | -- | -- | 0.005 | 0.013 | 0.01 | -- | -- | -- |
| | Maximum | -- | -- | -- | -- | -- | -- | 0.008 | 0.054 | 0.03 | -- | -- | -- |

| Year | Variable | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Minimum | -- | -- | -- | -- | -- | -- | 0.003 | 0.005 | 0.005 | -- | -- | -- |
| All Years | Average | -- | -- | -- | -- | 0.018 | 0.019 | 0.015 | 0.015 | 0.013 | 0.009 | -- | -- |
| | Maximum | -- | -- | -- | -- | 0.06 | 0.094 | 0.143 | 0.054 | 0.063 | 0.058 | -- | -- |
| | Minimum | -- | -- | -- | -- | 0.01 | 0.0005 | 0.001 | 0.0002 | 0.0006 | 0.004 | -- | -- |

**Table 3.1-9: W27 Comparison of 2018 Summary Statistics to Baseline Record**

| Year | Variable | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2018 | Spot Measurements | -- | -- | -- | -- | 0.006 | 0.002 | 0.004 | 0.004 | 0.006 | -- | -- | -- |
| All Years | Average | -- | -- | -- | -- | 0.092 | 0.040 | 0.030 | 0.024 | 0.023 | 0.026 | -- | -- |
| | Maximum | -- | -- | -- | -- | 0.335 | 0.144 | 0.315 | 0.138 | 0.123 | 0.105 | -- | -- |
| | Minimum | -- | -- | -- | -- | 0.005 | 0.003 | 0.001 | 0.001 | 0.001 | 0.001 | -- | -- |

**Table 3.1-10: W29 Comparison of 2018 Summary Statistics to Baseline Record**

| Year | Variable | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2018 | Spot Measurements | -- | -- | -- | 0.256 | -- | 1.546 | 0.665 | 1.064 | 0.954 | 0.360 | 0.316 | 0.205 |
| All Years | Average | -- | -- | -- | -- | 2.352 | 1.307 | 1.224 | 1.171 | 1.043 | 0.987 | -- | -- |
| | Maximum | -- | -- | -- | -- | 13.604 | 3.766 | 4.497 | 4.955 | 2.818 | 2.623 | -- | -- |
| | Minimum | -- | -- | -- | -- | 0.653 | 0.229 | 0.441 | 0.007 | 0.177 | 0.356 | -- | -- |

**Table 3.1-11: W45 2018 Preliminary Discharge Record**

| Year | Variable | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2018 | Stage | -- | -- | -- | -- | -- | -- | 0.120 | 0.122 | 0.124 | 0.135 | -- | -- |
| | Discharge | -- | -- | -- | -- | -- | -- | 0.006 | 0.006 | 0.006 | 0.006 | -- | -- |

## 3.1.2 Site QA/QC Programs

### 3.1.2.1 Stage Measurements and Corrections

All automated stations are instrumented with metric staff gauges, mounted to vertical angle iron in the stream channel, and regularly surveyed to nearby benchmarks. Continuously recording HOBO pressure transducers are installed in stilling wells and set to record water level every 15 minutes. These readings were corrected for fluctuations in barometric pressure in a post-processing step. During each site visit, water level was noted on the staff gauge. These readings form the basis for the continuous water level records, which were adjusted to match the manual stage readings. Level surveys determine the staff gauge zero datum and water level, and were used to correct the station records for changes due to shifts in the channel bed (i.e., aggradation or scour), frost-jacking or station relocation following a high-magnitude flood event.

### 3.1.2.2 Rating Curve Error

The overall quality of the discharge record can be assessed by reviewing the average and standard errors calculated from the differences between the measured discharges, and those estimated from the rating equation.

A positive rating curve error is defined where the discharge calculated from the rating curve overestimates the value when compared to the measured discharge, and vice-versa for a negative error.

A summary of the error metrics for all stations and rating curve control percentages are presented in Table 3.1-12. Rating curve control values indicate the percent of time that a continuously recorded observation (15-minute intervals) falls between the highest and lowest manually recorded measurements for each monitoring station. Overall, the rating curves provide reasonable estimates of discharge across a wide range of flows at most of the Project stations. Average errors are relatively low, ranging from -5% to 2%. The standard error, or the degree of variability about the average error values varies more between stations. After examining the 2018 data, no adjustments to the rating curves developed in 2017 were necessary and the same curves were applied to the 2018 continuous water level data.

**Table 3.1-12: Rating Curve Error Summary for Project Hydrometric Stations**

| Station | Measurements (n) | Average Error (%) | Standard Error (%) | Rating Curve Control |
|---|---|---|---|---|
| W1 | 36 | -5% | 25% | 98% |
| W4 | 41 | -1% | 14% | 98% |
| W5 | 35 | 2% | 12% | 97% |
| W6 | 31 | -1% | 10% | 96% |
| W21 | 4 | 0% | 7% | 79% |
| W22 | 35 | 0% | 16% | 100% |
| W26 | 26 | -- | -- | 100% |
| W27 | 47 | -- | -- | 100% |
| W29 | 18 | -2% | 10% | 95% |
| **Average** | 34 | -1% | 14% | 97% |

**NOTES:**
Stations W26 and W27 currently have Parshall flumes installed, and therefore rating curves have not been developed for these sites as part of this baseline streamflow update

### 3.1.3 Adaptive Management

Streamflows measured during the development phase in 2018 remained within the range of the long-term minimums and maximums at locations monitored and no thresholds were reached as per the adaptive management plan. As such, adaptive management responses were not required.

## 3.2 SURFACE WATER QUALITY

### 3.2.1 Surface Water Quality Monitoring

Surface water quality monitoring programs are outlined in the Environmental Monitoring, Surveillance and Adaptive Management Plan (EMSAMP). Surface water quality monitoring in 2018 consisted of monitoring those sites as identified for construction phase monitoring in the EMSAMP (Table 3.2-1) which includes all receiving environment locations specified in the regulatory approvals for the Project. Where possible, the 2018 results have been compared to historical results to identify trends and compare 2018 values with previous values.

#### 3.2.1.1 2018 Construction Monitoring Program

The 2018 construction monitoring program included continuing the surveillance of watercourses monitored during baseline studies, and included those locations downstream of the Project where water quality objectives must be met. The program is designed to meet the following objectives:

- Continue to collect water quality data in the receiving environment as the Project transitions from construction to operations at stations upstream and downstream of Project influences.
- Collect water quality data to verify compliance with the discharge criteria specified in QZ14-041.
- Provide a comprehensive water quality database to support adaptive management strategies that are designed to meet water quality compliance criteria and protect aquatic life.

Surface water quality monitoring has two main focuses: effluent quality monitoring and environmental effects monitoring. Effluent quality monitoring is focused on sampling compliance (or discharge) points to verify criteria are met. Environmental effects monitoring focuses on collecting data to evaluate whether water quality objectives are being achieved in the following watersheds:

- Haggart Creek
- Dublin Gulch
- Eagle Creek
- Lynx Creek and
- South McQuesten (at the confluence of Haggart Creek).

The water quality monitoring program is not intended to be a static program; stations will be added or removed according to the conditions and adaptive management as required.

Eleven monthly and three quarterly surface water quality monitoring stations were monitored in 2018 in accordance with the EMSAMP and the regulatory approvals for the Project. An attempt to sample was made each month or quarter at each station as per the licence schedule outlined in Table 3.2-1, however due to frozen conditions or unsafe ice conditions it was not always possible to obtain a sample. These instances were noted and recorded. Complete analytical datasets for all sampled locations for the reporting period are included as Appendix D. During the reporting period there was no discharge of contact water to surface water from any facility thus no development effluent discharge points were established.

**Table 3.2-1: Surface Water Quality Monitoring Locations and Frequency – Construction**

| Station | Location Description | Coordinates (Zone 8) | | Sampling Frequency*** | | | |
|---|---|---|---|---|---|---|---|
| | | | | Field Measurements | | Laboratory Analysis | |
| | | North | East | Turbidity | pH, Temperature, Dissolved Oxygen, Turbidity and Conductivity | Turbidity and Total Suspended Solids | Full Analytical Suite |
| W1 | Dublin Gulch above Stewart | 7101545 | 460249 | - | M | - | M |
| W21 | Dublin Gulch at mouth | 7101261 | 458359 | - | M | - | M |
| W4 | Haggart Creek below Dublin | 7101223 | 458144 | - | M | - | M |
| W22 | Haggart Creek above Project Influence | 7101378 | 458319 | - | M | - | M |

| Station | Location Description | Coordinates (Zone 8) | | Sampling Frequency*** | | | |
|---|---|---|---|---|---|---|---|
| | | | | Field Measurements | | Laboratory Analysis | |
| | | North | East | Turbidity | pH, Temperature, Dissolved Oxygen, Turbidity and Conductivity | Turbidity and Total Suspended Solids | Full Analytical Suite |
| W5 | Haggart Creek above Lynx Creek | 7095888 | 457814 | - | M | - | M |
| W6 | Lynx Creek above Haggart Creek | 7095964 | 458099 | - | Q | - | Q |
| W20 | Bawn Boy Gulch | 7101961 | 461945 | - | M | - | M |
| W23 | Haggart Creek below Lynx Creek | 7095682 | 457790 | - | M | - | M |
| W26 | Stewart Gulch | 7101443 | 460331 | - | M | - | M |
| W27 | Eagle Creek near Camp | 7100997 | 458235 | - | M | - | M |
| W29 | Haggart Creek below Eagle Creek and Platinum Gulch | 7099583 | 458225 | - | M | - | M |
| W39 | Haggart Creek above South McQuesten River | 7086504 | 449780 | - | Q | - | Q |
| W45 | Eagle Creek above Haggart Creek | 7099684 | 458243 | - | M | - | M |
| W49 | South McQuesten River below Haggart Creek | 7085495 | 449221 | - | Q | - | Q |
| EPS | Eagle Pup WRSA Seepage* | 7100909 | 459834 | D | Md | Wd | Md |
| PDI | Platinum Gulch Ditch into Lower Dublin South Pond* | 7099523 | 459184 | D | Md | Wd | Md |
| LDSPI | Lower Dublin South Pond Inflow* | 7100824 | 458926 | D | Md | Wd | Md |
| LDSPO | Lower Dublin South Pond Outflow** | 7100857 | 458672 | D | Md | Wd | Md |
| CS-01 | Sediment Basin - below Lower Process Access Road** | 7101146 | 458528 | D | Md | Wd | Md |
| CS-02 | Sediment Basin – below Truck Shop** | 7101146 | 458476 | D | Md | Wd | Md |
| CS-03 | Sediment Basin - below south infrastructure** | 7098410 | 458407 | D | Md | Wd | Md |
| CS-04 | SB-G4 – below Ice Rich Overburden Storage Area** | 7098627 | 458268 | D | Md | Wd | Md |

**NOTES:**
* Internal transfer points between engineered structures to be monitored as they become active, none became active during the reporting period;

** Effluent discharge points to be monitored as they become active, none were developed during the reporting period.

***D - Daily when discharging; M – Monthly; Md - Monthly when discharging; Q – Quarterly; Wd - Weekly when discharging

### 3.2.2 Water Quality Results

This section discusses water quality for key selected stations in Dublin Gulch (W1, W20, W26 and W21), Eagle Creek (W9 and W27), Haggart Creek (W22, W29, W5 and W23) watersheds including the reference basin of Lynx Creek (W6). Specifically, arsenic, copper, lead, nickel, zinc and total suspended solids (TSS) results are discussed. In the tables below, values in bold are below detection limits.

### 3.2.2.1 TSS

Instantaneous total suspended sediment (TSS) concentrations were measured upstream and downstream of the Project and within the receiving environment during 2018 (Table 3.2-2). As expected TSS in 2018, for all stations monitored, rose during the freshet period (April and May), declined during June and then returned to values reflective of lower flow conditions. For many locations and sampling periods outside of the freshet period, TSS values were generally below detection limit (3.0 mg/L). Of note are the elevated levels of TSS above the Project influence at W20 (Bawn Boy Gulch), which had an effect on elevating the TSS at stations W1 and W21 farther downstream. Because these all represent instantaneous conditions, they likely do not represent peak flows during snowmelt or rain events, nor do they reflect low-flow conditions throughout each month, thus it is likely that both higher and lower TSS values (than those listed in Table 3.2-2) occurred at any given time, except for those times when at the lab detection limit.

The higher levels of TSS during freshet in Haggart Creek are influenced by Dublin Gulch and Eagle Creek, as the reference site W22 (upstream of the confluence of Haggart Creek with Dublin Gulch) generally had lower concentrations compared to W4 and W29. Further downstream in Haggart Creek, the TSS levels were lower due primarily to the effect of increasing catchment size and the mixing of watercourses with lower TSS. While the influence of Dublin Gulch and Eagle Creek on Haggart Creek is consistent with the patterns observed during baseline data collection prior to the commencement of construction of the Project (i.e., the effect of many years of exploration and placer mining in the district), some of the measured maximum TSS values recorded in 2018 are somewhat higher for specific stations. This is likely reflective of an increased overall sample coverage and frequency during 2018 than in previous years during the development of the baseline period. This is supported by the observation that, except for W21, the 2018 median values are approximately the same as the baseline (2007-2017) median values. Further, the median value for any particular stream was generally lower than the average value, indicating the positive skewness of the sample sets, and that high TSS is event driven and not the normal condition.

**Table 3.2-2: Surface Water Quality TSS**

| Month | TSS mg/L | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | W20 | W1 | W21 | W26 | W45 | W27 | W22 | W4 | W29 | W5 | W23 | W6 | W39 |
| 2018 | | | | | | | | | | | | | |
| Jan | 3.4 | 3 | 6.8 | NM | 3 | NS | 3 | 3 | 3 | 3 | 3 | Q | Q |
| Feb | 3.7 | 3 | 31.1 | NM | NM | NM | 3 | 3 | 3 | 3 | 3 | Q | Q |
| Mar | 4.2 | 3 | 3.2 | NM | NM | NM | 3 | 3 | 3 | NM | 3 | 3 | 3 |
| Apr | **3** | 3.3 | NM | NM | 3 | NM | 3 | 6.5 | 157 | 32 | 18 | Q | Q |
| May | 391 | 108 | 238 | 6.7 | * | 100 | 39 | 79 | 121 | 31 | 42 | Q | Q |
| Jun | 25.6 | 61.4 | 61.7 | 3 | 16 | 12 | 24 | 43 | 12 | 17 | 10 | 3.4 | 12 |
| Jul | 15.7 | 4.3 | 6.3 | **3** | 3.3 | 9.9 | 3 | 3 | 3 | 3 | 4.3 | Q | Q |
| Aug | 8 | 3 | 11 | **3** | 3 | 14 | 3.1 | 3 | 3 | 3 | 3 | 3 | 4.2 |
| Sep | 4.2 | 3 | 7.4 | 3 | 3.6 | 3 | 3 | 3 | 3 | 3.9 | 4.1 | 3 | Q |
| Oct | 13 | 7.2 | 21.8 | 5 | 3.4 | 25 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| Nov | 4.2 | 4.4 | NM | **3** | 5.2 | NM | 3 | 3 | 3 | 3 | 3 | Q | Q |

| Month | TSS mg/L | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **W20** | **W1** | **W21** | **W26** | **W45** | **W27** | **W22** | **W4** | **W29** | **W5** | **W23** | **W6** | **W39** |
| Dec | **3** | 3 | 6.4 | 8.3 | 3 | NM | 3 | 3 | 3 | 3 | 3 | Q | Q |
| **Average** | 39.9 | 17.2 | 39.4 | 3.8 | 4.9 | 27.0 | 7.7 | 12.9 | 26.5 | 9.5 | 8.3 | 3.1 | 5.5 |
| **Med** | 4.2 | 3.2 | 9.2 | 3.0 | 3.3 | 14.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.6 |
| **Min** | 3.0 | 3.0 | 3.2 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| **Max** | 391 | 108 | 238 | 6.7 | 16.2 | 99.5 | 38.5 | 78.7 | 157.0 | 31.7 | 41.9 | 3.4 | 11.8 |
| **STDEV** | 106 | 31.7 | 68.3 | 1.4 | 4.1 | 30.6 | 10.9 | 22.7 | 50.9 | 11.0 | 11.0 | 0.2 | 3.7 |
| **Baseline (2007 to 2017)** | | | | | | | | | | | | | |
| **Average** | 5.9 | 9.1 | 6.1 | 8.3 | 17.1 | 337 | 6.0 | 3.1 | 12.4 | 9.5 | 12.9 | 6.9 | 47.6 |
| **Med** | 3.5 | 3.0 | 3.0 | 3.0 | 3.2 | 13.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| **Min** | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| **Max** | 23.0 | 103 | 36.9 | 155.0 | 88.5 | 7850 | 79.9 | 3.5 | 175.0 | 194.0 | 154.0 | 80.7 | 349.0 |
| **STDEV** | 5.2 | 17.5 | 7.9 | 27.3 | 26.6 | 1168 | 11.4 | 0.2 | 30.6 | 31.9 | 34.5 | 14.4 | 98.3 |

**NOTES:** NM – no results, stream frozen; Q - quarterly frequency – no sample; * – value not reported, erroneous value

#### 3.2.2.2 Trace Elements

#### 3.2.2.3 Dublin Gulch Drainage

Surface water quality from streams in the Dublin Gulch watershed is characterized using monitoring data from stations W20, W1, W26 and W21. Data from the upstream reference site W20 at Bawn Boy Gulch has a significant effect on metals concentrations throughout the stream. Samples could not always be collected during the winter at station W26 (Stewart Gulch) as the ice was frozen to the channel bottom (not measurable water flow). In general, average and median monthly concentrations of total and dissolved trace elements were low, except during freshet. Higher concentrations of arsenic, copper, lead, nickel and zinc were observed during peak flow months and are typically associated with elevated TSS levels. The direct of effect of TSS on total metal concentrations was well established prior to construction during the baseline period (2007-2017). Because of the affect of increased TSS on increasing metals concentrations and that high TSS concentrations are event driven, in many cases the median values are significantly lower than the average values. There are some exceptions, most notably with arsenic in W20, which is discussed below.

Further, during all of 2018, upper Eagle Creek basin (which primarily included Eagle Pup and Suttles Gulch) was diverted into Dublin Gulch above W21 (the natural condition prior to placer mining activities). In all cases, the median concentrations of TSS and metals were higher at W21 than W1, and in some cases had higher maximum TSS and metals concentrations than W1. Thus, W21 values reflect the influence of upper Eagle Creek in addition to W20, W26 and W1.

**Arsenic**

Dublin Gulch is characterized by elevated total and dissolved As concentrations throughout its reaches during all flow levels (Table 3.2-3). In all cases in Dublin Gulch, total arsenic levels are directly related to high TSS concentrations (Table 3.2-2) and one of the primary sources of As in Dublin Gulch is Bawn Boy Gulch (monitored

at station W20 upstream of Project influence) (Figure 3.2-1). As an example, average and median total As concentrations were highest at W20 (0.322 mg/L), and were lower in downstream stations.

**Table 3.2-3: Total Arsenic in Dublin Gulch**

| Month | Total Arsenic mg/L | | | |
|---|---|---|---|---|
| | W20 | W1 | W21 | W26 |
| **2018** | | | | |
| Jan | 0.067 | 0.0355 | 0.0436 | - |
| Feb | 0.0678 | 0.029 | 0.0412 | - |
| Mar | 0.0681 | 0.0312 | 0.0459 | - |
| Apr | 0.0671 | 0.035 | - | - |
| May | 0.3220 | 0.0561 | 0.2000 | 0.00955 |
| Jun | 0.0823 | 0.0411 | 0.129 | 0.0174 |
| Jul | 0.0635 | 0.0391 | 0.0383 | 0.0223 |
| Aug | 0.0757 | 0.0413 | 0.0448 | 0.024 |
| Sep | 0.0743 | 0.0408 | 0.0442 | 0.0234 |
| Oct | 0.0715 | 0.0386 | 0.0415 | 0.0164 |
| Nov | 0.0646 | 0.0339 | - | 0.0165 |
| Dec | 0.0645 | 0.0312 | 0.029 | - |
| **Average** | 0.0907 | 0.0377 | 0.0658 | 0.0185 |
| **Min** | 0.0635 | 0.0290 | 0.0290 | 0.0096 |
| **Med** | 0.0680 | 0.0371 | 0.0341 | 0.0174 |
| **Max** | 0.3220 | 0.0561 | 0.2000 | 0.0240 |
| **STDEV** | 0.0699 | 0.0068 | 0.0521 | 0.0048 |
| **Baseline (2007-2017)** | | | | |
| **Average** | 0.0682 | 0.0372 | 0.0338 | 0.0206 |
| **Min** | 0.0203 | 0.0238 | 0.0208 | 0.0127 |
| **Med** | 0.0690 | 0.0353 | 0.0439 | 0.0215 |
| **Max** | 0.0927 | 0.0803 | 0.0445 | 0.0310 |
| **STDEV** | 0.0143 | 0.0109 | 0.0053 | 0.0038 |

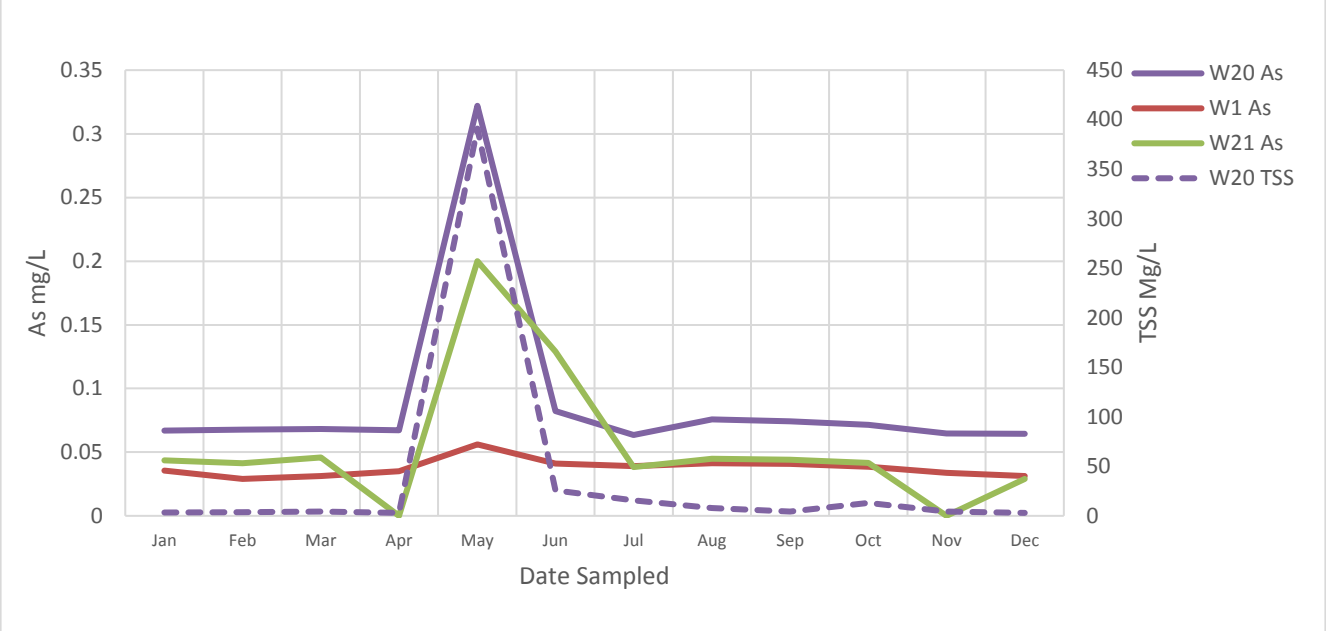



**Figure 3.2-1: TSS and Total Arsenic in Dublin Gulch 2018**

### Copper

Copper was generally below detection in W20 and W1 except during freshet, but was measurable in W21 and W26 throughout the year. Copper concentrations at W21 ranged from below the detection limit of 0.0005 mg/L in December to 0.0181 mg/L in May (Table 3.2-4). Copper concentrations are compared to upstream TSS concentrations in Figure 3.2-2.

**Table 3.2-4: Total Copper in Dublin Gulch**

| Month | Total Copper (mg/L) | | | |
|---|---|---|---|---|
| | W20 | W1 | W21 | W26 |
| | | 2018 | | |
| Jan | **0.0005** | **0.0005** | 0.00079 | - |
| Feb | **0.0005** | **0.0005** | 0.00131 | - |
| Mar | **0.0005** | **0.0005** | 0.00085 | - |
| Apr | **0.0005** | **0.0005** | - | - |
| May | 0.00732 | 0.00334 | 0.0181 | 0.00227 |
| Jun | 0.00112 | 0.00098 | 0.00973 | 0.00127 |
| Jul | **0.0005** | **0.0005** | 0.00071 | 0.00058 |
| Aug | **0.0005** | **0.0005** | 0.00085 | 0.00061 |
| Sep | **0.0005** | **0.0005** | 0.00064 | 0.00051 |
| Oct | **0.0005** | **0.0005** | 0.00105 | **0.0005** |
| Nov | **0.0005** | **0.0005** | **-** | 0.00064 |
| Dec | **0.0005** | **0.0005** | **0.0005** | - |

| Month | Total Copper (mg/L) | | | |
|---|---|---|---|---|
| | W20 | W1 | W21 | W26 |
| **Average** | 0.00112 | 0.00078 | 0.00345 | 0.00091 |
| **Med** | 0.00050 | 0.00050 | 0.00085 | 0.00061 |
| **Min** | 0.00050 | 0.00050 | 0.00050 | 0.00050 |
| **Max** | 0.00732 | 0.00334 | 0.01810 | 0.00227 |
| **STDEV** | 0.00188 | 0.00078 | 0.00556 | 0.00061 |
| **Baseline (2007-2017)** | | | | |
| **Average** | 0.00046 | 0.00087 | 0.00089 | 0.0010 |
| **Med** | 0.00050 | 0.00050 | 0.00058 | 0.0007 |
| **Min** | 0.00010 | 0.00021 | 0.00032 | 0.0005 |
| **Max** | 0.00105 | 0.00711 | 0.00480 | 0.0042 |
| **STDEV** | 0.00029 | 0.00120 | 0.00085 | 0.0008 |

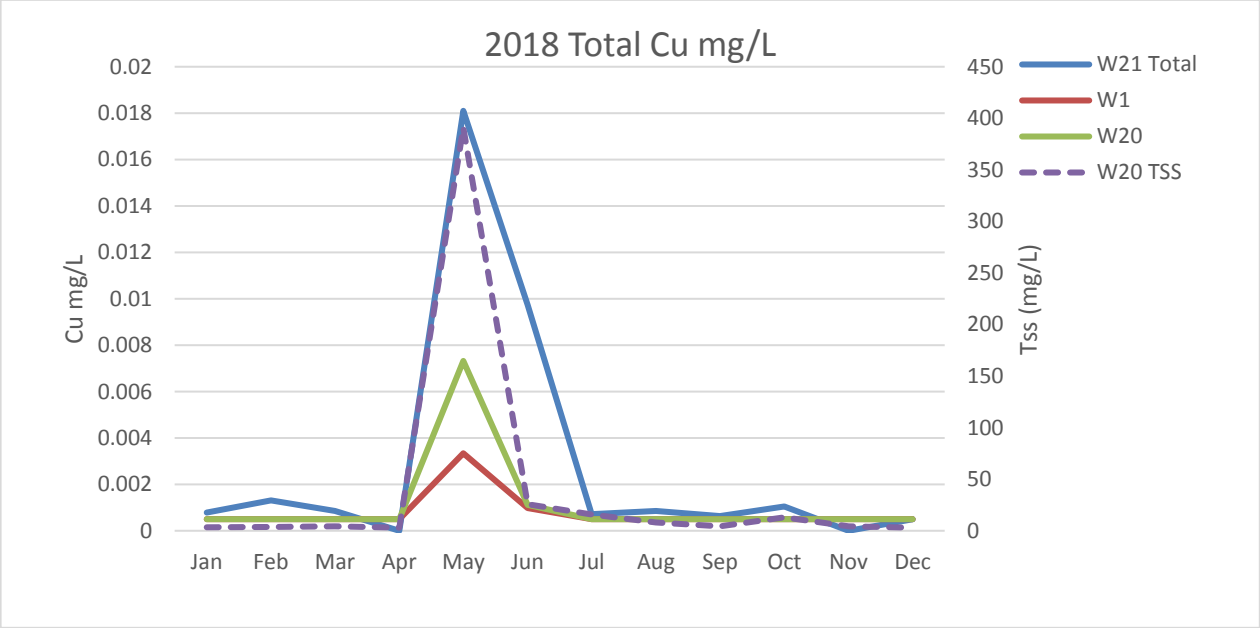



**Figure 3.2-2: Total Copper values at W21 in 2018**

**Lead**

Lead concentrations were relatively low, peaking during freshet at W20, W1 and W21, and were generally below detection at W26 (Table 3.2-5). The highest concentration was recorded during freshet in May at W21 at 0.0162 mg/L; this measurement was likely influenced by the headwaters at W20 where the concentration was 0.0143 mg/L (Figure 3.2-3).

**Table 3.2-5: Total Lead in Dublin Gulch**

| Month | Total Lead (mg/L) | | | |
|---|---|---|---|---|
| | **W20** | **W1** | **W21** | **W26** |
| **2018** | | | | |
| Jan | 0.000192 | 0.00033 | 0.000667 | - |
| Feb | 0.000182 | 0.000105 | 0.000767 | - |
| Mar | 0.000112 | 0.00005 | 0.000082 | - |
| Apr | 0.000118 | 0.000163 | - | - |
| May | 0.0143 | 0.00337 | 0.0162 | 0.000294 |
| Jun | 0.00154 | 0.000833 | 0.0102 | 0.000054 |
| Jul | 0.0004 | 0.000198 | 0.000209 | **0.00005** |
| Aug | 0.000194 | 0.000162 | 0.000426 | **0.00005** |
| Sep | 0.00023 | 0.000228 | 0.000423 | **0.00005** |
| Oct | 0.000269 | 0.0002 | 0.000704 | **0.00005** |
| Nov | 0.000086 | 0.000192 | - | **0.00005** |
| Dec | **0.00005** | 0.00005 | 0.000125 | - |
| **Average** | 0.00147 | 0.00049 | 0.00298 | 0.00009 |
| **Med** | 0.00019 | 0.00020 | 0.00055 | 0.00005 |
| **Min** | 0.00005 | 0.00005 | 0.00008 | 0.00005 |
| **Max** | 0.01430 | 0.00337 | 0.01620 | 0.00029 |
| **STDEV** | 0.00389 | 0.00089 | 0.00529 | 0.00009 |
| **Baseline (2007-2017)** | | | | |
| **Average** | 0.00030 | 0.00048 | 0.00031 | 0.00026 |
| **Med** | 0.00009 | 0.00005 | 0.00006 | 0.00005 |
| **Min** | 0.00005 | 0.00005 | 0.00005 | 0.00005 |
| **Max** | 0.00126 | 0.00848 | 0.00348 | 0.00432 |
| **STDEV** | 0.00039 | 0.00136 | 0.00069 | 0.00077 |

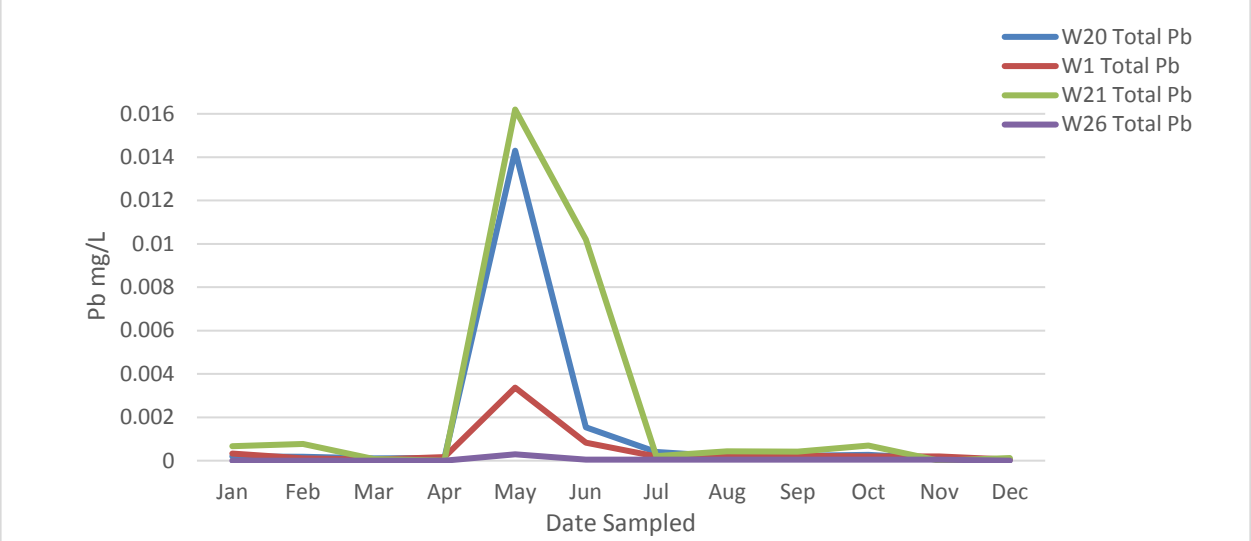



**Figure 3.2-3: Total Lead Values in Dublin Gulch in 2018**

### Nickel

Nickel concentrations were generally below detection limits throughout the year at W20, W1 and W26 stations, except during freshet where measurable amounts were recorded during high TSS events (Table 3.2-6).

**Table 3.2-6 Total Nickel in Dublin Gulch**

| Month | Total Nickel (mg/L) | | | |
|---|---|---|---|---|
| | W20 | W1 | W21 | W26 |
| **2018** | | | | |
| Jan | **0.0005** | **0.0005** | 0.00101 | - |
| Feb | **0.0005** | **0.0005** | 0.00144 | - |
| Mar | **0.0005** | **0.0005** | 0.00143 | - |
| Apr | **0.0005** | 0.00069 | | - |
| May | 0.00994 | 0.005 | 0.0135 | 0.00224 |
| Jun | 0.00149 | 0.00122 | 0.00921 | 0.00106 |
| Jul | **0.0005** | **0.0005** | 0.00078 | **0.0005** |
| Aug | **0.0005** | 0.00062 | 0.00096 | **0.0005** |
| Sep | **0.0005** | 0.00053 | 0.00091 | **0.0005** |
| Oct | **0.0005** | 0.00053 | 0.00132 | **0.0005** |
| Nov | **0.0005** | **0.0005** | - | 0.00054 |
| Dec | **0.0005** | **0.0005** | 0.00089 | - |
| **Average** | 0.00137 | 0.00097 | 0.00315 | 0.00083 |
| **Med** | 0.00050 | 0.00052 | 0.00117 | 0.00050 |
| **Min** | 0.00050 | 0.00050 | 0.00078 | 0.00050 |

| Month | Total Nickel (mg/L) | | | |
|---|---|---|---|---|
| | W20 | W1 | W21 | W26 |
| **Max** | 0.00994 | 0.00500 | 0.01350 | 0.00224 |
| **STDEV** | 0.00260 | 0.00123 | 0.00422 | 0.00060 |
| **Baseline (2007-2017)** | | | | |
| **Average** | 0.00064 | 0.00105 | 0.00097 | 0.00096 |
| **Med** | 0.00050 | 0.00050 | 0.00070 | 0.00050 |
| **Min** | 0.00050 | 0.00050 | 0.00050 | 0.00050 |
| **Max** | 0.00182 | 0.01100 | 0.00467 | 0.00437 |
| **STDEV** | 0.00033 | 0.00170 | 0.00080 | 0.00101 |

**Zinc**

Zinc concentrations were below detection at W20 and W1 throughout the year except during freshet during high TSS events, and measurable in trace amounts throughout the year at W21. Table 3.2-7 shows measured concentrations of Zinc in 2018 with comparisons to the baseline period.

**Table 3.2-7: Total Zinc in Dublin Gulch**

| Month | Total Zinc (mg/L) | | | |
|---|---|---|---|---|
| | W20 | W1 | W21 | W26 |
| **2018** | | | | |
| Jan | **0.003** | **0.003** | 0.0033 | - |
| Feb | **0.003** | **0.003** | 0.0053 | - |
| Mar | **0.003** | **0.003** | 0.0203 | - |
| Apr | **0.003** | **0.003** | - | - |
| May | 0.0375 | 0.0151 | 0.0463 | 0.0044 |
| Jun | 0.0047 | 0.003 | 0.0365 | **0.003** |
| Jul | **0.003** | **0.003** | 0.0143 | **0.003** |
| Aug | **0.003** | **0.003** | 0.015 | **0.003** |
| Sep | **0.003** | **0.003** | 0.0119 | **0.003** |
| Oct | **0.003** | **0.003** | 0.0123 | **0.003** |
| Nov | **0.003** | **0.003** | **-** | **0.003** |
| Dec | **0.003** | **0.003** | 0.0148 | - |
| **Average** | 0.0060 | 0.0040 | 0.0180 | 0.0032 |
| **Med** | 0.0030 | 0.0030 | 0.0146 | 0.0030 |
| **Min** | 0.0030 | 0.0030 | 0.0033 | 0.0030 |
| **Max** | 0.0375 | 0.0151 | 0.0463 | 0.0044 |
| **STDEV** | 0.0095 | 0.0033 | 0.0128 | 0.0005 |
| **Baseline (2007-2017)** | | | | |
| **Average** | 0.0026 | 0.0035 | 0.0074 | 0.0032 |

| Month | Total Zinc (mg/L) | | | |
|---|---|---|---|---|
| | W20 | W1 | W21 | W26 |
| **Med** | 0.0030 | 0.0030 | 0.0030 | 0.0030 |
| **Min** | 0.0010 | 0.0010 | 0.0010 | 0.0010 |
| **Max** | 0.0053 | 0.0229 | 0.1960 | 0.0151 |
| **STDEV** | 0.0015 | 0.0036 | 0.0291 | 0.0026 |

#### 3.2.2.4 Eagle Creek

Stations in Eagle Creek that were monitored in 2018 include W27 which is midway down Eagle Creek, below project influence, and W45 which is below project influence above the confluence with Haggart Creek. Data from station W27 during the baseline period reflects influences primarily from Eagle Pup and Suttles Gulch, and W45 represents the Eagle Creek drainage before it discharges into Haggart. As with Dublin Gulch, higher concentrations of trace elements were seen to coincide with spring melt and elevated TSS values. During all of 2018, upper Eagle Creek was diverted into Dublin Gulch. Thus, with the absence of influence from Suttles Gulch and Eagle Pup, the maximum, average and median TSS and metals concentrations in lower Eagle Creek during 2018 are lower than that recorded during the baseline period.

**Arsenic**

Arsenic was seen in measurable amounts throughout the year at W27 and W45. The highest level was seen at W45 at 0.387 mg/L. Table 3.2-8 shows total arsenic levels and summary statistics from Eagle Creek

**Table 3.2-8: Total Arsenic in Eagle Creek**

| Month | Total Arsenic (mg/L) | |
|---|---|---|
| | W27 | W45 |
| **2018** | | |
| Jan | - | 0.0241 |
| Feb | - | - |
| Mar | - | - |
| Apr | - | 0.0131 |
| May | 0.0448 | - |
| Jun | 0.0181 | 0.387 |
| Jul | 0.0184 | 0.036 |
| Aug | 0.0231 | 0.0533 |
| Sep | 0.0184 | 0.0159 |
| Oct | 0.0199 | 0.0105 |
| Nov | - | 0.0144 |
| Dec | - | 0.0108 |
| **Average** | 0.0238 | 0.0628 |
| **Med** | 0.0192 | 0.0159 |
| **Min** | 0.0181 | 0.0105 |

| Month | Total Arsenic (mg/L) | |
|---|---|---|
| | W27 | W45 |
| **Max** | 0.0448 | 0.3870 |
| **STDEV** | 0.0096 | 0.1154 |
| **Baseline (2007-2017)** | | |
| **Average** | 0.0850 | 0.0320 |
| **Med** | 0.0432 | 0.0237 |
| **Min** | 0.0180 | 0.0072 |
| **Max** | 0.9770 | 0.0934 |
| **STDEV** | 0.1496 | 0.0209 |

### Copper

Copper was below detection during the winter months at W45 and was seen in measurable amounts at W27 and W45 during the summer months (Table 3.2-9).

**Table 3.2-9: Total Copper in Eagle Creek**

| Month | Total Copper mg/L | |
|---|---|---|
| | W27 | W45 |
| **2018** | | |
| Jan | - | **0.0005** |
| Feb | - | - |
| Mar | - | **-** |
| Apr | - | 0.00064 |
| May | 0.0059 | - |
| Jun | 0.00177 | 0.0286 |
| Jul | 0.00153 | 0.00153 |
| Aug | 0.00161 | 0.00274 |
| Sep | 0.0009 | 0.00066 |
| Oct | 0.00144 | **0.0005** |
| Nov | **-** | **0.0005** |
| Dec | **-** | **0.0005** |
| **Average** | 0.00219 | 0.00402 |
| **Med** | 0.00157 | 0.00064 |
| **Min** | 0.00090 | 0.00050 |
| **Max** | 0.00590 | 0.02860 |
| **STDEV** | 0.00168 | 0.00872 |
| **Baseline (2007-2017)** | | |
| **Average** | 0.01685 | 0.00274 |
| **Med** | 0.00166 | 0.00106 |

| Month | Total Copper mg/L | |
|---|---|---|
| | W27 | W45 |
| **Min** | 0.00071 | 0.00061 |
| **Max** | 0.32700 | 0.01040 |
| **STDEV** | 0.05521 | 0.00313 |

**Lead**

Lead levels in Eagle Creek were similar to those measured in Dublin Gulch, with measurable concentrations throughout the year. The highest level was recoded in June at W45, at 0.0503 mg/L (Table 3.2-10).

**Table 3.2-10: Total Lead in Eagle Creek**

| Month | Total Lead mg/L | |
|---|---|---|
| | W27 | W45 |
| **2018** | | |
| Jan | - | 0.00014 |
| Feb | - | - |
| Mar | - | **-** |
| Apr | - | 0.00044 |
| May | 0.00554 | **-** |
| Jun | 0.00082 | 0.05030 |
| Jul | 0.00125 | 0.00108 |
| Aug | 0.00152 | 0.00451 |
| Sep | 0.00028 | 0.00060 |
| Oct | 0.00111 | 0.00012 |
| Nov | - | 0.00042 |
| Dec | **-** | 0.000010 |
| **Average** | 0.00175 | 0.00641 |
| **Med** | 0.00118 | 0.00045 |
| **Min** | 0.00028 | 0.00010 |
| **Max** | 0.00554 | 0.05030 |
| **STDEV** | 0.00174 | 0.01557 |
| **Baseline (2007-2017)** | | |
| **Average** | 0.01511 | 0.00172 |
| **Med** | 0.00070 | 0.00044 |
| **Min** | 0.00005 | 0.00011 |
| **Max** | 0.36400 | 0.00657 |
| **STDEV** | 0.05646 | 0.00236 |

### Nickel

Nickel levels in Eagle creek were measurable throughout the year, with peak values coinciding with high levels of TSS (Table 3.2-11).

**Table 3.2-11: Total Nickel in Eagle Creek**

| Month | Total Nickel mg/L | |
|---|---|---|
| | W27 | W45 |
| **2018** | | |
| Jan | - | 0.00093 |
| Feb | - | - |
| Mar | - | - |
| Apr | - | 0.00057 |
| May | 0.00383 | - |
| Jun | 0.00223 | 0.016 |
| Jul | 0.00108 | 0.00143 |
| Aug | 0.00091 | 0.00161 |
| Sep | 0.00063 | 0.00074 |
| Oct | 0.00124 | 0.00065 |
| Nov | - | 0.00072 |
| Dec | - | 0.00074 |
| **Average** | 0.00165 | 0.00260 |
| **Med** | 0.00116 | 0.00074 |
| **Min** | 0.00063 | 0.00057 |
| **Max** | 0.00383 | 0.01600 |
| **STDEV** | 0.00109 | 0.00475 |
| **Baseline (2007-2017)** | | |
| **Average** | 0.01174 | 0.00191 |
| **Med** | 0.00095 | 0.00083 |
| **Min** | 0.00050 | 0.00057 |
| **Max** | 0.23100 | 0.00645 |
| **STDEV** | 0.03878 | 0.00199 |

### Zinc

Zinc levels were below detection for more than half of the year in Eagle Creek. Measurable amounts occurred in W45 during the early summer (Table 3.2-12).

**Table 3.2-12: Total Zinc in Eagle Creek**

| Month | Total Zinc mg/L | |
|---|---|---|
| | W27 | W45 |
| **2018** | | |
| Jan | - | **0.003** |
| Feb | - | - |

| Month | Total Zinc mg/L | |
|---|---|---|
| | W27 | W45 |
| Mar | - | - |
| Apr | - | **0.003** |
| May | 0.0095 | - |
| Jun | **0.003** | 0.0644 |
| Jul | **0.003** | 0.0134 |
| Aug | **0.003** | 0.0146 |
| Sep | **0.003** | **0.003** |
| Oct | 0.0033 | 0.0133 |
| Nov | - | 0.0094 |
| Dec | - | **0.003** |
| **Average** | 0.0041 | 0.0141 |
| **Med** | 0.0030 | 0.0094 |
| **Min** | 0.0030 | 0.0030 |
| **Max** | 0.0095 | 0.0644 |
| **STDEV** | 0.0024 | 0.0184 |
| **Baseline (2007-2017)** | | |
| **Average** | 0.0346 | 0.0066 |
| **Med** | 0.0045 | 0.0033 |
| **Min** | 0.0010 | 0.0030 |
| **Max** | 0.7020 | 0.0163 |
| **STDEV** | 0.1125 | 0.0051 |

#### 3.2.2.5 Haggart Creek

Haggart Creek is monitored at stations W22 upstream of all potential project activities; W4 immediately downstream of the confluence with Dublin Gulch; W29 downstream of Dublin Gulch, Eagle Creek, Gil Gulch and Platinum Gulch confluences; and at W5 and W23 immediately upstream and downstream, respectively of the confluence with Lynx Creek.

TSS concentrations in Haggart Creek at W29 are higher than those observed at W22 during the peak flow periods and reflect the higher TSS loadings associated with Dublin Gulch and Eagle Creek. At most other flow periods of the year, TSS values are generally below the analytical detection limit of 3.0 mg/L.

In general, total metals were low throughout Haggart Creek. As demonstrated during the baseline period, water quality in Dublin Gulch and Eagle Creek significantly influence water quality conditions in Haggart Creek at W29, with high TSS loadings occurring in Eagle Creek and Dublin Gulch particularly during freshet conditions, coinciding with higher concentrations of total trace elements in Haggart Creek.

### Arsenic

Patterns characterized during baseline were similar in 2018, with low levels of arsenic in the upper reaches (W22) of Haggart Creek, and higher arsenic concentrations at W4 downstream of the confluence of Dublin Gulch due to natural arsenic loadings from the upper reaches of the Dublin Gulch drainage (W20), Eagle Pup and Suttles Gulch. The highest level of arsenic was seen in April at W29 (0.202 mg/L) Table 3.2-13 compares summary statistics for total As in Haggart Creek in 2018 with the baseline period.

**Table 3.2-13: Total Arsenic in Haggart Creek**

| Month | Total Arsenic (mg/L) | | | | | |
|---|---|---|---|---|---|---|
| | W22 | W4 | W29 | W5 | W23 | W39 |
| **2018** | | | | | | |
| Jan | 0.00076 | 0.0023 | 0.00275 | 0.00258 | 0.00387 | - |
| Feb | 0.00109 | 0.00077 | 0.00166 | 0.00229 | 0.00371 | - |
| Mar | 0.00078 | 0.00097 | 0.00144 | - | 0.00345 | 0.0022 |
| Apr | 0.00113 | 0.0127 | 0.2020 | 0.0595 | 0.0351 | - |
| May | 0.00237 | 0.0392 | 0.0672 | 0.0248 | 0.0168 | - |
| Jun | 0.00295 | 0.0206 | 0.0124 | 0.00736 | 0.00623 | 0.00491 |
| Jul | 0.00072 | 0.00555 | 0.00515 | 0.00483 | 0.00546 | - |
| Aug | 0.00084 | 0.00647 | 0.00655 | 0.00578 | 0.00624 | 0.00406 |
| Sep | 0.00073 | 0.00929 | 0.00758 | 0.00898 | 0.00706 | - |
| Oct | 0.00075 | 0.00674 | 0.00514 | 0.00429 | 0.00474 | 0.00262 |
| Nov | 0.00075 | 0.0027 | 0.00319 | 0.00318 | 0.00428 | - |
| Dec | 0.0006 | 0.00182 | 0.00248 | 0.00258 | 0.00393 | - |
| **Average** | 0.00112 | 0.00909 | 0.02646 | 0.01147 | 0.00841 | 0.00345 |
| **Med** | 0.00077 | 0.00601 | 0.00515 | 0.00483 | 0.00510 | 0.00334 |
| **Min** | 0.00060 | 0.00077 | 0.00144 | 0.00229 | 0.00345 | 0.00220 |
| **Max** | 0.00295 | 0.03920 | 0.20200 | 0.05950 | 0.03510 | 0.00491 |
| **STDEV** | 0.00071 | 0.01061 | 0.05572 | 0.01637 | 0.00876 | 0.00109 |
| **Baseline (2007-2017)** | | | | | | |
| **Average** | 0.00093 | 0.00366 | 0.00585 | 0.00449 | 0.00556 | 0.00677 |
| **Med** | 0.00080 | 0.00404 | 0.00460 | 0.00363 | 0.00497 | 0.00367 |
| **Min** | 0.00057 | 0.00120 | 0.00163 | 0.00221 | 0.00400 | 0.00274 |
| **Max** | 0.00488 | 0.00642 | 0.02850 | 0.02510 | 0.02260 | 0.02670 |
| **STDEV** | 0.00060 | 0.00150 | 0.00509 | 0.00379 | 0.00301 | 0.00712 |

### Nickel

Haggart Creek had measurable amounts of nickel throughout the year which stemmed from the headwaters upstream of W22, levels were consistent throughout the year at downstream stations. The highest recorded nickel

value was at W29 during freshet (0.0169 mg/L). W23 saw the lowest levels of nickel throughout the year, with an average of 0.0012 mg/L. Table 3.2-14 shows total nickel throughout Haggart Creek and summary statistics for 2018 and the baseline period.

**Table 3.2-14: Total Nickel in Haggart Creek**

| Month | Total Nickel (mg/L) | | | | | |
|---|---|---|---|---|---|---|
| | W22 | W4 | W29 | W5 | W23 | W39 |
| **2018** | | | | | | |
| Jan | 0.00136 | | 0.00128 | 0.00101 | 0.00066 | - |
| Feb | 0.00149 | 0.00168 | 0.00144 | 0.00132 | 0.00061 | - |
| Mar | 0.00213 | 0.00195 | 0.00167 | - | 0.0009 | 0.00093 |
| Apr | 0.00281 | 0.00284 | 0.0169 | 0.00517 | 0.00317 | - |
| May | 0.00376 | 0.00604 | 0.0077 | 0.00455 | 0.0038 | - |
| Jun | 0.00238 | 0.00319 | 0.00228 | 0.00229 | 0.00158 | 0.00228 |
| Jul | 0.00089 | 0.00084 | 0.00084 | 0.00086 | 0.00066 | - |
| Aug | 0.00088 | 0.00084 | 0.00095 | 0.001 | 0.00074 | 0.00081 |
| Sep | 0.00088 | 0.00088 | 0.00087 | 0.00104 | 0.00074 | - |
| Oct | 0.00112 | 0.00102 | 0.00083 | 0.00082 | 0.00061 | 0.00063 |
| Nov | 0.00118 | 0.00105 | 0.0011 | 0.00103 | 0.0005 | - |
| Dec | 0.00138 | 0.00104 | 0.00111 | 0.00105 | 0.00059 | - |
| **Average** | 0.00169 | 0.00188 | 0.00308 | 0.00183 | 0.00121 | 0.00116 |
| **Med** | 0.00137 | 0.00115 | 0.00120 | 0.00104 | 0.00070 | 0.00087 |
| **Min** | 0.00088 | 0.00084 | 0.00083 | 0.00082 | 0.00050 | 0.00063 |
| **Max** | 0.00376 | 0.00604 | 0.01690 | 0.00517 | 0.00380 | 0.00228 |
| **STDEV** | 0.00087 | 0.00146 | 0.00455 | 0.00148 | 0.00106 | 0.00065 |
| **Baseline (2007-2017)** | | | | | | |
| **Average** | 0.00138 | 0.00093 | 0.00153 | 0.00131 | 0.00121 | 0.00249 |
| **Med** | 0.00103 | 0.00096 | 0.00101 | 0.00099 | 0.00078 | 0.00086 |
| **Min** | 0.00053 | 0.00077 | 0.00055 | 0.00057 | 0.00050 | 0.00061 |
| **Max** | 0.00628 | 0.00110 | 0.00804 | 0.00786 | 0.00638 | 0.01110 |
| **STDEV** | 0.00095 | 0.00011 | 0.00143 | 0.00127 | 0.00136 | 0.00326 |

### Other Metals

Total copper, lead and zinc were often below detection in Haggart Creek, except during freshet where measurable concentrations were encountered at all stations. Sampling results and summary statistics are shown in the Tables 3.2-15, 3.2-16 and 3.2-17, below.

**Table 3.2-15: Total Copper in Haggart Creek**

| Month | Total Copper (mg/L) | | | | | |
|---|---|---|---|---|---|---|
| | W22 | W4 | W29 | W5 | W23 | W39 |
| **2018** | | | | | | |
| Jan | **0.0005** | **0.0005** | **0.0005** | **0.0005** | **0.0005** | **-** |
| Feb | **0.0005** | **0.00086** | **0.0005** | **0.0005** | **0.0005** | **-** |
| Mar | **0.0005** | **0.0005** | **0.0005** | - | **0.0005** | **0.0005** |
| Apr | **0.0005** | 0.00083 | 0.035 | 0.00656 | 0.00394 | - |
| May | 0.00325 | 0.00643 | 0.00927 | 0.00523 | 0.00462 | - |
| Jun | 0.00245 | 0.00343 | 0.00248 | 0.00253 | 0.00202 | 0.00237 |
| Jul | **0.0005** | **0.0005** | 0.00052 | 0.00066 | 0.00073 | - |
| Aug | **0.0005** | 0.00051 | 0.00058 | 0.0007 | 0.00083 | 0.00087 |
| Sep | **0.0005** | **0.0005** | 0.00052 | 0.00074 | 0.00068 | - |
| Oct | **0.0005** | **0.0005** | **0.0005** | **0.0005** | **0.0005** | 0.00056 |
| Nov | **0.0005** | **0.0005** | **0.0005** | **0.0005** | **0.0005** | **-** |
| Dec | **0.0005** | **0.0005** | **0.0005** | **0.0005** | **0.0005** | **-** |
| **Average** | 0.00089 | 0.00130 | 0.00428 | 0.00172 | 0.00132 | 0.00108 |
| **Med** | 0.00050 | 0.00050 | 0.00051 | 0.00066 | 0.00059 | 0.00072 |
| **Min** | 0.00050 | 0.00050 | 0.00050 | 0.00050 | 0.00050 | 0.00050 |
| **Max** | 0.00325 | 0.00643 | 0.03500 | 0.00656 | 0.00462 | 0.00237 |
| **STDEV** | 0.00089 | 0.00174 | 0.00957 | 0.00207 | 0.00139 | 0.00076 |
| **Baseline (2007-2017)** | | | | | | |
| **Average** | 0.00087 | 0.00066 | 0.00123 | 0.00109 | 0.00141 | 0.00277 |
| **Med** | 0.00051 | 0.00050 | 0.00056 | 0.00064 | 0.00087 | 0.00096 |
| **Min** | 0.00023 | 0.00050 | 0.00039 | 0.00043 | 0.00038 | 0.00074 |
| **Max** | 0.00492 | 0.00153 | 0.00852 | 0.00887 | 0.00745 | 0.01250 |
| **STDEV** | 0.00082 | 0.00032 | 0.00168 | 0.00148 | 0.00161 | 0.00358 |

**Table 3.2-16: Total Lead in Haggart Creek**

| Month | Total Lead (mg/L) | | | | | |
|---|---|---|---|---|---|---|
| | W22 | W4 | W29 | W5 | W23 | W39 |
| **2018** | | | | | | |
| Jan | 0.000051 | | 0.000064 | 0.000063 | **0.00005** | - |
| Feb | **0.00005** | 0.000088 | **0.00005** | **0.00005** | **0.00005** | - |
| Mar | **0.00005** | **0.00005** | 0.000051 | - | **0.00005** | **0.00005** |
| Apr | 0.000096 | 0.00089 | 0.0295 | 0.00759 | 0.00401 | - |
| May | 0.000867 | 0.00392 | 0.00994 | 0.00373 | 0.00246 | - |
| Jun | 0.00137 | 0.00257 | 0.00152 | 0.000952 | 0.000486 | 0.000744 |

| Month | Total Lead (mg/L) | | | | | |
|---|---|---|---|---|---|---|
| | W22 | W4 | W29 | W5 | W23 | W39 |
| Jul | **0.00005** | **0.00005** | 0.000056 | 0.000059 | 0.00005 | - |
| Aug | **0.00005** | 0.000084 | 0.000105 | 0.000097 | 0.000081 | 0.000068 |
| Sep | **0.00005** | 0.000123 | 0.000114 | 0.000797 | 0.00029 | - |
| Oct | **0.00005** | 0.000073 | 0.000092 | 0.000066 | **0.00005** | 0.000052 |
| Nov | **0.00005** | **0.00005** | **0.00005** | **0.00005** | **0.00005** | - |
| Dec | **0.00005** | **0.00005** | **0.00005** | **0.00005** | **0.00005** | - |
| **Average** | 0.00023 | 0.00067 | 0.00347 | 0.00123 | 0.00064 | 0.00023 |
| **Med** | 0.00005 | 0.00008 | 0.00008 | 0.00007 | 0.00005 | 0.00006 |
| **Min** | 0.00005 | 0.00005 | 0.00005 | 0.00005 | 0.00005 | 0.00005 |
| **Max** | 0.00137 | 0.00392 | 0.02950 | 0.00759 | 0.00401 | 0.00074 |
| **STDEV** | 0.00041 | 0.00121 | 0.00830 | 0.00227 | 0.00121 | 0.00030 |
| **Baseline (2007-2017)** | | | | | | |
| **Average** | 0.00015 | 0.00006 | 0.00057 | 0.00038 | 0.00060 | 0.00158 |
| **Med** | 0.00005 | 0.00005 | 0.00011 | 0.00006 | 0.00007 | 0.00021 |
| **Min** | 0.00005 | 0.00005 | 0.00005 | 0.00005 | 0.00005 | 0.00005 |
| **Max** | 0.00219 | 0.00012 | 0.00750 | 0.00747 | 0.00966 | 0.00914 |
| **STDEV** | 0.00031 | 0.00002 | 0.00135 | 0.00124 | 0.00185 | 0.00280 |

**Table 3.2-17: Total Zinc in Haggart Creek**

| Month | Total Zinc (mg/L) | | | | | |
|---|---|---|---|---|---|---|
| | W22 | W4 | W29 | W5 | W23 | W39 |
| **2018** | | | | | | |
| Jan | 0.0037 | | 0.0032 | **0.003** | **0.003** | - |
| Feb | 0.0035 | 0.007 | 0.0036 | **0.003** | **0.003** | - |
| Mar | 0.0143 | 0.0058 | 0.0041 | - | 0.0307 | **0.003** |
| Apr | 0.0066 | 0.0067 | 0.0564 | 0.0173 | 0.0129 | - |
| May | 0.01 | 0.0179 | 0.0257 | 0.0121 | 0.0108 | - |
| Jun | 0.0044 | 0.0089 | 0.0053 | **0.0045** | **0.003** | 0.0033 |
| Jul | **0.003** | **0.003** | **0.003** | **0.003** | **0.003** | - |
| Aug | **0.003** | **0.003** | **0.003** | **0.003** | **0.003** | **0.003** |
| Sep | **0.003** | 0.0039 | **0.003** | 0.0034 | **0.003** | **-** |
| Oct | **0.003** | **0.003** | 0.0044 | **0.003** | **0.003** | **0.003** |
| Nov | **0.003** | **0.003** | **0.003** | **0.003** | **0.003** | - |
| Dec | **0.003** | **0.003** | **0.003** | **0.003** | **0.003** | **-** |
| **Average** | 0.0050 | 0.0058 | 0.0098 | 0.0053 | 0.0068 | 0.0031 |
| **Med** | 0.0033 | 0.0041 | 0.0034 | 0.0030 | 0.0030 | 0.0030 |
| **Min** | 0.0030 | 0.0030 | 0.0030 | 0.0030 | 0.0030 | 0.0030 |
| **Max** | 0.0143 | 0.0179 | 0.0564 | 0.0173 | 0.0307 | 0.0033 |

| Month | Total Zinc (mg/L) | | | | | |
|---|---|---|---|---|---|---|
| | W22 | W4 | W29 | W5 | W23 | W39 |
| **STDEV** | 0.0034 | 0.0041 | 0.0153 | 0.0046 | 0.0079 | 0.0001 |
| **Baseline (2007-2017)** | | | | | | |
| **Average** | 0.0038 | 0.0029 | 0.0041 | 0.0040 | 0.0039 | 0.0078 |
| **Med** | 0.0030 | 0.0030 | 0.0030 | 0.0030 | 0.0030 | 0.0030 |
| **Min** | 0.0010 | 0.0010 | 0.0010 | 0.0010 | 0.0010 | 0.0030 |
| **Max** | 0.0153 | 0.0039 | 0.0194 | 0.0230 | 0.0277 | 0.0334 |
| **STDEV** | 0.0027 | 0.0008 | 0.0036 | 0.0055 | 0.0052 | 0.0095 |

#### 3.2.2.6 Lynx Creek and South McQuesten River

The Lynx Creek catchment drains into Haggart Creek downstream of the Project area. Monitoring of Lynx Creek as a reference site occurred at station W6 (immediately prior to entering Haggart Creek) in 2018. The South McQuesten River (just downstream of the confluence with Haggart Creek) is also monitored at station W49. Sampling results and summary statistics are provided in Table 3.2-18 to Table 3.2-23. As is evident in these tables, while all the TSS and metals concentrations were low in 2018 and have been historically low during the baseline period, it is important to recognize that there are generally less data points for W6 and W49 due to the quarterly monitoring period, and it is also less likely that a high freshet or rainfall event has been sampled.

**Table 3.2-18: Total Suspended Solids in Lynx Creek and South McQuesten River**

| Month | TSS (mg/L) | |
|---|---|---|
| | W6 | W49 |
| **2018** | | |
| Jan | - | - |
| Feb | - | - |
| Mar | **3.0** | 4.0 |
| Apr | - | - |
| May | - | - |
| Jun | 3.4 | 15.2 |
| Jul | - | - |
| Aug | - | - |
| Sep | **3.0** | 3.0 |
| Oct | **3.0** | 3.0 |
| Nov | - | - |
| Dec | - | - |
| **Average** | 3.1 | 6.3 |
| **Med** | 3.0 | 3.5 |
| **Min** | 3.0 | 3.0 |
| **Max** | 3.4 | 15.2 |
| **STDEV** | 0.2 | 5.2 |

| Month | TSS (mg/L) | |
|---|---|---|
| | W6 | W49 |
| **Baseline (2007-2017)** | | |
| **Average** | 6.9 | 27.2 |
| **Med** | 3.0 | 3.0 |
| **Min** | 3.0 | 3.0 |
| **Max** | 80.7 | 335.0 |
| **STDEV** | 14.4 | 73.7 |

**Table 3.2-19: Total Arsenic in Lynx Creek and South McQuesten River**

| Month | Total Arsenic (mg/L) | |
|---|---|---|
| | W6 | W49 |
| **2018** | | |
| Jan | - | - |
| Feb | - | - |
| Mar | 0.0053 | 0.0058 |
| Apr | - | - |
| May | - | - |
| Jun | 0.00574 | 0.0050 |
| Jul | - | - |
| Aug | - | - |
| Sep | 0.00675 | 0.0033 |
| Oct | 0.00616 | 0.0034 |
| Nov | - | - |
| Dec | - | - |
| **Average** | 0.0060 | 0.0044 |
| **Med** | 0.0059 | 0.0042 |
| **Min** | 0.0053 | 0.0033 |
| **Max** | 0.0068 | 0.0058 |
| **STDEV** | 0.0005 | 0.0011 |
| **Baseline (2007-2017)** | | |
| **Average** | 0.0065 | 0.0065 |
| **Med** | 0.0063 | 0.0046 |
| **Min** | 0.0054 | 0.0034 |
| **Max** | 0.0130 | 0.0310 |
| **STDEV** | 0.0014 | 0.0060 |

**Table 3.2-20: Total Copper in Lynx Creek and South McQuesten River**

| Month | Total Copper mg/L | |
|---|---|---|
| | W6 | W49 |
| **2018** | | |
| Jan | - | - |
| Feb | - | - |
| Mar | **0.0005** | **0.0005** |
| Apr | - | - |
| May | - | - |
| Jun | 0.0017 | 0.00279 |
| Jul | - | - |
| Aug | - | - |
| Sep | 0.00092 | 0.00236 |
| Oct | 0.00077 | 0.00145 |
| Nov | - | - |
| Dec | - | - |
| **Average** | 0.0009 | 0.0018 |
| **Med** | 0.0008 | 0.0019 |
| **Min** | 0.0005 | 0.0005 |
| **Max** | 0.0017 | 0.0028 |
| **STDEV** | 0.0004 | 0.0009 |
| **Baseline (2007-2017)** | | |
| **Average** | 0.0013 | 0.0024 |
| **Med** | 0.0010 | 0.0016 |
| **Min** | 0.0004 | 0.0007 |
| **Max** | 0.0045 | 0.0141 |
| **STDEV** | 0.0009 | 0.0030 |

**Table 3.2-21: Total Lead in Lynx Creek and South McQuesten River**

| Month | Total Lead mg/L | |
|---|---|---|
| | W6 | W49 |
| **2018** | | |
| Jan | - | - |
| Feb | - | - |
| Mar | **0.00005** | 0.00255 |
| Apr | - | - |
| May | - | - |
| Jun | 0.000098 | 0.00088 |

| Month | Total Lead mg/L | |
|---|---|---|
| | W6 | W49 |
| Jul | - | - |
| Aug | - | - |
| Sep | 0.000064 | 0.00138 |
| Oct | **0.00005** | 0.00158 |
| Nov | - | - |
| Dec | - | - |
| **Average** | 0.00006 | 0.0016 |
| **Med** | 0.00005 | 0.0015 |
| **Min** | 0.00005 | 0.0009 |
| **Max** | 0.00010 | 0.0026 |
| **STDEV** | 0.00002 | 0.0006 |
| **Baseline (2007-2017)** | | |
| **Average** | 0.00023 | 0.0022 |
| **Med** | 0.00009 | 0.0017 |
| **Min** | 0.00005 | 0.0002 |
| **Max** | 0.00150 | 0.0113 |
| **STDEV** | 0.00032 | 0.0022 |

**Table 3.2-22: Total Nickel in Lynx Creek and South McQuesten River**

| Month | Total Nickel mg/L | |
|---|---|---|
| | W6 | W49 |
| **2018** | | |
| Jan | - | - |
| Feb | - | - |
| Mar | **0.0005** | 0.00575 |
| Apr | - | - |
| May | - | - |
| Jun | 0.00119 | 0.00215 |
| Jul | - | - |
| Aug | - | - |
| Sep | 0.0007 | 0.0202 |
| Oct | 0.00065 | 0.0125 |
| Nov | - | - |
| Dec | - | - |
| **Average** | 0.00071 | 0.0102 |
| **Med** | 0.00065 | 0.0091 |
| **Min** | 0.00050 | 0.0022 |
| **Max** | 0.00119 | 0.0202 |

| Month | Total Nickel mg/L | |
|---|---|---|
| | W6 | W49 |
| **STDEV** | 0.00025 | 0.0069 |
| **Baseline (2007-2017)** | | |
| **Average** | 0.00096 | 0.0084 |
| **Med** | 0.00074 | 0.0087 |
| **Min** | 0.00050 | 0.0016 |
| **Max** | 0.00353 | 0.0127 |
| **STDEV** | 0.00068 | 0.0028 |

**Table 3.2-23: Total Zinc in Lynx and South McQuesten River**

| Month | Total Zinc mg/L | |
|---|---|---|
| | W6 | W49 |
| **2018** | | |
| Jan | - | - |
| Feb | - | - |
| Mar | **0.003** | 0.0298 |
| Apr | - | - |
| May | - | - |
| Jun | **0.003** | 0.0068 |
| Jul | - | - |
| Aug | - | - |
| Sep | **0.003** | 0.0607 |
| Oct | **0.003** | 0.0371 |
| Nov | - | - |
| Dec | - | - |
| **Average** | 0.0030 | 0.0336 |
| **Med** | 0.0030 | 0.0335 |
| **Min** | 0.0030 | 0.0068 |
| **Max** | 0.0030 | 0.0607 |
| **STDEV** | 0.0000 | 0.0192 |
| **Baseline (2007-2017)** | | |
| **Average** | 0.0040 | 0.0364 |
| **Med** | 0.0030 | 0.0396 |
| **Min** | 0.0010 | 0.0030 |
| **Max** | 0.0219 | 0.0643 |
| **STDEV** | 0.0040 | 0.0164 |

As demonstrated during the baseline period, high median concentrations of arsenic occur in certain streams throughout the project and regional area. Relatively high median arsenic concentrations from each tributary (W21,

W45 and W6) result in an increase in the mainstream of Haggart Creek (Table 3.2-24). Of note, despite the arsenic loadings from Dublin Gulch and Eagle Creek, the median concentrations and total loading from Lynx Creek (an undeveloped drainage basin), are greater than the median concentrations and total loading from Haggart Creek at their confluence. Further, the median arsenic concentrations at Haggart Creek at the mouth are less than the median arsenic concentrations of the South McQuesten River at their confluence. This indicates that there are additional arsenic sources outside of the Haggart Creek basin.

**Table 3.2-24: Total Arsenic Median Concentrations in the Project and Regional Area**

| Station | Description | Baseline | 2018 |
|---|---|---|---|
| | | *As (mg/L)* | |
| W22 | Haggart Creek above Project | 0.00080 | 0.00077 |
| W21 | Tributary - Dublin Gulch at mouth | - | - |
| W4 | Haggart Creek downstream of Dublin | 0.00404 | 0.00601 |
| W45 | Tributary - Eagle Creek at mouth | - | - |
| W29 | Haggart Creek downstream of Eagle | 0.00460 | 0.00515 |
| W5 | Haggart Creek above Lynx | 0.00363 | 0.00483 |
| W6 | Tributary - Lynx Creek at mouth | 0.00630 | 0.00590 |
| W23 | Haggart Creek downstream of Lynx | 0.00493 | 0.00510 |
| W39 | Haggart Creek at mouth | 0.00367 | 0.00334 |
| W49 | South McQuesten River downstream of Haggart | 0.00460 | 0.00420 |

The presence of arsenic in drainage waters indicates that natural arsenic mineralization in the broader area is prevalent and not limited to the Dublin Gulch catchment.

## 3.2.3 Quality Assurance and Quality Control Program

The Quality Assurance/Quality Control (QA/QC) program was designed to provide reliable data by preventing sampling error and cross contamination of the collected samples. Nitrile gloves were used during sample collection and replaced at each new site, samples were collected from downstream to upstream to avoid substrate disturbance and sample contamination. Field, travel blanks and laboratory duplicates were also included in the elemental analysis. Laboratory results were reviewed upon arrival to evaluate compliance with laboratory data quality objectives (DQO). Overall, reported data are considered of good quality and met laboratory DQO. All generated tables, summary statistics and graphs were checked for unit conversions, formulas and transcription errors with original data files.

This program is intended to validate the monitoring data, and to identify any potential methodological and/or analytical errors in the data set that might require modifications to the program and or laboratory analyses. The following section provides a summary of the QA/QC program with respect to field quality, analytical data processing and internal laboratory procedures.

### 3.2.3.1 Field Blanks

Field blank samples are analyte-free reagent water samples used to assess the purity of chemical preservatives and potential contamination sources at the sampling location due to the collection method, handling, preservation, and exposure to the environment. Blank samples are generated by pouring de-ionized (DI) water into clean

sample bottles in the same environment in which actual samples are collected, and then proceed with the elemental analysis as is routinely performed in the remaining collected samples.

#### 3.2.3.2 Travel Blanks

Travel blanks are provided by the analytical laboratory and are used during field surveys to identify potential contamination during storage and transport. These blanks are kept sealed and transported with water collected samples. Concentrations in these blanks are generally below detection limits, however if any measured parameter is detected above detection limit this may suggest a potential contamination during sample handling and transport.

#### 3.2.3.3 Field Duplicates

The British Columbia Field Sampling Manual (Clark 2013) specifies that a relative percent difference (RPD) greater than 20 percent indicates a possible sample contamination. An RPD greater than 50 percent indicates a definite sample integrity problem; however, it is not unusual to find high variability for the field duplicates, especially if the water is turbid (total suspended solids [TSS] greater than 25 mg/L). Field duplicate samples are generally collected at the same location and time at a site sample to assess the natural variability of the site. For the purpose of this analysis, originals and duplicates are considered paired replicates collected from the same location sequentially in time and were used to calculate the RPD.

#### 3.2.3.4 Analytical QA/QC - Elemental Analysis Quality

All analytical analyses were performed by ALS laboratories (Burnaby, BC) a member of the Canadian Association for Laboratory Accreditation Inc. (CALA). The laboratory QA/QC program included analysis of certified reference materials, laboratory control samples, laboratory duplicates, method blanks and matrix spikes to determine accuracy and precision of instrumentation and methods. The majority of reported data met the laboratory data quality objectives (DQOs). However, in some instances, method recovery was not accurately calculated due to matrix interferences; thus, detection limits were adjusted to prevent any influence on analytical results. Overall, reported data were of good quality and met the laboratory QA/QC objective.

### 3.2.4 Discharge Compliance - Water Quality

During the period of this report no development effluent compliance points were established and no discharge of contact water to surface water occurred.

### 3.2.5 Water Balance and Water Quality Modeling

The Eagle Gold Mine water balance and water quality model (WBQM) was updated following changes to the water management plan and water management assumptions around the heap leach facility (Appendix E).

The WBQM fully integrates the following:

- Description of the water management plan as described in: Eagle Gold Project Construction and Operations Water Management Plan;
- Revisions to the heap leach facility water balance modeling as described in: Weekly Water Balance Modeling for the Eagle Gold Mine Heap Leach Pad Facility. Report prepared by The Mines Group, October 2018;

- Baseline climate and hydrology data collected since 2007 and inclusive of data collected in 2018;
- Updated baseline surface water quality monitoring data collected from 2007 to 2017 prior to initiation of construction in August 2017; and
- Geochemical source term data collected from active field bins of waste rock and leached ore materials, with consideration of data collected up through September 2018 ice-free season.

The revisions to the operations water management plan are reflected in the updated schematic (Figure 3.2-4). Water quality from mine discharge during operations is driven by the contact water reporting to the Lower Dublin South Pond. Contact water from the Eagle Pup and Platinum Gulch WRSAs, the temporary ore stockpile, and the sump water from the open pit all report to the LDSP at some point during operations. Excess water from the LDSP is treated through the MWTP to meet the discharge criteria and discharged to Haggart Creek upstream of W4 (Figure 3.2-4).

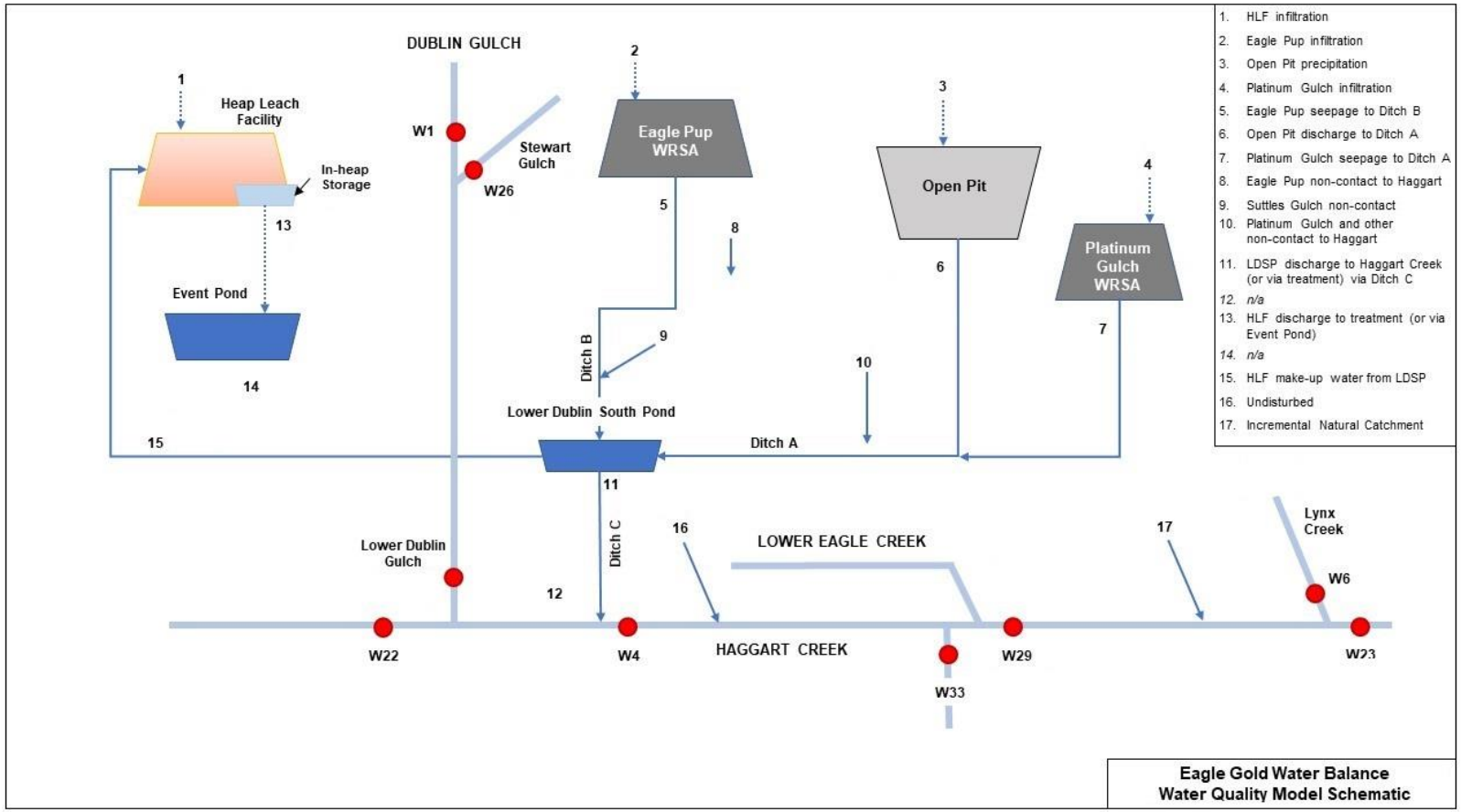



**Figure 3.2-4 Water Balance Model Schematic - Overview**

### 3.2.5.1 HLF Water Balance Model Integration

The Eagle Gold WBWQM is a GoldSim-based integrated water balance and quality model that was developed in two parts. The water quality component was developed by Lorax Environmental Services Ltd. (Lorax) and integrated within the WBM to combine source concentrations of potential contaminants of concern with contact and non-contact flows to track contaminant loading throughout the mine site and into the receiving waters of Haggart Creek. The WBQM integrates logic and assumptions from the Weekly Water Balance Modeling for the Eagle Gold Mine Heap Leach Pad Facility (HLF WBM - prepared by The Mines Group, October 2018); which includes a drain-down subroutine. The HLF WBM provides analysis of the solution stored within the HLF as described by the Mines Group. The SWBM also incorporates groundwater baseflow and recharge rates estimated by the groundwater model, as well as provides inputs to the water quality model. Figure 3.2-5 illustrates the integration of the water balance with the HLF WBM, groundwater model and water quality model.

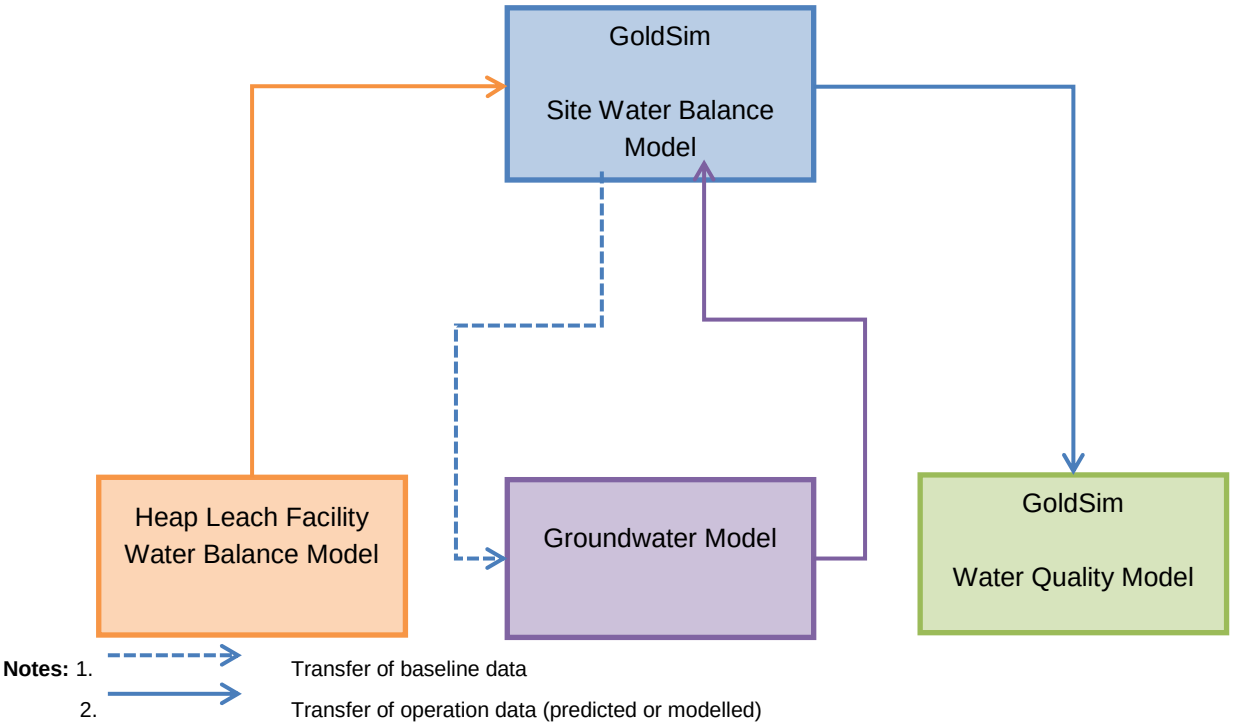



**Figure 3.2-5 Water Balance Model Integration**

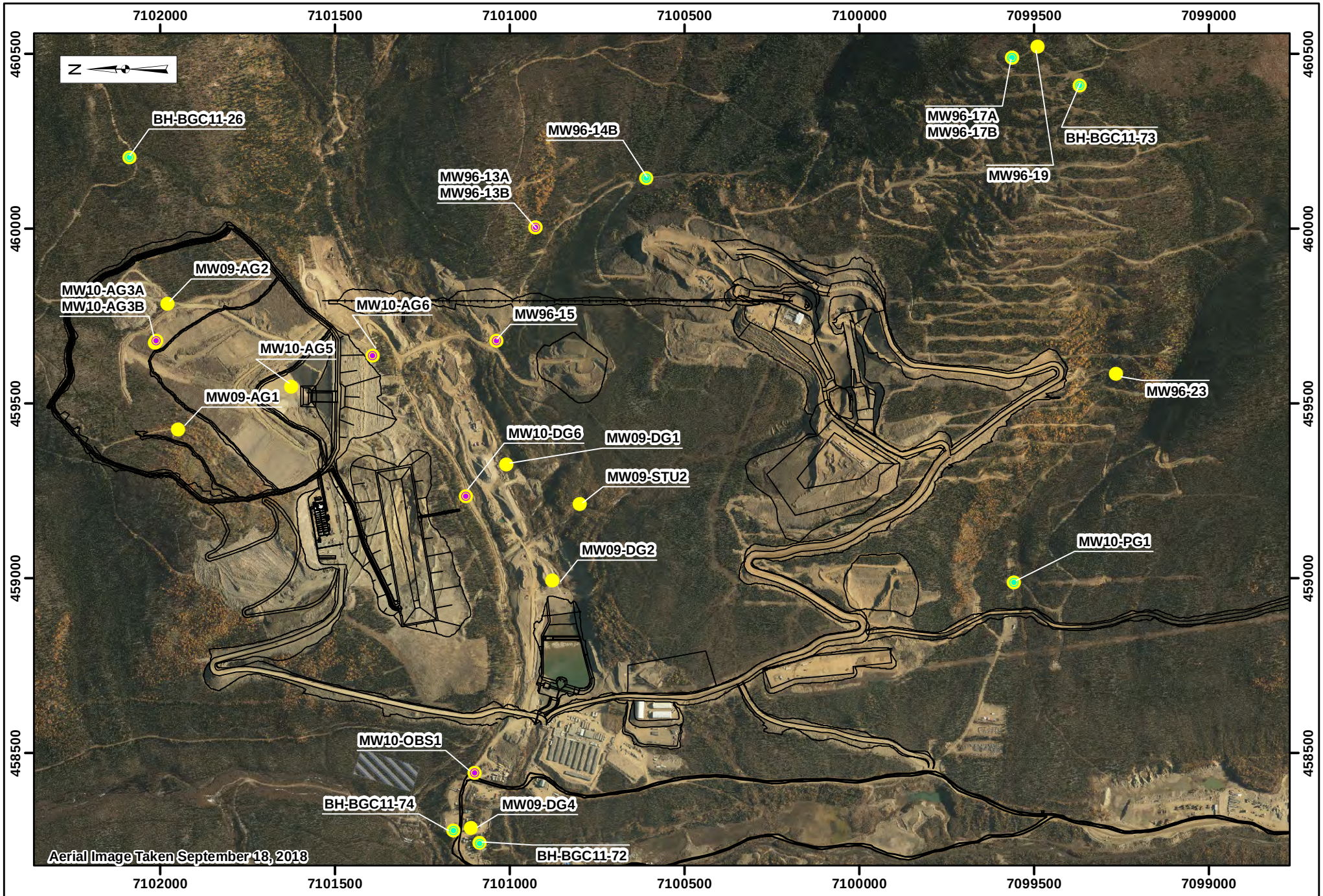
### 3.2.5.2 Results

The results of the updated models are provided in the Eagle Gold Project 2019 Water Quality Model Update Report provided as Appendix E. The model utilizes the updated mine plan and considers the receiving environment water quality objectives developed during the QZ14-041 Type A WUL hearing, the effluent quality standards mandated by QZ14-041, and updated data collected under the Environmental Monitoring, Surveillance and Adaptive Management Plan.

## 3.3 GROUNDWATER

The majority of the Project is situated within the Dublin Gulch basin, which is part of the Haggart Creek basin. The hydrogeologic zones used to characterize groundwater in the Project area include Eagle Pup and the Ann, Suttles, Olive, Bawn Boy, Platinum and Dublin gulches. The groundwater monitoring program in 2018 during construction consisted of continuing the general baseline data collection program that focused on specific spatial zones where facilities were constructed to help monitor potential Project effects on the groundwater flow system. The zones monitored during 2018 are depicted in Figure 3.3-1 and include the following areas:

- Heap Leach Facility (Ann Gulch catchment) and the Events Pond,
- Eagle Pup Waste Rock Storage Area (Eagle Pup catchment),
- Platinum Gulch Waste Rock Storage Area (Platinum Gulch catchment),
- Open Pit (Upper Suttles and Platinum Gulch catchments)
- Olive and Bawn Boy Gulches (Upper Dublin Gulch catchment), and
- Lower Dublin South Pond (Lower Dublin Gulch valley).




Legend:

- Well Network Since 2009
- Developement Phase Groundwater Level
- Developement Phase Groundwater Level and Quality
- 2018 Construction Areas
- Reserved Area

*Note: Monitoring wells in Upper Dublin Gulch (Bawn Boy and Olive) Catments not shown on map.*

StrataGold Corporation

Projection: NAD 83 UTM Zone 8N

Drawn By: JK

0 200 400 Meters

Date: 2018/08/13

Figure: 3.3-1

**EAGLE GOLD PROJECT**
**YUKON TERRITORY**

**2018 Construction Groundwater Monitoring Network**

### 3.3.1 Groundwater Quantity Monitoring

The objectives of the groundwater quantity monitoring program during 2018 were to provide continuous and spot level groundwater level measurements to monitor potential Project effects on the occurrence and quantity of groundwater during the second year of construction.

Groundwater level data have been collected since 2009 from the 27 monitoring wells/piezometers listed in Table 3.3-1 and shown in Figure 3.3-1. Seventeen of these wells were installed with continuous recording dataloggers at some time during the monitoring period (i.e., since 2009 or later). Upon initiation of the Development phase, and as per the EMSAMP, quarterly sampling and water level monitoring was conducted during 2018 at the locations listed in Table 3.3-2 and shown in Figure 3.3-1.

**Table 3.3-1: Groundwater Monitoring Well Network Used Since 2009**

| Well/Piezometer | Logger Installation Date* | Coordinates | | Rationale |
|---|---|---|---|---|
| | | Northing | Easting | |
| **Heap Leach Facility and Events Pond (Ann Gulch catchment and adjacent area)** | | | | |
| BH-BGC11-26 | n/a | 7102088 | 460206 | Above Phase 2 of HLF |
| MW09-AG1 | n/a | 7101949 | 459425 | Baseline for pre-HLF Phase 1 |
| MW09-AG2 | n/a | 7101981 | 459785 | Baseline for pre-HLF Phase 1 |
| MW10-AG3a | 31-May-10 to 5-June-18 | 7102013 | 459681 | Baseline for pre-HLF Phase 1 |
| MW10-AG3b | n/a | 7102016 | 459676 | Baseline for pre-HLF Phase 1 |
| MW10-AG5 | n/a | 7101626 | 459549 | Baseline for pre-HLF Phase 1 |
| MW10-AG6 | 14-Oct-17 to 22-Dec-17 | 7101392 | 459637 | Downgradient of HLF |
| MW10-DG6 | 1-April-11 to 10-Oct-17 | 7101125 | 459235 | Downgradient of HLF |
| **Lower Dublin South Pond (Lower Dublin Gulch valley)** | | | | |
| BH-BGC11-72 | 2-Nov-2017 to 7-Nov-18 | 7102088 | 460206 | Lower valley downgradient of all infrastructure |
| BH-BGC11-74 | 12-Oct-17 to 7-Nov-18 | 7101163 | 458275 | Lower valley downgradient of all infrastructure |
| MW10-OBS1 | 11-Oct-17 to 7-Nov-18 | 7101116 | 458443 | Downgradient of LDSP |
| MW09-DG1 | 16-May-10 to 22-Sept-17 | 7101009 | 459325 | Upgradient of LDSP/downgradient of EP WRSA and HLF |
| MW09-DG2 | n/a | 7100877 | 458992 | Upgradient of LDSP |
| MW09-DG4 | 1-April-11 to 17-Oct-17 | 7101111 | 458284 | Lower valley downgradient of all infrastructure |
| **Eagle Pup Waste Rock Storage Area (Eagle Pup catchment)** | | | | |
| MW96-13a | 19-May-11 to 21-Mar-18 | 7100925 | 460003 | In toe area of EP WRSA |
| MW96-13b | 19-May-11 to 21-Mar-18 | 7100925 | 460003 | In toe area of EP WRSA |
| MW96-14b | n/a | 7100609 | 460145 | In mid dump of EP WRSA |
| MW96-15b | 26-July-13 to 31-Dec-18 | 7101037 | 459679 | Downgradient of EP WRSA |
| **Platinum Gulch Waste Rock Storage Area (Platinum Gulch catchment)** | | | | |
| MW96-23 | n/a | 7099264 | 459586 | In PG WRSA |

| Well/Piezometer | Logger Installation Date* | Coordinates | | Rationale |
|---|---|---|---|---|
| | | Northing | Easting | |
| MW10-PG1 | 19-May-11 to 22-Mar-18 | 7099557 | 458988 | Downgradient of PG WRSA and PG PTS |
| **Open Pit Area (Suttles and Platinum Gulch catchments)** | | | | |
| BH-BGC11-73 a, b and c | 2-Nov-11 to 13-Dec-18 | 7099368 | 460410 | Nested Vibrating Wire Piezometer (VWP) in upper pit area |
| MW96-17a | n/a | 7099563 | 460490 | In upper open pit area |
| MW96-17b | 28-July-13 to 22-Sept-18 | 7099563 | 460490 | In upper open pit area |
| MW96-19 | 31-May-10 to 17-Oct-12 | 7099490 | 460523 | In upper open pit area |
| MW09-STU2 | n/a | 7100799 | 459212 | In lower Suttles Gulch below infrastructure |
| **Upper Dublin Gulch (Bawn Boy and Olive Gulch catchments)** | | | | |
| MW09-OG3 | 5-May-17 to 13-Oct-17 | 7101552 | 461223 | Baseline in Olive Gulch for modeling purposes |
| MW96-9b | 31-May-10 to 10-June-17 | 7101252 | 458988 | Baseline in Bawn Boy for modeling purposes |

*Logger Installation period is not always continuous; gaps occur in the record due to lags in redeployment or logger malfunction
n/a – not applicable, spot measurements only

**Table 3.3-2: Groundwater Quantity Monitoring 2018 – Construction**

| Instrument ID | Catchment | Facility |
|---|---|---|
| MW10-AG6 | Ann Gulch | Heap Leach |
| MW10-AG3A | Ann Gulch | Heap Leach |
| MW10-AG3B | Ann Gulch | Heap Leach |
| BH-BGC11-26 | Ann Gulch | Heap Leach |
| MW10-DG6 | Ann/Dublin Gulch | Heap Leach |
| MW10-OBS1 | Dublin Gulch | Lower Dublin South Pond |
| BH-BGC11-72 | Lower Dublin Gulch | Lower Dublin South Pond |
| BH-BGC11-74 | Lower Dublin Gulch | Lower Dublin South Pond |
| MW96-15 | Eagle Pup | EP WRSA |
| MW96-13A | Eagle Pup | EP WRSA |
| MW96-13B | Eagle Pup | EP WRSA |
| MW96-14B | Eagle Pup | EP WRSA |
| MW96-17A | Suttles Gulch | Open Pit |
| MW96-17B | Suttles Gulch | Open Pit |
| BH-BGC11-73 | Suttles Gulch | Open Pit |
| MW10-PG1 | Platinum Gulch | PG WRSA |

Appendix F is a compilation of hydrograph plots that were produced for each monitoring well listed in Table 3.3-1. The figure depicts groundwater elevation, air temperature and precipitation through time for each of the monitoring locations.

As described in previous reports (BGC 2014, BGC 2013 and Stantec 2012), the hydrographs demonstrate a large range in seasonal variability (since 2009) throughout the well network, with some wells (e.g., MW10-AG3a in the construction area for Phase 1 of the heap leach pad) experiencing only a meter change over the period of record, while others in the upper open pit area (e.g., BH-BGC11-73 and MW96-19) showed much larger ranges (over 10 meters). These trends were also observed in the seventeen wells listed in Table 3.3-2 that were monitored in 2018. The data indicate that for the wells monitored, the construction activities had no effect on the natural observed range of groundwater levels that have been since observations began in 2009. The lone exception was MW10-DG6, a well installed in bedrock and located on the north side of lower Dublin Gulch valley downgradient of the HLF embankment where some dewatering activities were occurring to facilitate foundation work. 2018 water levels were about 0.2 to 0.5 m lower than all previous measurements. However, this data is suspect in that the well casing was accidently hit by an excavator; the well was tilted slightly and now does not purge cleanly. Plans are to replace this well in spring 2019.

### 3.3.2 Groundwater Quality Monitoring

Table 3.3-3 lists and Figure 3.3-1 depicts the locations of the six groundwater monitoring wells that were sampled for water quality in 2018. These wells represent Ann Gulch and the HLF area (MW10-AG3a and MW10-AG6), Dublin Gulch valley (MW10-OBS1, MW10-DG6) and Eagle Pup (MW96-13a and MW96-15). Five of these wells have a long-term data records extending back to either 2009 (MW96-13a, MW96-15) or 2010 (MW10-AG3a, MW10-AG6, MW10-DG6). Sampling in MW10-OBS1 began in 2017. Concentration plots of four select parameters of interest for the project (total and dissolved solids for aluminum, arsenic, iron and selenium) are depicted in Figure 3.3-2 to Figure 3.3-5. Data used to create these plots is included as Appendix G.

Figure 3.3-2a depicts the concentrations of total aluminum observed in the six wells since 2009, and indicates that a wide range in concentration (between two and three orders of magnitude) is evident when considering each of the six wells. Also, there is quite a large range in variability in each well. Of the five wells with longer term records, data from three wells (MW10-AG3a, MW10-DG6 and MW96-15) suggest an increase in aluminum over time. The increasing trends were evident prior to construction activities.

Figure 3.3-2b depicts the concentrations of dissolved aluminum in the six wells. In general, dissolved aluminum concentrations are relatively low (less than 0.1 mg/L), as much as two orders of magnitude lower than total aluminum. There are a few excursions above 0.1 mg/L in three separate wells, but no discernible increasing or decreasing trends over time.

Figure 3.3-3a depicts the concentrations of total arsenic observed in the six wells since 2009, and indicates that a wide range in concentration (over three orders of magnitude) is evident when considering all six wells, while each well has a fairly confined range (within one order of magnitude). Of the five wells with longer term records, only one well (in MW96-15 in Eagle Pup) exhibits an increase in arsenic over time. The increasing trend was evident prior to construction activities.

Figure 3.3-3b depicts the concentrations of dissolved arsenic in the six wells. In general, and similar to total arsenic, there is a wide range in concentrations (four orders of magnitude) evident when considering all six wells, while all but one well (MW96-13a), varies within only one order of magnitude. In some cases, variability is much less than one order of magnitude (MW10-DG6, MW10-AG6 and MW96-15). When considering total versus dissolved arsenic concentration for each well, some wells exhibit very similar concentrations (MW10-DG6), while

others (MW96-15, MW96-13a, MW10-OBS1) exhibit up to three orders of magnitude difference between total and dissolved. These characteristics reflect baseline conditions prior to and after construction began.

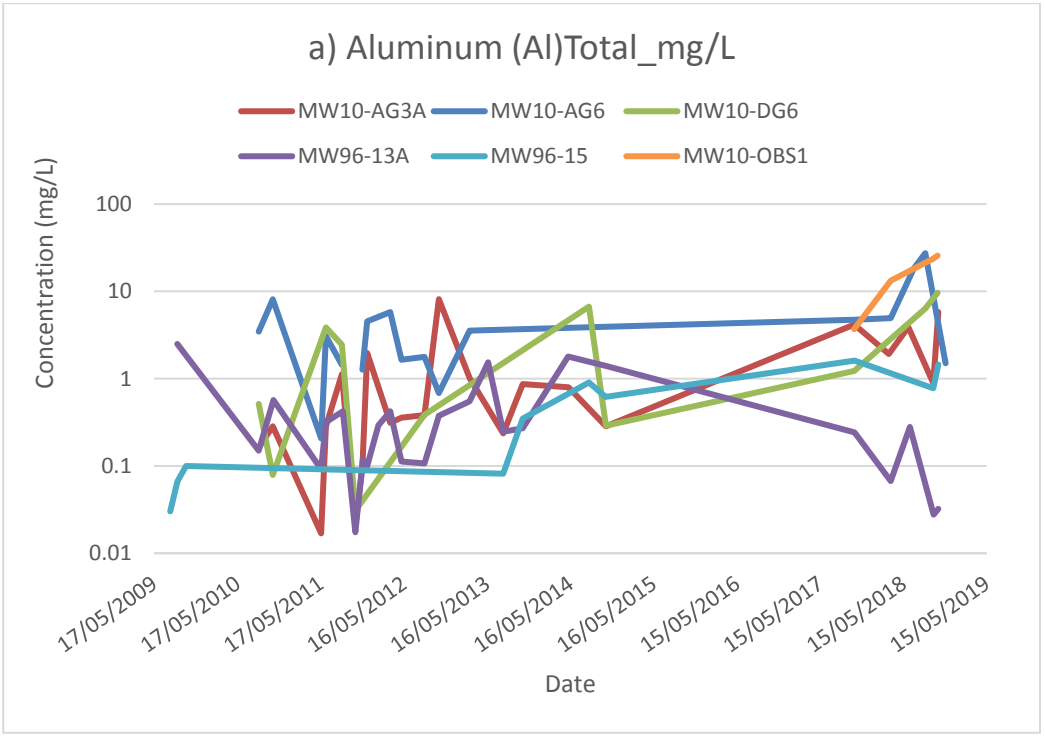
Figure 3.3-4a depicts the concentrations of total iron observed in the six wells since 2009, and indicates that a wide range in concentration (between two and three orders of magnitude) is evident when considering all six wells, but there is less overall variability in each well. Of the five wells with longer term records, two wells (MW10-AG3a and MW96-15) also suggest an increase in iron over time. The increasing trends were evident prior to construction activities.

Figure 3.3-4b depicts the concentrations of dissolved iron observed in the six wells. In general, dissolved iron ranges over three orders of magnitude when considering all the wells, but varies less than two orders of magnitude per well. In one case (MW10-DG6), dissolved iron remained relatively high and constant over time (~10 mg/L), while the other six wells vary considerably more, however, there are no discernible increasing or decreasing trends in dissolved iron concentration over time.

Figure 3.3-5a depicts the concentrations of total selenium observed in the six wells since 2009, and indicates that a relatively small range in concentration (less than two orders of magnitude) is evident when considering all six wells, and each well has an even smaller confined range (within one order of magnitude), often at the method detection limits. There are no long term increasing or decreasing trends evident with selenium. The two that suggest a decrease (MW10-3a and MW96-13a) are due to lowered detection limits.

Figure 3.3-5b depicts the concentrations of dissolved selenium observed in the six wells. In general, total and dissolved selenium concentrations are very similar for all the wells, and no increasing or decreasing trends are evident.

When considering each well, and total and dissolved concentrations for all four parameters, it is clear that some of the wells exhibit higher overall concentrations than other wells. For example, MW96-15 exhibits relatively high arsenic, selenium and iron, MW10-DG6 exhibits relatively high arsenic, iron and aluminum, MW96-13a exhibits relatively high arsenic and aluminum, and MW10-OBS1 exhibits relatively high iron and aluminum. Nevertheless, there does not appear to be any obvious or consistent spatial connection or temporal association to explain these characteristics.



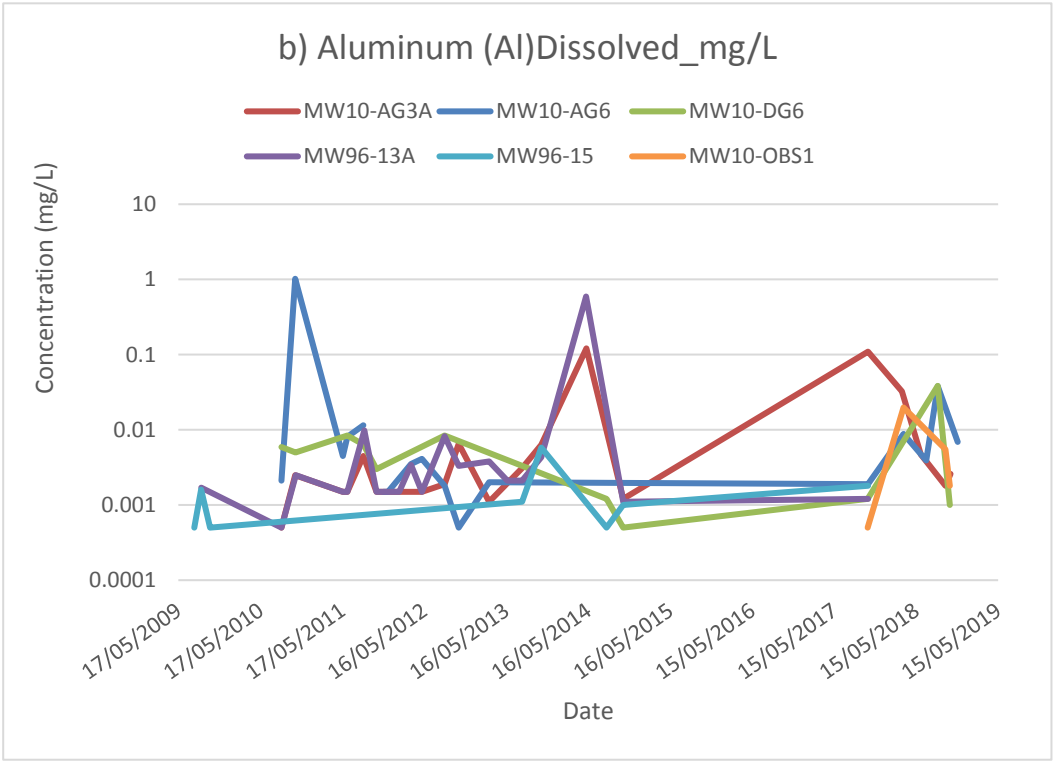




**Figure 3.3-2: Concentrations of Total (a) and Dissolved (b) Aluminum since 2009**

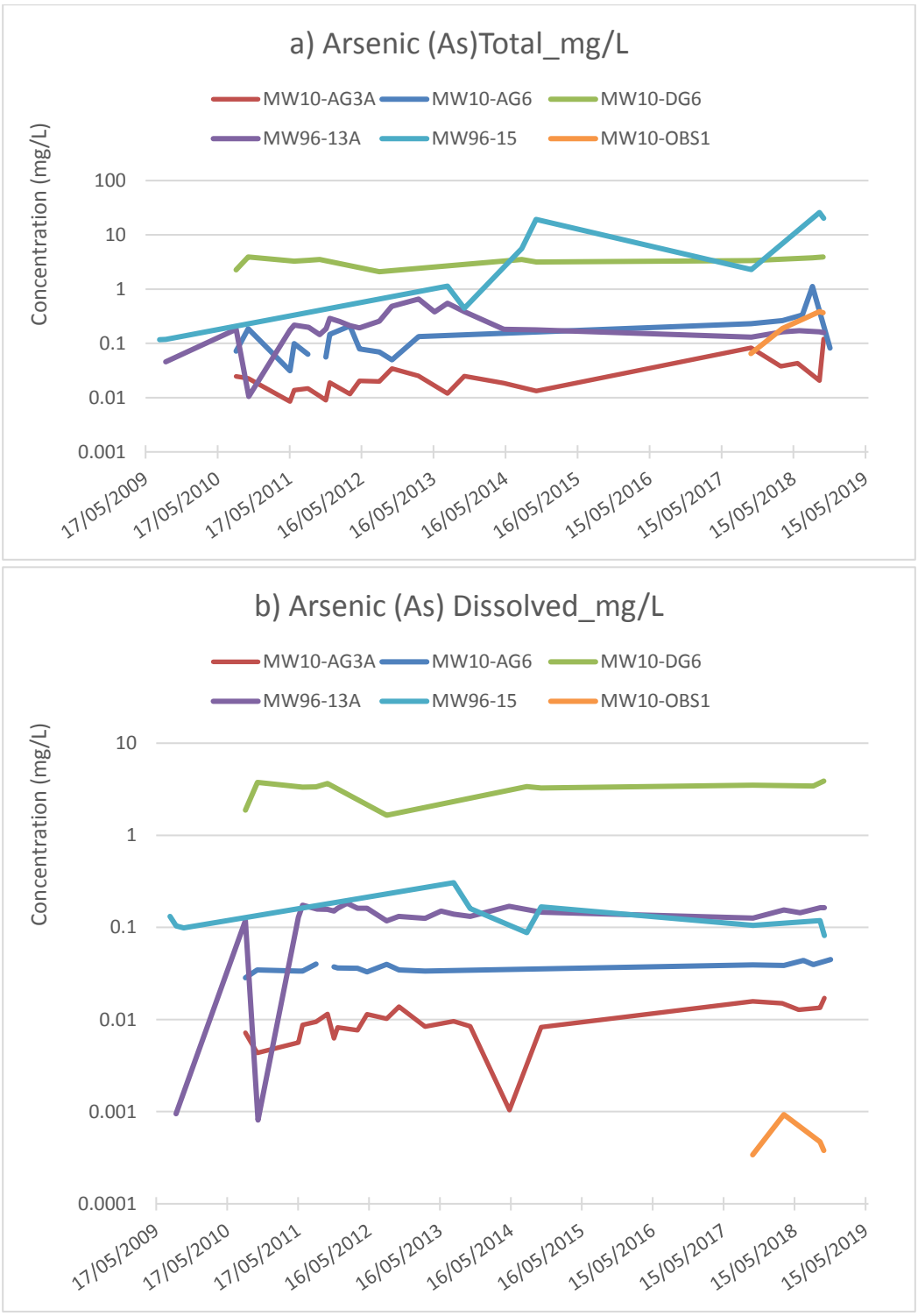



**Figure 3.3-3: Concentrations of Total (a) and Dissolved (b) Arsenic since 2009**

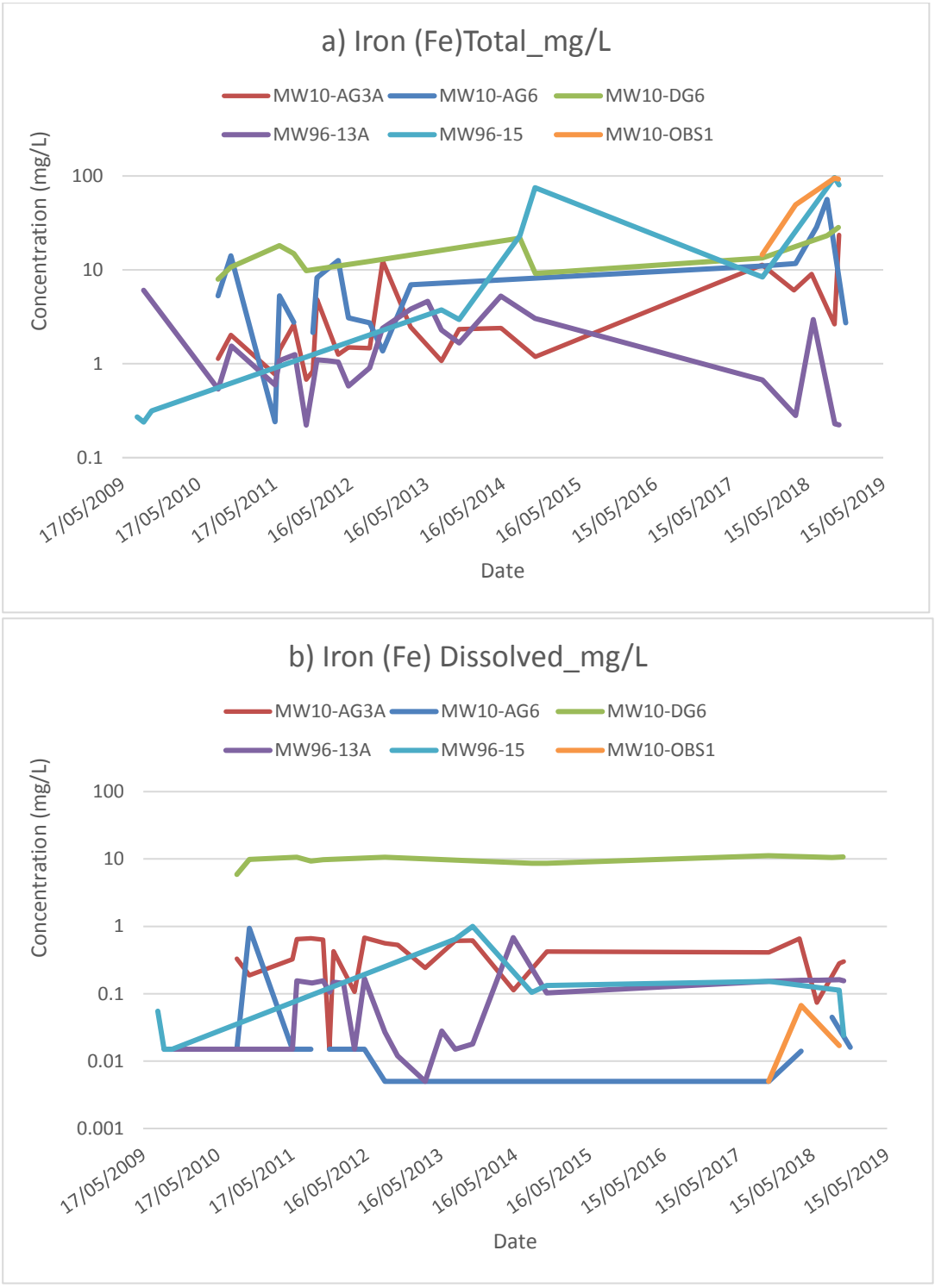
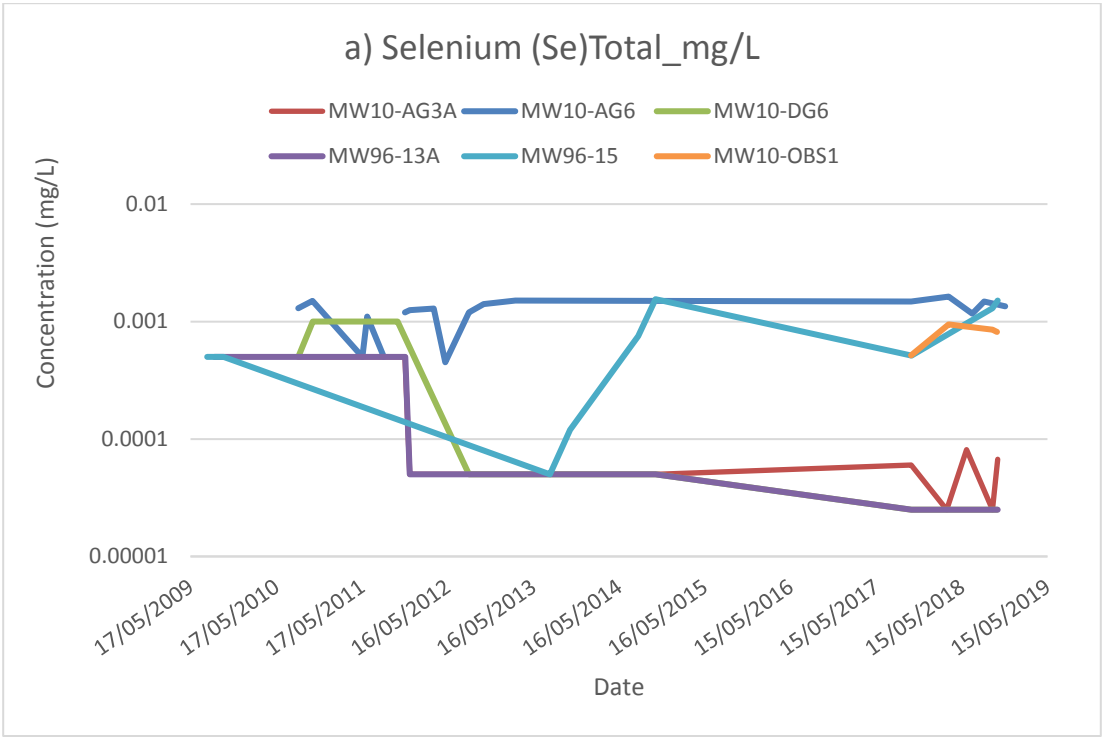



**Figure 3.3-4: Concentrations of Total (a) and Dissolved (b) Iron since 2009**



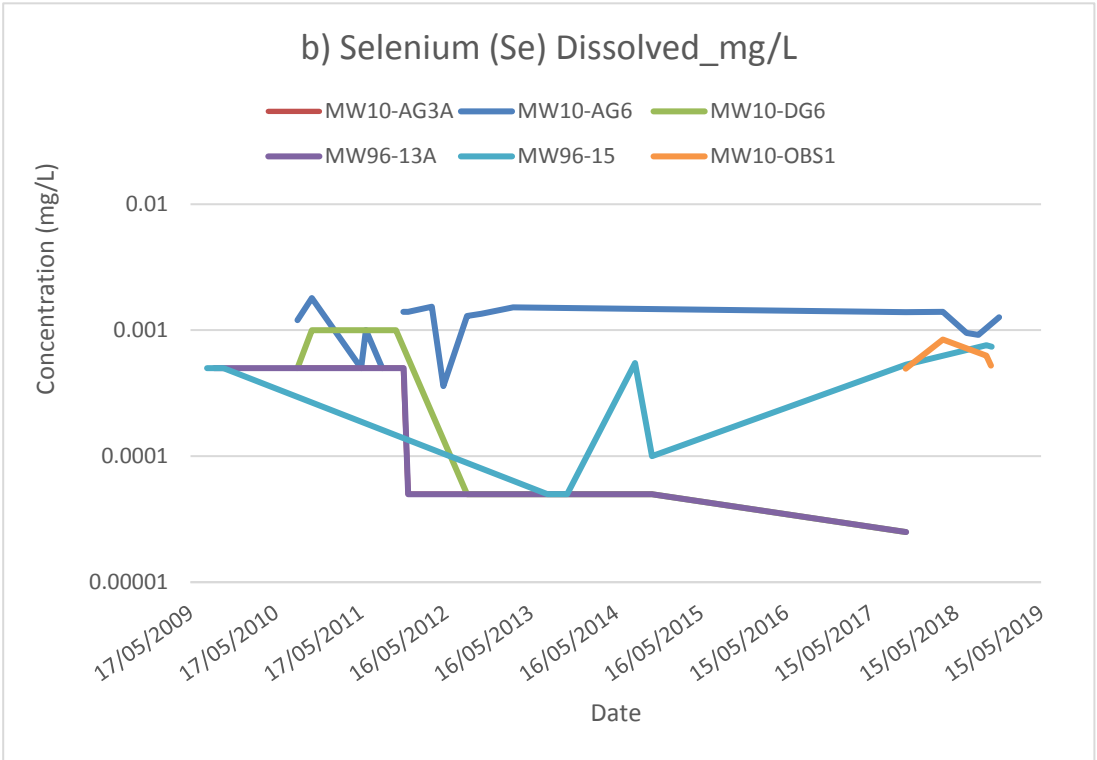



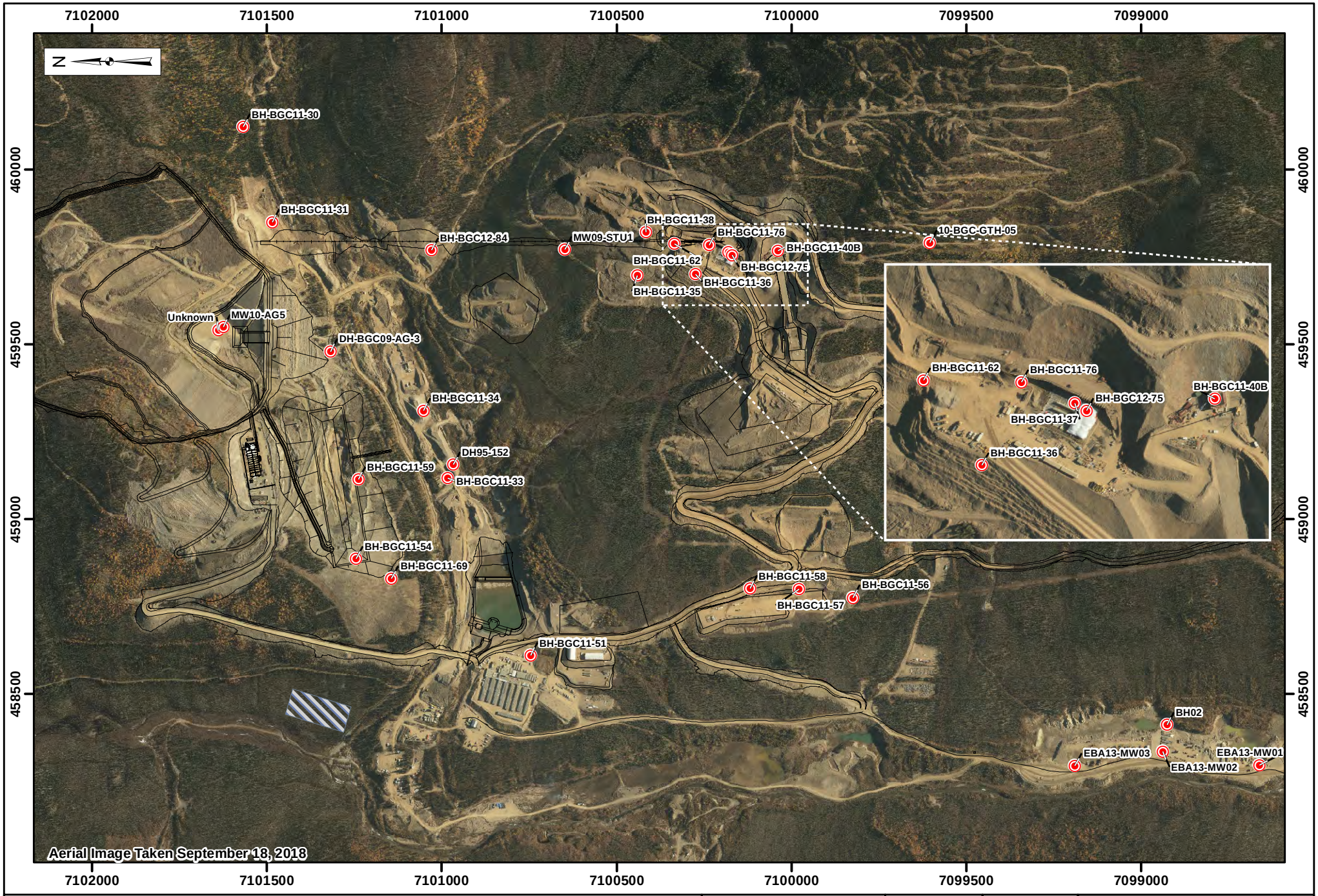

**Figure 3.3-5: Concentrations of Total (a) and Dissolved (b)Selenium since 2009**

### 3.3.3 Well Decommissioning

Table 3.3-4 lists and Figure 3.3-6 depicts the 30 environmental and geotechnical monitoring wells, piezometers and thermistors that were decommissioned in 2018.

### 3.3.4 Adaptive Management

When comparing groundwater level and water quality data collected during the baseline period (up to August 2017) and since construction, there are no discernible increasing or decreasing trends that can be attributed to construction activities, except for the one downward trend in groundwater level observed in MW10-DG6. While the well was damaged slightly, the decrease is expected and consistent with the dewatering activity in the HLF embankment area occurring just upgradient from the well. No adaptive management mitigations were necessary.




Legend:

Decommissioned Well — 2018 Construction Areas — Reserved Area

StrataGold Corporation

| | | | |
|---|---|---|---|
| Projection: NAD 83 UTM Zone 8N | Drawn By: JK | **EAGLE GOLD PROJECT YUKON TERRITORY** | |
| 0 200 400 Meters | Date: 2019/04/01 | Figure: 3.3-6 | **Environmental and Geotechnical Monitoring Wells Decommissioned in 2018** |

# 3.4 GEOCHEMICAL MONITORING

The geochemical monitoring program is intended to provide on-going characterization of rock encountered during the construction and operation of the Project. The geochemical monitoring program for construction rock has been designed to:

- Assess the potential for metal leaching and acidic drainage from excavated rock to determine if it is suitable for construction material;
- Verify geochemical predictions made during the mine planning phase;
- Assess the level of weathering-driven reaction products and their potential to migrate; and
- Evaluate the effectiveness of measures to prevent and control metal leaching and acidic drainage (if applicable).

## 3.4.1 Geochemical Barrel Testing

In 2012, a field kinetic test program with eight field barrels (Photo 3.4-1), each containing ~225 kg of rock representative of the Project, was initiated to support the development of water quality predictions that reflects geochemical and hydrogeological processes occurring at the Project. The geochemistry of field bin leachates collected during 2018 (Appendix H) were reviewed by Lorax. and the potential effects of the additional data on the source term model were assessed (Appendix H). In summary, Lorax determined that the source term predictions previously developed are still valid and do not require updating based on the additional data collected in 2018; however, SGC continues the sampling and analysis of the leachates on a monthly basis during non-freezing conditions.



**Photo 3.4-1: Geochemical Field Barrel Test Site**

## 3.4.2 Waste Rock / Acid-Base Accounting

No waste rock was generated during 2018 construction activities.

## 3.4.3 Construction Material Testing

In 2018, 26 samples were collected from various borrow locations to determine if the materials met the geochemical criteria established by the regulatory approvals for use in Project construction. Samples were sent to ALS Laboratories for analysis and the results are included in Appendix I.

All samples collected met the criteria required for construction or fill purposes, with a pH of at least 5.0, an NP:AP ratio of at least 3:1, and a total sulphide sulphur content of no greater than 0.3%. Samples ranged in pH from 6.6 to 9.0, with a median of 8.1, with Sulphur content ranging from non-detect at < 0.01% to 22% and a median of 0.02. (Table 3.4-1).

**Table 3.4-1: 2018 Geochem Monitoring Results**

| ALS ID | Sample ID | Date Sampled | Paste pH | Sulfur (%) | NP:AP Ratio |
|---|---|---|---|---|---|
| L2079482-1 | VICEAG-GCM-01 | 4/12/2018 1:52:00 PM | 8.4 | 0.02 | 8:0.6 |

| ALS ID | Sample ID | Date Sampled | Paste pH | Sulfur (%) | NP:AP Ratio |
|---|---|---|---|---|---|
| L2079482-2 | VICEAG-GCM-02 | 4/12/2018 1:52:00 PM | 7.9 | 0.22 | 13:6.9 |
| L2079482-3 | VICEAG-GCM-03 | 4/12/2018 1:52:00 PM | 7.9 | 0.19 | 10:5.9 |
| L2079482-4 | VICEAG-GCM-04 | 4/12/2018 1:52:00 PM | 8 | 0.01 | 10:0.3 |
| L2079482-5 | VICEAG-GCM-05 | 4/12/2018 1:52:00 PM | 8.5 | 0.03 | 92:0.9 |
| L2100743-1 | VICEAG-GCM-06 | 5/25/2018 1:30:00 PM | 8.9 | 0.06 | 13:1.9 |
| L2100743-2 | VICEAG-GCM-07 | 5/25/2018 1:30:00 PM | 8.7 | <0.01 | 3:<0.3 |
| L2100743-3 | VICEAG-GCM-08 | 5/25/2018 1:30:00 PM | 8.9 | 0.11 | 94:3.4 |
| L2100743-4 | VICEAG-GCM-09 | 5/25/2018 1:30:00 PM | 8.5 | <0.01 | 4:<0.3 |
| L2100743-5 | VICEAG-GCM-10 | 5/25/2018 1:30:00 PM | 7.5 | 0.02 | 3:0.6 |
| L2100743-6 | VICEAG-GCM-11 | 5/25/2018 1:30:00 PM | 7.6 | 0.15 | 3:4.7 |
| L2100743-7 | VICEAG-GCM-12 | 5/25/2018 1:30:00 PM | 8.7 | 0.02 | 6:0.6 |
| L2100743-8 | VICEAG-GCM-13 | 5/25/2018 1:30:00 PM | 7.8 | 0.01 | 2:0.3 |
| L2100743-9 | VICEAG-GCM-14 | 5/25/2018 1:30:00 PM | 8.3 | 0.01 | 4:0.3 |
| L2100743-10 | VICEAG-GCM-15 | 5/25/2018 1:30:00 PM | 9 | 0.02 | 48:0.6 |
| L2119273-1 | VCEAG-GCM-16 | 6/26/2018 4:48:00 PM | 8.2 | 0.02 | 10:0.6 |
| L2119273-2 | VCEAG-GCM-17 | 6/26/2018 4:48:00 PM | 8.4 | <0.01 | 12:<0.3 |
| L2119273-3 | VCEAG-GCM-18 | 6/26/2018 4:48:00 PM | 7.8 | 0.04 | 5:1.3 |
| L2119273-4 | VCEAG-GCM-19 | 6/26/2018 4:48:00 PM | 8.3 | 0.06 | 15:1.9 |
| L2160738-1 | VICEAG-GCM-20 | 9/6/2018 1:00:00 PM | 6.6 | 0.17 | 3:5.3 |
| L2160738-2 | VICEAG-GCM-21 | 9/6/2018 1:00:00 PM | 7.2 | 0.12 | 4:3.8 |
| L2160738-3 | VICEAG-GCM-22 | 9/6/2018 1:00:00 PM | 7.9 | 0.01 | 7:0.3 |
| L2160738-4 | VICEAG-GCM-23 | 9/6/2018 1:00:00 PM | 8 | 0.01 | 7:0.3 |
| L2160738-5 | VICEAG-GCM-24 | 9/6/2018 1:00:00 PM | 8 | 0.06 | 8:1.9 |
| L2160738-6 | VICEAG-GCM-25 | 9/6/2018 1:00:00 PM | 7.9 | 0.02 | 16:0.6 |
| L2197711-1 | VICEAG-GCM-32 | 11/16/2018 9:15:00 AM | 8.1 | 0.01 | 11:0.3 |
| | | **Min** | **6.6** | **0.01** | |
| | | **Med** | **8.1** | **0.02** | |
| | | **Max** | **9** | **0.22** | |

## 3.5 AQUATIC ENVIRONMENT

This section describes the stream sediment, benthic macroinvertebrate and fish and fish habitat monitoring conducted on the Project site in 2018. Sample sites for all programs are included in Figure 3.5-1. Benthic macroinvertebrate, stream sediment and water quality programs were performed concurrently to support a more robust characterization of the existing conditions.

### 3.5.1 Stream Sediment

The stream sediment monitoring program is designed to obtain data on the stream sediment quality in watercourses of the study area to help evaluate possible effects associated with the project. Annual sampling for stream sediment was conducted at nine sites in September 2018 (Figure 3.5-1) representing the four principal drainages (Eagle Creek, Dublin Gulch, Haggart Creek and Lynx Creek) in the Project area. A detailed report is included as Appendix J.

Samples were analyzed for soil pH, total organic carbon and a suite of 32 metals. These parameters are relevant to toxicity and physical habitat requirements for benthos, fish eggs and juvenile fish. The average result of ten selected metals at each site is presented in Table 3.5-2. These elements were chosen for closer examination as they may be present locally in the Project area. Since there are no Canadian Environmental Quality Guidelines established for nickel, selenium and silver, Table 3.5-1 lists the British Columbia Working Sediment Quality Guidelines (BCWSG) instead. Concentrations that exceeded the Interim Sediment Quality Guidelines (ISQG) are displayed in bold and gray highlighted. The ISQG guideline represents where adverse biological effects may only rarely occur. Concentrations that exceeded the Probable Effects Level (PEL) are displayed in bold and highlighted in orange. While the probable effects levels are based on studies in other regions that show a 50% incidence of creating adverse biological effects, they are used here for reference only as they may not be representative of actual effects levels in the Project region.

**Table 3.5-1: Summary of Mean Stream Sediment Concentrations, September 2018**

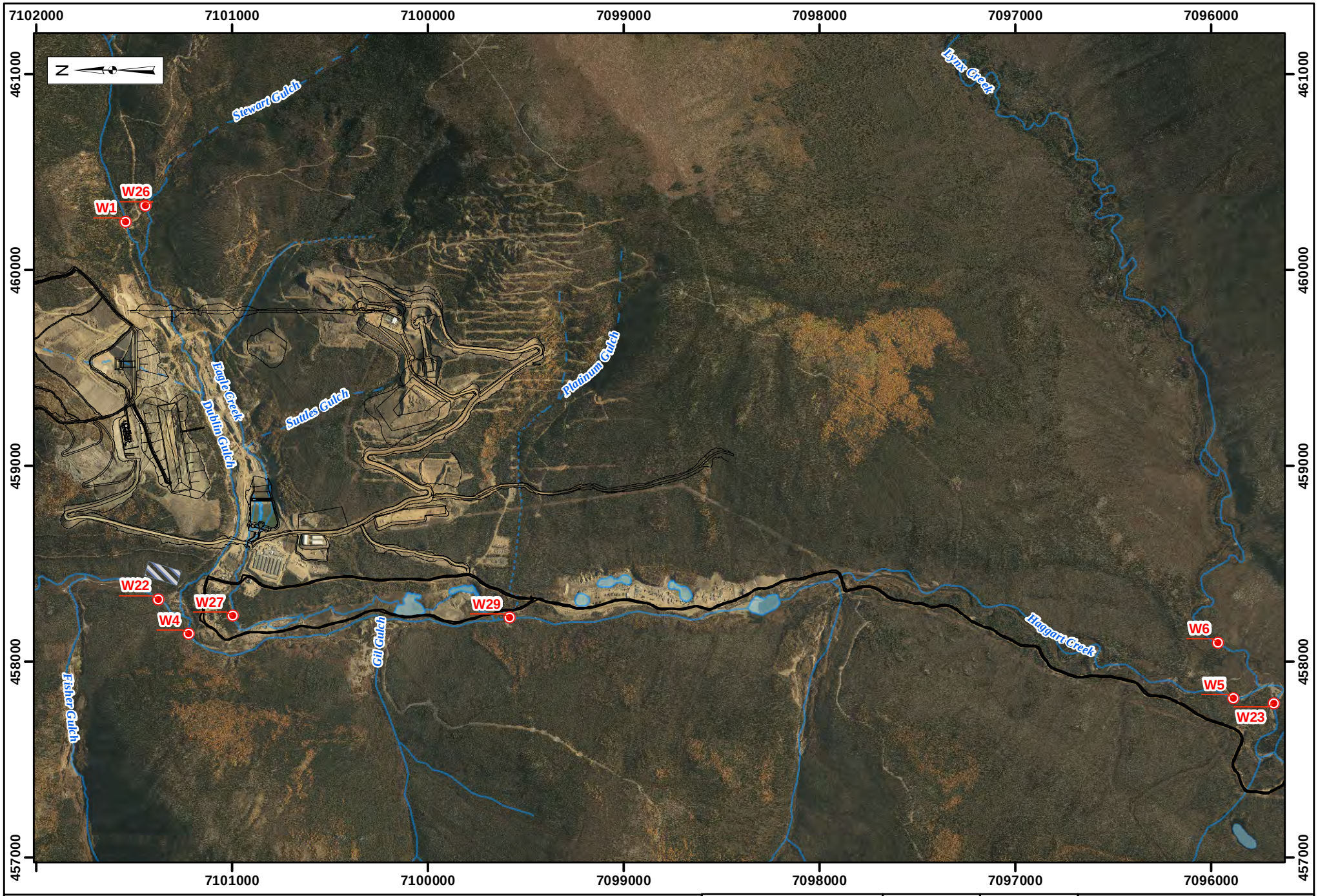
| Drainage | Haggart Creek | | | | | Dublin Gulch | | Eagle Creek | Lynx Creek | CEQG Guidelines | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Site | **W22** | **W4** | **W29** | **W5** | **W23** | **W1** | **W26** | **W27** | **W6** | **ISQG** | **PEL** |
| pH | 7.75 | 7.51 | 7.49 | 7.98 | 7.74 | 7.34 | 7.77 | 8.17 | 7.44 | na | na |
| Arsenic (mg/kg) | **115.6** | **202.3** | **126.3** | **114.0** | **105.6** | **383.0** | **269.7** | **252.7** | **79.5** | 5.9 | 17 |
| Cadmium (mg/kg) | **0.8** | 0.3 | 0.3 | 0.4 | 0.4 | 0.4 | 0.4 | 0.3 | **1.0** | 0.6 | 3.5 |
| Chromium (mg/kg) | 18.8 | 19.4 | 18.3 | 23.2 | 22.0 | 33.3 | **42.7** | 17.4 | 25.4 | 37.3 | 90 |
| Copper (mg/kg) | 31.3 | 26.7 | 26.5 | 26.2 | 23.8 | 20.0 | 22.8 | **38.2** | 25.1 | 35.7 | 197 |
| Lead (mg/kg) | 28.8 | 24.9 | 28.1 | 30.7 | 25.1 | 30.8 | 29.3 | **46.2** | 17.6 | 35.0 | 91.3 |
| Mercury (mg/kg) | 0.051 | 0.048 | 0.038 | 0.056 | 0.054 | 0.053 | 0.049 | 0.037 | 0.044 | 0.170 | 0.486 |
| Nickel* (mg/kg) | **53.2** | **28.5** | **25.0** | **29.8** | **26.7** | **41.7** | **34.6** | **28.4** | **29.7** | 16 | 75 |
| Selenium* (mg/kg) | 0.37 | 0.39 | 0.27 | 0.33 | 0.44 | 0.32 | 0.41 | 0.28 | 0.82 | 5 | na |
| Silver* (mg/kg) | 0.11 | 0.18 | 0.16 | 0.21 | 0.26 | 0.20 | 0.19 | 0.22 | 0.17 | 0.5 | na |
| Zinc | **140.0** | 99.1 | 83.0 | 95.5 | 92.3 | 104.7 | 92.3 | 96.8 | 115.7 | 123 | 315 |

**NOTES:**
Source: Appendix J
* British Columbia Working Sediment Quality Guidelines
na = not applicable
bold and gray highlight = concentrations that exceeded the Interim Sediment Quality Guidelines (ISQG)
bold and orange highlight = concentrations that exceeded the Probable Effects Level (PEL)

As demonstrated in 2017 and in baseline studies done in previous years prior to construction, several guidelines were exceeded for the protection of freshwater aquatic life. The PEL for arsenic, 17 mg/kg, was exceeded by substantial amounts at all of the sites, and ranged from 79.5 mg/kg at W6 to 383.0 mg/kg at W1. Also, the concentration of nickel exceeded the BCWSG low level effect guideline (16 mg/kg) in the stream sediments at all of the sites and ranged from 25.0 mg/kg at W29 to 53.2 at W22. The ISQG was exceeded for copper at W27. The ISQG for cadmium was exceeded at W6 and W22, both of which are background (outside of Project influence) sites.

Periodic exceedances of guidelines of other metals have been reported in previous studies. In 2018, the ISQG was exceeded for chromium at W26, for lead at W27, and for zinc at W22. Guidelines were met in the study area for mercury, selenium and silver. Nickel concentrations remained relatively similar across the study area in 2018, similar to previous studies.

Arsenic is prevalent in the stream sediments throughout the study area and has been previously reported above the PEL on all sampling occasions. Arsenic is typically associated with the mineralogy of gold. The high concentrations documented upstream of Project activities (W1, W26 and W22) and an undisturbed reference site (W6) indicate that arsenic levels are naturally elevated throughout the Project area.




Legend:

- Stream Sediment Monitoring Location
- 2018 Construction Areas
- Reserved Area
- Perennial
- Ephemeral
- Intermittent

StrataGold Corporation

Projection: NAD 83 UTM Zone 8N

Drawn By: JK

0 350 700 Meters

Date: 2019/04/01

Figure: 3.5-1

**EAGLE GOLD PROJECT**
**YUKON TERRITORY**

**2018 Sediment and Benthic Monitoring Locations**

### 3.5.2 Benthic Macroinvertebrates

Annual sampling for benthic invertebrates was conducted in September 2018 and represents the second survey completed during the construction phase of the Project. Benthic samples and water quality samples were collected at sites shown in Figure 3.5-1. A detailed report is included as Appendix K.

Data from the survey was subjected to several metrics and indices to describe the benthic populations. Table 3.5-2 provides a summary of benthic community statistics.

**Table 3.5-2: Summary of General Statistics on Benthic Communities, September 2018**

| Drainage | Site | Abundance (organisms/site) | Density (organisms/$m^3$) | Taxonomic Richness/site | Simpson's Index of Diversity/site |
|---|---|---|---|---|---|
| Haggart Creek | W22 | 731 | 2,623 | 60 | 0.93 |
| | W4 | 336 | 1,206 | 50 | 0.94 |
| | W29 | 933 | 3,348 | 55 | 0.91 |
| | W5 | 519 | 1,862 | 57 | 0.91 |
| | W23 | 1039 | 3,728 | 65 | 0.91 |
| Dublin Gulch | W1 | 849 | 3,046 | 43 | 0.87 |
| | W26 | 2196 | 7,879 | 38 | 0.86 |
| Eagle Creek | W27 | 709 | 2,544 | 43 | 0.87 |
| Lynx Creek | W6 | 2429 | 8,715 | 52 | 0.88 |

Abundance was determined by summing all of the individuals present in a known sample area. Abundance per site was calculated as density (organisms/$m^3$) to allow comparisons with previous surveys. Taxonomic richness is a simple measure of diversity where each type of invertebrate is counted per site. The Simpson's Diversity Index was also applied as a measure of diversity. This index takes into account the number of species present as well as the relative abundance of each species, and ranges from 0 to 1, with numbers approaching 1 representing greater diversity. This method shows that communities at all sites were very diverse.

When comparing, for example, a site on Haggart Creek upstream of the project (W22) with a site downstream of the project (W23), the densities and diversities are very similar, suggesting that little if any, impact to Haggart Creek benthic populations has occurred despite over 100 years of human activities within the study area. Further discussion is provided in Appendix K.

When examined against previous surveys, the 2018 data indicates habitat conditions have not measurably changed and they continue to support stable and healthy benthic populations at all sites with good representation of the major groups of organisms that are typically present in lotic waters.

### 3.5.3 Fish and Fish Habitat

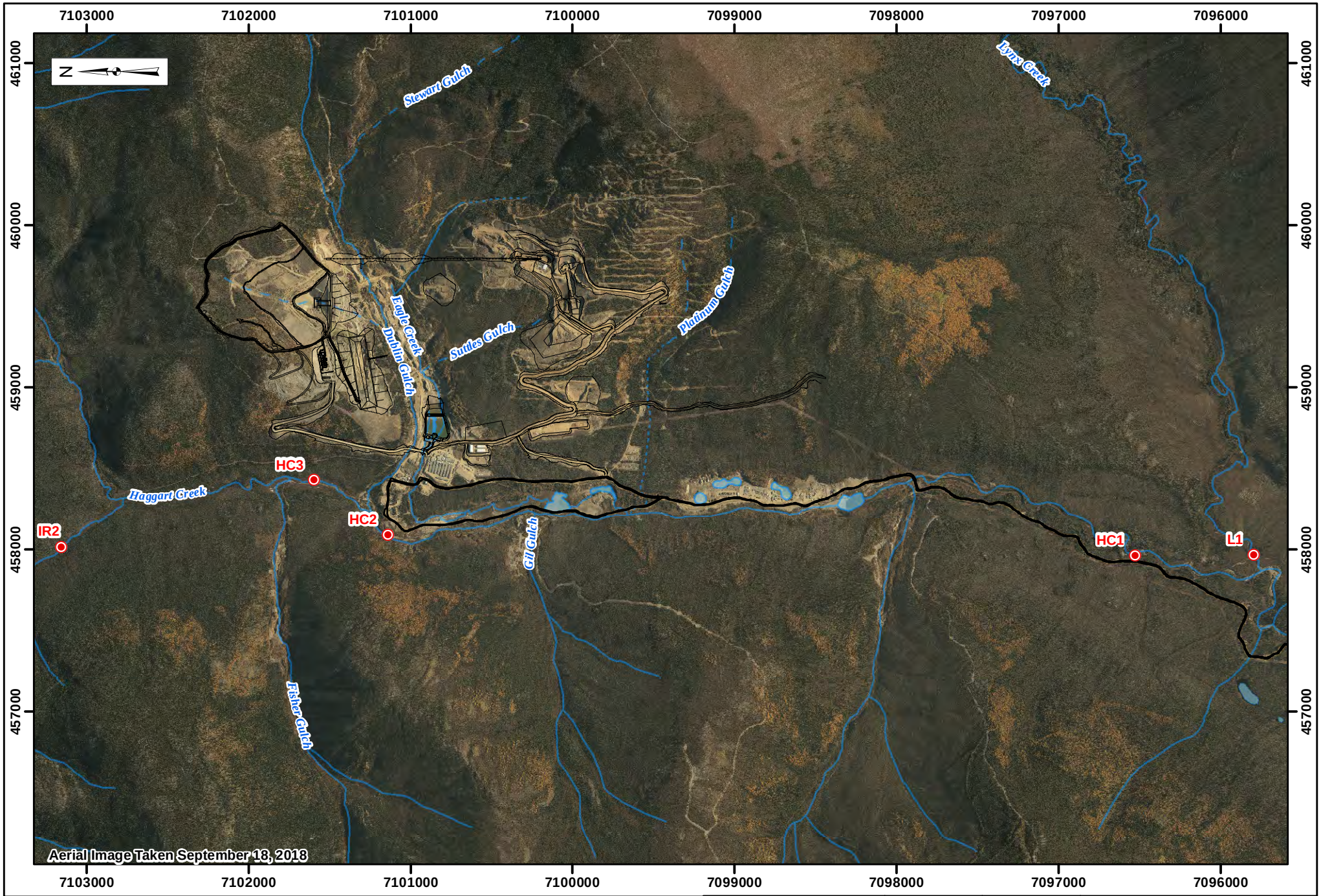
Annual inventory, sampling and documenting of fish and fish habitat was conducted in September 2018 at the five established background monitoring locations (on Ironrust, Haggart, and Lynx Creeks) shown in Figure 3.5-2. A detailed report is provided as Appendix L.

The composition of the catch from this annual study was represented by three fish species: slimy sculpin, Arctic grayling, and burbot (Table 3.5-3). Biophysical characteristics observed and fish species found at each of the five

monitoring sites in September 2018 were similar to previous surveys. Species composition showed consistency and was indicative of a stable fish community. Overall fish captures at all of the sites were generally lower in 2018 compared to 2017. It is believed that the colder water temperatures measured during the study combined with the abundance of frazil ice that had recently formed in the stream, likely had an unfavorable effect on fish catch totals.

**Table 3.5-3: 2018 Fish Capture Methods and Results**

| Site | Capture Method | Catch | | | Observed |
|---|---|---|---|---|---|
| | | Artic Grayling | Burbot | Slimy Sculpin | |
| **Haggart Creek Drainage Basin** | | | | | |
| HC1 | Angling | 0 | 0 | 0 | |
| | Electrofishing | 4 | 0 | 3 | 15 grayling fry |
| | Minnow trapping | 4 | 0 | 1 | |
| HC2 | Electrofishing | 2 | 0 | 2 | |
| | Minnow trapping | 0 | 0 | 1 | |
| HC3 | Electrofishing | 0 | 0 | 1 | 1 sculpin |
| | Minnow trapping | 0 | 0 | 0 | |
| **Ironrust Creek Drainage Basin** | | | | | |
| IR2 | Electrofishing | 0 | 0 | 1 | 1 grayling adult |
| | Minnow trapping | 0 | 0 | 0 | |
| **Lynx Creek Drainage Basin** | | | | | |
| L1 | Angling | 0 | 0 | 0 | Several sculpin |
| | Electrofishing | 1 | 0 | 9 | 1 grayling, 3 sculpin |
| | Minnow trapping | 0 | 1 | 3 | |




Legend:

- Fish & Fish Habitat Sampling Sites
- 2018 Construction Areas
- Reserved Area
- Perennial
- Ephemeral
- Intermittent

StrataGold Corporation

Projection: NAD 83 UTM Zone 8N

Drawn By: JK

0 375 750 Meters

Date: 2019/04/01

Figure: 3.5-2

**EAGLE GOLD PROJECT**
**YUKON TERRITORY**

**2018 Fish and Fish Habitat Monitoring Locations**

# 3.7 METEOROLOGY AND AIR QUALITY MONITORING

## 3.7.1 Climate Monitoring

Climate monitoring continued at the Project in 2018 from two onsite climate stations; the Potato Hills station, an ONSET Hobo operating system (1,420 meters above sea level (masl)), and the Camp station, a Campbell Scientific CR800 datalogger (782 masl). Temperature, rainfall, wind speed and direction, relative humidity, barometric pressure and solar radiation all continue to be measured at 15-minute intervals at the Camp climate station.

The Potato Hills climate station measured temperature, rainfall, wind speed and direction, relative humidity and barometric pressure at 60-minute intervals until August 5, 2018 when the system was removed from the station due to ongoing power failures. On September 22 the ONSET system was replaced at the station logging at 15-minute intervals. On October 16 it was confirmed that the wind direction sensor was failing and was disabled. The station collected continuous data for the remainder of 2018.

Snow course surveys as contemplated in the EMSAP were also completed in 2018.

Appendix M provides an updated climate data report based on all data compiled for the Project.

## 3.7.2 Air Quality Monitoring

Visual daily air quality monitoring throughout the site took place during periods when the roadways were not frozen or wetted. The goal of the visual monitoring program was to identify areas where fugitive dust emissions from roadways and construction sites were prevalent. Fugitive dust events observed during the reporting period were minor and addressed through the application of water in heavy traffic areas.

Beta-Attenuation Particulate Monitors (EBAMs) were installed at site, below the expanded camp in late August. The EBAM system includes real time data transmission that can be monitored remotely with daily summaries automatically generated by the associated software platform. In addition to this site personnel complete routine checks and monthly maintenance. Routine measurements are taken on 15-minute intervals for Total Suspended Particulate (TSP), Fine Particulate Matter ($PM_{2.5}$) and Coarse Particulate Matter ($PM_{10}$). Appendix N provides minimum, maximum, and mean daily values (24hr).

Daily recorded air quality results are compared to the Yukon Ambient Air Quality Standards (YAAQS) in Table 3.7-1. Annual averages are calculated from the date of installation (August 22) until December 31, 2018. All measured air quality particulates were below the annual average outlined by the YAAQS. There were six occurrences of TSP exceeding the 24hr standard, five of the occurrences took place between October 5 and 12. $PM_{10}$ results were above the 24hr YAAQS from October 6 to 10. Air Quality results remained below the averages outside of these time periods. Fine particulate ($PM_{2.5}$) did not exceed the 24hr YAAQS in 2018.

Exceedances are thought to be related to the cessation of dust suppression in early October. Water use for dust suppressions was stopped on October 4 once day time temperatures remained consistently below freezing and dust suppression became unsafe for vehicles. There was elevated dust throughout the week until it snowed on October 11$^{th}$ and dust levels were once again lowered below the 24hr standards.

**Table 3.7-1: Daily Air Quality Results Compared to the Yukon Ambient Air Quality Standards**

| Contaminant | Annual Ambient Air Quality Objectives (µg/m³) | Results | | | 24hr Ambient Air (µg/m³) | No. of Exceedances |
|---|---|---|---|---|---|---|
| | | Min | Max | Mean | | |
| TSP | 60 | 0 | 273.4 | 21.36 | 120 | 6 |
| $PM_{2.5}$ | 10 | 0 | 12.71 | 1.19 | 28 | 0 |
| $PM_{10}$ | * | 4.99 | 174.48 | 7.91 | 50 | 4 |

**NOTE:** *No Annual Ambient Air Quality Objectives outlined in the Yukon Standard.

Additionally, dust fall stations were installed on August 23, 2018 at the locations described in Table 3.7-2 alongside the four permanent vegetation plots described in Section 3.8, below. Dustfall container samples are collected and submitted for laboratory analysis on a monthly basis.

**Table 3.7-2: Dustfall Monitoring Locations**

| Plot | Easting | Northing |
|---|---|---|
| D 1 | 463559 | 7100818 |
| D 2 | 458240 | 7101022 |
| D 3 | 460583 | 7099088 |
| D 4 | 458436 | 7097951 |

# 3.8 TERRESTRIAL

## 3.8.1 Vegetation Monitoring Program

As outlined in the EMSAMP, four permanent vegetation plots described in Table 3.8-1 were established in 2018 to monitor changes in vegetation during the construction phase of the Project. The vegetation monitoring baseline program was completed by Laberge Environmental and consists of two sites in the Subalpine Zone with elevations greater than 1225 masl and two sites at lower elevation in Forested areas. These vegetation plots will be monitored once a year during the growing season to provide data to specifically address potential changes associated with metals in and on plant tissue.

**Table 3.8-1: Location and Description of Vegetation Monitoring Plots**

| Plot # | NAD 83 Zone 8N | | Aspect | Elevation (m) | Site Description |
|---|---|---|---|---|---|
| | Easting | Northing | | | |
| D1 | 463550 | 7100803 | Level | 1417 | Potato Hills near climate station |
| D2 | 458251 | 7101150 | West | 834 | Upslope of the air quality station and the camp climate station |
| D3 | 460598 | 7099079 | South west | 1356 | Top of Eagle Pup near the over-the-top road |
| D4 | 458450 | 7097945 | Level | 757 | On the west side of the access road just upstream of the Haggart Creek culverts. |

**NOTE:** Source Laberge (2019; Appendix O)

Each site is accessible by road and has been delineated with rebar. The four sites contain plot areas with a transect expanding outward in cardinal direction 10 m from the center.

Vegetation samples were collected for species found within each of the sites five plots, the Table 3.8-2 list the species and sites where the sample biomass was large enough to run analyses. Willow (*Salix* sp.) was the only species found at all for sites with enough biomass for analysis. Samples were analyzed for a suite of 34 metals including mercury. The focus of the analysis was on metals that potentially may be emitted as a result of the gold recovery processes (arsenic, cadmium, chromium, lead, and mercury) and as outlined in Table 3.8-2.

**Table 3.8-2: Results of Vegetation Monitoring Metal Analysis**

| Plot | Tissue Type | N | Selected Metal Concentrations (mg.kg) per Tissue Type | | | | |
|---|---|---|---|---|---|---|---|
| | | | Arsenic | Cadmium | Chromium | Lead | Mercury |
| D4 | Bluejoint | 1 | 2.27 | 0.0224 | 0.181 | 0.438 | ND |
| D1 | Festuca | 5 | 0.113 | 0.055 | 0.073 | 0.108 | ND |
| D4 | Sedge | 4 | 2.608 | 0.103 | 0.327 | 0.593 | ND |
| D1 | Dwarf Birch Leaves | 5 | 0.178 | 0.187 | ND | 0.055 | 0.0054 |
| D2 | Dwarf Birch Leaves | 5 | 2.128 | 0.255 | 0.205 | 0.395 | 0.0060 |
| D3 | Dwarf Birch Leaves | 5 | 0.410 | 0.188 | ND | 0.066 | 0.0054 |
| D1 | Willow Leaves | 5 | 0.187 | 1.758 | ND | 0.082 | 0.0066 |
| D4 | Willow Leaves | 4 | 2.015 | 2.700 | 0.158 | 0.381 | 0.0059 |
| D1 | Willow Leaves | 1 | 0.551 | 1.05 | ND | 0.132 | 0.0055 |
| D2 | Willow Leaves | 5 | 6.800 | 1.712 | 0.636 | 1.384 | 0.0060 |
| D3 | Willow Leaves &Twigs | 1 | 2.49 | 2.38 | 0.218 | 0.439 | 0.0067 |
| D4 | Willow Leaves &Twigs | 4 | 0.460 | 2.065 | 0.051 | 0.083 | 0.0062 |
| D2 | Willow Twigs | 1 | 0.135 | 1.948 | ND | 0.154 | ND |
| D3 | Willow Twigs | 4 | 0.612 | 2.490 | 0.00 | 0.188 | ND |
| D1 | Willow Twigs | 1 | 0.311 | 1.03 | 0.068 | 0.102 | ND |
| D2 | Willow Twigs | 5 | 1.848 | 1.501 | 0.225 | 0.429 | ND |

**NOTE:** Source Laberge (2019; Appendix O); ND=not detected.

The highest concentrations of the five metals of interest were documented in the tissue samples collected from D4, however levels are not considered toxic. Full results of the 2018 Vegetation Monitoring program can be found in Appendix O.

## 3.8.2 Soils

The Soils monitoring program was designed to provide data to determine changes to metal and nutrient levels in soils adjacent to the mine as a result of dust deposition occurring during Project activities. As outlined in the EMSAMP soil sampling locations were picked in conjunction with the vegetation monitoring program and the baseline study completed by Laberge Environmental (see Table 3.8-1, above).

Initial findings from the baseline study indicate that the soils at the Project are nutrient poor and have a pH somewhat acidic to near neutral. The pH at the four sites ranged from 4.62 to 6.42 and soil samples were collected and analyzed for 36 metals. With the exception of arsenic all metals were below CCME guidelines. Results from the baseline study can be found in Appendix P. Arsenic is often associated with gold bearing anomalies in the

region and these baseline concentrations reflect the natural mineralization of the Project area. The full report can be found in Appendix P.

## 3.8.3 Wildlife

As part of site orientation, all site personnel receive bear awareness training, company policies training, and are required to report wildlife observations and incidences. Personnel record wildlife sightings and encounters on wildlife observation cards available at a variety of locations throughout the site. Wildlife observation cards are a tool used to track and evaluate the frequency of animal encounters; these cards are used to monitor species at risk, nuisance wildlife and to notify site personnel of potentially dangerous animals around work areas. Observations of wildlife and indicators of wildlife such as tracks, scat or auditory observations may also be recorded (even in the absence of visual confirmation). Wildlife observations recorded through 2018 are provided in Appendix Q.

### 3.8.3.1 Pre-Clearing Wildlife Surveys

Prior to clearing throughout the year, areas were surveyed for mineral licks, nest trees, snags, rocky outcrops, small ponds and seepage. No animals or notable features were found during these surveys. For 2018 construction activities that took place within the breeding bird window (May-September) pre-clearing bird surveys were completed. A total of twelve bird pre-clearing surveys took place from May to September 2018.

### 3.8.3.2 Wildlife Incidents

On November 20, 2018 an injured red fox was noticed on site and was suspected to have a broken back, but the cause of the injury was unknown. It was live trapped by Site Services personnel; shortly after this the decision was made to euthanize the animal. The Environment Department contacted the Conservation Officer in Whitehorse for further instruction. The fox carcass was eventually retrieved by the Mayo Conservation Officer.

A Grizzly bear was observed May 13, 2018 at the top of the ADR road at 1:00am by a night shift worker and reported to the Environmental Department through the wildlife observation card. The animal was foraging and no human/wildlife conflict occurred. Another Grizzly was observed walking close to camp on June 11, 2018 and in response a site wide bulletin was sent to all contractors and discussed in morning toolbox meetings. No further incidents occurred.

### 3.8.3.3 Annual Moose Survey

Moose are the most common ungulate species in the region and occur in the Project area during all seasons. The Project area is recognized as containing high quality early successional space and has been identified as important moose habitat by local residents. Environmental Dynamics Inc. (EDI) was contracted to conduct a late-winter moose distribution survey on behalf of SGC. The survey area included a 10 km radius around the Project area and the survey was completed with help from EDI, Victoria Gold and FNNND employees.

Three surveys were completed during pre-construction and are considered as a baseline (2011-2013). The 2018 survey is the first of two late-winter surveys to be conducted during the construction phase and a final survey will be completed once the Project is in production. Depending on results from the late-winter surveys, the frequency of subsequent aerial surveys will be determined.

The 2018 aerial survey was conducted on March 5th and 6th. The primary objective was to document the distribution and abundance of moose during the late-winter season. This in turn will inform adaptive management strategies designed to mitigate any effects from the Project on moose in the region. The conditions in 2018 were ideal; weather was consistent, winds calm, clouds high and fresh snow had fallen prior to the survey (Table 3.8-1).

**Table 3.8-1: Survey Conditions during Late-Winter Moose Distribution**

| Survey Conditions | 2011 | 2012 | 2013 | 2018 |
|---|---|---|---|---|
| **Date** | 7-9 March | 7-8 March | 4-6 March | 5-6 March |
| **Snow Conditions** | Old (>2 weeks) | Lots of fresh snow prior to survey | 10 days old | Some fresh snow prior to survey and on morning of March 6 |
| **Cloud Cover** | Clear in morning changing to overcast by late afternoon on all days | Clear to slightly overcast on 8 March | Clear | Clear on 5 March; clear in morning changing to slightly overcast by mid-afternoon on 6 March |
| **Light** | Bright in the morning to flat by late afternoon | Bright | Bright | Bright |
| **Wind** | Light to moderate | Calm | Calm | Calm |
| **Temperature** | -35°C to -17°C | -30°C to -10°C | -27°C to -10°C | -20°C to -10°C |
| **Comment** | Old snow and flat afternoon light made it difficult to sight moose | Considerable snowfall in days prior to survey | Delayed both mornings due to low fog | Light snow and low ceiling delayed start of survey on second day |

Observations from the 2018 survey had a higher number of moose than in previous years (Table 3.8-2). Potential factors for the variation in moose numbers could include: observer bias, seasonal variability, characteristics of snow (such as depth hardness), and predation. The majority of moose observed were found on moderate and higher elevation burned plateaus on the eastern side of the survey area.

**Table 3.8-2: Survey Intensity and Moose Observations within the Study Area**

| Year | Survey Intensity (min/km$^2$) | Moose Observations within the Study Area (10 km buffer) |
|---|---|---|
| 2011 | 0.53 | 26 |
| 2012 | 0.52 | 48 |
| 2013 | 0.50 | 39 |
| 2018 | 0.49 | 75 |

Moose densities of 0 moose per 100 km$^2$ were observed within 1 km of the Project footprint along the Haggart Creek Access Road and camp in 2018. This compares to 11.2 moose per 100 km$^2$ in both 2012 and 2013 and 6.1 moose per 100 km$^2$ in 2011. Although this area has high quality late winter browse and cover, usage appears to be highly variable between years. Construction activities in 2018 were only beginning to ramp after a winter hiatus in early-March when surveys took place and as such, did not influence moose distribution at the time of the survey. The full report completed by EDI can be found in Appendix R.

# 3.9 NOISE

## 3.9.1 Sounds Levels Related to Blasting

Blasting activities took place at the Project beginning May 2 and ending on December 19, 2018. Blasting was completed by Pelly Construction.

Noise monitoring was conducted at kilometer 42 on the Haggart Creek Access Road using a 3M SoundPro Sound Level Meter. The first attempt to record sound levels on May 31, 2018 revealed an instrument malfunction and the measurement failed. On July 20, 2018 sound levels were successfully recorded during a routine blast at the crusher infrastructure area. Peak sound level during the blast at the monitoring location was 100.6 dB. This is below the 120 dB cautionary maximum peak sound level for blasting and the guidance threshold of 110 dB. Results of the sound levels monitoring is provided in Appendix S. No additional monitoring occurred in 2018.

No noise complaints were received related to Project activities.

# 3.10 SPILLS AND ACCIDENTS

## 3.10.1 Spill Contingency Plan Review

An update to the Spill Contingency Plan is required as part of the Annual Report in accordance with Clause 8 of QZ14-041 and Paragraph 2.5 of Schedule C, Part 2 of QML-0011. SGC has reviewed and updated the Spill Contingency Plan (provided in Appendix T). Updates completed are described in Table 3.10-1.

**Table 3.10-1: Spill Response Plan Version 2019-01 Revisions**

| Section | Revision/Rationale |
|---|---|
| Section 2.2<br>Reportable Spills | ▪ Updated the description of site personnel roles and responsibilities for reporting spills. |
| Table 2.2-1<br>Reportable Spill Thresholds | ▪ Updated to indicate that any amount of antifreeze released into a water course is reportable. |
| Section 2.3<br>Non-Reportable Spills | ▪ Updated to include reference to the Spill report Form used to track both reportable and non-reportable spills and describe roles and responsibilities of site personnel. |
| Section 3.0 | ▪ Updated to differentiate between small and large spill response and site personnel roles and responsibilities. |
| Section 3.1<br>Spill Response Equipment | ▪ Updated to describe roles and responsibilities of site personnel. |
| Table 3.2-1<br>Position and Responsibilities of Personnel Involved in Spill Response | ▪ Updated to include responsibility for additional external reporting, if required. |
| Section 3.6 | ▪ Updated description of the land treatment facility |
| Section 4.0 | ▪ Updating external reporting responsibilities to include reporting to the Yukon Water Board Waterline online registry and FNNND (if required) |

| Section | Revision/Rationale |
|---|---|
| Internal and External Reporting | |
| Appendix B | ▪ Updated Spill Report Form. |

## 3.10.2 Reportable Summary

During the period of this report, 12 reportable spills occurred at the Project site (Table 3.9-1). Spills described in Table 3.10-2 were reported to the Yukon Spill Report Line as required by the *Spills Regulations* of the *Yukon Environment Act* and recovery efforts were undertaken on the site. When spills occurred on site, they were cleaned up as per guidelines stipulated by personnel at the Yukon Spill Report Line. Additionally, non-reportable spills were tracked internally. Spill Response Forms and photos for each of the reportable spills is provided in Appendix U.

Construction of a land treatment facility is planned for 2019 at which time suitable hydrocarbon contaminated material will be remediated on site.

**Table 3.10-2: Reportable Spills**

| Date | Volume (L) | Substance | Cause and Remediation Measures Taken |
|---|---|---|---|
| 23-Mar-18 | **150** | **Septic** | Broken heat trace line caused septic pipe to freeze and break. A vacuum truck was used to collect blackwater that was contained within depression around lift station, contaminated snow and ice was collected and deposited back into septic discharge system. Heat trace line was fixed and an audit of all heat trace lines was completed. |
| 4-Apr-18 | **1** | **Septic** | Frozen septic line cracked and leaked. Pipe was replaced, spill was removed as ice and snow and disposed of in temporary storage septic tank between dorms A and B. |
| 26-Apr-18 | **100** | **Septic** | Septic waste was added to the system in excess of what the system could accommodate. This over pressured the system and lead to the failure of a flexible coupling. Contaminated soils were collected and placed in the new septic field construction area and additional clean fill material was placed over to cover. Pumping protocol was reviewed with staff. |
| 5-May-18 | **1** | **Septic** | Rain/snowmelt entered empty storage tank through standpipe and collected in base of tank - 1 litre escaped from outlet with warming temperatures. All soils were collected and placed within the new septic field construction area, covered with clean fill materials. Tank was removed from site. |
| 7-Jun-18 | **20** | **Septic** | Pipe cracked releasing sewage into the septic field. The spill was contained within the hole that was dug in the septic field, the pipe was repaired and material was buried in the septic field. |
| 17-Jun-18 | **15** | **Septic** | Lift station high level alarm pump shut off malfunctioned. Deployed vacuum truck to suck up the contaminated water and soil, bleach was then sprayed on site. Black water was then deposited into the septic field construction area. |
| 27-Jun-18 | **20** | **Coolant** | Radiator hose failure. Truck engine immediately shut off, spill pads deployed. Spill pads and impacted roadbed material collected and placed into large, yellow, hazardous waste bags and taken to the hazardous waste storage area by the shop |
| 6-Aug-18 | **15** | **Septic** | Clogged toilet/ toilet installation. The hydro-vac truck was used to suck up water, area was sanitized with bleach solution |
| 26-Aug-18 | **5** | **Septic** | Bleach was sprayed over the area and contaminated soils were put in a pail for storage. The wash cart was fixed immediately and the pipe was re-attached. |

| Date | Volume (L) | Substance | Cause and Remediation Measures Taken |
|---|---|---|---|
| 13-Sep-18 | **100** | **Septic** | Pump failure caused an overflow of grey water. Pipe was sealed and the cleaning schedule has been increased to allow for earlier identification. |
| 21-Sep-18 | **80** | **Coolant** | Leaking seals. Trays and pads deployed. Ground is hard packed (touch of frost). Limited absorption. Area will be monitored, and pads replenished until repairs are complete. At that time the soils will be picked up and disposed of. |
| 8-Dec-18 | **40** | **Coolant** | Failed heater hose on an excavator. Equipment was repaired and then used in cleanup. Contaminated snow and soil were placed in super sacs, labelled and removed to LTF staging |

## 3.11 TRAFFIC AND ACCESS, UPCOMING MAINTENANCE

### 3.11.1 Level of Traffic

From Mayo, access to the Project site is along approximately 85 km of existing paved and gravel roads. Roads from Mayo to the site include the Silver Trail (Highway 11) and via the existing South McQuesten Road and the Haggart Creek Road. All but the Haggart Creek Road are government-maintained roads. During the period between March 2018 and December 2018, one-way trips along the access roads are estimated at approximately 1,367 heavy vehicle trips and approximately 3,548 light vehicle trips.

### 3.11.2 Access Control Issues

No access control issues were experienced during the period of this report.

### 3.11.3 Incidents

In 2018, the Project experienced 6 minor incidents along the access roads. Incidents did not result in injury or lost time, however minor property damage occurred.

- May 26, 2018 - the driver of a grader along the access road backed up into a tractor trailer, making contact which caused minor damage to the tractor trailer.
- June 26, 2018 - the driver of a light vehicle drove off the access road while inbound from Mayo airport, resulting in minor damage to the vehicle.
- July 10, 2018 - an employee noticed and subsequently reported damage to the Haldane Bridge. Cause of the damage was unknown, and bridge deck repairs were made by SGC.
- Sept 29, 2018 - two vehicles made contact while passing each other on a narrow area of the access road resulting in minor damage to both vehicles.
- November 16, 2018 – the driver a pick-up truck was backing up off a snowbank and hit the left fender of another pick-up truck resulting in minor damage to the vehicle.
- December 7, 2018 - a truck slid into the ditch along the access road causing minor damage to the vehicle.

To respond to incidents on site and along the access roads, the Project maintains a current Emergency Response Plan supported by a complement of emergency response personnel trained and certified in advanced first aid,

firefighting and mine rescue along with equipment required for all response types. In addition, reporting and investigation of incidents is standard practice at the site.

During the reporting period, there were no wildlife-traffic or access incidents reported. Wildlife observations, including those made along the access roads, are included in Appendix Q.

### 3.11.4 Planned Access Road Work

To ensure the continued safety of visitors, employees and contractors to the site through 2019, SGC plans on conducting routine snow clearing along the South McQuesten and Haggart Creek Roads from the Silver Trail (Yukon Highway 11) to the Eagle Gold camp; conducting routine maintenance along Haggart Creek Road (e.g., maintaining culverts and ditches, repairing pot holes, etc.). Ongoing maintenance and roadway improvements will be in accordance with SGC's current Work within a Right of Way Permit issued by HPW and Land Use Permit issued by Yukon Energy, Mines and Resources.

# 4 PHYSICAL MONITORING

## 4.1 STABILITY INCIDENTS

On May 30 and 31, 2019, three separate bench-scale slope instabilities occurred in the crusher excavation area. Two of the instabilities occurred along the slope above the WRSA haul road (A & B in Photo 4.1-1) and one occurred in the secondary crusher slope (C in Photo 4.1-1). A fourth, smaller area (D in Photo 4.1-1) was noted as potentially unstable during excavation and scaled clean at that time.

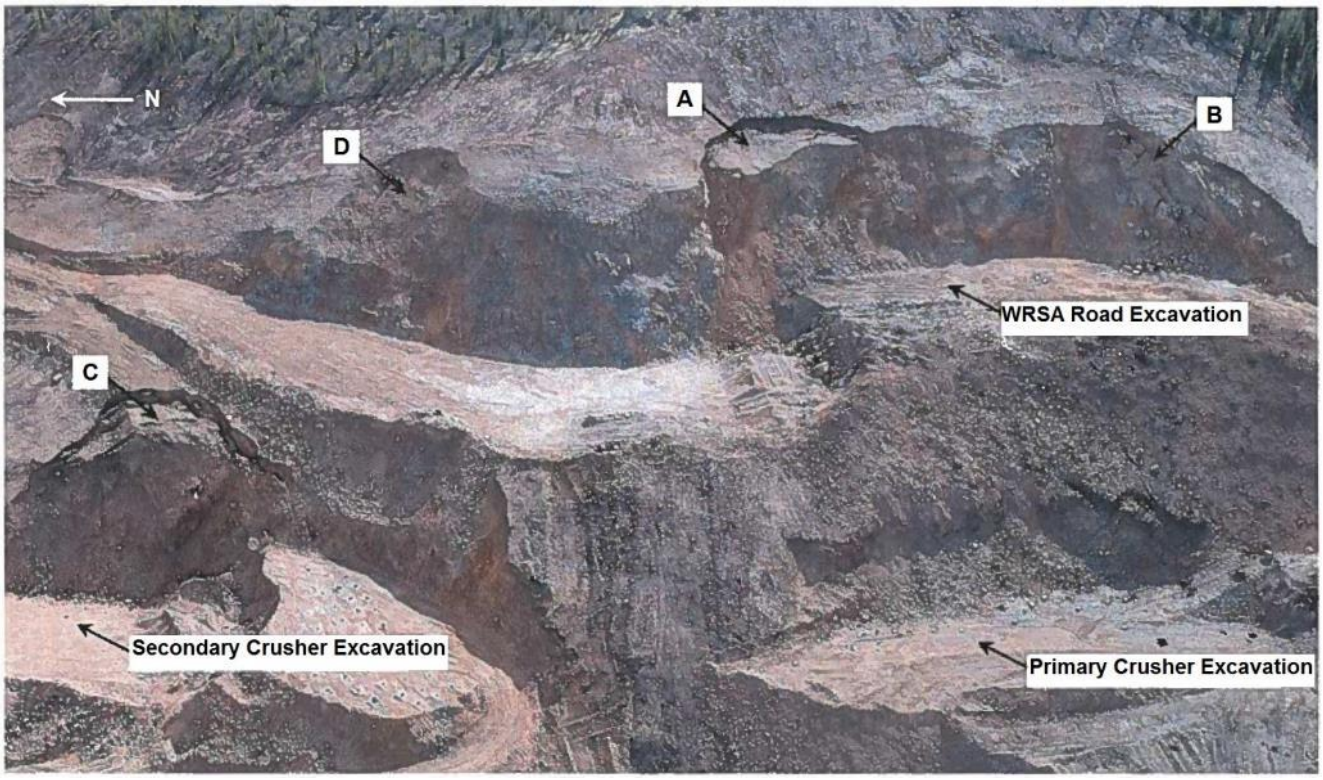



**Photo 4.1-1: Location of Excavations and Failures**

The slope heights and slope angles proposed initially were approximately 20 to 25 m high and 1:1 (H:V) respectively. The failures occurred rapidly without obvious warning signs leading up to their release. The failures appeared to be triggered by excavation of toe materials and not blast vibrations. The masses generally represented large blocks of competent rock defined by geologic structures (bedding/foliation planes and joints) and did not have long run-out distances.

A site visit was made by a geotechnical engineer on June 1 and 2, 2018 to assess the cause of the failures and provide recommendations. Geotechnical mapping was completed at each of the locations to understand the ground conditions and mode(s) of displacement.

Structurally, the rock mass appears consistent across the crusher area consisting of the following dominant trends:

- Moderately, west dipping bedding/foliation joints (dipping directly out of slope);

- Sub-vertical, persistent northeast trending joints (oblique to slope);
- Shorter, more variable cross-joints between bedding/foliation planes (parallel to slope); and,
- North-northwest moderate to steep dipping faults.

The location of various faults and tension cracks identified during the geotechnical mapping are shown in Photo 4.1-2.




**Photo 4.1-2: Bedding Parallel Scarps/Tension Cracks and Faults**

When confined, the rock mass is 'Fair' to 'Good' quality according to Bieniawski's (1989) rock mass rating classification system which should be stable at a 1:1 slope angle. However, at low confinement such as near the slope face, the rock mass strength is highly anisotropic due to the ubiquitous, weaker foliation/bedding planes. The rock mass is significantly weaker in the direction parallel to these weak planes compared to the strength perpendicular to, or across the weak planes. Due to the orientation of the foliation/bedding planes striking parallel and dipping out of the slope, blocks are able to translate (move downslope) when the dip of the bedding exceeds the friction angle of the discontinuity (~30 to 45$^{o}$).

In addition to the adverse orientation of the foliation/bedding planes, weaker, thinly bedded, shaley siltstones or schist are also present. These materials were physically identified during mapping at the base of failures A, B and D. The base of failure C could not be safely accessed.

Crests of the slopes were inspected during the visit and no additional tension cracks were noted; however, a small crack parallel to the slope face was previously noted behind the crest in the area between failures A and B. While there were no obvious signs of additional instabilities noted, areas of potential concern were identified between failures A and B as well as the large knob created between failures A and D.

Revised slope angles were considered to address the geotechnical conditions at the crusher area however the decision was made to construct a mechanically stabilized earth (MSE) wall between the Tertiary Stockpile and the Secondary/Tertiary Crusher building.

Construction of the MSE wall was reviewed by a geotechnical engineer and work was completed in 2018.

## 4.2 ENGINEER'S PHYSICAL STABILITY ANNUAL INSPECTION

As required by Section 13.2 of QML-0011, a physical stability assessment of all engineered structures, works and installations at the Project was undertaken by an independent engineer between September 25th and 27th. The findings of the assessment are provided in Appendix V.

The assessment undertaken in 2018 included the following structures:

- Lower Dublin South Pond and outfall
- Stockpile B
- Stockpile A
- 90 Day Stockpile
- Heap Leach Facility
- Cut and fill slopes of the primary and secondary crushers including MSE walls
- Cut and fill slopes of the ADR Plant

The recommendations section of the report included 11 specific areas that in the opinion of the independent engineer required further consideration. The 11 recommendations and the completed or planned response area provided below in Table 4.2-1.

**Table 4.2-1: Recommendations from Independent Engineer and Site Response**

| Independent Engineers Recommendations | Response | Schedule to Complete |
|---|---|---|
| **12.1**<br>VGC (Victoria Gold Corp.) should assign a qualified, on site, individual to be responsible for monitoring and documentation of any mass earth structures that have significant risks in the case of a failure. The individual should develop a standard operating procedure for the monitoring and risk management of these structures. This individual should be responsible for coordination with a qualified professional to review monitoring data for concerns and trends, if they are not qualified themselves. | As part of construction work to date and planned for 2019, the EPCM team have engaged a qualified Geotechnical Engineer for all civil structures on site. The HLF and Event pond are being constructed under the supervision of qualified personnel provided to the engineering firm responsible for the design of those facilities (BGC Engineering).<br>All inspections have been documented. BGC provides daily reports for their QA work. A civil testing firm (TetraTech) have kept daily construction reports to corroborate that engineered structures have been built to design. These daily reports are provided with the turnover documentation.<br>SOPs will be developed for long term monitoring based on the recommendations of the Engineer of Record for each facility. | Ongoing |
| **12.1**<br>All stockpiles, material storage areas, and other mass earth structures should all have formal foundation and construction designs completed by a qualified professional. Design and base preparation have been completed and documented for much of the work in progress. VGC should continue to assign individuals to document and be responsible for the monitoring and construction review to determine if such structures are constructed in accordance with design. Any variations between design documents and final construction should be included in final record drawings. | Formal foundation and construction designs are part of EPCM's work for turnover to VGC. All turnover documentation will specifically identify minor modifications from the issued for construction design and the final constructed facility. | Jun-19 |
| **12.1**<br>Any finalized construction of mass earth structures should include a final construction report that includes any operational and maintenance requirements (if any) to ensure stability of the structure. | Formal foundation and construction designs are part of EPCM's work for turnover to VGC. All turnover documentation will specifically identify minor modifications from the issued for construction design and the final constructed facility. | Jun-19 |
| **12.1**<br>VGC should consider a monitoring program to assist in early warning and detection of any movements in mass earth structures. Such a program might use permanent survey points, slope inclinometers, piezometers, or other tools to measure internal/external movements and pore water pressures. Such a monitoring program should be developed with the assistance of and be implemented with the oversight of a qualified professional. | These recommendations would be part of the responsibility of Geotechnical Engineer. In the case of the HLF, certain stability measurement devices are being installed as part of the construction requirements.<br>Additionally, a physical stability monitoring program is considered in the SGC EMSAMP. Physical stability monitoring is also contemplated within specific design and construction documents for major facilities. | Ongoing |
| **12.2 – LDSP**<br>Extend the existing berm along the south side of the pond further to the east to direct water into the fore bay / siltation pond, where there is no liner to disturb and where the facility is designed to capture eroded material. | Ditch A is being fully constructed now and will mitigate this issue upon completion. | Apr-19 |

| Independent Engineers Recommendations | Response | Schedule to Complete |
|---|---|---|
| **12.5 – 90 Day**<br>Mitigate risks associated with perched rocks throughout the slope. Boulders should be removed in a controlled manner, or have a machine press (or bury) the boulders into the existing fill so they have a more stable base, and are less likely to become dislodged. Care should be taken during this work to ensure that critical infrastructure, workers and equipment are restricted from the fallout path, or other appropriate mitigation measures are put in place. | The 90-day stockpile had only undergone preliminary clearing and earthworks at the time of the annual physical stability assessment. Stability analyses for this facility have been completed (post assessment) and provide recommendations for suitable foundation conditions for the 90-day stockpile to ensure that the required factors of safety are achieved. | Completed |
| **12.6 – ADR**<br>Reduce the outside slope of material in the stockpile above the ADR Access Road. The stockpile West Northwest of the ADR Building is composed of a mix of several materials with unknown compaction and possibly over steepened outside slopes. It is recommended that the stockpile be shaped within geotechnical design specifications, or that the location of the pile is adjusted so that there is a bench between the crest of the adjacent slope, and the toe of the stockpile. If the stockpile is to remain long term, the structure should have a design completed by a qualified professional. | The over-steepening of the crest area was addressed when an access road adjacent to the area was developed.<br>Slopes above the ADR access road will be addressed as part of final area handover. Post completion a Geotechnical Engineer will conduct a further review of the installation and provide recommendations for additional mitigations as necessary. | Jun-19 |
| **12.6 – ADR**<br>At the time of inspection, there appeared to be over-steepened temporary cut slopes created adjacent to short term haul roads used for construction access in the area. Cut back slopes adjacent to haul roads that do not meet geotechnical specifications for the site, or have recommendations in place for temporary slopes during construction. | The area adjacent to the ADR pad continues to be used for construction purposes. The interior area has been utilized as a storage area for unsuitable materials backhauled from local cut areas which has been used as backfill to mitigate this concern. | Completed |
| **12.10 – Stockpile B**<br>This stockpile should be graded on top to eliminate or seal tension cracking. | Grading has taken place to stabilize the location identified. | Completed |
| **12.10 – Stockpile B**<br>The extent (volume and location) of ice and other frozen materials in the stockpile should be determined based on-site records and information from site staff available. A record of the resulting instability should be noted. | Stockpile B will be reviewed post assessment by a Geotechnical Engineer. Any recommendations made (reshaping etc.) will be performed prior to handing over to VGC at completion.<br>A material tracking sheet showing what was hauled to this location has been maintained during construction activities but was inadvertently not made available during the assessment. | Jun-19 |
| **12.10 – Stockpile B**<br>Have a qualified professional determine if ice and other frozen materials are an acceptable material for construction of a mass earth structure, and if they are, how they should be placed or incorporated in an overall stockpile design to ensure that there are no localized failures as a result. | Stockpile B will be reviewed post assessment by a Geotechnical Engineer. Any recommendations that made (reshaping etc.) will be performed prior to handing over to VGC at completion. | Jun-19 |

# 4.3 PERMAFROST

Permafrost monitoring at the project site in 2018 consisted of quarterly subsurface temperature monitoring via thermistors at the locations in Figure 4.3-1. A total of thirteen thermistor strings were installed in test holes around the site between 2009 and 2012. During 2017 construction activities, five thermistors were removed from the monitoring program. Thermistor BH-BGC11-51 was removed in May 2018, leaving seven monitoring locations from the baseline network.

In April 2018, 13 new thermistor strings were installed and added to the monitoring program as part of geotechnical investigation to support Project activities. Locations were selected in the vicinity of the EP WRSA, PG WRSA, the 90 Day Storage Area and a potential Stockpile Area. Detailed results including characterization of permafrost conditions and active layer thickness are provided in the 2018 Geotechnical Investigation Report (Appendix W).

## 4.3.1 Data Analysis

Of the 13 new installations in 2018, five thermistors were installed in permafrost (Table 4.3-1). These locations will be added to the Physical Monitoring Program in 2019.

**Table 4.3-1: New Permafrost Monitoring Locations for Physical Monitoring Program**

| Thermistor | Facility | Coordinates (Zone 8) | |
|---|---|---|---|
| | | North | East |
| GT18-8 | Platinum Gulch WRSA | 7099141 | 459517 |
| GT18-10 | Platinum Gulch WRSA | 7098851 | 459968 |
| GT18-11 | Platinum Gulch WRSA | 7098964 | 460080 |
| GT18-15 | Potential Stockpile Area | 7100583 | 459597 |
| GT18-17 | 90 Day Storage Area | 7100290 | 459263 |

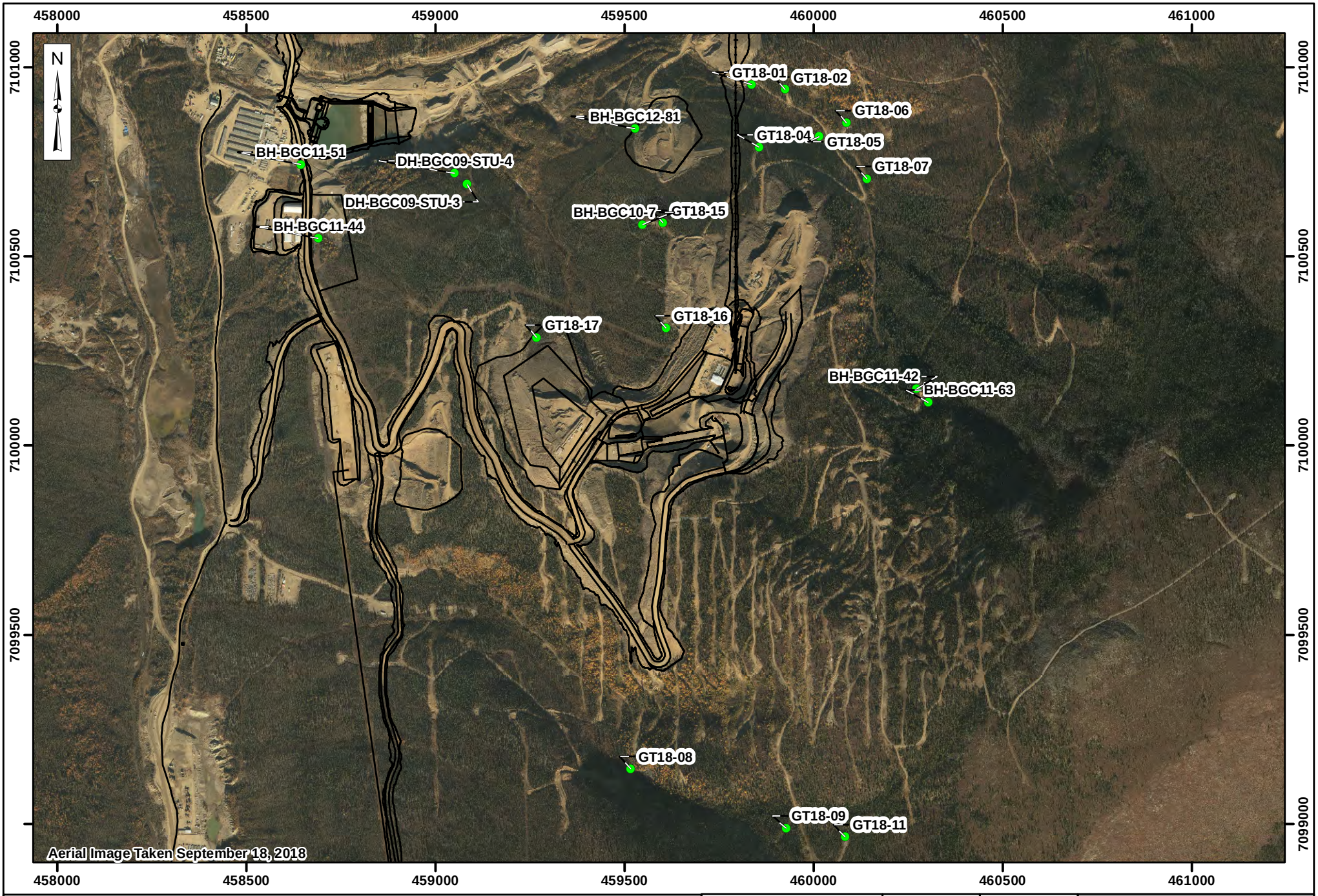
Ground temperature data collected at the single bead thermistors installed in April 2018 are provided in Table 4.3-2. Ground temperature data at multi-bead thermistors and plotted temperature profiles for locations installed in 2018 are provided in Appendix X.

Ground temperatures from the 2018 installations where frozen ground is evident measured between 0ºC and -0.65ºC throughout the year. Depth to permafrost ranged from 5.2 to 10.0 meters below grade (mbg). Frozen ground temperatures in the baseline network thermistors ranged from 0ºC to -0.75ºC. Permafrost temperatures collected in 2018 at all sites are within the same range reported from 2010 to 2017. Depth to permafrost in the baseline network thermistors also remains consistent with previous years. No ground temperature trends were identified that could indicate warming or need for more frequent monitoring.

**Table 4.3-2: Ground Temperatures at Single Bead Thermistors Installed April 2018**

| Thermistor | Bead Depth (m) | April | May | June | July | August | September | October | November | December |
|---|---|---|---|---|---|---|---|---|---|---|
| GT18-02 | 7.9 | 1.30 | 1.21 | 1.21 | 1.65 | 1.56 | 1.45 | 1.69 | 1.76 | 1.68 |
| GT18-04 | 8.5 | 1.76 | 1.32 | 1.32 | 1.11 | 1.06 | 1.10 | 1.38 | 1.55 | 1.59 |
| GT18-06 | 9 | 0.60 | 0.22 | 0.21 | 0.22 | 0.22 | 0.22 | 0.21 | 0.22 | 0.21 |
| GT18-10 | 8.5 | NR | -0.06 | -0.08 | -0.10 | -0.16 | -0.19 | NR | -0.22 | -0.23 |
| GT18-11 | 8.5 | 0.02 | 0.00 | -0.05 | -0.14 | -0.14 | -0.14 | NR | -0.14 | -0.14 |
| GT18-16 | 8.2 | 1.34 | 0.98 | 0.92 | 0.86 | 0.00 | 0.95 | 1.22 | 1.40 | 1.38 |
| GT18-17 | 8.5 | 0.00 | -0.07 | -0.12 | -0.12 | -0.03 | -0.13 | -0.01 | -0.13 | -0.13 |

NR – no result available




Legend:

Thermistor — 2018 Construction Areas — Reserved Area

StrataGold Corporation

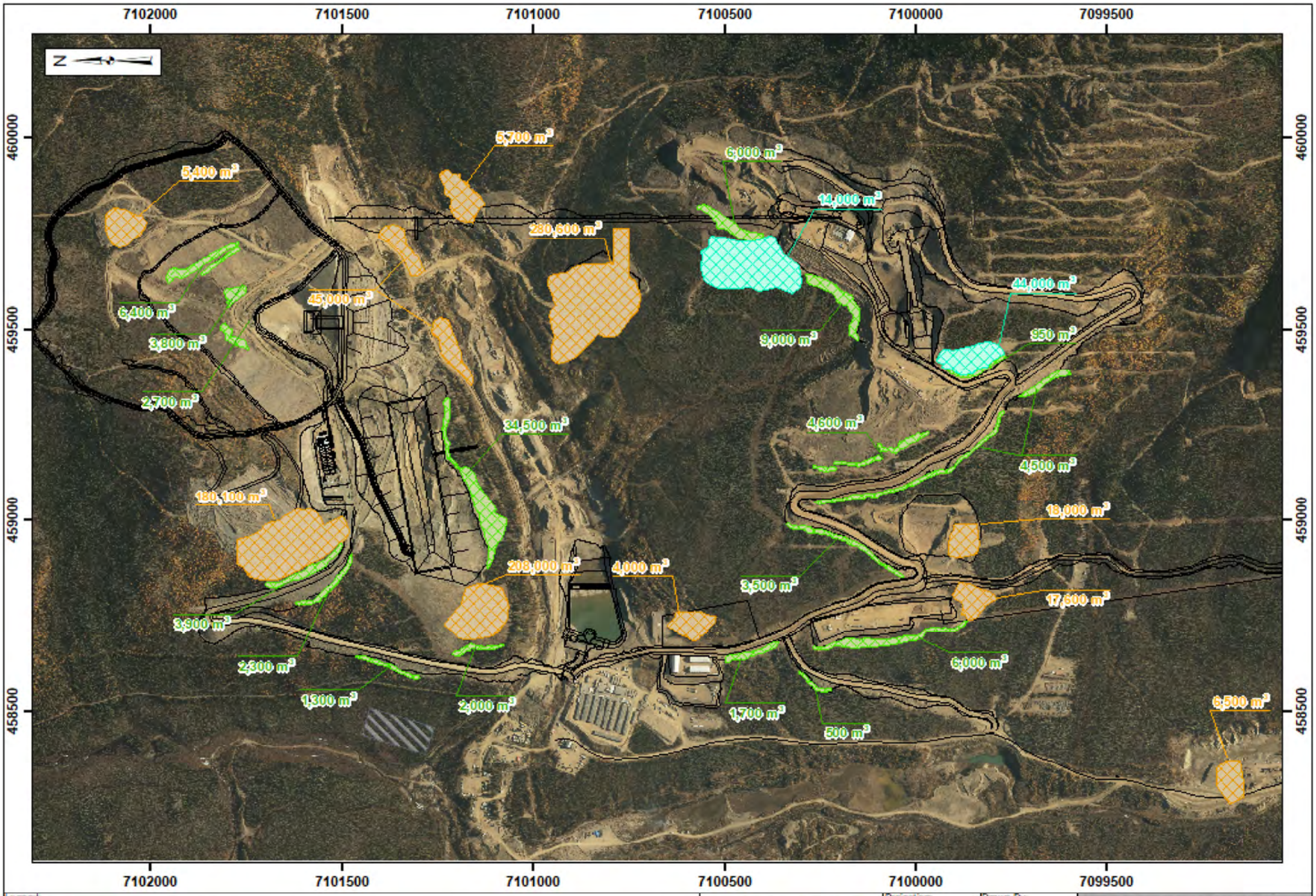
| | | | |
|---|---|---|---|
| Projection: NAD 83 UTM Zone 8N | Drawn By: JK | **EAGLE GOLD PROJECT YUKON TERRITORY** | |
| 0 200 400 Meters | Date: 2019/04/01 | Figure: 4.3-1 | **2018 Construction Thermistor Locations** |

## 4.4 OPEN PIT

No open pit development activities took place in 2018.

## 4.5 MATERIAL STORAGE AND STOCKPILE MANAGEMENT AREAS

During construction activities to date, various material types have been encountered that have not met construction specifications but would likely prove suitable for cover materials for facility closure. These materials have been either relocated to dedicated topsoil and overburden storage areas or have been stored locally to support future reclamation activities. The location and volumes of these materials are depicted in Figure 4.5-1.




Legend:

- Frozen Material
- Topsoil and Overburden
- Vegetation Windrow
- 2018 Construction Areas
- Reserved Area

StrataGold

Projection: NAD 83 UTM Zone 8N

Drawn By: JK

0 80 160 320
Metres

Date: 2019/04/01

Figure: 4.5-1

# EAGLE GOLD PROJECT
# YUKON TERRITORY

## Reclamation Material Stockpiles and Volumes

## 4.7 HEAP LEACH AND PROCESS FACILITIES

Constructions activities associated with the Heap Leach Facility and process areas were conducted under the supervision of geotechnical engineers and other qualified personnel from BGC Engineering. The results of the QA/QC program for the construction completed during the year of this report are provided in Appendix B.

# 5 CYANIDE MANAGEMENT

No cyanide-related transport, storage, handling, use or disposal, was conducted in 2018.

In 2018, SGC established a long-term supply contract with Cyanco Canada Inc., an experienced, ICMC-certified, North American supplier and began developing operating procedures for cyanide-related tasks in preparation for receipt of cyanide planned for 2019.

# 6 RECLAMATION & CLOSURE

SGC submitted an updated Reclamation and Closure Plan (RCP) for review and approval as required by Section 7.2 of QML-0011 and Clause 171 of QZ14-041 on October 1, 2018.

Updates to the RCP through 2018 were to address conditions in Schedule C section 4.1 of QML-0011 as well as feedback from the YWB review and approval process of the 2016 RCP under QZ14-041. Additionally, updates through 2018 included revisions to align the RCP with the optimized Project, the Water Management Plan, and preliminary comments received from the YWB, which were submitted to the Yukon Water Board for their consideration during the amendment application process required for QZ14-041. The updated RCPs included a refined reclamation cost estimates to satisfy Clauses 191 to 193 of QZ14-041.

At the time of preparing this annual report, the review and approval of the RCP pursuant to QML-0011 and QZ11-041-1 amendment application process was ongoing.

## 6.1 RECLAMATION RESEARCH

SGC continues to support research for reclamation and closure planning. Revegetation trials were established at the Peso Mine site, which had been last actively mined in the 1960's. Laberge Environmental Services has been conducting vegetation field trials at Peso Mine site on behalf of SGC since 2012 and completed the field portion of the project July 31st, 2018.

In 2012, six trial areas were selected by SGC, three in areas where trenching was present and three in areas of waste rock. Each trial area consisted of five 1 m quadrats with various amendments, including biochar, compost, leonardite, and dolomite. The plots were then assessed annually from 2013 to 2018. The percentage of vegetative cover, species composition and overall health were observed for each plot. Photos taken to document the growth and success of each plot are included in Appendix Y.

In 2018, soil samples, foliar tissue samples and measurements on rooting length and depth were also undertaken. All sites had low soil pH and low nutrient content. Plots with the different amendments sustained various levels of growth over time. Generally, the shrubs growing at the treated plots were healthy and alder were reproducing in the final year (2018) as seed cones were observed on several of the plants. Many plots also supported healthy volunteer shrubs – willows, dwarf birch, Labrador tea etc. Based on preliminary results, a combination of biochar and compost (fertilizer) is recommended as a soil amendment to help initiate the re-establishment of vegetation on these disturbed sites. An interim technical memo can be found in Appendix Z and the full report is expected in April 2019 which will help guide the SGC Reclamation and Closure planning.

# 7 SOCIO-ECONOMIC MONITORING

The focus of socio-economic work in 2018 was primarily on ensuring that contracts for the construction and operation of the Project were right scaled to allow for the involvement of Yukon and First Nations businesses to the greatest extent practicable.

Construction to date has involved over 25 contractors, several of which are Yukon-based companies and Yukon First Nation-partnered businesses that has resulted in a high level of local hiring. Of the total $361 million in contracts committed to, $144 million have been awarded to Yukon companies including $77 million to company joint ventures with the First Nation of Nacho Nyak Dun Development Corp.

The CBA Committee, formed under the Comprehensive Cooperation and Benefits Agreement (CBA) between Victoria Gold Corp. and the First Nation of Nacho Nyak Dun (FNNND), continued to monitor the socio-economic effects of the Project by reviewing data reports and statistics on employment, training and social and economic benefits associated with the mine's construction and operation. At the time of this report, the information gathered and developed under the CBA Committee was not available. In 2019, the Victoria Gold CBA Committee members will work to develop a specific socio-economic monitoring plan, which will be based on the socio-economic indicators highlighted during the 2013 Yukon Environmental and Socio-economic Assessment Board review of the Eagle Gold Project.

Victoria Gold continue to track the number of FNNND and local community employees the company hires. This information will be utilized with ongoing human resource management to develop an appropriate tracking system to communicate training opportunities and provide this information to the CBA committee upon its request.

Under the Victoria Gold NND CBA Scholarship Program, approximately $9,500 was disbursed to 16 recipients in 2018. Since the establishment of this program, 91 scholarships have been awarded to NNND students for a total disbursement totaling over $70,000.

The company also continued its community involvement and was a proud supporter of the following local organizations and events in 2018:

- YFNCC – Round Up sponsorship
- Kwanlin Dun First Nation/Taan Kwachan – Millennial Town Hall
- Yukon Fire Fit
- Yukon Indian Hockey Association – Yukon Native Hockey Tournament
- Mayo Curling Club – Irene Hutton Bonspiel
- Association of Yukon Communities meeting
- Mayo Seniors / Elders Advisory Association
- Klondike Road Relay
- Northern Latitudes Mining Reclamation Workshop
- Geoscience Forum

- Yukon Hospital Association – Festival of Trees, and Teddy Bear Clinic
- Tahltan Strong Benefit Concert
- Yukon Imagination Library – Mayo Roaming Reader Event
- Whitehorse Minor Hockey Assoc.
- River Bend Hockey Team
- McBride Museum of Yukon History
- Canadian Mining Hall of Fame: Kate Carmacks Recognition
- Every Student, Every Day

# APPENDIX A

## Assessment, Licence and Permit Requirements for Annual Reporting

# APPENDIX B

## As-Built Drawings and Construction QA/QC Reports

# APPENDIX C

## Streamflow Monitoring Report - 2018 Update

# APPENDIX D

## 2018 Water Quality Data (*Provided Electronically*)

# APPENDIX E

## 2019 Water Balance and Water Quality Model Update Report

# APPENDIX F

## 2018 Groundwater Hydrographs

# APPENDIX G

## 2018 Groundwater Quality Data (*Provided Electronically*)

# APPENDIX H

## 2018 Update on Geochemical Source Terms

# APPENDIX I

## Construction Material Testing and Tracking *(Provided Electronically)*

# APPENDIX J

## Stream Sediment Monitoring Report 2018

# APPENDIX K

## Benthic Invertebrate Monitoring Report 2018

# APPENDIX L

## Fish and Fish Habitat Monitoring Report 2018

# APPENDIX M

## Climate Data Report

# APPENDIX N

## Air Quality Data (*Provided Electronically*)

# APPENDIX O

## Vegetation Monitoring Report 2018

# APPENDIX P

## Soils Monitoring Report 2018

# APPENDIX Q

## 2018 Wildlife Observations

# APPENDIX R

## 2018 Late-Winter Moose Distribution Survey

# APPENDIX S

## Noise Monitoring Data 2018 (*Provided electronically)*

# APPENDIX T

## Spill Response Plan, Version 2019-01

# APPENDIX U

## Reportable Spill Response Forms and Photos

# APPENDIX V

## Annual Physical Stability Assessment Report

# APPENDIX W

## Spring 2018 Geotechnical Investigation Data Report

# APPENDIX X

## 2018 Thermistor Data (*Provided Electronically*)

# APPENDIX Y

## Peso Revegetation Trial Photos 2013-2018

# APPENDIX Z

## Interim Technical Memo: Update on Peso Revegetation Plots

# APPENDIX A

## Assessment, Licence and Permit Requirements for Annual Reporting

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| Document, License or Permit | Section/ Clause | Paragraph/ Sub-clause/ | Requirement | Annual Report Section |
|---|---|---|---|---|
| QZ14-041 | 8 | | The Licensee shall apply the relevant procedures in the Spill Contingency Plan. The Licensee shall review the Spill Contingency Plan annually and shall provide a summary of that review, including any revisions to the plan, as a component of the annual report | Section 3.10 |
| QZ14-041 | 10 | | The Licensee shall include a summary of all spills or unauthorized discharges that occurred during the year reported, as part of the annual report | Section 3.10 |
| QZ14-041 | 16 | | The Licensee shall submit an Annual Report to the Board not later than March 31 of each year starting in 2017. The reporting period for the Annual Reports shall be from the effective date of this licence until December 31, 2016 for the first report, and from January I to December 31 of each year for all subsequent reports. The report shall include the information required by the Regulation, but not necessarily limited to: | All |
| QZ14-041 | 16 | a | A description of the water use and waste deposition carried out during the year reported including but not limited to:<br>i. detailed data on the volume of water (including measurements) collected at, conveyed through, transferred between, or released to the environment from the Engineered Structures and any water source used by the project (groundwater wells, water courses);<br>ii. variation of the water volume inventories in water storage facilities (HLF, water storage ponds, sediment control ponds);<br>iii. records of fluid management within the HLF including irrigation completed, process water recovered, any leakage into the leakage detection and recovery system (LDRS), quality and quantity of water collected within the foundation drainage systems, variation of fluid levels in the in heap pond, and records of any water accumulation in or discharge to the Events Pond; | n/a |
| QZ14-041 | 16 | b | An annual construction report for each Engineered Structure built or modified in the reporting year; | Appendix B |
| QZ14-041 | 16 | c | A summary report, reviewed and stamped by a Professional Engineer, on the performance | Section 4.1 and 4.2 |

| Document, License or Permit | Section/ Clause | Paragraph/ Sub-clause/ | Requirement | Annual Report Section |
|---|---|---|---|---|
| | | | of Engineered Structures in service during the reporting year including but not limited to:<br>i. Any operational deficiencies or failures to achieve operational requirements;<br>ii. records of any leakage into the LDRS of the HLF;<br>iii. a detailed record of any major maintenance work carried out including but not limited to;<br>1. any work required to physically stabilize structures;<br>2. reporting on ice or snow accumulation and removal conducted within water conveyance channels;<br>3. reporting on sediment removal from sediment control ponds or water management ponds;<br>4. repair of any damaged liner or armouring materials; and<br>5. repair or replacement of any damaged or faulty monitoring or control instrumentation or equipment;<br>iv. Plans to conduct major maintenance work for the following year;<br>v. Status report on any backup equipment and supplies for emergency management of the HLF (generators, pumps, fuel caches. etc.) including records of exercising such equipment; | |
| QZ14-041 | 16 | d | A summary of mining and production activities concluded in the reporting year including but not limited to:<br>i. the mass/volume of excavation from the Eagle Zone Pit;<br>ii. the mass/volume and nature of materials placed in WRSA's including location of any overburden placed in WRSA's;<br>iii. the monthly mass/volume of ore in storage in the 100 day ore stockpile;<br>iv. the mass/volume and end of year configuration of ore lifts placed in HLF with the identification of any | n/a, see Section 2.0 |

| Document, License or Permit | Section/ Clause | Paragraph/ Sub-clause/ | Requirement | Annual Report Section |
|---|---|---|---|---|
| | | | final benches or slopes as may have been achieved during the year;<br>v. records on the management of excavated overburden including ice rich overburden;<br>vi. records of ore properties for ore placed on the heap (summary of gradation and other characteristic properties as may be collected) and records of any of agglomeration conducted;<br>vii. report on metallurgical performance of the FILE;<br>viii. analysis of whether Mine Plan activities completed in the reporting year are consistent with the Mine Plan and analysis of the effect of any deviations from the plan including but not limited to:<br>1. changes to the pit excavation designs (slopes, volumes) and indication of whether a change to the expected volume of waste rock to be removed has been identified:<br>2. changes to construction of WRSAs;<br>3. deviations in production rates for mining and processing of ore:<br>4. changes to heap loading, ore density and porosity, and irrigation schedules; | |
| QZ14-041 | | e | Records of monitoring conducted as part of the EMSAMP including but not limited to:<br>i. summaries of all data generated as a result of the monitoring requirements of this licence:<br>ii. analysis and interpretation of collected data by a qualified individual or firm and a discussion of any variances from baseline conditions, from the previous years' data, or from expected performance, or variances from expected conditions;<br>iii. results and interpretations of QA/QC Programs completed as part of monitoring or part of construction; | Section 3.0 |
| QZ14-041 | | f | Reporting on monitoring according to Cyanide Management Plan; | n/a, see Section 5.0 |

| Document, License or Permit | Section/ Clause | Paragraph/ Sub-clause/ | Requirement | Annual Report Section |
|---|---|---|---|---|
| QZ14-041 | | g | A description of reclamation or reclamation research activities carried out during the year and commentary on whether the annual activities are consistent with the schedule of the RCP; and | Section 6.0 |
| QZ14-041 | | h | Any other reports which are required by this licence | All |
| QZ14-041 | 17 | | The Licensee shall provide to the Board one unbound, single-sided, paper copy of all reports required by this licence. All reports must be reproducible by standard photocopier. | All |
| QZ14-041 | 18 | | The Licensee shall upload electronic copies of all reports required by this licence to the Yukon Water Board's online licensing registry, Waterline. Electronic copies shall be submitted in one of the following formats: MS Word. MS Excel, or Adobe .pdf format. Water quality results uploaded to Waterline must be presented in MS Excel. | All |
| QZ14-041 | 56 | | Where site conditions require Minor Modifications to submitted final designs during construction, the modifications shall be approved by a Professional Engineer and a record of the modification along with the rationale for the modification shall be submitted to the Board with a copy to the Inspector as part of the annual construction report for the affected Engineered Structure | see Section 2.0 and Appendix B |
| QZ14-041 | 57 | a | For all Engineered Structures authorized by this Licence, the Licensee shall produce a construction report detailing the construction of the infrastructure. The construction report shall include:<br>As-built drawings of completed structures; | see Section 2.0 and Appendix B |
| QZ14-041 | 57 | b | Results of quality control and quality assurance activities associated with the completed works; | Appendix B |
| QZ14-041 | 57 | c | Records of any minor or substantive modifications from submitted final designs; and | Appendix B |
| QZ14-041 | 57 | d | Certification by a Professional Engineer that the completed works have been constructed in compliance with final designs and construction specifications inclusive of any approved minor or substantive modifications and in compliance with any relevant terms of this licence | Appendix B |
| QZ14-041 | 58 | | The construction report in clause 57 shall be submitted annually with the annual report required by this licence and shall include all | Appendix B |

| Document, License or Permit | Section/ Clause | Paragraph/ Sub-clause/ | Requirement | Annual Report Section |
|---|---|---|---|---|
| | | | structures completed during the year covered by the annual report. | |
| QZ14-041 | 105 | | The Licensee shall comply with the monitoring programs and studies required by this licence and, unless otherwise specified, shall submit the data that is compiled as a result of these programs and studies as a component of the required annual reports | Section 3.0 |
| QZ14-041 | 111 | | The Licensee shall comply with the EMSAMP and Schedules I and 2 of this Licence. The findings of the programs included in the EMSAMP, including any recommendations, shall be submitted as part of the Annual Report. Any changes should be submitted to the Board. | Section 3.0 |
| QZ14-041 | 112 | | The Licensee shall update the EMSAMP to reflect the continuation of the collection of baseline data until the initiation of the Development Phase of the Project. | Section 3.0 |
| QZ14-041 | 113 | a | Baseline data to be collected shall include:<br>Meteorological data by the Camp and Potato Hills climate stations; | Appendix J |
| QZ14-041 | 113 | b | Flow monitoring at stations identified in Table 2.2-I of Exhibit 1.13.1 | Section 3.0 |
| QZ14-041 | 113 | c | Sampling and monitoring of field barrels at the project site; and | Section 3.4 |
| QZ14-041 | 113 | d | Snow courses. | Appendix M |
| QZ14-041 | 123 | g | An annual review of the AMP which shall include:<br>i. A summary of the monthly reviews;<br>ii. Assessment of the adequacy and appropriateness of the various components of the AMP (thresholds, indicator and monitoring requirements); and<br>iii. Recommendations for modifications. | n/a |
| QZ14-041 | 124 | a | Metal Mining Effluent Regulations Monitoring Programs: The Licensee shall conduct the following Environmental Effects Monitoring Studies in accordance with MMER Schedule 5:<br>Effluent and Water Quality Monitoring Studies; and | n/a |
| QZ14-041 | 124 | b | Biological Monitoring Studies. | n/a |
| QZ14-041 | 125 | | The results of these studies and programs in clause 124 shall be submitted to the Board as part of the Annual Report along with any additional studies or revisions to studies required under the MMER. | n/a |

| Document, License or Permit | Section/ Clause | Paragraph/ Sub-clause/ | Requirement | Annual Report Section |
|---|---|---|---|---|
| QZ14-041 | 130 | | A summary of activities carried out under any approved plan shall be submitted to the Board as part of the annual report. | Section 3.0, 4.0 and 5.0 |
| QZ14-041 | 132 | | Cyanide Management Plan: The Licensee shall submit to the Board for Review and Approval, an updated CMP which includes an annual independent third-party audit, consistent with the ICMC, of the cyanide management plan and its execution. | n/a, see Section 5.0 |
| QZ14-041 | 133 | | Storage and use of cyanide at the site must not occur until receipt of notice of approval of the updated CMP from the Board. | n/a, see Section 5.0 |
| QZ14-041 | 157 | a | Surface Water Balance and Water Quality Models Updates: The Licensee shall submit to the Board updated Surface Water Balance and Water Quality Models as part of each Annual Report. The updated models shall include, but not be limited to, the following:<br>Updated site data collected as per the EMSAMP; | Section 3.2.6 |
| QZ14-041 | 157 | b | Updated input from any updates to the HLF Water Balance Model; and | Section 3.2.6 |
| QZ14-041 | 157 | c | Updated predictions for operations and closure including discussion of any variances identified and implications on site water management | Appendix E |
| QZ14-041 | 178 | f | Reclamation and Closure Research Program<br>The Licensee shall submit to the Board, an update to the Reclamation and Closure Research Program provided in Exhibit 1.7.1, Section 10 with the RCP updates described in clause 171. The updated plan shall be implemented once approved and must include, but not necessarily be limited to, the following:<br>Annual reporting on research activities. | Section 6.0 |
| QZ14-041 | 190 | | The Licensee shall report in the annual report on whether, based on information available at the time of report including actual progress on execution of the Mine Plan and the best judgement of mine management, the current liability for closure of the mine exceeds or does not exceed the security held at the end of the year for which the annual report has been prepared. | Section 6.0 |
| QML-0011 | 13.9 | | On or before March 31st of each year of the term of this License, the Licensee must submit an annual report, in writing, in accordance with Schedule D and any written direction of the | All |

| Document, License or Permit | Section/ Clause | Paragraph/ Sub-clause/ | Requirement | Annual Report Section |
|---|---|---|---|---|
| | | | Director, covering the period of January 1 to December 31 of the prior year. | |
| QML-0011 | Schedule C | 2.5 | **Spill Contingency**: "Spill Response Plan, Version 2014-01" dated June 2014 and prepared by StrataGold Corporation. Subject to the following conditions:<br>(a) an update to the Spill Contingency Plan must be provided in the 2016 Annual Report, this updated plan must include the following information<br>i. an update to section 2.2 and Appendix C of the Plan to include all reportable thresholds for special wastes substances consistent with section 3(1)(b) of the Special Waste Regulations;<br>ii. spill response steps for each category of material that may be spilled; and<br>iii. an update to the reporting requirements to include the requirement to report all spills on site. | Section 3.10 |
| QML-0011 | Schedule D, **Site Activities** | a | a summary of construction activities associated with the Undertaking; | Section 2.1 |
| QML-0011 | Schedule D, **Site Activities** | b | a summary of mining activities; | Section 2.3 |
| QML-0011 | Schedule D, **Site Activities** | c | a summary of proposed development and production for the coming year; | Section 2.3 |
| QML-0011 | Schedule D, **Site Activities** | d | a map showing the status of all structures, works, and installations associated with the Undertaking; | Figure 2.1-1 |
| QML-0011 | Schedule D, **Site Activities** | e | the total amount of ore and waste removed from the open pit for the year and for the life of the Undertaking; | n/a, see Section 2.3.1 |
| QML-0011 | Schedule D, **Site Activities** | f | the total amount of gold produced and removed from the undertaking; | n/a, see Section 4.4 |
| QML-0011 | Schedule D, **Site Activities** | g | the total amount of waste rock removed from the Undertaking and deposited into each deposit location; | n/a, see Section 4.4 |

| Document, License or Permit | Section/ Clause | Paragraph/ Sub-clause/ | Requirement | Annual Report Section |
|---|---|---|---|---|
| QML-0011 | Schedule D, **Site Activities** | h | the total amount of waste rock stored in each waste rock storage facility; | n/a, see Section 4.4 |
| QML-0011 | Schedule D, **Site Activities** | i | details respecting any action taken as a result of the recommendations made by the engineer in relation to the inspection referred to in 13.2 of QML-0011; | Section 4.2 |
| QML-0011 | Schedule D, **Site Activities** | j | a summary of any update to estimates of ore reserves and the life of the mine, including reserve category, tonnage and grade; | Section 2.2 |
| QML-0011 | Schedule D, **Site Activities** | k | the total amount and the average grade of ore stockpiled; | n/a |
| QML-0011 | Schedule D, **Site Activities** | l | the remaining reserve life of the mine; | Section 2.2 |
| QML-0011 | Schedule D, **Site Activities** | m | results and interpretation from all QA/QC programs for the site; | See Appendices |
| QML-0011 | Schedule D, **Site Activities** | n | a summary of heap leach facility construction including:<br>i. the total amount and the average head grade of ore placed on the heap leach pad for the year and the life of the Undertaking;<br>ii. the mass/volume and end of year configuration of ore lifts placed in the heap leach facility with the identification of any final benches or slopes achieved during the year;<br>iii. the records of ore properties for ore placed on the heap and records of any of agglomeration conducted; and<br>iv. report on metallurgical performance of the heap leach facility | n/a |
| QML-0011 | Schedule D, **Environmental Monitoring** | a | a summary of the programs undertaken for environmental monitoring and surveillance as outlined in the Environmental Monitoring, Surveillance and Adaptive Management Plan and the Wildlife Protection Plan, including an analysis of these data and any action taken or adaptive management strategies implemented | Section 3.0 |

| Document, License or Permit | Section/ Clause | Paragraph/ Sub-clause/ | Requirement | Annual Report Section |
|---|---|---|---|---|
| | | | to monitor or address any changes in environmental performance; | |
| QML-0011 | Schedule D, **Environmental Monitoring** | b | a summary of operating procedures for cyanide-related tasks and their implementation, including the review of proposed process and operational changes and modifications deemed necessary for potential impacts on personnel health and safety and the incorporation of personnel protection measures; | n/a |
| QML-0011 | Schedule D, **Environmental Monitoring** | c | a summary of all safety measures taken (signs, etc.) to identify the presences of cyanide to all personnel; | n/a |
| QML-0011 | Schedule D, **Environmental Monitoring** | d | a summary of all tests and calibration records for HCN monitoring equipment; | n/a |
| QML-0011 | Schedule D, **Environmental Monitoring** | e | a summary of the results of the waste rock quality assurance/quality control monitoring for the past year; | n/a |
| QML-0011 | Schedule D, **Environmental Monitoring** | f | a summary of invasive plants that have been identified on site and measures taken to control or remove invasive plants; | n/a |
| QML-0011 | Schedule D, **Environmental Monitoring** | g | a summary of ambient air quality monitoring and modelling (which includes emissions related to the gold recovery process) and mitigation measures taken; | n/a, see Section 3.7 |
| QML-0011 | Schedule D, **Environmental Monitoring** | h | a summary of spills and accidents that occurred at the site and measures taken respond to any spills or accidents; | Section 3.10 |
| QML-0011 | Schedule D, **Environmental Monitoring** | i | a summary of the level of traffic, access control issues, wildlife incidents and other accidents, and any upgrade or maintenance work planned for the upcoming year; | Section 3.11 |
| QML-0011 | Schedule D, **Environmental Monitoring** | j | a summary of sound-levels associated with blasting activities; | Section 3.9 |
| QML-0011 | Schedule D, **Environmental Monitoring** | k | a summary of any site improvements undertaken to address sediment and erosion control; | Section 2.1.1.3 |
| QML-0011 | Schedule D, **Environmental Monitoring** | l | a summary and interpretation of humidity cell or other geochemical tests undertaken on materials on site, including<br>a. geochemical characterization of the expanded open pit, including kinetic testing to predict metal leaching potential;<br>b. assumptions and conclusions of geochemical predictions and the effectiveness of mitigation measures; | Section 3.4 |

| Document, License or Permit | Section/ Clause | Paragraph/ Sub-clause/ | Requirement | Annual Report Section |
|---|---|---|---|---|
| | | | c. the segregation of waste rock based on metal leaching potential; and<br>d. results of long-term column tests to study the effects to stability and permeability of the heap leach facility; | |
| QML-0011 | Schedule D, **Environmental Monitoring** | m | a summary of cyanide release or exposure that occurred at the Undertaking, including:<br>i) any hospitalization or fatality related to cyanide;<br>ii) the nature of release and the response or remediation required; and<br>iii) any exceedances to cyanide limits in permits or authorizations | n/a |
| QML-0011 | Schedule D, **Physical Monitoring** | a | a summary of any heap leach, waste rock, or open pit stability incidents; | n/a |
| QML-0011 | Schedule D, **Physical Monitoring** | b | a summary of data collected to date as part of the Physical Monitoring Program; | n/a, see section 4.0 |
| QML-0011 | Schedule D, **Physical Monitoring** | c | details of results, including data collected, for the Physical Monitoring Program; | Section 4.0 |
| QML-0011 | Schedule D, **Physical Monitoring** | d | a summary report on the performance of Engineered structures in service during the reporting year including but not limited to:<br>a. any operational deficiencies or failures to achieve operational requirements;<br>b. records of any leakage into the LDRS of the HLF;<br>c. a detailed record of any major maintenance work carried out;<br>d. plans to conduct major maintenance work for the following year; and<br>e. status report on any backup equipment and supplies for emergency management of the heap leach facility including records of exercising such equipment. | n/a |
| QML-0011 | Schedule D, **Reclamation and Closure** | a | any temporary closure or permanent closure that has occurred during the year; | n/a |
| QML-0011 | Schedule D, **Reclamation and Closure** | b | a summary of activities related to care and maintenance of the Undertaking, including any temporary closure activities if applicable; | n/a |
| QML-0011 | Schedule D, **Reclamation and Closure** | c | a summary of progressive and ongoing reclamation activities; | n/a |

| Document, License or Permit | Section/ Clause | Paragraph/ Sub-clause/ | Requirement | Annual Report Section |
|---|---|---|---|---|
| QML-0011 | Schedule D, **Reclamation and Closure** | d | a summary of proposed development and production and reclamation activities for the coming year; and. | Section 2.4 |
| QML-0011 | Schedule D, **Reclamation and Closure** | e | a summary of reclamation research and results | Section 5.0 |
| QML-0011 | Schedule D, **Socio-economic Monitoring** | a | a summary of action taken by the Licensee with respect to development and implementation of a joint committee that will confirm socio-economic indicators, reporting and responding to monitoring results. | Section 6.0 |

# APPENDIX B

## As-Built Drawings and Construction QA/QC Reports

# EAGLE GOLD PROJECT

## CAMP COMPLEX PHASE 2 CONSTRUCTION REPORT

*MARCH 2018*

## List of Attachments

| | |
|---|---|
| Attachment A | Letters of Assurance |
| Attachment B | Record Drawings |
| Attachment C | Inspections & Verifications |

# ATTACHMENT A

## Letters of Assurance

Yukon
Government
*Fax: 867-393-6249*

Building Permit No.
*(For authority having jurisdiction's use)*

# CONFIRMATION OF ASSURANCE OF PROFESSIONAL DESIGN AND COMMITMENT FOR FIELD REVIEW

Note: (i) This Document must be submitted prior to the commencement of construction activities of the components identified.
(ii) The meanings of words in *italic* will have the same meaning as in the National Building Code of Canada, the National Plumbing Code of Canada and as found at the end of this document.

To: *The authority having jurisdiction*

Re: Eagle Gold Project - Camp Dorms A, B, G, H, I, J - Water Treatment Plant, offices and 350 kw Generators
Name of Project (Print)

Dublin Gulch Property, South McQuesten Road, Mayo Mining District, Yukon
Address of Project (Print)

Quartz Claims held by StrataGold 62-2-13.409 N 134-14 32.616 W
Legal Address of Project (Print)

The Undersigned hereby gives assurance that the design of the components of the plans and supporting documents for the project (including Post-disaster buildings) prepared by this *registered professional* in support for the *building* permit, substantially comply with the Yukon Building Standards Act and Regulations, the National Building Code of Canada and other applicable regulations with regards to safety.

(Initial the items listed below that apply to this *registered professional* in Yukon Territory. All the disciplines will not necessarily be employed on every project.)

~~ARCHITECTURAL~~
STRUCTURAL
MECHANICAL
PLUMBING
~~FIRE SUPPRESSION SYSTEMS~~
ELECTRICAL
~~GEOTECHNICAL – temporary~~
~~GEOTECHNICAL – permanent~~




(Professional's Seal and Signature)

Date: March 13, 2018

The undersigned hereby makes known to be responsible for *field reviews* for above referenced components during construction as indicated by the following design and *field review* requirements and, upon request, make copies of all inspections or review reports available to the *authority having jurisdiction.*

Marc Tietz
Name (Print)

Signature

Hatch
Company (Print)

1066 West Hastings Street, Vancouver BC V6E 3X2
Address (Print)

Yukon
Government
*Fax: 867-393-6249*

Building Permit No.
*(For authority having jurisdiction's use)*

Dublin Gulch Property, South McQuesten
Road Mayo Mining District, Yukon
Address of Project (Print)

Quartz Claims Held by StrataGold
62-2-13.909N, 39-15-32.616W
Legal Address of Project (Print)

Electrical
Discipline

The Undersigned also undertakes to notify the Building Safety Branch as soon as practical if the contract for *field review* is cancelled at any time during construction.

I certify that I am a *registered professional* as defined by the definition at the end of this document.

Marc Tietz Reg # 22498
Registered Professional

1066 West Hastings Street, Vancouver BC
Address (Print)

1-604-689-5767
Phone No.

PROFESSIONAL ENGINEER
March 13, 2018
YUKON TERRITORY
MARC TIETZ

(Professional's Seal and Signature)

Date: March 13, 2018

Yukon
Government
*Fax: 867-393-6249*

Building Permit No.
*(For authority having jurisdiction's use)*

# CONFIRMATION OF ASSURANCE OF PROFESSIONAL DESIGN AND COMMITMENT FOR FIELD REVIEW

Note: (i) This Document must be submitted prior to the commencement of construction activities of the components identified.
(ii) The meanings of words in *italic* will have the same meaning as in the National Building Code of Canada, the National Plumbing Code of Canada and as found at the end of this document.

To: *The authority having jurisdiction*

Re: Eagle Gold Project Camp — Phase 2, Units A,F,G,H,I
Name of Project (Print)
Dublin Gulch Property, South McQuesten Road, Mayo Mining District, Yukon
Address of Project (Print)
Quartz claims held by Strata Gold Corporation (62-2-13.409N 139-44-32.616W)
Legal Address of Project (Print)

The Undersigned hereby gives assurance that the design of the components of the plans and supporting documents for the project (including Post-disaster buildings) prepared by this *registered professional* in support for the *building* permit, substantially comply with the Yukon Building Standards Act and Regulations, the National Building Code of Canada and other applicable regulations with regards to safety.

(Initial the items listed below that apply to this *registered professional* in Yukon Territory. All the disciplines will not necessarily be employed on every project.)

J.N* **ARCHITECTURAL**
— **STRUCTURAL**
J.N* **MECHANICAL**
J.N* **PLUMBING**
J.N* **FIRE SUPPRESSION SYSTEMS**
J.N* **ELECTRICAL**
— **GEOTECHNICAL—temporary**
— **GEOTECHNICAL —permanent**

* Items as indicated J.N

PROFESSIONAL ENGINEER
YUKON TERRITORY
JURAJ NOVOTA

(Professional's Seal and Signature)

Date: March 14, 2018

The undersigned hereby makes known to be responsible for *field reviews* for above referenced components during construction as indicated by the following design and *field review* requirements and, upon request, make copies of all inspections or review reports available to the *authority having jurisdiction.*

Juraj Novota, P.Eng
Name (Print) Signature
Novota Engineering Ltd
Company (Print)
23351 117B Ave, Maple Ridge, BC, V2X 0B9
Address (Print)

Yukon
Government
*Fax: 867-393-6249*

Building Permit No.
*(For authority having jurisdiction's use)*

Dublin Gulch Property
Address of Project (Print)

Quartz Claims
Legal Address of Project (Print)

As Indicated
Discipline

The Undersigned also undertakes to notify the Building Safety Branch as soon as practical if the contract for *field review* is cancelled at any time during construction.

I certify that I am a *registered professional* as defined by the definition at the end of this document.

Juraj Novota, P.Eng.
Registered Professional

23351 117B Ave, Maple Ridge, BC, V2X 0B9
Address (Print)

(604) 767 8709
Phone No.




(Professional's Seal and Signature)

Date: March 14, 2018

Yukon
Government
*Fax: 867-393-6249*

Building Permit No.
*(For authority having jurisdiction's use)*

Dublin Gulch Property
Address of Project (Print)

Quartz Claims
Legal Address of Project (Print)

As Indicated
Discipline

# Summary of Design and Field Review Requirements

(Initial applicable discipline below and cross out and initial only those items not applicable to the project)

J.M **Architectural**

1.1 Fire resisting assemblies
1.2 *Fire separations* and their continuity
1.3 *Closures*, including tightness and operation
1.4 Interior and exterior finishes, including exterior glazing
1.5 Egress systems, including *access to exit* within *suites* and *floor areas*
1.6 Performance and physical safety features (guardrails, handrails, etc.)
1.7 Structural capacity of architectural components, anchorage & seismic restraint
1.8 Roofing and flashings
1.9 Wall cladding systems
1.10 Dampproofing and/or waterproofing of walls & slabs below grade
1.11 Thermal insulation systems, including condensation control & cavity ventilation
1.12 Sound control
1.13 Landscaping, screening and site grading
1.14 Provisions for fire fighting access
1.15 Access requirements for persons with disabilities
1.16 Elevating devices
1.17 Coordination of testing of fire emergency systems & maintenance programs
1.18 Development permit and conditions therein
1.19 Local building and plumbing bylaw requirements
1.20 Interior signage, including acceptable materials, dimensions & locations
J.M 1.21 ~~Energy Efficiency Part 9.36 requirements~~ N/A
J.M 1.22 ~~Construction safety measures~~ N/A
1.23 Review of all applicable shop drawings

~~**Structural**~~

~~2.1 Structural capacity of the *building*, including anchorage & seismic restraint~~
~~2.2 Structural capacity of a *post-disaster building*, anchorage & seismic restraint~~
~~2.3 Structural aspects of *deep foundations*~~
~~2.4 Qualification of structural welder~~
~~2.5 Excavation & shoring~~
~~2.6 Underpinning~~
~~2.7 Backfill~~
~~2.8 Review of all Applicable Shop Drawings~~

J.M

J.M **Mechanical**

3.1 HVAC systems & devices, including high *building* requirements where applicable
3.2 *Fire dampers* at required *fire separations*
3.3 Continuity of fire separations at HVAC penetrations
3.4 All environmental separation requirements
J.M ~~3.5 Energy Efficiency Part 9.36 requirements~~ N/A
3.6 Functional testing of mechanically related (i.e. sprinkler systems) fire emergency systems & devices
3.7 Maintenance manuals for mechanical systems
3.8 Structural capacity of mechanical components, anchorage & seismic restraint
3.9 Review of all applicable shop drawings

J.M **Commissioning of life safety and fire protection systems**

4.1 Commissioning of life safety and fire protection systems

PROFESSIONAL ENGINEER

(Professional's Seal and Signature)

Date: March 14, 2018

Yukon
Government
*Fax: 867-393-6249*

Building Permit No.
*(For authority having jurisdiction's use)*

Dublin Gulch Property

Address of Project (Print)
Quartz Claims

Legal Address of Project (Print)
As Indicated

Discipline

*Summary of Design and Field Review Requirements, continued*

## Plumbing

~~5.1 *Roof drainage systems*~~
~~5.2 Site and *foundation drainage systems*~~
~~5.3 *Plumbing systems* and devices~~
5.4 Sprinkler systems including water flow-indicating devices where applicable
5.5 Continuity of *fire separations* at plumbing penetrations
~~5.6 Local building and plumbing bylaw requirements~~
5.7 Functional testing of plumbing related fire emergency systems including waterflow-indicating devices where applicable
~~5.8 Maintenance manuals for *plumbing systems*~~
~~5.9 Structural capacity of plumbing components, anchorage and seismic restraint~~
~~5.10 Review of all applicable shop drawings~~

## Fire Suppression Systems

6.1 Suppression systems classification for type of *occupancy*
6.2 Design coverage, including concealed or special areas
6.3 Compatibility and location of electrical supervision, ancillary alarms and control devices
6.4 Evaluation of the capacity of city water supply versus system demands and domestic demand, including plumbing devices where applicable
6.5 Qualification of welder, quality of welds and material
6.6 Acceptance testing for —"Contractor's Material and Test Certificate"— as per NFPA Standard
6.7 Maintenance program and manual for suppression systems
6.8 Structural capacity of sprinkler components, anchorage and seismic restraint
6.9 For partial systems—confirm sprinklers are installed in all areas where required
6.10 Fire department access requirements
6.11 Fire Department connections and hydrant locations
6.12 Fire hose standpipes
6.13 Function Testing of fire suppression systems and waterflow– Indicating devices
6.14 Review of all applicable shop drawings

## Electrical

~~7.1 Electrical systems and devices, including high building systems where applicable~~
7.2 Continuity of *fire separations* at electrical penetrations
7.3 Functional testing of electrical related fire emergency systems, fire alarm systems and waterflow-indicating devices
~~7.4 Emergency electrical power supply for buildings where applicable~~
~~7.5 Electrical systems and devices maintenance manuals~~
~~7.6 Structural capacity of electrical components, anchorage and seismic restraint~~
~~7.7 Clearances from *building* of all electrical utility equipment~~
7.8 Fire protection of wiring for emergency systems
~~7.9 Review of all applicable shop drawings~~

PROFESSIONAL
YUKON
JURAJ NOVOTA
TERRITORY
ENGINEER

(Professional's Seal and Signature)

Date: March 14, 2018

## Geotechnical (temporary)

8.1 *Excavation*
8.2 Shoring
8.3 Underpinning
8.4 Temporary construction dewatering

## Geotechnical (permanent)

9.1 Bearing capacity of the soil
9.2 Geotechnical aspects of *deep foundations*
9.3 Compaction of engineered *fill*
9.4 Structural considerations of soil, including slope stability and seismic restraint
9.5 Backfill
9.6 Local building and plumbing bylaw requirements
9.7 Permanent dewatering
9.8 Permanent underpinning

Yukon
Government
*Fax: 867-393-6249*

Building Permit No.
*(For authority having jurisdiction's use)*

# ASSURANCE OF PROFESSIONAL FIELD REVIEW

Note: (i) This Document must be submitted after completion of the project but before the occupancy permit is issued, or a final inspection is made, by the *authority having jurisdiction.*
(ii) The meanings of words in *Italic* will have the same meaning as in the National Building Code of Canada, the National Plumbing Code of Canada and as found at the end of this document.

To: *The authority having jurisdiction*

Re: Eagle Gold Mine Camp Dorms A to I, offices, Generators and Support Modules
Name of Project (Print)

Dublin Gulch Property, South McQuesten Road, Mayo Mining District, Yukon
Address of Project (Print)

Quartz Claims held by StrataGold 62-2-13.409 W 139-44-32.616 W
Legal Address of Project (Print)

(The *registered professional* shall complete the following)

Marc Tietz
Name (Print)

Hatch
Company (Print)

1066 West Hastings Street, Vancouver BC, V6E 3X2
Address (Print)

604-638-5767 –
Phone Number Fax Number

PROFESSIONAL
May 15, 2018
YUKON
MARC TIETZ
TERRITORY
ENGINEER

(Professional's Seal and Signature)

I hereby give assurance that

a) I have fulfilled my obligations for *field reviews* as required by the previously submitted - "CONFIRMATION OF ASSURANCE OF PROFESSIONAL DESIGN AND COMMITMENT FOR FIELD REVIEWS",
b) I have completed the functional testing of the ~~*fire protection*~~ Fire Protection by Others @ and *life safety systems* to ascertain that they substantially comply in all material respects with
   (i) the applicable requirements of the Yukon Building Standards Act and Regulations, the National Building Code of Canada and other applicable regulations with regards to safety, and
   (ii) the plans and supporting documents submitted in support of the application for the building permit.
c) I am a *registered professional* as defined at the bottom of this document.

Date: May 15, 2018

**Definitions:**

*Field review* means a review of the work at a building site and, where applicable, at locations where building components are fabricated for use at the building site that a *registered professional* in his or her professional discretion considers necessary to ascertain whether the work substantially complies in all material respects with the plans and supporting documents prepared by a *registered professional.*

*Fire protection systems* means heat and smoke detectors that can activate audible alarms that may automatically notify local fire departments, sprinkler systems, standpipe systems, hand operated extinguishers, the ability to control smoke spread thru ventilation, and pressurization control, door open devices, elevator recalls, smoke and fire dampers

*Life safety system* means any building element (e.g., emergency power generators and emergency lighting) designed to protect and evacuate the building population in emergencies (e.g., fires and earthquakes) and less critical events (e.g., power failures).

*Registered professional* means a person who is registered or licensed to practice as a professional engineer under the Yukon Engineering Profession Act.

Yukon
Government
*Fax: 867-393-6249*

Building Permit No.
*(For authority having jurisdiction's use)*

# CONFIRMATION OF ASSURANCE OF PROFESSIONAL DESIGN AND COMMITMENT FOR FIELD REVIEW

Note: (i) This Document must be submitted prior to the commencement of construction activities of the components identified.
(ii) The meanings of words in *italic* will have the same meaning as in the National Building Code of Canada, the National Plumbing Code of Canada and as found at the end of this document.

To: *The authority having jurisdiction*

Re: Eagle Gold Phase 2 Camp Expansion - Potable Water Treatment Plant
Name of Project (Print)
Dublin Gulch Property, South McQuesten Road, Mayo Mining District, Yukon
Address of Project (Print)
Quartz claims held by Strata Gold Corporation (62-2-13.409N 139-44-32.616W
Legal Address of Project (Print)

The Undersigned hereby gives assurance that the design of the components of the plans and supporting documents for the project (including Post-disaster buildings) prepared by this *registered professional* in support for the *building* permit, ~~substantially comply~~ shall substantially comply with the Yukon Building Standards Act and Regulations, the National Building Code of Canada and other applicable regulations with regards to safety.

(Initial the items listed below that apply to this *registered professional* in Yukon Territory. All the disciplines will not necessarily be employed on every project.)

| | |
|---|---|
| — | **ARCHITECTURAL** |
| — | **STRUCTURAL** |
| AJM | **MECHANICAL** |
| — | **PLUMBING** |
| — | **FIRE SUPPRESSION SYSTEMS** |
| — | **ELECTRICAL** |
| — | **GEOTECHNICAL—temporary** |
| — | **GEOTECHNICAL —permanent** |

*Scope limited to engineering review of potable water supply and treatment system

PROFESSIONAL ENGINEER
YUKON TERRITORY
A.J. MacDONALD
(Professional's Seal and Signature)

Date: MARCH 14, 2018

The undersigned hereby makes known to be responsible for *field reviews* for above referenced components during construction as indicated by the following design and *field review* requirements and, upon request, make copies of all inspections or review reports available to the *authority having jurisdiction*.

A.J. MacDonald, P.Eng.
Name (Print)
Signature

Integrated Sustainability Consultants Ltd.
Company (Print)

620, 1050 West Pender St., Vancouver BC V6C3S7
Address (Print)

Yukon
Government
*Fax: 867-393-6249*

Building Permit No.
*(For authority having jurisdiction's use)*

Dublin Gulch Property
Address of Project (Print)
Quartz Claims

Legal Address of Project (Print)
As Indicated

Discipline

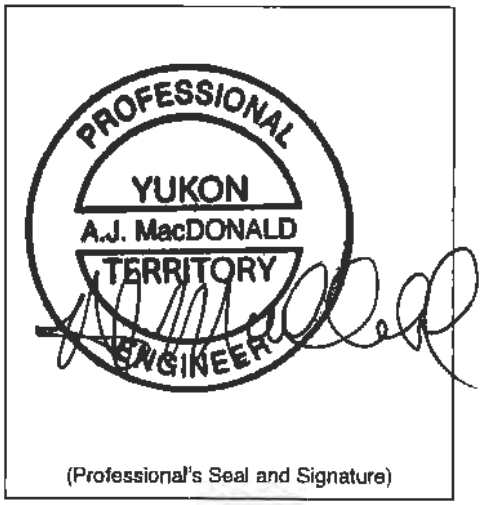
The Undersigned also undertakes to notify the Building Safety Branch as soon as practical if the contract for *field review* is cancelled at any time during construction.

I certify that I am a *registered professional* as defined by the definition at the end of this document.

AJ MacDonald, P.Eng.
Registered Professional

620, 1050 West Pender St., Vancouver BC, V6C3S7
Address (Print)

778-886-5714
Phone No.




(Professional's Seal and Signature)

Date: March 14, 2018

Yukon
Government
*Fax: 867-393-6249*

Building Permit No.
*(For authority having jurisdiction's use)*

Dublin Gulch Property
Address of Project (Print)
Quartz Claims

Legal Address of Project (Print)
As indicated

Discipline

# Summary of Design and Field Review Requirements

(Initial applicable discipline below and cross out and initial only those items not applicable to the project)

**_____Architectural**

1.1 Fire resisting assemblies
1.2 *Fire separations* and their continuity
1.3 *Closures*, including tightness and operation
1.4 Interior and exterior finishes, including exterior glazing
1.5 Egress systems, including *access to exit* within *suites* and *floor areas*
1.6 Performance and physical safety features (guardrails, handrails, etc.)
1.7 Structural capacity of architectural components, anchorage & seismic restraint
1.8 Roofing and flashings
1.9 Wall cladding systems
1.10 Dampproofing and/or waterproofing of walls & slabs below grade
1.11 Thermal insulation systems, including condensation control & cavity ventilation
1.12 Sound control
1.13 Landscaping, screening and site grading
1.14 Provisions for fire fighting access
1.15 Access requirements for persons with disabilities
1.16 Elevating devices
1.17 Coordination of testing of fire emergency systems & maintenance programs
1.18 Development permit and conditions therein
1.19 Local building and plumbing bylaw requirements
1.20 Interior signage, including acceptable materials, dimensions & locations
1.21 Energy Efficiency Part 9.36 requirements
1.22 Construction safety measures
1.23 Review of all applicable shop drawings

**_____Structural**

2.1 Structural capacity of the *building*, including anchorage & seismic restraint
2.2 Structural capacity of a *post-disaster building*, anchorage & seismic restraint
2.3 Structural aspects of *deep foundations*
2.4 Qualification of structural welder
2.5 Excavation & shoring
2.6 Underpinning
2.7 Backfill
2.8 Review of all Applicable Shop Drawings

**_____Mechanical**

~~3.1 HVAC systems & devices, including high *building* requirements where applicable~~
~~3.2 *Fire dampers* at required *fire separations*~~
~~3.3 Continuity of fire separations at HVAC penetrations~~
~~3.4 All environmental separation requirements~~
~~3.5 Energy Efficiency Part 9.36 requirements~~
~~3.6 Functional testing of mechanically related (i.e. sprinkler systems) fire emergency systems & devices~~
~~3.7 Maintenance manuals for mechanical systems~~
~~3.8 Structural capacity of mechanical components, anchorage & seismic restraint~~
3.9 Review of all applicable shop drawings & Potable water treatment system only

**_____Commissioning of life safety and fire protection systems**

4.1 Commissioning of life safety and fire protection systems

PROFESSIONAL ENGINEER
YUKON TERRITORY
A.J. MacDONALD

(Professional's Seal and Signature)

Date: March 14, 2018

Yukon
Government
**Fax: 867-393-6249**

Building Permit No.
*(For authority having jurisdiction's use)*

Dublin Gulch Propoerty
Address of Project (Print)
Quartz Claims
Legal Address of Project (Print)
As indicated
Discipline

*Summary of Design and Field Review Requirements, continued*

## _____Plumbing

5.1 *Roof drainage systems*
5.2 Site and *foundation drainage systems*
5.3 *Plumbing systems* and devices
5.4 Sprinkler systems including water flow-indicating devices where applicable
5.5 Continuity of *fire separations* at plumbing penetrations
5.6 Local building and plumbing bylaw requirements
5.7 Functional testing of plumbing related fire emergency systems including waterflow-indicating devices where applicable
5.8 Maintenance manuals for *plumbing systems*
5.9 Structural capacity of plumbing components, anchorage and seismic restraint
5.10 Review of all applicable shop drawings

## _____Fire Suppression Systems

6.1 Suppression systems classification for type of *occupancy*
6.2 Design coverage, including concealed or special areas
6.3 Compatibility and location of electrical supervision, ancillary alarms and control devices
6.4 Evaluation of the capacity of city water supply versus system demands and domestic demand, including plumbing devices where applicable
6.5 Qualification of welder, quality of welds and material
6.6 Acceptance testing for —"Contractor's Material and Test Certificate"— as per NFPA Standard
6.7 Maintenance program and manual for suppression systems
6.8 Structural capacity of sprinkler components, anchorage and seismic restraint
6.9 For partial systems—confirm sprinklers are installed in all areas where required
6.10 Fire department access requirements
6.11 Fire Department connections and hydrant locations
6.12 Fire hose standpipes
6.13 Function Testing of fire suppression systems and waterflow– Indicating devices
6.14 Review of all applicable shop drawings

## _____Electrical

7.1 Electrical systems and devices, including high building systems where applicable
7.2 Continuity of *fire separations* at electrical penetrations
7.3 Functional testing of electrical related fire emergency systems, fire alarm systems and waterflow-indicating devices
7.4 Emergency electrical power supply for buildings where applicable
7.5 Electrical systems and devices maintenance manuals
7.6 Structural capacity of electrical components, anchorage and seismic restraint
7.7 Clearances from *building* of all electrical utility equipment
7.8 Fire protection of wiring for emergency systems
7.9 Review of all applicable shop drawings

## _____Geotechnical (temporary)

8.1 *Excavation*
8.2 Shoring
8.3 Underpinning
8.4 Temporary construction dawatering

## _____Geotechnical (permanent)

9.1 Bearing capacity of the soil
9.2 Geotechnical aspects of *deep foundations*
9.3 Compaction of engineered *fill*
9.4 Structural considerations of soil, including slope stability and seismic restraint
9.5 Backfill
9.6 Local building and plumbing bylaw requirements
9.7 Permanent dewatering
9.8 Permanent underpinning

PROFESSIONAL ENGINEER
YUKON
A.J. MacDONALD
TERRITORY

(Professional's Seal and Signature)

Date: March 14, 2018

Yukon
Government
*Fax: 867-393-6249*

Building Permit No.
*(For authority having jurisdiction's use)*

Dublin Gulch Property
Address of Project (Print)
Quartz Claims
Legal Address of Project (Print)
As indicated
Discipline

*Summary of Design and Field Review Requirements, continued*

**Definitions:**

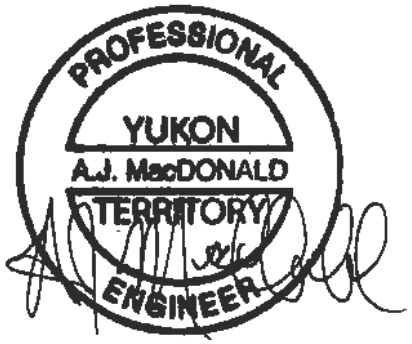
*Building Commissioning* means where there is *life safety systems* and/or *fire protection systems* that are installed in compliance with the National Building Code of Canada or the National Fire Code of Canada. These systems have been tested together to ensure the proper operation and inter-relationship between the systems.

*Field review* means a review of the work at a building site and, where applicable, at locations where building components are fabricated for use at the building site that a *registered professional* in his or her professional discretion considers necessary to ascertain whether the work substantially complies in all material respects with the plans and supporting documents prepared by a *registered professional.*

*Fire protection systems* means heat and smoke detectors that can activate audible alarms that may automatically notify local fire departments, sprinkler systems, standpipe systems, hand operated extinguishers, the ability to control smoke spread through ventilation and pressurization control, door open devices, elevator recalls, smoke and fire dampers.

*Life safety system* means any building element (e.g., emergency power generators and emergency lighting) designed to protect and evacuate the building population in emergencies (e.g., fires and earthquakes) and less critical events (e.g., power failures).

*Registered professional* means a person who is registered or licensed to practice as a professional engineer under the Yukon Engineering Profession Act.




(Professional's Seal and Signature)

Date: March 14, 2018

Yukon Government
Fax: 867-393-6249

Building Permit No.
*(For authority having jurisdiction's use)*

# CONFIRMATION OF ASSURANCE OF PROFESSIONAL DESIGN AND COMMITMENT FOR FIELD REVIEW

Note: (i) This Document must be submitted prior to the commencement of construction activities of the components identified.
(ii) The meanings of words in *italic* will have the same meaning as in the National Building Code of Canada, the National Plumbing Code of Canada and as found at the end of this document.

To: *The authority having jurisdiction*

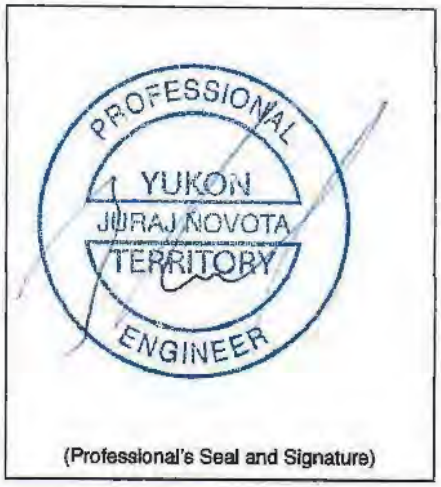
Re: Eagle Gold Project Camp — Phase 2, Units A,F,G,H,I
Name of Project (Print)
Dublin Gulch Property, South McQuesten Road, Mayo Mining District, Yukon
Address of Project (Print)
Quartz claims held by Strata Gold Corporation (62-2-13.409N 139-44-32.616W)
Legal Address of Project (Print)

The Undersigned hereby gives assurance that the design of the components of the plans and supporting documents for the project (including Post-disaster buildings) prepared by this *registered professional* in support for the *building* permit, substantially comply with the Yukon Building Standards Act and Regulations, the National Building Code of Canada and other applicable regulations with regards to safety.

(Initial the items listed below that apply to this *registered professional* in Yukon Territory. All the disciplines will not necessarily be employed on every project.)

J.N* ARCHITECTURAL
— STRUCTURAL
J.N* MECHANICAL
J.N* PLUMBING
J.N* FIRE SUPPRESSION SYSTEMS
J.N* ELECTRICAL
— GEOTECHNICAL—temporary
— GEOTECHNICAL —permanent

* Items as indicated J.N



(Professional's Seal and Signature)

Date: March 14, 2018

The undersigned hereby makes known to be responsible for *field reviews* for above referenced components during construction as indicated by the following design and *field review* requirements and, upon request, make copies of all inspections or review reports available to the *authority having jurisdiction.*

Juraj Novota, P.Eng
Name (Print) Signature
Novota Engineering Ltd
Company (Print)
23351 117B Ave, Maple Ridge, BC, V2X 0B9
Address (Print)

Yukon
Government
*Fax: 867-393-6249*

Building Permit No.
*(For authority having jurisdiction's use)*

Dublin Gulch Property
Address of Project (Print)

Quartz Claims
Legal Address of Project (Print)

As Indicated
Discipline

The Undersigned also undertakes to notify the Building Safety Branch as soon as practical if the contract for *field review* is cancelled at any time during construction.

I certify that I am a *registered professional* as defined by the definition at the end of this document.

Juraj Novota, P.Eng.
Registered Professional

23351 117B Ave, Maple Ridge, BC, V2X 0B9
Address (Print)

(604) 767 8709
Phone No.




(Professional's Seal and Signature)

Date: March 14, 2018

Yukon
Government
*Fax: 867-393-6249*

Building Permit No.
*(For authority having jurisdiction's use)*

Dublin Gulch Property
Address of Project (Print)

Quartz Claims
Legal Address of Project (Print)

As Indicated
Discipline

# Summary of Design and Field Review Requirements

(Initial applicable discipline below and cross out and initial only those items not applicable to the project)

J.M **Architectural**

1.1 Fire resisting assemblies
1.2 *Fire separations* and their continuity
1.3 *Closures*, including tightness and operation
1.4 Interior and exterior finishes, including exterior glazing
1.5 Egress systems, including *access to exit* within *suites* and *floor areas*
1.6 Performance and physical safety features (guardrails, handrails, etc.)
1.7 Structural capacity of architectural components, anchorage & seismic restraint
1.8 Roofing and flashings
1.9 Wall cladding systems
1.10 Dampproofing and/or waterproofing of walls & slabs below grade
1.11 Thermal insulation systems, including condensation control & cavity ventilation
1.12 Sound control
1.13 Landscaping, screening and site grading
1.14 Provisions for fire fighting access
1.15 Access requirements for persons with disabilities
1.16 Elevating devices
1.17 Coordination of testing of fire emergency systems & maintenance programs
1.18 Development permit and conditions therein
1.19 Local building and plumbing bylaw requirements
1.20 Interior signage, including acceptable materials, dimensions & locations
J.M 1.21 ~~Energy Efficiency Part 9.36 requirements~~ N/A
J.M 1.22 ~~Construction safety measures~~ N/A
1.23 Review of all applicable shop drawings

~~**Structural**~~

~~2.1 Structural capacity of the *building*, including anchorage & seismic restraint~~
~~2.2 Structural capacity of a *post-disaster building*, anchorage & seismic restraint~~
~~2.3 Structural aspects of *deep foundations*~~
~~2.4 Qualification of structural welder~~
~~2.5 Excavation & shoring~~
~~2.6 Underpinning~~
~~2.7 Backfill~~
~~2.8 Review of all Applicable Shop Drawings~~

J.M

J.M **Mechanical**

3.1 HVAC systems & devices, including high *building* requirements where applicable
3.2 *Fire dampers* at required *fire separations*
3.3 Continuity of fire separations at HVAC penetrations
3.4 All environmental separation requirements
J.M ~~3.5 Energy Efficiency Part 9.36 requirements~~ N/A
3.6 Functional testing of mechanically related (i.e. sprinkler systems) fire emergency systems & devices
3.7 Maintenance manuals for mechanical systems
3.8 Structural capacity of mechanical components, anchorage & seismic restraint
3.9 Review of all applicable shop drawings

J.M **Commissioning of life safety and fire protection systems**

4.1 Commissioning of life safety and fire protection systems

PROFESSIONAL ENGINEER

(Professional's Seal and Signature)

Date: March 14, 2018

Yukon
Government
*Fax: 867-393-6249*

Building Permit No.
*(For authority having jurisdiction's use)*

Dublin Gulch Property

Address of Project (Print)
Quartz Claims

Legal Address of Project (Print)
As Indicated

Discipline

*Summary of Design and Field Review Requirements, continued*

## Plumbing

~~5.1 *Roof drainage systems*~~
~~5.2 Site and *foundation drainage systems*~~
~~5.3 *Plumbing systems* and devices~~
5.4 Sprinkler systems including water flow-indicating devices where applicable
5.5 Continuity of *fire separations* at plumbing penetrations
~~5.6 Local building and plumbing bylaw requirements~~
5.7 Functional testing of plumbing related fire emergency systems including waterflow-indicating devices where applicable
~~5.8 Maintenance manuals for *plumbing systems*~~
~~5.9 Structural capacity of plumbing components, anchorage and seismic restraint~~
~~5.10 Review of all applicable shop drawings~~

## Fire Suppression Systems

6.1 Suppression systems classification for type of *occupancy*
6.2 Design coverage, including concealed or special areas
6.3 Compatibility and location of electrical supervision, ancillary alarms and control devices
6.4 Evaluation of the capacity of city water supply versus system demands and domestic demand, including plumbing devices where applicable
6.5 Qualification of welder, quality of welds and material
6.6 Acceptance testing for —"Contractor's Material and Test Certificate"— as per NFPA Standard
6.7 Maintenance program and manual for suppression systems
6.8 Structural capacity of sprinkler components, anchorage and seismic restraint
6.9 For partial systems—confirm sprinklers are installed in all areas where required
6.10 Fire department access requirements
6.11 Fire Department connections and hydrant locations
6.12 Fire hose standpipes
6.13 Function Testing of fire suppression systems and waterflow– Indicating devices
6.14 Review of all applicable shop drawings

## Electrical

~~7.1 Electrical systems and devices, including high building systems where applicable~~
7.2 Continuity of *fire separations* at electrical penetrations
7.3 Functional testing of electrical related fire emergency systems, fire alarm systems and waterflow-indicating devices
~~7.4 Emergency electrical power supply for buildings where applicable~~
~~7.5 Electrical systems and devices maintenance manuals~~
~~7.6 Structural capacity of electrical components, anchorage and seismic restraint~~
~~7.7 Clearances from *building* of all electrical utility equipment~~
7.8 Fire protection of wiring for emergency systems
~~7.9 Review of all applicable shop drawings~~

PROFESSIONAL
YUKON
JURAJ NOVOTA
TERRITORY
ENGINEER

(Professional's Seal and Signature)

Date: March 14, 2018

## Geotechnical (temporary)

8.1 *Excavation*
8.2 Shoring
8.3 Underpinning
8.4 Temporary construction dewatering

## Geotechnical (permanent)

9.1 Bearing capacity of the soil
9.2 Geotechnical aspects of *deep foundations*
9.3 Compaction of engineered *fill*
9.4 Structural considerations of soil, including slope stability and seismic restraint
9.5 Backfill
9.6 Local building and plumbing bylaw requirements
9.7 Permanent dewatering
9.8 Permanent underpinning

Yukon Government

*Fax: 867-393-6249*

2018-0072-B

Building Permit No.
*(For authority having jurisdiction's use)*

# ASSURANCE OF PROFESSIONAL FIELD REVIEW

Note: (i) This Document must be submitted after completion of the project but before the occupancy permit is issued, or a final inspection is made, by the *authority having jurisdiction*.
(ii) The meanings of words in *italic* will have the same meaning as in the National Building Code of Canada, the National Plumbing Code of Canada and as found at the end of this document.

To: *The authority having jurisdiction*

Re: Eagle Gold Project Camp — Phase 2, Units E,F,G,H,I (Conditional Valid for 90 days)
Name of Project (Print)

Dublin Gulch Property, South McQuesten Road, Mayo Mining District, Yukon
Address of Project (Print)

Quartz claims held by Strata Gold Corporation (62-2-13.409N 139-44-32.616W)
Legal Address of Project (Print)

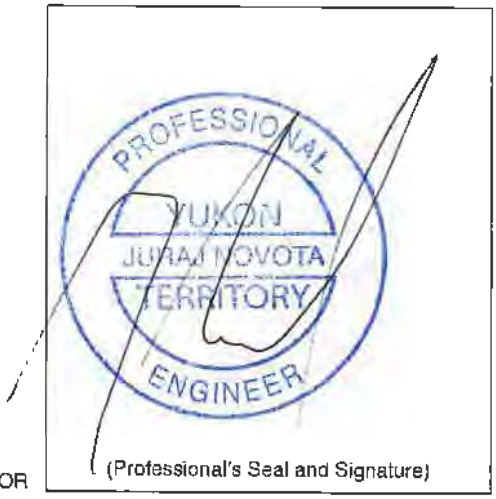
(The *registered professional* shall complete the following)

Juraj Novota, P.Eng
Name (Print)

Novota Engineering Ltd
Company (Print)

23351 117B Ave, Maple Ridge, BC, V2X 0B9
Address (Print)

(604) 767 8709
Phone Number Fax Number



(Professional's Seal and Signature)

Date: May 16, 2018

I hereby give assurance that

a) I have fulfilled my obligations for *field reviews* as required by the previously submitted - "CONFIRMATION OF ASSURANCE OF PROFESSIONAL DESIGN AND COMMITMENT FOR FIELD REVIEWS",
b) I have completed the functional testing of the *fire protection* and *life safety systems* to ascertain that they substantially comply in all material respects with
(i) the applicable requirements of the Yukon Building Standards Act and Regulations, the National Building Code of Canada and other applicable regulations with regards to safety, and
(ii) the plans and supporting documents submitted in support of the application for the building permit.
c) I am a *registered professional* as defined at the bottom of this document.

**Definitions:**

*Field review* means a review of the work at a building site and, where applicable, at locations where building components are fabricated for use at the building site that a *registered professional* in his or her professional discretion considers necessary to ascertain whether the work substantially complies in all material respects with the plans and supporting documents prepared by a *registered professional*.

*Fire protection systems* means heat and smoke detectors that can activate audible alarms that may automatically notify local fire departments, sprinkler systems, standpipe systems, hand operated extinguishers, the ability to control smoke spread thru ventilation, and pressurization control, door open devices, elevator recalls, smoke and fire dampers

*Life safety system* means any building element (e.g., emergency power generators and emergency lighting) designed to protect and evacuate the building population in emergencies (e.g., fires and earthquakes) and less critical events (e.g., power failures).

*Registered professional* means a person who is registered or licensed to practice as a professional engineer under the Yukon Engineering Profession Act.

Yukon Government
Fax: 867-393-6249

Building Permit No.
*(For authority having jurisdiction's use)*

# CONFIRMATION OF ASSURANCE OF PROFESSIONAL DESIGN AND COMMITMENT FOR FIELD REVIEW

Note: (i) This Document must be submitted prior to the commencement of construction activities of the components identified.
(ii) The meanings of words in *italic* will have the same meaning as in the National Building Code of Canada, the National Plumbing Code of Canada and as found at the end of this document.

To: *The authority having jurisdiction*

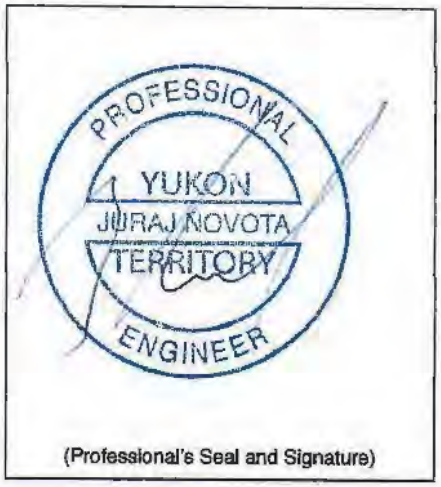
Re: Eagle Gold Project Camp — Phase 2, Units A,F,G,H,I
Name of Project (Print)
Dublin Gulch Property, South McQuesten Road, Mayo Mining District, Yukon
Address of Project (Print)
Quartz claims held by Strata Gold Corporation (62-2-13.409N 139-44-32.616W)
Legal Address of Project (Print)

The Undersigned hereby gives assurance that the design of the components of the plans and supporting documents for the project (including Post-disaster buildings) prepared by this *registered professional* in support for the *building* permit, substantially comply with the Yukon Building Standards Act and Regulations, the National Building Code of Canada and other applicable regulations with regards to safety.

(Initial the items listed below that apply to this *registered professional* in Yukon Territory. All the disciplines will not necessarily be employed on every project.)

J.N* ARCHITECTURAL
— STRUCTURAL
J.N* MECHANICAL
J.N* PLUMBING
J.N* FIRE SUPPRESSION SYSTEMS
J.N* ELECTRICAL
— GEOTECHNICAL—temporary
— GEOTECHNICAL —permanent

* Items as indicated J.N



(Professional's Seal and Signature)

Date: March 14, 2018

The undersigned hereby makes known to be responsible for *field reviews* for above referenced components during construction as indicated by the following design and *field review* requirements and, upon request, make copies of all inspections or review reports available to the *authority having jurisdiction.*

Juraj Novota, P.Eng
Name (Print) Signature
Novota Engineering Ltd
Company (Print)
23351 117B Ave, Maple Ridge, BC, V2X 0B9
Address (Print)

Yukon
Government
*Fax: 867-393-6249*

Building Permit No.
*(For authority having jurisdiction's use)*

Dublin Gulch Property
Address of Project (Print)

Quartz Claims
Legal Address of Project (Print)

As Indicated
Discipline

The Undersigned also undertakes to notify the Building Safety Branch as soon as practical if the contract for *field review* is cancelled at any time during construction.

I certify that I am a *registered professional* as defined by the definition at the end of this document.

Juraj Novota, P.Eng.
Registered Professional

23351 117B Ave, Maple Ridge, BC, V2X 0B9
Address (Print)

(604) 767 8709
Phone No.




(Professional's Seal and Signature)

Date: March 14, 2018

Yukon
Government
*Fax: 867-393-6249*

Building Permit No.
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Dublin Gulch Property
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# Summary of Design and Field Review Requirements

(Initial applicable discipline below and cross out and initial only those items not applicable to the project)

J.M **Architectural**

1.1 Fire resisting assemblies
1.2 *Fire separations* and their continuity
1.3 *Closures*, including tightness and operation
1.4 Interior and exterior finishes, including exterior glazing
1.5 Egress systems, including *access to exit* within *suites* and *floor areas*
1.6 Performance and physical safety features (guardrails, handrails, etc.)
1.7 Structural capacity of architectural components, anchorage & seismic restraint
1.8 Roofing and flashings
1.9 Wall cladding systems
1.10 Dampproofing and/or waterproofing of walls & slabs below grade
1.11 Thermal insulation systems, including condensation control & cavity ventilation
1.12 Sound control
1.13 Landscaping, screening and site grading
1.14 Provisions for fire fighting access
1.15 Access requirements for persons with disabilities
1.16 Elevating devices
1.17 Coordination of testing of fire emergency systems & maintenance programs
1.18 Development permit and conditions therein
1.19 Local building and plumbing bylaw requirements
1.20 Interior signage, including acceptable materials, dimensions & locations
J.M ~~1.21 Energy Efficiency Part 9.36 requirements~~ N/A
J.M ~~1.22 Construction safety measures~~ N/A
1.23 Review of all applicable shop drawings

**Structural**

2.1 Structural capacity of the *building*, including anchorage & seismic restraint
2.2 Structural capacity of a *post-disaster building*, anchorage & seismic restraint
2.3 Structural aspects of *deep foundations*
2.4 Qualification of structural welder
2.5 Excavation & shoring
2.6 Underpinning
2.7 Backfill
2.8 Review of all Applicable Shop Drawings

J.M **Mechanical**

3.1 HVAC systems & devices, including high *building* requirements where applicable
3.2 *Fire dampers* at required *fire separations*
3.3 Continuity of fire separations at HVAC penetrations
3.4 All environmental separation requirements
J.M ~~3.5 Energy Efficiency Part 9.36 requirements~~ N/A
3.6 Functional testing of mechanically related (i.e. sprinkler systems) fire emergency systems & devices
3.7 Maintenance manuals for mechanical systems
3.8 Structural capacity of mechanical components, anchorage & seismic restraint
3.9 Review of all applicable shop drawings

J.M **Commissioning of life safety and fire protection systems**

4.1 Commissioning of life safety and fire protection systems

PROFESSIONAL ENGINEER

(Professional's Seal and Signature)

Date: March 14, 2018

Yukon
Government
*Fax: 867-393-6249*

Building Permit No.
*(For authority having jurisdiction's use)*

Dublin Gulch Property

Address of Project (Print)
Quartz Claims

Legal Address of Project (Print)
As Indicated

Discipline

*Summary of Design and Field Review Requirements, continued*

## Plumbing

~~5.1 *Roof drainage systems*~~
~~5.2 Site and *foundation drainage systems*~~
~~5.3 *Plumbing systems* and devices~~
5.4 Sprinkler systems including water flow-indicating devices where applicable
5.5 Continuity of *fire separations* at plumbing penetrations
~~5.6 Local building and plumbing bylaw requirements~~
5.7 Functional testing of plumbing related fire emergency systems including waterflow-indicating devices where applicable
~~5.8 Maintenance manuals for *plumbing systems*~~
~~5.9 Structural capacity of plumbing components, anchorage and seismic restraint~~
~~5.10 Review of all applicable shop drawings~~

## Fire Suppression Systems

6.1 Suppression systems classification for type of *occupancy*
6.2 Design coverage, including concealed or special areas
6.3 Compatibility and location of electrical supervision, ancillary alarms and control devices
6.4 Evaluation of the capacity of city water supply versus system demands and domestic demand, including plumbing devices where applicable
6.5 Qualification of welder, quality of welds and material
6.6 Acceptance testing for —"Contractor's Material and Test Certificate"— as per NFPA Standard
6.7 Maintenance program and manual for suppression systems
6.8 Structural capacity of sprinkler components, anchorage and seismic restraint
6.9 For partial systems—confirm sprinklers are installed in all areas where required
6.10 Fire department access requirements
6.11 Fire Department connections and hydrant locations
6.12 Fire hose standpipes
6.13 Function Testing of fire suppression systems and waterflow– Indicating devices
6.14 Review of all applicable shop drawings

## Electrical

~~7.1 Electrical systems and devices, including high building systems where applicable~~
7.2 Continuity of *fire separations* at electrical penetrations
7.3 Functional testing of electrical related fire emergency systems, fire alarm systems and waterflow-indicating devices
~~7.4 Emergency electrical power supply for buildings where applicable~~
~~7.5 Electrical systems and devices maintenance manuals~~
~~7.6 Structural capacity of electrical components, anchorage and seismic restraint~~
~~7.7 Clearances from *building* of all electrical utility equipment~~
7.8 Fire protection of wiring for emergency systems
~~7.9 Review of all applicable shop drawings~~

PROFESSIONAL
YUKON
JURAJ NOVOTA
TERRITORY
ENGINEER

(Professional's Seal and Signature)

Date: March 14, 2018

## Geotechnical (temporary)

8.1 *Excavation*
8.2 Shoring
8.3 Underpinning
8.4 Temporary construction dewatering

## Geotechnical (permanent)

9.1 Bearing capacity of the soil
9.2 Geotechnical aspects of *deep foundations*
9.3 Compaction of engineered *fill*
9.4 Structural considerations of soil, including slope stability and seismic restraint
9.5 Backfill
9.6 Local building and plumbing bylaw requirements
9.7 Permanent dewatering
9.8 Permanent underpinning

Yukon Government

*Fax: 867-393-6249*

2018-0072-B

Building Permit No.
*(For authority having jurisdiction's use)*

# ASSURANCE OF PROFESSIONAL FIELD REVIEW

Note: (i) This Document must be submitted after completion of the project but before the occupancy permit is issued, or a final inspection is made, by the *authority having jurisdiction*.
(ii) The meanings of words in *italic* will have the same meaning as in the National Building Code of Canada, the National Plumbing Code of Canada and as found at the end of this document.

To: *The authority having jurisdiction*

Re: Eagle Gold Project Camp — Phase 2, Units E,F,G,H,I (Conditional Valid for 90 days)
Name of Project (Print)

Dublin Gulch Property, South McQuesten Road, Mayo Mining District, Yukon
Address of Project (Print)

Quartz claims held by Strata Gold Corporation (62-2-13.409N 139-44-32.616W)
Legal Address of Project (Print)

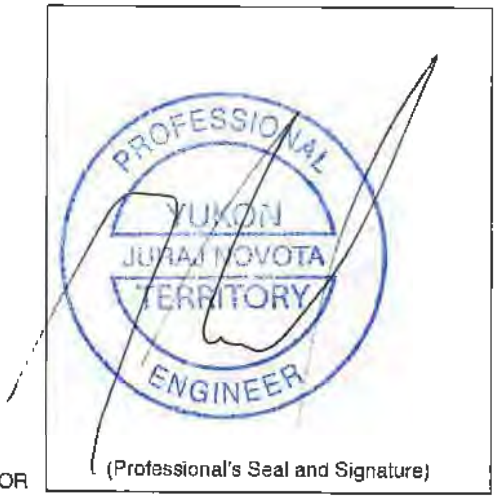
(The *registered professional* shall complete the following)

Juraj Novota, P.Eng
Name (Print)

Novota Engineering Ltd
Company (Print)

23351 117B Ave, Maple Ridge, BC, V2X 0B9
Address (Print)

(604) 767 8709
Phone Number Fax Number



(Professional's Seal and Signature)

Date: May 16, 2018

I hereby give assurance that

a) I have fulfilled my obligations for *field reviews* as required by the previously submitted - "CONFIRMATION OF ASSURANCE OF PROFESSIONAL DESIGN AND COMMITMENT FOR FIELD REVIEWS",
b) I have completed the functional testing of the *fire protection* and *life safety systems* to ascertain that they substantially comply in all material respects with
(i) the applicable requirements of the Yukon Building Standards Act and Regulations, the National Building Code of Canada and other applicable regulations with regards to safety, and
(ii) the plans and supporting documents submitted in support of the application for the building permit.
c) I am a *registered professional* as defined at the bottom of this document.

**Definitions:**

*Field review* means a review of the work at a building site and, where applicable, at locations where building components are fabricated for use at the building site that a *registered professional* in his or her professional discretion considers necessary to ascertain whether the work substantially complies in all material respects with the plans and supporting documents prepared by a *registered professional*.

*Fire protection systems* means heat and smoke detectors that can activate audible alarms that may automatically notify local fire departments, sprinkler systems, standpipe systems, hand operated extinguishers, the ability to control smoke spread thru ventilation, and pressurization control, door open devices, elevator recalls, smoke and fire dampers

*Life safety system* means any building element (e.g., emergency power generators and emergency lighting) designed to protect and evacuate the building population in emergencies (e.g., fires and earthquakes) and less critical events (e.g., power failures).

*Registered professional* means a person who is registered or licensed to practice as a professional engineer under the Yukon Engineering Profession Act.

Yukon Government
Fax: 867-393-6249

Building Permit No.
*(For authority having jurisdiction's use)*

# CONFIRMATION OF ASSURANCE OF PROFESSIONAL DESIGN AND COMMITMENT FOR FIELD REVIEW

Note: (i) This Document must be submitted prior to the commencement of construction activities of the components identified.
(ii) The meanings of words in *italic* will have the same meaning as in the National Building Code of Canada, the National Plumbing Code of Canada and as found at the end of this document.

To: *The authority having jurisdiction*

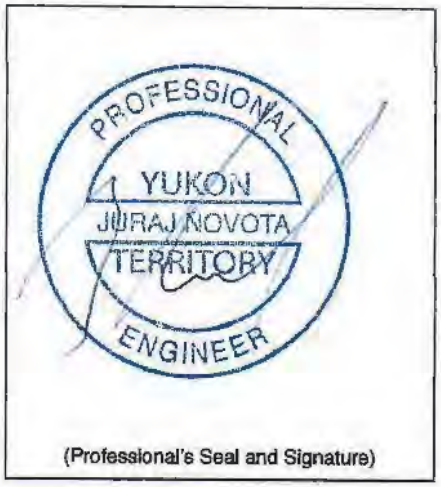
Re: Eagle Gold Project Camp — Phase 2, Units A,F,G,H,I
Name of Project (Print)
Dublin Gulch Property, South McQuesten Road, Mayo Mining District, Yukon
Address of Project (Print)
Quartz claims held by Strata Gold Corporation (62-2-13.409N 139-44-32.616W)
Legal Address of Project (Print)

The Undersigned hereby gives assurance that the design of the components of the plans and supporting documents for the project (including Post-disaster buildings) prepared by this *registered professional* in support for the *building* permit, substantially comply with the Yukon Building Standards Act and Regulations, the National Building Code of Canada and other applicable regulations with regards to safety.

(Initial the items listed below that apply to this *registered professional* in Yukon Territory. All the disciplines will not necessarily be employed on every project.)

J.N* ARCHITECTURAL
— STRUCTURAL
J.N* MECHANICAL
J.N* PLUMBING
J.N* FIRE SUPPRESSION SYSTEMS
J.N* ELECTRICAL
— GEOTECHNICAL—temporary
— GEOTECHNICAL —permanent

* Items as indicated J.N



(Professional's Seal and Signature)

Date: March 14, 2018

The undersigned hereby makes known to be responsible for *field reviews* for above referenced components during construction as indicated by the following design and *field review* requirements and, upon request, make copies of all inspections or review reports available to the *authority having jurisdiction.*

Juraj Novota, P.Eng
Name (Print) Signature
Novota Engineering Ltd
Company (Print)
23351 117B Ave, Maple Ridge, BC, V2X 0B9
Address (Print)

Yukon
Government
*Fax: 867-393-6249*

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Dublin Gulch Property
Address of Project (Print)

Quartz Claims
Legal Address of Project (Print)

As Indicated
Discipline

The Undersigned also undertakes to notify the Building Safety Branch as soon as practical if the contract for *field review* is cancelled at any time during construction.

I certify that I am a *registered professional* as defined by the definition at the end of this document.

Juraj Novota, P.Eng.
Registered Professional

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(604) 767 8709
Phone No.




(Professional's Seal and Signature)

Date: March 14, 2018

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Discipline

# Summary of Design and Field Review Requirements

(Initial applicable discipline below and cross out and initial only those items not applicable to the project)

J.M **Architectural**

1.1 Fire resisting assemblies
1.2 *Fire separations* and their continuity
1.3 *Closures*, including tightness and operation
1.4 Interior and exterior finishes, including exterior glazing
1.5 Egress systems, including *access to exit* within *suites* and *floor areas*
1.6 Performance and physical safety features (guardrails, handrails, etc.)
1.7 Structural capacity of architectural components, anchorage & seismic restraint
1.8 Roofing and flashings
1.9 Wall cladding systems
1.10 Dampproofing and/or waterproofing of walls & slabs below grade
1.11 Thermal insulation systems, including condensation control & cavity ventilation
1.12 Sound control
1.13 Landscaping, screening and site grading
1.14 Provisions for fire fighting access
1.15 Access requirements for persons with disabilities
1.16 Elevating devices
1.17 Coordination of testing of fire emergency systems & maintenance programs
1.18 Development permit and conditions therein
1.19 Local building and plumbing bylaw requirements
1.20 Interior signage, including acceptable materials, dimensions & locations
J.M ~~1.21 Energy Efficiency Part 9.36 requirements~~ N/A
J.M ~~1.22 Construction safety measures~~ N/A
1.23 Review of all applicable shop drawings

**Structural**

2.1 Structural capacity of the *building*, including anchorage & seismic restraint
2.2 Structural capacity of a *post-disaster building*, anchorage & seismic restraint
2.3 Structural aspects of *deep foundations*
2.4 Qualification of structural welder
2.5 Excavation & shoring
2.6 Underpinning
2.7 Backfill
2.8 Review of all Applicable Shop Drawings

J.M **Mechanical**

3.1 HVAC systems & devices, including high *building* requirements where applicable
3.2 *Fire dampers* at required *fire separations*
3.3 Continuity of fire separations at HVAC penetrations
3.4 All environmental separation requirements
J.M ~~3.5 Energy Efficiency Part 9.36 requirements~~ N/A
3.6 Functional testing of mechanically related (i.e. sprinkler systems) fire emergency systems & devices
3.7 Maintenance manuals for mechanical systems
3.8 Structural capacity of mechanical components, anchorage & seismic restraint
3.9 Review of all applicable shop drawings

J.M **Commissioning of life safety and fire protection systems**

4.1 Commissioning of life safety and fire protection systems

PROFESSIONAL ENGINEER

(Professional's Seal and Signature)

Date: March 14, 2018

Yukon
Government
*Fax: 867-393-6249*

Building Permit No.
*(For authority having jurisdiction's use)*

Dublin Gulch Property

Address of Project (Print)
Quartz Claims

Legal Address of Project (Print)
As Indicated

Discipline

*Summary of Design and Field Review Requirements, continued*

## Plumbing

~~5.1 *Roof drainage systems*~~
~~5.2 Site and *foundation drainage systems*~~
~~5.3 *Plumbing systems* and devices~~
5.4 Sprinkler systems including water flow-indicating devices where applicable
5.5 Continuity of *fire separations* at plumbing penetrations
~~5.6 Local building and plumbing bylaw requirements~~
5.7 Functional testing of plumbing related fire emergency systems including waterflow-indicating devices where applicable
~~5.8 Maintenance manuals for *plumbing systems*~~
~~5.9 Structural capacity of plumbing components, anchorage and seismic restraint~~
~~5.10 Review of all applicable shop drawings~~

## Fire Suppression Systems

6.1 Suppression systems classification for type of *occupancy*
6.2 Design coverage, including concealed or special areas
6.3 Compatibility and location of electrical supervision, ancillary alarms and control devices
6.4 Evaluation of the capacity of city water supply versus system demands and domestic demand, including plumbing devices where applicable
6.5 Qualification of welder, quality of welds and material
6.6 Acceptance testing for —"Contractor's Material and Test Certificate"— as per NFPA Standard
6.7 Maintenance program and manual for suppression systems
6.8 Structural capacity of sprinkler components, anchorage and seismic restraint
6.9 For partial systems—confirm sprinklers are installed in all areas where required
6.10 Fire department access requirements
6.11 Fire Department connections and hydrant locations
6.12 Fire hose standpipes
6.13 Function Testing of fire suppression systems and waterflow– Indicating devices
6.14 Review of all applicable shop drawings

## Electrical

~~7.1 Electrical systems and devices, including high building systems where applicable~~
7.2 Continuity of *fire separations* at electrical penetrations
7.3 Functional testing of electrical related fire emergency systems, fire alarm systems and waterflow-indicating devices
~~7.4 Emergency electrical power supply for buildings where applicable~~
~~7.5 Electrical systems and devices maintenance manuals~~
~~7.6 Structural capacity of electrical components, anchorage and seismic restraint~~
~~7.7 Clearances from *building* of all electrical utility equipment~~
7.8 Fire protection of wiring for emergency systems
~~7.9 Review of all applicable shop drawings~~

PROFESSIONAL
YUKON
JURAJ NOVOTA
TERRITORY
ENGINEER

(Professional's Seal and Signature)

Date: March 14, 2018

## Geotechnical (temporary)

8.1 *Excavation*
8.2 Shoring
8.3 Underpinning
8.4 Temporary construction dewatering

## Geotechnical (permanent)

9.1 Bearing capacity of the soil
9.2 Geotechnical aspects of *deep foundations*
9.3 Compaction of engineered *fill*
9.4 Structural considerations of soil, including slope stability and seismic restraint
9.5 Backfill
9.6 Local building and plumbing bylaw requirements
9.7 Permanent dewatering
9.8 Permanent underpinning

**Advisory #4 – Verification of Fire Alarm Systems & Signals to a Municipal Fire Department**

# Confirmation of Fire Alarm Verification Form

To: The *authority having Jurisdiction*
Re: Eagle Gold Project Camp - Phase 2 - Dorm 1
Name of Project (Print)
Dublin Gulch Property, South McQuesten Road, Mayo Mining District, Yukon
Address of Project (Print)
Quartz claims held by Strata Gold Corporation (62-2-13.409N 139-44-32.616W)
Legal Address of Project (Print)

The Undersigned hereby gives assurance that we were in attendance simultaneously and participated at the time of the Fire Alarm Verification. We concur with the contents of the Fire Alarm Verification Report and confirm that there are no outstanding deficiencies.

Novata Engineering Ltd.
Engineer Company name (Print)
Juraj Novota
Engineer's name (Print)
Engineer's Signature
Aug 3. 2018
Date

PROFESSIONAL ENGINEER
YUKON
JURAJ NOVOTA
TERRITORY
(Professional) Seal and Signature

Johnson Control
Fire Alarm Company's name (Print)
Aaron Peacock
Fire Alarm Technician's name (Print)
Fire Alarm Technician's Signature
Aug 03/18
Date

Mark Wojdarski
Electrical Contractor's name (Print)
Fire Alarm Technician's name (Print)
Electrician's Signature
3 Aug 2018
Date

Please note that this declaration of the fire alarm verification is only valid if the required signatories have signed, or a ULC generated certificate of verification will be required.

Yukon Government

*Fax: 867-393-6249*

2018-0072-B

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# ASSURANCE OF PROFESSIONAL FIELD REVIEW

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(The *registered professional* shall complete the following)

Juraj Novota, P.Eng
Name (Print)

Novota Engineering Ltd
Company (Print)

23351 117B Ave, Maple Ridge, BC, V2X 0B9
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(604) 767 8709
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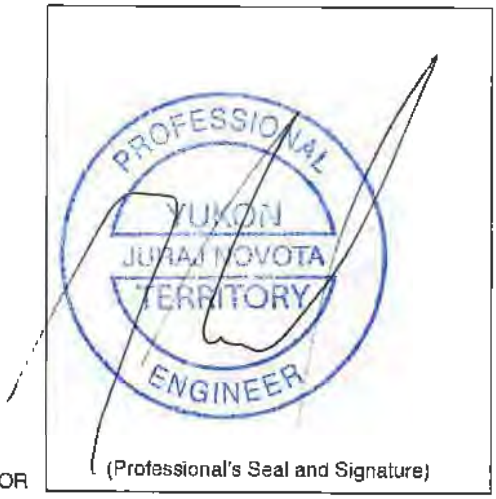

(Professional's Seal and Signature)

Date: May 16, 2018

I hereby give assurance that

a) I have fulfilled my obligations for *field reviews* as required by the previously submitted - "CONFIRMATION OF ASSURANCE OF PROFESSIONAL DESIGN AND COMMITMENT FOR FIELD REVIEWS",
b) I have completed the functional testing of the *fire protection* and *life safety systems* to ascertain that they substantially comply in all material respects with
(i) the applicable requirements of the Yukon Building Standards Act and Regulations, the National Building Code of Canada and other applicable regulations with regards to safety, and
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c) I am a *registered professional* as defined at the bottom of this document.

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Yukon Government
*Fax: 867-393-6249*

Building Permit No.
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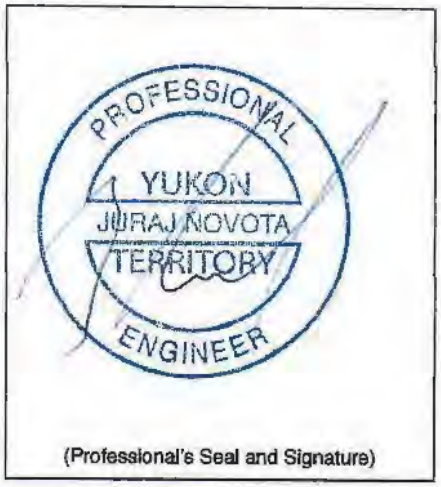
J.N* **ARCHITECTURAL**
— **STRUCTURAL**
J.N* **MECHANICAL**
J.N* **PLUMBING**
J.N* **FIRE SUPPRESSION SYSTEMS**
J.N* **ELECTRICAL**
— **GEOTECHNICAL—temporary**
— **GEOTECHNICAL —permanent**

* Items as indicated J.N



(Professional's Seal and Signature)

Date: March 14, 2018

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Juraj Novota, P.Eng
Name (Print) Signature
Novota Engineering Ltd
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Discipline

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I certify that I am a *registered professional* as defined by the definition at the end of this document.

Juraj Novota, P.Eng.
Registered Professional

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Date: March 14, 2018

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Discipline

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(Initial applicable discipline below and cross out and initial only those items not applicable to the project)

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1.18 Development permit and conditions therein
1.19 Local building and plumbing bylaw requirements
1.20 Interior signage, including acceptable materials, dimensions & locations
J.M ~~1.21 Energy Efficiency Part 9.36 requirements~~ N/A
J.M ~~1.22 Construction safety measures~~ N/A
1.23 Review of all applicable shop drawings

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2.1 Structural capacity of the *building*, including anchorage & seismic restraint
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3.1 HVAC systems & devices, including high *building* requirements where applicable
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3.7 Maintenance manuals for mechanical systems
3.8 Structural capacity of mechanical components, anchorage & seismic restraint
3.9 Review of all applicable shop drawings

J.M **Commissioning of life safety and fire protection systems**

4.1 Commissioning of life safety and fire protection systems

PROFESSIONAL ENGINEER

(Professional's Seal and Signature)

Date: March 14, 2018

Yukon
Government
*Fax: 867-393-6249*

Building Permit No.
*(For authority having jurisdiction's use)*

Dublin Gulch Property
Address of Project (Print)

Quartz Claims
Legal Address of Project (Print)

As Indicated
Discipline

*Summary of Design and Field Review Requirements, continued*

## Plumbing

~~5.1 *Roof drainage systems*~~
~~5.2 Site and *foundation drainage systems*~~
~~5.3 *Plumbing systems* and devices~~
5.4 Sprinkler systems including water flow-indicating devices where applicable
5.5 Continuity of *fire separations* at plumbing penetrations
~~5.6 Local building and plumbing bylaw requirements~~
5.7 Functional testing of plumbing related fire emergency systems including waterflow-indicating devices where applicable
~~5.8 Maintenance manuals for *plumbing systems*~~
~~5.9 Structural capacity of plumbing components, anchorage and seismic restraint~~
~~5.10 Review of all applicable shop drawings~~

## Fire Suppression Systems

6.1 Suppression systems classification for type of *occupancy*
6.2 Design coverage, including concealed or special areas
6.3 Compatibility and location of electrical supervision, ancillary alarms and control devices
6.4 Evaluation of the capacity of city water supply versus system demands and domestic demand, including plumbing devices where applicable
6.5 Qualification of welder, quality of welds and material
6.6 Acceptance testing for —"Contractor's Material and Test Certificate"— as per NFPA Standard
6.7 Maintenance program and manual for suppression systems
6.8 Structural capacity of sprinkler components, anchorage and seismic restraint
6.9 For partial systems—confirm sprinklers are installed in all areas where required
6.10 Fire department access requirements
6.11 Fire Department connections and hydrant locations
6.12 Fire hose standpipes
6.13 Function Testing of fire suppression systems and waterflow– Indicating devices
6.14 Review of all applicable shop drawings

## Electrical

~~7.1 Electrical systems and devices, including high building systems where applicable~~
7.2 Continuity of *fire separations* at electrical penetrations
7.3 Functional testing of electrical related fire emergency systems, fire alarm systems and waterflow-indicating devices
~~7.4 Emergency electrical power supply for buildings where applicable~~
~~7.5 Electrical systems and devices maintenance manuals~~
~~7.6 Structural capacity of electrical components, anchorage and seismic restraint~~
~~7.7 Clearances from *building* of all electrical utility equipment~~
7.8 Fire protection of wiring for emergency systems
~~7.9 Review of all applicable shop drawings~~

PROFESSIONAL
YUKON
JURAJ NOVOTA
TERRITORY
ENGINEER

(Professional's Seal and Signature)

Date: March 14, 2018

## Geotechnical (temporary)

8.1 *Excavation*
8.2 Shoring
8.3 Underpinning
8.4 Temporary construction dewatering

## Geotechnical (permanent)

9.1 Bearing capacity of the soil
9.2 Geotechnical aspects of *deep foundations*
9.3 Compaction of engineered *fill*
9.4 Structural considerations of soil, including slope stability and seismic restraint
9.5 Backfill
9.6 Local building and plumbing bylaw requirements
9.7 Permanent dewatering
9.8 Permanent underpinning

Yukon
Government
*Fax: 867-393-6249*

2018-0072-B
Building Permit No.
*(For authority having jurisdiction's use)*

# ASSURANCE OF PROFESSIONAL FIELD REVIEW

Note: (i) This Document must be submitted after completion of the project but before the occupancy permit is issued, or a final inspection is made, by the *authority having jurisdiction*.
(ii) The meanings of words in *italic* will have the same meaning as in the National Building Code of Canada, the National Plumbing Code of Canada and as found at the end of this document.

To: *The authority having jurisdiction*

Re: Eagle Gold Project Camp — Phase 2, Units E,F,G,H,I (Conditional Valid for 90 days)
Name of Project (Print)

Dublin Gulch Property, South McQuesten Road, Mayo Mining District, Yukon
Address of Project (Print)

Quartz claims held by Strata Gold Corporation (62-2-13.409N 139-44-32.616W)
Legal Address of Project (Print)

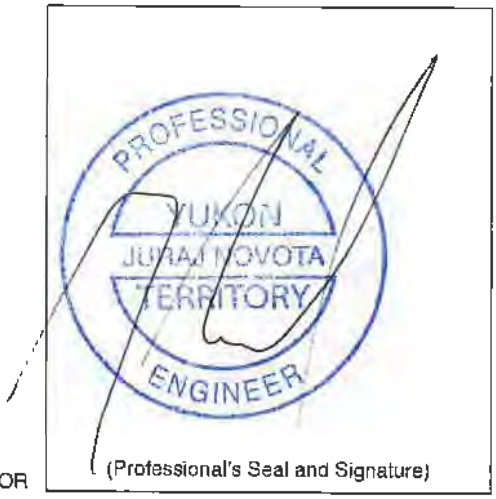
(The *registered professional* shall complete the following)

Juraj Novota, P.Eng
Name (Print)

Novota Engineering Ltd
Company (Print)

23351 117B Ave, Maple Ridge, BC, V2X 0B9
Address (Print)

(604) 767 8709
Phone Number Fax Number



(Professional's Seal and Signature)

Date: May 16, 2018

I hereby give assurance that

a) I have fulfilled my obligations for *field reviews* as required by the previously submitted - "CONFIRMATION OF ASSURANCE OF PROFESSIONAL DESIGN AND COMMITMENT FOR FIELD REVIEWS",
b) I have completed the functional testing of the *fire protection* and *life safety systems* to ascertain that they substantially comply in all material respects with
(i) the applicable requirements of the Yukon Building Standards Act and Regulations, the National Building Code of Canada and other applicable regulations with regards to safety, and
(ii) the plans and supporting documents submitted in support of the application for the building permit.
c) I am a *registered professional* as defined at the bottom of this document.

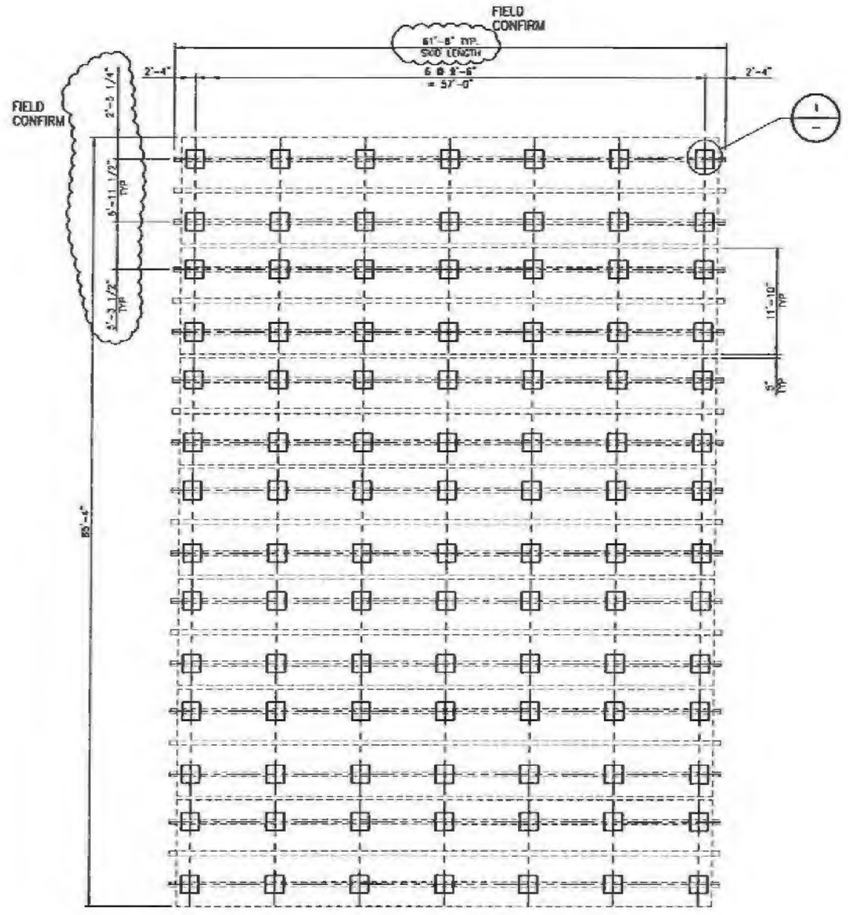
**Definitions:**

*Field review* means a review of the work at a building site and, where applicable, at locations where building components are fabricated for use at the building site that a *registered professional* in his or her professional discretion considers necessary to ascertain whether the work substantially complies in all material respects with the plans and supporting documents prepared by a *registered professional*.

*Fire protection systems* means heat and smoke detectors that can activate audible alarms that may automatically notify local fire departments, sprinkler systems, standpipe systems, hand operated extinguishers, the ability to control smoke spread thru ventilation, and pressurization control, door open devices, elevator recalls, smoke and fire dampers

*Life safety system* means any building element (e.g., emergency power generators and emergency lighting) designed to protect and evacuate the building population in emergencies (e.g., fires and earthquakes) and less critical events (e.g., power failures).

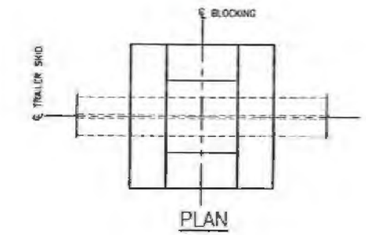
*Registered professional* means a person who is registered or licensed to practice as a professional engineer under the Yukon Engineering Profession Act.



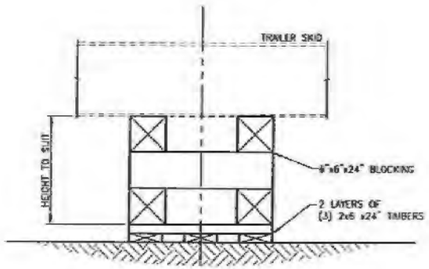

OFFICE COMPLEX FOUNDATION PLAN
SCALE: 3/32"=1'-0"

Red line Drawings
May 11, 2018

The installed blocking at units 01, 02, 03, 04, 05, 06 and 07 are in general conformance with the design drawings. A minimum 12 sets of blocking have been installed per unit. The blocking spacing meets the suppliers maximum requirements 10' 9¾".




PLAN




ELEVATION

DETAIL 1/—
SCALE: 1"=1'-0"

| REFERENCE DRAWINGS | | |
|---|---|---|
| DRAWING NO | DRAWING DESCRIPTION/TITLE | REF |
| A1 TO A8 | PTI 7 UNIT SAS OFFICE | 1 |
| VICEAGHE-C-001 | CAMP PAD UPDATES | 2 |

NOTES:

1. SPF NO.2 GRADE BLOCKING OR BETTER.
2. BLOCKING HEIGHT TO SUIT SITE CONDITIONS.
3. TOP COURSE TO RUN PERPENDICULAR TO FLOOR JOISTS.
4. BASED UPON MAXIMUM TRAILER WEIGHT OF 36,000 LBS.
5. BLOCKING IN CONTACT WITH SOIL TO BE PRESSURE-TREATED.
6. DRAWING IS APPLICABLE TO 7 UNIT OFFICE COMPLEX AS DETAILED ON DWG. NO. A1.A101.01 REV. A
7. DRAWINGS APPLICABLE TO PTI GROUP INC 7 UNIT OFFICE COMPLEX AS DETAILED IN SHEET A1 TO A8.
8. SITE CLIMATIC INFORMATION:
   $S_s$ = 2.7 kPa
   $S_r$ = 0.1 kPa

PROFESSIONAL ENGINEER
YUKON
D.D. WILLIAMS.
TERRITORY

MAY 0 1 2018

ISSUED FOR
REVIEW
Date 2018/APR/30

| REV | YY/MM/DD | DESCRIPTION | DRWN | APVD |
|---|---|---|---|---|
| A | 18/04/30 | ISSUED FOR REVIEW | CAS | DDW |

CLIENT:
JDS Energy & Mining Inc.

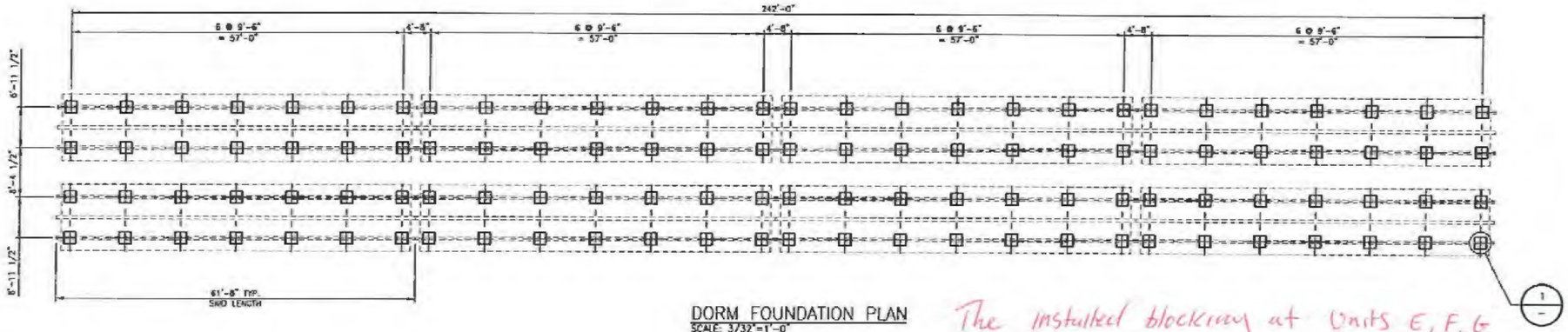
Allnorth

| | | | | |
|---|---|---|---|---|
| CLIENT NO: | - | DRWN: | CAS | DATE: 18/04/30 |
| PROJECT NO: | 18PG0059 | DSGN: | GDF | DATE: 18/04/30 |
| DRAWING SIZE: | ANSI "D" | CHKD: | GDF | DATE: 18/04/30 |
| SCALE: | AS NOTED | APVD: | DDW | DATE: 18/04/30 |

PROJECT:
JDS MINING
EAGLE GOLD PROJECT

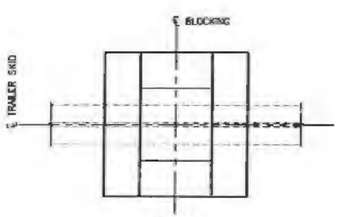
TITLE:
OFFICE COMPLEX FOUNDATION PLAN

DWG NO: 18PG0059-1200-002
REV: A

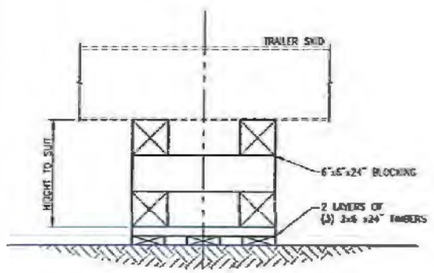



DORM FOUNDATION PLAN
SCALE: 3/32"=1'-0"

The installed blocking at Units E, F, G H and I are in general conformance with the design drawings. A minimum 12 sets of blocking have been installed per unit. The blocking spacing meets the suppliers maximum spacing requirements. 10' 9 3/4




PLAN




ELEVATION

DETAIL
SCALE: 1"=1'-0"

PROFESSIONAL ENGINEER
YUKON TERRITORY
D.D. WILLIAMS
APR 12 2018

| REFERENCE DRAWINGS | | |
|---|---|---|
| DRAWING NO | DRAWING DESCRIPTION/TITLE | REF |
| A0.1 TO A4.1 | BLACK DIAMOND 49 PERSON CAMP | 1 |
| VICEAG4E-C-001 | CAMP PAD UPDATES | 2 |

NOTES:

1. SPF NO.2 GRADE BLOCKING OR BETTER.
2. BLOCKING HEIGHT TO SUIT SITE CONDITIONS.
3. TOP COURSE TO RUN PERPENDICULAR TO FLOOR JOISTS.
4. BASED UPON MAXIMUM TRAILER WEIGHT OF 30,000 LBS.
5. BLOCKING IN CONTACT WITH SOIL TO BE PRESSURE-TREATED.
6. DRAWING IS APPLICABLE TO DORM UNITS A, F, G, H, AND I AS DETAILED ON DWG. NO. VICEAG4E-C-001 REV.A
7. DRAWINGS APPLICABLE TO BLACK DIAMOND 49 PERSON CAMP AS DETAILED IN SHEET A0.1 TO A4.1.
8. SITE CLIMATIC INFORMATION:
   $S_s$ = 2.7 kPa
   $S_r$ = 0.1 kPa

Red Line Drawings
MAY 11, 2018

ISSUED FOR
REVIEW
Date 2018/APR/04

| REV | YY/MM/DD | DESCRIPTION | DRWN | APVD |
|---|---|---|---|---|
| A | 18/04/04 | ISSUED FOR REVIEW | CRS | JDS |

CLIENT:
JDS Energy & Mining Inc.

Allnorth

| | | | | | |
|---|---|---|---|---|---|
| CLIENT NO. | - | DRWN | CRS | DATE | 18/04/04 |
| PROJECT NO. | 18PG0059 | DSGN | JDS | DATE | 18/04/04 |
| DRAWING SIZE | ANSI "D" | CHKD | JDS | DATE | 18/04/04 |
| SCALE | AS NOTED | APVD | DDW | DATE | 18/04/04 |

PROJECT:
JDS MINING
EAGLE GOLD PROJECT

TITLE:
DORM FOUNDATION PLAN

DWG NO: 18PG0059-1200-001
REV: A

Yukon
Government
*Fax: 867-393-6249*

Building Permit No.
*(For authority having jurisdiction's use)*

# ASSURANCE OF PROFESSIONAL FIELD REVIEW

Note: (i) This Document must be submitted after completion of the project but before the occupancy permit is issued, or a final inspection is made, by the *authority having jurisdiction.*
(ii) The meanings of words in *italic* will have the same meaning as in the National Building Code of Canada, the National Plumbing Code of Canada and as found at the end of this document.

To: *The authority having jurisdiction*

Re: Eagle Gold Project Camp – Phase 2, Units E, F, G, H, I and Units O1, O2, O3, O4, O5, O6, O7
Name of Project (Print)

Dublin Gulch Property, South McQuesten Road, Mayo Mining District, Yukon
Address of Project (Print)

Quartz claims held by Strata Gold Corporation (62-2-13, 409N 139-44-32.616W)
Legal Address of Project (Print)

(The *registered professional* shall complete the following)

Don Williams, P.Eng
Name (Print)

Allnorth Consultants Limited
Company (Print)

2011 PG Pulpmill Road, Prince George, BC V2L 4V1
Address (Print)

250-614-7291 1-888-839-3114
Phone Number Fax Number

PROFESSIONAL ENGINEER YUKON D.D. WILLIAMS TERRITORY

(Professional's Seal and Signature)

Date: MAY 11 2018

I hereby give assurance that

a) I have fulfilled my obligations for *field reviews* as required by the previously submitted - "CONFIRMATION OF ASSURANCE OF PROFESSIONAL DESIGN AND COMMITMENT FOR FIELD REVIEWS",

b) ~~I have completed the functional testing of the *fire protection* and *life safety systems* to ascertain that they substantially comply in all material respects with~~
~~(i) the applicable requirements of the Yukon Building Standards Act and Regulations, the National Building Code of Canada and other applicable regulations with regards to safety, and~~
~~(ii) the plans and supporting documents submitted in support of the application for the building permit,~~

c) I am a *registered professional* as defined at the bottom of this document.

**Definitions:**

*Field review* means a review of the work at a building site and, where applicable, at locations where building components are fabricated for use at the building site that a *registered professional* in his or her professional discretion considers necessary to ascertain whether the work substantially complies in all material respects with the plans and supporting documents prepared by a *registered professional.*

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Yukon Government
Fax: 867-393-6249

Building Permit No.
*(For authority having jurisdiction's use)*

# CONFIRMATION OF ASSURANCE OF PROFESSIONAL DESIGN AND COMMITMENT FOR FIELD REVIEW

Note: (i) This Document must be submitted prior to the commencement of construction activities of the components identified.
(ii) The meanings of words in *italic* will have the same meaning as in the National Building Code of Canada, the National Plumbing Code of Canada and as found at the end of this document.

To: *The authority having jurisdiction*

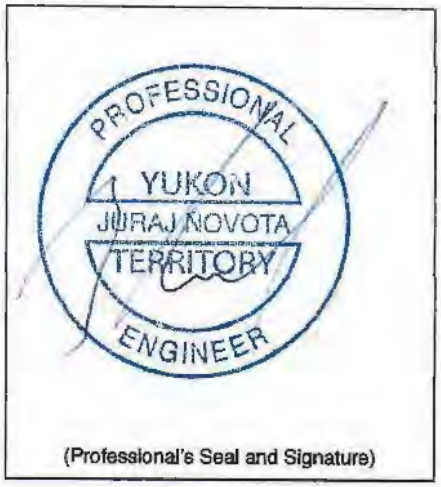
Re: Eagle Gold Project Camp — Phase 2, Units A,F,G,H,I
Name of Project (Print)
Dublin Gulch Property, South McQuesten Road, Mayo Mining District, Yukon
Address of Project (Print)
Quartz claims held by Strata Gold Corporation (62-2-13.409N 139-44-32.616W)
Legal Address of Project (Print)

The Undersigned hereby gives assurance that the design of the components of the plans and supporting documents for the project (including Post-disaster buildings) prepared by this *registered professional* in support for the *building* permit, substantially comply with the Yukon Building Standards Act and Regulations, the National Building Code of Canada and other applicable regulations with regards to safety.

(Initial the items listed below that apply to this *registered professional* in Yukon Territory. All the disciplines will not necessarily be employed on every project.)

J.N* ARCHITECTURAL
— STRUCTURAL
J.N* MECHANICAL
J.N* PLUMBING
J.N* FIRE SUPPRESSION SYSTEMS
J.N* ELECTRICAL
— GEOTECHNICAL—temporary
— GEOTECHNICAL —permanent

* Items as indicated J.N



(Professional's Seal and Signature)

Date: March 14, 2018

The undersigned hereby makes known to be responsible for *field reviews* for above referenced components during construction as indicated by the following design and *field review* requirements and, upon request, make copies of all inspections or review reports available to the *authority having jurisdiction.*

Juraj Novota, P.Eng
Name (Print) Signature
Novota Engineering Ltd
Company (Print)
23351 117B Ave, Maple Ridge, BC, V2X 0B9
Address (Print)

Yukon
Government
*Fax: 867-393-6249*

Building Permit No.
*(For authority having jurisdiction's use)*

Dublin Gulch Property
Address of Project (Print)

Quartz Claims
Legal Address of Project (Print)

As Indicated
Discipline

The Undersigned also undertakes to notify the Building Safety Branch as soon as practical if the contract for *field review* is cancelled at any time during construction.

I certify that I am a *registered professional* as defined by the definition at the end of this document.

Juraj Novota, P.Eng.
Registered Professional

23351 117B Ave, Maple Ridge, BC, V2X 0B9
Address (Print)

(604) 767 8709
Phone No.




(Professional's Seal and Signature)

Date: March 14, 2018

Yukon
Government
*Fax: 867-393-6249*

Building Permit No.
*(For authority having jurisdiction's use)*

Dublin Gulch Property
Address of Project (Print)

Quartz Claims
Legal Address of Project (Print)

As Indicated
Discipline

# Summary of Design and Field Review Requirements

(Initial applicable discipline below and cross out and initial only those items not applicable to the project)

J.M **Architectural**

1.1 Fire resisting assemblies
1.2 *Fire separations* and their continuity
1.3 *Closures*, including tightness and operation
1.4 Interior and exterior finishes, including exterior glazing
1.5 Egress systems, including *access to exit* within *suites* and *floor areas*
1.6 Performance and physical safety features (guardrails, handrails, etc.)
1.7 Structural capacity of architectural components, anchorage & seismic restraint
1.8 Roofing and flashings
1.9 Wall cladding systems
1.10 Dampproofing and/or waterproofing of walls & slabs below grade
1.11 Thermal insulation systems, including condensation control & cavity ventilation
1.12 Sound control
1.13 Landscaping, screening and site grading
1.14 Provisions for fire fighting access
1.15 Access requirements for persons with disabilities
1.16 Elevating devices
1.17 Coordination of testing of fire emergency systems & maintenance programs
1.18 Development permit and conditions therein
1.19 Local building and plumbing bylaw requirements
1.20 Interior signage, including acceptable materials, dimensions & locations
J.M ~~1.21 Energy Efficiency Part 9.36 requirements~~ N/A
J.M ~~1.22 Construction safety measures~~ N/A
1.23 Review of all applicable shop drawings

~~**Structural**~~

~~2.1 Structural capacity of the *building*, including anchorage & seismic restraint~~
~~2.2 Structural capacity of a *post-disaster building*, anchorage & seismic restraint~~
~~2.3 Structural aspects of *deep foundations*~~
~~2.4 Qualification of structural welder~~
~~2.5 Excavation & shoring~~
~~2.6 Underpinning~~
~~2.7 Backfill~~
~~2.8 Review of all Applicable Shop Drawings~~

J.M

J.M **Mechanical**

3.1 HVAC systems & devices, including high *building* requirements where applicable
3.2 *Fire dampers* at required *fire separations*
3.3 Continuity of fire separations at HVAC penetrations
3.4 All environmental separation requirements
J.M ~~3.5 Energy Efficiency Part 9.36 requirements~~ N/A
3.6 Functional testing of mechanically related (i.e. sprinkler systems) fire emergency systems & devices
3.7 Maintenance manuals for mechanical systems
3.8 Structural capacity of mechanical components, anchorage & seismic restraint
3.9 Review of all applicable shop drawings

J.M **Commissioning of life safety and fire protection systems**

4.1 Commissioning of life safety and fire protection systems

PROFESSIONAL ENGINEER

(Professional's Seal and Signature)

Date: March 14, 2018

Yukon
Government
*Fax: 867-393-6249*

Building Permit No.
*(For authority having jurisdiction's use)*

Dublin Gulch Property

Address of Project (Print)
Quartz Claims

Legal Address of Project (Print)
As Indicated

Discipline

*Summary of Design and Field Review Requirements, continued*

## Plumbing

~~5.1 *Roof drainage systems*~~
~~5.2 Site and *foundation drainage systems*~~
~~5.3 *Plumbing systems* and devices~~
5.4 Sprinkler systems including water flow-indicating devices where applicable
5.5 Continuity of *fire separations* at plumbing penetrations
~~5.6 Local building and plumbing bylaw requirements~~
5.7 Functional testing of plumbing related fire emergency systems including waterflow-indicating devices where applicable
~~5.8 Maintenance manuals for *plumbing systems*~~
~~5.9 Structural capacity of plumbing components, anchorage and seismic restraint~~
~~5.10 Review of all applicable shop drawings~~

## Fire Suppression Systems

6.1 Suppression systems classification for type of *occupancy*
6.2 Design coverage, including concealed or special areas
6.3 Compatibility and location of electrical supervision, ancillary alarms and control devices
6.4 Evaluation of the capacity of city water supply versus system demands and domestic demand, including plumbing devices where applicable
6.5 Qualification of welder, quality of welds and material
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## Electrical

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7.3 Functional testing of electrical related fire emergency systems, fire alarm systems and waterflow-indicating devices
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~~7.7 Clearances from *building* of all electrical utility equipment~~
7.8 Fire protection of wiring for emergency systems
~~7.9 Review of all applicable shop drawings~~

PROFESSIONAL
YUKON
JURAJ NOVOTA
TERRITORY
ENGINEER

(Professional's Seal and Signature)

Date: March 14, 2018

## Geotechnical (temporary)

8.1 *Excavation*
8.2 Shoring
8.3 Underpinning
8.4 Temporary construction dewatering

## Geotechnical (permanent)

9.1 Bearing capacity of the soil
9.2 Geotechnical aspects of *deep foundations*
9.3 Compaction of engineered *fill*
9.4 Structural considerations of soil, including slope stability and seismic restraint
9.5 Backfill
9.6 Local building and plumbing bylaw requirements
9.7 Permanent dewatering
9.8 Permanent underpinning

Yukon Government

*Fax: 867-393-6249*

2018-0072-B

Building Permit No.
*(For authority having jurisdiction's use)*

# ASSURANCE OF PROFESSIONAL FIELD REVIEW

Note: (i) This Document must be submitted after completion of the project but before the occupancy permit is issued, or a final inspection is made, by the *authority having jurisdiction*.
(ii) The meanings of words in *italic* will have the same meaning as in the National Building Code of Canada, the National Plumbing Code of Canada and as found at the end of this document.

To: *The authority having jurisdiction*

Re: Eagle Gold Project Camp — Phase 2, Units E,F,G,H,I (Conditional Valid for 90 days)
Name of Project (Print)

Dublin Gulch Property, South McQuesten Road, Mayo Mining District, Yukon
Address of Project (Print)

Quartz claims held by Strata Gold Corporation (62-2-13.409N 139-44-32.616W)
Legal Address of Project (Print)

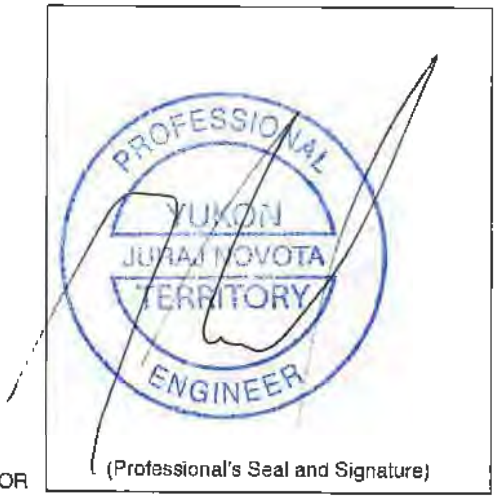
(The *registered professional* shall complete the following)

Juraj Novota, P.Eng
Name (Print)

Novota Engineering Ltd
Company (Print)

23351 117B Ave, Maple Ridge, BC, V2X 0B9
Address (Print)

(604) 767 8709
Phone Number Fax Number



(Professional's Seal and Signature)

Date: May 16, 2018

I hereby give assurance that

a) I have fulfilled my obligations for *field reviews* as required by the previously submitted - "CONFIRMATION OF ASSURANCE OF PROFESSIONAL DESIGN AND COMMITMENT FOR FIELD REVIEWS",
b) I have completed the functional testing of the *fire protection* and *life safety systems* to ascertain that they substantially comply in all material respects with
(i) the applicable requirements of the Yukon Building Standards Act and Regulations, the National Building Code of Canada and other applicable regulations with regards to safety, and
(ii) the plans and supporting documents submitted in support of the application for the building permit.
c) I am a *registered professional* as defined at the bottom of this document.

**Definitions:**

*Field review* means a review of the work at a building site and, where applicable, at locations where building components are fabricated for use at the building site that a *registered professional* in his or her professional discretion considers necessary to ascertain whether the work substantially complies in all material respects with the plans and supporting documents prepared by a *registered professional*.

*Fire protection systems* means heat and smoke detectors that can activate audible alarms that may automatically notify local fire departments, sprinkler systems, standpipe systems, hand operated extinguishers, the ability to control smoke spread thru ventilation, and pressurization control, door open devices, elevator recalls, smoke and fire dampers

*Life safety system* means any building element (e.g., emergency power generators and emergency lighting) designed to protect and evacuate the building population in emergencies (e.g., fires and earthquakes) and less critical events (e.g., power failures).

*Registered professional* means a person who is registered or licensed to practice as a professional engineer under the Yukon Engineering Profession Act.

Yukon
Government
*Fax: 867-393-6249*

Building Permit No.
*(For authority having jurisdiction's use)*

# ASSURANCE OF PROFESSIONAL FIELD REVIEW

Note: (i) This Document must be submitted after completion of the project but before the occupancy permit is issued, or a final inspection is made, by the *authority having jurisdiction.*
(ii) The meanings of words in *italic* will have the same meaning as in the National Building Code of Canada, the National Plumbing Code of Canada and as found at the end of this document.

To: *The authority having jurisdiction*

Re: EAGLE GOLD CAMP EXPANSION - MODULES E, F, G, H + I (PER TDS DWG. NO. VICEAGHE-C-002-Rev1
Name of Project (Print)

HAGGART CREEK ROAD - DUBLIN GULCH, YUKON
Address of Project (Print)

62° 2' 13.409" N, 139° 44' 32.616" W
Legal Address of Project (Print)

(The *registered professional* shall complete the following)

ADAM WALLACE
Name (Print)

TETRA TECH CANADA INC.
Company (Print)

61 WASSON PLACE, WHITEHORSE, YUKON
Address (Print)

867.668.9218 867.668.4349
Phone Number Fax Number

PROFESSIONAL
YUKON
ADAM W. WALLACE
TERRITORY
ENGINEER

(Professional's Seal and Signature)

Date: 14 MAY 2018

I hereby give assurance that

a) I have fulfilled my obligations for *field reviews* as required by the previously submitted - "CONFIRMATION OF ASSURANCE OF PROFESSIONAL DESIGN AND COMMITMENT FOR FIELD REVIEWS",
b) I have completed the functional testing of the *fire protection* and *life safety systems* to ascertain that they substantially comply in all material respects with
(i) the applicable requirements of the Yukon Building Standards Act and Regulations, the National Building Code of Canada and other applicable regulations with regards to safety, and
(ii) the plans and supporting documents submitted in support of the application for the building permit,
c) I am a *registered professional* as defined at the bottom of this document.

**Definitions:**

*Field review* means a review of the work at a building site and, where applicable, at locations where building components are fabricated for use at the building site that a *registered professional* in his or her professional discretion considers necessary to ascertain whether the work substantially complies in all material respects with the plans and supporting documents prepared by a *registered professional.*

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*Registered professional* means a person who is registered or licensed to practice as a professional engineer under the Yukon Engineering Profession Act.

# ATTACHMENT B

## Record Drawings

# SEPTIC F
# EXTEN

C:\Users\dcarey\SyncedFolder\V - 05 - Engineering\900 - Field Engineering\5 Drawings\SITE MAP\20180490_SITE_MAP.dwg May 03, 2018 - 12:50pm

REFERENCE DRAWINGS

| NO. | DWG NO. | TITLE |
|---|---|---|
| | | |

NOTES:
INSERT NOTES HERE

DRAWING REVISION

| NO. | DESCRIPTION | DATE |
|---|---|---|
| | | |

| | NAME | DATE |
|---|---|---|
| DRAWN BY: | DB-Underhill | 2018/04/25 |
| DESIGNED BY: | NAME2 | YYYY/MM/DD |
| CHECKED BY: | MC-JDS | 2018/04/24 |
| APPROVED BY: | NAME4 | YYYY/MM/DD |

JDS ENERGY & MINING PREPARED THIS DOCUMENT FOR THE EXCLUSIVE USE OF THE CLIENT. ANY USE BY THIRD PARTIES IS AT THEIR OWN RISK.

Victoria GOLD CORP

JDS Energy & Mining Inc.

EAGLE PROJECT VICTORIA GOLD

CAMP PAD ASBUILT

DWG NO. 0001

REV. 0




REFERENCE DRAWINGS

| NO. | DWG NO. | TITLE |
|---|---|---|

NOTES:
INSERT NOTES HERE

DRAWING REVISION

| NO. | DESCRIPTION | DATE |
|---|---|---|

| | NAME | DATE |
|---|---|---|
| DRAWN BY: | DB-Underhill | 2018/04/25 |
| DESIGNED BY: | NAME2 | YYYY/MM/DD |
| CHECKED BY: | MC-JDS | 2018/04/24 |
| APPROVED BY: | NAME4 | YYYY/MM/DD |

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Victoria GOLD CORP

JDS Energy & Mining Inc.

EAGLE PROJECT VICTORIA GOLD

CAMP PAD ASBUILT

DWG NO. 0001

REV. 0

C:\Users\darcyc\SyncedFolder\V - 05 - Engineering\900 - Field Engineering\5 Drawings\SITE MAP\20180430_SITE_MAP.dwg May 03, 2018 - 12:50pm

C:\Users\jbarcyk\Syncad\Robert W - 05 - Engineering\900 - Field Engineering\5 Drawings\SITE MAPS\20180430_SITE_MAP.dwg May 03, 2018 - 12:50pm

REFERENCE DRAWINGS

| NO. | DWG NO. | TITLE |
|---|---|---|
| | | |

NOTES:
INSERT NOTES HERE

DRAWING REVISION

| NO. | DESCRIPTION | DATE |
|---|---|---|
| | | |

| | NAME | DATE |
|---|---|---|
| DRAWN BY: | DB-Underhill | 2018/04/25 |
| DESIGNED BY: | NAME2 | YYYY/MM/DD |
| CHECKED BY: | MC-JDS | 2018/04/24 |
| APPROVED BY: | NAME4 | YYYY/MM/DD |

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Victoria GOLD CORP

JDS Energy & Mining Inc.

EAGLE PROJECT VICTORIA GOLD

CAMP PAD ASBUILT

DWG NO. 0001

REV. 0

*LOCATION AND ELEVATION OF GROUNDING WIRE TRENCH AROUND GENERATOR PAD. SURVEY DONE 2017-10-22.*

809.77
GROUNDING TRENCH

809.69
GROUNDING TRENCH

809.73
GROUNDING TRENCH

811.52
seacan

811.54
seacan

809.76
GROUNDING TRENCH

SEACAN

809.74
ELEC CABLE

810.92
GENERATOR

810.93
GENERATOR

809.73
GROUNDING TRENCH

GENERATOR

809.90
GROUNDING TRENCH

809.76
GROUNDING TRENCH

811.54
seacan

811.56
seacan

811.06
dieseltk

811.14
dieseltk

809.73
GROUNDING TRENCH

809.80
GROUNDING TRENCH

809.80
ELEC CABLE

809.89
ELEC CABLE

811.75
GENERATOR

811.79
GENERATOR

DIESEL

809.93
GROUNDING TRENCH

810.02
ELEC CABLE

809.89
GROUNDING TRENCH

811.02
dieseltk

809.90
GROUNDING TRENCH

811.03
dieseltk

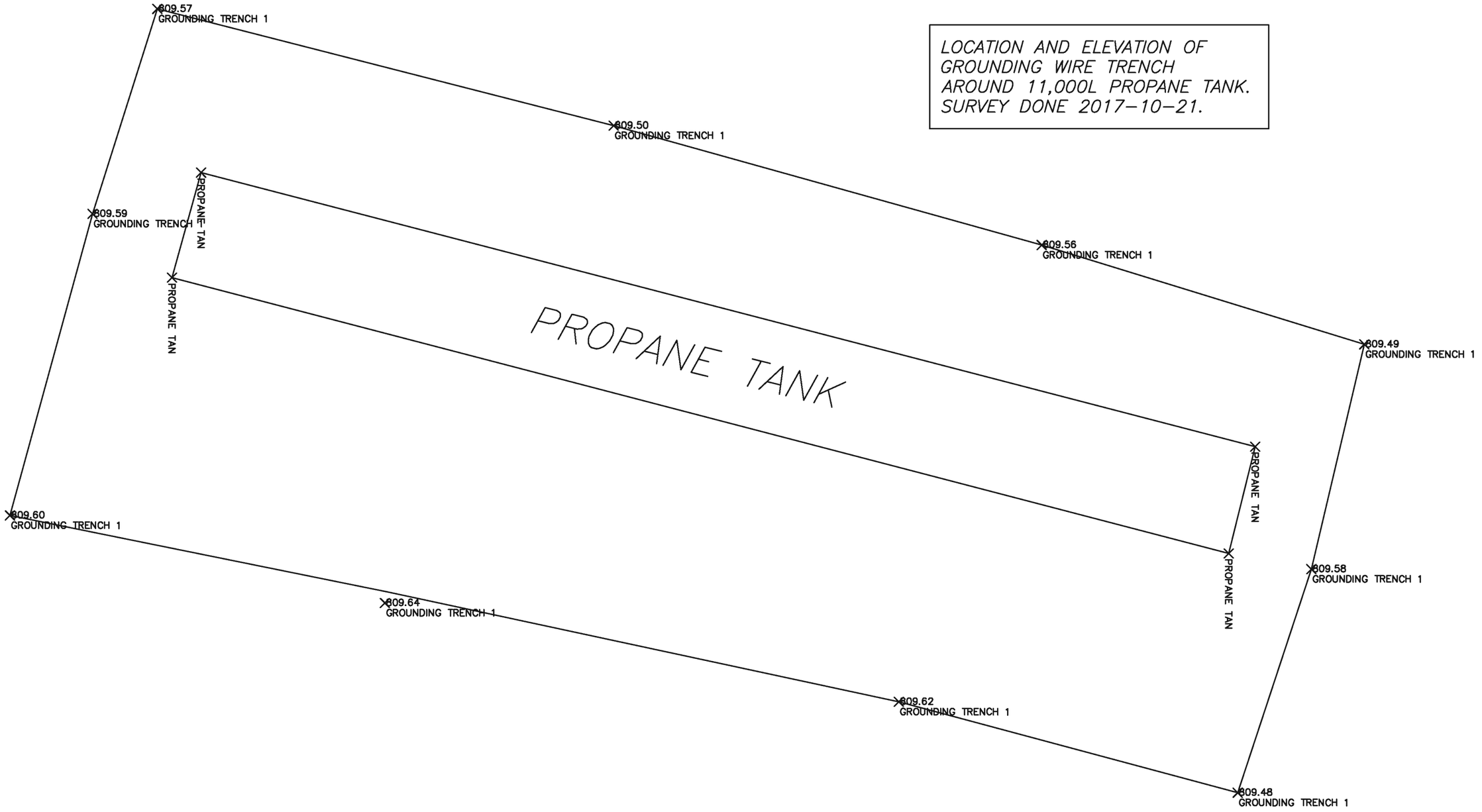
809.89
GROUNDING TRENCH

809.87
GROUNDING TRENCH

809.88
GROUNDING TRENCH

*UNDERHILL GEOMATICS LTD.*
*PROFESSIONAL LAND SURVEYORS*
*WHITEHORSE, YUKON*
*Job: W17135 Date: 2018-05-13*

*LOCATION AND ELEVATION OF GROUNDING WIRE TRENCH AROUND 11,000L PROPANE TANK. SURVEY DONE 2017-10-21.*




*UNDERHILL GEOMATICS LTD.*
*PROFESSIONAL LAND SURVEYORS*
*WHITEHORSE, YUKON*
*Job: W17135 Date: 2018-05-13*

DWG. No. H354138-6600-260-288-0001

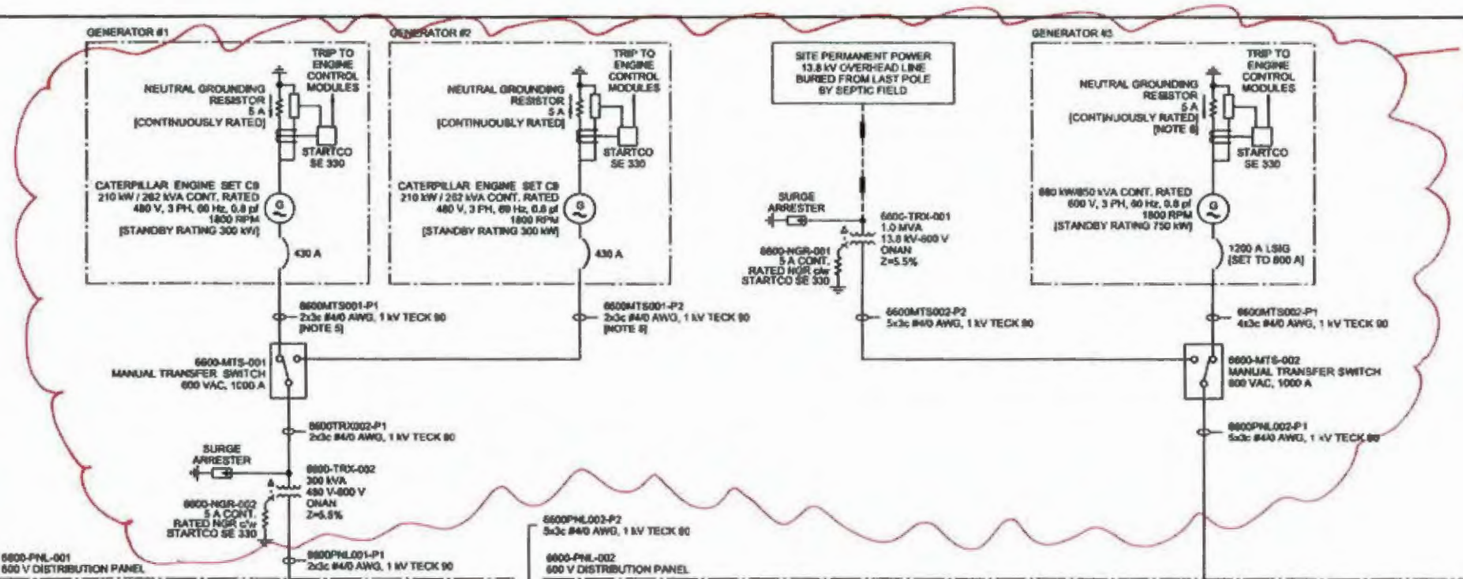
NOTES:

1. ALL CABLES TO BE TECK 90, 1 kV UNLESS NOTED OTHERWISE.
2. PANELS 6600-PNL-001 & 002 TO BE SQUARE D, I-LINE PANEL BOARDS, 1000 A, 3 PH, PJ CIRCUIT BREAKER, COPPER TIN-PLATED, COMPLETE WITH FEEDERS AND KEY INTERLOCKS AS SHOWN IN THIS DRAWING.
3. CONTRACTOR TO FIELD MEASURE ALL CABLE RUNS PRIOR TO THE PURCHASE OF CABLE.
4. CONTRACTOR TO REPLACE EXISTING ON SITE 480 V TRANSFORMERS WITH 600 V TRANSFORMERS.
5. CONTRACTOR TO LEAVE SUFFICIENT CABLE (3 m) SLACK TO ALLOW FUTURE CONNECTION TO MTS2.
6. CONTRACTOR TO PURCHASE AND INSTALL A 5 A NGR (CONTINUOUSLY RATED) FOR THE 680 kW GENERATOR.

LEGEND

- DIRECT BURIED POWER CABLE
- POWER CABLE IN TRAY OR UTILIDOR (OR DIRECT ON GRADE)

Revised 18/04/03
See Revision #1




KEYPLAN
SCALE: NTS

PERMIT TO PRACTICE HATCH
SIGNATURE
Date 2017-10-06
PERMIT NUMBER P0154
Association of Professional Engineers of Yukon

BV - RED LINES.

REFERENCE DRAWINGS

| DRAWING No. | DRAWING TITLE |
|---|---|

REG. PROFESSIONAL

REVISIONS

| No. | DESCRIPTION | BY | CHK'D | DATE |
|---|---|---|---|---|

HATCH

| ROLE | NAME | SIGNATURE | DATE |
|---|---|---|---|
| DRAFTSPERSON | J SAINI | NR | 2017-09-27 |
| DESIGNER | L GIEBELHAUS | NR | 2017-09-28 |
| CHECKER | M TIETZ | | |
| DESIGN COORD. | S PERKINS | | |
| RESP. ENG. | M TIETZ | | |
| LEAD DISC. ENG. | M TIETZ | | |
| ENG. MANAGER | T O'FARRELL | | |
| PROJ. MANAGER | B RUSTAD | | |

DRAWING APPROVAL STATUS: Approved for Construction

StrataGold Corporation

EAGLE GOLD PROJECT

ANCILLARY FACILITIES
POWER DISTRIBUTION - CAMP COMPLEX
SINGLE LINE DIAGRAM

SCALE: NTS (PLAS NOTED)
DWG. No.: H354138-6600-260-288-0001
REV: 0
SHEET SIZE: D

Fire Alarm Network

FACP

All network cable to be 18/1pr teck.

"A" WING
A1 A2 A3 A4
A5 A6 A7 A8

"B" WING
B1 B2 B3 B4
B5 B6 B7 B8

"C" WING
C1 C2 C3 C4
C5 C6 C7 C8

"D" WING
D1 D2 D3 D4
D5 D6 D7 D8

"E" WING
E2 E3 E4 E5
E7 E8 E9 E10

"F" WING
F1 F2 F3 F4
F5 F6 F7 F8

"G" WING
G1 G2 G3 G4
G5 G6 G7 G8

"H" WING
H1 H2 H3 H4
H5 H6 H7 H8

"I" WING
I1 I2 I3 I4 I5 I6 I7 I8

LAUNDRY
GYM AND RECREATION
STORAGE SEACANS
GR1 GR2 GR3 GR4 GR5 GR6
POTABLE WATER MODULE
FIRE WATER MODULE
KITCHEN EXPANSION
DIESEL GENERATOR AND FUEL
PDU
18,000gal PROPANE TANK
CORRIDOR
K1 K2 K3 K4 K5 K6 KR1 KR2 KR3
KITCHEN
BOOT ROOM
BOARDWALK
M&O1
M&O2
O1 O2 O3 O4 O5 O6 O7
FIRST AID
LAUNDRY
L1 L2 L3 L4 L5 L6
LUGGAGE STORAGE SEACANS
SMOKE SHACK

NEW 11,000L TANK
NEW 75,000L TANK

\\jds-fbp.jds.local\Eagle\Gold\Data\05 - Engineering\200 - General & Site Plan\Camp & Associated Facilities\Layout\20180324_Camp_Installation_Layout.dwg Mar 24, 2018 - 11:18am

REFERENCE DRAWINGS

| NO. | DWG NO. | TITLE |
|---|---|---|

NOTES:

DRAWING REVISION

| NO. | DESCRIPTION | DATE |
|---|---|---|
| B | FOR INFORMATION | 2018.03.24 |
| A | FOR INFORMATION | 2018.03.21 |

| | NAME | DATE |
|---|---|---|
| DRAWN BY: | JG | 2018.02.16 |
| DESIGNED BY: | JG | 2018.02.16 |
| CHECKED BY: | RB | 2018.02.16 |
| APPROVED BY: | RB | 2018.02.16 |

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Victoria GOLD CORP

JDS Energy & Mining Inc.

EAGLE PROJECT VICTORIA GOLD

GENERAL ARRANGEMENT CAMP INSTALLATION PLAN

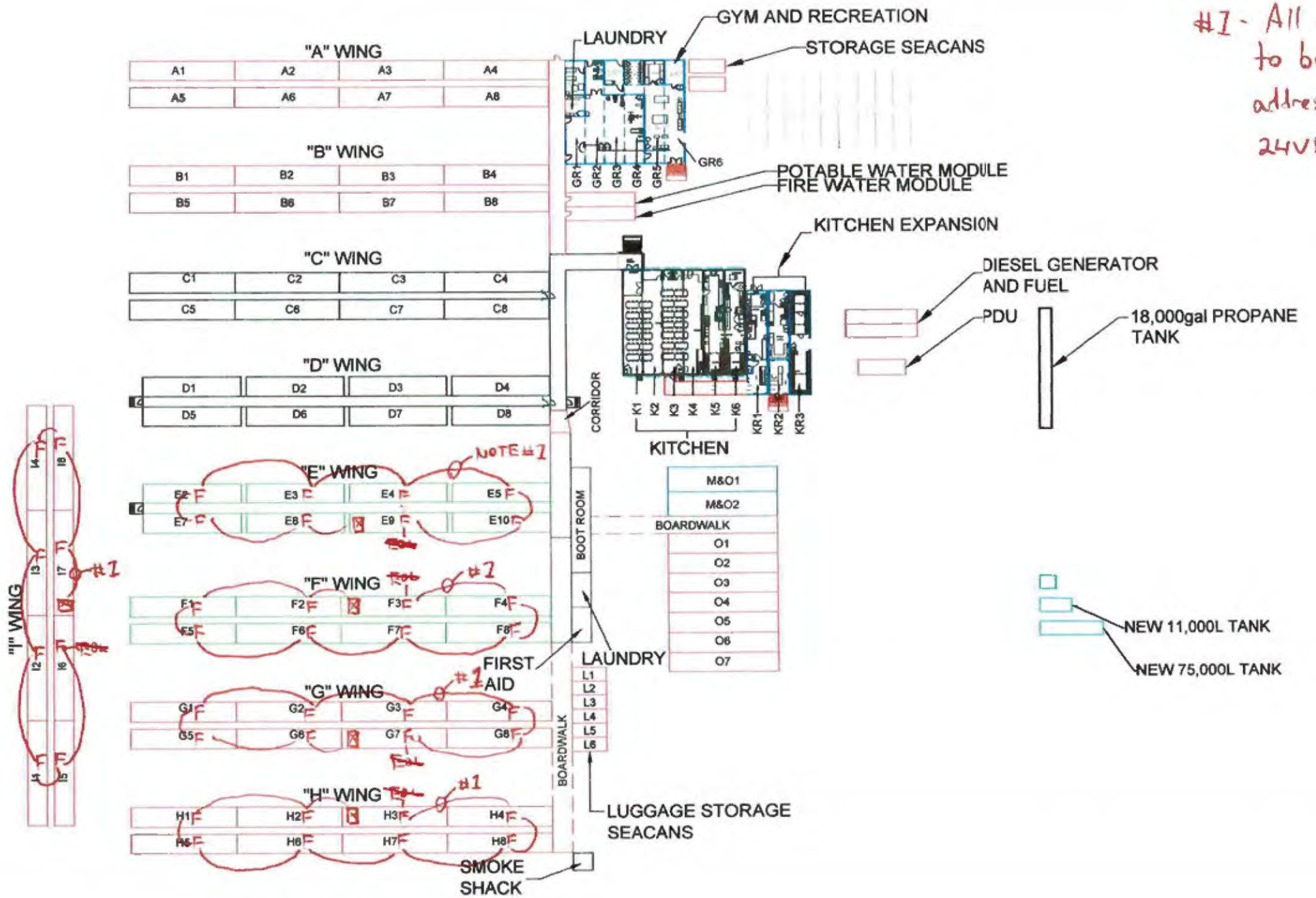
DWG NO. VICEAG4E-C-002

REV. B

Fire Alarm Duct Detectors

☒ - FACP
F - Furnace Duct Detector

NOTES
#1 - All duct detectors cable to be 18/2pr. Pair 1 is addressable loop. Pair 2 is 24VDC power




REFERENCE DRAWINGS

| NO. | DWG NO. | TITLE |
|---|---|---|

NOTES:

DRAWING REVISION

| NO. | DESCRIPTION | DATE |
|---|---|---|
| B | FOR INFORMATION | 2018.03.24 |
| A | FOR INFORMATION | 2018.03.21 |

| | NAME | DATE |
|---|---|---|
| DRAWN BY: | JG | 2018.02.16 |
| DESIGNED BY: | JG | 2018.02.16 |
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Victoria GOLD CORP

JDS Energy & Mining Inc.

EAGLE PROJECT VICTORIA GOLD

GENERAL ARRANGEMENT CAMP INSTALLATION PLAN

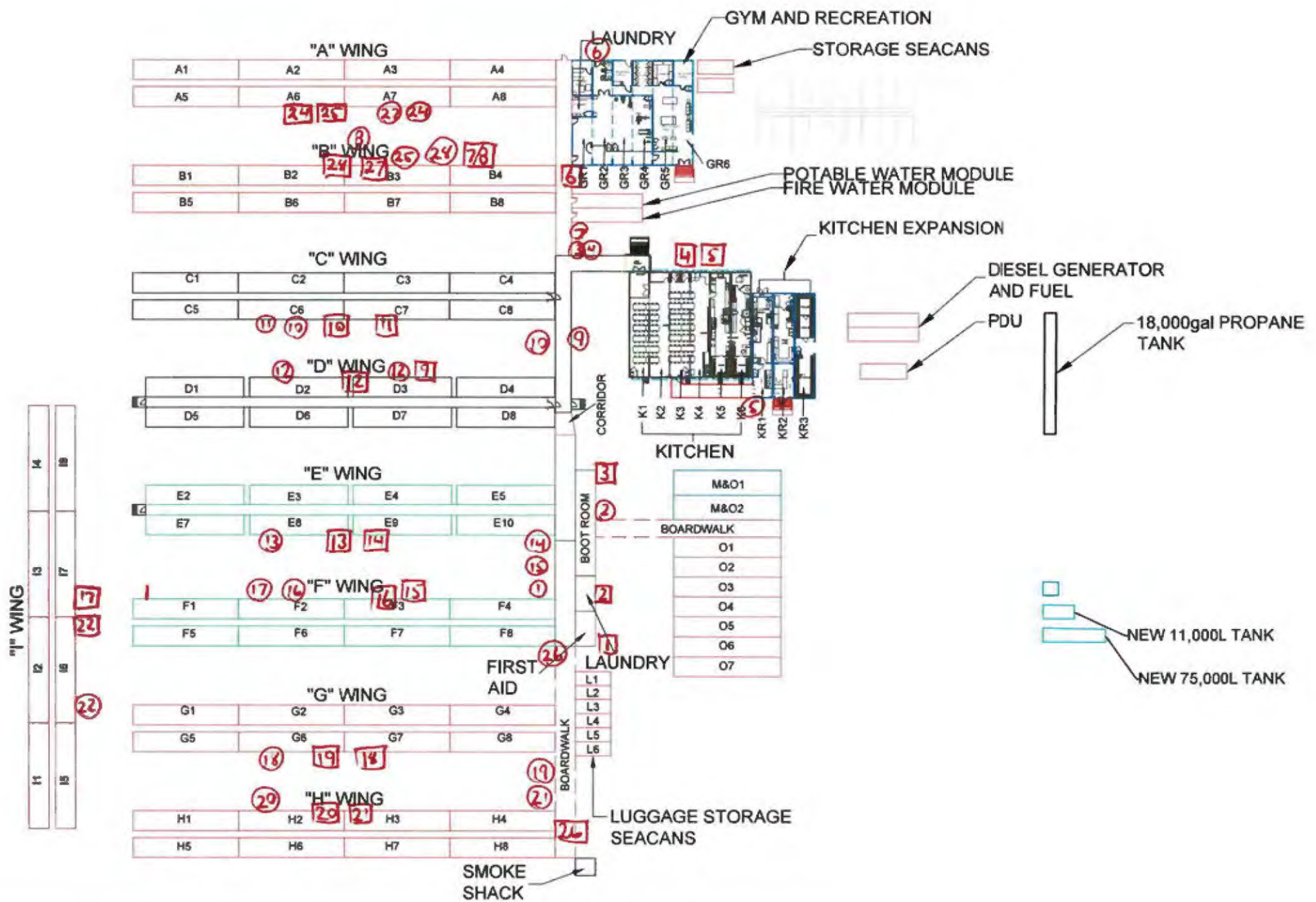
DWG NO. VICEAG4E-C-002 REV. B

\\jds-fp.jds.local\Eagle\Gold\Cad\05 - Engineering\200 - General & Site Plan\Camp & Associated Facilities\Layout\20180324_Camp_Installation_Layout.dwg Mar 24, 2018 - 11:18am

Heat trace layout.

□ - Power

○ - Light




| REFERENCE DRAWINGS | | |
|---|---|---|
| NO. | DWG NO. | TITLE |

NOTES:

| DRAWING REVISION | | |
|---|---|---|
| NO. | DESCRIPTION | DATE |
| B | FOR INFORMATION | 2018.03.24 |
| A | FOR INFORMATION | 2018.03.21 |

| | NAME | DATE |
|---|---|---|
| DRAWN BY: | JG | 2018.02.16 |
| DESIGNED BY: | JG | 2018.02.16 |
| CHECKED BY: | RB | 2018.02.16 |
| APPROVED BY: | RB | 2018.02.16 |

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Victoria GOLD CORP

JDS Energy & Mining Inc.

EAGLE PROJECT VICTORIA GOLD

GENERAL ARRANGEMENT
CAMP INSTALLATION
PLAN

DWG NO. VICEAG4E-C-002

REV. B

\\jds-fp.jds.local\EagleGold\Data\05 - Engineering\200 - General & Site Plan\Camp & Associated Facilities\Layout\20180324_Camp_Installation_Layout.dwg Mar 24, 2018 - 11:18am

Lift Station Power Layout.

□ - Lift Station  30A, 125/250V, TL Receptacle

# CAMP PAD

LAYDOWN 4
STORAGE SHEDS
SHOP
75,000L DIESEL TANK
SEPTIC TANK
A WING
B WING
C WING
D WING
E WING
F WING
G WING
H WING
I WING
REC ROOM
LS-REC (FED FROM REC MDP)
LS-A3 (FED FROM B CORRIDOR)
STORAGE SEACANS
PROPANE TANK
POTABLE WATER MODULE
FIRE WATER MODULE
LS-C (FED FROM CORRIDOR MDP)
(RE-PURPOSE UNFED)
LS-K1 (FED FROM K1 MDP)
LS-D (FED FROM CORRIDOR MDP)
(RE-PURPOSE UNFED)
KITCHEN
GENSET AREA
LS-I (FED FROM I MDP)
LS-E (FED FROM E MDP)
LS-F (FED FROM E MDP)
LS-K2 (FED FROM K2 MDP)
EPCM OFFICE
OFFICE
OFFICE
1 x 300kW
1 x 275kW
GENSET
18,000gal PROPANE TANK
LS-MD (FED FROM MD MDP)
1 x 150kW GENSET
1 x 75kW GENSET
7 x NEW OFFICE BUILDINGS
NEW ELECTRICAL BUILDING
NEW 11,000L TANK
NEW 75,000L TANK
LS-G (FED FROM G MDP)
LS-H (FED FROM H MDP)
6 STORAGE SEACANS

ROADS
BURIED GROUNDING CABLE
BUILDINGS
STAIRS/DECKS/WALKWAYS
BURIED PROPANE LINES
WATER PIPE
WASTE WATER PIPE
EARLY WORKS BURIED CABLES
2017 BURIED CABLES
NEW BUILDINGS AND TANKS

\\jds-fmp_jds.local\EagleGoldData\05 - Engineering\200 - General & Site Plan\Camp & Associated Facilities\Layout\20180324_Camp Updates.dwg Mar 24, 2018 - 10:49am

REFERENCE DRAWINGS

| NO. | DWG NO. | TITLE |
|---|---|---|

NOTES:

DRAWING REVISION

| NO. | DESCRIPTION | DATE |
|---|---|---|
| C | FOR INFORMATION | 2018.03.24 |
| B | FOR INFORMATION | 2018.03.21 |
| A | ISSUED FOR PERMIT | 2018.03.12 |

| | NAME | DATE |
|---|---|---|
| DRAWN BY: | JG | 2018.02.16 |
| DESIGNED BY: | JG | 2018.02.16 |
| CHECKED BY: | RB | 2018.02.16 |
| APPROVED BY: | RB | 2018.02.16 |

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Victoria GOLD CORP

JDS Energy & Mining Inc.

EAGLE PROJECT VICTORIA GOLD

CAMP PAD UPDATES

DWG NO. VICEAG4E-C-001

REV. C

# FIELD RED LINE LOG

| DATE MARK-UP MADE | NAME OF INDIVDUAL | CONTRACTOR COMPANY | DRAWING # MARKED-UP | CONTROL COPY BINDER # | BRIEF EXPLANATION OF MARK-UP | SITE MANAGER INITIAL |
|---|---|---|---|---|---|---|
| 18/03/31 | M.McClocklin | BV | H354138-6600-260-288-001 | | 6600PNL001-P1 Cable installed as 3/0/3C x2 ACWU - Temporary. | |
| 18/03/31 | M. McClocklin | BV | H354138-6600-260-288-001 | | 6600PNL-001 & 002 Are installed as ArrowSpeed not I-Line. 18kA not 42 kA | |
| 18/03/31 | M.McClocklin | BV | H354138-6600-260-288-001 | | Dorm A, B, C, D, Kitchen, Rec, Offices are installed using 3/0/3C ACWU (Primary) | |
| 18/03/31 | M.McClocklin | BV | H354138-6600-260-288-001 | | Same as above installed with 300/4C ACWU. (secondary) | |
| 18/04/01 | M.McClocklin | BV | H354138-6600-260-288-001 | | 75kVA xfmr added to feed 2-unit JDS office. | |
| 18/04/01 | M.McClocklin | BV | H354138-6600-260-288-001 | | Cable 6600PNL010-P1 is being fed from The recreation building panel. | |
| 18/04/01 | M.McClocklin | BV | H354138-6600-260-288-001 | | Dorm I-TRX-001 added to feed dorm I. As well, primary, secondary and 6600-PNL-023 | |
| 18/04/01 | M.McClocklin | BV | H354138-6600-260-288-001 | | BRSTRx-P1 added to feed south bull rail transformer | |
| 18/04/01 | M.McClocklin | BV | H354138-6600-260-288-001 | | BRS-TRX-001 added. | |

# FIELD RED LINE LOG

| DATE MARK-UP MADE | NAME OF INDIVDUAL | CONTRACTOR COMPANY | DRAWING # MARKED-UP | CONTROL COPY BINDER # | BRIEF EXPLANATION OF MARK-UP | SITE MANAGER INITIAL |
|---|---|---|---|---|---|---|
| 18/04/01 | M. McClocklin | BV | H354138-6600-260-288-001 | | 6600 PNL 021 Added to Fire Water Building For lighting & power. Fed from Rec. 2/3C | AL |
| 18/04/01 | M. McClocklin | BV | H354138-6600-260-288-001 | | 6600-PNL-022 Added for Recreation Building. Also added are primary & secondary feeds. | |
| 18/04/01 | M. McClocklin | BV | H354138-6600-260-288-001 | | 6600-PNL-023 Added for Dorm I Building Also added are primary & secondary feeds. | |
| 18/04/09 | M. McClocklin | BV | H354138-6600-260-288-0001 | | 6600-PNL-024 Added for Main Corridor MDP | |
| 18/04/09 | M. McClocklin | BV | H354138-6600-260-288-001 | | 6600-PNL-020 Fed From 6600-PNL-024 | |
| 18/04/30 | M. McClocklin | BV | H354138-6600-260-288-001 | | 6600-PNL-019-P2 & 6600-PNL-019-P3 added as sub-Feeds to two South Rails. | |
| 18/04/30 | M. McClocklin | BV | H354138-6600-260-288-001 | | " " | |
| 18/05/01 | M. McClocklin | BV | H354138-6600-260-288-001 | | 6600-PNL-025-P1 added for storage seacans As well as associated panel 10/3CU | |
| " " | " " | " " | " " | | 6600-PNL-026-P1added for storage seacans As well as associated panel 10/3CU | |

# FIELD RED LINE LOG

| DATE MARK-UP MADE | NAME OF INDIVDUAL | CONTRACTOR COMPANY | DRAWING # MARKED-UP | CONTROL COPY BINDER # | BRIEF EXPLANATION OF MARK-UP | SITE MANAGER INITIAL |
|---|---|---|---|---|---|---|
| " " | " " | " " | " " | | 6600-PNL-027-P1 added for storage seacans As well as associated panel 10/3cu | |
| " " | " " | " " | " " | | 6600-PNL-028-P1added for storage seacons As well as associated panel 10/3cu | |
| " " | " " | " " | " " | | 6600-PNL-029-P1 added for storage seacans As well as associated panel. 10/3 cu | |
| 18/05/01 | M.McClocklin | BV | H354138-6600-260-288-001 | | 6600-PNL-030-P1 added to feed storage seacans. This panel fed from 6600-PNL-017- 2/3C AL | |
| 18/05/02 | M.McClocklin | BV | " " | | ~~6600~~ 6600-PNL-03A added for south bull rail #1. Fed from 6600-PNL-019 2/4C | |
| " " | " " | " " | " " | | 6600-PNL-033B added for south bull rail #2. Fed from 6600-PNL-019. 2/4C AL | |
| " " | " " | " " | " " | | 6600-PNL-033 added for 10x40 storage units. Fed from 6600-PNL-019. 8/3C cu | |
| " " | " " | " " | " " | | 6600-PNL-034 added for storage units. Fed from 6600-PNL-019. 8/3C cu | |
| 18/05/05 | M.McClocklin | BV | H354138-6600-260-288-001 | | CORRTRX-001 Added to feed 6600-PNL-024. 75 kVA. | |

# ATTACHMENT C

## Inspections & Verifications

Yukon
Community Services
**Building Safety**
*Services aux collectivités*
***Sécurité des bâtiments***

# INSPECTION REPORT
# *RAPPORT D'INSPECTION*

Permit Number
*Permis n°* 2018-0315-E

Type of Inspection :
*Type d'inspection :* Commercial - Final

Re-inspections
*Réinspections* 0

Date of Inspection
*Date de l'inspection* July 20, 2018

Inspection Status:
*État de l'inspection :* Passed No Violations

Inspected By:
*Inspecté par:* Hector Lang

Name of Owner :
*Nom du propriétaire :* Victoria Gold Corp.

Name of Contractor :
*Nom de l'entrepreneur :* BV Electric Ltd.

Legal Description :
*Désignation officielle :*

Address of Proposed Work :
*Lieu des travaux projetés :*

Project Description :
*Description du projet :* Phase 2 of the main construction camp installation, including the installation of 6 new dorms, water treatment plant, fuelling station, parking lot plugs and septic system.

**Instructions •** ***Instructions***

Contractor declaration accepted

**Deficiencies •** ***Travaux non conformes***

| Checklist Item • Élément de liste de vérification | Status • *État* | Deficiency • *Travail non conforme* | Status • *État* |
|---|---|---|---|
| | | | |

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If you wish to receive this information in French, please contact the Whitehorse Building Safety Office.

*Si vous souhaitez recevoir l'information contenue dans le présent rapport en français, veuillez communiquer avec le bureau de la Sécurité des bâtiments, à Whitehorse.*

Whitehorse ☎ 867-667-5741 **F** 867-393-6249
Dawson City ☎ 867-993-5803 **F** 867-993-6031
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@ buildingsafety@gov.yk.ca

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Yukon
Community Services
**Building Safety**
*Services aux collectivités*
***Sécurité des bâtiments***

# INSPECTORS REPORT
# *RAPPORT D'INSPECTION*

Permit No. • *N° du permis* 2018-0037-P

Location
*Emplacement* Mayo Area
Street
*Rue* Eagle Gold Site
Lot *Lot* ____ Block *Bloc* ____ Plan *Plan* ____
Owner
*Propriétaire* Victoria Gold Corp
Date
*Date* May 15, 2018
Classification
*Classification* Drainage from trailer to heat station

The following is a report of my inspection. Please act on this and notify my office when you have completed the work required for the next inspection.
*Vous trouverez ci-dessous mon rapport d'inspection. Veuillez y donner suite et aviser mon bureau pour fixer la date de la prochaine inspection, une fois que vous aurez effectué les travaux nécessaires.*

Drainage pipes from the trailer to Lift station complete
Sign-off provided by Mechanical Engineer

Permit Expired

| TYPE OF INSPECTION *TYPE D'INSPECTION* | APPROVAL • *APPROBATION* | | | |
|---|---|---|---|---|
| | YES • *OUI* | INITIALS • *INITIALES* | NO • *NON* | INITIALS • *INITIALES* |
| PROGRESS INSPECTION • *INSPECTION DE L'AVANCEMENT DES TRAVAUX* | | | | |
| WOOD STOVE/CHIMNEY/HEATING • *POÊLE À BOIS/CHEMINÉE/CHAUFFAGE* | | | | |
| OCCUPANCY APPROVAL • *OCCUPATION AUTORISÉE* | | | | |
| FINAL APPROVL • *APPROBATION FINALE* | | | | |

I hereby acknowledge receipt of this report.
*J'accuse réception du présent rapport.*

*Signature of Inspector* • Signature de l'inspecteur

*Phone #* • *N° de tél.* 997-5803

*Signature of owner or person in charge*
Signature du propriétaire ou de la personne responsable

Please direct all correspondence to •
Building Safety C-6
P.O. Box 2703, Whitehorse, Y.T. Y1A 2C6
Government of Yukon

*Veuillez envoyer toute correspondance à :*
*Sécurité des bâtiments C-6*
*Gouvernement du Yukon*
*C.P. 2703, Whitehorse (Yukon) Y1A 2C6*

NOTE: AN INSPECTION MUST BE CALLED FOR TO VERIFY AN ACTIVITY WITHIN 12 MONTHS OF THE ABOVE DATE OR THIS PERMIT MAY BE CANCELLED.

*NOTA : IL FAUT DEMANDER UNE INSPECTION POUR VÉRIFIER LES TRAVAUX DANS UN DÉLAI DE 12 MOIS SUIVANT LA DATE INDIQUÉE E-DESSUS, FAUTE DE QUOI LE PERMIS POURRAIT ÊTRE ANNULÉ.*

YG(118)NC3 Rev. 07/2012

Yukon
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# INSPECTION REPORT
# *RAPPORT D'INSPECTION*

Permit Number
*Permis n°* 2018-0074-G

Type of Inspection :
*Type d'inspection :* Final

Re-inspections
*Réinspections* 0

Date of Inspection
*Date de l'inspection* May 29, 2018

Inspection Status:
*État de l'inspection :* Passed No Violations

Inspected By:
*Inspecté par:* Scott Hauer

Name of Owner :
*Nom du propriétaire :* StrataGold Corporation

Name of Contractor :
*Nom de l'entrepreneur :* True North Oilfield Ltd.

Legal Description :
*Désignation officielle :*

Address of Proposed Work :
*Lieu des travaux projetés :*

Project Description :
*Description du projet :* Camp install 5,000,000BTU

**Instructions •** ***Instructions***

Camp installation including piping, insulation of gas lines and approval for heat tracing complete.

**Deficiencies •** ***Travaux non conformes***

| Checklist Item • Élément de liste de vérification | Status • *État* | Deficiency • *Travail non conforme* | Status • *État* |
|---|---|---|---|
| | | | |

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Yukon
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***Sécurité des bâtiments***

# INSPECTORS REPORT
# *RAPPORT D'INSPECTION*

Permit No. • *N° du permis*: 2018-0072-B

Location / *Emplacement*: Mayo Area
Date / *Date*: May 15, 2018
Street / *Rue*: Eagle Gold Site
Lot / *Lot*: ____ Block / *Bloc*: ____
Plan / *Plan*: ____
Owner / *Propriétaire*: Strata Gold Corp
Classification / *Classification*: Phase 2 Camp Expansion

The following is a report of my inspection. Please act on this and notify my office when you have completed the work required for the next inspection.
*Vous trouverez ci-dessous mon rapport d'inspection. Veuillez y donner suite et aviser mon bureau pour fixer la date de la prochaine inspection, une fois que vous aurez effectué les travaux nécessaires.*

Report completed on Wings E, F, G, H, I & new offices.
Hot spacing is correct, door swings are proper
Pull stations at each exit
Ensure the fire extinguishers are certified, send photo of new tags
Mechanical room to have CO alarms as discussed
Emergency lighting in place
Exit Signs to be installed where missing, send photo
Sleeping rooms have egress window & exit signs
Exterior Landings complete
Fire alarm verification completed by the 3 parties
Gas and electrical approval required
Standpipe system to be reviewed for Wing I
Septic approval?

Next pg →

| TYPE OF INSPECTION *TYPE D'INSPECTION* | APPROVAL • *APPROBATION* | | | |
|---|---|---|---|---|
| | YES • *OUI* | INITIALS • *INITIALES* | NO • *NON* | INITIALS • *INITIALES* |
| PROGRESS INSPECTION • *INSPECTION DE L'AVANCEMENT DES TRAVAUX* | | | | |
| WOOD STOVE/CHIMNEY/HEATING • *POÊLE À BOIS/CHEMINÉE/CHAUFFAGE* | | | | |
| OCCUPANCY APPROVAL • *OCCUPATION AUTORISÉE* | | | | |
| FINAL APPROVL • *APPROBATION FINALE* | | | | |

I hereby acknowledge receipt of this report.
*J'accuse réception du présent rapport.*

*Signature of Inspector* • Signature de l'inspecteur

*Phone #* • *N° de tél.*

*Signature of owner or person in charge*
Signature du propriétaire ou de la personne responsable

Please direct all correspondence to •
Building Safety C-8
P.O. Box 2703, Whitehorse, Y.T. Y1A 2C6
Government of Yukon

*Veuillez envoyer toute correspondance à :*
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*Gouvernement du Yukon*
*C.P. 2703, Whitehorse (Yukon) Y1A 2C6*

NOTE: AN INSPECTION MUST BE CALLED FOR TO VERIFY AN ACTIVITY WITHIN 12 MONTHS OF THE ABOVE DATE OR THIS PERMIT MAY BE CANCELLED.

*NOTA : IL FAUT DEMANDER UNE INSPECTION POUR VÉRIFIER LES TRAVAUX DANS UN DÉLAI DE 12 MOIS SUIVANT LA DATE INDIQUÉE CI-DESSUS, FAUTE DE QUOI LE PERMIS POURRAIT ÊTRE ANNULÉ.*

pg 2 of 2

**Yukon**
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# INSPECTORS REPORT
# *RAPPORT D'INSPECTION*

Permit No. • *N° du permis* 2018-0072-B

Location / *Emplacement* Mayo Area
Date / *Date* May 15, 2018
Street / *Rue* Eagle Gold Site
Lot / *Lot* ____ Block / *Bloc* ____
Plan / *Plan* ____
Owner / *Propriétaire* Strata Gold Corp.
Classification / *Classification* Phase 2 Camp Expansion

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Continued from pg 2
* Structural engineer to review units that don't meet A277
- Structural, Geotechnical, Mechanical, Electrical & engineer sign-offs provided
- Plumbing permit approval
- Note - Units E & F are connected the existing gas system

Ok to Occupy units E & F.

| TYPE OF INSPECTION / *TYPE D'INSPECTION* | APPROVAL • *APPROBATION* | | | |
|---|---|---|---|---|
| | YES • *OUI* | INITIALS • *INITIALES* | NO • *NON* | INITIALS • *INITIALES* |
| PROGRESS INSPECTION • *INSPECTION DE L'AVANCEMENT DES TRAVAUX* | ✓ | AJ | | |
| WOOD STOVE/CHIMNEY/HEATING • *POÊLE À BOIS/CHEMINÉE/CHAUFFAGE* | | | | |
| OCCUPANCY APPROVAL • *OCCUPATION AUTORISÉE* | | | | |
| FINAL APPROVL • *APPROBATION FINALE* | | | | |

I hereby acknowledge receipt of this report.
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*Signature of Inspector* • Signature de l'inspecteur

*Phone #* • *N° de tél.* 993-5802

*Signature of owner or person in charge*
Signature du propriétaire ou de la personne responsable

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YG(118)NC3 Rev. 07/2012

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# INSPECTORS REPORT
# *RAPPORT D'INSPECTION*

Permit No. • *N° du permis*: 2017-0253-B

Location / *Emplacement*: Mayo Area
Date / *Date*: Oct 3, 2017
Street / *Rue*: Eagle Gold Site
Lot / *Lot*: _____ Block / *Bloc*: _____ Plan / *Plan*: _____
Owner / *Propriétaire*: Strata Gold Corp
Classification / *Classification*: Industrial Camp
Expansion - Addn

The following is a report of my inspection. Please act on this and notify my office when you have completed the work required for the next inspection.
*Vous trouverez ci-dessous mon rapport d'inspection. Veuillez y donner suite et aviser mon bureau pour fixer la date de la prochaine inspection, une fois que vous aurez effectué les travaux nécessaires.*

Note- Inspection based on units A & B including connecting corridor
- Fire alarm operational, sign-off, ULC Certificate & verification report provided, new portion of expansion to be re-verified as work proceeds
- Standpipe system operational with hose stations
- Sleeping rooms have smoke/CO alarms, detectors in furnace rooms to follow
- Stair guards & landings installed
- Ext. Signs & emergency lights installed - O.K.
- Ext. spaced 10m apart.
- Gas equipment inspected & O.K. for occupancy
* Electrical approval required
- Field review provided for the electrical & mechanical engineers, structural & geotechnical to follow, in progress

Next pg →

| TYPE OF INSPECTION *TYPE D'INSPECTION* | APPROVAL • *APPROBATION* | | | |
|---|---|---|---|---|
| | YES • *OUI* | INITIALS • *INITIALES* | NO • *NON* | INITIALS • *INITIALES* |
| PROGRESS INSPECTION • *INSPECTION DE L'AVANCEMENT DES TRAVAUX* | | | | |
| WOOD STOVE/CHIMNEY/HEATING • *POÊLE À BOIS/CHEMINÉE/CHAUFFAGE* | | | | |
| OCCUPANCY APPROVAL • *OCCUPATION AUTORISÉE* | | | | |
| FINAL APPROVL • *APPROBATION FINALE* | | | | |

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_____
*Signature of Inspector* • Signature de l'inspecteur

*Phone #* • *N° de tél.* _____

_____
*Signature of owner or person in charge*
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Yukon
Community Services
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*Services aux collectivités*
***Sécurité des bâtiments***

# INSPECTORS REPORT
# *RAPPORT D'INSPECTION*

Permit No. • *N° du permis*: 2017-0253-B

Location / *Emplacement*: Mayo Area
Date / *Date*: Oct 3, 2017
Street / *Rue*: Eagle Gold Site
Lot / *Lot*:
Block / *Bloc*:
Plan / *Plan*:
Owner / *Propriétaire*: Strata Gold Corp
Classification / *Classification*: Industrial Camp
Expansion à effectuer

The following is a report of my inspection. Please act on this and notify my office when you have completed the work required for the next inspection.
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Continued from pg 1

* Units to meet CSA-A277 or Structural engineer to review & sign-off.
- ERT on site with ERP, water pump tank on-site
- Building Inspector to discuss the requirements of 3.2.4.7. with department, requirements to be further reviewed with owner for the expansion work proceed.
- Site is fully supervised with a detailed safety plan, OK to occupy units A & B

Please call for inspection as work proceed.

| TYPE OF INSPECTION / *TYPE D'INSPECTION* | APPROVAL • *APPROBATION* | | | |
|---|---|---|---|---|
| | YES • *OUI* | INITIALS • *INITIALES* | NO • *NON* | INITIALS • *INITIALES* |
| PROGRESS INSPECTION • *INSPECTION DE L'AVANCEMENT DES TRAVAUX* | ✓ | AE | | |
| WOOD STOVE/CHIMNEY/HEATING • *POÊLE À BOIS/CHEMINÉE/CHAUFFAGE* | | | | |
| OCCUPANCY APPROVAL • *OCCUPATION AUTORISÉE* | | | | |
| FINAL APPROVL • *APPROBATION FINALE* | | | | |

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*J'accuse réception du présent rapport.*

*Signature of owner or person in charge*
Signature du propriétaire ou de la personne responsable

*Signature of Inspector* • Signature de l'inspecteur

*Phone #* • *N° de tél.*: 1-867-993-5903

Please direct all correspondence to •
Building Safety C-8
P.O. Box 2703, Whitehorse, Y.T. Y1A 2C6
Government of Yukon

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*C.P. 2703, Whitehorse (Yukon) Y1A 2C6*

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Yukon
Community Services
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***Sécurité des bâtiments***

# INSPECTORS REPORT
# *RAPPORT D'INSPECTION*

Permit No. • *N° du permis*: 2017-0126-P

Location / *Emplacement*: Mayo Area
Street / *Rue*: Eagle Gold Site
Lot / *Lot*: ____ Block / *Bloc*: ____
Owner / *Propriétaire*: Strata Gold Corp.
Date / *Date*: Oct 24, 2017
Plan / *Plan*: ____
Classification / *Classification*: Plumbing permit for camp expansion

The following is a report of my inspection. Please act on this and notify my office when you have completed the work required for the next inspection.
*Vous trouverez ci-dessous mon rapport d'inspection. Veuillez y donner suite et aviser mon bureau pour fixer la date de la prochaine inspection, une fois que vous aurez effectué les travaux nécessaires.*

- Drain Line installed
- Plumbing work complete
- Mechanical sign-off provided

Permit Finalled

| TYPE OF INSPECTION *TYPE D'INSPECTION* | APPROVAL • *APPROBATION* | | | |
|---|---|---|---|---|
| | YES • *OUI* | INITIALS • *INITIALES* | NO • *NON* | INITIALS • *INITIALES* |
| PROGRESS INSPECTION • *INSPECTION DE L'AVANCEMENT DES TRAVAUX* | | | | |
| WOOD STOVE/CHIMNEY/HEATING • *POÊLE À BOIS/CHEMINÉE/CHAUFFAGE* | | | | |
| OCCUPANCY APPROVAL • *OCCUPATION AUTORISÉE* | | | | |
| FINAL APPROVL • *APPROBATION FINALE* | ✓ | AF | | |

I hereby acknowledge receipt of this report.
*J'accuse réception du présent rapport.*

*Signature of Inspector* • Signature de l'inspecteur

*Phone # • N° de tél.* 1-867-993-5803

*Signature of owner or person in charge*
Signature du propriétaire ou de la personne responsable

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YG(118)NC3 Rev. 07/2012

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# INSPECTORS REPORT
# *RAPPORT D'INSPECTION*

Permit No. • *N° du permis*: 2017-0253-B

Location / *Emplacement*: Mayo Area
Date / *Date*: Oct 30, 2017
Street / *Rue*: Eagle Gold Site
Lot / *Lot*:
Block / *Bloc*:
Plan / *Plan*:
Owner / *Propriétaire*: Strata Gold Corp
Classification / *Classification*: Industrial Camp Expansion a Office.

The following is a report of my inspection. Please act on this and notify my office when you have completed the work required for the next inspection.
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Last report completed on Oct 24, 2017

- Photos provided showing the sealing of the piping penetrations
- Contractor's test certificate provided for the piping of the standpipe system
- Please ensure the fire extinguishers have up-dated servicing tags
- Electrical & Septic approvals required

Note - O.K. to occupy Wings C & D including the gym & rec room.

Please call for an inspection as work proceed.

| TYPE OF INSPECTION / *TYPE D'INSPECTION* | APPROVAL • *APPROBATION* | | | |
|---|---|---|---|---|
| | YES • *OUI* | INITIALS • *INITIALES* | NO • *NON* | INITIALS • *INITIALES* |
| PROGRESS INSPECTION • *INSPECTION DE L'AVANCEMENT DES TRAVAUX* | ✓ | AA | | |
| WOOD STOVE/CHIMNEY/HEATING • *POÊLE À BOIS/CHEMINÉE/CHAUFFAGE* | | | | |
| OCCUPANCY APPROVAL • *OCCUPATION AUTORISÉE* | | | | |
| FINAL APPROVL • *APPROBATION FINALE* | | | | |

I hereby acknowledge receipt of this report
*J'accuse réception du présent rapport*

*Signature of inspector • Signature de l'inspecteur*

*Phone # • N° de tél*: 1-867-993-5803

Sent to owner's
*Signature of owner or person in charge*
Signature du propriétaire ou de la personne responsable

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*C.P. 2703, Whitehorse (Yukon) Y1A 2C6*

YG(118)INC3 Rev. 07/2012

**Advisory #4 – Verification of Fire Alarm Systems & Signals to a Municipal Fire Department**

## Confirmation of Fire Alarm Verification Form

To: The *authority having Jurisdiction*
Re: Eagle Gold
Name of Project (Print)
Dublin Gulch Property
Address of Project (Print)
62-2-13.409N /139-44-32.616W
Legal Address of Project (Print)

The Undersigned hereby gives assurance that we were in attendance simultaneously and participated at the time of the Fire Alarm Verification. We concur with the contents of the Fire Alarm Verification Report and confirm that there are no outstanding deficiencies.

Novata Engineering Ltd
Engineer Company's name (Print)
Juraj Novota
Engineer's name (Print)
Engineer's Signature
May 15. 2018
Date



(Professional's Seal and Signature)

Johnson Controls
Fire Alarm Company's name (Print)
Aaron Peacock
Fire Alarm Technician's name (Print)
Fire Alarm Technician's Signature
May 15/18
Date

Cory Kelso
Electrical Contractor's name (Print)
Fire Alarm Technician's name (Print)
Electrician's Signature
May 15 2018
Date

Please note that this declaration of the fire alarm verification is only valid if the required signatories have signed, or a ULC generated certificate of verification will be required.

# Contractor's Material and Test Certificate for Aboveground piping

**PROCEDURE**

Upon completion of work inspection and tests shall be made by the contractor's representative and witnessed by an owner's representative. All defects shall be corrected and system left in service before contractor's personnel finally leave the job.

A certificate shall be filled out and signed by both representatives. Copies shall be prepared for approving authorities, owners and contractor. It is understood the owner's representative's signature in no way prejudices any claim against contractor for faulty material, poor workmanship, or failure to comply with approving authority's requirements or local ordinances.

PROPERTY NAME: **Eagle Gold Mining Camp Site Phase 2** DATE: 20-Apr-18

PROPERTY ADDRESS: **Yukon Territory**

**PLANS**

ACCEPTED BY APPROVING AUTHORITIES (NAMES):

ADDRESS:

| | | |
|---|---|---|
| INSTALLATION CONFORMS TO ACCEPTED PLANS | ☑ YES | ☐ NO |
| EQUIPMENT USED IS APPROVED | ☑ YES | ☐ NO |

IF NO, EXPLAIN DEVIATIONS:

**INSTRUCTIONS**

| | | |
|---|---|---|
| HAS PERSON IN CHARGE OF FIRE EQUIPMENT BEEN INSTRUCTED AS TO LOCATION OF CONTROL VALVES AND CARE AND MAINTENANCE OF THIS NEW EQUIPMENT? | ☑ YES | ☐ NO |

IF NO, EXPLAIN

No new control valve added

| | | |
|---|---|---|
| HAVE COPIES OF THE FOLLOWING BEEN LEFT ON THE PREMISES: | ☑ YES | ☐ NO |
| 1. SYSTEM COMPONENTS INSTRUCTIONS | ☑ YES | ☐ NO |
| 2. CARE AND MAINTENANCE INSTRUCTIONS | ☑ YES | ☐ NO |
| 3. NFPA 25 | ☑ YES | ☐ NO |

**LOCATION OF SYSTEM**

SUPPLIES BUILDINGS: **Standpipe System - Wet**

**NEW SPRINKLERS**

| MAKE | MODEL | YEAR OF MANUFACTURE | ORIFICE SIZE | QUANTITY | TEMPERATURE RATING |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |

**PIPE AND FITTINGS**

Type of Pipe: As Per NFPA Standard

Type of Fitting: As Per NFPA Standard

**FLOW INDICATOR**

| ALARM DEVICE | | | MAXIMUM TIME TO OPERATE THROUGH TEST CONNECTION | |
|---|---|---|---|---|
| TYPE | MAKE | MODEL | MIN | SEC |
| Flow Switch | | | | |
| | | | | |

**DRY PIPE OPERATING TEST**

| DRY VALVE | | | Q.O.D. | | |
|---|---|---|---|---|---|
| MAKE | MODEL | SERIAL NO. | MAKE | MODEL | SERIAL NO. |
| NA | | | | | |

| | TIME TO TRIP THROUGH TEST CONNECTION | | WATER PRESSURE | AIR PRESSURE | TRIP POINT AIR PRESSURE | TIME WATER REACHED TEST OUTLET | | ALARM OPERATED PROPERLY | |
|---|---|---|---|---|---|---|---|---|---|
| | MIN | SEC | PSI | PSI | PSI | MIN | SEC | YES | NO |
| Without Q.O.D. | | | | | | | | | |
| With Q.O.D. | N/A | | N/A | N/A | N/A | N/A | N/A | N/A | |

IF NO, EXPLAIN

**DELUGE AND PREACTION VALVES**

OPERATION: NA ☐ PNEUMATIC ☐ ELECTRIC ☐ HYDRAULIC

PIPING SUPERVISED ☐ YES ☐ NO | DETECTING MEDIA SUPERVISED ☐ YES ☐ NO

DOES VALVE OPERATE FROM THE MANUAL TRIP AND/OR REMOTE CONTROL STATIONS ☐ YES ☐ NO

IS THERE AN ACCESSIBLE FACILITY IN EACH CIRCUIT FOR TESTING ☐ YES ☐ NO | IF NO, EXPLAIN

| MAKE | MODEL | DOES EACH CIRCUIT OPERATE SUPERVISION LOSS ALARM? YES | NO | DOES EACH CIRCUIT OPERATE VALVE RELEASE? YES | NO | MAXIMUM TIME TO OPERATE RELEASE MIN | SEC |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

**PRESSURE REDUCING VALVE TEST**

| LOCATION & FLOOR | MAKE & MODEL | SETTING | STATIC PRESSURE INLET (PSI) | STATIC PRESSURE OUTLET (PSI) | RESIDUAL PRESSURE (FLOWING) INLET (PSI) | RESIDUAL PRESSURE (FLOWING) OUTLET (PSI) | FLOW RATE FLOW (GPM) |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

**TEST DESCRIPTION**

HYDROSTATIC: Hydrostatic tests shall be made at not less than 200 psi (13.6 bars) for two hours or 50 psi (3.4 bars) above static pressure in excess of 150 psi (10.2 bars) for two hours. Differential dry-pipe valve clappers shall be left open during test to prevent damage. All aboveground piping leakage shall be stopped.

PNEUMATIC: Establish 40 psi (2.7 bars) air pressure and measure drop which shall not exceed 1-1/2 psi (0.1 bars) in 24 hours. Test pressure tanks at normal water level and air pressure and measure air pressure drop which shall not exceed 1-1/2 psi (0.1 bars) in 24 hours.

**TEST**

ALL NEW PIPING HYDROSTATICALLY TESTED AT 200 PSI FOR 2 HRS ☐ YES ☑ NO | IF NO, STATE REASON

DRY PIPING PNEUMATICALLY TESTED ☐ YES ☑ NO

EQUIPMENT OPERATES PROPERLY ☑ YES ☐ NO

DO YOU CERTIFY AS THE SPRINKLER CONTRACTOR THAT ADDITIVES AND CORROSIVE CHEMICALS, SODIUM SILICATE OR DERIVATIVES OF SODIUM SILICATE, BRINE, OR OTHER CORROSIVE CHEMICALS WERE NOT USED FOR TESTING SYSTEMS OR STOPPING LEAKS? ☑ YES ☐ NO

DRAIN TEST: READING OF GAGE LOCATED NEAR WATER SUPPLY TEST CONNECTION: _____ PSI | RESIDUAL PRESSURE WITH VALVE IN TEST CONNECTION OPEN WIDE _____ PSI

UNDERGROUND MAINS AND LEAD IN CONECTIONS TO SYSTEM RISERS FLUSHED BEFORE CONNECTION MAKE TO SPRINKLER PIPING.

VERIFIED BY COPY OF THE U FORM NO. 85B ☐ YES ☑ NO | OTHER | EXPLAIN

FLUSHED BY INSTALLER OF UNDER-GROUND SPRINKLER PIPING ☐ YES ☐ NO

IF POWDER-DRIVEN FASTENERS ARE USED IN CONCRETE, HAS REPRESENTATIVE SAMPLE TESTING BEEN SATISFACTORILY COMPLETED? ☐ YES ☐ NO | IF NO, EXPLAIN

**BLANK TESTING GASKETS**

| NUMBER USED | LOCATIONS | NUMBER REMOVED |
|---|---|---|
| 0 | | |

**WELDING**

WELDED PIPING ☐ YES ☑ NO

IF YES

DO YOU CERTIFY AS THE SPRINKLER CONTRACTOR THAT WELDING PROCEDURES COMPLY WITH THE REQUIREMENTS OF AT LEAST AWS D10.9, LEVEL AR-3? ☐ YES ☑ NO

COMPLIANCE WITH THE REQUIREMENTS OF AT LEAST AWS D10.9, LEVEL AR-3? ☐ YES ☑ NO

DOCUMENTED QUALITY CONTROL PROCEDURE TO ENSURE THAT ALL DISCS ARE RETRIEVED, THAT OPENINGS IN PIPING ARE SMOOTH, THAT SLAG AND OTHER WELDING RESIDUE ARE REMOVED, AND THAT THE INTERNAL DIAMETERS OF PIPING ARE NOT PENETRATED? ☐ YES ☑ NO

**CUTOUTS (DISCS)**

DO YOU CERTIFY THAT YOU HAVE A CONTROL FEATURE TO ENSURE THAT ALL CUTOUTS (DISCS) ARE RETRIEVED? ☐ YES ☑ NO

**HYDRAULIC DATA NAMEPLATE**

NAME PLATE PROVIDED ☐ YES ☐ NO | IF NO, EXPLAIN

Pipe Scheduled adds and relocates

**REMARKS**

DATE LEFT IN SERVICE WITH ALL CONTROL VALVES OPEN: Sat April 21st 2018

**SIGNATURES**

NAME OF SPRINKLER CONTRACTOR: **SIMPLEXGRINNELL**

TESTS WITNESSED BY

FOR PROPERTY OWNER (SIGNED): _____ TITLE: Superintendent DATE: April 21/18

FOR SPRINKLER CONTRACTOR (SIGNED): _____ TITLE: FITTER DATE: April 21/18

ADDITIONAL EXPLANATION AND NOTES

# Contractor's Material and Test Certificate for Aboveground piping

**PROCEDURE**

Upon completion of work inspection and tests shall be made by the contractor's representative and witnessed by an owner's representative. All defects shall be corrected and system left in service before contractor's personnel finally leave the job.

A certificate shall be filled out and signed by both representatives. Copies shall be prepared for approving authorities, owners and contractor. It is understood the owner's representative's signature in no way prejudices any claim against contractor for faulty material, poor workmanship, or failure to comply with approving authority's requirements or local ordinances.

PROPERTY NAME: **Eagle Gold Mining Camp Site - Kitchen, Dining & Recroom** DATE: 03-Jul-19

PROPERTY ADDRESS:

**PLANS**

ACCEPTED BY APPROVING AUTHORITIES (NAMES):

ADDRESS:

| | | |
|---|---|---|
| INSTALLATION CONFORMS TO ACCEPTED PLANS | ☑ YES | ☐ NO |
| EQUIPMENT USED IS APPROVED | ☑ YES | ☐ NO |

IF NO, EXPLAIN DEVIATIONS:

**INSTRUCTIONS**

| | | |
|---|---|---|
| HAS PERSON IN CHARGE OF FIRE EQUIPMENT BEEN INSTRUCTED AS TO LOCATION OF CONTROL VALVES AND CARE AND MAINTENANCE OF THIS NEW EQUIPMENT? | ☑ YES | ☐ NO |

IF NO, EXPLAIN

| HAVE COPIES OF THE FOLLOWING BEEN LEFT ON THE PREMISES: | | |
|---|---|---|
| 1 SYSTEM COMPONENTS INSTRUCTIONS | ☑ YES | ☐ NO |
| 2 CARE AND MAINTENANCE INSTRUCTIONS | ☑ YES | ☐ NO |
| 3 NFPA 25 | ☑ YES | ☐ NO |

**LOCATION OF SYSTEM**

SUPPLIES BUILDINGS: **Standpipe System - West**

**NEW SPRINKLERS**

| MAKE | MODEL | YEAR OF MANUFACTURE | ORIFICE SIZE | QUANTITY | TEMPERATURE RATING |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |

**PIPE AND FITTINGS**

Type of Pipe: As Per NFPA Standard

Type of Fitting: As Per NFPA Standard

**FLOW INDICATOR**

| TYPE | ALARM DEVICE MAKE | MODEL | MAXIMUM TIME TO OPERATE THROUGH TEST CONNECTION MIN | SEC |
|---|---|---|---|---|
| Flow Switch | | | | |

**DRY PIPE OPERATING TEST**

| DRY VALVE MAKE | MODEL | SERIAL NO | G.O.D. MAKE | MODEL | SERIAL NO |
|---|---|---|---|---|---|
| NA | | | | | |

| | TIME TO TRIP THROUGH TEST CONNECTION MIN | SEC | WATER PRESSURE PSI | AIR PRESSURE PSI | TRIP POINT AIR PRESSURE PSI | TIME WATER REACHED TEST OUTLET MIN | SEC | ALARM OPERATED PROPERLY YES | NO |
|---|---|---|---|---|---|---|---|---|---|
| Without G.O.D | | | | | | | | | |
| With G.O.D | NA | | NA | NA | NA | NA | NA | NA | |

IF NO, EXPLAIN

## DELUGE AND PREACTION VALVES

OPERATION: ☐ PNEUMATIC ☐ ELECTRIC ☐ HYDRAULIC

FIRING SUPERVISED: ☐ YES ☐ NO — DETECTING MEDIA SUPERVISED: ☐ YES ☐ NO

DOES VALVE OPERATE FROM THE MANUAL TRIP AND/OR REMOTE CONTROL STATIONS: ☐ YES ☐ NO

IS THERE AN ACCESSIBLE FACILITY IN EACH CIRCUIT FOR TESTING: ☐ YES ☐ NO — IF NO, EXPLAIN

| MAKE | MODEL | DOES EACH CIRCUIT OPERATE SUPERVISION LOSS ALARM? YES | NO | DOES EACH CIRCUIT OPERATE VALVE RELEASE? YES | NO | MAXIMUM TIME TO OPERATE RELEASE MIN. | SEC. |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

## PRESSURE REDUCING VALVE TEST

| LOCATION & FLOOR | MAKE & MODEL | SETTING | STATIC PRESSURE | | RESIDUAL PRESSURE (FLOWING) | | FLOW RATE |
|---|---|---|---|---|---|---|---|
| | | | INLET (PSI) | OUTLET (PSI) | INLET (PSI) | OUTLET (PSI) | FLOW (GPM) |
| | | | | | | | |

## TEST DESCRIPTION

HYDROSTATIC: Hydrostatic tests shall be made at not less than 200 psi (13.8 bars) for two hours or 50 psi (3.4 bars) above static pressure in excess of 150 psi (10.2 bars) for two hours. Differential dry-pipe valve clappers shall be left open during test to prevent damage. All aboveground piping leakage shall be stopped.
PNEUMATIC: Establish 40 psi (2.7 bars) air pressure and measure drop which shall not exceed 1-1/2 psi (0.1 bars) in 24 hours.
Test pressure tanks at normal water level and air pressure and measure air pressure drop which shall not exceed 1-1/2 psi (0.1 bars) in 24 hours.

## TEST

ALL NEW PIPING HYDROSTATICALLY TESTED AT 200 PSI FOR 2 HRS — IF NO, STATE REASON

DRY PIPING PNEUMATICALLY TESTED: ☐ YES ☑ NO

EQUIPMENT OPERATES PROPERLY: ☑ YES ☐ NO

DO YOU CERTIFY AS THE SPRINKLER CONTRACTOR THAT ADDITIVES AND CORROSIVE CHEMICALS, SODIUM SILICATE OR DERIVATIVES OF SODIUM SILICATE, BRINE, OR OTHER CORROSIVE CHEMICALS WERE NOT USED FOR TESTING SYSTEMS OR STOPPING LEAKS? ☑ YES ☐ NO

DRAIN TEST: READING OF GAGE LOCATED NEAR WATER SUPPLY TEST CONNECTION, _____ PSI — RESIDUAL PRESSURE WITH VALVE IN TEST CONNECTION OPEN WIDE _____ PSI

UNDERGROUND MAINS AND LEAD IN CONECTIONS TO SYSTEM RISERS FLUSHED BEFORE CONNECTION MAKE TO SPRINKLER PIPING.
VERIFIED BY COPY OF UL FORM NO. 85B ☐ YES ☑ NO — OTHER — EXPLAIN
FLUSHED BY INSTALLER OR UNDER...
GROUND SPRINKLER PIPING ☐ YES ☐ NO

IF POWDER DRIVEN FASTENERS ARE USED IN CONCRETE, HAS REPRESENTATIVE SAMPLE TESTING BEEN SATISFACTORILY COMPLETED? ☐ YES ☑ NO — IF NO, EXPLAIN

## BLANK TESTING GASKETS

| NUMBER USED | LOCATIONS | NUMBER REMOVED |
|---|---|---|
| 0 | | |

## WELDING

WELDED PIPING: ☐ YES ☑ NO

IF YES:

DO YOU CERTIFY AS THE SPRINKLER CONTRACTOR THAT WELDING PROCEDURES COMPLY WITH THE REQUIREMENTS OF AT LEAST AWS D10.9, LEVEL AR-3? ☐ YES ☑ NO

COMPLIANCE WITH THE REQUIREMENTS OF AT LEAST AWS D10.9 LEVEL AR-3? ☐ YES ☑ NO

DOCUMENTED QUALITY CONTROL PROCEDURE TO ENSURE THAT ALL DISCS ARE RETRIEVED, THAT OPENINGS IN PIPING ARE SMOOTH, THAT SLAG AND OTHER WELDING RESIDUE ARE REMOVED, AND THAT THE INTERNAL DIAMETERS OF PIPING ARE NOT PENETRATED? ☐ YES ☑ NO

## CUTOUTS (DISCS)

DO YOU CERTIFY THAT YOU HAVE A CONTROL FEATURE TO ENSURE THAT ALL CUTOUTS (DISCS) ARE RETRIEVED? ☐ YES ☑ NO

## HYDRAULIC DATA NAMEPLATE

NAME PLATE PROVIDED: ☐ YES ☐ NO — IF NO, EXPLAIN: Pipe Scheduled adds and relocates

## REMARKS

DATE LEFT IN SERVICE WITH ALL CONTROL VALVES OPEN: July 4, 2018

## SIGNATURES

NAME OF SPRINKLER CONTRACTOR: SIMPLEXGRINNELL

TESTS WITNESSED BY:

FOR PROPERTY OWNER (SIGNATURE): TITLE: Superintendent DATE: July 3, 2018

FOR SPRINKLER CONTRACTOR (SIGNATURE): TITLE: FITTER DATE: July 3, 2018

ADDITIONAL EXPLANATION AND NOTES

# EAGLE GOLD PROJECT

## OVERLAND CONVEYOR CONSTRUCTION REPORT

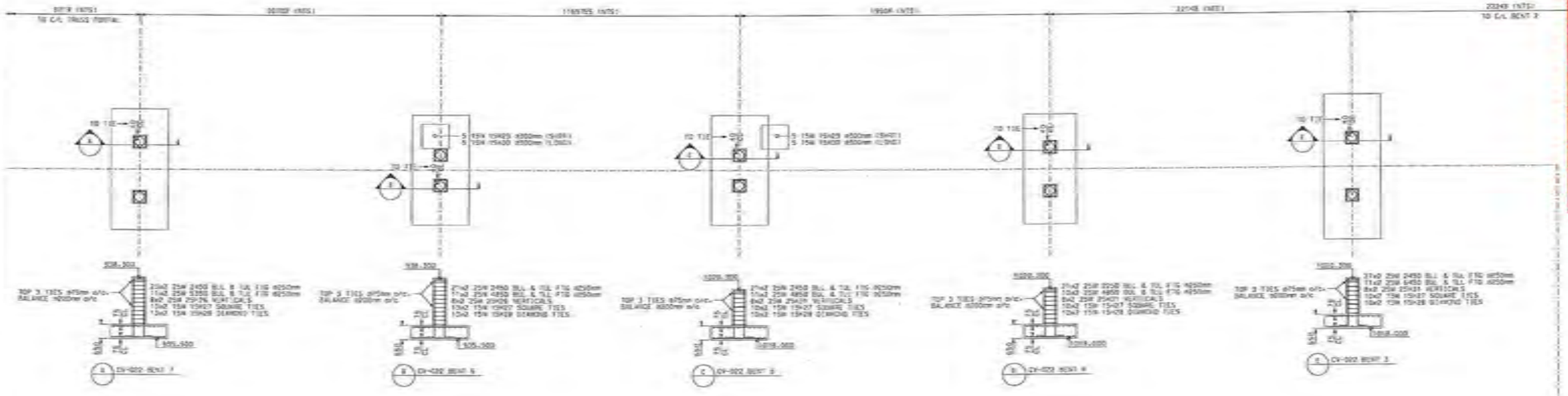
*MARCH 2018*

## List of Attachments

| | |
|---|---|
| Attachment A | Record Drawings |
| Attachment B | Request for Information Forms |
| Attachment C | Field Review Reports |
| Attachment D | Quality Control Inspection and Testing |

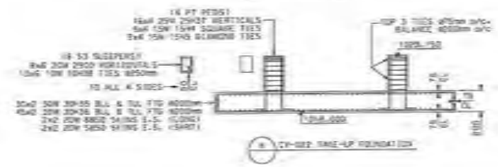
# ATTACHMENT A

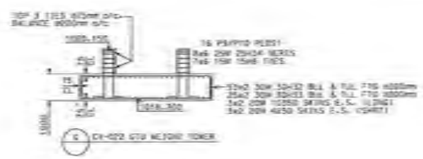
## Record Drawings











| SIZE | EP | BAR MARK | V | END TYP | CD | A | B | C | D | BENDING DIMENSIONS E | F/R | G | H | J | K | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 30M | | 30M32 | | 11 | | | 750 | 4850 | 750 | | | | | | | |
| 30M | | 30M33 | | 11 | | | 750 | 10850 | 750 | | | | | | | |
| 30M | | 30M35 | | 11 | | | 550 | 6850 | 550 | | | | | | | |
| 30M | | 30M36 | | 11 | | | 550 | 5850 | 550 | | | | | | | |
| 25M | | 25M25 | | 11 | | | 400 | 2425 | | | | | | | | |
| 25M | | 25M31 | | 11 | | | 400 | 2125 | | | | | | | | |
| 25M | | 25M34 | | 11 | | | 400 | 1167 | | | | | | | | |
| 25M | | 25M37 | | 11 | | | 400 | 1367 | | | | | | | | |
| 15M | | 15M4 | | 11 | 140 | 670 | 670 | 670 | | | | 140 | | | | |
| 15M | | 15M5 | | 14 | 140 | 500 | 500 | 500 | 500 | | | 140 | 670 | | 670 | 500 |
| 15M | | 15M6 | | 11 | 140 | 420 | 420 | 420 | 420 | | | 140 | | | | |
| 10M | | 10M27 | | 11 | 140 | 520 | 520 | 520 | 520 | | | 140 | | | | |
| 15M | | 15M28 | | 14 | 140 | 394 | 394 | 394 | 394 | | | 140 | 520 | | 520 | 394 |
| 15M | | 15M29 | | 11 | | 200 | 1600 | 300 | | | | | | | | |
| 15M | | 15M30 | | 11 | | 200 | 1120 | 300 | | | | | | | | |
| 10M | | 10M38 | | 11 | 100 | 350 | 900 | 350 | 500 | | | 100 | | | | |

| | |
|---|---|
| @ | - SPACING CENTRES TO CENTRES |
| | - DIRECTION IN WHICH BARS EXTEND |
| | - LIMITS OF AREA COVERED BY BARS |
| ---- | - REBAR TOP/FACE |
| ---- | - REBAR BOTTOM FACE |
| I.F. | - INSIDE FACE |
| O.F. | - OUTSIDE FACE |
| N.F. | - NEAR FACE |
| F.F. | - FAR FACE |
| EA. | - EACH WAY |
| VERT. | - VERTICAL |
| HORIZ. | - HORIZONTAL |
| DWLS | - DOWELS |
| FTG. | - FOOTING |
| COL. | - COLUMN |
| BOT. | - BOTTOM |
| TOP | - TOP |
| T&B | - TOP & BOTTOM |
| L-R | - LEFT TO RIGHT |
| B-T | - BOTTOM TO TOP |
| C.B. | - CORNER BAR |
| T.(B.)U. | - TYPICAL OPPOSITE HAND |
| R.H. | - FROM RIGHT TO LEFT |
| F.B. | - FIELD BEND |
| C.I.F. | - CUT IN FIELD |
| T.O.W. | - TOP OF WALL |
| T.O.F. | - TOP OF FOOTING |
| B.O.W. | - BOTTOM OF WALL |
| T.O.C. | - TOP OF CONCRETE |
| B.O.C. | - BOTTOM OF CONCRETE |
| ELEV. | - ELEVATION |

(B.U.L.) - BOTTOM LOWER LAYER
(B.U.U.) - BOTTOM UPPER LAYER
(M.U.L.) - MID LOWER LAYER
(M.U.U.) - MID UPPER LAYER
(T.U.L.) - TOP LOWER LAYER
(T.U.U.) - TOP UPPER LAYER
T.M. - EACH MEM
BET. - BENT

HATCH Vendor/Contractor Document Review

| | |
|---|---|
| Doc Number | E354138-CB201-230-260-0023 SUB 01 |
| Date Received | 2018-10-29 |
| Review Grade | Next Submittal Status |
| ☐ C1 - Proceed to next submission & status | ☐ Certified ☐ As-Built |
| ☐ C2 - Proceed with exceptions as noted to next submission & status | |
| ☐ C3 - Do not proceed. Revise as noted & resubmit | ☐ Internal Review ☐ Certified ☐ As-Built |
| Next Submittal Date: | |
| ☑ C4 - No further submission required - Complete (select status below) ☐ Certified Final ☑ Final ☐ Cancelled ☐ Superseded | |
| Package Engineer: Name, signature and date: ES GA AKINC, P.Eng. NOV 5/2018 | |

Reviewed only for general conformity with the specifications. Acceptance by the engineer does not warrant or sanction that the information contained on this drawing/document is either accurate or complete. The sole responsibility for correct design, details & dimensions shall remain with the party submitting the drawing/document.

McNISH STEEL
2018-10-23
Printed for Construction

## GENERAL NOTES ON REINFORCEMENT

THE FOLLOWING NOTES SHALL APPLY TO ALL REINFORCEMENT SHOWN ON THE DRAWINGS UNLESS OTHERWISE NOTED.

**DIMENSIONS:**
DIMENSIONS TO REINFORCEMENT ARE TO CENTRE LINES OF BARS, EXCEPT WHERE CONCRETE COVER OR CLEARANCE BETWEEN BARS IS SHOWN.

**COVER:**
SEE STRUCTURAL ENGINEER TYPICAL NOTES FOR ALL COVER SPECIFICATIONS.

**SPACING:**
UNLESS OTHERWISE SHOWN, THE FIRST AND LAST BARS IN SLABS AND WALLS, STIRRUPS IN BEAMS SHALL BE PLACED AT A MAXIMUM OF HALF THE SPECIFIED SPACING OF ADJACENT BARS FROM THE END OF THE MEMBER.

**STEEL SPECIFICATIONS:**
STEEL REINFORCEMENT SHALL BE DEFORMED BARS OF GRADE 400 CONFORMING TO CSA STANDARDS G30.18 BILLET-STEEL BARS FOR CONCRETE REINFORCEMENT.

**WELDING:**
WELDING OF REINFORCEMENT SHALL NOT BE PERMITTED.

**SPLICES AND EMBEDMENTS:**
UNLESS OTHERWISE SPECIFIED, ALL EMBEDMENTS SHALL BE TREATED AS TENSION EMBEDMENTS AND ALL LAP SPLICES SHALL BE CONSIDERED AS TENSION LAP SPLICES.

WHEN REINFORCING BARS OF DIFFERENT SIZE ARE TO BE SPLICED, THE LENGTH OF THE LAP SHALL BE BASED ON THE DIAMETER OF THE SMALLER BAR.

SPLICES ARE TO BE MADE SO THAT THE GIVEN CLEAR DISTANCE COVER WILL BE MAINTAINED.

LAP LENGTHS UNLESS SHOWN OTHERWISE:

| | HORZ | OTHER |
|---|---|---|
| 10M | 520 | 400 |
| 15M | 715 | 555 |
| 20M | 1020 | 790 |
| 25M | 1545 | 1240 |
| 30M | 1940 | 1485 |
| 35M | | |

**PLACEMENT:**
PLACE REINFORCING STEEL IN ACCORDANCE WITH CSA A23.1-14.

REINFORCEMENT MAY BE DISPLACED TO CLEAR PIPES, RECESSES, EMBEDDED METAL WORKS AND CONDUITS.

A MINIMUM CLEARANCE OF 1" SHALL BE MAINTAINED BETWEEN REINFORCEMENT AND EMBEDDED MATERIALS. THE MINIMUM CLEARANCE BETWEEN REINFORCEMENT

REINFORCEMENT SHALL BE ACCURATELY PLACED IN ACCORDANCE WITH THE DRAWING AND SHALL BE ADEQUATELY SECURED AGAINST DISPLACEMENT BY USING ANNEALED IRON WIRE AT INTERSECTIONS AND SHALL BE SUPPORTED BY APPROVED CONCRETE OR METAL SUPPORTS. SPACERS OR METAL HANGERS EXCEPT AT SURFACES EXPOSED TO THE GROUND OR TO THE WEATHER WHERE SUPPORTS SHALL BE APPROVED. ALL METAL ACCESSORIES ARE TO BE GALVANIZED.

THE FULL EXTENT AND PURPOSE OF THESE DRAWINGS IS PLACING OF REINFORCING STEEL BARS ONLY. IT IS NOT TO BE USED AS A MEANS OF COMMUNICATION BETWEEN THE ARCHITECT, ENGINEER, CONTRACTOR OR ANY OTHER SUBTRADE.

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PREFIX H
TRANS- 8.5
NOS.

PRINT RECORD

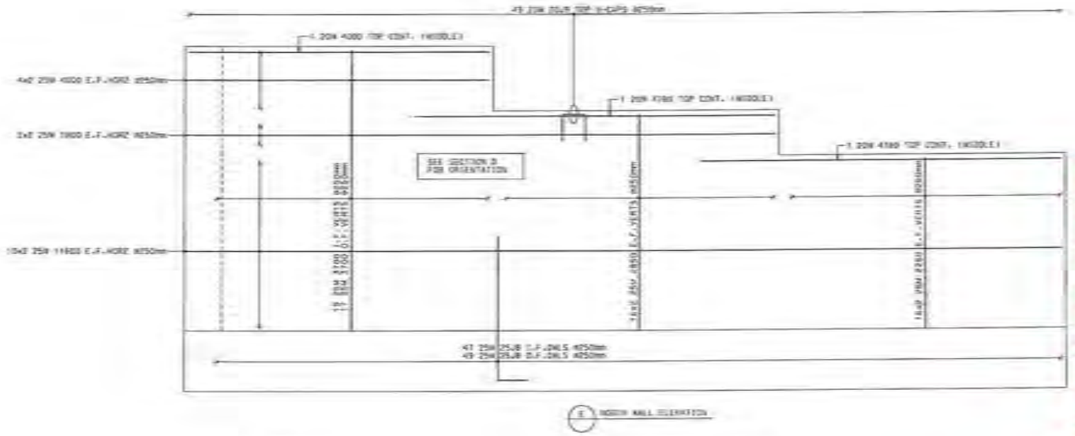
| NO. | REVISION | DATE | TD | FOR | DATE |
|---|---|---|---|---|---|
| | | | C | B | 14/OCT/18 |

REINFORCING STEEL PLACING PLAN

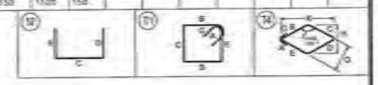
MCNISH STEEL LTD.
10636 - 205 STREET
EDMONTON, ALBERTA
PHONE 447-3337 FAX 447-3379

PROJECT : STRATHCOLE LEASE SOLD PROJECTS
CONTR. : CLARK BUILDERS
DWG./SF : CV-002 CONCRETE FOUNDATIONS
ENGR. : WATCH
DRAWN BY : MARK DATE : INSPECTION

JOB NO. 18-042 DWG. NO. 008 B




| SIZE | EP | BAR MARK | # | SHAPE TYP | CD | A | B | C | D | BENDING DIMENSIONS E | F | G | H | J | K | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 20M | | 20J1 | | 17 | | | 550 | 11350 | 350 | | | | | | | |
| 20M | | 20J2 | | 17 | | | 550 | 9450 | 350 | | | | | | | |
| 25M | | 25J0 | | 17 | | | 400 | 2117 | | | | | | | | |
| 25M | | 25J0 | | 17 | | | 400 | 1987 | | | | | | | | |
| 25M | | 25J12 | | 17 | | | 1615 | 1615 | | | | | | | | |
| 25M | | 25J13 | | 17 | | | 400 | 1615 | | | | | | | | |
| 30M | | 30J0 | | 17 | | | 300 | 400 | 300 | | | | | | | |
| 20M | | 20J15 | | 17 | | | 300 | 344 | 300 | | | | | | | |
| 15M | | 15J4 | | 11 | 140 | | 620 | 620 | 620 | 620 | | 140 | | | | |
| 15M | | 15J5 | | 14 | 140 | | 484 | 484 | 484 | 484 | | 140 | 420 | | 620 | 184 |
| 15M | | 15J6 | | 11 | 140 | | 320 | 320 | 320 | 320 | | 140 | | | | |
| 15M | | 15J7 | | 17 | | | 150 | 1320 | 150 | | | | | | | |



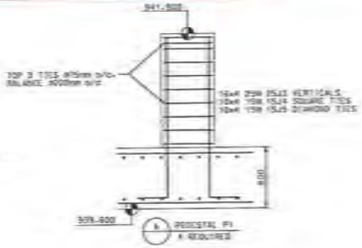

**HATCH Vendor/Contractor Document Review**

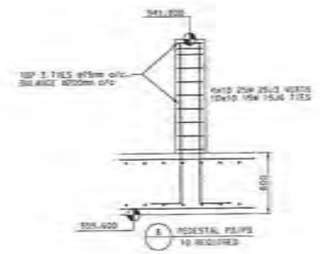
| | | |
|---|---|---|
| Doc Number | E354138-CB201-230-260-0019 | SUB 01 |
| Date Received | 2019-10-18 | |

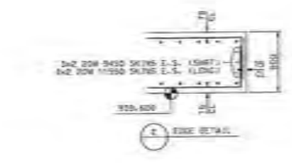
| Review Grade | Next Submittal Status |
|---|---|
| ☐ C1 - Proceed to next submission & status | ☐ Certified |
| ☐ C2 - Proceed with exceptions as noted to next submission & status | ☐ As-Built |
| ☐ C3 - Do not proceed, Revise as noted & resubmit | ☐ Internal Review |
| Next Submittal Date: | ☐ Certified ☐ As-Built |
| ☒ C4 - No further submission required - Complete (select status below) | |
| ☐ Certified Final ☒ Final ☐ Cancelled ☐ Superseded | |

Package Engineer: Name, signature and date
ESRA AKINCI, EA, Oct 22, 2019

Review only for general conformity with the specifications. Not approved by the engineer. Does not warrant or represent that the information contained on this drawing/document is error, omission or complete. The sole responsibility for correct design details & dimensions shall remain with the party submitting the drawing/document.




## GENERAL NOTES ON REINFORCEMENT

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**DIMENSIONS:**
DIMENSIONS TO REINFORCEMENT ARE TO CENTRE LINES OF BARS, EXCEPT WHERE CONCRETE COVER OR CLEARANCE BETWEEN BARS IS SHOWN.

**COVER:**
SEE STRUCTURAL ENGINEER TYPICAL NOTES FOR ALL COVER SPECIFICATIONS.

**SPACING:**
UNLESS OTHERWISE SHOWN, THE FIRST AND LAST BARS IN SLABS AND WALLS, STIRRUPS IN BEAMS SHALL BE PLACED AT A MINIMUM OF HALF THE SPECIFIED SPACING OF ADJACENT BARS FROM THE END OF THE MEMBER.

**STEEL SPECIFICATIONS:**
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**WELDING:**
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**SPLICES AND EMBEDMENTS:**
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SPLICES ARE TO BE MADE SO THAT THE GIVEN CLEAR DISTANCE COVER WILL BE MAINTAINED.

LAP LENGTHS UNLESS SHOWN OTHERWISE:

| | HORZ | OTHER |
|---|---|---|
| 10M | 520 | 400 |
| 15M | 775 | 595 |
| 20M | 1030 | 790 |
| 25M | 1575 | 1240 |
| 30M | 1940 | 1485 |
| 35M | | |

**PLACEMENT:**
PLACE REINFORCING STEEL IN ACCORDANCE WITH CSA CAN3-A23.1-M.

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| | |
|---|---|
| @ | - SPACING CENTER TO CENTER |
| | - DIRECTION IN WHICH BARS EXTEND |
| ----- | - LIMITS OF AREA COVERED BY BARS |
| T.F. | - REBAR TOP/NEAR FACE |
| ----- | - REBAR BOT/FAR FACE |
| I.F. | - INSIDE FACE |
| O.F. | - OUTSIDE FACE |
| N.F. | - NEAR FACE |
| F.F. | - FAR FACE |
| E.W. | - EACH WAY |
| VERT | - VERTICAL |
| HORZ | - HORIZONTAL |
| DWLS | - DOWELS |
| FTG | - FOOTING |
| COL | - COLUMN |

| | |
|---|---|
| B.U.L. | - BOTTOM LOWER LAYER |
| B.U.L. | - BOTTOM UPPER LAYER |
| W.L.L. | - WEB LOWER LAYER |
| W.U.L. | - WEB UPPER LAYER |
| T.L.L. | - TOP LOWER LAYER |
| T.U.L. | - TOP UPPER LAYER |
| E.W. | - EACH WAY |
| ONT. | - NEAT |

| | |
|---|---|
| BOT | - BOTTOM |
| TOP | - TOP |
| T&B | - TOP & BOTTOM |
| L-R | - LEFT TO RIGHT |
| B-T | - BOTTOM TO TOP |
| C.B. | - CORNER BAR |
| T.O.H. | - TYPICAL OPPOSITE HAND |
| R.H. | - FROM RIGHT TO LEFT |
| F.B. | - FIELD BEND |
| C.I.F. | - CUT IN FIELD |
| T.O.W. | - TOP OF WALL |
| T.O.F. | - TOP OF FOOTING |
| B.O.W. | - BOTTOM OF WALL |
| T.O.C. | - TOP OF CONCRETE |
| B.O.C. | - BOTTOM OF CONCRETE |
| ELEV. | - ELEVATION |

| PREFIX | TRANS. | VOIS. |
|---|---|---|
| | 10.0 | |

PRINT RECORD

| NO. | REVISION | DATE | NO. | TO | FOR | DATE |
|---|---|---|---|---|---|---|
| | | | 10 | D | A | 17/OCT/19 |

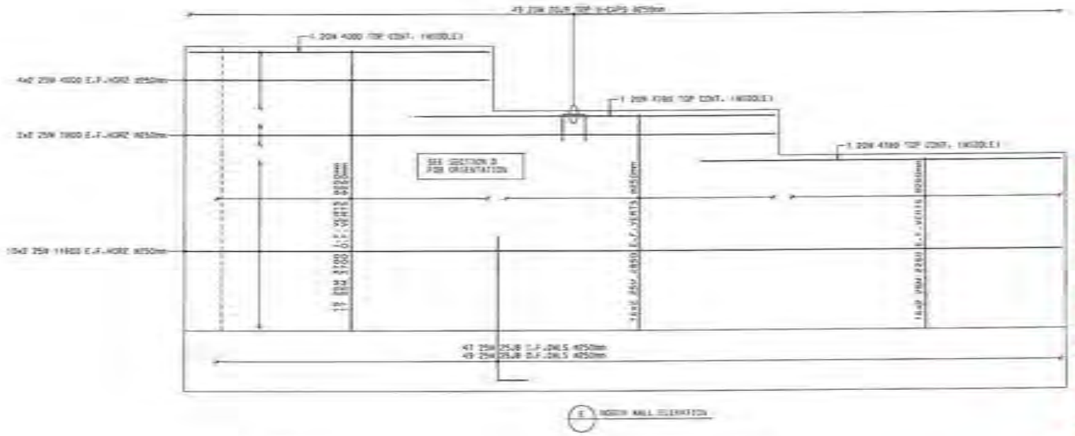
CASI MEMBER

MCNISH STEEL LTD.
10636 - 205 STREET
EDMONTON, ALBERTA
PHONE 447-3337 FAX 447-3379

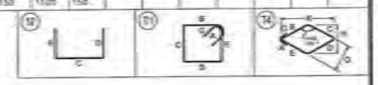
# REINFORCING STEEL PLACING PLAN

PROJECT : STRATACOLD (CABLE SOLD PROJECT)
CONTR. : CLARK BUILDERS
ENG./DF : STANTEC TOWER 17-4
CHKD. : HATCH
DRAWN BY : MARK
DATE : 17/OCT/2019

JOB NO. 18-042 | DWG. NO. 009 A




| SIZE | EP | BAR MARK | # | SHAPE TYP | CD | A | B | C | D | BENDING DIMENSIONS E | F | G | H | J | K | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 20M | | 20J1 | | 17 | | | 550 | 11350 | 350 | | | | | | | |
| 20M | | 20J2 | | 17 | | | 550 | 9450 | 350 | | | | | | | |
| 25M | | 25J0 | | 17 | | | 400 | 2117 | | | | | | | | |
| 25M | | 25J0 | | 17 | | | 400 | 1987 | | | | | | | | |
| 25M | | 25J12 | | 17 | | | 1615 | 1615 | | | | | | | | |
| 25M | | 25J13 | | 17 | | | 400 | 1615 | | | | | | | | |
| 30M | | 30J0 | | 17 | | | 300 | 400 | 300 | | | | | | | |
| 20M | | 20J15 | | 17 | | | 300 | 344 | 300 | | | | | | | |
| 15M | | 15J4 | | 11 | 140 | | 620 | 620 | 620 | 620 | | 140 | | | | |
| 15M | | 15J5 | | 14 | 140 | | 484 | 484 | 484 | 484 | | 140 | 420 | | 620 | 184 |
| 15M | | 15J6 | | 11 | 140 | | 320 | 320 | 320 | 320 | | 140 | | | | |
| 15M | | 15J7 | | 17 | | | 150 | 1320 | 150 | | | | | | | |




**HATCH Vendor/Contractor Document Review**

| | | |
|---|---|---|
| Doc Number | E354138-CB201-230-260-0019 | SUB 01 |
| Date Received | 2019-10-18 | |

| Review Grade | Next Submittal Status |
|---|---|
| ☐ C1 - Proceed to next submission & status | ☐ Certified |
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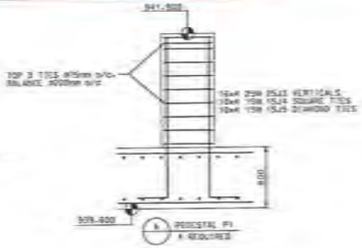
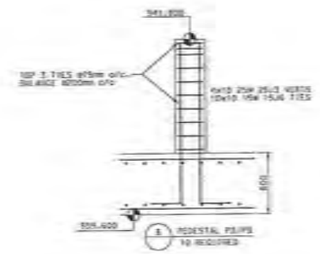
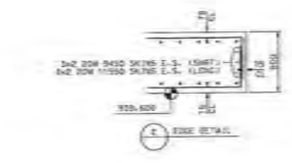
| ☒ C4 - No further submission required - Complete (select status below) | |
| ☐ Certified Final ☒ Final ☐ Cancelled ☐ Superseded | |

Package Engineer: Name, signature and date
ESRA AKINCI, EA, Oct 22, 2019

Review only for general conformity with the specifications. Not approved by the engineer. Does not warrant or represent that the information contained on this drawing/document is error, omission or complete. The sole responsibility for correct design details & dimensions shall remain with the party submitting the drawing/document.

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|---|---|---|
| 10M | 520 | 400 |
| 15M | 775 | 595 |
| 20M | 1030 | 790 |
| 25M | 1575 | 1240 |
| 30M | 1940 | 1485 |
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| | |
|---|---|
| @ | - SPACING CENTER TO CENTER |
| | - DIRECTION IN WHICH BARS EXTEND |
| ----- | - LIMITS OF AREA COVERED BY BARS |
| T.F. | - REBAR TOP/NEAR FACE |
| ----- | - REBAR BOT/FAR FACE |
| I.F. | - INSIDE FACE |
| O.F. | - OUTSIDE FACE |
| N.F. | - NEAR FACE |
| F.F. | - FAR FACE |
| E.W. | - EACH WAY |
| VERT | - VERTICAL |
| HORZ | - HORIZONTAL |
| DWLS | - DOWELS |
| FTG | - FOOTING |
| COL | - COLUMN |

| | |
|---|---|
| B.U.L. | - BOTTOM LOWER LAYER |
| B.U.L. | - BOTTOM UPPER LAYER |
| W.L.L. | - WEB LOWER LAYER |
| W.U.L. | - WEB UPPER LAYER |
| T.L.L. | - TOP LOWER LAYER |
| T.U.L. | - TOP UPPER LAYER |
| E.W. | - EACH WAY |
| ONT. | - NEAT |

| | |
|---|---|
| BOT | - BOTTOM |
| TOP | - TOP |
| T&B | - TOP & BOTTOM |
| L-R | - LEFT TO RIGHT |
| B-T | - BOTTOM TO TOP |
| C.B. | - CORNER BAR |
| T.O.H. | - TYPICAL OPPOSITE HAND |
| R.H. | - FROM RIGHT TO LEFT |
| F.B. | - FIELD BEND |
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| T.O.W. | - TOP OF WALL |
| T.O.F. | - TOP OF FOOTING |
| B.O.W. | - BOTTOM OF WALL |
| T.O.C. | - TOP OF CONCRETE |
| B.O.C. | - BOTTOM OF CONCRETE |
| ELEV. | - ELEVATION |

| PREFIX | TRANS. | VOIS. |
|---|---|---|
| | 10.0 | |

PRINT RECORD

| NO. | REVISION | DATE | NO. | TO | FOR | DATE |
|---|---|---|---|---|---|---|
| | | | 10 | D | A | 17/OCT/19 |

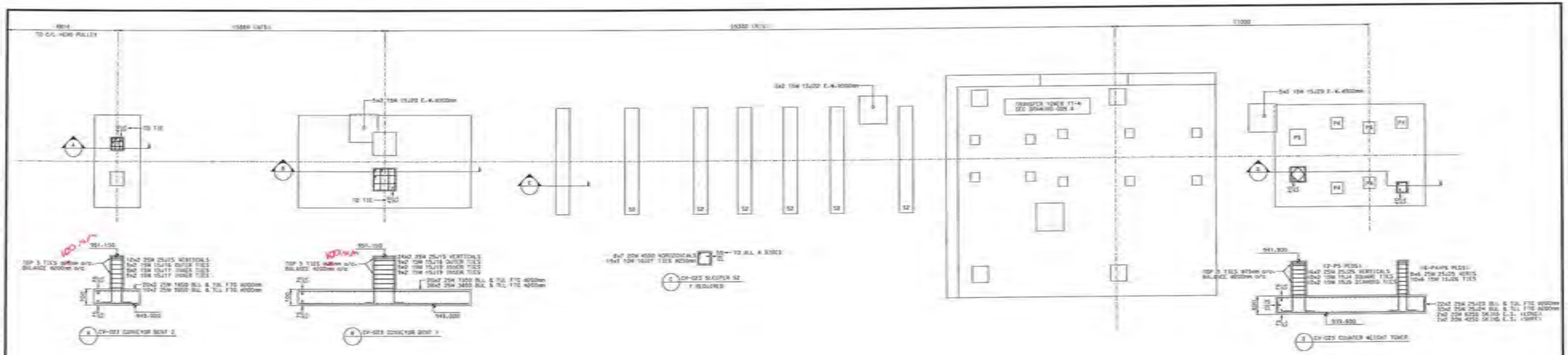
CASI MEMBER

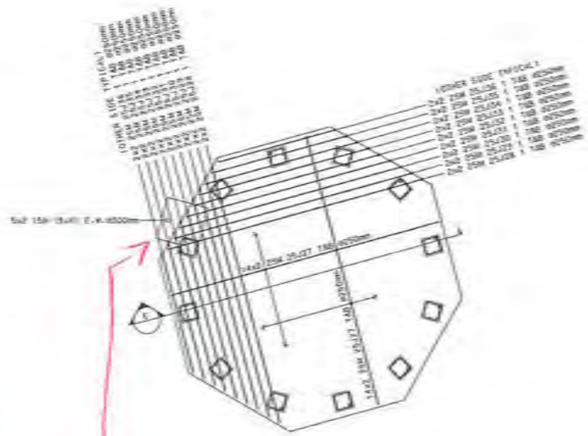
MCNISH STEEL LTD.
10636 - 205 STREET
EDMONTON, ALBERTA
PHONE 447-3337 FAX 447-3379

# REINFORCING STEEL PLACING PLAN

PROJECT : STRATACOLD (CABLE SOLD PROJECT)
CONTR. : CLARK BUILDERS
ENG./DF : STANTEC TOWER 17-4
CHKD. : HATCH
DRAWN BY : MARK
DATE : 17/OCT/2019

JOB NO. 18-042 | DWG. NO. 009 A



stair pod is not square, shorter bars required in one direction

1000mm

1200mm

| SIZE | CP | SUB MARK | # | BEND TYP | CD | A | B | C | D | BENDING DIMENSIONS E | F/G | C | H | J | K | O |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 25M | | 25J15 | | 11 | | | 400 | 1979 | | | | | | | | |
| 25M | | 25J23 | | 11 | | | 550 | 6350 | 550 | | | | | | | |
| 25M | | 25J24 | | 11 | | | 550 | 4250 | 550 | | | | | | | |
| 25M | | 25J25 | | 11 | | | 400 | 2126 | | | | | | | | |
| 25M | | 25J27 | | 11 | | | 550 | 7850 | 550 | | | | | | | |
| 25M | | 25J28 | | 11 | | | 500 | 7351 | 550 | | | | | | | |
| 25M | | 25J29 | | 11 | | | 550 | 6851 | 550 | | | | | | | |
| 25M | | 25J30 | | 11 | | | 500 | 6351 | 550 | | | | | | | |
| 25M | | 25J31 | | 11 | | | 550 | 5851 | 550 | | | | | | | |
| 25M | | 25J32 | | 11 | | | 550 | 5351 | 550 | | | | | | | |
| 25M | | 25J33 | | 11 | | | 550 | 4851 | 550 | | | | | | | |
| 25M | | 25J34 | | 11 | | | 550 | 4351 | 550 | | | | | | | |
| 25M | | 25J35 | | 11 | | | 550 | 3851 | 550 | | | | | | | |
| 25M | | 25J36 | | 11 | | | 550 | 3351 | 550 | | | | | | | |
| 25M | | 25J37 | | 11 | | | 400 | 1629 | | | | | | | | |
| 15M | | 15J4 | | 11 | | 140 | 620 | 620 | 620 | 620 | | 140 | | | | |
| 15M | | 15J5 | | 11 | | 140 | 464 | 464 | 464 | 464 | | 140 | 403 | | 620 | 464 |
| 15M | | 15J16 | | 11 | | 140 | 520 | 520 | 520 | 520 | | 140 | | | | |
| 15M | | 15J17 | | 11 | | 140 | 219 | 520 | 219 | 520 | | 140 | | | | |
| 15M | | 15J18 | | 11 | | 140 | 520 | 520 | 520 | 520 | | 140 | | | | |
| 15M | | 15J19 | | 11 | | 140 | 349 | 520 | 349 | 520 | | 140 | | | | |
| 15M | | 15J20 | | 11 | | | 150 | 1120 | 150 | | | | | | | |
| 15M | | 15J27 | | 11 | | | 400 | 1120 | 400 | | | | | | | |
| 15M | | 15J29 | | 11 | | 140 | 420 | 420 | 420 | 420 | | 140 | | | | |
| 15M | | 15J31 | | 11 | | | 200 | 1109 | 200 | | | | | | | |
| 10M | | 10J31 | | 11 | | 100 | 500 | 500 | 500 | 500 | | 100 | | | | |

(17) (18) (19)

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| | HOOK | OTHER |
|---|---|---|
| 10M | 320 | 400 |
| 15M | 475 | 595 |
| 20M | 1050 | 750 |
| 25M | 1625 | 1240 |
| 30M | 1940 | 1485 |
| 35M | | |

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**HATCH Vendor/Contractor Document Review**

| | | | |
|---|---|---|---|
| Doc Number | E364138-CB201-230-260-0021 | SUB | 01 |
| Date Received | 2018-10-20 | | |

| Review Grade | Next Submittal Status |
|---|---|
| ☐ C1 - Proceed to next submission & status<br>☒ C2 - Proceed with exceptions as noted to next submission & status | ☐ Certified<br>☐ As-Built |
| ☐ C3 - Do not proceed. Revise as noted & resubmit | ☐ Internal Review<br>☐ Certified/☐ As-Built |
| Next Submittal Date: | |

☐ C4 - No further submission required - Complete (select status below)
☐ Certified Final ☐ Final ☐ Cancelled ☐ Superseded

Package Engineer: Name, signature and date:
ESHA PRINCI, EA, Oct 22, 2018

Reviewed only for general conformity with the specifications. Acceptance by the engineer does not warrant or represent that the information contained on this drawing/document is either accurate or complete. The sole responsibility for correct design, details & dimensions shall remain with the party submitting the drawing/document.

B.O.L.L. - BOTTOM LOWER LAYER
B.U.L. - BOTTOM UPPER LAYER
M.L.L. - MID LOWER LAYER
M.U.L. - MID UPPER LAYER
T.L.L. - TOP LOWER LAYER
T.U.L. - TOP UPPER LAYER
E.W. - EACH WAY
BET. - BENT

@ - SPACING CENTER TO CENTER
- DIRECTION IN WHICH BARS EXTEND
- LIMITS OF AREA COVERED BY BARS
- REBAR TOP/REAR FACE
- REBAR BOT/FAR FACE
I.F. - INSIDE FACE
O.F. - OUTSIDE FACE
N.F. - NEAR FACE
F.F. - FAR FACE
E.W. - EACH WAY
VERT - VERTICAL
HORZ - HORIZONTAL
SNLS - SONOLIS
FTG - FOOTING
COL - COLUMN

BOT - BOTTOM
TOP - TOP
T&B - TOP & BOTTOM
L-R - LEFT TO RIGHT
R-T - BOTTOM TO TOP
C.B. - CORNER BAR
T.O.H. - TYPICAL OPPOSITE HAND
R/L - FROM RIGHT TO LEFT
F.B. - FIELD BEND
C.I.F. - CUT IN FIELD
T.O.W. - TOP OF WALL
T.O.F. - TOP OF FOOTING
B.O.W. - BOTTOM OF WALL
T.O.C. - TOP OF CONCRETE
B.O.C. - BOTTOM OF CONCRETE
ELEV. - ELEVATION

| PREFIX | J |
|---|---|
| TRANS. NOS. | 10.2 |

PRINT RECORD

| NO. | REVISION | DATE |
|---|---|---|

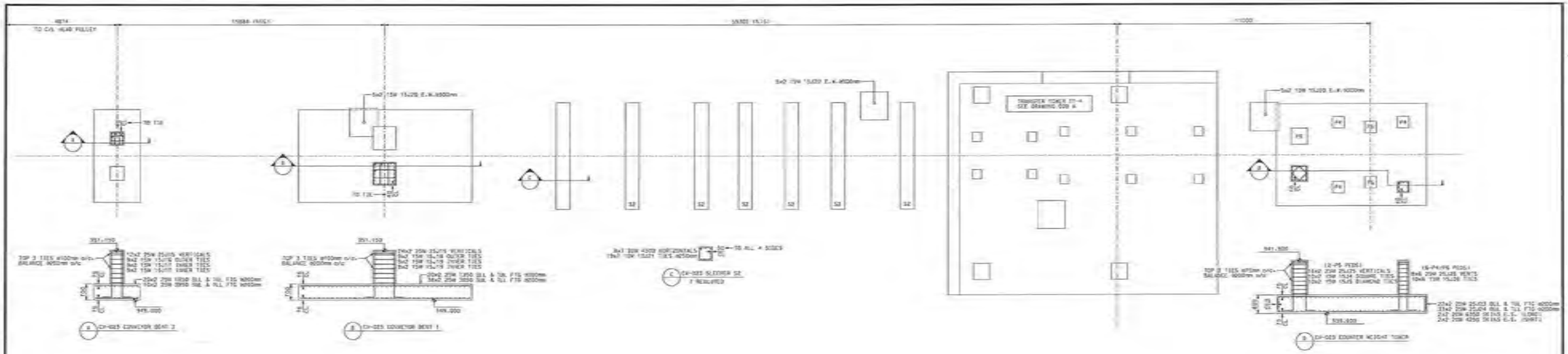
| NO. | TO: | FOR | DATE |
|---|---|---|---|
| | IC | C | IA |

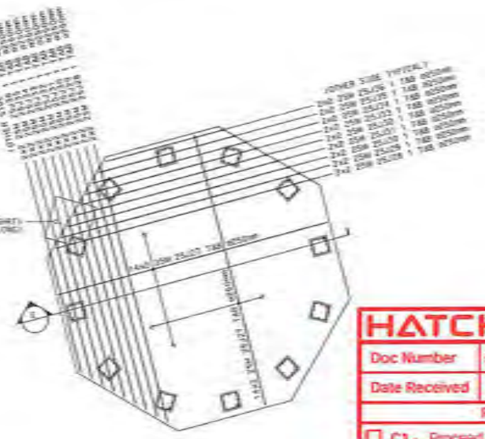
MCNTSH STEEL LTD.
10636 - 205 STREET
EDMONTON, ALBERTA
PHONE 447-3333 FAX 447-3573

PROJECT : STRATHCOLD HEADLEY GOLD PROJECT
CONTR. : CLARK BUILDERS
DWG. OF : CH-025 & LINE SOLID RIB FOUNDATIONS
ENGR. : HATCH
DRAWN BY : MARK DATE : 18/OCT/2018

# REINFORCING STEEL PLACING PLAN

JOB NO. 18-042 DWG. NO. 009 B




| SIZE | CP | BAR MARK | # | BEND TYP | DIA | A | B | C | D | BENDING DIMENSIONS E | F | G | H | J | K | L |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 25M | | 25J15 | | 17 | | | 400 | 11879 | | | | | | | | |
| 25M | | 25J23 | | 17 | | | 550 | 6308 | 550 | | | | | | | |
| 25M | | 25J24 | | 17 | | | 550 | 4350 | 350 | | | | | | | |
| 25M | | 25J25 | | 17 | | | 400 | 2126 | | | | | | | | |
| 25M | | 25J27 | | 17 | | | 550 | 7850 | 550 | | | | | | | |
| 25M | | 25J28 | | 17 | | | 550 | 7351 | 550 | | | | | | | |
| 25M | | 25J29 | | 17 | | | 550 | 6851 | 550 | | | | | | | |
| 25M | | 25J30 | | 17 | | | 550 | 6351 | 550 | | | | | | | |
| 25M | | 25J31 | | 17 | | | 550 | 5851 | 550 | | | | | | | |
| 25M | | 25J32 | | 17 | | | 550 | 5351 | 550 | | | | | | | |
| 25M | | 25J33 | | 17 | | | 550 | 4851 | 550 | | | | | | | |
| 25M | | 25J34 | | 17 | | | 550 | 4351 | 550 | | | | | | | |
| 25M | | 25J35 | | 17 | | | 550 | 3851 | 550 | | | | | | | |
| 25M | | 25J36 | | 17 | | | 550 | 3351 | 550 | | | | | | | |
| 25M | | 25J37 | | 17 | | | 400 | 13879 | | | | | | | | |
| 15M | | 15J4 | | 11 | | 140 | 620 | 620 | 620 | 620 | | 140 | | | | |
| 15M | | 15J5 | | 14 | | 140 | 464 | 464 | 464 | 464 | | 140 | 620 | | 620 | 464 |
| 15M | | 15J16 | | 11 | | 140 | 520 | 520 | 520 | 520 | | 140 | | | | |
| 15M | | 15J17 | | 11 | | 140 | 216 | 520 | 216 | 520 | | 140 | | | | |
| 15M | | 15J18 | | 11 | | 140 | 520 | 520 | 520 | 520 | | 140 | | | | |
| 15M | | 15J19 | | 11 | | 140 | 348 | 520 | 348 | 520 | | 140 | | | | |
| 15M | | 15J20 | | 11 | | | 150 | 1720 | 150 | | | | | | | |
| 15M | | 15J21 | | 11 | | | 400 | 1100 | 400 | | | | | | | |
| 15M | | 15J26 | | 11 | | 140 | 420 | 420 | 420 | 420 | | 140 | | | | |
| 15M | | 15J41 | | 11 | | | 300 | 1100 | 200 | | | | | | | |
| 15M | | 15J53 | | 11 | | | 300 | 300 | 200 | | | | | | | |
| 15M | | 10J31 | | 11 | | 100 | 500 | 500 | 500 | 500 | | 100 | | | | |

17 18 19

## GENERAL NOTES ON REINFORCEMENT

THE FOLLOWING NOTES SHALL APPLY TO ALL REINFORCEMENT SHOWN ON THE DRAWINGS UNLESS OTHERWISE NOTED.

DIMENSIONS:
DIMENSIONS TO REINFORCEMENT ARE TO CENTRE LINES OF BARS, EXCEPT WHERE CONCRETE COVER OR CLEARANCE BETWEEN BARS IS SHOWN.

COVER:
SEE STRUCTURAL ENGINEER TYPICAL NOTES FOR ALL COVER SPECIFICATIONS

SPACING:
UNLESS OTHERWISE SHOWN, THE FIRST AND LAST BARS IN SLABS AND WALLS, STIRRUPS IN BEAMS SHALL BE PLACED AT MAXIMUM OF HALF THE SPECIFIED SPACING OF ADJACENT BARS FROM THE END OF THE MEMBER.

STEEL SPECIFICATIONS:
STEEL REINFORCEMENT SHALL BE DEFORMED BARS OF GRADE 400 CONFORMING TO CSA STANDARDS G30.18 BILLET-STEEL BARS FOR CONCRETE REINFORCEMENT.

WELDING:
WELDING OF REINFORCEMENT SHALL NOT BE PERMITTED.

SPLICES AND EMBEDMENTS:
UNLESS OTHERWISE SPECIFIED, ALL EMBEDMENTS SHALL BE TREATED AS TENSION EMBEDMENTS AND ALL LAP SPLICES SHALL BE CONSIDERED AS TENSION LAP SPLICES.

WHEN REINFORCING BARS OF DIFFERENT SIZE ARE TO BE SPLICED, THE LENGTH OF THE LAP SHALL BE BASED ON THE DIAMETER OF THE SMALLER BAR.

SPLICES ARE TO BE MADE SO THAT THE GIVEN CLEAR DISTANCE (OTHER THAN THE CONCRETE COVER) IS MAINTAINED.

LAP LENGTHS UNLESS SHOWN OTHERWISE:

| BARS | HORIZ | OTHER |
|---|---|---|
| 10M | 520 | 400 |
| 15M | 775 | 595 |
| 20M | 1030 | 790 |
| 25M | 1615 | 1240 |
| 30M | 1940 | 1485 |
| 35M | | |

PLACEMENT:
PLACE REINFORCING STEEL IN ACCORDANCE WITH CSA A23.1-04.

REINFORCEMENT MAY BE DISPLACED TO CLEAR PIPES, RECESSES, EMBEDDED METAL WORKS AND CONDUITS.

A MINIMUM CLEARANCE OF 1" SHALL BE MAINTAINED BETWEEN REINFORCEMENT AND EMBEDDED MATERIALS. THE MINIMUM CLEARANCE BETWEEN REINFORCEMENT

REINFORCEMENT SHALL BE ACCURATELY PLACED IN ACCORDANCE WITH THE DRAWING AND SHALL BE ADEQUATELY SECURED AGAINST DISPLACEMENT BY USING WIRE-TIED GRID WORK AT INTERSECTIONS AND SHALL BE SUPPORTED BY APPROVED CONCRETE OR METAL SUPPORTS. SPACERS OR METAL HANGERS EXCEPT AT SURFACES EXPOSED TO THE GROUND OR TO THE WEATHER WHERE SUPPORTS SHALL BE APPROVED. ALL METAL ACCESSORIES ARE TO BE GALVANIZED.

THE FULL INTENT AND PURPOSE OF THESE DRAWINGS IS PLACING OF REINFORCING STEEL BARS ONLY. IT IS NOT TO BE USED AS A MEANS OF COMMUNICATION BETWEEN THE ARCHITECT, FABTHECK, CONTRACTOR OR ANY OTHER SUBTRADE.

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HATCH Vendor/Contractor Document Review

| | | | |
|---|---|---|---|
| Doc Number | E354138-CB201-230-260-0024 | SUB | 01 |
| Date Received | 2018-10-29 | | |

| Review Grade | Next Submittal Status |
|---|---|
| ☐ C1 - Proceed to next submission & status | ☐ Certified |
| ☐ C2 - Proceed with exceptions as noted to next submission & status | ☐ As-Built |
| ☐ C3 - Do not proceed. Revise as noted & resubmit | ☐ Internal Review |
| Next Submittal Date: | ☐ Certified ☐ As-Built |
| ☒ C4 - No further submission required - Complete (select status below) | |
| ☐ Certified Final ☒ Final ☐ Cancelled ☐ Superseded | |

Package Engineer: Name, signature and date
ESCA AKINCI, EA. OCT 5, 2018

Reviewed only for general conformity with the specifications. Acceptance by the engineer does not warrant or represent that the information contained on this drawing/document is either accurate or complete. The sole responsibility for correct design, details & dimensions shall remain with the party submitting the drawing/document

McNISH STEEL
2018-10-25
Printed for Construction

- SPACING CENTER TO CENTER
- DIRECTION IN WHICH BARS EXTEND
- LIMITS OF AREA COVERED BY BARS
- REBAR TOP/FACE OR FACE
- REBAR BOTTOM FACE
- INSIDE FACE
- OUTSIDE FACE
- NEAR FACE
- FAR FACE
- EACH FACE
- EACH WAY
- VERTICAL
- HORIZONTAL
- DOWELS
- TOP/END
- COLUMN

BOT - BOTTOM
TOP - TOP
T&B - TOP & BOTTOM
L-R - LEFT TO RIGHT
B-T - BOTTOM TO TOP
C.B. - CORNER BAR
T.O.S. - TYPICAL OPPOSITE HAND
R/L - KNOW HOOKS TO LEFT
F.B. - FIELD BEND
C.I.P. - CUT IN P.SOLD
T.O.W. - TOP OF WALL
T.O.F. - TOP OF FOOTING
B.O.W. - BOTTOM OF WALL
T.O.C. - TOP OF CONCRETE
B.O.C. - BOTTOM OF CONCRETE
ELEV. - ELEVATION

B.L.L. - BOTTOM LOWER LAYER
B.U.L. - BOTTOM UPPER LAYER
M.L.L. - MID LOWER LAYER
M.U.L. - MID UPPER LAYER
T.L.L. - TOP LOWER LAYER
T.U.L. - TOP UPPER LAYER
E.A. - EACH ROW
BET. - BENT

| NO. | REVISION | DATE |
|---|---|---|
| C2 | REVIEW | OCT 27/18 |

PREFIX: U
TRANS. NOS.: 10.3

PRINT RECORD

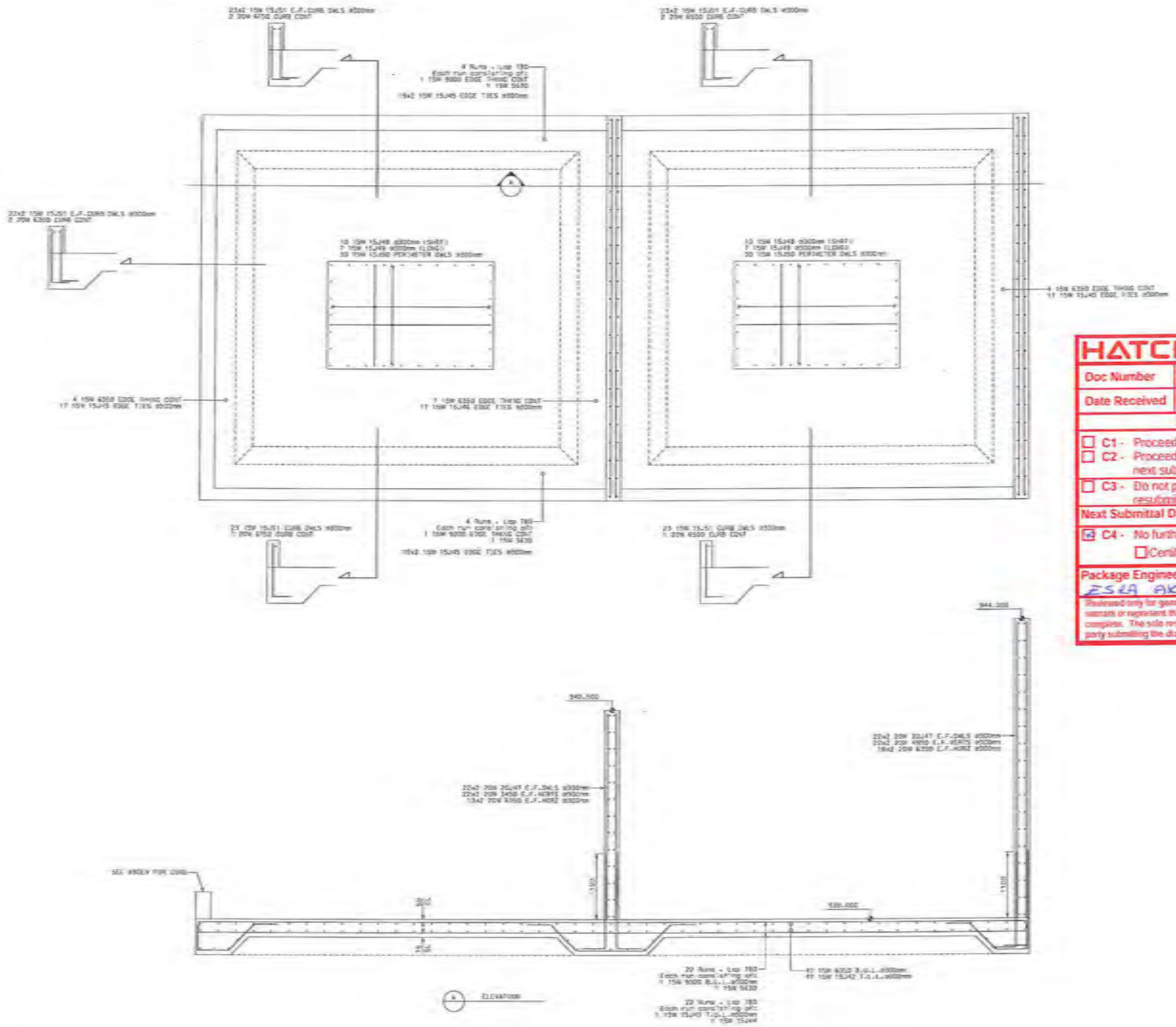
| NO. | TR | FOR | DATE |
|---|---|---|---|
| | C | A | 18/OCT/28 |

MCNISH STEEL LTD.
10636 - 205 STREET
EDMONTON, ALBERTA
PHONE 447-3337 FAX 447-5379

PROJECT : STRATHCONA (EAGLE GOLD PROJECT)
CONTR. : KLARK BUILDERS
DWG. OF : CV-003 & CIVIC SOLID BIN FOUNDATIONS
ENGR. : HATCH
DRAWN BY : MWM (DATE : 18/OCT/2018)

# REINFORCING STEEL PLACING PLAN

JOB NO. 18-042 DWG. NO. 009 B




| SIZE | GP | BAR MARK | # | END TYP | CD | A | B | C | D | BENDING DIMENSIONS E | F/R | G | H | J | K | O |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 20M | | 30J41 | | 11 | | | 400 | 1589 | | | | | | | | |
| 15M | | 15J42 | | 11 | | | 200 | 4350 | 300 | | | | | | | |
| 15M | | 15J43 | | 11 | | | 200 | 8841 | | | | | | | | |
| 15M | | 15J44 | | 11 | | | 200 | 5789 | | | | | | | | |
| 15M | | 15J45 | | 4 | | 400 | 519 | 621 | 400 | | | | 450 | | 429 | |
| 15M | | 15J46 | | 4 | | | 400 | 821 | 1159 | 821 | 400 | | 450 | | 429 | |
| 15M | | 15J48 | | 11 | | | 200 | 1100 | 300 | | | | | | | |
| 15M | | 15J49 | | 11 | | | 200 | 2700 | 300 | | | | | | | |
| 15M | | 15J50 | | 11 | | | 400 | 829 | | | | | | | | |
| 15M | | 15J51 | | 11 | | | 300 | 949 | | | | | | | | |

4 — 17

**HATCH Vendor/Contractor Document Review**

| | | | |
|---|---|---|---|
| Doc Number | E354138-CB201-230-260-0025 | SUB | 01 |
| Date Received | 2018-10-29 | | |

| Review Grade | Next Submittal Status |
|---|---|
| ☐ C1 - Proceed to next submission & status<br>☐ C2 - Proceed with exceptions as noted to next submission & status | ☐ Certified<br>☐ As-Built |
| ☐ C3 - Do not proceed. Revise as noted & resubmit | ☐ Internal Review<br>☐ Certified ☐ As-Built |
| Next Submittal Date: | |
| ☒ C4 - No further submission required - Complete (select status below)<br>☐ Certified Final ☒ Final ☐ Cancelled ☐ Superseded | |

Package Engineer: Name, signature and date
ESA AKINCI EA, OCT 5, 2018

Reviewed only for general conformity with the specifications. Acceptance by the engineer does not warrant or represent that the information contained on this drawing/document is either accurate or complete. The sole responsibility for correct design, details & dimensions shall remain with the party submitting the drawing/document.

## GENERAL NOTES ON REINFORCEMENT

THE FOLLOWING NOTES SHALL APPLY TO ALL REINFORCEMENT SHOWN ON THE DRAWINGS UNLESS OTHERWISE NOTED.

DIMENSIONS:
DIMENSIONS TO REINFORCEMENT ARE TO CENTRE LINES OF BARS, EXCEPT WHERE CONCRETE COVER OR CLEARANCE BETWEEN BARS IS SHOWN.

COVER:
SEE STRUCTURAL ENGINEER TYPICAL NOTES FOR ALL COVER SPECIFICATIONS

SPACING:
UNLESS OTHERWISE SHOWN, THE FIRST AND LAST BARS IN SLABS AND WALLS, STIRRUPS IN BEAMS SHALL BE PLACED AT A MAXIMUM OF HALF THE SPECIFIED SPACING OF ADJACENT BARS FROM THE END OF THE MEMBER.

STEEL SPECIFICATIONS:
STEEL REINFORCEMENT SHALL BE DEFORMED BARS OF GRADE 400 CONFORMING TO CSA STANDARDS G30.12 BILLET-STEEL BARS FOR CONCRETE REINFORCEMENT.

WELDING:
WELDING OF REINFORCEMENT SHALL NOT BE PERMITTED.

SPLICES AND EMBEDMENTS:
UNLESS OTHERWISE SPECIFIED, ALL EMBEDMENTS SHALL BE TREATED AS TENSION EMBEDMENTS AND ALL LAP SPLICES SHALL BE CONSIDERED AS TENSION LAP SPLICES.

WHEN REINFORCING BARS OF DIFFERENT SIZE ARE TO BE SPLICED, THE LENGTH OF THE LAP SHALL BE BASED ON THE DIAMETER OF THE SMALLER BAR.

SPLICES ARE TO BE MADE SO THAT THE GIVEN CLEAR DISTANCE CANNOT WILL BE MAINTAINED.

LAP LENGTHS UNLESS SHOWN OTHERWISE:

| | HORZ | OTHER |
|---|---|---|
| 10M | 525 | 400 |
| 15M | 775 | 595 |
| 20M | 1030 | 790 |
| 25M | 1675 | 1240 |
| 30M | 1940 | 1485 |
| 35M | | |

PLACEMENT:
PLACE REINFORCING STEEL IN ACCORDANCE WITH CSA CAN3-A23.1-M.

REINFORCEMENT MAY BE DISPLACED TO CLEAR PIPES, RECESSES, EMBEDDED METAL WORKS AND CONDUITS.

A MINIMUM CLEARANCE OF 1" SHALL BE MAINTAINED BETWEEN REINFORCEMENT AND EMBEDDED MATERIALS. THE MINIMUM CLEARANCE BETWEEN REINFORCEMENT

REINFORCEMENT SHALL BE ACCURATELY PLACED IN ACCORDANCE WITH THE DRAWING AND SHALL BE ABSOLUTELY SECURED AGAINST DISPLACEMENT BY USING ANNEALED TIES WIRE AT INTERSECTIONS AND SHALL BE SUPPORTED BY APPROVED CONCRETE OR METAL SUPPORTS. SPACERS OR METAL HANGERS EXCEPT AT SURFACES EXPOSED TO THE GROUND OR TO THE WEATHER WHERE SUPPORTS SHALL BE APPROVED. ALL METAL ACCESSORIES ARE TO BE GALVANIZED.

THE FULL INTENT AND PURPOSE OF THESE DRAWINGS IS PLACING OF REINFORCING STEEL BARS ONLY. IT IS NOT TO BE USED AS A MEANS OF COMMUNICATION BETWEEN THE ARCHITECT, ENGINEER, CONTRACTOR OR ANY OTHER SUBTRADE.

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| | | | |
|---|---|---|---|
| a | - SPACING CENTRES TO CENTER | BOT | - BOTTOM |
| | - DIRECTION OF WHICH BARS EXTEND | TOP | - TOP |
| | - LIMITS OF AREA CONFINED BY BARS | T&B | - TOP & BOTTOM |
| | - REBAR TOP/FACE FACE | L-R | - LEFT TO RIGHT |
| | - REBAR BOTTOM FACE | B-T | - BOTTOM TO TOP |
| E.F. | - EXTERIOR FACE | C.B. | - CORNER BAR |
| I.F. | - INTERIOR FACE | T.O.B. | - TYPICAL OPPOSITE HAND |
| N.F. | - NEAR FACE | R.H. | - FROM RIGHT TO LEFT |
| F.F. | - FAR FACE | F.B. | - FIELD BEND |
| E.W. | - EACH WAY | C.I.F. | - CUT IN FIELD |
| VERT | - VERTICAL | T.O.W. | - TOP OF WALL |
| HORZ | - HORIZONTAL | T.O.F. | - TOP OF FOOTING |
| DWLS | - DOWELS | B.O.W. | - BOTTOM OF WALL |
| FTG | - FOOTING | T.O.C. | - TOP OF CONCRETE |
| COL | - COLUMN | B.O.C. | - BOTTOM OF CONCRETE |
| | | ELEV. | - ELEVATION |

B.L.L. - BOTTOM LOWER LAYER
B.U.L. - BOTTOM UPPER LAYER
M.L.L. - MID LOWER LAYER
M.U.L. - MID UPPER LAYER
T.L.L. - TOP LOWER LAYER
T.U.L. - TOP UPPER LAYER
E.R. - EACH ROW
EXT. - EXIST

PREFIX —
TRANS. NOS. 10.4

| PRINT RECORD | | | | |
|---|---|---|---|---|
| NO. | REVISION | DATE | TO | FOR | DATE |
| | | | TC | C | 23/OCT/18 |

CSSI

McNISH STEEL LTD.
10636 - 205 STREET
EDMONTON, ALBERTA
PHONE 447-3337 FAX 447-3379

PROJECT : SYNAGOLD (EAGLE GOLD PROJECT)
CONTR. : CLARK BROSSERS
DWG.OF : ORE PREP AREA (143000) TRANSFORMER FOUNDATIONS
ENGR. : HATCH
DRAWN BY : MRM DATE : 23/OCT/2018

# REINFORCING STEEL PLACING PLAN

JOB NO. 18-042 DWG. NO. 009 C

DWG. No. H354138-4300-231-260-0001

AREA: 4300 ORE PREPARATION (LIME AND CEMENT)
CONCRETE DETAILS DRAWING LIST

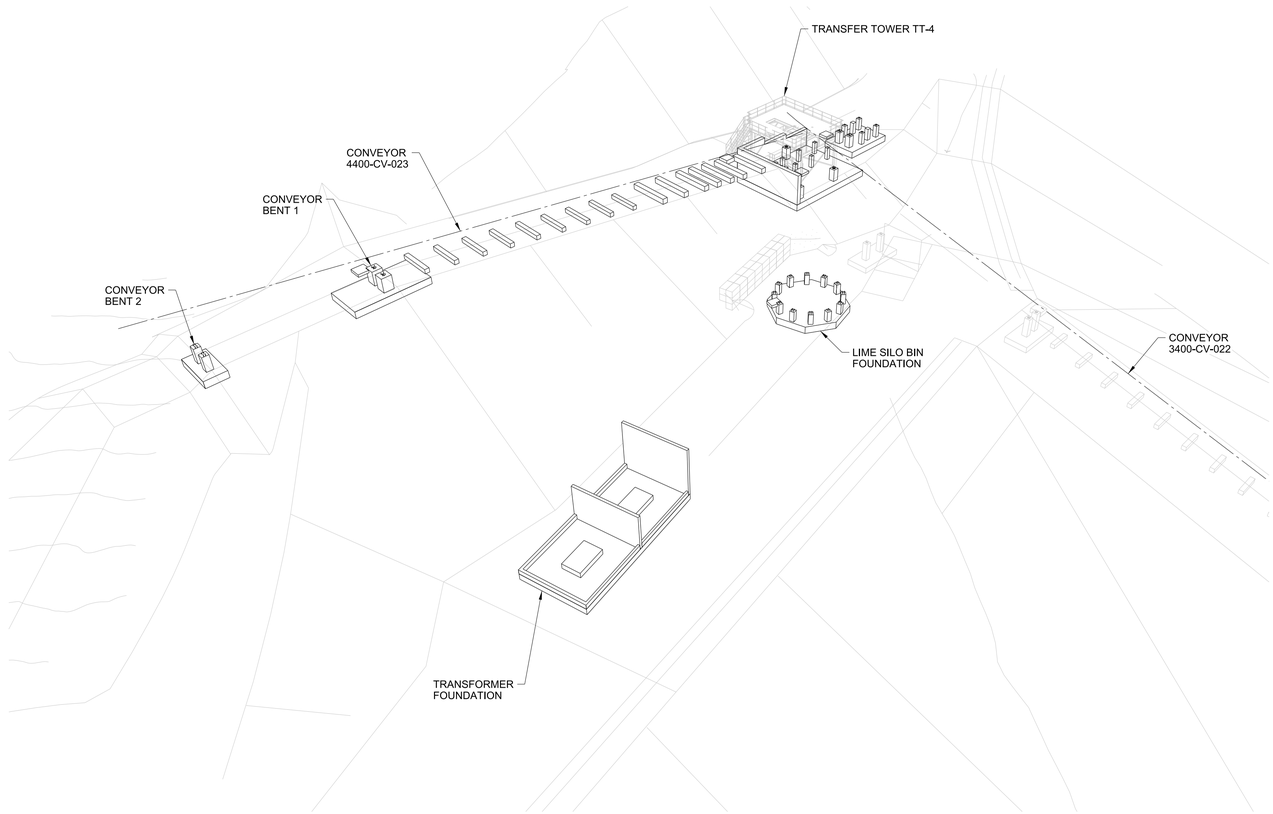
| DRAWING NUMBER | REV. | DRAWING TITLE | | |
|---|---|---|---|---|
| H354138-4300-231-260-0001 | 0 | ORE PREPARATION (LIME AND CEMENT) | CONCRETE SUPPORT STRUCTURES | TITLE SHEET, ISOMETRIC VIEW |
| H354138-4300-231-260-0002 | 0 | ORE PREPARATION (LIME AND CEMENT) | 4400-CV-023 CONVEYOR FOUNDATION | GENERAL ARRANGEMENT |
| H354138-4300-231-260-0003 | 0 | ORE PREPARATION (LIME AND CEMENT) | TRANSFER TOWER TT-4 | PLAN, SECTIONS AND DETAILS - SHEET 1 |
| H354138-4300-231-260-0004 | 0 | ORE PREPARATION (LIME AND CEMENT) | TRANSFER TOWER TT-4 | PLAN, SECTIONS AND DETAILS - SHEET 2 |
| H354138-4300-231-260-0005 | 0 | ORE PREPARATION (LIME AND CEMENT) | 4400-CV-023 COUNTER WEIGHT TOWER | PLAN, SECTIONS AND DETAILS |
| H354138-4300-231-260-0006 | 0 | ORE PREPARATION (LIME AND CEMENT) | 4400-CV-023 CONVEYOR BENT 1 AND 2 | PLAN, SECTIONS AND DETAILS |
| H354138-4300-231-260-0011 | 0 | ORE PREPARATION (LIME AND CEMENT) | TRANSFORMER FOUNDATION | PLAN, SECTIONS AND DETAILS |
| H354138-4300-231-260-0012 | 0 | ORE PREPARATION (LIME AND CEMENT) | LIME SILO BIN FOUNDATION | PLAN, SECTIONS AND DETAILS |

## FOUNDATION NOTES:

2.1 ALL CONCRETE FOUNDATION SUBGRADE SHALL BE EITHER ROCK OR 38 mm NFS STRUCTURAL BACKFILL DOWN TO 3 METERS BELOW THE FINISH GRADE COMPACTED TO 95% MODIFIED PROCTOR.
2.2 ALL BACKFILL AROUND AND ABOVE CONCRETE FOUNDATIONS, PEDESTALS AND PADS SHALL BE 38 mm MINUS NFS STRUCTURAL BACKFILL.
2.3 ALL FOUNDATION SUBGRADE SHALL BE INSPECTED AND APPROVED BY THE GEOTECHNICAL ENGINEER PRIOR TO PLACEMENT OF CONCRETE.
2.4 THE PREPARED FOOTING SUBGRADE SHALL BE PROTECTED FROM WATER INGRESS AND SOFTENING BY PROVIDING ADEQUATE DRAINAGE OR PLACING A LEAN CONCRETE MUD SLAB.

## GENERAL NOTES:

1.1 READ THESE DRAWINGS IN CONJUNCTION WITH ALL OTHER PERTINENT CONTRACT DOCUMENTS.
1.2 FOR CONCRETE TYPICAL DETAILS DRAWING SET AND GENERAL NOTES, SEE DRAWINGS 354138-0000-231-294-0001 TO -0007.
1.3 REFER TO MECHANICAL, PROCESS AND ELECTRICAL DRAWINGS FOR LOCATIONS AND DIMENSIONS OF OPENINGS, SLEEVES AND OTHER BUILDING COMPONENTS NOT SHOWN ON STRUCTURAL DRAWINGS, REPORT DISCREPENCIES TO THE OWNER OR HIS REPRESENTATIVE PRIOR TO PROCEEDING WITH THE WORK.
1.4 FOR GENERAL SITE LOCATION AND WORK POINT COORDINATES, SEE DRAWING H354138-2000-220-270-0002.
1.5 HIGH ENERGY COMPACTION EQUIPMENT SUCH AS LARGE ROLLERS MUST NOT BE USED FOR COMPACTING BACKFILL WITHIN 1 METER OF THE EDGE OF THE WALLS.
1.6 FOR GROUNDING LOOP SEE ELECTRICAL DRAWING H354138-3000-260-272-1000-0004. FOR GROUNDING INSTALLATION DETAILS SEE DRAWING SET H354138-0000-260-294-0001-0001, -0002. -0009 AND -0010.
1.7 FOR CAST-IN PLACE CONCRETE, SEE SPECIFICATION SECTION H354138-S032000.
1.8 FOR CONCRETE FORMWORK, SEE SPECIFICATION SECTION H354138-S031000.
1.9 FOR CONCRETE REINFORCEMENT, SEE SPECIFICATION SECTION H354138-S033000.
1.10 FOR GROUTING, SEE SPECIFICATION SECTION H354138-S036000.
1.11 CONSTRUCTION JOINTS NOT SHOWN ON THE DRAWINGS MUST BE APPROVED BY THE CONTRUCTION MANAGER.
1.12 IN CASE OF ANY DISCREPANCIES, INFORM THE CONSTRUCTION MANAGER BEFORE COMMENCING WORK.
1.13 ALL DIMENSIONS ARE IN MILLIMETERS AND ELEVATIONS ARE IN METERS.
1.14 PROVIDE 19mm X 19mm CHAMFER AT ALL EXPOSED CONCRETE CORNERS AND EDGES ABOVE GRADE LEVEL.
1.15 THE DRAWINGS SHOULD BE READ IN CONJUNCTION WITH THE PROJECT CIVIL DESIGN CRITERIA H654138-0000-220-210-0001.
1.16 FOR FURTHER GEOTECH INFORMATION, SEE "2011 GEOTECHNICAL INVESTIGATION FOR MINE SITE INFRASTRUCTURE FOUNDATION REPORT" BY BGC ENGINEERING DATED JAN 31, 2012.
1.17 SET ANCHOR RODS USING TEMPLATES WHICH MUST BE LEFT IN PLACE UNTIL THE CONCRETE HAS SET. ANCHOR RODS SHALL BE PLUMBED AND SECURED FROM MOVEMENT PRIOR TO CASTING CONCRETE.




## ISOMETRIC VIEW
NTS

THIS DRAWING WAS PREPARED FOR THE EXCLUSIVE USE OF STRATA GOLD ("CLIENT") AND IS ISSUED PURSUANT TO H54138 BETWEEN CLIENT AND HATCH LTD. ("HATCH"). UNLESS OTHERWISE AGREED IN WRITING WITH CLIENT OR SPECIFIED ON THIS DRAWING, (A) HATCH DOES NOT ACCEPT AND DISCLAIMS ANY AND ALL LIABILITY OR RESPONSIBILITY ARISING FROM ANY USE OF OR RELIANCE ON THIS DRAWING BY ANY THIRD PARTY OR ANY MODIFICATION OR MISUSE OF THIS DRAWING BY CLIENT, AND (B) THIS DRAWING IS CONFIDENTIAL AND ALL INTELLECTUAL PROPERTY RIGHTS EMBODIED OR REFERENCED IN THIS DRAWING REMAIN THE PROPERTY OF HATCH.

| No. | DESCRIPTION | BY | CHK'D | DATE |
|---|---|---|---|---|
| 0 | APPROVED FOR CONSTRUCTION | PJ | EA | 2018-09-25 |

| ROLE | NAME | SIGNATURE & DATE |
|---|---|---|
| DRAFTSPERSON | P. JIVAEV | NR 2018-09-12 |
| DESIGNER | F. LIU | NR 2018-09-12 |
| CHECKER | E. AKINCI | |
| DESIGN COORD. | S. PERKINS | |
| RESP. ENG. | E. AKINCI | |
| LEAD DISC. ENG. | E. AKINCI | |
| ENG. MANAGER | B. RUSTAD | |
| PROJ. MANAGER | B. RUSTAD | |

DRAWING APPROVAL STATUS: Approved for Construction

EAGLE GOLD PROJECT

ORE PREPARATION (LIME AND CEMENT)
CONCRETE SUPPORT STRUCTURES
TITLE SHEET, ISOMETRIC VIEW

SCALE NTS OR AS NOTED | DWG. No. H354138-4300-231-260-0001 | REV 0

SHEET SIZE: D

DRAWING No. | DRAWING TITLE

REFERENCE DRAWINGS | REG. PROFESSIONAL | REVISIONS

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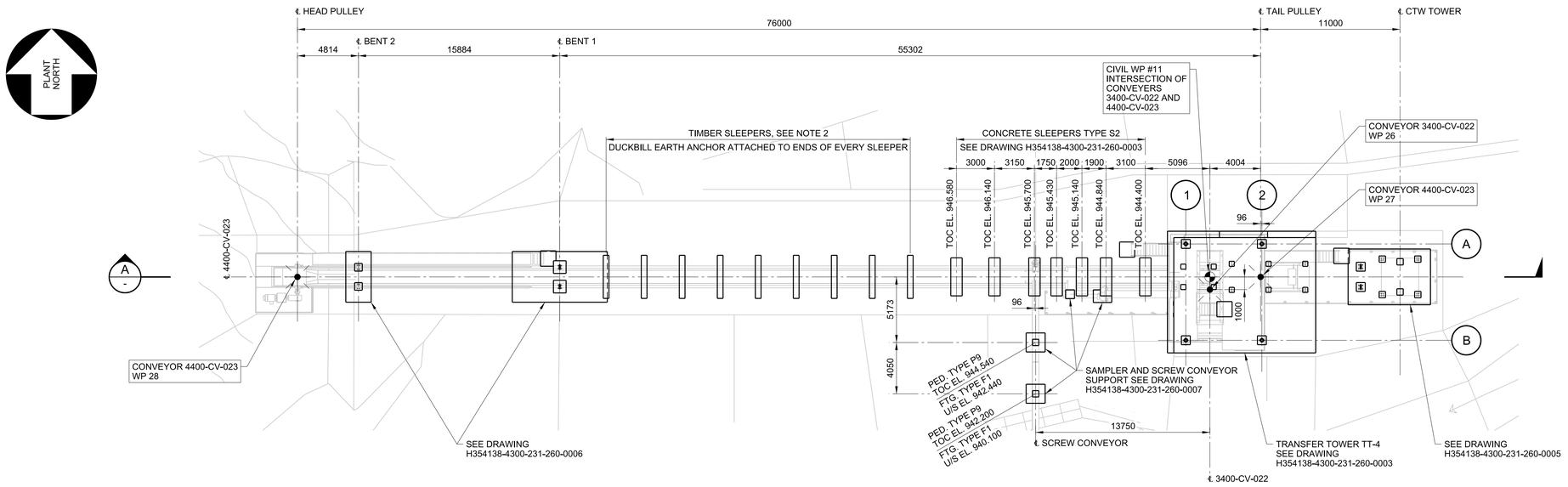
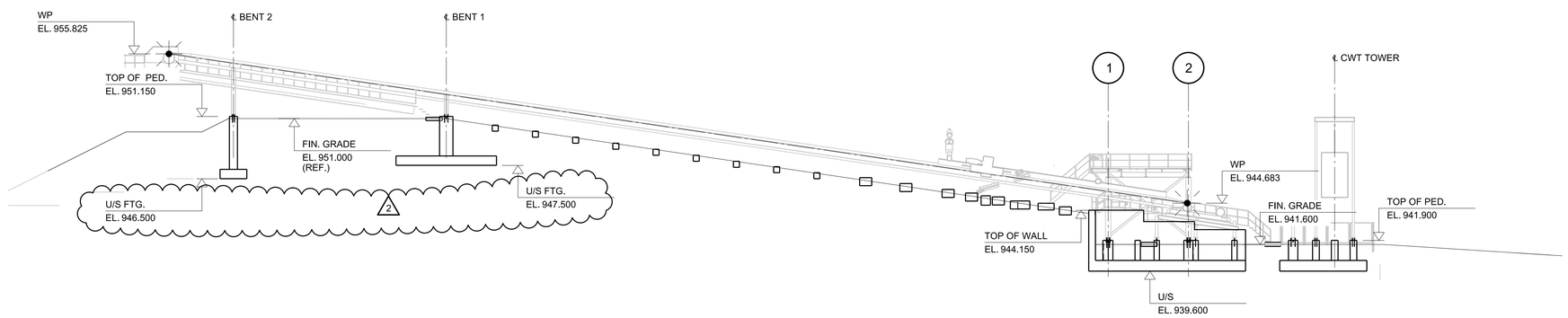
PRINTED: 25-SEP-2018 13:09
idc_pwservice

DWG. No. H354138-4300-231-260-0002




## 4400-CV-023 CONVEYOR FOUNDATION
## GENERAL ARRANGEMENT - PLAN




## SECTION A -

0 2 4 6 8 10
1:200 SCALE IN METRES

NOTES:

1. FOR NOTES SEE DRAWING H354138-4300-231-260-0001.
2. FOR TIMBER SLEEPERS AND SOIL ANCOR DETAIL SEE DRAWING H354138-2120-220-290-0004. FOR SLEEPER LOCATIONS SEE TEP DRAWING 17-0200-1200 AND 17-0200-1202.

THIS DRAWING WAS PREPARED FOR THE EXCLUSIVE USE OF STRATA GOLD ("CLIENT") AND IS ISSUED PURSUANT TO H354138 BETWEEN CLIENT AND HATCH LTD. ("HATCH"). UNLESS OTHERWISE AGREED IN WRITING WITH CLIENT OR SPECIFIED ON THIS DRAWING, (A) HATCH DOES NOT ACCEPT AND DISCLAIMS ANY AND ALL LIABILITY OR RESPONSIBILITY ARISING FROM ANY USE OF OR RELIANCE ON THIS DRAWING BY ANY THIRD PARTY OR ANY MODIFICATION OR MISUSE OF THIS DRAWING BY CLIENT, AND (B) THIS DRAWING IS CONFIDENTIAL AND ALL INTELLECTUAL PROPERTY RIGHTS EMBODIED OR REFERENCED IN THIS DRAWING REMAIN THE PROPERTY OF HATCH.

| No. | DESCRIPTION | BY | CHK'D | DATE |
|---|---|---|---|---|
| 2 | BENT 1 AND 2 REVISED TO SUIT SITE CONDITIONS | PJ | EA | 2018-11-14 |
| 1 | HOLD H0085 RELEASED, FOOTING TYPE F1 AND PED TYPE P9 ADDED. SLEEPERS TYPE S2 LOCATION ADDED | PJ | EA | 2018-10-25 |
| 0 | APPROVED FOR CONSTRUCTION | PJ | EA | 2018-09-25 |

| ROLE | NAME | SIGNATURE & DATE |
|---|---|---|
| DRAFTSPERSON | P. JIVAEV | NR 2018-09-12 |
| DESIGNER | H. LI | NR 2018-09-12 |
| CHECKER | E. AKINCI | |
| DESIGN COORD. | S. PERKINS | |
| RESP. ENG. | E. AKINCI | |
| LEAD DISC. ENG. | E. AKINCI | |
| ENG. MANAGER | B. RUSTAD | |
| PROJ. MANAGER | B. RUSTAD | |

DRAWING APPROVAL STATUS: Approved for Construction

DRAWING No. | DRAWING TITLE

REFERENCE DRAWINGS

REG. PROFESSIONAL

REVISIONS

HATCH

StrataGold Corporation

EAGLE GOLD PROJECT

ORE PREPARATION (LIME AND CEMENT)
4400-CV-023 CONVEYOR FOUNDATION
GENERAL ARRANGEMENT

SCALE 1:200 OR AS NOTED

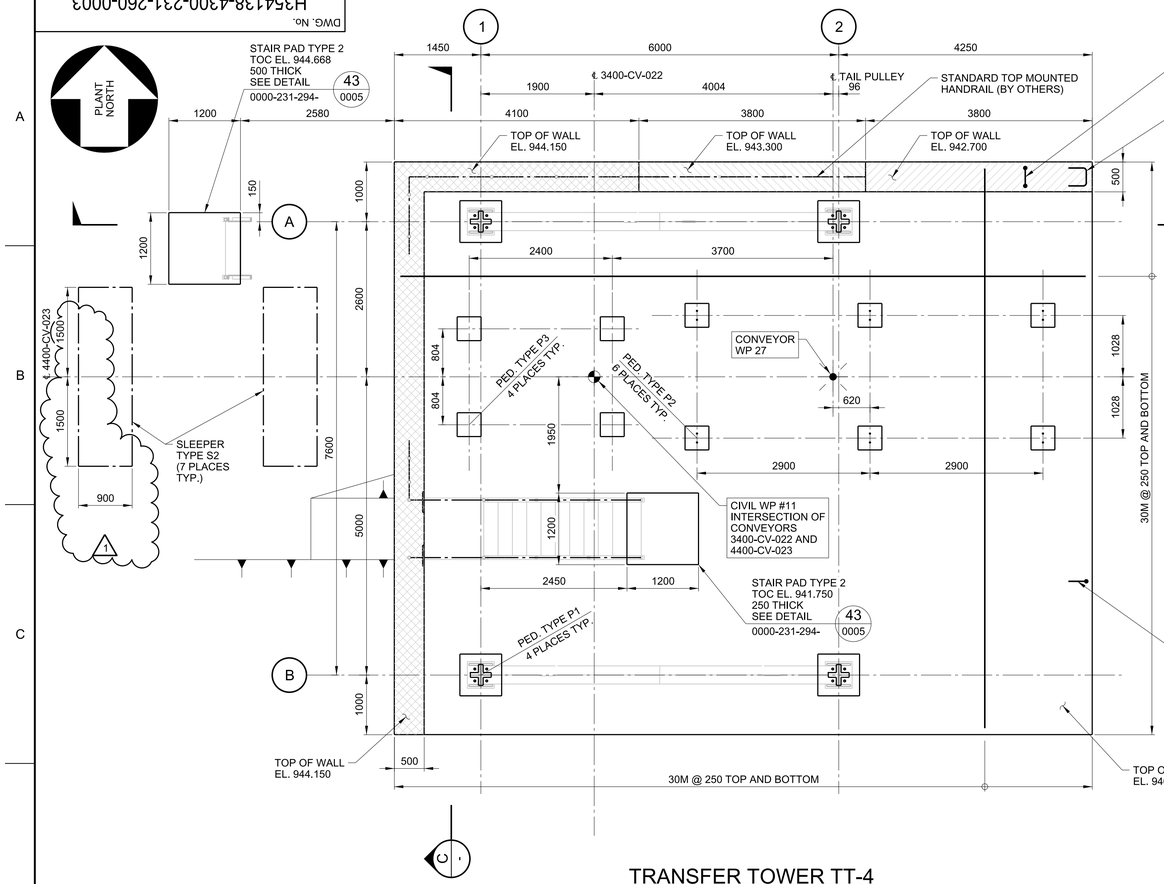
DWG. No. H354138-4300-231-260-0002

REV 2

SHEET SIZE: D

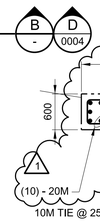
$FILE$
PRINTED: 14-NOV-2018
idc_pwservice
12:04

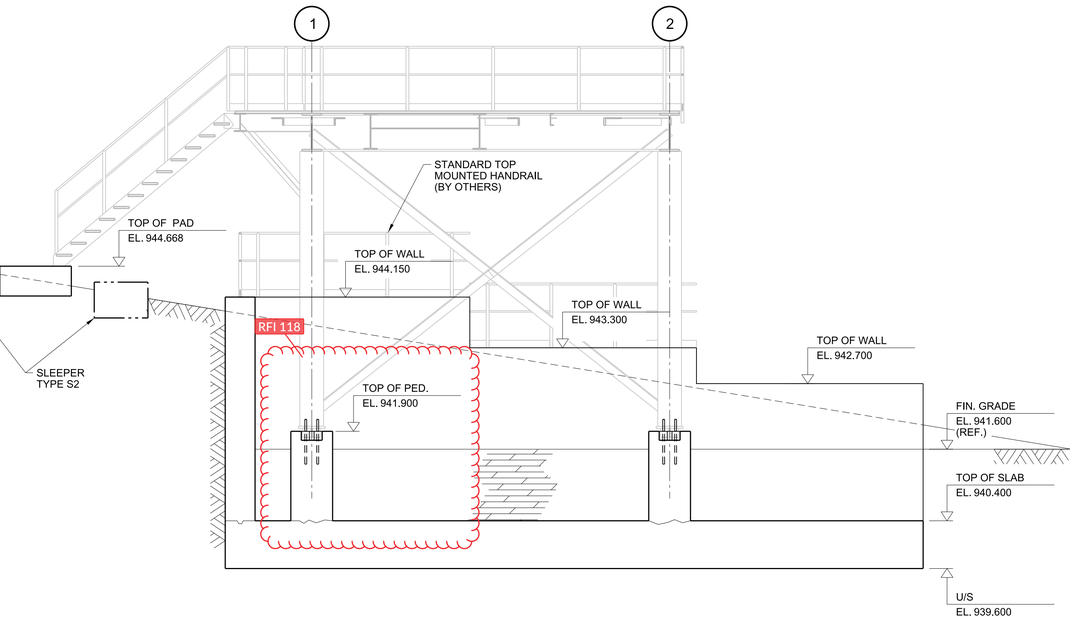
DWG. No. H354138-4300-231-260-0003




## TRANSFER TOWER TT-4
## FOUNDATION - PLAN

TOP OF PED. EL. 941.900 (TYP.)
U/S CONCRETE SLAB EL. 939.600

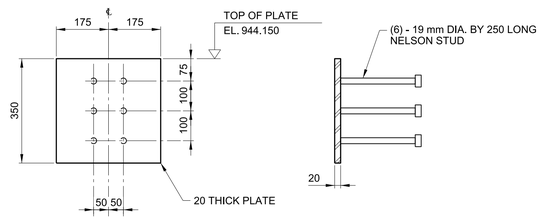



## SECTION B -




## SECTION C -




## EMBEDDED PLATE TYPE EP-1
## DETAIL 1 -

SCALE: 1:10

0 500 1000 1500 2000 2500
1:50 SCALE IN MILLIMETRES

NOTES:

1. FOR NOTES SEE DRAWING H354138-4300-231-260-0001.

THIS DRAWING WAS PREPARED FOR THE EXCLUSIVE USE OF STRATA GOLD ("CLIENT") AND IS ISSUED PURSUANT TO H354138 BETWEEN CLIENT AND HATCH LTD, ("HATCH"). UNLESS OTHERWISE AGREED IN WRITING WITH CLIENT OR SPECIFIED ON THIS DRAWING, (A) HATCH DOES NOT ACCEPT AND DISCLAIMS ANY AND ALL LIABILITY OR RESPONSIBILITY ARISING FROM ANY USE OF OR RELIANCE ON THIS DRAWING BY ANY THIRD PARTY OR ANY MODIFICATION OR MISUSE OF THIS DRAWING BY CLIENT, AND (B) THIS DRAWING IS CONFIDENTIAL AND ALL INTELLECTUAL PROPERTY RIGHTS EMBODIED OR REFERENCED IN THIS DRAWING REMAIN THE PROPERTY OF HATCH.

| No. | DESCRIPTION | BY | CHK'D | DATE |
|---|---|---|---|---|
| 1 | SLEPERS TYPE S2 REVISED | PJ | EA | 2018-10-25 |
| 0 | APPROVED FOR CONSTRUCTION | PJ | EA | 2018-09-21 |

REVISIONS

| ROLE | NAME | SIGNATURE & DATE |
|---|---|---|
| DRAFTSPERSON | P. JIVAEV | NR 2018-09-12 |
| DESIGNER | H. LI | NR 2018-09-12 |
| CHECKER | E. AKINCI | |
| DESIGN COORD. | S. PERKINS | |
| RESP. ENG. | E. AKINCI | |
| LEAD DISC. ENG. | E. AKINCI | |
| ENG. MANAGER | B. RUSTAD | |
| PROJ. MANAGER | B. RUSTAD | |

DRAWING APPROVAL STATUS: Approved for Construction

HATCH

StrataGold Corporation

EAGLE GOLD PROJECT

ORE PREPARATION (LIME AND CEMENT)
TRANSFER TOWER TT-4 FOUNDATION
PLAN, SECTION AND DETAILS - SHEET 1

| SCALE | DWG. No. | REV |
|---|---|---|
| 1:50 OR AS NOTED | H354138-4300-231-260-0003 | 1 |

SHEET SIZE: D

DRAWING No. | DRAWING TITLE

REFERENCE DRAWINGS

REG. PROFESSIONAL

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PRINTED: 25-OCT-2018
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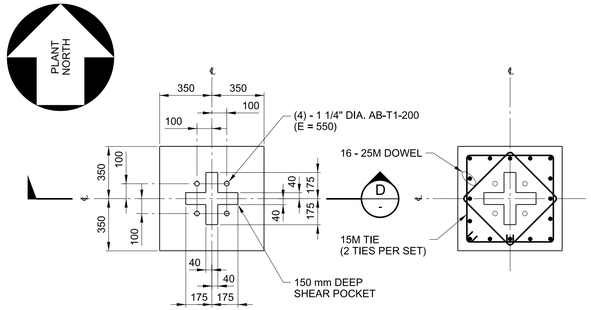
15:20

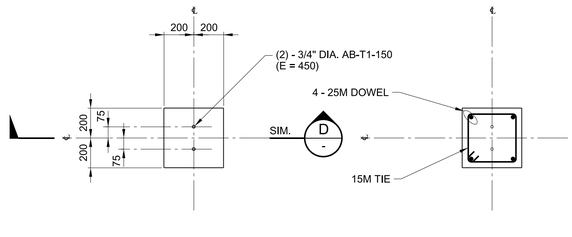
DWG. No. H354138-4300-231-260-0004




ANCHOR SETTING REINFORCEMENT

## PEDESTAL TYPE P1

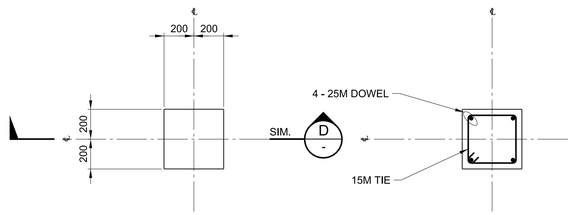
SCALE: 1:20




ANCHOR SETTING REINFORCEMENT

## PEDESTAL TYPE P2

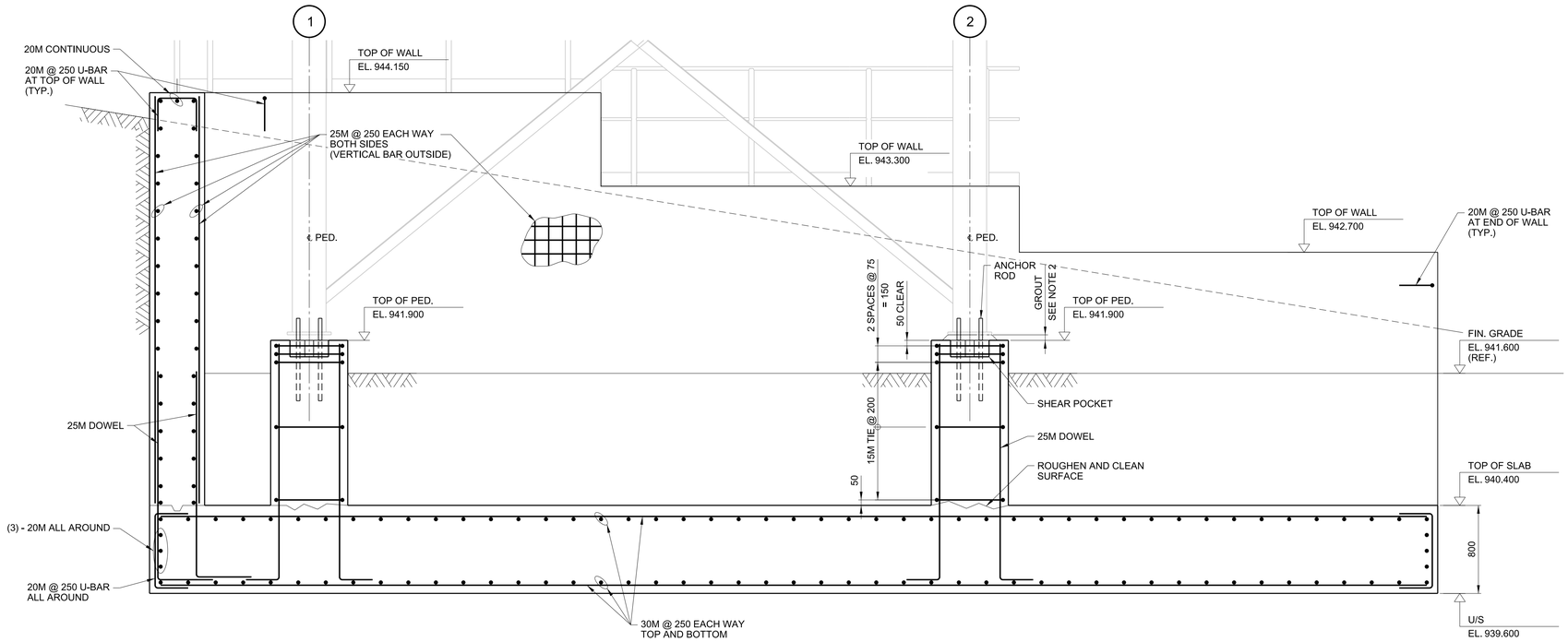
SCALE: 1:20




ANCHOR SETTING REINFORCEMENT

## PEDESTAL TYPE P3

SCALE: 1:20




REINFORCEMENT

## SECTION D - D 0003

SCALE: 1:25

NOTES:

1. FOR NOTES SEE DRAWING H354138-4300-231-260-0001.
2. 50 mm GROUT FOR PED. TYPE P1
   25 mm GROUT FOR PED. TYPE P2
   NO GROUT FOR PED. TYPE P3

0 250 500 750 1000 1250
1:25 SCALE IN MILLIMETRES

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| No. | DESCRIPTION | BY | CHK'D | DATE |
|---|---|---|---|---|
| 0 | APPROVED FOR CONSTRUCTION | PJ | EA | 2018-09-21 |

| ROLE | NAME | SIGNATURE & DATE |
|---|---|---|
| DRAFTSPERSON | P. JIVAEV | NR 2018-09-13 |
| DESIGNER | H. LI | NR 2018-09-13 |
| CHECKER | E. AKINCI | |
| DESIGN COORD. | S. PERKINS | |
| RESP. ENG. | E. AKINCI | |
| LEAD DISC. ENG. | E. AKINCI | |
| ENG. MANAGER | B. RUSTAD | |
| PROJ. MANAGER | B. RUSTAD | |

DRAWING APPROVAL STATUS: Approved for Construction

HATCH

StrataGold Corporation

EAGLE GOLD PROJECT

ORE PREPARATION (LIME AND CEMENT) TRANSFER TOWER TT-4 FOUNDATION PLAN, SECTION AND DETAILS - SHEET 2

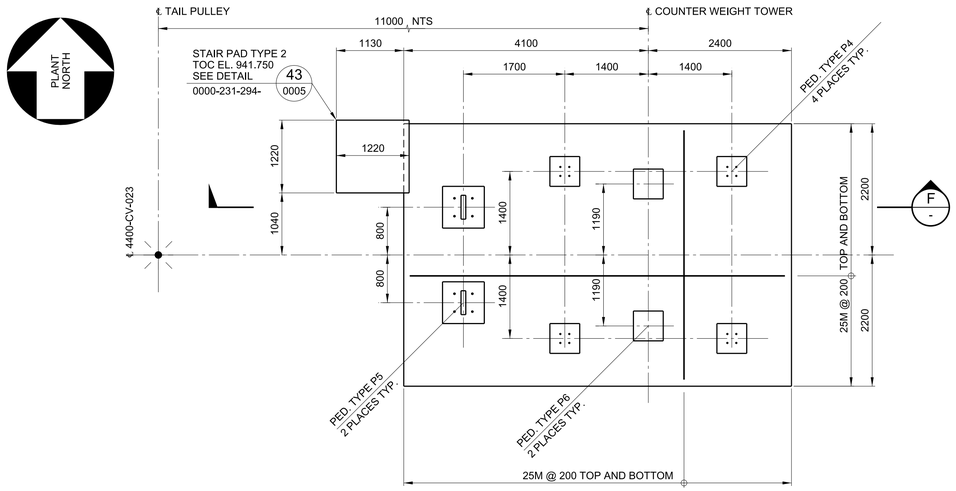
| DRAWING No. | DRAWING TITLE |
|---|---|
| REFERENCE DRAWINGS | REG. PROFESSIONAL |

SCALE 1:25 OR AS NOTED | DWG. No. H354138-4300-231-260-0004 | REV 0

SHEET SIZE: D

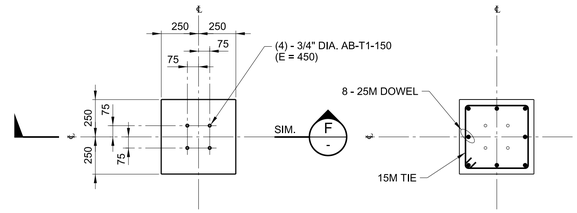
$FILE$
PRINTED: 21-SEP-2018
14:22
idc_pwservice

DWG. No. H354138-4300-231-260-0005




## 4400-CV-023 COUNTER WEIGHT TOWER FOUNDATION - PLAN

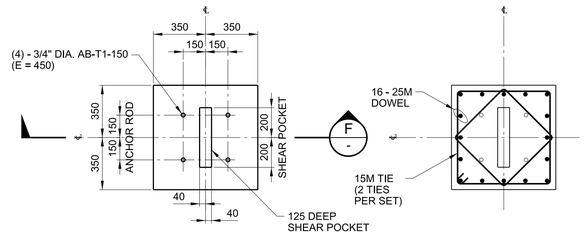
TOP OF PED. EL. 941.900 (TYP.)
U/S CONCRETE SLAB EL. 939.600




ANCHOR SETTING REINFORCEMENT

## PEDESTAL TYPE P4

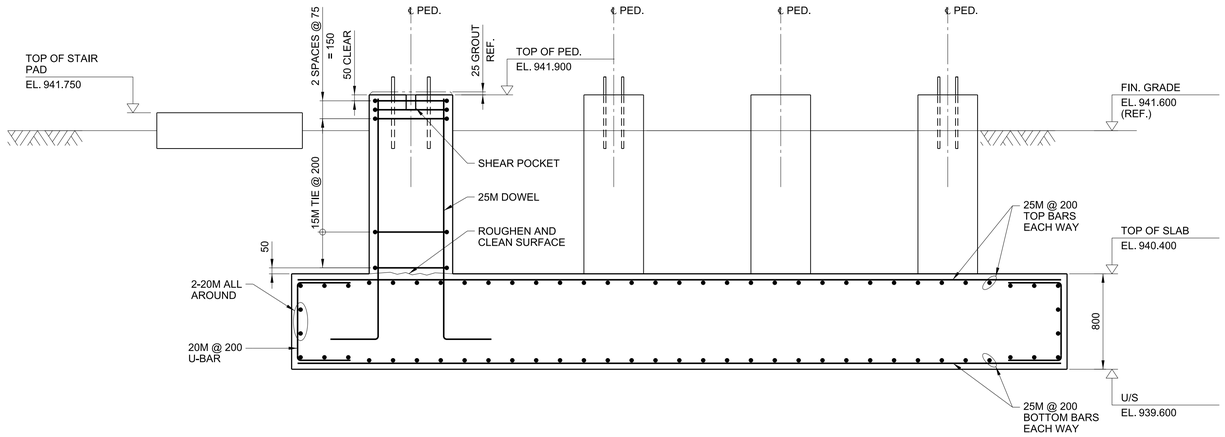
SCALE: 1:20




ANCHOR SETTING REINFORCEMENT

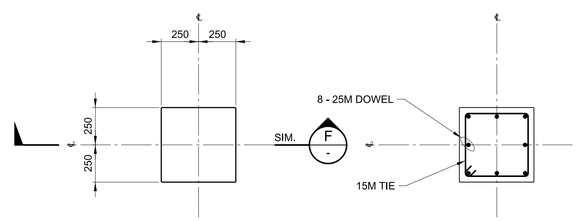
## PEDESTAL TYPE P5

SCALE: 1:20




## SECTION F

SCALE: 1:25




ANCHOR SETTING REINFORCEMENT

## PEDESTAL TYPE P6

SCALE: 1:20

NOTES:

1. FOR NOTES SEE DRAWING H354138-4300-231-260-0001.

0 500 1000 1500 2000 2500
1:50 SCALE IN MILLIMETRES

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| No. | DESCRIPTION | BY | CHK'D | DATE |
|---|---|---|---|---|
| 0 | APPROVED FOR CONSTRUCTION | EM | EA | 2018-09-24 |

| ROLE | NAME | SIGNATURE & DATE |
|---|---|---|
| DRAFTSPERSON | P. JIVAEV | NR 2018-09-17 |
| DESIGNER | H. LI | NR 2018-09-17 |
| CHECKER | E. AKINCI | |
| DESIGN COORD. | S. PERKINS | |
| RESP. ENG. | E. AKINCI | |
| LEAD DISC. ENG. | E. AKINCI | |
| ENG. MANAGER | B. RUSTAD | |
| PROJ. MANAGER | B. RUSTAD | |

DRAWING APPROVAL STATUS: Approved for Construction

HATCH

StrataGold Corporation

EAGLE GOLD PROJECT

ORE PREPARATION (LIME AND CEMENT)
4400-CV-023 COUNTER WEIGHT TOWER
PLAN, SECTIONS AND DETAILS

| SCALE | DWG. No. | REV |
|---|---|---|
| 1:50 OR AS NOTED | H354138-4300-231-260-0005 | 0 |

SHEET SIZE: D

| DRAWING No. | DRAWING TITLE |
|---|---|
| REFERENCE DRAWINGS | |

REG. PROFESSIONAL

REVISIONS

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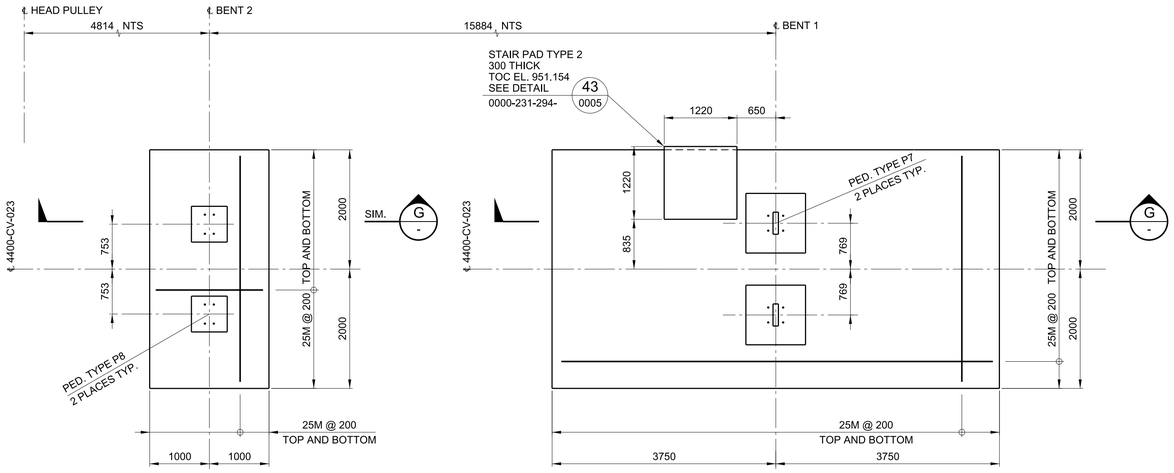
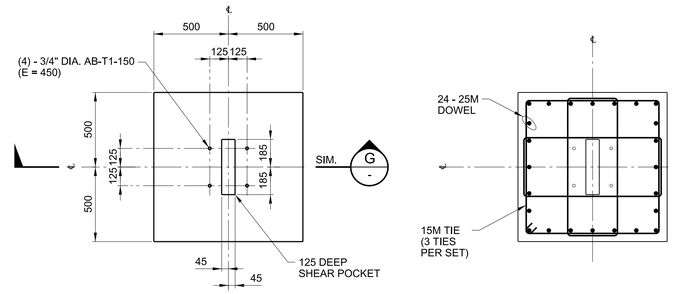



## 4400-CV-023 CONVEYOR BENT 2 FOUNDATION - PLAN

TOP OF PED. EL. 951.150 (TYP.)
U/S CONCRETE SLAB EL. 946.500

## 4400-CV-023 CONVEYOR BENT 1 FOUNDATION - PLAN

TOP OF PED. EL. 951.150 (TYP.)
U/S CONCRETE FTG. EL. 947.500

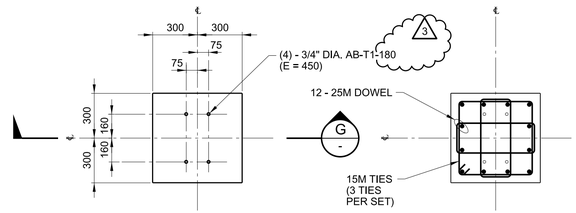



ANCHOR SETTING

REINFORCEMENT

## PEDESTAL TYPE P7

SCALE: 1:20

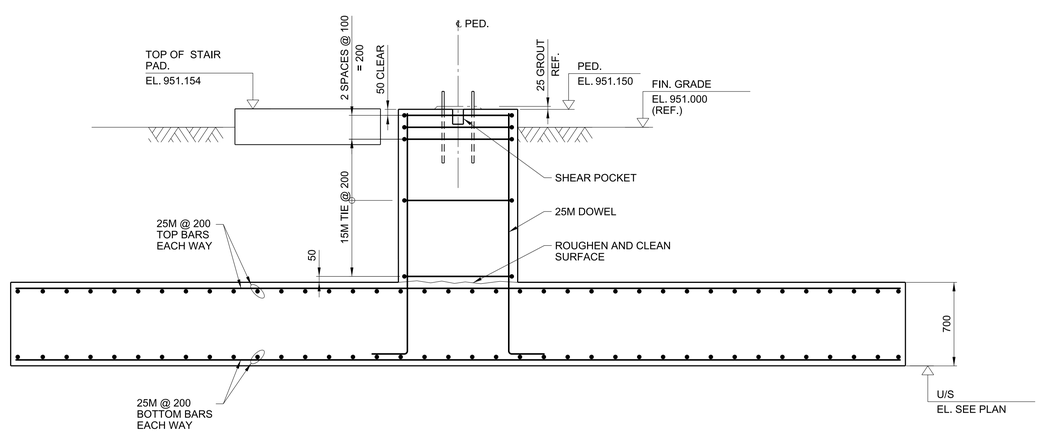



ANCHOR SETTING

REINFORCEMENT

## PEDESTAL TYPE P8

SCALE: 1:20




## SECTION G

SCALE: 1:25

NOTES:

1. FOR NOTES SEE DRAWING H354138-4300-231-260-0001.

1:50 0 500 1000 1500 2000 2500 SCALE IN MILLIMETRES

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| No. | DESCRIPTION | BY | CHK'D | DATE |
|---|---|---|---|---|
| 3 | PEDESTAL TYPE P8 ANCHOR ROD PROJECTION REVISED | PJ | EA | 2018-11-26 |
| 2 | HOLD H0086 RELEASED | PJ | EA | 2018-11-15 |
| 1 | BENT 1 AND 2 REVISED TO SUIT SITE CONDITIONS | PJ | EA | 2018-11-14 |
| 0 | APPROVED FOR CONSTRUCTION | EM | EA | 2018-09-24 |

| ROLE | NAME | SIGNATURE & DATE |
|---|---|---|
| DRAFTSPERSON | P. JIVAEV | NR 2018-09-19 |
| DESIGNER | H. LI | NR 2018-09-19 |
| CHECKER | E. AKINCI | |
| DESIGN COORD. | S. PERKINS | |
| RESP. ENG. | E. AKINCI | |
| LEAD DISC. ENG. | E. AKINCI | |
| ENG. MANAGER | B. RUSTAD | |
| PROJ. MANAGER | B. RUSTAD | |

DRAWING APPROVAL STATUS: Approved for Construction

DRAWING No. | DRAWING TITLE

REFERENCE DRAWINGS

REG. PROFESSIONAL

REVISIONS

HATCH

StrataGold Corporation

EAGLE GOLD PROJECT

ORE PREPARATION (LIME AND CEMENT)
4400-CV-023 CONVEYOR BENT 1 AND 2
PLAN, SECTIONS AND DETAILS

SCALE 1:50 OR AS NOTED

DWG. No. H354138-4300-231-260-0006

REV 3

SHEET SIZE: D

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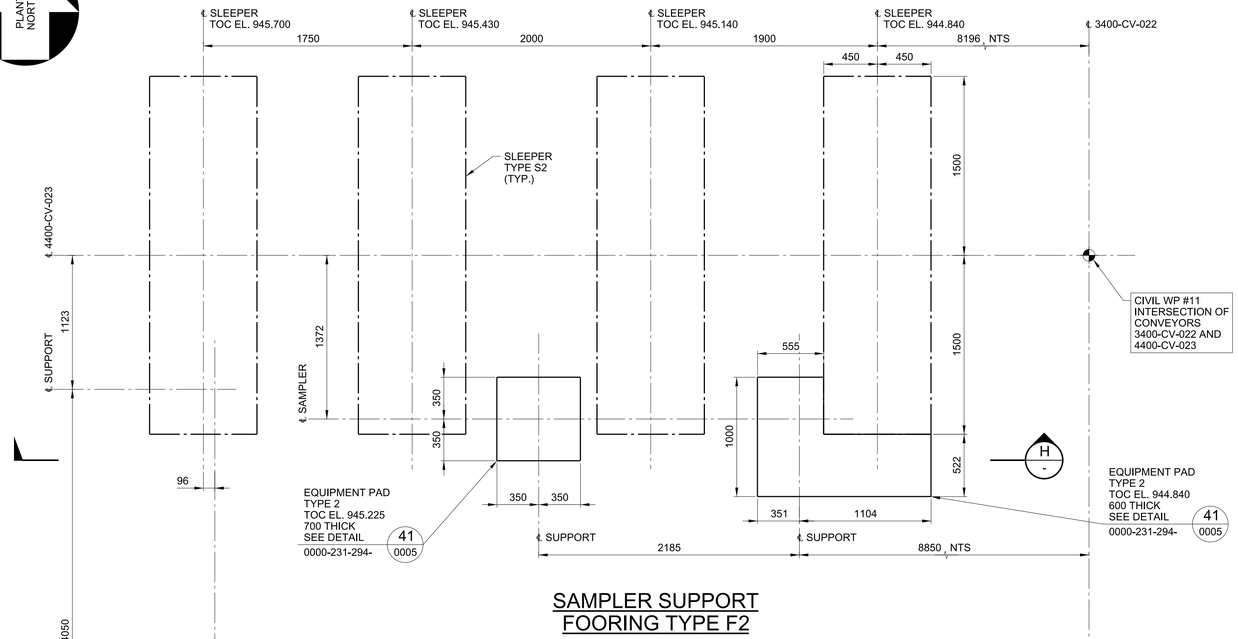
PRINTED: 26-NOV-2018
idc_pwservice
16:57

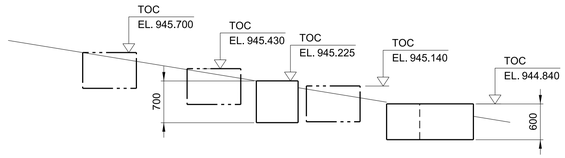
DWG. No. H354138-4300-231-260-0007

PLANT NORTH

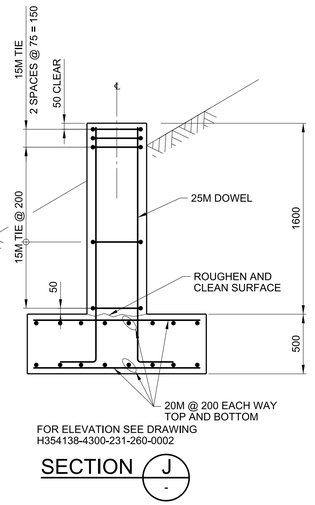



## SAMPLER SUPPORT FOORING TYPE F2

## SCREW CONVEYOR SUPPORT FOORING TYPE F1

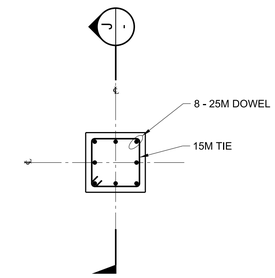



## SECTION H
SCALE: 1:50




FOR ELEVATION SEE DRAWING H354138-4300-231-260-0002

## SECTION J
-




REINFORCEMENT

## PEDESTAL TYPE P9
SCALE: 1:25

NOTES:

1. FOR NOTES SEE DRAWING H354138-4300-231-260-0001.

0 250 500 750 1000 1250
1:25 SCALE IN MILLIMETRES

THIS DRAWING WAS PREPARED FOR THE EXCLUSIVE USE OF STRATA GOLD ("CLIENT") AND IS ISSUED PURSUANT TO H354138 BETWEEN CLIENT AND HATCH LTD, ("HATCH"). UNLESS OTHERWISE AGREED IN WRITING WITH CLIENT OR SPECIFIED ON THIS DRAWING, (A) HATCH DOES NOT ACCEPT AND DISCLAIMS ANY AND ALL LIABILITY OR RESPONSIBILITY ARISING FROM ANY USE OF OR RELIANCE ON THIS DRAWING BY ANY THIRD PARTY OR ANY MODIFICATION OR MISUSE OF THIS DRAWING BY CLIENT, AND (B) THIS DRAWING IS CONFIDENTIAL AND ALL INTELLECTUAL PROPERTY RIGHTS EMBODIED OR REFERENCED IN THIS DRAWING REMAIN THE PROPERTY OF HATCH.

| No. | DESCRIPTION | BY | CHK'D | DATE |
|---|---|---|---|---|
| 0 | APPROVED FOR CONSTRUCTION | PJ | EA | 2018-10-25 |

| ROLE | NAME | SIGNATURE & DATE |
|---|---|---|
| DRAFTSPERSON | P. JIVAEV | NR 2018-10-24 |
| DESIGNER | H. LI | NR 2018-10-24 |
| CHECKER | E. AKINCI | |
| DESIGN COORD. | S. PERKINS | |
| RESP. ENG. | E. AKINCI | |
| LEAD DISC. ENG. | E. AKINCI | |
| ENG. MANAGER | B. RUSTAD | |
| PROJ. MANAGER | B. RUSTAD | |

DRAWING APPROVAL STATUS: Approved for Construction

HATCH

StrataGold Corporation

EAGLE GOLD PROJECT

ORE PREPARATION (LIME AND CEMENT) SAMPLER SCREW CONVEYOR SUPPORT PLAN, SECTION AND DETAILS

SCALE 1:25 OR AS NOTED

DWG. No. H354138-4300-231-260-0007

REV 0

SHEET SIZE: D

DRAWING No. | DRAWING TITLE

REFERENCE DRAWINGS

REG. PROFESSIONAL

REVISIONS

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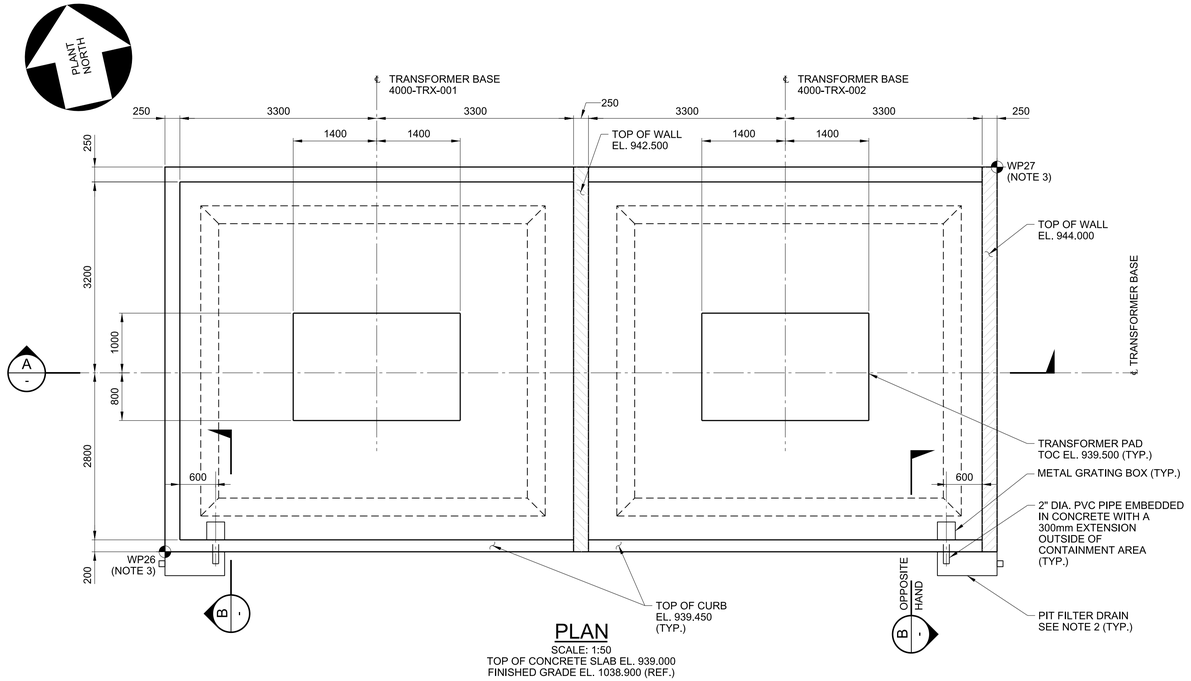
PRINTED: 25-OCT-2018
idc_pwservice

15:20

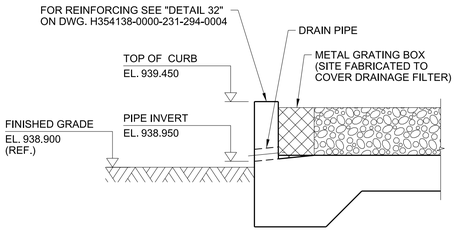
DWG. No. H354138-4300-231-260-0011

PLANT NORTH




## PLAN

SCALE: 1:50
TOP OF CONCRETE SLAB EL. 939.000
FINISHED GRADE EL. 1038.900 (REF.)

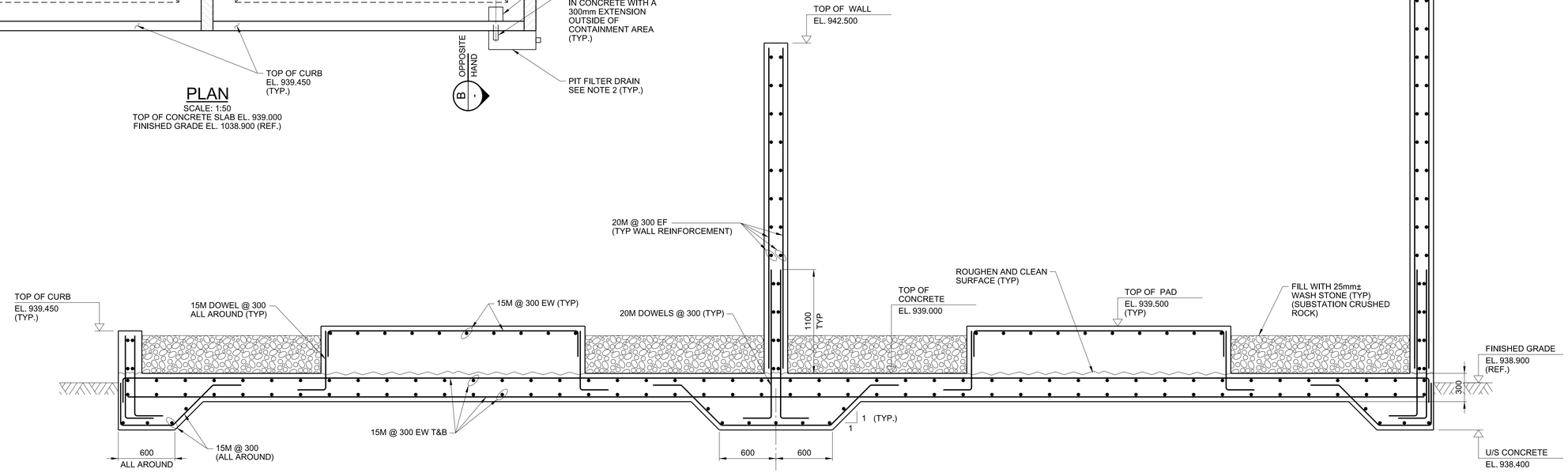



## SECTION B

SCALE: 1:25

### NOTES:

1. FOR NOTES SEE DRAWING H354138-430-231-260-0001.
2. SEE VENDOR STANDARD INSTALLATION DETAILS FOR Q-MAX HF DRAINAGE FILTER.
3. FOR LOCATION SEE CIVIL DWG. H354138-2000-220-270-0002.
4. FOR TRANSFORMER LAYOUT REFER TO DWG. H354138-PE004-260-270-0001 & 0002.




## SECTION A

SCALE: 1:25

0 250 500 750 1000 1250
1:25 SCALE IN MILLIMETRES

0 500 1000 1500 2000 2500
1:50 SCALE IN MILLIMETRES

THIS DRAWING WAS PREPARED FOR THE EXCLUSIVE USE OF STRATA GOLD ("CLIENT") AND IS ISSUED PURSUANT TO H354138 BETWEEN CLIENT AND HATCH LTD. ("HATCH"). UNLESS OTHERWISE AGREED IN WRITING WITH CLIENT OR SPECIFIED ON THIS DRAWING, (A) HATCH DOES NOT ACCEPT AND DISCLAIMS ANY AND ALL LIABILITY OR RESPONSIBILITY ARISING FROM ANY USE OF OR RELIANCE ON THIS DRAWING BY ANY THIRD PARTY OR ANY MODIFICATION OR MISUSE OF THIS DRAWING BY CLIENT, AND (B) THIS DRAWING IS CONFIDENTIAL AND ALL INTELLECTUAL PROPERTY RIGHTS EMBODIED OR REFERENCED IN THIS DRAWING REMAIN THE PROPERTY OF HATCH.

| No. | DESCRIPTION | BY | CHK'D | DATE |
|---|---|---|---|---|
| 0 | APPROVED FOR CONSTRUCTION | PJ | EA | 2018-09-13 |

| ROLE | NAME | SIGNATURE & DATE |
|---|---|---|
| DRAFTSPERSON | R. SAGARBARRIA | NR 2018-09-12 |
| DESIGNER | F. LIU | NR 2018-09-12 |
| CHECKER | E. AKINCI | |
| DESIGN COORD. | S. PERKINS | |
| RESP. ENG. | E. AKINCI | |
| LEAD DISC. ENG. | E. AKINCI | |
| ENG. MANAGER | B. RUSTAD | |
| PROJ. MANAGER | B. RUSTAD | |

DRAWING APPROVAL STATUS: Approved for Construction

HATCH

StrataGold Corporation

EAGLE GOLD PROJECT

ORE PREPARATION (LIME AND CEMENT)
TRANSFORMER FOUNDATION
PLAN, SECTIONS AND DETAILS

| DRAWING No. | DRAWING TITLE | REFERENCE DRAWINGS | REG. PROFESSIONAL |
|---|---|---|---|
| | | | |

SCALE AS NOTED OR AS NOTED

DWG. No. H354138-4300-231-260-0011

REV 0

SHEET SIZE: D

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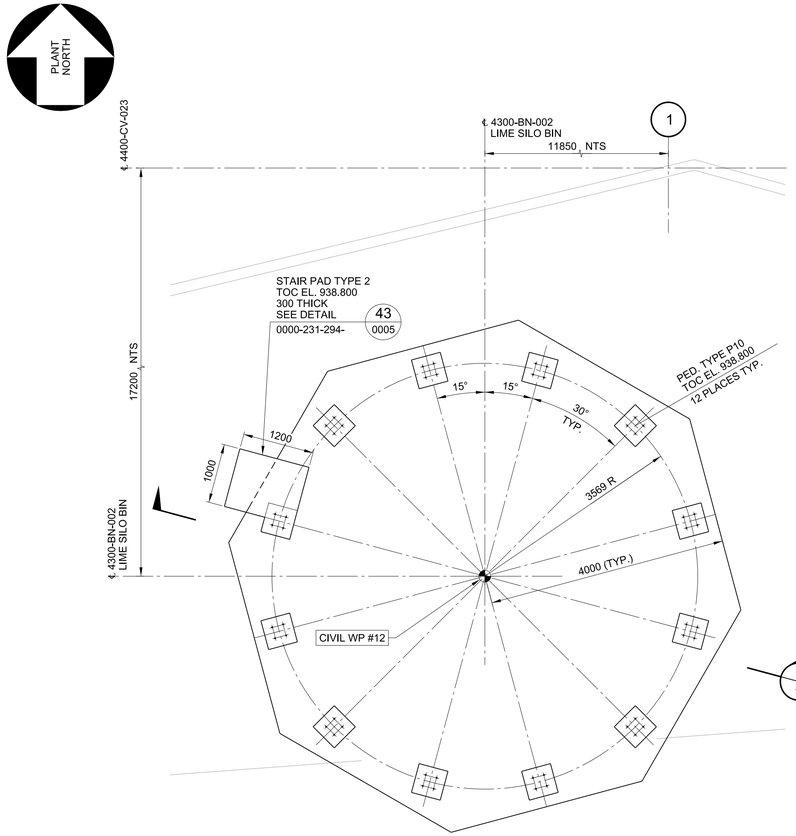
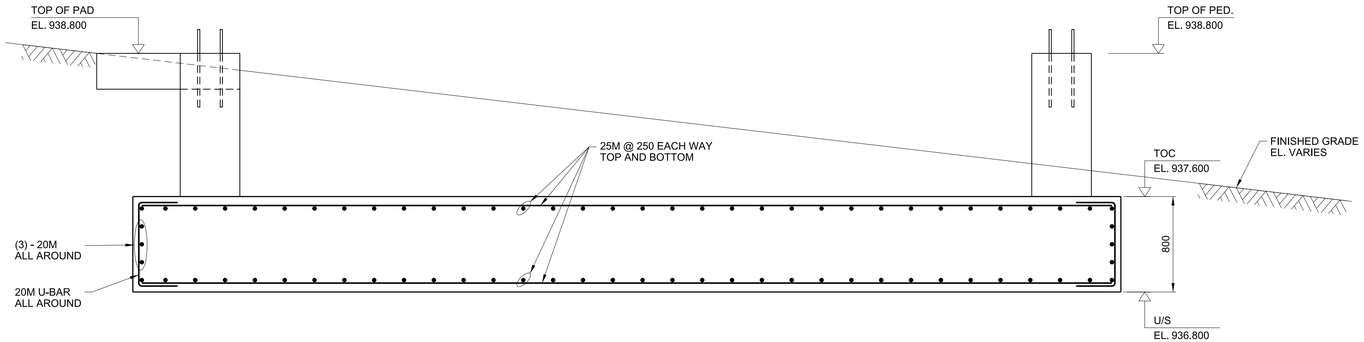
PRINTED: 13-SEP-2018
idc_pwservice
16:39

DWG. No. H354138-4300-231-260-0012

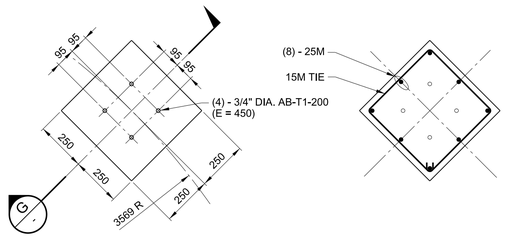



## 4300-BN-002 200 TONNE LIME SILO BIN FOUNDATION - PLAN

TOC SLAB EL. 937.600
U/S EL. 936.800

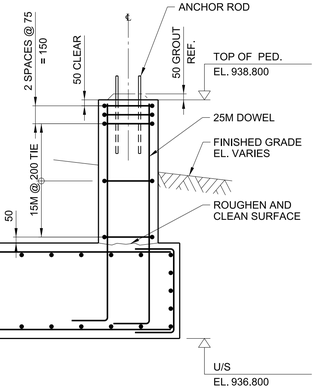



## SECTION F
SCALE: 1:25




ANCHOR ROD REINFORCEMENT

## PEDESTAL TYPE P10
SCALE: 1:15




## SECTION G
SCALE: 1:25

NOTES:

1. FOR NOTES SEE DRAWING H354138-4300-231-260-0001.

0 500 1000 1500 2000 2500
1:50 SCALE IN MILLIMETRES

THIS DRAWING WAS PREPARED FOR THE EXCLUSIVE USE OF STRATA GOLD ("CLIENT") AND IS ISSUED PURSUANT TO H354138 BETWEEN CLIENT AND HATCH LTD. ("HATCH"). UNLESS OTHERWISE AGREED IN WRITING WITH CLIENT OR SPECIFIED ON THIS DRAWING, (A) HATCH DOES NOT ACCEPT AND DISCLAIMS ANY AND ALL LIABILITY OR RESPONSIBILITY ARISING FROM ANY USE OF OR RELIANCE ON THIS DRAWING BY ANY THIRD PARTY OR ANY MODIFICATION OR MISUSE OF THIS DRAWING BY CLIENT, AND (B) THIS DRAWING IS CONFIDENTIAL AND ALL INTELLECTUAL PROPERTY RIGHTS EMBODIED OR REFERENCED IN THIS DRAWING REMAIN THE PROPERTY OF HATCH.

| No. | DESCRIPTION | BY | CHK'D | DATE |
|---|---|---|---|---|
| 0 | APPROVED FOR CONSTRUCTION | PJ | EA | 2018-09-17 |

| ROLE | NAME | SIGNATURE & DATE |
|---|---|---|
| DRAFTSPERSON | P. JIVAEV | NR 2018-09-14 |
| DESIGNER | H. LI | NR 2018-09-14 |
| CHECKER | E. AKINCI | |
| DESIGN COORD. | S. PERKINS | |
| RESP. ENG. | E. AKINCI | |
| LEAD DISC. ENG. | E. AKINCI | |
| ENG. MANAGER | B. RUSTAD | |
| PROJ. MANAGER | B. RUSTAD | |

DRAWING APPROVAL STATUS: Approved for Construction

HATCH

StrataGold Corporation

EAGLE GOLD PROJECT

ORE PREPARATION (LIME AND CEMENT)
LIME SILO BIN FOUNDATION
PLAN, SECTIONS AND DETAILS

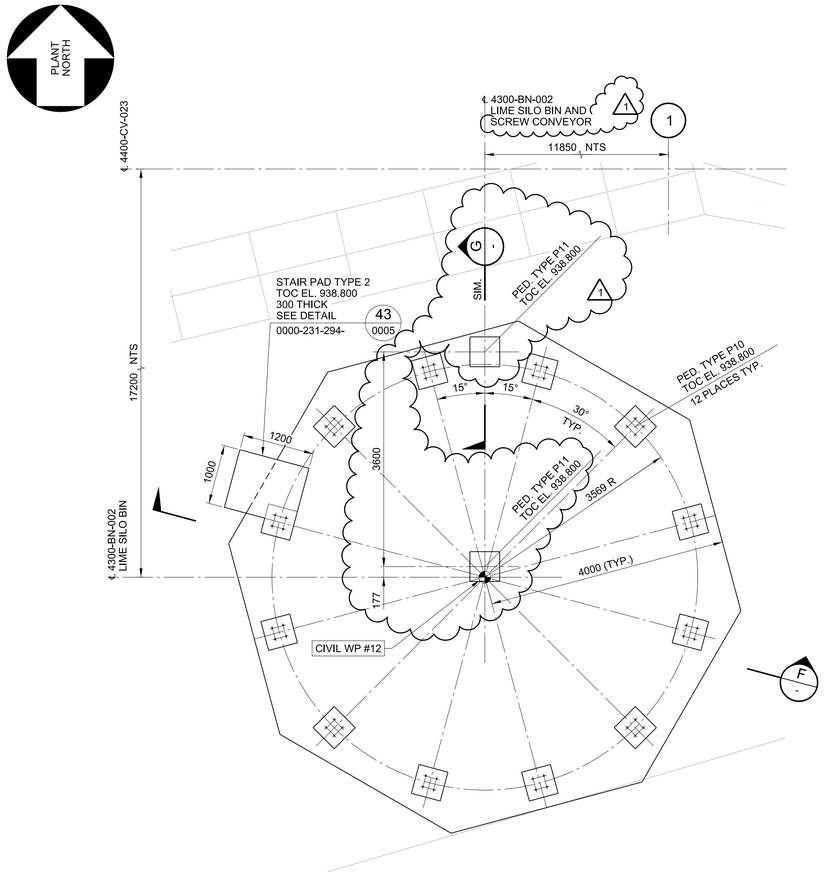
| DRAWING No. | DRAWING TITLE |
|---|---|
| REFERENCE DRAWINGS | REG. PROFESSIONAL |

SCALE 1:50 OR AS NOTED | DWG. No. H354138-4300-231-260-0012 | REV 0

SHEET SIZE: D

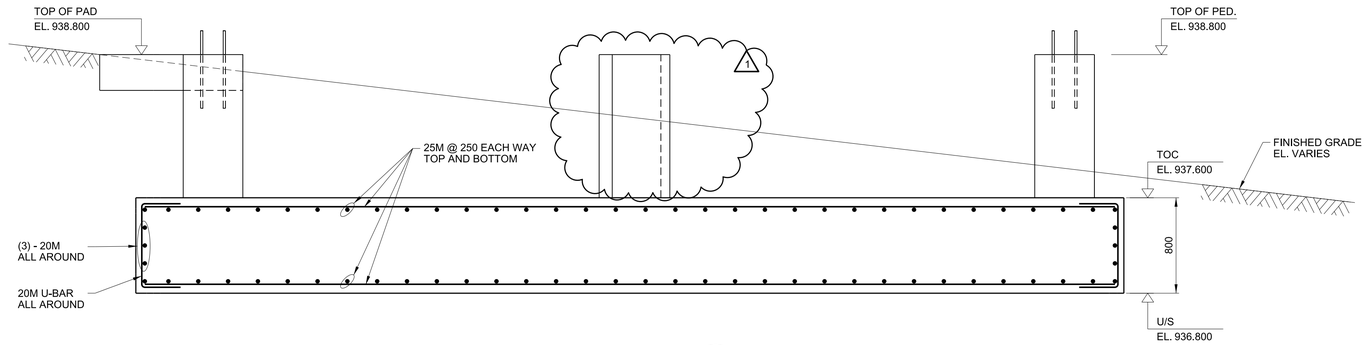
$FILE$
PRINTED: 17-SEP-2018 14:01
idc_pwservice

DWG. No. H354138-4300-231-260-0012

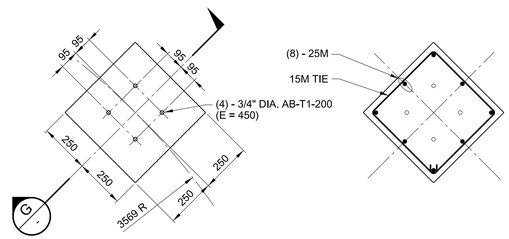



## 4300-BN-002 200 TONNE LIME SILO BIN FOUNDATION - PLAN

TOC SLAB EL. 937.600
U/S EL. 936.800

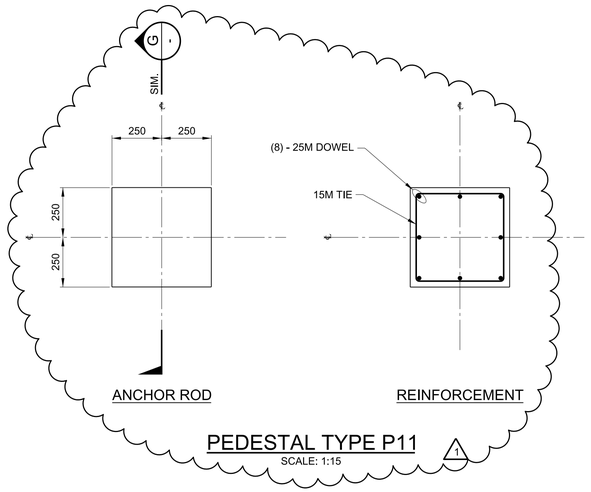



## SECTION F
SCALE: 1:25



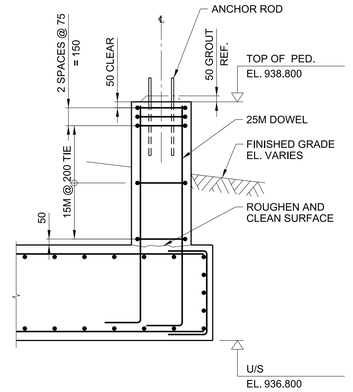

ANCHOR ROD REINFORCEMENT

## PEDESTAL TYPE P10
SCALE: 1:15




ANCHOR ROD REINFORCEMENT

## PEDESTAL TYPE P11
SCALE: 1:15




## SECTION G
SCALE: 1:25

NOTES:

1. FOR NOTES SEE DRAWING H354138-4300-231-260-0001.

0 500 1000 1500 2000 2500
1:50 SCALE IN MILLIMETRES

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| No. | DESCRIPTION | BY | CHK'D | DATE |
|---|---|---|---|---|
| 1 | PEDESTAL TYPE P11 ADDED | PJ | EA | 2018-10-25 |
| 0 | APPROVED FOR CONSTRUCTION | PJ | EA | 2018-09-17 |

REVISIONS

| ROLE | NAME | SIGNATURE & DATE |
|---|---|---|
| DRAFTSPERSON | P. JIVAEV | NR 2018-09-14 |
| DESIGNER | H. LI | NR 2018-09-14 |
| CHECKER | E. AKINCI | |
| DESIGN COORD. | S. PERKINS | |
| RESP. ENG. | E. AKINCI | |
| LEAD DISC. ENG. | E. AKINCI | |
| ENG. MANAGER | B. RUSTAD | |
| PROJ. MANAGER | B. RUSTAD | |

DRAWING APPROVAL STATUS: Approved for Construction

HATCH

StrataGold Corporation

EAGLE GOLD PROJECT

ORE PREPARATION (LIME AND CEMENT)
LIME SILO BIN FOUNDATION
PLAN, SECTIONS AND DETAILS

| DRAWING No. | DRAWING TITLE |
|---|---|
| REFERENCE DRAWINGS | |

REG. PROFESSIONAL

SCALE 1:50 OR AS NOTED

DWG. No. H354138-4300-231-260-0012

REV 1

SHEET SIZE: D

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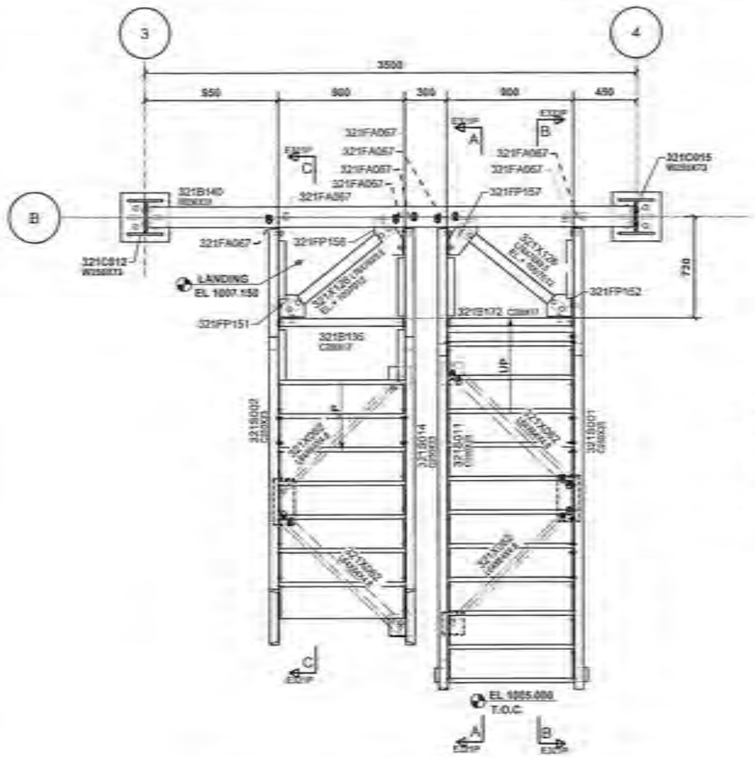
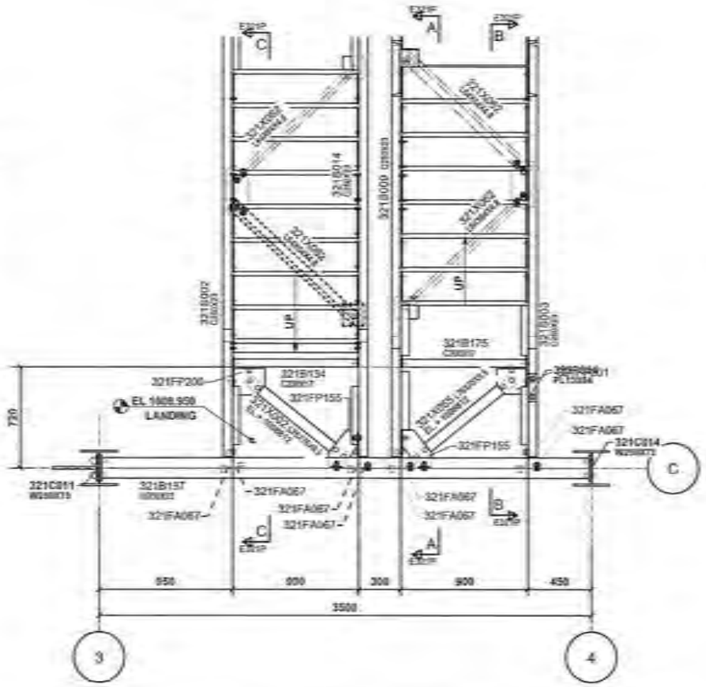
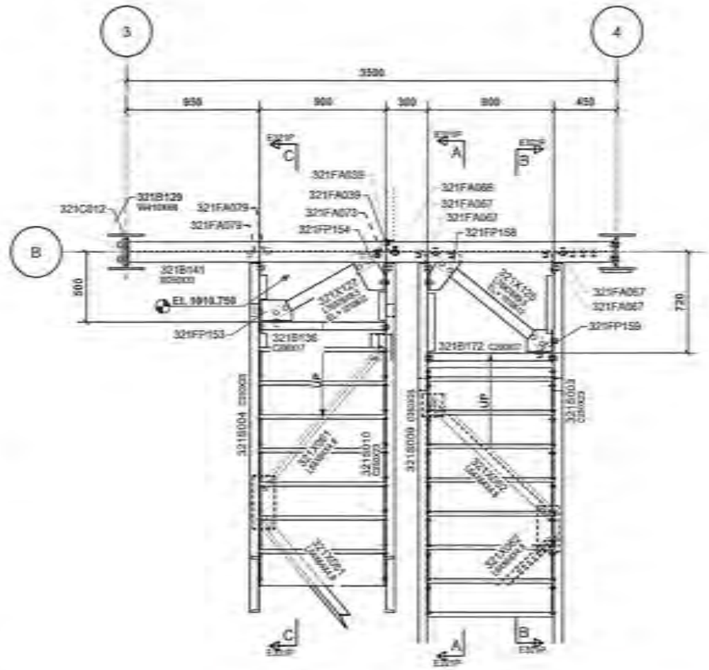
PRINTED: 25-OCT-2018 15:20
idc_pwservice



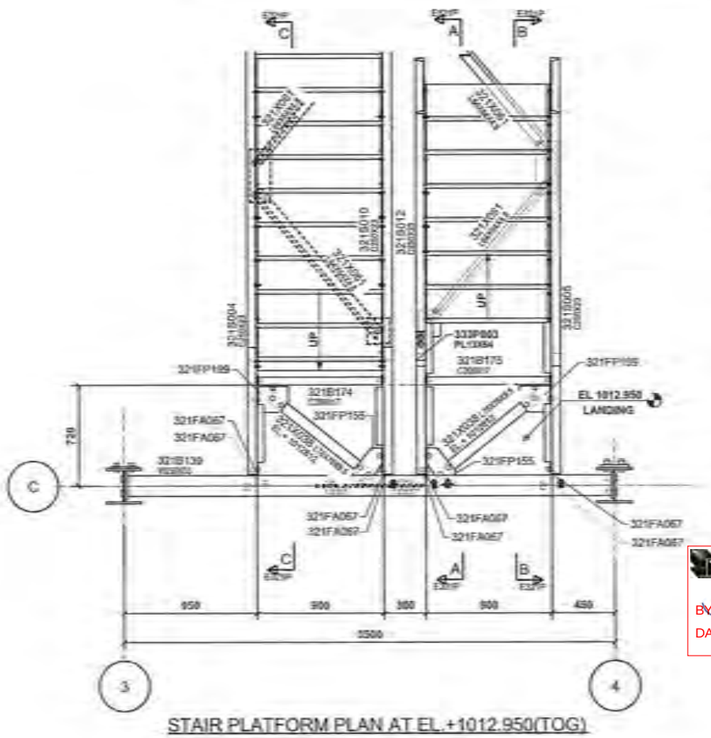

STAIR PLATFORM PLAN AT EL.+1007.150(TOG)



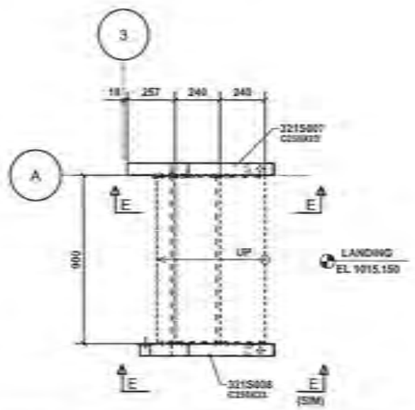

STAIR PLATFORM PLAN AT EL.+1008.950(TOG)



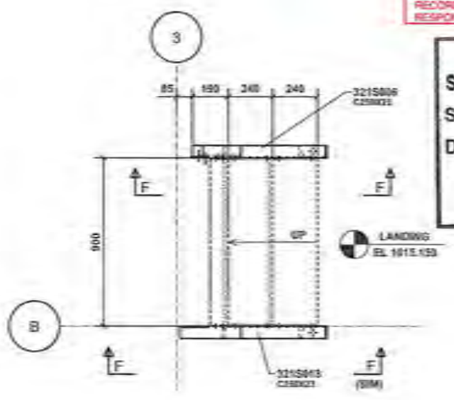

STAIR PLATFORM PLAN AT EL.+1010.750(TOG)




STAIR PLATFORM PLAN AT EL.+1012.950(TOG)




STAIR PLATFORM PLAN AT EL.+1015.750(TOG)




STAIR PLATFORM PLAN AT EL.+1015.750(TOG)

SUPREME IS SOLELY RESPONSIBLE FOR CONNECTION DESIGN THAT WAS NOT PROVIDED BY THE ENGINEER OF RECORD. CONNECTIONS DESIGNED BY THE ENGINEER OF RECORD, SECTION AND MEMBER SIZES ARE NOT THE RESPONSIBILITY OF SUPREME. ENGINEER OF RECORD IS RESPONSIBLE TO ENSURE THE STRUCTURE IS ERECTED AS PER STAMPED DRAWINGS. ERECTION IS NOT THE RESPONSIBILITY OF SUPREME.

PERMIT TO PRACTICE
SUPREME CONSTRUCTION MANAGEMENT LP
SIGNATURE
Date DECEMBER 21, 2018
PERMIT NUMBER PP599
Association of Professional Engineers of Yukon

PROFESSIONAL ENGINEER
YUKON TERRITORY
AMIR JAMSHIDI

BOLTING REQUIREMENTS:
ALL BOLTS TO BE ¾" DIA. A325 U/N
ALL BOLTS TO BE PRE-TENSIONED USING TURN OFF THE NUT METHOD
* = INDICATES JOINTS WITH 1" DIA. BOLTS
+ = INDICATES JOINTS WHERE BOLTS CAN BE SNUG TIGHT.

SUPREME GROUP
REVIEWED BY QUALITY CONTROL
BY: Amanda Shaw QM
DATE: March 20/19

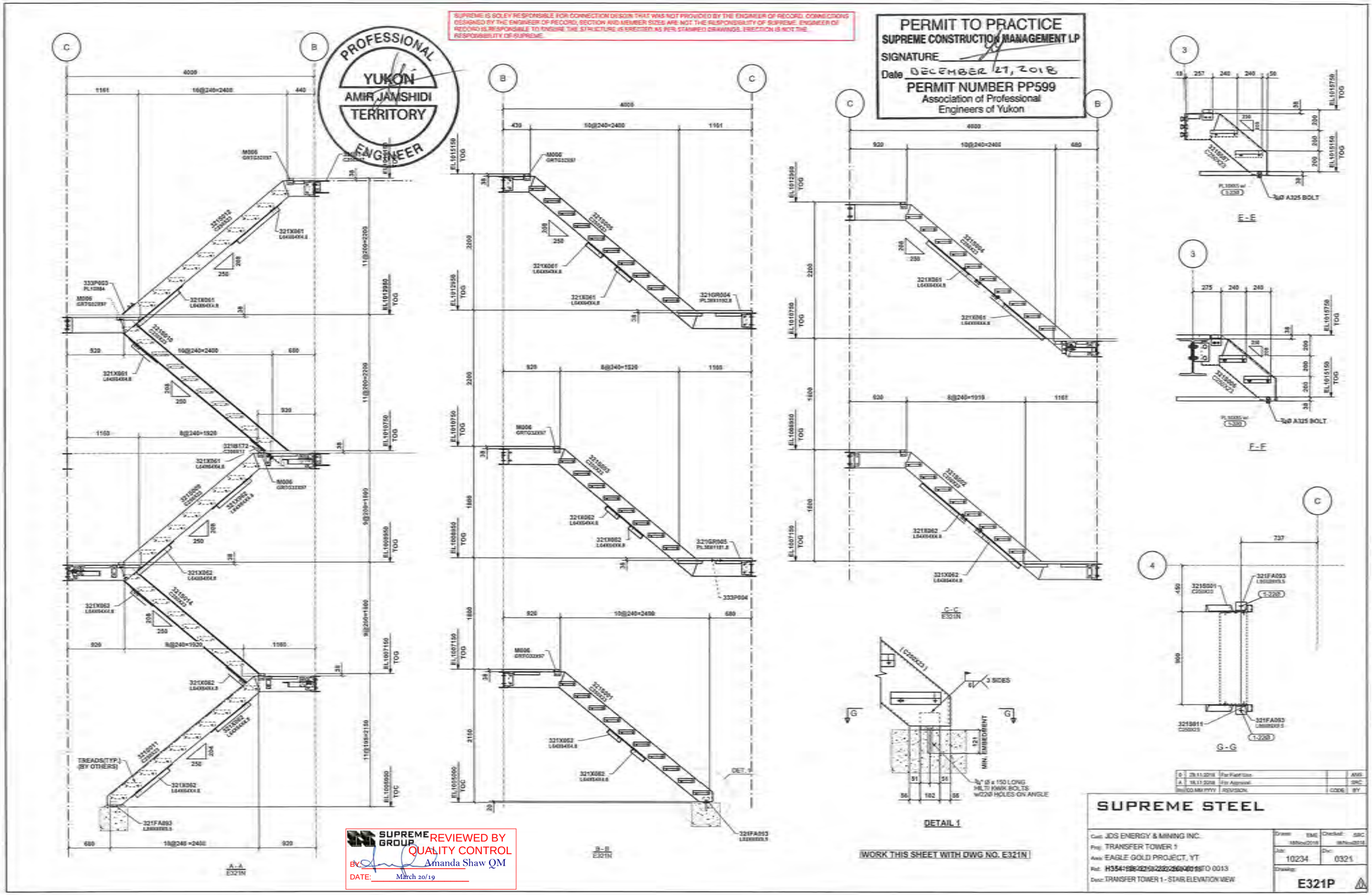
| No | DD.MM.YYYY | REVISION | CODE | BY |
|---|---|---|---|---|
| 0 | 23.11.2018 | For Field Use | | AMG |
| A | 16.11.2018 | For Approval | | SRC |

WORK THIS SHEET WITH DWG NO. E321P

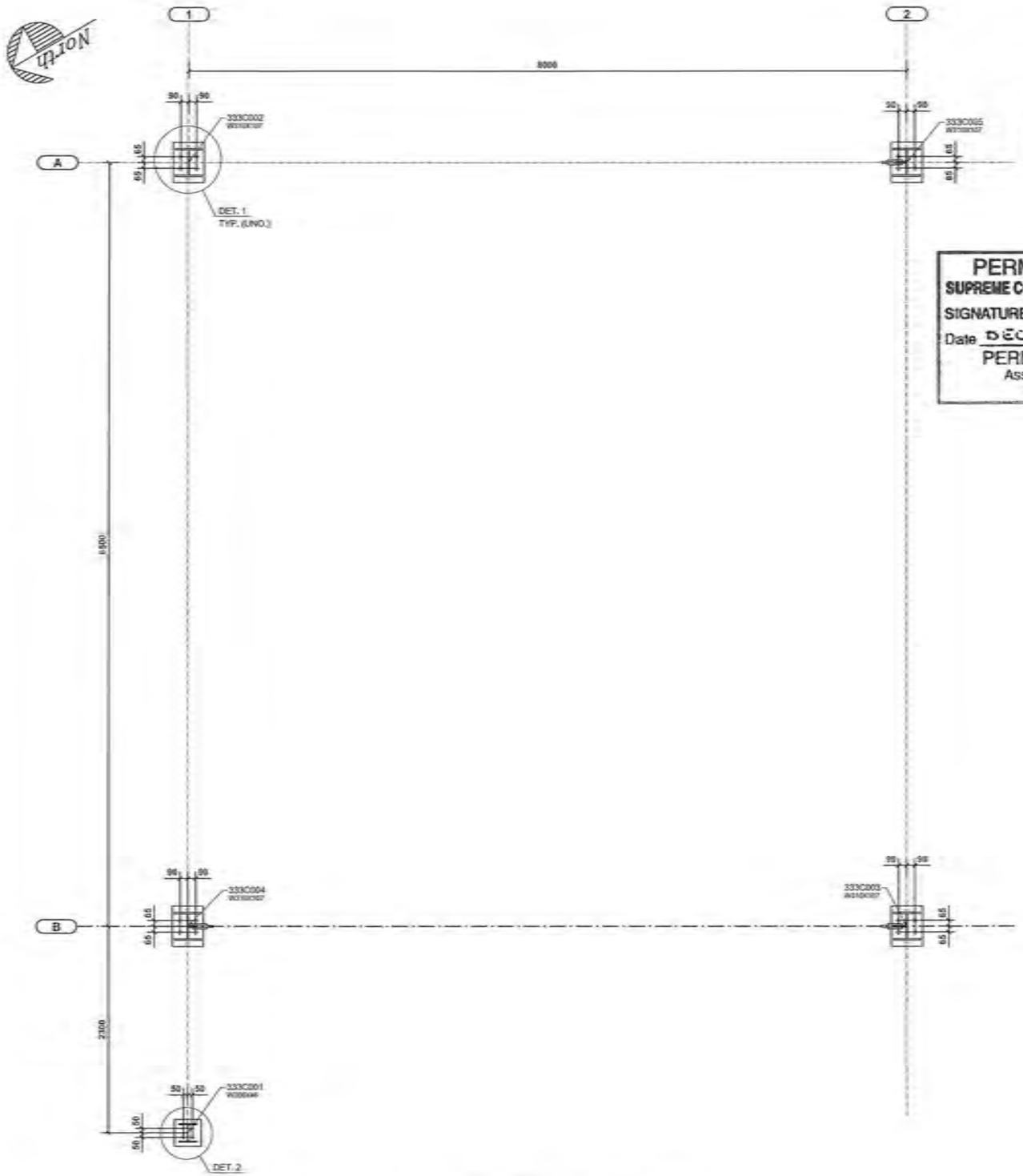
SUPREME STEEL

Cust: JDS ENERGY & MINING INC.
Proj: TRANSFER TOWER 1
Area: EAGLE GOLD PROJECT, YT
Ref: H35#1350321432385889-0015.1D 0013
Desc: TRANSFER TOWER 1 - STAIR PLAN VIEW

Drawn: EME 18/Nov/2018
Checked: SRC 19/Nov/2018
Job: 10234
Dir: 0321
Drawing: E321N

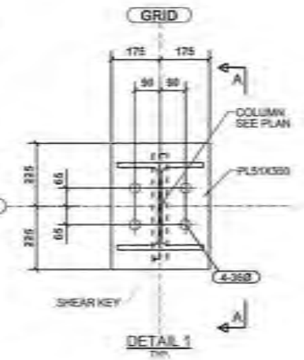

SUPREME IS SOLEY RESPONSIBLE FOR CONNECTION DESIGN THAT WAS NOT PROVIDED BY THE ENGINEER OF RECORD. CONNECTIONS DESIGNED BY THE ENGINEER OF RECORD, SECTION AND MEMBER SIZES ARE NOT THE RESPONSIBILITY OF SUPREME. ENGINEER OF RECORD IS RESPONSIBLE TO ENSURE THE STRUCTURE IS ERECTED AS PER STAMPED DRAWINGS. ERECTION IS NOT THE RESPONSIBILITY OF SUPREME.
PROFESSIONAL
YUKON
AMIR JAMSHIDI
TERRITORY
ENGINEER
PERMIT TO PRACTICE
SUPREME CONSTRUCTION MANAGEMENT LP
SIGNATURE
Date DECEMBER 27, 2018
PERMIT NUMBER PP599
Association of Professional Engineers of Yukon
A-A
E321N
B-B
E321N
C-C
E321N
DETAIL 1
WORK THIS SHEET WITH DWG NO. E321N
E-E
F-F
G-G
3 SIDES
MIN. EMBEDMENT
TREADS(TYP.) (BY OTHERS)
SUPREME GROUP
REVIEWED BY QUALITY CONTROL
BY: Amanda Shaw QM
DATE: March 20/19
SUPREME STEEL
Cust: JDS ENERGY & MINING INC.
Proj: TRANSFER TOWER 1
Area: EAGLE GOLD PROJECT, YT
Ref: H354198-0210-222-2604-0018 TO 0013
Desc: TRANSFER TOWER 1 - STAIR ELEVATION VIEW
Drawn: EME
Checked: SRC
Job: 10234
Dwg: 0321
Drawing: E321P

SUPREME IS SOLEY RESPONSIBLE FOR CONNECTION DESIGN THAT WAS NOT PROVIDED BY THE ENGINEER OF RECORD. CONNECTIONS DESIGNED BY THE ENGINEER OF RECORD, SECTION AND MEMBER SIZES ARE NOT THE RESPONSIBILITY OF SUPREME. ENGINEER OF RECORD IS RESPONSIBLE TO ENSURE THE STRUCTURE IS ERECTED AS PER STAMPED DRAWINGS. ERECTION IS NOT THE RESPONSIBILITY OF SUPREME.

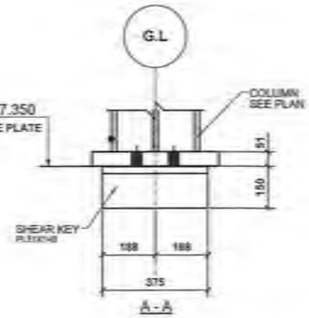



PROFESSIONAL ENGINEER
YUKON TERRITORY
AMIR JAMSHIDI

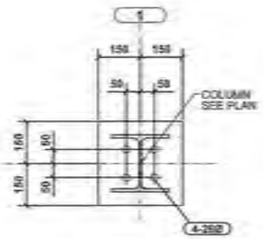
PERMIT TO PRACTICE
SUPREME CONSTRUCTION MANAGEMENT LP
SIGNATURE
Date DECEMBER 27, 2018
PERMIT NUMBER PP599
Association of Professional Engineers of Yukon




DETAIL 1




A - A




DETAIL 2

COLUMN BASE PLAN
U/S BASE PLATE ELEVATION 1027.350

SUPREME GROUP
REVIEWED BY QUALITY CONTROL
BY: Amanda Shaw QM
DATE: March 20/19

| | | | | |
|---|---|---|---|---|
| 3 | | For Fabrication Tr614 | | JCC |
| A | 15.11.2018 | For Approval | | SHC |
| No. | DD/MM/YYYY | REVISION | CODE | BY |

SUPREME STEEL

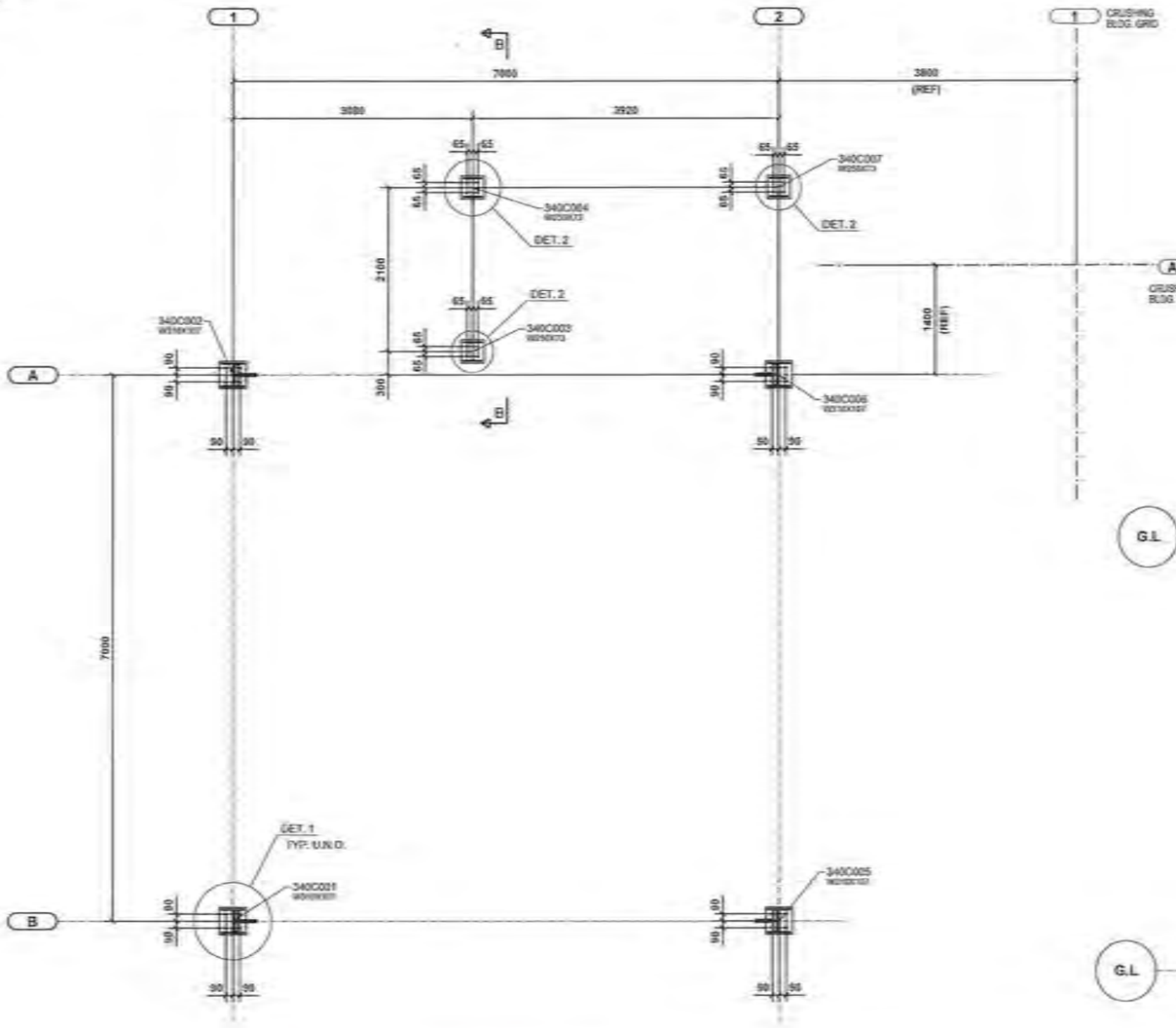
Cust: JDS ENERGY & MINING INC.
Proj: TRANSFER TOWER 2
Area: EAGLE GOLD PROJECT, YT
Ref: H354138-3330-232-250-0012
Desc: COLUMN BASE PLAN

| | |
|---|---|
| Drawn: CES 15/Nov/2018 | Checked: JCC 15/Nov/2018 |
| Job: 10234 | Dw: 0333 |
| Drawing: E333A | |

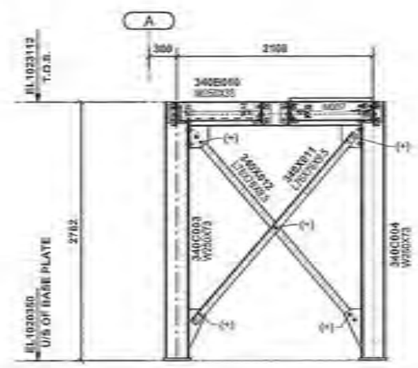
North

BOLTING REQUIREMENTS:
ALL BOLTS TO BE ¾" DIA. A325SN
ALL BOLTS IN THE OUTSTANDING LEGS AND THE END PLATES TO BE PRE-TENSIONED USING TURN-OFF THE NUT METHOD.

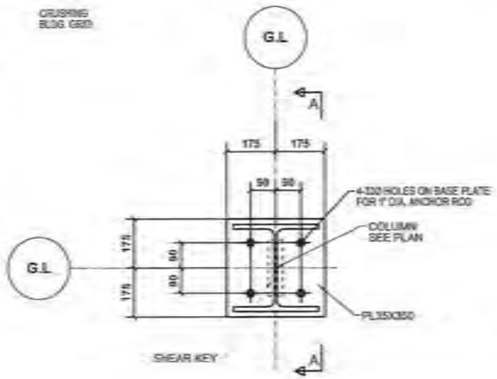
*= INDICATES JOINTS WITH 1" DIA. BOLTS
+= INDICATES JOINTS WHERE BOLTS CAN BE SNUG TIGHT.



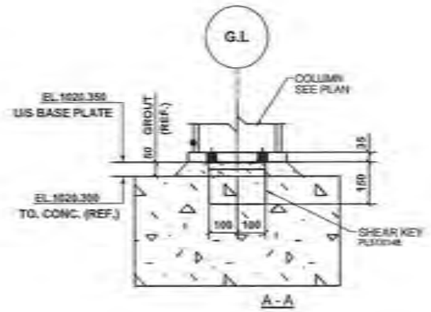

COLUMN BASE PLAN
U/S BASE PLATE ELEVATION 1020.350




B - B




DETAIL 1
TYP.

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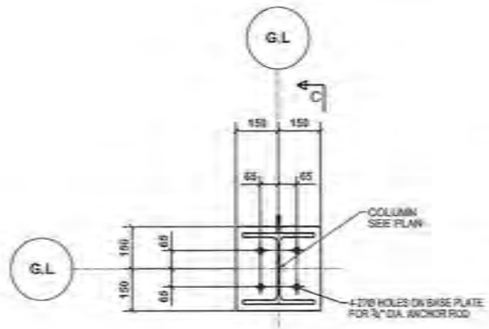


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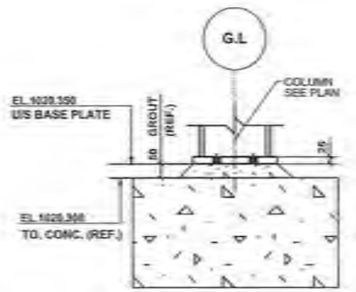



C - C

SUPREME IS SOLELY RESPONSIBLE FOR CONNECTION DESIGN THAT WAS NOT PROVIDED BY THE ENGINEER OF RECORD. CONNECTIONS DESIGNED BY THE ENGINEER OF RECORD, SECTION AND MEMBER SIZES ARE NOT THE RESPONSIBILITY OF SUPREME. ENGINEER OF RECORD IS RESPONSIBLE TO ENSURE THE STRUCTURE IS ERECTED AS PER STAMPED DRAWINGS. ERECTION IS NOT THE RESPONSIBILITY OF SUPREME.

SUPREME GROUP
REVIEWED BY QUALITY CONTROL
BY: Amanda Shaw QM
DATE: March 20/19

PROFESSIONAL ENGINEER
YUKON
AMIR JAMSHIDI
TERRITORY

PERMIT TO PRACTICE
SUPREME CONSTRUCTION MANAGEMENT LP
SIGNATURE
Date DECEMBER 27, 2018
PERMIT NUMBER PP599
Association of Professional Engineers of Yukon

SHIM PLATE LIST ALL SHIMS Thk x 51 x 51
2 SHIM STACKS PER COLUMN

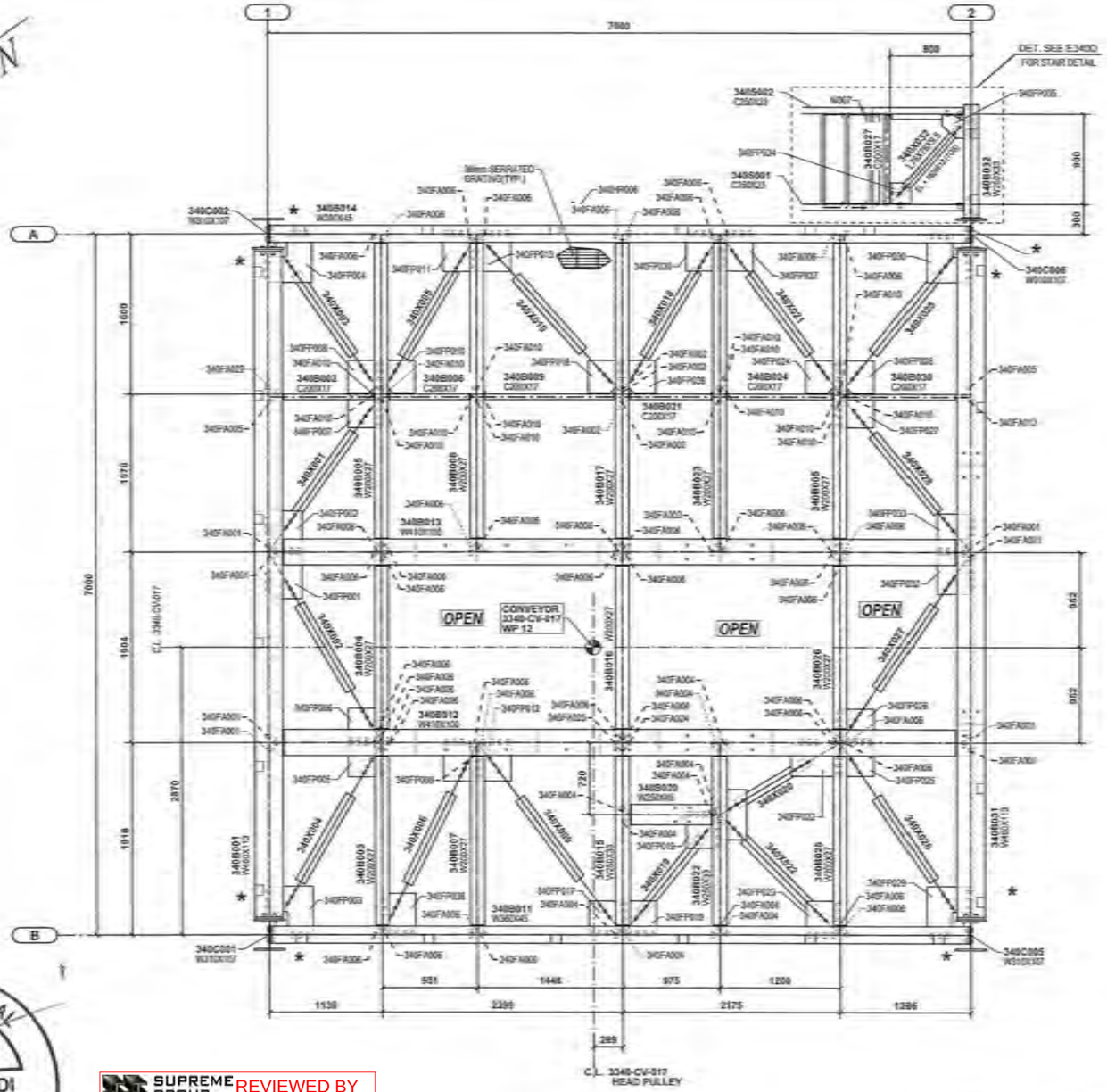
| GROUT ALLOW | QTY 13 THK | QTY 6 THK | QTY 5 THK | QTY 3 THK |
|---|---|---|---|---|
| 50 | 3 | 1 | 1 | 2 |

| No | DD.MM.YYYY | REVISION | CODE | BY |
|---|---|---|---|---|
| 0 | 05.12.2018 | For Fabrication T-021 | | RSA |
| A | 23.11.2018 | For Approval T-009 | | JCC |

SUPREME STEEL

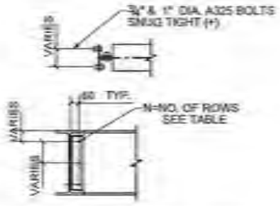
Cust: JDS ENERGY & MINING INC.
Proj: TRANSFER TOWER TT-3
Area: EAGLE GOLD PROJECT, YT
Ref: H354138-3400-232-260-0002
Desc: COLUMN BASE PLAN

| Drawn: CES 22/Nov/2018 | Checked: RSA 22/Nov/2018 |
|---|---|
| Job: 10234 | Dir: 0340 |
| Drawing: E340A | |

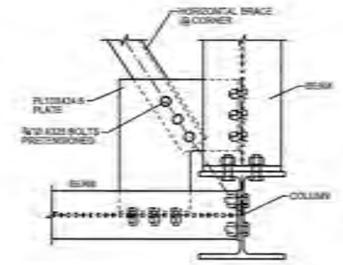



TABLE

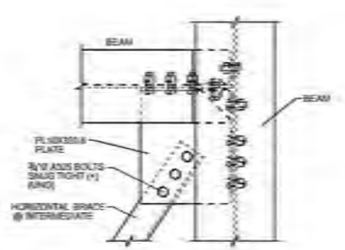
| BEAM SIZE | CLIP ANGLE MARKS U/N | N=ROWS OF BOLTS U/N |
|---|---|---|
| W410X100 | 340FA001 | 3 |
| W250X49 | 340FA004 | 2 |
| W250X33 | 340FA004, 340FA024 & 340FA025 | 2 |
| W200X27 | 340FA003, 340FA006 | 2 |
| C200X17 | 340FA002, 340FA005, 340FA010, 340FA012 & 340FA022 | 2 |
| C250X23 | 340FA007, 340FA008 & 340FA009 | 2 |




TYPICAL FIELD ASSEMBLY DETAIL
FOR BOLTING LOOSE CLIP ANGLES




TYPICAL FIELD ASSEMBLY DETAIL
FOR BOLTING AT CORNER HORIZONTAL BRACES




TYPICAL FIELD ASSEMBLY DETAIL
FOR BOLTING AT HORIZONTAL BRACES

PROFESSIONAL ENGINEER
YUKON TERRITORY
AMIR JAMSHIDI

SUPREME GROUP
REVIEWED BY QUALITY CONTROL
BY: Amanda Shaw QM
DATE: March 20/19

FRAMING PLAN AT EL. +1024.712 (TOS) (UNO)

TOP OF GRATING = EL+1024.750 (UNO)
ALL HORIZONTAL BRACINGS AT -75 FROM TOS (TYP.)(UNO)
ALL HORIZONTAL BRACINGS PROFILE IS L102X102X9.5 (TYP., UNO)

PERMIT TO PRACTICE
SUPREME CONSTRUCTION MANAGEMENT LP
SIGNATURE
Date DECEMBER 27, 2018
PERMIT NUMBER PP599
Association of Professional Engineers of Yukon

BOLTING REQUIREMENTS:
ALL BOLTS TO BE ¾" DIA. A325 U/N
ALL BOLTS IN THE OUTSTANDING LEGS AND THE END PLATES TO BE PRE-TENSIONED USING TURN OFF THE NUT METHOD.
* = INDICATES JOINTS WITH 1" DIA. BOLTS
+ = INDICATES JOINTS WHERE BOLTS CAN BE SNUG TIGHT.

WORK THIS SHEET WITH DWG NO. E340C & E340D )

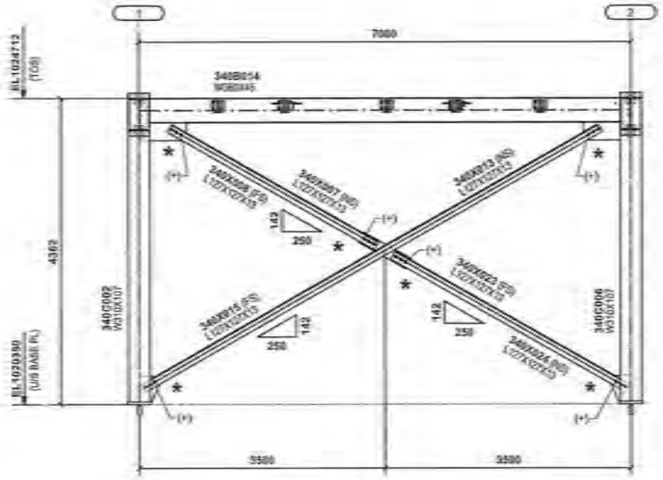
SUPREME IS SOLELY RESPONSIBLE FOR CONNECTION DESIGN THAT WAS NOT PROVIDED BY THE ENGINEER OF RECORD. CONNECTIONS DESIGNED BY THE ENGINEER OF RECORD, SECTION AND MEMBER SIZES ARE NOT THE RESPONSIBILITY OF SUPREME. ENGINEER OF RECORD IS RESPONSIBLE TO ENSURE THE STRUCTURE IS ERECTED AS PER STAMPED DRAWINGS. ERECTION IS NOT THE RESPONSIBILITY OF SUPREME.

| | | | | |
|---|---|---|---|---|
| 0 | 05.12.2018 | For Fabrication THDT | | RSA |
| A | 23.11.2018 | For Approval THDD | | JCC |
| No | DD.MM.YYYY | REVISION | CODE | BY |

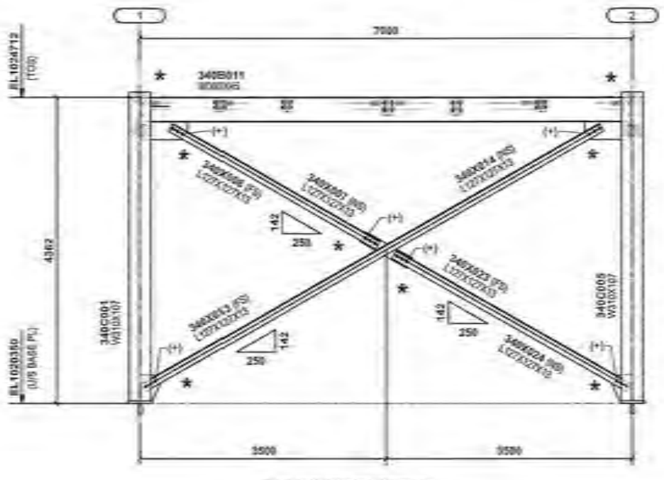
SUPREME STEEL

Cust: JDS ENERGY & MINING INC.
Proj: TRANSFER TOWER TT-3
Area: EAGLE GOLD PROJECT, YT
Ref: H354138-3400-232-260-0002
Desc: PLAN AT TOS EL 1024.712

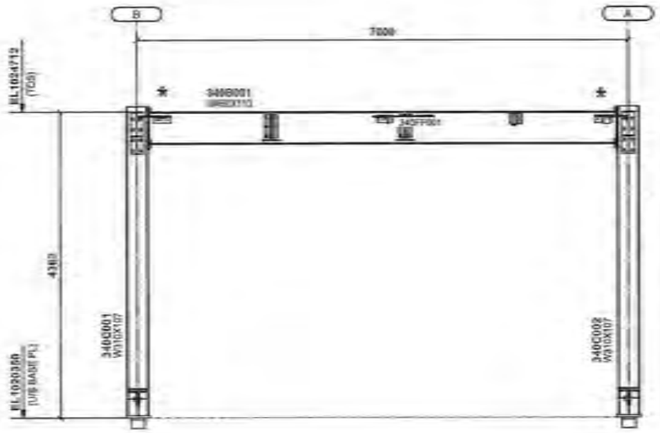
Drawn: CES 23/Nov/2018 | Checked: RSA 23/Nov/2018
Job: 10234 | Div: 0340
Drawing: E340B



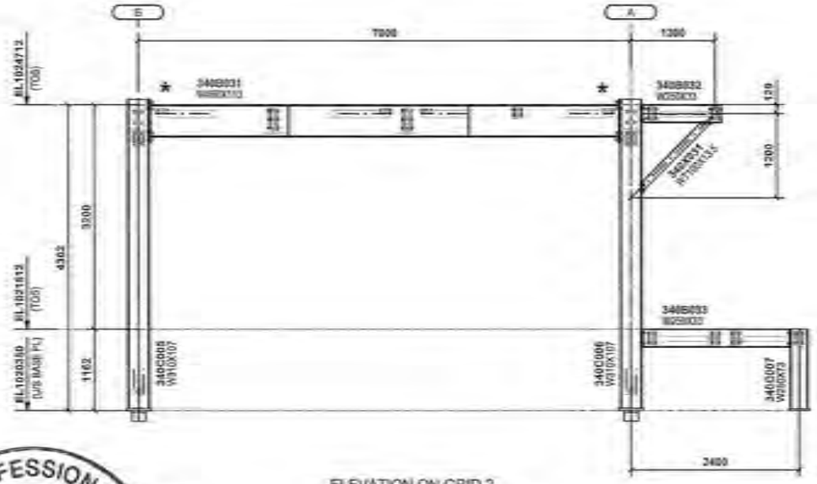

ELEVATION ON GRID A
LOOKING EAST




ELEVATION ON GRID B
LOOKING EAST




ELEVATION ON GRID 1
LOOKING NORTH




ELEVATION ON GRID 2
LOOKING NORTH

SUPREME GROUP REVIEWED BY QUALITY CONTROL
BY: Amanda Shaw QM
DATE: March 20/19

SUPREME IS SOLEY RESPONSIBLE FOR CONNECTION DESIGN THAT WAS NOT PROVIDED BY THE ENGINEER OF RECORD. CONNECTIONS DESIGNED BY THE ENGINEER OF RECORD, SECTION AND MEMBER SIZES ARE NOT THE RESPONSIBILITY OF SUPREME. ENGINEER OF RECORD IS RESPONSIBLE TO ENSURE THE STRUCTURE IS ERECTED AS PER STAMPED DRAWINGS. ERECTION IS NOT THE RESPONSIBILITY OF SUPREME.

PROFESSIONAL ENGINEER
YUKON TERRITORY
AMIR JAMSHIDI

PERMIT TO PRACTICE
SUPREME CONSTRUCTION MANAGEMENT LP
SIGNATURE
Date DECEMBER 27, 2018
PERMIT NUMBER PP599
Association of Professional Engineers of Yukon

BOLTING REQUIREMENTS:
ALL BOLTS TO BE ¾" DIA. A325 UN
ALL BOLTS IN THE OUTSTANDING LEGS AND THE END PLATE TO BE PRE-TENSIONED USING TURN OFF THE NUT METHOD.

* = INDICATES JOINTS WITH 1" DIA. BOLTS
+ = INDICATES JOINTS WHERE BOLTS CAN BE SNUG TIGHT

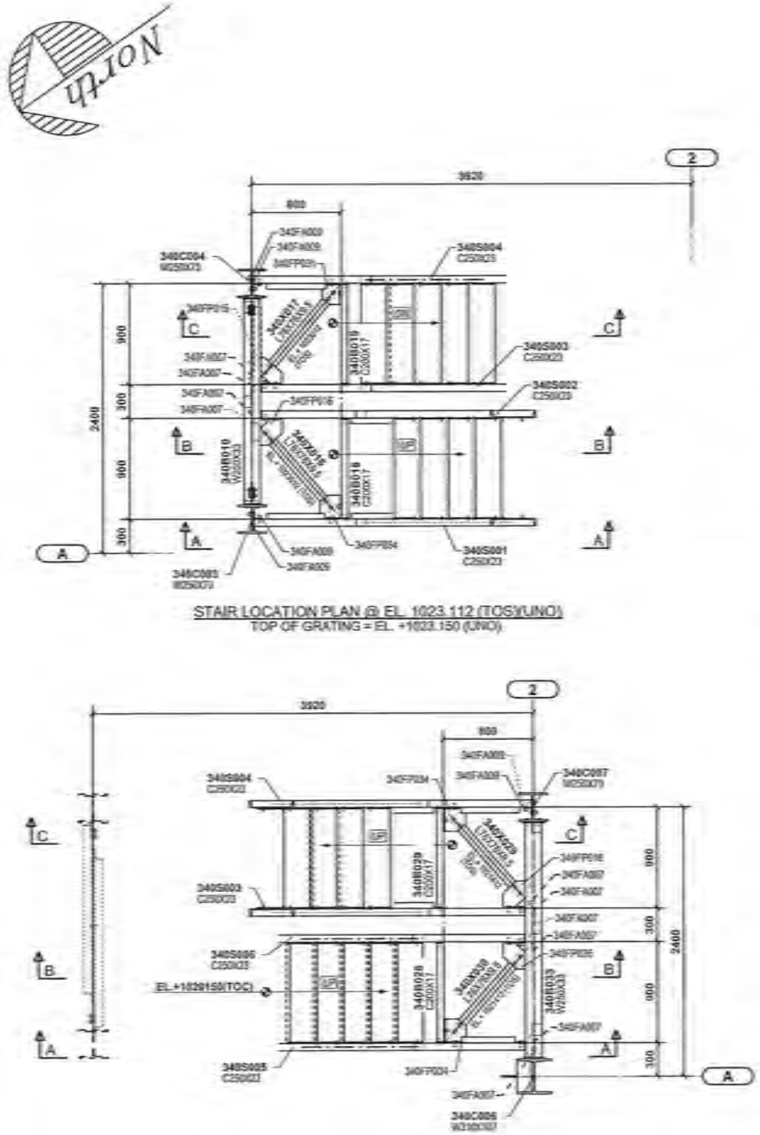
WORK THIS SHEET WITH DWG NO. E340B & E340D

| No. | DD.MM.YYYY | REVISION | CODE | BY |
|---|---|---|---|---|
| 6 | 06.12.2018 | For Fabrication TK21 | | RSA |
| 4 | 23.11.2018 | For Approval TJ008 | | JCC |

SUPREME STEEL

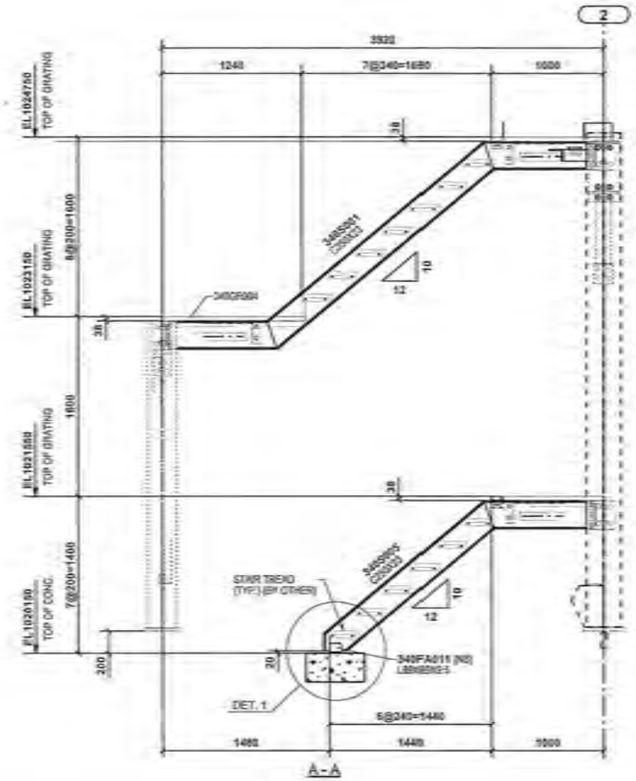
Client: JDS ENERGY & MINING INC.
Proj: TRANSFER TOWER TT-3
Area: EAGLE GOLD PROJECT, YT
Ref: H354138-3400-232-260-0003
Dwg: ELEVATIONS AND SECTIONS

Drawn: KES 22Nov2018
Checked: RSA 22Nov2018
Job: 10234
Dir: 0340
Drawing: E340C

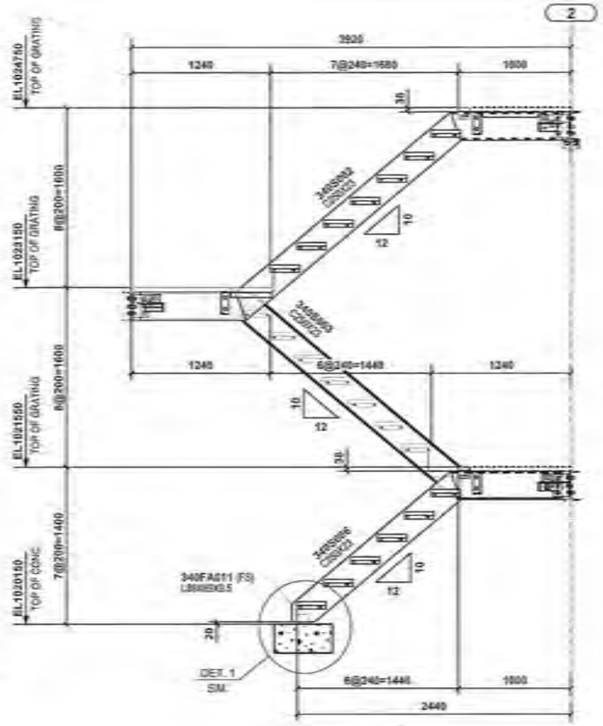



STAIR LOCATION PLAN @ EL. 1023.112 (TOS)(UNO)
TOP OF GRATING = EL. +1023.150 (UNO)

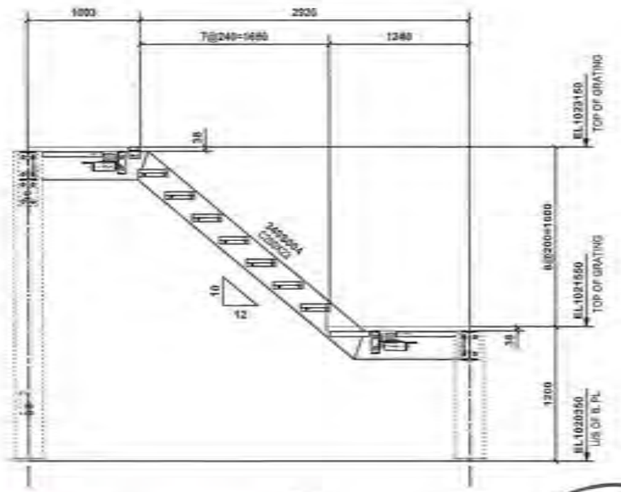
STAIR LOCATION PLAN @ EL. 1021.512 (TOS)(UNO)
TOP OF GRATING = EL. +1021.550 (UNO)



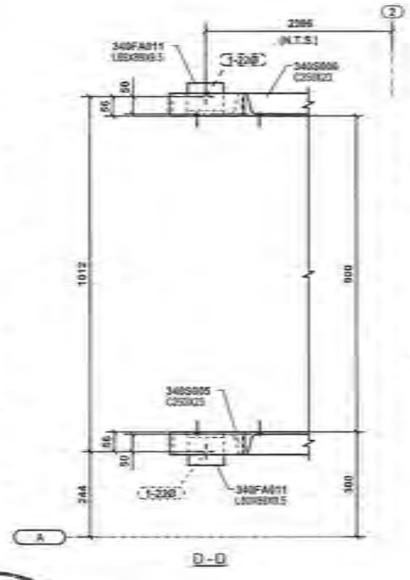

A - A



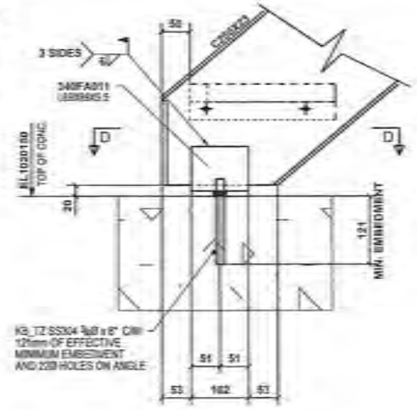

B - B




C - C




D - D




DETAIL 1

SUPREME GROUP REVIEWED BY QUALITY CONTROL
BY: Amanda Shaw QM
DATE: March 20/19

SUPREME IS SOLEY RESPONSIBLE FOR CONNECTION DESIGN THAT WAS NOT PROVIDED BY THE ENGINEER OF RECORD. CONNECTIONS DESIGNED BY THE ENGINEER OF RECORD, SECTION AND MEMBER SIZES ARE NOT THE RESPONSIBILITY OF SUPREME. ENGINEER OF RECORD IS RESPONSIBLE TO ENSURE THE STRUCTURE IS ERECTED AS PER STAMPED DRAWINGS. ERECTION IS NOT THE RESPONSIBILITY OF SUPREME.

PERMIT TO PRACTICE
SUPREME CONSTRUCTION MANAGEMENT LP
SIGNATURE
Date DECEMBER 27, 2018
PERMIT NUMBER PP599
Association of Professional Engineers of Yukon

PROFESSIONAL ENGINEER
YUKON TERRITORY
AMIR JAMSHIDI

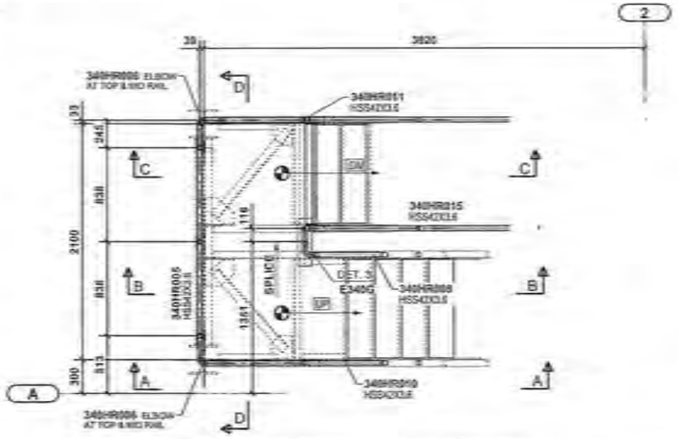
WORK THIS SHEET WITH DWG NO. E340B & E340C

| No | DD.MM.YYYY | REVISION | CODE | BY |
|---|---|---|---|---|
| 0 | 06.12.2018 | For Fabricator Tr021 | | RSA |
| A | 23.11.2018 | For Approval Tr008 | | JCC |

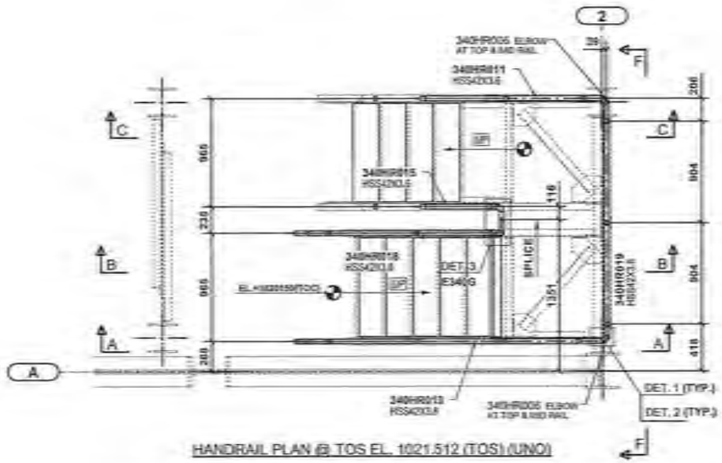
SUPREME STEEL

Client: JDS ENERGY & MINING INC.
Proj: TRANSFER TOWER TT-3
Area: EAGLE GOLD PROJECT, YT
Ref: H354138-3400-232-260-0002 & 0003
Desc: STAIR PLANS & ELEVATIONS

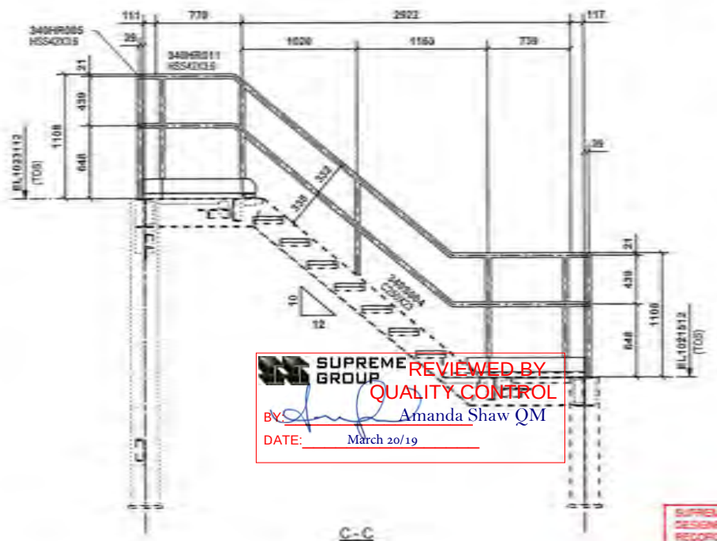
Drawn: CES 22Nov2018 | Checked: RSA 22Nov2018
Job: 10234 | Div: 0340
Drawing: E340D



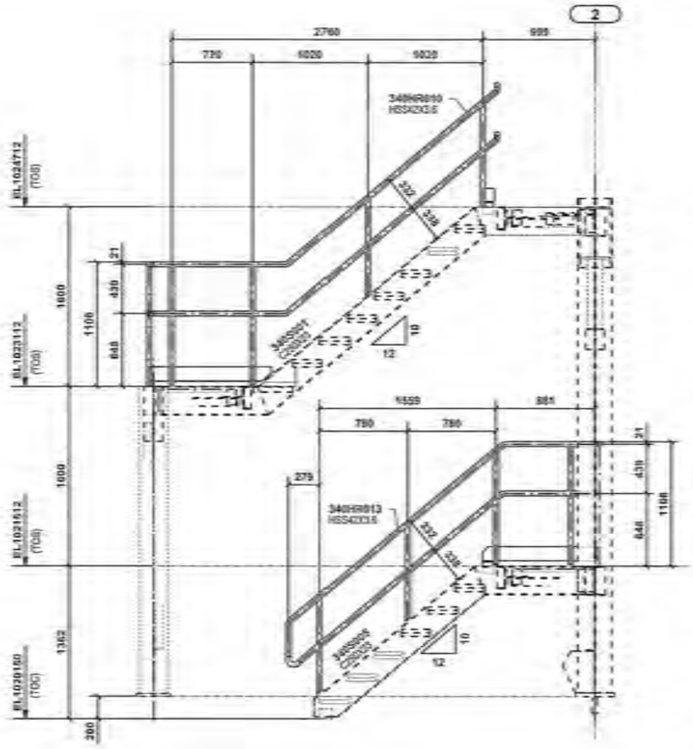

HANDRAIL PLAN @ TOS EL. 1023.112 (TOS) (UNO)



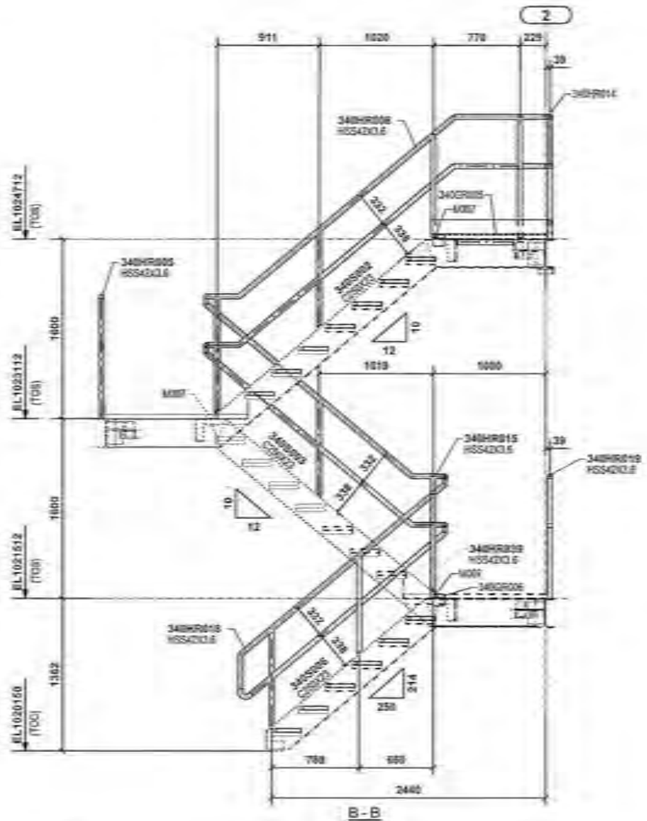

HANDRAIL PLAN @ TOS EL. 1021.512 (TOS) (UNO)



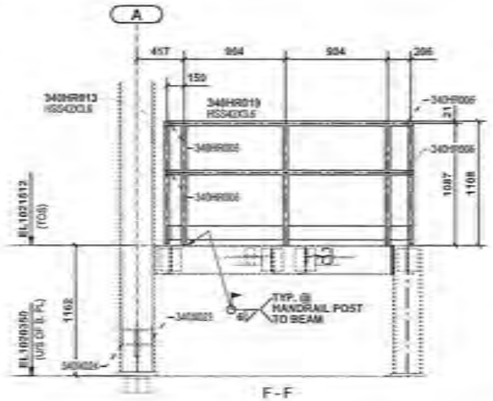

C - C



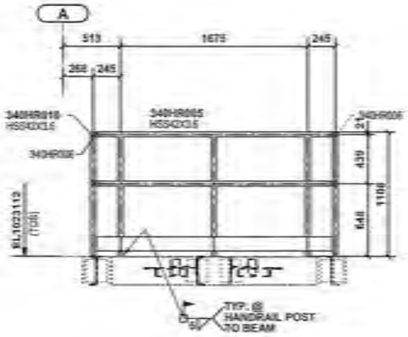

A - A



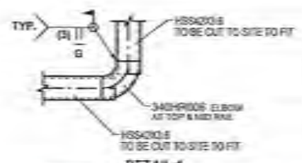

B - B



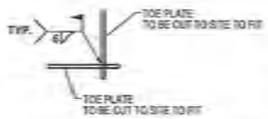

F - F




D - D




DETAIL 1
TOP & MIDRAIL @ CORNER TYPICAL DETAIL




DETAIL 2
TOE PLATE TYPICAL DETAIL @ CORNER

TOUCH UP PAINT AT ALL FIELD WELDED HANDRAIL JOINTS TO BE SAFETY YELLOW

SUPREME GROUP
REVIEWED BY QUALITY CONTROL
BY: Amanda Shaw QM
DATE: March 20/19

PERMIT TO PRACTICE
SUPREME CONSTRUCTION MANAGEMENT LP
SIGNATURE
Date DECEMBER 27, 2018
PERMIT NUMBER PP599
Association of Professional Engineers of Yukon

PROFESSIONAL ENGINEER YUKON TERRITORY AMIR JAMSHIDI

SUPREME IS SOLEY RESPONSIBLE FOR CONNECTION DESIGN THAT WAS NOT PROVIDED BY THE ENGINEER OF RECORD. CONNECTIONS DESIGNED BY THE ENGINEER OF RECORD, SECTION AND MEMBER SIZES ARE NOT THE RESPONSIBILITY OF SUPREME. ENGINEER OF RECORD IS RESPONSIBLE TO ENSURE THE STRUCTURE IS ERECTED AS PER STAMPED DRAWINGS. ERECTION IS NOT THE RESPONSIBILITY OF SUPREME.

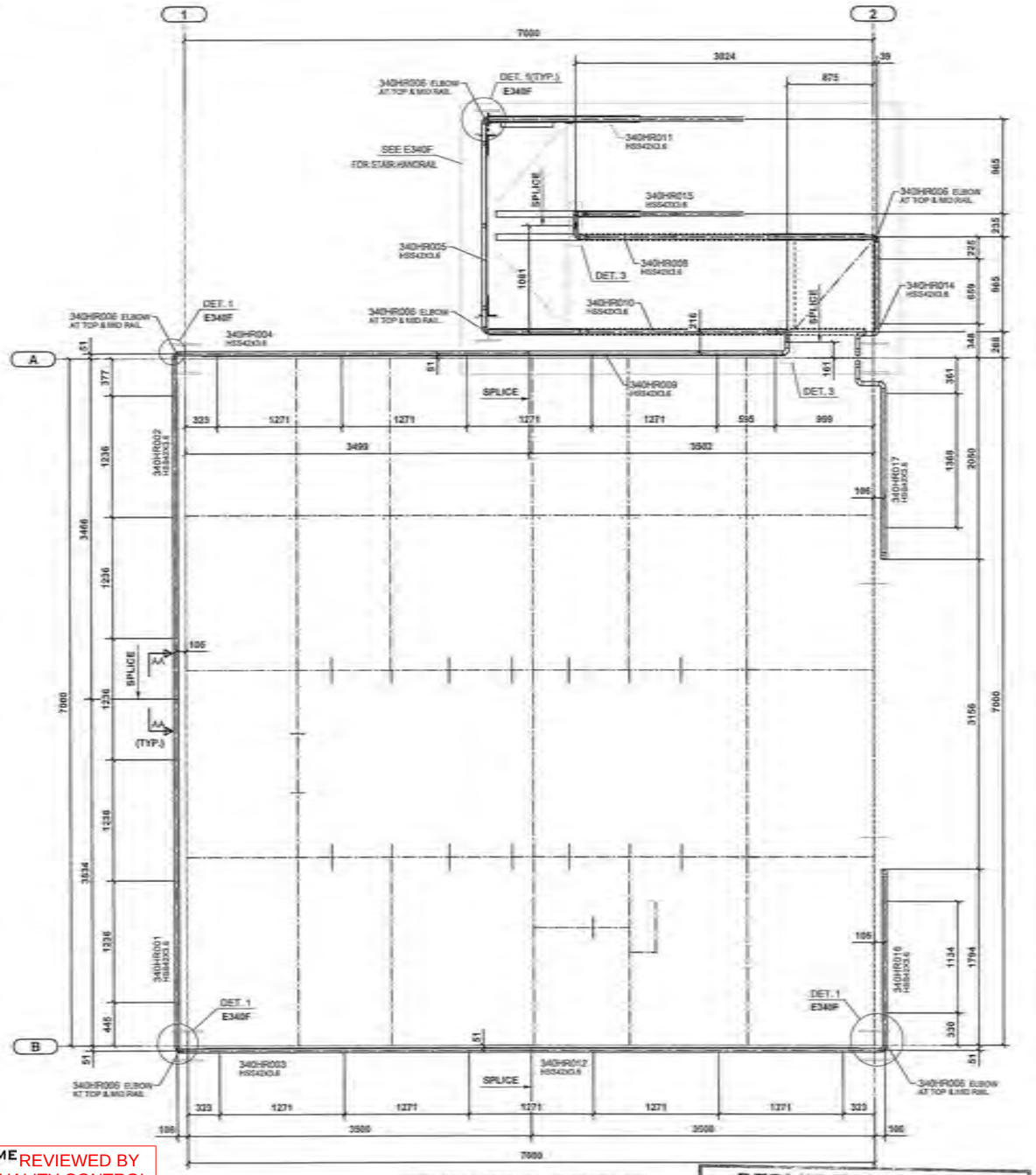
WORK THIS SHEET WITH DWG NO. E340G

| No | DD/MM/YYYY | REVISION | CODE | BY |
|---|---|---|---|---|
| 0 | 06.12.2018 | For Fabrication Tr021 | | RSA |
| A | 23.11.2018 | For Approval Tr008 | | JCC |

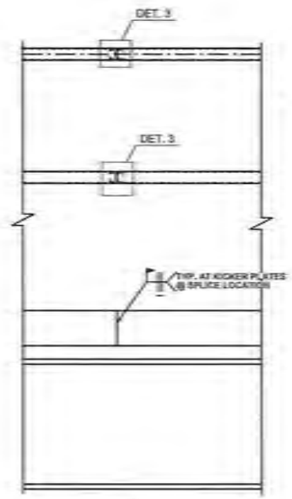
SUPREME STEEL

Cust: JDS ENERGY & MINING INC.
Proj: TRANSFER TOWER TT-3
Area: EAGLE GOLD PROJECT, YT
Ref: H354138-3400-232-260-0002 & 0003
Desc: HANDRAIL LOCATION PLAN & ELEVATION @ STAIR

Drawn: CES 22/Nov/2018
Checked: RSA 23/Nov/2018
Job: 10234
Div: 0340
Drawing: E340F

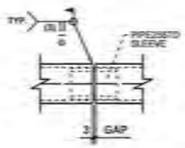



HANDRAIL PLAN AT EL. +1024.712 (TOS)




AA - AA
TYPICAL DETAIL OF HANDRAIL SPLICE

TOUCH UP PAINT AT ALL FIELD WELDED HANDRAIL JOINTS TO BE SAFETY YELLOW




DETAIL 3
TYPICAL SPLICE DETAIL

PROFESSIONAL ENGINEER
YUKON TERRITORY
AMIR JAMSHIDI

| | | | | |
|---|---|---|---|---|
| 0 | 06.12.2018 | For Fabrication THD21 | | RSA |
| A | 23.11.2018 | For Approval THD9 | | JCC |
| No | DD.MM.YYYY | REVISION | CODE | BY |

SUPREME GROUP
REVIEWED BY QUALITY CONTROL
BY: Amanda Shaw QM
DATE: March 20/19

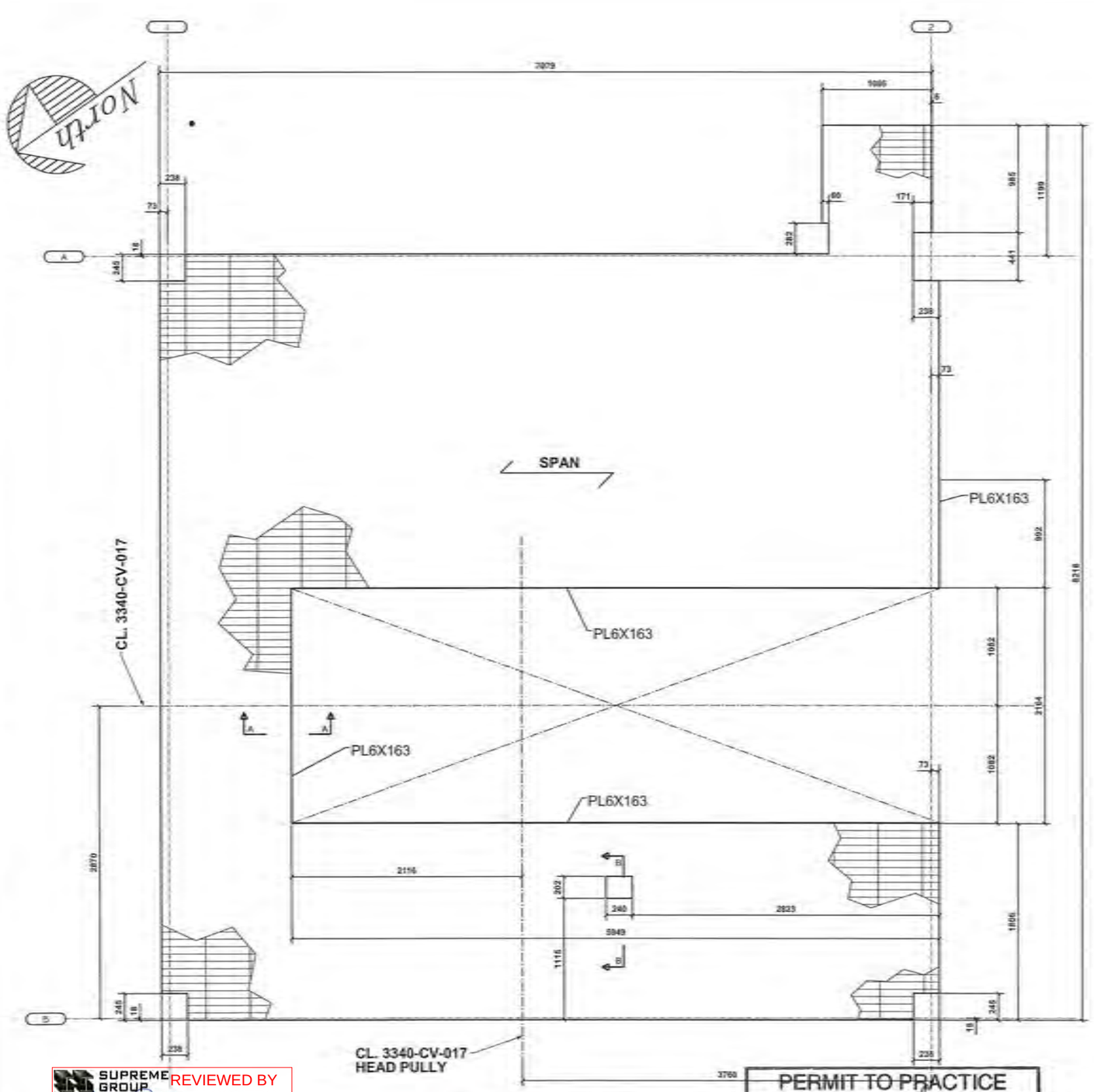
SUPREME IS SOLELY RESPONSIBLE FOR CONNECTION DESIGN THAT WAS NOT PROVIDED BY THE ENGINEER OF RECORD. CONNECTIONS DESIGNED BY THE ENGINEER OF RECORD, SECTION AND MEMBER SIZES ARE NOT THE RESPONSIBILITY OF SUPREME. ENGINEER OF RECORD IS RESPONSIBLE TO ENSURE THE STRUCTURE IS ERECTED AS PER STAMPED DRAWINGS. ERECTION IS NOT THE RESPONSIBILITY OF SUPREME.

PERMIT TO PRACTICE
SUPREME CONSTRUCTION MANAGEMENT LP
SIGNATURE
Date DECEMBER 21, 2018
PERMIT NUMBER PP599
Association of Professional Engineers of Yukon

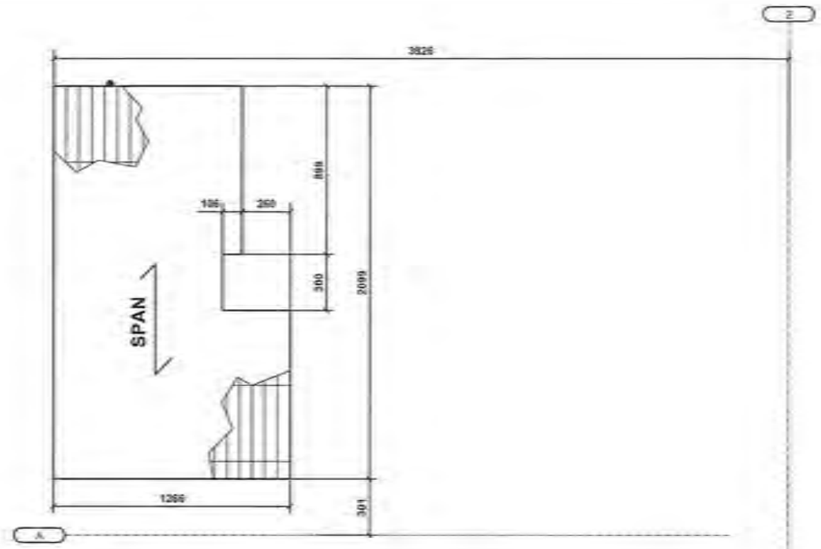
WORK THIS SHEET WITH DWG NO. E340F

SUPREME STEEL

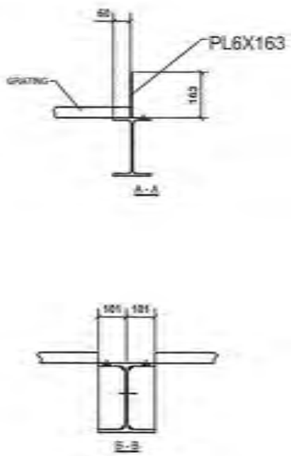
| | | | |
|---|---|---|---|
| Cust: JDS ENERGY & MINING INC. | | Drawn: CES 22/Nov/2018 | Checked: RSA 23/Nov/2018 |
| Proj: TRANSFER TOWER TT-3 | | Job: 10234 | Dr: 0340 |
| Area: EAGLE GOLD PROJECT, YT | | Drawing: E340G | |
| Ref: H354138-3400-232-260-0002 & 0003 | | | |
| Desc: HANDRAIL LOCATION & ELEVATION PLAN | | | |

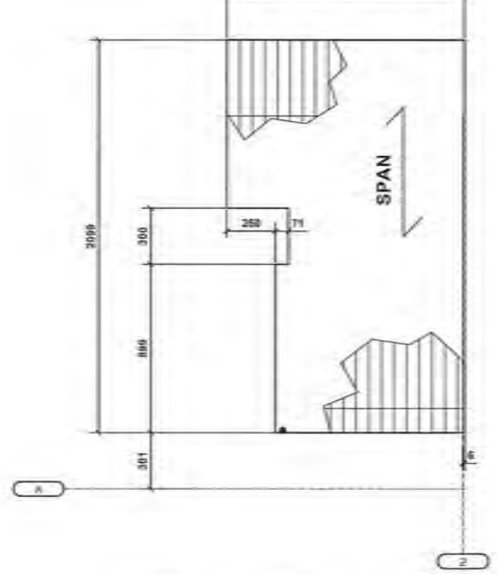



TT3 GRATING LAYOUT
TOP OF GRATING EL. 1024.750




TT3 GRATING LAYOUT
TOP OF GRATING EL. 1023.150




TT3 GRATING LAYOUT
TOP OF GRATING EL. 1021.550

SUPREME GROUP
REVIEWED BY QUALITY CONTROL
BY: Amanda Shaw QM
DATE: March 20/19

SUPREME IS SOLEY RESPONSIBLE FOR CONNECTION DESIGN THAT WAS NOT PROVIDED BY THE ENGINEER OF RECORD. CONNECTIONS DESIGNED BY THE ENGINEER OF RECORD, SECTION AND MEMBER SIZES ARE NOT THE RESPONSIBILITY OF SUPREME. ENGINEER OF RECORD IS RESPONSIBLE TO ENSURE THE STRUCTURE IS ERECTED AS PER STAMPED DRAWINGS. ERECTION IS NOT THE RESPONSIBILITY OF SUPREME.

PERMIT TO PRACTICE
SUPREME CONSTRUCTION MANAGEMENT LP
SIGNATURE
Date DECEMBER 27, 2018
PERMIT NUMBER PP599
Association of Professional Engineers of Yukon

PROFESSIONAL ENGINEER
YUKON TERRITORY
AMIR JAMSHIDI

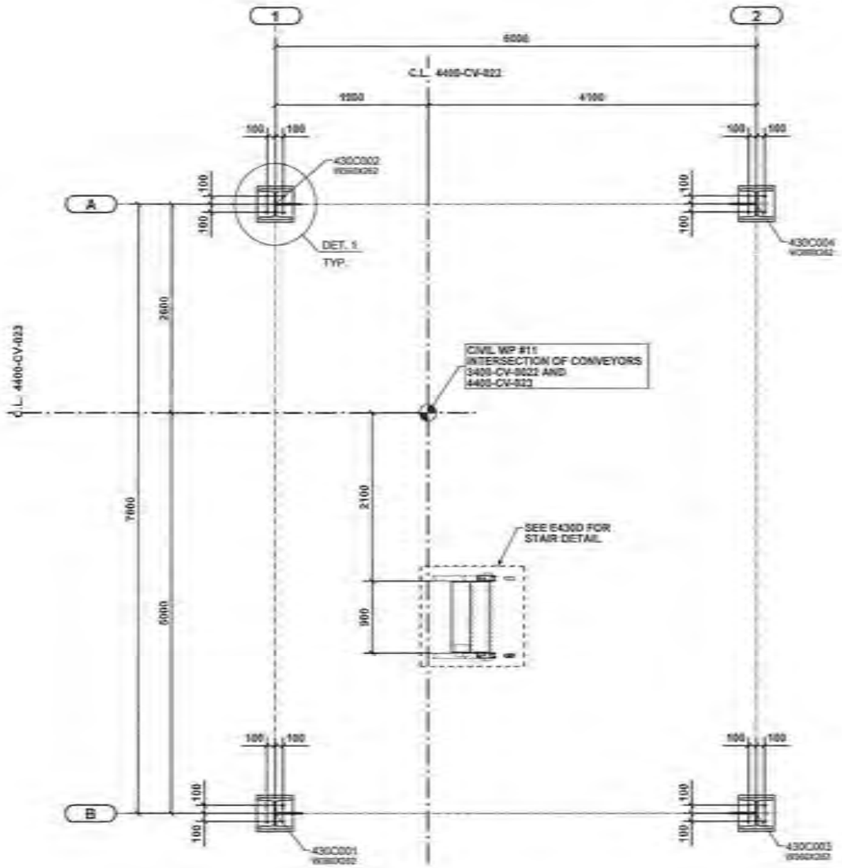
| No | DD/MM/YYYY | REVISION | CODE | BY |
|---|---|---|---|---|
| A | 27.11.2018 | For Approval | | AMG |

SUPREME STEEL

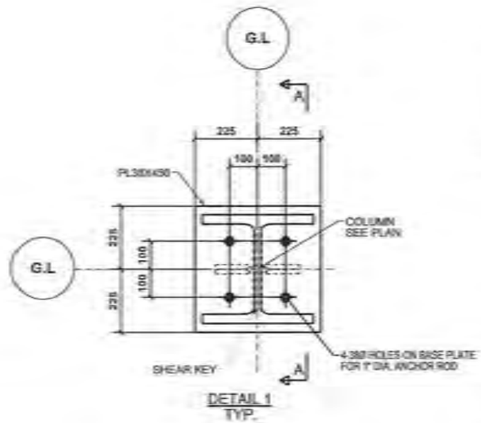
Cust: JDS ENERGY & MINING INC.
Proj: TRANSFER TOWER 3 - GRATING LAYOUT
Area: EAGLE GOLD PROJECT, YT
Ref: H354138-3400-232-260-0002
Desc: OVERLAND CONVEYING - PLAN EL. 1024.750

Drawn: VCO 22/Nov/2018
Checked: AMG 22/Nov/2018
Job: 10234
Dic: 0340
Drawing: E340H

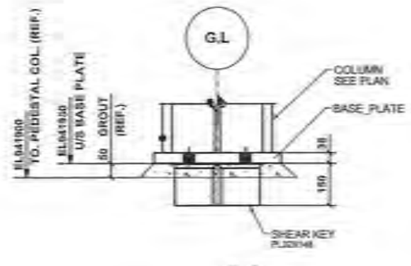
North



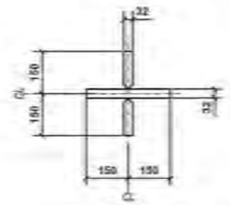

COLUMN BASE PLAN
U/S BASE PLATE ELEVATION 941.950




DETAIL 1
TYP.




A - A




SHEAR KEY DETAIL

PERMIT TO PRACTICE
SUPREME CONSTRUCTION MANAGEMENT LP
SIGNATURE
Date DECEMBER 27, 2019
PERMIT NUMBER PP599
Association of Professional
Engineers of Yukon

PROFESSIONAL ENGINEER
YUKON TERRITORY
AMIR JAMSHIDI

SUPREME GROUP
REVIEWED BY
QUALITY CONTROL
BY: Amanda Shaw QM
DATE: March 20/19

SUPREME IS SOLELY RESPONSIBLE FOR CONNECTION DESIGN THAT WAS NOT PROVIDED BY THE ENGINEER OF RECORD. CONNECTIONS DESIGNED BY THE ENGINEER OF RECORD, SECTION AND MEMBER SIZES ARE NOT THE RESPONSIBILITY OF SUPREME. ENGINEER OF RECORD IS RESPONSIBLE TO ENSURE THE STRUCTURE IS ERECTED AS PER STAMPED DRAWINGS. ERECTION IS NOT THE RESPONSIBILITY OF SUPREME.

SHIM PLATE LIST ALL SHIMS Thk x 51 x 51
2 SHIM STACKS PER COLUMN

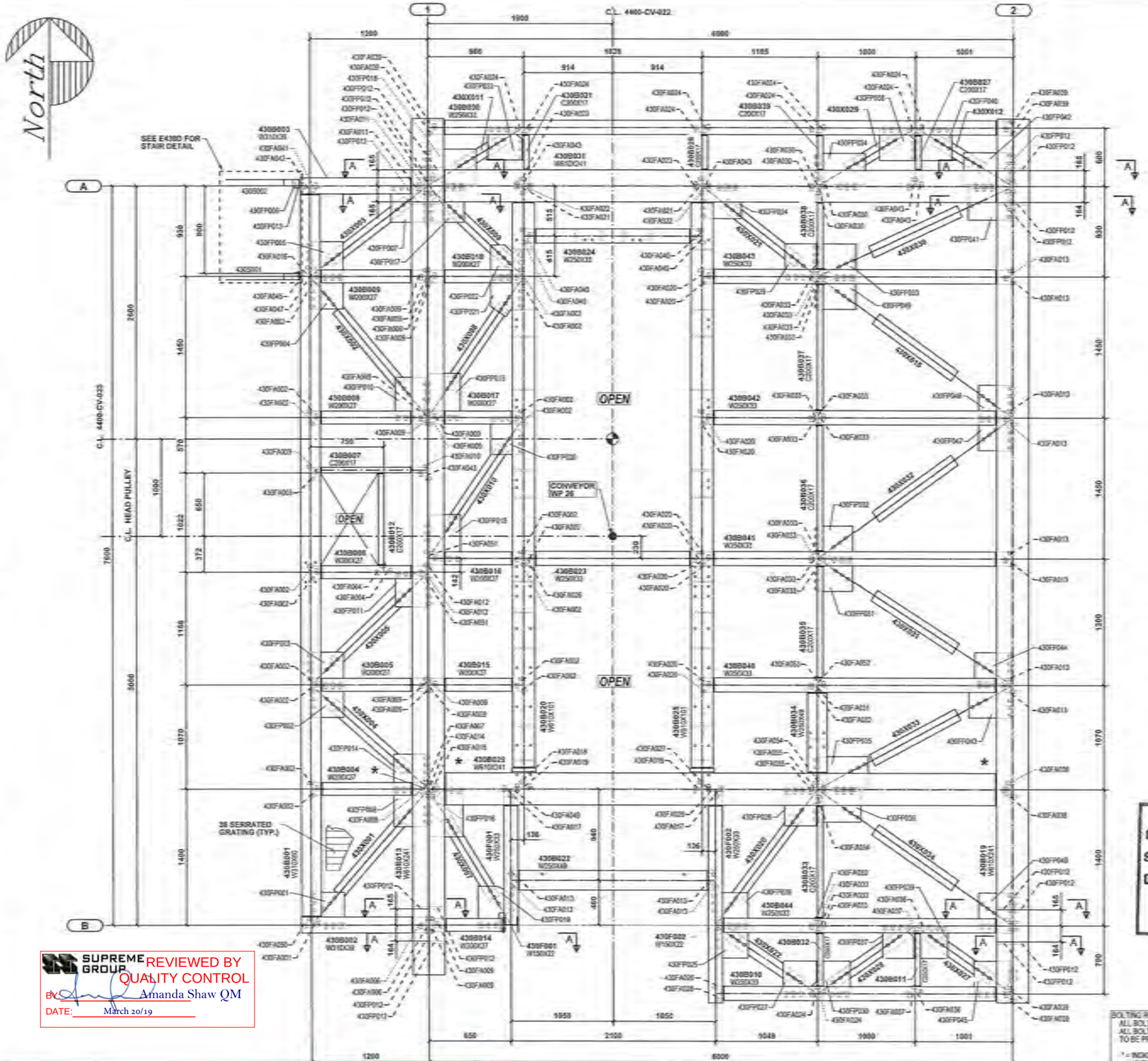
| GROUT ALLOW | QTY 13 THK | QTY 6 THK | QTY 5 THK | QTY 3 THK |
|---|---|---|---|---|
| 50 | 3 | 1 | 1 | 2 |

| No | DD/MM/YYYY | REVISION | CODE | BY |
|---|---|---|---|---|
| 0 | 10.12.2019 | For Fabrication 3-023 | | JCC |
| A | 26.11.2019 | For Approval | | AMD |

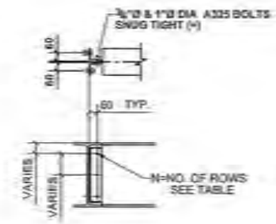
SUPREME STEEL

Cust: JDS ENERGY & MINING INC.
Proj: TRANSFER TOWER TT-4
Area: EAGLE GOLD PROJECT, YT
Ref: H354138-4300-232-260-0002
Desc: COLUMN BASE PLAN

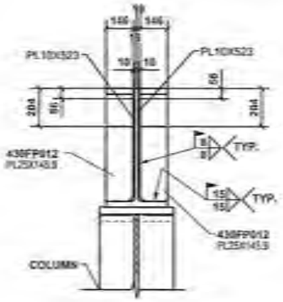
Drawn: CES 22/Nov/2019
Checked: RSA 26/Nov/2019
Job: 10234
Dw: 0430
Drawing: E430A



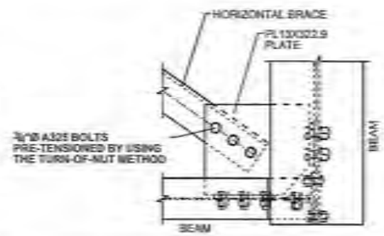

| BEAM SIZE | CLIP ANGLE MARKS U/N | N=ROWS OF BOLTS U/N |
|---|---|---|
| W610X241 | 430FA014, 430FA015, 430FA036 | 5 |
| W610X101 | 430FA018, 430FA019, 430FA021, 430FA022, 430FA027 | 4 |
| W310X60 | 430FA001, 430FA050, 430FA041, 430FA041 | 2 |
| W310X39 | 430FA005, 430FA011 | 3 |
| W250X49 | 430FA013, 430FA031, 430FA032, 430FA054, 430FA055 | 2 |
| W250X33 | 430FA013, 430FA017, 430FA020, 430FA025, 430FA049 430FA026, 430FA028, 430FA029, 430FA039, 430FA040 | 2 |
| W200X27 | 430FA002, 430FA007, 430FA008, 430FA009, 430FA012, 430FA047, 430FA051 | 2 |
| C200X17 | 430FA003, 430FA004, 430FA052, 430FA010, 430FA023, 430FA024, 430FA030, 430FA053, 430FA033, 430FA034, 430FA035, 430FA036, 430FA037, 430FA043 | 2 |
| C250X23 | 430FA016, 430FA045, 430FA048 | 2 |




TYPICAL FIELD ASSEMBLY DETAIL
FOR BOLTING LOOSE CLIP ANGLES




A-A




TYPICAL FIELD ASSEMBLY DETAIL FOR BOLTING AT HORIZONTAL BRACE

PERMIT TO PRACTICE
SUPREME CONSTRUCTION MANAGEMENT LP
SIGNATURE
Date DECEMBER 27, 2018
PERMIT NUMBER PP599
Association of Professional Engineers of Yukon

PROFESSIONAL ENGINEER
YUKON TERRITORY
AMIR JAMSHIDI

SUPREME GROUP REVIEWED BY QUALITY CONTROL
BY: Amanda Shaw QM
DATE: March 20/19

SUPREME IS SOLEY RESPONSIBLE FOR CONNECTION DESIGN THAT WAS NOT PROVIDED BY THE ENGINEER OF RECORD. CONNECTIONS DESIGNED BY THE ENGINEER OF RECORD, SECTION AND MEMBER SIZES ARE NOT THE RESPONSIBILITY OF SUPREME. ENGINEER OF RECORD IS RESPONSIBLE TO ENSURE THE STRUCTURE IS ERECTED AS PER STAMPED DRAWINGS. ERECTION IS NOT THE RESPONSIBILITY OF SUPREME.

FRAMING PLAN AT EL. +947.230 (TOS) (UNO)
TOP OF GRATING= EL + 947.268
ALL HORIZONTAL BRACINGS AT -75 FROM TOS (TYP.)
ALL HORIZONTAL BRACINGS L127X127X13 (TYP. UNO)

BOLTING REQUIREMENTS:
ALL BOLTS TO BE 3/4" DIA. A325 U/N
ALL BOLTS IN THE OUTSTANDING LEGS AND THE END PLATES TO BE PRE-TENSIONED USING TURN OFF THE NUT METHOD.
* = INDICATES JOINTS WITH 1" DIA. BOLTS
+ = INDICATES JOINTS WHERE BOLTS CAN BE SNUG TIGHT.

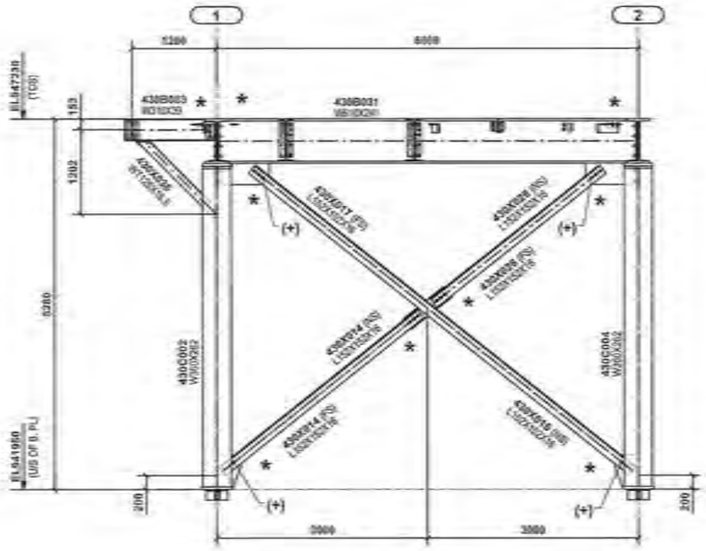
WORK WITH SHEET WITH DWG NO. E430C

| No. | DD.MM.YYYY | REVISION | CODE | BY |
|---|---|---|---|---|
| 0 | 18.12.2018 | For Fabrication Tests | | JCC |
| A | 28.11.2018 | For Approval | | AHG |

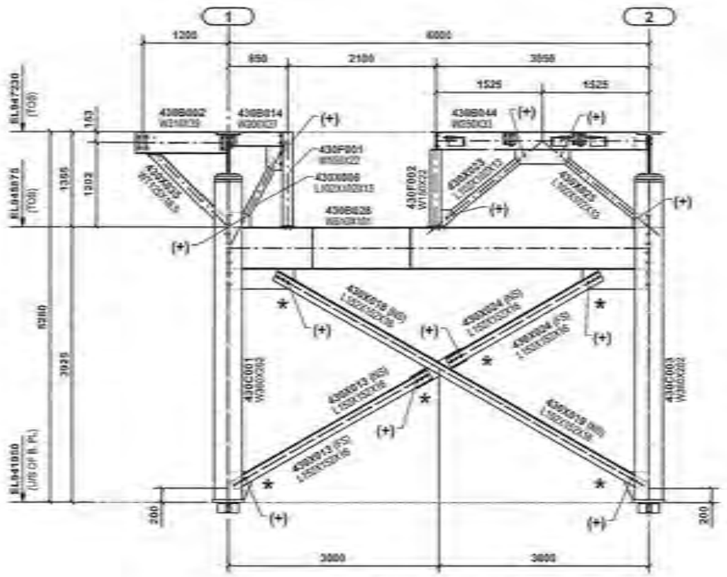
SUPREME STEEL

Cust: JDS ENERGY & MINING INC.
Prg: TRANSFER TOWER TT-4
Area: EAGLE GOLD PROJECT, YT
Ref: H354138-4300-232-260-0002
Desc: PLAN AT TOS 947.230

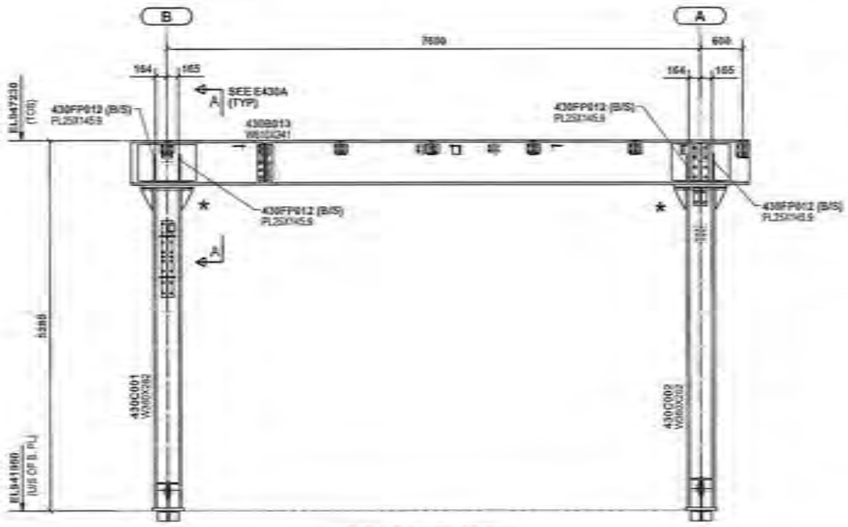
Drawn: CES 23Nov2018 | Checked: RSA 28Nov2018
Job: 10234 | Dir: 0430
Drawing: E430B



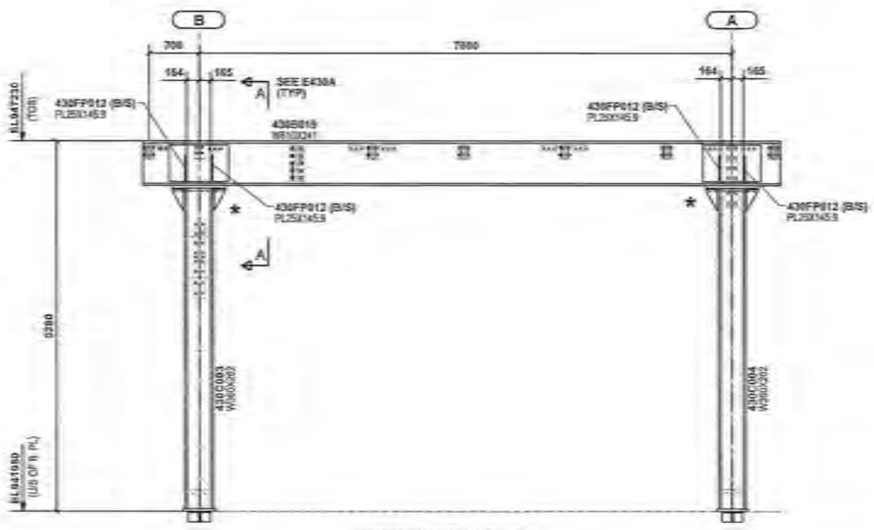
ELEVATION ON GRID A
LOOKING NORTH



ELEVATION ON GRID B
LOOKING NORTH



ELEVATION ON GRID 1
LOOKING WEST



ELEVATION ON GRID 2
LOOKING WEST

SUPREME GROUP REVIEWED BY QUALITY CONTROL
BY: Amanda Shaw QM
DATE: March 20/19

SUPREME IS SOLEY RESPONSIBLE FOR CONNECTION DESIGN THAT WAS NOT PROVIDED BY THE ENGINEER OF RECORD. CONNECTIONS DESIGNED BY THE ENGINEER OF RECORD, SECTION AND MEMBER SIZES ARE NOT THE RESPONSIBILITY OF SUPREME. ENGINEER OF RECORD IS RESPONSIBLE TO ENSURE THE STRUCTURE IS ERECTED AS PER STAMPED DRAWINGS. ERECTION IS NOT THE RESPONSIBILITY OF SUPREME.

PERMIT TO PRACTICE
SUPREME CONSTRUCTION MANAGEMENT LP
SIGNATURE
Date DECEMBER 27, 2018
PERMIT NUMBER PP599
Association of Professional Engineers of Yukon

PROFESSIONAL ENGINEER
YUKON TERRITORY
AMIR JAMSHIDI

BOLTING REQUIREMENTS:
ALL BOLTS TO BE ¾" DIA. A325 UIN
ALL BOLTS IN THE OUTSTANDING LEGS AND THE END PLATES TO BE PRE-TENSIONED USING TURN OFF THE NUT METHOD.
* = INDICATES JOINTS WITH 1" DIA. BOLTS
+ = INDICATES JOINTS WHERE BOLTS CAN BE SNUG TIGHT.

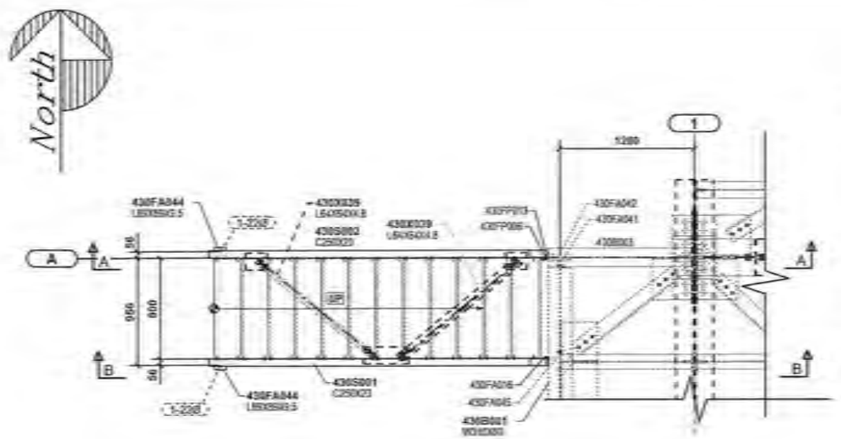
WORK WITH SHEET WITH DWG NO. E430B

| No | DD/MM/YYYY | REVISION | CODE | BY |
|---|---|---|---|---|
| 0 | 10.12.2018 | For Fabrication TH023 | | JDC |
| A | 26.11.2018 | For Approval | | ANG |

SUPREME STEEL

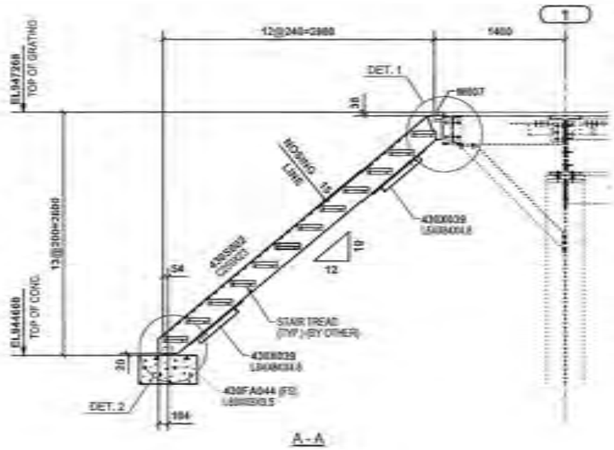
Cust: JDS ENERGY & MINING INC.
Proj: TRANSFER TOWER TT-4
Area: EAGLE GOLD PROJECT, YT
Ref: H354138-4300-232-260-0003
Dwg: ELEVATIONS AND SECTIONS

Drawn: CES 23Nov2018
Checked: RSA 23Nov2018
Job: 10234
Div: 0430
Drawing: E430C

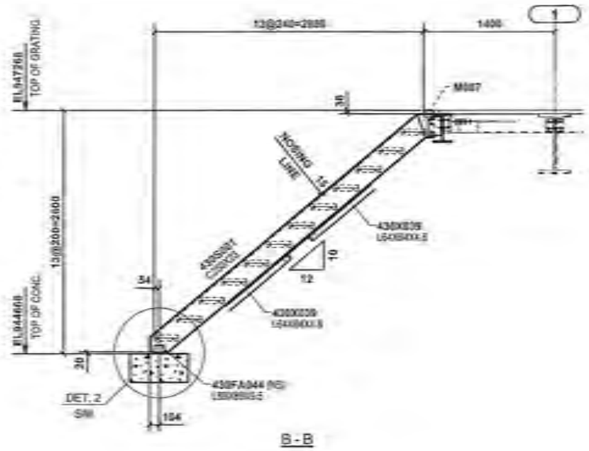



STAIR LOCATION PLAN AT EL +947.230 (TOS) (UNO)

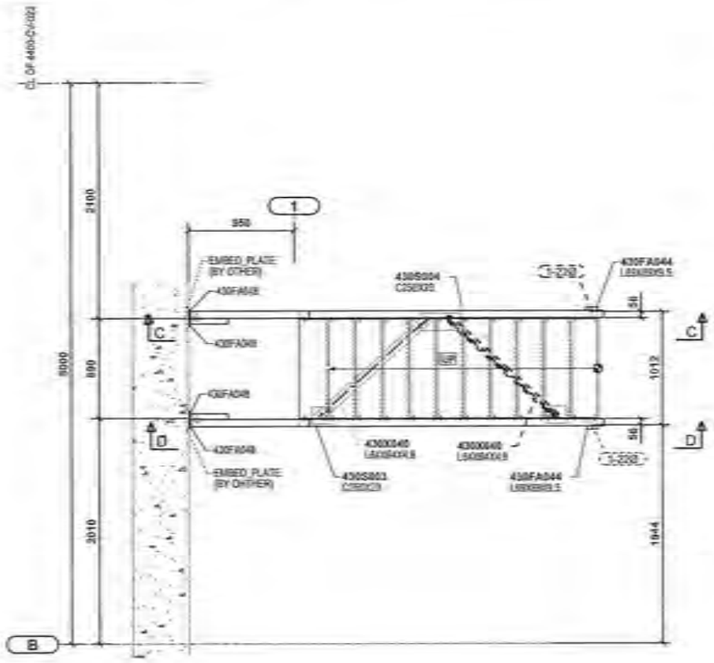
TOP OF GRATING= EL + 947.398




A - A

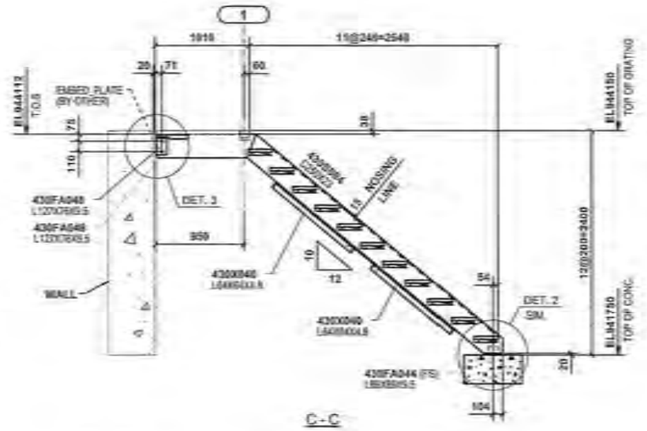



B - B

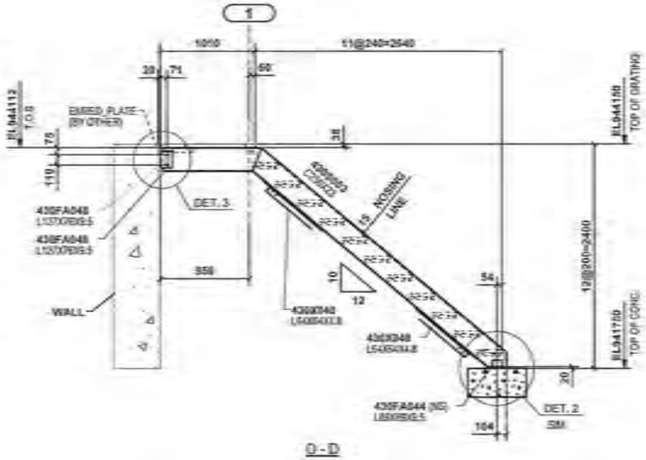



STAIR LOCATION PLAN AT EL +944.112 (TOS) (UNO)

TOP OF GRATING= EL + 944.150




C - C

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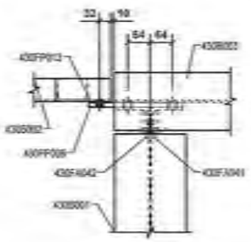
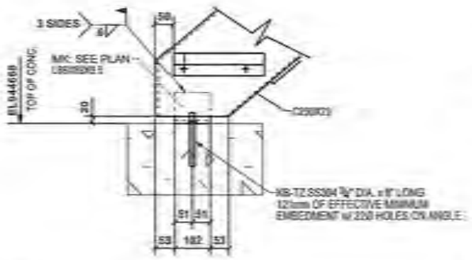
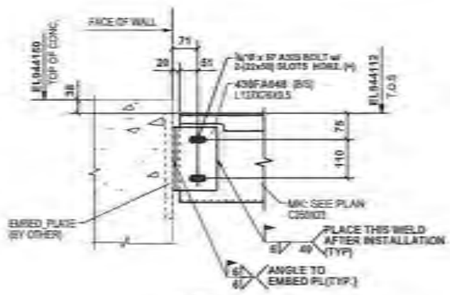


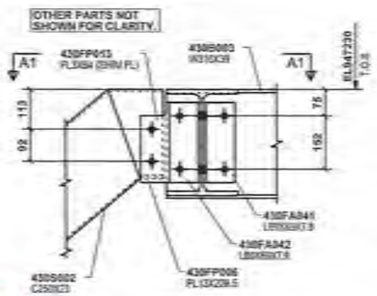

A1 - A1




DETAIL 2




DETAIL 3




DETAIL 1

PERMIT TO PRACTICE
SUPREME CONSTRUCTION MANAGEMENT LP
SIGNATURE
Date DECEMBER 27, 2018
PERMIT NUMBER PP599
Association of Professional Engineers of Yukon

PROFESSIONAL ENGINEER
YUKON TERRITORY
AMIR JAMSHIDI

SUPREME GROUP
REVIEWED BY QUALITY CONTROL
BY: Amanda Shaw QM
DATE: March 20/19

SUPREME IS SOLELY RESPONSIBLE FOR CONNECTION DESIGN THAT WAS NOT PROVIDED BY THE ENGINEER OF RECORD. CONNECTIONS DESIGNED BY THE ENGINEER OF RECORD, SECTION AND MEMBER SIZES ARE NOT THE RESPONSIBILITY OF SUPREME. ENGINEER OF RECORD IS RESPONSIBLE TO ENSURE THE STRUCTURE IS ERECTED AS PER STAMPED DRAWINGS. ERECTION IS NOT THE RESPONSIBILITY OF SUPREME.

BOLTING REQUIREMENTS:
ALL BOLTS TO BE ¾" DIA. A325 UN
ALL BOLTS IN THE OUTSTANDING LEGS AND THE END PLATES TO BE PRE-TENSIONED USING TURN OFF THE NUT METHOD.
* = INDICATES JOINTS WITH 1" DIA. BOLTS
+ = INDICATES JOINTS WHERE BOLTS CAN BE SNUG TIGHT.

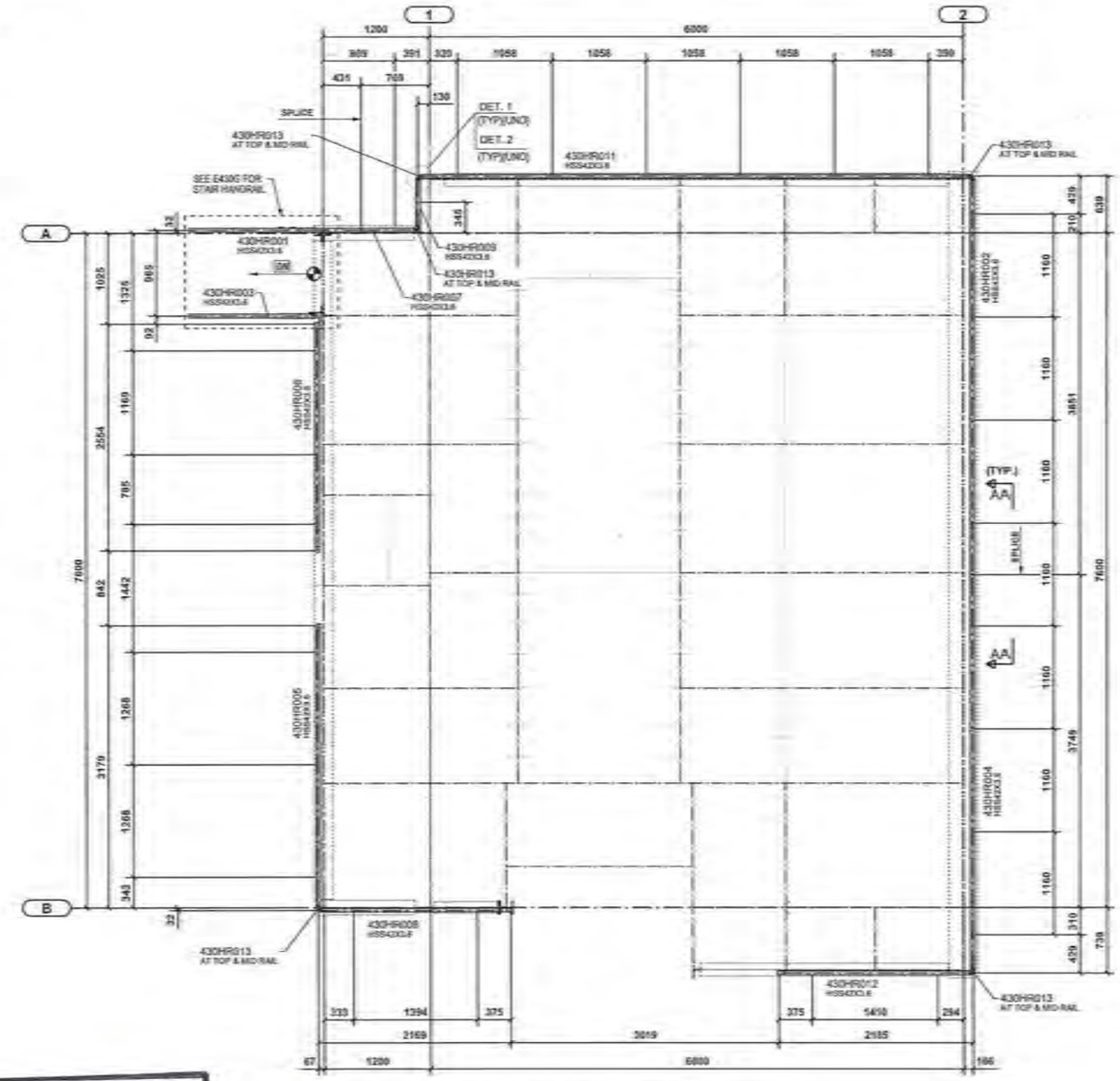
| | | | | |
|---|---|---|---|---|
| 0 | 10.12.2018 | For Fabrication 7-003 | | JCC |
| A | 26.11.2018 | For Approval | | MMS |
| No. | DD/MM/YYYY | REVISION | CODE | BY |

SUPREME STEEL

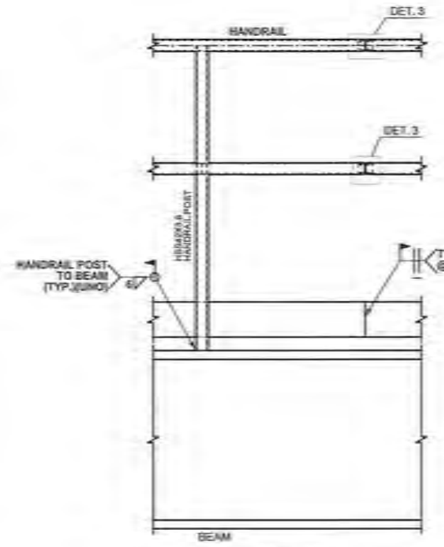
Cust: JDS ENERGY & MINING INC.
Proj: TRANSFER TOWER TT-4
Area: EAGLE GOLD PROJECT, YT
Ref: H354138-3400-232-260-0002 & 0003
Desc: STAIR PLANS & ELEVATIONS

Drawn: CES 27/Nov/2018
Checked: RSA 28/Nov/2018
Job: 10234
Div: 0430
Drawing: E430D

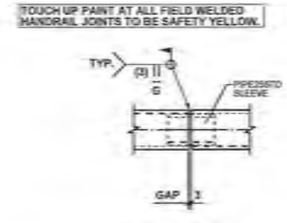
North



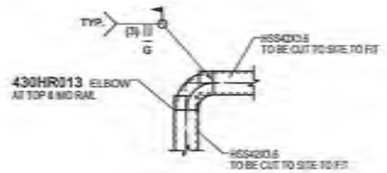

HANDRAIL PLAN AT EL. +947.230 (TOS)



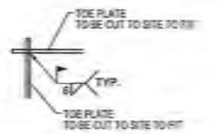

AA - AA
TYPICAL DETAIL OF HANDRAIL SPLICE




DETAIL - 3
TYPICAL SPLICE DETAIL




DETAIL - 1
TOP & MIDRAIL @ CORNER TYPICAL DETAIL




DETAIL - 2
TOE PLATE TYPICAL DETAIL @ CORNER

PERMIT TO PRACTICE
SUPREME CONSTRUCTION MANAGEMENT LP
SIGNATURE
Date DECEMBER 21, 2018
PERMIT NUMBER PP599
Association of Professional
Engineers of Yukon

SUPREME GROUP
REVIEWED BY
QUALITY CONTROL
BY: Amanda Shaw QM
DATE: March 20/19

PROFESSIONAL
YUKON
AMIR JAMSHIDI
TERRITORY
ENGINEER

SUPREME IS SOLEY RESPONSIBLE FOR CONNECTION DESIGN THAT WAS NOT PROVIDED BY THE ENGINEER OF RECORD. CONNECTIONS DESIGNED BY THE ENGINEER OF RECORD, SECTION AND MEMBER SIZES ARE NOT THE RESPONSIBILITY OF SUPREME. ENGINEER OF RECORD IS RESPONSIBLE TO ENSURE THE STRUCTURE IS ERECTED AS PER STAMPED DRAWINGS. ERECTION IS NOT THE RESPONSIBILITY OF SUPREME.

WORK WITH SHEET WITH DWG NO. E430G & E430H

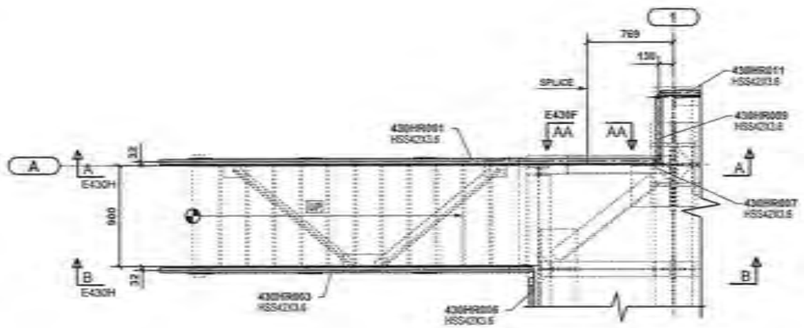
| | | | | |
|---|---|---|---|---|
| 0 | 10.12.2018 | For Field Use | | ANG |
| A | 26.11.2018 | For Approval | | ANG |
| No | DD.MM.YYYY | REVISION | CODE | BY |

SUPREME STEEL

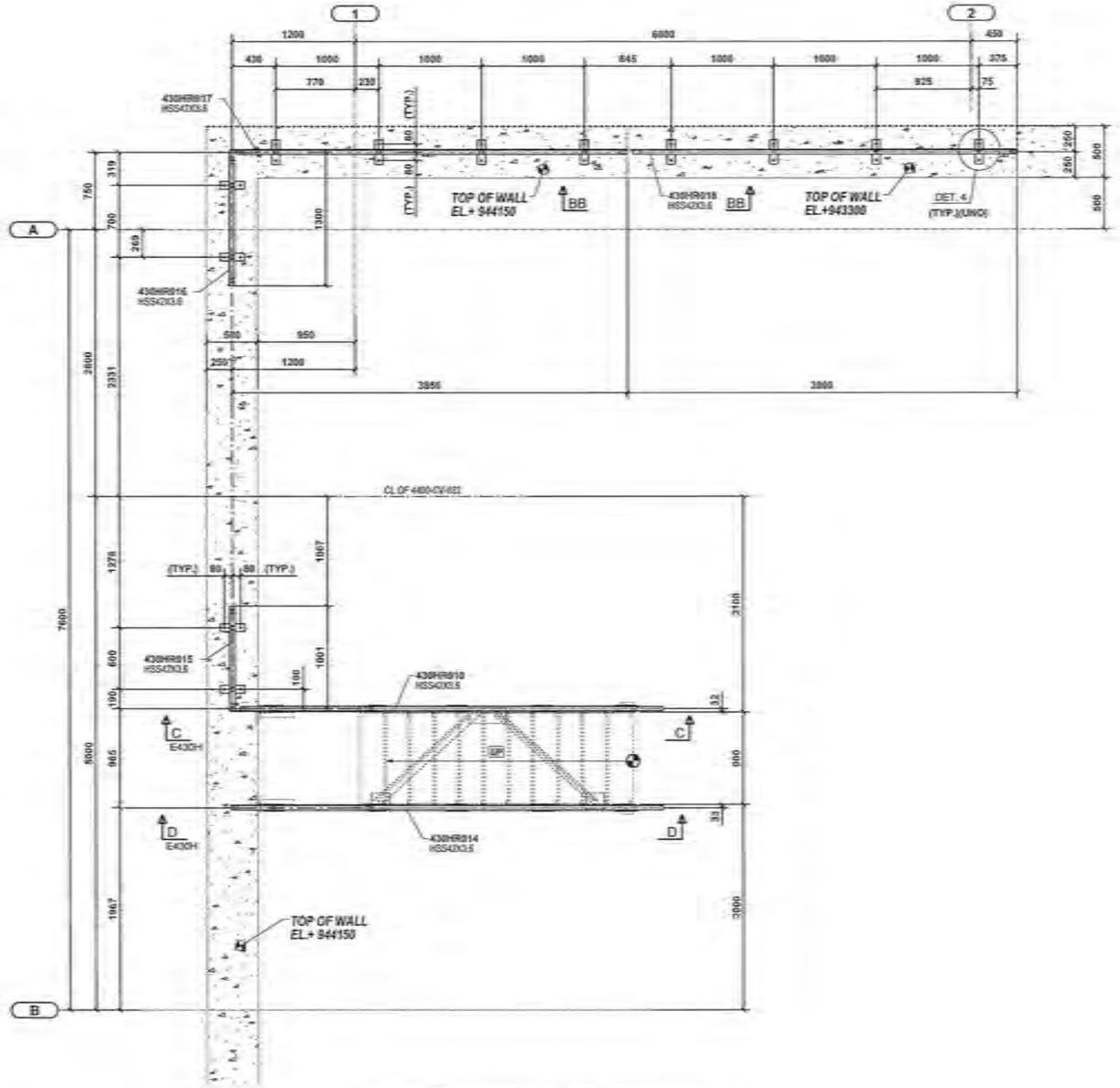
Cust: JDS ENERGY & MINING INC.
Proj: TRANSFER TOWER TT-4
Area: EAGLE GOLD PROJECT, YT
Ref: H354138-3400-232-260-0002 & 0003
Desc: HANDRAIL LOCATION PLAN & ELEVATION

Drawn: CES 22/Nov/2018
Checked: RSA 26/Nov/2018
Job: 10234
Dw: 0430
Drawing: E430F

North




HANDRAIL PLAN AT EL. +947.230 (TOS) (UNO)

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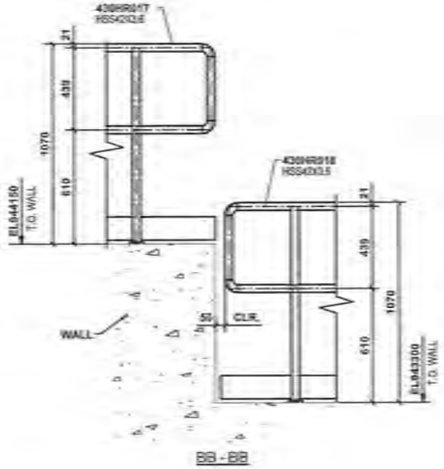
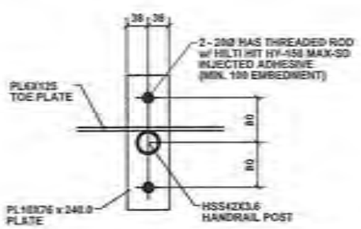



BB - BB




DETAIL 4
TYPICAL HANDRAIL CONNECTION TO CONCRETE

PERMIT TO PRACTICE
SUPREME CONSTRUCTION MANAGEMENT LP
SIGNATURE
Date DECEMBER 27, 2018
PERMIT NUMBER PP599
Association of Professional
Engineers of Yukon

PROFESSIONAL
YUKON
AMIR JAMSHIDI
TERRITORY
ENGINEER

SUPREME GROUP
REVIEWED BY
QUALITY CONTROL
BY: Amanda Shaw QM
DATE: March 20/19

SUPREME IS SOLEY RESPONSIBLE FOR CONNECTION DESIGN THAT WAS NOT PROVIDED BY THE ENGINEER OF RECORD. CONNECTIONS DESIGNED BY THE ENGINEER OF RECORD, SECTION AND MEMBER SIZES ARE NOT THE RESPONSIBILITY OF SUPREME. ENGINEER OF RECORD IS RESPONSIBLE TO ENSURE THE STRUCTURE IS ERECTED AS PER STAMPED DRAWINGS. ERECTION IS NOT THE RESPONSIBILITY OF SUPREME.

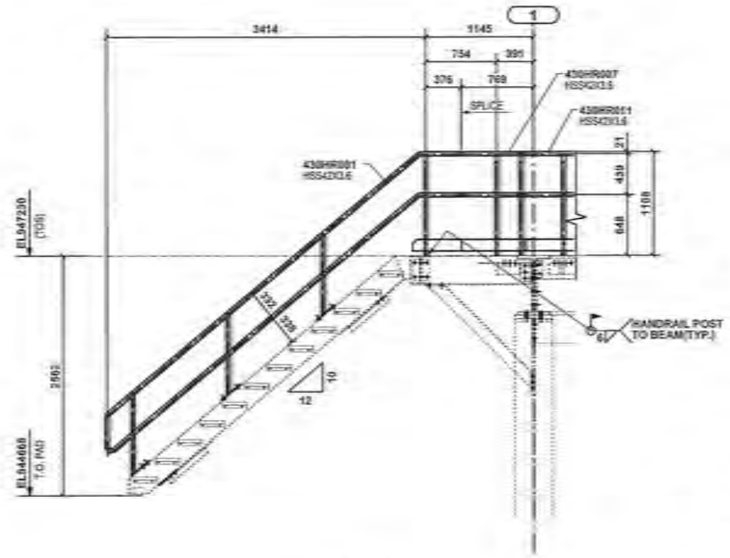
WORK WITH SHEET WITH DWG NO. E430F & E430H

| | | | | |
|---|---|---|---|---|
| 0 | 15.12.2018 | For Field Use | | AWG |
| A | 28.11.2018 | For Approval | | AWG |
| No. | DD.MM.YYYY | REVISION | CODE | BY |

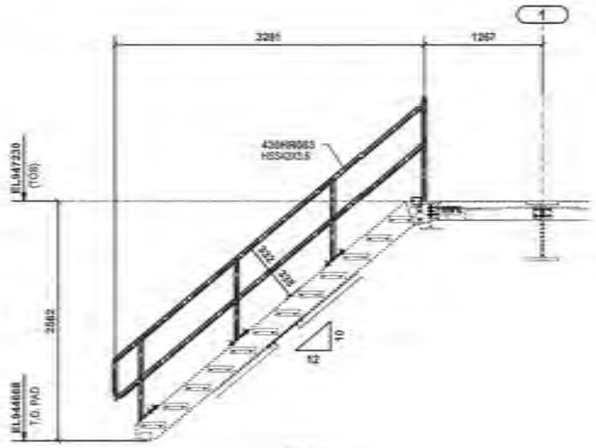
SUPREME STEEL

Cust: JDS ENERGY & MINING INC.
Proj: TRANSFER TOWER TT-4
Area: EAGLE GOLD PROJECT, YT
Ref: H354138-3400-232-260-0002 & 0003
Desc: HANDRAIL LOCATION PLAN & ELEVATION @ STAIR

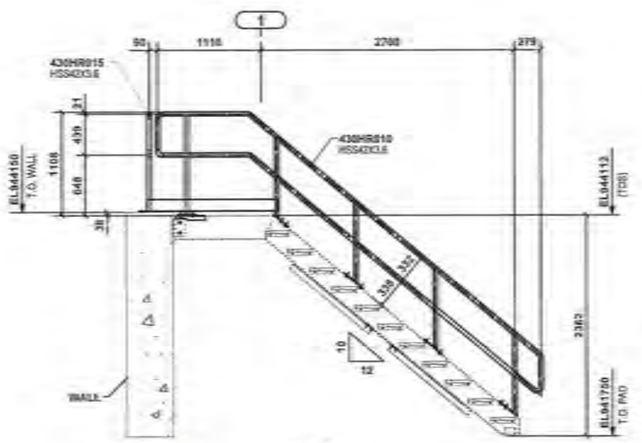
Drawn: CES 27/Nov/2018
Checked: RSA 27/Nov/2018
Job: 10234
Dwg: 0430
Drawing: E430G



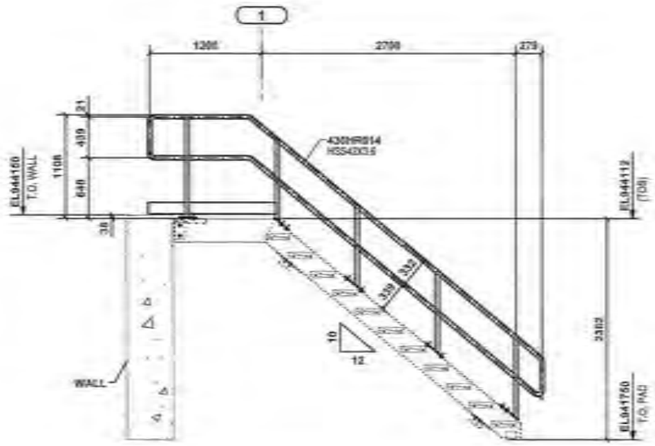

A - A
E430G




B - B
E430G




C - C
E430G




D - D
E430G

PROFESSIONAL
YUKON
AMIR JAMSHIDI
TERRITORY
ENGINEER

SUPREME GROUP
REVIEWED BY
QUALITY CONTROL
BY: Amanda Shaw QM
DATE: March 20/19

PERMIT TO PRACTICE
SUPREME CONSTRUCTION MANAGEMENT LP
SIGNATURE
Date DECEMBER 27, 2018
PERMIT NUMBER PP599
Association of Professional
Engineers of Yukon

SUPREME IS SOLEY RESPONSIBLE FOR CONNECTION DESIGN THAT WAS NOT PROVIDED BY THE ENGINEER OF RECORD. CONNECTIONS DESIGNED BY THE ENGINEER OF RECORD, SECTION AND MEMBER SIZES ARE NOT THE RESPONSIBILITY OF SUPREME. ENGINEER OF RECORD IS RESPONSIBLE TO ENSURE THE STRUCTURE IS ERECTED AS PER STAMPED DRAWINGS. ERECTION IS NOT THE RESPONSIBILITY OF SUPREME.

| No | DD/MM/YYYY | REVISION | CODE | BY |
|---|---|---|---|---|
| 0 | 10.12.2018 | For Field Use | | AVG |

SUPREME STEEL

Cust: JDS ENERGY & MINING INC.
Proj: TRANSFER TOWER TT-4
Area: EAGLE GOLD PROJECT, YT
Ref: H354138-3400-232-260-0002 & 0003
Desc: HANDRAIL ELEVATION AT STAIR

Drawn: ACS 10/Dec/2018
Checked: RSA 10/Dec/2018
Job: 10234
Div: 0430
Drawing: E430H

# ATTACHMENT B

## Request for Information Forms

# RFI #81

Clark Builders
4703 - 52 Avenue
Edmonton, Alberta T6B 3R6
Phone: (780) 395-3300
Fax: (780) 395-3545

**Project:** 18502 - CB201-JDS - Stratagold Eagle Gold
Yukon Territory

## 3400 Stirrups Modification for Pedestals P5 and P6

| | | | |
|---|---|---|---|
| **TO:** | Calvin Goldschmidt **(JDS Energy and Mining)** | **FROM:** | Ryan de Milliano **(Clark Builders - Edmonton)** Edmonton, Alberta |
| **DATE INITIATED:** | 02/10/2018 | **STATUS:** | Open |
| **LOCATION:** | 3400 Overland Conveyor | **DUE DATE:** | 08/10/2018 |
| **PROJECT STAGE:** | | **COST CODE:** | 03-3201 - REINFORCE STEEL/MESH |
| **SUB JOB:** | | **SCHEDULE IMPACT:** | No |
| **COST IMPACT:** | No | **SPEC SECTION:** | S032000 - Concrete Reinforcing Steel |
| **DRAWING NUMBER:** | | **REFERENCE:** | |
| **LINKED DRAWINGS:** | | | |
| **RECEIVED FROM:** | Jimmy Menchenton **(Ultimate Reinforcing)** | | |

**COPIES TO:**
Chris Copley **(JDS Energy and Mining)**, Matt Coverdale **(JDS Energy and Mining)**, Garry Dahl **(Clark Builders - Edmonton)**, Marion Fyshe **(McNish Steel)**, Gary Hosey **(Clark Builders - Edmonton)**, James Meadahl **(Frontier Employees Inc.)**, Jimmy Menchenton **(Ultimate Reinforcing)**, Peter Nice **(Clark Builders - Edmonton)**, Dan Pelletier **(Frontier Employees Inc.)**, Henry Rueda **(Clark Builders - Edmonton)**, Mark Tillmanns **(McNish Steel)**, Jackson Wenger **(Clark Builders - Edmonton)**

### Question from Ryan de Milliano (Clark Builders - Edmonton) at 09:10 PM on 30/09/2018

Please confirm it would be acceptable to modify the stirrups, for pedestal types P5 and P6, as noted in the attached sketches/markups.

There are 3 changes being requested:
1. Use 3 large stirrups in each pedestal to avoid the embedded items.
2. Use hairpin stirrups to connect each side to avoid stirrup congestion and allow faster and easier installation.
3. In the P6 Pedestal, allow fabrication and use of the same triangle stirrup used in Pedestal P5.

**Attachments:**
67BE36A6-17A3-4D9B-B029-E27C5F746C06-11766-000003C33582595D_image.jpg AFB9F889-9AF3-4065-926F-FD022BFA3823-11766-000003C335884DC9_image.jpg 99534FEB-BE13-40A0-B959-F9BC0D8EB27A-11766-000003C3358BEA54_image.jpg

Awaiting an Official Response

### All Replies:

It is acceptable to modify the pedestals P5 and P6 shown on dwg H354138-3400-231-260-0005 as described below:

1. Use 3 large stirrups in each pedestal as shown on your sketch
2. Use S shape hairpin with hooks on both ends to connect every other bar in the short direction, except the ones at the corners of the big stirrups (bars at the inside corner of stirrups or connected by an S shape hairpin are considered as restrained. Every other longitudinal bar needs to be restrained.)
3. In pedestal P6, it is accepted to use the same triangle stirrup used in P5 as shown on your sketch

| Esra Akinci | Oct 3, 2018 | |
|---|---|---|
| **BY** | **DATE** | **COPIES TO** |

# ATTACHMENT C

## Field Review Reports

# CONTRACTOR/INTERDISCIPLINE RELEASE FORM

Victoria GOLD CORP

| | | | |
|---|---|---|---|
| **Project:** | Eagle Gold Project | **Revision No.** | 0 |
| **Contractor:** | Clark Builders | **Contract No:** | CB201 |
| **Area:** | 3330 – Transfer Tower 2 | | |

| | | | |
|---|---|---|---|
| **Date** *(mm/dd/yy)*: | 02/09/2018 | **Drawing No:** | H354138-3330-231-260-0011 |
| **Discipline:** | Civil/Subgrade | | |

**The following:** **Area** ☒ **Equipment** ☐ **System** ☐ **Other** ☐

**(Provide complete description of area item, equipment system and Tag Numbers where applicable):**

**Subgrade preparation to 1025.500**

**Released to:** Clark Builders

**Release Basis:**

| | | | |
|---|---|---|---|
| ☒ | Civil | ☐ | Paintings/Coatings |
| ☐ | Structural | ☐ | Electrical |
| ☐ | Mechanical | ☐ | Tracing |
| ☐ | Piping | ☐ | Insulation |
| ☐ | NDE | ☐ | Fireproofing |
| ☐ | PHWT | ☐ | Walkdown/Punchout |
| ☐ | Pressure Test | ☐ | Other |

**Comments:**

**In areas of concrete footprint Clark will be required to sub-excavate to 3 m below finished grade (1.5 m below bottom of foundation – elev. 1024.000) and backfill with 4" NFS compacted in 300 mm lifts as per Tetratech method spec for 4" minus NFS material**

**Coordinate and control points attached to this IDR**

| | | | |
|---|---|---|---|
| Dan Russell | Project Manager | | 09/06/2018 |
| Requested By *(Print)* | Title | Signature | Date *(mm/dd/yy)* |
| Ishan Fechter | Const. Super | | 09/06/2018 |
| Release Authorized By *(Print)* | Title | Signature | Date *(mm/dd/yy)* |
| GARRY DAHL | Supt. | | Sept 18/18 |
| Release Received/Accepted By *(Print)* | Title | Signature | Date *(mm/dd/yy)* |

VICEAG05E

Underhill Geomatics Ltd.
Surveyor: D. Boyle
Survey Date: 2018-09-06

| Transfer Tower 2 Survey Control for Clark builders |
|---|
| Coordinates are ground level. SF=1 |
| Elevations are orthometric. |

| Point # | Northing | Easting | Elevation |
|---|---|---|---|
| 4446 | 100295.045 | 59800.895 | 1025.638 |
| 4447 | 100344.197 | 59814.763 | 1026.521 |
| 4448 | 100336.636 | 59832.349 | 1026.708 |
| WP7 | 100325.526 | 59816.908 | |

| Point 4446 to 4447 |
|---|
| AZ=15°45'22" HD=51.071m |

Coordinate Methodology

Control Points are set based off of Traverse network from Secondary Control Poin
Control points are truncated to differentiate from UTM coordinates

# ORE PREP PAD AND OVERLAND CONVEYOR FIELD REPORT

| | | | |
|---|---|---|---|
| **To:** | Roman Bilobrowka; Calvin Goldschmidt; Chris Copley, Matt Coverdale, Mike Blusson | | |
| **Cc:** | Chad Cowan; Robert Zschuppe; James Buyck, John Purvis, Richard Oswell, Mark Estrada | **From:** | Scott Dimitroff |
| **Project:** | Ore Prep Pad and Overland Conveyor | **Date:** | September 22, 2018 |
| **Location:** | Eagle Gold Mine, YK | **Weather:** | Overcast |
| **Client:** | JDS | | High 9°C |
| **File:** | ENG.WARC03235-02.005 | | Low -2°C |

## 1.0 ORE PREP PAD AND OVERLAND CONVEYOR

- JDS requested that TetraTech provide construction monitoring for the Ore Prep Pad and Overland Conveyor.
- Arrived on site to find that a pad approximately 4 metres high had already been placed. The pad was being built out of excavated Type 3 material from the cut for the ore pad. Material was being packed with loaded haul trucks as the packer was broken down.
- The area from sta. 1100 ( Dublin Gulch Creek ) to the pad appeared to have been excavated down to original ground with an organic spill pile on the east edge.
- Proof rolling with a loaded 40 ton haul truck indicated some soft, wet areas that needed to be removed. The contractor was in the process of doing this.

## 2.0 DISCUSSION/OTHER

- TetraTech will provide monitoring of the fill placement.
- Lifts of the Type 3 were being placed in 0.7 metre lifts. Contractor was advised to reduce lifts to 0.3 metres but continued with 0.7 metre lifts.

Tetra Tech Canada Inc.
14940 - 123 Avenue
Edmonton, AB T5V 1B4 CANADA
p. 780.451.2121 f. 780.454.5688

# 3.0 CLOSURE

We trust that the information provided herein is accurate and complete. Please contact the undersigned if you require additional information or have any concerns.

Tetra Tech Canada Inc.

Scott Dimitroff
Senior Project Technologist
Arctic Group
Cell: 587.983.2850
Scott.Dimitroff@tetratech.com




Looking south from pad to Dublin Gulch




Looking SW




Organic layer on west side of excavation




Organic spill pile on East side




Pad on north end




Soft, wet areas on surface




Excavating soft areas




Type 3 fill placed on North side of culvert

# CONTRACTOR/INTERDISCIPLINE RELEASE FORM

| | | | |
|---|---|---|---|
| **Project:** | Eagle Gold Project | **Revision No.** | 0 |
| **Contractor:** | Heavy North | **Contract No:** | CC 206 |
| **Area:** | 3400-CV-022 | | |

| | | | |
|---|---|---|---|
| **Date** *(mm/dd/yy)*: | 04/10/2018 | **Drawing No:** | H354138-3400-231-260-0003 |
| **Discipline:** | Civil/Subgrade | | |

**The following:** **Area** ☒ **Equipment** ☐ **System** ☐ **Other** ☐

**(Provide complete description of area Item, equipment system and Tag Numbers where applicable):**

**Subgrade preparation for CV-022 Transfer Tower 3**

**Released to:** Clark Builders

**Release Basis:**

| | | | |
|---|---|---|---|
| ☒ | Civil | ☐ | Paintings/Coatings |
| ☐ | Structural | ☐ | Electrical |
| ☐ | Mechanical | ☐ | Tracing |
| ☐ | Piping | ☐ | Insulation |
| ☐ | NDE | ☐ | Fireproofing |
| ☐ | PHWT | ☐ | Walkdown/Punchout |
| ☐ | Pressure Test | ☐ | Other |

**Comments:**

**Transfer Tower 3 sub-excavated to 1.5 meters below design U/S of footing elevation; backfilled with 4" NFS material to U/S footing elevation**

| | | | |
|---|---|---|---|
| Tony Jay | Project Coordinator | | 10/04/18. |
| Requested By *(Print)* | Title | Signature | Date *(mm/dd/yy)* |
| Ishan Fechter | Superintendent | | 10/04/18 |
| Release Authorized By *(Print)* | Title | Signature | Date *(mm/dd/yy)* |
| Garry DAHL | Supt. | | 10/5/18 |
| Release Received/Accepted By *(Print)* | Title | Signature | Date *(mm/dd/yy)* |

VICEAG05E

| JDS Energy & Mining Inc. | CONTRACTOR/INTERDISCIPLINE RELEASE FORM | Victoria GOLD CORP |
|---|---|---|

| | | | |
|---|---|---|---|
| **Project:** | Eagle Gold Project | **Revision No.** | 0 |
| **Contractor:** | Heavy North | **Contract No:** | CC 206 |
| **Area:** | 3400-CV-022 - 1 | | |

| | | | |
|---|---|---|---|
| **Date** *(mm/dd/yy)*: | 06/10/2018 | **Drawing No:** | H354138-3400-231-260-0006, 0007 |
| **Discipline:** | Civil/Subgrade | | |

**The following:** Area ☒ Equipment ☐ System ☐ Other ☐

**(Provide complete description of area item, equipment system and Tag Numbers where applicable):**

**Subgrade preparation for CV-022 - Take-Up, GTU Weight Tower and Bent 2 footings**

**Released to:** Clark Builders

**Release Basis:**

| | | | |
|---|---|---|---|
| ☒ | Civil | ☐ | Paintings/Coatings |
| ☐ | Structural | ☐ | Electrical |
| ☐ | Mechanical | ☐ | Tracing |
| ☐ | Piping | ☐ | Insulation |
| ☐ | NDE | ☐ | Fireproofing |
| ☐ | PHWT | ☐ | Walkdown/Punchout |
| ☐ | Pressure Test | ☐ | Other |

1018.345 2018.10.26.

**Comments:**

**Take-Up sub-excavated to 1018.200 – encountered very hard rock; Hatch (Esra A.) approved raising the U/S footing elevation to 1018.200; backfilled with 4" NFS material to new U/S footing elevation 1018.200** vs. 1018.000 ORIG.

**GTU Weight Tower sub-excavated to U/S of footing elevation (in Rock); backfilled with 4" NFS material to U/S footing elevation 1018.00**

**Bent 2 sub-excavated to U/S of footing elevation (in Rock); backfilled with 4" NFS material to U/S footing elevation 1018.00**

2018.10.26 – GTU AND BENT 2 SUBGRADE SURVEY SHOWS THAT SUBGRADE ELEVATION IS HIGH AT SOME LOCATIONS. SEE ATTACHED SURVEY LAYOUT. HIGHEST POINT 1018.058.

| Requested By *(Print)* | Title | Signature | Date *(mm/dd/yy)* |
|---|---|---|---|
| Tony Jay | Project Coordinator, | [signature] | 10/06/18. |

| Release Authorized By *(Print)* | Title | Signature | Date *(mm/dd/yy)* |
|---|---|---|---|
| Ishan Fechter | Superintendent | [signature] | 10/06/18 |

| Release Received/Accepted By *(Print)* | Title | Signature | Date *(mm/dd/yy)* |
|---|---|---|---|
| GARRY DAHL | Supt | [signature] | 10/09/18 |

VICEAG05E

# CONTRACTOR/INTERDISCIPLINE RELEASE FORM

| | | | |
|---|---|---|---|
| **Project:** | Eagle Gold Project | **Revision No.** | 0 |
| **Contractor:** | Heavy North | **Contract No:** | CC 206 |
| **Area:** | 3400 – CV-022 | | |

| | | | |
|---|---|---|---|
| **Date** *(mm/dd/yy)*: | 08/10/2018 | **Drawing No:** | H354138-3400-231-260-0008 |
| **Discipline:** | Civil/Subgrade | | |

**The following:** **Area** ☒ **Equipment** ☐ **System** ☐ **Other** ☐

**(Provide complete description of area item, equipment system and Tag Numbers where applicable):**

**Subgrade preparation for CV-022 Bent 4**

**Released to:** Clark Builders

**Release Basis:**

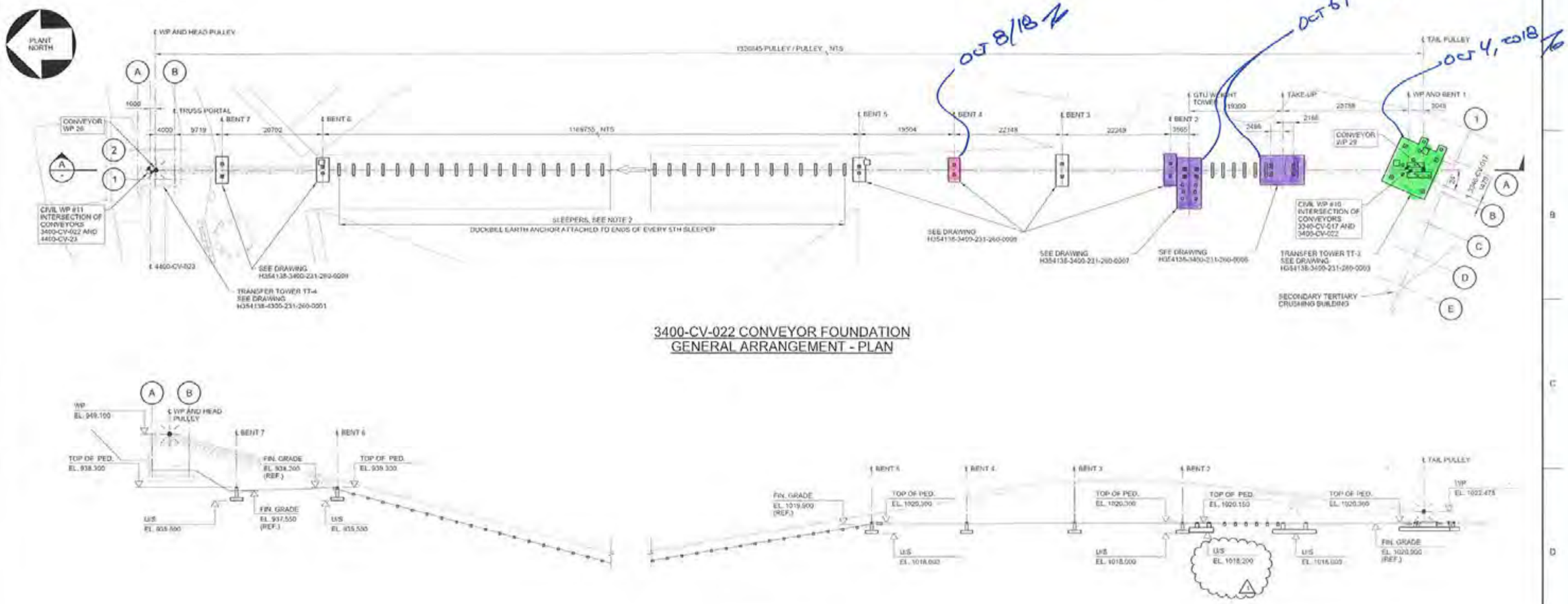
| | | | |
|---|---|---|---|
| ☒ | Civil | ☐ | Paintings/Coatings |
| ☐ | Structural | ☐ | Electrical |
| ☐ | Mechanical | ☐ | Tracing |
| ☐ | Piping | ☐ | Insulation |
| ☐ | NDE | ☐ | Fireproofing |
| ☐ | PHWT | ☐ | Walkdown/Punchout |
| ☐ | Pressure Test | ☐ | Other |

**Comments:**

**Bent 4 sub-excavated to 1.5 meters below design U/S of footing elevation; backfilled with 4" NFS material to U/S footing elevation – Ready for formwork/concrete placement**

| | | | |
|---|---|---|---|
| Tony Jay | Project Coordinator | | 10/08/18 |
| Requested By *(Print)* | Title | Signature | Date *(mm/dd/yy)* |
| Ishan Fechter | Superintendent | | 10/08/18 |
| Release Authorized By *(Print)* | Title | Signature | Date *(mm/dd/yy)* |
| GARRY DAHL | Supt | | 10/09/18 |
| Release Received/Accepted By *(Print)* | Title | Signature | Date *(mm/dd/yy)* |

H354138-3400-231-260-0002




3400-CV-022 CONVEYOR FOUNDATION
GENERAL ARRANGEMENT - PLAN

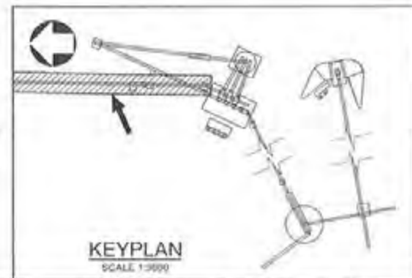



SECTION A

NOTES:

1. FOR GENERAL NOTES SEE DRAWING H354138-3400-231-260-0001.
2. FOR SLEEPERS AND SOIL ANCHOR DETAILS, SEE DRAWING H354138-2120-220-290-0004.
   FOR SLEEPER LOCATIONS AND SPACINGS SEE TEP DRAWING 17-0200-1102 AND -1103.

0 4 8 12 16 20
1:400 SCALE IN METRES



KEYPLAN
SCALE 1:3000

| DRAWING No. | DRAWING TITLE |
|---|---|
| REFERENCE DRAWINGS | |

2018-10-11
REG. PROFESSIONAL

| No. | DESCRIPTION | BY | CHK'D | DATE |
|---|---|---|---|---|
| 1 | GTU FOOTING U/S ELEVATION REVISED DUE TO SITE CONDITIONS | PJ | EA | 2018-10-10 |
| 0 | APPROVED FOR CONSTRUCTION | PJ | EA | 2018-09-12 |

REVISIONS

HATCH

| ROLE | NAME | SIGNATURE & DATE |
|---|---|---|
| DRAFTSPERSON | P. JIVAEV | NR 2018-08-28 |
| DESIGNER | H. LI | NR 2018-08-28 |
| CHECKER | E. AKINCI | 2018-10-11 |
| DESIGN COORD. | S. PERKINS | 2018-10-11 |
| RESP. ENG. | E. AKINCI | 2018-10-11 |
| LEAD DISC. ENG. | E. AKINCI | 2018-10-11 |
| ENG. MANAGER | B. RUSTAD | 2018-10-11 |
| PROJ. MANAGER | B. RUSTAD | 2018-10-11 |

DRAWING APPROVAL STATUS: Approved for Construction

StrataGold Corporation

EAGLE GOLD PROJECT

OVERLAND CONVEYING
3400-CV-022 CONVEYOR FOUNDATION
GENERAL ARRANGEMENT

SCALE 1:400 OR AS NOTED | DWG. No. H354138-3400-231-260-0002 | REV 1

SHEET SIZE: D

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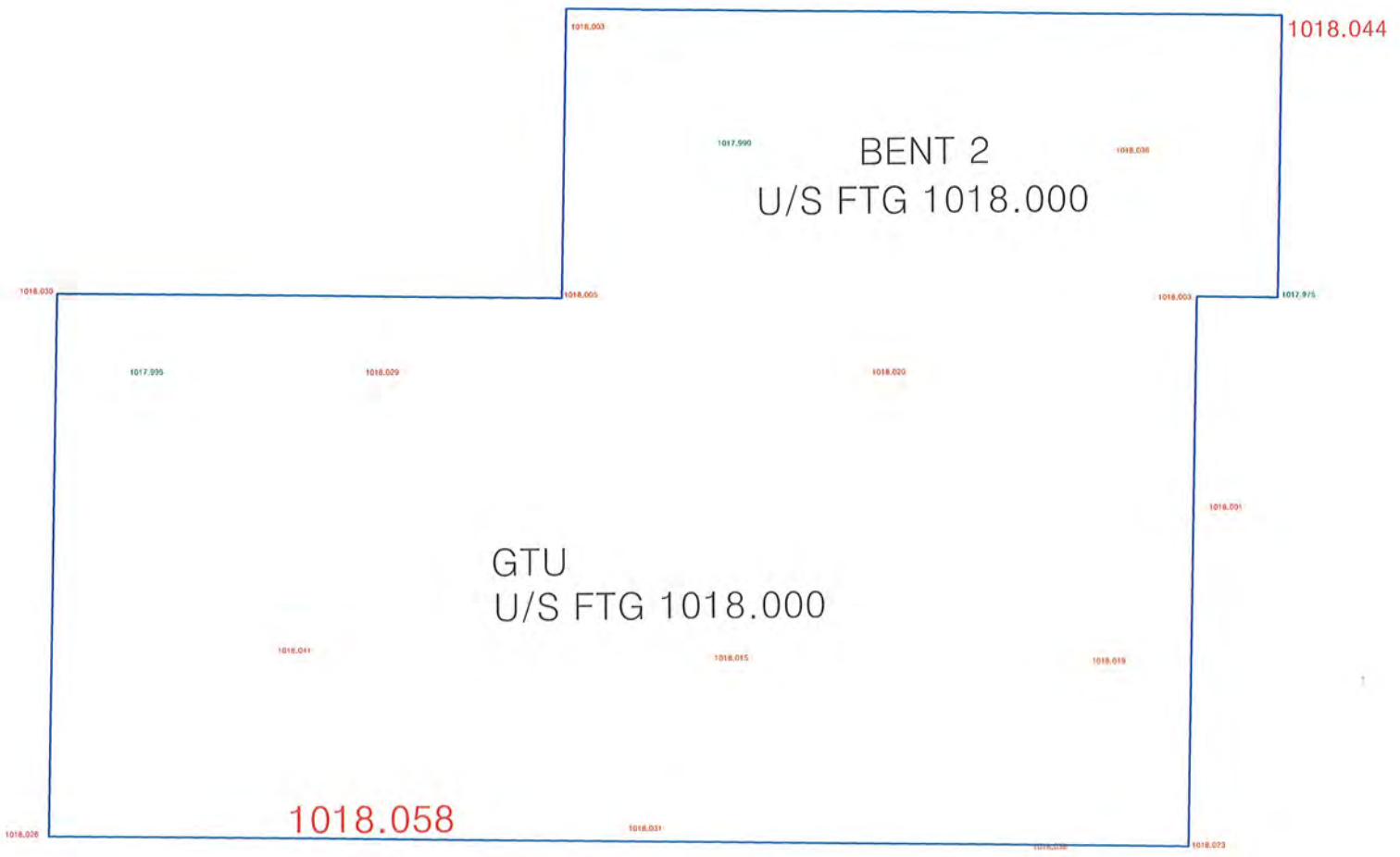
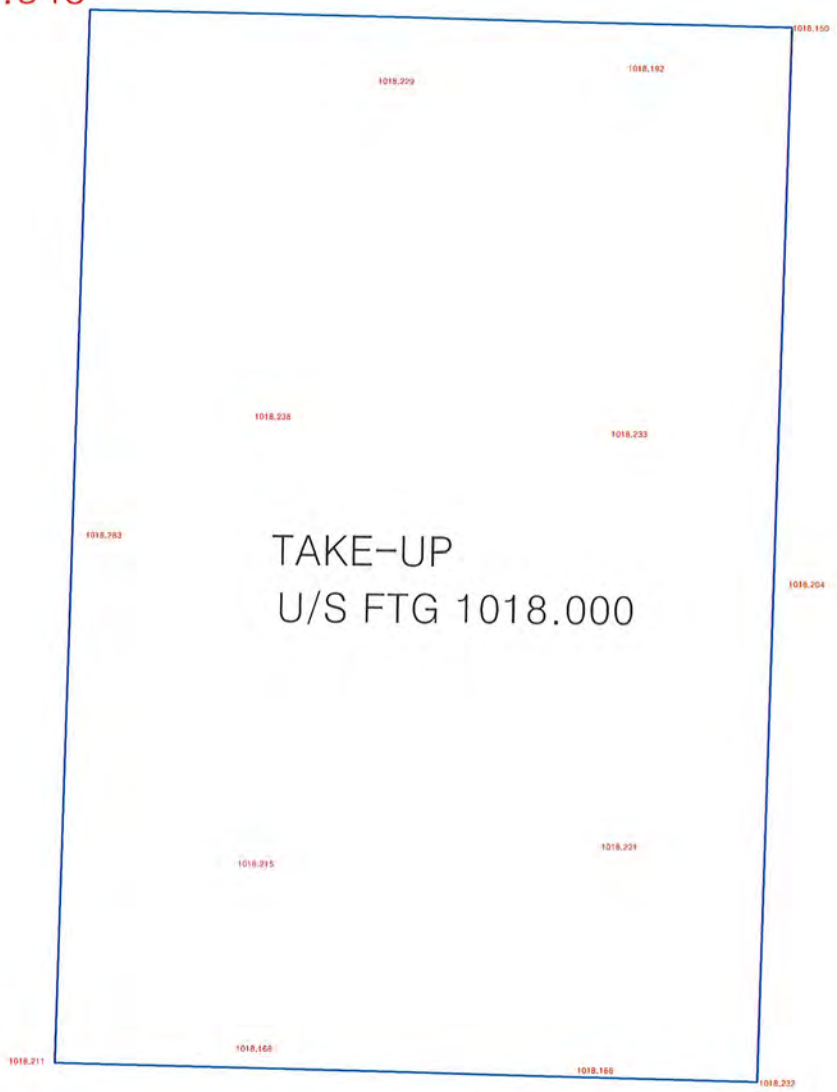
PRINTED: 09-OCT-2018
18:30



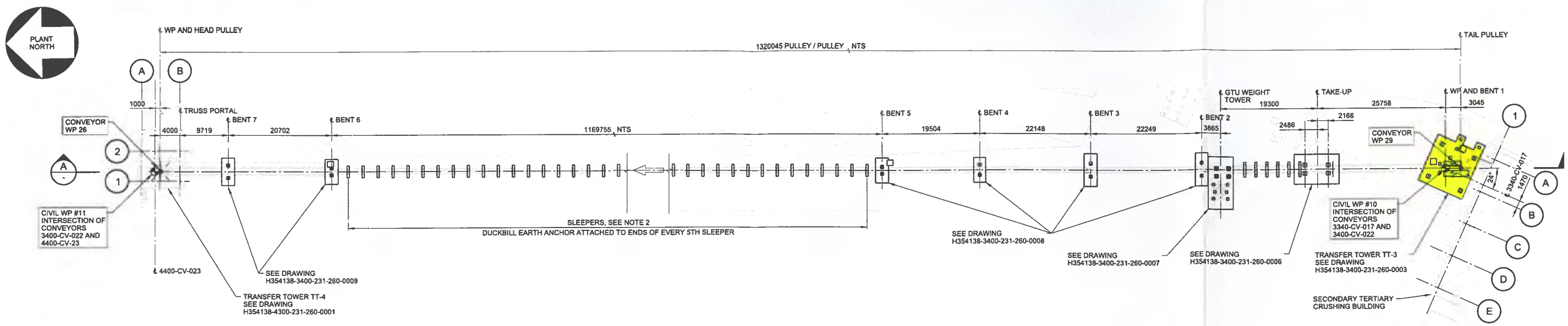

CV-022 GTU October 26

1018.345



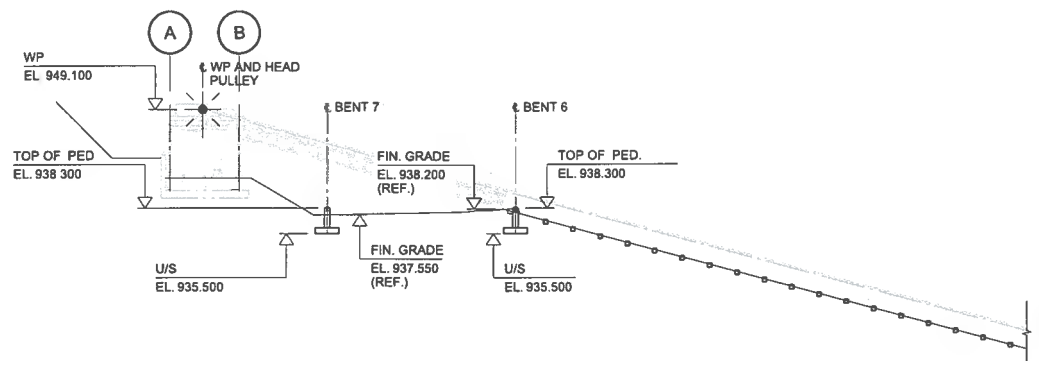

CV-022 TAKE-UP October 26

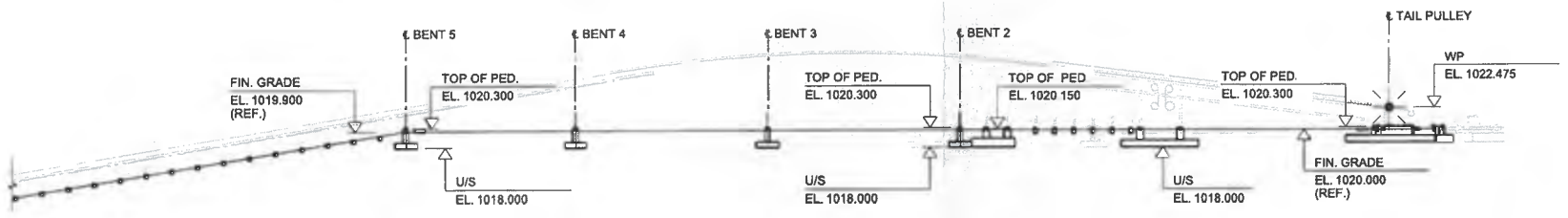
DWG. No. H354138-3400-231-260-0002




## 3400-CV-022 CONVEYOR FOUNDATION GENERAL ARRANGEMENT - PLAN

Oct. 4/18



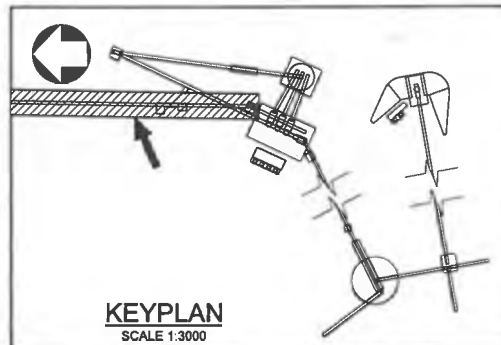




## SECTION A

### NOTES:

1. FOR GENERAL NOTES SEE DRAWING H354138-3400-231-260-0001.
2. FOR SLEEPERS AND SOIL ANCHOR DETAILS, SEE DRAWING H354138-2120-220-290-0004.
   FOR SLEEPER LOCATIONS AND SPACINGS SEE TEP DRAWING 17-0200-1102 AND -1103.

0 4 8 12 16 20
1:400 SCALE IN METRES



KEYPLAN
SCALE 1:3000

PERMIT TO PRACTICE HATCH 2018-09-12 PERMIT NUMBER PP154 Association of Professional Engineers of Yukon

PROFESSIONAL ENGINEER YUKON TERRITORY ESRA AKINCI 2018-09-12

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| No. | DESCRIPTION | BY | CHK'D | DATE |
|---|---|---|---|---|
| 0 | APPROVED FOR CONSTRUCTION | PJ | EA | 2018-09-12 |

| ROLE | NAME | SIGNATURE & DATE |
|---|---|---|
| DRAFTSPERSON | P. JIVAEV | NR 2018-08-28 |
| DESIGNER | H. LI | NR 2018-08-28 |
| CHECKER | E. AKINCI | 2018-09-12 |
| DESIGN COORD. | S. PERKINS | 2018-09-12 |
| RESP. ENG. | E. AKINCI | 2018-09-12 |
| LEAD DISC. ENG. | E. AKINCI | 2018-09-12 |
| ENG. MANAGER | B. RUSTAD | 2018-09-12 |
| PROJ. MANAGER | B. RUSTAD | 2018-09-12 |

DRAWING APPROVAL STATUS: Approved for Construction

HATCH

StrataGold Corporation

EAGLE GOLD PROJECT

OVERLAND CONVEYING
3400-CV-022 CONVEYOR FOUNDATION
GENERAL ARRANGEMENT

| SCALE | DWG. No. | REV |
|---|---|---|
| 1:400 OR AS NOTED | H354138-3400-231-260-0002 | 0 |

SHEET SIZE: D

DRAWING No. | DRAWING TITLE | REFERENCE DRAWINGS | REG. PROFESSIONAL | REVISIONS

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# CONTRACTOR/INTERDISCIPLINE RELEASE FORM

| | | | |
|---|---|---|---|
| **Project:** | Eagle Gold Project | **Revision No.** | 0 |
| **Contractor:** | Heavy North | **Contract No:** | CC 206 |
| **Area:** | 3400 – CV-022 | | |

| | | | |
|---|---|---|---|
| **Date** *(mm/dd/yy)*: | 08/10/2018 | **Drawing No:** | H354138-3400-231-260-0008 |
| **Discipline:** | Civil/Subgrade | | |

**The following:** **Area** ☒ **Equipment** ☐ **System** ☐ **Other** ☐

**(Provide complete description of area item, equipment system and Tag Numbers where applicable):**

**Subgrade preparation for CV-022 Bent 4**

**Released to:** Clark Builders

**Release Basis:**

| | | | |
|---|---|---|---|
| ☒ | Civil | ☐ | Paintings/Coatings |
| ☐ | Structural | ☐ | Electrical |
| ☐ | Mechanical | ☐ | Tracing |
| ☐ | Piping | ☐ | Insulation |
| ☐ | NDE | ☐ | Fireproofing |
| ☐ | PHWT | ☐ | Walkdown/Punchout |
| ☐ | Pressure Test | ☐ | Other |

**Comments:**

**Bent 4 sub-excavated to 1.5 meters below design U/S of footing elevation; backfilled with 4" NFS material to U/S footing elevation – Ready for formwork/concrete placement**

| | | | |
|---|---|---|---|
| Tony Jay | Project Coordinator | | 10/08/18 |
| Requested By *(Print)* | Title | Signature | Date *(mm/dd/yy)* |
| Ishan Fechter | Superintendent | | 10/08/18 |
| Release Authorized By *(Print)* | Title | Signature | Date *(mm/dd/yy)* |
| Release Received/Accepted By *(Print)* | Title | Signature | Date *(mm/dd/yy)* |

VICEAG05E

# CONTRACTOR/INTERDISCIPLINE RELEASE FORM

| | | | |
|---|---|---|---|
| **Project:** | Eagle Gold Project | **Revision No.** | 0 |
| **Contractor:** | Heavy North | **Contract No:** | CC 206 |
| **Area:** | 3400-CV-022 | | |

| | | | |
|---|---|---|---|
| **Date** *(mm/dd/yy)*: | 14/10/2018 | **Drawing No:** | H354138-3210-231-260-0002 |
| **Discipline:** | Civil/Subgrade | | |

**The following:** **Area** ☒ **Equipment** ☐ **System** ☐ **Other** ☐

**(Provide complete description of area item, equipment system and Tag Numbers where applicable):**

Subgrade preparation for CV-022 Bent 3 & Bent 5

**Released to:** Clark Builders

**Release Basis:**

| | | | |
|---|---|---|---|
| ☒ | Civil | ☐ | Paintings/Coatings |
| ☐ | Structural | ☐ | Electrical |
| ☐ | Mechanical | ☐ | Tracing |
| ☐ | Piping | ☐ | Insulation |
| ☐ | NDE | ☐ | Fireproofing |
| ☐ | PHWT | ☐ | Walkdown/Punchout |
| ☐ | Pressure Test | ☐ | Other |

**Comments:**

**Bent 5 sub-excavated to 1.5ms below design U/S of FTG elevation. Backfilled with 4" NFS material to U/S footing elevation with TetraTech witnessed backfill operation to design spec. Elevations and footprints confirmed and as-built by client survey.**

**Bent 3 Sub-excavated 0.74m below U/S footing and encountered rock. Backfilled with 4" NFS (witnessed by Tetratech)**

| Requested By *(Print)* | Title | Signature | Date *(mm/dd/yy)* |
|---|---|---|---|
| Tony Jay | Project Coordinator | | 10/14/18 |
| Matt Coverdale | Field Eng | | Oct 21, 2018 |
| Release Authorized By *(Print)* | Title | Signature | Date *(mm/dd/yy)* |
| Release Received/Accepted By *(Print)* | Title | Signature | Date *(mm/dd/yy)* |

VICEAG05E

# CONTRACTOR/INTERDISCIPLINE RELEASE FORM

| | | | |
|---|---|---|---|
| **Project:** | Eagle Gold Project | **Revision No.** | 0 |
| **Contractor:** | Heavy North | **Contract No:** | CC 206 |
| **Area:** | 3330-CV-019 BENT 1 & BENT 2 | | |

| | | | |
|---|---|---|---|
| **Date** *(mm/dd/yy)*: | 20/10/2018 | **Drawing No:** | H354138-3330-231-260-0013 |
| **Discipline:** | Civil/Subgrade | | |

**The following:** **Area** ☒ **Equipment** ☐ **System** ☐ **Other** ☐

**(Provide complete description of area item, equipment system and Tag Numbers where applicable):**

Subgrade preparat on for CV-019 – Bent 1

Subgrade preparation for CV-019 – Bent 2

**Released to:** Clark Builders

**Release Basis:**

| | | | |
|---|---|---|---|
| ☒ | Civil | ☐ | Paintings/Coatings |
| ☐ | Structural | ☐ | Electrical |
| ☐ | Mechanical | ☐ | Tracing |
| ☐ | Piping | ☐ | Insulation |
| ☐ | NDE | ☐ | Fireproofing |
| ☐ | PHWT | ☐ | Walkdown/Punchout |
| ☐ | Pressure Test | ☐ | Other |

**Comments:**

**CV-019 pad underside of footings BENT1 & BENT2**

**Underhill Geomatics - survey completed as-built of 150mm below U/S footings, & as-built area after backfill to U/S subgrade.**

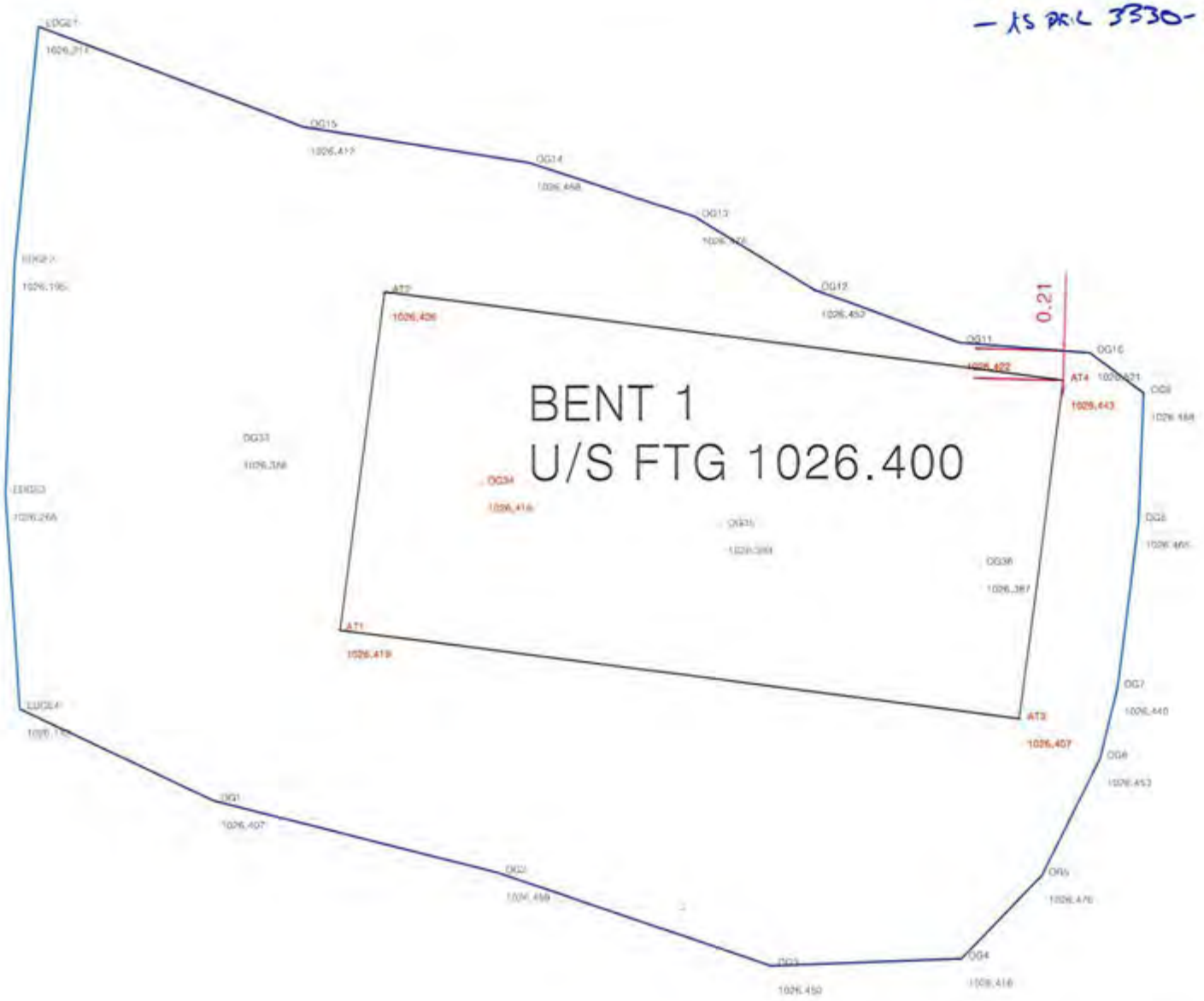
**TetraTech witnessed and monitored backfill to U/S FTG operation as per test spec. 38mm approved backfill material.**

2018.10.21 – PEDESTALS WILL BE SHORTENED TO MAINTAIN PROPER DESIGN ROCK AT PEDS AS REQUIRED. FOOTING MAY BE BUILT HIGHER DUE TO HIGH GRADE AT FOOTING TURNOVER. JDS APPROVED.

| Aaron Wagner | Project Coordinator | | 10/20/18 |
|---|---|---|---|
| Requested By *(Print)* | Title | Signature | Date *(mm/dd/yy)* |
| Matt Caverdale | Field Engineer | Matt Caverdale | 10/20/18 |
| Release Authorized By *(Print)* | Title | Signature | Date *(mm/dd/yy)* |
| Peter Nice | Superintendent | | 10/21/18 |
| Release Received/Accepted By *(Print)* | Title | Signature | Date *(mm/dd/yy)* |

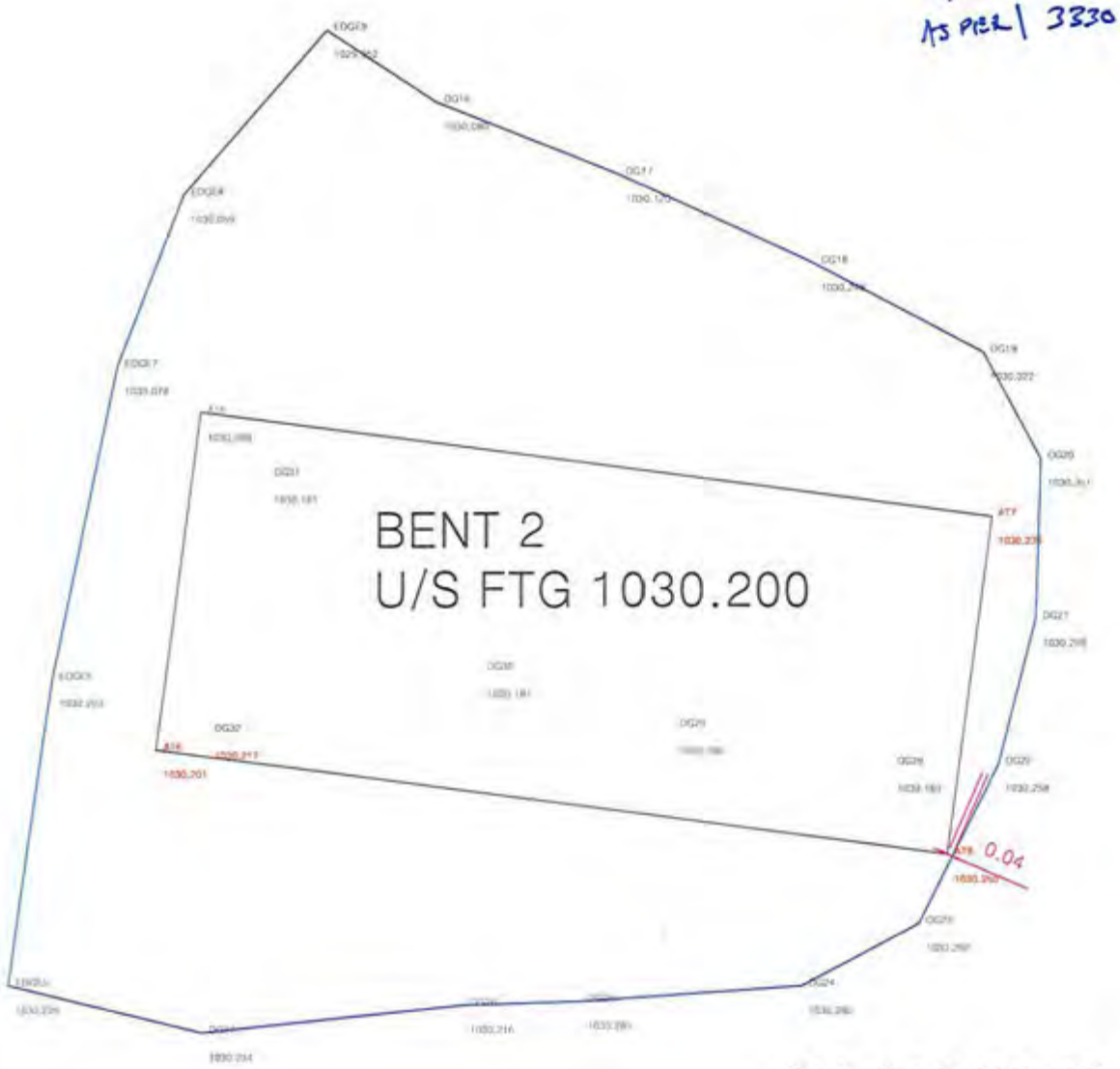
VICEAG05E

- U/S FTG. EL. 1026.400
- AS PER 3330-231-260-0014 R0




CV-019 BENT1 October 21

U/S FTG. EL. 1030.200
AS PER | 3330-231-260-0014 R0




CV-019 BENT 2 October 21

TETRA TECH

# EARTHWORKS FIELD REPORT

ISSUED FOR REVIEW

| | | | |
|---|---|---|---|
| **To:** | Calvin Goldschmidt; Chris Copley, Matt Coverdale, Mike Blusson; Clint Abel; Ishan Fechter | | |
| **Cc:** | Chad Cowan; Robert Zschuppe; James Buyck; Richard Oswell; Edgar LopezNegrete; Anthony Schoepp; Kate Rogers; John Carnegie. | **From:** | Richard Oswell |
| **Project:** | 3210-CV-002 South East Pad | **Date:** | October 20, 2018 |
| **Location:** | Eagle Gold Mine, YT | **Weather:** | Clear |
| **Client:** | JDS | | High 1°C |
| **File:** | ENG.WARC03235-05.006 | | Low -4°C |

## 1.0 CV-016 BENT 1 FOUNDATION PAD CONSTRUCTION SUMMARY

| Equipment | Work |
|---|---|
| CAT 314E Excavator | Placing backfill |
| CAT 740 Rock Truck | Hauling backfill to Excavation |
| CS56B Smooth Drum Compactor | Compacting backfill |
| 1000 lbs Vibratory Plate Compactor | Compacting backfill |

## 2.0 CV-016 BENT 1 FOUNDATION PAD EXCAVATION AND BACKFILL

Night Shift:

- Footprint for Bent 1 footing for the CV-016 Conveyor excavated 1.5 m below the footing base and was reportedly approved by JDS and surveyed prior to the site visit by Tetra Tech. Loose fill was visually observed at base of excavation. Loose fill was compacted with a sing 4 passes (back and forth) with the CS56B smooth drum vibratory compactor prior to placement of 100 mm NFS aggregate fill.
- Placed and compacted 5 lifts of 100 mm NFS material as backfill. Lifts were visually observed to be placed at approximately 300 mm lift thickness. Compaction for this lift was completed using 4 passes (back and forth) with the CS56B smooth drum vibratory compactor as per method specifications. Each pass was conducted with sufficient overlap and complete coverage over the compacted area. A 1000 lbs plate tamper was used to obtain compaction around the edges of each lift. Laser level used to mark lift thicknesses and achieve final grade on lift 5.

## 3.0 DISCUSSION/OTHER

- None

Tetra Tech Canada Inc.
61 Wasson Place
Whitehorse YT, Y1A 0H7 CANADA
Tel 867.668.3068 Fax 867.668.4349

# 4.0 CLOSURE

We trust that the information provided herein is accurate and complete. Please contact the undersigned if you require additional information or have any concerns.

Tetra Tech Canada Inc.

ISSUED FOR REVIEW

Richard Oswell E.I.T. AB
Construction Materials Engineer-in-Training
Construction Services
Direct Line: 587.460.3591
Richard.Oswell@tetratech.com



**Photo 1:** Loose fill in base prior to compaction and placement of first lift.



**Photo 2:** Lift 1 after compaction.



**Photo 3:** Smooth drum used to compact bulk of area, plate tamper used to compact edges.



**Photo 4:** Lift 2 after compaction.



**Photo 5:** Lift 3 after compaction.




**Photo 6:** Lift placement of lift 4.



**Photo 7:** Lift 4 after compaction.



**Photo 8:** Lift 5 after compaction. Final grades set with laser level.

# EARTHWORKS FIELD REPORT

ISSUED FOR REVIEW

| | | | |
|---|---|---|---|
| **To:** | Calvin Goldschmidt; Chris Copley; Matt Coverdale; Mike Blusson; Clint Abel; Ishan Fechter | | |
| **Cc:** | Chad Cowan; Robert Zschuppe; James Buyck; Richard Oswell; Edgar Lopez Negrete; Anthony Schoepp; John Carnegie; Kate Rogers | **From:** | Mark Estrada |
| **Project:** | 3320-CV-016 | **Date:** | October 24, 2018 |
| **Location:** | Eagle Gold Mine, YT | **Weather:** | Mostly Sunny |
| **Client:** | JDS | | High 8°C |
| **File:** | ENG.WARC03235-05.006 | | Low -1°C |

## 1.0 GTU

- Ongoing excavation of foundation footprint prior to arrival of Tetra Tech. Rock was encountered, Tetra Tech present to observe foundation base of pad. Excavated to approximately 0.3 m below footing base. Subgrade approved for backfill by JDS.

## 2.0 DISCUSSION/OTHER

- Tetra Tech provided periodic spot checks throughout the shift.

## 3.0 CLOSURE

We trust that the information provided herein is accurate and complete. Please contact the undersigned if you require additional information or have any concerns.


ISSUED FOR REVIEW

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ISSUED FOR REVIEW

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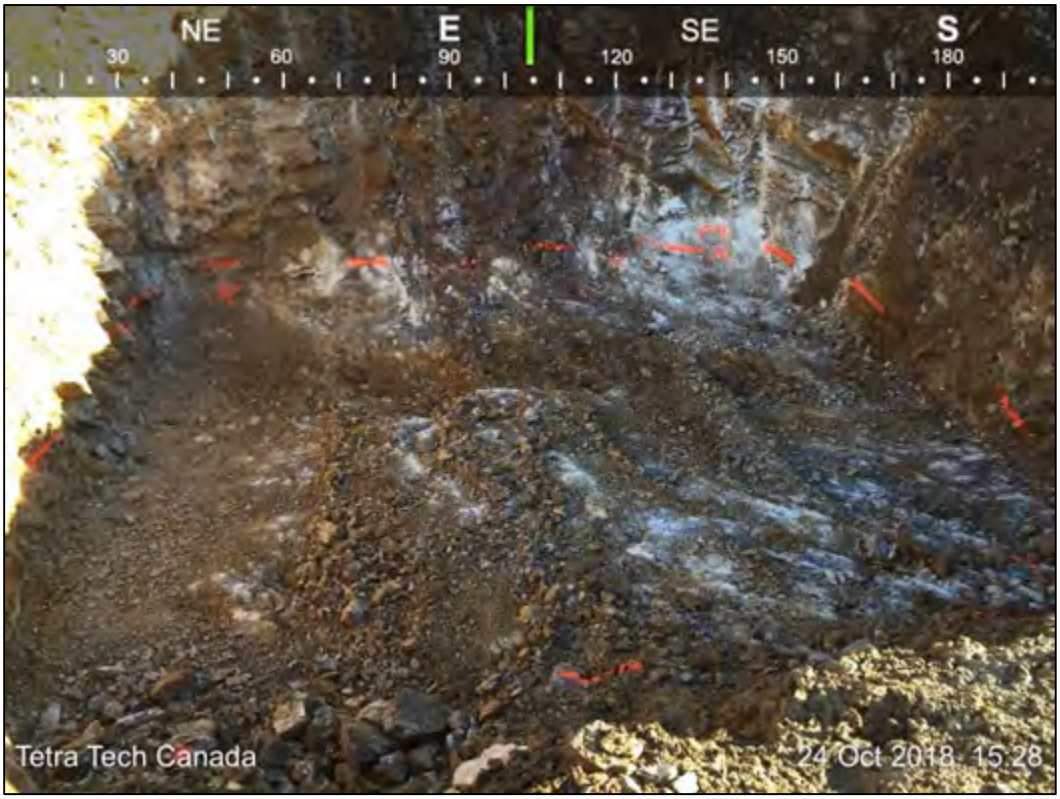


**Photo 1 – View of foundation footprint subgrade.**

TETRA TECH

# EARTHWORKS FIELD REPORT

ISSUED FOR REVIEW

| | | | |
|---|---|---|---|
| **To:** | Calvin Goldschmidt; Chris Copley; Matt Coverdale; Mike Blusson; Clint Abel; Ishan Fechter | | |
| **Cc:** | Chad Cowan; Robert Zschuppe; James Buyck; Richard Oswell; Edgar Lopez Negrete; Anthony Schoepp; John Carnegie; Kate Rogers | **From:** | Mark Estrada |
| **Project:** | 3320-CV-016 | **Date:** | October 24, 2018 |
| **Location:** | Eagle Gold Mine, YT | **Weather:** | Mostly Sunny |
| **Client:** | JDS | | High 8°C |
| **File:** | ENG.WARC03235-05.006 | | Low -1°C |

## 1.0 CV-016 BENT 1

- Ongoing excavation of foundation footprint prior to arrival of Tetra Tech. Rock was encountered, Tetra Tech present to observe foundation base of pad. Excavated to approximately 0.3 m below footing base. Subgrade approved for backfill by JDS.

## 2.0 DISCUSSION/OTHER

- Tetra Tech provided periodic spot checks throughout the shift.

## 3.0 CLOSURE

We trust that the information provided herein is accurate and complete. Please contact the undersigned if you require additional information or have any concerns.

ISSUED FOR REVIEW

Mark Estrada, E.I.T.
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Tetra Tech Canada Inc.
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Mobile +1 (250) 668-0472




**Photo 1 – View of foundation footprint subgrade.**

# CONTRACTOR / INTERDISCIPLINARY RELEASE FORM

| | | | |
|---|---|---|---|
| **Project:** | Eagle Gold Project | **Revision No.** | 0 |
| **Contractor:** | Clark Builders | **Contract No:** | CC205 |
| **Area:** | 4300 – Ore Prep | | |

| | | | |
|---|---|---|---|
| **Date:** | 25-10-2018 | **Drawing No:** | H354138-4300-231-260-0001-12 |
| **Discipline:** | Civil/Subgrade | | |

**The following:** **Area** ☒ **Equipment** ☐ **System** ☐ **Other** ☐

**(Provide complete description of area item, equipment system and Tag Numbers where applicable):**

Subgrade preparation to the underside of Bent 6, Bent 7, Lime Silo, Transfer Tower 4, CWT Tower foundations; Transformer

**Released to:** Clark Builders

**Release Basis:**

| | | | |
|---|---|---|---|
| ☒ | Civil | ☐ | Paintings/Coatings |
| ☐ | Structural | ☐ | Electrical |
| ☐ | Mechanical | ☐ | Tracing |
| ☐ | Piping | ☐ | Insulation |
| ☐ | NDE | ☐ | Fireproofing |
| ☐ | PHWT | ☐ | Walkdown/Punchout |
| ☐ | Pressure Test | ☐ | Other |

**Comments:**

Bent 6 sub-grade prepared to U/S of footing elevation 935.500 – Sub-grade approved for concrete placement

Bent 7 sub-grade prepared to U/S of footing elevation 935.500 – Sub-grade approved for concrete placement

Lime Silo sub-grade prepared to U/S of footing elevation 949.000 – Sub-grade approved for concrete placement

Transfer Tower 4 sub-grade prepared to U/S of footing elevation 939.600 – Sub-grade approved for concrete placement

CWT sub-grade prepared to U/S of footing elevation 939.600 – Sub-grade approved for concrete placement

Transformer sub-grade prepared to U/S of footing elevation 938.600 – Sub-grade approved for concrete placement

| Kevin Webb | Superintendent | | Oct 27/18 |
|---|---|---|---|
| Requested By (Print) | Title | Signature | Date |
| Ishan Feehler | Superintendent | | Oct. 25/18 |
| Release Authorized By (Print) | Title | Signature | Date |
| Garry Dahl | Supt. | | Oct 29/18 |
| Release Received/Accepted By (Print) | Title | Signature | Date |

VICEAG05E

# EARTHWORKS FIELD REPORT

ISSUED FOR REVIEW

| | | | |
|---|---|---|---|
| **To:** | Calvin Goldschmidt; Chris Copley; Matt Coverdale; Mike Blusson; Clint Abel; Ishan Fechter | | |
| **Cc:** | Chad Cowan; Robert Zschuppe; James Buyck; Richard Oswell; Edgar Lopez Negrete; Anthony Schoepp; John Carnegie; Kate Rogers | **From:** | Mark Estrada |
| **Project:** | 3320-CV-016 | **Date:** | October 26, 2018 |
| **Location:** | Eagle Gold Mine, YT | **Weather:** | Partly Cloudy |
| **Client:** | JDS | | High 6°C |
| **File:** | ENG.WARC03235-05.006 | | Low -4°C |

## 1.0 GTU

- Placed and compacted first lift of 38 mm minus material prior to arrival of Tetra Tech. Lift placed at approximately 150 mm thickness. Compaction was reportedly completed with 900 lb packer. Compaction and moisture content testing were conducted on compacted sections using a nuclear densometer. The test area exceeded 95% of the modified proctor density of 2250 kg/m$^3$ with 95.4%. Moisture content was 3.0%.

## 2.0 DISCUSSION/OTHER

- Tetra Tech provided periodic spot checks throughout the shift.

## 3.0 CLOSURE

We trust that the information provided herein is accurate and complete. Please contact the undersigned if you require additional information or have any concerns.


ISSUED FOR REVIEW

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# COMPACTION DENSITY TEST SUMMARY REPORT

ASTM Designation D6938

**Project:** Eagle Gold Project | **Test Apparatus:** Nuclear | **Troxler No:** 64515

QC Inspection & Testing | **Specified Compaction:** 95 % Mod. Proctor Max. Dry Density

**Project No.:** WARC.03235-05 | **Specified Moisture** (MC)**:** As Below

**Client:** JDS Energy & Mining/Hatch | **Temperature** **Air:** 5 ºC **m** ºC

**Attention:** Mike Blusson/Clint Abel | **Date Tested:** 10/26/2018 **By:** M. Estrada

**Contractor:** Ewing Construction | **Construction Period:** DAYSHIFT

**Soil Description:** GRAVEL, Sandy, trace silt

**Material Usage/Zone:** 38mm minus ODF

| **Date** mm/dd/yyyy | **Test No.** / Probe (mm) | **Location:** | Depth to Grade (m) | Dry Density (kg/m³ ) | MC % | Max. Dry Density | Opt. MC % | Comp % MPD |
|---|---|---|---|---|---|---|---|---|
| 10/26/2018 | **1** / 150 | CV-022 Bent 2/GTU CWT Tower - Lift #1 | N/A | 2176 | 2.9 | 2250 | 6.0 | **96.7** |
| 10/26/2018 | **2** / 100 | CV-022 Bent 3 - Lift #1 | N/A | 2211 | 2.3 | 2250 | 6.0 | **98.3** |
| 10/26/2018 | **3** / 150 | CV-022 Bent 3 - Lift #1 | N/A | 2144 | 2.4 | 2250 | 6.0 | **95.3** |
| 10/26/2018 | **4** / 150 | CV-022 GTU - Lift #1 | N/A | 2147 | 3.0 | 2250 | 6.0 | **95.4** |
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| | | | | | | | | |

**Remarks:** Compaction was reportedly completed with a 900 lb packer.



**Copies:**

**Reviewed By:** **ISSUED FOR REVIEW** C.E.T.

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TETRA TECH

# EARTHWORKS FIELD REPORT

ISSUED FOR REVIEW

| | | | |
|---|---|---|---|
| **To:** | Calvin Goldschmidt; Chris Copley; Matt Coverdale; Mike Blusson; Clint Abel; Ishan Fechter | | |
| **Cc:** | Chad Cowan; Robert Zschuppe; James Buyck; Richard Oswell; Edgar Lopez Negrete; Anthony Schoepp; John Carnegie; Kate Rogers | **From:** | Mark Estrada |
| **Project:** | 3320-CV-016 | **Date:** | October 27, 2018 |
| **Location:** | Eagle Gold Mine, YT | **Weather:** | Partly Cloudy |
| **Client:** | JDS | | High 3°C |
| **File:** | ENG.WARC03235-05.006 | | Low -6°C |

## 1.0 GTU

- Placed and compacted final lift of 38 mm minus material prior to arrival of Tetra Tech. Lift placed at approximately 150 mm thickness. Compaction was reportedly completed with 900 lb packer. Compaction and moisture content testing were conducted on compacted sections using a nuclear densometer. The test area exceeded 95% of the modified proctor density of 2250 kg/m$^3$ with 96.0%. Moisture content was 2.3%.

## 2.0 DISCUSSION/OTHER

- Tetra Tech provided periodic spot checks throughout the shift.

## 3.0 CLOSURE

We trust that the information provided herein is accurate and complete. Please contact the undersigned if you require additional information or have any concerns.


ISSUED FOR REVIEW

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Tetra Tech Canada Inc.
James.Buyck@tetratech.com
Mobile +1 (250) 668-0472




**Photo 1 – Compaction of final lift.**

# COMPACTION DENSITY TEST SUMMARY REPORT

ASTM Designation D6938

**Project:** Eagle Gold Project | **Test Apparatus:** Nuclear | **Troxler No:** 60841

QC Inspection & Testing | **Specified Compaction:** 95 % Mod. Proctor Max. Dry Density

**Project No.:** WARC.03235-05 | **Specified Moisture** (MC)**:** As Below

**Client:** JDS Energy & Mining/Hatch | **Temperature** **Air:** 3 ºC **m** ºC

**Attention:** Mike Blusson/Clint Abel | **Date Tested:** 10/27/2018 **By:** M. Estrada

**Contractor:** Ewing Construction | **Construction Period:** DAYSHIFT

**Soil Description:** GRAVEL, Sandy, trace silt

**Material Usage/Zone:** 38mm minus ODF

| **Date** mm/dd/yyyy | **Test No.** Probe (mm) | **Location:** | Depth to Grade (m) | Dry Density (kg/m³ ) | MC % | Max. Dry Density | Opt. MC % | Comp % MPD |
|---|---|---|---|---|---|---|---|---|
| 10/27/2018 | 1 / 150 | CV-022 GTU - Final lift | N/A | 2161 | 2.3 | 2250 | 6.0 | **96.0** |
| 10/27/2018 | 2 / 200 | CV-022 Bent 2/GTU CWT Tower - Final lift | N/A | 2152 | 2.3 | 2250 | 6.0 | **95.6** |
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| | | | | | | | | |

**Remarks:** Compaction was reportedly completed with a 900 lb packer.



**Copies:**

**Reviewed By:** **ISSUED FOR REVIEW** C.E.T.

Data presented hereon is for the sole use of the stipulated client. Tetra Tech EBA is not responsible, nor can be held liable, for use made of this report by any other party, with or without the knowledge of Tetra Tech EBA. The testing services reported herein have been performed to recognized industry standards, unless noted. No other warranty is made. These data do not include or represent any interpretation or opinion of specification compliance or material suitability. Should engineering interpretation be required, Tetra Tech EBA will provide it upon written request.

TETRA TECH

# EARTHWORKS FIELD REPORT

ISSUED FOR REVIEW

| | | | |
|---|---|---|---|
| **To:** | Calvin Goldschmidt; Chris Copley; Matt Coverdale; Mike Blusson; Clint Abel; Ishan Fechter | | |
| **Cc:** | Chad Cowan; Robert Zschuppe; James Buyck; Richard Oswell; Edgar Lopez Negrete; Anthony Schoepp; John Carnegie; Kate Rogers | **From:** | Mark Estrada |
| **Project:** | 3320-CV-016 | **Date:** | October 26, 2018 |
| **Location:** | Eagle Gold Mine, YT | **Weather:** | Partly Cloudy |
| **Client:** | JDS | | High 6°C |
| **File:** | ENG.WARC03235-05.006 | | Low -4°C |

## 1.0 CV-016 BENT 2 AND GTU CWT TOWER PAD

- Placed and compacted first lift of 38 mm minus material prior to arrival of Tetra Tech. Lift placed at approximately 150 mm thickness. Compaction was reportedly completed with 900 lb packer. Compaction and moisture content testing were conducted on compacted sections using a nuclear densometer. The test area exceeded 95% of the modified proctor density of 2250 kg/m$^3$ with 96.7%. Moisture content was 2.9%.

## 2.0 DISCUSSION/OTHER

- Tetra Tech provided periodic spot checks throughout the shift.

## 3.0 CLOSURE

We trust that the information provided herein is accurate and complete. Please contact the undersigned if you require additional information or have any concerns.

ISSUED FOR REVIEW

Mark Estrada, E.I.T.
Junior Geotechnical Engineer-In-Training
Tetra Tech Canada Inc.
Mark.Estrada@tetratech.com
Direct +1 (587) 460-3562

ISSUED FOR REVIEW

James Buyck
Senior Geotechnical Technician
Tetra Tech Canada Inc.
James.Buyck@tetratech.com
Mobile +1 (250) 668-0472




**Photo 1 – Compaction of first lift.**

# EARTHWORKS FIELD REPORT

ISSUED FOR REVIEW

| | | | |
|---|---|---|---|
| **To:** | Calvin Goldschmidt; Chris Copley; Matt Coverdale; Mike Blusson; Clint Abel; Ishan Fechter | | |
| **Cc:** | Chad Cowan; Robert Zschuppe; James Buyck; Richard Oswell; Edgar Lopez Negrete; Anthony Schoepp; John Carnegie; Kate Rogers | **From:** | Mark Estrada |
| **Project:** | 3320-CV-016 | **Date:** | October 27, 2018 |
| **Location:** | Eagle Gold Mine, YT | **Weather:** | Partly Cloudy |
| **Client:** | JDS | | High 3°C |
| **File:** | ENG.WARC03235-05.006 | | Low -6°C |

## 1.0 CV-016 BENT 2 AND GTU CWT TOWER PAD

- Placed and compacted final lift of 38 mm minus material prior to arrival of Tetra Tech. Lift placed at approximately 150 mm thickness. Compaction was reportedly completed with 900 lb packer. Compaction and moisture content testing were conducted on compacted sections using a nuclear densometer. The test area exceeded 95% of the modified proctor density of 2250 kg/m$^3$ with 95.6%. Moisture content was 2.3%.

## 2.0 DISCUSSION/OTHER

- Tetra Tech provided periodic spot checks throughout the shift.

## 3.0 CLOSURE

We trust that the information provided herein is accurate and complete. Please contact the undersigned if you require additional information or have any concerns.


ISSUED FOR REVIEW

Mark Estrada, E.I.T.
Junior Geotechnical Engineer-In-Training
Tetra Tech Canada Inc.
Mark.Estrada@tetratech.com
Direct +1 (587) 460-3562

ISSUED FOR REVIEW

James Buyck
Senior Geotechnical Technician
Tetra Tech Canada Inc.
James.Buyck@tetratech.com
Mobile +1 (250) 668-0472




**Photo 1 – Compaction of first lift.**

# CONTRACTOR / INTERDISCIPLINARY RELEASE FORM

| | | | |
|---|---|---|---|
| **Project:** | Eagle Gold Project | **Revision No.** | 0 |
| **Contractor:** | Clark Builders | **Contract No:** | CC201 |
| **Area:** | 3320 – CV-016 | | |

| | | | |
|---|---|---|---|
| **Date:** | 27-10-2018 | **Drawing No:** | H354138-3330-231-260-0004 Rev. 1 |
| **Discipline:** | Civil/Subgrade | | |

**The following:** **Area** ☒ **Equipment** ☐ **System** ☐ **Other** ☐

**(Provide complete description of area item, equipment system and Tag Numbers where applicable):**

Subgrade preparation to the underside of GTU; GTU CWT; Bent 2; Bent 3

**Released to:** Clark Builders

**Release Basis:**

| | | | |
|---|---|---|---|
| ☒ | Civil | ☐ | Paintings/Coatings |
| ☐ | Structural | ☐ | Electrical |
| ☐ | Mechanical | ☐ | Tracing |
| ☐ | Piping | ☐ | Insulation |
| ☐ | NDE | ☐ | Fireproofing |
| ☐ | PHWT | ☐ | Walkdown/Punchout |
| ☐ | Pressure Test | ☐ | Other |

**Comments:**

GTU sub-grade prepared to U/S of footing elevation 1018.000 – Sub-grade approved for concrete placement

GTU CWT sub-grade prepared to U/S of footing elevation 1018.000 – Sub-grade approved for concrete placement

Bent 2 sub-grade prepared to U/S of footing elevation 1018.000 – Sub-grade approved for concrete placement

Bent 3 sub-grade prepared to U/S of footing elevation 1022.925 – Sub-grade approved for concrete placement

ADDITIONAL RELATED INFORMATION: JDS SI No. CB-001 76
JDS RFI 063 76

| Requested By (Print) | Title | Signature | Date |
|---|---|---|---|
| Russell Jackson | Surveyor | | Oct 27/18 |

| Release Authorized By (Print) | Title | Signature | Date |
|---|---|---|---|
| Ishan Fechter | Superintendent | | Oct. 27/18 |

| Release Received/Accepted By (Print) | Title | Signature | Date |
|---|---|---|---|
| Garry Dahl | Supt | | Oct 29/18 |

VICEAG05E

# CONTRACTOR / INTERDISCIPLINARY RELEASE FORM

| | | | |
|---|---|---|---|
| **Project:** | Eagle Gold Project | **Revision No.** | 0 |
| **Contractor:** | Clark Builders | **Contract No:** | CC201 |
| **Area:** | 3320 – CV-016 | | |

| | | | |
|---|---|---|---|
| **Date:** | 29-10-2018 | **Drawing No:** | H354138-3330-231-260-0004 Rev. 1 |
| **Discipline:** | Civil/Subgrade | | |

**The following:** **Area** ☒ **Equipment** ☐ **System** ☐ **Other** ☐

**(Provide complete description of area item, equipment system and Tag Numbers where applicable):**

Subgrade preparation to the underside of Bent 1; Bent 4

**Released to:** Clark Builders

**Release Basis:**

| | | | |
|---|---|---|---|
| ☒ | Civil | ☐ | Paintings/Coatings |
| ☐ | Structural | ☐ | Electrical |
| ☐ | Mechanical | ☐ | Tracing |
| ☐ | Piping | ☐ | Insulation |
| ☐ | NDE | ☐ | Fireproofing |
| ☐ | PHWT | ☐ | Walkdown/Punchout |
| ☐ | Pressure Test | ☐ | Other |

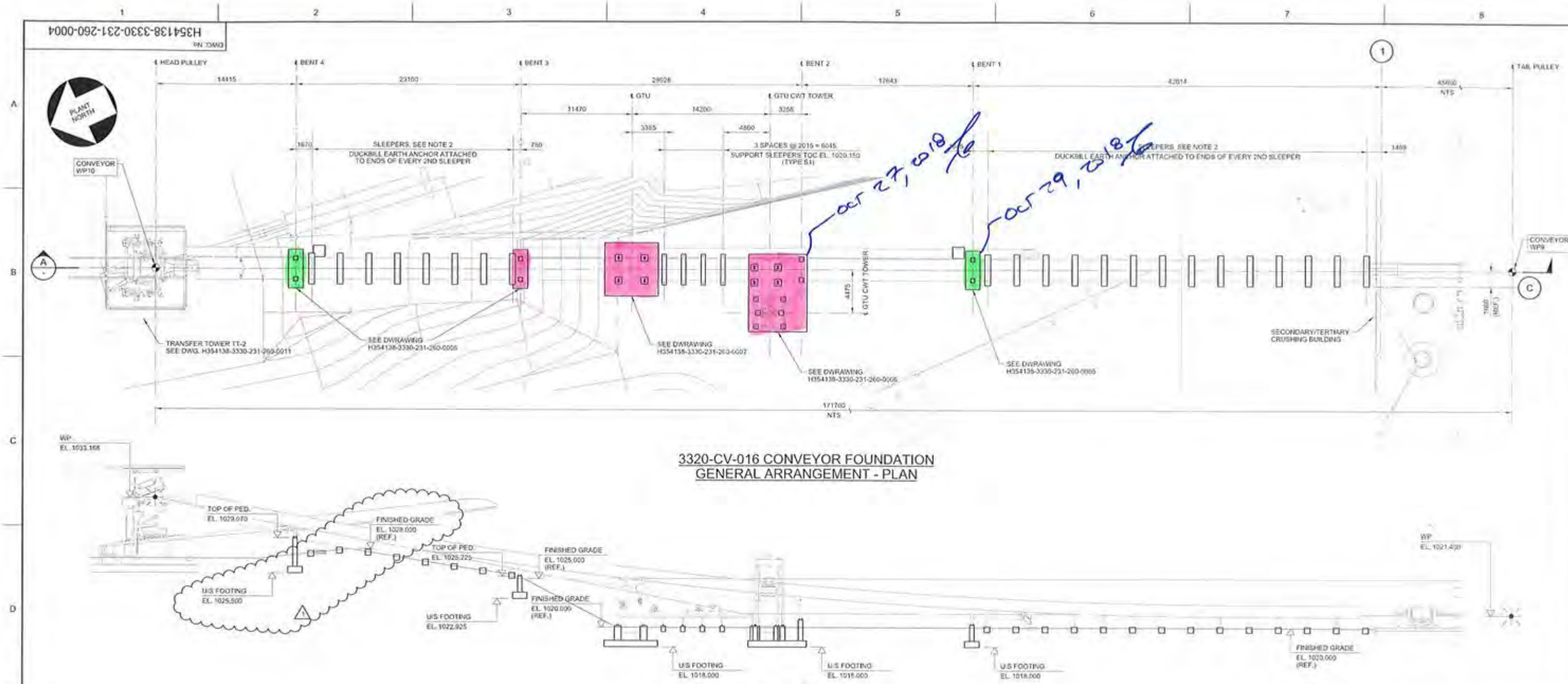
**Comments:**

Bent 1 sub-grade prepared to U/S of footing elevation 1019.180 – Sub-grade approved for concrete placement

Bent 4 sub-grade prepared to U/S of footing elevation 1025.500 – Sub-grade approved for concrete placement

| | | | |
|---|---|---|---|
| D. K Ewing | Owner | | Oct 29/2018 |
| Requested By (Print) | Title | Signature | Date |
| Ishan Fechter | Superintendent | | Oct. 29/18 |
| Release Authorized By (Print) | Title | Signature | Date |
| Gary Clark | Supt | | Oct 29/18 |
| Release Received/Accepted By (Print) | Title | Signature | Date |

VICEAG05E




3320-CV-016 CONVEYOR FOUNDATION
GENERAL ARRANGEMENT - PLAN

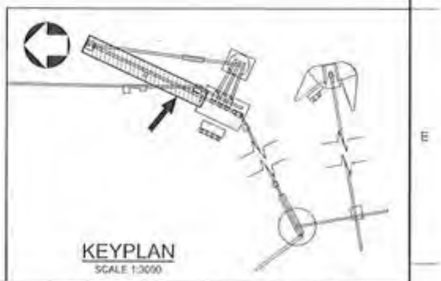



SECTION A

NOTES:

1. FOR NOTES SEE DRAWING H354138-3330-231-260-0001.
2. FOR SLEEPERS AND SOIL ANCHOR DETAILS, SEE DRAWING H354138-2120-220-290-0004.
   FOR SLEEPER LOCATIONS AND SPACINGS SEE TEP DRAWING 17-0200-500 AND 502.

0 2 4 6 8 10
1:200 SCALE IN METRES



KEYPLAN
SCALE 1:3000

| DRAWING No. | DRAWING TITLE |
|---|---|
| REFERENCE DRAWINGS | |

REG. PROFESSIONAL: 2018-09-11

| No. | DESCRIPTION | BY | CHK'D | DATE |
|---|---|---|---|---|
| 1 | FINISHED GRADE ELEVATION AND BENT 4 REVISED | PJ | EA | 2018-09-11 |
| 0 | APPROVED FOR CONSTRUCTION | RS | EA | 2018-08-30 |

REVISIONS

HATCH

| ROLE | NAME | SIGNATURE & DATE |
|---|---|---|
| DRAFTSPERSON | R. SAGARBARRIA | NR |
| DESIGNER | H. LI | NR |
| CHECKER | E. AKINCI | 2018-09-11 |
| DESIGN COORD. | S. PERKINS | 2018-09-11 |
| RESP. ENG. | E. AKINCI | 2018-09-11 |
| LEAD DISC. ENG. | E. AKINCI | 2018-09-11 |
| ENG. MANAGER | B. RUSTAD | 2018-09-11 |
| PROJ. MANAGER | B. RUSTAD | 2018-09-11 |

DRAWING APPROVAL STATUS: Approved for Construction

StrataGold Corporation

EAGLE GOLD PROJECT

TERTIARY TRANSFER CONVEYORS
3320-CV-016 CONVEYOR FOUNDATION
GENERAL ARRANGEMENT

SCALE 1:200 OR AS NOTED | DWG. No. H354138-3330-231-260-0004 | REV 1

SHEET SIZE: D

SFILES PRINTED: 11-SEP-2018 11:52
kk_pwservice

# CONTRACTOR/INTERDISCIPLINE RELEASE FORM

Victoria GOLD CORP

| | | | |
|---|---|---|---|
| **Project:** | Eagle Gold Project | **Revision No.** | 2 |
| **Contractor:** | Ewing | **Contract No:** | CC 206 |
| **Area:** | 3330 – Conveyor 019 Bent 1 | | |

| | | | |
|---|---|---|---|
| **Date** *(mm/dd/yy)*: | 23/11/2018 | **Drawing No:** | H354138-3330-231-260-0013 & 14 R2 |
| **Discipline:** | Civil/Subgrade | | |

**The following:** **Area** ☒ **Equipment** ☐ **System** ☐ **Other** ☐

**(Provide complete description of area item, equipment system and Tag Numbers where applicable):**

**Subgrade preparation for CV-019 – Bent 1**

**Released to:** Clark Builders

**Release Basis:**

| | | | |
|---|---|---|---|
| ☒ | Civil | ☐ | Paintings/Coatings |
| ☐ | Structural | ☐ | Electrical |
| ☐ | Mechanical | ☐ | Tracing |
| ☐ | Piping | ☐ | Insulation |
| ☐ | NDE | ☐ | Fireproofing |
| ☐ | PHWT | ☐ | Walkdown/Punchout |
| ☐ | Pressure Test | ☐ | Other |

**Comments:**

**Bent 1 excavated to rock U/S of footing 1024.7 – Footing translated south 0.5m as per revised drawing**

**Grading is +0/-150 mm for all footings**

**Additional rock cleaning and foundation preparation to be performed by Clark**

| Requested By *(Print)* | Title | Signature | Date *(mm/dd/yy)* |
|---|---|---|---|
| Marshall Ewing | Foremen | | 11/23/18 |
| Release Authorized By *(Print)* | Title | Signature | Date *(mm/dd/yy)* |
| Matt Coverdale | Field Engineer | Matt Coverdale | 11/18/2018 |
| Release Received/Accepted By *(Print)* | Title | Signature | Date *(mm/dd/yy)* |

VICEAG05E

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# CONTRACTOR/INTERDISCIPLINE RELEASE FORM

Victoria GOLD CORP

| | | | |
|---|---|---|---|
| **Project:** | Eagle Gold Project | **Revision No.** | 2 |
| **Contractor:** | Ewing | **Contract No:** | CC 201 |
| **Area:** | 3330 – Conveyor 019 Bent 2 | | |

| | | | |
|---|---|---|---|
| **Date** *(mm/dd/yy)*: | 25/11/2018 | **Drawing No:** | H354138-3330-231-260-0013 & 14 R2 |
| **Discipline:** | Civil/Subgrade | | |

**The following:** **Area** ☒ **Equipment** ☐ **System** ☐ **Other** ☐

**(Provide complete description of area item, equipment system and Tag Numbers where applicable):**

**Subgrade preparation for CV-019 – Bent 2**

**Released to:** Clark Builders

**Release Basis:**

| | | | |
|---|---|---|---|
| ☒ | Civil | ☐ | Paintings/Coatings |
| ☐ | Structural | ☐ | Electrical |
| ☐ | Mechanical | ☐ | Tracing |
| ☐ | Piping | ☐ | Insulation |
| ☐ | NDE | ☐ | Fireproofing |
| ☐ | PHWT | ☐ | Walkdown/Punchout |
| ☐ | Pressure Test | ☐ | Other |

**Comments:**

**Bent 2 excavated to rock U/S of footing 1028.85**

**Rock Hammer used by Pelly to assist in excavation through bedrock**

**Grading is +0/-150 mm for all footings**

**Additional rock cleaning and foundation preparation to be performed by Clark**

| Requested By *(Print)* | Title | Signature | Date *(mm/dd/yy)* |
|---|---|---|---|
| Marshall Ewing | Foreman | | 11/25/18 |
| Release Authorized By *(Print)* | Title | Signature | Date *(mm/dd/yy)* |
| Matt Coverdale | Field Engineer | Matt Coverdale | 25/18/2018 |
| Release Received/Accepted By *(Print)* | Title | Signature | Date *(mm/dd/yy)* |

VICEAG05E

Scanned with CamScanner

CLARK BUILDERS
ENERGY & RESOURCES

# AREA CONCRETE TURNOVER

Rev 00 September 18, 2018

| | |
|---|---|
| OWNER REPRESENTATIVE(S): Jerry C / Ryan D | DATE OF TURNOVER: DECEMBER 6, 2018 |
| CLARK BUILDERS REPRESENTIVE(S): Ryan D / Gary D. | AREA/ LOCATION: 3400 / CU022 (SOUTH) |

| | |
|---|---|
| TURNOVER TYPE: | ☐ COMPLETE AREA ☒ PARTIAL AREA ☐ EQUIPMENT ☐ SYSTEM ☐ OTHER |
| COMPLETE DESCRIPTION OF AREA TO BE TURNED OVER: | Conveyor line footings and pedestals for area 3400 (SOUTH SIDE of conveyor) INCLUDES: BENTS 1 → 5; TT3; GTU WEIGHT TOWER; TAKE UP. |
| SCOPES INCLUDED: | ☐ CIVIL/EARTHWORK ☒ CONCRETE ☒ ANCHOR BOLTS/EMBEDS ☒ GROUNDING ☐ GROUT |
| RELEASED FROM (Company): | CLARK BUILDERS |
| RELEASED TO (Company): | JDS |

ATTACHMENT(S):

| ITEM | ITEMS TO BE CHECKED | ACCEPT | ACCEPT W/NOTES | DECLINE | N/A | NOTES |
|---|---|---|---|---|---|---|
| 1.0 | Concrete structure dimensions and locations are within acceptable tolerances and is acceptable to the owner. | ☑ | ☐ | ☐ | ☐ | |
| 2.0 | Tolerances for anchor bolts and embedded items have been review and are acceptable. This includes projection and location of embedded items. | ☐ | ☑ | ☐ | ☐ | (1) Damage to anchor bolt at TT3 by others during backfill |
| 3.0 | Safe access to the work area has been prepared by the contractor. | ☑ | ☐ | ☐ | ☐ | |
| 4.0 | All hardware required has been provided to the receiving company from Clark builders. This includes all plates, washers, nuts, etc. | ☑ | ☐ | ☐ | ☐ | |
| 5.0 | As built survey completed on area. | ☑ | ☐ | ☐ | ☐ | ATTACHED. |
| 6.0 | Bearing surface adequately prepared for grout. | ☐ | ☑ | ☐ | ☐ | OTHERS RESPONSIBLE FOR CIVIL PREP AND GROUTING AT LATER DATE/STEEL INSTALL |
| 7.0 | Work area access has been adequately prepared. | ☑ | ☐ | ☐ | ☐ | |
| 8.0 | Outstanding RFI's for the area have been addressed prior to the area being turned over. (List any related RFI's in the comments) | ☑ | ☐ | ☐ | ☐ | |
| 9.0 | Outstanding deficiencies for the area have been addressed prior to the area being turned over. | ☑ | ☐ | ☐ | ☐ | |

COMMENTS:

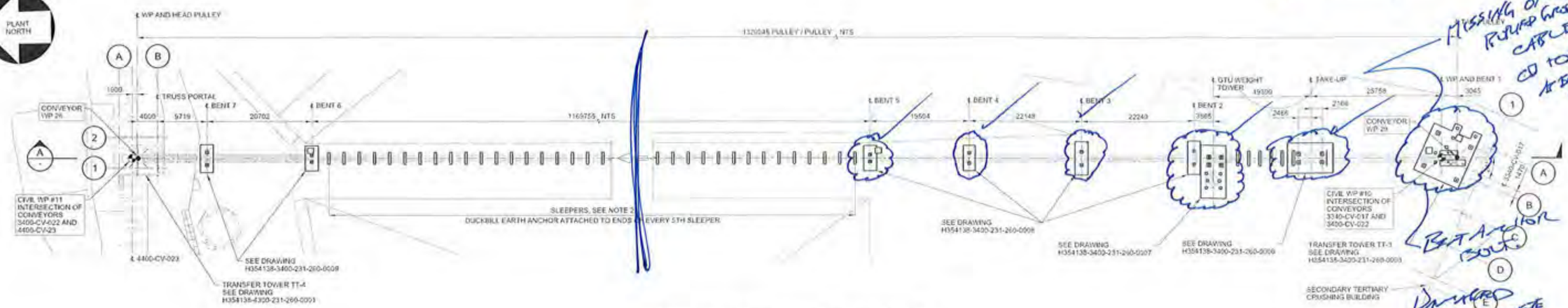
OWNER REPRESENTATIVE:
INSPECTOR: Jerry C TITLE Const. Sup. DATE: Dec 8/18

CLARK BUILDERS REPRESENTATIVE:
INSPECTOR: Ryan deMillicano TITLE Project Coordinator DATE: December 6, 2018.

DWG. No. H354138-3400-231-260-0002

Dec 6, 2018

PLANT NORTH




Missing one pulled ground cable on tower about two

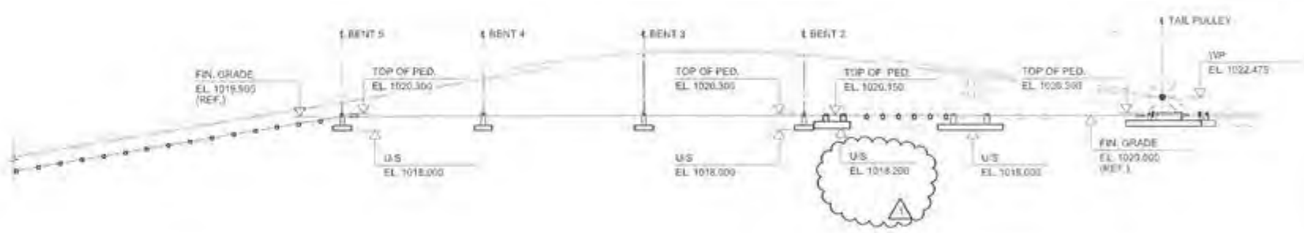
Bolt anchor bolts

Drilled concrete by others

NP Bolt.

## 3400-CV-022 CONVEYOR FOUNDATION GENERAL ARRANGEMENT - PLAN




## SECTION A

NOTES:

1. FOR GENERAL NOTES SEE DRAWING H354138-3400-231-260-0001.
2. FOR SLEEPERS AND SOIL ANCHOR DETAILS, SEE DRAWING H354138-2120-220-290-0004.
   FOR SLEEPER LOCATIONS AND SPACINGS SEE TEP DRAWING 17-0260-1102 AND -1103.

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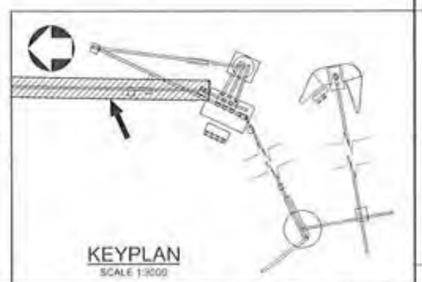
1:400 SCALE IN METRES



KEYPLAN
SCALE 1:2000

| DRAWING No. | DRAWING TITLE |
|---|---|
| REFERENCE DRAWINGS | |

REG. PROFESSIONAL

2018-10-11

| No. | DESCRIPTION | BY | CHKD | DATE |
|---|---|---|---|---|
| 1 | GTu FOOTING U/S ELEVATION REVISED DUE TO SITE CONDITIONS | PJ | EA | 2018-10-10 |
| 0 | APPROVED FOR CONSTRUCTION | PJ | EA | 2018-09-12 |

REVISIONS

THIS DRAWING IS PREPARED FOR THE EXCLUSIVE USE OF STRATA GOLD CORPORATION AND IS SUBJECT TO THE TERMS AUTHORIZATION AND LIMITATIONS CONTAINED IN THE CONTRACT UNDER WHICH IT WAS PREPARED. ANY USE OF THIS DRAWING, IN WHOLE OR IN PART, FOR PURPOSES OTHER THAN THOSE AUTHORIZED BY HATCH IS FORBIDDEN AND DOES NOT ENTITLE THE USER TO RELY UPON THE INFORMATION CONTAINED IN THIS DRAWING. ANY RELIANCE ON OR USE OF THIS DRAWING BY ANY THIRD PARTY IS AT THAT PARTY'S SOLE RISK. HATCH ACCEPTS NO RESPONSIBILITY OR LIABILITY FOR ANY DAMAGES SUFFERED BY ANY THIRD PARTY AS A RESULT OF DECISIONS MADE OR ACTIONS TAKEN BASED ON THIS DRAWING OR DATA CONTAINED THEREIN. UNLESS OTHERWISE AGREED IN WRITING BY HATCH AND STRATA GOLD CORPORATION, THIS DRAWING IS CONFIDENTIAL AND IS NOT TO BE DISCLOSED TO ANY THIRD PARTY. ALL INTELLECTUAL PROPERTY RIGHTS, INCLUDING COPYRIGHT, IN THIS DRAWING REMAIN THE PROPERTY OF HATCH.

HATCH

| | | | |
|---|---|---|---|
| DRAFTSPERSON | P. JIVAEV | NR | 2018-08-28 |
| DESIGNER | H. LI | NR | 2018-08-28 |
| CHECKER | E. AKINCI | | 2018-10-11 |
| DESIGN COORD. | S. PERKINS | | 2018-10-11 |
| RESP. ENG. | E. AKINCI | | 2018-10-11 |
| LEAD DISC. ENG. | E. AKINCI | | 2018-10-11 |
| ENG. MANAGER | B. RUSTAD | | 2018-10-11 |
| PROJ. MANAGER | B. RUSTAD | | 2018-10-11 |

| ROLE | NAME | SIGNATURE & DATE |
|---|---|---|
| DRAWING APPROVAL STATUS: | Approved for Construction | |

StrataGold Corporation

EAGLE GOLD PROJECT

OVERLAND CONVEYING
3400-CV-022 CONVEYOR FOUNDATION
GENERAL ARRANGEMENT

| SCALE | DWG. No. | REV |
|---|---|---|
| 1:400 OR AS NOTED | H354138-3400-231-260-0002 | 1 |

SHEET SIZE: D

$FILES PRINTED: 09-OCT-2018 nls_pwservice

CLARK BUILDERS
ENERGY & RESOURCES

# AREA CONCRETE TURNOVER

Rev 00 September 18, 2018

| | |
|---|---|
| OWNER REPRESENTATIVE(S): (JDS) JERRY C. / TAWNYA | DATE OF TURNOVER: DECEMBER 6, 2018 |
| CLARK BUILDERS REPRESENTIVE(S): RYAN DEMILLIANO / GARY D. | AREA/ LOCATION: 3330 / CV016 |

| | |
|---|---|
| TURNOVER TYPE: | ☐ COMPLETE AREA ☒ PARTIAL AREA ☐ EQUIPMENT ☐ SYSTEM ☐ OTHER |
| COMPLETE DESCRIPTION OF AREA TO BE TURNED OVER: | CONVEYOR LINE CV016 IN AREA 3330 CONCRETE INSTALLATIONS. |
| SCOPES INCLUDED: | ☐ CIVIL/EARTHWORK ☑ CONCRETE ☒ ANCHOR BOLTS/EMBEDS ☒ GROUNDING ☐ GROUT |
| RELEASED FROM (Company): | CLARK BUILDERS |
| RELEASED TO (Company): | JDS |

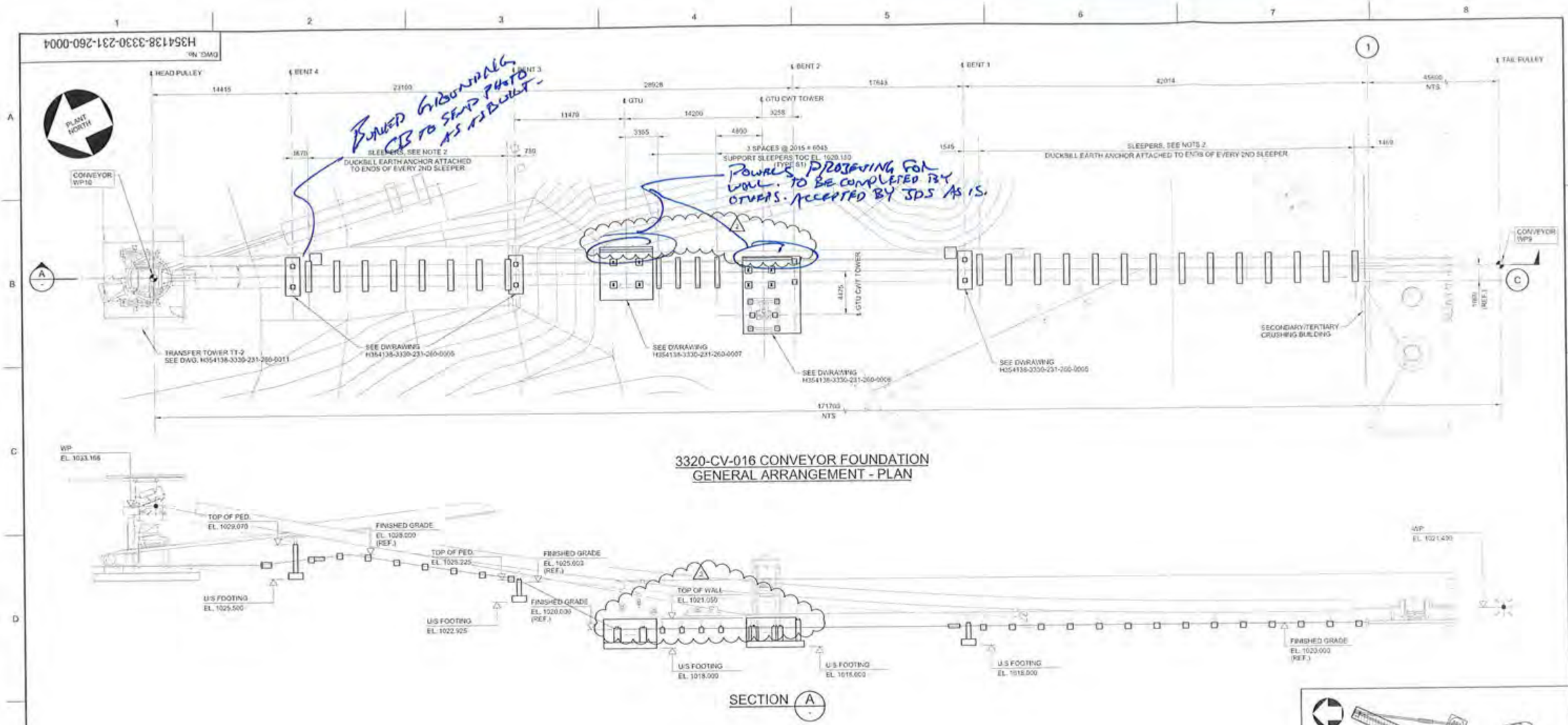
ATTACHMENT(S):

| ITEM | ITEMS TO BE CHECKED | ACCEPT | ACCEPT W/NOTES | DECLINE | N/A | NOTES |
|---|---|---|---|---|---|---|
| 1.0 | Concrete structure dimensions and locations are within acceptable tolerances and is acceptable to the owner. | ☑ | ☐ | ☐ | ☐ | |
| 2.0 | Tolerances for anchor bolts and embedded items have been review and are acceptable. This includes projection and location of embedded items. | ☑ | ☐ | ☐ | ☐ | AS BUILT ANCHOR BOLT LOCATIONS ATTACHED. |
| 3.0 | Safe access to the work area has been prepared by the contractor. | ☑ | ☐ | ☐ | ☐ | |
| 4.0 | All hardware required has been provided to the receiving company from Clark builders. This includes all plates, washers, nuts, etc. | ☐ | ☑ | ☐ | ☐ | WASHERS/NUTS MISSING ADDED IN SOME LOCATIONS DURING INSPECTIONS |
| 5.0 | As built survey completed on area. | ☑ | ☐ | ☐ | ☐ | |
| 6.0 | Bearing surface adequately prepared for grout. | ☑ | ☐ | ☐ | ☐ | GROUT TO BE DONE BY OTHERS. |
| 7.0 | Work area access has been adequately prepared. | ☑ | ☐ | ☐ | ☐ | |
| 8.0 | Outstanding RFI's for the area have been addressed prior to the area being turned over. (List any related RFI's in the comments) | ☑ | ☐ | ☐ | ☐ | |
| 9.0 | Outstanding deficiencies for the area have been addressed prior to the area being turned over. | ☑ | ☐ | ☐ | ☐ | |
| | | | | | | |

COMMENTS:

OWNER REPRESENTATIVE:
INSPECTOR: Jerry C TITLE Constr. Sup. DATE: Dec 4/18

CLARK BUILDERS REPRESENTATIVE:
INSPECTOR: Ryan deMilliano TITLE Project Coordinator DATE: DECEMBER 6, 2018




3320-CV-016 CONVEYOR FOUNDATION
GENERAL ARRANGEMENT - PLAN

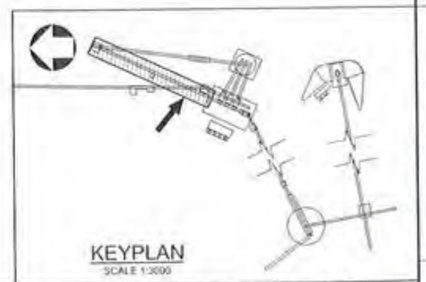



SECTION A

NOTES:

1. FOR NOTES SEE DRAWING H354138-3330-231-260-0001.
2. FOR SLEEPERS AND SOIL ANCHOR DETAILS, SEE DRAWING H354138-2120-220-290-0004.
FOR SLEEPER LOCATIONS AND SPACINGS SEE TEP DRAWING 17-0200-500 AND 502.

0 2 4 6 8 10
1:200 SCALE IN METRES



KEYPLAN
SCALE 1:3000

| DRAWING No. | DRAWING TITLE |
|---|---|
| REFERENCE DRAWINGS | |

REG. PROFESSIONAL
2018.12.03

| No. | DESCRIPTION | BY | CHK'D | DATE |
|---|---|---|---|---|
| 2 | RETAINING WALL ADDED | PJ | EA | 2018-12-03 |
| 1 | FINISHED GRADE ELEVATION AND BENT 4 REVISED | PJ | EA | 2018-09-11 |
| 0 | APPROVED FOR CONSTRUCTION | RS | EA | 2018-08-30 |

REVISIONS

HATCH

| ROLE | NAME | SIGNATURE & DATE |
|---|---|---|
| DRAFTSPERSON | R. SAGARBARRIA | NR |
| DESIGNER | H. LI | NR |
| CHECKER | E. AKINCI | 2018.12.03 |
| DESIGN COORD. | S. PERKINS | 2018.12.03 |
| RESP. ENG. | E. AKINCI | 2018.12.03 |
| LEAD DISC. ENG. | E. AKINCI | 2018.12.03 |
| ENG. MANAGER | B. RUSTAD | 2018.12.03 |
| PROJ. MANAGER | B. RUSTAD | 2018.12.03 |

DRAWING APPROVAL STATUS: Approved for Construction

StrataGold Corporation

EAGLE GOLD PROJECT

TERTIARY TRANSFER CONVEYORS
3320-CV-016 CONVEYOR FOUNDATION
GENERAL ARRANGEMENT

SCALE 1:200 OR AS NOTED
DWG. No. H354138-3330-231-260-0004
REV 2
SHEET SIZE: D

SFILES
PRINTED: 03-DEC-2018

| | | |
|---|---|---|
| JDS Energy & Mining Inc. | **CONTRACTOR/INTERDISCIPLINE RELEASE FORM** | Victoria GOLD CORP |

| | | | |
|---|---|---|---|
| **Project:** | Eagle Gold Project | **Revision No.** | 0 |
| **Contractor:** | Clark Builders | **Contract No:** | CS202 |
| **Area:** | 3400,4300 | | |

| | | | |
|---|---|---|---|
| **Date** *(mm/dd/yy)*: | 12/18/2018 | **Drawing No:** | H54138-3400-231-260-0003 R1<br>H54138-4300-231-260-0003 R1 |
| **Discipline:** | Concrete | | |

**The following:** **Area** ☒ **Equipment** ☐ **System** ☐ **Other** ☐

**(Provide complete description of area item, equipment system and Tag Numbers where applicable):**

**Transfer Tower 3 - 4 x P1 pedestals & 1 P4 pedestal – one stair pad not yet installed**

**Transfer Tower 4 – 4 x P1 pedestals - two stair pads not yet installed**

**Released to:** Priority Steel

**Release Basis:**

| | | | |
|---|---|---|---|
| ☐ | Civil | ☐ | Paintings/Coatings |
| ☒ | Structural | ☐ | Electrical |
| ☐ | Mechanical | ☐ | Tracing |
| ☐ | Piping | ☐ | Insulation |
| ☐ | NDE | ☐ | Fireproofing |
| ☐ | PHWT | ☐ | Walkdown/Punchout |
| ☐ | Pressure Test | ☐ | Other |

**Comments:**

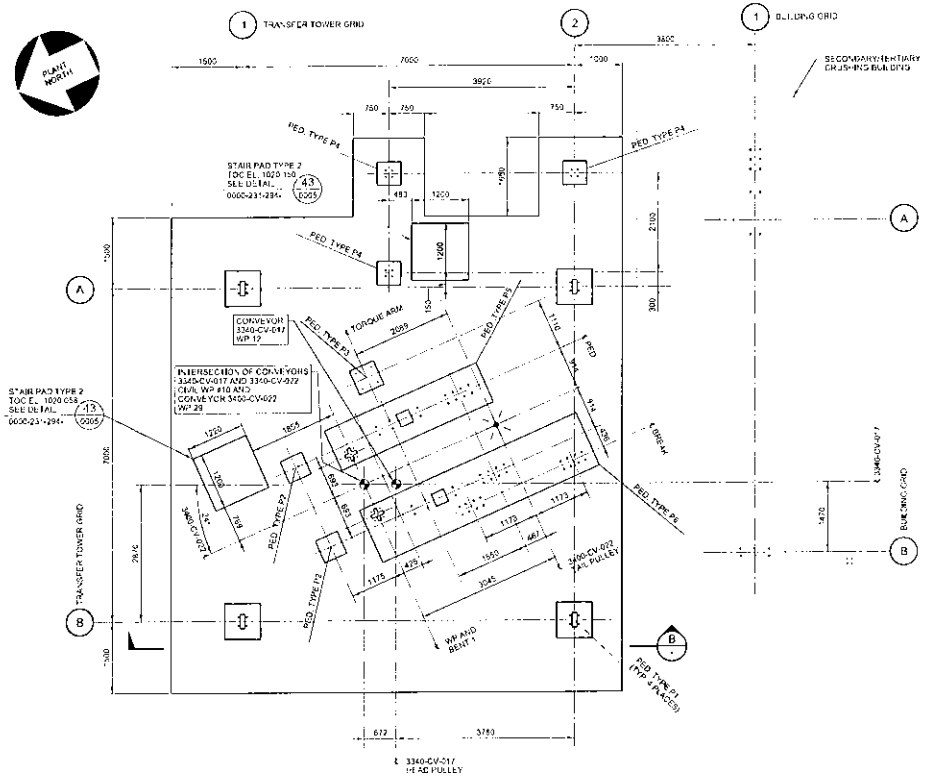
**Stair pads to be poured and set by Clark after backfill is complete – Jan 2019**

**Underhill Survey anchor bolt verification attached**

| Requested By *(Print)* | Title | Signature | Date *(mm/dd/yy)* |
|---|---|---|---|
| Peter Nice | Superintendent | | 12/18/18 |
| Matt Coverdale | Field Engineer | | 12/18/2018 |
| Release Authorized By *(Print)* | Title | Signature | Date *(mm/dd/yy)* |
| | | | |
| Release Received/Accepted By *(Print)* | Title | Signature | Date *(mm/dd/yy)* |
| | | | |

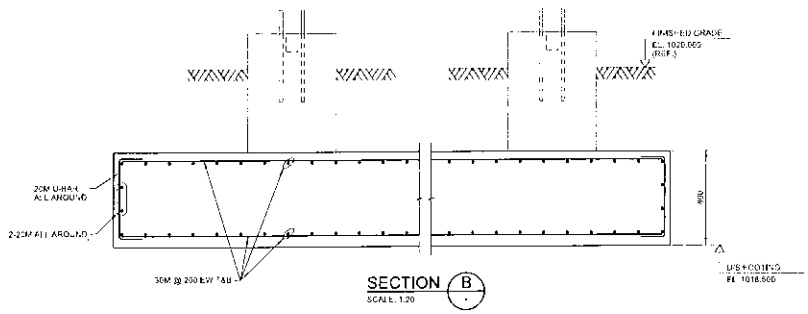
VICEAG05E

DWG. No. H354138-3400-231-260-0003



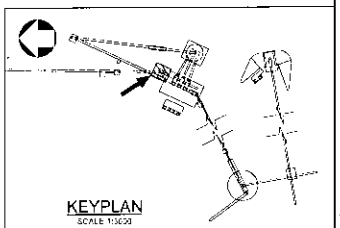

## TRANSFER TOWER TT-3 FOUNDATION - PLAN

SCALE: 1:50
FINISHED GRADE EL. 1020.300 (REF.)




NOTES:

1. FOR NOTES SEE DRAWING H354138-3400-231-260-0001.
2. FOR TIE CONVEYOR WORK POINTS SEE TEP DRAWINGS 7-0230-60ALAND 7-0230-1102.



KEYPLAN
SCALE 1:5000

1:20 0 200 400 600 800 1000 SCALE IN MILLIMETRES

1:50 0 500 1000 1500 2000 2500 SCALE IN MILLIMETRES

| DRAWING No. | DRAWING TITLE |
|---|---|
| REFERENCE DRAWINGS | |

REG. PROFESSIONAL

| No. | DESCRIPTION | BY | CHKD | DATE |
|---|---|---|---|---|
| 1 | IFC-D H0076 RELEASED | PJ | EA | 2018-10-24 |
| 0 | APPROVED FOR CONSTRUCTION | RS | EA | 2018-08-31 |

REVISIONS

HATCH

| | | |
|---|---|---|
| DRAFTSPERSON | R. SADABARRIA | |
| DESIGNER | H.U. | |
| CHECKER | E. ARANCI | |
| DESIGN COORD. | S. PERKINS | |
| RESP. ENG. | E. ARANCI | |
| LEAD DISC. ENG. | E. ARANCI | |
| ENG. MANAGER | B. RUSTAD | |
| PROJ. MANAGER | B. RUSTAD | |

| ROLE | NAME | SIGNATURE & DATE |
|---|---|---|

DRAWING APPROVAL STATUS: Approved for Construction

StrataGold Corporation

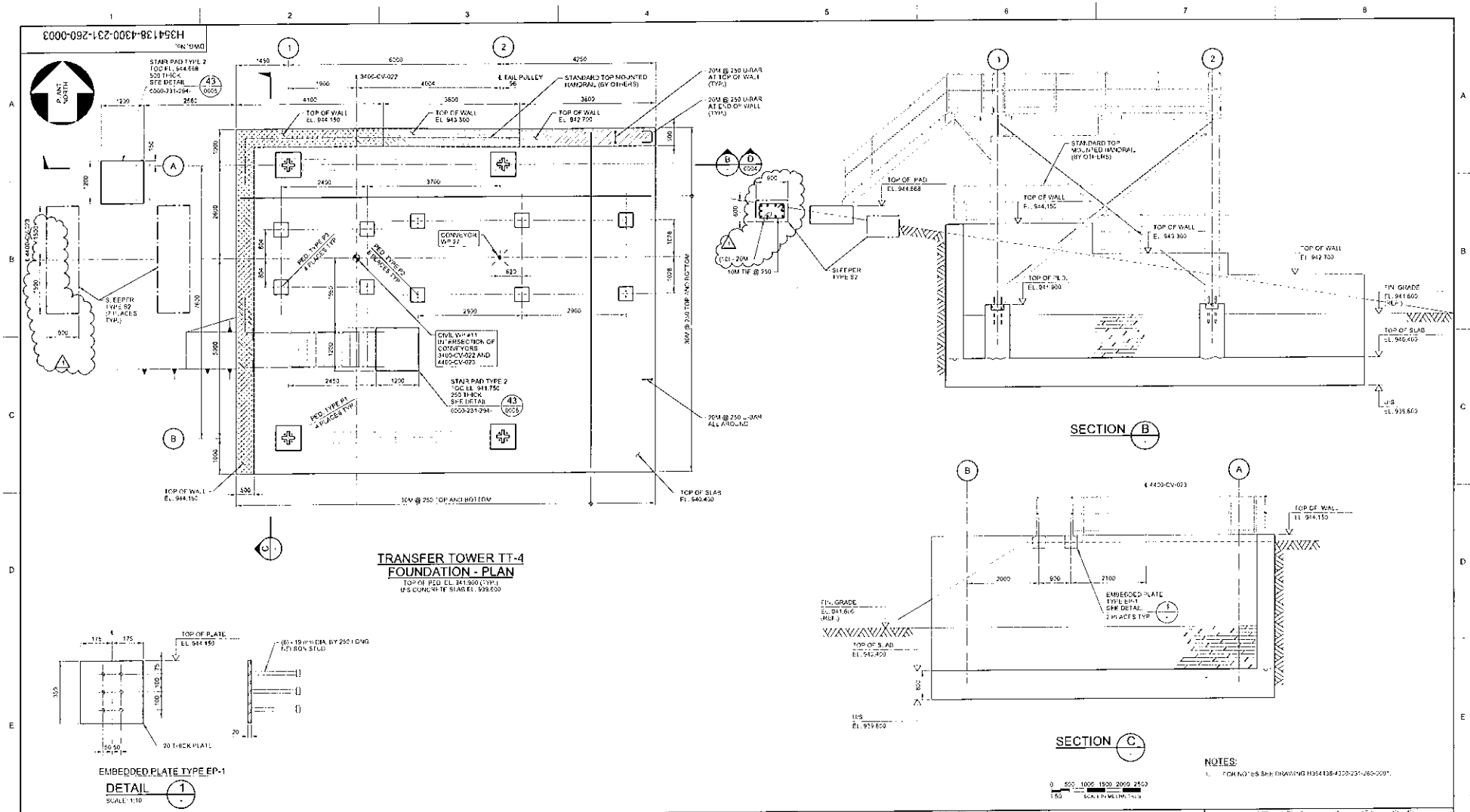
EAGLE GOLD PROJECT

OVERLAND CONVEYING
TRANSFER TOWER TT-3 FOUNDATION
PLAN, SECTIONS AND DETAILS - SHT. 1

| SCALE | DWG. No. | REV |
|---|---|---|
| AS NOTED (24 X 36 SHEET) | H354138-3400-231-260-0003 | 1 |

SHEET SIZE: D

BY ALL PRINTED 25-OCT-2018 dtc_overview




NOTES:

1. FOR NOTES SEE DRAWING H354138-4300-231-260-0001.

0 500 1000 1500 2000 2500
1:50 SCALE IN MILLIMETRES

| No. | DESCRIPTION | BY | CHK'D | DATE |
|---|---|---|---|---|
| 1 | SLEEPERS TYPE S2 REVISED | PJ | EA | 2018-10-25 |
| 0 | APPROVED FOR CONSTRUCTION | PJ | EA | 2018-09-21 |

REVISIONS

| DRAWING No. | DRAWING TITLE |
|---|---|
| REFERENCE DRAWINGS | |

REG. PROFESSIONAL

HATCH

| | | | |
|---|---|---|---|
| DRAFTSPERSON | P. JIVAEV | NR | 2018-09-12 |
| DESIGNER | H. LI | NR | 2018-09-12 |
| CHECKER | E. AKINCI | | |
| DESIGN COORD. | S. PERKINS | | |
| RESP. ENG. | E. AKINCI | | |
| LEAD DISC. ENG. | F. AKINCI | | |
| ENG. MANAGER | B. RUSTAD | | |
| PROJ. MANAGER | B. RUSTAD | | |
| ROLE | NAME | SIGNATURE & DATE | |

DRAWING APPROVAL STATUS: Approved for Construction

StrataGold Corporation

EAGLE GOLD PROJECT

ORE PREPARATION (LIME AND CEMENT)
TRANSFER TOWER TT-4 FOUNDATION
PLAN, SECTION AND DETAILS - SHEET 1

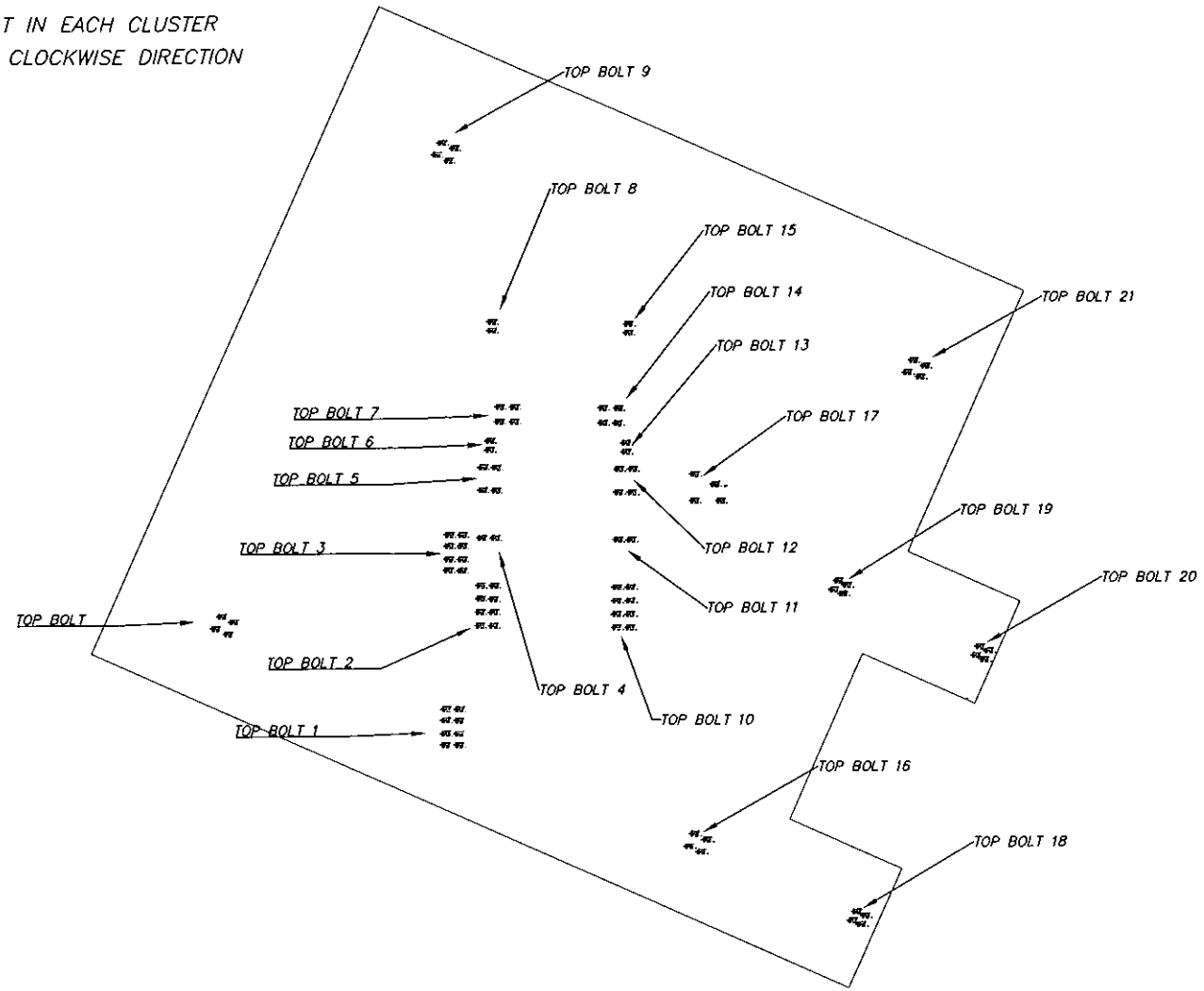
SCALE 1:50 (OR AS NOTED) | DWG. No. H354138-4300-231-260-0003 | REV 1

SHEET SIZE: D

SHEETS
PRINTED: 26-OCT-2018

# TT3 BOLT ASBUILT 2018-12-15

BOLTS WERE PICKED UP WITH THE FIRST BOLT IN EACH CLUSTER
BEING THE MOST SOUTH WESTERN BOLT IN A CLOCKWISE DIRECTION




UNDERHILL GEOMATICS LTD.
PROFESSIONAL LAND SURVEYORS
WHITEHORSE, YUKON

**Underhill Geomatics Ltd**
**Transfer Tower 3 Anchor Bolt Asbuilts**
**Survey Executed on December 15th, 2018**

Prepared by: Robin Cunningham
Date: 12/16/2018


**Design Points of TT3 Bolts (Provided by CLARK)**

| Point # | Design Northing | Design Easting | Design Elevation | Bolt Cluster |
|---|---|---|---|---|
| 28 | 100212.563 | 59768.546 | 1020.503 | TOP BOLT |
| 25 | 100212.726 | 59768.623 | 1020.503 | TOP BOLT |
| 26 | 100212.650 | 59768.786 | 1020.503 | TOP BOLT |
| 27 | 100212.487 | 59768.710 | 1020.503 | TOP BOLT |
| Point # | Design Northing | Design Easting | Design Elevation | Bolt Cluster |
| 94 | 100210.978 | 59771.623 | 1020.453 | TOP BOLT 1 |
| 67 | 100211.128 | 59771.625 | 1020.453 | TOP BOLT 1 |
| 63 | 100211.308 | 59771.628 | 1020.453 | TOP BOLT 1 |
| 61 | 100211.458 | 59771.631 | 1020.453 | TOP BOLT 1 |
| 62 | 100211.455 | 59771.811 | 1020.453 | TOP BOLT 1 |
| 64 | 100211.305 | 59771.808 | 1020.453 | TOP BOLT 1 |
| 68 | 100211.125 | 59771.805 | 1020.453 | TOP BOLT 1 |
| 93 | 100210.975 | 59771.802 | 1020.453 | TOP BOLT 1 |
| Point # | Design Northing | Design Easting | Design Elevation | Bolt Cluster |
| 51 | 100212.580 | 59772.086 | 1020.453 | TOP BOLT 2 |
| 49 | 100212.760 | 59772.090 | 1020.453 | TOP BOLT 2 |
| 47 | 100212.940 | 59772.093 | 1020.453 | TOP BOLT 2 |
| 45 | 100213.120 | 59772.096 | 1020.453 | TOP BOLT 2 |
| 46 | 100213.117 | 59772.276 | 1020.453 | TOP BOLT 2 |
| 48 | 100212.937 | 59772.273 | 1020.453 | TOP BOLT 2 |
| 50 | 100212.757 | 59772.270 | 1020.453 | TOP BOLT 2 |
| 52 | 100212.577 | 59772.266 | 1020.453 | TOP BOLT 2 |
| Point # | Design Northing | Design Easting | Design Elevation | Bolt Cluster |
| 59 | 100213.324 | 59771.663 | 1020.453 | TOP BOLT 3 |
| 57 | 100213.473 | 59771.666 | 1020.453 | TOP BOLT 3 |
| 55 | 100213.653 | 59771.669 | 1020.453 | TOP BOLT 3 |
| 53 | 100213.803 | 59771.672 | 1020.453 | TOP BOLT 3 |
| 54 | 100213.800 | 59771.852 | 1020.453 | TOP BOLT 3 |
| 56 | 100213.650 | 59771.849 | 1020.453 | TOP BOLT 3 |
| 58 | 100213.470 | 59771.846 | 1020.453 | TOP BOLT 3 |
| 60 | 100213.320 | 59771.843 | 1020.453 | TOP BOLT 3 |
| Point # | Design Northing | Design Easting | Design Elevation | Bolt Cluster |
| 43 | 100213.760 | 59772.107 | 1020.453 | TOP BOLT 4 |
| 44 | 100213.757 | 59772.287 | 1020.453 | TOP BOLT 4 |
| Point # | Design Northing | Design Easting | Design Elevation | Bolt Cluster |
| 41 | 100214.400 | 59772.118 | 1020.453 | TOP BOLT 5 |
| 39 | 100214.710 | 59772.124 | 1020.453 | TOP BOLT 5 |
| 40 | 100214.706 | 59772.304 | 1020.453 | TOP BOLT 5 |
| 42 | 100214.397 | 59772.298 | 1020.453 | TOP BOLT 5 |

**Asbuilt Points of TT3 Bolts (Asbuilt done by Underhill)**

| Point # | Northing | Easting | Elevation | Bolt Cluster |
|---|---|---|---|---|
| 8349002 | 100212.558 | 59768.549 | 1020.509 | TOP BOLT |
| 8349003 | 100212.719 | 59768.625 | 1020.511 | TOP BOLT |
| 8349004 | 100212.643 | 59768.789 | 1020.510 | TOP BOLT |
| 8349005 | 100212.483 | 59768.711 | 1020.510 | TOP BOLT |
| Point # | Northing | Easting | Elevation | Bolt Cluster |
| 8349006 | 100210.977 | 59771.627 | 1020.464 | TOP BOLT 1 |
| 8349007 | 100211.128 | 59771.631 | 1020.464 | TOP BOLT 1 |
| 8349008 | 100211.309 | 59771.631 | 1020.463 | TOP BOLT 1 |
| 8349009 | 100211.457 | 59771.635 | 1020.461 | TOP BOLT 1 |
| 8349010 | 100211.454 | 59771.813 | 1020.459 | TOP BOLT 1 |
| 8349011 | 100211.304 | 59771.811 | 1020.460 | TOP BOLT 1 |
| 8349012 | 100211.126 | 59771.807 | 1020.459 | TOP BOLT 1 |
| 8349013 | 100210.974 | 59771.806 | 1020.462 | TOP BOLT 1 |
| Point # | Northing | Easting | Elevation | Bolt Cluster |
| 8349014 | 100212.579 | 59772.092 | 1020.462 | TOP BOLT 2 |
| 8349015 | 100212.761 | 59772.093 | 1020.461 | TOP BOLT 2 |
| 8349016 | 100212.940 | 59772.098 | 1020.461 | TOP BOLT 2 |
| 8349017 | 100213.116 | 59772.102 | 1020.463 | TOP BOLT 2 |
| 8349018 | 100213.114 | 59772.283 | 1020.463 | TOP BOLT 2 |
| 8349019 | 100212.934 | 59772.278 | 1020.462 | TOP BOLT 2 |
| 8349020 | 100212.757 | 59772.276 | 1020.462 | TOP BOLT 2 |
| 8349021 | 100212.574 | 59772.272 | 1020.462 | TOP BOLT 2 |
| Point # | Northing | Easting | Elevation | Bolt Cluster |
| 8349022 | 100213.322 | 59771.666 | 1020.464 | TOP BOLT 3 |
| 8349023 | 100213.471 | 59771.671 | 1020.463 | TOP BOLT 3 |
| 8349024 | 100213.648 | 59771.677 | 1020.463 | TOP BOLT 3 |
| 8349025 | 100213.799 | 59771.679 | 1020.461 | TOP BOLT 3 |
| 8349026 | 100213.795 | 59771.856 | 1020.463 | TOP BOLT 3 |
| 8349027 | 100213.646 | 59771.853 | 1020.463 | TOP BOLT 3 |
| 8349028 | 100213.466 | 59771.852 | 1020.463 | TOP BOLT 3 |
| 8349029 | 100213.317 | 59771.848 | 1020.464 | TOP BOLT 3 |
| Point # | Northing | Easting | Elevation | Bolt Cluster |
| 8349030 | 100213.757 | 59772.115 | 1020.465 | TOP BOLT 4 |
| 8349031 | 100213.753 | 59772.296 | 1020.464 | TOP BOLT 4 |
| Point # | Northing | Easting | Elevation | Bolt Cluster |
| 8349032 | 100214.397 | 59772.126 | 1020.463 | TOP BOLT 5 |
| 8349033 | 100214.704 | 59772.133 | 1020.455 | TOP BOLT 5 |
| 8349034 | 100214.701 | 59772.312 | 1020.460 | TOP BOLT 5 |
| 8349035 | 100214.392 | 59772.306 | 1020.463 | TOP BOLT 5 |

**Deltas**

| Delta Northing | Delta Easting | Delta Elevation |
|---|---|---|
| 0.005 | -0.003 | -0.006 |
| 0.007 | -0.003 | -0.008 |
| 0.007 | -0.003 | -0.007 |
| 0.004 | -0.002 | -0.007 |
| Delta Northing | Delta Easting | Delta Elevation |
| 0.001 | -0.005 | -0.011 |
| 0.000 | -0.006 | -0.011 |
| -0.001 | -0.003 | -0.010 |
| 0.001 | -0.004 | -0.008 |
| 0.001 | -0.002 | -0.006 |
| 0.001 | -0.003 | -0.007 |
| -0.001 | -0.002 | -0.006 |
| 0.001 | -0.004 | -0.009 |
| Delta Northing | Delta Easting | Delta Elevation |
| 0.001 | -0.006 | -0.009 |
| -0.001 | -0.003 | -0.008 |
| 0.000 | -0.005 | -0.008 |
| 0.004 | -0.006 | -0.010 |
| 0.003 | -0.007 | -0.010 |
| 0.003 | -0.005 | -0.009 |
| 0.000 | -0.006 | -0.009 |
| 0.003 | -0.006 | -0.009 |
| Delta Northing | Delta Easting | Delta Elevation |
| 0.001 | -0.003 | -0.011 |
| 0.002 | -0.005 | -0.010 |
| 0.005 | -0.008 | -0.010 |
| 0.004 | -0.007 | -0.008 |
| 0.005 | -0.004 | -0.010 |
| 0.004 | -0.004 | -0.010 |
| 0.004 | -0.006 | -0.010 |
| 0.003 | -0.005 | -0.011 |
| Delta Northing | Delta Easting | Delta Elevation |
| 0.003 | -0.008 | -0.012 |
| 0.004 | -0.009 | -0.011 |
| Delta Northing | Delta Easting | Delta Elevation |
| 0.003 | -0.008 | -0.010 |
| 0.006 | -0.009 | -0.002 |
| 0.005 | -0.008 | -0.007 |
| 0.004 | -0.008 | -0.010 |

**Underhill Geomatics Ltd**
**Transfer Tower 3 Anchor Bolt Asbuilts**
**Survey Executed on December 15th, 2018**



**Design Points of TT3 Bolts (Provided by CLARK)** | **Asbuilt Points of TT3 Bolts (Asbuilt done by Underhill)** | **Deltas**

| Point # | Design Northing | Design Easting | Design Elevation | Bolt Cluster | | Point # | Northing | Easting | Elevation | Bolt Cluster | | Delta Northing | Delta Easting | Delta Elevation |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 38 | 100214.941 | 59772.218 | 1020.453 | TOP BOLT 6 | | 8349036 | 100214.938 | 59772.223 | 1020.451 | TOP BOLT 6 | | 0.003 | -0.005 | 0.002 |
| 37 | 100215.061 | 59772.220 | 1020.453 | TOP BOLT 6 | | 8349037 | 100215.058 | 59772.228 | 1020.449 | TOP BOLT 6 | | 0.003 | -0.008 | 0.004 |
| Point # | Design Northing | Design Easting | Design Elevation | Bolt Cluster | | Point # | Northing | Easting | Elevation | Bolt Cluster | | Delta Northing | Delta Easting | Delta Elevation |
| 36 | 100215.324 | 59772.345 | 1020.453 | TOP BOLT 7 | | 8349038 | 100215.317 | 59772.351 | 1020.464 | TOP BOLT 7 | | 0.007 | -0.006 | -0.011 |
| 33 | 100215.524 | 59772.349 | 1020.453 | TOP BOLT 7 | | 8349039 | 100215.516 | 59772.356 | 1020.462 | TOP BOLT 7 | | 0.008 | -0.007 | -0.009 |
| 34 | 100215.520 | 59772.549 | 1020.453 | TOP BOLT 7 | | 8349040 | 100215.511 | 59772.553 | 1020.461 | TOP BOLT 7 | | 0.009 | -0.004 | -0.008 |
| 35 | 100215.320 | 59772.545 | 1020.453 | TOP BOLT 7 | | 8349041 | 100215.314 | 59772.552 | 1020.463 | TOP BOLT 7 | | 0.006 | -0.007 | -0.010 |
| Point # | Design Northing | Design Easting | Design Elevation | Bolt Cluster | | Point # | Northing | Easting | Elevation | Bolt Cluster | | Delta Northing | Delta Easting | Delta Elevation |
| 30 | 100216.541 | 59772.246 | 1020.453 | TOP BOLT 8 | | 8349042 | 100216.538 | 59772.250 | 1020.466 | TOP BOLT 8 | | 0.003 | -0.004 | -0.013 |
| 29 | 100216.661 | 59772.248 | 1020.453 | TOP BOLT 8 | | 8349043 | 100216.658 | 59772.253 | 1020.466 | TOP BOLT 8 | | 0.003 | -0.005 | -0.013 |
| Point # | Design Northing | Design Easting | Design Elevation | Bolt Cluster | | Point # | Northing | Easting | Elevation | Bolt Cluster | | Delta Northing | Delta Easting | Delta Elevation |
| 4 | 100218.907 | 59771.505 | 1020.503 | TOP BOLT 9 | | 8349044 | 100218.905 | 59771.507 | 1020.511 | TOP BOLT 9 | | 0.002 | -0.002 | -0.008 |
| 1 | 100219.070 | 59771.581 | 1020.503 | TOP BOLT 9 | | 8349045 | 100219.065 | 59771.580 | 1020.510 | TOP BOLT 9 | | 0.005 | 0.001 | -0.007 |
| 2 | 100218.994 | 59771.744 | 1020.503 | TOP BOLT 9 | | 8349046 | 100218.991 | 59771.746 | 1020.509 | TOP BOLT 9 | | 0.003 | -0.002 | -0.006 |
| 3 | 100218.831 | 59771.668 | 1020.503 | TOP BOLT 9 | | 8349047 | 100218.826 | 59771.670 | 1020.512 | TOP BOLT 9 | | 0.005 | -0.002 | -0.009 |
| Point # | Design Northing | Design Easting | Design Elevation | Bolt Cluster | | Point # | Northing | Easting | Elevation | Bolt Cluster | | Delta Northing | Delta Easting | Delta Elevation |
| 91 | 100212.548 | 59773.914 | 1020.453 | TOP BOLT 10 | | 8349048 | 100212.545 | 59773.921 | 1020.463 | TOP BOLT 10 | | 0.003 | -0.007 | -0.010 |
| 89 | 100212.728 | 59773.917 | 1020.453 | TOP BOLT 10 | | 8349049 | 100212.724 | 59773.921 | 1020.461 | TOP BOLT 10 | | 0.004 | -0.004 | -0.008 |
| 87 | 100212.908 | 59773.920 | 1020.453 | TOP BOLT 10 | | 8349050 | 100212.903 | 59773.924 | 1020.463 | TOP BOLT 10 | | 0.005 | -0.004 | -0.010 |
| 85 | 100213.088 | 59773.924 | 1020.453 | TOP BOLT 10 | | 8349051 | 100213.085 | 59773.929 | 1020.463 | TOP BOLT 10 | | 0.003 | -0.005 | -0.010 |
| 86 | 100213.085 | 59774.104 | 1020.453 | TOP BOLT 10 | | 8349052 | 100213.083 | 59774.111 | 1020.463 | TOP BOLT 10 | | 0.002 | -0.007 | -0.010 |
| 88 | 100212.905 | 59774.100 | 1020.453 | TOP BOLT 10 | | 8349053 | 100212.903 | 59774.107 | 1020.462 | TOP BOLT 10 | | 0.002 | -0.007 | -0.009 |
| 90 | 100212.725 | 59774.097 | 1020.453 | TOP BOLT 10 | | 8349054 | 100212.722 | 59774.104 | 1020.461 | TOP BOLT 10 | | 0.003 | -0.007 | -0.008 |
| 92 | 100212.545 | 59774.094 | 1020.453 | TOP BOLT 10 | | 8349055 | 100212.542 | 59774.101 | 1020.463 | TOP BOLT 10 | | 0.003 | -0.007 | -0.010 |
| Point # | Design Northing | Design Easting | Design Elevation | Bolt Cluster | | Point # | Northing | Easting | Elevation | Bolt Cluster | | Delta Northing | Delta Easting | Delta Elevation |
| 83 | 100213.728 | 59773.935 | 1020.453 | TOP BOLT 11 | | 8349056 | 100213.724 | 59773.942 | 1020.465 | TOP BOLT 11 | | 0.004 | -0.007 | -0.012 |
| 84 | 100213.725 | 59774.115 | 1020.453 | TOP BOLT 11 | | 8349057 | 100213.721 | 59774.122 | 1020.464 | TOP BOLT 11 | | 0.004 | -0.007 | -0.011 |
| Point # | Design Northing | Design Easting | Design Elevation | Bolt Cluster | | Point # | Northing | Easting | Elevation | Bolt Cluster | | Delta Northing | Delta Easting | Delta Elevation |
| 81 | 100214.368 | 59773.946 | 1020.453 | TOP BOLT 12 | | 8349058 | 100214.362 | 59773.952 | 1020.464 | TOP BOLT 12 | | 0.006 | -0.006 | -0.011 |
| 79 | 100214.678 | 59773.951 | 1020.453 | TOP BOLT 12 | | 8349059 | 100214.673 | 59773.955 | 1020.462 | TOP BOLT 12 | | 0.005 | -0.004 | -0.009 |
| 80 | 100214.675 | 59774.131 | 1020.453 | TOP BOLT 12 | | 8349060 | 100214.671 | 59774.138 | 1020.463 | TOP BOLT 12 | | 0.003 | -0.007 | -0.010 |
| 82 | 100214.365 | 59774.126 | 1020.453 | TOP BOLT 12 | | 8349061 | 100214.360 | 59774.134 | 1020.465 | TOP BOLT 12 | | 0.005 | -0.008 | -0.012 |
| 78 | 100214.909 | 59774.045 | 1020.453 | TOP BOLT 13 | | 8349062 | 100214.903 | 59774.051 | 1020.462 | TOP BOLT 13 | | 0.006 | -0.006 | -0.009 |
| 77 | 100215.029 | 59774.048 | 1020.453 | TOP BOLT 13 | | 8349063 | 100215.024 | 59774.051 | 1020.456 | TOP BOLT 13 | | 0.005 | -0.003 | -0.003 |
| Point # | Design Northing | Design Easting | Design Elevation | Bolt Cluster | | Point # | Northing | Easting | Elevation | Bolt Cluster | | Delta Northing | Delta Easting | Delta Elevation |
| 76 | 100215.300 | 59773.731 | 1020.453 | TOP BOLT 14 | | 8349064 | 100215.292 | 59773.739 | 1020.464 | TOP BOLT 14 | | 0.008 | -0.008 | -0.011 |
| 73 | 100215.500 | 59773.735 | 1020.453 | TOP BOLT 14 | | 8349065 | 100215.492 | 59773.739 | 1020.466 | TOP BOLT 14 | | 0.008 | -0.004 | -0.013 |
| 74 | 100215.496 | 59773.935 | 1020.453 | TOP BOLT 14 | | 8349066 | 100215.489 | 59773.944 | 1020.465 | TOP BOLT 14 | | 0.007 | -0.009 | -0.012 |
| 75 | 100215.296 | 59773.931 | 1020.453 | TOP BOLT 14 | | 8349067 | 100215.289 | 59773.936 | 1020.463 | TOP BOLT 14 | | 0.007 | -0.005 | -0.010 |

**Underhill Geomatics Ltd**
Transfer Tower 3 Anchor Bolt Asbuilts
Survey Executed on December 15th, 2018

Prepared by: Robin Cunningham
Date: 12/16/2018


Design Points of TT3 Bolts (Provided by CLARK)

| Point # | Design Northing | Design Easting | Design Elevation | Bolt Cluster |
|---|---|---|---|---|
| 32 | 100216.509 | 59774.073 | 1020.453 | TOP BOLT 15 |
| 31 | 100216.629 | 59774.075 | 1020.453 | TOP BOLT 15 |
| Point # | Design Northing | Design Easting | Design Elevation | Bolt Cluster |
| 24 | 100209.605 | 59774.891 | 1020.503 | TOP BOLT 16 |
| 21 | 100209.768 | 59774.967 | 1020.503 | TOP BOLT 16 |
| 22 | 100209.692 | 59775.130 | 1020.503 | TOP BOLT 16 |
| 23 | 100209.529 | 59775.054 | 1020.503 | TOP BOLT 16 |
| Point # | Design Northing | Design Easting | Design Elevation | Bolt Cluster |
| 72 | 100214.247 | 59774.969 | 1020.453 | TOP BOLT 17 |
| 69 | 100214.597 | 59774.975 | 1020.453 | TOP BOLT 17 |
| 70 | 100214.591 | 59775.325 | 1020.453 | TOP BOLT 17 BENT |
| 71 | 100214.241 | 59775.319 | 1020.453 | TOP BOLT 17 |
| Point # | Design Northing | Design Easting | Design Elevation | Bolt Cluster |
| 20 | 100208.603 | 59777.099 | 1020.453 | TOP BOLT 18 |
| 17 | 100208.720 | 59777.154 | 1020.453 | TOP BOLT 18 |
| 18 | 100208.665 | 59777.272 | 1020.453 | TOP BOLT 18 |
| 19 | 100208.548 | 59777.217 | 1020.453 | TOP BOLT 18 |
| Point # | Design Northing | Design Easting | Design Elevation | Bolt Cluster |
| 12 | 100213.042 | 59776.852 | 1020.453 | TOP BOLT 19 |
| 9 | 100213.160 | 59776.907 | 1020.453 | TOP BOLT 19 |
| 10 | 100213.105 | 59777.025 | 1020.453 | TOP BOLT 19 |
| 11 | 100212.987 | 59776.970 | 1020.453 | TOP BOLT 19 |
| Point # | Design Northing | Design Easting | Design Elevation | Bolt Cluster |
| 16 | 100212.155 | 59778.756 | 1020.453 | TOP BOLT 20 |
| 13 | 100212.273 | 59778.811 | 1020.453 | TOP BOLT 20 |
| 14 | 100212.218 | 59778.928 | 1020.453 | TOP BOLT 20 |
| 15 | 100212.100 | 59778.874 | 1020.453 | TOP BOLT 20 |
| Point # | Design Northing | Design Easting | Design Elevation | Bolt Cluster |
| 8 | 100215.949 | 59777.849 | 1020.503 | TOP BOLT 21 |
| 5 | 100216.112 | 59777.925 | 1020.503 | TOP BOLT 21 |
| 6 | 100216.036 | 59778.088 | 1020.503 | TOP BOLT 21 |
| 7 | 100215.873 | 59778.012 | 1020.503 | TOP BOLT 21 |

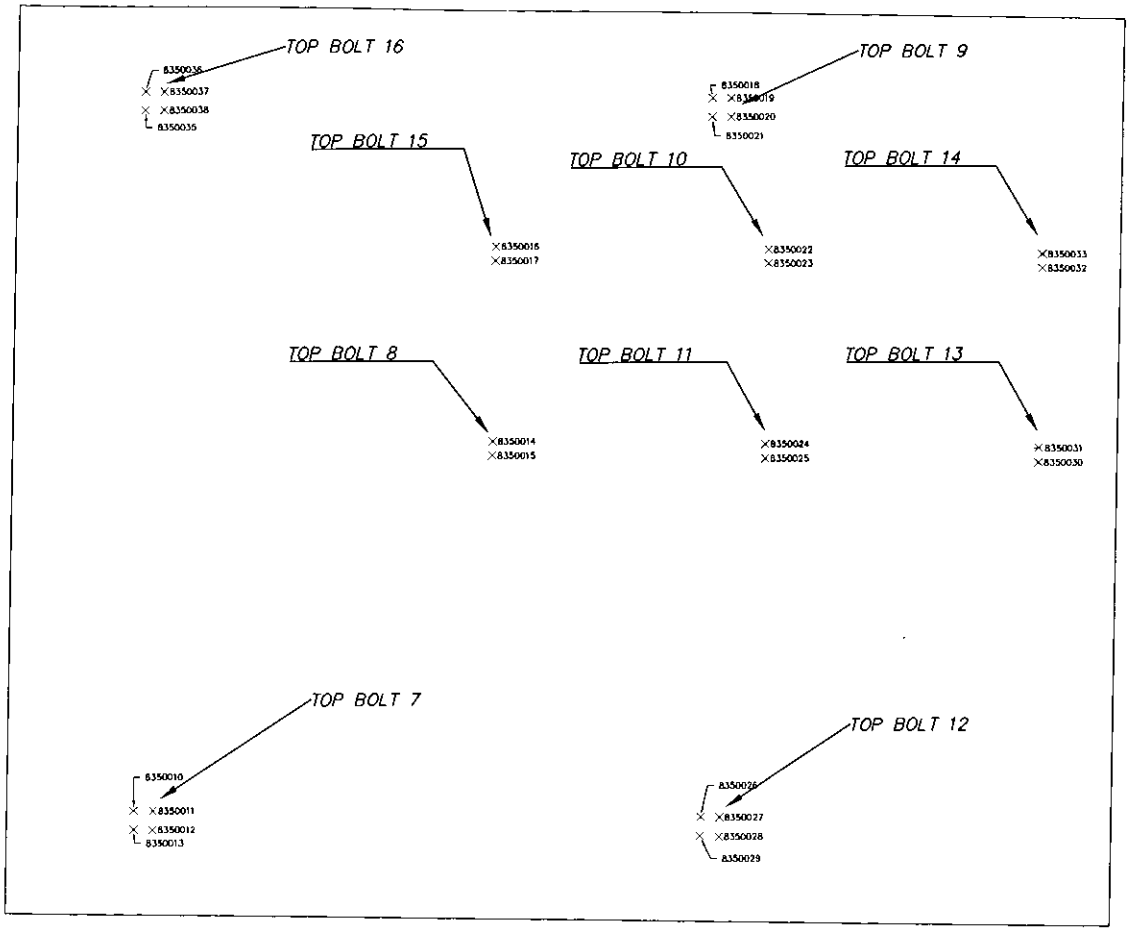
Asbuilt Points of TT3 Bolts (Asbuilt done by Underhill)

| Point # | Northing | Easting | Elevation | Bolt Cluster |
|---|---|---|---|---|
| 8349068 | 100216.505 | 59774.080 | 1020.464 | TOP BOLT 15 |
| 8349069 | 100216.622 | 59774.082 | 1020.463 | TOP BOLT 15 |
| Point # | Northing | Easting | Elevation | Bolt Cluster |
| 8349071 | 100209.599 | 59774.897 | 1020.513 | TOP BOLT 16 |
| 8349072 | 100209.766 | 59774.971 | 1020.512 | TOP BOLT 16 |
| 8349073 | 100209.688 | 59775.137 | 1020.513 | TOP BOLT 16 |
| 8349074 | 100209.526 | 59775.060 | 1020.514 | TOP BOLT 16 |
| Point # | Northing | Easting | Elevation | Bolt Cluster |
| 8349075 | 100214.240 | 59774.971 | 1020.464 | TOP BOLT 17 |
| 8349076 | 100214.595 | 59774.975 | 1020.462 | TOP BOLT 17 |
| 8349077 | 100214.459 | 59775.250 | 1020.332 | TOP BOLT 17 BENT |
| 8349078 | 100214.237 | 59775.324 | 1020.462 | TOP BOLT 17 |
| Point # | Northing | Easting | Elevation | Bolt Cluster |
| 8349079 | 100208.597 | 59777.105 | 1020.464 | TOP BOLT 18 |
| 8349080 | 100208.715 | 59777.160 | 1020.463 | TOP BOLT 18 |
| 8349081 | 100208.661 | 59777.277 | 1020.462 | TOP BOLT 18 |
| 8349082 | 100208.545 | 59777.222 | 1020.464 | TOP BOLT 18 |
| Point # | Northing | Easting | Elevation | Bolt Cluster |
| 8349083 | 100213.035 | 59776.856 | 1020.464 | TOP BOLT 19 |
| 8349084 | 100213.156 | 59776.917 | 1020.465 | TOP BOLT 19 |
| 8349085 | 100213.100 | 59777.032 | 1020.465 | TOP BOLT 19 |
| 8349086 | 100212.982 | 59776.979 | 1020.464 | TOP BOLT 19 |
| Point # | Northing | Easting | Elevation | Bolt Cluster |
| 8349087 | 100212.144 | 59778.768 | 1020.456 | TOP BOLT 20 |
| 8349088 | 100212.262 | 59778.823 | 1020.461 | TOP BOLT 20 |
| 8349089 | 100212.207 | 59778.943 | 1020.461 | TOP BOLT 20 |
| 8349090 | 100212.088 | 59778.884 | 1020.459 | TOP BOLT 20 |
| Point # | Northing | Easting | Elevation | Bolt Cluster |
| 8349091 | 100215.946 | 59777.853 | 1020.508 | TOP BOLT 21 |
| 8349092 | 100216.107 | 59777.928 | 1020.509 | TOP BOLT 21 |
| 8349093 | 100216.031 | 59778.087 | 1020.510 | TOP BOLT 21 |
| 8349094 | 100215.886 | 59778.022 | 1020.510 | TOP BOLT 21 |

Deltas

| Delta Northing | Delta Easting | Delta Elevation |
|---|---|---|
| 0.004 | -0.007 | -0.011 |
| 0.007 | -0.007 | -0.010 |
| Delta Northing | Delta Easting | Delta Elevation |
| 0.006 | -0.006 | -0.010 |
| 0.002 | -0.004 | -0.009 |
| 0.004 | -0.007 | -0.010 |
| 0.003 | -0.006 | -0.011 |
| Delta Northing | Delta Easting | Delta Elevation |
| 0.007 | -0.002 | -0.011 |
| 0.002 | 0.000 | -0.009 |
| 0.132 | 0.075 | 0.121 |
| 0.004 | -0.005 | -0.009 |
| Delta Northing | Delta Easting | Delta Elevation |
| 0.005 | -0.006 | -0.011 |
| 0.005 | -0.006 | -0.010 |
| 0.004 | -0.005 | -0.009 |
| 0.003 | -0.005 | -0.011 |
| Delta Northing | Delta Easting | Delta Elevation |
| 0.007 | -0.004 | -0.011 |
| 0.004 | -0.010 | -0.012 |
| 0.005 | -0.007 | -0.012 |
| 0.005 | -0.009 | -0.011 |
| Delta Northing | Delta Easting | Delta Elevation |
| 0.011 | -0.012 | -0.003 |
| 0.011 | -0.012 | -0.008 |
| 0.011 | -0.015 | -0.008 |
| 0.012 | -0.010 | -0.006 |
| Delta Northing | Delta Easting | Delta Elevation |
| 0.003 | -0.004 | -0.005 |
| 0.005 | -0.003 | -0.006 |
| 0.005 | 0.001 | -0.007 |
| -0.013 | -0.010 | -0.007 |

# TT4 BOLT ASBUILT 2018-12-16




UNDERHILL GEOMATICS LTD.
PROFESSIONAL LAND SURVEYORS
WHITEHORSE, YUKON

**Underhill Geomatics Ltd**

Transfer Tower 4 Anchor Bolt Asbuilts

Survey Executed on December 16th, 2018

Prepared by: Robin Cunningham

Date: 12/16/2018



| Design Points of TT4 Bolts (Provided by CLARK) | | | | | Asbuilt Points of TT4 Bolts (Asbuilt done by Underhill) | | | | | Deltas | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Point # | Design Northing | Design Easting | Design Elevation | Bolt Cluster | Point # | Northing | Easting | Elevation | Bolt Cluster | Delta Northing | Delta Easting | Delta Elevation |
| 21 | 101528.3456 | 59794.0483 | 942.103 | TOP BOLT7 | 8350010 | 101528.346 | 59794.046 | 942.106 | TOP BOLT7 | 0.000 | 0.002 | -0.003 |
| 22 | 101528.3421 | 59794.2482 | 942.103 | TOP BOLT7 | 8350011 | 101528.342 | 59794.249 | 942.106 | TOP BOLT7 | 0.000 | -0.001 | -0.003 |
| 23 | 101528.1422 | 59794.2447 | 942.103 | TOP BOLT7 | 8350012 | 101528.142 | 59794.245 | 942.105 | TOP BOLT7 | 0.000 | 0.000 | -0.002 |
| 24 | 101528.1457 | 59794.0448 | 942.103 | TOP BOLT7 | 8350013 | 101528.146 | 59794.044 | 942.105 | TOP BOLT7 | 0.000 | 0.001 | -0.002 |
| 15 | 101532.2271 | 59797.8406 | 942.083 | TOP BOLT8 | 8350014 | 101532.227 | 59797.841 | 942.087 | TOP BOLT8 | 0.000 | 0.000 | -0.004 |
| 16 | 101532.0771 | 59797.8379 | 942.083 | TOP BOLT8 | 8350015 | 101532.077 | 59797.837 | 942.087 | TOP BOLT8 | 0.000 | 0.001 | -0.004 |
| 5 | 101535.8398 | 59800.1799 | 942.103 | TOP BOLT 9 | 8350018 | 101535.839 | 59800.177 | 942.105 | TOP BOLT 9 | 0.001 | 0.003 | -0.002 |
| 6 | 101535.8363 | 59800.3799 | 942.103 | TOP BOLT 9 | 8350019 | 101535.836 | 59800.375 | 942.106 | TOP BOLT 9 | 0.000 | 0.005 | -0.003 |
| 7 | 101535.6363 | 59800.3764 | 942.103 | TOP BOLT 9 | 8350020 | 101535.639 | 59800.373 | 942.106 | TOP BOLT 9 | -0.003 | 0.003 | -0.003 |
| 8 | 101535.6398 | 59800.1764 | 942.103 | TOP BOLT 9 | 8350021 | 101535.639 | 59800.173 | 942.106 | TOP BOLT 9 | 0.001 | 0.003 | -0.003 |
| 11 | 101534.2322 | 59800.776 | 942.083 | TOP BOLT 10 | 8350022 | 101534.234 | 59800.772 | 942.08 | TOP BOLT 10 | -0.002 | 0.004 | 0.003 |
| 12 | 101534.0822 | 59800.7734 | 942.083 | TOP BOLT 10 | 8350023 | 101534.088 | 59800.771 | 942.082 | TOP BOLT 10 | -0.006 | 0.002 | 0.001 |
| 17 | 101532.1765 | 59800.7401 | 942.083 | TOP BOLT 11 | 8350024 | 101532.18 | 59800.737 | 942.085 | TOP BOLT 11 | -0.003 | 0.003 | -0.002 |
| 18 | 101532.0265 | 59800.7375 | 942.083 | TOP BOLT 11 | 8350025 | 101532.028 | 59800.734 | 942.086 | TOP BOLT 11 | -0.001 | 0.004 | -0.003 |
| 27 | 101528.0375 | 59800.2438 | 942.103 | TOP BOLT 12 | 8350028 | 101528.035 | 59800.238 | 942.102 | TOP BOLT 12 | 0.003 | 0.006 | 0.001 |
| 28 | 101528.041 | 59800.0439 | 942.103 | TOP BOLT 12 | 8350029 | 101528.043 | 59800.04 | 942.104 | TOP BOLT 12 | -0.002 | 0.004 | -0.001 |
| 25 | 101528.241 | 59800.0474 | 942.103 | TOP BOLT 12 | 8350026 | 101528.243 | 59800.047 | 942.1 | TOP BOLT 12 | -0.002 | 0.000 | 0.003 |
| 26 | 101528.2375 | 59800.2473 | 942.103 | TOP BOLT 12 | 8350027 | 101528.238 | 59800.246 | 942.101 | TOP BOLT 12 | 0.000 | 0.001 | 0.002 |
| 19 | 101531.9759 | 59803.6371 | 942.083 | TOP BOLT13 | 8350030 | 101531.974 | 59803.634 | 942.085 | TOP BOLT13 | 0.002 | 0.003 | -0.002 |
| 20 | 101532.1259 | 59803.6397 | 942.083 | TOP BOLT13 | 8350031 | 101532.127 | 59803.637 | 942.084 | TOP BOLT13 | -0.001 | 0.003 | -0.001 |
| 13 | 101534.0316 | 59803.6729 | 942.083 | TOP BOLT14 | 8350032 | 101534.029 | 59803.673 | 942.086 | TOP BOLT14 | 0.003 | 0.000 | -0.003 |
| 14 | 101534.1816 | 59803.6755 | 942.083 | TOP BOLT14 | 8350033 | 101534.178 | 59803.675 | 942.086 | TOP BOLT14 | 0.004 | 0.000 | -0.003 |
| 9 | 101534.2827 | 59797.8764 | 942.083 | TOP BOLT15 | 8350016 | 101534.287 | 59797.879 | 942.084 | TOP BOLT15 | -0.004 | -0.003 | -0.001 |
| 10 | 101534.1328 | 59797.8738 | 942.083 | TOP BOLT15 | 8350017 | 101534.137 | 59797.872 | 942.084 | TOP BOLT15 | -0.004 | 0.002 | -0.001 |
| 1 | 101535.9445 | 59794.1809 | 942.103 | TOP BOLT16 | 8350036 | 101535.947 | 59794.176 | 942.108 | TOP BOLT16 | -0.003 | 0.005 | -0.005 |
| 2 | 101535.941 | 59794.3808 | 942.103 | TOP BOLT16 | 8350037 | 101535.941 | 59794.377 | 942.108 | TOP BOLT16 | 0.000 | 0.004 | -0.005 |
| 3 | 101535.741 | 59794.3773 | 942.103 | TOP BOLT16 | 8350038 | 101535.745 | 59794.373 | 942.108 | TOP BOLT16 | -0.004 | 0.004 | -0.005 |
| 4 | 101535.7445 | 59794.1774 | 942.103 | TOP BOLT16 | 8350035 | 101535.746 | 59794.173 | 942.107 | TOP BOLT16 | -0.001 | 0.004 | -0.004 |

# ATTACHMENT D

## Quality Control Inspection and Testing

CLARK BUILDERS
ENERGY & RESOURCES

# EXCAVATION AND BACKFILL PRE POUR INSPECTION

Rev 00 May 4, 2018

| | |
|---|---|
| SUBCONTRACTOR: Copar | INSPECTION DATE: September 18, 2018 |
| SUBCONTRACTOR CONTACT PERSON: | |
| INSPECTOR(S): Ryan DeMilliano | |
| LOCATION: Transfer Tower 2 Subbase. | |
| DRAWING REV: | DRAWING NO.(S): SPEC SECTION(S): |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Drainage has been planned and is being provided continuously | ☐ | ☐ | ☐ |
| 2.0 | Survey complete, stakes and monuments located | ☐ | ☐ | ☐ |
| 3.0 | If needed, are barricades, stop logs, properly placed? | ☐ | ☐ | ☐ |
| 4.0 | Drawings are approved and stamped prior to work begins | ☐ | ☐ | ☐ |
| 5.0 | Utilities and other underground potential interferences to remain are located, stakes and protected? | ☐ | ☐ | ☐ |
| | | ☐ | ☐ | ☐ |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 6.0 | Backfill materials have been tested and approved to use | ☐ | ☐ | ☐ |
| 7.0 | Clarify compaction requirements by material, use, lift thickness, frequency, etc. | ☐ | ☐ | ☐ |
| 8.0 | Need of slope design for trenching or excavation has been reviewed | ☐ | ☐ | ☐ |
| 9.0 | Blast/fractured rock requirements have been reviewed | ☐ | ☐ | ☐ |
| 10.0 | Testing, inspection and compaction requirements have been reviewed | ☐ | ☐ | ☐ |
| | | ☐ | ☐ | ☐ |

COMMENTS:

VERIFICATION OF SUBEX PER ENGINEER'S INSTRUCTION (1.5 M)

ATTACHMENT(S):

DEFICIENCIES NOTES:

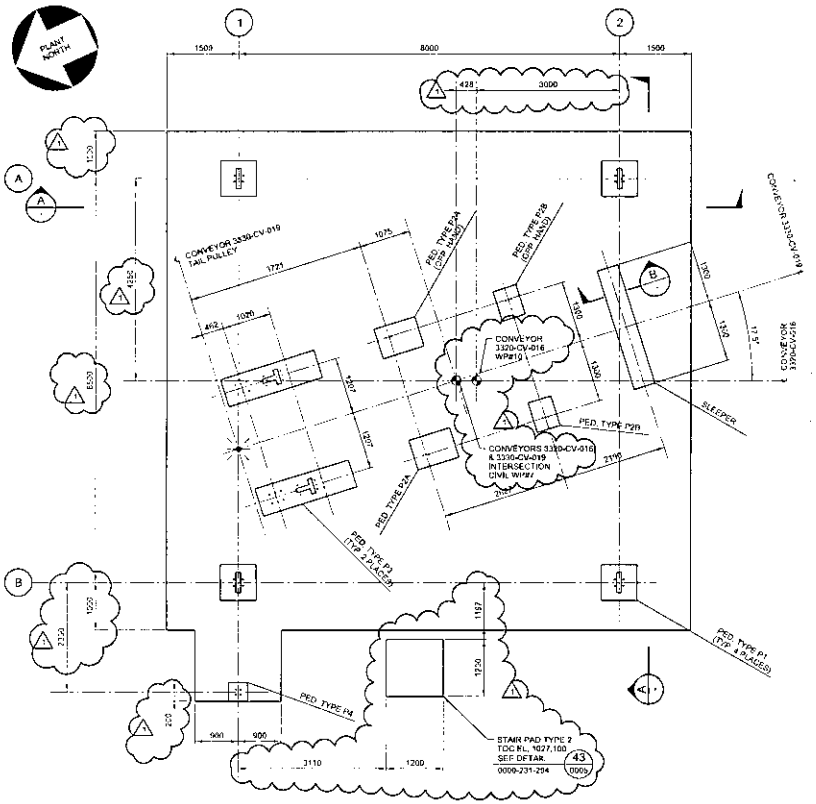
CLARK BUILDERS INSPECTION

INSPECTOR: _____ TITLE _____ DATE: _____

OTHER INSPECTORS

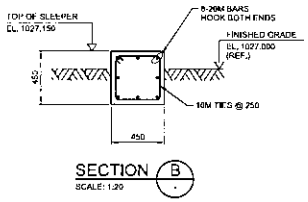
INSPECTOR: Ishan Fechter TITLE Super DATE: Sept. 2018

DWG. No. H354138-3330-231-260-0011

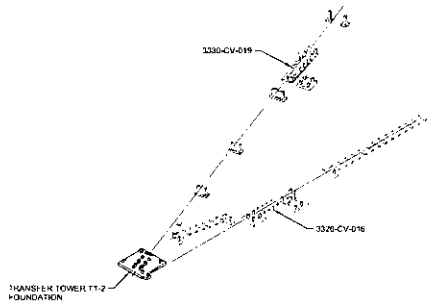



## TRANSFER TOWER TT-2 FOUNDATION - PLAN

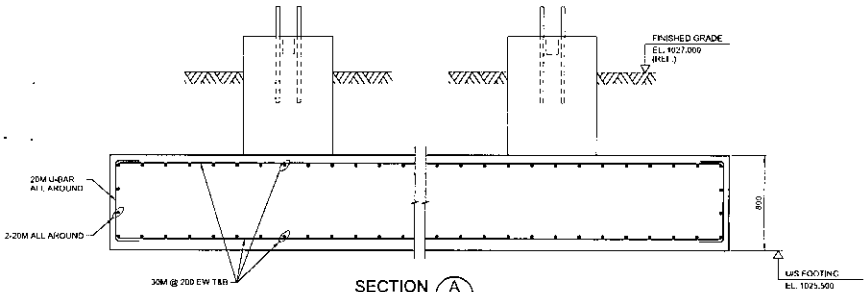
SCALE: 1:50
FINISHED GRADE EL. 1027.000 (REF.)




SECTION B
SCALE: 1:20

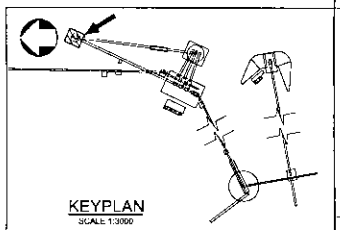



ISOMETRIC VIEW
NTS




SECTION A
SCALE: 1:20

NOTES:
1. FOR NOTES SEE DRAWING H354138-3330-231-260-0001.



KEYPLAN
SCALE: 1:3000

0 500 1000 1500 2000 2500
1:50 SCALE IN MILLIMETRES

| DRAWING No. | DRAWING TITLE |
|---|---|
| REFERENCE DRAWINGS | |

REG. PROFESSIONAL

| No. | DESCRIPTION | BY | CHK'D | DATE |
|---|---|---|---|---|
| 1 | PEDESTALS TYPE P1 MOVED, STAIR PAD AND WP INFORMATION ADDED | RS | EA | 2018-08-27 |
| 0 | APPROVED FOR CONSTRUCTION | RS | EA | 2018-08-17 |

REVISIONS

HATCH

| ROLE | NAME | SIGNATURE & DATE |
|---|---|---|
| DRAFTSPERSON | R. SAGARBARRIA | NR |
| DESIGNER | H. LI | NR |
| CHECKER | E. AKINCI | 2018-08-28 |
| DESIGN COORD. | S. PERKINS | 2018-08-28 |
| RESP. ENG. | E. AKINCI | 2018-08-28 |
| LEAD DISC. ENG. | E. AKINCI | 2018-08-28 |
| ENG. MANAGER | B. RUSTAD | 2018-08-28 |
| PROJ. MANAGER | B. RUSTAD | 2018-08-28 |

DRAWING APPROVAL STATUS: Approved for Construction

StrataGold Corporation

EAGLE GOLD PROJECT

TERTIARY TRANSFER CONVEYORS
TRANSFER TOWER TT-2 FOUNDATION
PLAN, SECTIONS & DETAILS - SHT. 1

| SCALE AS NOTED OR AS NOTED | DWG. No. | REV |
|---|---|---|
| | H354138-3330-231-260-0011 | 1 |

SHEET SIZE: D

SAVED: 27-AUG-2018
PLOTTED: 27-AUG-2018

CLARK BUILDERS
ENERGY & RESOURCES



PROJECT MANAGER: DUSTIN DOLYNCHUK, P.ENG
QA/QC COORDINATOR: RYAN DE MILLIANO, C.E.T.
SUPERINTENDENT: GARRY DAHL

# CONCRETE REINFORCEMENT PRE POUR

Rev 00 May 4, 2018

| | |
|---|---|
| SUBCONTRACTOR: Ultimate Reinforcing | INSPECTION DATE: October 2, 2018 |
| SUBCONTRACTOR CONTACT PERSON: Sunny M. | ~~ACTION BY:~~ Pour (Pass) October 3, 2018 |
| INSPECTOR(S): Ryan DeMilliano | |
| LOCATION: 3330 - Transfer Tower 2 (TT2) Mat Foundation. | |
| DRAWING REV: 01 / DRAWING NO.(S): 330-231-260-0011 | SPEC SECTION(S): 503 20 00 |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Grade (400W unless otherwise noted) and type of steel delivered and installed as required by approved drawings. | X | | |
| 2.0 | Inspect rebar distribution, spacing and cover per design/project requirements. | X | | |
| 3.0 | Length of splices as specified | X | | |
| 4.0 | Staggered splices as specified | X | | |
| 5.0 | Any mechanical splices have been approved by the owner prior to install | | | X |
| 6.0 | Bars cleaned and free of material that may reduce bond including loose rust, scale, oil, structural defects and that they are uncoated and unpainted. | X | | |
| 7.0 | Dowels at wall ends, construction joints, and openings as specified (length, location, size, etc.) | X | | |
| 8.0 | No unauthorized field bent bars including hooks installed | X | | |
| | Resolve conflicts between embedded items and reinforcement | X | | |
| 9.0 | When authorized, field bends done without heat and inspected for fissures or cracks. | | | X |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 10.0 | Bars tied and supported to prevent displacement | X | | |
| 11.0 | Spacers, tie wire and chairs as required | X | | |
| 12.0 | Conduits at design location and minimum separation from rebar as specified | | | X |
| 13.0 | No contact of bars is made with dissimilar metals as per CSA A23.1 | X | | |
| 14.0 | Bars, nails or tie wire not sticking out from surfaces that allow rusting/corrosion | X | | |
| 15.0 | Rebar is welds inspected by qualified inspectors certified to CSA W178.2 | | | X |
| 16.0 | No rebar congestion or other obstruction for deposit of concrete | X | | |
| 17.0 | Adjustments required for interfering items (piping, inserts, sleeves, etc.) have been submitted and approved by owner. | | | X |
| 18.0 | Rebar was stored off ground to prevent damage/corrosion | X | | |
| 19.0 | Review drawings for anchors, piping, sleeves, boxes | X | | |

COMMENTS:

Install stirrups on Pads within pour

ATTACHMENT(S):

DEFICIENCIES NOTES:

INITIAL INSPECTION
INSPECTOR: Ryan deMilliano TITLE Project Coordinator (QA) DATE: October 2, 2018
JDS.

RE-INSPECTION (DEFICIENCIES COMPLETED)
INSPECTOR: Ethan Fechter TITLE [signature] DATE: October 2, 2018

CLARK BUILDERS
ENERGY & RESOURCES

# FORMWORK & FALSEWORK PRE POUR | QA INSPECTION

Rev 01 August 25, 2018

| | |
|---|---|
| CONTRACTOR: Clark Builders | INSPECTION DATE: October 2, 2018 |
| CONTRACTOR CONTACT PERSON: Dan Pelletier / Gary Hosey | DATE OF POUR: October 3, 2018 |
| INSPECTOR(S): Dan Pelletier, Gary Hosey. | |
| LOCATION: 3330 - Transfer Tower 2 (TT2) Mat Foundation | |
| DRAWING REV: 01 / DRAWING NO.(S): 3330 - 231-260-0011 | SPEC SECTION(S): 503 1000 |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Location, survey, dimension and grades as required | X | | |
| 2.0 | Plumbness and Flatness verified | X | | |
| 3.0 | Joints are aligned and watertight. | X | | |
| 4.0 | Formwork shop drawings are Engineered and reviewed | X | | |
| 5.0 | Re-used formwork reconditioned and treated | X | | |
| 6.0 | Formwork and ties according to finishing requirements. Confirm no holes in the concrete surface are greater than 25mm in diameter or expose steel at less than 25mm from surface. As per spec. | X | | |
| 7.0 | Installation of embeds are located and secured | X | | |
| 8.0 | Chamfer requirements checked. 25mm chamfers required for all exterior corners and edges exposed to view including horizontal edges of pads. | X | | |
| 9.0 | Key ways and/or other provisions according to design are provided in construction joints | | | X |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 10.0 | Inspect types of form spacers, ties and bracing. | X | | |
| 11.0 | Spacing of ties to be set to a pattern | X | | |
| 12.0 | Expansion, construction, contraction joints as required & located as coordinated with structural Engineer | | | X |
| 13.0 | Forms secured against movement during placing | X | | |
| 14.0 | Forms are braced for alignment and blow out | X | | |
| 15.0 | Forms are cleaned of all debris, and dry, prior to concrete placement including standing water. | X | | |
| 16.0 | Openings in formwork permit inspection and cleaning, placing and compaction of concrete, and forming and processing of construction joints. | X | | |
| 17.0 | Formwork has been coated with release agent prior to rebar placement. | X | | |
| 18.0 | Anchor Bolts and Embeds are secured to formwork. | X | | |

COMMENTS:

ATTACHMENT(S): DWG.

DEFICIENCIES NOTES:

CB INITIAL INSPECTION

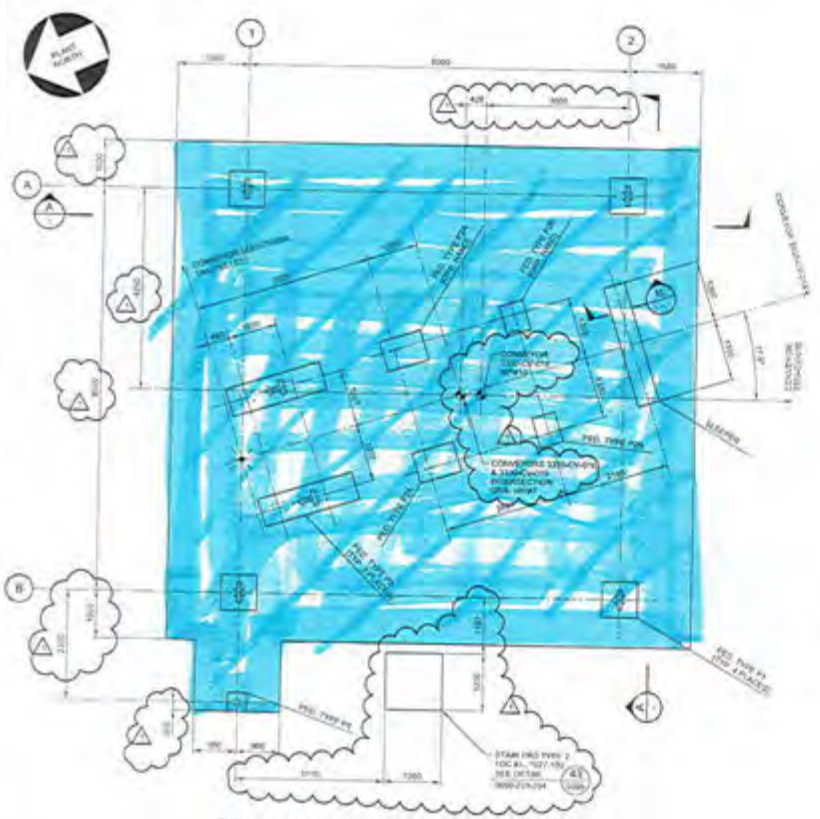
INSPECTOR: Ryan deMilliano // Dan Pelletier // TITLE: Project Coordinator (QA) DATE: October 2, 2018

RE-INSPECTION (DEFICIENCIES COMPLETED)

INSPECTOR: N/R. TITLE: DATE:

DAY OF INSP. = OCT 2, 2018

PROBABLE DATE OF POUR = OCT 3, 2018



# CONCRETE POST POUR COLD WEATHER MONITORING

Rev 01 July 4, 2018

| | |
|---|---|
| SUBCONTRACTOR: CLARK BUILDERS | DATE OF POUR: OCTOBER 3, 2018 |
| WEATHER/ AMBIENT TEMP (°C): | DATE FORMWORK STRIPPED: |
| INSPECTOR(S): Ryan deMilturo | DATE OF INSPECTION: Various. |
| LOCATION: 3330 - Transfer Tower 2 (TT2) Mat Foundation. | |
| DRAWING NO.(S): | DRAWING REV: |
| SPEC SECTION(S): S03 30 00 – Cast-In-Place | |

TYPE OF CURING:

| | | | | | |
|---|---|---|---|---|---|
| CURING COMPOUND | ☐ | DAMP BURLAP OR FABRIC | ☐ | INSULATION (TARPS) | ☒ |
| POLYETHYLENE SHEETS | ☐ | WATER/FOG SPRAY/ PONDING | ☐ | FORMS (COVERED BY) | ☒ |

| COLD WEATHER REQUIREMENTS (WHEN AMB. TEMP < 5°C) | PASS | FAIL | N/A | REMARKS |
|---|---|---|---|---|
| Protection in place for 5 days at temperatures not lower than 20°C or until 70% of the 28-day strength has been reached. | ☒ | ☐ | ☐ | |
| Cold weather protection provided by means of heated enclosures, coverings, insulation, or a suitable approved combination of these methods during complete curing period. | ☒ | ☐ | ☐ | |
| During freezing weather, water curing terminated 12h before the end of the protection period (CSA A 23.1 clause 7.4.2.4.2) | ☒ | ☐ | ☐ | No standing water. |
| | | | | |

CONCRETE CURING TEMPERATURE LOG (COLD WEATHER CONCRETEING ONLY)

| DATE | TIME (24 HR) | OUTSIDE AIR TEMP (°C) | TEMP INSIDE HOARDING (°C) | CONCRETE SURFACE TEMP (°C) HIGH (°C) | CONCRETE SURFACE TEMP (°C) LOW (°C) | INITIALS OF READER |
|---|---|---|---|---|---|---|
| ① Oct 4, 2018 | 07:00 | -8°C | +23°C | +25°C | +18°C | [illegible] |
| Oct 5, 2018 | 07:05 | -9°C | +21°C | +24°C | +16°C | [illegible] |
| Oct 6, 2018 | 12:00 | -2°C | - | +16°C | +12°C | [illegible] |
| | | | | | | |
| | | | | | | |

COMMENTS: ① Oct 4, 2018 @ 7:00am - Cylinders found outside of hoarding in morning. Placed back into hoarding but freezing temperatures overnight may have frozen cylinders. (PICTURES TAKEN) [illegible]

ATTACHMENT(S):

**CLARK BUILDERS SITE REPRESENTATIVE**

PRINT/ SIGN: Ryan deMilturo [signature] TITLE Project Coordinator (A) DATE: Oct 6/18

CLARK BUILDERS
ENERGY & RESOURCES

# CONCRETE REINFORCEMENT PRE POUR

Rev 01 August 25, 2018

| | |
|---|---|
| SUBCONTRACTOR: Ultimate Reinforcing // McNish | INSPECTION DATE: October 8, 2018 |
| SUBCONTRACTOR CONTACT PERSON: Jimmy M. | PROJ. POUR DATE: Oct 9, 2018 |
| INSPECTOR(S): Ryan deMilliano, KHAN | |
| LOCATION: 3330 //TT2 REMAINING PEDESTALS | |
| DRAWING REV: 01 / DRAWING NO.(S): 3370-231-260-0011 | SPEC SECTION(S): S03 20 00 – Concrete Reinforcing Steel |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Grade (400W unless otherwise noted) and type of steel delivered and installed as required by approved drawings. | ☒ | ☐ | ☐ |
| 2.0 | Inspect rebar distribution, spacing and cover per design/project requirements. | ☒ | ☐ | ☐ |
| 3.0 | Length of splices as specified | ☒ | ☐ | ☐ |
| 4.0 | Staggered splices as specified | ☒ | ☐ | ☐ |
| 5.0 | Any mechanical splices have been approved by the owner prior to install | ☐ | ☐ | ☒ |
| 6.0 | Bars cleaned and free of material that may reduce bond including loose rust, scale, oil, structural defects and that they are uncoated and unpainted. | ☒ | ☐ | ☐ |
| 7.0 | Dowels at wall ends, construction joints, and openings as specified (length, location, size, etc.) | ☒ | ☐ | ☐ |
| 8.0 | No unauthorized field bent bars including hooks installed | ☒ | ☐ | ☐ |
| 9.0 | Resolve conflicts between embedded items and reinforcement | ☒ | ☐ | ☐ |
| 10.0 | When authorized, field bends done without heat and inspected for fissures or cracks | ☐ | ☐ | ☒ |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 11.0 | Bars tied and supported to prevent displacement | ☒ | ☐ | ☐ |
| 12.0 | Spacers, tie wire and chairs as required | ☒ | ☐ | ☐ |
| 13.0 | Conduits at design location and minimum separation from rebar as specified | ☐ | ☐ | ☒ |
| 14.0 | No contact of bars is made with dissimilar metals as per CSA A23.1 | ☒ | ☐ | ☐ |
| 15.0 | Bars, nails or tie wire not sticking out from surfaces that allow rusting/corrosion | ☒ | ☐ | ☐ |
| 16.0 | Rebar welds are inspected by qualified inspectors certified to CSA W178.2 | ☐ | ☐ | ☒ |
| 17.0 | No rebar congestion or other obstruction for deposit of concrete | ☒ | ☐ | ☐ |
| 18.0 | Adjustments required for interfering items (piping, inserts, sleeves, etc.) have been submitted and approved by owner. | ☒ | ☐ | ☐ |
| 19.0 | Rebar was stored off ground to prevent damage/corrosion | ☒ | ☐ | ☐ |
| 20.0 | Review drawings for anchors, piping, sleeves, boxes | ☒ | ☐ | ☐ |

COMMENTS:

REMOVE ALL COARSE IS DEBRIS AT TIME OF POUR.
CLEAN BOTTOM OF TIE WIRE.

ATTACHMENT(S):

HIGH CHAIR DWG.

DEFICIENCIES NOTES:

CLARK BUILDERS:
INSPECTOR: Ryan deMilliano TITLE Project Coordinator DATE: October 8/18

JDS ENERGY & MINING:
INSPECTOR: Ishan Fechter TITLE Superintendent DATE: Oct. 8/18

CLARK BUILDERS
ENERGY & RESOURCES

CB-INSPECTION FORM-DOC-002 REV.00
JDS ENERGY & MINING INC. | STRATAGOLD EAGLE GOLD
PROJECT #: CB201 | 18502

PROJECT MANAGER: DUSTIN DOLYNCHUK, P.ENG
QA/QC COORDINATOR: RYAN DE MILLIANO, C.E.T.
SUPERINTENDENT: GARRY DAHL

# FORMWORK & FALSEWORK PRE POUR | QA INSPECTION

Rev 01 August 25, 2018

| | |
|---|---|
| CONTRACTOR: Clark Builders | INSPECTION DATE: OCTOBER 8, 2018 |
| CONTRACTOR CONTACT PERSON: GARRY / SHAWN M. | DATE OF POUR: OCTOBER 9, 2018 |
| INSPECTOR(S): Ryan deMilliano | |
| LOCATION: 3330 / TT2 RAMMING PROFILES. (SEE ATTACHED) | |
| DRAWING REV: 01 / DRAWING NO.(S): 3330-231-260-0011 / SPEC SECTION(S): 503 1000 | |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Location, survey, dimension and grades as required | ☑ | ☐ | ☐ |
| 2.0 | Plumbness and Flatness verified | ☑ | ☐ | ☐ |
| 3.0 | Joints are aligned and watertight. | ☑ | ☐ | ☐ |
| 4.0 | Formwork shop drawings are Engineered and reviewed | ☐ | ☐ | ☑ |
| 5.0 | Re-used formwork reconditioned and treated | ☑ | ☐ | ☐ |
| 6.0 | Formwork and ties according to finishing requirements. Confirm no holes in the concrete surface are greater than 25mm in diameter or expose steel at less than 25mm from surface. As per spec. | ☑ | ☐ | ☐ |
| 7.0 | Installation of embeds are located and secured | ☑ | ☐ | ☐ |
| 8.0 | Chamfer requirements checked. 25mm chamfers required for all exterior corners and edges exposed to view including horizontal edges of pads. | ☑ | ☐ | ☐ |
| 9.0 | Key ways and/or other provisions according to design are provided in construction joints | ☐ | ☐ | ☑ |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 10.0 | Inspect types of form spacers, ties and bracing. | ☑ | ☐ | ☐ |
| 11.0 | Spacing of ties to be set to a pattern | ☑ | ☐ | ☐ |
| 12.0 | Expansion, construction, contraction joints as required & located as coordinated with structural Engineer | ☑ | ☐ | ☐ |
| 13.0 | Forms secured against movement during placing | ☑ | ☐ | ☐ |
| 14.0 | Forms are braced for alignment and blow out | ☑ | ☐ | ☐ |
| 15.0 | Forms are cleaned of all debris, and dry, prior to concrete placement including standing water. | ☑ | ☐ | ☐ |
| 16.0 | Openings in formwork permit inspection and cleaning, placing and compaction of concrete, and forming and processing of construction joints. | ☑ | ☐ | ☐ |
| 17.0 | Formwork has been coated with release agent prior to rebar placement. | ☑ | ☐ | ☐ |
| 18.0 | Anchor Bolts and Embeds are secured to formwork. | ☑ | ☐ | ☐ |

COMMENTS:

- FORMWORK IN PLACE, READY TO HEAT - MUST BE PREHEATED PRIOR TO POUR

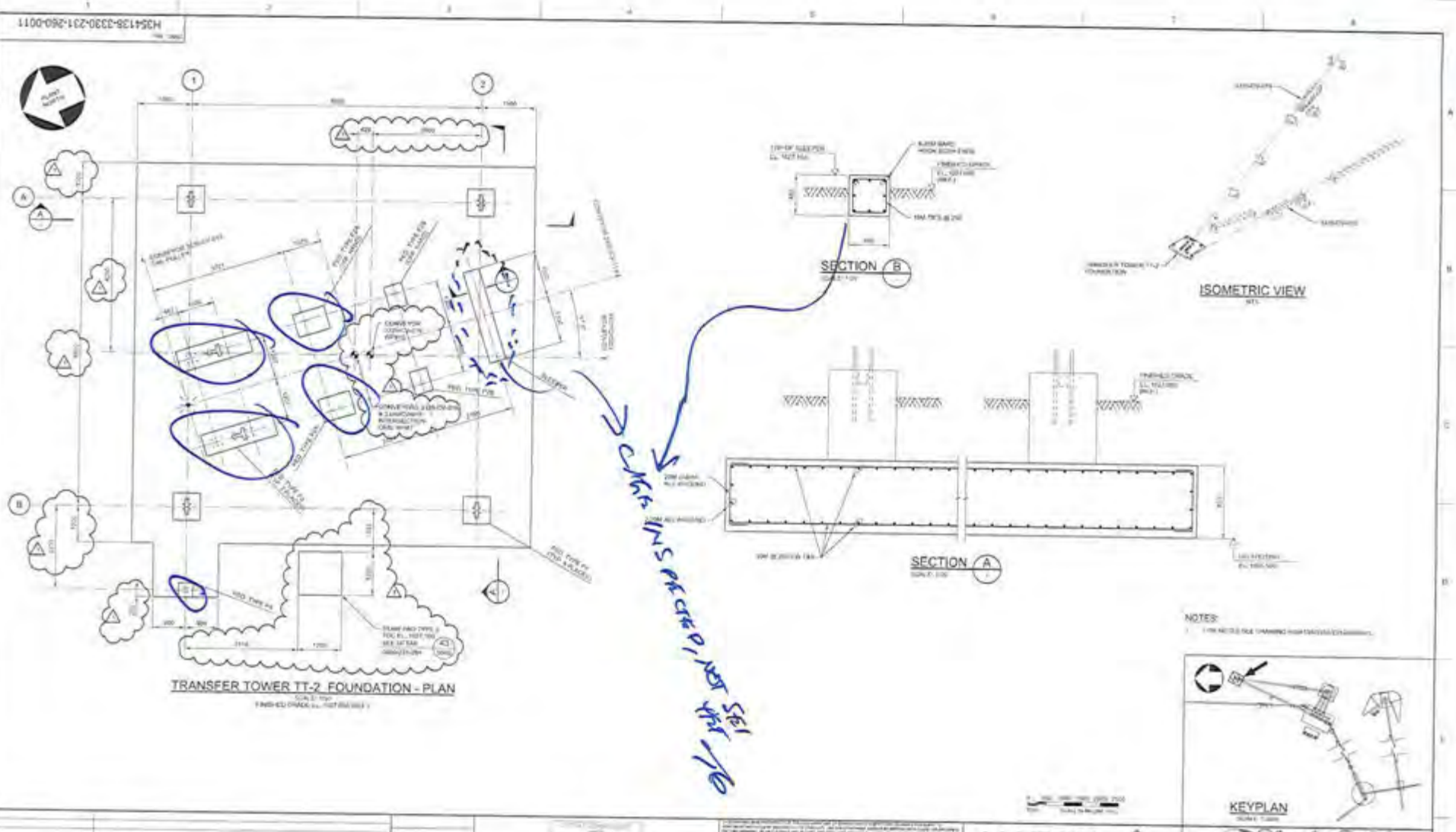
ATTACHMENT(S):

HIGHLIGHTED DWG.

DEFICIENCIES NOTES:

INITIAL INSPECTION
INSPECTOR: Ryan deMilliano TITLE Project Coordinator DATE: Oct 8/18

RE-INSPECTION (DEFICIENCIES COMPLETED)
INSPECTOR: Ishan Fechter TITLE Superintendent DATE: Oct. 8/18


TRANSFER TOWER TT-2 FOUNDATION - PLAN
SECTION B
SECTION A
ISOMETRIC VIEW
KEYPLAN
NOTES:
HATCH
StrataGold Corporation
EAGLE GOLD PROJECT
TERTIARY TRANSFER CONVEYORS
TRANSFER TOWER TT-2 FOUNDATION
PLAN, SECTIONS & DETAILS - SHT. 1
H354138-3330-231-260-0011
1

CLARK BUILDERS
ENERGY & RESOURCES



PROJECT MANAGER: DUSTIN DOLYNCHUK, P.ENG
QA/QC COORDINATOR: RYAN DE MILLIANO, C.E.T.
SUPERINTENDENT: GARRY DAHL

# CONCRETE REINFORCEMENT PRE POUR

Rev 01 August 25, 2018

| | |
|---|---|
| SUBCONTRACTOR: Ultimate Reinforcing // McNish | INSPECTION DATE: Nov 13, 2018 |
| SUBCONTRACTOR CONTACT PERSON: Jimmy R. | PROJ. POUR DATE: Nov 13, 2018 |
| INSPECTOR(S): Ryan de Milliano, Dan Pelletier, Jerry C. (3DS) | |
| LOCATION: 3330 CV016 PEDESTALS (x18) / 3400 CV072 PEDESTALS. (x4) | |
| DRAWING REV: 01 | DRAWING NO.(S): 3330-0004(R1) // 3400-0006(R1) SPEC SECTION(S): S03 20 00 – Concrete Reinforcing Steel |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Grade (400W unless otherwise noted) and type of steel delivered and installed as required by approved drawings. | ☑ | ☐ | ☐ |
| 2.0 | Inspect rebar distribution, spacing and cover per design/project requirements. | ☑ | ☐ | ☐ |
| 3.0 | Length of splices as specified | ☑ | ☐ | ☐ |
| 4.0 | Staggered splices as specified | ☑ | ☐ | ☐ |
| 5.0 | Any mechanical splices have been approved by the owner prior to install | ☐ | ☐ | ☑ |
| 6.0 | Bars cleaned and free of material that may reduce bond including loose rust, scale, oil, structural defects and that they are uncoated and unpainted. | ☑ | ☐ | ☐ |
| 7.0 | Dowels at wall ends, construction joints, and openings as specified (length, location, size, etc.) | ☐ | ☐ | ☑ |
| 8.0 | No unauthorized field bent bars including hooks installed | ☑ | ☐ | ☐ |
| 9.0 | Resolve conflicts between embedded items and reinforcement | ☑ | ☐ | ☐ |
| 10.0 | When authorized, field bends done without heat and inspected for fissures or cracks. | ☐ | ☐ | ☑ |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 11.0 | Bars tied and supported to prevent displacement | ☑ | ☐ | ☐ |
| 12.0 | Spacers, tie wire and chairs as required | ☑ | ☐ | ☐ |
| 13.0 | Conduits at design location and minimum separation from rebar as specified | ☐ | ☐ | ☑ |
| 14.0 | No contact of bars is made with dissimilar metals as per CSA A23.1 | ☑ | ☐ | ☐ |
| 15.0 | Bars, nails or tie wire not sticking out from surfaces that allow rusting/corrosion | ☑ | ☐ | ☐ |
| 16.0 | Rebar welds are inspected by qualified inspectors certified to CSA W178.2 | ☐ | ☐ | ☑ |
| 17.0 | No rebar congestion or other obstruction for deposit of concrete | ☑ | ☐ | ☐ |
| 18.0 | Adjustments required for interfering items (piping, inserts, sleeves, etc.) have been submitted and approved by owner. | ☐ | ☐ | ☑ |
| 19.0 | Rebar was stored off ground to prevent damage/corrosion | ☑ | ☐ | ☐ |
| 20.0 | Review drawings for anchors, piping, sleeves, boxes | ☑ | ☐ | ☐ |

COMMENTS:

INSIDE REBARRING TEMP WAS GOOD AT ALL LOCATIONS BEFORE POUR.

ATTACHMENT(S):

DWG (HIGHLIGHTED)

DEFICIENCIES NOTES:

CLARK BUILDERS:
INSPECTOR: Ryan de Milliano TITLE Project Coordinator DATE: Nov 13/18

JDS ENERGY & MINING:
INSPECTOR: Jerry C (3DS) TITLE [signature] DATE: Nov 13/18

CLARK BUILDERS
ENERGY & RESOURCES

CB-INSPECTION FORM-DOC-002 REV.00
JDS ENERGY & MINING INC. | STRATAGOLD EAGLE GOLD
PROJECT #: CB201 | 18502

PROJECT MANAGER: DUSTIN DOLYNCHUK, P.ENG
QA/QC COORDINATOR: RYAN DE MILLIANO, C.E.T.
SUPERINTENDENT: GARRY DAHL

# FORMWORK & FALSEWORK PRE POUR | QA INSPECTION

Rev 01 August 25, 2018

| | |
|---|---|
| CONTRACTOR: Clark Builders | INSPECTION DATE: Nov 13/18 |
| CONTRACTOR CONTACT PERSON: Dan Pelletier | DATE OF POUR: Nov 13/18 |
| INSPECTOR(S): Ryan deMilliano, Jerry C. (JDS), Dan Pelletier. | |
| LOCATION: 3330 CU06 Pedestals (x18) / CU022 3400 Pedestals. (x4) | |
| DRAWING REV: | DRAWING NO.(S): SPEC SECTION(S): |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Location, survey, dimension and grades as required | ☑ | ☐ | ☐ |
| 2.0 | Plumbness and Flatness verified | ☑ | ☐ | ☐ |
| 3.0 | Joints are aligned and watertight. | ☑ | ☐ | ☐ |
| 4.0 | Formwork shop drawings are Engineered and reviewed | ☑ | ☐ | ☐ |
| 5.0 | Re-used formwork reconditioned and treated | ☑ | ☐ | ☐ |
| 6.0 | Formwork and ties according to finishing requirements. Confirm no holes in the concrete surface are greater than 25mm in diameter or expose steel at less than 25mm from surface. As per spec. | ☑ | ☐ | ☐ |
| 7.0 | Installation of embeds are located and secured | ☑ | ☐ | ☐ |
| 8.0 | Chamfer requirements checked. 25mm chamfers required for all exterior corners and edges exposed to view including horizontal edges of pads. | ☑ | ☐ | ☐ |
| 9.0 | Key ways and/or other provisions according to design are provided in construction joints | ☐ | ☐ | ☑ |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 10.0 | Inspect types of form spacers, ties and bracing. | ☑ | ☐ | ☐ |
| 11.0 | Spacing of ties to be set to a pattern | ☑ | ☐ | ☐ |
| 12.0 | Expansion, construction, contraction joints as required & located as coordinated with structural Engineer | ☐ | ☐ | ☑ |
| 13.0 | Forms secured against movement during placing | ☑ | ☐ | ☐ |
| 14.0 | Forms are braced for alignment and blow out | ☑ | ☐ | ☐ |
| 15.0 | Forms are cleaned of all debris, and dry, prior to concrete placement including standing water. | ☑ | ☐ | ☐ |
| 16.0 | Openings in formwork permit inspection and cleaning, placing and compaction of concrete, and forming and processing of construction joints. | ☐ | ☐ | ☑ |
| 17.0 | Formwork has been coated with release agent prior to rebar placement. | ☑ | ☐ | ☐ |
| 18.0 | Anchor Bolts and Embeds are secured to formwork. | ☑ | ☐ | ☐ |

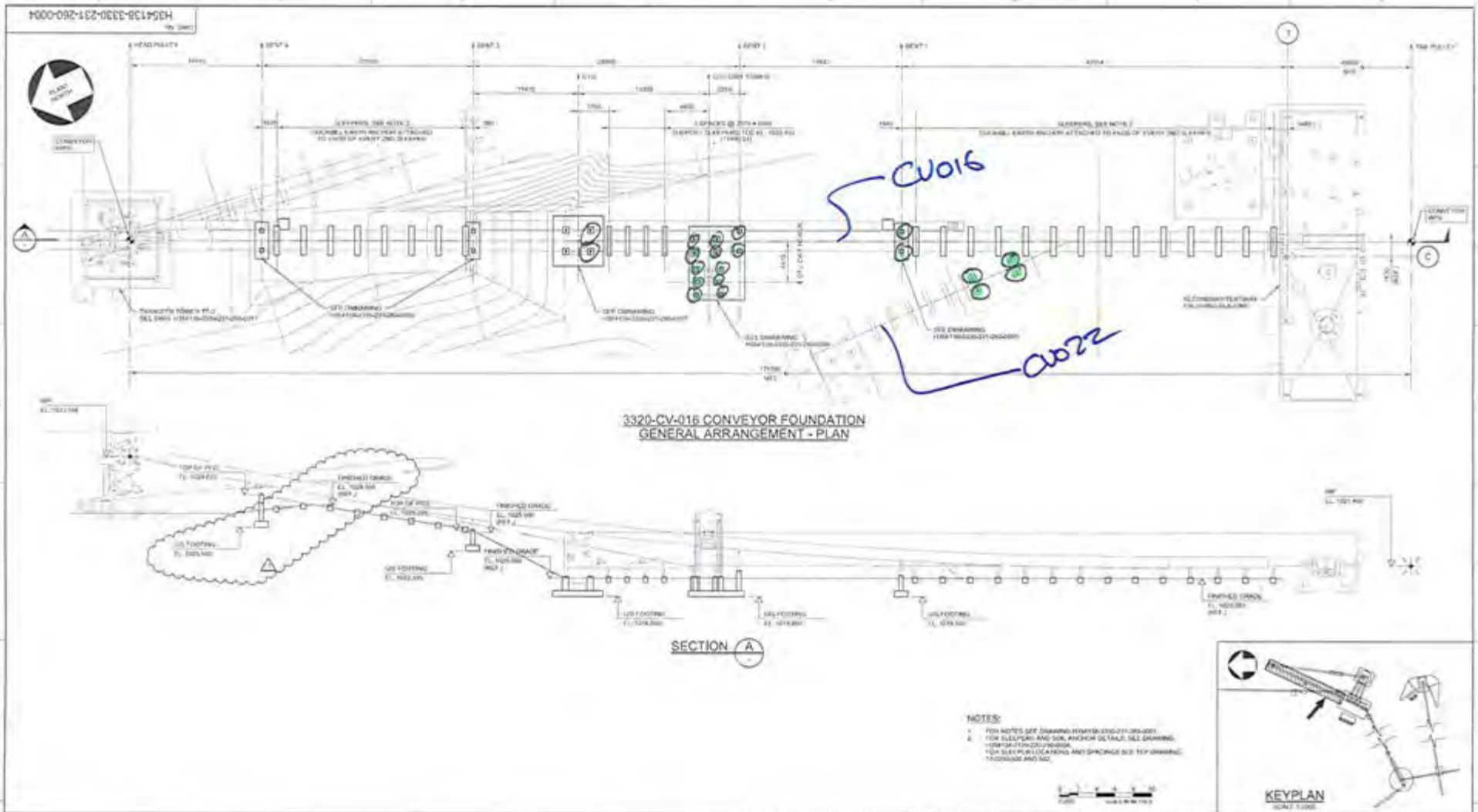
COMMENTS: ATTACHMENT(S):

DEFICIENCIES NOTES:

INITIAL INSPECTION
INSPECTOR: Ryan deMilliano TITLE Project Coordinator DATE: Nov 13/18

RE-INSPECTION (DEFICIENCIES COMPLETED)
INSPECTOR: N/R TITLE DATE:

Nov 13/18




HATCH

StrataGold Corporation

EAGLE GOLD PROJECT

TERTIARY TRANSFER CONVEYORS
3320-CV-016 CONVEYOR FOUNDATION
GENERAL ARRANGEMENT

DWG. No. H354138-3330-231-260-0004 REV 1

# CONCRETE POST POUR COLD WEATHER MONITORING

Rev 02 Nov 4, 2018

| | |
|---|---|
| TRACTOR: Clark Builders | DATE OF POUR: Nov. 13 |
| MBIENT TEMP at POUR (°C): -4 | DATE FORMWORK STRIPPED: Nov. 16 |
| LOCATION: CV-16 G+V | |
| | SPEC SECTION(S): 503 30 00 – Cast-In-Place |

TYPE OF CURING:

| | | | | | |
|---|---|---|---|---|---|
| CURING COMPOUND | ☐ | DAMP BURLAP OR FABRIC | ☐ | INSULATION (TARPS) | ☑ |
| POLYETHYLENE SHEETS | ☐ | WATER/FOG SPRAY/ PONDING | ☐ | FORMS (COVERED BY) | ☑ |

| COLD WEATHER REQUIREMENTS (WHEN AMB. TEMP < 5°C) | PASS | FAIL | N/A | REMARKS |
|---|---|---|---|---|
| Protection in place and temperatures not lower than 20°C or until 70% of the 28-day strength has been reached. | ☑ | ☐ | ☐ | |
| Cold weather protection provided by means of heated enclosures, coverings, insulation, or a suitable approved combination of these methods during complete curing period. | ☑ | ☐ | ☐ | |
| Concrete test cylinders are kept within hoarding or in area where temperatures are ideal for curing. (No frozen Cylinders) | ☑ | ☐ | ☐ | |
| Heat is not directed onto concrete. This may result in thermal cracking. | ☑ | ☐ | ☐ | |
| During freezing weather, and standing water removed before the end of the protection period (CSA A 23.1 clause 7.4.2.4.2) | ☑ | ☐ | ☐ | |
| | | | | |

CONCRETE CURING TEMPERATURE LOG (COLD WEATHER CONCRETEING ONLY)

| DATE | TIME (24 HR) | OUTSIDE AIR TEMP (°C) | TEMP INSIDE HOARDING (°C) | CONCRETE SURFACE TEMP (°C) | | INITIALS OF READER |
|---|---|---|---|---|---|---|
| | | | | HIGH (°C) | LOW (°C) | |
| Nov. 13 | 6:00 PM | -12 | 30.6 | 28.1 | 24.3 | D.P. |
| Nov 14 | 07:00 AM | -16°C | +22°C | +28 | +23 | SG |
| Nov. 14 | 1230 PM | -15 | 22 | 31 | 27 | D.P |
| Nov. 14 | 6:00PM | -16 | 27 | 33 | 29 | D.P. |
| Nov. 15 | 7:00AM | -17 | 29 | 32 | 27 | D.P. |
| Nov. 15 | 1:30 PM | -15 | 24 | 33 | 27 | D.P |
| Nov. 16 | 6:00PM | -20 | 22 | 29 | 24 | D.P. |

COMMENTS: Setting ~~temperature~~ heaters to maintain temperature

CLARK BUILDERS SITE REPRESENTATIVE

PRINT/ SIGN: DAN PELLETIER TITLE Foreman DATE: Nov 15

# CONCRETE POST POUR COLD WEATHER MONITORING

Rev 02 Nov 4, 2018

| | |
|---|---|
| NTRACTOR: Clark Builders | DATE OF POUR: Nov 13 |
| MBIENT TEMP at POUR (°C): -4 | DATE FORMWORK STRIPPED: |
| LOCATION: CU 16 BENT 1 + GTU CWT TOWER | |
| | SPEC SECTION(S): S03 30 00 – Cast-In-Place |

TYPE OF CURING:

| | | | | | |
|---|---|---|---|---|---|
| CURING COMPOUND | ☐ | DAMP BURLAP OR FABRIC | ☐ | INSULATION (TARPS) | ☑ |
| POLYETHYLENE SHEETS | ☐ | WATER/FOG SPRAY/ PONDING | ☐ | FORMS (COVERED BY) | ☑ |

| COLD WEATHER REQUIREMENTS (WHEN AMB. TEMP < 5°C) | PASS | FAIL | N/A | REMARKS |
|---|---|---|---|---|
| Protection in place and temperatures not lower than 20°C or until 70% of the 28-day strength has been reached. | ☑ | ☐ | ☐ | |
| Cold weather protection provided by means of heated enclosures, coverings, insulation, or a suitable approved combination of these methods during complete curing period. | ☑ | ☐ | ☐ | |
| Concrete test cylinders are kept within hoarding or in area where temperatures are ideal for curing. (No frozen Cylinders) | ☐ | ☐ | ☐ | |
| Heat is not directed onto concrete. This may result in thermal cracking. | ☑ | ☐ | ☐ | |
| During freezing weather, and standing water removed before the end of the protection period (CSA A 23.1 clause 7.4.2.4.2) | ☑ | ☐ | ☐ | |
| | | | | |

CONCRETE CURING TEMPERATURE LOG (COLD WEATHER CONCRETEING ONLY)

| DATE | TIME (24 HR) | OUTSIDE AIR TEMP (°C) | TEMP INSIDE HOARDING (°C) | CONCRETE SURFACE TEMP (°C) | | INITIALS OF READER |
|---|---|---|---|---|---|---|
| | | | | HIGH (°C) | LOW (°C) | |
| Nov. 13 | 6:00 PM | -12 | 25.6 | 23.4 | 21.2 | D.P. |
| Nov 14 | 07:00 | -16 | +24 | +30 | +23 | |
| Nov. 14 | 1:30 | -15 | 25 | 30 | 23 | D.P. |
| Nov. 14 | 6:00 PM | -16 | 28 | 33 | 27 | D.P. |
| Nov. 15 | 7:00 AM | -17 | 30 | 34 | 29 | D.P. |
| Nov. 16 | 1:30 PM | -15 | 22 | 32 | 27 | D.P. |
| | | | | | | |

| COMMENTS: | Shutting heaters off to maintain temperature | |
|---|---|---|

**CLARK BUILDERS SITE REPRESENTATIVE**

PRINT/ SIGN: DAL PELLETIER TITLE Foreman DATE:

# CONCRETE POST POUR COLD WEATHER MONITORING

Rev 02 Nov 4, 2018

| | |
|---|---|
| CONTRACTOR: Clark Builders | DATE OF POUR: Nov. 13 |
| AMBIENT TEMP at POUR (°C): -4 | DATE FORMWORK STRIPPED: |
| LOCATION: CV-16 Bent 1 | |
| | SPEC SECTION(S): S03 30 00 – Cast-In-Place |

TYPE OF CURING:

| | | | | | |
|---|---|---|---|---|---|
| CURING COMPOUND | ☐ | DAMP BURLAP OR FABRIC | ☐ | INSULATION (TARPS) | ☑ |
| POLYETHYLENE SHEETS | ☐ | WATER/FOG SPRAY/ PONDING | ☐ | FORMS (COVERED BY) | ☑ |

| COLD WEATHER REQUIREMENTS (WHEN AMB. TEMP < 5°C) | PASS | FAIL | N/A | REMARKS |
|---|---|---|---|---|
| Protection in place and temperatures not lower than 20°C or until 70% of the 28-day strength has been reached. | ☑ | ☐ | ☐ | |
| Cold weather protection provided by means of heated enclosures, coverings, insulation, or a suitable approved combination of these methods during complete curing period. | ☑ | ☐ | ☐ | |
| Concrete test cylinders are kept within hoarding or in area where temperatures are ideal for curing. (No frozen Cylinders) | ☑ | ☐ | ☐ | |
| Heat is not directed onto concrete. This may result in thermal cracking. | ☑ | ☐ | ☐ | |
| During freezing weather, and standing water removed before the end of the protection period (CSA A 23.1 clause 7.4.2.4.2) | ☑ | ☐ | ☐ | |
| | | | | |

CONCRETE CURING TEMPERATURE LOG (COLD WEATHER CONCRETEING ONLY)

| DATE | TIME (24 HR) | OUTSIDE AIR TEMP (°C) | TEMP INSIDE HOARDING (°C) | CONCRETE SURFACE TEMP (°C) | | INITIALS OF READER |
|---|---|---|---|---|---|---|
| | | | | HIGH (°C) | LOW (°C) | |
| Nov. 13 | 6:00 PM | -12 | 32.4 | 31.4 | 29.3 | D.P |
| Nov 14 | 07:00 | -16°C | +24°C | +28°C | +21°C | |
| Nov 14 | 1:30 | -15 | 24 | 32 | 28 | D.P |
| Nov. 14 | 6:00 PM | -16 | 28 | 33 | 27 | D.P |
| Nov. 15 | 7:00 AM | -17 | 31 | 31 | 26 | D.P. |
| Nov. 15 | 1:30 PM | -14 | 22 | 29 | 23 | D.P. |
| | | | | | | |

| COMMENTS: | Shutting heaters off to maintain temperature | |
|---|---|---|
| | | |

**CLARK BUILDERS SITE REPRESENTATIVE**

PRINT/ SIGN: DAN PELLETIER TITLE Foreman DATE:

# CONCRETE POST POUR COLD WEATHER MONITORING

Rev 02 Nov 4, 2018

| | |
|---|---|
| CONTRACTOR: Clark Builders | DATE OF POUR: Nov. 13 |
| AMBIENT TEMP at POUR (°C): ~ 3 | DATE FORMWORK STRIPPED: |
| LOCATION: CV-22 TAKE-UP | SPEC SECTION(S): S03 30 00 – Cast-In-Place |

TYPE OF CURING:

| | | | | | |
|---|---|---|---|---|---|
| CURING COMPOUND | ☐ | DAMP BURLAP OR FABRIC | ☐ | INSULATION (TARPS) | ☑ |
| POLYETHYLENE SHEETS | ☐ | WATER/FOG SPRAY/ PONDING | ☐ | FORMS (COVERED BY) | ☑ |

| COLD WEATHER REQUIREMENTS (WHEN AMB. TEMP < 5°C) | PASS | FAIL | N/A | REMARKS |
|---|---|---|---|---|
| Protection in place and temperatures not lower than 20°C or until 70% of the 28-day strength has been reached. | ☑ | ☐ | ☐ | |
| Cold weather protection provided by means of heated enclosures, coverings, insulation, or a suitable approved combination of these methods during complete curing period. | ☑ | ☐ | ☐ | |
| Concrete test cylinders are kept within hoarding or in area where temperatures are ideal for curing. (No frozen Cylinders) | ☐ | ☐ | ☐ | |
| Heat is not directed onto concrete. This may result in thermal cracking. | ☑ | ☐ | ☐ | |
| During freezing weather, and standing water removed before the end of the protection period (CSA A 23.1 clause 7.4.2.4.2) | ☑ | ☐ | ☐ | |
| | | | | |

CONCRETE CURING TEMPERATURE LOG (COLD WEATHER CONCRETEING ONLY)

| DATE | TIME (24 HR) | OUTSIDE AIR TEMP (°C) | TEMP INSIDE HOARDING (°C) | CONCRETE SURFACE TEMP (°C) | | INITIALS OF READER |
|---|---|---|---|---|---|---|
| | | | | HIGH (°C) | LOW (°C) | |
| Nov. 13 | 6:00 PM | -12 | 28.7 | 27.3 | 25.2 | D.P. |
| Nov 14 | 0700 | -16°C | +21 | +30 | +28 | [illegible] |
| Nov. 14 | 1:30 PM | -15 | 22 | 31 | 27 | D.P. |
| Nov 14 | 6:00 PM | -16 | 24 | 33 | 28 | D.P. |
| Nov. 15 | 7:00 AM | -17 | 29 | 34 | 28 | D.P. |
| Nov. 15 | 1:30 PM | -15 | 26 | 33 | 30 | D.P. |
| | | | | | | |

| COMMENTS: | Shutting heaters to maintain temperature | |
|---|---|---|
| | | |

**CLARK BUILDERS SITE REPRESENTATIVE**

PRINT/ SIGN: DAN PELLETIER Dan Pelletier TITLE Foreman DATE:

CB-INSPECTION FORM-DOC-002 REV.00
JDS ENERGY & MINING INC. | STRATAGOLD EAGLE GOLD
PROJECT #: CB201 | 18502

PROJECT MANAGER: DUSTIN DOLYNCHUK, P.ENG
QA/QC COORDINATOR: RYAN DE MILLIANO, C.E.T.
SUPERINTENDENT: GARRY DAHL

CLARK BUILDERS
ENERGY & RESOURCES

# CONCRETE REINFORCEMENT PRE POUR

Rev 01 August 25, 2018

| | |
|---|---|
| SUBCONTRACTOR: Ultimate Reinforcing // McNish | INSPECTION DATE: Nov 15, 2018 |
| SUBCONTRACTOR CONTACT PERSON: JIMMY | PROJ. POUR DATE: Nov 15, 2018 |
| INSPECTOR(S): PETER NICE, MATT C (JDS) | |
| LOCATION: 4300 ORE PREP // TT4 FOUNDATION AND CWT FOUNDATION. | |
| DRAWING REV: 00 / DRAWING NO.(S): 4300-231-260-0002 | SPEC SECTION(S): 503 20 00 – Concrete Reinforcing Steel |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Grade (400W unless otherwise noted) and type of steel delivered and installed as required by approved drawings. | ☑ | ☐ | ☐ |
| 2.0 | Inspect rebar distribution, spacing and cover per design/project requirements. | ☑ | ☐ | ☐ |
| 3.0 | Length of splices as specified | ☑ | ☐ | ☐ |
| 4.0 | Staggered splices as specified | ☑ | ☐ | ☐ |
| 5.0 | Any mechanical splices have been approved by the owner prior to install | ☐ | ☐ | ☑ |
| 6.0 | Bars cleaned and free of material that may reduce bond including loose rust, scale, oil, structural defects and that they are uncoated and unpainted. | ☑ | ☐ | ☐ |
| 7.0 | Dowels at wall ends, construction joints, and openings as specified (length, location, size, etc.) | ☑ | ☐ | ☐ |
| 8.0 | No unauthorized field bent bars including hooks installed | ☑ | ☐ | ☐ |
| 9.0 | Resolve conflicts between embedded items and reinforcement | ☑ | ☐ | ☐ |
| 10.0 | When authorized, field bends done without heat and inspected for fissures or cracks. | ☐ | ☐ | ☑ |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 11.0 | Bars tied and supported to prevent displacement | ☑ | ☐ | ☐ |
| 12.0 | Spacers, tie wire and chairs as required | ☑ | ☐ | ☐ |
| 13.0 | Conduits at design location and minimum separation from rebar as specified | ☐ | ☐ | ☑ |
| 14.0 | No contact of bars is made with dissimilar metals as per CSA A23.1 | ☑ | ☐ | ☐ |
| 15.0 | Bars, nails or tie wire not sticking out from surfaces that allow rusting/corrosion | ☑ | ☐ | ☐ |
| 16.0 | Rebar welds are inspected by qualified inspectors certified to CSA W178.2 | ☑ | ☐ | ☐ |
| 17.0 | No rebar congestion or other obstruction for deposit of concrete | ☑ | ☐ | ☐ |
| 18.0 | Adjustments required for interfering items (piping, inserts, sleeves, etc.) have been submitted and approved by owner. | ☑ | ☐ | ☐ |
| 19.0 | Rebar was stored off ground to prevent damage/corrosion | ☑ | ☐ | ☐ |
| 20.0 | Review drawings for anchors, piping, sleeves, boxes | ☑ | ☐ | ☐ |

COMMENTS:

- ice removal in TT4 base.
- Cleanup of loose tools & rebar
- tie loose rebar

ATTACHMENT(S):

DWG (HIGHLIGHTED)

DEFICIENCIES NOTES:

CLARK BUILDERS:

INSPECTOR: [signature] / PETER NICE TITLE Superintendent DATE: Nov 15/18

JDS ENERGY & MINING:

INSPECTOR: Matt Gaverdale MG TITLE Field Eng DATE: Nov 15/18.

CLARK BUILDERS
ENERGY & RESOURCES

# FORMWORK & FALSEWORK PRE POUR | QA INSPECTION

Rev 01 August 25, 2018

| | |
|---|---|
| CONTRACTOR: Clark Builders | INSPECTION DATE: NOVEMBER 15, 2018 |
| CONTRACTOR CONTACT PERSON: Gary Hosey | DATE OF POUR: NOVEMBER 15/18 |
| INSPECTOR(S): Gary Hosey ; Peter Nice | |
| LOCATION: 4300 ORE PREP / TT4 FOUNDATION + CWT FOUNDATION | |
| DRAWING REV: 00 | DRAWING NO.(S): SPEC SECTION(S): 503 10 00 |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Location, survey, dimension and grades as required | ☑ | ☐ | ☐ |
| 2.0 | Plumbness and Flatness verified | ☑ | ☐ | ☐ |
| 3.0 | Joints are aligned and watertight. | ☑ | ☐ | ☐ |
| 4.0 | Formwork shop drawings are Engineered and reviewed | ☐ | ☐ | ☑ |
| 5.0 | Re-used formwork reconditioned and treated | ☑ | ☐ | ☐ |
| 6.0 | Formwork and ties according to finishing requirements. Confirm no holes in the concrete surface are greater than 25mm in diameter or expose steel at less than 25mm from surface. As per spec. | ☑ | ☐ | ☐ |
| 7.0 | Installation of embeds are located and secured | ☐ | ☐ | ☑ |
| 8.0 | Chamfer requirements checked. 25mm chamfers required for all exterior corners and edges exposed to view including horizontal edges of pads. | ☑ | ☐ | ☐ |
| 9.0 | Key ways and/or other provisions according to design are provided in construction joints | ☐ | ☐ | ☑ |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 10.0 | Inspect types of form spacers, ties and bracing. | ☑ | ☐ | ☐ |
| 11.0 | Spacing of ties to be set to a pattern | ☑ | ☐ | ☐ |
| 12.0 | Expansion, construction, contraction joints as required & located as coordinated with structural Engineer | ☑ | ☐ | ☐ |
| 13.0 | Forms secured against movement during placing | ☑ | ☐ | ☐ |
| 14.0 | Forms are braced for alignment and blow out | ☑ | ☐ | ☐ |
| 15.0 | Forms are cleaned of all debris, and dry, prior to concrete placement including standing water. | ☑ | ☐ | ☐ |
| 16.0 | Openings in formwork permit inspection and cleaning, placing and compaction of concrete, and forming and processing of construction joints. | ☑ | ☐ | ☐ |
| 17.0 | Formwork has been coated with release agent prior to rebar placement. | ☑ | ☐ | ☐ |
| 18.0 | Anchor Bolts and Embeds are secured to formwork. | ☐ | ☐ | ☑ |

COMMENTS:

ATTACHMENT(S):
DCG (HIGHLIGHTED)

DEFICIENCIES NOTES:

INITIAL INSPECTION

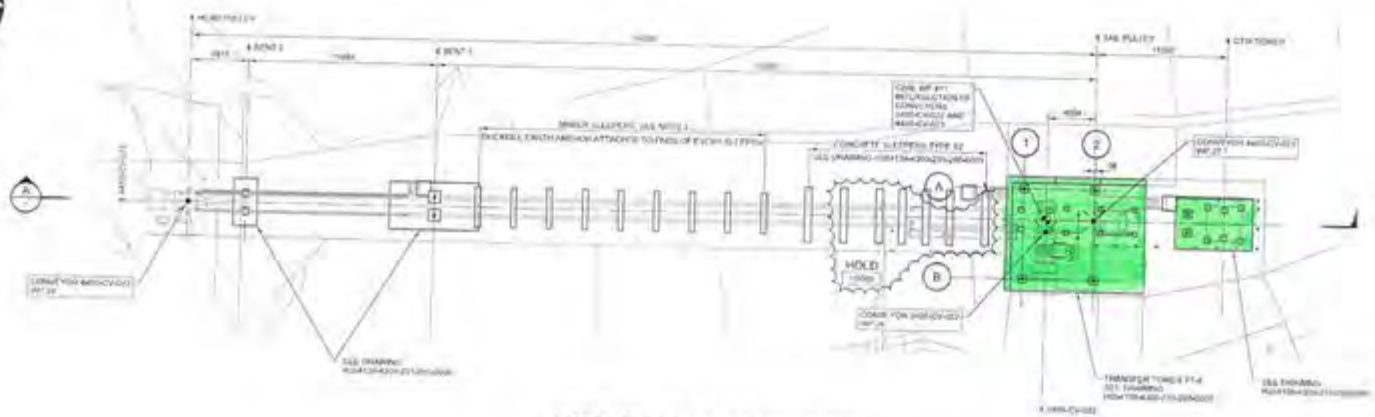
INSPECTOR: CA Ni / PETERNICE TITLE Superintendent DATE: Nov 15/18

RE-INSPECTION (DEFICIENCIES COMPLETED)

INSPECTOR: Matt Carbone TITLE Field Eng. DATE: Nov 15/18.

Nov 15/18

H354138-4300-231-260-0002




4400-CV-023 CONVEYOR FOUNDATION
GENERAL ARRANGEMENT - PLAN



SECTION A

NOTES:

HATCH

StrataGold Corporation

EAGLE GOLD PROJECT

ORE PREPARATION (LIME AND CEMENT)
4400-CV-023 CONVEYOR FOUNDATION
GENERAL ARRANGEMENT

H354138-4300-231-260-0002 | 0

# CONCRETE POST POUR COLD WEATHER MONITORING

Rev 03 Nov 13, 2018

| | |
|---|---|
| CONTRACTOR: Clark Builders | DATE OF POUR: NOVEMBER 15, 2018 |
| AMBIENT TEMP at POUR (°C): -20°C | DATE FORMWORK STRIPPED: |
| LOCATION: 4300 ORE PREP / TTY & LWT FOUNDATIONS. | SPEC SECTION(S): S03 30 00 – Cast-In-Place |

TYPE OF CURING:

| | | | | | |
|---|---|---|---|---|---|
| CURING COMPOUND | ☐ | DAMP BURLAP OR FABRIC | ☐ | INSULATION (TARPS) | ☒ |
| POLYETHYLENE SHEETS | ☐ | WATER/FOG SPRAY/ PONDING | ☐ | FORMS (COVERED BY) | ☒ |

| COLD WEATHER REQUIREMENTS (WHEN AMB. TEMP < 5°C) | PASS | FAIL | N/A | REMARKS |
|---|---|---|---|---|
| Protection in place and temperatures not lower than 20°C or until 70% of the 28-day strength has been reached. | ☐ | ☐ | ☐ | |
| Cold weather protection provided by means of heated enclosures, coverings, insulation, or a suitable approved combination of these methods during complete curing period. | ☐ | ☐ | ☐ | |
| Concrete test cylinders are kept within hoarding or in area where temperatures are ideal for curing. (No frozen Cylinders) | ☐ | ☐ | ☐ | |
| Heat is not directed onto concrete. This may result in thermal cracking. | ☐ | ☐ | ☐ | |
| During freezing weather, and standing water removed before the end of the protection period (CSA A 23.1 clause 7.4.2.4.2) | ☐ | ☐ | ☐ | |

CONCRETE CURING TEMPERATURE LOG (COLD WEATHER CONCRETEING ONLY)

| DATE | | TIME (24 HR) | OUTSIDE AIR TEMP (°C) | TEMP INSIDE HOARDING (°C) | CONCRETE SURFACE TEMP (°C) | | INITIALS OF READER |
|---|---|---|---|---|---|---|---|
| | | | | | HIGH (°C) | LOW (°C) | |
| THUR 15TH NOV | PM | 9:00 PM | -23 | 20° | 22 | 18 | GH |
| FRI 16TH NOV | AM | 7:00 AM | -18 | 24 | 25 | 22 | GH |
| FRI 16TH NOV | MID | 11:30 AM | -19 | 25 | 26 | 22 | GH |
| FRI 16TH NOV | PM | 6:50 PM | -22 | 23 | 25 | 23 | GH |
| SAT 17TH NOV | AM | 6:45 AM | -15 | 28 | 27 | 24 | GH |
| SAT 17TH NOV | PM | 6:30 PM | -14 | 27 | 26 | 24 | GH |
| SUN 18TH NOV | AM | 7:00 AM | -12 | 29 | 30 | 28 | GH |
| SUN 18TH NOV | PM | 6:30 PM | -10 | 18 | 21 | 19 | GH |
| MON 19TH NOV | AM | 7:00 AM | -4 | 5 | 14 | 12 | GH |

COMMENTS: TURNED OF HEATERS AT 2:00PM SUNDAY

**CLARK BUILDERS SITE REPRESENTATIVE**

PRINT/ SIGN: GARY HOSEY GHosey TITLE SUPERVISOR DATE: NOV 19TH - 18

CLARK BUILDERS
ENERGY & RESOURCES

CB-INSPECTION FORM-DOC-002 REV.00
JDS ENERGY & MINING INC. | STRATAGOLD EAGLE GOLD
PROJECT #: CB201 | 18502

PROJECT MANAGER: DUSTIN DOLYNCHUK, P.ENG
QA/QC COORDINATOR: RYAN DE MILLIANO, C.E.T.
SUPERINTENDENT: GARRY DAHL

# CONCRETE REINFORCEMENT PRE POUR

Rev 01 August 25, 2018

| | |
|---|---|
| SUBCONTRACTOR: Ultimate Reinforcing // McNish | INSPECTION DATE: NOVEMBER 16, 2018 |
| SUBCONTRACTOR CONTACT PERSON: CLAYTON | PROJ. POUR DATE: NOVEMBER 16, 2018 |
| INSPECTOR(S): MATT COVERDALE (JDS) ; DAN PELLETIER | |
| LOCATION: CV-22 GTU TOWER ; CV-16 BENT, 4+5 | |
| DRAWING REV: | DRAWING NO.(S): SPEC SECTION(S): S03 20 00 – Concrete Reinforcing Steel |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Grade (400W unless otherwise noted) and type of steel delivered and installed as required by approved drawings. | ☒ | ☐ | ☐ |
| 2.0 | Inspect rebar distribution, spacing and cover per design/project requirements. | ☒ | ☐ | ☐ |
| 3.0 | Length of splices as specified | ☒ | ☐ | ☐ |
| 4.0 | Staggered splices as specified | ☐ | ☐ | ☒ |
| 5.0 | Any mechanical splices have been approved by the owner prior to install | ☐ | ☐ | ☒ |
| 6.0 | Bars cleaned and free of material that may reduce bond including loose rust, scale, oil, structural defects and that they are uncoated and unpainted. | ☒ | ☐ | ☐ |
| 7.0 | Dowels at wall ends, construction joints, and openings as specified (length, location, size, etc.) | ☒ | ☐ | ☐ |
| 8.0 | No unauthorized field bent bars including hooks installed | ☒ | ☐ | ☐ |
| 9.0 | Resolve conflicts between embedded items and reinforcement | ☒ | ☐ | ☐ |
| 10.0 | When authorized, field bends done without heat and inspected for fissures or cracks. | ☐ | ☐ | ☒ |
| 11.0 | Bars tied and supported to prevent displacement | ☒ | ☐ | ☐ |
| 12.0 | Spacers, tie wire and chairs as required | ☒ | ☐ | ☐ |
| 13.0 | Conduits at design location and minimum separation from rebar as specified | ☐ | ☐ | ☒ |
| 14.0 | No contact of bars is made with dissimilar metals as per CSA A23.1 | ☒ | ☐ | ☐ |
| 15.0 | Bars, nails or tie wire not sticking out from surfaces that allow rusting/corrosion | ☒ | ☐ | ☐ |
| 16.0 | Rebar welds are inspected by qualified inspectors certified to CSA W178.2 | ☐ | ☐ | ☒ |
| 17.0 | No rebar congestion or other obstruction for deposit of concrete | ☒ | ☐ | ☐ |
| 18.0 | Adjustments required for interfering items (piping, inserts, sleeves, etc.) have been submitted and approved by owner. | ☐ | ☐ | ☒ |
| 19.0 | Rebar was stored off ground to prevent damage/corrosion | ☒ | ☐ | ☐ |
| 20.0 | Review drawings for anchors, piping, sleeves, boxes | ☒ | ☐ | ☐ |

COMMENTS:

- Some dowels to be cut to achieve cover on top of pedestals.

ATTACHMENT(S):

DWG (HIGHLIGHTED)

DEFICIENCIES NOTES:

CLARK BUILDERS:
INSPECTOR: DAN PELLETIER TITLE FOREMAN DATE: NOVEMBER 16, 2018

JDS ENERGY & MINING:
INSPECTOR: Matt Coverdale MC TITLE Field Eng DATE: Nov 16, 2018

CLARK BUILDERS
ENERGY & RESOURCES

CB-INSPECTION FORM-DOC-002 REV.00
JDS ENERGY & MINING INC. | STRATAGOLD EAGLE GOLD
PROJECT #: CB201 | 18S02

PROJECT MANAGER: DUSTIN DOLYNCHUK, P.ENG
QA/QC COORDINATOR: RYAN DE MILLIANO, C.E.T.
SUPERINTENDENT: GARRY DAHL

# FORMWORK & FALSEWORK PRE POUR | QA INSPECTION

Rev 01 August 25, 2018

| | |
|---|---|
| CONTRACTOR: Clark Builders | INSPECTION DATE: November 16, 2018 |
| CONTRACTOR CONTACT PERSON: Dan Pelletier. | DATE OF POUR: November 16, 2018 |
| INSPECTOR(S): Dan Pelletier | |
| LOCATION: CV-22 GTU TOWER; CV-16 BENT 3+4 | |
| DRAWING REV: | DRAWING NO.(S): SPEC SECTION(S): 503 1000 |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Location, survey, dimension and grades as required | ☑ | ☐ | ☐ |
| 2.0 | Plumbness and Flatness verified | ☑ | ☐ | ☐ |
| 3.0 | Joints are aligned and watertight. | ☑ | ☐ | ☐ |
| 4.0 | Formwork shop drawings are Engineered and reviewed | ☐ | ☐ | ☑ |
| 5.0 | Re-used formwork reconditioned and treated | ☑ | ☐ | ☐ |
| 6.0 | Formwork and ties according to finishing requirements. Confirm no holes in the concrete surface are greater than 25mm in diameter or expose steel at less than 25mm from surface. As per spec. | ☑ | ☐ | ☐ |
| 7.0 | Installation of embeds are located and secured | ☐ | ☐ | ☑ |
| 8.0 | Chamfer requirements checked. 25mm chamfers required for all exterior corners and edges exposed to view including horizontal edges of pads. | ☑ | ☐ | ☐ |
| 9.0 | Key ways and/or other provisions according to design are provided in construction joints | ☐ | ☐ | ☑ |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 10.0 | Inspect types of form spacers, ties and bracing. | ☑ | ☐ | ☐ |
| 11.0 | Spacing of ties to be set to a pattern | ☑ | ☐ | ☐ |
| 12.0 | Expansion, construction, contraction joints as required & located as coordinated with structural Engineer | ☐ | ☐ | ☑ |
| 13.0 | Forms secured against movement during placing | ☑ | ☐ | ☐ |
| 14.0 | Forms are braced for alignment and blow out | ☑ | ☐ | ☐ |
| 15.0 | Forms are cleaned of all debris, and dry, prior to concrete placement including standing water. (SAF POINT 1) | ☑ | ☐ | ☐ |
| 16.0 | Openings in formwork permit inspection and cleaning, placing and compaction of concrete, and forming and processing of construction joints. | ☐ | ☐ | ☑ |
| 17.0 | Formwork has been coated with release agent prior to rebar placement. | ☑ | ☐ | ☐ |
| 18.0 | Anchor Bolts and Embeds are secured to formwork. | ☑ | ☐ | ☐ |

COMMENTS:

1. A couple forms had some tie wire and nails which need to be removed before pour.

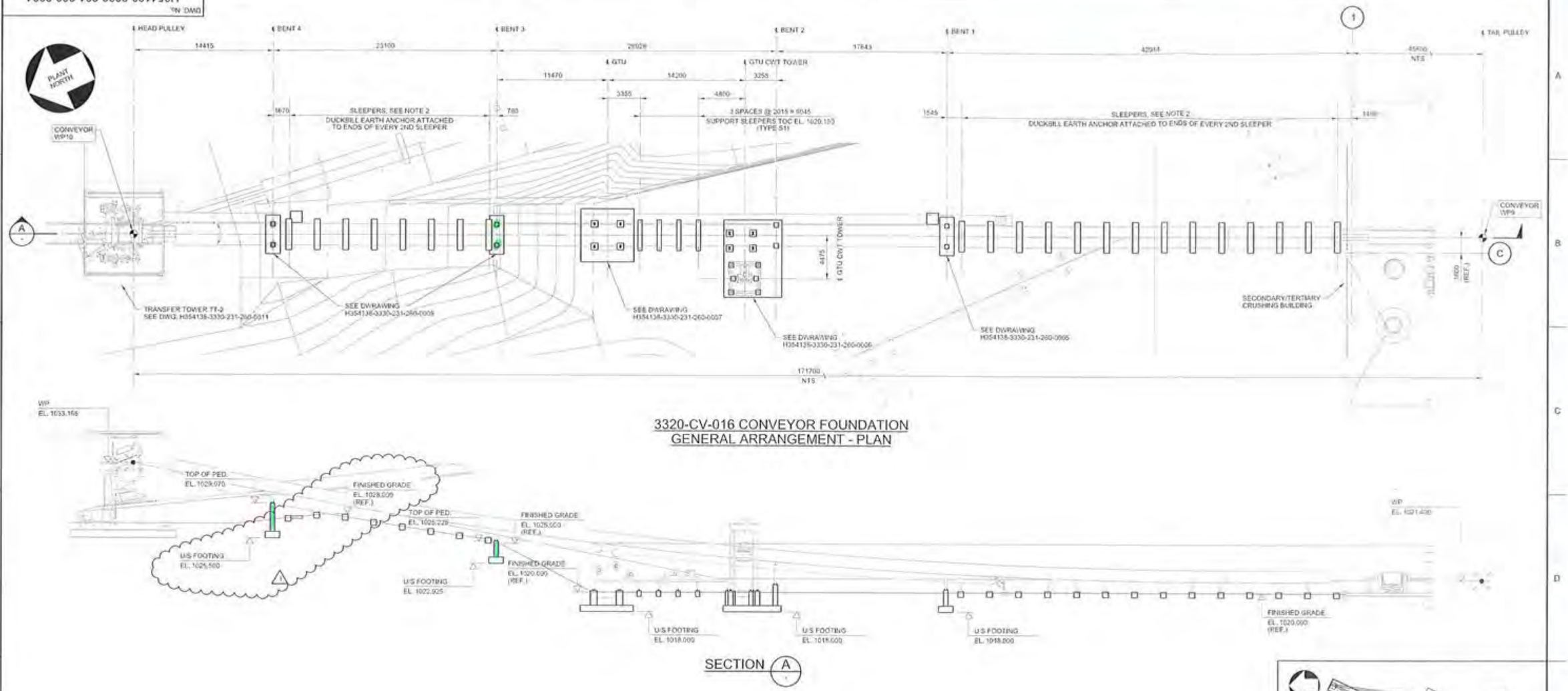
ATTACHMENT(S):

DEFICIENCIES NOTES:

INITIAL INSPECTION
INSPECTOR: Dan Pelletier TITLE Foreman DATE: Nov 16, 2018

RE-INSPECTION (DEFICIENCIES COMPLETED)
INSPECTOR: N/A Matt Caverdale MC TITLE Field Eng DATE: Nov 16, 2018.

H354138-3330-231-260-0004




3320-CV-016 CONVEYOR FOUNDATION
GENERAL ARRANGEMENT - PLAN

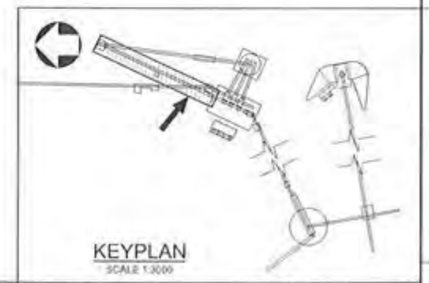



SECTION A

NOTES:

1. FOR NOTES SEE DRAWING H354138-3330-231-260-0001.
2. FOR SLEEPERS AND SOIL ANCHOR DETAILS, SEE DRAWING H354138-2120-220-299-0004.
   FOR SLEEPER LOCATIONS AND SPACINGS SEE TEP DRAWING 17-0200-500 AND 502.

0 2 4 6 8 10
1:200 SCALE IN METRES



KEYPLAN
SCALE 1:3000

| DRAWING No. | DRAWING TITLE |
|---|---|
| REFERENCE DRAWINGS | |

REG. PROFESSIONAL
2018-09-11

| No. | DESCRIPTION | BY | CHK'D | DATE |
|---|---|---|---|---|
| 1 | FINISHED GRADE ELEVATION AND BENT 4 REVISED | PJ | EA | 2018-09-11 |
| 0 | APPROVED FOR CONSTRUCTION | RS | EA | 2018-08-30 |

REVISIONS

HATCH

| | | | |
|---|---|---|---|
| DRAFTSPERSON | R. SAGARBARRIA | NR | |
| DESIGNER | H. LI | NR | |
| CHECKER | E. AKINCI | | 2018-09-11 |
| DESIGN COORD. | S. PERKINS | | 2018-09-11 |
| RESP. ENG. | E. AKINCI | | 2018-09-11 |
| LEAD DISC. ENG. | E. AKINCI | | 2018-09-11 |
| ENG. MANAGER | B. RUSTAD | | 2018-09-11 |
| PROJ. MANAGER | B. RUSTAD | | 2018-09-11 |

| ROLE | NAME | SIGNATURE & DATE |
|---|---|---|
| DRAWING APPROVAL STATUS: | Approved for Construction | |

StrataGold Corporation

EAGLE GOLD PROJECT

TERTIARY TRANSFER CONVEYORS
3320-CV-016 CONVEYOR FOUNDATION
GENERAL ARRANGEMENT

SCALE 1:200 OR AS NOTED | DWG. No. H354138-3330-231-260-0004 | REV 1

SHEET SIZE: D

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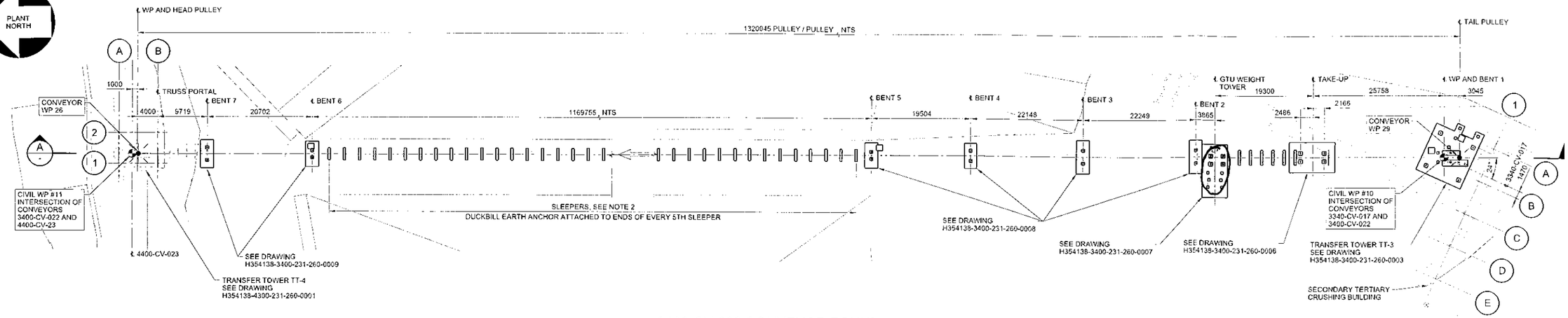
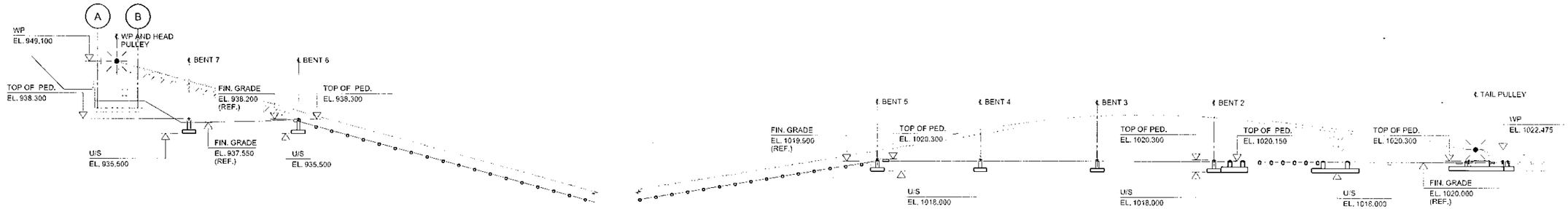
PRINTED: 11-SEP-2018 11:52

DWG. No. H354138-3400-231-260-0002




## 3400-CV-022 CONVEYOR FOUNDATION GENERAL ARRANGEMENT - PLAN

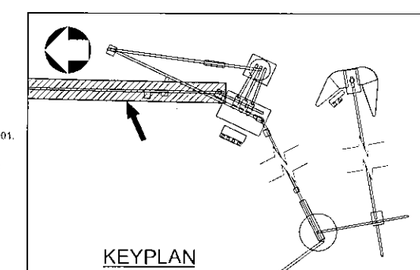



## SECTION A

NOTES:

1. FOR GENERAL NOTES SEE DRAWING H354138-3400-231-260-0001.
2. FOR SLEEPERS AND SOIL ANCHOR DETAILS, SEE DRAWING H354138-2120-220-290-0004.
   FOR SLEEPER LOCATIONS AND SPACINGS SEE TEP DRAWING 17-0200-1102 AND -1103.

0 4 8 12 16 20
1:400 SCALE IN METRES



KEYPLAN
SCALE 1:3000

| DRAWING No. | DRAWING TITLE |
|---|---|
| REFERENCE DRAWINGS | |

REG. PROFESSIONAL

PROFESSIONAL ENGINEER YUKON TERRITORY 2018 09 12

| No. | DESCRIPTION | BY | CHK'D | DATE |
|---|---|---|---|---|
| 0 | APPROVED FOR CONSTRUCTION | PJ | EA | 2018-09-12 |

REVISIONS

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HATCH

| ROLE | NAME | SIGNATURE & DATE |
|---|---|---|
| DRAFTSPERSON | P. JIVAEV | NR 2018-08-28 |
| DESIGNER | H. LI | NR 2018-08-28 |
| CHECKER | E. AKINCI | 2018-09-12 |
| DESIGN COORD. | S. PERKINS | 2018-09-12 |
| RESP. ENG. | E. AKINCI | 2018-09-12 |
| LEAD DISC. ENG. | E. AKINCI | 2018-09-12 |
| ENG. MANAGER | B. RUSTAD | 2018-09-12 |
| PROJ. MANAGER | B. RUSTAD | 2018-09-12 |

DRAWING APPROVAL STATUS: Approved for Construction

StrataGold Corporation

EAGLE GOLD PROJECT

OVERLAND CONVEYING
3400-CV-022 CONVEYOR FOUNDATION
GENERAL ARRANGEMENT

SCALE 1:400 OR AS NOTED | DWG. No. H354138-3400-231-260-0002 | REV 0

SHEET SIZE: D

SFILELS PRINTED: 12-SEP-2018 10:48 idc_pwservice

# CONCRETE POST POUR COLD WEATHER MONITORING

Rev 02 Nov 4, 2018

| | |
|---|---|
| CONTRACTOR: Clark Builders | DATE OF POUR: Nov. 16 |
| AMBIENT TEMP at POUR (°C): -19 | DATE FORMWORK STRIPPED: Nov. 19 |
| LOCATION: CV-22 GTU tower | |
| | SPEC SECTION(S): S03 30 00 – Cast-In-Place |

TYPE OF CURING:

| | | | | | |
|---|---|---|---|---|---|
| CURING COMPOUND | ☐ | DAMP BURLAP OR FABRIC | ☐ | INSULATION (TARPS) | ☑ |
| POLYETHYLENE SHEETS | ☐ | WATER/FOG SPRAY/ PONDING | ☐ | FORMS (COVERED BY) | ☑ |

| COLD WEATHER REQUIREMENTS (WHEN AMB. TEMP < 5°C) | PASS | FAIL | N/A | REMARKS |
|---|---|---|---|---|
| Protection in place and temperatures not lower than 20°C or until 70% of the 28-day strength has been reached. | ☑ | ☐ | ☐ | |
| Cold weather protection provided by means of heated enclosures, coverings, insulation, or a suitable approved combination of these methods during complete curing period. | ☑ | ☐ | ☐ | |
| Concrete test cylinders are kept within hoarding or in area where temperatures are ideal for curing. (No frozen Cylinders) | ☑ | ☐ | ☐ | |
| Heat is not directed onto concrete. This may result in thermal cracking. | ☑ | ☐ | ☐ | |
| During freezing weather, and standing water removed before the end of the protection period (CSA A 23.1 clause 7.4.2.4.2) | ☑ | ☐ | ☐ | |
| | | | | |

CONCRETE CURING TEMPERATURE LOG (COLD WEATHER CONCRETEING ONLY)

| DATE | TIME (24 HR) | OUTSIDE AIR TEMP (°C) | TEMP INSIDE HOARDING (°C) | CONCRETE SURFACE TEMP (°C) | | INITIALS OF READER |
|---|---|---|---|---|---|---|
| | | | | HIGH (°C) | LOW (°C) | |
| Nov. 16 | 6:30 PM | -27 | 27 | 28 | 23 | D.P. |
| Nov. 17 | 7:30 AM | -15 | 33 | 36 | 31 | D.P. |
| Nov. 17 | 1:30 PM | -12 | 22 | 33 | 31 | D.P. |
| Nov. 17 | 6:30 PM | -19 | 29 | 38 | 33 | D.P. |
| Nov. 18 | 9:30 AM | -11 | 22 | 31 | 27 | D.P. |
| Nov. 18 | 1:30 PM | -8 | 20 | 28 | 25 | D.P. |
| Nov. 19 | 6:30 PM | -10 | 18 | 27 | 25 | D.P. |
| COMMENTS: | Tarps heaters off to control heat | | | | | |

**CLARK BUILDERS SITE REPRESENTATIVE**

PRINT/ SIGN: DAN PELLETIER TITLE Foreman DATE: Nov. 19

CLARK BUILDERS
ENERGY & RESOURCES



PROJECT MANAGER: DUSTIN DOLYNCHUK, P.ENG
QA/QC COORDINATOR: RYAN DE MILLIANO, C.E.T.
SUPERINTENDENT: GARRY DAHL

# CONCRETE REINFORCEMENT PRE POUR

Rev 01 August 25, 2018

| | |
|---|---|
| SUBCONTRACTOR: Ultimate Reinforcing // McNish | INSPECTION DATE: Nov 20, 2018 |
| SUBCONTRACTOR CONTACT PERSON: CLAYTON | PROJ. POUR DATE: Nov 21, 2018 |
| INSPECTOR(S): Ryan deMilliano, Dan Pelletier, Matt Coverdale. (JDS) | |
| LOCATION: 3330 CV016 - GTV PODESTALS. (REMAINING 2 OF 4) | |
| DRAWING REV: 01 / DRAWING NO.(S): 3330-CI-240-00004 | SPEC SECTION(S): S03 20 00 – Concrete Reinforcing Steel |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Grade (400W unless otherwise noted) and type of steel delivered and installed as required by approved drawings. | ☑ | ☐ | ☐ |
| 2.0 | Inspect rebar distribution, spacing and cover per design/project requirements. | ☑ | ☐ | ☐ |
| 3.0 | Length of splices as specified | ☑ | ☐ | ☐ |
| 4.0 | Staggered splices as specified | ☐ | ☐ | ☑ |
| 5.0 | Any mechanical splices have been approved by the owner prior to install | ☐ | ☐ | ☑ |
| 6.0 | Bars cleaned and free of material that may reduce bond including loose rust, scale, oil, structural defects and that they are uncoated and unpainted. | ☑ | ☐ | ☐ |
| 7.0 | Dowels at wall ends, construction joints, and openings as specified (length, location, size, etc.) | ☑ | ☐ | ☐ |
| 8.0 | No unauthorized field bent bars including hooks installed | ☑ | ☐ | ☐ |
| 9.0 | Resolve conflicts between embedded items and reinforcement | ☑ | ☐ | ☐ |
| 10.0 | When authorized, field bends done without heat and inspected for fissures or cracks. | ☐ | ☐ | ☑ |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 11.0 | Bars tied and supported to prevent displacement | ☑ | ☐ | ☐ |
| 12.0 | Spacers, tie wire and chairs as required | ☑ | ☐ | ☐ |
| 13.0 | Conduits at design location and minimum separation from rebar as specified | ☐ | ☐ | ☑ |
| 14.0 | No contact of bars is made with dissimilar metals as per CSA A23.1 | ☑ | ☐ | ☐ |
| 15.0 | Bars, nails or tie wire not sticking out from surfaces that allow rusting/corrosion | ☑ | ☐ | ☐ |
| 16.0 | Rebar welds are inspected by qualified inspectors certified to CSA W178.2 | ☐ | ☐ | ☑ |
| 17.0 | No rebar congestion or other obstruction for deposit of concrete | ☑ | ☐ | ☐ |
| 18.0 | Adjustments required for interfering items (piping, inserts, sleeves, etc.) have been submitted and approved by owner. | ☑ | ☐ | ☐ |
| 19.0 | Rebar was stored off ground to prevent damage/corrosion | ☑ | ☐ | ☐ |
| 20.0 | Review drawings for anchors, piping, sleeves, boxes | ☑ | ☐ | ☐ |

COMMENTS:

ATTACHMENT(S): DWG (HIGHLIGHTED)

DEFICIENCIES NOTES:

Heat & Hoard to reach temp prior to pour ~~me~~

CLARK BUILDERS:
INSPECTOR: Ryan deMilliano TITLE Project Coordinator DATE: Nov 20/18

JDS ENERGY & MINING:
INSPECTOR: Matt Coverdale ~~me~~ TITLE Field Eng DATE: Nov 20, 2018

CB-INSPECTION FORM-DOC-002 REV.00
JDS ENERGY & MINING INC. | STRATAGOLD EAGLE GOLD
PROJECT #: CB201 | 18502

CLARK BUILDERS
ENERGY & RESOURCES

PROJECT MANAGER: DUSTIN DOLYNCHUK, P.ENG
QA/QC COORDINATOR: RYAN DE MILLIANO, C.E.T.
SUPERINTENDENT: GARRY DAHL

# FORMWORK & FALSEWORK PRE POUR | QA INSPECTION

Rev 01 August 25, 2018

| | |
|---|---|
| CONTRACTOR: Clark Builders | INSPECTION DATE: Nov 20, 2018 |
| CONTRACTOR CONTACT PERSON: Dan Pelletier | DATE OF POUR: Nov 21, 2018 |
| INSPECTOR(S): Ryan de Milliano, Dan Pelletier, Matt Coverdale | |
| LOCATION: 3330 CV016 - GTV PEDESTALS (x2) | |
| DRAWING REV: 01 | DRAWING NO.(S): 3330-231-260-0004 | SPEC SECTION(S): S031000 |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Location, survey, dimension and grades as required | ☑ | ☐ | ☐ |
| 2.0 | Plumbness and Flatness verified | ☑ | ☐ | ☐ |
| 3.0 | Joints are aligned and watertight. | ☑ | ☐ | ☐ |
| 4.0 | Formwork shop drawings are Engineered and reviewed | ☐ | ☐ | ☑ |
| 5.0 | Re-used formwork reconditioned and treated | ☐ | ☐ | ☑ |
| 6.0 | Formwork and ties according to finishing requirements. Confirm no holes in the concrete surface are greater than 25mm in diameter or expose steel at less than 25mm from surface. As per spec. | ☑ | ☐ | ☐ |
| 7.0 | Installation of embeds are located and secured | ☑ | ☐ | ☐ |
| 8.0 | Chamfer requirements checked. 25mm chamfers required for all exterior corners and edges exposed to view including horizontal edges of pads. | ☑ | ☐ | ☐ |
| 9.0 | Key ways and/or other provisions according to design are provided in construction joints | ☑ | ☐ | ☐ |
| 10.0 | Inspect types of form spacers, ties and bracing. | ☑ | ☐ | ☐ |
| 11.0 | Spacing of ties to be set to a pattern | ☑ | ☐ | ☐ |
| 12.0 | Expansion, construction, contraction joints as required & located as coordinated with structural Engineer | ☑ | ☐ | ☐ |
| 13.0 | Forms secured against movement during placing | ☑ | ☐ | ☐ |
| 14.0 | Forms are braced for alignment and blow out | ☑ | ☐ | ☐ |
| 15.0 | Forms are cleaned of all debris, and dry, prior to concrete placement including standing water | ☑ | ☐ | ☐ |
| 16.0 | Openings in formwork permit inspection and cleaning, placing and compaction of concrete, and forming and processing of construction joints. | ☑ | ☐ | ☐ |
| 17.0 | Formwork has been coated with release agent prior to rebar placement. | ☑ | ☐ | ☐ |
| 18.0 | Anchor Bolts and Embeds are secured to formwork. | ☑ | ☐ | ☐ |

COMMENTS:

Heat prior to pour [signature]

ATTACHMENT(S):

DEFICIENCIES NOTES:

INITIAL INSPECTION
INSPECTOR: Ryan de Milliano [signature] TITLE Project Coordinator DATE: Nov 20/18

RE-INSPECTION (DEFICIENCIES COMPLETED)
INSPECTOR: Matt Coverdale [signature] TITLE Field Eng DATE: Nov 20/18

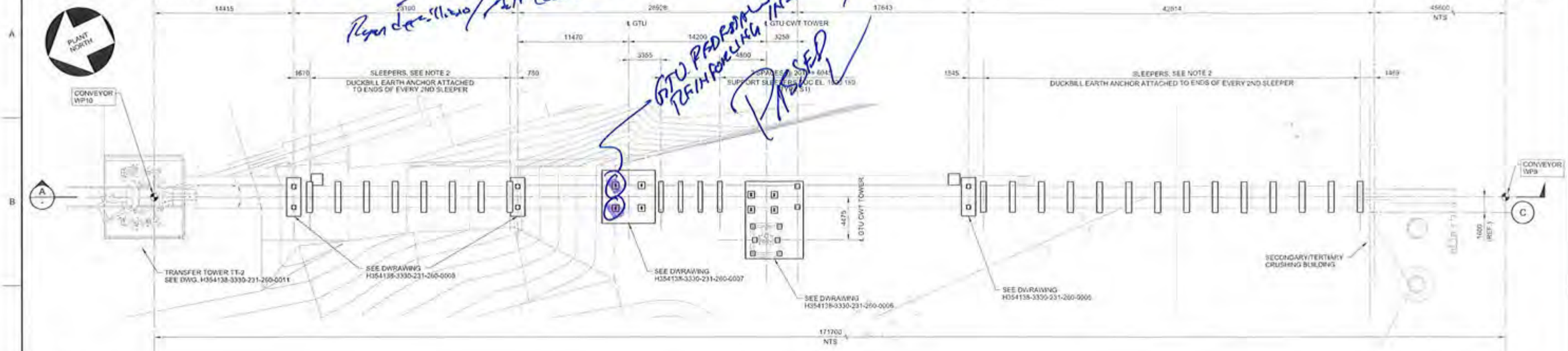
DWG. No. H354138-3330-231-260-0004

Nov 20/18

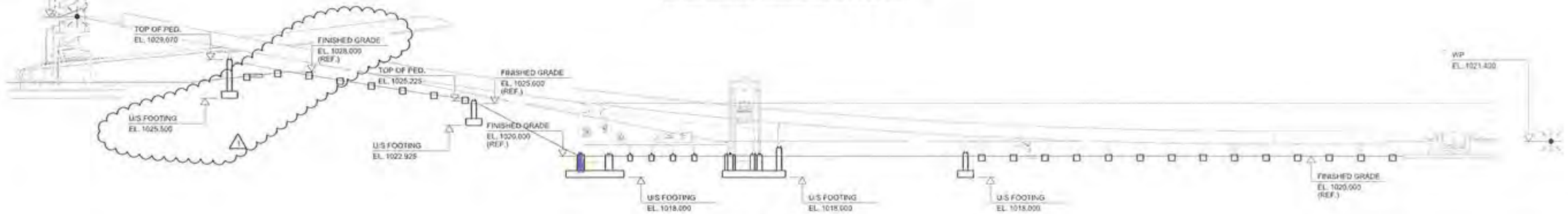
Ready date: 11/20 / Left Connected.

GTU PADS FOR INSPECTION PRIOR TO POURING

PASSED




## 3320-CV-016 CONVEYOR FOUNDATION GENERAL ARRANGEMENT - PLAN

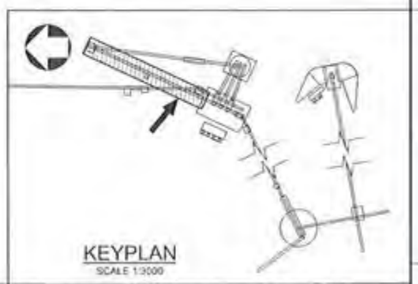



## SECTION A

NOTES:

1. FOR NOTES SEE DRAWING H354138-3330-231-260-0001.
2. FOR SLEEPERS AND SOIL ANCHOR DETAILS, SEE DRAWING H354138-2120-220-290-0004.
   FOR SLEEPER LOCATIONS AND SPACINGS SEE TEP DRAWING 17-0200-500 AND 502.

0 2 4 6 8 10
1:200 SCALE IN METRES



KEYPLAN
SCALE 1:3000

| | | | | | |
|---|---|---|---|---|---|
| DRAFTSPERSON | R. SAGARBARRIA | NR | | | |
| DESIGNER | H. LI | NR | | | |
| CHECKER | E. AKINCI | | 2018-09-11 | | |
| DESIGN COORD. | S. PERKINS | | 2018-09-11 | | |
| RESP. ENG. | E. AKINCI | | 2018-09-11 | | |
| LEAD DISC. ENG. | E. AKINCI | | 2018-09-11 | | |
| ENG. MANAGER | B. RUSTAD | | 2018-09-11 | | |
| PROJ. MANAGER | B. RUSTAD | | 2018-09-11 | | |

| No. | DESCRIPTION | BY | CHKD | DATE |
|---|---|---|---|---|
| 1 | FINISHED GRADE ELEVATION AND BENT 4 REVISED | PJ | EA | 2018-09-11 |
| 0 | APPROVED FOR CONSTRUCTION | RS | EA | 2018-08-30 |

REVISIONS

| ROLE | NAME | SIGNATURE & DATE |
|---|---|---|
| DRAWING APPROVAL STATUS: | Approved for Construction | |

REFERENCE DRAWINGS — DRAWING No. — DRAWING TITLE

REG. PROFESSIONAL — 2018-09-11

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HATCH

STRATA GOLD CORPORATION

EAGLE GOLD PROJECT

TERTIARY TRANSFER CONVEYORS
3320-CV-016 CONVEYOR FOUNDATION
GENERAL ARRANGEMENT

| SCALE | DWG. No. | REV |
|---|---|---|
| 1:200 OR AS NOTED | H354138-3330-231-260-0004 | 1 |

SHEET SIZE: D

SOLDS PRINTED: 11-SEP-2018 11:52
RE_Awenke

# CONCRETE POST POUR COLD WEATHER MONITORING

Rev 03 Nov 13, 2018

| | |
|---|---|
| CONTRACTOR: Clark Builders | DATE OF POUR: Nov. 21 |
| AMBIENT TEMP at POUR (°C): -3 | DATE FORMWORK STRIPPED: Nov. 24 |
| LOCATION: CV-16 GTU 2 NORTH PEDS | |
| | SPEC SECTION(S): 503 30 00 – Cast-In-Place |

TYPE OF CURING:

| | | | | | |
|---|---|---|---|---|---|
| CURING COMPOUND | ☐ | DAMP BURLAP OR FABRIC | ☐ | INSULATION (TARPS) | ☑ |
| POLYETHYLENE SHEETS | ☐ | WATER/FOG SPRAY/ PONDING | ☐ | FORMS (COVERED BY) | ☑ |

| COLD WEATHER REQUIREMENTS (WHEN AMB. TEMP < 5°C) | PASS | FAIL | N/A | REMARKS |
|---|---|---|---|---|
| Protection in place and temperatures not lower than 20°C or until 70% of the 28-day strength has been reached. | ☑ | ☐ | ☐ | |
| Cold weather protection provided by means of heated enclosures, coverings, insulation, or a suitable approved combination of these methods during complete curing period. | ☑ | ☐ | ☐ | |
| Concrete test cylinders are kept within hoarding or in area where temperatures are ideal for curing. (No frozen Cylinders) | ☑ | ☐ | ☐ | |
| Heat is not directed onto concrete. This may result in thermal cracking. | ☑ | ☐ | ☐ | |
| During freezing weather, and standing water removed before the end of the protection period (CSA A 23.1 clause 7.4.2.4.2) | ☑ | ☐ | ☐ | |

CONCRETE CURING TEMPERATURE LOG (COLD WEATHER CONCRETEING ONLY)

| DATE | | TIME (24 HR) | OUTSIDE AIR TEMP (°C) | TEMP INSIDE HOARDING (°C) | CONCRETE SURFACE TEMP (°C) | | INITIALS OF READER |
|---|---|---|---|---|---|---|---|
| | | | | | HIGH (°C) | LOW (°C) | |
| Nov. 21 | ~~AM~~ | 6:00 PM | -2 | 38 | 30 | 30 | D.P. |
| Nov. 22 | ~~MID~~ | 8:00 AM | -9 | 24 | 25 | 23 | D.P. |
| Nov. 22 | PM | 2:00 PM | -10 | 26 | 25 | 24 | D.P. |
| Nov 22 | ~~AM~~ | 6:30 PM | -11 | 26 | 24 | 23 | D.P. |
| Nov. 23 | ~~MID~~ | 7:30 AM | -9 | 28 | 26 | 24 | D.P. |
| Nov. 23 | ~~PM~~ | 1:30 | -10 | 25 | 25 | 24 | D.P. |
| Nov. 23 | ~~AM~~ | 6:30 | -11 | 23 | 24 | 23 | D.P. |
| | MID | | | | | | |
| | PM | | | | | | |

COMMENTS: Turning heaters on + off to control heat

**CLARK BUILDERS SITE REPRESENTATIVE**

PRINT/ SIGN: DAN PELLETIER Dan Pelletier TITLE Foreman DATE: Nov. 24

CB-INSPECTION FORM-DOC-002 REV.00
JDS ENERGY & MINING INC. | STRATAGOLD EAGLE GOLD
PROJECT #: CB201 | 18502

CLARK BUILDERS
ENERGY & RESOURCES

PROJECT MANAGER: DUSTIN DOLYNCHUK, P.ENG
QA/QC COORDINATOR: RYAN DE MILLIANO, C.E.T.
SUPERINTENDENT: GARRY DAHL

# CONCRETE REINFORCEMENT PRE POUR

Rev 01 August 25, 2018

| | |
|---|---|
| SUBCONTRACTOR: Ultimate Reinforcing // McNish | INSPECTION DATE: Nov 20, 2018 |
| SUBCONTRACTOR CONTACT PERSON: CLAYTON | PROJ. POUR DATE: Nov 21, 2018 |
| INSPECTOR(S): Ryan deMilliano, Dan Pelletier, Matt Coverdale. (JDS) | |
| LOCATION: 3330 CV016 - GTV PEDESTALS. (REMAINING 2 of 4) | |
| DRAWING REV: 01 | DRAWING NO.(S): 3330-231-260-0004 | SPEC SECTION(S): S03 20 00 – Concrete Reinforcing Steel |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Grade (400W unless otherwise noted) and type of steel delivered and installed as required by approved drawings. | ☑ | ☐ | ☐ |
| 2.0 | Inspect rebar distribution, spacing and cover per design/project requirements. | ☑ | ☐ | ☐ |
| 3.0 | Length of splices as specified | ☑ | ☐ | ☐ |
| 4.0 | Staggered splices as specified | ☐ | ☐ | ☑ |
| 5.0 | Any mechanical splices have been approved by the owner prior to install | ☐ | ☐ | ☑ |
| 6.0 | Bars cleaned and free of material that may reduce bond including loose rust, scale, oil, structural defects and that they are uncoated and unpainted. | ☑ | ☐ | ☐ |
| 7.0 | Dowels at wall ends, construction joints, and openings as specified (length, location, size, etc.) | ☑ | ☐ | ☐ |
| 8.0 | No unauthorized field bent bars including hooks installed | ☑ | ☐ | ☐ |
| 9.0 | Resolve conflicts between embedded items and reinforcement | ☑ | ☐ | ☐ |
| 10.0 | When authorized, field bends done without heat and inspected for fissures or cracks. | ☐ | ☐ | ☑ |
| 11.0 | Bars tied and supported to prevent displacement | ☑ | ☐ | ☐ |
| 12.0 | Spacers, tie wire and chairs as required | ☑ | ☐ | ☐ |
| 13.0 | Conduits at design location and minimum separation from rebar as specified | ☐ | ☐ | ☑ |
| 14.0 | No contact of bars is made with dissimilar metals as per CSA A23.1 | ☑ | ☐ | ☐ |
| 15.0 | Bars, nails or tie wire not sticking out from surfaces that allow rusting/corrosion | ☑ | ☐ | ☐ |
| 16.0 | Rebar welds are inspected by qualified inspectors certified to CSA W178.2 | ☐ | ☐ | ☑ |
| 17.0 | No rebar congestion or other obstruction for deposit of concrete | ☑ | ☐ | ☐ |
| 18.0 | Adjustments required for interfering items (piping, inserts, sleeves, etc.) have been submitted and approved by owner. | ☑ | ☐ | ☐ |
| 19.0 | Rebar was stored off ground to prevent damage/corrosion | ☑ | ☐ | ☐ |
| 20.0 | Review drawings for anchors, piping, sleeves, boxes | ☑ | ☐ | ☐ |

COMMENTS:

ATTACHMENT(S): DWG (HIGHLIGHTED)

DEFICIENCIES NOTES:

Heat & Hoard to Reach temp prior to pour yme

CLARK BUILDERS:
INSPECTOR: Ryan deMilliano // [signature] TITLE Project Coordinator DATE: Nov 20/18

JDS ENERGY & MINING:
INSPECTOR: Matt Coverdale yme TITLE Field Eng DATE: Nov 20, 2018

CLARK BUILDERS
ENERGY & RESOURCES

PROJECT MANAGER: DUSTIN DOLYNCHUK, P.ENG
QA/QC COORDINATOR: RYAN DE MILLIANO, C.E.T.
SUPERINTENDENT: GARRY DAHL

# FORMWORK & FALSEWORK PRE POUR | QA INSPECTION

Rev 01 August 23, 2018

| | |
|---|---|
| CONTRACTOR: Clark Builders | INSPECTION DATE: Nov 20, 2018 |
| CONTRACTOR CONTACT PERSON: Dan Pelletier | DATE OF POUR: Nov 21, 2018 |
| INSPECTOR(S): Ryan de Milliano, Dan Pelletier, Matt Coverdale | |
| LOCATION: 3330 CV016 - GTU PEDESTALS (x2) | |
| DRAWING REV: 01 / DRAWING NO.(S): 3330-231-260-0004 | SPEC SECTION(S): S031000 |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Location, survey, dimension and grades as required | ☑ | ☐ | ☐ |
| 2.0 | Plumbness and Flatness verified | ☑ | ☐ | ☐ |
| 3.0 | Joints are aligned and watertight. | ☑ | ☐ | ☐ |
| 4.0 | Formwork shop drawings are Engineered and reviewed | ☐ | ☐ | ☑ |
| 5.0 | Re-used formwork reconditioned and treated | ☐ | ☐ | ☑ |
| 6.0 | Formwork and ties according to finishing requirements. Confirm no holes in the concrete surface are greater than 25mm in diameter or expose steel at less than 25mm from surface. As per spec. | ☑ | ☐ | ☐ |
| 7.0 | Installation of embeds are located and secured | ☑ | ☐ | ☐ |
| 8.0 | Chamfer requirements checked. 25mm chamfers required for all exterior corners and edges exposed to view including horizontal edges of pads. | ☑ | ☐ | ☐ |
| 9.0 | Key ways and/or other provisions according to design are provided in construction joints | ☑ | ☐ | ☐ |
| 10.0 | Inspect types of form spacers, ties and bracing. | ☑ | ☐ | ☐ |
| 11.0 | Spacing of ties to be set to a pattern | ☑ | ☐ | ☐ |
| 12.0 | Expansion, construction, contraction joints as required & located as coordinated with structural Engineer | ☑ | ☐ | ☐ |
| 13.0 | Forms secured against movement during placing | ☑ | ☐ | ☐ |
| 14.0 | Forms are braced for alignment and blow out | ☑ | ☐ | ☐ |
| 15.0 | Forms are cleaned of all debris, and dry, prior to concrete placement including standing water. | ☑ | ☐ | ☐ |
| 16.0 | Openings in formwork permit inspection and cleaning, placing and compaction of concrete, and forming and processing of construction joints. | ☑ | ☐ | ☐ |
| 17.0 | Formwork has been coated with release agent prior to rebar placement. | ☑ | ☐ | ☐ |
| 18.0 | Anchor Bolts and Embeds are secured to formwork. | ☑ | ☐ | ☐ |

COMMENTS:

Heat prior to pour [signature]

ATTACHMENT(S):

DEFICIENCIES NOTES:

INITIAL INSPECTION
INSPECTOR: Ryan de Milliano [signature] TITLE Project Coordinator DATE: Nov 20/18

RE-INSPECTION (DEFICIENCIES COMPLETED)
INSPECTOR: Matt Coverdale [signature] TITLE Field Eng DATE: Nov 20/18

H354138-3330-231-260-0004

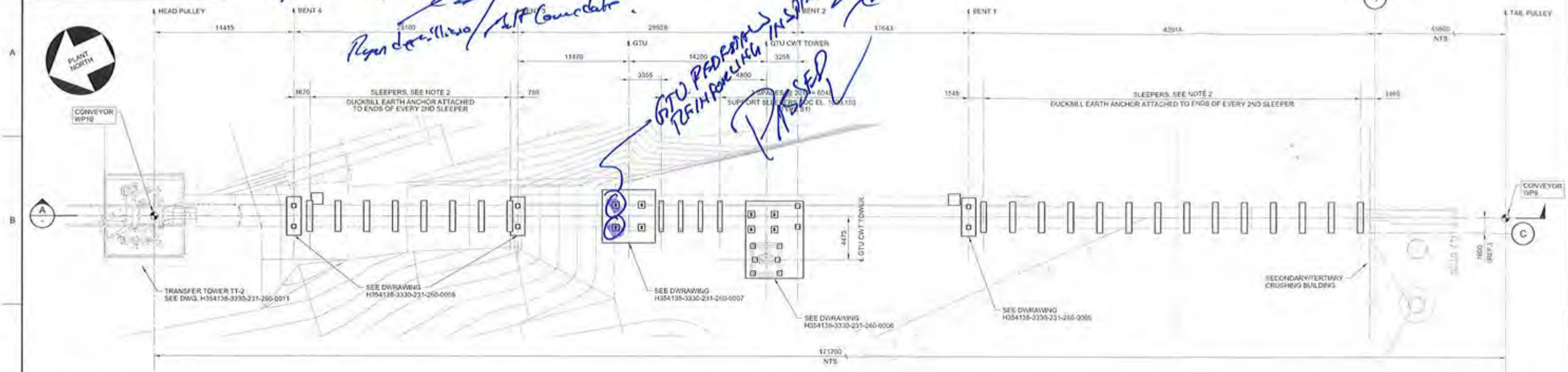
Nov 20/18

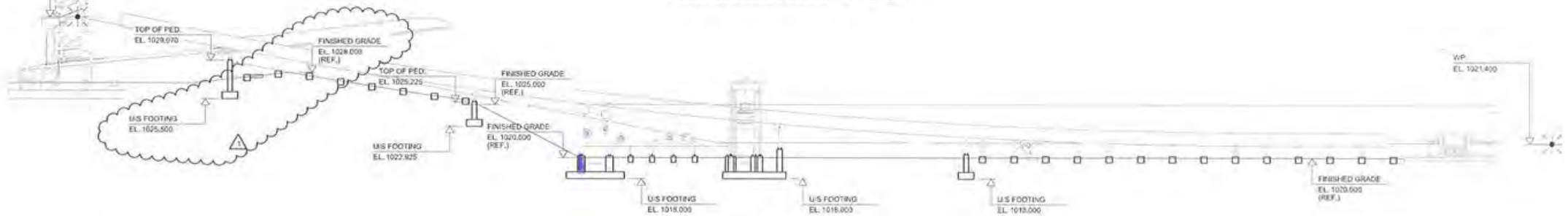
Regrading/Ped Coordinate.

GTU PEDESTAL INSPECTION PENDING

PASSED

# 3320-CV-016 CONVEYOR FOUNDATION
# GENERAL ARRANGEMENT - PLAN



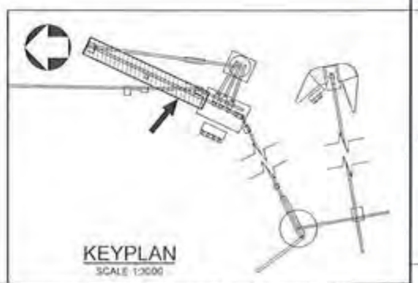




SECTION A

NOTES:

1. FOR NOTES SEE DRAWING H354138-3330-231-260-0001.
2. FOR SLEEPERS AND SOIL ANCHOR DETAILS, SEE DRAWING H354138-2120-220-290-0004.
   FOR SLEEPER LOCATIONS AND SPACINGS SEE TEP DRAWING 17-0200-500 AND 502.

1:200 SCALE IN METRES



KEYPLAN
SCALE 1:3000

| No. | DESCRIPTION | BY | CHK'D | DATE |
|---|---|---|---|---|
| 1 | FINISHED GRADE ELEVATION AND BENT 4 REVISED | PJ | EA | 2018-09-11 |
| 0 | APPROVED FOR CONSTRUCTION | RS | EA | 2018-09-30 |

REVISIONS

| | | |
|---|---|---|
| DRAFTSPERSON | R. SAGARBARRIA | NR |
| DESIGNER | H. LI | NR |
| CHECKER | E. AKINCI | 2018-09-11 |
| DESIGN COORD. | S. PERKINS | 2018-09-11 |
| RESP. ENG. | E. AKINCI | 2018-09-11 |
| LEAD DISC. ENG. | E. AKINCI | 2018-09-11 |
| ENG. MANAGER | B. RUSTAD | |
| PROJ. MANAGER | B. RUSTAD | |

ROLE | NAME | SIGNATURE & DATE

DRAWING APPROVAL STATUS: Approved for Construction

HATCH

StrataGold Corporation

EAGLE GOLD PROJECT

TERTIARY TRANSFER CONVEYORS
3320-CV-016 CONVEYOR FOUNDATION
GENERAL ARRANGEMENT

| SCALE | DWG. No. | REV |
|---|---|---|
| 1:200 UNLESS NOTED | H354138-3330-231-260-0004 | 1 |

SHEET SIZE: D

DRAWING No. | DRAWING TITLE

REFERENCE DRAWINGS

REG. PROFESSIONAL

2018-09-11

PLOTTED: 11-SEP-2018
By: jjennings

CLARK BUILDERS
ENERGY & RESOURCES

# CONCRETE REINFORCEMENT PRE POUR

Rev 01 August 25, 2018

| | |
|---|---|
| SUBCONTRACTOR: Ultimate Reinforcing // McNish | INSPECTION DATE: December 4/2018 |
| SUBCONTRACTOR CONTACT PERSON: Garry Dahl/Henry Rueda | PROJ. POUR DATE: December 5/2018 |
| INSPECTOR(S): Ishan Fechter | |
| LOCATION: Heap leach CV-023 Transfer 4 walls | |
| DRAWING REV: | DRAWING NO.(S): 4300-0002/0003/0004 |
| SPEC SECTION(S): S03 20 00 – Concrete Reinforcing Steel | |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Grade (400W unless otherwise noted) and type of steel delivered and installed as required by approved drawings. | ☑ | ☐ | ☐ |
| 2.0 | Inspect rebar distribution, spacing and cover per design/project requirements. | ☑ | ☐ | ☐ |
| 3.0 | Length of splices as specified | ☑ | ☐ | ☐ |
| 4.0 | Staggered splices as specified | ☑ | ☐ | ☐ |
| 5.0 | Any mechanical splices have been approved by the owner prior to install | ☐ | ☐ | ☑ |
| 6.0 | Bars cleaned and free of material that may reduce bond including loose rust, scale, oil, structural defects and that they are uncoated and unpainted. | ☑ | ☐ | ☐ |
| 7.0 | Dowels at wall ends, construction joints, and openings as specified (length, location, size, etc.) | ☑ | ☐ | ☐ |
| 8.0 | No unauthorized field bent bars including hooks installed | ☑ | ☐ | ☐ |
| 9.0 | Resolve conflicts between embedded items and reinforcement | ☑ | ☐ | ☐ |
| 10.0 | When authorized, field bends done without heat and inspected for fissures or cracks. | ☑ | ☐ | ☐ |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 11.0 | Bars tied and supported to prevent displacement | ☑ | ☐ | ☐ |
| 12.0 | Spacers, tie wire and chairs as required | ☑ | ☐ | ☐ |
| 13.0 | Conduits at design location and minimum separation from rebar as specified | ☐ | ☐ | ☑ |
| 14.0 | No contact of bars is made with dissimilar metals as per CSA A23.1 | ☑ | ☐ | ☐ |
| 15.0 | Bars, nails or tie wire not sticking out from surfaces that allow rusting/corrosion | ☑ | ☐ | ☐ |
| 16.0 | Rebar welds are inspected by qualified inspectors certified to CSA W178.2 | ☐ | ☐ | ☑ |
| 17.0 | No rebar congestion or other obstruction for deposit of concrete | ☑ | ☐ | ☐ |
| 18.0 | Adjustments required for interfering items (piping, inserts, sleeves, etc.) have been submitted and approved by owner. | ☑ | ☐ | ☐ |
| 19.0 | Rebar was stored off ground to prevent damage/corrosion | ☑ | ☐ | ☐ |
| 20.0 | Review drawings for anchors, piping, sleeves, boxes | ☑ | ☐ | ☐ |

COMMENTS:

ATTACHMENT(S):

DEFICIENCIES NOTES:

CLARK BUILDERS:
INSPECTOR: [signature] TITLE Supt DATE: Dec 4/18

JDS ENERGY & MINING:
INSPECTOR: [signature] TITLE Eng Manager DATE: Dec 4/18

CLARK BUILDERS
ENERGY & RESOURCES

# FORMWORK & FALSEWORK PRE POUR | QA INSPECTION

Rev 01 August 25, 2018

| | | | |
|---|---|---|---|
| CONTRACTOR: Clark Builders | | INSPECTION DATE: | December 4 /2018 |
| CONTRACTOR CONTACT PERSON: | Garry Dahl/Henry Rueda | DATE OF POUR: | December 5/2018 |
| INSPECTOR(S): | Ishan Fechter | | |
| LOCATION: | Heap leach CV-023 Transfer 4 walls & Pads on TF4 | | |
| DRAWING REV: | DRAWING NO.(S): 4300-0002/0003/0004 | SPEC SECTION(S): | |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Location, survey, dimension and grades as required | ☑ | ☐ | ☐ |
| 2.0 | Plumbness and Flatness verified | ☑ | ☐ | ☐ |
| 3.0 | Joints are aligned and watertight. | ☑ | ☐ | ☐ |
| 4.0 | Formwork shop drawings are Engineered and reviewed | ☑ | ☐ | ☐ |
| 5.0 | Re-used formwork reconditioned and treated | ☑ | ☐ | ☐ |
| 6.0 | Formwork and ties according to finishing requirements. Confirm no holes in the concrete surface are greater than 25mm in diameter or expose steel at less than 25mm from surface. As per spec. | ☑ | ☐ | ☐ |
| 7.0 | Installation of embeds are located and secured | ☑ | ☐ | ☐ |
| 8.0 | Chamfer requirements checked. 25mm chamfers required for all exterior corners and edges exposed to view including horizontal edges of pads. | ☑ | ☐ | ☐ |
| 9.0 | Key ways and/or other provisions according to design are provided in construction joints | ☐ | ☐ | ☑ |
| 10.0 | Inspect types of form spacers, ties and bracing. | ☑ | ☐ | ☐ |
| 11.0 | Spacing of ties to be set to a pattern | ☑ | ☐ | ☐ |
| 12.0 | Expansion, construction, contraction joints as required & located as coordinated with structural Engineer | ☐ | ☐ | ☑ |
| 13.0 | Forms secured against movement during placing | ☑ | ☐ | ☐ |
| 14.0 | Forms are braced for alignment and blow out | ☑ | ☐ | ☐ |
| 15.0 | Forms are cleaned of all debris, and dry, prior to concrete placement including standing water. | ☑ | ☐ | ☐ |
| 16.0 | Openings in formwork permit inspection and cleaning, placing and compaction of concrete, and forming and processing of construction joints. | ☑ | ☐ | ☐ |
| 17.0 | Formwork has been coated with release agent prior to rebar placement. | ☑ | ☐ | ☐ |
| 18.0 | Anchor Bolts and Embeds are secured to formwork. | ☑ | ☐ | ☐ |

COMMENTS: | ATTACHMENT(S):

DEFICIENCIES NOTES:

INITIAL INSPECTION

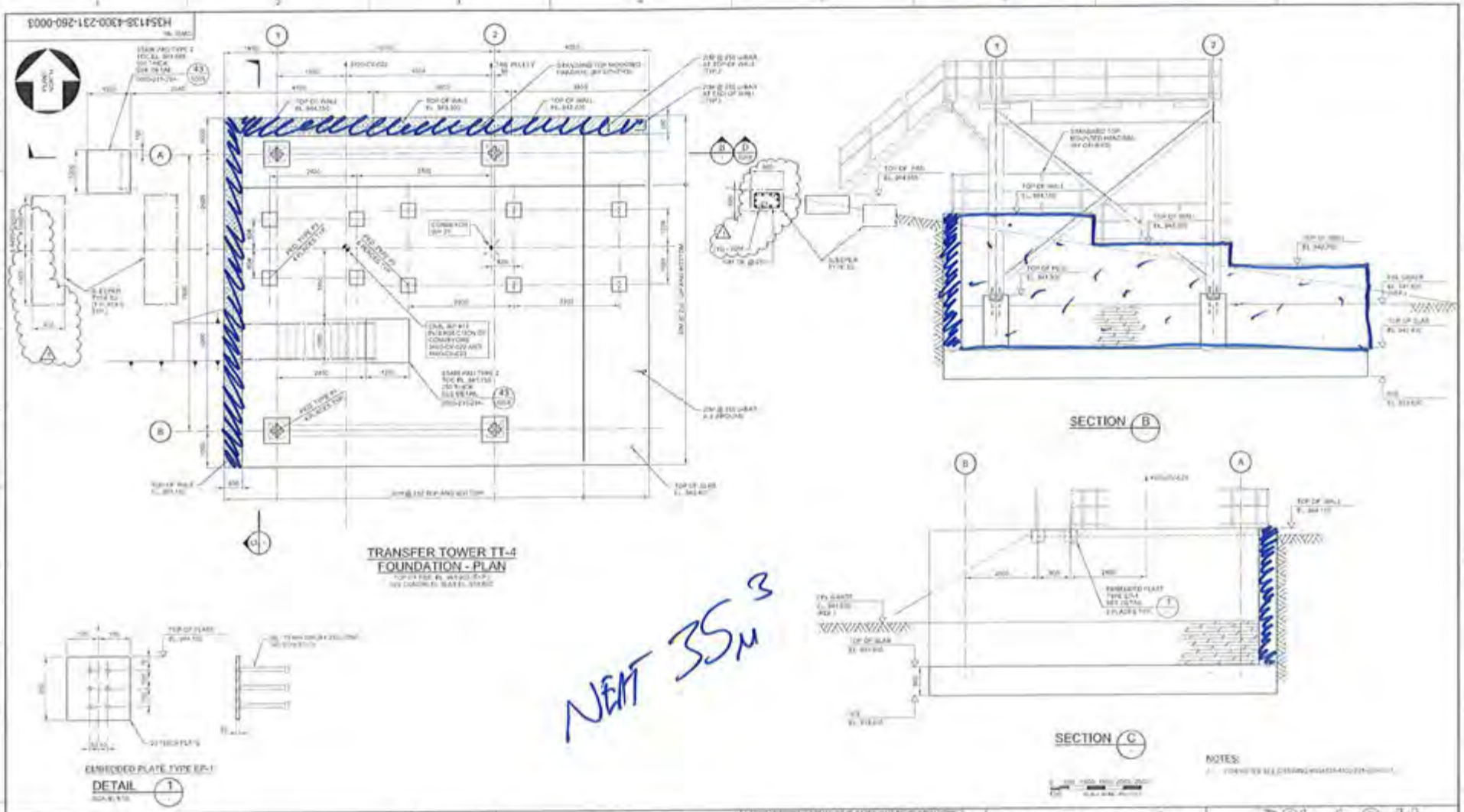
INSPECTOR: _____ TITLE _____ DATE: Dec 4/18

RE-INSPECTION (DEFICIENCIES COMPLETED)

INSPECTOR: _____ TITLE _____ DATE: _____

CLARK : GARRY DAHL Dec 4/18

Dec 4, 2018 IAS.
Dec 5, 2018 POUR.




NET 35 M³

HATCH

StrataGold Corporation

EAGLE GOLD PROJECT

ORE PREPARATION (LIME AND CEMENT)
TRANSFER TOWER TT-4 FOUNDATION
PLAN, SECTION AND DETAILS - SHEET 1

H354138-4300-231-260-0003

1

# CONCRETE POST POUR COLD WEATHER MONITORING

Rev 03 Nov 13, 2018

| | |
|---|---|
| CONTRACTOR: Clark Builders | DATE OF POUR: Dec 5 |
| AMBIENT TEMP at POUR (°C): +15 | DATE FORMWORK STRIPPED: Dec 8 |
| LOCATION: heap leach TT4 walls | SPEC SECTION(S): S03 30 00 – Cast-In-Place |

TYPE OF CURING:

| | | | | | |
|---|---|---|---|---|---|
| CURING COMPOUND | ☐ | DAMP BURLAP OR FABRIC | ☐ | INSULATION (TARPS) | ☑ |
| POLYETHYLENE SHEETS | ☐ | WATER/FOG SPRAY/ PONDING | ☐ | FORMS (COVERED BY) Tarps | ☑ |

| COLD WEATHER REQUIREMENTS (WHEN AMB. TEMP < 5°C) | PASS | FAIL | N/A | REMARKS |
|---|---|---|---|---|
| Protection in place and temperatures not lower than 20°C or until 70% of the 28-day strength has been reached. | ☑ | ☐ | ☐ | |
| Cold weather protection provided by means of heated enclosures, coverings, insulation, or a suitable approved combination of these methods during complete curing period. | ☑ | ☐ | ☐ | |
| Concrete test cylinders are kept within hoarding or in area where temperatures are ideal for curing. (No frozen Cylinders) | ☑ | ☐ | ☐ | |
| Heat is not directed onto concrete. This may result in thermal cracking. | ☑ | ☐ | ☐ | |
| During freezing weather, and standing water removed before the end of the protection period (CSA A 23.1 clause 7.4.2.4.2) | ☑ | ☐ | ☐ | |

CONCRETE CURING TEMPERATURE LOG (COLD WEATHER CONCRETEING ONLY)

| DATE | | TIME (24 HR) | OUTSIDE AIR TEMP (°C) | TEMP INSIDE HOARDING (°C) | CONCRETE SURFACE TEMP (°C) | | INITIALS OF READER |
|---|---|---|---|---|---|---|---|
| | | | | | HIGH (°C) | LOW (°C) | |
| Dec 6 | AM | 1pm | -11 | +22 | +30 | +28 | DO |
| Dec 6 | MID | 4 pm | -10 | +23 | +29 | +28 | DO |
| Dec 6 | PM | 6 30 pm | -12 | +24 | +28 | +27 | DO |
| Dec 7 | AM | 702 Am | -12 | +32 | +40 | +37 | DO |
| DEC 7 | MID | 1 44 pm | -11 | +30 | +39 | +38 | DO |
| DEC 7 | PM | 617 pm | -6 | +27 | +35 | +33 | DO |
| Dec 8 | AM | 708 Am | -10 | +25 | +30 | +27 | DO |
| Dec 8 | MID | 12 NOON | -6 | +27 | +31 | +29 | DO |
| | PM | | | | | | |

COMMENTS:

**CLARK BUILDERS SITE REPRESENTATIVE**

PRINT/ SIGN: Dave DeLorme TITLE Carpenter Foreman DATE: Dec 7/18

# CONCRETE REINFORCEMENT PRE POUR

Rev 01 August 25, 2018

| | |
|---|---|
| SUBCONTRACTOR: Ultimate Reinforcing // McNish | INSPECTION DATE: DECEMBER 8, 2018 |
| SUBCONTRACTOR CONTACT PERSON: CLAYTON | PROJ. POUR DATE: DECEMBER 8, 2018 |
| INSPECTOR(S): Ryan deMilliano, Tawnya Thorton, Jerry Chrzaszcz | |
| LOCATION: 4300 TT4 / CWT PEDESTALS (x20) | |
| DRAWING REV: 00/01 | DRAWING NO.(S): 4360 / 0003 & 0005 |
| SPEC SECTION(S): S03 20 00 – Concrete Reinforcing Steel | |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Grade (400W unless otherwise noted) and type of steel delivered and installed as required by approved drawings. | ☑ | ☐ | ☐ |
| 2.0 | Inspect rebar distribution, spacing and cover per design/project requirements. | ☑ | ☐ | ☐ |
| 3.0 | Length of splices as specified | ☐ | ☐ | ☑ |
| 4.0 | Staggered splices as specified | ☐ | ☐ | ☑ |
| 5.0 | Any mechanical splices have been approved by the owner prior to install | ☐ | ☐ | ☑ |
| 6.0 | Bars cleaned and free of material that may reduce bond including loose rust, scale, oil, structural defects and that they are uncoated and unpainted. | ☑ | ☐ | ☐ |
| 7.0 | Dowels at wall ends, construction joints, and openings as specified (length, location, size, etc.) | ☑ | ☐ | ☐ |
| 8.0 | No unauthorized field bent bars including hooks installed | ☑ | ☐ | ☐ |
| 9.0 | Resolve conflicts between embedded items and reinforcement | ☑ | ☐ | ☐ |
| 10.0 | When authorized, field bends done without heat and inspected for fissures or cracks. | ☐ | ☐ | ☑ |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 11.0 | Bars tied and supported to prevent displacement | ☑ | ☐ | ☐ |
| 12.0 | Spacers, tie wire and chairs as required | ☑ | ☐ | ☐ |
| 13.0 | Conduits at design location and minimum separation from rebar as specified | ☐ | ☐ | ☑ |
| 14.0 | No contact of bars is made with dissimilar metals as per CSA A23.1 | ☑ | ☐ | ☐ |
| 15.0 | Bars, nails or tie wire not sticking out from surfaces that allow rusting/corrosion | ☑ | ☐ | ☐ |
| 16.0 | Rebar welds are inspected by qualified inspectors certified to CSA W178.2 | ☐ | ☐ | ☑ |
| 17.0 | No rebar congestion or other obstruction for deposit of concrete | ☑ | ☐ | ☐ |
| 18.0 | Adjustments required for interfering items (piping, inserts, sleeves, etc.) have been submitted and approved by owner. | ☑ | ☐ | ☐ |
| 19.0 | Rebar was stored off ground to prevent damage/corrosion | ☑ | ☐ | ☐ |
| 20.0 | Review drawings for anchors, piping, sleeves, boxes | ☑ | ☐ | ☐ |

COMMENTS:

All Top stirrups to be reviewed and moved as high as possible.

ATTACHMENT(S):

DWG. HIGHLIGHTED.

DEFICIENCIES NOTES:

Dowels at one Pedestal to be cut, too HIGH.

CLARK BUILDERS:

INSPECTOR: Ryan deMilliano TITLE Project Coordinator DATE: December 8, 2018

JDS ENERGY & MINING:

INSPECTOR: Tawnya Thornton TITLE Field Eng DATE: Dec 8, 2018

# FORMWORK & FALSEWORK PRE POUR | QA INSPECTION

Rev 01 August 25, 2018

| | |
|---|---|
| CONTRACTOR: Clark Builders | INSPECTION DATE: December 8, 2018 |
| CONTRACTOR CONTACT PERSON: James Meadahl | DATE OF POUR: December 8, 2018 |
| INSPECTOR(S): Ryan deMilliano, James Meadahl | |
| LOCATION: 4300 TT4 / CWT PEDESTALS (x20) | |
| DRAWING REV: 00/01 | DRAWING NO.(S): 4300 / 00038 0005 |
| | SPEC SECTION(S): 503-10-00 |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Location, survey, dimension and grades as required | ☑ | ☐ | ☐ |
| 2.0 | Plumbness and Flatness verified | ☑ | ☐ | ☐ |
| 3.0 | Joints are aligned and watertight. | ☑ | ☐ | ☐ |
| 4.0 | Formwork shop drawings are Engineered and reviewed | ☐ | ☐ | ☑ |
| 5.0 | Re-used formwork reconditioned and treated | ☑ | ☐ | ☐ |
| 6.0 | Formwork and ties according to finishing requirements. Confirm no holes in the concrete surface are greater than 25mm in diameter or expose steel at less than 25mm from surface. As per spec. | ☑ | ☐ | ☐ |
| 7.0 | Installation of embeds are located and secured | ☐ | ☐ | ☑ |
| 8.0 | Chamfer requirements checked. 25mm chamfers required for all exterior corners and edges exposed to view including horizontal edges of pads. | ☑ | ☐ | ☐ |
| 9.0 | Key ways and/or other provisions according to design are provided in construction joints | ☐ | ☐ | ☑ |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 10.0 | Inspect types of form spacers, ties and bracing. | ☑ | ☐ | ☐ |
| 11.0 | Spacing of ties to be set to a pattern | ☑ | ☐ | ☐ |
| 12.0 | Expansion, construction, contraction joints as required & located as coordinated with structural Engineer | ☐ | ☐ | ☑ |
| 13.0 | Forms secured against movement during placing | ☑ | ☐ | ☐ |
| 14.0 | Forms are braced for alignment and blow out | ☑ | ☐ | ☐ |
| 15.0 | Forms are cleaned of all debris, and dry, prior to concrete placement including standing water. | ☑ | ☐ | ☐ |
| 16.0 | Openings in formwork permit inspection and cleaning, placing and compaction of concrete, and forming and processing of construction joints. | ☑ | ☐ | ☐ |
| 17.0 | Formwork has been coated with release agent prior to rebar placement. | ☑ | ☐ | ☐ |
| 18.0 | Anchor Bolts and Embeds are secured to formwork. | ☑ | ☐ | ☐ |

COMMENTS:

ATTACHMENT(S):

DWG. HIGHLIGHTED.

DEFICIENCIES NOTES:

INITIAL INSPECTION

INSPECTOR: Ryan deMilliano TITLE Project Coordinator DATE: December 8, 2018

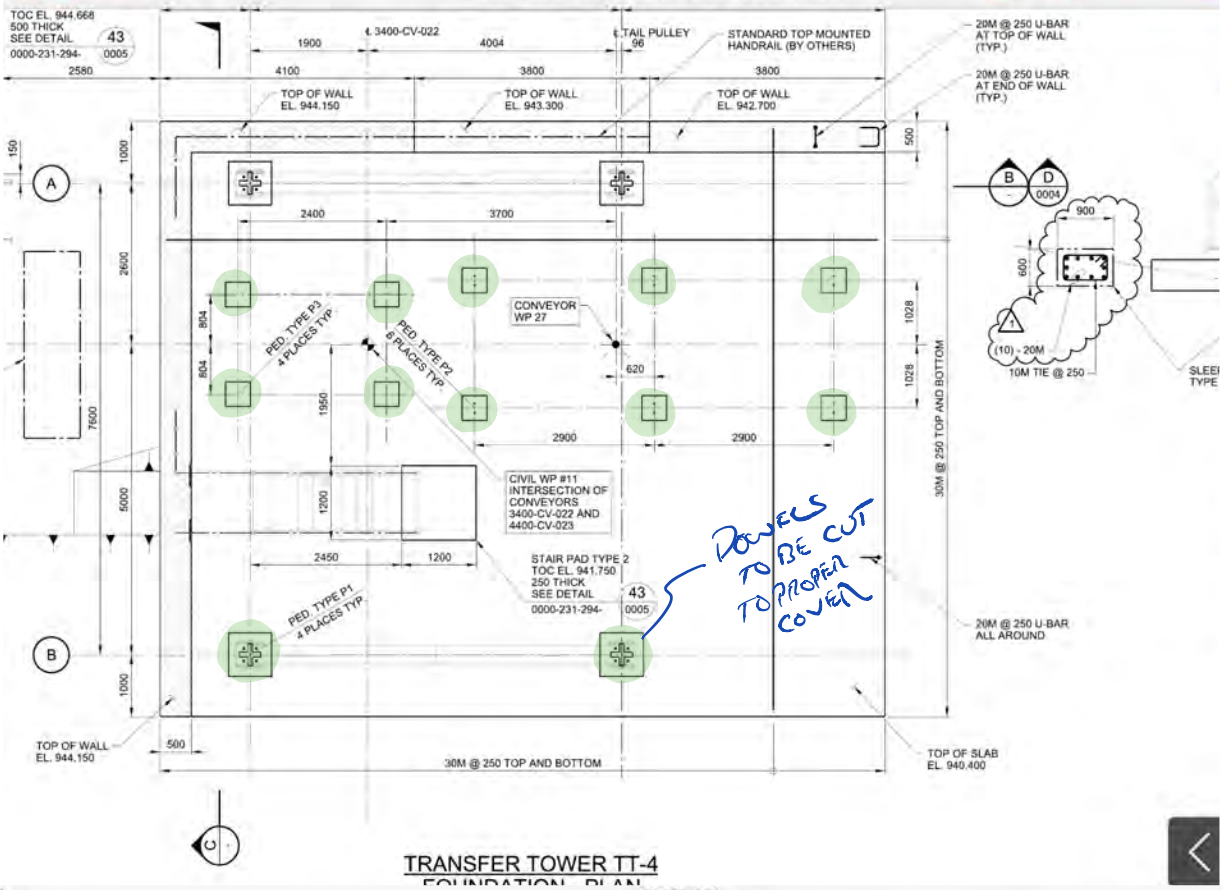
RE-INSPECTION (DEFICIENCIES COMPLETED)

INSPECTOR: _____ TITLE _____ DATE: _____

iPad 10:40 AM

Done

H354138-4300-231-260-0003 Rev 1




TRANSFER TOWER TT-4

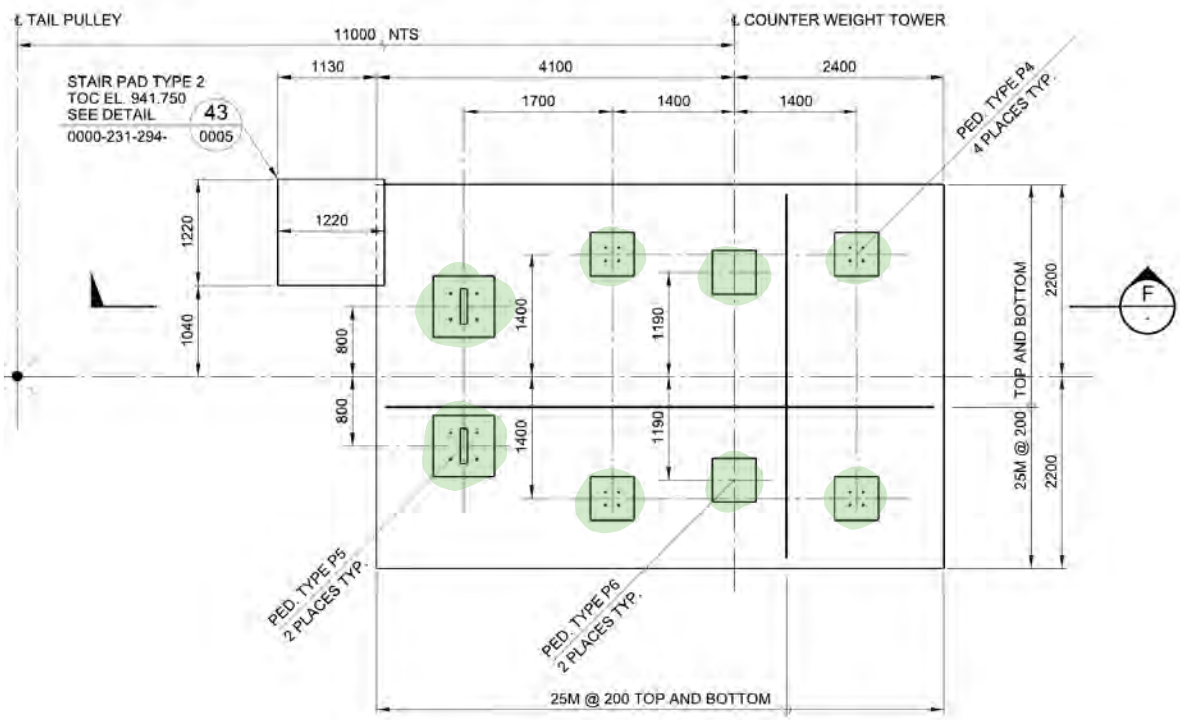
FOUNDATION PLAN

iPad 10:40 AM

Done

H354138-4300-231-260-0005 Rev 0

DWG. No.




4400-CV-023 COUNTER WEIGHT TOWER

FOUNDATION - PLAN

TOP OF PED. EL. 941.900 (TYP.)
U/S CONCRETE SLAB EL. 939.600

CB-INSPECTION FORM-DOC-002 REV.00
JDS ENERGY & MINING INC. | STRATAGOLD EAGLE GOLD
PROJECT #: CB201 | 18502

PROJECT MANAGER: DUSTIN DOLYNCHUK, P.ENG
QA/QC COORDINATOR: RYAN DE MILLIANO, C.E.T.
SUPERINTENDENT: GARRY DAHL

# CONCRETE REINFORCEMENT PRE POUR

Rev 01 August 25, 2018

| | |
|---|---|
| SUBCONTRACTOR: Ultimate Reinforcing // McNish | INSPECTION DATE: DECEMBER 13, 2018 |
| SUBCONTRACTOR CONTACT PERSON: CLAYTON | PROJ. POUR DATE: DECEMBER 13, 2018 |
| INSPECTOR(S): Garry Dahl | |
| LOCATION: 4300 TTH PEDESTALS (x2) | |
| DRAWING REV: 01 / DRAWING NO.(S): 4300 - 0003 | SPEC SECTION(S): S03 20 00 – Concrete Reinforcing Steel |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Grade (400W unless otherwise noted) and type of steel delivered and installed as required by approved drawings. | ☑ | ☐ | ☐ |
| 2.0 | Inspect rebar distribution, spacing and cover per design/project requirements. | ☑ | ☐ | ☐ |
| 3.0 | Length of splices as specified | ☑ | ☐ | ☐ |
| 4.0 | Staggered splices as specified | ☑ | ☐ | ☐ |
| 5.0 | Any mechanical splices have been approved by the owner prior to install | ☐ | ☐ | ☑ |
| 6.0 | Bars cleaned and free of material that may reduce bond including loose rust, scale, oil, structural defects and that they are uncoated and unpainted. | ☑ | ☐ | ☐ |
| 7.0 | Dowels at wall ends, construction joints, and openings as specified (length, location, size, etc.) | ☑ | ☐ | ☐ |
| 8.0 | No unauthorized field bent bars including hooks installed | ☑ | ☐ | ☐ |
| 9.0 | Resolve conflicts between embedded items and reinforcement | ☑ | ☐ | ☐ |
| 10.0 | When authorized, field bends done without heat and inspected for fissures or cracks | ☐ | ☐ | ☑ |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 11.0 | Bars tied and supported to prevent displacement | ☑ | ☐ | ☐ |
| 12.0 | Spacers, tie wire and chairs as required | ☑ | ☐ | ☐ |
| 13.0 | Conduits at design location and minimum separation from rebar as specified | ☐ | ☐ | ☑ |
| 14.0 | No contact of bars is made with dissimilar metals as per CSA A23.1 | ☑ | ☐ | ☐ |
| 15.0 | Bars, nails or tie wire not sticking out from surfaces that allow rusting/corrosion | ☑ | ☐ | ☐ |
| 16.0 | Rebar welds are inspected by qualified inspectors certified to CSA W178.2 | ☐ | ☐ | ☑ |
| 17.0 | No rebar congestion or other obstruction for deposit of concrete | ☑ | ☐ | ☐ |
| 18.0 | Adjustments required for interfering items (piping, inserts, sleeves, etc.) have been submitted and approved by owner. | ☑ | ☐ | ☐ |
| 19.0 | Rebar was stored off ground to prevent damage/corrosion | ☑ | ☐ | ☐ |
| 20.0 | Review drawings for anchors, piping, sleeves, boxes | ☑ | ☐ | ☐ |

COMMENTS:

Trim Dowells exceeding MIN COVER
Tie Dowells in 3 locations

ATTACHMENT(S):

DEFICIENCIES NOTES:

CLARK BUILDERS:
INSPECTOR: Garry Dahl // TITLE SUPERINTENDENT DATE: Dec 12/18
MM ON BEHALF OF GARRY.

JDS ENERGY & MINING:
INSPECTOR: Matt Caverdale MMC TITLE Field Eng DATE: Dec 12/18

CB-INSPECTION FORM-DOC-002 REV.00
JDS ENERGY & MINING INC. | STRATAGOLD EAGLE GOLD
PROJECT #: CB201 | 18502

PROJECT MANAGER: DUSTIN DOLYNCHUK, P.ENG
QA/QC COORDINATOR: RYAN DE MILLIANO, C.E.T.
SUPERINTENDENT: GARRY DAHL

# FORMWORK & FALSEWORK PRE POUR | QA INSPECTION

Rev 01 August 25, 2018

| | |
|---|---|
| CONTRACTOR: Clark Builders | INSPECTION DATE: December 13, 2018 |
| CONTRACTOR CONTACT PERSON: Dave Delorme. | DATE OF POUR: DECEMBER 13, 2018 |
| INSPECTOR(S): Garry Dahl | |
| LOCATION: 4300 TTH PEDESTALS (X2) | |
| DRAWING REV: 01 / DRAWING NO.(S): 4300-0003 | SPEC SECTION(S): 503 1000 |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Location, survey, dimension and grades as required | ☑ | ☐ | ☐ |
| 2.0 | Plumbness and Flatness verified | ☑ | ☐ | ☐ |
| 3.0 | Joints are aligned and watertight. | ☑ | ☐ | ☐ |
| 4.0 | Formwork shop drawings are Engineered and reviewed | ☐ | ☐ | ☑ |
| 5.0 | Re-used formwork reconditioned and treated | ☑ | ☐ | ☐ |
| 6.0 | Formwork and ties according to finishing requirements. Confirm no holes in the concrete surface are greater than 25mm in diameter or expose steel at less than 25mm from surface. As per spec. | ☑ | ☐ | ☐ |
| 7.0 | Installation of embeds are located and secured | ☐ | ☐ | ☑ |
| 8.0 | Chamfer requirements checked. 25mm chamfers required for all exterior corners and edges exposed to view including horizontal edges of pads. | ☑ | ☐ | ☐ |
| 9.0 | Key ways and/or other provisions according to design are provided in construction joints | ☐ | ☐ | ☑ |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 10.0 | Inspect types of form spacers, ties and bracing. | ☑ | ☐ | ☐ |
| 11.0 | Spacing of ties to be set to a pattern | ☑ | ☐ | ☐ |
| 12.0 | Expansion, construction, contraction joints as required & located as coordinated with structural Engineer | ☑ | ☐ | ☐ |
| 13.0 | Forms secured against movement during placing | ☑ | ☐ | ☐ |
| 14.0 | Forms are braced for alignment and blow out | ☑ | ☐ | ☐ |
| 15.0 | Forms are cleaned of all debris, and dry, prior to concrete placement including standing water. | ☑ | ☐ | ☐ |
| 16.0 | Openings in formwork permit inspection and cleaning, placing and compaction of concrete, and forming and processing of construction joints. | ☑ | ☐ | ☐ |
| 17.0 | Formwork has been coated with release agent prior to rebar placement. | ☑ | ☐ | ☐ |
| 18.0 | Anchor Bolts and Embeds are secured to formwork. | ☐ | ☐ | ☑ |

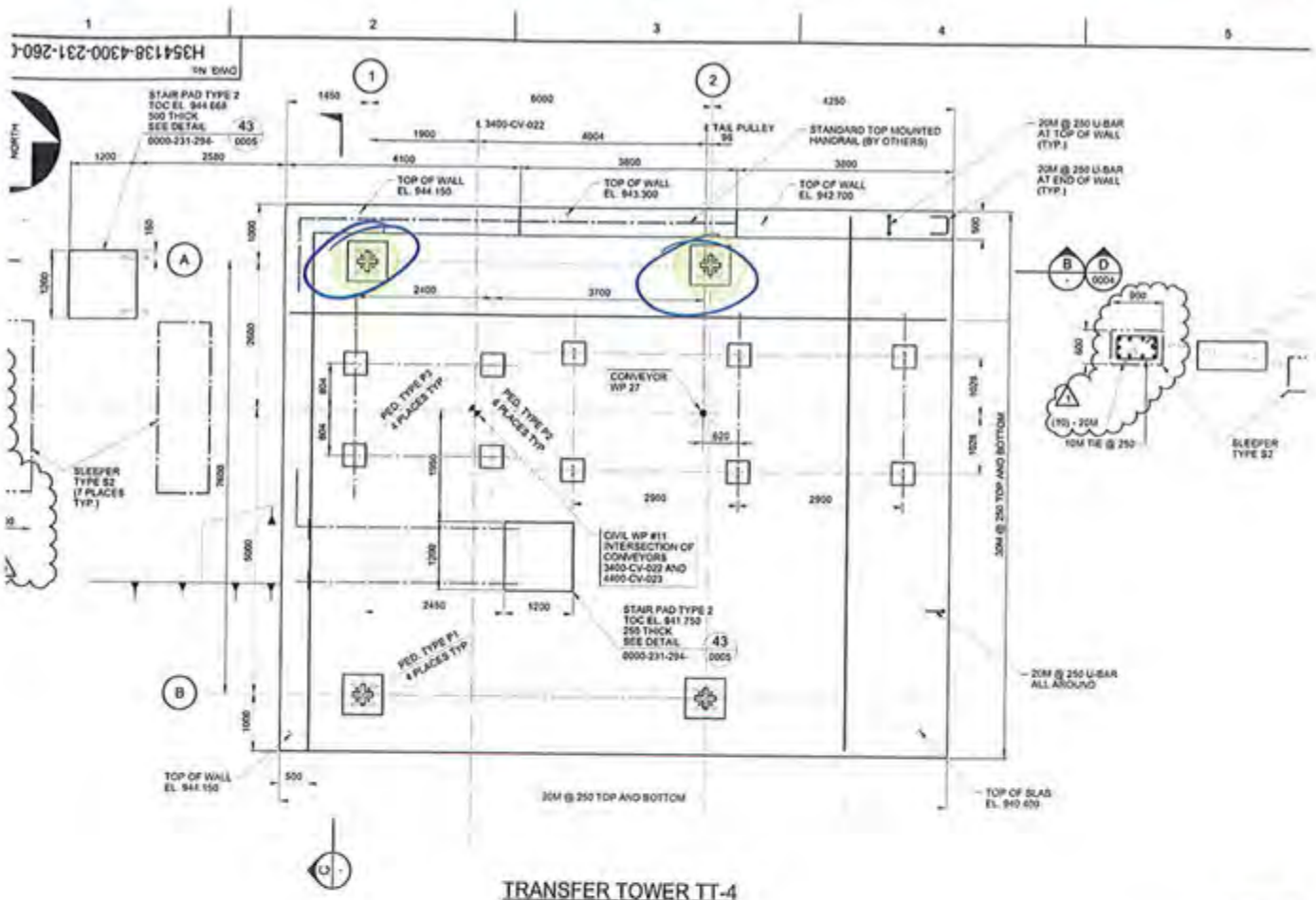
COMMENTS:

ATTACHMENT(S): PWC (HIGHLIGHTED)

DEFICIENCIES NOTES:

INITIAL INSPECTION
INSPECTOR: Garry Dahl // TITLE Superintendent. DATE: Dec 12, 2018

RE-INSPECTION (DEFICIENCIES COMPLETED)
INSPECTOR: Matt Caerdale MME TITLE Field Eng DATE: Dec 12, 2018.




## TRANSFER TOWER TT-4
## FOUNDATION - PLAN

TOP OF PED. EL. 941.900 (TYP.)
U/S CONCRETE SLAB EL. 939.600

CLARK BUILDERS
ENERGY & RESOURCES

# CONCRETE REINFORCEMENT PRE POUR

Rev 01 August 25, 2018

| | |
|---|---|
| SUBCONTRACTOR: Ultimate Reinforcing // McNish | INSPECTION DATE: DECEMBER 14, 2018 |
| SUBCONTRACTOR CONTACT PERSON: CLAYTON / THOMAS. | PROJ. POUR DATE: DECEMBER 14, 2018 |
| INSPECTOR(S): Ryan deMilliano | |
| LOCATION: 4300 CV023 BENT 1 (x2) / BENT 2 (x1 of 2) PEDESTALS. | |
| DRAWING REV: 03 / DRAWING NO.(S): 4300-0006 | SPEC SECTION(S): S03 20 00 – Concrete Reinforcing Steel |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Grade (400W unless otherwise noted) and type of steel delivered and installed as required by approved drawings. | ☑ | ☐ | ☐ |
| 2.0 | Inspect rebar distribution, spacing and cover per design/project requirements. | ☑ | ☐ | ☐ |
| 3.0 | Length of splices as specified | ☑ | ☐ | ☐ |
| 4.0 | Staggered splices as specified | ☑ | ☐ | ☐ |
| 5.0 | Any mechanical splices have been approved by the owner prior to install | ☐ | ☐ | ☑ |
| 6.0 | Bars cleaned and free of material that may reduce bond including loose rust, scale, oil, structural defects and that they are uncoated and unpainted. | ☑ | ☐ | ☐ |
| 7.0 | Dowels at wall ends, construction joints, and openings as specified (length, location, size, etc.) | ☑ | ☐ | ☐ |
| 8.0 | No unauthorized field bent bars including hooks installed | ☑ | ☐ | ☐ |
| 9.0 | Resolve conflicts between embedded items and reinforcement | ☑ | ☐ | ☐ |
| 10.0 | When authorized, field bends done without heat and inspected for fissures or cracks. | ☐ | ☐ | ☑ |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 11.0 | Bars tied and supported to prevent displacement | ☑ | ☐ | ☐ |
| 12.0 | Spacers, tie wire and chairs as required | ☑ | ☐ | ☐ |
| 13.0 | Conduits at design location and minimum separation from rebar as specified | ☑ | ☐ | ☐ |
| 14.0 | No contact of bars is made with dissimilar metals as per CSA A23.1 | ☑ | ☐ | ☐ |
| 15.0 | Bars, nails or tie wire not sticking out from surfaces that allow rusting/corrosion | ☑ | ☐ | ☐ |
| 16.0 | Rebar welds are inspected by qualified inspectors certified to CSA W178.2 | ☐ | ☐ | ☑ |
| 17.0 | No rebar congestion or other obstruction for deposit of concrete | ☑ | ☐ | ☐ |
| 18.0 | Adjustments required for interfering items (piping, inserts, sleeves, etc.) have been submitted and approved by owner. | ☑ | ☐ | ☐ |
| 19.0 | Rebar was stored off ground to prevent damage/corrosion | ☑ | ☐ | ☐ |
| 20.0 | Review drawings for anchors, piping, sleeves, boxes | ☑ | ☐ | ☐ |

COMMENTS:

ATTACHMENT(S): DWGs

DEFICIENCIES NOTES:

CLARK BUILDERS:
INSPECTOR: Ryan deMilliano // TITLE Project Coordinator DATE: December 13, 2018

JDS ENERGY & MINING:
INSPECTOR: Matt Coverdale MCVC TITLE Field Eng DATE: Dec 14, 2018

CLARK BUILDERS
ENERGY & RESOURCES

# FORMWORK & FALSEWORK PRE POUR | QA INSPECTION

Rev 01 August 25, 2018

| | |
|---|---|
| CONTRACTOR: Clark Builders | INSPECTION DATE: December 14, 2018 |
| CONTRACTOR CONTACT PERSON: DAN DELORME | DATE OF POUR: DECEMBER 14, 2018 |
| INSPECTOR(S): Ryan deMilliano. | |
| LOCATION: 4300 CV023 BENT 1 (x2) / BENT 2 (x1 OF 2) PEDESTALS. | |
| DRAWING REV: 03 / DRAWING NO.(S): 4300-0006 | SPEC SECTION(S): 503100 |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Location, survey, dimension and grades as required | ☑ | ☐ | ☐ |
| 2.0 | Plumbness and Flatness verified | ☑ | ☐ | ☐ |
| 3.0 | Joints are aligned and watertight. | ☑ | ☐ | ☐ |
| 4.0 | Formwork shop drawings are Engineered and reviewed | ☐ | ☐ | ☑ |
| 5.0 | Re-used formwork reconditioned and treated | ☑ | ☐ | ☐ |
| 6.0 | Formwork and ties according to finishing requirements. Confirm no holes in the concrete surface are greater than 25mm in diameter or expose steel at less than 25mm from surface. As per spec. | ☑ | ☐ | ☐ |
| 7.0 | Installation of embeds are located and secured | ☐ | ☐ | ☑ |
| 8.0 | Chamfer requirements checked. 25mm chamfers required for all exterior corners and edges exposed to view including horizontal edges of pads. | ☑ | ☐ | ☐ |
| 9.0 | Key ways and/or other provisions according to design are provided in construction joints | ☐ | ☐ | ☑ |
| 10.0 | Inspect types of form spacers, ties and bracing. | ☑ | ☐ | ☐ |
| 11.0 | Spacing of ties to be set to a pattern | ☑ | ☐ | ☐ |
| 12.0 | Expansion, construction, contraction joints as required & located as coordinated with structural Engineer | ☑ | ☐ | ☐ |
| 13.0 | Forms secured against movement during placing | ☑ | ☐ | ☐ |
| 14.0 | Forms are braced for alignment and blow out | ☑ | ☐ | ☐ |
| 15.0 | Forms are cleaned of all debris, and dry, prior to concrete placement including standing water. | ☑ | ☐ | ☐ |
| 16.0 | Openings in formwork permit inspection and cleaning, placing and compaction of concrete, and forming and processing of construction joints. | ☑ | ☐ | ☐ |
| 17.0 | Formwork has been coated with release agent prior to rebar placement. | ☑ | ☐ | ☐ |
| 18.0 | Anchor Bolts and Embeds are secured to formwork. | ☐ | ☐ | ☑ |

| COMMENTS: | ATTACHMENT(S): |
|---|---|
| TEMP INSIDE FORMWORK PRIOR TO POUR +25°C → +30°C | DWG |
| | |

DEFICIENCIES NOTES:

INITIAL INSPECTION
INSPECTOR: Ryan deMilliano TITLE Project Coordinator DATE: DECEMBER 13, 2018

RE-INSPECTION (DEFICIENCIES COMPLETED)
INSPECTOR: Matt Caverdale TITLE Field Eng DATE: Dec 14, 2018

Last

# H354138-4300-231-260-0006 Rev 3




4400-CV-023 CONVEYOR BENT 2
FOUNDATION - PLAN
TOP OF PED. EL. 951.150 (TYP.)
U/S CONCRETE SLAB EL. 946.500 946.500

4400-CV-023 CONVEYOR BENT 1
FOUNDATION - PLAN
TOP OF PED. EL. 951.150 (TYP.)
U/S CONCRETE FTG. EL. 947.500 946.500

# CONCRETE REINFORCEMENT PRE POUR

Rev 01 August 25, 2018

| | |
|---|---|
| SUBCONTRACTOR: Ultimate Reinforcing // McNish | INSPECTION DATE: December 14, 2018 |
| SUBCONTRACTOR CONTACT PERSON: Clayton / Thomas. | PROJ. POUR DATE: December 14, 2018 |
| INSPECTOR(S): Ryan deMilliano | |
| LOCATION: 4300 CV023 Bent 1 / Bent 2 Pedestals. | |
| DRAWING REV: 03 / DRAWING NO.(S): 4300-6006 | SPEC SECTION(S): S03 20 00 – Concrete Reinforcing Steel |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Grade (400W unless otherwise noted) and type of steel delivered and installed as required by approved drawings. | ☑ | ☐ | ☐ |
| 2.0 | Inspect rebar distribution, spacing and cover per design/project requirements. | ☑ | ☐ | ☐ |
| 3.0 | Length of splices as specified | ☑ | ☐ | ☐ |
| 4.0 | Staggered splices as specified | ☑ | ☐ | ☐ |
| 5.0 | Any mechanical splices have been approved by the owner prior to install | ☐ | ☐ | ☑ |
| 6.0 | Bars cleaned and free of material that may reduce bond including loose rust, scale, oil, structural defects and that they are uncoated and unpainted. | ☑ | ☐ | ☐ |
| 7.0 | Dowels at wall ends, construction joints, and openings as specified (length, location, size, etc.) | ☑ | ☐ | ☐ |
| 8.0 | No unauthorized field bent bars including hooks installed | ☑ | ☐ | ☐ |
| 9.0 | Resolve conflicts between embedded items and reinforcement | ☑ | ☐ | ☐ |
| 10.0 | When authorized, field bends done without heat and inspected for fissures or cracks. | ☐ | ☐ | ☑ |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 11.0 | Bars tied and supported to prevent displacement | ☑ | ☐ | ☐ |
| 12.0 | Spacers, tie wire and chairs as required | ☑ | ☐ | ☐ |
| 13.0 | Conduits at design location and minimum separation from rebar as specified | ☑ | ☐ | ☐ |
| 14.0 | No contact of bars is made with dissimilar metals as per CSA A23.1 | ☑ | ☐ | ☐ |
| 15.0 | Bars, nails or tie wire not sticking out from surfaces that allow rusting/corrosion | ☑ | ☐ | ☐ |
| 16.0 | Rebar welds are inspected by qualified inspectors certified to CSA W178.2 | ☐ | ☐ | ☑ |
| 17.0 | No rebar congestion or other obstruction for deposit of concrete | ☑ | ☐ | ☐ |
| 18.0 | Adjustments required for interfering items (piping, inserts, sleeves, etc.) have been submitted and approved by owner. | ☑ | ☐ | ☐ |
| 19.0 | Rebar was stored off ground to prevent damage/corrosion | ☑ | ☐ | ☐ |
| 20.0 | Review drawings for anchors, piping, sleeves, boxes | ☑ | ☐ | ☐ |

COMMENTS:

Chair pads to achieve cover

ATTACHMENT(S):

Dwgs

DEFICIENCIES NOTES:

CLARK BUILDERS:

INSPECTOR: Ryan deMilliano TITLE Project Coordinator DATE: December 13, 2018

JDS ENERGY & MINING:

INSPECTOR: Matt Caverdale MC TITLE Field Eng DATE: Dec 13, 2018

# FORMWORK & FALSEWORK PRE POUR | QA INSPECTION

Rev 01 August 25, 2018

| | |
|---|---|
| CONTRACTOR: Clark Builders | INSPECTION DATE: December 14, 2018 |
| CONTRACTOR CONTACT PERSON: DAVE DELORME | DATE OF POUR: DECEMBER 14, 2018 / 16th. |
| INSPECTOR(S): Ryan deMilliano. | |
| LOCATION: 4300 CV023 BENT 1 / BENT 2 PEDESTALS. | |
| DRAWING REV: 03 | DRAWING NO.(S): 4300-0006 |
| SPEC SECTION(S): 503100 | |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Location, survey, dimension and grades as required | ☑ | ☐ | ☐ |
| 2.0 | Plumbness and Flatness verified | ☑ | ☐ | ☐ |
| 3.0 | Joints are aligned and watertight. | ☑ | ☐ | ☐ |
| 4.0 | Formwork shop drawings are Engineered and reviewed | ☐ | ☐ | ☑ |
| 5.0 | Re-used formwork reconditioned and treated | ☑ | ☐ | ☐ |
| 6.0 | Formwork and ties according to finishing requirements. Confirm no holes in the concrete surface are greater than 25mm in diameter or expose steel at less than 25mm from surface. As per spec. | ☑ | ☐ | ☐ |
| 7.0 | Installation of embeds are located and secured | ☐ | ☐ | ☑ |
| 8.0 | Chamfer requirements checked. 25mm chamfers required for all exterior corners and edges exposed to view including horizontal edges of pads. | ☑ | ☐ | ☐ |
| 9.0 | Key ways and/or other provisions according to design are provided in construction joints | ☐ | ☐ | ☑ |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 10.0 | Inspect types of form spacers, ties and bracing. | ☑ | ☐ | ☐ |
| 11.0 | Spacing of ties to be set to a pattern | ☑ | ☐ | ☐ |
| 12.0 | Expansion, construction, contraction joints as required & located as coordinated with structural Engineer | ☑ | ☐ | ☐ |
| 13.0 | Forms secured against movement during placing | ☑ | ☐ | ☐ |
| 14.0 | Forms are braced for alignment and blow out | ☑ | ☐ | ☐ |
| 15.0 | Forms are cleaned of all debris, and dry, prior to concrete placement including standing water. | ☑ | ☐ | ☐ |
| 16.0 | Openings in formwork permit inspection and cleaning, placing and compaction of concrete, and forming and processing of construction joints. | ☑ | ☐ | ☐ |
| 17.0 | Formwork has been coated with release agent prior to rebar placement. | ☑ | ☐ | ☐ |
| 18.0 | Anchor Bolts and Embeds are secured to formwork. | ☐ | ☐ | ☑ |

COMMENTS:

TEMP INSIDE FORMWORK PRIOR TO POUR +25°C → +30°C

ATTACHMENT(S):

DWG.

DEFICIENCIES NOTES:

INITIAL INSPECTION

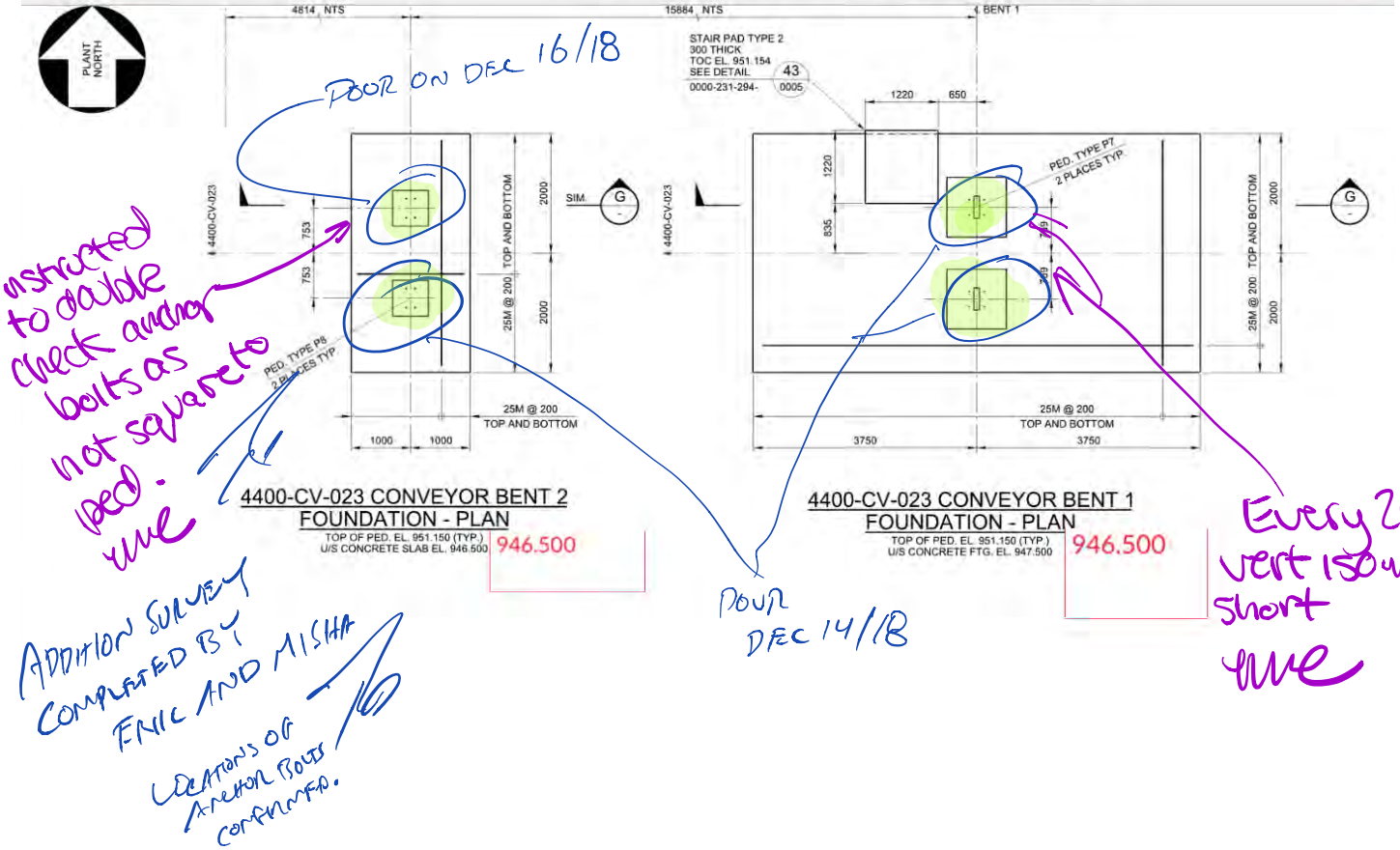
INSPECTOR: Ryan deMilliano TITLE Project Coordinator DATE: DECEMBER 13, 2018

RE-INSPECTION (DEFICIENCIES COMPLETED)

INSPECTOR: Matt Cavedale MC TITLE Field Eng DATE: Dec 13, 2018

Last

# H354138-4300-231-260-0006 Rev 3




4400-CV-023 CONVEYOR BENT 2
FOUNDATION - PLAN

TOP OF PED. EL. 951.150 (TYP.)
U/S CONCRETE SLAB EL. 946.500 946.500

4400-CV-023 CONVEYOR BENT 1
FOUNDATION - PLAN

TOP OF PED. EL. 951.150 (TYP.)
U/S CONCRETE FTG. EL. 947.500 946.500

POUR ON DEC 16/18

instructed to double check anchor bolts as not square to bed. ymc

ADDITION SURVEY COMPLETED BY ENIC AND MISHA

LOCATIONS OF ANCHOR BOLTS CONFIRMED.

POUR DEC 14/18

Every 2nd vert 150mm short ymc

# CONCRETE REINFORCEMENT PRE POUR

Rev 01 August 25, 2018

| | |
|---|---|
| SUBCONTRACTOR: Ultimate Reinforcing // McNish | INSPECTION DATE: December 16, 2018 |
| SUBCONTRACTOR CONTACT PERSON: Clayton / Thomas. | PROJ. POUR DATE: December 16, 2018 |
| INSPECTOR(S): Ryan deMilliano | |
| LOCATION: 4300 Screw Conveyor Pedestals. (x2) | |
| DRAWING REV: 02 / DRAWING NO.(S): 4300-0002 | SPEC SECTION(S): S03 20 00 – Concrete Reinforcing Steel |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Grade (400W unless otherwise noted) and type of steel delivered and installed as required by approved drawings. | ☑ | ☐ | ☐ |
| 2.0 | Inspect rebar distribution, spacing and cover per design/project requirements. | ☑ | ☐ | ☐ |
| 3.0 | Length of splices as specified | ☑ | ☐ | ☐ |
| 4.0 | Staggered splices as specified | ☑ | ☐ | ☐ |
| 5.0 | Any mechanical splices have been approved by the owner prior to install | ☐ | ☐ | ☑ |
| 6.0 | Bars cleaned and free of material that may reduce bond including loose rust, scale, oil, structural defects and that they are uncoated and unpainted. | ☑ | ☐ | ☐ |
| 7.0 | Dowels at wall ends, construction joints, and openings as specified (length, location, size, etc.) | ☐ | ☐ | ☑ |
| 8.0 | No unauthorized field bent bars including hooks installed | ☑ | ☐ | ☐ |
| 9.0 | Resolve conflicts between embedded items and reinforcement | ☑ | ☐ | ☐ |
| 10.0 | When authorized, field bends done without heat and inspected for fissures or cracks. | ☐ | ☐ | ☑ |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 11.0 | Bars tied and supported to prevent displacement | ☑ | ☐ | ☐ |
| 12.0 | Spacers, tie wire and chairs as required | ☑ | ☐ | ☐ |
| 13.0 | Conduits at design location and minimum separation from rebar as specified | ☐ | ☐ | ☑ |
| 14.0 | No contact of bars is made with dissimilar metals as per CSA A23.1 | ☑ | ☐ | ☐ |
| 15.0 | Bars, nails or tie wire not sticking out from surfaces that allow rusting/corrosion | ☑ | ☐ | ☐ |
| 16.0 | Rebar welds are inspected by qualified inspectors certified to CSA W178.2 | ☐ | ☐ | ☑ |
| 17.0 | No rebar congestion or other obstruction for deposit of concrete | ☑ | ☐ | ☐ |
| 18.0 | Adjustments required for interfering items (piping, inserts, sleeves, etc.) have been submitted and approved by owner. | ☑ | ☐ | ☐ |
| 19.0 | Rebar was stored off ground to prevent damage/corrosion | ☑ | ☐ | ☐ |
| 20.0 | Review drawings for anchors, piping, sleeves, boxes | ☑ | ☐ | ☐ |

COMMENTS:

ATTACHMENT(S):

DEFICIENCIES NOTES:

CLARK BUILDERS:

INSPECTOR: Ryan deMilliano TITLE Project Coordinator DATE: December 16/18

JDS ENERGY & MINING:

INSPECTOR: [signature] TITLE Field Engr DATE: Dec 16/18

# FORMWORK & FALSEWORK PRE POUR | QA INSPECTION

Rev 01 August 25, 2018

| | |
|---|---|
| CONTRACTOR: Clark Builders | INSPECTION DATE: DECEMBER 16, 2018 |
| CONTRACTOR CONTACT PERSON: DAVE DELORME | DATE OF POUR: DECEMBER 16, 2018 |
| INSPECTOR(S): Ryan deMilliano | |
| LOCATION: 4300 SCREEN CONVEYOR PEDESTALS (x2) | |
| DRAWING REV: 02 / DRAWING NO.(S): 4300-0002 | SPEC SECTION(S): 503 1000 |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Location, survey, dimension and grades as required | ☑ | ☐ | ☐ |
| 2.0 | Plumbness and Flatness verified | ☑ | ☐ | ☐ |
| 3.0 | Joints are aligned and watertight. | ☑ | ☐ | ☐ |
| 4.0 | Formwork shop drawings are Engineered and reviewed | ☐ | ☐ | ☑ |
| 5.0 | Re-used formwork reconditioned and treated | ☑ | ☐ | ☐ |
| 6.0 | Formwork and ties according to finishing requirements. Confirm no holes in the concrete surface are greater than 25mm in diameter or expose steel at less than 25mm from surface. As per spec. | ☑ | ☐ | ☐ |
| 7.0 | Installation of embeds are located and secured | ☐ | ☐ | ☑ |
| 8.0 | Chamfer requirements checked. 25mm chamfers required for all exterior corners and edges exposed to view including horizontal edges of pads. | ☑ | ☐ | ☐ |
| 9.0 | Key ways and/or other provisions according to design are provided in construction joints | ☐ | ☐ | ☑ |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 10.0 | Inspect types of form spacers, ties and bracing. | ☑ | ☐ | ☐ |
| 11.0 | Spacing of ties to be set to a pattern | ☑ | ☐ | ☐ |
| 12.0 | Expansion, construction, contraction joints as required & located as coordinated with structural Engineer | ☑ | ☐ | ☐ |
| 13.0 | Forms secured against movement during placing | ☑ | ☐ | ☐ |
| 14.0 | Forms are braced for alignment and blow out | ☑ | ☐ | ☐ |
| 15.0 | Forms are cleaned of all debris, and dry, prior to concrete placement including standing water. | ☑ | ☐ | ☐ |
| 16.0 | Openings in formwork permit inspection and cleaning, placing and compaction of concrete, and forming and processing of construction joints. | ☑ | ☐ | ☐ |
| 17.0 | Formwork has been coated with release agent prior to rebar placement. | ☑ | ☐ | ☐ |
| 18.0 | Anchor Bolts and Embeds are secured to formwork. | ☐ | ☐ | ☑ |

| COMMENTS: | ATTACHMENT(S): |
|---|---|
| | DWGS. |

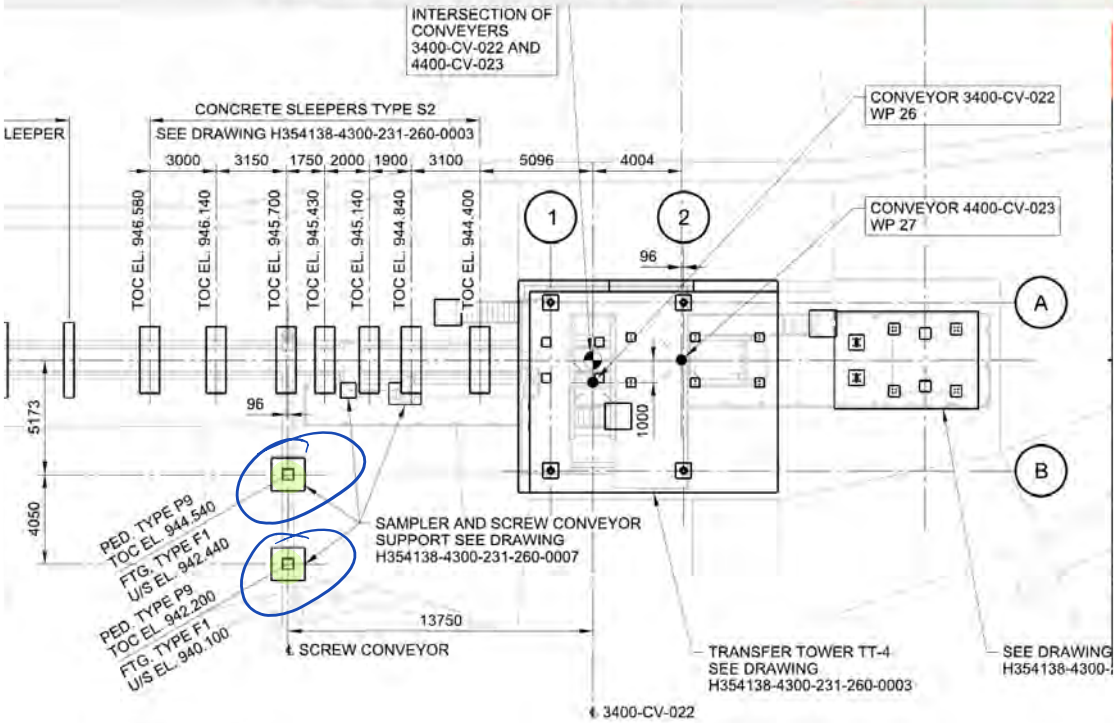
DEFICIENCIES NOTES:

INITIAL INSPECTION

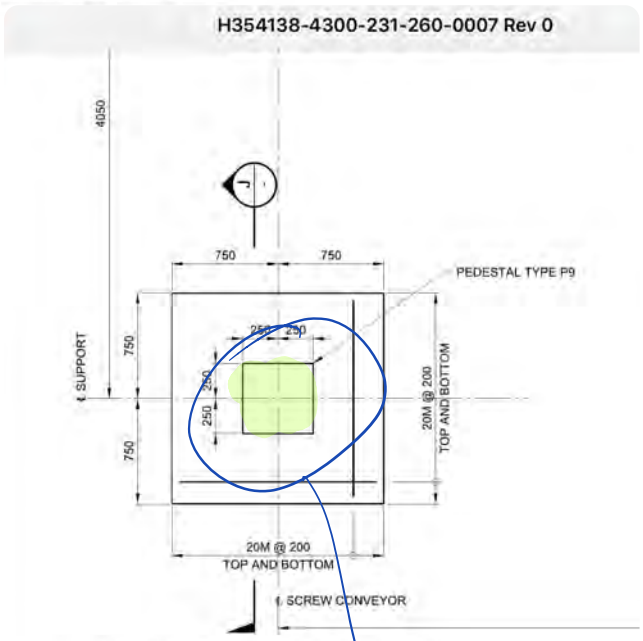
INSPECTOR: Ryan deMilliano TITLE Project Coordinator DATE: December 16, 2018

RE-INSPECTION (DEFICIENCIES COMPLETED)

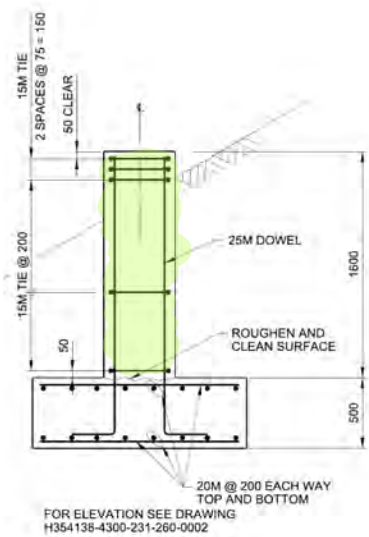
INSPECTOR: Matt Cavendale TITLE Field Eng DATE: DEC 16, 2018



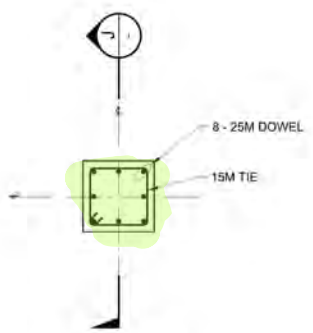

## 'OR FOUNDATION
## GEMENT - PLAN




SCREW CONVEYOR SUPPORT
FOORING TYPE F1




SECTION J




REINFORCEMENT
PEDESTAL TYPE P9
SCALE: 1:25

700 X 700 AS BUILT.
AT BOTH LOCATIONS.

# CONCRETE REINFORCEMENT PRE POUR

Rev 01 August 25, 2018

| | |
|---|---|
| SUBCONTRACTOR: Ultimate Reinforcing // McNish | INSPECTION DATE: December 15, 2018 |
| SUBCONTRACTOR CONTACT PERSON: | PROJ. POUR DATE: December 15, 2018 |
| INSPECTOR(S): Ryan deMilliano | |
| LOCATION: 4300 Screw Conveyor Footings (x2) | |
| DRAWING REV: 00 / DRAWING NO.(S): 4300-0007 | SPEC SECTION(S): S03 20 00 – Concrete Reinforcing Steel |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Grade (400W unless otherwise noted) and type of steel delivered and installed as required by approved drawings. | ☑ | ☐ | ☐ |
| 2.0 | Inspect rebar distribution, spacing and cover per design/project requirements. | ☑ | ☐ | ☐ |
| 3.0 | Length of splices as specified | ☑ | ☐ | ☐ |
| 4.0 | Staggered splices as specified | ☑ | ☐ | ☐ |
| 5.0 | Any mechanical splices have been approved by the owner prior to install | ☐ | ☐ | ☑ |
| 6.0 | Bars cleaned and free of material that may reduce bond including loose rust, scale, oil, structural defects and that they are uncoated and unpainted. | ☑ | ☐ | ☐ |
| 7.0 | Dowels at wall ends, construction joints, and openings as specified (length, location, size, etc.) | ☐ | ☐ | ☑ |
| 8.0 | No unauthorized field bent bars including hooks installed | ☑ | ☐ | ☐ |
| 9.0 | Resolve conflicts between embedded items and reinforcement | ☑ | ☐ | ☐ |
| 10.0 | When authorized, field bends done without heat and inspected for fissures or cracks. | ☐ | ☐ | ☑ |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 11.0 | Bars tied and supported to prevent displacement | ☑ | ☐ | ☐ |
| 12.0 | Spacers, tie wire and chairs as required | ☑ | ☐ | ☐ |
| 13.0 | Conduits at design location and minimum separation from rebar as specified | ☐ | ☐ | ☑ |
| 14.0 | No contact of bars is made with dissimilar metals as per CSA A23.1 | ☑ | ☐ | ☐ |
| 15.0 | Bars, nails or tie wire not sticking out from surfaces that allow rusting/corrosion | ☑ | ☐ | ☐ |
| 16.0 | Rebar welds are inspected by qualified inspectors certified to CSA W178.2 | ☐ | ☐ | ☑ |
| 17.0 | No rebar congestion or other obstruction for deposit of concrete | ☑ | ☐ | ☐ |
| 18.0 | Adjustments required for interfering items (piping, inserts, sleeves, etc.) have been submitted and approved by owner. | ☑ | ☐ | ☐ |
| 19.0 | Rebar was stored off ground to prevent damage/corrosion | ☑ | ☐ | ☐ |
| 20.0 | Review drawings for anchors, piping, sleeves, boxes | ☑ | ☐ | ☐ |

COMMENTS:

HEAT TO BE APPLIED TO FOOTING SO BARS ARE SUFFICIENTLY WARM AND THERE IS NO SNOW IN THE FOOTING.
TOP FOOTING INSPECTED IN PLACE OTHER CAGE INSPECTED PRIOR TO LIFT AND PLACE.

ATTACHMENT(S):

DEFICIENCIES NOTES:

Chair footing to ensure plumb

CLARK BUILDERS:

INSPECTOR: Ryan deMilliano TITLE Project Coordinator DATE: December 15/18

JDS ENERGY & MINING:

INSPECTOR: Matt Cavedale MME TITLE Field Eng DATE: Dec 15/18

# FORMWORK & FALSEWORK PRE POUR | QA INSPECTION

Rev 01 August 25, 2018

| | |
|---|---|
| CONTRACTOR: Clark Builders | INSPECTION DATE: December 15, 2018 |
| CONTRACTOR CONTACT PERSON: | DATE OF POUR: December 15, 2018 |
| INSPECTOR(S): Ryan deMilliano | |
| LOCATION: 4300 Screw Conveyor Footings (x2) | |
| DRAWING REV: 00 | DRAWING NO.(S): 4300-0007 |
| | SPEC SECTION(S): |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Location, survey, dimension and grades as required | ☑ | ☐ | ☐ |
| 2.0 | Plumbness and Flatness verified | ☑ | ☐ | ☐ |
| 3.0 | Joints are aligned and watertight. | ☑ | ☐ | ☐ |
| 4.0 | Formwork shop drawings are Engineered and reviewed | ☐ | ☐ | ☑ |
| 5.0 | Re-used formwork reconditioned and treated | ☑ | ☐ | ☐ |
| 6.0 | Formwork and ties according to finishing requirements. Confirm no holes in the concrete surface are greater than 25mm in diameter or expose steel at less than 25mm from surface. As per spec. | ☑ | ☐ | ☐ |
| 7.0 | Installation of embeds are located and secured | ☑ | ☐ | ☐ |
| 8.0 | Chamfer requirements checked. 25mm chamfers required for all exterior corners and edges exposed to view including horizontal edges of pads. | ☑ | ☐ | ☐ |
| 9.0 | Key ways and/or other provisions according to design are provided in construction joints | ☐ | ☐ | ☑ |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 10.0 | Inspect types of form spacers, ties and bracing. | ☑ | ☐ | ☐ |
| 11.0 | Spacing of ties to be set to a pattern | ☑ | ☐ | ☐ |
| 12.0 | Expansion, construction, contraction joints as required & located as coordinated with structural Engineer | ☑ | ☐ | ☐ |
| 13.0 | Forms secured against movement during placing | ☑ | ☐ | ☐ |
| 14.0 | Forms are braced for alignment and blow out | ☑ | ☐ | ☐ |
| 15.0 | Forms are cleaned of all debris, and dry, prior to concrete placement including standing water. | ☑ | ☐ | ☐ |
| 16.0 | Openings in formwork permit inspection and cleaning, placing and compaction of concrete, and forming and processing of construction joints. | ☑ | ☐ | ☐ |
| 17.0 | Formwork has been coated with release agent prior to rebar placement. | ☑ | ☐ | ☐ |
| 18.0 | Anchor Bolts and Embeds are secured to formwork. | ☐ | ☐ | ☑ |

COMMENTS:

Only formed on te one side (South) of each. Rest is earth formed.
Placed on top of mud slab poured yesterday.

ATTACHMENT(S):

Dwg.

DEFICIENCIES NOTES:

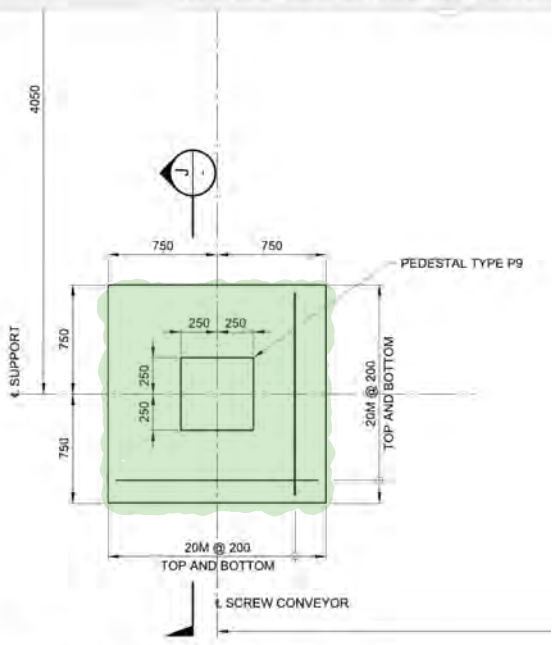
INITIAL INSPECTION

INSPECTOR: Ryan deMilliano TITLE Project Coordinator DATE: December 15, 2018

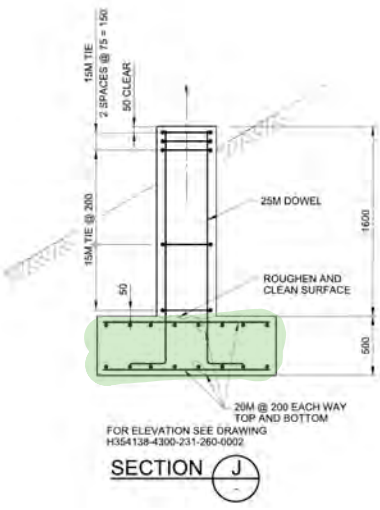
RE-INSPECTION (DEFICIENCIES COMPLETED)

INSPECTOR: Matt Cavendale YME TITLE Field Eng DATE: Dec 15, 18

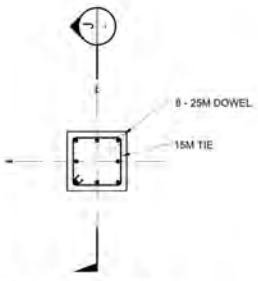
H354138-4300-231-260-0007 Rev 0




SCREW CONVEYOR SUPPORT
FOORING TYPE F1




SECTION J




REINFORCEMENT
PEDESTAL TYPE P9
SCALE: 1:25

# CONCRETE REINFORCEMENT PRE POUR

Rev 01 August 25, 2018

| | |
|---|---|
| SUBCONTRACTOR: Ultimate Reinforcing // McNish | INSPECTION DATE: December 16, 2018 |
| SUBCONTRACTOR CONTACT PERSON: Clayton / Thomas. | PROJ. POUR DATE: December 16, 2018 |
| INSPECTOR(S): Ryan deMilliano | |
| LOCATION: 3330 CU016 GTU CWT Tower Retaining Wall | |
| DRAWING REV: 2/1 | DRAWING NO.(S): 3330-0004/0006 |
| SPEC SECTION(S): S03 20 00 – Concrete Reinforcing Steel | |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Grade (400W unless otherwise noted) and type of steel delivered and installed as required by approved drawings. | ☑ | ☐ | ☐ |
| 2.0 | Inspect rebar distribution, spacing and cover per design/project requirements. | ☑ | ☐ | ☐ |
| 3.0 | Length of splices as specified | ☑ | ☐ | ☐ |
| 4.0 | Staggered splices as specified | ☑ | ☐ | ☐ |
| 5.0 | Any mechanical splices have been approved by the owner prior to install | ☐ | ☐ | ☑ |
| 6.0 | Bars cleaned and free of material that may reduce bond including loose rust, scale, oil, structural defects and that they are uncoated and unpainted. | ☑ | ☐ | ☐ |
| 7.0 | Dowels at wall ends, construction joints, and openings as specified (length, location, size, etc.) | ☐ | ☐ | ☑ |
| 8.0 | No unauthorized field bent bars including hooks installed | ☑ | ☐ | ☐ |
| 9.0 | Resolve conflicts between embedded items and reinforcement | ☑ | ☐ | ☐ |
| 10.0 | When authorized, field bends done without heat and inspected for fissures or cracks. | ☐ | ☐ | ☑ |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 11.0 | Bars tied and supported to prevent displacement | ☑ | ☐ | ☐ |
| 12.0 | Spacers, tie wire and chairs as required | ☑ | ☐ | ☐ |
| 13.0 | Conduits at design location and minimum separation from rebar as specified | ☐ | ☐ | ☑ |
| 14.0 | No contact of bars is made with dissimilar metals as per CSA A23.1 | ☑ | ☐ | ☐ |
| 15.0 | Bars, nails or tie wire not sticking out from surfaces that allow rusting/corrosion | ☑ | ☐ | ☐ |
| 16.0 | Rebar welds are inspected by qualified inspectors certified to CSA W178.2 | ☐ | ☐ | ☑ |
| 17.0 | No rebar congestion or other obstruction for deposit of concrete | ☑ | ☐ | ☐ |
| 18.0 | Adjustments required for interfering items (piping, inserts, sleeves, etc.) have been submitted and approved by owner. | ☑ | ☐ | ☐ |
| 19.0 | Rebar was stored off ground to prevent damage/corrosion | ☑ | ☐ | ☐ |
| 20.0 | Review drawings for anchors, piping, sleeves, boxes | ☑ | ☐ | ☐ |

| COMMENTS: | ATTACHMENT(S): |
|---|---|
| | Rebar |

DEFICIENCIES NOTES:

CLARK BUILDERS:

INSPECTOR: Ryan deMilliano TITLE Project Coordinator DATE: December 16/18

JDS ENERGY & MINING:

INSPECTOR: Matt Carefoot TITLE Field Eng DATE: Dec 16/18

# FORMWORK & FALSEWORK PRE POUR | QA INSPECTION

Rev 01 August 25, 2018

| | |
|---|---|
| CONTRACTOR: Clark Builders | INSPECTION DATE: December 16, 2018 |
| CONTRACTOR CONTACT PERSON: James Meadahl | DATE OF POUR: December 16, 2018 |
| INSPECTOR(S): Ryan deMilliano | |
| LOCATION: 3330 CU016 GTU CWT Tower Retaining Wall | |
| DRAWING REV: 2/1 | DRAWING NO.(S): 3330-0004/0006 |
| SPEC SECTION(S): 503 1000 | |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Location, survey, dimension and grades as required | ☑ | ☐ | ☐ |
| 2.0 | Plumbness and Flatness verified | ☑ | ☐ | ☐ |
| 3.0 | Joints are aligned and watertight. | ☑ | ☐ | ☐ |
| 4.0 | Formwork shop drawings are Engineered and reviewed | ☐ | ☐ | ☑ |
| 5.0 | Re-used formwork reconditioned and treated | ☑ | ☐ | ☐ |
| 6.0 | Formwork and ties according to finishing requirements. Confirm no holes in the concrete surface are greater than 25mm in diameter or expose steel at less than 25mm from surface. As per spec. | ☑ | ☐ | ☐ |
| 7.0 | Installation of embeds are located and secured | ☑ | ☐ | ☐ |
| 8.0 | Chamfer requirements checked. 25mm chamfers required for all exterior corners and edges exposed to view including horizontal edges of pads. | ☑ | ☐ | ☐ |
| 9.0 | Key ways and/or other provisions according to design are provided in construction joints | ☐ | ☐ | ☑ |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 10.0 | Inspect types of form spacers, ties and bracing. | ☑ | ☐ | ☐ |
| 11.0 | Spacing of ties to be set to a pattern | ☑ | ☐ | ☐ |
| 12.0 | Expansion, construction, contraction joints as required & located as coordinated with structural Engineer | ☑ | ☐ | ☐ |
| 13.0 | Forms secured against movement during placing | ☑ | ☐ | ☐ |
| 14.0 | Forms are braced for alignment and blow out | ☑ | ☐ | ☐ |
| 15.0 | Forms are cleaned of all debris, and dry, prior to concrete placement including standing water. | ☑ | ☐ | ☐ |
| 16.0 | Openings in formwork permit inspection and cleaning, placing and compaction of concrete, and forming and processing of construction joints. | ☑ | ☐ | ☐ |
| 17.0 | Formwork has been coated with release agent prior to rebar placement. | ☑ | ☐ | ☐ |
| 18.0 | Anchor Bolts and Embeds are secured to formwork. | ☐ | ☐ | ☑ |

| COMMENTS: | ATTACHMENT(S): |
|---|---|
| | DWGS. |
| | |
| | |

DEFICIENCIES NOTES:

INITIAL INSPECTION

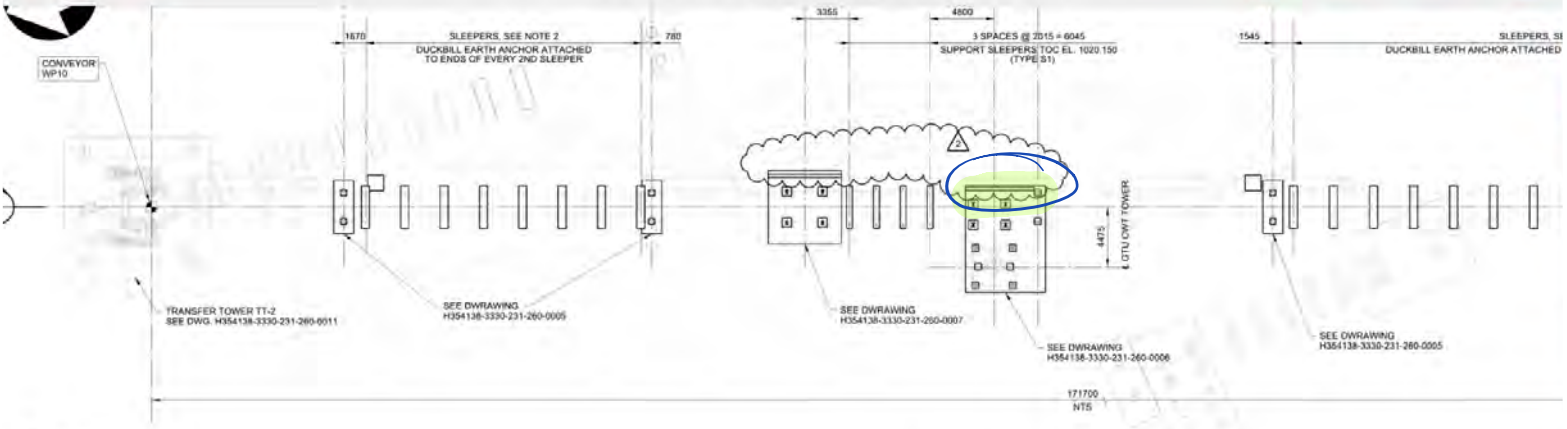
INSPECTOR: Ryan deMilliano TITLE Project Coordinator DATE: December 16, 2018

RE-INSPECTION (DEFICIENCIES COMPLETED)

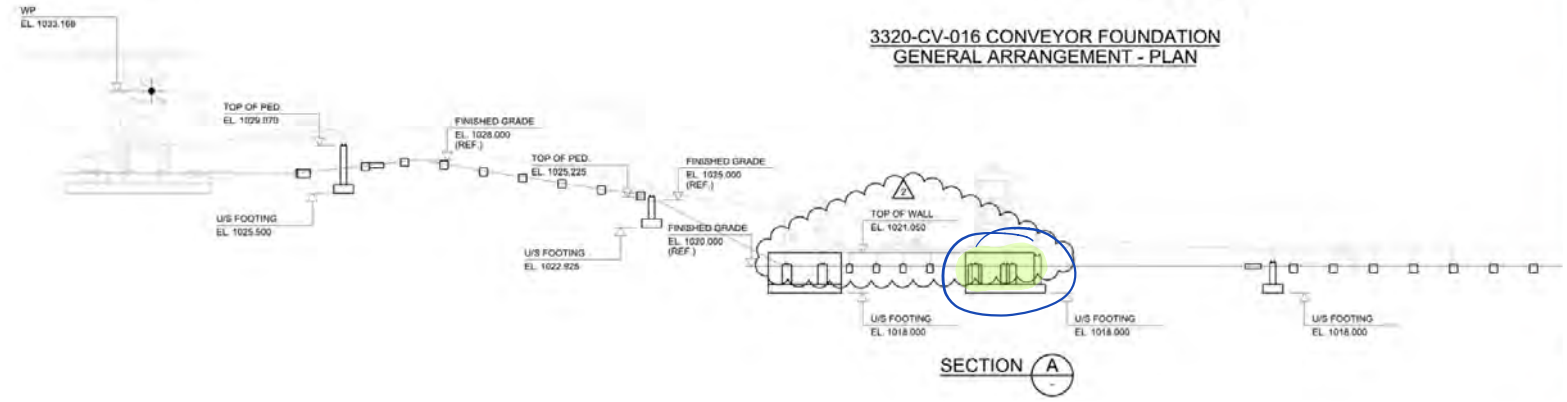
INSPECTOR: Matt Cavendale YMC TITLE Field Eng DATE: Dec 16/18

Done

# H354138-3330-231-260-0004 Rev 2



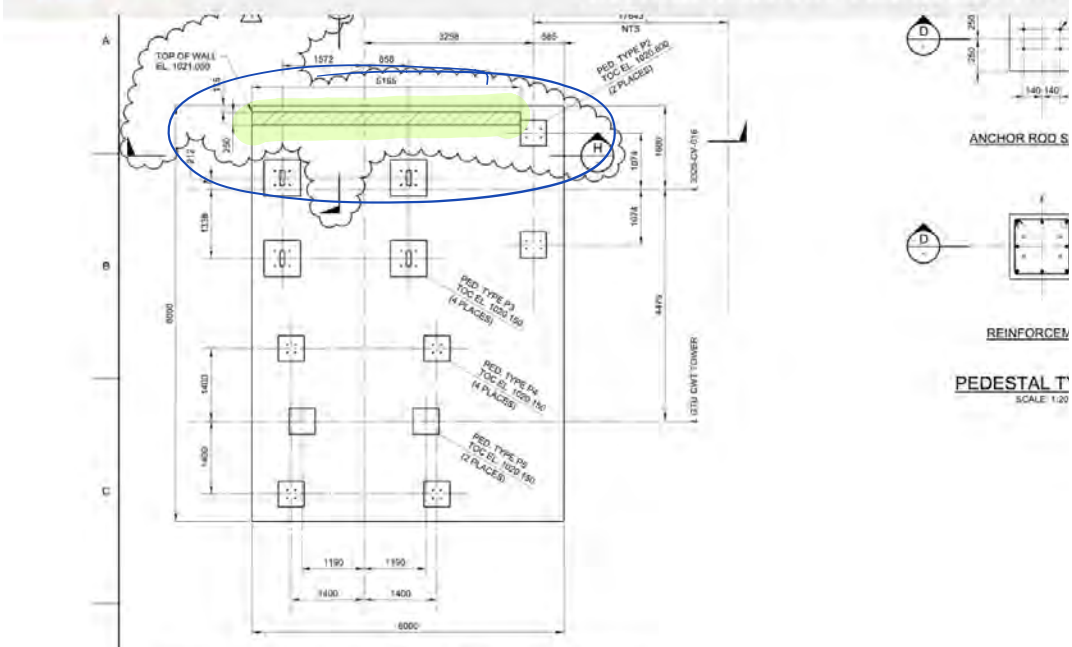

## 3320-CV-016 CONVEYOR FOUNDATION GENERAL ARRANGEMENT - PLAN




SECTION A

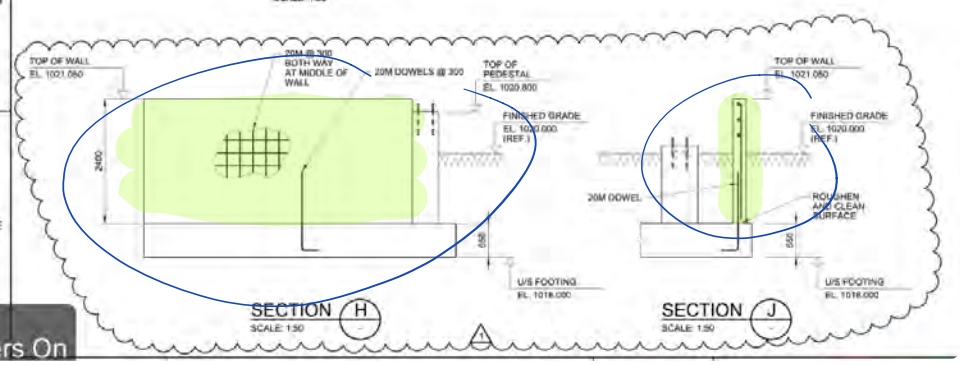
Done

# H354138-3330-231-260-0006 Rev 1




## 3320-CV-016 CONVEYOR GTU CWT TOWER AND BENT 2 FOUNDATION - PLAN

SCALE: 1:50




SECTION H
SCALE: 1:50

SECTION J
SCALE: 1:50

Filters On

MATERIAL TEST REPORTS FOR THE FOLLOWING ARE AVAILABLE UPON REQUEST:

- ANGLE MATERIAL
- CHANNEL MATERIAL
- PLATE MATERIAL
- WIDE FLANGE MATERIAL
- ROUND BAR MATERIAL
- BOLT MATERIAL
- HSS TUBE - COLD FORMED




# EAGLE GOLD PROJECT

## CRUSHING CIRCUIT CONSTRUCTION REPORT

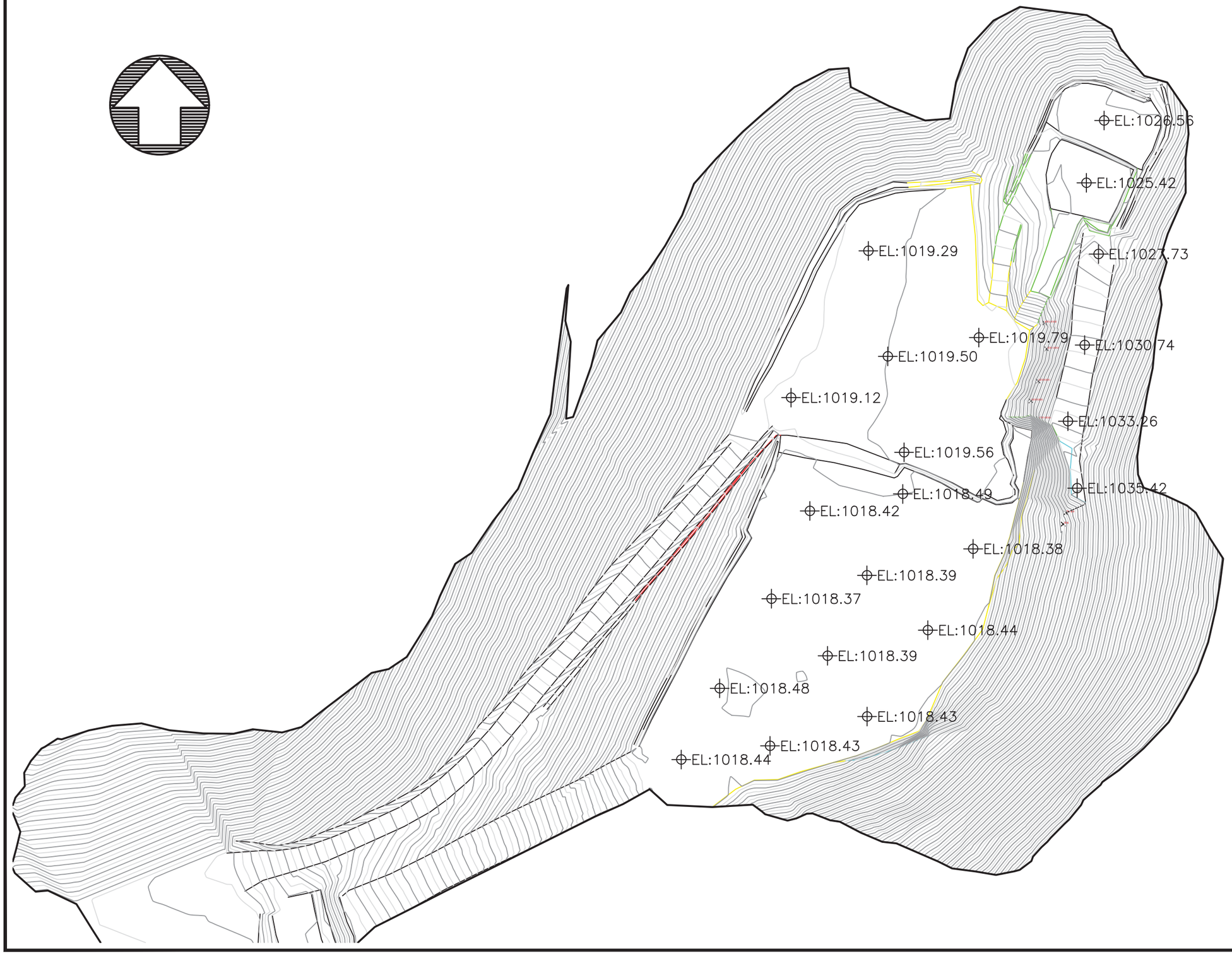
*MARCH 2018*

## List of Attachments

| | |
|---|---|
| Attachment A | Record Drawings |
| Attachment B | Request for Information Forms |
| Attachment C | Field Review Reports |
| Attachment D | Quality Control Inspection and Testing |

# ATTACHMENT A

## Record Drawings




**REFERENCE DRAWINGS:**

| NO. | DRAWING FILE: |
|---|---|
| 01 | Xref.dwg |

**DRAWING NOTES:**

1. SHOWING SECONDARY CRUSHER PAD HANDOVER SURFACE TO CLARK BUILDERS.

**ISSUES:**

| REV. | YY/MM/DD | INIT. | DESCRIPTION |
|---|---|---|---|
| 0.0 | 18/07/30 | BAX | ISSUED FOR HANDOVER |

**CLIENT:**

Pelly Construction Ltd.

eshemuta Construction Surveyors

**PROJECT:**

EAGLE GOLD MINE CONSTRUCTION

**TITLE:**

SECONDARY CRUSHER FINAL ASBUILT SURFACE

**DRAWING SCALE:** H 1:1250

| | | | |
|---|---|---|---|
| **DATE:** | 18/07/30 | **DWG No:** | EMB-000 |
| **SURVEYED:** | J.C.B/E.J | **CHECKED:** | |
| **DRAWN:** | BAX | **APPROVED:** | |

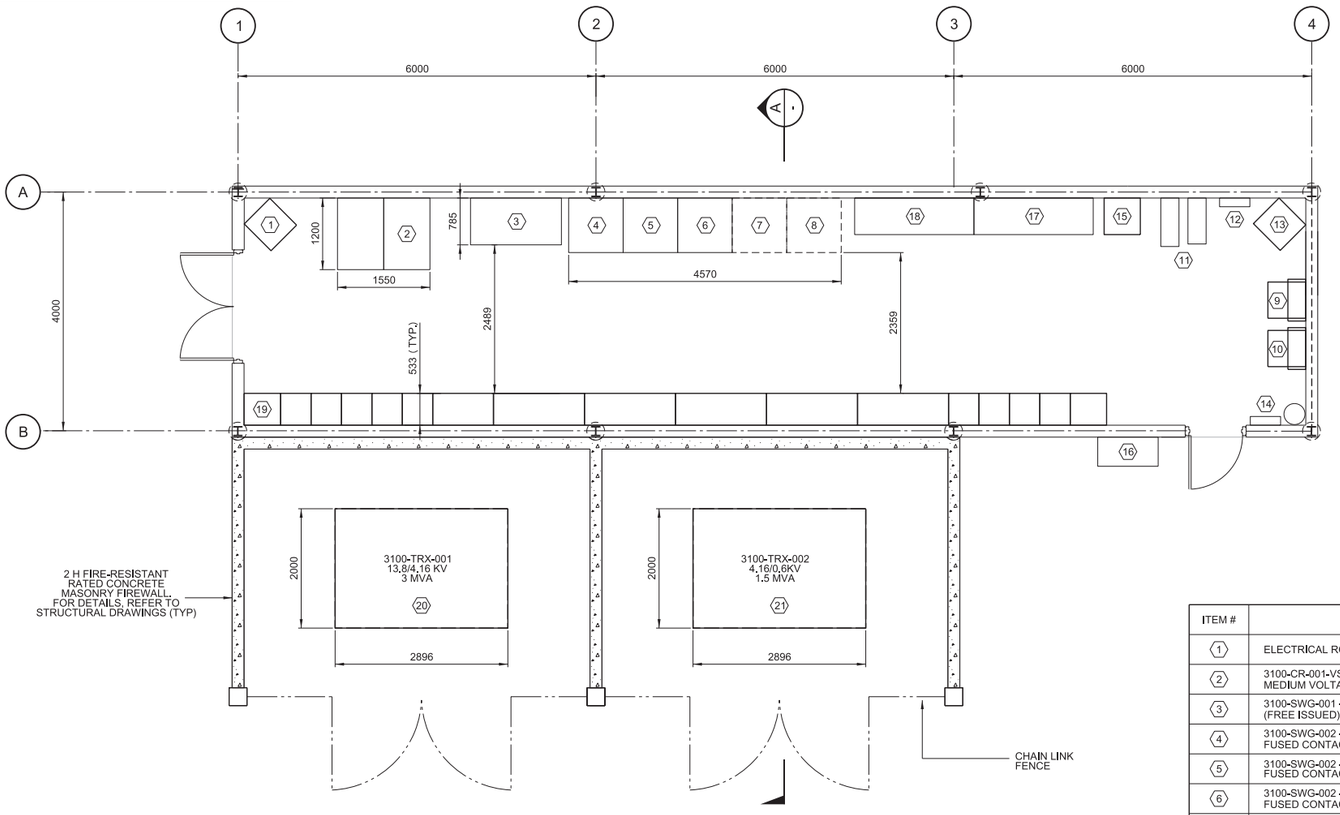
**DRAWING FILE:** 180731 SECONDARY CRUSHER MONTH END SURFACE.dwg

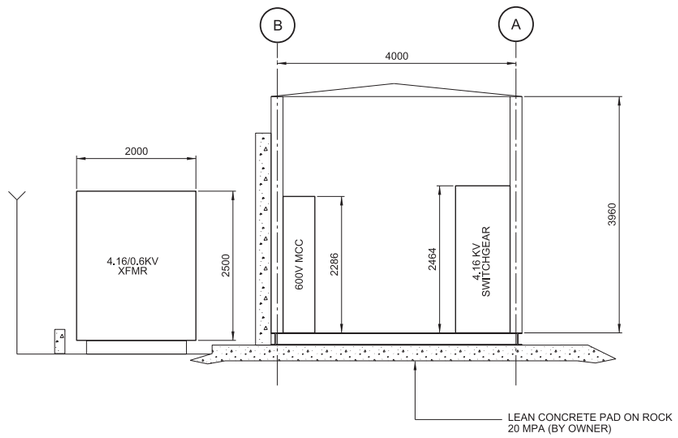
**DRAWING VIEW:** 11x17 Landscape

**PROJECT NO.:** 17003

**SHEET:** 001

DWG. No. H354138-3100-260-270-0001




SECTION A -

| ITEM # | DESCRIPTION |
|---|---|
| 1 | ELECTRICAL ROOM SPACE HEATER (VENDOR SIZED AND SUPPLIED) |
| 2 | 3100-CR-001-VSD - PRIMARY CRUSHER 500 HP MEDIUM VOLTAGE VSD (FREE ISSUED) |
| 3 | 3100-SWG-001 - METAL CLAD SWITCHGEAR, 13.8 kV 29 kA (FREE ISSUED) |
| 4 | 3100-SWG-002 - METAL CLAD SWITCHGEAR, 4.16 kV 29 kA FUSED CONTACTORS - INCOMING SECTION (FREE ISSUED) |
| 5 | 3100-SWG-002 - METAL CLAD SWITCHGEAR, 4.16 kV 29 kA FUSED CONTACTORS - STOCKPILE FEED AND PRIMARY CRUSHER (FREE ISSUED) |
| 6 | 3100-SWG-002 - METAL CLAD SWITCHGEAR, 4.16 kV 29 kA FUSED CONTACTORS - MCC FEED AND SPARE (FREE ISSUED) |
| 7 | 3100-SWG-002 - METAL CLAD SWITCHGEAR, 4.16 kV 29 kA FUSED CONTACTORS - SPACE ALLOCATION ONLY |
| 8 | 3100-SWG-002 - METAL CLAD SWITCHGEAR, 4.16 kV 29 kA FUSED CONTACTORS - SPACE ALLOCATION ONLY |
| 9 | 3100-TRXLV-001 75 kVA DISTRIBUTION TRANSFORMER (600 V-600/347 V) & 3100-PNL-001 - 600/347V LIGHTING PANEL 42CCT (BOTH VENDOR SUPPLIED) |
| 10 | 3100-TRXLV-002 - 75 kVA DISTRIBUTION TRANSFORMER (600 V- 208/120V) & 3100-PNL-002 - 208/120V SMALL POWER PANEL 42CCT (BOTH VENDOR SUPPLIED) |
| 11 | 3100-UPS-001 - UN-INTERRUPTIBLE POWER SUPPLY 30 kVA, 1 HOUR (FREE ISSUED) |
| 12 | 3100-BRP-001 - UPS BREAKER PANEL (FREE ISSUED) |
| 13 | ELECTRICAL ROOM SPACE HEATER (VENDOR SIZED AND SUPPLIED) |
| 14 | ELECTRICAL ROOM FIRE SUPPRESSION AND ANUNCIATION PANEL (VENDOR SUPPLIED) |
| 15 | NETWORK DISTRIBUTION PANEL (FREE ISSUED) |
| 16 | ELECTRICAL ROOM HVAC UNIT (VENDOR SIZED AND SUPPLIED) |

| ITEM # | DESCRIPTION |
|---|---|
| 17 | 3100-IOP-001 - PRIMARY CRUSHER AREA I/OP PANEL (FREE ISSUED) |
| 18 | 3100-IOP-002 - PRIMARY CRUSHER AREA I/OP PANEL (FREE ISSUED) |
| 19 | 3100-MCC-001 - PRIMARY CRUSHER 600 V MCC (FREE ISSUED) |
| 20 | 3100-TRX-001 - POWER DISTRIBUTION TRANSFORMER 13,8/4,16 KV - 3 MVA (INSTALLED ON SITE) |
| 21 | 3100-TRX-002 - POWER DISTRIBUTION TRANSFORMER 4,16/0.6 KV - 1.5 MVA (INSTALLED ON SITE) |

0 500 1000 1500 2000 2500
1:50 SCALE IN MILLIMETRES

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HATCH

StrataGold Corporation

| ROLE | NAME | SIGNATURE | DATE |
|---|---|---|---|
| DRAFTSPERSON | M CLIFTON | NR | 2017-06-13 |
| DESIGNER | M CLIFTON | NR | 2017-06-09 |
| CHECKER | M TIETZ | | |
| DESIGN COORD. | S PERKINS | | |
| RESP. ENG. | M TIETZ | | |
| LEAD DISC. ENG. | M TIETZ | | |
| ENG. MANAGER | B RUSTAD | | |
| PROJ. MANAGER | B RUSTAD | | |

EAGLE GOLD PROJECT

PRIMARY CRUSHING
ELECTRICAL ROOM LAYOUT
SHEET 1 OF 1

| DRAWING No. | DRAWING TITLE |
|---|---|
| REFERENCE DRAWINGS | |

REG. PROFESSIONAL

| No. | DESCRIPTION | BY | CHK'D | DATE |
|---|---|---|---|---|
| REVISIONS | | | | |

DRAWING APPROVAL STATUS: Approved for Use

SCALE 1:50 OR AS NOTED

DWG. No. H354138-3100-260-270-0001

REV 0

SHEET SIZE: D

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18-OCT-2017
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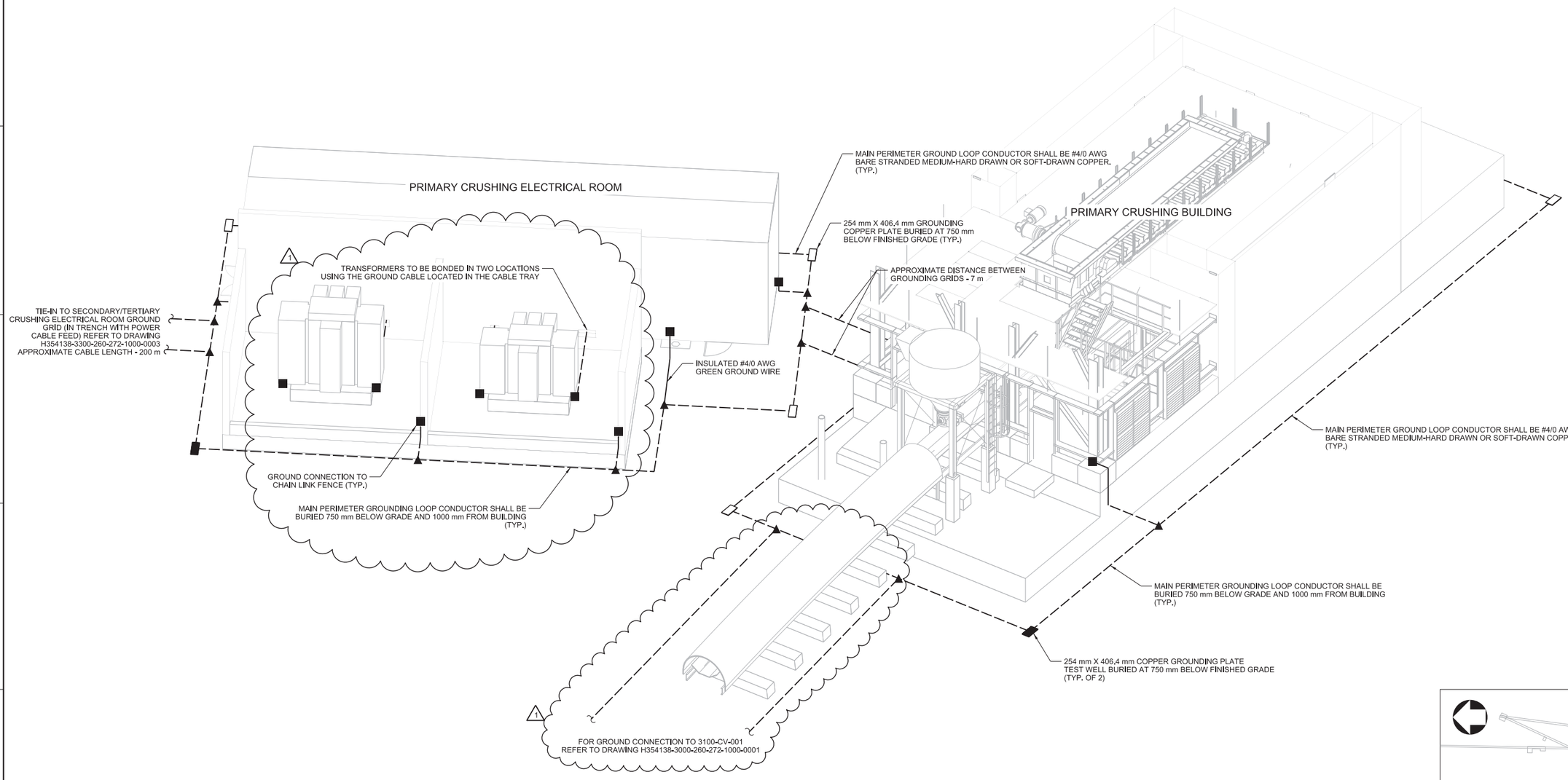
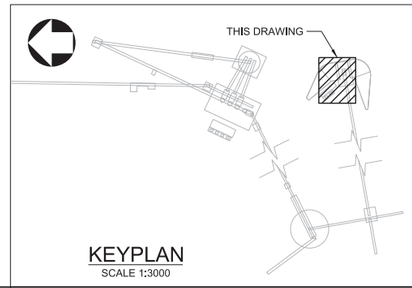
DWG. No.
H354138-3100-260-272-1000-0001




KEYPLAN
SCALE 1:3000

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HATCH

StrataGold Corporation

| ROLE | NAME | SIGNATURE & DATE |
|---|---|---|
| DRAFTSPERSON | L GIEBELHAUS | NR 2017-12-04 |
| DESIGNER | L GIEBELHAUS | NR 2017-12-04 |
| CHECKER | M TIETZ | |
| DESIGN COORD. | S PERKINS | |
| RESP. ENG. | M TIETZ | |
| LEAD DISC. ENG. | M TIETZ | |
| ENG. MANAGER | B RUSTAD | |
| PROJ. MANAGER | B RUSTAD | |

EAGLE GOLD PROJECT

PRIMARY CRUSHING AREA GROUNDING PERSPECTIVE LAYOUT

| REFERENCE DRAWINGS | | REG. PROFESSIONAL |
|---|---|---|
| DRAWING No. | DRAWING TITLE | |
| H354138-3100-260-272-1000-0003 | PRIMARY CRUSHING ELECTRICAL ROOM GROUNDING LAYOUT | |
| H354138-3100-260-272-1000-0002 | PRIMARY CRUSHING BUILDING GROUNDING LAYOUT | |
| H354138-0000-260-294-0001-0002 | SITE ELECTRICAL NOTES, LEGENDS AND SYMBOLS | |
| H354138-0000-260-294-0001-0001 | SITE ELECTRICAL NOTES, LEGENDS AND SYMBOLS | |

| REVISIONS | | | | |
|---|---|---|---|---|
| No. | DESCRIPTION | BY | CHK'D | DATE |
| 1 | REMOVED HOLD 0026 AND ADDED GROUND TIE-IN TO 3100-CV-001 CONVEYOR | LG | MT | 2018-09-18 |

DRAWING APPROVAL STATUS: Approved for Construction

SCALE NTS OR AS NOTED

DWG. No. H354138-3100-260-272-1000-0001

REV 1

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DWG. No. H354138-3100-260-272-1000-0002

NOTES

1. TIE IN CABLES TO RUN IN SEPARATE TRENCHES SPACED 3000 mm (MIN.) APART.

PLANT NORTH

TIE-IN TO ELECTRICAL BUILDING GROUNDING GRID
REFER TO DRAWING H354138-3100-260-272-1000-0003
(NOTE 1)

Z

1

5100

12500

℄ PRIMARY CRUSHER

11200

DETAIL 3
(TYP.) H354138-0000-260-294-0001-0009

1000
(TYP.)

#4/0 AWG BARE COPPER BURIED
750 mm BELOW FINISHED GRADE
(TYP.)

1

600

DETAIL 1
(TYP.) H354138-0000-260-294-0001-0009

CONNECTION TO REBAR

4600

TIE-IN TO ELECTRICAL
GROUND GRID FOR
3100-CV-001 CONVEYOR
REFER TO DRAWING
H354138-3000-260-272-1000-0001

1

℄ PRIMARY CRUSHER

1000
(TYP.)

CONNECTION TO REBAR

4600

PIGTAIL TO BE TIED INTO CABLE TRAY
(TYP.)

2

600

DETAIL 2
(TYP.) H354138-0000-260-294-0001-0009

DETAIL 7
H354138-0000-260-294-0001-0009

0 500 1000 1500 2000 2500
1:50 SCALE IN MILLIMETRES

THIS DRAWING

KEYPLAN
SCALE 1:3000

| DRAWING No. | DRAWING TITLE |
|---|---|
| H354138-3100-260-272-1000-0001 | PRIMARY CRUSHING AREA GROUNDING PERSPECTIVE LAYOUT |
| H354138-0000-260-294-0001-0002 | SITE ELECTRICAL NOTES, LEGENDS AND SYMBOLS |
| H354138-0000-260-294-0001-0001 | SITE ELECTRICAL NOTES, LEGENDS AND SYMBOLS |

REFERENCE DRAWINGS

REG. PROFESSIONAL

| No. | DESCRIPTION | BY | CHK'D | DATE |
|---|---|---|---|---|
| 1 | ADDED CONVEYOR GROUNDING CONNECTIONS AND CORRECTED ELECTRICAL ROOM ORIENTATION | LG | MT | 2018-09-18 |

REVISIONS

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| ROLE | NAME | SIGNATURE & DATE |
|---|---|---|
| DRAFTSPERSON | L GIEBELHAUS | NR 2017-12-04 |
| DESIGNER | L GIEBELHAUS | NR 2017-12-04 |
| CHECKER | M TIETZ | |
| DESIGN COORD. | S PERKINS | |
| RESP. ENG. | M TIETZ | |
| LEAD DISC. ENG. | M TIETZ | |
| ENG. MANAGER | B RUSTAD | |
| PROJ. MANAGER | B RUSTAD | |

DRAWING APPROVAL STATUS: Approved for Construction

HATCH

StrataGold Corporation

EAGLE GOLD PROJECT

PRIMARY CRUSHING
BUILDING GROUNDING
LAYOUT

SCALE 1:50 OR AS NOTED

DWG. No. H354138-3100-260-272-1000-0002

REV 1

SHEET SIZE: D

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DWG. No. H354138-3100-260-272-1000-0003

PLANT NORTH

3 DETAIL H354183-000-260-294-0001-0009 (TYP.)

7 DETAIL H354183-000-260-294-0001-0009

EQUIPMENT GROUND BUS

5 DETAIL (TYP.) H354183-000-260-294-0001-0010

ELECTRICAL ROOM GROUNDING PAD CONNECTION (TYP.)

TIE-IN TO PRIMARY CRUSHING BUILDING GROUNDING GRID REFER TO DRAWING H354138-3100-260-272-1000-0002 (NOTE 1)

INSULATED GROUND BUS

INSULATED #4/0 AWG GREEN GROUND WIRE (NOTE 3)

TIE-IN TO SECONDARY & TERTIARY CRUSHING ELECTRICAL ROOM GROUND GRID (IN TRENCH WITH POWER CABLE FEED) REFER TO DRAWING H354138-3300-260-272-1000-0003

TRANSFORMER CONTAINMENT

NOTE 4

TRANSFORMER CONTAINMENT

NOTE 4

2 DETAIL (TYP.) H354183-000-260-294-0001-0010

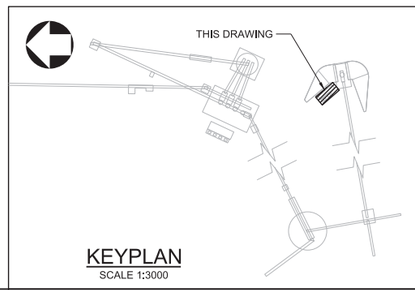
CHAIN LINK FENCE

CHAIN LINK FENCE

NOTES

1. TIE IN CABLES TO RUN IN SEPARATE TRENCHES SPACED 3000 mm (MIN.) APART.
2. 150 mm ELECTRICAL CONDUIT (NON-METALLIC) TO BE EMBEDDED IN CONCRETE AND EXTENDED OUT OF PAD 300 mm AT TRANSFORMER BASE TO MAINTAIN INTEGRITY OF CONTAINMENT.
3. INSULATED (GREEN) #4/0 AWG GROUND WIRE TO BE USED FOR INSULATED GROUND BUS CONNECTION TO GROUND GRID TO ENSURE NO CONTACT BETWEEN WIRE AND ELECTRICAL ROOM METAL FRAME.
4. TRANSFORMERS TO BE BONDED IN TWO LOCATIONS USING THE GROUND CABLE LOCATED IN THE CABLE TRAY

0 500 1000 1500 2000 2500
1:50 SCALE IN MILLIMETRES




KEYPLAN
SCALE 1:3000

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| No. | DESCRIPTION | BY | CHK'D | DATE |
|---|---|---|---|---|

REVISIONS

| ROLE | NAME | SIGNATURE & DATE |
|---|---|---|
| DRAFTSPERSON | L GIEBELHAUS | NR 2017-12-07 |
| DESIGNER | L GIEBELHAUS | NR 2017-12-07 |
| CHECKER | M TIETZ | |
| DESIGN COORD. | S PERKINS | |
| RESP. ENG. | M TIETZ | |
| LEAD DISC. ENG. | M TIETZ | |
| ENG. MANAGER | B RUSTAD | |
| PROJ. MANAGER | B RUSTAD | |

DRAWING APPROVAL STATUS: Approved for Construction

REFERENCE DRAWINGS

| DRAWING No. | DRAWING TITLE |
|---|---|
| H354138-3100-260-272-1000-0001 | PRIMARY CRUSHING AREA GROUNDING PERSPECTIVE LAYOUT |

REG. PROFESSIONAL

HATCH

StrataGold Corporation

EAGLE GOLD PROJECT

PRIMARY CRUSHING ELECTRICAL ROOM GROUNDING LAYOUT

SCALE 1:50 OR AS NOTED

DWG. No. H354138-3100-260-272-1000-0003

REV 0

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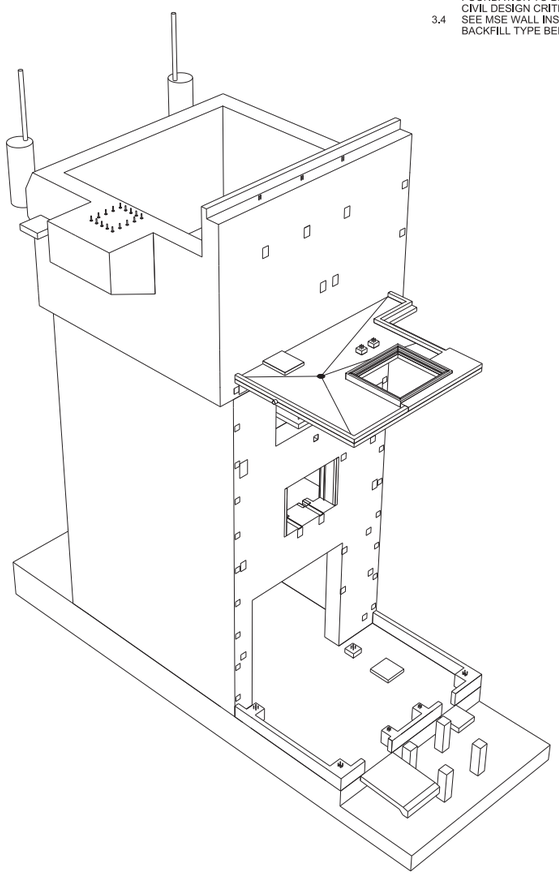
DWG. No. H354138-3100-231-260-0001

AREA: 3100 PRIMARY CRUSHING

## CONCRETE DETAILS DRAWING LIST

| DRAWING NUMBER | REV. | DRAWING TITLE | | |
|---|---|---|---|---|
| H354138-3100-231-260-0001 | 1 | PRIMARY CRUSHING | CRUSHER SUPPORT STRUCTURE | TITLE SHEET, ISOMETRIC VIEW |
| H354138-3100-231-260-0002 | 1 | PRIMARY CRUSHING | CRUSHER SUPPORT STRUCTURE | FOUNDATION PLAN |
| H354138-3100-231-260-0003 | 1 | PRIMARY CRUSHING | CRUSHER SUPPORT STRUCTURE | WALL BASE PLAN |
| H354138-3100-231-260-0004 | 1 | PRIMARY CRUSHING | CRUSHER SUPPORT STRUCTURE | SECTIONS - SHEET 1 |
| H354138-3100-231-260-0005 | 1 | PRIMARY CRUSHING | CRUSHER SUPPORT STRUCTURE | ELEVATED SLAB PLAN - SHEET 1 |
| H354138-3100-231-260-0006 | 0 | PRIMARY CRUSHING | CRUSHER SUPPORT STRUCTURE | SECTIONS - SHEET 2 |
| H354138-3100-231-260-0007 | 1 | PRIMARY CRUSHING | CRUSHER SUPPORT STRUCTURE | ELEVATED SLAB PLAN - SHEET 2 |
| H354138-3100-231-260-0008 | 0 | PRIMARY CRUSHING | CRUSHER SUPPORT STRUCTURE | SECTIONS - SHEET 3 |
| H354138-3100-231-260-0009 | 1 | PRIMARY CRUSHING | CRUSHER SUPPORT STRUCTURE | SECTIONS - SHEET 4 |
| H354138-3100-231-260-0010 | 1 | PRIMARY CRUSHING | CRUSHER SUPPORT STRUCTURE | SECTIONS - SHEET 5 |
| H354138-3100-231-260-0011 | 1 | PRIMARY CRUSHING | CRUSHER SUPPORT STRUCTURE | ELEVATED SLAB PLAN - SHEET 3 |
| H354138-3100-231-260-0012 | 0 | PRIMARY CRUSHING | CRUSHER SUPPORT STRUCTURE | SECTIONS - SHEET 6 |
| H354138-3100-231-260-0013 | 0 | PRIMARY CRUSHING | CRUSHER SUPPORT STRUCTURE | ELEVATED SLAB PLAN - SHEET 4 |
| H354138-3100-231-260-0014 | 0 | PRIMARY CRUSHING | CRUSHER SUPPORT STRUCTURE | PLAN, SECTIONS AND DETAILS |
| H354138-3100-231-260-0015 | 1 | PRIMARY CRUSHING | CRUSHER SUPPORT STRUCTURE | ELEVATED SLAB PLAN - SHEET 5 |
| H354138-3100-231-260-0016 | 1 | PRIMARY CRUSHING | CRUSHER SUPPORT STRUCTURE | ELEVATIONS - SHEET 1 |
| H354138-3100-231-260-0017 | 1 | PRIMARY CRUSHING | CRUSHER SUPPORT STRUCTURE | ELEVATIONS - SHEET 2 |
| H354138-3100-231-260-0018 | 1 | PRIMARY CRUSHING | CRUSHER SUPPORT STRUCTURE | ELEVATIONS - SHEET 3 |
| H354138-3100-231-260-0019 | 1 | PRIMARY CRUSHING | CRUSHER SUPPORT STRUCTURE | ELEVATIONS - SHEET 4 |
| H354138-3100-231-260-0020 | 0 | PRIMARY CRUSHING | CRUSHER SUPPORT STRUCTURE | WALL REINFORCEMENT - SHEET 1 |
| H354138-3100-231-260-0021 | 0 | PRIMARY CRUSHING | CRUSHER SUPPORT STRUCTURE | WALL REINFORCEMENT - SHEET 2 |
| H354138-3100-231-260-0022 | 0 | PRIMARY CRUSHING | CRUSHER SUPPORT STRUCTURE | WALL REINFORCEMENT - SHEET 3 |
| H354138-3100-231-260-0023 | 0 | PRIMARY CRUSHING | CRUSHER SUPPORT STRUCTURE | WALL REINFORCEMENT - SHEET 4 |
| H354138-3100-231-260-0024 | 1 | PRIMARY CRUSHING | CRUSHER SUPPORT STRUCTURE | DETAILS - SHEET 1 |
| H354138-3100-231-260-0025 | 1 | PRIMARY CRUSHING | CRUSHER SUPPORT STRUCTURE | DETAILS - SHEET 2 |
| H354138-3100-231-260-0026 | 0 | PRIMARY CRUSHING | CRUSHER SUPPORT STRUCTURE | EMBEDDED STEEL FRAME |

1



ISOMETRIC VIEW
NTS

### BUILDING FOUNDATION NOTES:

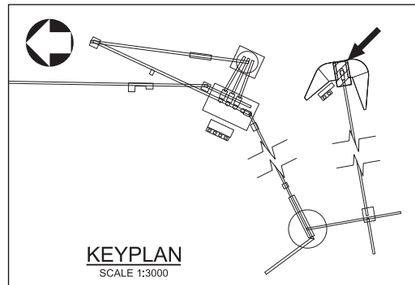
2.1 BUILDING FOUNDATION SUBGRADE SHALL CONSIST OF SOUND BEDROCK.
2.2 THE PREPARED FOOTING SUBGRADE SHALL BE PROTECTED FROM WATER INGRESS AND SOFTENING BY PROVIDING ADEQUATE DRAINAGE OR PLACING A LEAN CONCRETE MUD SLAB.
2.3 ALL FOUNDATION SUBGRADE SHALL BE INSPECTED AND APPROVED BY THE GEOTECHNICAL ENGINEER PRIOR TO PLACEMENT OF CONCRETE.

### WALL NOTES:

3.1 IN ORDER TO MINIMIZE THE INFILTRATION AND SEEPAGE BEHIND THE WALLS, THE UPPER SURFACE OF THE BACKFILL SHALL BE COVERED WITH A LOW PERMEABILITY MATERIAL, AND THE SITE SHOULD BE GRADED AWAY FROM THE STRUCTURE TO PREVENT SURFACE WATER FROM ACCUMULATING AGAINST THE BACK OF THE WALLS.
3.2 FOR PERIMETER DRAIN PIPE LAYOUT AND DETAIL SEE CIVIL DRAWING H354138-2120-220-290-0004.
3.3 TOP 3.0 METERS OF THE BACKFILL AROUND THE WALL AND FOUNDATION TO BE "NFS STRUCTURAL BACKFILL" AS DEFINED IN CIVIL DESIGN CRITERIA.
3.4 SEE MSE WALL INSTALLATION DRAWINGS BY TENSAR FOR THE BACKFILL TYPE BEHIND THE SIDE WALLS.

### GENERAL NOTES:

1.1 READ THESE DRAWINGS IN CONJUNCTION WITH ALL OTHER PERTINENT CONTRACT DOCUMENTS.
1.2 FOR CONCRETE TYPICAL DETAILS DRAWING SET AND GENERAL NOTES, SEE DRAWINGS 354138-0000-231-294-0001 TO -0007.
1.3 REFER TO MECHANICAL, PROCESS AND ELECTRICAL DRAWINGS FOR LOCATIONS AND DIMENSIONS OF OPENINGS, SLEEVES AND OTHER BUILDING COMPONENTS NOT SHOWN ON STRUCTURAL DRAWINGS. REPORT DISCREPENCIES TO THE OWNER OR HIS REPRESENTATIVE PRIOR TO PROCEEDING WITH THE WORK.
1.4 FOR GENERAL SITE LOCATION AND WORK POINT COORDINATES, SEE DRAWING H354138-2000-220-270-0003.
1.5 HIGH ENERGY COMPACTION EQUIPMENT SUCH AS LARGE ROLLERS MUST NOT BE USED FOR COMPACTING BACKFILL WITHIN 1 METER OF THE EDGE OF THE WALLS.
1.6 FOR GROUNDING LOOP SEE ELECTRICAL DRAWING H354138-3100-260-272-1000-0001 TO -0003. FOR GROUNDING INSTALLATION DETAILS SEE DRAWING SET H354138-3100-260-290-0001-0001 TO -0105.
1.7 FOR FINISHED GRADING PLAN SEE DRAWING H354138-2120-220-290-0001.
1.8 FOR CAST-IN PLACE CONCRETE, SEE SPECIFICATION SECTION H354138-S032000.
1.9 FOR CONCRETE FORMWORK, SEE SPECIFICATION SECTION H354138-S031000.
1.10 FOR CONCRETE REINFORCEMENT, SEE SPECIFICATION SECTION H354138-S033000.
1.11 FOR GROUTING, SEE SPECIFICATION SECTION H354138-S036000.
1.12 CONSTRUCTION JOINTS NOT SHOWN ON THE DRAWINGS MUST BE APPROVED BY THE CONTRUCTION MANAGER.
1.13 IN CASE OF ANY DISCREPANCIES, INFORM THE CONSTRUCTION MANAGER BEFORE COMMENCING WORK.
1.14 ALL DIMENSIONS ARE IN MILLIMETERS AND ELEVATIONS ARE IN METERS.
1.15 PROVIDE 19mm X 19mm CHAMFER AT ALL EXPOSED CONCRETE CORNERS AND EDGES ABOVE GRADE LEVEL.
1.16 THE DRAWINGS SHOULD BE READ IN CONJUNCTION WITH THE PROJECT CIVIL DESIGN CRITERIA H654138-0000-220-210-0001.
1.17 FOR FURTHER GEOTECH INFORMATION, SEE "2011 GEOTECHNICAL INVESTIGATION FOR MINE SITE INFRASTRUCTURE FOUNDATION REPORT" BY BGC ENGINEERING DATED JAN 31, 2012.
1.18 SET ANCHOR RODS USING TEMPLATES WHICH MUST BE LEFT IN PLACE UNTIL THE CONCRETE HAS SET. ANCHOR RODS SHALL BE PLUMBED AND SECURED FROM MOVEMENT PRIOR TO CASTING CONCRETE.



KEYPLAN
SCALE 1:3000

PERMIT TO PRACTICE HATCH
SIGNATURE: Esra Akinci
DATE: JUNE 4, 2018
PERMIT NUMBER PP154
Association of Professional Engineers of Yukon

PROFESSIONAL ENGINEER YUKON ESRA AKINCI TERRITORY
JUNE 4, 2018

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| No. | DESCRIPTION | BY | CHK'D | DATE |
|---|---|---|---|---|
| 1 | NOTE 1.7, 3.2 AND DRAWING TABLE UPDATED | PJ | EA | 2018-05-31 |
| 0 | APPROVED FOR CONSTRUCTION | PJ | EA | 2018-04-13 |

REVISIONS

| ROLE | NAME | SIGNATURE & DATE |
|---|---|---|
| DRAFTSPERSON | P. JIVAEV | NR 2018-03-20 |
| DESIGNER | H. LI | NR 2018-03-20 |
| CHECKER | E. AKINCI | 2018-06-04 |
| DESIGN COORD. | S. PERKINS | |
| RESP. ENG. | E. AKINCI | 2018-06-04 |
| LEAD DISC. ENG. | E. AKINCI | 2018-06-04 |
| ENG. MANAGER | B. RUSTAD | 2018-06-04 |
| PROJ. MANAGER | B. RUSTAD | 2018-06-04 |

DRAWING APPROVAL STATUS: Approved for Construction

HATCH

StrataGold Corporation

EAGLE GOLD PROJECT

PRIMARY CRUSHING
CRUSHER SUPPORT STRUCTURE
TITLE SHEET, ISOMETRIC VIEW

| DRAWING No. | DRAWING TITLE |
|---|---|
| REFERENCE DRAWINGS | |

REG. PROFESSIONAL

SCALE NTS OR AS NOTED

DWG. No. H354138-3100-231-260-0001

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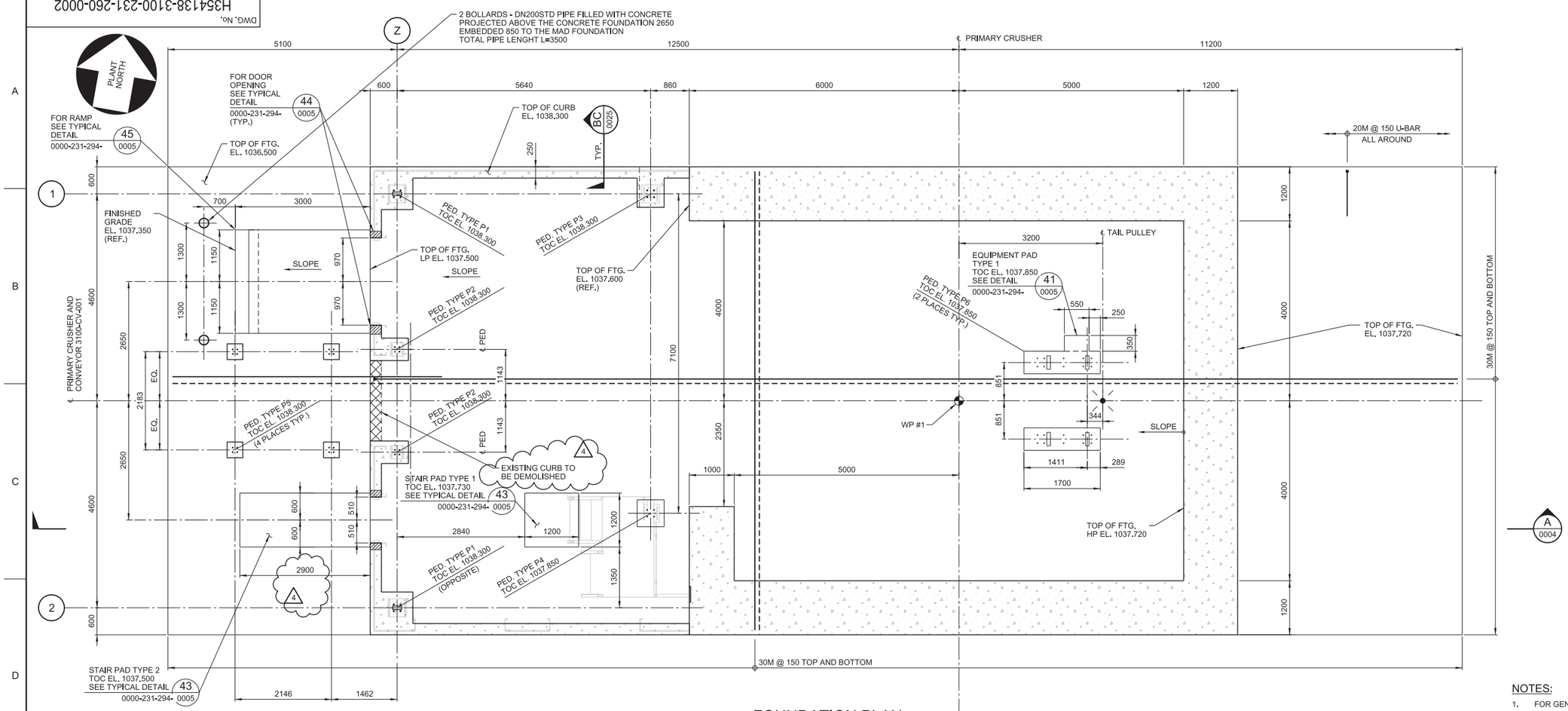
DWG. No. H354138-3100-231-260-0002

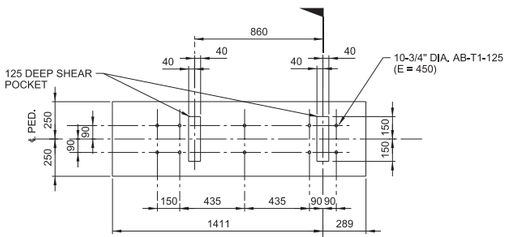


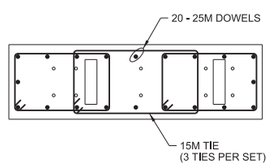

## FOUNDATION PLAN

U/S FTG. EL. 1035.500

NOTES:

1. FOR GENERAL NOTES SEE DRAWING H354138-3100-231-260-0001.

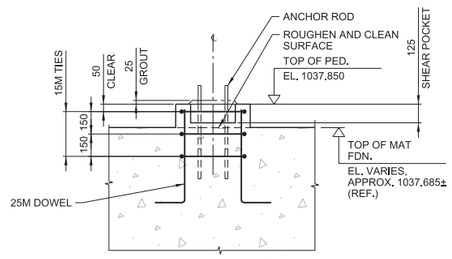



## PEDESTAL TYPE P6

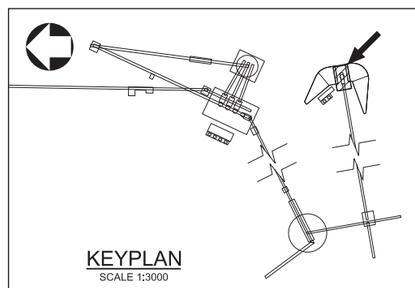
TOC EL. 1037.850
SCALE: 1:20

REINFORCEMENT




## SECTION CE -

SCALE: 1:20



KEYPLAN

SCALE 1:3000

0 200 400 600 800 1000
1:20 SCALE IN MILLIMETRES

0 500 1000 1500 2000 2500
1:50 SCALE IN MILLIMETRES

| DRAWING No. | DRAWING TITLE |
|---|---|
| REFERENCE DRAWINGS | |

REG. PROFESSIONAL

| No. | DESCRIPTION | BY | CHK'D | DATE |
|---|---|---|---|---|
| 4 | ENTRANCE STAIR PAD DIMENSION REVISED, EXISTING CURB TO BE DEMOLISHED | PJ | EA | 2018-10-12 |
| 3 | EQUIPMENT PAD ADDED, ANCHOR ROD LOCATION OF PED. TYPE P6 REVISED | PJ | EA | 2018-08-24 |
| 2 | HOLD H0006 REMOVED, 2 BOLLARDS ADDED, CONVEYOR TAIL PULLEY LOCATION CHANGED | PJ | EA | 2018-07-16 |
| 1 | HOLD H0007 REMOVED, PED. TYPE P6 AND SECTION CE ADDED, REFERENCE FOR TYPICAL DETAIL ADDED | PJ | EA | 2018-05-31 |
| 0 | APPROVED FOR CONSTRUCTION | PJ | EA | 2018-04-13 |

REVISIONS

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HATCH

| | | | |
|---|---|---|---|
| DRAFTSPERSON | P. JIVAEV | NR | 2018-03-20 |
| DESIGNER | H. LI | NR | 2018-03-20 |
| CHECKER | E. AKINCI | | |
| DESIGN COORD. | S. PERKINS | | |
| RESP. ENG. | E. AKINCI | | |
| LEAD DISC. ENG. | E. AKINCI | | |
| ENG. MANAGER | B. RUSTAD | | |
| PROJ. MANAGER | B. RUSTAD | | |

DRAWING APPROVAL STATUS: Approved for Construction

StrataGold Corporation

EAGLE GOLD PROJECT

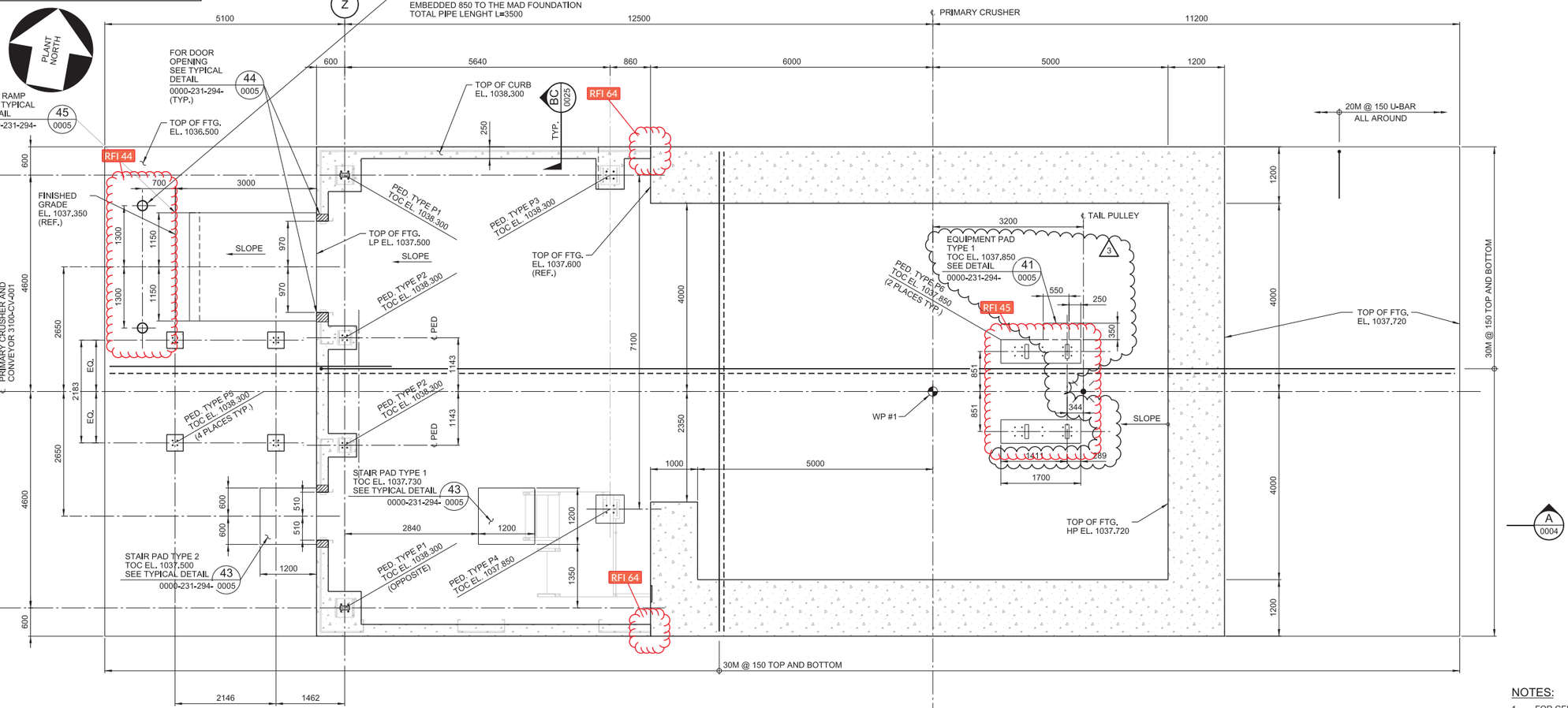
PRIMARY CRUSHING
CRUSHER SUPPORT STRUCTURE
FOUNDATION PLAN

| SCALE | DWG. No. | REV |
|---|---|---|
| 1:50 OR AS NOTED | H354138-3100-231-260-0002 | 4 |

SHEET SIZE: D

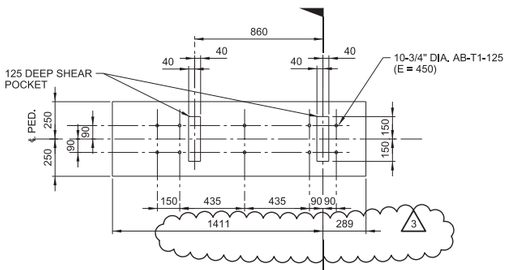
SFILE\$
PRINTED: 12-OCT-2018
11:14
idc_pwservice

DWG. No. H354138-3100-231-260-0002

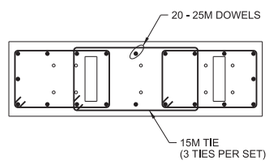



## FOUNDATION PLAN

U/S FTG. EL. 1035.500



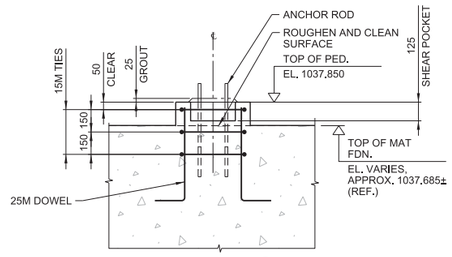

ANCHOR BOLT SETTING




REINFORCEMENT

## PEDESTAL TYPE P6

TOC EL. 1037.850
SCALE: 1:20




## SECTION CE

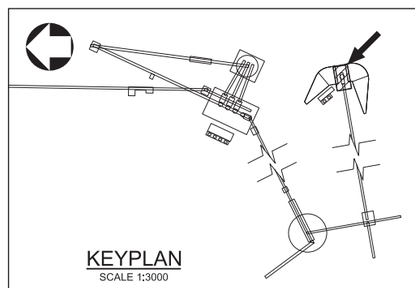
SCALE: 1:20

0 200 400 600 800 1000
1:20 SCALE IN MILLIMETRES

0 500 1000 1500 2000 2500
1:50 SCALE IN MILLIMETRES

NOTES:

1. FOR GENERAL NOTES SEE DRAWING H354138-3100-231-260-0001.



KEYPLAN
SCALE 1:3000

THIS DRAWING WAS PREPARED FOR THE EXCLUSIVE USE OF STRATA GOLD ("CLIENT") AND IS ISSUED PURSUANT TO H354138 BETWEEN CLIENT AND HATCH LTD. ("HATCH"). UNLESS OTHERWISE AGREED IN WRITING WITH CLIENT OR SPECIFIED ON THIS DRAWING, (A) HATCH DOES NOT ACCEPT AND DISCLAIMS ANY AND ALL LIABILITY OR RESPONSIBILITY ARISING FROM ANY USE OF OR RELIANCE ON THIS DRAWING BY ANY THIRD PARTY OR ANY MODIFICATION OR MISUSE OF THIS DRAWING BY CLIENT, AND (B) THIS DRAWING IS CONFIDENTIAL AND ALL INTELLECTUAL PROPERTY RIGHTS EMBODIED OR REFERENCED IN THIS DRAWING REMAIN THE PROPERTY OF HATCH.

| No. | DESCRIPTION | BY | CHK'D | DATE |
|---|---|---|---|---|
| 3 | EQUIPMENT PAD ADDED, ANCHOR ROD LOCATION OF PED. TYPE P6 REVISED | PJ | EA | 2018-08-24 |
| 2 | HOLD H0006 REMOVED, 2 BOLLARDS ADDED, CONVEYOR TAIL PULLEY LOCATION CHANGED | PJ | EA | 2018-07-16 |
| 1 | HOLD H0007 REMOVED, PED. TYPE P6 AND SECTION CE ADDED, REFERENCE FOR TYPICAL DETAIL ADDED | PJ | EA | 2018-05-31 |
| 0 | APPROVED FOR CONSTRUCTION | PJ | EA | 2018-04-13 |

| ROLE | NAME | SIGNATURE & DATE |
|---|---|---|
| DRAFTSPERSON | P. JIVAEV | NR 2018-03-20 |
| DESIGNER | H. LI | NR 2018-03-20 |
| CHECKER | E. AKINCI | |
| DESIGN COORD. | S. PERKINS | |
| RESP. ENG. | E. AKINCI | |
| LEAD DISC. ENG. | E. AKINCI | |
| ENG. MANAGER | B. RUSTAD | |
| PROJ. MANAGER | B. RUSTAD | |

DRAWING APPROVAL STATUS: Approved for Construction

HATCH

StrataGold Corporation

EAGLE GOLD PROJECT

PRIMARY CRUSHING
CRUSHER SUPPORT STRUCTURE
FOUNDATION PLAN

| DRAWING No. | DRAWING TITLE |
|---|---|
| REFERENCE DRAWINGS | REG. PROFESSIONAL |

SCALE 1:50 OR AS NOTED

DWG. No. H354138-3100-231-260-0002

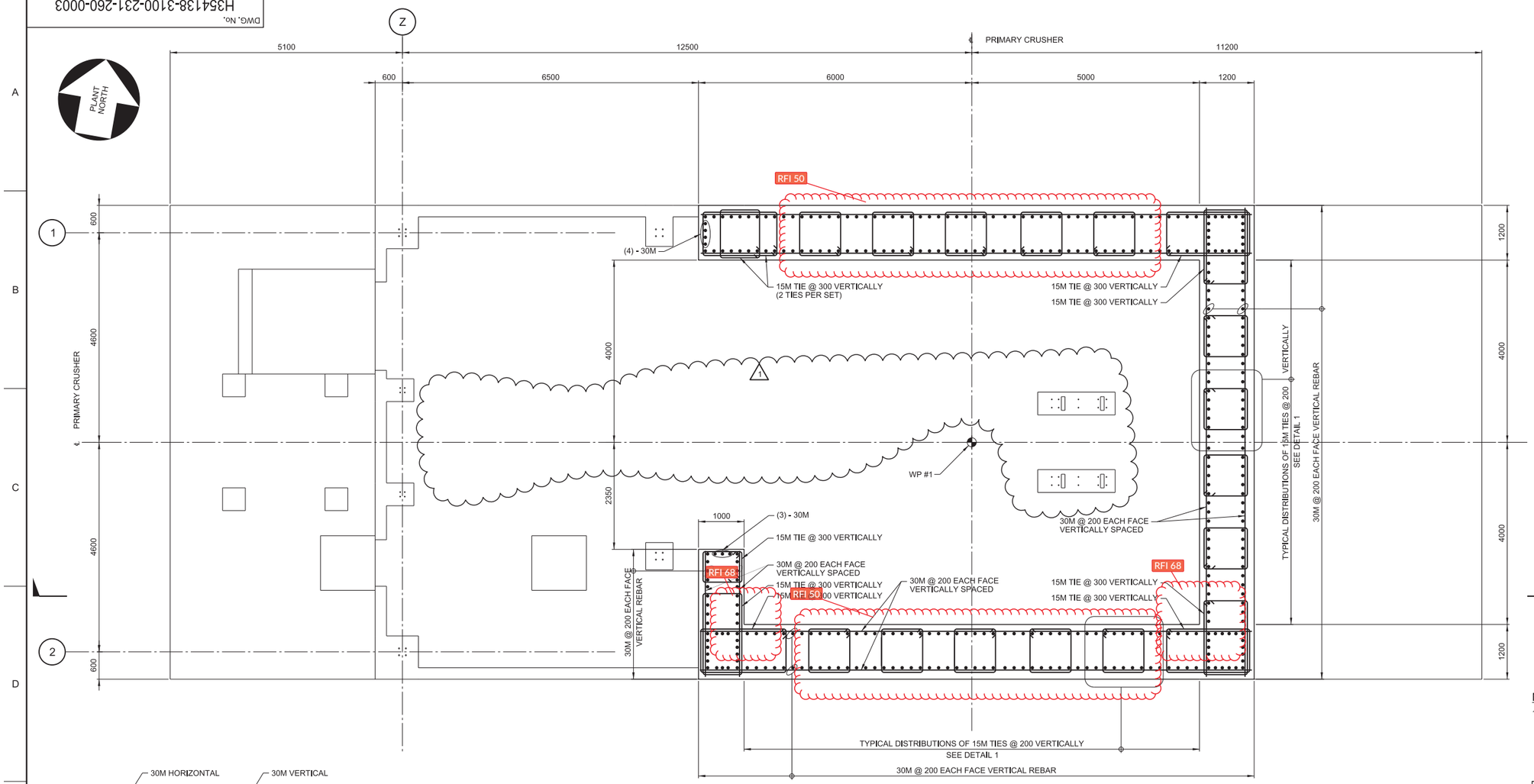
REV 3

SHEET SIZE: D

$FILE$
PRINTED: 24-AUG-2018
tdc_pwservice
11:22

DWG. No. H354138-3100-231-260-0003

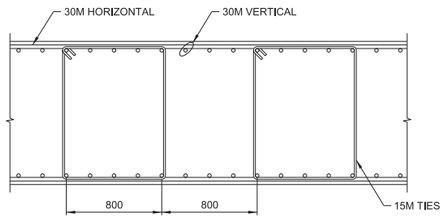
PLANT NORTH




PLAN WALL BASE

NOTES:

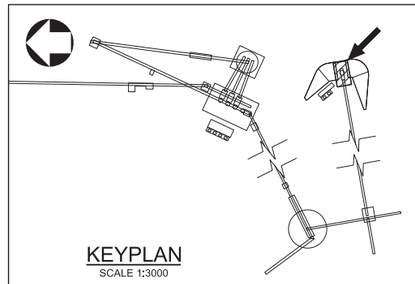
1. FOR GENERAL NOTES SEE DRAWING H354138-3100-231-260-0001.




WALL TIE
TYPICAL DETAIL 1
SCALE: 1:25

0 250 500 750 1000 1250
1:25 SCALE IN MILLIMETRES

0 500 1000 1500 2000 2500
1:50 SCALE IN MILLIMETRES



KEYPLAN
SCALE 1:3000

| No. | DESCRIPTION | BY | CHK'D | DATE |
|---|---|---|---|---|
| 1 | CONVEYOR PEDESTALS REVISED | PJ | EA | 2018-05-31 |
| 0 | APPROVED FOR CONSTRUCTION | PJ | EA | 2018-04-13 |

REVISIONS

| DRAWING No. | DRAWING TITLE |
|---|---|

REFERENCE DRAWINGS

REG. PROFESSIONAL

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HATCH

| | | | |
|---|---|---|---|
| DRAFTSPERSON | P. JIVAEV | NR | 2018-03-20 |
| DESIGNER | H. LI | NR | 2018-03-20 |
| CHECKER | E. AKINCI | | |
| DESIGN COORD. | S. PERKINS | | |
| RESP. ENG. | E. AKINCI | | |
| LEAD DISC. ENG. | E. AKINCI | | |
| ENG. MANAGER | B. RUSTAD | | |
| PROJ. MANAGER | B. RUSTAD | | |
| ROLE | NAME | SIGNATURE & DATE | |

DRAWING APPROVAL STATUS: Approved for Construction

StrataGold Corporation

EAGLE GOLD PROJECT

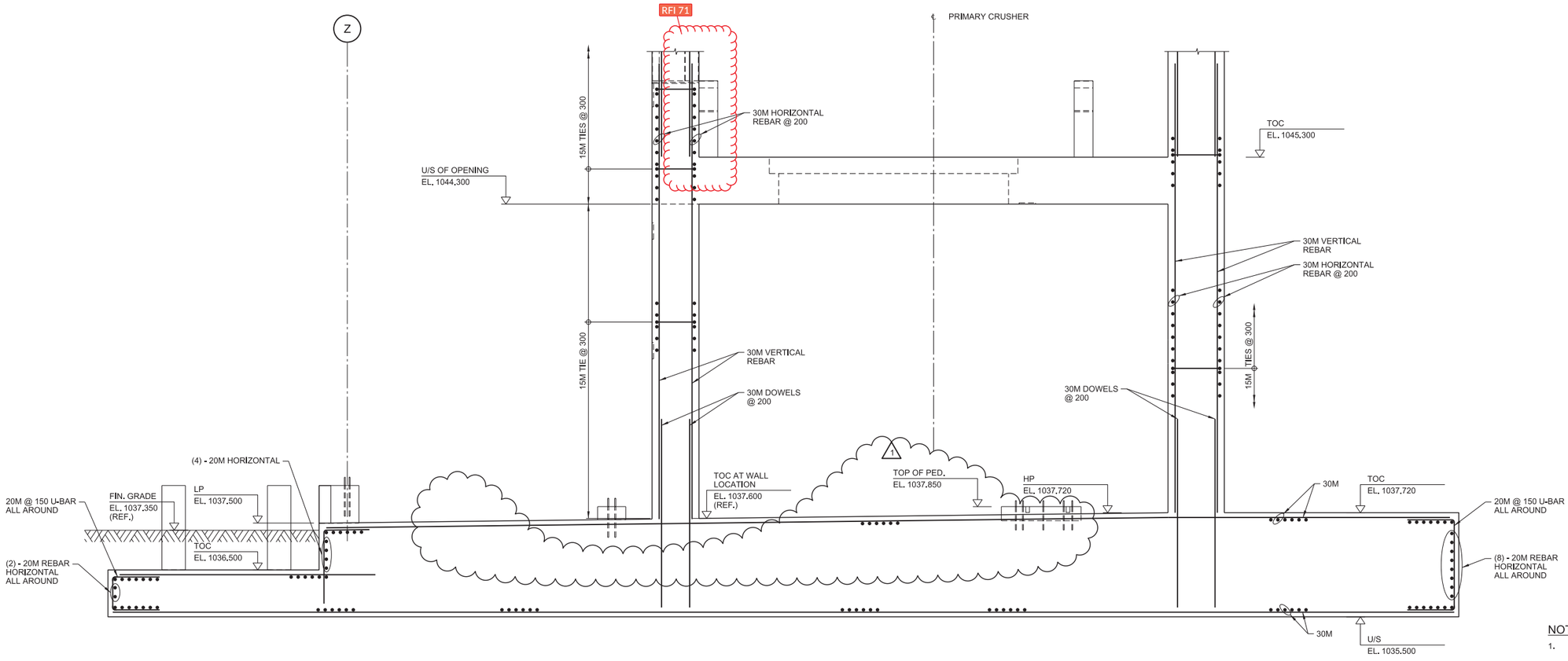
PRIMARY CRUSHING
CRUSHER SUPPORT STRUCTURE
WALL BASE PLAN

| SCALE | DWG. No. | REV |
|---|---|---|
| 1:50 OR AS NOTED | H354138-3100-231-260-0003 | 1 |

SHEET SIZE: D

10:56
SFILELS
PRINTED: 04-JUN-2018
tdc_pwservice

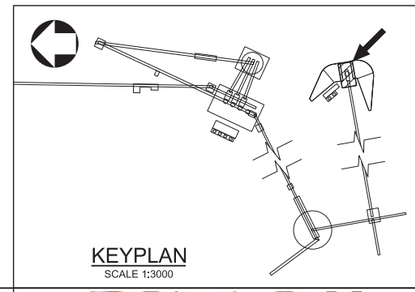
DWG. No. H354138-3100-231-260-0004




SECTION A 0002 A 0003

NOTES:

1. FOR GENERAL NOTES SEE DRAWING H354138-3100-231-260-0001.



KEYPLAN
SCALE 1:3000

0 500 1000 1500 2000 2500
1:50 SCALE IN MILLIMETRES

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| No. | DESCRIPTION | BY | CHK'D | DATE |
|---|---|---|---|---|
| 1 | CONVEYOR PEDESTALS REVISED | PJ | EA | 2018-05-31 |
| 0 | APPROVED FOR CONSTRUCTION | PJ | EA | 2018-04-13 |

| ROLE | NAME | SIGNATURE & DATE |
|---|---|---|
| DRAFTSPERSON | P. JIVAEV | NR 2018-03-20 |
| DESIGNER | H. LI | NR 2018-03-20 |
| CHECKER | E. AKINCI | |
| DESIGN COORD. | S. PERKINS | |
| RESP. ENG. | E. AKINCI | |
| LEAD DISC. ENG. | E. AKINCI | |
| ENG. MANAGER | B. RUSTAD | |
| PROJ. MANAGER | B. RUSTAD | |

DRAWING APPROVAL STATUS: Approved for Construction

HATCH

StrataGold Corporation

EAGLE GOLD PROJECT

PRIMARY CRUSHING
CRUSHER SUPPORT STRUCTURE
SECTIONS - SHEET 1

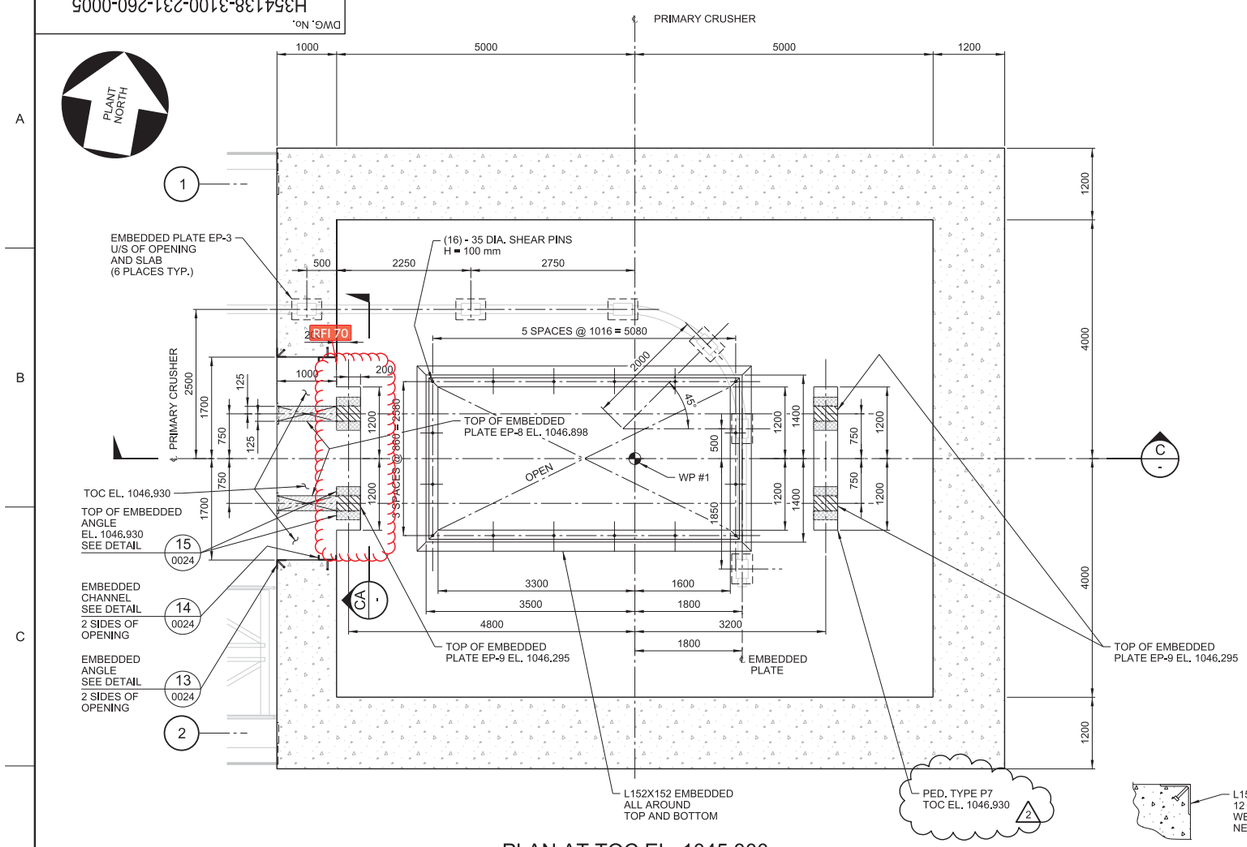
| SCALE | DWG. No. | REV |
|---|---|---|
| 1:50 OR AS NOTED | H354138-3100-231-260-0004 | 1 |

SHEET SIZE: D

DRAWING No. | DRAWING TITLE
REFERENCE DRAWINGS
REG. PROFESSIONAL
REVISIONS

SFILELS
PRINTED: 04-JUN-2018 10:56
idc_pwservice

DWG. No. H354138-3100-231-260-0005



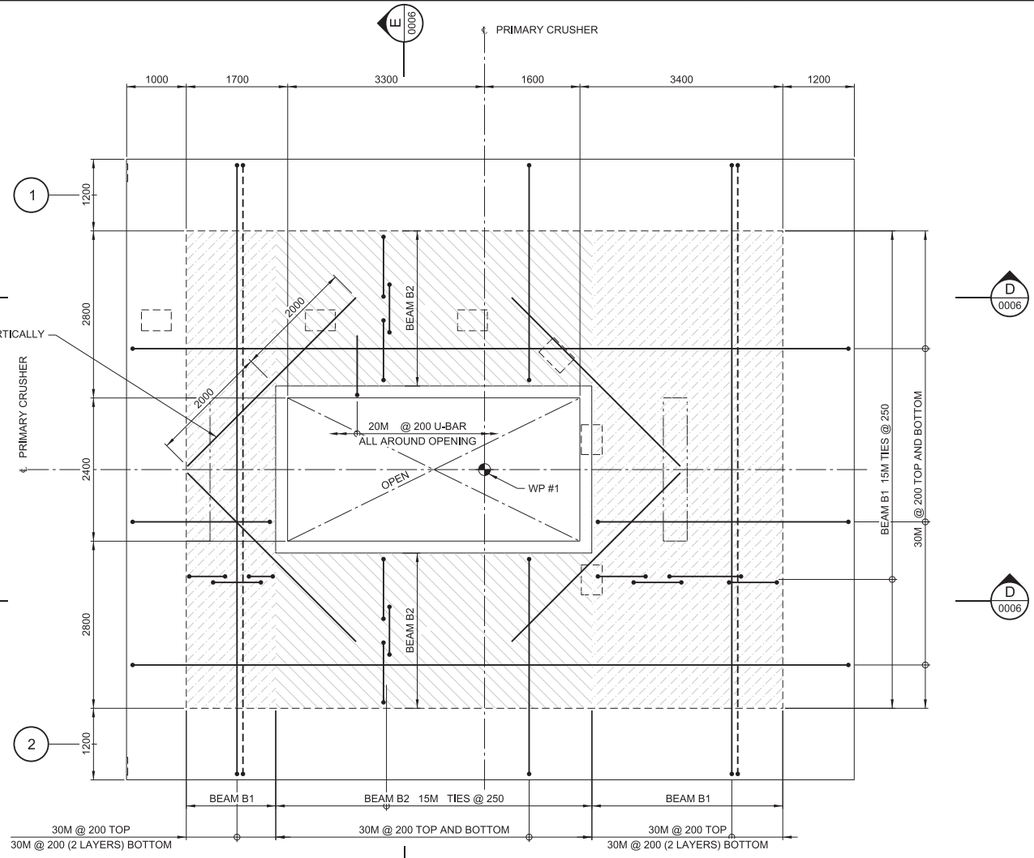

## PLAN AT TOC EL. 1045.300

ELEVATED CONCRETE SLAB 1000 THICK



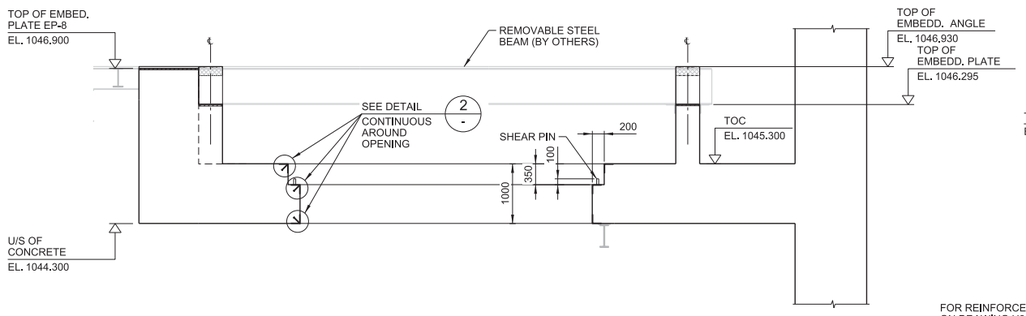

## DETAIL 2

SCALE: 1:15

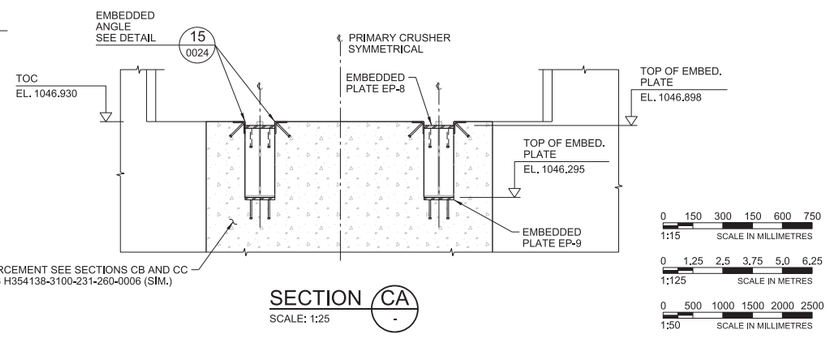



## SLAB REINFORCEMENT PLAN

ELEVATED CONCRETE SLAB 1000 THICK




## SECTION C




## SECTION CA

SCALE: 1:25

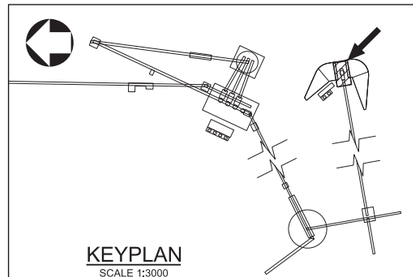
0 150 300 150 600 750
1:15 SCALE IN MILLIMETRES

0 1,25 2,5 3,75 5,0 6,25
1:125 SCALE IN METRES

0 500 1000 1500 2000 2500
1:50 SCALE IN MILLIMETRES

NOTES:

1. FOR GENERAL NOTES SEE DRAWING H354138-3100-231-260-0001.



## KEYPLAN

SCALE 1:3000

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| No. | DESCRIPTION | BY | CHK'D | DATE |
|---|---|---|---|---|
| 2 | ELEVATION FOR PED. TYPE P7 CORRECTED | PJ | EA | 2018-08-09 |
| 1 | EMBEDDED PLATE TYPE CHANGED, DETAIL 2 REVISED, REINFORCEMENT CLARIFICATION ADDED, SHEAR PINS ADDED | PJ | EA | 2018-05-31 |
| 0 | APPROVED FOR CONSTRUCTION | PJ | EA | 2018-04-13 |

REVISIONS

| DRAWING No. | DRAWING TITLE |
|---|---|

REFERENCE DRAWINGS

REG. PROFESSIONAL

| | | |
|---|---|---|
| DRAFTSPERSON | P. JIVAEV | NR 2018-03-20 |
| DESIGNER | H. LI | NR 2018-03-20 |
| CHECKER | E. AKINCI | |
| DESIGN COORD. | S. PERKINS | |
| RESP. ENG. | E. AKINCI | |
| LEAD DISC. ENG. | E. AKINCI | |
| ENG. MANAGER | B. RUSTAD | |
| PROJ. MANAGER | B. RUSTAD | |
| ROLE | NAME | SIGNATURE & DATE |

DRAWING APPROVAL STATUS: Approved for Construction

HATCH

StrataGold Corporation

EAGLE GOLD PROJECT

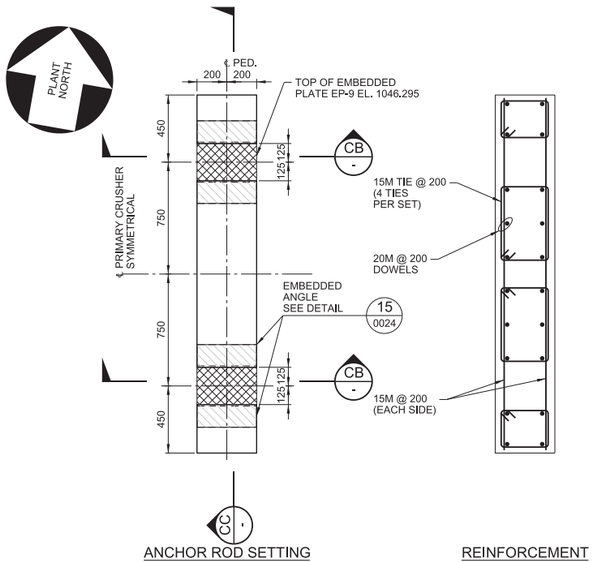
PRIMARY CRUSHING
CRUSHER SUPPORT STRUCTURE
ELEVATED SLAB PLAN - SHEET 1

| SCALE | DWG. No. | REV |
|---|---|---|
| 1:50 OR AS NOTED | H354138-3100-231-260-0005 | 2 |

SHEET SIZE: D

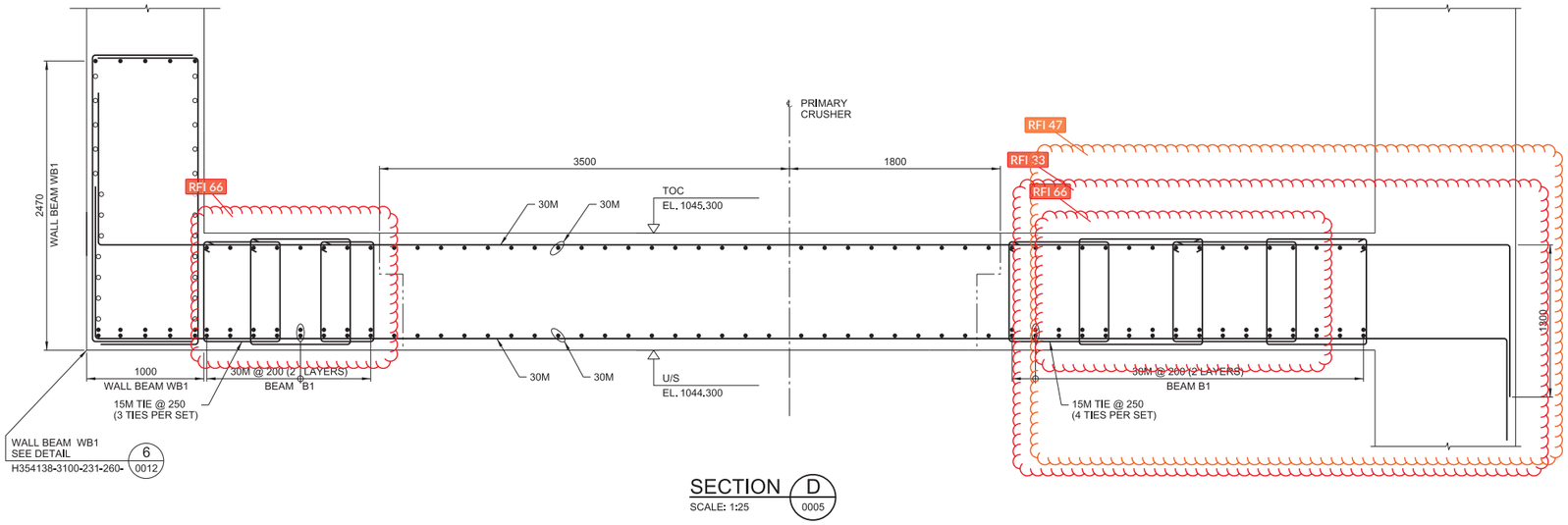
SFILE\$
PRINTED: 09-AUG-2018
tdc_pwservice
19:11

DWG. No. H354138-3100-231-260-0006



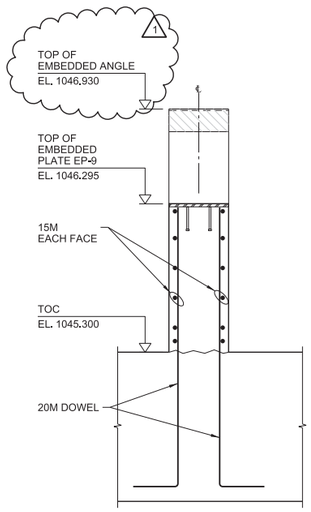

## PEDESTAL TYPE P7

SCALE: 1:20



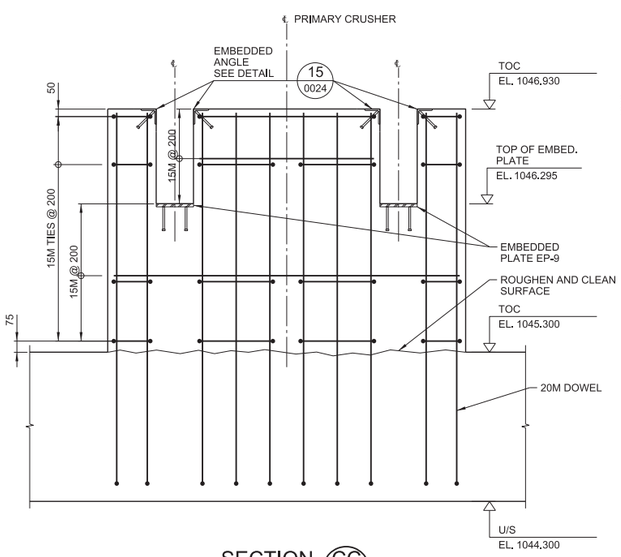

## SECTION D

SCALE: 1:25 — 0005



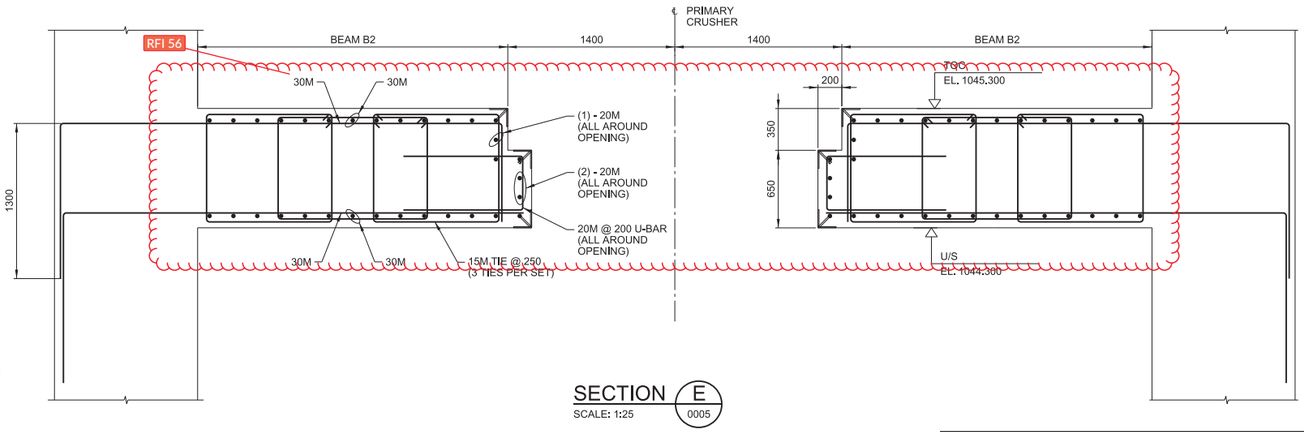

## SECTION CB

SCALE: 1:20 — -




## SECTION CC

SCALE: 1:20 — -




## SECTION E

SCALE: 1:25 — 0005

NOTES:

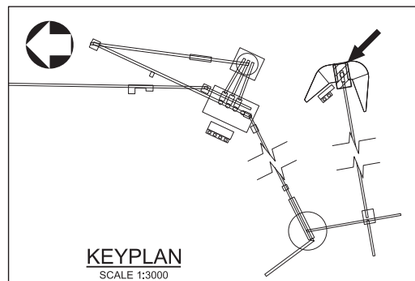
1. FOR GENERAL NOTES SEE DRAWING H354138-3100-231-260-0001.

FOR CONSTRUCTION

APRIL 13, 2018

0 250 500 750 1000 1250

1:25 SCALE IN MILLIMETRES



KEYPLAN

SCALE 1:3000

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| No. | DESCRIPTION | BY | CHK'D | DATE |
|---|---|---|---|---|
| 1 | TOP OF PED. ON SECTION 'CB' CORRECTED | PJ | EA | 2018-08-09 |
| 0 | APPROVED FOR CONSTRUCTION | PJ | EA | 2018-04-13 |

REVISIONS

| ROLE | NAME | SIGNATURE & DATE |
|---|---|---|
| DRAFTSPERSON | P. JIVAEV | NR 2018-03-20 |
| DESIGNER | H. LI | NR 2018-03-20 |
| CHECKER | E. AKINCI | |
| DESIGN COORD. | S. PERKINS | |
| RESP. ENG. | E. AKINCI | |
| LEAD DISC. ENG. | E. AKINCI | |
| ENG. MANAGER | T. O'FARRELL | |
| PROJ. MANAGER | B. RUSTAD | |

DRAWING APPROVAL STATUS: Approved for Construction

HATCH

StrataGold Corporation

EAGLE GOLD PROJECT

PRIMARY CRUSHING
CRUSHER SUPPORT STRUCTURE
SECTIONS - SHEET 2

| DRAWING No. | DRAWING TITLE |
|---|---|
| REFERENCE DRAWINGS | REG. PROFESSIONAL |

SCALE 1:25 OR AS NOTED

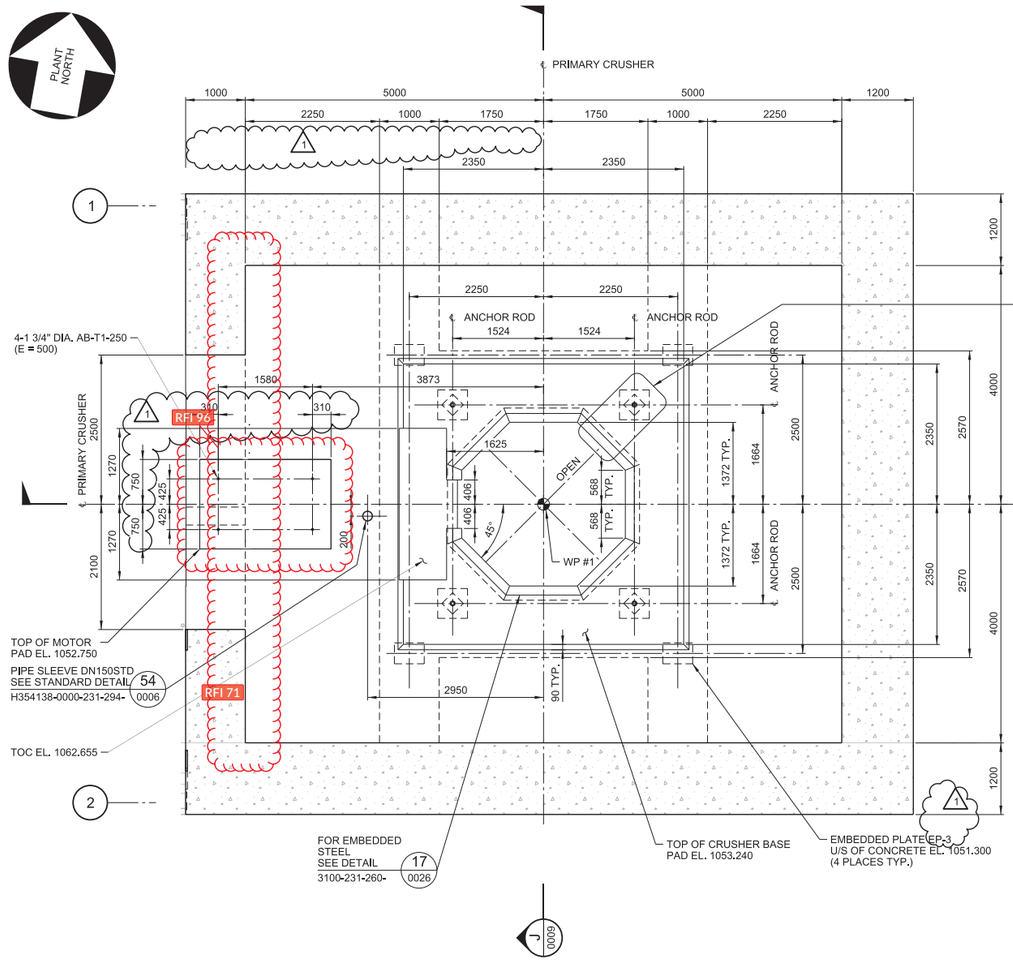
DWG. No. H354138-3100-231-260-0006

REV 1

SHEET SIZE: D

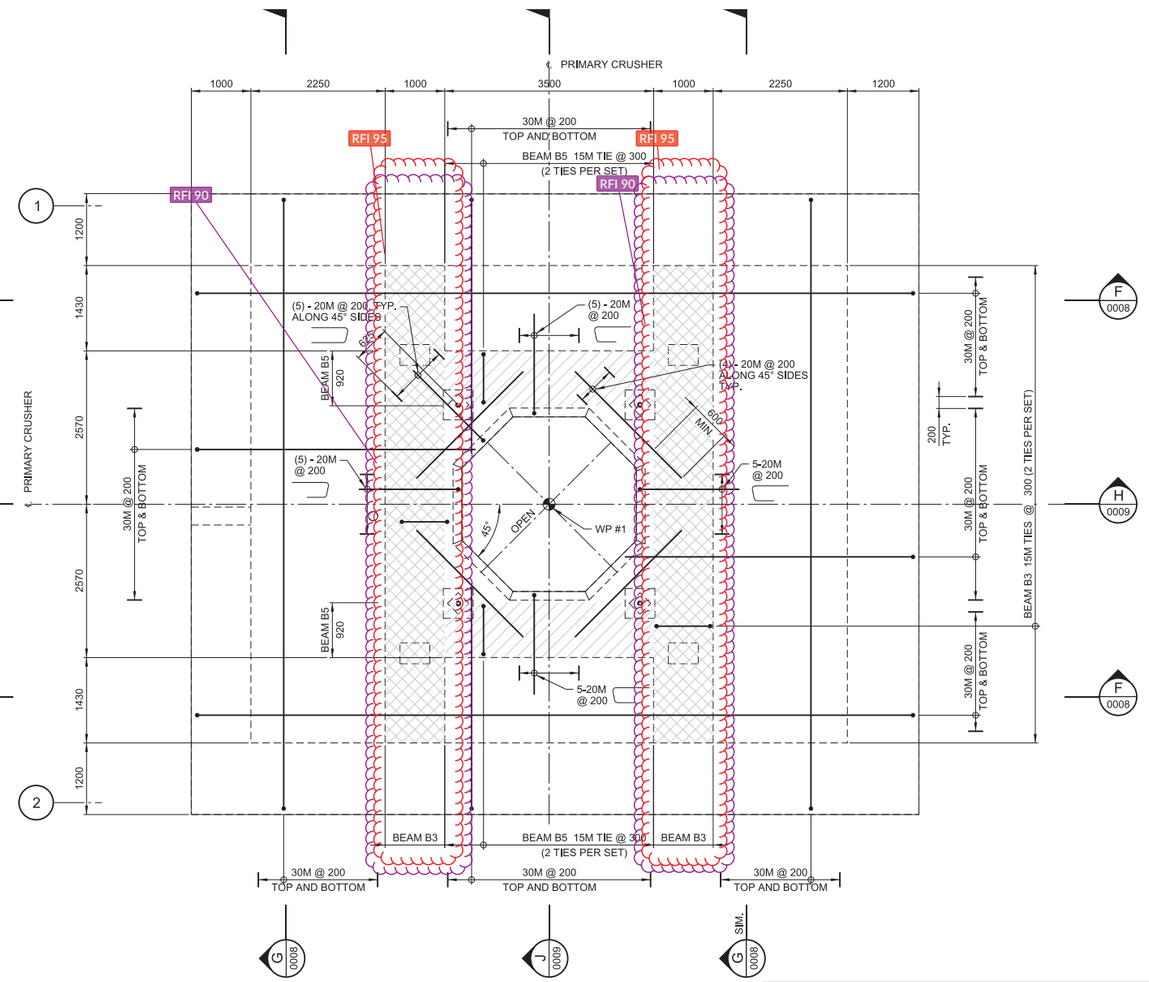
SFILELS
PRINTED: 09-AUG-2018
tdc_pwservice
19:11

DWG. No. H354138-3100-231-260-0007




## PLAN AT TOC EL. 1052.500

ELEVATED CONCRETE SLAB 400 THICK (TYP. UNO)



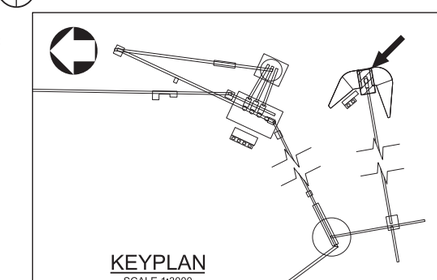

## SLAB REINFORCEMENT PLAN

CRUSHER BASE AND MOTOR PAD REINFORCEMENT NOT SHOWN FOR CLARITY

NOTES:

1. FOR GENERAL NOTES SEE DRAWING H354138-3100-231-260-0001.

0 500 1000 1500 2000 2500
1:50 SCALE IN MILLIMETRES



KEYPLAN
SCALE 1:3000

THIS DRAWING WAS PREPARED FOR THE EXCLUSIVE USE OF STRATA GOLD ("CLIENT") AND IS ISSUED PURSUANT TO H354138 BETWEEN CLIENT AND HATCH LTD. ("HATCH"). UNLESS OTHERWISE AGREED IN WRITING WITH CLIENT OR SPECIFIED ON THIS DRAWING, (A) HATCH DOES NOT ACCEPT AND DISCLAIMS ANY AND ALL LIABILITY OR RESPONSIBILITY ARISING FROM ANY USE OF OR RELIANCE ON THIS DRAWING BY ANY THIRD PARTY OR ANY MODIFICATION OR MISUSE OF THIS DRAWING BY CLIENT, AND (B) THIS DRAWING IS CONFIDENTIAL AND ALL INTELLECTUAL PROPERTY RIGHTS EMBODIED OR REFERENCED IN THIS DRAWING REMAIN THE PROPERTY OF HATCH.

| No. | DESCRIPTION | BY | CHK'D | DATE |
|---|---|---|---|---|
| 1 | MOTOR PAD SIZE REVISED, HOLDS REMOVED, EMBEDDED PLATE CHANGED | PJ | EA | 2018-05-31 |
| 0 | APPROVED FOR CONSTRUCTION | PJ | EA | 2018-04-13 |

REVISIONS

| ROLE | NAME | SIGNATURE & DATE |
|---|---|---|
| DRAFTSPERSON | P. JIVAEV | NR 2018-03-20 |
| DESIGNER | H. LI | NR 2018-03-20 |
| CHECKER | E. AKINCI | |
| DESIGN COORD. | S. PERKINS | |
| RESP. ENG. | E. AKINCI | |
| LEAD DISC. ENG. | E. AKINCI | |
| ENG. MANAGER | B. RUSTAD | |
| PROJ. MANAGER | B. RUSTAD | |

DRAWING APPROVAL STATUS: Approved for Construction

HATCH

StrataGold Corporation

EAGLE GOLD PROJECT

PRIMARY CRUSHING
CRUSHER SUPPORT STRUCTURE
ELEVATED SLAB PLAN - SHEET 2

| DRAWING No. | DRAWING TITLE |
|---|---|
| REFERENCE DRAWINGS | REG. PROFESSIONAL |

SCALE 1:50 OR AS NOTED

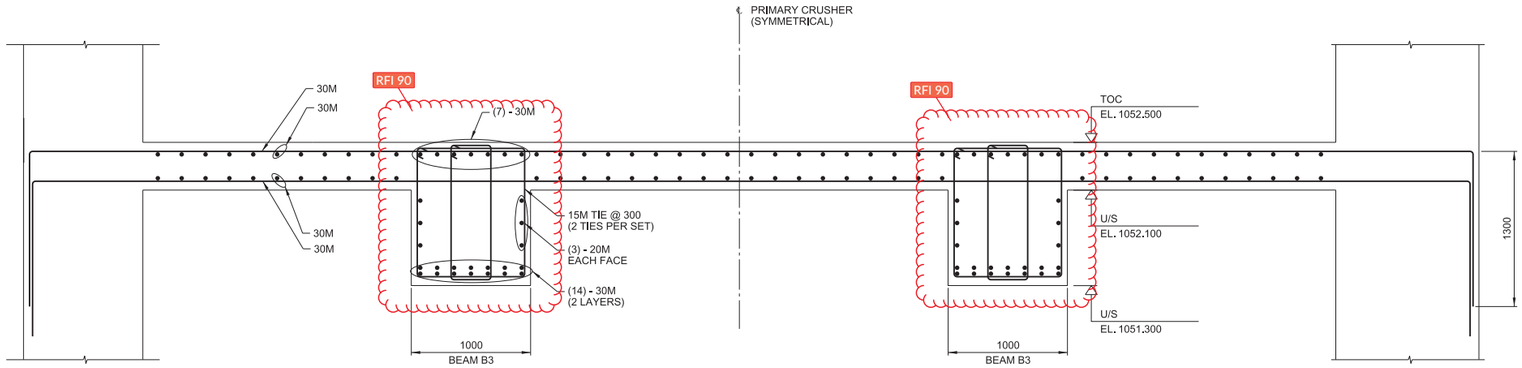
DWG. No. H354138-3100-231-260-0007

REV 1

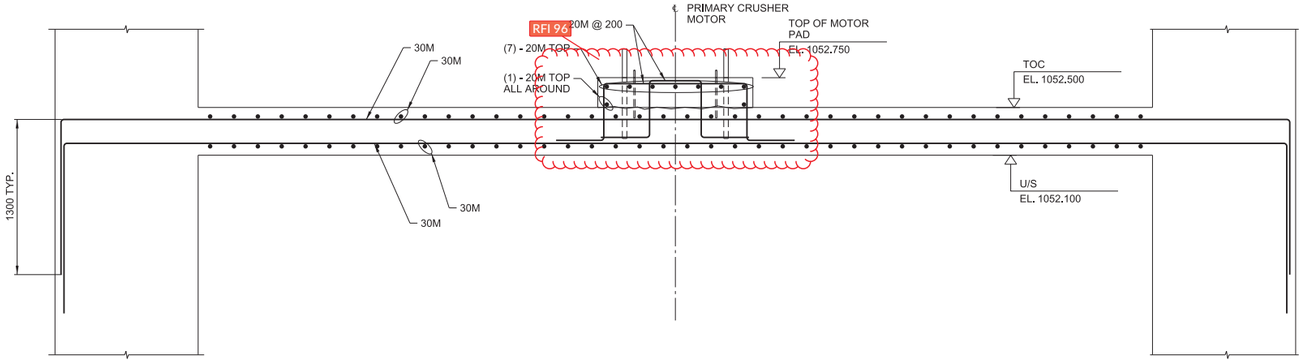
SHEET SIZE: D

$FILE$
PRINTED: 04-JUN-2018
idc_pwservice
10:56

DWG. No. H354138-3100-231-260-0008



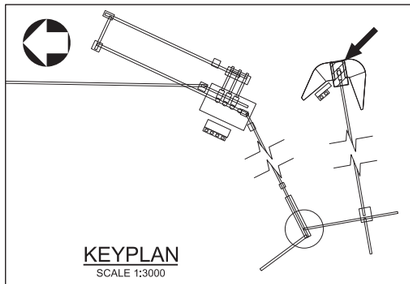

SECTION F
SCALE: 1:25 0007




SECTION G
SCALE: 1:25 0007

NOTES:

1. FOR GENERAL NOTES SEE DRAWING H354138-3100-231-260-0001.



KEYPLAN
SCALE 1:3000

0 250 500 750 1000 1250
1:25 SCALE IN MILLIMETRES

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| No. | DESCRIPTION | BY | CHK'D | DATE |
|---|---|---|---|---|
| 0 | APPROVED FOR CONSTRUCTION | PJ | EA | 2018-04-13 |

| ROLE | NAME | SIGNATURE | DATE |
|---|---|---|---|
| DRAFTSPERSON | P. JIVAEV | NR | 2018-03-20 |
| DESIGNER | H. LI | NR | 2018-03-20 |
| CHECKER | E. AKINCI | | |
| DESIGN COORD. | S. PERKINS | | |
| RESP. ENG. | E. AKINCI | | |
| LEAD DISC. ENG. | E. AKINCI | | |
| ENG. MANAGER | T. O'FARRELL | | |
| PROJ. MANAGER | B. RUSTAD | | |

DRAWING APPROVAL STATUS: Approved for Construction

HATCH

StrataGold Corporation

EAGLE GOLD PROJECT

PRIMARY CRUSHING
CRUSHER SUPPORT STRUCTURE
SECTIONS - SHEET 3

| DRAWING No. | DRAWING TITLE |
|---|---|
| REFERENCE DRAWINGS | REG. PROFESSIONAL |

SCALE 1:25 OR AS NOTED

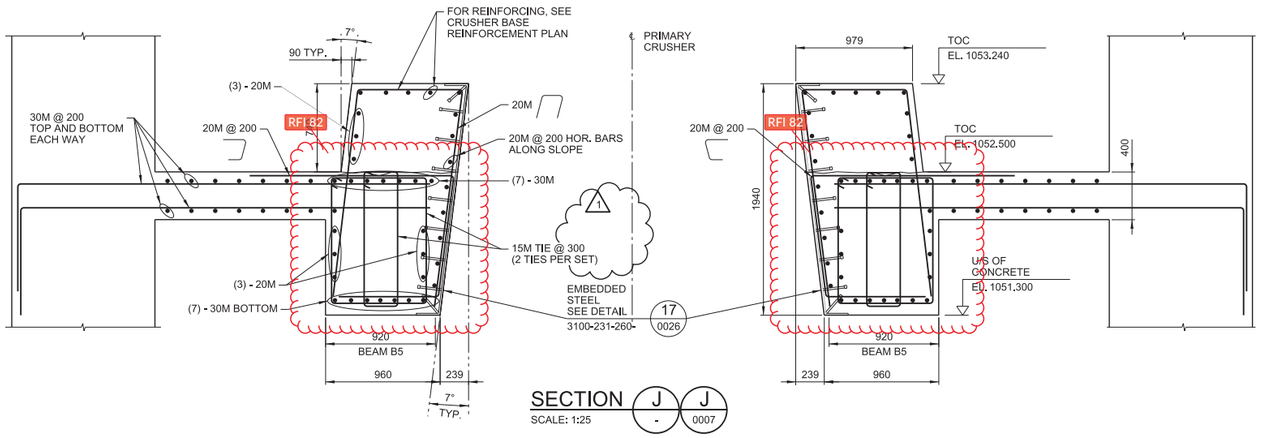
DWG. No. H354138-3100-231-260-0008

REV 0

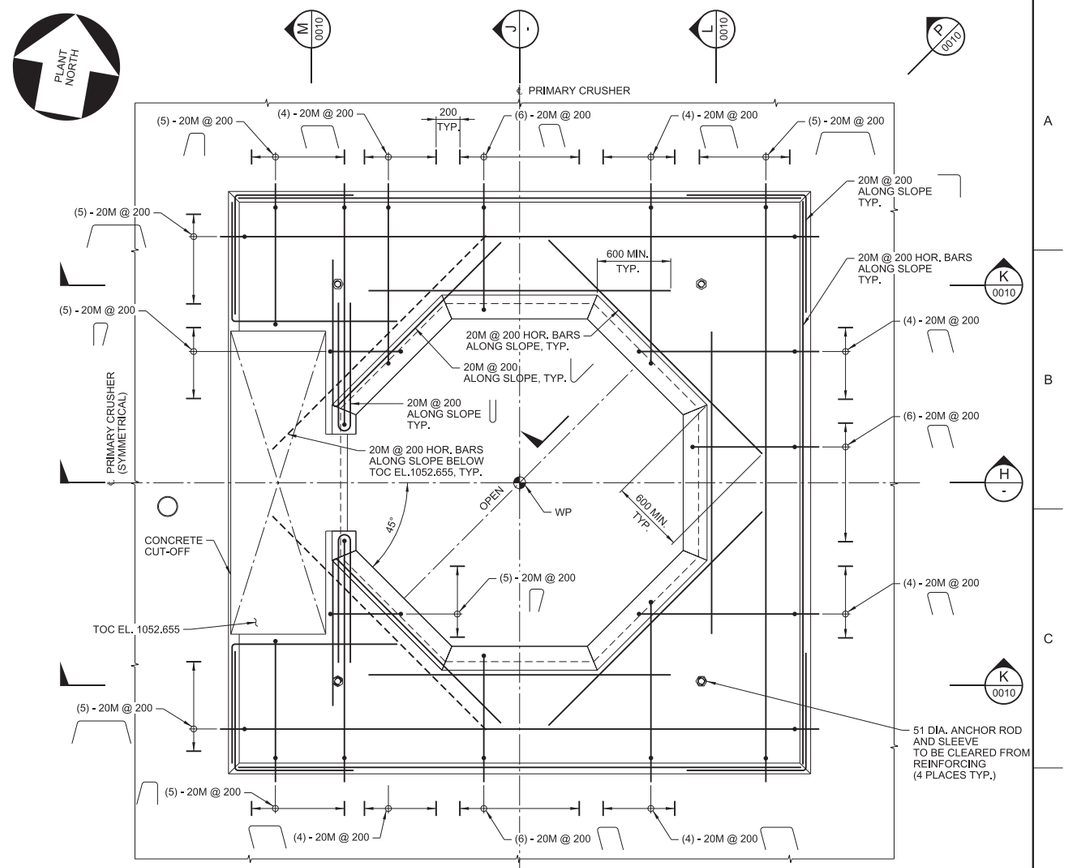
SHEET SIZE: D

$FILE$
PRINTED: 12-APR-2018
18:42
idc_pwservice

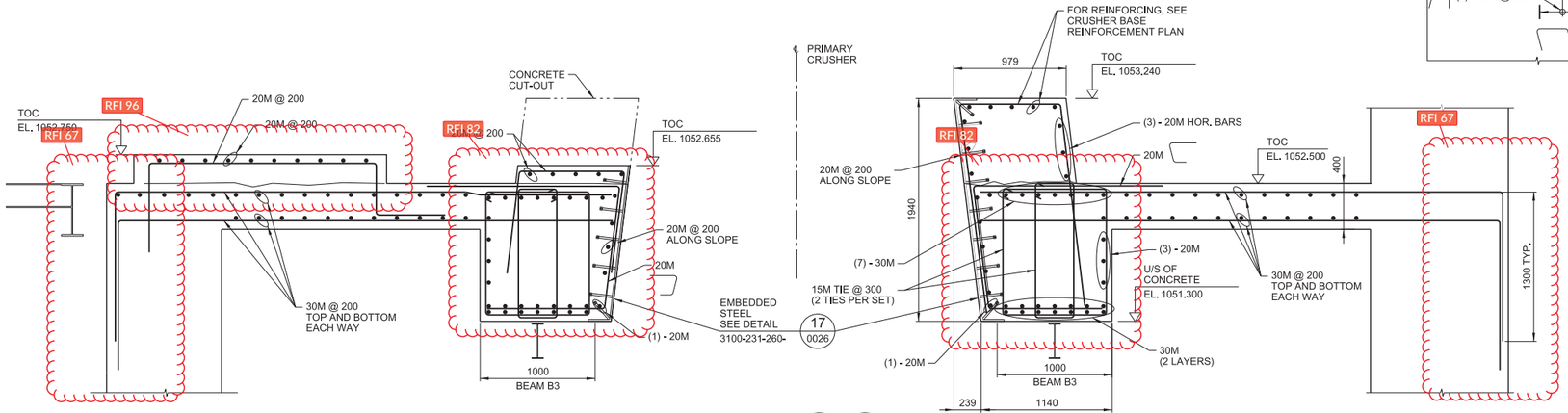
DWG. No. H354138-3100-231-260-0009




SECTION J - J 0007
SCALE: 1:25




## CRUSHER BASE REINFORCEMENT PLAN
SLAB REINFORCEMENT NOT SHOWN FOR CLARITY
SCALE: 1:25

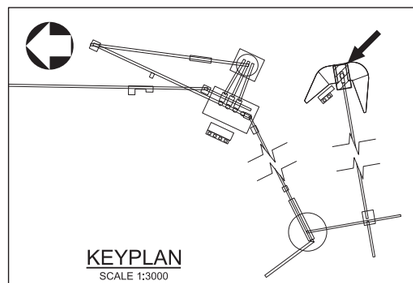



SECTION H - H 0007
SCALE: 1:25

NOTES:

1. FOR GENERAL NOTES SEE DRAWING H354138-3100-231-260-0001.

0 250 500 750 1000 1250
1:25 SCALE IN MILLIMETRES



KEYPLAN
SCALE 1:3000

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| No. | DESCRIPTION | BY | CHK'D | DATE |
|---|---|---|---|---|
| 1 | HOLD REMOVED, SECTION J REINFORCEMENT REVISED | PJ | EA | 2018-05-31 |
| 0 | APPROVED FOR CONSTRUCTION | PJ | EA | 2018-04-13 |

REVISIONS

| ROLE | NAME | SIGNATURE & DATE |
|---|---|---|
| DRAFTSPERSON | P. JIVAEV | NR 2018-03-20 |
| DESIGNER | H. LI | NR 2018-03-20 |
| CHECKER | E. AKINCI | |
| DESIGN COORD. | S. PERKINS | |
| RESP. ENG. | E. AKINCI | |
| LEAD DISC. ENG. | E. AKINCI | |
| ENG. MANAGER | B. RUSTAD | |
| PROJ. MANAGER | B. RUSTAD | |

DRAWING APPROVAL STATUS: Approved for Construction

DRAWING No. | DRAWING TITLE
REFERENCE DRAWINGS

REG. PROFESSIONAL

HATCH

StrataGold Corporation

EAGLE GOLD PROJECT

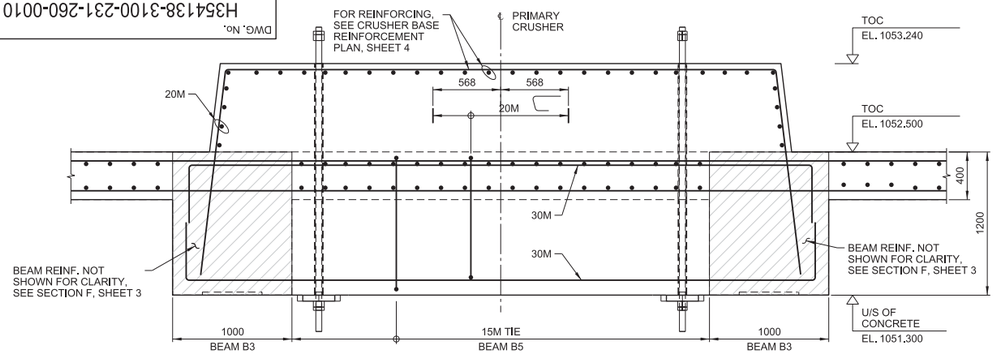
PRIMARY CRUSHING
CRUSHER SUPPORT STRUCTURE
SECTIONS - SHEET 4

SCALE 1:25 OR AS NOTED | DWG. No. H354138-3100-231-260-0009 | REV 1

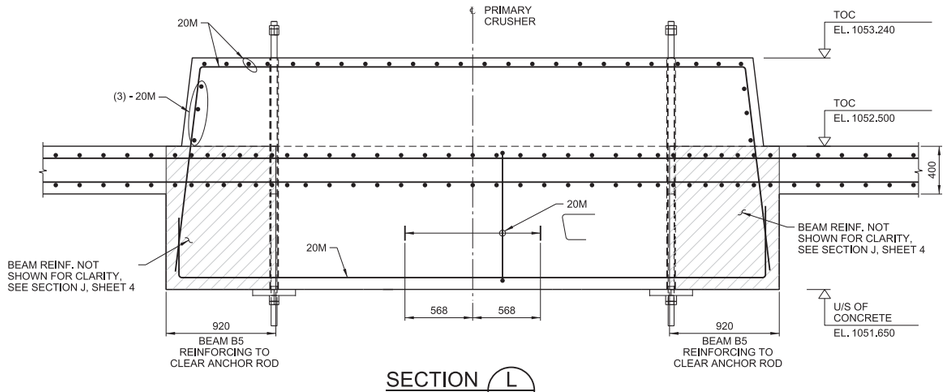
SHEET SIZE: D

SFILE\$
PRINTED: 04-JUN-2018
tdc_pwservice
10:56

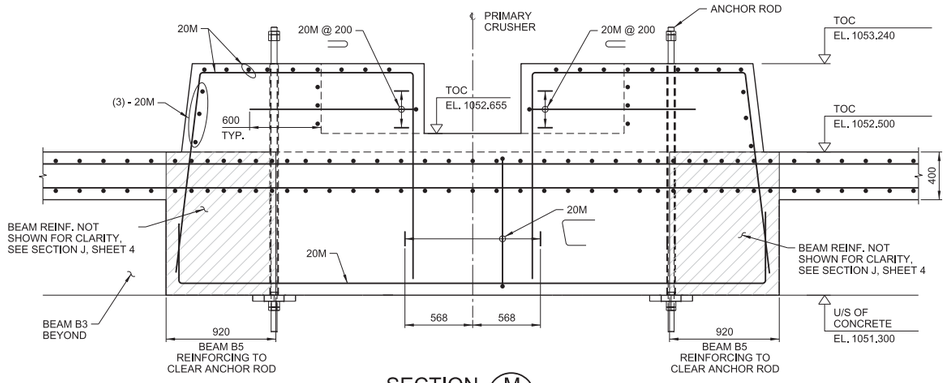
DWG. No. H354138-3100-231-260-0010



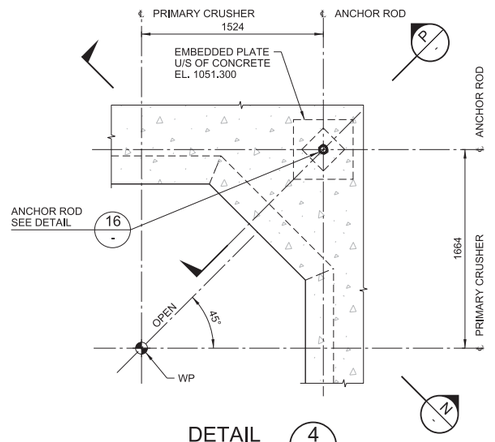

SECTION K 0009



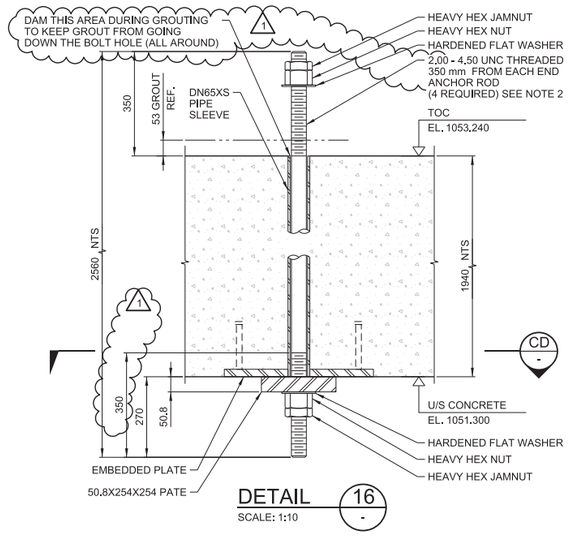

SECTION L 0009



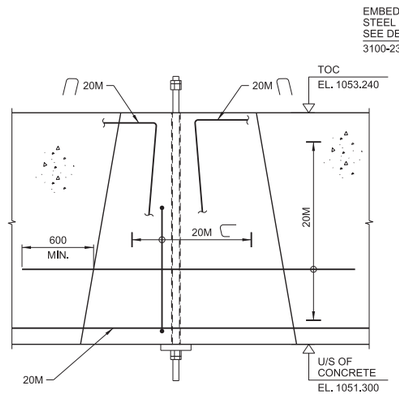

SECTION M 0009



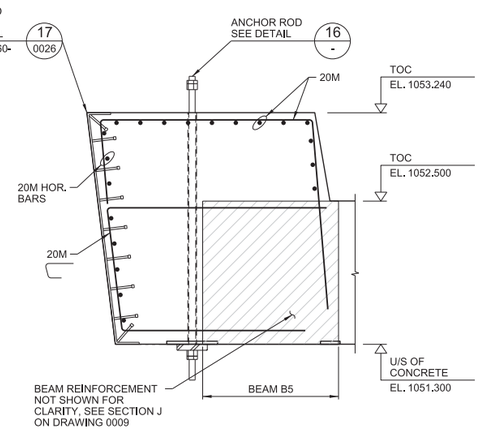

DETAIL 4 0007
SCALE: 1:25



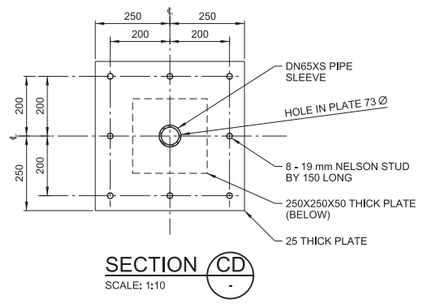

DETAIL 16 -
SCALE: 1:10




SECTION N -



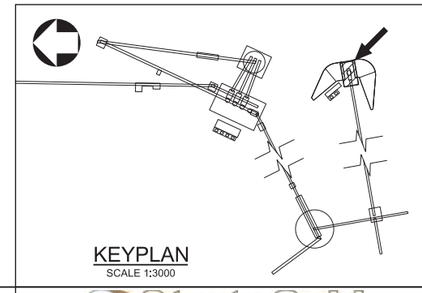

SECTION P -




SECTION CD -
SCALE: 1:10

NOTES:

1. FOR GENERAL NOTES SEE DRAWING H354138-3100-231-260-0001.
2. FOR ANCHOR ROD AND GROUT DETAILS SEE GYRATORY CRUSHER VENDOR'S INSTALLATION DETAILS.



KEYPLAN
SCALE 1:3000

0 100 200 300 400 500
1:10 SCALE IN MILLIMETRES

0 250 500 750 1000 1250
1:25 SCALE IN MILLIMETRES

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| REVISIONS | | | | | |
|---|---|---|---|---|---|
| No. | DESCRIPTION | BY | CHK'D | DATE | |
| 1 | HOLD REMOVED, DETAIL 16 UPDATED | PJ | EA | 2018-05-31 | |
| 0 | APPROVED FOR CONSTRUCTION | PJ | EA | 2018-04-13 | |

| ROLE | NAME | SIGNATURE & DATE |
|---|---|---|
| DRAFTSPERSON | P. JIVAEV | NR 2018-03-20 |
| DESIGNER | H. LI | NR 2018-03-20 |
| CHECKER | E. AKINCI | |
| DESIGN COORD. | S. PERKINS | |
| RESP. ENG. | E. AKINCI | |
| LEAD DISC. ENG. | E. AKINCI | |
| ENG. MANAGER | B. RUSTAD | |
| PROJ. MANAGER | B. RUSTAD | |

DRAWING APPROVAL STATUS: Approved for Construction

EAGLE GOLD PROJECT

PRIMARY CRUSHING
CRUSHER SUPPORT STRUCTURE
SECTIONS - SHEET 5

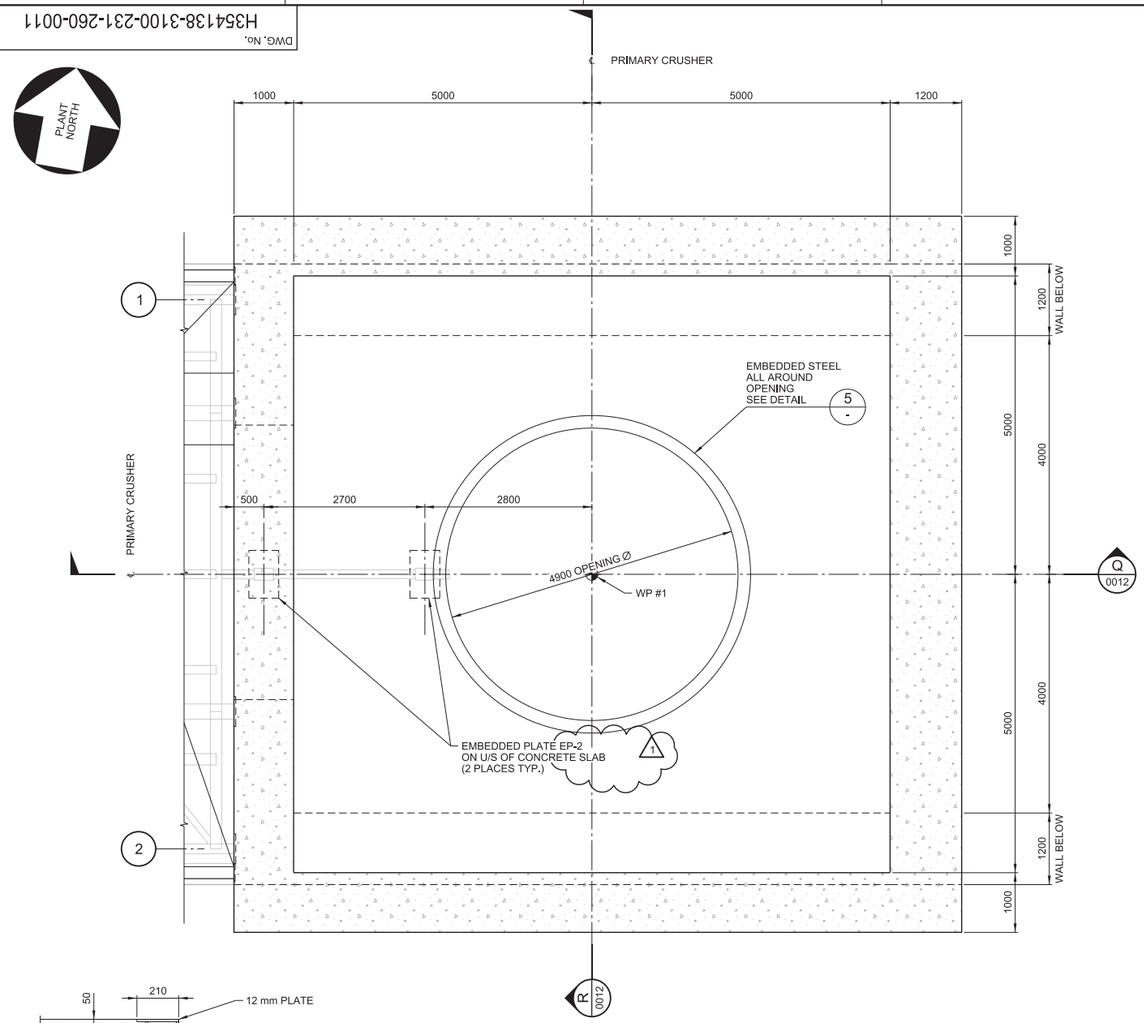
| SCALE | DWG. No. | REV |
|---|---|---|
| 1:25 OR AS NOTED | H354138-3100-231-260-0010 | 1 |

SHEET SIZE: D

DRAWING No. | DRAWING TITLE
REFERENCE DRAWINGS
REG. PROFESSIONAL

SFILELS
PRINTED: 04-JUN-2018
10:57
idc_pwservice

DWG. No. H354138-3100-231-260-0011



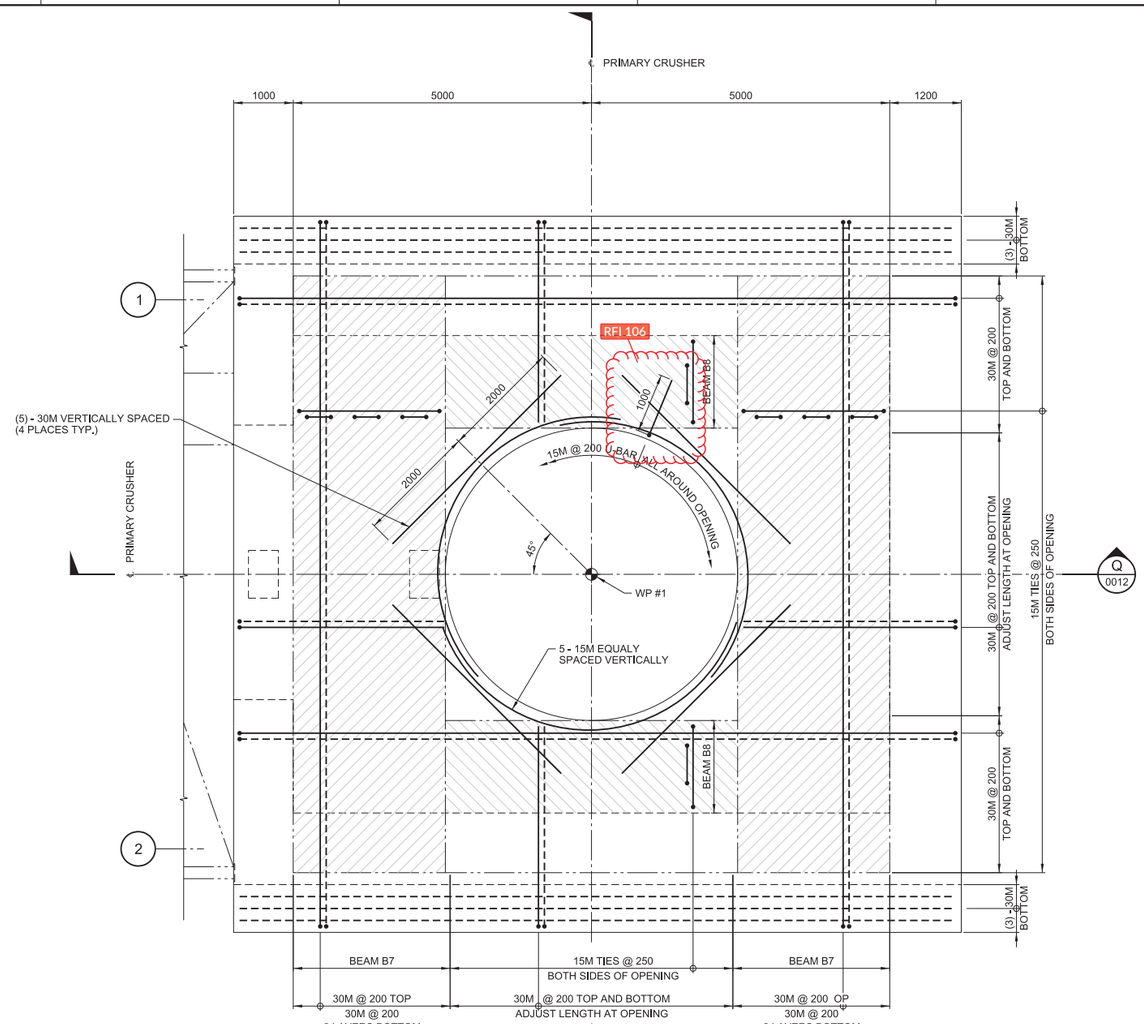




DETAIL 5 -
SCALE: 1:15

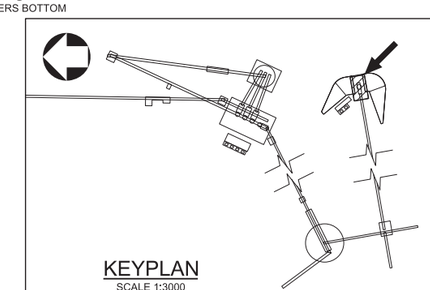
R 0012

PLAN AT TOC EL. 1057.300
ELEVATED CONCRETE SLAB 1000 THICK




R 0012

SLAB REINFORCEMENT PLAN
ELEVATED CONCRETE SLAB 1000 THICK



KEYPLAN
SCALE 1:3000

NOTES:

1. FOR GENERAL NOTES SEE DRAWING H354138-3100-231-260-0001.

0 150 300 150 600 750
1:15 SCALE IN MILLIMETRES

0 500 1000 1500 2000 2500
1:50 SCALE IN MILLIMETRES

| DRAWING No. | DRAWING TITLE |
|---|---|
| REFERENCE DRAWINGS | |

REG. PROFESSIONAL

| No. | DESCRIPTION | BY | CHK'D | DATE |
|---|---|---|---|---|
| 1 | EMBEDDED PLATE TYPE CHANGED | PJ | EA | 2018-05-31 |
| 0 | APPROVED FOR CONSTRUCTION | PJ | EA | 2018-04-13 |

REVISIONS

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HATCH

| | | | |
|---|---|---|---|
| DRAFTSPERSON | P. JIVAEV | NR | 2018-03-20 |
| DESIGNER | H. LI | NR | 2018-03-20 |
| CHECKER | E. AKINCI | | |
| DESIGN COORD. | S. PERKINS | | |
| RESP. ENG. | E. AKINCI | | |
| LEAD DISC. ENG. | E. AKINCI | | |
| ENG. MANAGER | B. RUSTAD | | |
| PROJ. MANAGER | B. RUSTAD | | |
| ROLE | NAME | SIGNATURE & DATE | |
| DRAWING APPROVAL STATUS: | Approved for Construction | | |

StrataGold Corporation

EAGLE GOLD PROJECT

PRIMARY CRUSHING
CRUSHER SUPPORT STRUCTURE
ELEVATED SLAB PLAN - SHEET 3

| SCALE | DWG. No. | REV |
|---|---|---|
| 1:50 OR AS NOTED | H354138-3100-231-260-0011 | 1 |

SHEET SIZE: D

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PRINTED: 04-JUN-2018
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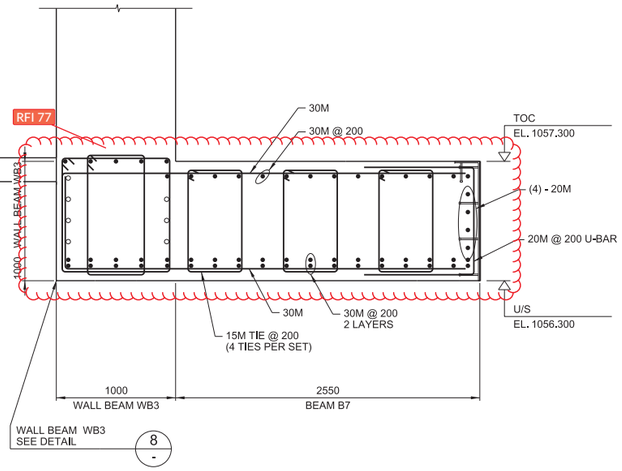
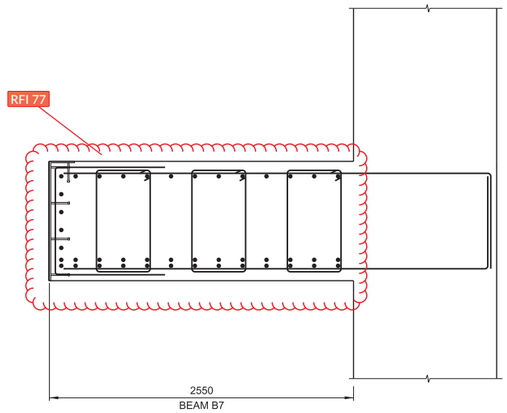
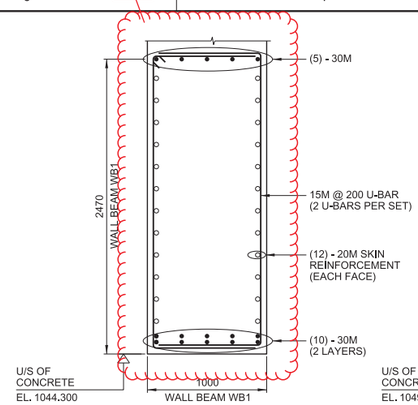
DWG. No. H354138-3100-231-260-0012



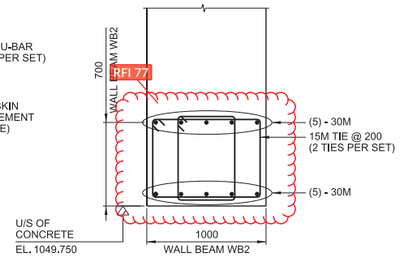

PRIMARY CRUSHER SYMMETRICAL

SECTION Q
SCALE: 1:25 0011

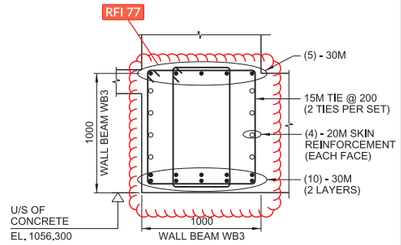


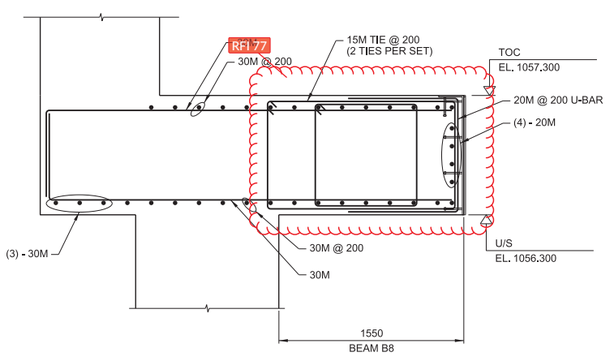

WALL BEAM WB1 DETAIL 6 / 6
H354138-3100-231-260- 0006 / 0020
SCALE: 1:25




WALL BEAM WB2 DETAIL 7
H354138-3100-231-260- 0020
SCALE: 1:25

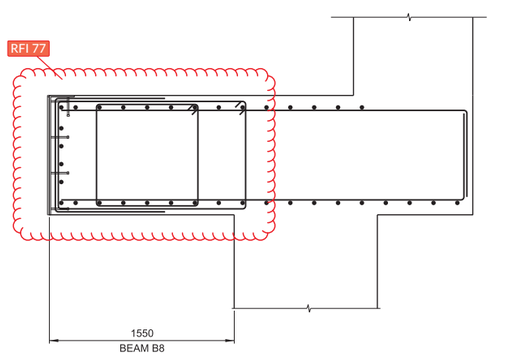



WALL BEAM WB3 DETAIL 8 / -
H354138-3100-231-260- 0020 / -
SCALE: 1:25




PRIMARY CRUSHER

SECTION R
SCALE: 1:25 0011



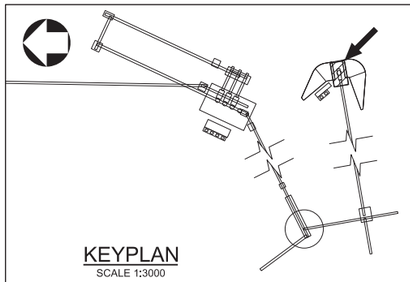

NOTES:

1. FOR GENERAL NOTES SEE DRAWING H354138-3100-231-260-0001.

FOR CONSTRUCTION

APRIL 13, 2018

0 250 500 750 1000 1250
1:25 SCALE IN MILLIMETRES



KEYPLAN
SCALE 1:3000

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| No. | DESCRIPTION | BY | CHK'D | DATE |
|---|---|---|---|---|
| 0 | APPROVED FOR CONSTRUCTION | PJ | EA | 2018-04-13 |

| ROLE | NAME | SIGNATURE | DATE |
|---|---|---|---|
| DRAFTSPERSON | P. JIVAEV | NR | 2018-03-20 |
| DESIGNER | H. LI | NR | 2018-03-20 |
| CHECKER | E. AKINCI | | |
| DESIGN COORD. | S. PERKINS | | |
| RESP. ENG. | E. AKINCI | | |
| LEAD DISC. ENG. | E. AKINCI | | |
| ENG. MANAGER | T. O'FARRELL | | |
| PROJ. MANAGER | B. RUSTAD | | |

DRAWING APPROVAL STATUS: Approved for Construction

REFERENCE DRAWINGS | DRAWING No. | DRAWING TITLE

REG. PROFESSIONAL

HATCH

StrataGold Corporation

EAGLE GOLD PROJECT

PRIMARY CRUSHING
CRUSHER SUPPORT STRUCTURE
SECTIONS - SHEET 6

SCALE 1:25 OR AS NOTED | DWG. No. H354138-3100-231-260-0012 | REV 0

SHEET SIZE: D

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PRINTED: 12-APR-2018
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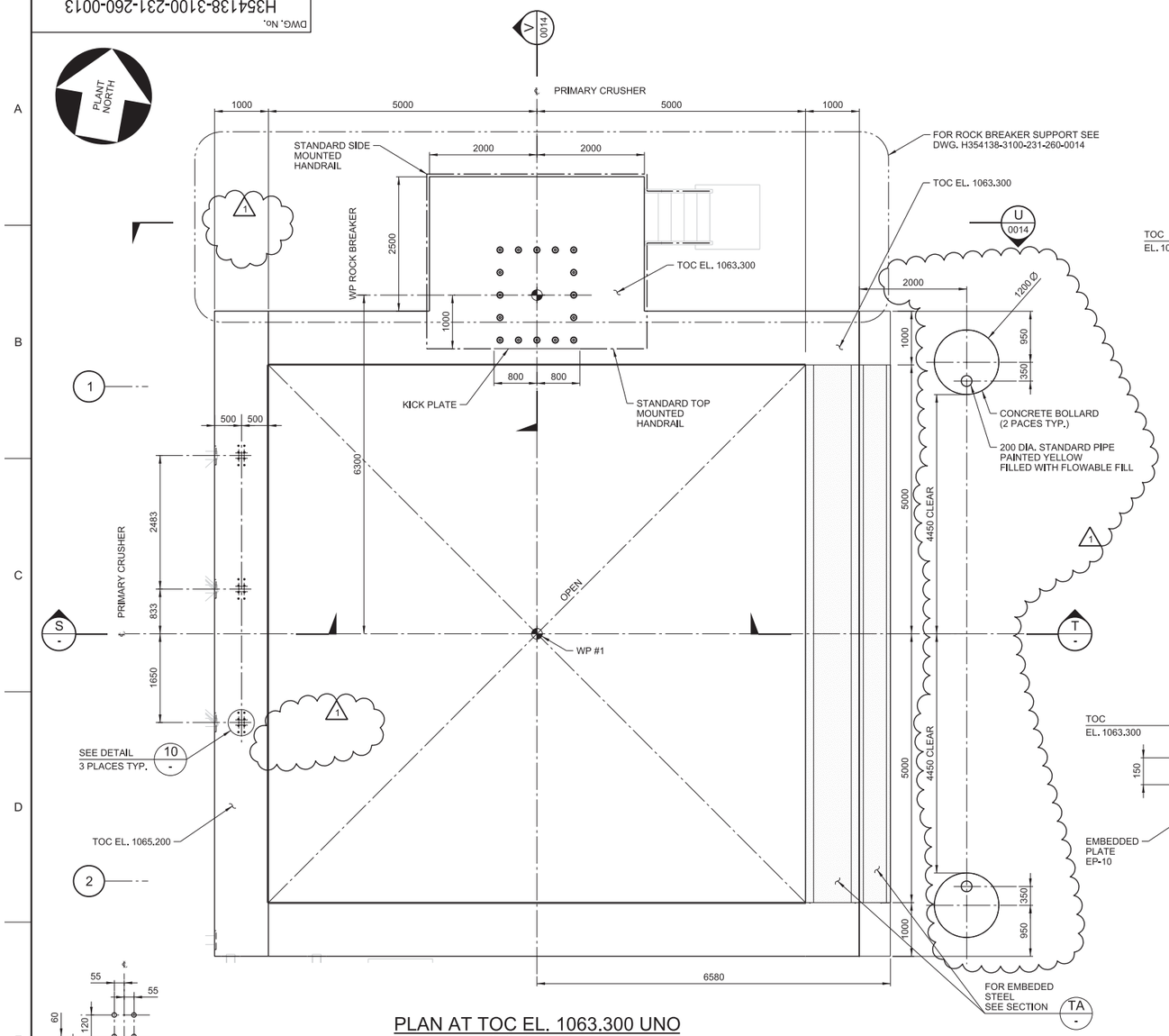
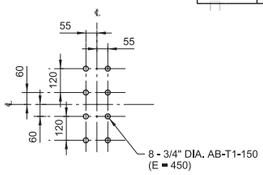
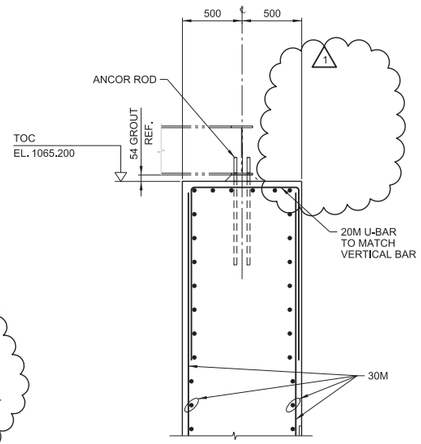
DWG. No. H354138-3100-231-260-0013



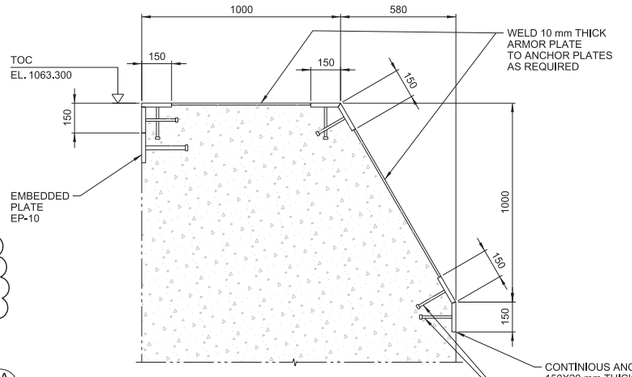

## PLAN AT TOC EL. 1063.300 UNO
TOP OF DUMP POCKET



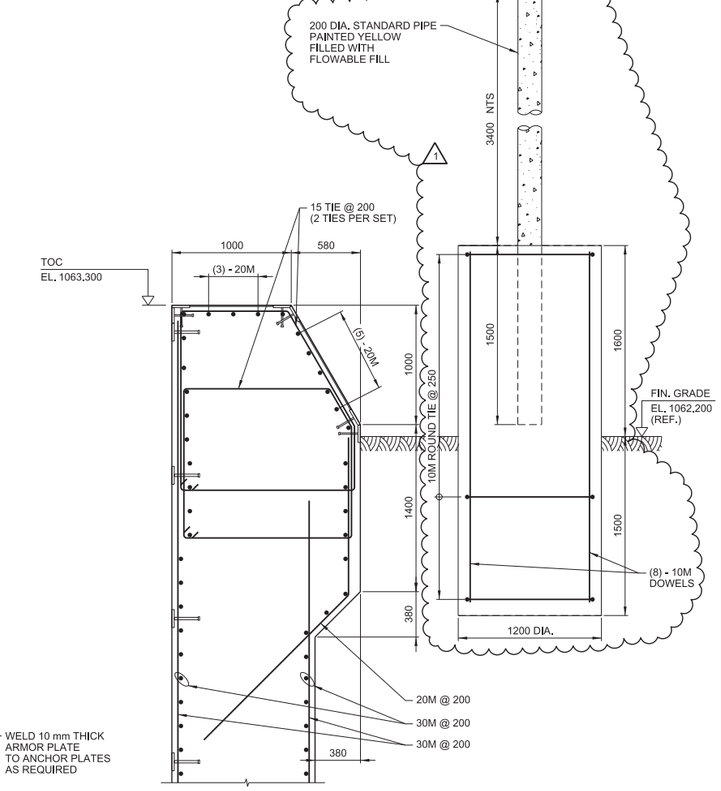

## DETAIL 10
SCALE: 1:15




## SECTION S
SCALE: 1:25

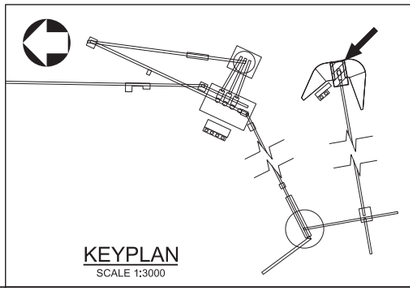



## EMBEDDED STEEL SECTION TA
SCALE: 1:15




## SECTION T
SCALE: 1:25

NOTES:
1. FOR GENERAL NOTES SEE DRAWING H354138-3100-231-260-0001.



## KEYPLAN
SCALE 1:3000

0 500 1000 1500 2000 2500
1:50 SCALE IN MILLIMETRES

THIS DRAWING WAS PREPARED FOR THE EXCLUSIVE USE OF STRATA GOLD ("CLIENT") AND IS ISSUED PURSUANT TO H354138 BETWEEN CLIENT AND HATCH LTD. ("HATCH"). UNLESS OTHERWISE AGREED IN WRITING WITH CLIENT OR SPECIFIED ON THIS DRAWING, (A) HATCH DOES NOT ACCEPT AND DISCLAIMS ANY AND ALL LIABILITY OR RESPONSIBILITY ARISING FROM ANY USE OF OR RELIANCE ON THIS DRAWING BY ANY THIRD PARTY OR ANY MODIFICATION OR MISUSE OF THIS DRAWING BY CLIENT, AND (B) THIS DRAWING IS CONFIDENTIAL AND ALL INTELLECTUAL PROPERTY RIGHTS EMBODIED OR REFERENCED IN THIS DRAWING REMAIN THE PROPERTY OF HATCH.

| No. | DESCRIPTION | BY | CHK'D | DATE |
|---|---|---|---|---|
| 1 | HOLD H0008 REMOVED, WALL AT EL. 1065,650 DELETED, BOLLARDS ADDED | PJ | EA | 2018-10-05 |
| 0 | APPROVED FOR CONSTRUCTION | PJ | EA | 2018-04-13 |

| ROLE | NAME | SIGNATURE & DATE |
|---|---|---|
| DRAFTSPERSON | P. JIVAEV | NR 2018-03-20 |
| DESIGNER | H. LI | NR 2018-03-20 |
| CHECKER | E. AKINCI | |
| DESIGN COORD. | S. PERKINS | |
| RESP. ENG. | E. AKINCI | |
| LEAD DISC. ENG. | E. AKINCI | |
| ENG. MANAGER | B. RUSTAD | |
| PROJ. MANAGER | B. RUSTAD | |

DRAWING APPROVAL STATUS: Approved for Construction

HATCH

StrataGold Corporation

EAGLE GOLD PROJECT

PRIMARY CRUSHING
CRUSHER SUPPORT STRUCTURE
ELEVATED SLAB PLAN - SHEET 4

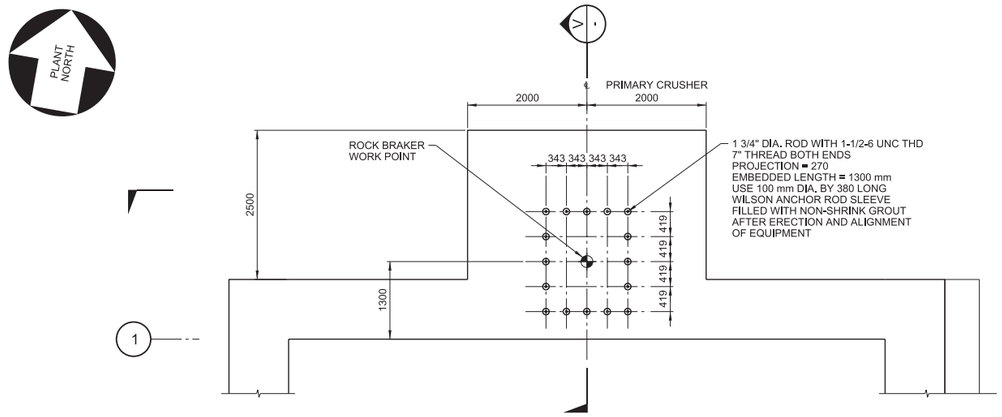
SCALE 1:50 OR AS NOTED | DWG. No. H354138-3100-231-260-0013 | REV 1

SHEET SIZE: D

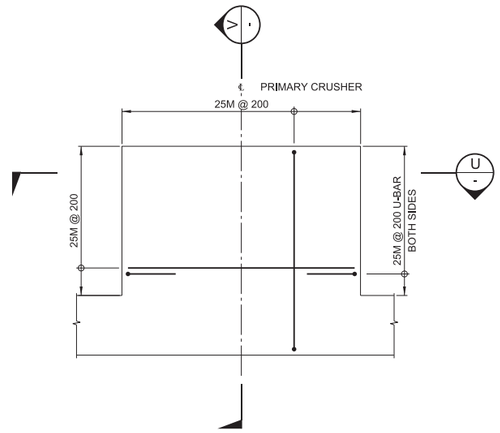
DRAWING No. | DRAWING TITLE | REFERENCE DRAWINGS | REG. PROFESSIONAL

$FILE$
PRINTED: 05-OCT-2018
idc_pwservice
12:47

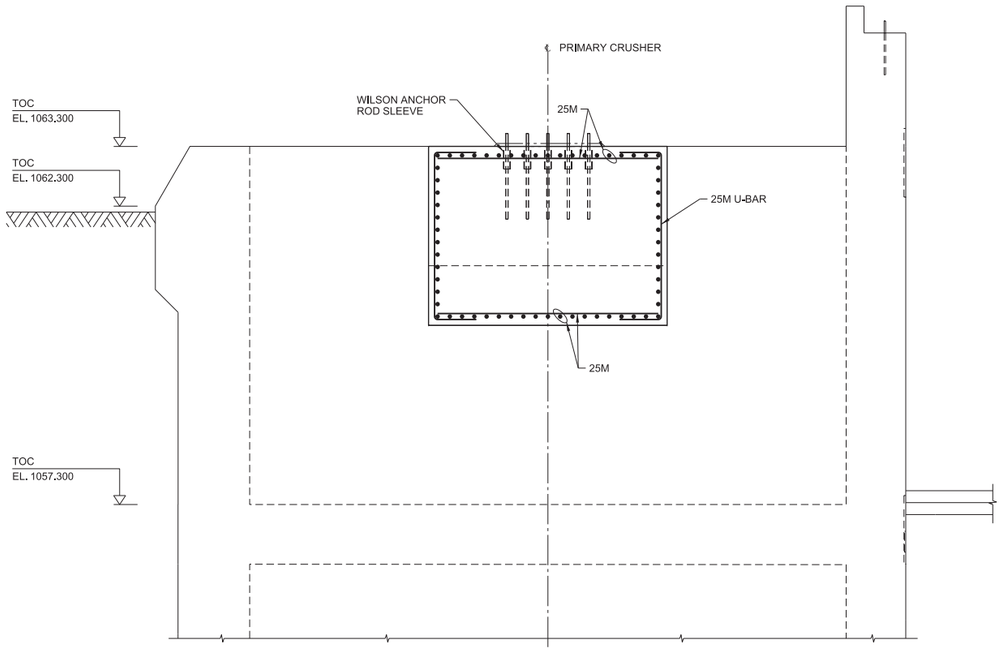
DWG. No. H354138-3100-231-260-0014



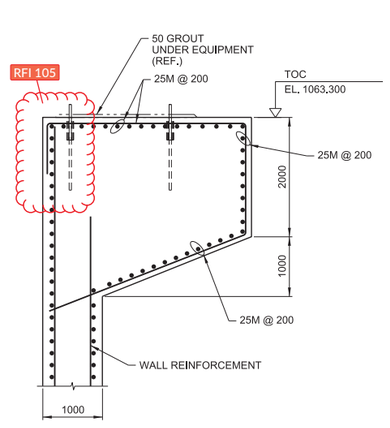

## PLAN AT TOC EL. 1063.300
ROCK BREAKER SUPPORT SLAB




## REINFORCEMENT PLAN




## SECTION U - U 0013

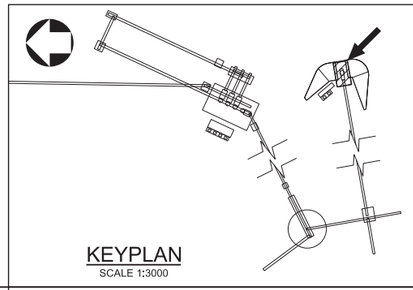



## SECTION V - V 0013

NOTES:

1. FOR GENERAL NOTES SEE DRAWING H354138-3100-231-260-0001.

0 500 1000 1500 2000 2500
1:50 SCALE IN MILLIMETRES



KEYPLAN
SCALE 1:3000

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| No. | DESCRIPTION | BY | CHK'D | DATE |
|---|---|---|---|---|
| 0 | APPROVED FOR CONSTRUCTION | PJ | EA | 2018-04-13 |

| ROLE | NAME | SIGNATURE | DATE |
|---|---|---|---|
| DRAFTSPERSON | P. JIVAEV | NR | 2018-03-20 |
| DESIGNER | H. LI | NR | 2018-03-20 |
| CHECKER | E. AKINCI | | |
| DESIGN COORD. | S. PERKINS | | |
| RESP. ENG. | E. AKINCI | | |
| LEAD DISC. ENG. | E. AKINCI | | |
| ENG. MANAGER | T. O'FARRELL | | |
| PROJ. MANAGER | B. RUSTAD | | |

DRAWING APPROVAL STATUS: Approved for Construction

REFERENCE DRAWINGS | DRAWING No. | DRAWING TITLE

REG. PROFESSIONAL

HATCH

StrataGold Corporation

EAGLE GOLD PROJECT

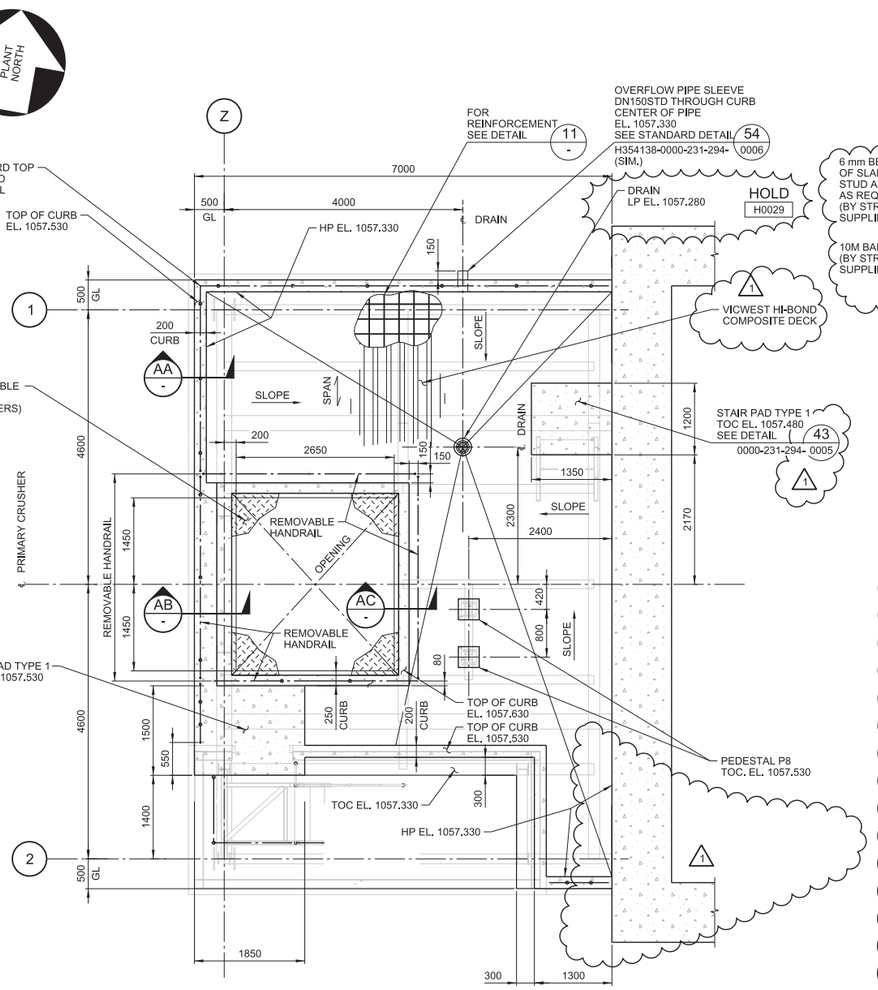
PRIMARY CRUSHING
CRUSHER SUPPORT STRUCTURE
PLAN, SECTIONS AND DETAILS

| SCALE | DWG. No. | REV |
|---|---|---|
| 1:50 OR AS NOTED | H354138-3100-231-260-0014 | 0 |

SHEET SIZE: D

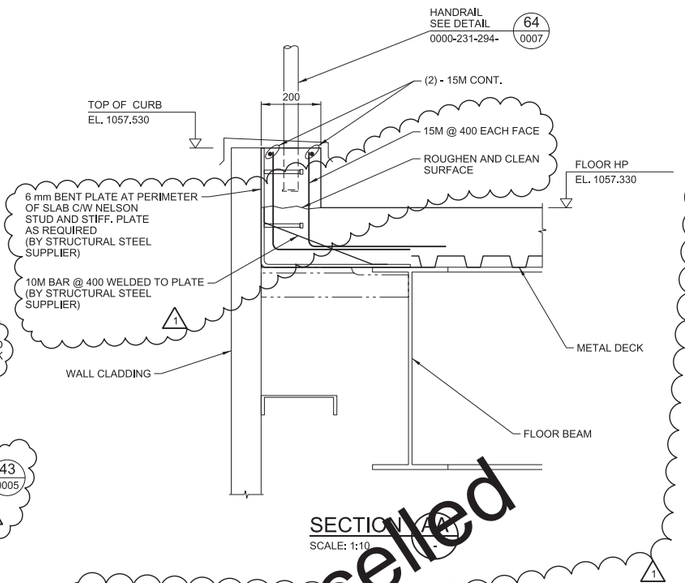
$FILELS
PRINTED: 13-APR-2018
idc_pwservice
10:45

DWG. No. H354138-3100-231-260-0015



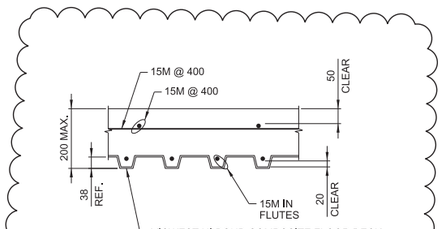

## PLAN AT SLAB ON DECK HP EL. 1057.330

ELEVATED CONCRETE SLAB 200 THICK



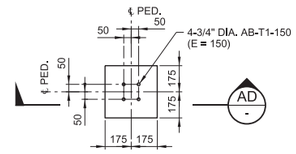

## SECTION AD

SCALE: 1:10

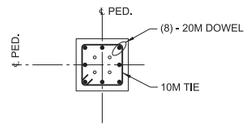



## TYPICAL DECK REINFORCEMENT DETAIL 11

SCALE: 1:10



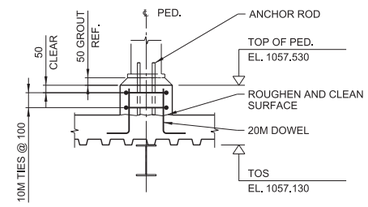

## ANCHOR BOLT SETTING




## REINFORCING

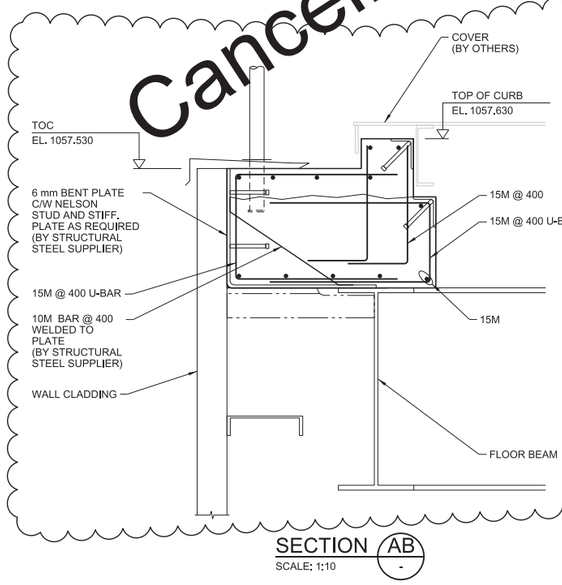
## PEDESTAL P8

SCALE: 1:20



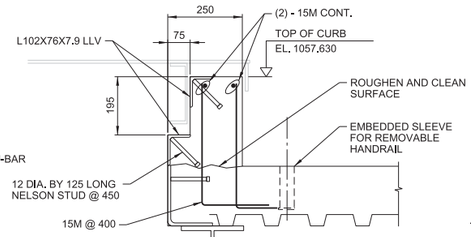

## SECTION AD

SCALE: 1:20




## SECTION AB

SCALE: 1:10




## SECTION AC

SCALE: 1:10

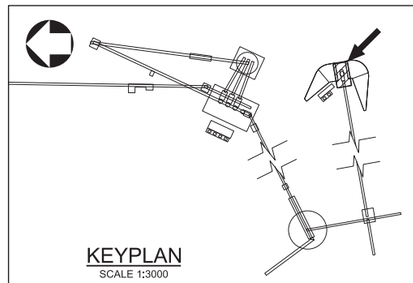
0 100 200 300 400 500
1:10 SCALE IN MILLIMETRES

0 200 400 600 800 1000
1:20 SCALE IN MILLIMETRES

0 500 1000 1500 2000 2500
1:50 SCALE IN MILLIMETRES

NOTES:

1. FOR GENERAL NOTES SEE DRAWING H354138-3100-231-260-0001.



## KEYPLAN

SCALE 1:3000

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| No. | DESCRIPTION | BY | CHK'D | DATE |
|---|---|---|---|---|
| 2 | CONCRETE SLAB ON DESK REPLACED BY STEEL FLOOR - DRAWING CANCELLED | PJ | EA | 2018-08-09 |
| 1 | HOLD H0011 AND PIPE SLEEVE PENETRATION REMOVED, SLAB DECK DETAILS REVISED, HOLD H0029 ADDED | PJ | EA | 2018-05-31 |
| 0 | APPROVED FOR CONSTRUCTION | PJ | EA | 2018-04-13 |

REVISIONS

| ROLE | NAME | SIGNATURE & DATE |
|---|---|---|
| DRAFTSPERSON | P. JIVAEV | NR 2018-03-20 |
| DESIGNER | H. LI | NR 2018-03-20 |
| CHECKER | E. AKINCI | |
| DESIGN COORD. | S. PERKINS | |
| RESP. ENG. | E. AKINCI | |
| LEAD DISC. ENG. | E. AKINCI | |
| ENG. MANAGER | B. RUSTAD | |
| PROJ. MANAGER | B. RUSTAD | |

DRAWING APPROVAL STATUS: Cancelled

HATCH

StrataGold Corporation

EAGLE GOLD PROJECT

PRIMARY CRUSHING
CRUSHER SUPPORT STRUCTURE
ELEVATED SLAB PLAN - SHEET 5

| DRAWING No. | DRAWING TITLE |
|---|---|
| REFERENCE DRAWINGS | REG. PROFESSIONAL |

SCALE 1:50 OR AS NOTED

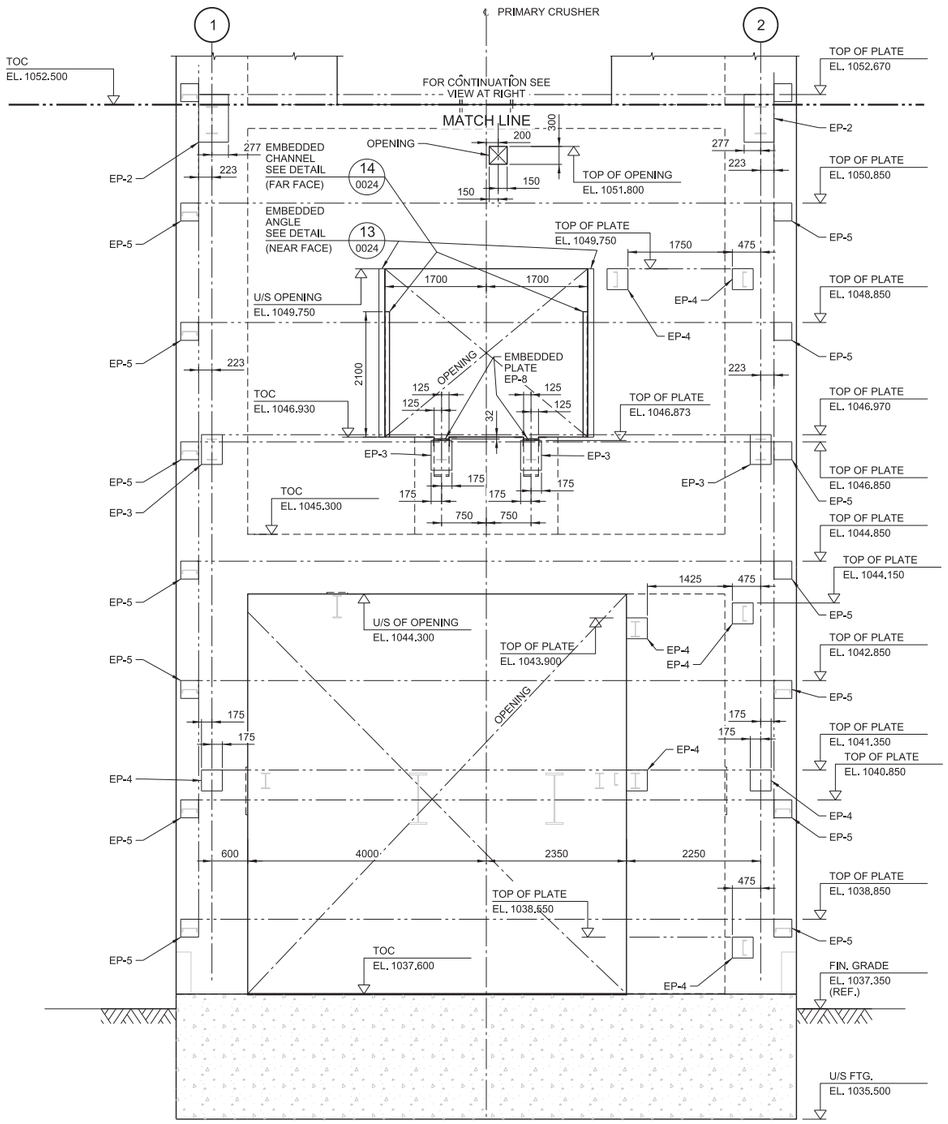
DWG. No. H354138-3100-231-260-0015

REV 2

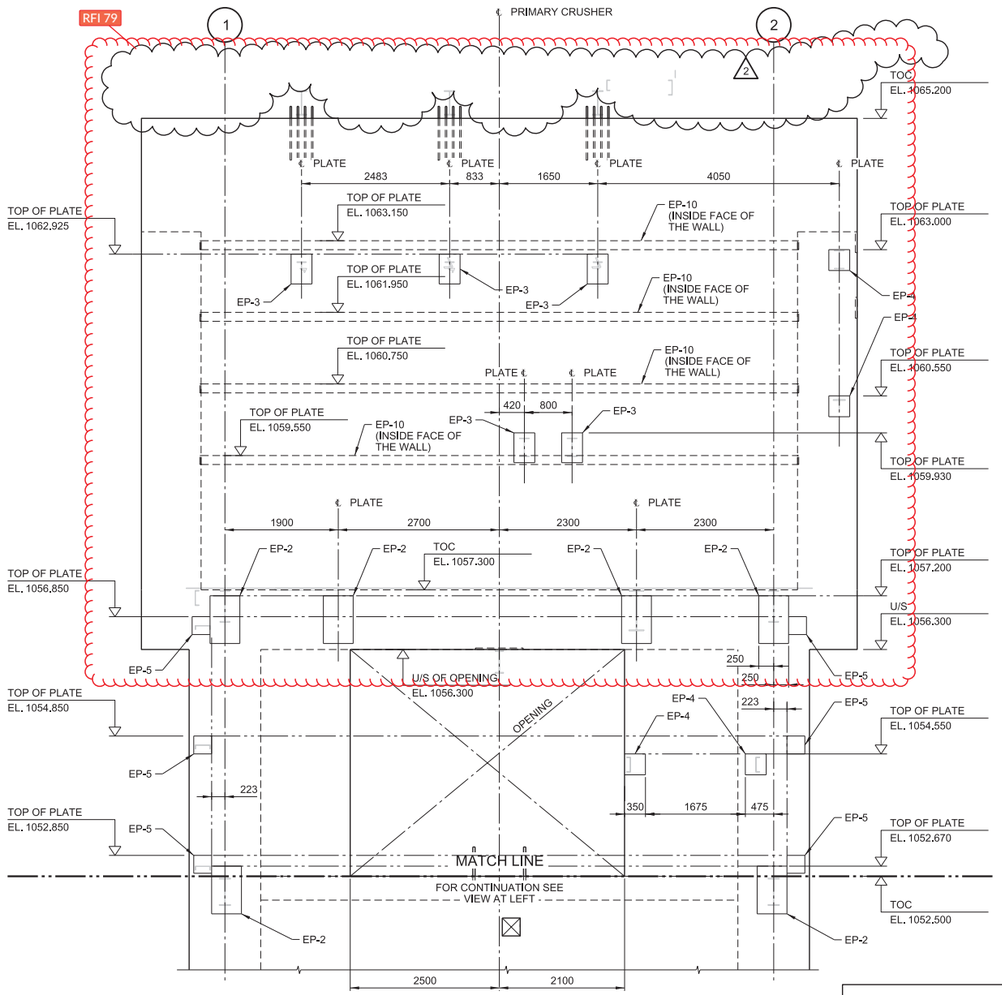
SHEET SIZE: D

SFILELS
PRINTED: 09-AUG-2018
idc_pwservice
19:11

DWG. No. H354138-3100-231-260-0016



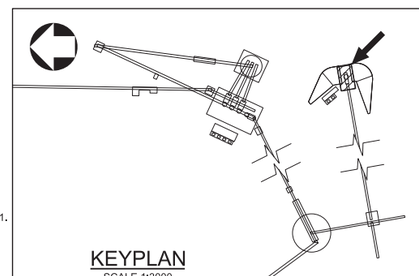

## WALL ELEVATION WEST
LOOKING EAST




NOTES:

1. FOR GENERAL NOTES SEE DRAWING H354138-3100-231-260-0001.

0 500 1000 1500 2000 2500
1:50 SCALE IN MILLIMETRES



KEYPLAN
SCALE 1:3000

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| No. | DESCRIPTION | BY | CHK'D | DATE |
|---|---|---|---|---|
| 2 | HOLD H0008 REMOVED, WALL AT EL. 1065.650 DELETED | PJ | EA | 2018-10-05 |
| 1 | HOLD H0010 REMOVED, HOLD H0008 ADDED | PJ | EA | 2018-05-31 |
| 0 | APPROVED FOR CONSTRUCTION | PJ | EA | 2018-04-13 |

| ROLE | NAME | SIGNATURE & DATE |
|---|---|---|
| DRAFTSPERSON | P. JIVAEV | NR 2018-03-20 |
| DESIGNER | H. LI | NR 2018-03-20 |
| CHECKER | E. AKINCI | |
| DESIGN COORD. | S. PERKINS | |
| RESP. ENG. | E. AKINCI | |
| LEAD DISC. ENG. | E. AKINCI | |
| ENG. MANAGER | B. RUSTAD | |
| PROJ. MANAGER | B. RUSTAD | |

DRAWING APPROVAL STATUS: Approved for Construction

HATCH

StrataGold Corporation

EAGLE GOLD PROJECT

PRIMARY CRUSHING
CRUSHER SUPPORT STRUCTURE
ELEVATIONS - SHEET 1

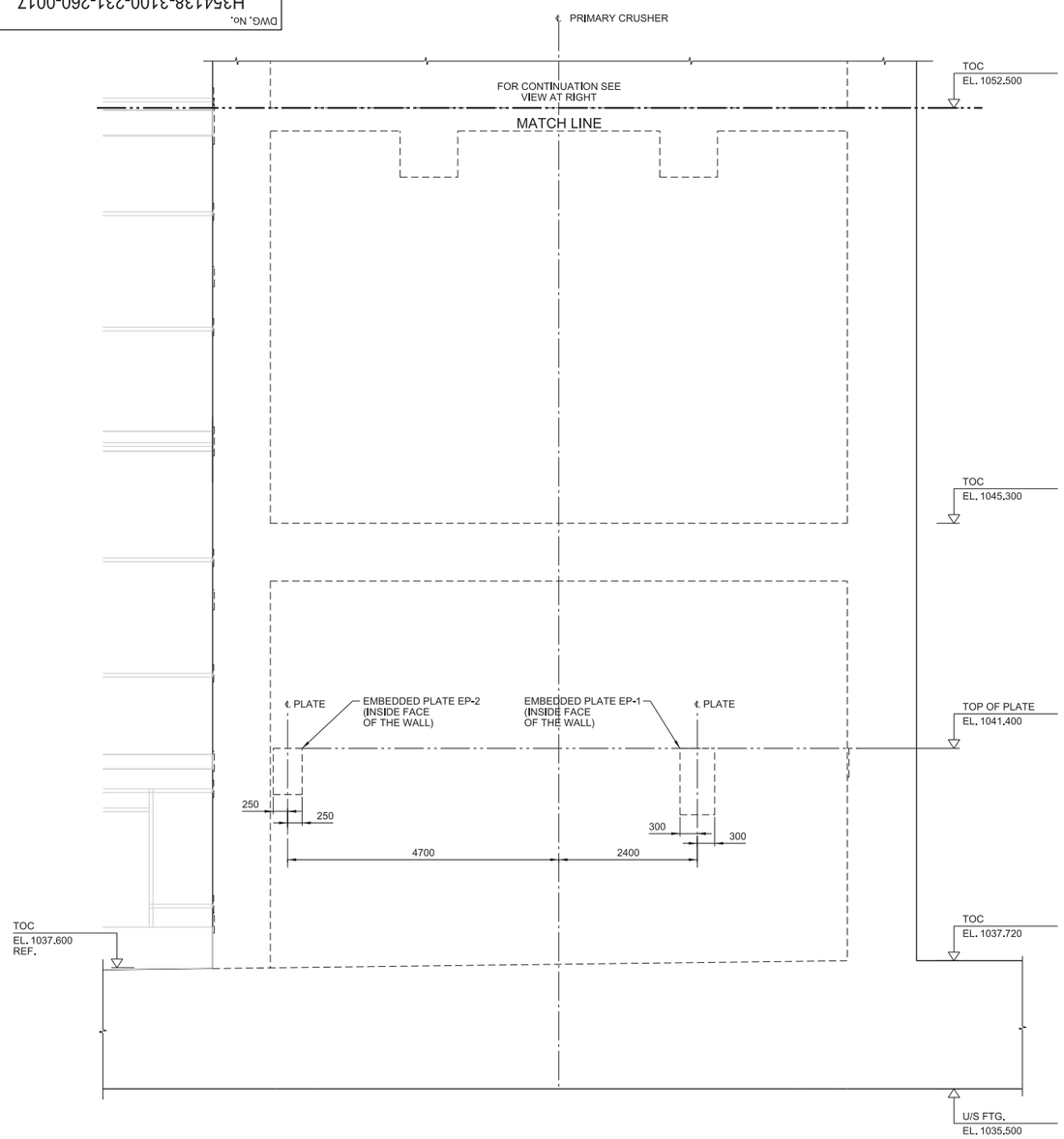
| DRAWING No. | DRAWING TITLE |
|---|---|
| REFERENCE DRAWINGS | REG. PROFESSIONAL |

SCALE 1:50 OR AS NOTED | DWG. No. H354138-3100-231-260-0016 | REV 2

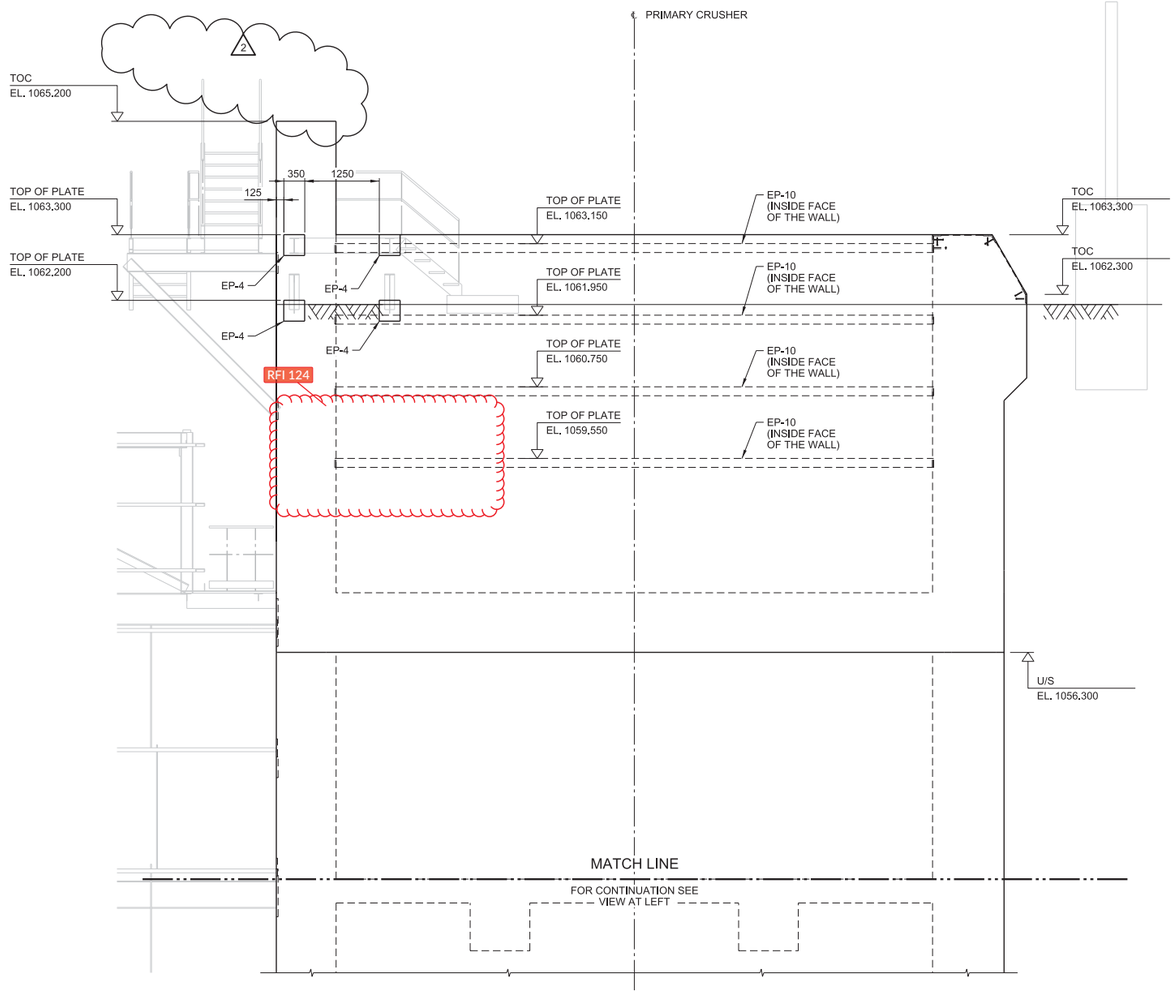
SHEET SIZE: D

SFILELS
PRINTED: 05-OCT-2018
kdc_pwservice
12:46

DWG. No. H354138-3100-231-260-0017

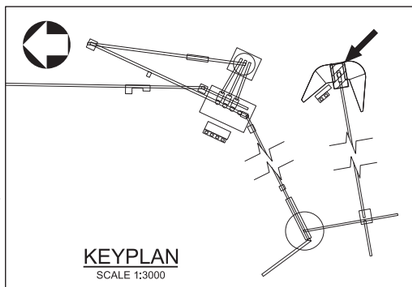



## WALL ELEVATION SOUTH
LOOKING NORTH




NOTES:
1. FOR GENERAL NOTES SEE DRAWING H354138-3100-231-260-0001.

0 500 1000 1500 2000 2500
1:50 SCALE IN MILLIMETRES



KEYPLAN
SCALE 1:3000

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| No. | DESCRIPTION | BY | CHK'D | DATE |
|---|---|---|---|---|
| 2 | WALL AT EL. 1065.650 DELETED | PJ | EA | 2018-10-05 |
| 1 | HOLD REMOVED, EMBEDDED PLATE LOCATION UPDATED | PJ | EA | 2018-05-31 |
| 0 | APPROVED FOR CONSTRUCTION | PJ | EA | 2018-04-13 |

| ROLE | NAME | SIGNATURE & DATE |
|---|---|---|
| DRAFTSPERSON | P. JIVAEV | NR 2018-03-20 |
| DESIGNER | H. LI | NR 2018-03-20 |
| CHECKER | E. AKINCI | |
| DESIGN COORD. | S. PERKINS | |
| RESP. ENG. | E. AKINCI | |
| LEAD DISC. ENG. | E. AKINCI | |
| ENG. MANAGER | B. RUSTAD | |
| PROJ. MANAGER | B. RUSTAD | |

DRAWING APPROVAL STATUS: Approved for Construction

HATCH

StrataGold Corporation

EAGLE GOLD PROJECT

PRIMARY CRUSHING
CRUSHER SUPPORT STRUCTURE
ELEVATIONS - SHEET 2

SCALE 1:50 OR AS NOTED

DWG. No. H354138-3100-231-260-0017

REV 2

SHEET SIZE: D

DRAWING No. | DRAWING TITLE

REFERENCE DRAWINGS

REG. PROFESSIONAL

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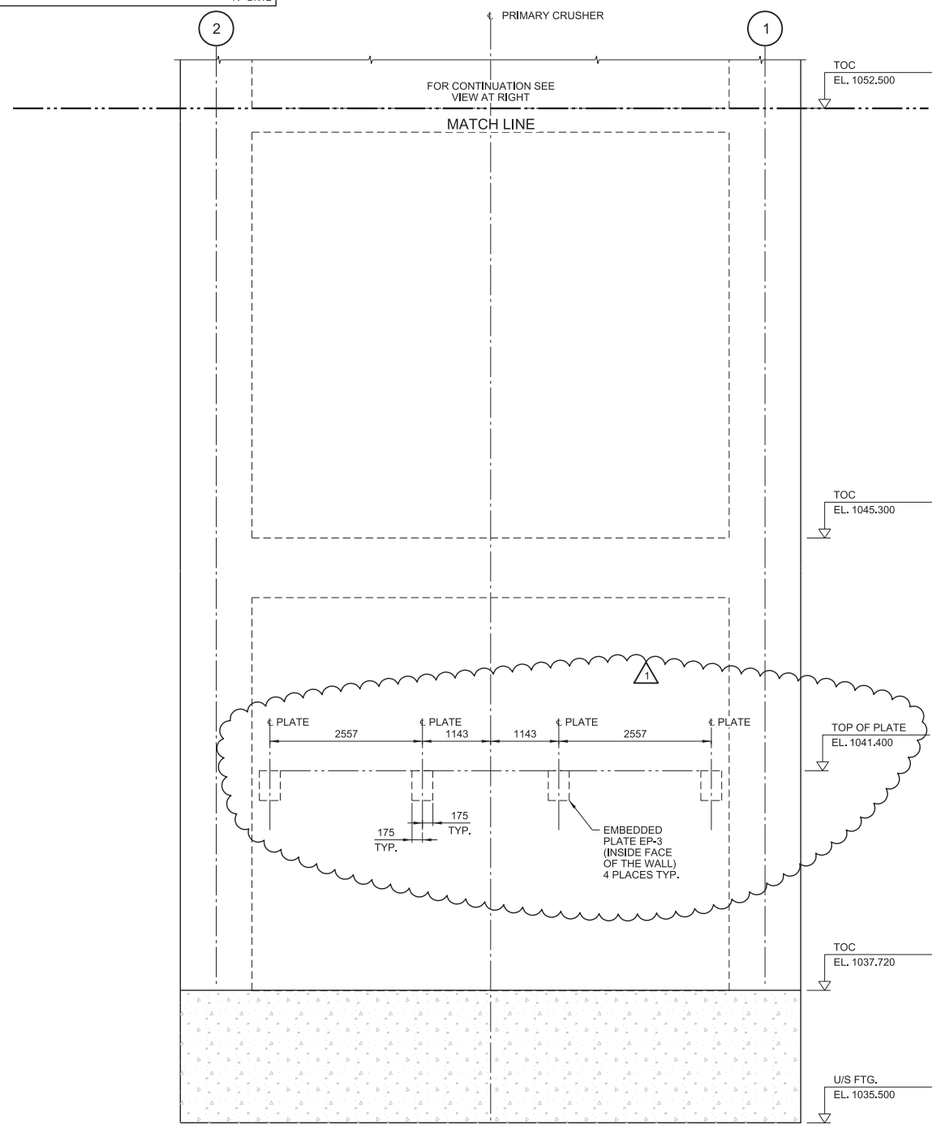
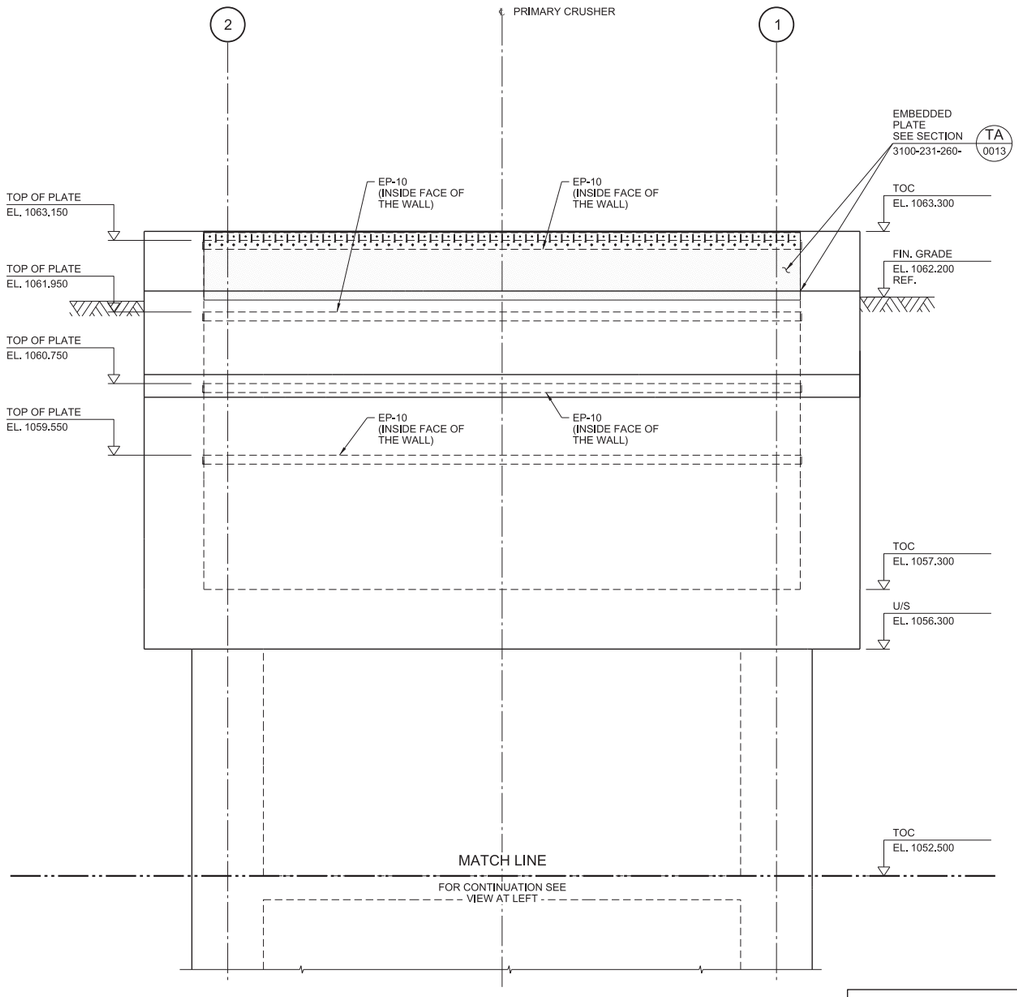
PRINTED: 05-OCT-2018 12:46
idc_pwservice

DWG. No. H354138-3100-231-260-0018



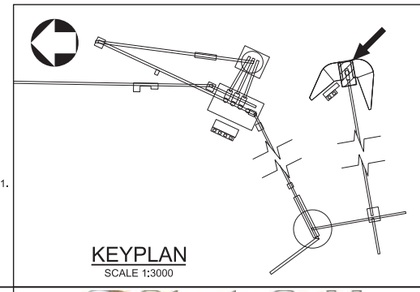

## WALL ELEVATION EAST
LOOKING WEST




NOTES:

1. FOR GENERAL NOTES SEE DRAWING H354138-3100-231-260-0001.

0 500 1000 1500 2000 2500
1:50 SCALE IN MILLIMETRES



KEYPLAN
SCALE 1:3000

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| REVISIONS | | | | | |
|---|---|---|---|---|---|
| No. | DESCRIPTION | BY | CHK'D | DATE | |
| 1 | EMBEDDED PLATES ADDED | PJ | EA | 2018-05-31 | |
| 0 | APPROVED FOR CONSTRUCTION | PJ | EA | 2018-04-13 | |

| ROLE | NAME | SIGNATURE & DATE |
|---|---|---|
| DRAFTSPERSON | P. JIVAEV | NR 2018-03-20 |
| DESIGNER | H. LI | NR 2018-03-20 |
| CHECKER | E. AKINCI | |
| DESIGN COORD. | S. PERKINS | |
| RESP. ENG. | E. AKINCI | |
| LEAD DISC. ENG. | E. AKINCI | |
| ENG. MANAGER | B. RUSTAD | |
| PROJ. MANAGER | B. RUSTAD | |

DRAWING APPROVAL STATUS: Approved for Construction

REFERENCE DRAWINGS — DRAWING No. — DRAWING TITLE

REG. PROFESSIONAL

HATCH

StrataGold Corporation

EAGLE GOLD PROJECT

PRIMARY CRUSHING
CRUSHER SUPPORT STRUCTURE
ELEVATIONS - SHEET 3

SCALE 1:50 OR AS NOTED

DWG. No. H354138-3100-231-260-0018

REV 1

SHEET SIZE: D

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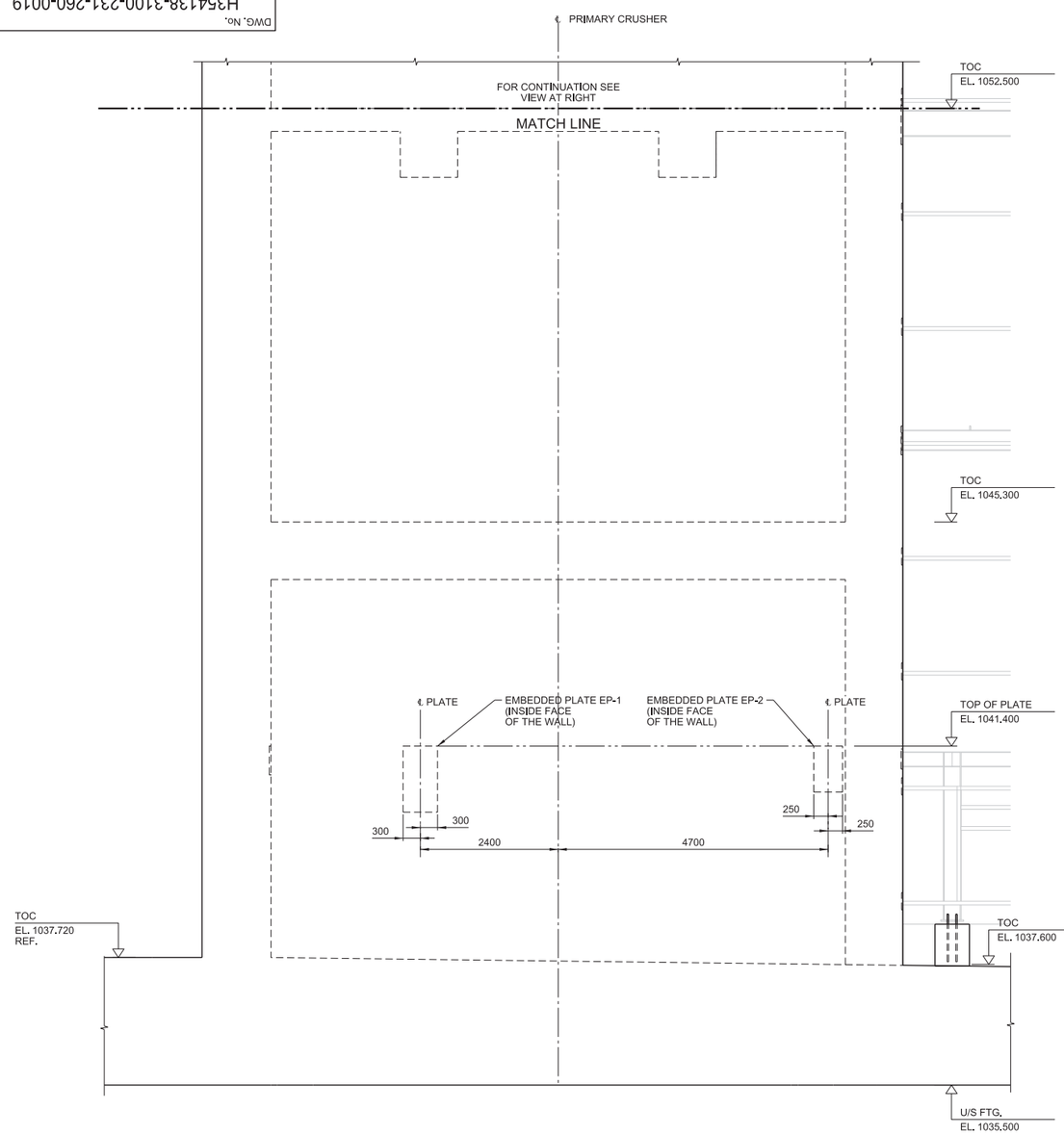
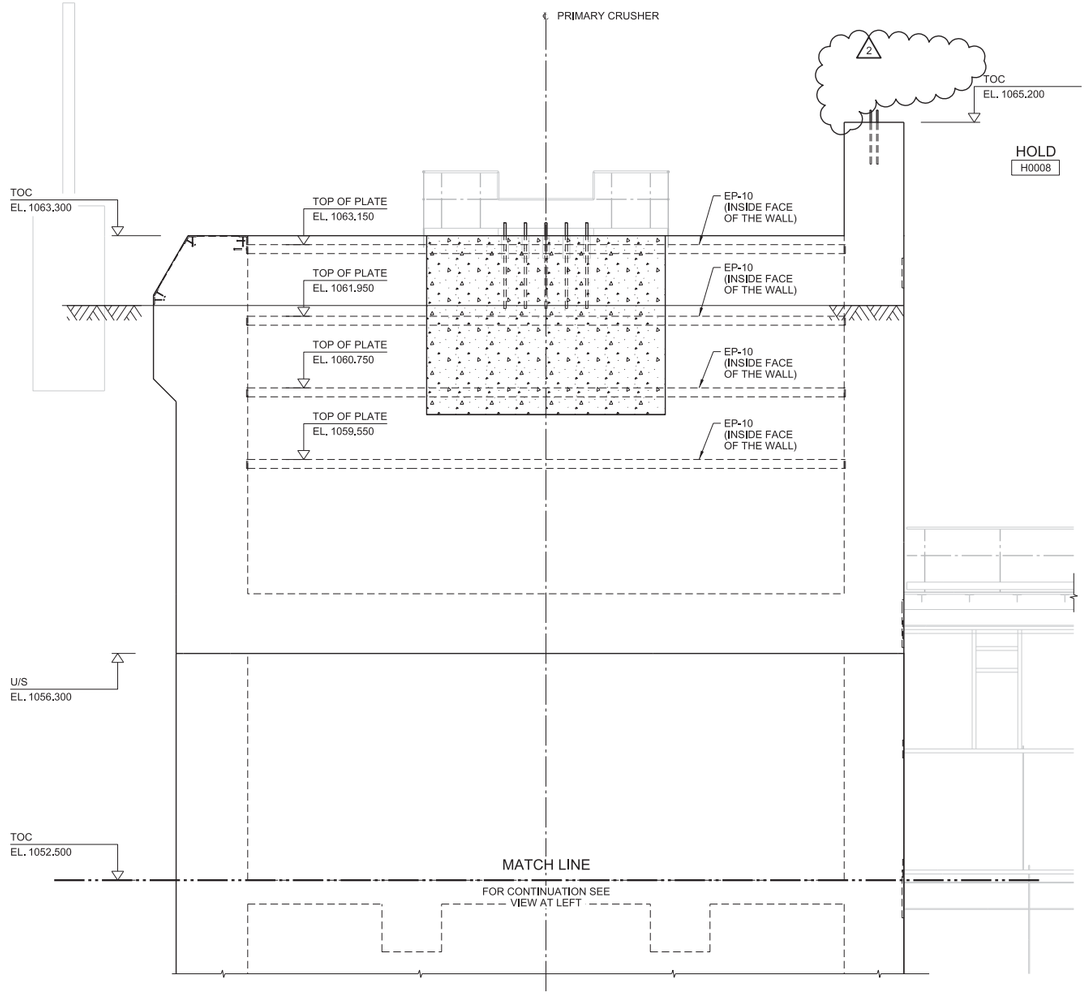
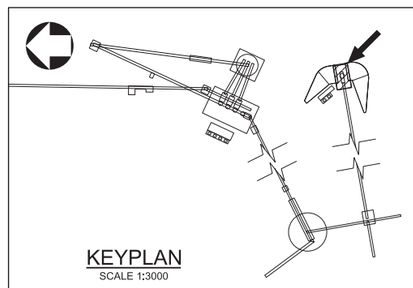
PRINTED: 04-JUN-2018
tdc_pwservice
10:57

DWG. No. H354138-3100-231-260-0019




## WALL ELEVATION NORTH
LOOKING SOUTH



KEYPLAN
SCALE 1:3000

NOTES:

1. FOR GENERAL NOTES SEE DRAWING H354138-3100-231-260-0001.

0 500 1000 1500 2000 2500
1:50 SCALE IN MILLIMETRES

THIS DRAWING WAS PREPARED FOR THE EXCLUSIVE USE OF STRATA GOLD ("CLIENT") AND IS ISSUED PURSUANT TO H354138 BETWEEN CLIENT AND HATCH LTD. ("HATCH"). UNLESS OTHERWISE AGREED IN WRITING WITH CLIENT OR SPECIFIED ON THIS DRAWING, (A) HATCH DOES NOT ACCEPT AND DISCLAIMS ANY AND ALL LIABILITY OR RESPONSIBILITY ARISING FROM ANY USE OF OR RELIANCE ON THIS DRAWING BY ANY THIRD PARTY OR ANY MODIFICATION OR MISUSE OF THIS DRAWING BY CLIENT, AND (B) THIS DRAWING IS CONFIDENTIAL AND ALL INTELLECTUAL PROPERTY RIGHTS EMBODIED OR REFERENCED IN THIS DRAWING REMAIN THE PROPERTY OF HATCH.

| DRAWING No. | DRAWING TITLE |
|---|---|
| REFERENCE DRAWINGS | REG. PROFESSIONAL |

| No. | DESCRIPTION | BY | CHK'D | DATE |
|---|---|---|---|---|
| 2 | HOLD H0008 REMOVED, WALL AT EL. 1065.650 DELETED | PJ | EA | 2018-10-05 |
| 1 | HOLD H0010 REMOVED | PJ | EA | 2018-05-31 |
| 0 | APPROVED FOR CONSTRUCTION | PJ | EA | 2018-04-13 |

REVISIONS

| ROLE | NAME | SIGNATURE & DATE |
|---|---|---|
| DRAFTSPERSON | P. JIVAEV | NR 2018-03-20 |
| DESIGNER | H. LI | NR 2018-03-20 |
| CHECKER | E. AKINCI | |
| DESIGN COORD. | S. PERKINS | |
| RESP. ENG. | E. AKINCI | |
| LEAD DISC. ENG. | E. AKINCI | |
| ENG. MANAGER | B. RUSTAD | |
| PROJ. MANAGER | B. RUSTAD | |

DRAWING APPROVAL STATUS: Approved for Construction

HATCH

StrataGold Corporation

EAGLE GOLD PROJECT

PRIMARY CRUSHING
CRUSHER SUPPORT STRUCTURE
ELEVATIONS - SHEET 4

SCALE 1:50 OR AS NOTED

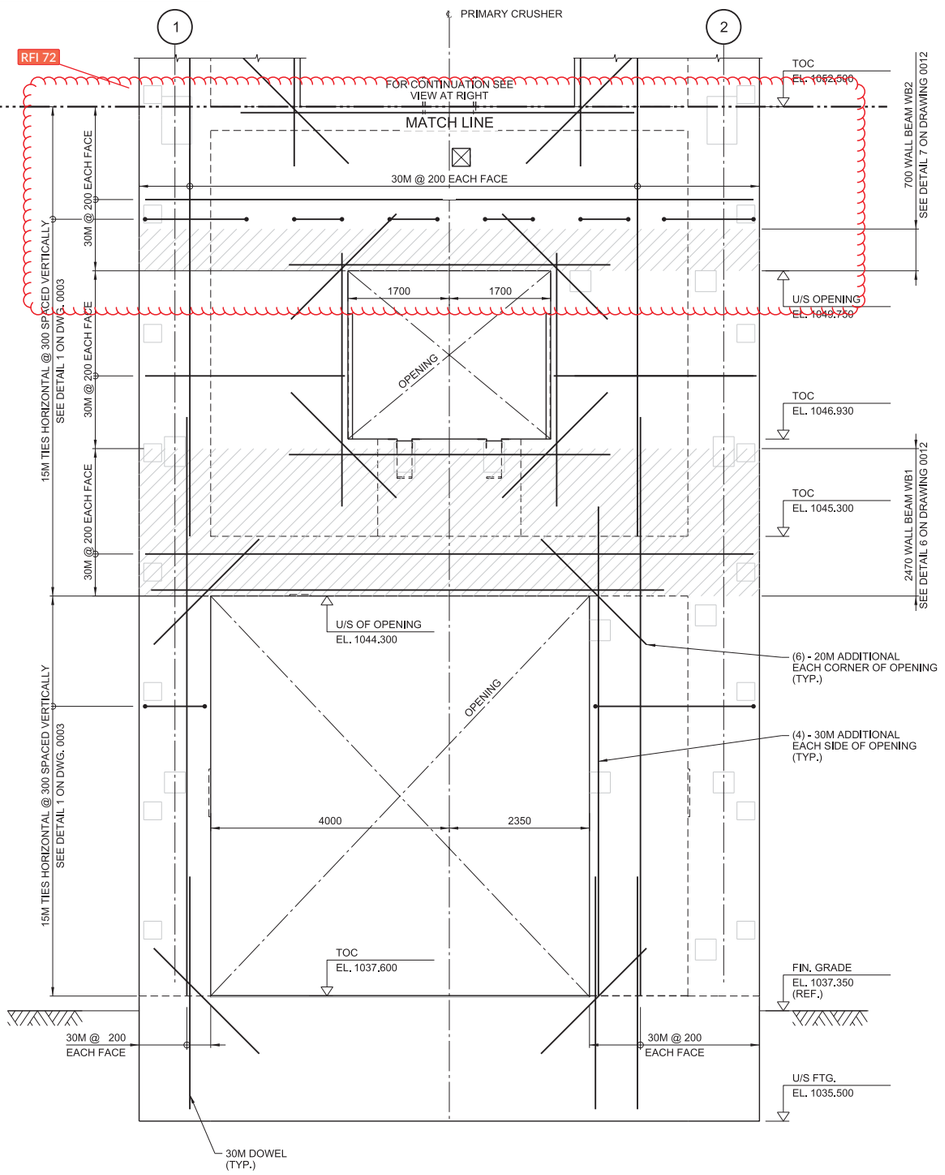
DWG. No. H354138-3100-231-260-0019

REV 2

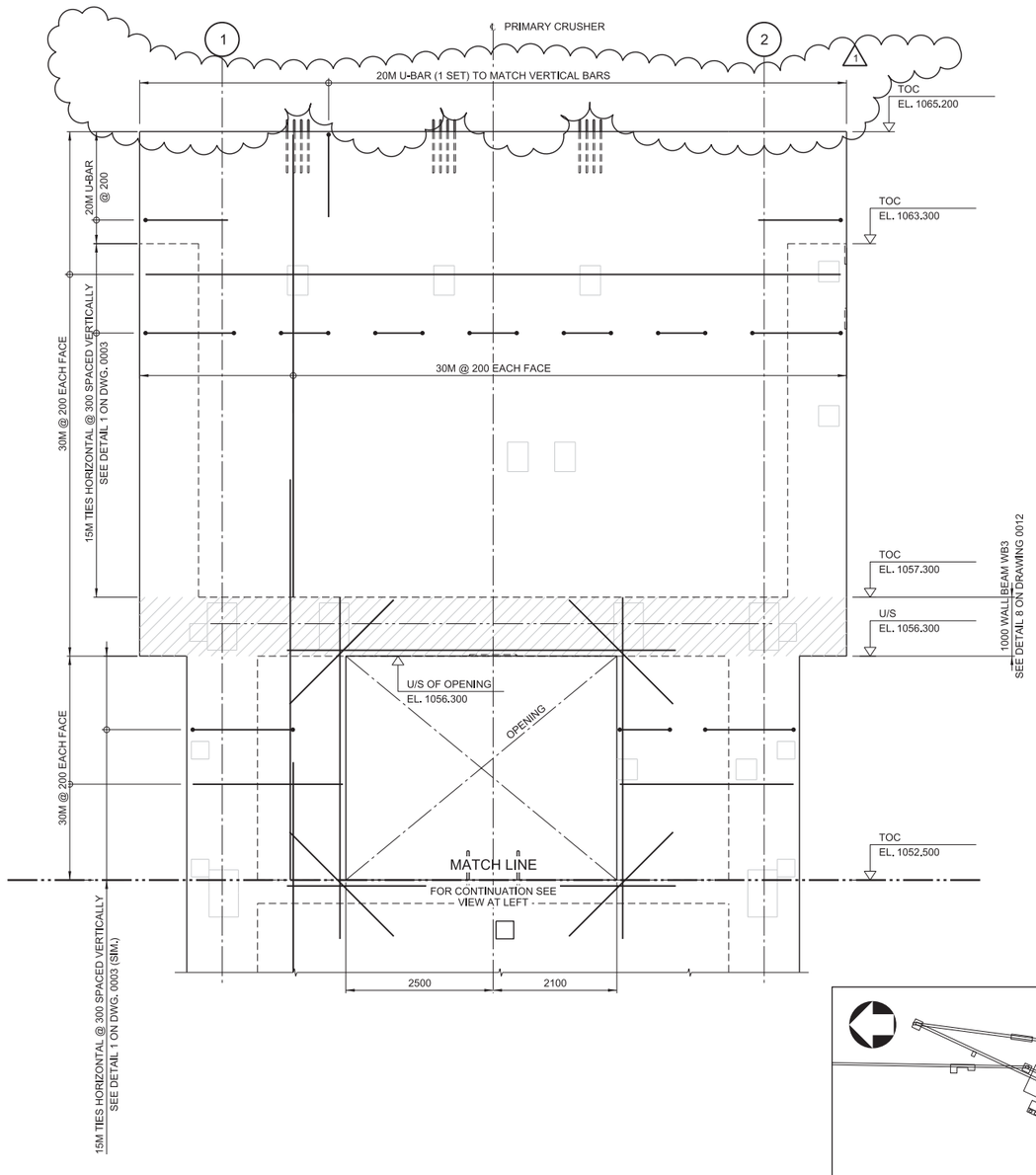
SHEET SIZE: D

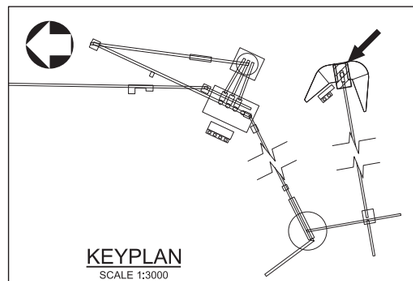
$FILELS
PRINTED: 05-OCT-2018 12:46
idc_pwservice

DWG. No. H354138-3100-231-260-0020




## WALL REINFORCEMENT - ELEVATION WEST
LOOKING EAST



KEYPLAN
SCALE 1:3000

NOTES:
1. FOR GENERAL NOTES SEE DRAWING H354138-3100-231-260-0001.

0 500 1000 1500 2000 2500
1:50 SCALE IN MILLIMETRES

THIS DRAWING WAS PREPARED FOR THE EXCLUSIVE USE OF STRATA GOLD ("CLIENT") AND IS ISSUED PURSUANT TO H354138 BETWEEN CLIENT AND HATCH LTD. ("HATCH"). UNLESS OTHERWISE AGREED IN WRITING WITH CLIENT OR SPECIFIED ON THIS DRAWING, (A) HATCH DOES NOT ACCEPT AND DISCLAIMS ANY AND ALL LIABILITY OR RESPONSIBILITY ARISING FROM ANY USE OF OR RELIANCE ON THIS DRAWING BY ANY THIRD PARTY OR ANY MODIFICATION OR MISUSE OF THIS DRAWING BY CLIENT, AND (B) THIS DRAWING IS CONFIDENTIAL AND ALL INTELLECTUAL PROPERTY RIGHTS EMBODIED OR REFERENCED IN THIS DRAWING REMAIN THE PROPERTY OF HATCH.

| No. | DESCRIPTION | BY | CHK'D | DATE |
|---|---|---|---|---|
| 1 | WALL AT EL. 1065,650 DELETED | PJ | EA | 2018-10-05 |
| 0 | APPROVED FOR CONSTRUCTION | PJ | EA | 2018-04-13 |

| ROLE | NAME | SIGNATURE & DATE |
|---|---|---|
| DRAFTSPERSON | P. JIVAEV | NR 2018-03-20 |
| DESIGNER | H. LI | NR 2018-03-20 |
| CHECKER | E. AKINCI | |
| DESIGN COORD. | S. PERKINS | |
| RESP. ENG. | E. AKINCI | |
| LEAD DISC. ENG. | E. AKINCI | |
| ENG. MANAGER | B. RUSTAD | |
| PROJ. MANAGER | B. RUSTAD | |

DRAWING APPROVAL STATUS: Approved for Construction

EAGLE GOLD PROJECT

PRIMARY CRUSHING
CRUSHER SUPPORT STRUCTURE
WALL REINFORCEMENT - SHEET 1

| DRAWING No. | DRAWING TITLE |
|---|---|

REFERENCE DRAWINGS

REG. PROFESSIONAL

REVISIONS

SCALE 1:50 OR AS NOTED

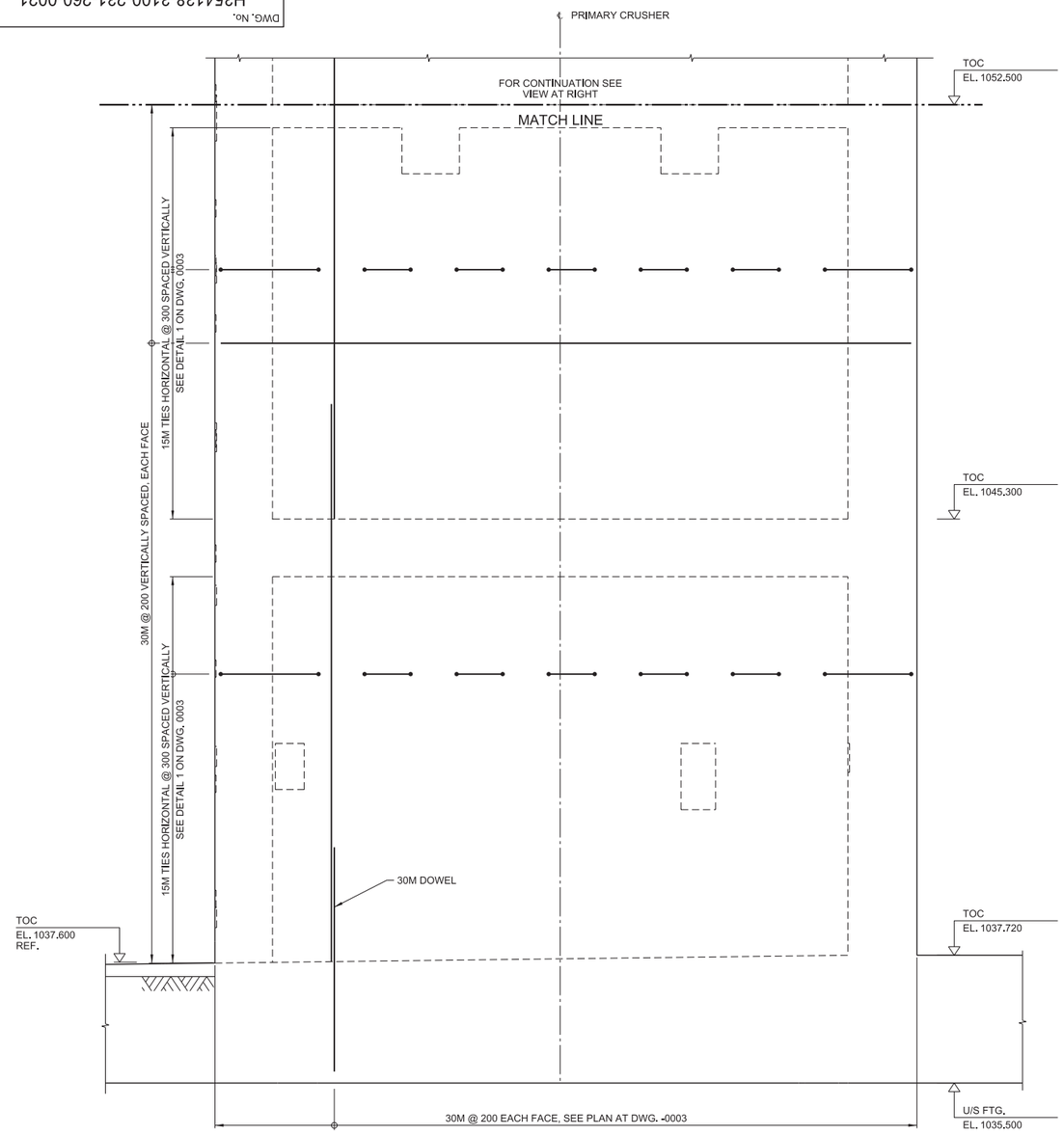
DWG. No. H354138-3100-231-260-0020

REV 1

SHEET SIZE: D

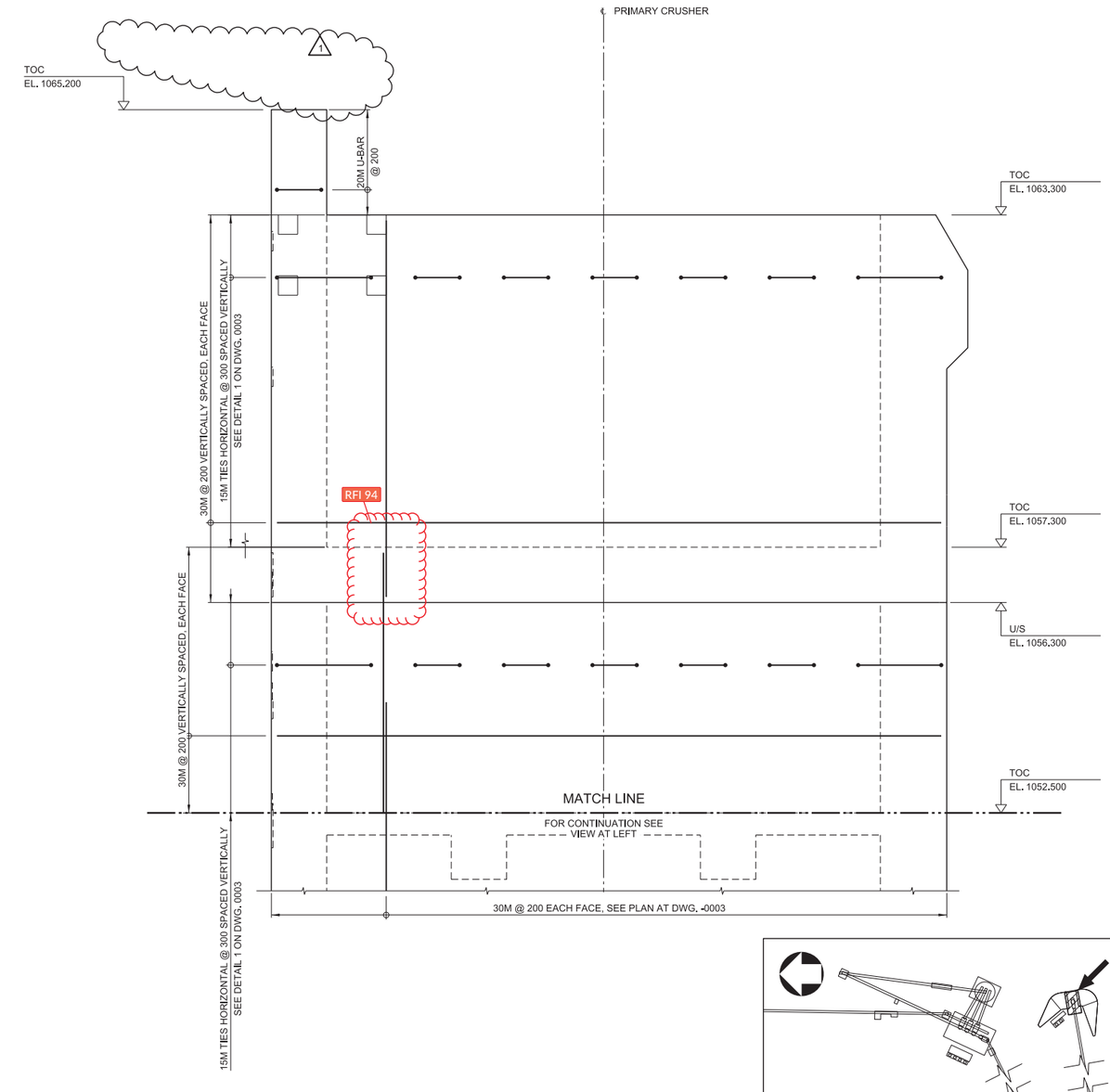
SFILE\$
PRINTED: 05-OCT-2018
tdc_pwservice
12:46

DWG. No. H354138-3100-231-260-0021




## WALL REINFORCEMENT - ELEVATION SOUTH

LOOKING NORTH






KEYPLAN

SCALE 1:3000

NOTES:

1. FOR GENERAL NOTES SEE DRAWING H354138-3100-231-260-0001.

0 500 1000 1500 2000 2500
1:50 SCALE IN MILLIMETRES

THIS DRAWING WAS PREPARED FOR THE EXCLUSIVE USE OF STRATA GOLD ("CLIENT") AND IS ISSUED PURSUANT TO H354138 BETWEEN CLIENT AND HATCH LTD. ("HATCH"). UNLESS OTHERWISE AGREED IN WRITING WITH CLIENT OR SPECIFIED ON THIS DRAWING, (A) HATCH DOES NOT ACCEPT AND DISCLAIMS ANY AND ALL LIABILITY OR RESPONSIBILITY ARISING FROM ANY USE OF OR RELIANCE ON THIS DRAWING BY ANY THIRD PARTY OR ANY MODIFICATION OR MISUSE OF THIS DRAWING BY CLIENT, AND (B) THIS DRAWING IS CONFIDENTIAL AND ALL INTELLECTUAL PROPERTY RIGHTS EMBODIED OR REFERENCED IN THIS DRAWING REMAIN THE PROPERTY OF HATCH.

| No. | DESCRIPTION | BY | CHK'D | DATE |
|---|---|---|---|---|
| 1 | WALL AT EL. 1065.650 DELETED | PJ | EA | 2018-10-05 |
| 0 | APPROVED FOR CONSTRUCTION | PJ | EA | 2018-04-13 |

REVISIONS

| ROLE | NAME | SIGNATURE & DATE |
|---|---|---|
| DRAFTSPERSON | P. JIVAEV | NR 2018-03-20 |
| DESIGNER | H. LI | NR 2018-03-20 |
| CHECKER | E. AKINCI | |
| DESIGN COORD. | S. PERKINS | |
| RESP. ENG. | E. AKINCI | |
| LEAD DISC. ENG. | E. AKINCI | |
| ENG. MANAGER | B. RUSTAD | |
| PROJ. MANAGER | B. RUSTAD | |

DRAWING APPROVAL STATUS: Approved for Construction

REFERENCE DRAWINGS

| DRAWING No. | DRAWING TITLE |
|---|---|

REG. PROFESSIONAL

HATCH

StrataGold Corporation

EAGLE GOLD PROJECT

PRIMARY CRUSHING
CRUSHER SUPPORT STRUCTURE
WALL REINFORCEMENT - SHEET 2

SCALE 1:50 OR AS NOTED

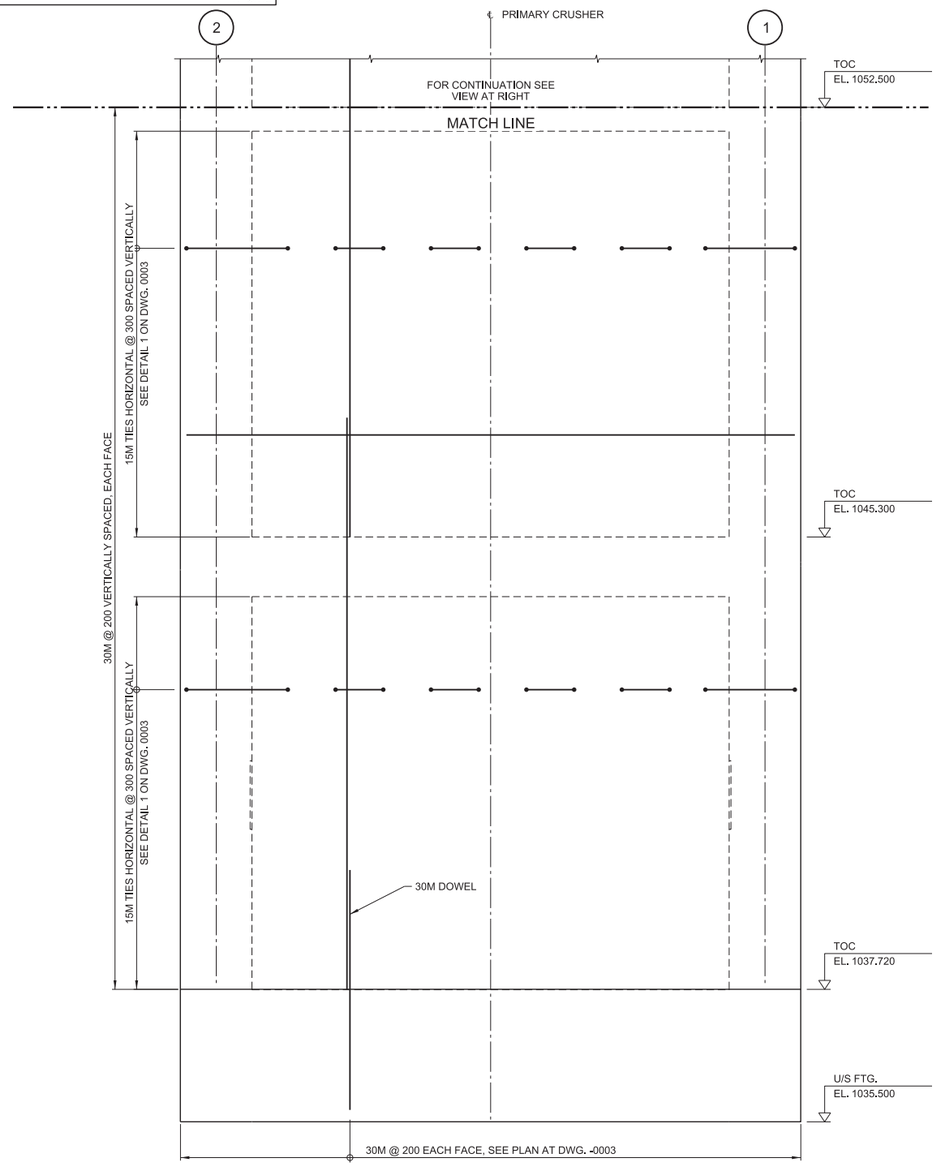
DWG. No. H354138-3100-231-260-0021

REV 1

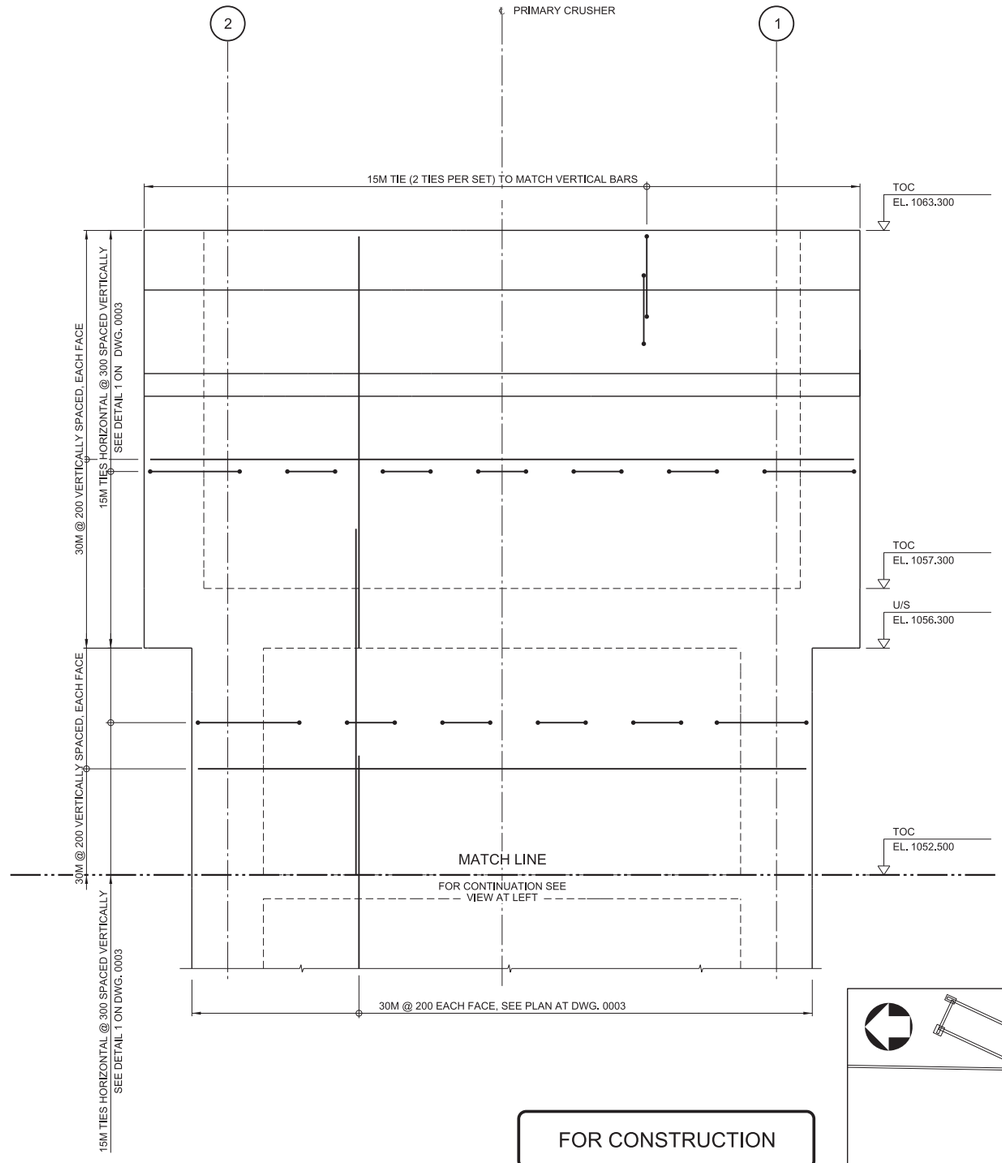
SHEET SIZE: D

SFILELS
PRINTED: 05-OCT-2018
12:46
tdc_pwservice

DWG. No. H354138-3100-231-260-0022




WALL REINFORCEMENT - ELEVATION EAST
LOOKING WEST



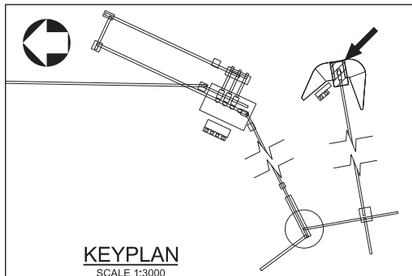

NOTES:

1. FOR GENERAL NOTES SEE DRAWING H354138-3100-231-260-0001.

FOR CONSTRUCTION

APRIL 13, 2018

0 500 1000 1500 2000 2500
1:50 SCALE IN MILLIMETRES



KEYPLAN
SCALE 1:3000

THIS DRAWING WAS PREPARED FOR THE EXCLUSIVE USE OF STRATA GOLD ("CLIENT") AND IS ISSUED PURSUANT TO H354138 BETWEEN CLIENT AND HATCH LTD. ("HATCH"). UNLESS OTHERWISE AGREED IN WRITING WITH CLIENT OR SPECIFIED ON THIS DRAWING, (A) HATCH DOES NOT ACCEPT AND DISCLAIMS ANY AND ALL LIABILITY OR RESPONSIBILITY ARISING FROM ANY USE OF OR RELIANCE ON THIS DRAWING BY ANY THIRD PARTY OR ANY MODIFICATION OR MISUSE OF THIS DRAWING BY CLIENT, AND (B) THIS DRAWING IS CONFIDENTIAL AND ALL INTELLECTUAL PROPERTY RIGHTS EMBODIED OR REFERENCED IN THIS DRAWING REMAIN THE PROPERTY OF HATCH.

HATCH

StrataGold Corporation

| No. | DESCRIPTION | BY | CHK'D | DATE |
|---|---|---|---|---|
| 0 | APPROVED FOR CONSTRUCTION | PJ | EA | 2018-04-13 |

| ROLE | NAME | SIGNATURE | DATE |
|---|---|---|---|
| DRAFTSPERSON | P. JIVAEV | NR | 2018-03-20 |
| DESIGNER | H. LI | NR | 2018-03-20 |
| CHECKER | E. AKINCI | | |
| DESIGN COORD. | S. PERKINS | | |
| RESP. ENG. | E. AKINCI | | |
| LEAD DISC. ENG. | E. AKINCI | | |
| ENG. MANAGER | T. O'FARRELL | | |
| PROJ. MANAGER | B. RUSTAD | | |

DRAWING APPROVAL STATUS: Approved for Construction

EAGLE GOLD PROJECT

PRIMARY CRUSHING
CRUSHER SUPPORT STRUCTURE
WALL REINFORCEMENT - SHEET 3

| DRAWING No. | DRAWING TITLE |
|---|---|

REFERENCE DRAWINGS

REG. PROFESSIONAL

SCALE 1:50 OR AS NOTED

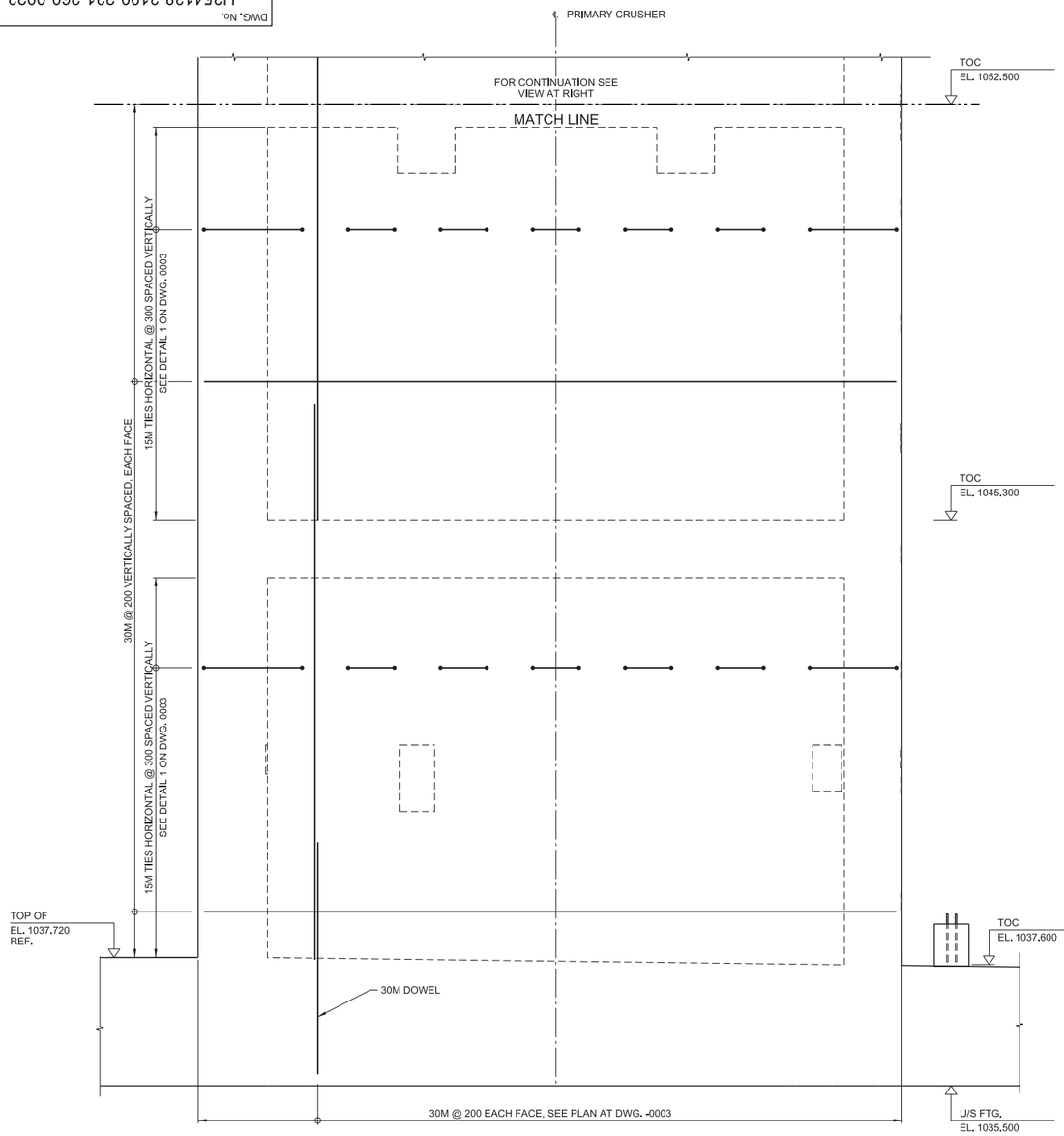
DWG. No. H354138-3100-231-260-0022

REV 0

SHEET SIZE: D

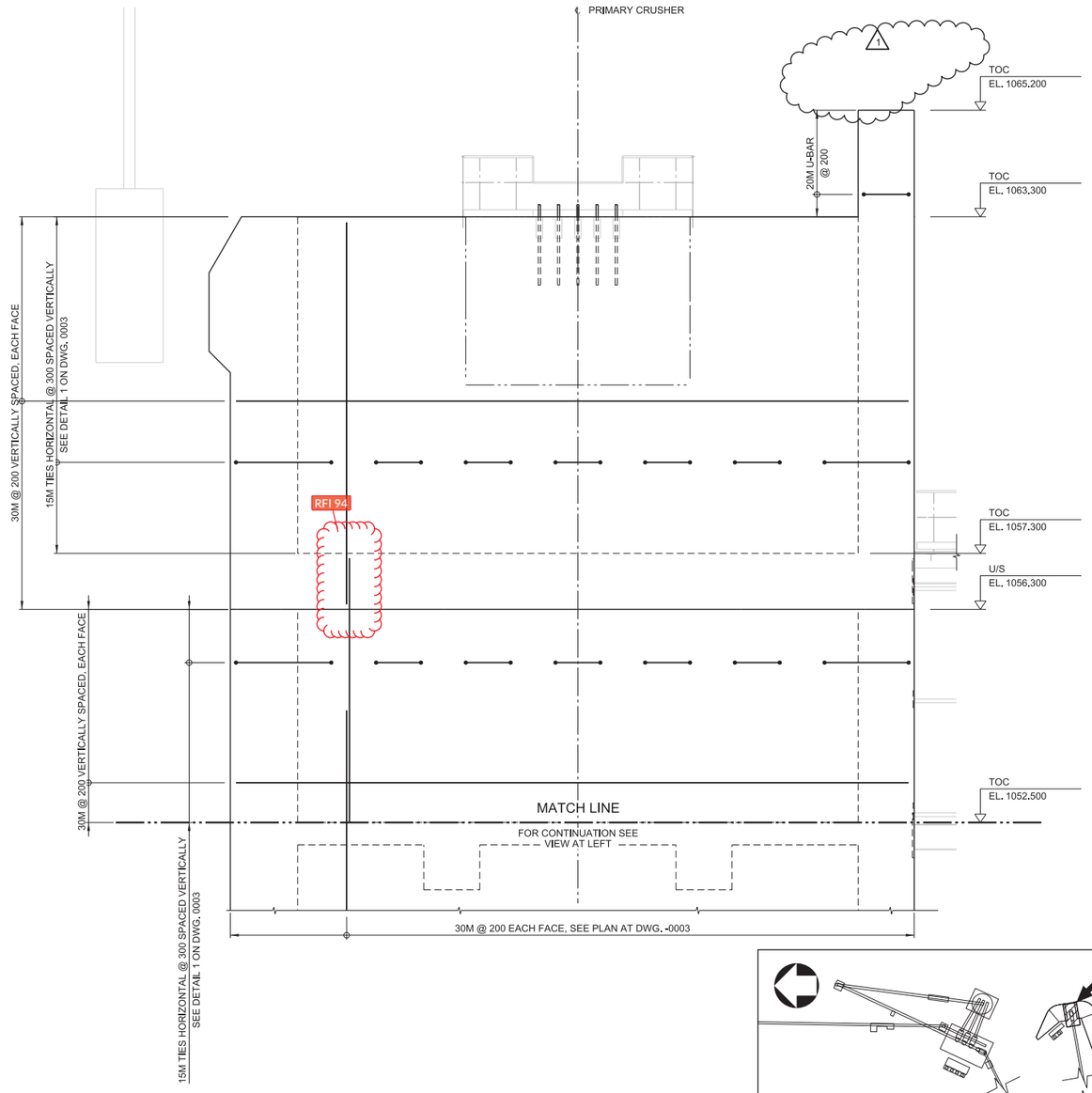
SFILELS
PRINTED: 12-APR-2018 12:18
tdc_pwservice

DWG. No. H354138-3100-231-260-0023




## WALL REINFORCEMENT - ELEVATION NORTH

LOOKING SOUTH






## KEYPLAN

SCALE 1:3000

NOTES:

1. FOR GENERAL NOTES SEE DRAWING H354138-3100-231-260-0001.

0 500 1000 1500 2000 2500
1:50 SCALE IN MILLIMETRES

THIS DRAWING WAS PREPARED FOR THE EXCLUSIVE USE OF STRATA GOLD ("CLIENT") AND IS ISSUED PURSUANT TO H354138 BETWEEN CLIENT AND HATCH LTD. ("HATCH"). UNLESS OTHERWISE AGREED IN WRITING WITH CLIENT OR SPECIFIED ON THIS DRAWING, (A) HATCH DOES NOT ACCEPT AND DISCLAIMS ANY AND ALL LIABILITY OR RESPONSIBILITY ARISING FROM ANY USE OF OR RELIANCE ON THIS DRAWING BY ANY THIRD PARTY OR ANY MODIFICATION OR MISUSE OF THIS DRAWING BY CLIENT, AND (B) THIS DRAWING IS CONFIDENTIAL AND ALL INTELLECTUAL PROPERTY RIGHTS EMBODIED OR REFERENCED IN THIS DRAWING REMAIN THE PROPERTY OF HATCH.

| No. | DESCRIPTION | BY | CHK'D | DATE |
|---|---|---|---|---|
| 1 | WALL AT EL. 1065,650 DELETED | PJ | EA | 2018-10-05 |
| 0 | APPROVED FOR CONSTRUCTION | PJ | EA | 2018-04-13 |

| ROLE | NAME | SIGNATURE & DATE |
|---|---|---|
| DRAFTSPERSON | P. JIVAEV | NR 2018-03-20 |
| DESIGNER | H. LI | NR 2018-03-20 |
| CHECKER | E. AKINCI | |
| DESIGN COORD. | S. PERKINS | |
| RESP. ENG. | E. AKINCI | |
| LEAD DISC. ENG. | E. AKINCI | |
| ENG. MANAGER | B. RUSTAD | |
| PROJ. MANAGER | B. RUSTAD | |

DRAWING APPROVAL STATUS: Approved for Construction

HATCH

StrataGold Corporation

EAGLE GOLD PROJECT

PRIMARY CRUSHING
CRUSHER SUPPORT STRUCTURE
WALL REINFORCEMENT - SHEET 4

SCALE 1:50 OR AS NOTED

DWG. No. H354138-3100-231-260-0023

REV 1

SHEET SIZE: D

REFERENCE DRAWINGS | DRAWING No. | DRAWING TITLE

REG. PROFESSIONAL

REVISIONS

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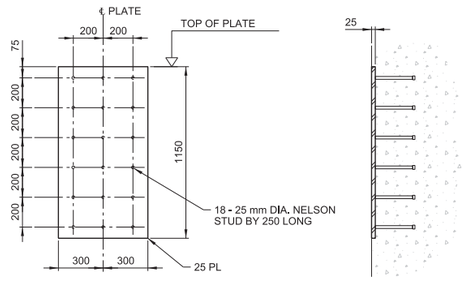
PRINTED: 05-OCT-2018
tdc_pwservice
12:46

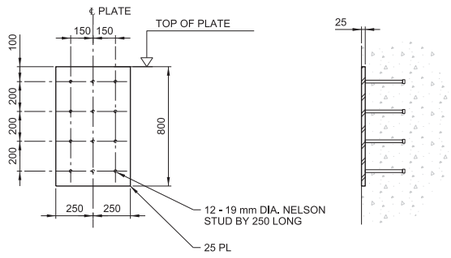
DWG. No. H354138-3100-231-260-0024




FRONT VIEW SIDE VIEW

## EMBEDDED PLATE TYPE EP-1

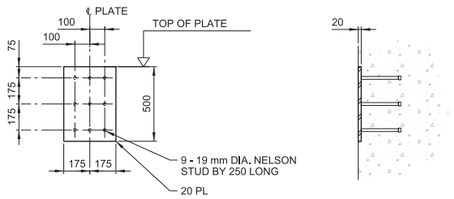
SCALE: 1:20




FRONT VIEW SIDE VIEW

## EMBEDDED PLATE TYPE EP-2

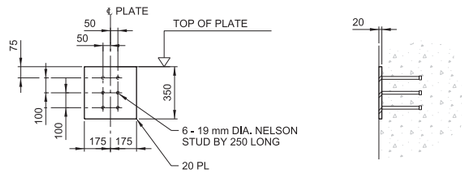
SCALE: 1:20




FRONT VIEW SIDE VIEW

## EMBEDDED PLATE TYPE EP-3

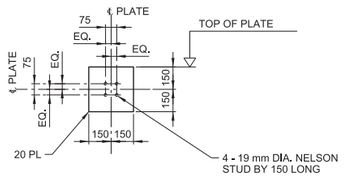
SCALE: 1:20




FRONT VIEW SIDE VIEW

## EMBEDDED PLATE TYPE EP-4

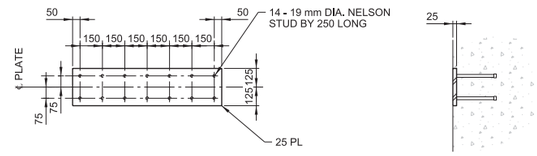
SCALE: 1:20




FRONT VIEW SIDE VIEW

## EMBEDDED PLATE TYPE EP-5

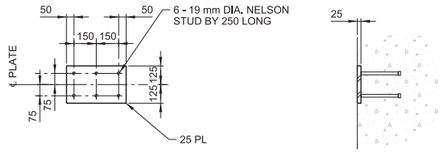
SCALE: 1:20




FRONT VIEW SIDE VIEW

## EMBEDDED PLATE TYPE EP-8

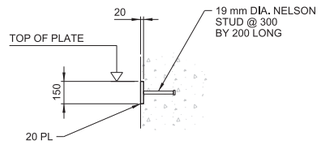
SCALE: 1:20




FRONT VIEW SIDE VIEW

## EMBEDDED PLATE TYPE EP-9

SCALE: 1:20

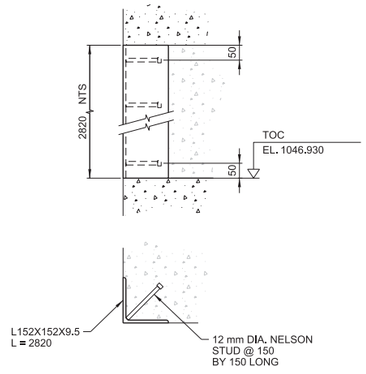



FOR PLATE LENGTH SEE PLAN AND ELEVATIONS DRAWINGS

SIDE VIEW

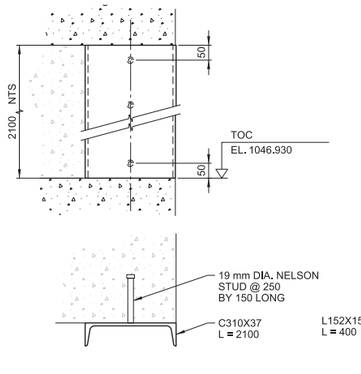
## EMBEDDED PLATE TYPE EP-10

SCALE: 1:20



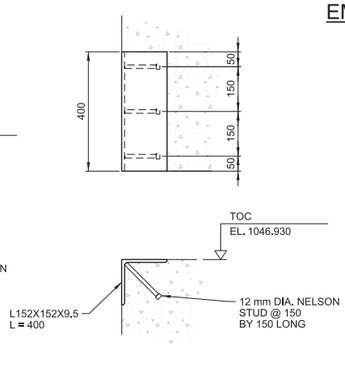

DETAIL 13 / 13 (0005 / 0016)

SCALE: 1:10




DETAIL 14 / 14 (0005 / 0016)

SCALE: 1:10

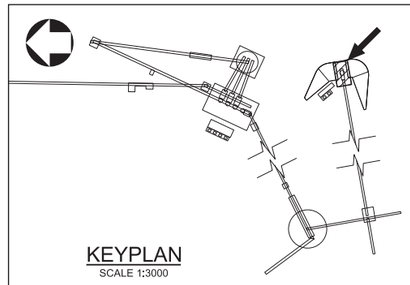



DETAIL 15 / 15 (0005 / 0006)

SCALE: 1:10

NOTES:

1. FOR GENERAL NOTES SEE DRAWING H354138-3100-231-260-0001.



KEYPLAN

SCALE 1:3000

0 100 200 300 400 500
1:10 SCALE IN MILLIMETRES

0 200 400 600 800 1000
1:20 SCALE IN MILLIMETRES

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| No. | DESCRIPTION | BY | CHK'D | DATE |
|---|---|---|---|---|
| 1 | HOLD REMOVED | PJ | EA | 2018-05-31 |
| 0 | APPROVED FOR CONSTRUCTION | PJ | EA | 2018-04-13 |

| ROLE | NAME | SIGNATURE & DATE |
|---|---|---|
| DRAFTSPERSON | P. JIVAEV | NR 2018-03-20 |
| DESIGNER | H. LI | NR 2018-03-20 |
| CHECKER | E. AKINCI | |
| DESIGN COORD. | S. PERKINS | |
| RESP. ENG. | E. AKINCI | |
| LEAD DISC. ENG. | E. AKINCI | |
| ENG. MANAGER | B. RUSTAD | |
| PROJ. MANAGER | B. RUSTAD | |

DRAWING APPROVAL STATUS: Approved for Construction

HATCH

StrataGold Corporation

EAGLE GOLD PROJECT

PRIMARY CRUSHING
CRUSHER SUPPORT STRUCTURE
DETAILS - SHEET 1

| DRAWING No. | DRAWING TITLE |
|---|---|
| REFERENCE DRAWINGS | REG. PROFESSIONAL |

SCALE 1:20 OR AS NOTED

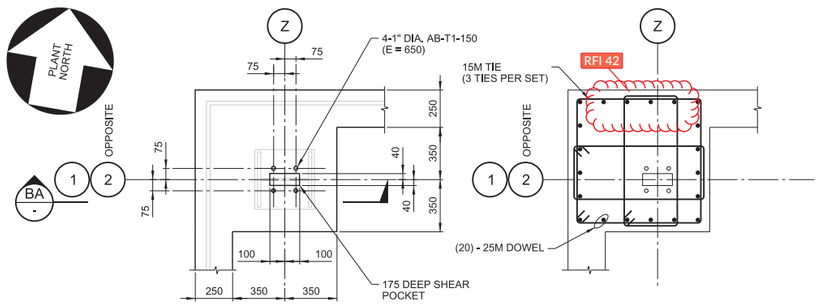
DWG. No. H354138-3100-231-260-0024

REV 1

SHEET SIZE: D

$FILE$
PRINTED: 04-JUN-2018
idc_pwservice
10:57

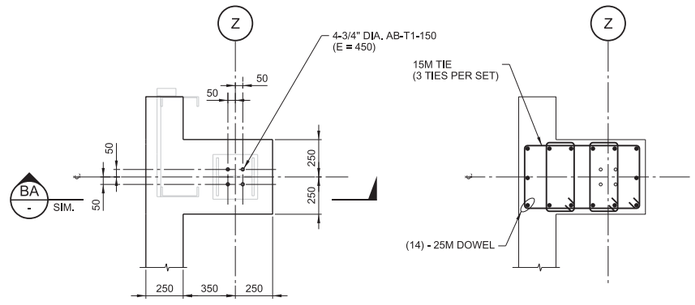
DWG. No. H354138-3100-231-260-0025




ANCHOR ROD SETTING REINFORCING

## PEDESTAL TYPE P1

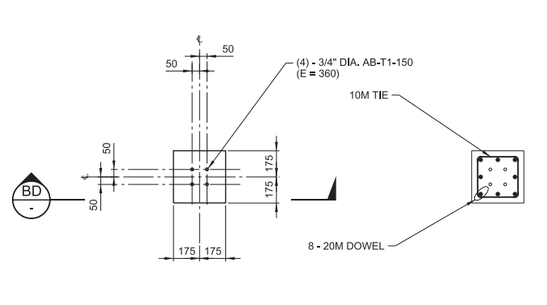
TOC EL. 1038.300




ANCHOR ROD SETTING REINFORCING

## PEDESTAL TYPE P2

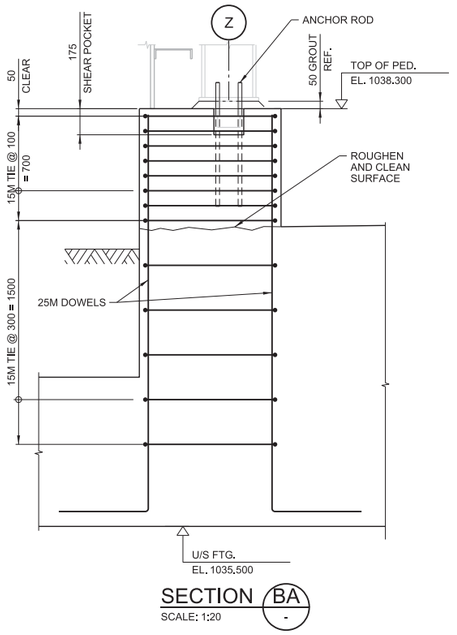
TOC EL. 1038.300



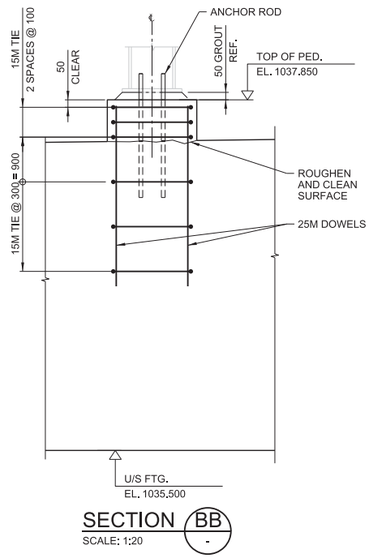

ANCHOR ROD SETTING REINFORCING

## PEDESTAL TYPE P5

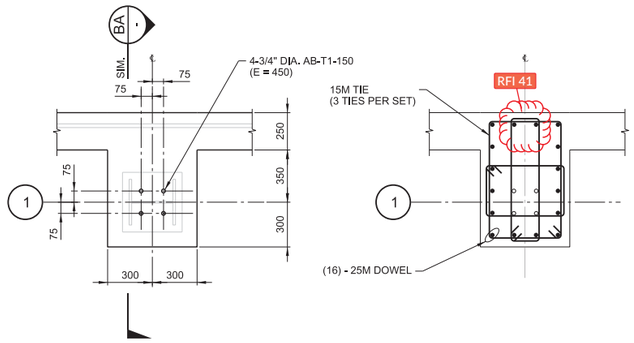
TOC EL. 1038.300




SECTION BA
SCALE: 1:20



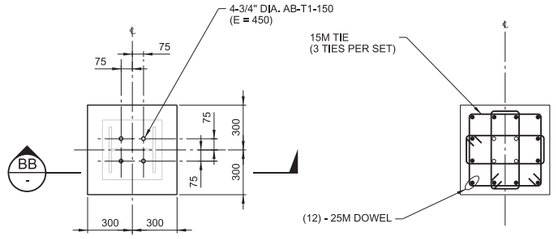

SECTION BB
SCALE: 1:20




ANCHOR ROD SETTING REINFORCING

## PEDESTAL TYPE P3

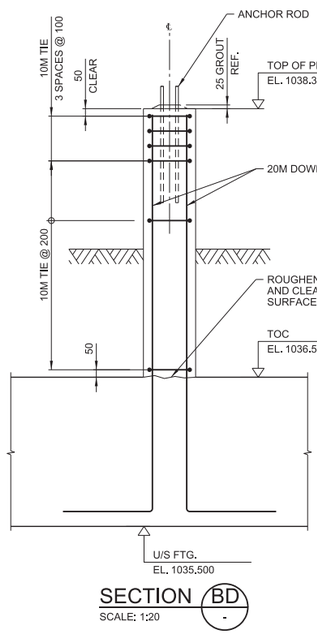
TOC EL. 1038.300



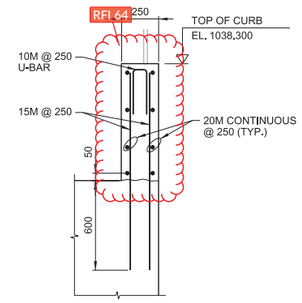

ANCHOR ROD SETTING REINFORCING

## PEDESTAL TYPE P4

TOC EL. 1037.850



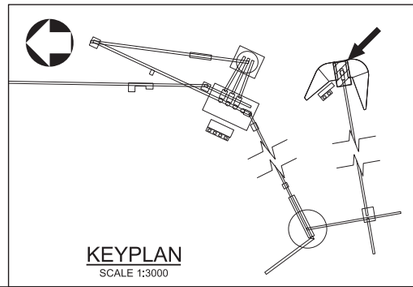

SECTION BD
SCALE: 1:20




SECTION BC
SCALE: 1:20

NOTES:

1. FOR GENERAL NOTES SEE DRAWING H354138-3100-231-260-0001.



KEYPLAN
SCALE 1:3000

0 200 400 600 800 1000
1:20 SCALE IN MILLIMETRES

THIS DRAWING WAS PREPARED FOR THE EXCLUSIVE USE OF STRATA GOLD ("CLIENT") AND IS ISSUED PURSUANT TO H354138 BETWEEN CLIENT AND HATCH LTD. ("HATCH"). UNLESS OTHERWISE AGREED IN WRITING WITH CLIENT OR SPECIFIED ON THIS DRAWING, (A) HATCH DOES NOT ACCEPT AND DISCLAIMS ANY AND ALL LIABILITY OR RESPONSIBILITY ARISING FROM ANY USE OF OR RELIANCE ON THIS DRAWING BY ANY THIRD PARTY OR ANY MODIFICATION OR MISUSE OF THIS DRAWING BY CLIENT, AND (B) THIS DRAWING IS CONFIDENTIAL AND ALL INTELLECTUAL PROPERTY RIGHTS EMBODIED OR REFERENCED IN THIS DRAWING REMAIN THE PROPERTY OF HATCH.

| No. | DESCRIPTION | BY | CHK'D | DATE |
|---|---|---|---|---|
| 3 | HOLD H0006 REMOVED | PJ | EA | 2018-07-16 |
| 1 | HOLD H0011 REMOVED, PED TYPE P5 AND SECTION BD ADDED | PJ | EA | 2018-05-31 |
| 0 | APPROVED FOR CONSTRUCTION | PJ | EA | 2018-04-13 |

REVISIONS

| ROLE | NAME | SIGNATURE & DATE |
|---|---|---|
| DRAFTSPERSON | P. JIVAEV | NR 2018-03-20 |
| DESIGNER | H. LI | NR 2018-03-20 |
| CHECKER | E. AKINCI | |
| DESIGN COORD. | S. PERKINS | |
| RESP. ENG. | E. AKINCI | |
| LEAD DISC. ENG. | E. AKINCI | |
| ENG. MANAGER | B. RUSTAD | |
| PROJ. MANAGER | B. RUSTAD | |

DRAWING APPROVAL STATUS: Approved for Construction

| DRAWING No. | DRAWING TITLE |
|---|---|

REFERENCE DRAWINGS

REG. PROFESSIONAL

HATCH

StrataGold Corporation

EAGLE GOLD PROJECT

PRIMARY CRUSHING
CRUSHER SUPPORT STRUCTURE
DETAILS - SHEET 2

SCALE 1:20 OR AS NOTED

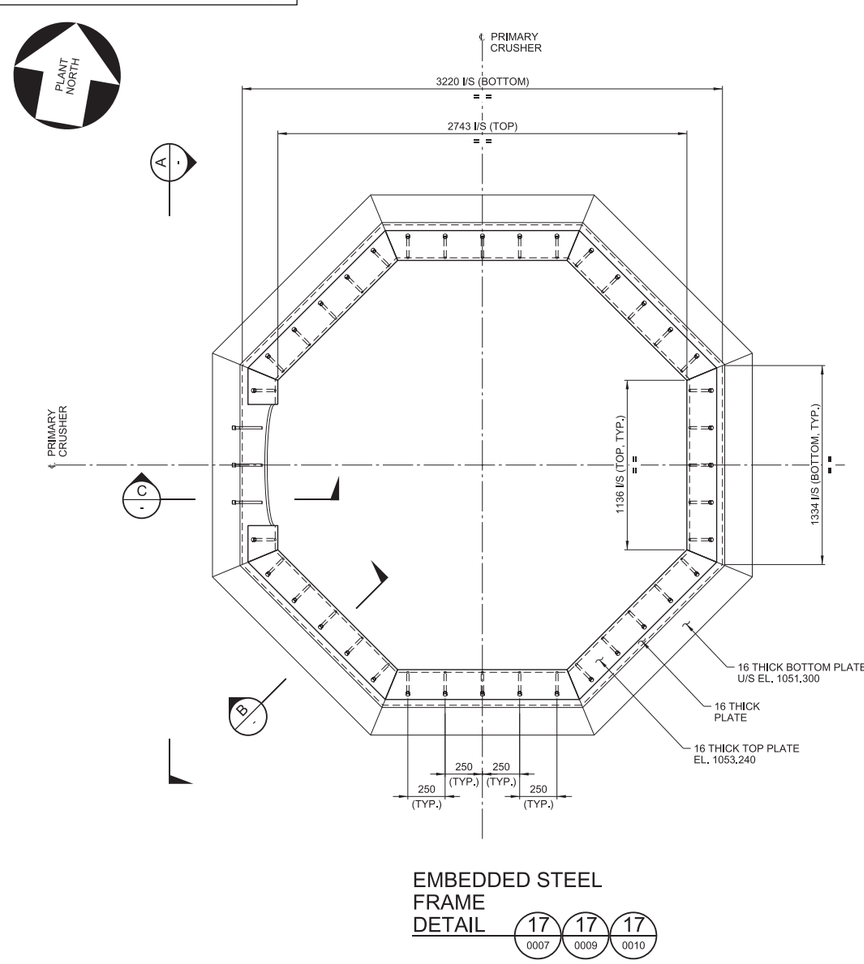
DWG. No. H354138-3100-231-260-0025

REV 2

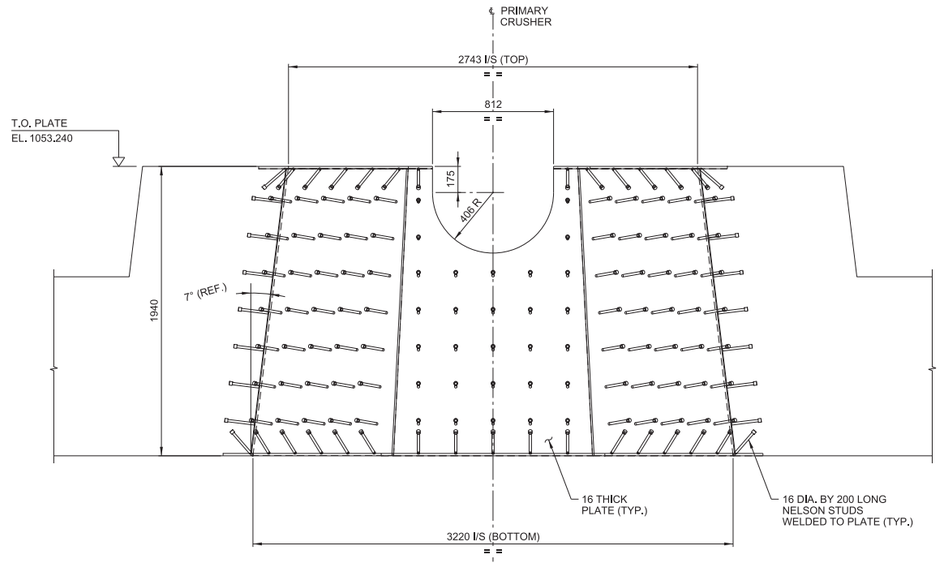
SHEET SIZE: D

SFILELS
PRINTED: 16-JUL-2018
idc_pwservice
17:16

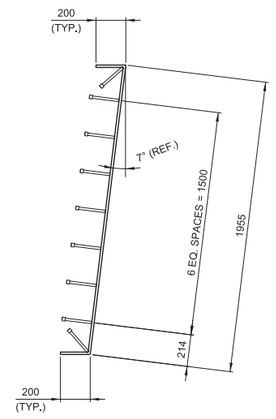
DWG. No. H354138-3100-231-260-0026



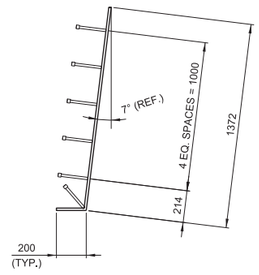

EMBEDDED STEEL FRAME DETAIL 17 0007 17 0009 17 0010




SECTION A -



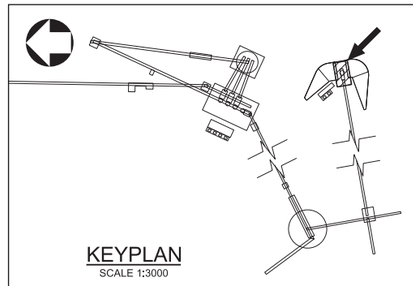

SECTION B -




SECTION C -

NOTES:

1. FOR GENERAL NOTES SEE DRAWING H354138-3100-231-260-0001.



KEYPLAN
SCALE 1:3000

0 200 400 600 800 1000
1:20 SCALE IN MILLIMETRES

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| No. | DESCRIPTION | BY | CHK'D | DATE |
|---|---|---|---|---|
| 0 | APPROVED FOR CONSTRUCTION | EM | EA | 2018-06-01 |

| ROLE | NAME | SIGNATURE & DATE |
|---|---|---|
| DRAFTSPERSON | E. MENDIOLA | NR 2018-05-31 |
| DESIGNER | H. LI | NR 2018-05-31 |
| CHECKER | E. AKINCI | |
| DESIGN COORD. | S. PERKINS | |
| RESP. ENG. | E. AKINCI | |
| LEAD DISC. ENG. | E. AKINCI | |
| ENG. MANAGER | B. RUSTAD | |
| PROJ. MANAGER | B. RUSTAD | |

DRAWING APPROVAL STATUS: Approved for Construction

HATCH

StrataGold Corporation

EAGLE GOLD PROJECT

PRIMARY CRUSHING
CRUSHER SUPPORT STRUCTURE
EMBEDDED STEEL FRAME

| DRAWING No. | DRAWING TITLE |
|---|---|
| REFERENCE DRAWINGS | REG. PROFESSIONAL |

SCALE 1:20 OR AS NOTED

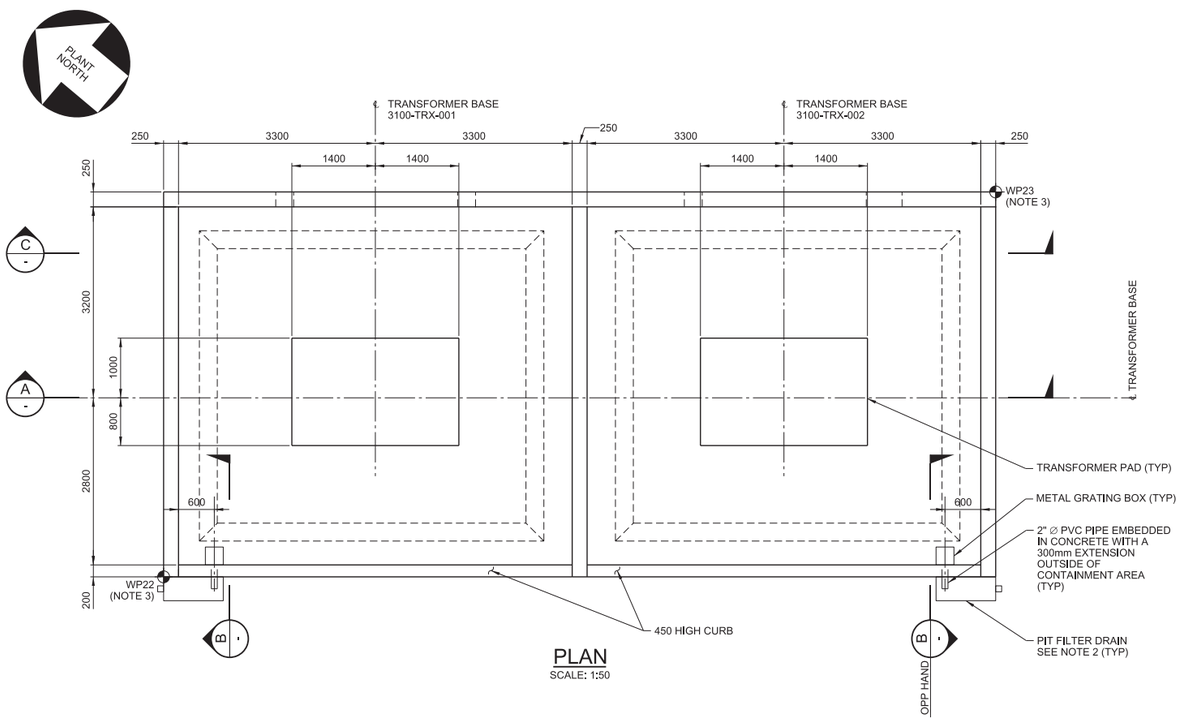
DWG. No. H354138-3100-231-260-0026

REV 0

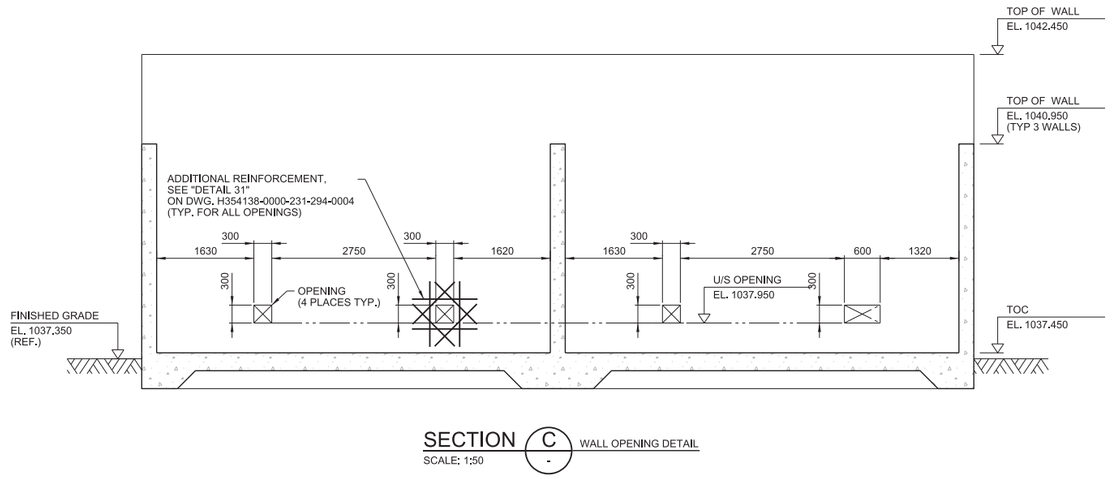
SHEET SIZE: D

$FILELS
PRINTED: 04-JUN-2018
idc_pwservice
10:57

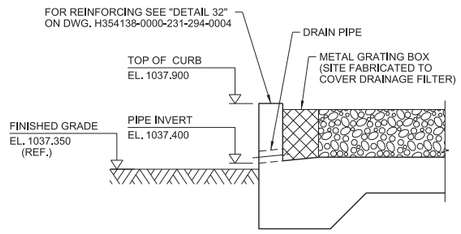
DWG. No. H354138-3100-231-260-0031



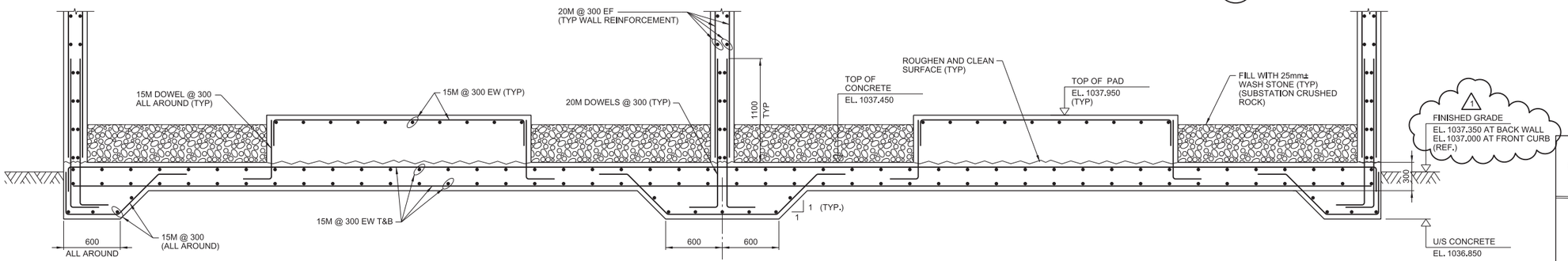

PLAN
SCALE: 1:50




SECTION C - WALL OPENING DETAIL
SCALE: 1:50




SECTION B -
SCALE: 1:25



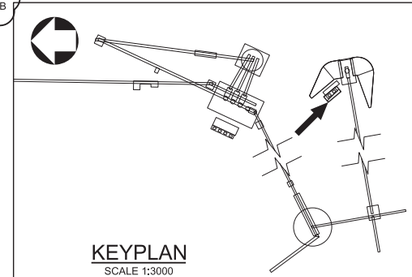

SECTION A -
SCALE: 1:25

0 250 500 750 1000 1250
1:25 SCALE IN MILLIMETRES

0 500 1000 1500 2000 2500
1:50 SCALE IN MILLIMETRES

NOTES:

1. FOR NOTES SEE DRAWING H354138-5710-231-260-0001.
2. SEE VENDOR STANDARD INSTALLATION DETAILS FOR Q-MAX HF DRAINAGE FILTER.
3. FOR LOCATION SEE CIVIL DWG. H354138-2000-220-270-0003.
4. FOR TRANSFORMER LAYOUT REFER TO DWG. H354138-PE004-260-270-0001 & 0002.
5. ALL CABLE TRAY OPENINGS TO BE SEALED WITH FIRE STOP.



KEYPLAN
SCALE 1:3000

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| No. | DESCRIPTION | BY | CHK'D | DATE |
|---|---|---|---|---|
| 2 | ELEVATION MODIFIED | RS | EA | 2018-09-27 |
| 1 | HOLD H0060 RELEASED, NOTE 5 ADDED | PJ | EA | 2018-09-07 |
| 0 | APPROVED FOR CONSTRUCTION | RS | EA | 2018-08-22 |

| ROLE | NAME | SIGNATURE & DATE |
|---|---|---|
| DRAFTSPERSON | R. SAGARBARRIA | NR |
| DESIGNER | F. LIU | NR |
| CHECKER | E. AKINCI | |
| DESIGN COORD. | S. PERKINS | |
| RESP. ENG. | E. AKINCI | |
| LEAD DISC. ENG. | E. AKINCI | |
| ENG. MANAGER | B. RUSTAD | |
| PROJ. MANAGER | B. RUSTAD | |

DRAWING APPROVAL STATUS: Approved for Construction

HATCH

StrataGold Corporation

EAGLE GOLD PROJECT

PRIMARY CRUSHING
TRANSFORMER FOUNDATION
PLAN, SECTIONS AND DETAILS

SCALE AS NOTED OR AS NOTED

DWG. No. H354138-3100-231-260-0031

REV 2

SHEET SIZE: D

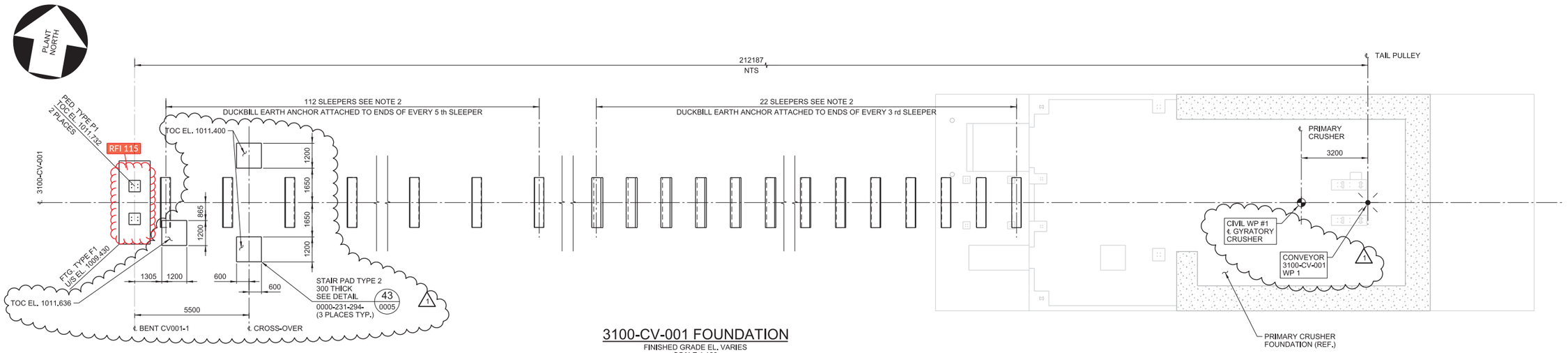
REFERENCE DRAWINGS

REG. PROFESSIONAL

DRAWING No. | DRAWING TITLE

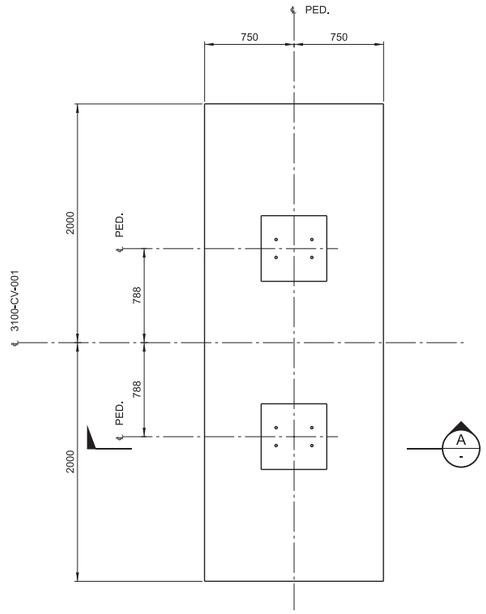
$FILE$
PRINTED: 27-SEP-2018
idc_pwservice
17:43

DWG. No. H354138-3100-231-260-0032



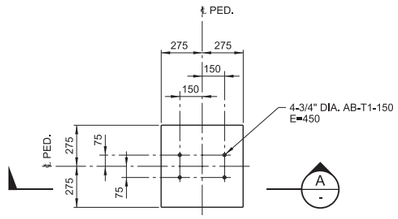

## 3100-CV-001 FOUNDATION

FINISHED GRADE EL. VARIES
SCALE 1:100

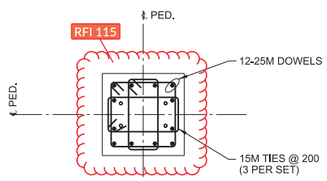



## FOOTING TYPE F1

SCALE 1:25



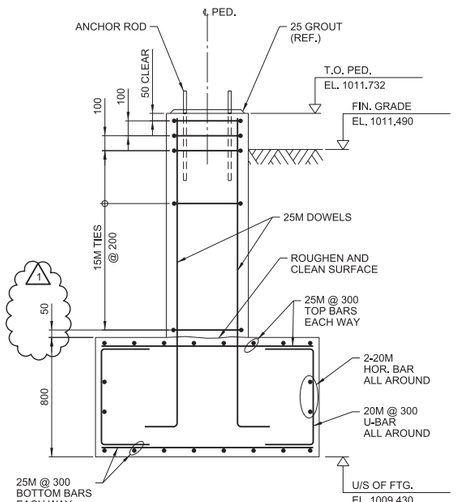

## ANCHOR SETTING




## REINFORCEMENT

## PEDESTAL TYPE P1

SCALE 1:20

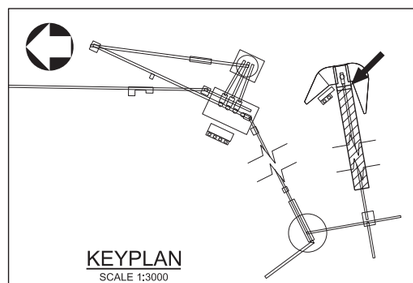



## SECTION A

SCALE 1:20

NOTES:

1. FOR CONCRETE TYPICAL DETAILS AND GENERAL NOTES SEE DRAWINGS H354138-0000-231-294-0001 TO 0007.
2. FOR SLEEPERS AND SOIL ANCHOR DETAILS, SEE DWG. H354138-2120-220-290-0004. FOR SLEEPER LOCATION AND SPACINGS SEE TEP DWG. 17-0200-100 AND102.
3. FOR FOUNDATION NOTES SEE DRAWING H354138-3210-231-260-0001.



## KEYPLAN

SCALE 1:3000

0 1 2 3 4 5
1:100 SCALE IN METRES

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| No. | DESCRIPTION | BY | CHK'D | DATE |
|---|---|---|---|---|
| 1 | WORK POINT DESCRIPTION CLARIFIED, STAIR PADS ADDED | PJ | EA | 2018-10-12 |
| 0 | APPROVED FOR CONSTRUCTION | EM | EA | 2018-08-17 |

REVISIONS

| ROLE | NAME | SIGNATURE & DATE |
|---|---|---|
| DRAFTSPERSON | E. MENDIOLA | NR 2018-08-13 |
| DESIGNER | H. LI | NR 2018-08-13 |
| CHECKER | E. AKINCI | |
| DESIGN COORD. | S. PERKINS | |
| RESP. ENG. | E. AKINCI | |
| LEAD DISC. ENG. | E. AKINCI | |
| ENG. MANAGER | B. RUSTAD | |
| PROJ. MANAGER | B.RUSTAD | |

DRAWING APPROVAL STATUS: Approved for Construction

| DRAWING No. | DRAWING TITLE |
|---|---|

REFERENCE DRAWINGS

REG. PROFESSIONAL

HATCH

StrataGold Corporation

EAGLE GOLD PROJECT

PRIMARY CRUSHING
3100-CV-001 CONVEYOR FOUNDATIONS
PLAN, SECTIONS AND DETAILS

SCALE 1:100 OR AS NOTED

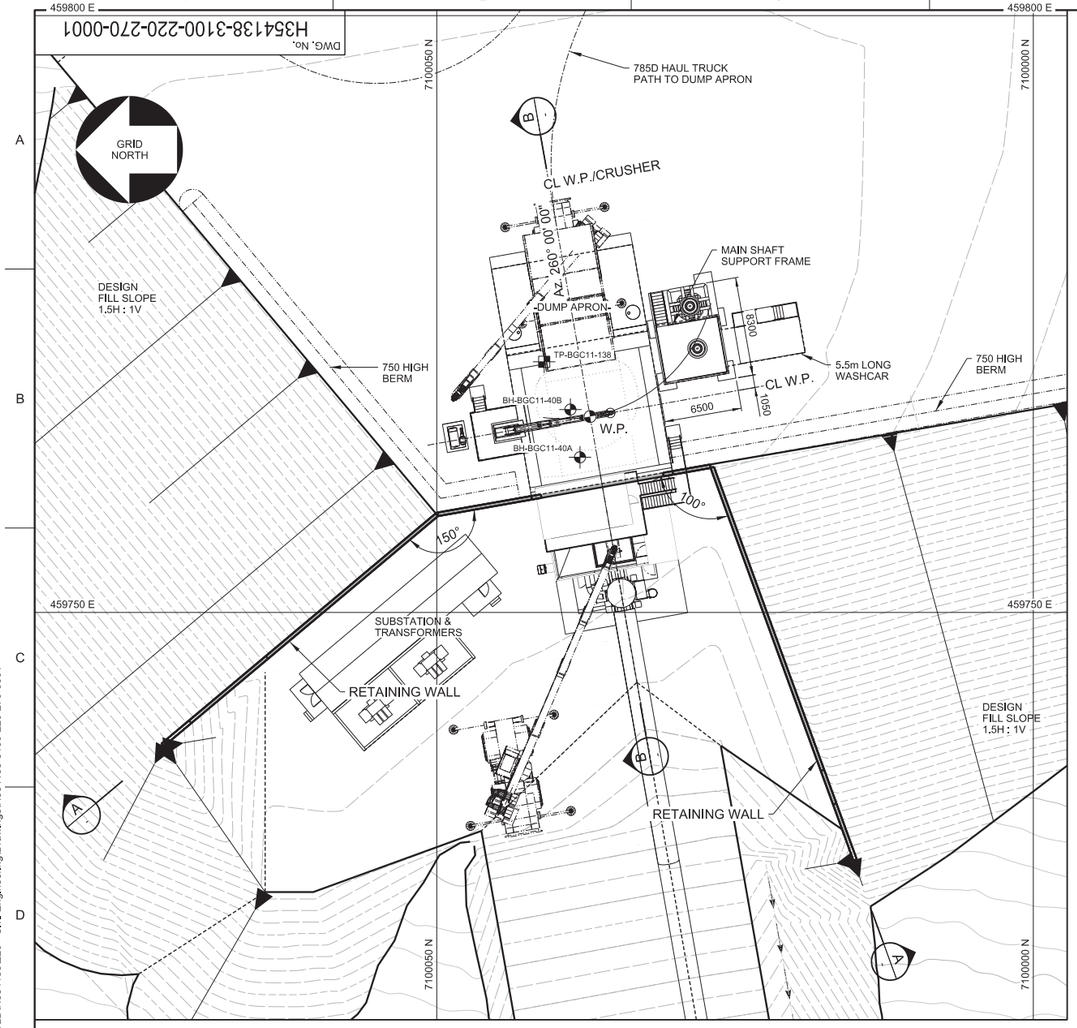
DWG. No. H354138-3100-231-260-0032

REV 1

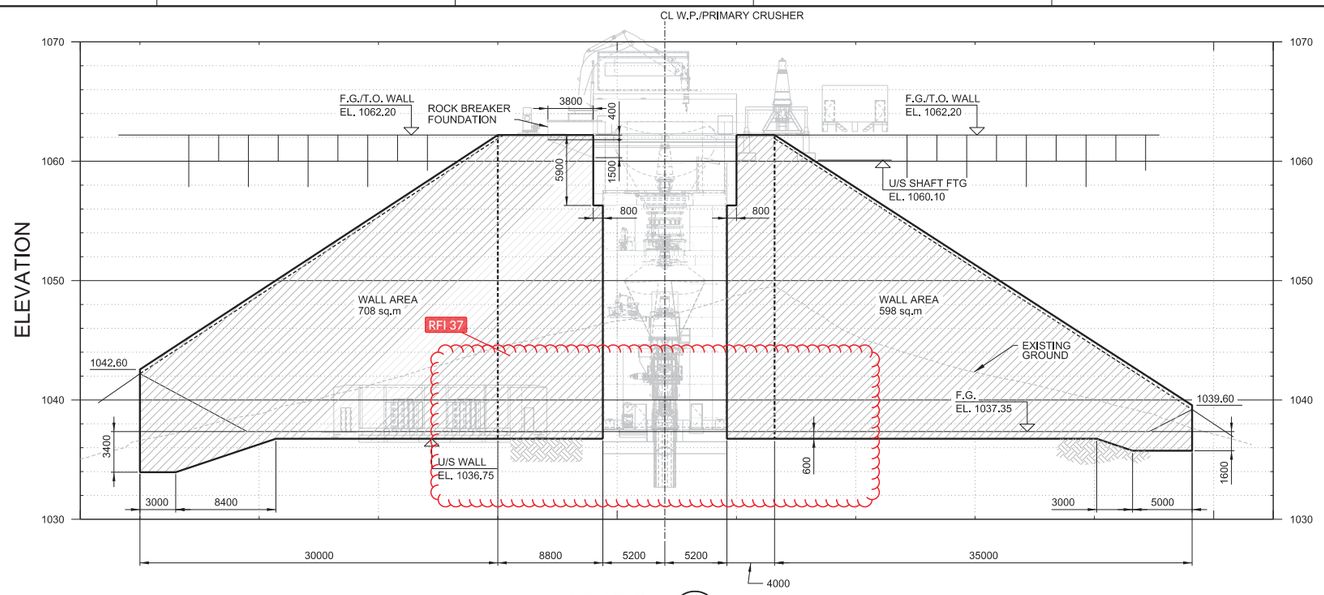
SHEET SIZE: D

$FILE$
PRINTED: 12-OCT-2018
idc_pwservice
11:16

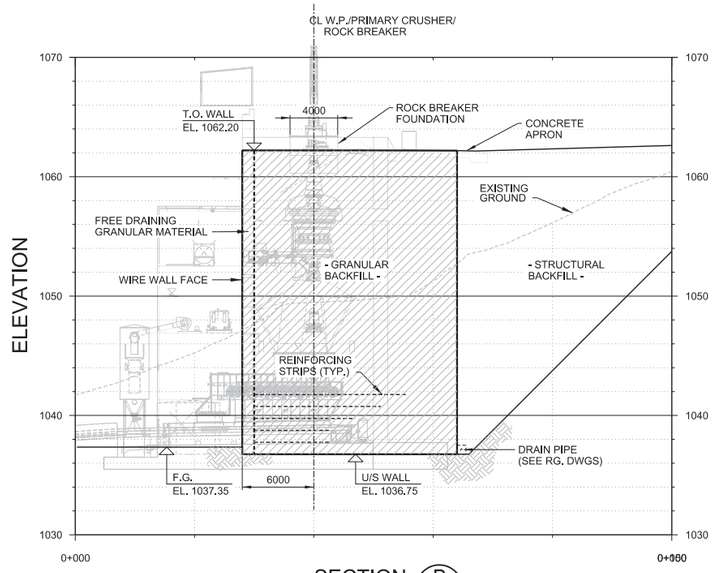
DWG. No. H354138-3100-220-270-0001




## RETAINING WALL - PLAN
SCALE 1:250




## SECTION A
-




## SECTION B
-

0 2.5 5.0 7.5 10 12.5
1:250 SCALE IN METRES

NOTES:

1. ALL DIMENSIONS IN MILLIMETERS, ELEVATIONS IN METERS
2. FOR GEOTECHNICAL CONDITIONS SEE REPORT PREPARED BY BGC ENGINEERING INC. TITLED '2011 GEOTECHNICAL INVESTIGATION FOR MINE SITE INFRASTRUCTURE FOUNDATION REPORT' DATED JANUARY 31, 2012.
3. RETAINING WALL DESIGN CRITERIA:
   - 3.1: MAIN SHAFT SUPPORT FRAME - GROSS WEIGHT = 100 tonnes
   - 3.2: 2.25m WIDE x 750 HIGH ROCK BERM - SEE PLAN FOR LOCATION
   - 3.3: H20 LOADING ALONG FILL EDGE - PICKUP TRUCKS/SEMI-TRAILERS
   - 3.4 DESIGN FOR EARTHQUAKE LOADS IN ACCORDANCE WITH NBCC 2015 FOR FIRM GROUND (SOIL CLASS C). SEE TECHNICAL SPECIFICATION H354138-S003120 - SITE CONDITIONS AND PROJECT REQUIRMENTS.
   - 3.5 FOR CIVIL DESIGN DETAILS SEE H354138-00000-220-210-0001 - CIVIL DESIGN CRITERIA.
4. GRANULAR FILL BEHIND WALL SHALL BE SPECIFIED BY THE MECHANICALLY STABILIZED EARTH RETAINING WALL SUPPLIER.

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| No. | DESCRIPTION | BY | CHK'D | DATE |
|---|---|---|---|---|
| 0 | FOR USE | DN | EA | 20/02/2018 |

| ROLE | NAME | SIGNATURE | DATE |
|---|---|---|---|
| DRAFTSPERSON | D NESJAN | NR | JUNE 2017 |
| DESIGNER | D NESJAN | NR | JUNE 2017 |
| CHECKER | E AKINCI | | |
| DESIGN COORD. | S PERKINS | | |
| RESP. ENG. | E AKINCI | | |
| LEAD DISC. ENG. | E AKINCI | | |
| ENG. MANAGER | T O'FARRELL | | |
| PROJ. MANAGER | B RUSTAD | | |

DRAWING APPROVAL STATUS: Approved for Use

REFERENCE DRAWINGS | DRAWING No. | DRAWING TITLE

REG. PROFESSIONAL

HATCH

StrataGold Corporation

EAGLE GOLD PROJECT

PRIMARY CRUSHER
MSE RETAINING WALL
PLAN AND SECTIONS

SCALE: AS NOTED OR AS NOTED

DWG. No. H354138-3100-220-270-0001

REV 0

SHEET SIZE: D

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PRINTED: 2018-02-20 4:24:21 PM
majo2899

DWG. No. H354138-3210-231-260-0001

AREA: 3210 COARSE ORE STOCKPILE/RECLAIM

CONCRETE DETAILS DRAWING LIST

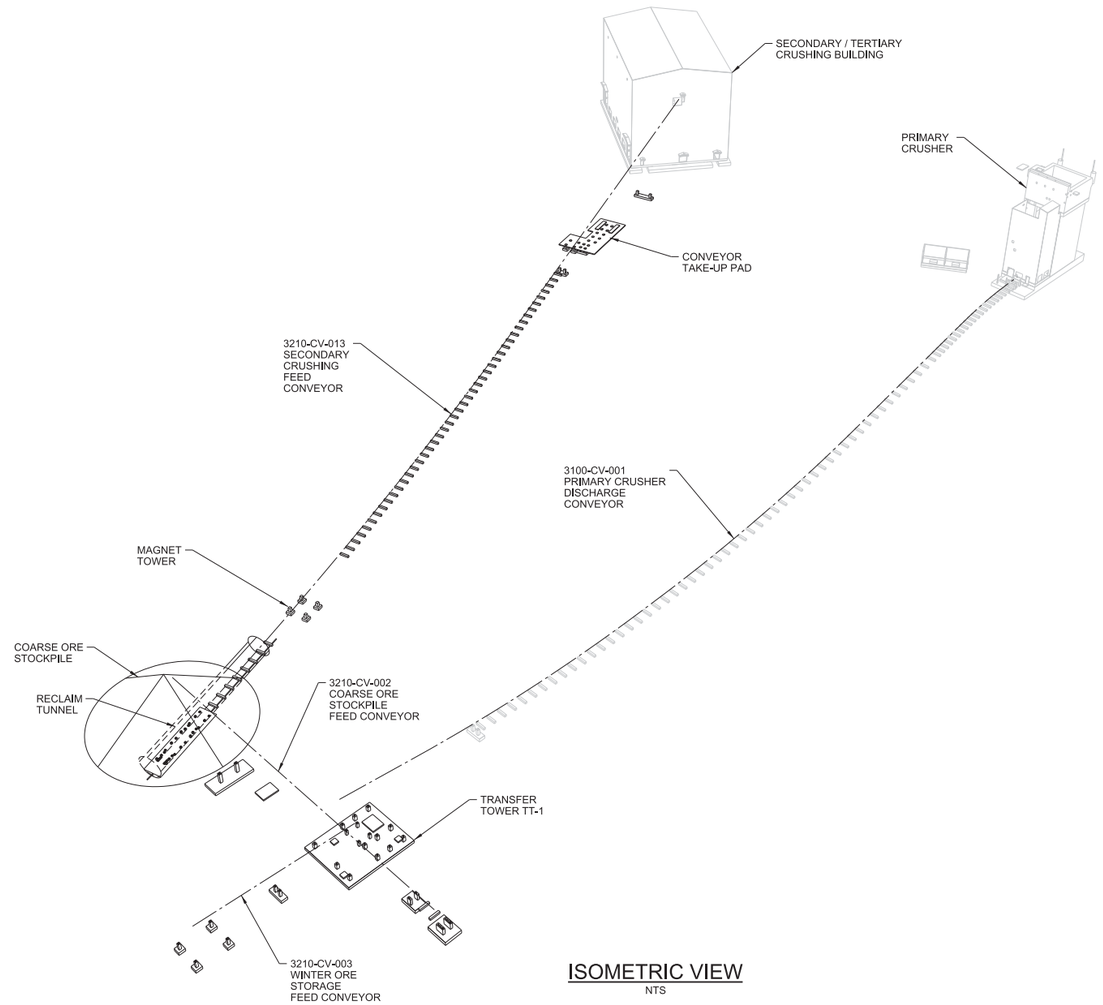
| DRAWING NUMBER | REV. | DRAWING TITLE | | |
|---|---|---|---|---|
| H354138-3210-231-260-0001 | 0 | COARSE ORE STOCLPILE/RECLAIM | GENERAL | TITLE SHEET, ISOMETRIC |
| H354138-3210-231-260-0002 | 0 | COARSE ORE STOCLPILE/RECLAIM | TRANSFER TOWER TT-1 FOUNDATION | PLAN, SECTIONS AND DETAILS |
| H354138-3210-231-260-0003 | 0 | COARSE ORE STOCLPILE/RECLAIM | 3210-CV-002 CONVEYOR FOUNDATION | PLAN, SECTIONS AND DETAILS - SHEET 1 |
| H354138-3210-231-260-0004 | 0 | COARSE ORE STOCLPILE/RECLAIM | 3210-CV-002 CONVEYOR FOUNDATION | PLAN, SECTIONS AND DETAILS - SHEET 2 |
| H354138-3210-231-260-0005 | 0 | COARSE ORE STOCLPILE/RECLAIM | 3220-CV-002 CONVEYOR FOUNDATION | PLAN, SECTIONS AND DETAILS - SHEET 3 |
| H354138-3210-231-260-0006 | 0 | COARSE ORE STOCLPILE/RECLAIM | 3220-CV-003 CONVEYOR FOUNDATION | PLAN, SECTIONS AND DETAILS |
| | | | | |
| H354138-3210-231-260-0010 | 2 | COARSE ORE STOCLPILE/RECLAIM | RECLAIM TUNNEL FOUNDATION | PLAN AND SECTION |
| H354138-3210-231-260-0011 | 1 | COARSE ORE STOCLPILE/RECLAIM | RECLAIM TUNNEL FOUNDATION | SECTION AND DETAILS |

## FOUNDATION NOTES:

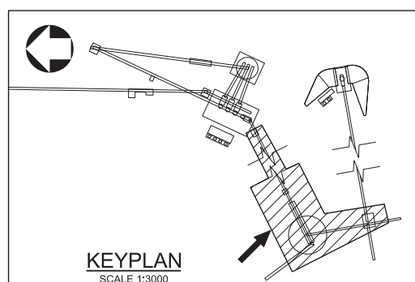
2.1 ALL CONCRETE FOUNDATION SUBGRADE SHALL BE EITHER ROCK OR 38 mm MINUS NFS STRUCTURAL BACKFILL DOWN TO 3 METERS BELOW THE FINISH GRADE COMPACTED TO 95% MODIFIED PROCTOR.
2.2 ALL BACKFILL AROUND AND ABOVE CONCRETE FOUNDATIONS, PEDESTALS AND PADS SHALL BE 38 mm MINUS NFS STRUCTURAL BACKFILL.
2.3 ALL FOUNDATION SUBGRADE SHALL BE INSPECTED AND APPROVED BY THE GEOTECHNICAL ENGINEER PRIOR TO PLACEMENT OF CONCRETE.
2.4 THE PREPARED FOOTING SUBGRADE SHALL BE PROTECTED FROM WATER INGRESS AND SOFTENING BY PROVIDING ADEQUATE DRAINAGE OR PLACING A LEAN CONCRETE MUD SLAB.

## GENERAL NOTES:

1.1 READ THESE DRAWINGS IN CONJUNCTION WITH ALL OTHER PERTINENT CONTRACT DOCUMENTS.
1.2 FOR CONCRETE TYPICAL DETAILS DRAWING SET AND GENERAL NOTES, SEE DRAWINGS 354138-0000-231-294-0001 TO -0007.
1.3 REFER TO MECHANICAL, PROCESS AND ELECTRICAL DRAWINGS FOR LOCATIONS AND DIMENSIONS OF OPENINGS, SLEEVES AND OTHER BUILDING COMPONENTS NOT SHOWN ON STRUCTURAL DRAWINGS. REPORT DISCREPENCIES TO THE OWNER OR HIS REPRESENTATIVE PRIOR TO PROCEEDING WITH THE WORK.
1.4 FOR GENERAL SITE LOCATION AND WORK POINT COORDINATES, SEE DRAWING H354138-2120-220-290-0001.
1.5 HIGH ENERGY COMPACTION EQUIPMENT SUCH AS LARGE ROLLERS MUST NOT BE USED FOR COMPACTING BACKFILL WITHIN 1 METER OF THE EDGE OF THE WALLS.
1.6 FOR GROUNDING LOOP SEE ELECTRICAL DRAWING H354138-3210-260-272-1000-0001, FOR GROUNDING INSTALLATION DETAILS SEE DRAWING SET H354138-3210-260-290-0001-0001 TO -0015.
1.7 FOR CAST-IN PLACE CONCRETE, SEE SPECIFICATION SECTION H354138-S032000.
1.8 FOR CONCRETE FORMWORK, SEE SPECIFICATION SECTION H354138-S031000.
1.9 FOR CONCRETE REINFORCEMENT, SEE SPECIFICATION SECTION H354138-S033000.
1.10 FOR GROUTING, SEE SPECIFICATION SECTION H354138-S036000.
1.11 CONSTRUCTION JOINTS NOT SHOWN ON THE DRAWINGS MUST BE APPROVED BY THE CONTRUCTION MANAGER.
1.12 IN CASE OF ANY DISCREPANCIES, INFORM THE CONSTRUCTION MANAGER BEFORE COMMENCING WORK.
1.13 ALL DIMENSIONS ARE IN MILLIMETERS AND ELEVATIONS ARE IN METERS.
1.14 PROVIDE 19mm X 19mm CHAMFER AT ALL EXPOSED CONCRETE CORNERS AND EDGES ABOVE GRADE LEVEL.
1.15 THE DRAWINGS SHOULD BE READ IN CONJUNCTION WITH THE PROJECT CIVIL DESIGN CRITERIA H654138-0000-220-210-0001.
1.16 FOR FURTHER GEOTECH INFORMATION, SEE "2011 GEOTECHNICAL INVESTIGATION FOR MINE SITE INFRASTRUCTURE FOUNDATION REPORT" BY BGC ENGINEERING DATED JAN 31, 2012.
1.17 SET ANCHOR RODS USING TEMPLATES WHICH MUST BE LEFT IN PLACE UNTIL THE CONCRETE HAS SET. ANCHOR RODS SHALL BE PLUMBED AND SECURED FROM MOVEMENT PRIOR TO CASTING CONCRETE.




ISOMETRIC VIEW
NTS



KEYPLAN
SCALE 1:3000

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| REVISIONS | | | | |
|---|---|---|---|---|
| No. | DESCRIPTION | BY | CHK'D | DATE |
| 0 | APPROVED FOR CONSTRUCTION | PJ | EA | 2018-08-17 |

| DRAWING APPROVAL STATUS: Approved for Construction | ROLE | NAME | SIGNATURE & DATE |
|---|---|---|---|
| DRAFTSPERSON | P. JIVAEV | NR | 2017-11-23 |
| DESIGNER | H. LI | NR | 2017-11-23 |
| CHECKER | E. AKINCI | | |
| DESIGN COORD. | S. PERKINS | | |
| RESP. ENG. | E. AKINCI | | |
| LEAD DISC. ENG. | E. AKINCI | | |
| ENG. MANAGER | B. RUSTAD | | |
| PROJ. MANAGER | B. RUSTAD | | |

REFERENCE DRAWINGS

| DRAWING No. | DRAWING TITLE |
|---|---|

REG. PROFESSIONAL

HATCH

StrataGold Corporation

EAGLE GOLD PROJECT

COARSE ORE STOCKPILE/RECLAIM
CONCRETE SUPPORT STRUCTURES
TITLE SHEET, ISOMETRIC VIEW

SCALE NTS OR AS NOTED | DWG. No. H354138-3210-231-260-0001 | REV 0

SHEET SIZE: D

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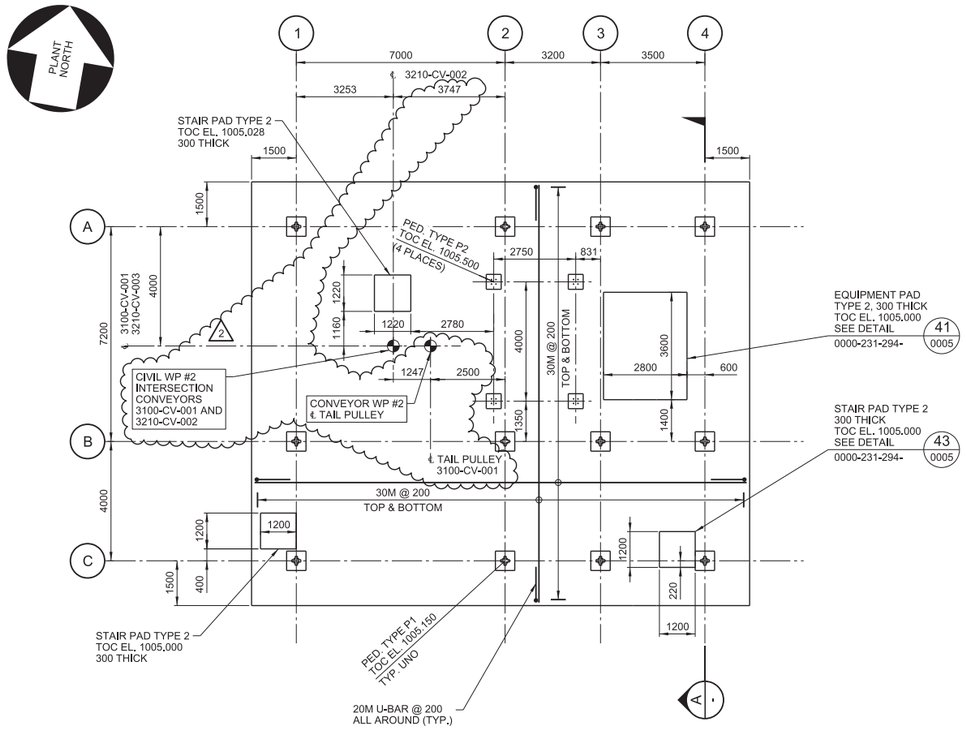
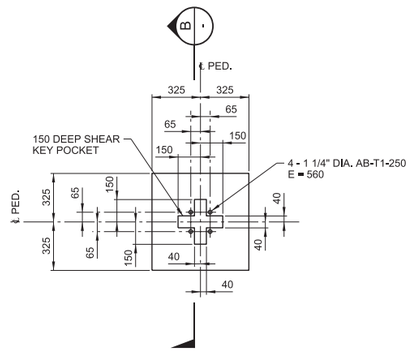
PRINTED: 17-AUG-2018
15:07
idc_pwservice

DWG. No. H354138-3210-231-260-0002




## TRANSFER TOWER TT-1 FOUNDATION - PLAN

FINISHED GRADE EL. 1004.850 (REF.)

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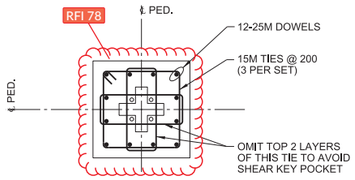


REINFORCEMENT

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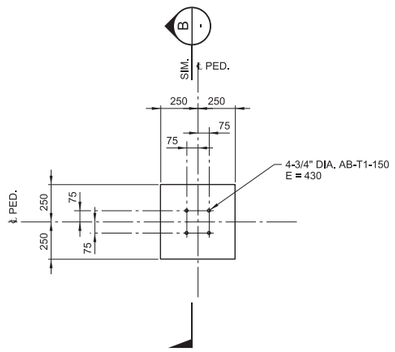


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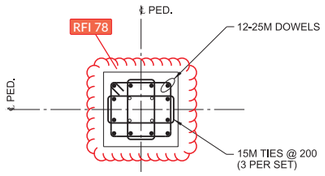


REINFORCEMENT

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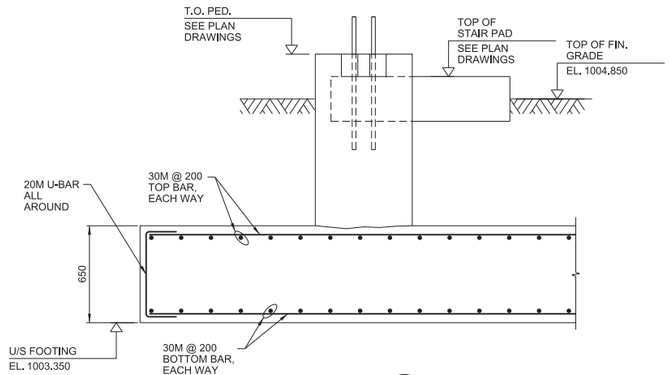
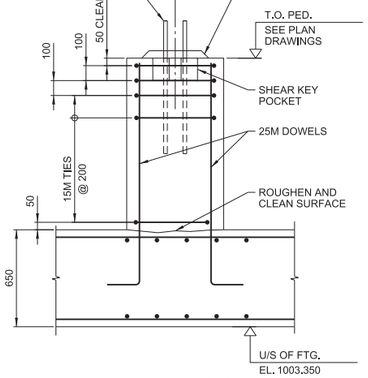



## SECTION A

SCALE 1:20



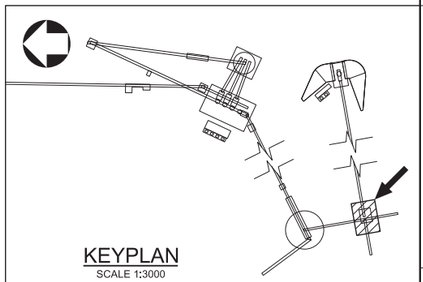

## SECTION B

SCALE 1:20

0 1 2 3 4 5
1:100 SCALE IN METRES

NOTES:

1. FOR GENERAL NOTES SEE DRAWINGS H354138-3210-231-260-0001.



KEYPLAN

SCALE 1:3000

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| No. | DESCRIPTION | BY | CHK'D | DATE |
|---|---|---|---|---|
| 2 | CONVEYOR 3100-CV-001 WP ADDED | PJ | EA | 2018-08-29 |
| 1 | STAIR PAD SIZE REVIZED, GROUT SIZE ON SECTION 'B' CLARIFIED | PJ | EA | 2018-08-27 |
| 0 | APPROVED FOR CONSTRUCTION | EM | EA | 2018-08-17 |

REVISIONS

| ROLE | NAME | SIGNATURE & DATE |
|---|---|---|
| DRAFTSPERSON | E. MENDIOLA | NR 2018-08-13 |
| DESIGNER | F. LIU | NR 2018-08-13 |
| CHECKER | E. AKINCI | |
| DESIGN COORD. | S. PERKINS | |
| RESP. ENG. | E. AKINCI | |
| LEAD DISC. ENG. | E. AKINCI | |
| ENG. MANAGER | B. RUSTAD | |
| PROJ. MANAGER | B.RUSTAD | |

DRAWING APPROVAL STATUS: Approved for Construction

HATCH

StrataGold Corporation

EAGLE GOLD PROJECT

# COARSE ORE STOCKPILE/RECLAIM TRANSFER TOWER TT-1 FOUNDATION PLAN, SECTIONS AND DETAILS

| DRAWING No. | DRAWING TITLE |
|---|---|
| REFERENCE DRAWINGS | REG. PROFESSIONAL |

SCALE 1:100 OR AS NOTED

DWG. No. H354138-3210-231-260-0002

REV 2

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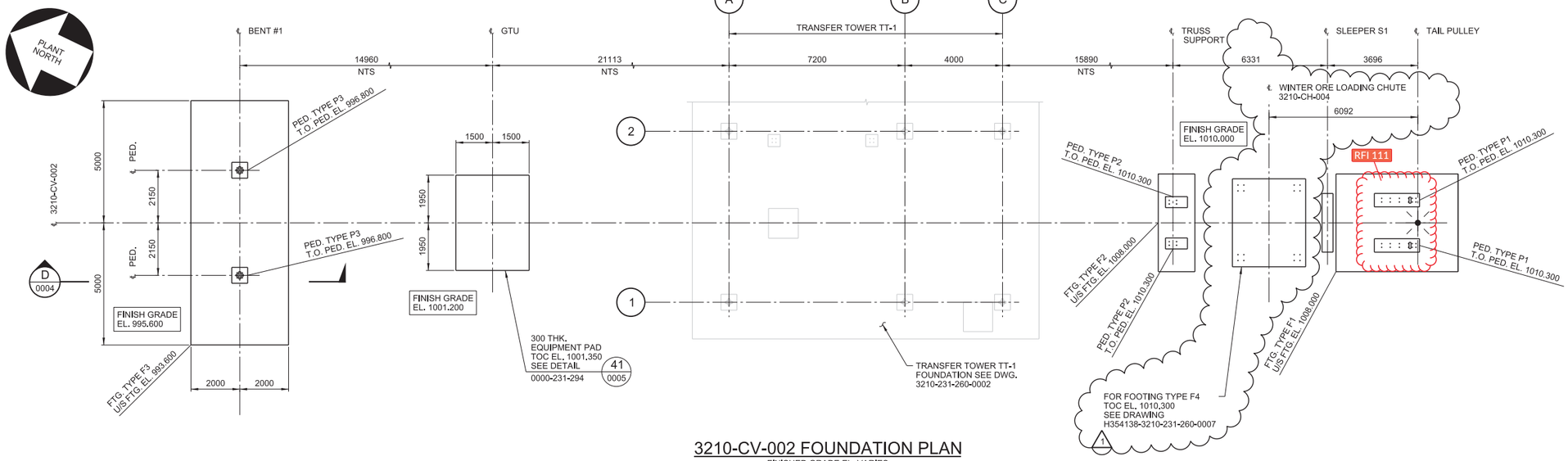
DWG. No. H354138-3210-231-260-0003

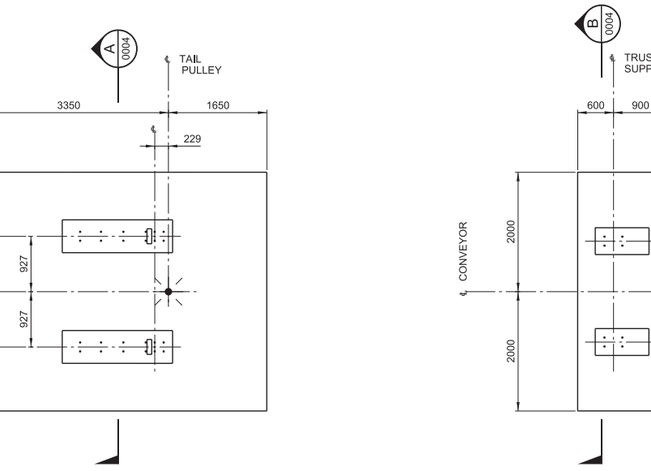



## 3210-CV-002 FOUNDATION PLAN

FINISHED GRADE EL. VARIES
SCALE 1:100

## ISOMETRIC VIEW

NTS



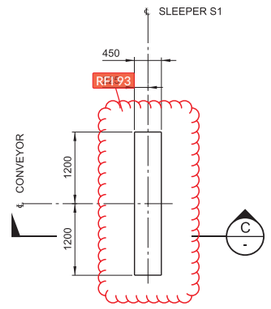

## FOOTING TYPE F-1 PLAN

SCALE 1:50



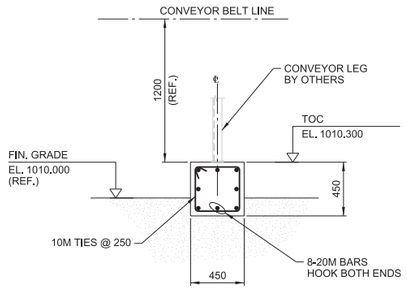

## FOOTING TYPE F-2 PLAN

SCALE 1:50




## SLEEPER S1 PLAN

SCALE 1:50

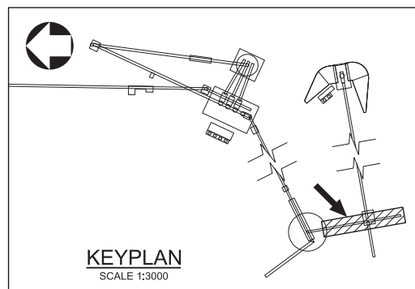



## SECTION C

SCALE 1:25

NOTES:

1. FOR NOTES SEE DRAWING H354138-3210-231-260-0001.



## KEYPLAN

SCALE 1:3000

0 1 2 3 4 5
1:100 SCALE IN METRES

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| REVISIONS | | | | | |
|---|---|---|---|---|---|
| No. | DESCRIPTION | BY | CHK'D | DATE | |
| 1 | FOOTING TYPE F4 ADDED, 1 SLEEPER TYPE S1 REMOVED | PJ | EA | 2019-01-10 | |
| 0 | APPROVED FOR CONSTRUCTION | EM | EA | 2018-08-17 | |

| DRAWING No. | DRAWING TITLE |
|---|---|
| REFERENCE DRAWINGS | |

REG. PROFESSIONAL

| ROLE | NAME | SIGNATURE & DATE |
|---|---|---|
| DRAFTSPERSON | E. MENDIOLA | NR 2018-08-16 |
| DESIGNER | H. LI | NR 2018-08-16 |
| CHECKER | E. AKINCI | |
| DESIGN COORD. | S. PERKINS | |
| RESP. ENG. | E. AKINCI | |
| LEAD DISC. ENG. | E. AKINCI | |
| ENG. MANAGER | B. RUSTAD | |
| PROJ. MANAGER | B. RUSTAD | |

DRAWING APPROVAL STATUS: Approved for Construction

HATCH

StrataGold Corporation

EAGLE GOLD PROJECT

COARSE ORE STOCKPILE/RECLAIM
3210-CV-002 CONVEYOR FOUNDATION
PLAN, SECTIONS AND DETAILS-SHEET 1

SCALE AS NOTED OR AS NOTED

DWG. No. H354138-3210-231-260-0003

REV 1

SHEET SIZE: D

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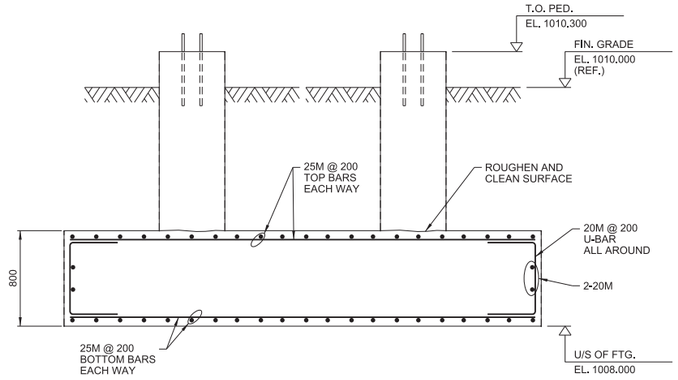
DWG. No. H354138-3210-231-260-0004




SECTION A (0003)
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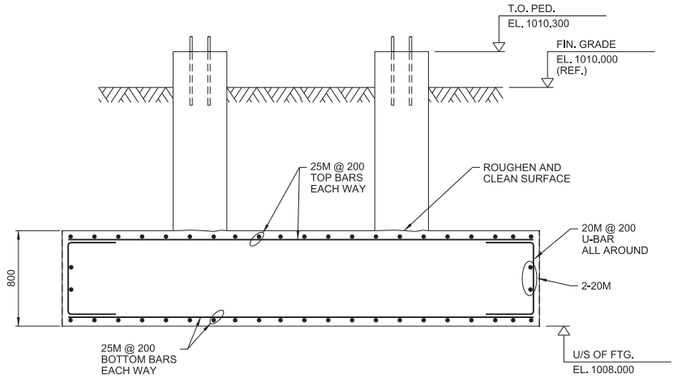


SECTION B (0003)
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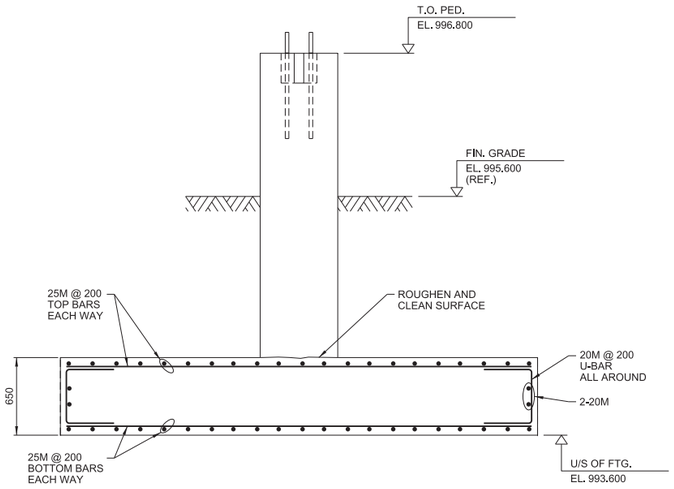


SECTION D (0003)
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NOTES:

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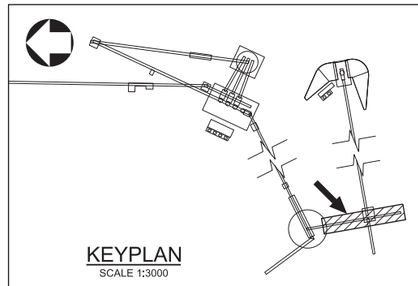

KEYPLAN
SCALE 1:3000

0 250 500 750 1000 1250
1:25 SCALE IN MILLIMETRES

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| DRAWING No. | DRAWING TITLE |
|---|---|

REFERENCE DRAWINGS

REG. PROFESSIONAL

| No. | DESCRIPTION | BY | CHK'D | DATE |
|---|---|---|---|---|
| 0 | APPROVED FOR CONSTRUCTION | EM | EA | 2018-08-17 |

REVISIONS

| ROLE | NAME | SIGNATURE & DATE |
|---|---|---|
| DRAFTSPERSON | E. MENDIOLA | NR 2018-08-15 |
| DESIGNER | H. LI | NR 2018-08-15 |
| CHECKER | E. AKINCI | |
| DESIGN COORD. | S. PERKINS | |
| RESP. ENG. | E. AKINCI | |
| LEAD DISC. ENG. | E. AKINCI | |
| ENG. MANAGER | B. RUSTAD | |
| PROJ. MANAGER | B.RUSTAD | |

DRAWING APPROVAL STATUS: Approved for Construction

HATCH

StrataGold Corporation

EAGLE GOLD PROJECT

COARSE ORE STOCKPILE/RECLAIM
3210-CV-002 CONVEYOR FOUNDATION
PLAN, SECTIONS AND DETAILS-SHEET 2

SCALE: AS NOTED OR AS NOTED

DWG. No. H354138-3210-231-260-0004

REV 0

SHEET SIZE: D

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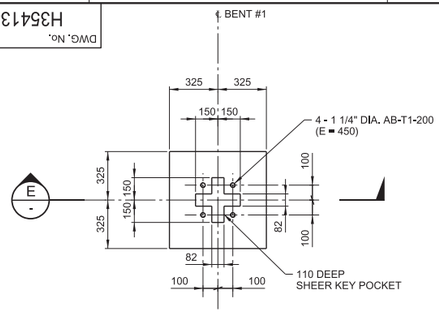
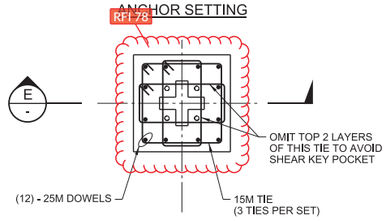
DWG. No. H354138-3210-231-260-0005




ANCHOR SETTING




REINFORCEMENT

## PEDESTAL TYPE P3

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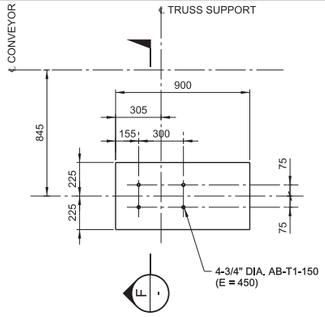


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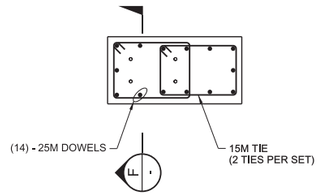


REINFORCEMENT

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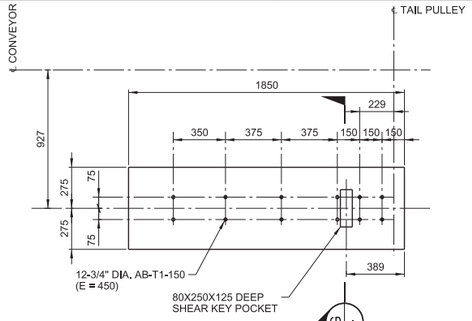
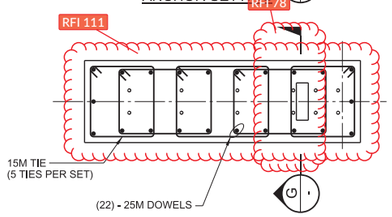


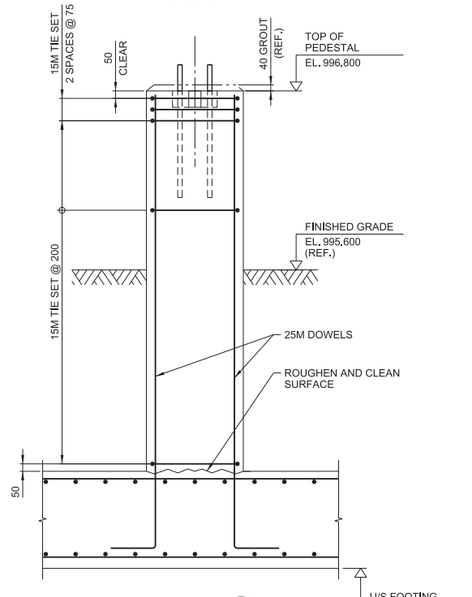

ANCHOR SETTING




REINFORCEMENT

## PEDESTAL TYPE P1

SCALE 1:20




SECTION E - SCALE 1:20




SECTION F - SCALE 1:20

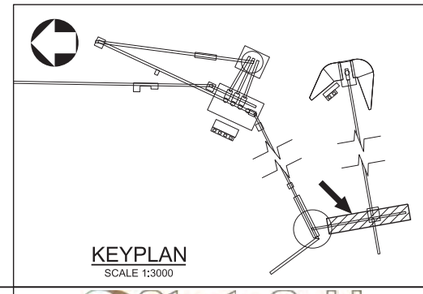



SECTION G - SCALE 1:20




NOTES:

1. FOR NOTES SEE DRAWING H354138-3210-231-260-0001.



KEYPLAN
SCALE 1:3000

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| REVISIONS | | | | |
|---|---|---|---|---|
| No. | DESCRIPTION | BY | CHK'D | DATE |
| 0 | APPROVED FOR CONSTRUCTION | EM | EA | 2018-08-17 |

| REFERENCE DRAWINGS | | REG. PROFESSIONAL |
|---|---|---|
| DRAWING No. | DRAWING TITLE | |

| | | | |
|---|---|---|---|
| DRAFTSPERSON | E. MENDIOLA | NR | 2018-08-16 |
| DESIGNER | H. LI | NR | 2018-08-16 |
| CHECKER | E. AKINCI | | |
| DESIGN COORD. | S. PERKINS | | |
| RESP. ENG. | E. AKINCI | | |
| LEAD DISC. ENG. | E. AKINCI | | |
| ENG. MANAGER | B. RUSTAD | | |
| PROJ. MANAGER | B. RUSTAD | | |
| ROLE | NAME | SIGNATURE & DATE | |

DRAWING APPROVAL STATUS: Approved for Construction

HATCH

StrataGold Corporation

EAGLE GOLD PROJECT

COARSE ORE STOCKPILE/RECLAIM
3210-CV-002 CONVEYOR FOUNDATION
PLAN, SECTIONS AND DETAILS-SHEET 3

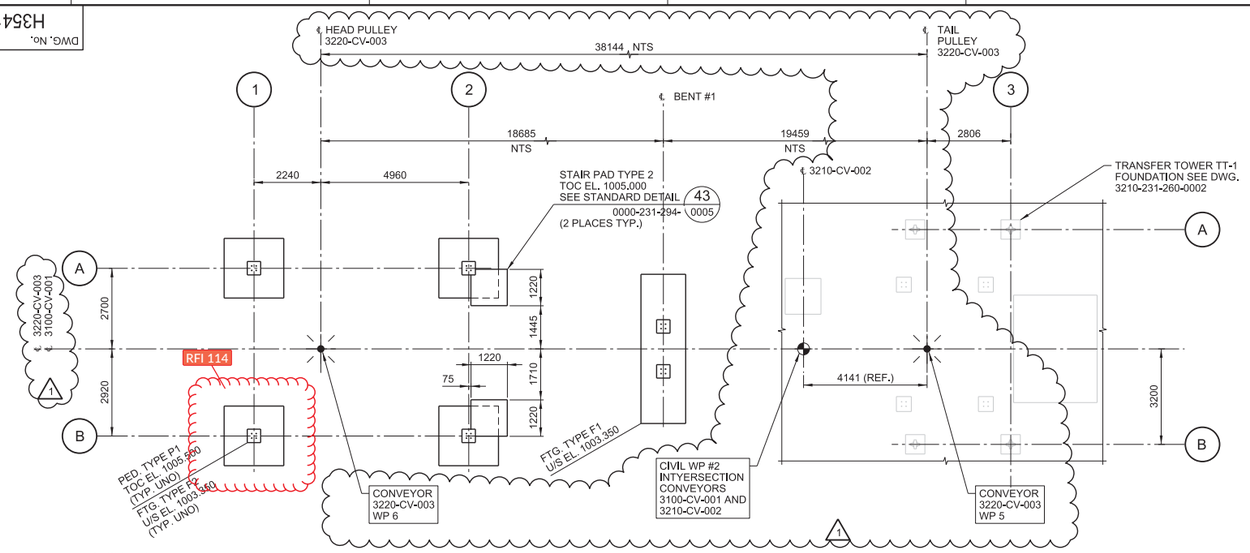
| SCALE | DWG. No. | REV |
|---|---|---|
| AS NOTED OR AS NOTED | H354138-3210-231-260-0005 | 0 |

SHEET SIZE: D

$FILELS
PRINTED: 17-AUG-2018
idc_pwservice
15:07

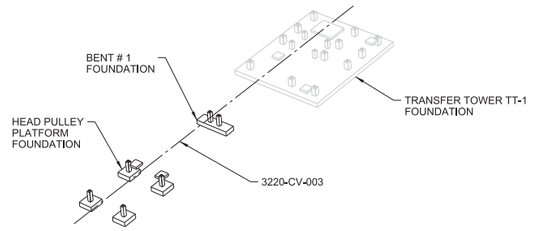
DWG. No. H354138-3210-231-260-0006



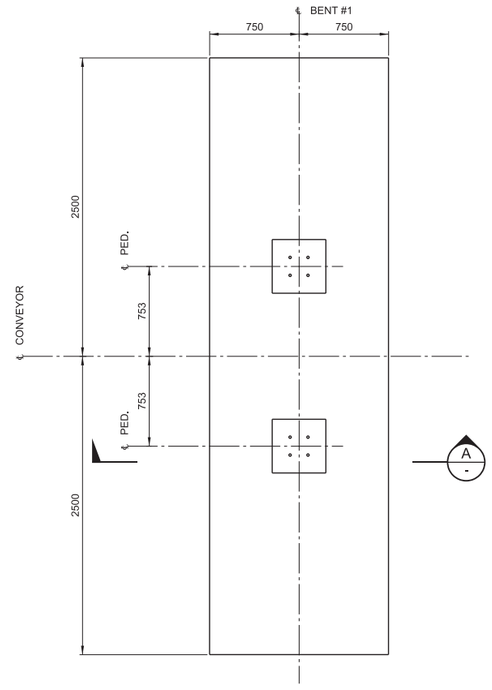

## 3220-CV-003 FOUNDATION PLAN

FINISHED GRADE EL. 1004.850 (REF.)
SCALE 1:100



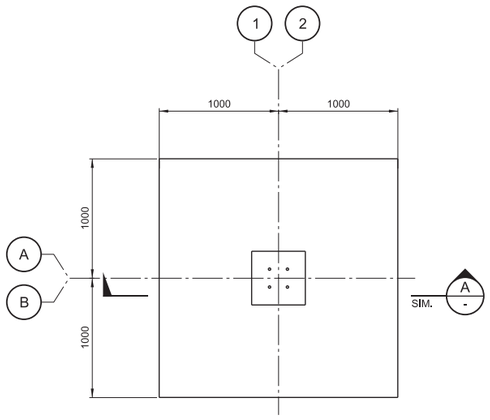

## ISOMETRIC VIEW

NTS



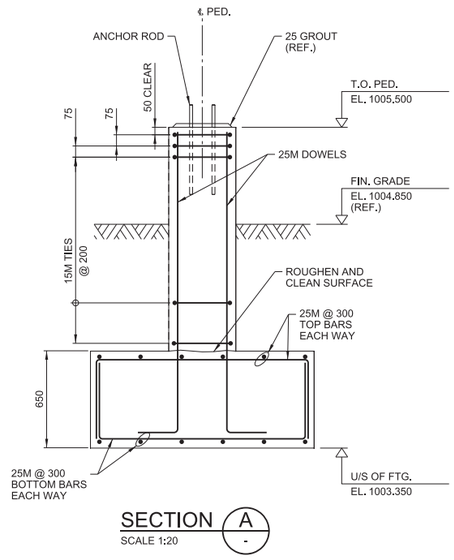

## FOOTING TYPE F-1

SCALE 1:25



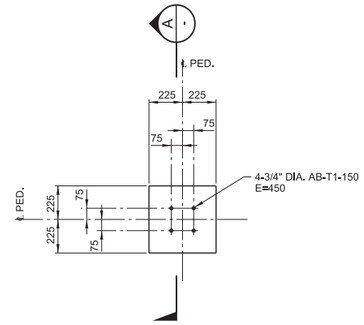

## FOOTING TYPE F-2

SCALE 1:25

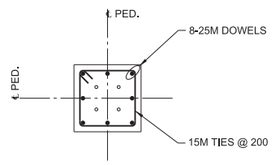



## SECTION A -

SCALE 1:20




## ANCHOR SETTING




## REINFORCEMENT

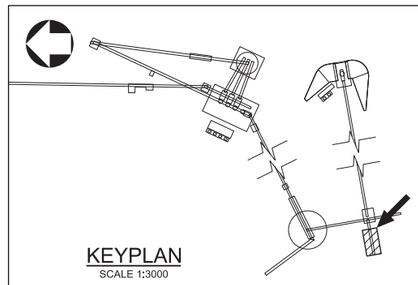
## PEDESTAL TYPE P1

SCALE 1:20

0 1 2 3 4 5
1:100 SCALE IN METRES

NOTES:

1. FOR NOTES SEE DRAWING H354138-3210-231-260-0001.



## KEYPLAN

SCALE 1:3000

15:26
SFILELS
PRINTED: 12-OCT-2018
tdc_pwservice

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| No. | DESCRIPTION | BY | CHK'D | DATE |
|---|---|---|---|---|
| 1 | WORK POINTS CLARIFICATION ADDED | PJ | EA | 2018-10-12 |
| 0 | APPROVED FOR CONSTRUCTION | EM | EA | 2018-08-22 |

REVISIONS

| ROLE | NAME | SIGNATURE & DATE |
|---|---|---|
| DRAFTSPERSON | E. MENDIOLA | NR 2018-08-16 |
| DESIGNER | H. LI | NR 2018-08-16 |
| CHECKER | E. AKINCI | |
| DESIGN COORD. | S. PERKINS | |
| RESP. ENG. | E. AKINCI | |
| LEAD DISC. ENG. | E. AKINCI | |
| ENG. MANAGER | B. RUSTAD | |
| PROJ. MANAGER | B. RUSTAD | |

DRAWING APPROVAL STATUS: Approved for Construction

HATCH

StrataGold Corporation

EAGLE GOLD PROJECT

COARSE ORE STOCKPILE/RECLAIM
3220-CV-003 CONVEYOR FOUNDATION
PLAN, SECTIONS AND DETAILS

| DRAWING No. | DRAWING TITLE |
|---|---|
| REFERENCE DRAWINGS | |

REG. PROFESSIONAL

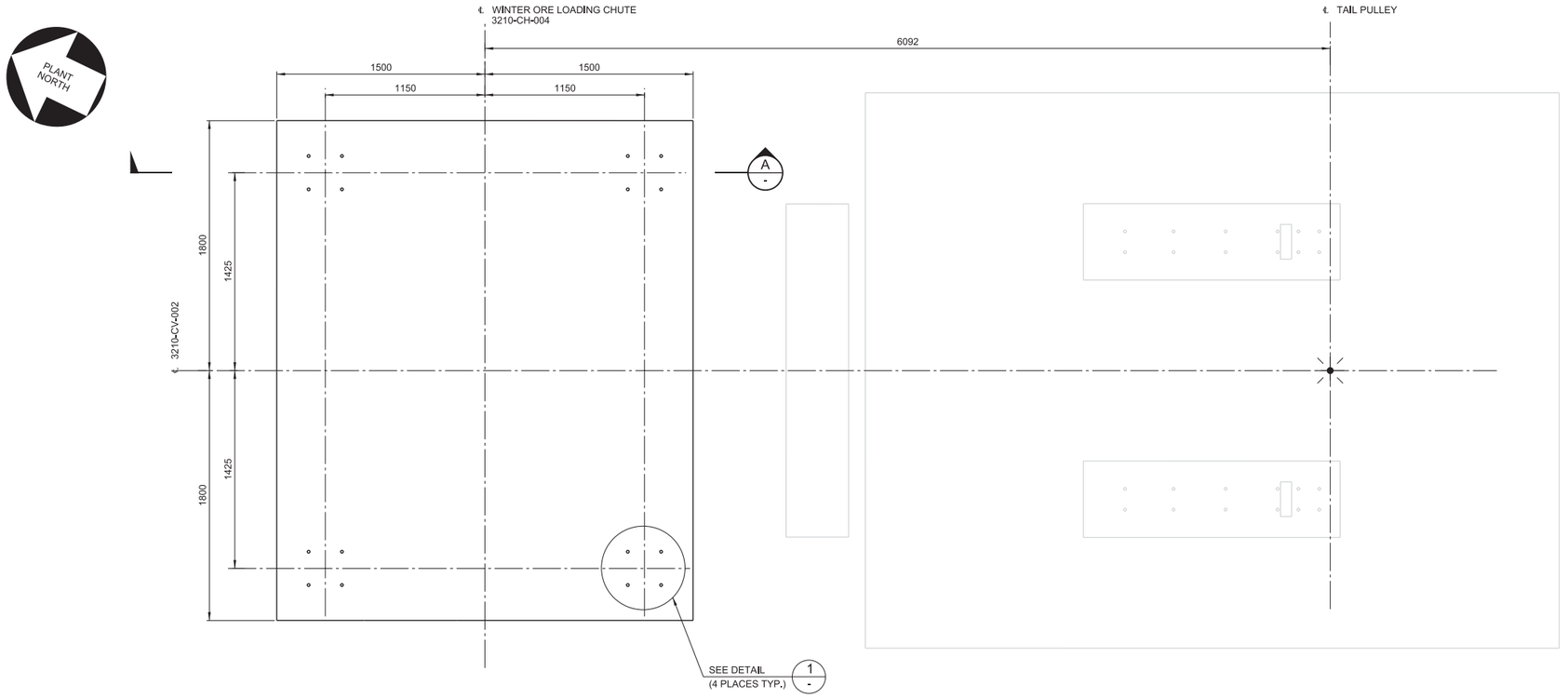
SCALE AS NOTED OR AS NOTED

DWG. No. H354138-3210-231-260-0006

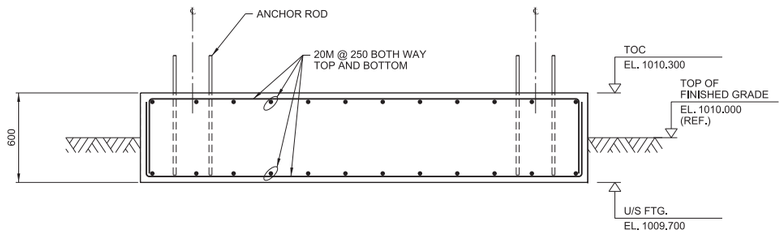
REV 1

SHEET SIZE: D

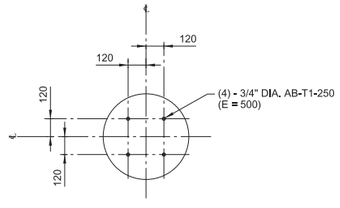
DWG. No. H354138-3210-231-260-0007




## FOOTING TYPE F4
SCALE 1:20




## SECTION A
SCALE: 1:20

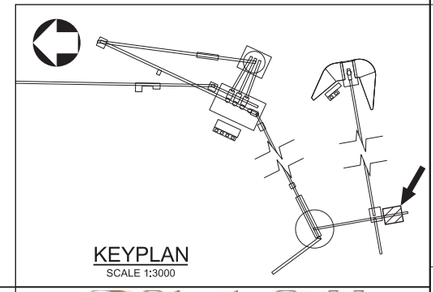



## DETAIL 1
SCALE: 1:20

0 200 400 600 800 1000
1:20 SCALE IN MILLIMETRES

NOTES:

1. FOR NOTES SEE DRAWING H354138-3210-231-260-0001.



KEYPLAN
SCALE 1:3000

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| DRAWING No. | DRAWING TITLE |
|---|---|
| | |

REFERENCE DRAWINGS

REG. PROFESSIONAL

| No. | DESCRIPTION | BY | CHK'D | DATE |
|---|---|---|---|---|
| 0 | APPROVED FOR CONSTRUCTION | EM | EA | 2019-01-10 |

REVISIONS

| ROLE | NAME | SIGNATURE & DATE |
|---|---|---|
| DRAFTSPERSON | P. JIVAEV | NR 2019-01-09 |
| DESIGNER | H. LI | NR 2019-01-09 |
| CHECKER | E. AKINCI | |
| DESIGN COORD. | S. PERKINS | |
| RESP. ENG. | E. AKINCI | |
| LEAD DISC. ENG. | E. AKINCI | |
| ENG. MANAGER | B. RUSTAD | |
| PROJ. MANAGER | B. RUSTAD | |

DRAWING APPROVAL STATUS: Approved for Construction

HATCH

StrataGold Corporation

EAGLE GOLD PROJECT

COARSE ORE STOCKPILE/RECLAIM
WINTER ORE LOADING CHUTE FDN.
PLAN, SECTIONS AND DETAILS

SCALE 1:20 OR AS NOTED

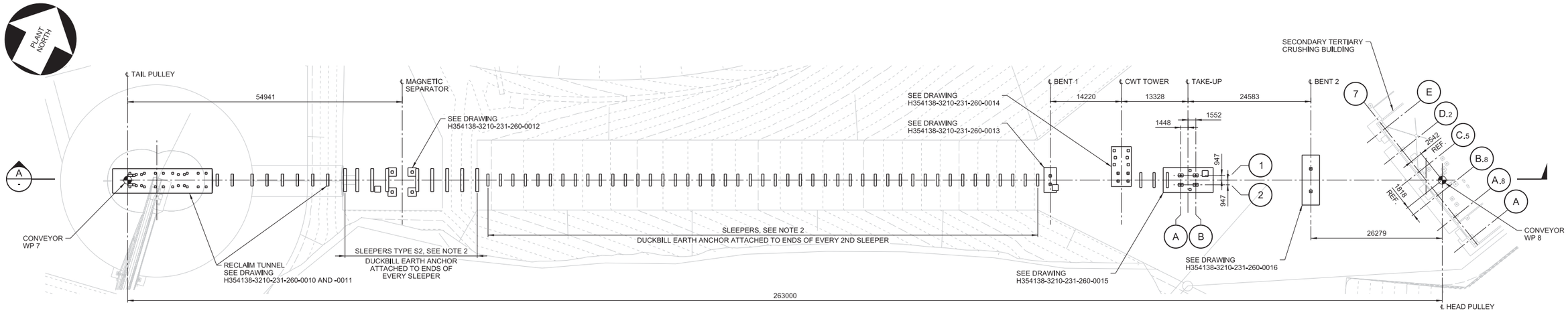
DWG. No. H354138-3210-231-260-0007

REV 0

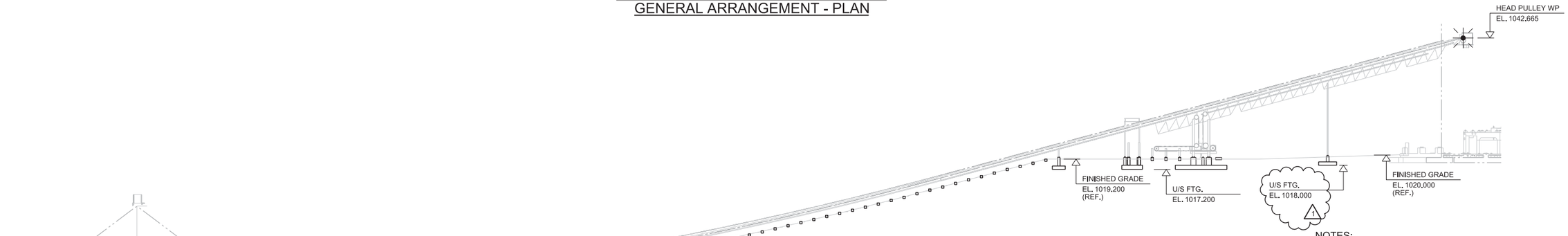
SHEET SIZE: D

SFILELS
PRINTED: 10-JAN-2019 14:12
tdc_pwservice

DWG. No. H354138-3210-231-260-0009



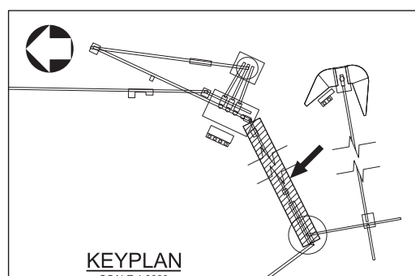

# 3210-CV-013 CONVEYOR FOUNDATION
# GENERAL ARRANGEMENT - PLAN




## SECTION A -

NOTES:

1. FOR GENERAL NOTES SEE DRAWING H354138-3210-231-260-0001.
2. FOR SLEEPERS AND SOIL ANCHOR DETAILS, SEE DRAWING H354138-2120-220-290-0004.
   FOR SLEEPER LOCATIONS AND SPACINGS SEE TEP DRAWING 17-0200-400 AND -402.



KEYPLAN
SCALE 1:3000

0 4 8 12 16 20
1:400 SCALE IN METRES

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| No. | DESCRIPTION | BY | CHK'D | DATE |
|---|---|---|---|---|
| 1 | BENT 2 U/S FOOTING ELEVATION REVISED DUE TO SITE CONDITIONS | PJ | EA | 2018-10-10 |
| 0 | APPROVED FOR CONSTRUCTION | PJ | EA | 2018-08-27 |

REVISIONS

| ROLE | NAME | SIGNATURE & DATE |
|---|---|---|
| DRAFTSPERSON | P. JIVAEV | NR 2018-08-21 |
| DESIGNER | H. LI | NR 2018-08-21 |
| CHECKER | E. AKINCI | |
| DESIGN COORD. | S. PERKINS | |
| RESP. ENG. | E. AKINCI | |
| LEAD DISC. ENG. | E. AKINCI | |
| ENG. MANAGER | B. RUSTAD | |
| PROJ. MANAGER | B. RUSTAD | |

DRAWING APPROVAL STATUS: Approved for Construction

REFERENCE DRAWINGS

| DRAWING No. | DRAWING TITLE |
|---|---|

REG. PROFESSIONAL

HATCH

StrataGold Corporation

EAGLE GOLD PROJECT

COARSE ORE STOCKPILE/RECLAIM
3210-CV-013 CONVEYOR FOUNDATION
GENERAL ARRANGEMENT

SCALE 1:400 OR AS NOTED

DWG. No. H354138-3210-231-260-0009

REV 1

SHEET SIZE: D

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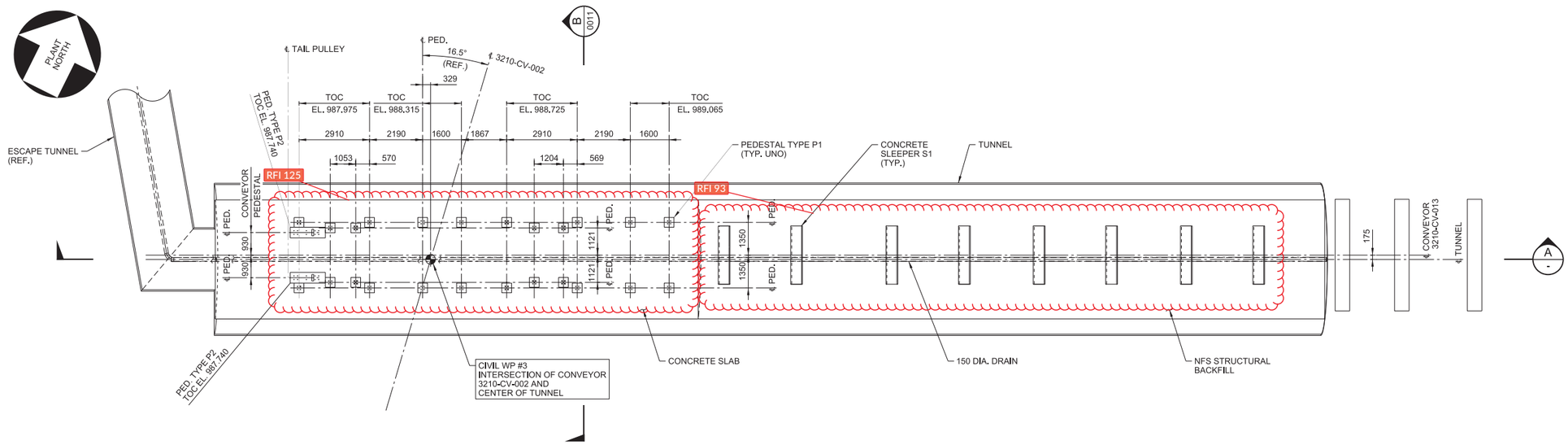
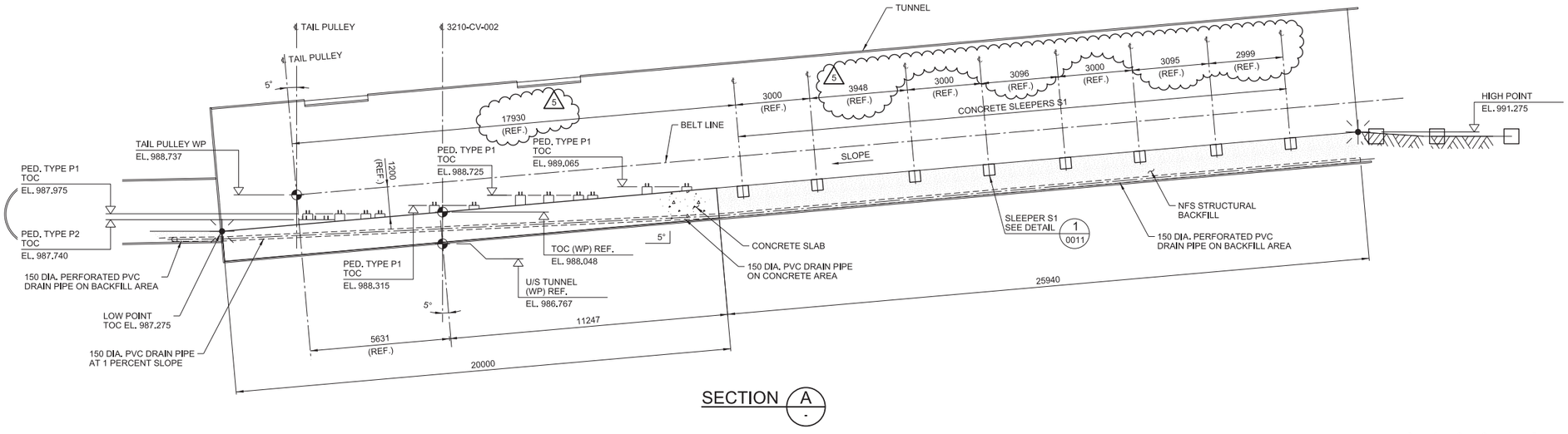
PRINTED: 11-OCT-2018
tdc_pwservice
13:00

DWG. No. H354138-3210-231-260-0010




## PLAN AT T.O. CONCRETE SLAB

TOC EL. VARIES

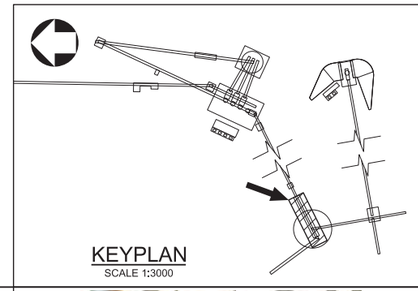



## SECTION A

0 1 2 3 4 5
1:100 SCALE IN METRES

NOTES:

1. FOR GENERAL NOTES SEE DRAWING H354138-3210-231-260-0001.



KEYPLAN
SCALE 1:3000

| DRAWING No. | DRAWING TITLE |
|---|---|
| REFERENCE DRAWINGS | |

REG. PROFESSIONAL

| No. | DESCRIPTION | BY | CHK'D | DATE |
|---|---|---|---|---|
| 5 | SLEEPERS LOCATION REVISED | PJ | EA | 2018-10-11 |
| 4 | WORK POINT REVISED | PJ | EA | 2018-10-05 |
| 3 | SLEEPERS LOCATION REVISED | PJ | EA | 2018-08-27 |
| 2 | PEDESTAL LOCATION REVISED | PJ | EA | 2018-08-16 |
| 1 | HOLD REMOVED. P1 AND P2 TOC ELEVATION REVISED. | EM | EA | 2018-05-31 |
| 0 | APPROVED FOR CONSTRUCTION | EM | EA | 2018-04-19 |

REVISIONS

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HATCH

| ROLE | NAME | SIGNATURE & DATE |
|---|---|---|
| DRAFTSPERSON | E. MENDIOLA | NR 2018-04-09 |
| DESIGNER | F. LIU | NR 2018-04-09 |
| CHECKER | E. AKINCI | |
| DESIGN COORD. | S. PERKINS | |
| RESP. ENG. | E. AKINCI | |
| LEAD DISC. ENG. | E. AKINCI | |
| ENG. MANAGER | B. RUSTAD | |
| PROJ. MANAGER | B. RUSTAD | |

DRAWING APPROVAL STATUS: Approved for Construction

StrataGold Corporation

EAGLE GOLD PROJECT

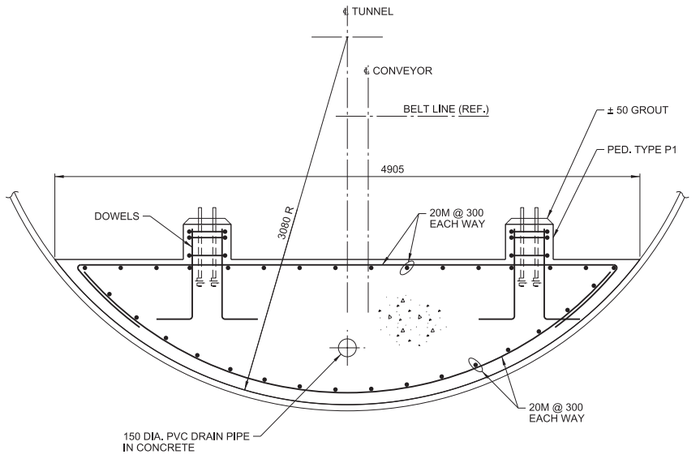
COARSE ORE STOCKPILE/RECLAIM
RECLAIM TUNNEL FOUNDATION
PLAN AND SECTION

SCALE 1:100 OR AS NOTED | DWG. No. H354138-3210-231-260-0010 | REV 5

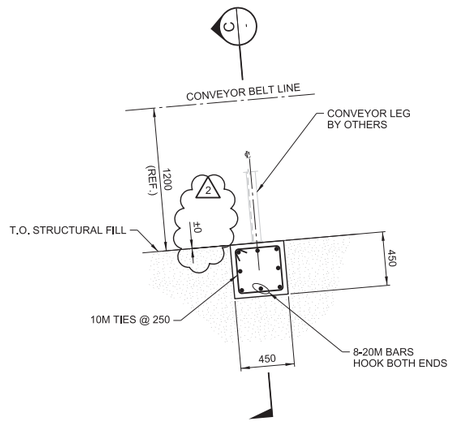
SHEET SIZE: D

SFILELS
PRINTED: 11-OCT-2018 18:06
idc_pwservice

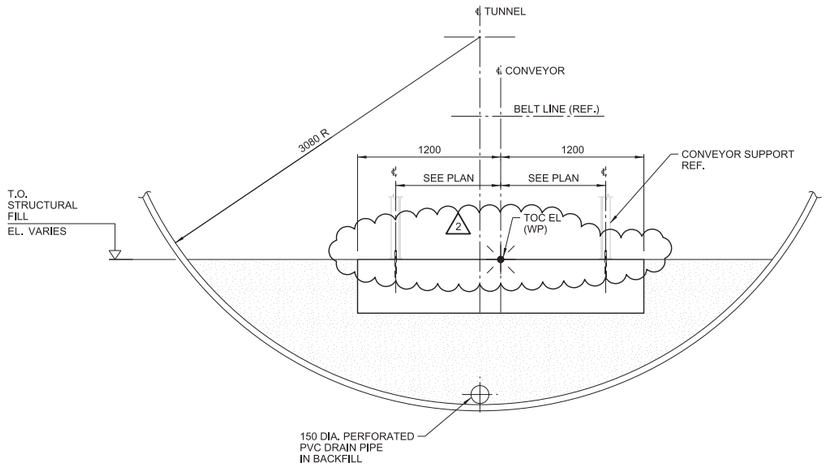
DWG. No. H354138-3210-231-260-0011




SECTION B
SCALE 1:25
0010




SLEEPER S1
DETAIL 1
SCALE 1:25
0010




SECTION C
SCALE 1:25
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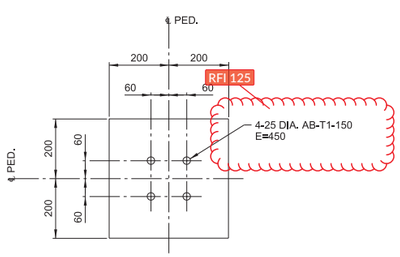
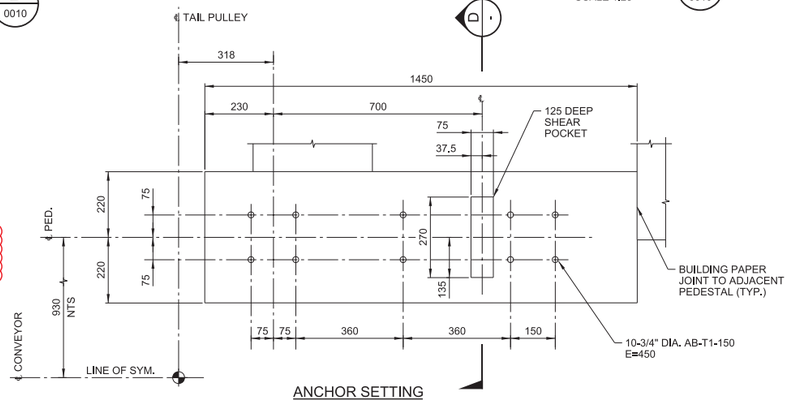



ANCHOR SETTING

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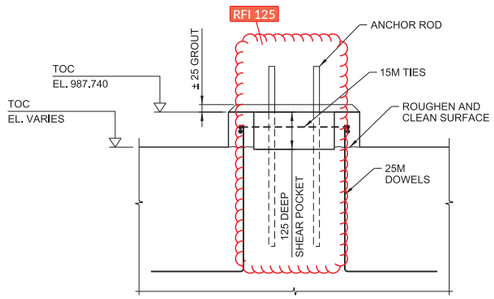
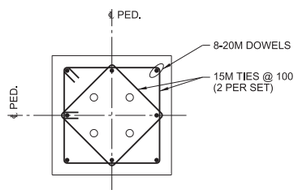
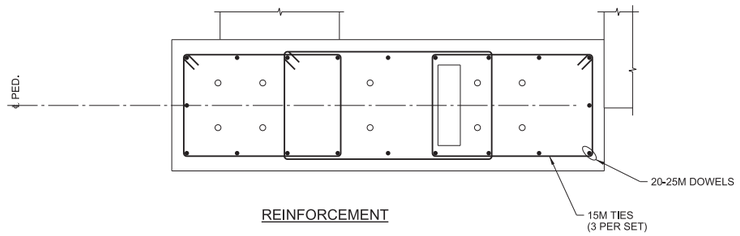



SECTION D
SCALE 1:10
-




REINFORCEMENT

PEDESTAL TYPE P1
SCALE 1:10

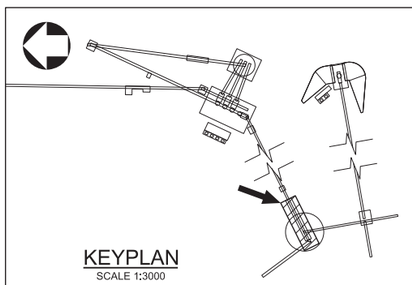



REINFORCEMENT

PEDESTAL TYPE P2
SCALE 1:10

NOTES:

1. FOR GENERAL NOTES SEE DRAWING H354138-3210-231-260-0001.



KEYPLAN
SCALE 1:3000

0 100 200 300 400 500
1:10 SCALE IN MILLIMETRES

0 250 500 750 1000 1250
1:25 SCALE IN MILLIMETRES

THIS DRAWING WAS PREPARED FOR THE EXCLUSIVE USE OF STRATA GOLD ("CLIENT") AND IS ISSUED PURSUANT TO H354138 BETWEEN CLIENT AND HATCH LTD. ("HATCH"). UNLESS OTHERWISE AGREED IN WRITING WITH CLIENT OR SPECIFIED ON THIS DRAWING, (A) HATCH DOES NOT ACCEPT AND DISCLAIMS ANY AND ALL LIABILITY OR RESPONSIBILITY ARISING FROM ANY USE OF OR RELIANCE ON THIS DRAWING BY ANY THIRD PARTY OR ANY MODIFICATION OR MISUSE OF THIS DRAWING BY CLIENT, AND (B) THIS DRAWING IS CONFIDENTIAL AND ALL INTELLECTUAL PROPERTY RIGHTS EMBODIED OR REFERENCED IN THIS DRAWING REMAIN THE PROPERTY OF HATCH.

| No. | DESCRIPTION | BY | CHK'D | DATE |
|---|---|---|---|---|
| 2 | SLEEPERS LOCATION REVISED | PJ | EA | 2018-10-11 |
| 1 | HOLD REMOVED, PED TYPE P2 REVISED. | EM | EA | 2018-05-31 |
| 0 | APPROVED FOR CONSTRUCTION | EM | EA | 2018-04-19 |

| ROLE | NAME | SIGNATURE & DATE |
|---|---|---|
| DRAFTSPERSON | E. MENDIOLA | NR 2018-04-09 |
| DESIGNER | F. LIU | NR 2018-04-09 |
| CHECKER | E. AKINCI | |
| DESIGN COORD. | S. PERKINS | |
| RESP. ENG. | E. AKINCI | |
| LEAD DISC. ENG. | E. AKINCI | |
| ENG. MANAGER | B. RUSTAD | |
| PROJ. MANAGER | B. RUSTAD | |

DRAWING APPROVAL STATUS: Approved for Construction

HATCH

StrataGold Corporation

EAGLE GOLD PROJECT

COARSE ORE STOCKPILE/RECLAIM
RECLAIM TUNNEL FOUNDATION
SECTION AND DETAILS

| DRAWING No. | DRAWING TITLE |
|---|---|
| REFERENCE DRAWINGS | REG. PROFESSIONAL |

SCALE AS NOTED OR AS NOTED

DWG. No. H354138-3210-231-260-0011

REV 2

SHEET SIZE: D

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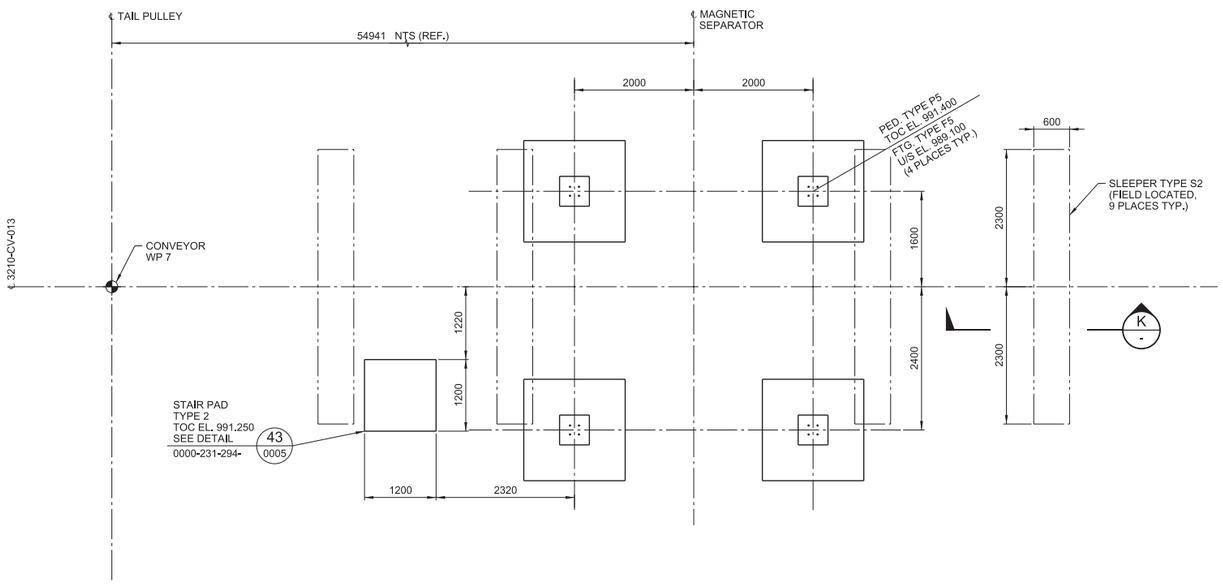
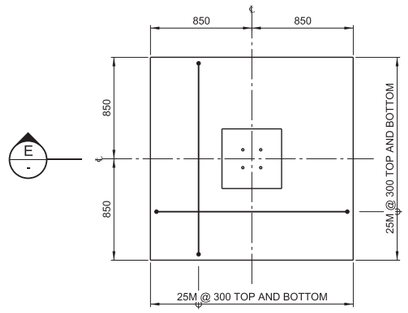
PRINTED: 11-OCT-2018
kic_pwservice
13:00

DWG. No. H354138-3210-231-260-0012



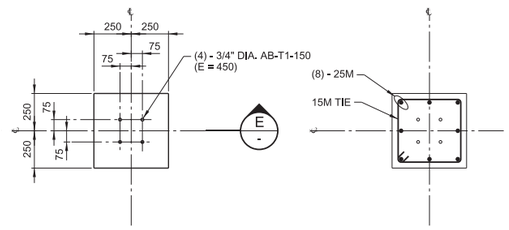

## 3210-MA-001 MAGNET STRUCTURE FOUNDATION - PLAN

FINISHED GRADE EL. 991.100 (REF.)




## FOOTING TYPE F5

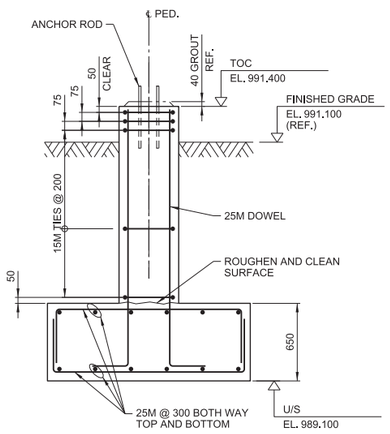
SCALE: 1:25




ANCHOR BOLT SETTING REINFORCEMENT

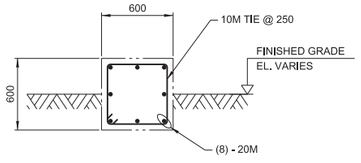
## PEDESTAL TYPE P5

SCALE: 1:20




## SECTION E

SCALE: 1:25




SLEEPER TYPE S2

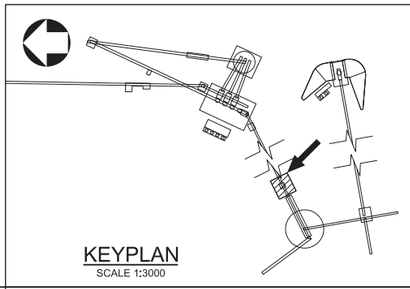
## SECTION K

SCALE: 1:25

NOTES:

1. FOR GENERAL NOTES SEE DRAWING H354138-3210-231-260-0001.

0 500 1000 1500 2000 2500
1:50 SCALE IN MILLIMETRES



KEYPLAN
SCALE 1:3000

THIS DRAWING WAS PREPARED FOR THE EXCLUSIVE USE OF STRATA GOLD ("CLIENT") AND IS ISSUED PURSUANT TO H354138 BETWEEN CLIENT AND HATCH LTD. ("HATCH"). UNLESS OTHERWISE AGREED IN WRITING WITH CLIENT OR SPECIFIED ON THIS DRAWING, (A) HATCH DOES NOT ACCEPT AND DISCLAIMS ANY AND ALL LIABILITY OR RESPONSIBILITY ARISING FROM ANY USE OF OR RELIANCE ON THIS DRAWING BY ANY THIRD PARTY OR ANY MODIFICATION OR MISUSE OF THIS DRAWING BY CLIENT, AND (B) THIS DRAWING IS CONFIDENTIAL AND ALL INTELLECTUAL PROPERTY RIGHTS EMBODIED OR REFERENCED IN THIS DRAWING REMAIN THE PROPERTY OF HATCH.

| No. | DESCRIPTION | BY | CHK'D | DATE |
|---|---|---|---|---|
| 0 | APPROVED FOR CONSTRUCTION | PJ | EA | 2018-08-27 |

| ROLE | NAME | SIGNATURE & DATE |
|---|---|---|
| DRAFTSPERSON | P. JIVAEV | NR 2018-08-22 |
| DESIGNER | H. LI | NR 2018-08-22 |
| CHECKER | E. AKINCI | |
| DESIGN COORD. | S. PERKINS | |
| RESP. ENG. | E. AKINCI | |
| LEAD DISC. ENG. | E. AKINCI | |
| ENG. MANAGER | B. RUSTAD | |
| PROJ. MANAGER | B. RUSTAD | |

HATCH

StrataGold Corporation

EAGLE GOLD PROJECT

COARSE ORE STOCKPILE/RECLAIM
3210-MA-001 MAGNET FOUNDATION
PLAN, SECTIONS AND DETAILS

DRAWING No. | DRAWING TITLE | REFERENCE DRAWINGS | REG. PROFESSIONAL

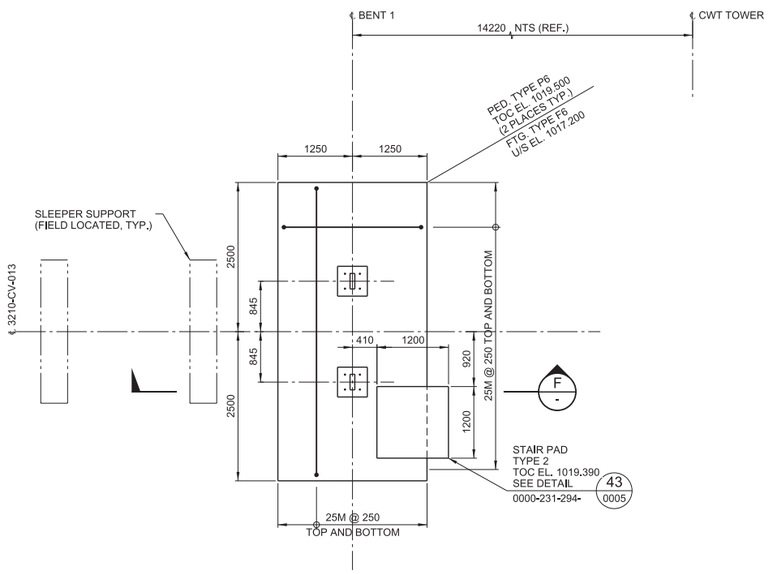
DRAWING APPROVAL STATUS: Approved for Construction

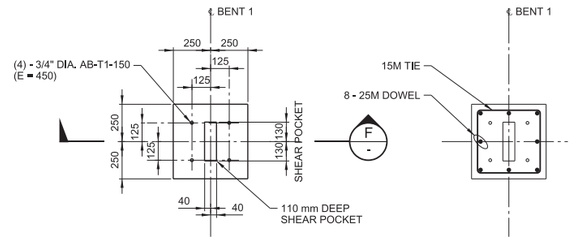
SCALE 1:50 OR AS NOTED | DWG. No. H354138-3210-231-260-0012 | REV 0

SHEET SIZE: D

$FILE$
PRINTED: 27-AUG-2018
14:26
idc_pwservice

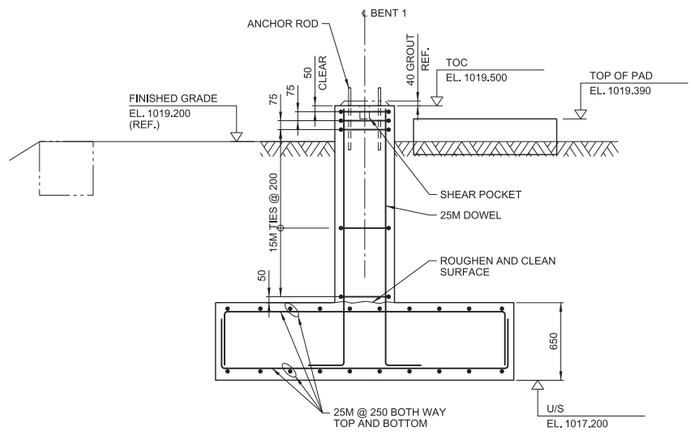
DWG. No. H354138-3210-231-260-0013




## PEDESTAL TYPE P6
SCALE: 1:20

## 3210-CV-013 CONVEYOR BENT 1 FOUNDATION - PLAN
FINISHED GRADE EL. 1019.200 (REF.)

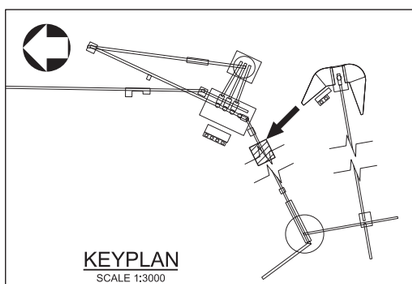



## SECTION F
SCALE: 1:25

0 500 1000 1500 2000 2500
1:50 SCALE IN MILLIMETRES

NOTES:

1. FOR GENERAL NOTES SEE DRAWING H354138-3210-231-260-0001.



KEYPLAN
SCALE 1:3000

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| No. | DESCRIPTION | BY | CHK'D | DATE |
|---|---|---|---|---|
| 0 | APPROVED FOR CONSTRUCTION | PJ | EA | 2018-08-27 |

| ROLE | NAME | SIGNATURE & DATE |
|---|---|---|
| DRAFTSPERSON | P. JIVAEV | NR 2018-08-22 |
| DESIGNER | H. LI | NR 2018-08-22 |
| CHECKER | E. AKINCI | |
| DESIGN COORD. | S. PERKINS | |
| RESP. ENG. | E. AKINCI | |
| LEAD DISC. ENG. | E. AKINCI | |
| ENG. MANAGER | B. RUSTAD | |
| PROJ. MANAGER | B. RUSTAD | |

DRAWING APPROVAL STATUS: Approved for Construction

HATCH

StrataGold Corporation

EAGLE GOLD PROJECT

COARSE ORE STOCKPILE/RECLAIM
3210-CV-013 CONVEYOR BENT 1
PLAN, SECTIONS AND DETAILS

| DRAWING No. | DRAWING TITLE |
|---|---|
| REFERENCE DRAWINGS | REG. PROFESSIONAL |

SCALE 1:50 OR AS NOTED

DWG. No. H354138-3210-231-260-0013

REV 0

SHEET SIZE: D

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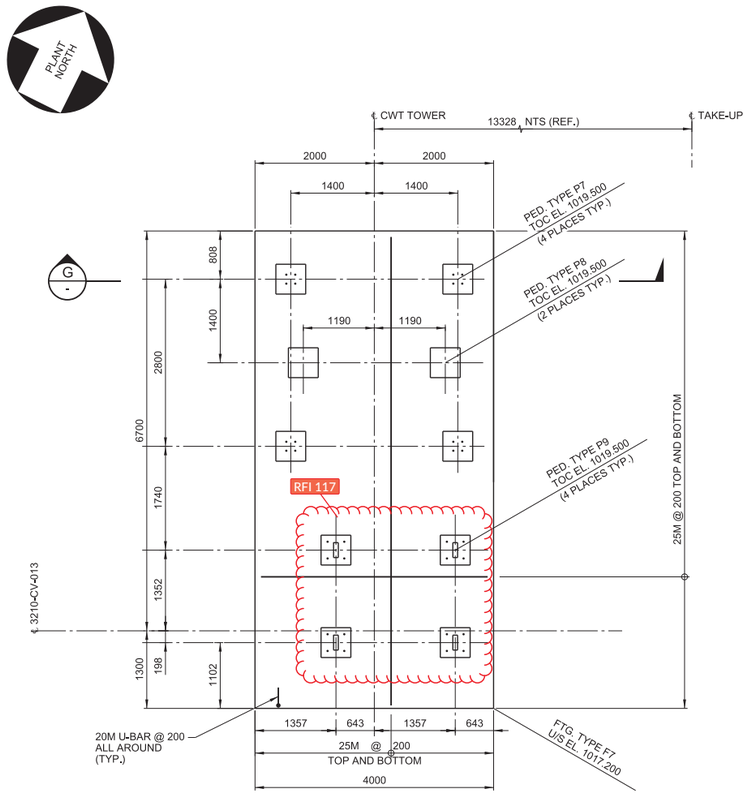
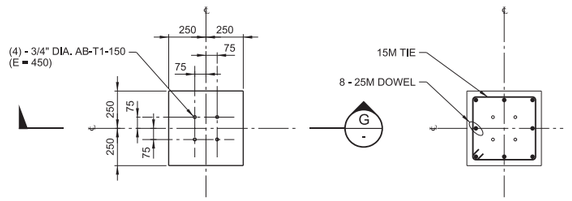
PRINTED: 27-AUG-2018
14:26
idc_pwservice

DWG. No. H354138-3210-231-260-0014




## 3210-CV-013 CONVEYOR CWT TOWER FOUNDATION - PLAN

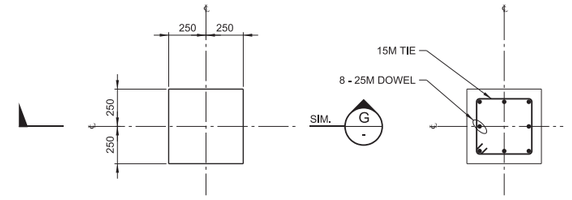
FINISHED GRADE EL. 1019.200 (REF.)




ANCHOR BOLT SETTING REINFORCEMENT

## PEDESTAL TYPE P7

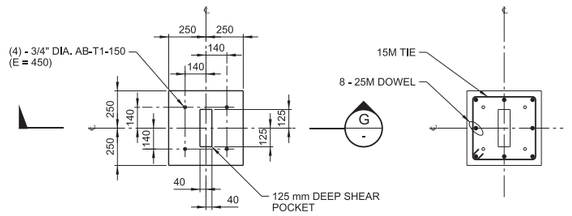
SCALE: 1:20




ANCHOR BOLT SETTING REINFORCEMENT

## PEDESTAL TYPE P8

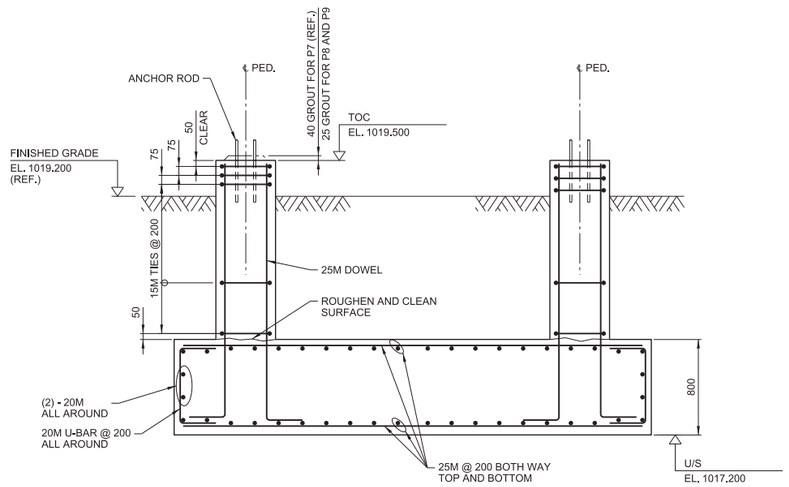
SCALE: 1:20




ANCHOR BOLT SETTING REINFORCEMENT

## PEDESTAL TYPE P9

SCALE: 1:20

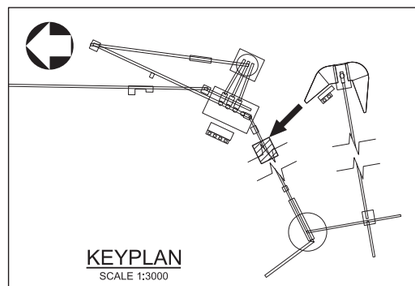



## SECTION G -

SCALE: 1:25

NOTES:

1. FOR GENERAL NOTES SEE DRAWING H354138-3210-231-260-0001.



KEYPLAN

SCALE 1:3000

0 500 1000 1500 2000 2500

1:50 SCALE IN MILLIMETRES

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| No. | DESCRIPTION | BY | CHK'D | DATE |
|---|---|---|---|---|
| 0 | APPROVED FOR CONSTRUCTION | PJ | EA | 2018-08-27 |

| ROLE | NAME | SIGNATURE & DATE |
|---|---|---|
| DRAFTSPERSON | P. JIVAEV | NR 2018-08-23 |
| DESIGNER | H. LI | NR 2018-08-23 |
| CHECKER | E. AKINCI | |
| DESIGN COORD. | S. PERKINS | |
| RESP. ENG. | E. AKINCI | |
| LEAD DISC. ENG. | E. AKINCI | |
| ENG. MANAGER | B. RUSTAD | |
| PROJ. MANAGER | B. RUSTAD | |

DRAWING APPROVAL STATUS: Approved for Construction

HATCH

StrataGold Corporation

EAGLE GOLD PROJECT

COARSE ORE STOCKPILE/RECLAIM
3210-CV-013 CONVEYOR CWT TOWER
PLAN, SECTIONS AND DETAILS

| DRAWING No. | DRAWING TITLE |
|---|---|

REFERENCE DRAWINGS

REG. PROFESSIONAL

REVISIONS

SCALE 1:50 OR AS NOTED

DWG. No. H354138-3210-231-260-0014

REV 0

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PRINTED: 27-AUG-2018 14:26
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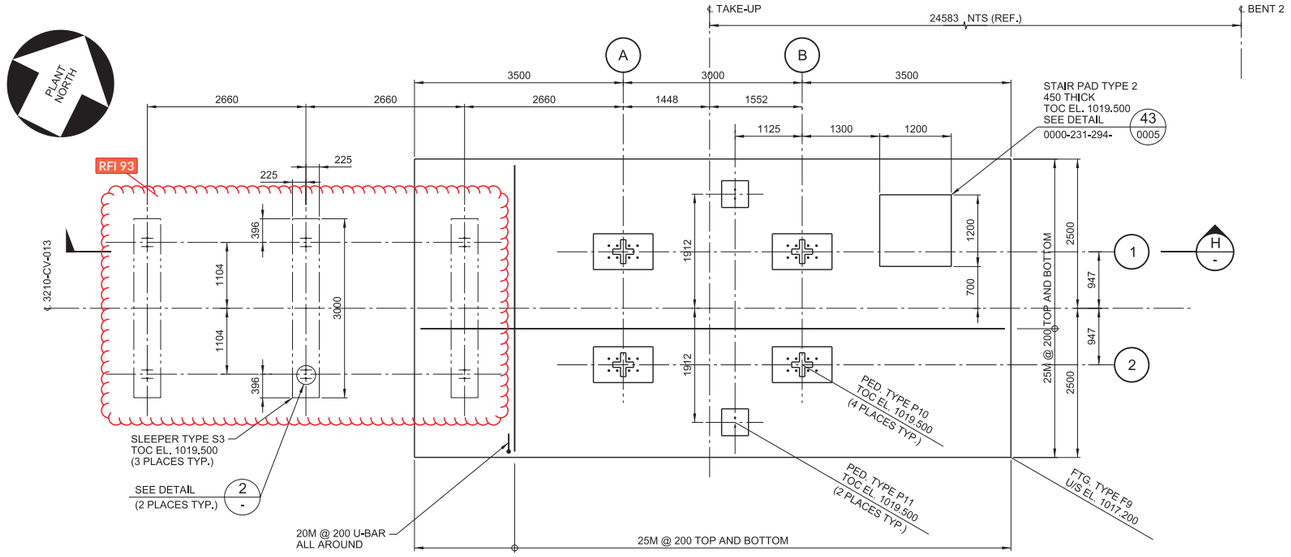
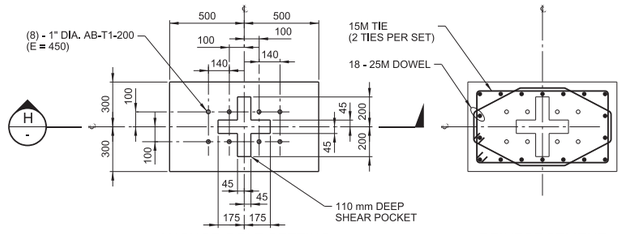
DWG. No. H354138-3210-231-260-0015




## 3210-CV-013 CONVEYOR TAKE-UP FOUNDATION - PLAN

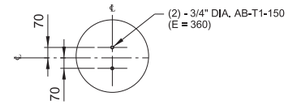
FINISHED GRADE EL. 1019.200 (REF.)




ANCHOR BOLT SETTING REINFORCEMENT

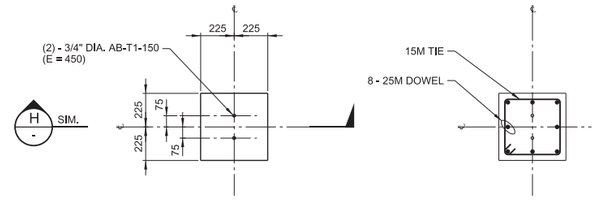
## PEDESTAL TYPE P10

SCALE: 1:20




DETAIL 2 -

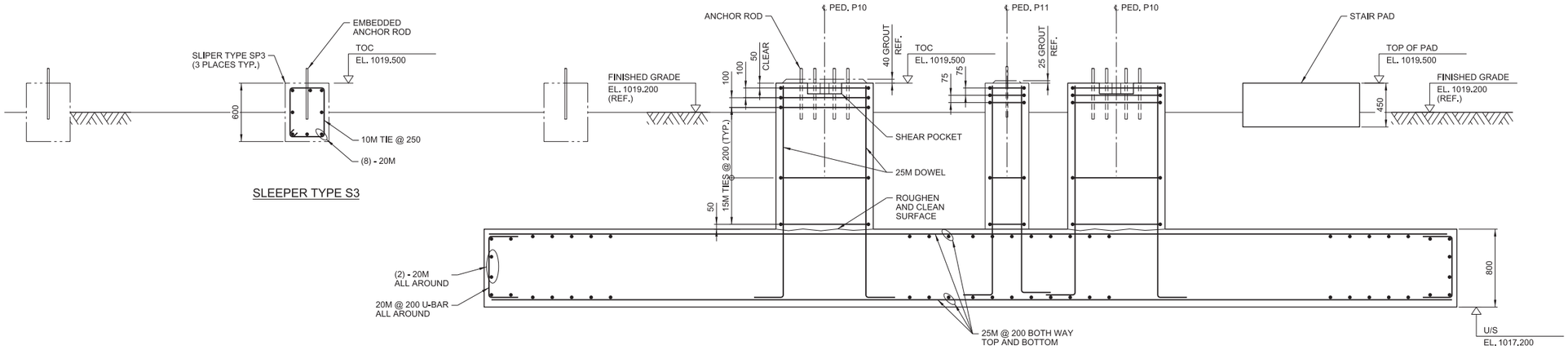
SCALE: 1:20




ANCHOR BOLT SETTING REINFORCEMENT

## PEDESTAL TYPE P11

SCALE: 1:20




## SLEEPER TYPE S3

## SECTION H -

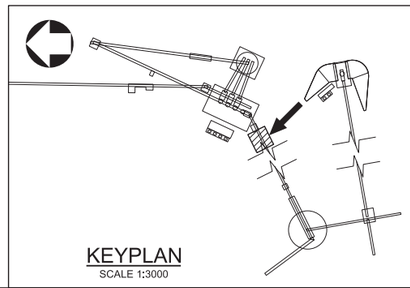
SCALE: 1:25

0 500 1000 1500 2000 2500

1:50 SCALE IN MILLIMETRES

NOTES:

1. FOR GENERAL NOTES SEE DRAWING H354138-3210-231-260-0001.



KEYPLAN

SCALE 1:3000

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| No. | DESCRIPTION | BY | CHK'D | DATE |
|---|---|---|---|---|
| 0 | APPROVED FOR CONSTRUCTION | PJ | EA | 2018-08-27 |

| ROLE | NAME | SIGNATURE & DATE |
|---|---|---|
| DRAFTSPERSON | P. JIVAEV | NR 2018-08-23 |
| DESIGNER | H. LI | NR 2018-08-23 |
| CHECKER | E. AKINCI | |
| DESIGN COORD. | S. PERKINS | |
| RESP. ENG. | E. AKINCI | |
| LEAD DISC. ENG. | E. AKINCI | |
| ENG. MANAGER | B. RUSTAD | |
| PROJ. MANAGER | B. RUSTAD | |

DRAWING APPROVAL STATUS: Approved for Construction

HATCH

StrataGold Corporation

EAGLE GOLD PROJECT

COARCE ORE STOCKPILE/RECLAIM
3210-CV-013 CONVEYOR TAKE-UP FDN.
PLAN, SECTIONS AND DETAILS

| DRAWING No. | DRAWING TITLE |
|---|---|
| REFERENCE DRAWINGS | |

REG. PROFESSIONAL

SCALE 1:50 OR AS NOTED

DWG. No. H354138-3210-231-260-0015

REV 0

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14:26
27-AUG-2018
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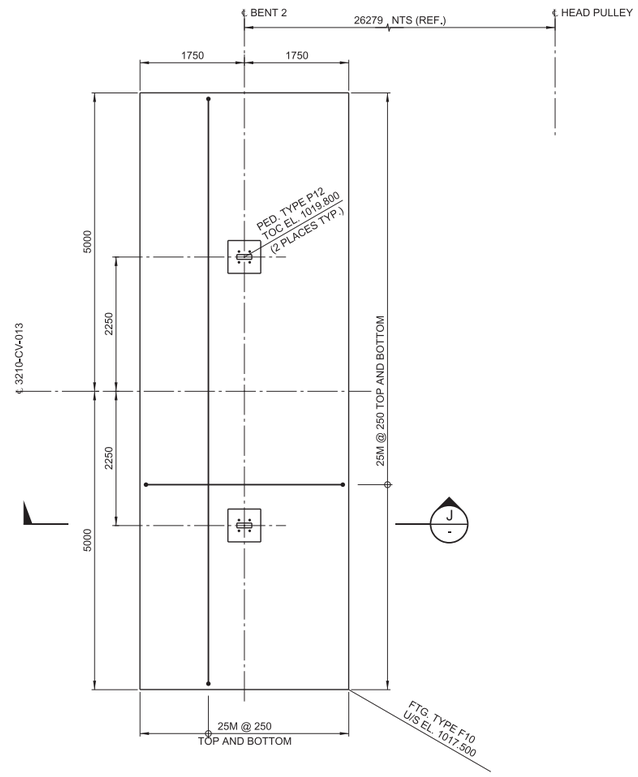
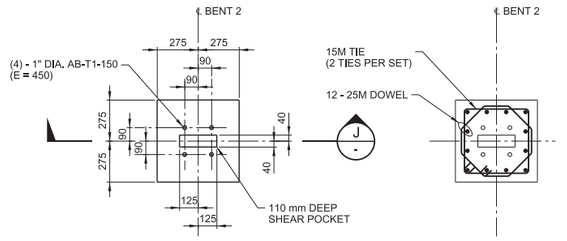
DWG. No. H354138-3210-231-260-0016




## 3210-CV-013 CONVEYOR BENT 2 FOUNDATION - PLAN

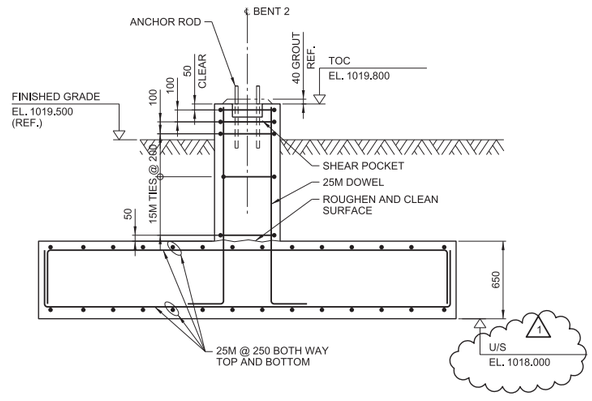
FINISHED GRADE EL. 1019.500 (REF.)




ANCHOR BOLT SETTING REINFORCEMENT

## PEDESTAL TYPE P12

SCALE: 1:20

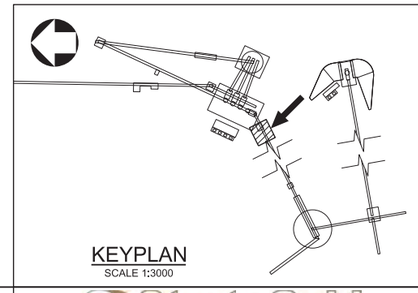



## SECTION J -

SCALE: 1:25

NOTES:

1. FOR GENERAL NOTES SEE DRAWING H354138-3210-231-260-0001.



KEYPLAN

SCALE 1:3000

0 500 1000 1500 2000 2500

1:50 SCALE IN MILLIMETRES

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| No. | DESCRIPTION | BY | CHK'D | DATE |
|---|---|---|---|---|
| 1 | U/S FOOTING ELEVATION REVISED DUE TO SITE CONDITIONS | PJ | EA | 2018-10-10 |
| 0 | APPROVED FOR CONSTRUCTION | PJ | EA | 2018-08-27 |

REVISIONS

| ROLE | NAME | SIGNATURE & DATE |
|---|---|---|
| DRAFTSPERSON | P. JIVAEV | NR 2018-08-24 |
| DESIGNER | H. LI | NR 2018-08-24 |
| CHECKER | E. AKINCI | |
| DESIGN COORD. | S. PERKINS | |
| RESP. ENG. | E. AKINCI | |
| LEAD DISC. ENG. | E. AKINCI | |
| ENG. MANAGER | B. RUSTAD | |
| PROJ. MANAGER | B. RUSTAD | |

DRAWING APPROVAL STATUS: Approved for Construction

REFERENCE DRAWINGS

| DRAWING No. | DRAWING TITLE |
|---|---|

REG. PROFESSIONAL

HATCH

StrataGold Corporation

EAGLE GOLD PROJECT

COARSE ORE STOCKPILE/RECLAIM
3210-CV-013 CONVEYOR BENT 2
PLAN, SECTIONS AND DETAILS

SCALE 1:50 OR AS NOTED

DWG. No. H354138-3210-231-260-0016

REV 1

SHEET SIZE: D

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PRINTED: 09-OCT-2018
18:39
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DWG. No.
H354138-3300-260-272-1000-0001

RFI 107

254 mm X 406,4 mm COPPER GROUNDING PLATE
TEST WELL BURIED AT 750 mm BELOW FINISHED GRADE
(TYP.)

SECONDARY & TERTIARY
CRUSHING BUILDING

SECONDARY & TERTIARY
CRUSHING ELECTRICAL ROOM

APPROXIMATE DISTANCE BETWEEN
GROUNDING GRIDS - 5 m

TRANSFORMERS TO BE BONDED IN TWO LOCATIONS USING
THE GROUND CABLE LOCATED IN THE CABLE TRAY

GROUND CONNECTION TO CHAIN LINK FENCE
(TYP.)

INSULATED #4/0 AWG
GREEN GROUND WIRE

TIE-IN TO PRIMARY CRUSHING
ELECTRICAL ROOM GROUNDING
GRID (IN TRENCH WITH POWER CABLE FEED)
REFER TO DRAWING H354138-3100-260-272-1000-0003

MAIN PERIMETER GROUNDING LOOP CONDUCTOR SHALL BE
BURIED 750 mm BELOW GRADE AND 1000 mm FROM BUILDING
(TYP.)

254 mm X 406,4 mm GROUNDING
COPPER PLATE BURIED AT 750 mm
BELOW FINISHED GRADE (TYP.)

MAIN PERIMETER GROUND LOOP CONDUCTOR SHALL BE #4/0 AWG
BARE STRANDED MEDIUM-HARD DRAWN OR SOFT-DRAWING COPPER
(TYP.)

THIS DRAWING

KEYPLAN
SCALE 1:3000

THIS DRAWING WAS PREPARED FOR THE EXCLUSIVE USE OF STRATA GOLD ("CLIENT") AND IS ISSUED PURSUANT TO H354138 BETWEEN CLIENT AND HATCH LTD. ("HATCH"). UNLESS OTHERWISE AGREED IN WRITING WITH CLIENT OR SPECIFIED ON THIS DRAWING, (A) HATCH DOES NOT ACCEPT AND DISCLAIMS ANY AND ALL LIABILITY OR RESPONSIBILITY ARISING FROM ANY USE OF OR RELIANCE ON THIS DRAWING BY ANY THIRD PARTY OR ANY MODIFICATION OR MISUSE OF THIS DRAWING BY CLIENT, AND (B) THIS DRAWING IS CONFIDENTIAL AND ALL INTELLECTUAL PROPERTY RIGHTS EMBODIED OR REFERENCED IN THIS DRAWING REMAIN THE PROPERTY OF HATCH.

HATCH

| | | | |
|---|---|---|---|
| DRAFTSPERSON | L GIEBELHAUS | NR | 2017-12-06 |
| DESIGNER | L GIEBELHAUS | NR | 2017-12-06 |
| CHECKER | M TIETZ | | |
| DESIGN COORD. | S PERKINS | | |
| RESP. ENG. | M TIETZ | | |
| LEAD DISC. ENG. | M TIETZ | | |
| ENG. MANAGER | B RUSTAD | | |
| PROJ. MANAGER | B RUSTAD | | |

StrataGold Corporation

EAGLE GOLD PROJECT

SECONDARY & TERTIARY CRUSHING
AREA GROUNDING
PERSPECTIVE LAYOUT

| REFERENCE DRAWINGS | | REG. PROFESSIONAL |
|---|---|---|
| DRAWING No. | DRAWING TITLE | |
| H354138-3300-260-272-1000-0003 | SECONDARY/TERTIARY CRUSHING ELECTRICAL ROOM GROUNDING LAYOUT | |
| H354138-3300-260-272-1000-0002 | SECONDARY/TERTIARY CRUSHING BUILDING GROUNDING LAYOUT | |
| H354138-0000-260-294-0001-0002 | SITE ELECTRICAL NOTES, LEGENDS AND SYMBOLS | |
| H354138-0000-260-294-0001-0001 | SITE ELECTRICAL NOTES, LEGENDS AND SYMBOLS | |

| REVISIONS | | | | |
|---|---|---|---|---|
| No. | DESCRIPTION | BY | CHK'D | DATE |
| 1 | REMOVED HOLD 0026 ON ELECTRICAL ROOM | LG | MT | 2018-09-18 |

| ROLE | NAME | SIGNATURE & DATE |
|---|---|---|
| DRAWING APPROVAL STATUS: | Approved for Construction | |

| SCALE | DWG. No. | REV |
|---|---|---|
| NTS OR AS NOTED | H354138-3300-260-272-1000-0001 | 1 |

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DWG. No. H354138-3300-260-272-1000-0002

NOTES

1. TIE IN CABLES TO RUN IN SEPARATE TRENCHES SPACED 3000 mm (MIN.) APART.
2. FOR CONTINUATION OF GROUNDING CONNECTION TO CONVEYOR REFER TO DRAWING H354138-3000-260-272-1000-0003.

PLANT NORTH

DETAIL 3 (TYP.) H354138-0000-260-294-0001-0009

DETAIL 2 (TYP.) H354138-0000-260-294-0001-0009

DETAIL 1 (TYP.) H354138-0000-260-294-0001-0009

DETAIL 7 H354138-0000-260-294-0001-0009

1000 (TYP.)

3000 mm (MIN.) NOTE 1

TIE-IN TO SECONDARY/TERTIARY ELECTRICAL ROOM
REFER TO DRAWING H354138-3300-260-272-1000-0003

0 1 2 3 4 5
1:100 SCALE IN METRES

THIS DRAWING

KEYPLAN
SCALE 1:3000

THIS DRAWING WAS PREPARED FOR THE EXCLUSIVE USE OF STRATA GOLD ("CLIENT") AND IS ISSUED PURSUANT TO H354138 BETWEEN CLIENT AND HATCH LTD. ("HATCH"). UNLESS OTHERWISE AGREED IN WRITING WITH CLIENT OR SPECIFIED ON THIS DRAWING, (A) HATCH DOES NOT ACCEPT AND DISCLAIMS ANY AND ALL LIABILITY OR RESPONSIBILITY ARISING FROM ANY USE OF OR RELIANCE ON THIS DRAWING BY ANY THIRD PARTY OR ANY MODIFICATION OR MISUSE OF THIS DRAWING BY CLIENT, AND (B) THIS DRAWING IS CONFIDENTIAL AND ALL INTELLECTUAL PROPERTY RIGHTS EMBODIED OR REFERENCED IN THIS DRAWING REMAIN THE PROPERTY OF HATCH.

| REFERENCE DRAWINGS | | REG. PROFESSIONAL |
|---|---|---|
| DRAWING No. | DRAWING TITLE | |
| H354138-3300-260-272-1000-0001 | SECONDARY/TERTIARY CRUSHING AREA GROUNDING PERSPECTIVE LAYOUT | |
| H354138-0000-260-294-0001-0002 | SITE ELECTRICAL NOTES, LEGENDS AND SYMBOLS | |
| H354138-0000-260-294-0001-0001 | SITE ELECTRICAL NOTES, LEGENDS AND SYMBOLS | |

| REVISIONS | | | | |
|---|---|---|---|---|
| No. | DESCRIPTION | BY | CHK'D | DATE |
| 1 | ADDED GROUNDING CONNECTIONS FOR OVERLAND CONVEYOR (3400-CV-001) | LG | MT | 2018-09-18 |

| DRAWING APPROVAL STATUS: Approved for Construction | | |
|---|---|---|
| ROLE | NAME | SIGNATURE & DATE |
| DRAFTSPERSON | L GIEBELHAUS | NR 2017-12-06 |
| DESIGNER | L GIEBELHAUS | NR 2017-12-06 |
| CHECKER | M TIETZ | |
| DESIGN COORD. | S PERKINS | |
| RESP. ENG. | M TIETZ | |
| LEAD DISC. ENG. | M TIETZ | |
| ENG. MANAGER | B RUSTAD | |
| PROJ. MANAGER | B RUSTAD | |

HATCH

StrataGold Corporation

EAGLE GOLD PROJECT

SECONDARY & TERTIARY CRUSHING BUILDING GROUNDING LAYOUT

| SCALE | DWG. No. | REV |
|---|---|---|
| 1:100 OR AS NOTED | H354138-3300-260-272-1000-0002 | 1 |

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DWG. No. H354138-3300-260-272-1000-0003

PLANT NORTH

TIE-IN TO SECONDARY/TERTIARY CRUSHING BUILDING
REFER TO DRAWING H354138-3300-260-272-1000-0002
(NOTE 1)

EQUIPMENT GROUND BUS

DETAIL 5
(TYP.) H354138-0000-260-294-0001-0010

ELECTRICAL ROOM GROUNDING PAD CONNECTION (TYP.)

DETAIL 3
(TYP.) H354138-0000-260-294-0001-0009

TIE-IN TO PRIMARY CRUSHING ELECTRICAL ROOM GROUNDING GRID (IN TRENCH WITH POWER CABLE FEED) REFER TO DRAWING H354138-3100-260-272-1000-0003

INSULTED GROUND BUS

INSULATED #4/0 AWG GREEN GROUND WIRE (NOTE 3)

TRANSFORMER CONTAINMENT — NOTE 4

TRANSFORMER CONTAINMENT — NOTE 4

TRANSFORMER CONTAINMENT — NOTE 4

TRANSFORMER CONTAINMENT — NOTE 4

DETAIL 2
(TYP.) H354138-0000-260-294-0001-0010

CHAIN LINK FENCE

CHAIN LINK FENCE

CHAIN LINK FENCE

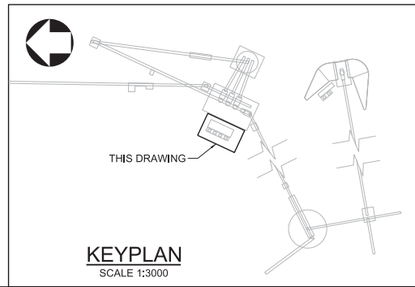
CHAIN LINK FENCE

DETAIL 7
H354138-0000-260-294-0001-0009

TIE-IN TO OVERHEAD LINE GROUND WIRE

NOTES

1. TIE IN CABLES TO RUN IN SEPARATE TRENCHES SPACED 3000 mm (MIN.) APART.
2. 150 mm ELECTRICAL CONDUIT (NON-METALLIC) TO BE EMBEDDED IN CONCRETE AND EXTENDED OUT OF PAD 300 mm AT TRANSFORMER BASE TO MAINTAIN INTEGRITY OF CONTAINMENT.
3. INSULATED (GREEN) #4/0 AWG GROUND WIRE TO BE USED FOR INSULATED GROUND BUS CONNECTION TO GROUNDING GRID TO ENSURE NO CONTACT BETWEEN WIRE AND ELECTRICAL ROOM METAL FRAME.
4. TRANSFORMERS TO BE BONDED IN TWO LOCATIONS USING THE GROUND CABLE LOCATED IN THE CABLE TRAY




KEYPLAN
SCALE 1:3000

0 750 1500 2250 3000 3750
1:75 SCALE IN MILLIMETRES

THIS DRAWING WAS PREPARED FOR THE EXCLUSIVE USE OF STRATA GOLD ("CLIENT") AND IS ISSUED PURSUANT TO H354138 BETWEEN CLIENT AND HATCH LTD. ("HATCH"). UNLESS OTHERWISE AGREED IN WRITING WITH CLIENT OR SPECIFIED ON THIS DRAWING, (A) HATCH DOES NOT ACCEPT AND DISCLAIMS ANY AND ALL LIABILITY OR RESPONSIBILITY ARISING FROM ANY USE OF OR RELIANCE ON THIS DRAWING BY ANY THIRD PARTY OR ANY MODIFICATION OR MISUSE OF THIS DRAWING BY CLIENT, AND (B) THIS DRAWING IS CONFIDENTIAL AND ALL INTELLECTUAL PROPERTY RIGHTS EMBODIED OR REFERENCED IN THIS DRAWING REMAIN THE PROPERTY OF HATCH.

| | | | |
|---|---|---|---|
| DRAFTSPERSON | L GIEBELHAUS | NR | 2017-12-06 |
| DESIGNER | L GIEBELHAUS | NR | 2017-12-06 |
| CHECKER | M TIETZ | | |
| DESIGN COORD. | S PERKINS | | |
| RESP. ENG. | M TIETZ | | |
| LEAD DISC. ENG. | M TIETZ | | |
| ENG. MANAGER | B RUSTAD | | |
| PROJ. MANAGER | B RUSTAD | | |

| DRAWING No. | DRAWING TITLE |
|---|---|
| H354138-3300-260-272-1000-0001 | SECONDARY/TERTIARY CRUSHING AREA GROUNDING PERSPECTIVE LAYOUT |

REFERENCE DRAWINGS

REG. PROFESSIONAL

| No. | DESCRIPTION | BY | CHK'D | DATE |
|---|---|---|---|---|

REVISIONS

| ROLE | NAME | SIGNATURE & DATE |
|---|---|---|

DRAWING APPROVAL STATUS: Client Review

HATCH

StrataGold Corporation

EAGLE GOLD PROJECT

SECONDARY& TERTIARY CRUSHING ELECTRICAL ROOM GROUNDING LAYOUT

SCALE 1:75 OR AS NOTED

DWG. No. H354138-3300-260-272-1000-0003

REV 0

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PRINTED: 18-SEP-2018
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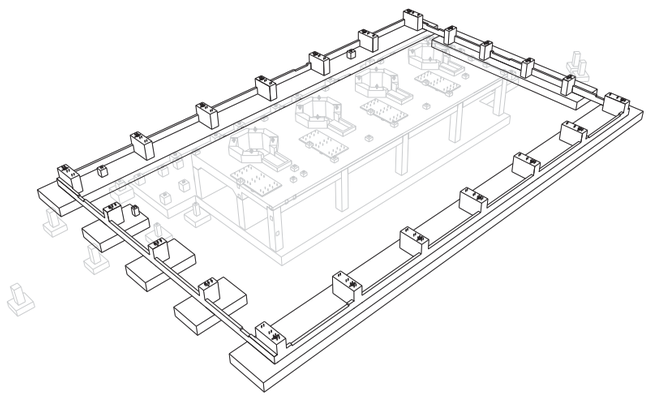
DWG. No. H354138-3310-231-260-0001

AREA: 3310 SEC/TERTIARY CRUSHING BUILDING

CONCRETE DETAILS DRAWING LIST

| DRAWING NUMBER | REV. | DRAWING TITLE | | |
|---|---|---|---|---|
| H354138-3310-231-260-0001 | 0 | SEC/TERTIARY CRUSHING BUILDING | BUILDING FOUNDATION | TITLE SHEET, ISOMETRIC |
| H354138-3310-231-260-0002 | 0 | SEC/TERTIARY CRUSHING BUILDING | BUILDING FOUNDATION | FOUNDATIONS - PLAN |
| H354138-3310-231-260-0003 | 0 | SEC/TERTIARY CRUSHING BUILDING | BUILDING FOUNDATION | SLAB ON GRADE - PLAN |
| H354138-3310-231-260-0004 | 0 | SEC/TERTIARY CRUSHING BUILDING | BUILDING FOUNDATION | SECTIONS |
| H354138-3310-231-260-0005 | 0 | SEC/TERTIARY CRUSHING BUILDING | BUILDING FOUNDATION | GRADE BEAM ELEVATIONS |
| H354138-3310-231-260-0006 | 0 | SEC/TERTIARY CRUSHING BUILDING | BUILDING FOUNDATION | FOOTINGS DETAILS - SHEET 1 |
| H354138-3310-231-260-0007 | 0 | SEC/TERTIARY CRUSHING BUILDING | BUILDING FOUNDATION | FOOTINGS DETAILS - SHEET 2 |
| H354138-3310-231-260-0008 | 0 | SEC/TERTIARY CRUSHING BUILDING | BUILDING FOUNDATION | FOOTINGS DETAILS - SHEET 3 |



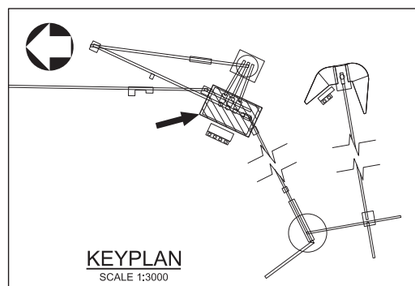
ISOMETRIC VIEW
NTS

## BUILDING FOUNDATION NOTES:

2.1 BUILDING FOUNDATION SUBGRADE SHALL CONSIST OF SOUND BEDROCK.
2.2 THE PREPARED FOOTING SUBGRADE SHALL BE PROTECTED FROM WATER INGRESS AND SOFTENING BY PROVIDING ADEQUATE DRAINAGE OR PLACING A LEAN CONCRETE MUD SLAB.
2.3 ALL FOUNDATION SUBGRADE SHALL BE INSPECTED AND APPROVED BY THE GEOTECHNICAL ENGINEER PRIOR TO PLACEMENT OF CONCRETE.
2.4 ALL STRUCTURAL BACKFILL UNDER AND AROUND THE BUILDING FOUNDATIONS AND SLAB ON GRADE SHALL BE "NFS STRUCTURAL FILL" AS DESCRIBED IN H354138-0000-220-210-0001 CIVIL DESIGN CRITERIA-TABLE 4-1.

## GENERAL NOTES:

1.1 READ THESE DRAWINGS IN CONJUNCTION WITH ALL OTHER PERTINENT CONTRACT DOCUMENTS.
1.2 FOR CONCRETE TYPICAL DETAILS DRAWING SET AND GENERAL NOTES, SEE DRAWINGS H354138-0000-231-294-0001 TO -0007.
1.3 REFER TO MECHANICAL, PROCESS AND ELECTRICAL DRAWINGS FOR LOCATIONS AND DIMENSIONS OF OPENINGS, SLEEVES AND OTHER BUILDING COMPONENTS NOT SHOWN ON STRUCTURAL DRAWINGS. REPORT DISCREPENCIES TO THE OWNER OR HIS REPRESENTATIVE PRIOR TO PROCEEDING WITH THE WORK.
1.4 FOR GENERAL SITE LOCATION AND WORK POINT COORDINATES, SEE DRAWING H354138-2000-220-270-0003.
1.5 HIGH ENERGY COMPACTION EQUIPMENT SUCH AS LARGE ROLLERS MUST NOT BE USED FOR COMPACTING BACKFILL WITHIN 1 METER OF THE EDGE OF THE WALLS.
1.6 FOR GROUNDING LOOP SEE ELECTRICAL DRAWING H354138-3300-260-272-1000-0001 TO 0003. FOR GROUNDING INSTALLATION DETAILS SEE DRAWING SET H354138-0000-260-294-0001-0009 AND 0010.
1.7 FOR FINISHED GRADING PLAN SEE DRAWING H354138-2120-220-290-0002.
1.8 FOR CAST-IN PLACE CONCRETE, SEE SPECIFICATION SECTION H354138-S032000.
1.9 FOR CONCRETE FORMWORK, SEE SPECIFICATION SECTION H354138-S031000.
1.10 FOR CONCRETE REINFORCEMENT, SEE SPECIFICATION SECTION H354138-S033000.
1.11 FOR GROUTING, SEE SPECIFICATION SECTION H354138-S036000.
1.12 CONSTRUCTION JOINTS NOT SHOWN ON THE DRAWINGS MUST BE APPROVED BY THE CONTRUCTION MANAGER.
1.13 IN CASE OF ANY DISCREPANCIES, INFORM THE CONSTRUCTION MANAGER BEFORE COMMENCING WORK.
1.14 ALL DIMENSIONS ARE IN MILLIMETERS AND ELEVATIONS ARE IN METERS.
1.15 PROVIDE 19mm X 19mm CHAMFER AT ALL EXPOSED CONCRETE CORNERS AND EDGES ABOVE GRADE LEVEL, EXCEPT TOP OF ALL THE PEDESTALS, GRADE BEAMS AND CURBS, WHERE WALL CLADDING TO BE CONNECTED.
1.16 THE DRAWINGS SHOULD BE READ IN CONJUNCTION WITH THE PROJECT CIVIL DESIGN CRITERIA H654138-0000-220-210-0001.
1.17 FOR FURTHER GEOTECH INFORMATION, SEE "2011 GEOTECHNICAL INVESTIGATION FOR MINE SITE INFRASTRUCTURE FOUNDATION REPORT" BY BGC ENGINEERING DATED JAN 31, 2012.
1.18 SET ANCHOR RODS USING TEMPLATES WHICH MUST BE LEFT IN PLACE UNTIL THE CONCRETE HAS SET. ANCHOR RODS SHALL BE PLUMBED AND SECURED FROM MOVEMENT PRIOR TO CASTING CONCRETE.



KEYPLAN
SCALE 1:3000

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| No. | DESCRIPTION | BY | CHK'D | DATE |
|---|---|---|---|---|
| 0 | APPROVED FOR CONSTRUCTION | PJ | EA | 2018-05-17 |

| ROLE | NAME | SIGNATURE & DATE |
|---|---|---|
| DRAFTSPERSON | P. JIVAEV | NR |
| DESIGNER | H. LI | NR |
| CHECKER | E. AKINCI | |
| DESIGN COORD. | S. PERKINS | |
| RESP. ENG. | E. AKINCI | |
| LEAD DISC. ENG. | E. AKINCI | |
| ENG. MANAGER | B. RUSTAD | |
| PROJ. MANAGER | B. RUSTAD | |

DRAWING APPROVAL STATUS: Approved for Construction

HATCH

StrataGold Corporation

EAGLE GOLD PROJECT

SEC/TERTIARY CRUSHING BUILDING
BUILDING FOUNDATION
TITLE SHEET, ISOMETRIC VIEW

DRAWING No. | DRAWING TITLE
REFERENCE DRAWINGS | REG. PROFESSIONAL

SCALE: NTS OR AS NOTED
DWG. No. H354138-3310-231-260-0001
REV: 0
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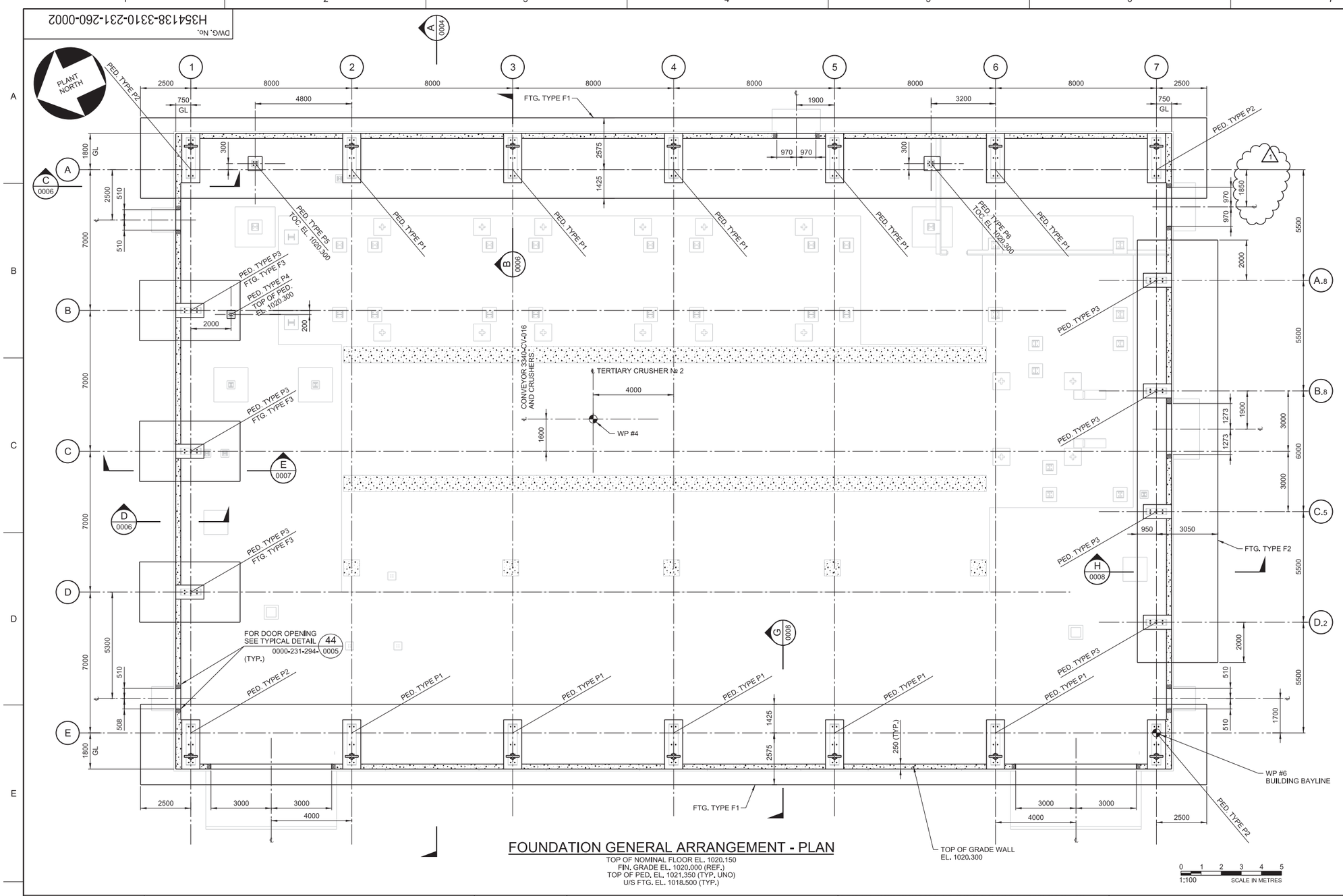
DWG. No. H354138-3310-231-260-0002




# FOUNDATION GENERAL ARRANGEMENT - PLAN

TOP OF NOMINAL FLOOR EL. 1020.150
FIN. GRADE EL. 1020.000 (REF.)
TOP OF PED. EL. 1021.350 (TYP. UNO)
U/S FTG. EL. 1018.500 (TYP.)

1:100 SCALE IN METRES

NOTES:

1. FOR GENERAL NOTES SEE DRAWING H354138-3310-231-260-0001.

KEYPLAN
SCALE 1:3000

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| No. | DESCRIPTION | BY | CHK'D | DATE |
|---|---|---|---|---|
| 1 | DOOR OPENING LOCARION REVISED | PJ | EA | 2018-06-05 |
| 0 | APPROVED FOR CONSTRUCTION | PJ | EA | 2018-05-17 |

| ROLE | NAME | SIGNATURE & DATE |
|---|---|---|
| DRAFTSPERSON | P. JIVAEV | NR |
| DESIGNER | H. LI | NR |
| CHECKER | E. AKINCI | |
| DESIGN COORD. | S. PERKINS | |
| RESP. ENG. | E. AKINCI | |
| LEAD DISC. ENG. | E. AKINCI | |
| ENG. MANAGER | B. RUSTAD | |
| PROJ. MANAGER | B. RUSTAD | |

DRAWING APPROVAL STATUS: Approved for Construction

EAGLE GOLD PROJECT

SEC/TERTIARY CRUSHING BUILDING
BUILDING FOUNDATION
FOUNDATION - PLAN

| DRAWING No. | DRAWING TITLE |
|---|---|
| REFERENCE DRAWINGS | |

REG. PROFESSIONAL

SCALE 1:100 OR AS NOTED

DWG. No. H354138-3310-231-260-0002

REV 1

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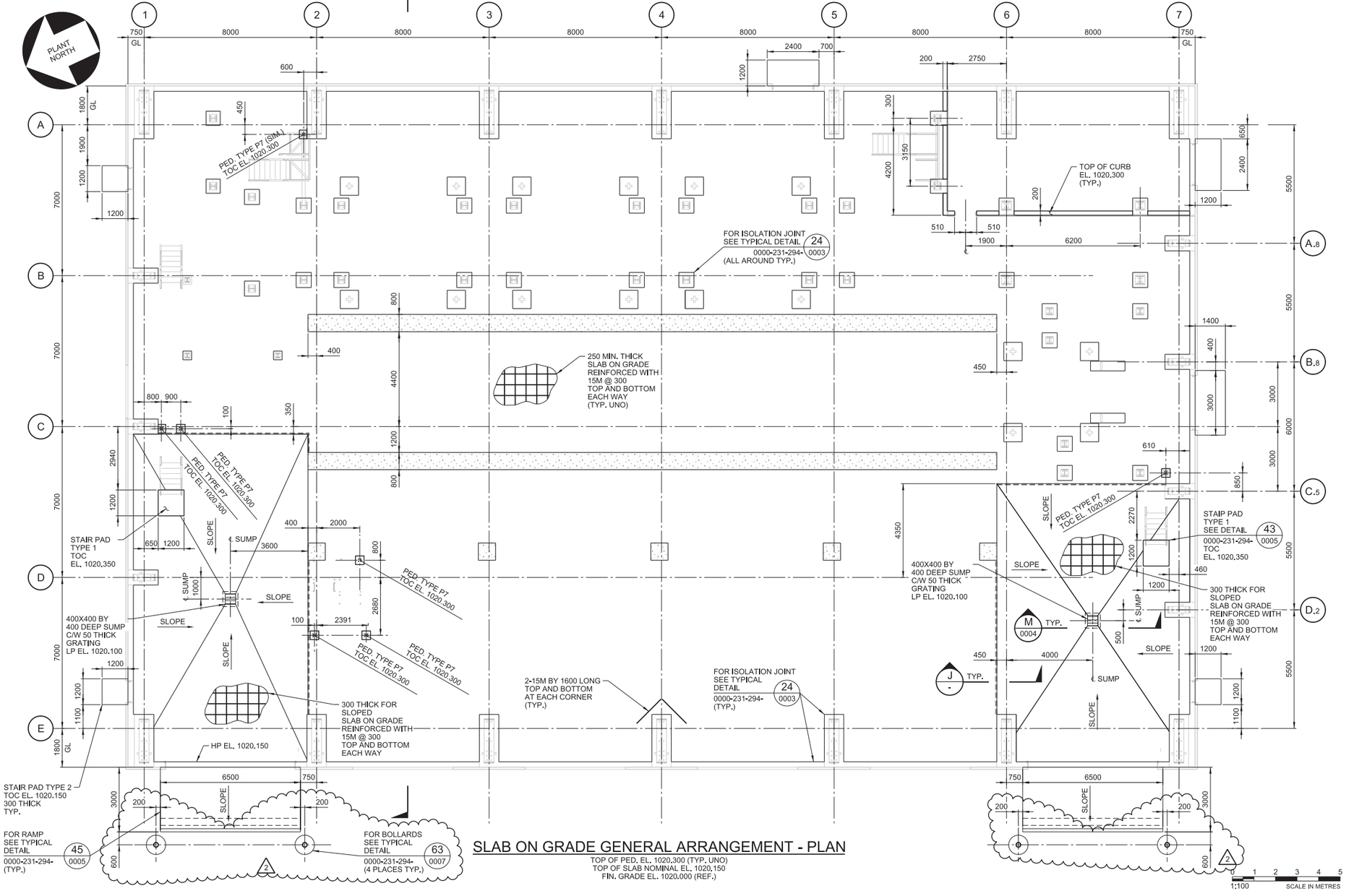
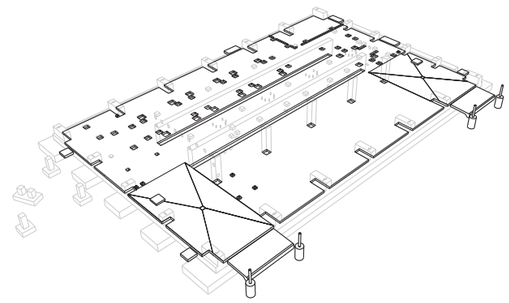
DWG. No. H354138-3310-231-260-0003

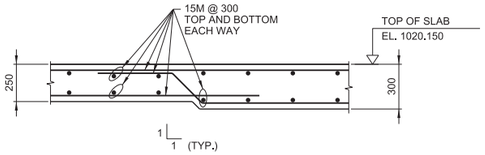



## SLAB ON GRADE GENERAL ARRANGEMENT - PLAN

TOP OF PED. EL. 1020.300 (TYP. UNO)
TOP OF SLAB NOMINAL EL. 1020.150
FIN. GRADE EL. 1020.000 (REF.)



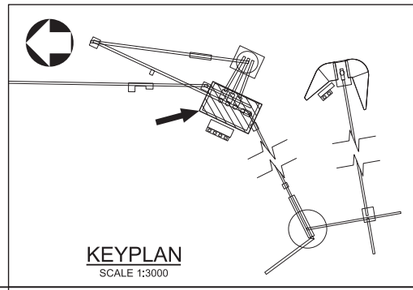
ISOMETRIC VIEW
NTS




SECTION J -
SCALE: 1:20

NOTES:

1. FOR NOTES SEE DRAWING H354138-3310-231-260-0001.



KEYPLAN
SCALE 1:3000

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| No. | DESCRIPTION | BY | CHK'D | DATE |
|---|---|---|---|---|
| 2 | BOLLARDS ADDED | PJ | EA | 2018-08-09 |
| 1 | HOLD H0022 RELEASED, STAIR PADS ADDED, DOOR PAL LOCATION REVISED | PJ | EA | 2018-06-05 |
| 0 | APPROVED FOR CONSTRUCTION | PJ | EA | 2018-05-17 |

| ROLE | NAME | SIGNATURE & DATE |
|---|---|---|
| DRAFTSPERSON | P. JIVAEV | NR |
| DESIGNER | H. LI | NR |
| CHECKER | E. AKINCI | |
| DESIGN COORD. | S. PERKINS | |
| RESP. ENG. | E. AKINCI | |
| LEAD DISC. ENG. | E. AKINCI | |
| ENG. MANAGER | B. RUSTAD | |
| PROJ. MANAGER | B. RUSTAD | |

DRAWING APPROVAL STATUS: Approved for Construction

HATCH

StrataGold Corporation

EAGLE GOLD PROJECT

SEC/TERTIARY CRUSHING BUILDING
BUILDING FOUNDATION
SLAB ON GRADE - PLAN

| SCALE | DWG. No. | REV |
|---|---|---|
| 1:100 OR AS NOTED | H354138-3310-231-260-0003 | 2 |

SHEET SIZE: D

REFERENCE DRAWINGS | DRAWING No. | DRAWING TITLE

REG. PROFESSIONAL

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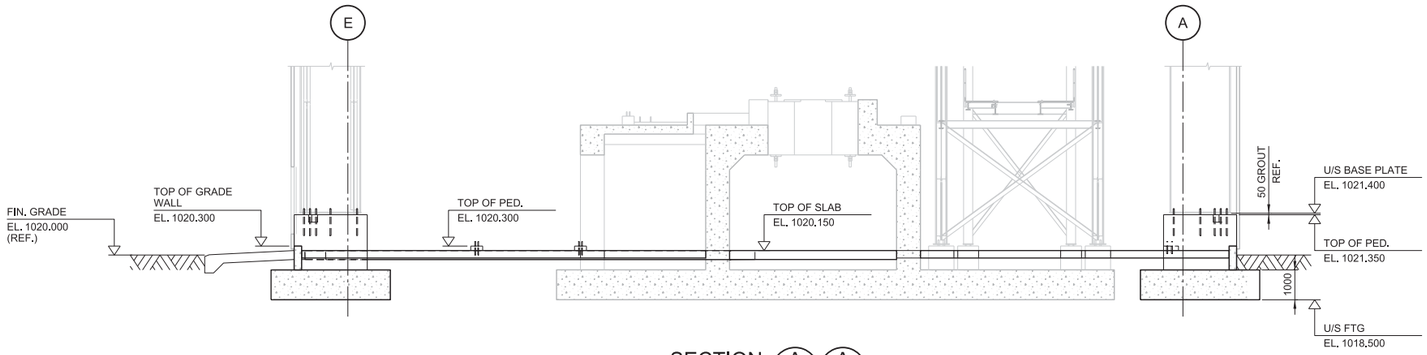
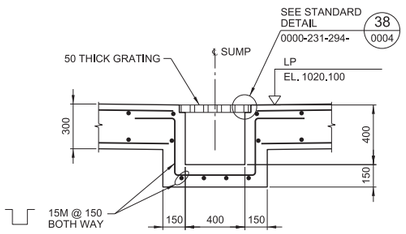
DWG. No. H354138-3310-231-260-0004



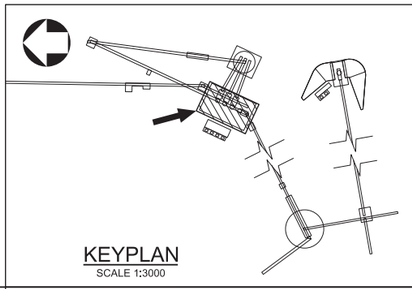

SECTION A (0002) A (0003)




SECTION M (0003)
SCALE: 1:20

NOTES:

1. FOR NOTES SEE DRAWING H354138-3310-231-260-0001.



KEYPLAN
SCALE 1:3000

0 1 2 3 4 5
1:100 SCALE IN METRES

THIS DRAWING WAS PREPARED FOR THE EXCLUSIVE USE OF STRATA GOLD ("CLIENT") AND IS ISSUED PURSUANT TO H354138 BETWEEN CLIENT AND HATCH LTD. ("HATCH"). UNLESS OTHERWISE AGREED IN WRITING WITH CLIENT OR SPECIFIED ON THIS DRAWING, (A) HATCH DOES NOT ACCEPT AND DISCLAIMS ANY AND ALL LIABILITY OR RESPONSIBILITY ARISING FROM ANY USE OF OR RELIANCE ON THIS DRAWING BY ANY THIRD PARTY OR ANY MODIFICATION OR MISUSE OF THIS DRAWING BY CLIENT, AND (B) THIS DRAWING IS CONFIDENTIAL AND ALL INTELLECTUAL PROPERTY RIGHTS EMBODIED OR REFERENCED IN THIS DRAWING REMAIN THE PROPERTY OF HATCH.

| DRAWING No. | DRAWING TITLE |
|---|---|
| | |

REFERENCE DRAWINGS

REG. PROFESSIONAL

| No. | DESCRIPTION | BY | CHK'D | DATE |
|---|---|---|---|---|
| 0 | APPROVED FOR CONSTRUCTION | PJ | EA | 2018-05-17 |

REVISIONS

| ROLE | NAME | SIGNATURE & DATE |
|---|---|---|
| DRAFTSPERSON | P. JIVAEV | NR |
| DESIGNER | H. LI | NR |
| CHECKER | E. AKINCI | |
| DESIGN COORD. | S. PERKINS | |
| RESP. ENG. | E. AKINCI | |
| LEAD DISC. ENG. | E. AKINCI | |
| ENG. MANAGER | B. RUSTAD | |
| PROJ. MANAGER | B. RUSTAD | |

DRAWING APPROVAL STATUS: Approved for Construction

HATCH

StrataGold Corporation

EAGLE GOLD PROJECT

SEC/TERTIARY CRUSHING BUILDING
BUILDING FOUNDATION
SECTIONS

| SCALE | DWG. No. | REV |
|---|---|---|
| 1:100 OR AS NOTED | H354138-3310-231-260-0004 | 0 |

SHEET SIZE: D

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PRINTED: 17-MAY-2018
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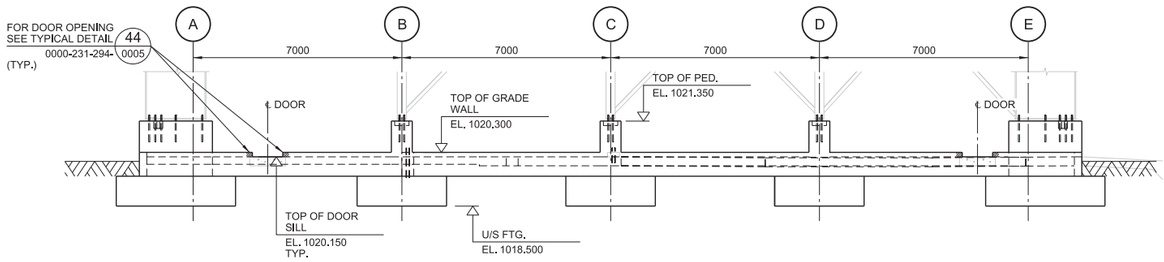
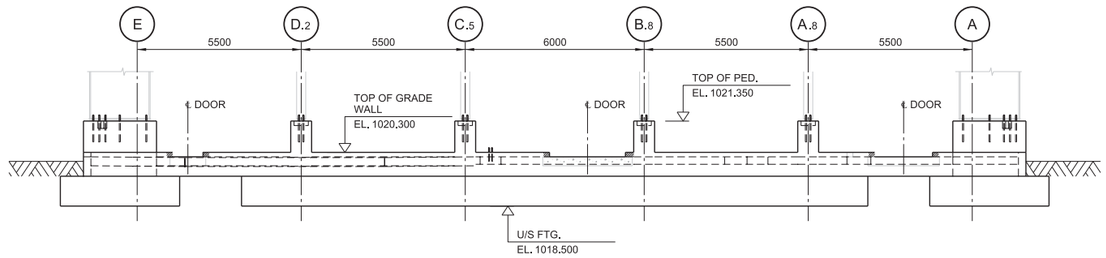
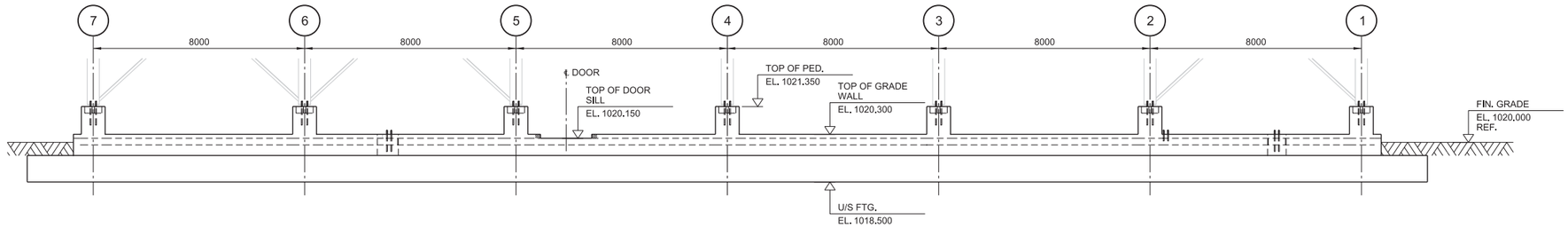
DWG. No. H354138-3310-231-260-0005



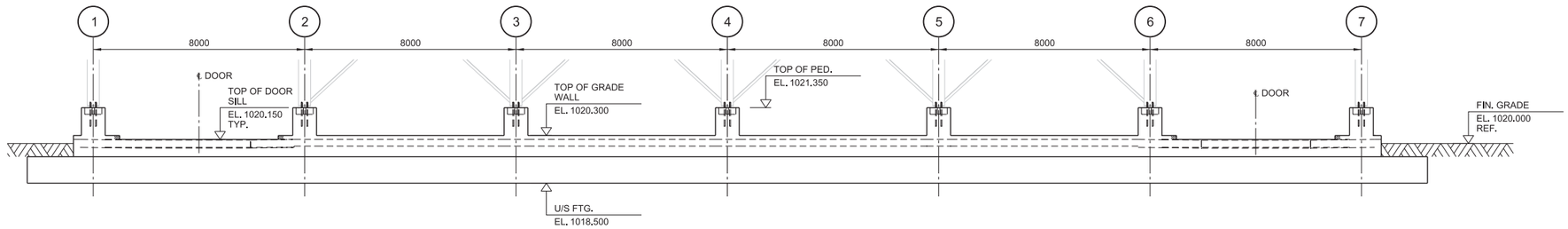

ELEVATION ON GRID 1
LOOKING SOUTH




ELEVATION ON GRID 7
LOOKING NORTH



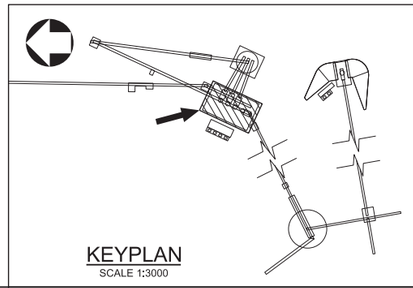

ELEVATION ON GRID A
LOOKING WEST




ELEVATION ON GRID E
LOOKING EAST

NOTES:

1. FOR NOTES SEE DRAWING H354138-3310-231-260-0001.



KEYPLAN
SCALE 1:3000

0 1 2 3 4 5
1:100 SCALE IN METRES

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| No. | DESCRIPTION | BY | CHK'D | DATE |
|---|---|---|---|---|
| 0 | APPROVED FOR CONSTRUCTION | PJ | EA | 2018-05-17 |

| ROLE | NAME | SIGNATURE & DATE |
|---|---|---|
| DRAFTSPERSON | P. JIVAEV | NR |
| DESIGNER | H. LI | NR |
| CHECKER | E. AKINCI | |
| DESIGN COORD. | S. PERKINS | |
| RESP. ENG. | E. AKINCI | |
| LEAD DISC. ENG. | E. AKINCI | |
| ENG. MANAGER | B. RUSTAD | |
| PROJ. MANAGER | B. RUSTAD | |

DRAWING APPROVAL STATUS: Approved for Construction

HATCH

StrataGold Corporation

EAGLE GOLD PROJECT

SEC/TERTIARY CRUSHING BUILDING
BUILDING FOUNDATION
GRADE BEAM ELEVATIONS

| DRAWING No. | DRAWING TITLE |
|---|---|
| REFERENCE DRAWINGS | REG. PROFESSIONAL |

SCALE 1:100 OR AS NOTED

DWG. No. H354138-3310-231-260-0005

REV 0

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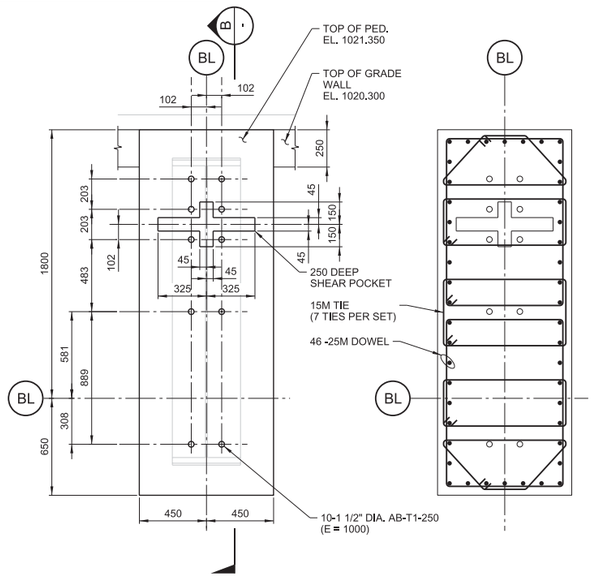
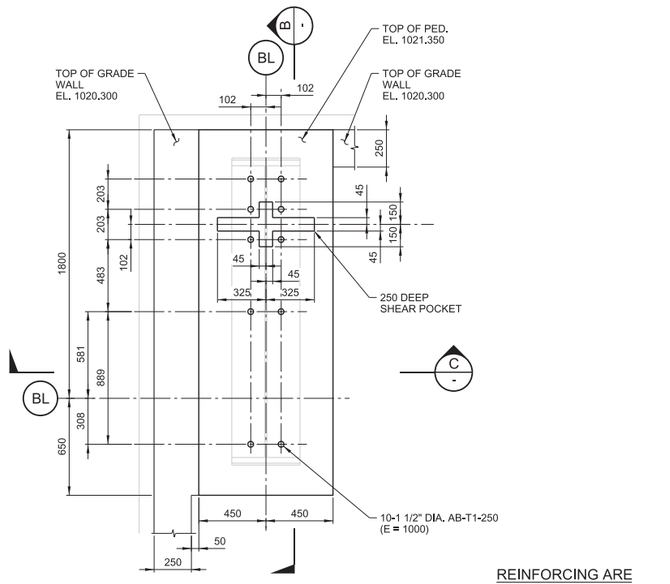
DWG. No. H354138-3310-231-260-0006




ANCHOR BOLT SETTINGS REINFORCING

## PEDESTAL TYPE P1

SCALE: 1:20

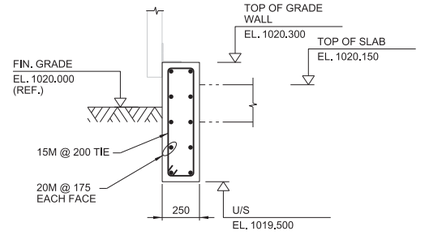



ANCHOR BOLT SETTINGS

REINFORCING ARE SAME AS FOR PED. TYPE P1

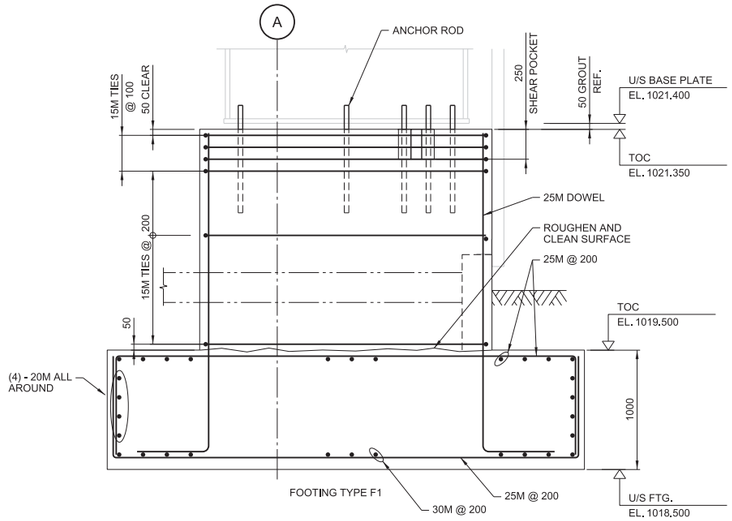
## PEDESTAL TYPE P2

SCALE: 1:20



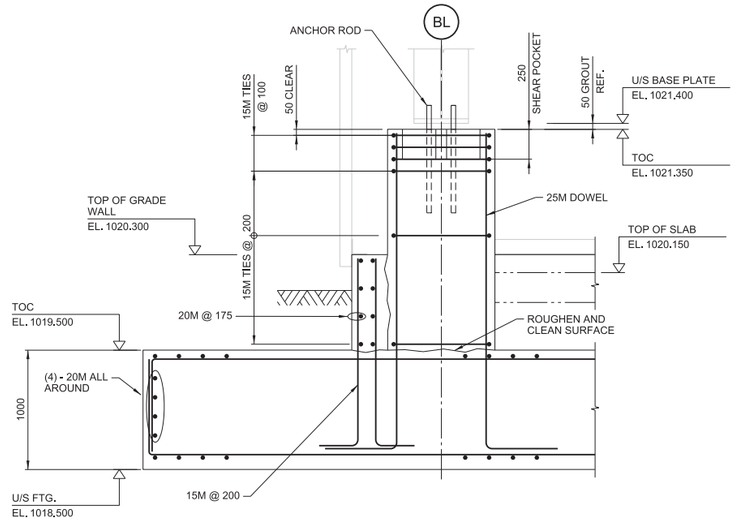

## GRADE WALL SECTION D

SCALE: 1:20 — 0002




## SECTION B - B

SCALE: 1:25 — 0002

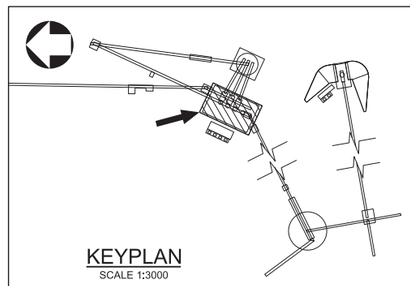



## SECTION C - C

SCALE: 1:25 — 0002

NOTES:

1. FOR NOTES SEE DRAWING H354138-3310-231-260-0001.



## KEYPLAN

SCALE 1:3000

0 250 500 750 1000 1250

1:25 SCALE IN MILLIMETRES

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| 0 | APPROVED FOR CONSTRUCTION | PJ | EA | 2018-05-17 |

| ROLE | NAME | SIGNATURE & DATE |
|---|---|---|
| DRAFTSPERSON | P. JIVAEV | NR |
| DESIGNER | H. LI | NR |
| CHECKER | E. AKINCI | |
| DESIGN COORD. | S. PERKINS | |
| RESP. ENG. | E. AKINCI | |
| LEAD DISC. ENG. | E. AKINCI | |
| ENG. MANAGER | B. RUSTAD | |
| PROJ. MANAGER | B. RUSTAD | |

DRAWING APPROVAL STATUS: Approved for Construction

HATCH

StrataGold Corporation

EAGLE GOLD PROJECT

SEC/TERTIARY CRUSHING BUILDING
BUILDING FOUNDATION
FOOTINGS DETAILS - SHEET 1

| DRAWING No. | DRAWING TITLE |
|---|---|
| REFERENCE DRAWINGS | REG. PROFESSIONAL |

SCALE 1:25 OR AS NOTED

DWG. No. H354138-3310-231-260-0006

REV 0

SHEET SIZE: D

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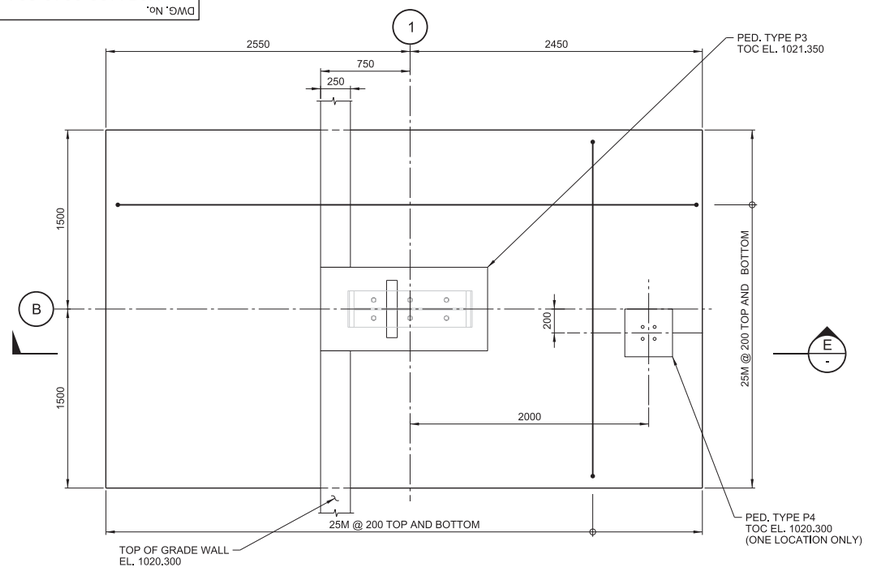
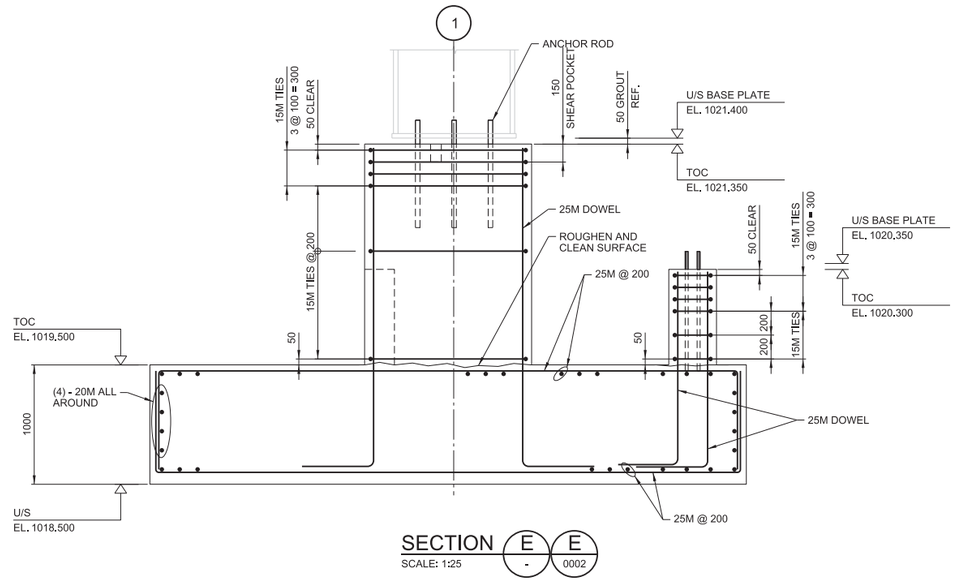


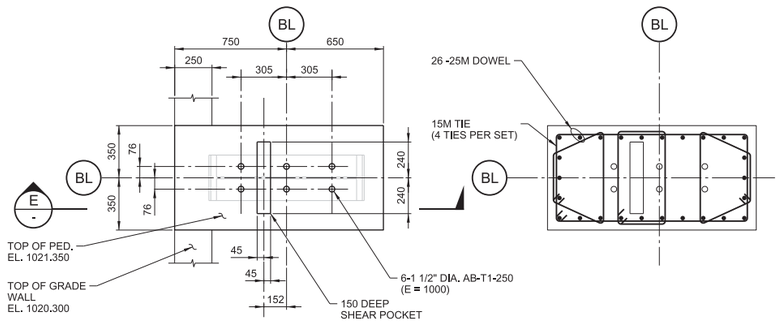

## FOOTING TYPE F3

TOP OF FTG. EL.1019.500
U/S OF FTG. EL. 1018.500




## SECTION E - E

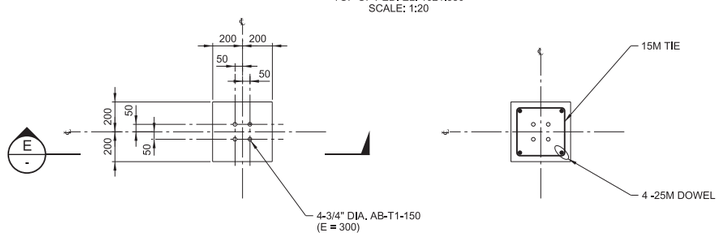
SCALE: 1:25 — 0002




ANCHOR BOLT SETTINGS — REINFORCING

## PEDESTAL TYPE P3

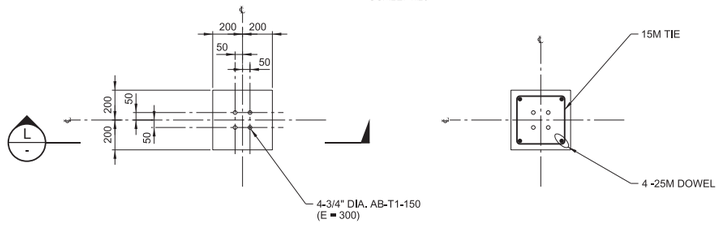
TOP OF PED. EL. 1021.350
SCALE: 1:20




ANCHOR BOLT SETTINGS — REINFORCING

## PEDESTAL TYPE P4

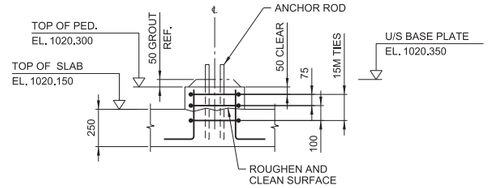
TOP OF PED. EL. 1020.300
SCALE: 1:20




ANCHOR BOLT SETTINGS — REINFORCING

## PEDESTAL TYPE P7

TOP OF PED. EL. 1020.300
SCALE: 1:20

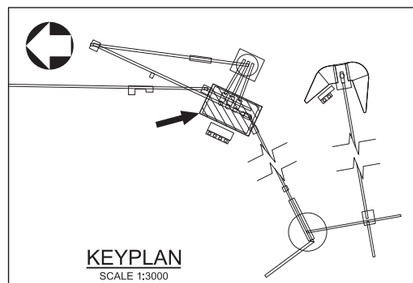



## SECTION L -

SCALE: 1:20

NOTES:

1. FOR NOTES SEE DRAWING H354138-3310-231-260-0001.



## KEYPLAN

SCALE 1:3000

0 250 500 750 1000 1250
1:25 SCALE IN MILLIMETRES

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|---|---|---|---|---|
| 0 | APPROVED FOR CONSTRUCTION | PJ | EA | 2018-05-17 |

| ROLE | NAME | SIGNATURE & DATE |
|---|---|---|
| DRAFTSPERSON | P. JIVAEV | NR |
| DESIGNER | H. LI | NR |
| CHECKER | E. AKINCI | |
| DESIGN COORD. | S. PERKINS | |
| RESP. ENG. | E. AKINCI | |
| LEAD DISC. ENG. | E. AKINCI | |
| ENG. MANAGER | B. RUSTAD | |
| PROJ. MANAGER | B. RUSTAD | |

DRAWING APPROVAL STATUS: Approved for Construction

REFERENCE DRAWINGS | REG. PROFESSIONAL | REVISIONS

DRAWING No. | DRAWING TITLE

HATCH

StrataGold Corporation

EAGLE GOLD PROJECT

SEC/TERTIARY CRUSHING BUILDING
BUILDING FOUNDATION
FOOTINGS DETAILS - SHEET 2

SCALE 1:25 OR AS NOTED

DWG. No. H354138-3310-231-260-0007

REV 0

SHEET SIZE: D

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PRINTED: 17-MAY-2018
idc_pwservice
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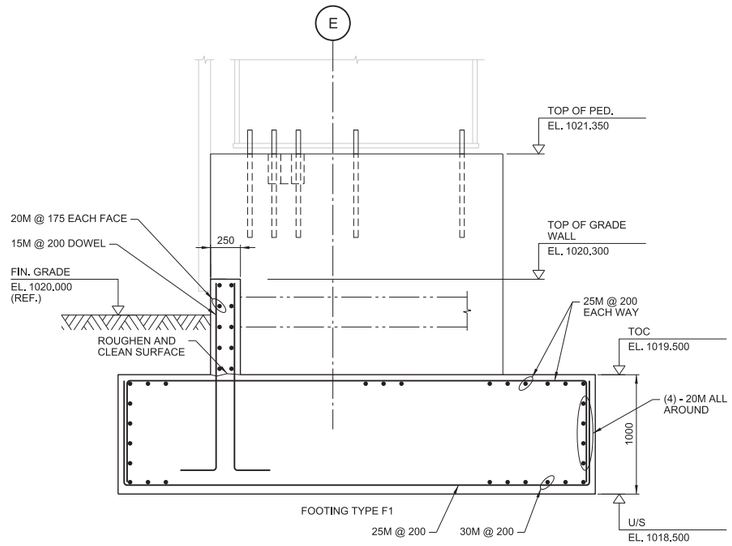
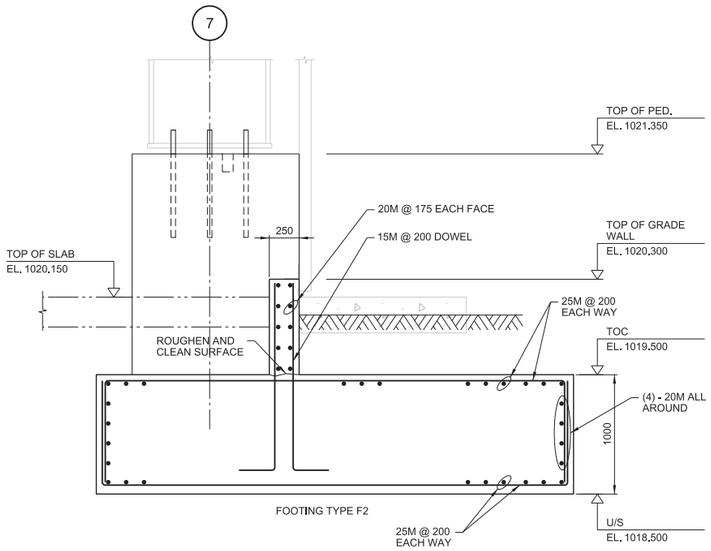
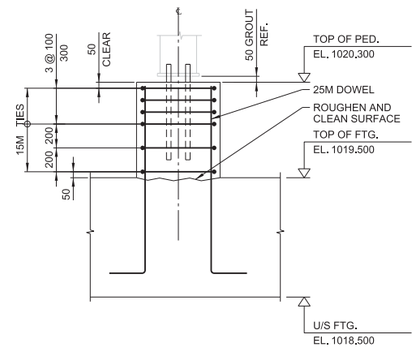
DWG. No. H354138-3310-231-260-0008



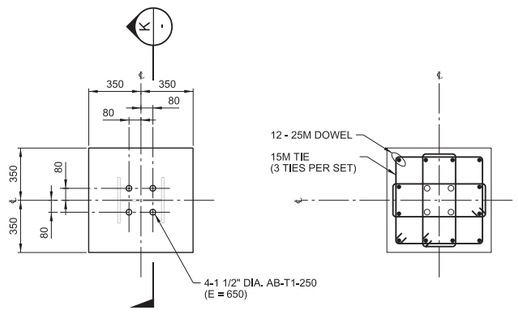

SECTION G
SCALE: 1:25 0002




SECTION H
SCALE: 1:25 0002

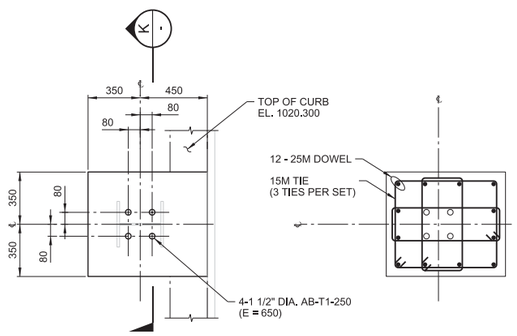



SECTION K
SCALE: 1:25 -




ANCHOR BOLT SETTINGS REINFORCEMENT

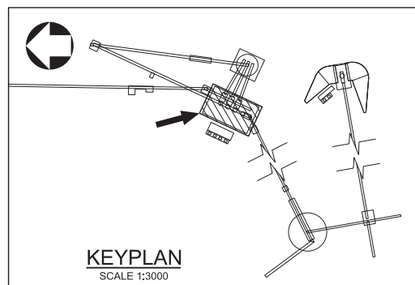
PEDESTAL TYPE P5
TOP OF PED. EL. 1020,300
SCALE: 1:20




ANCHOR BOLT SETTINGS REINFORCEMENT

PEDESTAL TYPE P6
TOP OF PED. EL. 1020,300
SCALE: 1:20

NOTES:
1. FOR NOTES SEE DRAWING H354138-3310-231-260-0001.



KEYPLAN
SCALE 1:3000

0 250 500 750 1000 1250
1:25 SCALE IN MILLIMETRES

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|---|---|---|---|---|
| 0 | APPROVED FOR CONSTRUCTION | PJ | EA | 2018-05-17 |

| ROLE | NAME | SIGNATURE & DATE |
|---|---|---|
| DRAFTSPERSON | P. JIVAEV | NR |
| DESIGNER | H. LI | NR |
| CHECKER | E. AKINCI | |
| DESIGN COORD. | S. PERKINS | |
| RESP. ENG. | E. AKINCI | |
| LEAD DISC. ENG. | E. AKINCI | |
| ENG. MANAGER | B. RUSTAD | |
| PROJ. MANAGER | B. RUSTAD | |

DRAWING APPROVAL STATUS: Approved for Construction

EAGLE GOLD PROJECT

SEC/TERTIARY CRUSHING BUILDING
BUILDING FOUNDATION
FOOTINGS DETAILS - SHEET 3

| DRAWING No. | DRAWING TITLE |
|---|---|

REFERENCE DRAWINGS

REG. PROFESSIONAL

REVISIONS

| SCALE | DWG. No. | REV |
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| 1:25 OR AS NOTED | H354138-3310-231-260-0008 | 0 |

SHEET SIZE: D

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PRINTED: 17-MAY-2018
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DWG. No. H354138-3320-231-260-0001

AREA: 3320 SECONDARY CRUSHING CONCRETE DETAILS DRAWING LIST

| DRAWING NUMBER | REV. | DRAWING TITLE | | |
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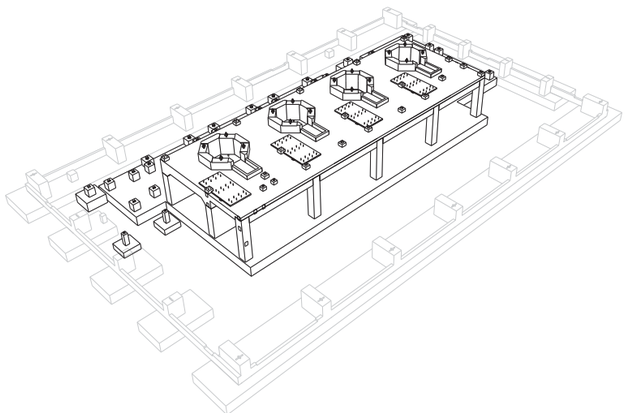
| H354138-3320-231-260-0002 | 1 | SECONDARY CRUSHING | CRUSHER AND SCREEN SUPPPORT FDN. | BASE PLAN - GENERAL ARRANGEMENT |
| H354138-3320-231-260-0003 | 1 | SECONDARY CRUSHING | CRUSHER AND SCREEN SUPPPORT FDN. | SECTIONS - SHEET 1 |
| H354138-3320-231-260-0004 | 0 | SECONDARY CRUSHING | CRUSHER AND SCREEN SUPPPORT FDN. | PARTIAL PLAN - SHEET 1 |
| H354138-3320-231-260-0005 | 1 | SECONDARY CRUSHING | CRUSHER AND SCREEN SUPPPORT FDN. | PARTIAL PLAN - SHEET 2 |
| H354138-3320-231-260-0006 | 1 | SECONDARY CRUSHING | CRUSHER AND SCREEN SUPPPORT FDN. | PARTIAL PLAN - SHEET 3 |
| H354138-3320-231-260-0007 | 1 | SECONDARY CRUSHING | CRUSHER AND SCREEN SUPPPORT FDN. | MAT FDN. REINFORCEMENT - PLAN |
| H354138-3320-231-260-0008 | 1 | SECONDARY CRUSHING | CRUSHER AND SCREEN SUPPPORT FDN. | WALL REINFORCEMENT - PLAN |
| H354138-3320-231-260-0009 | 0 | SECONDARY CRUSHING | CRUSHER AND SCREEN SUPPPORT FDN. | ELEVATED SLAB - PLAN |
| H354138-3320-231-260-0010 | 0 | SECONDARY CRUSHING | CRUSHER AND SCREEN SUPPPORT FDN. | ELEVATED SLAB REINFORCEMENT - PLAN |
| H354138-3320-231-260-0011 | 0 | SECONDARY CRUSHING | CRUSHER AND SCREEN SUPPPORT FDN. | REINFORCEMENT SECTIONS - SHEET 1 |
| H354138-3320-231-260-0012 | 0 | SECONDARY CRUSHING | CRUSHER AND SCREEN SUPPPORT FDN. | REINFORCEMENT SECTIONS - SHEET 2 |
| H354138-3320-231-260-0013 | 0 | SECONDARY CRUSHING | CRUSHER AND SCREEN SUPPPORT FDN. | CRUSHER BASE REINFORCEMENT |
| H354138-3320-231-260-0014 | 0 | SECONDARY CRUSHING | CRUSHER AND SCREEN SUPPPORT FDN. | DETAILS - SHEET 1 |
| H354138-3320-231-260-0015 | 1 | SECONDARY CRUSHING | CRUSHER AND SCREEN SUPPPORT FDN. | DETAILS - SHEET 2 |
| H354138-3320-231-260-0016 | 1 | SECONDARY CRUSHING | CRUSHER AND SCREEN SUPPPORT FDN. | DETAILS - SHEET 3 |
| H354138-3320-231-260-0017 | 0 | SECONDARY CRUSHING | CRUSHER AND SCREEN SUPPPORT FDN. | STEEL INSERT FRAME |

## BUILDING FOUNDATION NOTES:

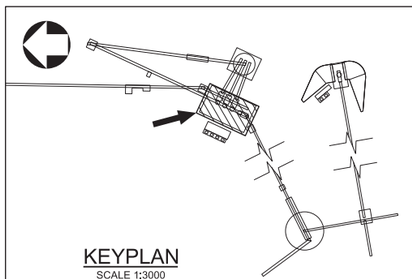
2.1 BUILDING FOUNDATION SUBGRADE SHALL CONSIST OF SOUND BEDROCK.
2.2 THE PREPARED FOOTING SUBGRADE SHALL BE PROTECTED FROM WATER INGRESS AND SOFTENING BY PROVIDING ADEQUATE DRAINAGE OR PLACING A LEAN CONCRETE MUD SLAB.
2.3 ALL FOUNDATION SUBGRADE SHALL BE INSPECTED AND APPROVED BY THE GEOTECHNICAL ENGINEER PRIOR TO PLACEMENT OF CONCRETE.
2.4 ALL STRUCTURAL BACKFILL UNDER AND AROUND THE BUILDING FOUNDATIONS AND SLAB ON GRADE SHALL BE "NFS STRUCTURAL FILL" AS DESCRIBED IN H354138-0000-220-210-0001 CIVIL DESIGN CRITERIA - TABLE 4-1.

## GENERAL NOTES:

1.1 READ THESE DRAWINGS IN CONJUNCTION WITH ALL OTHER PERTINENT CONTRACT DOCUMENTS.
1.2 FOR CONCRETE TYPICAL DETAILS DRAWING SET AND GENERAL NOTES, SEE DRAWINGS 354138-0000-231-294-0001 TO -0007.
1.3 REFER TO MECHANICAL, PROCESS AND ELECTRICAL DRAWINGS FOR LOCATIONS AND DIMENSIONS OF OPENINGS, SLEEVES AND OTHER BUILDING COMPONENTS NOT SHOWN ON STRUCTURAL DRAWINGS. REPORT DISCREPENCIES TO THE OWNER OR HIS REPRESENTATIVE PRIOR TO PROCEEDING WITH THE WORK.
1.4 FOR GENERAL SITE LOCATION AND WORK POINT COORDINATES, SEE DRAWING H354138-2000-220-270-0003.
1.5 HIGH ENERGY COMPACTION EQUIPMENT SUCH AS LARGE ROLLERS MUST NOT BE USED FOR COMPACTING BACKFILL WITHIN 1 METER OF THE EDGE OF THE WALLS.
1.6 FOR GROUNDING LOOP SEE ELECTRICAL DRAWINGS H354138-3300-260-272-1000-0001 TO 0003. FOR GROUNDING INSTALLATION DETAILS SEE DRAWINGS H354138-0000-260-294-0001-0009 TO 0010.
1.7 FOR FINISHED GRADING PLAN SEE DRAWING H354138-2120-220-290-0002.
1.8 FOR CAST-IN PLACE CONCRETE, SEE SPECIFICATION SECTION H354138-S032000.
1.9 FOR CONCRETE FORMWORK, SEE SPECIFICATION SECTION H354138-S031000.
1.10 FOR CONCRETE REINFORCEMENT, SEE SPECIFICATION SECTION H354138-S033000.
1.11 FOR GROUTING, SEE SPECIFICATION SECTION H354138-S036000.
1.12 CONSTRUCTION JOINTS NOT SHOWN ON THE DRAWINGS MUST BE APPROVED BY THE CONTRUCTION MANAGER.
1.13 IN CASE OF ANY DISCREPANCIES, INFORM THE CONSTRUCTION MANAGER BEFORE COMMENCING WORK.
1.14 ALL DIMENSIONS ARE IN MILLIMETERS AND ELEVATIONS ARE IN METERS.
1.15 PROVIDE 19mm X 19mm CHAMFER AT ALL EXPOSED CONCRETE CORNERS AND EDGES ABOVE GRADE LEVEL EXCEPT TOP OF ALL THE PEDESTALS, GRADE BEAMS AND CURBS WHERE WALL CLADING TO BE CONNECTED.
1.16 THE DRAWINGS SHOULD BE READ IN CONJUNCTION WITH THE PROJECT CIVIL DESIGN CRITERIA H354138-0000-220-210-0001.
1.17 FOR FURTHER GEOTECH INFORMATION, SEE "2011 GEOTECHNICAL INVESTIGATION FOR MINE SITE INFRASTRUCTURE FOUNDATION REPORT" BY BGC ENGINEERING DATED JAN 31, 2012.
1.18 SET ANCHOR RODS USING TEMPLATES WHICH MUST BE LEFT IN PLACE UNTIL THE CONCRETE HAS SET. ANCHOR RODS SHALL BE PLUMBED AND SECURED FROM MOVEMENT PRIOR TO CASTING CONCRETE.



CRUSHER AND SCREEN SUPPORT FOUNDATION
ISOMETRIC VIEW
NTS



KEYPLAN
SCALE 1:3000

THIS DRAWING WAS PREPARED FOR THE EXCLUSIVE USE OF STRATA GOLD ("CLIENT") AND IS ISSUED PURSUANT TO H354138 BETWEEN CLIENT AND HATCH LTD. ("HATCH"). UNLESS OTHERWISE AGREED IN WRITING WITH CLIENT OR SPECIFIED ON THIS DRAWING, (A) HATCH DOES NOT ACCEPT AND DISCLAIMS ANY AND ALL LIABILITY OR RESPONSIBILITY ARISING FROM ANY USE OF OR RELIANCE ON THIS DRAWING BY ANY THIRD PARTY OR ANY MODIFICATION OR MISUSE OF THIS DRAWING BY CLIENT, AND (B) THIS DRAWING IS CONFIDENTIAL AND ALL INTELLECTUAL PROPERTY RIGHTS EMBODIED OR REFERENCED IN THIS DRAWING REMAIN THE PROPERTY OF HATCH.

| No. | DESCRIPTION | BY | CHK'D | DATE |
|---|---|---|---|---|
| 1 | DRAWING LIST UPDATED | PJ | EA | 2018-05-28 |
| 0 | APPROVED FOR CONSTRUCTION | PJ | EA | 2018-05-04 |

| ROLE | NAME | SIGNATURE & DATE |
|---|---|---|
| DRAFTSPERSON | P. JIVAEV | NR |
| DESIGNER | H. LI | NR |
| CHECKER | E. AKINCI | |
| DESIGN COORD. | S. PERKINS | |
| RESP. ENG. | E. AKINCI | |
| LEAD DISC. ENG. | E. AKINCI | |
| ENG. MANAGER | B. RUSTAD | |
| PROJ. MANAGER | B. RUSTAD | |

DRAWING APPROVAL STATUS: Approved for Construction

REFERENCE DRAWINGS | DRAWING No. | DRAWING TITLE

REG. PROFESSIONAL

REVISIONS

HATCH

StrataGold Corporation

EAGLE GOLD PROJECT

SECONDARY CRUSHING
CRUSHER AND SCREEN SUPPORT FDN.
TITLE SHEET, ISOMETRIC VIEW

SCALE NTS OR AS NOTED | DWG. No. H354138-3320-231-260-0001 | REV 1

SHEET SIZE: D

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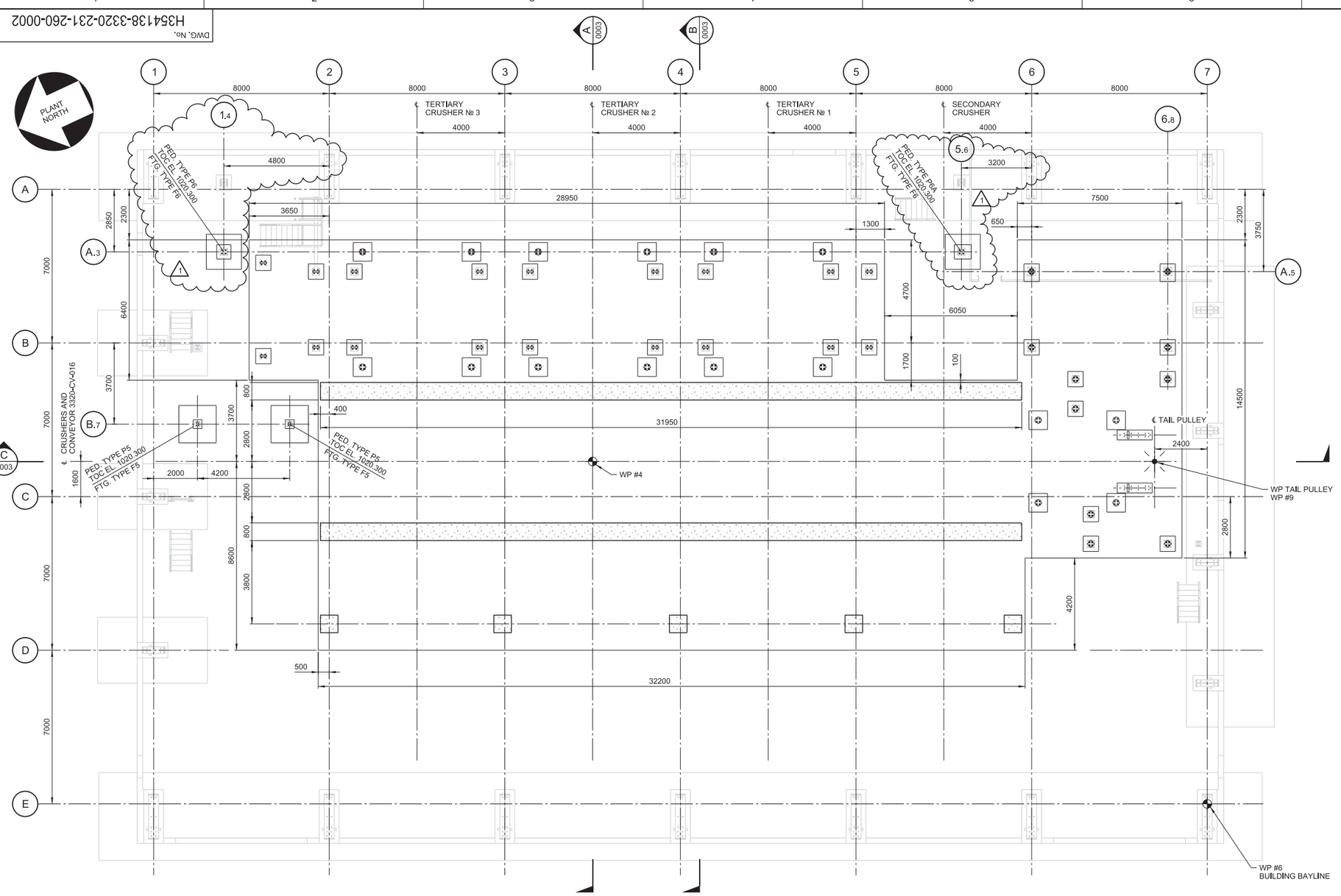
DWG. No. H354138-3320-231-260-0002



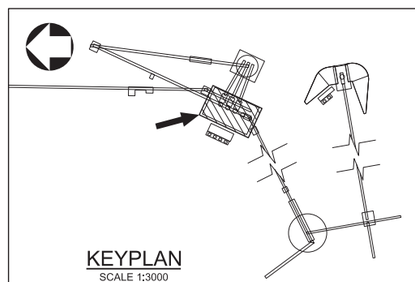

## CRUSHER AND SCREEN SUPPORT - BASE PLAN - GENERAL ARRANGEMENT

TOP OF FOOTING EL. 1019.500
U/S FTG EL. 1018.500

1:100 SCALE IN METRES

NOTES:

1. FOR GENERAL NOTES SEE DRAWING H354138-3320-231-260-0001.



KEYPLAN
SCALE 1:3000

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| No. | DESCRIPTION | BY | CHK'D | DATE |
|---|---|---|---|---|
| 1 | HOLD REMOVED, FOOTING TYPE F6 ADDED | PJ | EA | 2018-05-28 |
| 0 | APPROVED FOR CONSTRUCTION | PJ | EA | 2018-05-04 |

| ROLE | NAME | SIGNATURE & DATE |
|---|---|---|
| DRAFTSPERSON | P. JIVAEV | NR |
| DESIGNER | H. LI | NR |
| CHECKER | E. AKINCI | |
| DESIGN COORD. | S. PERKINS | |
| RESP. ENG. | E. AKINCI | |
| LEAD DISC. ENG. | E. AKINCI | |
| ENG. MANAGER | B. RUSTAD | |
| PROJ. MANAGER | B. RUSTAD | |

DRAWING APPROVAL STATUS: Approved for Construction

HATCH

StrataGold Corporation

EAGLE GOLD PROJECT

SECONDARY CRUSHING
CRUSHER AND SCREEN SUPPORT FDN.
BASE PLAN - GENERAL ARRANGEMENT

| DRAWING No. | DRAWING TITLE |
|---|---|
| REFERENCE DRAWINGS | REG. PROFESSIONAL |

SCALE 1:100 OR AS NOTED | DWG. No. H354138-3320-231-260-0002 | REV 1

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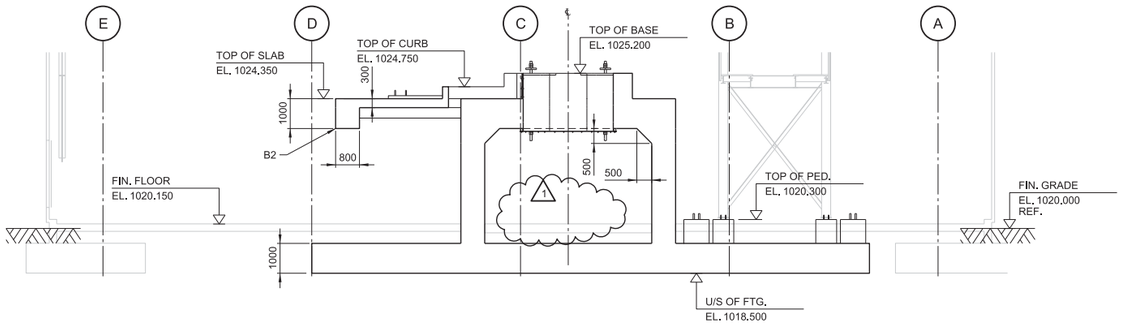
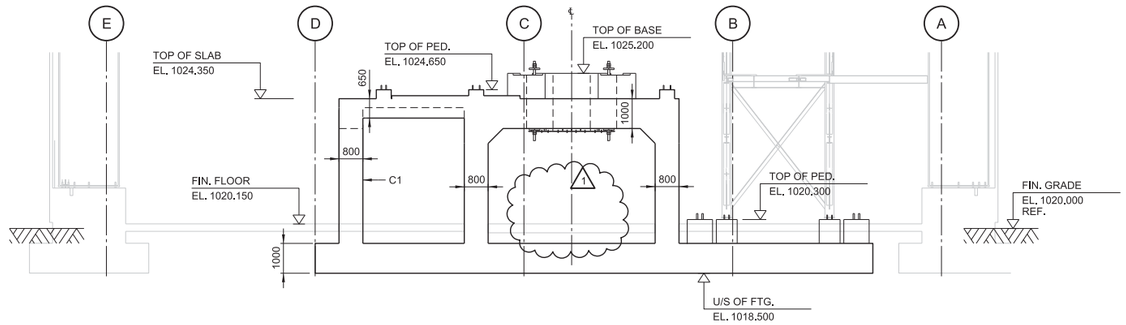
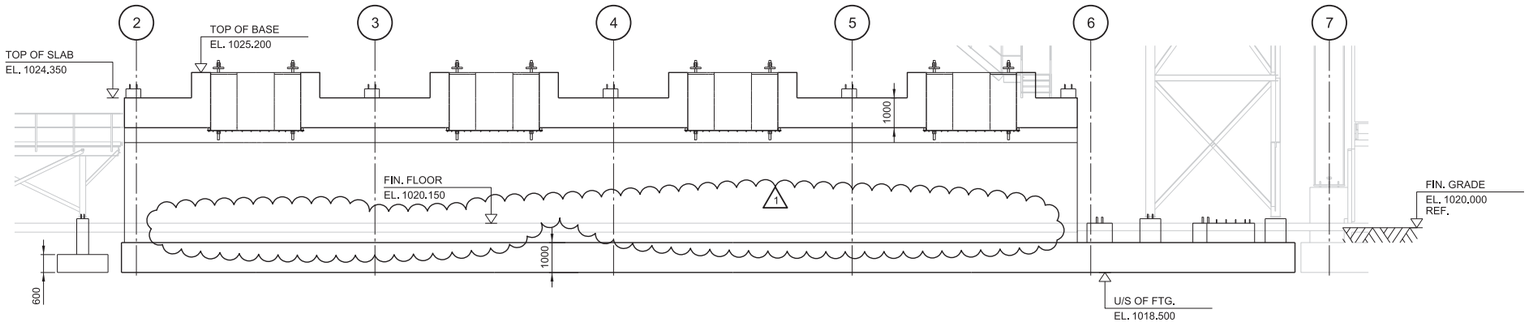
DWG. No. H354138-3320-231-260-0003




SECTION A 0002



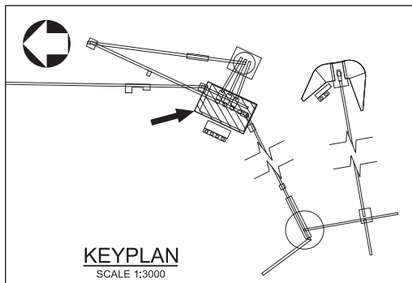

SECTION B 0002




SECTION C 0002

NOTES:

1. FOR NOTES SEE DRAWING H354138-3320-231-260-0001.



KEYPLAN
SCALE 1:3000

0 1 2 3 4 5
1:100 SCALE IN METRES

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| No. | DESCRIPTION | BY | CHK'D | DATE |
|---|---|---|---|---|
| 1 | CONVEYOR PEDESTALS REMOVED | PJ | EA | 2018-05-28 |
| 0 | APPROVED FOR CONSTRUCTION | PJ | EA | 2018-05-04 |

REVISIONS

| ROLE | NAME | SIGNATURE & DATE |
|---|---|---|
| DRAFTSPERSON | P. JIVAEV | NR |
| DESIGNER | H. LI | NR |
| CHECKER | E. AKINCI | |
| DESIGN COORD. | S. PERKINS | |
| RESP. ENG. | E. AKINCI | |
| LEAD DISC. ENG. | E. AKINCI | |
| ENG. MANAGER | B. RUSTAD | |
| PROJ. MANAGER | B. RUSTAD | |

DRAWING APPROVAL STATUS: Approved for Construction

DRAWING No. | DRAWING TITLE

REFERENCE DRAWINGS

REG. PROFESSIONAL

HATCH

StrataGold Corporation

EAGLE GOLD PROJECT

SECONDARY CRUSHING
CRUSHER AND SCREEN SUPPORT FDN.
SECTIONS - SHEET 1

SCALE 1:100 OR AS NOTED

DWG. No. H354138-3320-231-260-0003

REV 1

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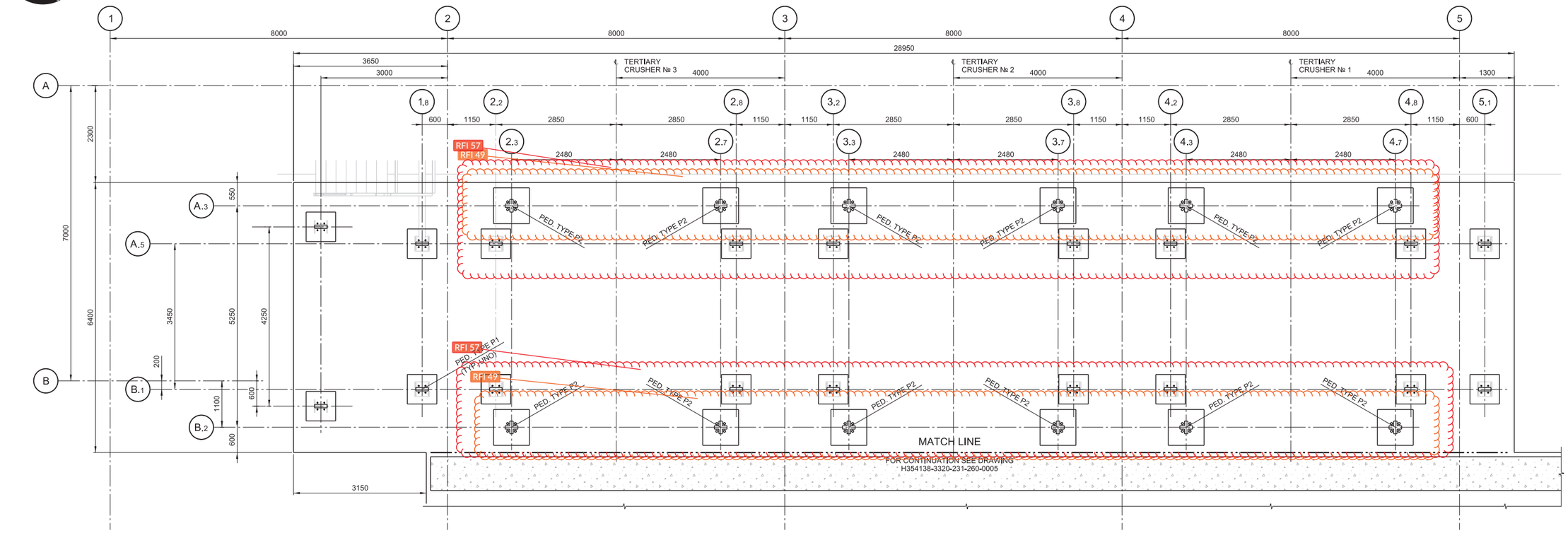
DWG. No. H354138-3320-231-260-0004

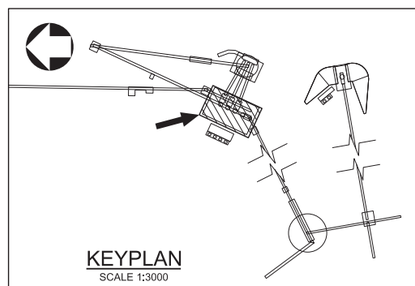



## CRUSHER AND SCREEN SUPPORT FOUNDATION - PARTIAL PLAN

TOP OF PED. EL. 1020.300
TOP OF FOOTING EL. 1019.500
U/S FTG. EL. 1018.500

NOTES:

1. FOR GENERAL NOTES SEE DRAWING H354138-3320-231-260-0001.




0 500 1000 1500 2000 2500
1:50 SCALE IN MILLIMETRES

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| No. | DESCRIPTION | BY | CHK'D | DATE |
|---|---|---|---|---|
| 0 | APPROVED FOR CONSTRUCTION | PJ | EA | 2018-05-04 |

| ROLE | NAME | SIGNATURE & DATE |
|---|---|---|
| DRAFTSPERSON | P. JIVAEV | NR |
| DESIGNER | H. LI | NR |
| CHECKER | E. AKINCI | |
| DESIGN COORD. | S. PERKINS | |
| RESP. ENG. | E. AKINCI | |
| LEAD DISC. ENG. | E. AKINCI | |
| ENG. MANAGER | B. RUSTAD | |
| PROJ. MANAGER | B. RUSTAD | |

DRAWING APPROVAL STATUS: Approved for Construction

HATCH

StrataGold Corporation

EAGLE GOLD PROJECT

SECONDARY CRUSHING
CRUSHER AND SCREEN SUPPORT FDN.
PARTIAL PLAN - SHEET 1

| DRAWING No. | DRAWING TITLE |
|---|---|
| REFERENCE DRAWINGS | REG. PROFESSIONAL |

SCALE 1:50 OR AS NOTED

DWG. No. H354138-3320-231-260-0004

REV 0

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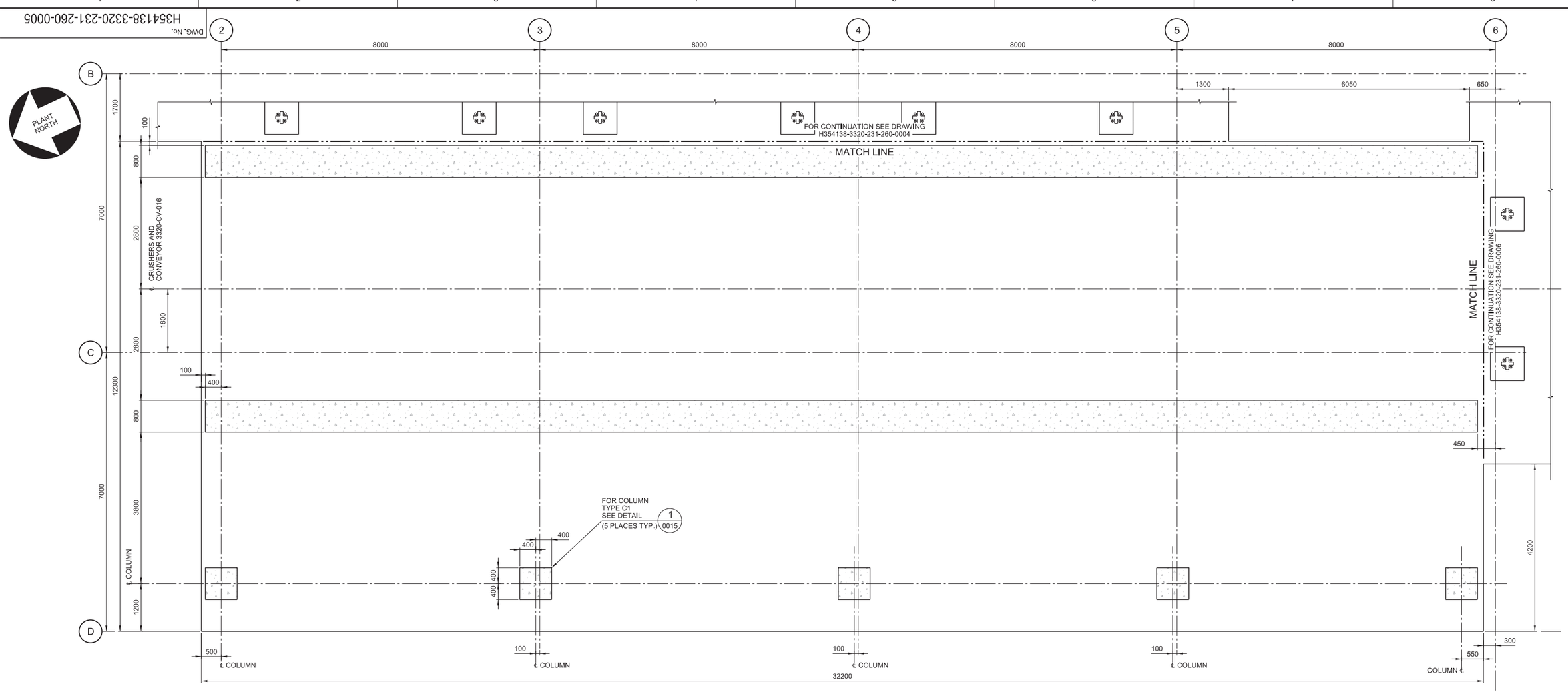
DWG. No. H354138-3320-231-260-0005




# CRUSHER AND SCREEN SUPPORT FOUNDATION - PARTIAL PLAN

TOP OF FOOTING EL. 1019.500
U/S FTG EL. 1018.500

NOTES:

1. FOR GENERAL NOTES SEE DRAWING H354138-3320-231-260-0001.

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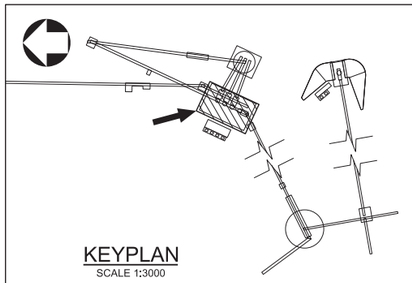
1:50 SCALE IN MILLIMETRES



KEYPLAN
SCALE 1:3000

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| No. | DESCRIPTION | BY | CHK'D | DATE |
|---|---|---|---|---|
| 1 | HOLD REMOVED | PJ | EA | 2018-05-28 |
| 0 | APPROVED FOR CONSTRUCTION | PJ | EA | 2018-05-04 |

| ROLE | NAME | SIGNATURE & DATE |
|---|---|---|
| DRAFTSPERSON | P. JIVAEV | NR |
| DESIGNER | H. LI | NR |
| CHECKER | E. AKINCI | |
| DESIGN COORD. | S. PERKINS | |
| RESP. ENG. | E. AKINCI | |
| LEAD DISC. ENG. | E. AKINCI | |
| ENG. MANAGER | B. RUSTAD | |
| PROJ. MANAGER | B. RUSTAD | |

DRAWING APPROVAL STATUS: Approved for Construction

DRAWING No. | DRAWING TITLE
REFERENCE DRAWINGS
REG. PROFESSIONAL
REVISIONS

HATCH

StrataGold Corporation

EAGLE GOLD PROJECT

SECONDARY CRUSHING
CRUSHER AND SCREEN SUPPORT FDN.
PARTIAL PLAN - SHEET 2

SCALE 1:50 OR AS NOTED | DWG. No. H354138-3320-231-260-0005 | REV 1

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PRINTED: 28-MAY-2018 11:27
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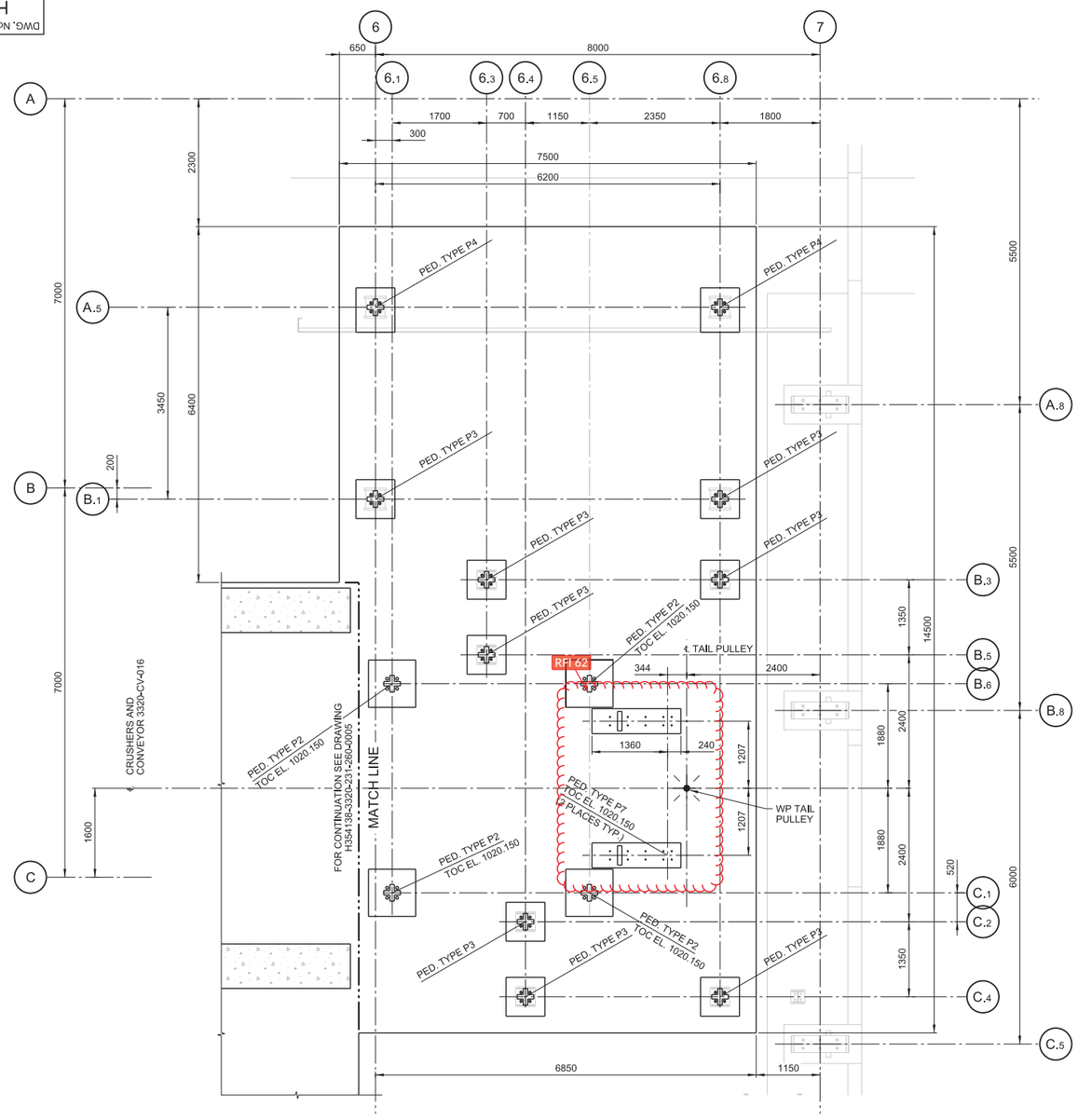
DWG. No. H354138-3320-231-260-0006

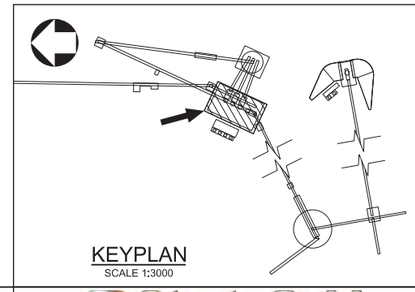



## CRUSHER AND SCREEN SUPPORT FOUNDATION - PARTIAL PLAN

TOP OF PED. EL. 1020.300 (TYP. UNO)
TOP OF FOOTING EL. 1019.500
U/S FTG. EL. 1018.500

NOTES:

1. FOR GENERAL NOTES SEE DRAWING H354138-3320-231-260-0001.



KEYPLAN
SCALE 1:3000

0 500 1000 1500 2000 2500
1:50 SCALE IN MILLIMETRES

THIS DRAWING WAS PREPARED FOR THE EXCLUSIVE USE OF STRATA GOLD ("CLIENT") AND IS ISSUED PURSUANT TO H354138 BETWEEN CLIENT AND HATCH LTD. ("HATCH"). UNLESS OTHERWISE AGREED IN WRITING WITH CLIENT OR SPECIFIED ON THIS DRAWING, (A) HATCH DOES NOT ACCEPT AND DISCLAIMS ANY AND ALL LIABILITY OR RESPONSIBILITY ARISING FROM ANY USE OF OR RELIANCE ON THIS DRAWING BY ANY THIRD PARTY OR ANY MODIFICATION OR MISUSE OF THIS DRAWING BY CLIENT, AND (B) THIS DRAWING IS CONFIDENTIAL AND ALL INTELLECTUAL PROPERTY RIGHTS EMBODIED OR REFERENCED IN THIS DRAWING REMAIN THE PROPERTY OF HATCH.

| No. | DESCRIPTION | BY | CHK'D | DATE |
|---|---|---|---|---|
| 1 | HOLD REMOVED | PJ | EA | 2018-05-28 |
| 0 | APPROVED FOR CONSTRUCTION | PJ | EA | 2018-05-04 |

| ROLE | NAME | SIGNATURE & DATE |
|---|---|---|
| DRAFTSPERSON | P. JIVAEV | NR |
| DESIGNER | H. LI | NR |
| CHECKER | E. AKINCI | |
| DESIGN COORD. | S. PERKINS | |
| RESP. ENG. | E. AKINCI | |
| LEAD DISC. ENG. | E. AKINCI | |
| ENG. MANAGER | B. RUSTAD | |
| PROJ. MANAGER | B. RUSTAD | |

DRAWING APPROVAL STATUS: Approved for Construction

HATCH

StrataGold Corporation

EAGLE GOLD PROJECT

SECONDARY CRUSHING
CRUSHER AND SCREEN SUPPORT FDN.
PARTIAL PLAN - SHEET 3

| DRAWING No. | DRAWING TITLE |
|---|---|
| REFERENCE DRAWINGS | |

REG. PROFESSIONAL

SCALE 1:50 OR AS NOTED

DWG. No. H354138-3320-231-260-0006

REV 1

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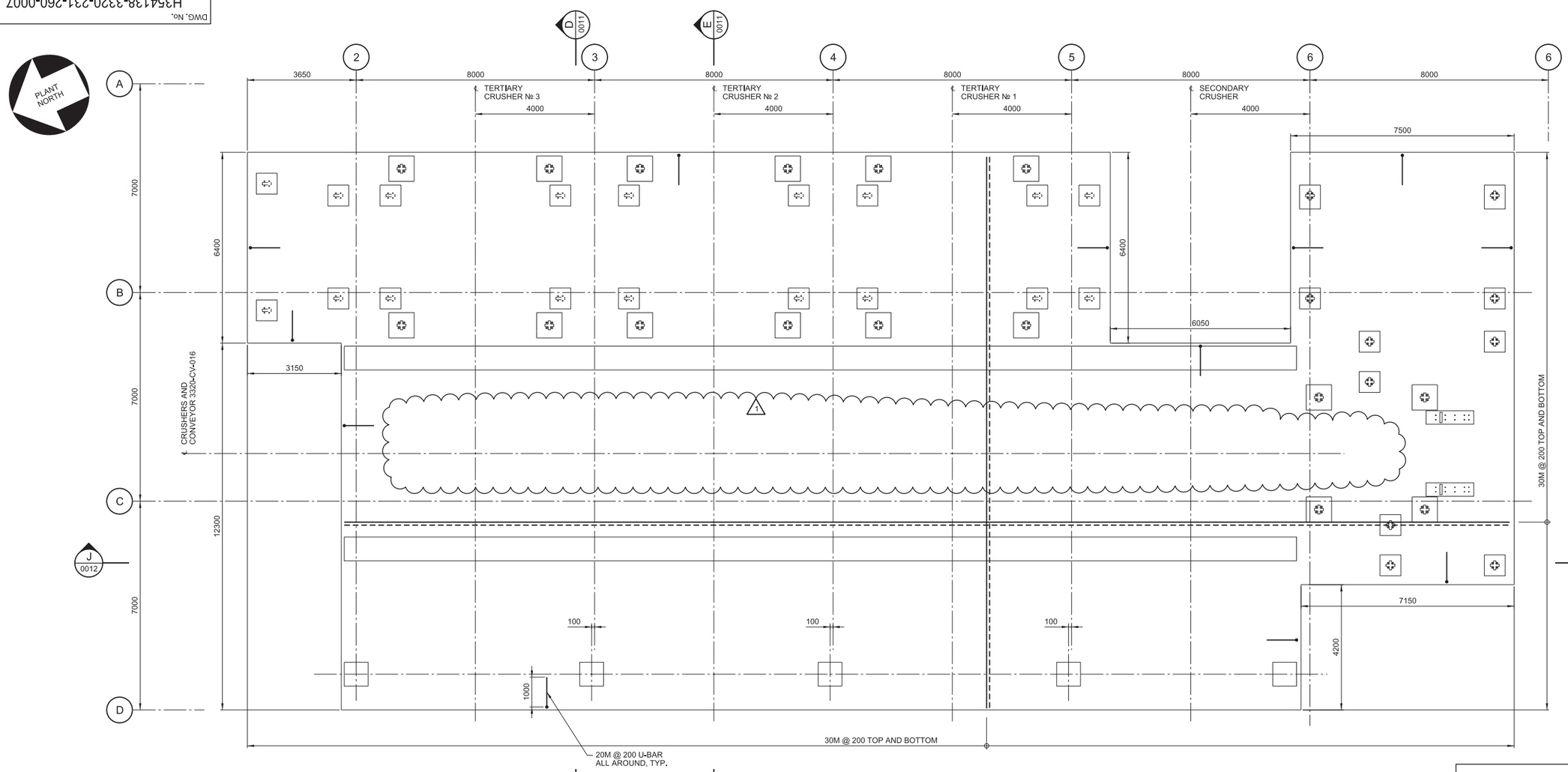
DWG. No. H354138-3320-231-260-0007



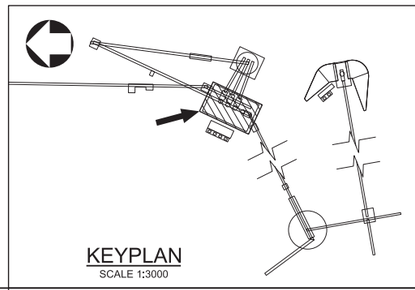

## CRUSHER SUPPORT - MAT FOUNDATION REINFORCEMENT - PLAN

TOP OF FDN. EL. 1019.500
U/S FDN. EL. 1018.500

NOTES:

1. FOR NOTES SEE DRAWING H354138-3320-231-260-0001.

0 750 1500 2250 3000 3750
1:75 SCALE IN MILLIMETRES



KEYPLAN
SCALE 1:3000

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| No. | DESCRIPTION | BY | CHK'D | DATE |
|---|---|---|---|---|
| 1 | CONVEYOR PEDESTALS REMOVED | PJ | EA | 2018-05-28 |
| 0 | APPROVED FOR CONSTRUCTION | PJ | EA | 2018-05-04 |

| ROLE | NAME | SIGNATURE & DATE |
|---|---|---|
| DRAFTSPERSON | P. JIVAEV | NR |
| DESIGNER | H. LI | NR |
| CHECKER | E. AKINCI | |
| DESIGN COORD. | S. PERKINS | |
| RESP. ENG. | E. AKINCI | |
| LEAD DISC. ENG. | E. AKINCI | |
| ENG. MANAGER | B. RUSTAD | |
| PROJ. MANAGER | B. RUSTAD | |

REFERENCE DRAWINGS — DRAWING No. / DRAWING TITLE

REG. PROFESSIONAL

REVISIONS

DRAWING APPROVAL STATUS: Approved for Construction

HATCH

StrataGold Corporation

EAGLE GOLD PROJECT

SECONDARY CRUSHING
CRUSHER AND SCREEN SUPPORT FDN.
MAT FDN. REINFORCEMENT - PLAN

SCALE 1:75 OR AS NOTED

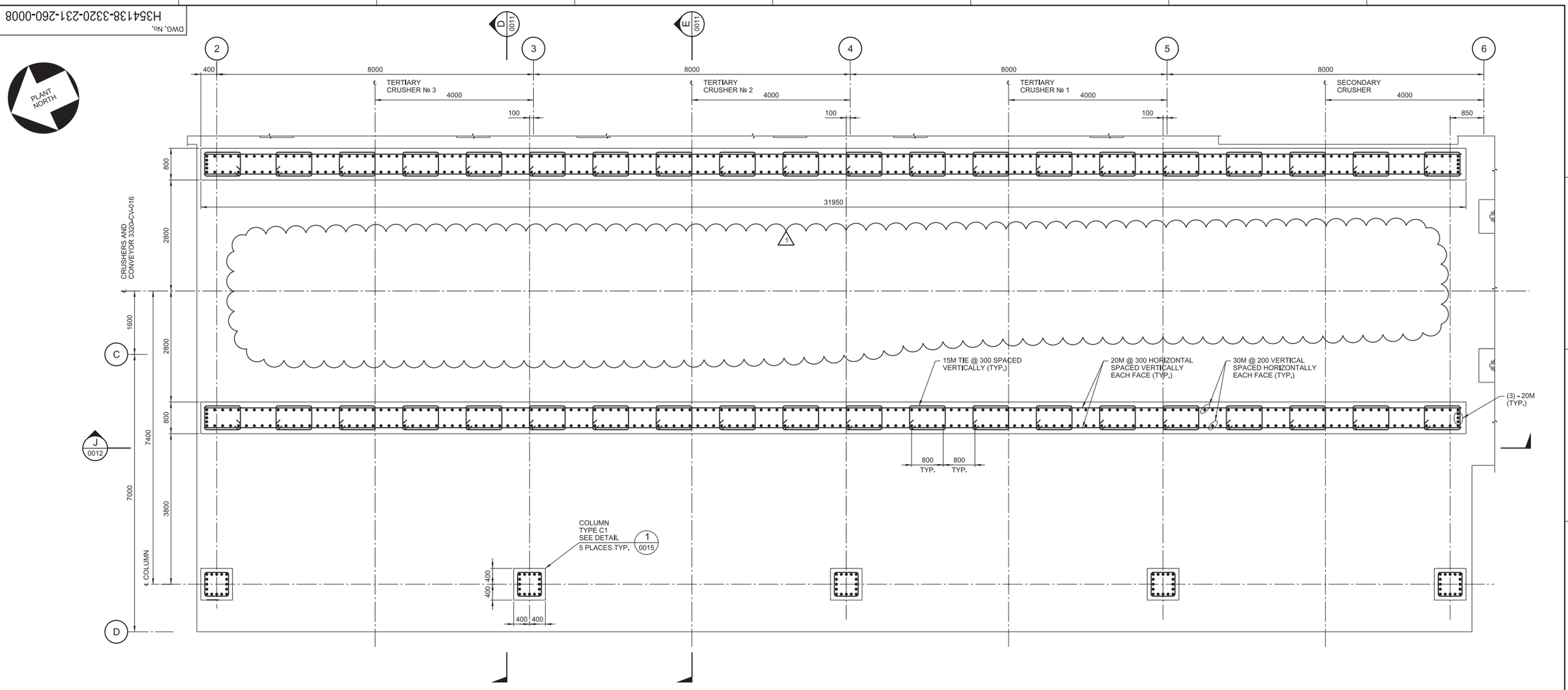
DWG. No. H354138-3320-231-260-0007

REV 1

SHEET SIZE: D

$FILE$
PRINTED: 28-MAY-2018 11:27
idc_pwservice

DWG. No. H354138-3320-231-260-0008



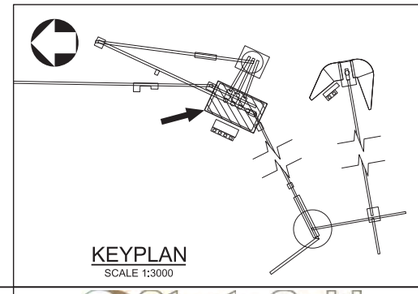

## WALL REINFORCEMENT - PLAN

TOP OF FTG. EL. 1019.500
U/S FTG. EL. 1018.500

NOTES:

1. FOR NOTES SEE DRAWING H354138-3320-231-260-0001.

0 500 1000 1500 2000 2500
1:50 SCALE IN MILLIMETRES



KEYPLAN
SCALE 1:3000

THIS DRAWING WAS PREPARED FOR THE EXCLUSIVE USE OF STRATA GOLD ("CLIENT") AND IS ISSUED PURSUANT TO H354138 BETWEEN CLIENT AND HATCH LTD. ("HATCH"). UNLESS OTHERWISE AGREED IN WRITING WITH CLIENT OR SPECIFIED ON THIS DRAWING, (A) HATCH DOES NOT ACCEPT AND DISCLAIMS ANY AND ALL LIABILITY OR RESPONSIBILITY ARISING FROM ANY USE OF OR RELIANCE ON THIS DRAWING BY ANY THIRD PARTY OR ANY MODIFICATION OR MISUSE OF THIS DRAWING BY CLIENT, AND (B) THIS DRAWING IS CONFIDENTIAL AND ALL INTELLECTUAL PROPERTY RIGHTS EMBODIED OR REFERENCED IN THIS DRAWING REMAIN THE PROPERTY OF HATCH.

| No. | DESCRIPTION | BY | CHK'D | DATE |
|---|---|---|---|---|
| 1 | CONVEYOR PEDESTALS REMOVED | PJ | EA | 2018-05-28 |
| 0 | APPROVED FOR CONSTRUCTION | PJ | EA | 2018-05-04 |

| ROLE | NAME | SIGNATURE & DATE |
|---|---|---|
| DRAFTSPERSON | P. JIVAEV | NR |
| DESIGNER | H. LI | NR |
| CHECKER | E. AKINCI | |
| DESIGN COORD. | S. PERKINS | |
| RESP. ENG. | E. AKINCI | |
| LEAD DISC. ENG. | E. AKINCI | |
| ENG. MANAGER | B. RUSTAD | |
| PROJ. MANAGER | B. RUSTAD | |

DRAWING APPROVAL STATUS: Approved for Construction

REFERENCE DRAWINGS | DRAWING No. | DRAWING TITLE

REG. PROFESSIONAL

HATCH

StrataGold Corporation

EAGLE GOLD PROJECT

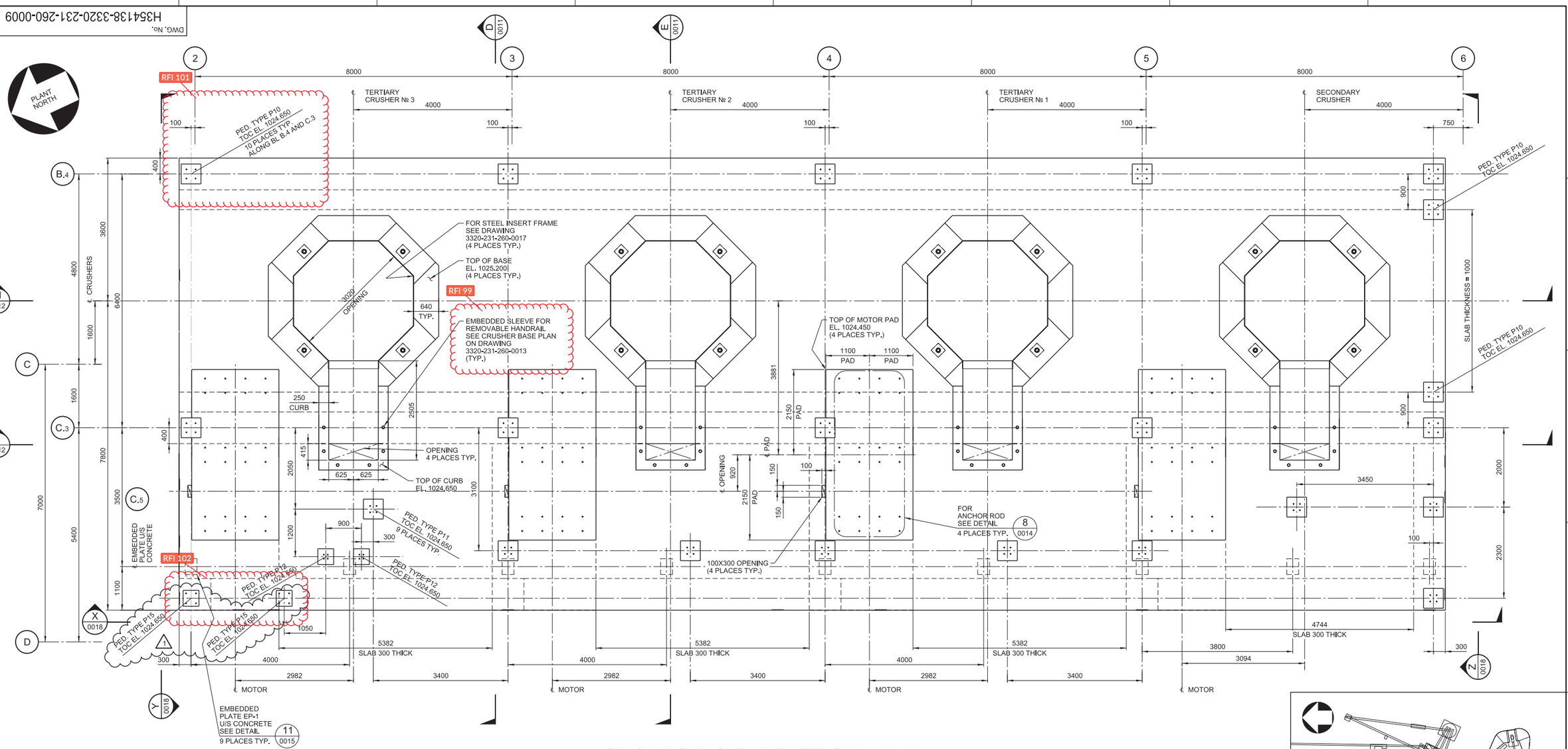
SECONDARY CRUSHING
CRUSHER AND SCREEN SUPPORT FDN.
WALL REINFORCEMENT - PLAN

SCALE 1:50 OR AS NOTED | DWG. No. H354138-3320-231-260-0008 | REV 1

SHEET SIZE: D

$FILELS
PRINTED: 28-MAY-2018
idc_pwservice
11:28

DWG. No. H354138-3320-231-260-0009



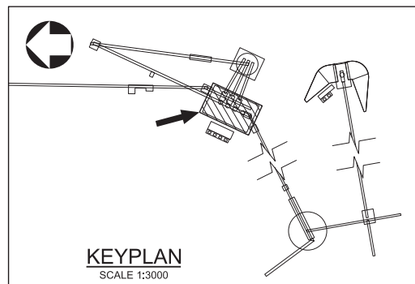

## CRUSHER SUPPORT - ELEVATED SLAB - PLAN

TOP OF SLAB EL. 1024.350

NOTES:

1. FOR NOTES SEE DRAWING H354138-3320-231-260-0001.

0 500 1000 1500 2000 2500
1:50 SCALE IN MILLIMETRES



KEYPLAN
SCALE 1:3000

THIS DRAWING WAS PREPARED FOR THE EXCLUSIVE USE OF STRATA GOLD ("CLIENT") AND IS ISSUED PURSUANT TO H354138 BETWEEN CLIENT AND HATCH LTD. ("HATCH"). UNLESS OTHERWISE AGREED IN WRITING WITH CLIENT OR SPECIFIED ON THIS DRAWING, (A) HATCH DOES NOT ACCEPT AND DISCLAIMS ANY AND ALL LIABILITY OR RESPONSIBILITY ARISING FROM ANY USE OF OR RELIANCE ON THIS DRAWING BY ANY THIRD PARTY OR ANY MODIFICATION OR MISUSE OF THIS DRAWING BY CLIENT, AND (B) THIS DRAWING IS CONFIDENTIAL AND ALL INTELLECTUAL PROPERTY RIGHTS EMBODIED OR REFERENCED IN THIS DRAWING REMAIN THE PROPERTY OF HATCH.

| No. | DESCRIPTION | BY | CHK'D | DATE |
|---|---|---|---|---|
| 2 | PED. TYPE P12 CHANGED TO PED. TYPE P15 - 2 PLACES ONLY | PJ | EA | 2018-10-18 |
| 1 | PED. P10 ADDED, PED. P11 AND P12 RELOCATED, TOP OF CURB REVISED, SECTION 'X' ADDED, BAY LINE C.5 REMOVED | PJ | EA | 2018-08-15 |
| 0 | APPROVED FOR CONSTRUCTION | PJ | EA | 2018-05-04 |

| ROLE | NAME | SIGNATURE & DATE |
|---|---|---|
| DRAFTSPERSON | P. JIVAEV | NR |
| DESIGNER | H. LI | NR |
| CHECKER | E. AKINCI | |
| DESIGN COORD. | S. PERKINS | |
| RESP. ENG. | E. AKINCI | |
| LEAD DISC. ENG. | E. AKINCI | |
| ENG. MANAGER | B. RUSTAD | |
| PROJ. MANAGER | B. RUSTAD | |

DRAWING APPROVAL STATUS: Approved for Construction

DRAWING No. | DRAWING TITLE

REFERENCE DRAWINGS

REG. PROFESSIONAL

REVISIONS

HATCH

StrataGold Corporation

EAGLE GOLD PROJECT

SECONDARY CRUSHING
CRUSHER AND SCREEN SUPPORT FDN.
ELEVATED SLAB PLAN

SCALE 1:50 OR AS NOTED

DWG. No. H354138-3320-231-260-0009

REV 2

SHEET SIZE: D

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PRINTED: 18-OCT-2018
17:55
tdc_pwservice

DWG. No. H354138-3320-231-260-0010

PLANT NORTH

ALL REINFORCEMENT ARE 4 PLACES TYPICAL

RFI 87

TERTIARY CRUSHER № 3

TERTIARY CRUSHER № 2

TERTIARY CRUSHER № 1

SECONDARY CRUSHER

25M @ 200 TOP AND BOTTOM

20M @ 200 U-BAR

15M @ 200 TIE

FOR STEEL INSERT FRAME SEE DRAWING 3320-231-260-0017 (4 PLACES TYP.)

CRUSHER BASE AND CURB REINFORCEMENT NOT SHOWN FOR CLARITY (4 PLACES TYP.)

20M @ 200 U-BAR ALL AROUND, TYP.

20M U-BAR (4 SIDES TYP.)

5-20M @ 225 VERTICALLY SPACED (4 PLACES ALONG 45° SIDES)

5-20M @ 225 U-BAR VERTICALLY SPACED (FOR EACH ANCHOR LOCATION TYP.)

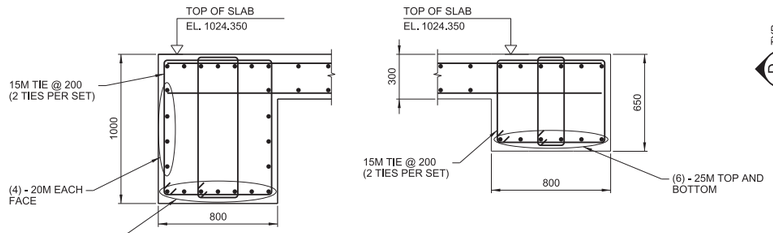
5-20M VERTICALLY SPACED (FOR EACH CORNER TYP.)

20M @ 200 FOR PAD

CRUSHERS AND CONVEYOR 3320-CV-016

## CRUSHER SUPPORT - ELEVATED SLAB REINFORCEMENT - PLAN

TOP OF SLAB, EL. 1024.350




BEAM TYPE B2 REINFORCEMENT DETAIL 2 - SCALE: 1:20

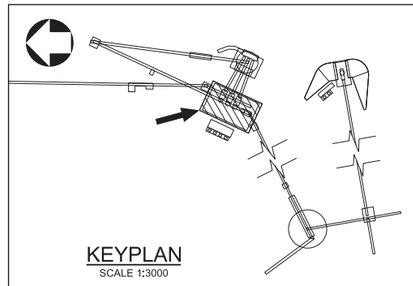



BEAM TYPE B3 REINFORCEMENT DETAIL 3 - 3 0012 - SCALE: 1:20

NOTES:

1. FOR NOTES SEE DRAWING H354138-3320-231-260-0001.

0 500 1000 1500 2000 2500
1:50 SCALE IN MILLIMETRES



KEYPLAN
SCALE 1:3000

THIS DRAWING WAS PREPARED FOR THE EXCLUSIVE USE OF STRATA GOLD ("CLIENT") AND IS ISSUED PURSUANT TO H354138 BETWEEN CLIENT AND HATCH LTD. ("HATCH"). UNLESS OTHERWISE AGREED IN WRITING WITH CLIENT OR SPECIFIED ON THIS DRAWING, (A) HATCH DOES NOT ACCEPT AND DISCLAIMS ANY AND ALL LIABILITY OR RESPONSIBILITY ARISING FROM ANY USE OF OR RELIANCE ON THIS DRAWING BY ANY THIRD PARTY OR ANY MODIFICATION OR MISUSE OF THIS DRAWING BY CLIENT, AND (B) THIS DRAWING IS CONFIDENTIAL AND ALL INTELLECTUAL PROPERTY RIGHTS EMBODIED OR REFERENCED IN THIS DRAWING REMAIN THE PROPERTY OF HATCH.

| No. | DESCRIPTION | BY | CHK'D | DATE |
|---|---|---|---|---|
| 0 | APPROVED FOR CONSTRUCTION | PJ | EA | 2018-05-04 |

| ROLE | NAME | SIGNATURE & DATE |
|---|---|---|
| DRAFTSPERSON | P. JIVAEV | NR |
| DESIGNER | H. LI | NR |
| CHECKER | E. AKINCI | |
| DESIGN COORD. | S. PERKINS | |
| RESP. ENG. | E. AKINCI | |
| LEAD DISC. ENG. | E. AKINCI | |
| ENG. MANAGER | B. RUSTAD | |
| PROJ. MANAGER | B. RUSTAD | |

DRAWING APPROVAL STATUS: Approved for Construction

EAGLE GOLD PROJECT

SECONDARY CRUSHING
CRUSHER AND SCREEN SUPPORT FDN.
ELEVATED SLAB REINFORCEMENT - PLAN

| DRAWING No. | DRAWING TITLE | REG. PROFESSIONAL | REFERENCE DRAWINGS |
|---|---|---|---|

SCALE 1:50 OR AS NOTED | DWG. No. H354138-3320-231-260-0010 | REV 0

SHEET SIZE: D

$FILELS
PRINTED: 04-MAY-2018
idc_pwservice
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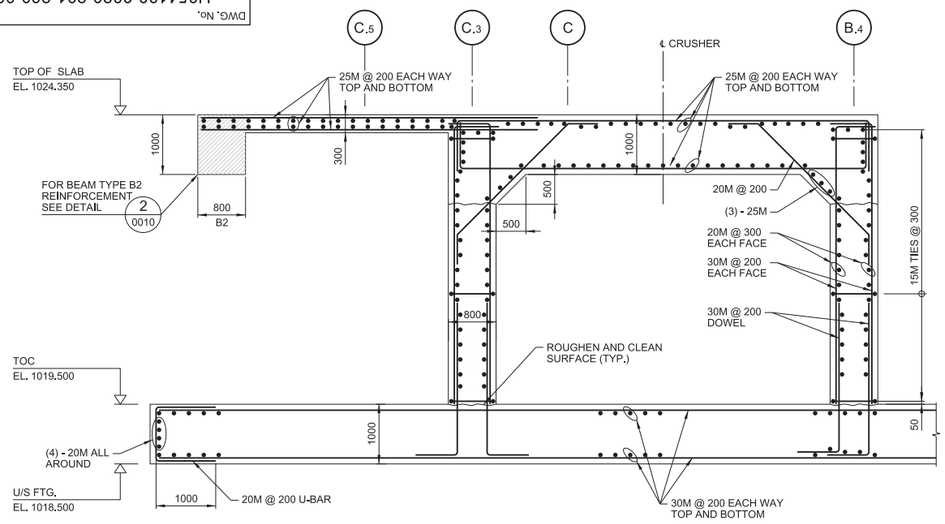
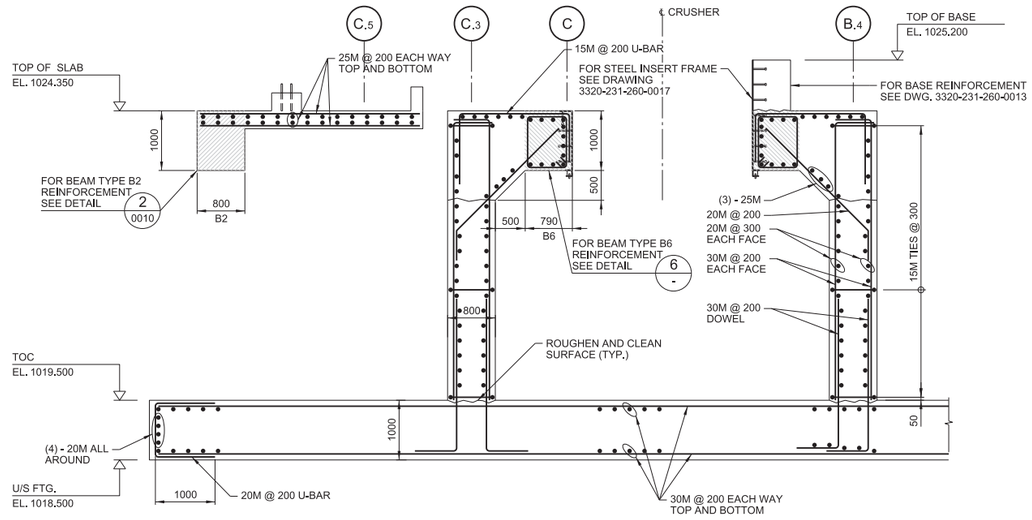
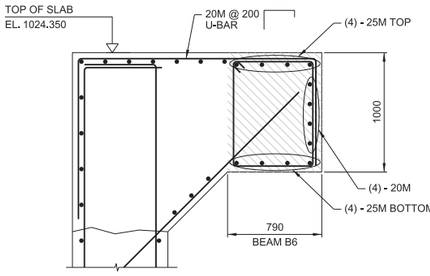
DWG. No. H354138-3320-231-260-0011



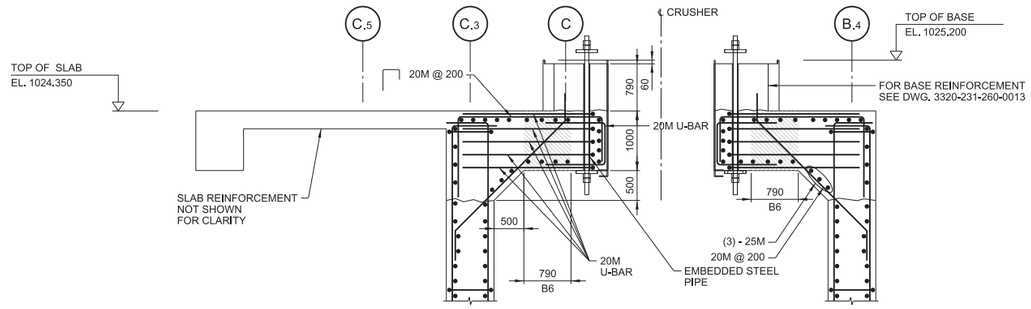

SECTION D D D D
TYPICAL FOR WALL AND SLAB
0007 0008 0009 0010



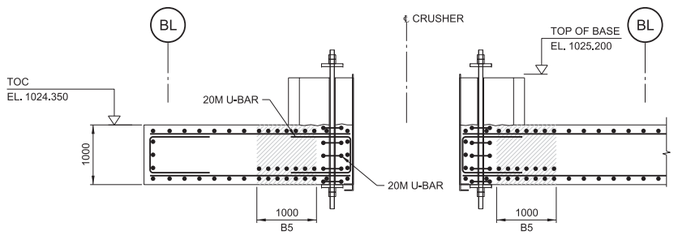

SECTION E E E E
TYPICAL FOR SLAB OPENING LOCATION
0007 0008 0009 0010




BEAM TYPE B6
REINFORCEMENT
DETAIL 6
SCALE: 1:25




SECTION G
TYPICAL FOR ANCHOR ROD LOCATION
0010

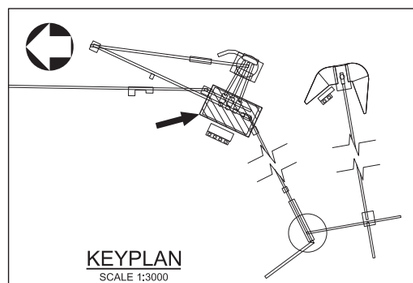



SECTION K
TYPICAL FOR ANCHOR ROD LOCATION
0010

NOTES:

1. FOR NOTES SEE DRAWING H354138-3320-231-260-0001.

0 500 1000 1500 2000 2500
1:50 SCALE IN MILLIMETRES



KEYPLAN
SCALE 1:3000

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| No. | DESCRIPTION | BY | CHK'D | DATE |
|---|---|---|---|---|
| 0 | APPROVED FOR CONSTRUCTION | PJ | EA | 2018-05-04 |

| ROLE | NAME | SIGNATURE & DATE |
|---|---|---|
| DRAFTSPERSON | P. JIVAEV | NR |
| DESIGNER | H. LI | NR |
| CHECKER | E. AKINCI | |
| DESIGN COORD. | S. PERKINS | |
| RESP. ENG. | E. AKINCI | |
| LEAD DISC. ENG. | E. AKINCI | |
| ENG. MANAGER | B. RUSTAD | |
| PROJ. MANAGER | B. RUSTAD | |

DRAWING APPROVAL STATUS: Approved for Construction

REFERENCE DRAWINGS | REG. PROFESSIONAL | REVISIONS

DRAWING No. | DRAWING TITLE

HATCH

StrataGold Corporation

EAGLE GOLD PROJECT

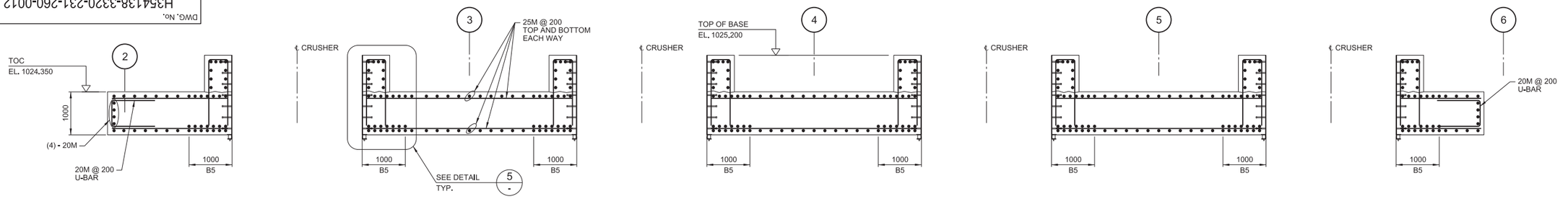
SECONDARY CRUSHING
CRUSHER AND SCREEN SUPPORT FDN.
REINFORCEMENT SECTIONS - SHEET 1

SCALE 1:50 OR AS NOTED | DWG. No. H354138-3320-231-260-0011 | REV 0

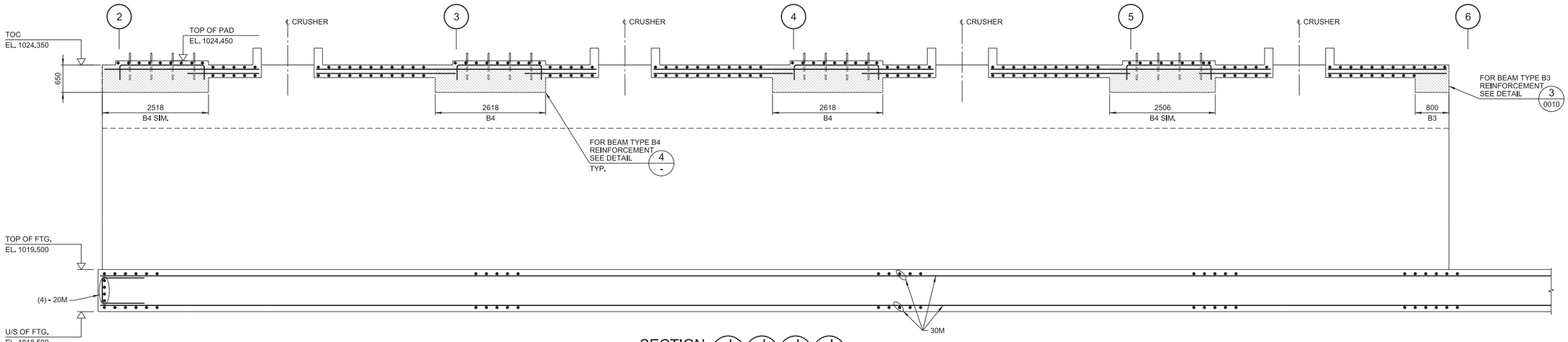
SHEET SIZE: D

$FILE$
PRINTED: 04-MAY-2018
kic_pwservice
14:08

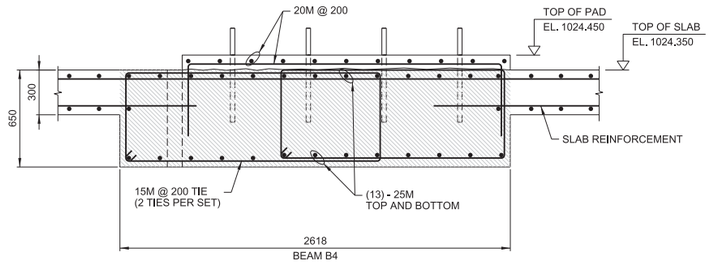
DWG. No. H354138-3320-231-260-0012



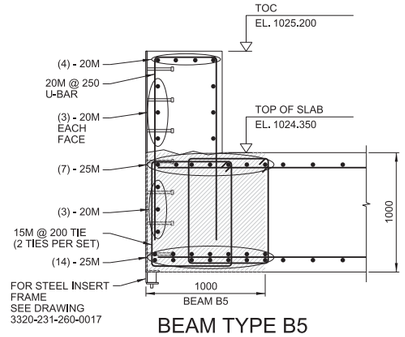

SECTION H 0009 H 0010




SECTION J 0007 J 0008 J 0009 J 0010




BEAM TYPE B4 REINFORCEMENT DETAIL 4 -
SCALE: 1:20




BEAM TYPE B5 REINFORCEMENT DETAIL 5 -
SCALE: 1:25

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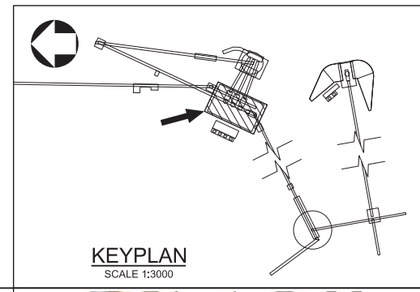
NOTES:

1. FOR NOTES SEE DRAWING H354138-3320-231-260-0001.



KEYPLAN
SCALE 1:3000

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| No. | DESCRIPTION | BY | CHK'D | DATE |
|---|---|---|---|---|
| 0 | APPROVED FOR CONSTRUCTION | PJ | EA | 2018-05-04 |

| ROLE | NAME | SIGNATURE & DATE |
|---|---|---|
| DRAFTSPERSON | P. JIVAEV | NR |
| DESIGNER | H. LI | NR |
| CHECKER | E. AKINCI | |
| DESIGN COORD. | S. PERKINS | |
| RESP. ENG. | E. AKINCI | |
| LEAD DISC. ENG. | E. AKINCI | |
| ENG. MANAGER | B. RUSTAD | |
| PROJ. MANAGER | B. RUSTAD | |

DRAWING APPROVAL STATUS: Approved for Construction

HATCH

StrataGold Corporation

EAGLE GOLD PROJECT

SECONDARY CRUSHING
CRUSHER AND SCREEN SUPPORT FDN.
REINFORCEMENT SECTIONS - SHEET 2

| DRAWING No. | DRAWING TITLE |
|---|---|
| REFERENCE DRAWINGS | |

REG. PROFESSIONAL

SCALE 1:50 OR AS NOTED

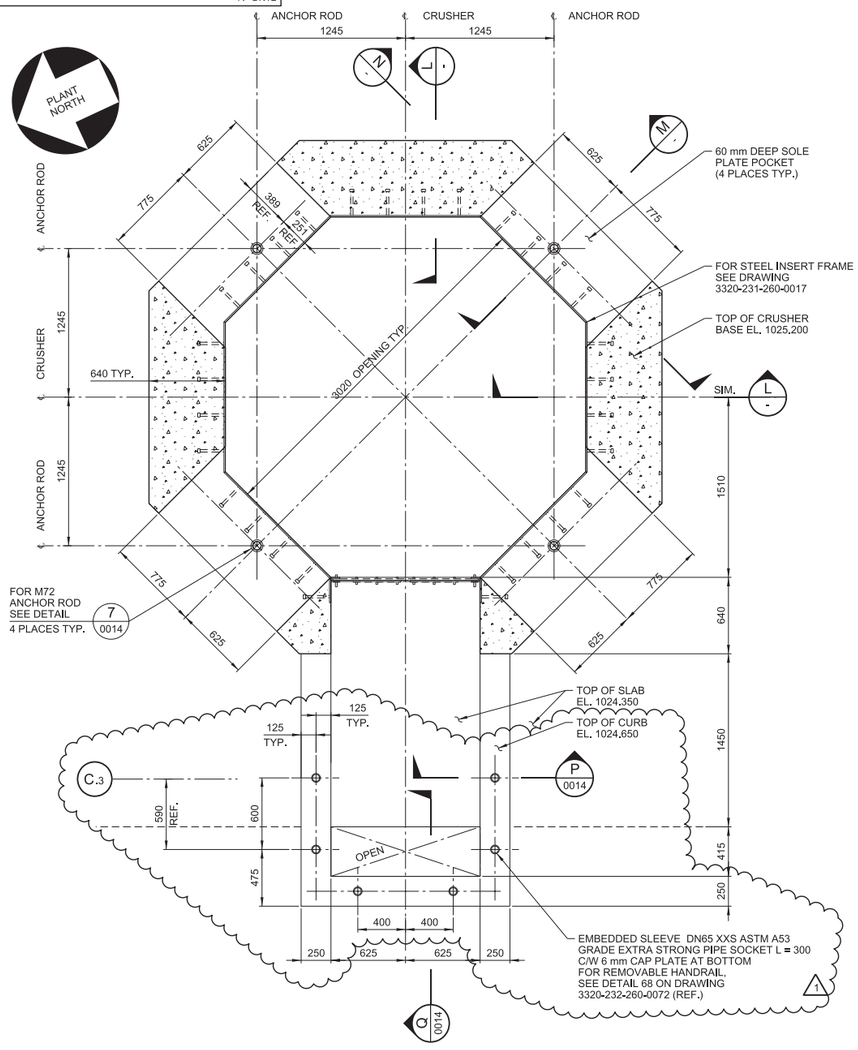
DWG. No. H354138-3320-231-260-0012

REV 0

SHEET SIZE: D

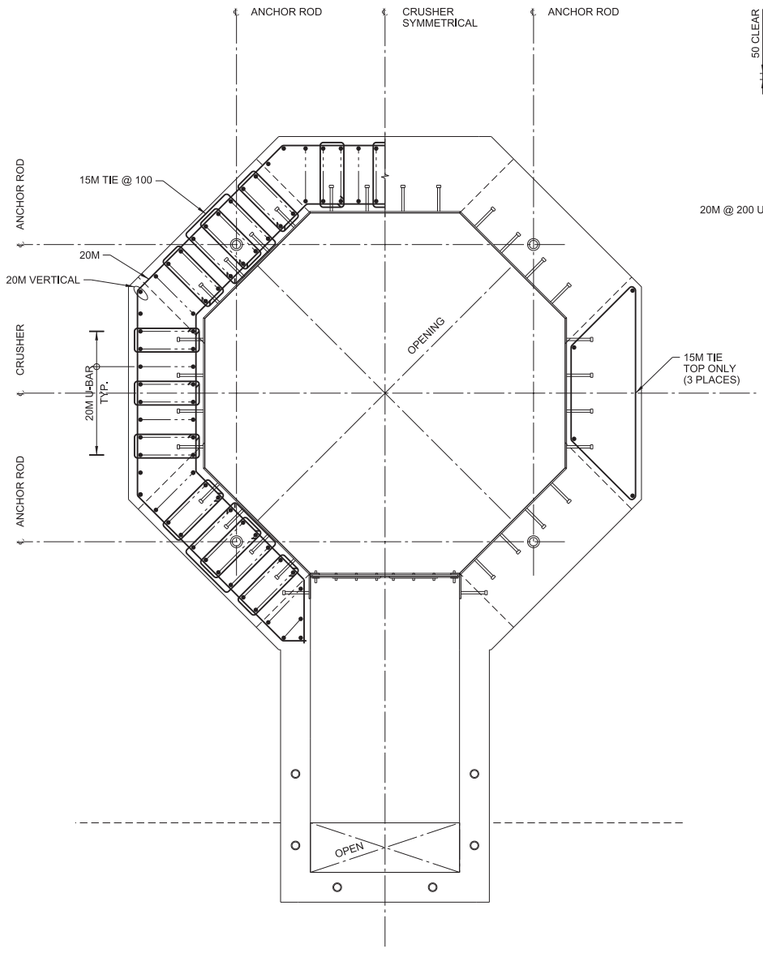
SFILELS
PRINTED: 04-MAY-2018
tdc_pwservice
14:03

DWG. No. H354138-3320-231-260-0013



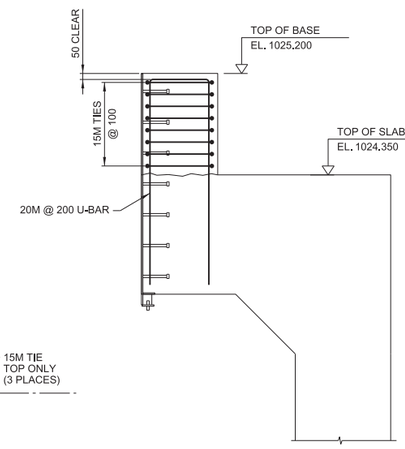

## CRUSHER BASE - PLAN

TOP OF BASE EL. 1025.200
TOP OF SLAB. EL. 1024.350

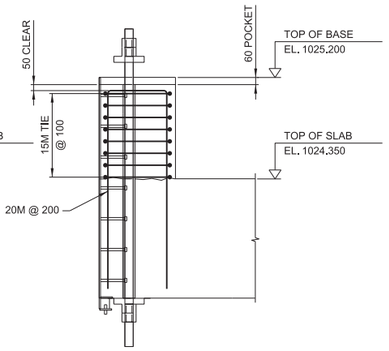



## CRUSHER BASE - REINFORCEMENT - PLAN

TOP OF BASE EL. 1025.200
TOP OF SLAB. EL. 1024.350

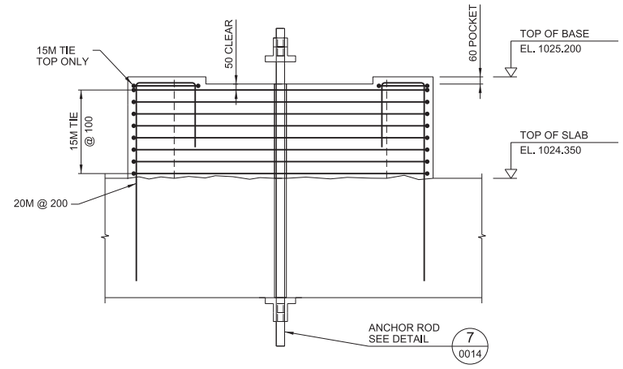



## SECTION M




## SECTION L

SCALE: 1:25




## SECTION N

NOTES:

1. FOR NOTES SEE DRAWING H354138-3320-231-260-0001.

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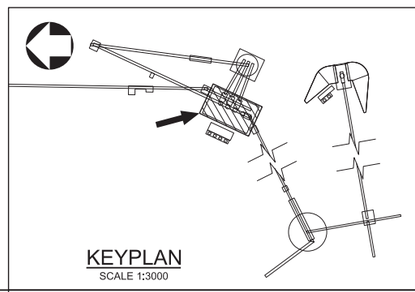
1:50 SCALE IN MILLIMETRES



KEYPLAN
SCALE 1:3000

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| No. | DESCRIPTION | BY | CHK'D | DATE |
|---|---|---|---|---|
| 1 | CURB ELEVATION AND THICKNESS REVISED, EMBEDDED SLEEVES ADDED | PJ | EA | 2018-08-09 |
| 0 | APPROVED FOR CONSTRUCTION | PJ | EA | 2018-05-04 |

| ROLE | NAME | SIGNATURE & DATE |
|---|---|---|
| DRAFTSPERSON | P. JIVAEV | NR |
| DESIGNER | H. LI | NR |
| CHECKER | E. AKINCI | |
| DESIGN COORD. | S. PERKINS | |
| RESP. ENG. | E. AKINCI | |
| LEAD DISC. ENG. | E. AKINCI | |
| ENG. MANAGER | B. RUSTAD | |
| PROJ. MANAGER | B. RUSTAD | |

DRAWING APPROVAL STATUS: Approved for Construction

HATCH

StrataGold Corporation

EAGLE GOLD PROJECT

SECONDARY CRUSHING
CRUSHER AND SCREEN SUPPORT FDN.
CRUSHER BASE REINFORCEMENT

| SCALE | DWG. No. | REV |
|---|---|---|
| 1:25 OR AS NOTED | H354138-3320-231-260-0013 | 1 |

SHEET SIZE: D

DRAWING No. | DRAWING TITLE
REFERENCE DRAWINGS
REG. PROFESSIONAL

SFILELS
PRINTED: 09-AUG-2018
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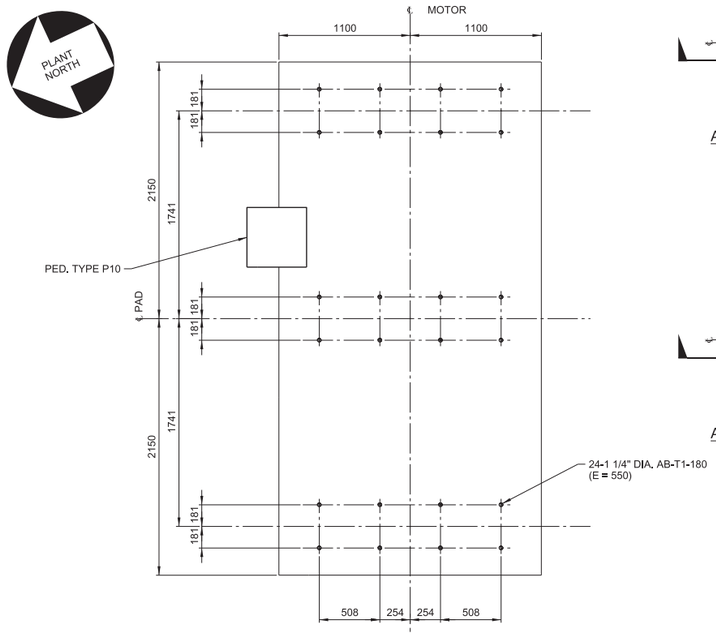
kdc_pwservice

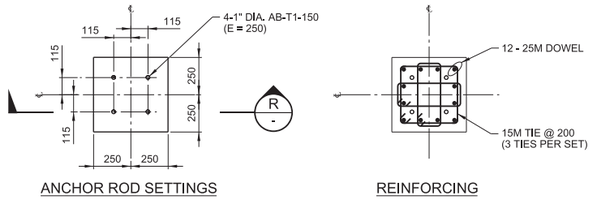
DWG. No. H354138-3320-231-260-0014




DETAIL 8 (SCALE: 1:25, 0009)

MOTOR ANCHOR ROD - PLAN

TOP OF PAD EL. 1024.450

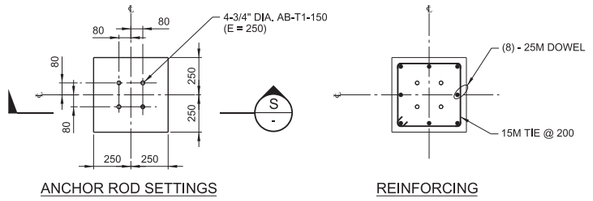



ANCHOR ROD SETTINGS REINFORCING

PEDESTAL TYPE P10

TOP OF PED EL. 1024.650

SCALE: 1:20

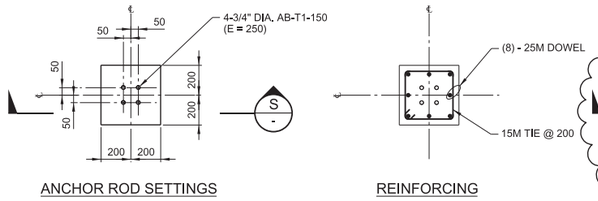



ANCHOR ROD SETTINGS REINFORCING

PEDESTAL TYPE P11

TOP OF PED EL. 1024.650

SCALE: 1:20

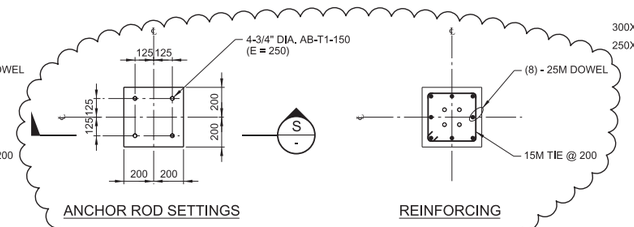



ANCHOR ROD SETTINGS REINFORCING

PEDESTAL TYPE P12

TOP OF PED EL. 1024.650

SCALE: 1:20

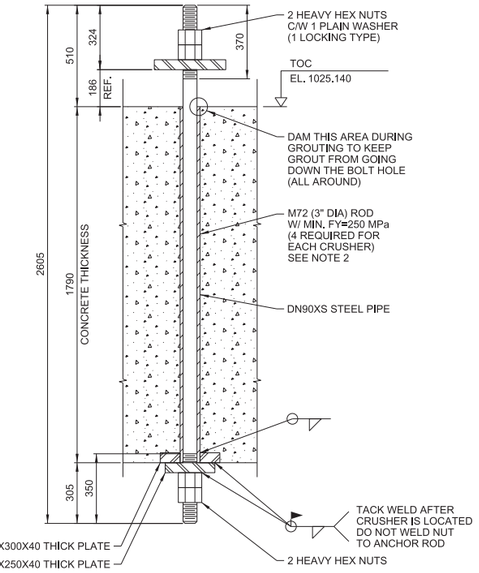



ANCHOR ROD SETTINGS REINFORCING

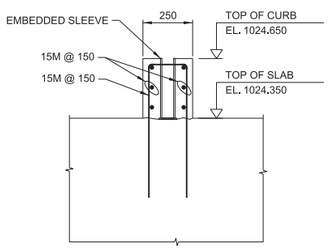
PEDESTAL TYPE P15

TOP OF PED EL. 1024.650

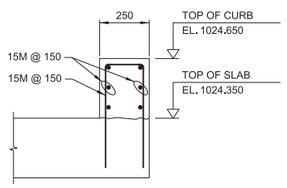
SCALE: 1:20



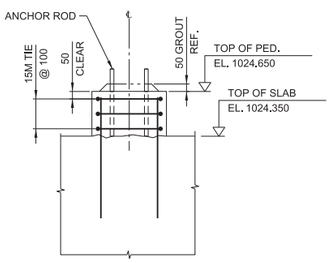

M72 ANCHOR ROD DETAIL 7 (SCALE: 1:15, 0013)



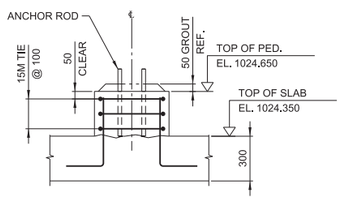

SECTION P (SCALE: 1:15, 0013)




SECTION Q (SCALE: 1:15, 0013)




SECTION R (SCALE: 1:20, -)



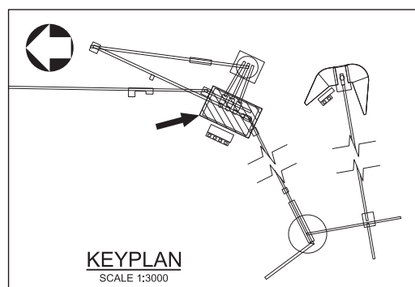

SECTION S (SCALE: 1:20, -)

0 250 500 750 1000 1250

1:25 SCALE IN MILLIMETRES

NOTES:

1. FOR NOTES SEE DRAWING H354138-3320-231-260-0001.
2. FOR ANCHOR ROD AND GROUT DETAILS SEE SECONDARY AND TERTIARY CRUSHER VENDOR'S INSTALLATION DRAWINGS.



KEYPLAN

SCALE 1:3000

| DRAWING No. | DRAWING TITLE |
|---|---|
| REFERENCE DRAWINGS | |

REG. PROFESSIONAL

| No. | DESCRIPTION | BY | CHK'D | DATE |
|---|---|---|---|---|
| 2 | PEDESTAL TYPE P15 ADDED | PJ | EA | 2018-10-18 |
| 1 | SECTIONS 'P' AND 'Q' REVISED | PJ | EA | 2018-08-09 |
| 0 | APPROVED FOR CONSTRUCTION | PJ | EA | 2018-05-04 |

REVISIONS

THIS DRAWING WAS PREPARED FOR THE EXCLUSIVE USE OF STRATA GOLD ("CLIENT") AND IS ISSUED PURSUANT TO H354138 BETWEEN CLIENT AND HATCH LTD. ("HATCH"). UNLESS OTHERWISE AGREED IN WRITING WITH CLIENT OR SPECIFIED ON THIS DRAWING, (A) HATCH DOES NOT ACCEPT AND DISCLAIMS ANY AND ALL LIABILITY OR RESPONSIBILITY ARISING FROM ANY USE OF OR RELIANCE ON THIS DRAWING BY ANY THIRD PARTY OR ANY MODIFICATION OR MISUSE OF THIS DRAWING BY CLIENT, AND (B) THIS DRAWING IS CONFIDENTIAL AND ALL INTELLECTUAL PROPERTY RIGHTS EMBODIED OR REFERENCED IN THIS DRAWING REMAIN THE PROPERTY OF HATCH.

| ROLE | NAME | SIGNATURE & DATE |
|---|---|---|
| DRAFTSPERSON | P. JIVAEV | NR |
| DESIGNER | H. LI | NR |
| CHECKER | E. AKINCI | |
| DESIGN COORD. | S. PERKINS | |
| RESP. ENG. | E. AKINCI | |
| LEAD DISC. ENG. | E. AKINCI | |
| ENG. MANAGER | B. RUSTAD | |
| PROJ. MANAGER | B. RUSTAD | |

DRAWING APPROVAL STATUS: Approved for Construction

HATCH

StrataGold Corporation

EAGLE GOLD PROJECT

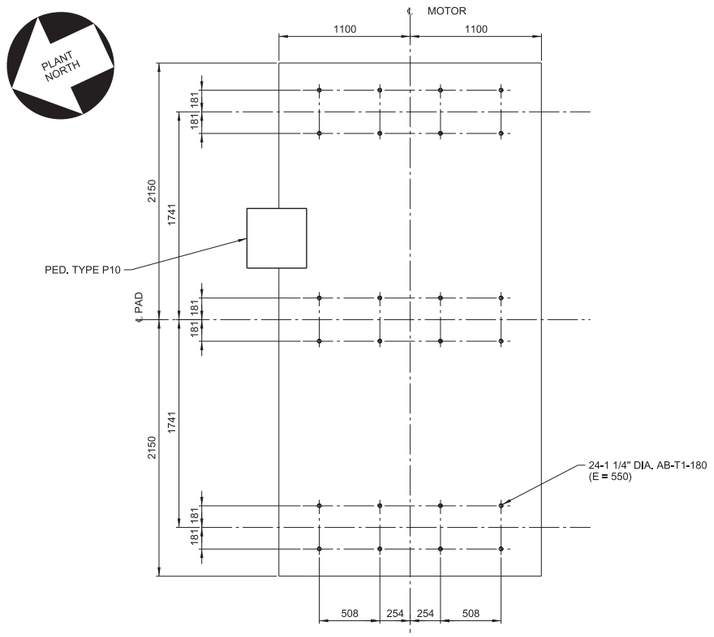
SECONDARY CRUSHING
CRUSHER AND SCREEN SUPPORT FDN.
DETAILS - SHEET 1

| SCALE | DWG. No. | REV |
|---|---|---|
| 1:25 OR AS NOTED | H354138-3320-231-260-0014 | 2 |

SHEET SIZE: D

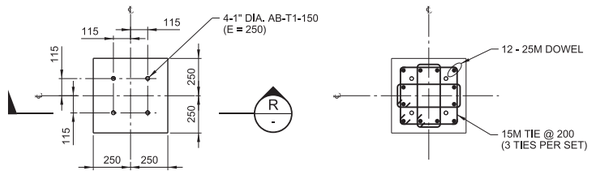
SFILELS
PRINTED: 18-OCT-2018
17:55
ltdc_pwservice

DWG. No. H354138-3320-231-260-0014



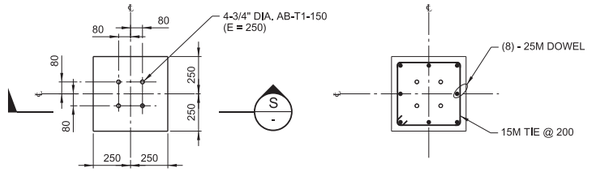

DETAIL 8
SCALE: 1:25 (0009)

## MOTOR ANCHOR ROD - PLAN
TOP OF PAD EL. 1024.450



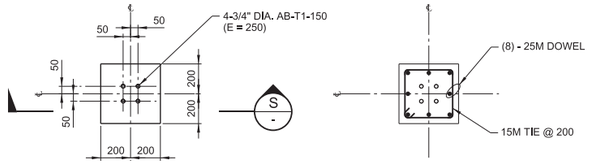

ANCHOR ROD SETTINGS REINFORCING

## PEDESTAL TYPE P10
TOP OF PED EL. 1024.650
SCALE: 1:20



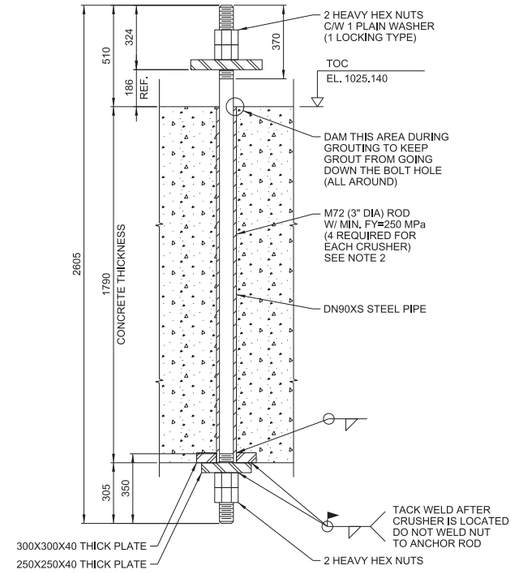

ANCHOR ROD SETTINGS REINFORCING

## PEDESTAL TYPE P11
TOP OF PED EL. 1024.650
SCALE: 1:20



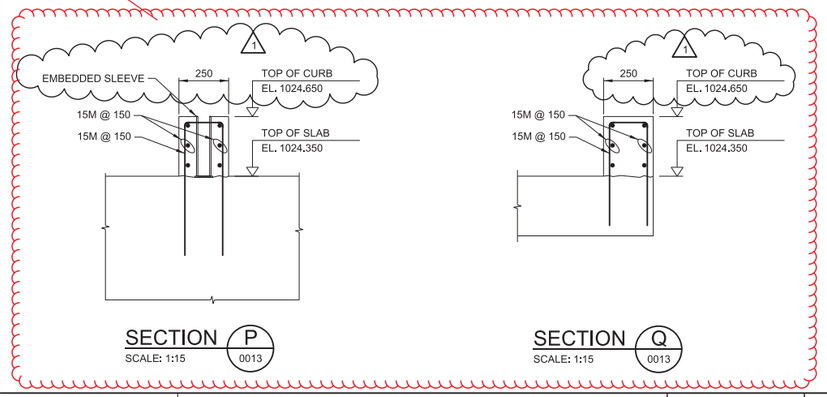

ANCHOR ROD SETTINGS REINFORCING

## PEDESTAL TYPE P12
TOP OF PED EL. 1024.650
SCALE: 1:20



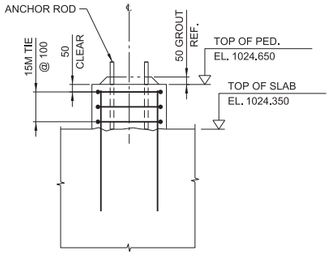

## M72 ANCHOR ROD DETAIL
SCALE: 1:15 (0013)

RFI 32

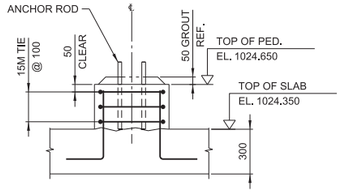



SECTION P
SCALE: 1:15 (0013)

SECTION Q
SCALE: 1:15 (0013)

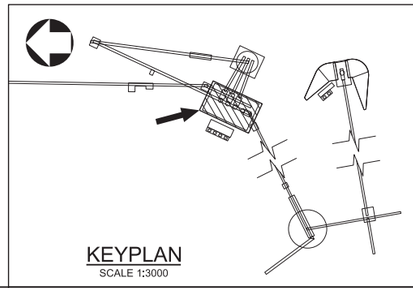



SECTION R
SCALE: 1:20 (-)




SECTION S
SCALE: 1:20 (-)

NOTES:
1. FOR NOTES SEE DRAWING H354138-3320-231-260-0001.
2. FOR ANCHOR ROD AND GROUT DETAILS SEE SECONDARY AND TERTIARY CRUSHER VENDOR'S INSTALLATION DRAWINGS.



KEYPLAN
SCALE 1:3000

0 250 500 750 1000 1250
1:25 SCALE IN MILLIMETRES

| DRAWING No. | DRAWING TITLE |
|---|---|
| REFERENCE DRAWINGS | |

REG. PROFESSIONAL

| No. | DESCRIPTION | BY | CHK'D | DATE |
|---|---|---|---|---|
| 1 | SECTIONS 'P' AND 'Q' REVISED | PJ | EA | 2018-08-09 |
| 0 | APPROVED FOR CONSTRUCTION | PJ | EA | 2018-05-04 |

REVISIONS

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HATCH

| ROLE | NAME | SIGNATURE & DATE |
|---|---|---|
| DRAFTSPERSON | P. JIVAEV | NR |
| DESIGNER | H. LI | NR |
| CHECKER | E. AKINCI | |
| DESIGN COORD. | S. PERKINS | |
| RESP. ENG. | E. AKINCI | |
| LEAD DISC. ENG. | E. AKINCI | |
| ENG. MANAGER | B. RUSTAD | |
| PROJ. MANAGER | B. RUSTAD | |

DRAWING APPROVAL STATUS: Approved for Construction

StrataGold Corporation

EAGLE GOLD PROJECT

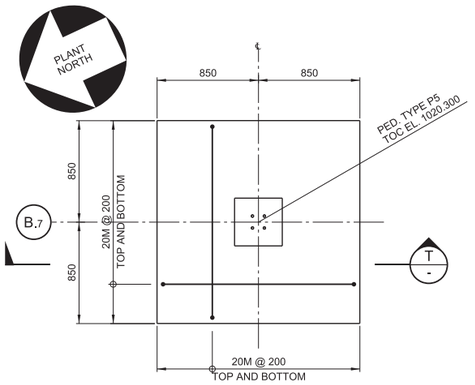
SECONDARY CRUSHING
CRUSHER AND SCREEN SUPPORT FDN.
DETAILS - SHEET 1

| SCALE | DWG. No. | REV |
|---|---|---|
| 1:25 OR AS NOTED | H354138-3320-231-260-0014 | 1 |

SHEET SIZE: D

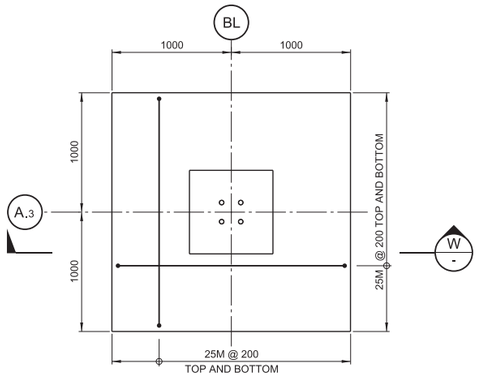
$FILE$
PRINTED: 09-AUG-2018
19:11
idc_pwservice

DWG. No. H354138-3320-231-260-0015



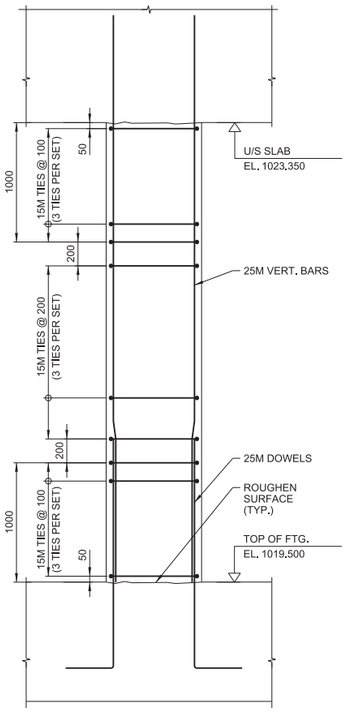

## FOOTING TYPE F5 - PLAN

TOP OF FTG. EL. 1019.100 (TYP.)
U/S FTG EL. 1018.500 (TYP.)



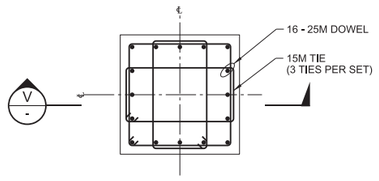

## FOOTING TYPE F6 - PLAN

TOP OF PED. EL. 1020.300
U/S FTG EL. 1018.500



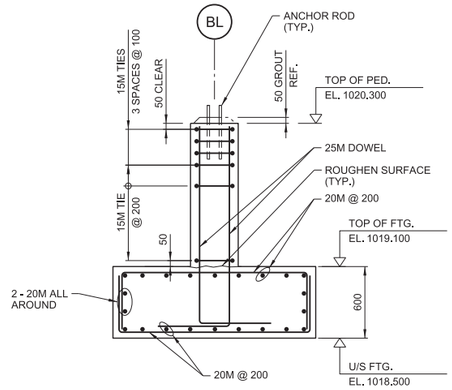

## SECTION V

SCALE 1:25



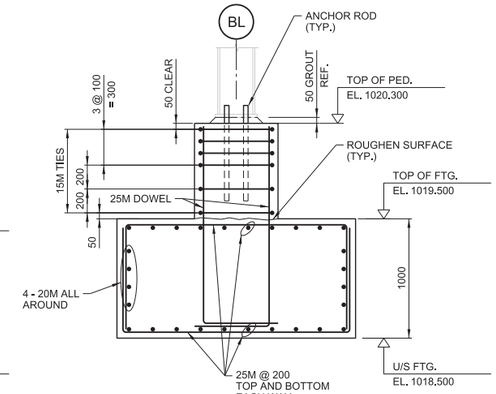

## COLUMN TYPE C1 REINFORCEMENT DETAIL

SCALE: 1:20 — 1 / 0005 — 1 / 0008



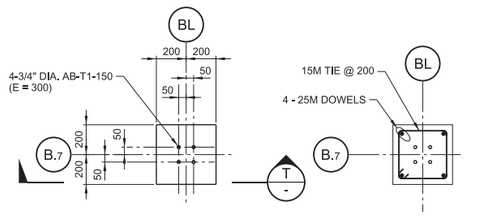

## SECTION T

SCALE: 1:25




## SECTION W

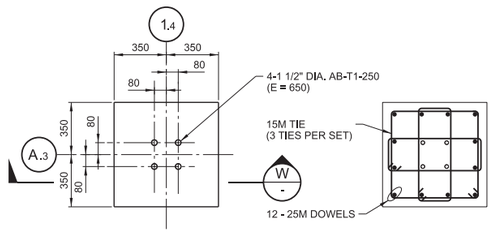
SCALE: 1:25




ANCHOR BOLT SETTINGS — REINFORCING

## PEDESTAL TYPE P5

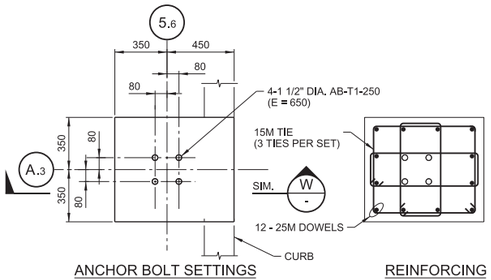
SCALE: 1:20




ANCHOR BOLT SETTINGS — REINFORCING

## PEDESTAL TYPE P6

SCALE: 1:20




ANCHOR BOLT SETTINGS — REINFORCING

## PEDESTAL TYPE P6A

SCALE: 1:20

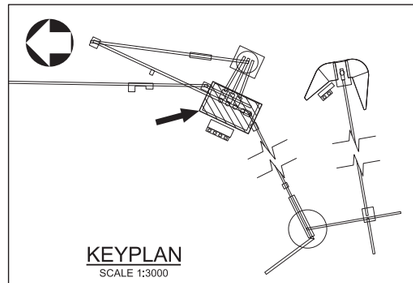
0 100 200 300 400 500
1:10 SCALE IN MILLIMETRES

0 200 400 600 800 1000
1:20 SCALE IN MILLIMETRES

0 250 500 750 1000 1250
1:25 SCALE IN MILLIMETRES

NOTES:

1. FOR NOTES SEE DRAWING H354138-3320-231-260-0001.



## KEYPLAN

SCALE 1:3000

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| No. | DESCRIPTION | BY | CHK'D | DATE |
|---|---|---|---|---|
| 2 | SECTIONS 'X', 'Y', 'Z' AND DETAIL 11 MOVED TO DRAWING 3320-231-260-0018 | PJ | EA | 2018-08-15 |
| 1 | FOOTING TYPE F6, SECTION W, PEDESTAL TYPE P6 AND P6A ADDED | PJ | EA | 2018-08-28 |
| 0 | APPROVED FOR CONSTRUCTION | PJ | EA | 2018-05-04 |

REVISIONS

| ROLE | NAME | SIGNATURE & DATE |
|---|---|---|
| DRAFTSPERSON | P. JIVAEV | NR |
| DESIGNER | H. LI | NR |
| CHECKER | E. AKINCI | |
| DESIGN COORD. | S. PERKINS | |
| RESP. ENG. | E. AKINCI | |
| LEAD DISC. ENG. | E. AKINCI | |
| ENG. MANAGER | B. RUSTAD | |
| PROJ. MANAGER | B. RUSTAD | |

DRAWING APPROVAL STATUS: Approved for Construction

DRAWING No. | DRAWING TITLE

REFERENCE DRAWINGS

REG. PROFESSIONAL

HATCH

StrataGold Corporation

EAGLE GOLD PROJECT

SECONDARY CRUSHING
CRUSHER AND SCREEN SUPPORT FDN.
DETAILS - SHEET 2

SCALE 1:25 OR AS NOTED

DWG. No. H354138-3320-231-260-0015

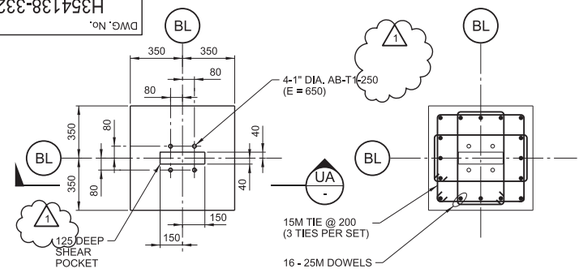
REV 2

SHEET SIZE: D

$FILE$
PRINTED: 15-AUG-2018
idc_pwservice
13:15

DWG. No. H354138-3320-231-260-0016



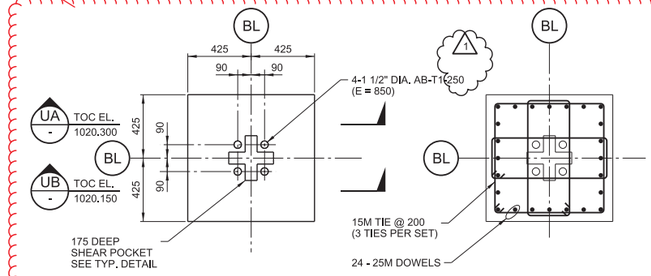




ANCHOR BOLT SETTINGS REINFORCING

## PEDESTAL TYPE P1

TOP OF PED. EL. 1020.300
SCALE: 1:20

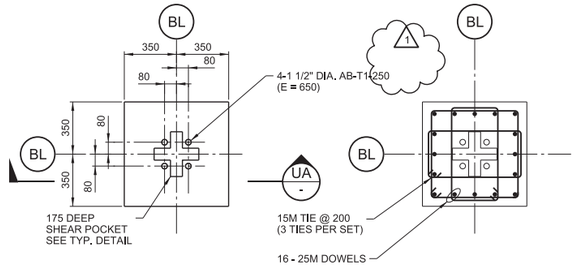
RFI 49




ANCHOR BOLT SETTINGS REINFORCING

## PEDESTAL TYPE P2

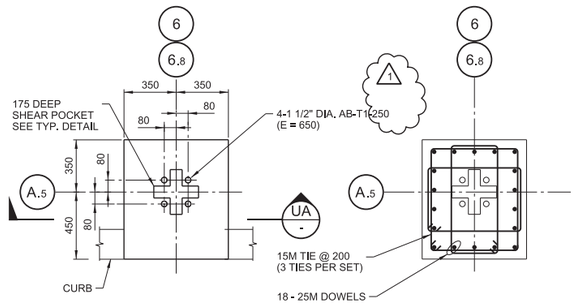
TOP OF PED EL. VARIES - SEE PLAN
SCALE: 1:20




ANCHOR BOLT SETTINGS REINFORCING

## PEDESTAL TYPE P3

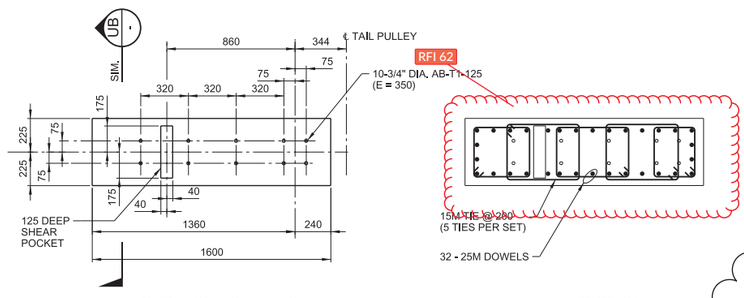
TOP OF PED EL. 1020.300
SCALE: 1:20




ANCHOR BOLT SETTINGS REINFORCING

## PEDESTAL TYPE P4

TOP OF PED. EL. 1020.300
SCALE: 1:20



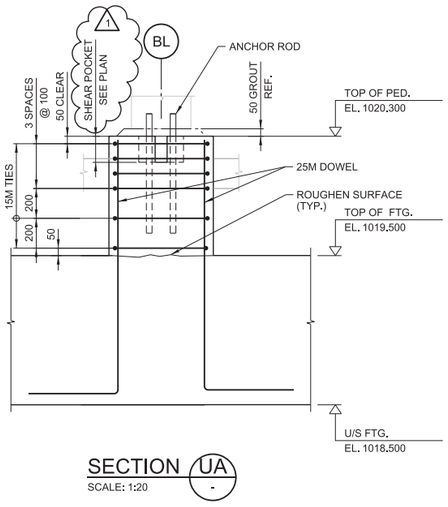

ANCHOR BOLT SETTINGS




REINFORCING

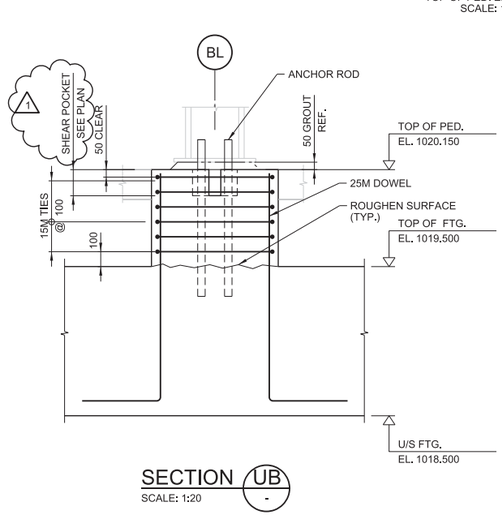
## PEDESTAL TYPE P7

TOP OF PED. EL. 1020.150
SCALE: 1:20



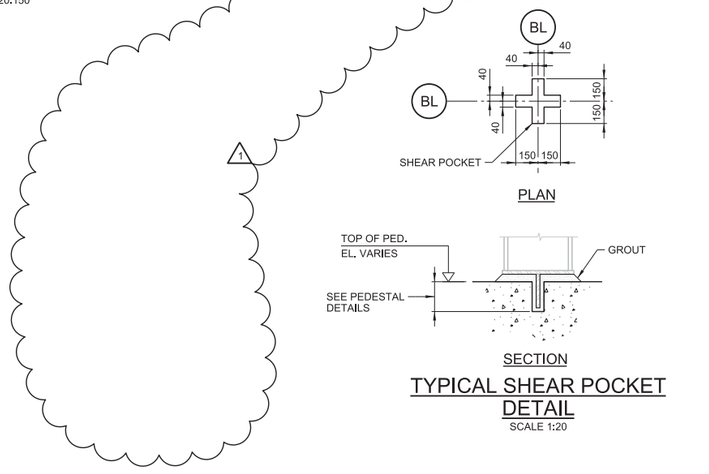

## SECTION UA

SCALE: 1:20




## SECTION UB

SCALE: 1:20




PLAN




SECTION

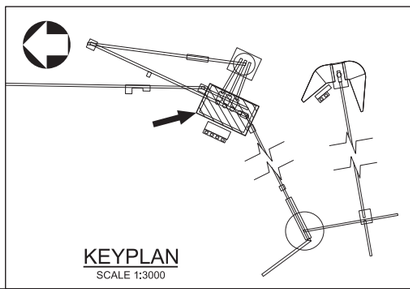
## TYPICAL SHEAR POCKET DETAIL

SCALE 1:20

0 200 400 600 800 1000
1:20 SCALE IN MILLIMETRES

NOTES:

1. FOR NOTES SEE DRAWING H354138-3320-231-260-0001.



KEYPLAN
SCALE 1:3000

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| No. | DESCRIPTION | BY | CHK'D | DATE |
|---|---|---|---|---|
| 1 | ANCHOR BOLT PROJECTION AND SHEAR POCKET DEPTH REVISED. PEDESTAL TYPE P8 AND SECTION U REMOVED | PJ | EA | 2018-05-28 |
| 0 | APPROVED FOR CONSTRUCTION | PJ | EA | 2018-05-04 |

REVISIONS

| DRAWING No. | DRAWING TITLE |
|---|---|

REFERENCE DRAWINGS

REG. PROFESSIONAL

| ROLE | NAME | SIGNATURE & DATE |
|---|---|---|
| DRAFTSPERSON | P. JIVAEV | NR |
| DESIGNER | H. LI | NR |
| CHECKER | E. AKINCI | |
| DESIGN COORD. | S. PERKINS | |
| RESP. ENG. | E. AKINCI | |
| LEAD DISC. ENG. | E. AKINCI | |
| ENG. MANAGER | B. RUSTAD | |
| PROJ. MANAGER | B. RUSTAD | |

DRAWING APPROVAL STATUS: Approved for Construction

HATCH

StrataGold Corporation

EAGLE GOLD PROJECT

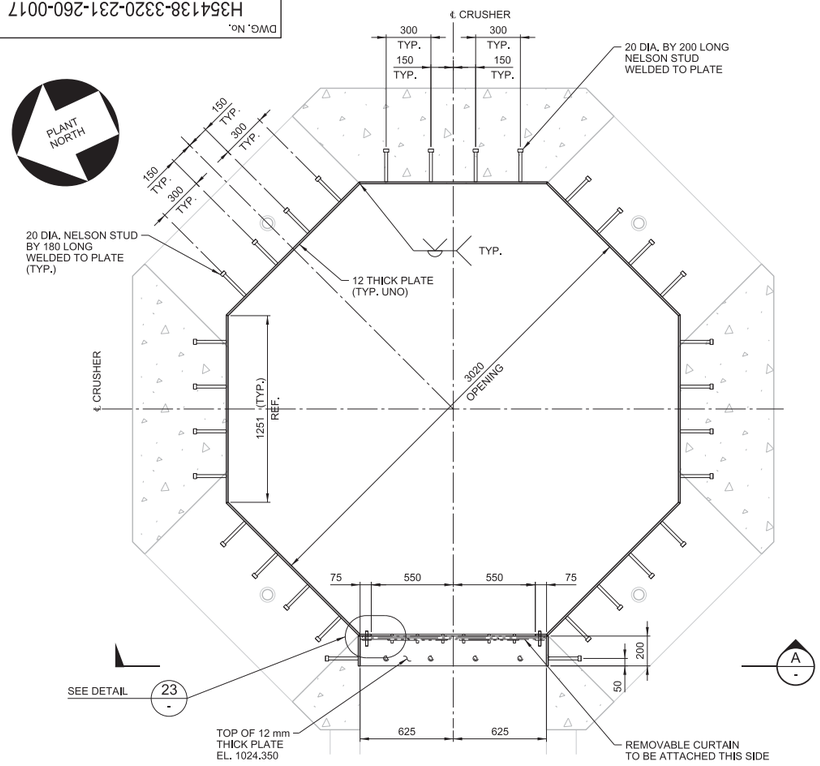
SECONDARY CRUSHING
CRUSHER AND SCREEN SUPPORT FDN.
DETAILS - SHEET 3

| SCALE | DWG. No. | REV |
|---|---|---|
| 1:20 OR AS NOTED | H354138-3320-231-260-0016 | 1 |

SHEET SIZE: D

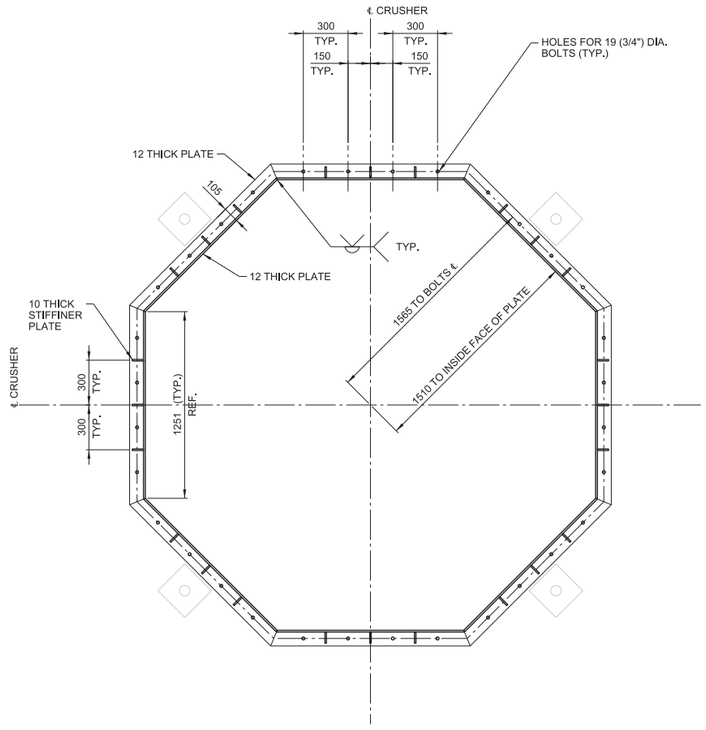
11:29
F
SFILE\$
PRINTED: 28-MAY-2018
tdc_pwservice

DWG. No. H354138-3320-231-260-0017

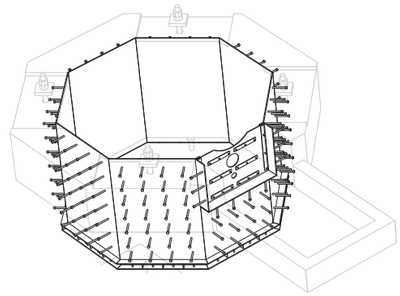



## STEEL INSERT FRAME - PLAN

TOP ONLY

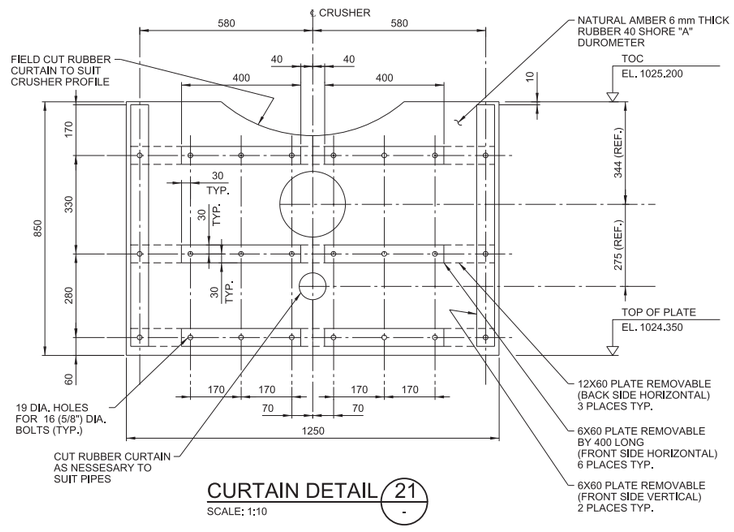



## STEEL INSERT FRAME - BOTTOM FLANGE - PLAN



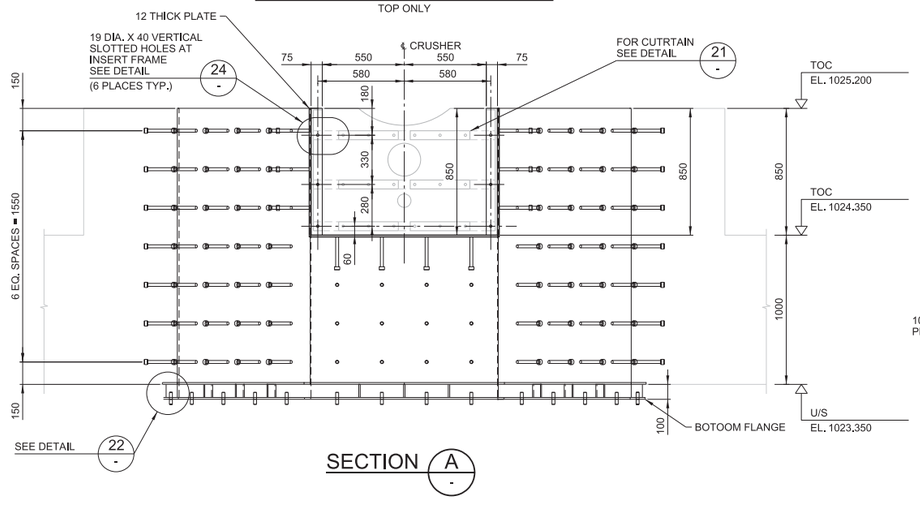
## ISOMETRIC VIEW

NTS

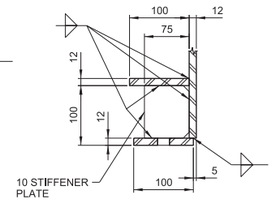



## CURTAIN DETAIL 21 -

SCALE: 1:10



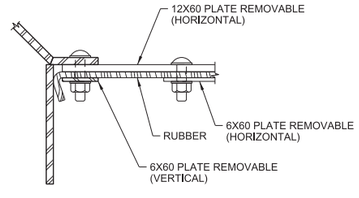

## SECTION A -




10 STIFFENER PLATE

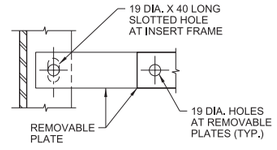
## DETAIL 22 -

SCALE: 1:5




## DETAIL 23 -

SCALE: 1:5




## DETAIL 24 -

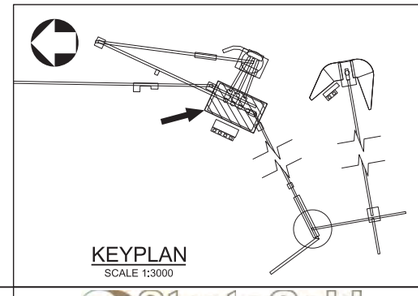
SCALE: 1:5

0 200 400 600 800 1000

1:20 SCALE IN MILLIMETRES

NOTES:

1. FOR NOTES SEE DRAWING H354138-3320-231-260-0001.



## KEYPLAN

SCALE 1:3000

THIS DRAWING WAS PREPARED FOR THE EXCLUSIVE USE OF STRATA GOLD ("CLIENT") AND IS ISSUED PURSUANT TO H354138 BETWEEN CLIENT AND HATCH LTD. ("HATCH"). UNLESS OTHERWISE AGREED IN WRITING WITH CLIENT OR SPECIFIED ON THIS DRAWING, (A) HATCH DOES NOT ACCEPT AND DISCLAIMS ANY AND ALL LIABILITY OR RESPONSIBILITY ARISING FROM ANY USE OF OR RELIANCE ON THIS DRAWING BY ANY THIRD PARTY OR ANY MODIFICATION OR MISUSE OF THIS DRAWING BY CLIENT, AND (B) THIS DRAWING IS CONFIDENTIAL AND ALL INTELLECTUAL PROPERTY RIGHTS EMBODIED OR REFERENCED IN THIS DRAWING REMAIN THE PROPERTY OF HATCH.

| No. | DESCRIPTION | BY | CHK'D | DATE |
|---|---|---|---|---|
| 0 | APPROVED FOR CONSTRUCTION | PJ | EA | 2018-05-04 |

| ROLE | NAME | SIGNATURE & DATE |
|---|---|---|
| DRAFTSPERSON | P. JIVAEV | NR |
| DESIGNER | H. LI | NR |
| CHECKER | E. AKINCI | |
| DESIGN COORD. | S. PERKINS | |
| RESP. ENG. | E. AKINCI | |
| LEAD DISC. ENG. | E. AKINCI | |
| ENG. MANAGER | B. RUSTAD | |
| PROJ. MANAGER | B. RUSTAD | |

DRAWING APPROVAL STATUS: Approved for Construction

DRAWING No. | DRAWING TITLE

REFERENCE DRAWINGS

REG. PROFESSIONAL

REVISIONS

HATCH

StrataGold Corporation

EAGLE GOLD PROJECT

SECONDARY CRUSHING
CRUSHER AND SCREEN SUPPORT FDN.
STEEL INSERT FRAME

SCALE 1:20 OR AS NOTED

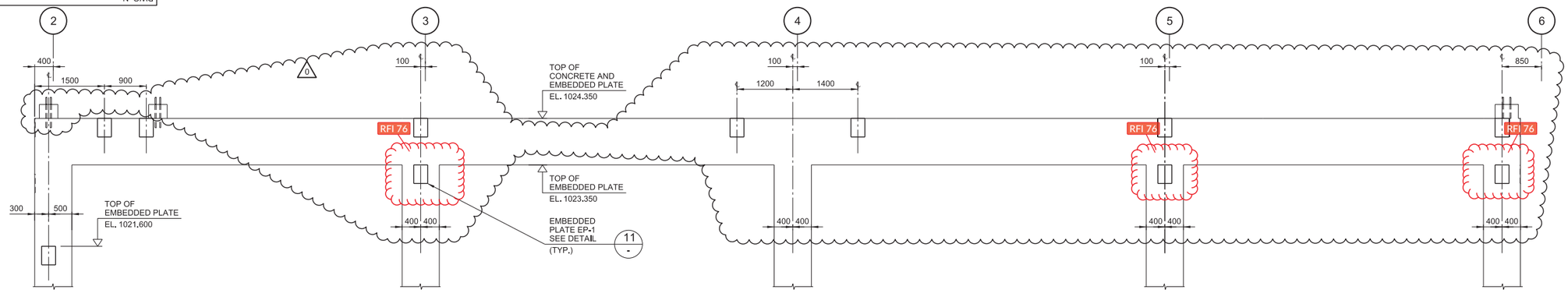
DWG. No. H354138-3320-231-260-0017

REV 0

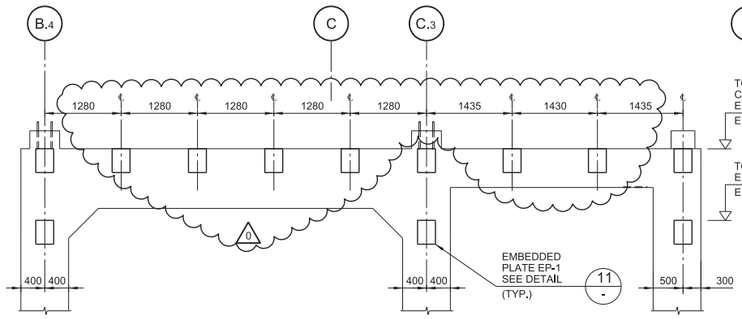
SHEET SIZE: D

$FILELS
PRINTED: 04-MAY-2018
14:36
idc_pwservice

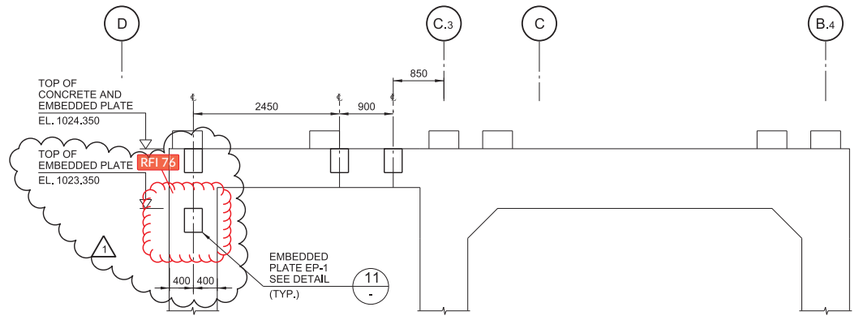
DWG. No. H354138-3320-231-260-0018



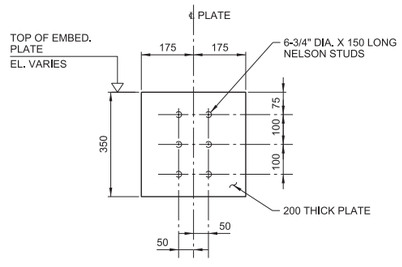

SECTION X 0009




SECTION Y 0009




SECTION Z 0009

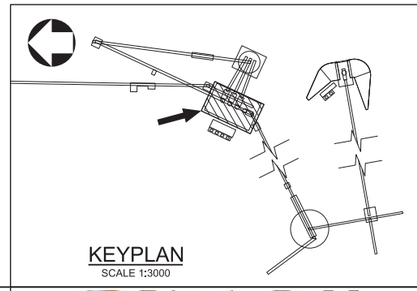



EMBEDDED PLATE EP-1

DETAIL 11 - / 11 0009
SCALE 1:10

NOTES:

1. FOR NOTES SEE DRAWING H354138-3320-231-260-0001.



KEYPLAN
SCALE 1:3000

0 100 200 300 400 500
1:10 SCALE IN MILLIMETRES

0 500 1000 1500 2000 2500
1:50 SCALE IN MILLIMETRES

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| No. | DESCRIPTION | BY | CHK'D | DATE |
|---|---|---|---|---|
| 0 | APPROVED FOR CONSTRUCTION. EMBEDDED PLATE ADDED | PJ | EA | 2018-08-15 |

| ROLE | NAME | SIGNATURE & DATE |
|---|---|---|
| DRAFTSPERSON | P. JIVAEV | NR 2018-08-10 |
| DESIGNER | H. LI | NR 2018-08-10 |
| CHECKER | E. AKINCI | |
| DESIGN COORD. | S. PERKINS | |
| RESP. ENG. | E. AKINCI | |
| LEAD DISC. ENG. | E. AKINCI | |
| ENG. MANAGER | B. RUSTAD | |
| PROJ. MANAGER | B. RUSTAD | |

DRAWING APPROVAL STATUS: Approved for Construction

HATCH

StrataGold Corporation

EAGLE GOLD PROJECT

SECONDARY CRUSHING
CRUSHER AND SCREEN SUPPORT FDN.
DETAILS - SHEET 4

| SCALE | DWG. No. | REV |
|---|---|---|
| 1:50 OR AS NOTED | H354138-3320-231-260-0018 | 0 |

SHEET SIZE: D

REFERENCE DRAWINGS | DRAWING No. | DRAWING TITLE

REG. PROFESSIONAL

REVISIONS

$FILE$
PRINTED: 15-AUG-2018
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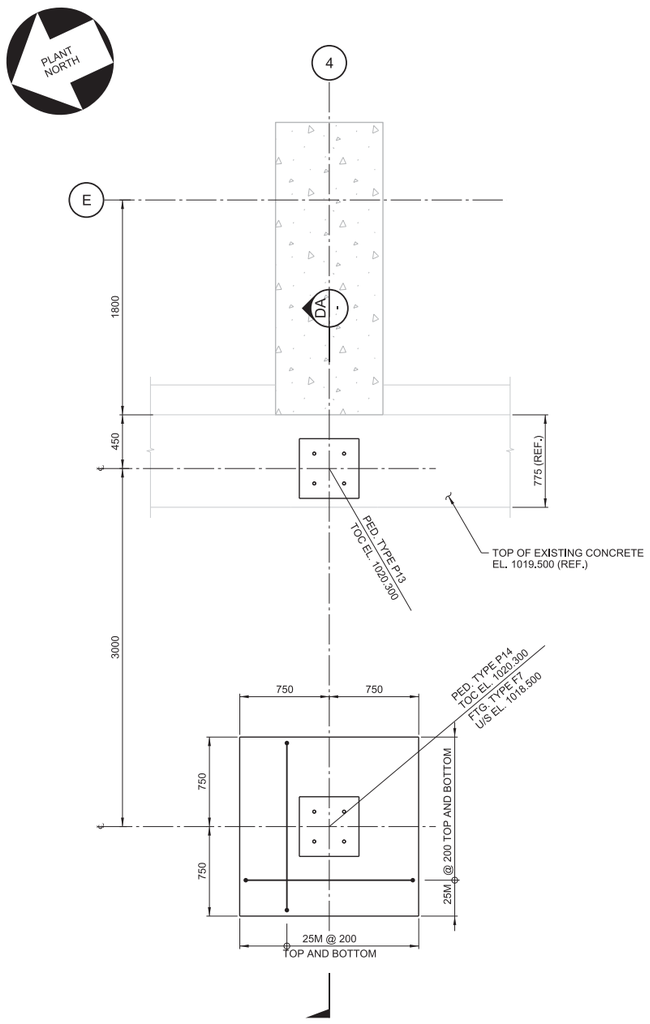
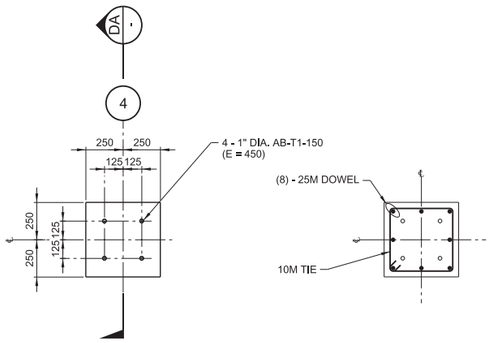
13:16

DWG. No. H354138-3320-231-260-0019




## CABLE TRAY SUPPORT FOUNDATION - PLAN

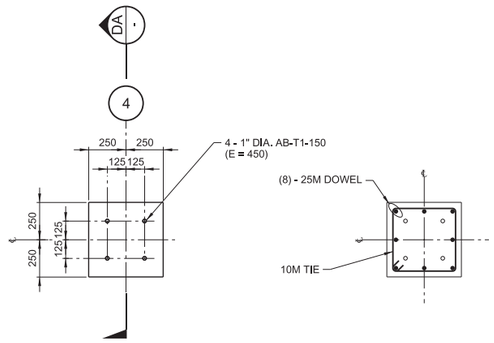
FIN. GRADE EL. 1020.000 (REF.)




ANCHOR ROD SETTING REINFORCEMENT

## PEDESTAL TYPE P13

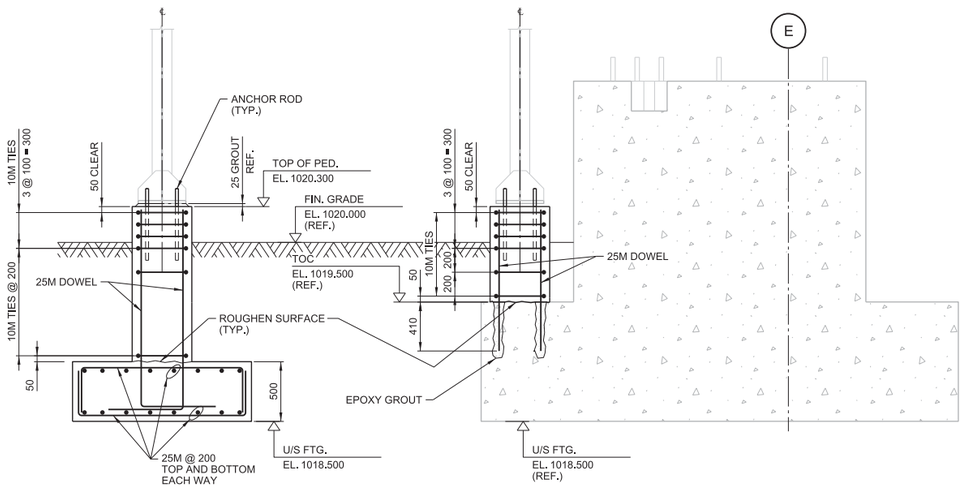
SCALE: 1:20




ANCHOR ROD SETTING REINFORCEMENT

## PEDESTAL TYPE P14

SCALE: 1:20

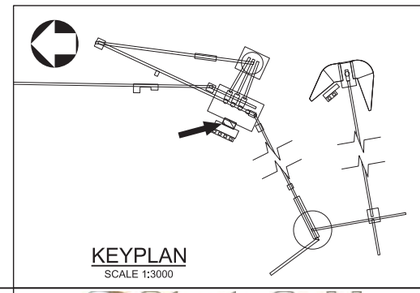



## SECTION DA

SCALE: 1:25

NOTES:

1. FOR NOTES SEE DRAWING H354138-3320-231-260-0001.



KEYPLAN

SCALE 1:3000

0 200 400 600 800 1000
1:20 SCALE IN MILLIMETRES

0 250 500 750 1000 1250
1:25 SCALE IN MILLIMETRES

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| No. | DESCRIPTION | BY | CHK'D | DATE |
|---|---|---|---|---|
| 0 | APPROVED FOR CONSTRUCTION | PJ | EA | 2018-10-18 |

| ROLE | NAME | SIGNATURE & DATE |
|---|---|---|
| DRAFTSPERSON | P. JIVAEV | NR 2018-10-18 |
| DESIGNER | F. LIU | NR 2018-10-18 |
| CHECKER | E. AKINCI | |
| DESIGN COORD. | S. PERKINS | |
| RESP. ENG. | E. AKINCI | |
| LEAD DISC. ENG. | E. AKINCI | |
| ENG. MANAGER | B. RUSTAD | |
| PROJ. MANAGER | B. RUSTAD | |

DRAWING APPROVAL STATUS: Approved for Construction

HATCH

StrataGold Corporation

EAGLE GOLD PROJECT

SECONDARY CRUSHING
CABLE TRAY SUPPORT FOUNDATION
PLAN, SECTIONS AND DETAILS

SCALE 1:25 OR AS NOTED

DWG. No. H354138-3320-231-260-0019

REV 0

SHEET SIZE: D

DRAWING No. | DRAWING TITLE

REFERENCE DRAWINGS

REG. PROFESSIONAL

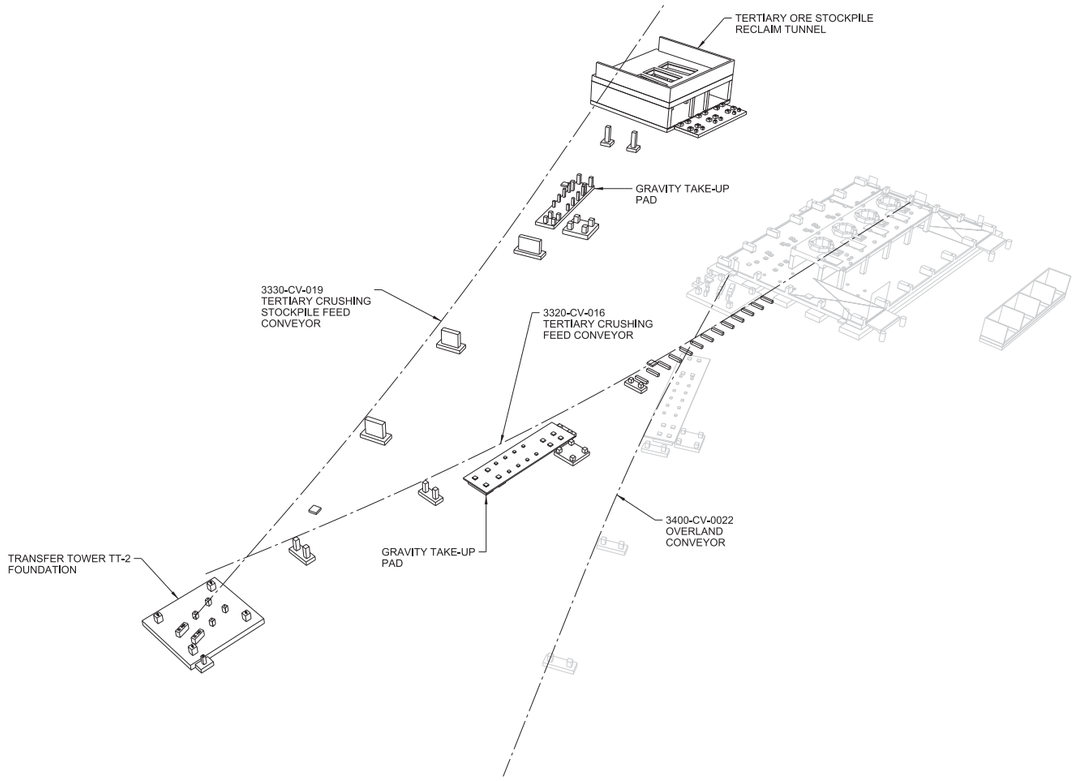
REVISIONS

SFILELS
PRINTED: 18-OCT-2018 17:21
tdc_pwservice

DWG. No. H354138-3330-231-260-0001

AREA: 3330 TRANSFER CONVEYORS AND TERTIARY ORE STOCKPILE RECLAIM CONCRETE DETAILS DRAWING LIST

| DRAWING NUMBER | REV. | DRAWING TITLE | | |
|---|---|---|---|---|
| H354138-3330-231-260-0001 | 0 | TRANSFER CONV. AND TRETIARY ORE BIN | GENERAL | TITLE SHEET, ISOMETRIC |
| | | | | |
| H354138-3330-231-260-0004 | A | TERTIARY TRANSFER CONVEYORS | CONVEYOR BENTS FOUNDATIONS | PLAN |
| H354138-3330-231-260-0005 | A | TERTIARY TRANSFER CONVEYORS | CONVEYOR BENTS FOUNDATIONS | SECTIONS |
| | | | | |
| H354138-3330-231-260-0011 | 0 | TERTIARY TRANSFER CONVEYORS | TANSFER TOWER TT-2 FOUNDATION | PLAN, SECTIONS & DETAILS - SHT. 1 |
| H354138-3330-231-260-0012 | 0 | TERTIARY TRANSFER CONVEYORS | TANSFER TOWER TT-2 FOUNDATION | PLAN, SECTIONS & DETAILS - SHT. 2 |
| | | | | |
| H354138-3330-231-260-0021 | 0 | TERTIARY ORE STOCKPILE | RECLAIM TUNNEL | GENERAL ARRANGEMENT - PLAN |
| H354138-3330-231-260-0022 | 0 | TERTIARY ORE STOCKPILE | RECLAIM TUNNEL | SECTIONS |
| H354138-3330-231-260-0023 | 0 | TERTIARY ORE STOCKPILE | RECLAIM TUNNEL | PLAN BASE |
| H354138-3330-231-260-0024 | 0 | TERTIARY ORE STOCKPILE | RECLAIM TUNNEL | PLAN BASE - REINFORCEMENT |
| H354138-3330-231-260-0025 | 0 | TERTIARY ORE STOCKPILE | RECLAIM TUNNEL | WALL REINFORCEMENT |
| H354138-3330-231-260-0026 | 1 | TERTIARY ORE STOCKPILE | RECLAIM TUNNEL | PLAN ELEVATED SLAB |
| H354138-3330-231-260-0027 | 0 | TERTIARY ORE STOCKPILE | RECLAIM TUNNEL | PLAN, SECTIONS AND DETAILS |



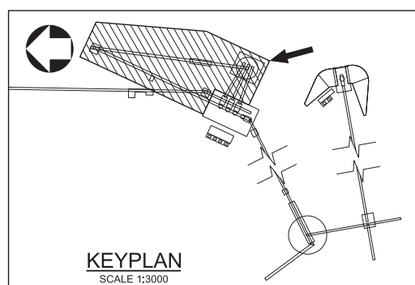

ISOMETRIC VIEW
NTS

## FOUNDATION NOTES:

2.1 ALL CONCRETE FOUNDATION SUBGRADE SHALL BE EITHER ROCK OR 38 mm NFS STRUCTURAL BACKFILL DOWN TO 3 METERS BELOW THE FINISH GRADE COMPACTED TO 95% MODIFIED PROCTOR.
2.2 ALL BACKFILL AROUND AND ABOVE CONCRETE FOUNDATIONS, PEDESTALS AND PADS SHALL BE 38 mm MINUS NFS STRUCTURAL BACKFILL.
2.3 ALL FOUNDATION SUBGRADE SHALL BE INSPECTED AND APPROVED BY THE GEOTECHNICAL ENGINEER PRIOR TO PLACEMENT OF CONCRETE.
2.4 THE PREPARED FOOTING SUBGRADE SHALL BE PROTECTED FROM WATER INGRESS AND SOFTENING BY PROVIDING ADEQUATE DRAINAGE OR PLACING A LEAN CONCRETE MUD SLAB.

## GENERAL NOTES:

1.1 READ THESE DRAWINGS IN CONJUNCTION WITH ALL OTHER PERTINENT CONTRACT DOCUMENTS.
1.2 FOR CONCRETE TYPICAL DETAILS DRAWING SET AND GENERAL NOTES, SEE DRAWINGS 354138-0000-231-294-0001 TO -0007.
1.3 REFER TO MECHANICAL, PROCESS AND ELECTRICAL DRAWINGS FOR LOCATIONS AND DIMENSIONS OF OPENINGS, SLEEVES AND OTHER BUILDING COMPONENTS NOT SHOWN ON STRUCTURAL DRAWINGS. REPORT DISCREPENCIES TO THE OWNER OR HIS REPRESENTATIVE PRIOR TO PROCEEDING WITH THE WORK.
1.4 FOR GENERAL SITE LOCATION AND WORK POINT COORDINATES, SEE DRAWING H354138-2120-220-290-0002.
1.5 HIGH ENERGY COMPACTION EQUIPMENT SUCH AS LARGE ROLLERS MUST NOT BE USED FOR COMPACTING BACKFILL WITHIN 1 METER OF THE EDGE OF THE WALLS.
1.6 FOR GROUNDING LOOP SEE ELECTRICAL DRAWING H354138-3320-260-272-1000-0001/0002. FOR GROUNDING INSTALLATION DETAILS SEE DRAWING SET H354138-3210-260-290-0001-0001 TO -0015.
1.7 FOR CAST-IN PLACE CONCRETE, SEE SPECIFICATION SECTION H354138-S032000.
1.8 FOR CONCRETE FORMWORK, SEE SPECIFICATION SECTION H354138-S031000.
1.9 FOR CONCRETE REINFORCEMENT, SEE SPECIFICATION SECTION H354138-S033000.
1.10 FOR GROUTING, SEE SPECIFICATION SECTION H354138-S036000.
1.11 CONSTRUCTION JOINTS NOT SHOWN ON THE DRAWINGS MUST BE APPROVED BY THE CONTRUCTION MANAGER.
1.12 IN CASE OF ANY DISCREPANCIES, INFORM THE CONSTRUCTION MANAGER BEFORE COMMENCING WORK.
1.13 ALL DIMENSIONS ARE IN MILLIMETERS AND ELEVATIONS ARE IN METERS.
1.14 PROVIDE 19mm X 19mm CHAMFER AT ALL EXPOSED CONCRETE CORNERS AND EDGES ABOVE GRADE LEVEL.
1.15 THE DRAWINGS SHOULD BE READ IN CONJUNCTION WITH THE PROJECT CIVIL DESIGN CRITERIA H654138-0000-220-210-0001.
1.16 FOR FURTHER GEOTECH INFORMATION, SEE "2011 GEOTECHNICAL INVESTIGATION FOR MINE SITE INFRASTRUCTURE FOUNDATION REPORT" BY BGC ENGINEERING DATED JAN 31, 2012.
1.17 SET ANCHOR RODS USING TEMPLATES WHICH MUST BE LEFT IN PLACE UNTIL THE CONCRETE HAS SET. ANCHOR RODS SHALL BE PLUMBED AND SECURED FROM MOVEMENT PRIOR TO CASTING CONCRETE.



KEYPLAN
SCALE 1:3000

THIS DRAWING WAS PREPARED FOR THE EXCLUSIVE USE OF STRATA GOLD ("CLIENT") AND IS ISSUED PURSUANT TO H354138 BETWEEN CLIENT AND HATCH LTD. ("HATCH"). UNLESS OTHERWISE AGREED IN WRITING WITH CLIENT OR SPECIFIED ON THIS DRAWING, (A) HATCH DOES NOT ACCEPT AND DISCLAIMS ANY AND ALL LIABILITY OR RESPONSIBILITY ARISING FROM ANY USE OF OR RELIANCE ON THIS DRAWING BY ANY THIRD PARTY OR ANY MODIFICATION OR MISUSE OF THIS DRAWING BY CLIENT, AND (B) THIS DRAWING IS CONFIDENTIAL AND ALL INTELLECTUAL PROPERTY RIGHTS EMBODIED OR REFERENCED IN THIS DRAWING REMAIN THE PROPERTY OF HATCH.

| No. | DESCRIPTION | BY | CHK'D | DATE |
|---|---|---|---|---|
| 0 | APPROVED FOR CONSTRUCTION | PJ | EA | 2018-08-17 |

| ROLE | NAME | SIGNATURE & DATE |
|---|---|---|
| DRAFTSPERSON | P. JIVAEV | NR 2017-11-23 |
| DESIGNER | H. LI | NR 2017-11-23 |
| CHECKER | E. AKINCI | |
| DESIGN COORD. | S. PERKINS | |
| RESP. ENG. | E. AKINCI | |
| LEAD DISC. ENG. | E. AKINCI | |
| ENG. MANAGER | B. RUSTAD | |
| PROJ. MANAGER | B. RUSTAD | |

DRAWING APPROVAL STATUS: Approved for Construction

EAGLE GOLD PROJECT

TRANSFER CONV. AND TERT. STOCKPILE CONCRETE SUPPORT STRUCTURES TITLE SHEET, ISOMETRIC VIEW

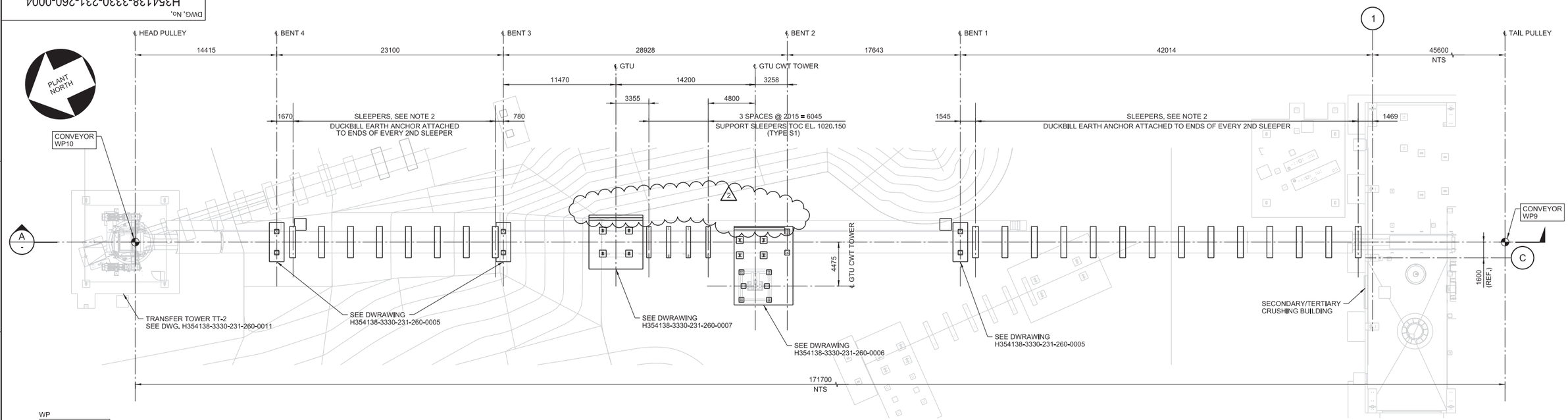
SCALE NTS OR AS NOTED | DWG. No. H354138-3330-231-260-0001 | REV 0

DRAWING No. | DRAWING TITLE | REFERENCE DRAWINGS | REG. PROFESSIONAL

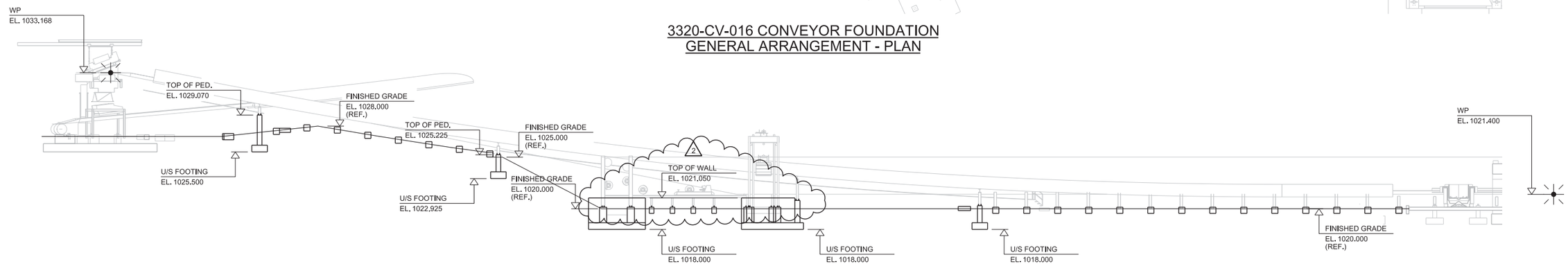
SHEET SIZE: D

SFILELS
PRINTED: 17-AUG-2018 15:07
tdc_pwservice

DWG. No. H354138-3330-231-260-0004




## 3320-CV-016 CONVEYOR FOUNDATION GENERAL ARRANGEMENT - PLAN

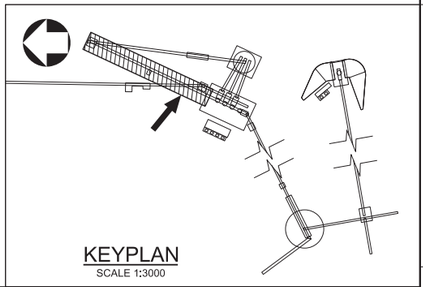



## SECTION A

NOTES:

1. FOR NOTES SEE DRAWING H354138-3330-231-260-0001.
2. FOR SLEEPERS AND SOIL ANCHOR DETAILS, SEE DRAWING H354138-2120-220-290-0004.
   FOR SLEEPER LOCATIONS AND SPACINGS SEE TEP DRAWING 17-0200-500 AND 502.

0 2 4 6 8 10
1:200 SCALE IN METRES



KEYPLAN
SCALE 1:3000

THIS DRAWING WAS PREPARED FOR THE EXCLUSIVE USE OF STRATA GOLD ("CLIENT") AND IS ISSUED PURSUANT TO H354138 BETWEEN CLIENT AND HATCH LTD. ("HATCH"). UNLESS OTHERWISE AGREED IN WRITING WITH CLIENT OR SPECIFIED ON THIS DRAWING, (A) HATCH DOES NOT ACCEPT AND DISCLAIMS ANY AND ALL LIABILITY OR RESPONSIBILITY ARISING FROM ANY USE OF OR RELIANCE ON THIS DRAWING BY ANY THIRD PARTY OR ANY MODIFICATION OR MISUSE OF THIS DRAWING BY CLIENT, AND (B) THIS DRAWING IS CONFIDENTIAL AND ALL INTELLECTUAL PROPERTY RIGHTS EMBODIED OR REFERENCED IN THIS DRAWING REMAIN THE PROPERTY OF HATCH.

| DRAWING No. | DRAWING TITLE |
|---|---|
| REFERENCE DRAWINGS | |

REG. PROFESSIONAL

| No. | DESCRIPTION | BY | CHK'D | DATE |
|---|---|---|---|---|
| 2 | RETAINING WALL ADDED | PJ | EA | 2018-12-03 |
| 1 | FINISHED GRADE ELEVATION AND BENT 4 REVISED | PJ | EA | 2018-09-11 |
| 0 | APPROVED FOR CONSTRUCTION | RS | EA | 2018-08-30 |

REVISIONS

HATCH

| ROLE | NAME | SIGNATURE & DATE |
|---|---|---|
| DRAFTSPERSON | R. SAGARBARRIA | NR |
| DESIGNER | H. LI | NR |
| CHECKER | E. AKINCI | |
| DESIGN COORD. | S. PERKINS | |
| RESP. ENG. | E. AKINCI | |
| LEAD DISC. ENG. | E. AKINCI | |
| ENG. MANAGER | B. RUSTAD | |
| PROJ. MANAGER | B. RUSTAD | |

DRAWING APPROVAL STATUS: Approved for Construction

StrataGold Corporation

EAGLE GOLD PROJECT

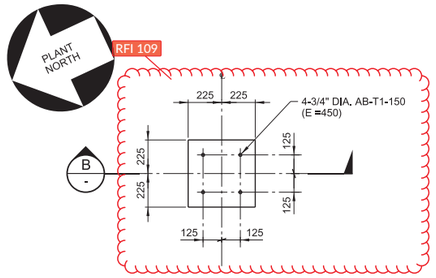
TERTIARY TRANSFER CONVEYORS
3320-CV-016 CONVEYOR FOUNDATION
GENERAL ARRANGEMENT

SCALE 1:200 OR AS NOTED | DWG. No. H354138-3330-231-260-0004 | REV 2

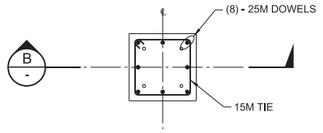
SHEET SIZE: D

$FILEL$
PRINTED: 03-DEC-2018 13:00
idc_pwservice

DWG. No. H354138-3330-231-260-0005

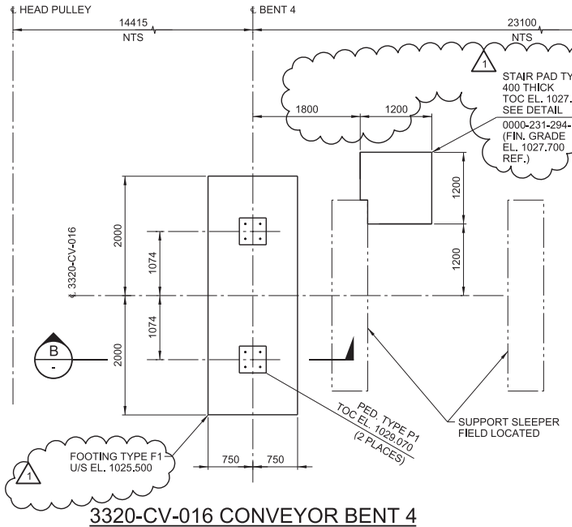



ANCHOR ROD SETTING

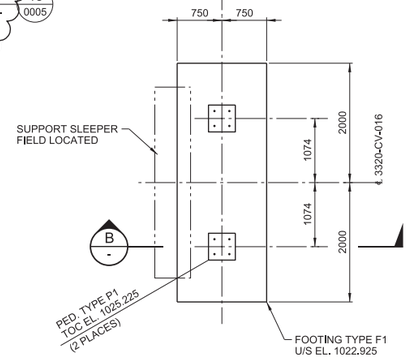



REINFORCEMENT

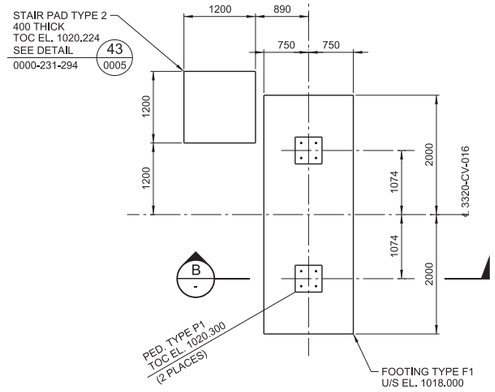
## PEDESTAL TYPE P1
SCALE: 1:20




## 3320-CV-016 CONVEYOR BENT 4 FOUNDATION - PLAN
SCALE: 1:50
FINISHED GRADE EL. 1027.380




## 3320-CV-016 CONVEYOR BENT 3 FOUNDATION - PLAN
SCALE: 1:50
FINISHED GRADE EL. 1025.000




## 3320-CV-016 CONVEYOR BENT 1 FOUNDATION - PLAN
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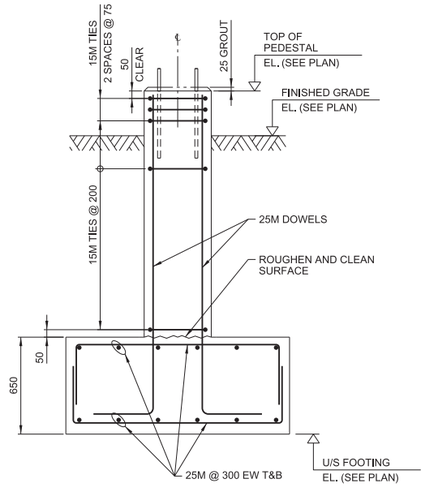
FINISHED GRADE EL. 1020.000




## SECTION B
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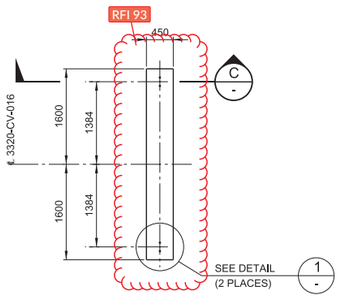
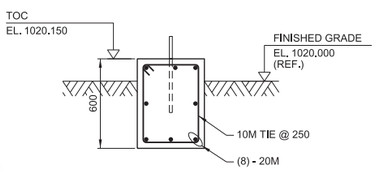



## SLEEPER TYPE S1
SCALE: 1:50

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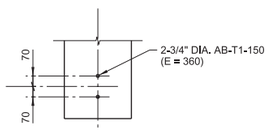
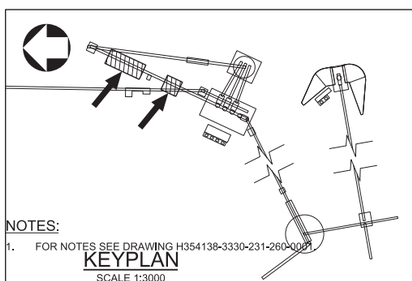
SCALE: 1:20




## DETAIL 1
SCALE: 1:20



KEYPLAN
SCALE 1:3000

0 200 400 600 800 1000
1:20 SCALE IN MILLIMETRES

0 500 1000 1500 2000 2500
1:50 SCALE IN MILLIMETRES

NOTES:
1. FOR NOTES SEE DRAWING H354138-3330-231-260-0001

THIS DRAWING WAS PREPARED FOR THE EXCLUSIVE USE OF STRATA GOLD ("CLIENT") AND IS ISSUED PURSUANT TO H354138 BETWEEN CLIENT AND HATCH LTD. ("HATCH"). UNLESS OTHERWISE AGREED IN WRITING WITH CLIENT OR SPECIFIED ON THIS DRAWING, (A) HATCH DOES NOT ACCEPT AND DISCLAIMS ANY AND ALL LIABILITY OR RESPONSIBILITY ARISING FROM ANY USE OF OR RELIANCE ON THIS DRAWING BY ANY THIRD PARTY OR ANY MODIFICATION OR MISUSE OF THIS DRAWING BY CLIENT, AND (B) THIS DRAWING IS CONFIDENTIAL AND ALL INTELLECTUAL PROPERTY RIGHTS EMBODIED OR REFERENCED IN THIS DRAWING REMAIN THE PROPERTY OF HATCH.

| No. | DESCRIPTION | BY | CHK'D | DATE |
|---|---|---|---|---|
| 1 | BENT 4 REVISED | PJ | EA | 2018-09-11 |
| 0 | APPROVED FOR CONSTRUCTION | RS | EA | 2018-08-30 |

REVISIONS

| ROLE | NAME | SIGNATURE & DATE |
|---|---|---|
| DRAFTSPERSON | R. SAGARBARRIA | NR |
| DESIGNER | H. LI | NR |
| CHECKER | E. AKINCI | |
| DESIGN COORD. | S. PERKINS | |
| RESP. ENG. | E. AKINCI | |
| LEAD DISC. ENG. | E. AKINCI | |
| ENG. MANAGER | B. RUSTAD | |
| PROJ. MANAGER | B. RUSTAD | |

DRAWING APPROVAL STATUS: Approved for Construction

DRAWING No. | DRAWING TITLE

REFERENCE DRAWINGS

REG. PROFESSIONAL

HATCH

StrataGold Corporation

EAGLE GOLD PROJECT

TERTIARY TRANSFER CONVEYORS
3320-CV-016 CONVEYOR BENTS 1, 3 AND 4
PLAN, SECTIONS AND DETAILS

SCALE: AS NOTED OR AS NOTED
DWG. No. H354138-3330-231-260-0005
REV 1
SHEET SIZE: D

SFILELS
PRINTED: 11-SEP-2018
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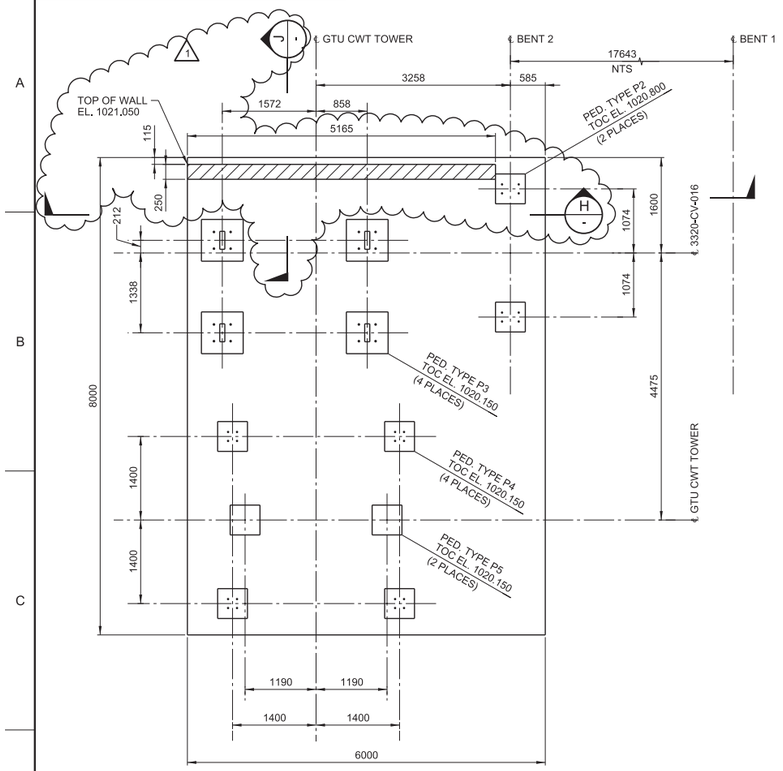
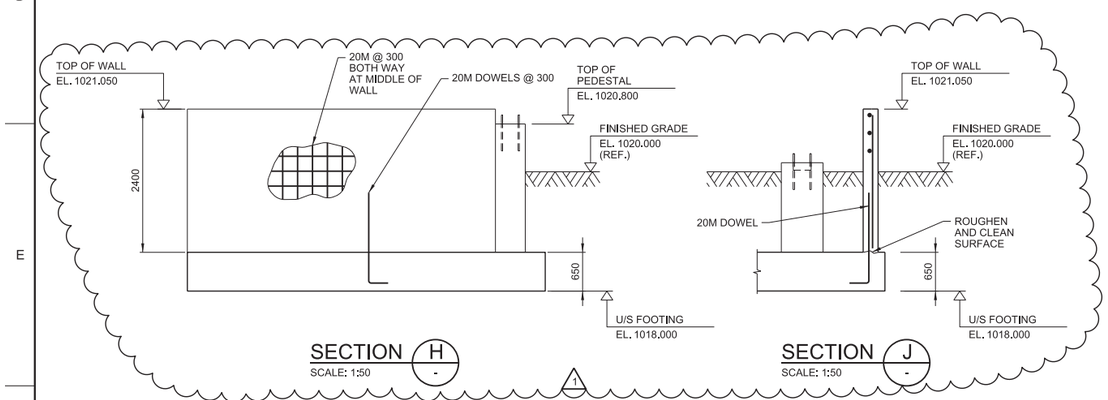
kdc_pwservice

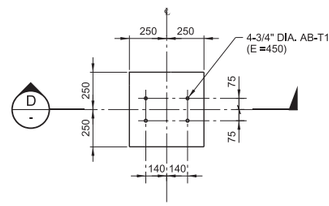
DWG. No. H354138-3330-231-260-0006



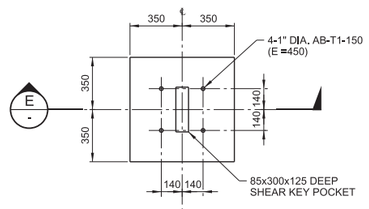

## 3320-CV-016 CONVEYOR GTU CWT TOWER AND BENT 2 FOUNDATION - PLAN

SCALE: 1:50

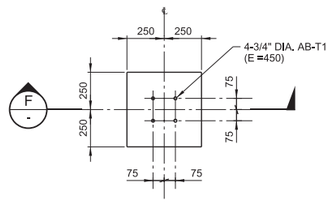



ANCHOR ROD SETTING




ANCHOR ROD SETTING

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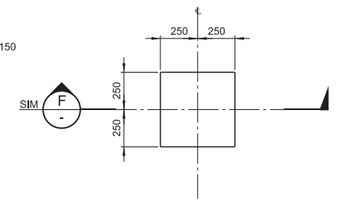


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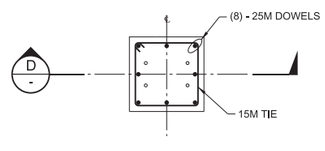
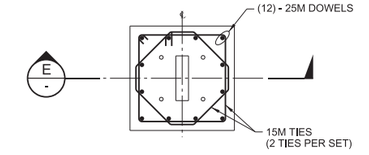
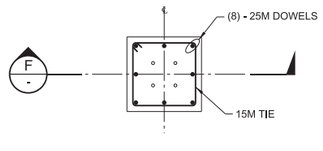


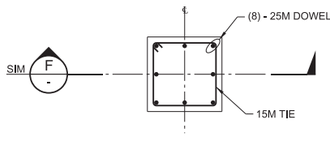

REINFORCEMENT




REINFORCEMENT




REINFORCEMENT




REINFORCEMENT

## PEDESTAL TYPE P2

SCALE: 1:20

## PEDESTAL TYPE P3

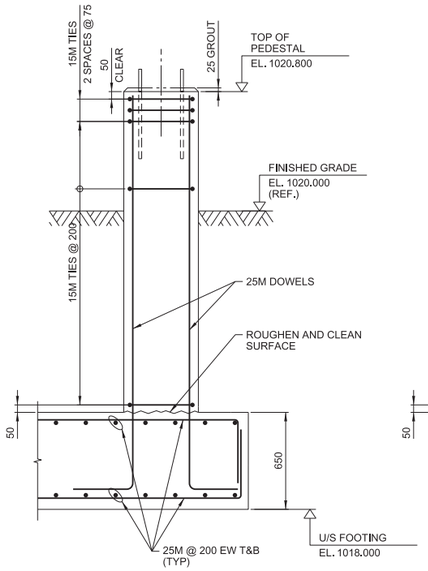
SCALE: 1:20

## PEDESTAL TYPE P4

SCALE: 1:20

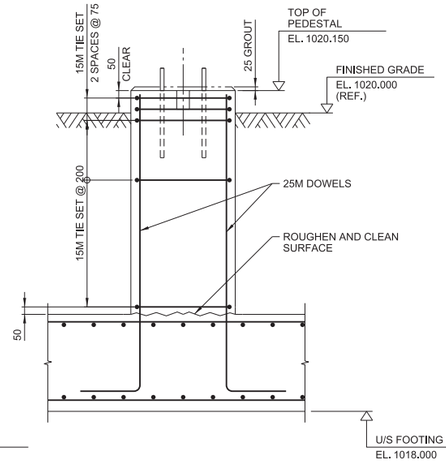
## PEDESTAL TYPE P5

SCALE: 1:20



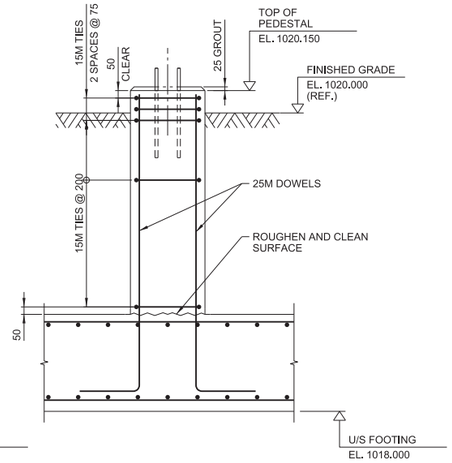

SECTION D

SCALE: 1:20




SECTION E

SCALE: 1:20




SECTION F

SCALE: 1:20

0 200 400 600 800 1000
1:20 SCALE IN MILLIMETRES

0 500 1000 1500 2000 2500
1:50 SCALE IN MILLIMETRES

NOTES:

1. FOR NOTES SEE DRAWING H354138-3330-231-260-0001.

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| No. | DESCRIPTION | BY | CHK'D | DATE |
|---|---|---|---|---|
| 1 | RETAINING WALL ADDED | PJ | EA | 2018-12-03 |
| 0 | APPROVED FOR CONSTRUCTION | RS | EA | 2018-08-30 |

REVISIONS

| DRAWING No. | DRAWING TITLE |
|---|---|
| | |

REFERENCE DRAWINGS

REG. PROFESSIONAL

| ROLE | NAME | SIGNATURE & DATE |
|---|---|---|
| DRAFTSPERSON | R. SAGARBARRIA | NR |
| DESIGNER | H. LI | NR |
| CHECKER | E. AKINCI | |
| DESIGN COORD. | S. PERKINS | |
| RESP. ENG. | E. AKINCI | |
| LEAD DISC. ENG. | E. AKINCI | |
| ENG. MANAGER | B. RUSTAD | |
| PROJ. MANAGER | B. RUSTAD | |

DRAWING APPROVAL STATUS: Approved for Construction

HATCH

StrataGold Corporation

EAGLE GOLD PROJECT

TERTIARY TRANSFER CONVEYORS
3320-CV-016 CONVEYOR GTU CWT TOWER
PLAN, SECTIONS AND DETAILS

SCALE: AS NOTED OR AS NOTED

DWG. No. H354138-3330-231-260-0006

REV 1

SHEET SIZE: D

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PRINTED: 03-DEC-2018
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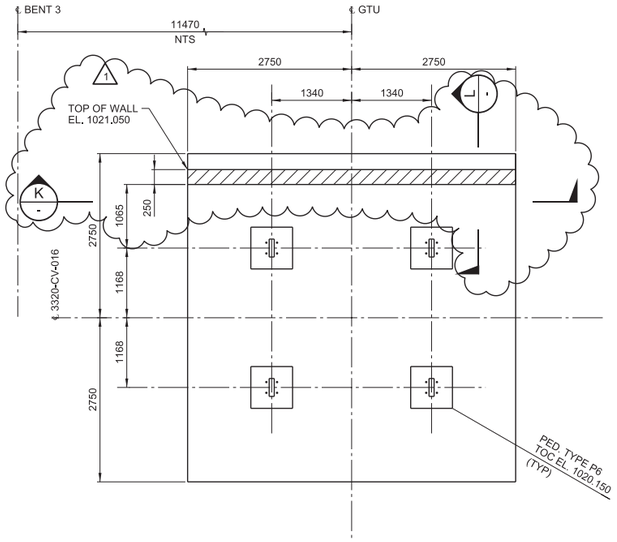
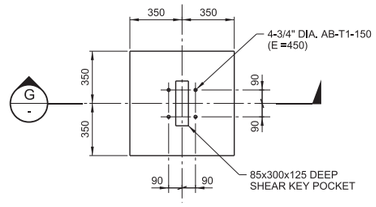
DWG. No. H354138-3330-231-260-0007

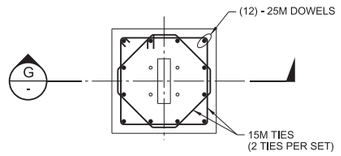



## 3320-CV-016 CONVEYOR GTU FOUNDATION - PLAN

SCALE: 1:50



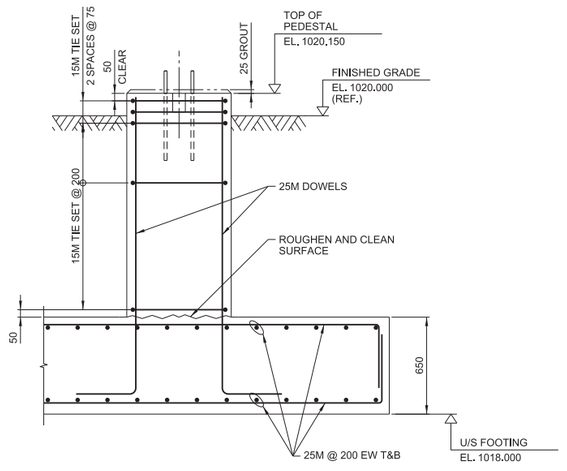

ANCHOR ROD SETTING



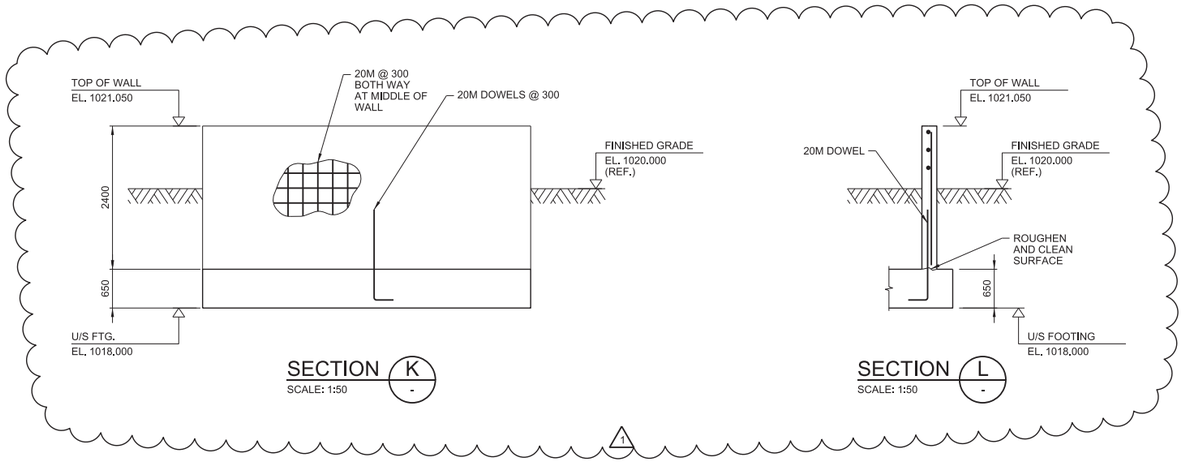

REINFORCEMENT

## PEDESTAL TYPE P6

SCALE: 1:20




SECTION G
SCALE: 1:20




SECTION K
SCALE: 1:50

SECTION L
SCALE: 1:50

0 200 400 600 800 1000
1:20 SCALE IN MILLIMETRES

0 500 1000 1500 2000 2500
1:50 SCALE IN MILLIMETRES

NOTES:

1. FOR NOTES SEE DRAWING H354138-3330-231-260-0001.

THIS DRAWING WAS PREPARED FOR THE EXCLUSIVE USE OF STRATA GOLD ("CLIENT") AND IS ISSUED PURSUANT TO H354138 BETWEEN CLIENT AND HATCH LTD. ("HATCH"). UNLESS OTHERWISE AGREED IN WRITING WITH CLIENT OR SPECIFIED ON THIS DRAWING, (A) HATCH DOES NOT ACCEPT AND DISCLAIMS ANY AND ALL LIABILITY OR RESPONSIBILITY ARISING FROM ANY USE OF OR RELIANCE ON THIS DRAWING BY ANY THIRD PARTY OR ANY MODIFICATION OR MISUSE OF THIS DRAWING BY CLIENT, AND (B) THIS DRAWING IS CONFIDENTIAL AND ALL INTELLECTUAL PROPERTY RIGHTS EMBODIED OR REFERENCED IN THIS DRAWING REMAIN THE PROPERTY OF HATCH.

| No. | DESCRIPTION | BY | CHK'D | DATE |
|---|---|---|---|---|
| 1 | RETAINING WALL ADDED | PJ | EA | 2018-12-03 |
| 0 | APPROVED FOR CONSTRUCTION | RS | EA | 2018-08-30 |

| ROLE | NAME | SIGNATURE & DATE |
|---|---|---|
| DRAFTSPERSON | R. SAGARBARRIA | NR |
| DESIGNER | H. LI | NR |
| CHECKER | E. AKINCI | |
| DESIGN COORD. | S. PERKINS | |
| RESP. ENG. | E. AKINCI | |
| LEAD DISC. ENG. | E. AKINCI | |
| ENG. MANAGER | B. RUSTAD | |
| PROJ. MANAGER | B. RUSTAD | |

DRAWING APPROVAL STATUS: Approved for Construction

HATCH

StrataGold Corporation

EAGLE GOLD PROJECT

TERTIARY TRANSFER CONVEYORS
3320-CV-016 CONVEYOR GTU FDN
PLAN, SECTIONS AND DETAILS

SCALE: AS NOTED OR AS NOTED

DWG. No.: H354138-3330-231-260-0007

REV: 1

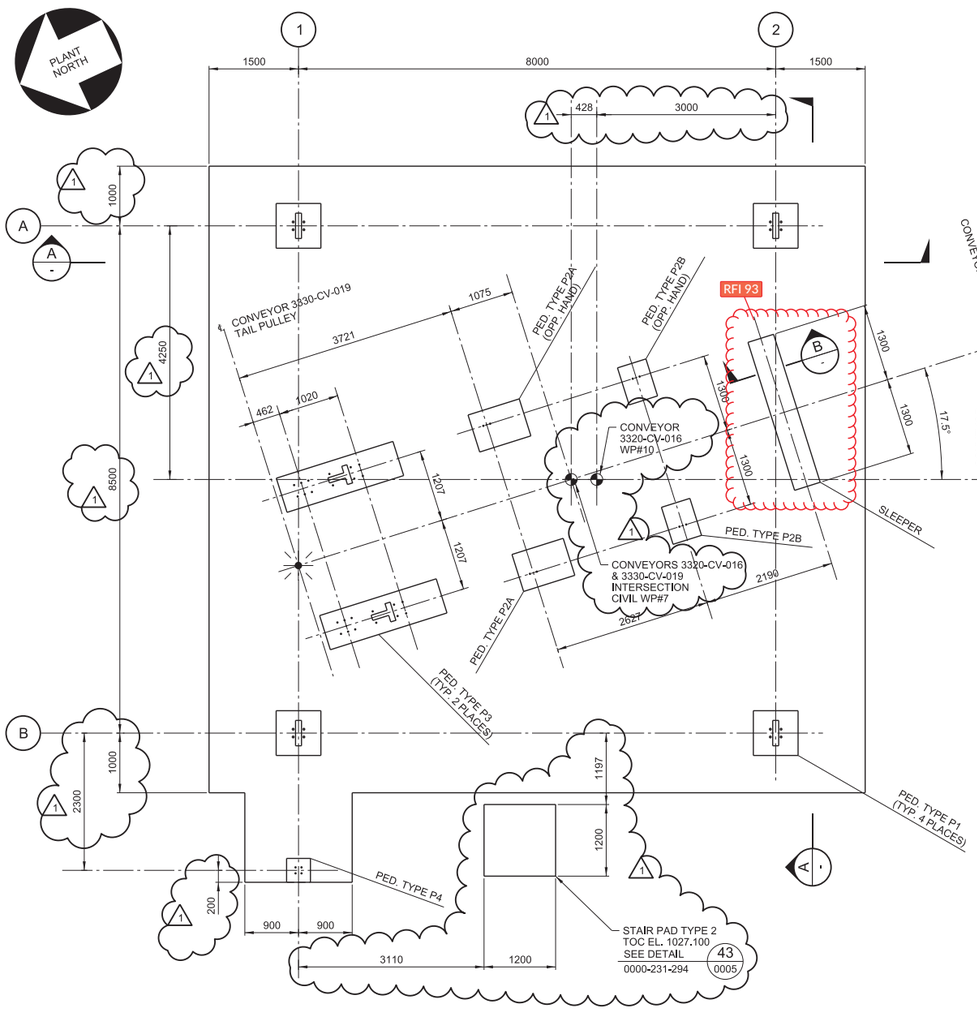
SHEET SIZE: D

| DRAWING No. | DRAWING TITLE |
|---|---|
| REFERENCE DRAWINGS | |

REG. PROFESSIONAL

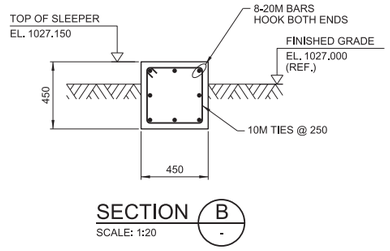
SFILELS
PRINTED: 03-DEC-2018
idc_pwservice
13:00

DWG. No. H354138-3330-231-260-0011

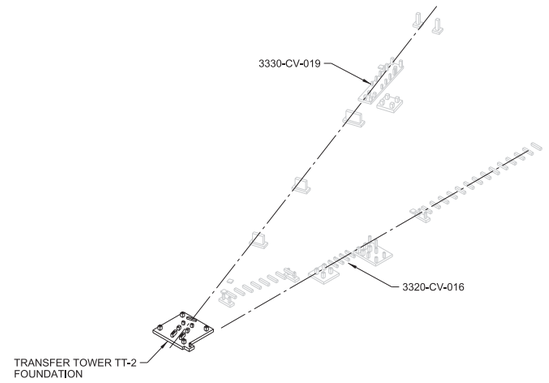



## TRANSFER TOWER TT-2 FOUNDATION - PLAN

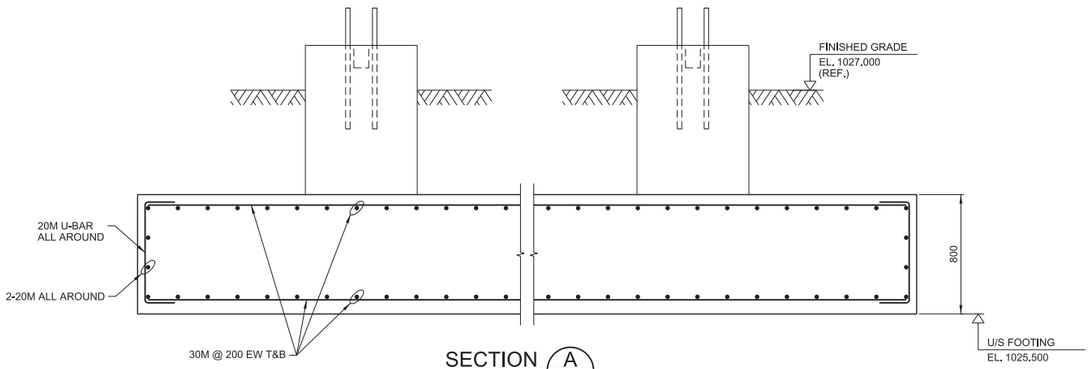
SCALE: 1:50
FINISHED GRADE EL. 1027.000 (REF.)




## SECTION B
SCALE: 1:20



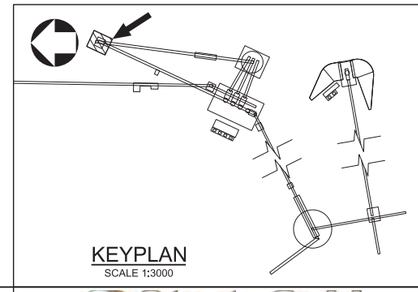

## ISOMETRIC VIEW
NTS




## SECTION A
SCALE: 1:20

NOTES:

1. FOR NOTES SEE DRAWING H354138-3330-231-260-0001.



## KEYPLAN
SCALE 1:3000

0 500 1000 1500 2000 2500
1:50 SCALE IN MILLIMETRES

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| No. | DESCRIPTION | BY | CHK'D | DATE |
|---|---|---|---|---|
| 1 | PEDESTALS TYPE P1 MOVED, STAIR PAD AND WP INFORMATION ADDED | RS | EA | 2018-08-27 |
| 0 | APPROVED FOR CONSTRUCTION | RS | EA | 2018-08-17 |

| ROLE | NAME | SIGNATURE & DATE |
|---|---|---|
| DRAFTSPERSON | R. SAGARBARRIA | NR |
| DESIGNER | H. LI | NR |
| CHECKER | E. AKINCI | |
| DESIGN COORD. | S. PERKINS | |
| RESP. ENG. | E. AKINCI | |
| LEAD DISC. ENG. | E. AKINCI | |
| ENG. MANAGER | B. RUSTAD | |
| PROJ. MANAGER | B. RUSTAD | |

DRAWING APPROVAL STATUS: Approved for Construction

HATCH

StrataGold Corporation

EAGLE GOLD PROJECT

TERTIARY TRANSFER CONVEYORS
TRANSFER TOWER TT-2 FOUNDATION
PLAN, SECTIONS & DETAILS - SHT. 1

| DRAWING No. | DRAWING TITLE |
|---|---|
| REFERENCE DRAWINGS | |

REG. PROFESSIONAL

SCALE: AS NOTED OR AS NOTED

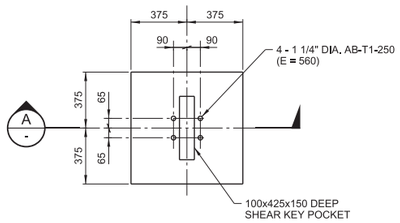
DWG. No. H354138-3330-231-260-0011

REV 1

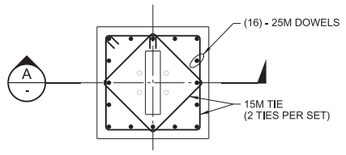
SHEET SIZE: D

SFILELS
PRINTED: 27-AUG-2018 20:06
idc_pwservice

DWG. No. H354138-3330-231-260-0012



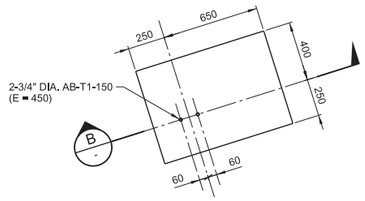

ANCHOR ROD SETTING



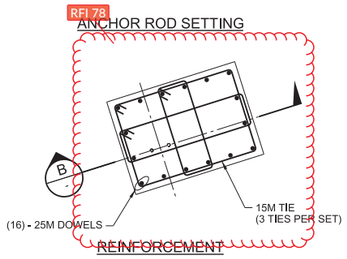

REINFORCEMENT

## PEDESTAL TYPE P1

SCALE: 1:20



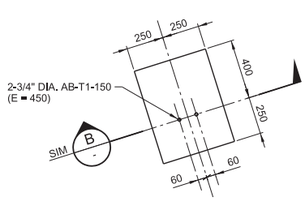

ANCHOR ROD SETTING



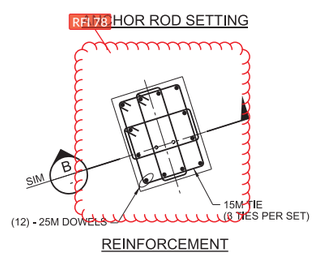

REINFORCEMENT

## PEDESTAL TYPE P2A

SCALE: 1:20




ANCHOR ROD SETTING




REINFORCEMENT

## PEDESTAL TYPE P2B

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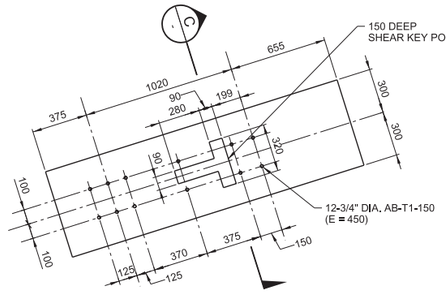
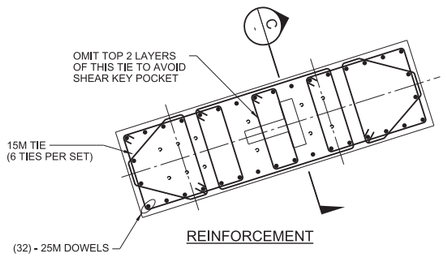



ANCHOR ROD SETTING




REINFORCEMENT

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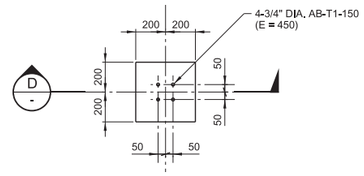
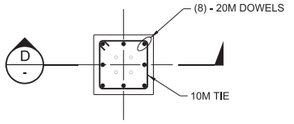
SCALE: 1:20



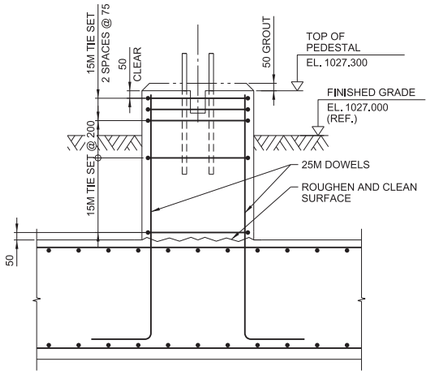

ANCHOR ROD SETTING




REINFORCEMENT

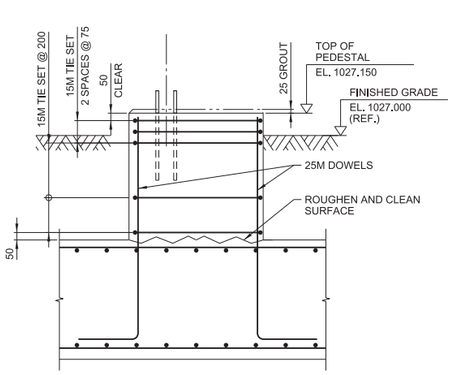
## PEDESTAL TYPE P4

SCALE: 1:20



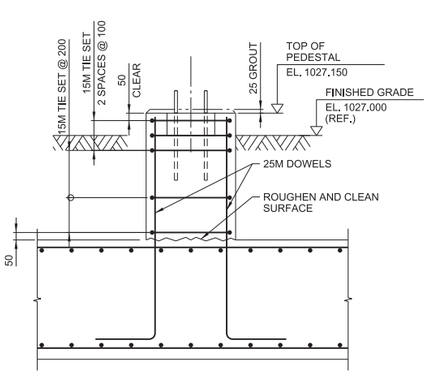

## SECTION A

SCALE: 1:20



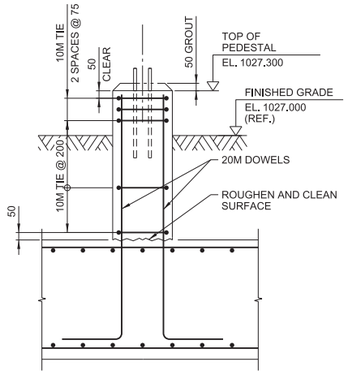

## SECTION B

SCALE: 1:20




## SECTION C

SCALE: 1:20




## SECTION D

SCALE: 1:20

0 200 400 600 800 1000
1:20 SCALE IN MILLIMETRES

NOTES:

1. FOR NOTES SEE DRAWING H354138-3330-231-260-0001.

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| No. | DESCRIPTION | BY | CHK'D | DATE |
|---|---|---|---|---|
| 0 | APPROVED FOR CONSTRUCTION | RS | EA | 2018-08-17 |

REVISIONS

| ROLE | NAME | SIGNATURE & DATE |
|---|---|---|
| DRAFTSPERSON | R. SAGARBARRIA | NR |
| DESIGNER | H. LI | NR |
| CHECKER | E. AKINCI | |
| DESIGN COORD. | S. PERKINS | |
| RESP. ENG. | E. AKINCI | |
| LEAD DISC. ENG. | E. AKINCI | |
| ENG. MANAGER | B. RUSTAD | |
| PROJ. MANAGER | B. RUSTAD | |

DRAWING APPROVAL STATUS: Approved for Construction

DRAWING No. | DRAWING TITLE

REFERENCE DRAWINGS

REG. PROFESSIONAL

HATCH

StrataGold Corporation

EAGLE GOLD PROJECT

TERTIARY TRANSFER CONVEYORS
TRANSFER TOWER TT-2 FOUNDATION
PLAN, SECTIONS & DETAILS - SHT. 2

SCALE: AS NOTED OR AS NOTED

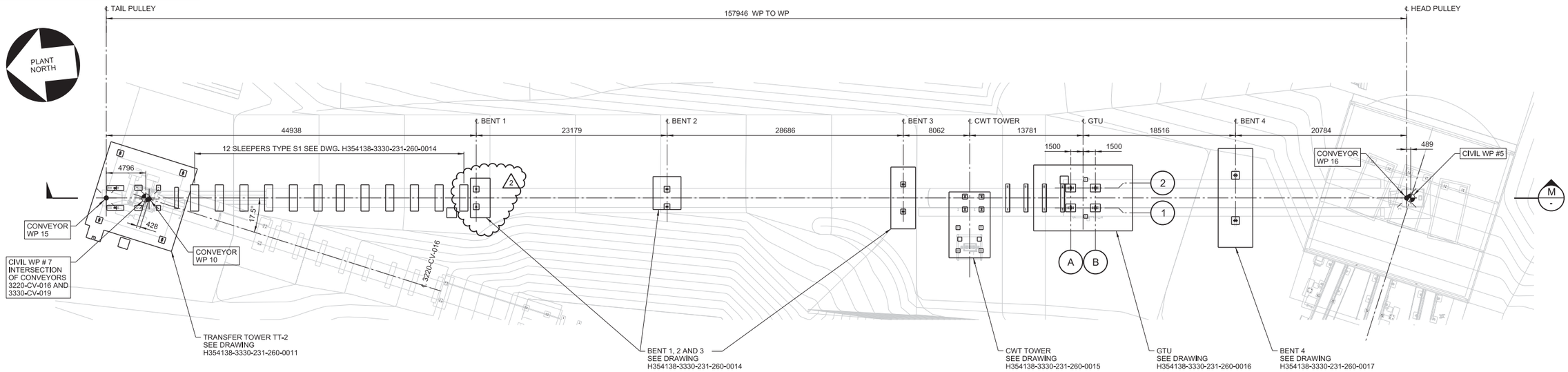
DWG. No. H354138-3330-231-260-0012

REV: 0

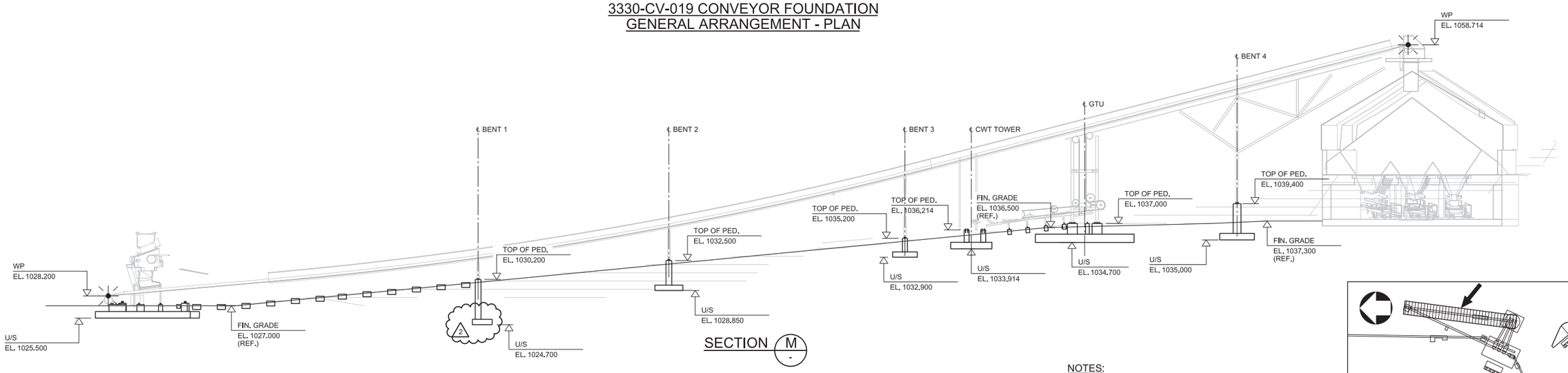
SHEET SIZE: D

SFILELS
PRINTED: 17-AUG-2018
tdc_pwservice
15:08

DWG. No. H354138-3330-231-260-0013




# 3330-CV-019 CONVEYOR FOUNDATION GENERAL ARRANGEMENT - PLAN

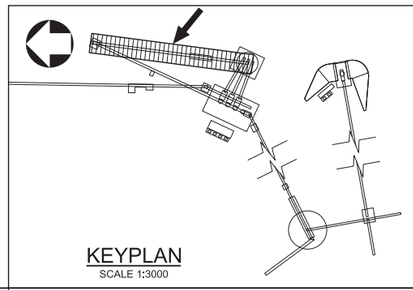



## SECTION M -

NOTES:

1. FOR NOTES SEE DRAWING H354138-3330-231-260-0001.
2. FOR SLEEPER LOCATIONS AND SPACINGS SEE TEP DRAWING 17-0200-800 AND 802.

0 2.5 5.0 7.5 10 12.5
1:250 SCALE IN METRES



KEYPLAN
SCALE 1:3000

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| No. | DESCRIPTION | BY | CHK'D | DATE |
|---|---|---|---|---|
| 2 | BENT 1 FOOTING REVISED TO SUIT SITE CONDITIONS | EM | EA | 2018-11-23 |
| 1 | BENT 1 AND 2 REVISED TO SUIT SITE CONDITIONS | PJ | EA | 2018-11-14 |
| 0 | APPROVED FOR CONSTRUCTION | PJ | EA | 2018-09-18 |

| ROLE | NAME | SIGNATURE & DATE |
|---|---|---|
| DRAFTSPERSON | P. JIVAEV | NR 2018-08-29 |
| DESIGNER | H. LI | NR 2018-08-29 |
| CHECKER | E. AKINCI | |
| DESIGN COORD. | S. PERKINS | |
| RESP. ENG. | E. AKINCI | |
| LEAD DISC. ENG. | E. AKINCI | |
| ENG. MANAGER | B. RUSTAD | |
| PROJ. MANAGER | B. RUSTAD | |

DRAWING APPROVAL STATUS: Approved for Construction

HATCH

StrataGold Corporation

EAGLE GOLD PROJECT

TERTIARY TRANSFER CONVEYORS
3330-CV-019 CONVEYOR FOUNDATION
GENERAL ARRANGEMENT

| SCALE | DWG. No. | REV |
|---|---|---|
| 1:250 OR AS NOTED | H354138-3330-231-260-0013 | 2 |

SHEET SIZE: D

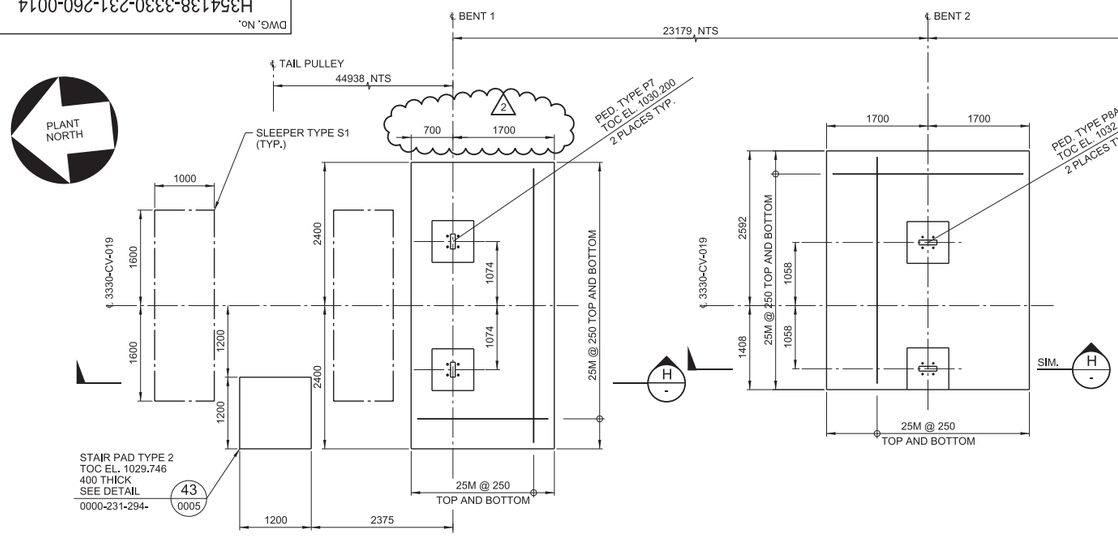
REFERENCE DRAWINGS — DRAWING No. — DRAWING TITLE

REG. PROFESSIONAL

REVISIONS

SFILELS
PRINTED: 23-NOV-2018
tdc_pwservice
13:41

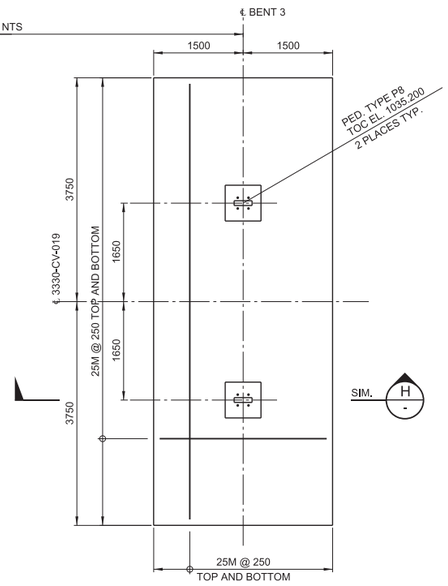
DWG. No. H354138-3330-231-260-0014



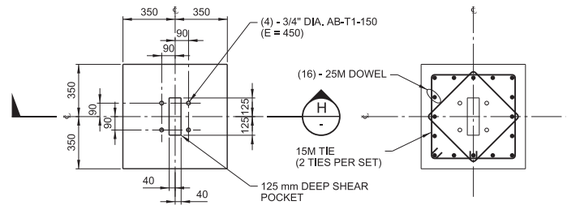

3330-CV-019 CONVEYOR BENT 1
FOUNDATION - PLAN
U/S FTG. EL. 1024.700




3330-CV-019 CONVEYOR BENT 2
FOUNDATION - PLAN
U/S FTG. EL. 1028.850



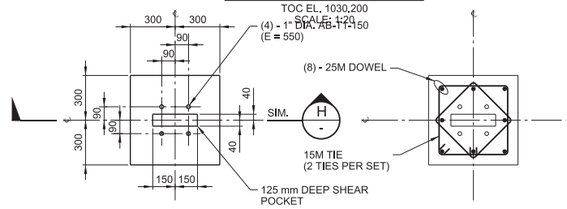

3330-CV-019 CONVEYOR BENT 3
FOUNDATION - PLAN
U/S FTG. EL. 1032.900




ANCHOR SETTINGS REINFORCEMENT

## PEDESTAL TYPE P7

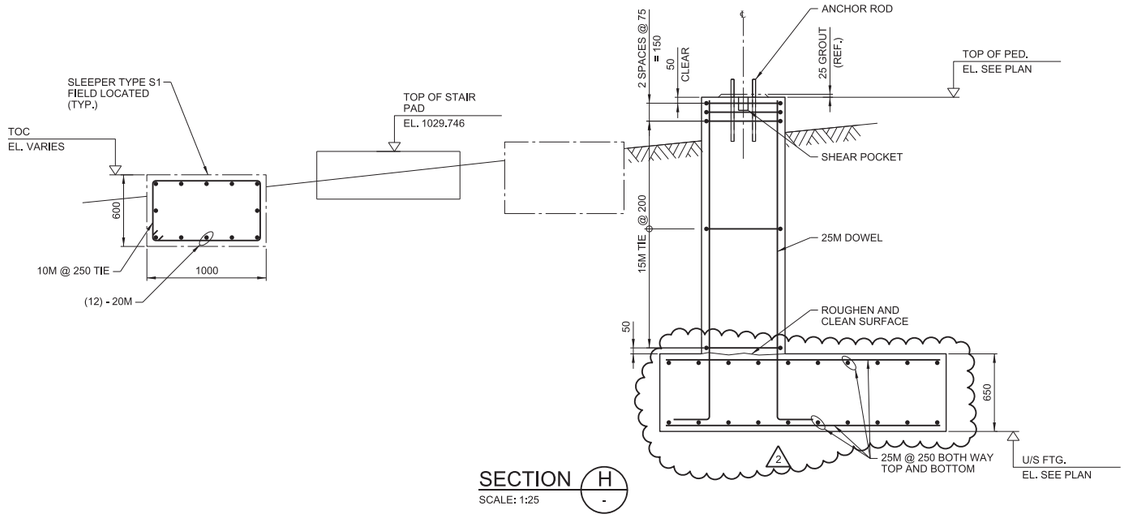
TOC EL. 1030.200
SCALE: 1:20




ANCHOR SETTINGS REINFORCEMENT

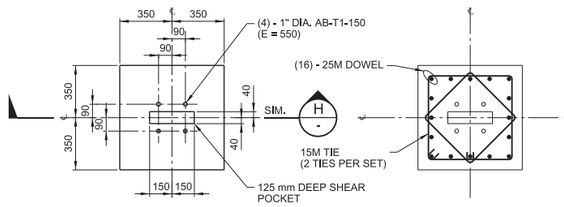
## PEDESTAL TYPE P8

TOC EL. SEE PLAN
SCALE: 1:20




## SECTION H -

SCALE: 1:25



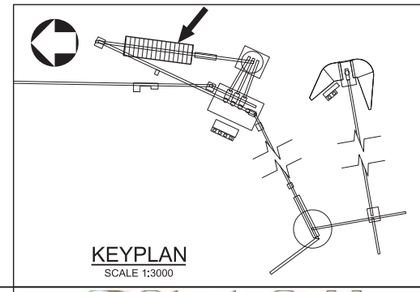

ANCHOR SETTINGS REINFORCEMENT

## PEDESTAL TYPE P8A

TOC EL. SEE PLAN
SCALE: 1:20

NOTES:

1. FOR NOTES SEE DRAWING H354138-3330-231-260-0001.



KEYPLAN
SCALE 1:3000

0 500 1000 1500 2000 2500
1:50 SCALE IN MILLIMETRES

THIS DRAWING WAS PREPARED FOR THE EXCLUSIVE USE OF STRATA GOLD ("CLIENT") AND IS ISSUED PURSUANT TO H354138 BETWEEN CLIENT AND HATCH LTD. ("HATCH"). UNLESS OTHERWISE AGREED IN WRITING WITH CLIENT OR SPECIFIED ON THIS DRAWING, (A) HATCH DOES NOT ACCEPT AND DISCLAIMS ANY AND ALL LIABILITY OR RESPONSIBILITY ARISING FROM ANY USE OF OR RELIANCE ON THIS DRAWING BY ANY THIRD PARTY OR ANY MODIFICATION OR MISUSE OF THIS DRAWING BY CLIENT, AND (B) THIS DRAWING IS CONFIDENTIAL AND ALL INTELLECTUAL PROPERTY RIGHTS EMBODIED OR REFERENCED IN THIS DRAWING REMAIN THE PROPERTY OF HATCH.

| No. | DESCRIPTION | BY | CHK'D | DATE |
|---|---|---|---|---|
| 2 | BENT 1 FOOTING REVISED TO SUIT SITE CONDITIONS | EM | EA | 2018-11-23 |
| 1 | BENT 1 AND 2 REVISED TO SUIT SITE CONDITIONS | PJ | EA | 2018-11-14 |
| 0 | APPROVED FOR CONSTRUCTION | PJ | EA | 2018-09-18 |

| ROLE | NAME | SIGNATURE & DATE |
|---|---|---|
| DRAFTSPERSON | P. JIVAEV | NR 2018-09-04 |
| DESIGNER | H. LI | NR 2018-09-04 |
| CHECKER | E. AKINCI | |
| DESIGN COORD. | S. PERKINS | |
| RESP. ENG. | E. AKINCI | |
| LEAD DISC. ENG. | E. AKINCI | |
| ENG. MANAGER | B. RUSTAD | |
| PROJ. MANAGER | B. RUSTAD | |

DRAWING APPROVAL STATUS: Approved for Construction

HATCH

StrataGold Corporation

EAGLE GOLD PROJECT

TERTIARY TRANSFER CONVEYORS
3330-CV-019 CONVEYOR BENTS 1, 2 AND 3
PLAN, SECTIONS AND DETAILS

| SCALE | DWG. No. | REV |
|---|---|---|
| 1:50 OR AS NOTED | H354138-3330-231-260-0014 | 2 |

SHEET SIZE: D

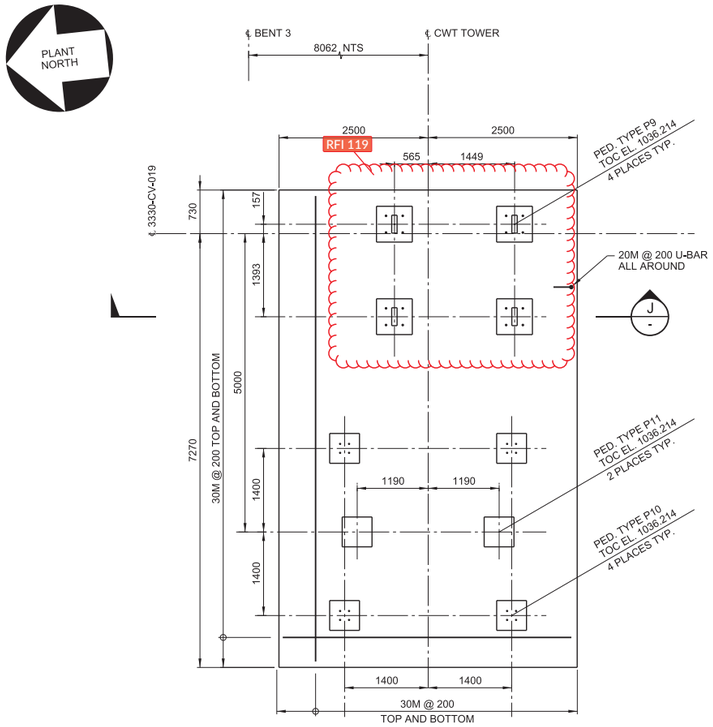
REFERENCE DRAWINGS | DRAWING No. | DRAWING TITLE

REG. PROFESSIONAL

REVISIONS

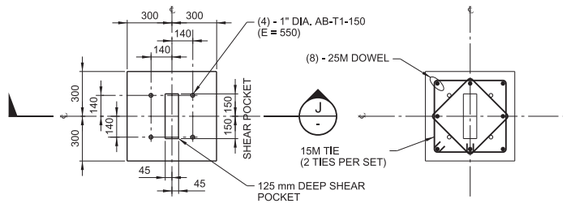
SFILELS
PRINTED: 23-NOV-2018 13:55
kdc_pwservice

DWG. No. H354138-3330-231-260-0015




## 3330-CV-019 CWT TOWER FOUNDATION - PLAN

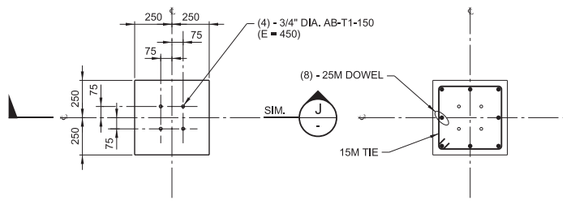
U/S FTG. EL. 1033.914




ANCHOR SETTINGS REINFORCEMENT

## PEDESTAL TYPE P9

TOC EL. 1036.214
SCALE: 1:20




ANCHOR SETTINGS REINFORCEMENT

## PEDESTAL TYPE P10

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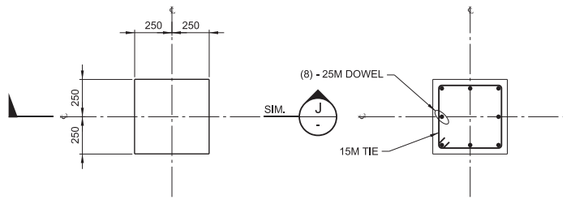
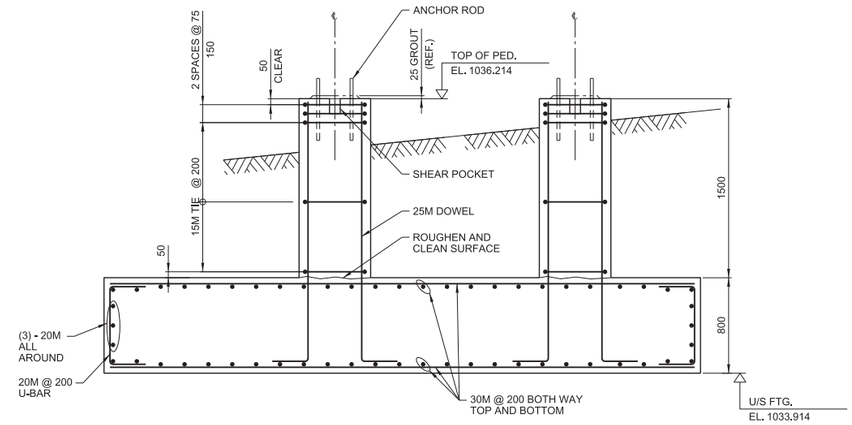
SCALE: 1:20




ANCHOR SETTINGS REINFORCEMENT

## PEDESTAL TYPE P11

TOC EL. 1036.214
SCALE: 1:20

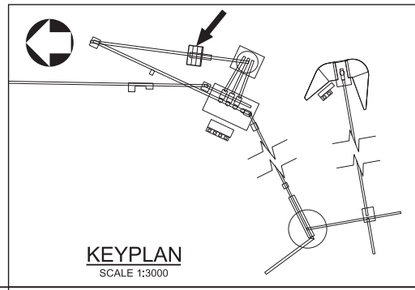



## SECTION J -

SCALE: 1:25

NOTES:

1. FOR NOTES SEE DRAWING H354138-3330-231-260-0001.



KEYPLAN
SCALE 1:3000

0 500 1000 1500 2000 2500
1:50 SCALE IN MILLIMETRES

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| DRAWING No. | DRAWING TITLE |
|---|---|
| REFERENCE DRAWINGS | |

REG. PROFESSIONAL

| No. | DESCRIPTION | BY | CHK'D | DATE |
|---|---|---|---|---|
| 0 | APPROVED FOR CONSTRUCTION | PJ | EA | 2018-09-18 |

REVISIONS

| ROLE | NAME | SIGNATURE & DATE |
|---|---|---|
| DRAFTSPERSON | P. JIVAEV | NR 2018-09-05 |
| DESIGNER | H. LI | NR 2018-09-05 |
| CHECKER | E. AKINCI | |
| DESIGN COORD. | S. PERKINS | |
| RESP. ENG. | E. AKINCI | |
| LEAD DISC. ENG. | E. AKINCI | |
| ENG. MANAGER | B. RUSTAD | |
| PROJ. MANAGER | B. RUSTAD | |

DRAWING APPROVAL STATUS: Approved for Construction

HATCH

StrataGold Corporation

EAGLE GOLD PROJECT

TERTIARY TRANSFER CONVEYORS
3330-CV-019 CONVEYOR CWT TOWER
PLAN, SECTIONS AND DETAILS

| SCALE | DWG. No. | REV |
|---|---|---|
| 1:50 OR AS NOTED | H354138-3330-231-260-0015 | 0 |

SHEET SIZE: D

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PRINTED: 18-SEP-2018
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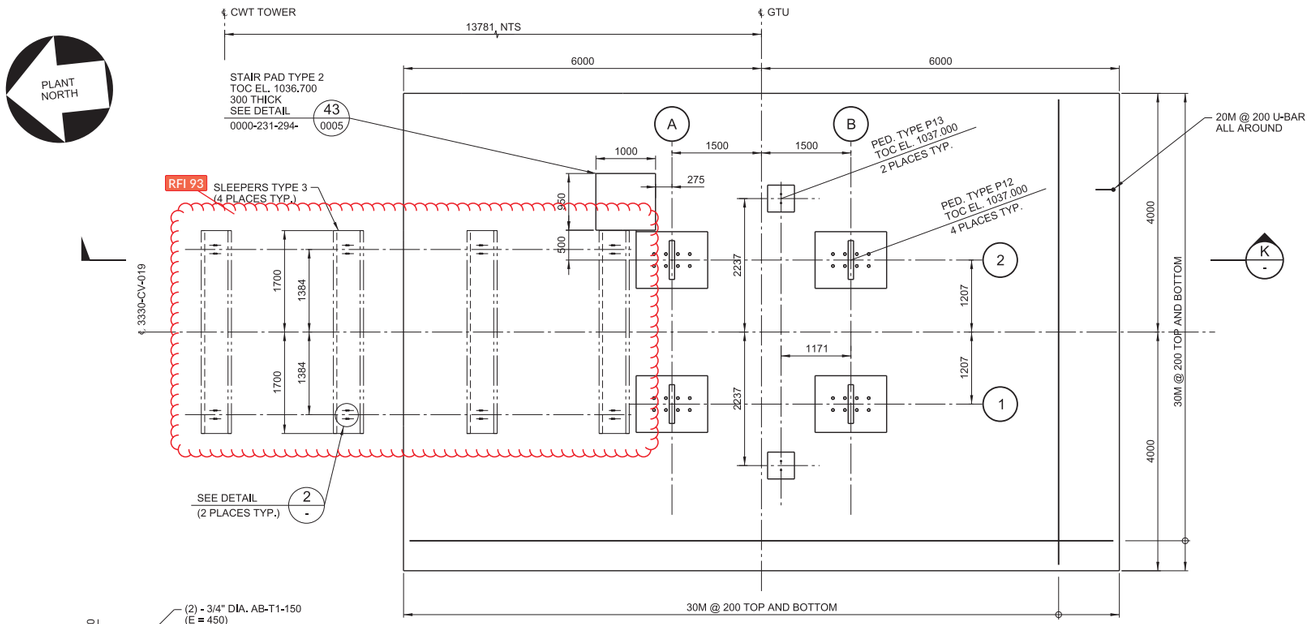
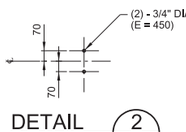
13:29

DWG. No. H354138-3330-231-260-0016




## 3330-CV-019 GTU FOUNDATION - PLAN

U/S FTG. EL. 1034.700




## DETAIL 2 / -

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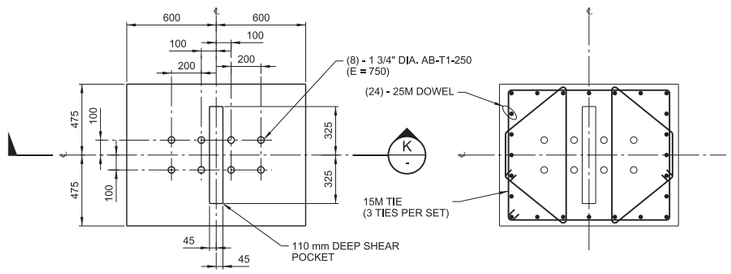
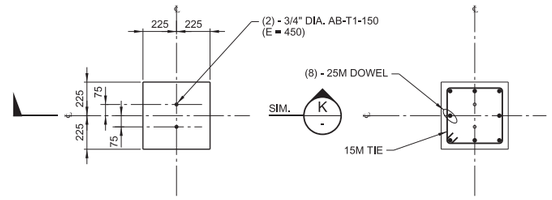



ANCHOR SETTINGS — REINFORCEMENT

## PEDESTAL TYPE P12

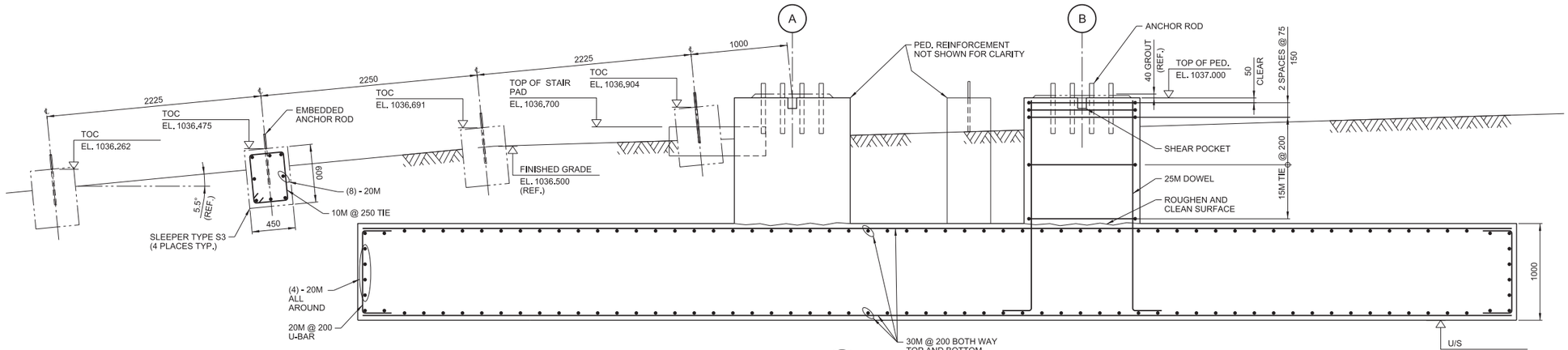
TOC EL. 1037.000
SCALE: 1:20




ANCHOR SETTINGS — REINFORCEMENT

## PEDESTAL TYPE P13

TOC EL. 1037.000
SCALE: 1:20




## SECTION K / -

SCALE: 1:25

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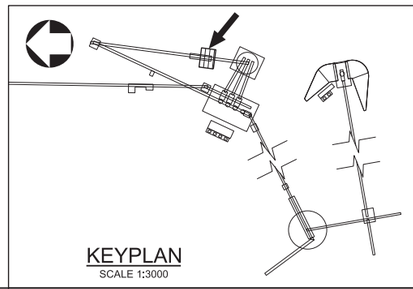
1:50 SCALE IN MILLIMETRES

NOTES:

1. FOR NOTES SEE DRAWING H354138-3330-231-260-0001.



KEYPLAN
SCALE 1:3000

THIS DRAWING WAS PREPARED FOR THE EXCLUSIVE USE OF STRATA GOLD ("CLIENT") AND IS ISSUED PURSUANT TO H354138 BETWEEN CLIENT AND HATCH LTD. ("HATCH"). UNLESS OTHERWISE AGREED IN WRITING WITH CLIENT OR SPECIFIED ON THIS DRAWING, (A) HATCH DOES NOT ACCEPT AND DISCLAIMS ANY AND ALL LIABILITY OR RESPONSIBILITY ARISING FROM ANY USE OF OR RELIANCE ON THIS DRAWING BY ANY THIRD PARTY OR ANY MODIFICATION OR MISUSE OF THIS DRAWING BY CLIENT, AND (B) THIS DRAWING IS CONFIDENTIAL AND ALL INTELLECTUAL PROPERTY RIGHTS EMBODIED OR REFERENCED IN THIS DRAWING REMAIN THE PROPERTY OF HATCH.

| No. | DESCRIPTION | BY | CHK'D | DATE |
|---|---|---|---|---|
| 0 | APPROVED FOR CONSTRUCTION | PJ | EA | 2018-09-18 |

| ROLE | NAME | SIGNATURE & DATE |
|---|---|---|
| DRAFTSPERSON | P. JIVAEV | NR 2018-09-05 |
| DESIGNER | H. LI | NR 2018-09-05 |
| CHECKER | E. AKINCI | |
| DESIGN COORD. | S. PERKINS | |
| RESP. ENG. | E. AKINCI | |
| LEAD DISC. ENG. | E. AKINCI | |
| ENG. MANAGER | B. RUSTAD | |
| PROJ. MANAGER | B. RUSTAD | |

DRAWING APPROVAL STATUS: Approved for Construction

HATCH

StrataGold Corporation

EAGLE GOLD PROJECT

TERTIARY TRANSFER CONVEYORS
3330-CV-019 CONVEYOR GTU FTG.
PLAN, SECTIONS AND DETAILS

| DRAWING No. | DRAWING TITLE |
|---|---|
| REFERENCE DRAWINGS | REG. PROFESSIONAL |

SCALE 1:50 OR AS NOTED

DWG. No. H354138-3330-231-260-0016

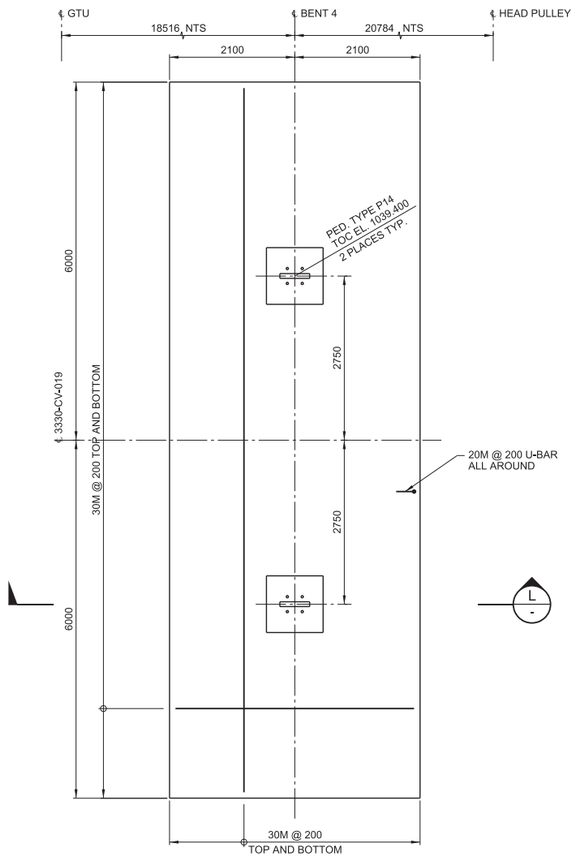
REV 0

SHEET SIZE: D

$FILELS
PRINTED: 19-SEP-2018
idc_pwservice
13:29

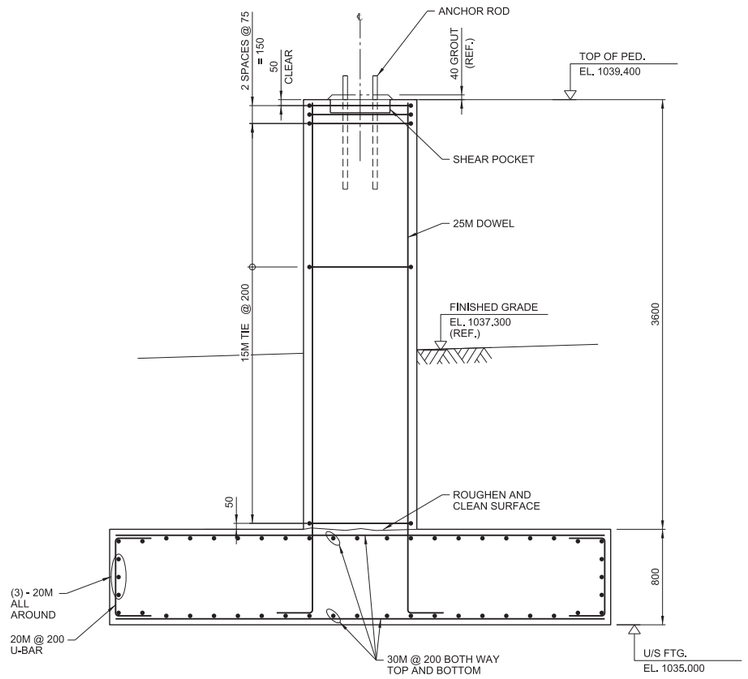
DWG. No. H354138-3330-231-260-0017

PLANT NORTH



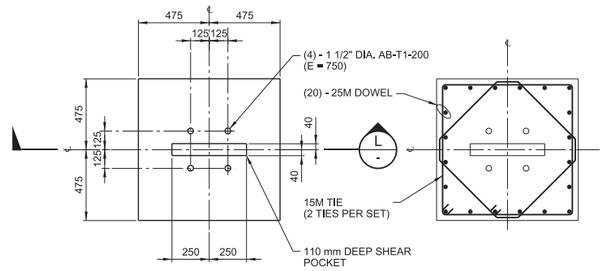

## 3330-CV-019 CONVEYOR BENT 4 FOUNDATION - PLAN

U/S FTG. EL. 1035.000




## SECTION L -

SCALE: 1:25



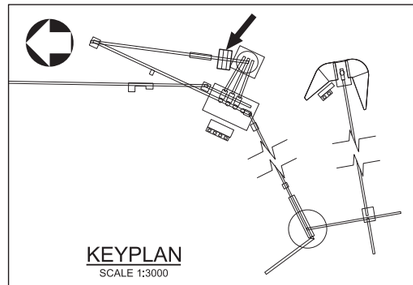

ANCHOR SETTINGS REINFORCEMENT

## PEDESTAL TYPE P14

TOC EL. 1039.400
SCALE: 1:20

NOTES:

1. FOR NOTES SEE DRAWING H354138-3330-231-260-0001.



KEYPLAN
SCALE 1:3000

0 500 1000 1500 2000 2500
1:50 SCALE IN MILLIMETRES

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| No. | DESCRIPTION | BY | CHK'D | DATE |
|---|---|---|---|---|
| 0 | APPROVED FOR CONSTRUCTION | PJ | EA | 2018-09-18 |

| DRAWING No. | DRAWING TITLE |
|---|---|
| REFERENCE DRAWINGS | |

REG. PROFESSIONAL

| | | | |
|---|---|---|---|
| DRAFTSPERSON | P. JIVAEV | NR | 2018-09-06 |
| DESIGNER | H. LI | NR | 2018-09-06 |
| CHECKER | E. AKINCI | | |
| DESIGN COORD. | S. PERKINS | | |
| RESP. ENG. | E. AKINCI | | |
| LEAD DISC. ENG. | E. AKINCI | | |
| ENG. MANAGER | B. RUSTAD | | |
| PROJ. MANAGER | B. RUSTAD | | |

| ROLE | NAME | SIGNATURE & DATE |
|---|---|---|
| DRAWING APPROVAL STATUS: | Approved for Construction | |

HATCH

StrataGold Corporation

EAGLE GOLD PROJECT

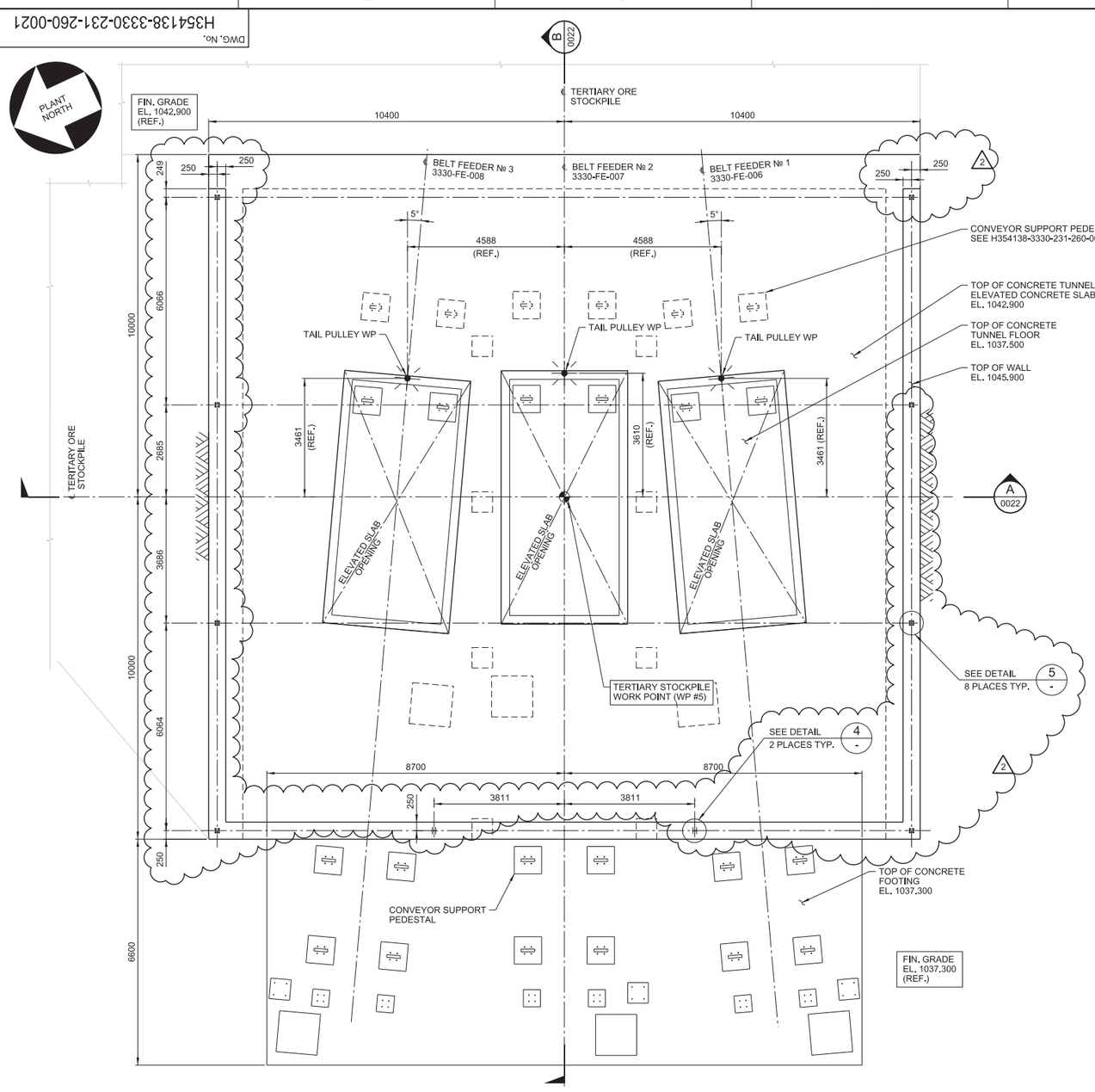
TERTIARY TRANSFER CONVEYORS
3330-CV-019 CONVEYOR BENT 4
PLAN, SECTIONS AND DETAILS

| SCALE | DWG. No. | REV |
|---|---|---|
| 1:50 OR AS NOTED | H354138-3330-231-260-0017 | 0 |

SHEET SIZE: D

SFILELS
PRINTED: 18-SEP-2018
13:29
idc_pwservice

DWG. No. H354138-3330-231-260-0021

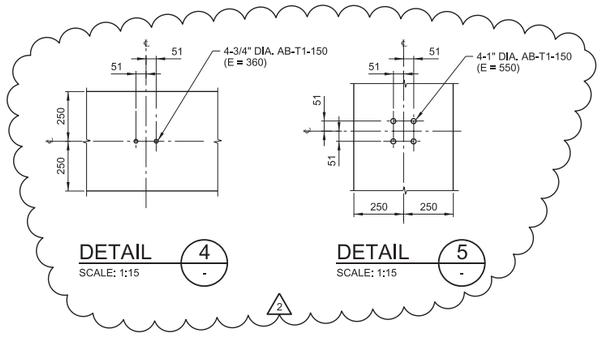



## TERTIARY ORE STOCKPILE RECLAIM TUNNEL - PLAN

FIN. GRADE EL. VARIES

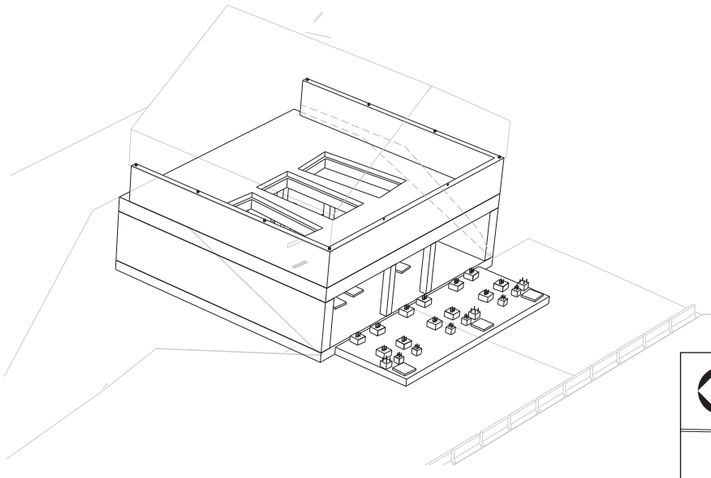
## FOUNDATION NOTES:

2.1 FOUNDATION SUBGRADE SHALL CONSIST OF SOUND BEDROCK.
2.2 THE PREPARED FOOTING SUBGRADE SHALL BE PROTECTED FROM WATER INGRESS AND SOFTENING BY PROVIDING ADEQUATE DRAINAGE OR PLACING A LEAN CONCRETE MUD SLAB.
2.3 ALL FOUNDATION SUBGRADE SHALL BE INSPECTED AND APPROVED BY THE GEOTECHNICAL ENGINEER PRIOR TO PLACEMENT OF CONCRETE.
2.4 ALL STRUCTURAL BACKFILL UNDER AND AROUND THE FOUNDATIONS AND SLAB ON GRADE SHALL BE "NFS STRUCTURAL FILL" AS DESCRIBED IN H354138-0000-220-210-0001 CIVIL DESIGN CRITERIA - TABLE 4-1.



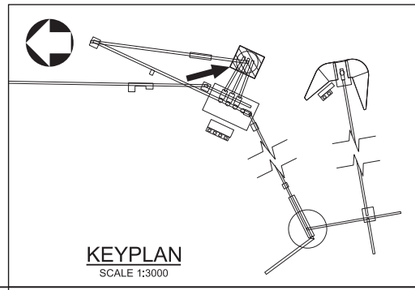

## GENERAL NOTES:

1.1 READ THESE DRAWINGS IN CONJUNCTION WITH ALL OTHER PERTINENT CONTRACT DOCUMENTS.
1.2 FOR CONCRETE TYPICAL DETAILS DRAWING SET AND GENERAL NOTES, SEE DRAWINGS H354138-0000-231-294-0001 TO -0007.
1.3 REFER TO MECHANICAL, PROCESS AND ELECTRICAL DRAWINGS FOR LOCATIONS AND DIMENSIONS OF OPENINGS, SLEEVES AND OTHER BUILDING COMPONENTS NOT SHOWN ON STRUCTURAL DRAWINGS. REPORT DISCREPENCIES TO THE OWNER OR HIS REPRESENTATIVE PRIOR TO PROCEEDING WITH THE WORK.
1.4 FOR GENERAL SITE LOCATION AND WORK POINT COORDINATES, SEE DRAWING H354138-2000-220-270-0003.
1.5 HIGH ENERGY COMPACTION EQUIPMENT SUCH AS LARGE ROLLERS MUST NOT BE USED FOR COMPACTING BACKFILL WITHIN 1 METER OF THE EDGE OF THE WALLS.
1.6 FOR GROUNDING LOOP SEE ELECTRICAL DRAWINGS H354138-3330-260-272-1000-0001 AND 0002. FOR GROUNDING INSTALLATION DETAILS SEE DRAWINGS H354138-0000-260-294-0001-0009 TO 0010.
1.7 FOR FINISHED GRADING PLAN SEE DRAWING H354138-2120-220-290-0002.
1.8 FOR CAST-IN PLACE CONCRETE, SEE SPECIFICATION SECTION H354138-S032000.
1.9 FOR CONCRETE FORMWORK, SEE SPECIFICATION SECTION H354138-S031000.
1.10 FOR CONCRETE REINFORCEMENT, SEE SPECIFICATION SECTION H354138-S033000.
1.11 FOR GROUTING, SEE SPECIFICATION SECTION H354138-S036000.
1.12 CONSTRUCTION JOINTS NOT SHOWN ON THE DRAWINGS MUST BE APPROVED BY THE CONTRUCTION MANAGER.
1.13 IN CASE OF ANY DISCREPANCIES, INFORM THE CONSTRUCTION MANAGER BEFORE COMMENCING WORK.
1.14 ALL DIMENSIONS ARE IN MILLIMETERS AND ELEVATIONS ARE IN METERS.
1.15 PROVIDE 19MM X 19MM CHAMFER AT ALL EXPOSED CONCRETE CORNERS AND EDGES ABOVE GRADE LEVEL EXCEPT TOP OF ALL THE PEDESTALS, GRADE BEAMS AND CURBS WHERE WALL CLADING TO BE CONNECTED.
1.16 THE DRAWINGS SHOULD BE READ IN CONJUNCTION WITH THE PROJECT CIVIL DESIGN CRITERIA H354138-0000-220-210-0001.
1.17 FOR FURTHER GEOTECH INFORMATION, SEE "2011 GEOTECHNICAL INVESTIGATION FOR MINE SITE INFRASTRUCTURE FOUNDATION REPORT" BY BGC ENGINEERING DATED JAN 31, 2012.
1.18 SET ANCHOR RODS USING TEMPLATES WHICH MUST BE LEFT IN PLACE UNTIL THE CONCRETE HAS SET. ANCHOR RODS SHALL BE PLUMBED AND SECURED FROM MOVEMENT PRIOR TO CASTING CONCRETE.



## ISOMETRIC VIEW

NTS



## KEYPLAN

SCALE 1:3000

0 750 1500 2250 3000 3750
1:75 SCALE IN MILLIMETRES

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| No. | DESCRIPTION | BY | CHK'D | DATE |
|---|---|---|---|---|
| 2 | ANCHOR ROD DETAILS 4 AND 5 ADDED | PJ | EA | 2018-10-25 |
| 1 | TOP OF CONCRETE FOOTING EL. 1037.300 SIZE REVISED, STAIR PADS ADDED | PJ | EA | 2018-10-01 |
| 0 | APPROVED FOR CONSTRUCTION | EM | EA | 2018-05-24 |

REVISIONS

| ROLE | NAME | SIGNATURE & DATE |
|---|---|---|
| DRAFTSPERSON | P. JIVAEV/E. MENDIOLA | NR 2018-03-28 |
| DESIGNER | F. LIU | NR 2018-03-28 |
| CHECKER | E. AKINCI | |
| DESIGN COORD. | S. PERKINS | |
| RESP. ENG. | E. AKINCI | |
| LEAD DISC. ENG. | E. AKINCI | |
| ENG. MANAGER | B. RUSTAD | |
| PROJ. MANAGER | B. RUSTAD | |

DRAWING APPROVAL STATUS: Approved for Construction

HATCH

StrataGold Corporation

EAGLE GOLD PROJECT

TERTIARY ORE STOCKPILE
RECLAIM TUNNEL
GENERAL ARRANGEMENT - PLAN

SCALE 1:75 OR AS NOTED

DWG. No. H354138-3330-231-260-0021

REV 2

SHEET SIZE: D

DRAWING No. | DRAWING TITLE

REFERENCE DRAWINGS

REG. PROFESSIONAL

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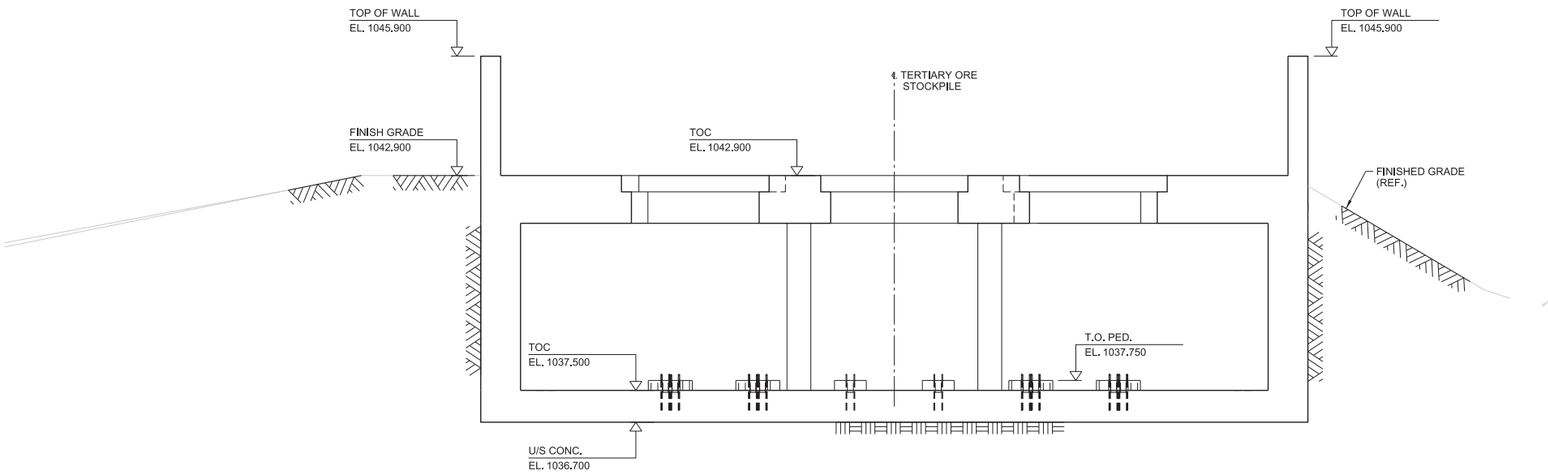
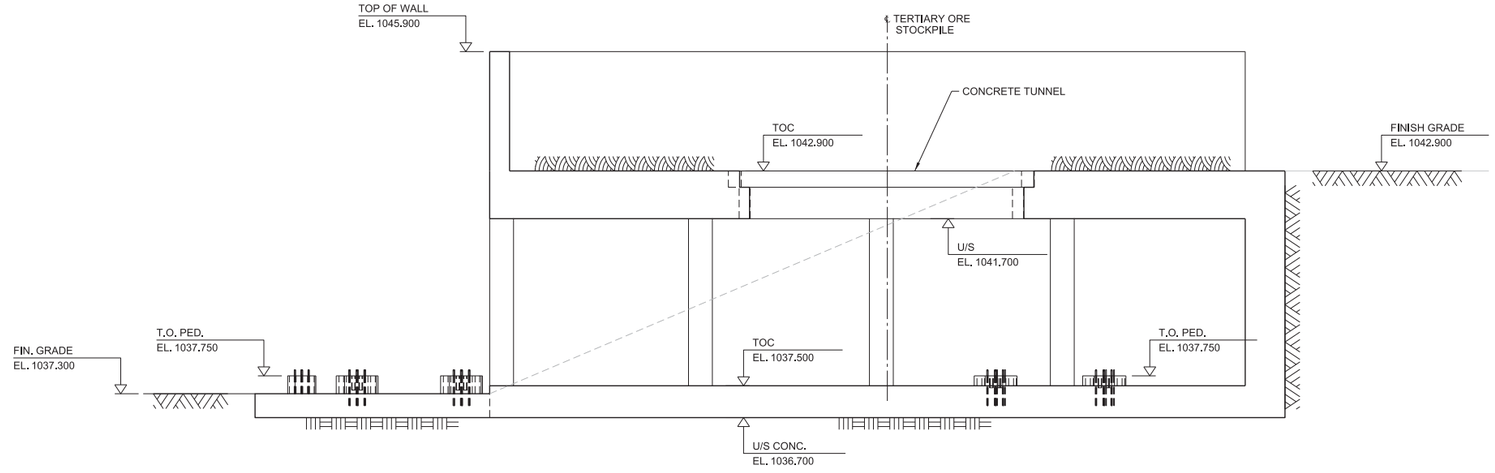
PRINTED: 25-OCT-2018 11:25
idc_pwservice

DWG. No. H354138-3330-231-260-0022



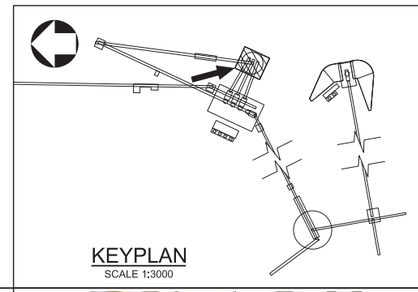

SECTION A
0021




SECTION B
0021

NOTES:

1. FOR NOTES SEE DRAWING H354138-3330-231-260-0021.



KEYPLAN
SCALE 1:3000

0 750 1500 2250 3000 3750
1:75 SCALE IN MILLIMETRES

THIS DRAWING WAS PREPARED FOR THE EXCLUSIVE USE OF STRATA GOLD ("CLIENT") AND IS ISSUED PURSUANT TO H354138 BETWEEN CLIENT AND HATCH LTD. ("HATCH"). UNLESS OTHERWISE AGREED IN WRITING WITH CLIENT OR SPECIFIED ON THIS DRAWING, (A) HATCH DOES NOT ACCEPT AND DISCLAIMS ANY AND ALL LIABILITY OR RESPONSIBILITY ARISING FROM ANY USE OF OR RELIANCE ON THIS DRAWING BY ANY THIRD PARTY OR ANY MODIFICATION OR MISUSE OF THIS DRAWING BY CLIENT, AND (B) THIS DRAWING IS CONFIDENTIAL AND ALL INTELLECTUAL PROPERTY RIGHTS EMBODIED OR REFERENCED IN THIS DRAWING REMAIN THE PROPERTY OF HATCH.

HATCH

| ROLE | NAME | SIGNATURE & DATE |
|---|---|---|
| DRAFTSPERSON | P. JIVAEV | NR 2018-03-28 |
| DESIGNER | F. LIU | NR 2018-03-28 |
| CHECKER | E. AKINCI | |
| DESIGN COORD. | S. PERKINS | |
| RESP. ENG. | E. AKINCI | |
| LEAD DISC. ENG. | E. AKINCI | |
| ENG. MANAGER | B. RUSTAD | |
| PROJ. MANAGER | B. RUSTAD | |

| No. | DESCRIPTION | BY | CHK'D | DATE |
|---|---|---|---|---|
| 0 | APPROVED FOR CONSTRUCTION | EM | EA | 2018-05-24 |

DRAWING APPROVAL STATUS: Approved for Construction

StrataGold Corporation

EAGLE GOLD PROJECT

TERTIARY ORE STOCKPILE
RECLAIM TUNNEL
SECTIONS

| DRAWING No. | DRAWING TITLE |
|---|---|
| REFERENCE DRAWINGS | |

REG. PROFESSIONAL

| SCALE | DWG. No. | REV |
|---|---|---|
| 1:75 OR AS NOTED | H354138-3330-231-260-0022 | 0 |

SHEET SIZE: D

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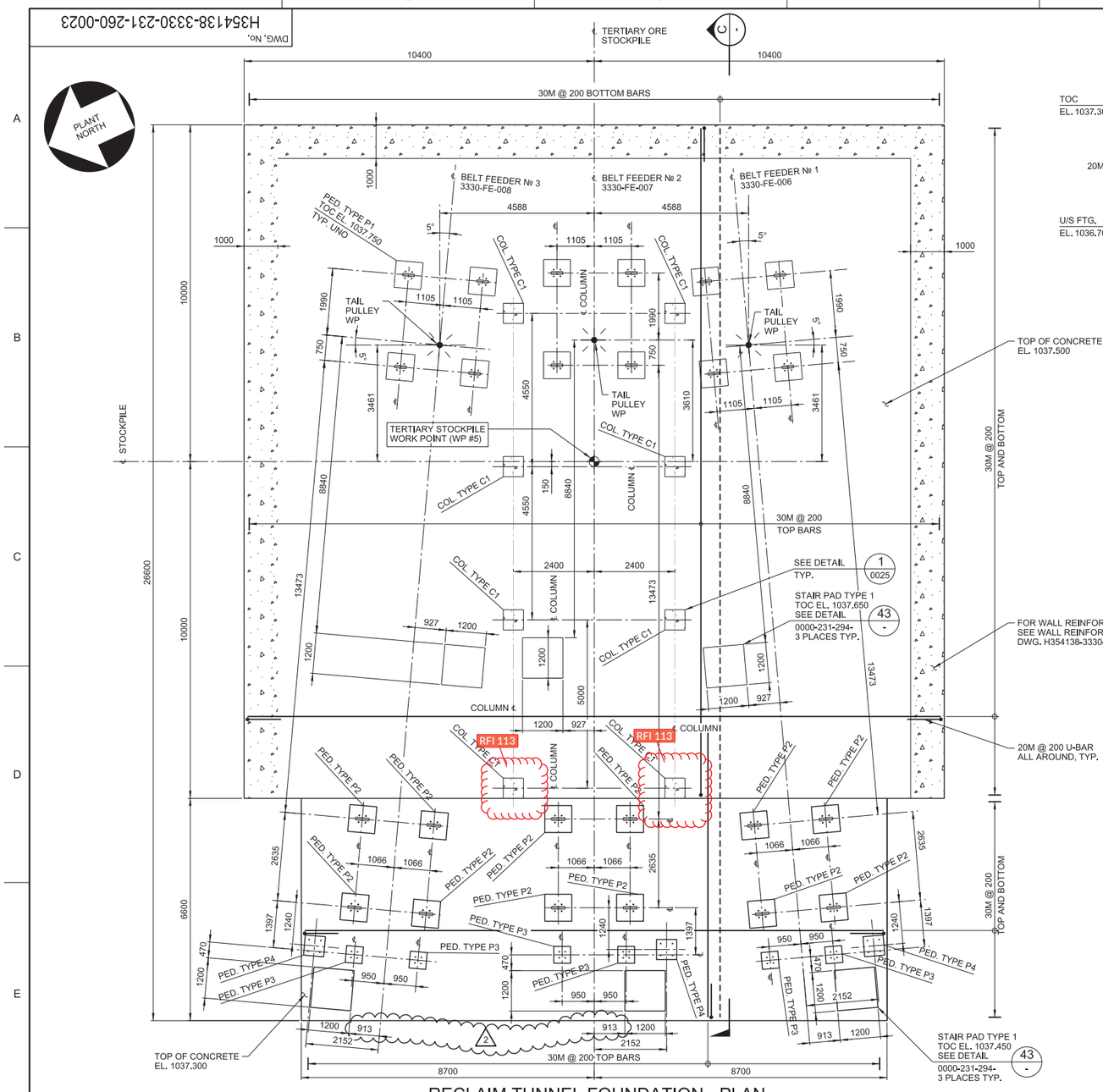
PRINTED: 23-MAY-2018
tdc_pwservice
20:41

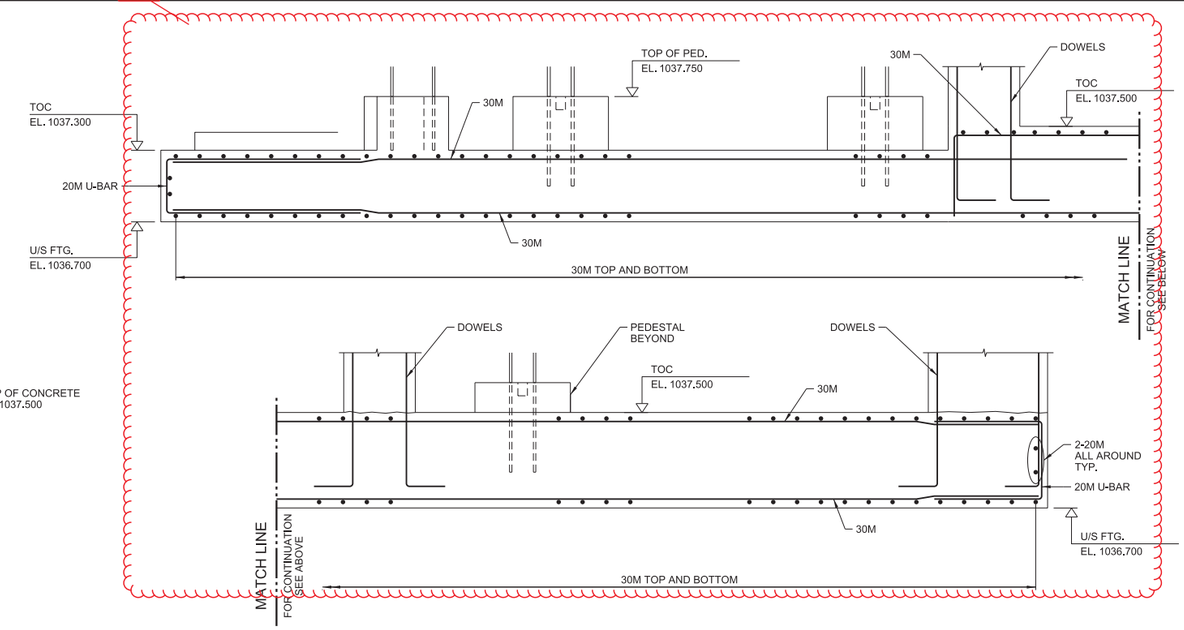
DWG. No. H354138-3330-231-260-0023




## RECLAIM TUNNEL FOUNDATION - PLAN

SCALE 1:75

RFI 88

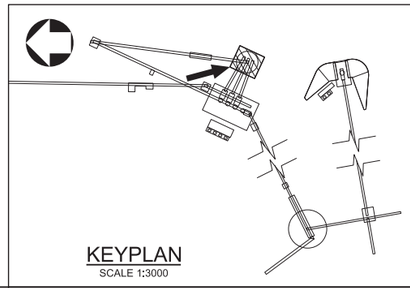



## SECTION C

SCALE 1:25

NOTES:

1. FOR NOTES SEE DRAWING H354138-3330-231-260-0021.



KEYPLAN

SCALE 1:3000

0 250 500 750 1000 1250
1:25 SCALE IN MILLIMETRES

0 750 1500 2250 3000 3750
1:75 SCALE IN MILLIMETRES

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| No. | DESCRIPTION | BY | CHK'D | DATE |
|---|---|---|---|---|
| 2 | LOCATION OF 2 STAIR PADS REVISED | PJ | EA | 2018-10-01 |
| 1 | PED. TYPE P4 AND STAIR PADS ADDED | PJ | EA | 2018-09-24 |
| 0 | APPROVED FOR CONSTRUCTION | EM | EA | 2018-05-24 |

| ROLE | NAME | SIGNATURE & DATE |
|---|---|---|
| DRAFTSPERSON | P. JIVAEV/E. MENDIOLA | NR 2018-03-28 |
| DESIGNER | F. LIU | NR 2018-03-28 |
| CHECKER | E. AKINCI | |
| DESIGN COORD. | S. PERKINS | |
| RESP. ENG. | E. AKINCI | |
| LEAD DISC. ENG. | E. AKINCI | |
| ENG. MANAGER | B. RUSTAD | |
| PROJ. MANAGER | B. RUSTAD | |

DRAWING APPROVAL STATUS: Approved for Construction

HATCH

StrataGold Corporation

EAGLE GOLD PROJECT

TERTIARY ORE STOCKPILE
RECLAIM TUNNEL
PLAN BASE

SCALE: AS NOTED OR AS NOTED

DWG. No. H354138-3330-231-260-0023

REV 2

SHEET SIZE: D

DRAWING No. | DRAWING TITLE

REFERENCE DRAWINGS

REG. PROFESSIONAL

REVISIONS

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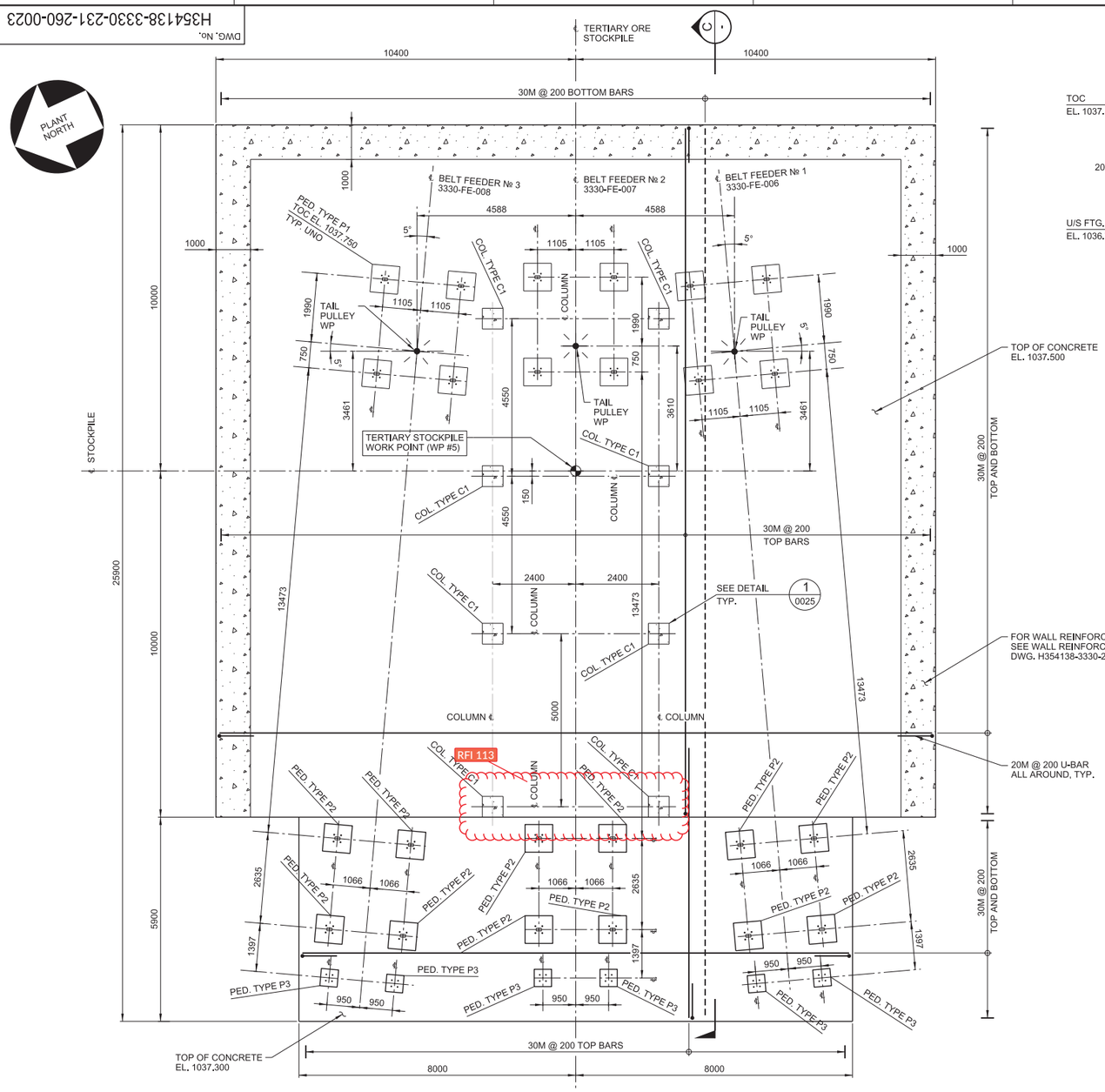
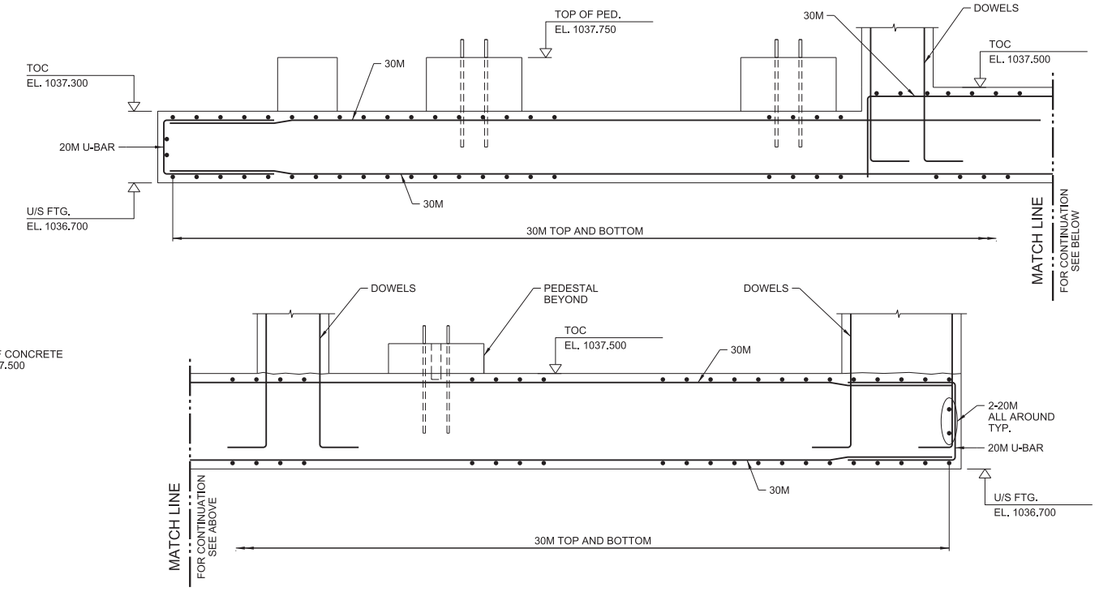
PRINTED: 01-OCT-2018 14:00
tdc_pwservice

DWG. No. H354138-3330-231-260-0023




## RECLAIM TUNNEL FOUNDATION - PLAN

SCALE 1:75

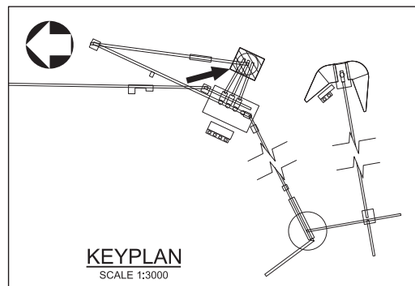



## SECTION C

SCALE 1:25

NOTES:

1. FOR NOTES SEE DRAWING H354138-3330-231-260-0021.



KEYPLAN

SCALE 1:3000

0 250 500 750 1000 1250
1:25 SCALE IN MILLIMETRES

0 750 1500 2250 3000 3750
1:75 SCALE IN MILLIMETRES

THIS DRAWING WAS PREPARED FOR THE EXCLUSIVE USE OF STRATA GOLD ("CLIENT") AND IS ISSUED PURSUANT TO H354138 BETWEEN CLIENT AND HATCH LTD. ("HATCH"). UNLESS OTHERWISE AGREED IN WRITING WITH CLIENT OR SPECIFIED ON THIS DRAWING, (A) HATCH DOES NOT ACCEPT AND DISCLAIMS ANY AND ALL LIABILITY OR RESPONSIBILITY ARISING FROM ANY USE OF OR RELIANCE ON THIS DRAWING BY ANY THIRD PARTY OR ANY MODIFICATION OR MISUSE OF THIS DRAWING BY CLIENT, AND (B) THIS DRAWING IS CONFIDENTIAL AND ALL INTELLECTUAL PROPERTY RIGHTS EMBODIED OR REFERENCED IN THIS DRAWING REMAIN THE PROPERTY OF HATCH.

| | | | | | |
|---|---|---|---|---|---|
| 0 | APPROVED FOR CONSTRUCTION | EM | EA | 2018-05-24 | |

| REVISIONS | | | | |
|---|---|---|---|---|
| No. | DESCRIPTION | BY | CHK'D | DATE |

| | | | |
|---|---|---|---|
| DRAFTSPERSON | P. JIVAEV/E. MENDIOLA | NR | 2018-03-28 |
| DESIGNER | F. LIU | NR | 2018-03-28 |
| CHECKER | E. AKINCI | | |
| DESIGN COORD. | S. PERKINS | | |
| RESP. ENG. | E. AKINCI | | |
| LEAD DISC. ENG. | E. AKINCI | | |
| ENG. MANAGER | B. RUSTAD | | |
| PROJ. MANAGER | B. RUSTAD | | |

| ROLE | NAME | SIGNATURE & DATE |
|---|---|---|

DRAWING APPROVAL STATUS: Approved for Construction

| DRAWING No. | DRAWING TITLE |
|---|---|

REFERENCE DRAWINGS

REG. PROFESSIONAL

HATCH

StrataGold Corporation

EAGLE GOLD PROJECT

TERTIARY ORE STOCKPILE
RECLAIM TUNNEL
PLAN BASE

| SCALE | DWG. No. | REV |
|---|---|---|
| AS NOTED OR AS NOTED | H354138-3330-231-260-0023 | 0 |

SHEET SIZE: D

SFILELS
PRINTED: 23-MAY-2018
tdc_pwservice
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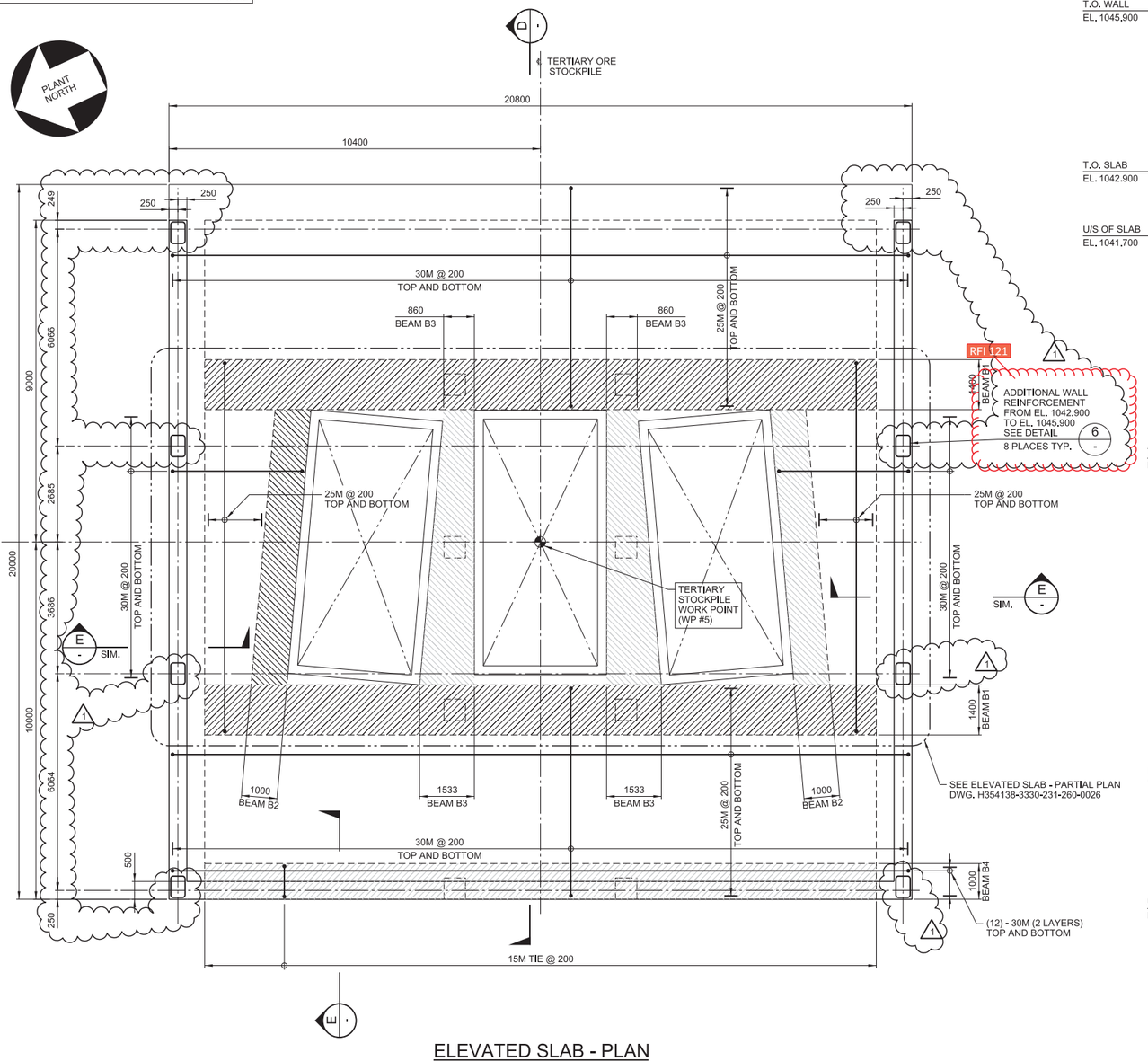
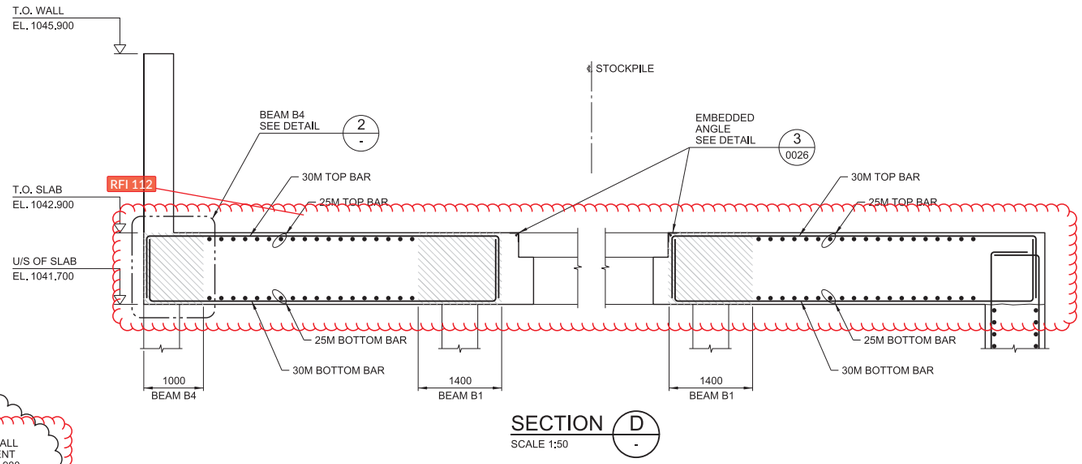
DWG. No. H354138-3330-231-260-0024

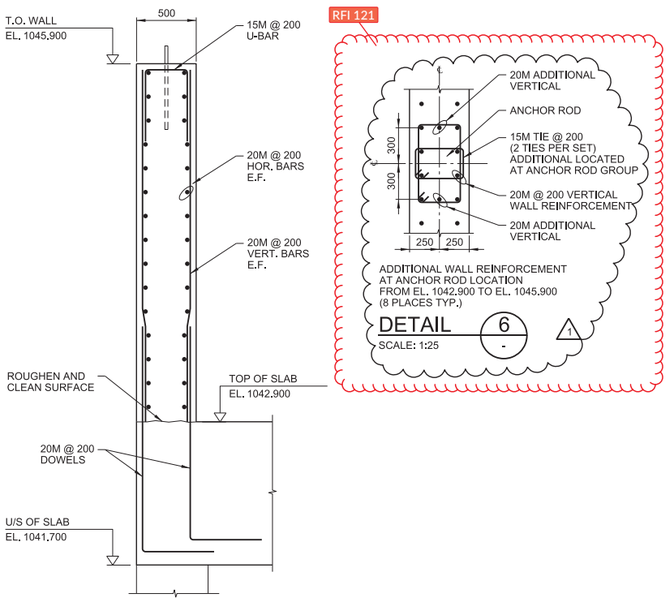



## ELEVATED SLAB - PLAN

TOC EL. 1042.900
SCALE 1:75



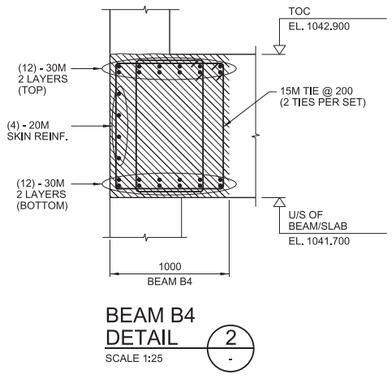

## SECTION D -
SCALE 1:50




## TYP. WALL REINFORCING SECTION E -
SCALE 1:25



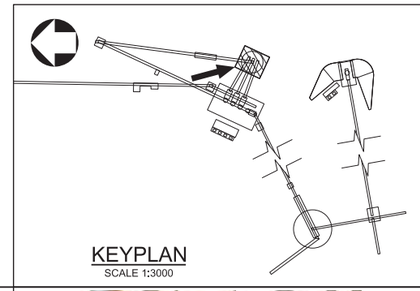

## DETAIL 6 -
SCALE: 1:25




## BEAM B4 DETAIL 2 -
SCALE 1:25

### NOTES:

1. FOR NOTES SEE DRAWING H354138-3330-231-260-0021.



## KEYPLAN
SCALE 1:3000

0 250 500 750 1000 1250 — 1:25 SCALE IN MILLIMETRES
0 500 1000 1500 2000 2500 — 1:50 SCALE IN MILLIMETRES
0 750 1500 2250 3000 3750 — 1:75 SCALE IN MILLIMETRES

THIS DRAWING WAS PREPARED FOR THE EXCLUSIVE USE OF STRATA GOLD ("CLIENT") AND IS ISSUED PURSUANT TO H354138 BETWEEN CLIENT AND HATCH LTD. ("HATCH"). UNLESS OTHERWISE AGREED IN WRITING WITH CLIENT OR SPECIFIED ON THIS DRAWING, (A) HATCH DOES NOT ACCEPT AND DISCLAIMS ANY AND ALL LIABILITY OR RESPONSIBILITY ARISING FROM ANY USE OF OR RELIANCE ON THIS DRAWING BY ANY THIRD PARTY OR ANY MODIFICATION OR MISUSE OF THIS DRAWING BY CLIENT, AND (B) THIS DRAWING IS CONFIDENTIAL AND ALL INTELLECTUAL PROPERTY RIGHTS EMBODIED OR REFERENCED IN THIS DRAWING REMAIN THE PROPERTY OF HATCH.

| DRAWING No. | DRAWING TITLE |
|---|---|
| REFERENCE DRAWINGS | |

REG. PROFESSIONAL

| No. | DESCRIPTION | BY | CHK'D | DATE |
|---|---|---|---|---|
| 1 | ADDITIONAL RENFORCEMENT ADDED AT BOLT LOCATIONS, DETAIL 6 ADDED, DRAWING TITLE REVISED | PJ | EA | 2018-10-25 |
| 0 | APPROVED FOR CONSTRUCTION | EM | EA | 2018-05-24 |

REVISIONS

| ROLE | NAME | SIGNATURE & DATE |
|---|---|---|
| DRAFTSPERSON | E. MENDIOLA | NR 2018-03-28 |
| DESIGNER | F. LIU | NR 2018-03-28 |
| CHECKER | E. AKINCI | |
| DESIGN COORD. | S. PERKINS | |
| RESP. ENG. | E. AKINCI | |
| LEAD DISC. ENG. | E. AKINCI | |
| ENG. MANAGER | B. RUSTAD | |
| PROJ. MANAGER | B. RUSTAD | |

DRAWING APPROVAL STATUS: Approved for Construction

HATCH

StrataGold Corporation

EAGLE GOLD PROJECT

TERTIARY ORE STOCKPILE
RECLAIM TUNNEL
PLAN BASE - REINFORCEMENT 1

| SCALE | DWG. No. | REV |
|---|---|---|
| AS NOTED OR AS NOTED | H354138-3330-231-260-0024 | 1 |

SHEET SIZE: D

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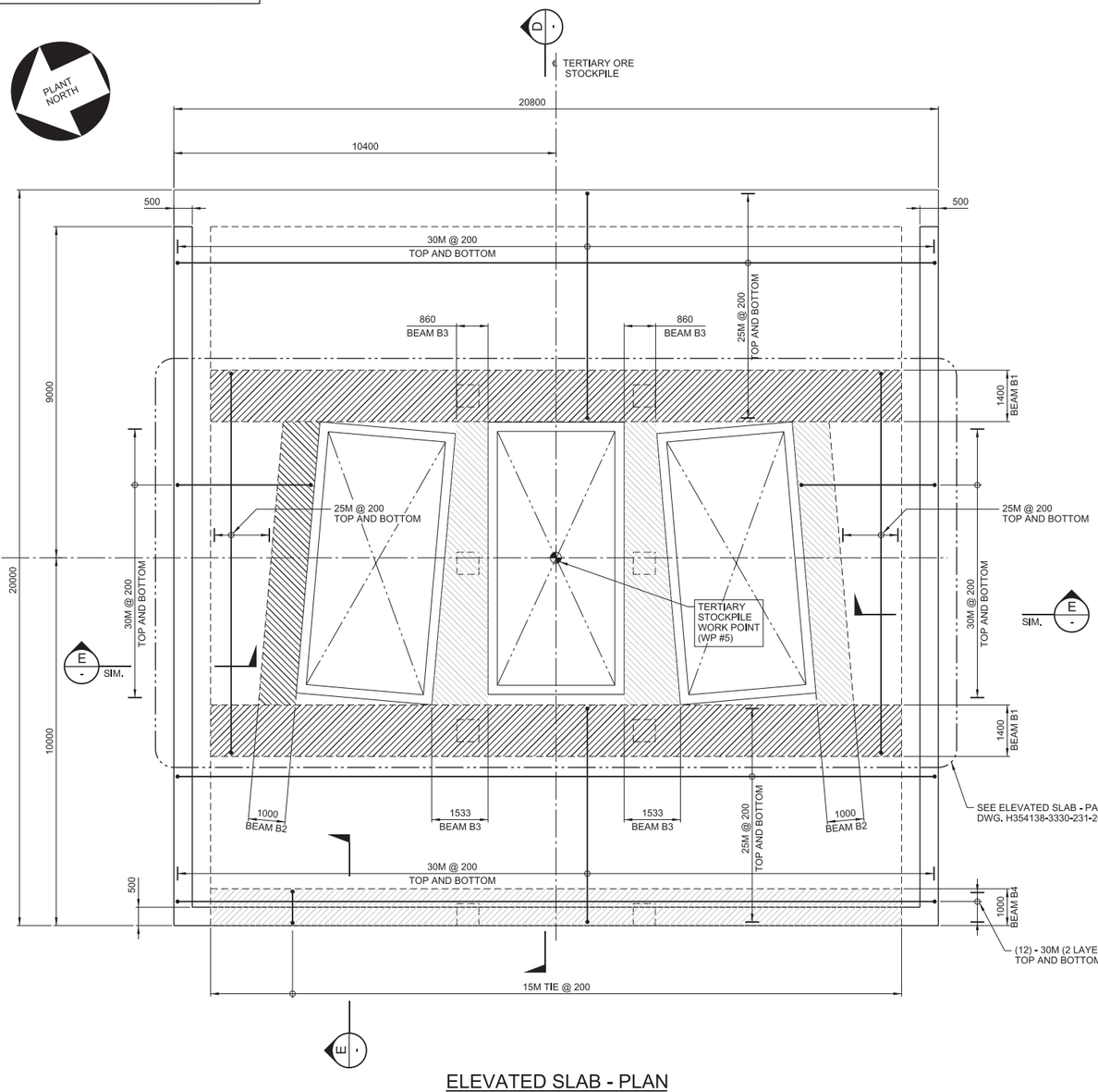
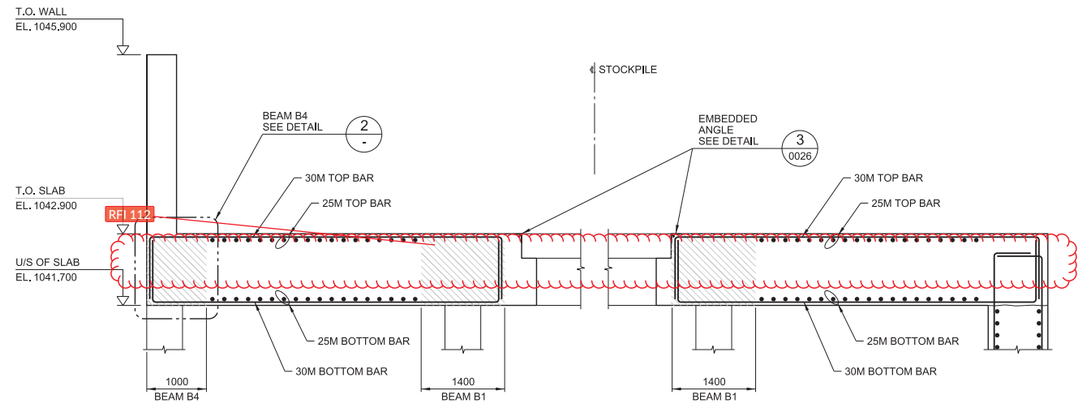
PRINTED: 25-OCT-2018
idc_pwservice
11:25

DWG. No. H354138-3330-231-260-0024



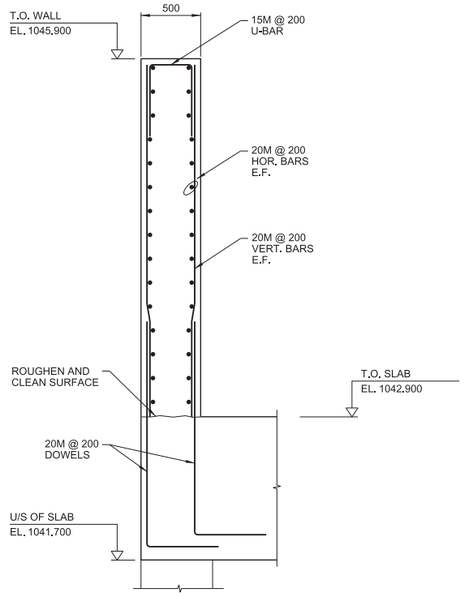

## ELEVATED SLAB - PLAN

TOC EL. 1042.900
SCALE 1:75



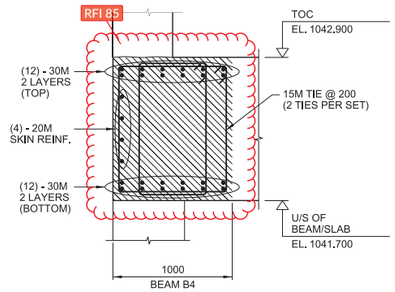

## SECTION D -

SCALE 1:50




## TYP. WALL REINFORCING SECTION E -

SCALE 1:25

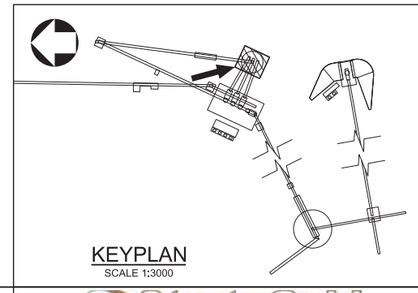



## BEAM B4 DETAIL 2 -

SCALE 1:25

NOTES:

1. FOR NOTES SEE DRAWING H354138-3330-231-260-0021.



KEYPLAN
SCALE 1:3000

0 250 500 750 1000 1250
1:25 SCALE IN MILLIMETRES

0 500 1000 1500 2000 2500
1:50 SCALE IN MILLIMETRES

0 750 1500 2250 3000 3750
1:75 SCALE IN MILLIMETRES

THIS DRAWING WAS PREPARED FOR THE EXCLUSIVE USE OF STRATA GOLD ("CLIENT") AND IS ISSUED PURSUANT TO H354138 BETWEEN CLIENT AND HATCH LTD. ("HATCH"). UNLESS OTHERWISE AGREED IN WRITING WITH CLIENT OR SPECIFIED ON THIS DRAWING, (A) HATCH DOES NOT ACCEPT AND DISCLAIMS ANY AND ALL LIABILITY OR RESPONSIBILITY ARISING FROM ANY USE OF OR RELIANCE ON THIS DRAWING BY ANY THIRD PARTY OR ANY MODIFICATION OR MISUSE OF THIS DRAWING BY CLIENT, AND (B) THIS DRAWING IS CONFIDENTIAL AND ALL INTELLECTUAL PROPERTY RIGHTS EMBODIED OR REFERENCED IN THIS DRAWING REMAIN THE PROPERTY OF HATCH.

| REVISIONS | | | | |
|---|---|---|---|---|
| No. | DESCRIPTION | BY | CHK'D | DATE |
| 0 | APPROVED FOR CONSTRUCTION | EM | EA | 2018-05-24 |

| ROLE | NAME | SIGNATURE & DATE |
|---|---|---|
| DRAFTSPERSON | E. MENDIOLA | NR 2018-03-28 |
| DESIGNER | F. LIU | NR 2018-03-28 |
| CHECKER | E. AKINCI | |
| DESIGN COORD. | S. PERKINS | |
| RESP. ENG. | E. AKINCI | |
| LEAD DISC. ENG. | E. AKINCI | |
| ENG. MANAGER | B. RUSTAD | |
| PROJ. MANAGER | B. RUSTAD | |

DRAWING APPROVAL STATUS: Approved for Construction

REFERENCE DRAWINGS | DRAWING No. | DRAWING TITLE

REG. PROFESSIONAL

HATCH

StrataGold Corporation

EAGLE GOLD PROJECT

TERTIARY ORE STOCKPILE
RECLAIM TUNNEL
PLAN BASE

SCALE AS NOTED OR AS NOTED

DWG. No. H354138-3330-231-260-0024

REV 0

SHEET SIZE: D

$FILELS
PRINTED: 23-MAY-2018
idc_pwservice
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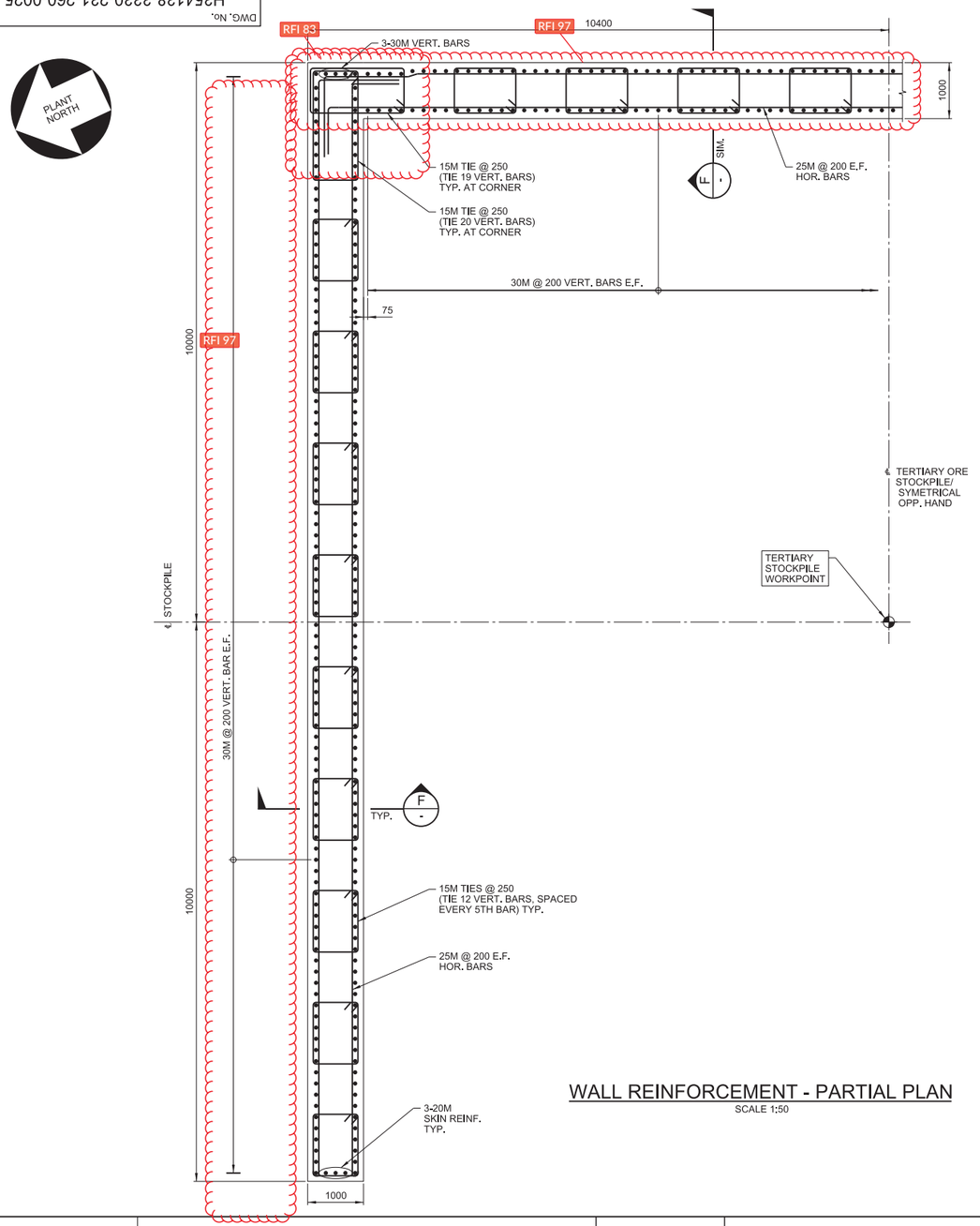
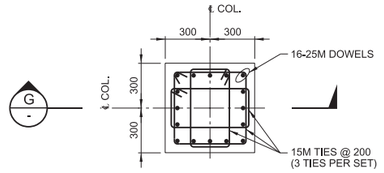
DWG. No. H354138-3330-231-260-0025

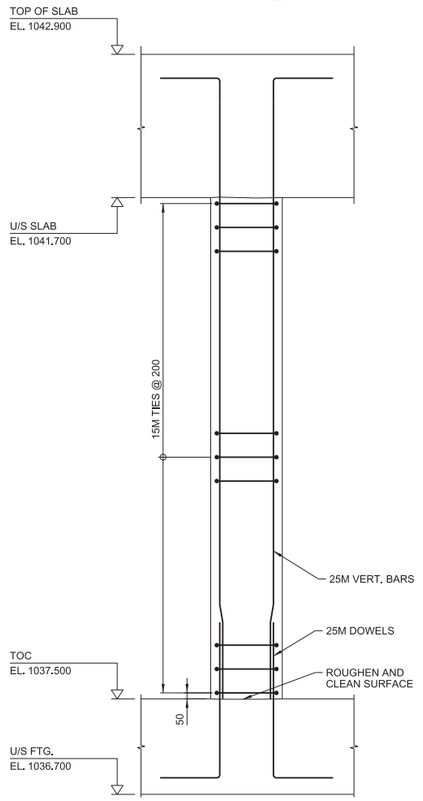



## WALL REINFORCEMENT - PARTIAL PLAN
SCALE 1:50

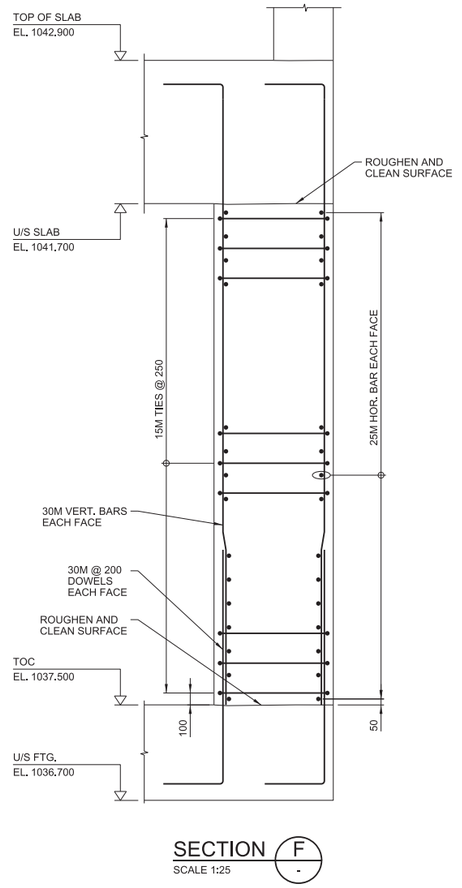



REINFORCEMENT

## COLUMN TYPE C1 DETAIL 1 (0023)
SCALE 1:20




## SECTION G
SCALE 1:25




## SECTION F
SCALE 1:25

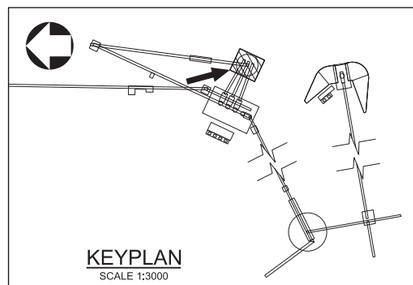
NOTES:

1. FOR NOTES SEE DRAWING H354138-3330-231-260-0021.

0 200 400 600 800 1000
1:20 SCALE IN MILLIMETRES

0 250 500 750 1000 1250
1:25 SCALE IN MILLIMETRES

0 500 1000 1500 2000 2500
1:50 SCALE IN MILLIMETRES



KEYPLAN
SCALE 1:3000

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| DRAWING No. | DRAWING TITLE |
|---|---|
| REFERENCE DRAWINGS | REG. PROFESSIONAL |

| No. | DESCRIPTION | BY | CHK'D | DATE |
|---|---|---|---|---|
| 0 | APPROVED FOR CONSTRUCTION | EM | EA | 2018-05-24 |

REVISIONS

| ROLE | NAME | SIGNATURE & DATE |
|---|---|---|
| DRAFTSPERSON | P. JIVAEV/E. MENDIOLA | NR 2018-03-28 |
| DESIGNER | F. LIU | NR 2018-03-28 |
| CHECKER | E. AKINCI | |
| DESIGN COORD. | S. PERKINS | |
| RESP. ENG. | E. AKINCI | |
| LEAD DISC. ENG. | E. AKINCI | |
| ENG. MANAGER | B. RUSTAD | |
| PROJ. MANAGER | B. RUSTAD | |

DRAWING APPROVAL STATUS: Approved for Construction

HATCH

StrataGold Corporation

EAGLE GOLD PROJECT

TERTIARY ORE STOCKPILE
RECLAIM TUNNEL
WALL REINFORCEMENT

SCALE: AS NOTED OR AS NOTED

DWG. No. H354138-3330-231-260-0025

REV 0

SHEET SIZE: D

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PRINTED: 23-MAY-2018
idc_pwservice
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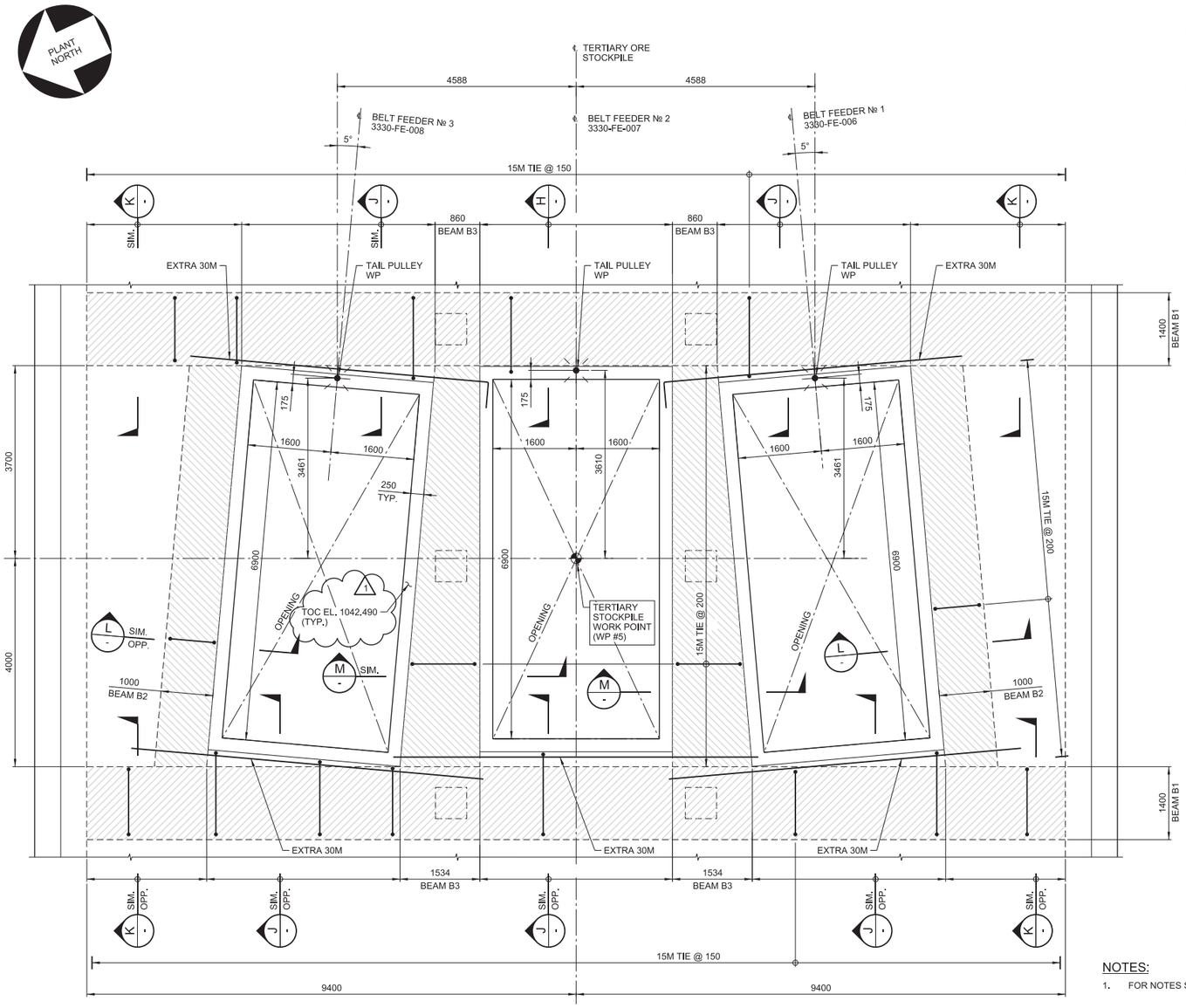
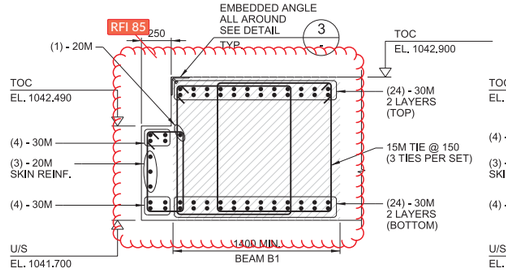
DWG. No. H354138-3330-231-260-0026

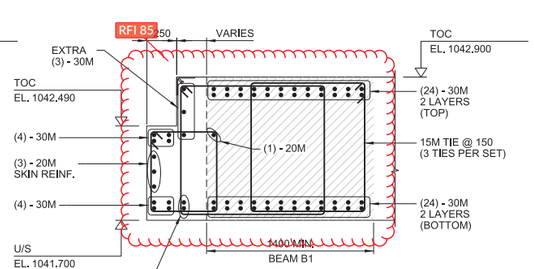



## ELEVATED SLAB - PARTIAL PLAN

TOC EL. 1042.900
U/S EL. 1041.700
SCALE 1:50




BEAM B1 SECTION H - SCALE: 1:25

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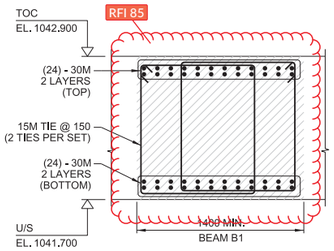
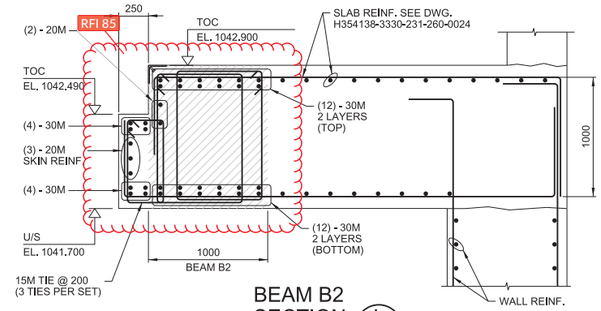
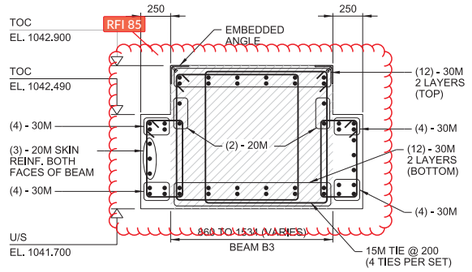


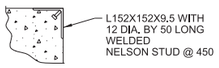

BEAM B1 SECTION K - SCALE: 1:25



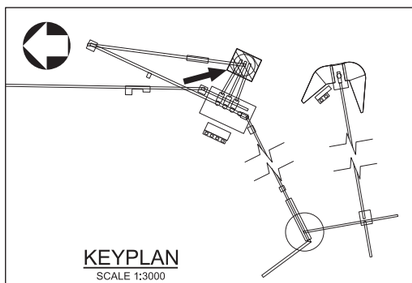

BEAM B2 SECTION L - SCALE: 1:25




BEAM B3 SECTION M - SCALE: 1:25




DETAIL 3 / 3 0024 - SCALE: 1:15



KEYPLAN - SCALE 1:3000

NOTES:

1. FOR NOTES SEE DRAWING H354138-3330-231-260-0021.

0 150 300 150 600 750 — 1:15 SCALE IN MILLIMETRES
0 250 500 750 1000 1250 — 1:25 SCALE IN MILLIMETRES
0 500 1000 1500 2000 2500 — 1:50 SCALE IN MILLIMETRES

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| No. | DESCRIPTION | BY | CHK'D | DATE |
|---|---|---|---|---|
| 1 | ELEVATION CORRECTED | PJ | EA | 2018-08-09 |
| 0 | APPROVED FOR CONSTRUCTION | EM | EA | 2018-05-24 |

| | | | |
|---|---|---|---|
| DRAFTSPERSON | P. JIVAEV/E. MENDIOLA | NR | 2018-03-28 |
| DESIGNER | F. LIU | NR | 2018-03-28 |
| CHECKER | E. AKINCI | | |
| DESIGN COORD. | S. PERKINS | | |
| RESP. ENG. | E. AKINCI | | |
| LEAD DISC. ENG. | E. AKINCI | | |
| ENG. MANAGER | B. RUSTAD | | |
| PROJ. MANAGER | B. RUSTAD | | |

DRAWING APPROVAL STATUS: Approved for Construction

HATCH

StrataGold Corporation

EAGLE GOLD PROJECT

TERTIARY ORE STOCKPILE RECLAIM TUNNEL PLAN ELEVATED SLAB

| DRAWING No. | DRAWING TITLE |
|---|---|
| REFERENCE DRAWINGS | REG. PROFESSIONAL |

SCALE AS NOTED OR AS NOTED

DWG. No. H354138-3330-231-260-0026

REV 1

SHEET SIZE: D

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PRINTED: 09-AUG-2018
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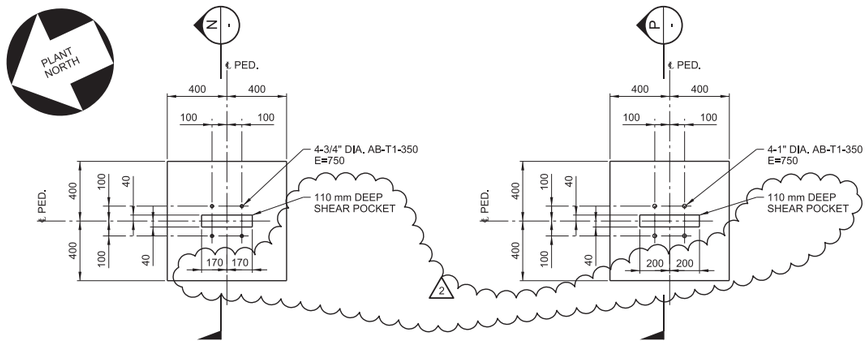
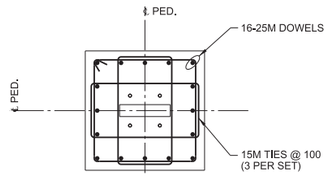
19:11

DWG. No. H354138-3330-231-260-0027




ANCHOR SETTING

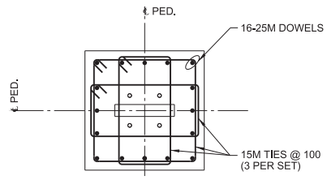



REINFORCEMENT

## PEDESTAL TYPE P1




ANCHOR SETTING




REINFORCEMENT

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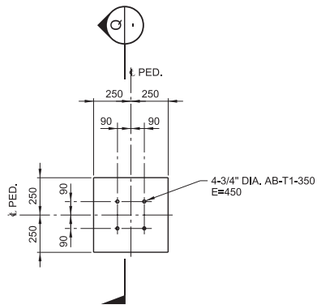


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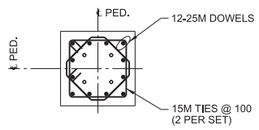
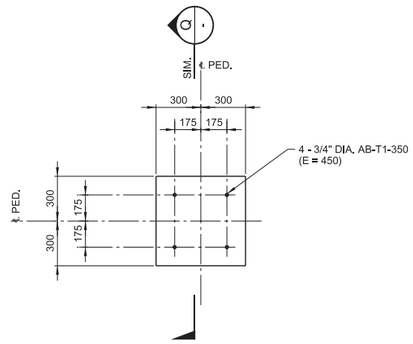



REINFORCEMENT

## PEDESTAL TYPE P3

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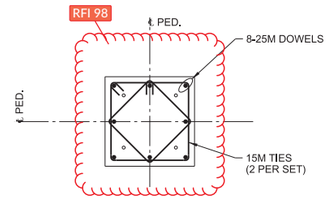


REINFORCEMENT

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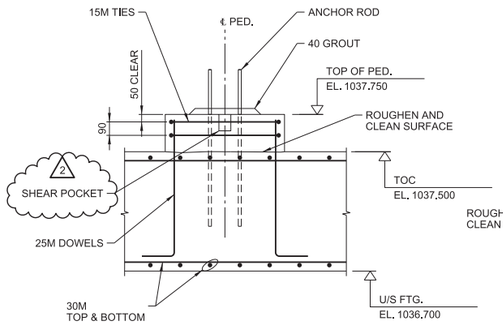
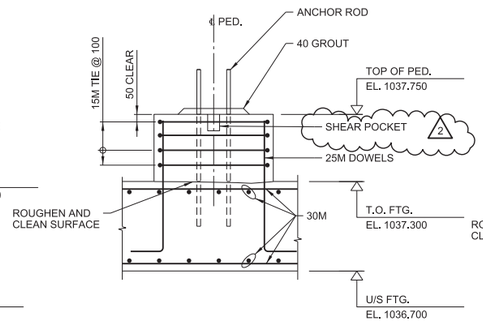
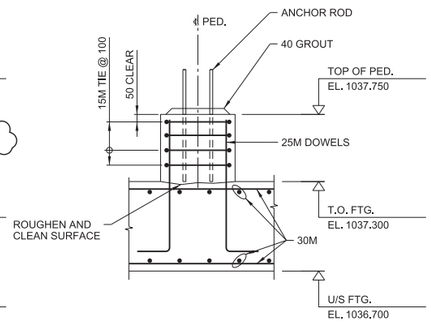



SECTION N -



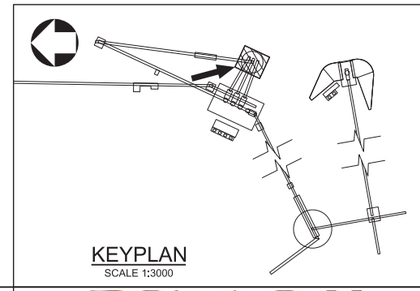

SECTION P -




SECTION Q -

NOTES:

1. FOR NOTES SEE DRAWING H354138-3330-231-260-0021.



KEYPLAN
SCALE 1:3000

0 200 400 600 800 1000
1:20 SCALE IN MILLIMETRES

THIS DRAWING WAS PREPARED FOR THE EXCLUSIVE USE OF STRATA GOLD ("CLIENT") AND IS ISSUED PURSUANT TO H354138 BETWEEN CLIENT AND HATCH LTD. ("HATCH"). UNLESS OTHERWISE AGREED IN WRITING WITH CLIENT OR SPECIFIED ON THIS DRAWING, (A) HATCH DOES NOT ACCEPT AND DISCLAIMS ANY AND ALL LIABILITY OR RESPONSIBILITY ARISING FROM ANY USE OF OR RELIANCE ON THIS DRAWING BY ANY THIRD PARTY OR ANY MODIFICATION OR MISUSE OF THIS DRAWING BY CLIENT, AND (B) THIS DRAWING IS CONFIDENTIAL AND ALL INTELLECTUAL PROPERTY RIGHTS EMBODIED OR REFERENCED IN THIS DRAWING REMAIN THE PROPERTY OF HATCH.

| No. | DESCRIPTION | BY | CHK'D | DATE |
|---|---|---|---|---|
| 2 | PEDESTAL P1 AND P2 SHEAR KEY REVISED | PJ | EA | 2018-10-01 |
| 1 | ANCHOR ROD PROJECTION REVISED, PEDESTAL TYPE P4 ADDED | PJ | EA | 2018-09-25 |
| 0 | PREVIOUS DRAWING NUMBER H354138-3300-231-260-0027 WAS CORRECTED | EM | EA | 2018-09-25 |

REVISIONS

| ROLE | NAME | SIGNATURE & DATE |
|---|---|---|
| DRAFTSPERSON | E. MENDIOLA | NR 2018-04-13 |
| DESIGNER | F. LIU | NR 2018-04-13 |
| CHECKER | E. AKINCI | |
| DESIGN COORD. | S. PERKINS | |
| RESP. ENG. | E. AKINCI | |
| LEAD DISC. ENG. | E. AKINCI | |
| ENG. MANAGER | B. RUSTAD | |
| PROJ. MANAGER | B. RUSTAD | |

DRAWING APPROVAL STATUS: Approved for Construction

HATCH

StrataGold Corporation

EAGLE GOLD PROJECT

TERTIARY ORE STOCKPILE
RECLAIM TUNNEL
PLAN, SECTION AND DETAIL

| SCALE | DWG. No. | REV |
|---|---|---|
| 1:20 OR AS NOTED | H354138-3330-231-260-0027 | 2 |

SHEET SIZE: D

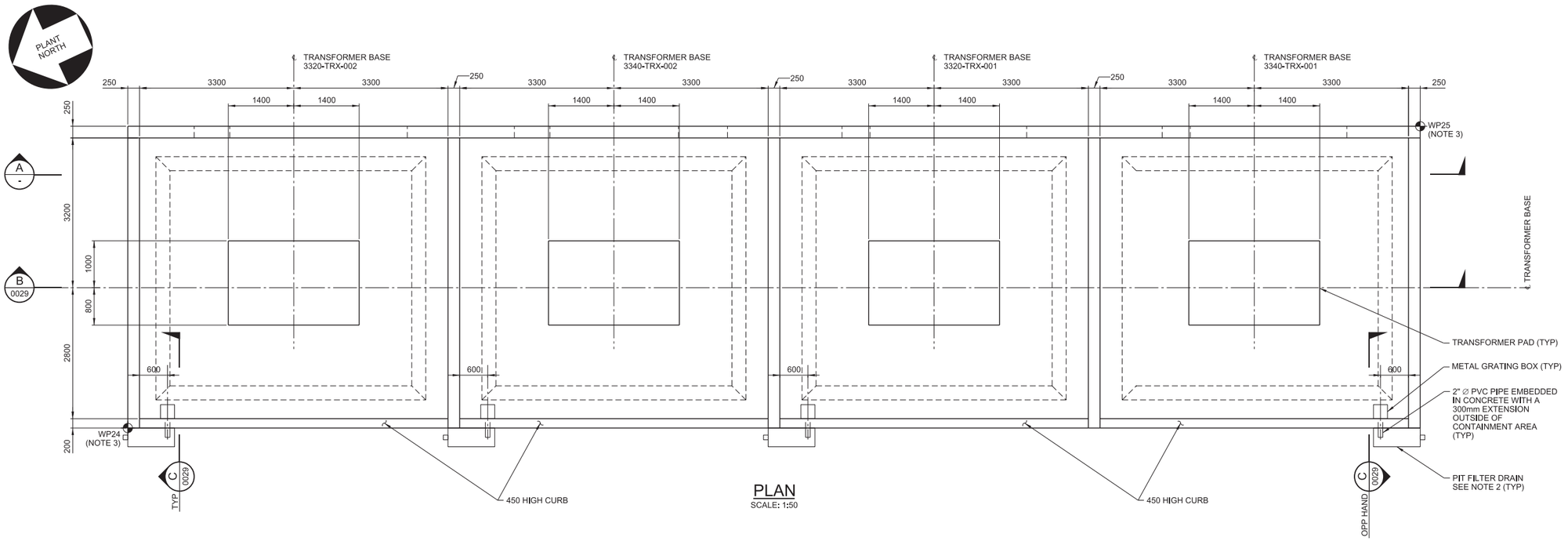
| DRAWING No. | DRAWING TITLE |
|---|---|

REFERENCE DRAWINGS

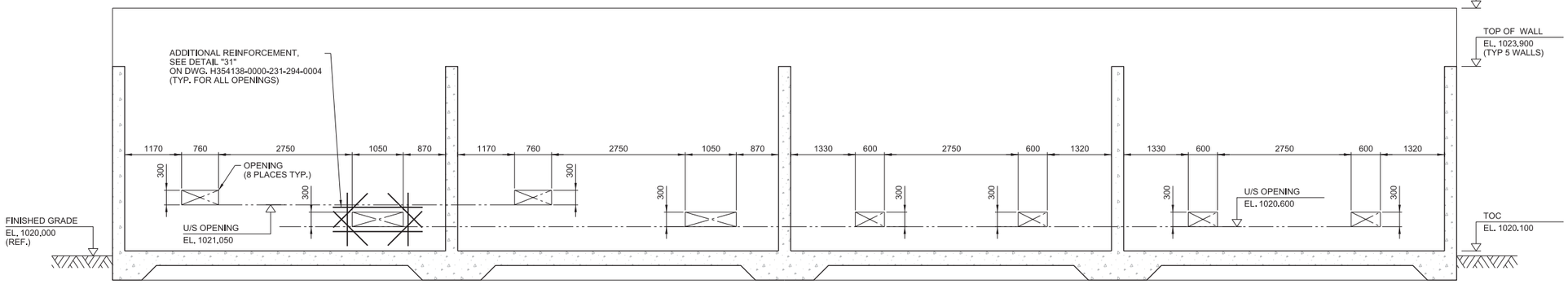
REG. PROFESSIONAL

$FILE$
PRINTED: 01-OCT-2018
$dc_pwservice
13:55

DWG. No. H354138-3330-231-260-0028



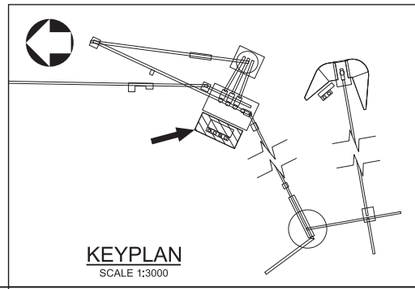

PLAN
SCALE: 1:50




SECTION A - WALL OPENING DETAIL
SCALE: 1:50

0 500 1000 1500 2000 2500
1:50 SCALE IN MILLIMETRES

NOTES:
1. FOR NOTES SEE DRAWING H354138-5710-231-260-0001.
2. SEE VENDOR STANDARD INSTALLATION DETAILS FOR Q-MAX HF DRAINAGE FILTER.
3. FOR LOCATION SEE CIVIL DWG. H354138-2000-220-270-0003.
4. FOR TRANSFORMER LAYOUT REFER TO DWG. H354138-PE004-260-270-0003 & 0004.
5. ALL CABLE TRAY OPENINGS TO BE SEALED WITH FIRE STOP.



KEYPLAN
SCALE 1:3000

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| No. | DESCRIPTION | BY | CHK'D | DATE |
|---|---|---|---|---|
| 1 | HOLD H0061 RELEASED, NOTE 5 ADDED | PJ | EA | 2018-09-07 |
| 0 | APPROVED FOR CONSTRUCTION | RS | EA | 2018-08-22 |

| REFERENCE DRAWINGS | | REG. PROFESSIONAL |
|---|---|---|
| DRAWING No. | DRAWING TITLE | |
| H354138-3330-231-260-0029 | TRANSFORMER FOUNDATION - PLAN, SECTIONS AND DETAILS - SHT. 2 | |

| ROLE | NAME | SIGNATURE & DATE |
|---|---|---|
| DRAFTSPERSON | R. SAGARBARRIA | NR |
| DESIGNER | F. LIU | NR |
| CHECKER | E. AKINCI | |
| DESIGN COORD. | S. PERKINS | |
| RESP. ENG. | E. AKINCI | |
| LEAD DISC. ENG. | E. AKINCI | |
| ENG. MANAGER | B. RUSTAD | |
| PROJ. MANAGER | B. RUSTAD | |

DRAWING APPROVAL STATUS: Approved for Construction

HATCH

StrataGold Corporation

EAGLE GOLD PROJECT

SECONDARY CRUSHING
TRANSFORMER FOUNDATION
PLAN, SECTIONS AND DETAILS - SHT. 1

SCALE AS NOTED OR AS NOTED | DWG. No. H354138-3330-231-260-0028 | REV 1

SHEET SIZE: D

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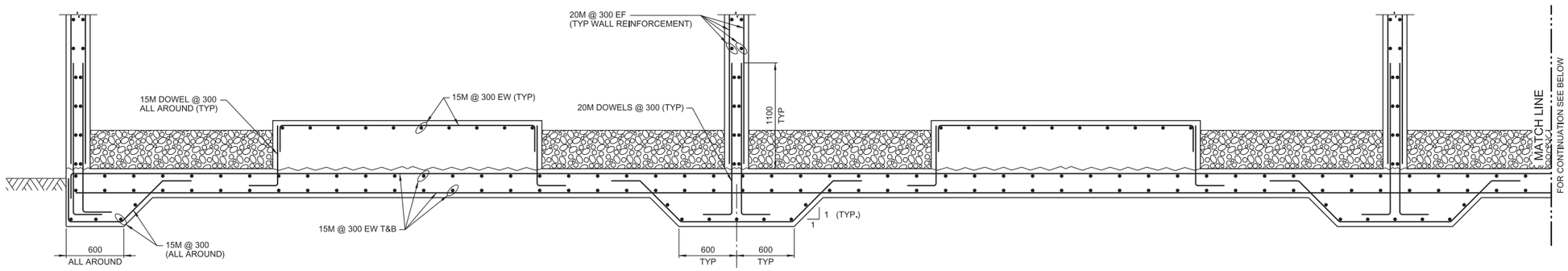
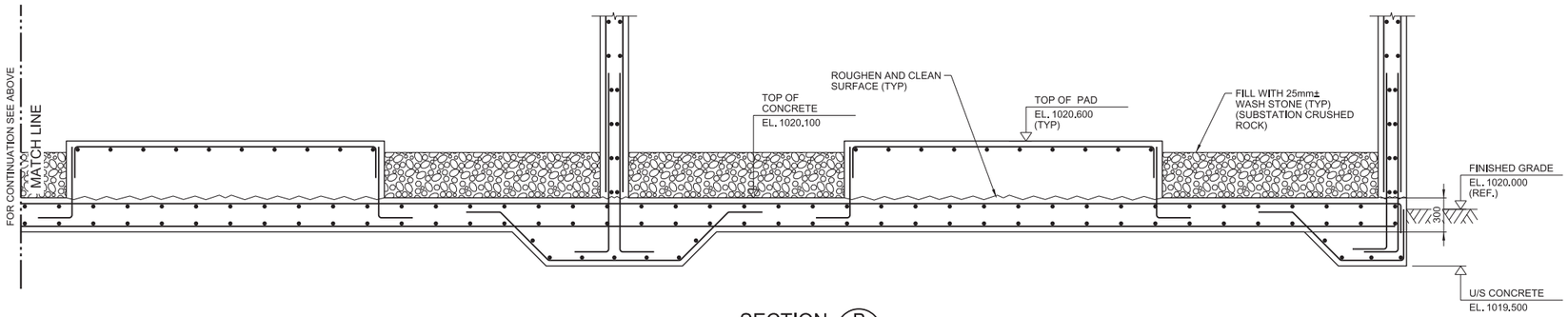
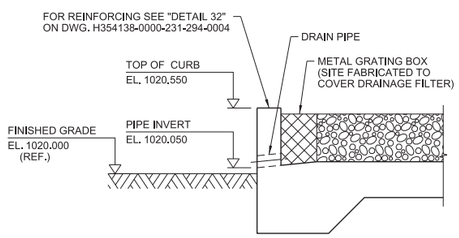
SFILELS
PRINTED: 06-SEP-2018
ldc_pwservice

DWG. No. H354138-3330-231-260-0029




SECTION B
SCALE: 1:25 0028




SECTION C
SCALE: 1:25 0028

NOTES:

1. FOR NOTES SEE DRAWING H354138-5710-231-260-0001.

0 250 500 750 1000 1250
1:25 SCALE IN MILLIMETRES

| REFERENCE DRAWINGS | | REG. PROFESSIONAL |
|---|---|---|
| DRAWING No. | DRAWING TITLE | |
| H354138-3330-231-260-0028 | TRANSFORMER FOUNDATION - PLAN, SECTIONS AND DETAILS - SHT. 1 | |

| REVISIONS | | | | |
|---|---|---|---|---|
| No. | DESCRIPTION | BY | CHK'D | DATE |
| 0 | | RS | EA | |

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| | | |
|---|---|---|
| DRAFTSPERSON | R. SAGARBARRIA | NR |
| DESIGNER | F. LIU | NR |
| CHECKER | E. AKINCI | |
| DESIGN COORD. | S. PERKINS | |
| RESP. ENG. | E. AKINCI | |
| LEAD DISC. ENG. | E. AKINCI | |
| ENG. MANAGER | B. RUSTAD | |
| PROJ. MANAGER | B. RUSTAD | |

| ROLE | NAME | SIGNATURE & DATE |
|---|---|---|
| DRAWING APPROVAL STATUS: | Approved for Construction | |

StrataGold Corporation

EAGLE GOLD PROJECT

SECONDARY CRUSHING
TRANSFORMER FOUNDATION
PLAN, SECTIONS AND DETAILS - SHT. 2

| SCALE | DWG. No. | REV |
|---|---|---|
| AS NOTED OR AS NOTED | H354138-3330-231-260-0029 | 0 |

SHEET SIZE: D

SFILELS
PRINTED: 23-AUG-2018
14:26
ltdc_pwservice

DWG. No. H354138-3400-231-260-0001

AREA: 3400 OVERLAND CONVEYING CONCRETE DETAILS DRAWING LIST

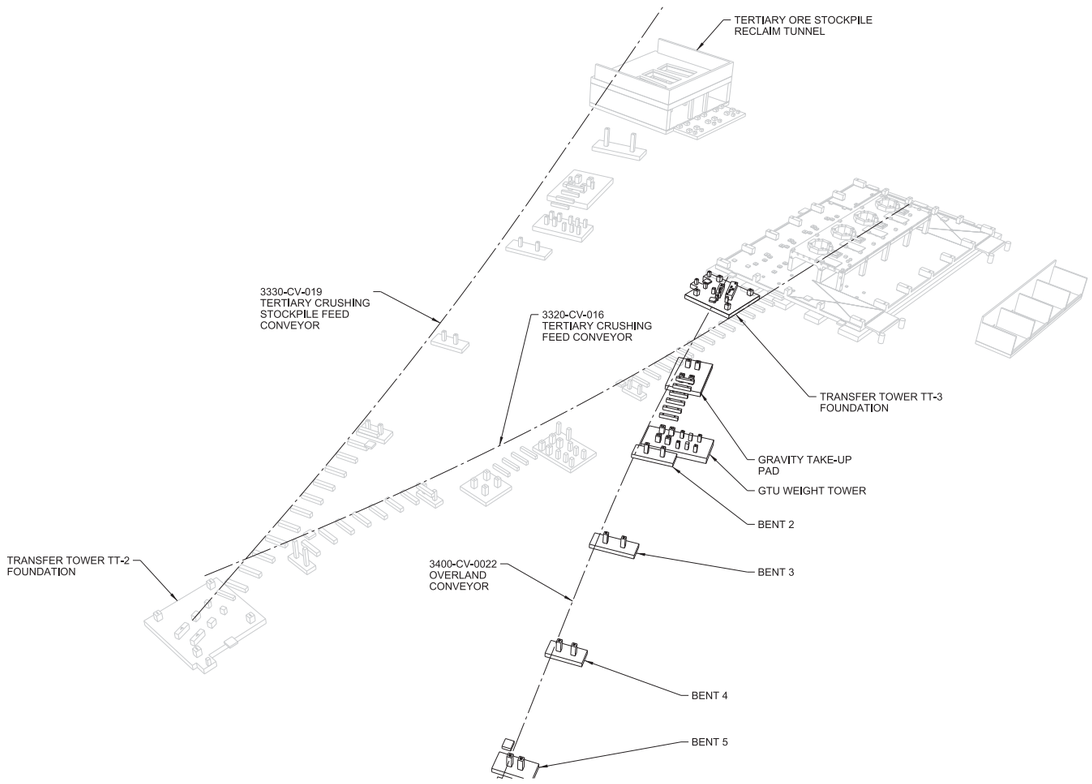
| DRAWING NUMBER | REV. | DRAWING TITLE | | |
|---|---|---|---|---|
| H354138-3400-231-260-0001 | 0 | OVERLAND CONVEYING | CONCRETE SUPPORT STRUCTURES | TITLE SHEET, ISOMETRIC VIEW |
| H354138-3400-231-260-0002 | 0 | OVERLAND CONVEYING | 3400-CV-022 CONVEYOR FOUNDATION | GENERAL ARRANGEMENT |
| H354138-3400-231-260-0003 | 0 | OVERLAND CONVEYING | TRANSFER TOWER TT-3 FOUNDATION | PLAN, SECTIONS AND DETAILS - SHT. 1 |
| H354138-3400-231-260-0004 | 0 | OVERLAND CONVEYING | TRANSFER TOWER TT-3 FOUNDATION | PLAN, SECTIONS AND DETAILS - SHT. 2 |
| H354138-3400-231-260-0005 | 0 | OVERLAND CONVEYING | TRANSFER TOWER TT-3 FOUNDATION | PLAN, SECTIONS AND DETAILS - SHT. 3 |
| H354138-3400-231-260-0006 | 0 | OVERLAND CONVEYING | 3400-CV-022 TAKE-UP FOUNDATION | PLAN, SECTIONS AND DETAILS |
| H354138-3400-231-260-0007 | 0 | OVERLAND CONVEYING | 3400-CV-022 GTU WEIGHT TOWER FDN. | PLAN, SECTIONS AND DETAILS |
| H354138-3400-231-260-0008 | 0 | OVERLAND CONVEYING | 3400-CV-022 BENTS 2, 3, 4 AND 5 FDN. | PLAN, SECTIONS AND DETAILS |
| H354138-3400-231-260-0009 | 0 | OVERLAND CONVEYING | 3400-CV-022 BENTS 6 AND 7 FDN. | PLAN, SECTIONS AND DETAILS |

## FOUNDATION NOTES:

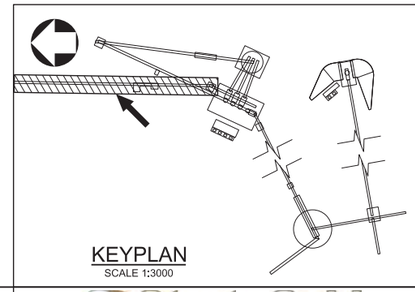
2.1 ALL CONCRETE FOUNDATION SUBGRADE SHALL BE EITHER ROCK OR 38 mm NFS STRUCTURAL BACKFILL DOWN TO 3 METERS BELOW THE FINISH GRADE COMPACTED TO 95% MODIFIED PROCTOR.
2.2 ALL BACKFILL AROUND AND ABOVE CONCRETE FOUNDATIONS, PEDESTALS AND PADS SHALL BE 38 mm MINUS NFS STRUCTURAL BACKFILL.
2.3 ALL FOUNDATION SUBGRADE SHALL BE INSPECTED AND APPROVED BY THE GEOTECHNICAL ENGINEER PRIOR TO PLACEMENT OF CONCRETE.
2.4 THE PREPARED FOOTING SUBGRADE SHALL BE PROTECTED FROM WATER INGRESS AND SOFTENING BY PROVIDING ADEQUATE DRAINAGE OR PLACING A LEAN CONCRETE MUD SLAB.

## GENERAL NOTES:

1.1 READ THESE DRAWINGS IN CONJUNCTION WITH ALL OTHER PERTINENT CONTRACT DOCUMENTS.
1.2 FOR CONCRETE TYPICAL DETAILS DRAWING SET AND GENERAL NOTES, SEE DRAWINGS 354138-0000-231-294-0001 TO -0007.
1.3 REFER TO MECHANICAL, PROCESS AND ELECTRICAL DRAWINGS FOR LOCATIONS AND DIMENSIONS OF OPENINGS, SLEEVES AND OTHER BUILDING COMPONENTS NOT SHOWN ON STRUCTURAL DRAWINGS. REPORT DISCREPENCIES TO THE OWNER OR HIS REPRESENTATIVE PRIOR TO PROCEEDING WITH THE WORK.
1.4 FOR GENERAL SITE LOCATION AND WORK POINT COORDINATES, SEE DRAWING H354138-2000-220-270-0002 AND -0003.
1.5 HIGH ENERGY COMPACTION EQUIPMENT SUCH AS LARGE ROLLERS MUST NOT BE USED FOR COMPACTING BACKFILL WITHIN 1 METER OF THE EDGE OF THE WALLS.
1.6 FOR GROUNDING LOOP SEE ELECTRICAL DRAWING H354138-3400-260-272-1000-0001, FOR GROUNDING INSTALLATION DETAILS SEE DRAWING SET H354138-0000-260-294-0001-0001.
1.7 FOR CAST-IN PLACE CONCRETE, SEE SPECIFICATION SECTION H354138-S032000.
1.8 FOR CONCRETE FORMWORK, SEE SPECIFICATION SECTION H354138-S031000.
1.9 FOR CONCRETE REINFORCEMENT, SEE SPECIFICATION SECTION H354138-S033000.
1.10 FOR GROUTING, SEE SPECIFICATION SECTION H354138-S036000.
1.11 CONSTRUCTION JOINTS NOT SHOWN ON THE DRAWINGS MUST BE APPROVED BY THE CONTRUCTION MANAGER.
1.12 IN CASE OF ANY DISCREPANCIES, INFORM THE CONSTRUCTION MANAGER BEFORE COMMENCING WORK.
1.13 ALL DIMENSIONS ARE IN MILLIMETERS AND ELEVATIONS ARE IN METERS.
1.14 PROVIDE 19mm X 19mm CHAMFER AT ALL EXPOSED CONCRETE CORNERS AND EDGES ABOVE GRADE LEVEL.
1.15 THE DRAWINGS SHOULD BE READ IN CONJUNCTION WITH THE PROJECT CIVIL DESIGN CRITERIA H654138-0000-220-210-0001.
1.16 FOR FURTHER GEOTECH INFORMATION, SEE "2011 GEOTECHNICAL INVESTIGATION FOR MINE SITE INFRASTRUCTURE FOUNDATION REPORT" BY BGC ENGINEERING DATED JAN 31, 2012.
1.17 SET ANCHOR RODS USING TEMPLATES WHICH MUST BE LEFT IN PLACE UNTIL THE CONCRETE HAS SET, ANCHOR RODS SHALL BE PLUMBED AND SECURED FROM MOVEMENT PRIOR TO CASTING CONCRETE.




ISOMETRIC VIEW
NTS



KEYPLAN
SCALE 1:3000

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| No. | DESCRIPTION | BY | CHK'D | DATE |
|---|---|---|---|---|
| 0 | APPROVED FOR CONCTRUCTION | PJ | EA | 2018-09-12 |

| ROLE | NAME | SIGNATURE & DATE |
|---|---|---|
| DRAFTSPERSON | P. JIVAEV | NR 2017-11-23 |
| DESIGNER | H. LI | NR 2017-11-23 |
| CHECKER | E. AKINCI | |
| DESIGN COORD. | S. PERKINS | |
| RESP. ENG. | E. AKINCI | |
| LEAD DISC. ENG. | E. AKINCI | |
| ENG. MANAGER | B. RUSTAD | |
| PROJ. MANAGER | B. RUSTAD | |

DRAWING APPROVAL STATUS: Approved for Construction

EAGLE GOLD PROJECT

OVERLAND CONVEYING
CONCRETE SUPPORT STRUCTURES
TITLE SHEET, ISOMETRIC VIEW

SCALE NTS OR AS NOTED | DWG. No. H354138-3400-231-260-0001 | REV 0

SHEET SIZE: D

REFERENCE DRAWINGS | REG. PROFESSIONAL

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PRINTED: 12-SEP-2018
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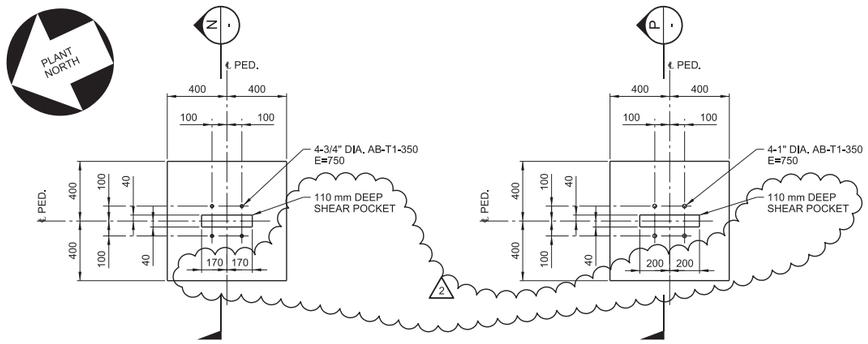
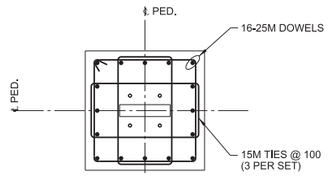
DWG. No. H354138-3330-231-260-0027




ANCHOR SETTING

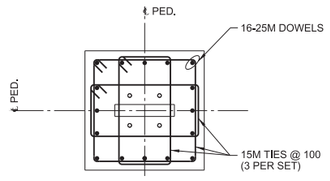



REINFORCEMENT

## PEDESTAL TYPE P1




ANCHOR SETTING




REINFORCEMENT

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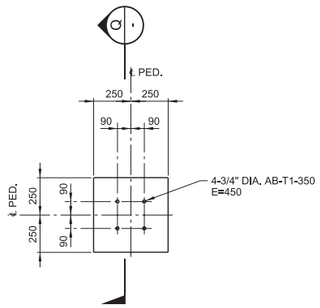
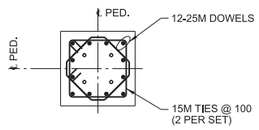
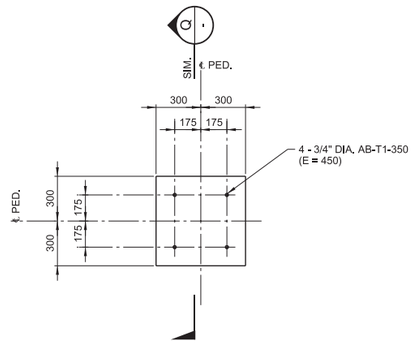



ANCHOR SETTING

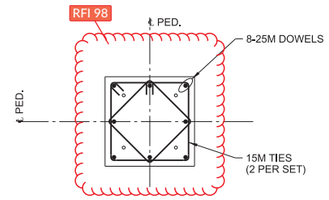



REINFORCEMENT

## PEDESTAL TYPE P3

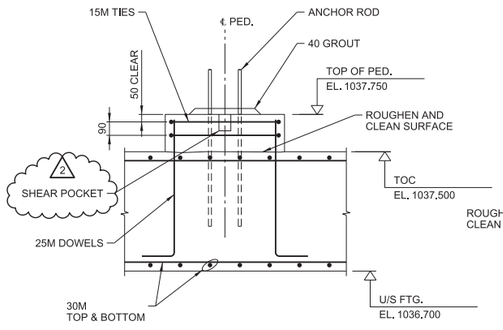



ANCHOR SETTING

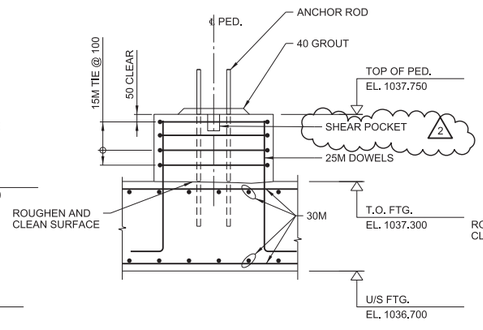



REINFORCEMENT

## PEDESTAL TYPE P4




SECTION N -

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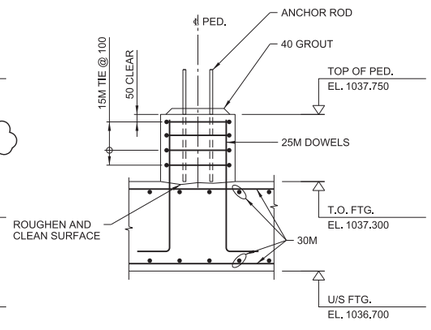
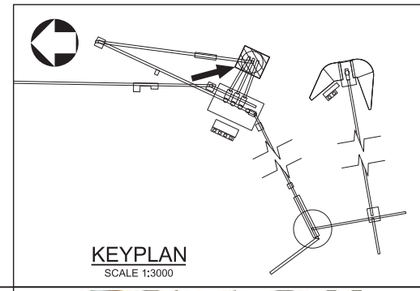



SECTION Q -

NOTES:

1. FOR NOTES SEE DRAWING H354138-3330-231-260-0021.



KEYPLAN
SCALE 1:3000

0 200 400 600 800 1000
1:20 SCALE IN MILLIMETRES

THIS DRAWING WAS PREPARED FOR THE EXCLUSIVE USE OF STRATA GOLD ("CLIENT") AND IS ISSUED PURSUANT TO H354138 BETWEEN CLIENT AND HATCH LTD. ("HATCH"). UNLESS OTHERWISE AGREED IN WRITING WITH CLIENT OR SPECIFIED ON THIS DRAWING, (A) HATCH DOES NOT ACCEPT AND DISCLAIMS ANY AND ALL LIABILITY OR RESPONSIBILITY ARISING FROM ANY USE OF OR RELIANCE ON THIS DRAWING BY ANY THIRD PARTY OR ANY MODIFICATION OR MISUSE OF THIS DRAWING BY CLIENT, AND (B) THIS DRAWING IS CONFIDENTIAL AND ALL INTELLECTUAL PROPERTY RIGHTS EMBODIED OR REFERENCED IN THIS DRAWING REMAIN THE PROPERTY OF HATCH.

| No. | DESCRIPTION | BY | CHK'D | DATE |
|---|---|---|---|---|
| 2 | PEDESTAL P1 AND P2 SHEAR KEY REVISED | PJ | EA | 2018-10-01 |
| 1 | ANCHOR ROD PROJECTION REVISED, PEDESTAL TYPE P4 ADDED | PJ | EA | 2018-09-25 |
| 0 | PREVIOUS DRAWING NUMBER H354138-3300-231-260-0027 WAS CORRECTED | EM | EA | 2018-09-25 |

REVISIONS

| ROLE | NAME | SIGNATURE & DATE |
|---|---|---|
| DRAFTSPERSON | E. MENDIOLA | NR 2018-04-13 |
| DESIGNER | F. LIU | NR 2018-04-13 |
| CHECKER | E. AKINCI | |
| DESIGN COORD. | S. PERKINS | |
| RESP. ENG. | E. AKINCI | |
| LEAD DISC. ENG. | E. AKINCI | |
| ENG. MANAGER | B. RUSTAD | |
| PROJ. MANAGER | B. RUSTAD | |

DRAWING APPROVAL STATUS: Approved for Construction

HATCH

StrataGold Corporation

EAGLE GOLD PROJECT

TERTIARY ORE STOCKPILE
RECLAIM TUNNEL
PLAN, SECTION AND DETAIL

| SCALE | DWG. No. | REV |
|---|---|---|
| 1:20 OR AS NOTED | H354138-3330-231-260-0027 | 2 |

SHEET SIZE: D

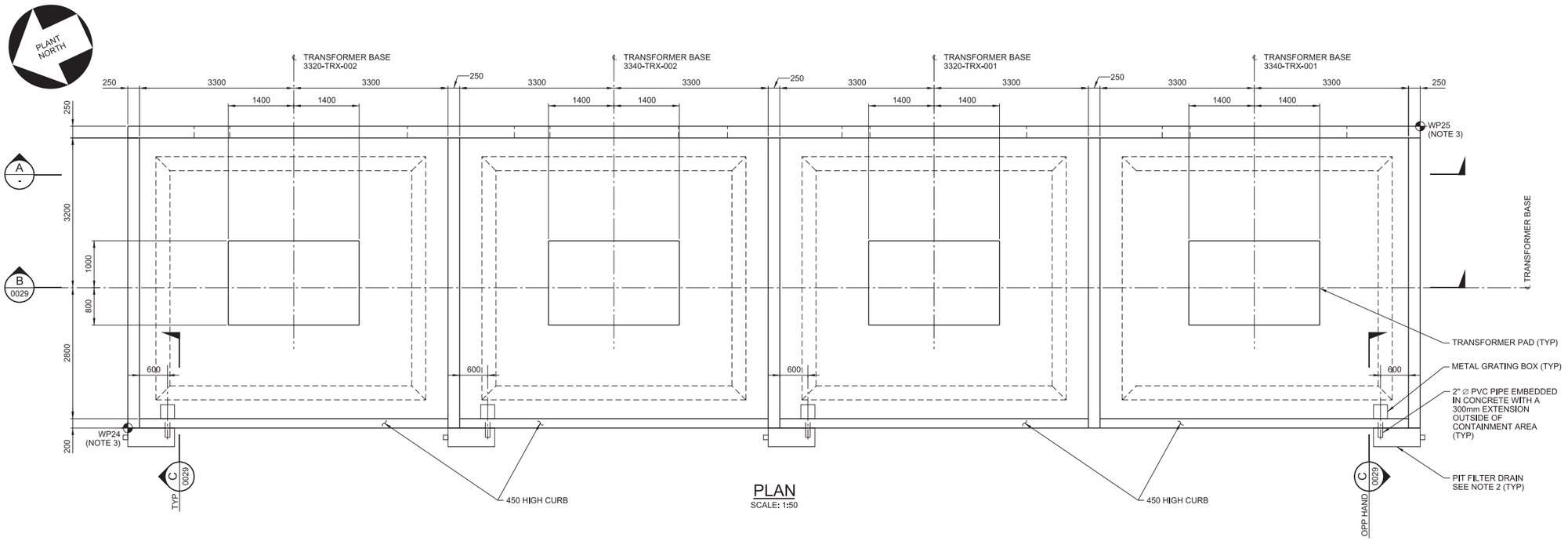
| DRAWING No. | DRAWING TITLE |
|---|---|

REFERENCE DRAWINGS

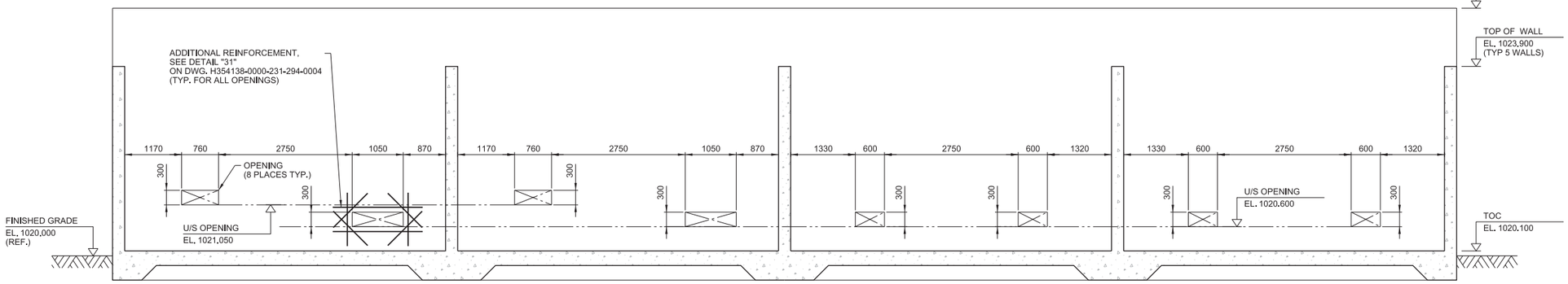
REG. PROFESSIONAL

$FILE$
PRINTED: 01-OCT-2018
$dc_pwservice
13:55

DWG. No. H354138-3330-231-260-0028



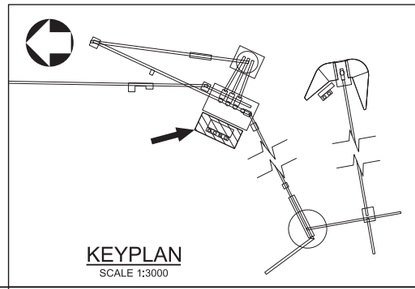

PLAN
SCALE: 1:50




SECTION A - WALL OPENING DETAIL
SCALE: 1:50

0 500 1000 1500 2000 2500
1:50 SCALE IN MILLIMETRES

NOTES:
1. FOR NOTES SEE DRAWING H354138-5710-231-260-0001.
2. SEE VENDOR STANDARD INSTALLATION DETAILS FOR Q-MAX HF DRAINAGE FILTER.
3. FOR LOCATION SEE CIVIL DWG. H354138-2000-220-270-0003.
4. FOR TRANSFORMER LAYOUT REFER TO DWG. H354138-PE004-260-270-0003 & 0004.
5. ALL CABLE TRAY OPENINGS TO BE SEALED WITH FIRE STOP.



KEYPLAN
SCALE 1:3000

THIS DRAWING WAS PREPARED FOR THE EXCLUSIVE USE OF STRATA GOLD ("CLIENT") AND IS ISSUED PURSUANT TO H354138 BETWEEN CLIENT AND HATCH LTD. ("HATCH"). UNLESS OTHERWISE AGREED IN WRITING WITH CLIENT OR SPECIFIED ON THIS DRAWING, (A) HATCH DOES NOT ACCEPT AND DISCLAIMS ANY AND ALL LIABILITY OR RESPONSIBILITY ARISING FROM ANY USE OF OR RELIANCE ON THIS DRAWING BY ANY THIRD PARTY OR ANY MODIFICATION OR MISUSE OF THIS DRAWING BY CLIENT, AND (B) THIS DRAWING IS CONFIDENTIAL AND ALL INTELLECTUAL PROPERTY RIGHTS EMBODIED OR REFERENCED IN THIS DRAWING REMAIN THE PROPERTY OF HATCH.

| No. | DESCRIPTION | BY | CHK'D | DATE |
|---|---|---|---|---|
| 1 | HOLD H0061 RELEASED, NOTE 5 ADDED | PJ | EA | 2018-09-07 |
| 0 | APPROVED FOR CONSTRUCTION | RS | EA | 2018-08-22 |

| REFERENCE DRAWINGS | | REG. PROFESSIONAL |
|---|---|---|
| DRAWING No. | DRAWING TITLE | |
| H354138-3330-231-260-0029 | TRANSFORMER FOUNDATION - PLAN, SECTIONS AND DETAILS - SHT. 2 | |

| ROLE | NAME | SIGNATURE & DATE |
|---|---|---|
| DRAFTSPERSON | R. SAGARBARRIA | NR |
| DESIGNER | F. LIU | NR |
| CHECKER | E. AKINCI | |
| DESIGN COORD. | S. PERKINS | |
| RESP. ENG. | E. AKINCI | |
| LEAD DISC. ENG. | E. AKINCI | |
| ENG. MANAGER | B. RUSTAD | |
| PROJ. MANAGER | B. RUSTAD | |

DRAWING APPROVAL STATUS: Approved for Construction

HATCH

StrataGold Corporation

EAGLE GOLD PROJECT

SECONDARY CRUSHING
TRANSFORMER FOUNDATION
PLAN, SECTIONS AND DETAILS - SHT. 1

SCALE AS NOTED OR AS NOTED | DWG. No. H354138-3330-231-260-0028 | REV 1

SHEET SIZE: D

17:05
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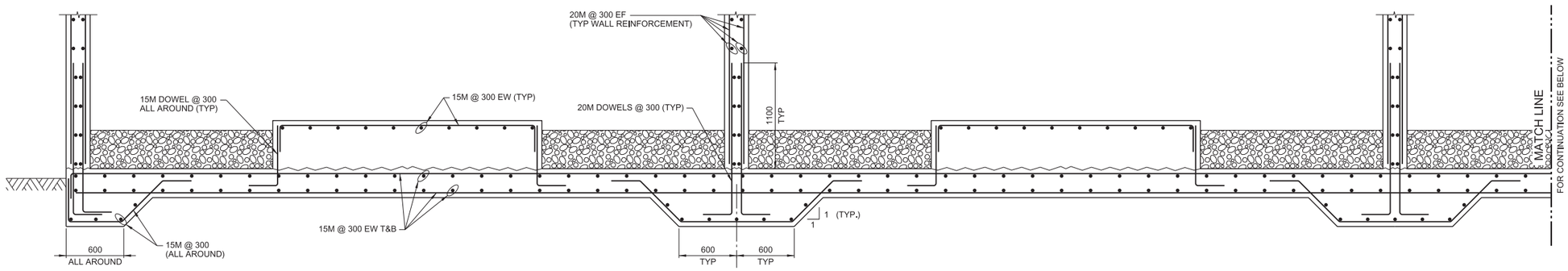
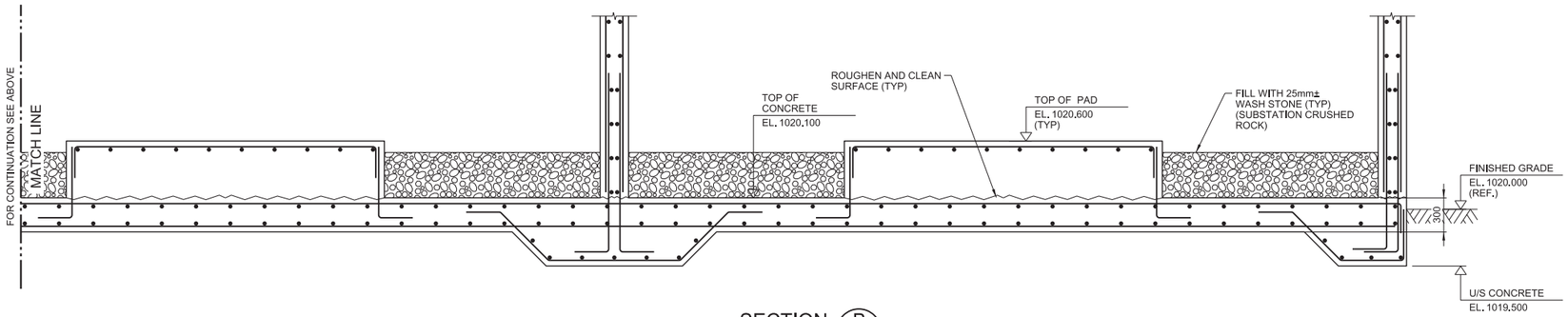
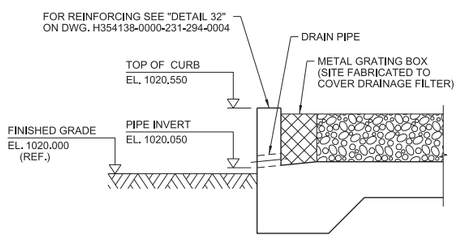
PRINTED: 06-SEP-2018
ldc_pwservice

DWG. No. H354138-3330-231-260-0029




SECTION B
SCALE: 1:25 0028




SECTION C
SCALE: 1:25 0028

NOTES:

1. FOR NOTES SEE DRAWING H354138-5710-231-260-0001.

0 250 500 750 1000 1250
1:25 SCALE IN MILLIMETRES

| REFERENCE DRAWINGS | | REG. PROFESSIONAL |
|---|---|---|
| DRAWING No. | DRAWING TITLE | |
| H354138-3330-231-260-0028 | TRANSFORMER FOUNDATION - PLAN, SECTIONS AND DETAILS - SHT. 1 | |

| REVISIONS | | | | |
|---|---|---|---|---|
| No. | DESCRIPTION | BY | CHK'D | DATE |
| 0 | | RS | EA | |

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| | | |
|---|---|---|
| DRAFTSPERSON | R. SAGARBARRIA | NR |
| DESIGNER | F. LIU | NR |
| CHECKER | E. AKINCI | |
| DESIGN COORD. | S. PERKINS | |
| RESP. ENG. | E. AKINCI | |
| LEAD DISC. ENG. | E. AKINCI | |
| ENG. MANAGER | B. RUSTAD | |
| PROJ. MANAGER | B. RUSTAD | |

| ROLE | NAME | SIGNATURE & DATE |
|---|---|---|
| DRAWING APPROVAL STATUS: | Approved for Construction | |

StrataGold Corporation

EAGLE GOLD PROJECT

SECONDARY CRUSHING
TRANSFORMER FOUNDATION
PLAN, SECTIONS AND DETAILS - SHT. 2

| SCALE | DWG. No. | REV |
|---|---|---|
| AS NOTED OR AS NOTED | H354138-3330-231-260-0029 | 0 |

SHEET SIZE: D

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PRINTED: 23-AUG-2018
14:26
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DWG. No. H354138-3400-231-260-0001

AREA: 3400 OVERLAND CONVEYING CONCRETE DETAILS DRAWING LIST

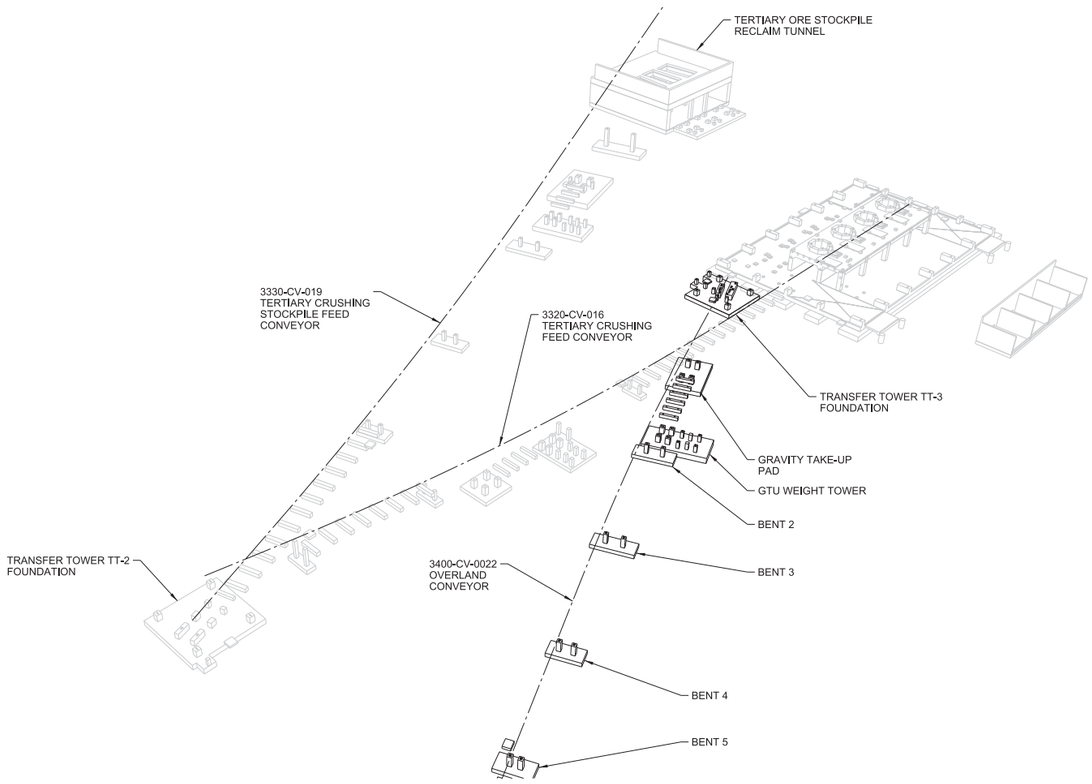
| DRAWING NUMBER | REV. | DRAWING TITLE | | |
|---|---|---|---|---|
| H354138-3400-231-260-0001 | 0 | OVERLAND CONVEYING | CONCRETE SUPPORT STRUCTURES | TITLE SHEET, ISOMETRIC VIEW |
| H354138-3400-231-260-0002 | 0 | OVERLAND CONVEYING | 3400-CV-022 CONVEYOR FOUNDATION | GENERAL ARRANGEMENT |
| H354138-3400-231-260-0003 | 0 | OVERLAND CONVEYING | TRANSFER TOWER TT-3 FOUNDATION | PLAN, SECTIONS AND DETAILS - SHT. 1 |
| H354138-3400-231-260-0004 | 0 | OVERLAND CONVEYING | TRANSFER TOWER TT-3 FOUNDATION | PLAN, SECTIONS AND DETAILS - SHT. 2 |
| H354138-3400-231-260-0005 | 0 | OVERLAND CONVEYING | TRANSFER TOWER TT-3 FOUNDATION | PLAN, SECTIONS AND DETAILS - SHT. 3 |
| H354138-3400-231-260-0006 | 0 | OVERLAND CONVEYING | 3400-CV-022 TAKE-UP FOUNDATION | PLAN, SECTIONS AND DETAILS |
| H354138-3400-231-260-0007 | 0 | OVERLAND CONVEYING | 3400-CV-022 GTU WEIGHT TOWER FDN. | PLAN, SECTIONS AND DETAILS |
| H354138-3400-231-260-0008 | 0 | OVERLAND CONVEYING | 3400-CV-022 BENTS 2, 3, 4 AND 5 FDN. | PLAN, SECTIONS AND DETAILS |
| H354138-3400-231-260-0009 | 0 | OVERLAND CONVEYING | 3400-CV-022 BENTS 6 AND 7 FDN. | PLAN, SECTIONS AND DETAILS |

## FOUNDATION NOTES:

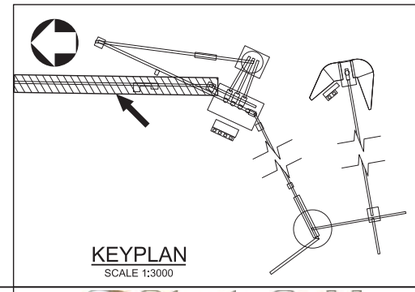
2.1 ALL CONCRETE FOUNDATION SUBGRADE SHALL BE EITHER ROCK OR 38 mm NFS STRUCTURAL BACKFILL DOWN TO 3 METERS BELOW THE FINISH GRADE COMPACTED TO 95% MODIFIED PROCTOR.
2.2 ALL BACKFILL AROUND AND ABOVE CONCRETE FOUNDATIONS, PEDESTALS AND PADS SHALL BE 38 mm MINUS NFS STRUCTURAL BACKFILL.
2.3 ALL FOUNDATION SUBGRADE SHALL BE INSPECTED AND APPROVED BY THE GEOTECHNICAL ENGINEER PRIOR TO PLACEMENT OF CONCRETE.
2.4 THE PREPARED FOOTING SUBGRADE SHALL BE PROTECTED FROM WATER INGRESS AND SOFTENING BY PROVIDING ADEQUATE DRAINAGE OR PLACING A LEAN CONCRETE MUD SLAB.

## GENERAL NOTES:

1.1 READ THESE DRAWINGS IN CONJUNCTION WITH ALL OTHER PERTINENT CONTRACT DOCUMENTS.
1.2 FOR CONCRETE TYPICAL DETAILS DRAWING SET AND GENERAL NOTES, SEE DRAWINGS 354138-0000-231-294-0001 TO -0007.
1.3 REFER TO MECHANICAL, PROCESS AND ELECTRICAL DRAWINGS FOR LOCATIONS AND DIMENSIONS OF OPENINGS, SLEEVES AND OTHER BUILDING COMPONENTS NOT SHOWN ON STRUCTURAL DRAWINGS. REPORT DISCREPENCIES TO THE OWNER OR HIS REPRESENTATIVE PRIOR TO PROCEEDING WITH THE WORK.
1.4 FOR GENERAL SITE LOCATION AND WORK POINT COORDINATES, SEE DRAWING H354138-2000-220-270-0002 AND -0003.
1.5 HIGH ENERGY COMPACTION EQUIPMENT SUCH AS LARGE ROLLERS MUST NOT BE USED FOR COMPACTING BACKFILL WITHIN 1 METER OF THE EDGE OF THE WALLS.
1.6 FOR GROUNDING LOOP SEE ELECTRICAL DRAWING H354138-3400-260-272-1000-0001, FOR GROUNDING INSTALLATION DETAILS SEE DRAWING SET H354138-0000-260-294-0001-0001.
1.7 FOR CAST-IN PLACE CONCRETE, SEE SPECIFICATION SECTION H354138-S032000.
1.8 FOR CONCRETE FORMWORK, SEE SPECIFICATION SECTION H354138-S031000.
1.9 FOR CONCRETE REINFORCEMENT, SEE SPECIFICATION SECTION H354138-S033000.
1.10 FOR GROUTING, SEE SPECIFICATION SECTION H354138-S036000.
1.11 CONSTRUCTION JOINTS NOT SHOWN ON THE DRAWINGS MUST BE APPROVED BY THE CONTRUCTION MANAGER.
1.12 IN CASE OF ANY DISCREPANCIES, INFORM THE CONSTRUCTION MANAGER BEFORE COMMENCING WORK.
1.13 ALL DIMENSIONS ARE IN MILLIMETERS AND ELEVATIONS ARE IN METERS.
1.14 PROVIDE 19mm X 19mm CHAMFER AT ALL EXPOSED CONCRETE CORNERS AND EDGES ABOVE GRADE LEVEL.
1.15 THE DRAWINGS SHOULD BE READ IN CONJUNCTION WITH THE PROJECT CIVIL DESIGN CRITERIA H654138-0000-220-210-0001.
1.16 FOR FURTHER GEOTECH INFORMATION, SEE "2011 GEOTECHNICAL INVESTIGATION FOR MINE SITE INFRASTRUCTURE FOUNDATION REPORT" BY BGC ENGINEERING DATED JAN 31, 2012.
1.17 SET ANCHOR RODS USING TEMPLATES WHICH MUST BE LEFT IN PLACE UNTIL THE CONCRETE HAS SET, ANCHOR RODS SHALL BE PLUMBED AND SECURED FROM MOVEMENT PRIOR TO CASTING CONCRETE.




ISOMETRIC VIEW
NTS



KEYPLAN
SCALE 1:3000

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| No. | DESCRIPTION | BY | CHK'D | DATE |
|---|---|---|---|---|
| 0 | APPROVED FOR CONCTRUCTION | PJ | EA | 2018-09-12 |

| ROLE | NAME | SIGNATURE & DATE |
|---|---|---|
| DRAFTSPERSON | P. JIVAEV | NR 2017-11-23 |
| DESIGNER | H. LI | NR 2017-11-23 |
| CHECKER | E. AKINCI | |
| DESIGN COORD. | S. PERKINS | |
| RESP. ENG. | E. AKINCI | |
| LEAD DISC. ENG. | E. AKINCI | |
| ENG. MANAGER | B. RUSTAD | |
| PROJ. MANAGER | B. RUSTAD | |

DRAWING APPROVAL STATUS: Approved for Construction

EAGLE GOLD PROJECT

OVERLAND CONVEYING
CONCRETE SUPPORT STRUCTURES
TITLE SHEET, ISOMETRIC VIEW

SCALE NTS OR AS NOTED | DWG. No. H354138-3400-231-260-0001 | REV 0

SHEET SIZE: D

REFERENCE DRAWINGS | REG. PROFESSIONAL

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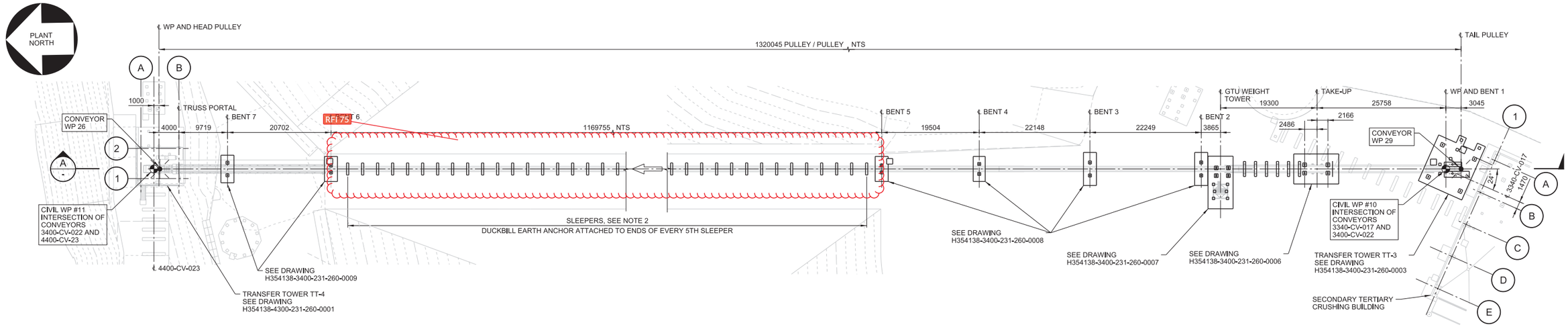
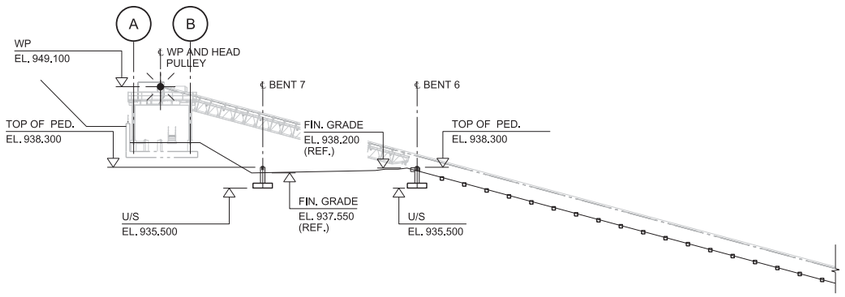
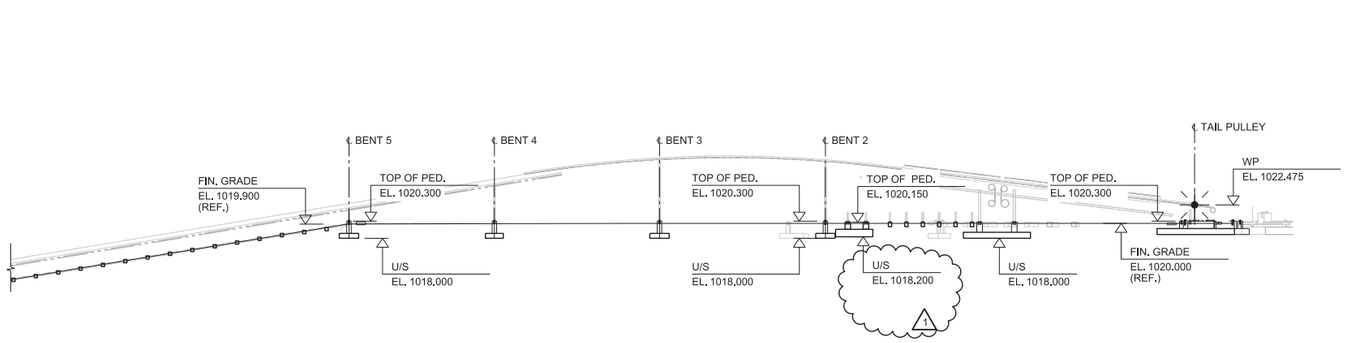
PRINTED: 12-SEP-2018
idc_pwservice
10:48

DWG. No. H354138-3400-231-260-0002




# 3400-CV-022 CONVEYOR FOUNDATION
# GENERAL ARRANGEMENT - PLAN



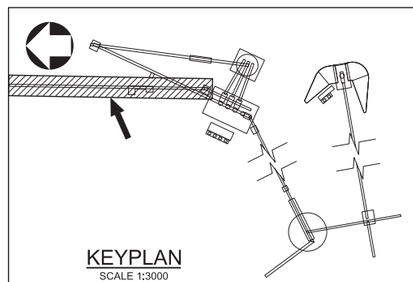




## SECTION A -

NOTES:

1. FOR GENERAL NOTES SEE DRAWING H354138-3400-231-260-0001.
2. FOR SLEEPERS AND SOIL ANCHOR DETAILS, SEE DRAWING H354138-2120-220-290-0004,
   FOR SLEEPER LOCATIONS AND SPACINGS SEE TEP DRAWING 17-0200-1102 AND -1103.

0 4 8 12 16 20
1:400 SCALE IN METRES



KEYPLAN
SCALE 1:3000

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| No. | DESCRIPTION | BY | CHK'D | DATE |
|---|---|---|---|---|
| 1 | GTU FOOTING U/S ELEVATION REVISED DUE TO SITE CONDITIONS | PJ | EA | 2018-10-10 |
| 0 | APPROVED FOR CONSTRUCTION | PJ | EA | 2018-09-12 |

REVISIONS

| DRAWING No. | DRAWING TITLE |
|---|---|

REFERENCE DRAWINGS

REG. PROFESSIONAL

| ROLE | NAME | SIGNATURE & DATE |
|---|---|---|
| DRAFTSPERSON | P. JIVAEV | NR 2018-08-28 |
| DESIGNER | H. LI | NR 2018-08-28 |
| CHECKER | E. AKINCI | |
| DESIGN COORD. | S. PERKINS | |
| RESP. ENG. | E. AKINCI | |
| LEAD DISC. ENG. | E. AKINCI | |
| ENG. MANAGER | B. RUSTAD | |
| PROJ. MANAGER | B. RUSTAD | |

DRAWING APPROVAL STATUS: Approved for Construction

HATCH

StrataGold Corporation

EAGLE GOLD PROJECT

OVERLAND CONVEYING
3400-CV-022 CONVEYOR FOUNDATION
GENERAL ARRANGEMENT

SCALE 1:400 OR AS NOTED

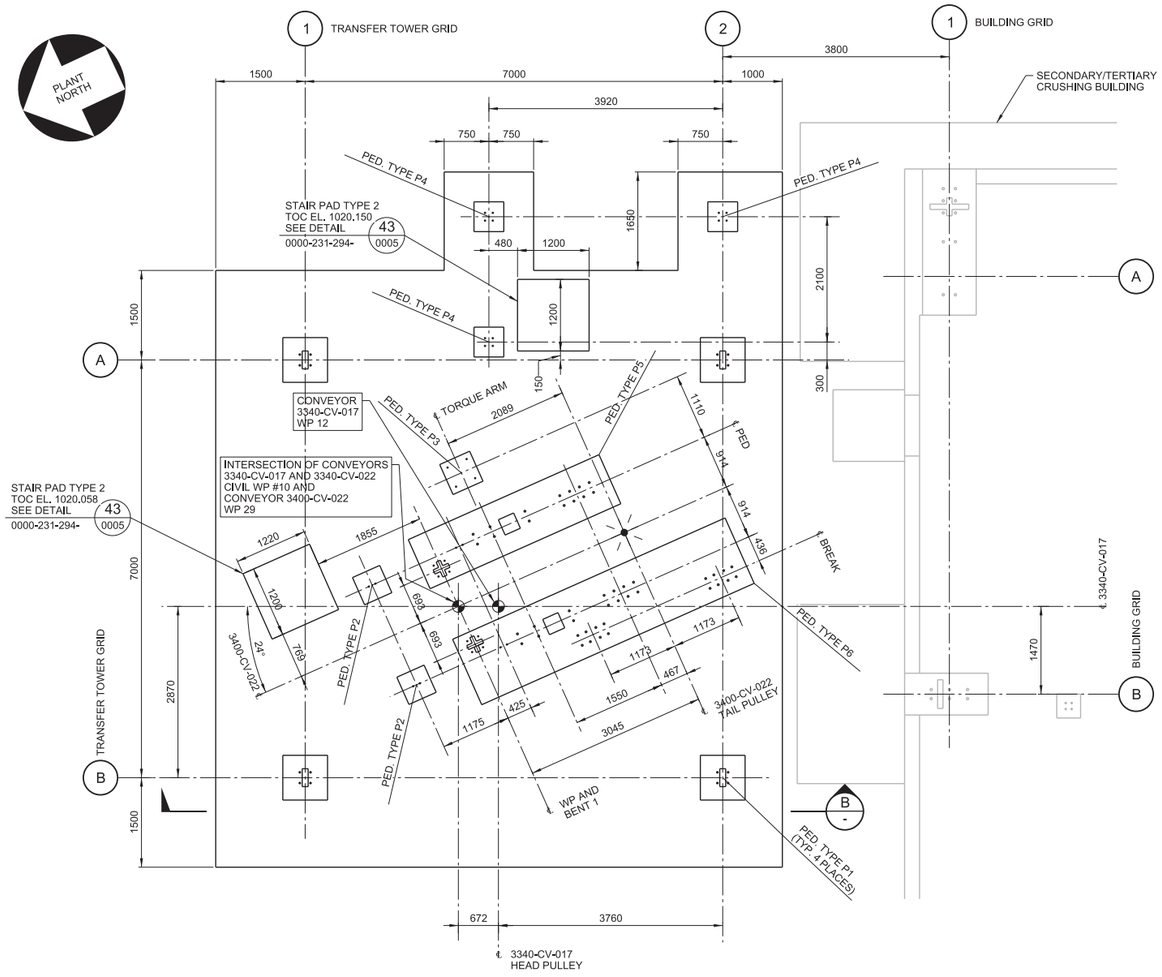
DWG. No. H354138-3400-231-260-0002

REV 1

SHEET SIZE: D

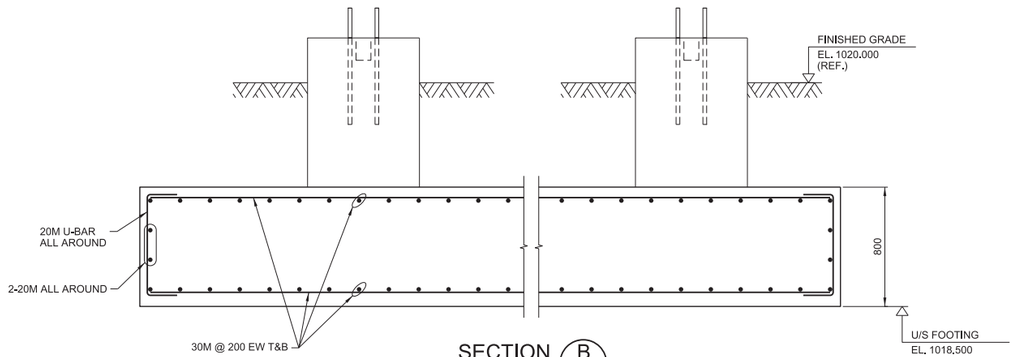
$FILE$
PRINTED: 09-OCT-2018 18:39
idc_pwservice

DWG. No. H354138-3400-231-260-0003




## TRANSFER TOWER TT-3 FOUNDATION - PLAN

SCALE: 1:50
FINISHED GRADE EL. 1020.000 (REF.)

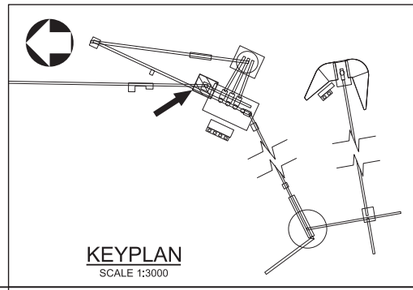



## SECTION B - B

SCALE: 1:20

NOTES:

1. FOR NOTES SEE DRAWING H354138-3400-231-260-0001.
2. FOR THE CONVEYOR WORK POINTS SEE TEP DRAWINGS 17-0200-601 AND 17-0200-1102.



KEYPLAN
SCALE 1:3000

0 200 400 600 800 1000
1:20 SCALE IN MILLIMETRES

0 500 1000 1500 2000 2500
1:50 SCALE IN MILLIMETRES

THIS DRAWING WAS PREPARED FOR THE EXCLUSIVE USE OF STRATA GOLD ("CLIENT") AND IS ISSUED PURSUANT TO H354138 BETWEEN CLIENT AND HATCH LTD. ("HATCH"). UNLESS OTHERWISE AGREED IN WRITING WITH CLIENT OR SPECIFIED ON THIS DRAWING, (A) HATCH DOES NOT ACCEPT AND DISCLAIMS ANY AND ALL LIABILITY OR RESPONSIBILITY ARISING FROM ANY USE OF OR RELIANCE ON THIS DRAWING BY ANY THIRD PARTY OR ANY MODIFICATION OR MISUSE OF THIS DRAWING BY CLIENT, AND (B) THIS DRAWING IS CONFIDENTIAL AND ALL INTELLECTUAL PROPERTY RIGHTS EMBODIED OR REFERENCED IN THIS DRAWING REMAIN THE PROPERTY OF HATCH.

| No. | DESCRIPTION | BY | CHK'D | DATE |
|---|---|---|---|---|
| 1 | HOLD H0076 RELEASED | PJ | EA | 2018-10-24 |
| 0 | APPROVED FOR CONSTRUCTION | RS | EA | 2018-08-31 |

REVISIONS

| ROLE | NAME | SIGNATURE & DATE |
|---|---|---|
| DRAFTSPERSON | R. SAGARBARRIA | NR |
| DESIGNER | H. LI | NR |
| CHECKER | E. AKINCI | |
| DESIGN COORD. | S. PERKINS | |
| RESP. ENG. | E. AKINCI | |
| LEAD DISC. ENG. | E. AKINCI | |
| ENG. MANAGER | B. RUSTAD | |
| PROJ. MANAGER | B. RUSTAD | |

DRAWING APPROVAL STATUS: Approved for Construction

REFERENCE DRAWINGS

| DRAWING No. | DRAWING TITLE |
|---|---|

REG. PROFESSIONAL

HATCH

StrataGold Corporation

EAGLE GOLD PROJECT

OVERLAND CONVEYING
TRANSFER TOWER TT-3 FOUNDATION
PLAN, SECTIONS AND DETAILS - SHT. 1

SCALE: AS NOTED OR AS NOTED

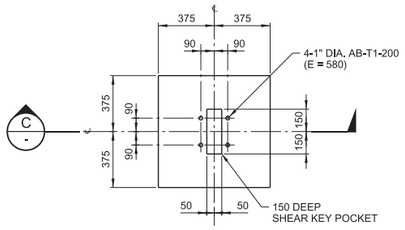
DWG. No. H354138-3400-231-260-0003

REV: 1

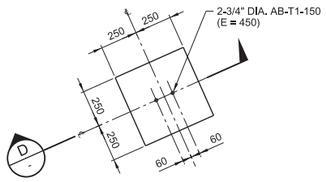
SHEET SIZE: D

SFILELS
PRINTED: 23-OCT-2018 17:29
tdc_pwservice

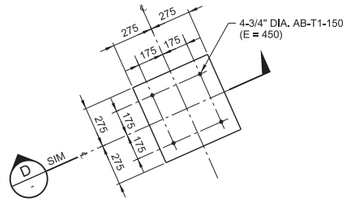
DWG. No. H354138-3400-231-260-0004



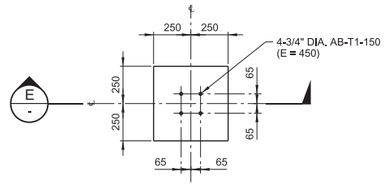

ANCHOR SETTING



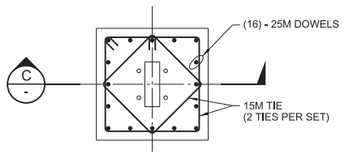

ANCHOR SETTING



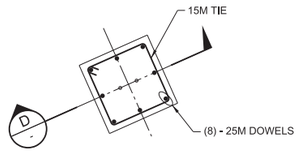

ANCHOR SETTING



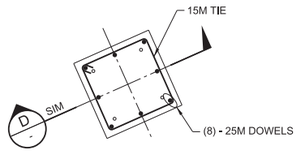

ANCHOR SETTING



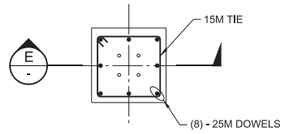

REINFORCEMENT




REINFORCEMENT




REINFORCEMENT



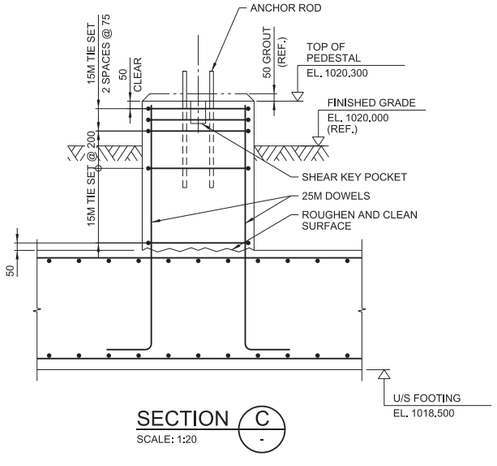

REINFORCEMENT

## PEDESTAL TYPE P1
SCALE: 1:20

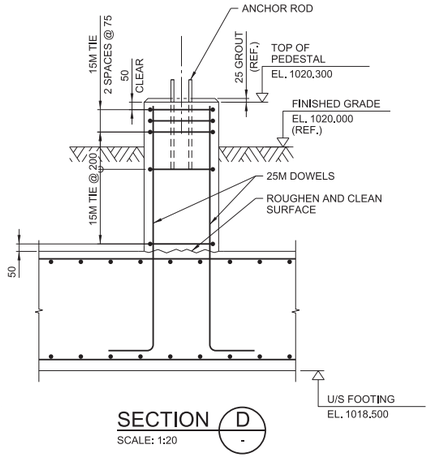
## PEDESTAL TYPE P2
SCALE: 1:20

## PEDESTAL TYPE P3
SCALE: 1:20

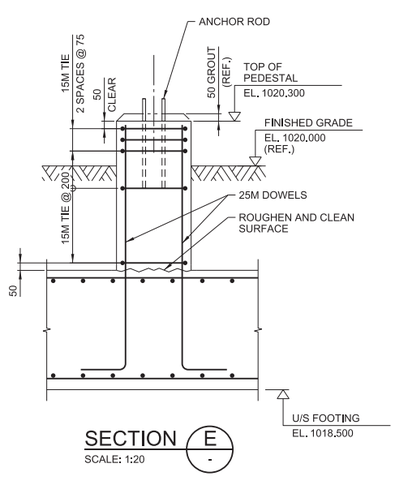
## PEDESTAL TYPE P4
SCALE: 1:20




## SECTION C
SCALE: 1:20




## SECTION D
SCALE: 1:20




## SECTION E
SCALE: 1:20

NOTES:

1. FOR NOTES SEE DRAWING H354138-3400-231-260-0001.

0 200 400 600 800 1000
1:20 SCALE IN MILLIMETRES

THIS DRAWING WAS PREPARED FOR THE EXCLUSIVE USE OF STRATA GOLD ("CLIENT") AND IS ISSUED PURSUANT TO H354138 BETWEEN CLIENT AND HATCH LTD. ("HATCH"). UNLESS OTHERWISE AGREED IN WRITING WITH CLIENT OR SPECIFIED ON THIS DRAWING, (A) HATCH DOES NOT ACCEPT AND DISCLAIMS ANY AND ALL LIABILITY OR RESPONSIBILITY ARISING FROM ANY USE OF OR RELIANCE ON THIS DRAWING BY ANY THIRD PARTY OR ANY MODIFICATION OR MISUSE OF THIS DRAWING BY CLIENT, AND (B) THIS DRAWING IS CONFIDENTIAL AND ALL INTELLECTUAL PROPERTY RIGHTS EMBODIED OR REFERENCED IN THIS DRAWING REMAIN THE PROPERTY OF HATCH.

| No. | DESCRIPTION | BY | CHK'D | DATE |
|---|---|---|---|---|
| 0 | APPROVED FOR CONSTRUCTION | RS | EA | 2018-08-31 |

| ROLE | NAME | SIGNATURE & DATE |
|---|---|---|
| DRAFTSPERSON | R. SAGARBARRIA | NR |
| DESIGNER | H. LI | NR |
| CHECKER | E. AKINCI | |
| DESIGN COORD. | S. PERKINS | |
| RESP. ENG. | E. AKINCI | |
| LEAD DISC. ENG. | E. AKINCI | |
| ENG. MANAGER | B. RUSTAD | |
| PROJ. MANAGER | B. RUSTAD | |

DRAWING APPROVAL STATUS: Approved for Construction

HATCH

StrataGold Corporation

EAGLE GOLD PROJECT

OVERLAND CONVEYING
TRANSFER TOWER TT-3 FOUNDATION
PLAN, SECTIONS AND DETAILS - SHT. 2

SCALE 1:20 OR AS NOTED

DWG. No. H354138-3400-231-260-0004

REV 0

SHEET SIZE: D

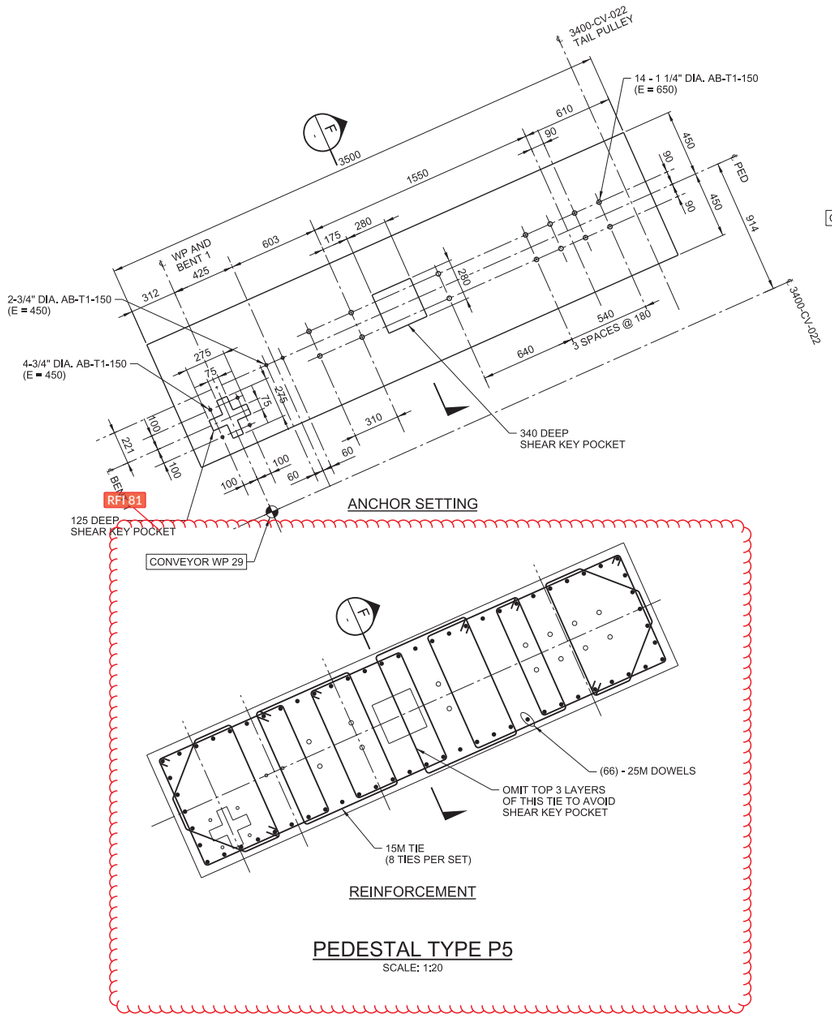
DRAWING No. | DRAWING TITLE

REFERENCE DRAWINGS

REG. PROFESSIONAL

$FILELS
PRINTED: 31-AUG-2018 15:04
idc_pwservice

DWG. No. H354138-3400-231-260-0005



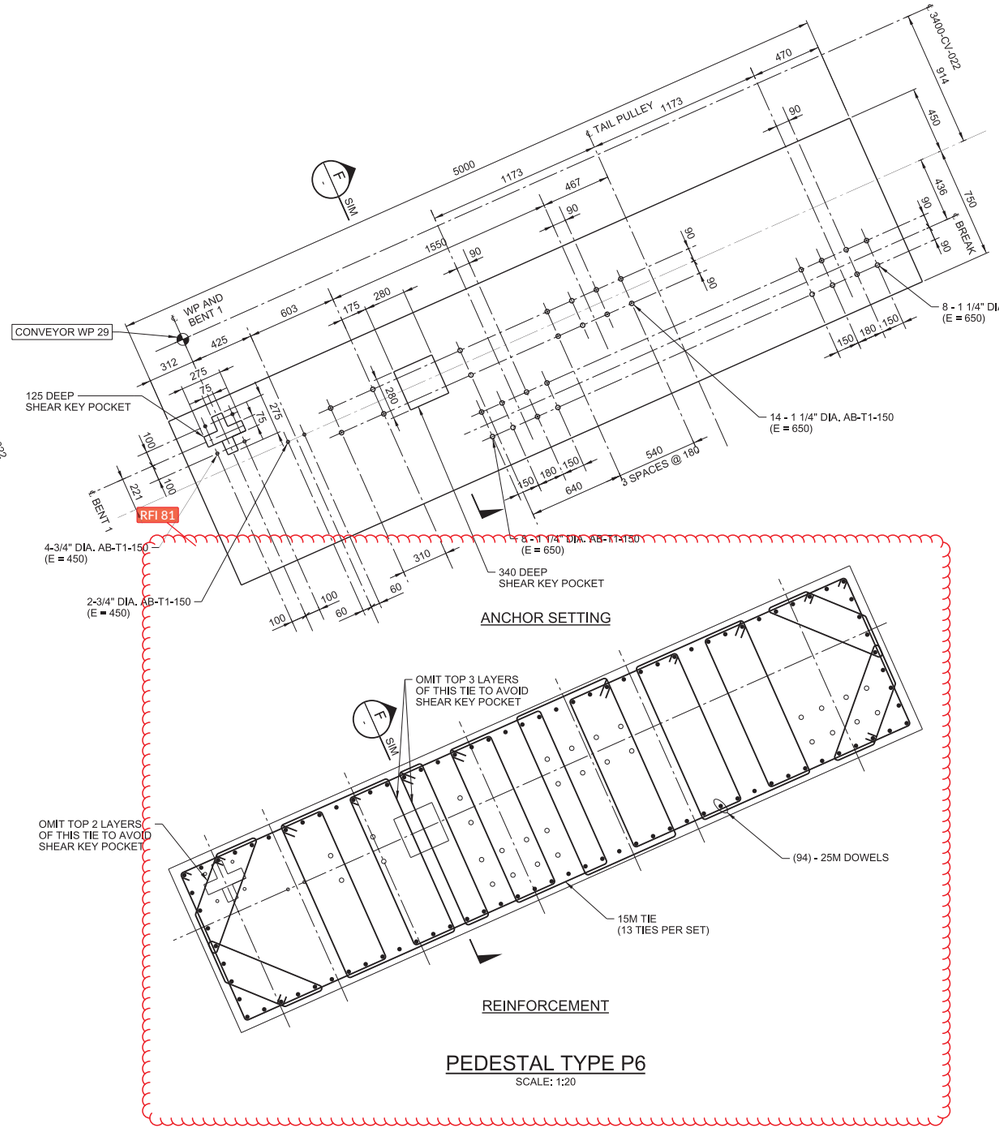

ANCHOR SETTING




REINFORCEMENT

## PEDESTAL TYPE P5

SCALE: 1:20



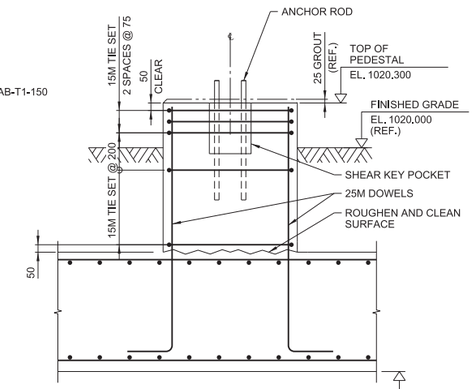

ANCHOR SETTING




REINFORCEMENT

## PEDESTAL TYPE P6

SCALE: 1:20




## SECTION F

SCALE: 1:20

NOTES:

1. FOR NOTES SEE DRAWING H354138-3400-231-260-0001.

1:20 0 200 400 600 800 1000 SCALE IN MILLIMETRES

THIS DRAWING WAS PREPARED FOR THE EXCLUSIVE USE OF STRATA GOLD ("CLIENT") AND IS ISSUED PURSUANT TO H354138 BETWEEN CLIENT AND HATCH LTD. ("HATCH"). UNLESS OTHERWISE AGREED IN WRITING WITH CLIENT OR SPECIFIED ON THIS DRAWING, (A) HATCH DOES NOT ACCEPT AND DISCLAIMS ANY AND ALL LIABILITY OR RESPONSIBILITY ARISING FROM ANY USE OF OR RELIANCE ON THIS DRAWING BY ANY THIRD PARTY OR ANY MODIFICATION OR MISUSE OF THIS DRAWING BY CLIENT, AND (B) THIS DRAWING IS CONFIDENTIAL AND ALL INTELLECTUAL PROPERTY RIGHTS EMBODIED OR REFERENCED IN THIS DRAWING REMAIN THE PROPERTY OF HATCH.

| No. | DESCRIPTION | BY | CHK'D | DATE |
|---|---|---|---|---|
| 0 | APPROVED FOR CONSTRUCTION | RS | EA | 2018-08-31 |

| ROLE | NAME | SIGNATURE & DATE |
|---|---|---|
| DRAFTSPERSON | R. SAGARBARRIA | NR |
| DESIGNER | H. LI | NR |
| CHECKER | E. AKINCI | |
| DESIGN COORD. | S. PERKINS | |
| RESP. ENG. | E. AKINCI | |
| LEAD DISC. ENG. | E. AKINCI | |
| ENG. MANAGER | B. RUSTAD | |
| PROJ. MANAGER | B. RUSTAD | |

DRAWING APPROVAL STATUS: Approved for Construction

DRAWING No. | DRAWING TITLE

REFERENCE DRAWINGS

REG. PROFESSIONAL

REVISIONS

HATCH

StrataGold Corporation

EAGLE GOLD PROJECT

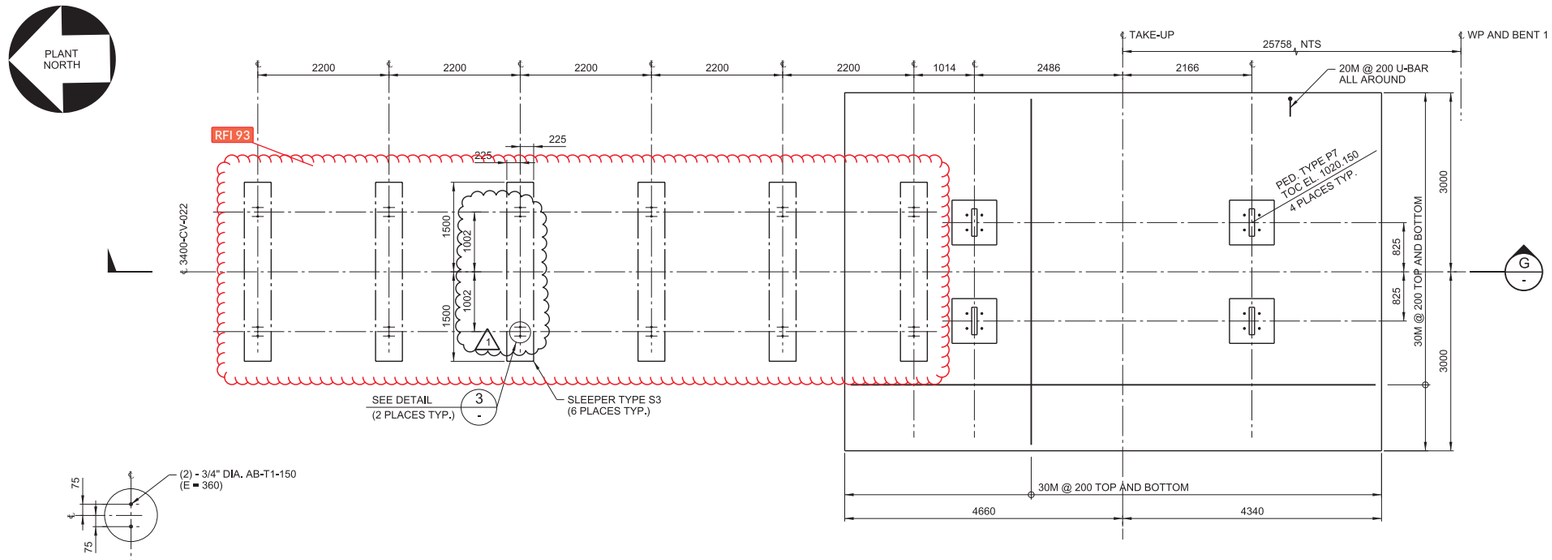
OVERLAND CONVEYING
TRANSFER TOWER TT-3 FOUNDATION
PLAN, SECTIONS AND DETAILS - SHT. 3

SCALE 1:20 OR AS NOTED | DWG. No. H354138-3400-231-260-0005 | REV 0

SHEET SIZE: D

SFILELS
PRINTED: 31-AUG-2018
15:12
kdc_pwservice

DWG. No. H354138-3400-231-260-0006

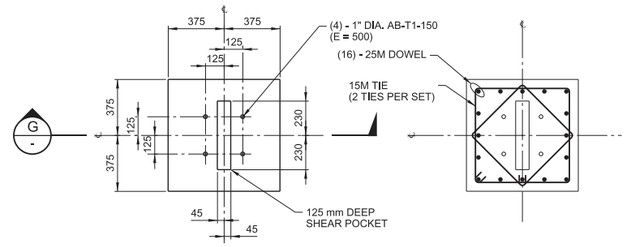




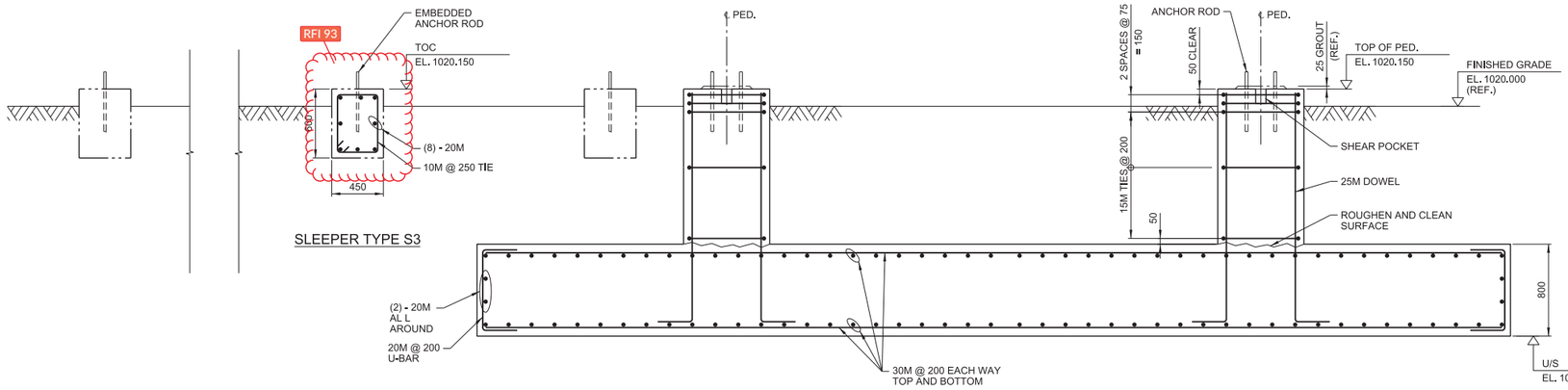


DETAIL 3 -
SCALE: 1:20

## 3400-CV-022 CONVEYOR TAKE-UP FOUNDATION - PLAN




## PEDESTAL TYPE P7
SCALE: 1:20



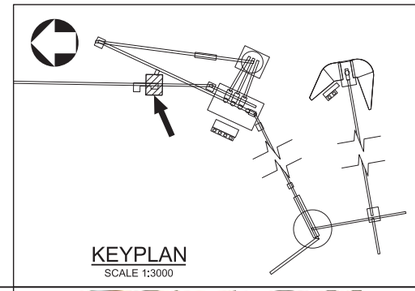

SLEEPER TYPE S3

## SECTION G -
SCALE: 1:25

0 500 1000 1500 2000 2500
1:50 SCALE IN MILLIMETRES

NOTES:

1. FOR GENERAL NOTES SEE DRAWING H354138-3400-231-260-0001.



KEYPLAN
SCALE 1:3000

THIS DRAWING WAS PREPARED FOR THE EXCLUSIVE USE OF STRATA GOLD ("CLIENT") AND IS ISSUED PURSUANT TO H354138 BETWEEN CLIENT AND HATCH LTD. ("HATCH"). UNLESS OTHERWISE AGREED IN WRITING WITH CLIENT OR SPECIFIED ON THIS DRAWING, (A) HATCH DOES NOT ACCEPT AND DISCLAIMS ANY AND ALL LIABILITY OR RESPONSIBILITY ARISING FROM ANY USE OF OR RELIANCE ON THIS DRAWING BY ANY THIRD PARTY OR ANY MODIFICATION OR MISUSE OF THIS DRAWING BY CLIENT, AND (B) THIS DRAWING IS CONFIDENTIAL AND ALL INTELLECTUAL PROPERTY RIGHTS EMBODIED OR REFERENCED IN THIS DRAWING REMAIN THE PROPERTY OF HATCH.

| No. | DESCRIPTION | BY | CHK'D | DATE |
|---|---|---|---|---|
| 1 | SLEEPERS TYPE S3 ANCHOR REV LOCATION REVISED | PJ | EA | 2018-10-16 |
| 0 | APPROVED FOR CONSTRUCTION | PJ | EA | 2018-09-12 |

REVISIONS

| ROLE | NAME | SIGNATURE & DATE |
|---|---|---|
| DRAFTSPERSON | P. JIVAEV | NR 2018-08-30 |
| DESIGNER | H. LI | NR 2018-08-30 |
| CHECKER | E. AKINCI | |
| DESIGN COORD. | S. PERKINS | |
| RESP. ENG. | E. AKINCI | |
| LEAD DISC. ENG. | E. AKINCI | |
| ENG. MANAGER | B. RUSTAD | |
| PROJ. MANAGER | B. RUSTAD | |

DRAWING APPROVAL STATUS: Approved for Construction

REFERENCE DRAWINGS

| DRAWING No. | DRAWING TITLE |
|---|---|

REG. PROFESSIONAL

HATCH

StrataGold Corporation

EAGLE GOLD PROJECT

OVERLAND CONVEYING
3400-CV-022 TAKE-UP FOUNDATION
PLAN, SECTIONS AND DETAILS

SCALE 1:50 OR AS NOTED

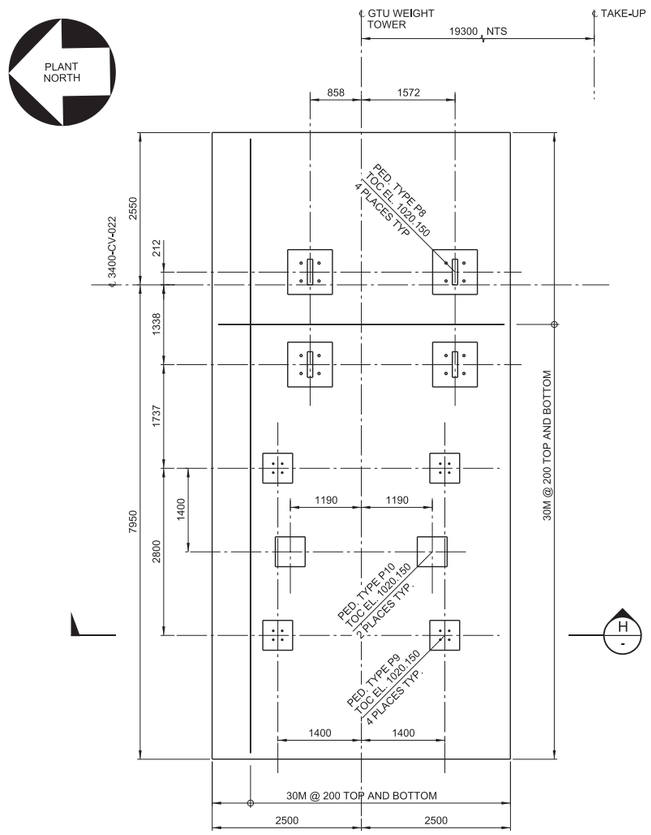
DWG. No. H354138-3400-231-260-0006

REV 1

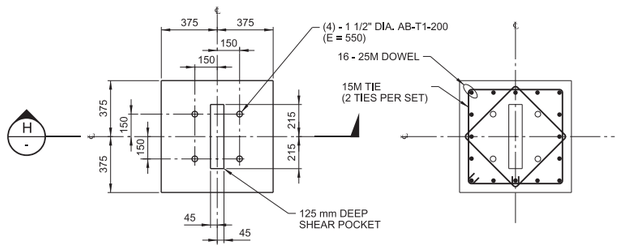
SHEET SIZE: D

$FILE$
PRINTED: 16-OCT-2018
$dc_pwservice
11:58

DWG. No. H354138-3400-231-260-0007

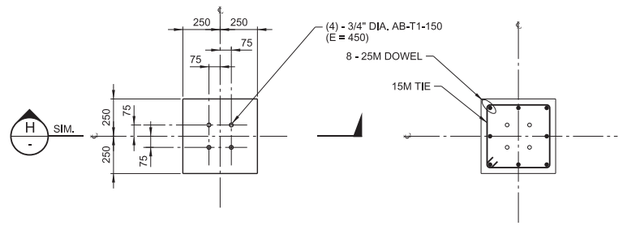



## 3400-CV-022 CONVEYOR GTU WEIGHT TOWER FOUNDATION - PLAN




ANCHOR SETTING REINFORCEMENT

## PEDESTAL TYPE P8
SCALE: 1:20




ANCHOR SETTING REINFORCEMENT

## PEDESTAL TYPE P9
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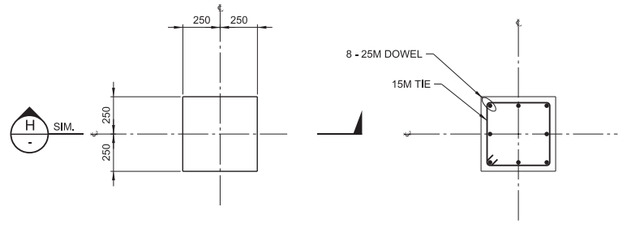
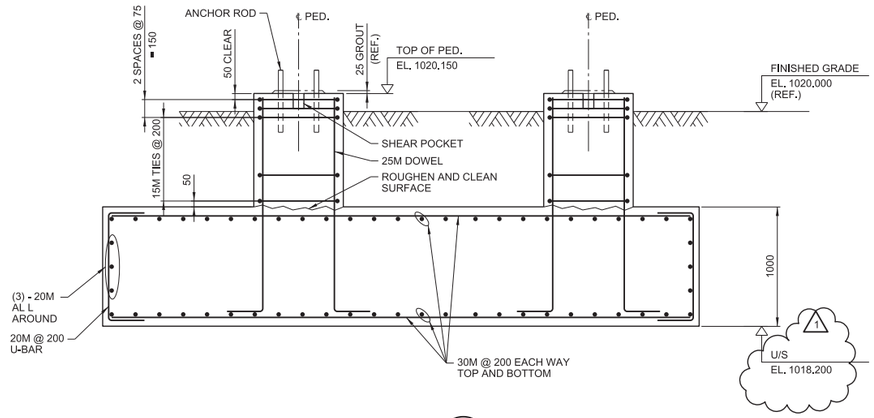


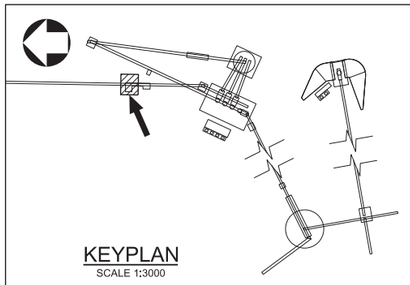

ANCHOR SETTING REINFORCEMENT

## PEDESTAL TYPE P10
SCALE: 1:20




## SECTION H
SCALE: 1:25

NOTES:
1. FOR GENERAL NOTES SEE DRAWING H354138-3400-231-260-0001.



KEYPLAN
SCALE 1:3000

0 500 1000 1500 2000 2500
1:50 SCALE IN MILLIMETRES

THIS DRAWING WAS PREPARED FOR THE EXCLUSIVE USE OF STRATA GOLD ("CLIENT") AND IS ISSUED PURSUANT TO H354138 BETWEEN CLIENT AND HATCH LTD. ("HATCH"). UNLESS OTHERWISE AGREED IN WRITING WITH CLIENT OR SPECIFIED ON THIS DRAWING, (A) HATCH DOES NOT ACCEPT AND DISCLAIMS ANY AND ALL LIABILITY OR RESPONSIBILITY ARISING FROM ANY USE OF OR RELIANCE ON THIS DRAWING BY ANY THIRD PARTY OR ANY MODIFICATION OR MISUSE OF THIS DRAWING BY CLIENT, AND (B) THIS DRAWING IS CONFIDENTIAL AND ALL INTELLECTUAL PROPERTY RIGHTS EMBODIED OR REFERENCED IN THIS DRAWING REMAIN THE PROPERTY OF HATCH.

| REVISIONS | | | | |
|---|---|---|---|---|
| No. | DESCRIPTION | BY | CHK'D | DATE |
| 1 | U/S FOOTING ELEVATION REVISED DUE TO SITE CONDITIONS | PJ | EA | 2018-10-10 |
| 0 | APPROVED FOR CONSTRUCTION | PJ | EA | 2018-09-12 |

| ROLE | NAME | SIGNATURE & DATE |
|---|---|---|
| DRAFTSPERSON | P. JIVAEV | NR 2018-08-30 |
| DESIGNER | H. LI | NR 2018-08-30 |
| CHECKER | E. AKINCI | |
| DESIGN COORD. | S. PERKINS | |
| RESP. ENG. | E. AKINCI | |
| LEAD DISC. ENG. | E. AKINCI | |
| ENG. MANAGER | B. RUSTAD | |
| PROJ. MANAGER | B. RUSTAD | |

DRAWING APPROVAL STATUS: Approved for Construction

HATCH

StrataGold Corporation

EAGLE GOLD PROJECT

OVERLAND CONVEYING
3400-CV-022 GTU WEIGHT TOWER FDN. PLAN, SECTIONS AND DETAILS

| DRAWING No. | DRAWING TITLE |
|---|---|
| REFERENCE DRAWINGS | REG. PROFESSIONAL |

SCALE 1:50 OR AS NOTED

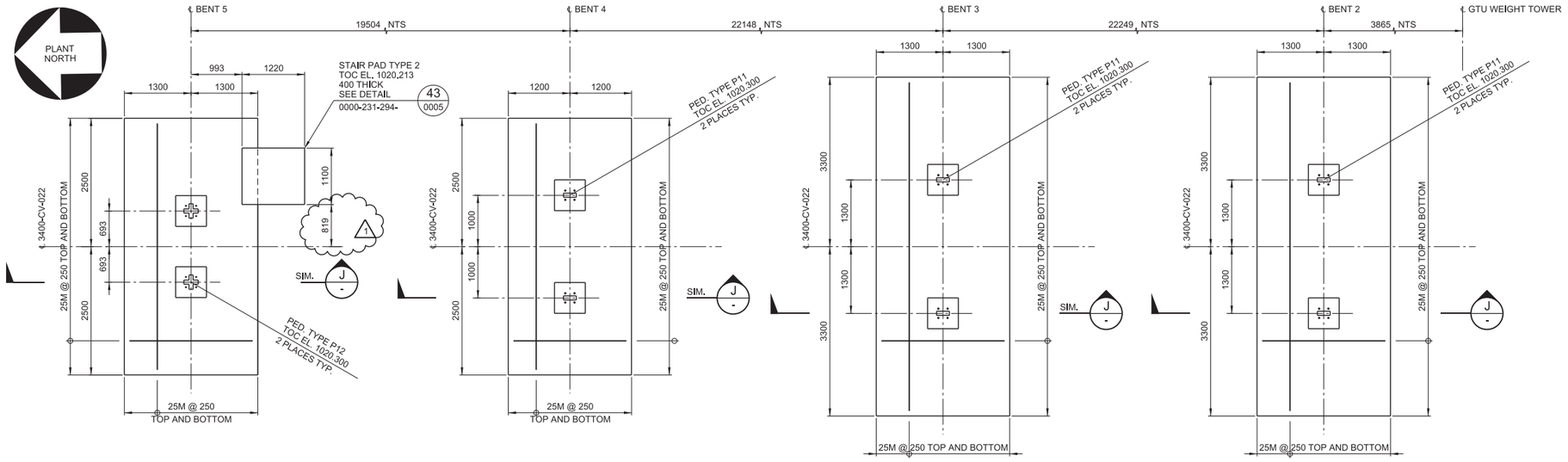
DWG. No. H354138-3400-231-260-0007

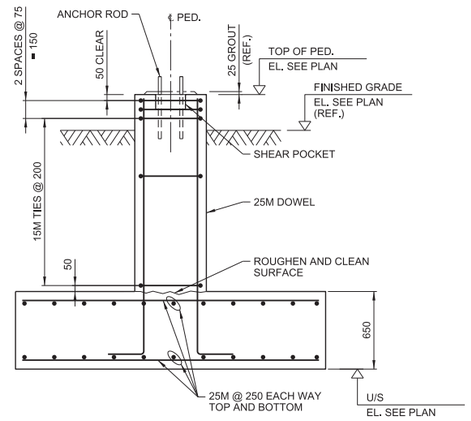
REV 1

SHEET SIZE: D

$FILE$
PRINTED: 09-OCT-2018
18:39
idc_pwservice

DWG. No. H354138-3400-231-260-0008




## 3400-CV-022 CONVEYOR BENT 5 FOUNDATION - PLAN

FIN. GRADE EL. 1020.000 (REF.)
U/S FTG. EL. 1018.000

## 3400-CV-022 CONVEYOR BENT 4 FOUNDATION - PLAN

FIN. GRADE EL. 1020.000 (REF.)
U/S FTG. EL. 1018.000

## 3400-CV-022 CONVEYOR BENT 3 FOUNDATION - PLAN

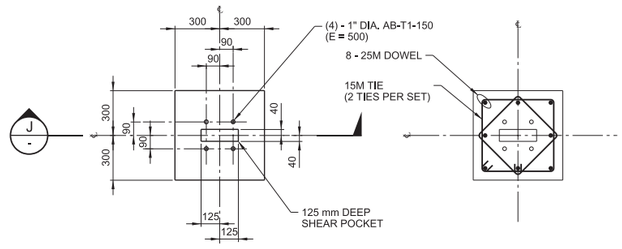
FIN. GRADE EL. 1020.000 (REF.)
U/S FTG. EL. 1018.000

## 3400-CV-022 CONVEYOR BENT 2 FOUNDATION - PLAN

FIN. GRAFE EL. 1020.000 (REF.)
U/S FTG EL. 1018.00

## SECTION J - J 0009

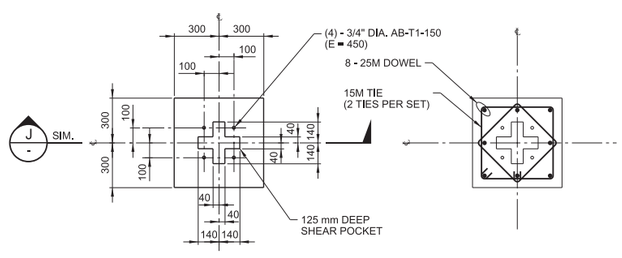
SCALE: 1:25




ANCHOR SETTING REINFORCEMENT

## PEDESTAL TYPE P11

SCALE: 1:20




ANCHOR SETTING REINFORCEMENT

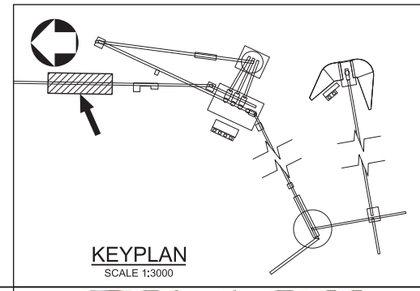
## PEDESTAL TYPE P12

SCALE: 1:20

0 500 1000 1500 2000 2500
1:50 SCALE IN MILLIMETRES

NOTES:

1. FOR GENERAL NOTES SEE DRAWING H354138-3400-231-260-0001.



KEYPLAN
SCALE 1:3000

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| No. | DESCRIPTION | BY | CHK'D | DATE |
|---|---|---|---|---|
| 1 | SRAIR PAD NEXT TO BENT 5 LOCATION REVISED | PJ | EA | 2018-10-24 |
| 0 | APPROVED FOR CONSTRUCTION | PJ | EA | 2018-09-12 |

| ROLE | NAME | SIGNATURE & DATE |
|---|---|---|
| DRAFTSPERSON | P. JIVAEV | NR 2018-09-10 |
| DESIGNER | H. LI | NR 2018-09-10 |
| CHECKER | E. AKINCI | |
| DESIGN COORD. | S. PERKINS | |
| RESP. ENG. | E. AKINCI | |
| LEAD DISC. ENG. | E. AKINCI | |
| ENG. MANAGER | B. RUSTAD | |
| PROJ. MANAGER | B. RUSTAD | |

DRAWING APPROVAL STATUS: Approved for Construction

DRAWING No. | DRAWING TITLE
REFERENCE DRAWINGS

REG. PROFESSIONAL

HATCH

StrataGold Corporation

EAGLE GOLD PROJECT

OVERLAND CONVEYING
3400-CV-022 BENTS 2, 3, 4 AND 5 FDN.
PLAN, SECTIONS AND DETAILS

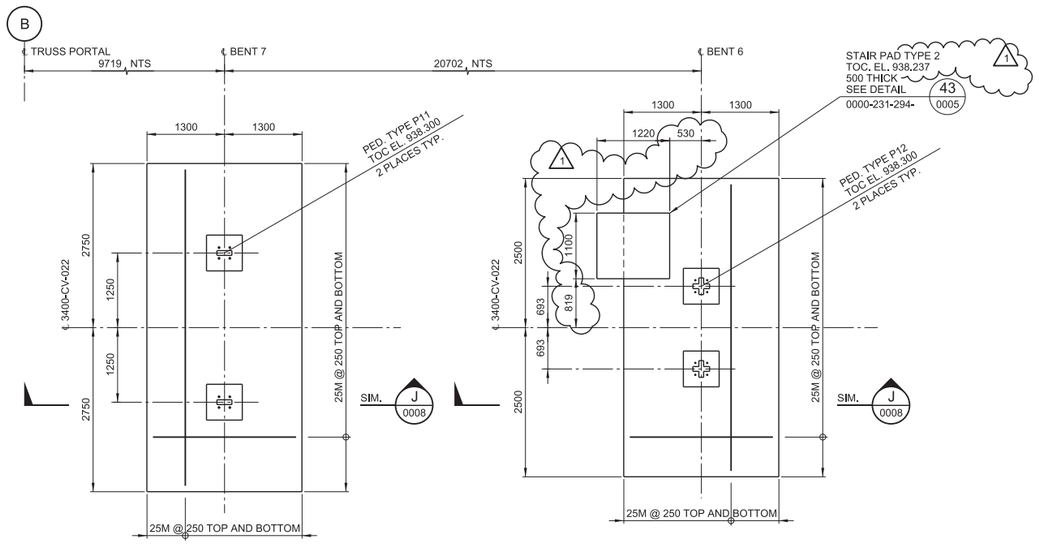
SCALE 1:50 OR AS NOTED | DWG. No. H354138-3400-231-260-0008 | REV 1

SHEET SIZE: D

$FILE$
PRINTED: 23-OCT-2018
$dc_pwservice
17:29

DWG. No. H354138-3400-231-260-0009

PLANT NORTH




## 3400-CV-022 CONVEYOR BENT 7 FOUNDATION - PLAN

FIN. GRADE EL. 937.550 (REF.)
U/S FTG. EL. 935.500

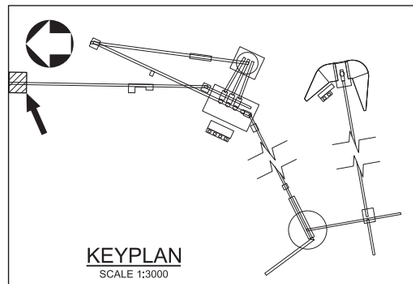
## 3400-CV-022 CONVEYOR BENT 6 FOUNDATION - PLAN

FIN. GRADE EL. 938.200 (REF.)
U/S FTG. EL. 935.500

NOTES:

1. FOR GENERAL NOTES SEE DRAWING H354138-3400-231-260-0001.

0 500 1000 1500 2000 2500
1:50 SCALE IN MILLIMETRES



KEYPLAN
SCALE 1:3000

THIS DRAWING WAS PREPARED FOR THE EXCLUSIVE USE OF STRATA GOLD ("CLIENT") AND IS ISSUED PURSUANT TO H354138 BETWEEN CLIENT AND HATCH LTD. ("HATCH"). UNLESS OTHERWISE AGREED IN WRITING WITH CLIENT OR SPECIFIED ON THIS DRAWING, (A) HATCH DOES NOT ACCEPT AND DISCLAIMS ANY AND ALL LIABILITY OR RESPONSIBILITY ARISING FROM ANY USE OF OR RELIANCE ON THIS DRAWING BY ANY THIRD PARTY OR ANY MODIFICATION OR MISUSE OF THIS DRAWING BY CLIENT, AND (B) THIS DRAWING IS CONFIDENTIAL AND ALL INTELLECTUAL PROPERTY RIGHTS EMBODIED OR REFERENCED IN THIS DRAWING REMAIN THE PROPERTY OF HATCH.

| No. | DESCRIPTION | BY | CHK'D | DATE |
|---|---|---|---|---|
| 1 | STAIR PAD NEXT TO BENT 6 LOCATION AND ELEVATION REVISED | PJ | EA | 2018-10-24 |
| 0 | APPROVED FOR CONSTRUCTION | PJ | EA | 2018-09-12 |

| ROLE | NAME | SIGNATURE & DATE |
|---|---|---|
| DRAFTSPERSON | P. JIVAEV | NR 2018-09-10 |
| DESIGNER | H. LI | NR 2018-09-10 |
| CHECKER | E. AKINCI | |
| DESIGN COORD. | S. PERKINS | |
| RESP. ENG. | E. AKINCI | |
| LEAD DISC. ENG. | E. AKINCI | |
| ENG. MANAGER | B. RUSTAD | |
| PROJ. MANAGER | B. RUSTAD | |

DRAWING APPROVAL STATUS: Approved for Construction

HATCH

StrataGold Corporation

EAGLE GOLD PROJECT

OVERLAND CONVEYING
3400-CV-022 BENTS 6 AND 7 FDN.
PLAN, SECTIONS AND DETAILS

| DRAWING No. | DRAWING TITLE |
|---|---|
| REFERENCE DRAWINGS | REG. PROFESSIONAL |

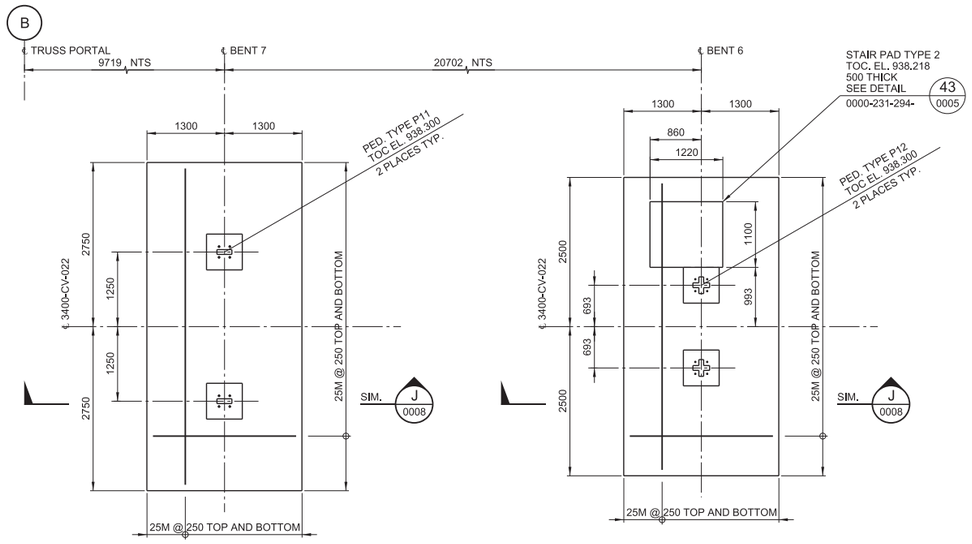
| SCALE | DWG. No. | REV |
|---|---|---|
| 1:50 OR AS NOTED | H354138-3400-231-260-0009 | 1 |

SHEET SIZE: D

$FILE$
PRINTED: 23-OCT-2018
17:29
idc_pwservice

DWG. No. H354138-3400-231-260-0009

PLANT NORTH




## 3400-CV-022 CONVEYOR BENT 7 FOUNDATION - PLAN

FIN. GRADE EL. 937.550 (REF.)
U/S FTG. EL. 935.500

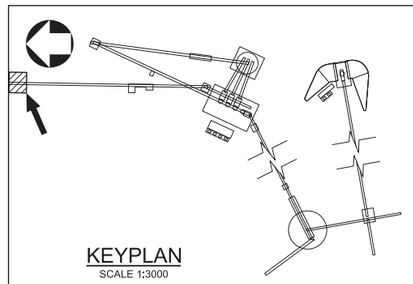



## 3400-CV-022 CONVEYOR BENT 6 FOUNDATION - PLAN

FIN. GRADE EL. 938.200 (REF.)
U/S FTG. EL. 935.500

NOTES:

1. FOR GENERAL NOTES SEE DRAWING H354138-3400-231-260-0001.



KEYPLAN
SCALE 1:3000

0 500 1000 1500 2000 2500
1:50 SCALE IN MILLIMETRES

THIS DRAWING WAS PREPARED FOR THE EXCLUSIVE USE OF STRATA GOLD ("CLIENT") AND IS ISSUED PURSUANT TO H354138 BETWEEN CLIENT AND HATCH LTD. ("HATCH"). UNLESS OTHERWISE AGREED IN WRITING WITH CLIENT OR SPECIFIED ON THIS DRAWING, (A) HATCH DOES NOT ACCEPT AND DISCLAIMS ANY AND ALL LIABILITY OR RESPONSIBILITY ARISING FROM ANY USE OF OR RELIANCE ON THIS DRAWING BY ANY THIRD PARTY OR ANY MODIFICATION OR MISUSE OF THIS DRAWING BY CLIENT, AND (B) THIS DRAWING IS CONFIDENTIAL AND ALL INTELLECTUAL PROPERTY RIGHTS EMBODIED OR REFERENCED IN THIS DRAWING REMAIN THE PROPERTY OF HATCH.

| No. | DESCRIPTION | BY | CHK'D | DATE |
|---|---|---|---|---|
| 0 | APPROVED FOR CONSTRUCTION | PJ | EA | 2018-09-12 |

| ROLE | NAME | SIGNATURE & DATE |
|---|---|---|
| DRAFTSPERSON | P. JIVAEV | NR 2018-09-10 |
| DESIGNER | H. LI | NR 2018-09-10 |
| CHECKER | E. AKINCI | |
| DESIGN COORD. | S. PERKINS | |
| RESP. ENG. | E. AKINCI | |
| LEAD DISC. ENG. | E. AKINCI | |
| ENG. MANAGER | B. RUSTAD | |
| PROJ. MANAGER | B. RUSTAD | |

DRAWING APPROVAL STATUS: Approved for Construction

HATCH

StrataGold Corporation

EAGLE GOLD PROJECT

OVERLAND CONVEYING
3400-CV-022 BENTS 6 AND 7 FDN.
PLAN, SECTIONS AND DETAILS

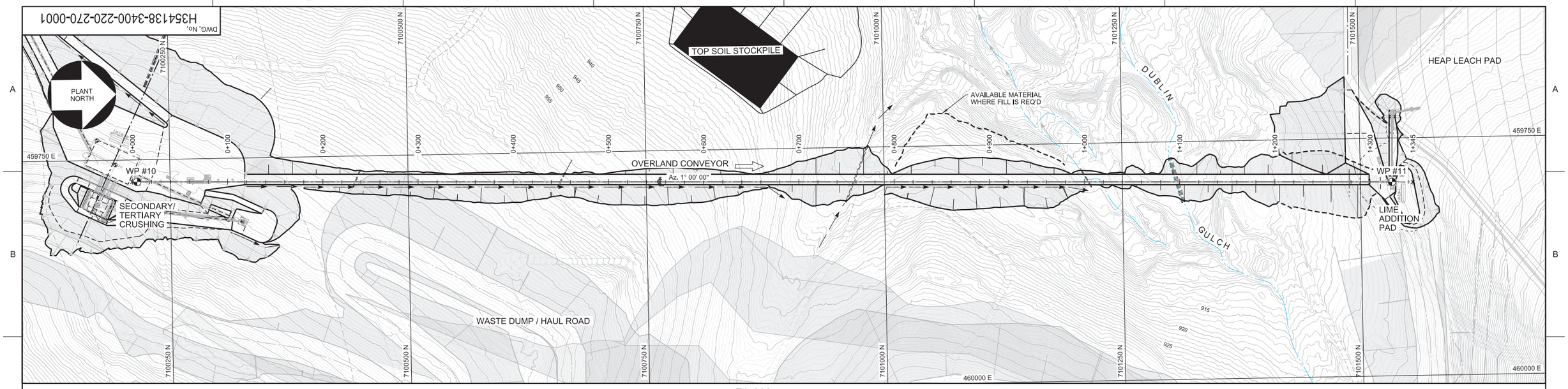
| SCALE | DWG. No. | REV |
|---|---|---|
| 1:50 OR AS NOTED | H354138-3400-231-260-0009 | 0 |

SHEET SIZE: D

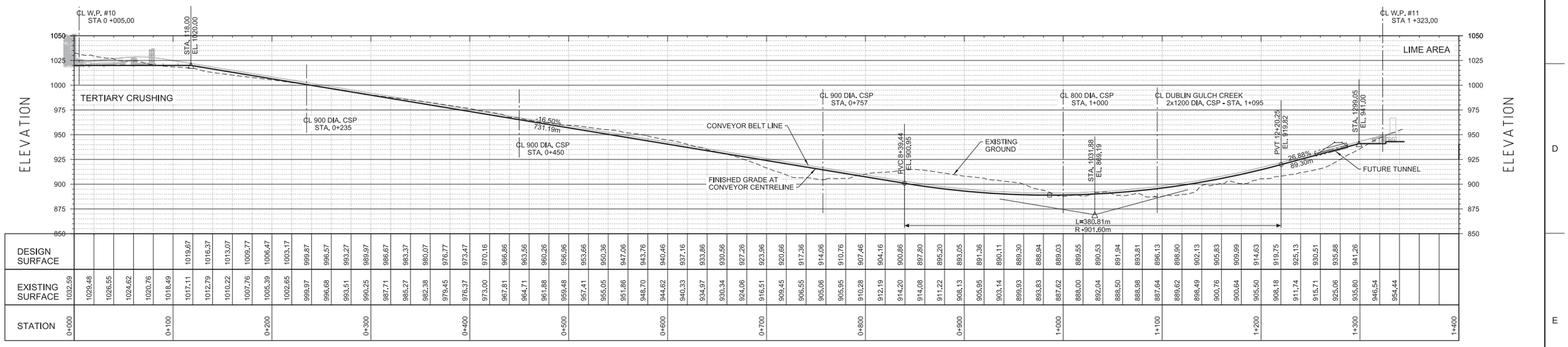
REFERENCE DRAWINGS | REG. PROFESSIONAL | REVISIONS

$FILE$
PRINTED: 12-SEP-2018
idc_pwservice
10:48

DWG. No. H354138-3400-220-270-0001

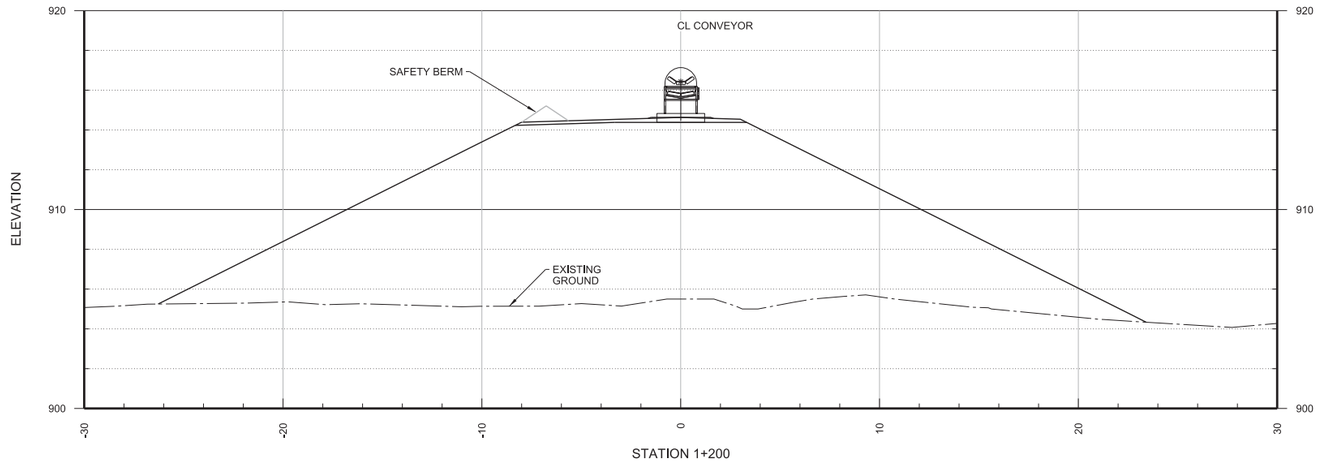


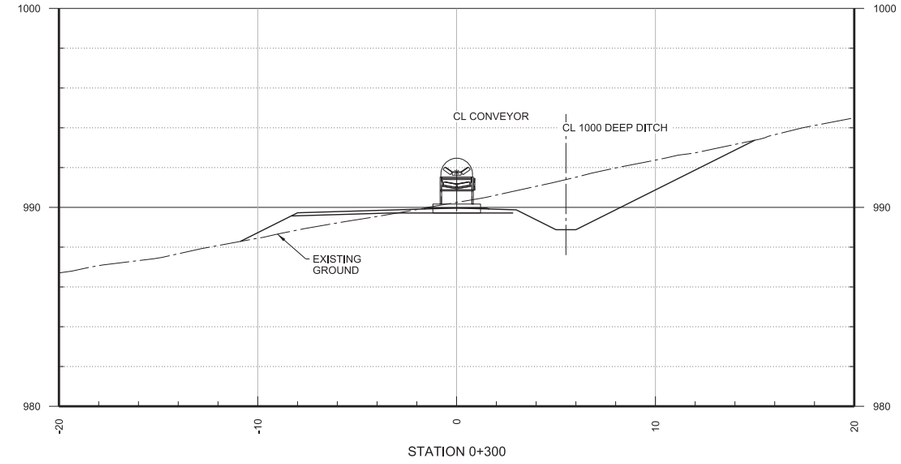

PLAN
SCALE - 1:2000

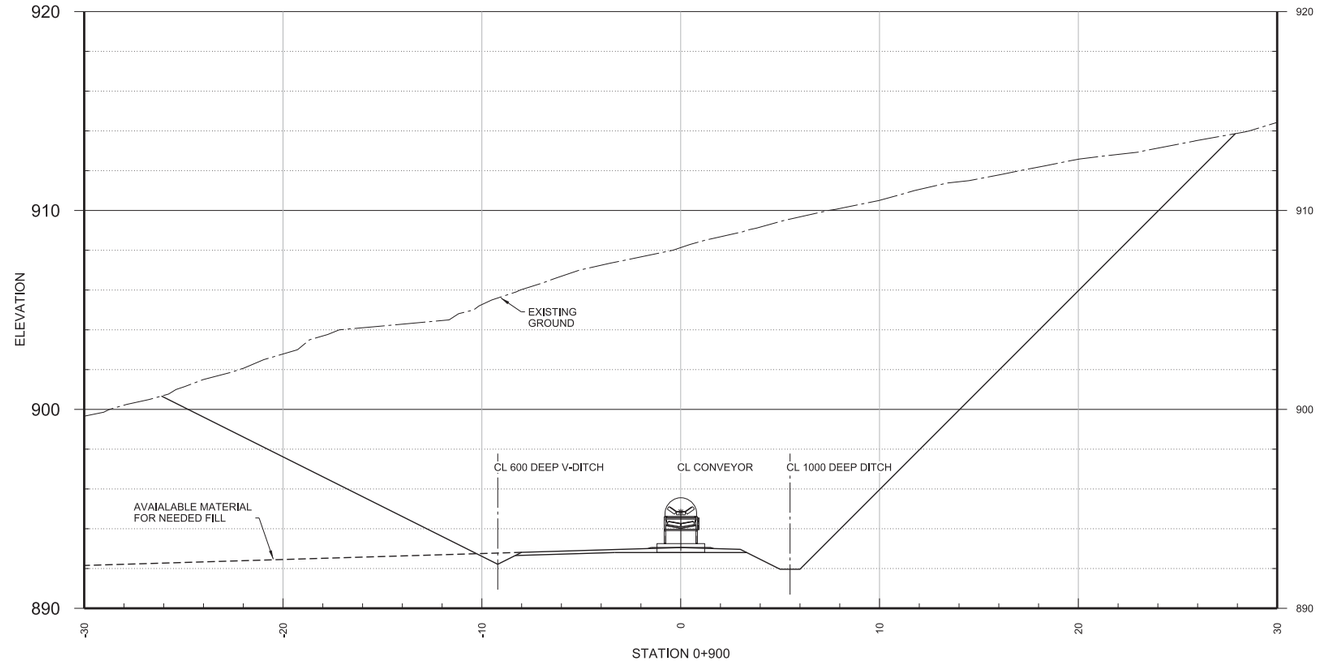


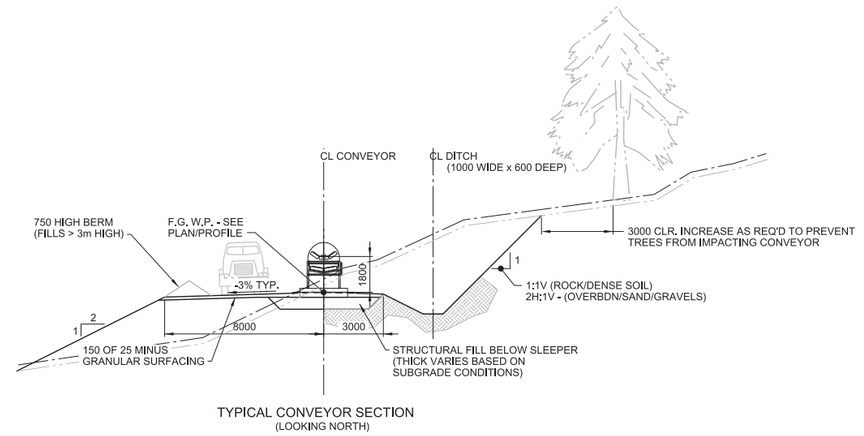

| | | |

DWG. No. H354138-3400-220-270-0002




TYPICAL CONVEYOR SECTION
(LOOKING NORTH)

NOTES:

1. ALL DIMINESION IN MILLIMETERS, ELEVATIONS IN METERS.
2. LIDAR CONTOUR INTERVAL SHOWN = 1.0m BASED ON UTM ZONE8, NAD 83 AND PROVIDED BY JDS.
3. FOR GEOTECHNICAL CONDITIONS AND RECOMMENDATIONS REFER TO 2011 GEOTECHNICAL INVESTIGATION REPORT BY BGC DATED JAN.31, 2012.
4. IN GENERAL GRADING SHALL SLOPE AWAY FROM STRUCTURES -2.0%, UNO. PROVIDE -3% CROSSFALL ON ROADS AND DIRECT RUNOFF TO LOCAL DITCHES. DITCHING TO BE A MIN. 1.0m DEEP AND DRAIN AT A MIN. OF -0.3%, U.N.O.
5. RIPRAP TO PLACED IN THE LOCATIONS AND WITHIN LIMITS AS SHOWN ON THE DRAWINGS OR AS DIRECTED BY THE OWNER OR HIS REPRESENTIVES. IN GENERAL RIPRAP TO BE USED WHERE SLOPES OF THE DITCH ARE UNSTABLE, IN AREAS OF POOR EROSION RESISTANT MATERIAL AND OTHER LOCATION REQUIRING PROTECTION IN ORDER TO MAINTAIN DITCH AND WATER COURSE X-SECTION.

0 1.5 3.0 4.5 6.0 7.5
1:150 SCALE IN METRES

THIS DRAWING WAS PREPARED FOR THE EXCLUSIVE USE OF STRATA GOLD ("CLIENT") AND IS ISSUED PURSUANT TO H354138 BETWEEN CLIENT AND HATCH LTD. ("HATCH"). UNLESS OTHERWISE AGREED IN WRITING WITH CLIENT OR SPECIFIED ON THIS DRAWING, (A) HATCH DOES NOT ACCEPT AND DISCLAIMS ANY AND ALL LIABILITY OR RESPONSIBILITY ARISING FROM ANY USE OF OR RELIANCE ON THIS DRAWING BY ANY THIRD PARTY OR ANY MODIFICATION OR MISUSE OF THIS DRAWING BY CLIENT, AND (B) THIS DRAWING IS CONFIDENTIAL AND ALL INTELLECTUAL PROPERTY RIGHTS EMBODIED OR REFERENCED IN THIS DRAWING REMAIN THE PROPERTY OF HATCH.

| ROLE | NAME | SIGNATURE & DATE |
|---|---|---|
| DRAFTSPERSON | D NESJAN | NR |
| DESIGNER | D NESJAN | NR |
| CHECKER | E. AKINCI | |
| DESIGN COORD. | S. PERKINS | |
| RESP. ENG. | E. AKINCI | |
| LEAD DISC. ENG. | E. AKINCI | |
| ENG. MANAGER | B. RUSTAD | |
| PROJ. MANAGER | B. RUSTAD | |

DRAWING APPROVAL STATUS: Approved for Construction

| No. | DESCRIPTION | BY | CHK'D | DATE |
|---|---|---|---|---|

REFERENCE DRAWINGS

REG. PROFESSIONAL

DRAWING No. | DRAWING TITLE

HATCH

StrataGold Corporation

EAGLE GOLD PROJECT

OVERLAND CONVEYING
FINISH GRADING
TYPICAL SECTIONS AND DETAILS

SCALE AS NOTED OR AS NOTED

DWG. No. H354138-3400-220-270-0002

REV 0

SHEET SIZE: D

SFILELS
PRINTED: 19-APR-2018
17:05
idc_pwservice

McNISH STEEL

10636-205 Street Edmonton, Alberta T5S 1Z1
Phone 780.447.3337 | mcnishsteel.com

*Please note drawing 001 B drafted on previous IFC issue with pedestals on hold. Drawing to be updated to match June 4th revised IFC with pedestals added. Please review 001 B for general conformance.

CLARK BUILDERS SUBMITTAL REVIEW

THIS SUBMITTAL HAS BEEN REVIEWED FOR CONFORMITY WITH THE GENERAL DESIGN CONCEPT ONLY. SUCH REVIEW SHALL NOT RELIEVE THE SUBCONTRACTOR/ SUPPLIER OF HIS RESPONSIBILITY FOR ERRORS OR OMISSIONS OR MEETING THE REQUIREMENTS OF THE CONTRACT DOCUMENTS.

| | |
|---|---|
| ✓ | REVIEWED |
| ✓ | SEE COMMENTS |
| | AMEND & RESUBMIT |
| | RECEIVED |

SUB. NO. 3201
PROJECT: 18502
BY: Jackson Wenger
DATE: 3:29 pm, Jun 08, 2018

**To:** STRATAGOLD EAGLE
MAYO, YT

**Transmittal:** 01
**Job Name:** STRATAGOLD EAGLE

**Location:** MAYO, YT
**Job Number:** 18-042
**Sales Order:**
**Sent Via:** Email

**Attn:** DUSTIN

| Drawing | Description | Rev | Qty | Reason Sent | Date Sent |
|---|---|---|---|---|---|
| 001 A | PRIMARY CRUSHER (BASE FOOTING SLAB) | | 1 | For Approval | 6/1/2018 |
| 001 B | PRIMARY CRUSHER (DWLS,CURBS,PEDS) | | 1 | For Approval | 6/1/2018 |
| 001 C | PRIMARY CRUSHER (WALLS 1st LIFT) | | 1 | For Approval | 6/7/2018 |
| 001 D | PRIMARY CRUSHER (1045.300 SLAB) | | 1 | For Approval | 6/7/2018 |
| 001 E | PRIMARY CRUSHER (WALLS 2nd LIFT) | | 1 | For Approval | 6/7/2018 |

**Note:**

HATCH Vendor/Contractor Document Review

| | | | |
|---|---|---|---|
| Doc Number | E354138-CB201-230-260-0001 | SUB | 01 |
| Date Received | 2018-06-11 | | |

| Review Grade | Next Submittal Status |
|---|---|
| ☒ C1 - Proceed to next submission & status<br>☐ C2 - Proceed with exceptions as noted to next submission & status | ☐ Certified<br>☐ As-Built |
| ☐ C3 - Do not proceed. Revise as noted & resubmit<br>Next Submittal Date: | ☐ Internal Review<br>☐ Certified/☐ As-Built |
| ☐ C4 - No further submission required - Complete (select status below)<br>☐ Certified Final ☐ Final ☐ Cancelled ☐ Superseded | |

Package Engineer: Name, signature and date
ESRA AKINCI P.A. JUNE 14, 2018

Reviewed only for general conformity with the specifications. Acceptance by the engineer does not warrant or represent that the information contained on this drawing/document is either accurate or complete. The sole responsibility for correct design, details & dimensions shall remain with the party submitting the drawing/document.

**By:** Mark Tillmanns
**Signature:** _____
**Received:** _____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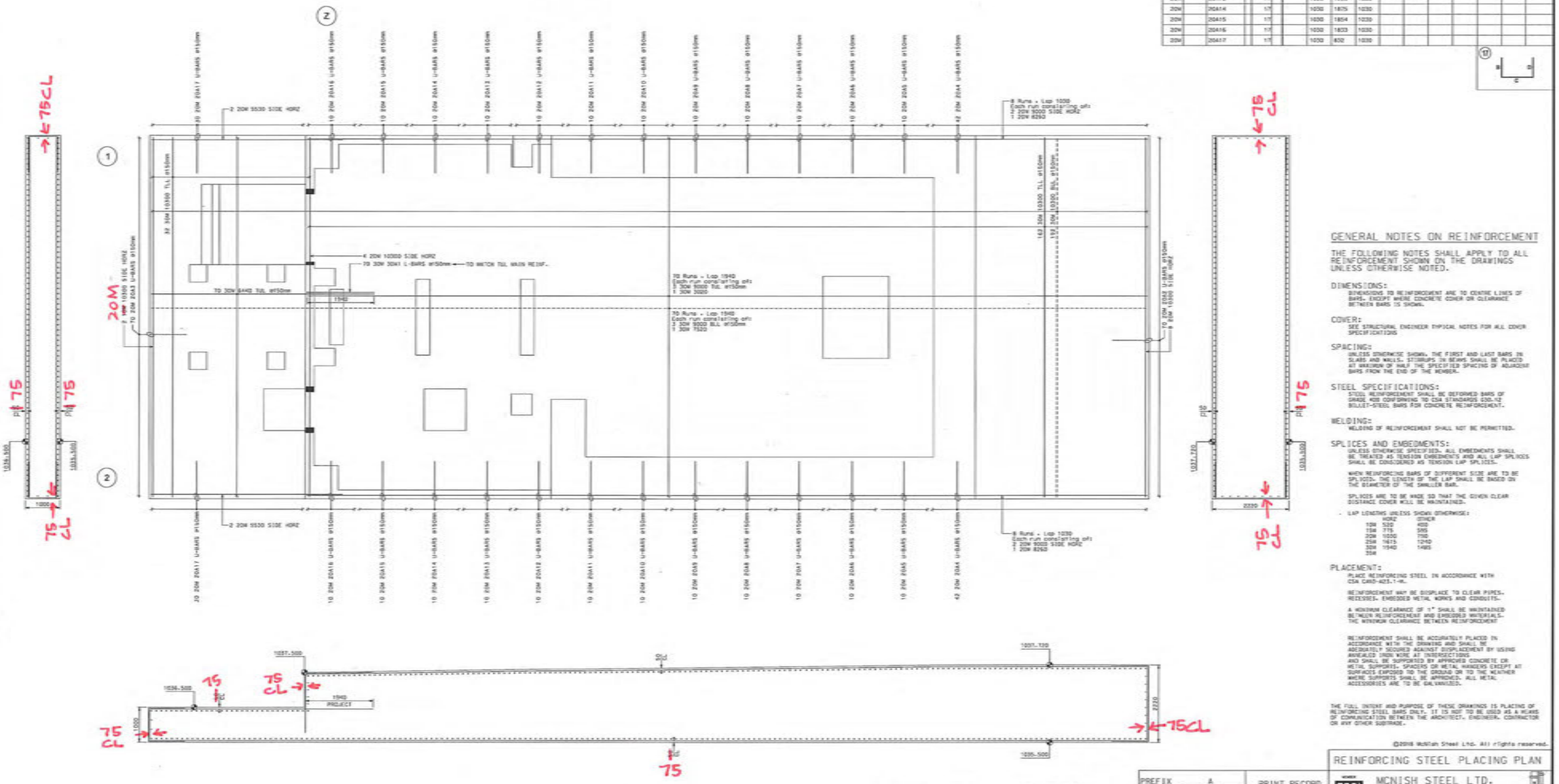
Note: all concrete surfaces exposed to soil permanently require a clear cover of 75mm

| SIZE | GP | BAR MARK | V | END TYP | CD | A | B | C | D | BENDING DIMENSIONS E | F,H | G | N | J | K | O |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 20M | | 20A1 | | 1/1 | | | 1700 | 1940 | | | | | | | | |
| 20M | | 20A2 | | 1/1 | | | 1030 | 2120 | 1030 | | | | | | | |
| 20M | | 20A3 | | 1/1 | | | 1030 | 900 | 1030 | | | | | | | |
| 20M | | 20A4 | | 1/1 | | | 1030 | 2052 | 1030 | | | | | | | |
| 20M | | 20A5 | | 1/1 | | | 1030 | 2034 | 1030 | | | | | | | |
| 20M | | 20A6 | | 1/1 | | | 1030 | 2016 | 1030 | | | | | | | |
| 20M | | 20A7 | | 1/1 | | | 1030 | 1998 | 1030 | | | | | | | |
| 20M | | 20A8 | | 1/1 | | | 1030 | 1980 | 1030 | | | | | | | |
| 20M | | 20A9 | | 1/1 | | | 1030 | 1962 | 1030 | | | | | | | |
| 20M | | 20A10 | | 1/1 | | | 1030 | 1944 | 1030 | | | | | | | |
| 20M | | 20A11 | | 1/1 | | | 1030 | 1932 | 1030 | | | | | | | |
| 20M | | 20A12 | | 1/1 | | | 1030 | 1918 | 1030 | | | | | | | |
| 20M | | 20A13 | | 1/1 | | | 1030 | 1896 | 1030 | | | | | | | |
| 20M | | 20A14 | | 1/1 | | | 1030 | 1875 | 1030 | | | | | | | |
| 20M | | 20A15 | | 1/1 | | | 1030 | 1854 | 1030 | | | | | | | |
| 20M | | 20A16 | | 1/1 | | | 1030 | 1833 | 1030 | | | | | | | |
| 20M | | 20A17 | | 1/1 | | | 1030 | 852 | 1030 | | | | | | | |




## GENERAL NOTES ON REINFORCEMENT

THE FOLLOWING NOTES SHALL APPLY TO ALL REINFORCEMENT SHOWN ON THE DRAWINGS UNLESS OTHERWISE NOTED.

**DIMENSIONS:**
DIMENSIONS TO REINFORCEMENT ARE TO CENTRE LINES OF BARS, EXCEPT WHERE CONCRETE COVER OR CLEARANCE BETWEEN BARS IS SHOWN.

**COVER:**
SEE STRUCTURAL ENGINEER TYPICAL NOTES FOR ALL COVER SPECIFICATIONS

**SPACING:**
UNLESS OTHERWISE SHOWN, THE FIRST AND LAST BARS IN SLABS AND WALLS, STIRRUPS IN BEAMS SHALL BE PLACED AT MAXIMUM OF HALF THE SPECIFIED SPACING OF ADJACENT BARS FROM THE END OF THE MEMBER.

**STEEL SPECIFICATIONS:**
STEEL REINFORCEMENT SHALL BE DEFORMED BARS OF GRADE 400 CONFORMING TO CSA STANDARDS G30.12 BILLET-STEEL BARS FOR CONCRETE REINFORCEMENT.

**WELDING:**
WELDING OF REINFORCEMENT SHALL NOT BE PERMITTED.

**SPLICES AND EMBEDMENTS:**
UNLESS OTHERWISE SPECIFIED, ALL EMBEDMENTS SHALL BE TREATED AS TENSION EMBEDMENTS AND ALL LAP SPLICES SHALL BE CONSIDERED AS TENSION LAP SPLICES.

WHEN REINFORCING BARS OF DIFFERENT SIZE ARE TO BE SPLICED, THE LENGTH OF THE LAP SHALL BE BASED ON THE DIAMETER OF THE SMALLER BAR.

SPLICES ARE TO BE MADE SO THAT THE GIVEN CLEAR DISTANCE COVER WILL BE MAINTAINED.

- LAP LENGTHS UNLESS SHOWN OTHERWISE:

| | HORZ | OTHER |
|---|---|---|
| 10M | 530 | 400 |
| 15M | 775 | 585 |
| 20M | 1030 | 750 |
| 25M | 1675 | 1240 |
| 30M | 1940 | 1485 |
| 35M | | |

**PLACEMENT:**
PLACE REINFORCING STEEL IN ACCORDANCE WITH CSA CAN3-A23.1-M.

REINFORCEMENT MAY BE DISPLACE TO CLEAR PIPES, RECESSES, EMBEDDED METAL WORKS AND CONDUITS.

A MINIMUM CLEARANCE OF 1" SHALL BE MAINTAINED BETWEEN REINFORCEMENT AND EMBEDDED MATERIALS. THE MINIMUM CLEARANCE BETWEEN REINFORCEMENT

REINFORCEMENT SHALL BE ACCURATELY PLACED IN ACCORDANCE WITH THE DRAWING AND SHALL BE ADEQUATELY SECURED AGAINST DISPLACEMENT BY USING ANNEALED IRON WIRE AT INTERSECTIONS AND SHALL BE SUPPORTED BY APPROVED CONCRETE OR METAL SUPPORTS, SPACERS OR METAL HANGERS EXCEPT AT SURFACES EXPOSED TO THE GROUND OR TO THE WEATHER WHERE SUPPORTS SHALL BE APPROVED. ALL METAL ACCESSORIES ARE TO BE GALVANIZED.

THE FULL INTENT AND PURPOSE OF THESE DRAWINGS IS PLACING OF REINFORCING STEEL BARS ONLY. IT IS NOT TO BE USED AS A MEANS OF COMMUNICATION BETWEEN THE ARCHITECT, ENGINEER, CONTRACTOR OR ANY OTHER SUBTRADE.

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| | |
|---|---|
| @ | - SPACING CENTER TO CENTER |
| | - DIRECTION IN WHICH BARS EXTEND |
| | - LIMITS OF AREA COVERED BY BARS |
| ——— | - REBAR TOP/NEAR FACE |
| - - - - | - REBAR BOT/FAR FACE |
| I.F. | - INSIDE FACE |
| O.F. | - OUTSIDE FACE |
| N.F. | - NEAR FACE |
| F.F. | - FAR FACE |
| E.W. | - EACH WAY |
| VERT | - VERTICAL |
| HORT | - HORIZONTAL |
| DWLS | - DOWELS |
| FTG | - FOOTING |
| COL | - COLUMN |
| BOT | - BOTTOM |
| TOP | - TOP |
| T&B | - TOP & BOTTOM |
| L-R | - LEFT TO RIGHT |
| B-T | - BOTTOM TO TOP |
| C.B. | - CORNER BAR |
| T.O.H. | - TYPICAL OPPOSITE HAND |
| R/L | - FROM RIGHT TO LEFT |
| F.B. | - FIELD BEND |
| C.I.F. | - CUT IN FIELD |
| T.O.W. | - TOP OF WALL |
| T.O.F. | - TOP OF FOOTING |
| B.O.W. | - BOTTOM OF WALL |
| T.O.C. | - TOP OF CONCRETE |
| B.O.C. | - BOTTOM OF CONCRETE |
| ELEV. | - ELEVATION |
| B-L-L. | - BOTTOM LOWER LAYER |
| B-U-L. | - BOTTOM UPPER LAYER |
| W-L-L. | - W.O.B. LOWER LAYER |
| W-U-L. | - W.O.B. UPPER LAYER |
| T-L-L. | - TOP LOWER LAYER |
| T-U-L. | - TOP UPPER LAYER |
| E.R. | - EACH ROW |
| BNT. | - BENT |

PREFIX A
TRANS. NOS. 01

PRINT RECORD

| NO. | REVISION | DATE | NO. | TO. | FOR | DATE |
|---|---|---|---|---|---|---|
| | | | 1C | C | A | 29/MAY/18 |

# REINFORCING STEEL PLACING PLAN

MCNISH STEEL LTD.
10636 - 205 STREET
EDMONTON, ALBERTA
PHONE 447-3337 FAX 447-3379

PROJECT : STRATHGOLD (EAGLE GOLD PROJECT)
CONTR. : CLARK BUILDERS
DWG.OF : PRIMARY CRUSHER (BASE FOOTING SLAB)
ENGR. : WATCH
DRAWN BY : MARK
DATE : 29/MAY/2018

JOB NO. 18-042 | DWG. NO. 001 A

75 cl. For concrete surfaces permanently exposed to earth

| SIZE | EP | BAR MARK | V | BND TYP | CD | BENDING DIMENSIONS A | B | C | D | E | F/R | G | H | J | K | D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 20M | | 20A20 | | 2 | | 500 | 3587 | | | | | | | | | |
| 25M | | 25A30 | | 2 | | 400 | 2632 | | | | | | | | | |
| 25M | | 25A41 | | 2 | | 400 | 2182 | | | | | | | | | |
| 15M | | 15A28 | | T1 | | 140 | 870 | 870 | 870 | 870 | | 140 | | | | |
| 15M | | 15A29 | | T1 | | 140 | 386 | 870 | 386 | 870 | | 140 | | | | |
| 15M | | 15A31 | | T1 | | 140 | 520 | 820 | 520 | 820 | | 140 | | | | |
| 15M | | 15A32 | | T1 | | 140 | 216 | 820 | 216 | 820 | | 140 | | | | |
| 15M | | 15A33 | | T1 | | 140 | 366 | 520 | 366 | 520 | | 140 | | | | |
| 15M | | 15A34 | | T2 | | | 725 | 13402 | | | | | | | | |
| 15M | | 15A35 | | T2 | | | 725 | 3620 | 725 | | | | | | | |
| 15M | | 15A36 | | T2 | | | 725 | 1580 | | | | | | | | |
| 15M | | 15A37 | | T1 | | 140 | 420 | 770 | 420 | 770 | | 140 | | | | |
| 15M | | 15A38 | | T1 | | 140 | 420 | 299 | 420 | 299 | | 140 | | | | |
| 15M | | 15A39 | | T2 | | | 775 | 775 | | | | | | | | |
| 15M | | 15A40 | | 2 | | 250 | 775 | | | | | | | | | |
| 15M | | 15A42 | | T1 | | 140 | 520 | 520 | 520 | 520 | | 140 | | | | |
| 15M | | 15A43 | | T1 | | 140 | 216 | 520 | 216 | 520 | | 140 | | | | |
| 15M | | 15A44 | | T2 | | | 210 | 1100 | 210 | 210 | | | | | | |
| 15M | | 15A45 | | T2 | | | 210 | 1100 | 210 | 210 | | | | | | |
| 15M | | 15A46 | | T2 | | | 210 | 2850 | | | | | | | | |
| 15M | | 15A47 | | LB | | | 250 | 125 | 2788 | 210 | | | 56 | | 112 | |
| 15M | | 15A48 | | 4 | | 250 | 229 | 495 | 300 | | | | 350 | | 350 | |
| 15M | | 15A49 | | T2 | | | 300 | 1200 | | | | | | | | |
| 10M | | 10A27 | | T2 | | | 300 | 114 | 300 | | | | | | | |
| 10M | | 10A50 | | T2 | | 100 | 862 | 964 | 862 | 964 | | 100 | | | | |
| 10M | | 10A52 | | T2 | | 100 | 964 | 1812 | 964 | 1812 | | 100 | | | | |
| 10M | | 10A53 | | T2 | | 100 | 964 | 1612 | 964 | 1612 | | 100 | | | | |
| 10M | | 10A54 | | T2 | | 100 | 764 | 1812 | 764 | 1812 | | 100 | | | | |
| 10M | | 10A55 | | T2 | | 100 | 764 | 614 | 764 | 614 | | 100 | | | | |
| 10M | | 10A56 | | T2 | | 100 | 964 | 1588 | 964 | 1588 | | 100 | | | | |
| 10M | | 10A57 | | T2 | | 100 | 825 | 964 | 825 | 964 | | 100 | | | | |

16 15M 15A46 BLL @150mm
20 15M 2200 BLL @150mm
20 15M 3300 TLL @150mm
16 15M 15A47 TLL @150mm

16 15M 15A48 FRYING PANS @150mm
2 15M 2200 EDGE TWINS CONT

16 15M 15A49 APRON DWLS @150mm

APRON SECTN

4x2 15M 7000 HORZ E.F.-@250mm
24x2 15M 1350 VERTS E.F.@250mm
24 10M 10A27 TOP UBARS @250mm

TIE ORIENTATION SAME

4 15M 15A39 D.F.-CRWBARS
4x2 15M 15A40 E.W.-I.F.-CRWBARS
* TO MATCH CURB HORZ *

20 25M 25A30 VERTICALS
10 15M 15A38 OUTER TIES
10x2 15M 15A29 INNER TIES

COVER TO PEDESTAL TIES TYP.

16 25M 25A30 VERTICALS
10 15M 15A37 OUTER TIES
10 15M 15A33 INNER TIES (LONG)
10 15M 15A31 INNER TIES (SHORT)

CRITICAL CLEARANCE

WALL HORZ
MAIN ZONE TIES
MAIN VERTICAL REINFORCING
DWLS PLACED "INSIDE" ZONE CAGE
INNER SETTING TIES

SEE PLAN FOR "SETTING" TIES

WALL SECTION

2 10M 10A56 OUTER SETTING TIES
2 10M 10A57 INNER SETTING TIES

* 2 TIES PER 14 TYP LOCATIONS *
2x14 10M 10A50 SETTING TIES

4 30M 30A20 ADDN DWLS @ OPENING EDGE

6 20M 2500 DIAGONAL ADDN @ OPENING
TO BE PLACED WITHIN FOOTING.
SEE DWG 0002 FOR ORIENTATION

2 10M 10A52 SETTING TIES
2 10M 10A55 SETTING TIES

2 10M 10A53 SETTING TIES
2 10M 10A52 SETTING TIES

HOLD

See Revised DWG.
H354138-3100-231-260-0002 Rev 1
H354138-3100-231-260-0025 Rev 1

10 25M 25A30 VERTICALS
10 15M 15A37 OUTER TIES
10 15M 15A38 INNER TIES

5x2 15M 15A44 TOP E.W.@100mm

5x2 15M 15A45 TOP E.W.@100mm

4 15M 15A39 D.F.-CRWBARS
4x2 15M 15A40 E.W.-I.F.-CRWBARS
* TO MATCH CURB HORZ *

20 25M 25A30 VERTICALS
10 15M 15A38 OUTER TIES
10x2 15M 15A29 INNER TIES

12 25M 25A41 VERTICALS
4 15M 15A43 TOP TIES
8x2 15M 15A43 INNER TIES

PLACE TIES 3975mm TOP, BALANCE @300mm

4x2 15M 7000 HORZ E.F.-@250mm
25x2 15M 1350 VERTS E.F.@250mm
25 10M 10A27 TOP UBARS @250mm

CLEARANCE TO INTERMEDIATE DOWELS TYP

CLEARANCE TO SETTING TIES TYPICAL

## GENERAL NOTES ON REINFORCEMENT

THE FOLLOWING NOTES SHALL APPLY TO ALL REINFORCEMENT SHOWN ON THE DRAWINGS UNLESS OTHERWISE NOTED.

**DIMENSIONS:**
DIMENSIONS TO REINFORCEMENT ARE TO CENTRIC LINES OF BARS, EXCEPT WHERE CONCRETE COVER OR CLEARANCE BETWEEN BARS IS SHOWN.

**COVER:**
SEE STRUCTURAL ENGINEER TYPICAL NOTES FOR ALL COVER SPECIFICATIONS

**SPACING:**
UNLESS OTHERWISE SHOWN, THE FIRST AND LAST BARS IN SLABS AND WALLS, STIRRUPS IN BEAMS SHALL BE PLACED AT MAXIMUM OF HALF THE SPECIFIED SPACING OF ADJACENT BARS FROM THE END OF THE MEMBER.

**STEEL SPECIFICATIONS:**
STEEL REINFORCEMENT SHALL BE DEFORMED BARS OF GRADE 400 CONFORMING TO CSA STANDARDS G30.12 BILLET-STEEL BARS FOR CONCRETE REINFORCEMENT.

**WELDING:**
WELDING OF REINFORCEMENT SHALL NOT BE PERMITTED.

**SPLICES AND EMBEDMENTS:**
UNLESS OTHERWISE SPECIFIED, ALL EMBEDMENTS SHALL BE TREATED AS TENSION EMBEDMENTS AND ALL LAP SPLICES SHALL BE CONSIDERED AS TENSION LAP SPLICES.

WHEN REINFORCING BARS OF DIFFERENT SIZE ARE TO BE SPLICED, THE LENGTH OF THE LAP SHALL BE BASED ON THE DIAMETER OF THE SMALLER BAR.

SPLICES ARE TO BE MADE SO THAT THE GIVEN CLEAR DISTANCE COVER WILL BE MAINTAINED.

LAP LENGTHS UNLESS SHOWN OTHERWISE:

| | HORZ | OTHER |
|---|---|---|
| 10M | 520 | 400 |
| 15M | 775 | 595 |
| 20M | 1030 | 790 |
| 25M | 1675 | 1240 |
| 30M | 1940 | 1485 |
| 35M | | |

**PLACEMENT:**
PLACE REINFORCING STEEL IN ACCORDANCE WITH CSA CAN3-A23.1-M.

REINFORCEMENT MAY BE DISPLACE TO CLEAR PIPES, RECESSES, EMBEDDED METAL WORKS AND CONDUITS.

A MINIMUM CLEARANCE OF 1" SHALL BE MAINTAINED BETWEEN REINFORCEMENT AND EMBEDDED MATERIALS. THE MINIMUM CLEARANCE BETWEEN REINFORCEMENT

REINFORCEMENT SHALL BE ACCURATELY PLACED IN ACCORDANCE WITH THE DRAWING AND SHALL BE ADEQUATELY SECURED AGAINST DISPLACEMENT BY USING APPROVED SPACER BARS, BAR SUPPORTS, TIES AND SHALL BE SUPPORTED BY APPROVED CONCRETE OR METAL SUPPORTS. SPACERS OR METAL HANGERS EXCEPT AT SURFACES EXPOSED TO THE GROUND OR TO THE WEATHER WHERE SUPPORTS SHALL BE APPROVED. ALL METAL ACCESSORIES ARE TO BE GALVANIZED.

THE FULL INTENT AND PURPOSE OF THESE DRAWINGS IS PLACING OF REINFORCING STEEL BARS ONLY. IT IS NOT TO BE USED AS A MEANS OF COMMUNICATION BETWEEN THE ARCHITECT, ENGINEER, CONTRACTOR OR ANY OTHER SUBTRADE.

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B-L/L- BOTTOM LOWER LAYER
B-U/L- BOTTOM UPPER LAYER
M-L/L- MID LOWER LAYER
M-U/L- MID UPPER LAYER
T-L/L- TOP LOWER LAYER
T-U/L- TOP UPPER LAYER
E.W. - EACH WAY
BNT. - BENT

SPACING CENTER TO CENTER
DIRECTION IN WHICH BARS EXTEND
LIMITS OF AREA COVERED BY BARS
REBAR TOP/NEAR FACE
REBAR BOT/FAR FACE

I.F. - INSIDE FACE
O.F. - OUTSIDE FACE
N.F. - NEAR FACE
F.F. - FAR FACE
E.W. - EACH WAY
VERT - VERTICAL
HORZ - HORIZONTAL
DWLS - DOWELS
FTG - FOOTING
COL - COLUMN

BOT - BOTTOM
TOP - TOP
T&B - TOP & BOTTOM
L-R - LEFT TO RIGHT
B-T - BOTTOM TO TOP
C.B. - CORNER BAR
T.O.W. - TYPICAL OPPOSITE HAND
R/L - FROM RIGHT TO LEFT
F.B. - FIELD BEND
C.I.F. - CUT IN FIELD
T.O.W. - TOP OF WALL
T.O.F. - TOP OF FOOTING
B.O.W. - BOTTOM OF WALL
T.O.C. - TOP OF CONCRETE
B.O.C. - BOTTOM OF CONCRETE
ELEV. - ELEVATION

| PREFIX | A |
|---|---|
| TRANS. NOS. | 01 |

PRINT RECORD

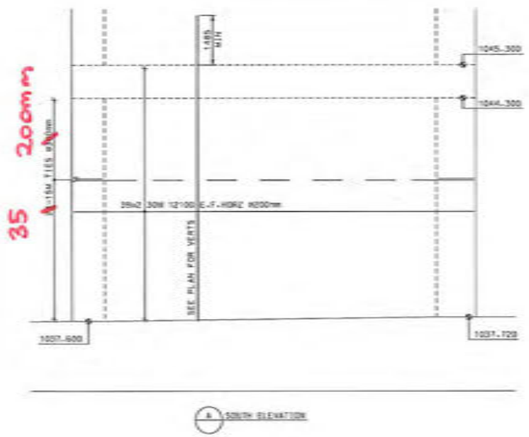
| NO. | REVISION | DATE | TO | FOR | DATE |
|---|---|---|---|---|---|
| | | | YC | C | A 01/JUN/18 |

REINFORCING STEEL PLACING PLAN

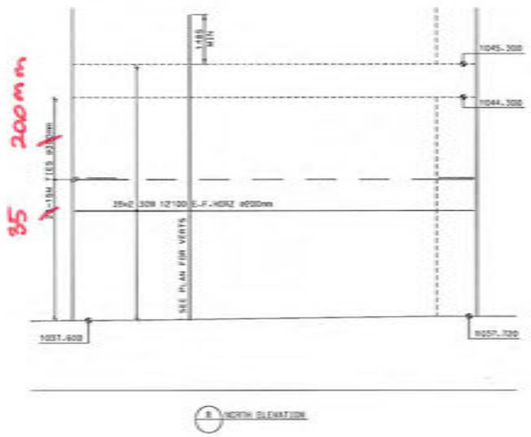
MCNISH STEEL LTD.
10636 - 205 STREET
EDMONTON, ALBERTA
PHONE 447-3331 FAX 447-3379

PROJECT : STRATACOLD (EAGLE GOLD PROJECT)
CONTR. : CLARK BUILDERS
DWG.OF : PRIMARY CRUSHER (WALL DOWELS, CURBING & PEDESTALS)
ENGR. : MATCH
DRAWN BY : MARK
DATE : 01/JUN/2018

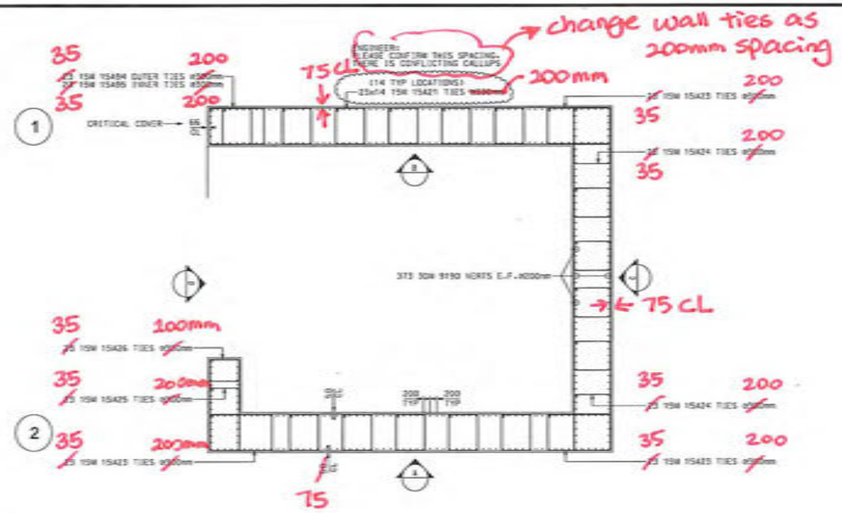
JOB NO. 18-042 | DWG. NO. 001 B

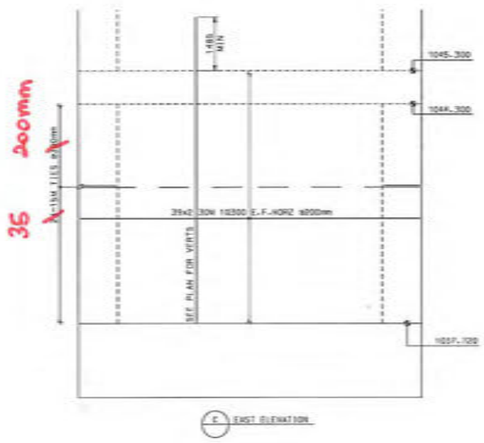



A SOUTH ELEVATION

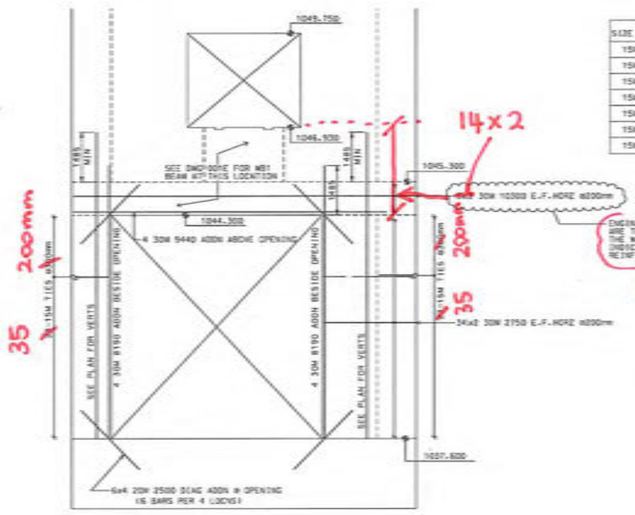



B NORTH ELEVATION




C EAST ELEVATION




D WEST ELEVATION

ENGINEER: ARE THESE MORE NECESSARY? THE MBT WALL BEAM ALREADY INDICATES ALL REQUIRED REINFORCEMENT IN THIS LOCATION.

Change to 14x2 30M @200mm
see DWG NO.001 E Section A
Remove the 12x2 20M skin Reinforcement

| SIZE | CP | BAR MARK | V | BND TYP | CD | A | B | C | D | BENDING DIMENSIONS E | F/R | G | H | J | K | O |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 15M | | 15421 | | T1 | | 140 | 870 | 1068 | 870 | 1068 | | 140 | | | | |
| 15M | | 15423 | | T1 | | 140 | 1068 | 1868 | 1068 | 1868 | | 140 | | | | |
| 15M | | 15424 | | T1 | | 140 | 1068 | 1668 | 1068 | 1668 | | 140 | | | | |
| 15M | | 15425 | | T1 | | 140 | 868 | 1868 | 868 | 1868 | | 140 | | | | |
| 15M | | 15426 | | T1 | | 140 | 868 | 670 | 868 | 670 | | 140 | | | | |
| 15M | | 15484 | | T1 | | 140 | 1068 | 1644 | 1068 | 1644 | | 140 | | | | |
| 15M | | 15485 | | T1 | | 140 | 857 | 1068 | 857 | 1068 | | 140 | | | | |

T1

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COVER:
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SPACING:
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STEEL SPECIFICATIONS:
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SPLICES ARE TO BE MADE SO THAT THE GIVEN CLEAR DISTANCE COVER WILL BE MAINTAINED.

LAP LENGTHS UNLESS SHOWN OTHERWISE:

| | HORZ | OTHER |
|---|---|---|
| 10M | 520 | 400 |
| 15M | 775 | 595 |
| 20M | 1030 | 790 |
| 25M | 1675 | 1240 |
| 30M | 1940 | 1485 |
| 35M | | |

PLACEMENT:
PLACE REINFORCING STEEL IN ACCORDANCE WITH CSA CAN3-A23.1-M.

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THE FULL INTENT AND PURPOSE OF THESE DRAWINGS IS PLACING OF REINFORCING STEEL BARS ONLY. IT IS NOT TO BE USED AS A MEANS OF COMMUNICATION BETWEEN THE ARCHITECT, ENGINEER, CONTRACTOR OR ANY OTHER SUBTRADE.

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@ - SPACING CENTER TO CENTER
DIR - DIRECTION IN WHICH BARS EXTEND
LOCYS - LOCYS OF AREA COVERED BY BARS
RBTF/RBF - REBAR TOP/REAR FACE
RBBF/FAR - REBAR BOT/FAR FACE
I.F. - INSIDE FACE
O.F. - OUTSIDE FACE
N.F. - NEAR FACE
F.F. - FAR FACE
E.W. - EACH WAY
VERT - VERTICAL
HORZ - HORIZONTAL
DWLS - DOWELS
FTG - FOOTING
COL - COLUMN
BOT - BOTTOM
TOP - TOP
T&B - TOP & BOTTOM
L-R - LEFT TO RIGHT
B-T - BOTTOM TO TOP
C.B. - CORNER BAR
T.O.W. - TYPICAL OPPOSITE HAND
R/L - FROM RIGHT TO LEFT
F.B. - FIELD BEND
C.I.F. - CUT IN FIELD
T.O.W. - TOP OF WALL
T.O.F. - TOP OF FOOTING
B.O.W. - BOTTOM OF WALL
T.O.C. - TOP OF CONCRETE
B.O.C. - BOTTOM OF CONCRETE
ELEV. - ELEVATION

B/L/L - BOTTOM LOWER LAYER
B/U/L - BOTTOM UPPER LAYER
M/L/L - MID LOWER LAYER
M/U/L - MID UPPER LAYER
T/L/L - TOP LOWER LAYER
T/U/L - TOP UPPER LAYER
E.R. - EACH ROW
BWT. - BENT

| PREFIX | A |
|---|---|
| TRANS-NOS. | 01 |

PRINT RECORD

| NO. | REVISION | DATE | TO | C | FOR A | DATE |
|---|---|---|---|---|---|---|
| | | | | | | |

MEMBER CRSI

MCNISH STEEL LTD.
10636 - 205 STREET
EDMONTON, ALBERTA
PHONE 447-3337 FAX 447-3379

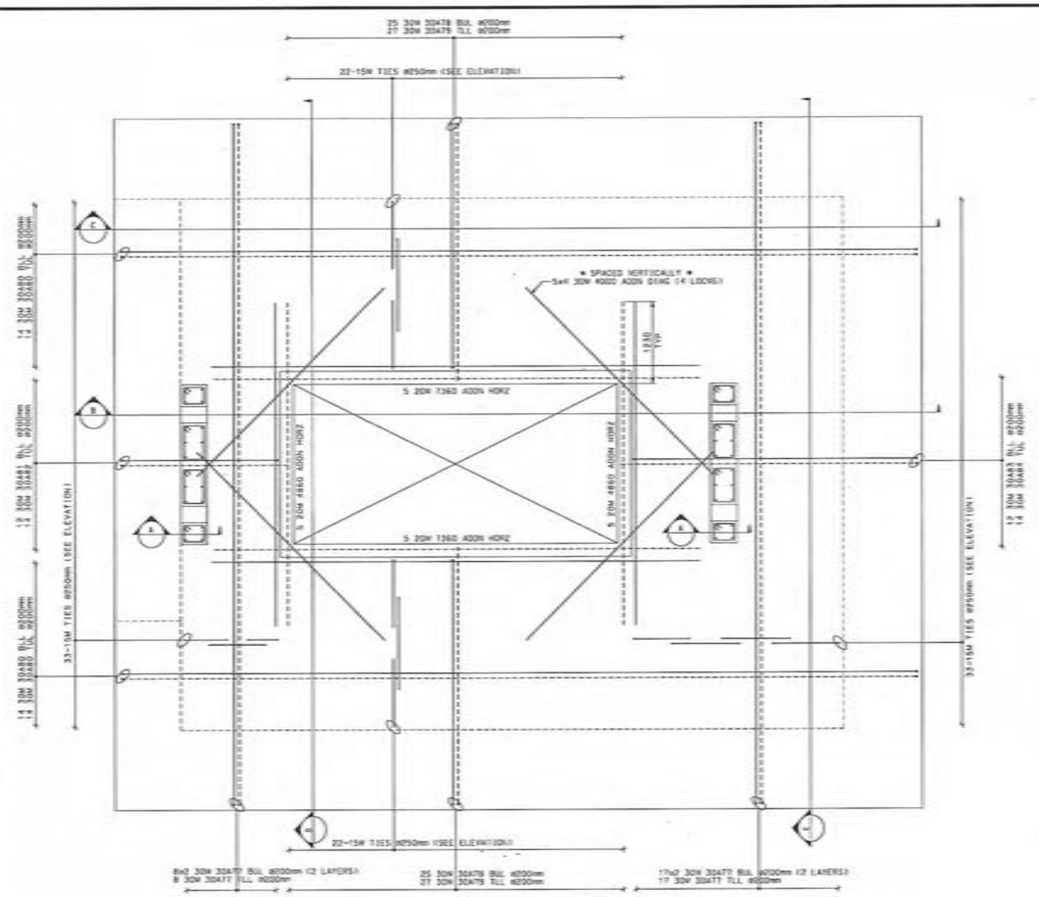
REINFORCING STEEL PLACING PLAN

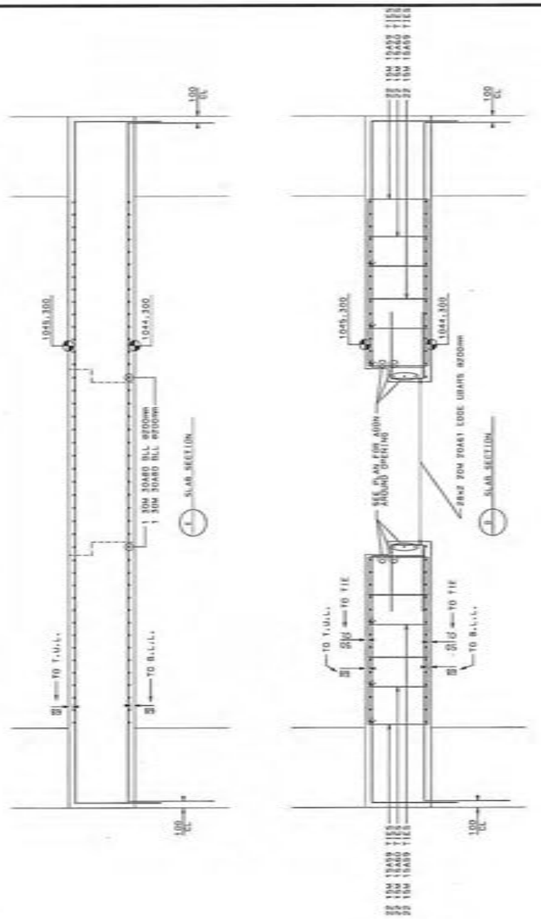
PROJECT : STRATHCOLD (EAGLE GOLD PROJECT)
CONTR. : CLARK BUILDERS
DWG.OF : PRIMARY CRUSHER (WALLS - BASE FTG TO 1045.300)
ENGR. : HATCH
DRAWN BY : MARK
DATE : 04/JUN/2018

JOB NO. 18-042 | DWG. NO. 001 C

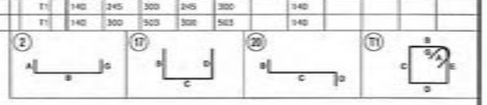
1

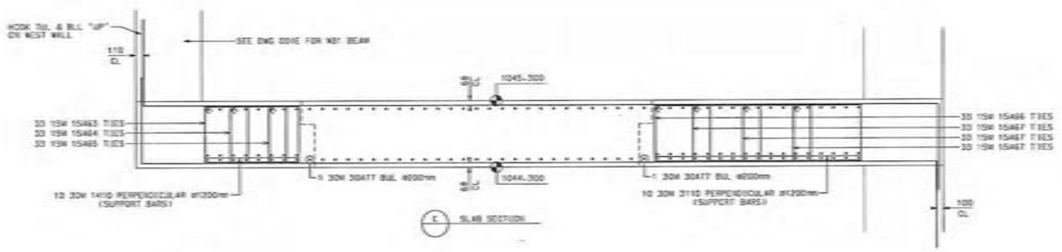
2

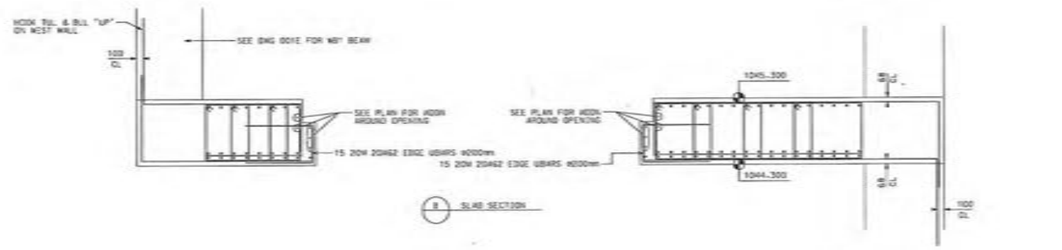


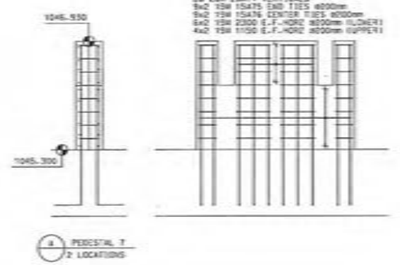




| SIZE | EP | BAR MARK | # | END TYP | CD | BENDING DIMENSIONS A | B | C | D | E | F/R | G | H | J | K | O |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 20M | | 20A77 | | 17 | | | 1300 | 10200 | 1300 | | | | | | | |
| 30M | | 30A78 | | 17 | | | 1300 | 3650 | | | | | | | | |
| 30M | | 30A79 | | 17 | | | 1300 | 3650 | 800 | | | | | | | |
| 30M | | 30A80 | | 22 | | | 1300 | 12000 | 1300 | | | | | | | |
| 30M | | 30A81 | | 17 | | | 1300 | 2550 | | | | | | | | |
| 30M | | 30A82 | | 22 | | | 1300 | 2550 | 800 | | | | | | | |
| 30M | | 30A83 | | 17 | | | 1300 | 4450 | | | | | | | | |
| 30M | | 30A84 | | 17 | | | 1300 | 4250 | 800 | | | | | | | |
| 20M | | 20A61 | | 17 | | | 1000 | 498 | 1000 | | | | | | | |
| 20M | | 20A62 | | 17 | | | 1000 | 520 | 1000 | | | | | | | |
| 20M | | 20A74 | | 2 | | 300 | 2410 | | | | | | | | | |
| 15M | | 15A55 | | T1 | | 140 | 1008 | 900 | 1008 | 500 | | 140 | | | | |
| 15M | | 15A60 | | T1 | | 140 | 1382 | 900 | 1382 | 500 | | 140 | | | | |
| 15M | | 15A63 | | T1 | | 140 | 644 | 832 | 644 | 832 | | 140 | | | | |
| 15M | | 15A64 | | T1 | | 140 | 836 | 832 | 836 | 832 | | 140 | | | | |
| 15M | | 15A65 | | T1 | | 140 | 453 | 832 | 453 | 832 | | 140 | | | | |
| 15M | | 15A66 | | T1 | | 140 | 820 | 832 | 830 | 832 | | 140 | | | | |
| 15M | | 15A67 | | T1 | | 140 | 1020 | 832 | 1020 | 832 | | 140 | | | | |
| 15M | | 15A75 | | T1 | | 140 | 245 | 300 | 245 | 300 | | 140 | | | | |
| 15M | | 15A76 | | T1 | | 140 | 300 | 503 | 300 | 503 | | 140 | | | | |




## GENERAL NOTES ON REINFORCEMENT

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WHEN REINFORCING BARS OF DIFFERENT SIZE ARE TO BE SPLICED, THE LENGTH OF THE LAP SHALL BE BASED ON THE DIAMETER OF THE SMALLER BAR.

SPLICES ARE TO BE MADE SO THAT THE GIVEN CLEAR DISTANCE (OTHER WISE) WILL BE MAINTAINED.

LAP LENGTHS UNLESS SHOWN OTHERWISE:

| | HORZ | OTHER |
|---|---|---|
| 10M | 520 | 400 |
| 15M | 775 | 595 |
| 20M | 1030 | 790 |
| 25M | 1415 | 1240 |
| 30M | 1540 | 1485 |
| 35M | | |

**PLACEMENT:**
PLACE REINFORCING STEEL IN ACCORDANCE WITH CSA CAN3-A23.1-W.

REINFORCEMENT MAY BE DISPLACE TO CLEAR PIPES, RECESSES, EMBEDDED METAL WORKS AND CONDUITS.

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| | | | |
|---|---|---|---|
| @ | - SPACING CENTER TO CENTER | BOT | - BOTTOM |
| | - DIRECTION IN WHICH BARS EXTEND | TOP | - TOP |
| | - LIMITS OF AREA COVERED BY BARS | T&B | - TOP & BOTTOM |
| | - REBAR TOP/VIEW FACE | L-R | - LEFT TO RIGHT |
| | - REBAR BOT/VIEW FACE | B-T | - BOTTOM TO TOP |
| I.F. | - INSIDE FACE | C.B. | - CORNER BAR |
| O.F. | - OUTSIDE FACE | T.O.W. | - TYPICAL OPPOSITE HAND |
| N.F. | - NEAR FACE | R/L | - FROM RIGHT TO LEFT |
| F.F. | - FAR FACE | F.B. | - FIELD BEND |
| E.W. | - EACH WAY | C.I.F. | - CUT IN FIELD |
| VERT | - VERTICAL | T.O.W. | - TOP OF WALL |
| HORZ | - HORIZONTAL | T.O.F. | - TOP OF FOOTING |
| DWLS | - DOWELS | B.O.W. | - BOTTOM OF WALL |
| FTG | - FOOTING | T.O.C. | - TOP OF CONCRETE |
| COL | - COLUMN | B.O.C. | - BOTTOM OF CONCRETE |
| | | ELEV. | - ELEVATION |

B.U.L. - BOTTOM LOWER LAYER
B.U.U. - BOTTOM UPPER LAYER
M.U.L. - MID LOWER LAYER
M.U.U. - MID UPPER LAYER
T.U.L. - TOP LOWER LAYER
T.U.U. - TOP UPPER LAYER
E.W. - EACH WAY
BNT. - BENT

PREFIX A
TRANS. 01
NOS.

PRINT RECORD

| NO. | REVISION | DATE | TO | BY | FOR | DATE |
|---|---|---|---|---|---|---|
| | | | | | A | 05/JUN/18 |

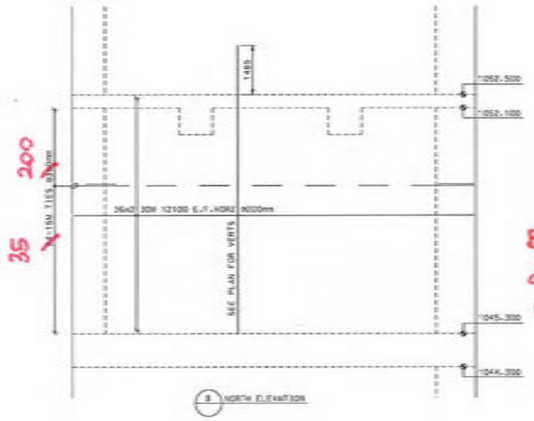
REINFORCING STEEL PLACING PLAN

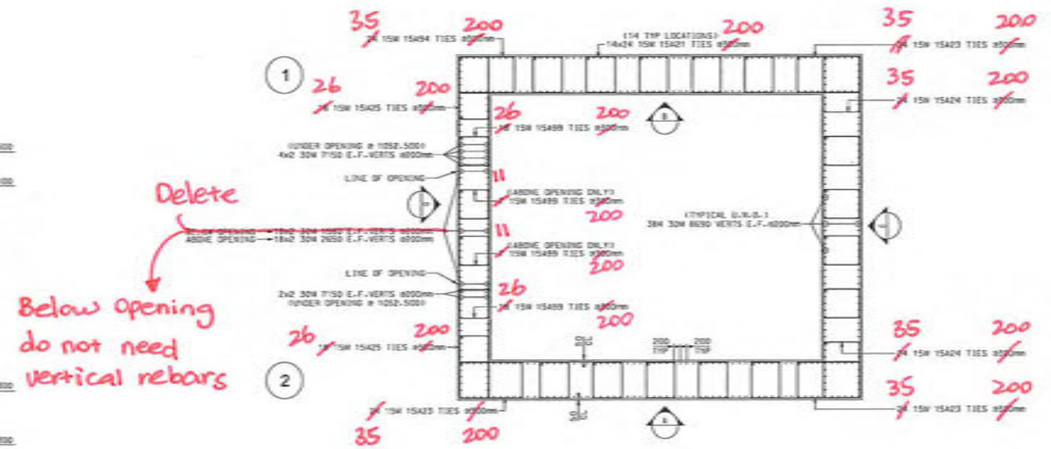
MCNISH STEEL LTD.
10636 - 205 STREET
EDMONTON, ALBERTA
PHONE 447-3337 FAX 447-3379

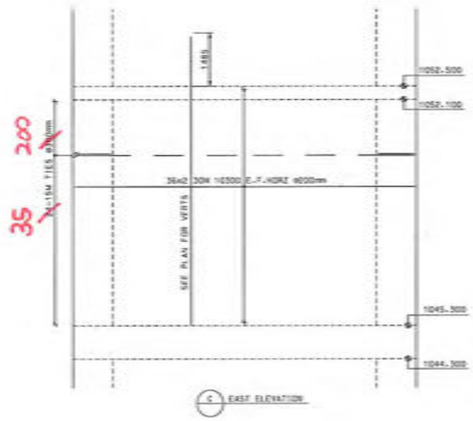
PROJECT : STRATHCOLD (EAGLE GOLD PROJECT)
CONTR. : CLARK BUILDERS
DWG.OF : PRIMARY CRUSHER (SLAB @ ELEVATION 1045.300)
ENGR. : MATCH
DRAWN BY : MARK
DATE : 05/JUN/2018

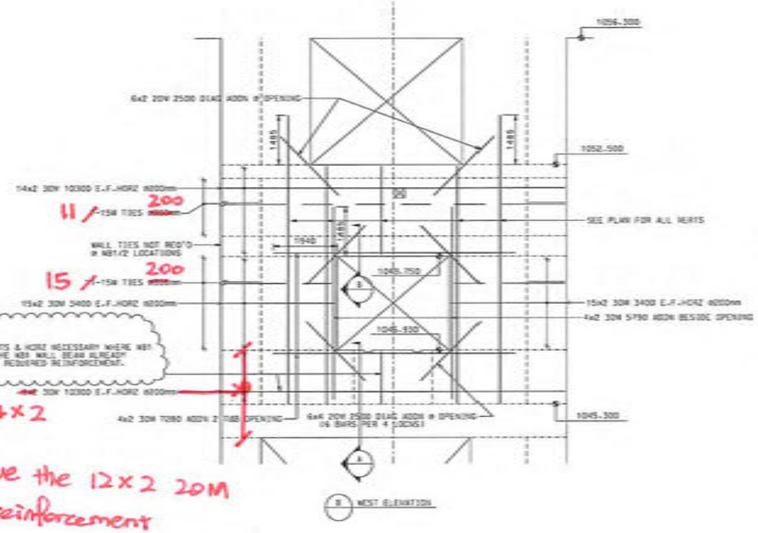
JOB NO. 18-042 | DWG. NO. 001 D



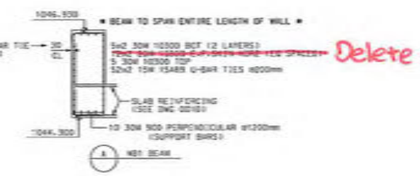










| SIZE | EP | BAR MARK | W | BND TYP | CD | BENDING DIMENSIONS A | B | C | D | E | F | G | H | J | K | O |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 15M | | 15A21 | | T1 | | 140 | 870 | 1068 | 870 | 1068 | | 140 | | | | |
| 15M | | 15A23 | | T1 | | 140 | 1068 | 1868 | 1068 | 1868 | | 140 | | | | |
| 15M | | 15A24 | | T1 | | 140 | 1068 | 1668 | 1068 | 1668 | | 140 | | | | |
| 15M | | 15A25 | | T1 | | 140 | 868 | 1868 | 868 | 1868 | | 140 | | | | |
| 15M | | 15A89 | | T7 | | | 850 | 24239 | 850 | | | | | | | |
| 15M | | 15A82 | | T1 | | 140 | 940 | 700 | 940 | 700 | | 140 | | | | |
| 15M | | 15A83 | | T1 | | 140 | 505 | 700 | 505 | 700 | | 140 | | | | |
| 15M | | 15A84 | | T1 | | 140 | 1068 | 1644 | 1068 | 1644 | | 140 | | | | |
| 15M | | 15A89 | | T1 | | 140 | 870 | 868 | 870 | 868 | | 140 | | | | |

T7

T1

| | |
|---|---|
| @ | - SPACING CENTER TO CENTER |
| | - DIRECTION IN WHICH BARS EXTEND |
| | - LIMITS OF AREA COVERED BY BARS |
| ---- | - REBAR TOP/NEAR FACE |
| ---- | - REBAR BOT/FAR FACE |
| INSIDE F. | - INSIDE FACE |
| OUTSIDE F. | - OUTSIDE FACE |
| N.F. | - NEAR FACE |
| F.F. | - FAR FACE |
| EACH WAY | - EACH WAY |
| VERT | - VERTICAL |
| HORIZ | - HORIZONTAL |
| DWLS | - DOWELS |
| FTG | - FOOTING |
| COL | - COLUMN |

| | |
|---|---|
| B.L.L. | - BOTTOM LOWER LAYER |
| B.U.L. | - BOTTOM UPPER LAYER |
| W.L.L. | - W.B. LOWER LAYER |
| W.U.L. | - W.B. UPPER LAYER |
| T.L.L. | - T.B. LOWER LAYER |
| T.U.L. | - T.B. UPPER LAYER |
| E.W. | - EACH WAY |
| BNT. | - BENT |

| | |
|---|---|
| BOT | - BOTTOM |
| TOP | - TOP |
| T&B | - TOP & BOTTOM |
| L-R | - LEFT TO RIGHT |
| B-T | - BOTTOM TO TOP |
| C.B. | - CORNER BAR |
| T.O.H. | - TYPICAL OPPOSITE HAND |
| R/L | - FROM RIGHT TO LEFT |
| F.B. | - FIELD BEND |
| C.I.F. | - CUT IN FIELD |
| T.O.W. | - TOP OF WALL |
| T.O.F. | - TOP OF FOOTING |
| B.O.W. | - BOTTOM OF WALL |
| T.O.C. | - TOP OF CONCRETE |
| B.O.C. | - BOTTOM OF CONCRETE |
| ELEV. | - ELEVATION |

## GENERAL NOTES ON REINFORCEMENT

THE FOLLOWING NOTES SHALL APPLY TO ALL REINFORCEMENT SHOWN ON THE DRAWINGS UNLESS OTHERWISE NOTED.

**DIMENSIONS:**
DIMENSIONS TO REINFORCEMENT ARE TO CENTRE LINES OF BARS, EXCEPT WHERE CONCRETE COVER OR CLEARANCE BETWEEN BARS IS SHOWN.

**COVER:**
SEE STRUCTURAL ENGINEER TYPICAL NOTES FOR ALL COVER SPECIFICATIONS

**SPACING:**
UNLESS OTHERWISE SHOWN, THE FIRST AND LAST BARS IN SLABS AND WALLS, STIRRUPS IN BEAMS SHALL BE PLACED AT MAXIMUM OF HALF THE SPECIFIED SPACING OF ADJACENT BARS FROM THE END OF THE MEMBER.

**STEEL SPECIFICATIONS:**
STEEL REINFORCEMENT SHALL BE DEFORMED BARS OF GRADE 400 CONFORMING TO CSA STANDARDS G30.12 BILLET-STEEL BARS FOR CONCRETE REINFORCEMENT.

**WELDING:**
WELDING OF REINFORCEMENT SHALL NOT BE PERMITTED.

**SPLICES AND EMBEDMENTS:**
UNLESS OTHERWISE SPECIFIED, ALL EMBEDMENTS SHALL BE TREATED AS TENSION EMBEDMENTS AND ALL LAP SPLICES SHALL BE CONSIDERED AS TENSION LAP SPLICES.

WHEN REINFORCING BARS OF DIFFERENT SIZE ARE TO BE SPLICED, THE LENGTH OF THE LAP SHALL BE BASED ON THE DIAMETER OF THE SMALLER BAR.

SPLICES ARE TO BE MADE SO THAT THE GIVEN CLEAR DISTANCE COVER WILL BE MAINTAINED.

LAP LENGTHS UNLESS SHOWN OTHERWISE:

| | HORZ | OTHER |
|---|---|---|
| 10M | 520 | 400 |
| 15M | 775 | 595 |
| 20M | 1030 | 790 |
| 25M | 1615 | 1240 |
| 30M | 1940 | 1485 |
| 35M | | |

**PLACEMENT:**
PLACE REINFORCING STEEL IN ACCORDANCE WITH CSA CAN3-A23.1-M.

REINFORCEMENT MAY BE DISPLACED TO CLEAR PIPES, RECESSES, EMBEDDED METAL WORKS AND CONDUITS.

A MINIMUM CLEARANCE OF 1" SHALL BE MAINTAINED BETWEEN REINFORCEMENT AND EMBEDDED MATERIALS. THE MINIMUM CLEARANCE BETWEEN REINFORCEMENT

REINFORCEMENT SHALL BE ACCURATELY PLACED IN ACCORDANCE WITH THE DRAWINGS AND SHALL BE ADEQUATELY SECURED AGAINST DISPLACEMENT BY USING ANNEALED IRON WIRE AT INTERSECTIONS AND SHALL BE SUPPORTED BY APPROVED CONCRETE OR METAL SUPPORTS. SPACERS OR METAL HANGERS EXCEPT AT SURFACES EXPOSED TO THE GROUND OR TO THE WEATHER WHERE SUPPORTS SHALL BE APPROVED. ALL METAL ACCESSORIES ARE TO BE GALVANIZED.

THE FULL INTENT AND PURPOSE OF THESE DRAWINGS IS PLACING OF REINFORCING STEEL BARS ONLY. IT IS NOT TO BE USED AS A MEANS OF COMMUNICATION BETWEEN THE ARCHITECT, ENGINEER, CONTRACTOR OR ANY OTHER SUBTRADE.

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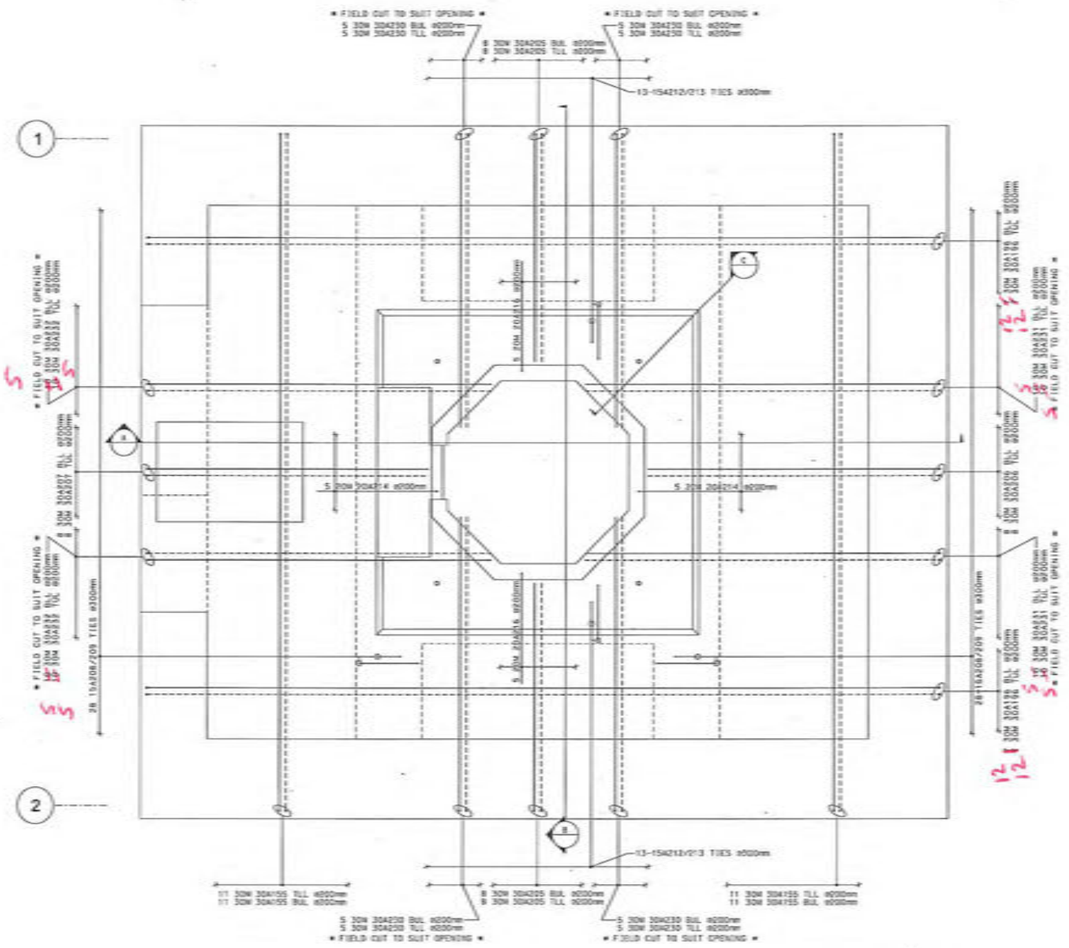
| NO. | REVISION | DATE | TO. | FOR | DATE |
|---|---|---|---|---|---|
| | | | IC | C | A 07/JUN/18 |

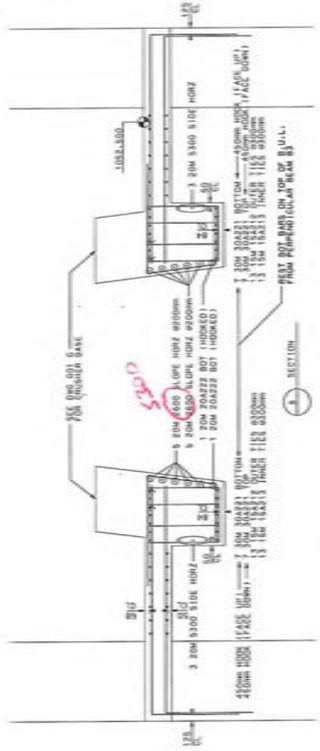
REINFORCING STEEL PLACING PLAN

MCNISH STEEL LTD.
10636 - 205 STREET
EDMONTON, ALBERTA
PHONE 447-3337 FAX 447-3379

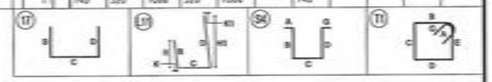
PROJECT : STRATADOLO (EAGLE GOLD PROJECT)
CONTR. : CLARK BUILDERS
DWG. OF : PRIMARY CRUSHER (WALLS - 1045.300 TO 1052.500)
ENGR. : HATCH
DRAWN BY : MARK DATE : 07/JUN/2018

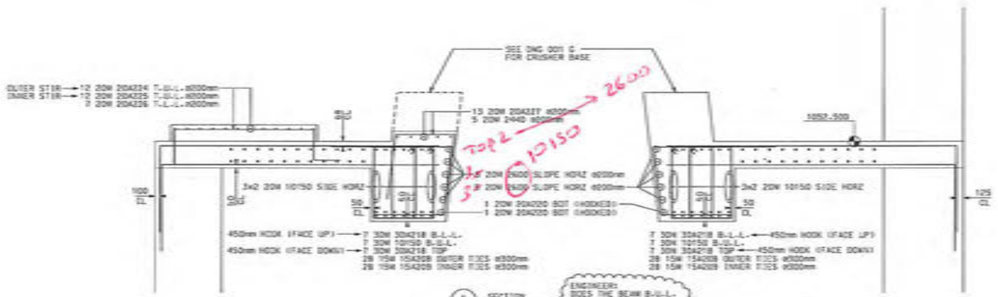
JOB NO. 18-042 | DWG. NO. 001 E

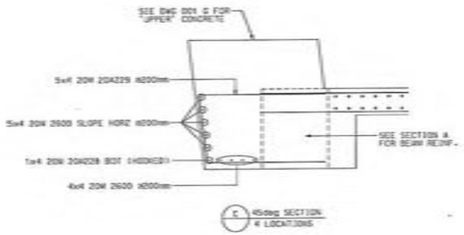



| SIZE | EP | BAR MARK | V | BND TYP | CD | A | B | C | D | E | F/R | G | H | J | K | O |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 30M | | 30A155 | | 11 | | | 1300 | 10150 | 1300 | | | | | | | |
| 30M | | 30A156 | | 11 | | | 1300 | 11975 | 1300 | | | | | | | |
| 30M | | 30A205 | | 11 | | | 1300 | 3415 | | | | | | | | |
| 30M | | 30A206 | | 11 | | | 1300 | 4415 | | | | | | | | |
| 30M | | 30A207 | | 11 | | | 1300 | 4240 | | | | | | | | |
| 30M | | 30A218 | | 11 | | | 450 | 10150 | 450 | | | | | | | |
| 30M | | 30A221 | | 11 | | | 450 | 5300 | 450 | | | | | | | |
| 30M | | 30A230 | | 11 | | | 1300 | 4403 | | | | | | | | |
| 30M | | 30A231 | | 11 | | | 1300 | 5365 | | | | | | | | |
| 30M | | 30A232 | | 11 | | | 1300 | 5190 | | | | | | | | |
| 20M | | 20A214 | | L11 | | | 1052 | 1026 | 1817 | | | | 1044 | | 129 | |
| | | | | | | | | | | | | | 1814 | | 225 | |
| 20M | | 20A216 | | L11 | | | 877 | 1026 | 1640 | | | | 870 | | 107 | |
| | | | | | | | | | | | | | 1639 | | 202 | |
| 20M | | 20A220 | | 11 | | | 400 | 4936 | 400 | | | | | | | |
| 20M | | 20A222 | | 11 | | | 400 | 5296 | 400 | | | | | | | |
| 20M | | 20A224 | | 5A | | 400 | 516 | 1400 | 516 | | | 400 | | | | |
| 20M | | 20A225 | | 5A | | 400 | 516 | 571 | 516 | | | 400 | | | | |
| 20M | | 20A226 | | 5A | | 400 | 462 | 2100 | 528 | | | | | | | |
| 20M | | 20A227 | | L11 | | | 576 | 878 | 966 | | | | 969 | | 115 | |
| | | | | | | | | | | | | | 969 | | 115 | |
| 20M | | 20A228 | | 11 | | | 400 | 3887 | 400 | | | | | | | |
| 20M | | 20A229 | | L11 | | | 1376 | 1026 | 1880 | | | | 1763 | | 217 | |
| | | | | | | | | | | | | | 1887 | | 233 | |
| 15M | | 15A208 | | 11 | | 140 | 900 | 1066 | 900 | 1066 | | 140 | | | | |
| 15M | | 15A209 | | 11 | | 140 | 347 | 1066 | 347 | 1066 | | 140 | | | | |
| 15M | | 15A212 | | 11 | | 140 | 620 | 1066 | 620 | 1066 | | 140 | | | | |
| 15M | | 15A213 | | 11 | | 140 | 320 | 1066 | 320 | 1066 | | 140 | | | | |




B-L-L. - BOTTOM LOWER LAYER
B-U-L. - BOTTOM UPPER LAYER
W-L-L. - WEB LOWER LAYER
W-U-L. - WEB UPPER LAYER
T-L-L. - TOP LOWER LAYER
T-U-L. - TOP UPPER LAYER
E.W. - EACH WAY
BNT. - BENT

@ - SPACING CENTER TO CENTER
→ - DIRECTION IN WHICH BARS EXTEND
- - - - - LIMITS OF AREA CONCRETED BY BARS
——— - REBAR TOP/NEAR FACE
- - - - - - REBAR BOT/FAR FACE
I.F. - INSIDE FACE
O.F. - OUTSIDE FACE
N.F. - NEAR FACE
F.F. - FAR FACE
E.W. - EACH WAY
VERT - VERTICAL
HORZ - HORIZONTAL
DWLS - DOWELS
FTG - FOOTING
COL - COLUMN

BOT - BOTTOM
TOP - TOP
T&B - TOP & BOTTOM
L→R - LEFT TO RIGHT
B→T - BOTTOM TO TOP
C.B. - CORNER BAR
T.O.H. - TYPICAL OPPOSITE HAND
AVL - FROM RIGHT TO LEFT
F.B. - FIELD BEND
C.I.F. - CUT IN FIELD
T.O.W. - TOP OF WALL
T.O.F. - TOP OF FOOTING
B.O.W. - BOTTOM OF WALL
T.O.C. - TOP OF CONCRETE
B.O.C. - BOTTOM OF CONCRETE
ELEV. - ELEVATION

**HATCH** Vendor/Contractor Document Review

| Doc Number | E354138-CB201-230-260-0012 | SUB | 01 |
|---|---|---|---|
| Date Received | 2018-09-01 | | |

| Review Grade | Next Submittal Status |
|---|---|
| ☐ C1 - Proceed to next submission & status | ☐ Certified |
| ☒ C2 - Proceed with exceptions as noted to next submission & status | ☐ As-Built |
| ☐ C3 - Do not proceed. Revise as noted & resubmit | ☐ Internal Review |
| Next Submittal Date: | ☐ Certified ☐ As-Built |
| ☐ C4 - No further submission required - Complete (select status below) ☐ Certified Final ☐ Final ☐ Cancelled ☐ Superseded | |

**Package Engineer:** Name, signature and date
ESA AKINCI, EA Sept 6, 2018

Reviewed only for general conformity with the specifications. Acceptance by the engineer does not warrant or represent that the information contained on this drawing/document is either accurate or complete. The sole responsibility for correct design, details & dimensions shall remain with the party submitting the drawing/document.

## GENERAL NOTES ON REINFORCEMENT

THE FOLLOWING NOTES SHALL APPLY TO ALL REINFORCEMENT SHOWN ON THE DRAWINGS UNLESS OTHERWISE NOTED.

DIMENSIONS:
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LAP LENGTHS UNLESS SHOWN OTHERWISE:

| | HORZ | OTHER |
|---|---|---|
| 10M | 520 | 400 |
| 15M | 775 | 595 |
| 20M | 1030 | 790 |
| 25M | 1675 | 1240 |
| 30M | 1940 | 1485 |
| 35M | | |

PLACEMENT:
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| TRANS. NOS. | 1.3 |

PRINT RECORD

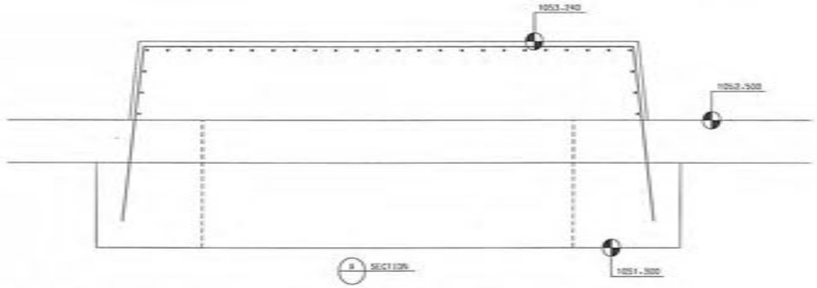
| NO. | REVISION | DATE | TO. | FOR | DATE |
|---|---|---|---|---|---|
| | | | YC | C | A 29/AUG/18 |

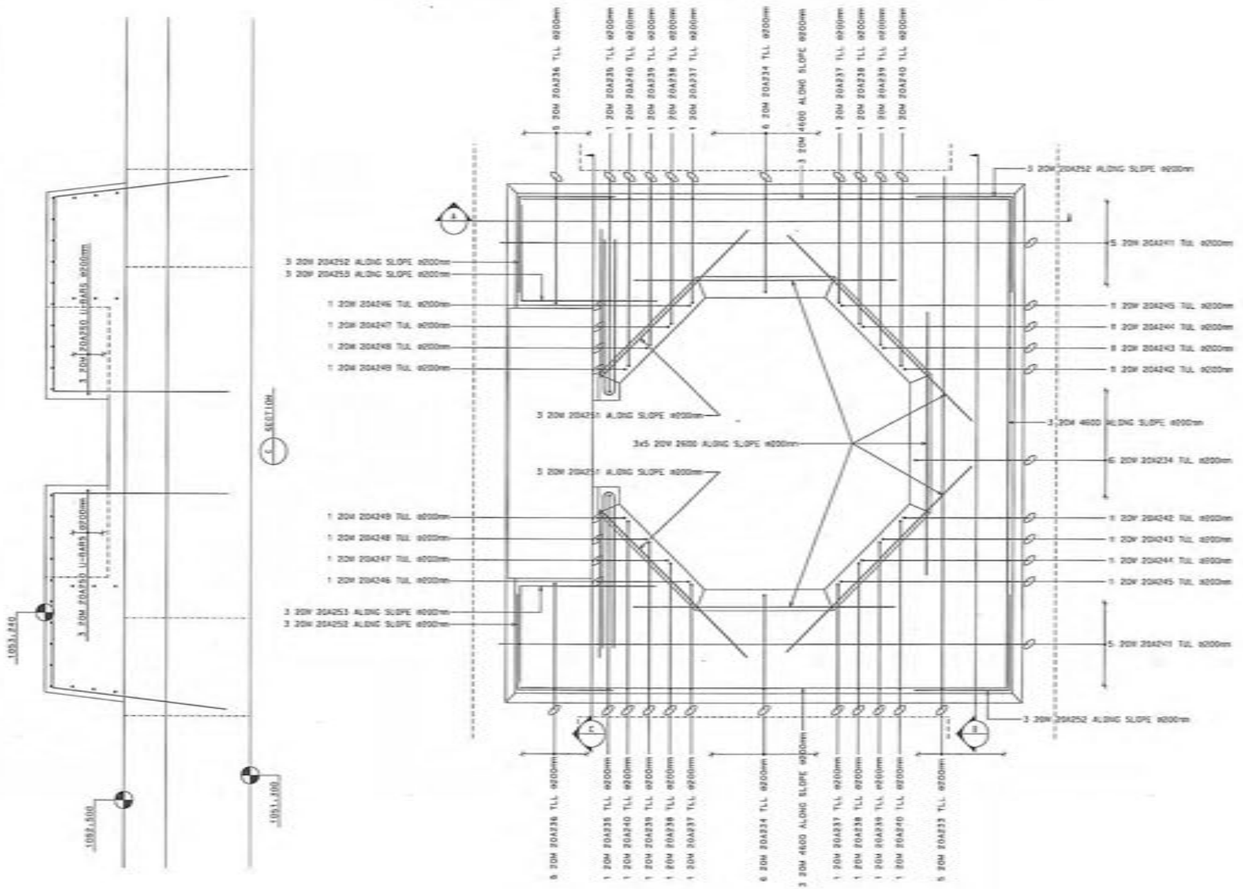
# REINFORCING STEEL PLACING PLAN

MEMBER CRSI
MCNISH STEEL LTD.
10636 - 205 STREET
EDMONTON, ALBERTA
PHONE 447-3337 FAX 447-3379

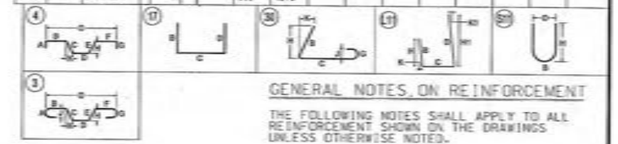
PROJECT : STRATHCOLD (EAGLE GOLD PROJECT)
CONTR. : CLARK BUILDERS
DWG.OF : PRIMARY CRUSHER (SLAB @ ELEVATION 1052-500)
ENGR. : HATCH
DRAWN BY : MARK
DATE : 29/AUG/2018

JOB NO. 18-042 | DWG. NO. 001 F




| SIZE | EP | BAR MARK | # | SHP TYP | CD | BENDING DIMENSIONS A | B | C | D | E F/R | G | H | J | K | O |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 20M | | 20A233 | | 3 | | | | 1650 | 4617 | 1650 | | | | 199 | |
| 20M | | 20A234 | | L11 | | | 1649 | 878 | 1638 | | | | | 202 | |
| | | | | | | | | | | | | | | 202 | |
| 20M | | 20A235 | | 4 | | 1650 | 1830 | 1650 | | | | | | 199 | |
| 20M | | 20A236 | | 4 | | 1650 | 988 | 1650 | | | | | | 199 | |
| 20M | | 20A237 | | L11 | | | 1649 | 980 | 1638 | | | | | 202 | |
| | | | | | | | | | | | | | | 202 | |
| 20M | | 20A238 | | L11 | | | 1649 | 1178 | 1638 | | | | | 202 | |
| | | | | | | | | | | | | | | 202 | |
| 20M | | 20A239 | | L11 | | | 1649 | 1376 | 1638 | | | | | 202 | |
| | | | | | | | | | | | | | | 202 | |
| 20M | | 20A240 | | L11 | | | 1649 | 1574 | 1638 | | | | | 202 | |
| | | | | | | | | | | | | | | 202 | |
| 20M | | 20A241 | | 3 | | | | 1650 | 4611 | 1650 | | | | 199 | |
| 20M | | 20A242 | | L11 | | | 1649 | 986 | 1638 | | | | | 202 | |
| | | | | | | | | | | | | | | 202 | |
| 20M | | 20A243 | | L11 | | | 1649 | 9185 | 1638 | | | | | 202 | |
| | | | | | | | | | | | | | | 202 | |
| 20M | | 20A244 | | L11 | | | 1649 | 1385 | 1638 | | | | | 202 | |
| | | | | | | | | | | | | | | 202 | |
| 20M | | 20A245 | | L11 | | | 1649 | 1585 | 1638 | | | | | 202 | |
| | | | | | | | | | | | | | | 202 | |
| 20M | | 20A246 | | 4 | | 1650 | 854 | 1650 | | | | | | 199 | |
| 20M | | 20A247 | | 4 | | 1650 | 654 | 1650 | | | | | | 199 | |
| 20M | | 20A248 | | 4 | | 1650 | 455 | 1650 | | | | | | 199 | |
| 20M | | 20A249 | | 4 | | 1650 | 255 | 1650 | | | | | | 199 | |
| 20M | | 20A250 | | S11 | | | 2854 | | | | | | | | 100 |
| 20M | | 20A251 | | 30 | | | 1342 | 1350 | | | | | | 1428 | |
| 20M | | 20A252 | | 10 | | | 900 | 900 | | | | | | | |
| 20M | | 20A253 | | 10 | | | 900 | 1279 | | | | | | | |




## GENERAL NOTES ON REINFORCEMENT

THE FOLLOWING NOTES SHALL APPLY TO ALL REINFORCEMENT SHOWN ON THE DRAWINGS UNLESS OTHERWISE NOTED.

**DIMENSIONS:**
DIMENSIONS TO REINFORCEMENT ARE TO CENTRE LINES OF BARS, EXCEPT WHERE CONCRETE COVER OR CLEARANCE BETWEEN BARS IS SHOWN.

**COVER:**
SEE STRUCTURAL ENGINEER TYPICAL NOTES FOR ALL COVER SPECIFICATIONS

**SPACING:**
UNLESS OTHERWISE SHOWN, THE FIRST AND LAST BARS IN SLABS AND WALLS, STIRRUPS IN BEAMS SHALL BE PLACED AT A MAXIMUM OF HALF THE SPECIFIED SPACING OF ADJACENT BARS FROM THE END OF THE MEMBER.

**STEEL SPECIFICATIONS:**
STEEL REINFORCEMENT SHALL BE DEFORMED BARS OF GRADE 400 CONFORMING TO CSA STANDARDS G30.12 BILLET-STEEL BARS FOR CONCRETE REINFORCEMENT.

**WELDING:**
WELDING OF REINFORCEMENT SHALL NOT BE PERMITTED.

**SPLICES AND EMBEDMENTS:**
UNLESS OTHERWISE SPECIFIED, ALL EMBEDMENTS SHALL BE TREATED AS TENSION EMBEDMENTS AND ALL LAP SPLICES SHALL BE CONSIDERED AS TENSION LAP SPLICES.

WHEN REINFORCING BARS OF DIFFERENT SIZE ARE TO BE SPLICED, THE LENGTH OF THE LAP SHALL BE BASED ON THE DIAMETER OF THE SMALLER BAR.

SPLICES ARE TO BE MADE SO THAT THE GIVEN CLEAR DISTANCE COVER WILL BE MAINTAINED.

LAP LENGTHS UNLESS SHOWN OTHERWISE:

| | HORZ | OTHER |
|---|---|---|
| 10M | 520 | 400 |
| 15M | 775 | 595 |
| 20M | 1035 | 790 |
| 25M | 1615 | 1240 |
| 30M | 1940 | 1485 |
| 35M | | |

**PLACEMENT:**
PLACE REINFORCING STEEL IN ACCORDANCE WITH CSA CAN3-A23.1-94.

REINFORCEMENT MAY BE DISPLACE TO CLEAR PIPES, RECESSES, EMBEDDED METAL WORKS AND CONDUITS.

A MINIMUM CLEARANCE OF 1" SHALL BE MAINTAINED BETWEEN REINFORCEMENT AND EMBEDDED MATERIALS. THE MINIMUM CLEARANCE BETWEEN REINFORCEMENT

REINFORCEMENT SHALL BE ACCURATELY PLACED IN ACCORDANCE WITH THE DRAWING AND SHALL BE ADEQUATELY SECURED AGAINST DISPLACEMENT BY USING APPROVED TIRON WIRE AT INTERSECTIONS AND SHALL BE SUPPORTED BY APPROVED CONCRETE OR METAL SUPPORTS. SPACERS OR METAL HANGERS EXCEPT AT SURFACES EXPOSED TO THE GROUND OR TO THE WEATHER WHERE SUPPORTS SHALL BE APPROVED. ALL METAL ACCESSORIES ARE TO BE GALVANIZED.

THE FULL INTENT AND PURPOSE OF THESE DRAWINGS IS PLACING OF REINFORCING STEEL BARS ONLY. IT IS NOT TO BE USED AS A MEANS OF COMMUNICATION BETWEEN THE ARCHITECT, ENGINEER, CONTRACTOR OR ANY OTHER SUBTRADE.

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| | | | |
|---|---|---|---|
| B-U-L. | - BOTTOM LOWER LAYER | BOT | - BOTTOM |
| B-U-U. | - BOTTOM UPPER LAYER | TOP | - TOP |
| M-U-L. | - MID LOWER LAYER | T&B | - TOP & BOTTOM |
| M-U-U. | - MID UPPER LAYER | L-R | - LEFT TO RIGHT |
| T-U-L. | - TOP LOWER LAYER | B-T | - BOTTOM TO TOP |
| T-U-U. | - TOP UPPER LAYER | C-B. | - CORNER BAR |
| E.R. | - EACH ROW | T.O.M. | - TYPICAL OPPOSITE HAND |
| BNT. | - BENT | R/L | - FROM RIGHT TO LEFT |
| | | F.B. | - FIELD BEND |
| | | C.I.F. | - CUT IN FIELD |
| | | T.O.W. | - TOP OF WALL |
| | | T.O.F. | - TOP OF FOOTING |
| | | B.O.W. | - BOTTOM OF WALL |
| | | T.O.C. | - TOP OF CONCRETE |
| | | B.O.C. | - BOTTOM OF CONCRETE |
| | | ELEV. | - ELEVATION |

@ - SPACING CENTER TO CENTER
↔ - DIRECTION IN WHICH BARS EXTEND
- - - - LIMITS OF AREA COVERED BY BARS
—— - REBAR TOP/NEAR FACE
- - - - REBAR BOT/FAR FACE
I.F. - INSIDE FACE
O.F. - OUTSIDE FACE
N.F. - NEAR FACE
F.F. - FAR FACE
E.W. - EACH WAY
VERT - VERTICAL
HORZ - HORIZONTAL
DWLS - DOWELS
FTG - FOOTING
COL - COLUMN

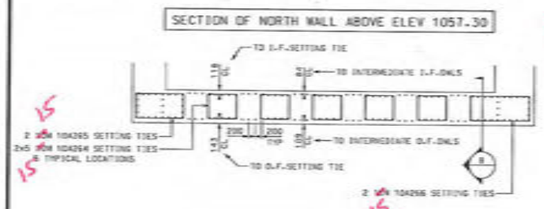
| PREFIX TRANS. NOS. | A 1-3 | PRINT RECORD | | | |
|---|---|---|---|---|---|
| | | NO. | TO. | FOR | DATE |
| NO. | REVISION / DATE | TC | C | A | 29/AUG/18 |

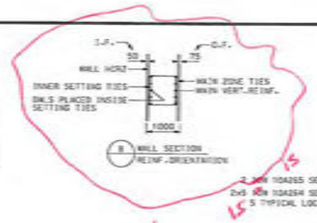
REINFORCING STEEL PLACING PLAN

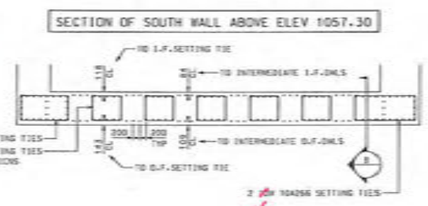
MCNISH STEEL LTD.
10636 - 205 STREET
EDMONTON, ALBERTA
PHONE 447-3337 FAX 447-3379

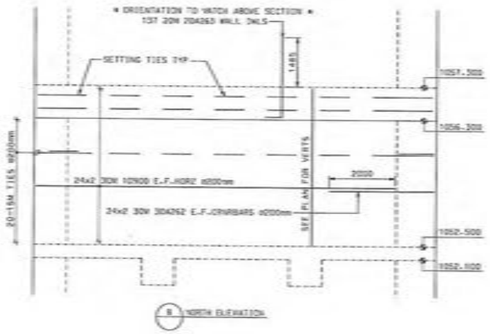
PROJECT : STRATAGOLD (EAGLE GOLD PROJECT)
CONTR. : CLARK BUILDERS
DWG.OF : PRIMARY CRUSHER (SLAB @ ELEV.1052.500 - CRUSHER BASE
ENGR. : WATCH
DRAWN BY : MARK
DATE : 29/AUG/2018

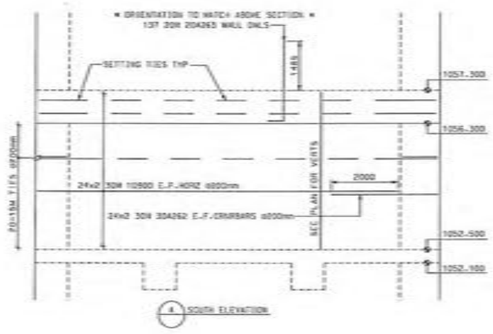
JOB NO. 18-042 | DWG. NO. 001 G

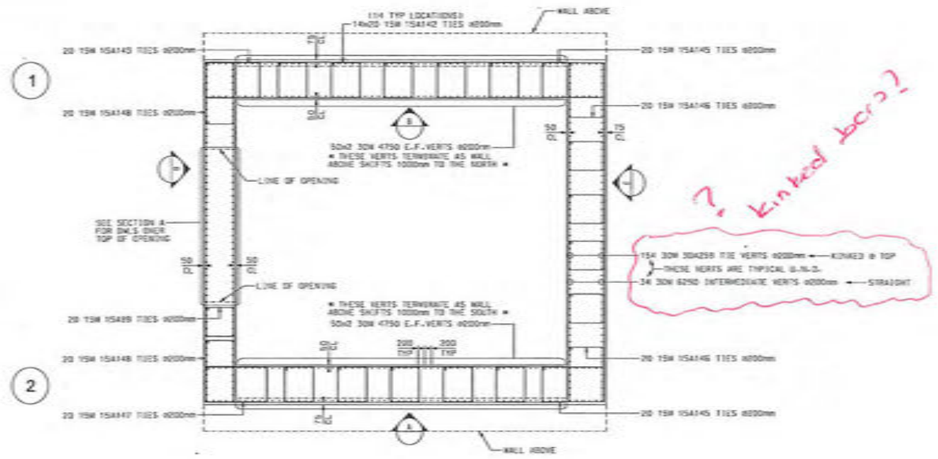


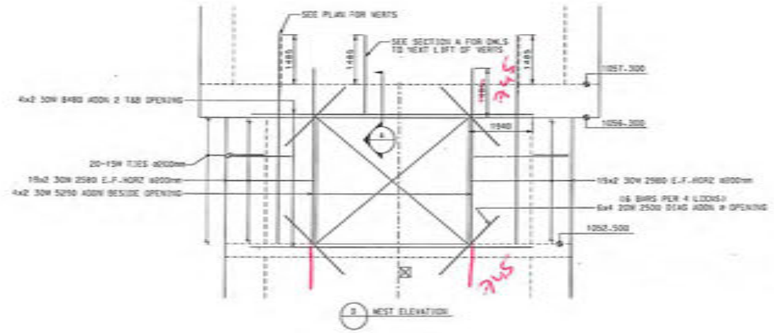



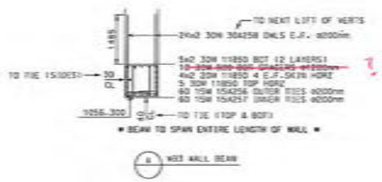










| SIZE | EP | BAR MARK | V | BND TYP | CD | BENDING DIMENSIONS A | B | C | D | E | F/H | G | H | J | K | O |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 30M | | 304258 | | 11 | | | 500 | 2325 | | | | | | | | |
| 30M | | 304259 | | 31 | | | 4489 | 272 | 1535 | | | | 78 | | 261 | |
| 30M | | 304262 | | 11 | | | 2000 | 3175 | | | | | | | | |
| 20M | | 204263 | | 11 | | | 500 | 2401 | | | | | | | | |
| 15M | | 15A89 | | 11 | | 140 | 870 | 868 | 870 | 868 | | 140 | | | | |
| 15M | | 15A142 | | 11 | | 140 | 870 | 1043 | 870 | 1043 | | 140 | | | | |
| 15M | | 15A143 | | 11 | | 140 | 1043 | 1644 | 1043 | 1644 | | 140 | | | | |
| 15M | | 15A145 | | 11 | | 140 | 1043 | 1843 | 1043 | 1843 | | 140 | | | | |
| 15M | | 15A146 | | 11 | | 140 | 1043 | 1643 | 1043 | 1643 | | 140 | | | | |
| 15M | | 15A147 | | 11 | | 140 | 1043 | 1868 | 1043 | 1868 | | 140 | | | | |
| 15M | | 15A148 | | 11 | | 140 | 868 | 1843 | 868 | 1843 | | 140 | | | | |
| 15M | | 15A256 | | 11 | | 140 | 940 | 920 | 940 | 920 | | 140 | | | | |
| 15M | | 15A257 | | 11 | | 140 | 503 | 920 | 503 | 920 | | 140 | | | | |
| 20M | | 104264 | | 12 | | 100 | 739 | 862 | 739 | 862 | | 100 | | | | |
| 20M | | 104265 | | 12 | | 100 | 1413 | 739 | 1413 | 739 | | 100 | | | | |
| 20M | | 104266 | | 12 | | 100 | 1788 | 739 | 1788 | 739 | | 100 | | | | |

17 31 11 12

B-U-L - BOTTOM LOWER LAYER
B-U-U - BOTTOM UPPER LAYER
M-U-L - MID LOWER LAYER
M-U-U - MID UPPER LAYER
T-U-L - TOP LOWER LAYER
T-U-U - TOP UPPER LAYER
E.R. - EACH ROW
BNT. - BENT

@ - SPACING CENTER TO CENTER
<-> - DIRECTION IN WHICH BARS EXTEND
- - - - - LIMITS OF AREA COVERED BY BARS
——— - REBAR TOP/INCLINE FACE
- - - - - REBAR BOT/AIR FACE
I.F. - INSIDE FACE
O.F. - OUTSIDE FACE
N.F. - NEAR FACE
F.F. - FAR FACE
E.W. - EACH WAY
VERT - VERTICAL
HORZ - HORIZONTAL
DWLS - DOWELS
FTG - FOOTING
COL - COLUMN

BOT - BOTTOM
TOP - TOP
T&B - TOP & BOTTOM
L-R - LEFT TO RIGHT
B-T - BOTTOM TO TOP
C-Bs - CORNER BAR
T.O.H. - TYPICAL OPPOSITE HAND
R/L - FROM RIGHT TO LEFT
F.B. - FIELD BEND
C.I.F. - CUT IN FIELD
T.O.W. - TOP OF WALL
T.O.F. - TOP OF FOOTING
B.O.W. - BOTTOM OF WALL
T.O.C. - TOP OF CONCRETE
B.O.C. - BOTTOM OF CONCRETE
ELEV. - ELEVATION

## GENERAL NOTES ON REINFORCEMENT

THE FOLLOWING NOTES SHALL APPLY TO ALL REINFORCEMENT SHOWN ON THE DRAWINGS UNLESS OTHERWISE NOTED.

**DIMENSIONS:**
DIMENSIONS TO REINFORCEMENT ARE TO CENTRE LINES OF BARS, EXCEPT WHERE CONCRETE COVER OR CLEARANCE BETWEEN BARS IS SHOWN.

**COVER:**
SEE STRUCTURAL ENGINEER TYPICAL NOTES FOR ALL COVER SPECIFICATIONS

**SPACING:**
UNLESS OTHERWISE SHOWN, THE FIRST AND LAST BARS IN SLABS AND WALLS, STIRRUPS IN BEAMS SHALL BE PLACED AT MINIMUM OF HALF THE SPECIFIED SPACING OF ADJACENT BARS FROM THE END OF THE MEMBER.

**STEEL SPECIFICATIONS:**
STEEL REINFORCEMENT SHALL BE DEFORMED BARS OF GRADE 400 CONFORMING TO CSA STANDARDS G30.12 BILLET-STEEL BARS FOR CONCRETE REINFORCEMENT.

**WELDING:**
WELDING OF REINFORCEMENT SHALL NOT BE PERMITTED.

**SPLICES AND EMBEDMENTS:**
UNLESS OTHERWISE SPECIFIED, ALL EMBEDMENTS SHALL BE TREATED AS TENSION EMBEDMENTS AND ALL LAP SPLICES SHALL BE CONSIDERED AS TENSION LAP SPLICES.

WHEN REINFORCING BARS OF DIFFERENT SIZE ARE TO BE SPLICED, THE LENGTH OF THE LAP SHALL BE BASED ON THE DIAMETER OF THE SMALLER BAR.

SPLICES ARE TO BE MADE SO THAT THE GIVEN CLEAR DISTANCE (OTHER WISE) WILL BE MAINTAINED.

LAP LENGTHS UNLESS SHOWN OTHERWISE:

| | HORZ | OTHER |
|---|---|---|
| 10M | 520 | 400 |
| 15M | 775 | 595 |
| 20M | 1030 | 790 |
| 25M | 1615 | 1240 |
| 30M | 1940 | 1485 |
| 35M | | |

**PLACEMENT:**
PLACE REINFORCING STEEL IN ACCORDANCE WITH CSA CAN3-A23.1-M.

REINFORCEMENT MAY BE DISPLACE TO CLEAR PIPES, RECESSES, EMBEDDED METAL WORKS AND CONDUITS.

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THE FULL INTENT AND PURPOSE OF THESE DRAWINGS IS PLACING OF REINFORCING STEEL BARS ONLY. IT IS NOT TO BE USED AS A MEANS OF COMMUNICATION BETWEEN THE ARCHITECT, ENGINEER, CONTRACTOR OR ANY OTHER SUBTRADE.

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PREFIX A
TRANS-NOS. 1-3

PRINT RECORD

| NO. | REVISION | DATE | TC | C | A | DD/MMM/18 |
|---|---|---|---|---|---|---|

MCNISH STEEL LTD.
10636 - 205 STREET
EDMONTON, ALBERTA
PHONE 447-3337 FAX 447-3379

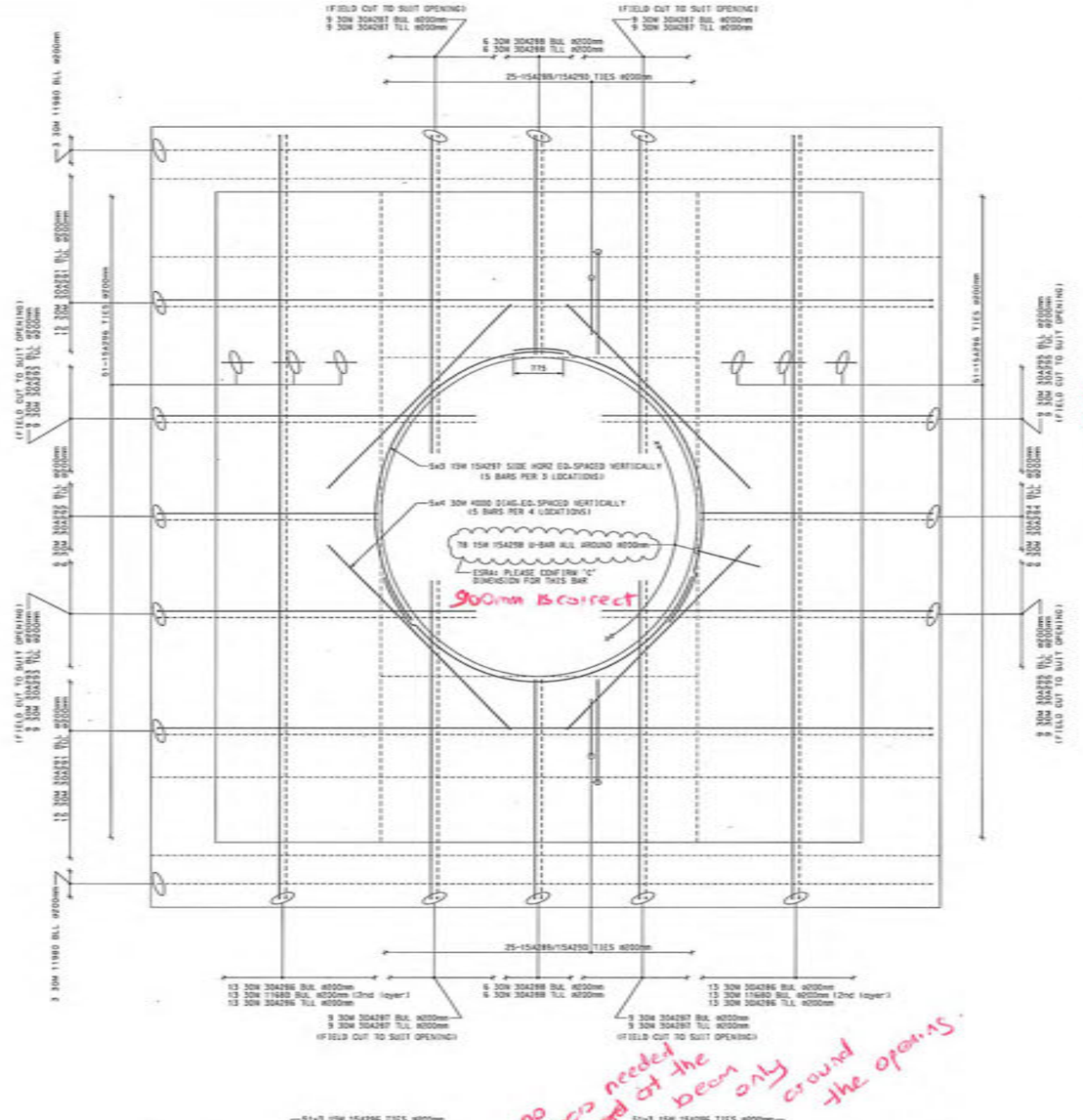
# REINFORCING STEEL PLACING PLAN

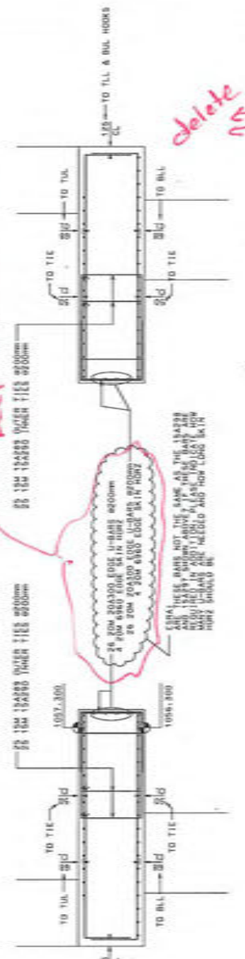
PROJECT : STRATAGOLD (EAGLE GOLD PROJECT)
CONTR. : CLARK BUILDERS
DWG.-OF : PRIMARY CRUSHER UWALLS - 1052.500 TO 1057.300)
ENGR. : HATCH
DRAWN BY : MARK
DATE : 30/AUG/2018

JOB NO. 18-042
DWG. NO. 001 H

1

2




| SIZE | EP | BAR MARK | V | BND TYP | CD | A | B | C | D | E | F/R | G | H | J | K | O |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 30M | | 30M286 | | 17 | | | 700 | 11750 | 700 | | | | | | | |
| 30M | | 30M287 | | 17 | | | 700 | 4895 | | | | | | | | |
| 30M | | 30M288 | | 17 | | | 700 | 5577 | | | | | | | | |
| 30M | | 30M291 | | 17 | | | 700 | 11975 | 700 | | | | | | | |
| 30M | | 30M292 | | 17 | | | 700 | 5402 | | | | | | | | |
| 30M | | 30M293 | | 17 | | | 700 | 4509 | | | | | | | | |
| 30M | | 30M294 | | 17 | | | 700 | 3577 | | | | | | | | |
| 30M | | 30M295 | | 17 | | | 700 | 5095 | | | | | | | | |
| 20M | | 20M299 | | 17 | | | 1000 | 840 | 1000 | | | | | | | |
| 20M | | 20M300 | | 17 | | | 1000 | 908 | 1000 | | | | | | | |
| 15M | | 15A284 | | 11 | | 140 | 940 | 832 | 940 | 832 | | 140 | | | | |
| 15M | | 15A285 | | 11 | | 140 | 503 | 832 | 503 | 832 | | 140 | | | | |
| 15M | | 15A289 | | 11 | | 140 | 1570 | 500 | 1570 | 500 | | 140 | | | | |
| 15M | | 15A290 | | 11 | | 140 | 870 | 500 | 870 | 500 | | 140 | | | | |
| 15M | | 15A296 | | 11 | | 140 | 470 | 832 | 470 | 832 | | 140 | | | | |
| 15M | | 15A297 | | 9 | | | 6082 | | | | 2538 | | 1619 | | | 4729 |
| 15M | | 15A298 | | 17 | | | 1000 | 900 | 1000 | | | | | | | |

(9) (17) (77)

## GENERAL NOTES ON REINFORCEMENT

THE FOLLOWING NOTES SHALL APPLY TO ALL REINFORCEMENT SHOWN ON THE DRAWINGS UNLESS OTHERWISE NOTED.

**DIMENSIONS:**
DIMENSIONS TO REINFORCEMENT ARE TO CENTRE LINES OF BARS, EXCEPT WHERE CONCRETE COVER OR CLEARANCE BETWEEN BARS IS SHOWN.

**COVER:**
SEE STRUCTURAL ENGINEER TYPICAL NOTES FOR ALL COVER SPECIFICATIONS

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**STEEL SPECIFICATIONS:**
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**WELDING:**
WELDING OF REINFORCEMENT SHALL NOT BE PERMITTED.

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WHEN REINFORCING BARS OF DIFFERENT SIZE ARE TO BE SPLICED, THE LENGTH OF THE LAP SHALL BE BASED ON THE DIAMETER OF THE SMALLER BAR.

SPLICES ARE TO BE MADE SO THAT THE GIVEN CLEAR DISTANCE COVER WOULD BE MAINTAINED.

LAP LENGTHS UNLESS SHOWN OTHERWISE:

| | HORZ | OTHER |
|---|---|---|
| 10M | 320 | 400 |
| 15M | 775 | 595 |
| 20M | 1030 | 790 |
| 25M | 1675 | 1240 |
| 30M | 1940 | 1485 |
| 35M | | |

**PLACEMENT:**
PLACE REINFORCING STEEL IN ACCORDANCE WITH CSA CAN3-A23.1-94.

REINFORCEMENT MAY BE DISPLACE TO CLEAR PIPES, RECESSES, EMBEDDED METAL WORKS AND CONDUITS.

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REINFORCEMENT SHALL BE ACCURATELY PLACED IN ACCORDANCE WITH THE THE DRAWING AND SHALL BE ADEQUATELY SECURED AGAINST DISPLACEMENT BY USING ANNEALED IRON WIRE AT INTERSECTIONS AND SHALL BE SUPPORTED BY APPROVED CONCRETE OR METAL SUPPORTS. SPACERS OR METAL HANGERS EXCEPT AT SURFACES EXPOSED TO THE GROUND OR TO THE WEATHER WHERE SUPPORTS SHALL BE APPROVED. ALL METAL ACCESSORIES ARE TO BE GALVANIZED.

THE FULL INTENT AND PURPOSE OF THESE DRAWINGS IS PLACING OF REINFORCING STEEL BARS ONLY. IT IS NOT TO BE USED AS A MEANS OF COMMUNICATION BETWEEN THE ARCHITECT, ENGINEER, CONTRACTOR OR ANY OTHER SUBTRADE.

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**HATCH Vendor/Contractor Document Review**

| Doc Number | E354138-CB201-230-260-0018 | SUB | 01 |
|---|---|---|---|
| Date Received: | 2018-10-09 | | |

| Review Grade | Next Submittal Status |
|---|---|
| ☐ C1 - Proceed to next submission & status | ☐ Certified |
| ☒ C2 - Proceed with exceptions as noted in next submission & status | ☐ As-Built |
| ☐ C3 - Do not proceed. Revise as noted & resubmit | ☐ Internal Review |
| Next Submittal Date: | ☐ Certified ☐ As-Built |
| ☐ C4 - No further submission required - Complete (select status below) | ☐ Certified Final ☐ Final ☐ Cancelled ☐ Superseded |

Package Engineer: Name, signature and date
ESCA AKINCI, JA Oct 11, 2018

Reviewed only for general conformity with the specifications. Acceptance by the engineer does not warrant or represent that the information contained on this drawing/document is either accurate or complete. The sole responsibility for correct design, details & dimensions shall remain with the party submitting the drawing/document.

| | | |
|---|---|---|
| ⌀ | - SPACING CENTER TO CENTER | BOT - BOTTOM |
| ↔ | - DIRECTION ON WHICH BARS EXTEND | TOP - TOP |
| ⟷ | - LIMITS OF AREA COVERED BY BARS | T&B - TOP & BOTTOM |
| ——— | - REBAR TOP/NEAR FACE | L-R - LEFT TO RIGHT |
| - - - - | - REBAR BOT/FAR FACE | B-T - BOTTOM TO TOP |
| I.F. | - INSIDE FACE | C.B. - CORNER BAR |
| O.F. | - OUTSIDE FACE | T.O.H. - TYPICAL OPPOSITE HAND |
| N.F. | - NEAR FACE | R/L - FROM RIGHT TO LEFT |
| F.F. | - FAR FACE | F.B. - FIELD BEND |
| E.W. | - EACH WAY | C.I.F. - CUT IN FIELD |
| VERT | - VERTICAL | T.O.W. - TOP OF WALL |
| HORZ | - HORIZONTAL | T.O.F. - TOP OF FOOTING |
| DWLS | - DOWELS | B.O.W. - BOTTOM OF WALL |
| FTG | - FOOTING | T.O.C. - TOP OF CONCRETE |
| COL | - COLUMN | B.O.C. - BOTTOM OF CONCRETE |
| | | ELEV. - ELEVATION |

B-L-L. - BOTTOM LOWER LAYER
B-U-L. - BOTTOM UPPER LAYER
M-L-L. - MID LOWER LAYER
M-U-L. - MID UPPER LAYER
T-L-L. - TOP LOWER LAYER
T-U-L. - TOP UPPER LAYER
E.R. - EACH ROW
BNT. - BENT

| PREFIX | A |
|---|---|
| TRANS. NOS. | 1.7 |

PRINT RECORD

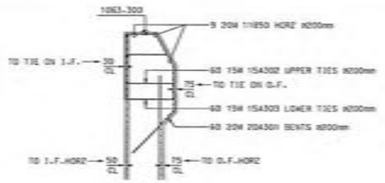
| NO. | REVISION | DATE | NO. | TO. | FOR | DATE |
|---|---|---|---|---|---|---|
| | | | YC | C | A | 26/SEP/18 |

MCNISH STEEL LTD.
10636 - 205 STREET
EDMONTON, ALBERTA
PHONE 447-3337 FAX 447-3379

REINFORCING STEEL PLACING PLAN

PROJECT : STRATHCOLD (EAGLE COLD PROJECT)
CONTR. : CLARK BUILDERS
DWG.OF : PRIMARY CRUSHER (SLAB @ ELEVATION 1057.300)
ENGR. : HATCH
DRAWN BY : MARK
DATE : 26/SEP/2018

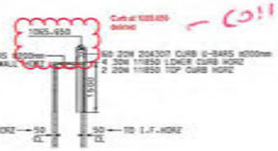
JOB NO. 18-042 | DWG. NO. 001 J




1 KICKER DETAIL

ESRA: ON YOUR SECTION "F" YOU HAVE THE MAIN WALL REINFORCING SHOWN OPPOSITE TO WHAT IT SHOULD BE (O.F.& I.F.ARE SWITCHED). THUS ALTERING THE REINFORCING SLIGHTLY. PLEASE ENSURE THIS KICKER BAR ORIENTATION TO BE OK

H is OK ✓

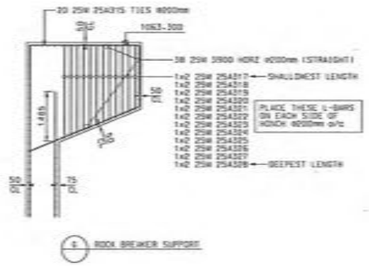



2 CURB DETAIL

ESRA: ON YOUR SECTION "S" YOU HAVE THE MAIN WALL REINFORCING SHOWN OPPOSITE TO WHAT IT SHOULD BE (O.F.& I.F.ARE SWITCHED). THUS ALTERING THE REINFORCING SLIGHTLY. PLEASE ENSURE THIS CURB BAR ORIENTATION TO BE OK

H is OK

- Correct ✓

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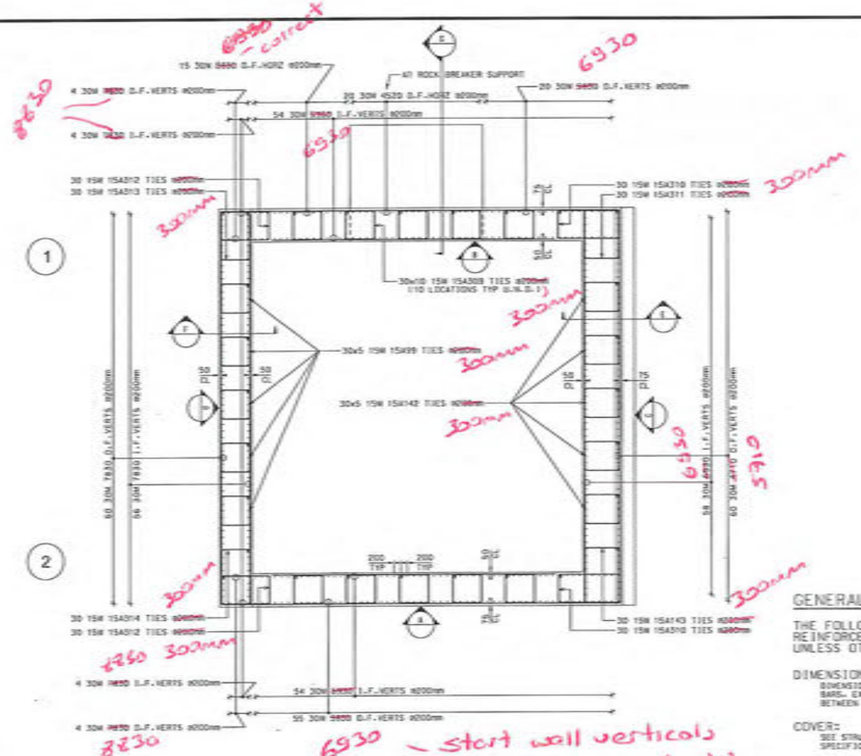





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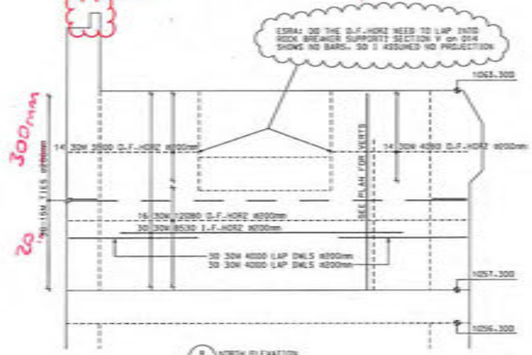


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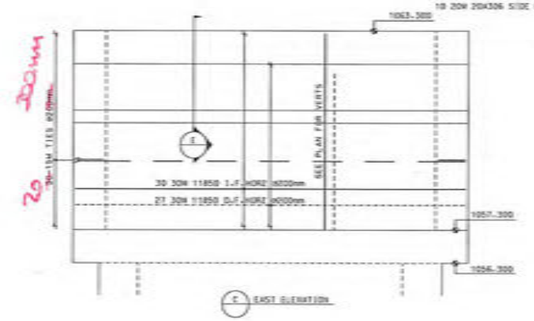


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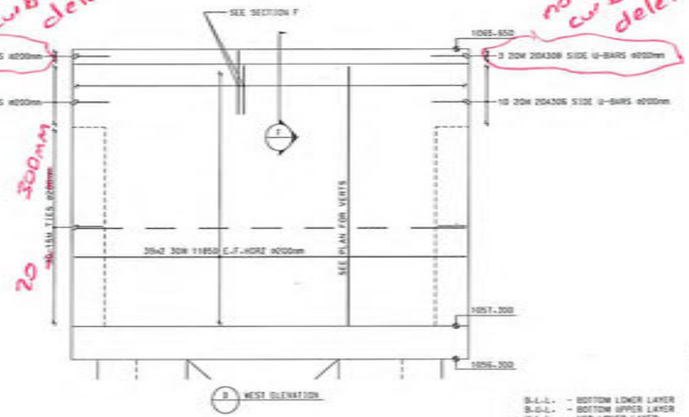


7 WEST ELEVATION

## GENERAL NOTES ON REINFORCEMENT

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**DIMENSIONS:**
DIMENSIONS TO REINFORCEMENT ARE TO CENTRE LINES OF BARS, EXCEPT WHERE CONCRETE COVER OR CLEARANCE BETWEEN BARS IS SHOWN.

**COVER:**
SEE STRUCTURAL ENGINEER TYPICAL NOTES FOR ALL COVER SPECIFICATIONS

**SPACING:**
UNLESS OTHERWISE SHOWN, THE FIRST AND LAST BARS IN SLABS AND WALLS, STIRRUPS IN BEAMS SHALL BE PLACED AT MAXIMUM OF HALF THE SPECIFIED SPACING OF ADJACENT BARS FROM THE END OF THE MEMBER.

**STEEL SPECIFICATIONS:**
STEEL REINFORCEMENT SHALL BE DEFORMED BARS OF GRADE 400 CONFORMING TO CSA STANDARDS G30.12 BILLET-STEEL BARS FOR CONCRETE REINFORCEMENT.

**WELDING:**
WELDING OF REINFORCEMENT SHALL NOT BE PERMITTED.

**SPLICES AND EMBEDMENTS:**
UNLESS OTHERWISE SPECIFIED, ALL EMBEDMENTS SHALL BE TREATED AS TENSION EMBEDMENTS AND ALL LAP SPLICES SHALL BE CONSIDERED AS TENSION LAP SPLICES.

WHEN REINFORCING BARS OF DIFFERENT SIZE ARE TO BE SPLICED, THE LENGTH OF THE LAP SHALL BE BASED ON THE DIAMETER OF THE SMALLER BAR.

SPLICES ARE TO BE MADE SO THAT THE GIVEN CLEAR DISTANCE COVER WILL BE MAINTAINED.

LAP LENGTHS UNLESS SHOWN OTHERWISE:

| | HORZ | OTHER |
|---|---|---|
| 10M | 520 | 400 |
| 15M | 775 | 595 |
| 20M | 1030 | 790 |
| 25M | 1615 | 1240 |
| 30M | 1940 | 1485 |
| 35M | | |

**PLACEMENT:**
PLACE REINFORCING STEEL IN ACCORDANCE WITH CSA CAN3-A23.1-M.

REINFORCEMENT MAY BE DISPLACE TO CLEAR PIPES, RECESSES, EMBEDDED METAL WORKS AND CONDUITS.

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| SIZE | EP | BAR MARK | V | BND TYP | CD | A | B | C | D | BENDING DIMENSIONS E | F/R | G | H | J | K | O |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 25M | | 25A315 | | L15 | | | 1000 | 3066 | 1858 | 3662 | | | 3400 | | 1360 | |
| 25M | | 25A317 | | 11 | | | 600 | 1572 | 600 | | | | | | | |
| 25M | | 25A318 | | 11 | | | 600 | 2051 | 600 | | | | | | | |
| 25M | | 25A319 | | 11 | | | 600 | 2129 | 600 | | | | | | | |
| 25M | | 25A320 | | 11 | | | 600 | 2208 | 600 | | | | | | | |
| 25M | | 25A321 | | 11 | | | 600 | 2286 | 600 | | | | | | | |
| 25M | | 25A322 | | 11 | | | 600 | 2365 | 600 | | | | | | | |
| 25M | | 25A323 | | 11 | | | 600 | 2443 | 600 | | | | | | | |
| 25M | | 25A324 | | 11 | | | 600 | 2522 | 600 | | | | | | | |
| 25M | | 25A325 | | 11 | | | 600 | 2600 | 600 | | | | | | | |
| 25M | | 25A326 | | 11 | | | 600 | 2679 | 600 | | | | | | | |
| 25M | | 25A327 | | 11 | | | 600 | 2757 | 600 | | | | | | | |
| 25M | | 25A328 | | 11 | | | 600 | 2836 | 600 | | | | | | | |
| 20M | | 20A301 | | 3 | | | 1800 | 1050 | | | | | 955 | | 954 | |
| 20M | | 20A304 | | 11 | | | 1450 | 832 | 1450 | | | | | | | |
| 20M | | 20A306 | | 11 | | | 1030 | 876 | 1030 | | | | | | | |
| 20M | | 20A307 | | 11 | | | 1500 | 230 | 1500 | | | | | | | |
| 20M | | 20A308 | | 11 | | | 1030 | 186 | 1030 | | | | | | | |
| 15M | | 15A99 | | 11 | | 140 | 870 | 868 | 870 | 868 | | 140 | | | | |
| 15M | | 15A142 | | 11 | | 140 | 870 | 1043 | 870 | 1043 | | 140 | | | | |
| 15M | | 15A143 | | 11 | | 140 | 1043 | 1644 | 1043 | 1644 | | 140 | | | | |
| 15M | | 15A302 | | L14 | | 140 | 512 | 1132 | 515 | 1475 | 1485 | 140 | 970 | 102 | 564 | |
| | | | | | | | | | | | | | | 102 | | |
| 15M | | 15A303 | | L14 | | 140 | 1269 | 411 | 991 | 1475 | 1346 | 140 | 355 | 102 | 209 | |
| | | | | | | | | | | | | | | 102 | | |
| 15M | | 15A308 | | 11 | | 140 | 870 | 843 | 870 | 843 | | 140 | | | | |
| 15M | | 15A310 | | 11 | | 140 | 1844 | 843 | 1844 | 843 | | 140 | | | | |
| 15M | | 15A311 | | 11 | | 140 | 1444 | 1043 | 1444 | 1043 | | 140 | | | | |
| 15M | | 15A312 | | 11 | | 140 | 1469 | 843 | 1469 | 843 | | 140 | | | | |
| 15M | | 15A313 | | 11 | | 140 | 1444 | 868 | 1444 | 868 | | 140 | | | | |
| 15M | | 15A314 | | 11 | | 140 | 1644 | 868 | 1644 | 868 | | 140 | | | | |

3 — 17 — 16 — 14 — 11

| | |
|---|---|
| @ | - SPACING CENTER TO CENTER |
| ←→ | - DIRECTION IN WHICH BARS EXTEND |
| ⟷ | - LIMITS OF AREA COVERED BY BARS |
| ----- | - REBAR TOP/NEAR FACE |
| ----- | - REBAR BOT/FAR FACE |
| I.F. | - INSIDE FACE |
| O.F. | - OUTSIDE FACE |
| N.F. | - NEAR FACE |
| F.F. | - FAR FACE |
| E.W. | - EACH WAY |
| VERT | - VERTICAL |
| HORZ | - HORIZONTAL |
| DWLS | - DOWELS |
| FTG | - FOOTING |
| COL | - COLUMN |
| BOT | - BOTTOM |
| TOP | - TOP |
| T&B | - TOP & BOTTOM |
| L-R | - LEFT TO RIGHT |
| B-T | - BOTTOM TO TOP |
| C.B. | - CORNER BAR |
| T.O.W. | - TYPICAL OPPOSITE HAND |
| R/L | - FROM RIGHT TO LEFT |
| F.S. | - FIELD BEND |
| C.I.F. | - CUT IN FIELD |
| T.O.W. | - TOP OF WALL |
| T.O.F. | - TOP OF FOOTING |
| B.O.W. | - BOTTOM OF WALL |
| T.O.C. | - TOP OF CONCRETE |
| B.O.C. | - BOTTOM OF CONCRETE |
| ELEV. | - ELEVATION |

B.L.L. - BOTTOM LOWER LAYER
B.U.L. - BOTTOM UPPER LAYER
M.L.L. - MID LOWER LAYER
M.U.L. - MID UPPER LAYER
T.L.L. - TOP LOWER LAYER
T.U.L. - TOP UPPER LAYER
E.R. - EACH ROW
BNT. - BENT

PREFIX A
TRANS. 1-7
NOS.

PRINT RECORD

| NO. | REVISION | DATE | TO: IC | TO: C | FOR: A | DATE |
|---|---|---|---|---|---|---|
| 1 | | | | | | 28/SEP/18 |

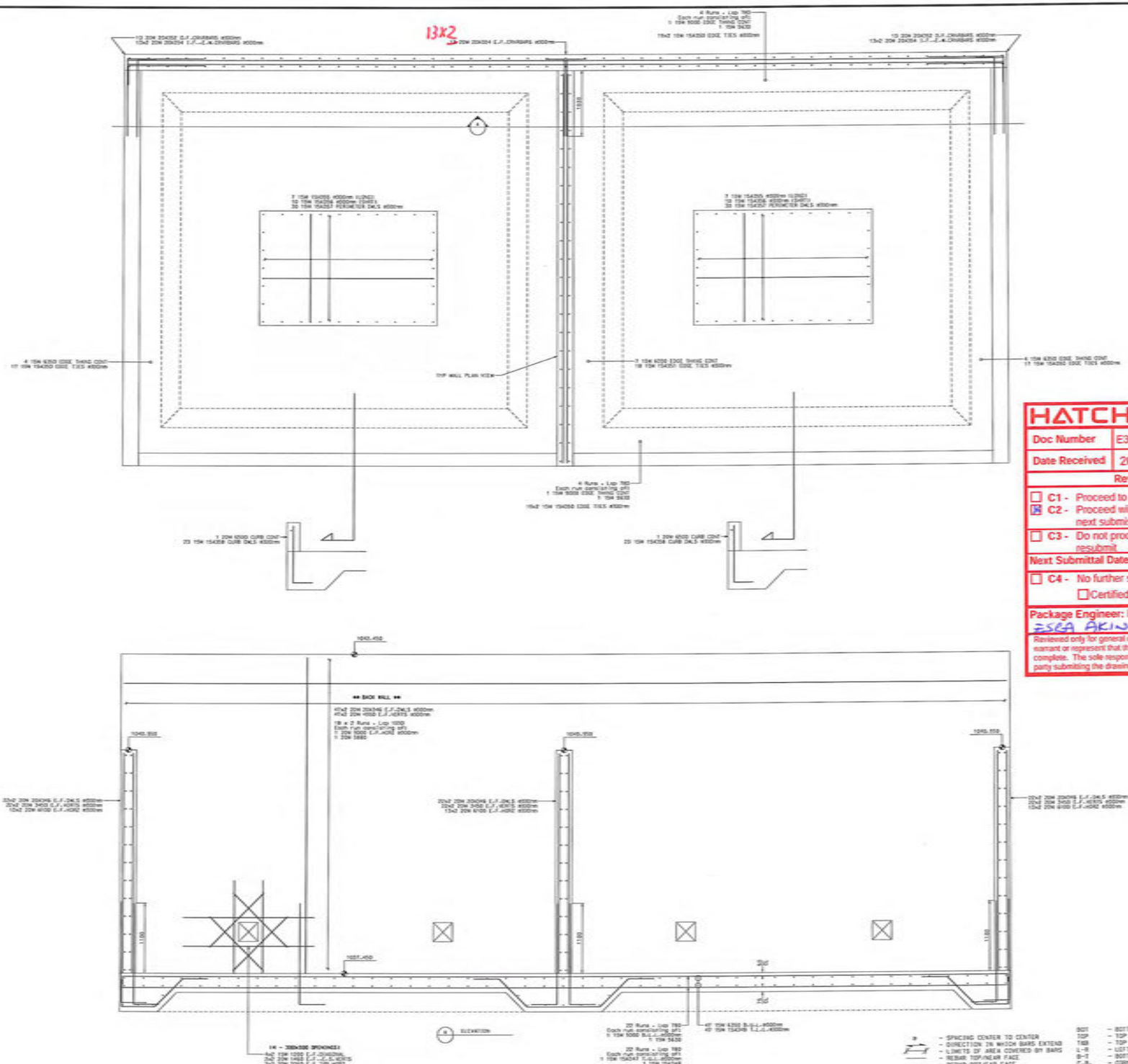
REINFORCING STEEL PLACING PLAN

MCNISH STEEL LTD.
10636 - 205 STREET
EDMONTON, ALBERTA
PHONE 447-3337 FAX 447-3379

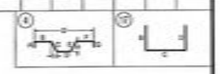
PROJECT : STRATAGOLD (EAGLE GOLD PROJECT)
CONTR. : CLARK BUILDERS
DWG.OF : PRIMARY CRUSHER (WALLS - 1057.300 TO TOP)
ENGR. : WATCH
DRAWN BY : MARK
DATE : 28/SEP/2018

JOB NO. 18-042 | DWG. NO. 001 K

13x2




| SIZE | EP | BAR MARK | V | BEND TYP | CD | A | B | C | D | BENDING DIMENSIONS E | F OR G | H | J | K | O |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 20M | | 20M245 | | 1 | | | 400 | 1987 | | | | | | | |
| 20M | | 20M252 | | 1 | | | 1208 | 1208 | | | | | | | |
| 20M | | 20M254 | | 1 | | | 500 | 1208 | | | | | | | |
| 15M | | 15M047 | | 1 | | | 200 | 8841 | | | | | | | |
| 15M | | 15M048 | | 1 | | | 200 | 5789 | | | | | | | |
| 15M | | 15M049 | | 1 | | | 300 | 6350 | 200 | | | | | | |
| 15M | | 15M050 | | 4 | | 400 | 319 | 621 | 400 | | | 409 | | 409 | |
| 15M | | 15M051 | | 4 | | | 400 | 621 | 1108 | 621 | 400 | 409 | | 409 | |
| 15M | | 15M055 | | 1 | | | 300 | 2700 | 200 | | | | | | |
| 15M | | 15M056 | | 1 | | | 200 | 1700 | 200 | | | | | | |
| 15M | | 15M057 | | 1 | | | 400 | 429 | | | | | | | |
| 15M | | 15M058 | | 1 | | | 300 | 987 | | | | | | | |



**HATCH Vendor/Contractor Document Review**

| | | | |
|---|---|---|---|
| Doc Number | E354138-CB201-230-260-0022 | SUB | 01 |
| Date Received | 2018-10-23 | | |

| Review Grade | Next Submittal Status |
|---|---|
| ☐ C1 - Proceed to next submission & status | ☐ Certified |
| ☒ C2 - Proceed with exceptions as noted to next submission & status | ☐ As-Built |
| ☐ C3 - Do not proceed. Revise as noted & resubmit | ☐ Internal Review |
| Next Submittal Date: | ☐ Certified/☐ As-Built |

☐ C4 - No further submission required - Complete (select status below)
☐ Certified Final ☐ Final ☐ Cancelled ☐ Superseded

Package Engineer: Name, signature and date
ESGA AKINC, EA, Oct 24, 2018

Reviewed only for general conformity with the specifications. Acceptance by the engineer does not warrant or represent that the information contained on this drawing/document is either accurate or complete. The sole responsibility for correct design, details & dimensions shall remain with the party submitting the drawing/document.

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| | HORZ | OTHER |
|---|---|---|
| 10M | 570 | 400 |
| 15M | 775 | 595 |
| 20M | 1030 | 790 |
| 25M | 1615 | 1240 |
| 30M | 1940 | 1485 |
| 35M | | |

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B-U-U - BOTTOM UPPER LAYER
M-U-L - MID LOWER LAYER
M-U-U - MID UPPER LAYER
T-U-L - TOP LOWER LAYER
T-U-U - TOP UPPER LAYER
E.R. - EACH ROW
BNT. - BENT

@ - SPACING CENTER TO CENTER
- DIRECTION IN WHICH BARS EXTEND
- LIMITS OF AREA COVERED BY BARS
- REBAR TOP/NEAR FACE
- REBAR BOT/FAR FACE
I.F. - INSIDE FACE
O.F. - OUTSIDE FACE
N.F. - NEAR FACE
F.F. - FAR FACE
E.W. - EACH WAY
VERT - VERTICAL
HORZ - HORIZONTAL
DWLS - DOWELS
FTG - FOOTING
COL - COLUMN

BOT - BOTTOM
TOP - TOP
T&B - TOP & BOTTOM
L-R - LEFT TO RIGHT
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C.B. - CORNER BAR
T.S.W. - TYPICAL OPPOSITE HAND
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T.O.C. - TOP OF CONCRETE
B.O.C. - BOTTOM OF CONCRETE
ELEV. - ELEVATION

| PREFIX | A |
|---|---|
| TRANS. NOS. | 1-9 |

| PRINT RECORD | NO. | TO. | FOR | DATE |
|---|---|---|---|---|
| | 1C | C | A | 25/OCT/18 |

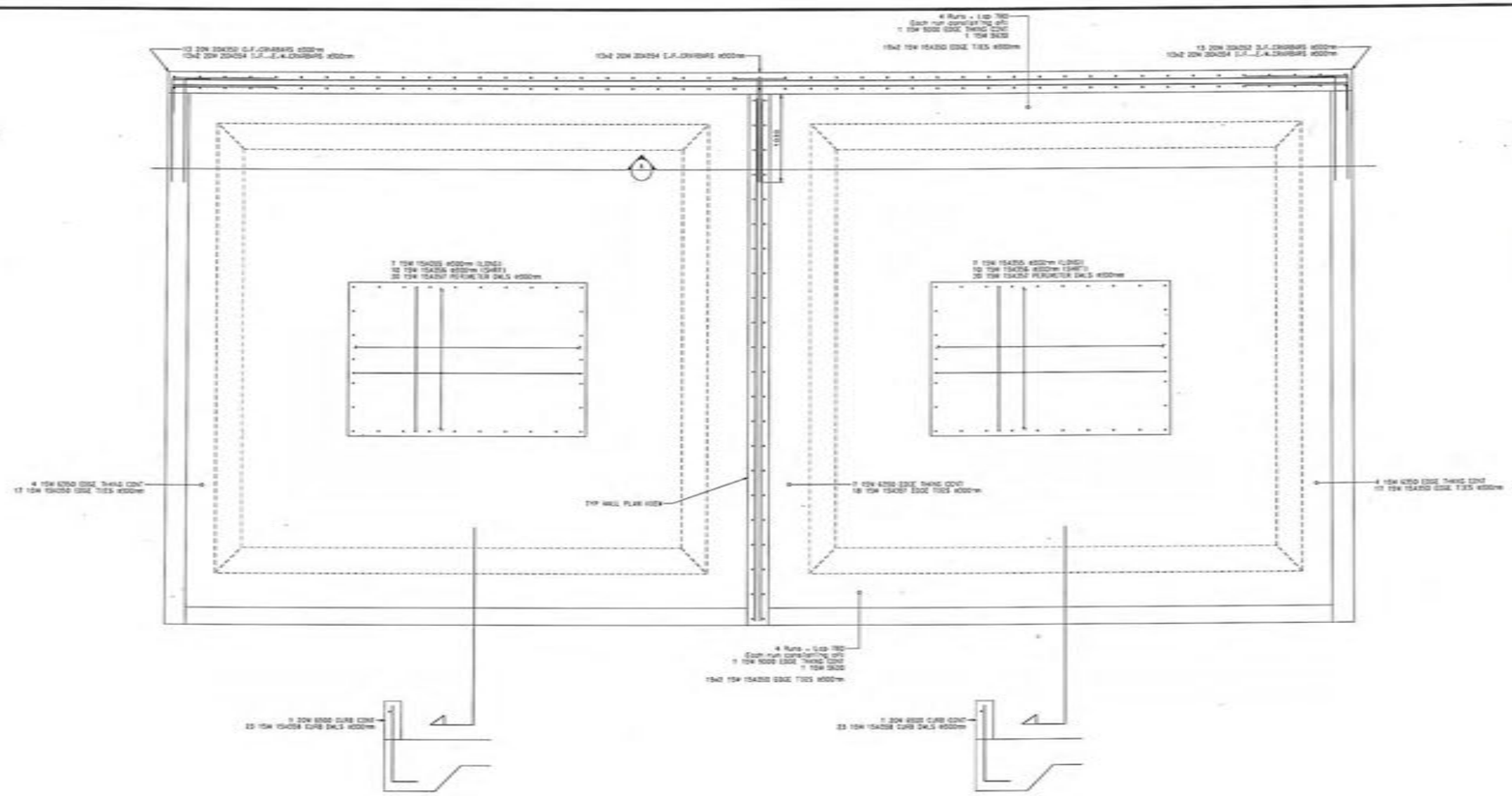
| MK. | REVISION | DATE |
|---|---|---|
| | | |

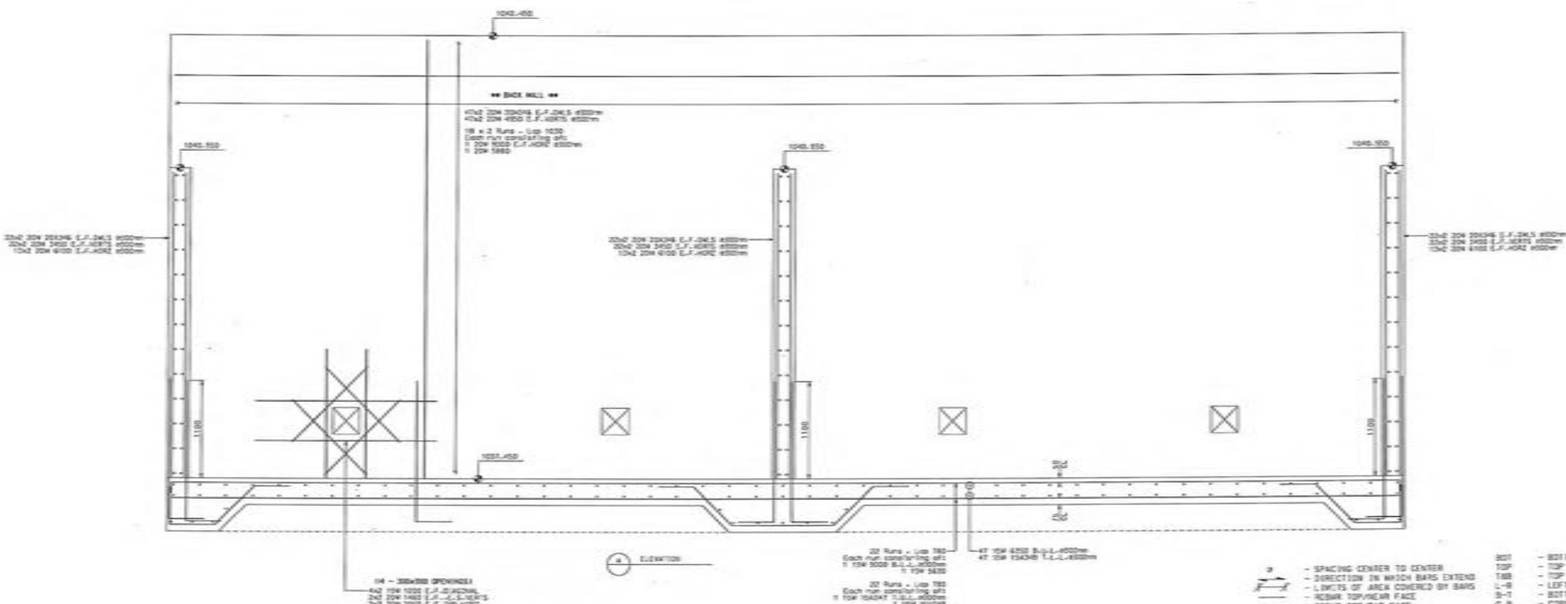
MCNISH STEEL LTD.
10636 - 205 STREET
EDMONTON, ALBERTA
PHONE 447-3337 FAX 447-3379

# REINFORCING STEEL PLACING PLAN

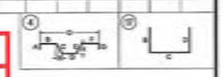
PROJECT : STRATHCOLD (EAGLE GOLD PROJECT)
CONTR. : CLARK BUILDERS
DWG. OF : PRIMARY CRUSHER (TRANSFORMER FOUNDATION)
ENGR. : HATCH
DRAWN BY : MARK
DATE : 25/OCT/2018

JOB NO. 18-042 | DWG. NO. 001 L






| SIZE | GP | BAR MARK | V | SHAPE TYP | CD | BENDING DIMENSIONS A | B | C | D | E | F/G | H | J | K | O |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 20M | | 20M36 | | 11 | | | 400 | 1387 | | | | | | | |
| 20M | | 20M52 | | 11 | | | 1009 | 1208 | | | | | | | |
| 20M | | 20M54 | | 11 | | | 300 | 1238 | | | | | | | |
| 15M | | 15M47 | | 11 | | | 200 | 8841 | | | | | | | |
| 15M | | 15M48 | | 11 | | | 200 | 5749 | | | | | | | |
| 15M | | 15M49 | | 11 | | | 200 | 6750 | 200 | | | | | | |
| 15M | | 15M50 | | 4 | | 400 | 1015 | 621 | 400 | | | 439 | | 439 | |
| 15M | | 15M51 | | 4 | | | 400 | 621 | 1138 | 507 | 400 | 439 | | 439 | |
| 15M | | 15M55 | | 11 | | | 300 | 2700 | 200 | | | | | | |
| 15M | | 15M56 | | 11 | | | 300 | 1700 | 200 | | | | | | |
| 15M | | 15M57 | | 11 | | | 400 | 629 | | | | | | | |
| 15M | | 15M58 | | 11 | | | 300 | 887 | | | | | | | |



**HATCH Vendor/Contractor Document Review**

| | | | |
|---|---|---|---|
| Doc Number | E354138-CB201-230-260-0022 | SUB | 02 |
| Date Received | 2018-10-29. | | |

| Review Grade | Next Submittal Status |
|---|---|
| ☐ C1 - Proceed to next submission & status<br>☐ C2 - Proceed with exceptions as noted to next submission & status | ☐ Certified<br>☐ As-Built |
| ☐ C3 - Do not proceed. Revise as noted & resubmit | ☐ Internal Review |
| Next Submittal Date: | ☐ Certified ☐ As-Built |
| ☒ C4 - No further submission required - Complete (select status below)<br>☐ Certified Final ☒ Final ☐ Cancelled ☐ Superseded | |

Package Engineer: Name, signature and date
ESRA AKINCI, EA, NOV 5, 2018

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**WELDING:**
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|---|---|---|
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| 30M | 1940 | 1485 |
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REINFORCEMENT SHALL BE ACCURATELY PLACED IN ACCORDANCE WITH THE DRAWING AND SHALL BE ADEQUATELY SECURED AGAINST DISPLACEMENT BY USING ANNEALED IRON WIRE AT INTERSECTIONS AND SHALL BE SUPPORTED BY APPROVED CONCRETE OR METAL SUPPORTS. SPACERS OR METAL HANGERS EXCEPT AT SURFACES EXPOSED TO THE GROUND OR TO THE WEATHER WHERE SUPPORTS SHALL BE APPROVED. ALL METAL ACCESSORIES ARE TO BE GALVANIZED.

THE FULL INTENT AND PURPOSE OF THESE DRAWINGS IS PLACING OF REINFORCING STEEL BARS ONLY. IT IS NOT TO BE USED AS A MEANS OF COMMUNICATION BETWEEN THE ARCHITECT, ENGINEER, CONTRACTOR OR ANY OTHER SUBTRADE.

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B.O.L. - BOTTOM LOWER LAYER
B.U.L. - BOTTOM UPPER LAYER
M.L.L. - MID LOWER LAYER
M.U.L. - MID UPPER LAYER
T.L.L. - TOP LOWER LAYER
T.U.L. - TOP UPPER LAYER
E.R. - EACH ROW
BNT. - BENT

@ - SPACING CENTER TO CENTER
↕ - DIRECTION IN WHICH BARS EXTEND
⟷ - LIMITS OF AREA COVERED BY BARS
----- - REBAR TOP/NEAR FACE
_____ - REBAR BOT/FAR FACE
I.F. - INSIDE FACE
O.F. - OUTSIDE FACE
N.F. - NEAR FACE
F.F. - FAR FACE
E.W. - EACH WAY
VERT - VERTICAL
HORZ - HORIZONTAL
DWLS - DOWELS
FTG - FOOTING
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BOT - BOTTOM
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L-R - LEFT TO RIGHT
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T.O.H. - TYPICAL OPPOSITE HAND
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F.B. - FIELD BEND
C.I.F. - CUT ON FIELD
T.O.W. - TOP OF WALL
T.O.F. - TOP OF FOOTING
B.O.W. - BOTTOM OF WALL
T.O.C. - TOP OF CONCRETE
B.O.C. - BOTTOM OF CONCRETE
ELEV. - ELEVATION

| PREFIX | A |
|---|---|
| TRANS. NOS. | 1-10 |

| NO. | REVISION | DATE |
|---|---|---|
| | C2 REVIEW | OCT 24/18 |

PRINT RECORD

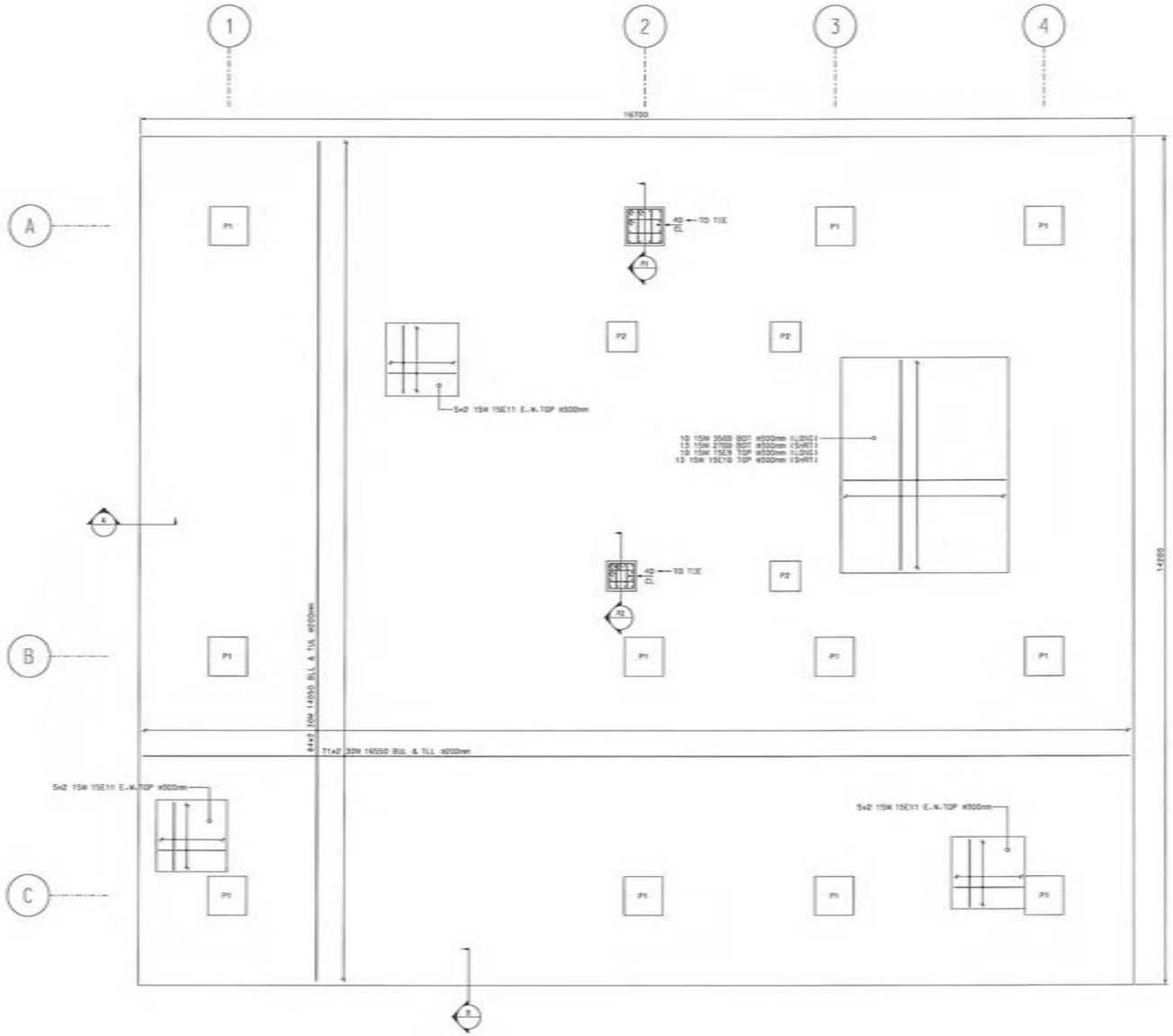
| NO. | TO | FOR | DATE |
|---|---|---|---|
| 1C | C | A | 23/OCT/18 |

# REINFORCING STEEL PLACING PLAN

MCNISH STEEL LTD.
10636 - 205 STREET
EDMONTON, ALBERTA
PHONE 447-3337 FAX 447-3379

PROJECT : SIMATAGOLD (EAGLE GOLD PROJECT)
CONTR. : CLARK BUILDERS
DWG-OF : PRIMARY CRUSHER (TRANSFORMER FOUNDATION)
ENGR. : HATCH
DRAWN BY : MARK
DATE : 23/OCT/2018

JOB NO. 18-042 | DWG. NO. 001 L




| SIZE | EP | BAR MARK | V | END TYP | CD | A | B | C | D | BENDING DIMENSIONS E | F/R | G | H | J | K | O |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 25M | | 25E3 | | T1 | | | 400 | 1617 | | | | | | | | |
| 25M | | 25E6 | | T1 | | | 400 | 1967 | | | | | | | | |
| 20M | | 20E1 | | T1 | | | 1000 | 432 | 1000 | | | | | | | |
| 20M | | 20E2 | | T1 | | | 1000 | 500 | 1000 | | | | | | | |
| 15M | | 15E4 | | T1 | | 140 | 570 | 570 | 570 | 570 | | 140 | | | | |
| 15M | | 15E5 | | T1 | | 140 | 233 | 570 | 233 | 570 | | 140 | | | | |
| 15M | | 15E7 | | T1 | | 140 | 420 | 420 | 420 | 420 | | 140 | | | | |
| 15M | | 15E8 | | T1 | | 140 | 183 | 420 | 183 | 420 | | 140 | | | | |
| 15M | | 15E9 | | T1 | | | 200 | 3500 | 200 | | | | | | | |
| 15M | | 15E10 | | T1 | | | 200 | 2700 | 200 | | | | | | | |
| 15M | | 15E11 | | T1 | | | 200 | 1100 | 200 | | | | | | | |

(17) (T1)

**HATCH Vendor/Contractor Document Review**

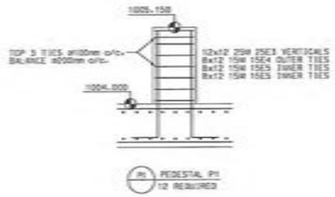
| | | | |
|---|---|---|---|
| Doc Number | E354138-CB201-230-270-0011 | SUB | 02 |
| Date Received | 2018-09-18 | | |

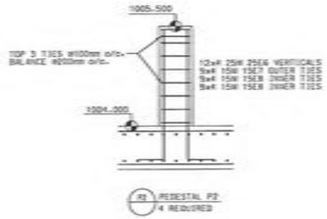
| Review Grade | Next Submittal Status |
|---|---|
| ☐ C1 - Proceed to next submission & status<br>☐ C2 - Proceed with exceptions as noted to next submission & status | ☐ Certified<br>☐ As-Built |
| ☐ C3 - Do not proceed. Revise as noted & resubmit | ☐ Internal Review<br>☐ Certified/☐ As-Built |
| Next Submittal Date: | |

☒ C4 - No further submission required - Complete (select status below)
☐ Certified Final ☒ Final ☐ Cancelled ☐ Superseded

Package Engineer: Name, signature and date
ESBA AKINCI, EA Sep 21, 2018

Reviewed only for general conformity with the specifications. Acceptance by the engineer does not warrant or represent that the information contained on this drawing/document is either accurate or complete. The sole responsibility for correct design, details & dimensions shall remain with the party submitting the drawing/document.




## GENERAL NOTES ON REINFORCEMENT

THE FOLLOWING NOTES SHALL APPLY TO ALL REINFORCEMENT SHOWN ON THE DRAWINGS UNLESS OTHERWISE NOTED.

**DIMENSIONS:**
DIMENSIONS TO REINFORCEMENT ARE TO CENTRE LINES OF BARS, EXCEPT WHERE CONCRETE COVER OR CLEARANCE BETWEEN BARS IS SHOWN.

**COVER:**
SEE STRUCTURAL ENGINEER TYPICAL NOTES FOR ALL COVER SPECIFICATIONS

**SPACING:**
UNLESS OTHERWISE SHOWN, THE FIRST AND LAST BARS IN SLABS AND WALLS, STIRRUPS IN BEAMS SHALL BE PLACED AT MAXIMUM OF HALF THE SPECIFIED SPACING OF ADJACENT BARS FROM THE END OF THE MEMBER.

**STEEL SPECIFICATIONS:**
STEEL REINFORCEMENT SHALL BE DEFORMED BARS OF GRADE 400 CONFORMING TO CSA STANDARDS G30.18 BILLET-STEEL BARS FOR CONCRETE REINFORCEMENT.

**WELDING:**
WELDING OF REINFORCEMENT SHALL NOT BE PERMITTED.

**SPLICES AND EMBEDMENTS:**
UNLESS OTHERWISE SPECIFIED, ALL EMBEDMENTS SHALL BE TREATED AS TENSION EMBEDMENTS AND ALL LAP SPLICES SHALL BE CONSIDERED AS TENSION LAP SPLICES.

WHEN REINFORCING BARS OF DIFFERENT SIZE ARE TO BE SPLICED, THE LENGTH OF THE LAP SHALL BE BASED ON THE DIAMETER OF THE SMALLER BAR.

SPLICES ARE TO BE MADE SO THAT THE GIVEN CLEAR DISTANCE COVER WILL BE MAINTAINED.

LAP LENGTHS UNLESS SHOWN OTHERWISE:

| | HORZ | OTHER |
|---|---|---|
| 10M | 520 | 400 |
| 15M | 775 | 595 |
| 20M | 1030 | 790 |
| 25M | 1615 | 1240 |
| 30M | 1940 | 1485 |
| 35M | | |

**PLACEMENT:**
PLACE REINFORCING STEEL IN ACCORDANCE WITH CSA CAN3-A23.1-M.

REINFORCEMENT MAY BE DISPLACED TO CLEAR PIPES, RECESSES, EMBEDDED METAL WORKS AND CONDUITS.

A MINIMUM CLEARANCE OF 1" SHALL BE MAINTAINED BETWEEN REINFORCEMENT AND EMBEDDED MATERIALS. THE MINIMUM CLEARANCE BETWEEN REINFORCEMENT

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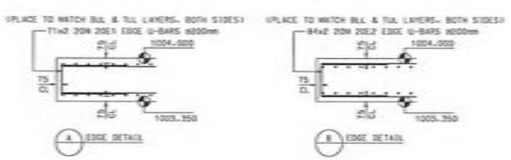


@ - SPACING CENTER TO CENTER
- DIRECTION IN WHICH BARS EXTEND
- LIMITS OF AREA COVERED BY BARS
- REBAR TOP/NEAR FACE
- REBAR BOT/FAR FACE

I.F. - INSIDE FACE
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F.F. - FAR FACE
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F.B. - FIELD BEND
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T.O.F. - TOP OF FOOTING
B.O.W. - BOTTOM OF WALL
T.O.C. - TOP OF CONCRETE
B.O.C. - BOTTOM OF CONCRETE
ELEV. - ELEVATION

| PREFIX | E |
|---|---|
| TRANS. NOS. | 6-1 |

PRINT RECORD

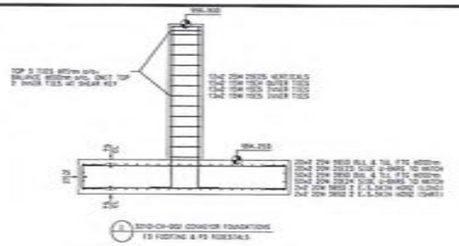
| NO. | REVISION | DATE | TO | FOR | DATE |
|---|---|---|---|---|---|
| C2 | REVIEW | SEP 11/18 | TC | C | A 04/SEP/18 |

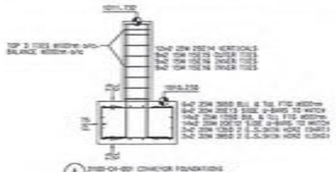
MCNISH STEEL LTD.
10636 - 205 STREET
EDMONTON, ALBERTA
PHONE 447-3337 FAX 447-3379

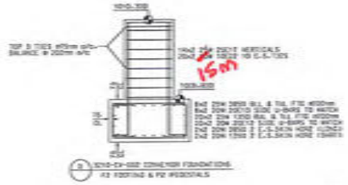
# REINFORCING STEEL PLACING PLAN

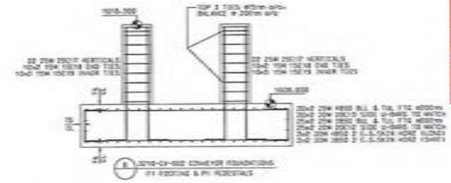
PROJECT : STRATAGOLD (CAGE GOLD PROJECT)
CONTR. : CLARK BUILDERS
DWG.OF : COARSE ORE RECLAIM (TRANSFER TOWER T3-1)
ENGR. : HATCH
DRAWN BY : WARK
DATE : 04/SEP/2018

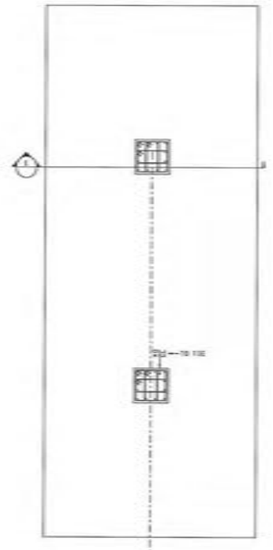
JOB NO. 18-042 | DWG. NO. 005 A



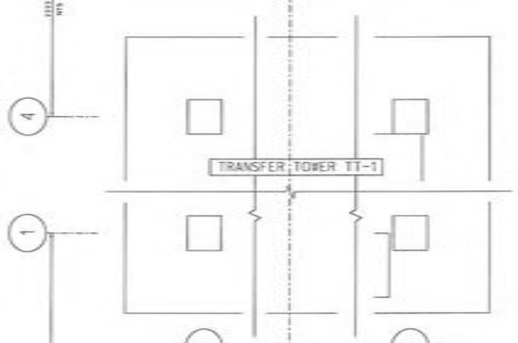


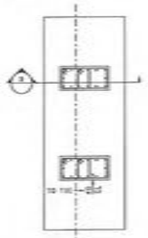


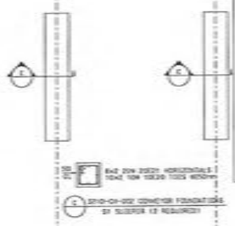


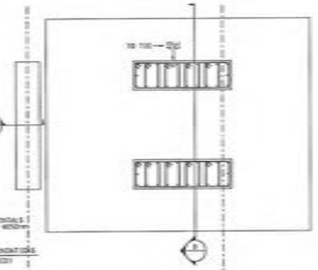


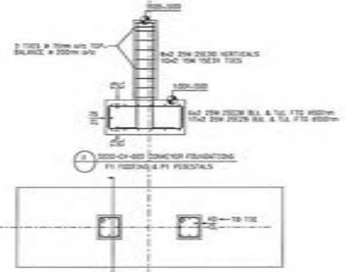


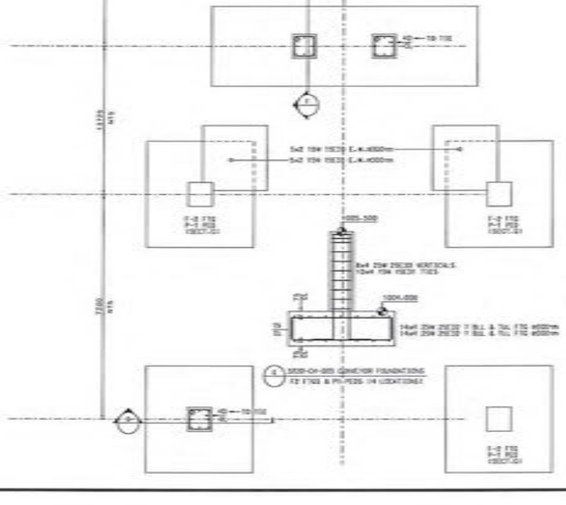


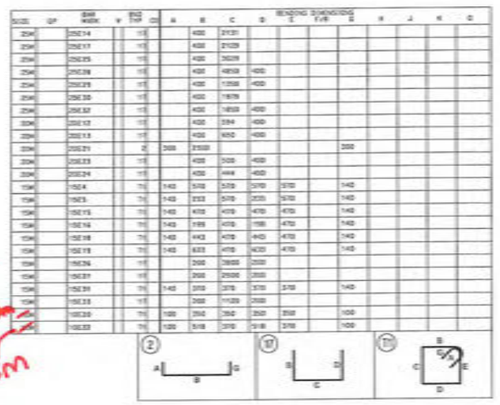
















| SIZE | QP | BAR MARK | V | BND TYP | CD | A | B | C | D | BENDING DIMENSIONS E | F | G | H | J | K | O |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 25M | | 25E14 | | 15 | | | 400 | 2131 | | | | | | | | |
| 25M | | 25E17 | | 15 | | | 400 | 2129 | | | | | | | | |
| 25M | | 25E35 | | 15 | | | 400 | 3529 | | | | | | | | |
| 25M | | 25E38 | | 15 | | | 400 | 4858 | 400 | | | | | | | |
| 25M | | 25E29 | | 15 | | | 400 | 1358 | 400 | | | | | | | |
| 25M | | 25E30 | | 15 | | | 400 | 1979 | | | | | | | | |
| 25M | | 25E32 | | 15 | | | 400 | 1458 | 400 | | | | | | | |
| 25M | | 25E12 | | 15 | | | 400 | 284 | 400 | | | | | | | |
| 25M | | 25E15 | | 15 | | | 400 | 650 | 400 | | | | | | | |
| 25M | | 25E21 | | 8 | | 300 | 2100 | | | | | 300 | | | | |
| 25M | | 25E23 | | 15 | | | 400 | 505 | 400 | | | | | | | |
| 25M | | 25E24 | | 15 | | | 400 | 444 | 400 | | | | | | | |
| 15M | | 15E4 | | 75 | | 140 | 570 | 570 | 570 | 570 | | 140 | | | | |
| 15M | | 15E5 | | 75 | | 140 | 233 | 570 | 233 | 570 | | 140 | | | | |
| 15M | | 15E15 | | 75 | | 140 | 455 | 470 | 470 | 470 | | 140 | | | | |
| 15M | | 15E16 | | 75 | | 140 | 195 | 470 | 788 | 470 | | 140 | | | | |
| 15M | | 15E18 | | 75 | | 140 | 443 | 470 | 643 | 470 | | 140 | | | | |
| 15M | | 15E19 | | 75 | | 140 | 633 | 470 | 920 | 470 | | 140 | | | | |
| 15M | | 15E34 | | 15 | | | 200 | 2600 | 200 | | | | | | | |
| 15M | | 15E31 | | 15 | | | 200 | 2500 | 200 | | | | | | | |
| 15M | | 15E39 | | 75 | | 140 | 200 | 370 | 370 | 370 | | 140 | | | | |
| 15M | | 15E33 | | 15 | | | 200 | 1120 | 200 | | | | | | | |
| 15M | | 10E20 | | 75 | | 100 | 250 | 350 | 250 | 350 | | 100 | | | | |
| 15M | | 10E33 | | 75 | | 100 | 518 | 370 | 518 | 370 | | 100 | | | | |

| | |
|---|---|
| B-L-L- | BOTTOM LOWER LAYER |
| B-U-L- | BOTTOM UPPER LAYER |
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| M-U-L- | MID UPPER LAYER |
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| BNT. | BENT |

| | |
|---|---|
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| | - DIRECTION IN WHICH BARS EXTEND |
| | - LIMITS OF AREA CONCRETE BY BARS |
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| - - - - | - REBAR BOT/FAR FACE |
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| O.F. | - OUTSIDE FACE |
| N.F. | - NEAR FACE |
| F.F. | - FAR FACE |
| E.W. | - EACH WAY |
| VERT | - VERTICAL |
| HORIZ | - HORIZONTAL |
| DWLS | - DOWELS |
| FTG | - FOOTING |
| COL | - COLUMN |

| | |
|---|---|
| BOT | - BOTTOM |
| TOP | - TOP |
| T&B | - TOP & BOTTOM |
| L-R | - LEFT TO RIGHT |
| B-T | - BOTTOM TO TOP |
| C.B. | - CORNER BAR |
| T.O.H. | - TYPICAL OPPOSITE HAND |
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| F.B. | - FIELD BEND |
| C.I.F. | - CUT IN FIELD |
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| T.O.F. | - TOP OF FOOTING |
| B.O.W. | - BOTTOM OF WALL |
| T.O.C. | - TOP OF CONCRETE |
| B.O.C. | - BOTTOM OF CONCRETE |
| ELEV. | - ELEVATION |

## GENERAL NOTES ON REINFORCEMENT

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**STEEL SPECIFICATIONS:**
STEEL REINFORCEMENT SHALL BE DEFORMED BARS OF GRADE 400 CONFORMING TO CSA STANDARDS G30.12 BILLET-STEEL BARS FOR CONCRETE REINFORCEMENT.

**WELDING:**
WELDING OF REINFORCEMENT SHALL NOT BE PERMITTED.

**SPLICES AND EMBEDMENTS:**
UNLESS OTHERWISE SPECIFIED, ALL EMBEDMENTS SHALL BE TREATED AS TENSION EMBEDMENTS AND ALL LAP SPLICES SHALL BE CONSIDERED AS TENSION LAP SPLICES.

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LAP LENGTHS UNLESS SHOWN OTHERWISE:

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|---|---|---|
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HATCH Vendor/Contractor Document Review

| | | | |
|---|---|---|---|
| Doc Number | E354138-CB201-230-270-0013 | SUB | 01 |
| Date Received | 2018-09-18 | | |

| Review Grade | Next Submittal Status |
|---|---|
| ☐ C1 - Proceed to next submission & status | ☐ Certified |
| ☑ C2 - Proceed with exceptions as noted to next submission & status | ☐ As-Built |
| ☐ C3 - Do not proceed. Revise as noted & resubmit | ☐ Internal Review |
| Next Submittal Date: | ☐ Certified/☐ As-Built |

☐ C4 - No further submission required - Complete (select status below)
☐ Certified Final ☐ Final ☐ Cancelled ☐ Superseded

Package Engineer: Name, signature and date
ZSBA AKINCI, EA Sept 11, 2018

Reviewed only for general conformity with the Specifications. Acceptance by the engineer does not warrant or represent that the information contained on this drawing/document is either accurate or complete. The sole responsibility for correct design, details & dimensions shall remain with the party submitting the drawing/document.

| PREFIX | E |
|---|---|
| TRANS-NOS. | 6-3 |

PRINT RECORD

| NO. | REVISION | DATE | TC | C | A | DATE |
|---|---|---|---|---|---|---|
| | | | | | | |

MCNISH STEEL LTD.
10636 - 205 STREET
EDMONTON, ALBERTA
PHONE 447-3337 FAX 447-3379

REINFORCING STEEL PLACING PLAN

PROJECT : STRATAGOLD (EAGLE GOLD PROJECT)
CONTR. : CLARK BUILDERS
DWG.OF : COARSE ORE RECLAIM (CONVEYOR FOUNDATIONS)
ENGR. : HATCH
DRAWN BY : MARK
DATE : 04/SEP/2018

JOB NO. 18-042 | DWG. NO. 005 B

McNISH STEEL

10636-205 Street Edmonton, Alberta T5S 1Z1
Phone 780.447.3337 | mcnishsteel.com

To: STRATAGOLD EAGLE
MAYO, YT

Transmittal: 2.1
Job Name: STRATAGOLD EAGLE

Location: MAYO, YT
Job Number: 18-042
Sales Order:
Sent Via: Email

Attn: JACKSON

| Drawing | Description | Rev | Qty | Reason Sent | Date Sent |
|---|---|---|---|---|---|
| 002 A | SECONDARY CRUSHER (BASE FTG) | 1 | 1 | Revised | 6/24/2018 |
| 002 B | SECONDARY CRUSHER (WALL DWLS & PEDS | 1 | 1 | Revised | 6/24/2018 |
| 002 C | SECONDARY CRUSHER (WALLS & COLUMNS) | 1 | 1 | Revised | 6/24/2018 |

Note:

**HATCH Vendor/Contractor Document Review**

| | | | |
|---|---|---|---|
| Doc Number | E354138-CB201-230-260-0002 | SUB | 02 |
| Date Received | 2018-06-25 | | |

| Review Grade | Next Submittal Status |
|---|---|
| ☒ C1 - Proceed to next submission & status<br>☐ C2 - Proceed with exceptions as noted to next submission & status | ☐ Certified<br>☐ As-Built |
| ☐ C3 - Do not proceed. Revise as noted & resubmit | ☐ Internal Review |
| Next Submittal Date: | ☐ Certified/☐ As-Built |
| ☐ C4 - No further submission required - Complete (select status below)<br>☐ Certified Final ☐ Final ☐ Cancelled ☐ Superseded | |

Package Engineer: Name, signature and date
ESRA AKINCI, ZA, JUNE 28, 2018

Reviewed only for general conformity with the specifications. Acceptance by the engineer does not warrant or represent that the information contained on this drawing/document is either accurate or complete. The sole responsibilty for correct design, details & dimensions shall remain with the party submitting the drawing/document.

By: Mark Tillmanns

Signature: _____

Received: _____



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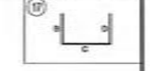
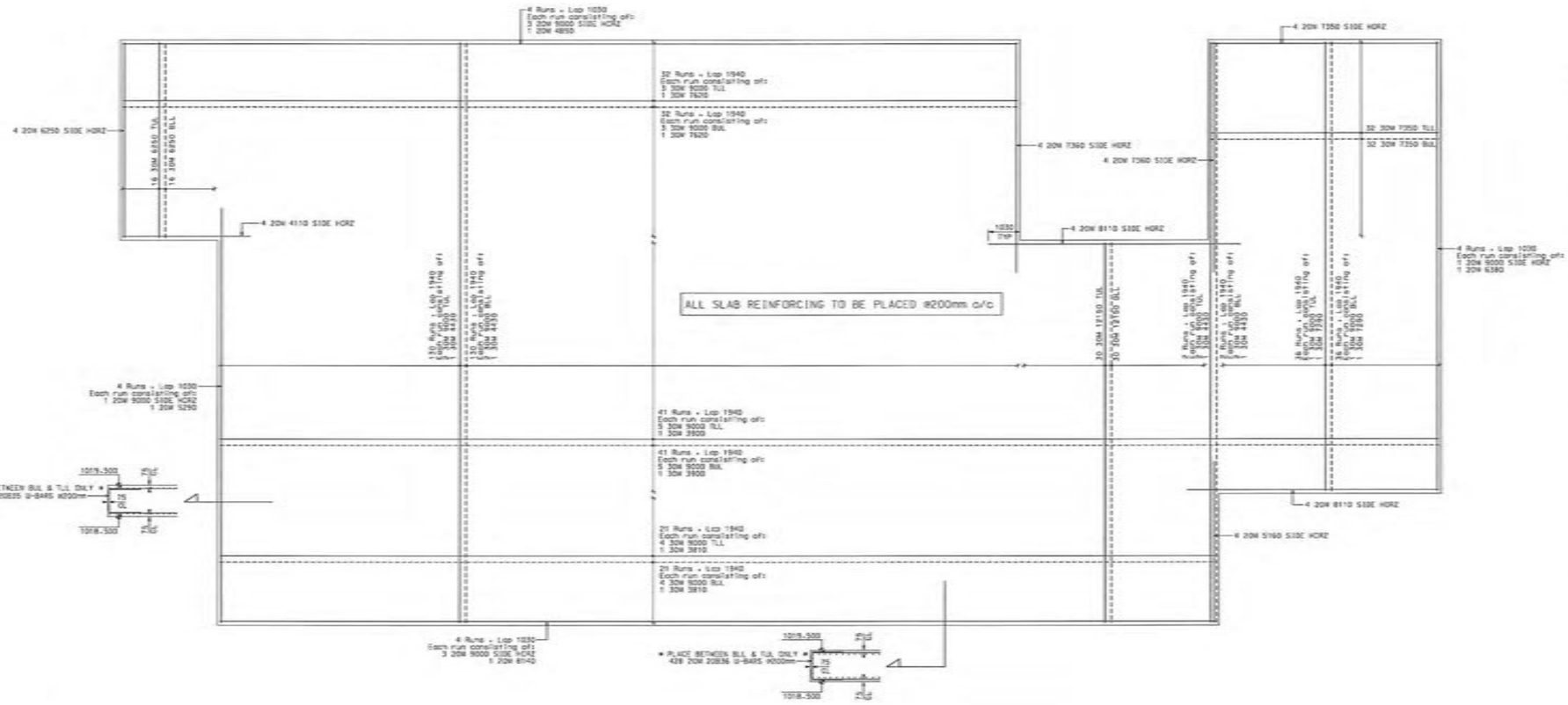
| SIZE | EP | BAR MARK | V | BAR TYP | CD | BENDING DIMENSIONS A | B | C | D | E | F/R | G | H | J | K | O |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 20M | | 20B35 | | 17 | | | 1000 | 782 | 1000 | | | | | | | |
| 20M | | 20B36 | | 17 | | | 1000 | 850 | 1000 | | | | | | | |

17




1 2 3 4 5 6 6.8 7

A A.3 B B.7 C D E




## A.5 GENERAL NOTES ON REINFORCEMENT

THE FOLLOWING NOTES SHALL APPLY TO ALL REINFORCEMENT SHOWN ON THE DRAWINGS UNLESS OTHERWISE NOTED.

**DIMENSIONS:**
DIMENSIONS TO REINFORCEMENT ARE TO CENTRE LINES OF BARS, EXCEPT WHERE CONCRETE COVER OR CLEARANCE BETWEEN BARS IS SHOWN.

**COVER:**
SEE STRUCTURAL ENGINEER TYPICAL NOTES FOR ALL COVER SPECIFICATIONS

**SPACING:**
UNLESS OTHERWISE SHOWN, THE FIRST AND LAST BARS IN SLABS AND WALLS, STIRRUPS IN BEAMS SHALL BE PLACED AT MAXIMUM OF HALF THE SPECIFIED SPACING OF ADJACENT BARS FROM THE END OF THE MEMBER.

**STEEL SPECIFICATIONS:**
STEEL REINFORCEMENT SHALL BE DEFORMED BARS OF GRADE 400 CONFORMING TO CSA STANDARDS G30.12 BILLET-STEEL BARS FOR CONCRETE REINFORCEMENT.

**WELDING:**
WELDING OF REINFORCEMENT SHALL NOT BE PERMITTED.

**SPLICES AND EMBEDMENTS:**
UNLESS OTHERWISE SPECIFIED. ALL EMBEDMENTS SHALL BE TREATED AS TENSION EMBEDMENTS AND ALL LAP SPLICES SHALL BE CONSIDERED AS TENSION LAP SPLICES.

WHEN REINFORCING BARS OF DIFFERENT SIZE ARE TO BE SPLICED, THE LENGTH OF THE LAP SHALL BE BASED ON THE DIAMETER OF THE SMALLER BAR.

SPLICES ARE TO BE MADE SO THAT THE GIVEN CLEAR DISTANCE COVER WILL BE MAINTAINED.

LAP LENGTHS UNLESS SHOWN OTHERWISE:

| | HORZ | OTHER |
|---|---|---|
| 10M | 520 | 400 |
| 15M | 775 | 595 |
| 20M | 1030 | 790 |
| 25M | 1615 | 1240 |
| 30M | 1940 | 1485 |
| 35M | | |

**PLACEMENT:**
PLACE REINFORCING STEEL IN ACCORDANCE WITH CSA CAN3-A23.1-M.

REINFORCEMENT MAY BE DISPLACE TO CLEAR PIPES, RECESSES, EMBEDDED METAL WORKS AND CONDUITS.

A MINIMUM CLEARANCE OF 1" SHALL BE MAINTAINED BETWEEN REINFORCEMENT AND EMBEDDED MATERIALS. THE MINIMUM CLEARANCE BETWEEN REINFORCEMENT

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THE FULL INTENT AND PURPOSE OF THESE DRAWINGS IS PLACING OF REINFORCING STEEL BARS ONLY. IT IS NOT TO BE USED AS A MEANS OF COMMUNICATION BETWEEN THE ARCHITECT, ENGINEER, CONTRACTOR OR ANY OTHER SUBTRADE.

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| | |
|---|---|
| B | - SPACING CENTER TO CENTER |
| | - DIRECTION IN WHICH BARS EXTEND |
| | - LIMITS OF AREA COVERED BY BARS |
| ——— | - REBAR TOP/NEAR FACE |
| ----- | - REBAR BOT/FAR FACE |
| I.F. | - INSIDE FACE |
| O.F. | - OUTSIDE FACE |
| N.F. | - NEAR FACE |
| F.F. | - FAR FACE |
| E.W. | - EACH WAY |
| VERT | - VERTICAL |
| HORZ | - HORIZONTAL |
| DWLS | - DOWELS |
| FTG | - FOOTING |
| COL | - COLUMN |
| B-L-L. | - BOTTOM LOWER LAYER |
| B-U-L. | - BOTTOM UPPER LAYER |
| W-L-L. | - W/D LOWER LAYER |
| W-U-L. | - W/D UPPER LAYER |
| T-L-L. | - TOP LOWER LAYER |
| T-U-L. | - TOP UPPER LAYER |
| E.R. | - EACH ROW |
| BNT. | - BENT |
| BOT | - BOTTOM |
| TOP | - TOP |
| T&B | - TOP & BOTTOM |
| L-R | - LEFT TO RIGHT |
| B-T | - BOTTOM TO TOP |
| C-B. | - CORNER BAR |
| T.O.H. | - TYPICAL OPPOSITE HAND |
| R/L | - FROM RIGHT TO LEFT |
| F.B. | - FIELD BEND |
| C.I.F. | - CUT IN FIELD |
| T.O.W. | - TOP OF WALL |
| T.O.F. | - TOP OF FOOTING |
| B.O.W. | - BOTTOM OF WALL |
| T.O.C. | - TOP OF CONCRETE |
| B.O.C. | - BOTTOM OF CONCRETE |
| ELEV. | - ELEVATION |

PREFIX B
TRANS. NOS. 2-1

PRINT RECORD

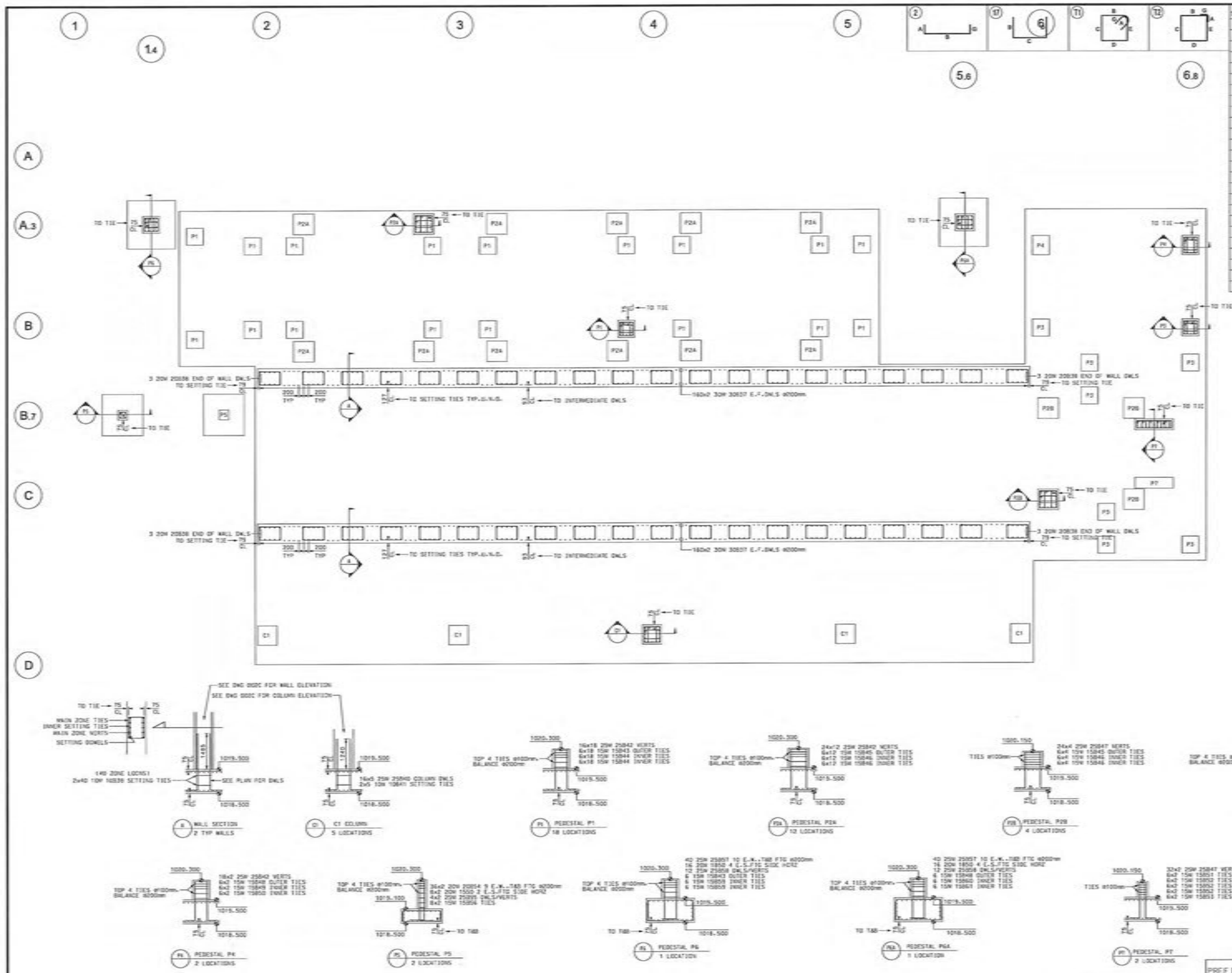
| NO. | REVISION | DATE | TO | FOR | DATE |
|---|---|---|---|---|---|
| | | | TC | C A | 12/JUN/18 |
| | E2 REVIEW | JUN 18/18 | | | |

MCNISH STEEL LTD.
10636 - 205 STREET
EDMONTON, ALBERTA
PHONE 447-3337 FAX 447-3379

# REINFORCING STEEL PLACING PLAN

PROJECT : STRATAGOLD (EAGLE GOLD PROJECT)
CONTR. : CLARK BUILDERS
DWG.OF : SECONDARY CRUSHER (BASE FOOTING)
ENGR. : HATCH
DRAWN BY : MMM DATE : 12/JUN/2018

JOB NO. 18-042 DWG. NO. 002 A




| SIZE | EP | BAR MARK | N | BND TYP | CD | A | B | C | D | E | F | G | H | J | K | O |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 30M | | 30B37 | | 2 | | 500 | 2376 | | | | | | | | | |
| 25M | | 25B40 | | 2 | | 400 | 2139 | | | | | | | | | |
| 25M | | 25B42 | | 2 | | 400 | 1617 | | | | | | | | | |
| 25M | | 25B47 | | 2 | | 400 | 1467 | | | | | | | | | |
| 25M | | 25B55 | | 1T | | | 600 | 1641 | | | | | | | | |
| 25M | | 25B57 | | 1T | | | 750 | 1850 | 750 | | | | | | | |
| 25M | | 25B58 | | 2 | | 600 | 1629 | | | | | | | | | |
| 20M | | 20B36 | | 2 | | 300 | 1681 | | | | | | | | | |
| 20M | | 20B54 | | 1T | | | 350 | 1500 | 350 | | | | | | | |
| 15M | | 15B43 | | T1 | | 140 | 550 | 550 | 550 | 550 | | 140 | | | | |
| 15M | | 15B44 | | T1 | | 140 | 307 | 550 | 307 | 550 | | 140 | | | | |
| 15M | | 15B45 | | T1 | | 140 | 700 | 700 | 700 | 700 | | 140 | | | | |
| 15M | | 15B46 | | T1 | | 140 | 276 | 700 | 276 | 700 | | 140 | | | | |
| 15M | | 15B48 | | T1 | | 140 | 550 | 650 | 550 | 650 | | 140 | | | | |
| 15M | | 15B49 | | T1 | | 140 | 307 | 650 | 307 | 650 | | 140 | | | | |
| 15M | | 15B50 | | T1 | | 140 | 416 | 550 | 416 | 550 | | 140 | | | | |
| 15M | | 15B51 | | T1 | | 140 | 300 | 384 | 300 | 384 | | 140 | | | | |
| 15M | | 15B52 | | T1 | | 140 | 490 | 300 | 490 | 300 | | 140 | | | | |
| 15M | | 15B53 | | T1 | | 140 | 277 | 300 | 277 | 300 | | 140 | | | | |
| 15M | | 15B56 | | T1 | | 140 | 250 | 250 | 250 | 250 | | 140 | | | | |
| 15M | | 15B58 | | T1 | | 140 | 226 | 550 | 226 | 550 | | 140 | | | | |
| 15M | | 15B60 | | T1 | | 140 | 226 | 650 | 226 | 650 | | 140 | | | | |
| 15M | | 15B61 | | T1 | | 140 | 259 | 550 | 259 | 550 | | 140 | | | | |
| 10M | | 10B39 | | T2 | | 100 | 546 | 862 | 546 | 862 | | 100 | | | | |
| 10M | | 10B41 | | T2 | | 100 | 558 | 558 | 558 | 558 | | 100 | | | | |

## GENERAL NOTES ON REINFORCEMENT

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| | |
|---|---|
| @ | - SPACING CENTER TO CENTER |
| | - DIRECTION IN WHICH BARS EXTEND |
| | - LIMITS OF AREA COVERED BY BARS |
| ---- | - REBAR TOP/NEAR FACE |
| ---- | - REBAR BOT/FAR FACE |
| I.F. | - INSIDE FACE |
| O.F. | - OUTSIDE FACE |
| N.F. | - NEAR FACE |
| F.F. | - FAR FACE |
| E.W. | - EACH WAY |
| VERT | - VERTICAL |
| HORZ | - HORIZONTAL |
| DWLS | - DOWELS |
| FTG | - FOOTING |
| COL | - COLUMN |
| B-U-L- | - BOTTOM LOWER LAYER |
| B-U-U- | - BOTTOM UPPER LAYER |
| M-U-L- | - MID LOWER LAYER |
| M-U-U- | - MID UPPER LAYER |
| T-U-L- | - TOP LOWER LAYER |
| T-U-U- | - TOP UPPER LAYER |
| E.R. | - EACH ROW |
| BNT. | - BUNT |
| BOT | - BOTTOM |
| TOP | - TOP |
| T&B | - TOP & BOTTOM |
| L-R | - LEFT TO RIGHT |
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| T.O.A. | - TYPICAL OPPOSITE HAND |
| R/L | - FROM RIGHT TO LEFT |
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| B.O.W. | - BOTTOM OF WALL |
| T.O.C. | - TOP OF CONCRETE |
| B.O.C. | - BOTTOM OF CONCRETE |
| ELEV. | - ELEVATION |

PREFIX TRANS. NOS.: B 2.1

PRINT RECORD

| NO. | REVISION | DATE | TO | FOR | DATE |
|---|---|---|---|---|---|
| | C2 REVIEW | JUN 18/18 | C | A | 13/JUN/18 |

# REINFORCING STEEL PLACING PLAN

MCNISH STEEL LTD.
10636 - 205 STREET
EDMONTON, ALBERTA
PHONE 447-3337 FAX 447-3379

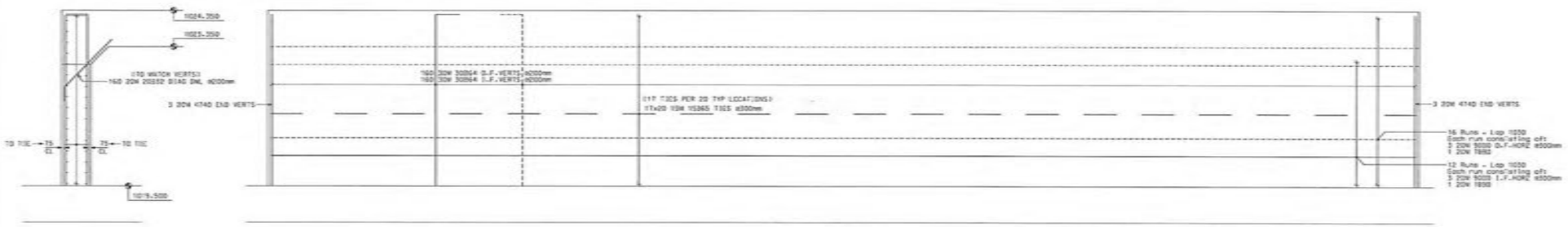
PROJECT : STRATAGOLD (EAGLE GOLD PROJECT)
CONTR. : CLARK BUILDERS
DWG./SF : SECONDARY CRUSHER (WALL/COLUMN DWLS & PEDESTALS)
ENGR. : HATCH
DRAWN BY : MARK
DATE : 12/JUN/2018

JOB NO. 18-042 | DWG. NO. 002 B

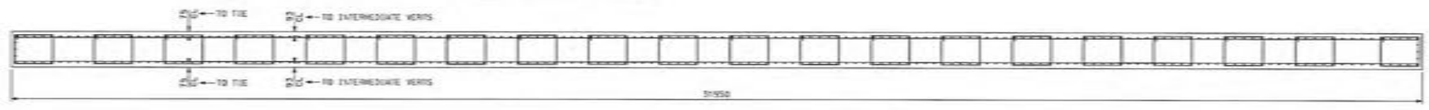
| SIZE | EP | BAR MARK | V | END TYP | CD | BENDING DIMENSIONS A | B | C | D | E | F,H | G | I | J | K | O |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 30M | | 30864 | | 11 | | | 600 | 4740 | | | | | | | | |
| 20M | | 20832 | | 3 | | | 1900 | 400 | | | | | 283 | | 283 | |
| 15M | | 15862 | | 71 | | 140 | 950 | 650 | 650 | 950 | | 140 | | | | |
| 15M | | 15863 | | 71 | | 140 | 357 | 650 | 357 | 950 | | 140 | | | | |
| 15M | | 15865 | | 71 | | 140 | 870 | 650 | 870 | 950 | | 140 | | | | |

3 | 17 | 11

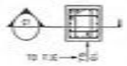
2 | 3 | 4 | 5 | 6

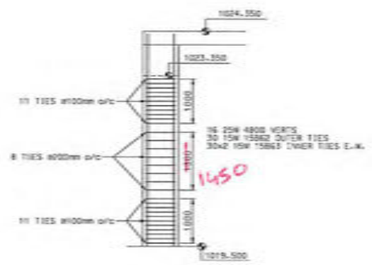



## 2 TYPICAL WALLS




C1 | C1 | C1 | C1




C1 C1 COLUMN
5 LOCATIONS

B-L.L. - BOTTOM LOWER LAYER
B.U.L. - BOTTOM UPPER LAYER
W.L.L. - WEB LOWER LAYER
W.U.L. - WEB UPPER LAYER
T.L.L. - TOP LOWER LAYER
T.U.L. - TOP UPPER LAYER
E.R. - EACH ROW
BWT. - BOAT

@ - SPACING CENTER TO CENTER
- DIRECTION IN WHICH BARS EXTEND
- LIMITS OF AREA COVERED BY BARS
- REBAR TOP/NEAR FACE
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I.F. - INSIDE FACE
O.F. - OUTSIDE FACE
N.F. - NEAR FACE
F.F. - FAR FACE
E.W. - EACH WAY
VERT - VERTICAL
HORZ - HORIZONTAL
DWLS - DOWELS
FTG - FOOTING
COL - COLUMN

BOT - BOTTOM
TOP - TOP
T&B - TOP & BOTTOM
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T.O.H. - TYPICAL OPPOSITE HAND
R/L - FROM RIGHT TO LEFT
F.B. - FIELD BEND
C.I.F. - CUT IN FIELD
T.O.W. - TOP OF WALL
T.O.F. - TOP OF FOOTING
B.O.W. - BOTTOM OF WALL
T.O.C. - TOP OF CONCRETE
B.O.C. - BOTTOM OF CONCRETE
ELEV. - ELEVATION

## GENERAL NOTES ON REINFORCEMENT

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| 15M | 775 | 595 |
| 20M | 1030 | 790 |
| 25M | 1615 | 1240 |
| 30M | 1940 | 1485 |
| 35M | | |

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PREFIX TRANS. NOS. B 2.1

PRINT RECORD

| NO. | REVISION | DATE | TO: C | FOR: A | DATE |
|---|---|---|---|---|---|
| C2 | REVISION | JUN 18/18 | | | 14/JUN/18 |

# REINFORCING STEEL PLACING PLAN

MCNISH STEEL LTD.
10636 - 205 STREET
EDMONTON, ALBERTA
PHONE 447-3337 FAX 447-3379

PROJECT : STRATHCOLD YEAGLE GOLD PROJECT
CONTR. : CLARK BUILDERS
DWG.OF : SECONDARY CRUSHER (WALLS & COLUMNS)
ENGR. : HATCH
DRAWN BY : MARK
DATE : 14/JUN/2018

JOB NO. 18-042 | DWG. NO. 002 C

McNISH STEEL

10636-205 Street Edmonton, Alberta T5S 1Z1
Phone 780.447.3337 | mcnishsteel.com

**To:** STRATAGOLD EAGLE
TEXT GARRY AT BASE OF ACCESS ROAD THAT YOU'RE ON YOUR WAY UP
MAYO, YT

**Transmittal:** 5.0
**Job Name:** STRATAGOLD EAGLE

**Location:** MAYO, YT
**Job Number:** 18-042
**Sales Order:**
**Sent Via:** Email

**Attn:** JACKSON/DUSTIN

| Drawing | Description | Rev | Qty | Reason Sent | Date Sent |
|---|---|---|---|---|---|
| 004 A | CONE CRUSH BLDG (STR & PAD FTGS) | | 1 | For Approval | 7/11/2018 |
| 004 B | CONE CRUSH BLDG (PEDS & GR.BEAMS) | | 1 | For Approval | 7/11/2018 |

**Note:**

HATCH Vendor/Contractor Document Review

| | | | |
|---|---|---|---|
| Doc Number | E354138-CB201-230-260-0006 | SUB | 01 |
| Date Received | 2018-07-13 | | |

| Review Grade | Next Submittal Status |
|---|---|
| ☐ C1 - Proceed to next submission & status<br>☒ C2 - Proceed with exceptions as noted to next submission & status | ☐ Certified<br>☐ As-Built |
| ☐ C3 - Do not proceed. Revise as noted & resubmit | ☐ Internal Review |
| Next Submittal Date: | ☐ Certified/☐ As-Built |

☐ C4 - No further submission required - Complete (select status below)
☐ Certified Final ☐ Final ☐ Cancelled ☐ Superseded

**Package Engineer:** Name, signature and date
ESRA AKINCI, EA, JULY 13, 2018

Reviewed only for general conformity with the specifications. Acceptance by the engineer does not warrant or represent that the information contained on this drawing/document is either accurate or complete. The sole responsibilty for correct design, details & dimensions shall remain with the party submitting the drawing/document.

**By:** Mark Tillmanns
**Signature:** _____
**Received:** _____


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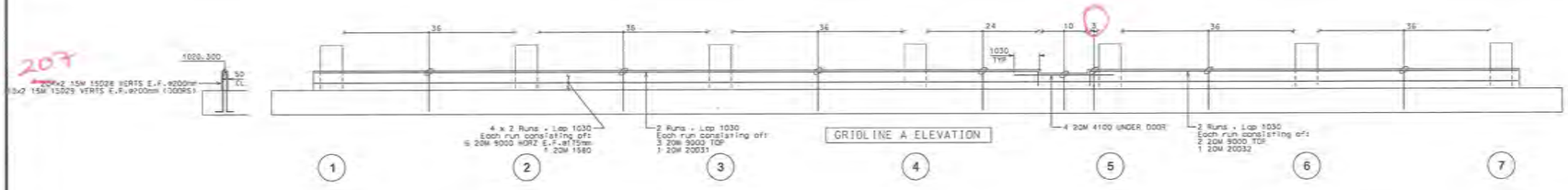
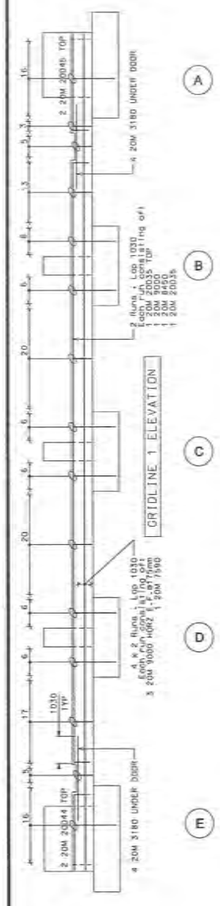
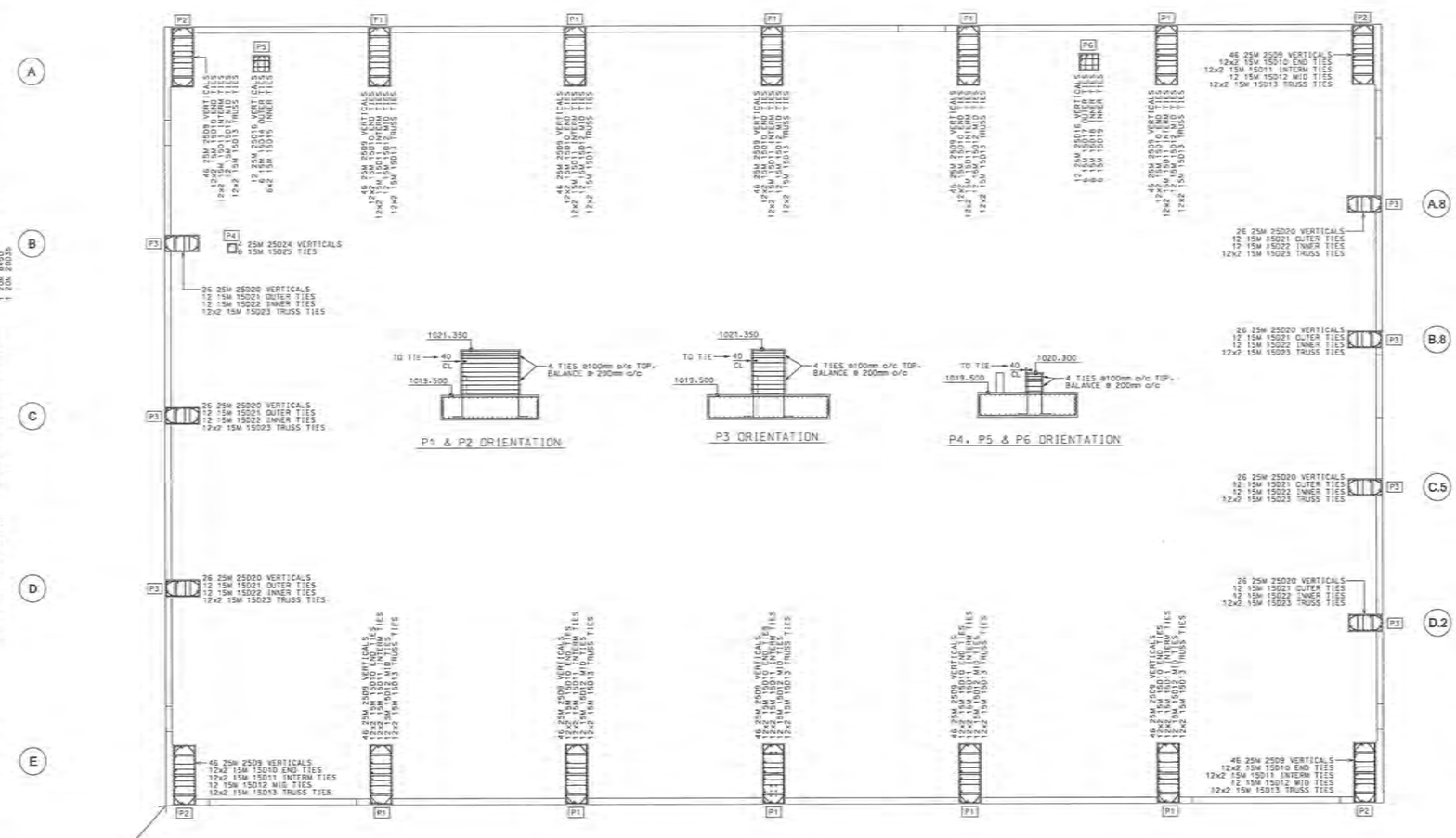
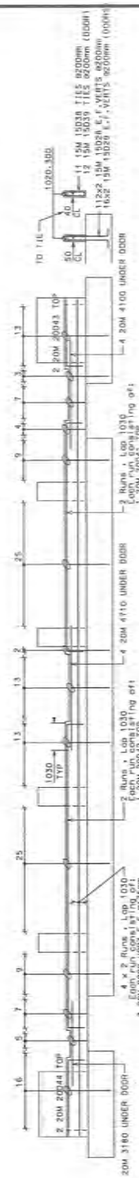
207

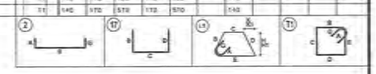



| SIZE | EP | BAR MARK | V | BAR TYP | CG | A | B | C | D | BENDING DIMENSIONS E | F | G | H | J | K | O |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 25M | | 25009 | | 17 | | | 400 | 2663 | | | | | | | | |
| 25M | | 25018 | | 17 | | | 400 | 1813 | | | | | | | | |
| 25M | | 25020 | | 17 | | | 400 | 2668 | | | | | | | | |
| 25M | | 25024 | | 17 | | | 400 | 1619 | | | | | | | | |
| 20M | | 20025 | | 17 | | | 600 | 1800 | | | | | | | | |
| 20M | | 20031 | | 17 | | | 600 | 5870 | | | | | | | | |
| 20M | | 20032 | | 17 | | | 600 | 3940 | | | | | | | | |
| 20M | | 20033 | | 17 | | | 1020 | 1330 | | | | | | | | |
| 20M | | 20034 | | 2 | | 300 | 1100 | | | | | | | | | |
| 20M | | 20035 | | 17 | | | 600 | 4160 | | | | | | | | |
| 20M | | 20041 | | 17 | | | 600 | 2660 | | | | | | | | |
| 20M | | 20042 | | 17 | | | 600 | 2565 | | | | | | | | |
| 20M | | 20043 | | 17 | | | 600 | 2530 | | | | | | | | |
| 20M | | 20044 | | 17 | | | 600 | 2940 | | | | | | | | |
| 20M | | 20045 | | 17 | | | 600 | 3940 | | | | | | | | |
| 20M | | 20046 | | 17 | | | 600 | 1600 | | | | | | | | |
| 15M | | 15010 | | 73 | | 140 | 1195 | 820 | 820 | | 140 | | | | | |
| 15M | | 15011 | | 73 | | 140 | 339 | 820 | 339 | 820 | | 140 | | | | |
| 15M | | 15012 | | 73 | | 140 | 471 | 820 | 471 | 820 | | 140 | | | | |
| 15M | | 15013 | | LR | | 140 | 420 | 289 | 410 | 820 | | 140 | 335 | 107 | 270 | |
| | | | | | | | | | | | | | 335 | 107 | 270 | |
| 15M | | 15014 | | 73 | | 140 | 692 | 820 | 820 | 820 | | 140 | | | | |
| 15M | | 15015 | | 73 | | 140 | 285 | 820 | 349 | 820 | | 140 | | | | |
| 15M | | 15017 | | 73 | | 140 | 722 | 820 | 739 | 820 | | 140 | | | | |
| 15M | | 15018 | | 73 | | 140 | 283 | 820 | 283 | 820 | | 140 | | | | |
| 15M | | 15019 | | 73 | | 140 | 249 | 720 | 249 | 720 | | 140 | | | | |
| 15M | | 15021 | | 73 | | 140 | 1320 | 820 | 1320 | 820 | | 140 | | | | |
| 15M | | 15022 | | 73 | | 140 | 343 | 820 | 345 | 820 | | 140 | | | | |
| 15M | | 15023 | | LR | | 140 | 315 | 320 | 358 | 820 | | 140 | 343 | 107 | 151 | |
| | | | | | | | | | | | | | 343 | 107 | 151 | |
| 15M | | 15025 | | 73 | | 140 | 320 | 320 | 320 | 320 | | 140 | | | | |
| 15M | | 15026 | | 73 | | | 300 | 1613 | | | | | | | | |
| 15M | | 15029 | | 73 | | | 300 | 1453 | | | | | | | | |
| 15M | | 15036 | | 73 | | 140 | 1118 | 720 | 1118 | 720 | | 140 | | | | |
| 15M | | 15037 | | 73 | | 140 | 970 | 870 | 970 | 870 | | 140 | | | | |




## GENERAL NOTES ON REINFORCEMENT

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**COVER:**
SEE STRUCTURAL ENGINEER TYPICAL NOTES FOR ALL COVER SPECIFICATIONS

**SPACING:**
UNLESS OTHERWISE SHOWN, THE FIRST AND LAST BARS IN SLABS AND WALLS, STIRRUPS IN BEAMS SHALL BE PLACED AT MAXIMUM OF HALF THE SPECIFIED SPACING OF ADJACENT BARS FROM THE END OF THE MEMBER.

**STEEL SPECIFICATIONS:**
STEEL REINFORCEMENT SHALL BE DEFORMED BARS OF GRADE 400 CONFORMING TO CSA STANDARDS G30.12 BILLET-STEEL BARS FOR CONCRETE REINFORCEMENT.

**WELDING:**
WELDING OF REINFORCEMENT SHALL NOT BE PERMITTED.

**SPLICES AND EMBEDMENTS:**
UNLESS OTHERWISE SPECIFIED, ALL EMBEDMENTS SHALL BE TREATED AS TENSION EMBEDMENTS AND ALL LAP SPLICES SHALL BE CONSIDERED AS TENSION LAP SPLICES.

WHEN REINFORCING BARS OF DIFFERENT SIZE ARE TO BE SPLICED, THE LENGTH OF THE LAP SHALL BE BASED ON THE DIAMETER OF THE SMALLER BAR.

SPLICES ARE TO BE MADE SO THAT THE GIVEN CLEAR DISTANCE COVER WILL BE MAINTAINED.

LAP LENGTHS UNLESS SHOWN OTHERWISE:

| | HORZ | OTHER |
|---|---|---|
| 10M | 520 | 400 |
| 15M | 775 | 595 |
| 20M | 1030 | 790 |
| 25M | 1615 | 1240 |
| 30M | 1940 | 1485 |
| 35M | | |

**PLACEMENT:**
PLACE REINFORCING STEEL IN ACCORDANCE WITH CSA CAN3-A23.1-M.

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THE FULL INTENT AND PURPOSE OF THESE DRAWINGS IS PLACING OF REINFORCING STEEL BARS ONLY. IT IS NOT TO BE USED AS A MEANS OF COMMUNICATION BETWEEN THE ARCHITECT, ENGINEER, CONTRACTOR OR ANY OTHER SUBTRADE.

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| | |
|---|---|
| @ | - SPACING CENTER TO CENTER |
| ⟷ | - DIRECTION IN WHICH BARS EXTEND |
| ⟷ | - LIMITS OF AREA COVERED BY BARS |
| ——— | - REBAR TOP/NEAR FACE |
| - - - | - REBAR BOT/FAR FACE |
| I.F. | - INSIDE FACE |
| O.F. | - OUTSIDE FACE |
| N.F. | - NEAR FACE |
| F.F. | - FAR FACE |
| E.W. | - EACH WAY |
| VERT | - VERTICAL |
| HORZ | - HORIZONTAL |
| DWLS | - DOWELS |
| FTG | - FOOTING |
| COL | - COLUMN |
| BOT | - BOTTOM |
| TOP | - TOP |
| T&B | - TOP & BOTTOM |
| L-R | - LEFT TO RIGHT |
| B-T | - BOTTOM TO TOP |
| C.B. | - CORNER BAR |
| T.O.W. | - TYPICAL OPPOSITE HAND |
| R/L | - FROM RIGHT TO LEFT |
| F.B. | - FIELD BEND |
| C.I.F. | - CUT IN FIELD |
| T.O.W. | - TOP OF WALL |
| T.O.F. | - TOP OF FOOTING |
| B.O.W. | - BOTTOM OF WALL |
| T.O.C. | - TOP OF CONCRETE |
| B.O.C. | - BOTTOM OF CONCRETE |
| ELEV. | - ELEVATION |

| | |
|---|---|
| B.L.L. | - BOTTOM LOWER LAYER |
| B.U.L. | - BOTTOM UPPER LAYER |
| M.L.L. | - MID LOWER LAYER |
| M.U.L. | - MID UPPER LAYER |
| T.L.L. | - TOP LOWER LAYER |
| T.U.L. | - TOP UPPER LAYER |
| E.R. | - EACH ROW |
| ENT. | - RENT |

| PREFIX | D |
|---|---|
| TRANS. NOS. | S-0 |

PRINT RECORD

| MK. | REVISION | DATE | NO. | TO | FOR | DATE |
|---|---|---|---|---|---|---|
| | | | 1C | C | A | 11/JUL/18 |

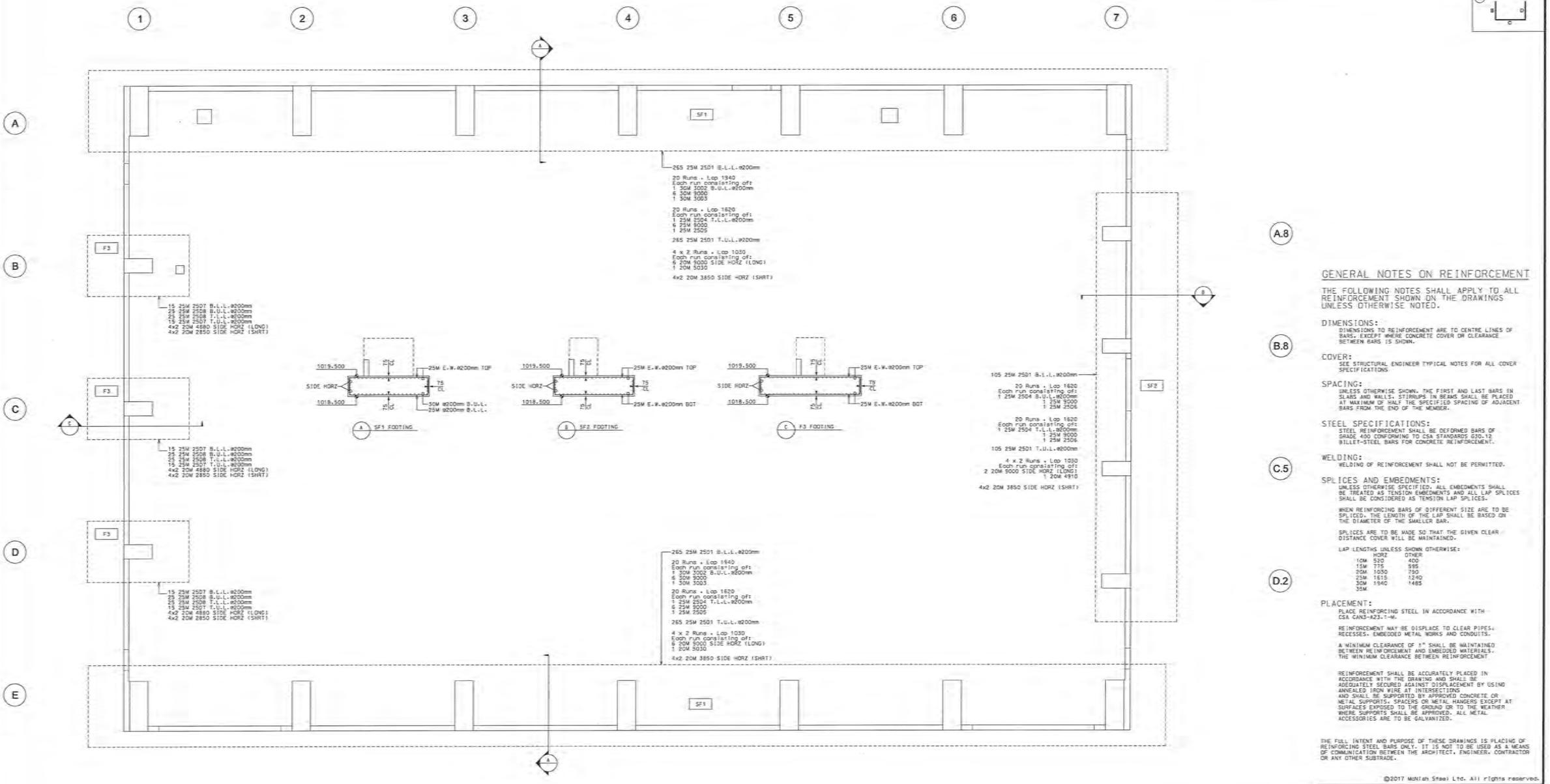
REINFORCING STEEL PLACING PLAN

MCNISH STEEL LTD.
10636 - 205 STREET
EDMONTON, ALBERTA
PHONE 447-3337 FAX 447-3379

| | |
|---|---|
| PROJECT | : STRATAGOLD (EAGLE GOLD PROJECT) |
| CONTR. | : CLARK BUILDERS |
| DWG.OF | : ZONE CRUSHING BLDG (PEDESTALS & GR.BEAMS) |
| ENGR. | : HATCH |
| DRAWN BY | : MARK |
| DATE | : 11/JUL/2018 |
| JOB NO. | 18-042 |
| DWG. NO. | 004 B |

| SIZE | EP | BAR MARK | V | END TYP | CD | BENDING DIMENSIONS A | B | C | D | E | F/R | G | H | J | K | D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 30M | | 3002 | | 17 | | | 750 | 8338 | | | | | | | | |
| 30M | | 3003 | | 17 | | | 750 | 4092 | | | | | | | | |
| 25M | | 2501 | | 17 | | | 750 | 3850 | 750 | | | | | | | |
| 25M | | 2504 | | 17 | | | 750 | 8313 | | | | | | | | |
| 25M | | 2505 | | 17 | | | 750 | 1877 | | | | | | | | |
| 25M | | 2506 | | 17 | | | 750 | 6777 | | | | | | | | |
| 25M | | 2507 | | 17 | | | 750 | 4850 | 750 | | | | | | | |
| 25M | | 2508 | | 17 | | | 750 | 2850 | 750 | | | | | | | |

17

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| | |
|---|---|
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| | - DIRECTION IN WHICH BARS EXTEND |
| | - LIMITS OF AREA COVERED BY BARS |
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| - - - - | - REBAR BOT/FAR FACE |
| I.F. | - INSIDE FACE |
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| N.F. | - NEAR FACE |
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| E.W. | - EACH WAY |
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| HORZ | - HORIZONTAL |
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| BOT | - BOTTOM |
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E.R. - EACH ROW
BNT. - BENT

PREFIX D
TRANS. NOS. 5.0

PRINT RECORD

| MK. | REVISION | DATE | NO. | TO. | FOR | DATE |
|---|---|---|---|---|---|---|
| | | | 1C | C | A | 11/JUL/18 |

REINFORCING STEEL PLACING PLAN

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10636 - 205 STREET
EDMONTON, ALBERTA
PHONE 447-3337 FAX 447-3379

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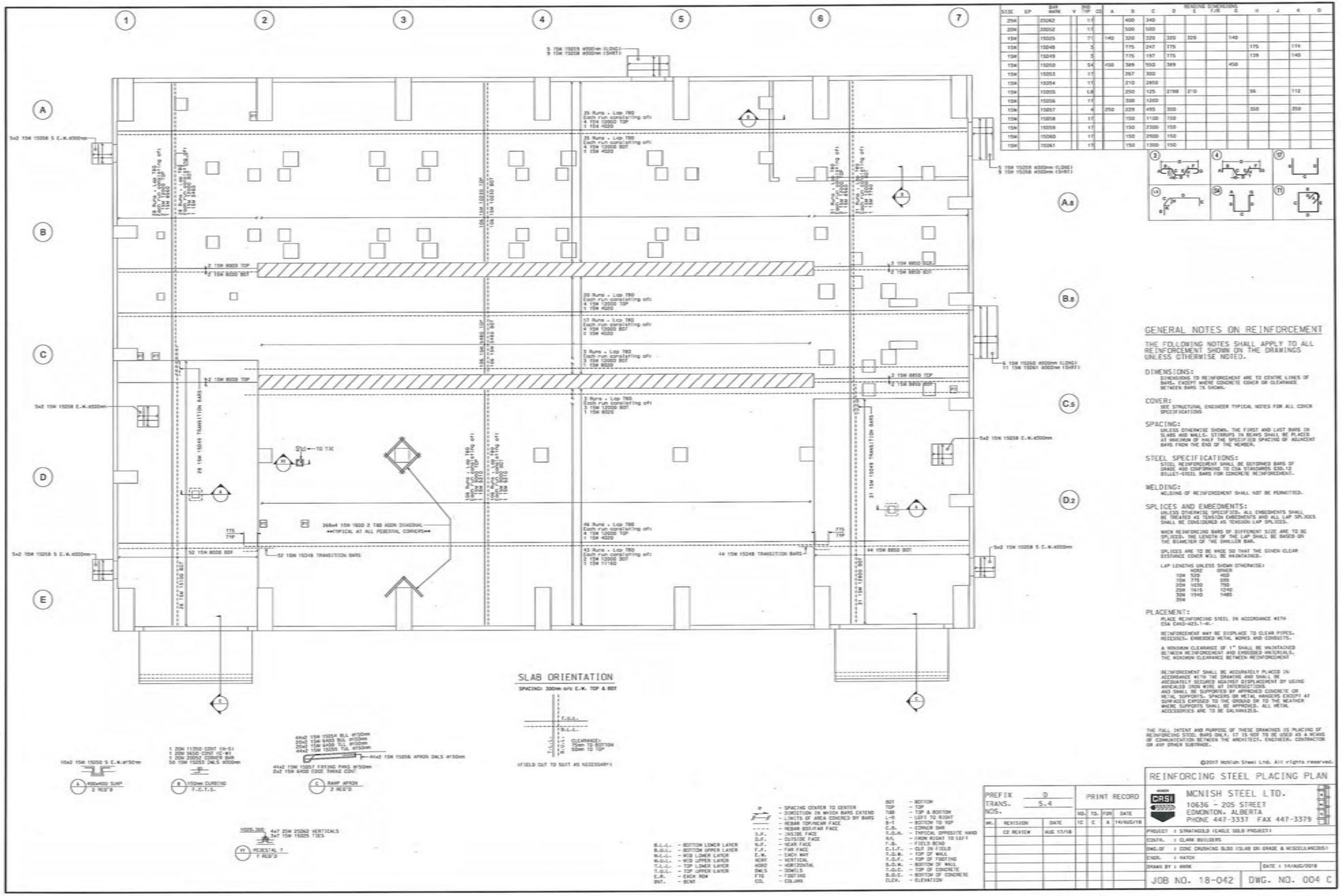
CONTR. : CLARK BUILDERS
DWG.OF : CONE CRUSHING BLDG (STRIP & PAD FOOTINGS)
ENGR. : HATCH
DRAWN BY : MARK
DATE : 11/JUL/2018

JOB NO. 18-042 | DWG. NO. 004 A




| SIZE | EP | BAR MARK | V | SHP TYP | OD | A | B | C | D | E | F/R | G | H | J | K | O |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 25M | | 25062 | | 11 | | | 400 | 340 | | | | | | | | |
| 20M | | 20052 | | 11 | | | 500 | 500 | | | | | | | | |
| 15M | | 15025 | | 11 | | 140 | 320 | 320 | 320 | 320 | | 140 | | | | |
| 15M | | 15048 | | 5 | | | 775 | 247 | 775 | | | | 175 | | 174 | |
| 15M | | 15049 | | 5 | | | 775 | 197 | 775 | | | | 139 | | 140 | |
| 15M | | 15050 | | 54 | | 450 | 389 | 550 | 389 | | | 450 | | | | |
| 15M | | 15053 | | 11 | | | 267 | 300 | | | | | | | | |
| 15M | | 15054 | | 11 | | | 210 | 2850 | | | | | | | | |
| 15M | | 15055 | | 68 | | | 250 | 125 | 2788 | 210 | | | 56 | | 112 | |
| 15M | | 15056 | | 11 | | | 300 | 1200 | | | | | | | | |
| 15M | | 15057 | | 4 | | 250 | 229 | 495 | 300 | | | | 350 | | 350 | |
| 15M | | 15058 | | 11 | | | 150 | 1100 | 150 | | | | | | | |
| 15M | | 15059 | | 11 | | | 150 | 2300 | 150 | | | | | | | |
| 15M | | 15060 | | 11 | | | 150 | 2900 | 150 | | | | | | | |
| 15M | | 15061 | | 11 | | | 150 | 1300 | 150 | | | | | | | |

3 4 17 14 34 11

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SLAB ORIENTATION
SPACING: 300mm o/c E.W. TOP & BOT
T.O.S.
B.L.C.
CLEARANCE:
75mm TO BOTTOM
50mm TO TOP
(FIELD CUT TO SUIT AS NECESSARY)

10x2 15M 15050 S E.W.@150mm
A 400x400 SUMP
2 REQ'D

1 20M 11350 CONT CH-SI
1 20M 9650 CONT CE-WI
1 20M 20052 CORNER BAR
59 15M 15053 DWLS @300mm
B 150mm CURBING
F.C.T.S.

4x2 15M 15054 BUL @150mm
20x2 15M 6400 BUL @150mm
20x2 15M 6400 TUL @150mm
44x2 15M 15055 TUL @150mm
44x2 15M 15057 FRYING PANS @150mm
2x2 15M 6400 EDGE SWING CONT
44x2 15M 15056 APRON DWLS @150mm
C RAMP APRON
2 REQ'D

1500x300 4x7 25M 25062 VERTICALS
3x7 15M 15025 TIES
P1 PEDESTAL 7
7 REQ'D

| | |
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| COL | - COLUMN |
| B.L.L. | - BOTTOM LOWER LAYER |
| B.U.L. | - BOTTOM UPPER LAYER |
| M.L.L. | - MID LOWER LAYER |
| M.U.L. | - MID UPPER LAYER |
| T.L.L. | - TOP LOWER LAYER |
| T.U.L. | - TOP UPPER LAYER |
| E.R. | - EACH ROW |
| BNT. | - BENT |
| BOT | - BOTTOM |
| TOP | - TOP |
| T&B | - TOP & BOTTOM |
| L-R | - LEFT TO RIGHT |
| B-T | - BOTTOM TO TOP |
| C.B. | - CORNER BAR |
| T.O.W. | - TYPICAL OPPOSITE HAND |
| R-L | - FROM RIGHT TO LEFT |
| F.B. | - FIELD BEND |
| C.I.F. | - CUT IN FIELD |
| T.O.W. | - TOP OF WALL |
| T.O.F. | - TOP OF FOOTING |
| B.O.W. | - BOTTOM OF WALL |
| T.O.C. | - TOP OF CONCRETE |
| B.O.C. | - BOTTOM OF CONCRETE |
| ELEV. | - ELEVATION |

| PREFIX TRANS. NOS. | D 5-4 |
|---|---|

| PRINT RECORD | NO. | TO | FOR | DATE |
|---|---|---|---|---|
| | 1C | C | A | 14/AUG/18 |

| NO. | REVISION | DATE |
|---|---|---|
| | C2 REVIEW | AUG 17/18 |

REINFORCING STEEL PLACING PLAN

MCNISH STEEL LTD.
10636 - 205 STREET
EDMONTON, ALBERTA
PHONE 447-3337 FAX 447-3379

PROJECT : STRATAGOLD (EAGLE GOLD PROJECT)
CONTR. : CLARK BUILDERS
DWG. OF : CONC CRUSHING BLDG (SLAB ON GRADE & MISCELLANEOUS)
ENGR. : HATCH
DRAWN BY : MARK
DATE : 14/AUG/2018

JOB NO. 18-042 | DWG. NO. 004 C

**HATCH** Vendor/Contractor Document Review

| Doc Number | E354138-CB201-230-260-0008 | SUB | 02 |
|---|---|---|---|
| Date Received | 2018-08-21 | | |

| Review Grade | Next Submittal Status |
|---|---|
| ☐ C1 - Proceed to next submission & status<br>☐ C2 - Proceed with exceptions as noted to next submission & status | ☐ Certified<br>☐ As-Built |
| ☐ C3 - Do not proceed. Revise as noted & resubmit | ☐ Internal Review<br>☐ Certified ☐ As-Built |
| Next Submittal Date: | |

☒ C4 - No further submission required - Complete (select status below)
☐ Certified Final ☐ Final ☐ Cancelled ☐ Superseded

Package Engineer: Name, signature and date
FSEA AKINCI, EA, Aug 22, 2018

Reviewed only for general conformity with the specifications. Acceptance by the engineer does not warrant or represent that the information contained on this drawing/document is either accurate or complete. The sole responsibility for correct design, details & dimensions shall remain with the party submitting the drawing/document.

DO NOT PLACE AT B6 BEAM LOCATIONS.
SEE B6 DETAILS FOR ALTERNATE (STRAIGHT) BAR

2S2 20M 20B32 SPLICE DWLS 4000mm

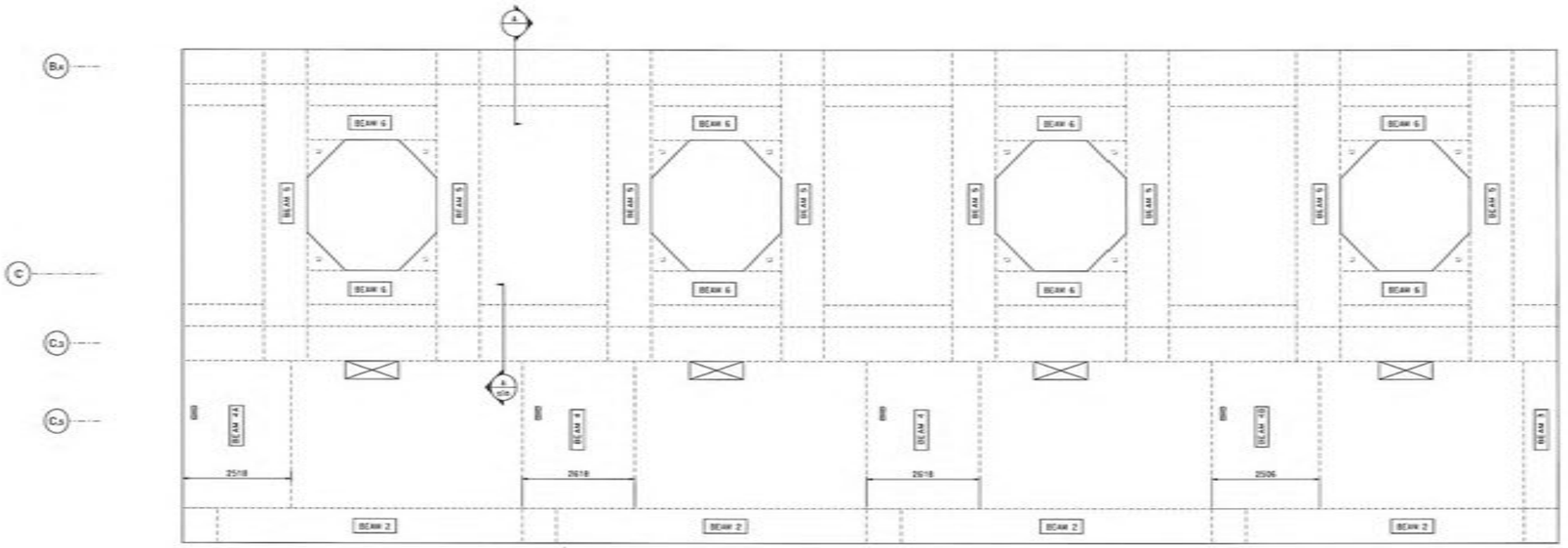
3 x 2 Runs - Lap 1620
Each run consisting of:
4 25M 9000 DIAG.HORZ
1 25M 2330

* 3 BARS PER 2 SIDES *

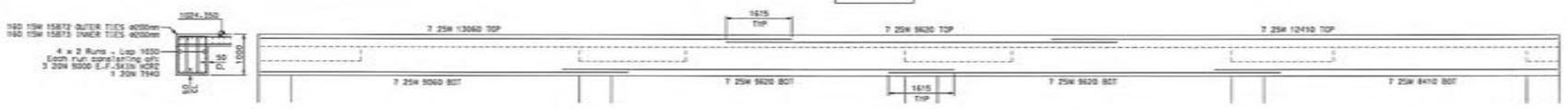
A DIAGONAL REINF.

| SIZE | EP | BAR MARK | # | END TYP | CD | BENDING DIMENSIONS A | B | C | D | E | F/R | G | H | J | K | O |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 20M | | 20B32 | | 3 | | | 19000 | 4000 | | | | | 2183 | | 2183 | |
| 15M | | 15B72 | | T1 | | 140 | 7000 | 5000 | 7000 | 5000 | | 140 | | | | |
| 15M | | 15B73 | | T1 | | 140 | 2176 | 5000 | 2176 | 5000 | | 140 | | | | |
| 15M | | 15B74 | | T1 | | 140 | 17000 | 550 | 17000 | 550 | | 140 | | | | |
| 15M | | 15B75 | | T1 | | 140 | 14996 | 550 | 14996 | 550 | | 140 | | | | |
| 15M | | 15B76 | | T1 | | 140 | 16333 | 550 | 16333 | 550 | | 140 | | | | |
| 15M | | 15B77 | | T1 | | 140 | 14337 | 550 | 14337 | 550 | | 140 | | | | |
| 15M | | 15B78 | | T1 | | 140 | 16625 | 550 | 16625 | 550 | | 140 | | | | |
| 15M | | 15B79 | | T1 | | 140 | 14330 | 550 | 14330 | 550 | | 140 | | | | |
| 15M | | 15B80 | | T1 | | 140 | 7000 | 550 | 7000 | 550 | | 140 | | | | |
| 15M | | 15B81 | | T1 | | 140 | 1191 | 550 | 1191 | 550 | | 140 | | | | |
| 15M | | 15B82 | | T1 | | 140 | 676 | 5000 | 676 | 5000 | | 140 | | | | |
| 15M | | 15B83 | | T1 | | 140 | 7440 | 844 | 7440 | 844 | | 140 | | | | |

3 — T1

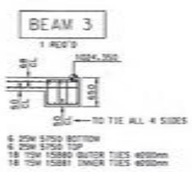



## BEAM 2



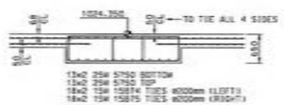

## BEAM 3

1 REQ'D



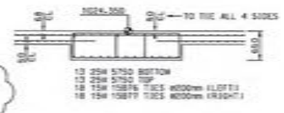

## BEAM 4

2 REQ'D



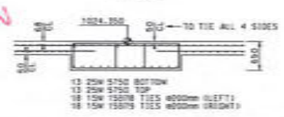

## BEAM 4A

1 REQ'D




## BEAM 4B

1 REQ'D

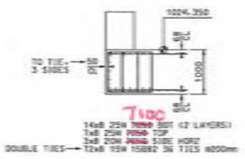



ENGINEER:
DOES THE B4/B3 BEAM HORZ PROJECT 1600mm PAST WALL SIMILAR TO SLAB PROJECTION SHOWN ON THE PLAN VIEW OR DOES IT STOP AT EDGE OF WALL

PAST WALL, SIMILAR TO SLAB PROJECTION

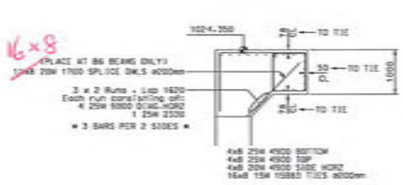
## BEAM 5

8 REQ'D




## BEAM 6

8 REQ'D




| | | |
|---|---|---|
| B-L.U. | - BOTTOM LOWER LAYER | |
| B-U.L. | - BOTTOM UPPER LAYER | |
| M.L.L. | - MID LOWER LAYER | |
| M.U.L. | - MID UPPER LAYER | |
| T-L.L. | - TOP LOWER LAYER | |
| T-U.L. | - TOP UPPER LAYER | |
| E.R. | - EACH ROW | |
| BNT. | - BENT | |

| | | |
|---|---|---|
| | - SPACING CENTER TO CENTER | |
| | - DIRECTION ON WHICH BARS EXTEND | |
| | - LIMITS OF AREA COVERED BY BARS | |
| | - REBAR TOP/NEAR FACE | |
| | - REBAR BOT/FAR FACE | |
| I.F. | - INSIDE FACE | |
| O.F. | - OUTSIDE FACE | |
| N.F. | - NEAR FACE | |
| F.F. | - FAR FACE | |
| E.W. | - EACH WAY | |
| VERT. | - VERTICAL | |
| HORZ | - HORIZONTAL | |
| DWLS | - DOWELS | |
| FTG | - FOOTING | |
| COL. | - COLUMN | |

| | | |
|---|---|---|
| BOT | - BOTTOM | |
| TOP | - TOP | |
| T&B | - TOP & BOTTOM | |
| L-R | - LEFT TO RIGHT | |
| B-T | - BOTTOM TO TOP | |
| C.B. | - CORNER BAR | |
| T.O.H. | - TYPICAL OPPOSITE HAND | |
| R/L | - FROM RIGHT TO LEFT | |
| F.B. | - FIELD BEND | |
| C.I.F. | - CUT IN FIELD | |
| T.O.W. | - TOP OF WALL | |
| T.O.F. | - TOP OF FOOTING | |
| B.O.W. | - BOTTOM OF WALL | |
| T.O.C. | - TOP OF CONCRETE | |
| B.O.C. | - BOTTOM OF CONCRETE | |
| ELEV. | - ELEVATION | |

E3S4138-C8201-230-260-0010 SUG01

| | | | | |
|---|---|---|---|---|
| Current Status | Preliminary ( ) | Internal Review ( ) | Certified ( ) | As Built ( ) |
| Next Status | | Internal Review ( ) | Certified ( ) | As Built ( ) |
| Review Grade | C1 ( ) Proceed to next submission and status. | C2 (X) Proceed with exceptions as noted to next submission and status. | C3 ( ) Do not proceed. Revise as noted and resubmit. | C4 ( ) Complete. No further submission required |

Reviewer only for general conformity with the drawings and specification. The Consulting Engineer does not warrant or represent that the information contained on this drawing is either accurate or complete. Data responsibility for correct design, details and dimensions shall remain with party submitting the drawing.

HATCH | Signature | Date AUG 23, 2018

Certified Final ( ) | Certified Final ( ) | Final ( )

## GENERAL NOTES ON REINFORCEMENT

THE FOLLOWING NOTES SHALL APPLY TO ALL REINFORCEMENT SHOWN ON THE DRAWINGS UNLESS OTHERWISE NOTED.

DIMENSIONS:
DIMENSIONS TO REINFORCEMENT ARE TO CENTRE LINES OF BARS, EXCEPT WHERE CONCRETE COVER OR CLEARANCE BETWEEN BARS IS SHOWN.

COVER:
SEE STRUCTURAL ENGINEER TYPICAL NOTES FOR ALL COVER SPECIFICATIONS

SPACING:
UNLESS OTHERWISE SHOWN, THE FIRST AND LAST BARS IN SLABS AND WALLS, STIRRUPS IN BEAMS SHALL BE PLACED AT MAXIMUM OF HALF THE SPECIFIED SPACING OF ADJACENT BARS FROM THE END OF THE MEMBER.

STEEL SPECIFICATIONS:
STEEL REINFORCEMENT SHALL BE DEFORMED BARS OF GRADE 400 CONFORMING TO CSA STANDARDS G30.12 BILLET-STEEL BARS FOR CONCRETE REINFORCEMENT.

WELDING:
WELDING OF REINFORCEMENT SHALL NOT BE PERMITTED.

SPLICES AND EMBEDMENTS:
UNLESS OTHERWISE SPECIFIED, ALL EMBEDMENTS SHALL BE TREATED AS TENSION EMBEDMENTS AND ALL LAP SPLICES SHALL BE CONSIDERED AS TENSION LAP SPLICES.

WHEN REINFORCING BARS OF DIFFERENT SIZE ARE TO BE SPLICED, THE LENGTH OF THE LAP SHALL BE BASED ON THE DIAMETER OF THE SMALLER BAR.

SPLICES ARE TO BE MADE SO THAT THE GIVEN CLEAR DISTANCE GIVEN WILL BE MAINTAINED.

LAP LENGTHS UNLESS SHOWN OTHERWISE:

| | HORZ | OTHER |
|---|---|---|
| 10M | 320 | 400 |
| 15M | 775 | 595 |
| 20M | 1030 | 790 |
| 25M | 1615 | 1240 |
| 30M | 1540 | 1485 |
| 35M | | |

PLACEMENT:
PLACE REINFORCING STEEL IN ACCORDANCE WITH CSA CAN3-A23.1-M.

REINFORCEMENT MAY BE DISPLACE TO CLEAR PIPES, RECESSES, EMBEDDED METAL WORKS AND CONDUITS.

A MINIMUM CLEARANCE OF 1" SHALL BE MAINTAINED BETWEEN REINFORCEMENT AND EMBEDDED MATERIALS. THE MINIMUM CLEARANCE BETWEEN REINFORCEMENT

REINFORCEMENT SHALL BE ACCURATELY PLACED IN ACCORDANCE WITH THE DRAWING AND SHALL BE ADEQUATELY SECURED AGAINST DISPLACEMENT BY USING ANNEALED IRON WIRE AT INTERSECTIONS AND SHALL BE SUPPORTED BY APPROVED CONCRETE OR METAL SUPPORTS. SPACERS OR METAL HANGERS EXCEPT AT SURFACES EXPOSED TO THE GROUND OR TO THE WEATHER WHERE SUPPORTS SHALL BE APPROVED. ALL METAL ACCESSORIES ARE TO BE GALVANIZED.

THE FULL INTENT AND PURPOSE OF THESE DRAWINGS IS PLACING OF REINFORCING STEEL BARS ONLY. IT IS NOT TO BE USED AS A MEANS OF COMMUNICATION BETWEEN THE ARCHITECT, ENGINEER, CONTRACTOR OR ANY OTHER SUBTRADE.

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# REINFORCING STEEL PLACING PLAN

| PREFIX | B |
|---|---|
| TRANS. NOS. | 2.4 |

PRINT RECORD

| WK. | REVISION | DATE | NO. | TO. | FOR | DATE |
|---|---|---|---|---|---|---|
| | | | YC | C | A | 23/AUG/18 |

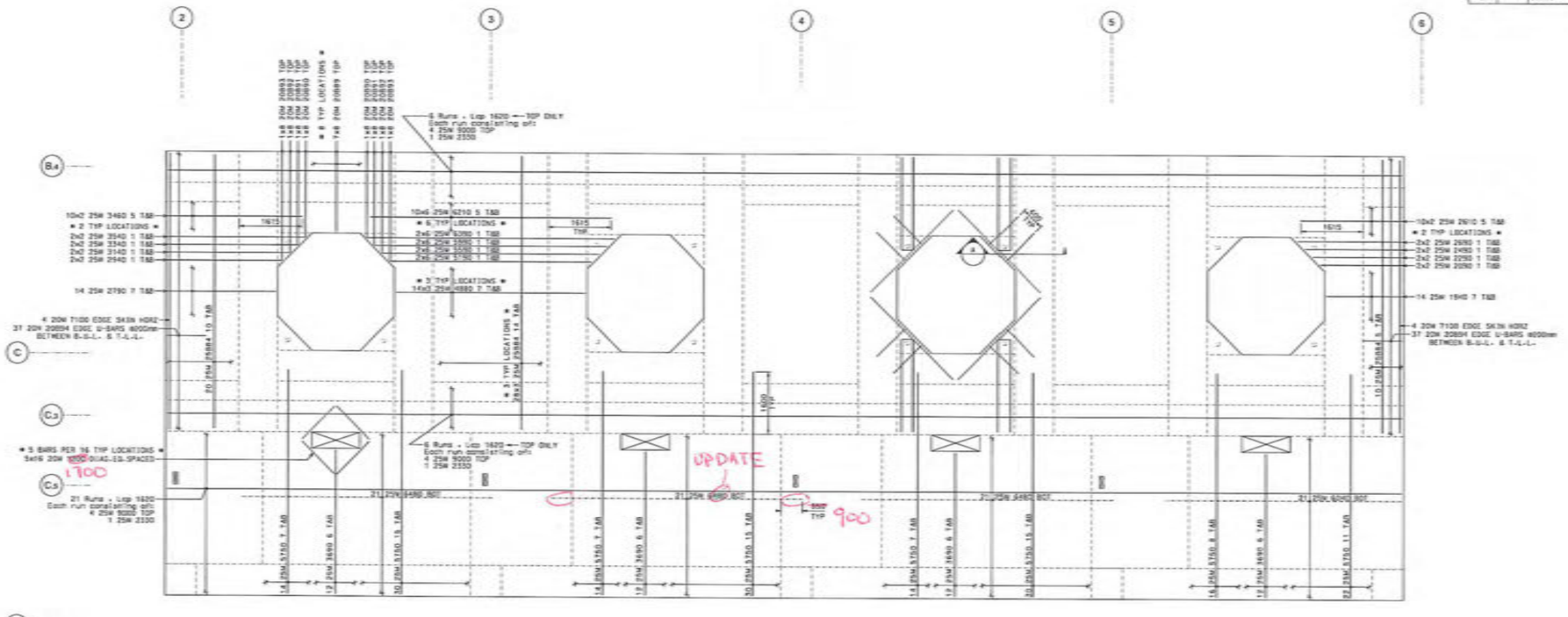
MCNISH STEEL LTD.
10636 - 205 STREET
EDMONTON, ALBERTA
PHONE 447-3337 FAX 447-3379

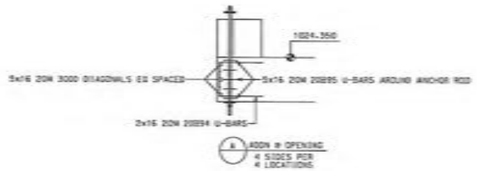
PROJECT : STRATADDLE (EAGLE GOLD PROJECT)
CONTR. : CLARK BUILDERS
DWG.OF : SECONDARY CRUSHER (SUSPENDED SLAB - BEAMS)
ENGR. : HATCH
DRAWN BY : MARK DATE : 23/AUG/2018

JOB NO. 18-042 | DWG. NO. 002 D

| SIZE | EP | BAR MARK | V | END TYP | CD | A | B | C | D | BENDING DIMENSIONS E | F/R | G | H | J | K | O |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 25M | | 20884 | | 17 | | | 750 | 11000 | 750 | | | | | | | |
| 20M | | 20889 | | 17 | | | 850 | 11945 | 1300 | | | | | | | |
| 20M | | 20890 | | 17 | | | 850 | 20999 | 1300 | | | | | | | |
| 20M | | 20891 | | 17 | | | 850 | 22299 | 1300 | | | | | | | |
| 20M | | 20892 | | 17 | | | 850 | 24599 | 1300 | | | | | | | |
| 20M | | 20893 | | 17 | | | 850 | 26099 | 1300 | | | | | | | |
| 20M | | 20894 | | 17 | | | 1000 | 808 | 1000 | | | | | | | |
| 20M | | 20895 | | 17 | | | 2378 | 300 | 2378 | | | | | | | |

17




## SLAB ORIENTATION

SPACING @200mm o/c




CLEARANCE:
1000mm SLAB -68mm BOT -68mm TOP
300mm SLAB -50mm BOT -68mm TOP

NOTE:
68mm COVER ENSURES MINIMUM 50mm COVER TO BEAM TIES AS SHOWN ON BEAM DRAWING

* FIELD CUT TO SUIT AS REQUIRED *

## GENERAL NOTES ON REINFORCEMENT

THE FOLLOWING NOTES SHALL APPLY TO ALL REINFORCEMENT SHOWN ON THE DRAWINGS UNLESS OTHERWISE NOTED.

DIMENSIONS:
DIMENSIONS TO REINFORCEMENT ARE TO CENTRE LINES OF BARS, EXCEPT WHERE CONCRETE COVER OR CLEARANCE BETWEEN BARS IS SHOWN.

COVER:
SEE STRUCTURAL ENGINEER TYPICAL NOTES FOR ALL COVER SPECIFICATIONS

SPACING:
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STEEL SPECIFICATIONS:
STEEL REINFORCEMENT SHALL BE DEFORMED BARS OF GRADE 400 CONFORMING TO CSA STANDARDS G30.12 BILLET-STEEL BARS FOR CONCRETE REINFORCEMENT.

WELDING:
WELDING OF REINFORCEMENT SHALL NOT BE PERMITTED.

SPLICES AND EMBEDMENTS:
UNLESS OTHERWISE SPECIFIED, ALL EMBEDMENTS SHALL BE TREATED AS TENSION EMBEDMENTS AND ALL LAP SPLICES SHALL BE CONSIDERED AS TENSION LAP SPLICES.

WHEN REINFORCING BARS OF DIFFERENT SIZE ARE TO BE SPLICED, THE LENGTH OF THE LAP SHALL BE BASED ON THE DIAMETER OF THE SMALLER BAR.

SPLICES ARE TO BE MADE SO THAT THE GIVEN CLEAR DISTANCE COVER WILL BE MAINTAINED.

LAP LENGTHS UNLESS SHOWN OTHERWISE:

| | HORZ | OTHER |
|---|---|---|
| 10M | 520 | 400 |
| 15M | 775 | 595 |
| 20M | 1030 | 790 |
| 25M | 1615 | 1240 |
| 30M | 1940 | 1485 |
| 35M | | |

PLACEMENT:
PLACE REINFORCING STEEL IN ACCORDANCE WITH CSA CAN3-A23.1-94.

REINFORCEMENT MAY BE DISPLACED TO CLEAR PIPES, RECESSES, EMBEDDED METAL WORKS AND CONDUITS.

A MINIMUM CLEARANCE OF 1" SHALL BE MAINTAINED BETWEEN REINFORCEMENT AND EMBEDDED MATERIALS. THE MINIMUM CLEARANCE BETWEEN REINFORCEMENT

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@ - SPACING CENTER TO CENTER
- DIRECTION IN WHICH BARS EXTEND
- LIMITS OF AREA COVERED BY BARS
- REBAR TOP/NEAR FACE
- REBAR BOT/FAR FACE
I.F. - INSIDE FACE
O.F. - OUTSIDE FACE
N.F. - NEAR FACE
F.F. - FAR FACE
E.W. - EACH WAY
VERT - VERTICAL
HORZ - HORIZONTAL
DWLS - DOWELS
FTG - FOOTING
COL - COLUMN

B-L-L. - BOTTOM LOWER LAYER
B-U-L. - BOTTOM UPPER LAYER
M-L-L. - MID LOWER LAYER
M-U-L. - MID UPPER LAYER
T-L-L. - TOP LOWER LAYER
T-U-L. - TOP UPPER LAYER
E.R. - EACH ROW
BNT. - BENT

BOT - BOTTOM
TOP - TOP
T&B - TOP & BOTTOM
L-R - LEFT TO RIGHT
B-T - BOTTOM TO TOP
C.B. - CORNER BAR
T.O.H. - TYPICAL OPPOSITE HAND
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F.B. - FIELD BEND
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T.O.C. - TOP OF CONCRETE
B.O.C. - BOTTOM OF CONCRETE
ELEV. - ELEVATION

PREFIX B
TRANS.
NOS. 2.4

| PRINT RECORD | NO. | TO. | FOR | DATE |
|---|---|---|---|---|
| | YC | C | A | 23/AUG/18 |

| NO. | REVISION | DATE |
|---|---|---|

REINFORCING STEEL PLACING PLAN

MCNISH STEEL LTD.
10636 - 205 STREET
EDMONTON, ALBERTA
PHONE 447-3337 FAX 447-3379

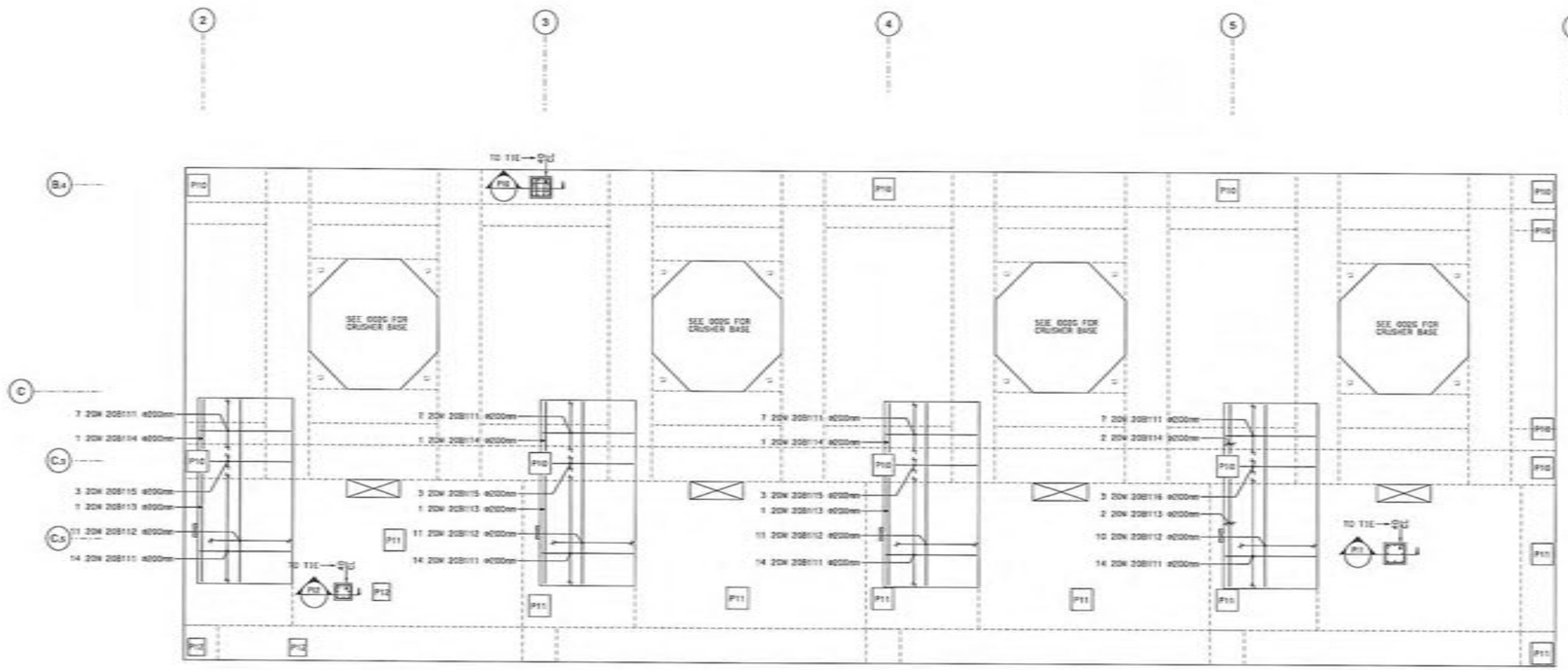
PROJECT : STRATACOLD (EAGLE GOLD PROJECT)
CONTR. : CLARK BUILDERS
DWG.OF : SECONDARY CRUSHER (SUSPENDED SLAB - TOP & BOT)
ENGR. : HATCH
DRAWN BY : MARK
DATE : 23/AUG/2018

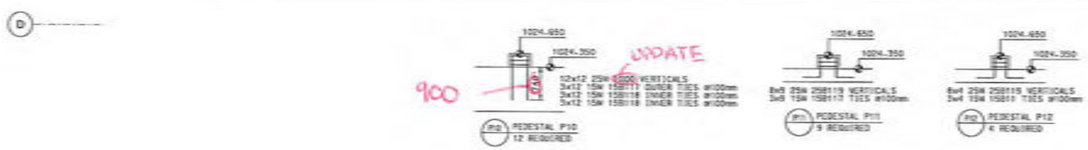
JOB NO. 18-042
DWG. NO. 002 E

| SIZE | GP | BAR MARK | # | END TYP | CD | A | B | C | D | BENDING DIMENSIONS E | F/R | G | H | J | K | O |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 25M | | 25B119 | | 17 | | | 400 | 454 | | | | | | | | |
| 20M | | 20B111 | | 17 | | | 500 | 2100 | 500 | | | | | | | |
| 20M | | 20B112 | | 17 | | | 500 | 4200 | 500 | | | | | | | |
| 20M | | 20B113 | | 17 | | | 500 | 2481 | 500 | | | | | | | |
| 20M | | 20B114 | | 17 | | | 500 | 1119 | 500 | | | | | | | |
| 20M | | 20B115 | | 17 | | | 500 | 1868 | 500 | | | | | | | |
| 20M | | 20B116 | | 17 | | | 500 | 1756 | 500 | | | | | | | |
| 15M | | 15B11 | | 11 | | 140 | 320 | 320 | 320 | 320 | | 140 | | | | |
| 15M | | 15B117 | | 11 | | 140 | 420 | 420 | 420 | 420 | | 140 | | | | |
| 15M | | 15B118 | | 11 | | 140 | 183 | 420 | 183 | 420 | | 140 | | | | |

17

11




## GENERAL NOTES ON REINFORCEMENT

THE FOLLOWING NOTES SHALL APPLY TO ALL REINFORCEMENT SHOWN ON THE DRAWINGS UNLESS OTHERWISE NOTED.

**DIMENSIONS:**
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**COVER:**
SEE STRUCTURAL ENGINEER TYPICAL NOTES FOR ALL COVER SPECIFICATIONS

**SPACING:**
UNLESS OTHERWISE SHOWN, THE FIRST AND LAST BARS IN SLABS AND WALLS, STIRRUPS IN BEAMS SHALL BE PLACED AT MAXIMUM OF HALF THE SPECIFIED SPACING OF ADJACENT BARS FROM THE END OF THE MEMBER.

**STEEL SPECIFICATIONS:**
STEEL REINFORCEMENT SHALL BE DEFORMED BARS OF GRADE 400 CONFORMING TO CSA STANDARDS G30.12 BILLET-STEEL BARS FOR CONCRETE REINFORCEMENT.

**WELDING:**
WELDING OF REINFORCEMENT SHALL NOT BE PERMITTED.

**SPLICES AND EMBEDMENTS:**
UNLESS OTHERWISE SPECIFIED, ALL EMBEDMENTS SHALL BE TREATED AS TENSION EMBEDMENTS AND ALL LAP SPLICES SHALL BE CONSIDERED AS TENSION LAP SPLICES.

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SPLICES ARE TO BE MADE SO THAT THE GIVEN CLEAR DISTANCE COVER WILL BE MAINTAINED.

LAP LENGTHS UNLESS SHOWN OTHERWISE:

| | HORZ | OTHER |
|---|---|---|
| 10M | 570 | 400 |
| 15M | 775 | 595 |
| 20M | 1030 | 790 |
| 25M | 1415 | 1240 |
| 30M | 1940 | 1485 |
| 35M | | |

**PLACEMENT:**
PLACE REINFORCING STEEL IN ACCORDANCE WITH CSA CAN3-A23.1-M.

REINFORCEMENT MAY BE DISPLACE TO CLEAR PIPES, RECESSES, EMBEDDED METAL WORKS AND CONDUITS.

A MINIMUM CLEARANCE OF 1" SHALL BE MAINTAINED BETWEEN REINFORCEMENT AND EMBEDDED MATERIALS. THE MINIMUM CLEARANCE BETWEEN REINFORCEMENT

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B-L-L. - BOTTOM LOWER LAYER
B-U-L. - BOTTOM UPPER LAYER
M-L-L. - MID LOWER LAYER
M-U-L. - MID UPPER LAYER
T-L-L. - TOP LOWER LAYER
T-U-L. - TOP UPPER LAYER
E.R. - EACH ROW
BNT. - BENT

@ - SPACING CENTER TO CENTER
DIRECTION IN WHICH BARS EXTEND
LIMITS OF AREA COVERED BY BARS
REBAR TOP/NEAR FACE
REBAR BOT/FAR FACE
I.F. - INSIDE FACE
O.F. - OUTSIDE FACE
N.F. - NEAR FACE
F.F. - FAR FACE
E.W. - EACH WAY
VERT. - VERTICAL
HORIZ - HORIZONTAL
DWLS - DOWELS
FTG - FOOTING
COL - COLUMN

BOT - BOTTOM
TOP - TOP
T&B - TOP & BOTTOM
L-R - LEFT TO RIGHT
B-T - BOTTOM TO TOP
C.B. - CORNER BAR
T.O.H. - TYPICAL OPPOSITE HAND
R/L - FROM RIGHT TO LEFT
F.B. - FIELD BEND
C.I.F. - CUT IN FIELD
T.O.W. - TOP OF WALL
T.O.F. - TOP OF FOOTING
B.O.W. - BOTTOM OF WALL
T.O.C. - TOP OF CONCRETE
B.O.C. - BOTTOM OF CONCRETE
ELEV. - ELEVATION

| PREFIX TRANS. NOS. | B 2.4 |
|---|---|

PRINT RECORD

| NO. | TO. | FOR | DATE |
|---|---|---|---|
| IC | C | A | 23/AUG/18 |

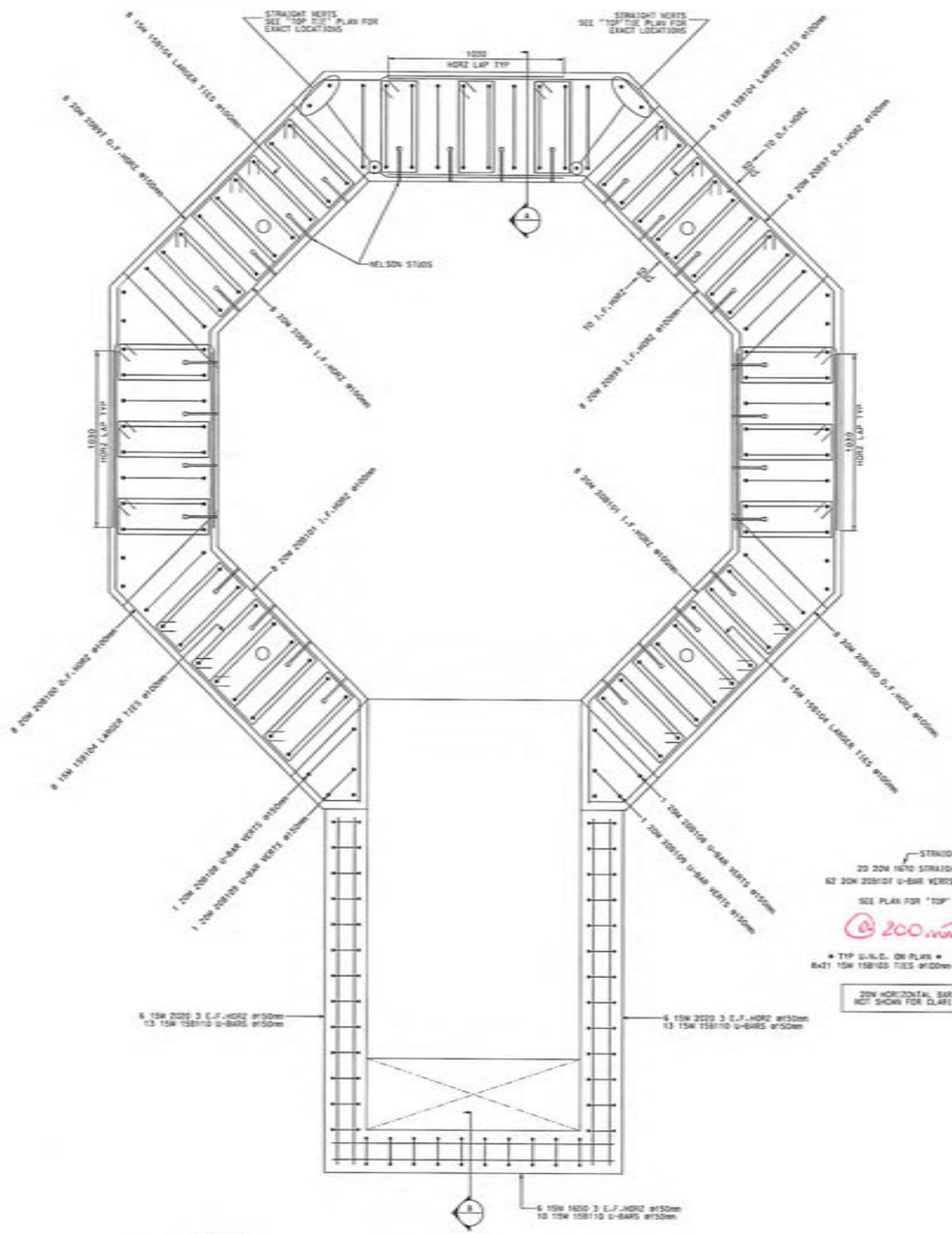
| NO. | REVISION | DATE |
|---|---|---|

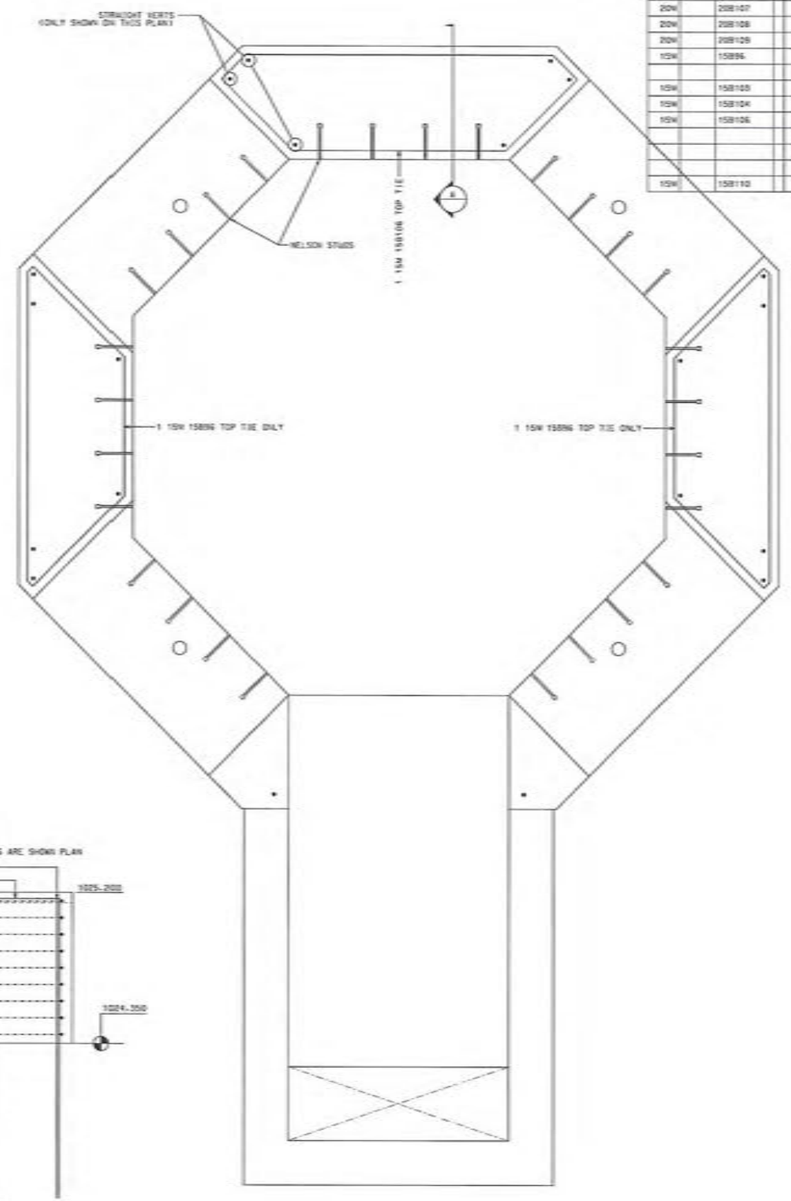
# REINFORCING STEEL PLACING PLAN

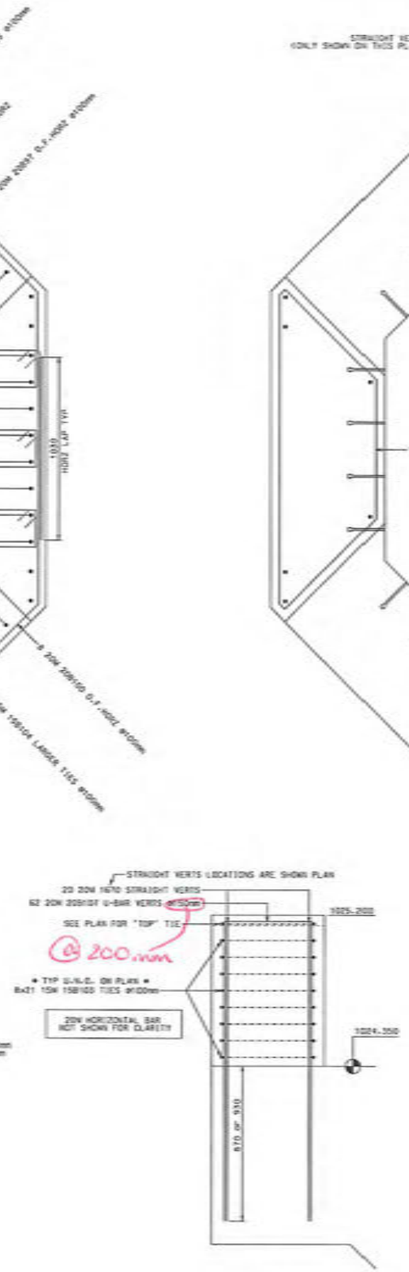
MCNISH STEEL LTD.
10636 - 205 STREET
EDMONTON, ALBERTA
PHONE 447-3337 FAX 447-3379

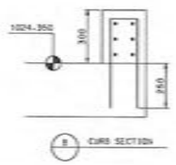
PROJECT : STRATADOLO (EAGLE GOLD PROJECT)
CONTR. : CLARK BUILDERS
DWG-OF : SECONDARY CRUSHER (SUSPENDED SLAB - PADS & PEDS)
ENGR. : HATCH
DRAWN BY : MARK
DATE : 23/AUG/2018

JOB NO. 18-042 | DWG. NO. 002 F

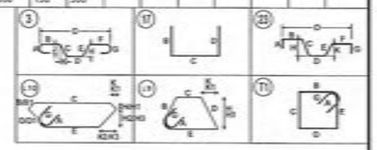



| SIZE | EP | BAR MARK | Y | END TYP | CD | A | B | C | D | BENDING DIMENSIONS E | F/R | G | H | J | K | Q |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 20M | | 20897 | | 3 | | | | 1385 | 1740 | 1385 | | | 979 | | 980 | |
| 20M | | 20898 | | 3 | | | | 1170 | 1310 | 1170 | | | 828 | | 827 | |
| 20M | | 208100 | | 22 | | | | 200 | 1740 | 1385 | | | 141 | | 979 | |
| 20M | | 208101 | | 5 | | | 579 | 1283 | 1170 | | | | 507 | | 507 | |
| 20M | | 208107 | | 17 | | | 1670 | 496 | 1670 | | | | | | | |
| 20M | | 208108 | | 17 | | | 1670 | 397 | 1670 | | | | | | | |
| 20M | | 208129 | | 17 | | | 1670 | 232 | 1670 | | | | | | | |
| 15M | | 15896 | | L5 | 140 | 721 | 167 | 551 | 1740 | | | 140 | 540 | | 477 | |
| | | | | | | | | | | | | | 540 | | 477 | |
| 15M | | 158105 | | T1 | 140 | 208 | 532 | 208 | 532 | | | 140 | | | | |
| 15M | | 158104 | | T1 | 140 | 508 | 532 | 508 | 532 | | | 140 | | | | |
| 15M | | 158126 | | L10 | 140 | 155 | 1740 | 585 | 1210 | | | 140 | 138 | | 138 | |
| | | | | | | 155 | | 549 | | | | | 138 | | 138 | |
| | | | | | | | | | | | | | 403 | | 402 | |
| | | | | | | | | | | | | | 403 | | 402 | |
| 15M | | 158110 | | T1 | | 500 | 150 | 500 | | | | | | | | |




## GENERAL NOTES ON REINFORCEMENT

THE FOLLOWING NOTES SHALL APPLY TO ALL REINFORCEMENT SHOWN ON THE DRAWINGS UNLESS OTHERWISE NOTED.

**DIMENSIONS:**
DIMENSIONS TO REINFORCEMENT ARE TO CENTRE LINES OF BARS, EXCEPT WHERE CONCRETE COVER OR CLEARANCE BETWEEN BARS IS SHOWN.

**COVER:**
SEE STRUCTURAL ENGINEER TYPICAL NOTES FOR ALL COVER SPECIFICATIONS

**SPACING:**
UNLESS OTHERWISE SHOWN, THE FIRST AND LAST BARS IN SLABS AND WALLS, STIRRUPS IN BEAMS SHALL BE PLACED AT A MAXIMUM OF HALF THE SPECIFIED SPACING OF ADJACENT BARS FROM THE END OF THE MEMBER.

**STEEL SPECIFICATIONS:**
STEEL REINFORCEMENT SHALL BE DEFORMED BARS OF GRADE 400 CONFORMING TO CSA STANDARDS G30.12 BILLET-STEEL BARS FOR CONCRETE REINFORCEMENT.

**WELDING:**
WELDING OF REINFORCEMENT SHALL NOT BE PERMITTED.

**SPLICES AND EMBEDMENTS:**
UNLESS OTHERWISE SPECIFIED, ALL EMBEDMENTS SHALL BE TREATED AS TENSION EMBEDMENTS AND ALL LAP SPLICES SHALL BE CONSIDERED AS TENSION LAP SPLICES.

WHEN REINFORCING BARS OF DIFFERENT SIZE ARE TO BE SPLICED, THE LENGTH OF THE LAP SHALL BE BASED ON THE DIAMETER OF THE SMALLER BAR.

SPLICES ARE TO BE MADE SO THAT THE GIVEN CLEAR DISTANCE EITHER WILL BE MAINTAINED.

LAP LENGTHS UNLESS SHOWN OTHERWISE:

| | HORZ | OTHER |
|---|---|---|
| 10M | 520 | 400 |
| 15M | 775 | 595 |
| 20M | 1030 | 790 |
| 25M | 1615 | 1240 |
| 30M | 1940 | 1485 |
| 35M | | |

**PLACEMENT:**
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| | |
|---|---|
| @ | - SPACING CENTER TO CENTER |
| | - DIRECTION IN WHICH BARS EXTEND |
| - - - - | - LIMITS OF AREA COVERED BY BARS |
| ——— | - REBAR TOP/NEAR FACE |
| - - - - | - REBAR BOT/FAR FACE |
| I.F. | - INSIDE FACE |
| O.F. | - OUTSIDE FACE |
| N.F. | - NEAR FACE |
| F.F. | - FAR FACE |
| E.W. | - EACH WAY |
| VERT | - VERTICAL |
| HORZ | - HORIZONTAL |
| DWLS | - DOWELS |
| FTG | - FOOTING |
| COL | - COLUMN |

| | |
|---|---|
| B-U-L- | - BOTTOM LOWER LAYER |
| B-U-U- | - BOTTOM UPPER LAYER |
| M-L-L- | - MID LOWER LAYER |
| M-U-L- | - MID UPPER LAYER |
| T-L-L- | - TOP LOWER LAYER |
| T-U-L- | - TOP UPPER LAYER |
| E.R. | - EACH ROW |
| BNT. | - BENT |

| | |
|---|---|
| BOT | - BOTTOM |
| TOP | - TOP |
| T&B | - TOP & BOTTOM |
| L-R | - LEFT TO RIGHT |
| B-T | - BOTTOM TO TOP |
| C.B. | - CORNER BAR |
| T.O.N. | - TYPICAL OPPOSITE HAND |
| R/L | - FROM RIGHT TO LEFT |
| F.B. | - FIELD BEND |
| C.I.F. | - CUT ON FIELD |
| T.O.W. | - TOP OF WALL |
| T.O.F. | - TOP OF FOOTING |
| B.O.W. | - BOTTOM OF WALL |
| T.O.C. | - TOP OF CONCRETE |
| B.O.C. | - BOTTOM OF CONCRETE |
| ELEV. | - ELEVATION |

PREFIX TRANS. NOS. B 2.4

PRINT RECORD

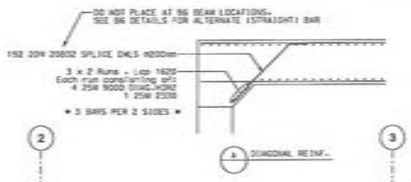
| NO. | REVISION | DATE | TO | FOR | DATE |
|---|---|---|---|---|---|
| | | | TC | C | A 25/AUG/18 |

MCNISH STEEL LTD.
10636 - 205 STREET
EDMONTON, ALBERTA
PHONE 447-3337 FAX 447-3379

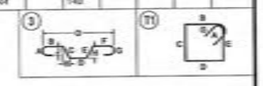
REINFORCING STEEL PLACING PLAN

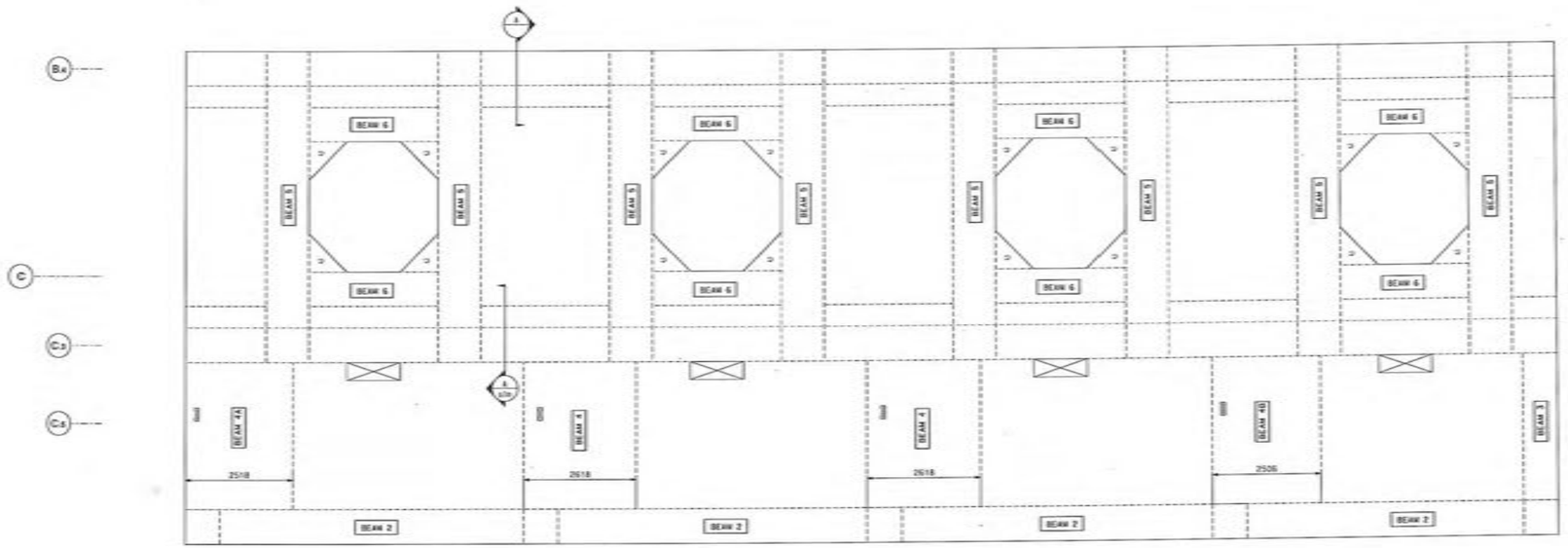
PROJECT : STRATHGOLD (EAGLE GOLD PROJECT)
CONTR. : CLARK BUILDERS
DWG.REF : SECONDARY CRUSHER (CRUSHER BASE - 4 RED'D)
ENGR. : HATCH
DRAWN BY : MARK DATE : 25/AUG/2018

JOB NO. 18-042 DWG. NO. 002 G




| SIZE | EP | BAR MARK | V | BND TYP | CD | A | B | C | D | BENDING DIMENSIONS E | F/B | G | H | J | K | O |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 20M | | 20852 | | 5 | | | 1900 | 400 | | | | | 280 | | 280 | |
| 15M | | 15872 | | T1 | | 140 | 700 | 900 | 700 | 900 | | 140 | | | | |
| 15M | | 15873 | | T1 | | 140 | 276 | 900 | 276 | 900 | | 140 | | | | |
| 15M | | 15874 | | T1 | | 140 | 1700 | 550 | 1700 | 550 | | 140 | | | | |
| 15M | | 15875 | | T1 | | 140 | 1496 | 550 | 1496 | 550 | | 140 | | | | |
| 15M | | 15876 | | T1 | | 140 | 1633 | 550 | 1633 | 550 | | 140 | | | | |
| 15M | | 15877 | | T1 | | 140 | 1437 | 550 | 1437 | 550 | | 140 | | | | |
| 15M | | 15878 | | T1 | | 140 | 1625 | 550 | 1625 | 550 | | 140 | | | | |
| 15M | | 15879 | | T1 | | 140 | 1430 | 550 | 1430 | 550 | | 140 | | | | |
| 15M | | 15880 | | T1 | | 140 | 700 | 550 | 700 | 550 | | 140 | | | | |
| 15M | | 15881 | | T1 | | 140 | 191 | 550 | 191 | 550 | | 140 | | | | |
| 15M | | 15882 | | T1 | | 140 | 676 | 900 | 676 | 900 | | 140 | | | | |
| 15M | | 15883 | | T1 | | 140 | 740 | 944 | 740 | 944 | | 140 | | | | |

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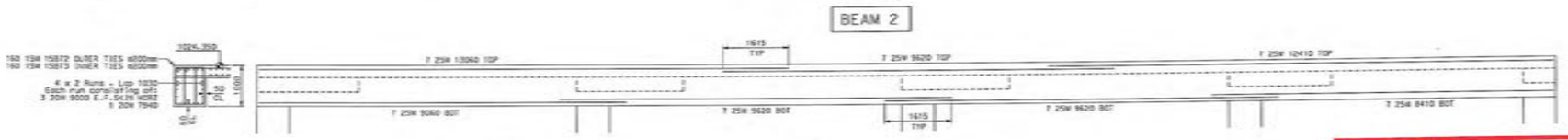








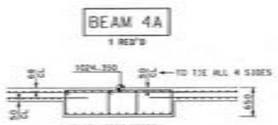





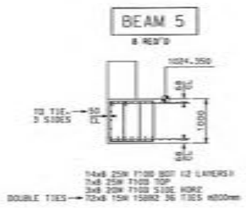


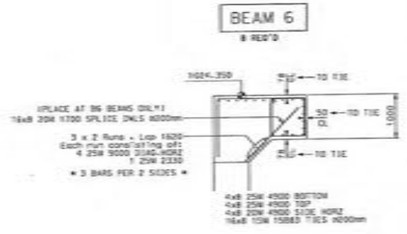


| | |
|---|---|
| s | - SPACING CENTER TO CENTER |
| | - DIRECTION IN WHICH BARS EXTEND |
| | - LIMITS OF AREA COVERED BY BARS |
| ---- | - REBAR TOP/NEAR FACE |
| ---- | - REBAR BOT/FAR FACE |
| I.F. | - INSIDE FACE |
| O.F. | - OUTSIDE FACE |
| N.F. | - NEAR FACE |
| F.F. | - FAR FACE |
| E.W. | - EACH WAY |
| VERT | - VERTICAL |
| HORZ | - HORIZONTAL |
| DWLS | - DOWELS |
| FTG | - FOOTING |
| COL | - COLUMN |
| B.O.L.L. | - BOTTOM LOWER LAYER |
| B.O.U.L. | - BOTTOM UPPER LAYER |
| W.I.L. | - W.O. LOWER LAYER |
| W.O.L. | - W.O. UPPER LAYER |
| T.L.L. | - TOP LOWER LAYER |
| T.U.L. | - TOP UPPER LAYER |
| E.R. | - EACH ROW |
| BWT. | - BOWT |
| BOT | - BOTTOM |
| TOP | - TOP |
| T&B | - TOP & BOTTOM |
| L-R | - LEFT TO RIGHT |
| B-T | - BOTTOM TO TOP |
| C.B. | - CORNER BAR |
| T.O.H. | - TYPICAL OPPOSITE HAND |
| R/L | - FROM RIGHT TO LEFT |
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| T.O.C. | - TOP OF CONCRETE |
| B.O.C. | - BOTTOM OF CONCRETE |
| ELEV. | - ELEVATION |

**HATCH** Vendor/Contractor Document Review

| | | |
|---|---|---|
| Doc Number | E354138-CB201-230-260-0010 | SUB 02 |
| Date Received | 2018-09-01 | |
| Review Grade | | Next Submittal Status |
| ☐ C1 - Proceed to next submission & status<br>☐ C2 - Proceed with exceptions as noted to next submission & status | | ☐ Certified<br>☐ As-Built |
| ☐ C3 - Do not proceed. Revise as noted & resubmit | | ☐ Internal Review<br>☐ Certified ☐ As-Built |
| Next Submittal Date: | | |
| ☒ C4 - No further submission required - Complete (select status below)<br>☐ Certified Final ☐ Final ☐ Cancelled ☐ Superseded | | |

Package Engineer: Name, signature and date
ESA AKINCI, EA, Sep 4, 2018

Reviewed only for general conformity with the specifications. Acceptance by the engineer does not warrant or represent that the information contained on this drawing/document is either accurate or complete. The sole responsibility for correct design, details & dimensions shall remain with the party submitting the drawing/document.

| PREFIX | B |
|---|---|
| TRANS. NOS. | 2-5 |

PRINT RECORD

| NO. | REVISION | DATE | TO YC | TO C | FOR A | DATE 25/AUG/18 |
|---|---|---|---|---|---|---|
| 02 | REVIEW | AUG 25/18 | | | | |

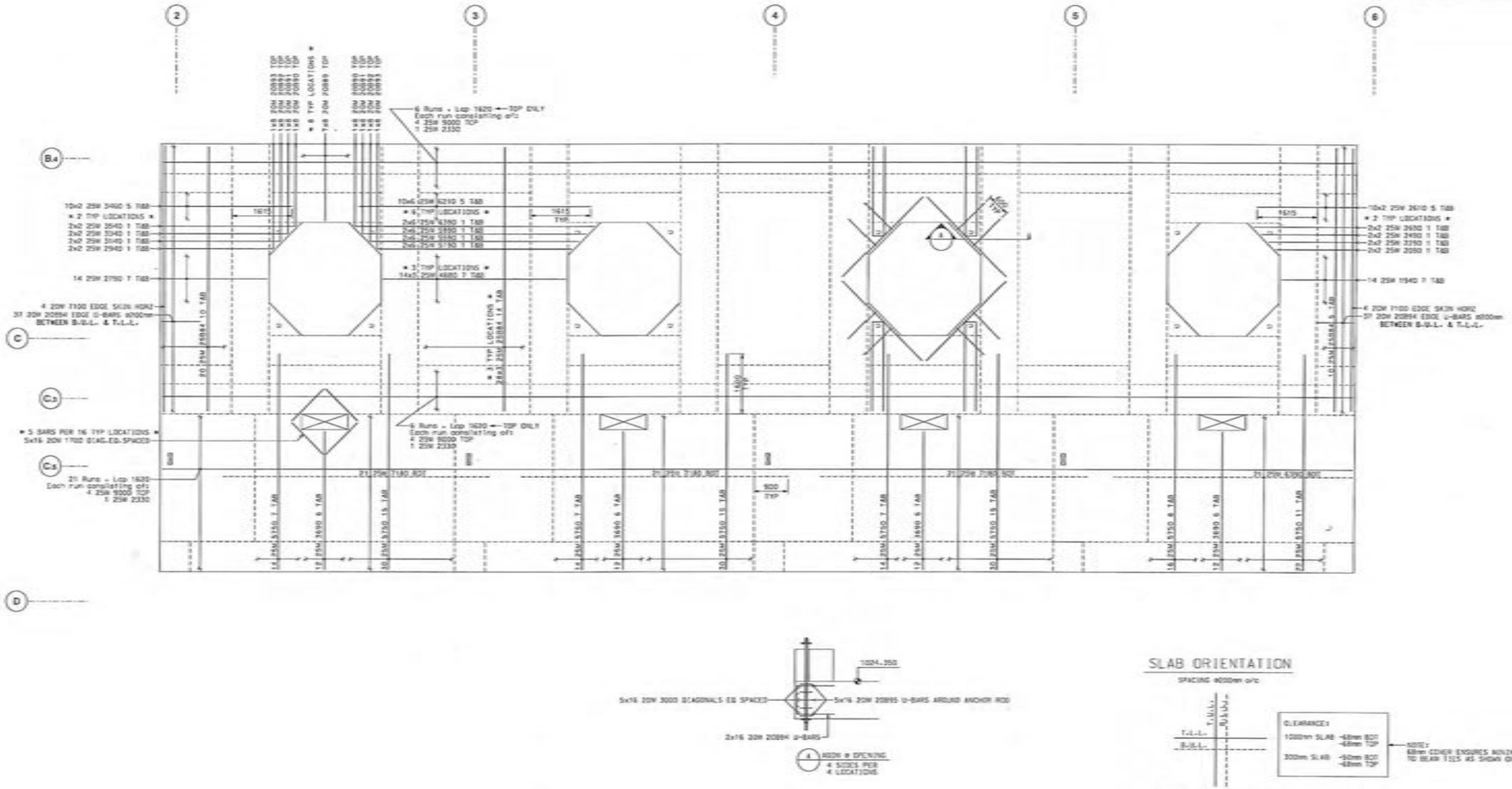
REINFORCING STEEL PLACING PLAN

MCNISH STEEL LTD.
10636 - 205 STREET
EDMONTON, ALBERTA
PHONE 447-3337 FAX 447-3379

PROJECT : STRATAGOLD YEAGLE GOLD PROJECT)
CONTR. : CLARK BUILDERS
DWG.OF : SECONDARY CRUSHER (SUSPENDED SLAB - BEAMS)
ENGR. : HATCH
DRAWN BY : MARK
DATE : 25/AUG/2018

JOB NO. 18-042 | DWG. NO. 002 D

| SIZE | EP | BAR MARK | V | BND TYP | CD | BENDING DIMENSIONS A | B | C | D | E | F/R | G | H | J | K | O |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 25M | | 20884 | | 11 | | | 750 | 9000 | 750 | | | | | | | |
| 20M | | 20885 | | 11 | | | 850 | 1945 | 1200 | | | | | | | |
| 20M | | 20890 | | 11 | | | 850 | 3089 | 1300 | | | | | | | |
| 20M | | 20891 | | 11 | | | 850 | 3299 | 1300 | | | | | | | |
| 20M | | 20892 | | 11 | | | 850 | 2495 | 1300 | | | | | | | |
| 20M | | 20893 | | 11 | | | 850 | 2695 | 1300 | | | | | | | |
| 20M | | 20894 | | 11 | | | 1000 | 808 | 1000 | | | | | | | |
| 20M | | 20895 | | 11 | | | 2378 | 300 | 2378 | | | | | | | |







## SLAB ORIENTATION

SPACING @300mm o/c




McNISH STEEL

2018-08-30

Printed for Construction

## GENERAL NOTES ON REINFORCEMENT

THE FOLLOWING NOTES SHALL APPLY TO ALL REINFORCEMENT SHOWN ON THE DRAWINGS UNLESS OTHERWISE NOTED.

**DIMENSIONS:**
DIMENSIONS TO REINFORCEMENT ARE TO CENTRE LINES OF BARS, EXCEPT WHERE CONCRETE COVER OR CLEARANCE BETWEEN BARS IS SHOWN.

**COVER:**
SEE STRUCTURAL ENGINEER TYPICAL NOTES FOR ALL COVER SPECIFICATIONS

**SPACING:**
UNLESS OTHERWISE SHOWN, THE FIRST AND LAST BARS IN SLABS AND WALLS, STIRRUPS IN BEAMS SHALL BE PLACED AT MINIMUM OF HALF THE SPECIFIED SPACING OF ADJACENT BARS FROM THE END OF THE MEMBER.

**STEEL SPECIFICATIONS:**
STEEL REINFORCEMENT SHALL BE DEFORMED BARS OF GRADE 400 CONFORMING TO CSA STANDARDS G30.18 BILLET-STEEL BARS FOR CONCRETE REINFORCEMENT.

**WELDING:**
WELDING OF REINFORCEMENT SHALL NOT BE PERMITTED.

**SPLICES AND EMBEDMENTS:**
UNLESS OTHERWISE SPECIFIED, ALL EMBEDMENTS SHALL BE TREATED AS TENSION EMBEDMENTS AND ALL LAP SPLICES SHALL BE CONSIDERED AS TENSION LAP SPLICES.

WHEN REINFORCING BARS OF DIFFERENT SIZE ARE TO BE SPLICED, THE LENGTH OF THE LAP SHALL BE BASED ON THE DIAMETER OF THE SMALLER BAR.

SPLICES ARE TO BE MADE SO THAT THE CLEAR DISTANCE COVER WILL BE MAINTAINED.

LAP LENGTHS UNLESS SHOWN OTHERWISE:

| | HORZ | OTHER |
|---|---|---|
| 10M | 520 | 400 |
| 15M | 775 | 595 |
| 20M | 1020 | 750 |
| 25M | 1615 | 1240 |
| 30M | 1940 | 1485 |
| 35M | | |

**PLACEMENT:**
PLACE REINFORCING STEEL IN ACCORDANCE WITH CSA CAN3-A23.1-M.

REINFORCEMENT MAY BE DISPLACE TO CLEAR PIPES, RECESSES, EMBEDDED METAL WORKS AND CONDUITS.

A MINIMUM CLEARANCE OF ½" SHALL BE MAINTAINED BETWEEN REINFORCEMENT AND EMBEDDED MATERIALS. THE MINIMUM CLEARANCE BETWEEN REINFORCEMENT

REINFORCEMENT SHALL BE ACCURATELY PLACED IN ACCORDANCE WITH THE DRAWING AND SHALL BE ADEQUATELY SECURED AGAINST DISPLACEMENT BY USING APPROVED IRON WIRE AT INTERSECTIONS AND SHALL BE SUPPORTED BY APPROVED CONCRETE OR METAL SUPPORTS. SPACERS OR METAL HANGERS EXCEPT AT SURFACES EXPOSED TO THE GROUND OR TO THE WEATHER WHERE SUPPORTS SHALL BE APPROVED. ALL METAL ACCESSORIES ARE TO BE GALVANIZED.

THE FULL INTENT AND PURPOSE OF THESE DRAWINGS IS PLACING OF REINFORCING STEEL BARS ONLY. IT IS NOT TO BE USED AS A MEANS OF COMMUNICATION BETWEEN THE ARCHITECT, ENGINEER, CONTRACTOR OR ANY OTHER SUBTRADE.

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c - SPACING CENTER TO CENTER
- DIRECTION IN WHICH BARS EXTEND
- LIMITS OF AREA COVERED BY BARS
- REBAR TOP/NEAR FACE
- REBAR BOT/FAR FACE
I.F. - INSIDE FACE
O.F. - OUTSIDE FACE
N.F. - NEAR FACE
F.F. - FAR FACE
E.W. - EACH WAY
VERT - VERTICAL
HORZ - HORIZONTAL
DWLS - DOWELS
FTG - FOOTING
COL - COLUMN
BOT - BOTTOM
TOP - TOP
T&B - TOP & BOTTOM
L-R - LEFT TO RIGHT
B-T - BOTTOM TO TOP
C.B. - CORNER BAR
T.O.N. - TYPICAL OPPOSITE HAND
R/L - FROM RIGHT TO LEFT
F.B. - FIELD BEND
C.I.F. - CUT IN FIELD
T.O.W. - TOP OF WALL
T.O.F. - TOP OF FOOTING
B.O.W. - BOTTOM OF WALL
T.O.C. - TOP OF CONCRETE
B.O.C. - BOTTOM OF CONCRETE
ELEV. - ELEVATION

B-U-L. - BOTTOM LOWER LAYER
B-U-U. - BOTTOM UPPER LAYER
M-U-L. - MID LOWER LAYER
M-U-U. - MID UPPER LAYER
T-U-L. - TOP LOWER LAYER
T-U-U. - TOP UPPER LAYER
E.R. - EACH ROW
BNT. - BENT

| PREFIX | B |
|---|---|
| TRANS-NOS. | 2-5 |

PRINT RECORD

| NO. | REVISION | DATE | TO: TC | TO: C | FOR: R | FOR: DATE |
|---|---|---|---|---|---|---|
| 02 | REVIEW | AUG 25/18 | | | | 25/AUG/18 |

REINFORCING STEEL PLACING PLAN

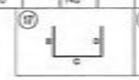
MCNISH STEEL LTD.
10636 - 205 STREET
EDMONTON, ALBERTA
PHONE 447-3337 FAX 447-3379

PROJECT : STRATAGOLD VEHICLE GOLD PROJECT
CONTR. : CLARK BUILDERS
DWG.DF : SECONDARY CRUSHER (SUSPENDED SLAB - TOP & BOT)
ENGR. : HATCH
DRAWN BY : MARK
DATE : 25/AUG/2018

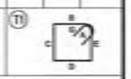
JOB NO. 18-042 | DWG. NO. 002 E

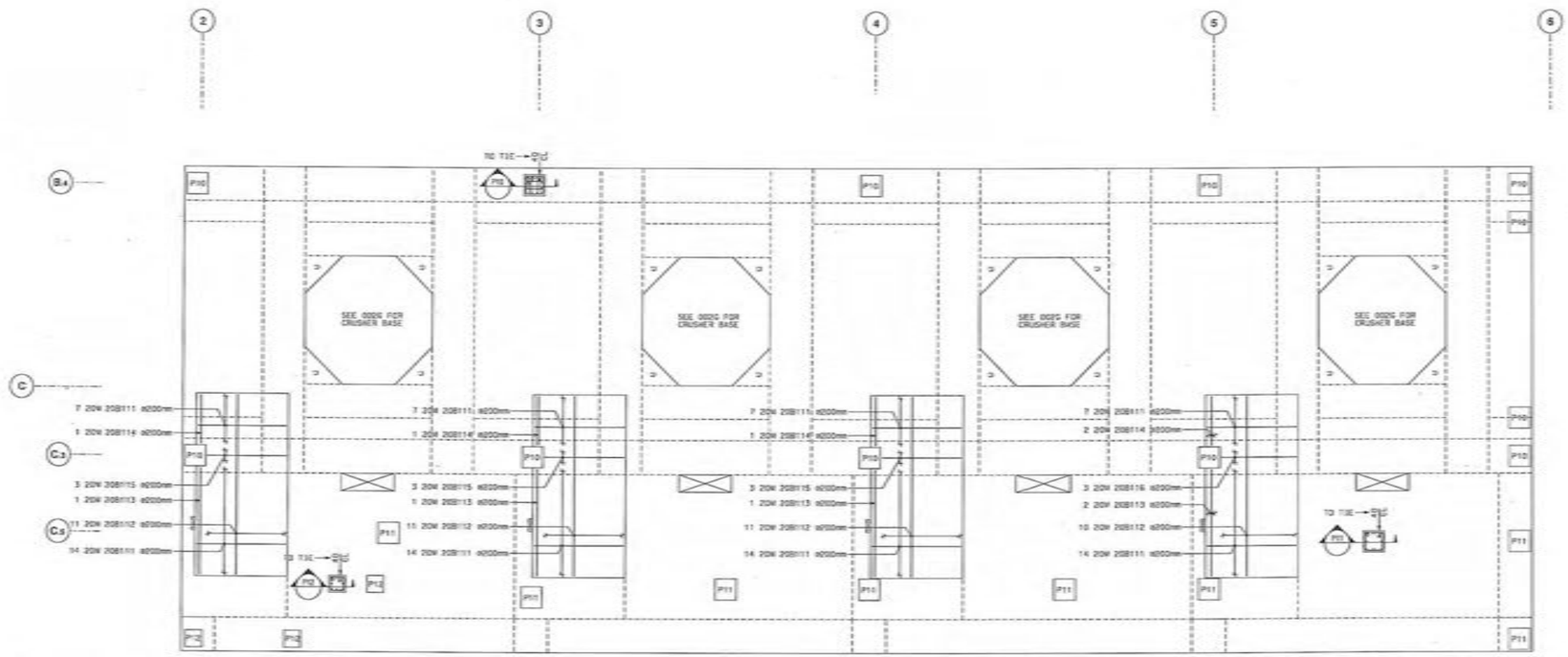
| SIZE | GP | BAR MARK | W | BND TYP | CD | BENDING DIMENSIONS A | B | C | D | E | F/R | G | H | J | K | O |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 25M | | 25B119 | | 17 | | | 400 | 454 | | | | | | | | |
| 20M | | 20B111 | | 17 | | | 500 | 2100 | 500 | | | | | | | |
| 20M | | 20B112 | | 17 | | | 500 | 4200 | 500 | | | | | | | |
| 20M | | 20B113 | | 17 | | | 500 | 2481 | 500 | | | | | | | |
| 20M | | 20B114 | | 17 | | | 500 | 1119 | 500 | | | | | | | |
| 20M | | 20B115 | | 17 | | | 500 | 1868 | 500 | | | | | | | |
| 20M | | 20B116 | | 17 | | | 500 | 1756 | 500 | | | | | | | |
| 15M | | 15B11 | | 11 | | 140 | 320 | 320 | 320 | 320 | | 140 | | | | |
| 15M | | 15B117 | | 11 | | 140 | 420 | 420 | 420 | 420 | | 140 | | | | |
| 15M | | 15B118 | | 11 | | 140 | 183 | 420 | 183 | 420 | | 140 | | | | |

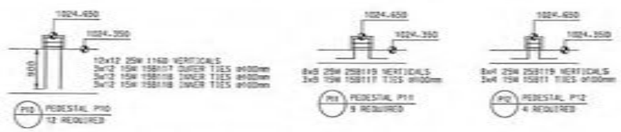
17



11






McNISH STEEL

2018-08-30

Printed for Construction

## GENERAL NOTES ON REINFORCEMENT

THE FOLLOWING NOTES SHALL APPLY TO ALL REINFORCEMENT SHOWN ON THE DRAWINGS UNLESS OTHERWISE NOTED.

**DIMENSIONS:**
DIMENSIONS TO REINFORCEMENT ARE TO CENTRE LINES OF BARS, EXCEPT WHERE CONCRETE COVER OR CLEARANCE BETWEEN BARS IS SHOWN.

**COVER:**
SEE STRUCTURAL ENGINEER TYPICAL NOTES FOR ALL COVER SPECIFICATIONS

**SPACING:**
UNLESS OTHERWISE SHOWN, THE FIRST AND LAST BARS IN SLABS AND WALLS, STIRRUPS IN BEAMS SHALL BE PLACED AT MAXIMUM OF HALF THE SPECIFIED SPACING OF ADJACENT BARS FROM THE END OF THE MEMBER.

**STEEL SPECIFICATIONS:**
STEEL REINFORCEMENT SHALL BE DEFORMED BARS OF GRADE 400 CONFORMING TO CSA STANDARD G30.12 BILLET-STEEL BARS FOR CONCRETE REINFORCEMENT.

**WELDING:**
WELDING OF REINFORCEMENT SHALL NOT BE PERMITTED.

**SPLICES AND EMBEDMENTS:**
UNLESS OTHERWISE SPECIFIED, ALL EMBEDMENTS SHALL BE TREATED AS TENSION EMBEDMENTS AND ALL LAP SPLICES SHALL BE CONSIDERED AS TENSION LAP SPLICES.

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SPLICES ARE TO BE MADE SO THAT THE GIVEN CLEAR DISTANCE CONCRETE WILL BE MAINTAINED.

LAP LENGTHS UNLESS SHOWN OTHERWISE:

| | HORZ | OTHER |
|---|---|---|
| 10M | 520 | 400 |
| 15M | 775 | 595 |
| 20M | 1030 | 790 |
| 25M | 1615 | 1240 |
| 30M | 1940 | 1485 |
| 35M | | |

**PLACEMENT:**
PLACE REINFORCING STEEL IN ACCORDANCE WITH CSA CAN3-A23.1-M.

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| | |
|---|---|
| B.L.C. | - BOTTOM LOWER LAYER |
| B.U.C. | - BOTTOM UPPER LAYER |
| W.L.C. | - WEB LOWER LAYER |
| W.U.C. | - WEB UPPER LAYER |
| T.L.C. | - TOP LOWER LAYER |
| T.U.C. | - TOP UPPER LAYER |
| E.R. | - EACH ROW |
| BNT. | - BENT |

| | |
|---|---|
| | - SPACING CENTER TO CENTER |
| | - DIRECTION IN WHICH BARS EXTEND |
| | - LIMITS OF AREA CONCRETE BY BARS |
| T.F. | - REBAR TOP/NEAR FACE |
| B.F. | - REBAR BOT/FAR FACE |
| I.F. | - INSIDE FACE |
| O.F. | - OUTSIDE FACE |
| N.F. | - NEAR FACE |
| F.F. | - FAR FACE |
| E.W. | - EACH WAY |
| VERT | - VERTICAL |
| HORZ | - HORIZONTAL |
| DWLS | - DOWELS |
| FTG | - FOOTING |
| COL | - COLUMN |

| | |
|---|---|
| BOT | - BOTTOM |
| TOP | - TOP |
| T&B | - TOP & BOTTOM |
| L-R | - LEFT TO RIGHT |
| B-T | - BOTTOM TO TOP |
| C.B. | - CORNER BAR |
| T.O.H. | - TYPICAL OPPOSITE HAND |
| R.H. | - FROM RIGHT TO LEFT |
| F.B. | - FIELD BEND |
| C.I.F. | - CUT IN FIELD |
| T.O.W. | - TOP OF WALL |
| T.O.F. | - TOP OF FOOTING |
| B.O.W. | - BOTTOM OF WALL |
| T.O.C. | - TOP OF CONCRETE |
| B.O.C. | - BOTTOM OF CONCRETE |
| ELEV. | - ELEVATION |

PREFIX B
TRANS. 2-5
NOS.

PRINT RECORD

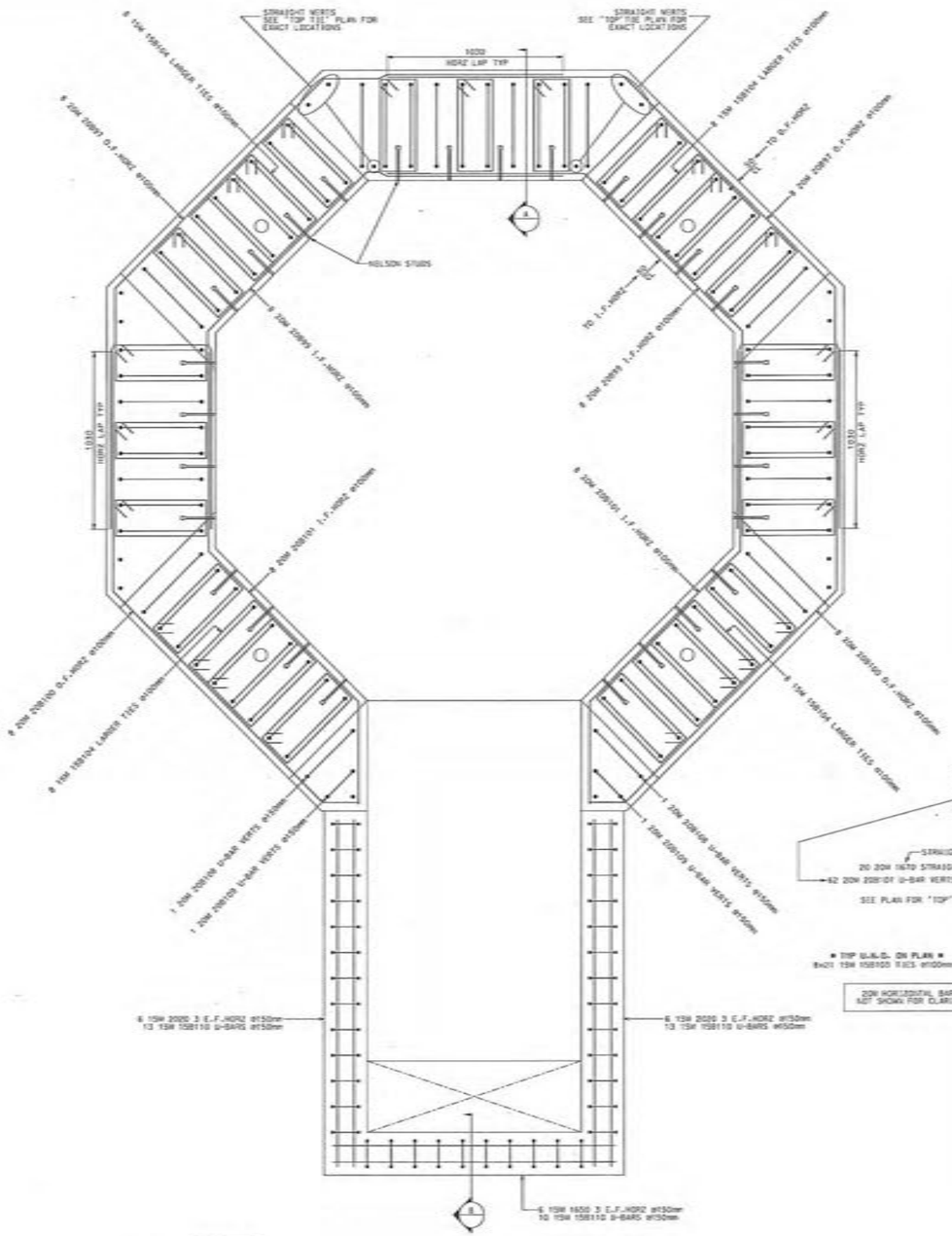
| NO. | REVISION | DATE | TO: | FOR | DATE |
|---|---|---|---|---|---|
| C2 | REVIEW | AUG 23/18 | C | A | 23/AUG/18 |

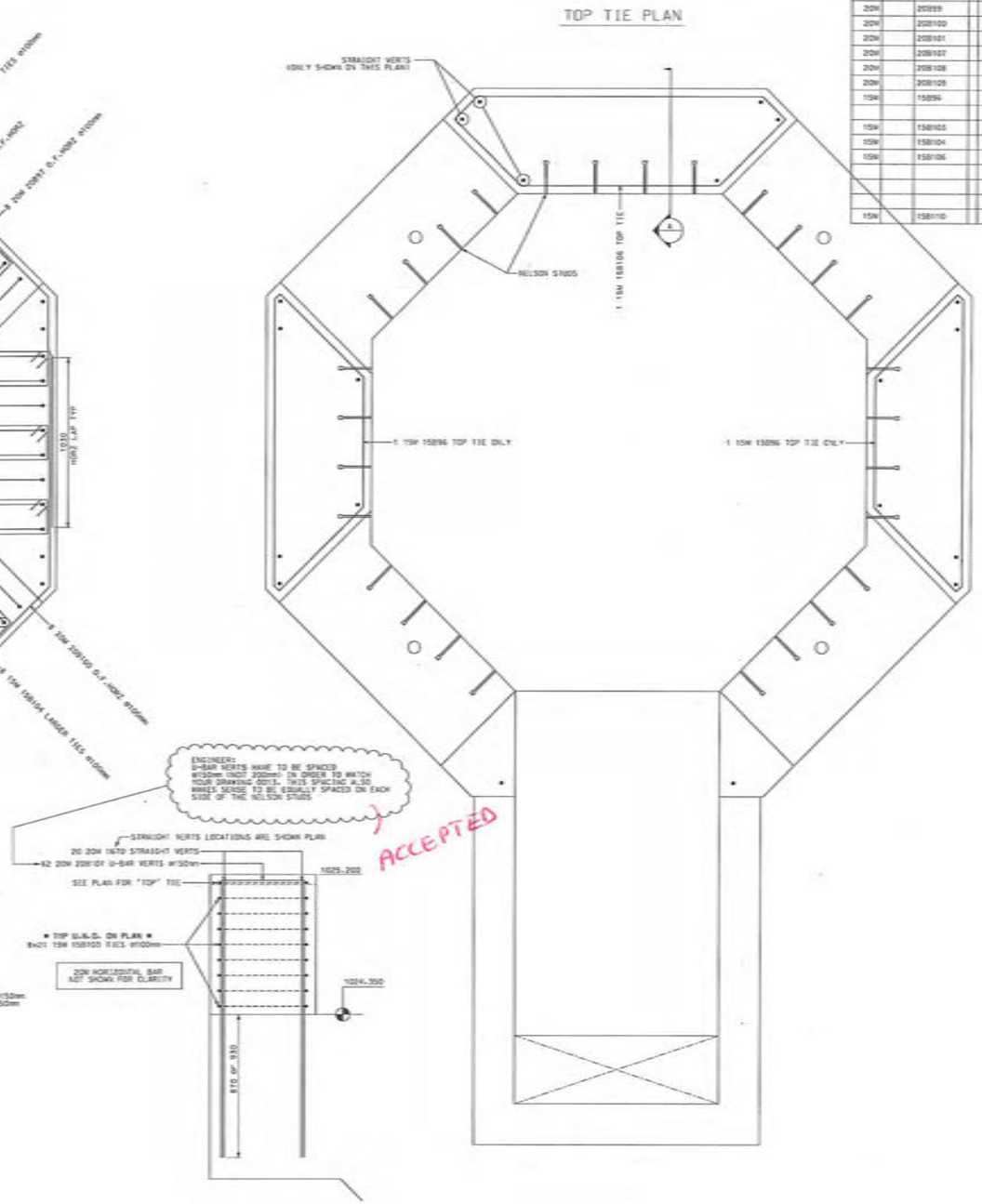
# REINFORCING STEEL PLACING PLAN

MEMBER CRSI
MCNISH STEEL LTD.
10636 - 205 STREET
EDMONTON, ALBERTA
PHONE 447-3337 FAX 447-3379

PROJECT : STRATHCOLD (EAGLE GOLD PROJECT)
CONTR. : CLARK BUILDERS
DWG.DF : SECONDARY CRUSHER (SUSPENDED SLAB - PADS & PEDS)
ENGR. : HATCH
DRAWN BY : MARK
DATE : 23/AUG/2018

JOB NO. 18-042 | DWG. NO. 002 F




| SIZE | EP | BAR MARK | # | END TYP | CD | BENDING DIMENSIONS A | B | C | D | E | F/R | G | H | J | K | O |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 20M | | 20857 | 3 | | | | | 1385 | 1740 | 1385 | | | 979 | | 560 | |
| 20M | | 20859 | 3 | | | | | 1170 | 1310 | 1170 | | | 828 | | 821 | |
| 20M | | 20B100 | 25 | | | | | 200 | 1740 | 1385 | | | 141 | | 575 | |
| 20M | | 20B101 | 3 | | | 579 | 1283 | 1170 | | | | | 907 | | 907 | |
| 20M | | 20B102 | 17 | | | 1670 | 496 | 1670 | | | | | | | | |
| 20M | | 20B108 | 17 | | | 1670 | 397 | 1670 | | | | | | | | |
| 20M | | 20B109 | 17 | | | 1670 | 232 | 1670 | | | | | | | | |
| 15M | | 15896 | L9 | 140 | 121 | 787 | 701 | 1740 | | 140 | 540 | | | | 477 | |
| | | | | | | | | | | | 540 | | | | 477 | |
| 15M | | 158103 | 71 | 140 | 208 | 532 | 308 | 532 | | 140 | | | | | | |
| 15M | | 158104 | 71 | 140 | 508 | 532 | 508 | 532 | | 140 | | | | | | |
| 15M | | 158106 | L10 | 140 | 195 | 1740 | 565 | 1210 | | 140 | 138 | | 138 | | | |
| | | | | | 195 | | 568 | | | | 138 | | 138 | | | |
| | | | | | | | | | | | 403 | | 402 | | | |
| | | | | | | | | | | | 403 | | 402 | | | |
| 15M | | 158110 | 17 | | 500 | 150 | 300 | | | | | | | | | |

3 | 17 | 23 | 41 | 49 | 71

## GENERAL NOTES ON REINFORCEMENT

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DIMENSIONS TO REINFORCEMENT ARE TO CENTRE LINES OF BARS, EXCEPT WHERE CONCRETE COVER OR CLEARANCE BETWEEN BARS IS SHOWN.

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SPLICES ARE TO BE MADE SO THAT THE CLEAR DISTANCE COVER WILL BE MAINTAINED.

LAP LENGTHS UNLESS SHOWN OTHERWISE:

| | HORZ | OTHER |
|---|---|---|
| 10M | 520 | 420 |
| 15M | 775 | 595 |
| 20M | 1030 | 790 |
| 25M | 1615 | 1240 |
| 30M | 1940 | 1485 |
| 35M | | |

**PLACEMENT:**
PLACE REINFORCING STEEL IN ACCORDANCE WITH CSA CAN3-A23.1-94.

REINFORCEMENT MAY BE DISPLACED TO CLEAR PIPES, RECESSES, EMBEDDED METAL WORKS AND CONDUITS.

A MINIMUM CLEARANCE OF 1" SHALL BE MAINTAINED BETWEEN REINFORCEMENT AND EMBEDDED MATERIALS. THE MAXIMUM CLEARANCE BETWEEN REINFORCEMENT

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| | | | |
|---|---|---|---|
| B.L.L. | BOTTOM LOWER LAYER | BOT | BOTTOM |
| B.U.L. | BOTTOM UPPER LAYER | TOP | TOP |
| W.L.L. | WEB LOWER LAYER | T&B | TOP & BOTTOM |
| W.U.L. | WEB UPPER LAYER | L-R | LEFT TO RIGHT |
| T.L.L. | TOP LOWER LAYER | B-T | BOTTOM TO TOP |
| T.U.L. | TOP UPPER LAYER | C.S. | CORNER BAR |
| E.R. | EACH ROW | T.O.H. | TYPICAL OPPOSITE HAND |
| BNT. | BENT | RAL | FROM RIGHT TO LEFT |
| | | F.B. | FIELD BEND |
| | | C.I.F. | CUT IN FIELD |
| | | T.O.W. | TOP OF WALL |
| | | T.O.F. | TOP OF FOOTING |
| | | B.O.W. | BOTTOM OF WALL |
| | | T.O.C. | TOP OF CONCRETE |
| | | B.O.C. | BOTTOM OF CONCRETE |
| | | ELEV. | ELEVATION |

| | |
|---|---|
| @ | SPACING CENTER TO CENTER |
| | DIRECTION IN WHICH BARS EXTEND |
| | LIMITS OF AREA COVERED BY BARS |
| | REBAR TOP/NEAR FACE |
| | REBAR BOT/FAR FACE |
| I.F. | INSIDE FACE |
| O.F. | OUTSIDE FACE |
| N.F. | NEAR FACE |
| F.F. | FAR FACE |
| E.W. | EACH WAY |
| VERT | VERTICAL |
| HORZ | HORIZONTAL |
| DWLS | DOWELS |
| FTG | FOOTING |
| COL | COLUMN |

| PREFIX TRANS. NOS. | B 2.5 |
|---|---|

| NO. | REVISION | DATE |
|---|---|---|
| | C2 REVIEW | AUG 29/18 |

PRINT RECORD: TO: C | FOR: A | DATE: 23/AUG/18

REINFORCING STEEL PLACING PLAN

MCNISH STEEL LTD.
10636 - 205 STREET
EDMONTON, ALBERTA
PHONE 447-3337 FAX 447-3379

PROJECT : STRATHCOLD (EAGLE GOLD PROJECT)
CONTR. : CLARK BUILDERS
DWG-SF : SECONDARY CRUSHER (CRUSHER BASE - 4 RES'D)
ENGR. : HATCH
DRAWN BY : MMM. DATE : 23/AUG/2018

JOB NO. 18-042 | DWG. NO. 002 C

DO NOT PLACE AT BM BEAM LOCATIONS.
SEE BM DETAILS FOR ALTERNATE (STRAIGHT) BAR

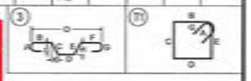
15E 20M 20802 SPLICE DALS 4800mm

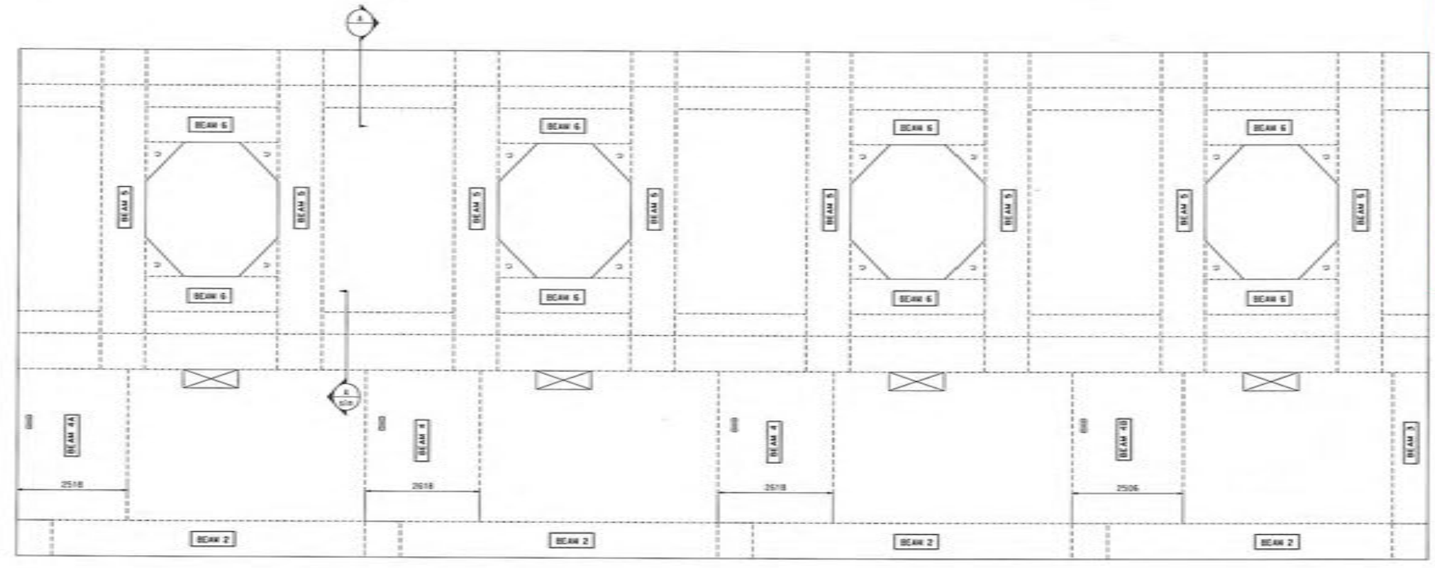
3 x 2 Runs - Lap 1620
Each run consisting of:
4 25M 5000 DIAG.HORZ
1 25M 2330

* 3 BARS PER 2 SIDES *

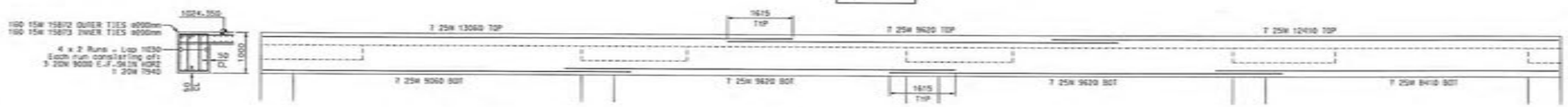
A DIAGONAL REINF.

| SIZE | EP | BAR MARK | # | BND TYP | CD | BENDING DIMENSIONS A | B | C | D | E | F/R | G | H | J | K | O |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 20M | | 20802 | 2 | | | | 1900 | 400 | | | | | 285 | | 285 | |
| 15M | | 15872 | | T1 | | 140 | 700 | 500 | 700 | 500 | | 140 | | | | |
| 15M | | 15873 | | T1 | | 140 | 276 | 500 | 276 | 500 | | 140 | | | | |
| 15M | | 15874 | | T1 | | 140 | 1700 | 550 | 1700 | 550 | | 140 | | | | |
| 15M | | 15875 | | T1 | | 140 | 1496 | 550 | 1496 | 550 | | 140 | | | | |
| 15M | | 15876 | | T1 | | 140 | 1633 | 550 | 1633 | 550 | | 140 | | | | |
| 15M | | 15877 | | T1 | | 140 | 1437 | 550 | 1437 | 550 | | 140 | | | | |
| 15M | | 15878 | | T1 | | 140 | 1625 | 550 | 1625 | 550 | | 140 | | | | |
| 15M | | 15879 | | T1 | | 140 | 1430 | 550 | 1430 | 550 | | 140 | | | | |
| 15M | | 15880 | | T1 | | 140 | 700 | 550 | 700 | 550 | | 140 | | | | |
| 15M | | 15881 | | T1 | | 140 | 191 | 550 | 191 | 550 | | 140 | | | | |
| 15M | | 15882 | | T1 | | 140 | 676 | 900 | 676 | 900 | | 140 | | | | |
| 15M | | 15883 | | T1 | | 140 | 740 | 844 | 740 | 844 | | 140 | | | | |






BEAM 2




BEAM 3
1 REQ'D
6 25M 5750 BOTTOM
6 25M 5750 TOP
18 15M 15880 OUTER TIES @200mm
18 15M 15881 INNER TIES @200mm
TO TIE ALL 4 SIDES

BEAM 4
2 REQ'D
13x2 25M 5750 BOTTOM
13x2 25M 5750 TOP
18x2 15M 15874 TIES @200mm (LEFT)
18x2 15M 15876 TIES @200mm (RIGHT)
TO TIE ALL 4 SIDES

BEAM 4A
1 REQ'D
13 25M 5750 BOTTOM
13 25M 5750 TOP
18 15M 15876 TIES @200mm (LEFT)
18 15M 15877 TIES @200mm (RIGHT)
TO TIE ALL 4 SIDES

BEAM 4B
1 REQ'D
13 25M 5750 BOTTOM
13 25M 5750 TOP
18 15M 15878 TIES @200mm (LEFT)
18 15M 15879 TIES @200mm (RIGHT)
TO TIE ALL 4 SIDES

BEAM 5
8 REQ'D
14x8 25M 7100 BOT (2 LAYERS)
7x8 25M 7100 TOP
2x8 20M 7100 SIDE HORZ
DOUBLE TIES — 12x8 15M 15882 TIES @200mm
TO TIE 5 SIDES

BEAM 6
8 REQ'D
(PLACE AT BM BEAMS ONLY)
16x8 20M 1700 SPLICE DALS @200mm
5 x 2 Runs - Lap 1620
Each run consisting of:
4 25M 5000 DIAG.HORZ
1 25M 2330
* 3 BARS PER 2 SIDES *
4x8 25M 4900 BOTTOM
4x8 25M 4900 TOP
4x8 20M 4900 SIDE HORZ
16x8 15M 15883 TIES @200mm
TO TIE

HATCH Vendor/Contractor Document Review

| | |
|---|---|
| Doc Number | E354138-CB201-230-260-0010 SUB 03 |
| Date Received | 2018-09-18 |
| Review Grade | Next Submittal Status |
| ☐ C1 - Proceed to next submission & status | ☐ Certified |
| ☐ C2 - Proceed with exceptions as noted to next submission & status | ☐ As-Built |
| ☐ C3 - Do not proceed. Revise as noted & resubmit | ☐ Internal Review |
| Next Submittal Date: | ☐ Certified ☐ As-Built |
| ☒ C4 - No further submission required - Complete (select status below) | ☐ Certified Final ☒ Final ☐ Cancelled ☐ Superseded |

Package Engineer: Name, signature and date
ESLA ALENCI, EA, Sep 21, 2018

Reviewed only for general conformity with the specifications. Acceptance by the engineer does not warrant or represent that the information contained on this drawing/document is either accurate or complete. The sole responsibility for correct design, details & dimensions shall remain with the party submitting the drawing/document.

## GENERAL NOTES ON REINFORCEMENT

THE FOLLOWING NOTES SHALL APPLY TO ALL REINFORCEMENT SHOWN ON THE DRAWINGS UNLESS OTHERWISE NOTED.

DIMENSIONS:
DIMENSIONS TO REINFORCEMENT ARE TO CENTRE LINES OF BARS. EXCEPT WHERE CONCRETE COVER OR CLEARANCE BETWEEN BARS IS SHOWN.

COVER:
SEE STRUCTURAL ENGINEER TYPICAL NOTES FOR ALL COVER SPECIFICATIONS.

SPACING:
UNLESS OTHERWISE SHOWN, THE FIRST AND LAST BARS IN SLABS AND WALLS, STIRRUPS IN BEAMS SHALL BE PLACED AT MAXIMUM OF HALF THE SPECIFIED SPACING OF ADJACENT BARS FROM THE END OF THE MEMBER.

STEEL SPECIFICATIONS:
STEEL REINFORCEMENT SHALL BE DEFORMED BARS OF GRADE 400 CONFORMING TO CSA STANDARDS G30.12 BILLET-STEEL BARS FOR CONCRETE REINFORCEMENT.

WELDING:
WELDING OF REINFORCEMENT SHALL NOT BE PERMITTED.

SPLICES AND EMBEDMENTS:
UNLESS OTHERWISE SPECIFIED, ALL EMBEDMENTS SHALL BE TREATED AS TENSION EMBEDMENTS AND ALL LAP SPLICES SHALL BE CONSIDERED AS TENSION LAP SPLICES.

WHEN REINFORCING BARS OF DIFFERENT SIZE ARE TO BE SPLICED, THE LENGTH OF THE LAP SHALL BE BASED ON THE DIAMETER OF THE SMALLER BAR.

SPLICES ARE TO BE MADE SO THAT THE GIVEN CLEAR DISTANCE COVER WILL BE MAINTAINED.

LAP LENGTHS UNLESS SHOWN OTHERWISE:

| | HORZ | OTHER |
|---|---|---|
| 10M | 300 | 400 |
| 15M | 775 | 585 |
| 20M | 1000 | 790 |
| 25M | 1675 | 1240 |
| 30M | 1940 | 1485 |
| 35M | | |

PLACEMENT:
PLACE REINFORCING STEEL IN ACCORDANCE WITH CSA CAN3-A23.1-M.

REINFORCEMENT MAY BE DISPLACE TO CLEAR PIPES, RECESSES, EMBEDDED METAL WORKS AND CONDUITS.

A MINIMUM CLEARANCE OF 1" SHALL BE MAINTAINED BETWEEN REINFORCEMENT AND EMBEDDED MATERIALS. THE MINIMUM CLEARANCE BETWEEN REINFORCEMENT

REINFORCEMENT SHALL BE ACCURATELY PLACED IN ACCORDANCE WITH THE DRAWING AND SHALL BE ADEQUATELY SECURED AGAINST DISPLACEMENT BY USING ANNEALED IRON WIRE AT INTERSECTIONS AND SHALL BE SUPPORTED BY APPROVED CONCRETE OR METAL SUPPORTS. SPACERS OR METAL HANGERS EXCEPT AT SURFACES EXPOSED TO THE GROUND OR TO THE WEATHER WHERE SUPPORTS SHALL BE APPROVED. ALL METAL ACCESSORIES ARE TO BE GALVANIZED.

THE FULL INTENT AND PURPOSE OF THESE DRAWINGS IS PLACING OF REINFORCING STEEL BARS ONLY. IT IS NOT TO BE USED AS A MEANS OF COMMUNICATION BETWEEN THE ARCHITECT, ENGINEER, CONTRACTOR OR ANY OTHER SUBTRADE.

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| | |
|---|---|
| @ | - SPACING CENTER TO CENTER |
| ←→ | - DIRECTION IN WHICH BARS EXTEND |
| ←---→ | - LIMITS OF AREA COVERED BY BARS |
| ------ | - REBAR TOP/NEAR FACE |
| - - - - | - REBAR BOT/FAR FACE |
| I.F. | - INSIDE FACE |
| O.F. | - OUTSIDE FACE |
| N.F. | - NEAR FACE |
| F.F. | - FAR FACE |
| E.W. | - EACH WAY |
| VERT | - VERTICAL |
| HORZ | - HORIZONTAL |
| DWLS | - DOWELS |
| FTG | - FOOTING |
| COL | - COLUMN |
| BOT | - BOTTOM |
| TOP | - TOP |
| T&B | - TOP & BOTTOM |
| L-R | - LEFT TO RIGHT |
| B-T | - BOTTOM TO TOP |
| C.B. | - CORNER BAR |
| T.O.H. | - TYPICAL OPPOSITE HAND |
| R/L | - FROM RIGHT TO LEFT |
| F.B. | - FIELD BEND |
| C.I.F. | - CUT IN FIELD |
| T.O.W. | - TOP OF WALL |
| T.O.F. | - TOP OF FOOTING |
| B.O.W. | - BOTTOM OF WALL |
| T.O.C. | - TOP OF CONCRETE |
| B.O.C. | - BOTTOM OF CONCRETE |
| ELEV. | - ELEVATION |

B-L.L. - BOTTOM LOWER LAYER
B-U.L. - BOTTOM UPPER LAYER
M-L.L. - MID LOWER LAYER
M-U.L. - MID UPPER LAYER
T-L.L. - TOP LOWER LAYER
T-U.L. - TOP UPPER LAYER
E.R. - EACH ROW
BMT. - BEAM

PREFIX B
TRANS- 2-5
NOS.

PRINT RECORD

| NO. | REVISION | DATE | NO. | TO. | FOR | DATE |
|---|---|---|---|---|---|---|
| | C2 REVIEW | AUG 25/18 | 1 | C | A | 25/AUG/18 |

MCNISH STEEL LTD.
10636 - 205 STREET
EDMONTON, ALBERTA
PHONE 447-3331 FAX 447-3379

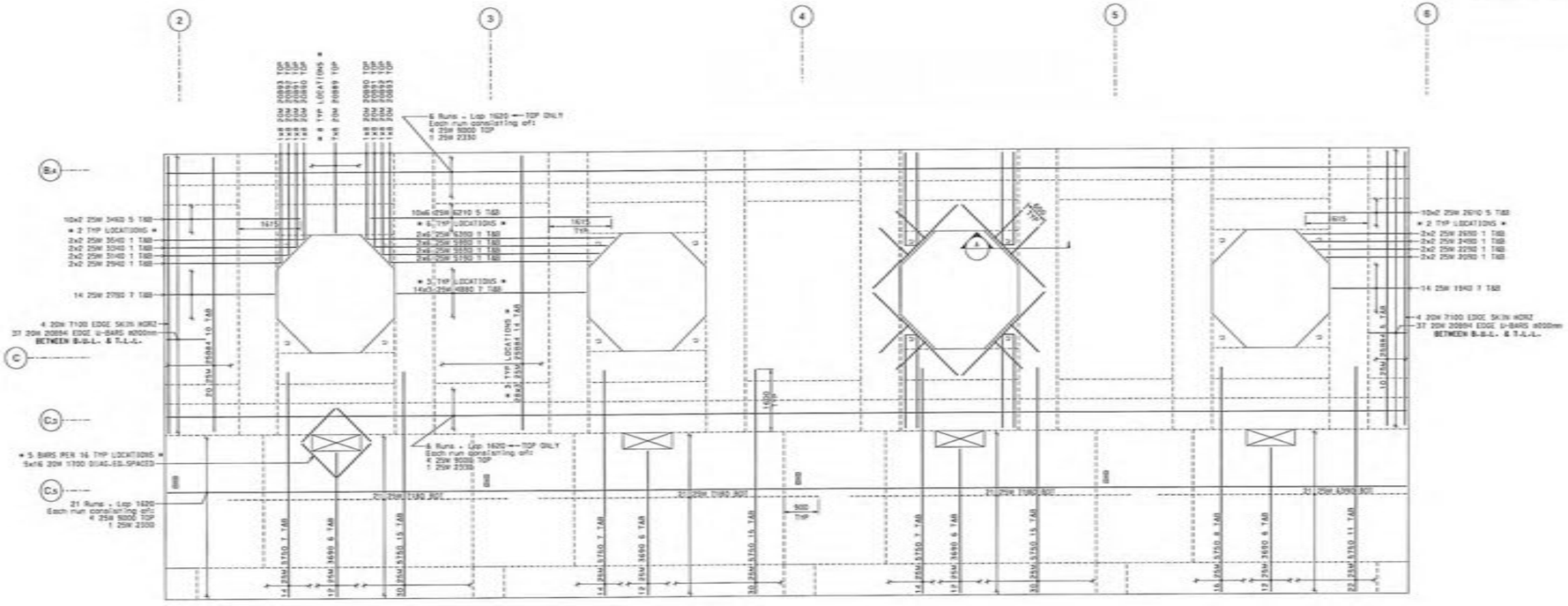
REINFORCING STEEL PLACING PLAN

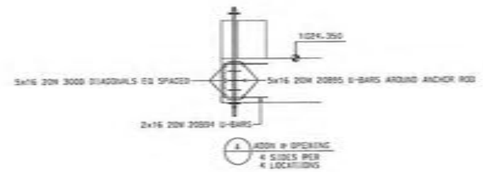
PROJECT : STRATHCOLD (EAGLE GOLD PROJECT)
CONTR. : CLARK BUILDERS
DWG.OF : SECONDARY CRUSHER (SUSPENDED SLAB - BEAMS)
ENGR. : HATCH
DRAWN BY : MARK
DATE : 25/AUG/2018

JOB NO. 18-042 | DWG. NO. 002 D

| SIZE | EP | BAR MARK | N | BND TYP | CD | A | BENDING DIMENSIONS B | C | D | E | F/R | G | H | J | K | O |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 25M | | 20884 | | 17 | | | 750 | 7000 | 750 | | | | | | | |
| 20M | | 20889 | | 17 | | | 850 | 1945 | 1300 | | | | | | | |
| 20M | | 20890 | | 17 | | | 850 | 2099 | 1300 | | | | | | | |
| 20M | | 20891 | | 17 | | | 850 | 2299 | 1300 | | | | | | | |
| 20M | | 20892 | | 17 | | | 850 | 2499 | 1300 | | | | | | | |
| 20M | | 20893 | | 17 | | | 850 | 2699 | 1300 | | | | | | | |
| 20M | | 20894 | | 17 | | | 1000 | 808 | 1000 | | | | | | | |
| 20M | | 20895 | | 17 | | | 2378 | 300 | 2378 | | | | | | | |

17




## SLAB ORIENTATION

SPACING @200mm o/c




* FIELD CUT TO SUIT AS REQUIRED *

McNISH STEEL

2018-08-30

Printed for Construction

## GENERAL NOTES ON REINFORCEMENT

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SPLICES ARE TO BE MADE SO THAT THE GIVEN CLEAR DISTANCE COVER WILL BE MAINTAINED.

LAP LENGTHS UNLESS SHOWN OTHERWISE:

| | HORZ | OTHER |
|---|---|---|
| 10M | 520 | 400 |
| 15M | 775 | 595 |
| 20M | 1030 | 790 |
| 25M | 1675 | 1240 |
| 30M | 1940 | 1485 |
| 35M | | |

**PLACEMENT:**
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B-L.-L. - BOTTOM LOWER LAYER
B-U.-L. - BOTTOM UPPER LAYER
M.-L.-L. - MID LOWER LAYER
M.-U.-L. - MID UPPER LAYER
T.-L.-L. - TOP LOWER LAYER
T.-U.-L. - TOP UPPER LAYER
E.-R. - EACH ROW
BNT. - BENT

@ - SPACING CENTER TO CENTER
- DIRECTION IN WHICH BARS EXTEND
- LIMITS OF AREA COVERED BY BARS
- REBAR TOP/NEAR FACE
- REBAR BOT/FAR FACE
I.F. - INSIDE FACE
O.F. - OUTSIDE FACE
N.F. - NEAR FACE
F.F. - FAR FACE
E.W. - EACH WAY
VERT - VERTICAL
HORZ - HORIZONTAL
DWLS - DOWELS
FTG - FOOTING
COL - COLUMN

BOT - BOTTOM
TOP - TOP
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L-R - LEFT TO RIGHT
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C.B. - CORNER BAR
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T.O.W. - TOP OF WALL
T.O.F. - TOP OF FOOTING
B.O.W. - BOTTOM OF WALL
T.O.C. - TOP OF CONCRETE
B.O.C. - BOTTOM OF CONCRETE
ELEV. - ELEVATION

| PREFIX | B |
|---|---|
| TRANS. NOS. | 2-5 |

PRINT RECORD

| NO. | REVISION | DATE | TO | FOR | DATE |
|---|---|---|---|---|---|
| C2 | REVIEW | AUG 29/18 | IC | A | 29/AUG/18 |

# REINFORCING STEEL PLACING PLAN

MCNISH STEEL LTD.
10636 - 205 STREET
EDMONTON, ALBERTA
PHONE 447-3337 FAX 447-3379

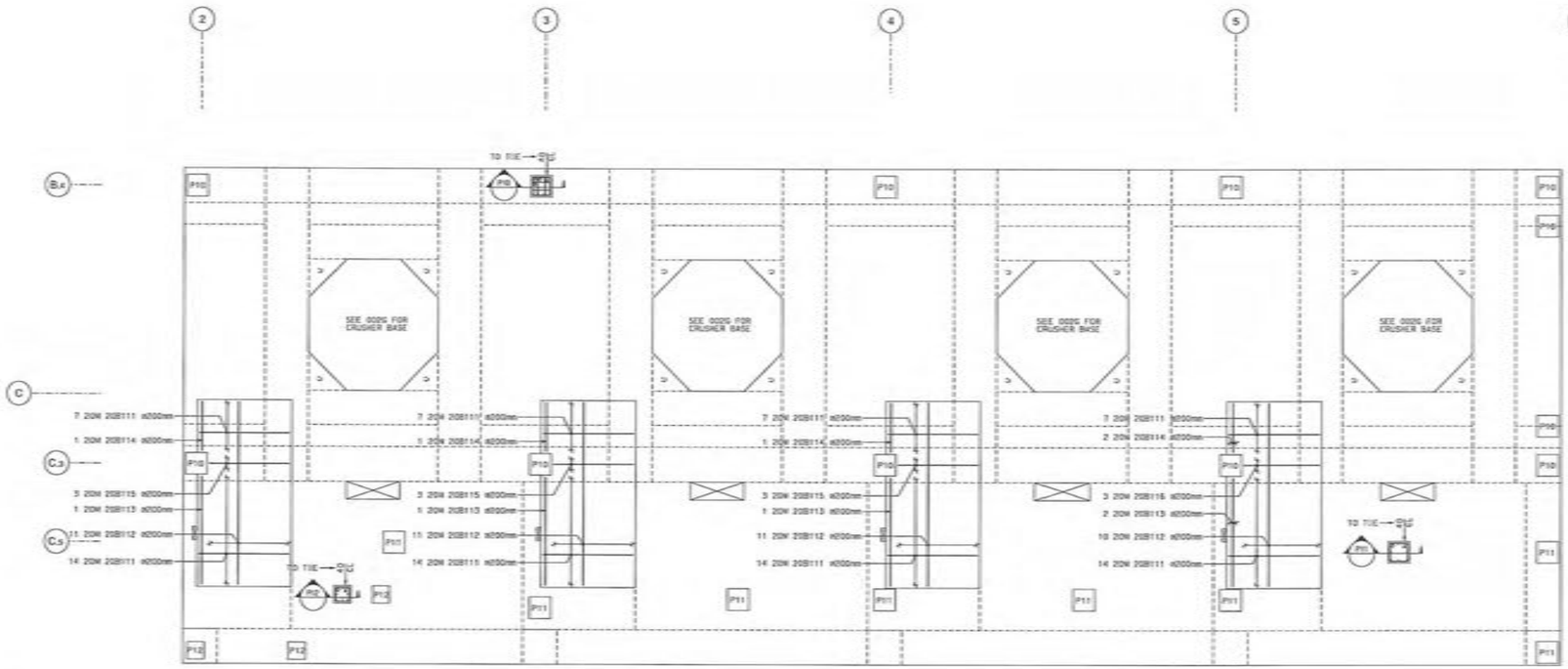
PROJECT : STRATAGOLD (EAGLE GOLD PROJECT)
CONTR. : CLARK BUILDERS
DWG-OF : SECONDARY CRUSHER (SUSPENDED SLAB - TOP & BOT)
ENGR. : HATCH
DRAWN BY : MARK
DATE : 29/AUG/2018

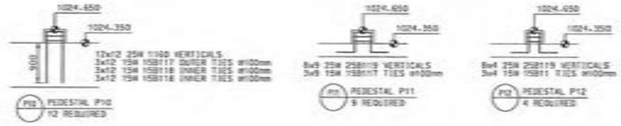
JOB NO. 18-042 | DWG. NO. 002 E

| SIZE | EP | BAR MARK | W | BND TYP | CD | A | B | C | D | BENDING DIMENSIONS E | F/R | G | H | J | K | O |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 25M | | 25B119 | | T7 | | | 400 | 454 | | | | | | | | |
| 20M | | 20B101 | | T7 | | | 500 | 2100 | 500 | | | | | | | |
| 20M | | 20B102 | | T7 | | | 500 | 4200 | 500 | | | | | | | |
| 20M | | 20B103 | | T7 | | | 500 | 2481 | 500 | | | | | | | |
| 20M | | 20B104 | | T7 | | | 500 | 1119 | 500 | | | | | | | |
| 20M | | 20B105 | | T7 | | | 500 | 1868 | 500 | | | | | | | |
| 20M | | 20B106 | | T7 | | | 500 | 1756 | 500 | | | | | | | |
| 15M | | 15B01 | | T1 | | 140 | 320 | 320 | 320 | 320 | | 140 | | | | |
| 15M | | 15B107 | | T1 | | 140 | 420 | 420 | 420 | 420 | | 140 | | | | |
| 15M | | 15B108 | | T1 | | 140 | 185 | 420 | 183 | 420 | | 140 | | | | |

T7

T1




McNISH STEEL

2018-08-30

Printed for Construction

## GENERAL NOTES ON REINFORCEMENT

THE FOLLOWING NOTES SHALL APPLY TO ALL REINFORCEMENT SHOWN ON THE DRAWINGS UNLESS OTHERWISE NOTED.

DIMENSIONS:
DIMENSIONS TO REINFORCEMENT ARE TO CENTRE LINES OF BARS, EXCEPT WHERE CONCRETE COVER OR CLEARANCE BETWEEN BARS IS SHOWN.

COVER:
SEE STRUCTURAL ENGINEER TYPICAL NOTES FOR ALL OTHER SPECIFICATIONS

SPACING:
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STEEL SPECIFICATIONS:
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| | HORZ | OTHER |
|---|---|---|
| 10M | 535 | 400 |
| 15M | 775 | 595 |
| 20M | 1030 | 790 |
| 25M | 1675 | 1240 |
| 30M | 1940 | 1485 |
| 35M | | |

PLACEMENT:
PLACE REINFORCING STEEL IN ACCORDANCE WITH CSA A23.1-09.

REINFORCEMENT MAY BE DISPLACED TO CLEAR PIPES, RECESSES, EMBEDDED METAL WORKS AND CONDUITS.

A MINIMUM CLEARANCE OF ½" SHALL BE MAINTAINED BETWEEN REINFORCEMENT AND EMBEDDED MATERIALS. THE MINIMUM CLEARANCE BETWEEN REINFORCEMENT

REINFORCEMENT SHALL BE ACCURATELY PLACED IN ACCORDANCE WITH THE DRAWING AND SHALL BE ADEQUATELY SECURED AGAINST DISPLACEMENT BY USING ANNEALED IRON WIRE AT INTERSECTIONS AND SHALL BE SUPPORTED BY APPROVED CONCRETE OR METAL SUPPORTS. SPACERS OR METAL HANGERS EXCEPT AT SURFACES EXPOSED TO THE GROUND OR TO THE WEATHER WHERE SUPPORTS SHALL BE APPROVED. ALL METAL ACCESSORIES ARE TO BE GALVANIZED.

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| | |
|---|---|
| B-U-L- | BOTTOM LOWER LAYER |
| B-U-U- | BOTTOM UPPER LAYER |
| M-U-L- | MID LOWER LAYER |
| M-U-U- | MID UPPER LAYER |
| T-U-L- | TOP LOWER LAYER |
| T-U-U- | TOP UPPER LAYER |
| E.R. | EACH ROW |
| BNT. | BENT |

| | |
|---|---|
| @ | SPACING CENTER TO CENTER |
| | DIRECTION IN WHICH BARS EXTEND |
| | LIMITS OF AREA COVERED BY BARS |
| | REBAR TOP/NEAR FACE |
| | REBAR BOT/FAR FACE |
| I.F. | INSIDE FACE |
| O.F. | OUTSIDE FACE |
| N.F. | NEAR FACE |
| F.F. | FAR FACE |
| E.W. | EACH WAY |
| VERT | VERTICAL |
| HORZ | HORIZONTAL |
| DWLS | DOWELS |
| FTG | FOOTING |
| COL | COLUMN |

| | |
|---|---|
| BOT | BOTTOM |
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| B.O.C. | BOTTOM OF CONCRETE |
| ELEV. | ELEVATION |

| PREFIX | B |
|---|---|
| TRANS. | 2-5 |
| NOS. | |

PRINT RECORD

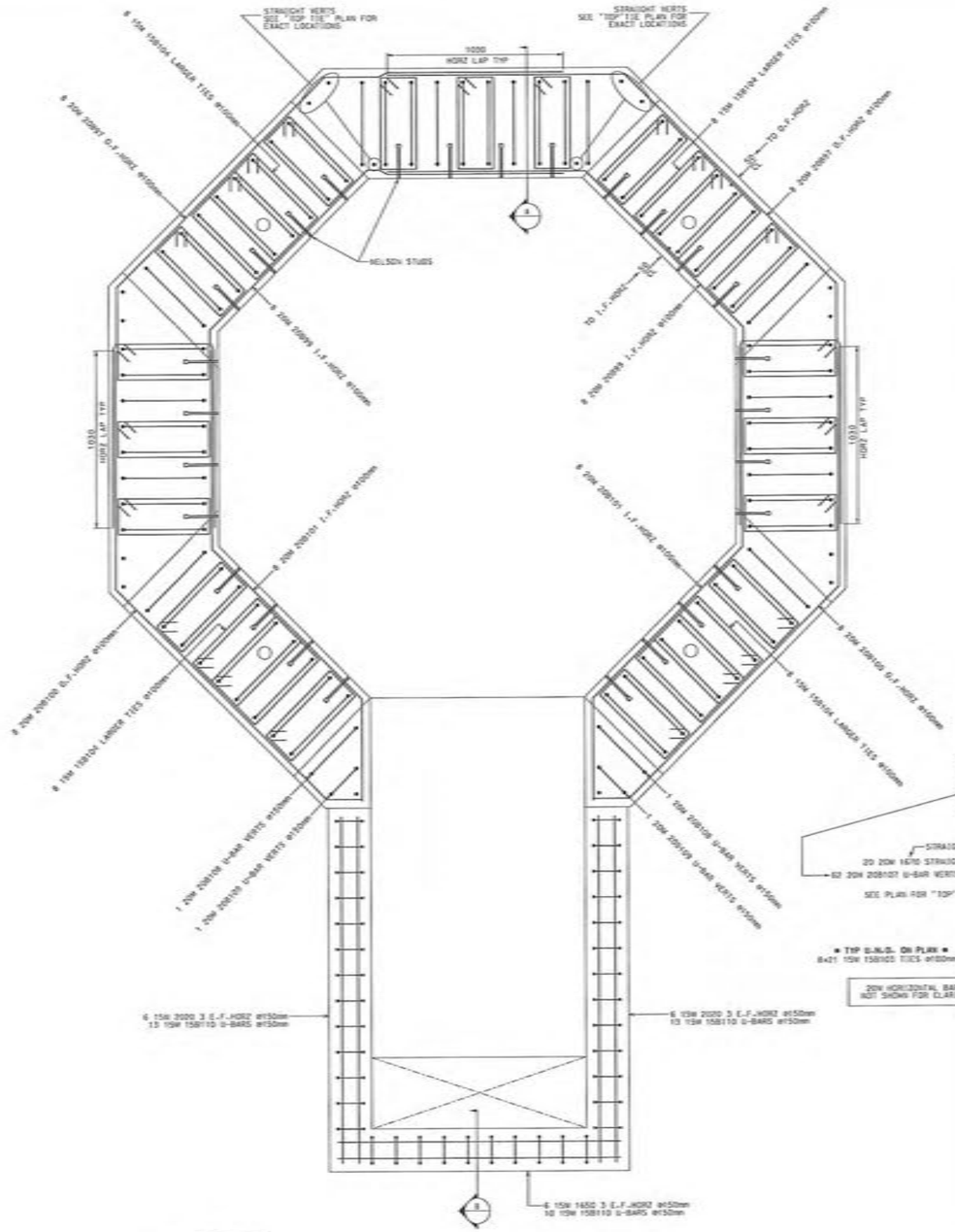
| NO. | REVISION | DATE | TO | FOR | DATE |
|---|---|---|---|---|---|
| | 42 REVIEW | AUG 23/18 | | | |
| | | | C | A | 23/AUG/18 |

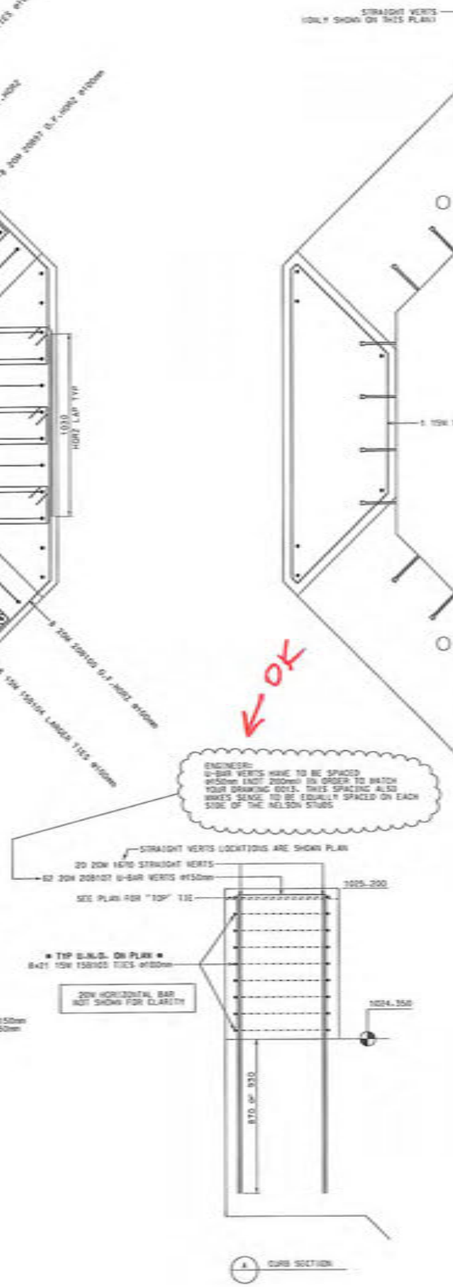
# REINFORCING STEEL PLACING PLAN

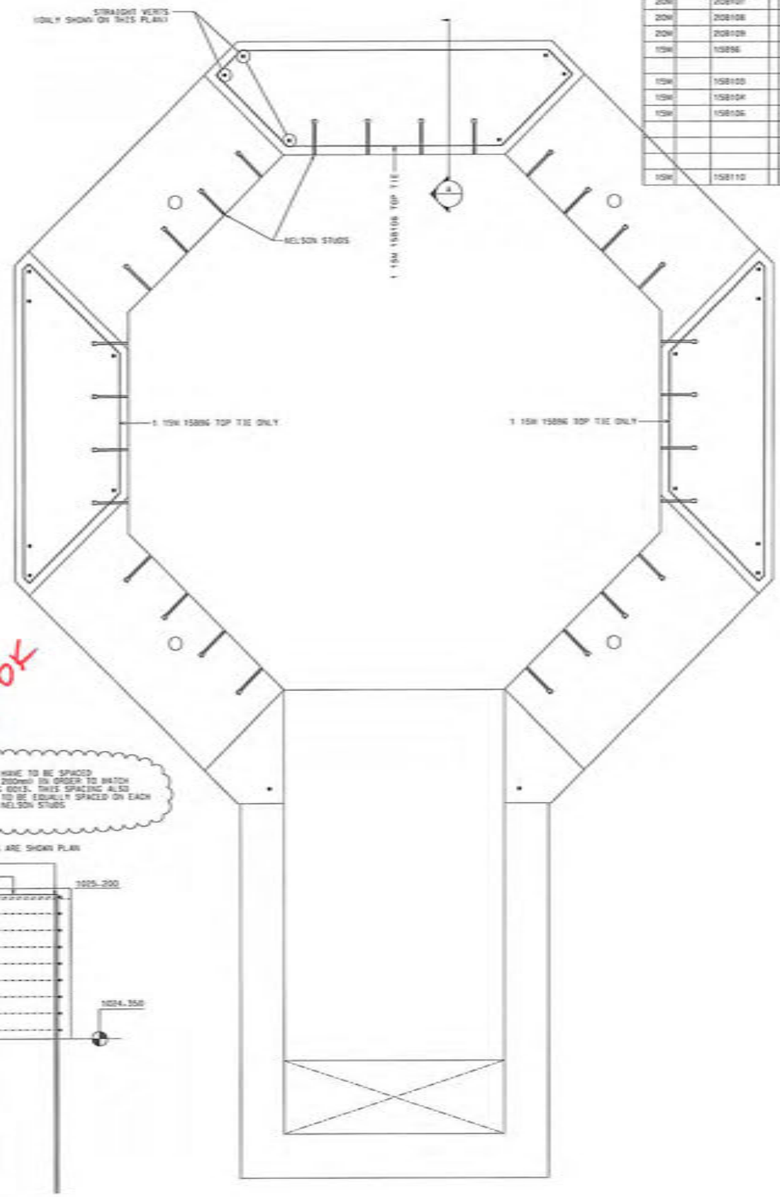
MCNISH STEEL LTD.
10636 - 205 STREET
EDMONTON, ALBERTA
PHONE 447-3337 FAX 447-3379

| | |
|---|---|
| PROJECT | : STRATAGOLD (EAGLE GOLD PROJECT) |
| CONTR. | : CLARK BUILDERS |
| DWG-OF | : SECONDARY CRUSHER (SUSPENDED SLAB - PADS & PEDS) |
| ENGR. | : WATCH |
| DRAWN BY | : MARK |
| DATE | : 23/AUG/2018 |

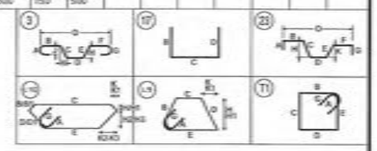
JOB NO. 18-042 | DWG. NO. 002 F




| SIZE | EP | BAR MARK | V | BND TYP | CD | BENDING DIMENSIONS A | B | C | D | E | F,W | G | H | J | K | O |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 20M | | 208B7 | | 3 | | | | 1385 | 1740 | 1385 | | | 979 | | 980 | |
| 20M | | 208B9 | | 3 | | | | 1170 | 1310 | 1170 | | | 828 | | 827 | |
| 20M | | 208100 | | 23 | | | | 200 | 1740 | 1385 | | | 141 | | 975 | |
| 20M | | 208101 | | 3 | | 575 | 1265 | 1170 | | | | | 907 | | 907 | |
| 20M | | 208107 | | 17 | | | 1670 | 496 | 1670 | | | | | | | |
| 20M | | 208108 | | 17 | | | 1670 | 297 | 1670 | | | | | | | |
| 20M | | 208109 | | 17 | | | 1670 | 232 | 1670 | | | | | | | |
| 15M | | 15BB6 | | L9 | 140 | 721 | | 787 | 701 | 1740 | | 140 | 540 | | 477 | |
| | | | | | | | | | | | | | 540 | | 477 | |
| 15M | | 158103 | | T1 | 140 | 208 | 532 | 208 | 532 | | | 140 | | | | |
| 15M | | 158104 | | T1 | 140 | 508 | 532 | 508 | 532 | | | 140 | | | | |
| 15M | | 158106 | | L10 | 140 | 195 | 1740 | 569 | 1210 | | | 140 | 138 | | 138 | |
| | | | | | | 195 | | 569 | | | | | 138 | | 138 | |
| | | | | | | | | | | | | | 403 | | 402 | |
| | | | | | | | | | | | | | 403 | | 402 | |
| 15M | | 158110 | | 17 | | 500 | 150 | 500 | | | | | | | | |

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**SPLICES AND EMBEDMENTS:**
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WHEN REINFORCING BARS OF DIFFERENT SIZE ARE TO BE SPLICED, THE LENGTH OF THE LAP SHALL BE BASED ON THE DIAMETER OF THE SMALLER BAR.

SPLICES ARE TO BE MADE SO THAT THE GIVEN CLEAR DISTANCE COVER WILL BE MAINTAINED.

LAP LENGTHS UNLESS SHOWN OTHERWISE:

| | HORZ | OTHER |
|---|---|---|
| 10M | 530 | 400 |
| 15M | 775 | 595 |
| 20M | 1030 | 790 |
| 25M | 1615 | 1240 |
| 30M | 1940 | 1485 |
| 35M | | |

**PLACEMENT:**
PLACE REINFORCING STEEL IN ACCORDANCE WITH CSA CAN3-A23.1-16.

REINFORCEMENT MAY BE DISPLACED TO CLEAR PIPES, RECESSES, EMBEDDED METAL WORKS AND CONDUITS.

A MINIMUM CLEARANCE OF ½" SHALL BE MAINTAINED BETWEEN REINFORCEMENT AND EMBEDDED MATERIALS. THE MINIMUM CLEARANCE BETWEEN REINFORCEMENT

REINFORCEMENT SHALL BE ACCURATELY PLACED IN ACCORDANCE WITH THE DRAWING AND SHALL BE ADEQUATELY SECURED AGAINST DISPLACEMENT BY USING ANNEALED IRON WIRE AT INTERSECTIONS AND SHALL BE SUPPORTED BY APPROVED CONCRETE OR METAL SUPPORTS. SPACERS OR METAL HANGERS EXCEPT AT SURFACES EXPOSED TO THE GROUND OR TO THE WEATHER WHERE SUPPORTS SHALL BE APPROVED. ALL METAL ACCESSORIES ARE TO BE GALVANIZED.

THE FULL INTENT AND PURPOSE OF THESE DRAWINGS IS PLACING OF REINFORCING STEEL BARS ONLY. IT IS NOT TO BE USED AS A MEANS OF COMMUNICATION BETWEEN THE ARCHITECT, ENGINEER, CONTRACTOR OR ANY OTHER SUBTRADE.

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| | |
|---|---|
| @ | - SPACING CENTER TO CENTER |
| | - DIRECTION IN WHICH BARS EXTEND |
| ——— | - LIMITS OF AREA COVERED BY BARS |
| ——— | - REBAR TOP/NEAR FACE |
| - - - - | - REBAR BOT/FAR FACE |
| I.F. | - INSIDE FACE |
| O.F. | - OUTSIDE FACE |
| N.F. | - NEAR FACE |
| F.F. | - FAR FACE |
| E.W. | - EACH WAY |
| VERT | - VERTICAL |
| HORZ | - HORIZONTAL |
| DWLS | - DOWELS |
| FTG | - FOOTING |
| COL | - COLUMN |
| BOT | - BOTTOM |
| TOP | - TOP |
| T&B | - TOP & BOTTOM |
| L-R | - LEFT TO RIGHT |
| B-T | - BOTTOM TO TOP |
| C.B. | - CORNER BAR |
| T.O.H. | - TYPICAL OPPOSITE HAND |
| R.H. | - FROM RIGHT TO LEFT |
| F.B. | - FIELD BEND |
| C.I.F. | - CUT IN FIELD |
| T.O.W. | - TOP OF WALL |
| T.O.F. | - TOP OF FOOTING |
| B.O.W. | - BOTTOM OF WALL |
| T.O.C. | - TOP OF CONCRETE |
| B.O.C. | - BOTTOM OF CONCRETE |
| ELEV. | - ELEVATION |

| | |
|---|---|
| B-L.L. | - BOTTOM LOWER LAYER |
| B-U.L. | - BOTTOM UPPER LAYER |
| M-L.L. | - MID LOWER LAYER |
| M-U.L. | - MID UPPER LAYER |
| T-L.L. | - TOP LOWER LAYER |
| T-U.L. | - TOP UPPER LAYER |
| E.R. | - EACH ROW |
| BNT. | - BENT |

PREFIX: B
TRANS. NOS.: 2-5

PRINT RECORD

| NO. | REVISION | DATE | TC | C | A | 23/AUG/18 |
|---|---|---|---|---|---|---|
| | C2 REVIEW | AUG 23/18 | | | | |

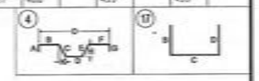
REINFORCING STEEL PLACING PLAN

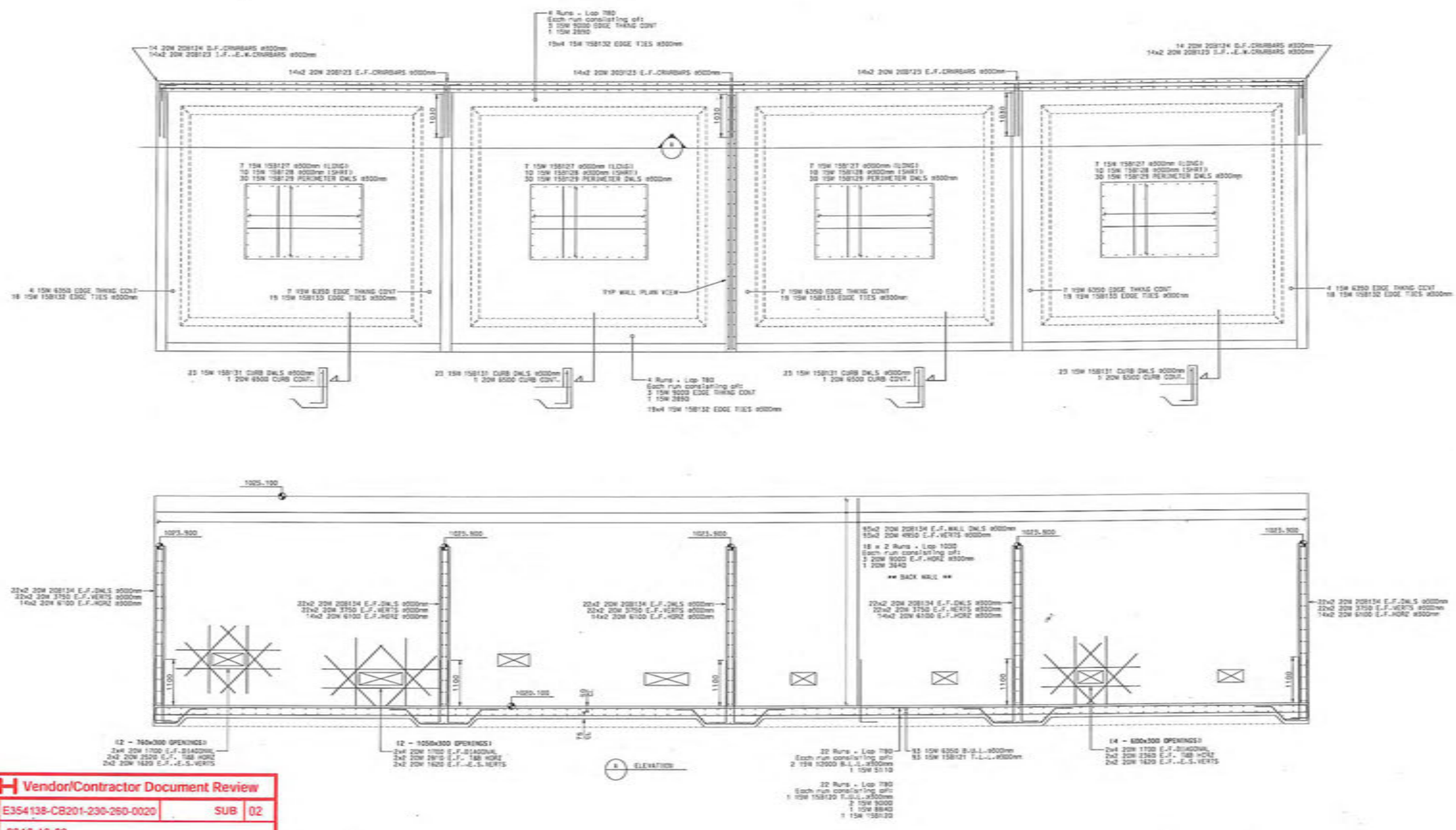
MCNISH STEEL LTD.
10636 - 205 STREET
EDMONTON, ALBERTA
PHONE 447-3337 FAX 447-3379

PROJECT : STRATHCOLD (EAGLE GOLD PROJECT)
CONTR. : CLARK BUILDERS
DWG.OF : SECONDARY CRUSHER (CRUSHER BASE - 4 RECTO)
ENGR. : MATCH
DRAWN BY : MARK
DATE : 23/AUG/2018

JOB NO. 18-042 | DWG. NO. 002 G

| SIZE | EP | BAR MARK | V | BND TYP | CD | A | B | C | D | BENDING DIMENSIONS E | F/R | G | H | J | K | O |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 20M | | 208123 | | 17 | | | 300 | 1258 | | | | | | | | |
| 20M | | 208124 | | 17 | | | 1258 | 1258 | | | | | | | | |
| 20M | | 208134 | | 17 | | | 400 | 1567 | | | | | | | | |
| 15M | | 158120 | | 17 | | | 200 | 1914 | | | | | | | | |
| 15M | | 158121 | | 17 | | | 200 | 6350 | 200 | | | | | | | |
| 15M | | 158127 | | 17 | | | 200 | 2700 | 200 | | | | | | | |
| 15M | | 158128 | | 17 | | | 200 | 1700 | 200 | | | | | | | |
| 15M | | 158129 | | 17 | | | 400 | 638 | | | | | | | | |
| 15M | | 158131 | | 17 | | | 300 | 887 | | | | | | | | |
| 15M | | 158132 | | 4 | | 400 | 519 | 621 | 400 | | | | 439 | | 439 | |
| 15M | | 158133 | | 4 | | | 400 | 621 | 1138 | 621 | 400 | | 439 | | 439 | |




## GENERAL NOTES ON REINFORCEMENT

THE FOLLOWING NOTES SHALL APPLY TO ALL REINFORCEMENT SHOWN ON THE DRAWINGS UNLESS OTHERWISE NOTED.

**DIMENSIONS:**
DIMENSIONS TO REINFORCEMENT ARE TO CENTRE LINES OF BARS, EXCEPT WHERE CONCRETE COVER OR CLEARANCE BETWEEN BARS IS SHOWN.

**COVER:**
SEE STRUCTURAL ENGINEER TYPICAL NOTES FOR ALL COVER SPECIFICATIONS

**SPACING:**
UNLESS OTHERWISE SHOWN, THE FIRST AND LAST BARS IN SLABS AND WALLS, STIRRUPS IN BEAMS SHALL BE PLACED AT MAXIMUM OF HALF THE SPECIFIED SPACING OF ADJACENT BARS FROM THE END OF THE MEMBER.

**STEEL SPECIFICATIONS:**
STEEL REINFORCEMENT SHALL BE DEFORMED BARS OF GRADE 400 CONFORMING TO CSA STANDARDS G30.12 BILLET-STEEL BARS FOR CONCRETE REINFORCEMENT.

**WELDING:**
WELDING OF REINFORCEMENT SHALL NOT BE PERMITTED.

**SPLICES AND EMBEDMENTS:**
UNLESS OTHERWISE SPECIFIED, ALL EMBEDMENTS SHALL BE TREATED AS TENSION EMBEDMENTS AND ALL LAP SPLICES SHALL BE CONSIDERED AS TENSION LAP SPLICES.

WHEN REINFORCING BARS OF DIFFERENT SIZE ARE TO BE SPLICED, THE LENGTH OF THE LAP SHALL BE BASED ON THE DIAMETER OF THE SMALLER BAR.

SPLICES ARE TO BE MADE SO THAT THE GIVEN CLEAR DISTANCE COULD NOT BE MAINTAINED.

LAP LENGTHS UNLESS SHOWN OTHERWISE:

| | WIRE | OTHER |
|---|---|---|
| 10M | 520 | 400 |
| 15M | 775 | 985 |
| 20M | 1030 | 790 |
| 25M | 1615 | 1240 |
| 30M | 1940 | 1485 |
| 35M | | |

**PLACEMENT:**
PLACE REINFORCING STEEL IN ACCORDANCE WITH CSA CAN3-A23.1-M.

REINFORCEMENT MAY BE DISPLACE TO CLEAR PIPES, RECESSES, EMBEDDED METAL WORKS AND CONDUITS.

A MINIMUM CLEARANCE OF 1" SHALL BE MAINTAINED BETWEEN REINFORCEMENT AND EMBEDDED MATERIALS. THE MINIMUM CLEARANCE BETWEEN REINFORCEMENT

REINFORCEMENT SHALL BE ACCURATELY PLACED IN ACCORDANCE WITH THE DRAWING AND SHALL BE ADEQUATELY SECURED AGAINST DISPLACEMENT BY USING APPROVED TIRON WIRE AT INTERSECTIONS AND SHALL BE SUPPORTED BY APPROVED CONCRETE OR METAL SUPPORTS. SPACERS OR METAL HANGERS EXCEPT AT SURFACES EXPOSED TO THE GROUND OR TO THE WEATHER WHERE SUPPORTS SHALL BE APPROVED. ALL METAL ACCESSORIES ARE TO BE GALVANIZED.

THE FULL INTENT AND PURPOSE OF THESE DRAWINGS IS PLACING OF REINFORCING STEEL BARS ONLY. IT IS NOT TO BE USED AS A WORKS OF COMMUNICATION BETWEEN THE ARCHITECT, ENGINEER, CONTRACTOR OR ANY OTHER SUBTRADE.

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**HATCH Vendor/Contractor Document Review**

| | | | |
|---|---|---|---|
| Doc Number | E354138-CB201-230-260-0020 | SUB | 02 |
| Date Received | 2018-10-29 | | |

| Review Grade | Next Submittal Status |
|---|---|
| ☐ C1 - Proceed to next submission & status<br>☐ C2 - Proceed with exceptions as noted to next submission & status | ☐ Certified<br>☐ As-Built |
| ☐ C3 - Do not proceed. Revise as noted & resubmit | ☐ Internal Review<br>☐ Certified ☐ As-Built |
| Next Submittal Date: | |
| ☒ C4 - No further submission required - Complete (select status below)<br>☐ Certified Final ☒ Final ☐ Cancelled ☐ Superseded | |

Package Engineer: Name, signature and date
ESA ARINCI, EA, Nov 5, 2018

Reviewed only for general conformity with the specifications. Acceptance by the engineer does not warrant or represent that the information contained on this drawing/document is either accurate or complete. The sole responsibility for correct design, details & dimensions shall remain with the party submitting the drawing/document.

S - SPACING CENTER TO CENTER
DIR - DIRECTION IN WHICH BARS EXTEND
LIMITS OF AREA COVERED BY BARS
REBAR TOP/NEAR FACE
REBAR BOT/FAR FACE
I.F. - INSIDE FACE
O.F. - OUTSIDE FACE
N.F. - NEAR FACE
F.F. - FAR FACE
E.W. - EACH WAY
VERT - VERTICAL
HORZ - HORIZONTAL
DWLS - DOWELS
FTG - FOOTING
COL - COLUMN

B-U.L. - BOTTOM LOWER LAYER
B-U.U. - BOTTOM UPPER LAYER
W.U.L. - WEB LOWER LAYER
W.U.U. - WEB UPPER LAYER
T.U.L. - TOP LOWER LAYER
T.U.U. - TOP UPPER LAYER
E.W. - EACH WAY
BNT. - BENT

BOT - BOTTOM
TOP - TOP
T&B - TOP & BOTTOM
L-R - LEFT TO RIGHT
B-T - BOTTOM TO TOP
C.B. - CORNER BAR
T.O.N. - TYPICAL OPPOSITE HAND
R/L - FROM RIGHT TO LEFT
F.B. - FIELD BEND
C.O.F. - CUT IN FIELD
T.O.W. - TOP OF WALL
T.O.F. - TOP OF FOOTING
B.O.W. - BOTTOM OF WALL
T.O.C. - TOP OF CONCRETE
B.O.C. - BOTTOM OF CONCRETE
ELEV. - ELEVATION

| PREFIX | B |
|---|---|
| TRANS. NOS. | 2-9 |

PRINT RECORD

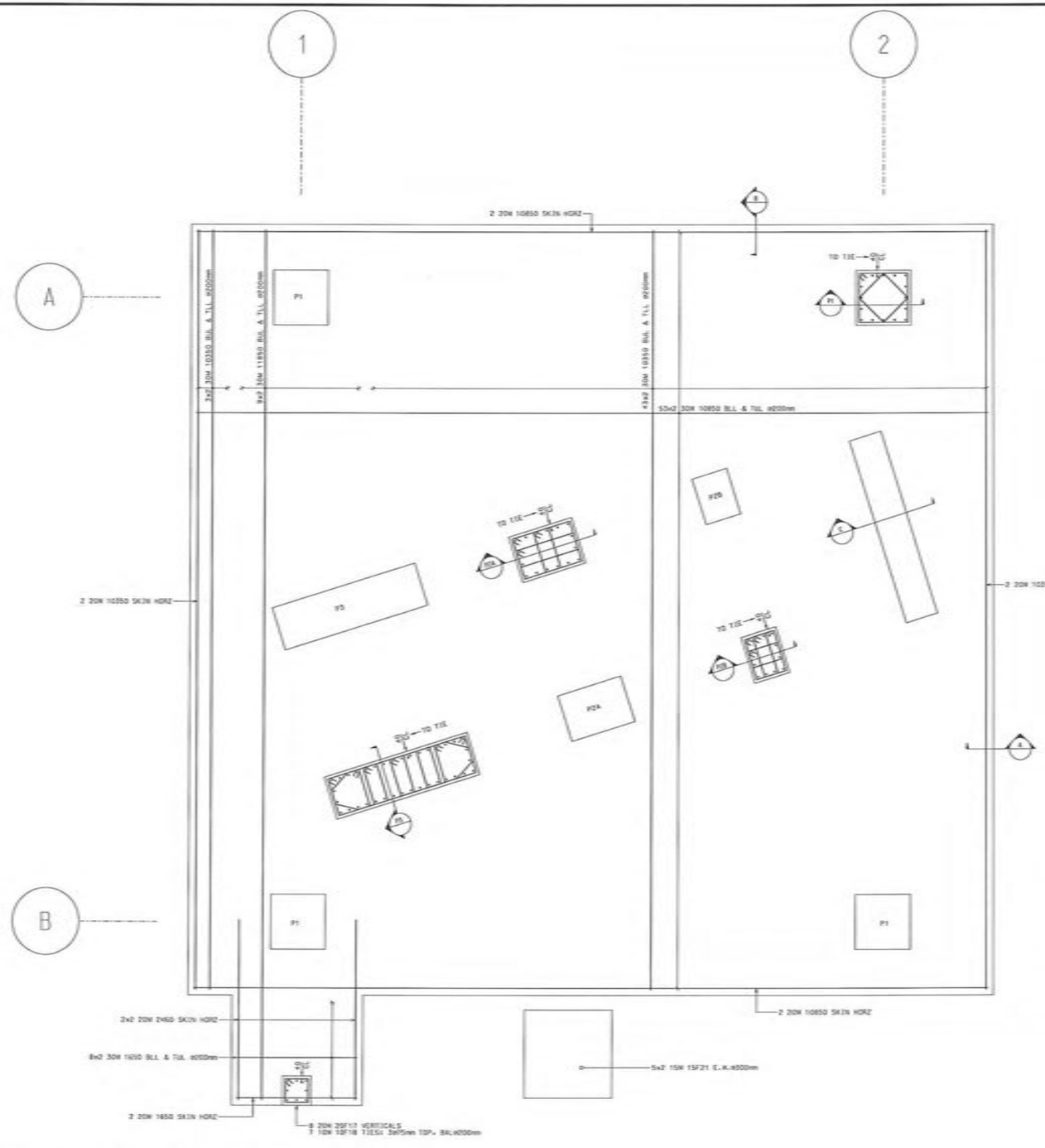
| NO. | REVISION | DATE | TO | FOR | DATE |
|---|---|---|---|---|---|
| 02 | REVIEW | OCT 23/18 | C | A | 19/OCT/18 |

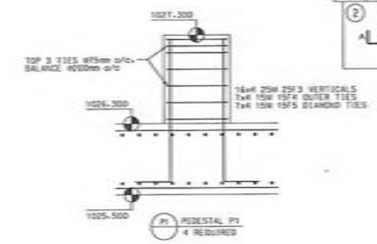
REINFORCING STEEL PLACING PLAN

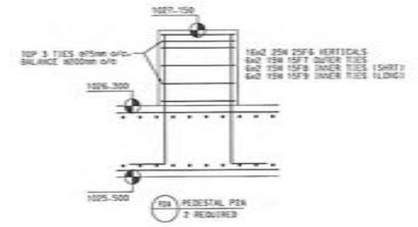
MCNISH STEEL LTD.
10636 - 205 STREET
EDMONTON, ALBERTA
PHONE 447-3337 FAX 447-3379

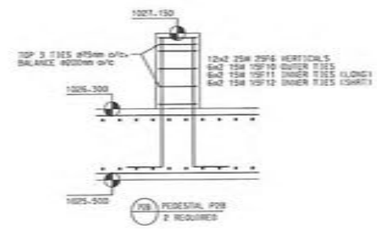
PROJECT : STRATHCOLD VEHICLE SOLID PROJECT
CONTR. : CLARK BUILDERS
DWG.OF : SECONDARY CRUSHER 3330 (TRANSFORMER FOUNDATIONS)
ENGR. : HATCH
DRAWN BY : MARK
DATE : 19/OCT/2018

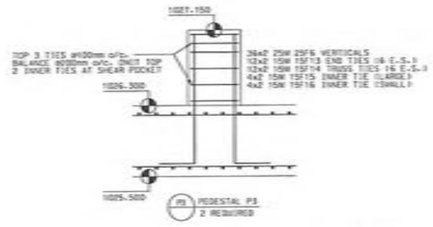
JOB NO. 18-042 | DWG. NO. 002 H

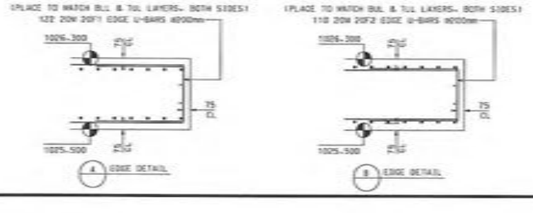



B.L.L. - BOTTOM LOWER LAYER
B.U.L. - BOTTOM UPPER LAYER
M.L.L. - MID LOWER LAYER
M.U.L. - MID UPPER LAYER
T.L.L. - TOP LOWER LAYER
T.U.L. - TOP UPPER LAYER
E.R. - EACH ROW
BMT. - BEAM

@ - SPACING CENTER TO CENTER
→ - DIRECTION IN WHICH BARS EXTEND
---- - LIMITS OF AREA COVERED BY BARS
----- - REBAR TOP/NEAR FACE
----- - REBAR BOT/FAR FACE
I.F. - INSIDE FACE
O.F. - OUTSIDE FACE
N.F. - NEAR FACE
F.F. - FAR FACE
E.W. - EACH WAY
VERT - VERTICAL
HORZ - HORIZONTAL
DWLS - DOWELS
FTG - FOOTING
COL - COLUMN

BOT - BOTTOM
TOP - TOP
T&B - TOP & BOTTOM
L-R - LEFT TO RIGHT
B-T - BOTTOM TO TOP
C.B. - CORNER BAR
T.O.H. - TYPICAL OPPOSITE HAND
R/L - FROM RIGHT TO LEFT
F.B. - FIELD BEND
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T.O.W. - TOP OF WALL
T.O.F. - TOP OF FOOTING
B.O.W. - BOTTOM OF WALL
T.O.C. - TOP OF CONCRETE
B.O.C. - BOTTOM OF CONCRETE
ELEV. - ELEVATION

| SIZE | GP | BAR MARK | V | END TYP | CD | BENDING DIMENSIONS A | B | C | D | E | F/R | G | H | J | K | O |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 25M | | 25F3 | | 1T | | | 400 | 1617 | | | | | | | | |
| 25M | | 25F6 | | 1T | | | 400 | 1467 | | | | | | | | |
| 20M | | 20F1 | | 1T | | | 1000 | 650 | 1000 | | | | | | | |
| 20M | | 20F2 | | 1T | | | 1000 | 582 | 1000 | | | | | | | |
| 20M | | 20F17 | | 1T | | | 400 | 1617 | | | | | | | | |
| 20M | | 20F19 | | 2 | | 300 | 2900 | | | | | 300 | | | | |
| 15M | | 15F4 | | T1 | | 140 | 670 | 670 | 670 | 670 | | 140 | | | | |
| 15M | | 15F5 | | T4 | | 140 | 500 | 500 | 500 | 500 | | 140 | 670 | | 670 | 500 |
| 15M | | 15F7 | | T1 | | 140 | 570 | 820 | 570 | 820 | | 140 | | | | |
| 15M | | 15F8 | | T1 | | 140 | 215 | 570 | 215 | 570 | | 140 | | | | |
| 15M | | 15F9 | | T1 | | 140 | 233 | 820 | 233 | 820 | | 140 | | | | |
| 15M | | 15F10 | | T1 | | 140 | 420 | 570 | 420 | 570 | | 140 | | | | |
| 15M | | 15F11 | | T1 | | 140 | 163 | 570 | 163 | 570 | | 140 | | | | |
| 15M | | 15F12 | | T1 | | 140 | 233 | 420 | 233 | 420 | | 140 | | | | |
| 15M | | 15F13 | | T1 | | 140 | 520 | 699 | 520 | 699 | | 140 | | | | |
| 15M | | 15F14 | | L12 | | 140 | 148 | 323 | 188 | 325 | 148 | 140 | 277 | | 166 | |
| | | | | | | | | | 520 | | | | 277 | | 166 | |
| 15M | | 15F15 | | T1 | | 140 | 953 | 520 | 953 | 520 | | 140 | | | | |
| 15M | | 15F16 | | T1 | | 140 | 191 | 520 | 191 | 520 | | 140 | | | | |
| 15M | | 15F21 | | 1T | | | 200 | 1100 | 200 | | | | | | | |
| 10M | | 10F18 | | T1 | | 100 | 320 | 320 | 320 | 320 | | 100 | | | | |
| 10M | | 10F20 | | T1 | | 100 | 350 | 350 | 350 | 350 | | 100 | | | | |

## GENERAL NOTES ON REINFORCEMENT

THE FOLLOWING NOTES SHALL APPLY TO ALL REINFORCEMENT SHOWN ON THE DRAWINGS UNLESS OTHERWISE NOTED.

**DIMENSIONS:**
DIMENSIONS TO REINFORCEMENT ARE TO CENTRE LINES OF BARS, EXCEPT WHERE CONCRETE COVER OR CLEARANCE BETWEEN BARS IS SHOWN.

**COVER:**
SEE STRUCTURAL ENGINEER TYPICAL NOTES FOR ALL COVER SPECIFICATIONS

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UNLESS OTHERWISE SHOWN, THE FIRST AND LAST BARS IN SLABS AND WALLS, STIRRUPS IN BEAMS SHALL BE PLACED AT A MINIMUM OF HALF THE SPECIFIED SPACING OF ADJACENT BARS FROM THE END OF THE MEMBER.

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STEEL REINFORCEMENT SHALL BE DEFORMED BARS OF GRADE 400 CONFORMING TO CSA STANDARDS G30.12 BILLET-STEEL BARS FOR CONCRETE REINFORCEMENT.

**WELDING:**
WELDING OF REINFORCEMENT SHALL NOT BE PERMITTED.

**SPLICES AND EMBEDMENTS:**
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WHEN REINFORCING BARS OF DIFFERENT SIZE ARE TO BE SPLICED, THE LENGTH OF THE LAP SHALL BE BASED ON THE DIAMETER OF THE SMALLER BAR.

SPLICES ARE TO BE MADE SO THAT THE GIVEN CLEAR DISTANCE COVER WILL BE MAINTAINED.

LAP LENGTHS UNLESS SHOWN OTHERWISE:

| | HORZ | OTHER |
|---|---|---|
| 10M | 530 | 400 |
| 15M | 775 | 595 |
| 20M | 1050 | 790 |
| 25M | 1615 | 1240 |
| 30M | 1940 | 1485 |
| 35M | | |

**PLACEMENT:**
PLACE REINFORCING STEEL IN ACCORDANCE WITH CSA CAN3-A23.1-94.

REINFORCEMENT MAY BE DISPLACE TO CLEAR PIPES, RECESSES, EMBEDDED METAL WORKS AND CONDUITS.

A MINIMUM CLEARANCE OF 1" SHALL BE MAINTAINED BETWEEN REINFORCEMENT AND EMBEDDED MATERIALS. THE MINIMUM CLEARANCE BETWEEN REINFORCEMENT

REINFORCEMENT SHALL BE ACCURATELY PLACED IN ACCORDANCE WITH THE DRAWING AND SHALL BE ADEQUATELY SECURED AGAINST DISPLACEMENT BY USING ANNEALED IRON WIRE AT INTERSECTIONS AND SHALL BE SUPPORTED BY APPROVED CONCRETE OR METAL SUPPORTS. SPACERS OR METAL HANGERS EXCEPT AT SURFACES EXPOSED TO THE GROUND OR TO THE WEATHER WHERE SUPPORTS SHALL BE APPROVED. ALL METAL ACCESSORIES ARE TO BE GALVANIZED.

THE FULL INTENT AND PURPOSE OF THESE DRAWINGS IS PLACING OF REINFORCING STEEL BARS ONLY. IT IS NOT TO BE USED AS A MEANS OF COMMUNICATION BETWEEN THE ARCHITECT, ENGINEER, CONTRACTOR OR ANY OTHER SUBTRADE.

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**HATCH Vendor/Contractor Document Review**

| | |
|---|---|
| Doc Number | E354138-CB201-230-270-0012 SUB 02 |
| Date Received | 2018-09-16 |
| Review Grade | Next Submittal Status |
| ☐ C1 - Proceed to next submission & status | ☐ Certified |
| ☐ C2 - Proceed with exceptions as noted to next submission & status | ☐ As-Built |
| ☐ C3 - Do not proceed. Revise as noted & resubmit | ☐ Internal Review |
| Next Submittal Date: | ☐ Certified/☐ As-Built |
| ☒ C4 - No further submission required - Complete (select status below) | |
| ☐ Certified Final ☒ Final ☐ Cancelled ☐ Superseded | |

Package Engineer: Name, signature and date
ESRA AKINCI, EA, Sep 21, 2018

Reviewed only for general conformity with the specifications. Acceptance by the engineer does not warrant or represent that the information contained on this drawing/document is either accurate or complete. The sole responsibility for correct design, details & dimensions shall remain with the party submitting the drawing/document.

| PREFIX | F |
|---|---|
| TRANS. NOS. | T-1 |

PRINT RECORD

| NO. | REVISION | DATE | TC | C | A | DW/SEP/18 |
|---|---|---|---|---|---|---|
| | IFC REVIEW | SEP 11/18 | | | | |

MCNISH STEEL LTD.
10636 - 205 STREET
EDMONTON, ALBERTA
PHONE 447-3337 FAX 447-3379

PROJECT : STRATHCOLD (EAGLE COLD PROJECT)
CONTR. : CLARK BUILDERS
DWG.DF : TERTIARY ORE BIN & CONVEYORS (TRANSFER TOWER TT-01)
ENGR. : HATCH
DRAWN BY : WARK DATE : DW/SEP/2018

# REINFORCING STEEL PLACING PLAN

JOB NO. 18-042 DWG. NO. 006 A

*Please note that the size of the mat infront of the tunnel is increased (ref. Rev 1 dwg)

Also 2 new pedestals and 6 new stair pads are added (ref. Rev 1 dwg)

| SIZE | GP | BAR MARK | N | BND TYP | CD | BENDING DIMENSIONS A | B | C | D | E | F or R | G | H | J | K | O |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 30M | | 30F23 | | 17 | | | 600 | 5730 | | | | | | | | |
| 20M | | 20F24 | | 17 | | | 850 | 930 | 850 | | | | | | | |
| 20M | | 20F25 | | 17 | | | 850 | 542 | 850 | | | | | | | |
| 20M | | 20F26 | | 17 | | | 850 | 450 | 850 | | | | | | | |
| 20M | | 20F27 | | 17 | | | 850 | 382 | 850 | | | | | | | |

17 → A, D, C

**HATCH** Vendor/Contractor Document Review

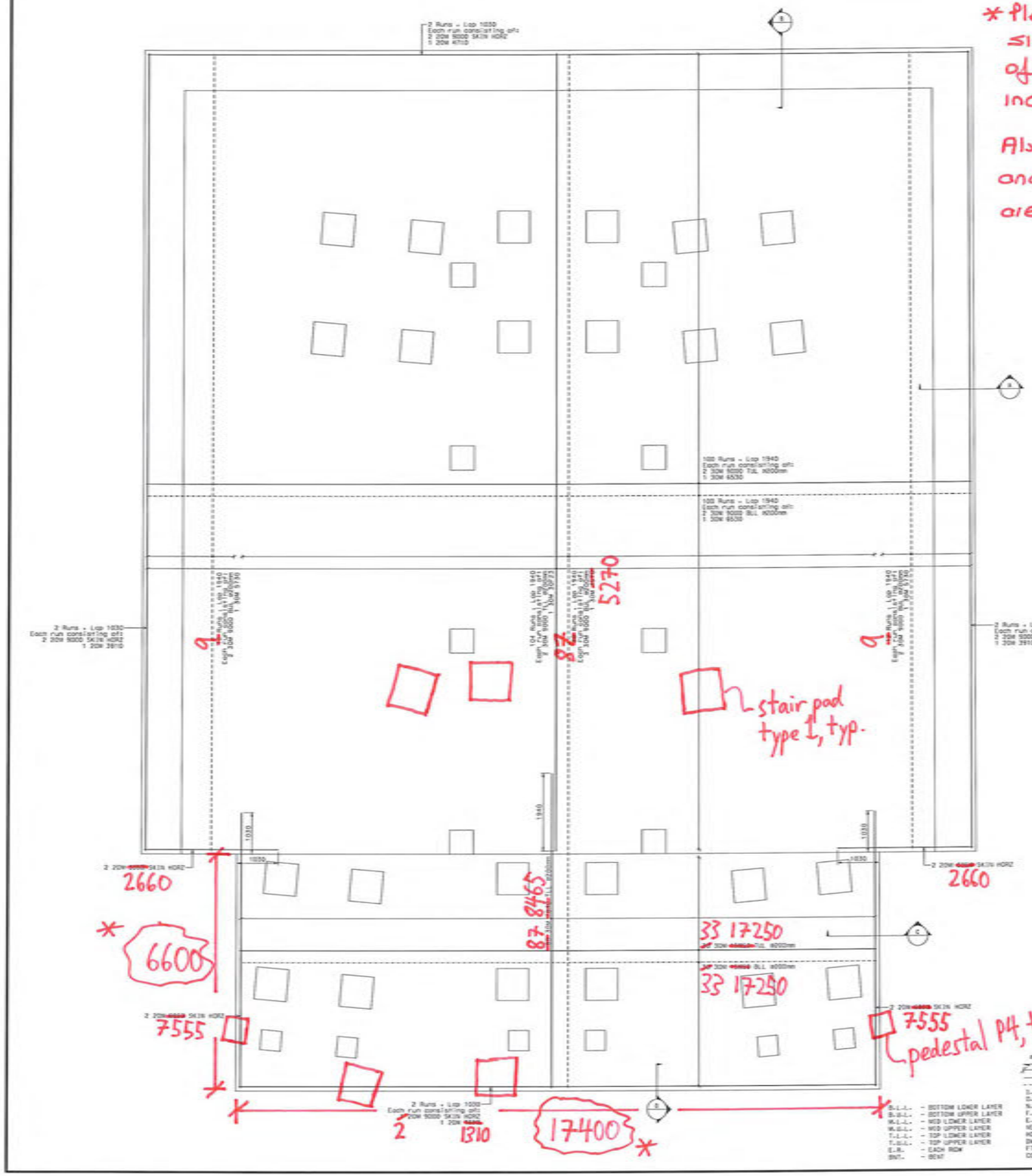
| | | | |
|---|---|---|---|
| Doc Number | E354138-CB201-230-270-0014 | SUB | 01 |
| Date Received | 2018-09-24 | | |

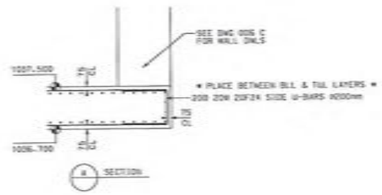
| Review Grade | Next Submittal Status |
|---|---|
| ☐ C1 - Proceed to next submission & status | ☐ Certified |
| ☒ C2 - Proceed with exceptions as noted to next submission & status | ☐ As-Built |
| ☐ C3 - Do not proceed. Revise as noted & resubmit | ☐ Internal Review |
| Next Submittal Date: | ☐ Certified ☐ As-Built |

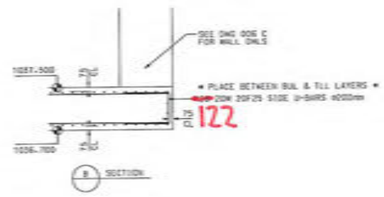
☐ C4 - No further submission required - Complete (select status below)
☐ Certified Final ☐ Final ☐ Cancelled ☐ Superseded

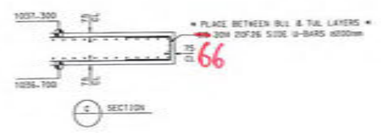
Package Engineer: Name, signature and date
ESRA AKINCI, EA, Sep 26 2018

Reviewed only for general conformity with the specifications. Acceptance by the engineer does not warrant or represent that the information contained on this drawing/document is either accurate or complete. The sole responsibility for correct design, details & dimensions shall remain with the party submitting the drawing/document.







## GENERAL NOTES ON REINFORCEMENT

THE FOLLOWING NOTES SHALL APPLY TO ALL REINFORCEMENT SHOWN ON THE DRAWINGS UNLESS OTHERWISE NOTED.

**DIMENSIONS:**
DIMENSIONS TO REINFORCEMENT ARE TO CENTRE LINES OF BARS, EXCEPT WHERE CONCRETE COVER OR CLEARANCE BETWEEN BARS IS SHOWN.

**COVER:**
SEE STRUCTURAL ENGINEER TYPICAL NOTES FOR ALL COVER SPECIFICATIONS

**SPACING:**
UNLESS OTHERWISE SHOWN, THE FIRST AND LAST BARS IN SLABS AND WALLS, STIRRUPS IN BEAMS SHALL BE PLACED AT MINIMUM OF HALF THE SPECIFIED SPACING OF ADJACENT BARS FROM THE END OF THE MEMBER.

**STEEL SPECIFICATIONS:**
STEEL REINFORCEMENT SHALL BE DEFORMED BARS OF GRADE 400R CONFORMING TO CSA STANDARDS G30.12 BILLET-STEEL BARS FOR CONCRETE REINFORCEMENT.

**WELDING:**
WELDING OF REINFORCEMENT SHALL NOT BE PERMITTED.

**SPLICES AND EMBEDMENTS:**
UNLESS OTHERWISE SPECIFIED, ALL EMBEDMENTS SHALL BE TREATED AS TENSION EMBEDMENTS AND ALL LAP SPLICES SHALL BE CONSIDERED AS TENSION LAP SPLICES.

WHEN REINFORCING BARS OF DIFFERENT SIZE ARE TO BE SPLICED, THE LENGTH OF THE LAP SHALL BE BASED ON THE DIAMETER OF THE SMALLER BAR.

SPLICES ARE TO BE MADE SO THAT THE GIVEN CLEAR DISTANCE COVER WILL BE MAINTAINED.

LAP LENGTHS UNLESS SHOWN OTHERWISE:

| | HORZ | OTHER |
|---|---|---|
| 10M | 500 | 400 |
| 15M | 775 | 595 |
| 20M | 1030 | 790 |
| 25M | 1615 | 1240 |
| 30M | 1940 | 1485 |
| 35M | | |

**PLACEMENT:**
PLACE REINFORCING STEEL IN ACCORDANCE WITH CSA CAN3-A23.1-M.

REINFORCEMENT MAY BE DISPLACED TO CLEAR PIPES, RECESSES, EMBEDDED METAL WORKS AND CONDUITS.

A MINIMUM CLEARANCE OF 1" SHALL BE MAINTAINED BETWEEN REINFORCEMENT AND EMBEDDED MATERIALS. THE MINIMUM CLEARANCE BETWEEN REINFORCEMENT

REINFORCEMENT SHALL BE ACCURATELY PLACED IN ACCORDANCE WITH THE DRAWINGS AND SHALL BE ADEQUATELY SECURED AGAINST DISPLACEMENT BY USING ANNEALED IRON WIRE AT INTERSECTIONS AND SHALL BE SUPPORTED BY APPROVED CONCRETE OR METAL SUPPORTS, SPACERS OR METAL HANGERS EXCEPT AT SURFACES EXPOSED TO THE GROUND OR TO THE WEATHER WHERE SUPPORTS SHALL BE APPROVED. ALL METAL ACCESSORIES ARE TO BE GALVANIZED.

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| | |
|---|---|
| @ | - SPACING CENTER TO CENTER |
| ↗ | - DIRECTION IN WHICH BARS EXTEND |
| ⟷ | - LIMITS OF AREA COVERED BY BARS |
| ⊥ | - REBAR TOP/NEAR FACE |
| ⊥ | - REBAR BOT/FAR FACE |
| I.F. | - INSIDE FACE |
| O.F. | - OUTSIDE FACE |
| N.F. | - NEAR FACE |
| F.F. | - FAR FACE |
| E.W. | - EACH WAY |
| VERT | - VERTICAL |
| HORZ | - HORIZONTAL |
| DWLS | - DOWELS |
| FTG | - FOOTING |
| COL | - COLUMN |

| | |
|---|---|
| B-L-L. | - BOTTOM LOWER LAYER |
| B-U-L. | - BOTTOM UPPER LAYER |
| W-L-L. | - WEB LOWER LAYER |
| W-U-L. | - WEB UPPER LAYER |
| T-L-L. | - TOP LOWER LAYER |
| T-U-L. | - TOP UPPER LAYER |
| E.R. | - EACH ROW |
| BNT. | - BENT |

| | |
|---|---|
| BOT | - BOTTOM |
| TOP | - TOP |
| T&B | - TOP & BOTTOM |
| L-R | - LEFT TO RIGHT |
| B-T | - BOTTOM TO TOP |
| C.B. | - CORNER BAR |
| T.O.H. | - TYPICAL OPPOSITE HAND |
| R/L | - FROM RIGHT TO LEFT |
| F.B. | - FIELD BEND |
| C.I.F. | - CUT IN FIELD |
| T.O.W. | - TOP OF WALL |
| T.O.F. | - TOP OF FOOTING |
| B.O.W. | - BOTTOM OF WALL |
| T.O.C. | - TOP OF CONCRETE |
| B.O.C. | - BOTTOM OF CONCRETE |
| ELEV. | - ELEVATION |

PREFIX F
TRANS- 7.3
NOS.

PRINT RECORD

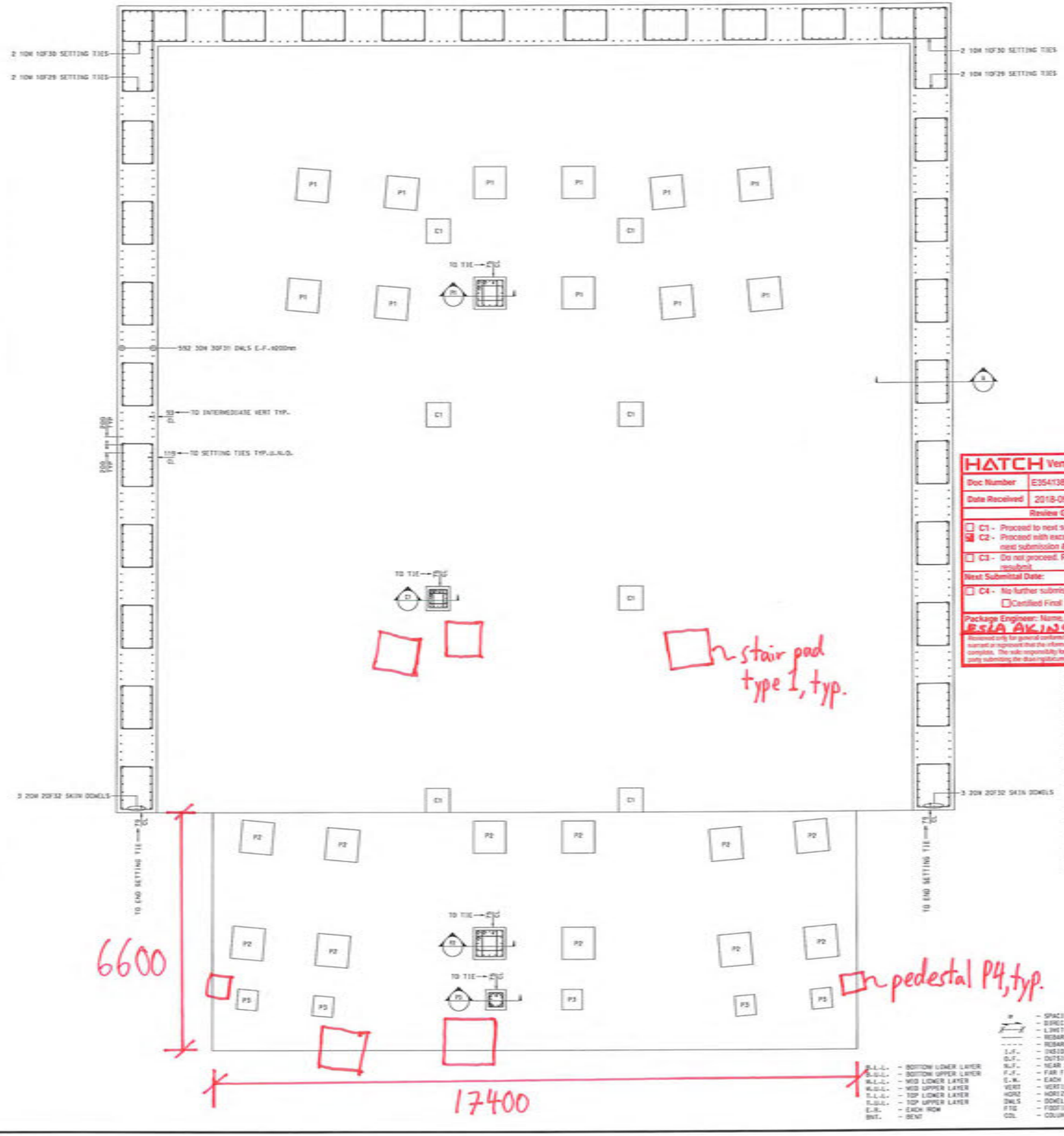
| NO. | REVISION | DATE | TD. | FOR | DATE |
|---|---|---|---|---|---|
| | | | C | A | 20/SEP/18 |

# REINFORCING STEEL PLACING PLAN

MCNISH STEEL LTD.
10636 - 205 STREET
EDMONTON, ALBERTA
PHONE 447-3337 FAX 447-3379

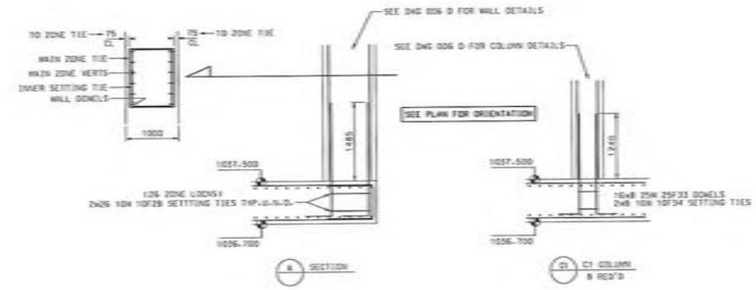
PROJECT : STRATABOLD (HAGE GOLD PROJECT)
CONTR. : CLARK BUILDERS
DWG.OF : TERTIARY ORE STOCKPILE (HAGE FOOTING)
ENGR. : HATCH
DRAWN BY : MARK DATE : 20/SEP/2018

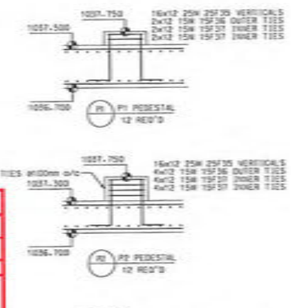
JOB NO. 18-042 | DWG. NO. 006 B

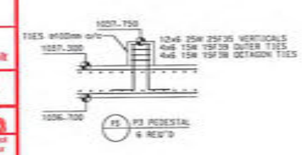


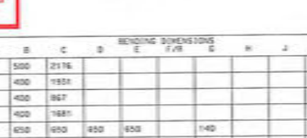

n stair pad type 1, typ.

n pedestal P4, typ.




## GENERAL NOTES ON REINFORCEMENT

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**DIMENSIONS:**
DIMENSIONS TO REINFORCEMENT ARE TO CENTRE LINES OF BARS, EXCEPT WHERE CONCRETE COVER OR CLEARANCE BETWEEN BARS IS SHOWN.

**COVER:**
SEE STRUCTURAL ENGINEER TYPICAL NOTES FOR ALL COVER SPECIFICATIONS

**SPACING:**
UNLESS OTHERWISE SHOWN, THE FIRST AND LAST BARS IN SLABS AND WALLS, STIRRUPS IN BEAMS SHALL BE PLACED AT MAXIMUM OF HALF THE SPECIFIED SPACING OF ADJACENT BARS FROM THE END OF THE MEMBER.

**STEEL SPECIFICATIONS:**
STEEL REINFORCEMENT SHALL BE DEFORMED BARS OF GRADE 400 CONFORMING TO CSA STANDARDS G30.12 BILLET-STEEL BARS FOR CONCRETE REINFORCEMENT.

**WELDING:**
WELDING OF REINFORCEMENT SHALL NOT BE PERMITTED.

**SPLICES AND EMBEDMENTS:**
UNLESS OTHERWISE SPECIFIED, ALL EMBEDMENTS SHALL BE TREATED AS TENSION EMBEDMENTS AND ALL LAP SPLICES SHALL BE CONSIDERED AS TENSION LAP SPLICES.

WHEN REINFORCING BARS OF DIFFERENT SIZE ARE TO BE SPLICED, THE LENGTH OF THE LAP SHALL BE BASED ON THE DIAMETER OF THE SMALLER BAR.

SPLICES ARE TO BE MADE SO THAT THE GIVEN CLEAR DISTANCE CORER WILL BE MAINTAINED.

LAP LENGTHS UNLESS SHOWN OTHERWISE:

| | HORZ | OTHER |
|---|---|---|
| 10M | 520 | 400 |
| 15M | 775 | 595 |
| 20M | 1030 | 790 |
| 25M | 1615 | 1240 |
| 30M | 1940 | 1485 |
| 35M | | |

**PLACEMENT:**
PLACE REINFORCING STEEL IN ACCORDANCE WITH CSA CAN3-A23.1-M.

REINFORCEMENT MAY BE DISPLACED TO CLEAR PIPES, RECESSES, EMBEDDED METAL WORKS AND CONDUITS.

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THE FULL INTENT AND PURPOSE OF THESE DRAWINGS IS PLACING OF REINFORCING STEEL BARS ONLY. IT IS NOT TO BE USED AS A MEANS OF COMMUNICATION BETWEEN THE ARCHITECT, ENGINEER, CONTRACTOR OR ANY OTHER SUBTRADE.

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| SIZE | EP | BAR MARK | V | BND TYP | CD | A | B | C | D | BENDING DIMENSIONS E | F/R | G | H | J | K | O |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 30M | | 30F31 | | 17 | | | 500 | 2176 | | | | | | | | |
| 25M | | 25F35 | | 17 | | | 400 | 1851 | | | | | | | | |
| 25M | | 25F35 | | 17 | | | 400 | 867 | | | | | | | | |
| 20M | | 20F32 | | 17 | | | 400 | 1681 | | | | | | | | |
| 15M | | 15F36 | | T1 | 140 | 650 | 650 | 650 | 650 | | | 140 | | | | |
| 15M | | 15F37 | | T1 | 140 | 357 | 650 | 357 | 650 | | | 140 | | | | |
| 15M | | 15F38 | | L13 | 140 | 122 | 161 | | | | | 140 | 114 | | 114 | |
| | | | | | | 122 | 161 | | | | | | 114 | | 114 | |
| | | | | | | 122 | 161 | | | | | | 114 | | 114 | |
| | | | | | | 122 | 161 | | | | | | 114 | | 114 | |
| 15M | | 15F39 | | T1 | 140 | 350 | 350 | 350 | 350 | | | 140 | | | | |
| 10M | | 10F28 | | T2 | 100 | 762 | 1062 | 762 | 1062 | | | 100 | | | | |
| 10M | | 10F29 | | T2 | 100 | 762 | 2002 | 762 | 2002 | | | 100 | | | | |
| 10M | | 10F30 | | T2 | 100 | 762 | 1562 | 762 | 1562 | | | 100 | | | | |
| 10M | | 10F34 | | T2 | 100 | 382 | 382 | 382 | 382 | | | 100 | | | | |

T7 T8 T11 T12

| | |
|---|---|
| @ | - SPACING CENTER TO CENTER |
| | - DIRECTION IN WHICH BARS EXTEND |
| ----- | - LIMITS OF AREA COVERED BY BARS |
| ----- | - REBAR TOP/NEAR FACE |
| ----- | - REBAR BOT/FAR FACE |
| I.F. | - INSIDE FACE |
| O.F. | - OUTSIDE FACE |
| N.F. | - NEAR FACE |
| F.F. | - FAR FACE |
| E.W. | - EACH WAY |
| VERT | - VERTICAL |
| HORIZ | - HORIZONTAL |
| DWLS | - DOWELS |
| FTG | - FOOTING |
| COL | - COLUMN |
| BOT | - BOTTOM |
| TOP | - TOP |
| T&B | - TOP & BOTTOM |
| L-R | - LEFT TO RIGHT |
| B-T | - BOTTOM TO TOP |
| C.B. | - CORNER BAR |
| T.O.H. | - TYPICAL OPPOSITE HAND |
| R/L | - FROM RIGHT TO LEFT |
| F.B. | - FIELD BEND |
| C.I.F. | - CUT IN FIELD |
| T.O.W. | - TOP OF WALL |
| T.O.F. | - TOP OF FOOTING |
| B.O.W. | - BOTTOM OF WALL |
| T.O.C. | - TOP OF CONCRETE |
| B.O.C. | - BOTTOM OF CONCRETE |
| ELEV. | - ELEVATION |

B.L.L. - BOTTOM LOWER LAYER
B.U.L. - BOTTOM UPPER LAYER
M.L.L. - MID LOWER LAYER
M.U.L. - MID UPPER LAYER
T.L.L. - TOP LOWER LAYER
T.U.L. - TOP UPPER LAYER
E.F. - EACH FACE
BNT. - BENT

HATCH Vendor/Contractor Document Review

| | | | |
|---|---|---|---|
| Doc Number | E354138-CB201-230-270-0015 | SUB | 01 |
| Date Received | 2018-09-24 | | |

Review Grade — Next Submittal Status

- ☐ C1 - Proceed to next submission & status
- ☑ C2 - Proceed with exceptions as noted to next submission & status — ☐ Certified ☐ As-Built
- ☐ C3 - Do not proceed. Revise as noted & resubmit — ☐ Internal Review ☐ Certified ☐ As-Built
- Next Submittal Date:
- ☐ C4 - No further submission required - Complete (select status below) — ☐ Certified Final ☐ Final ☐ Cancelled ☐ Superseded

Package Engineer: Name, signature and date
BSLA AKINCI, EA, Sep 26, 2018

Reviewed only for general conformity with the specifications. Acceptance by the engineer does not warrant or represent that the information contained in this drawing/document is without error, omission or complete. The sole responsibility for correct design, details & dimensions shall remain with the party submitting the drawing/document.

| PREFIX | F |
|---|---|
| TRANS. NOS. | 7.3 |

PRINT RECORD

| NO. | REVISION | DATE |
|---|---|---|

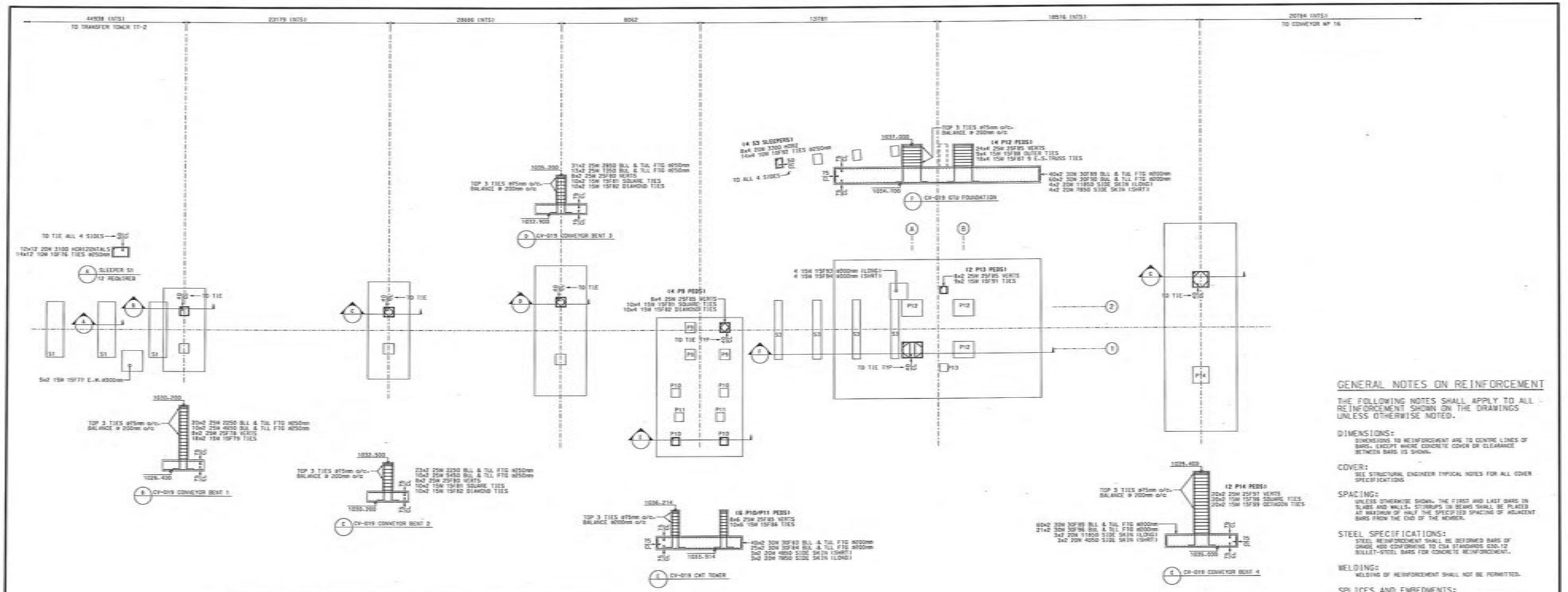
| NO. | TO. | DSR | DATE |
|---|---|---|---|
| 1C | C | A | 20/SEP/18 |

MCNISH STEEL LTD.
10636 - 205 STREET
EDMONTON, ALBERTA
PHONE 447-3337 FAX 447-3379

REINFORCING STEEL PLACING PLAN

PROJECT : STRATABOLD (EAGLE GOLD PROJECT)
CONTR. : CLARK BUILDERS
ENGR. OF : TERRAMY ORE STOCKPILE (WALL/COL.DWLS & PEDESTALS)
ENGR. : HATCH
DRAWN BY : MWM
DATE : 20/SEP/2018

JOB NO. 18-042 | DWG. NO. 006 C




| SIZE | EP | BAR MARK | V | END TYP | CD | A | B | C | D | BENDING DIMENSIONS E | F/R | G | H | J | K | O |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 30M | | 30F83 | | 11 | | | 350 | 4850 | 550 | | | | | | | |
| 30M | | 30F84 | | 11 | | | 550 | 7850 | 550 | | | | | | | |
| 30M | | 30F88 | | 11 | | | 750 | 11850 | 750 | | | | | | | |
| 30M | | 30F90 | | 11 | | | 750 | 7850 | 750 | | | | | | | |
| 30M | | 30F85 | | 11 | | | 550 | 4050 | 550 | | | | | | | |
| 30M | | 30F86 | | 11 | | | 550 | 11850 | 550 | | | | | | | |
| 25M | | 25F78 | | 11 | | | 400 | 3629 | | | | | | | | |
| 25M | | 25F80 | | 11 | | | 400 | 2129 | | | | | | | | |
| 25M | | 25F85 | | 11 | | | 400 | 2117 | | | | | | | | |
| 25M | | 25F87 | | 11 | | | 400 | 4217 | | | | | | | | |
| 15M | | 15F77 | | 11 | | | 300 | 1100 | 300 | | | | | | | |
| 15M | | 15F79 | | 11 | | 140 | 470 | 470 | 470 | 420 | | 140 | | | | |
| 15M | | 15F81 | | 11 | | 140 | 520 | 520 | 520 | 520 | | 140 | | | | |
| 15M | | 15F82 | | 14 | | 140 | 394 | 394 | 394 | 394 | | 140 | 520 | | 520 | 394 |
| 15M | | 15F86 | | 11 | | 140 | 420 | 420 | 420 | 420 | | 140 | | | | |
| 15M | | 15F87 | | L12 | | 140 | 43 | 469 | 300 | 468 | 43 | 140 | 373 | 92 | 285 | |
| | | | | | | | | | 870 | | | | 373 | 92 | 285 | |
| 15M | | 15F88 | | 11 | | 140 | 1120 | 870 | 1120 | 870 | | 140 | | | | |
| 15M | | 15F91 | | 11 | | 140 | 370 | 370 | 370 | 370 | | 140 | | | | |
| 15M | | 15F93 | | 11 | | | 200 | 900 | 200 | | | | | | | |
| 15M | | 15F94 | | 11 | | | 200 | 850 | 200 | | | | | | | |
| 15M | | 15F98 | | 11 | | 140 | 870 | 870 | 870 | 870 | | 140 | | | | |
| 15M | | 15F99 | | L13 | | 140 | 188 | 482 | | | | 140 | 341 | 107 | 341 | |
| | | | | | | | 188 | 482 | | | | | 341 | 107 | 341 | |
| | | | | | | | 188 | 482 | | | | | 341 | | 341 | |
| 10M | | 10F76 | | 11 | | 100 | 500 | 500 | 500 | 500 | | 100 | | | | |
| 10M | | 10F92 | | 11 | | 100 | 350 | 500 | 350 | 500 | | 100 | | | | |

(17) (18) (19) (20) (21) (22)

## GENERAL NOTES ON REINFORCEMENT

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|---|---|---|
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| 15M | 775 | 595 |
| 20M | 1030 | 790 |
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| 30M | 1940 | 1485 |
| 35M | | |

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**HATCH Vendor/Contractor Document Review**

| | |
|---|---|
| Doc Number | E354138-CB201-230-270-0018 SUB 01 |
| Date Received | 2018-10-10 |

| Review Grade | Next Submittal Status |
|---|---|
| ☐ C1 - Proceed to next submission & status | ☐ Certified |
| ☐ C2 - Proceed with exceptions as noted to next submission & status | ☐ As-Built |
| ☐ C3 - Do not proceed. Revise as noted & resubmit | ☐ Internal Review |
| Next Submittal Date: | ☐ Certified ☐ As-Built |

☑ C4 - No further submission required - Complete (select status below)
☐ Certified Final ☑ Final ☐ Cancelled ☐ Superseded

Package Engineer: Name, signature and date
ESA AKINCI, EA. Oct 11, 2018

Reviewed only for general conformity with the specifications. Acceptance by the engineer does not warrant or represent that the information contained on this drawing/document is either accurate or complete. The sole responsibility for correct design, details & dimensions shall remain with the party submitting the drawing/document.

| | | | |
|---|---|---|---|
| B-U-L - BOTTOM LOWER LAYER | BOT - BOTTOM | @ - SPACING CENTER TO CENTER | |
| B-U-U - BOTTOM UPPER LAYER | TOP - TOP | ⟋ - DIRECTION IN WHICH BARS EXTEND | |
| M-L-L - MID LOWER LAYER | TSB - TOP & BOTTOM | - LIMITS OF AREA COVERED BY BARS | |
| M-U-L - MID UPPER LAYER | L-R - LEFT TO RIGHT | ----- - REBAR TOP/NEAR FACE | |
| T-L-L - TOP LOWER LAYER | R-T - RIGHT TO TOP | ----- - REBAR BOT/FAR FACE | |
| T-U-L - TOP UPPER LAYER | C.B. - CORNER BAR | I.F. - INSIDE FACE | |
| E.R. - EACH ROW | T.O.H. - TYPICAL OPPOSITE HAND | O.F. - OUTSIDE FACE | |
| BNT. - BENT | R/L - FROM RIGHT TO LEFT | N.F. - NEAR FACE | |
| | F.B. - FIELD BEND | F.F. - FAR FACE | |
| | C.I.F. - CUT IN FIELD | E.W. - EACH WAY | |
| | T.O.W. - TOP OF WALL | VERT - VERTICAL | |
| | T.O.F. - TOP OF FOOTING | HORZ - HORIZONTAL | |
| | B.O.W. - BOTTOM OF WALL | DWLS - DOWELS | |
| | T.O.C. - TOP OF CONCRETE | FTG - FOOTING | |
| | B.O.C. - BOTTOM OF CONCRETE | COL - COLUMN | |
| | ELEV. - ELEVATION | | |

| PREFIX | F | PRINT RECORD | | | |
|---|---|---|---|---|---|
| TRANS. NOS. | 7.9 | NO. | TO: | FOR | DATE |
| | | TC | C | A | 18/OCT/18 |

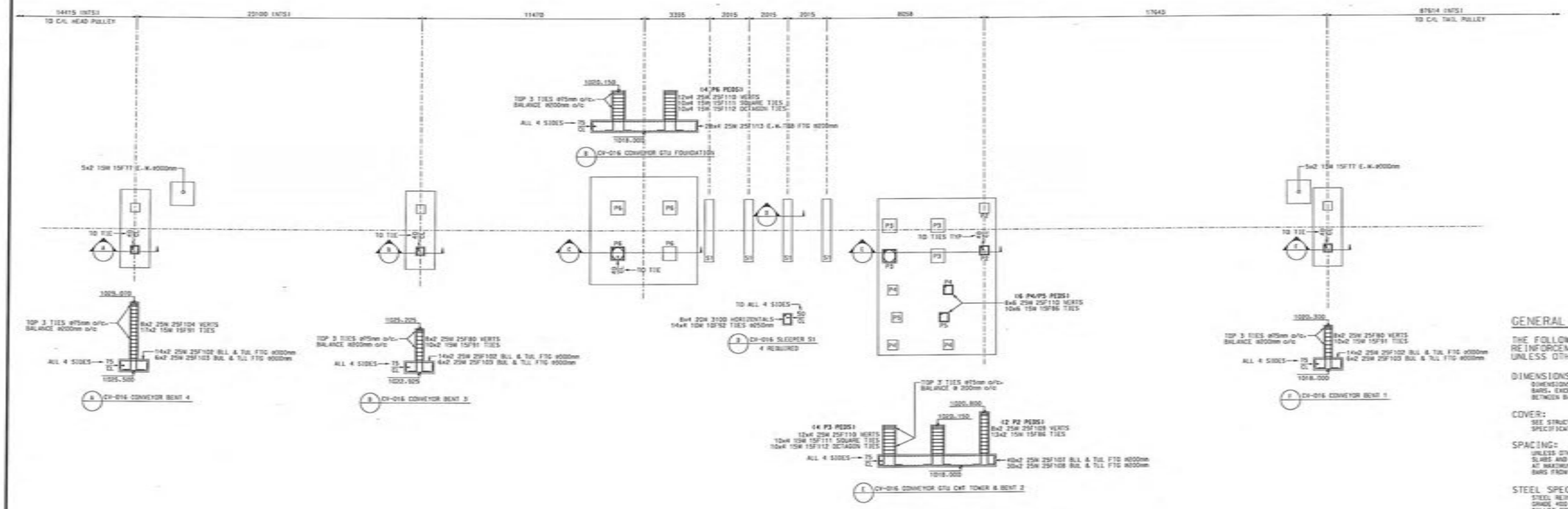
| NO. | REVISION | DATE |
|---|---|---|
| | | |

MEMBER CRSI
MCNISH STEEL LTD.
10636 - 205 STREET
EDMONTON, ALBERTA
PHONE 447-3337 FAX 447-3379

# REINFORCING STEEL PLACING PLAN

PROJECT : STRATAGOLD (EAGLE GOLD PROJECT)
CONTR. : CLARK BUILDERS
DWG.OF : CV-019 CONVEYOR FOUNDATIONS
ENGR. : HATCH
Drawn BY : MARK DATE : 18/OCT/2018

JOB NO. 18-042 DWG. NO. 006 C




| SIZE | EP | BAR MARK | V | BND TYP | CD | BENDING DIMENSIONS A | B | C | D | E | F/R | G | H | J | K | O |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 25M | | 25F80 | | 11 | | | 400 | 2129 | | | | | | | | |
| 25M | | 25F102 | | 17 | | | 400 | 13350 | 400 | | | | | | | |
| 25M | | 25F103 | | 17 | | | 400 | 38950 | 400 | | | | | | | |
| 25M | | 25F104 | | 17 | | | 400 | 3398 | | | | | | | | |
| 25M | | 25F107 | | 17 | | | 400 | 13850 | 400 | | | | | | | |
| 25M | | 25F108 | | 17 | | | 400 | 38850 | 400 | | | | | | | |
| 25M | | 25F109 | | 11 | | | 400 | 2629 | | | | | | | | |
| 25M | | 25F110 | | 11 | | | 400 | 7979 | | | | | | | | |
| 25M | | 25F113 | | 17 | | | 400 | 53350 | 400 | | | | | | | |
| 15M | | 15F77 | | 11 | | | 300 | 1100 | 300 | | | | | | | |
| 15M | | 15F86 | | 11 | | 140 | 420 | 420 | 420 | 420 | | 140 | | | | |
| 15M | | 15F91 | | 11 | | 140 | 370 | 370 | 370 | 370 | | 140 | | | | |
| 15M | | 15F111 | | 11 | | 140 | 620 | 620 | 620 | 620 | | 140 | | | | |
| 15M | | 15F112 | | L13 | | 140 | 212 | 288 | | | | 140 | 204 | 107 | 204 | |
| | | | | | | | 212 | 288 | | | | | 204 | 107 | 204 | |
| | | | | | | | 212 | 288 | | | | | 204 | | 204 | |
| | | | | | | | 212 | 288 | | | | | 204 | | 204 | |
| 10M | | 10F92 | | 11 | | 100 | 350 | 500 | 350 | 500 | | 100 | | | | |

(11) (13) (11)

- B.L.L. - BOTTOM LOWER LAYER
- B.U.L. - BOTTOM UPPER LAYER
- M.L.L. - MID LOWER LAYER
- M.U.L. - MID UPPER LAYER
- T.L.L. - TOP LOWER LAYER
- T.U.L. - TOP UPPER LAYER
- E.R. - EACH ROW
- BNT. - BENT

- @ - SPACING CENTER TO CENTER
- DIRECTION IN WHICH BARS EXTEND
- LIMITS OF AREA COVERED BY BARS
- REBAR TOP/NEAR FACE
- REBAR BOT/FAR FACE
- I.F. - INSIDE FACE
- O.F. - OUTSIDE FACE
- N.F. - NEAR FACE
- F.F. - FAR FACE
- E.W. - EACH WAY
- VERT - VERTICAL
- HORZ - HORIZONTAL
- DWLS - DOWELS
- FTG - FOOTING
- COL - COLUMN

- BOT - BOTTOM
- TOP - TOP
- T&B - TOP & BOTTOM
- L-R - LEFT TO RIGHT
- B-T - BOTTOM TO TOP
- C.B. - CORNER BAR
- T.O.H. - TYPICAL OPPOSITE HAND
- R/L - FROM RIGHT TO LEFT
- F.B. - FIELD BEND
- C.I.F. - CUT IN FIELD
- T.O.W. - TOP OF WALL
- T.O.F. - TOP OF FOOTING
- B.O.W. - BOTTOM OF WALL
- T.O.C. - TOP OF CONCRETE
- B.O.C. - BOTTOM OF CONCRETE
- ELEV. - ELEVATION

## GENERAL NOTES ON REINFORCEMENT

THE FOLLOWING NOTES SHALL APPLY TO ALL REINFORCEMENT SHOWN ON THE DRAWINGS UNLESS OTHERWISE NOTED.

**DIMENSIONS:**
DIMENSIONS TO REINFORCEMENT ARE TO CENTRE LINES OF BARS. EXCEPT WHERE CONCRETE COVER OR CLEARANCE BETWEEN BARS IS SHOWN.

**COVER:**
SEE STRUCTURAL ENGINEER TYPICAL NOTES FOR ALL OTHER SPECIFICATIONS

**SPACING:**
UNLESS OTHERWISE SHOWN, THE FIRST AND LAST BARS IN SLABS AND WALLS, STIRRUPS IN BEAMS SHALL BE PLACED AT MAXIMUM OF HALF THE SPECIFIED SPACING OF ADJACENT BARS FROM THE END OF THE MEMBER.

**STEEL SPECIFICATIONS:**
STEEL REINFORCEMENT SHALL BE DEFORMED BARS OF GRADE 400 CONFORMING TO CSA STANDARDS G30.12 BILLET-STEEL BARS FOR CONCRETE REINFORCEMENT.

**WELDING:**
WELDING OF REINFORCEMENT SHALL NOT BE PERMITTED.

**SPLICES AND EMBEDMENTS:**
UNLESS OTHERWISE SPECIFIED, ALL EMBEDMENTS SHALL BE TREATED AS TENSION EMBEDMENTS AND ALL LAP SPLICES SHALL BE CONSIDERED AS TENSION LAP SPLICES.

WHEN REINFORCING BARS OF DIFFERENT SIZE ARE TO BE SPLICED, THE LENGTH OF THE LAP SHALL BE BASED ON THE DIAMETER OF THE SMALLER BAR.

SPLICES ARE TO BE MADE SO THAT THE GIVEN CLEAR DISTANCE COVER WILL BE MAINTAINED.

LAP LENGTHS UNLESS SHOWN OTHERWISE:

| | HORZ | OTHER |
|---|---|---|
| 10M | 500 | 400 |
| 15M | 775 | 595 |
| 20M | 1030 | 790 |
| 25M | 1575 | 1240 |
| 30M | 1540 | 1485 |
| 35M | | |

**PLACEMENT:**
PLACE REINFORCING STEEL IN ACCORDANCE WITH CSA CAN3-A23.1-M.

REINFORCEMENT MAY BE DISPLACED TO CLEAR PIPES, RECESSES, EMBEDDED METAL WORKS AND CONDUITS.

A MINIMUM CLEARANCE OF 1" SHALL BE MAINTAINED BETWEEN REINFORCEMENT AND EMBEDDED MATERIALS. THE MINIMUM CLEARANCE BETWEEN REINFORCEMENT

REINFORCEMENT SHALL BE ACCURATELY PLACED IN ACCORDANCE WITH THE DRAWING AND SHALL BE ADEQUATELY SECURED AGAINST DISPLACEMENT BY USING ANNEALED IRON WIRE AT INTERSECTIONS AND SHALL BE SUPPORTED BY APPROVED CONCRETE OR METAL SUPPORTS. SPACERS OR METAL HANGERS EXCEPT AT SURFACES EXPOSED TO THE GROUND OR TO THE WEATHER WHERE SUPPORTS SHALL BE APPROVED. ALL METAL ACCESSORIES ARE TO BE GALVANIZED.

THE FULL INTENT AND PURPOSE OF THESE DRAWINGS IS PLACING OF REINFORCING STEEL BARS ONLY. IT IS NOT TO BE USED AS A MEANS OF COMMUNICATION BETWEEN THE ARCHITECT, ENGINEER, CONTRACTOR OR ANY OTHER SUBTRADE.

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**HATCH Vendor/Contractor Document Review**

| | |
|---|---|
| Doc Number | E354138-CB201-230-270-0019 SUB 01 |
| Date Received | 2018-10-10 |
| Review Grade | Next Submittal Status |
| ☐ C1 - Proceed to next submission & status<br>☐ C2 - Proceed with exceptions as noted to next submission & status | ☐ Certified<br>☐ As-Built |
| ☐ C3 - Do not proceed. Revise as noted & resubmit | ☐ Internal Review<br>☐ Certified/☐ As-Built |
| Next Submittal Date: | |
| ☑ C4 - No further submission required - Complete (select status below)<br>☐ Certified Final ☑ Final ☐ Cancelled ☐ Superseded | |
| Package Engineer: Name, signature and date<br>ESSA AKINCI, EA, Oct 11, 2018 | |

Reviewed only for general conformity with the specifications. Acceptance by the engineer does not warrant or represent that the information contained on this drawing/document is either accurate or complete. The sole responsibility for correct design, details & dimensions shall remain with the party submitting the drawing/document.

| PREFIX TRANS. NOS- | F 7-12 |
|---|---|

PRINT RECORD

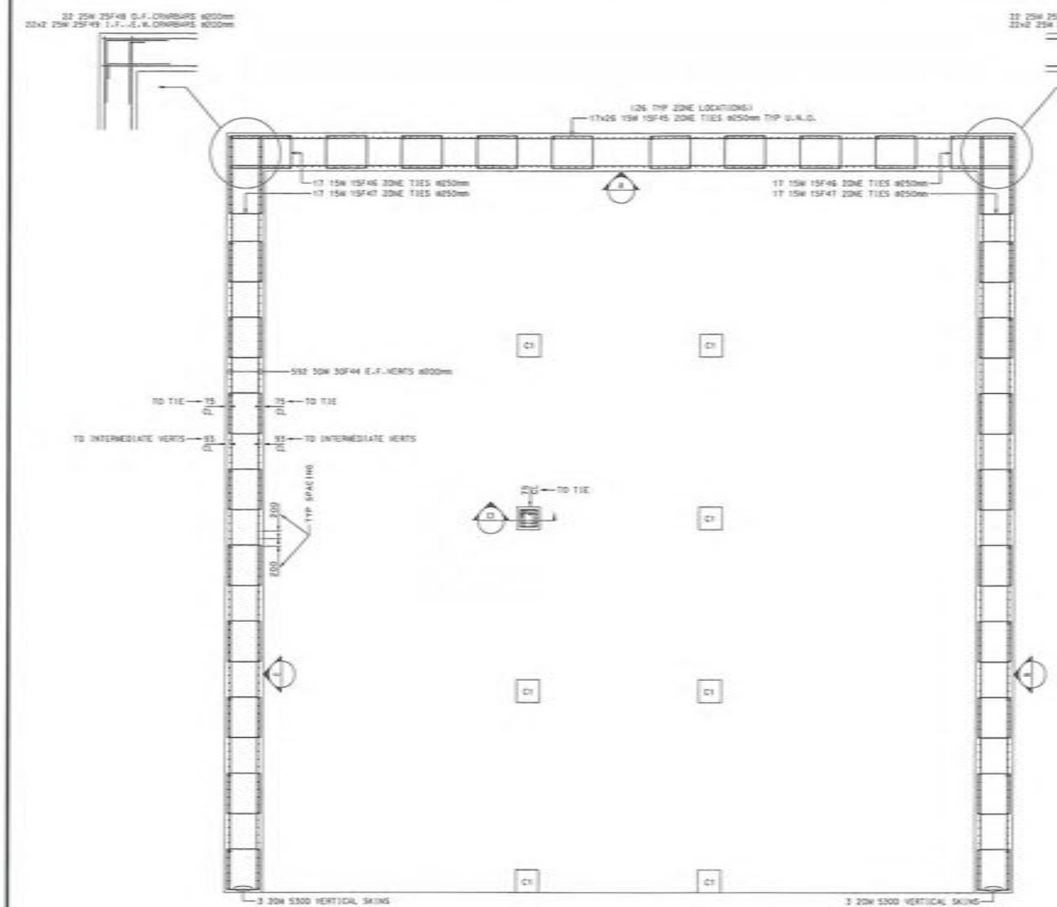
| NO. | REVISION | DATE | TO: FOR: | DATE |
|---|---|---|---|---|
| | | | IC C A | 10/OCT/18 |

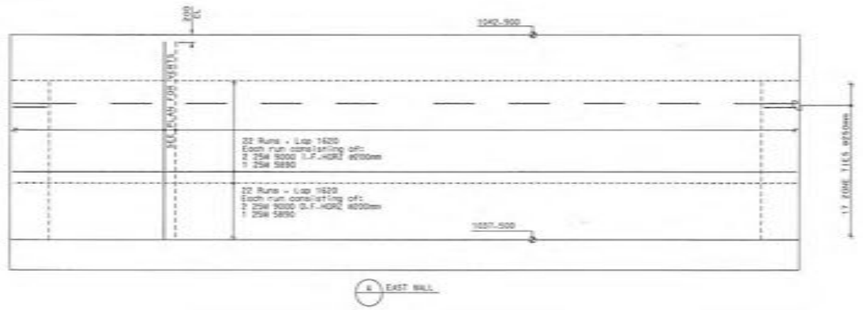
MCNISH STEEL LTD.
10636 - 205 STREET
EDMONTON, ALBERTA
PHONE 447-3337 FAX 447-3379

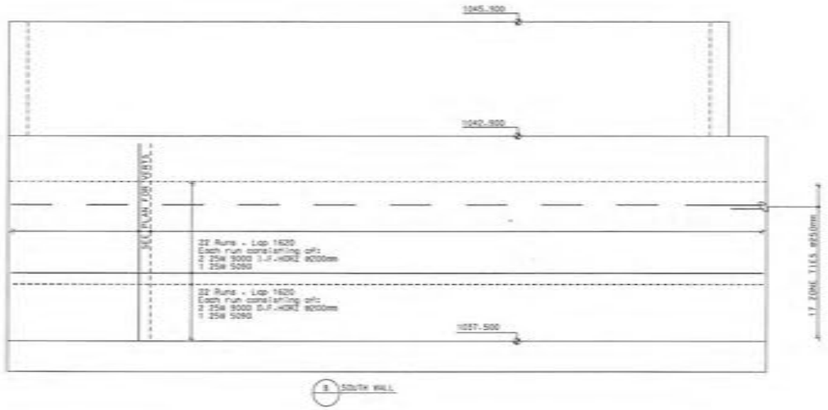
PROJECT : STRATHCOLD (EAGE GOLD PROJECT)
CONTR. : CLARK BUILDERS
DWG. OF : CV-016 CONVEYOR FOUNDATIONS
ENGR. : HATCH
DRAWN BY : MARK DATE : 10/OCT/2018

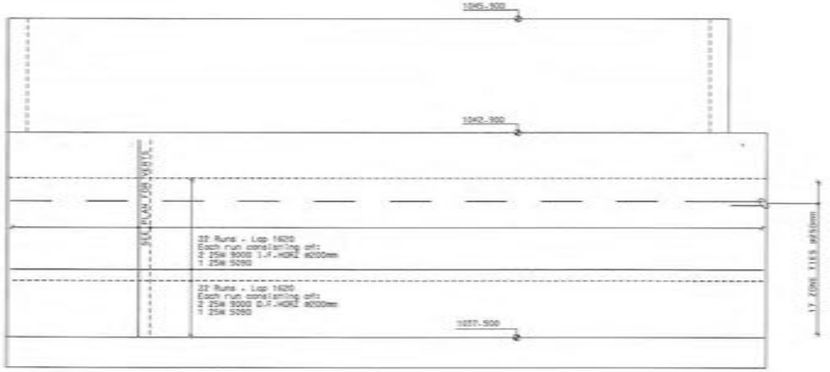
# REINFORCING STEEL PLACING PLAN

JOB NO. 18-042 DWG. NO. 006 H

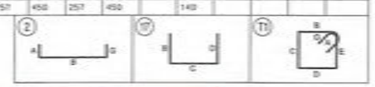


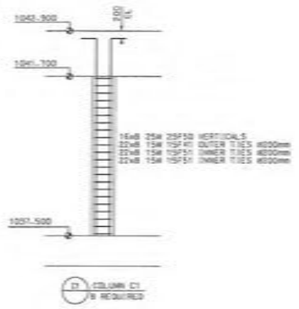




| SIZE | EP | BAR MARK | V | END TYP | CD | BENDING DIMENSIONS A | B | C | D | E | F/R | G | H | J | K | O |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 30M | | 30F44 | | T1 | | | 500 | 52000 | | | | | | | | |
| 25M | | 25F48 | | T1 | | | 16115 | 16115 | | | | | | | | |
| 25M | | 25F49 | | 2 | | 400 | 16115 | | | | | | | | | |
| 25M | | 25F50 | | T1 | | | 400 | 52000 | | | | | | | | |
| 15M | | 15F45 | | T1 | | 140 | 450 | 450 | 450 | 450 | | 140 | | | | |
| 15M | | 15F46 | | T1 | | 140 | 10770 | 850 | 10770 | 850 | | 140 | | | | |
| 15M | | 15F46 | | T1 | | 140 | 16330 | 850 | 16330 | 850 | | 140 | | | | |
| 15M | | 15F47 | | T1 | | 140 | 20250 | 850 | 20250 | 850 | | 140 | | | | |
| 15M | | 15F51 | | T1 | | 140 | 257 | 450 | 257 | 450 | | 140 | | | | |




## GENERAL NOTES ON REINFORCEMENT

THE FOLLOWING NOTES SHALL APPLY TO ALL REINFORCEMENT SHOWN ON THE DRAWINGS UNLESS OTHERWISE NOTED.

**DIMENSIONS:**
DIMENSIONS TO REINFORCEMENT ARE TO CENTRE LINES OF BARS, EXCEPT WHERE CONCRETE COVER OR CLEARANCE BETWEEN BARS IS SHOWN.

**COVER:**
SEE STRUCTURAL ENGINEER TYPICAL NOTES FOR ALL COVER SPECIFICATIONS

**SPACING:**
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**STEEL SPECIFICATIONS:**
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SPLICES ARE TO BE MADE SO THAT THE GIVEN CLEAR DISTANCE COVER WILL BE MAINTAINED.

LAP LENGTHS UNLESS SHOWN OTHERWISE:

| | HORZ | OTHER |
|---|---|---|
| 10M | 520 | 400 |
| 15M | 775 | 595 |
| 20M | 1030 | 795 |
| 25M | 1615 | 1240 |
| 30M | 1940 | 1485 |
| 35M | | |

**PLACEMENT:**
PLACE REINFORCING STEEL IN ACCORDANCE WITH CSA CAN3-A23.1-M.

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THE FULL INTENT AND PURPOSE OF THESE DRAWINGS IS PLACING OF REINFORCING STEEL BARS ONLY. IT IS NOT TO BE USED AS A MEANS OF COMMUNICATION BETWEEN THE ARCHITECT, ENGINEER, CONTRACTOR OR ANY OTHER SUBTRADE.

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**HATCH Vendor/Contractor Document Review**

| | | | |
|---|---|---|---|
| Doc Number | E354138-CB201-230-270-0020 | SUB | 01 |
| Date Received | 2018-10-12 | | |

| Review Grade | Next Submittal Status |
|---|---|
| ☐ C1 - Proceed to next submission & status<br>☐ C2 - Proceed with exceptions as noted to next submission & status | ☐ Certified<br>☐ As-Built |
| ☐ C3 - Do not proceed. Revise as noted & resubmit | ☐ Internal Review<br>☐ Certified/☐ As-Built |
| Next Submittal Date: | |
| ☒ C4 - No further submission required - Complete [select status below]<br>☐ Certified Final ☐ Final ☐ Cancelled ☐ Superseded | |

Package Engineer: Name, signature and date
ESEA AKINCI, EA, Oct 16, 2018

Reviewed only for general conformity with the specifications. Acceptance by the engineer does not warrant or represent that the information contained on this drawing/document is either accurate or complete. The sole responsibility for correct design, details & dimensions shall remain with the party submitting the drawing/document.

| | | | |
|---|---|---|---|
| # | - SPACING CENTER TO CENTER | BOT | - BOTTOM |
| | - DIRECTION IN WHICH BARS EXTEND | TOP | - TOP |
| | - LIMITS OF AREA COVERED BY BARS | T&B | - TOP & BOTTOM |
| ----- | - REBAR TOP/NEAR FACE | L-R | - LEFT TO RIGHT |
| ----- | - REBAR BOT/FAR FACE | B-T | - BOTTOM TO TOP |
| I.F. | - INSIDE FACE | C.B. | - CORNER BAR |
| O.F. | - OUTSIDE FACE | T.O.H. | - TYPICAL OPPOSITE HAND |
| N.F. | - NEAR FACE | R/L | - FROM RIGHT TO LEFT |
| F.F. | - FAR FACE | F.B. | - FIELD BEND |
| E.W. | - EACH WAY | C.I.F. | - CUT IN FIELD |
| VERT | - VERTICAL | T.O.W. | - TOP OF WALL |
| HORZ | - HORIZONTAL | T.O.F. | - TOP OF FOOTING |
| DWLS | - DOWELS | B.O.W. | - BOTTOM OF WALL |
| FTG | - FOOTING | T.O.C. | - TOP OF CONCRETE |
| COL | - COLUMN | B.O.C. | - BOTTOM OF CONCRETE |
| | | ELEV. | - ELEVATION |

| | |
|---|---|
| B.L.L. | - BOTTOM LOWER LAYER |
| B.U.L. | - BOTTOM UPPER LAYER |
| M.L.L. | - MID LOWER LAYER |
| M.U.L. | - MID UPPER LAYER |
| T.L.L. | - TOP LOWER LAYER |
| T.U.L. | - TOP UPPER LAYER |
| E.R. | - EACH ROW |
| BNT. | - BENT |

PREFIX F
TRANS. NOS. 7-6

PRINT RECORD

| NO. | REVISION | DATE | TO | FOR | DATE |
|---|---|---|---|---|---|
| | | | C | A | 12/OCT/18 |

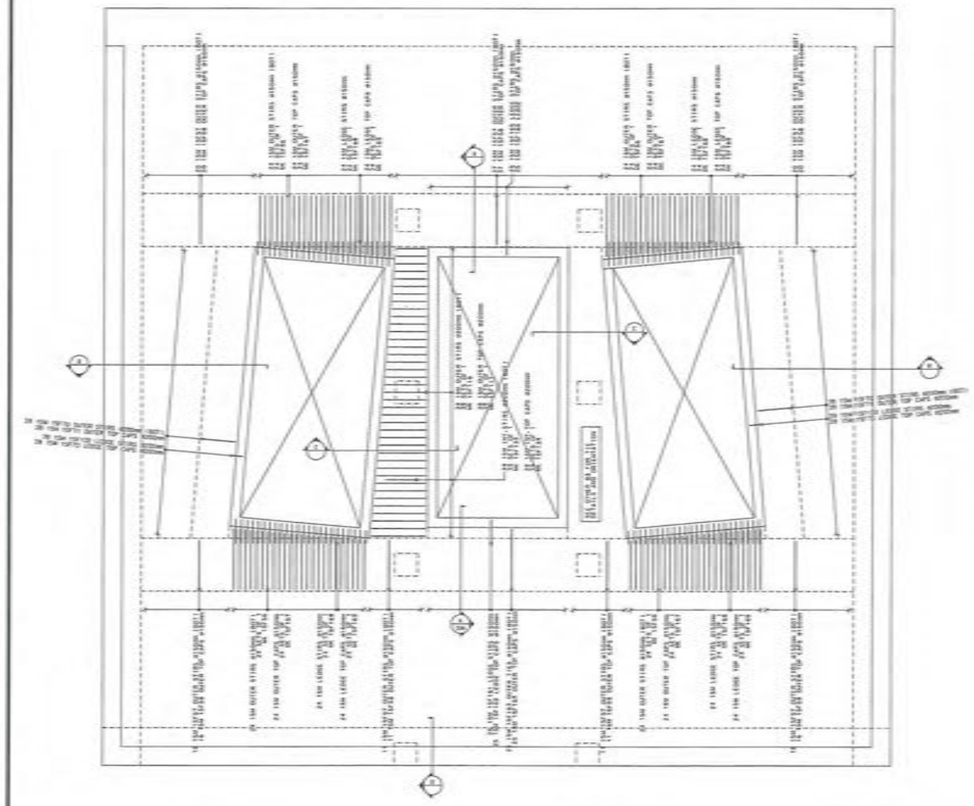
McNISH STEEL LTD.
10636 - 205 STREET
EDMONTON, ALBERTA
PHONE 447-3337 FAX 447-3379

# REINFORCING STEEL PLACING PLAN

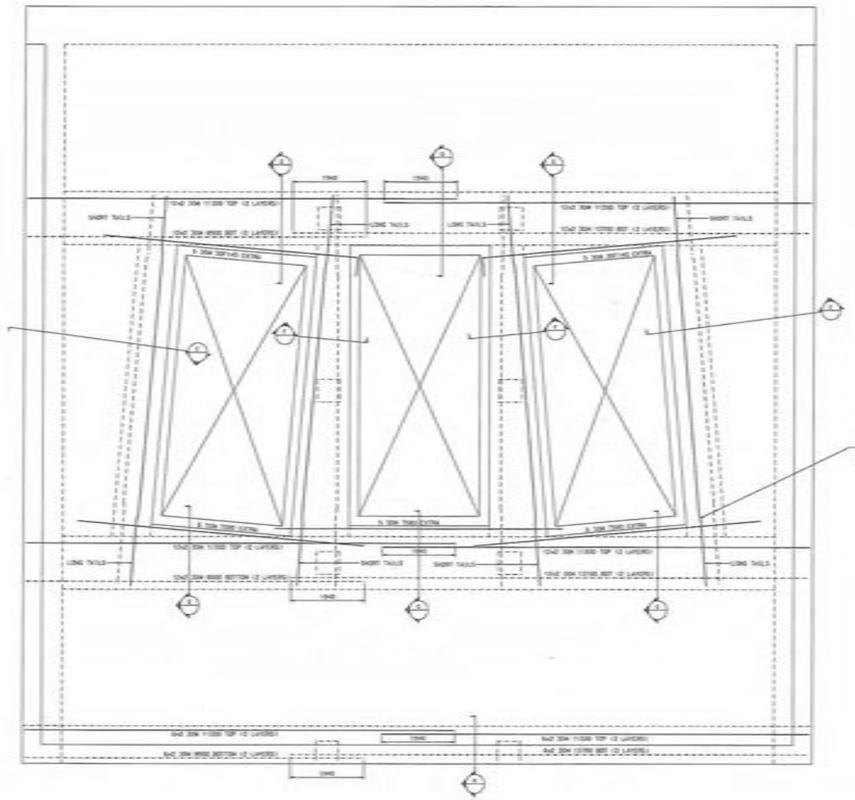
PROJECT : STRATAGOLD (EAGE GOLD PROJECT)
CONTR. : CLARK BUILDERS
DWG. OF : RECLAIM TUNNEL (WALLS & COLUMNS)
ENGR. : HATCH
DRAWN BY : MARK
DATE : 12/OCT/2018

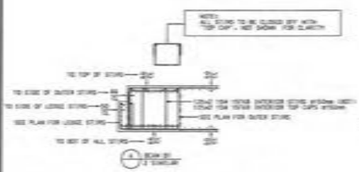
JOB NO. 18-042 | DWG. NO. 006 D

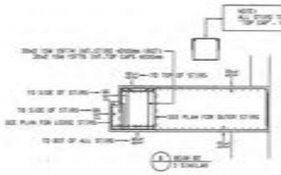
BEAM TIE PLAN

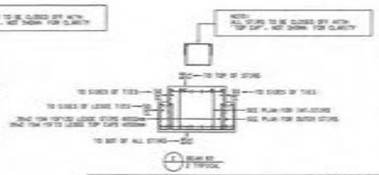


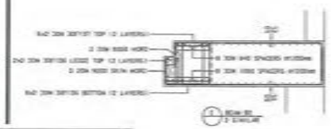
BEAM HORZ PLAN

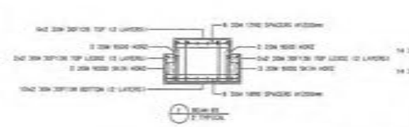


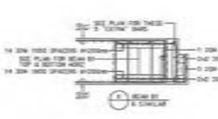


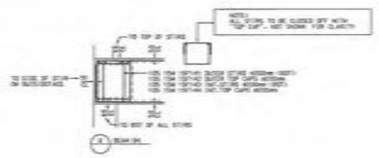


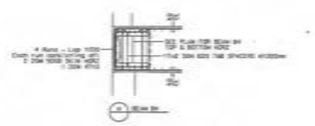






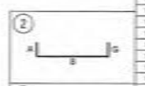




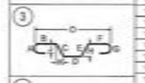


| SIZE | QTY | BAR MARK | # | SHAPE CODE | A | B | C | D | BENDING DIMENSIONS E | TYPE | F | G | H | J | K | O |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 30M | | 30M12A | | 0 | | 1540 | 2312 | 5096 | 2312 | 7358 | | | 180 | | 230 | |
| 30M | | 30M13B | | 0 | | 1714 | 2312 | 5096 | 2312 | 7358 | | | 180 | | 230 | |
| 30M | | 30M13A | | 0 | | 1462 | 2312 | 5115 | 2312 | 7358 | | | 180 | | 230 | |
| 30M | | 30M13A | | 0 | | 1677 | 2312 | 5004 | 2312 | 7358 | | | 180 | | 230 | |
| 30M | | 30M14A | | 0 | 300 | 4726 | | | | | | | | | | |
| 15M | | 15M16 | 12 | 53 | 140 | 1068 | 1314 | 1068 | | | | 140 | | | | |
| 15M | | 15M16 | 4 | 53 | 140 | 1068 | 1614 | 1068 | | | | 140 | | | | |
| 15M | | 15M17 | | 53 | 140 | 1068 | 1264 | 1068 | | | | 140 | | | | |
| 15M | | 15M18 | | 11 | | 600 | 1264 | 600 | | | | | | | | |
| 15M | | 15M18A | | 53 | 140 | 1068 | 600 | 1068 | | | | 140 | | | | |
| 15M | | 15M19 | | 53 | 140 | 1068 | 600 | 1068 | | | | 140 | | | | |
| 15M | | 15M20 | | 53 | 140 | 1068 | 894 | 1068 | | | | 140 | | | | |
| 15M | | 15M21 | | 11 | | 600 | 894 | 600 | | | | | | | | |
| 15M | | 15M23 | | 11 | | 600 | 1265 | 600 | | | | | | | | |
| 15M | | 15M24 | | 53 | 140 | 1068 | 1008 | 1068 | | | | 140 | | | | |
| 15M | | 15M25 | | 11 | | 600 | 1008 | 600 | | | | | | | | |
| 15M | | 15M26 | | 53 | 140 | 1068 | 1429 | 1068 | | | | 140 | | | | |
| 15M | | 15M26A | | 53 | 140 | 1068 | 744 | 1068 | | | | 140 | | | | |
| 15M | | 15M27 | | 11 | | 600 | 1429 | 600 | | | | | | | | |
| 15M | | 15M27A | | 11 | | 600 | 744 | 600 | | | | | | | | |
| 15M | | 15M28 | | 53 | 140 | 674 | 520 | 674 | | | | 140 | | | | |
| 15M | | 15M28A | | 53 | 140 | 1068 | 886 | 1068 | | | | 140 | | | | |
| 15M | | 15M28A | | 53 | 140 | 1068 | 487 | 1068 | | | | 140 | | | | |
| 15M | | 15M29 | | 11 | | 600 | 886 | 600 | | | | | | | | |
| 15M | | 15M29A | | 11 | | 600 | 487 | 600 | | | | | | | | |
| 15M | | 15M30 | | 53 | 140 | 1068 | 808 | 1068 | | | | 140 | | | | |
| 15M | | 15M30A | | 11 | | 600 | 659 | 600 | | | | | | | | |
| 15M | | 15M31 | | 53 | 140 | 1068 | 945 | 1068 | | | | 140 | | | | |
| 15M | | 15M31A | | 11 | | 600 | 945 | 600 | | | | | | | | |
| 15M | | 15M32 | | 53 | 140 | 674 | 621 | 674 | | | | 140 | | | | |
| 15M | | 15M32A | | 11 | | 600 | 621 | 600 | | | | | | | | |
| 15M | | 15M33 | | 53 | 140 | 674 | 351 | 674 | | | | 140 | | | | |
| 15M | | 15M33A | | 11 | | 600 | 351 | 600 | | | | | | | | |
| 15M | | 15M34 | | 11 | | 600 | 1045 | 600 | | | | | | | | |
| 15M | | 15M35 | | 53 | 140 | 674 | 351 | 674 | | | | 140 | | | | |
| 15M | | 15M36 | | 11 | | 600 | 351 | 600 | | | | | | | | |
| 15M | | 15M37 | | 11 | | 600 | 1014 | 600 | | | | | | | | |
| 15M | | 15M37A | | 11 | | 600 | 1014 | 600 | | | | | | | | |
| 15M | | 15M38 | | 53 | 140 | 674 | 351 | 674 | | | | 140 | | | | |
| 15M | | 15M38A | | 53 | 140 | 674 | 483 | 674 | | | | 140 | | | | |
| 15M | | 15M39 | | 11 | | 600 | 351 | 600 | | | | | | | | |
| 15M | | 15M39A | | 11 | | 600 | 483 | 600 | | | | | | | | |

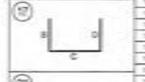
2



3



17



53



| | |
|---|---|
| @ | - SPACING CENTER TO CENTER |
| | - DIRECTION IN WHICH BARS EXTEND |
| | - LIMITS OF AREA COVERED BY BARS |
| | - REBAR TOP/NEAR FACE |
| | - REBAR BOT/FAR FACE |
| I.F. | - INSIDE FACE |
| O.F. | - OUTSIDE FACE |
| N.F. | - NEAR FACE |
| F.F. | - FAR FACE |
| E.W. | - EACH WAY |
| VERT | - VERTICAL |
| HORZ | - HORIZONTAL |
| DWLS | - DOWELS |
| FTG | - FOOTING |
| COL | - COLUMN |
| B-L-L. | - BOTTOM LOWER LAYER |
| B-U-L. | - BOTTOM UPPER LAYER |
| M-L-L. | - MID LOWER LAYER |
| M-U-L. | - MID UPPER LAYER |
| T-L-L. | - TOP LOWER LAYER |
| T-U-L. | - TOP UPPER LAYER |
| E.R. | - EACH IRON |
| BNT. | - BENT |
| BOT | - BOTTOM |
| TOP | - TOP |
| T&B | - TOP & BOTTOM |
| L-R | - LEFT TO RIGHT |
| B-T | - BOTTOM TO TOP |
| C.B. | - CORNER BAR |
| T.O.H. | - TYPICAL OPPOSITE HAND |
| R/L | - FROM RIGHT TO LEFT |
| F.B. | - FIELD BEND |
| C.I.F. | - CUT IN FIELD |
| T.O.W. | - TOP OF WALL |
| T.O.F. | - TOP OF FOOTING |
| B.O.W. | - BOTTOM OF WALL |
| T.O.C. | - TOP OF CONCRETE |
| B.O.C. | - BOTTOM OF CONCRETE |
| ELEV. | - ELEVATION |

## GENERAL NOTES ON REINFORCEMENT

THE FOLLOWING NOTES SHALL APPLY TO ALL REINFORCEMENT SHOWN ON THE DRAWINGS UNLESS OTHERWISE NOTED.

DIMENSIONS:
DIMENSIONS TO REINFORCEMENT ARE TO CENTRE LINES OF BARS, EXCEPT WHERE CONCRETE COVER OR CLEARANCE BETWEEN BARS IS SHOWN.

COVER:
SEE STRUCTURAL ENGINEER TYPICAL NOTES FOR ALL COVER SPECIFICATIONS

SPACING:
UNLESS OTHERWISE SHOWN, THE FIRST AND LAST BARS IN SLABS AND WALLS, STIRRUPS IN BEAMS SHALL BE PLACED AT MAXIMUM OF HALF THE SPECIFIED SPACING OF ADJACENT BARS FROM THE END OF THE MEMBER.

STEEL SPECIFICATIONS:
STEEL REINFORCEMENT SHALL BE DEFORMED BARS OF GRADE 400 CONFORMING TO CSA STANDARDS G30.12 BILLET-STEEL BARS FOR CONCRETE REINFORCEMENT.

WELDING:
WELDING OF REINFORCEMENT SHALL NOT BE PERMITTED.

SPLICES AND EMBEDMENTS:
UNLESS OTHERWISE SPECIFIED, ALL EMBEDMENTS SHALL BE TREATED AS TENSION EMBEDMENTS AND ALL LAP SPLICES SHALL BE CONSIDERED AS TENSION LAP SPLICES.

WHEN REINFORCING BARS OF DIFFERENT SIZE ARE TO BE SPLICED, THE LENGTH OF THE LAP SHALL BE BASED ON THE DIAMETER OF THE SMALLER BAR.

SPLICES ARE TO BE MADE SO THAT THE CLEAR DISTANCE COVER WILL BE MAINTAINED.

LAP LENGTHS UNLESS SHOWN OTHERWISE:

| | HORZ | OTHER |
|---|---|---|
| 10M | 520 | 400 |
| 15M | 775 | 595 |
| 20M | 1030 | 790 |
| 25M | 1615 | 1240 |
| 30M | 1940 | 1485 |
| 35M | | |

PLACEMENT:
PLACE REINFORCING STEEL IN ACCORDANCE WITH CSA CAN3-A23.1-M.

REINFORCEMENT MAY BE DISPLACE TO CLEAR PIPES, RECESSES, EMBEDDED METAL WORKS AND CONDUITS.

A MINIMUM CLEARANCE OF 1" SHALL BE MAINTAINED BETWEEN REINFORCEMENT AND EMBEDDED MATERIALS. THE MINIMUM CLEARANCE BETWEEN REINFORCEMENT

REINFORCEMENT SHALL BE ACCURATELY PLACED IN ACCORDANCE WITH THE DRAWING AND SHALL BE ADEQUATELY SECURED AGAINST DISPLACEMENT BY USING ANNEALED IRON WIRE AT INTERSECTIONS AND SHALL BE SUPPORTED BY APPROVED CONCRETE OR METAL SUPPORTS. SPACERS OR METAL HANGERS EXCEPT AT SURFACES EXPOSED TO THE GROUND OR TO THE WEATHER WHERE SUPPORTS SHALL BE APPROVED. ALL METAL ACCESSORIES ARE TO BE GALVANIZED.

THE FULL INTENT AND PURPOSE OF THESE DRAWINGS IS PLACING OF REINFORCING STEEL BARS ONLY. IT IS NOT TO BE USED AS A MEANS OF COMMUNICATION BETWEEN THE ARCHITECT, ENGINEER, CONTRACTOR OR ANY OTHER SUBTRADE.

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PREFIX F
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PRINT RECORD

| NO. | REVISION | DATE | YC | C | A | 12/OCT/18 |
|---|---|---|---|---|---|---|

MCNISH STEEL LTD.
10636 - 205 STREET
EDMONTON, ALBERTA
PHONE 447-3337 FAX 447-3379

REINFORCING STEEL PLACING PLAN

PROJECT : STRATHCOLD (EAGLE GOLD PROJECT)
CONTR. : CLARK BUILDERS
DWG. OF : RECLAIM TUNNEL (SUSPENDED SLAB - BEAMS)
ENGR. : MATCH
DRAWN BY : MARK
DATE : 12/OCT/2018

JOB NO. 18-042 | DWG. NO. 006 E

SLAB CLEAR COVER:
50mm TO T.U.L.
50mm TO B.L.L.

104 30M 30F154 BLL @200mm
104 30M 30F154 TLL @200mm

25 Runs - Lap 1620
Each run consisting of:
1 25M 25F156 TLL @200mm
1 25M 9000
1 25M 25F157

25 Runs - Lap 1620
Each run consisting of:
1 25M 25F156 BUL @200mm
1 25M 9000
1 25M 25F157

16 x 2 Runs - Lap 1030
Each run consisting of:
2 20M 9000 E.F.WALL HORZ @200mm
1 20M 2960

15 25M 25F158 TLL @200mm
15 25M 25F158 BUL @200mm

38 30M TUL @200mm
38 SETS OF 1
MK 30F159

38 30M BLL @200mm
38 SETS OF 1
MK 30F160

1615

13 25M 25F158 TLL @200mm
13 25M 25F158 BUL @200mm

18 Runs - Lap 1620
Each run consisting of:
1 25M 25F156 TLL @200mm
1 25M 9000
1 25M 25F157

18 Runs - Lap 1620
Each run consisting of:
1 25M 25F156 BUL @200mm
1 25M 9000
1 25M 25F157

16 20M 20F173 O.F.CRNRBARS @200mm
16x2 20M 20F174 E.W.-I.F.CRNRBARS @200mm

16 x 2 Runs - Lap 1030
Each run consisting of:
2 20M 9000 E.F.WALL HORZ @200mm
1 20M 4760

104 30M 30F155 BLL @200mm
104 30M 30F155 TUL @200mm

| SIZE | EP | BAR MARK | V | BND TYP | CD | BENDING DIMENSIONS A | B | C | D | E | F/R | G | H | J | K | D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 30M | | 30F154 | | 17 | | | 1000 | 6175 | 1000 | | | | | | | |
| 30M | | 30F155 | | 17 | | | 1000 | 5875 | 1000 | | | | | | | |
| 30M | | 30F159 | G | 17 | | | 650 | 3190 | 1000 | | | | | | | |
| 30M | | 30F159 | + | 17 | | | 650 | 3838 | 1000 | | | | | | | |
| 30M | | 30F160 | G | 17 | | | 650 | 3441 | 1000 | | | | | | | |
| 30M | | 30F160 | + | 17 | | | 650 | 4088 | 1000 | | | | | | | |
| 25M | | 25F156 | | 17 | | | 1000 | 8063 | | | | | | | | |
| 25M | | 25F157 | | 17 | | | 1000 | 6827 | | | | | | | | |
| 25M | | 25F158 | | 4 | | 1000 | 1325 | 177 | 4524 | | | | 56 | | 168 | |
| 20M | | 20F170 | | 17 | | | 400 | 1878 | | | | | | | | |
| 20M | | 20F173 | | 17 | | | 1030 | 1030 | | | | | | | | |
| 20M | | 20F174 | | 2 | | 300 | 1030 | | | | | | | | | |
| 15M | | 15F172 | | 17 | | | 600 | 400 | 600 | | | | | | | |

(2) (4) (17)

1045.900
289 15W 15F172 TOP CAPS @200mm
287 20W 20F170 U.F.DWLS @200mm
295 20W 20F170 O.F.DWLS @200mm
287 20W 2950 U.F.VERTS @200mm
295 20W 2950 O.F.VERTS @200mm
SEE PLAN FOR HORZ
50 CL TO VERTS
790
1042.900
A WALL SECTION

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@ - SPACING CENTER TO CENTER
↕ - DIRECTION IN WHICH BARS EXTEND
- LIMITS OF AREA COVERED BY BARS
---- - REBAR TOP/NEAR FACE
- - - - REBAR BOT/FAR FACE

I.F. - INSIDE FACE
O.F. - OUTSIDE FACE
N.F. - NEAR FACE
F.F. - FAR FACE
E.W. - EACH WAY
VERT - VERTICAL
HORZ - HORIZONTAL
DWLS - DOWELS
FTG - FOOTING
COL - COLUMN

B.L.L. - BOTTOM LOWER LAYER
B.U.L. - BOTTOM UPPER LAYER
M.L.L. - MID LOWER LAYER
M.U.L. - MID UPPER LAYER
T.L.L. - TOP LOWER LAYER
T.U.L. - TOP UPPER LAYER
E.R. - EACH RON
BNT. - BENT

BOT - BOTTOM
TOP - TOP
T&B - TOP & BOTTOM
L-R - LOFT TO RIGHT
B-T - BOTTOM TO TOP
C.B. - CORNER BAR
T.O.W. - TYPICAL OPPOSITE HAND
R/L - FROM RIGHT TO LOFT
F.B. - FIELD BEND
C.I.F. - CUT IN FIELD
T.O.W. - TOP OF WALL
T.O.F. - TOP OF FOOTING
B.O.W. - BOTTOM OF WALL
T.O.C. - TOP OF CONCRETE
B.O.C. - BOTTOM OF CONCRETE
ELEV. - ELEVATION

PREFIX F
TRANS. NOS. T-6

PRINT RECORD

| NO. | REVISION | DATE | TO | FOR | DATE |
|---|---|---|---|---|---|
| | | | C | A | 12/OCT/18 |

MCNISH STEEL LTD.
10636 - 205 STREET
EDMONTON, ALBERTA
PHONE 447-3337 FAX 447-3379

PROJECT : STRATAGOLD (EAGE GOLD PROJECT)
CONTR. : CLARK BUILDERS
DWG. OF : REGLAIN TUNNEL (SUSPENDED SLAB - TOP & BOT)
ENGR. : HATCH
DRAWN BY : MARK
DATE : 12/OCT/2018

JOB NO. 18-042 DWG. NO. 006 F

# REINFORCING STEEL PLACING PLAN

Tensar®

MSE STRUCTURE SHOP DRAWINGS
PREPARED FOR

# EAGLE GOLD PROJECT - SECONDARY AND TERTIARY CRUSHING STOCKPILE RETAINING WALL

YUKON TERRITORY, CANADA

| INDEX | |
|---|---|
| SHEET | SHEET NAME |
| 1 | Title Sheet |
| 2 | Design Criteria & Requirements |
| 3 | Plan View |
| 4 | Elevation View (1 OF 2) |
| 5 | Elevation View (2 OF 2) |
| 6 | Typical Cross-Section |
| 7 | Typical Details (1 OF 3) |
| 8 | Typical Details (2 OF 3) |
| 9 | Typical Details (3 OF 3) |

PERMIT TO PRACTICE
TENSAR INTERNATIONAL CORPORATION
SIGNATURE
Date 22 Aug 2018
PERMIT NUMBER PP553
Association of Professional Engineers of Yukon


Tensar.
Tensar International Corporation
2500 Northwinds Parkway | Suite 500
Alpharetta, Georgia 30009 | 770-344-2090



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PROFESSIONAL ENGINEER
YUKON TERRITORY
ROBERT SAENZ
22 Aug 2018
W18502

PROJECT NAME AND LOCATION
EAGLE GOLD PROJECT - SECONDARY AND TERTIARY CRUSHING STOCKPILE RETAINING WALL
YUKON TERRITORY, CANADA

OWNER
STRATA GOLD CORPORATION

OWNER PROJECT No.

CLIENT
NILEX
9222 40TH STREET SE
CALGARY, AB T2C 2P3
1-604-682-5474

TIC PROJECT No. W18502

DRAWN BY: V.AMAYA
DESIGNED BY: V.AMAYA
CHECKED BY : R.JOHNSON
ENGINEER OF RECORD (MSE STRUCTURE ONLY):
ROBERT SAENZ

| NO. | DATE | DESCRIPTION | BY |
|---|---|---|---|
| 1 | 8/16/2018 | REVISED PER COMMENTS | VA |
| 0 | 07/31/2018 | ISSUED FOR CONSTRUCTION | VA |

REVISION / ISSUE

SHEET TITLE
TITLE SHEET

SHEET 1 OF 9


Plotted on August 22, 2018
K:_W18502\FINAL\WORKING FILES\DRAWINGS\REV1\W18502_TS.DWG

# DESIGN CRITERIA AND CONSTRUCTION REQUIREMENTS
# TENSAR PERMANENT WWF RETAINING WALL SYSTEM

1.0 PROJECT INTRODUCTION

1.1 THE PERMANENT WWF RETAINING WALL SYSTEM FOR THE EAGLE GOLD PROJECT IS A MECHANICALLY STABILIZED EARTH (MSE) STRUCTURE. THE DRAWINGS AND ASSOCIATED ANALYSES ARE PRESENTED BY TENSAR INTERNATIONAL CORPORATION (TIC) TO NILEX (CLIENT) UNDER CONTRACT.

2.0 MATERIALS

2.1 BACKFILL

2.1.1 BACKFILL (REINFORCED AND RETAINED ZONES) SHALL BE FREE OF EXCESS MOISTURE, ROOTS, MUCK, SOD, SNOW, FROZEN LUMPS, ORGANIC MATTER OR OTHER DELETERIOUS MATERIALS. ALL ROCK PARTICLES AND HARD EARTH CLODS SHALL BE LESS THAN 4 INCHES IN THE LONGEST DIMENSION. BACKFILL WHICH DOES NOT MEET THESE CRITERIA SHALL BE CONSIDERED UNSUITABLE AND SHALL BE REMOVED.

2.1.2 REINFORCED BACKFILL SHALL BE ON-SITE OR IMPORT SOILS THAT MEET THE STRENGTH REQUIREMENTS DEFINED IN SECTION 4.2 AND THE GRADATION LIMITS LISTED BELOW. THE PORTION OF THE REINFORCED BACKFILL PASSING THE NO. 40 SIEVE SHALL HAVE A LIQUID LIMIT LESS THAN 20 AND PLASTICITY INDEX LESS THAN 6. REINFORCED BACKFILL SHALL BE CLASSIFIED PER THE UNIFIED SOIL CLASSIFICATION SYSTEM AS LOW OR NON-PLASTIC SOILS.

| SIEVE OPENING (MM) | PERCENT PASSING, MIN. | PERCENT PASSING, MAX. |
|---|---|---|
| 100 | 100 | - |
| 0.425 | 0 | 60 |
| 0.075 | 0 | 15 |

2.2 SOIL REINFORCEMENT
GEOGRID REINFORCEMENT SHALL BE TENSAR TPG AND BIAXIAL GEOGRIDS SUPPLIED BY TENSAR INTERNATIONAL CORPORATION, MORROW, GEORGIA, USA.

2.3 FACING MATERIAL

2.3.1 WELDED WIRE FORMS (WWF) SHALL BE SUPPLIED BY NILEX CIVIL ENVIRONMENTAL GROUP, CALGARY, AB, CANADA.

2.4 DRAINAGE MATERIAL

2.4.1 GEOTEXTILE SHALL MEET THE SPECIFICATION FOR AASHTO M288 GEOTEXTILES, AS NOTED IN THE DETAILS.

3.0 DESIGN RESPONSIBILITY

3.1 TIC RESPONSIBILITY
TIC HAS DESIGNED THE PERMANENT WWF RETAINING WALL SYSTEM TO SATISFY THE MSE CHARACTERISTICS LISTED BELOW.

| INTERNAL STABILITY | STATIC | SEISIC |
|---|---|---|
| GEOGRID TENSILE STRENGTH, MINIMUM FS | 1.5 | 1.1 |
| GEOGRID PULLOUT CAPACITY, MINIMUM FS | 1.5 | 1.1 |
| SLIDING AT LOWEST GEOGRID, MINIMUM FS | 1.5 | 1.1 |
| **EXTERNAL STABILITY** | **STATIC** | **SEISMIC** |
| SLIDING AT MSE BASE, MINIMUM FS | 1.5 | 1.1 |
| ECCENTRICITY RATIO AT MSE BASE, MAXIMUM | 0.17 | 0.33 |

3.2 THE SITE CHARACTERISTICS LISTED BELOW AFFECT THE PERFORMANCE OF THE PERMANENT WWF RETAINING WALL SYSTEM. TIC IS NOT RESPONSIBLE FOR EVALUATING OR VERIFYING SITE CHARACTERISTICS, THEREFORE TIC ASSUMES NO LIABILITY FOR THE POTENTIAL NEGATIVE EFFECTS OF THE SITE CHARACTERISTICS. THE CLIENT IS RESPONSIBLE FOR ENSURING THAT A QUALIFIED ENGINEER PROPERLY ADDRESSES THE FOLLOWING SITE CHARACTERISTICS.

3.2.1 TIC REPORTS PHYSICAL AND STRENGTH REQUIREMENTS OF THE BACKFILL. THE CLIENT IS RESPONSIBLE FOR VERIFICATION OF BACKFILL SPECIFICATIONS AND APPROPRIATE BACKFILL TESTING METHODS AND FREQUENCY.

3.2.2 ALLOWABLE BEARING CAPACITY
THE APPLIED BEARING PRESSURE HAS BEEN CALCULATED FOR EACH DESIGN CASE IN THE CALCULATION PACKAGE REFERENCED IN SECTION 7.1. THE CLIENT IS RESPONSIBLE FOR ENSURING THAT A QUALIFIED GEOTECHNICAL ENGINEER PERFORMS AN EVALUATION OF THE FOUNDATION AND ITS ALLOWABLE BEARING CAPACITY. THE CLIENT IS RESPONSIBLE TO NOTIFY TIC IF THE APPLIED BEARING PRESSURE EXCEEDS THE ALLOWABLE BEARING CAPACITY.

3.2.3 HYDROSTATIC CONDITIONS
TIC REPORTS MAXIMUM DESIGN WATER LEVELS (SURFACE AND SUBSURFACE) IN SECTION 4.6. TIC REQUIRES THAT THE REINFORCED ZONE OF THE MSE STRUCTURE REMAINS FREE OF WATER AND ALL UNBALANCED HYDROSTATIC FORCES. THE CLIENT IS RESPONSIBLE FOR ENSURING THAT THE DESIGN, ANALYSIS, DETAILING, AND MITIGATION OF SURFACE WATER AND SUBSURFACE WATER, INCLUDING BUT NOT LIMITED TO COLLECTION, DIVERSION, AND EROSION/SCOUR PROTECTION ARE PROPERLY ADDRESSED BY A QUALIFIED ENGINEER.

3.2.4 SETTLEMENT
TOTAL SETTLEMENT AND DIFFERENTIAL SETTLEMENT OF THE MSE STRUCTURE EXCEEDING 1/50 SHALL BE THE RESPONSIBILITY OF THE CLIENT. THE CLIENT IS RESPONSIBLE TO NOTIFY TIC IF IT IS DETERMINED THAT THE POTENTIAL FOR DIFFERENTIAL SETTLEMENT EXCEEDS THIS VALUE. TIC ACCEPTS NO LIABILITY OR RESPONSIBILITY FOR THE EVALUATION OF SETTLEMENT.

3.2.5 GLOBAL STABILITY
GLOBAL STABILITY IS OUTSIDE THE SCOPE OF TIC'S RESPONSIBILITY FOR THE PROJECT. THE CLIENT IS RESPONSIBLE FOR ENSURING THAT THE SOILS BEHIND AND BELOW THE MSE STRUCTURES ARE CAPABLE OF RESISTING ROTATIONAL AND WEDGE-SHAPED FAILURE.

4.0 DESIGN PARAMETERS

4.1 DESIGN OF THE PERMANENT WWF RETAINING WALL IS BASED ON FHWA-NHI-00-043, "MECHANICALLY STABILIZED EARTH WALLS AND REINFORCED SOIL SLOPES DESIGN & CONSTRUCTION GUIDELINES", 2001. THE FOLLOWING PARAMETERS CONTROL THE DESIGN:

4.2 SOIL PARAMETERS

| SOIL ZONE | MOIST UNIT WEIGHT ($kN/m^3$) ⚠1 | EFFECTIVE FRICTION ANGLE (DEGREES) | EFFECTIVE COHESION (kPa) |
|---|---|---|---|
| REINFORCED ZONE | 20.5 | 40 | 0 |
| RETAINED ZONE | 20.5 | 40 | 0 |
| FOUNDATION ZONE | 20.5 | 40 | 0 |

**NOTE: THE PROJECT GEOTECHNICAL ENGINEER SHALL CONFIRM THE APPROPRIATNESS OF THE PARAMETERS ABOVE. IF SOIL TESTING CONCLUDES THAT ACTUAL SOIL PARAMETERS DIFFER THAN THOSE STATED ABOVE, TIC SHALL BE NOTIFIED TO MODIFY THE DESIGN ACCORDINGLY.**

4.3 GEOGRID
GEOGRID TENSILE PROPERTIES AND REDUCTION FACTORS USED FOR THE CALCULATIONS REFERENCED IN SECTION 7.1 ARE LISTED BELOW.

| GEOGRID TYPE | ULTIMATE TENSILE STRENGTH, $T_{ULT}$ (kN/m) | REDUCTION FACTORS | | | ALLOWABLE DESIGN STRENGTH, $T_{AL}$ (kN/m) |
|---|---|---|---|---|---|
| | | CREEP, $RF_{CR}$ | INSTALLATION DAMAGE, $RF_{ID}$ | DURABILITY, $RF_D$ | |
| TPG100D | 110.2 | 1.51 | 1.25 | 1.10 | 53.1 |
| TPG130D | 150.3 | 1.51 | 1.25 | 1.10 | 72.4 |

⚠1 ⚠1

| | | |
|---|---|---|
| 4.3.1 | SOIL-GEOGRID INTERACTION COEFFICIENT (PULLLOUT), Ci | = 0.8 |
| 4.3.2 | SOIL-GEOGRID INTERACTION COEFFICIENT (DIRECT SLIDING), Cds | = 0.8 |
| 4.3.3 | GEOGRID COVERAGE RATIO, Rc | = 1.0 |
| 4.4 | DESIGN LIFE | = 20 YEARS |
| 4.5 | LOADINGS | |
| 4.5.1 | TAKE-UP TOWER LOADING | = 200 kPa |
| 4.5.2 | TERTIARY STOCKPILE LOAD P1 | = 26000 kN |
| 4.5.3 | TERTIARY STOCKPILE LOAD P2 | = 29600 kN |
| 4.5.4 | TERTIARY STOCKPILE LOAD P3 | = 3900 kN |
| 4.5.5 | TERTIARY STOCKPILE LOAD P4 | = 1620 kN |
| 4.5.6 | SEISMIC ACCELERATION COEFFICIENT, Kh | = 0.22g |

4.6 HYDROSTATIC PARAMETERS

PHREATIC SURFACES WERE NOT CONSIDERED IN DESIGN OF THE PERMANENT WWF RETAINING WALL SYSTEM. WATER LEVELS (SURFACE AND SUBSURFACE) SHALL REMAIN SUFFICIENTLY BELOW THE BOTTOM OF THE STRUCTURES (> H, HEIGHT OF MSE STRUCTURE) FOR THE LIFE OF THE STRUCTURE TO PRECLUDE NEGATIVES EFFECTS ON THE INTERNAL OR EXTERNAL STABILITY OF THE STRUCTURES.

5.0 CONSTRUCTION

5.1 A COMPLETE SET OF APPROVED SHOP DRAWINGS AND CONTRACT SPECIFICATIONS SHALL BE ON SITE AT ALL TIMES DURING CONSTRUCTION OF THE PERMANENT WWF RETAINING WALL SYSTEM. THE CONTRACTOR IS RESPONSIBLE TO FOLLOW THE DRAWINGS AND THE INSTRUCTIONS PROVIDED IN THE CONSTRUCTION AND QUALITY CONTROL MANUAL PROVIDED BY TIC.

5.2 FOUNDATION PREPARATION
PRIOR TO CONSTRUCTION OF THE PERMANENT WWF RETAINING WALL SYSTEM, THE CONTRACTOR SHALL CLEAR AND GRUB THE REINFORCED BACKFILL FOOTPRINT, REMOVING TOP SOIL, BRUSH, SOD OR OTHER ORGANIC OR DELETERIOUS MATERIAL. ANY UNSUITABLE SOILS SHALL BE OVER-EXCAVATED, REPLACED WITH COMPACTED BACKFILL MATERIAL TO PROJECT SPECIFICATIONS OR AS OTHERWISE DIRECTED BY A QUALIFIED GEOTECHNICAL ENGINEER. THE FOUNDATION SHALL BE PROOF ROLL INSPECTED USING A LOADED TRUCK WITH 80 KN AXLE LOADS OR PER PROJECT SPECIFICATIONS. THE CLIENT IS RESPONSIBLE TO HAVE A QUALIFIED GEOTECHNICAL ENGINEER CONFIRM THAT THE FOUNDATION HAS BEEN PROPERLY PREPARED AND MEETS THE SOIL PARAMETERS STATED IN SECTION 4.2.

5.3 MSE FACING

5.3.1 THE CLIENT IS RESPONSIBLE TO SURVEY AND LAYOUT THE PERMANENT WWF RETAINING WALL FACING AS SHOWN ON THE OWNER'S CONTRACT DRAWINGS.

5.3.2 INSTALL WWF FACING UNITS ON LEVEL GRADE. ENDS OF ADJACENT FACING UNITS SHALL BE OVERLAPPED 100 MM. ATTACH THE END VERTICAL WIRES OF ADJACENT FACING UNITS WITH CABLE TIES OR TIE WIRES TO MAINTAIN ALIGNMENT AND CONTAIN FILL. FACING UNIT BATTER SHOWN HEREIN SHALL BE MAINTAINED DURING CONSTRUCTION. THE CLIENT SHALL PROVIDE ALIGNMENT CONTROL FOR EACH COURSE OF FACING UNITS AND MAKE ALIGNMENT CORRECTIONS AS NECESSARY. HORIZONTAL DEFORMATION OF INDIVIDUAL FACING UNITS (BULGING) SHALL BE LIMITED TO 50 MM BETWEEN STRUTS AND BETWEEN THE BASE AND TOP OF THE FACING UNIT. THE CLIENT SHALL MODIFY COMPACTION PROCEDURES IF EXCESSIVE DEFORMATION OF THE FACING UNIT OCCURS. ADDITIONAL STRUTS MAY BE USED TO STIFFEN THE FACING UNIT.

5.4 GEOGRID PLACEMENT

5.4.1 GEOGRIDS SHALL BE INSTALLED AT THE LENGTHS, ELEVATIONS, AND LOCATIONS SHOWN ON THE DRAWINGS HEREIN. CHANGES TO GEOGRID LAYOUT ARE NOT PERMISSIBLE WITHOUT THE EXPRESS WRITTEN CONSENT OF TIC.

5.4.2 GEOGRID REINFORCEMENT SHALL BE CONTINUOUS THROUGHOUT THEIR EMBEDMENT LENGTH. GEOGRID-TO-GEOGRID CONNECTION IS NOT ALLOWED.

5.4.3 TPG GEOGRID SHALL BE ROLLED OUT PERPENDICULAR TO THE FACING UNITS UNLESS OTHERWISE NOTED. THE TRANSVERSE BAR OF THE GEOGRID (ACROSS THE ROLL WIDTH) SHALL BE IN CONTACT WITH THE VERTICAL FACE OF THE GEOTEXTILE FACE WRAP. NO OVERLAP IS REQUIRED. BIAXIAL GEOGRID SHALL BE ROLLED OUT PARALLEL TO THE FACING UNITS. BIAXIAL GEOGRID SHALL BE OVERLAPPED MINIMUM 4 INCHES.

5.4.4 TRACKED CONSTRUCTION EQUIPMENT SHALL NOT BE OPERATED DIRECTLY ON THE GEOGRID REINFORCEMENT. A MINIMUM BACKFILL THICKNESS OF 150 MM IS REQUIRED FOR OPERATION OF TRACKED VEHICLES OVER THE GEOGRID REINFORCEMENT. TURNING OF TRACKED VEHICLES SHOULD BE KEPT TO A MINIMUM TO PREVENT TRACKS FROM DISPLACING THE FILL AND/OR GEOGRID REINFORCEMENT. RUBBER-TIRED VEHICLES MAY PASS OVER THE GEOGRID REINFORCEMENT AT SPEEDS LESS THAN 15 KPH. SUDDEN BRAKING AND SHARP TURNING SHALL BE AVOIDED.

5.4.5 A MINIMUM OF 75 MM OF REINFORCED BACKFILL SHALL BE PLACED BETWEEN OVERLAPPING LAYERS OF GEOGRID REINFORCEMENT.

5.5 BACKFILL PLACEMENT

5.5.1 PRIOR TO PLACING BACKFILL, POSITION THE FACE BACKING AND INSTALL THE WIRE STRUTS AS SHOWN IN THE DRAWINGS. BACKFILL AND FACE FILL SHALL BE PLACED IN ALTERNATING LIFTS. THE GEOGRID SHALL BE TENSIONED BY HAND TO ELIMINATE SLACK AND ANCHORED BY PINNING OR PLACING SOIL ON THE GEOGRID AT THE BACK OF THE REINFORCED ZONE. BACKFILL SHALL BE PLACED IN HORIZONTAL LAYERS NOT EXCEEDING 250 MM OR 150 MM IN UNCOMPACTED THICKNESS FOR HEAVY OR LIGHTWEIGHT COMPACTION EQUIPMENT RESPECTIVELY. ONLY LIGHTWEIGHT EQUIPMENT SHALL BE ALLOWED WITHIN 1 METER OF THE BACK FACE OF THE MSE STRUCTURE.

5.5.2 BACKFILL SHALL BE PLACED FROM THE BACK OF THE MSE STRUCTURE FACING (WWF UNIT) TOWARDS THE ENDS OF THE GEOGRID TO PROMOTE PROPER TENSIONING.

5.5.3 BACKFILL SHALL BE PLACED AT A MOISTURE CONTENT NO GREATER THAN TWO PERCENT WET AND NO LESS THAN TWO PERCENT DRY OF OPTIMUM MOISTURE CONTENT AND COMPACTED TO A MINIMUM OF 95% OF MAXIMUM STANDARD PROCTOR DRY DENSITY AS DETERMINED IN ACCORDANCE WITH AASHTO T-99 OR AS SPECIFIED BY PROJECT SPECIFICATIONS.

5.5.4 AT THE END OF EACH WORKDAY, BACKFILL SURFACE SHALL BE GRADED AWAY FROM THE WALL FACE. THE BACKFILL SURFACE SHALL BE COMPACTED WITH A SMOOTH DRUM ROLLER TO MINIMIZE PONDING OF WATER AND SATURATION OF THE BACKFILL. A TEMPORARY SOIL BERM SHALL BE CONSTRUCTED NEAR THE CREST OF THE MSE STRUCTURE TO PREVENT SURFACE WATER RUNOFF FROM OVERTOPPING THE MSE STRUCTURE.

6.0 SPECIAL PROVISIONS

6.1 THE DESIGN PRESENTED HEREIN IS ONLY VALID FOR THE PERMANENT WWF RETAINING WALL SYSTEM FOR THE EAGLE GOLD PROJECT. THE DESIGN IS BASED ON SOIL PARAMETERS, FOUNDATION CONDITIONS, GROUNDWATER CONDITIONS, AND LOADINGS STATED IN SECTION 4.0. TIC ASSUMES NO LIABILITY FOR INTERPRETATION OR VERIFICATION OF SUBSURFACE CONDITIONS, FOR SUITABILITY OF SOIL DESIGN PARAMETERS OR FOR INTERPRETATION OF SUBSURFACE GROUNDWATER CONDITIONS. THE CLIENT IS RESPONSIBLE TO VERIFY THAT ACTUAL SITE CONDITIONS, PARAMETERS, AND STRUCTURE GEOMETRIES ARE AS DESCRIBED HEREIN PRIOR TO AND DURING CONSTRUCTION. PROCEEDING WITH CONSTRUCTION WITHOUT FIRST VERIFYING CONDITIONS AND PARAMETERS DISCUSSED ABOVE SHALL ABSOLVE TIC FROM ALL LIABILITY FOR THE DESIGN AND CONSTRUCTION OF THIS STRUCTURE AND THE CONTRACTOR SHALL INDEMNIFY AND HOLD HARMLESS TIC FROM ALL RESULTING CLAIMS, DAMAGES, LOSSES AND EXPENSES.

6.2 THE CLIENT IS RESPONSIBLE FOR PROVIDING QUALITY ASSURANCE AND QUALITY CONTROL PROGRAMS THAT ENSURE CONSTRUCTION OF THE MSE STRUCTURE IS PERFORMED IN ACCORDANCE WITH THE TIC NOTES AND DRAWINGS, AND THE OWNER'S CONTRACT PLANS AND SPECIFICATIONS.

6.3 THE CLIENT SHALL IMMEDIATELY REPORT ANY CHANGES TO TIC (770-344-2090) PRIOR TO PROCEEDING WITH CONSTRUCTION. THE CLIENT SHALL IMMEDIATELY REPORT TO TIC THE DISCOVERY OF ANY ROCK FORMATIONS AND/OR GROUNDWATER DURING CONSTRUCTION.

6.4 TIC IS NOT RESPONSIBLE FOR HAVING PERSONNEL ON-SITE UNLESS SPECIFICALLY PROVIDED FOR IN A WRITTEN CONTRACT SIGNED BY TIC. ANY TIC REPRESENTATIVE ON SITE DOES NOT HAVE THE AUTHORITY TO STOP OR START CONSTRUCTION OF THE MSE STRUCTURE OR ANY OTHER WORK.

7.0 REFERENCE DOCUMENTS

7.1 THE DESIGN CALCULATIONS PREPARED BY TIC ARE SUBMITTED UNDERS A SEPARATE COVER AND HAVE BEEN DATED JULY 31, 2018.

7.2 THE FOLLOWING DOCUMENTS WERE USED TO PREPARE THE SHOP DRAWINGS AND CALCULATIONS.

7.2.1 SECONDARY AND TERTIARY CRUSHING TERTIARY STOCKPILE RETAINIANG WALL SECTIONS - SHEET 1 AND SHEET 2, DATED JULY 9, 2018, PREPARED BY HATCH.

7.2.2 EMAIL COMMUNICATION BETWEEN TESAR, NILEX AND HATCH DATED JUNE 6, 2018 THROUGH JULY 10, 2018.


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PROFESSIONAL ENGINEER
YUKON
ROBERT SAENZ
TERRITORY
22 Aug 2018
W18502

PROJECT NAME AND LOCATION
EAGLE GOLD PROJECT - SECONDARY AND TERTIARY CRUSHING STOCKPILE RETAINING WALL
YUKON TERRITORY, CANADA

OWNER
STRATA GOLD CORPORATION

OWNER PROJECT No.

CLIENT
NILEX
9222 40TH STREET SE
CALGARY, AB T2C 2P3
1-604-682-5474

TIC PROJECT No. W18502

DRAWN BY: V.AMAYA
DESIGNED BY: V.AMAYA
CHECKED BY : R.JOHNSON
ENGINEER OF RECORD (MSE STRUCTURE ONLY):
ROBERT SAENZ

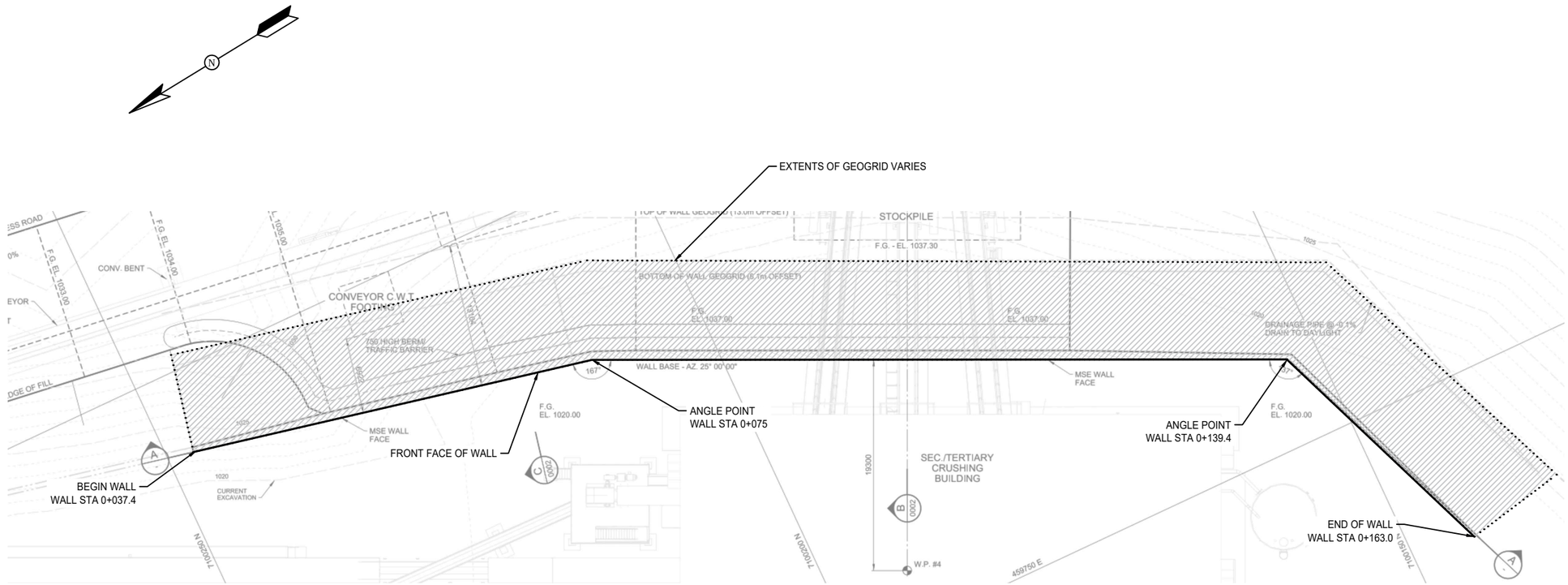
| NO. | DATE | DESCRIPTION | BY |
|---|---|---|---|
| 1 | 8/16/2018 | REVISED SOIL PROPERTIES | VA |
| 0 | 07/31/2018 | ISSUED FOR CONSTRUCTION | VA |

REVISION / ISSUE

SHEET TITLE
DESIGN CRITERIA & REQUIREMENTS



Plotted on August 22, 2018
K:_V\W18502\FINAL WORKING FILES\DRAWINGS\REV1\W18502_CR.DWG




PLAN VIEW
NOT TO SCALE

NOTES:

1. PLAN VIEW SHOWN FOR ILLUSTRATIVE PURPOSES ONLY.
2. PLAN VIEW ADOPTED FROM CONTRACT PLANS FOR SECONDARY AND TERTIARY CRUSHING TERTIARY STOCKPILE RETAINING WALL PLAN AND SECTION - SHEET 1, DATED JULY 12, 2018, PREPARED BY HATCH.

Plotted on August 22, 2018
K:_W\W18502\FINAL\WORKING FILES\DRAWINGS\REV1\W18502_PV.DWG

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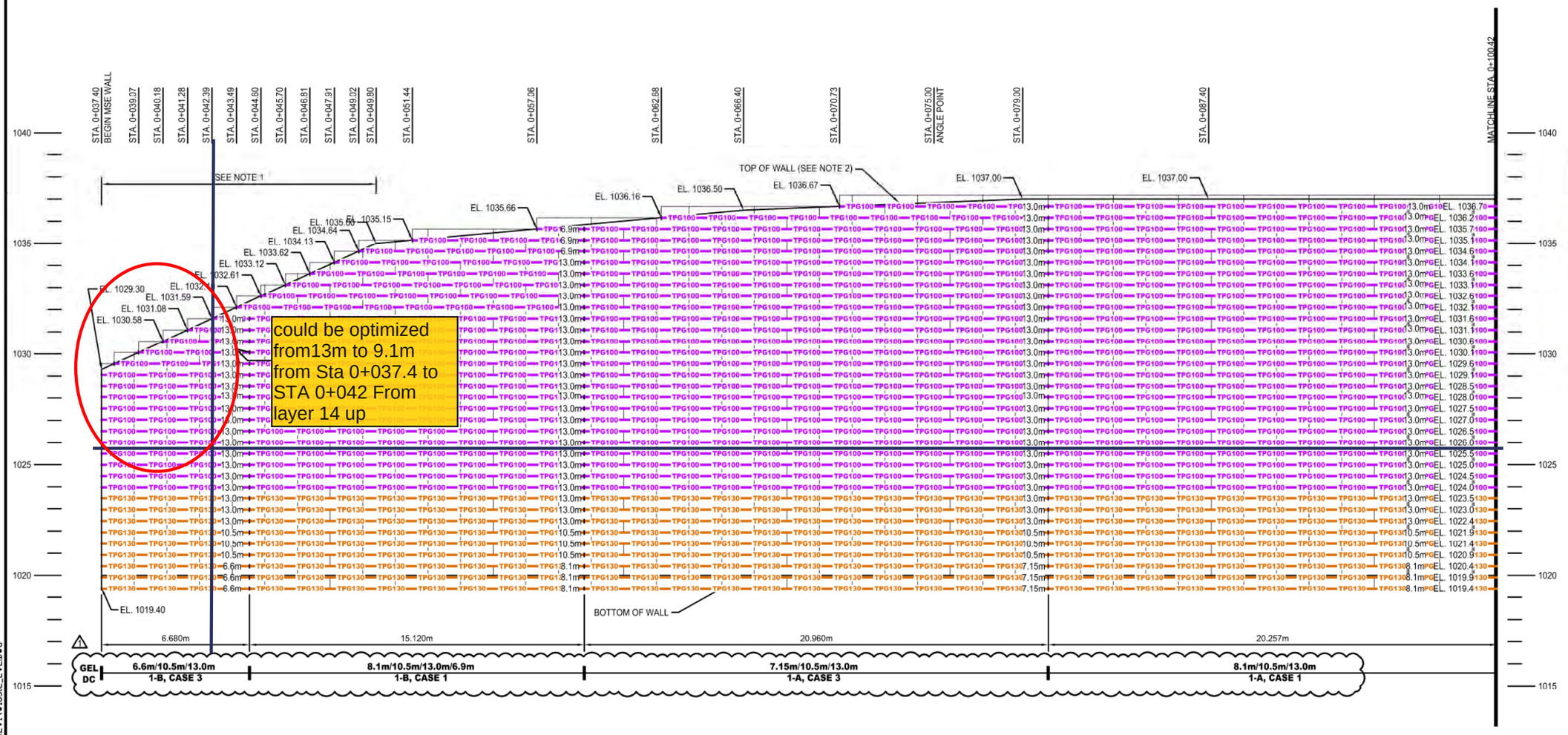
REVISION / ISSUE

SHEET TITLE
PLAN VIEW

SHEET 3 OF 9




NOTES:

1. SEE TRANSITION AT STRUCTURE DETAIL ON SHEET 9 OF 9 FOR FACING RETURN DETAIL.
2. SEE NESTED BASKET DETAIL FOR WELDED WIRE FORM BASKETS AT TOP OF WALL.
3. GEOGRID CAN BE EXTENDED TO 11 M WHERE ALLOWABLE BY THE CUT SLOPE.

## ELEVATION VIEW (1 OF 2)

ALONG FRONT FACE OF MSE STRUCTURE

SCALE 0 5m 10m METERS

**LEGEND**

- WELDED WIRE FORM FACING UNIT
- FINISHED GRADE
- EL. XXX.X (XX.X) — APPROX. GEOGRID ELEVATION (FEET)
- GEOGRID EMBEDMENT LENGTH (FEET)
- CHANGE IN EMBEDMENT LENGTH OR GEOGRID TERMINATION
- TPG100 — TPG130 — TENSAR TPG100D GEOGRID
- TPG130 — TPG130 — TENSAR TPG130D GEOGRID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PROFESSIONAL ENGINEER
YUKON TERRITORY
ROBERT SAENZ
22 Aug 2018
W18502

PROJECT NAME AND LOCATION

**EAGLE GOLD PROJECT - SECONDARY AND TERTIARY CRUSHING STOCKPILE RETAINING WALL**

YUKON TERRITORY, CANADA

OWNER: STRATA GOLD CORPORATION

OWNER PROJECT No.:

CLIENT: NILEX
9222 40TH STREET SE
CALGARY, AB T2C 2P3
1-604-682-5474

TIC PROJECT No. W18502

DRAWN BY: V.AMAYA
DESIGNED BY: V.AMAYA
CHECKED BY: R.JOHNSON
ENGINEER OF RECORD (MSE STRUCTURE ONLY): ROBERT SAENZ

| NO. | DATE | DESCRIPTION | BY |
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| 1 | 8/16/2018 | REVISED GEL | VA |
| 0 | 07/31/2018 | ISSUED FOR CONSTRUCTION | VA |

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SHEET TITLE: **ELEVATION VIEW (1 OF 2)**

SHEET 4 OF 9

Plotted on August 22, 2018
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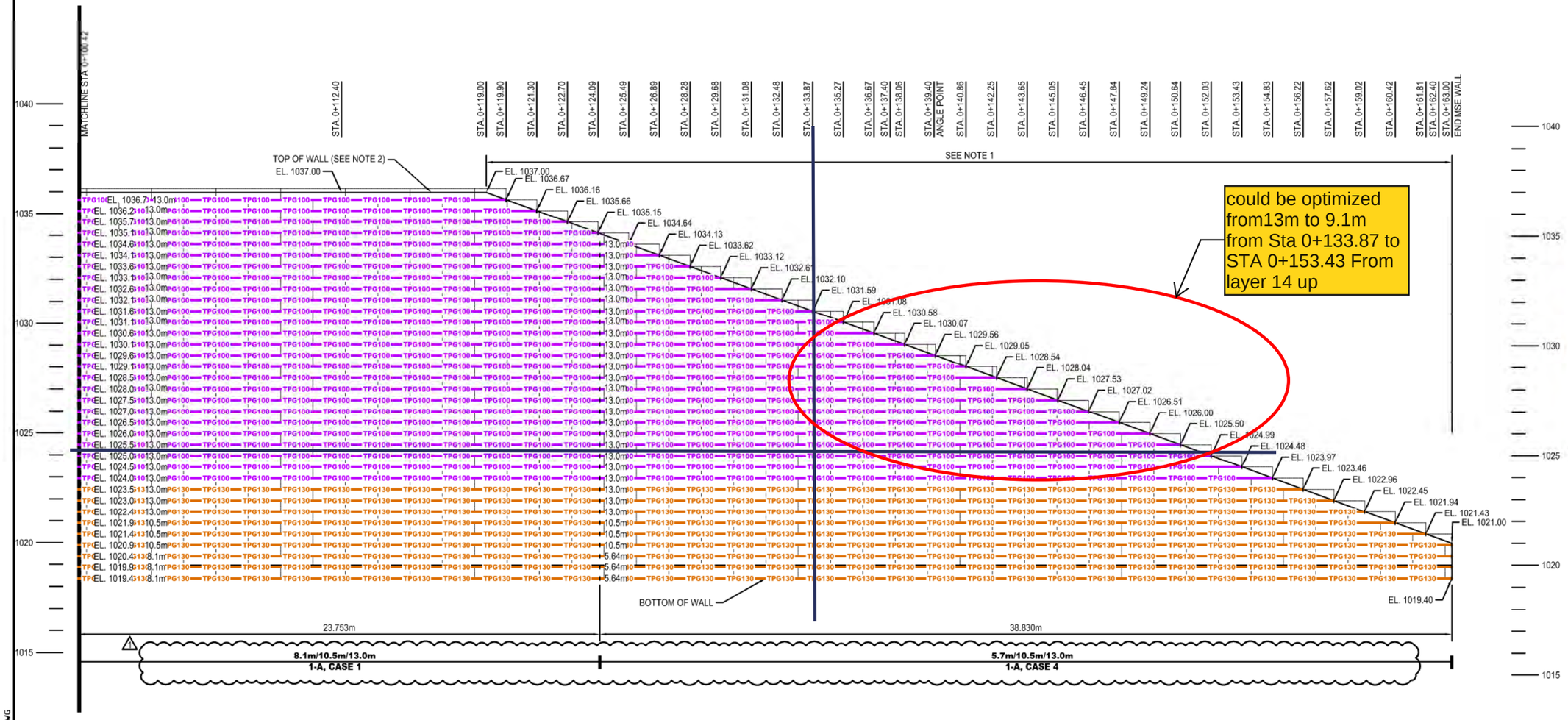


NOTES:

1. SEE TRANSITION AT STRUCTURE DETAIL ON SHEET 9 OF 9 FOR FACING RETURN DETAIL.
2. SEE NESTED BASKET DETAIL FOR WELDED WIRE FORM BASKETS AT TOP OF WALL.
3. GEOGRID CAN BE EXTENDED TO 11 M WHERE ALLOWABLE BY THE CUT SLOPE.

## ELEVATION VIEW (2 OF 2)

ALONG FRONT FACE OF MSE STRUCTURE

SCALE METERS
0 5m 10m

**LEGEND**

- WELDED WIRE FORM FACING UNIT
- FINISHED GRADE
- EL. XXX.X (XX.X) — APPROX. GEOGRID ELEVATION (FEET)
- GEOGRID EMBEDMENT LENGTH (FEET)
- CHANGE IN EMBEDMENT LENGTH OR GEOGRID TERMINATION
- TPG100 — TPG130 — TENSAR TPG100D GEOGRID
- TPG130 — TPG130 — TENSAR TPG130D GEOGRID


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PROFESSIONAL ENGINEER
YUKON TERRITORY
ROBERT SAENZ
22 Aug 2018
W18502

PROJECT NAME AND LOCATION

**EAGLE GOLD PROJECT - SECONDARY AND TERTIARY CRUSHING STOCKPILE RETAINING WALL**

YUKON TERRITORY, CANADA

OWNER

STRATA GOLD CORPORATION

OWNER PROJECT No.

CLIENT

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9222 40TH STREET SE
CALGARY, AB T2C 2P3
1-604-682-5474

TIC PROJECT No. W18502

DRAWN BY: V.AMAYA
DESIGNED BY: V.AMAYA
CHECKED BY : R.JOHNSON
ENGINEER OF RECORD (MSE STRUCTURE ONLY): ROBERT SAENZ

| NO. | DATE | DESCRIPTION | BY |
|---|---|---|---|
| 1 | 8/16/2018 | REVISED GEL | VA |
| 0 | 07/31/2018 | ISSUED FOR CONSTRUCTION | VA |

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SHEET TITLE

**ELEVATION VIEW (2 OF 2)**

SHEET 5 OF 9

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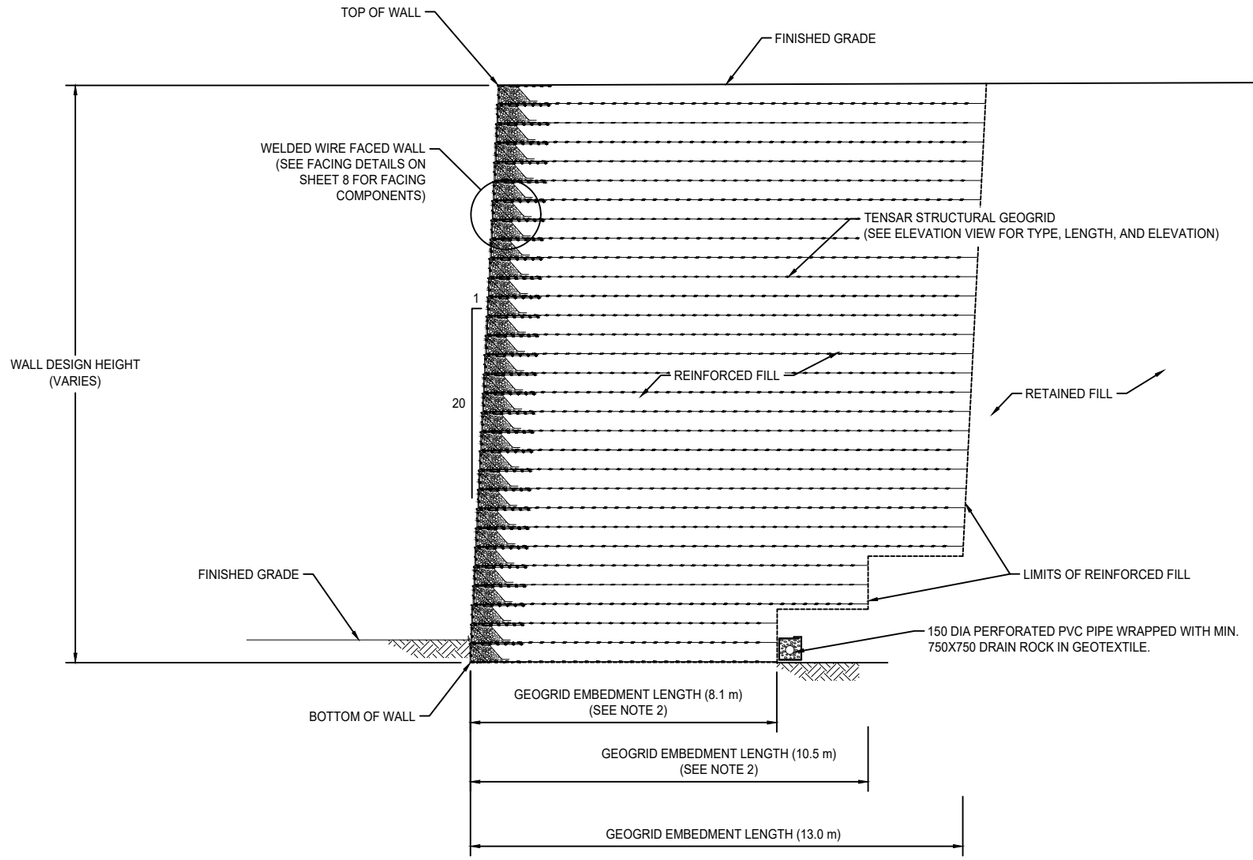


TYPICAL CROSS-SECTION
NOT TO SCALE

NOTES:

1. INTERNAL DRAINAGE SYSTEM SHALL BE EVALUATED AND RECOMMENDED BY THE PROJECT GEOTECHNICAL ENGINEER. DESIGN AND EVALUATION OF THE DRAINAGE SYSTEMS IS OUTSIDE THE SCOPE OF TIC'S RESPONSIBILITY.

2. GEOGRID CAN BE EXTENDED TO 11M WHERE ALLOWABLE BY THE CUT SLOPE.

Plotted on August 22, 2018
K:_W\W18502\FINAL\WORKING FILES\DRAWINGS\REV1\W18502_XS.DWG

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YUKON TERRITORY, CANADA

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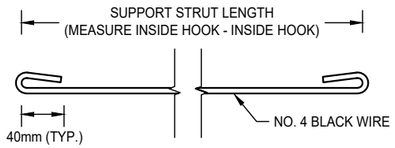
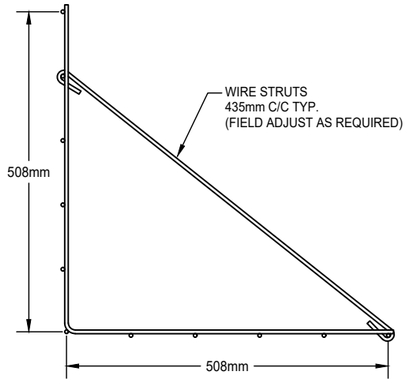
| 0 | 07/31/2018 | ISSUED FOR CONSTRUCTION | VA |

REVISION / ISSUE

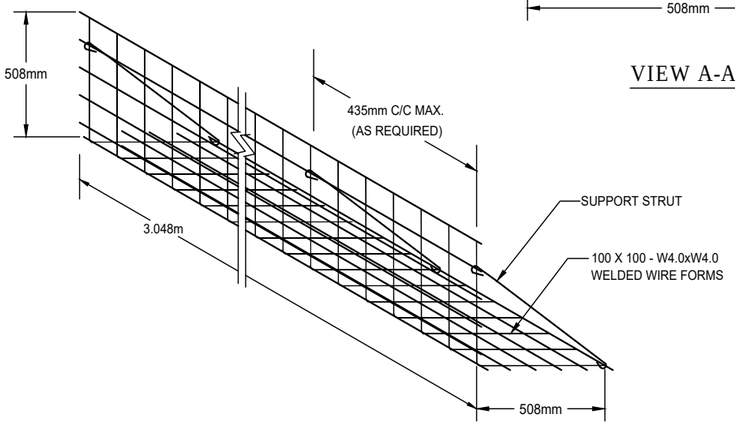
SHEET TITLE
TYPICAL CROSS-SECTION




SUPPORT STRUT

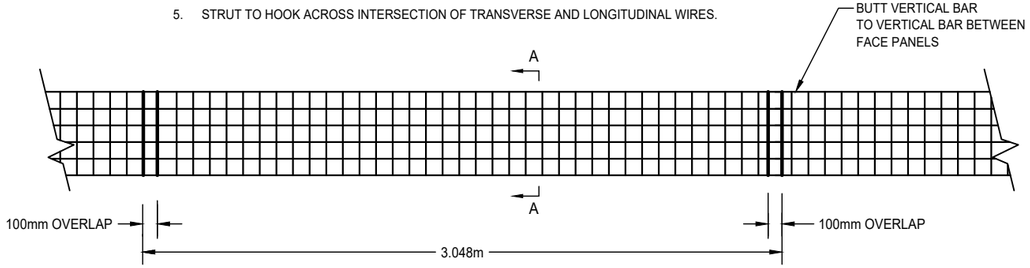



VIEW A-A



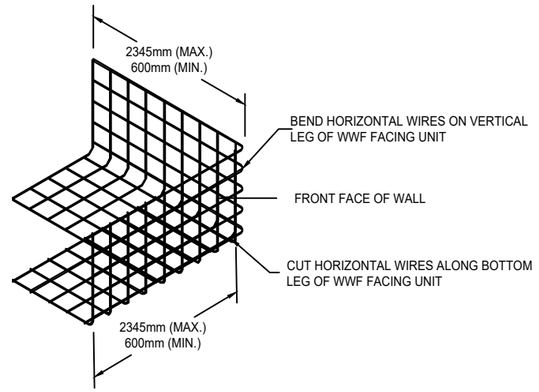

NOTES:

1. FACING TO CONSIST OF PREFABRICATED W 4X4-W4.0XW4.0 FORMS.
2. ALL FORMS AND STRUTS WILL BE FABRICATED WITH BLACK WIRE.
3. OVERALL LENGTH OF WIRE FORMS IS 3.048m.
4. STRUT LENGTH AND CROSS-SECTIONAL FORM DIMENSIONS TO BE PROVIDED IN FABRICATOR'S SHOP DRAWINGS.
5. STRUT TO HOOK ACROSS INTERSECTION OF TRANSVERSE AND LONGITUDINAL WIRES.




WELDED WIRE FORM DETAIL

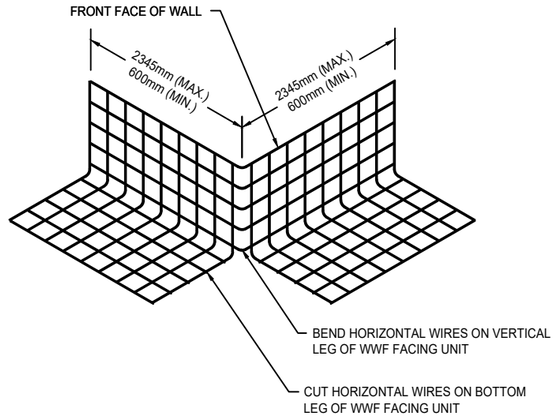
NOT TO SCALE




NOTE: MAINTAIN 600mm (MIN.) OF WIRE FORM ON EACH SIDE OF BEND.

WELDED WIRE FORM OUTSIDE CORNER UNIT

NOT TO SCALE




NOTE: MAINTAIN 600mm (MIN.) OF WIRE FORM ON EACH SIDE OF BEND.

WELDED WIRE FORM INSIDE CORNER UNIT

NOT TO SCALE

Tensar.
Tensar International Corporation
2500 Northwinds Parkway | Suite 500
Alpharetta, Georgia 30009 | 770-344-2090

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PROJECT NAME AND LOCATION

EAGLE GOLD PROJECT - SECONDARY AND TERTIARY CRUSHING STOCKPILE RETAINING WALL

YUKON TERRITORY, CANADA

OWNER

STRATA GOLD CORPORATION

OWNER PROJECT No.

CLIENT

NILEX
9222 40TH STREET SE
CALGARY, AB T2C 2P3
1-604-682-5474

TIC PROJECT No. W18502

DRAWN BY: V.AMAYA

DESIGNED BY: V.AMAYA

CHECKED BY : R.JOHNSON

ENGINEER OF RECORD (MSE STRUCTURE ONLY):
ROBERT SAENZ

| NO. | DATE | DESCRIPTION | BY |
|---|---|---|---|
| 1 | 8/16/2018 | NO CHANGES | VA |
| 0 | 07/31/2018 | ISSUED FOR CONSTRUCTION | VA |

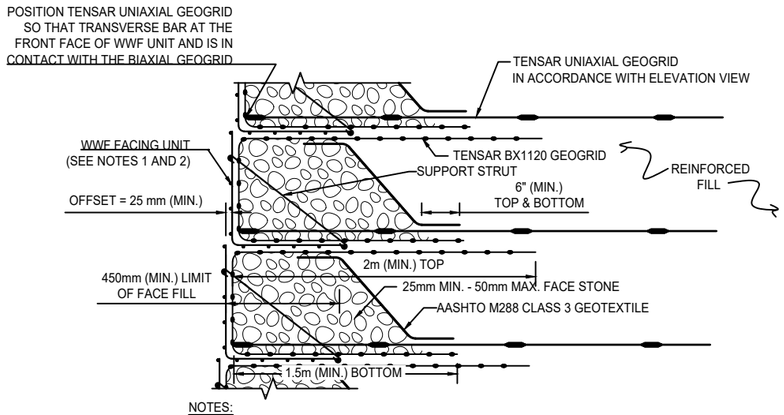
REVISION / ISSUE

SHEET TITLE

TYPICAL DETAILS (1 OF 3)

SHEET 7 OF 9

Plotted on: August 22, 2018
K:_V\W18502\FINAL\WORKING FILES\DRAWINGS\REV1\W18502_7D.DWG

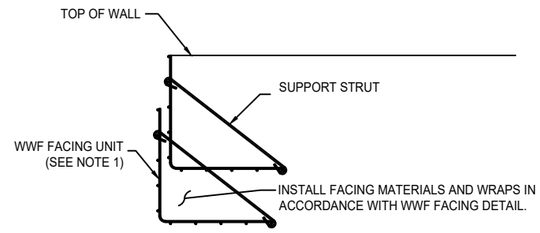



NOTES:

1. SEE WELDED WIRE FORM (WWF) FACING UNIT DETAIL FOR FACING MATERIAL AND DIMENSIONS.
2. ALL FACING UNITS SHALL BE FABRICATED FROM BLACK WIRE.

## WELDED WIRE FORM FACING DETAIL

NOT TO SCALE

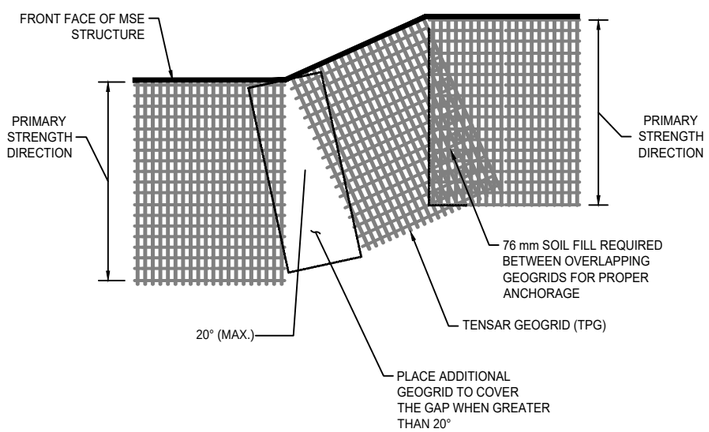



NOTES:

1. SEE WELDED WIRE FORM (WWF) FACING DETAIL FOR FACING MATERIALS AND DIMENSIONS.
2. SET TOPMOST WWF FACING UNIT INSIDE WWF FACING UNIT BELOW TO FOLLOW GRADE.
3. HORIZONTAL WIRES OF TOPMOST WWF FACING UNIT MAY BE CUT TO ALLOW INSTALLATION OVER STRUTS OF WWF FACING UNIT BELOW.

## NESTED BASKET DETAIL

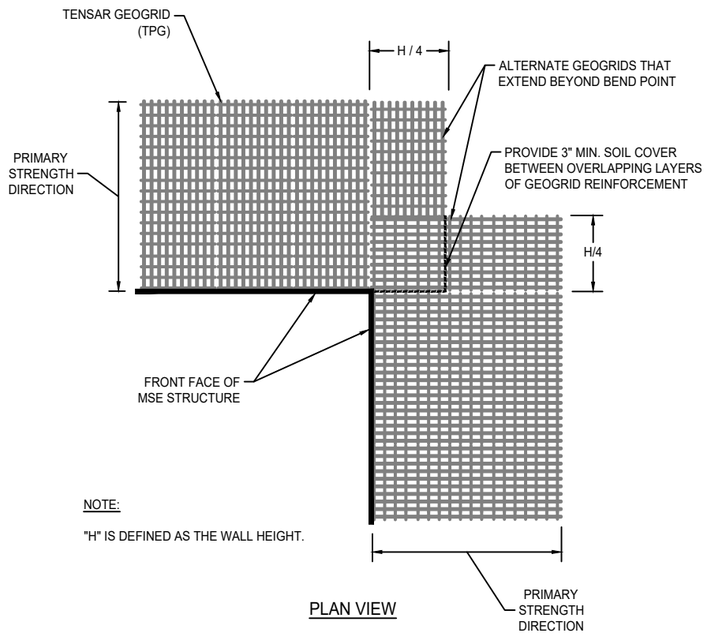
NOT TO SCALE




PLAN VIEW

## GEOGRID PLACEMENT AT MULTIPLE BENDS DETAIL

NOT TO SCALE




NOTE:

"H" IS DEFINED AS THE WALL HEIGHT.

PLAN VIEW

## GEOGRID PLACEMENT AT INSIDE CORNER DETAIL

NOT TO SCALE

Tensar.
Tensar International Corporation
2500 Northwinds Parkway | Suite 500
Alpharetta, Georgia 30009 | 770-344-2090

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PROFESSIONAL ENGINEER
YUKON TERRITORY
ROBERT SAENZ
22 Aug 2018
W18502

PROJECT NAME AND LOCATION
EAGLE GOLD PROJECT - SECONDARY AND TERTIARY CRUSHING STOCKPILE RETAINING WALL
YUKON TERRITORY, CANADA

OWNER
STRATA GOLD CORPORATION

OWNER PROJECT No.

CLIENT
NILEX
9222 40TH STREET SE
CALGARY, AB T2C 2P3
1-604-682-5474

TIC PROJECT No. W18502

DRAWN BY: V.AMAYA
DESIGNED BY: V.AMAYA
CHECKED BY : R.JOHNSON

ENGINEER OF RECORD (MSE STRUCTURE ONLY):
ROBERT SAENZ

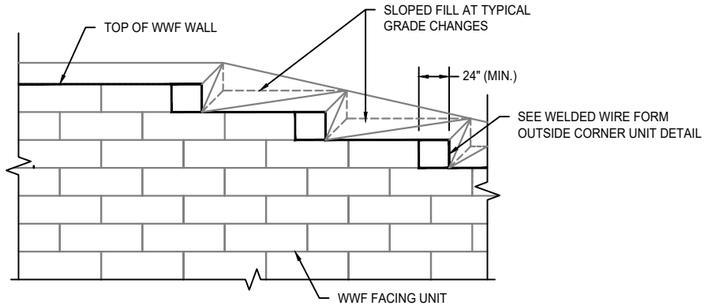
| NO. | DATE | DESCRIPTION | BY |
|---|---|---|---|
| 1 | 8/16/2018 | NO CHANGES | VA |
| 0 | 07/31/2018 | ISSUED FOR CONSTRUCTION | VA |

REVISION / ISSUE

SHEET TITLE
TYPICAL DETAILS (2 OF 3)

SHEET 8 OF 9

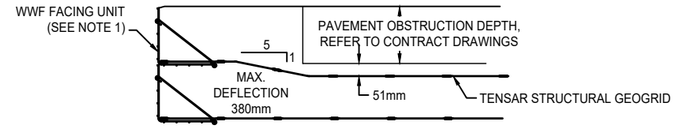
Plotted on August 22, 2018
K:_VA\W18502\FINAL WORKING FILES\DRAWINGS\REV1\W18502_TD.DWG



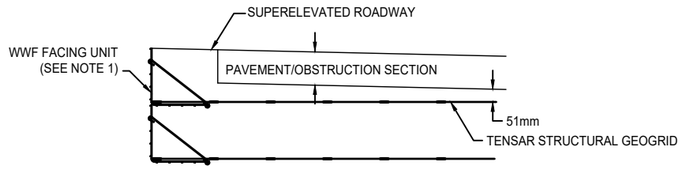

NOTES:
1. SEE WELDED WIRE FORM (WWF) FACING DETAIL AND WWF OUTSIDE CORNER UNIT DETAIL FOR FACING MATERIALS AND DIMENSIONS.
2. INSTALL ADJACENT WWF FACING UNITS TO PROVIDE 4" OVERLAP OF HORIZONTAL WIRES.

## TOP OF WWF WALL FINISHING DETAIL

NOT TO SCALE




## HORIZONTAL PAVEMENT/OBSTRUCTION STRUCTURE

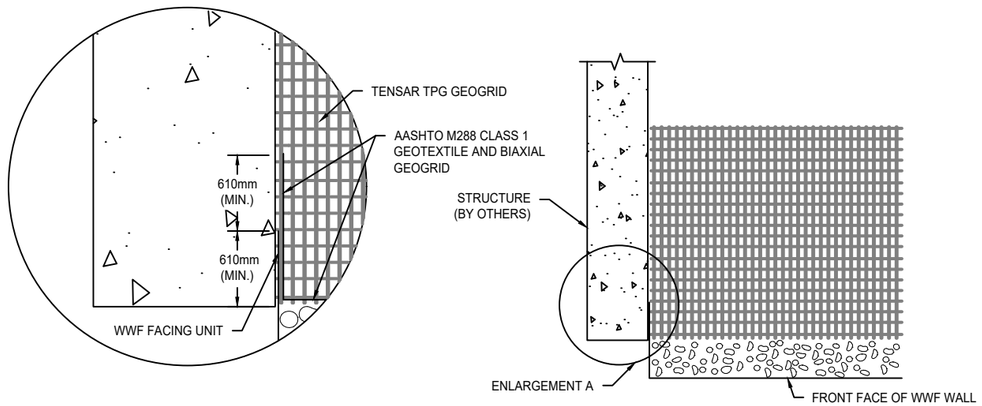



## SUPERELEVATED PAVEMENT/OBSTRUCTION STRUCTURE

NOTES:
1. SEE WELDED WIRE FORM (WWF) FACING UNIT DETAIL FOR FACING MATERIALS AND DIMENSIONS.
2. CONTRACTOR IS RESPONSIBLE TO COORDINATE THE PLACEMENT OF THE GOEGRID TO AVIOD CONFLICT WITH THE CONTRACT PAVEMENT/OBSTRUCTION SECTION. GEOGRID MUST BE SEPARATED FROM THE PAVEMENT/OBSTRUCTION SECTION BY A MINIMUM OF 100mm.

## GEOGRID PLACEMENT AT PAVEMENT/OBSTRUCTION SECTION

NOT TO SCALE




## ENLARGEMENT A

## PARTIAL PLAN VIEW

NOTES:
1. EXTEND GEOGRID AND TRIM AT FACE OF STRUCTURE.
2. BEND AND EXTEND WWF FACING UNIT BACK 610 mm (MIN.) ALONG FACE OF STRUCTURE. EXTEND GEOTEXTILE AND BIAXIAL GEOGRID 610 mm (MIN.) ALONG FACE OF STRUCTURE PAST THE WWF FACE EXTENSION.
3. BIAXIAL GEOGRID NOT SHOWN FOR CLARITY.

## TRANSITION AT STRUCTURE DETAIL

NOT TO SCALE

Tensar.
Tensar International Corporation
2500 Northwinds Parkway | Suite 500
Alpharetta, Georgia 30009 | 770-344-2090

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PROJECT NAME AND LOCATION

EAGLE GOLD PROJECT - SECONDARY AND TERTIARY CRUSHING STOCKPILE RETAINING WALL

YUKON TERRITORY, CANADA

OWNER

STRATA GOLD CORPORATION

OWNER PROJECT No.

CLIENT

NILEX
9222 40TH STREET SE
CALGARY, AB T2C 2P3
1-604-682-5474

TIC PROJECT No. W18502

DRAWN BY: V.AMAYA

DESIGNED BY: V.AMAYA

CHECKED BY : R.JOHNSON

ENGINEER OF RECORD (MSE STRUCTURE ONLY):
ROBERT SAENZ

| NO. | DATE | DESCRIPTION | BY |
|---|---|---|---|
| 1 | 8/16/2018 | NO CHANGES | VA |
| 0 | 07/31/2018 | ISSUED FOR CONSTRUCTION | VA |

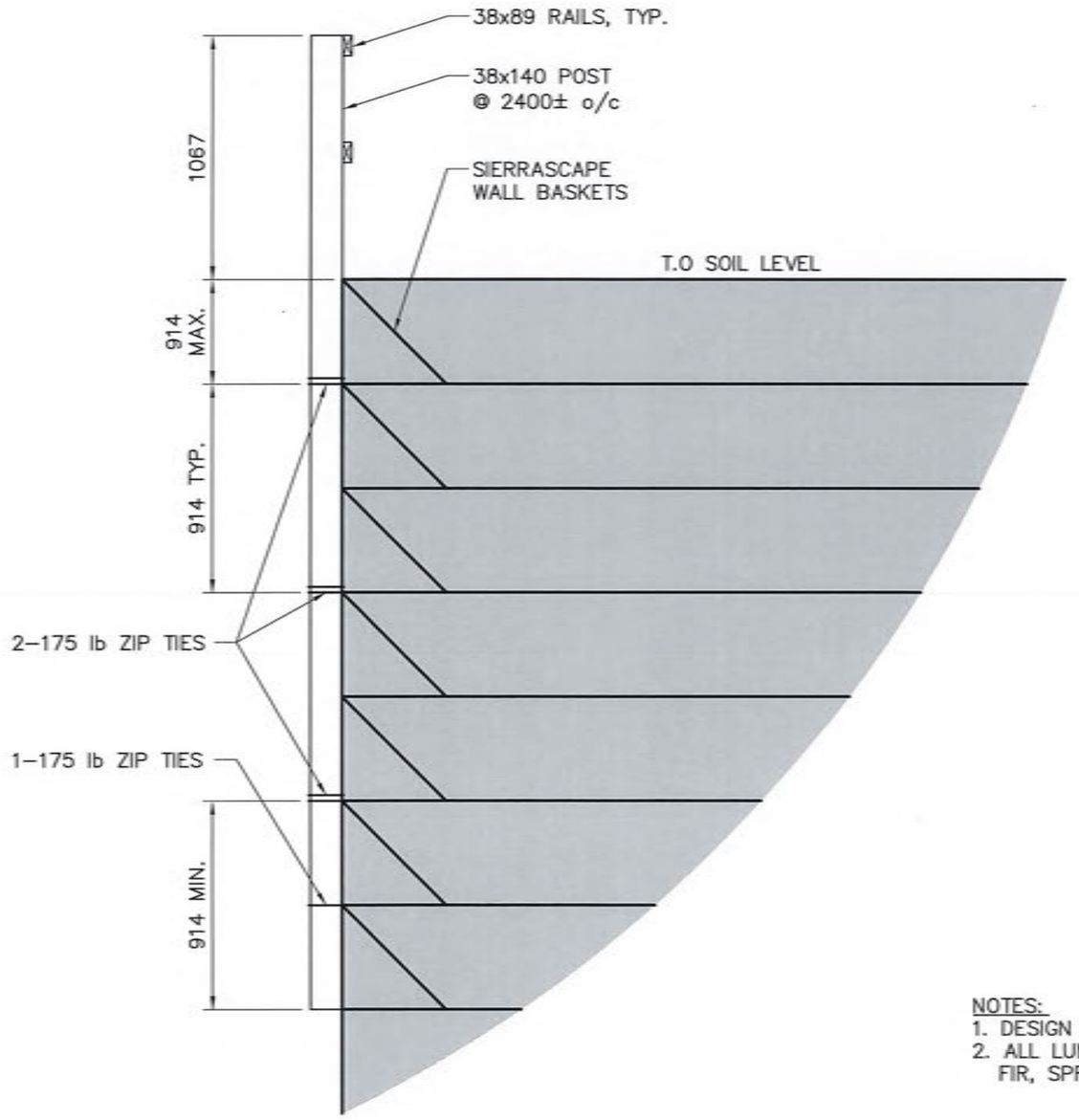
REVISION / ISSUE

SHEET TITLE

TYPICAL DETAILS (3 OF 3)

SHEET 9 OF 9

Plotted on August 22, 2018
K:_W18502\FINAL\WORKING FILES\DRAWINGS\REV1\W18502_TD.DWG




TYP. GUARDRAIL DETAIL
1:25

NOTES:
1. DESIGN LOAD: 0.55 kN ON TOP RAIL
2. ALL LUMBER TO BE #2 & BETTER HEM FIR, SPF OR D–FIR.

PROFESSIONAL ENGINEER YUKON TERRITORY DEREK MOSHORST AUG 27 2018

| REV. | DESCRIPTION | DATE |
|---|---|---|
| A | ISSUED FOR CONSTRUCTION | 27/08/18 |

| | |
|---|---|
| DATE | 27/08/18 |
| SCALE | AS NOTED |
| DRAWN BY | J.P. |
| DESIGN BY | D.M. |
| CHECKED BY | |
| APPROVED | |
| PROJECT No. | C18148 |
| DRAWING No. | 101 |
| REV. | A |

CLIENT
HEAVY NORTH

PROJECT
VICTORIA EAGLE GOLD MINE

DRAWING TITLE
GUARDRAIL DETAILS

ALL-SPAN
ENGINEERING & CONSTRUCTION LTD.
#201 – 7198 VANTAGE WAY
DELTA, B.C. V4G 1K7
E–mail: all–span@telus.net
PH: (604) 940–2212 FAX: (604) 940–1516

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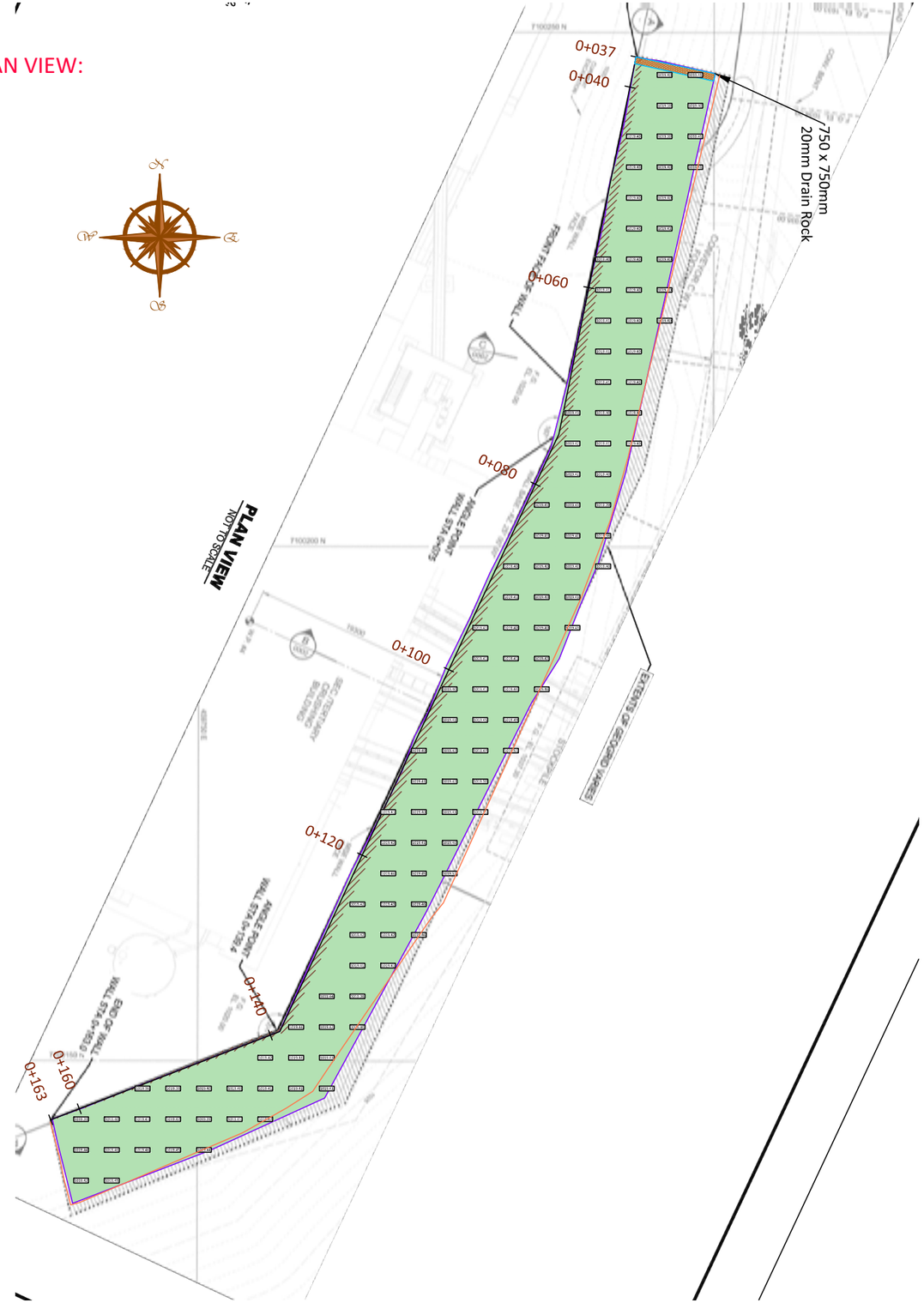
CADFILE: C18148–101

## PLAN VIEW:




| Point Table | | | | |
|---|---|---|---|---|
| Point # | Northing | Easting | Elevation | Description |
| 10230 | 100168.72 | 59764.58 | 1019.40 | GS |
| 10231 | 100172.93 | 59767.06 | 1019.41 | GS |
| 10232 | 100177.71 | 59769.38 | 1019.41 | GS |
| 10233 | 100181.27 | 59770.66 | 1019.39 | GS |
| 10234 | 100183.54 | 59771.92 | 1019.40 | GS |
| 10235 | 100186.91 | 59773.49 | 1019.40 | GS |
| 10236 | 100186.58 | 59776.67 | 1019.42 | GS |
| 10237 | 100185.36 | 59779.61 | 1019.46 | GS |
| 10238 | 100184.52 | 59782.07 | 1019.53 | GS |
| 10239 | 100180.76 | 59779.49 | 1019.52 | GS |
| 10240 | 100181.97 | 59776.60 | 1019.46 | GS |
| 10241 | 100183.38 | 59773.31 | 1019.41 | GS |
| 10242 | 100179.14 | 59771.21 | 1019.43 | GS |
| 10243 | 100177.43 | 59773.84 | 1019.43 | GS |
| 10244 | 100176.00 | 59776.55 | 1019.51 | GS |
| 10245 | 100175.23 | 59778.14 | 1019.51 | GS |
| 10246 | 100170.56 | 59774.99 | 1019.50 | GS |
| 10247 | 100172.38 | 59771.85 | 1019.39 | GS |
| 10248 | 100173.96 | 59768.63 | 1019.41 | GS |
| 10249 | 100169.77 | 59766.66 | 1019.43 | GS |

| Point Table | | | | |
|---|---|---|---|---|
| Point # | Northing | Easting | Elevation | Description |
| 10250 | 100168.54 | 59768.91 | 1019.44 | GS |
| 10251 | 100167.38 | 59770.88 | 1019.46 | GS |
| 10252 | 100166.73 | 59773.11 | 1019.54 | GS |
| 10253 | 100164.09 | 59771.78 | 1019.48 | GS |
| 10254 | 100165.32 | 59769.13 | 1019.44 | GS |
| 10255 | 100166.82 | 59766.60 | 1019.44 | GS |
| 10256 | 100168.07 | 59764.46 | 1019.40 | GS |
| 10258 | 100209.46 | 59783.96 | 1019.39 | GS |
| 10259 | 100208.79 | 59785.56 | 1019.43 | GS |
| 10260 | 100208.22 | 59787.53 | 1019.41 | GS |
| 10261 | 100207.00 | 59791.26 | 1019.40 | GS |
| 10262 | 100202.36 | 59789.40 | 1019.37 | GS |
| 10263 | 100203.26 | 59786.69 | 1019.40 | GS |
| 10264 | 100204.12 | 59785.16 | 1019.41 | GS |
| 10265 | 100204.83 | 59783.78 | 1019.40 | GS |
| 10266 | 100205.47 | 59782.09 | 1019.41 | GS |
| 10267 | 100201.23 | 59780.05 | 1019.41 | GS |
| 10268 | 100200.64 | 59781.35 | 1019.41 | GS |
| 10269 | 100199.85 | 59782.90 | 1019.40 | GS |
| 10270 | 100198.86 | 59785.56 | 1019.40 | GS |

| Point Table | | | | |
|---|---|---|---|---|
| Point # | Northing | Easting | Elevation | Description |
| 10271 | 100198.30 | 59787.30 | 1019.39 | GS |
| 10272 | 100198.22 | 59788.61 | 1019.40 | GS |
| 10273 | 100193.96 | 59786.80 | 1019.42 | GS |
| 10274 | 100194.69 | 59784.59 | 1019.41 | GS |
| 10275 | 100195.35 | 59782.56 | 1019.40 | GS |
| 10276 | 100196.12 | 59780.70 | 1019.41 | GS |
| 10277 | 100196.88 | 59779.14 | 1019.40 | GS |
| 10278 | 100197.17 | 59777.98 | 1019.39 | GS |
| 10279 | 100192.72 | 59776.02 | 1019.40 | GS |
| 10280 | 100192.01 | 59777.30 | 1019.41 | GS |
| 10281 | 100190.98 | 59779.25 | 1019.40 | GS |
| 10282 | 100189.92 | 59781.64 | 1019.40 | GS |
| 10283 | 100188.80 | 59784.76 | 1019.41 | GS |
| 10285 | 100185.17 | 59781.88 | 1019.47 | GS |
| 10286 | 100186.23 | 59779.24 | 1019.42 | GS |
| 10287 | 100186.49 | 59776.84 | 1019.41 | GS |
| 10288 | 100187.52 | 59774.84 | 1019.40 | GS |
| 10289 | 100188.14 | 59773.74 | 1019.41 | GS |
| 10290 | 100147.55 | 59747.81 | 1019.42 | GS |
| 10291 | 100145.40 | 59748.99 | 1019.39 | GS |

| Point Table | | | | |
|---|---|---|---|---|
| Point # | Northing | Easting | Elevation | Description |
| 10292 | 100143.26 | 59749.62 | 1019.39 | GS |
| 10293 | 100140.78 | 59750.65 | 1019.43 | GS |
| 10294 | 100142.55 | 59753.75 | 1019.42 | GS |
| 10295 | 100144.08 | 59753.05 | 1019.42 | GS |
| 10296 | 100146.09 | 59751.92 | 1019.40 | GS |
| 10297 | 100148.33 | 59750.82 | 1019.41 | GS |
| 10298 | 100149.69 | 59753.93 | 1019.40 | GS |
| 10299 | 100148.64 | 59754.60 | 1019.40 | GS |
| 10300 | 100146.70 | 59755.90 | 1019.41 | GS |
| 10301 | 100144.41 | 59757.29 | 1019.41 | GS |
| 10302 | 100145.92 | 59761.81 | 1019.41 | GS |
| 10303 | 100147.92 | 59759.19 | 1019.41 | GS |
| 10304 | 100149.66 | 59758.41 | 1019.44 | GS |
| 10305 | 100151.51 | 59757.60 | 1019.45 | GS |
| 10306 | 100153.84 | 59759.00 | 1019.43 | GS |
| 10307 | 100153.14 | 59760.85 | 1019.42 | GS |
| 10308 | 100152.48 | 59762.42 | 1019.42 | GS |
| 10309 | 100151.56 | 59763.70 | 1019.44 | GS |
| 10310 | 100154.32 | 59765.23 | 1019.34 | GS |
| 10311 | 100156.77 | 59766.78 | 1019.40 | GS |

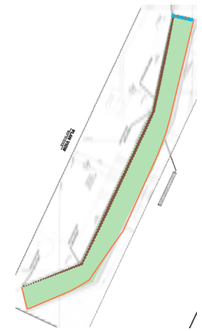
| Point Table | | | | |
|---|---|---|---|---|
| Point # | Northing | Easting | Elevation | Description |
| 10312 | 100159.68 | 59761.87 | 1019.41 | GS |
| 10313 | 100156.44 | 59760.45 | 1019.46 | GS |
| 10314 | 100154.54 | 59759.61 | 1019.42 | GS |
| 10315 | 100146.97 | 59743.40 | 1019.36 | GS |
| 10316 | 100144.95 | 59738.32 | 1019.38 | GS |
| 10317 | 100143.81 | 59735.24 | 1019.38 | GS |
| 10318 | 100141.62 | 59735.72 | 1019.40 | GS |
| 10319 | 100142.65 | 59738.88 | 1019.40 | GS |
| 10320 | 100143.56 | 59741.36 | 1019.40 | GS |
| 10321 | 100140.91 | 59742.31 | 1019.46 | GS |
| 10322 | 100140.08 | 59738.78 | 1019.48 | GS |
| 10323 | 100139.52 | 59736.26 | 1019.41 | GS |
| 10324 | 100135.66 | 59737.25 | 1019.38 | GS |
| 10325 | 100138.32 | 59739.18 | 1019.49 | GS |
| 10326 | 100139.07 | 59742.08 | 1019.50 | GS |
| 10327 | 100247.56 | 59792.26 | 1019.40 | GS |
| 10328 | 100247.20 | 59794.48 | 1019.40 | GS |
| 10329 | 100247.32 | 59793.52 | 1019.40 | GS |
| 10330 | 100244.54 | 59791.70 | 1019.40 | GS |
| 10331 | 100244.28 | 59792.90 | 1019.40 | GS |

| Point Table | | | | |
|---|---|---|---|---|
| Point # | Northing | Easting | Elevation | Description |
| 10332 | 100245.93 | 59799.99 | 1019.41 | GS |
| 10333 | 100240.47 | 59794.17 | 1019.38 | GS |
| 10334 | 100240.78 | 59792.50 | 1019.39 | GS |
| 10335 | 100241.11 | 59791.10 | 1019.40 | GS |
| 10336 | 100238.46 | 59790.52 | 1019.40 | GS |
| 10337 | 100238.20 | 59791.89 | 1019.40 | GS |
| 10338 | 100237.76 | 59793.74 | 1019.40 | GS |
| 10339 | 100234.64 | 59793.22 | 1019.40 | GS |
| 10340 | 100234.85 | 59791.42 | 1019.40 | GS |
| 10341 | 100235.10 | 59789.64 | 1019.42 | GS |
| 10342 | 100231.89 | 59789.10 | 1019.42 | GS |
| 10343 | 100231.55 | 59790.82 | 1019.40 | GS |
| 10344 | 100231.17 | 59792.58 | 1019.39 | GS |
| 10345 | 100227.59 | 59791.69 | 1019.40 | GS |
| 10346 | 100227.82 | 59789.42 | 1019.40 | GS |
| 10347 | 100228.14 | 59788.35 | 1019.40 | GS |
| 10348 | 100224.90 | 59787.62 | 1019.42 | GS |
| 10349 | 100224.65 | 59788.68 | 1019.41 | GS |
| 10350 | 100224.22 | 59790.18 | 1019.40 | GS |
| 10351 | 100221.10 | 59789.61 | 1019.42 | GS |

| Point Table | | | | |
|---|---|---|---|---|
| Point # | Northing | Easting | Elevation | Description |
| 10352 | 100221.16 | 59787.84 | 1019.40 | GS |
| 10353 | 100221.35 | 59786.83 | 1019.40 | GS |
| 10354 | 100218.04 | 59786.12 | 1019.41 | GS |

| Point Table | | | | |
|---|---|---|---|---|
| Point # | Northing | Easting | Elevation | Description |
| 349 | 100135.425 | 59737.037 | 1019.403 | TOP MSE SUBDRAIN 90 deg elbow |
| 350 | 100137.730 | 59736.409 | 1019.388 | TOP MSE SUBDRAIN |
| 351 | 100140.216 | 59735.905 | 1019.409 | TOP MSE SUBDRAIN |
| 352 | 100142.503 | 59735.292 | 1019.393 | TOP MSE SUBDRAIN |
| 353 | 100143.529 | 59735.035 | 1019.388 | TOP MSE SUBDRAIN |
| 954 | 100135.669 | 59737.902 | 1019.388 | TOP MSE SUBDRAIN |

## KEY PLAN:



CLIENT:

JDS Energy & Mining Inc.

### LEGEND:

Major Contours shown thus
Minor Contours shown thus
Contour labels shown thus — 0.00
Location Boundary shown thus
Point locations shown thus — × 10

Subbase shown thus
Drain Pipe shown thus

### NOTES:

1. ALL DIMENSIONS AND DISTANCES ARE IN METRES AND DECIMALS UNLESS SHOWN OTHERWISE.
2. ALL ELEVATIONS ARE IN METRES, REFERENCED TO MEAN SEA LEVEL. (Geoid Model: HT_2 or GSD95)
3. COORDINATE SYSTEM: UTM, ZONE 12, C.M. 111° WEST
4. HORIZONTAL REFERENCE DATUM: NAD83

THE INFORMATION CONTAINED ON THIS DRAWING, AND ANY DOCUMENTATION PERTAINING TO THIS DRAWING IS CURRENT AS OF OCTOBER 14, 2018. ANY FACILITIES UNDER OR ABOVE GROUND INSTALLED AFTER THE AFORE MENTIONED DATE MAY NOT HAVE BEEN CONSIDERED IN THE PREPARATION OF THIS DOCUMENT, OR ITS SUPPORT DOCUMENTS

Heavy North and its employees take no responsibility for the location of any underground facilities whether shown on or omitted from this plan. Most underground facilities shown were located with Electronic Locators and may be subject to error. Actual locations should be verified independently by the contractor in the field prior to any crossing and/or construction.

**ALBERTA ONE CALL : 1-800-242-3447**
**www.albertaonecall.com**

HEAVY NORTH
115-625 Parsons Road SW
Edmonton, Alberta T6X 0N9

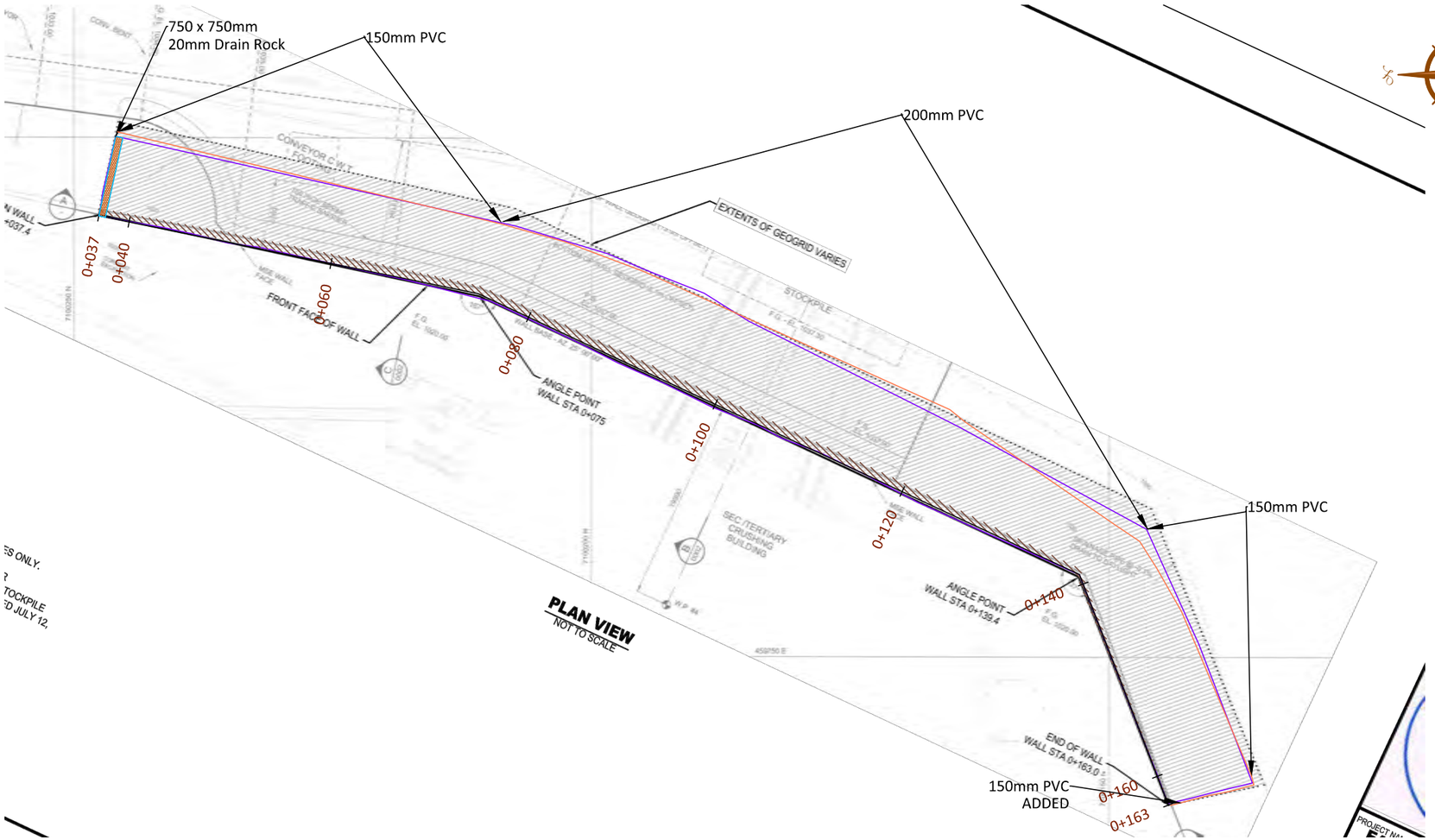
### REVISIONS

| NO. | DESCRIPTION | DATE |
|---|---|---|
| 1 | ASBUILT PLAN SUBBASE & DRAIN PIPE | Sep. 25, 18 |
| 2 | COORDINATES ADDED | Oct. 14, 18 |

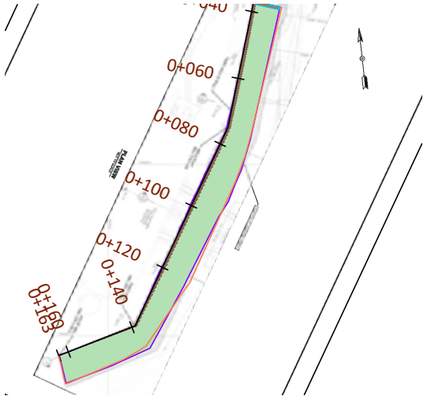
# EAGLE GOLD PROJECT
# SECONDARY MSE WALL DRAIN PIPE
# ASBUILT PLAN
# OCTOBER 14, 2018

| | | |
|---|---|---|
| CLIENT: JDS | | |
| SURVEYED BY: TJay | SHEET: 1 OF 2 | REV: 1 |
| DRAWN BY: TS | DWG NO: JDS-0033-ASB-01_R2 | |
| DATE: Oct. 14/18 | REF DWG NO: | |

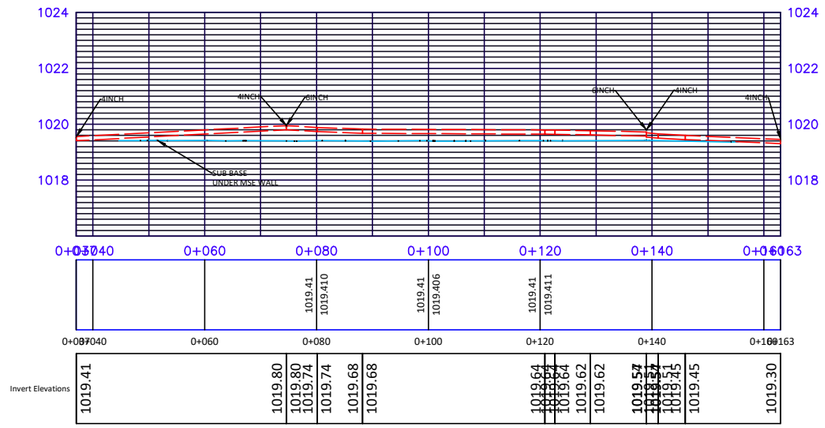
PLAN VIEW:




KEY PLAN:




# MSE WALL DRAIN PIPE 0+037 to 0+163.00




CLIENT:

JDS Energy & Mining Inc.

LEGEND:

| | |
|---|---|
| Major Contours shown thus | |
| Minor Contours shown thus | |
| Contour labels shown thus | 0.00 |
| Location Boundary shown thus | |
| Point locations shown thus | × 10 |
| Subbase shown thus | |
| Drain Pipe shown thus | |

NOTES:

1. ALL DIMENSIONS AND DISTANCES ARE IN METRES AND DECIMALS UNLESS SHOWN OTHERWISE.
2. ALL ELEVATIONS ARE IN METRES, REFERENCED TO MEAN SEA LEVEL. (Geoid Model: HT_2 or GSD95)
3. COORDINATE SYSTEM: UTM, ZONE 12, C.M. 111° WEST
4. HORIZONTAL REFERENCE DATUM: NAD83

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**ALBERTA ONE CALL : 1-800-242-3447**
**www.albertaonecall.com**


HEAVY NORTH
115-625 Parsons Road SW
Edmonton, Alberta T6X 0N9


REVISIONS

| NO. | DESCRIPTION | DATE |
|---|---|---|
| 1 | Drain Pipe Plan Issued | Sep. 27, 18 |
| 2 | Drain Pipe Revision Plan Issued | Oct. 14, 18 |

EAGLE GOLD PROJECT
SECONDARY MSE WALL DRAIN PIPE
ASBUILT PLAN
OCTOBER 14, 2018

| | | |
|---|---|---|
| CLIENT: JDS | | |
| SURVEYED BY: TJay | SHEET: 2 OF 2 | REV: 2 |
| DRAWN BY: TS | DWG NO: JDS-0033-ASB-01_R2 | |
| DATE: Oct. 14/18 | REF DWG NO: | |

North

| SHIM PLATE LIST ALL SHIMS Thk x 51 x 51<br>2 SHIM STACKS PER COLUMN | | | | |
|---|---|---|---|---|
| GROUT ALLOW | QTY 13 THK | QTY 6 THK | QTY 5 THK | QTY 3 THK |
| 30 | 3 | 1 | 1 | 2 |

DETAIL 1
TYPICAL BASE DETAIL

A - A

SHEAR KEY DEATIL

B - B

C - C

D - D

SUPREME GROUP
REVIEWED BY QUALITY CONTROL
BY: Amanda Shaw QM
DATE: March 20/19

PERMIT TO PRACTICE
SUPREME CONSTRUCTION MANAGEMENT LP
SIGNATURE
Date DECEMBER 21, 2018
PERMIT NUMBER PP599
Association of Professional Engineers of Yukon

ENGINEER TERRITORY YUKON AMIR MASHIDI PROFESSIONAL

SUPREME IS SOLEY RESPONSIBLE FOR CONNECTION DESGIN THAT WAS NOT PROVIDED BY THE ENGINEER OF RECORD. CONNECTIONS DESIGNED BY THE ENGINEER OF RECORD, SECTION AND MEMBER SIZES ARE NOT THE RESPONSIBILITY OF SUPREME. ENGINEER OF RECORD IS RESPONSIBLE TO ENSURE THE STRUCTURE IS ERECTED AS PER STAMPED DRAWINGS. ERECTION IS NOT THE RESPONSIBILITY OF SUPREME.

WORK WITH SHEET WITH DWG NO. E321B, E321C, E321E E321F, E321G & E321H

## COLUMN BASE PLAN

U/S BASE PLATE ELEVATION 1005.200

| No | DD/MM/YYYY | REVISION | CODE | BY |
|---|---|---|---|---|
| 0 | 29.11.2018 | For Field Use | | ANG |
| A | 18.11.2018 | For Approval | | SRC |

SUPREME STEEL

Cust: JDS ENERGY & MINING INC.
Proj: TRANSFER TOWER 1
Area: EAGLE GOLD PROJECT, YT
Ref: H354138-3210-232-260-0011
Desc: COLUMN BASE PLAN

Drawn: CES 13/Nov/2018 | Checked: SRC 17/Nov/2018
Job: 10234 | Dis: 0321
Drawing: E321A

SUPREME IS SOLEY RESPONSIBLE FOR CONNECTION DESGIN THAT WAS NOT PROVIDED BY THE ENGINEER OF RECORD. CONNECTIONS DESIGNED BY THE ENGINEER OF RECORD, SECTION AND MEMBER SIZES ARE NOT THE RESPONSIBILITY OF SUPREME. ENGINEER OF RECORD IS RESPONSIBLE TO ENSURE THE STRUCTURE IS ERECTED AS PER STAMPED DRAWINGS. ERECTION IS NOT THE RESPONSIBILITY OF SUPREME.

| BEAM SIZE | CLIP ANGLE MARKS U/N | N=ROWS OF BOLTS U/N |
|---|---|---|
| W460X106 | 321FA017, 321FA018, 321FA036, 321FA037 | 3 |
| W460X74 | 321FA003, 321FA004, 321FA005, 321FA017, 321FA018, 321FA019, 321FA020, 321FA080, 321FA082, 321FA083, 321FA084 | 3 |
| W310X39 | 321FA024, 321FA025, 321FA026, 321FA027, 321FA028, 321FA029, 321FA063 | 2 |
| W250X33 | 321FA002, 321FA030, 321FA031, 321FA032, 321FA033, 321FA034, 321FA058, 321FA062, 321FA070, 321FA085, 321FA086 | 2 |
| W200X27 | 321FA006, 321FA015, 321FA022, 321FA023, 321FA039, 321FA047, 321FA049, 321FA051, 321FA064 | 2 |
| C200X17 | 321FA008, 321FA009, 321FA010, 321FA011, 321FA012, 321FA013, 321FA014, 321FA039, 321FA347, 321FA053, 321FA074, 321FA081, 321FA087, 321FA071 | 2 |

PLAN AT EL+1010.712 (TOS) (UNO)
T.O. FINISH FLOOR EL. 1010.750 (TYP. UNO)
ALL HORIZONTAL BRACING AT -75 FROM TOS (TYP.)
ALL HORIZONTAL BRACING PROFILE IS L102X102X9.5 (TYP. UNO)

BOLTING REQUIREMENTS:
ALL BOLTS TO BE ¾" DIA. A325 U/N
ALL BOLTS TO BE PRE-TENSIONED USING TURN-OFF THE NUT METHOD
* = INDICATES JOINTS WITH 1" DIA. BOLTS
+ = INDICATES JOINTS WHERE BOLTS CAN BE SNUG TIGHT.

¾" & 1" DIA. A325 BOLTS BOLT TO BE SNUG TIGHT (+)

TYPICAL FIELD ASSEMBLY DETAIL
FOR BOLTING LOOSE CLIP ANGLES

PRETENSIONED TURN-OF-NUT METHOD

TYPICAL FIELD ASSEMBLY DETAIL
FOR BOLTING LOOSE CLIP ANGLES @ CORNER

¾" DIA. A325 BOLTS SNUG TIGHT (+)

TYPICAL FIELD ASSEMBLY DETAIL
FOR BOLTING HORIZONTAL BRACES

DETAIL - 4

DETAIL - 1

DETAIL - 2

SEE STAIR DETAIL @ E321N

PERMIT TO PRACTICE
SUPREME CONSTRUCTION MANAGEMENT LP
SIGNATURE
Date DECEMBER 21, 2018
PERMIT NUMBER PP599
Association of Professional Engineers of Yukon

| | | | | |
|---|---|---|---|---|
| 0 | 29.11.2018 | For Field Use | | AMG |
| A | 18.11.2018 | For Approval | | SRC |
| MARK | DD.MM.YYYY | REVISION | CODE | BY |

SUPREME STEEL

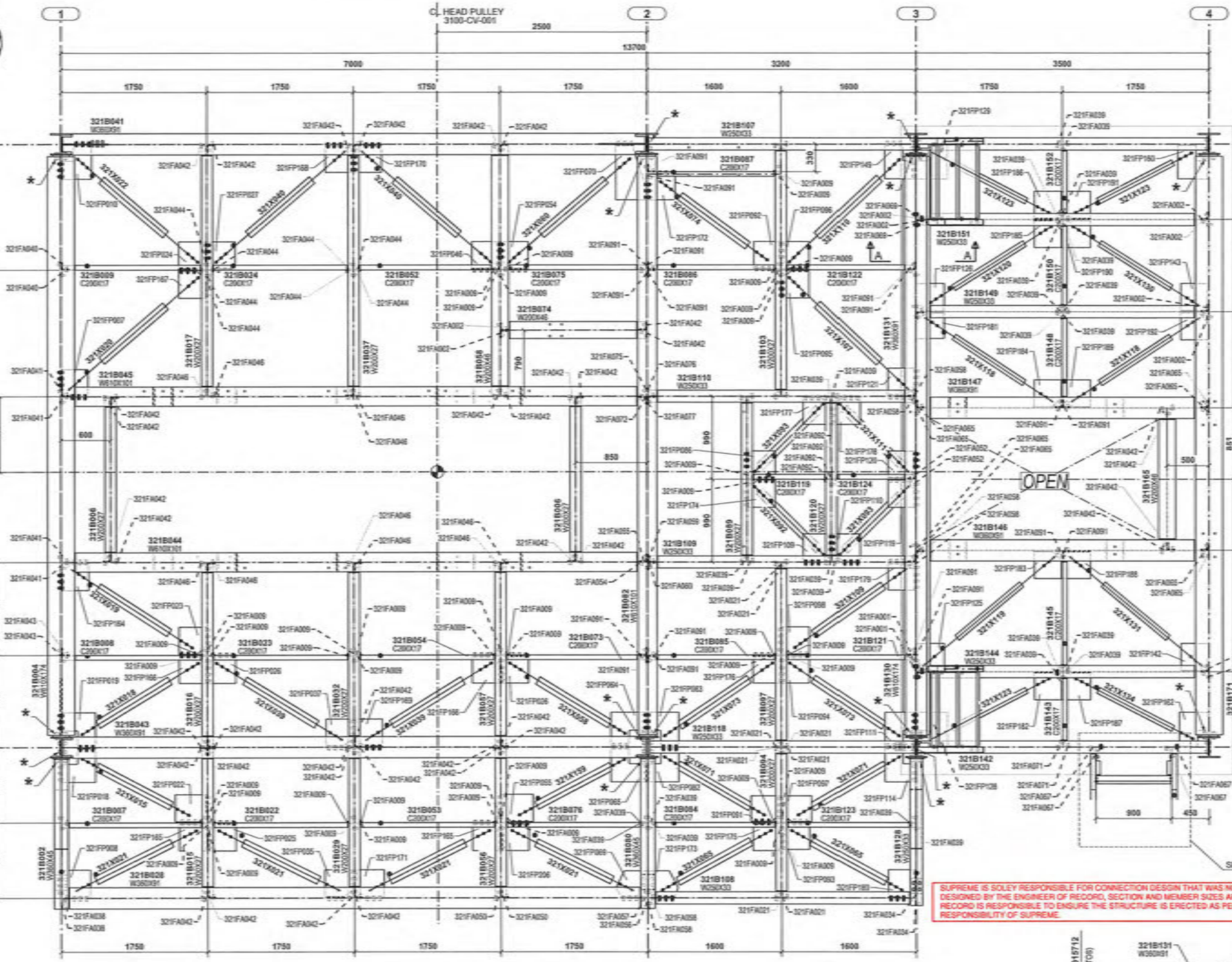
REVIEWED BY QUALITY CONTROL
Amanda Shaw QM
DATE: March 20/19

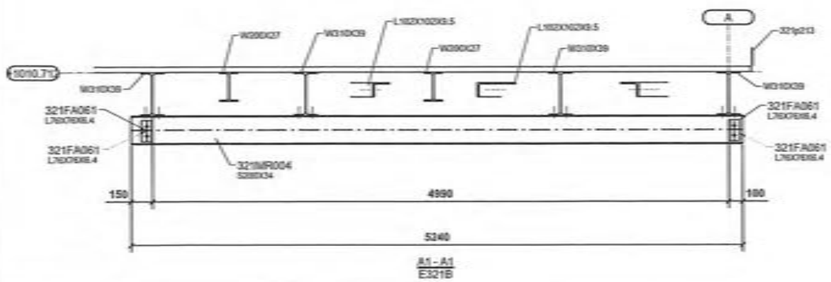
WORK WITH SHEET WITH DWG NO. E321A, E321C, E321E E321F E321G & E321H

Cust: JDS ENERGY & MINING INC.
Proj: TRANSFER TOWER 1
Area: EAGLE GOLD PROJECT, YT
Ref: H354138-3210-232-260-0012
Desc: COARSE ORE STOCKPILE/REC PLAN 1010.712

Drawn: CES 12Nov2018 | Checked: SRC 17Nov2018
Job: 10234 | Dir: 0321
Drawing: E321B

| BEAM SIZE | CLIP ANGLE MARKS U/N | N=ROWS OF BOLTS U/N |
|---|---|---|
| W460X174 | 321FA001, 321FA002, 321FA040, 321FA041, 321FAD43 321FA065 | 3 |
| W610X101 | 321FA041, 321FA042, 321FA046, 321FA054, 321FA055 321FA059, 321FA060, 321FA072, 321FA075, 321FA076 321FA077, 321FA091 | 4 |
| W360X91 | 321FA016, 321FA038, 321FA042, 321FA050, 321FA052 321FA056, 321FA057, 321FA058, 321FA065, 321FA069 321FA091 | 3 |
| W360X45 | 321FA038, 321FA039, 321FA056, 321FA057, 321FA058 | 2 |
| W250X33 | 321FA001, 321FA002, 321FA021, 321FA034, 321FA039 321FA054, 321FA055, 321FA056, 321FA057, 321FA058 321FA059, 321FA060, 321FA067, 321FA071, 321FA072 321FA075, 321FA076, 321FA077, 321FA078 | 2 |
| W200X46 | 321FA002, 321FA042, 321FA009 | 2 |
| W200X27 | 321FA009, 321FA021, 321FA039, 321FA042, 321FA044 321FA046, 321FA050, 321FA078, 321FA092 | 2 |
| C200X17 | 321FA009, 321FA039, 321FA040, 321FA043, 321FA044 321FA052, 321FA071, 321FA091, 321FA092 | 2 |

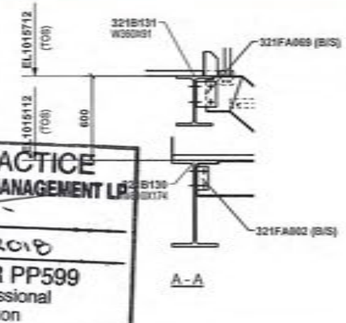


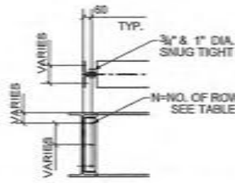




PLAN AT EL. +1015.712 (TOS) (UNO)

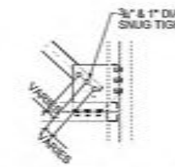
T.O. FINISH FLOOR EL. 1010.750 (TYP. UNO)
ALL HORIZONTAL BRACING AT -75 FROM TOS (TYP.)
ALL HORIZONTAL BRACING PROFILE IS L102X102X9.5 (TYP. UNO)

BOLTING REQUIREMENTS:
ALL BOLTS TO BE ¾"ø DIA. A325 U/N
ALL BOLTS TO BE PRE-TENSIONED USING TURN OFF THE NUT METHOD
" = INDICATES JOINTS WITH 1" DIA. BOLTS
+ = INDICATES JOINTS WHERE BOLTS CAN BE SNUG TIGHT.

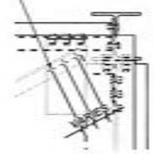



TYPICAL FIELD ASSEMBLY DETAIL
FOR BOLTING LOOSE CLIP ANGLES




TYPICAL FIELD ASSEMBLY DETAIL
FOR BOLTING HORIZONTAL BRACES




TYPICAL FIELD ASSEMBLY DETAIL
FOR BOLTING HORIZONTAL BRACES @ CORNER

SUPREME IS SOLEY RESPONSIBLE FOR CONNECTION DESGIN THAT WAS NOT PROVIDED BY THE ENGINEER OF RECORD. CONNECTIONS DESIGNED BY THE ENGINEER OF RECORD, SECTION AND MEMBER SIZES ARE NOT THE RESPONSIBILITY OF SUPREME. ENGINEER OF RECORD IS RESPONSIBLE TO ENSURE THE STRUCTURE IS ERECTED AS PER STAMPED DRAWINGS. ERECTION IS NOT THE RESPONSIBILITY OF SUPREME.

PROFESSIONAL ENGINEER YUKON TERRITORY AMIR JAMSHIDI

PERMIT TO PRACTICE
SUPREME CONSTRUCTION MANAGEMENT LP
SIGNATURE
Date DECEMBER 27, 2018
PERMIT NUMBER PP599
Association of Professional Engineers of Yukon

SUPREME GROUP
REVIEWED BY QUALITY CONTROL
BY: Amanda Shaw QM
DATE: March 20/19

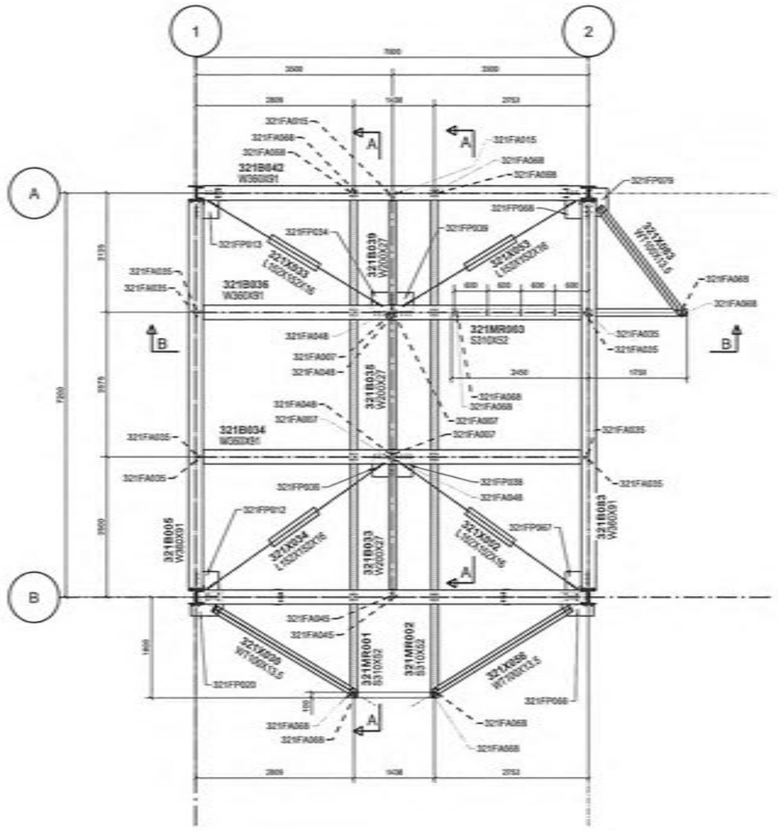
| No | DD/MM/YYYY | REVISION | CODE | BY |
|---|---|---|---|---|
| 0 | 29.11.2018 | For Field Use | | AWD |
| A | 18.11.2018 | For Approval | | SRC |

WORK WITH SHEET WITH DWG NO. E321A, E321B, E321E E321F E321G E321J

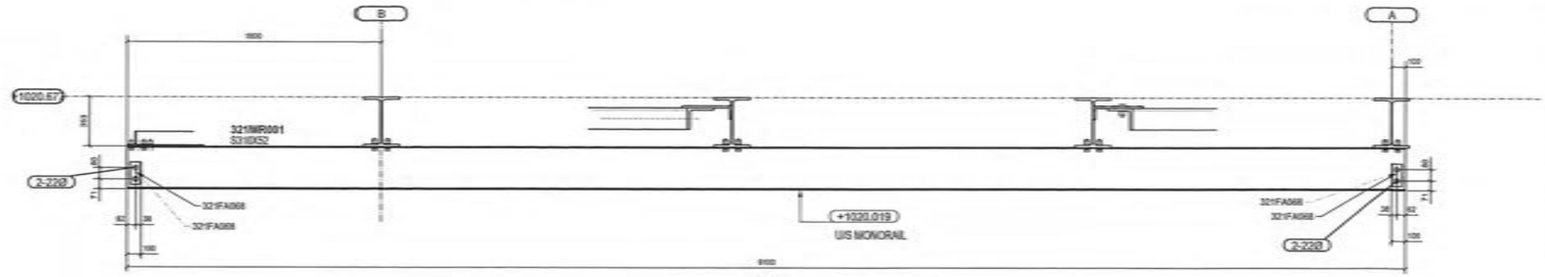
# SUPREME STEEL

Cust: JDS ENERGY & MINING INC.
Proj: TRANSFER TOWER 1
Area: EAGLE GOLD PROJECT, YT
Ref: H354138-3210-232-260-0013
Desc: COARSE ORE STOCKPILE/REC PLAN 1015.712

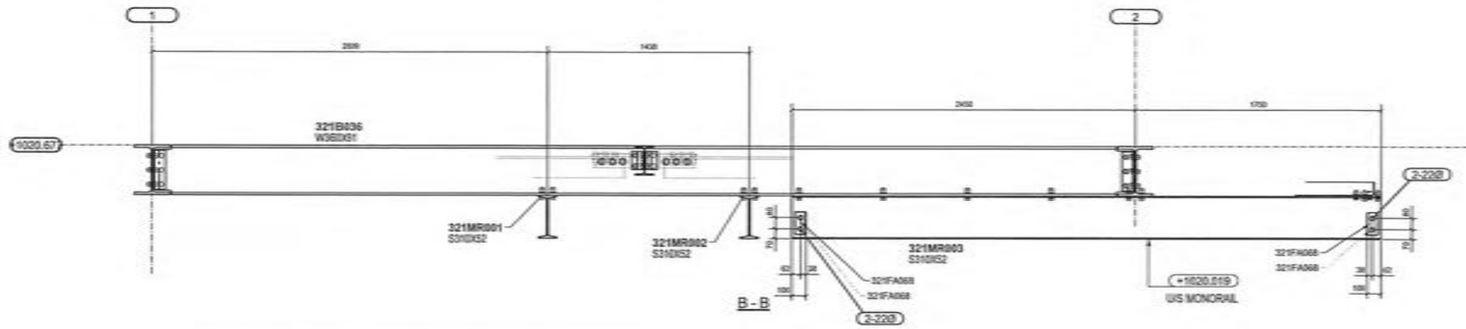
Drawn: CES 18/Nov/2018 | Checked: SRC 18/Nov/2018
Job: 10234 | Dsc: 0321
Drawing: E321C




PLAN AT TOS EL. 1020.677
ALL HORIZONTAL BRACING AT -75 FROM TOS (TYP.)

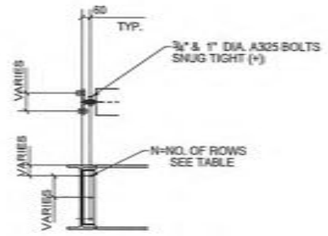



A - A

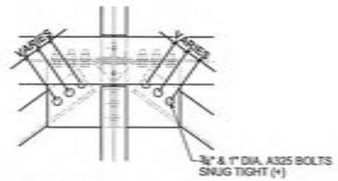



B - B

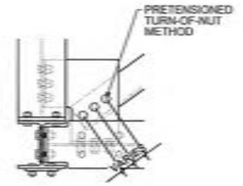
| BEAM SIZE | CLIP ANGLE MARKS U/N | N=ROWS OF BOLTS U/N |
|---|---|---|
| W360X91 | 321FA035 | |
| S310X52 | 321FA068 | |
| W200X27 | 321FA045, 321FA048, 321FA007, 321FA015 | |




TYPICAL FIELD ASSEMBLY DETAIL
FOR BOLTING LOOSE CLIP ANGLES




TYPICAL FIELD ASSEMBLY DETAIL
FOR BOLTING HORIZONTAL BRACES




TYPICAL FIELD ASSEMBLY DETAIL
FOR BOLTING HORIZONTAL BRACES @ CORNER

BOLTING REQUIREMENTS:
ALL BOLTS TO BE ¾" DIA. A325 U/N
ALL BOLTS TO BE PRE-TENSIONED USING TURN OFF THE NUT METHOD
* = INDICATES JOINTS WITH 1" DIA. BOLTS
+ = INDICATES JOINTS WHERE BOLTS CAN BE SNUG TIGHT.

SUPREME IS SOLEY RESPONSIBLE FOR CONNECTION DESGIN THAT WAS NOT PROVIDED BY THE ENGINEER OF RECORD. CONNECTIONS DESIGNED BY THE ENGINEER OF RECORD, SECTION AND MEMBER SIZES ARE NOT THE RESPONSIBILITY OF SUPREME. ENGINEER OF RECORD IS RESPONSIBLE TO ENSURE THE STRUCTURE IS ERECTED AS PER STAMPED DRAWINGS. ERECTION IS NOT THE RESPONSIBILITY OF SUPREME.

PERMIT TO PRACTICE
SUPREME CONSTRUCTION MANAGEMENT LP
SIGNATURE
Date DECEMBER 27, 2018
PERMIT NUMBER PP599
Association of Professional Engineers of Yukon

PROFESSIONAL ENGINEER
YUKON TERRITORY
AMIR JAMSHIDI

SUPREME GROUP
REVIEWED BY QUALITY CONTROL
BY: Amanda Shaw QM
DATE: March 20/19

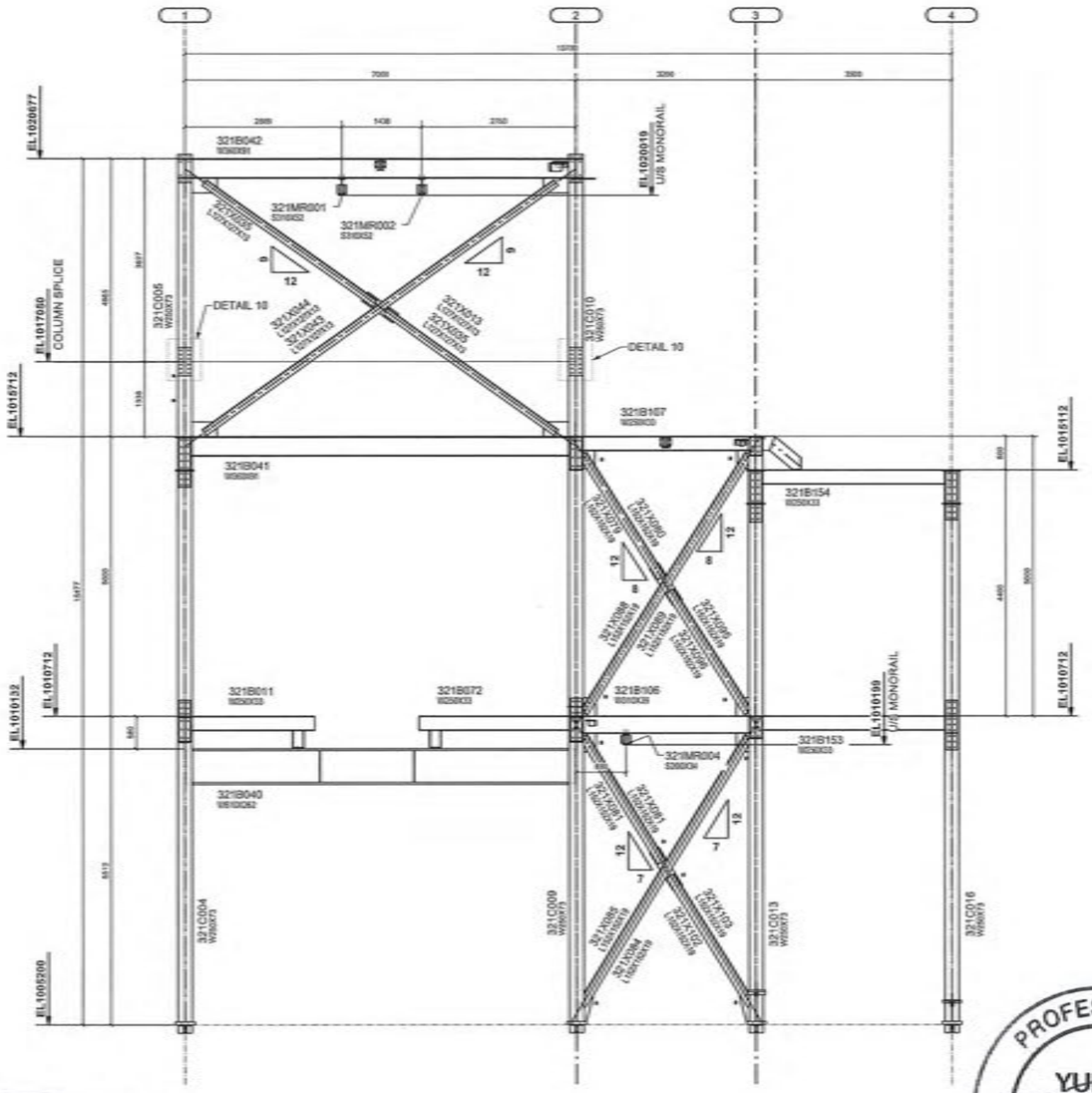
| No. | DD.MM.YYYY | REVISION | CODE | BY |
|---|---|---|---|---|
| 0 | 29.11.2018 | For Field Use | | SRC |
| A | 18.11.2018 | For Approval | | SRC |

SUPREME STEEL

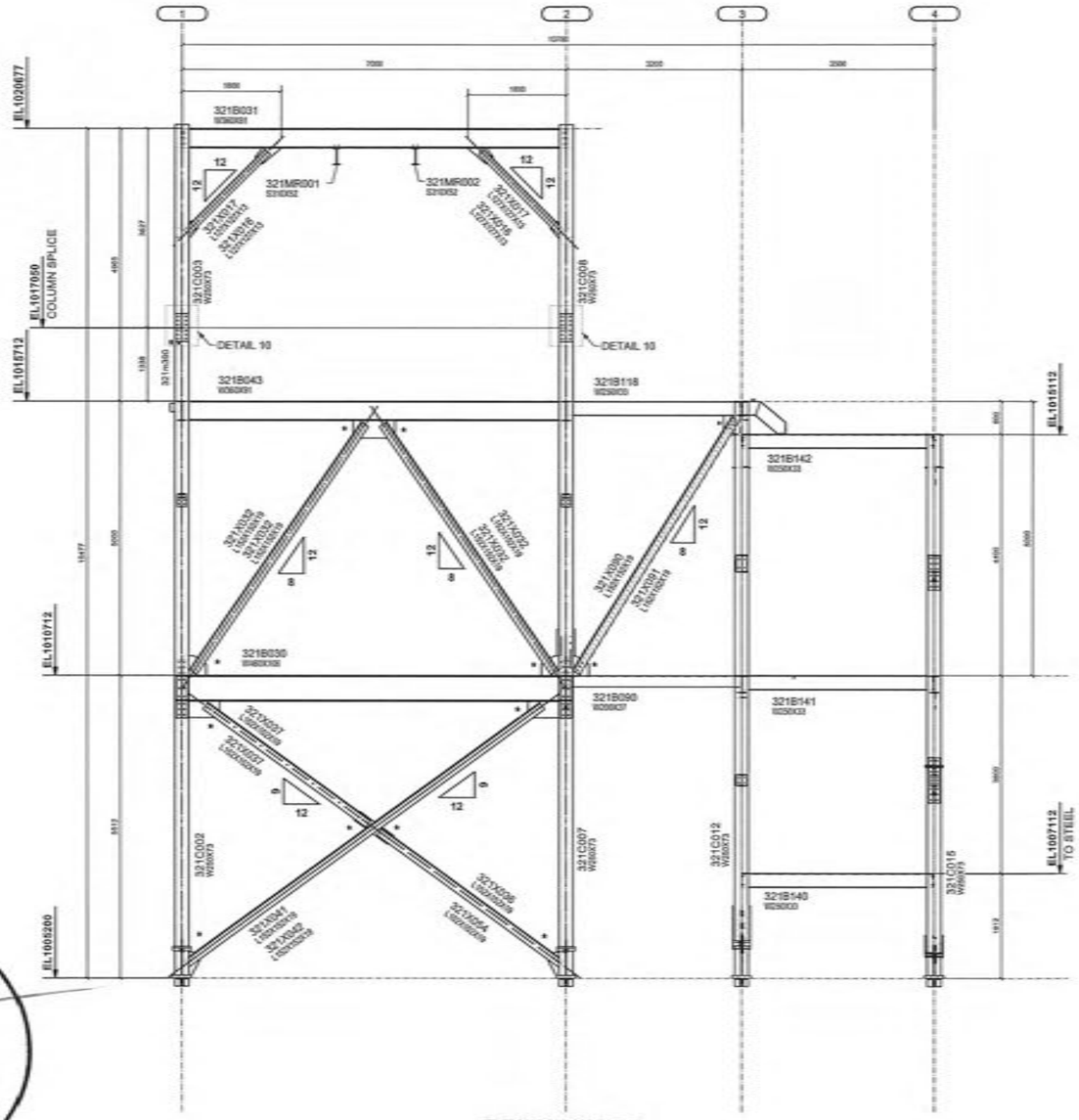
Cust: JDS ENERGY & MINING INC.
Proj: TRANSFER TOWER 1
Area: EAGLE GOLD PROJECT, YT
Ref: H354138-3210-232-260-0014
Desc: COARSE ORE STOCKPILE/REC PLAN 1020.677

Drawn: CES 16/Nov/2018
Checked: SRC 16/Nov/2018
Job: 10234
Dsc: 0321
Drawing: E321D

SUPREME IS SOLEY RESPONSIBLE FOR CONNECTION DESIGN THAT WAS NOT PROVIDED BY THE ENGINEER OF RECORD. CONNECTIONS DESIGNED BY THE ENGINEER OF RECORD, SECTION AND MEMBER SIZES ARE NOT THE RESPONSIBILITY OF SUPREME. ENGINEER OF RECORD IS RESPONSIBLE TO ENSURE THE STRUCTURE IS ERECTED AS PER STAMPED DRAWINGS. ERECTION IS NOT THE RESPONSIBILITY OF SUPREME.




ELEVATION ON GRID A
LOOKING NORTH

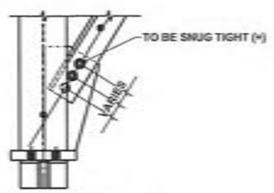



ELEVATION ON GRID B
LOOKING NORTH

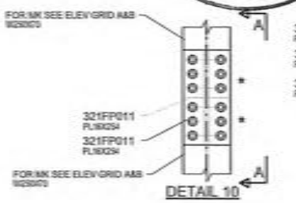
PERMIT TO PRACTICE
SUPREME CONSTRUCTION MANAGEMENT LP
SIGNATURE
Date DECEMBER 20, 2018
PERMIT NUMBER PP599
Association of Professional Engineers of Yukon

PROFESSIONAL ENGINEER
YUKON TERRITORY
AMIR JAMSHIDI

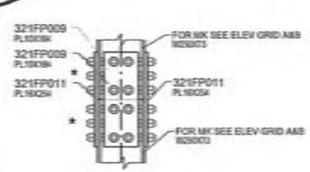
SUPREME GROUP
REVIEWED BY QUALITY CONTROL
BY: Amanda Shaw QM
DATE: March 20/19




TYPICAL FIELD ASSEMBLY DETAIL FOR
BOLTING VERTICAL BRACING




DETAIL 10




A - A

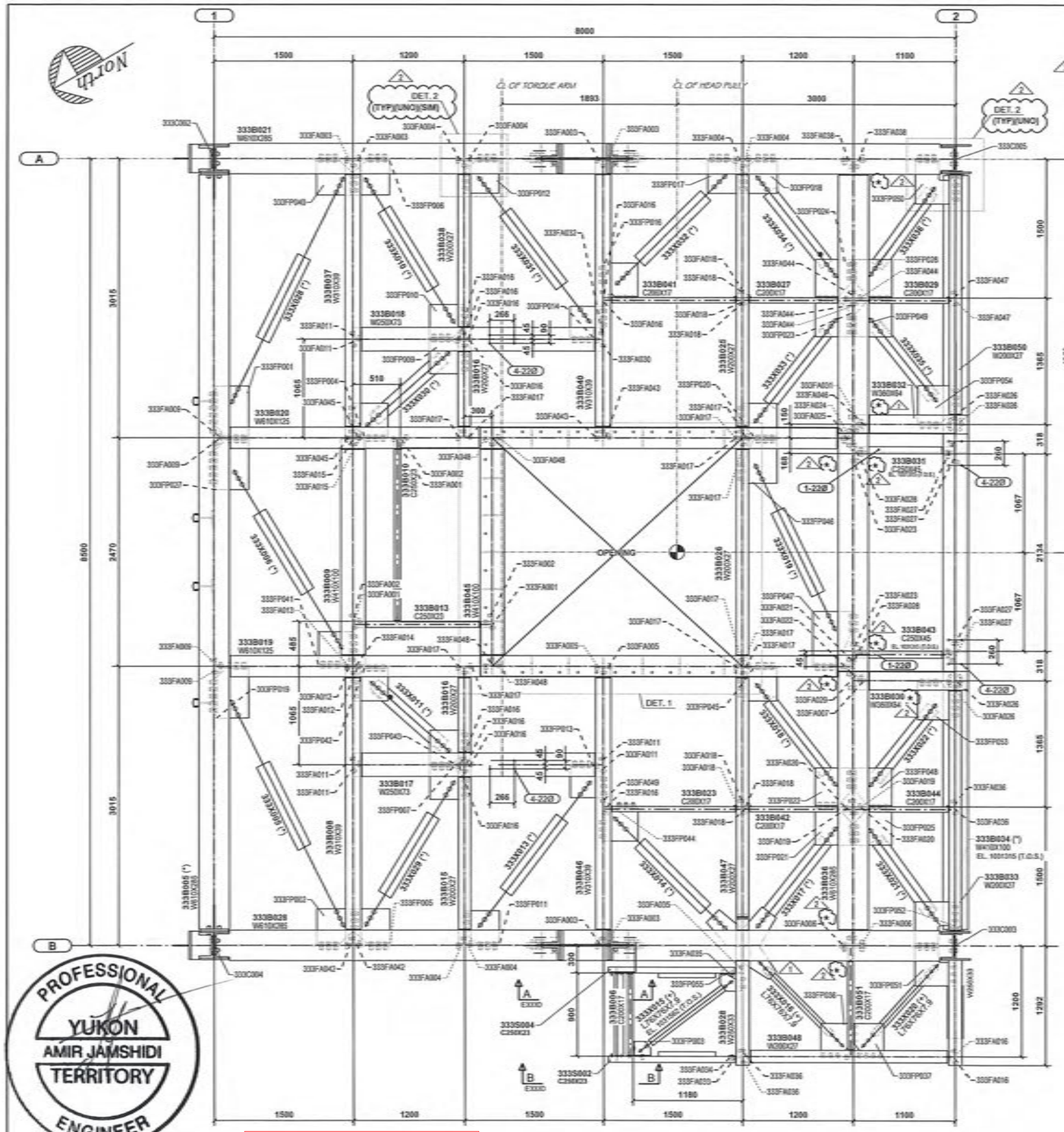
WORK WITH SHEET WITH DWG NO. E321A, E321B, E321C, E321E, E321G & E321H

| No | DD.MM.YYYY | REVISION | CODE | BY |
|---|---|---|---|---|
| 0 | 29.11.2018 | For Field Use | | ANS |
| A | 18.11.2018 | For Approval | | SRC |

SUPREME STEEL

Cust: JDS ENERGY & MINING INC.
Proj: TRANSFER TOWER 1
Area: EAGLE GOLD PROJECT, YT
Ref: H354138-3210-232-260-0015
Desc: COARSE ORE STOCKPILE/REC ELEV GRID A&B

Drawn: CES 18/Nov/2018
Checked: SRC 18/Nov/2018
Job: 10234
Dir: 0321
Drawing: E321F


1
2
A
B
8000
1500
1200
1500
1500
1200
1100
1893
3800
DET. 2 (TYP)(UNO)(SIM)
CL OF TORQUE ARM
CL OF HEAD PULL
333C002
333B021 W610X285
333FA003
333FA004
333FA038
333C005
333FP040
333FP006
333FP012
333FP017
333FP018
333FP024
333FP032
333FP038
333X038 (*)
333X039 (*)
333X034 (*)
333X035 (*)
333X036 (*)
333B038 W200X27
333B037 W310X39
333B018 W250X73
333FA016
333FA018
333B041 C200X17
333B027 C200X17
333B029 C200X17
333FA047
333FP041
333FP042
333FP043
333FP044
333FP048
333FP049
333B050 W200X27
333FA011
333FP001
333FP009
333FP004
333FA045
333FA030
333FA044
333FP023
333FP025
333FP026
333FP054
333B032 W360X64
333FA026
333FA036
333B040 W310X39
333FA043
333FP020
333FA031
333FA046
333FA024
333FA025
333FA017
333B026 W200X27
333B033 W200X27
333B034 (*) W410X100
EL. 1031.315 (T.O.S.)
333B005 (*) W610X285
333B020 W610X125
333FA009
333FA048
333FA002
333FA001
333FP027
333FA015
333B010 C250X23
333B013 C250X23
333B045 W410X100
333B009 W410X100
333FP041
333FA013
333B019 W610X125
333FA014
333FA005
333FA012
333FP019
333FP013
333FA042
333FA004
333FP007
333FP005
333FP011
333FP002
333B028 W610X285
333C004
333FA035
333FP055
333FP051
333FP036
333FP037
333B006 C200X17
333B016 L76X76X6.4
EL. 1031.662 (T.O.S.)
333B028 W250X33
333B048 W360X27
333S002 C250X23
333S004 C250X23
333FA016
333FA034
333FA033
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333FA036
333FP003
333FA037
333FA039
333FA044
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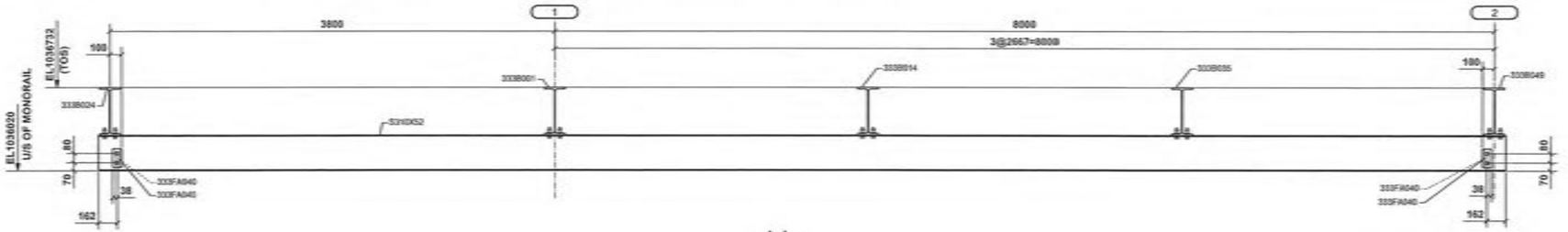
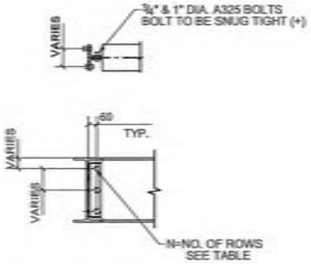
333FA088

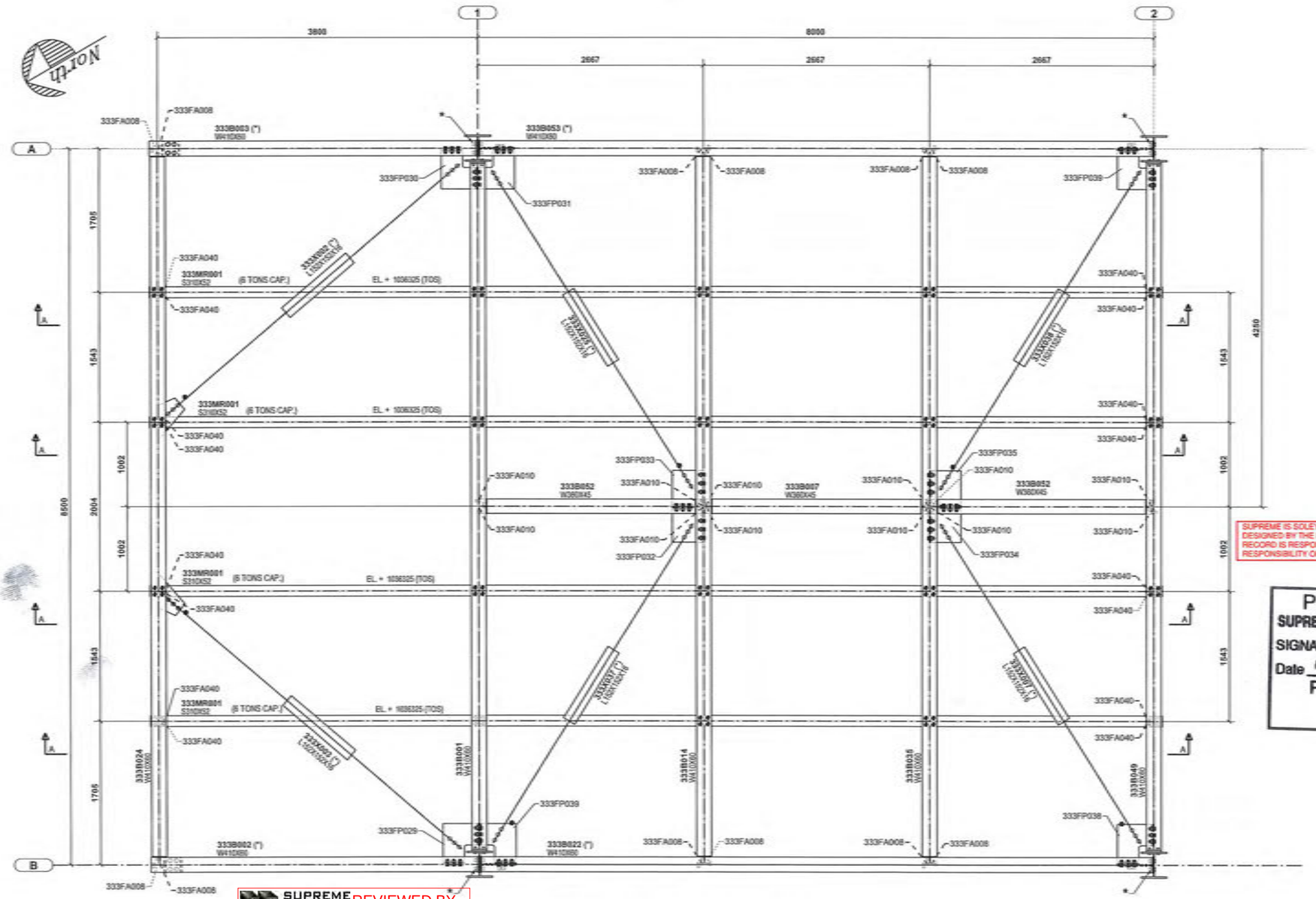



| BEAM SIZE | CLIP ANGLE MARKS U/N | N=ROWS OF BOLTS U/N |
|---|---|---|
| W360X45 | 333FA010 | 3 |
| W410X60 | 333FA008 | 3 |




TYPICAL FIELD ASSEMBLY DETAIL
FOR BOLTING LOOSE CLIP ANGLES

BOLTING REQUIREMENTS:
ALL BOLTS TO BE ¾" DIA. A325 U/N
ALL BOLTS TO BE PRE-TENSIONED USING TURN OFF THE NUT METHOD
* = INDICATES JOINTS WITH 1" DIA. BOLTS
+ = INDICATES JOINTS WHERE BOLTS CAN BE SNUG TIGHT.




SUPREME IS SOLEY RESPONSIBLE FOR CONNECTION DESGIN THAT WAS NOT PROVIDED BY THE ENGINEER OF RECORD. CONNECTIONS DESIGNED BY THE ENGINEER OF RECORD, SECTION AND MEMBER SIZES ARE NOT THE RESPONSIBILITY OF SUPREME. ENGINEER OF RECORD IS RESPONSIBLE TO ENSURE THE STRUCTURE IS ERECTED AS PER STAMPED DRAWINGS. ERECTION IS NOT THE RESPONSIBILITY OF SUPREME.

PERMIT TO PRACTICE
SUPREME CONSTRUCTION MANAGEMENT LP
SIGNATURE
Date DECEMBER 27, 2018
PERMIT NUMBER PP599
Association of Professional Engineers of Yukon

PROFESSIONAL ENGINEER
YUKON TERRITORY
AMIR JAMSHIDI

SUPREME GROUP REVIEWED BY QUALITY CONTROL
BY: Amanda Shaw QM
DATE: March 20/19

FRAMING PLAN AT ELEVATION +1036.732 (TYP. UNO)
ALL HORIZONTAL BRACING AT -75 FROM TOS (TYP.)

| No | DD.MM.YYYY | REVISION | CODE | BY |
|---|---|---|---|---|
| 0 | | For Fabrication Tr014 | | JCC |
| A | 16.11.2018 | For Approval | | SRC |

SUPREME STEEL

Cust: JDS ENERGY & MINING INC.
Proj: TRANSFER TOWER 2
Area: EAGLE GOLD PROJECT, YT
Ref: H354138-3330-232-260-0012
Desc: CONV. & TERTIARY ORE BIN PLAN 1036.732

Drawn: CES 19/Nov/2018 | Checked: JCC 19/Nov/2018
Job: 10234 | Dir: 0333
Drawing: E333C

# ATTACHMENT B

## Request for Information Forms

STRATAGOLD
EAGLE GOLD PROJECT

# REQUEST FOR INFORMATION

| | |
|---|---|
| EPCM RFI No.: CB201-RFI-07 | **Site Location:** Eagle Gold |
| Sub-Contractor RFI No.: CB201-RFI-07 | **Date Submitted:** June12, 2018 |
| Subject: Eagle Gold Misc | Project Zone/Area: Project |
| **Sub-contractor: Clark Builders** | **Station/Location: Site wide** |
| **Attention: Esra Akinci** | **Discipline: Concrete** |

**REQUEST**

| | |
|---|---|
| **Related Drawings:** | **Other Related Documents:**<br><br>**Clark – CB201 RFI-07 Anchor Bolt Details and Supply Clarification** |

**Information Request/Description of Issue:**

**Proposed Corrective Action**

| | | | | | |
|---|---|---|---|---|---|
| **Type of Change:** | ☐ | Owner Change | ☐ | Clarification/Info | ☐ Field Change |
| | ☐ | Vendor Change | ☐ | Design Change | ☐ Other |
| **Cost Impact:** | | | | | |
| **Schedule Impact:** | | | | | |

| | | | |
|---|---|---|---|
| **Requested by:** | Jackson Wenger | | May-15-2018 |
| | Name | Signature | Date |

RESPONSE

☐ Approved ☐ Approved as noted ☐ Rejected as noted

**Response:**

1. a. Accepted (bottom thread to top of bottom nuts only)
   b. Accepted (tack weld bottom nut to bolt only)

2. Correct, all equipment anchors shown and specified on the concrete drawings (e.g. supply of Primary, Secondary and Tertiary Crusher bolts in sleeves) to be supplied by the concrete contractor. And the anchor material is ASTM F1554 36ksi as specified on standard drawing H354138-0000-231-294-0002 Note1, unless noted

otherwise on the design drawings.

3. Pipe sleeves for the anchors need to be welded to the lower embed plates as an assembly in both cases.

4. Please use the details given for T1 - 38mm (1-1/2") anchors for the 1-3/4" rod, except the details provided on the design drawing section (projection, embedment etc.)

5. Please use 1" details

| **Answered by:** | **Esra Akinci** | | **June 20, 2018** |
|---|---|---|---|
| | Name | Signature | Date |

*Note: Response to this RFI does not constitute authorization to perform a change to any Contract. The Requestor may proceed with the response only on the basis that the Requestor agrees that it is not a contract change. If the Requestor believes that the response does constitute a contract change, the Requestor shall immediately notify JDS. Work undertaken without JDS written authorization is at the Sub-contractor's risk and expense.*

CLARK BUILDERS

JDS Energy & Mining LTD
c/o Calvin Goldschmidt; Engineering Manager
900-999 West Hastings St
Vancouver, BC
V6C 2W2

June 12, 2018

Attention:

**Reference: RFI #7 – Eagle Gold Project**

Dear Mr. Goldschmidt,

# RFI #7- Anchor Bolt Details

## Project: Eagle Gold Project

The following information is requested by anchor bolt supplier/drafter:

1. Fabricator requests to modify anchor bolt Detail 11/H354138-0000-231-294-0002 as follows for expedited fabrication:
    a. Bottom thread to top of bottom nuts only
    b. Tack weld bottom nut to bolt only

2. Clark Builders has anticipated that all equipment anchor supply is within anchor bolt supply scope, please confirm (e.g. supply of primary/secondary crusher base bolts in DN pipe sleeves). CB has assumed standard anchor rod material per H354138-0000-231-294-0002 note 1 (UNO).

3. M72 anchor rod detail (Drawing H354138-3320-231-260-0014 Rev 0 detail 7) shows pipe sleeve welded to lower plate as an assembly, but H354138-31000-231-260-0010/Detail 16 (equipment bolts, gyratory crusher) does not. Please confirm that lower embed plate on H354138-31000-231-260-0010/Detail 16 is **not** welded to DN65XS pipe sleeve.

4. For drawing H354138-3100-231-260-0014 Rev 0 Section U, please provide bolt type and details for 16-Ø1 ¾" bolts. The chart on H354138-0000-231-294-0002 Rev 0 only goes up to Ø1 ½".

5. For Drawing H354138-5710-231-260-0012 Rev 0, please provide details for 88-Ø7/8" bolts. Bolt table has ¾" and 1". Use 1" details?

END OF RFI #7

Sincerely,

**CLARK BUILDERS**

Jackson Wenger | Project Coordinator
D: 780.395.3486 | E: Jackson.wenger@clarkbuilders.com

# RFI #11

Clark Builders
4703 - 52 Avenue
Edmonton, Alberta T6B 3R6
Phone: (780) 395-3300
Fax: (780) 395-3545

**Project:** 18502 - CB201-JDS - Stratagold Eagle Gold
Yukon Territory

## Embed Steel Material Grade Clarification

| | | | |
|---|---|---|---|
| **TO:** | Calvin Goldschmidt **(JDS Energy and Mining)** | **FROM:** | Ryan de Milliano **(Clark Builders - Edmonton)** Edmonton, Alberta |
| **DATE INITIATED:** | 11/07/2018 | **STATUS:** | Open |
| **LOCATION:** | | **DUE DATE:** | 13/07/2018 |
| **COST CODE:** | | **REFERENCE:** | |
| **COST IMPACT:** | TBD | **SCHEDULE IMPACT:** | TBD |
| **DRAWING NUMBER:** | | **SPEC SECTION:** | |
| **LINKED DRAWINGS:** | | | |
| **RECEIVED FROM:** | Ryan VanHalst **(Norfab MFG (1993) Inc.)** | | |

**COPIES TO:**
Matt Cloverdale **(JDS Energy and Mining)**, D'Arcy Comerford **(JDS Energy and Mining)**, Chris Copley **(JDS Energy and Mining)**, Garry Dahl **(Clark Builders - Edmonton)**, Branden Fraser **(JDS Energy and Mining)**, Jackson Wenger **(Clark Builders - Edmonton)**, Ryan de Milliano **(Clark Builders - Edmonton)**

**Question from Ryan de Milliano (Clark Builders - Edmonton) at 03:16 PM on 11/07/2018**

Please specify the required material grade for all embedded steel.

Our supplier has noted that abrasion resistant steel is typically used in harsh conditions to extend the service life of steel exposed to rocks, chains and equipment. If abrasion resistant steel is required onsite, please specify the specific grade of the steel required as well as all locations needed.

If these is no requirement for abrasion resistant material, please confirm that all steel will be grade 300W.

!This is a high priority RFI since the abrasion resistant steel may be required to be ordered in by our fabricator.

Awaiting an Official Response

**All Replies:**

No need for abrasion resistant steel. All the embedded plates shown on the concrete drawings to be grade 300W.

| Esra Akinci | July 12, 2018 | |
|---|---|---|
| **BY** | **DATE** | **COPIES TO** |

CLARK BUILDERS

JDS Energy & Mining LTD
c/o Calvin Goldschmidt; Site Engineering Manager
900-999 West Hastings St
Vancouver, BC
V6C 2W2

July 22, 2018

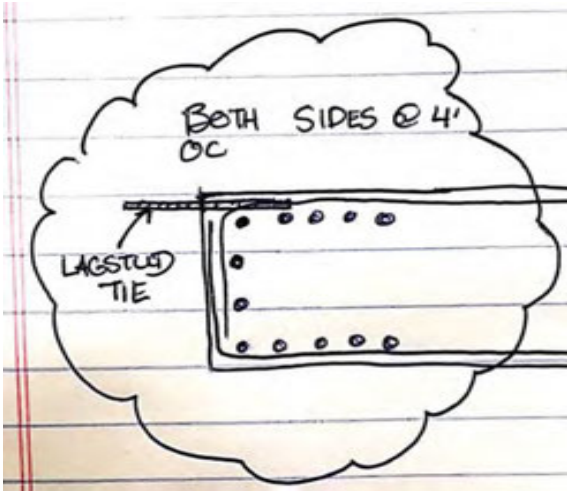
**Reference:** **RFI #15R1 – Eagle Gold Project**

Dear Mr. Goldschmidt,

# RFI #15- Lagstud Reinforcing Tack Welding REV1

## Project: Eagle Gold Project

Clark Builders is requesting permission to tack weld lagstud form ties to top reinforcing steel @ 4' OC, for pad footings on the ADR and secondary/tertiary crushing building footing. Method would be used on ADR footing line A/6-9, GLE/4-11, and for secondary/tertiary crushing building footings.




END OF RFI #15R1

Sincerely,

**CLARK BUILDERS**

HATCH RESPONSE:

Request for tack welding the lag stud form ties to the footing rebars in ADR and Secondary Tertiary Crushing Building is approved.

Esra Akinci
July 22, 2018

# RFI #16

Clark Builders
4703 - 52 Avenue
Edmonton, Alberta T6B 3R6
Phone: (780) 395-3300
Fax: (780) 395-3545

**Project:** 18502 - CB201-JDS - Stratagold Eagle Gold
Yukon Territory

## Secondary Crushing Screening Wall Dowels

| | | | |
|---|---|---|---|
| **TO:** | Calvin Goldschmidt **(JDS Energy and Mining)** | **FROM:** | Jackson Wenger **(Clark Builders - Edmonton)** |
| **DATE INITIATED:** | 22/07/2018 | **STATUS:** | Open |
| **LOCATION:** | | **DUE DATE:** | 27/07/2018 |
| **COST CODE:** | | **REFERENCE:** | |
| **COST IMPACT:** | | **SCHEDULE IMPACT:** | |
| **DRAWING NUMBER:** | H354138-3320-231-260-0011 | **SPEC SECTION:** | S032000 - Concrete Reinforcing Steel |
| **LINKED DRAWINGS:** | | | |
| **RECEIVED FROM:** | | | |

**COPIES TO:**
Matt Cloverdale **(JDS Energy and Mining)**, D'Arcy Comerford **(JDS Energy and Mining)**, Garry Dahl **(Clark Builders - Edmonton)**, Dustin Dolynchuk **(Clark Builders - Edmonton)**, Calvin Goldschmidt **(JDS Energy and Mining)**, Jackson Wenger **(Clark Builders - Edmonton)**, Ryan de Milliano **(Clark Builders - Edmonton)**

### Question from Jackson Wenger (Clark Builders - Edmonton) at 10:36 AM on 22/07/2018

Reinforcing installers have requested permission to tie secondary crushing/screening wall dowels to top of bottom foundation mat steel instead of lapping underneath (typ.), for installation efficiency and schedule maintenance. Drawing markup attached.

**Attachments:**
RFI 16 Drawing Markup.pdf

Awaiting an Official Response

### All Replies:

Request approved

Esra Akinci
July 23, 2018

**BY** **DATE** **COPIES TO**

# RFI #17

Clark Builders
4703 - 52 Avenue
Edmonton, Alberta T6B 3R6
Phone: (780) 395-3300
Fax: (780) 395-3545

**Project:** 18502 - CB201-JDS - Stratagold Eagle Gold
Yukon Territory

## Shear Pin Diameter Change Request From 35mm to 38mm

| | | | |
|---|---|---|---|
| **TO:** | Calvin Goldschmidt **(JDS Energy and Mining)** | **FROM::** | Ryan de Milliano **(Clark Builders - Edmonton)** Edmonton, Alberta |
| **DATE INITIATED:** | 26/07/2018 | **STATUS:** | Open |
| **LOCATION:** | 3100 Primary Crushing | **DUE DATE:** | 31/07/2018 |
| **SUB JOB:** | | **COST CODE:** | 03-3201 - REINFORCE STEEL/MESH |
| **COST IMPACT:** | No | **SCHEDULE IMPACT:** | No |
| **DRAWING NUMBER:** | | **SPEC SECTION:** | |
| **LINKED DRAWINGS:** | | **REFERENCE:** | H354138-3100-231-260-0005 Rev 01 |
| **RECEIVED FROM:** | Ryan VanHalst **(Norfab MFG (1993) Inc.)** | | |

**COPIES TO:**
Matt Cloverdale **(JDS Energy and Mining)**, D'Arcy Comerford **(JDS Energy and Mining)**, Chris Copley **(JDS Energy and Mining)**, Garry Dahl **(Clark Builders - Edmonton)**, Jackson Wenger **(Clark Builders - Edmonton)**, Ryan de Milliano **(Clark Builders - Edmonton)**

### Question from Ryan de Milliano (Clark Builders - Edmonton) at 04:08 PM on 25/07/2018

The supplier of the shear pins onsite has requested a change to the diameter of the shear pins as shown on drawing H354138-3100-231-260-0005 Rev 01 (attached).

The reason for the change is that it will be easier to source 38mm round bar vs the 35mm required by the IFC drawings.

**Attachments:**
H354138-3100-231-260-0005_1_V4.PDF

Awaiting an Official Response

**All Replies:**

Request approved. Please provide 38mm shear pins instead of 35mm at the location shown on the attached dwg.

| Esra Akinci | July 30, 2018 | |
|---|---|---|
| **BY** | **DATE** | **COPIES TO** |

# RFI #27

Clark Builders
4703 - 52 Avenue
Edmonton, Alberta T6B 3R6
Phone: (780) 395-3300
Fax: (780) 395-3545

**Project:** 18502 - CB201-JDS - Stratagold Eagle Gold
Yukon Territory

## 3100 Primary Crusher Mat Foundation Pour Break

| | | | |
|---|---|---|---|
| **TO:** | Calvin Goldschmidt **(JDS Energy and Mining)** | **FROM::** | Jackson Wenger **(Clark Builders - Edmonton)** |
| **DATE INITIATED:** | 03/08/2018 | **STATUS:** | Open |
| **LOCATION:** | 3100 Primary Crushing | **DUE DATE:** | 10/08/2018 |
| **SUB JOB:** | | **COST CODE:** | |
| **COST IMPACT:** | | **SCHEDULE IMPACT:** | |
| **DRAWING NUMBER:** | | **SPEC SECTION:** | |
| **LINKED DRAWINGS:** | | **REFERENCE:** | |
| **RECEIVED FROM:** | | | |

**COPIES TO:**
D'Arcy Comerford **(JDS Energy and Mining)**, Chris Copley **(JDS Energy and Mining)**, Matt Coverdale **(JDS Energy and Mining)**, Garry Dahl **(Clark Builders - Edmonton)**, Calvin Goldschmidt **(JDS Energy and Mining)**, Jackson Wenger **(Clark Builders - Edmonton)**, Ryan de Milliano **(Clark Builders - Edmonton)**

### Question from Jackson Wenger (Clark Builders - Edmonton) at 09:14 PM on 03/08/2018

Please confirm that Primary Crusher mat foundation can be broken into 2 consecutive pours. See attached drawing snapshot for details.

**Attachments:**
1533352348048.567139_tempImage.jpeg

Awaiting an Official Response

### All Replies:

Request is approved

| BY | DATE | COPIES TO |
|---|---|---|
| Esra Akinci | Aug 4, 2018 | |

# RFI #29

Clark Builders
4703 - 52 Avenue
Edmonton, Alberta T6B 3R6
Phone: (780) 395-3300
Fax: (780) 395-3545

**Project:** 18502 - CB201-JDS - Stratagold Eagle Gold
Yukon Territory

## 3320 Crushing Mat Foundation Pour Break

| | | | |
|---|---|---|---|
| **TO:** | Calvin Goldschmidt **(JDS Energy and Mining)** | **FROM::** | Jackson Wenger **(Clark Builders - Edmonton)** |
| **DATE INITIATED:** | 06/08/2018 | **STATUS:** | Open |
| **LOCATION:** | 3320 Sec/Tert. Crushing | **DUE DATE:** | 10/08/2018 |
| **SUB JOB:** | | **COST CODE:** | |
| **COST IMPACT:** | | **SCHEDULE IMPACT:** | |
| **DRAWING NUMBER:** | | **SPEC SECTION:** | |
| **LINKED DRAWINGS:** | | **REFERENCE:** | |
| **RECEIVED FROM:** | | | |

**COPIES TO:**
D'Arcy Comerford **(JDS Energy and Mining)**, Matt Coverdale **(JDS Energy and Mining)**, Garry Dahl **(Clark Builders - Edmonton)**, Dustin Dolynchuk **(Clark Builders - Edmonton)**, Calvin Goldschmidt **(JDS Energy and Mining)**, Dan Pelletier **(Frontier Employees Inc.)**, Jackson Wenger **(Clark Builders - Edmonton)**, Ryan de Milliano **(Clark Builders - Edmonton)**

### Question from Jackson Wenger (Clark Builders - Edmonton) at 09:27 AM on 06/08/2018

Clark Builders requests that the secondary crushing mat foundation be broken into 2 pours (requests similar to RFI 27). One pour lift from U/S of Footing to 1019.000, left rough, water bond; second pour to 1019.500 (mat complete). Drawing snapshot attached for reference.

**Attachments:**
1533569244633.700928_tempImage.jpeg

Awaiting an Official Response

### All Replies:

Request is accepted.

| Esra Akinci | Aug 6, 2018 | |
|---|---|---|
| **BY** | **DATE** | **COPIES TO** |

# RFI #33

Clark Builders
4703 - 52 Avenue
Edmonton, Alberta T6B 3R6
Phone: (780) 395-3300
Fax: (780) 395-3545

**Project:** 18502 - CB201-JDS - Stratagold Eagle Gold
Yukon Territory

## Hook Detail Change on the Primary Crusher

| | | | |
|---|---|---|---|
| **TO:** | Calvin Goldschmidt **(JDS Energy and Mining)** | **FROM::** | Ryan de Milliano **(Clark Builders - Edmonton)** Edmonton, Alberta |
| **DATE INITIATED:** | 13/08/2018 | **STATUS:** | Open |
| **LOCATION:** | 3100 Primary Crushing | **DUE DATE:** | 18/08/2018 |
| **SUB JOB:** | | **COST CODE:** | |
| **COST IMPACT:** | No | **SCHEDULE IMPACT:** | No |
| **DRAWING NUMBER:** | | **SPEC SECTION:** | |
| **LINKED DRAWINGS:** | | **REFERENCE:** | |
| **RECEIVED FROM:** | | | |

**COPIES TO:**
D'Arcy Comerford **(JDS Energy and Mining)**, Chris Copley **(JDS Energy and Mining)**, Matt Coverdale **(JDS Energy and Mining)**, Garry Dahl **(Clark Builders - Edmonton)**, Jackson Wenger **(Clark Builders - Edmonton)**

### Question from Ryan de Milliano (Clark Builders - Edmonton) at 10:45 AM on 13/08/2018

Hook detail shown on attached drawing markup, from drawing H354138-3100-231-260-0006 Rev 1, shows 1300mm hooks going up into WB1 wall beam and down at the other end. Both ends of the noted hooks are required to be pointing up for installation. Please confirm this is an acceptable change.

**Attachments:**
1534178698221.544922_tempImage.jpeg

Awaiting an Official Response

### All Replies:

Hooks can be turned to be pointing up. Change request is accepted.

| Esra Akinci | Aug 13, 2018 | |
|---|---|---|
| **BY** | **DATE** | **COPIES TO** |

CLARK BUILDERS

JDS Energy & Mining LTD
c/o Calvin Goldschmidt; Engineering Manager
900-999 West Hastings St
Vancouver, BC
V6C 2W2

Aug. 26, 2018

Attention:

**Reference: RFI #49 – Eagle Gold Project**

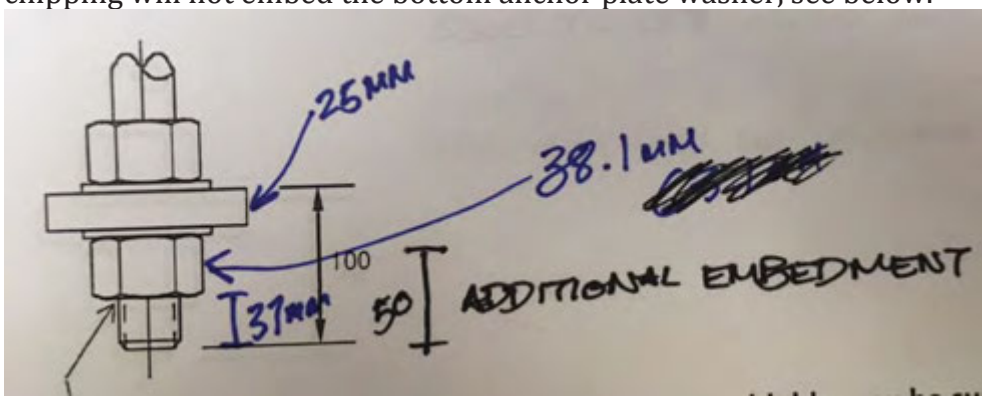
# RFI #49- P2 Pedestal Anchor Embedment at Secondary Mat

## Project: Eagle Gold Project

For P2 pedestals between gridlines A.3-B.2/2.3-4/7, the mat foundation was not bulk-headed to allow for the additionally required 50 mm of anchor bolt projection (850 embedment required).

Clark Builders suggests the following, in order of best schedule option:

1. Decreased embedment to 800 mm on P2 pedestals at this location, cast anchors and rethread the anchor top afterwards
2. Decreased embedment to 800, rethread anchors prior to concrete pour
3. Remove pedestal reinforcing and chip concrete to allow for 850 anchor embedment. *Please note that the specified additional embedment from chipping will not embed the bottom anchor plate washer, see below.




*info@clarkbuilders.com* | 780.395.3300 | 4703 52 Avenue | Edmonton, Alberta T6B 3R6

# RFI #37

Clark Builders
4703 - 52 Avenue
Edmonton, Alberta T6B 3R6
Phone: (780) 395-3300
Fax: (780) 395-3545

**Project:** 18502 - CB201-JDS - Stratagold Eagle Gold
Yukon Territory

## 3100 Drainage Pipe around Primary Crusher

| | | | |
|---|---|---|---|
| **TO:** | Calvin Goldschmidt **(JDS Energy and Mining)** | **FROM::** | Ryan de Milliano **(Clark Builders - Edmonton)** Edmonton, Alberta |
| **DATE INITIATED:** | 17/08/2018 | **STATUS:** | Open |
| **LOCATION:** | 3100 Primary Crushing | **DUE DATE:** | 22/08/2018 |
| **SUB JOB:** | | **COST CODE:** | |
| **COST IMPACT:** | No | **SCHEDULE IMPACT:** | No |
| **DRAWING NUMBER:** | | **SPEC SECTION:** | |
| **LINKED DRAWINGS:** | | **REFERENCE:** | |
| **RECEIVED FROM:** | Garry Dahl **(Clark Builders - Edmonton)** | | |

**COPIES TO:**
D'Arcy Comerford **(JDS Energy and Mining)**, Chris Copley **(JDS Energy and Mining)**, Matt Coverdale **(JDS Energy and Mining)**, Garry Dahl **(Clark Builders - Edmonton)**, Jackson Wenger **(Clark Builders - Edmonton)**

**Question from Ryan de Milliano (Clark Builders - Edmonton) at 02:32 PM on 17/08/2018**

Please provide drainage details around the Primary Crusher. Items required will include: Type of Pipe; type of fabric; elevation of Pipe and the extent of the drainage pipe.

Awaiting an Official Response

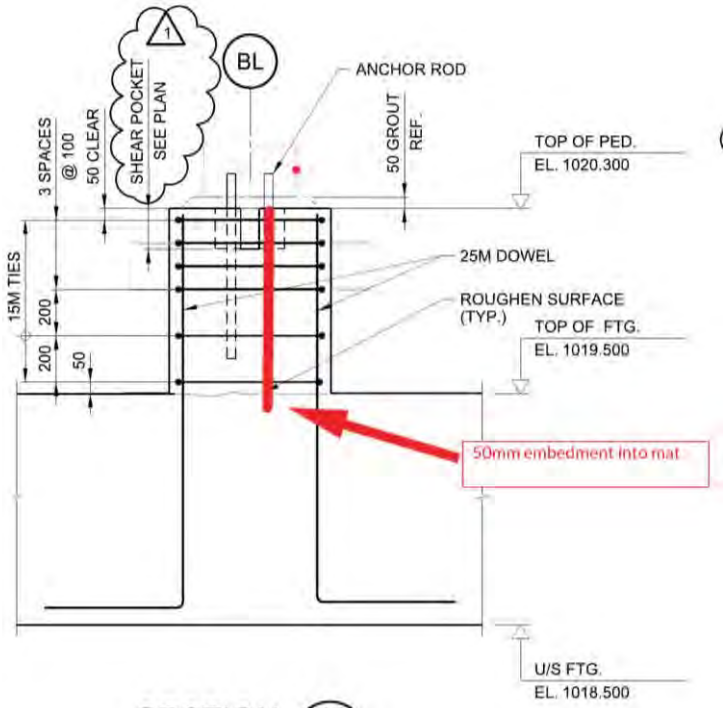
**All Replies:**

Refer to drawing H354138-3100-220-270-0001 REV 1 (Attached) for drainage details around Primary Crusher

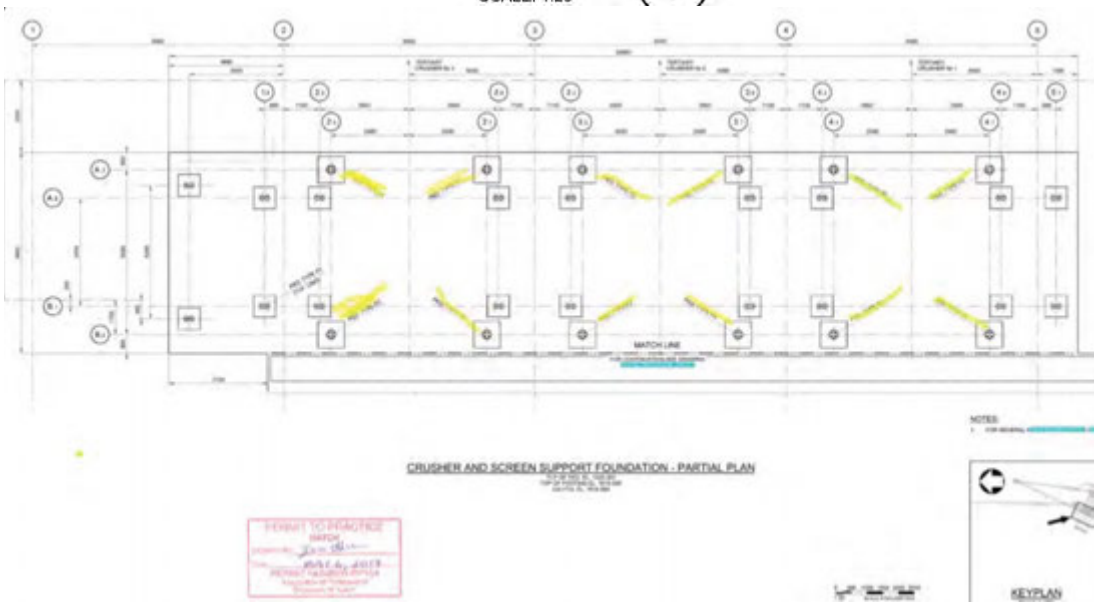
D'Arcy Comerford
**BY**

2018-08-25
**DATE**

**COPIES TO**

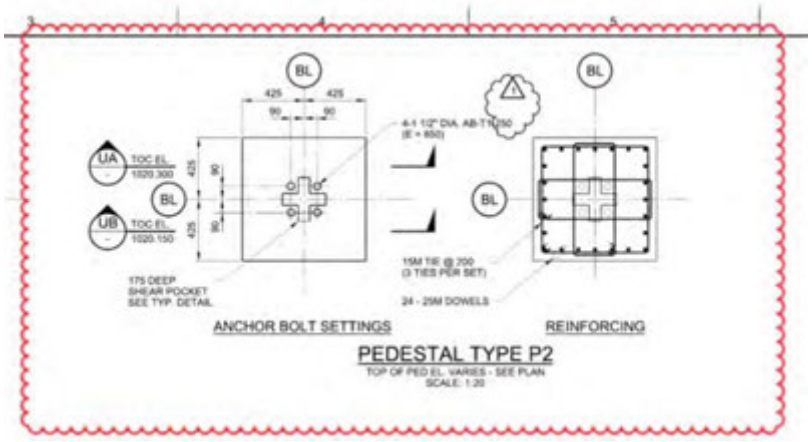



SECTION UA
SCALE: 1:20



CRUSHER AND SCREEN SUPPORT FOUNDATION - PARTIAL PLAN

*info@clarkbuilders.com* | 780.395.3300 | 4703 52 Avenue | Edmonton, Alberta T6B 3R6




END OF RFI #49

Sincerely,

**CLARK BUILDERS**

Jackson Wenger | Project Coordinator
D: 780.395.3486 | E: Jackson.wenger@clarkbuilders.com

**HATCH RESPONSE:**

Embedment length can be reduced to 800mm. Please follow Option 1 or 2 to change the thread length as required.

Esra Akinci Aug 27, 2018

# RFI #56

Clark Builders
4703 - 52 Avenue
Edmonton, Alberta T6B 3R6
Phone: (780) 395-3300
Fax: (780) 395-3545

**Project:** 18502 - CB201-JDS - Stratagold Eagle Gold
Yukon Territory

## Cut and Cap Stirrups at Primary Crusher Suspended Slab 1

| | | | |
|---|---|---|---|
| **TO:** | Matt Coverdale **(JDS Energy and Mining)** | **FROM::** | Jackson Wenger **(Clark Builders - Edmonton)** |
| **DATE INITIATED:** | 01/09/2018 | **STATUS:** | Open |
| **LOCATION:** | 3100 Primary Crushing | **DUE DATE:** | 03/09/2018 |
| **SUB JOB:** | | **COST CODE:** | |
| **COST IMPACT:** | | **SCHEDULE IMPACT:** | |
| **DRAWING NUMBER:** | | **SPEC SECTION:** | |
| **LINKED DRAWINGS:** | | **REFERENCE:** | |
| **RECEIVED FROM:** | | | |

**COPIES TO:**
D'Arcy Comerford **(JDS Energy and Mining)**, Chris Copley **(JDS Energy and Mining)**, Matt Coverdale **(JDS Energy and Mining)**, Garry Dahl **(Clark Builders - Edmonton)**, Calvin Goldschmidt **(JDS Energy and Mining)**, Gary Hosey **(Clark Builders - Edmonton)**, Jan Johnson **(Clark Builders - Edmonton)**, Jimmy Menchenton **(Ultimate Reinforcing)**, Peter Nice **(Clark Builders - Edmonton)**, Jackson Wenger **(Clark Builders - Edmonton)**, Ryan de Milliano **(Clark Builders - Edmonton)**

### Question from Jackson Wenger (Clark Builders - Edmonton) at 06:59 PM on 01/09/2018

Reinforcing installer has requested permission to cut 15m stirrups adjacent to opening in Primary Crusher suspended slab (elevation 1045.300) so that mat reinforcing for suspended slab can be pre-fabricated in sections, laid flat on form decks, then mated by capping the cut stirrups w/ u-bars. Marked up vendor shop and reference detail from design drawing are attached. Please advise if acceptable.

**Attachments:**
1535849791328.496094_tempImage.jpeg 1535849825709.905029_tempImage.jpeg

Awaiting an Official Response

### All Replies:

It is accepted to cut the 15M stirrups adjacent to the opening at El. 1045.300, provided that the stirrups to be replaced by 2 U-bars with the legs fully lapped.

| Esra Akinci | Sep 2, 2018 | |
|---|---|---|
| **BY** | **DATE** | **COPIES TO** |

# RFI #42

Clark Builders
4703 - 52 Avenue
Edmonton, Alberta T6B 3R6
Phone: (780) 395-3300
Fax: (780) 395-3545

**Project:** 18502 - CB201-JDS - Stratagold Eagle Gold
Yukon Territory

# 3100 Additional Pedistal dowel hooks require modification

| | | | |
|---|---|---|---|
| **TO:** | Calvin Goldschmidt **(JDS Energy and Mining)** | **FROM::** | Ryan de Milliano **(Clark Builders - Edmonton)** Edmonton, Alberta |
| **DATE INITIATED:** | 21/08/2018 | **STATUS:** | Open |
| **LOCATION:** | 3100 Primary Crushing | **DUE DATE:** | 26/08/2018 |
| **SUB JOB:** | | **COST CODE:** | |
| **COST IMPACT:** | No | **SCHEDULE IMPACT:** | No |
| **DRAWING NUMBER:** | H354138-3100-231-260-0025 R2 | **SPEC SECTION:** | S032000 - Concrete Reinforcing Steel |
| **LINKED DRAWINGS:** | | **REFERENCE:** | |
| **RECEIVED FROM:** | Jimmy Menchenton **(Ultimate Reinforcing)** | | |

**COPIES TO:**
D'Arcy Comerford **(JDS Energy and Mining)**, Chris Copley **(JDS Energy and Mining)**, Matt Coverdale **(JDS Energy and Mining)**, Garry Dahl **(Clark Builders - Edmonton)**, Gary Hosey **(Clark Builders - Edmonton)**, Peter Nice **(Clark Builders - Edmonton)**, Jackson Wenger **(Clark Builders - Edmonton)**, Ryan de Milliano **(Clark Builders - Edmonton)**

## Question from Ryan de Milliano (Clark Builders - Edmonton) at 07:57 PM on 21/08/2018

Related to RFI 41.

Additional 4 of 20 vertical bars with hooks will require the hooks to be cut in order to work with Stirrups, please confirm this will be acceptable.

**Attachments:**
IMG_0188.PNG Image-1.jpg IMG_0186.PNG

Awaiting an Official Response

## All Replies:

Request is accepted.

| Esra Akinci | Aug 22, 2018 | |
|---|---|---|
| **BY** | **DATE** | **COPIES TO** |

# RFI #45

Clark Builders
4703 - 52 Avenue
Edmonton, Alberta T6B 3R6
Phone: (780) 395-3300
Fax: (780) 395-3545

**Project:** 18502 - CB201-JDS - Stratagold Eagle Gold
Yukon Territory

# 3100 Ped. Type 6 (x2) Anchor Bolt Blockout

| | | | |
|---|---|---|---|
| **TO:** | Calvin Goldschmidt **(JDS Energy and Mining)** | **FROM::** | Ryan de Milliano **(Clark Builders - Edmonton)** Edmonton, Alberta |
| **DATE INITIATED:** | 22/08/2018 | **STATUS:** | Open |
| **LOCATION:** | 3100 Primary Crushing | **DUE DATE:** | 27/08/2018 |
| **SUB JOB:** | | **COST CODE:** | 03-3160 - FORM-SLAB ON GRADE |
| **COST IMPACT:** | No | **SCHEDULE IMPACT:** | No |
| **DRAWING NUMBER:** | | **SPEC SECTION:** | S033000 - Cast-In-Place Concrete |
| **LINKED DRAWINGS:** | | **REFERENCE:** | |
| **RECEIVED FROM:** | Dan Pelletier **(Frontier Employees Inc.)** | | |

**COPIES TO:**
D'Arcy Comerford **(JDS Energy and Mining)**, Chris Copley **(JDS Energy and Mining)**, Matt Coverdale **(JDS Energy and Mining)**, Garry Dahl **(Clark Builders - Edmonton)**, Gary Hosey **(Clark Builders - Edmonton)**, Peter Nice **(Clark Builders - Edmonton)**, Dan Pelletier **(Frontier Employees Inc.)**, Jackson Wenger **(Clark Builders - Edmonton)**, Ryan de Milliano **(Clark Builders - Edmonton)**

## Question from Ryan de Milliano (Clark Builders - Edmonton) at 10:53 PM on 22/08/2018

Anchor Bolts detailed on drawing for pedestals type 6 near center line of crusher will be installed at a future date. A blockout has been created for each type pedestal.

Please confirm this is acceptable.

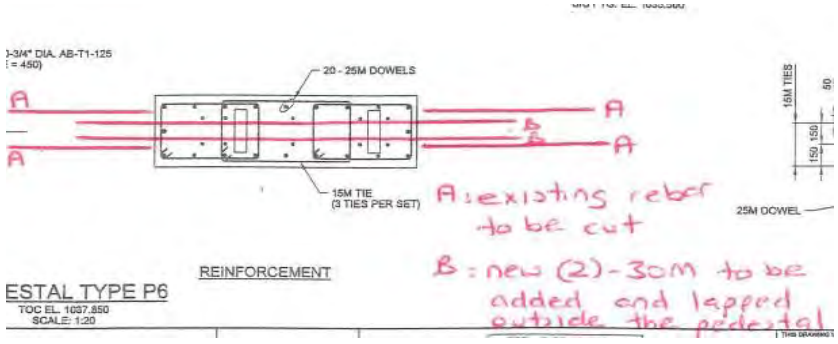
**Attachments:**
file-1.jpeg file1.png

Awaiting an Official Response

## All Replies:

In general pouring pedestals together with mat is preferable, but if there are schedule restrictions in this case, the request for pouring these two pedestals after the mat is accepted.

Referring to the photo attached, the anchor bolts will likely be clashing with the lap splice inside the pedestal. It is suggested to move these splices out of the pedestal before the mat pour, by cutting the 4 horizontal bars inside the pedestal and adding 2 new bars creating the lap splices outside the pedestal as shown on the sketch below




Esra Akinci — **BY**

Aug 23, 2018 — **DATE**

**COPIES TO**

# RFI #47

Clark Builders
4703 - 52 Avenue
Edmonton, Alberta T6B 3R6
Phone: (780) 395-3300
Fax: (780) 395-3545

**Project:** 18502 - CB201-JDS - Stratagold Eagle Gold
Yukon Territory

# 3100 Primary Z Bar Hook Detail Modification (Related to RFI 33)

| | | | |
|---|---|---|---|
| **TO:** | Calvin Goldschmidt **(JDS Energy and Mining)** | **FROM::** | Ryan de Milliano **(Clark Builders - Edmonton)** Edmonton, Alberta |
| **DATE INITIATED:** | 23/08/2018 | **STATUS:** | Open |
| **LOCATION:** | 3100 Primary Crushing | **DUE DATE:** | 28/08/2018 |
| **SUB JOB:** | | **COST CODE:** | 03-3201 - REINFORCE STEEL/MESH |
| **COST IMPACT:** | No | **SCHEDULE IMPACT:** | TBD |
| **DRAWING NUMBER:** | H354138-3100-231-260-0006 Rev 01 | **SPEC SECTION:** | S032000 - Concrete Reinforcing Steel |
| **LINKED DRAWINGS:** | | **REFERENCE:** | |
| **RECEIVED FROM:** | Jimmy Menchenton **(Ultimate Reinforcing)** | | |

**COPIES TO:**
D'Arcy Comerford **(JDS Energy and Mining)**, Chris Copley **(JDS Energy and Mining)**, Matt Coverdale **(JDS Energy and Mining)**, Garry Dahl **(Clark Builders - Edmonton)**, Dustin Dolynchuk **(Clark Builders - Edmonton)**, Marion Fyshe **(McNish Steel)**, Calvin Goldschmidt **(JDS Energy and Mining)**, Jimmy Menchenton **(Ultimate Reinforcing)**, Peter Nice **(Clark Builders - Edmonton)**, Jackson Wenger **(Clark Builders - Edmonton)**, Ryan de Milliano **(Clark Builders - Edmonton)**

## Question from Ryan de Milliano (Clark Builders - Edmonton) at 12:22 PM on 23/08/2018

Z bars shipped to site have not been modified as per RFI 33 (Hook Detail Change on the Primary Crusher) with both hooks pointing up. The bars shipped to site are Z bars. Reinforcing installers are requesting that Z bars be cut, spliced and staggered onsite. If acceptable, provide detail for the location of cuts acceptable for modification. If not acceptable, respond as soon as possible so that we can re-order the steel as soon as possible.

**Attachments:**
IMG_0252.PNG

Awaiting an Official Response

## All Replies:

Please cut only the hooks pointing down and add 30M L bars , vertical leg creating a hook pointing up and horizontal leg creating a lap splice with the main 30M bars (both at the top and bottom)

| Esra Akinci | Aug 25, 2018 | |
|---|---|---|
| **BY** | **DATE** | **COPIES TO** |

# RFI #51

Clark Builders
4703 - 52 Avenue
Edmonton, Alberta T6B 3R6
Phone: (780) 395-3300
Fax: (780) 395-3545

**Project:** 18502 - CB201-JDS - Stratagold Eagle Gold
Yukon Territory

# Horizontal L-Bar Installation at Primary Crusher

| | | | |
|---|---|---|---|
| **TO:** | Calvin Goldschmidt **(JDS Energy and Mining)** | **FROM::** | Jackson Wenger **(Clark Builders - Edmonton)** |
| **DATE INITIATED:** | 28/08/2018 | **STATUS:** | Open |
| **LOCATION:** | 3100 Primary Crushing | **DUE DATE:** | 29/08/2018 |
| **SUB JOB:** | | **COST CODE:** | |
| **COST IMPACT:** | | **SCHEDULE IMPACT:** | |
| **DRAWING NUMBER:** | | **SPEC SECTION:** | |
| **LINKED DRAWINGS:** | | **REFERENCE:** | |
| **RECEIVED FROM:** | | | |

**COPIES TO:**
D'Arcy Comerford **(JDS Energy and Mining)**, Chris Copley **(JDS Energy and Mining)**, Matt Coverdale **(JDS Energy and Mining)**, Garry Dahl **(Clark Builders - Edmonton)**, Gary Hosey **(Clark Builders - Edmonton)**, Jan Johnson **(Clark Builders - Edmonton)**, Peter Nice **(Clark Builders - Edmonton)**, Jackson Wenger **(Clark Builders - Edmonton)**, Ryan de Milliano **(Clark Builders - Edmonton)**

## Question from Jackson Wenger (Clark Builders - Edmonton) at 06:35 PM on 28/08/2018

Reinforcing installer has asked for evaluation of whether horizontals along GL 1 and GL 2 extending into east zone steel can be cut and replaced with lapped L-bars (see attached sketch), to aid installation efficiency when flying the pre-fabricated wall sections. If acceptable, please note required bar thickness and lap lengths. Thank You,

**Attachments:**
1535502943360.621826_tempImage.jpeg

Awaiting an Official Response

## All Replies:

It is acceptable to cut the horizontals on Baylines 1 and 2 at the face of East wall and use L bars at the corners as shown on the attached sketch. Please use 30M L-bars with min 2m lap lenght.

| Esra Akinci | Aug 29, 2018 | |
|---|---|---|
| **BY** | **DATE** | **COPIES TO** |

# RFI #50

Clark Builders
4703 - 52 Avenue
Edmonton, Alberta T6B 3R6
Phone: (780) 395-3300
Fax: (780) 395-3545

**Project:** 18502 - CB201-JDS - Stratagold Eagle Gold
Yukon Territory

# 3100 Primary Walls bottom 8 15M Stirrups Replace with U-bars

| | | | |
|---|---|---|---|
| **TO:** | Calvin Goldschmidt **(JDS Energy and Mining)** | **FROM::** | Ryan de Milliano **(Clark Builders - Edmonton)** Edmonton, Alberta |
| **DATE INITIATED:** | 27/08/2018 | **STATUS:** | Open |
| **LOCATION:** | 3100 Primary Crushing | **DUE DATE:** | 01/09/2018 |
| **SUB JOB:** | | **COST CODE:** | 03-3201 - REINFORCE STEEL/MESH |
| **COST IMPACT:** | No | **SCHEDULE IMPACT:** | No |
| **DRAWING NUMBER:** | H354138-3100-231-260-0003 Rev 01 | **SPEC SECTION:** | S032000 - Concrete Reinforcing Steel |
| **LINKED DRAWINGS:** | | **REFERENCE:** | |
| **RECEIVED FROM:** | Jimmy Menchenton **(Ultimate Reinforcing)** | | |

**COPIES TO:**
D'Arcy Comerford **(JDS Energy and Mining)**, Chris Copley **(JDS Energy and Mining)**, Matt Coverdale **(JDS Energy and Mining)**, Garry Dahl **(Clark Builders - Edmonton)**, Marion Fyshe **(McNish Steel)**, Calvin Goldschmidt **(JDS Energy and Mining)**, Gary Hosey **(Clark Builders - Edmonton)**, Dan Pelletier **(Frontier Employees Inc.)**, Jackson Wenger **(Clark Builders - Edmonton)**, Ryan de Milliano **(Clark Builders - Edmonton)**

## Question from Ryan de Milliano (Clark Builders - Edmonton) at 12:15 PM on 27/08/2018

The bottom (8) 15M stirrups of the wall reinforcement, at 5 locations (10 total) on North and South walls have the potential to conflict with projecting dowels and may require that some of the 15M stirrups will be required to be replaced by 2 lapped/tied U-bars.

Please confirm it is acceptable to replace bottom 8 stirrups on Walls with 2 lapped/tied U-bars where required.

**Attachments:**
IMG_0281.PNG

Awaiting an Official Response

## All Replies:

It is acceptable to replace the stirrups with lapped U-bars where there is a conflict with projecting dowels.

| Esra Akinci | Aug 28, 2018 | |
|---|---|---|
| **BY** | **DATE** | **COPIES TO** |

# RFI #57

Clark Builders
4703 - 52 Avenue
Edmonton, Alberta T6B 3R6
Phone: (780) 395-3300
Fax: (780) 395-3545

**Project:** 18502 - CB201-JDS - Stratagold Eagle Gold
Yukon Territory

## 3320 Adjacent Pedestal Forming

| | | | |
|---|---|---|---|
| **TO:** | Matt Coverdale **(JDS Energy and Mining)** | **FROM::** | Jackson Wenger **(Clark Builders - Edmonton)** |
| **DATE INITIATED:** | 02/09/2018 | **STATUS:** | Open |
| **LOCATION:** | 3320 Sec/Tert. Crushing | **DUE DATE:** | 04/09/2018 |
| **SUB JOB:** | | **COST CODE:** | |
| **COST IMPACT:** | | **SCHEDULE IMPACT:** | |
| **DRAWING NUMBER:** | | **SPEC SECTION:** | |
| **LINKED DRAWINGS:** | | **REFERENCE:** | |
| **RECEIVED FROM:** | Garry Dahl **(Clark Builders - Edmonton)** | | |

**COPIES TO:**
D'Arcy Comerford **(JDS Energy and Mining)**, Chris Copley **(JDS Energy and Mining)**, Matt Coverdale **(JDS Energy and Mining)**, Garry Dahl **(Clark Builders - Edmonton)**, Calvin Goldschmidt **(JDS Energy and Mining)**, Gary Hosey **(Clark Builders - Edmonton)**, Jan Johnson **(Clark Builders - Edmonton)**, Peter Nice **(Clark Builders - Edmonton)**, Jackson Wenger **(Clark Builders - Edmonton)**, Ryan de Milliano **(Clark Builders - Edmonton)**

### Question from Jackson Wenger (Clark Builders - Edmonton) at 04:31 PM on 02/09/2018

For pedestals at top of secondary crusher mat foundation, it will difficult to use traditional forming for close-proximity pedestals once the first set has been poured. Clark Builders is requesting permission to form the subsequent pedestals tight to face of the previously cast set, with expansion board between. See attached sketch for details.

**Attachments:**
1535927375222.722168_tempImage.jpeg

Awaiting an Official Response

### All Replies:

Request is approved.

| Esra Akinci | Sep 3, 2018 | |
|---|---|---|
| **BY** | **DATE** | **COPIES TO** |

# RFI #62

Clark Builders
4703 - 52 Avenue
Edmonton, Alberta T6B 3R6
Phone: (780) 395-3300
Fax: (780) 395-3545

**Project:** 18502 - CB201-JDS - Stratagold Eagle Gold
Yukon Territory

# 3320 Type 6 Pedestals Modifications to Allow for Anchor Bolts

| | | | |
|---|---|---|---|
| **TO:** | D'Arcy Comerford **(JDS Energy and Mining)** | **FROM::** | Ryan de Milliano **(Clark Builders - Edmonton)** Edmonton, Alberta |
| **DATE INITIATED:** | 10/09/2018 | **STATUS:** | Open |
| **LOCATION:** | 3320 Sec/Tert. Crushing | **DUE DATE:** | 15/09/2018 |
| **SUB JOB:** | | **COST CODE:** | 05-5650 - ANCHOR BOLTS |
| **COST IMPACT:** | No | **SCHEDULE IMPACT:** | No |
| **DRAWING NUMBER:** | H354138-3320-231-260-0016 Rev 01 | **SPEC SECTION:** | S032000 - Concrete Reinforcing Steel |
| **LINKED DRAWINGS:** | | **REFERENCE:** | |
| **RECEIVED FROM:** | Garry Dahl **(Clark Builders - Edmonton)** | | |

**COPIES TO:**
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## Question from Ryan de Milliano (Clark Builders - Edmonton) at 01:08 PM on 10/09/2018

Below are the two comments that were requested at inspection to be RFI'd:

1. Top 2 Stirrups at North end of the 2xType 6 Pedestals required to be cut and capped with 15M U bars to allow for the 125mm Shear pocket. Please confirm this is acceptable.
2-Type 7

2. Designed location of 2 of the Anchor Bolts (in each pedestal) require that the anchor bolt plates be trimmed by 1/3 of the width to fit into place next to projecting dowels. Please confirm this is acceptable.

**Attachments:**
file-6.png file-5.png

Awaiting an Official Response

### All Replies:

1. It is acceptable for 2-Type7 pedestals
2. It is acceptable for 2-Type7 pedestals

| Esra Akinci | Sep 10, 2018 | |
|---|---|---|
| **BY** | **DATE** | **COPIES TO** |

# RFI #63

Clark Builders
4703 - 52 Avenue
Edmonton, Alberta T6B 3R6
Phone: (780) 395-3300
Fax: (780) 395-3545

**Project:** 18502 - CB201-JDS - Stratagold Eagle Gold
Yukon Territory

# 3320/3310 All Joint Sealant Requirement at Secondary

| | | | |
|---|---|---|---|
| **TO:** | Calvin Goldschmidt **(JDS Energy and Mining)** | **FROM::** | Ryan de Milliano **(Clark Builders - Edmonton)** Edmonton, Alberta |
| **DATE INITIATED:** | 12/09/2018 | **STATUS:** | Open |
| **LOCATION:** | 3320 Sec/Tert. Crushing | **DUE DATE:** | 14/09/2018 |
| **SUB JOB:** | | **COST CODE:** | |
| **COST IMPACT:** | No | **SCHEDULE IMPACT:** | No |
| **DRAWING NUMBER:** | | **SPEC SECTION:** | S033000 - Cast-In-Place Concrete |
| **LINKED DRAWINGS:** | | **REFERENCE:** | |
| **RECEIVED FROM:** | Garry Dahl **(Clark Builders - Edmonton)** | | |

**COPIES TO:**
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## Question from Ryan de Milliano (Clark Builders - Edmonton) at 10:22 AM on 09/09/2018

Please clarify which crack control product is required for all types of joints at Secondary. Recommended Product: SIKAFLEX 1A Crack Flex Sealant

**Attachments:**
Sikaflex-1A-Technical-Data-Sheet.pdf

Awaiting an Official Response

## All Replies:

SIKAFLEX 1A sealent is accepted for the joints in Secondary/Tertiary Crushing Building

| BY | DATE | COPIES TO |
|---|---|---|
| Esra Akinci | Sep 12, 2018 | |

# RFI #64

Clark Builders
4703 - 52 Avenue
Edmonton, Alberta T6B 3R6
Phone: (780) 395-3300
Fax: (780) 395-3545

**Project:** 18502 - CB201-JDS - Stratagold Eagle Gold
Yukon Territory

## 3100 Grade Walls Tie into Walls (2 locations)

| | | | |
|---|---|---|---|
| **TO:** | Calvin Goldschmidt **(JDS Energy and Mining)** | **FROM::** | Ryan de Milliano **(Clark Builders - Edmonton)** Edmonton, Alberta |
| **DATE INITIATED:** | 13/09/2018 | **STATUS:** | Open |
| **LOCATION:** | 3100 Primary Crushing | **DUE DATE:** | 18/09/2018 |
| **SUB JOB:** | | **COST CODE:** | 03 - CONCRETE |
| **COST IMPACT:** | No | **SCHEDULE IMPACT:** | No |
| **DRAWING NUMBER:** | H354138-3100-231-260-0025 Rev 02 | **SPEC SECTION:** | S032000 - Concrete Reinforcing Steel |
| **LINKED DRAWINGS:** | | **REFERENCE:** | |
| **RECEIVED FROM:** | Ryan de Milliano **(Clark Builders - Edmonton)** | | |

**COPIES TO:**
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### Question from Ryan de Milliano (Clark Builders - Edmonton) at 10:32 AM on 13/09/2018

Please confirm it is acceptable to drill and epoxy horizontal dowels into the Primary Walls. There will be 8x20M dowels in each location. (See attached sketch)

**Attachments:**
file1-3.png file-8.png

Awaiting an Official Response

### All Replies:

Request is accepted

| Esra Akinci | Sep 13, 2018 | |
|---|---|---|
| **BY** | **DATE** | **COPIES TO** |

# RFI #68

Clark Builders
4703 - 52 Avenue
Edmonton, Alberta T6B 3R6
Phone: (780) 395-3300
Fax: (780) 395-3545

**Project:** 18502 - CB201-JDS - Stratagold Eagle Gold
Yukon Territory

## 3100 Cut and Splice Inside Face Horizontals- Walls Level 2

| | | | |
|---|---|---|---|
| **TO:** | Calvin Goldschmidt **(JDS Energy and Mining)** | **FROM::** | Jackson Wenger **(Clark Builders - Edmonton)** |
| **DATE INITIATED:** | 19/09/2018 | **STATUS:** | Open |
| **LOCATION:** | 3100 Primary Crushing | **DUE DATE:** | 20/09/2018 |
| **SUB JOB:** | | **COST CODE:** | |
| **COST IMPACT:** | | **SCHEDULE IMPACT:** | |
| **DRAWING NUMBER:** | | **SPEC SECTION:** | |
| **LINKED DRAWINGS:** | | **REFERENCE:** | |
| **RECEIVED FROM:** | Jimmy Menchenton **(Ultimate Reinforcing)** | | |

**COPIES TO:**
D'Arcy Comerford **(JDS Energy and Mining)**, Chris Copley **(JDS Energy and Mining)**, Matt Coverdale **(JDS Energy and Mining)**, Garry Dahl **(Clark Builders - Edmonton)**, Marion Fyshe **(McNish Steel)**, Gary Hosey **(Clark Builders - Edmonton)**, Jan Johnson **(Clark Builders - Edmonton)**, Jimmy Menchenton **(Ultimate Reinforcing)**, Peter Nice **(Clark Builders - Edmonton)**, Henry Rueda **(Clark Builders - Edmonton)**, Jackson Wenger **(Clark Builders - Edmonton)**, Ryan de Milliano **(Clark Builders - Edmonton)**

### Question from Jackson Wenger (Clark Builders - Edmonton) at 08:31 AM on 19/09/2018

Reinforcing installer would like to replace the request made in RFI 51 for L-Bar installation at corner zone steel on primary walls, to instead cut inside face (only) of 30M horizontal reinforcing (instead of both inside and outside) horizontal, with standard lapped 30M straight bar ties to the cut horizontals once the cage is set in place. Please see attached markup for reference.

**Attachments:**
1537367449593.769043_tempImage.jpeg

Awaiting an Official Response

### All Replies:

Straight bar will not provide enough development length, Please provide L bars as described and approved in RFI-51

| Esra Akinci | Sep 20, 2018 | |
|---|---|---|
| **BY** | **DATE** | **COPIES TO** |

# RFI #65

Clark Builders
4703 - 52 Avenue
Edmonton, Alberta T6B 3R6
Phone: (780) 395-3300
Fax: (780) 395-3545

**Project:** 18502 - CB201-JDS - Stratagold Eagle Gold
Yukon Territory

## U-Bar Installation at Slab at 1045

| | | | |
|---|---|---|---|
| **TO:** | D'Arcy Comerford **(JDS Energy and Mining)** | **FROM::** | Jackson Wenger **(Clark Builders - Edmonton)** |
| **DATE INITIATED:** | 16/09/2018 | **STATUS:** | Open |
| **LOCATION:** | 3100 Primary Crushing | **DUE DATE:** | 21/09/2018 |
| **SUB JOB:** | | **COST CODE:** | |
| **COST IMPACT:** | | **SCHEDULE IMPACT:** | |
| **DRAWING NUMBER:** | H354138-3100-231-260-0012 | **SPEC SECTION:** | S032000 - Concrete Reinforcing Steel |
| **LINKED DRAWINGS:** | | **REFERENCE:** | |
| **RECEIVED FROM:** | Jimmy Menchenton **(Ultimate Reinforcing)** | | |

**COPIES TO:**
D'Arcy Comerford **(JDS Energy and Mining)**, Matt Coverdale **(JDS Energy and Mining)**, Garry Dahl **(Clark Builders - Edmonton)**, Calvin Goldschmidt **(JDS Energy and Mining)**, Gary Hosey **(Clark Builders - Edmonton)**, Jan Johnson **(Clark Builders - Edmonton)**, Peter Nice **(Clark Builders - Edmonton)**, Henry Rueda **(Clark Builders - Edmonton)**, Jackson Wenger **(Clark Builders - Edmonton)**, Ryan de Milliano **(Clark Builders - Edmonton)**

### Question from Jackson Wenger (Clark Builders - Edmonton) at 06:27 PM on 16/09/2018

U-bars for reinforcing at WB1 at Primary Crushing Slab at 1045.300 have been fabricated to incorrect dimensions, and reinforcing installer has requested permission to install lapped 15M L bars as an alternative, from available site steel (instead of field bending).

Please see attached sketch for the requested L-bar dimensions vs. original u-bar dimensions.

**Attachments:**
RFI 65 WB1 Lap Splice.pdf

Awaiting an Official Response

### All Replies:

Requested is accepted

| BY | DATE | COPIES TO |
|---|---|---|
| Esra Akinci | Sep 17, 2018 | |

# RFI #67

Clark Builders
4703 - 52 Avenue
Edmonton, Alberta T6B 3R6
Phone: (780) 395-3300
Fax: (780) 395-3545

**Project:** 18502 - CB201-JDS - Stratagold Eagle Gold
Yukon Territory

# 3100 Wall Hooks to Suspended Slab Modification Elev. 1052.500

| | | | |
|---|---|---|---|
| **TO:** | Calvin Goldschmidt **(JDS Energy and Mining)** | **FROM::** | Ryan de Milliano **(Clark Builders - Edmonton)** Edmonton, Alberta |
| **DATE INITIATED:** | 18/09/2018 | **STATUS:** | Open |
| **LOCATION:** | 3100 Primary Crushing | **DUE DATE:** | 23/09/2018 |
| **SUB JOB:** | | **COST CODE:** | 03-3201 - REINFORCE STEEL/MESH |
| **COST IMPACT:** | No | **SCHEDULE IMPACT:** | No |
| **DRAWING NUMBER:** | H354138-3100-231-260-0009 Rev 01 | **SPEC SECTION:** | S032000 - Concrete Reinforcing Steel |
| **LINKED DRAWINGS:** | | **REFERENCE:** | |
| **RECEIVED FROM:** | Jimmy Menchenton **(Ultimate Reinforcing)** | | |

**COPIES TO:**
D'Arcy Comerford **(JDS Energy and Mining)**, Chris Copley **(JDS Energy and Mining)**, Matt Coverdale **(JDS Energy and Mining)**, Garry Dahl **(Clark Builders - Edmonton)**, Gary Hosey **(Clark Builders - Edmonton)**, Jan Johnson **(Clark Builders - Edmonton)**, Peter Nice **(Clark Builders - Edmonton)**, Henry Rueda **(Clark Builders - Edmonton)**, Jackson Wenger **(Clark Builders - Edmonton)**, Ryan de Milliano **(Clark Builders - Edmonton)**

## Question from Ryan de Milliano (Clark Builders - Edmonton) at 05:23 PM on 18/09/2018

Reinforcing detail at El. 1052.500 suspended slab has hooks pointing down at both locations and top of wall at west side. Based on our proposed pour break at u/s of slab we would like to propose the below solutions for each side:

1. Turn hooks up at continuous wall (similar to RFI 47)

2. Cast in hooked dowels into wall pour (TOC Elev. 1052.100) and lap suspended slab mat reinforcing onto the projecting hooked dowels for beam/suspended slab pour.

**Attachments:**
file-17.jpeg

Awaiting an Official Response

## All Replies:

Request is accepted

| Esra Akinci | Sep 19, 2018 | |
|---|---|---|
| **BY** | **DATE** | **COPIES TO** |

# RFI #70

Clark Builders
4703 - 52 Avenue
Edmonton, Alberta T6B 3R6
Phone: (780) 395-3300
Fax: (780) 395-3545

**Project:** 18502 - CB201-JDS - Stratagold Eagle Gold
Yukon Territory

## 3100 Beam Platform Dowelling at 1047 Slab

| | | | |
|---|---|---|---|
| **TO:** | Calvin Goldschmidt **(JDS Energy and Mining)** | **FROM::** | Jackson Wenger **(Clark Builders - Edmonton)** |
| **DATE INITIATED:** | 21/09/2018 | **STATUS:** | Open |
| **LOCATION:** | 3100 Primary Crushing | **DUE DATE:** | 26/09/2018 |
| **SUB JOB:** | | **COST CODE:** | |
| **COST IMPACT:** | | **SCHEDULE IMPACT:** | |
| **DRAWING NUMBER:** | | **SPEC SECTION:** | |
| **LINKED DRAWINGS:** | | **REFERENCE:** | |
| **RECEIVED FROM:** | | | |

**COPIES TO:**
Chris Copley **(JDS Energy and Mining)**, Matt Coverdale **(JDS Energy and Mining)**, Garry Dahl **(Clark Builders - Edmonton)**, Calvin Goldschmidt **(JDS Energy and Mining)**, Gary Hosey **(Clark Builders - Edmonton)**, Jan Johnson **(Clark Builders - Edmonton)**, Peter Nice **(Clark Builders - Edmonton)**, Henry Rueda **(Clark Builders - Edmonton)**, Jackson Wenger **(Clark Builders - Edmonton)**, Ryan de Milliano **(Clark Builders - Edmonton)**

### Question from Jackson Wenger (Clark Builders - Edmonton) at 11:13 AM on 21/09/2018

In order to install west face inside formwork for Primary Crusher level 2 walls, Clark Builders is requesting permission to cut reinforcing for protruding beam platform, and dowel and epoxy reinforcing for this platform after wall wall has been poured. Markup is attached for reference.

**Attachments:**
1537549871395.445801_tempImage.jpeg

Awaiting an Official Response

### All Replies:

Request is accepted

| Esra Akinci | Sep 22, 2018 | |
|---|---|---|
| **BY** | **DATE** | **COPIES TO** |

# RFI #71

Clark Builders
4703 - 52 Avenue
Edmonton, Alberta T6B 3R6
Phone: (780) 395-3300
Fax: (780) 395-3545

**Project:** 18502 - CB201-JDS - Stratagold Eagle Gold
Yukon Territory

## 3100 Concrete Coverage Requirement at Walls to 1052

| | | | |
|---|---|---|---|
| **TO:** | Jackson Wenger **(Clark Builders - Edmonton)** | **FROM:** | Jackson Wenger **(Clark Builders - Edmonton)** |
| **DATE INITIATED:** | 24/09/2018 | **STATUS:** | Closed |
| **LOCATION:** | | **DUE DATE:** | 29/09/2018 |
| **PROJECT STAGE:** | | **COST CODE:** | |
| **SUB JOB:** | | **SCHEDULE IMPACT:** | |
| **COST IMPACT:** | | **SPEC SECTION:** | |
| **DRAWING NUMBER:** | | **REFERENCE:** | |
| **LINKED DRAWINGS:** | H354138-3100-231-260-0004, H354138-3100-231-260-0007 | | |
| **RECEIVED FROM:** | | | |
| **COPIES TO:** | | | |

### Question from Jackson Wenger (Clark Builders - Edmonton) at 02:53 PM on 24/09/2018

Placeholder/Record RFI— revise and distribute

**Official Response:** **Ryan de Milliano (Clark Builders - Edmonton)** *responded on Sunday, September 30th, 2018 at 5:36PM MDT*
Unofficial reponse from Ishan and Jackson based on a phone conversation with HATCH.

**Attachments:**
Email Response from Ishan regarding RFI 70, 71, 72.pdf

### All Replies:

### Response from Ryan de Milliano (Clark Builders - Edmonton) at 05:36 PM on 30/09/2018

Unofficial reponse from Ishan and Jackson based on a phone conversation with HATCH.

**Attachments:**
Email Response from Ishan regarding RFI 70, 71, 72.pdf

**BY** **DATE** **COPIES TO**

CLARK BUILDERS

JDS Energy & Mining LTD
c/o Calvin Goldschmidt; Contracts/ Engineering Manager
900-999 West Hastings St
Vancouver, BC
V6C 2W2

Sept. 22, 2018

Attention:

**Reference: RFI #71 – Eagle Gold Project**

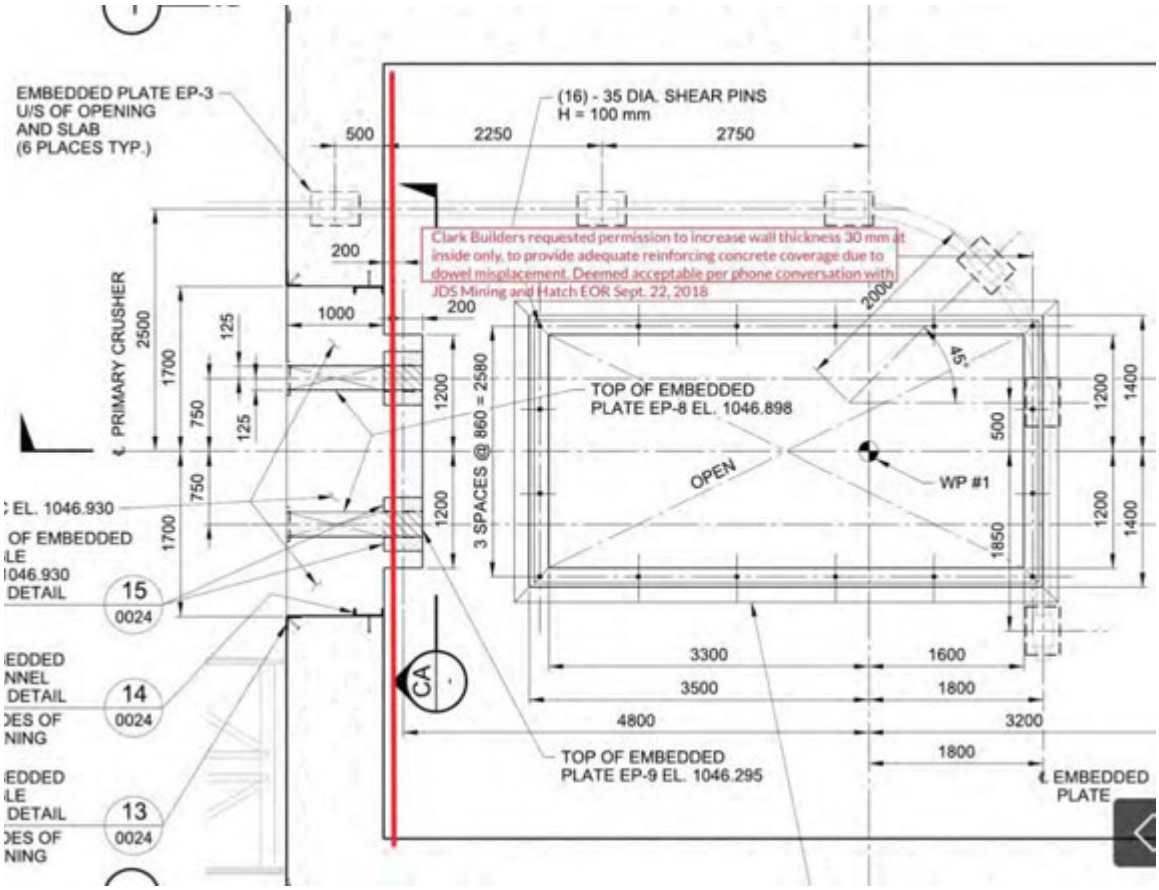
# RFI #71- Primary Crusher Inside Wall Face Adjustment

## Project: Eagle Gold Project

1. Clark Builders has requested to add 30mm wall thickness at inside face of west crusher wall between elevation 1045.300 and 1052.100 (only) to compensate for dowel misplacement, and provide adequate concrete coverage. RFI is post dated, approval to proceed granted via Sept. 22 teleconference with JDS Mining and Hatch EOR.

   Sketch for clarity is attached on following page.

2. C




END OF RFI #71

Sincerely,

**CLARK BUILDERS**

Jackson Wenger | Project Coordinator
D: 780.395.3486 | E: Jackson.wenger@clarkbuilders.com

# RFI #77

Clark Builders
4703 - 52 Avenue
Edmonton, Alberta T6B 3R6
Phone: (780) 395-3300
Fax: (780) 395-3545

**Project:** 18502 - CB201-JDS - Stratagold Eagle Gold
Yukon Territory

# 3100 Replace Closed Stirrups with U-Stirrups and U-Bar Caps and L-bars

| | | | |
|---|---|---|---|
| **TO:** | Calvin Goldschmidt **(JDS Energy and Mining)** | **FROM:** | Ryan de Milliano **(Clark Builders - Edmonton)** Edmonton, Alberta |
| **DATE INITIATED:** | 30/09/2018 | **STATUS:** | Open |
| **LOCATION:** | 3100 Primary Crushing | **DUE DATE:** | 05/10/2018 |
| **PROJECT STAGE:** | | **COST CODE:** | 03-3201 - REINFORCE STEEL/MESH |
| **SUB JOB:** | | **SCHEDULE IMPACT:** | No |
| **COST IMPACT:** | No | **SPEC SECTION:** | S032000 - Concrete Reinforcing Steel |
| **DRAWING NUMBER:** | H354138-231-260-0012 Rev0 | **REFERENCE:** | |
| **LINKED DRAWINGS:** | | | |
| **RECEIVED FROM:** | Jimmy Menchenton **(Ultimate Reinforcing)** | | |

**COPIES TO:**
Chris Copley **(JDS Energy and Mining)**, Matt Coverdale **(JDS Energy and Mining)**, Garry Dahl **(Clark Builders - Edmonton)**, Marion Fyshe **(McNish Steel)**, Gary Hosey **(Clark Builders - Edmonton)**, Jan Johnson **(Clark Builders - Edmonton)**, Jimmy Menchenton **(Ultimate Reinforcing)**, Peter Nice **(Clark Builders - Edmonton)**, Henry Rueda **(Clark Builders - Edmonton)**, Mark Tillmanns **(McNish Steel)**, Jackson Wenger **(Clark Builders - Edmonton)**, Ryan de Milliano **(Clark Builders - Edmonton)**

## Question from Ryan de Milliano (Clark Builders - Edmonton) at 03:51 PM on 30/09/2018

Please confirm it would be acceptable to modify stirrups for suspended slab at elevation 1057.300 as follows:

1. All stirrups for in slab beams (B8, B7, WB3) changed from single closed stirrups to U-Stirrups capped with U-bars lapped on after beam/slab reinforcing installed.

2. At opening, where a 20M U-bar is required; confirm it would be acceptable to replace U-bars with 2 overlapping L-bars.

**Attachments:**
file-16.pdf

Awaiting an Official Response

### All Replies:

1. Accepted
2. Accepted

| Esra Akinci | Oct 1, 2018 | |
|---|---|---|
| **BY** | **DATE** | **COPIES TO** |

# RFI #79

Clark Builders
4703 - 52 Avenue
Edmonton, Alberta T6B 3R6
Phone: (780) 395-3300
Fax: (780) 395-3545

**Project:** 18502 - CB201-JDS - Stratagold Eagle Gold
Yukon Territory

## 3100 Wall Pour Plan Change Lift to EL. 1060.200

| | | | |
|---|---|---|---|
| **TO:** | Calvin Goldschmidt **(JDS Energy and Mining)** | **FROM:** | Ryan de Milliano **(Clark Builders - Edmonton)** Edmonton, Alberta |
| **DATE INITIATED:** | 01/10/2018 | **STATUS:** | Open |
| **LOCATION:** | 3100 Primary Crushing | **DUE DATE:** | 06/10/2018 |
| **PROJECT STAGE:** | | **COST CODE:** | 03-3120 - FORM-WALLS |
| **SUB JOB:** | | **SCHEDULE IMPACT:** | No |
| **COST IMPACT:** | No | **SPEC SECTION:** | S033000 - Cast-In-Place Concrete |
| **DRAWING NUMBER:** | H354138-3100-231-260-0016 r1 | **REFERENCE:** | |
| **LINKED DRAWINGS:** | | | |
| **RECEIVED FROM:** | Garry Dahl **(Clark Builders - Edmonton)** | | |

**COPIES TO:**
Chris Copley **(JDS Energy and Mining)**, Matt Coverdale **(JDS Energy and Mining)**, Garry Dahl **(Clark Builders - Edmonton)**, Gary Hosey **(Clark Builders - Edmonton)**, Jan Johnson **(Clark Builders - Edmonton)**, Peter Nice **(Clark Builders - Edmonton)**, Henry Rueda **(Clark Builders - Edmonton)**, Jackson Wenger **(Clark Builders - Edmonton)**, Ryan de Milliano **(Clark Builders - Edmonton)**

### Question from Ryan de Milliano (Clark Builders - Edmonton) at 08:39 PM on 30/09/2018

Due to the difficulty and long duration of pouring large lifts of wall sections, please confirm it would be acceptable to pour the final wall sections into two pours (see attached) from EL. 1057.200 to 1060.200 then from 1060.200 to 1063.300/1065.650.

A small wood strip at the pour break can be installed to improve appearance. We recommend a 1 1/2" x 1/2" strip covering the entire joint.

**Attachments:**
099652EB-2189-4601-9F29-8506BBFB0E1A-6355-0000024ECB28AC2E_image.jpg

Awaiting an Official Response

### All Replies:

Request is accepted

| Esra Akinci | Oct 1, 2018 | |
|---|---|---|
| **BY** | **DATE** | **COPIES TO** |

# RFI #82

Clark Builders
4703 - 52 Avenue
Edmonton, Alberta T6B 3R6
Phone: (780) 395-3300
Fax: (780) 395-3545

**Project:** 18502 - CB201-JDS - Stratagold Eagle Gold
Yukon Territory

## 3100 Stirrups Modification for B3 & B5 Beam

| | | | |
|---|---|---|---|
| **TO:** | Calvin Goldschmidt **(JDS Energy and Mining)** | **FROM:** | Ryan de Milliano **(Clark Builders - Edmonton)** Edmonton, Alberta |
| **DATE INITIATED:** | 03/10/2018 | **STATUS:** | Open |
| **LOCATION:** | 3100 Primary Crushing | **DUE DATE:** | 09/10/2018 |
| **PROJECT STAGE:** | | **COST CODE:** | 03-3201 - REINFORCE STEEL/MESH |
| **SUB JOB:** | | **SCHEDULE IMPACT:** | No |
| **COST IMPACT:** | No | **SPEC SECTION:** | S032000 - Concrete Reinforcing Steel |
| **DRAWING NUMBER:** | H354138-3100-231-260-0009 R1 | **REFERENCE:** | |
| **LINKED DRAWINGS:** | | | |
| **RECEIVED FROM:** | Jimmy Menchenton **(Ultimate Reinforcing)** | | |
| **COPIES TO:** | | | |

**Question from Ryan de Milliano (Clark Builders - Edmonton) at 04:00 PM on 01/10/2018**

Please confirm it will be acceptable to replace closed stirrups in beams to allow for open stiff ups with U-bars.

**Attachments:**
56916668-EC19-4C07-9C00-7983B4AA2F2C-13819-00000473310EF5DA_image.jpg

Awaiting an Official Response

**All Replies:**

Request is accepted

Esra Akinci
**BY**

Oct 8, 2019
**DATE**

**COPIES TO**

# RFI #83

Clark Builders
4703 - 52 Avenue
Edmonton, Alberta T6B 3R6
Phone: (780) 395-3300
Fax: (780) 395-3545

**Project:** 18502 - CB201-JDS - Stratagold Eagle Gold
Yukon Territory

## 3330 Wall Corner Reinforcing Modification

| | | | |
|---|---|---|---|
| **TO:** | Calvin Goldschmidt **(JDS Energy and Mining)** | **FROM:** | Ryan de Milliano **(Clark Builders - Edmonton)** Edmonton, Alberta |
| **DATE INITIATED:** | 03/10/2018 | **STATUS:** | Open |
| **LOCATION:** | 3330 Tert. Ore Bin & Conveyor | **DUE DATE:** | 09/10/2018 |
| **PROJECT STAGE:** | | **COST CODE:** | 03-3201 - REINFORCE STEEL/MESH |
| **SUB JOB:** | | **SCHEDULE IMPACT:** | No |
| **COST IMPACT:** | No | **SPEC SECTION:** | S032000 - Concrete Reinforcing Steel |
| **DRAWING NUMBER:** | H354138-3330-231-260-0025 R0 | **REFERENCE:** | |
| **LINKED DRAWINGS:** | | | |
| **RECEIVED FROM:** | Jimmy Menchenton **(Ultimate Reinforcing)** | | |

**COPIES TO:**
Chris Copley **(JDS Energy and Mining)**, Matt Coverdale **(JDS Energy and Mining)**, Garry Dahl **(Clark Builders - Edmonton)**, Marion Fyshe **(McNish Steel)**, Gary Hosey **(Clark Builders - Edmonton)**, Jan Johnson **(Clark Builders - Edmonton)**, Peter Nice **(Clark Builders - Edmonton)**, Dan Pelletier **(Frontier Employees Inc.)**, Henry Rueda **(Clark Builders - Edmonton)**, Mark Tillmanns **(McNish Steel)**, Jackson Wenger **(Clark Builders - Edmonton)**, Ryan de Milliano **(Clark Builders - Edmonton)**

### Question from Ryan de Milliano (Clark Builders - Edmonton) at 07:44 PM on 03/10/2018

Please confirm it will be acceptable to modify detail of corner reinforcing to a typical corner reinforcing wall detail with lapped hooks replacing the detailed continuous bar with hooks.

**Attachments:**
544126B2-9839-4519-8B5D-210E9E873076-13819-00000477FDBE8CB6_image.jpg

Awaiting an Official Response

### All Replies:

Request is accepted

| Esra Akinci | Oct 8, 2018 | |
|---|---|---|
| **BY** | **DATE** | **COPIES TO** |

# RFI #89

Clark Builders
4703 - 52 Avenue
Edmonton, Alberta T6B 3R6
Phone: (780) 395-3300
Fax: (780) 395-3545

**Project:** 18502 - CB201-JDS - Stratagold Eagle Gold
Yukon Territory

# 3100 Stirrup and U-bar Modification at Suspended Slab Elev. 1057.300

| | | | |
|---|---|---|---|
| **TO:** | Calvin Goldschmidt **(JDS Energy and Mining)** | **FROM:** | Ryan de Milliano **(Clark Builders - Edmonton)** Edmonton, Alberta |
| **DATE INITIATED:** | 07/10/2018 | **STATUS:** | Open |
| **LOCATION:** | 3100 Primary Crushing | **DUE DATE:** | 11/10/2018 |
| **PROJECT STAGE:** | | **COST CODE:** | 03-3201 - REINFORCE STEEL/MESH |
| **SUB JOB:** | | **SCHEDULE IMPACT:** | No |
| **COST IMPACT:** | No | **SPEC SECTION:** | S032000 - Concrete Reinforcing Steel |
| **DRAWING NUMBER:** | H354138-3100-231-260-0012 R0 | **REFERENCE:** | |
| **LINKED DRAWINGS:** | | | |
| **RECEIVED FROM:** | Jimmy Menchenton **(Ultimate Reinforcing)** | | |

**COPIES TO:**
Chris Copley **(JDS Energy and Mining)**, Matt Coverdale **(JDS Energy and Mining)**, Garry Dahl **(Clark Builders - Edmonton)**, Marion Fyshe **(McNish Steel)**, Gary Hosey **(Clark Builders - Edmonton)**, Jan Johnson **(Clark Builders - Edmonton)**, Peter Nice **(Clark Builders - Edmonton)**, Henry Rueda **(Clark Builders - Edmonton)**, Mark Tillmanns **(McNish Steel)**, Jackson Wenger **(Clark Builders - Edmonton)**, Ryan de Milliano **(Clark Builders - Edmonton)**

## Question from Ryan de Milliano (Clark Builders - Edmonton) at 09:40 AM on 06/10/2018

1. Please confirm it would be acceptable to replace U-bars, at edge of suspended slab, with 2 lapping L-bars.
2. Please confirm it will be acceptable to replace closed stirrups for beam B7 and B8 with open stirrups capped with U-bars.

See attached sketch for details.

**Attachments:**
file-21.png

Awaiting an Official Response

## All Replies:

1. Request is accepted
2. Request is accepted

Esra Akinci
**BY**

Oct 8, 2018
**DATE**

**COPIES TO**

# RFI #85

Clark Builders
4703 - 52 Avenue
Edmonton, Alberta T6B 3R6
Phone: (780) 395-3300
Fax: (780) 395-3545

**Project:** 18502 - CB201-JDS - Stratagold Eagle Gold
Yukon Territory

# 3330 Beam Stirrups Modifications Closed to Open with U-bar caps

| | | | |
|---|---|---|---|
| **TO:** | Calvin Goldschmidt **(JDS Energy and Mining)** | **FROM:** | Ryan de Milliano **(Clark Builders - Edmonton)** Edmonton, Alberta |
| **DATE INITIATED:** | 06/10/2018 | **STATUS:** | Open |
| **LOCATION:** | 3330 Tert. Ore Bin & Conveyor | **DUE DATE:** | 11/10/2018 |
| **PROJECT STAGE:** | | **COST CODE:** | 03-3201 - REINFORCE STEEL/MESH |
| **SUB JOB:** | | **SCHEDULE IMPACT:** | No |
| **COST IMPACT:** | No | **SPEC SECTION:** | S032000 - Concrete Reinforcing Steel |
| **DRAWING NUMBER:** | H354138-3330-231-260-0024 R0; H354138-3330-231-260-0026 R1 | **REFERENCE:** | |
| **LINKED DRAWINGS:** | | | |
| **RECEIVED FROM:** | Jimmy Menchenton **(Ultimate Reinforcing)** | | |

**COPIES TO:**
Chris Copley **(JDS Energy and Mining)**, Matt Coverdale **(JDS Energy and Mining)**, Garry Dahl **(Clark Builders - Edmonton)**, Gary Hosey **(Clark Builders - Edmonton)**, Jan Johnson **(Clark Builders - Edmonton)**, Peter Nice **(Clark Builders - Edmonton)**, Henry Rueda **(Clark Builders - Edmonton)**, Jackson Wenger **(Clark Builders - Edmonton)**, Ryan de Milliano **(Clark Builders - Edmonton)**

## Question from Ryan de Milliano (Clark Builders - Edmonton) at 08:19 AM on 06/10/2018

Please confirm it will be acceptable to replace closed stirrups with open stirrups with U-bar caps at beams B1, B2 B3 and B4.

**Attachments:**
74649210-11F1-4344-821D-B3A511AA11B3-18446-000005A7D7CF87E0_image.jpg 44EDE1E3-EAA8-403D-949A-A57FC4D706FD-18446-000005A7D7D5983E_image.jpg E21F0029-42B8-4C6D-83E0-F5105FB747F8-18446-000005A7D7DA3DB0_image.jpg 17CF3B4F-D68B-43C8-8693-6C9B7F6CB766-18446-000005A7D7DCD0C1_image.jpg file-20.png

Awaiting an Official Response

## All Replies:

Request is accepted.

| Esra Akinci | Oct 8, 2018 | |
|---|---|---|
| **BY** | **DATE** | **COPIES TO** |

# RFI #94

Clark Builders
4703 - 52 Avenue
Edmonton, Alberta T6B 3R6
Phone: (780) 395-3300
Fax: (780) 395-3545

**Project:** 18502 - CB201-JDS - Stratagold Eagle Gold
Yukon Territory

# 3100 Reinforcing Sequence of Installation/Shop Drawing Review Question

| | | | |
|---|---|---|---|
| **TO:** | Tawnya Thornton **(JDS Energy and Mining)** | **FROM:** | Jackson Wenger **(Clark Builders - Edmonton)** |
| **DATE INITIATED:** | 12/10/2018 | **STATUS:** | Open |
| **LOCATION:** | 3100 Primary Crushing | **DUE DATE:** | 15/10/2018 |
| **PROJECT STAGE:** | | **COST CODE:** | |
| **SUB JOB:** | | **SCHEDULE IMPACT:** | |
| **COST IMPACT:** | | **SPEC SECTION:** | |
| **DRAWING NUMBER:** | | **REFERENCE:** | |
| **LINKED DRAWINGS:** | | | |
| **RECEIVED FROM:** | | | |

**COPIES TO:**
Chris Copley **(JDS Energy and Mining)**, Matt Coverdale **(JDS Energy and Mining)**, Garry Dahl **(Clark Builders - Edmonton)**, Ishan Fechter **(JDS Energy and Mining)**, Marion Fyshe **(McNish Steel)**, Calvin Goldschmidt **(JDS Energy and Mining)**, Gary Hosey **(Clark Builders - Edmonton)**, Jan Johnson **(Clark Builders - Edmonton)**, Peter Nice **(Clark Builders - Edmonton)**, Henry Rueda **(Clark Builders - Edmonton)**, Tawnya Thornton **(JDS Energy and Mining)**, Mark Tillmanns **(McNish Steel)**, Jackson Wenger **(Clark Builders - Edmonton)**, Ryan de Milliano **(Clark Builders - Edmonton)**

## Question from Jackson Wenger (Clark Builders - Edmonton) at 03:09 PM on 12/10/2018

Review of shop drawing 1-K indicates that phase 4 wall vertical reinforcing is to be installed full length, to u/s of slab elevation. In previous submittal, reinforcing shop drawings showed proposed slab dowels as part of level 3 elevated slab (1056.300 to 1057.300), so that final wall verticals could be set on the dowels, where the overhang begins. Please confirm that wall dowels can be included as part of 1057.300 slab installation. Installation of vertical wall steel from 1056.300 to 1063+ would require full height wall verticals to be cast in to the 1057.300 slab pour. Markups are attached for clarity.

**Attachments:**
7CA7CB7E-08F6-4EAC-BDBD-0FD65BF39A1B-261-0000014055B8A8AA_image.jpg 85237E14-8122-43A2-A6E8-E1D79F645752-261-0000013F4DCB2EF9_image.jpg 21B1A6FB-8DD0-47A9-B0D1-19492D4F1558-261-0000013FB1629ED5_image.jpg

Awaiting an Official Response

## All Replies:

Phase 4 wall verticals can start at El.1057.300 lapping with the dowels

| Esra Akinci | Oct 12, 2018 | |
|---|---|---|
| **BY** | **DATE** | **COPIES TO** |

# RFI #87

Clark Builders
4703 - 52 Avenue
Edmonton, Alberta T6B 3R6
Phone: (780) 395-3300
Fax: (780) 395-3545

**Project:** 18502 - CB201-JDS - Stratagold Eagle Gold
Yukon Territory

# 3320 Vertical Pour Break at Secondary Crushing Suspended Slab

| | | | |
|---|---|---|---|
| **TO:** | Tawnya Thornton **(JDS Energy and Mining)** | **FROM:** | Jackson Wenger **(Clark Builders - Edmonton)** |
| **DATE INITIATED:** | 07/10/2018 | **STATUS:** | Open |
| **LOCATION:** | 3320 Sec/Tert. Crushing | **DUE DATE:** | 13/10/2018 |
| **PROJECT STAGE:** | | **COST CODE:** | |
| **SUB JOB:** | | **SCHEDULE IMPACT:** | |
| **COST IMPACT:** | | **SPEC SECTION:** | S033000 - Cast-In-Place Concrete |
| **DRAWING NUMBER:** | | **REFERENCE:** | |
| **LINKED DRAWINGS:** | | | |
| **RECEIVED FROM:** | Garry Dahl **(Clark Builders - Edmonton)** | | |

**COPIES TO:**
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## Question from Jackson Wenger (Clark Builders - Edmonton) at 06:28 PM on 07/10/2018

Clark Builders is requesting permission to provide a vertical pour break in 3320 suspended slab, along the north edge of slab beam B4 at gridline 4. Clark builders will provide (2)- 3" horizontal shear keys at requested construction joint if approved. Please see attached markup for requested location of the construction joint.

**Attachments:**
D3438D5B-BFAE-4C10-BADD-740C1D46B68B-7066-00000FAFD8AF000C_image.jpg

Awaiting an Official Response

## All Replies:

Request is rejected.

The suspended slab in 3320 area, supporting 4 cone crushers, will have very high shear forces due to the dynamic loading and needs to be poured monolithically.

| Esra Akinci | Oct 8, 2018 | |
|---|---|---|
| **BY** | **DATE** | **COPIES TO** |

# RFI #88

Clark Builders
4703 - 52 Avenue
Edmonton, Alberta T6B 3R6
Phone: (780) 395-3300
Fax: (780) 395-3545

**Project:** 18502 - CB201-JDS - Stratagold Eagle Gold
Yukon Territory

# 3330 Tertiary Ore Reclaim Tunnel Horizontal Foundation Pour Break

| | | | |
|---|---|---|---|
| **TO:** | Tawnya Thornton **(JDS Energy and Mining)** | **FROM:** | Jackson Wenger **(Clark Builders - Edmonton)** |
| **DATE INITIATED:** | 07/10/2018 | **STATUS:** | Open |
| **LOCATION:** | 3330 Tert. Ore Bin & Conveyor | **DUE DATE:** | 13/10/2018 |
| **PROJECT STAGE:** | | **COST CODE:** | |
| **SUB JOB:** | | **SCHEDULE IMPACT:** | |
| **COST IMPACT:** | | **SPEC SECTION:** | |
| **DRAWING NUMBER:** | | **REFERENCE:** | |
| **LINKED DRAWINGS:** | | | |
| **RECEIVED FROM:** | Garry Dahl **(Clark Builders - Edmonton)** | | |

**COPIES TO:**
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## Question from Jackson Wenger (Clark Builders - Edmonton) at 06:57 PM on 07/10/2018

Clark Builders is requesting permission to provide a horizontal pour break at 350mm above U/S of 3330 tertiary ore reclaim tunnel base footing. A bulkhead will be provided at the shallower west footing— this footing portion will be poured full height. Markup is attached for reference.

**Attachments:**
A93891CE-6072-4A8D-B5B2-A0AE22E70F0A-7066-00000FB4DD800B33_image.jpg

Awaiting an Official Response

## All Replies:

Request is accepted

| Esra Akinci | Oct 8, 2018 | |
|---|---|---|
| **BY** | **DATE** | **COPIES TO** |

# RFI #90

Clark Builders
4703 - 52 Avenue
Edmonton, Alberta T6B 3R6
Phone: (780) 395-3300
Fax: (780) 395-3545

**Project:** 18502 - CB201-JDS - Stratagold Eagle Gold
Yukon Territory

# 3100 Primary Crushing 1052 Crusher Support Beam/Wall Interface- Urgent

| | | | |
|---|---|---|---|
| **TO:** | Tawnya Thornton **(JDS Energy and Mining)** | **FROM:** | Jackson Wenger **(Clark Builders - Edmonton)** |
| **DATE INITIATED:** | 09/10/2018 | **STATUS:** | Open |
| **LOCATION:** | 3100 Primary Crushing | **DUE DATE:** | 14/10/2018 |
| **PROJECT STAGE:** | | **COST CODE:** | |
| **SUB JOB:** | | **SCHEDULE IMPACT:** | |
| **COST IMPACT:** | TBD | **SPEC SECTION:** | |
| **DRAWING NUMBER:** | | **REFERENCE:** | |
| **LINKED DRAWINGS:** | | | |
| **RECEIVED FROM:** | | | |

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## Question from Jackson Wenger (Clark Builders - Edmonton) at 02:15 PM on 09/10/2018

Clark Builders is requesting clarification regarding the termination of B3 beams at elevation 1052.500 slab: Drawings show B3 beams running east-west, terminating at face of wall, and wall has been constructed to U/S of slab height, without block-outs for B3 beam reinforcing. Reinforcing has been detailed/provided to site to allow for the B3 beams to run the entire width of the crusher, to terminate at exterior face of wall, and is inquiring whether this is the actual structural intent. If full length B3 beams, integrated into the east and west wall reinforcing is the intent, please confirm if Clark Builders is to cut and chip wall concrete to allow for beam pockets as part of the 1052.500 elevated slab pour. Please see attached markup for details.

**Attachments:**
238163A7-D05F-4355-944C-79D0C07A5CF7-7246-0000107950FF9C26_image.jpg

Awaiting an Official Response

**All Replies:**

B3 beam rebars definitely need to be extended to the exterior face of the walls. Please cut and chip the wall concrete to create the beam pockets as required.

This correction is very critical as these beams are supporting the Gyratory Crusher.

| Esra Akinci | Oct 9, 2018 | |
|---|---|---|
| **BY** | **DATE** | **COPIES TO** |

# RFI #95

Clark Builders
4703 - 52 Avenue
Edmonton, Alberta T6B 3R6
Phone: (780) 395-3300
Fax: (780) 395-3545

**Project:** 18502 - CB201-JDS - Stratagold Eagle Gold
Yukon Territory

## 3100- Beam Pocket Installation Reinforcing Scored- High Priority

| | | | |
|---|---|---|---|
| **TO:** | Tawnya Thornton **(JDS Energy and Mining)** | **FROM:** | Jackson Wenger **(Clark Builders - Edmonton)** |
| **DATE INITIATED:** | 13/10/2018 | **STATUS:** | Open |
| **LOCATION:** | 3100 Primary Crushing | **DUE DATE:** | 17/10/2018 |
| **PROJECT STAGE:** | | **COST CODE:** | |
| **SUB JOB:** | | **SCHEDULE IMPACT:** | TBD |
| **COST IMPACT:** | | **SPEC SECTION:** | |
| **DRAWING NUMBER:** | | **REFERENCE:** | |
| **LINKED DRAWINGS:** | | | |
| **RECEIVED FROM:** | | | |

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### Question from Jackson Wenger (Clark Builders - Edmonton) at 07:24 PM on 13/10/2018

During installation of beam pockets per RFI 90, (4) 30M horizontal wall reinforcing bars were scored approximately 40%, and (1) 30M horizontal was scored approximately 25% by the concrete cutting saw. 15m vertical stirrups have also been removed at beam pocket locations to allow for B3 beam reinforcing to be installed. Clark Builders is requesting review of the attached photos, and confirmation that additional remediation does not need to take place.

**Attachments:**
3951FBCF-75DB-49A6-AE67-D3F5212131D3-444-0000007C2309F0CF_image.jpg 84910788-7F7F-439E-87DE-DC0EDCD6A30D-444-0000007C23043404_image.jpg 101700D2-CE06-414A-9B14-49761E881185-444-0000007C23103734_image.jpg

Awaiting an Official Response

**All Replies:**

Additional remediation for the scored horizontal bars are not needed.

Referring to the attached sketch provided by Clark on Oct 14:

- Please add the additional 30M bars with hooks lapping 2m with the B3 bottom horizontals as shown on the sketch
- Please do not add any additional horizontal wall bars next to the scored wall bars which will make this area too congested and will not leave enough space for the concrete needed around the B3 horizontals

| Esra Akinci | Oct 15, 2018 | |
|---|---|---|
| **BY** | **DATE** | **COPIES TO** |

# RFI #96

Clark Builders
4703 - 52 Avenue
Edmonton, Alberta T6B 3R6
Phone: (780) 395-3300
Fax: (780) 395-3545

**Project:** 18502 - CB201-JDS - Stratagold Eagle Gold
Yukon Territory

# 3100 Motor Pad at 1052.750 Reinforcing Modification URGENT

| | | | |
|---|---|---|---|
| **TO:** | Calvin Goldschmidt **(JDS Energy and Mining)** | **FROM:** | Ryan de Milliano **(Clark Builders - Edmonton)** Edmonton, Alberta |
| **DATE INITIATED:** | 18/10/2018 | **STATUS:** | Open |
| **LOCATION:** | 3100 Primary Crushing | **DUE DATE:** | 21/10/2018 |
| **PROJECT STAGE:** | Course of Construction | **COST CODE:** | 03-3201 - REINFORCE STEEL/MESH |
| **SUB JOB:** | | **SCHEDULE IMPACT:** | No |
| **COST IMPACT:** | No | **SPEC SECTION:** | S032000 - Concrete Reinforcing Steel |
| **DRAWING NUMBER:** | H354138-3100-231-260-0009/0007 R1 | **REFERENCE:** | |
| **LINKED DRAWINGS:** | | | |
| **RECEIVED FROM:** | Peter Nice **(Clark Builders - Edmonton)** | | |

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## Question from Ryan de Milliano (Clark Builders - Edmonton) at 07:56 AM on 18/10/2018

URGENT (We would like to pour today)

Hat bars that have arrived onsite, for the 1052.750 motor pad, cannot be placed into the suspended slab to allow for required projection out of the slab to get the right cover when pouring the motor pad.

Below are the two options we propose to correct this:

1. Drill and Epoxy later and cap with Ubars.
2. Cast into place L-bars with slab pour, cap with Ubars for motor pad pour.

**Attachments:**
F598F1E2-F62A-4F35-AA33-091B88BAE370-39577-00000C4E88897C14_image.jpg CD4DE7A6-31CE-4D97-9F2E-A4113495309A-39577-00000C4E8890C2D9_image.jpg

Awaiting an Official Response

## All Replies:

Both options are acceptable. Please proceed with the best for the construction schedule.

| Esra Akinci | Oct 18, 2018 | |
|---|---|---|
| **BY** | **DATE** | **COPIES TO** |

# RFI #97

Clark Builders
4703 - 52 Avenue
Edmonton, Alberta T6B 3R6
Phone: (780) 395-3300
Fax: (780) 395-3545

**Project:** 18502 - CB201-JDS - Stratagold Eagle Gold
Yukon Territory

# 3330 Horz. Wall Reinforcing move from Inside Face to Outside Face of Verts.

| | | | |
|---|---|---|---|
| **TO:** | Calvin Goldschmidt **(JDS Energy and Mining)** | **FROM:** | Ryan de Milliano **(Clark Builders - Edmonton)** Edmonton, Alberta |
| **DATE INITIATED:** | 19/10/2018 | **STATUS:** | Open |
| **LOCATION:** | 3330 Tert. Ore Bin & Conveyor | **DUE DATE:** | 21/10/2018 |
| **PROJECT STAGE:** | Course of Construction | **COST CODE:** | 03-3201 - REINFORCE STEEL/MESH |
| **SUB JOB:** | | **SCHEDULE IMPACT:** | No |
| **COST IMPACT:** | No | **SPEC SECTION:** | S032000 - Concrete Reinforcing Steel |
| **DRAWING NUMBER:** | | **REFERENCE:** | |
| **LINKED DRAWINGS:** | | | |
| **RECEIVED FROM:** | Jimmy Menchenton **(Ultimate Reinforcing)** | | |

**COPIES TO:**
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## Question from Ryan de Milliano (Clark Builders - Edmonton) at 10:22 AM on 18/10/2018

Confirm it will be acceptable to install the horizontal wall reinforcing on outside face of vertical reinforcing steel instead of inside face.

**Attachments:**
file-1.jpeg

Awaiting an Official Response

## All Replies:

Request is accepted

| BY | DATE | COPIES TO |
|---|---|---|
| Esra Akinci | Oct 20, 2018 | |

# RFI #98

Clark Builders
4703 - 52 Avenue
Edmonton, Alberta T6B 3R6
Phone: (780) 395-3300
Fax: (780) 395-3545

**Project:** 18502 - CB201-JDS - Stratagold Eagle Gold
Yukon Territory

# 3330 P4 Pedestal Anchor Bolt conflict with Vertical Reinforcing

| | | | |
|---|---|---|---|
| **TO:** | Calvin Goldschmidt **(JDS Energy and Mining)** | **FROM:** | Ryan de Milliano **(Clark Builders - Edmonton)** Edmonton, Alberta |
| **DATE INITIATED:** | 20/10/2018 | **STATUS:** | Open |
| **LOCATION:** | 3330 Tert. Ore Bin & Conveyor | **DUE DATE:** | 23/10/2018 |
| **PROJECT STAGE:** | Course of Construction | **COST CODE:** | 05-5650 - ANCHOR BOLTS |
| **SUB JOB:** | | **SCHEDULE IMPACT:** | No |
| **COST IMPACT:** | No | **SPEC SECTION:** | S031000 - Concrete Formwork and Falsework |
| **DRAWING NUMBER:** | H354138-3330-231-260-0027 R2 | **REFERENCE:** | |
| **LINKED DRAWINGS:** | | | |
| **RECEIVED FROM:** | Peter Nice **(Clark Builders - Edmonton)** | | |

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## Question from Ryan de Milliano (Clark Builders - Edmonton) at 12:52 PM on 20/10/2018

Please confirm it will be acceptable to cut plate washers where they conflict with the vertical dowel reinforcing at the Ore Storage area 3330.

**Attachments:**
6C1A2AF4-9B9E-4DC1-95F0-A2B14B21F307-44519-00000E4516AA5CBC_image.jpg

Awaiting an Official Response

## All Replies:

Request is accepted

| | | |
|---|---|---|
| Esra Akinci | Oct 21, 2018 | |
| **BY** | **DATE** | **COPIES TO** |

# RFI #99

Clark Builders
4703 - 52 Avenue
Edmonton, Alberta T6B 3R6
Phone: (780) 395-3300
Fax: (780) 395-3545

**Project:** 18502 - CB201-JDS - Stratagold Eagle Gold
Yukon Territory

## 3320 Handrail Sleeve Replaced with Flush Mount Base

| | | | |
|---|---|---|---|
| **TO:** | Calvin Goldschmidt **(JDS Energy and Mining)** | **FROM:** | Ryan de Milliano **(Clark Builders - Edmonton)** Edmonton, Alberta |
| **DATE INITIATED:** | 20/10/2018 | **STATUS:** | Open |
| **LOCATION:** | 3320 Sec/Tert. Crushing | **DUE DATE:** | 23/10/2018 |
| **PROJECT STAGE:** | Course of Construction | **COST CODE:** | 03-3201 - REINFORCE STEEL/MESH |
| **SUB JOB:** | | **SCHEDULE IMPACT:** | TBD |
| **COST IMPACT:** | No | **SPEC SECTION:** | S031000 - Concrete Formwork and Falsework |
| **DRAWING NUMBER:** | H354138-3320-231-260-0013 R1/ 0014 R1 | **REFERENCE:** | |
| **LINKED DRAWINGS:** | | | |
| **RECEIVED FROM:** | Peter Nice **(Clark Builders - Edmonton)** | | |

**COPIES TO:**
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### Question from Ryan de Milliano (Clark Builders - Edmonton) at 04:05 PM on 20/10/2018

Please confirm whether it is acceptable to replace the 24 designed sleeves for handrails with flush mounted bases, designed by others (see attached sketch).

Lead time on these sleeves may impact schedule.

**Attachments:**
D0A2F716-BDBC-4739-8203-A844CA23BD90-44519-00000E60D4583643_image.jpg

Awaiting an Official Response

### All Replies:

24 removable handrail sleeves on the Sec/Ter Bldg elevated slab will be supplied by Others to be mounted over the concrete instead of being embedded

| Esra Akinci | Oct 22, 2018 | |
|---|---|---|
| **BY** | **DATE** | **COPIES TO** |

# RFI #101

Clark Builders
4703 - 52 Avenue
Edmonton, Alberta T6B 3R6
Phone: (780) 395-3300
Fax: (780) 395-3545

**Project:** 18502 - CB201-JDS - Stratagold Eagle Gold
Yukon Territory

## 3320 P10 Pedestals Stirrups vs. Anchor bolt Conflict

| | | | |
|---|---|---|---|
| **TO:** | Calvin Goldschmidt **(JDS Energy and Mining)** | **FROM:** | Ryan de Milliano **(Clark Builders - Edmonton)** Edmonton, Alberta |
| **DATE INITIATED:** | 22/10/2018 | **STATUS:** | Open |
| **LOCATION:** | 3320 Sec/Tert. Crushing | **DUE DATE:** | 26/10/2018 |
| **PROJECT STAGE:** | | **COST CODE:** | |
| **SUB JOB:** | | **SCHEDULE IMPACT:** | No |
| **COST IMPACT:** | No | **SPEC SECTION:** | |
| **DRAWING NUMBER:** | | **REFERENCE:** | |
| **LINKED DRAWINGS:** | | | |
| **RECEIVED FROM:** | Ryan de Milliano **(Clark Builders - Edmonton)** | | |

**COPIES TO:**
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### Question from Ryan de Milliano (Clark Builders - Edmonton) at 06:15 PM on 22/10/2018

Please confirm it will be acceptable not install the stirrups detailed for the P10 Pedestals at the Secondary suspended slab. As shown in the photo, there is no way to set anchor bolts correctly in place with these stirrups.

**Attachments:**
C1D7D3E8-71E0-4F07-8B0D-C583A93150C1-54177-00000FE47C88F079_image.jpg 4BBC8C3C-F26D-4C5D-B088-23A7679E7D1B-54177-00000FE47C8326B2_image.jpg 9EAECCA1-EAC8-4E61-A095-B5B789F0D374-54177-00000FE47CA38645_image.jpg

Awaiting an Official Response

### All Replies:

Please keep only the big square stirrups (outside), and remove all the rectangular ones clashing with the anchor bolts.

| Esra Akinci | Oct 23, 2018 | |
|---|---|---|
| **BY** | **DATE** | **COPIES TO** |

# RFI #103

Clark Builders
4703 - 52 Avenue
Edmonton, Alberta T6B 3R6
Phone: (780) 395-3300
Fax: (780) 395-3545

**Project:** 18502 - CB201-JDS - Stratagold Eagle Gold
Yukon Territory

## 3210 Transfer Tower 1 Layout Discrepency

| | | | |
|---|---|---|---|
| **TO:** | Calvin Goldschmidt **(JDS Energy and Mining)** | **FROM:** | Ryan de Milliano **(Clark Builders - Edmonton)** Edmonton, Alberta |
| **DATE INITIATED:** | 23/10/2018 | **STATUS:** | Open |
| **LOCATION:** | 3210 Coarse Ore Reclaim & Conveyor | **DUE DATE:** | 26/10/2018 |
| **PROJECT STAGE:** | Course of Construction | **COST CODE:** | 03-3110 - FORM-FOOTINGS |
| **SUB JOB:** | | **SCHEDULE IMPACT:** | No |
| **COST IMPACT:** | No | **SPEC SECTION:** | S031000 - Concrete Formwork and Falsework |
| **DRAWING NUMBER:** | 3210-231-260-002 and 006 | **REFERENCE:** | |
| **LINKED DRAWINGS:** | | | |
| **RECEIVED FROM:** | Erik Vanlaar **(Clark Builders - Edmonton)** | | |

**COPIES TO:**
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### Question from Ryan de Milliano (Clark Builders - Edmonton) at 10:53 AM on 23/10/2018

At Transfer Tower 1, drawing numbers 3210-231-260-002 and 006 in conjunction with WP2 and WP5 (center line of tail pulleys) there appears to be an 8.8mm discrepancy when incorporating the gridline dimensions or vice versa.

Please review and confirm if this discrepancy can be corrected or if we are mistaken.

Awaiting an Official Response

### All Replies:

Please see attached drawings with more dimensions marked up for back checking. We could not find a discrepancy.

| Esra Akinci | Oct 23, 2018 | |
|---|---|---|
| **BY** | **DATE** | **COPIES TO** |

# RFI #104

Clark Builders
4703 - 52 Avenue
Edmonton, Alberta T6B 3R6
Phone: (780) 395-3300
Fax: (780) 395-3545

**Project:** 18502 - CB201-JDS - Stratagold Eagle Gold
Yukon Territory

# 3100 Horizontal Interior Wall Reinforcing Lap Modification Elev. 1057.300

| | | | |
|---|---|---|---|
| **TO:** | Ishan Fechter **(JDS Energy and Mining)** | **FROM:** | Ryan de Milliano **(Clark Builders - Edmonton)** Edmonton, Alberta |
| **DATE INITIATED:** | 29/10/2018 | **STATUS:** | Open |
| **LOCATION:** | | **DUE DATE:** | 01/11/2018 |
| **PROJECT STAGE:** | | **COST CODE:** | 03-3201 - REINFORCE STEEL/MESH |
| **SUB JOB:** | | **SCHEDULE IMPACT:** | No |
| **COST IMPACT:** | No | **SPEC SECTION:** | S032000 - Concrete Reinforcing Steel |
| **DRAWING NUMBER:** | | **REFERENCE:** | |
| **LINKED DRAWINGS:** | | | |
| **RECEIVED FROM:** | Jimmy Menchenton **(Ultimate Reinforcing)** | | |

**COPIES TO:**
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## Question from Ryan de Milliano (Clark Builders - Edmonton) at 03:22 PM on 29/10/2018

Please confirm it will be acceptable to change the reinforcing detail of the interior faces of the walls, starting at elev. 1057.300, on the east and west side to allow horizontals to be trimmed at the edge of the corner stirrup and a 4000mm 30M lap bar be added to connect to the end of wall. Horizontal reinforcing will be cut 1800mm from edge of wall, outside the corner stirrups)

Our reinforcing installer has requested this so that wall steel can be flown in quicker and safely.

See attached sketch for additional details.

**Attachments:**
RFI 104 Sketch of Shop Drawing.png

Awaiting an Official Response

## All Replies:

Request is accepted

| Esra Akinci | Oct 30, 2018 | |
|---|---|---|
| **BY** | **DATE** | **COPIES TO** |

# RFI #106

Clark Builders
4703 - 52 Avenue
Edmonton, Alberta T6B 3R6
Phone: (780) 395-3300
Fax: (780) 395-3545

**Project:** 18502 - CB201-JDS - Stratagold Eagle Gold
Yukon Territory

# 3100 Bars Around Opening at 1057.300 Slab Embed Orientation

| | | | |
|---|---|---|---|
| **TO:** | Ishan Fechter **(JDS Energy and Mining)** | **FROM:** | Ryan de Milliano **(Clark Builders - Edmonton)** Edmonton, Alberta |
| **DATE INITIATED:** | 30/10/2018 | **STATUS:** | Open |
| **LOCATION:** | 3100 Primary Crushing | **DUE DATE:** | 02/11/2018 |
| **PROJECT STAGE:** | Course of Construction | **COST CODE:** | 03-3201 - REINFORCE STEEL/MESH |
| **SUB JOB:** | | **SCHEDULE IMPACT:** | No |
| **COST IMPACT:** | No | **SPEC SECTION:** | S032000 - Concrete Reinforcing Steel |
| **DRAWING NUMBER:** | H354138-231-260-0011 R1 | **REFERENCE:** | |
| **LINKED DRAWINGS:** | | | |
| **RECEIVED FROM:** | Jimmy Menchenton **(Ultimate Reinforcing)** | | |

**COPIES TO:**
Chris Copley **(JDS Energy and Mining)**, Matt Coverdale **(JDS Energy and Mining)**, Garry Dahl **(Clark Builders - Edmonton)**, Ishan Fechter **(JDS Energy and Mining)**, Calvin Goldschmidt **(JDS Energy and Mining)**, Gary Hosey **(Clark Builders - Edmonton)**, Jan Johnson **(Clark Builders - Edmonton)**, Peter Nice **(Clark Builders - Edmonton)**, Henry Rueda **(Clark Builders - Edmonton)**, Tawnya Thornton **(JDS Energy and Mining)**, Jackson Wenger **(Clark Builders - Edmonton)**, Ryan de Milliano **(Clark Builders - Edmonton)**

## Question from Ryan de Milliano (Clark Builders - Edmonton) at 08:59 PM on 30/10/2018

Lapped L-Bars, which replace U-bars detailed (approved in RFI 77), around opening edge will run perpendicular to the beam reinforcing detailed. Where there is no beam around the embed, L-Bars will be fanned as shown in IFC detail.

Please confirm this is acceptable since these L-bars cannot be placed in fan pattern at beam locations.

**Attachments:**
Att A - RFI 106 CB201.jpeg

Awaiting an Official Response

## All Replies:

Request is accepted

| BY | DATE | COPIES TO |
|---|---|---|
| Esra Akinci | Oct 31, 2018 | |

# RFI #105

Clark Builders
4703 - 52 Avenue
Edmonton, Alberta T6B 3R6
Phone: (780) 395-3300
Fax: (780) 395-3545

**Project:** 18502 - CB201-JDS - Stratagold Eagle Gold
Yukon Territory

# 3100 Rock Breaker Support Hook Detail Confirmation at EL. 1063.300

| | | | |
|---|---|---|---|
| **TO:** | Ishan Fechter **(JDS Energy and Mining)** | **FROM:** | Ryan de Milliano **(Clark Builders - Edmonton)** Edmonton, Alberta |
| **DATE INITIATED:** | 30/10/2018 | **STATUS:** | Open |
| **LOCATION:** | 3100 Primary Crushing | **DUE DATE:** | 02/11/2018 |
| **PROJECT STAGE:** | Course of Construction | **COST CODE:** | 03-3201 - REINFORCE STEEL/MESH |
| **SUB JOB:** | | **SCHEDULE IMPACT:** | No |
| **COST IMPACT:** | No | **SPEC SECTION:** | S032000 - Concrete Reinforcing Steel |
| **DRAWING NUMBER:** | H354138-3100-231-260-0014 R1 | **REFERENCE:** | |
| **LINKED DRAWINGS:** | | | |
| **RECEIVED FROM:** | Ryan de Milliano **(Clark Builders - Edmonton)** | | |

**COPIES TO:**
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## Question from Ryan de Milliano (Clark Builders - Edmonton) at 09:16 AM on 30/10/2018

The detail shown in the shop drawings for McNish shows that the hook goes inside the wall reinforcing on the inside mat of reinforcing. The IFC detail 'V', shows the hook wrapping to include the wall reinforcing.

Please confirm the shop drawing detail is acceptable.

**Attachments:**
1694B596-4F43-40FA-B104-9AEF8831437D-15283-00000430F4E03B6C_image.jpg

Awaiting an Official Response

## All Replies:

The shop drawing detail is acceptable

| Esra Akinci | Oct 30, 2018 | |
|---|---|---|
| **BY** | **DATE** | **COPIES TO** |

# RFI #107

Clark Builders
4703 - 52 Avenue
Edmonton, Alberta T6B 3R6
Phone: (780) 395-3300
Fax: (780) 395-3545

**Project:** 18502 - CB201-JDS - Stratagold Eagle Gold
Yukon Territory

## 3330 Secondary/Tertiary Crushing Layout Modifications

| | | | |
|---|---|---|---|
| **TO:** | Tawnya Thornton **(JDS Energy and Mining)** | **FROM:** | Jackson Wenger **(Clark Builders - Edmonton)** |
| **DATE INITIATED:** | 05/11/2018 | **STATUS:** | Open |
| **LOCATION:** | 3330 Tert. Ore Bin & Conveyor | **DUE DATE:** | 08/11/2018 |
| **PROJECT STAGE:** | | **COST CODE:** | |
| **SUB JOB:** | | **SCHEDULE IMPACT:** | |
| **COST IMPACT:** | | **SPEC SECTION:** | |
| **DRAWING NUMBER:** | | **REFERENCE:** | |
| **LINKED DRAWINGS:** | | | |
| **RECEIVED FROM:** | | | |

**COPIES TO:**
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**Question from Jackson Wenger (Clark Builders - Edmonton) at 06:13 PM on 05/11/2018**

Clark Builders is requesting that the 3330-TRX foundation serving the secondary/tertiary crushing building be moved 600mm east, due to site conditions. Current design layout will require rework of the existing secondary pad area/construction access roads.

Awaiting an Official Response

### All Replies:

Sec/Ter Crushing Area Transformer Foundation is moved by 400mm to East. Please see attached civil dwg showing the revised work point.

It could not be moved 600mm because of the cable tray bending radius requirements between the Transformer Yard and the Electrical Room.

| Esra Akinci | Nov 7, 2018 | |
|---|---|---|
| **BY** | **DATE** | **COPIES TO** |

# RFI #109

Clark Builders
4703 - 52 Avenue
Edmonton, Alberta T6B 3R6
Phone: (780) 395-3300
Fax: (780) 395-3545

**Project:** 18502 - CB201-JDS - Stratagold Eagle Gold
Yukon Territory

## 3330 CV16 Pedestal Type 1 Washer Modification

| | | | |
|---|---|---|---|
| **TO:** | Tawnya Thornton **(JDS Energy and Mining)** | **FROM:** | Ryan de Milliano **(Clark Builders - Edmonton)** Edmonton, Alberta |
| **DATE INITIATED:** | 12/11/2018 | **STATUS:** | Open |
| **LOCATION:** | 3330 Tert. Ore Bin & Conveyor | **DUE DATE:** | 15/11/2018 |
| **PROJECT STAGE:** | Course of Construction | **COST CODE:** | |
| **SUB JOB:** | | **SCHEDULE IMPACT:** | No |
| **COST IMPACT:** | No | **SPEC SECTION:** | |
| **DRAWING NUMBER:** | | **REFERENCE:** | |
| **LINKED DRAWINGS:** | | | |
| **RECEIVED FROM:** | Ryan de Milliano **(Clark Builders - Edmonton)** | | |

**COPIES TO:**
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**Question from Ryan de Milliano (Clark Builders - Edmonton) at 10:17 AM on 12/11/2018**

Please confirm it will be acceptable to modify the washers on anchor bolts for P1 Pedestals on CV016. Cutting of washer required to make it fit.

**Attachments:**
4F56B464-CDE6-48D2-8A2A-D5BB6EB53F4F-1263-00000070C18F7679_image.jpg 37EF18C9-1EF0-48C7-A4BD-1B5755B5B7AA-1263-00000070C1A59DBC_image.jpg 69A4DBBE-288D-4924-A028-B89CFEE92EAE-1263-00000070C19605F9_image.jpg

Awaiting an Official Response

### All Replies:

Request is accepted

| Esra Akinci | Nov 13, 2018 | |
|---|---|---|
| **BY** | **DATE** | **COPIES TO** |

# RFI #110

Clark Builders
4703 - 52 Avenue
Edmonton, Alberta T6B 3R6
Phone: (780) 395-3300
Fax: (780) 395-3545

**Project:** 18502 - CB201-JDS - Stratagold Eagle Gold
Yukon Territory

## 3100 Wall Tie Holes Cap - Caulking replacing Grout

| | | | |
|---|---|---|---|
| **TO:** | Tawnya Thornton **(JDS Energy and Mining)** | **FROM:** | Ryan de Milliano **(Clark Builders - Edmonton)** Edmonton, Alberta |
| **DATE INITIATED:** | 12/11/2018 | **STATUS:** | Open |
| **LOCATION:** | 3100 Primary Crushing | **DUE DATE:** | 15/11/2018 |
| **PROJECT STAGE:** | Course of Construction | **COST CODE:** | |
| **SUB JOB:** | | **SCHEDULE IMPACT:** | No |
| **COST IMPACT:** | No | **SPEC SECTION:** | |
| **DRAWING NUMBER:** | | **REFERENCE:** | |
| **LINKED DRAWINGS:** | | | |
| **RECEIVED FROM:** | Garry Dahl **(Clark Builders - Edmonton)** | | |

**COPIES TO:**
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### Question from Ryan de Milliano (Clark Builders - Edmonton) at 10:25 AM on 12/11/2018

Please confirm it is acceptable to cap cone holes from wall formwork tie rods with caulking (SikaFlex 1A), replacing typical grout. If acceptable also confirm this may be used at other typical walls.

**Attachments:**
3605FEC6-5B67-4D99-B340-8127652741B8-1263-000000782AFC395F_image.jpg

Awaiting an Official Response

### All Replies:

Request is accepted

| Esra Akinci | Nov 13, 2018 | |
|---|---|---|
| **BY** | **DATE** | **COPIES TO** |

# RFI #111

Clark Builders
4703 - 52 Avenue
Edmonton, Alberta T6B 3R6
Phone: (780) 395-3300
Fax: (780) 395-3545

**Project:** 18502 - CB201-JDS - Stratagold Eagle Gold
Yukon Territory

# 3210 P1 Pedestal dowels 89mm back of design at CV002 Tail Pulley

| | | | |
|---|---|---|---|
| **TO:** | Matt Coverdale **(JDS Energy and Mining)** | **FROM:** | Ryan de Milliano **(Clark Builders - Edmonton)** Edmonton, Alberta |
| **DATE INITIATED:** | 15/11/2018 | **STATUS:** | Open |
| **LOCATION:** | 3210 Coarse Ore Reclaim & Conveyor | **DUE DATE:** | 18/11/2018 |
| **PROJECT STAGE:** | Course of Construction | **COST CODE:** | |
| **SUB JOB:** | | **SCHEDULE IMPACT:** | No |
| **COST IMPACT:** | No | **SPEC SECTION:** | |
| **DRAWING NUMBER:** | | **REFERENCE:** | |
| **LINKED DRAWINGS:** | | | |
| **RECEIVED FROM:** | Erik Vanlaar **(Clark Builders - Edmonton)** | | |

**COPIES TO:**
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## Question from Ryan de Milliano (Clark Builders - Edmonton) at 01:35 PM on 15/11/2018

2 x P1 Pedestals located at CV002 Tail Pulley Foundation have been set 89 back of design. Please confirm this move will be acceptable. All anchor bolts will be set as per original design.

**Attachments:**
E26FE74B-E9D1-4A38-8B9B-CE8DCF8A2577-9231-0000026D921FB4DF_image.jpg

Awaiting an Official Response

## All Replies:

Request is acceptable providing that all the anchor bolts and the shear key pocket is in the original design location.

| Esra Akinci | Nov 15, 2018 | |
|---|---|---|
| **BY** | **DATE** | **COPIES TO** |

# RFI #112

Clark Builders
4703 - 52 Avenue
Edmonton, Alberta T6B 3R6
Phone: (780) 395-3300
Fax: (780) 395-3545

**Project:** 18502 - CB201-JDS - Stratagold Eagle Gold
Yukon Territory

## 3330 Tertiary Ore Stockpile Reclaim Tunnel

| | | | |
|---|---|---|---|
| **TO:** | Matt Coverdale **(JDS Energy and Mining)** | **FROM:** | Jackson Wenger **(Clark Builders - Edmonton)** |
| **DATE INITIATED:** | 16/11/2018 | **STATUS:** | Open |
| **LOCATION:** | 3330 Tert. Ore Bin & Conveyor | **DUE DATE:** | 19/11/2018 |
| **PROJECT STAGE:** | | **COST CODE:** | |
| **SUB JOB:** | | **SCHEDULE IMPACT:** | |
| **COST IMPACT:** | | **SPEC SECTION:** | |
| **DRAWING NUMBER:** | | **REFERENCE:** | |
| **LINKED DRAWINGS:** | | | |
| **RECEIVED FROM:** | Garry Dahl **(Clark Builders - Edmonton)** | | |

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### Question from Jackson Wenger (Clark Builders - Edmonton) at 02:29 PM on 16/11/2018

Please confirm that the 1200 thick elevated slab for the tertiary ore stockpile reclaim tunnel can be poured in two lifts, of approximately 600mm depth each (similar to pour plan for 3320 secondary/tertiary crushing suspended slab). Plan is to pour on two consequent days, but pour days are adjacent to a shift change— if the second pour could acceptably be completed with 48 hours instead of 24 hours after the first pour it would be beneficial to have as an option.

Awaiting an Official Response

### All Replies:

Request is accepted

It is preferable to have the second pour within 24 hrs, but if it can not be done due to any reason, it is acceptable to have the second pour within 48 hrs.

| Esra Akinci | Nov 18, 2018 | |
|---|---|---|
| **BY** | **DATE** | **COPIES TO** |

# RFI #113

Clark Builders
4703 - 52 Avenue
Edmonton, Alberta T6B 3R6
Phone: (780) 395-3300
Fax: (780) 395-3545

**Project:** 18502 - CB201-JDS - Stratagold Eagle Gold
Yukon Territory

## 3330 West Column Dowel Modification

| | | | |
|---|---|---|---|
| **TO:** | Matt Coverdale **(JDS Energy and Mining)** | **FROM:** | Jackson Wenger **(Clark Builders - Edmonton)** |
| **DATE INITIATED:** | 16/11/2018 | **STATUS:** | Open |
| **LOCATION:** | 3330 Tert. Ore Bin & Conveyor | **DUE DATE:** | 19/11/2018 |
| **PROJECT STAGE:** | | **COST CODE:** | |
| **SUB JOB:** | | **SCHEDULE IMPACT:** | |
| **COST IMPACT:** | | **SPEC SECTION:** | |
| **DRAWING NUMBER:** | | **REFERENCE:** | |
| **LINKED DRAWINGS:** | | | |
| **RECEIVED FROM:** | | | |

**COPIES TO:**
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### Question from Jackson Wenger (Clark Builders - Edmonton) at 03:38 PM on 16/11/2018

Clark Builders is requesting permission to cut 10 column dowel (horizontal tails only) along the west edge of the tertiary ore bin. Column dowels have been installed per the typical details, and extend outside of face of concrete. Please see attached markup for details.

**Attachments:**
A5FC83BD-4307-4357-B768-8F510422F1E8-8607-00000AC063DD4C3F_image.jpg BEE184AB-4115-4CB6-A890-5A31947C2990-8607-00000AC063D74676_image.jpg

Awaiting an Official Response

### All Replies:

Request is accepted

| BY | DATE | COPIES TO |
|---|---|---|
| Esra Akinci | Nov 17, 2018 | |

# RFI #114

Clark Builders
4703 - 52 Avenue
Edmonton, Alberta T6B 3R6
Phone: (780) 395-3300
Fax: (780) 395-3545

**Project:** 18502 - CB201-JDS - Stratagold Eagle Gold
Yukon Territory

## 3210 CV003 Pedestal Dowel Cover 150mm to TOC

| | | | |
|---|---|---|---|
| **TO:** | Matt Coverdale **(JDS Energy and Mining)** | **FROM:** | Ryan de Milliano **(Clark Builders - Edmonton)** Edmonton, Alberta |
| **DATE INITIATED:** | 17/11/2018 | **STATUS:** | Open |
| **LOCATION:** | 3210 Coarse Ore Reclaim & Conveyor | **DUE DATE:** | 20/11/2018 |
| **PROJECT STAGE:** | Course of Construction | **COST CODE:** | |
| **SUB JOB:** | | **SCHEDULE IMPACT:** | No |
| **COST IMPACT:** | No | **SPEC SECTION:** | |
| **DRAWING NUMBER:** | | **REFERENCE:** | |
| **LINKED DRAWINGS:** | | | |
| **RECEIVED FROM:** | Ryan de Milliano **(Clark Builders - Edmonton)** | | |

**COPIES TO:**
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### Question from Ryan de Milliano (Clark Builders - Edmonton) at 01:34 PM on 17/11/2018

Please confirm it is acceptable to have 150mm of cover to pedestal TOC at one pedestal location (SW) on CV003.

**Attachments:**
1542486863649.350098_tempImage.jpeg

Awaiting an Official Response

### All Replies:

Request is accepted

| Esra Akinci | Nov 17, 2018 | |
|---|---|---|
| **BY** | **DATE** | **COPIES TO** |

# RFI #115

Clark Builders
4703 - 52 Avenue
Edmonton, Alberta T6B 3R6
Phone: (780) 395-3300
Fax: (780) 395-3545

**Project:** 18502 - CB201-JDS - Stratagold Eagle Gold
Yukon Territory

# 3100 CV001 Pedestal Anchor bolts and Stirrup Conflict

| | | | |
|---|---|---|---|
| **TO:** | Matt Coverdale **(JDS Energy and Mining)** | **FROM:** | Ryan de Milliano **(Clark Builders - Edmonton)** Edmonton, Alberta |
| **DATE INITIATED:** | 18/11/2018 | **STATUS:** | Open |
| **LOCATION:** | 3100 Primary Crushing | **DUE DATE:** | 21/11/2018 |
| **PROJECT STAGE:** | Course of Construction | **COST CODE:** | |
| **SUB JOB:** | | **SCHEDULE IMPACT:** | No |
| **COST IMPACT:** | No | **SPEC SECTION:** | |
| **DRAWING NUMBER:** | | **REFERENCE:** | |
| **LINKED DRAWINGS:** | | | |
| **RECEIVED FROM:** | Ryan de Milliano **(Clark Builders - Edmonton)** | | |

**COPIES TO:**
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## Question from Ryan de Milliano (Clark Builders - Edmonton) at 12:03 PM on 18/11/2018

Clark requires to modify stirrup location or modify bolts to fit designed anchor bolts into place. Please confirm on of the following solutions: 1. Remove stirrups from top of Pedestals to allow anchor bolts to fit. Since each stirrup location has a set of stirrups, we could remove one of the two which could allow room to fit in anchor bolts and most likely need to bend out the remaining stirrups. 2. Bent stirrups to allow bolts to go through. If both stirrups are left in place we would likely need to trim the washer of bolts.

**Attachments:**
1542567723688.807861_tempImage.jpeg

Awaiting an Official Response

## All Replies:

Please modify the stirrups at the top 3 level by keeping the square one and removing one of the rectangular stirrups as required.

| Esra Akinci | Nov 18, 2018 | |
|---|---|---|
| **BY** | **DATE** | **COPIES TO** |

# RFI #117

Clark Builders
4703 - 52 Avenue
Edmonton, Alberta T6B 3R6
Phone: (780) 395-3300
Fax: (780) 395-3545

**Project:** 18502 - CB201-JDS - Stratagold Eagle Gold
Yukon Territory

# 3210 CV013 CWT P9 Pedestals Anchor Bolt Washer Conflict with Reinforcing

| | | | |
|---|---|---|---|
| **TO:** | Matt Coverdale **(JDS Energy and Mining)** | **FROM:** | Ryan de Milliano **(Clark Builders - Edmonton)** Edmonton, Alberta |
| **DATE INITIATED:** | 20/11/2018 | **STATUS:** | Open |
| **LOCATION:** | 3210 Coarse Ore Reclaim & Conveyor | **DUE DATE:** | 24/11/2018 |
| **PROJECT STAGE:** | Course of Construction | **COST CODE:** | |
| **SUB JOB:** | | **SCHEDULE IMPACT:** | No |
| **COST IMPACT:** | No | **SPEC SECTION:** | |
| **DRAWING NUMBER:** | | **REFERENCE:** | |
| **LINKED DRAWINGS:** | | | |
| **RECEIVED FROM:** | Ryan de Milliano **(Clark Builders - Edmonton)** | | |

**COPIES TO:**
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## Question from Ryan de Milliano (Clark Builders - Edmonton) at 06:47 PM on 20/11/2018

Please confirm it is acceptable to trim washers on anchor bolts for Pedestals at CWT Foundation since they conflict with the vertical reinforcing dowels.

**Attachments:**
1542764803487.059082_tempImage.jpeg

Awaiting an Official Response

## All Replies:

Request is accepted

| BY | DATE | COPIES TO |
|---|---|---|
| Esra Akinci | Nov 22, 2018 | |

# RFI #119

Clark Builders
4703 - 52 Avenue
Edmonton, Alberta T6B 3R6
Phone: (780) 395-3300
Fax: (780) 395-3545

**Project:** 18502 - CB201-JDS - Stratagold Eagle Gold
Yukon Territory

# 3330 CV019 CWT P9 Pedestal Location of Dowels

| | | | |
|---|---|---|---|
| **TO:** | Tawnya Thornton **(JDS Energy and Mining)** | **FROM:** | Ryan de Milliano **(Clark Builders - Edmonton)** Edmonton, Alberta |
| **DATE INITIATED:** | 29/11/2018 | **STATUS:** | Open |
| **LOCATION:** | 3330 Tert. Ore Bin & Conveyor | **DUE DATE:** | 02/12/2018 |
| **PROJECT STAGE:** | Course of Construction | **COST CODE:** | |
| **SUB JOB:** | | **SCHEDULE IMPACT:** | No |
| **COST IMPACT:** | No | **SPEC SECTION:** | |
| **DRAWING NUMBER:** | | **REFERENCE:** | |
| **LINKED DRAWINGS:** | | | |
| **RECEIVED FROM:** | Garry Dahl **(Clark Builders - Edmonton)** | | |

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## Question from Ryan de Milliano (Clark Builders - Edmonton) at 08:24 AM on 29/11/2018

On CV 19 CWT tower one P9 pedestal dowels are out 157mm and needs to move to the east, we would recommend the following: 1. Drill/Epoxy 6 new dowels and still use 3 of the original dowels in the pedestal , 2. Drill/Epoxy 3 new dowels and incorporate all the dowels and enlarge the pedestal by 157mm on one side.

**Attachments:**
1543504963094.489990_tempImage.jpeg

Awaiting an Official Response

## All Replies:

Please follow Solution #1

| Esra Akinci | Nov 29, 2018 | |
|---|---|---|
| **BY** | **DATE** | **COPIES TO** |

# RFI #120

Clark Builders
4703 - 52 Avenue
Edmonton, Alberta T6B 3R6
Phone: (780) 395-3300
Fax: (780) 395-3545

**Project:** 18502 - CB201-JDS - Stratagold Eagle Gold
Yukon Territory

## 3100 Scope Change -Remove Ramp; Precast Stair Pads

| | | | |
|---|---|---|---|
| **TO:** | Tawnya Thornton **(JDS Energy and Mining)** | **FROM:** | Ryan de Milliano **(Clark Builders - Edmonton)** Edmonton, Alberta |
| **DATE INITIATED:** | 07/12/2018 | **STATUS:** | Open |
| **LOCATION:** | 3100 Primary Crushing | **DUE DATE:** | 10/12/2018 |
| **PROJECT STAGE:** | Course of Construction | **COST CODE:** | |
| **SUB JOB:** | | **SCHEDULE IMPACT:** | No |
| **COST IMPACT:** | No | **SPEC SECTION:** | S033000 - Cast-In-Place Concrete |
| **DRAWING NUMBER:** | H354138-3100-231-260-0002 Rev 04 | **REFERENCE:** | |
| **LINKED DRAWINGS:** | | | |
| **RECEIVED FROM:** | Garry Dahl **(Clark Builders - Edmonton)** | | |

**COPIES TO:**
Chris Copley **(JDS Energy and Mining)**, Matt Coverdale **(JDS Energy and Mining)**, Garry Dahl **(Clark Builders - Edmonton)**, Ishan Fechter **(JDS Energy and Mining)**, Gary Hosey **(Clark Builders - Edmonton)**, Jan Johnson **(Clark Builders - Edmonton)**, Peter Nice **(Clark Builders - Edmonton)**, Henry Rueda **(Clark Builders - Edmonton)**, Tawnya Thornton **(JDS Energy and Mining)**, Jackson Wenger **(Clark Builders - Edmonton)**, Ryan de Milliano **(Clark Builders - Edmonton)**

### Question from Ryan de Milliano (Clark Builders - Edmonton) at 09:47 AM on 07/12/2018

Clark Builders is unable to access, form and place the west ramp detailed, in the IFC drawing H354138-3100-231-260-0002 Rev4, since Structural Steel staging and erection is being done in the area. The backfill has also been placed too high, roughly 8".

Please confirm it is acceptable to remove this ramp from Clark Builders scope of work.

Clark Builders is able to precast the 2 stair pads detailed on same drawing if requested, so others can place at later date.

**Attachments:**
1544200065830.502930_tempImage.jpeg 1544199988513.053955_tempImage.jpeg 1544199988408.686279_tempImage.jpeg

Awaiting an Official Response

### All Replies:

Agreed. the ramp noted above is remove from Clark Builders scope.

**BY** **DATE** **COPIES TO**

# RFI #121

Clark Builders
4703 - 52 Avenue
Edmonton, Alberta T6B 3R6
Phone: (780) 395-3300
Fax: (780) 395-3545

**Project:** 18502 - CB201-JDS - Stratagold Eagle Gold
Yukon Territory

# 3330 Anchor Bolt Zone Reinforcing Deletion of Bottom Stirrups

| | | | |
|---|---|---|---|
| **TO:** | Tawnya Thornton **(JDS Energy and Mining)** | **FROM:** | Ryan de Milliano **(Clark Builders - Edmonton)** Edmonton, Alberta |
| **DATE INITIATED:** | 07/12/2018 | **STATUS:** | Open |
| **LOCATION:** | 3330 Tert. Ore Bin & Conveyor | **DUE DATE:** | 11/12/2018 |
| **PROJECT STAGE:** | Course of Construction | **COST CODE:** | |
| **SUB JOB:** | | **SCHEDULE IMPACT:** | No |
| **COST IMPACT:** | No | **SPEC SECTION:** | |
| **DRAWING NUMBER:** | | **REFERENCE:** | |
| **LINKED DRAWINGS:** | | | |
| **RECEIVED FROM:** | Jimmy Menchenton **(Ultimate Reinforcing)** | | |

**COPIES TO:**
Chris Copley **(JDS Energy and Mining)**, Matt Coverdale **(JDS Energy and Mining)**, Garry Dahl **(Clark Builders - Edmonton)**, Ishan Fechter **(JDS Energy and Mining)**, Gary Hosey **(Clark Builders - Edmonton)**, Jan Johnson **(Clark Builders - Edmonton)**, Peter Nice **(Clark Builders - Edmonton)**, Henry Rueda **(Clark Builders - Edmonton)**, Tawnya Thornton **(JDS Energy and Mining)**, Jackson Wenger **(Clark Builders - Edmonton)**, Ryan de Milliano **(Clark Builders - Edmonton)**

## Question from Ryan de Milliano (Clark Builders - Edmonton) at 07:04 PM on 07/12/2018

The reinforcing installer has noted that the congestion, at the projecting dowels location for each anchor bolt zone, will not allow for typical stirrups detailed to be installed. Please confirm it would be acceptable to remove the bottom 4 stirrups at the 8 locations where dowel congestion does not allow stirrup installation.

**Attachments:**
1544234328320.827881_tempImage.jpeg

Awaiting an Official Response

## All Replies:

Request is accepted

| Esra Akinci | Dec8, 2018 | |
|---|---|---|
| **BY** | **DATE** | **COPIES TO** |

# RFI #122

Clark Builders
4703 - 52 Avenue
Edmonton, Alberta T6B 3R6
Phone: (780) 395-3300
Fax: (780) 395-3545

**Project:** 18502 - CB201-JDS - Stratagold Eagle Gold
Yukon Territory

## 3330

| | | | |
|---|---|---|---|
| **TO:** | Tawnya Thornton **(JDS Energy and Mining)** | **FROM:** | Ryan de Milliano **(Clark Builders - Edmonton)** Edmonton, Alberta |
| **DATE INITIATED:** | 08/12/2018 | **STATUS:** | Open |
| **LOCATION:** | 3330 Tert. Ore Bin & Conveyor | **DUE DATE:** | 12/12/2018 |
| **PROJECT STAGE:** | Course of Construction | **COST CODE:** | |
| **SUB JOB:** | | **SCHEDULE IMPACT:** | No |
| **COST IMPACT:** | No | **SPEC SECTION:** | |
| **DRAWING NUMBER:** | | **REFERENCE:** | |
| **LINKED DRAWINGS:** | | | |
| **RECEIVED FROM:** | Garry Dahl **(Clark Builders - Edmonton)** | | |

**COPIES TO:**
Chris Copley **(JDS Energy and Mining)**, Matt Coverdale **(JDS Energy and Mining)**, Garry Dahl **(Clark Builders - Edmonton)**, Ishan Fechter **(JDS Energy and Mining)**, Gary Hosey **(Clark Builders - Edmonton)**, Jan Johnson **(Clark Builders - Edmonton)**, Peter Nice **(Clark Builders - Edmonton)**, Henry Rueda **(Clark Builders - Edmonton)**, Tawnya Thornton **(JDS Energy and Mining)**, Jackson Wenger **(Clark Builders - Edmonton)**, Ryan de Milliano **(Clark Builders - Edmonton)**

### Question from Ryan de Milliano (Clark Builders - Edmonton) at 07:31 PM on 08/12/2018

At the 4 locations of P9 Pedestals, on the CWT on CV-019, the anchor bolts conflict with the diamond stirrups show in pedestal detail. Below are the proposed solutions: 1. Remove the diamond stirrups as required. 2. Turn the diamond stirrups to allow anchorbolts to be installed. This will require some field bending to make work. 3. If 2 does not work and 1 not allowed, we could customize 2 ubars to fit into place.

**Attachments:**
1544322105273.005859_tempImage.jpeg

Awaiting an Official Response

### All Replies:

Please follow Option 1 and remove the diamond stirrups conflicting with the anchor bolts.

| Esra Akinci | Dec9, 2018 | |
|---|---|---|
| **BY** | **DATE** | **COPIES TO** |

# RFI #124

Clark Builders
4703 - 52 Avenue
Edmonton, Alberta T6B 3R6
Phone: (780) 395-3300
Fax: (780) 395-3545

**Project:** 18502 - CB201-JDS - Stratagold Eagle Gold
Yukon Territory

# 3100 Inside Face Wall Embed Plates Wedge Repair

| | | | |
|---|---|---|---|
| **TO:** | Tawnya Thornton **(JDS Energy and Mining)** | **FROM:** | Ryan de Milliano **(Clark Builders - Edmonton)** Edmonton, Alberta |
| **DATE INITIATED:** | 08/12/2018 | **STATUS:** | Open |
| **LOCATION:** | 3100 Primary Crushing | **DUE DATE:** | 12/12/2018 |
| **PROJECT STAGE:** | Course of Construction | **COST CODE:** | |
| **SUB JOB:** | | **SCHEDULE IMPACT:** | No |
| **COST IMPACT:** | No | **SPEC SECTION:** | |
| **DRAWING NUMBER:** | | **REFERENCE:** | |
| **LINKED DRAWINGS:** | | | |
| **RECEIVED FROM:** | Garry Dahl **(Clark Builders - Edmonton)** | | |

**COPIES TO:**
Chris Copley **(JDS Energy and Mining)**, Matt Coverdale **(JDS Energy and Mining)**, Garry Dahl **(Clark Builders - Edmonton)**, Ishan Fechter **(JDS Energy and Mining)**, Gary Hosey **(Clark Builders - Edmonton)**, Jan Johnson **(Clark Builders - Edmonton)**, Peter Nice **(Clark Builders - Edmonton)**, Henry Rueda **(Clark Builders - Edmonton)**, Tawnya Thornton **(JDS Energy and Mining)**, Jackson Wenger **(Clark Builders - Edmonton)**, Ryan de Milliano **(Clark Builders - Edmonton)**

## Question from Ryan de Milliano (Clark Builders - Edmonton) at 07:46 PM on 08/12/2018

During the final wall pour some locations on the strip embed plates shifted. Please confirm it would be acceptable to weld on a wedge to create a flush surface again at the noted locations in the attached sketches. The shifts range from 1/2" to 1".

**Attachments:**
1544323487469.778076_tempImage.jpeg 1544323487349.503906_tempImage.jpeg 1544323487243.176025_tempImage.jpeg 1544323487442.591064_tempImage.jpeg

Awaiting an Official Response

## All Replies:

Request is accepted

| Esra Akinci | Dec9, 2018 | |
|---|---|---|
| **BY** | **DATE** | **COPIES TO** |

# RFI #125

Clark Builders
4703 - 52 Avenue
Edmonton, Alberta T6B 3R6
Phone: (780) 395-3300
Fax: (780) 395-3545

**Project:** 18502 - CB201-JDS - Stratagold Eagle Gold
Yukon Territory

## 3210 Reclaim Tunnel Pedestal Anchors Field Bend

| | | | |
|---|---|---|---|
| **TO:** | Tawnya Thornton **(JDS Energy and Mining)** | **FROM:** | Ryan de Milliano **(Clark Builders - Edmonton)** Edmonton, Alberta |
| **DATE INITIATED:** | 10/12/2018 | **STATUS:** | Open |
| **LOCATION:** | 3210 Coarse Ore Reclaim & Conveyor | **DUE DATE:** | 13/12/2018 |
| **PROJECT STAGE:** | Course of Construction | **COST CODE:** | |
| **SUB JOB:** | | **SCHEDULE IMPACT:** | No |
| **COST IMPACT:** | No | **SPEC SECTION:** | |
| **DRAWING NUMBER:** | | **REFERENCE:** | |
| **LINKED DRAWINGS:** | | | |
| **RECEIVED FROM:** | Ryan de Milliano **(Clark Builders - Edmonton)** | | |

**COPIES TO:**
Chris Copley **(JDS Energy and Mining)**, Matt Coverdale **(JDS Energy and Mining)**, Garry Dahl **(Clark Builders - Edmonton)**, Ishan Fechter **(JDS Energy and Mining)**, Gary Hosey **(Clark Builders - Edmonton)**, Jan Johnson **(Clark Builders - Edmonton)**, Peter Nice **(Clark Builders - Edmonton)**, Henry Rueda **(Clark Builders - Edmonton)**, Tawnya Thornton **(JDS Energy and Mining)**, Jackson Wenger **(Clark Builders - Edmonton)**, Ryan de Milliano **(Clark Builders - Edmonton)**

### Question from Ryan de Milliano (Clark Builders - Edmonton) at 03:29 PM on 10/12/2018

Please confirm it will be acceptable to cold bend anchor bolts in order to fit within the congested Pedestals. The reason for this field bending of anchor bolts is that during the slab pour, the pedestal dowels at some locations shifted down the slope.

**Attachments:**
1544478217972.246094_tempImage.jpeg

Awaiting an Official Response

### All Replies:

Request is accepted

| Esra Akinci | Dec10, 2018 | |
|---|---|---|
| **BY** | **DATE** | **COPIES TO** |

# RFI #126

Clark Builders
4703 - 52 Avenue
Edmonton, Alberta T6B 3R6
Phone: (780) 395-3300
Fax: (780) 395-3545

**Project:** 18502 - CB201-JDS - Stratagold Eagle Gold
Yukon Territory

## 3210 Reclaim Tunnel P2 Pedestals (x2) Dimension Change

| | | | |
|---|---|---|---|
| **TO:** | Matt Coverdale **(JDS Energy and Mining)** | **FROM:** | Ryan de Milliano **(Clark Builders - Edmonton)** Edmonton, Alberta |
| **DATE INITIATED:** | 13/12/2018 | **STATUS:** | Open |
| **LOCATION:** | 3210 Coarse Ore Reclaim & Conveyor | **DUE DATE:** | 16/12/2018 |
| **PROJECT STAGE:** | Course of Construction | **COST CODE:** | |
| **SUB JOB:** | | **SCHEDULE IMPACT:** | No |
| **COST IMPACT:** | No | **SPEC SECTION:** | |
| **DRAWING NUMBER:** | | **REFERENCE:** | |
| **LINKED DRAWINGS:** | | | |
| **RECEIVED FROM:** | Ryan de Milliano **(Clark Builders - Edmonton)** | | |

**COPIES TO:**
Chris Copley **(JDS Energy and Mining)**, Matt Coverdale **(JDS Energy and Mining)**, Garry Dahl **(Clark Builders - Edmonton)**, Ishan Fechter **(JDS Energy and Mining)**, Gary Hosey **(Clark Builders - Edmonton)**, Jan Johnson **(Clark Builders - Edmonton)**, Peter Nice **(Clark Builders - Edmonton)**, Henry Rueda **(Clark Builders - Edmonton)**, Tawnya Thornton **(JDS Energy and Mining)**, Jackson Wenger **(Clark Builders - Edmonton)**, Ryan de Milliano **(Clark Builders - Edmonton)**

### Question from Ryan de Milliano (Clark Builders - Edmonton) at 06:55 PM on 13/12/2018

Please confirm it is acceptable to form the P2 Pedestals larger to ensure proper cover around reinforcing. The anchor bolts location will not be affected by this change.

**Attachments:**
1544725172357.430908_tempImage.jpeg

Awaiting an Official Response

### All Replies:

Request is accepted.

Please make sure that these 2 P2 pedestals are enlarged in two directions that will not be affecting the size and location of the other 4 P1 pedestals adjacent to these P2 pedestals

| Esra Akinci | Dec14, 2018 | |
|---|---|---|
| **BY** | **DATE** | **COPIES TO** |

# ATTACHMENT C

## Field Review Reports

# CONTRACTOR/INTERDISCIPLINE RELEASE FORM

| | | | |
|---|---|---|---|
| **Project:** | Eagle Gold Project | **Revision No.** | 0 |
| **Contractor:** | ~~Clark Builders~~ PELLY | **Contract No:** | CC 204 |
| **Area:** | 3210 – Coarse Ore Reclaim Tunnel Pad | | |

| | | | |
|---|---|---|---|
| **Date** *(mm/dd/yy)*: | 24/09/2018 | **Drawing No:** | |
| **Discipline:** | Civil/Subgrade | | |

**The following:** **Area** ☒ **Equipment** ☐ **System** ☐ **Other** ☐

**(Provide complete description of area item, equipment system and Tag Numbers where applicable):**

**Subgrade prepared to elevation 985.22 – 985.89**

**Released to:** Ewing

**Release Basis:**

| | | | |
|---|---|---|---|
| ☒ | Civil | ☐ | Paintings/Coatings |
| ☐ | Structural | ☐ | Electrical |
| ☐ | Mechanical | ☐ | Tracing |
| ☐ | Piping | ☐ | Insulation |
| ☐ | NDE | ☐ | Fireproofing |
| ☐ | PHWT | ☐ | Walkdown/Punchout |
| ☐ | Pressure Test | ☐ | Other |

**Comments:**

**Area has been rough graded; Ewing to provide final grading to U/S of Reclaim Tunnel**

| | | | |
|---|---|---|---|
| Jennifer Byram | V.P. | Jennifer Byram | 09/25/18 |
| Requested By *(Print)* | Title | Signature | Date *(mm/dd/yy)* |
| Ishan Fechter | Superintendent | | 10/02/18 |
| Release Authorized By *(Print)* | Title | Signature | Date *(mm/dd/yy)* |
| Release Received/Accepted By *(Print)* | Title | Signature | Date *(mm/dd/yy)* |

VICEAG05E

# CONTRACTOR/INTERDISCIPLINE RELEASE FORM

| | | | |
|---|---|---|---|
| **Project:** | Eagle Gold Project | **Revision No.** | 0 |
| **Contractor:** | Priority Steel | **Contract No:** | CCS202 |
| **Area:** | 3210 – Reclaim Tunnel | | |

| | | | |
|---|---|---|---|
| **Date** *(mm/dd/yy)*: | 02/25/2019 | **Drawing No:** | |
| **Discipline:** | Structural Steel | | |

**The following:** **Area** ☒ **Equipment** ☐ **System** ☐ **Other** ☐

**(Provide complete description of area item, equipment system and Tag Numbers where applicable):**

**Reclaim Tunnel**

**Released to:** BPC

**Release Basis:**

| | | | |
|---|---|---|---|
| ☐ | Civil | ☐ | Paintings/Coatings |
| ☒ | Structural | ☐ | Electrical |
| ☐ | Mechanical | ☐ | Tracing |
| ☐ | Piping | ☐ | Insulation |
| ☐ | NDE | ☐ | Fireproofing |
| ☐ | PHWT | ☐ | Walkdown/Punchout |
| ☐ | Pressure Test | ☐ | Other |

**Comments:**

**Area is ready for mechanical equipment installation**

| | | | |
|---|---|---|---|
| Joel Prior | Super | | Feb 25, 2019 |
| Requested By *(Print)* | Title | Signature | Date *(mm/dd/yy)* |
| Spence Gilchrist | Super | | Feb 25, 2019 |
| Release Authorized By *(Print)* | Title | Signature | Date *(mm/dd/yy)* |
| Chris Gonder | Super | | Feb 26/19 |
| Release Received/Accepted By *(Print)* | Title | Signature | Date *(mm/dd/yy)* |

# CONTRACTOR/INTERDISCIPLINE RELEASE FORM

| | | | |
|---|---|---|---|
| **Project:** | Eagle Gold Project | **Revision No.** | 0 |
| **Contractor:** | Ewing | **Contract No:** | CC 201 |
| **Area:** | 3210 – Coarse Ore Reclaim Tunnel - Culvert | | |

| | | | |
|---|---|---|---|
| **Date** *(mm/dd/yy)*: | 25/11/2018 | **Drawing No:** | H354138-3210-231-260-0010 Rev. 5 |
| **Discipline:** | Civil/Subgrade/Multi-Plate Culvert | | |

**The following:** **Area** ☒ **Equipment** ☐ **System** ☐ **Other** ☐

**(Provide complete description of area item, equipment system and Tag Numbers where applicable):**

**Multi-Plate Culvert**

**Released to:** Clark Builders

**Release Basis:**

| | | | |
|---|---|---|---|
| ☒ | Civil | ☐ | Paintings/Coatings |
| ☒ | Structural | ☐ | Electrical |
| ☐ | Mechanical | ☐ | Tracing |
| ☐ | Piping | ☐ | Insulation |
| ☐ | NDE | ☐ | Fireproofing |
| ☐ | PHWT | ☐ | Walkdown/Punchout |
| ☐ | Pressure Test | ☐ | Other |

**Comments:**

**Reclaim Tunnel released for rebar and weeping tile installation**

**Note – No concrete to be placed until backfill of multi-plate culvert has been completed to EPCM satisfaction; commencement of concrete placement to be approved by EPCM prior to placement**

| | | | |
|---|---|---|---|
| Marshall Ewing | Foreman | | 11/25/18 |
| Requested By *(Print)* | Title | Signature | Date *(mm/dd/yy)* |
| Ishan Fechter | Superintendent | | 11/25/18 |
| Release Authorized By *(Print)* | Title | Signature | Date *(mm/dd/yy)* |
| Garry DAHL | Supt | | 11/25/18 |
| Release Received/Accepted By *(Print)* | Title | Signature | Date *(mm/dd/yy)* |

VICEAG05E

# CONTRACTOR/INTERDISCIPLINE RELEASE FORM

| | | | |
|---|---|---|---|
| **Project:** | Eagle Gold Project | **Revision No.** | 0 |
| **Contractor:** | Ewing | **Contract No:** | CC 201 |
| **Area:** | 3100 – Primary Crusher – Transformer Pad | | |

| | | | |
|---|---|---|---|
| **Date** *(mm/dd/yy)*: | 25/11/2018 | **Drawing No:** | H354138-3100-231-260-0031 Rev.2 |
| **Discipline:** | Civil/Subgrade | | |

**The following:** **Area** ☒ **Equipment** ☐ **System** ☐ **Other** ☐

**(Provide complete description of area item, equipment system and Tag Numbers where applicable):**

**Primary Crusher Transformer Pad Sub-Grade prepared to U/S of concrete**

**Released to:** Clark Builders

**Release Basis:**

| | | | |
|---|---|---|---|
| ☒ | Civil | ☐ | Paintings/Coatings |
| ☐ | Structural | ☐ | Electrical |
| ☐ | Mechanical | ☐ | Tracing |
| ☐ | Piping | ☐ | Insulation |
| ☐ | NDE | ☐ | Fireproofing |
| ☐ | PHWT | ☐ | Walkdown/Punchout |
| ☐ | Pressure Test | ☐ | Other |

**Comments:**

**Primary Crusher Transformer Pad prepared to U/S of concrete thickening elevation 1036.850**

**Transformer pad was sub-excavated 1.5m below U/S of concrete and backfilled with 200 mm lifts of 4" NFS material compacted as per Tetratech method spec**

**Sub-grade has been inspected and tested; sub-grade approved for concrete placement**

| Marshall Ewing | Foreman | | 11/25/18 |
|---|---|---|---|
| Requested By *(Print)* | Title | Signature | Date *(mm/dd/yy)* |
| Ishan Fechter | Superintendent | | 11/25/18 |
| Release Authorized By *(Print)* | Title | Signature | Date *(mm/dd/yy)* |
| Release Received/Accepted By *(Print)* | Title | Signature | Date *(mm/dd/yy)* |

# CONTRACTOR / INTERDISCIPLINARY RELEASE FORM

| | | | |
|---|---|---|---|
| **Project:** | Eagle Gold Project | **Revision No.** | 0 |
| **Contractor:** | Clark Builders | **Contract No:** | CB201 |
| **Area:** | 3100 – Primary Crusher | | |

| | | | |
|---|---|---|---|
| **Date:** | August 1, 2018 | **Drawing No:** | H354138-3100-231-260-0002 |
| **Discipline:** | Civil/Subgrade | | |

**The following:** **Area** ☒ **Equipment** ☐ **System** ☐ **Other** ☐

**(Provide complete description of area item, equipment system and Tag Numbers where applicable):**

Subgrade preparation to the underside of footing +0 and – 150mm at the Primary Crushing Building in the areas highlighted in the above mentioned drawing.

**Released to:** Clark Builders

**Release Basis:**

| | | | |
|---|---|---|---|
| ☒ | Civil | ☐ | Paintings/Coatings |
| ☐ | Structural | ☐ | Electrical |
| ☐ | Mechanical | ☐ | Tracing |
| ☐ | Piping | ☐ | Insulation |
| ☐ | NDE | ☐ | Fireproofing |
| ☐ | PHWT | ☐ | Walkdown/Punchout |
| ☐ | Pressure Test | ☐ | Other |

**Comments:**

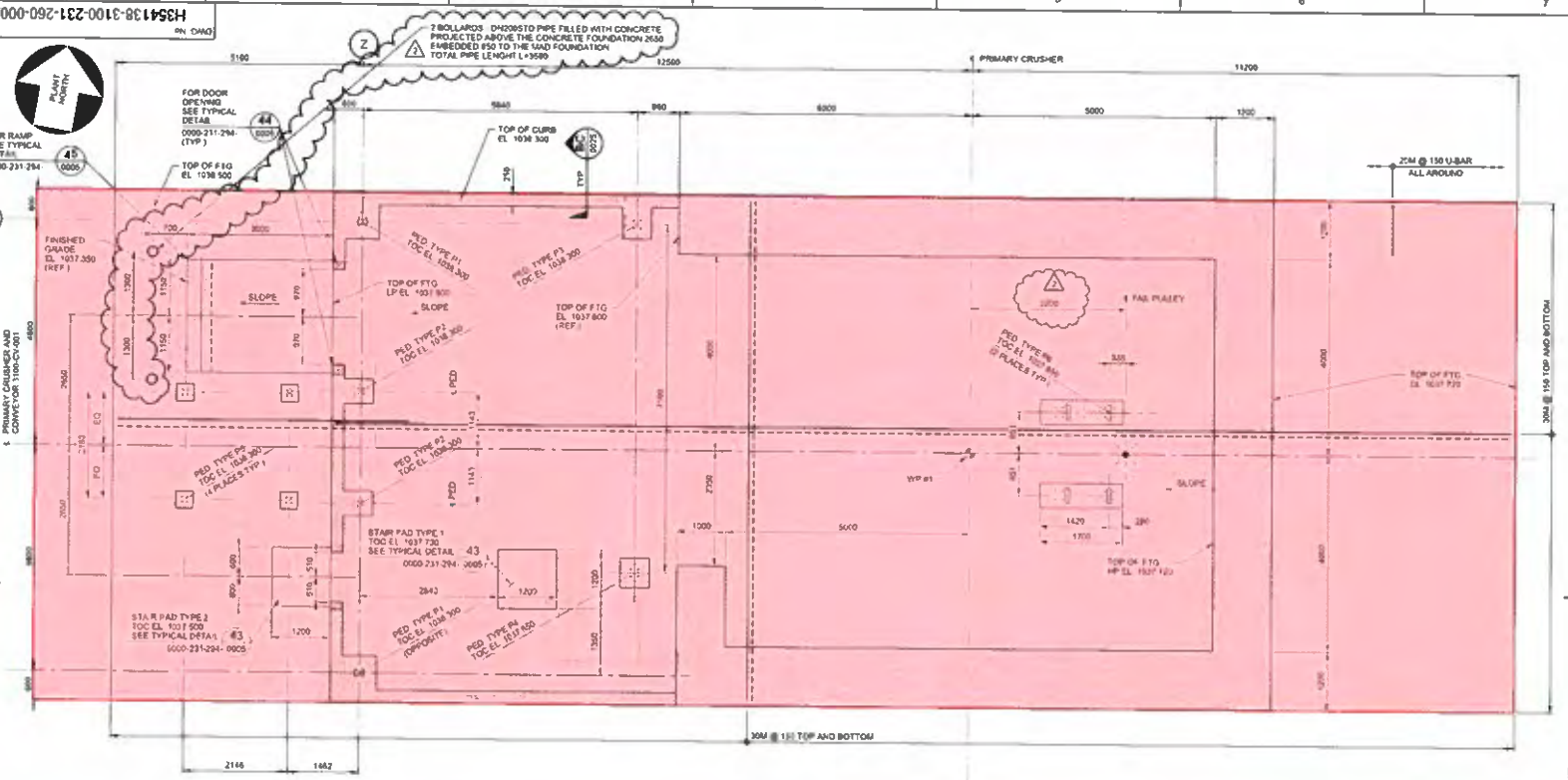
Attached is the Primary Crusher Survey Control information for Clark Builder use.

| Requested By (Print) | Title | Signature | Date |
|---|---|---|---|
| DAN RUSSELL | PROJECT MGR | | AUG 1, 2018 |
| Ishan Fechter | Superintendent | | Aug. 1, 2018 |
| | | | |

Release Authorized By (Print) | Title | Signature | Date

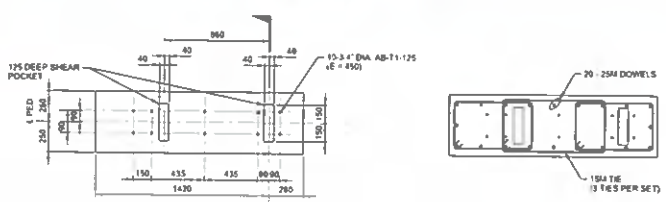
Release Received/Accepted By (Print) | Title | Signature | Date

VICEAG05E




## FOUNDATION PLAN

U/S FTG EL 1035 500

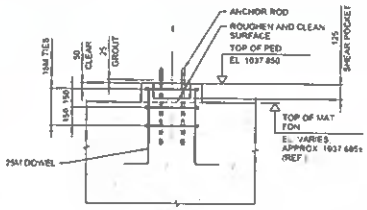



ANCHOR BOLT SETTING

REINFORCEMENT

## PEDESTAL TYPE P6

TOC EL 1037 850
SCALE 1:20

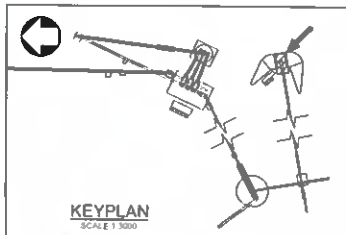



## SECTION CE

SCALE 1:20

NOTES.

1 FOR GENERAL NOTES SEE DRAWING H354138-3100-231-260-0001



## KEYPLAN

SCALE 1:3000

| No | DESCRIPTION | BY | CHK'D | DATE |
|---|---|---|---|---|
| 2 | HOLD H0006 REMOVED, 2 BOLLARDS ADDED CONVEYOR TAIL PULLEY LOCATION CHANGED | PJ | EA | 2018-07-16 |
| 1 | HOLD H0001 REMOVED PED TYPE P6 AND SECTION CE ADDED REFERENCE FOR TYPICAL DETAIL ADDED | PJ | EA | 2018-05-31 |
| 0 | APPROVED FOR CONSTRUCTION | PJ | EA | 2018-04-13 |

REVISIONS

| DRAWING No | DRAWING TITLE |
|---|---|
| REFERENCE DRAWINGS | |

REG PROFESSIONAL

HATCH

| | | | |
|---|---|---|---|
| DRAFTSPERSON | P. JIVAEV | NR | 2018-03-20 |
| DESIGNER | H. LI | NR | 2018-03-20 |
| CHECKER | E. AKINCI | | 2018-07-16 |
| DESIGN COORD | S. PERKINS | | |
| RESP. ENG. | E. AKINCI | | 2018-07-16 |
| LEAD DISC. ENG | E. AKINCI | | 2018-07-16 |
| ENG MANAGER | B. RUSTAD | | |
| PROJ MANAGER | B. RUSTAD | | |

| ROLE | NAME | SIGNATURE & DATE |
|---|---|---|
| DRAWING APPROVAL STATUS | Approved for Construction | |

StrataGold Corporation

EAGLE GOLD PROJECT

PRIMARY CRUSHING
CRUSHER SUPPORT STRUCTURE
FOUNDATION PLAN

SCALE 1:50 OR AS NOTED | DWG No H354138-3100-231-260-0002 | REV 2

SHEET SIZE D

Underhill Geomatics Ltd.
Surveyor: D. Boyle

| |
|---|
| Survey Dates August 1, 2 & 3 2018 |
| Primary Crusher Survey Control for Clark builders |
| Coordinates are ground level. SF=1 |
| Elevations are orthometric. |

| Point # | Northing | Easting | Elevation |
|---|---|---|---|
| 4441 | 100060.039 | 59737.687 | 1036.880 |
| 4442 | 100009.153 | 59742.546 | 1036.646 |
| WP 4 | 100192.726 | 59754.982 | |

| Point 4441 TO 4442 |
|---|
| AZ=174°32'41" HD=51.118m |

Coordinate Methodology

Control Points are originally UTM NAD83 (CSRS) coordinates.
Control points are scaled to ground distances from WP4 at a CSF of 1.000526
Control points are truncated to differentiate from UTM coordinates.
Scaled UTM Northing - 7,000,000 = Ground Northing
Scaled UTM Easting - 400,000 = Ground Easting

# CONTRACTOR / INTERDISCIPLINARY RELEASE FORM

| | | | |
|---|---|---|---|
| **Project:** | Eagle Gold Project | **Revision No.** | 0 |
| **Contractor:** | Clark Builders | **Contract No:** | CB201 |
| **Area:** | 3100 – Primary Crusher | | |

| | | | |
|---|---|---|---|
| **Date:** | August 1, 2018 | **Drawing No:** | H354138-3100-231-260-0002 |
| **Discipline:** | Civil/Subgrade | | |

**The following:** **Area** ☒ **Equipment** ☐ **System** ☐ **Other** ☐

**(Provide complete description of area item, equipment system and Tag Numbers where applicable):**

Subgrade preparation to the underside of footing +0 and – 150mm at the Primary Crushing Building in the areas highlighted in the above mentioned drawing.

**Released to:** Clark Builders

**Release Basis:**

| | | | |
|---|---|---|---|
| ☒ | Civil | ☐ | Paintings/Coatings |
| ☐ | Structural | ☐ | Electrical |
| ☐ | Mechanical | ☐ | Tracing |
| ☐ | Piping | ☐ | Insulation |
| ☐ | NDE | ☐ | Fireproofing |
| ☐ | PHWT | ☐ | Walkdown/Punchout |
| ☐ | Pressure Test | ☐ | Other |

**Comments:**

Attached is the Primary Crusher Survey Control information for Clark Builder use.

Access to site and Laydowns are being worked ON
Site available to access and Mobilize Aug 4 2018

| | | | |
|---|---|---|---|
| DAN RUSSELL | PROJECT MGR | | AUG 1, 2018 |
| Requested By *(Print)* | Title | Signature | Date |
| Ishan Fechter | Superintendent | | Aug. 1, 2018 |
| Release Authorized By *(Print)* | Title | Signature | Date |
| GARRY DAHL | Superintendent | | Aug 4 2018 |
| Release Received/Accepted By *(Print)* | Title | Signature | Date |

VICEAG05E

| | | |
|---|---|---|
| JDS Energy & Mining Inc. | **CONTRACTOR/INTERDISCIPLINE RELEASE FORM** | Victoria GOLD CORP |

| | | | |
|---|---|---|---|
| **Project:** | Eagle Gold Project | **Revision No.** | 0 |
| **Contractor:** | Clark Builders | **Contract No:** | CB201 |
| **Area:** | 3100 – Primary Crushing | | |

| | | | |
|---|---|---|---|
| **Date** *(mm/dd/yy)*: | 01/06/2019 | **Drawing No:** | H354138-3100-231-260-0001 R1 |
| **Discipline:** | Concrete | | |

**The following:** **Area** ☒ **Equipment** ☐ **System** ☐ **Other** ☐

**(Provide complete description of area item, equipment system and Tag Numbers where applicable):**

**Primary Crusher**

**Released to:** Priority Steel

**Release Basis:**

| | | | |
|---|---|---|---|
| ☐ | Civil | ☐ | Paintings/Coatings |
| ☒ | Structural | ☐ | Electrical |
| ☐ | Mechanical | ☐ | Tracing |
| ☐ | Piping | ☐ | Insulation |
| ☐ | NDE | ☐ | Fireproofing |
| ☐ | PHWT | ☐ | Walkdown/Punchout |
| ☐ | Pressure Test | ☐ | Other |

**Comments:**

**Turnover of concrete to structural steel contractor**

| | | | |
|---|---|---|---|
| JFORY GRAHAM | Site Mgr | [signature] | |
| Requested By *(Print)* | Title | Signature | Date *(mm/dd/yy)* |
| Spence Goldwyn | *Construction Superintendent* | [signature] | *Jan 6, 2019* |
| Release Authorized By *(Print)* | Title | Signature | Date *(mm/dd/yy)* |
| Joel Prior | Super | [signature] | Feb 25, 2019 |
| Release Received/Accepted By *(Print)* | Title | Signature | Date *(mm/dd/yy)* |

VICEAG05E

# CONTRACTOR/INTERDISCIPLINE RELEASE FORM

| | | | |
|---|---|---|---|
| **Project:** | Eagle Gold Project | **Revision No.** | 0 |
| **Contractor:** | Ewing | **Contract No:** | CC 201 |
| **Area:** | 3100 – Primary Crusher – Transformer Pad | | |

| | | | |
|---|---|---|---|
| **Date** *(mm/dd/yy)*: | 25/11/2018 | **Drawing No:** | H354138-3100-231-260-0031 Rev.2 |
| **Discipline:** | Civil/Subgrade | | |

**The following:** **Area** ☒ **Equipment** ☐ **System** ☐ **Other** ☐

**(Provide complete description of area item, equipment system and Tag Numbers where applicable):**

**Primary Crusher Transformer Pad Sub-Grade prepared to U/S of concrete**

**Released to:** Clark Builders

**Release Basis:**

| | | | |
|---|---|---|---|
| ☒ | Civil | ☐ | Paintings/Coatings |
| ☐ | Structural | ☐ | Electrical |
| ☐ | Mechanical | ☐ | Tracing |
| ☐ | Piping | ☐ | Insulation |
| ☐ | NDE | ☐ | Fireproofing |
| ☐ | PHWT | ☐ | Walkdown/Punchout |
| ☐ | Pressure Test | ☐ | Other |

**Comments:**

**Primary Crusher Transformer Pad prepared to U/S of concrete thickening elevation 1036.850**

**Transformer pad was sub-excavated 1.5m below U/S of concrete and backfilled with 200 mm lifts of 4" NFS material compacted as per Tetratech method spec**

**Sub-grade has been inspected and tested; sub-grade approved for concrete placement**

| | | | |
|---|---|---|---|
| Marshall Ewing | Foreman | | 11/25/18 |
| Requested By *(Print)* | Title | Signature | Date *(mm/dd/yy)* |
| Ishan Fechter | Superintendent | | 11/25/18 |
| Release Authorized By *(Print)* | Title | Signature | Date *(mm/dd/yy)* |
| Garry Dahl | Supt. | | 11/25/18 |
| Release Received/Accepted By *(Print)* | Title | Signature | Date *(mm/dd/yy)* |

# StrataGold - Eagle Gold Project

## Inspection and Test Plan (ITP) - Secondary & Tertiary MSE Wall Construction

HEAVY NORTH

HN Project No: PRC0033 | ITP No: HN-PRC0033-001 | Contract No: CC206

**Owner:** StrataGold
**Contractor:** JDS Energy & Mining Inc

**Project Location:** Victoria Eagle Gold Project, 85km North of Mayo, Yukon, LSD:

**Heavy North** 625 Parsons Road SW, Edmonton, Alberta, T6X 0N9

| Point Codes | | | |
|---|---|---|---|
| A | Audit | S | Surveillance |
| H | Hold | V | Verify |
| I | Inspect | W | Witness |
| R | Review | | |

ITP Status
**AG**= Agreement in Place
**1**= Approved after Changes
**2**= Rework and resubmit
**3**= Reject, many omissions

| Line Item | Activity | Inspection & Test requirements | Acceptance Criteria | HN Point Code | HN Initial | HN Date | JDS Point Code | JDS Initial | JDS Date | Documentation |
|---|---|---|---|---|---|---|---|---|---|---|
| **1.0** | **Kick-off/Mobilization** | | | | | | | | | |
| 1.1 | Inspection and Test Plans (ITP). | ITP has agreement in place prior to start of any work. | AG, "Agreement in Place". | H | AW | 2018/08/16 | H | | august 16/18 | ITP No: HN-PRC0033-001 |
| 1.2 | Issued Drawings | Ensure all issued for construction drawings are of latest revision | Up to date document log with current revisions | R | AW | 2018/09/27 | R | | OCT 14 2018 | Construction Drawing List |
| 1.3 | Signed Contract | Ensure contract is signed by both parties prior to work commencing on site. | Signed document | H | AW | 2018/08/23 | H | | august 16/18 | Project Contract |
| **2.0** | **Ground Disturbance** | | | | | | | | | |
| 2.1 | Request For Ground Disturbance | Verify existing underground utilities and crossing agreements required (if any) | Current and signed excavation and ground disturbance permits | H | AW | 2018/09/16 | H | * | N/A | Copy of Excavation Permit, including sign off of GDP checklist. Verify One Call, sweeps and 3rd party notification sent. (if required) |
| 2.2 | Permit to Work | Work Permit Issued to Contractor for Scope of Work | Completed, signed, & issued. | H | AW | 2018/10/14 | H | | OCT 14 2018 | Work Permit Document(s) |
| **3.0** | **Document Submittals** | | | | | | | | | |
| 3.1 | Granular Sieve Analysis | Design standards. | Granular material to comply with gradation limits as specified | H | AW | 2018/09/27 | H | | OCT 14 2018 | *1 Client to supply documentation |
| 3.2 | Third Party Compaction Technician Qualification and Densometer Certification | Design standards. | Certifications are all current for the duration of the project. | H | | | H | * | N/A | Client to supply documentation |
| 3.3 | Equipment Calibration Certificate | Ensure all equipment is calibrated to date. | Valid calibration record of all pertanent equipment. | H | | | H | * | N/A | Equipment Calibration Record |

* N/A - Method spec for Backfill / Compaction

*1: Friction angle test - Golder

HEAVY NORTH

# StrataGold - Eagle Gold Project

## Inspection and Test Plan (ITP) - Secondary & Tertiary MSE Wall Construction

HN Project No: PRC0033 | ITP No: HN-PRC0033-001 | Contract No: CC206

**Owner:** StrataGold
**Contractor:** JDS Energy & Mining Inc

**Project Location:** Victoria Eagle Gold Project, 85km North of Mayo, Yukon, LSD:

**Heavy North** 625 Parsons Road SW, Edmonton, Alberta, T6X 0N9

| Point Codes | | | |
|---|---|---|---|
| A | Audit | S | Surveillance |
| H | Hold | V | Verify |
| I | Inspect | W | Witness |
| R | Review | | |

ITP Status
**AG**= Agreement in Place
**1**= Approved after Changes
**2**= Rework and resubmit
**3**= Reject, many omissions

| Line Item | Activity | Inspection & Test requirements | Acceptance Criteria | HN Point Code | HN Initial | HN Date | JDS Point Code | JDS Initial | JDS Date | Documentation |
|---|---|---|---|---|---|---|---|---|---|---|
| **4.0** | **Earthwork** | | | | | | | | | |
| 4.1 | Approved foundation for MSE Wall | Confirm pad has been approved by Geotechnical Engineer & Survey as-built grade. | Sign off from Owner | H | AW | 2018/09/27 | H | | OCT 14 2018 | TIC Project W18502 |
| 4.2 | Backfill Material | Approved backfill material information available for purpose of compaction testing | Design engineer approved Proctor and Sieve Analysis Report | H | AW | 2018/09/27 | H | | OCT 14/2018 | Proctor and Sieve Analysis Report |
| 4.3 | Backfill Material Test Frequency | Sample taken at intervals during construction of the MSE Wall. | New material sample taken every 5000m3. | R | A.W. | 2018-09-23 | R | | OCT 14/2018 | Proctor and Sieve Analysis Report tested at proper intervals. |
| 4.4 | Review MSE Scope Materials | Inventory of materials supplied via client. | Meets requirments of Drawings submitted in TIC Project W18502 | I/R | AW | 2018-09-27 | I/R | | OCT 14/2018 | TIC Project W18502 |
| 4.5 | Structural Excavation & Backfill | Conmpaction testing by qualified quality technician | Excavated/backfilled to required design elevation. Structural backfill as specified and compacted to 95% SPMDD +/- 2% OMC | R | AW | 2018/09/27 | R | | OCT 14/2018 | TIC Project W18502 |
| 4.6 | Geotextile Material | Mill Certs | Meets requirments of Drawings submitted in TIC Project W18502 | R | AW | 2018/09/27 | R | | OCT 14/2018 | TIC Project W18502 |
| 4.7 | MSE Wall - Individual Layer Completion | Constructed layer meets design requirements & as-built | Components of each wall layer built to design criteria in TIC Project W18502 | V | AW. | 2018/09/28 | V | | OCT 14 2018 | HN-CIV-100_REV0-MSE Wall Installation |

HEAVY NORTH

# StrataGold - Eagle Gold Project

## Inspection and Test Plan (ITP) - Secondary & Tertiary MSE Wall Construction

HN Project No: PRC0033 | ITP No: HN-PRC0033-001 | Contract No: CC206

| **Owner:** | **Project Location:** | **Heavy North** |
|---|---|---|
| StrataGold | Victoria Eagle Gold Project | 625 Parsons Road SW |
| **Contractor:** | 85km North of Mayo, Yukon | Edmonton, Alberta |
| JDS Energy & Mining Inc | LSD: | T6X 0N9 |

| Point Codes | | | |
|---|---|---|---|
| **A** | Audit | **S** | Surveillance |
| **H** | Hold | **V** | Verify |
| **I** | Inspect | **W** | Witness |
| **R** | Review | | |

ITP Status
**AG**= Agreement in Place
**1**= Approved after Changes
**2**= Rework and resubmit
**3**= Reject, many omissions

| Line Item | Activity | Inspection & Test requirements | Acceptance Criteria | HN Point Code | HN Initial | HN Date | JDS Point Code | JDS Initial | JDS Date | Documentation |
|---|---|---|---|---|---|---|---|---|---|---|
| **5.0** | **Commissioning/Deficiencies Checks** | | | | | | | | | |
| 5.1 | Owner and Contractors Deficiency and/or incomplete work tour. | Owner and Contractors verifiy all work is complete and details incomplete or deficient items. | Jointly agreed list generated by Owner and Contractors (Repeat as required until all work is complete). | V | AW | 2018/10/01 | V | CG | Oct 14 2018 | Deficiencies list documentation. |
| **6.0** | **Close Out** | | | | | | | | | |
| 6.1 | All items on Deficiency / Punch list complete. | Design & Industry Standards. | Punch list items addressed and rectified. | V | AW | 2018/10/14 | R | CG | Oct 14 2018 | Owner and Contractors signed Deficiency / Incomplete Work List, form HN-QCA-005 REV 0. |
| 6.2 | NCR's closed out. | Design & Industry Standards. | All NCR items closed out | V | AW | 2018/10/14 | R | N/A | | NCR's HN-QCA-013 REV 0, NCR Log |
| 6.3 | Submit Red Line/As built Drawings for review. | Design & Industry Standards. | All changes to the design have been red-lined. As-built has been reviewed. | V | AW | 2018/10/14 | R | CG | Oct 14 2018 | Complete Red Lines. |
| 6.4 | Submit Turnover Documentation for review. | Design & Industry Standards. | Turnover documentation submitted | R | AW | 2018/10/14 | H | CG | Oct 14 2018 | All the above noted documentation. |
| 6.5 | Construction Completion | Design & Industry Standards. | Mechanical completion certificate/ construction completion certificate have been signed and submitted | R | AW | 2018/10/14 | R | CG | Oct 14 2018 | Signed Transfer Care Custody Control (TCCC) HN-QCA-020 REV 0 |

**ITP Acceptance** (Must be signed by authorized representatives prior to any work starting)

| | Heavy North | | |
|---|---|---|---|
| **Name:** | SAM ELSON | | |
| **Title:** | PROJECT MANAGER | Sam Elson | Aug. 16/18 |
| | | **Signature** | **Date** |
| | **JDS Energy & Mining Inc** | | |
| **Name:** | Matt Cavedale | | |
| **Title:** | Field Engineer | Matt Cavedale | Aug 16/18 |
| | | **Signature** | **Date** |

**Initial Log:** All Authorized persons signing off a Point Code must print their name and enter initials below

| Initials | Print | Sign |
|---|---|---|
| AW | AARON WAGNER | |
| AS | Anthony Scheepp | |
| CG | Calvin Goldschmidt | |
| | | |
| | | |
| | | |
| | | |

HEAVY NORTH

Secondary & Tertiary MSE Wall

Assembly Sequence Proposal

Sept. 1, 2018

As per yesterday & todays discussions please see the proposed sequence of steps to construct the Secondary & Tertiary MSE Wall. The following has been generated to set a standard build practice to effectively construct the wall as per design & esthetic requirements; given the conditions encountered on site during early construction of the wall.

Step 1:

- Place baskets with the face at the surveyed string line.
- Overlap baskets one square (100mm).
- *Optional: May wire or zap strap the baskets together.*
- For WWF basket installed at the end of the layer that will be exposed - follow details of WWF Outside Corner Unit (600mm minimum length on each side of bend)

Step 2:

- Roll out biaxial BX112060 Parallel to face of wall. Overlap with the next roll by 100mm.
- Measure 1.5m from edge of BX112060. Kink the BX at the 1.5m measurement as this will nestle into the bottom corner of the baskets.
- *Optional: May tie the BX grid to the basket for security.*
- Drape the remainder of the 2.5m width of BX over the top of the basket so it is out of the way for now.

Step 3:

- Cut appropriate length of the proper TPG uni-axial geogrid to be put in the location as indicated on the drawing elevation views – **ensure minimum embedment length installation as per design**.
- Place 1 end of the TPG geogrid into the bottom corner of the basket overtop the BX and butting up to the tight vertical component of the BX. Extend to rear of reinforced area with no slack to the required embedment length.
  *Note: At this stage a small amount of extra TPG grid extended at the face may help to ensure that when backfilling reinforced fill, the grid doesn't pull away from the face.*
- *Optional: May tie the TPG grid to the basket for security.*
- Repeat with no overlap of TPG geogrid, butting the pieces next to each other.

Step 4:

- Attach struts, every 250mm (~2 squares), carefully placed in between the geogrid openings.
- Use *as needed* to prevent deformation of the wall during construction.

Step 5:

- **Place & compact reinforced backfill (4" minus) first**, ensuring no slack in the geogrid during backfill operation.
- Backfill & compact up to the face fill area (435mm from wall face) and place precut geotextile underneath the reinforced fill - as shown in the details of the drawings.
  *Note: at this stage it is imperative to ensure that the WWF baskets are aligned as per design elevation and setback. Ensure that no movement has occurred & the WWFs are secured prior to backfilling of the face rock.*
- Pull geotextile back to expose the remaining fill area and begin to backfill the remaining face

of the wall (u-shape) with 4"-2" face fill. Bring the face fill material near the top of the basket stopping just below the top of the WWF, ensuring complete coverage of the metal strut (approximately 100mm from the top of basket)

- Face fill to be placed carefully using the 305-314 (mini) excavator ensuring the WWF baskets remain in position during operation.
- Ensure geotextile separation extends a minimum 150mm underneath the reinforced fill & pull over the face fill to prevent migration of the 20mm levelling material to be placed on top.
- 20mm drain rock material levelling course to used achieve a level surface for subsequent WWF basket placement

Step 6:

- A 100lb-200lb plate tamper to be used to compact the 4"-2" face fill & 20mm levelling material to ensure compaction, flat surface, & prevent future bulging of lower layers.

Step 7:

- Pull the 2.0m biaxial geogrid over the 20mm material and backfill ensuring the geogrid remains taut.
- Fill and compact reinforced fill to top of basket elevation meeting compaction requirements.
- Maintain 75mm of fill between the BX upper length (2.0m) of the lower basket and the lower BX length (1.5m) of the upper basket.

Step 8:

- Set back baskets 25mm (min) as you progress with each layer. Monitor this setback frequently and ensure compaction does not affect the facing setback. As compaction occurs, the basket w/ rock face may be pushed forward during construction.
- Ensure 20:1 slope maintained during construction of the MSE Wall.

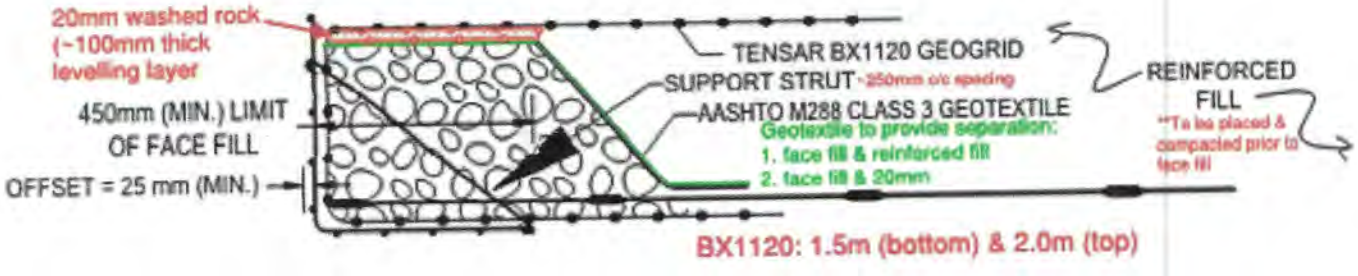
Repeat Steps 1 - 8.

Owner Acknowledgement:

I _____ of _____ have read and agree to the construction steps above as best practice given the conditions encountered during construction of the MSE Wall.

Sincerely,

Aaron Wagner



# Heavy North
# JDS Eagle Gold Project
# Backfill Inspection

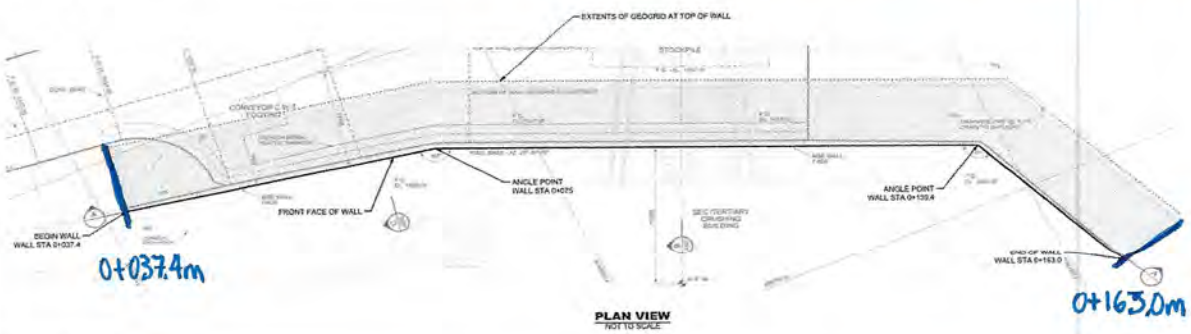
**Date:** 2018/09/21 **Plant/Area:** Secondary MSE Wall

**Location:** See area marked below

**ITP Line Item Number:** 4.1

| DESCRIPTION | Compliance N/A | No | Yes |
|---|---|---|---|
| **Subgrade** | | | |
| Subgrade compacted to approved SPMDD & approved by QA/QC Manager? | | | ✓* |
| **Construction** | | | |
| Ensure backfill area is free of debris, frozen material etc. | | | ✓ |
| Ensure joint seal requirements and/or protection is installed on all structures prior to backfill. | ✓ | | |
| Ensure only hand operated compaction equipment is used within 1.0m of face structure unless otherwise specified. | ✓ | | |
| Ensure specified compaction is achieved. | | | ✓ |
| Ensure each layer compacted prior to addition of subsequent layers. | ✓ | | |
| Backfill approval by QA/QC | | | ✓ |
| Is protection required for frost, moisture, traffic or other? | ✓ | | |
| **Survey and Geometry** | | | |
| Ensure the completed surface of backfill conforms to the required line, grade, and cross section with a tape measure. | | | ✓ |
| Is an As-built required | | | ✓ |

**Notes and or Comments:** * Method specification met for area noted below. AW



PLAN VIEW
NOT TO SCALE

## Sign Off

| | Print | Sign | Date |
|---|---|---|---|
| **Quality Designate:** | AARON WAGNER | | 2018/09/21 |
| **Owner Name:** | ANTHONY SCHOEPP | | 22/09/2018 |

HEAVY NORTH

# Heavy North
# JDS Eagle Gold Project
# MSE Wall Installation

JDS Energy & Mining Inc.

ITP Line Item Number: **4.7** Date: 2018/08/18

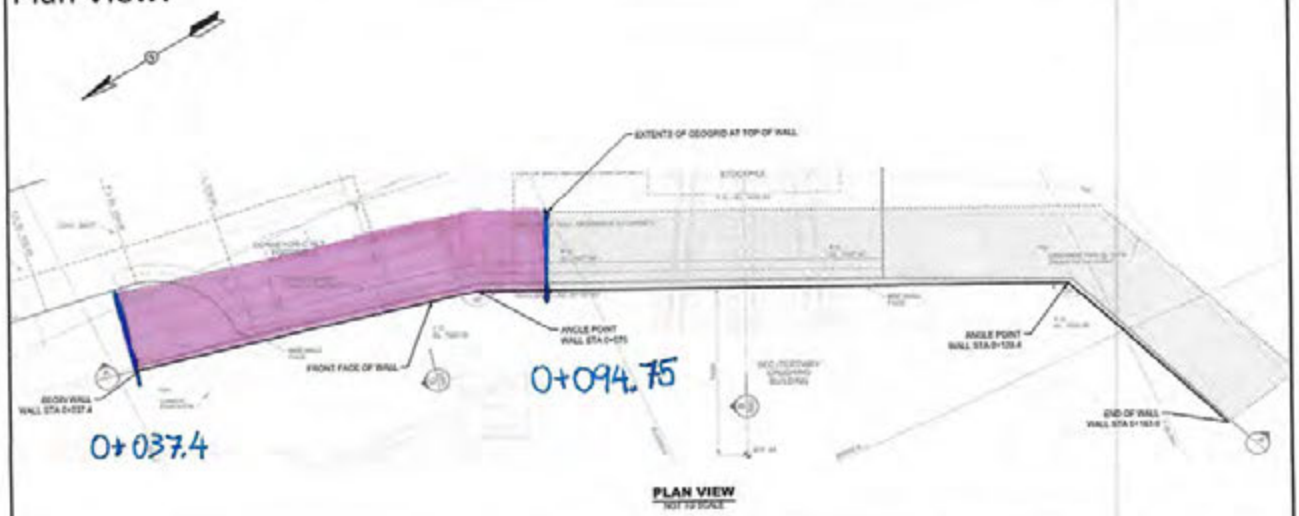
Location: **Secondary MSE Wall**

Layer Number: 1 Elevation: 1019.40 (Identify the location below)

| Material Placed | Design Criteria | Yes | No | N/A |
|---|---|---|---|---|
| WWF Baskets | 100mm overlap / secured / 25mm setback / 50mm deformation | ✓ | | |
| Biaxial Geogrid | Rolled out parallel to wall / 1.5m (bottom) & 2.0m (top) | ✓ | | |
| Uniaxial Geogrid | Cut to embedment length / installed with no slack / no overlap | ✓ | | |
| Struts | 400mm c/c separation / secured to WWF | ✓ | | |
| Face Fill | 535mm (min) limit of face fill | ✓ | | |
| Geotextile | Face-fill & backfill separation / 150mm (min) top & bottom | ✓ | | |
| Separation | 75mm (min) between BX biaxial upper & lower layers | ✓ | | |
| Elevation | | ✓ | | |
| | | | | |

| *Enter other items of inspection below as required* | Yes | No | N/A |
|---|---|---|---|
| Minimum embedment spacing installed as per EPCM-RFI-029 | ✓ | | |
| | | | |
| | | | |

Plan View:




| | Print | Sign | Date |
|---|---|---|---|
| Quality Designate: | AARON WAGNER | | 2018/08/18 |
| Owner: | Calvin Goldschmidt | | 2018/08/13 |

# Heavy North
# JDS Eagle Gold Project
# MSE Wall Installation

ITP Line Item Number: **4.7** Date: 2018/08/19

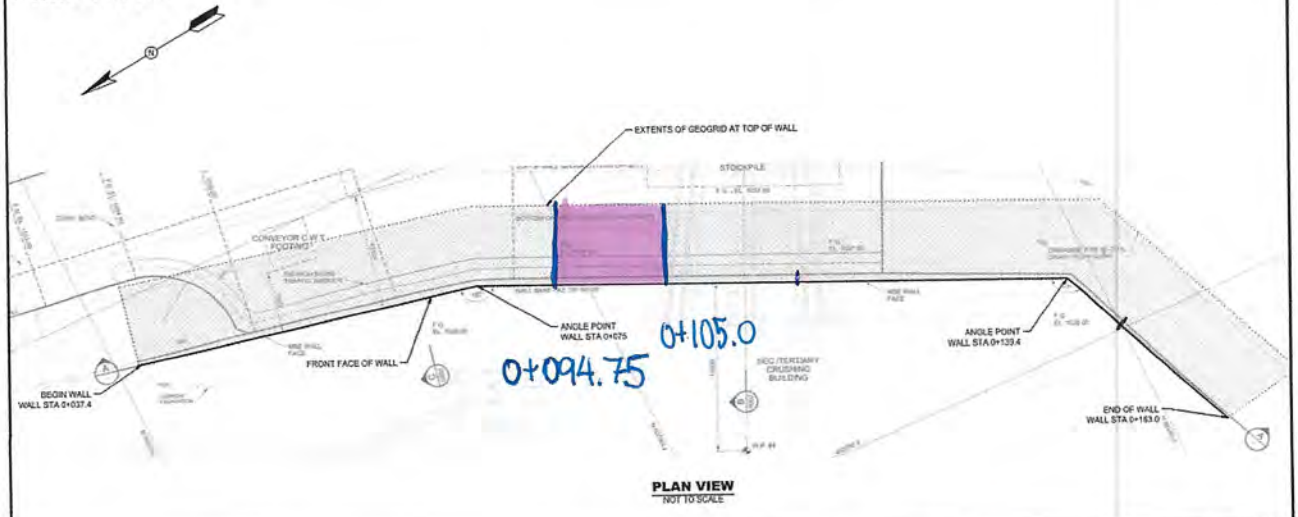
Location: **Secondary MSE Wall**

Layer Number: 1 Elevation: 1019.40 (Identify the location below)

| Material Placed | Design Criteria | Yes | No | N/A |
|---|---|---|---|---|
| WWF Baskets | 100mm overlap / secured / 25mm setback / 50mm deformation | ✓ | | |
| Biaxial Geogrid | Rolled out parallel to wall / 1.5m (bottom) & 2.0m (top) | ✓ | | |
| Uniaxial Geogrid | Cut to embedment length / installed with no slack / no overlap | ✓ | | |
| Struts | 400mm c/c separation / secured to WWF | ✓ | | |
| Face Fill | 535mm (min) limit of face fill | ✓ | | |
| Geotextile | Face-fill & backfill separation / 150mm (min) top & bottom | ✓ | | |
| Separation | 75mm (min) between BX biaxial upper & lower layers | ✓ | | |
| Elevation | | ✓ | | |
| | | | | |

| *Enter other items of inspection below as required* | Yes | No | N/A |
|---|---|---|---|
| | | | |
| | | | |
| | | | |

Plan View:




PLAN VIEW
NOT TO SCALE

| | Print | Sign | Date |
|---|---|---|---|
| Quality Designate: | AARON WAGNER | | 2018/08/19 |
| Owner: | Calvin Goldschmidt | | 2018/09/13 |

Aug 18th:





HEAVY NORTH

# Heavy North
# JDS Eagle Gold Project
# MSE Wall Installation

JDS Energy & Mining Inc.

ITP Line Item Number: **4.7** Date: 2018/08/19

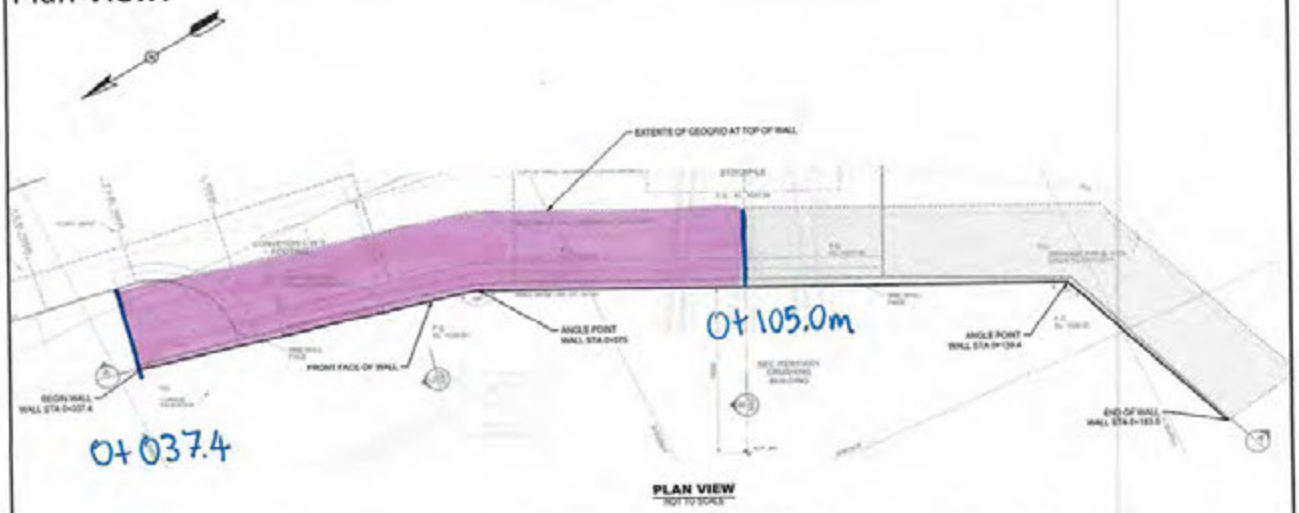
Location: **Secondary MSE Wall**

Layer Number: 2 Elevation: 1019.90 (Identify the location below)

| Material Placed | Design Criteria | Yes | No | N/A |
|---|---|---|---|---|
| WWF Baskets | 100mm overlap / secured / 25mm setback / 50mm deformation | ✓ | | |
| Biaxial Geogrid | Rolled out parallel to wall / 1.5m (bottom) & 2.0m (top) | ✓ | | |
| Uniaxial Geogrid | Cut to embedment length / installed with no slack / no overlap | ✓ | | |
| Struts | 400mm c/c separation / secured to WWF | ✓ | | |
| Face Fill | 535mm (min) limit of face fill | ✓ | | |
| Geotextile | Face-fill & backfill separation / 150mm (min) top & bottom | ✓ | | |
| Separation | 75mm (min) between BX biaxial upper & lower layers | ✓ | | |
| Elevation | | ✓ | | |
| | | | | |

| *Enter other items of inspection below as required* | Yes | No | N/A |
|---|---|---|---|
| | | | |
| | | | |
| | | | |

Plan View:




| | Print | Sign | Date |
|---|---|---|---|
| Quality Designate: | AARON WAGNER | | 2018/08/19 |
| Owner: | Calvin Goldschmidt | | 2018/09/13 |

HEAVY NORTH

# Heavy North
# JDS Eagle Gold Project
# MSE Wall Installation

JDS Energy & Mining Inc.

ITP Line Item Number: **4.7** Date: 2018/08/20

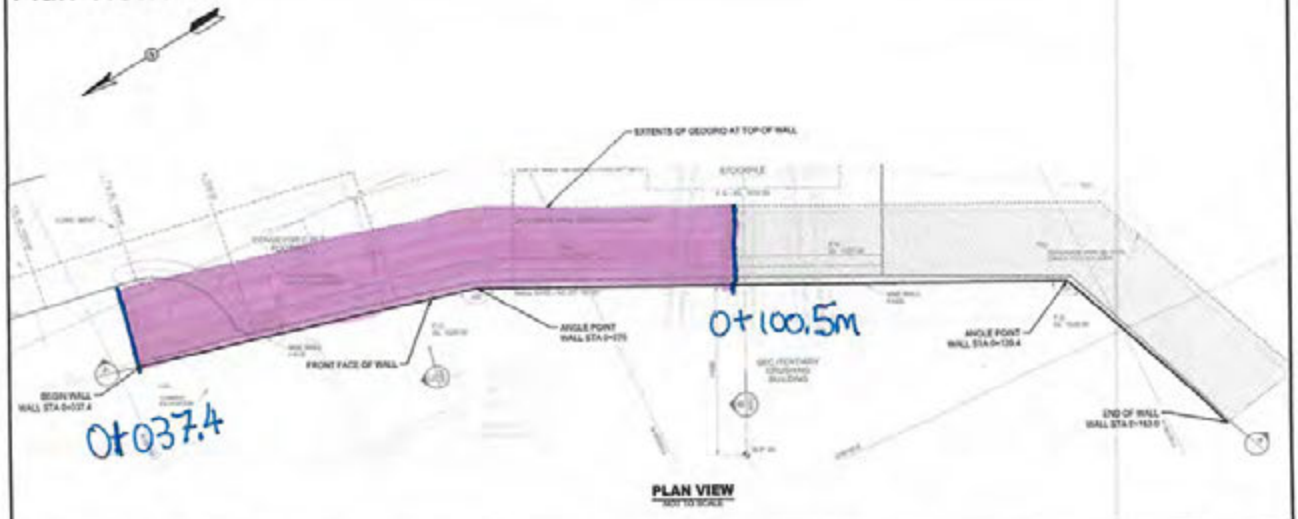
Location: **Secondary MSE Wall**

Layer Number: 3 Elevation: 1020.40 (Identify the location below)

| Material Placed | Design Criteria | Yes | No | N/A |
|---|---|---|---|---|
| WWF Baskets | 100mm overlap / secured / 25mm setback / 50mm deformation | ✓ | | |
| Biaxial Geogrid | Rolled out parallel to wall / 1.5m (bottom) & 2.0m (top) | ✓ | | |
| Uniaxial Geogrid | Cut to embedment length / installed with no slack / no overlap | ✓ | | |
| Struts | 400mm c/c separation / secured to WWF | ✓ | | |
| Face Fill | 535mm (min) limit of face fill | ✓ | | |
| Geotextile | Face-fill & backfill separation / 150mm (min) top & bottom | ✓ | | |
| Separation | 75mm (min) between BX biaxial upper & lower layers | ✓ | | |
| Elevation | | | | |
| | | | | |

| *Enter other items of inspection below as required* | Yes | No | N/A |
|---|---|---|---|
| Embedment of 8.1m obtained | ✓ | | |
| | | | |
| | | | |

Plan View:




| | Print | Sign | Date |
|---|---|---|---|
| Quality Designate: | AARON WAGNER | | 2018/08/20 |
| Owner: | Calvin Goldschmidt | | 2018/09/13 |

# Heavy North
# JDS Eagle Gold Project
# MSE Wall Installation

ITP Line Item Number: **4.7** Date: 2018-08-21

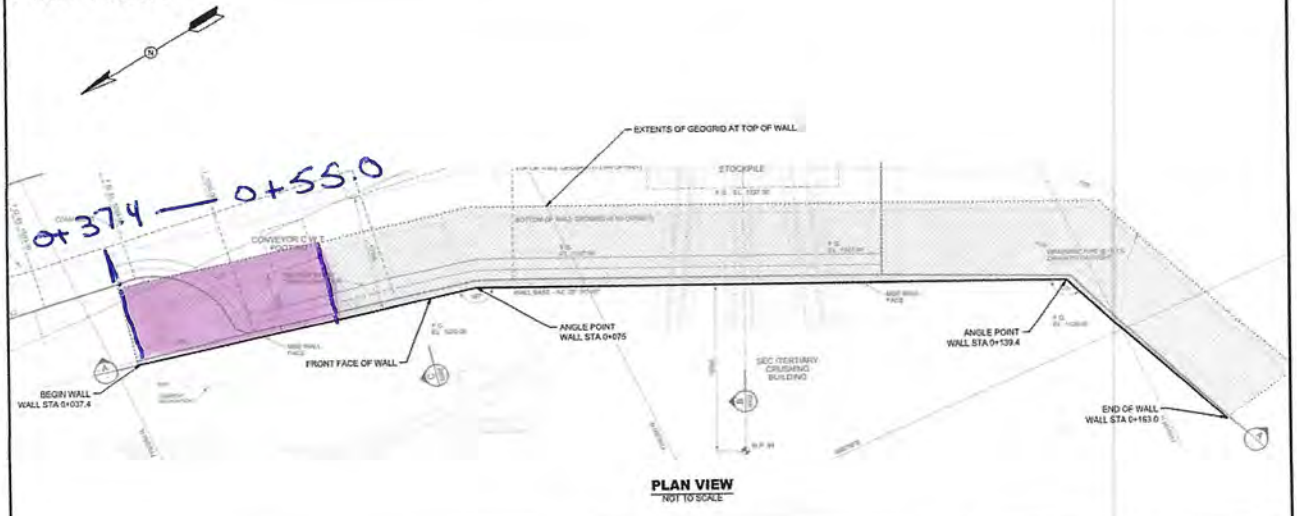
Location: **Secondary MSE Wall**

Layer Number: 4 Elevation: 1020.90 (Identify the location below)

| Material Placed | Design Criteria | Yes | No | N/A |
|---|---|---|---|---|
| WWF Baskets | 100mm overlap / secured / 25mm setback / 50mm deformation | ✓ | | |
| Biaxial Geogrid | Rolled out parallel to wall / 1.5m (bottom) & 2.0m (top) | ✓ | | |
| Uniaxial Geogrid | Cut to embedment length / installed with no slack / no overlap | ✓ | | |
| Struts | 400mm c/c separation / secured to WWF | ✓ | | |
| Face Fill | 535mm (min) limit of face fill | ✓ | | |
| Geotextile | Face-fill & backfill separation / 150mm (min) top & bottom | ✓ | | |
| Separation | 75mm (min) between BX biaxial upper & lower layers | ✓ | | |
| Elevation | | ✓ | | |
| | | | | |

| *Enter other items of inspection below as required* | Yes | No | N/A |
|---|---|---|---|
| | | | |
| | | | |
| | | | |

Plan View:




| | Print | Sign | Date |
|---|---|---|---|
| Quality Designate: | WARREN MARI | | AUG 21/18 |
| Owner: | Calvin Goldschmidt | | 2018/09/13 |

# Heavy North
# JDS Eagle Gold Project
# MSE Wall Installation

ITP Line Item Number: **4.7** Date: 2018-08-22

Location: **Secondary MSE Wall**

Layer Number: 1 Elevation: 1019.40 (Identify the location below)

| Material Placed | Design Criteria | Yes | No | N/A |
|---|---|---|---|---|
| WWF Baskets | 100mm overlap / secured / 25mm setback / 50mm deformation | ✓ | | |
| Biaxial Geogrid | Rolled out parallel to wall / 1.5m (bottom) & 2.0m (top) | ✓ | | |
| Uniaxial Geogrid | Cut to embedment length / installed with no slack / no overlap | ✓ | | |
| Struts | 250mm c/c separation / secured to WWF | ✓ | | |
| Face Fill | 450mm (min) limit of face fill | ✓ | | |
| Geotextile | Face-fill & backfill separation / 150mm (min) bottom | ✓ | | |
| Separation | 75mm (min) between BX biaxial upper & lower layers | ✓ | | |
| | | | | |

| *Enter other items of inspection below as required* | Yes | No | N/A |
|---|---|---|---|
| | | | |
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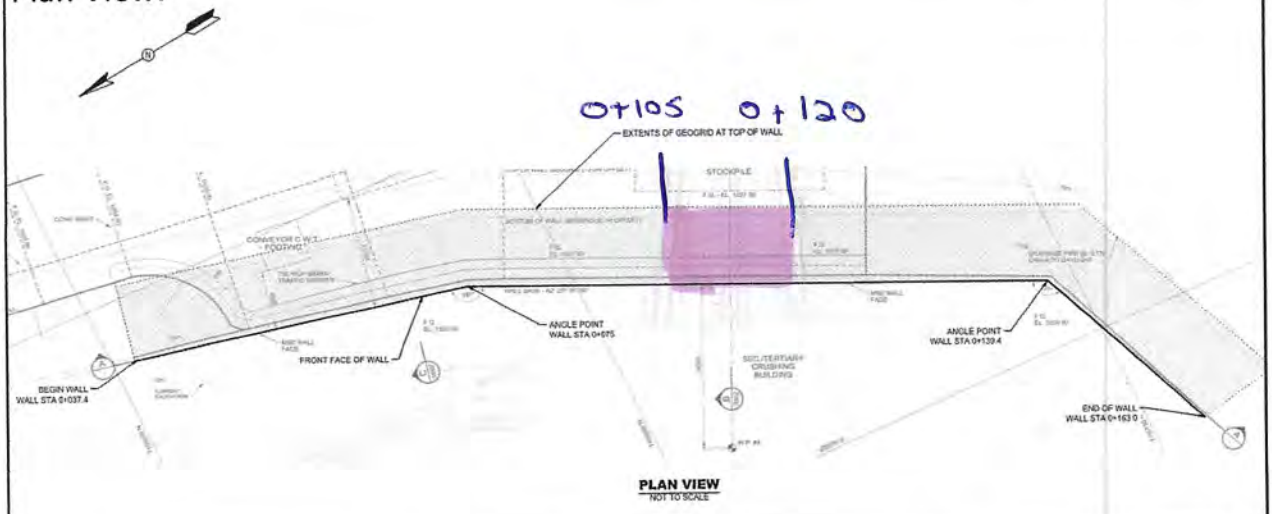
Plan View:




PLAN VIEW
NOT TO SCALE

| | Print | Sign | Date |
|---|---|---|---|
| Quality Designate: | WARREN MPK | | 18/08/18 |
| Owner: | Matt Coverdale | | 18/08/18 |
| EoR: | | | |

# Heavy North
# JDS Eagle Gold Project
# MSE Wall Installation

ITP Line Item Number: **4.7** Date: 2018-08-24

Location: **Secondary MSE Wall**

Layer Number: 4 Elevation: 1220.9 (Identify the location below)

| Material Placed | Design Criteria | Yes | No | N/A |
|---|---|---|---|---|
| WWF Baskets | 100mm overlap / secured / 25mm setback / 50mm deformation | ✓ | | |
| Biaxial Geogrid | Rolled out parallel to wall / 1.5m (bottom) & 2.0m (top) | ✓ | | |
| Uniaxial Geogrid | Cut to embedment length / installed with no slack / no overlap | ✓ | | |
| Struts | 250mm c/c separation / secured to WWF | ✓ | | |
| Face Fill | 450mm (min) limit of face fill | ✓ | | |
| Geotextile | Face-fill & backfill separation / 150mm (min) bottom | ✓ | | |
| Separation | 75mm (min) between BX biaxial upper & lower layers | ✓ | | |
| | | | | |

| *Enter other items of inspection below as required* | Yes | No | N/A |
|---|---|---|---|
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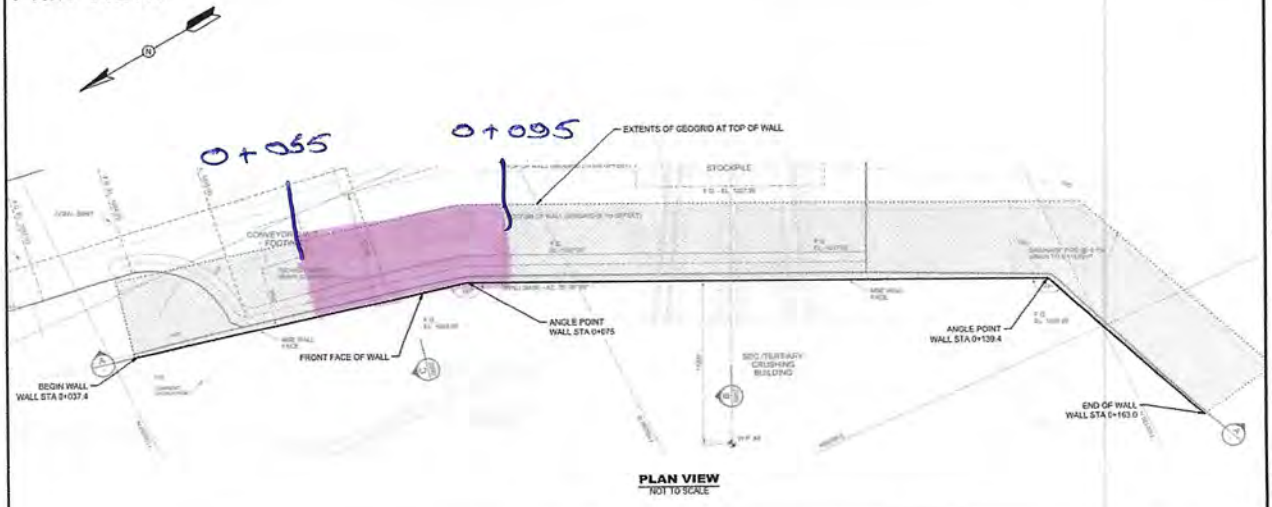
Plan View:




| | Print | Sign | Date |
|---|---|---|---|
| Quality Designate: | WARREN MAKI | | AUG 28-18 |
| Owner: | Calvin Goldschmidt | | 2018/09/13 |
| EoR: | | | |

# Heavy North
# JDS Eagle Gold Project
# MSE Wall Installation

ITP Line Item Number: **4.7** Date: 2018-08-25

Location: **Secondary MSE Wall**

Layer Number: 1 Elevation: 1019.4 (Identify the location below)

| Material Placed | Design Criteria | Yes | No | N/A |
|---|---|---|---|---|
| WWF Baskets | 100mm overlap / secured / 25mm setback / 50mm deformation | ✓ | | |
| Biaxial Geogrid | Rolled out parallel to wall / 1.5m (bottom) & 2.0m (top) | ✓ | | |
| Uniaxial Geogrid | Cut to embedment length / installed with no slack / no overlap | ✓ | | |
| Struts | 250mm c/c separation / secured to WWF | ✓ | | |
| Face Fill | 450mm (min) limit of face fill | ✓ | | |
| Geotextile | Face-fill & backfill separation / 150mm (min) bottom | ✓ | | |
| Separation | 75mm (min) between BX biaxial upper & lower layers | ✓ | | |
| | | | | |

| *Enter other items of inspection below as required* | Yes | No | N/A |
|---|---|---|---|
| | | | |
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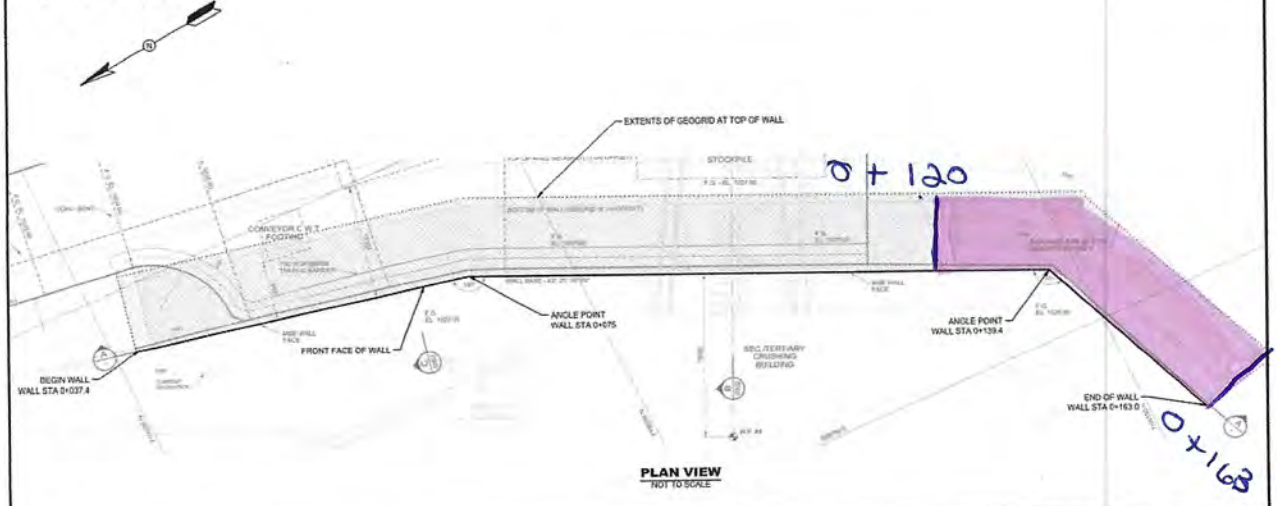
Plan View:




| | Print | Sign | Date |
|---|---|---|---|
| Quality Designate: | WARREN MAKI | | AUG 29 18 |
| Owner: | Calvin Goldschmidt | | 2018/09/13 |
| EoR: | | | |

Aug 25th:



# Heavy North
# JDS Eagle Gold Project
# MSE Wall Installation

ITP Line Item Number: **4.7** Date: 2018-08-26

Location: **Secondary MSE Wall**

Layer Number: 2 Elevation: 1019.9 (Identify the location below)

| Material Placed | Design Criteria | Yes | No | N/A |
|---|---|---|---|---|
| WWF Baskets | 100mm overlap / secured / 25mm setback / 50mm deformation | ✓ | | |
| Biaxial Geogrid | Rolled out parallel to wall / 1.5m (bottom) & 2.0m (top) | ✓ | | |
| Uniaxial Geogrid | Cut to embedment length / installed with no slack / no overlap | ✓ | | |
| Struts | 250mm c/c separation / secured to WWF | ✓ | | |
| Face Fill | 450mm (min) limit of face fill | ✓ | | |
| Geotextile | Face-fill & backfill separation / 150mm (min) bottom | ✓ | | |
| Separation | 75mm (min) between BX biaxial upper & lower layers | ✓ | | |
| | | | | |

| *Enter other items of inspection below as required* | Yes | No | N/A |
|---|---|---|---|
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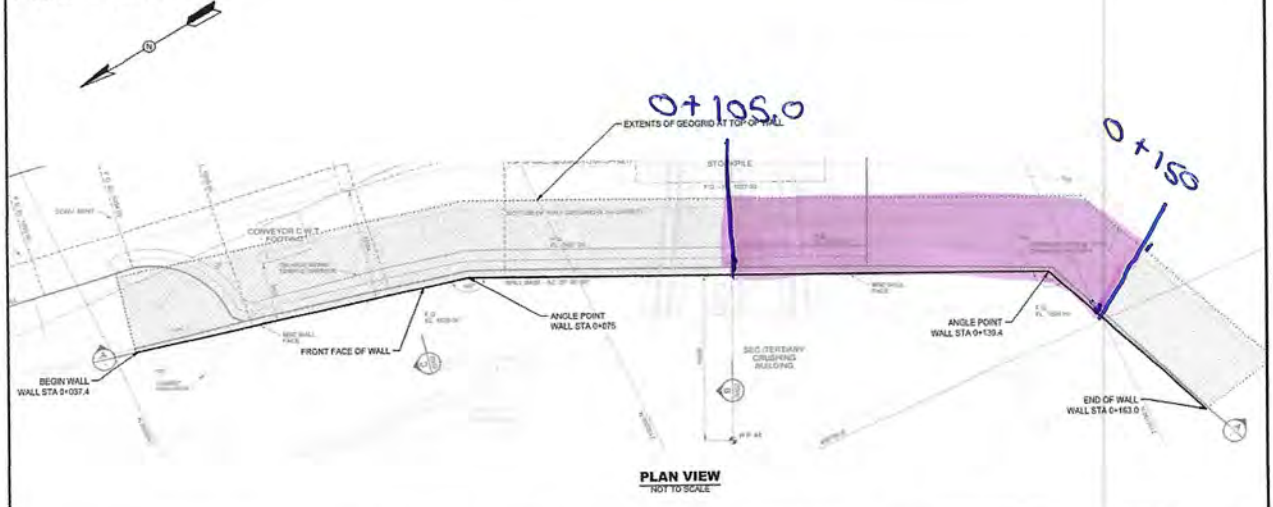
Plan View:




| | Print | Sign | Date |
|---|---|---|---|
| Quality Designate: | WARREN MAKI | | AUG 26-18 |
| Owner: | Calvin Goldschmidt | | 2018/09/13 |
| EoR: | | | |

# Heavy North
# JDS Eagle Gold Project
# MSE Wall Installation

ITP Line Item Number: **4.7** Date: 2018-08-27

Location: **Secondary MSE Wall**

Layer Number: 2 & 3 Elevation: 1019.9 - 1020.40 (Identify the location below)

| Material Placed | Design Criteria | Yes | No | N/A |
|---|---|---|---|---|
| WWF Baskets | 100mm overlap / secured / 25mm setback / 50mm deformation | ✓ | | |
| Biaxial Geogrid | Rolled out parallel to wall / 1.5m (bottom) & 2.0m (top) | ✓ | | |
| Uniaxial Geogrid | Cut to embedment length / installed with no slack / no overlap | ✓ | | |
| Struts | 250mm c/c separation / secured to WWF | ✓ | | |
| Face Fill | 450mm (min) limit of face fill | ✓ | | |
| Geotextile | Face-fill & backfill separation / 150mm (min) bottom | ✓ | | |
| Separation | 75mm (min) between BX biaxial upper & lower layers | ✓ | | |
| | | | | |

| *Enter other items of inspection below as required* | Yes | No | N/A |
|---|---|---|---|
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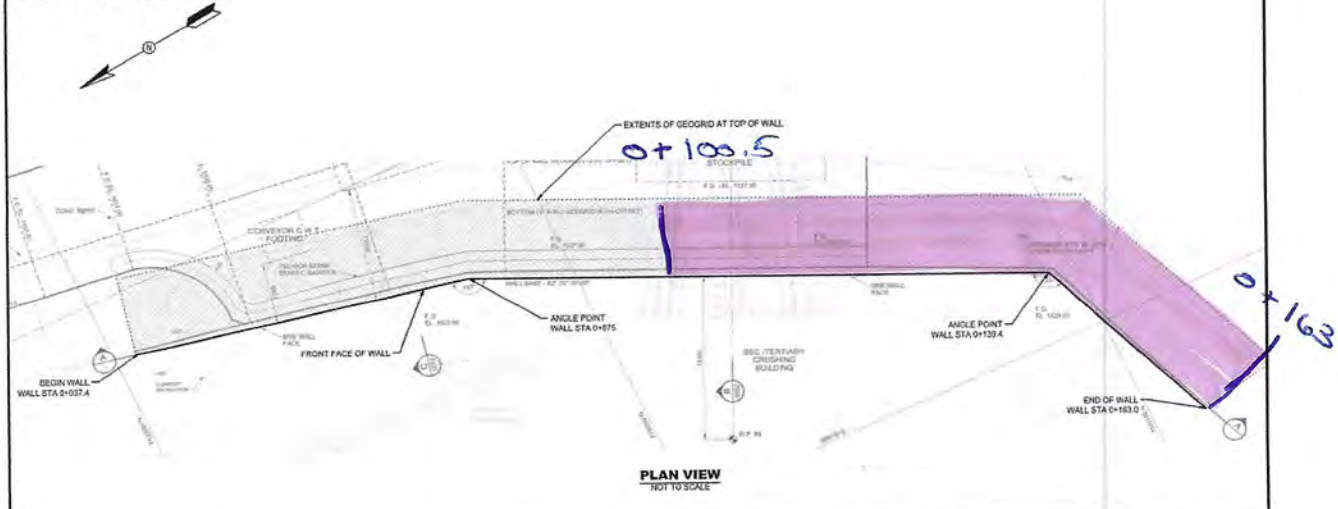
Plan View:




| | Print | Sign | Date |
|---|---|---|---|
| Quality Designate: | WARREN MAKI | | AUG 26/18 |
| Owner: | Calvin Goldschmidt | | 2018/09/13 |
| EoR: | | | |

# Heavy North
# JDS Eagle Gold Project
# MSE Wall Installation

ITP Line Item Number: **4.7** Date: 2018-08-28

Location: **Secondary MSE Wall**

Layer Number: 4 Elevation: 1020.90 (Identify the location below)

| Material Placed | Design Criteria | Yes | No | N/A |
|---|---|---|---|---|
| WWF Baskets | 100mm overlap / secured / 25mm setback / 50mm deformation | ✓ | | |
| Biaxial Geogrid | Rolled out parallel to wall / 1.5m (bottom) & 2.0m (top) | ✓ | | |
| Uniaxial Geogrid | Cut to embedment length / installed with no slack / no overlap | ✓ | | |
| Struts | 250mm c/c separation / secured to WWF | ✓ | | |
| Face Fill | 450mm (min) limit of face fill | ✓ | | |
| Geotextile | Face-fill & backfill separation / 150mm (min) bottom | ✓ | | |
| Separation | 75mm (min) between BX biaxial upper & lower layers | ✓ | | |
| | | | | |

| *Enter other items of inspection below as required* | Yes | No | N/A |
|---|---|---|---|
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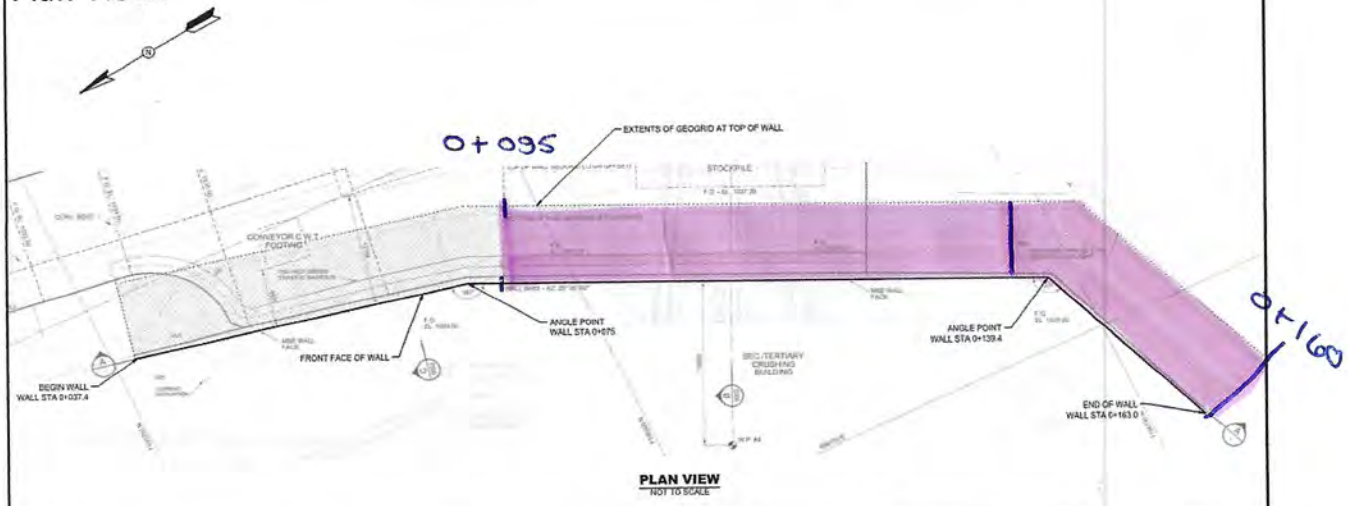
Plan View:




| | Print | Sign | Date |
|---|---|---|---|
| Quality Designate: | WARREN MOKI | | AUG 28 18 |
| Owner: | Calvin Goldschmidt | | 2018/09/13 |
| EoR: | | | |

# Heavy North
# JDS Eagle Gold Project
# MSE Wall Installation

ITP Line Item Number: **4.7** Date: 2018-08-29

Location: **Secondary MSE Wall**

Layer Number: 5 Elevation: 1021.4 (Identify the location below)

| Material Placed | Design Criteria | Yes | No | N/A |
|---|---|---|---|---|
| WWF Baskets | 100mm overlap / secured / 25mm setback / 50mm deformation | ✓ | | |
| Biaxial Geogrid | Rolled out parallel to wall / 1.5m (bottom) & 2.0m (top) | ✓ | | |
| Uniaxial Geogrid | Cut to embedment length / installed with no slack / no overlap | ✓ | | |
| Struts | 250mm c/c separation / secured to WWF | ✓ | | |
| Face Fill | 450mm (min) limit of face fill | ✓ | | |
| Geotextile | Face-fill & backfill separation / 150mm (min) bottom | ✓ | | |
| Separation | 75mm (min) between BX biaxial upper & lower layers | ✓ | | |
| | | | | |

| *Enter other items of inspection below as required* | Yes | No | N/A |
|---|---|---|---|
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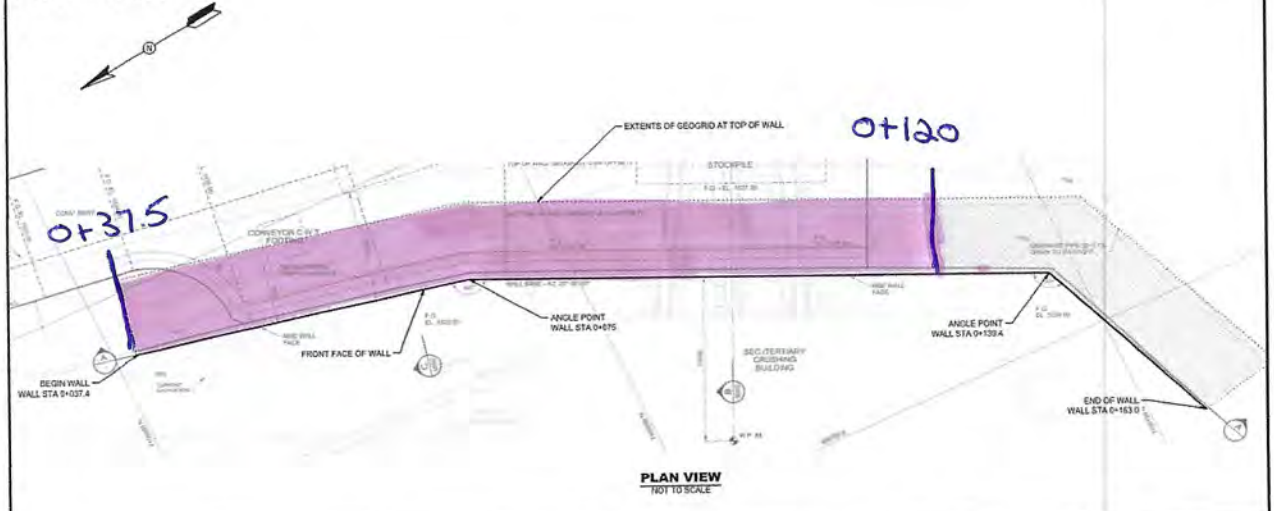
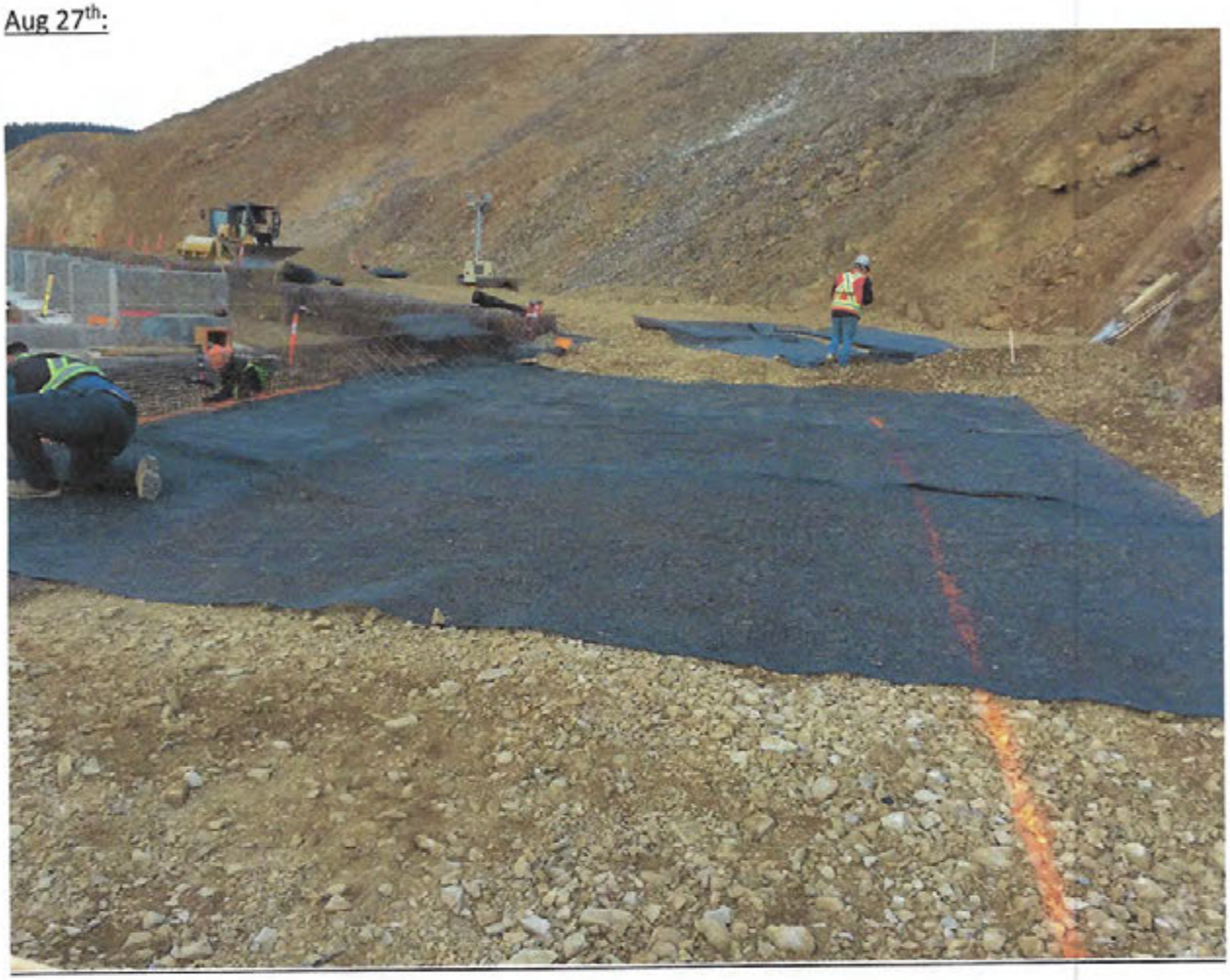
Plan View:




| | Print | Sign | Date |
|---|---|---|---|
| Quality Designate: | WARREN MAKI | | AUG 29 18 |
| Owner: | Calvin Goldschmidt | | 2018/09/13 |
| EoR: | | | |

Aug 27th:



HEAVY NORTH

# Heavy North
# JDS Eagle Gold Project
# MSE Wall Installation

ITP Line Item Number: **4.7** Date: 2018-08-31

Location: **Secondary MSE Wall**

Layer Number: 5 | Elevation: 1021.4 (Identify the location below)

| Material Placed | Design Criteria | Yes | No | N/A |
|---|---|---|---|---|
| WWF Baskets | 100mm overlap / secured / 25mm setback / 50mm deformation | ✓ | | |
| Biaxial Geogrid | Rolled out parallel to wall / 1.5m (bottom) & 2.0m (top) | ✓ | | |
| Uniaxial Geogrid | Cut to embedment length / installed with no slack / no overlap | ✓ | | |
| Struts | 250mm c/c separation / secured to WWF | ✓ | | |
| Face Fill | 450mm (min) limit of face fill | ✓ | | |
| Geotextile | Face-fill & backfill separation / 150mm (min) bottom | ✓ | | |
| Separation | 75mm (min) between BX biaxial upper & lower layers | ✓ | | |
| | | | | |

| *Enter other items of inspection below as required* | Yes | No | N/A |
|---|---|---|---|
| | | | |
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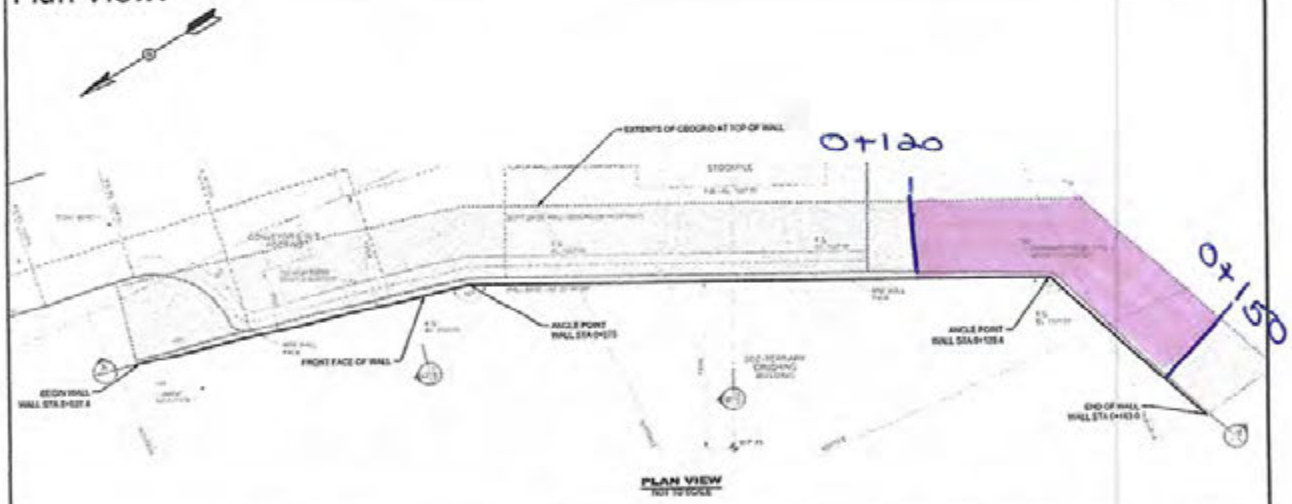
Plan View:




| | Print | Sign | Date |
|---|---|---|---|
| Quality Designate: | WARREN MOKI | | AUG 31 18 |
| Owner: | Calvin Goldschmidt | | 2018/09/13 |
| EoR: | | | |

HEAVY NORTH

# Heavy North
# JDS Eagle Gold Project
# MSE Wall Installation

JDS Energy & Mining Inc.

ITP Line Item Number: **4.7** Date: 2018-09-03

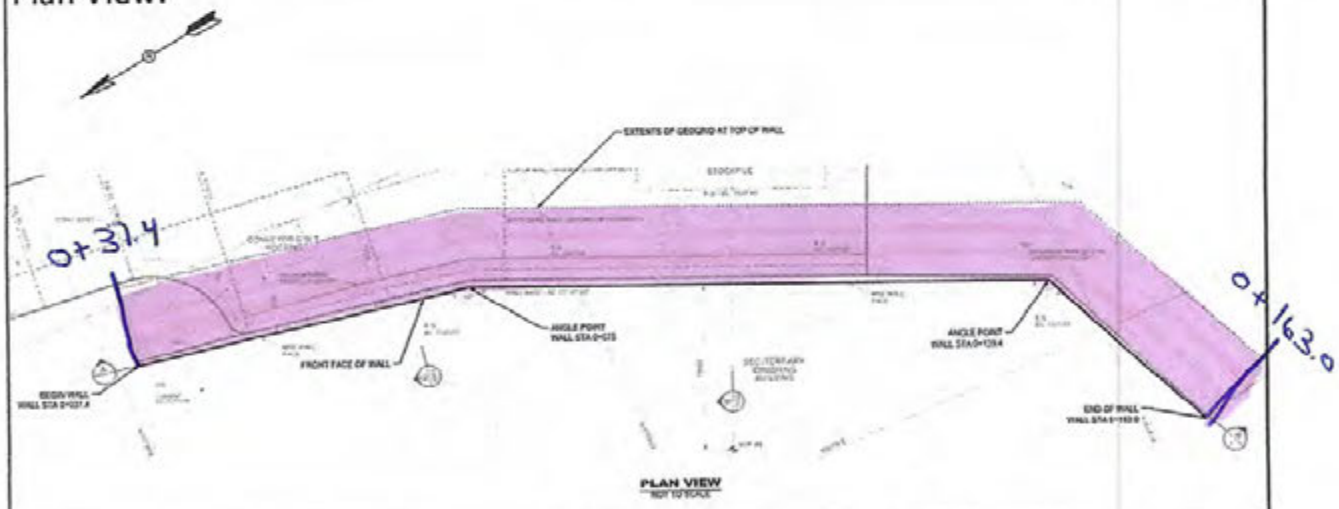
Location: **Secondary MSE Wall**

Layer Number: 6 | Elevation: 1021.9 (Identify the location below)

| Material Placed | Design Criteria | Yes | No | N/A |
|---|---|---|---|---|
| WWF Baskets | 100mm overlap / secured / 25mm setback* / 50mm deformation | ✓ | | |
| Biaxial Geogrid | Rolled out parallel to wall / 1.5m (bottom) & 2.0m (top) | ✓ | | |
| Uniaxial Geogrid | Cut to embedment length / installed with no slack / no overlap | ✓ | | |
| Struts | 250mm c/c separation / secured to WWF | ✓ | | |
| Face Fill | 450mm (min) limit of face fill | ✓ | | |
| Geotextile | Face-fill & backfill separation / 150mm (min) bottom | ✓ | | |
| Separation | 75mm (min) between BX biaxial upper & lower layers | ✓ | | |
| | | | | |

| *Enter other items of inspection below as required* | Yes | No | N/A |
|---|---|---|---|
| * Survey marking baskets to < 25mm set back to grain design batter (face alignment) at request of JDS EPCM. | ✓ | | |
| | | | |
| | | | |

Plan View:




| | Print | Sign | Date |
|---|---|---|---|
| Quality Designate: | Aaron Wagner | | 2018/09/03 |
| Owner: | Calvin Goldschmidt | | 2018/09/13 |
| EoR: | | | |

Aug Sept 3th:



HEAVY NORTH

# Heavy North
# JDS Eagle Gold Project
# MSE Wall Installation

ITP Line Item Number: **4.7** Date: 2018-09-04

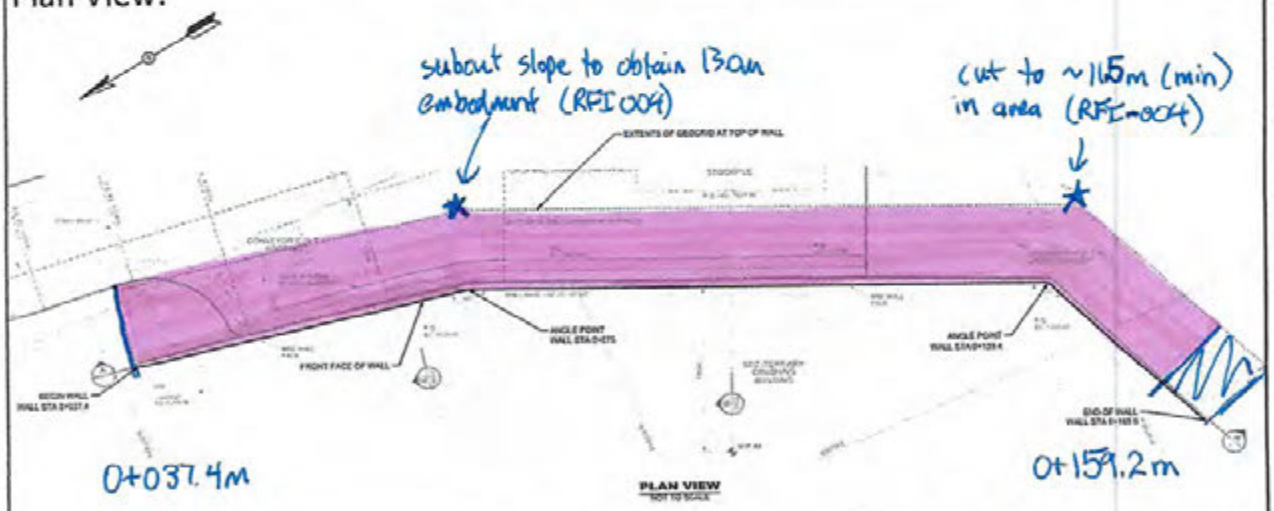
Location: **Secondary MSE Wall**

Layer Number: 7 | Elevation: 1022.4 (Identify the location below)

| Material Placed | Design Criteria | Yes | No | N/A |
|---|---|---|---|---|
| WWF Baskets | 100mm overlap / secured / 25mm setback / 50mm deformation | ✓ | | |
| Biaxial Geogrid | Rolled out parallel to wall / 1.5m (bottom) & 2.0m (top) | ✓ | | |
| Uniaxial Geogrid | Cut to embedment length / installed with no slack / no overlap | ✓ | ★ | |
| Struts | 250mm c/c separation / secured to WWF | ✓ | | |
| Face Fill | 450mm (min) limit of face fill | ✓ | | |
| Geotextile | Face-fill & backfill separation / 150mm (min) bottom | ✓ | | |
| Separation | 75mm (min) between BX biaxial upper & lower layers | ✓ | | |
| | | | | |

| *Enter other items of inspection below as required* | Yes | No | N/A |
|---|---|---|---|
| ★ STA 0+075.0m & STA 0+139.4m embedment length limited to ~1.5m → RFI-004 (CC206) | ✓ | | |
| Wall setback <25mm as directed by JDS to achieve design alignment | ✓ | | |
| | | | |

Plan View:




| | Print | Sign | Date |
|---|---|---|---|
| Quality Designate: | AARON WAGNER | | 2018/09/04 |
| Owner: | Calvin Goldschmidt | | 2018/09/13 |
| EoR: | | | |

Aug Sept 4th:





HEAVY NORTH

# Heavy North
# JDS Eagle Gold Project
# MSE Wall Installation

JDS Energy & Mining Inc.

ITP Line Item Number: **4.7** Date: 2018-09-06

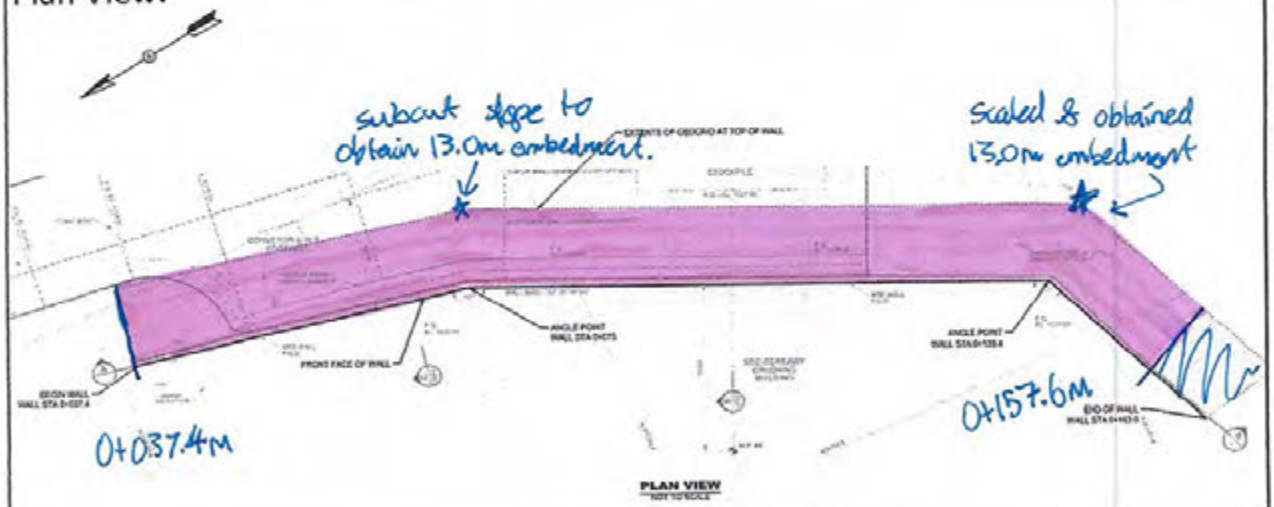
Location: **Secondary MSE Wall**

Layer Number: 8 Elevation: 1123.0 (Identify the location below)

| Material Placed | Design Criteria | Yes | No | N/A |
|---|---|---|---|---|
| WWF Baskets | 100mm overlap / secured / 25mm setback ★ / 50mm deformation | ✓ | | |
| Biaxial Geogrid | Rolled out parallel to wall / 1.5m (bottom) & 2.0m (top) | ✓ | | |
| Uniaxial Geogrid | Cut to embedment length / installed with no slack / no overlap | ✓ | | |
| Struts | 250mm c/c separation / secured to WWF | ✓ | | |
| Face Fill | 450mm (min) limit of face fill | ✓ | | |
| Geotextile | Face-fill & backfill separation / 150mm (min) bottom | ✓ | | |
| Separation | 75mm (min) between BX biaxial upper & lower layers | ✓ | | |
| | | | | |

| *Enter other items of inspection below as required* | Yes | No | N/A |
|---|---|---|---|
| ★ STA 0+075m & STA 0+139.4m embedment length not achievable. RFI-004 (CC206) | ✓ | | |
| Wall setback <25mm in placed to achieve design alignment | ✓ | | |
| | | | |

Plan View:




| | Print | Sign | Date |
|---|---|---|---|
| Quality Designate: | AARON WAGNER | | 2018-09-06 |
| Owner: | Colvin Goldschmidt | | 2018/09/13 |
| EoR: | | | |

# Heavy North
# JDS Eagle Gold Project
# MSE Wall Installation

ITP Line Item Number: **4.7** Date: 2018-09-08

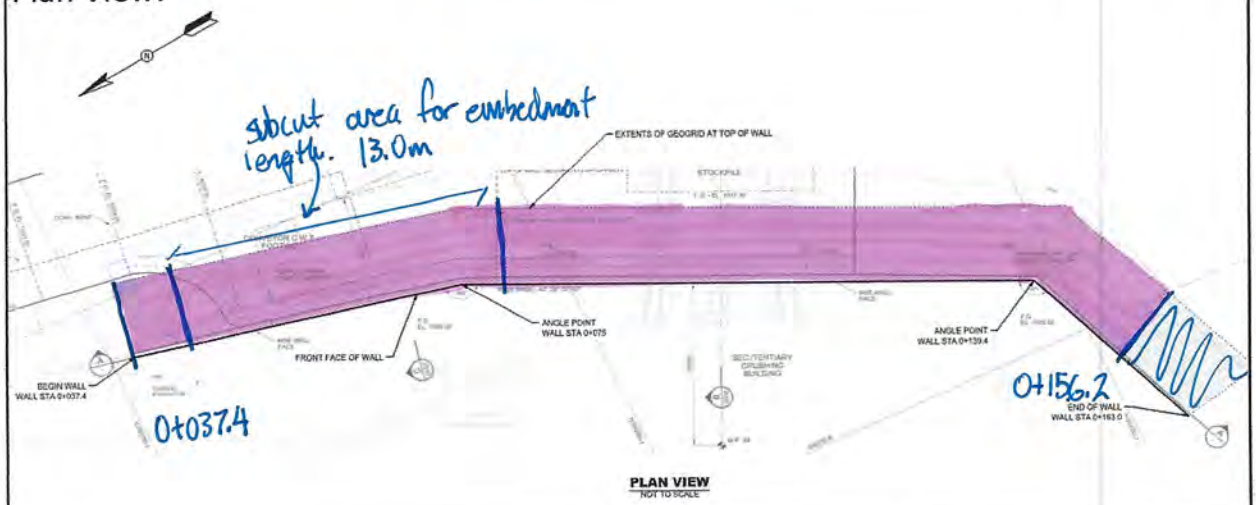
Location: **Secondary MSE Wall**

Layer Number: 9 Elevation: 1023.5 (Identify the location below)

| Material Placed | Design Criteria | Yes | No | N/A |
|---|---|---|---|---|
| WWF Baskets | 100mm overlap / secured / 25mm setback / 50mm deformation | ✓ | | |
| Biaxial Geogrid | Rolled out parallel to wall / 1.5m (bottom) & 2.0m (top) | ✓ | | |
| Uniaxial Geogrid | Cut to embedment length / installed with no slack / no overlap | ✓ | | |
| Struts | 250mm c/c separation / secured to WWF | ✓ | | |
| Face Fill | 450mm (min) limit of face fill | ✓ | | |
| Geotextile | Face-fill & backfill separation / 150mm (min) bottom | ✓ | | |
| Separation | 75mm (min) between BX biaxial upper & lower layers | ✓ | | |
| | | | | |

| *Enter other items of inspection below as required* | Yes | No | N/A |
|---|---|---|---|
| TPG 100 uniaxial geogrid installed → confirmed by Tensar (REI-005 submitted to confirm geogrid material change.) | ✓ | | |
| Wall setback ~25mm to achieve design alignment | ✓ | | |
| | | | |

Plan View:




| | Print | Sign | Date |
|---|---|---|---|
| Quality Designate: | Aaron Wagner | | 2018/09/08 |
| Owner: | Calvin Goldschmidt | | 2018/09/13 |
| EoR: | | | |

Aug Sept 5th:





# Heavy North
# JDS Eagle Gold Project
# MSE Wall Installation

ITP Line Item Number: **4.7** Date: 2018-09-09

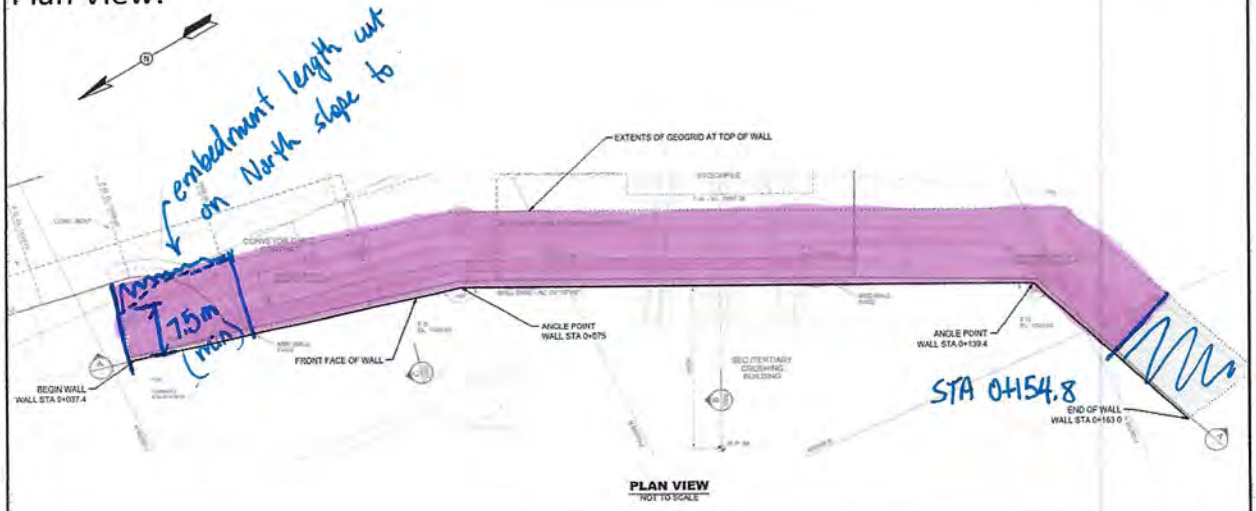
Location: **Secondary MSE Wall**

Layer Number: 10 Elevation: 1024.0 (Identify the location below)

| Material Placed | Design Criteria | Yes | No | N/A |
|---|---|---|---|---|
| WWF Baskets | 100mm overlap / secured / 25mm setback / 50mm deformation | ✓ | | |
| Biaxial Geogrid | Rolled out parallel to wall / 1.5m (bottom) & 2.0m (top) | ✓ | | |
| Uniaxial Geogrid | Cut to embedment length / installed with no slack / no overlap | ✓ | | |
| Struts | 250mm c/c separation / secured to WWF | ✓ | | |
| Face Fill | 450mm (min) limit of face fill | ✓ | | |
| Geotextile | Face-fill & backfill separation / 150mm (min) bottom | ✓ | | |
| Separation | 75mm (min) between BX biaxial upper & lower layers | ✓ | | |
| | | | | |

| *Enter other items of inspection below as required* | Yes | No | N/A |
|---|---|---|---|
| * Wall setbacks <25mm to achieve design alignment. | ✓ | | |
| Tensar approved shortened embedment length on North end - email | ✓ | | |
| | | | |
| | | | |

Plan View:




| | Print | Sign | Date |
|---|---|---|---|
| Quality Designate: | AARON WAGNER | | 2018/09/09 |
| Owner: | Calvin Goldschmidt | | 2018/09/13 |
| EoR: | | | |

---------- Forwarded message ----------
From: **Robert Saenz** <RSaenz@tensarcorp.com>
Date: Sat, Sep 8, 2018 at 4:52 AM
Subject: RE: Victoria Gold MSE Wall - Rock Outcropping Interference
To: Scott Chipman <scott.chipman@nilex.com>
Cc: Gary Sander <GSander@tensarcorp.com>, David Tomlinson <david.tomlinson@nilex.com>

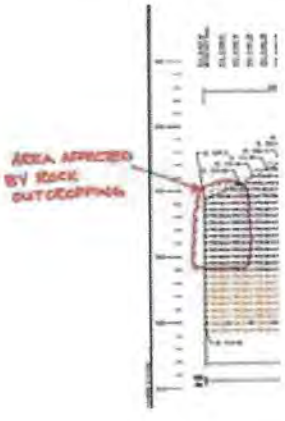
Hi Scott,

Looking forward to meeting you on Monday. I am not going to be available for the weekend, so I am responding to you so I don't get involved in emails coming and going the whole weekend. Thanks.

I had the chance to look at the markups they send and the solution proposed by JDS for the segment requested is acceptable

"Is it possible to reduce/cut the geogrid shorter at this location, keep it horizontal, and have it terminate at the rock face? Effective length would be about 7.5m – 8.0m. As the rock face slopes back at higher elevations, the lengths above would be able to be installed as per design." TIC RS response: Yes, it is acceptable for the segment requested at the end of wall with the effective length proposed not less than 7.5m.

A comment from pictures provided: ensure the side of the wall is backfilled as the top of wall is reached to avoid having a vertical face without reinforcement at the side of the wall.





Regards,

**Robert Saenz P. Eng. | Regional Manager Walls & Slopes - Canada**

Tensar. THE COMPANY YOU CAN BUILD ON®

---

**Tensar International Corporation** |4020 Boul. Des Sources |Montreal, QC. H9B 3L5|Cell: 514-833-9179|RSaenz@tensarcorp.com | www.tensarcorp.com

**From:** Scott Chipman <scott.chipman@nilex.com>
**Sent:** Saturday, September 8, 2018 12:13 AM
**To:** Roman Bilobrowka <romanb@jdsmining.ca>
**Cc:** David Tomlinson <david.tomlinson@nilex.com>; Chris Copley <chrisc@jdsmining.ca>; Calvin Goldschmidt <Calving@jdsmining.ca>; D'Arcy Comerford <darcyc@jdsmining.ca>; Matt Coverdale <MattC@jdsmining.ca>; Ishan Fechter <IshanF@jdsmining.ca>; Jerry Chrzaszcz <jerryc@jdsmining.ca>; Robert Saenz <RSaenz@tensarcorp.com>; Gary Sander <GSander@tensarcorp.com>; Gurch Sekhon <gurch.sekhon@nilex.com>; Fred Chen <fred.chen@nilex.com>; Mike Blusson <mikeb@jdsmining.ca>
**Subject:** Re: Victoria Gold MSE Wall - Rock Outcropping Interference

OK, not sure Robert's availability, will see what we can do.

Have a good night,

Scott Chipman
Technical Sales Representative

778-281-0076

On Fri, Sep 7, 2018, 8:54 PM Roman Bilobrowka <romanb@jdsmining.ca> wrote:

Thanks Scott,

We are able to work on the remainder of the wall, but if Robert could look at it over the weekend, and provide some guidance, it would be great.

I am available via email, or by phone at site.

Regards,

Error! Filename not specified.

**Roman Bilobrowka**

**Site Manager – Victoria Gold Project**

JDS ENERGY & MINING INC.

900 – 999 West Hastings Street

Vancouver B.C. V6C 2W2

Site: Mayo Region – Central Yukon

email **romanb@jdsmining.ca**

Cell: 250.808-0196

Site Office 1 604 424-9745 Ext. 122

---

**From:** Scott Chipman [mailto:scott.chipman@nilex.com]
**Sent:** Friday, September 07, 2018 8:46 PM
**To:** Roman Bilobrowka
**Cc:** David Tomlinson; Chris Copley; Calvin Goldschmidt; D'Arcy Comerford; Matt Coverdale; Ishan

Fechter; Jerry Chrzaszcz; Robert Saenz; Gary Sander; Gurch Sekhon; Fred Chen
**Subject:** Re: Victoria Gold MSE Wall - Rock Outcropping Interference

Good Evening Roman,

Good to hear from you.

The designer, Robert Saenz ( the Tensar wall designer that sealed the drawings ) is cc'd on this reply.

Not sure if the design will be able to accomodate shorter reinforcement.

Robert will need time to review this.

Not sure if he will get this over the weekend and he is travelling and in airports heading to Whitehorse all day Monday.

He and I are travelling to your site and will be there Tuesday afternoon.

When do you need to know the answer on this earliest/latest?

I'll try calling him tomorrow morning.

Scott Chipman
Technical Sales Representative

778-281-0076

On Fri, Sep 7, 2018, 8:30 PM Roman Bilobrowka <romanb@jdsmining.ca> wrote:

Good evening Scott,

I am sending this to you with a request to forward this information to the respective individual who could answer this technical question. (if it is not you) (several member of our site team are not available due to a corporate event)

We have a condition on the Victoria Gold Project where a rock outcropping encroaches into an area of the geogrid panels. The encroachment is fairly significant, but is at the very end of the wall.

I have provided some photos, and some marked up drawings to better reflect the site condition. The rock outcropping leaves about 7.5m – 8.0m of geogrid behind the wall until it encroaches into the rock. The rock affects about 1.5 panels in width, starts at the tenth level up, and would affect up to the twentieth level. (basically the top corner of the wall before it starts to step in) This also the elevation where the geogrid lengths get longer.

In lieu of removing the rock, we are requesting an alternate solution, with Nilex approval.

Is it possible to place the geogrid up the face of the rock, and maintain its designed length?

Is it possible to reduce/cut the geogrid shorter at this location, keep it horizontal, and have it terminate at the rock face? Effective length would be about 7.5m – 8.0m. As the rock face slopes back at higher elevations, the lengths above would be able to be installed as per design.

Can you please review and offer any guidance on a possible solution?

Regards,

**Roman Bilobrowka**

**Site Manager – Victoria Gold Project**

**JDS ENERGY & MINING INC.**

900 – 999 West Hastings Street

Vancouver B.C. V6C 2W2

Site: Mayo Region – Central Yukon

email **romanb@jdsmining.ca**

Cell: 250.808-0196

Site Office 1 604 424-9745 Ext. 122

# Heavy North
# JDS Eagle Gold Project
# MSE Wall Installation

ITP Line Item Number: **4.7** Date: 2018-09-10

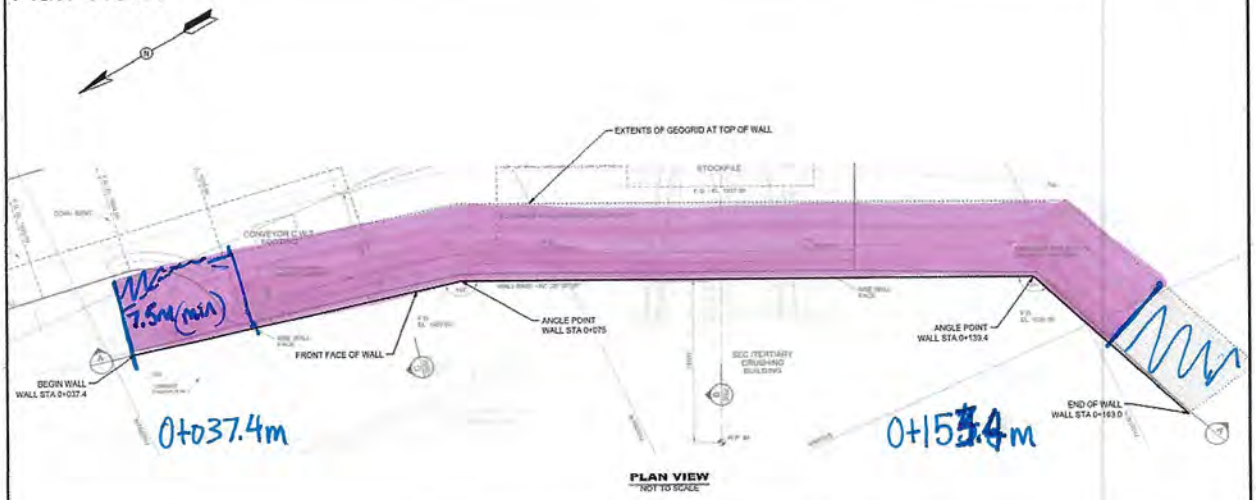
Location: **Secondary MSE Wall**

Layer Number: 11 Elevation: 1024.5 (Identify the location below)

| Material Placed | Design Criteria | Yes | No | N/A |
|---|---|---|---|---|
| WWF Baskets | 100mm overlap / secured / 25mm* setback / 50mm deformation | ✓ | | |
| Biaxial Geogrid | Rolled out parallel to wall / 1.5m (bottom) & 2.0m (top) | ✓ | | |
| Uniaxial Geogrid | Cut to embedment length / installed with no slack / no overlap | ✓ | | |
| Struts | 250mm c/c separation / secured to WWF | ✓ | | |
| Face Fill | 450mm (min) limit of face fill | ✓ | | |
| Geotextile | Face-fill & backfill separation / 150mm (min) bottom | ✓ | | |
| Separation | 75mm (min) between BX biaxial upper & lower layers | ✓ | | |
| | | | | |

| *Enter other items of inspection below as required* | Yes | No | N/A |
|---|---|---|---|
| * Wall setback installed <25mm to achieve design alignment | ✓ | | |
| Tensar approved 7.5m (min) embedment in North segment - email | ✓ | | |
| | | | |
| | | | |

Plan View:




| | Print | Sign | Date |
|---|---|---|---|
| Quality Designate: | Aaron Wagner | | 2018/09/10 |
| Owner: | Calvin Goldschmidt | | 2018/09/13 |
| EoR: | | | |

# Heavy North
# JDS Eagle Gold Project
# MSE Wall Installation

ITP Line Item Number: **4.7** Date: 2018-09-11

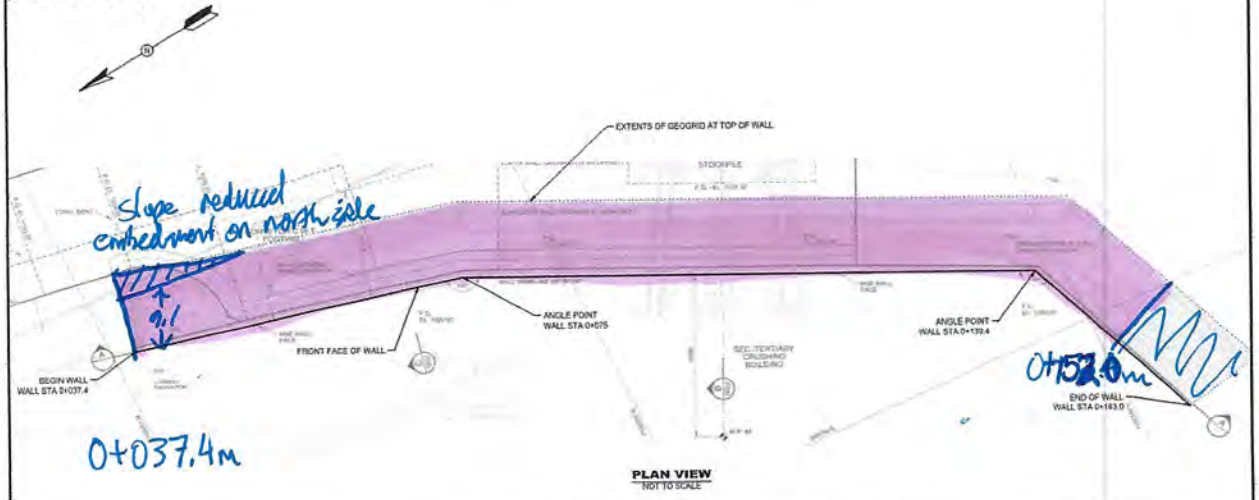
Location: **Secondary MSE Wall**

Layer Number: 12 Elevation: 1025.0 (Identify the location below)

| Material Placed | Design Criteria | Yes | No | N/A |
|---|---|---|---|---|
| WWF Baskets | 100mm overlap / secured / 25mm setback / 50mm deformation | ✓ | | |
| Biaxial Geogrid | Rolled out parallel to wall / 1.5m (bottom) & 2.0m (top) | ✓ | | |
| Uniaxial Geogrid | Cut to embedment length / installed with no slack / no overlap | ✓ | | |
| Struts | 250mm c/c separation / secured to WWF | ✓ | | |
| Face Fill | 450mm (min) limit of face fill | ✓ | | |
| Geotextile | Face-fill & backfill separation / 150mm (min) bottom | ✓ | | |
| Separation | 75mm (min) between BX biaxial upper & lower layers | ✓ | | |
| | | | | |

| *Enter other items of inspection below as required* | Yes | No | N/A |
|---|---|---|---|
| * String line alignment utilized to set WWFs | ✓ | | |
| * Wall (North) embedment ~ 9.1m Approval via Tonsar email | ✓ | | |
| | | | |
| | | | |

Plan View:




| | Print | Sign | Date |
|---|---|---|---|
| Quality Designate: | AARON WAGNER | | 2018/09/11 |
| Owner: | Calvin Goldschmidt | | 2018/09/13 |
| EoR: | | | |

# Heavy North
# JDS Eagle Gold Project
# MSE Wall Installation

ITP Line Item Number: **4.7** Date: 2018-09-12

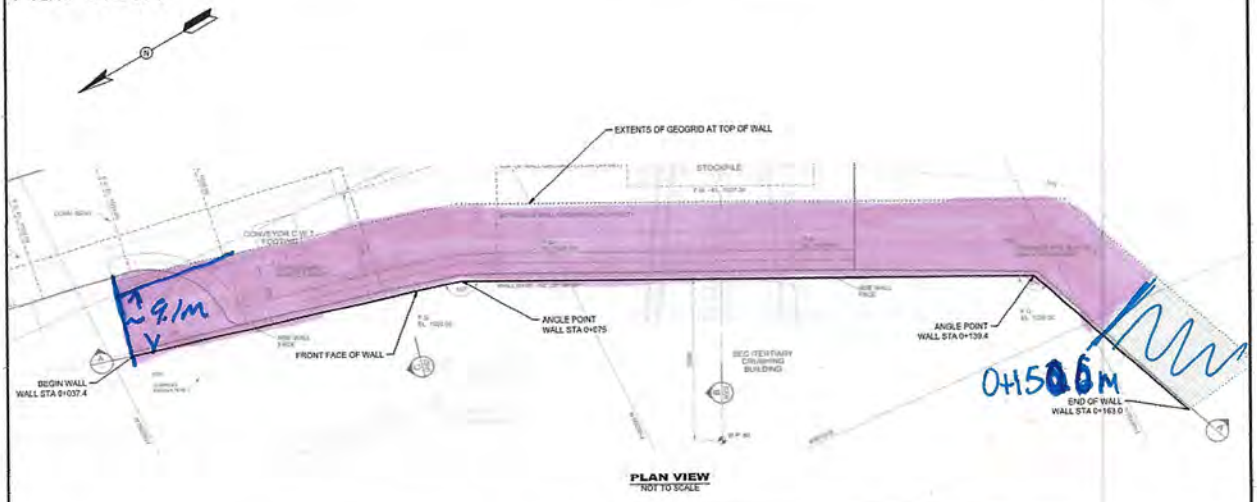
Location: **Secondary MSE Wall**

Layer Number: 13 Elevation: 1025.5 m (Identify the location below)

| Material Placed | Design Criteria | Yes | No | N/A |
|---|---|---|---|---|
| WWF Baskets | 100mm overlap / secured / 25mm setback / 50mm deformation | ✓ | | |
| Biaxial Geogrid | Rolled out parallel to wall / 1.5m (bottom) & 2.0m (top) | ✓ | | |
| Uniaxial Geogrid | Cut to embedment length / installed with no slack / no overlap | ✓ | | |
| Struts | 250mm c/c separation / secured to WWF | ✓ | | |
| Face Fill | 450mm (min) limit of face fill | ✓ | | |
| Geotextile | Face-fill & backfill separation / 150mm (min) bottom | ✓ | | |
| Separation | 75mm (min) between BX biaxial upper & lower layers | ✓ | | |
| | | | | |

| *Enter other items of inspection below as required* | Yes | No | N/A |
|---|---|---|---|
| * Tensar approved shortened embedment length in North section ~9.1m | ✓ | | |
| | | | |
| | | | |
| | | | |

Plan View:




| | Print | Sign | Date |
|---|---|---|---|
| Quality Designate: | AARON WAGNER | | 2018/09/12 |
| Owner: | Calvin Goldschmidt | | 2018/09/13 |
| EoR: | | | |

# UNDERHILL GEOMATICS LTD.

Asbuilts Top Basket Level 13

| STATION | DESCRIPTION | DESIGN (m) | ASBUILT (m) | DIFFERENCE |
|---|---|---|---|---|
| 37.4 | TOP BASKET 13 ASBUILT | 0.3 | N/A | N/A |
| 43.68 | TOP BASKET 13 ASBUILT | 0.3 | 0.41 | 0.11 |
| 49.96 | TOP BASKET 13 ASBUILT | 0.3 | 0.42 | 0.12 |
| 56.24 | TOP BASKET 13 ASBUILT | 0.3 | 0.43 | 0.13 |
| 62.52 | TOP BASKET 13 ASBUILT | 0.3 | 0.43 | 0.13 |
| 68.8 | TOP BASKET 13 ASBUILT | 0.3 | 0.44 | 0.14 |
| 75.08 | TOP BASKET 13 ASBUILT | 0.3 | N/A | N/A |
| 81.36 | TOP BASKET 13 ASBUILT | 0.3 | 0.41 | 0.11 |
| 87.64 | TOP BASKET 13 ASBUILT | 0.3 | 0.42 | 0.12 |
| 93.92 | TOP BASKET 13 ASBUILT | 0.3 | 0.44 | 0.14 |
| 100.2 | TOP BASKET 13 ASBUILT | 0.3 | 0.45 | 0.15 |
| 106.48 | TOP BASKET 13 ASBUILT | 0.3 | 0.44 | 0.14 |
| 112.76 | TOP BASKET 13 ASBUILT | 0.3 | 0.40 | 0.1 |
| 119.05 | TOP BASKET 13 ASBUILT | 0.3 | 0.44 | 0.14 |
| 125.33 | TOP BASKET 13 ASBUILT | 0.3 | 0.45 | 0.15 |
| 131.6 | TOP BASKET 13 ASBUILT | 0.3 | N/A | N/A |
| 137.89 | TOP BASKET 13 ASBUILT | 0.3 | 0.42 | 0.12 |
| 144.17 | TOP BASKET 13 ASBUILT | 0.3 | 0.40 | 0.1 |
| 150.45 | TOP BASKET 13 ASBUILT | 0.3 | N/A | N/A |
| 156.73 | TOP BASKET 13 ASBUILT | 0.3 | N/A | N/A |
| 163 | TOP BASKET 13 ASBUILT | 0.3 | N/A | N/A |

DATE OF SURVEY: SEPTEMBER 12, 2018

SURVEYED BY: BEN SAGADORE

# UNDERHILL GEOMATICS LTD.

MSE WALL DEFORMATION MONITORING

| | STATIONS | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **DATE** | **46.78** | **58.88** | **82.93** | **103.95** | **124.69** | **143.16** | **150.47** | **SURVEYOR** |
| 11/9/2018 | 0 | 0 | N/A | 0 | N/A | 0 | N/A | B.SAGADORE |
| 12/9/2018 | 0.005 | 0.005 | 0.000 | 0.002 | 0.000 | 0.005 | 0.000 | B.SAGADORE |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | |

# Heavy North
# JDS Eagle Gold Project
# MSE Wall Installation

ITP Line Item Number: **4.7** Date: 2018-09-13

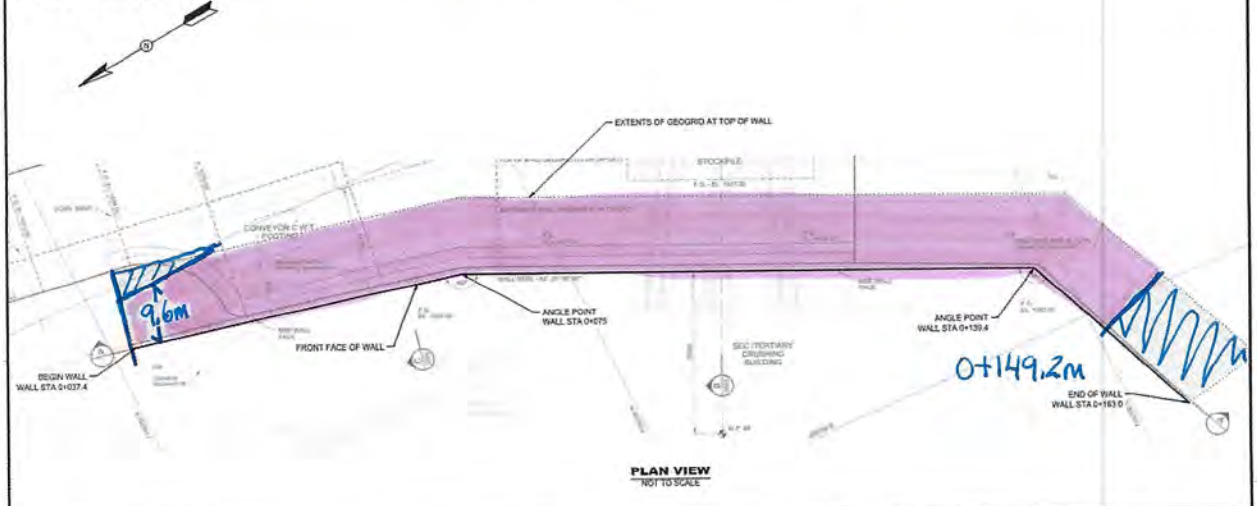
Location: **Secondary MSE Wall**

Layer Number: 14 Elevation: 1026.0m (Identify the location below)

| Material Placed | Design Criteria | Yes | No | N/A |
|---|---|---|---|---|
| WWF Baskets | 100mm overlap / secured / 25mm setback / 50mm deformation | ✓ | | |
| Biaxial Geogrid | Rolled out parallel to wall / 1.5m (bottom) & 2.0m (top) | ✓ | | |
| Uniaxial Geogrid | Cut to embedment length * / installed with no slack / no overlap | ✓ | | |
| Struts | 250mm c/c separation / secured to WWF | ✓ | | |
| Face Fill | 450mm (min) limit of face fill | ✓ | | |
| Geotextile | Face-fill & backfill separation / 150mm (min) bottom | ✓ | | |
| Separation | 75mm (min) between BX biaxial upper & lower layers | ✓ | | |
| | | | | |

| *Enter other items of inspection below as required* | Yes | No | N/A |
|---|---|---|---|
| * Approved reduced length embedment in North corner | ✓ | | |
| Layer inspected by Scott Chipman (Niles) & Robert Saenz (Tensar) | ✓ | | |
| ↳ few notes but overall happy with construction of MSE wall | | | |
| * Noted No structural concerns with wall to date | | | |

Plan View:




| | Print | Sign | Date |
|---|---|---|---|
| Quality Designate: | Aaron Wagner | | 2018/09/13 |
| Owner: | Calvin Goldschmidt | | 2018/09/13 |
| EoR: | | | |

# UNDERHILL GEOMATICS LTD.

Heavy North Copy

Asbuilts Top Basket Level 14

| STATION | DESCRIPTION | DESIGN (m) | ASBUILT (m) | DIFFERENCE (m) |
|---|---|---|---|---|
| 37.4 | TOP BASKET 14 ASBUILT | 0.325 | N/A | N/A |
| 43.68 | TOP BASKET 14 ASBUILT | 0.325 | 0.481 | 0.156 |
| 49.96 | TOP BASKET 14 ASBUILT | 0.325 | 0.447 | 0.122 |
| 56.24 | TOP BASKET 14 ASBUILT | 0.325 | 0.445 | 0.120 |
| 62.52 | TOP BASKET 14 ASBUILT | 0.325 | 0.452 | 0.127 |
| 68.8 | TOP BASKET 14 ASBUILT | 0.325 | 0.460 | 0.135 |
| 75.08 | TOP BASKET 14 ASBUILT | 0.325 | 0.389 | 0.064 |
| 81.36 | TOP BASKET 14 ASBUILT | 0.325 | 0.457 | 0.132 |
| 87.64 | TOP BASKET 14 ASBUILT | 0.325 | 0.431 | 0.106 |
| 93.92 | TOP BASKET 14 ASBUILT | 0.325 | 0.434 | 0.109 |
| 100.2 | TOP BASKET 14 ASBUILT | 0.325 | 0.433 | 0.108 |
| 106.48 | TOP BASKET 14 ASBUILT | 0.325 | 0.424 | 0.099 |
| 112.76 | TOP BASKET 14 ASBUILT | 0.325 | 0.413 | 0.088 |
| 119.05 | TOP BASKET 14 ASBUILT | 0.325 | 0.424 | 0.099 |
| 125.33 | TOP BASKET 14 ASBUILT | 0.325 | 0.437 | 0.112 |
| 131.6 | TOP BASKET 14 ASBUILT | 0.325 | N/A | N/A |
| 137.89 | TOP BASKET 14 ASBUILT | 0.325 | N/A | N/A |
| 144.17 | TOP BASKET 14 ASBUILT | 0.325 | N/A | N/A |
| 150.45 | TOP BASKET 14 ASBUILT | 0.325 | N/A | N/A |
| 156.73 | TOP BASKET 14 ASBUILT | 0.325 | N/A | N/A |
| 163 | TOP BASKET 14 ASBUILT | 0.325 | N/A | N/A |

DATE OF SURVEY: 09-14-2018

SURVEYED BY: B. S.

HEAVY NORTH

# Heavy North
# JDS Eagle Gold Project
# MSE Wall Installation

JDS Energy & Mining Inc.

ITP Line Item Number: **4.7** Date: 2018-09-14

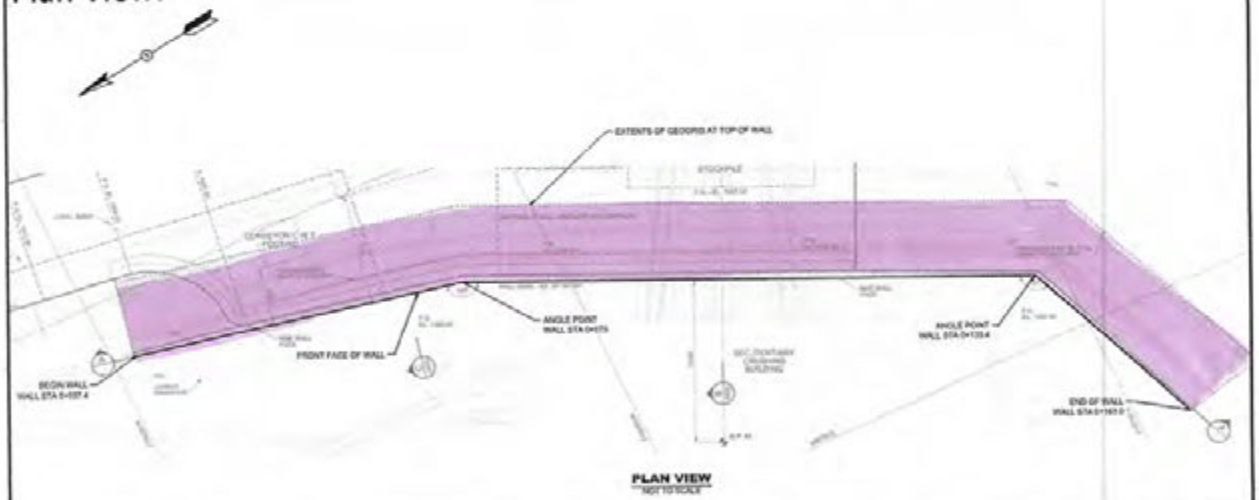
Location: **Secondary MSE Wall**

Layer Number: 15 Elevation: 1026.5 (Identify the location below)

| Material Placed | Design Criteria | Yes | No | N/A |
|---|---|---|---|---|
| WWF Baskets | 100mm overlap / secured / 25mm setback / 50mm deformation | ✓ | | |
| Biaxial Geogrid | Rolled out parallel to wall / 1.5m (bottom) & 2.0m (top) | ✓ | | |
| Uniaxial Geogrid | Cut to embedment length / installed with no slack / no overlap | ✓ | | |
| Struts | ~~250mm~~ 435mm c/c separation / secured to WWF | ✓ | | |
| Face Fill | 450mm (min) limit of face fill | ✓ | | |
| Geotextile | Face-fill & backfill separation / 150mm (min) bottom | ✓ | | |
| Separation | 75mm (min) between BX biaxial upper & lower layers | ✓ | | |
| | | | | |

| *Enter other items of inspection below as required* | Yes | No | N/A |
|---|---|---|---|
| | | | |
| | | | |
| | | | |
| | | | |

Plan View:




| | Print | Sign | Date |
|---|---|---|---|
| Quality Designate: | WARREN MAC | | 18/09/14 |
| Owner: | Calvin Goldschmidt | | Sept 17/18 |
| EoR: | | | |

HN-CIV-100 REV 1

# UNDERHILL GEOMATICS LTD.

Asbuilts Top Basket Level 15

| STATION | DESCRIPTION | DESIGN (m) | ASBUILT (m) | DIFFERENCE (m) |
|---|---|---|---|---|
| 37.4 | TOP BASKET 15 ASBUILT | 0.350 | 0.496 | 0.146 |
| 43.68 | TOP BASKET 15 ASBUILT | 0.350 | 0.519 | 0.169 |
| 49.96 | TOP BASKET 15 ASBUILT | 0.350 | 0.514 | 0.164 |
| 56.24 | TOP BASKET 15 ASBUILT | 0.350 | 0.506 | 0.156 |
| 62.52 | TOP BASKET 15 ASBUILT | 0.350 | 0.491 | 0.141 |
| 68.8 | TOP BASKET 15 ASBUILT | 0.350 | N/A | N/A |
| 75.08 | TOP BASKET 15 ASBUILT | 0.350 | N/A | N/A |
| 81.36 | TOP BASKET 15 ASBUILT | 0.350 | 0.480 | 0.130 |
| 87.64 | TOP BASKET 15 ASBUILT | 0.350 | 0.508 | 0.158 |
| 93.92 | TOP BASKET 15 ASBUILT | 0.350 | 0.473 | 0.123 |
| 100.2 | TOP BASKET 15 ASBUILT | 0.350 | 0.467 | 0.117 |
| 106.48 | TOP BASKET 15 ASBUILT | 0.350 | 0.449 | 0.099 |
| 112.76 | TOP BASKET 15 ASBUILT | 0.350 | 0.466 | 0.116 |
| 119.05 | TOP BASKET 15 ASBUILT | 0.350 | 0.481 | 0.131 |
| 125.33 | TOP BASKET 15 ASBUILT | 0.350 | 0.472 | 0.122 |
| 131.6 | TOP BASKET 15 ASBUILT | 0.350 | 0.455 | 0.105 |
| 137.89 | TOP BASKET 15 ASBUILT | 0.350 | N/A | N/A |
| 144.17 | TOP BASKET 15 ASBUILT | 0.350 | N/A | N/A |
| 150.45 | TOP BASKET 15 ASBUILT | 0.350 | N/A | N/A |
| 156.73 | TOP BASKET 15 ASBUILT | 0.350 | N/A | N/A |
| 163 | TOP BASKET 15 ASBUILT | 0.350 | N/A | N/A |

DATE OF SURVEY: 09-14-2018

SURVEYED BY: B. S.

# UNDERHILL GEOMATICS LTD.

MSE WALL DEFORMATION MONITORING

| DATE | 46.78 | 58.88 | 82.93 | 103.95 | 124.69 | 143.16 | 150.47 | SURVEYOR |
|---|---|---|---|---|---|---|---|---|
| 11/9/2018 | 0 | 0 | N/A | 0 | N/A | 0 | N/A | B.SAGADORE |
| 12/9/2018 | 0.005 | 0.005 | 0.000 | 0.002 | 0.000 | 0.005 | 0.000 | B.SAGADORE |
| 14/9/2018 | 0.003 | 0.005 | 0.002 | 0.003 | 0.005 | 0.001 | 0.006 | B.SAGADORE |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | |

HEAVY NORTH

# Heavy North
# JDS Eagle Gold Project
## MSE Wall Installation

JDS Energy & Mining Inc.

ITP Line Item Number: **4.7** Date: 2018/09/15

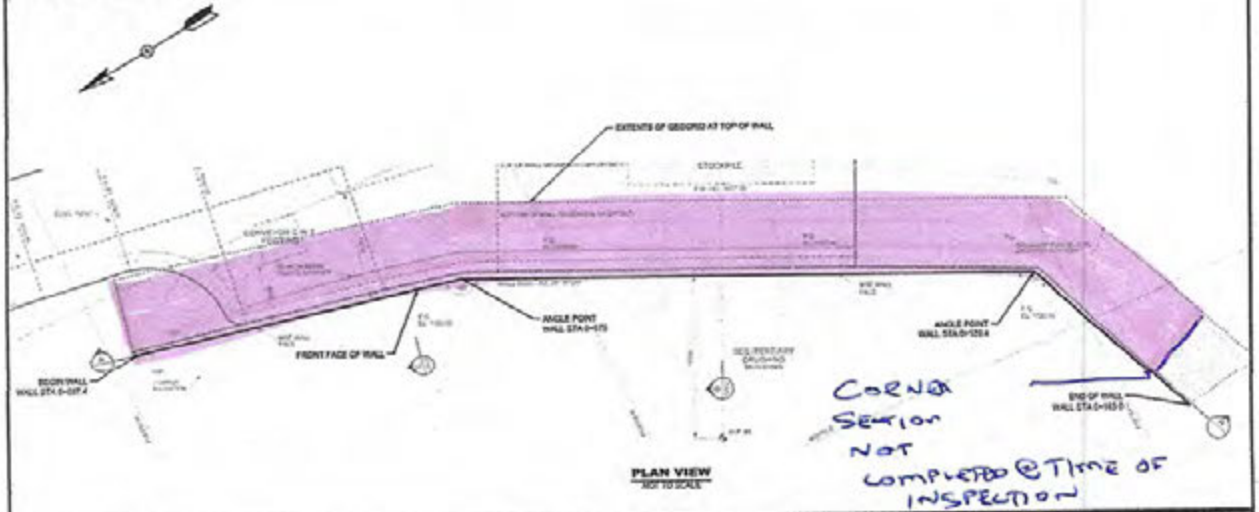
Location: **Secondary MSE Wall**

Layer Number: 16 Elevation: 1027.0 (Identify the location below)

| Material Placed | Design Criteria | Yes | No | N/A |
|---|---|---|---|---|
| WWF Baskets | 100mm overlap / secured / 25mm setback / 50mm deformation | ✓ | | |
| Biaxial Geogrid | Rolled out parallel to wall / 1.5m (bottom) & 2.0m (top) | ✓ | | |
| Uniaxial Geogrid | Cut to embedment length / installed with no slack / no overlap | ✓ | | |
| Struts | ~~250mm~~ 435mm c/c separation / secured to WWF | ✓ | | |
| Face Fill | 450mm (min) limit of face fill | ✓ | | |
| Geotextile | Face-fill & backfill separation / 150mm (min) bottom | ✓ | | |
| Separation | 75mm (min) between BX biaxial upper & lower layers | ✓ | | |
| | | | | |

| *Enter other items of inspection below as required* | Yes | No | N/A |
|---|---|---|---|
| | | | |
| | | | |
| | | | |
| | | | |

Plan View:




| | Print | Sign | Date |
|---|---|---|---|
| Quality Designate: | WARREN MACH | | 18/09/15 |
| Owner: | Calvin Goldschmidt | | Sept 17/18 |
| EoR: | | | |

# UNDERHILL GEOMATICS LTD.

MS. WALL AS BUILT

Asbuilts Top Basket Level 16

| STA | DESC | DES (m) | AB (m) | DIFF (m) | Z DES (m) | Z AB (m) | Z DIFF (m) |
|---|---|---|---|---|---|---|---|
| 37.4 | TOP 16 | 0.375 | N/A | N/A | 1027.02 | 1026.955 | -0.065 |
| 43.68 | TOP 16 | 0.375 | 0.522 | 0.147 | 1027.02 | 1027.001 | -0.019 |
| 49.96 | TOP 16 | 0.375 | 0.550 | 0.175 | 1027.02 | 1027.023 | 0.003 |
| 56.24 | TOP 16 | 0.375 | 0.558 | 0.183 | 1027.02 | 1027.002 | -0.018 |
| 62.52 | TOP 16 | 0.375 | 0.501 | 0.126 | 1027.02 | 1027.032 | 0.012 |
| 68.8 | TOP 16 | 0.375 | 0.562 | 0.187 | 1027.02 | 1027.062 | 0.042 |
| 75.08 | TOP 16 | 0.375 | 0.544 | 0.169 | 1027.02 | 1027.046 | 0.026 |
| 81.36 | TOP 16 | 0.375 | 0.509 | 0.134 | 1027.02 | 1027.002 | -0.018 |
| 87.64 | TOP 16 | 0.375 | 0.525 | 0.150 | 1027.02 | 1026.974 | -0.046 |
| 93.92 | TOP 16 | 0.375 | 0.543 | 0.168 | 1027.02 | 1027.009 | -0.011 |
| 100.2 | TOP 16 | 0.375 | 0.502 | 0.127 | 1027.02 | 1026.987 | -0.033 |
| 106.48 | TOP 16 | 0.375 | 0.549 | 0.174 | 1027.02 | 1027.03 | 0.010 |
| 112.76 | TOP 16 | 0.375 | 0.503 | 0.128 | 1027.02 | 1026.997 | -0.023 |
| 119.05 | TOP 16 | 0.375 | 0.511 | 0.136 | 1027.02 | 1027.063 | 0.043 |
| 125.33 | TOP 16 | 0.375 | 0.483 | 0.108 | 1027.02 | 1026.995 | -0.025 |
| 131.6 | TOP 16 | 0.375 | 0.475 | 0.100 | 1027.02 | 1026.995 | -0.025 |
| 137.89 | TOP 16 | 0.375 | 0.485 | 0.110 | 1027.02 | 1027.083 | 0.063 |
| 144.17 | TOP 16 | 0.375 | 0.473 | 0.098 | 1027.02 | 1027.051 | 0.031 |
| 150.45 | TOP 16 | 0.375 | N/A | N/A | 1027.02 | N/A | N/A |
| 156.73 | TOP 16 | 0.375 | N/A | N/A | 1027.02 | N/A | N/A |
| 163 | TOP 16 | 0.375 | N/A | N/A | 1027.02 | N/A | N/A |

DATE OF SURVEY: 09-16-2018

SURVEYED BY:

# UNDERHILL GEOMATICS LTD.

Asbuilts Top Basket Level 17

| STA | DESC | DES (m) | AB (m) | DIFF (m) | Z DES (m) | Z AB (m) | Z DIFF (m) |
|---|---|---|---|---|---|---|---|
| 37.4 | TOP 17 | 0.400 | N/A | N/A | 1027.528 | N/A | N/A |
| 43.68 | TOP 17 | 0.400 | 0.544 | 0.144 | 1027.528 | 1027.452 | -0.076 |
| 49.96 | TOP 17 | 0.400 | 0.591 | 0.191 | 1027.528 | 1027.502 | -0.026 |
| 56.24 | TOP 17 | 0.400 | 0.588 | 0.188 | 1027.528 | 1027.502 | -0.026 |
| 62.52 | TOP 17 | 0.400 | 0.545 | 0.145 | 1027.528 | 1027.542 | 0.014 |
| 68.8 | TOP 17 | 0.400 | 0.595 | 0.195 | 1027.528 | 1027.575 | 0.047 |
| 75.08 | TOP 17 | 0.400 | N/A | N/A | 1027.528 | N/A | N/A |
| 81.36 | TOP 17 | 0.400 | 0.553 | 0.153 | 1027.528 | 1027.521 | -0.007 |
| 87.64 | TOP 17 | 0.400 | 0.536 | 0.136 | 1027.528 | 1027.491 | -0.037 |
| 93.92 | TOP 17 | 0.400 | 0.551 | 0.151 | 1027.528 | 1027.591 | 0.063 |
| 100.2 | TOP 17 | 0.400 | 0.574 | 0.174 | 1027.528 | 1027.491 | -0.037 |
| 106.48 | TOP 17 | 0.400 | 0.579 | 0.179 | 1027.528 | 1027.525 | -0.003 |
| 112.76 | TOP 17 | 0.400 | 0.520 | 0.120 | 1027.528 | 1027.506 | -0.022 |
| 119.05 | TOP 17 | 0.400 | 0.533 | 0.133 | 1027.528 | 1027.539 | 0.011 |
| 125.33 | TOP 17 | 0.400 | 0.480 | 0.080 | 1027.528 | 1027.540 | 0.012 |
| 131.6 | TOP 17 | 0.400 | 0.479 | 0.079 | 1027.528 | 1027.497 | -0.031 |
| 137.89 | TOP 17 | 0.400 | 0.516 | 0.116 | 1027.528 | 1027.535 | 0.007 |
| 144.17 | TOP 17 | 0.400 | N/A | N/A | 1027.528 | N/A | N/A |
| 150.45 | TOP 17 | 0.400 | N/A | N/A | 1027.528 | N/A | N/A |
| 156.73 | TOP 17 | 0.400 | N/A | N/A | 1027.528 | N/A | N/A |
| 163 | TOP 17 | 0.400 | N/A | N/A | 1027.528 | N/A | N/A |

DATE OF SURVEY: 09-16-2018

SURVEYED BY: B.SAGADORE



# Heavy North
## JDS Eagle Gold Project
## MSE Wall Installation

ITP Line Item Number: **4.7**

Date: 18/09/16

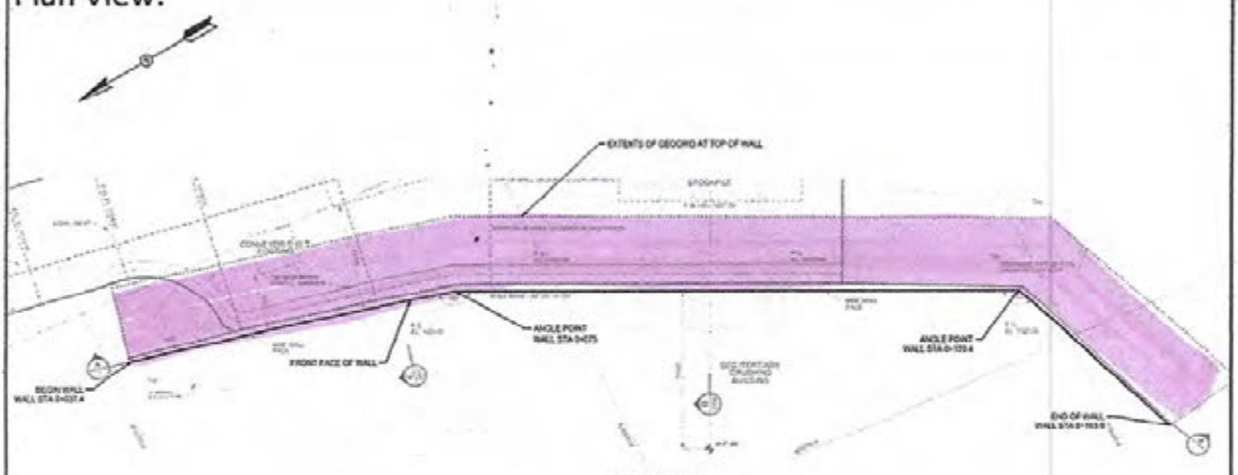
## Location: Secondary MSE Wall

Layer Number: 17 | Elevation: 1027.5 (Identify the location below)

| Material Placed | Design Criteria | Yes | No | N/A |
|---|---|---|---|---|
| WWF Baskets | 100mm overlap / secured / 25mm setback / 50mm deformation | ✓ | | |
| Biaxial Geogrid | Rolled out parallel to wall / 1.5m (bottom) & 2.0m (top) | ✓ | | |
| Uniaxial Geogrid | Cut to embedment length / installed with no slack / no overlap | ✓ | | |
| Struts | ~~250mm~~ 435 c/c separation / secured to WWF | ✓ | | |
| Face Fill | 450mm (min) limit of face fill | ✓ | | |
| Geotextile | Face-fill & backfill separation / 150mm (min) bottom | ✓ | | |
| Separation | 75mm (min) between BX biaxial upper & lower layers | ✓ | | |
| | | | | |

| *Enter other items of inspection below as required* | Yes | No | N/A |
|---|---|---|---|
| | | | |
| | | | |
| | | | |
| | | | |

Plan View:




PLAN VIEW

| | Print | Sign | Date |
|---|---|---|---|
| Quality Designate: | WARREN MAKI | | 18/09/16 |
| Owner: | Calvin Goldschmidt | | Sept 17/16 |
| EoR: | | | |

# Heavy North
## JDS Eagle Gold Project
## MSE Wall Installation

ITP Line Item Number: **4.7** Date: 18/09/17

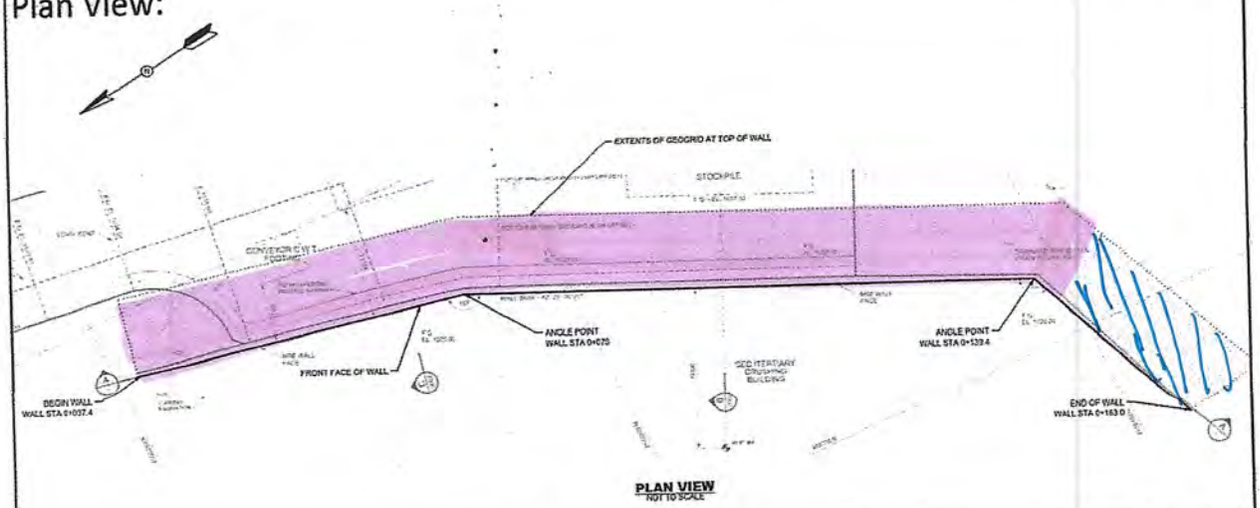
Location: **Secondary MSE Wall**

Layer Number: 18 Elevation: 1028.0 (Identify the location below)

| Material Placed | Design Criteria | Yes | No | N/A |
|---|---|---|---|---|
| WWF Baskets | 100mm overlap / secured / 25mm setback / 50mm deformation | ✓ | | |
| Biaxial Geogrid | Rolled out parallel to wall / 1.5m (bottom) & 2.0m (top) | ✓ | | |
| Uniaxial Geogrid | Cut to embedment length / installed with no slack / no overlap | ✓ | | |
| Struts | ~~250mm~~ 435 c/c separation / secured to WWF | ✓ | | |
| Face Fill | 450mm (min) limit of face fill | ✓ | | |
| Geotextile | Face-fill & backfill separation / 150mm (min) bottom | ✓ | | |
| Separation | 75mm (min) between BX biaxial upper & lower layers | ✓ | | |
| | | | | |

| *Enter other items of inspection below as required* | Yes | No | N/A |
|---|---|---|---|
| | | | |
| | | | |
| | | | |
| | | | |

Plan View:




PLAN VIEW
NOT TO SCALE

| | Print | Sign | Date |
|---|---|---|---|
| Quality Designate: | WARREN MAKI | | 18/09/17 |
| Owner: | Matt Lowndale | Matt Lowndale | 18/09/24 |
| EoR: | | | |

# Heavy North
## JDS Eagle Gold Project
## MSE Wall Installation

ITP Line Item Number: **4.7** Date: 18/09/18

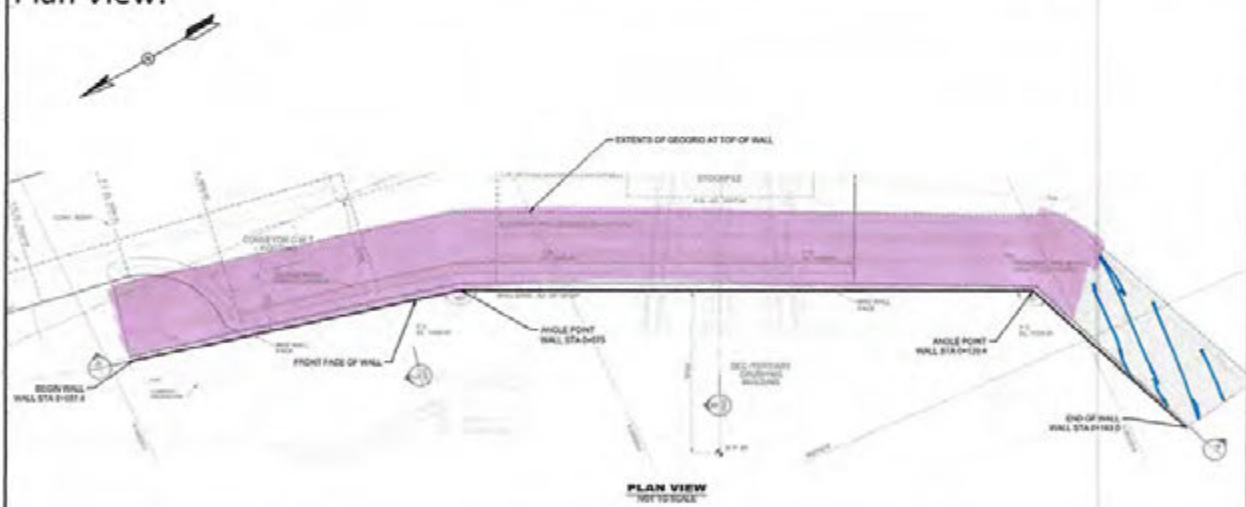
Location: **Secondary MSE Wall**

Layer Number: 19 Elevation: 1028.5 (Identify the location below)

| Material Placed | Design Criteria | Yes | No | N/A |
|---|---|---|---|---|
| WWF Baskets | 100mm overlap / secured / 25mm setback / 50mm deformation | ✓ | | |
| Biaxial Geogrid | Rolled out parallel to wall / 1.5m (bottom) & 2.0m (top) | ✓ | | |
| Uniaxial Geogrid | Cut to embedment length / installed with no slack / no overlap | ✓ | | |
| Struts | 435 ~~250~~mm c/c separation / secured to WWF | ✓ | | |
| Face Fill | 450mm (min) limit of face fill | ✓ | | |
| Geotextile | Face-fill & backfill separation / 150mm (min) bottom | ✓ | | |
| Separation | 75mm (min) between BX biaxial upper & lower layers | ✓ | | |
| | | | | |

| *Enter other items of inspection below as required* | Yes | No | N/A |
|---|---|---|---|
| | | | |
| | | | |
| | | | |
| | | | |

Plan View:




| | Print | Sign | Date |
|---|---|---|---|
| Quality Designate: | WARREN MAKI | | 18/09/18 |
| Owner: | Matt Cassidy | | 18/09/18 |
| EoR: | | | |

HEAVY NORTH

# Heavy North
# JDS Eagle Gold Project
## MSE Wall Installation

JDS Energy & Mining Inc.

ITP Line Item Number: **4.7** Date: 18/09/18

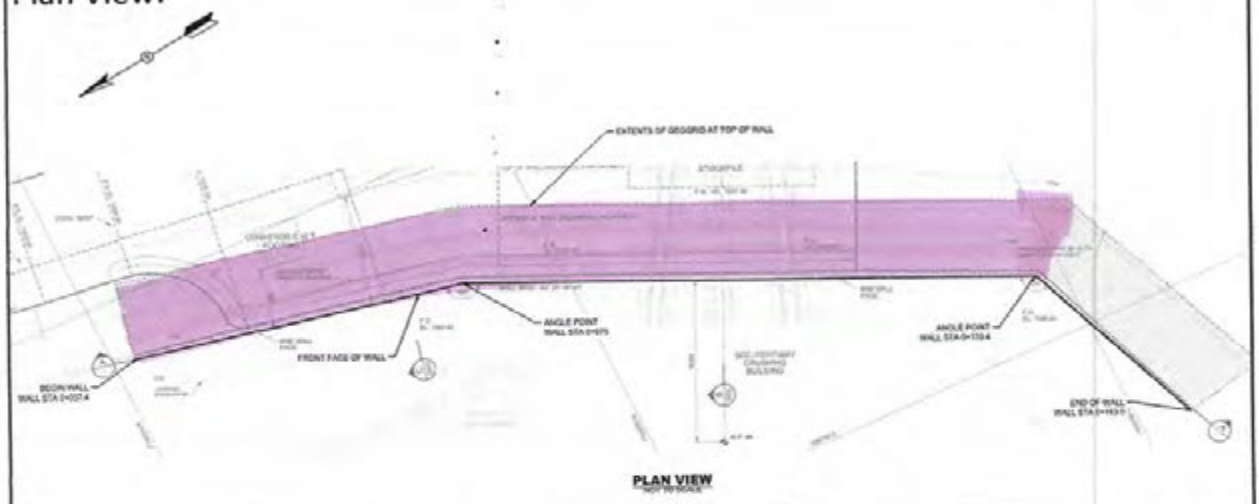
Location: **Secondary MSE Wall**

Layer Number: 28 Elevation: 1029.1 (Identify the location below)

| Material Placed | Design Criteria | Yes | No | N/A |
|---|---|---|---|---|
| WWF Baskets | 100mm overlap / secured / 25mm setback / 50mm deformation | ✓ | | |
| Biaxial Geogrid | Rolled out parallel to wall / 1.5m (bottom) & 2.0m (top) | ✓ | | |
| Uniaxial Geogrid | Cut to embedment length / installed with no slack / no overlap | ✓ | | |
| Struts | 250mm c/c separation / secured to WWF | ✓ | | |
| Face Fill | 450mm (min) limit of face fill | ✓ | | |
| Geotextile | Face-fill & backfill separation / 150mm (min) bottom | ✓ | | |
| Separation | 75mm (min) between BX biaxial upper & lower layers | ✓ | | |
| | | | | |

| *Enter other items of inspection below as required* | Yes | No | N/A |
|---|---|---|---|
| | | | |
| | | | |
| | | | |
| | | | |

Plan View:




| | Print | Sign | Date |
|---|---|---|---|
| Quality Designate: | WARREN MAKI | | 18/09/18 |
| Owner: | Matt Cavendale | | 18/09/24 |
| EoR: | | | |

# UNDERHILL GEOMATICS LTD.

MSE Wall Asbuilts Top Basket Level 20

| STA | DESC | DES (m) | AB (m) | DIFF (m) | Z DES (m) | Z ABS (m) | Z DIFF (m) |
|---|---|---|---|---|---|---|---|
| 37.4 | TOP 20 | 0.475 | 0.664 | 0.189 | 1029.052 | N/A | N/A |
| 43.68 | TOP 20 | 0.475 | 0.667 | 0.192 | 1029.052 | 1028.993 | -0.059 |
| 49.96 | TOP 20 | 0.475 | 0.719 | 0.244 | 1029.052 | 1029.002 | -0.050 |
| 56.24 | TOP 20 | 0.475 | 0.662 | 0.187 | 1029.052 | 1029.037 | -0.015 |
| 62.52 | TOP 20 | 0.475 | 0.729 | 0.254 | 1029.052 | 1029.071 | 0.019 |
| 68.8 | TOP 20 | 0.475 | 0.646 | 0.171 | 1029.052 | 1029.062 | 0.010 |
| 75.08 | TOP 20 | 0.475 | 0.625 | 0.150 | 1029.052 | 1029.125 | 0.073 |
| 81.36 | TOP 20 | 0.475 | 0.605 | 0.130 | 1029.052 | 1029.092 | 0.040 |
| 87.64 | TOP 20 | 0.475 | 0.627 | 0.152 | 1029.052 | 1029.001 | -0.051 |
| 93.92 | TOP 20 | 0.475 | 0.640 | 0.165 | 1029.052 | 1029.029 | -0.023 |
| 100.2 | TOP 20 | 0.475 | 0.703 | 0.228 | 1029.052 | 1029.022 | -0.030 |
| 106.48 | TOP 20 | 0.475 | 0.658 | 0.183 | 1029.052 | 1029.032 | -0.020 |
| 112.76 | TOP 20 | 0.475 | 0.613 | 0.138 | 1029.052 | 1029.052 | 0.000 |
| 119.05 | TOP 20 | 0.475 | 0.568 | 0.093 | 1029.052 | 1029.102 | 0.050 |
| 125.33 | TOP 20 | 0.475 | 0.512 | 0.037 | 1029.052 | 1029.070 | 0.018 |
| 131.6 | TOP 20 | 0.475 | 0.517 | 0.042 | 1029.052 | 1029.007 | -0.045 |
| 137.89 | TOP 20 | 0.475 | N/A | N/A | 1029.052 | 1029.039 | -0.013 |
| 144.17 | TOP 20 | 0.475 | N/A | N/A | 1029.052 | N/A | N/A |
| 150.45 | TOP 20 | 0.475 | N/A | N/A | 1029.052 | N/A | N/A |
| 156.73 | TOP 20 | 0.475 | N/A | N/A | 1029.052 | N/A | N/A |
| 163 | TOP 20 | 0.475 | N/A | N/A | 1029.052 | N/A | N/A |

DATE OF SURVEY: 09-18-2018

SURVEYED BY: _____

# UNDERHILL GEOMATICS LTD.

MSE Wall Asbuilts Top Basket Level 19

| STA | DESC | DES (m) | AB (m) | DIFF (m) | Z DES (m) | Z AB (m) | Z DIFF (m) |
|---|---|---|---|---|---|---|---|
| 37.4 | TOP 19 | 0.450 | N/A | N/A | 1028.544 | N/A | N/A |
| 43.68 | TOP 19 | 0.450 | 0.608 | 0.158 | 1028.544 | 1028.500 | -0.044 |
| 49.96 | TOP 19 | 0.450 | 0.636 | 0.186 | 1028.544 | 1028.514 | -0.030 |
| 56.24 | TOP 19 | 0.450 | 0.697 | 0.247 | 1028.544 | 1028.530 | -0.014 |
| 62.52 | TOP 19 | 0.450 | 0.623 | 0.173 | 1028.544 | 1028.544 | 0.000 |
| 68.8 | TOP 19 | 0.450 | 0.680 | 0.230 | 1028.544 | 1028.558 | 0.014 |
| 75.08 | TOP 19 | 0.450 | 0.614 | 0.164 | 1028.544 | 1028.625 | 0.081 |
| 81.36 | TOP 19 | 0.450 | 0.623 | 0.173 | 1028.544 | 1028.545 | 0.001 |
| 87.64 | TOP 19 | 0.450 | 0.585 | 0.135 | 1028.544 | 1028.477 | -0.067 |
| 93.92 | TOP 19 | 0.450 | 0.594 | 0.144 | 1028.544 | 1028.488 | -0.056 |
| 100.2 | TOP 19 | 0.450 | 0.597 | 0.147 | 1028.544 | 1028.501 | -0.043 |
| 106.48 | TOP 19 | 0.450 | 0.667 | 0.217 | 1028.544 | 1028.489 | -0.055 |
| 112.76 | TOP 19 | 0.450 | 0.601 | 0.151 | 1028.544 | 1028.542 | -0.002 |
| 119.05 | TOP 19 | 0.450 | 0.551 | 0.101 | 1028.544 | 1028.546 | 0.002 |
| 125.33 | TOP 19 | 0.450 | 0.562 | 0.112 | 1028.544 | 1028.554 | 0.010 |
| 131.6 | TOP 19 | 0.450 | 0.528 | 0.078 | 1028.544 | 1028.494 | -0.050 |
| 137.89 | TOP 19 | 0.450 | 0.527 | 0.077 | 1028.544 | 1028.598 | 0.054 |
| 144.17 | TOP 19 | 0.450 | 0.541 | 0.091 | 1028.544 | 1028.600 | 0.056 |
| 150.45 | TOP 19 | 0.450 | N/A | N/A | 1028.544 | N/A | N/A |
| 156.73 | TOP 19 | 0.450 | N/A | N/A | 1028.544 | N/A | N/A |
| 163 | TOP 19 | 0.450 | N/A | N/A | 1028.544 | N/A | N/A |

DATE OF SURVEY: __09-18-2018_____

SURVEYED BY: _____

# UNDERHILL GEOMATICS LTD.

MSE Wall Asbuilts Top Basket Level 18

| STA | DESC | DES (m) | AB (m) | DIFF (m) | Z DES (m) | Z AB (m) | Z DIFF (m) |
|---|---|---|---|---|---|---|---|
| 37.4 | TOP 18 | 0.425 | N/A | N/A | 1028.036 | N/A | N/A |
| 43.68 | TOP 18 | 0.425 | 0.614 | 0.189 | 1028.036 | 1028.009 | -0.027 |
| 49.96 | TOP 18 | 0.425 | 0.611 | 0.186 | 1028.036 | 1027.996 | -0.040 |
| 56.24 | TOP 18 | 0.425 | 0.694 | 0.269 | 1028.036 | 1028.071 | 0.035 |
| 62.52 | TOP 18 | 0.425 | 0.628 | 0.203 | 1028.036 | 1028.079 | 0.043 |
| 68.8 | TOP 18 | 0.425 | 0.705 | 0.280 | 1028.036 | 1028.073 | 0.037 |
| 75.08 | TOP 18 | 0.425 | N/A | N/A | 1028.036 | N/A | N/A |
| 81.36 | TOP 18 | 0.425 | 0.584 | 0.159 | 1028.036 | 1028.014 | -0.022 |
| 87.64 | TOP 18 | 0.425 | 0.584 | 0.159 | 1028.036 | 1027.974 | -0.062 |
| 93.92 | TOP 18 | 0.425 | 0.597 | 0.172 | 1028.036 | 1028.009 | -0.027 |
| 100.2 | TOP 18 | 0.425 | 0.587 | 0.162 | 1028.036 | 1027.989 | -0.047 |
| 106.48 | TOP 18 | 0.425 | 0.592 | 0.167 | 1028.036 | 1028.012 | -0.024 |
| 112.76 | TOP 18 | 0.425 | 0.543 | 0.118 | 1028.036 | 1028.011 | -0.025 |
| 119.05 | TOP 18 | 0.425 | 0.531 | 0.106 | 1028.036 | 1028.009 | -0.027 |
| 125.33 | TOP 18 | 0.425 | 0.494 | 0.069 | 1028.036 | 1028.027 | -0.009 |
| 131.6 | TOP 18 | 0.425 | 0.500 | 0.075 | 1028.036 | 1028.003 | -0.033 |
| 137.89 | TOP 18 | 0.425 | N/A | N/A | 1028.036 | 1028.055 | 0.019 |
| 144.17 | TOP 18 | 0.425 | 0.514 | 0.089 | 1028.036 | N/A | N/A |
| 150.45 | TOP 18 | 0.425 | N/A | N/A | 1028.036 | N/A | N/A |
| 156.73 | TOP 18 | 0.425 | N/A | N/A | 1028.036 | N/A | N/A |
| 163 | TOP 18 | 0.425 | N/A | N/A | 1028.036 | N/A | N/A |

DATE OF SURVEY: 09-18-2018

SURVEYED BY: _____

# Heavy North
# JDS Eagle Gold Project
# MSE Wall Installation

ITP Line Item Number: **4.7** Date: 2018/09/20

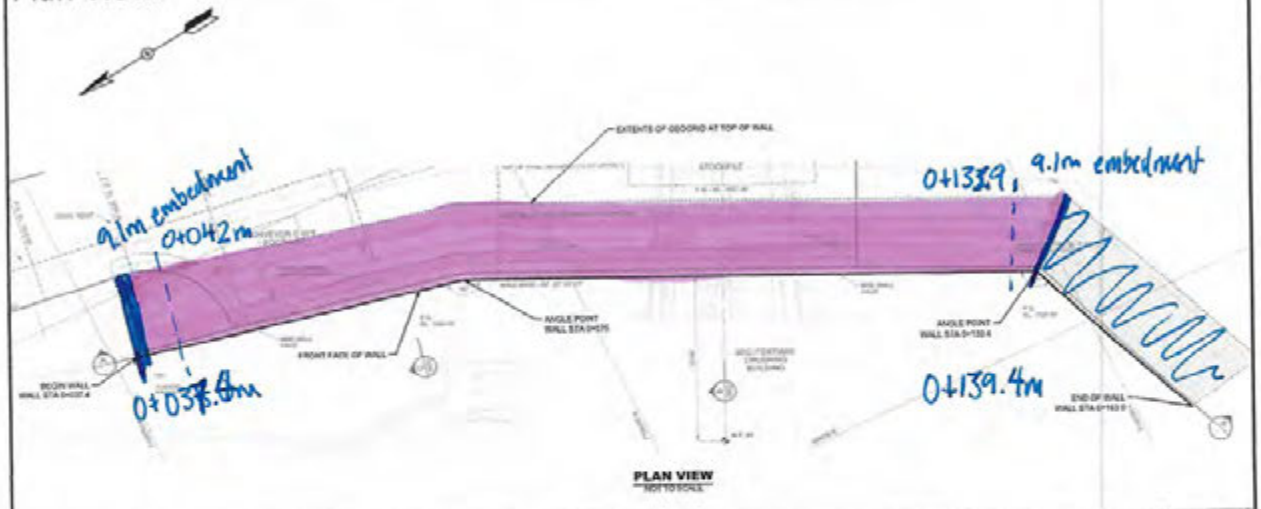
Location: **Secondary MSE Wall**

Layer Number: 21 Elevation: 1029.6 (Identify the location below)

| Material Placed | Design Criteria | Yes | No | N/A |
|---|---|---|---|---|
| WWF Baskets | 100mm overlap / secured / 25mm setback / 50mm deformation | ✓ | | |
| Biaxial Geogrid | Rolled out parallel to wall / 1.5m (bottom) & 2.0m (top) | ✓ | | |
| Uniaxial Geogrid | Cut to embedment length / installed with no slack / no overlap | ✓ | | |
| Struts | 435mm c/c separation / secured to WWF | ✓ | | |
| Face Fill | 450mm (min) limit of face fill / No voids | ✓ | | |
| Geotextile | Face-fill & backfill separation / 150mm (min) bottom | ✓ | | |
| Separation | 75mm (min) between BX biaxial upper & lower layers | ✓ | | |
| | | | | |

| *Enter other items of inspection below as required* | Yes | No | N/A |
|---|---|---|---|
| | | | |
| | | | |
| | | | |
| | | | |

Plan View:




| | Print | Sign | Date |
|---|---|---|---|
| Quality Designate: | WARREN MAKI | | 18/09/20 |
| Owner: | Matt Cavedale | Matt Cavedale | 18/09/24 |
| EoR: | | | |

Sept 19





# UNDERHILL GEOMATICS LTD.

MSE Wall Asbuilts Top Basket Level 21

| STA | DESC | DES (m) | AB (m) | DIFF (m) | Z DES (m) | Z AB (m) | Z DIFF (m) |
|---|---|---|---|---|---|---|---|
| 37.4 | TOP 21 | 0.5 | N/A | N/A | N/A | N/A | N/A |
| 43.68 | TOP 21 | 0.5 | 0.717 | 0.217 | 1029.56 | 1029.494 | -0.066 |
| 49.96 | TOP 21 | 0.5 | 0.745 | 0.245 | 1029.56 | 1029.505 | -0.055 |
| 56.24 | TOP 21 | 0.5 | 0.781 | 0.281 | 1029.56 | 1029.546 | -0.014 |
| 62.52 | TOP 21 | 0.5 | 0.737 | 0.237 | 1029.56 | 1029.553 | -0.007 |
| 68.8 | TOP 21 | 0.5 | 0.791 | 0.291 | 1029.56 | 1029.568 | 0.008 |
| 75.08 | TOP 21 | N/A | N/A | N/A | N/A | N/A | N/A |
| 81.36 | TOP 21 | 0.5 | 0.68 | 0.18 | 1029.56 | 1029.57 | 0.01 |
| 87.64 | TOP 21 | 0.5 | 0.598 | 0.098 | 1029.56 | 1029.472 | -0.088 |
| 93.92 | TOP 21 | 0.5 | 0.652 | 0.152 | 1029.56 | 1029.511 | -0.049 |
| 100.2 | TOP 21 | 0.5 | 0.639 | 0.139 | 1029.56 | 1029.472 | -0.088 |
| 106.48 | TOP 21 | 0.5 | 0.72 | 0.22 | 1029.56 | 1029.526 | -0.034 |
| 112.76 | TOP 21 | 0.5 | 0.635 | 0.135 | 1029.56 | 1029.524 | -0.036 |
| 119.05 | TOP 21 | 0.5 | 0.579 | 0.079 | 1029.56 | 1029.529 | -0.031 |
| 125.33 | TOP 21 | 0.5 | 0.534 | 0.034 | 1029.56 | 1029.54 | -0.02 |
| 131.6 | TOP 21 | 0.5 | 0.531 | 0.031 | 1029.56 | 1029.524 | -0.036 |
| 137.89 | TOP 21 | 0.5 | 0.547 | 0.047 | 1029.56 | 1029.594 | 0.034 |
| 144.17 | TOP 21 | 0.5 | N/A | N/A | N/A | N/A | N/A |
| 150.45 | TOP 21 | 0.5 | N/A | N/A | N/A | N/A | N/A |
| 156.73 | TOP 21 | 0.5 | N/A | N/A | N/A | N/A | N/A |
| 163 | TOP 21 | 0.5 | N/A | N/A | N/A | N/A | N/A |

DATE OF SURVEY: 09-22-2018

SURVEYED BY: BEN SAGADORE

# Heavy North
# JDS Eagle Gold Project
# MSE Wall Installation

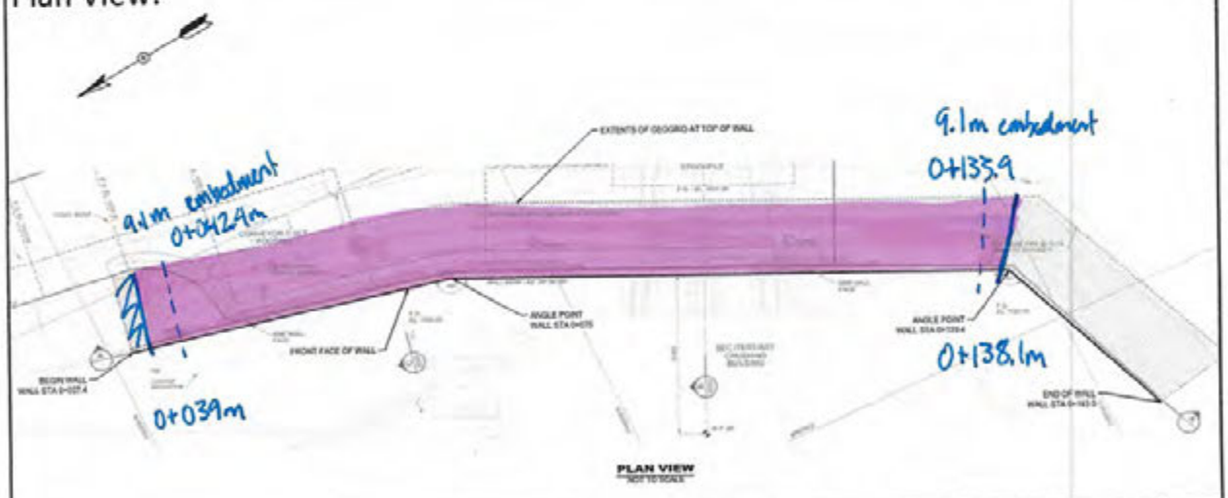
ITP Line Item Number: **4.7** Date: 2018/09/21

Location: **Secondary MSE Wall**

Layer Number: 22 Elevation: 1030.1 (Identify the location below)

| Material Placed | Design Criteria | Yes | No | N/A |
|---|---|---|---|---|
| WWF Baskets | 100mm overlap / secured / 25mm setback / 50mm deformation | ✓ | | |
| Biaxial Geogrid | Rolled out parallel to wall / 1.5m (bottom) & 2.0m (top) | ✓ | | |
| Uniaxial Geogrid | Cut to embedment length / installed with no slack / no overlap | ✓ | | |
| Struts | 435mm c/c separation / secured to WWF | ✓ | | |
| Face Fill | 450mm (min) limit of face fill / No voids | ✓ | | |
| Geotextile | Face-fill & backfill separation / 150mm (min) bottom | ✓ | | |
| Separation | 75mm (min) between BX biaxial upper & lower layers | ✓ | | |
| | | | | |
| *Enter other items of inspection below as required* | | **Yes** | **No** | **N/A** |
| | | | | |
| | | | | |
| | | | | |
| | | | | |

Plan View:




| | Print | Sign | Date |
|---|---|---|---|
| Quality Designate: | WARREN MAKI | | 18/09/21 |
| Owner: | Matt Cavendish | Matt Cavendish | 18/09/24 |
| EoR: | | | |

# UNDERHILL GEOMATICS LTD.

MSE Wall Asbuilts Top Basket Level 22

| STA | DESC | DES (m) | AB (m) | DIFF (m) | Z DES (m) | Z AB (m) | Z DIFF (m) |
|---|---|---|---|---|---|---|---|
| 37.4 | TOP 22 | 0.525 | N/A | N/A | N/A | N/A | N/A |
| 43.68 | TOP 22 | 0.525 | 0.716 | 0.191 | 1030.068 | 1030.011 | -0.057 |
| 49.96 | TOP 22 | 0.525 | 0.769 | 0.244 | 1030.068 | 1030.028 | -0.04 |
| 56.24 | TOP 22 | 0.525 | 0.815 | 0.29 | 1030.068 | 1030.057 | -0.011 |
| 62.52 | TOP 22 | 0.525 | 0.762 | 0.237 | 1030.068 | 1030.067 | -0.001 |
| 68.8 | TOP 22 | 0.525 | 0.816 | 0.291 | 1030.068 | 1030.069 | 0.001 |
| 75.08 | TOP 22 | 0.525 | 0.693 | 0.168 | 1030.068 | 1030.1 | 0.032 |
| 81.36 | TOP 22 | 0.525 | 0.672 | 0.147 | 1030.068 | 1030.08 | 0.012 |
| 87.64 | TOP 22 | 0.525 | 0.612 | 0.087 | 1030.068 | 1029.987 | -0.081 |
| 93.92 | TOP 22 | 0.525 | 0.658 | 0.133 | 1030.068 | 1030.001 | -0.067 |
| 100.2 | TOP 22 | 0.525 | 0.695 | 0.17 | 1030.068 | 1029.99 | -0.078 |
| 106.48 | TOP 22 | 0.525 | 0.73 | 0.205 | 1030.068 | 1030.03 | -0.038 |
| 112.76 | TOP 22 | 0.525 | 0.648 | 0.123 | 1030.068 | 1030.024 | -0.044 |
| 119.05 | TOP 22 | 0.525 | 0.604 | 0.079 | 1030.068 | 1030.041 | -0.027 |
| 125.33 | TOP 22 | 0.525 | 0.557 | 0.032 | 1030.068 | 1030.002 | -0.066 |
| 131.6 | TOP 22 | 0.525 | 0.542 | 0.017 | 1030.068 | 1030.022 | -0.046 |
| 137.89 | TOP 22 | 0.525 | 0.644 | 0.119 | 1030.068 | 1030.118 | 0.05 |
| 144.17 | TOP 22 | 0.525 | N/A | N/A | N/A | N/A | N/A |
| 150.45 | TOP 22 | 0.525 | N/A | N/A | N/A | N/A | N/A |
| 156.73 | TOP 22 | 0.525 | N/A | N/A | N/A | N/A | N/A |
| 163 | TOP 22 | 0.525 | N/A | N/A | N/A | N/A | N/A |

DATE OF SURVEY: 09-22-2018

SURVEYED BY: BEN SAGADORE

Sept 21 – 2018



# Heavy North
# JDS Eagle Gold Project
## MSE Wall Installation

ITP Line Item Number: **4.7** Date: 2018/09/22

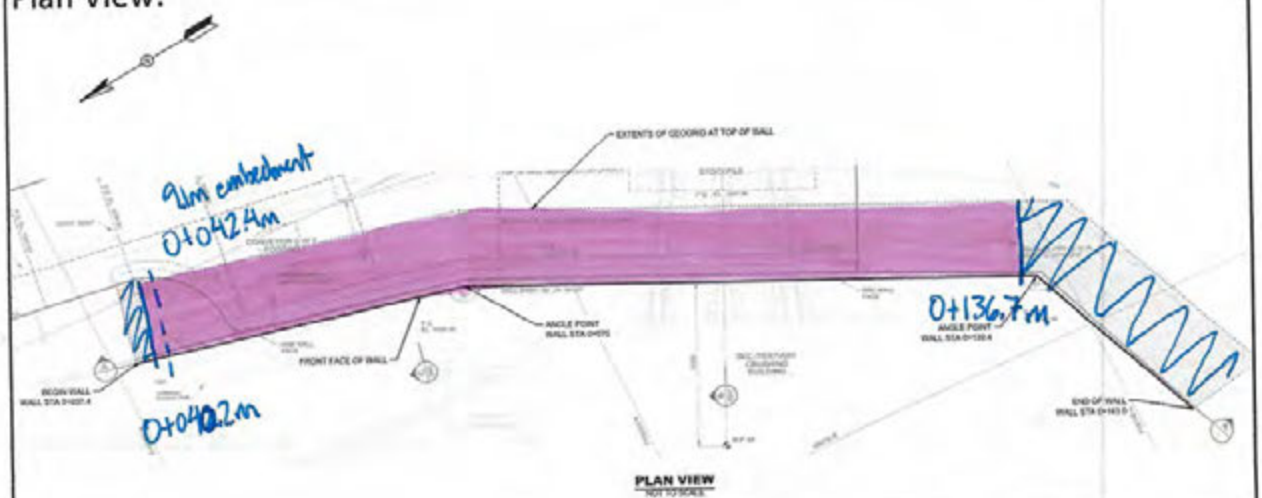
Location: **Secondary MSE Wall**

Layer Number: 23 Elevation: 1630.6 (Identify the location below)

| Material Placed | Design Criteria | Yes | No | N/A |
|---|---|---|---|---|
| WWF Baskets | 100mm overlap / secured / 25mm setback / 50mm deformation | ✓ | | |
| Biaxial Geogrid | Rolled out parallel to wall / 1.5m (bottom) & 2.0m (top) | ✓ | | |
| Uniaxial Geogrid | Cut to embedment length / installed with no slack / no overlap | ✓ | | |
| Struts | 435mm c/c separation / secured to WWF | ✓ | | |
| Face Fill | 450mm (min) limit of face fill / No voids | ✓ | | |
| Geotextile | Face-fill & backfill separation / 150mm (min) bottom | ✓ | | |
| Separation | 75mm (min) between BX biaxial upper & lower layers | ✓ | | |
| | | | | |

| *Enter other items of inspection below as required* | Yes | No | N/A |
|---|---|---|---|
| | | | |
| | | | |
| | | | |
| | | | |

Plan View:




| | Print | Sign | Date |
|---|---|---|---|
| Quality Designate: | AARON WAGNER | | 2018/09/22 |
| Owner: | Matt Cavedale | | 2018/09/24 |
| EoR: | | | |

# UNDERHILL GEOMATICS LTD.

MSE Wall Asbuilts Top Basket Level 23

| STA | DESC | DES (m) | AB (m) | DIFF (m) | Z DES (m) | Z AB (m) | Z DIFF (m) |
|---|---|---|---|---|---|---|---|
| 37.4 | TOP 23 | 0.55 | N/A | N/A | N/A | N/A | N/A |
| 43.68 | TOP 23 | 0.55 | 0.752 | 0.202 | 1030.576 | 1030.522 | -0.054 |
| 49.96 | TOP 23 | 0.55 | 0.791 | 0.241 | 1030.576 | 1030.515 | -0.061 |
| 56.24 | TOP 23 | 0.55 | 0.84 | 0.29 | 1030.576 | 1030.554 | -0.022 |
| 62.52 | TOP 23 | 0.55 | 0.768 | 0.218 | 1030.576 | 1030.556 | -0.02 |
| 68.8 | TOP 23 | 0.55 | 0.789 | 0.239 | 1030.576 | 1030.588 | 0.012 |
| 75.08 | TOP 23 | 0.55 | 0.736 | 0.186 | 1030.576 | 1030.602 | 0.026 |
| 81.36 | TOP 23 | 0.55 | 0.697 | 0.147 | 1030.576 | 1031.442 | 0.866 |
| 87.64 | TOP 23 | 0.55 | 0.612 | 0.062 | 1030.576 | 1031.462 | 0.886 |
| 93.92 | TOP 23 | 0.55 | 0.634 | 0.084 | 1030.576 | 1030.516 | -0.06 |
| 100.2 | TOP 23 | 0.55 | 0.675 | 0.125 | 1030.576 | 1030.51 | -0.066 |
| 106.48 | TOP 23 | 0.55 | 0.711 | 0.161 | 1030.576 | 1030.514 | -0.062 |
| 112.76 | TOP 23 | 0.55 | 0.661 | 0.111 | 1030.576 | 1030.523 | -0.053 |
| 119.05 | TOP 23 | 0.55 | 0.602 | 0.052 | 1030.576 | 1030.543 | -0.033 |
| 125.33 | TOP 23 | 0.55 | 0.568 | 0.018 | 1030.576 | 1030.502 | -0.074 |
| 131.6 | TOP 23 | 0.55 | 0.538 | -0.012 | 1030.576 | 1030.511 | -0.065 |
| 137.89 | TOP 23 | 0.55 | N/A | N/A | N/A | N/A | N/A |
| 144.17 | TOP 23 | 0.55 | N/A | N/A | N/A | N/A | N/A |
| 150.45 | TOP 23 | 0.55 | N/A | N/A | N/A | N/A | N/A |
| 156.73 | TOP 23 | 0.55 | N/A | N/A | N/A | N/A | N/A |
| 163 | TOP 23 | 0.55 | N/A | N/A | N/A | N/A | N/A |

DATE OF SURVEY: 09-22-2018

SURVEYED BY: BEN SAGADORE

Sept 22 – 2018



HEAVY NORTH

# Heavy North
# JDS Eagle Gold Project
# MSE Wall Installation

JDS Energy & Mining Inc.

ITP Line Item Number: **4.7** Date: 2018/09/22

Location: **Secondary MSE Wall**

Layer Number: 24 Elevation: 1031.1 (Identify the location below)

| Material Placed | Design Criteria | Yes | No | N/A |
|---|---|---|---|---|
| WWF Baskets | 100mm overlap / secured / 25mm setback / 50mm deformation | ✓ | | |
| Biaxial Geogrid | Rolled out parallel to wall / 1.5m (bottom) & 2.0m (top) | ✓ | | |
| Uniaxial Geogrid | Cut to embedment length / installed with no slack / no overlap | ✓ | | |
| Struts | 435mm c/c separation / secured to WWF | ✓ | | |
| Face Fill | 450mm (min) limit of face fill / No voids | ✓ | | |
| Geotextile | Face-fill & backfill separation / 150mm (min) bottom | ✓ | | |
| Separation | 75mm (min) between BX biaxial upper & lower layers | ✓ | | |
| | | | | |

| *Enter other items of inspection below as required* | Yes | No | N/A |
|---|---|---|---|
| | | | |
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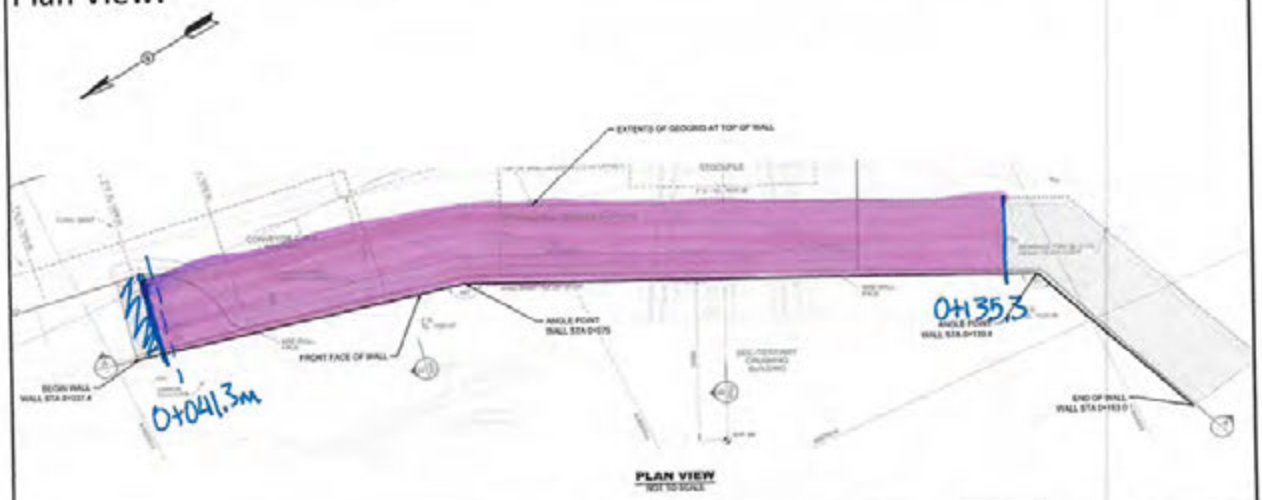
| | | | |

Plan View:




| | Print | Sign | Date |
|---|---|---|---|
| Quality Designate: | Aaron Wagner | | 2018/09/22 |
| Owner: | Matt Coverdale | | 2018/09/24 |
| EoR: | | | |

# UNDERHILL GEOMATICS LTD.

MSE Wall Asbuilts Top Basket Level 24

| STA | DESC | DES (m) | AB (m) | DIFF (m) | Z DES (m) | Z AB (m) | Z DIFF (m) |
|---|---|---|---|---|---|---|---|
| 37.4 | TOP 24 | 0.575 | 0.754 | 0.179 | 1031.084 | 1031.012 | -0.072 |
| 43.68 | TOP 24 | 0.575 | 0.823 | 0.248 | 1031.084 | 1031.042 | -0.042 |
| 49.96 | TOP 24 | 0.575 | 0.828 | 0.253 | 1031.084 | 1031.052 | -0.032 |
| 56.24 | TOP 24 | 0.575 | 0.802 | 0.227 | 1031.084 | 1031.082 | -0.002 |
| 62.52 | TOP 24 | 0.575 | 0.824 | 0.249 | 1031.084 | 1031.111 | 0.027 |
| 68.8 | TOP 24 | 0.575 | 0.767 | 0.192 | 1031.084 | 1031.132 | 0.048 |
| 75.08 | TOP 24 | 0.575 | 0.695 | 0.12 | 1031.084 | 1031.086 | 0.002 |
| 81.36 | TOP 24 | 0.575 | 0.638 | 0.063 | 1031.084 | 1030.998 | -0.086 |
| 87.64 | TOP 24 | 0.575 | 0.679 | 0.104 | 1031.084 | 1031.022 | -0.062 |
| 93.92 | TOP 24 | 0.575 | 0.609 | 0.034 | 1031.084 | 1030.95 | -0.134 |
| 100.2 | TOP 24 | 0.575 | 0.739 | 0.164 | 1031.084 | 1031.033 | -0.051 |
| 106.48 | TOP 24 | 0.575 | 0.692 | 0.117 | 1031.084 | 1031.064 | -0.02 |
| 112.76 | TOP 24 | 0.575 | 0.615 | 0.04 | 1031.084 | 1031.06 | -0.024 |
| 119.05 | TOP 24 | 0.575 | 0.578 | 0.003 | 1031.084 | 1031.041 | -0.043 |
| 125.33 | TOP 24 | 0.575 | 0.564 | -0.011 | 1031.084 | 1031.062 | -0.022 |
| 131.6 | TOP 24 | 0.575 | N/A | N/A | N/A | N/A | N/A |
| 137.89 | TOP 24 | 0.575 | N/A | N/A | N/A | N/A | N/A |
| 144.17 | TOP 24 | 0.575 | N/A | N/A | N/A | N/A | N/A |
| 150.45 | TOP 24 | 0.575 | N/A | N/A | N/A | N/A | N/A |
| 156.73 | TOP 24 | 0.575 | N/A | N/A | N/A | N/A | N/A |
| 163 | TOP 24 | 0.575 | N/A | N/A | N/A | N/A | N/A |

DATE OF SURVEY: 09-22-2018

SURVEYED BY: BEN SAGADORE

# Heavy North
# JDS Eagle Gold Project
# MSE Wall Installation

ITP Line Item Number: **4.7** Date: 2018/09/23

Location: **Secondary MSE Wall**

Layer Number: 25 Elevation: 1031.6 (Identify the location below)

| Material Placed | Design Criteria | Yes | No | N/A |
|---|---|---|---|---|
| WWF Baskets | 100mm overlap / secured / 25mm setback / 50mm deformation | ✓ | | |
| Biaxial Geogrid | Rolled out parallel to wall / 1.5m (bottom) & 2.0m (top) | ✓ | | |
| Uniaxial Geogrid | Cut to embedment length / installed with no slack / no overlap | ✓ | | |
| Struts | 435mm c/c separation / secured to WWF | ✓ | | |
| Face Fill | 450mm (min) limit of face fill / No voids | ✓ | | |
| Geotextile | Face-fill & backfill separation / 150mm (min) bottom | ✓ | | |
| Separation | 75mm (min) between BX biaxial upper & lower layers | ✓ | | |
| | | | | |

| *Enter other items of inspection below as required* | Yes | No | N/A |
|---|---|---|---|
| | | | |
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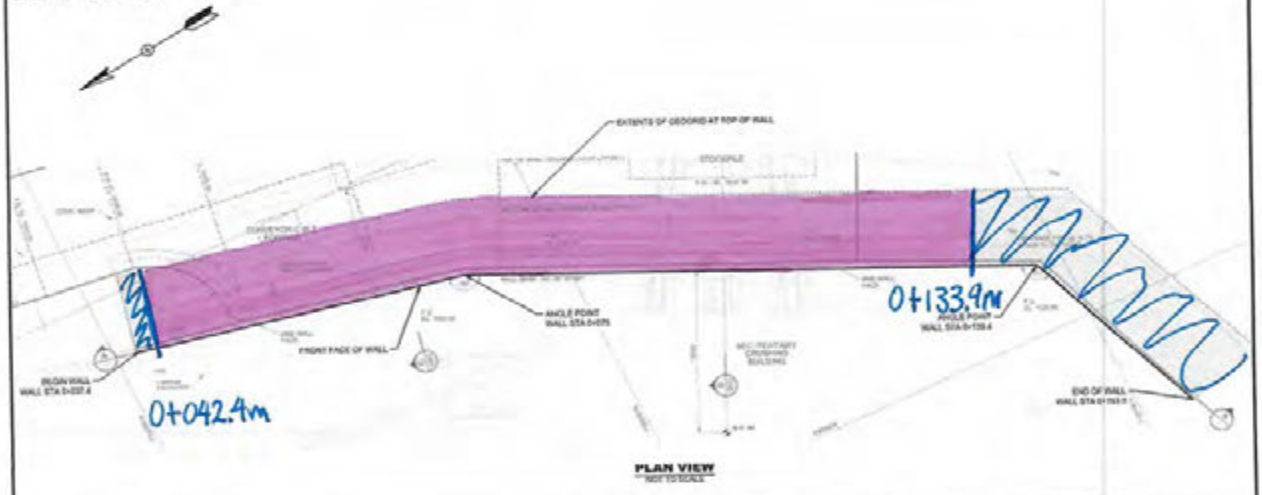
| | | | |

Plan View:




| | Print | Sign | Date |
|---|---|---|---|
| Quality Designate: | AARON WAGNER | | 2018/09/23 |
| Owner: | Matt Cavedale | | 2018/09/24 |
| EoR: | | | |

# UNDERHILL GEOMATICS LTD.

MSE Wall Asbuilts Top Basket Level 25

| STA | DESC | DES (m) | AB (m) | DIFF (m) | Z DES (m) | Z AB (m) | Z DIFF (m) |
|---|---|---|---|---|---|---|---|
| 37.4 | TOP 25 | N/A | N/A | N/A | N/A | N/A | N/A |
| 43.68 | TOP 25 | 0.6 | 0.734 | 0.134 | 1031.592 | 1031.552 | -0.04 |
| 49.96 | TOP 25 | 0.6 | 0.823 | 0.223 | 1031.592 | 1031.589 | -0.003 |
| 56.24 | TOP 25 | 0.6 | 0.831 | 0.231 | 1031.592 | 1031.552 | -0.04 |
| 62.52 | TOP 25 | 0.6 | 0.817 | 0.217 | 1031.592 | 1031.59 | -0.002 |
| 68.8 | TOP 25 | 0.6 | 0.798 | 0.198 | 1031.592 | 1031.62 | 0.028 |
| 75.08 | TOP 25 | 0.6 | 0.769 | 0.169 | 1031.592 | 1031.639 | 0.047 |
| 81.36 | TOP 25 | 0.6 | 0.716 | 0.116 | 1031.592 | 1031.601 | 0.009 |
| 87.64 | TOP 25 | 0.6 | 0.609 | 0.009 | 1031.592 | 1031.531 | -0.061 |
| 93.92 | TOP 25 | 0.6 | 0.656 | 0.056 | 1031.592 | 1031.548 | -0.044 |
| 100.2 | TOP 25 | 0.6 | 0.704 | 0.104 | 1031.592 | 1031.558 | -0.034 |
| 106.48 | TOP 25 | 0.6 | 0.784 | 0.184 | 1031.592 | 1031.542 | -0.05 |
| 112.76 | TOP 25 | 0.6 | 0.714 | 0.114 | 1031.592 | 1031.581 | -0.011 |
| 119.05 | TOP 25 | 0.6 | 0.633 | 0.033 | 1031.592 | 1031.582 | -0.01 |
| 125.33 | TOP 25 | 0.6 | 0.633 | 0.033 | 1031.592 | 1031.574 | -0.018 |
| 131.6 | TOP 25 | 0.6 | 0.615 | 0.015 | 1031.592 | 1031.581 | -0.011 |
| 137.89 | TOP 25 | 0.6 | N/A | N/A | N/A | N/A | N/A |
| 144.17 | TOP 25 | 0.6 | N/A | N/A | N/A | N/A | N/A |
| 150.45 | TOP 25 | 0.6 | N/A | N/A | N/A | N/A | N/A |
| 156.73 | TOP 25 | 0.6 | N/A | N/A | N/A | N/A | N/A |
| 163 | TOP 25 | 0.6 | N/A | N/A | N/A | N/A | N/A |

DATE OF SURVEY: 09-22-2018

SURVEYED BY: BEN SAGADORE

HEAVY NORTH

# Heavy North
# JDS Eagle Gold Project
# MSE Wall Installation

JDS Energy & Mining Inc.

ITP Line Item Number: **4.7** Date: 2018/09/24

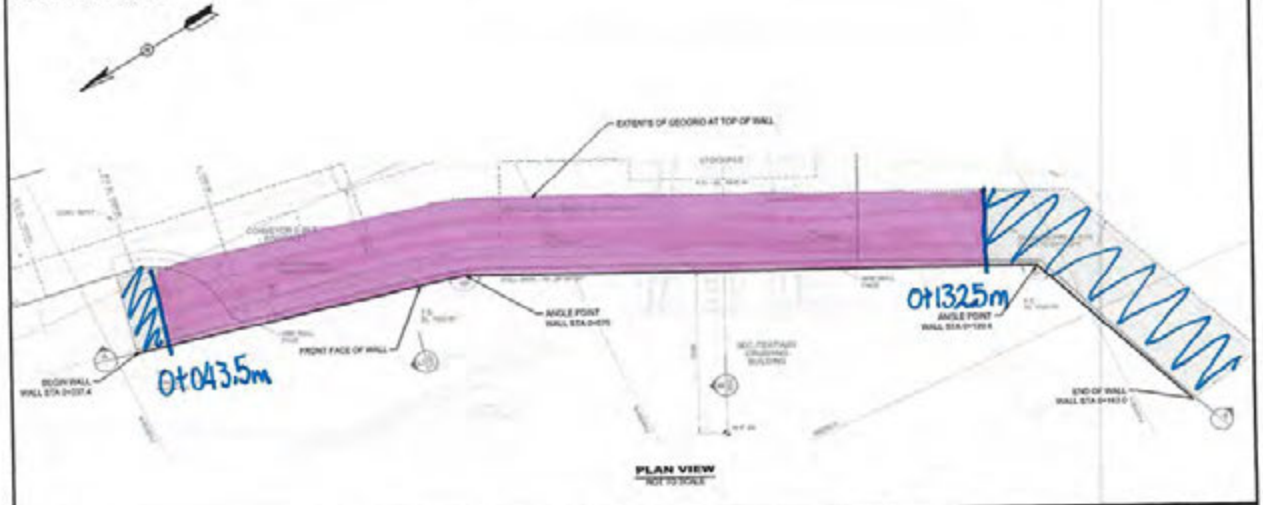
Location: **Secondary MSE Wall**

Layer Number: 26 Elevation: 1032.1 (Identify the location below)

| Material Placed | Design Criteria | Yes | No | N/A |
|---|---|---|---|---|
| WWF Baskets | 100mm overlap / secured / 25mm setback / 50mm deformation | ✓ | | |
| Biaxial Geogrid | Rolled out parallel to wall / 1.5m (bottom) & 2.0m (top) | ✓ | | |
| Uniaxial Geogrid | Cut to embedment length / installed with no slack / no overlap | ✓ | | |
| Struts | 435mm c/c separation / secured to WWF | ✓ | | |
| Face Fill | 450mm (min) limit of face fill / No voids | ✓ | | |
| Geotextile | Face-fill & backfill separation / 150mm (min) bottom | ✓ | | |
| Separation | 75mm (min) between BX biaxial upper & lower layers | ✓ | | |
| | | | | |

| *Enter other items of inspection below as required* | Yes | No | N/A |
|---|---|---|---|
| | | | |
| | | | |
| | | | |
| | | | |

Plan View:




| | Print | Sign | Date |
|---|---|---|---|
| Quality Designate: | AARON WAGNER | | 2018/09/24 |
| Owner: | Matt Caverdale | | 2018/09/24 |
| EoR: | | | |

# UNDERHILL GEOMATICS LTD.

MSE Wall Asbuilts Top Basket Level 26

| STA | DESC | DES (m) | AB (m) | DIFF (m) | Z DES (m) | Z AB (m) | Z DIFF (m) |
|---|---|---|---|---|---|---|---|
| 37.4 | TOP 26 | 0.675 | N/A | N/A | N/A | N/A | N/A |
| 43.68 | TOP 26 | 0.675 | 0.7808 | 0.1058 | 1032.1 | 1032.092 | -0.008 |
| 49.96 | TOP 26 | 0.675 | 0.8397 | 0.1647 | 1032.1 | 1032.062 | -0.038 |
| 56.24 | TOP 26 | 0.675 | 0.8639 | 0.1889 | 1032.1 | 1032.122 | 0.022 |
| 62.52 | TOP 26 | 0.675 | 0.8318 | 0.1568 | 1032.1 | 1032.09 | -0.01 |
| 68.8 | TOP 26 | 0.675 | 0.8203 | 0.1453 | 1032.1 | 1032.11 | 0.01 |
| 75.08 | TOP 26 | 0.675 | N/A | N/A | N/A | N/A | N/A |
| 81.36 | TOP 26 | 0.675 | 0.7264 | 0.0514 | 1032.1 | 1032.082 | -0.018 |
| 87.64 | TOP 26 | 0.675 | 0.633 | -0.042 | 1032.1 | 1032.012 | -0.088 |
| 93.92 | TOP 26 | 0.675 | 0.6804 | 0.0054 | 1032.1 | 1032.042 | -0.058 |
| 100.2 | TOP 26 | 0.675 | 0.7009 | 0.0259 | 1032.1 | 1032.05 | -0.05 |
| 106.48 | TOP 26 | 0.675 | 0.7837 | 0.1087 | 1032.1 | 1032.061 | -0.039 |
| 112.76 | TOP 26 | 0.675 | 0.731 | 0.056 | 1032.1 | 1032.061 | -0.039 |
| 119.05 | TOP 26 | 0.675 | 0.6641 | -0.0109 | 1032.1 | 1032.085 | -0.015 |
| 125.33 | TOP 26 | 0.675 | 0.6396 | -0.0354 | 1032.1 | 1032.091 | -0.009 |
| 131.6 | TOP 26 | 0.675 | 0.6075 | -0.0675 | 1032.1 | 1032.041 | -0.059 |
| 137.89 | TOP 26 | N/A | N/A | N/A | N/A | N/A | N/A |
| 144.17 | TOP 26 | N/A | N/A | N/A | N/A | N/A | N/A |
| 150.45 | TOP 26 | N/A | N/A | N/A | N/A | N/A | N/A |
| 156.73 | TOP 26 | N/A | N/A | N/A | N/A | N/A | N/A |
| 163 | TOP 26 | N/A | N/A | N/A | N/A | N/A | N/A |

DATE OF SURVEY: 09-24-2018

SURVEYED BY:

# Heavy North
# JDS Eagle Gold Project

## MSE Wall Installation

ITP Line Item Number: **4.7** Date: 2018/09/24

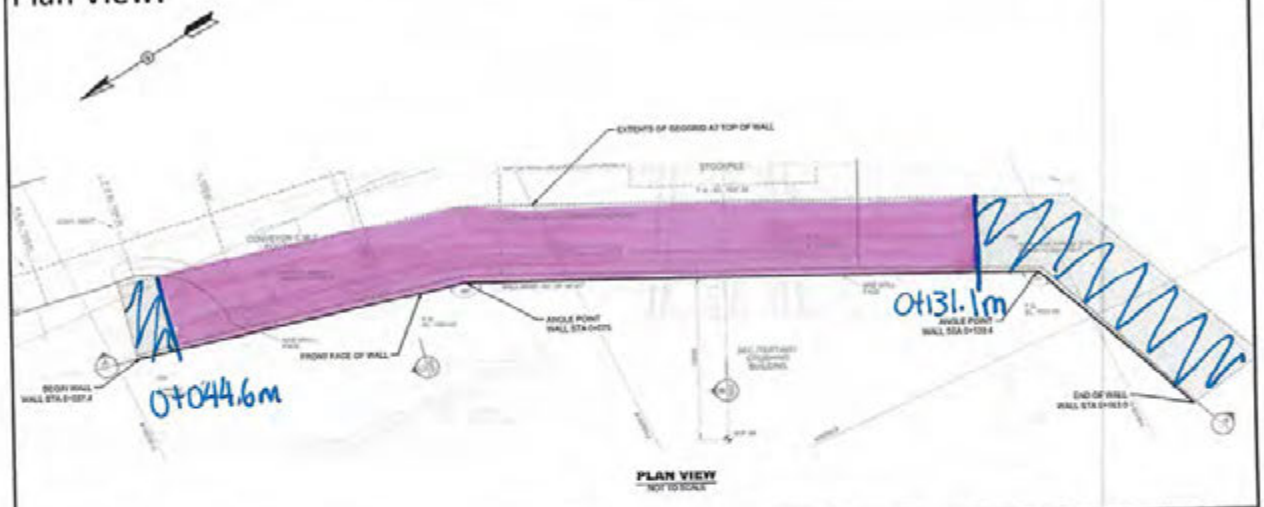
Location: **Secondary MSE Wall**

Layer Number: 27 Elevation: 1032.6 (Identify the location below)

| Material Placed | Design Criteria | Yes | No | N/A |
|---|---|---|---|---|
| WWF Baskets | 100mm overlap / secured / 25mm setback / 50mm deformation | ✓ | | |
| Biaxial Geogrid | Rolled out parallel to wall / 1.5m (bottom) & 2.0m (top) | ✓ | | |
| Uniaxial Geogrid | Cut to embedment length / installed with no slack / no overlap | ✓ | | |
| Struts | 435mm c/c separation / secured to WWF | ✓ | | |
| Face Fill | 450mm (min) limit of face fill / No voids | ✓ | | |
| Geotextile | Face-fill & backfill separation / 150mm (min) bottom | ✓ | | |
| Separation | 75mm (min) between BX biaxial upper & lower layers | ✓ | | |
| | | | | |

| *Enter other items of inspection below as required* | Yes | No | N/A |
|---|---|---|---|
| | | | |
| | | | |
| | | | |
| | | | |

Plan View:




| | Print | Sign | Date |
|---|---|---|---|
| Quality Designate: | AARON WAGNER | | 2018/09/24 |
| Owner: | | | 2018/09/24 |
| EoR: | | | |

# UNDERHILL GEOMATICS LTD.

MSE Wall Asbuilts Top Basket Level 27

| STA | DESC | DES (m) | AB (m) | DIFF (m) | Z DES (m) | Z AB (m) | Z DIFF (m) |
|---|---|---|---|---|---|---|---|
| 37.4 | TOP 27 | | N/A | N/A | N/A | N/A | N/A |
| 43.68 | TOP 27 | 0.65 | 0.7652 | 0.1152 | 1032.608 | 1032.583 | -0.025 |
| 49.96 | TOP 27 | 0.65 | 0.8599 | 0.2099 | 1032.608 | 1032.59 | -0.018 |
| 56.24 | TOP 27 | 0.65 | 0.8819 | 0.2319 | 1032.608 | 1032.632 | 0.024 |
| 62.52 | TOP 27 | 0.65 | 0.8311 | 0.1811 | 1032.608 | 1032.682 | 0.074 |
| 68.8 | TOP 27 | 0.65 | 0.8379 | 0.1879 | 1032.608 | 1032.645 | 0.037 |
| 75.08 | TOP 27 | 0.65 | 0.7805 | 0.1305 | 1032.608 | 1032.665 | 0.057 |
| 81.36 | TOP 27 | 0.65 | 0.7198 | 0.0698 | 1032.608 | 1032.579 | -0.029 |
| 87.64 | TOP 27 | 0.65 | 0.6028 | -0.0472 | 1032.608 | 1032.524 | -0.084 |
| 93.92 | TOP 27 | 0.65 | 0.6662 | 0.0162 | 1032.608 | 1032.525 | -0.083 |
| 100.2 | TOP 27 | 0.65 | 0.7402 | 0.0902 | 1032.608 | 1032.554 | -0.054 |
| 106.48 | TOP 27 | 0.65 | 0.8144 | 0.1644 | 1032.608 | 1032.545 | -0.063 |
| 112.76 | TOP 27 | 0.65 | 0.7523 | 0.1023 | 1032.608 | 1032.566 | -0.042 |
| 119.05 | TOP 27 | 0.65 | 0.6882 | 0.0382 | 1032.608 | 1032.615 | 0.007 |
| 125.33 | TOP 27 | 0.65 | 0.6701 | 0.0201 | 1032.608 | 1032.601 | -0.007 |
| 131.6 | TOP 27 | 0.65 | 0.6694 | 0.0194 | 1032.608 | 1032.546 | -0.062 |
| 137.89 | TOP 27 | N/A | N/A | N/A | N/A | N/A | N/A |
| 144.17 | TOP 27 | N/A | N/A | N/A | N/A | N/A | N/A |
| 150.45 | TOP 27 | N/A | N/A | N/A | N/A | N/A | N/A |
| 156.73 | TOP 27 | N/A | N/A | N/A | N/A | N/A | N/A |
| 163 | TOP 27 | N/A | N/A | N/A | N/A | N/A | N/A |

DATE OF SURVEY: 09-24-2018

SURVEYED BY:

HEAVY NORTH

# Heavy North
# JDS Eagle Gold Project
# MSE Wall Installation

JDS Energy & Mining Inc.

ITP Line Item Number: **4.7** Date: 2018/09/24

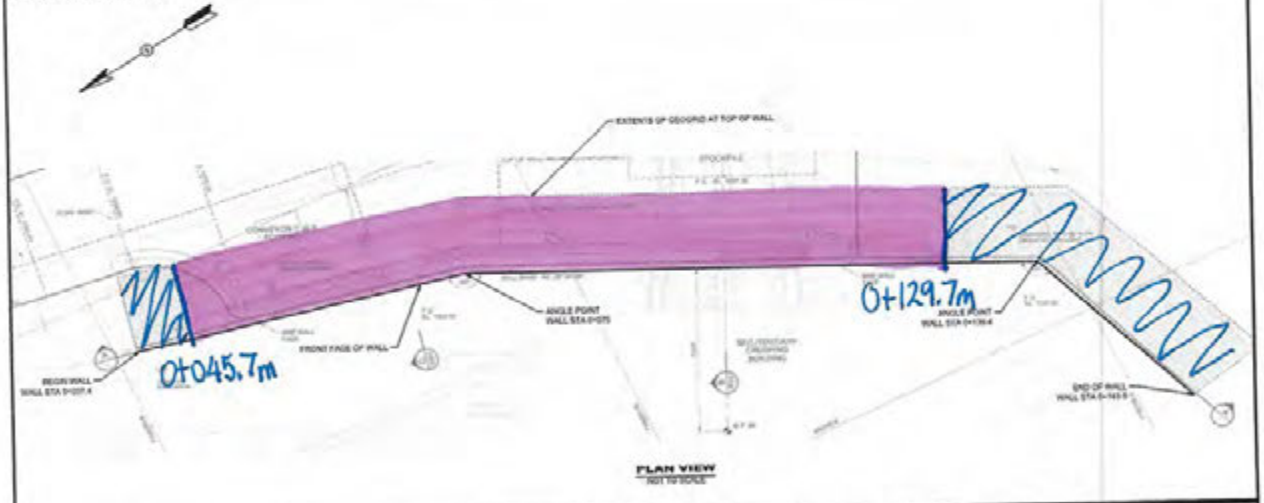
Location: **Secondary MSE Wall**

Layer Number: 28 Elevation: 1033.1 (Identify the location below)

| Material Placed | Design Criteria | Yes | No | N/A |
|---|---|---|---|---|
| WWF Baskets | 100mm overlap / secured / 25mm setback / 50mm deformation | ✓ | | |
| Biaxial Geogrid | Rolled out parallel to wall / 1.5m (bottom) & 2.0m (top) | ✓ | | |
| Uniaxial Geogrid | Cut to embedment length / installed with no slack / no overlap | ✓ | | |
| Struts | 435mm c/c separation / secured to WWF | ✓ | | |
| Face Fill | 450mm (min) limit of face fill / No voids | ✓ | | |
| Geotextile | Face-fill & backfill separation / 150mm (min) bottom | ✓ | | |
| Separation | 75mm (min) between BX biaxial upper & lower layers | ✓ | | |
| | | | | |

| *Enter other items of inspection below as required* | Yes | No | N/A |
|---|---|---|---|
| | | | |
| | | | |
| | | | |
| | | | |

Plan View:




| | Print | Sign | Date |
|---|---|---|---|
| Quality Designate: | AARON WAGNER | | 2018/09/24 |
| Owner: | Matt Cavedale | MC | 2018/09/24 |
| EoR: | | | |

# UNDERHILL GEOMATICS LTD.

MSE Wall Asbuilts Top Basket Level 28

| STA | DESC | DES (m) | AB (m) | DIFF (m) | Z DES (m) | Z AB (m) | Z DIFF (m) |
|---|---|---|---|---|---|---|---|
| 37.4 | TOP 28 | N/A | N/A | N/A | N/A | N/A | N/A |
| 43.68 | TOP 28 | N/A | N/A | N/A | N/A | N/A | N/A |
| 49.96 | TOP 28 | 0.675 | 0.8837 | 0.2087 | 1033.116 | 1033.107 | -0.009 |
| 56.24 | TOP 28 | 0.675 | 0.9025 | 0.2275 | 1033.116 | 1033.137 | 0.021 |
| 62.52 | TOP 28 | 0.675 | 0.8422 | 0.1672 | 1033.116 | 1033.115 | -0.001 |
| 68.8 | TOP 28 | 0.675 | 0.9032 | 0.2282 | 1033.116 | 1033.107 | -0.009 |
| 75.08 | TOP 28 | N/A | N/A | N/A | N/A | N/A | N/A |
| 81.36 | TOP 28 | 0.675 | N/A | N/A | N/A | N/A | N/A |
| 87.64 | TOP 28 | 0.675 | 0.6382 | -0.0368 | 1033.116 | 1033.047 | -0.069 |
| 93.92 | TOP 28 | 0.675 | 0.6913 | 0.0163 | 1033.116 | 1033.053 | -0.063 |
| 100.2 | TOP 28 | 0.675 | 0.7671 | 0.0921 | 1033.116 | 1033.063 | -0.053 |
| 106.48 | TOP 28 | 0.675 | 0.8365 | 0.1615 | 1033.116 | 1033.06 | -0.056 |
| 112.76 | TOP 28 | 0.675 | 0.7872 | 0.1122 | 1033.116 | 1033.082 | -0.034 |
| 119.05 | TOP 28 | 0.675 | 0.7301 | 0.0551 | 1033.116 | 1033.131 | 0.015 |
| 125.33 | TOP 28 | 0.675 | 0.6969 | 0.0219 | 1033.116 | 1033.069 | -0.047 |
| 131.6 | TOP 28 | N/A | N/A | N/A | N/A | N/A | N/A |
| 137.89 | TOP 28 | N/A | N/A | N/A | N/A | N/A | N/A |
| 144.17 | TOP 28 | N/A | N/A | N/A | N/A | N/A | N/A |
| 150.45 | TOP 28 | N/A | N/A | N/A | N/A | N/A | N/A |
| 156.73 | TOP 28 | N/A | N/A | N/A | N/A | N/A | N/A |
| 163 | TOP 28 | N/A | N/A | N/A | N/A | N/A | N/A |

DATE OF SURVEY: 09-24-2018

SURVEYED BY: Be

# Heavy North
# JDS Eagle Gold Project
# MSE Wall Installation

ITP Line Item Number: **4.7** Date: 2018/09/25

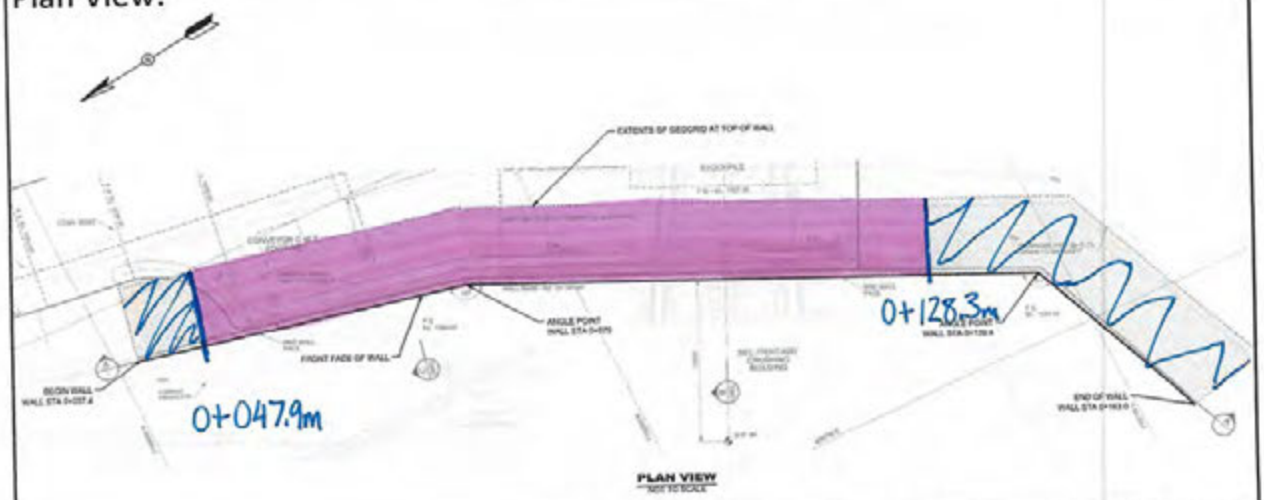
Location: **Secondary MSE Wall**

Layer Number: 29 Elevation: 1033.6 (Identify the location below)

| Material Placed | Design Criteria | Yes | No | N/A |
|---|---|---|---|---|
| WWF Baskets | 100mm overlap / secured / 25mm setback / 50mm deformation | ✓ | | |
| Biaxial Geogrid | Rolled out parallel to wall / 1.5m (bottom) & 2.0m (top) | ✓ | | |
| Uniaxial Geogrid | Cut to embedment length / installed with no slack / no overlap | ✓ | | |
| Struts | 435mm c/c separation / secured to WWF | ✓ | | |
| Face Fill | 450mm (min) limit of face fill / No voids | ✓ | | |
| Geotextile | Face-fill & backfill separation / 150mm (min) bottom | ✓ | | |
| Separation | 75mm (min) between BX biaxial upper & lower layers | ✓ | | |
| | | | | |

| *Enter other items of inspection below as required* | Yes | No | N/A |
|---|---|---|---|
| | | | |
| | | | |
| | | | |
| | | | |

Plan View:




| | Print | Sign | Date |
|---|---|---|---|
| Quality Designate: | AARON WAGNER | | 2018/09/25 |
| Owner: | Matt Cavedale | | 2018/09/25 |
| EoR: | | | |

# UNDERHILL GEOMATICS LTD.

MSE Wall Asbuilts Top Basket Level 29

| STA | DESC | DES (m) | AB (m) | DIFF (m) | Z DES (m) | Z AB (m) | Z DIFF (m) |
|---|---|---|---|---|---|---|---|
| 37.4 | TOP 29 | N/A | N/A | N/A | N/A | N/A | N/A |
| 43.68 | TOP 29 | 0.700 | 0.9217 | 0.222 | 1033.624 | 1033.56 | -0.064 |
| 49.96 | TOP 29 | 0.700 | 0.9463 | 0.246 | 1033.624 | 1033.618 | -0.006 |
| 56.24 | TOP 29 | 0.700 | 0.8897 | 0.190 | 1033.624 | 1033.607 | -0.017 |
| 62.52 | TOP 29 | 0.700 | 0.9208 | 0.221 | 1033.624 | 1033.629 | 0.005 |
| 68.8 | TOP 29 | 0.700 | 0.8602 | 0.160 | 1033.624 | 1033.632 | 0.008 |
| 75.08 | TOP 29 | 0.700 | 0.728 | 0.028 | 1033.624 | 1033.55 | -0.074 |
| 81.36 | TOP 29 | 0.700 | 0.6422 | -0.058 | 1033.624 | 1033.52 | -0.104 |
| 87.64 | TOP 29 | 0.700 | 0.7301 | 0.030 | 1033.624 | 1033.549 | -0.075 |
| 93.92 | TOP 29 | 0.700 | 0.7538 | 0.054 | 1033.624 | 1033.54 | -0.084 |
| 100.2 | TOP 29 | 0.700 | 0.8727 | 0.173 | 1033.624 | 1033.52 | -0.104 |
| 106.48 | TOP 29 | 0.700 | 0.8 | 0.100 | 1033.624 | 1033.512 | -0.112 |
| 112.76 | TOP 29 | 0.700 | 0.7455 | 0.046 | 1033.624 | 1033.542 | -0.082 |
| 119.05 | TOP 29 | 0.700 | 0.7561 | 0.056 | 1033.624 | 1033.592 | -0.032 |
| 125.33 | TOP 29 | 0.700 | N/A | N/A | N/A | N/A | N/A |
| 131.6 | TOP 29 | 0.700 | N/A | N/A | N/A | N/A | N/A |
| 137.89 | TOP 29 | 0.700 | N/A | N/A | N/A | N/A | N/A |
| 144.17 | TOP 29 | 0.700 | N/A | N/A | N/A | N/A | N/A |
| 150.45 | TOP 29 | 0.700 | N/A | N/A | N/A | N/A | N/A |
| 156.73 | TOP 29 | 0.700 | N/A | N/A | N/A | N/A | N/A |
| 163 | TOP 29 | 0.700 | N/A | N/A | N/A | N/A | N/A |

DATE OF SURVEY: __09-26-2018_____

SURVEYED BY: _____

# Heavy North
# JDS Eagle Gold Project
# MSE Wall Installation

ITP Line Item Number: **4.7** Date: 2018/09/25

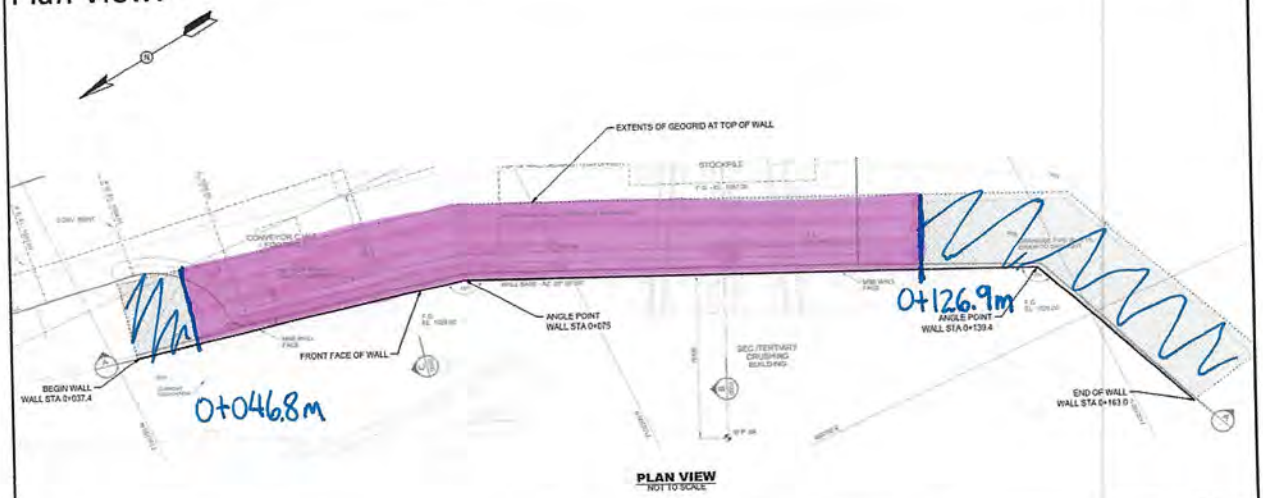
Location: **Secondary MSE Wall**

Layer Number: 30 Elevation: 1034.1 (Identify the location below)

| Material Placed | Design Criteria | Yes | No | N/A |
|---|---|---|---|---|
| WWF Baskets | 100mm overlap / secured / 25mm setback / 50mm deformation | ✓ | | |
| Biaxial Geogrid | Rolled out parallel to wall / 1.5m (bottom) & 2.0m (top) | ✓ | | |
| Uniaxial Geogrid | Cut to embedment length / installed with no slack / no overlap | ✓ | | |
| Struts | 435mm c/c separation / secured to WWF | ✓ | | |
| Face Fill | 450mm (min) limit of face fill / No voids | ✓ | | |
| Geotextile | Face-fill & backfill separation / 150mm (min) bottom | ✓ | | |
| Separation | 75mm (min) between BX biaxial upper & lower layers | ✓ | | |
| | | | | |

| *Enter other items of inspection below as required* | Yes | No | N/A |
|---|---|---|---|
| | | | |
| | | | |
| | | | |
| | | | |

Plan View:




| | Print | Sign | Date |
|---|---|---|---|
| Quality Designate: | AARON WAGNER | | 2018/09/25 |
| Owner: | Matt Caverdale | | 2018/09/25 |
| EoR: | | | |

# UNDERHILL GEOMATICS LTD.

MSE Wall Asbuilts Top Basket Level 30

| STA | DESC | DES (m) | AB (m) | DIFF (m) | Z DES (m) | Z AB (m) | Z DIFF (m) |
|---|---|---|---|---|---|---|---|
| 37.4 | TOP 30 | N/A | N/A | N/A | N/A | N/A | N/A |
| 43.68 | TOP 30 | 0.725 | N/A | N/A | N/A | N/A | N/A |
| 49.96 | TOP 30 | 0.725 | 0.9129 | 0.188 | 1034.132 | 1034.102 | -0.03 |
| 56.24 | TOP 30 | 0.725 | 0.9714 | 0.246 | 1034.132 | 1034.138 | 0.006 |
| 62.52 | TOP 30 | 0.725 | 0.9365 | 0.212 | 1034.132 | 1034.106 | -0.026 |
| 68.8 | TOP 30 | 0.725 | 0.9534 | 0.228 | 1034.132 | 1034.167 | 0.035 |
| 75.08 | TOP 30 | 0.725 | 0.9943 | 0.269 | 1034.132 | 1034.179 | 0.047 |
| 81.36 | TOP 30 | 0.725 | 0.7695 | 0.045 | 1034.132 | 1034.126 | -0.006 |
| 87.64 | TOP 30 | 0.725 | 0.6832 | -0.042 | 1034.132 | 1034.024 | -0.108 |
| 93.92 | TOP 30 | 0.725 | 0.756 | 0.031 | 1034.132 | 1034.06 | -0.072 |
| 100.2 | TOP 30 | 0.725 | 0.8162 | 0.091 | 1034.132 | 1034.054 | -0.078 |
| 106.48 | TOP 30 | 0.725 | 0.8926 | 0.168 | 1034.132 | 1034.049 | -0.083 |
| 112.76 | TOP 30 | 0.725 | 0.8674 | 0.142 | 1034.132 | 1034.058 | -0.074 |
| 119.05 | TOP 30 | 0.725 | 0.7907 | 0.066 | 1034.132 | 1034.102 | -0.03 |
| 125.33 | TOP 30 | 0.725 | 0.7942 | 0.069 | 1034.132 | 1034.111 | -0.021 |
| 131.6 | TOP 30 | 0.725 | N/A | N/A | N/A | N/A | N/A |
| 137.89 | TOP 30 | 0.725 | N/A | N/A | N/A | N/A | N/A |
| 144.17 | TOP 30 | 0.725 | N/A | N/A | N/A | N/A | N/A |
| 150.45 | TOP 30 | 0.725 | N/A | N/A | N/A | N/A | N/A |
| 156.73 | TOP 30 | 0.725 | N/A | N/A | N/A | N/A | N/A |
| 163 | TOP 30 | 0.725 | N/A | N/A | N/A | N/A | N/A |

DATE OF SURVEY: 09-26-2018

SURVEYED BY:

# Heavy North
# JDS Eagle Gold Project
# MSE Wall Installation

ITP Line Item Number: **4.7** Date: 2018/09/26

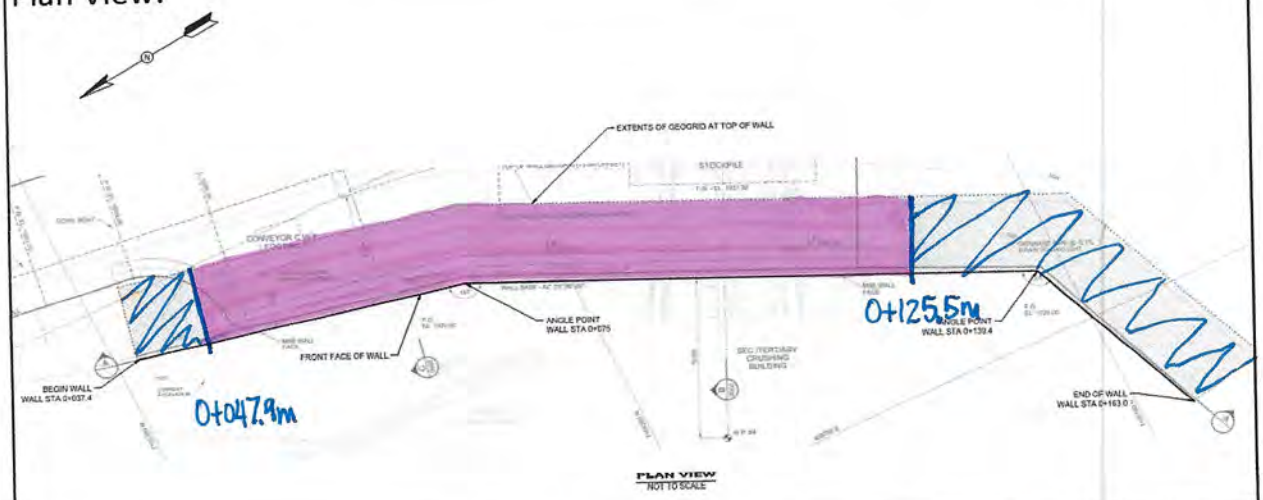
Location: **Secondary MSE Wall**

Layer Number: 31 Elevation: 1034.6 (Identify the location below)

| Material Placed | Design Criteria | Yes | No | N/A |
|---|---|---|---|---|
| WWF Baskets | 100mm overlap / secured / 25mm setback / 50mm deformation | ✓ | | |
| Biaxial Geogrid | Rolled out parallel to wall / 1.5m (bottom) & 2.0m (top) | ✓ | | |
| Uniaxial Geogrid | Cut to embedment length / installed with no slack / no overlap | ✓ | | |
| Struts | 435mm c/c separation / secured to WWF | ✓ | | |
| Face Fill | 450mm (min) limit of face fill / No voids | ✓ | | |
| Geotextile | Face-fill & backfill separation / 150mm (min) bottom | ✓ | | |
| Separation | 75mm (min) between BX biaxial upper & lower layers | ✓ | | |
| | | | | |

| *Enter other items of inspection below as required* | Yes | No | N/A |
|---|---|---|---|
| | | | |
| | | | |
| | | | |
| | | | |

Plan View:




| | Print | Sign | Date |
|---|---|---|---|
| Quality Designate: | AARON WAGNER | | 2018/09/26 |
| Owner: | Matt Caverdale | | 2018/09/26 |
| EoR: | | | |

# UNDERHILL GEOMATICS LTD.

MSE Wall Asbuilts Top Basket Level 31

| STA | DESC | DES (m) | AB (m) | DIFF (m) | Z DES (m) | Z AB (m) | Z DIFF (m) |
|---|---|---|---|---|---|---|---|
| 37.4 | TOP 31 | N/A | N/A | N/A | N/A | N/A | N/A |
| 43.68 | TOP 31 | 0.750 | N/A | N/A | N/A | N/A | N/A |
| 49.96 | TOP 31 | 0.750 | 0.9238 | 0.174 | 1034.64 | 1034.613 | -0.027 |
| 56.24 | TOP 31 | 0.750 | 0.9756 | 0.226 | 1034.64 | 1034.624 | -0.016 |
| 62.52 | TOP 31 | 0.750 | 0.9601 | 0.210 | 1034.64 | 1034.603 | -0.037 |
| 68.8 | TOP 31 | 0.750 | 0.9607 | 0.211 | 1034.64 | 1034.625 | -0.015 |
| 75.08 | TOP 31 | 0.750 | 0.864 | 0.114 | 1034.64 | 1034.675 | 0.035 |
| 81.36 | TOP 31 | 0.750 | 0.7879 | 0.038 | 1034.64 | 1034.577 | -0.063 |
| 87.64 | TOP 31 | 0.750 | 0.7032 | -0.047 | 1034.64 | 1034.544 | -0.096 |
| 93.92 | TOP 31 | 0.750 | 0.7489 | -0.001 | 1034.64 | 1034.565 | -0.075 |
| 100.2 | TOP 31 | 0.750 | 0.8295 | 0.080 | 1034.64 | 1034.566 | -0.074 |
| 106.48 | TOP 31 | 0.750 | 0.9012 | 0.151 | 1034.64 | 1034.569 | -0.071 |
| 112.76 | TOP 31 | 0.750 | 0.9239 | 0.174 | 1034.64 | 1034.587 | -0.053 |
| 119.05 | TOP 31 | 0.750 | 0.8635 | 0.114 | 1034.64 | 1034.507 | -0.133 |
| 125.33 | TOP 31 | 0.750 | 0.8114 | 0.061 | 1034.64 | 1034.624 | -0.016 |
| 131.6 | TOP 31 | N/A | N/A | N/A | N/A | N/A | N/A |
| 137.89 | TOP 31 | N/A | N/A | N/A | N/A | N/A | N/A |
| 144.17 | TOP 31 | N/A | N/A | N/A | N/A | N/A | N/A |
| 150.45 | TOP 31 | N/A | N/A | N/A | N/A | N/A | N/A |
| 156.73 | TOP 31 | N/A | N/A | N/A | N/A | N/A | N/A |
| 163 | TOP 31 | N/A | N/A | N/A | N/A | N/A | N/A |

DATE OF SURVEY: 09-26-2018

SURVEYED BY:

# Heavy North
# JDS Eagle Gold Project
# MSE Wall Installation

ITP Line Item Number: **4.7** Date: 2018/09/26

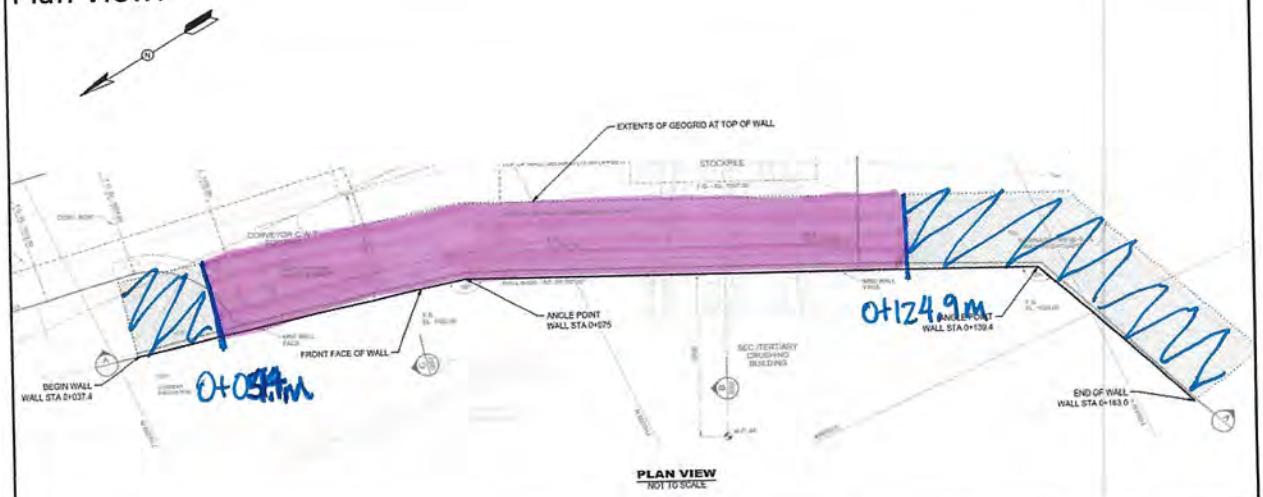
Location: **Secondary MSE Wall**

Layer Number: 32 Elevation: 1035.1 (Identify the location below)

| Material Placed | Design Criteria | Yes | No | N/A |
|---|---|---|---|---|
| WWF Baskets | 100mm overlap / secured / 25mm setback / 50mm deformation | ✓ | | |
| Biaxial Geogrid | Rolled out parallel to wall / 1.5m (bottom) & 2.0m (top) | ✓ | | |
| Uniaxial Geogrid | Cut to embedment length / installed with no slack / no overlap | ✓ | | |
| Struts | 435mm c/c separation / secured to WWF | ✓ | | |
| Face Fill | 450mm (min) limit of face fill / No voids | ✓ | | |
| Geotextile | Face-fill & backfill separation / 150mm (min) bottom | ✓ | | |
| Separation | 75mm (min) between BX biaxial upper & lower layers | ✓ | | |
| | | | | |

| *Enter other items of inspection below as required* | Yes | No | N/A |
|---|---|---|---|
| | | | |
| | | | |
| | | | |
| | | | |

Plan View:




| | Print | Sign | Date |
|---|---|---|---|
| Quality Designate: | AARON WAGNER | | 2018/09/26 |
| Owner: | Matt Caverdale | | 2018/09/26 |
| EoR: | | | |

# UNDERHILL GEOMATICS LTD.

MSE Wall Asbuilts Top Basket Level 32

| STA | DESC | DES (m) | AB (m) | DIFF (m) | Z DES (m) | Z AB (m) | Z DIFF (m) |
|---|---|---|---|---|---|---|---|
| 37.4 | TOP 32 | N/A | N/A | N/A | N/A | N/A | N/A |
| 43.68 | TOP 32 | N/A | N/A | N/A | N/A | N/A | N/A |
| 49.96 | TOP 32 | N/A | N/A | N/A | N/A | N/A | N/A |
| 56.24 | TOP 32 | 0.775 | 1.0409 | 0.266 | 1035.148 | 1035.117 | -0.031 |
| 62.52 | TOP 32 | 0.775 | 1.0257 | 0.251 | 1035.148 | 1035.137 | -0.011 |
| 68.8 | TOP 32 | 0.775 | 1.036 | 0.261 | 1035.148 | 1035.175 | 0.027 |
| 75.08 | TOP 32 | 0.775 | 0.9187 | 0.144 | 1035.148 | 1035.203 | 0.055 |
| 81.36 | TOP 32 | 0.775 | 0.8582 | 0.083 | 1035.148 | 1035.127 | -0.021 |
| 87.64 | TOP 32 | 0.775 | 0.7558 | -0.019 | 1035.148 | 1035.043 | -0.105 |
| 93.92 | TOP 32 | 0.775 | 0.7896 | 0.015 | 1035.148 | 1035.092 | -0.056 |
| 100.2 | TOP 32 | 0.775 | 0.879 | 0.104 | 1035.148 | 1035.084 | -0.064 |
| 106.48 | TOP 32 | 0.775 | 0.9647 | 0.190 | 1035.148 | 1035.052 | -0.096 |
| 112.76 | TOP 32 | 0.775 | 0.9447 | 0.170 | 1035.148 | 1035.104 | -0.044 |
| 119.05 | TOP 32 | 0.775 | 0.8713 | 0.096 | 1035.148 | 1035.116 | -0.032 |
| 125.33 | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 131.6 | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 137.89 | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 144.17 | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 150.45 | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 156.73 | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 163 | N/A | N/A | N/A | N/A | N/A | N/A | N/A |

DATE OF SURVEY: __09-26-2018_____

SURVEYED BY: _____

# Heavy North
# JDS Eagle Gold Project
# MSE Wall Installation

ITP Line Item Number: **4.7** Date: 2018/09/26

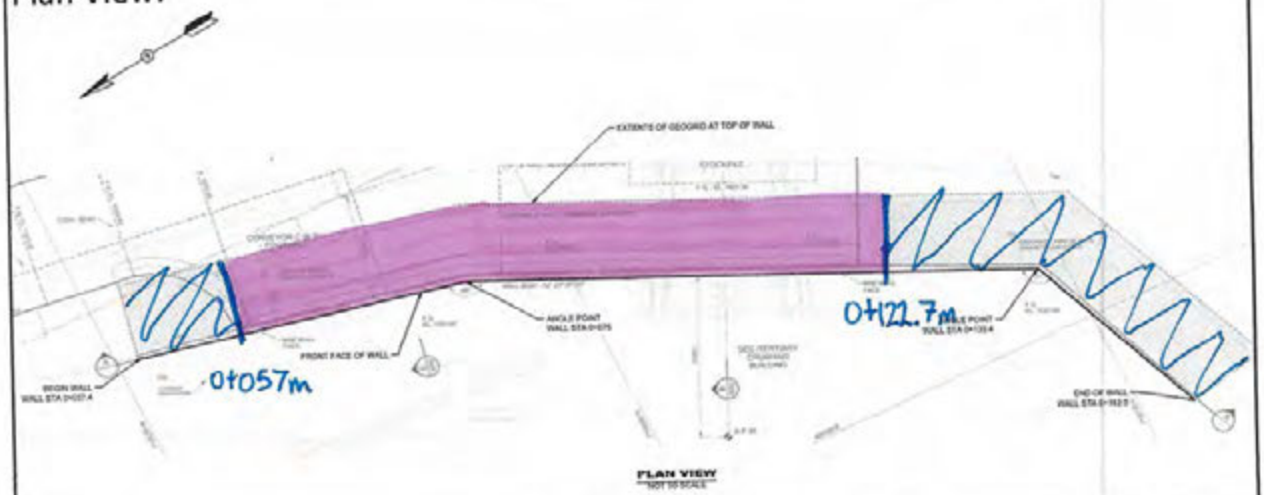
Location: **Secondary MSE Wall**

Layer Number: 33 Elevation: 1035.7m (Identify the location below)

| Material Placed | Design Criteria | Yes | No | N/A |
|---|---|---|---|---|
| WWF Baskets | 100mm overlap / secured / 25mm setback / 50mm deformation | ✓ | | |
| Biaxial Geogrid | Rolled out parallel to wall / 1.5m (bottom) & 2.0m (top) | ✓ | | |
| Uniaxial Geogrid | Cut to embedment length / installed with no slack / no overlap | ✓ | | |
| Struts | 435mm c/c separation / secured to WWF | ✓ | | |
| Face Fill | 450mm (min) limit of face fill / No voids | ✓ | | |
| Geotextile | Face-fill & backfill separation / 150mm (min) bottom | ✓ | | |
| Separation | 75mm (min) between BX biaxial upper & lower layers | ✓ | | |
| | | | | |

| *Enter other items of inspection below as required* | Yes | No | N/A |
|---|---|---|---|
| | | | |
| | | | |
| | | | |
| | | | |

Plan View:




| | Print | Sign | Date |
|---|---|---|---|
| Quality Designate: | AARON WAGNER | | 2018/09/26 |
| Owner: | Matt Coverdale | | 2018/09/26 |
| EoR: | | | |

# UNDERHILL GEOMATICS LTD.

MSE Wall Asbuilts Top Basket Level 33

| STA | DESC | DES (m) | AB (m) | DIFF (m) | Z DES (m) | Z AB (m) | Z DIFF (m) |
|---|---|---|---|---|---|---|---|
| 37.4 | TOP 33 | N/A | N/A | N/A | N/A | N/A | N/A |
| 43.68 | TOP 33 | N/A | N/A | N/A | N/A | N/A | N/A |
| 49.96 | TOP 33 | N/A | N/A | N/A | N/A | N/A | N/A |
| 56.24 | TOP 33 | N/A | N/A | N/A | N/A | N/A | N/A |
| 62.52 | TOP 33 | 0.800 | 1.0393 | 0.239 | 1035.656 | 1035.634 | -0.022 |
| 68.8 | TOP 33 | 0.800 | 1.0237 | 0.224 | 1035.656 | 1035.655 | -0.001 |
| 75.08 | TOP 33 | 0.800 | 1.0425 | 0.243 | 1035.656 | 1035.666 | 0.01 |
| 81.36 | TOP 33 | 0.800 | 0.8602 | 0.060 | 1035.656 | 1035.624 | -0.032 |
| 87.64 | TOP 33 | 0.800 | 0.8225 | 0.023 | 1035.656 | 1031.618 | -4.038 |
| 93.92 | TOP 33 | 0.800 | 0.8024 | 0.002 | 1035.656 | 1035.6 | -0.056 |
| 100.2 | TOP 33 | 0.800 | 0.9039 | 0.104 | 1035.656 | 1035.593 | -0.063 |
| 106.48 | TOP 33 | 0.800 | 0.965 | 0.165 | 1035.656 | 1035.564 | -0.092 |
| 112.76 | TOP 33 | 0.800 | 0.9528 | 0.153 | 1035.656 | 1035.598 | -0.058 |
| 119.05 | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 125.33 | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 131.6 | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 137.89 | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 144.17 | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 150.45 | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 156.73 | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 163 | N/A | N/A | N/A | N/A | N/A | N/A | N/A |

DATE OF SURVEY: 09-26-2018

SURVEYED BY: _____

# Heavy North
# JDS Eagle Gold Project
# MSE Wall Installation

ITP Line Item Number: **4.7** Date: 2018/09/27

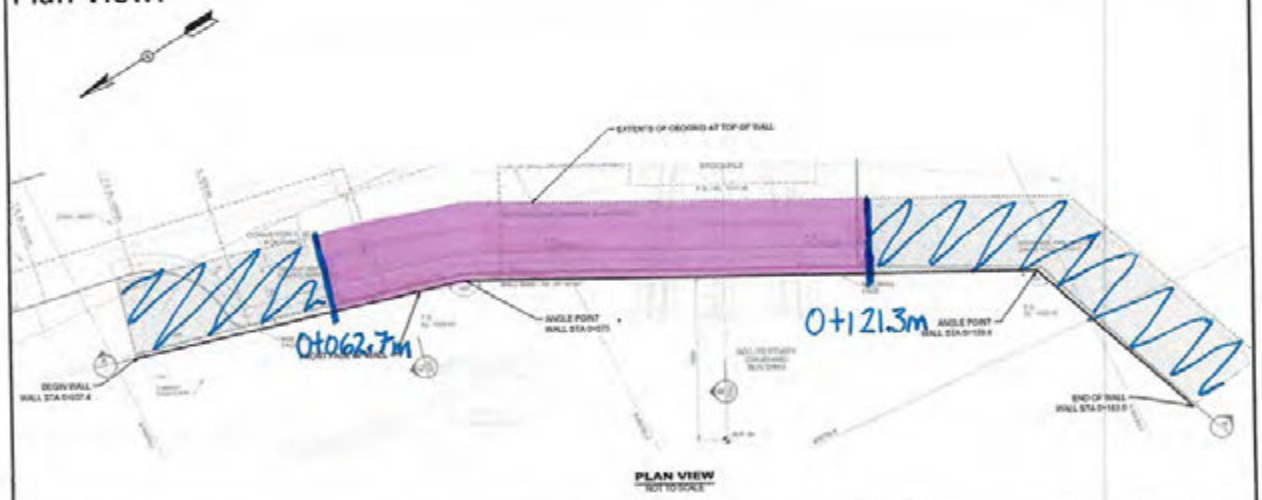
Location: **Secondary MSE Wall**

Layer Number: 34 Elevation: 1036.2m (Identify the location below)

| Material Placed | Design Criteria | Yes | No | N/A |
|---|---|---|---|---|
| WWF Baskets | 100mm overlap / secured / 25mm setback / 50mm deformation | ✓ | | |
| Biaxial Geogrid | Rolled out parallel to wall / 1.5m (bottom) & 2.0m (top) | ✓ | | |
| Uniaxial Geogrid | Cut to embedment length / installed with no slack / no overlap | ✓ | | |
| Struts | 435mm c/c separation / secured to WWF | ✓ | | |
| Face Fill | 450mm (min) limit of face fill / No voids | ✓ | | |
| Geotextile | Face-fill & backfill separation / 150mm (min) bottom | ✓ | | |
| Separation | 75mm (min) between BX biaxial upper & lower layers | ✓ | | |
| | | | | |

| *Enter other items of inspection below as required* | Yes | No | N/A |
|---|---|---|---|
| | | | |
| | | | |
| | | | |
| | | | |

Plan View:




| | Print | Sign | Date |
|---|---|---|---|
| Quality Designate: | AARON WAGNER | | 2018/09/27 |
| Owner: | Calvin Goddard | | OCT 14 2018 |
| EoR: | | | |

HN-CIV-100 REV 2

# UNDERHILL GEOMATICS LTD.

MSE Wall Asbuilts Top Basket Level 34

| STA | DESC | DES (m) | AB (m) | DIFF (m) | Z DES (m) | Z AB (m) | Z DIFF (m) |
|---|---|---|---|---|---|---|---|
| 37.4 | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 43.68 | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 49.96 | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 56.24 | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 62.52 | TOP 34 | N/A | N/A | N/A | N/A | N/A | N/A |
| 68.8 | TOP 34 | 0.825 | 1.082 | 0.257 | 1036.164 | 1036.158 | -0.006 |
| 75.08 | TOP 34 | 0.825 | 1.048 | 0.223 | 1036.164 | 1036.193 | 0.029 |
| 81.36 | TOP 34 | 0.825 | 0.9126 | 0.088 | 1036.164 | 1036.103 | -0.061 |
| 87.64 | TOP 34 | 0.825 | 0.7623 | -0.063 | 1036.164 | 1036.055 | -0.109 |
| 93.92 | TOP 34 | 0.825 | 0.815 | -0.010 | 1036.164 | 1036.093 | -0.071 |
| 100.2 | TOP 34 | 0.825 | 0.9226 | 0.098 | 1036.164 | 1036.105 | -0.059 |
| 106.48 | TOP 34 | 0.825 | 1.041 | 0.216 | 1036.164 | 1036.071 | -0.093 |
| 112.76 | TOP 34 | 0.825 | 1.039 | 0.214 | 1036.164 | 1036.082 | -0.082 |
| 119.05 | TOP 35 | 0.825 | 0.95 | 0.125 | 1036.164 | 1036.139 | -0.025 |
| 125.33 | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 131.6 | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 137.89 | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 144.17 | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 150.45 | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 156.73 | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 163 | N/A | N/A | N/A | N/A | N/A | N/A | N/A |

DATE OF SURVEY: 09-28-2018

SURVEYED BY: B

# Heavy North
# JDS Eagle Gold Project
# MSE Wall Installation

ITP Line Item Number: **4.7** Date: 2018/09/28

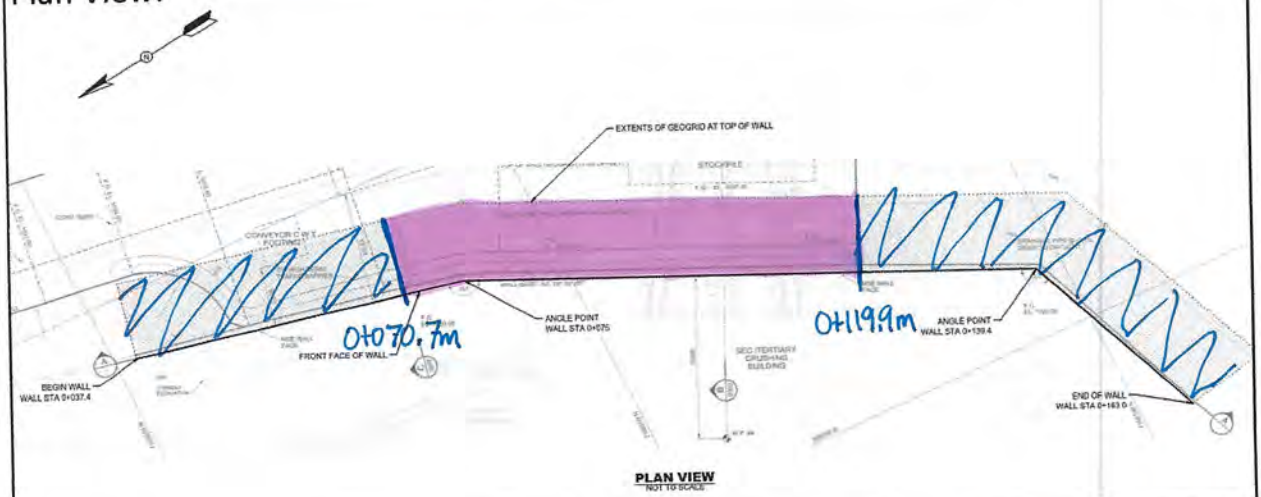
Location: **Secondary MSE Wall**

Layer Number: 35 Elevation: 1036.67m (Identify the location below)

| Material Placed | Design Criteria | Yes | No | N/A |
|---|---|---|---|---|
| WWF Baskets | 100mm overlap / secured / 25mm setback / 50mm deformation | ✓ | | |
| Biaxial Geogrid | Rolled out parallel to wall / 1.5m (bottom) & 2.0m (top) | ✓ | | |
| Uniaxial Geogrid | Cut to embedment length / installed with no slack / no overlap | ✓ | | |
| Struts | 435mm c/c separation / secured to WWF | ✓ | | |
| Face Fill | 450mm (min) limit of face fill / No voids | ✓ | | |
| Geotextile | Face-fill & backfill separation / 150mm (min) bottom | ✓ | | |
| Separation | 75mm (min) between BX biaxial upper & lower layers | ✓ | | |
| | | | | |

| *Enter other items of inspection below as required* | Yes | No | N/A |
|---|---|---|---|
| - final lift, MSE wall elevation higher than 1037.0m, sloped back to grade ~ 1037.0m in reinforced fill. Fencer communicated this was acceptable, not required to Nest final baskets. | ✓ | | |

Plan View:




| | Print | Sign | Date |
|---|---|---|---|
| Quality Designate: | AARON WAGNER | | 2018/09/28 |
| Owner: | Calvin Goldschmidt | | OCT 4/2018 |
| EoR: | | | |

# UNDERHILL GEOMATICS LTD.

MSE Wall Asbuilts Top Basket Level 35

| STA | DESC | DES (m) | AB (m) | DIFF (m) | Z DES (m) | Z AB (m) | Z DIFF (m) |
|---|---|---|---|---|---|---|---|
| 37.4 | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 43.68 | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 49.96 | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 56.24 | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 62.52 | TOP 35 | N/A | N/A | N/A | N/A | N/A | N/A |
| 68.8 | TOP 35 | N/A | N/A | N/A | N/A | N/A | N/A |
| 75.08 | TOP 35 | 0.850 | 0.937 | 0.087 | 1036.67 | 1036.721 | 0.051 |
| 81.36 | TOP 35 | 0.850 | 0.935 | 0.085 | 1036.67 | 1036.622 | -0.048 |
| 87.64 | TOP 35 | 0.850 | 0.802 | -0.048 | 1036.67 | 1036.557 | -0.113 |
| 93.92 | TOP 35 | 0.850 | 0.779 | -0.071 | 1036.67 | 1036.577 | -0.093 |
| 100.2 | TOP 35 | 0.850 | 0.882 | 0.032 | 1036.67 | 1036.587 | -0.083 |
| 106.48 | TOP 35 | 0.850 | 1.031 | 0.181 | 1036.67 | 1036.566 | -0.104 |
| 112.76 | TOP 35 | 0.850 | 0.967 | 0.117 | 1036.67 | 1036.56 | -0.11 |
| 119.05 | TOP 36 | 0.850 | 0.855 | 0.005 | 1036.67 | 1036.516 | -0.154 |
| 125.33 | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 131.6 | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 137.89 | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 144.17 | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 150.45 | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 156.73 | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 163 | N/A | N/A | N/A | N/A | N/A | N/A | N/A |

DATE OF SURVEY: 09-28-2018

SURVEYED BY:

NILEX CIVIL ENVIRONMENTAL GROUP

*Unearthing better results.*

# INSPECTOR'S DAILY FIELD REPORT (SIERRA SLOPE)

Nilex Rep: David Tomlinson
Owner: Victoria Gold Corp
Contractor: S Energy & Mining Inc.
Installer: avy North Construction
Weather: Clouds with high 13 deg

Project Name: gle Gold Secondary/Tertiary Wall
Location: Yukon - Secondary/Tertiary
Job #:
Others On Site: Heavy North - Sam, Warren
Date: August 29th, 2018

**ONSITE PERSONNEL**

| | Work Force | No. | Man-hours | Remarks |
|---|---|---|---|---|
| 1.0 | David Tomlinson (Nilex) | 1 | | Site Guidence |
| 2.0 | | | | |
| 3.0 | | | | |
| 4.0 | | | | |
| 5.0 | | | | |
| 6.0 | | | | |
| 7.0 | | | | |
| 8.0 | | | | |
| 9.0 | | | | |
| 10.0 | | | | |
| 11.0 | | | | |
| 23.0 | Total | 1 | 0.0 | |

**HSE ACTIVITY SUMMARY**

| Safety Activity | Completed |
|---|---|
| Site Orientations? | ☑ |
| Signed in? | ☐ |
| Installer Tailgate Meeting? | ☐ |
| Client Safety Meetings? | ☐ |
| Total | 0 |

**Material Install Summary (Meters)**

| Material | To Be Installed | Daily install | yesterdays + todays install | Project total to date | Remaining |
|---|---|---|---|---|---|
| Wire Frame | | | | 0% | 100% |
| | | | | | |
| BX 112060 Wrap | | | | 0% | 100% |
| TPG 100 | | | | 0% | 100% |
| TPG 130 | | | | 0% | 100% |
| Geotextile | | | | 0% | 100% |
| | | | | | |
| | | | | 80% of 4th lit | |
| | | | | | |
| | | | | | |
| | | | | | |

**A. SUMMARY OF DAILY WORK** — Please ensure to mention as much detail as possible (Time, Area, Activity, Material, etc)

| | Time | Area | Notes: |
|---|---|---|---|
| 1.0 | 14:00 | Secondary/Tertiary Wall | Observed continuous construction of the wall. Heavy North had completed up to and approximately 80% of the 4th layer of baskets |
| 2.0 | | | and geogrid. The total batter was being observed by the surveyors to maintain precision as the height of the wall increased. Although |
| 3.0 | | | Geogrids were being tensioned appropriately and fill was being placed on top to maintain a tight fit to the BX. The uniaxial was not |
| 4.0 | | | observed to be tensioned today and placed into position but was confirmed by Sam that it was indeed tensioned in a similar fashion and |
| 5.0 | | | reinforced fill placed on top after to lock it into place. The workers are using rakes to pull the geogrid taut, careful not to tear the geogrid. |
| 6.0 | | | There is noticeable inconsistencies with the 25mm setback, but with large rock fill and inconsistent compaction, this is expected. There |
| 7.0 | | | were no noticeable overhanging baskets. As discussed in a previous RFI, mitigation of inconsistent 25mm setbacks include the following: |
| 8.0 | | | 1. Ensuring properly tensioned geogrids, that the crew appear to be doing accurately and tightly, up the face and extending away from the |
| 9.0 | | | face. Again,Heavy North workers appeared to be installing the geogrid in this method. |
| 10.0 | | | 2. Using a hand tamper on the rock fill, a plate tamper behind the rock fill up to 1m away from the face and large compaction equipment |
| 11.0 | | | further than 1m away from the face & driving parallel to the face of the wall. The workers appeared to be constructing in this fashion. |
| 12.0 | | | 3. Heavy North was placing face rock in postion, with baskets in alignment for front face batter. If placing the rock and hand tamping was |
| 13.0 | | | causing baskets at face to move outward, they would use a 2x4 to push the basket backwards into position before fill was placed on the |
| 14.0 | | | uniaxial geogrid. Once alignment was acceptable, fill would begin being placed on the uniaxial geogrid close to the face then towards the tail |
| 15.0 | | | Generally speaking, besides small inconsistencies in the facing setback, construction looks good, geogrids are tight and the construction |
| | | | team is diligently working to follow the drawing and design requirements. |

**B. Foundation Check Approval:** YES ☑ NO ☐ (Describe Location/Station and any problems to be brought to attention)

Notes: Tetra Tech was on site monitoring compaction

**C. Compaction Testing:** YES ☑ NO ☐ (Describe location/station and provide any notes) Compaction Engineer/Tester:

Notes: Per TetraTech compaction was consistently being met.

**D. Plan For Tomorrow:** (Considering areas available and weather)

Notes: Meet at 6:45am for safety meeting and inspection of night shift work completion.

**E. Actions Taken:** (Direction given to individuals by Nilex representative)

Notes: Advice was given about using a smaller stone material to help provide a more flat area for placing baskets on the next layer.
Gaps were noticed in the transition between the wrapped face stone and the top of the wedge of the reinforced fill where 4" rock was preventing excellent material coverage with fines along this edge. It was directed that the contractor try to fill in these gaps with finer material, and as much as possible.

**E. Attachment of Drawing of Work Done? YES** ☐ **NO** ☑

Special Provisions:

On-site assistance will be provided by Nilex at the request of the contractor or as provided in the contract specifications. Nilex is not responsible for having personnel on-site unless specifically provided for in a written contract signed by Nilex. The Nilex representative will not have the authority to stop or start construction of the retaining wall. Nilex is not responsible for foundation, drainage, and backfill/compaction of each station.

| David Tomlinson | 28-Aug-18 | | 28-Aug-18 |
|---|---|---|---|
| **Nilex Representative** | **DATE** | **Client** | **DATE** |

NILEX CIVIL ENVIRONMENTAL GROUP

Unearthing better results.

# INSPECTOR'S DAILY FIELD REPORT (SIERRA SLOPE)

Nilex Rep: David Tomlinson
Owner: Victoria Gold Corp
Contractor: S Energy & Mining Inc.
Installer: eavy North Construction
Weather: Clouds with high 11 deg

Project Name: gle Gold Secondary/Tertiary Wall
Location: Yukon - Secondary/Tertiary
Job #:
Others On Site: eavy North - Sam, Warren, Mike P
Date: August 29th, 2018

## ONSITE PERSONNEL

| | Work Force | No. | Man-hours | Remarks |
|---|---|---|---|---|
| 1.0 | David Tomlinson (Nilex) | 1 | | Site Guidence |
| 2.0 | | | | |
| 3.0 | | | | |
| 4.0 | | | | |
| 5.0 | | | | |
| 6.0 | | | | |
| 7.0 | | | | |
| 8.0 | | | | |
| 9.0 | | | | |
| 10.0 | | | | |
| 11.0 | | | | |
| 23.0 | Total | 1 | 0.0 | |

## HSE ACTIVITY SUMMARY

| Safety Activity Completed | |
|---|---|
| Site Orientations? | ✓ |
| Signed in? | |
| Installer Tailgate Meeting? | |
| Client Safety Meetings? | |
| Total | 0 |

## Material Install Summary (Meters)

| Material | To Be Installed | Daily install | yesterdays + todays install | Project total to date | Remaining |
|---|---|---|---|---|---|
| Wire Frame | | | | 0% | 100% |
| | | | | | |
| BX 112060 Wrap | | | | 0% | 100% |
| TPG 100 | | | | 0% | 100% |
| TPG 130 | | | | 0% | 100% |
| Geotextile | | | | 0% | 100% |
| | | | | | |
| | | | Starting of 5th | | |
| | | | | | |
| | | | | | |
| | | | | | |

## A. SUMMARY OF DAILY WORK

Please ensure to mention as much detail as possible (Time, Area, Activity, Material, etc)

| | Time | Area | Notes: |
|---|---|---|---|
| 1.0 | 11:00 | Secondary/Tertiary Wall | The same concerns brought up yesterday were brought up again today. |
| 2.0 | | | |
| 3.0 | | | Overall, 1:20 batter is being met. There are no overhanging baskets. Suggestions were made yesterday and today to attempt to mitigate |
| 4.0 | | | the movement of the baskets. It was advised to use the geogrid to try to hold the baskets in place while backfilling. |
| 5.0 | | | Suggestions were made to place fill strategically to maintain tight geogrids and mitigate the movement of the baskets at the |
| 6.0 | | | face. |
| 7.0 | | | Elevations are being monitored by surveyors. Overall look of wall appears good. Geogrids are generally quite tight and in position. |
| 8.0 | | | |
| 9.0 | | | There is difficulty with the larger 4" material to fill in all the gaps of the system AND to compact without movment as the 4" is proving |
| 10.0 | | | to move a fair bit during compaction. The contractor suspects this is due to large voids in the material. |
| 11.0 | | | I had advised the individuals to use the geogrid and fill to help lock things in place before compaction. Heavy North looks like they |
| 12.0 | | | are settling into a consistent and effective construction method moving forward. Now all 3 crews are experienced and construction should |
| 13.0 | | | go more smoothly and efficiently. |
| 14.0 | | | |
| 15.0 | | | |

## B. Foundation Check Approval:

YES ✓ NO (Describe Location/Station and any problems to be brought to attention)

Notes: Tetra Tech was on site monitoring compaction

## C. Compaction Testing:

YES ✓ NO (Describe location/station and provide any notes) Compaction Engineer/Tester:

Notes: Per TetraTech compaction was consistently being met.

## D. Plan For Tomorrow:

(Considering areas available and weather)

Notes:

## E. Actions Taken:

(Direction given to individuals by Nilex representative)

Notes: Advice was given about using a smaller stone material to help provide a more flat area for placing baskets on the next layer.

Gaps were noticed in the transition between the wrapped face stone and the top of the wedge of the reinforced fill where 4" rock was preventing excellent material coverage with fines along this edge. It was directed that the contractor try to fill in these gaps with finer material, and as much as possible.

## E. Attachment of Drawing of Work Done? YES NO ✓

## Special Provisions:

On-site assistance will be provided by Nilex at the request of the contractor or as provided in the contract specifications. Nilex is not responsible for having personnel on-site unless specifically provided for in a written contract signed by Nilex. The Nilex representative will not have the authority to stop or start construction of the retaining wall. Nilex is not responsible for foundation, drainage, and backfill/compaction of each station.

| David Tomlinson | 29-Aug-18 | | 29-Aug-18 |
|---|---|---|---|
| **Nilex Representative** | **DATE** | **Client** | **DATE** |

# Nilex Construction Progress Report

**Project Name:** Eagle Gold Secondary Crusher Wall **Order No.**

**Date:** Sept 11, 2018

**Weather:** Sunny

**Time:** Arrived site 2:20 pm

**Contractor:** Heavy North , JDS

**Equipment:** Dozer, articulating dump trucks, skid steers, packer, walk behind compactor

**Labour:** Approx 5 to 7 personnel

**Work Completed:** Working on 14th course

**Additional Notes (Meetings / Design / Construction Changes):**

Met with Calvin, D'Arcy, Branden, Aaron at JDS office. Introduced Robert to them.

Had a quick discussion in the office about the retained fill spec and compaction. Robert deferred that to needing to talk with Ezra from Hatch, and the Geotech engineer. Whatever they put there has to work with the wall design and not overwhelm the resistive force of the wall. Ezra is looking into it. Tensar will react with a design check once they decide what they are placing there. The wall was designed based on parameters shown in the drawings for unit weight and phi angle of the retained soil.

Also quick discussion about shorted grid, and what we are doing to sort that out, including possibly shortening the grid lengths at the ends of the wall.

Headed almost immediately to site with JDPS personnel including Calvin and Aaron and met Heavy North project manager Matt and superintendent, and crew. And walked the wall from left to right.

Right away started answering question from Calvin, Matt, Aaron on appearance of wall and conversations of note:

- Questions about batter and setback at the 12th course that looks to be bout 4 inches. They did this to correct the overall batter. Robert approved of the correction.
- QA and QC advice re: ensuring basket bottom wire set back from course below at least 25mm. Baskets above not to overhang baskets below nor being on top of the top wire of the basket below. Tolerances are on the drawings for setback and variances both vertically and horizontally. Better face control and rock placement technique will help this movement.
- Voids caused by placement of face rock noted here and there. Pointed out these should be avoided.
- Levelling course previously approved is not working out when considering potential long-term settlement deformation. Contractor has gone from approved 50mm to at least 100mm or higher in some places. Relying too heavily on it. Robert and I suggested we need to re-visit the original

installation practices for the face rock to reduce or eliminate the levelling course rock. Robert noted this layer may settle due to failure of the geotextile, or by gravity pressure of the courses above and this can cause the face to distort / bulge.

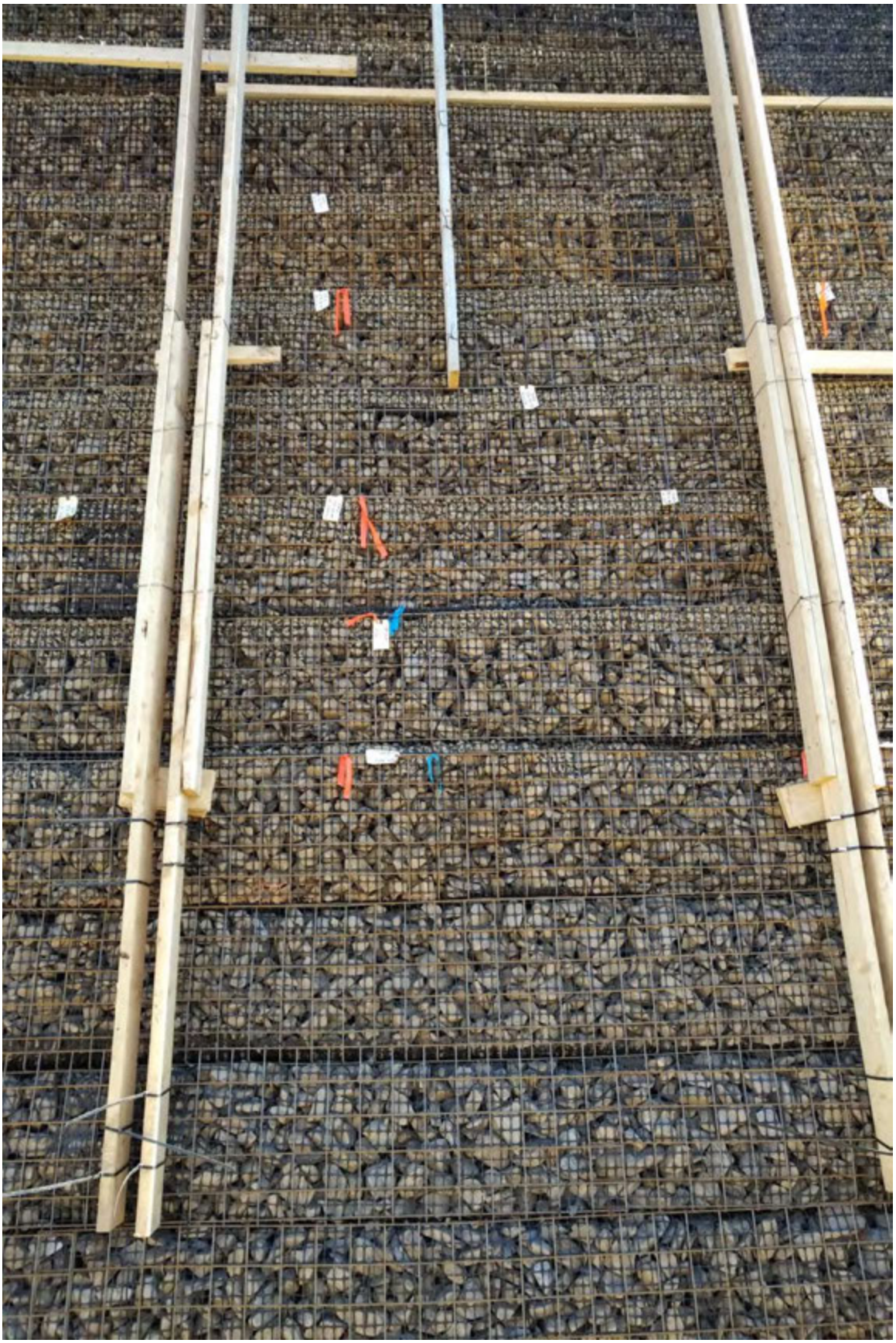
- Discussion about rock face control. They described their procedure using a skid steer to place using vibration to help drop the rock in place. No labourers with shovels to help guide the rock in place.
- They are using struts at 250m spacing. Robert pointed out this can cause voids because of potentially locking up irregular shaped rocks hanging up on the struts and locking the rock above it. This is due to a smaller aperture as well. We talked about them trying a section using less struts and more finesse, and using labourers with shovels to help place material.
- Went to top of wall, observed progress. Noted distance from face to backfill was 2 to 3m and Robert asked why. They had not finished blading out fill yet. He mentioned the wrinkles in the reinforcement and that they should start placing backfill at about the 1.5m mark from face ( at the end of the biaxial grid ). This will help alleviate wrinkles and help lock everything up.
- Agreed to them demonstrating their rock placement. Observed bucket was quite high, dropping rocks right at or on the front of the basket. We tried three drops – A) as they were B) with struts at 450mm and C) with struts at 450mm and I showed them how to lower the bucket, and drop rocks on the back of the form first, then move forward to face gently. Takeaway:
  1. They must use a spotter to guide the operator.
  2. They must lower the bucket to almost touching the ground.
  3. Move rocks forward with the help of shovels if necessary and hand pick out large ones that can interfere with horizontal basket placement.
  4. Struts at 450mm will ensure the rocks will settle voids better.
- Discussion about vertical and horizontal alignments and offset limits. We pointed out the limits are in the drawings and Robert shared a brochure highlighting these limits.
- Discussion about correction technique from course to course if there is any horizontal deviation. A little deviation is normal and can be corrected at the next course using rockface material.
- Contractor seems to be on board with the procedures we laid out.
- Left site and went back to JDS office for Robert to go thru a Visitor Safety Orientation
- Robert asked Calvin if he was happy with the wall. He said he is happy Robert said it is structurally sound.
- Calvin wants to eliminate the 2” levelling course. It is expensive, poses a potential risk for settlement, and is an added step.
- Plan for Wednesdy – Meet contractor at site 7 AM, show them rockfill techniques, lunch, then meeting with JDS re: missing grid.
- We would like to look over the roll stock and see what is left.

**Pics:**




S-85
S-85













TETRA TECH

# EARTHWORKS FIELD REPORT

ISSUED FOR REVIEW

| | | | |
|---|---|---|---|
| **To:** | Roman Bilobrowka; Calvin Goldschmidt; Ishan Fechter; Jerry Chrzaszcz; John Purves; Matt Coverdale; D'Arcy Comerford; Aaron Wagner; Sam Elson | | |
| **Cc:** | Chad Cowan; Robert Zschuppe; James Buyck, John Purves | **From:** | Anthony Schoepp |
| **Project:** | Secondary and Tertiary Crushing Stockpile Retaining Wall | **Date:** | August 15, 2018 |
| **Location:** | Eagle Gold Mine, YT | **Weather:** | Light Rain Showers |
| **Client:** | JDS | | High 14°C |
| **File:** | ENG.WARC03235 | | Low 4°C |

## 1.0 MSE WALL CONSTRUCTION SUMMARY

| Unit ID | Equipment | Work |
|---|---|---|
| - | CAT D6T Dozer | Placing backfill |
| - | CAT 324 Excavator | Scaling rock wall |
| - | CAT 730 Rock Truck | Hauling backfill to MSE wall |
| - | CAT 740B Rock Truck | Hauling backfill to MSE wall |
| - | CAT 950K Loader | Loading backfill and moving equipment |
| - | CS55 Smooth Drum Compactor | Compacting backfill at the MSE wall |
| - | Plate Tamper | Compacting backfill at the MSE wall |

## 2.0 MECHANICALLY STABILIZED EARTH WALL

- Material placement for the first lift of subgrade foundation was completed. Thickness of lift was below or equal to 250 mm, which is within specification.
- First lift of subgrade material compacted using CS55 smooth drum compactor and plate tamper. Four passes observed at sufficient speed and overlap to meet required method specification.
- Material placement for the second lift of subgrade foundation was completed. Thickness of lift was below or equal to 250 mm, which is within specification.
- Second lift of subgrade material compacted using CS55 smooth drum compactor and plate tamper. Four passes observed at sufficient speed and overlap to meet required method specification. A proof roll was conducted which demonstrated minimal deflection in compacted backfill.
- Material placement for the third lift of subgrade foundation was completed. Thickness of lift was below or equal to 250 mm, which is within specification.
- Third lift of subgrade material compacted using CS55 smooth drum compactor and plate tamper. Four passes observed at sufficient speed and overlap to meet required method specification.

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## 3.0 DISCUSSION/OTHER

- During the startup meeting with JDS, Heavy North, and Tetra Tech, sampling frequency for backfill was discussed. A sampling frequency of one sample per 5000 $m^3$ was decided on, with an RFI to Tensar to ensure this sample frequency is adequate.
- An RFI was sent to Tensar on having less than 8.1 m of width on the north and south end of the wall. To reach the required width the rock wall would have to be undercut, potentially endangering equipment and workers.

## 4.0 CLOSURE

We trust that the information provided herein is accurate and complete. Please contact the undersigned if you require additional information or have any concerns.

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**Photo 1 – First lift for the foundation**



**Photo 2 – Compaction of the first lift for the foundation**



**Photo 3 – Completed surface for the second lift of the subgrade foundation**

TETRA TECH

# EARTHWORKS FIELD REPORT

ISSUED FOR REVIEW

| | | | |
|---|---|---|---|
| **To:** | Roman Bilobrowka; Calvin Goldschmidt; Ishan Fechter; Jerry Chrzaszcz; John Purves; Matt Coverdale; D'Arcy Comerford; Aaron Wagner; Sam Elson | | |
| **Cc:** | Chad Cowan; Robert Zschuppe; James Buyck; John Purves | **From:** | Anthony Schoepp |
| **Project:** | Secondary and Tertiary Crushing Stockpile Retaining Wall | **Date:** | August 16, 2018 |
| **Location:** | Eagle Gold Mine, YK | **Weather:** | Partly Cloudy |
| **Client:** | JDS | | High 16°C |
| **File:** | ENG.WARC03235 | | Low 4°C |

## 1.0 MSE WALL CONSTRUCTION SUMMARY

| Unit ID | Equipment | Work (Dayshift) |
|---|---|---|
| - | CAT D6T Dozer | Placing backfill |
| - | CAT 324 Excavator | Scaling rock face |
| - | CAT 730 Rock Truck | Hauling backfill to MSE wall |
| - | CAT 740B Rock Truck | Hauling backfill to MSE wall |
| - | CAT 950K Loader | Loading backfill and moving equipment |
| - | CS55 Smooth Drum Compactor | Compacting backfill at the MSE wall |
| - | Plate Tamper | Compacting backfill at the MSE wall |

## 2.0 MECHANICALY STABILIZED EARTH WALL

- Excavator scaled the northeast corner of the wall to try to meet the required 8.1 m width.
- Material placement for the fourth lift of the foundation was completed. Thickness of lift was below or equal to 250 mm, which is within specification. This lift reached the required elevation for the foundation of 1019.4 m.
- Fourth lift of the foundation material was compacted using CS55 smooth drum compactor. Four passes observed at sufficient speed and overlap to meet required method specification. A proof roll was conducted which demonstrated minimal deflection in the compacted foundation, see photo 2.

## 3.0 DISCUSSION/OTHER

- Confirmation was received from Tensar that a less than 8.1 m width of geogrid on the north and south end of the MSE wall is adequate for construction. Between stations 0+037.4 to 0+044.08 a width of 6.6 m is allowed, between the stations 0+059.9 to 0+080.16 a width of 7.15 m is allowed, and between stations 0+124.17 to 0+163 a width of 5.64 m is allowed.
- Finer material was brought in to help reach the required elevation of 1019.4 m and to ensure level foundation.

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# 4.0 CLOSURE

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**Photo 1 – Excavator scaling northeast wall**



**Photo 2 – Proof roll of the final lift for the foundation**



**Photo 3 – Completed surface for the final lift of the foundation**

TETRA TECH

# EARTHWORKS FIELD REPORT

ISSUED FOR REVIEW

| | | | |
|---|---|---|---|
| **To:** | Roman Bilobrowka; Calvin Goldschmidt; Ishan Fechter; Jerry Chrzaszcz; John Purves; Matt Coverdale; D'Arcy Comerford; Aaron Wagner; Sam Elson | | |
| **Cc:** | Chad Cowan; Robert Zschuppe; James Buyck; Reid Seal; John Purves; Chris Copley | **From:** | Anthony Schoepp |
| **Project:** | Secondary and Tertiary Crushing Stockpile Retaining Wall | **Date:** | August 17, 2018 |
| **Location:** | Eagle Gold Mine, YK | **Weather:** | Cloudy |
| **Client:** | JDS | | High 10°C |
| **File:** | ENG.WARC03235 | | Low 4°C |

## 1.0 MSE WALL CONSTRUCTION SUMMARY

| Unit ID | Equipment | Work (Dayshift) |
|---|---|---|
| - | CAT D6T Dozer | Placing backfill |
| - | CAT 324 Excavator | Placing drain rock |
| - | CAT 730 Rock Truck | Hauling backfill to MSE wall |
| - | CAT 740B Rock Truck | Hauling backfill to MSE wall |
| - | CAT 950K Loader | Loading backfill and moving equipment |
| - | CS55 Smooth Drum Compactor | Compacting backfill at the MSE wall |
| - | Plate Tamper | Compacting backfill at the MSE wall |

## 2.0 MECHANICALY STABILIZED EARTH WALL

- Biaxial and uniaxial geogrid, facing units, and support struts were installed for the first and second layers of the first lift for the MSE wall, approximately between stations 0+037 to 0+075. Facing units had 100 mm of overlap, following specification.
- Material placement of reinforced backfill for the first and second layer of the MSE wall started, approximately between stations 0+037 to 0+065. Thickness of each layer was below or equal to 250 mm, which is within specification.
- First and second layer of MSE wall was compacted using CS55 smooth drum compactor. Four passes observed at sufficient speed and overlap to meet required method specification.
- Drain rock was backfilled into the facing units, with geotextile placed on top, approximately between stations 0+037 to 0+065.

## 3.0 DISCUSSION/OTHER

- Material was not placed along the back wall, a drain will be placed there later using geotextile wrapped pipe.

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**Photo 1 – Geogrid, facing units and support struts**



**Photo 2 – Compaction of the first lift for the MSE wall**



**Photo 3 – Drain rock backfilled inside of facing units and geotextile placed on top**

TETRA TECH

# EARTHWORKS FIELD REPORT

ISSUED FOR REVIEW

| | | | |
|---|---|---|---|
| **To:** | Roman Bilobrowka; Calvin Goldschmidt; Ishan Fechter; Jerry Chrzaszcz; John Purves; Matt Coverdale; D'Arcy Comerford; Aaron Wagner; Sam Elson | | |
| **Cc:** | Chad Cowan; Robert Zschuppe; James Buyck; Reid Seal; John Purves; Chris Copley | **From:** | Anthony Schoepp |
| **Project:** | Secondary and Tertiary Crushing Stockpile Retaining Wall | **Date:** | August 18, 2018 |
| **Location:** | Eagle Gold Mine, YT | **Weather:** | Partly Cloudy |
| **Client:** | JDS | | High 15°C |
| **File:** | ENG.WARC03235 | | Low 5°C |

## 1.0 MSE WALL CONSTRUCTION SUMMARY

| Unit ID | Equipment | Work (Dayshift) |
|---|---|---|
| - | CAT D6T Dozer | Placing backfill |
| - | CAT 324 Excavator | Placing drain rock |
| - | CAT 730 Rock Truck | Hauling backfill to MSE wall |
| - | CAT 740B Rock Truck | Hauling backfill to MSE wall |
| - | CAT 950K Loader | Loading backfill and moving equipment |
| - | CS55 Smooth Drum Compactor | Compacting backfill at the MSE wall |
| - | Plate Tamper | Compacting backfill at the MSE wall |

## 2.0 MECHANICALY STABILIZED EARTH WALL

- Drain pipe and drain rock wrapped in geotextile was placed along the back wall. Approximately between stations 0+037 to 0+065.
- Biaxial and uniaxial geogrid, facing units, and support struts were installed for lift #2 for the MSE wall, approximately between stations 0+037 to 0+060. Facing units had 100 mm of overlap, following specification.
- Material placement of reinforced backfill for the first layer of lift #2 for the MSE wall started, approximately between stations 0+037 to 0+055.
- Nightshift completed 30 m of lift #1, approximately between stations 0+075 to 0+105. Full installation of geogrid, fill material and facing units.

## 3.0 DISCUSSION/OTHER

- The importance of taunt biaxial geogrid and ensuring face rock is as flat as possible inside the facing units, was discussed with the operators.

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**Photo 1 – Drain placed along the back wall**



**Photo 2 – Facing units and biaxial geogrid being installed for lift #2**



**Photo 3 – Backfill placed on uniaxial geogrid ready to be spread to be a working platform**

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# EARTHWORKS FIELD REPORT

ISSUED FOR REVIEW

| | | | |
|---|---|---|---|
| **To:** | Roman Bilobrowka; Calvin Goldschmidt; Ishan Fechter; Jerry Chrzaszcz; John Purves; Matt Coverdale; D'Arcy Comerford; Aaron Wagner; Sam Elson | | |
| **Cc:** | Chad Cowan; Robert Zschuppe; James Buyck; Reid Seal; John Purves; Chris Copley | **From:** | Anthony Schoepp |
| **Project:** | Secondary and Tertiary Crushing Stockpile Retaining Wall | **Date:** | August 19, 2018 |
| **Location:** | Eagle Gold Mine, YT | **Weather:** | Sunny |
| **Client:** | JDS | | High 20°C |
| **File:** | ENG.WARC03235 | | Low 6°C |

## 1.0 MSE WALL CONSTRUCTION SUMMARY

| Unit ID | Equipment | Work (Dayshift) |
|---|---|---|
| - | CAT D6T Dozer | Placing backfill |
| - | CAT 324 Excavator | Placing drain rock |
| - | CAT 730 Rock Truck | Hauling backfill to MSE wall |
| - | CAT 740B Rock Truck | Hauling backfill to MSE wall |
| - | CAT 950K Loader | Loading backfill and moving equipment |
| - | CS55 Smooth Drum Compactor | Compacting backfill at the MSE wall |
| - | Plate Tamper | Compacting backfill at the MSE wall |

## 2.0 MECHANICALY STABILIZED EARTH WALL

- Drain pipe and drain rock wrapped in geotextile was placed along the back wall. Approximately between stations 0+065 to 0+075.
- Biaxial and uniaxial geogrid, facing units, and support struts were installed for lift #2 for the MSE wall, approximately between stations 0+060 to 0+075. Facing units had 100 mm of overlap, following specification.
- Material placement of reinforced face rock for lift #2 was placed, with layer thickness equal or less to 250 mm which is in specification, approximately between stations 0+037 to 0+055.
- Layers were compacted using a smooth drum compactor and plate tamper with four passes observed, to meet method specification.
- Nightshift partially constructed 10 m of lift #2 between stations 0+055 to 0+080 and partially constructed 25 m of lift #1 between stations 0+075 to 0+110.

## 3.0 DISCUSSION/OTHER

- Ensuring all struts are installed onto the facing units before placing any material on the geogrid was discussed with the operators.

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- Placing and compacting material from the face wall to the back wall, to help tension the uniaxial geogrid, was discussed with the operators.

# 4.0 CLOSURE

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**Photo 1 – Drain placed along the back wall before placement of pipe**



**Photo 2 – Biaxial geogrid being installed for lift #2**




**Photo 3 – Reinforced fill being packed by the smooth drum compactor**

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# EARTHWORKS FIELD REPORT

ISSUED FOR REVIEW

| | | | |
|---|---|---|---|
| **To:** | Roman Bilobrowka; Calvin Goldschmidt; Ishan Fechter; Jerry Chrzaszcz; John Purves; Matt Coverdale; D'Arcy Comerford; Aaron Wagner; Sam Elson | | |
| **Cc:** | Chad Cowan; Robert Zschuppe; James Buyck; Reid Seal; John Purves; Chris Copley | **From:** | Anthony Schoepp |
| **Project:** | Secondary and Tertiary Crushing Stockpile Retaining Wall | **Date:** | August 20, 2018 |
| **Location:** | Eagle Gold Mine, YT | **Weather:** | Sunny |
| **Client:** | JDS | | High 21°C |
| **File:** | ENG.WARC03235 | | Low 6°C |

## 1.0 MSE WALL CONSTRUCTION SUMMARY

| Unit ID | Equipment | Work (Dayshift) |
|---|---|---|
| - | CAT D6T Dozer | Placing backfill |
| - | CAT 324 Excavator | Placing drain rock |
| - | CAT 730 Rock Truck | Hauling backfill to MSE wall |
| - | CAT 740B Rock Truck | Hauling backfill to MSE wall |
| - | CAT 950K Loader | Loading backfill and moving equipment |
| - | CS55 Smooth Drum Compactor | Compacting backfill at the MSE wall |
| - | Plate Tamper | Compacting backfill at the MSE wall |

## 2.0 MECHANICALY STABILIZED EARTH WALL

- Biaxial and uniaxial geogrid, facing units, and support struts were installed for lift #3 for the MSE wall, approximately between stations 0+037 to 0+070. Facing units had 100 mm of overlap, following specification.
- Material placement of reinforced rock for lift #2 was placed, with layer thickness equal or less to 250 mm which is in specification, approximately between stations 0+080 to 0+090.
- Material placement of reinforced rock for lift #1 was placed, with layer thickness equal or less to 250 mm which is in specification, approximately between stations 0+090 to 0+110.
- Layers were compacted using a smooth drum compactor and plate tamper with four passes, to meet method specification.
- Nightshift partially constructed 10 m of lift #3 between stations 0+070 to 0+080 and partially constructed 25 m of lift #2 between stations 0+090 to 0+105.

## 3.0 DISCUSSION/OTHER

- N/A

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# 4.0 CLOSURE

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**Photo 1 – Placing face rock along the facing units**



**Photo 2 – Facing units ready to be installed for lift #3**



**Photo 3 – Uniaxial geogrid placed for lift #3**

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# EARTHWORKS FIELD REPORT

ISSUED FOR REVIEW

| | | | |
|---|---|---|---|
| **To:** | Roman Bilobrowka; Calvin Goldschmidt; Ishan Fechter; Jerry Chrzaszcz; John Purves; Matt Coverdale; D'Arcy Comerford; Aaron Wagner; Sam Elson | | |
| **Cc:** | Chad Cowan; Robert Zschuppe; James Buyck; Reid Seal; John Purves; Chris Copley | **From:** | Anthony Schoepp |
| **Project:** | Secondary and Tertiary Crushing Stockpile Retaining Wall | **Date:** | August 21, 2018 |
| **Location:** | Eagle Gold Mine, YT | **Weather:** | Cloudy |
| **Client:** | JDS | | High 21°C |
| **File:** | ENG.WARC03235 | | Low 9°C |

## 1.0 MSE WALL CONSTRUCTION SUMMARY

| Unit ID | Equipment | Work (Dayshift) |
|---|---|---|
| - | CAT D6T Dozer | Placing backfill |
| - | CAT 324 Excavator | Placing drain rock |
| - | CAT 730 Rock Truck | Hauling backfill to MSE wall |
| - | CAT 740B Rock Truck | Hauling backfill to MSE wall |
| - | CAT 950K Loader | Loading backfill and moving equipment |
| - | CS55 Smooth Drum Compactor | Compacting backfill at the MSE wall |
| - | Plate Tamper | Compacting backfill at the MSE wall |

## 2.0 MECHANICALY STABILIZED EARTH WALL

- Biaxial and uniaxial geogrid, facing units, support struts and face rock were installed for lift #4, approximately between stations 0+037 to 0+075. Facing units had 100 mm of overlap, following specification.
- Material placement of reinforced rock for lift #2 and #3 were placed, with layer thickness equal or less to 250 mm, approximately between stations 0+090 to 0+0105 and stations 0+070 to 0+085 respectively.
- Layers were compacted using a smooth drum compactor and plate tamper with four passes, to meet method specification.
- Nightshift partially constructed 15 m of lift #4 between stations 0+075 to 0+090 and partially constructed 15 m of lift #3 between stations 0+085 to 0+100.

## 3.0 DISCUSSION/OTHER

- N/A

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**Photo 1 – Lift #2 ready to have biaxial geogrid flipped over and material placed on top**



**Photo 2 – Lift #3 being compacted**

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# EARTHWORKS FIELD REPORT

ISSUED FOR REVIEW

| | | | |
|---|---|---|---|
| **To:** | Roman Bilobrowka; Calvin Goldschmidt; Ishan Fechter; Jerry Chrzaszcz; John Purves; Matt Coverdale; D'Arcy Comerford; Aaron Wagner; Sam Elson | | |
| **Cc:** | Chad Cowan; Robert Zschuppe; James Buyck; Reid Seal; John Purves; Chris Copley | **From:** | Anthony Schoepp |
| **Project:** | Secondary and Tertiary Crushing Stockpile Retaining Wall | **Date:** | August 22, 2018 |
| **Location:** | Eagle Gold Mine, YT | **Weather:** | Rain |
| **Client:** | JDS | | High 9°C |
| **File:** | ENG.WARC03235-05.004 | | Low 2°C |

## 1.0 MSE WALL CONSTRUCTION SUMMARY

| Unit ID | Equipment | Work (Dayshift) |
|---|---|---|
| - | CAT D6T Dozer | Placing backfill |
| - | CAT 324 Excavator | Placing drain rock |
| - | CAT 730 Rock Truck | Hauling backfill to MSE wall |
| - | CAT 740B Rock Truck | Hauling backfill to MSE wall |
| - | CAT 950K Loader | Loading backfill and moving equipment |
| - | CS55 Smooth Drum Compactor | Compacting backfill at the MSE wall |
| - | Plate Tamper | Compacting backfill at the MSE wall |

## 2.0 MECHANICALY STABILIZED EARTH WALL

- Biaxial and uniaxial geogrid, facing units, support struts and face rock were installed for lift #4, approximately between stations 0+075 to 0+095. Facing units had 100 mm of overlap, following specification.
- Material placement of reinforced backfill for lift #4 was placed, with layer thickness equal or less to 250 mm, approximately between stations 0+060 to 0+095.
- Layers were compacted using a smooth drum compactor and plate tamper with four passes, to meet method specification.
- Nightshift partially constructed 10 m of lift #1 between stations 0+110 to 0+120 and partially constructed 10 m of lift #2 between stations 0+0105 to 0+115.

## 3.0 DISCUSSION/OTHER

- N/A

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**Photo 1 – Backfill being placed on Lift #4**



**Photo 2 – Geotextile separating the reinforced backfill and face rock**

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# EARTHWORKS FIELD REPORT

ISSUED FOR REVIEW

| | | | |
|---|---|---|---|
| **To:** | Roman Bilobrowka; Calvin Goldschmidt; Ishan Fechter; Jerry Chrzaszcz; John Purves; Matt Coverdale; D'Arcy Comerford; Aaron Wagner; Sam Elson | | |
| **Cc:** | Chad Cowan; Robert Zschuppe; James Buyck; Reid Seal; John Purves; Chris Copley | **From:** | Anthony Schoepp |
| **Project:** | Secondary and Tertiary Crushing Stockpile Retaining Wall | **Date:** | August 23, 2018 |
| **Location:** | Eagle Gold Mine, YT | **Weather:** | Mostly Cloudy |
| **Client:** | JDS | | High 11°C |
| **File:** | ENG.WARC03235-05.004 | | Low 3°C |

## 1.0 MSE WALL CONSTRUCTION SUMMARY

| Unit ID | Equipment | Work (Dayshift) |
|---|---|---|
| - | CAT D6T Dozer | Placing backfill |
| - | CAT 324 Excavator | Placing drain rock |
| - | CAT 730 Rock Truck | Hauling backfill to MSE wall |
| - | CAT 740B Rock Truck | Hauling backfill to MSE wall |
| - | CAT 950K Loader | Loading backfill and moving equipment |
| - | CS55 Smooth Drum Compactor | Compacting backfill at the MSE wall |
| - | Plate Tamper | Compacting backfill at the MSE wall |

## 2.0 MECHANICALY STABILIZED EARTH WALL

- Material placement of reinforced backfill for lift #4 was placed, with layer thickness less than or equal to 250 mm, between stations 0+095 to 0+100.
- Layers were compacted using a smooth drum compactor and plate tamper with four passes, to meet method specification.
- The drain was installed between stations 0+105 to 0+115.
- Nightshift installed facing units, face rock, and geogrid between stations 0+100 to 0+112 and lift #3 was completed to station 0+110.

## 3.0 DISCUSSION/OTHER

- The dayshift crew finished their rotation today, a new crew will be coming in August 24th, 2018.

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# 4.0 CLOSURE

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**Photo 1 – Ramp made to access the top of the wall**



**Photo 2 – Face of the MSE wall, looking north**



**Photo 3 – Drain along the back wall**

TETRA TECH

# EARTHWORKS FIELD REPORT

ISSUED FOR REVIEW

| | | | |
|---|---|---|---|
| **To:** | Roman Bilobrowka; Calvin Goldschmidt; Ishan Fechter; Jerry Chrzaszcz; John Purves; Matt Coverdale; D'Arcy Comerford; Aaron Wagner; Sam Elson | | |
| **Cc:** | Chad Cowan; Robert Zschuppe; James Buyck; Reid Seal; John Purves; Chris Copley | **From:** | Anthony Schoepp |
| **Project:** | Secondary and Tertiary Crushing Stockpile Retaining Wall | **Date:** | August 24, 2018 |
| **Location:** | Eagle Gold Mine, YT | **Weather:** | Rain |
| **Client:** | JDS | | High 9°C |
| **File:** | ENG.WARC03235-05.004 | | Low 3°C |

## 1.0 MSE WALL CONSTRUCTION SUMMARY

| Unit ID | Equipment | Work (Dayshift) |
|---|---|---|
| - | CAT D6T Dozer | Placing backfill |
| - | CAT 324 Excavator | Placing backfill |
| - | CAT Skid Steer Loader | Placing backfill |
| - | CAT 730 Rock Truck | Hauling backfill |
| - | CAT 740B Rock Truck | Hauling backfill |
| - | CAT 950K Loader | Loading backfill and moving equipment |
| - | CS55 Smooth Drum Compactor | Compacting backfill |
| - | Plate Tamper | Compacting backfill |

## 2.0 MECHANICALY STABILIZED EARTH WALL

- The drain was installed between stations 0+105 to 0+115.
- Nightshift removed the face rock placed as a layer and replaced it with reinforced backfill on lift #4, between stations 0+095 to 0+115 and placed facing units from 0+120 to 0+140 for lift #1.

## 3.0 DISCUSSION/OTHER

- A startup meeting was conducted for the new crew, with a step by step plan for construction. Then a tour of the site was given showing the different procedures needed to construct the wall.
- Dayshift placed face rock as a layer instead of reinforced fill on lift #4 (see photo 3), which nightshift removed.

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**Photo 1 – Geogrid ready to be rolled out, looking north**



**Photo 2 – Geogrid tensioned by hand and material placed on top**



**Photo 3 – Face rock placed instead of reinforced fill**

TETRA TECH

# EARTHWORKS FIELD REPORT

ISSUED FOR REVIEW

| | | | |
|---|---|---|---|
| **To:** | Roman Bilobrowka; Calvin Goldschmidt; Ishan Fechter; Jerry Chrzaszcz; John Purves; Matt Coverdale; D'Arcy Comerford; Aaron Wagner; Sam Elson | | |
| **Cc:** | Chad Cowan; Robert Zschuppe; James Buyck; Reid Seal; John Purves; Chris Copley | **From:** | Anthony Schoepp |
| **Project:** | Secondary and Tertiary Crushing Stockpile Retaining Wall | **Date:** | August 25, 2018 |
| **Location:** | Eagle Gold Mine, YT | **Weather:** | Cloudy |
| **Client:** | JDS | | High 11°C |
| **File:** | ENG.WARC03235-05.004 | | Low 1°C |

## 1.0 MSE WALL CONSTRUCTION SUMMARY

| Unit ID | Equipment | Work (Dayshift) |
|---|---|---|
| - | CAT D6T Dozer | Placing backfill |
| - | CAT 324 Excavator | Placing drain rock |
| - | CAT 730 Rock Truck | Hauling backfill to MSE wall |
| - | CAT 740B Rock Truck | Hauling backfill to MSE wall |
| - | CAT 950K Loader | Loading backfill and moving equipment |
| - | CS55 Smooth Drum Compactor | Compacting backfill at the MSE wall |
| - | Plate Tamper | Compacting backfill at the MSE wall |

## 2.0 MECHANICALY STABILIZED EARTH WALL

- The drain was installed between stations 0+115 to 0+155.
- Facing units, uniaxial and biaxial geogrid, support struts, face rock, and geotextile was installed between stations 0+120 to 0+150 for lift #1.
- Nightshift added two layers of backfill and compacted each layer for lift #1 from stations 0+120 to 0+150 and placed facing units from stations 0+120 to 0+150.

## 3.0 DISCUSSION/OTHER

- Where facing units overlap, a support strut will always be added to the outside facing unit beside the overlap.

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**Photo 1 – Backfill placed on geogrid for lift #1**




**Photo 2 – Drain being placed along the back slope**

TETRA TECH

# EARTHWORKS FIELD REPORT

ISSUED FOR REVIEW

| | | | |
|---|---|---|---|
| **To:** | Roman Bilobrowka; Calvin Goldschmidt; Ishan Fechter; Jerry Chrzaszcz; John Purves; Matt Coverdale; D'Arcy Comerford; Aaron Wagner; Sam Elson | | |
| **Cc:** | Chad Cowan; Robert Zschuppe; James Buyck; Reid Seal; John Purves; Chris Copley | **From:** | Anthony Schoepp |
| **Project:** | Secondary and Tertiary Crushing Stockpile Retaining Wall | **Date:** | August 26, 2018 |
| **Location:** | Eagle Gold Mine, YT | **Weather:** | Sunny |
| **Client:** | JDS | | High 14°C |
| **File:** | ENG.WARC03235-05.004 | | Low 2°C |

## 1.0 MSE WALL CONSTRUCTION SUMMARY

| Unit ID | Equipment | Work (Dayshift) |
|---|---|---|
| - | CAT D6T Dozer | Placing backfill |
| - | CAT 324 Excavator | Placing drain rock |
| - | CAT 730 Rock Truck | Hauling backfill to MSE wall |
| - | CAT 740B Rock Truck | Hauling backfill to MSE wall |
| - | CAT 950K Loader | Loading backfill and moving equipment |
| - | CS55 Smooth Drum Compactor | Compacting backfill at the MSE wall |
| - | Plate Tamper | Compacting backfill at the MSE wall |

## 2.0 MECHANICALY STABILIZED EARTH WALL

- Facing units, uniaxial and biaxial geogrid, support struts, face rock, and geotextile was installed between stations 0+120 to 0+150 for lift #2.
- Two layers of backfill was placed for lift #2, layers were below or equal to 250 mm, which is in specification.
- One layer was compacted using a smooth drum compactor with four passes, to meet method specification.

## 3.0 DISCUSSION/OTHER

- A proof role was conducted on the foundation around station 0+150, with very minor deflection.
- Between stations 0+90 to 0+100 the facing units on lifts #3 are not properly offset, due to bulging on lift #3 and facing units set back too far on lift #4 (see photo 2&3).
- Between stations 0+110 to 0+120 the facing units on lift #3 are not properly offset, with a max offset of 50 mm too far into the wall compared to the design location. A more consistent and accurate procedure will need to be used to place facing units in the required locations.
- At station 0+095 a dent was found in a facing unit on lift #3 (see photo 4). It was discussed with Sam Elson that care should be taken when pushing against the facing units when correcting placement.

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**Photo 1 – Proof roll on foundation around station 0+150**



**Photo 2 – Large space due to bulging and facing unit placement, looking north**



**Photo 3 – Large space due to bulging and facing unit placement, looking south**



**Photo 4 – Dent in the facing unit**



**Photo 5 – Placing backfill for lift #2**



**Photo 6 – Geogrid placed to have coverage in the corner**

TETRA TECH

# EARTHWORKS FIELD REPORT

ISSUED FOR REVIEW

| | | | |
|---|---|---|---|
| **To:** | Roman Bilobrowka; Calvin Goldschmidt; Ishan Fechter; Jerry Chrzaszcz; John Purves; Matt Coverdale; D'Arcy Comerford; Aaron Wagner; Sam Elson; Warren Maki | | |
| **Cc:** | Chad Cowan; Robert Zschuppe; James Buyck; Reid Seal; John Purves; Chris Copley | **From:** | Anthony Schoepp |
| **Project:** | Secondary and Tertiary Crushing Stockpile Retaining Wall | **Date:** | August 27, 2018 |
| **Location:** | Eagle Gold Mine, YT | **Weather:** | Mostly Cloudy |
| **Client:** | JDS | | High 14°C |
| **File:** | ENG.WARC03235-05.004 | | Low 3°C |

## 1.0 MSE WALL CONSTRUCTION SUMMARY

| Unit ID | Equipment | Work (Dayshift) |
|---|---|---|
| - | CAT D6T Dozer | Placing backfill |
| - | CAT 324 Excavator | Placing drain rock |
| - | CAT 730 Rock Truck | Hauling backfill to MSE wall |
| - | CAT 740B Rock Truck | Hauling backfill to MSE wall |
| - | CAT 950K Loader | Loading backfill and moving equipment |
| - | CS55 Smooth Drum Compactor | Compacting backfill at the MSE wall |
| - | Plate Tamper | Compacting backfill at the MSE wall |

## 2.0 MECHANICALY STABILIZED EARTH WALL

- Uniaxial and biaxial geogrid, support struts, face rock, and geotextile was installed between stations 0+120 to 0+160 for lift #3.
- Two layers of backfill was placed for lift #3, between stations 0+120 to 0+140, layers were below or equal to 250 mm, which is within specification.
- One layer was compacted using a smooth drum compactor with four passes, to meet method specification.
- Night shift completed lift #3 from stations 0+140 to 0+160

## 3.0 DISCUSSION/OTHER

- Increased fines have been noticed in the face rock, a different stockpile will be used with less fines in the rock.
- Nightshift covered the drain with backfill around station 0+160.

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**Photo 1 – Skid steer placing face rock and backfill, looking north**



**Photo 2 – Measuring the placement for facing units**



**Photo 3 – Lift #3 prepared for nightshift**



**Photo 4 – Uniaxial geogrid placed to cover the corner**



**Photo 5 – Approximate location of the drain covered with backfill**



**Photo 6 – Face rock with increased fines**

TETRA TECH

# EARTHWORKS FIELD REPORT

ISSUED FOR REVIEW

| | | | |
|---|---|---|---|
| **To:** | Roman Bilobrowka; Calvin Goldschmidt; Ishan Fechter; Jerry Chrzaszcz; John Purves; Matt Coverdale; D'Arcy Comerford; Adam Chow; Aaron Wagner; Sam Elson; Warren Maki | | |
| **Cc:** | Chad Cowan; Robert Zschuppe; James Buyck; Reid Seal; John Purves; Chris Copley | **From:** | Anthony Schoepp |
| **Project:** | Secondary and Tertiary Crushing Stockpile Retaining Wall | **Date:** | August 28, 2018 |
| **Location:** | Eagle Gold Mine, YT | **Weather:** | Partly Cloudy |
| **Client:** | JDS | | High 11°C |
| **File:** | ENG.WARC03235-05.004 | | Low 2°C |

## 1.0 MSE WALL CONSTRUCTION SUMMARY

| Unit ID | Equipment | Work (Dayshift) |
|---|---|---|
| - | CAT D6T Dozer | Placing backfill |
| - | CAT 324 Excavator | Placing backfill |
| - | CAT 730 Rock Truck | Hauling backfill to MSE wall |
| - | CAT Skid Steer | Placing backfill |
| - | CAT Skid Steer | Placing backfill |
| - | CAT 740B Rock Truck | Hauling backfill to MSE wall |
| - | CAT 950K Loader | Loading backfill and moving equipment |
| - | CS55 Smooth Drum Compactor | Compacting backfill at the MSE wall |
| - | Plate Tamper | Compacting backfill at the MSE wall |

## 2.0 MECHANICALY STABILIZED EARTH WALL

- Facing units, uniaxial and biaxial geogrid, support struts, face rock, and geotextile were installed between stations 0+120 to 0+160 for lift #4.
- One layer of backfill was placed for lift #4, between stations 0+100 to 0+130, layers were below or equal to 250 mm, which is within specification.
- One layer was compacted using a smooth drum compactor with four passes, to meet method specification.
- Night shift completed lift #4 from stations 0+140 to 0+160.

## 3.0 DISCUSSION/OTHER

- N/A

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**Photo 1 – Geogrid ready to be rolled out, looking north**



**Photo 2 – Face rock with less fines**



**Photo 3 – Placing material for lift #4, looking northeast**



**Photo 4 – Uniaxial geogrid placed to cover the corner, looking south**



**Photo 5 – Bulging of the facing units around station 0+155**

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# EARTHWORKS FIELD REPORT

ISSUED FOR REVIEW

| | | | |
|---|---|---|---|
| **To:** | Roman Bilobrowka; Calvin Goldschmidt; Ishan Fechter; Jerry Chrzaszcz; John Purves; Matt Coverdale; D'Arcy Comerford; Adam Chow; Aaron Wagner; Sam Elson; Warren Maki | | |
| **Cc:** | Chad Cowan; Robert Zschuppe; James Buyck; Reid Seal; John Purves; Chris Copley | **From:** | Anthony Schoepp |
| **Project:** | Secondary and Tertiary Crushing Stockpile Retaining Wall | **Date:** | August 29, 2018 |
| **Location:** | Eagle Gold Mine, YT | **Weather:** | Mostly Cloudy |
| **Client:** | JDS | | High 10°C |
| **File:** | ENG.WARC03235-05.004 | | Low 1°C |

## 1.0 MSE WALL CONSTRUCTION SUMMARY

| Unit ID | Equipment | Work (Dayshift) |
|---|---|---|
| - | CAT D6T Dozer | Placing backfill |
| - | CAT 324 Excavator | Placing backfill |
| - | CAT 730 Rock Truck | Hauling backfill to MSE wall |
| - | CAT Skid Steer | Placing backfill |
| - | CAT Skid Steer | Placing backfill |
| - | CAT 740B Rock Truck | Hauling backfill to MSE wall |
| - | CAT 950K Loader | Loading backfill and moving equipment |
| - | CS55 Smooth Drum Compactor | Compacting backfill at the MSE wall |
| - | Plate Tamper | Compacting backfill at the MSE wall |

## 2.0 MECHANICALY STABILIZED EARTH WALL

- Facing units and biaxial geogrid were installed between stations 0+037 to 0+120, for lift #5.
- Support struts and uniaxial geogrid were installed between stations 0+037 to 0+095, for lift #5.
- One layer of backfill was placed for lift #5, between stations 0+037 to 0+75, the layer was below or equal to 250 mm, which is within specification.
- Face rock was placed between stations 0+037 to 0+060, for lift #5.
- Night shift completed lift #5 from stations 0+040 to 0+120.

## 3.0 DISCUSSION/OTHER

- The support struts on site are longer than stated in the design. The support struts on site have a length of 660 mm and the design calls for a length of 610 mm.
- There is some concern that the support struts could come loose on the bottom of the facing units and not be noticed before face rock is filled. Caution should be used when placing face rock to ensure that all support struts are connected to the facing unit.

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- During nightshift, no geotextile was placed between the face rock and reinforced backfill between stations 0+100 to 0+130 (see photo 5).
- Facing unit alignment for lift #5 is not following design specifications between stations 0+080 to 0+130, with large variations in placement (see photos 6&7).
- Uniaxial geogrid was found to be folded over itself at the toe of the slope, around station 0+130 (see photo 8).

# 4.0 CLOSURE

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**Photo 1 – Geogrid ready to be rolled out, looking south**



**Photo 2 – Measuring facing unit offset**



**Photo 3 – Placing backfill onto the geogrid**



**Photo 4 – Geotextile ready to be rolled out, looking south**



**Photo 5 – No geotextile between face rock and reinforced backfill, looking south**



**Photo 6 – Facing units for lift #5 off alignment around station 0+108**



**Photo 7 – Facing units for lift #5 off alignment around station 0+103**



**Photo 8 – Uniaxial geogrid folded on itself around station 0+130**

TETRA TECH

# EARTHWORKS FIELD REPORT

ISSUED FOR REVIEW

| | | | |
|---|---|---|---|
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| **Cc:** | Chad Cowan; Robert Zschuppe; James Buyck; Reid Seal; John Purves; Chris Copley | **From:** | Anthony Schoepp |
| **Project:** | Secondary and Tertiary Crushing Stockpile Retaining Wall | **Date:** | August 30, 2018 |
| **Location:** | Eagle Gold Mine, YT | **Weather:** | Mostly Cloudy |
| **Client:** | JDS | | High 8°C |
| **File:** | ENG.WARC03235-05.004 | | Low -1°C |

## 1.0 MSE WALL CONSTRUCTION SUMMARY

| Unit ID | Equipment | Work (Dayshift) |
|---|---|---|
| - | CAT D6T Dozer | Placing backfill |
| - | CAT 324 Excavator | Placing backfill |
| - | CAT 730 Rock Truck | Hauling backfill to MSE wall |
| - | CAT Skid Steer | Placing backfill |
| - | CAT Skid Steer | Placing backfill |
| - | CAT 740B Rock Truck | Hauling backfill to MSE wall |
| - | CAT 950K Loader | Loading backfill and moving equipment |
| - | CS55 Smooth Drum Compactor | Compacting backfill at the MSE wall |
| - | Plate Tamper | Compacting backfill at the MSE wall |

## 2.0 MECHANICALY STABILIZED EARTH WALL

- Backfill was pulled away from the face rock, to place geotextile onto the face rock.
- The corner for lift #5 was installed at station 0+037.
- Hand railing was constructed between stations 0+042 to 0+110.

## 3.0 DISCUSSION/OTHER

- Work stand down was in place until a new procedure could be made, to ensure proper lift alignment.

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# 4.0 CLOSURE

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**Photo 1 – Taking out backfill away from the face rock, looking south**



**Photo 2 – Backfill pulled away from the face rock, looking south**



**Photo 3 – Lift added to the corner around station 0+037**

TETRA TECH

# EARTHWORKS FIELD REPORT

ISSUED FOR REVIEW

| | | | |
|---|---|---|---|
| **To:** | Roman Bilobrowka; Calvin Goldschmidt; Ishan Fechter; Jerry Chrzaszcz; John Purves; Matt Coverdale; D'Arcy Comerford; Adam Chow; Aaron Wagner; Sam Elson; Warren Maki | | |
| **Cc:** | Chad Cowan; Robert Zschuppe; James Buyck; Reid Seal; John Purves; Chris Copley | **From:** | Anthony Schoepp |
| **Project:** | Secondary and Tertiary Crushing Stockpile Retaining Wall | **Date:** | August 31, 2018 |
| **Location:** | Eagle Gold Mine, YT | **Weather:** | Mostly Cloudy |
| **Client:** | JDS | | High 6°C |
| **File:** | ENG.WARC03235-05.004 | | Low -2°C |

## 1.0 MSE WALL CONSTRUCTION SUMMARY

| Unit ID | Equipment | Work (Dayshift) |
|---|---|---|
| - | CAT D6T Dozer | Placing backfill |
| - | CAT 324 Excavator | Placing backfill |
| - | CAT 730 Rock Truck | Hauling backfill to MSE wall |
| - | CAT Skid Steer | Placing backfill |
| - | CAT Skid Steer | Placing backfill |
| - | CAT 740B Rock Truck | Hauling backfill to MSE wall |
| - | CAT 950K Loader | Loading backfill and moving equipment |
| - | CS55 Smooth Drum Compactor | Compacting backfill at the MSE wall |
| - | Plate Tamper | Compacting backfill at the MSE wall |

## 2.0 MECHANICALY STABILIZED EARTH WALL

- Facing units, support struts, geogrid, and face rock was installed between stations 0+120 to 0+160, for lift #5.
- The first layer of reinforced backfill was placed and compacted between stations 0+120 to 0+160, for lift #5.
- Hand railing was constructed between stations 0+042 to 0+110.
- Nightshift installed facing units, support struts and geogrid between stations 0+037 to 0+070 for lift #6 and finished lift #5 between stations 0+120 to 0+150.

## 3.0 DISCUSSION/OTHER

- N/A

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**Photo 1 – Taking out backfill away from the face rock, looking south**



**Photo 2 – Uniaxial geogrid before overlapping section is placed**



**Photo 3 – Keeping the face rock and reinforced backfill separated before geotextile, looking south**

TETRA TECH

# EARTHWORKS FIELD REPORT

ISSUED FOR REVIEW

| | | | |
|---|---|---|---|
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| **Cc:** | Chad Cowan; Robert Zschuppe; James Buyck; Reid Seal; John Purves; Chris Copley | **From:** | Anthony Schoepp |
| **Project:** | Secondary and Tertiary Crushing Stockpile Retaining Wall | **Date:** | September 1, 2018 |
| **Location:** | Eagle Gold Mine, YT | **Weather:** | Mostly Cloudy |
| **Client:** | JDS | | High 10°C |
| **File:** | ENG.WARC03235-05.004 | | Low -4°C |

## 1.0 MSE WALL CONSTRUCTION SUMMARY

| Unit ID | Equipment | Work |
|---|---|---|
| - | CAT D6T Dozer | Placing backfill |
| - | CAT 324 Excavator | Placing backfill |
| - | CAT 730 Rock Truck | Hauling backfill to MSE wall |
| - | CAT Skid Steer | Placing backfill |
| - | CAT Skid Steer | Placing backfill |
| - | CAT 740B Rock Truck | Hauling backfill to MSE wall |
| - | CAT 950K Loader | Loading backfill and moving equipment |
| - | CS55 Smooth Drum Compactor | Compacting backfill at the MSE wall |
| - | Plate Tamper | Compacting backfill at the MSE wall |

## 2.0 MECHANICALY STABILIZED EARTH WALL

- Facing units, support struts, geogrid, and face rock was installed between stations 0+037 to 0+075, for lift #6.
- The first layer of reinforced backfill was placed and compacted between stations 0+037 to 0+075, for lift #6.
- Facing units and geogrid was placed between stations 0+075 to 0+090.
- Safety railing was constructed between stations 0+110 to 0+160.
- Nightshift finished lift #6 between stations 0+037 to 0+075, placed facing units and geogrid between stations 0+090 to 0+130, and placed the first layer of backfill between stations 0+090 to 0+120.

## 3.0 DISCUSSION/OTHER

- N/A

Tetra Tech Canada Inc.
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Whitehorse YT, Y1A 0H7 CANADA
Tel 867.668.3068 Fax 867.668.4349

# 4.0 CLOSURE

We trust that the information provided herein is accurate and complete. Please contact the undersigned if you require additional information or have any concerns.

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**Photo 1 – Compacted backfill surface, looking north**



**Photo 2 – Adding the corner at station 0+037, looking south**



**Photo 3 – Safety railing, looking south**

TETRA TECH

# EARTHWORKS FIELD REPORT

ISSUED FOR REVIEW

| | | | |
|---|---|---|---|
| **To:** | Roman Bilobrowka; Calvin Goldschmidt; Ishan Fechter; Jerry Chrzaszcz; John Purves; Matt Coverdale; D'Arcy Comerford; Adam Chow; Aaron Wagner; Sam Elson; Warren Maki | | |
| **Cc:** | Chad Cowan; Robert Zschuppe; James Buyck; Reid Seal; John Purves; Chris Copley | **From:** | Anthony Schoepp |
| **Project:** | Secondary and Tertiary Crushing Stockpile Retaining Wall | **Date:** | September 2, 2018 |
| **Location:** | Eagle Gold Mine, YT | **Weather:** | Partly Cloudy |
| **Client:** | JDS | | High 10°C |
| **File:** | ENG.WARC03235-05.004 | | Low 0°C |

## 1.0 MSE WALL CONSTRUCTION SUMMARY

| Unit ID | Equipment | Work |
|---|---|---|
| - | CAT D6T Dozer | Placing backfill |
| - | CAT 324 Excavator | Placing backfill |
| - | CAT 730 Rock Truck | Hauling backfill to MSE wall |
| - | CAT Skid Steer | Placing backfill |
| - | CAT Skid Steer | Placing backfill |
| - | CAT 740B Rock Truck | Hauling backfill to MSE wall |
| - | CAT 950K Loader | Loading backfill and moving equipment |
| - | CS55 Smooth Drum Compactor | Compacting backfill at the MSE wall |
| - | Plate Tamper | Compacting backfill at the MSE wall |

## 2.0 MECHANICALY STABILIZED EARTH WALL

- The first layer of backfill was placed and compacted, between stations 0+120 to 0+160, for lift #6.
- The second layer of backfill was placed and compacted between stations 0+120 to 0+160, for lift #6.
- Support struts and face rock were placed between stations 0+075 to 0+100, for lift #6.
- Nightshift finished lift #6 between stations 0+120 to 0+160 and placed facing units and geogrid between stations 0+037 to 0+170.

## 3.0 DISCUSSION/OTHER

- N/A

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**Photo 1 – Facing units ready to have support struts placed, looking south**



**Photo 2 – Measuring the facing unit offset**



**Photo 3 – Face rock being added to the facing units, looking south**

TETRA TECH

# EARTHWORKS FIELD REPORT

ISSUED FOR REVIEW

| | | | |
|---|---|---|---|
| **To:** | Roman Bilobrowka; Calvin Goldschmidt; Ishan Fechter; Jerry Chrzaszcz; John Purves; Matt Coverdale; D'Arcy Comerford; Adam Chow; Aaron Wagner; Sam Elson; Warren Maki | | |
| **Cc:** | Chad Cowan; Robert Zschuppe; James Buyck; Reid Seal; John Purves; Chris Copley | **From:** | Anthony Schoepp |
| **Project:** | Secondary and Tertiary Crushing Stockpile Retaining Wall | **Date:** | September 3, 2018 |
| **Location:** | Eagle Gold Mine, YT | **Weather:** | Mostly Cloudy |
| **Client:** | JDS | | High 10°C |
| **File:** | ENG.WARC03235-05.004 | | Low -4°C |

## 1.0 MSE WALL CONSTRUCTION SUMMARY

| Unit ID | Equipment | Work |
|---|---|---|
| - | CAT D6T Dozer | Placing backfill |
| - | CAT 324 Excavator | Placing backfill |
| - | CAT 730 Rock Truck | Hauling backfill to MSE wall |
| - | CAT Skid Steer | Placing backfill |
| - | CAT Skid Steer | Placing backfill |
| - | CAT 740B Rock Truck | Hauling backfill to MSE wall |
| - | CAT 950K Loader | Loading backfill and moving equipment |
| - | CS55 Smooth Drum Compactor | Compacting backfill at the MSE wall |
| - | Plate Tamper | Compacting backfill at the MSE wall |

## 2.0 MECHANICALY STABILIZED EARTH WALL

- The first layer and second layer of backfill was placed and compacted, between stations 0+037 to 0+075, for lift #7.
- Uniaxial geogrid was placed between stations 0+037 to 0+095, for lift #7
- Biaxial geogrid and facing units were placed between stations 0+037 to 0+120, for lift #7

## 3.0 DISCUSSION/OTHER

- N/A

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61 Wasson Place
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# 4.0 CLOSURE

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**Photo 1 – Backfill being compacted, looking south**



**Photo 2 – Drain rock being used as a bedding for the facing units**



**Photo 3 – Initial backfill being placed onto the uniaxial geogrid, looking south**

TETRA TECH

# EARTHWORKS FIELD REPORT

ISSUED FOR REVIEW

| | | | |
|---|---|---|---|
| **To:** | Roman Bilobrowka; Calvin Goldschmidt; Ishan Fechter; Jerry Chrzaszcz; John Purves; Matt Coverdale; D'Arcy Comerford; Adam Chow; Aaron Wagner; Sam Elson; Warren Maki | | |
| **Cc:** | Chad Cowan; Robert Zschuppe; James Buyck; Reid Seal; John Purves; Chris Copley; Anthony Schoepp | **From:** | Mark Estrada |
| **Project:** | Secondary and Tertiary Crushing Stockpile Retaining Wall | **Date:** | September 4, 2018 |
| **Location:** | Eagle Gold Mine, YT | **Weather:** | Cloudy |
| **Client:** | JDS | | High 11°C |
| **File:** | ENG.WARC03235-05.004 | | Low 6°C |

## 1.0 MSE WALL CONSTRUCTION SUMMARY

| Unit ID | Equipment | Work |
|---|---|---|
| - | CAT D6T Dozer | Placing backfill |
| - | CAT 324 Excavator | Placing backfill |
| - | CAT 730 Rock Truck | Hauling backfill to MSE wall |
| - | CAT Skid Steer | Placing backfill |
| - | CAT Skid Steer | Placing backfill |
| - | CAT 740B Rock Truck | Hauling backfill to MSE wall |
| - | CAT 950K Loader | Loading backfill and moving equipment |
| - | CS55 Smooth Drum Compactor | Compacting backfill at the MSE wall |
| - | Plate Tamper | Compacting backfill at the MSE wall |

## 2.0 MECHANICALY STABILIZED EARTH WALL

- Support struts, geogrid, and face rock was installed between stations 0+100 to 0+160, for lift #7.
- Facing units and geogrid was placed between stations 0+075 to 0+090 for lift #8.
- Safety railing was constructed between stations 0+110 to 0+160.

## 3.0 DISCUSSION/OTHER

- N/A

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# 4.0 CLOSURE

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**Photo 1 – Compaction of bedding material**




**Photo 2 - End of dayshift progress.**




**Photo 3 - End of dayshift progress.**

TETRA TECH

# EARTHWORKS FIELD REPORT

ISSUED FOR REVIEW

| | | | |
|---|---|---|---|
| **To:** | Roman Bilobrowka; Calvin Goldschmidt; Ishan Fechter; Jerry Chrzaszcz; John Purves; Matt Coverdale; D'Arcy Comerford; Adam Chow; Aaron Wagner; Sam Elson; Warren Maki | | |
| **Cc:** | Chad Cowan; Robert Zschuppe; James Buyck; Reid Seal; John Purves; Chris Copley; Anthony Schoepp | **From:** | Mark Estrada |
| **Project:** | Secondary and Tertiary Crushing Stockpile Retaining Wall | **Date:** | September 5, 2018 |
| **Location:** | Eagle Gold Mine, YT | **Weather:** | Light Rain Showers |
| **Client:** | JDS | | High 11°C |
| **File:** | ENG.WARC03235-05.004 | | Low 3°C |

## 1.0 MSE WALL CONSTRUCTION SUMMARY

| Unit ID | Equipment | Work |
|---|---|---|
| - | CAT D6T Dozer | Placing backfill |
| - | CAT 324 Excavator | Placing backfill |
| - | CAT 730 Rock Truck | Hauling backfill to MSE wall |
| - | CAT Skid Steer | Placing backfill |
| - | CAT Skid Steer | Placing backfill |
| - | CAT 740B Rock Truck | Hauling backfill to MSE wall |
| - | CAT 950K Loader | Loading backfill and moving equipment |
| - | CS55 Smooth Drum Compactor | Compacting backfill at the MSE wall |
| - | Plate Tamper | Compacting backfill at the MSE wall |

## 2.0 MECHANICALY STABILIZED EARTH WALL

- Nightshift installed geotextile, face rock, support struts, and reinforced fill material from stations 0+040 to 0+100 for lift #8.
- WWF baskets were installed between stations 0+140 to 0+160 for lift #8.
- Support struts and face rock material were installed between stations 0+100 to 0+140 for lift #8.
- 20 mm drain rock material was placed on top of the geotextile, compacted, and backfilled from stations 0+040 to 0+090 for lift #8.
- Layers were compacted using a smooth drum compactor and plate tamper with four passes, to meet method specification.

## 3.0 DISCUSSION/OTHER

- N/A

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# 4.0 CLOSURE

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**Photo 1 – Start of dayshift. View of stations 0+140 to 0+160.**




**Photo 2 - Start of dayshift. View of stations 0+140 to 0+110.**




**Photo 3 - Start of dayshift. View of stations 0+110 to 0+075.**




**Photo 4 - Start of dayshift. View of stations 0+075 to 0+040.**

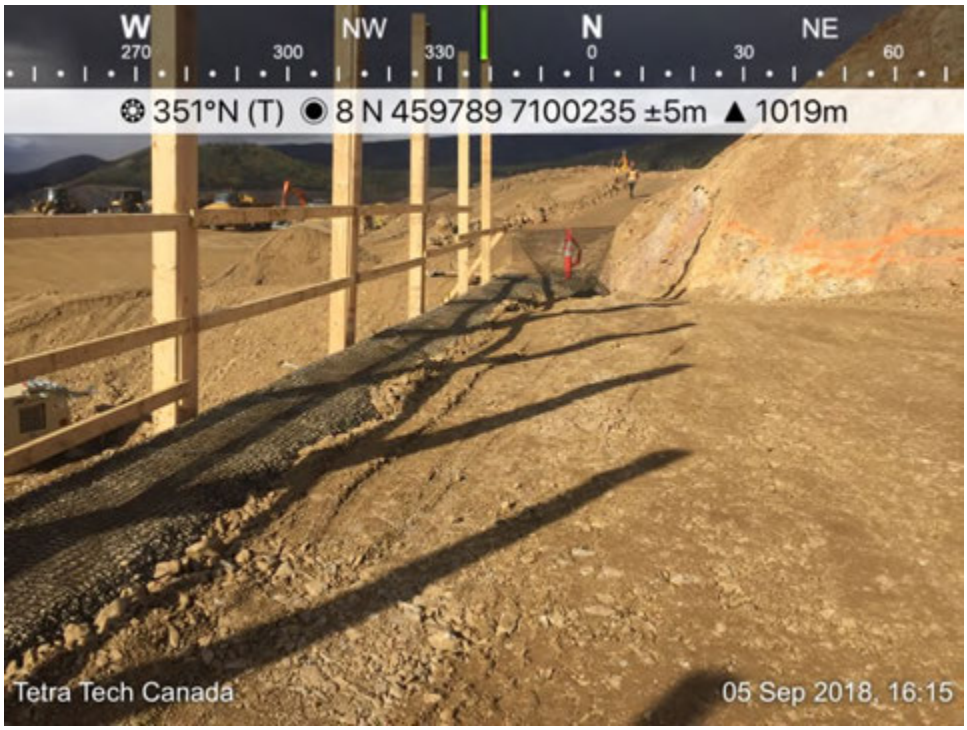


**Photo 5 – Near the end of dayshift. View of stations 0+075 to 0+040.**




**Photo 6 - Near the end of dayshift. View of stations 0+075 to 0+110.**




**Photo 7 - Near the end of dayshift. View of stations 0+110 to 0+140.**




**Photo 8 - Near the end of dayshift. View of stations 0+130 to 0+140.**




**Photo 9 - Near the end of dayshift. View of stations 0+140 to 0+160.**

TETRA TECH

# EARTHWORKS FIELD REPORT

ISSUED FOR REVIEW

| | | | |
|---|---|---|---|
| **To:** | Roman Bilobrowka; Calvin Goldschmidt; Ishan Fechter; Jerry Chrzaszcz; John Purves; Matt Coverdale; D'Arcy Comerford; Adam Chow; Aaron Wagner; Sam Elson; Warren Maki | | |
| **Cc:** | Chad Cowan; Robert Zschuppe; James Buyck; Reid Seal; John Purves; Chris Copley; Anthony Schoepp | **From:** | Mark Estrada |
| **Project:** | Secondary and Tertiary Crushing Stockpile Retaining Wall | **Date:** | September 6, 2018 |
| **Location:** | Eagle Gold Mine, YT | **Weather:** | Cloudy |
| **Client:** | JDS | | High 12°C |
| **File:** | ENG.WARC03235-05.004 | | Low 4°C |

## 1.0 MSE WALL CONSTRUCTION SUMMARY

| Unit ID | Equipment | Work |
|---|---|---|
| - | CAT D6T Dozer | Placing backfill |
| - | CAT 324 Excavator | Placing backfill |
| - | CAT 730 Rock Truck | Hauling backfill to MSE wall |
| - | CAT Skid Steer | Placing backfill |
| - | CAT Skid Steer | Placing backfill |
| - | CAT 740B Rock Truck | Hauling backfill to MSE wall |
| - | CAT 950K Loader | Loading backfill and moving equipment |
| - | CS55 Smooth Drum Compactor | Compacting backfill at the MSE wall |
| - | Plate Tamper | Compacting backfill at the MSE wall |

## 2.0 MECHANICALY STABILIZED EARTH WALL

- Nightshift completed lift #8 and prepared the following materials for lift #9: WWF Baskets, biaxial geogrids, and TPG 130 uniaxial geogrids were installed from stations 0+040 to 0+140. Support struts, geotextile, face rock, and first layer of reinforced material was placed between stations 0+040 to 0+090. Second layer of reinforced backfill was placed between stations 0+040 to 0+090.
- Dayshift prepared the following materials for lift #9: Support struts, geotextile, face rock, and first layer of reinforced material was placed between stations 0+090 to 0+120. Drain rock material was placed and compacted between stations 0+040 to 0+110. Second layer of reinforced backfill was placed between stations 0+040 to 0+110, and compacted between stations 0+040 to 0+070.
- Access ramps to the MSE pad was built up by the loader.
- Layers were compacted using a smooth drum compactor and plate tamper with four passes, to meet method specification.

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# 3.0 DISCUSSION/OTHER

- Nightshift did not install the TPG 130 uniaxial geogrid to cover the gap at the corner of station 0+140. This was notified by Heavy North's lead hand. The backfill material was removed using an excavator to expose the adjacent TPG 130 uniaxial geogrid, then the corner piece was installed and backfilled.
- It was noticed that outside WWF basket at station 0+160 for lift #8 was not level. This was completed by nightshift.

# 4.0 CLOSURE

We trust that the information provided herein is accurate and complete. Please contact the undersigned if you require additional information or have any concerns.

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**Photo 1 – Start of dayshift. View of stations 0+070 to 0+040.**




**Photo 2 - Start of dayshift. View of stations 0+070 to 0+140.**




**Photo 3 - Start of dayshift. View of stations 0+080 to 0+140.**




**Photo 4 - Start of dayshift. View of stations 0+140 to 0+070.**




**Photo 5 - Start of dayshift. View of stations 0+140 to 0+160.**




**Photo 6 - Photo of slanted lift #8 WWF corner unit at station 0+160, completed by nightshift.**




**Photo 7 - Photo of front face of MSE wall.**




**Photo 8 - End of dayshift. View of stations 0+040 to 0+070.**

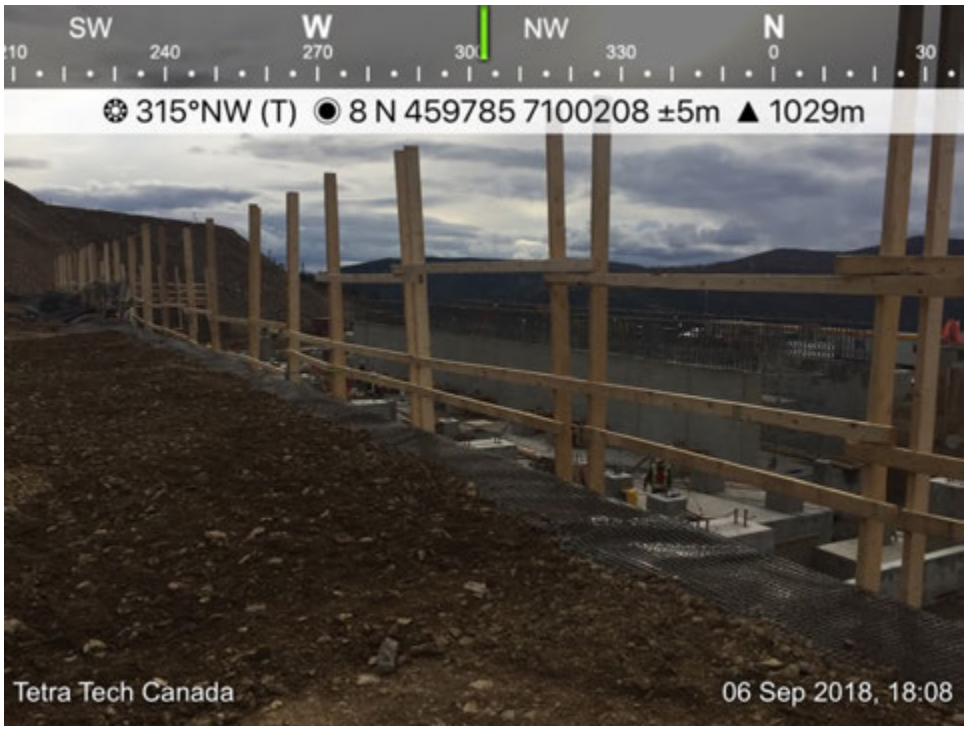


**Photo 9 - End of dayshift. View of stations 0+070 to 0+140.**




**Photo 10 - End of dayshift. View of stations 0+110 to 0+140.**

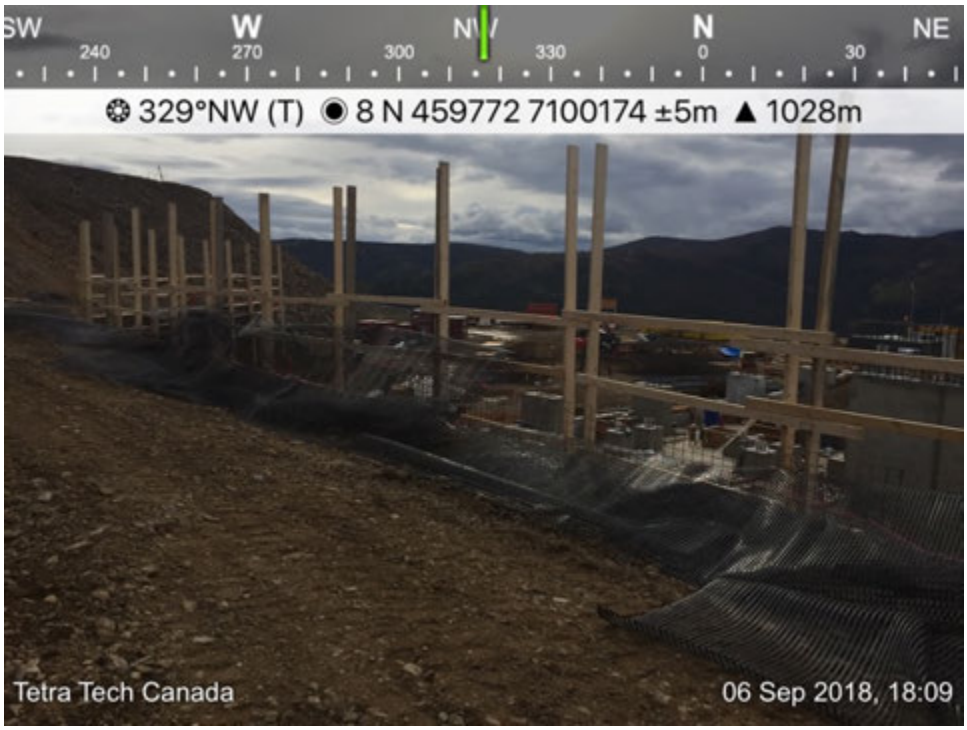


**Photo 11 - End of dayshift. View of stations 0+120 to 0+140.**




**Photo 12 - End of dayshift. View of stations 0+140 to 0+160.**

TETRA TECH

# EARTHWORKS FIELD REPORT

ISSUED FOR REVIEW

| | | | |
|---|---|---|---|
| **To:** | Roman Bilobrowka; Calvin Goldschmidt; Ishan Fechter; Jerry Chrzaszcz; John Purves; Matt Coverdale; D'Arcy Comerford; Adam Chow; Aaron Wagner; Sam Elson; Warren Maki | | |
| **Cc:** | Chad Cowan; Robert Zschuppe; James Buyck; Reid Seal; John Purves; Chris Copley; Anthony Schoepp | **From:** | Mark Estrada |
| **Project:** | Secondary and Tertiary Crushing Stockpile Retaining Wall | **Date:** | September 7, 2018 |
| **Location:** | Eagle Gold Mine, YT | **Weather:** | Partly Cloudy |
| **Client:** | JDS | | High 13°C |
| **File:** | ENG.WARC03235-05.004 | | Low 1°C |

## 1.0 MSE WALL CONSTRUCTION SUMMARY

| Unit ID | Equipment | Work |
|---|---|---|
| - | CAT D6T Dozer | Placing backfill |
| - | CAT 324 Excavator | Placing backfill |
| - | CAT 730 Rock Truck | Hauling backfill to MSE wall |
| - | CAT Skid Steer | Placing backfill |
| - | CAT Skid Steer | Placing backfill |
| - | CAT 740B Rock Truck | Hauling backfill to MSE wall |
| - | CAT 950K Loader | Loading backfill and moving equipment |
| - | CS55 Smooth Drum Compactor | Compacting backfill at the MSE wall |
| - | Plate Tamper | Compacting backfill at the MSE wall |

## 2.0 MECHANICALY STABILIZED EARTH WALL

- Nightshift prepared the following materials for lift #9: WWF Baskets, biaxial geogrids, and TPG 130 uniaxial geogrids were installed from stations 0+150 to 0+160. Support struts, geotextile, face rock, and drain rock were placed between stations 0+130 to 0+140.
- Nightshift prepared the following materials for lift #10: WWF Baskets, biaxial geogrids, and TPG 100 uniaxial geogrids were installed from stations 0+040 to 0+080. Support struts and face rock material were placed from stations 0+040 to 0+050. First layer of reinforced backfill was placed between stations 0+040 to 0+080.
- Dayshift prepared the following materials for lift #9: Support struts, geotextile, and face rock material was placed at station 0+150. Second layer of reinforced backfill was placed and compacted at station 0+140.
- Dayshift prepared the following materials for lift #10: WWF Baskets, biaxial geogrids, and TPG 100 uniaxial geogrids were installed between stations 0+090 to 0+110. TPG 100 uniaxial geogrids were backfilled and compacted between stations 0+090 to 0+100.
- Layers were compacted using a smooth drum compactor and plate tamper with four passes, to meet method specification.

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# 3.0 DISCUSSION/OTHER

- Nightshift corrected the slanted outside corner WWF basket at station 0+160 for lift #8.
- Excavators were digging bedrock face at station 0+070 to be able to lay out the full length of uniaxial geogrid at station 0+070.

# 4.0 CLOSURE

We trust that the information provided herein is accurate and complete. Please contact the undersigned if you require additional information or have any concerns.

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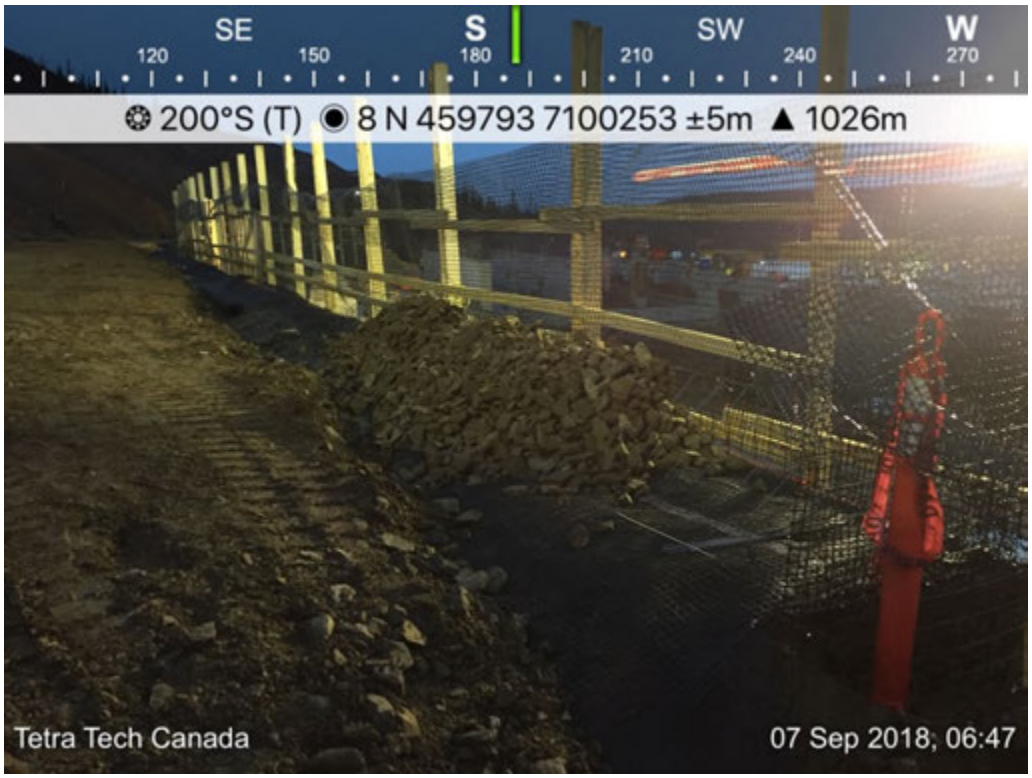


**Photo 1 – Start of dayshift. View of stations 0+040 to 0+070**

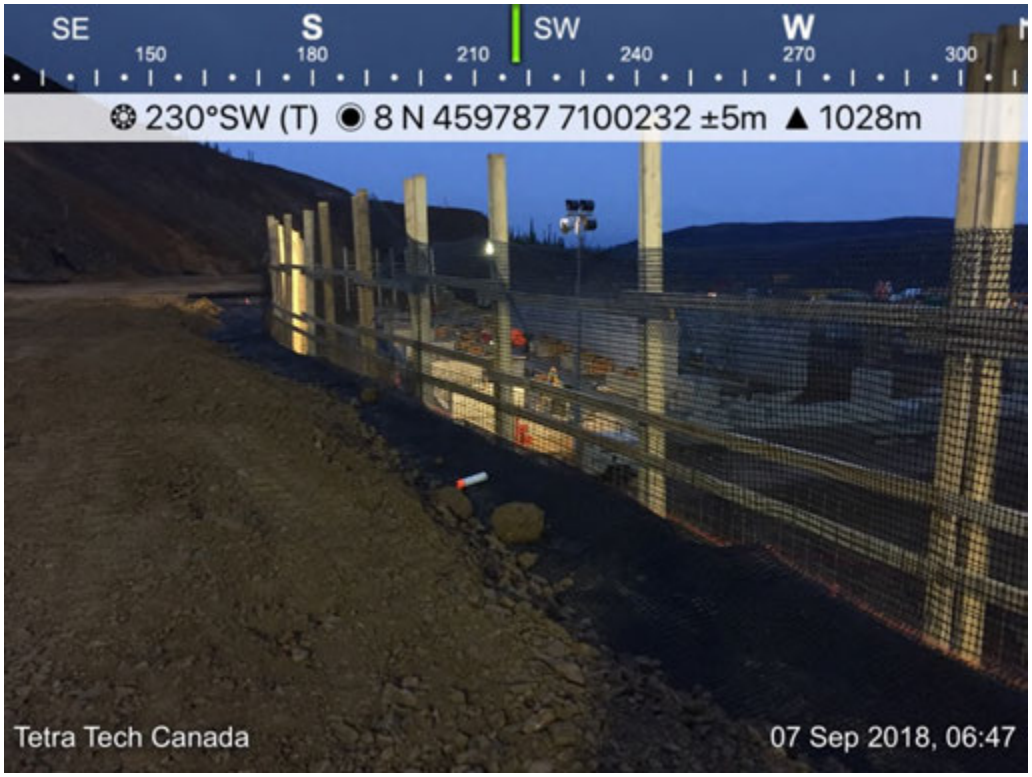


**Photo 2 - Start of dayshift. View of stations 0+060 to 0+070.**




**Photo 3 - Start of dayshift. View of stations 0+070 to 0+140.**




**Photo 4 - Start of dayshift. View of stations 0+100 to 0+140.**




**Photo 5 - Start of dayshift. View of stations 0+130 to 0+140.**




**Photo 6 - Start of dayshift. View of stations 0+140 to 0+160.**

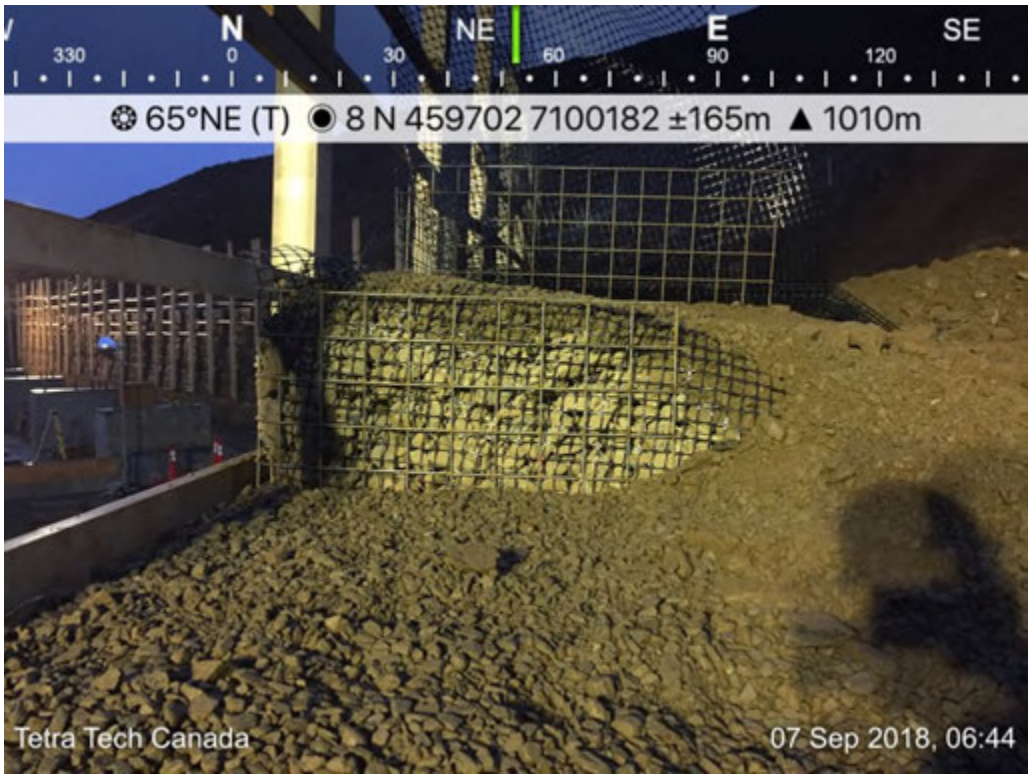


**Photo 7 - View of corrected corner WWF basket at station 0+160 by nightshift.**




**Photo 8 - Excavator removing bedrock material at station 0+060.**




**Photo 9 - Progress view of stations 0+040 to 0+070.**




**Photo 10 - Progress view of stations 0+060 to 0+070.**




**Photo 11 - Progress view of stations 0+110 to 0+140.**




**Photo 12 - Progress view of stations 0+140 to 0+160.**




**Photo 13 - Excavation progress near bedrock face at station 0+060.**

TETRA TECH

# EARTHWORKS FIELD REPORT

ISSUED FOR REVIEW

| | | | |
|---|---|---|---|
| **To:** | Roman Bilobrowka; Calvin Goldschmidt; Ishan Fechter; Jerry Chrzaszcz; John Purves; Matt Coverdale; D'Arcy Comerford; Adam Chow; Aaron Wagner; Sam Elson; Warren Maki | | |
| **Cc:** | Chad Cowan; Robert Zschuppe; James Buyck; Reid Seal; John Purves; Chris Copley; Anthony Schoepp | **From:** | Mark Estrada |
| **Project:** | Secondary and Tertiary Crushing Stockpile Retaining Wall | **Date:** | September 8, 2018 |
| **Location:** | Eagle Gold Mine, YT | **Weather:** | Clear |
| **Client:** | JDS | | High 13°C |
| **File:** | ENG.WARC03235-05.004 | | Low 1°C |

## 1.0 MSE WALL CONSTRUCTION SUMMARY

| Unit ID | Equipment | Work |
|---|---|---|
| - | CAT D6T Dozer | Placing backfill |
| - | CAT 324 Excavator | Placing backfill |
| - | CAT 730 Rock Truck | Hauling backfill to MSE wall |
| - | CAT Skid Steer | Placing backfill |
| - | CAT Skid Steer | Placing backfill |
| - | CAT 740B Rock Truck | Hauling backfill to MSE wall |
| - | CAT 950K Loader | Loading backfill and moving equipment |
| - | CS55 Smooth Drum Compactor | Compacting backfill at the MSE wall |
| - | Plate Tamper | Compacting backfill at the MSE wall |

## 2.0 MECHANICALY STABILIZED EARTH WALL

- Nightshift prepared the following materials for lift #10:
    - WWF Baskets, biaxial geogrids, and TPG 100 uniaxial geogrids were installed from stations 0+120 to 0+160. TPG 100 uniaxial geogrid was backfilled between stations 0+110 to 0+160.
    - Support struts, geotextile, face rock, and drain rock were placed between stations 0+060 to 0+140.
    - Drain rock and second layer of reinforced backfill was placed between stations 0+040 to 0+120.
- Dayshift prepared the following materials for lift #10:
    - Support struts, geotextile, face rock, and drain rock were placed between stations 0+150 to 0+160.
    - Drain rock and second layer of reinforced backfill was placed between stations 0+130 to 0+160.
- Dayshift prepared the following materials for lift #11:
    - WWF Baskets were installed between stations 0+040 to 0+140.
    - Biaxial geogrid and TPG 100 uniaxial geogrid were installed between stations 0+040 to 0+070.

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- Layers were compacted using a smooth drum compactor and plate tamper with four passes, to meet method specification.

## 3.0 DISCUSSION/OTHER

- Dozer was scraping second layer of reinforced fill for lift #10 placed by nightshift because the lift was approximately 250 mm too thick.
- WWF basket alignment is still an issue. Discussed a possible solution with survey. Came up with the idea of aligning the baskets by hanging a plumb bob from a reference string line marked out by survey, rather than using the previous WWF basket as reference.
- Excavator finished pushing bedrock face back at station 0+070. The area was backfilled and packed accordingly.

# 4.0 CLOSURE

We trust that the information provided herein is accurate and complete. Please contact the undersigned if you require additional information or have any concerns.

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**Photo 1 – Start of dayshift. View of stations 0+040 to 0+070**

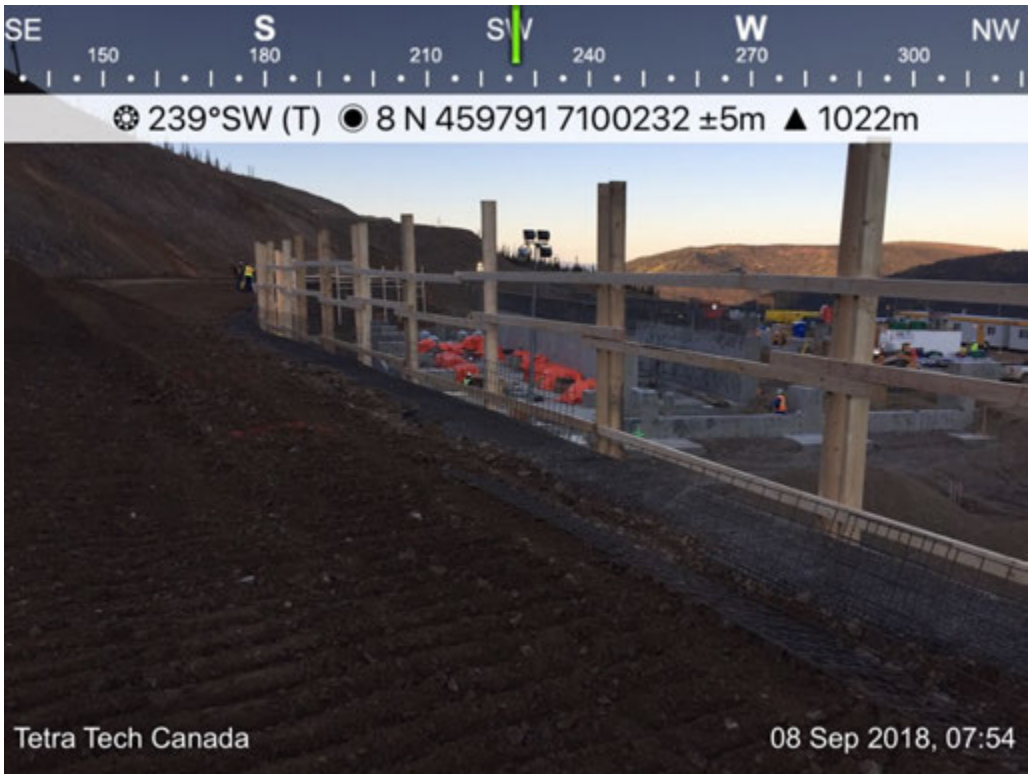


**Photo 2 - Start of dayshift. View of stations 0+050 to 0+070**




**Photo 3 - Start of dayshift. View of stations 0+070 to 0+140.**

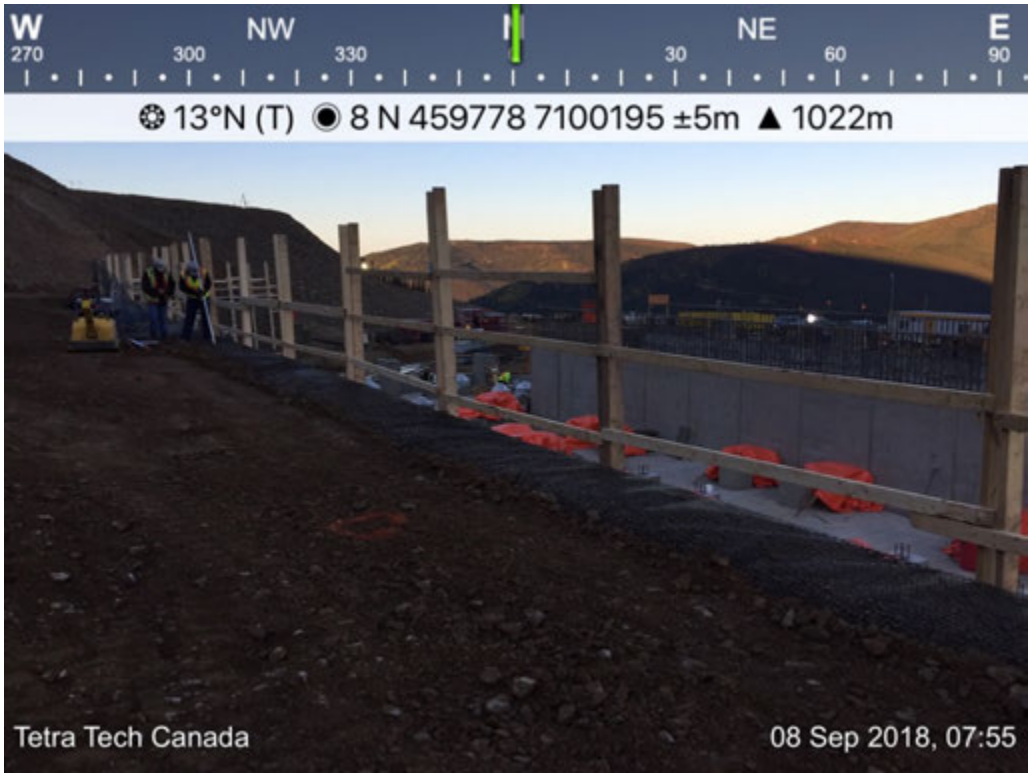


**Photo 4 - Start of dayshift. View of stations 0+110 to 0+140.**




**Photo 5 - Start of dayshift. View of stations 0+120 to 0+140.**




**Photo 6 - Start of dayshift. View of stations 0+140 to 0+160.**




**Photo 7 - Dozer scraping down reinforced backfill for lift #10.**




**Photo 8 - Bedrock excavation progress at station 0+070.**




**Photo 9 - View of WWF basket alignment. View of stations 0+070 to 0+140.**




**Photo 10 - End of dayshift. View of stations 0+040 to 0+070.**




**Photo 11 - End of dayshift. View of stations 0+070 to 0+140.**




**Photo 12 - End of dayshift. View of stations 0+110 to 0+140.**




**Photo 13 - End of dayshift. View of stations 0+140 to 0+160.**

TETRA TECH

# EARTHWORKS FIELD REPORT

ISSUED FOR REVIEW

| | | | |
|---|---|---|---|
| **To:** | Roman Bilobrowka; Calvin Goldschmidt; Ishan Fechter; Jerry Chrzaszcz; John Purves; Matt Coverdale; D'Arcy Comerford; Adam Chow; Aaron Wagner; Sam Elson; Warren Maki | | |
| **Cc:** | Chad Cowan; Robert Zschuppe; James Buyck; Reid Seal; John Purves; Chris Copley; Anthony Schoepp | **From:** | Mark Estrada |
| **Project:** | Secondary and Tertiary Crushing Stockpile Retaining Wall | **Date:** | September 9, 2018 |
| **Location:** | Eagle Gold Mine, YT | **Weather:** | Clear |
| **Client:** | JDS | | High 16°C |
| **File:** | ENG.WARC03235-05.004 | | Low 4°C |

## 1.0 MSE WALL CONSTRUCTION SUMMARY

| Unit ID | Equipment | Work |
|---|---|---|
| - | CAT D6T Dozer | Placing backfill |
| - | CAT 324 Excavator | Placing backfill |
| - | CAT 730 Rock Truck | Hauling backfill to MSE wall |
| - | CAT Skid Steer | Placing backfill |
| - | CAT Skid Steer | Placing backfill |
| - | CAT 740B Rock Truck | Hauling backfill to MSE wall |
| - | CAT 950K Loader | Loading backfill and moving equipment |
| - | CS55 Smooth Drum Compactor | Compacting backfill at the MSE wall |
| - | Plate Tamper | Compacting backfill at the MSE wall |

## 2.0 MECHANICALY STABILIZED EARTH WALL

- Nightshift prepared the following materials for lift #11:
    - WWF baskets from stations 0+120 to 0+160.
    - TPG 100 uniaxial geogrids between stations 0+080 to 0+160. Backfill placed.
    - Biaxial geogrids between stations 0+080 to 0+100.
    - Support struts between stations 0+040 to 0+100.
    - Geotextile, face rock, and drain rock between stations 0+040 to 0+080.
- Dayshift placed the following materials for lift #11:
    - Support struts between stations 0+110 to 0+160.
    - Geotextile and face rock between stations 0+090 to 0+130.
    - Drain rock between stations 0+090 to 0+120.

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- Layers were compacted using a smooth drum compactor and plate tamper with four passes, to meet method specification.

## 3.0 DISCUSSION/OTHER

- At station 0+130, there was a section where the TPG 100 uniaxial geogrid didn't have 100% coverage for lift #11. The gap between the uniaxial geogrids was approximately 6 inches near the MSE face. This issue was fixed by dayshift.
- At the corner of station 0+140 on lift #11, it was noticed that the uniaxial geogrid was cut to cover the corner gap, instead of placing a rectangular section of geogrid, and placing 75 mm of backfill between overlapping geogrids for proper anchorage. This was placed by nightshift. This issue was fixed by dayshift.
- Reinforced backfill placed by nightshift in preparation for lift #12 was placed at a 500 mm lift instead of in multiple layers of 250 mm with each layer compacted. This issue was fixed by dayshift.

## 4.0 CLOSURE

We trust that the information provided herein is accurate and complete. Please contact the undersigned if you require additional information or have any concerns.

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**Photo 1 – Start of dayshift. View of 11 completed lifts.**




**Photo 2 - Start of dayshift. View of stations 0+040 to 0+070 of finished lift #11.**




**Photo 3 - Start of dayshift. View of stations 0+070 to 0+110 of lift #11 in progress.**




**Photo 4 - Start of dayshift. View of stations 0+110 to 0+140 of lift #11 in progress.**




**Photo 5 - Start of dayshift. View of stations 0+120 to 0+140 of lift #11 in progress.**




**Photo 6 - Start of dayshift. View of stations 0+140 to 0+160 of lift #11 in progress.**




**Photo 7 - Photo of cut TPG 100 corner uniaxial geogrid at station 0+140, and approximately 0.5 m of uncompacted backfill completed by nightshift.**

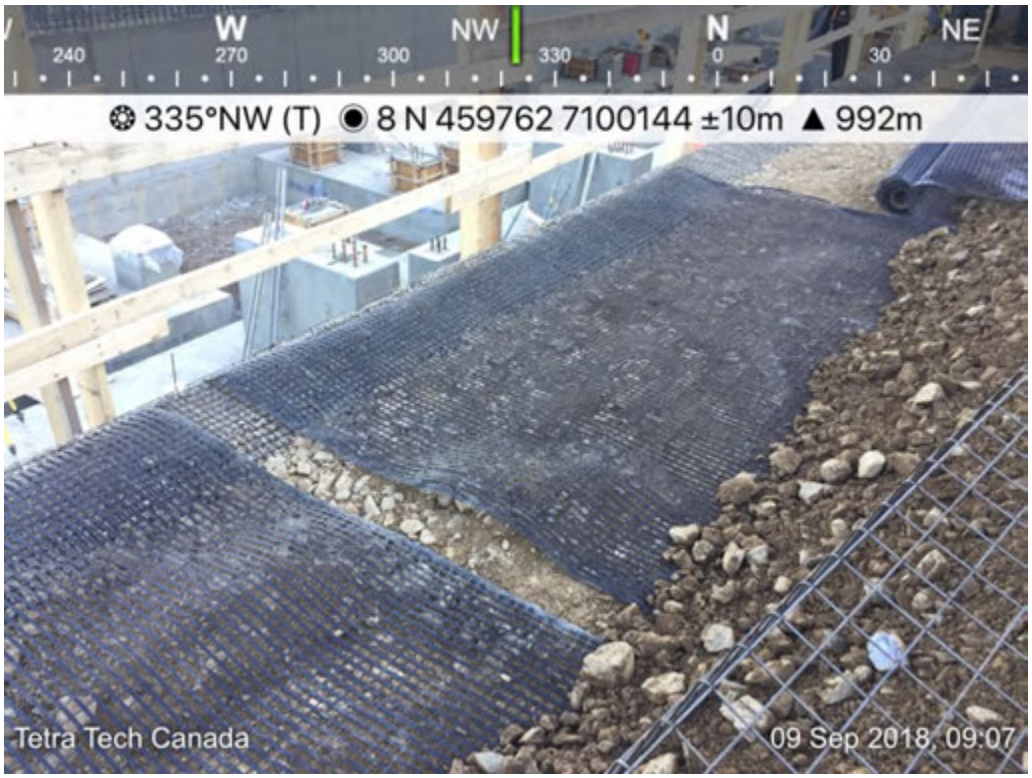


**Photo 8 - Photo of TPG 100 uniaxial geogrids not butt up together for 100% coverage. This was found at station 0+130 on lift #11.**

TETRA TECH

# EARTHWORKS FIELD REPORT

ISSUED FOR REVIEW

| | | | |
|---|---|---|---|
| **To:** | Roman Bilobrowka; Calvin Goldschmidt; Ishan Fechter; Jerry Chrzaszcz; John Purves; Matt Coverdale; D'Arcy Comerford; Adam Chow; Aaron Wagner; Sam Elson; Warren Maki | | |
| **Cc:** | Chad Cowan; Robert Zschuppe; James Buyck; Reid Seal; John Purves; Chris Copley; Anthony Schoepp | **From:** | Mark Estrada |
| **Project:** | Secondary and Tertiary Crushing Stockpile Retaining Wall | **Date:** | September 10, 2018 |
| **Location:** | Eagle Gold Mine, YT | **Weather:** | Clear |
| **Client:** | JDS | | High 14°C |
| **File:** | ENG.WARC03235-05.004 | | Low -1°C |

## 1.0 MSE WALL CONSTRUCTION SUMMARY

| Unit ID | Equipment | Work |
|---|---|---|
| - | CAT D6T Dozer | Placing backfill |
| - | CAT 324 Excavator | Placing backfill |
| - | CAT 730 Rock Truck | Hauling backfill to MSE wall |
| - | CAT Skid Steer | Placing backfill |
| - | CAT Skid Steer | Placing backfill |
| - | CAT 740B Rock Truck | Hauling backfill to MSE wall |
| - | CAT 950K Loader | Loading backfill and moving equipment |
| - | CS55 Smooth Drum Compactor | Compacting backfill at the MSE wall |
| - | Plate Tamper | Compacting backfill at the MSE wall |

## 2.0 MECHANICALY STABILIZED EARTH WALL

- Nightshift prepared materials for lift #11 at the following approximate locations:
    - Geotextile between stations 0+140 to 0+160.
    - Drain rock between stations 0+130 to 0+160.
- Nightshift prepared materials for lift #12 at the following approximate locations:
    - WWF baskets between stations 0+040 to 0+160.
    - Biaxial geogrids between stations 0+040 to 0+140.
    - TPG 100 uniaxial geogrids between stations 0+040 to 0+160. Backfill placed and compacted.
    - Support struts, and face rock between stations 0+040 to 0+130.
    - Geotextile between stations 0+040 to 0+120.
    - Drain rock placed and compacted between stations 0+040 to 110.

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  - Second layer of reinforced backfilled placed between stations 0+040 to 0+080.

- Dayshift placed materials for lift #12 at the following approximate locations:
  - Biaxial geogrids between stations 0+150 to 0+160.
  - Support struts, geotextile, and face rock material between stations 0+130 to 0+160.
  - Drain rock between stations 0+120 to 0+160.
  - Second layer of reinforced backfill material placed and compacted from station 0+090 to 0+160.
- Dayshift placed materials for lift #13 at the following approximate locations:
  - WWF baskets, biaxial geogrids, TPG 100 uniaxial geogrids, and first layer of reinforced backfill material placed and compacted between stations 0+040 to 0+080.
- Layers were compacted using a smooth drum compactor and plate tamper with four passes, to meet method specification.

## 3.0 DISCUSSION/OTHER

- The offset distance of the WWF basket face between lift #11 and lift #12 was 12 cm to reset the alignment of the wall. The plumb bob method to align the WWF basket face guided by survey will be used moving forward.

## 4.0 CLOSURE

We trust that the information provided herein is accurate and complete. Please contact the undersigned if you require additional information or have any concerns.

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**Photo 1 – Start of dayshift. View of 11 completed lifts.**




**Photo 2 - Start of dayshift. Approximate view of stations 0+040 to 0+070 of lift #12 completed.**

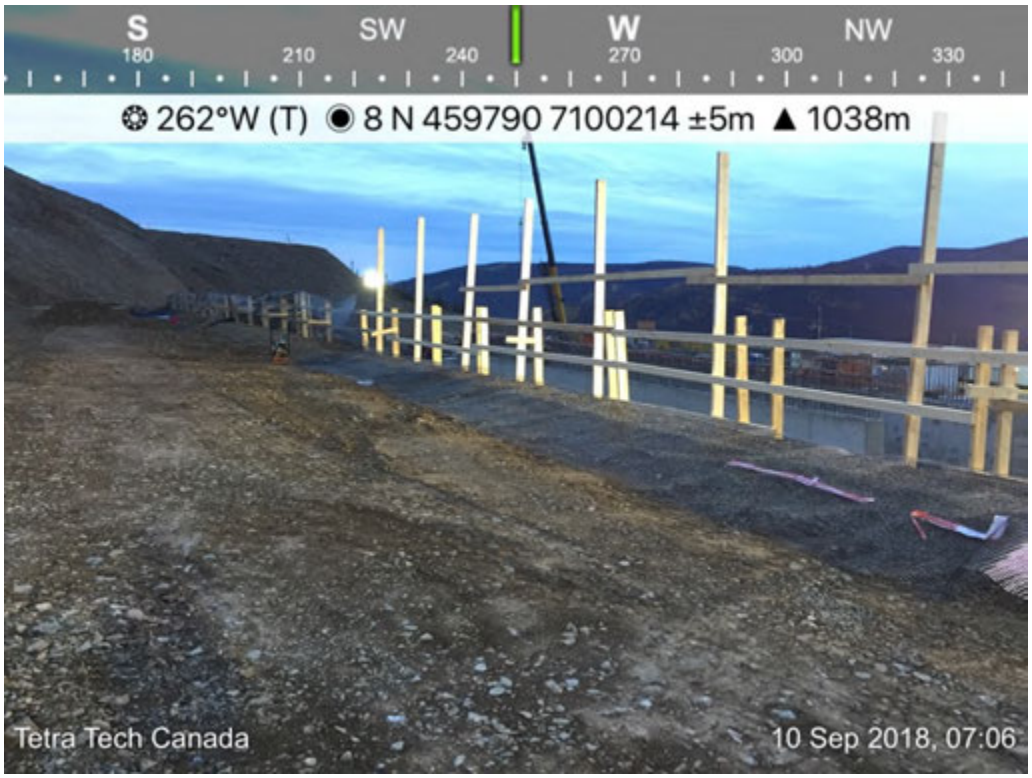


**Photo 3 - Start of dayshift. Approximate view of stations 0+070 to 0+140 of lift #12 completed.**




**Photo 4 - Start of dayshift. Approximate view of stations 0+110 to 0+140 of lift #12 in progress.**

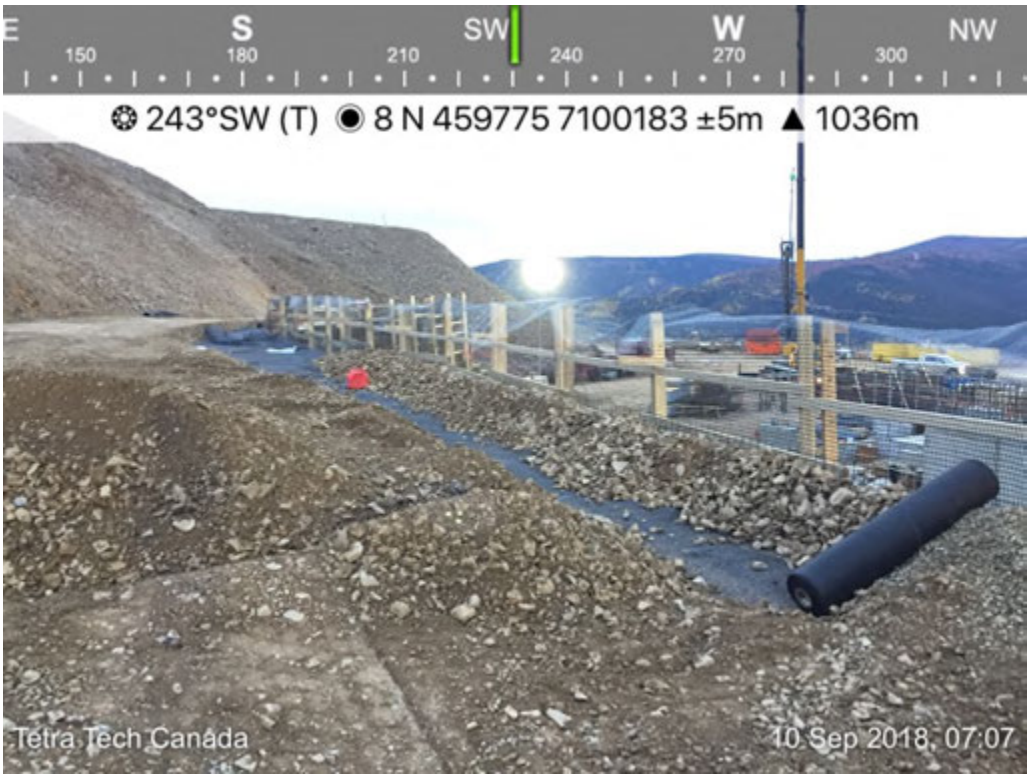


**Photo 5 - Start of dayshift. Approximate view of stations 0+120 to 0+140 of lift #12 in progress.**




**Photo 6 - Start of dayshift. Approximate view of stations 0+130 to 0+140 of lift #12 in progress.**




**Photo 7 - Start of dayshift. Approximate view of stations 0+140 to 0+160 of lift #12 in progress.**




**Photo 8 - View of overlapping TPG 100 uniaxial geogrids at station 0+140 with approximately 75 mm of backfill in between uniaxial geogrids.**




**Photo 9 - View of realignment of wall on lift #12.**




**Photo 10 - End of dayshift. View of completed lift #12 and the beginning of lift #13.**

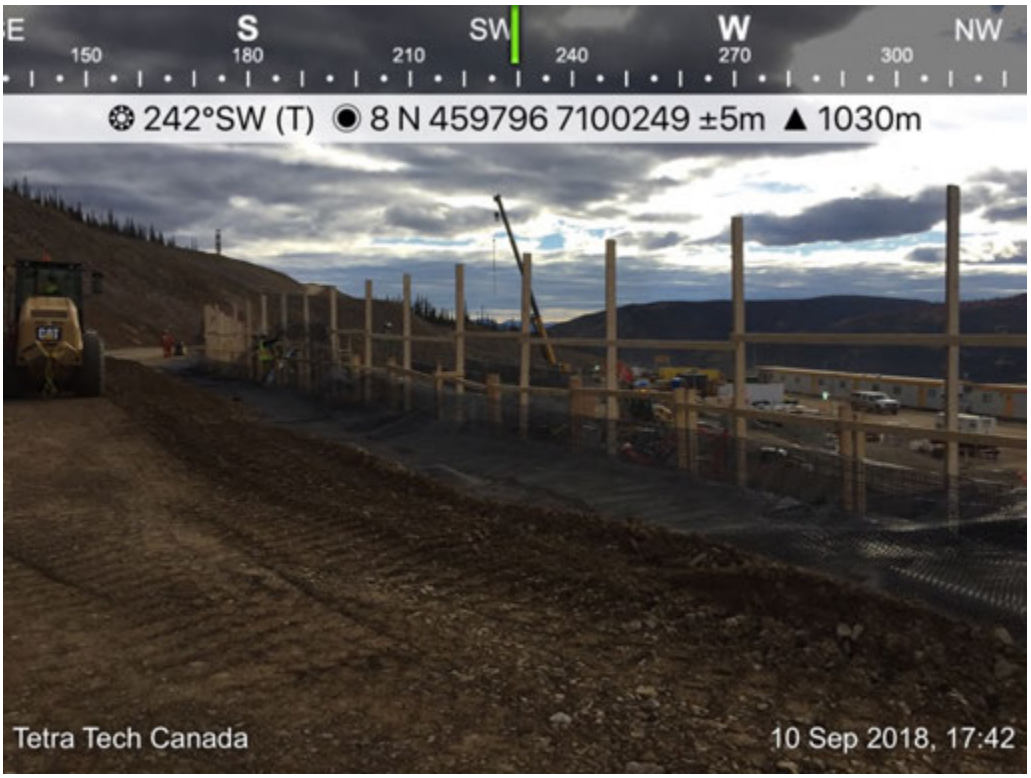


**Photo 11 - End of dayshift. Approximate view of stations 0+040 to 0+070 of lift #13 progress.**

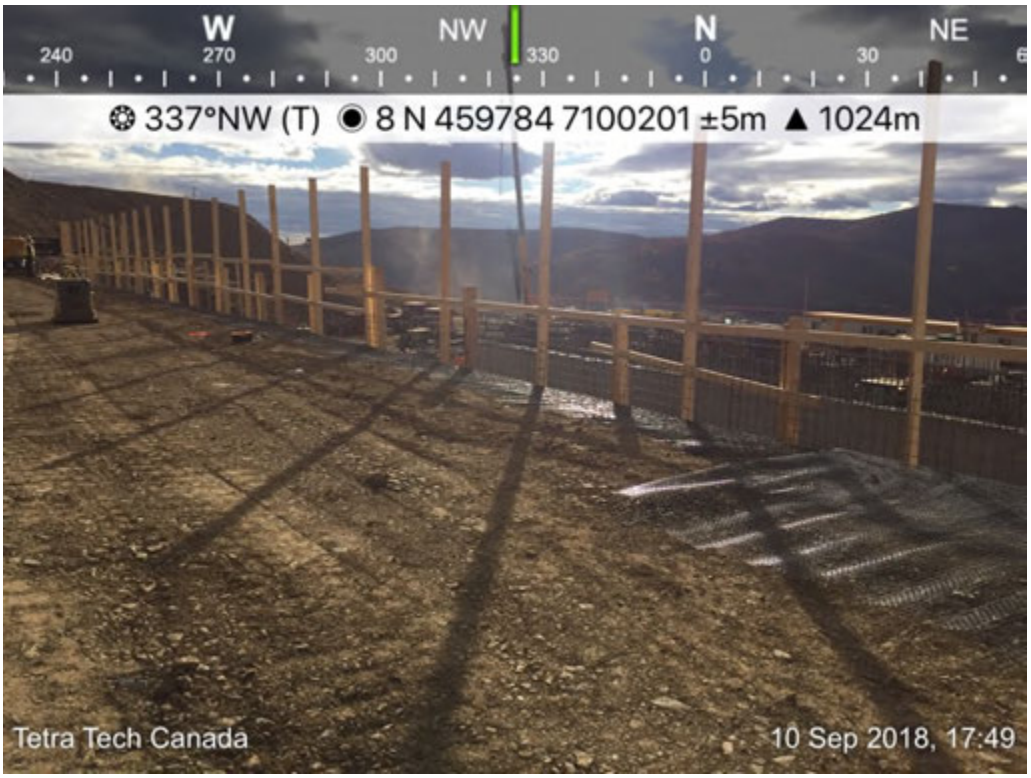


**Photo 12 - End of dayshift. Approximate view of stations 0+070 to 0+110 of lift #13 progress.**




**Photo 13 - End of dayshift. Approximate view of stations 0+110 to 0+140 of lift #13 progress.**




**Photo 14 - End of dayshift. Approximate view of stations 0+140 to 0+160 of lift #12 progress.**

TETRA TECH

# EARTHWORKS FIELD REPORT

ISSUED FOR REVIEW

| | | | |
|---|---|---|---|
| **To:** | Roman Bilobrowka; Calvin Goldschmidt; Ishan Fechter; Jerry Chrzaszcz; John Purves; Matt Coverdale; D'Arcy Comerford; Adam Chow; Aaron Wagner; Sam Elson; Warren Maki | | |
| **Cc:** | Chad Cowan; Robert Zschuppe; James Buyck; Reid Seal; John Purves; Chris Copley; Anthony Schoepp | **From:** | Mark Estrada |
| **Project:** | Secondary and Tertiary Crushing Stockpile Retaining Wall | **Date:** | September 11, 2018 |
| **Location:** | Eagle Gold Mine, YT | **Weather:** | Mostly Sunny |
| **Client:** | JDS | | High 9°C |
| **File:** | ENG.WARC03235-05.004 | | Low 0°C |

## 1.0 MSE WALL CONSTRUCTION SUMMARY

| Unit ID | Equipment | Work |
|---|---|---|
| - | CAT D6T Dozer | Placing backfill |
| - | CAT 324 Excavator | Placing backfill |
| - | CAT 730 Rock Truck | Hauling backfill to MSE wall |
| - | CAT Skid Steer | Placing backfill |
| - | CAT Skid Steer | Placing backfill |
| - | CAT 740B Rock Truck | Hauling backfill to MSE wall |
| - | CAT 950K Loader | Loading backfill and moving equipment |
| - | CS55 Smooth Drum Compactor | Compacting backfill at the MSE wall |
| - | Plate Tamper | Compacting backfill at the MSE wall |

## 2.0 MECHANICALY STABILIZED EARTH WALL

- Nightshift prepared materials for lift #13 at the following approximate locations:
    - WWF baskets, biaxial geogrid, TPG 100 uniaxial geogrid, and first layer of reinforced backfill between stations 0+090 to 0+140.
    - Support struts, face rock material, geotextile, 20 mm drain rock, and second layer of reinforced backfill between stations 0+040 to 0+140.
- Dayshift completed lift #13.
- Dayshift placed materials for lift #14 at the following approximate locations:
    - WWF baskets, biaxial geogrid, and TPG 100 uniaxial geogrid between stations 0+040 to 0+130.
    - First layer of reinforced backfill and support struts between stations 0+040 to 0+110.
- Layers were compacted using a smooth drum compactor and plate tamper with four passes, to meet method specification.

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## 3.0 DISCUSSION/OTHER

- Work near the face of the MSE wall stopped midafternoon until the wood handrail system was improved.

## 4.0 CLOSURE

We trust that the information provided herein is accurate and complete. Please contact the undersigned if you require additional information or have any concerns.

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**Photo 1 – View of MSE face at the start of dayshift. Lift #13 completed. Lift #14 started.**

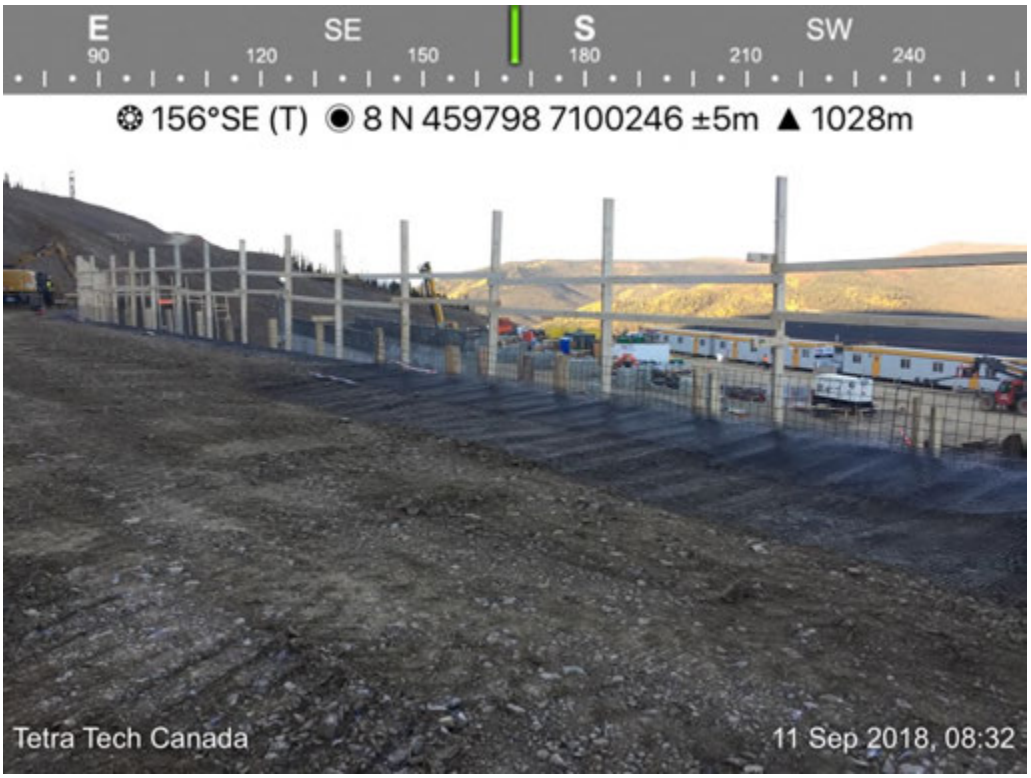


**Photo 2 – Start of dayshift. Approximate view of stations 0+040 to 0+070 of lift #13 completed.**




**Photo 3 - Start of dayshift. Approximate view of stations 0+070 to 0+110 of lift #13 completed.**




**Photo 4 - Start of dayshift. Approximate view of stations 0+140 of lift #13 in progress.**




**Photo 5 - Start of dayshift. Approximate view of stations 0+140 to 0+160 of lift #13 in progress.**

TETRA TECH

# EARTHWORKS FIELD REPORT

ISSUED FOR REVIEW

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|---|---|---|---|
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| **Cc:** | Chad Cowan; Robert Zschuppe; James Buyck; Reid Seal; John Purves; Chris Copley; Anthony Schoepp | **From:** | Mark Estrada |
| **Project:** | Secondary and Tertiary Crushing Stockpile Retaining Wall | **Date:** | September 12, 2018 |
| **Location:** | Eagle Gold Mine, YT | **Weather:** | Mostly Cloudy |
| **Client:** | JDS | | High 8°C |
| **File:** | ENG.WARC03235-05.004 | | Low 4°C |

## 1.0 MSE WALL CONSTRUCTION SUMMARY

| Unit ID | Equipment | Work |
|---|---|---|
| - | CAT D6T Dozer | Placing backfill |
| - | CAT 324 Excavator | Placing backfill |
| - | CAT 730 Rock Truck | Hauling backfill to MSE wall |
| - | CAT Skid Steer | Placing backfill |
| - | CAT Skid Steer | Placing backfill |
| - | CAT 740B Rock Truck | Hauling backfill to MSE wall |
| - | CAT 950K Loader | Loading backfill and moving equipment |
| - | CS55 Smooth Drum Compactor | Compacting backfill at the MSE wall |
| - | Plate Tamper | Compacting backfill at the MSE wall |

## 2.0 MECHANICALY STABILIZED EARTH WALL

- Nightshift prepared materials for lift #14 at the following approximate locations:
    - Support struts between stations 0+040 to 0+100.
- Dayshift placed materials for lift #14 at the following approximate locations:
    - Face rock material, geotextile, drain rock, and second layer of reinforced backfill between stations 0+040 to 0+100.
- Layers were compacted using a smooth drum compactor and plate tamper with four passes, to meet method specification.

## 3.0 DISCUSSION/OTHER

- N/A

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# 4.0 CLOSURE

We trust that the information provided herein is accurate and complete. Please contact the undersigned if you require additional information or have any concerns.

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**Photo 1 – View of MSE wall face.**




**Photo 2 – Approximate view of stations 0+040 to 0+070 of lift #14 progress.**




**Photo 3 - Approximate view of stations 0+070 to 0+140 of lift #14 progress.**




**Photo 4 - Approximate view of stations 0+110 to 0+140 of lift #14 progress.**

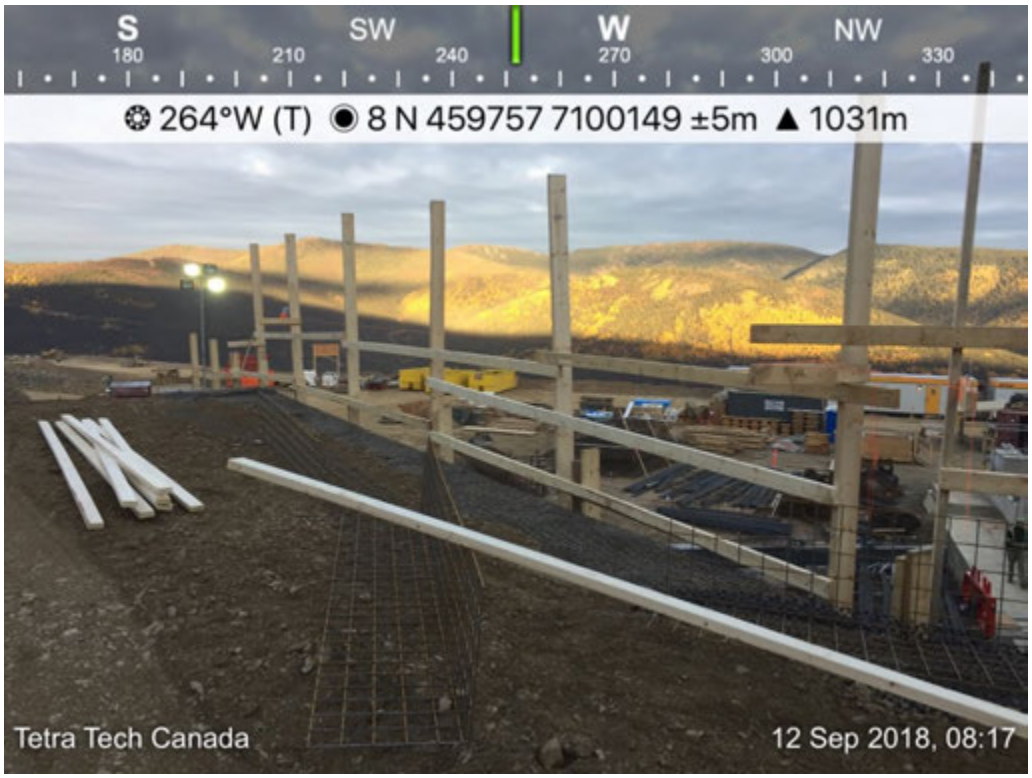


**Photo 5 - Approximate view of stations 0+140 to 0+160 of lift #14 progress.**




**Photo 6 - Approximate view of stations 0+040 to 0+070 of lift #14 progress.**




**Photo 7 - Approximate view of stations 0+110 to 0+140 of lift #14 progress.**

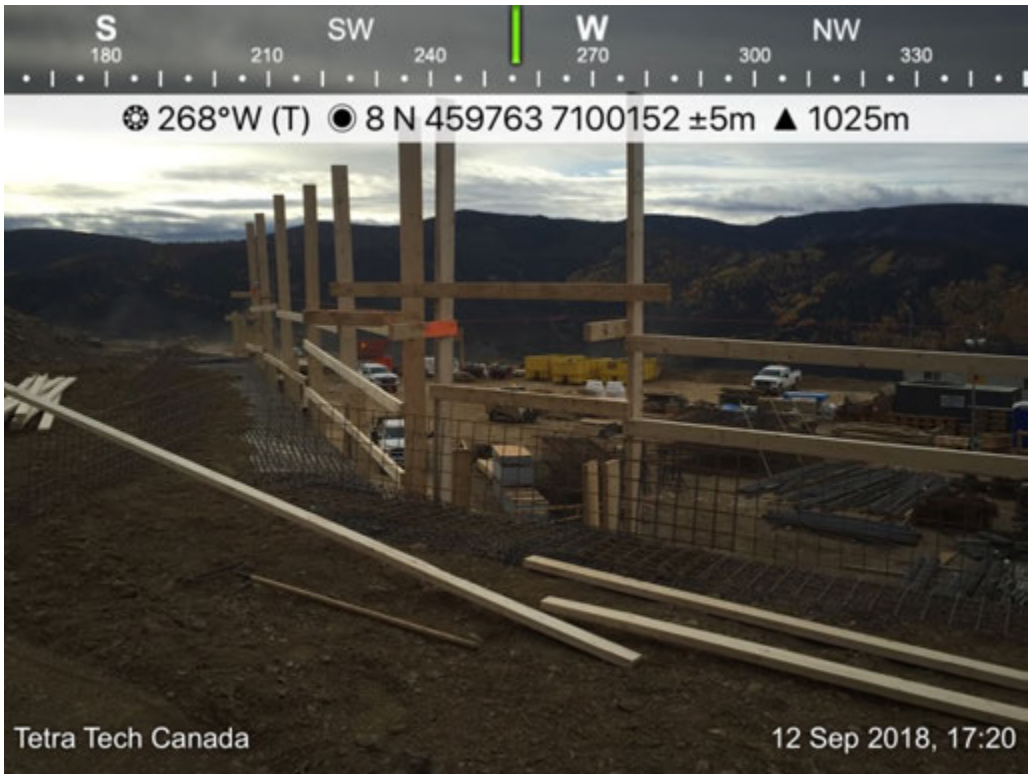


**Photo 8 - Approximate view of stations 0+140 to 0+160 of lift #14 progress.**

TETRA TECH

# EARTHWORKS FIELD REPORT

ISSUED FOR REVIEW

| | | | |
|---|---|---|---|
| **To:** | Roman Bilobrowka; Calvin Goldschmidt; Ishan Fechter; Jerry Chrzaszcz; John Purves; Matt Coverdale; D'Arcy Comerford; Adam Chow; Aaron Wagner; Sam Elson; Warren Maki | | |
| **Cc:** | Chad Cowan; Robert Zschuppe; James Buyck; Reid Seal; John Purves; Chris Copley; Anthony Schoepp | **From:** | Mark Estrada |
| **Project:** | Secondary and Tertiary Crushing Stockpile Retaining Wall | **Date:** | September 13, 2018 |
| **Location:** | Eagle Gold Mine, YT | **Weather:** | Partly Cloudy |
| **Client:** | JDS | | High 8°C |
| **File:** | ENG.WARC03235-05.004 | | Low -4°C |

## 1.0 MSE WALL CONSTRUCTION SUMMARY

| Unit ID | Equipment | Work |
|---|---|---|
| - | CAT D6T Dozer | Placing backfill |
| - | CAT 324 Excavator | Placing backfill |
| - | CAT 730 Rock Truck | Hauling backfill to MSE wall |
| - | CAT Skid Steer | Placing backfill |
| - | CAT Skid Steer | Placing backfill |
| - | CAT 740B Rock Truck | Hauling backfill to MSE wall |
| - | CAT 950K Loader | Loading backfill and moving equipment |
| - | CS55 Smooth Drum Compactor | Compacting backfill at the MSE wall |
| - | Plate Tamper | Compacting backfill at the MSE wall |

## 2.0 MECHANICALY STABILIZED EARTH WALL

- Nightshift completed lift #14.
- Nightshift placed materials for lift #15 at the following approximate locations:
    - WWF baskets, biaxial geogrid, TPG 100 uniaxial geogrid, first layer of reinforced fill, and support struts between stations 0+040 to 0+090.
    - Face rock material between stations 0+040 to 0+070.
- Dayshift placed materials for lift #15 at the following approximate locations:
    - WWF baskets, biaxial geogrid, and TPG 100 uniaxial geogrid between stations 0+100 to 0+160.
    - First layer of reinforced backfill and support struts between stations 0+100 to 0+140.
    - Face rock material between stations 0+070 to 0+140.
    - Geotextile between stations 0+040 to 0+140.

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- First layer of reinforced backfill between stations 0+040 to 0+120 was compacted using a smooth drum compactor and plate tamper with four passes, to meet method specification.

## 3.0 DISCUSSION/OTHER

- N/A

## 4.0 CLOSURE

We trust that the information provided herein is accurate and complete. Please contact the undersigned if you require additional information or have any concerns.

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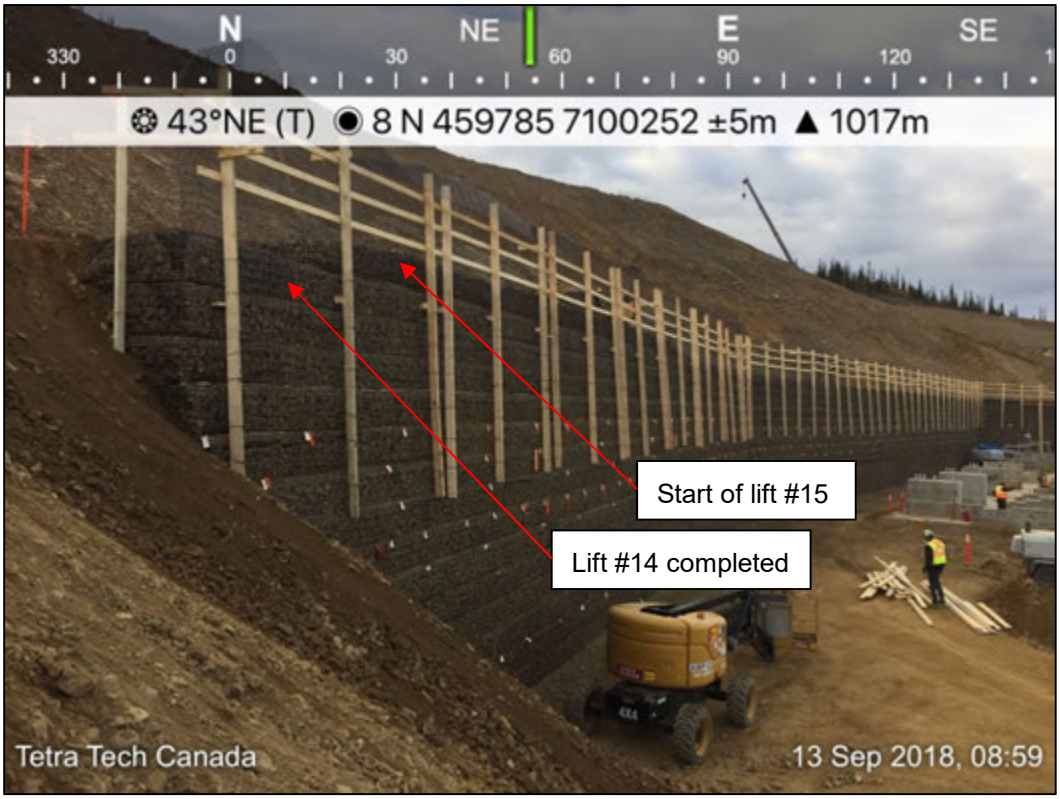


**Photo 1 – View of MSE wall face.**

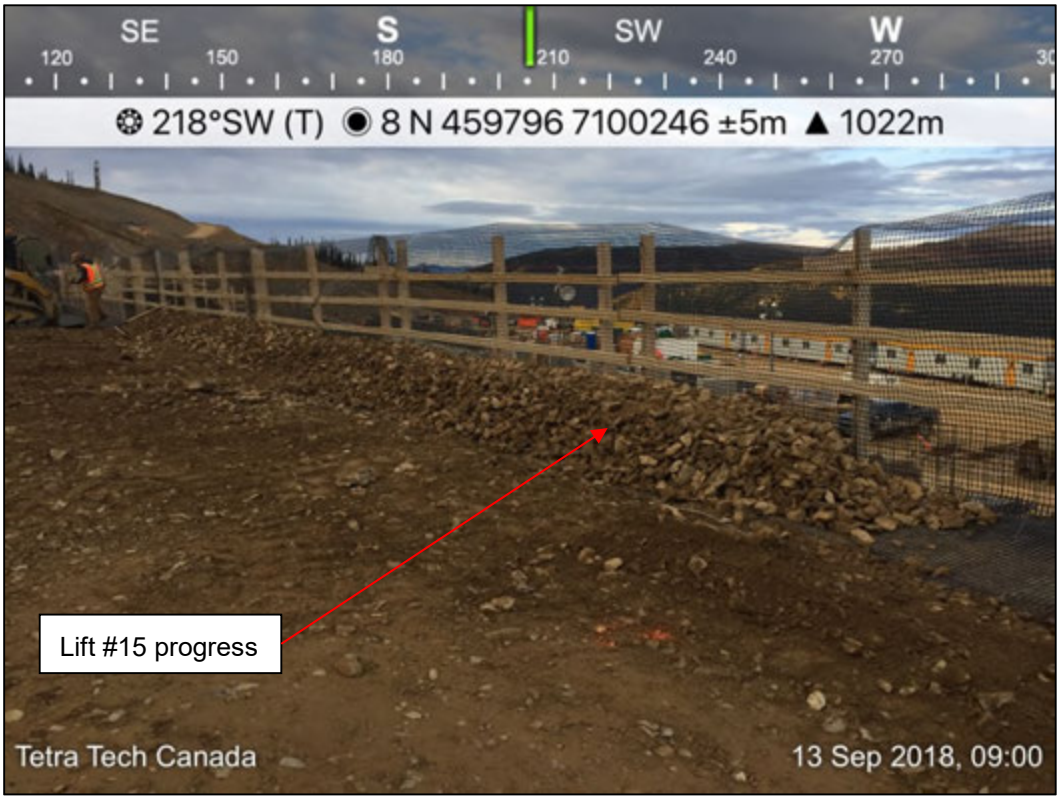


**Photo 2 – Approximate view of stations 0+040 to 0+070.**

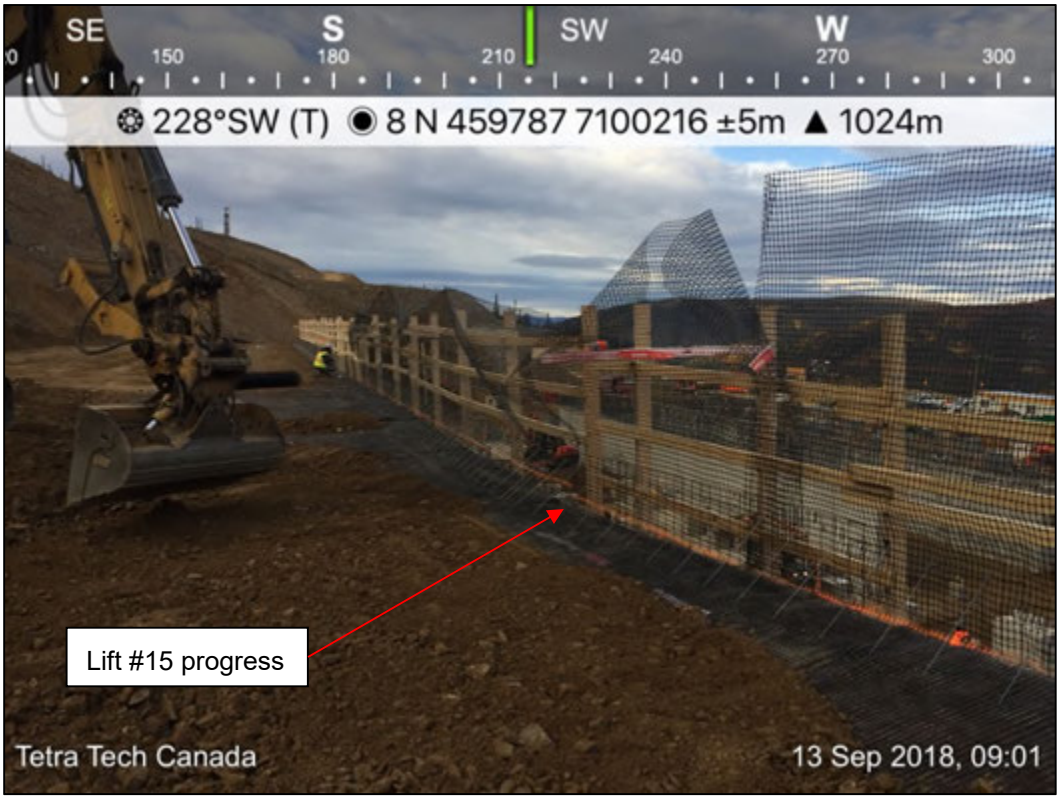


**Photo 3 - Approximate view of stations 0+070 to 0+140.**

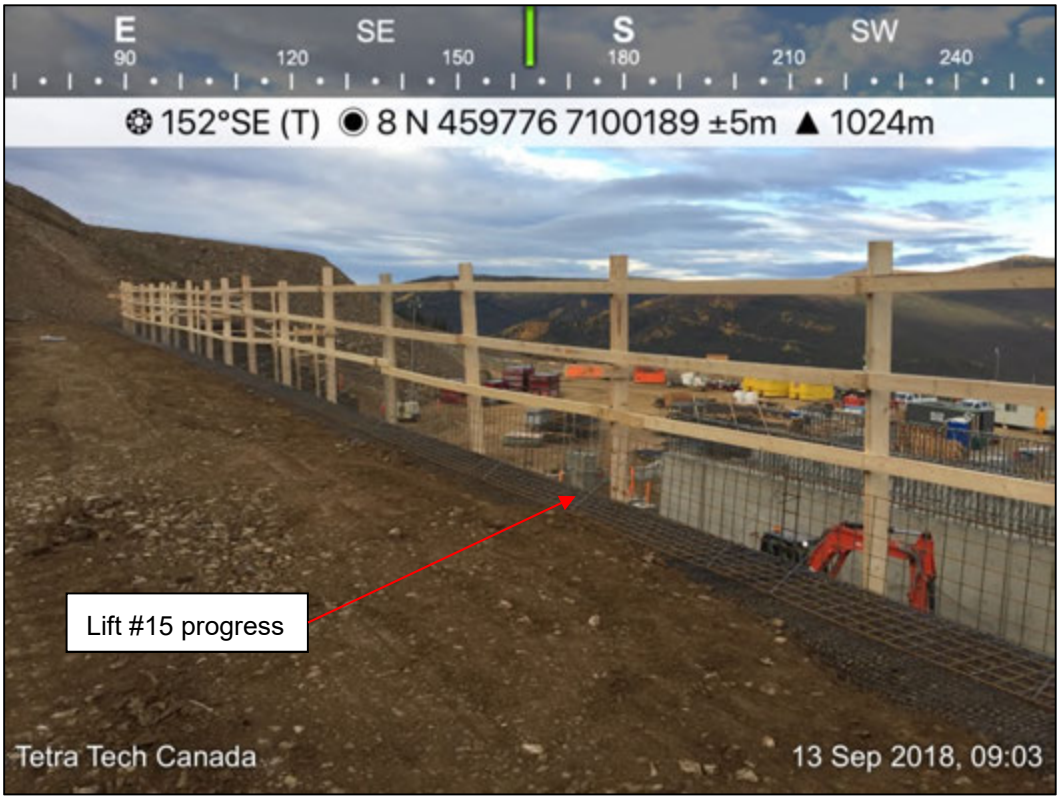


**Photo 4 - Approximate view of stations 0+110 to 0+140.**

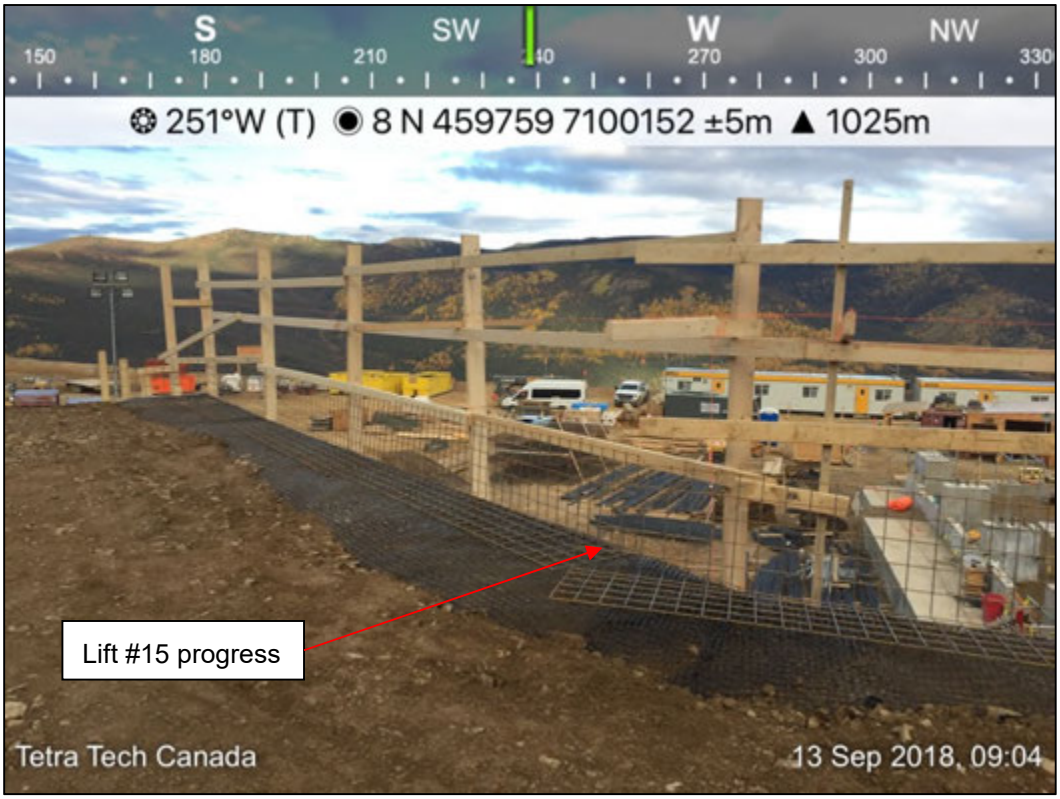


**Photo 5 - Approximate view of stations 0+140 to 0+160.**




**Photo 6 – Typical gradation of 4" face rock material.**




**Photo 7 – Compaction of lift #15.**

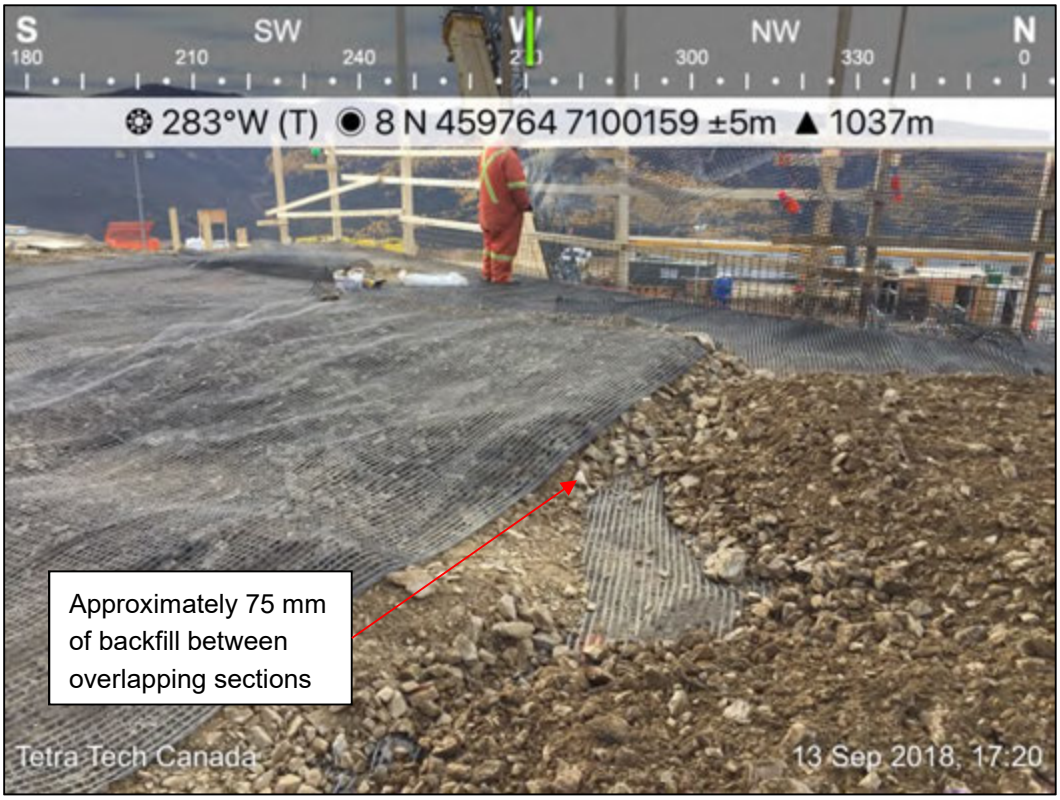


**Photo 8 – Station 0+140.**




**Photo 9 - Approximate view of stations 0+040 to 0+070.**




**Photo 10 - Approximate view of stations 0+070 to 0+140.**




**Photo 11 - Approximate view of stations 0+110 to 0+140.**




**Photo 12 - Approximate view of stations 0+140 to 0+160.**

TETRA TECH

# EARTHWORKS FIELD REPORT

ISSUED FOR REVIEW

| | | | |
|---|---|---|---|
| **To:** | Roman Bilobrowka; Calvin Goldschmidt; Ishan Fechter; Jerry Chrzaszcz; John Purves; Matt Coverdale; D'Arcy Comerford; Adam Chow; Aaron Wagner; Sam Elson; Warren Maki | | |
| **Cc:** | Chad Cowan; Robert Zschuppe; James Buyck; Reid Seal; John Purves; Chris Copley; Anthony Schoepp | **From:** | Mark Estrada |
| **Project:** | Secondary and Tertiary Crushing Stockpile Retaining Wall | **Date:** | September 14, 2018 |
| **Location:** | Eagle Gold Mine, YT | **Weather:** | Clear |
| **Client:** | JDS | | High 7°C |
| **File:** | ENG.WARC03235-05.004 | | Low -4°C |

## 1.0 MSE WALL CONSTRUCTION SUMMARY

| Unit ID | Equipment | Work |
|---|---|---|
| - | CAT D6T Dozer | Placing backfill |
| - | CAT 324 Excavator | Placing backfill |
| - | CAT 730 Rock Truck | Hauling backfill to MSE wall |
| - | CAT Skid Steer | Placing backfill |
| - | CAT Skid Steer | Placing backfill |
| - | CAT 740B Rock Truck | Hauling backfill to MSE wall |
| - | CAT 950K Loader | Loading backfill and moving equipment |
| - | CS55 Smooth Drum Compactor | Compacting backfill at the MSE wall |
| - | Plate Tamper | Compacting backfill at the MSE wall |

## 2.0 MECHANICALY STABILIZED EARTH WALL

- Nightshift completed lift #15.
- Nightshift placed materials for lift #16 at the following approximate locations:
    - WWF baskets between stations 0+040 to 0+070.
- Dayshift placed materials for lift #16 at the following approximate locations:
    - WWF baskets between stations 0+080 to 0+140
    - Biaxial geogrid, TPG 100 uniaxial geogrid, and the first layer of reinforced backfill between stations 0+040 to 0+140.
    - Support struts between stations 0+040 to 0+100
    - Face rock material between stations 0+040 to 0+070.
- First layer of reinforced backfill on lift #16 between stations 0+040 to 0+130 was compacted using a smooth drum compactor and plate tamper with four passes, to meet method specification.

Tetra Tech Canada Inc.
61 Wasson Place
Whitehorse YT, Y1A 0H7 CANADA
Tel 867.668.3068 Fax 867.668.4349

## 3.0 DISCUSSION/OTHER

- N/A

## 4.0 CLOSURE

We trust that the information provided herein is accurate and complete. Please contact the undersigned if you require additional information or have any concerns.

Mark Estrada, E.I.T.
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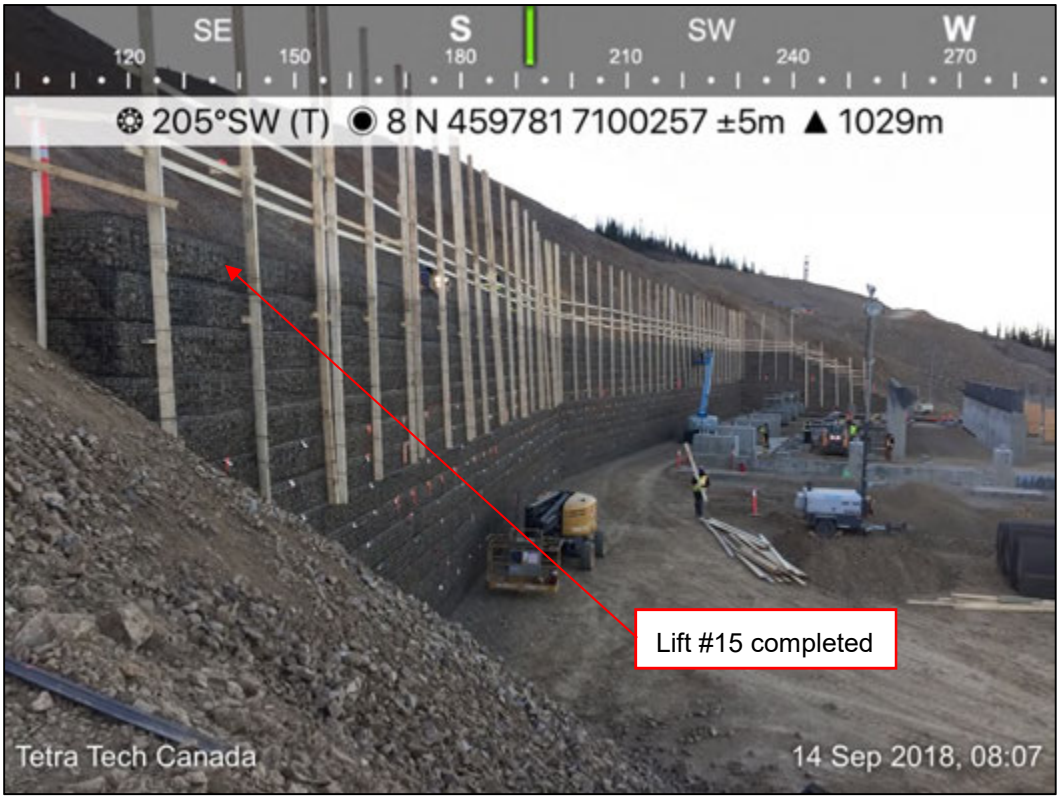


**Photo 1 – View of MSE wall face.**




**Photo 2 – Approximate view of stations 0+040 to 0+070.**

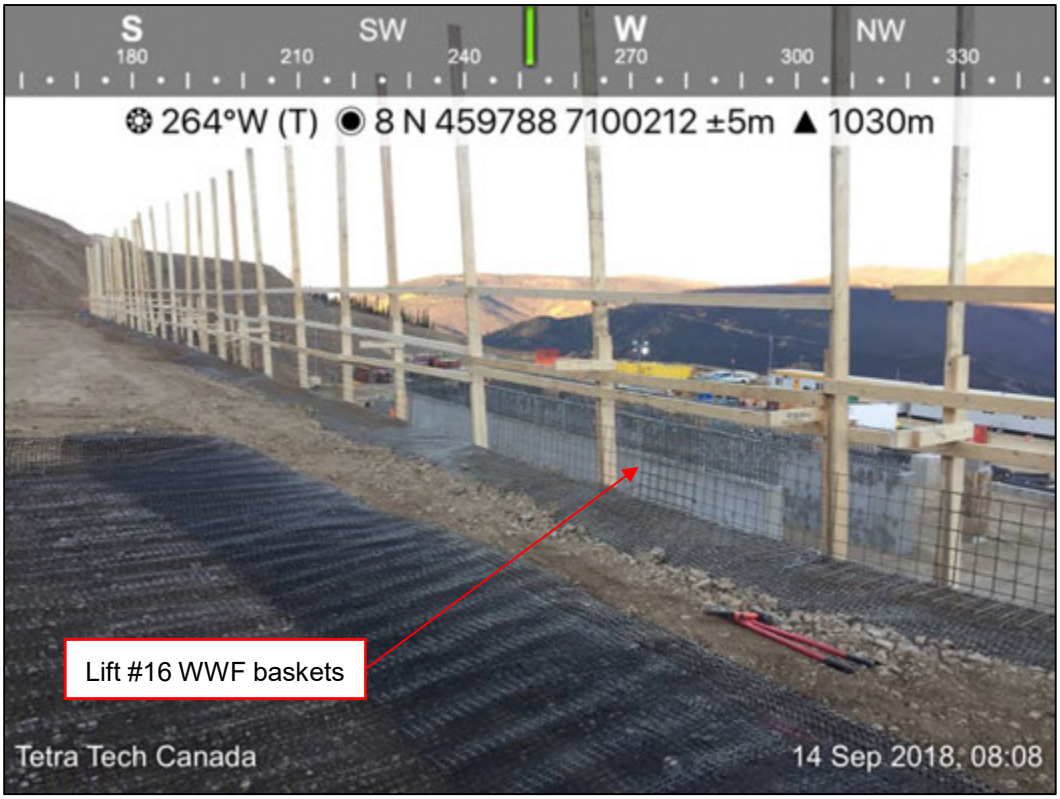


**Photo 3 - Approximate view of stations 0+070 to 0+140.**

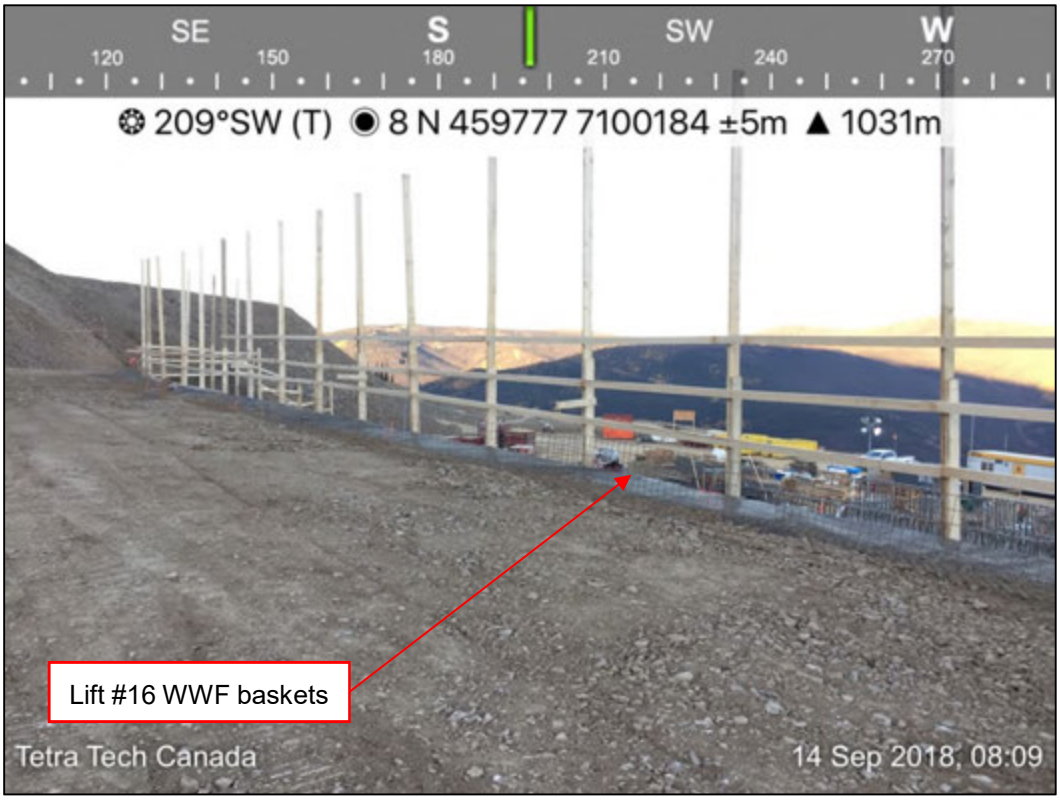


**Photo 4 - Approximate view of stations 0+110 to 0+140.**

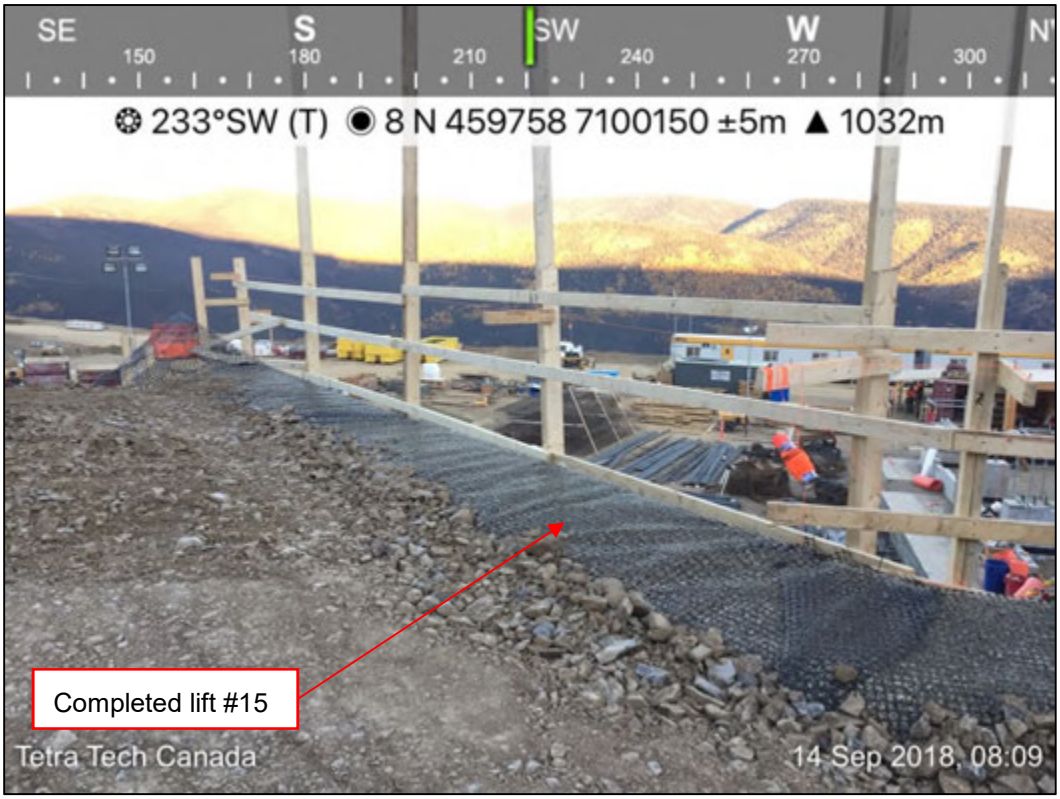


**Photo 5 - Approximate view of stations 0+140 to 0+160.**




**Photo 6 – Typical gradation of reinforced backfill material.**

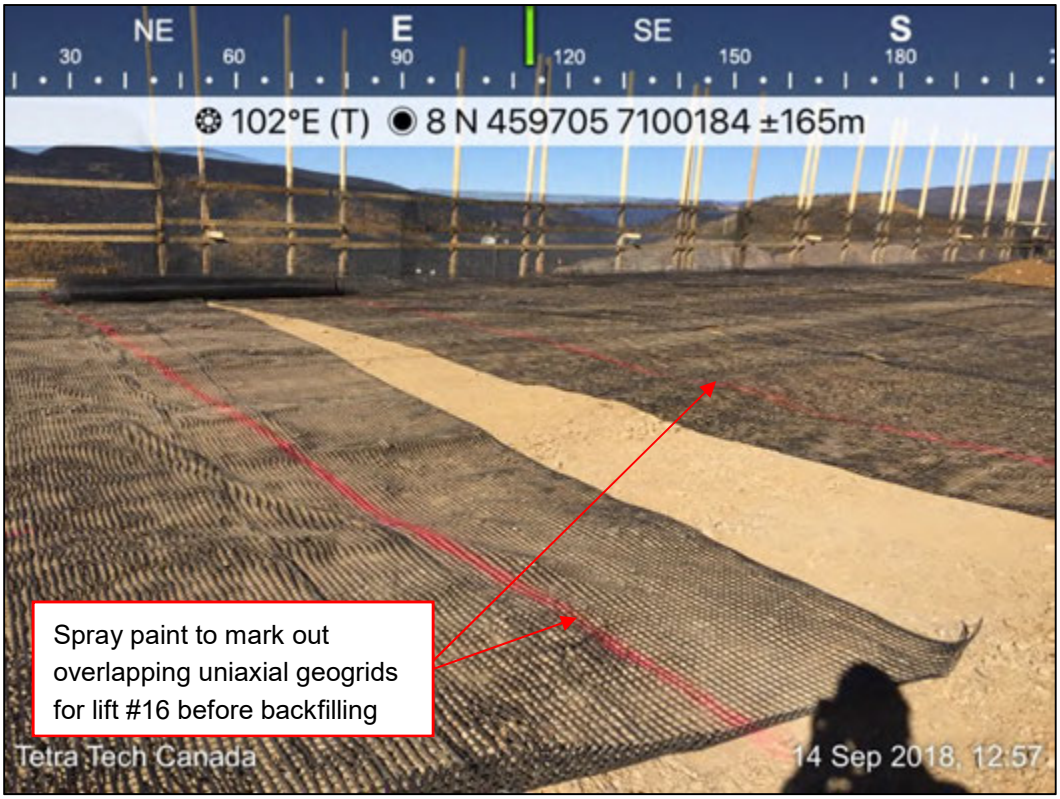


**Photo 7 – Approximate view of stations 0+070.**




**Photo 8 – Approximate view of stations 0+070 to 0+140.**

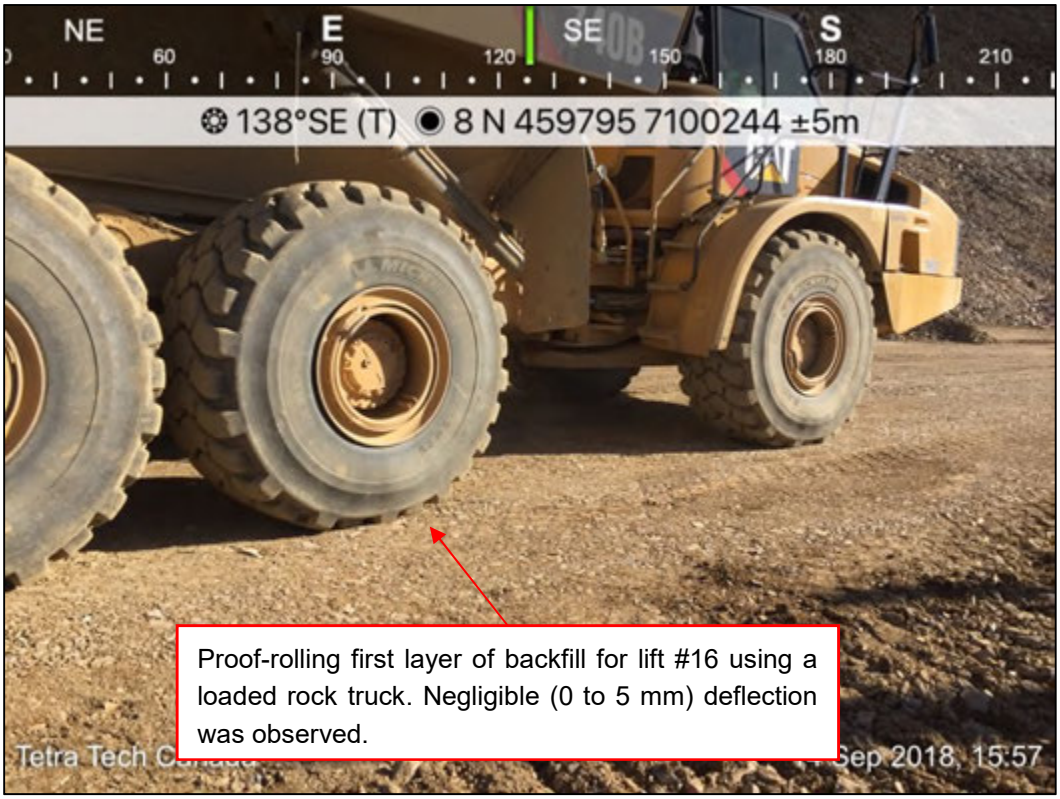


**Photo 9 - Approximate view of station 0+070.**




**Photo 10 - Approximate view of corner at station 0+140.**

TETRA TECH

# EARTHWORKS FIELD REPORT

ISSUED FOR REVIEW

| | | | |
|---|---|---|---|
| **To:** | Roman Bilobrowka; Calvin Goldschmidt; Ishan Fechter; Jerry Chrzaszcz; John Purves; Matt Coverdale; D'Arcy Comerford; Adam Chow; Aaron Wagner; Sam Elson; Warren Maki; Esra Akinci | | |
| **Cc:** | Chad Cowan; Robert Zschuppe; James Buyck; Reid Seal; John Purves; Chris Copley; Anthony Schoepp | **From:** | Mark Estrada |
| **Project:** | Secondary and Tertiary Crushing Stockpile Retaining Wall | **Date:** | September 15, 2018 |
| **Location:** | Eagle Gold Mine, YT | **Weather:** | Clear |
| **Client:** | JDS | | High 12°C |
| **File:** | ENG.WARC03235-05.004 | | Low -3°C |

## 1.0 MSE WALL CONSTRUCTION SUMMARY

| Unit ID | Equipment | Work |
|---|---|---|
| - | CAT D6T Dozer | Placing backfill |
| - | CAT 324 Excavator | Placing backfill |
| - | CAT 730 Rock Truck | Hauling backfill to MSE wall |
| - | CAT Skid Steer | Placing backfill |
| - | CAT Skid Steer | Placing backfill |
| - | CAT 740B Rock Truck | Hauling backfill to MSE wall |
| - | CAT 950K Loader | Loading backfill and moving equipment |
| - | CS55 Smooth Drum Compactor | Compacting backfill at the MSE wall |
| - | Plate Tamper | Compacting backfill at the MSE wall |

## 2.0 MECHANICALY STABILIZED EARTH WALL

- Nightshift completed lift #16.
- Nightshift placed materials for lift #17 at the following approximate locations:
    - WWF baskets between stations 0+040 to 0+160.
- Dayshift placed materials for lift #17 at the following approximate locations:
    - Biaxial geogrid, TPG 100 uniaxial geogrid, first layer of reinforced backfill, and support struts between stations 0+040 to 0+160.
    - Face rock material between stations 0+040 to 0+100.
- First layer of reinforced backfill on lift #17 between stations 0+040 to 0+160 was compacted using a smooth drum compactor and plate tamper with four passes, to meet method specification.

## 3.0 DISCUSSION/OTHER

- N/A

Tetra Tech Canada Inc.
61 Wasson Place
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Tel 867.668.3068 Fax 867.668.4349

# 4.0 CLOSURE

We trust that the information provided herein is accurate and complete. Please contact the undersigned if you require additional information or have any concerns.

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Mobile +1 (250) 668-0472




**Photo 1 – View of MSE wall face.**

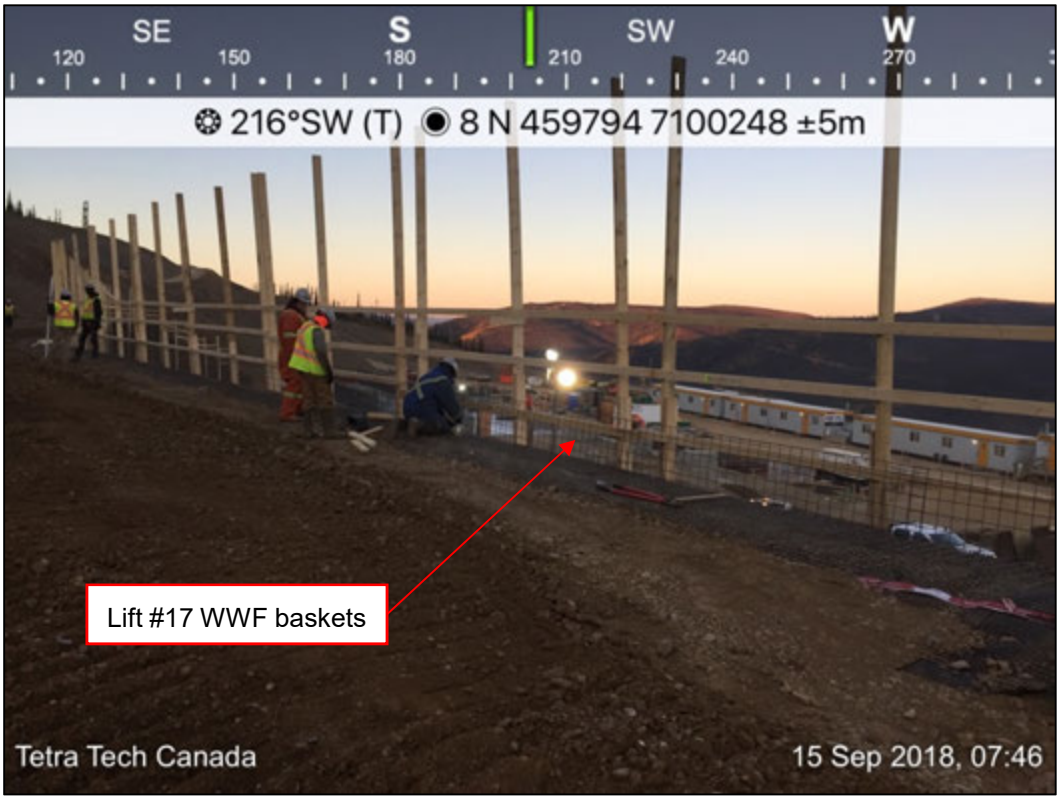


**Photo 2 – Approximate view of stations 0+040 to 0+070.**

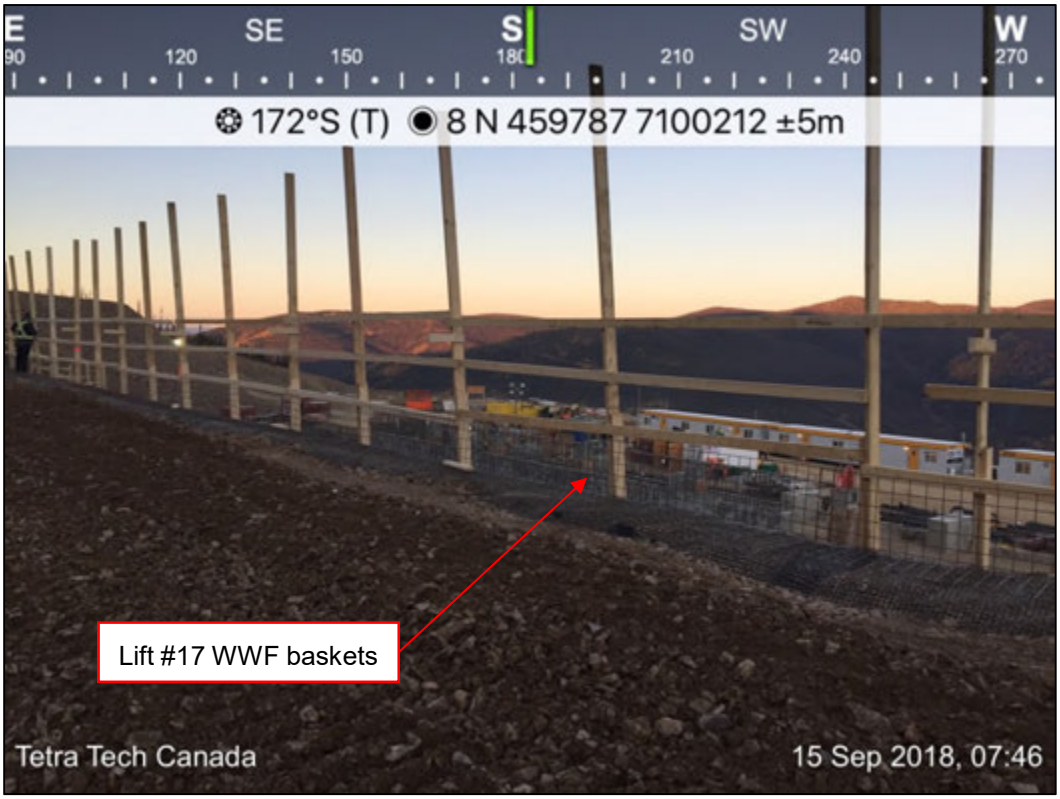


**Photo 3 - Approximate view of stations 0+070 to 0+140.**




**Photo 4 - Approximate view of stations 0+110 to 0+140.**

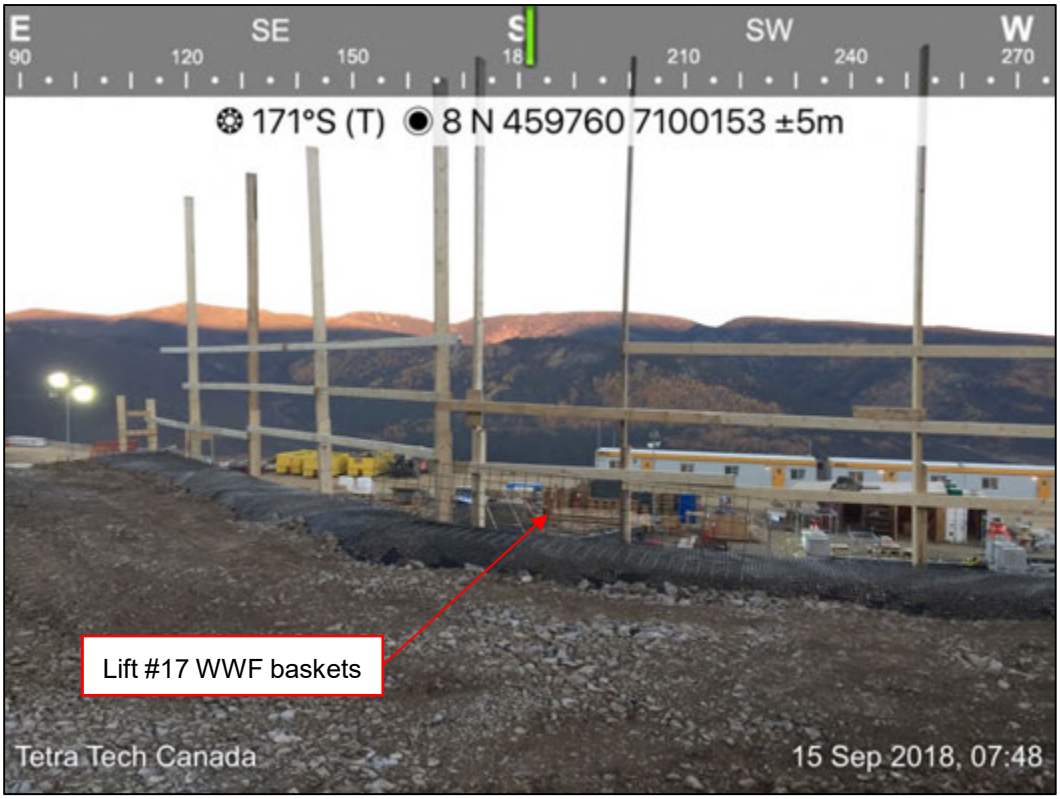


**Photo 5 - Approximate view of stations 0+140 to 0+160.**




**Photo 6 – View of MSE wall face.**




**Photo 7 – Approximate view of stations 0+040 to 0+070.**

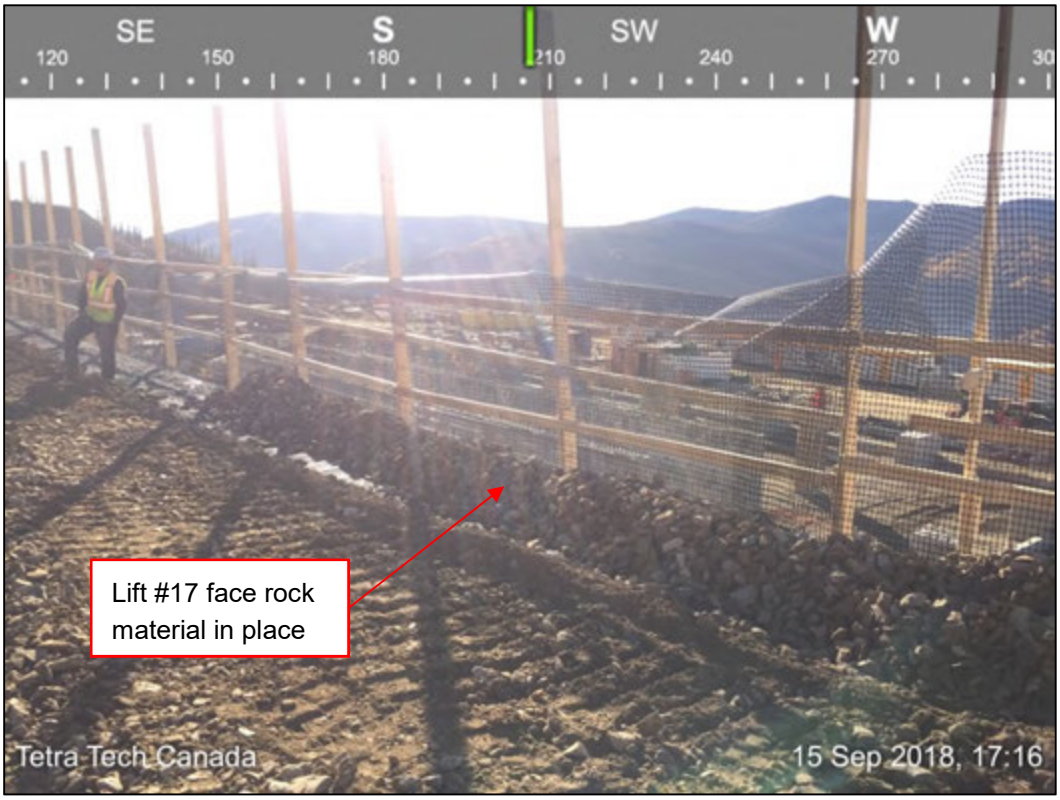


**Photo 8 - Approximate view of stations 0+070 to 0+140.**

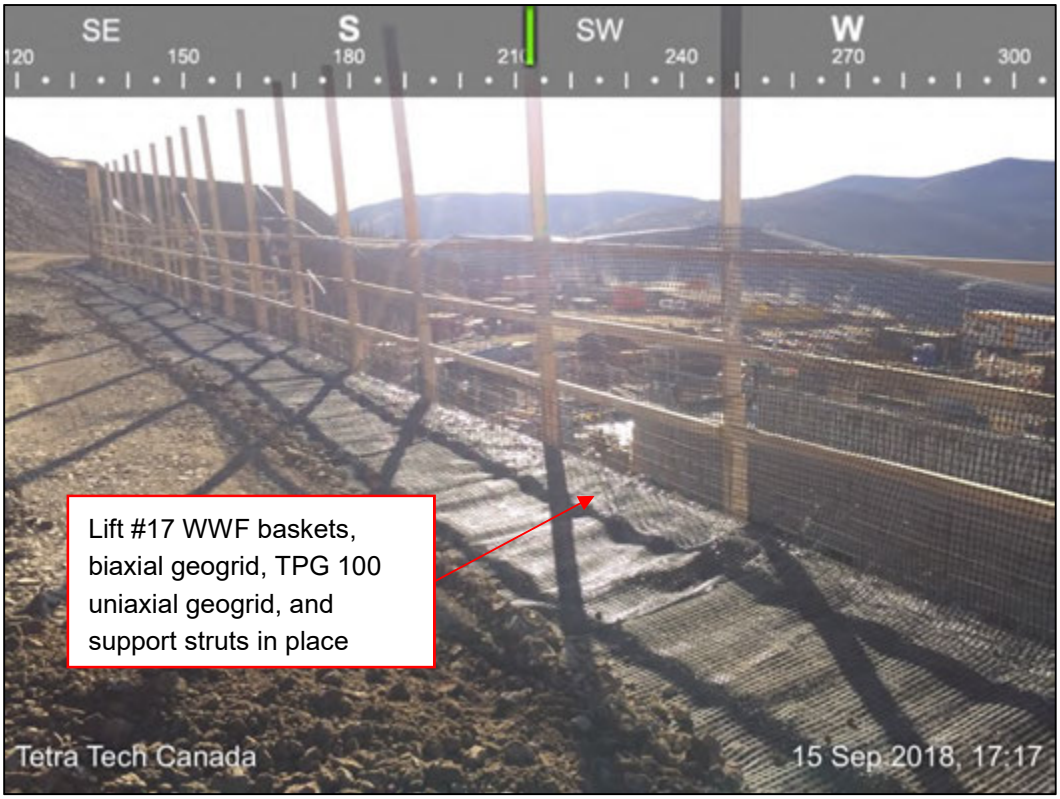


**Photo 9 - Approximate view of stations 0+110 to 0+140.**

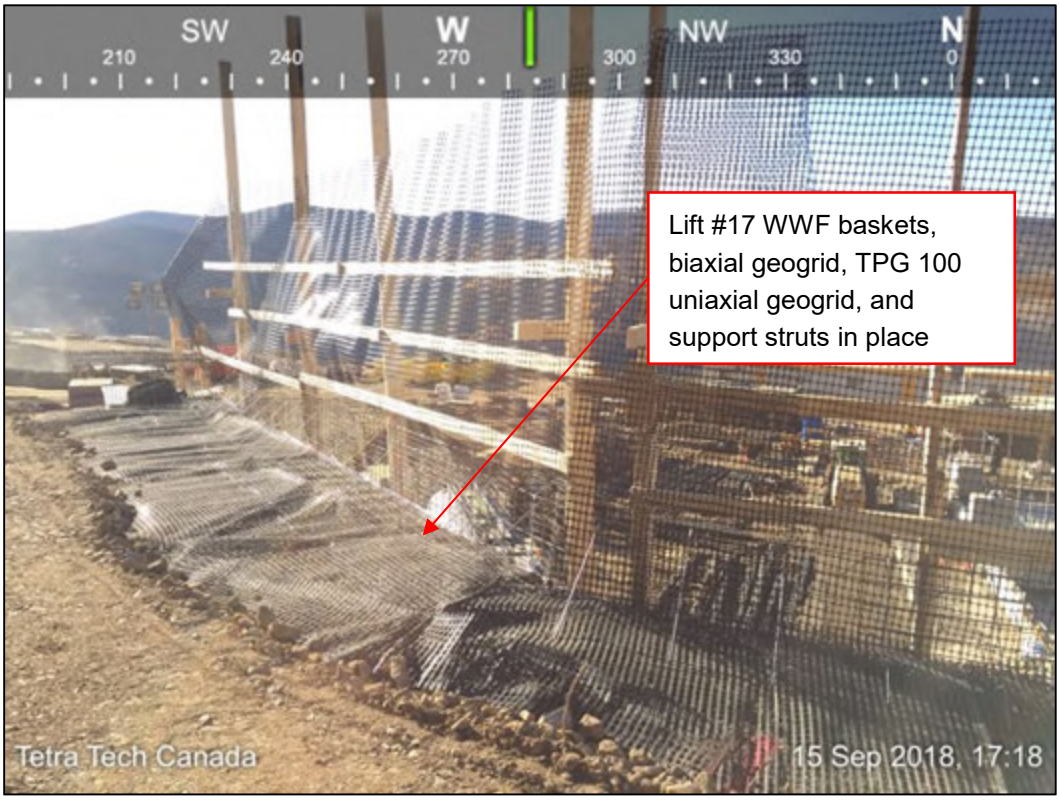


**Photo 10 - Approximate view of stations 0+140 to 0+160.**




**Photo 11 – Typical gradation of reinforced backfill material.**

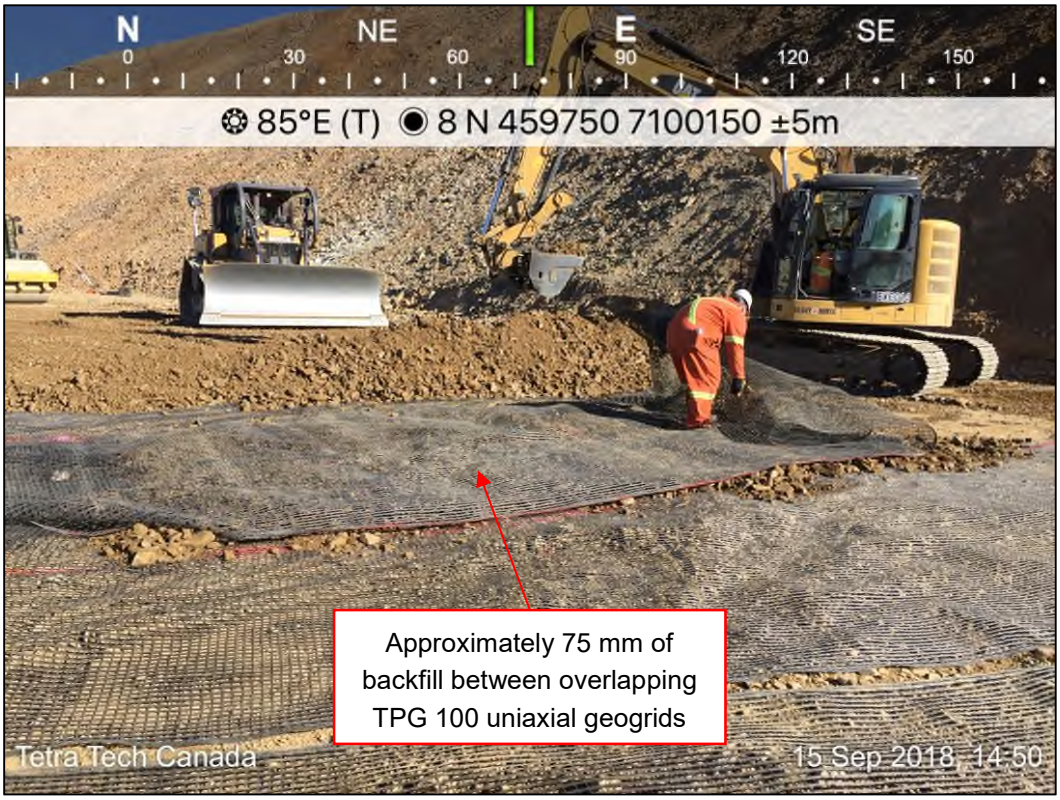


**Photo 12 – Approximate view of stations 0+070.**




**Photo 13 – Approximate view of stations 0+070 to 0+140.**

TETRA TECH

# EARTHWORKS FIELD REPORT

ISSUED FOR REVIEW

| | | | |
|---|---|---|---|
| **To:** | Roman Bilobrowka; Calvin Goldschmidt; Ishan Fechter; Jerry Chrzaszcz; John Purves; Matt Coverdale; D'Arcy Comerford; Adam Chow; Aaron Wagner; Sam Elson; Warren Maki; Esra Akinci; Paul Farrell | | |
| **Cc:** | Chad Cowan; Robert Zschuppe; James Buyck; Reid Seal; John Purves; Chris Copley; Anthony Schoepp | **From:** | Mark Estrada |
| **xProject:** | Secondary and Tertiary Crushing Stockpile Retaining Wall | **Date:** | September 16, 2018 |
| **Location:** | Eagle Gold Mine, YT | **Weather:** | Clear |
| **Client:** | JDS | | High 13°C |
| **File:** | ENG.WARC03235-05.004 | | Low -4°C |

## 1.0 MSE WALL CONSTRUCTION SUMMARY

| Unit ID | Equipment | Work |
|---|---|---|
| - | CAT D6T Dozer | Placing backfill |
| - | CAT 324 Excavator | Placing backfill |
| - | CAT 730 Rock Truck | Hauling backfill to MSE wall |
| - | CAT Skid Steer | Placing backfill |
| - | CAT Skid Steer | Placing backfill |
| - | CAT 740B Rock Truck | Hauling backfill to MSE wall |
| - | CAT 950K Loader | Loading backfill and moving equipment |
| - | CS55 Smooth Drum Compactor | Compacting backfill at the MSE wall |
| - | Plate Tamper | Compacting backfill at the MSE wall |

## 2.0 MECHANICALY STABILIZED EARTH WALL

- Nightshift completed lift #17.
- Nightshift placed materials for lift #18 at the following approximate locations:
    - WWF baskets between stations 0+040 to 0+070.
- Dayshift placed materials for lift #18 at the following approximate locations:
    - WWF baskets between stations 0+080 to 0+160.
    - Biaxial geogrid, TPG 100 uniaxial geogrid, first layer of reinforced backfill, and support struts between stations 0+040 to 0+160.
    - Face rock material and geotextile between stations 0+040 to 0+140.
    - Second layer of reinforced backfill between stations 0+040 to 0+120.
- Reinforced backfill was compacted using a smooth drum compactor and plate tamper with four passes, to meet method specification.

Tetra Tech Canada Inc.
61 Wasson Place
Whitehorse YT, Y1A 0H7 CANADA
Tel 867.668.3068 Fax 867.668.4349

## 3.0 DISCUSSION/OTHER

- The placement of corner WWF baskets at station 0+160 between lifts #15 and #16, and #16 and #17 does not comply with the drawings supplied by Tensar. Heavy North foreman and Project Manager was notified. Heavy North did not choose to correct this issue by excavating to the layer that needs to be corrected, instead, Heavy North placed lift #18's WWF corner basket between stations 0+145.05 and 0+143.65.
- 100 mm minus material brought to the MSE wall is becoming coarser.

## 4.0 CLOSURE

We trust that the information provided herein is accurate and complete. Please contact the undersigned if you require additional information or have any concerns.

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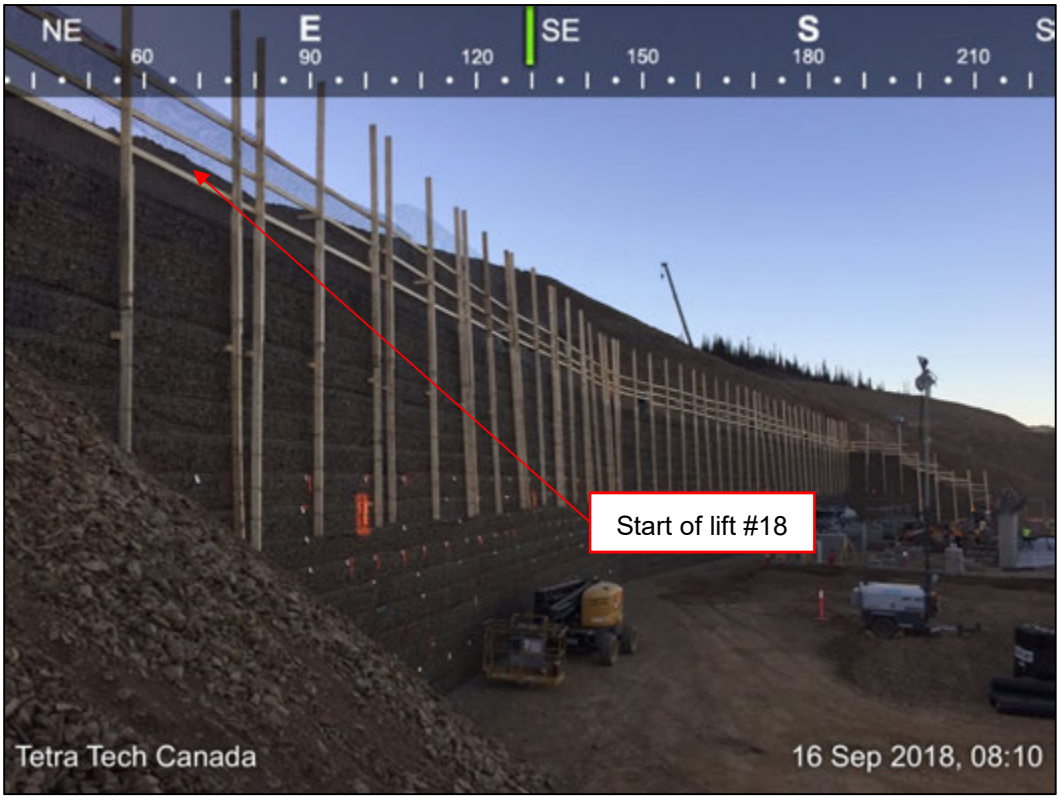


**Photo 1 – View of MSE wall face.**




**Photo 2 – Approximate view of stations 0+040 to 0+070.**

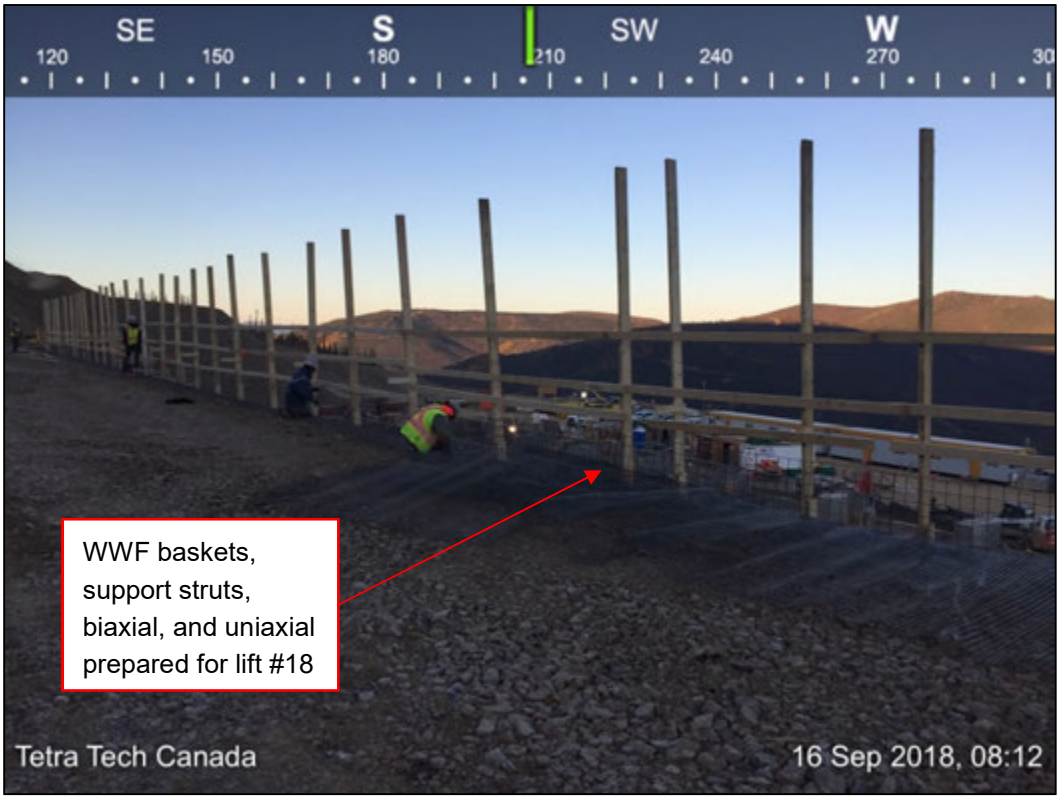


**Photo 3 - Approximate view of stations 0+070 to 0+140.**




**Photo 4 - Approximate view of stations 0+110 to 0+140.**

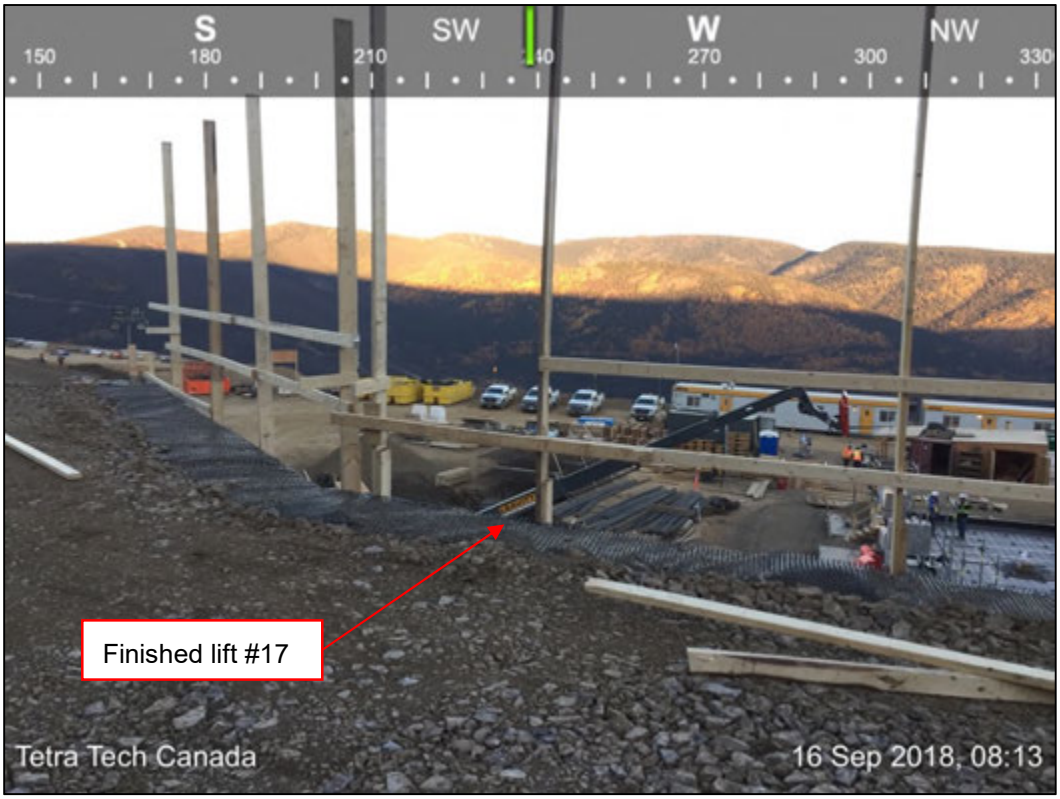


**Photo 5 - Approximate view of stations 0+140 to 0+160.**




**Photo 6 – View of MSE wall face.**

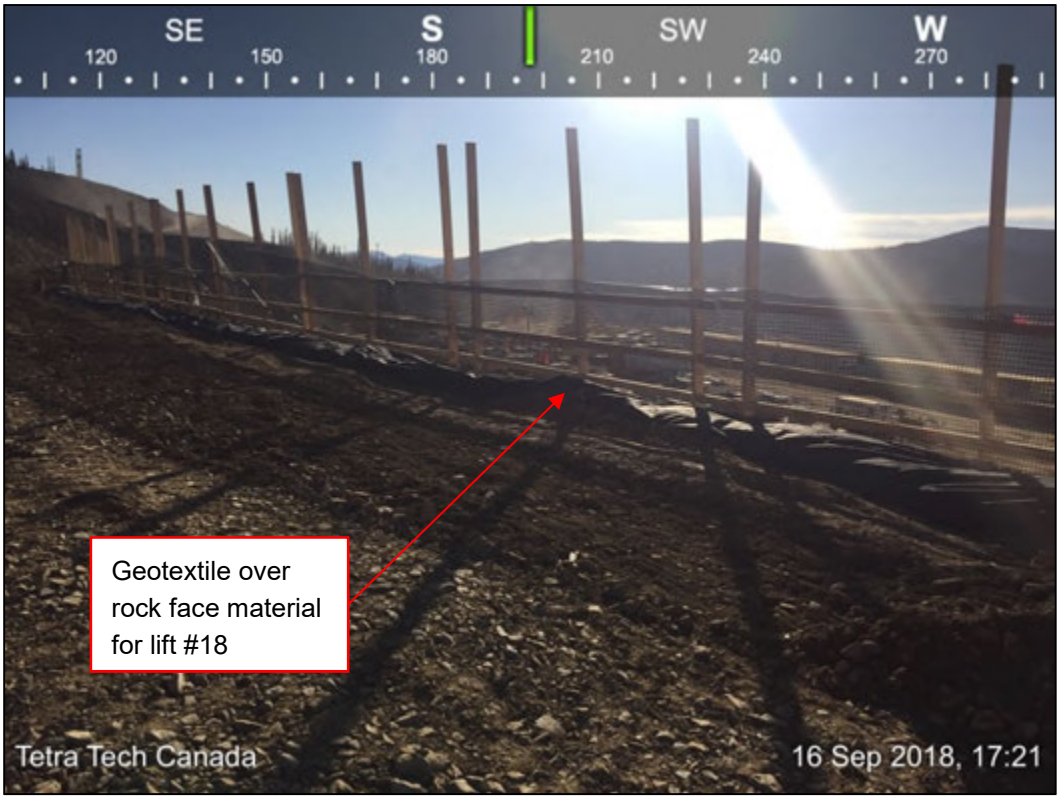


**Photo 7 – Approximate view of stations 0+040 to 0+070.**




**Photo 8 - Approximate view of stations 0+070 to 0+140.**




**Photo 9 - Approximate view of stations 0+110 to 0+140.**




**Photo 10 - Approximate view of stations 0+140 to 0+160.**

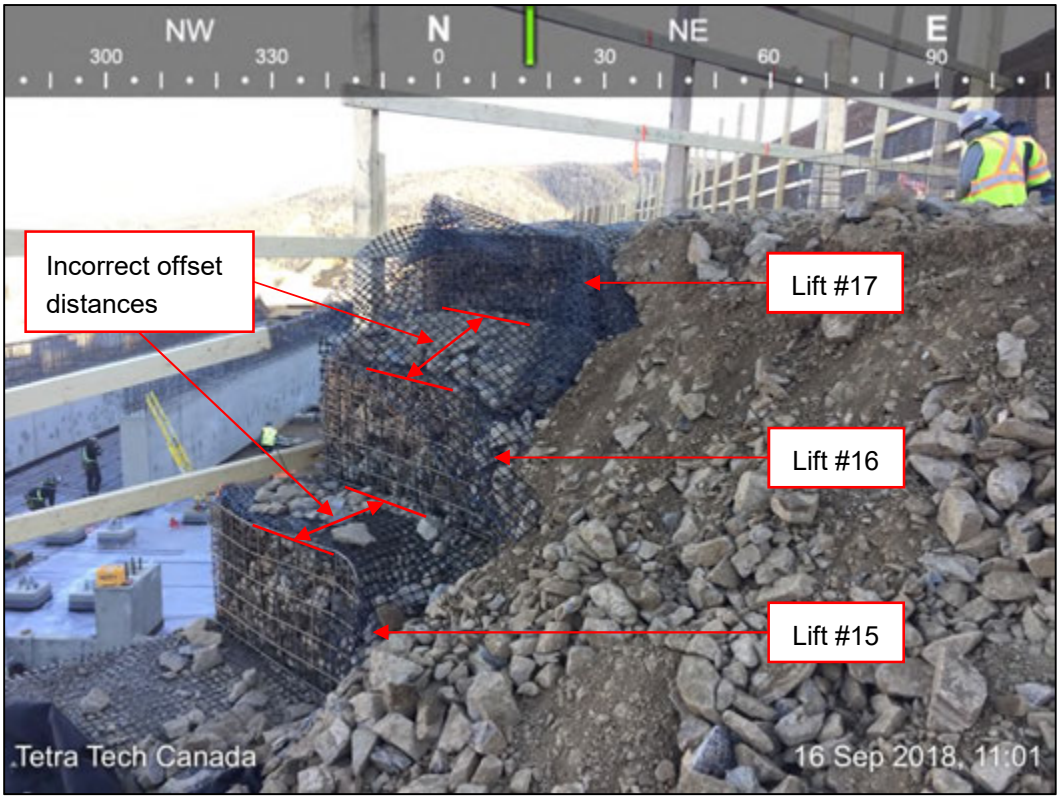


**Photo 11 – Approximate view of station 0+160.**

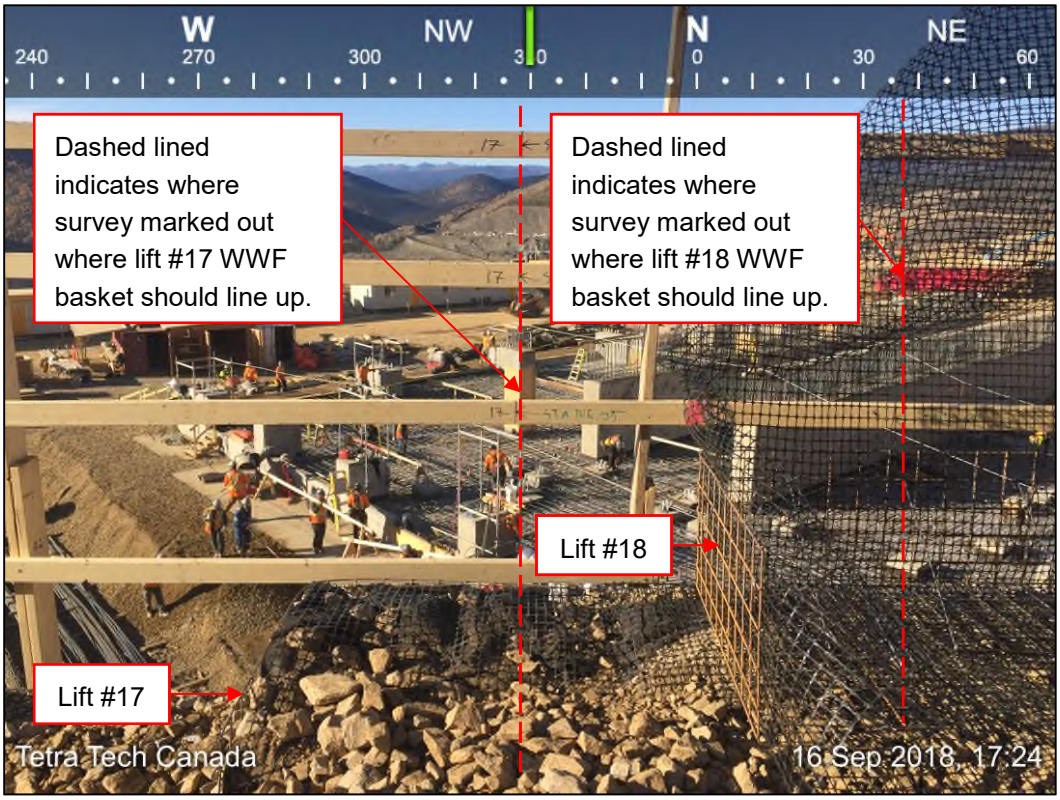


**Photo 12 – Approximate view of station 0+160.**




**Photo 13 – Proof-rolling first layer of reinforced backfill.**




**Photo 14 – Compaction of the first layer of reinforced backfill.**

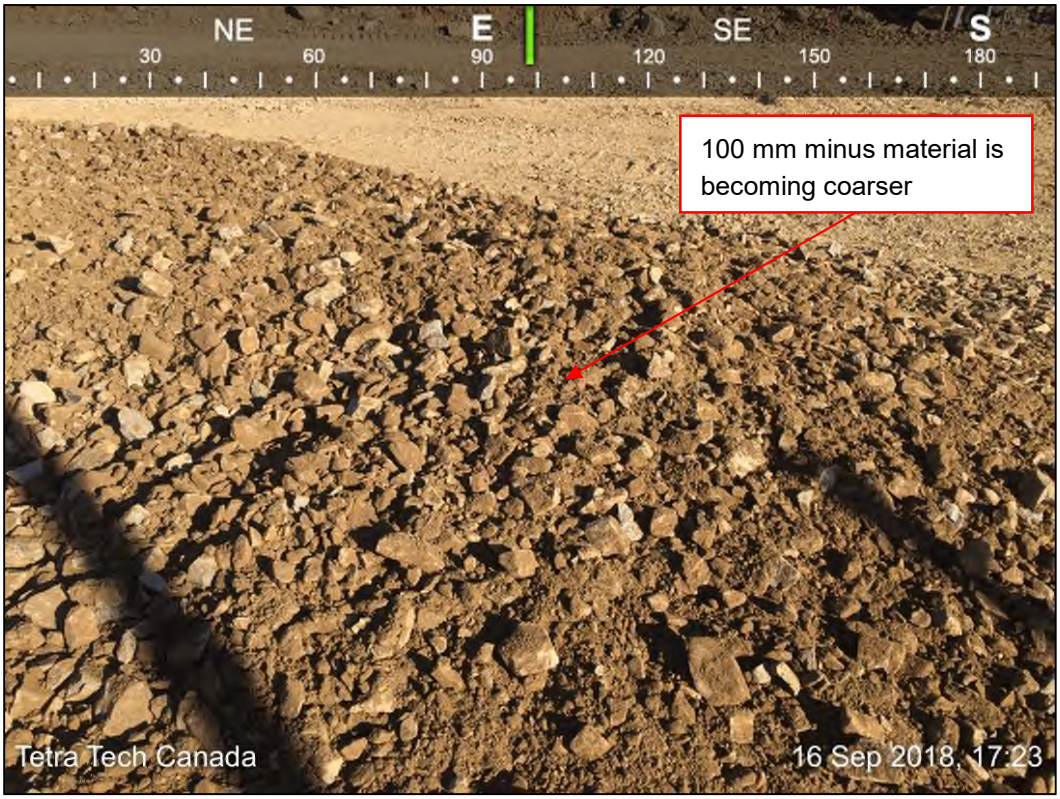


**Photo 15 – Typical gradation of backfill material.**

TETRA TECH

# EARTHWORKS FIELD REPORT

ISSUED FOR REVIEW

| | | | |
|---|---|---|---|
| **To:** | Roman Bilobrowka; Calvin Goldschmidt; Ishan Fechter; Jerry Chrzaszcz; John Purves; Matt Coverdale; D'Arcy Comerford; Adam Chow; Aaron Wagner; Sam Elson; Warren Maki; Esra Akinci; Paul Farrell | | |
| **Cc:** | Chad Cowan; Robert Zschuppe; James Buyck; Reid Seal; John Purves; Chris Copley; Anthony Schoepp; Richard Oswell | **From:** | Mark Estrada |
| **Project:** | Secondary and Tertiary Crushing Stockpile Retaining Wall | **Date:** | September 17, 2018 |
| **Location:** | Eagle Gold Mine, YT | **Weather:** | Clear |
| **Client:** | JDS | | High 14°C |
| **File:** | ENG.WARC03235-05.004 | | Low -3C |

## 1.0 MSE WALL CONSTRUCTION SUMMARY

| Unit ID | Equipment | Work |
|---|---|---|
| - | CAT D6T Dozer | Placing backfill |
| - | CAT 324 Excavator | Placing backfill |
| - | CAT 730 Rock Truck | Hauling backfill to MSE wall |
| - | CAT Skid Steer | Placing backfill |
| - | CAT Skid Steer | Placing backfill |
| - | CAT 740B Rock Truck | Hauling backfill to MSE wall |
| - | CAT 950K Loader | Loading backfill and moving equipment |
| - | CS55 Smooth Drum Compactor | Compacting backfill at the MSE wall |
| - | Plate Tamper | Compacting backfill at the MSE wall |

## 2.0 MECHANICALY STABILIZED EARTH WALL

- Nightshift completed lift #18.
- Nightshift placed materials for lift #19 at the following approximate locations:
    - WWF baskets between stations 0+040 to 0+145.
    - Biaxial geogrids, TPG 100 uniaxial geogrids between stations 0+040 to 0+100.
- Dayshift placed materials for lift #19 at the following approximate locations:
    - Biaxial geogrid and TPG 100 uniaxial geogrid between stations 0+110 to 0+145.
    - First layer of backfill, support struts, face rock material, and geotextile between stations 0+040 to 0+145.
- Reinforced backfill was compacted on lift #19 using a smooth drum compactor and plate tamper with four passes, to meet method specification.

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61 Wasson Place
Whitehorse YT, Y1A 0H7 CANADA
Tel 867.668.3068 Fax 867.668.4349

## 3.0 DISCUSSION/OTHER

- N/A

## 4.0 CLOSURE

We trust that the information provided herein is accurate and complete. Please contact the undersigned if you require additional information or have any concerns.

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Direct +1 (587) 460-3562

James Buyck
Senior Geotechnical Technician
Tetra Tech Canada Inc.
James.Buyck@tetratech.com
Mobile +1 (250) 668-0472




**Photo 1 – View of MSE wall face.**

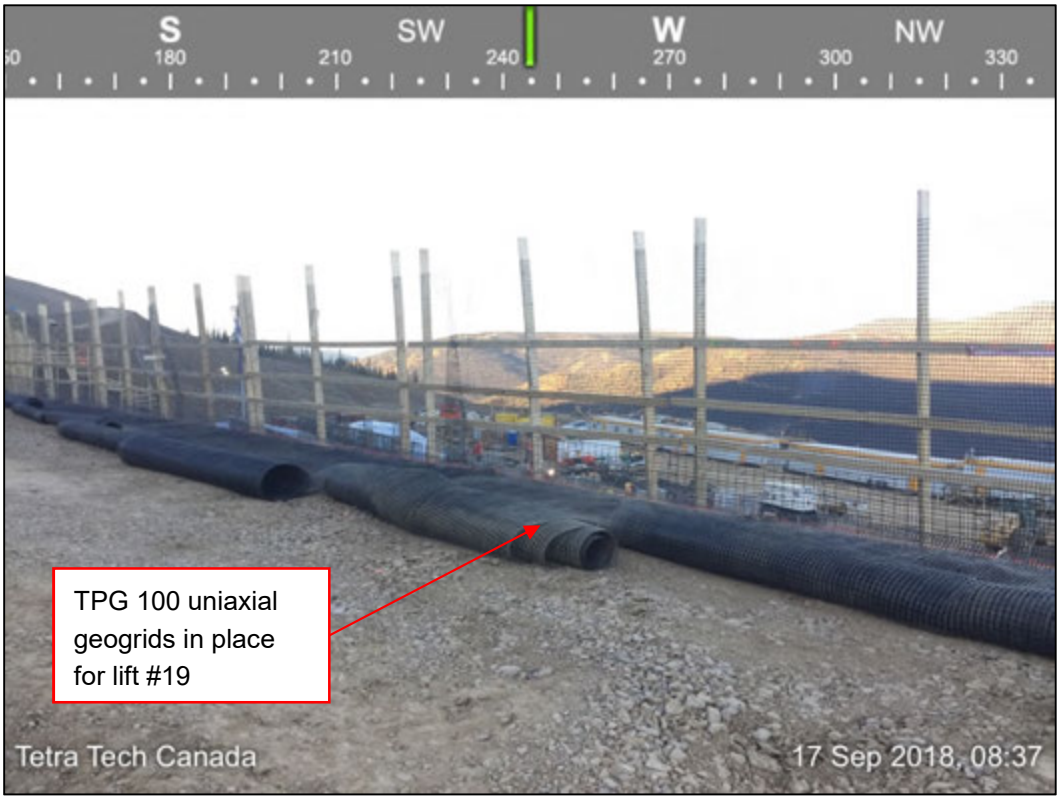


**Photo 2 – Approximate view of stations 0+040 to 0+070.**




**Photo 3 - Approximate view of stations 0+070 to 0+140.**




**Photo 4 - Approximate view of stations 0+110 to 0+140.**




**Photo 5 - Approximate view of stations 0+140 to 0+145.**




**Photo 6 – View of MSE wall face.**




**Photo 7 – Approximate view of stations 0+040 to 0+070.**




**Photo 8 - Approximate view of stations 0+070 to 0+140.**

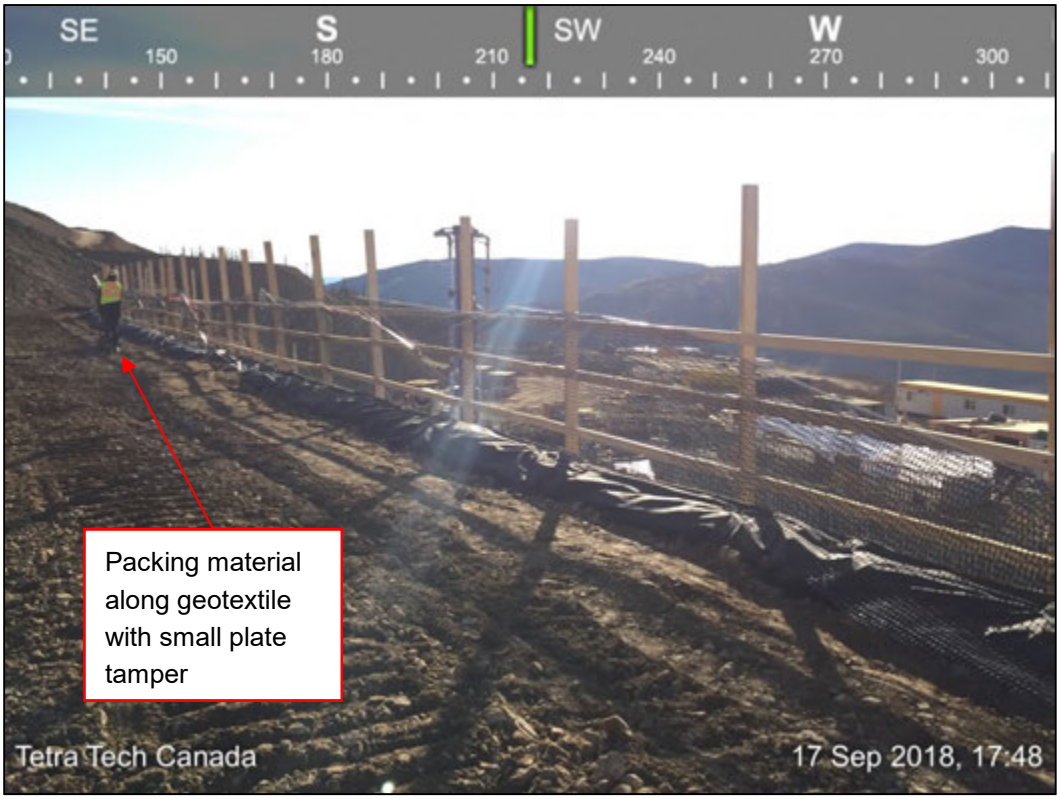


**Photo 9 - Approximate view of stations 0+110 to 0+140.**




**Photo 10 - Approximate view of stations 0+140 to 0+145.**

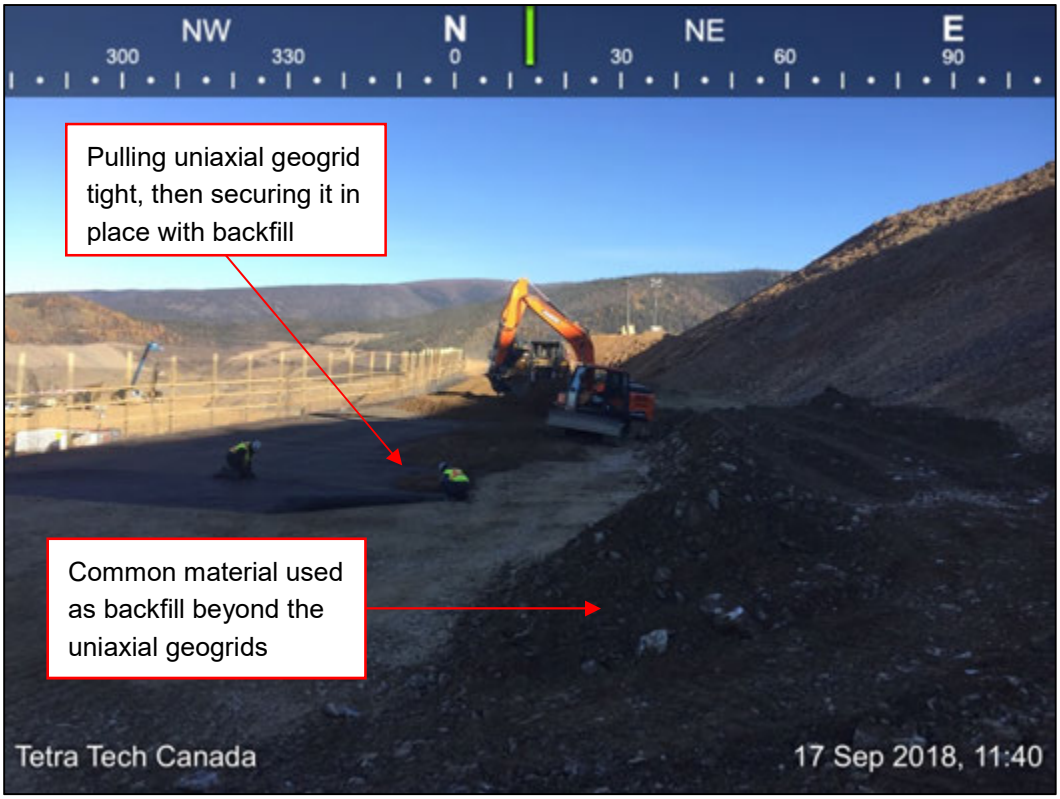


**Photo 11 – View of MSE pad.**




**Photo 12 – View of MSE pad.**




**Photo 13 – Compaction of the first layer of reinforced backfill.**




**Photo 14 – Proof-rolling first layer of reinforced backfill.**




**Photo 15 – Approximate view of station 0+145.**

TETRA TECH

# EARTHWORKS FIELD REPORT

ISSUED FOR REVIEW

| | | | |
|---|---|---|---|
| **To:** | Roman Bilobrowka; Calvin Goldschmidt; Ishan Fechter; Jerry Chrzaszcz; John Purves; Matt Coverdale; D'Arcy Comerford; Adam Chow; Aaron Wagner; Sam Elson; Warren Maki; Esra Akinci; Paul Farrell | | |
| **Cc:** | Chad Cowan; Robert Zschuppe; James Buyck; Reid Seal; John Purves; Chris Copley; Anthony Schoepp; Richard Oswell | **From:** | Mark Estrada |
| **Project:** | Secondary and Tertiary Crushing Stockpile Retaining Wall | **Date:** | September 18, 2018 |
| **Location:** | Eagle Gold Mine, YT | **Weather:** | Clear |
| **Client:** | JDS | | High 14°C |
| **File:** | ENG.WARC03235-05.004 | | Low -4°C |

## 1.0 MSE WALL CONSTRUCTION SUMMARY

| Equipment | Work |
|---|---|
| CAT D6T Dozer | Placing backfill |
| CAT 324 Excavator | Placing backfill |
| CAT 730 Rock Truck | Hauling backfill to MSE wall |
| CAT Skid Steer | Placing backfill |
| CAT Skid Steer | Placing backfill |
| CAT 740B Rock Truck | Hauling backfill to MSE wall |
| CAT 950K Loader | Loading backfill and moving equipment |
| CS55 Smooth Drum Compactor | Compacting backfill at the MSE wall |
| Plate Tamper | Compacting backfill at the MSE wall |

## 2.0 MECHANICALY STABILIZED EARTH WALL

- Nightshift placed materials for lift #20 at the following approximate locations:
    - WWF baskets, biaxial geogrids, TPG 100 uniaxial geogrids, first layer of backfill, support struts, face rock material, geotextile, and drain rock between stations 0+040 to 0+145.
- Dayshift completed #20.
- Dayshift placed materials for lift #21 at the following approximate locations:
    - WWF baskets and biaxial geogrid between stations 0+040 to 0+145.
    - TPG 100 uniaxial geogrids and support struts between stations 0+040 to 0+100.
- Reinforced backfill was compacted on lift #21 using a smooth drum compactor and plate tamper with four passes, to meet method specification.

Tetra Tech Canada Inc.
61 Wasson Place
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Tel 867.668.3068 Fax 867.668.4349

## 3.0 DISCUSSION/OTHER

- N/A

## 4.0 CLOSURE

We trust that the information provided herein is accurate and complete. Please contact the undersigned if you require additional information or have any concerns.

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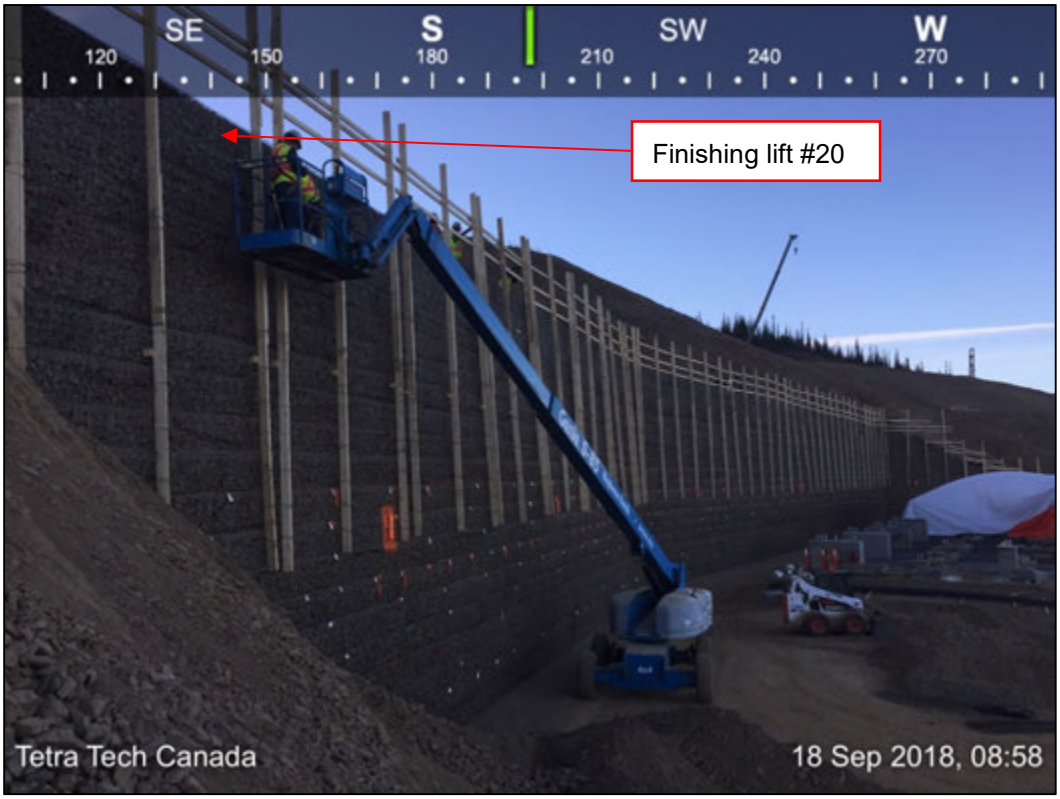


**Photo 1 – View of MSE wall face.**




**Photo 2 – Approximate view of stations 0+040 to 0+070.**

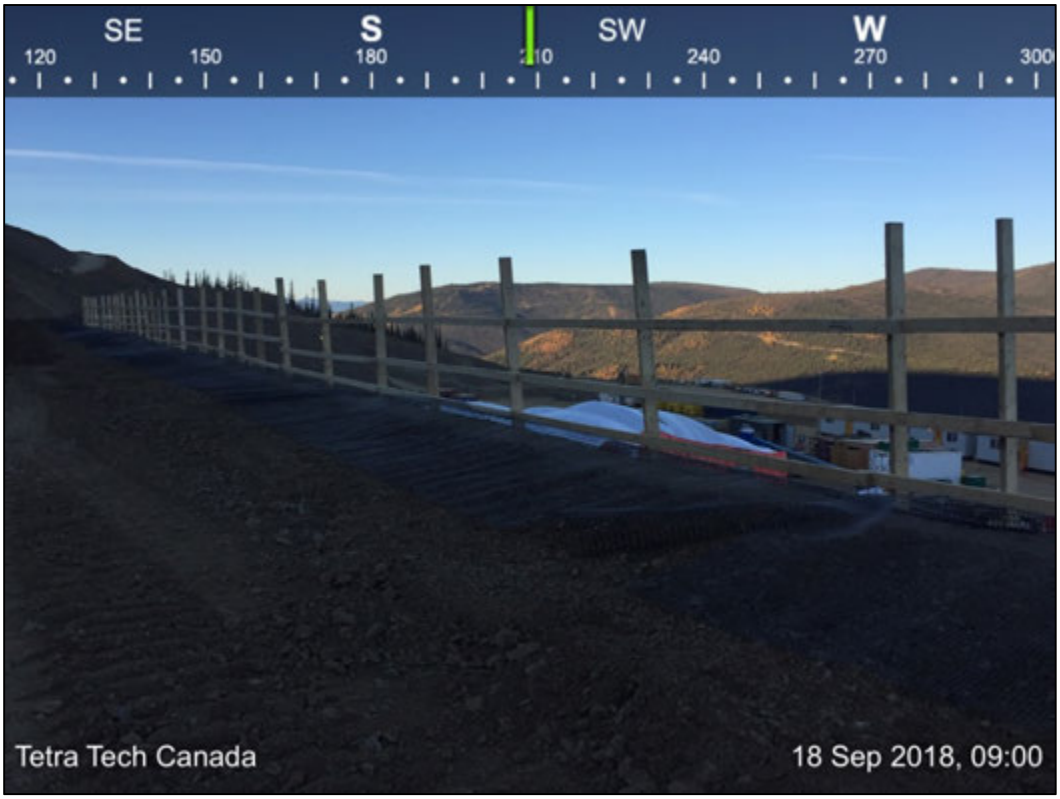


**Photo 3 - Approximate view of stations 0+070 to 0+140.**




**Photo 4 - Approximate view of stations 0+110 to 0+140.**




**Photo 5 - Approximate view of stations 0+140 to 0+145.**




**Photo 6 – View of MSE wall face.**




**Photo 7 – Approximate view of stations 0+040 to 0+070.**




**Photo 8 - Approximate view of stations 0+070 to 0+140.**




**Photo 9 - Approximate view of stations 0+110 to 0+140.**

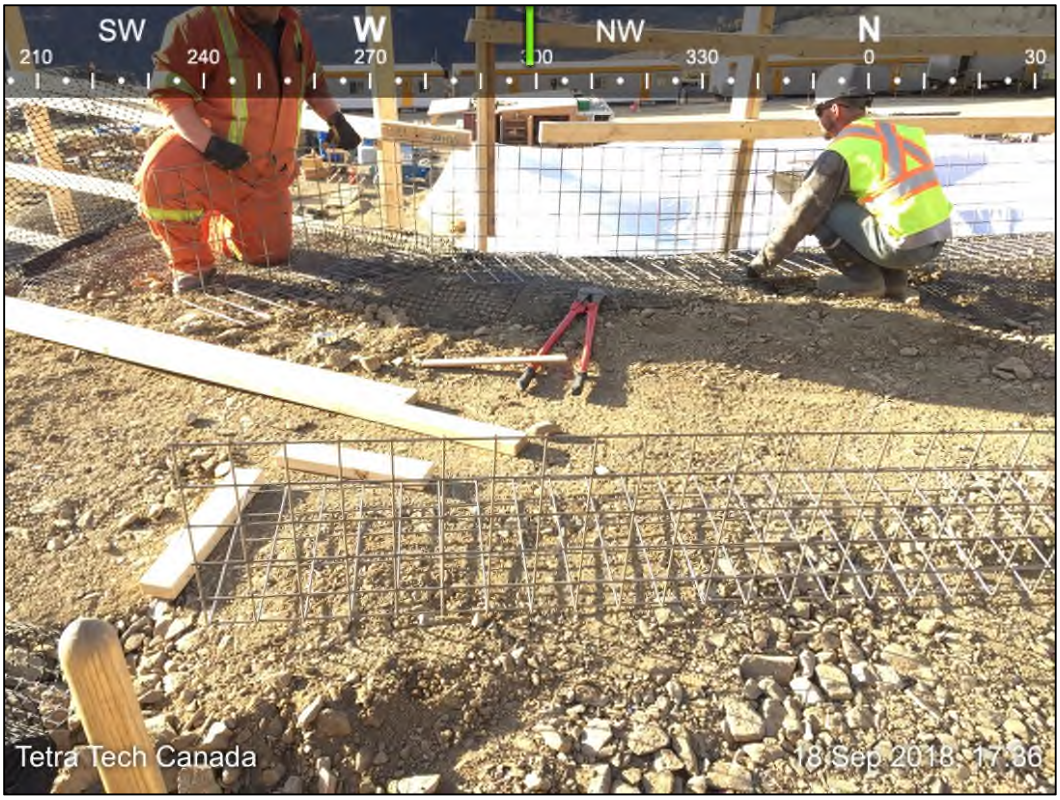


**Photo 10 - Approximate view of stations 0+140 to 0+145.**




**Photo 11 – Compaction of the second layer of reinforced backfill.**

TETRA TECH

# EARTHWORKS FIELD REPORT

ISSUED FOR REVIEW

| | | | |
|---|---|---|---|
| **To:** | Roman Bilobrowka; Calvin Goldschmidt; Ishan Fechter; Jerry Chrzaszcz; John Purves; Matt Coverdale; D'Arcy Comerford; Adam Chow; Aaron Wagner; Sam Elson; Warren Maki; Esra Akinci; Paul Farrell | | |
| **Cc:** | Chad Cowan; Robert Zschuppe; James Buyck; Reid Seal; John Purves; Chris Copley; Anthony Schoepp; Richard Oswell | **From:** | Mark Estrada |
| **Project:** | Secondary and Tertiary Crushing Stockpile Retaining Wall | **Date:** | September 19, 2018 |
| **Location:** | Eagle Gold Mine, YT | **Weather:** | Clear |
| **Client:** | JDS | | High 12°C |
| **File:** | ENG.WARC03235-05.004 | | Low -6°C |

## 1.0 MSE WALL CONSTRUCTION SUMMARY

| Equipment | Work |
|---|---|
| CAT D6T Dozer | Placing backfill |
| CAT 324 Excavator | Placing backfill |
| CAT 730 Rock Truck | Hauling backfill to MSE wall |
| CAT Skid Steer | Placing backfill |
| CAT Skid Steer | Placing backfill |
| CAT 740B Rock Truck | Hauling backfill to MSE wall |
| CAT 950K Loader | Loading backfill and moving equipment |
| CS55 Smooth Drum Compactor | Compacting backfill at the MSE wall |
| Plate Tamper | Compacting backfill at the MSE wall |

## 2.0 MECHANICALY STABILIZED EARTH WALL

- Nightshift completed lift #21.
- Dayshift placed materials for lift #22 at the following approximate locations:
    - WWF baskets, biaxial geogrids, TPG 100 uniaxial geogrids, first layer of backfill, support struts, and face rock material between stations 0+040 to 0+140.
- Witnessed the compaction of the first layer of reinforced backfill on lift #22 using a smooth drum compactor and plate tamper with four passes, to meet method specification.

## 3.0 DISCUSSION/OTHER

- Tetra Tech on site for periodic spot checks only.

Tetra Tech Canada Inc.
61 Wasson Place
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# 4.0 CLOSURE

We trust that the information provided herein is accurate and complete. Please contact the undersigned if you require additional information or have any concerns.

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**Photo 1 – Approximate view of station 0+040.**




**Photo 2 – Approximate view of stations 0+040 to 0+070.**




**Photo 3 - Approximate view of stations 0+070 to 0+140.**




**Photo 4 - Approximate view of stations 0+110 to 0+140.**




**Photo 5 - Approximate view of station 0+140.**




**Photo 6 – Approximate view of station 0+040.**




**Photo 7 – Approximate view of stations 0+040 to 0+070.**

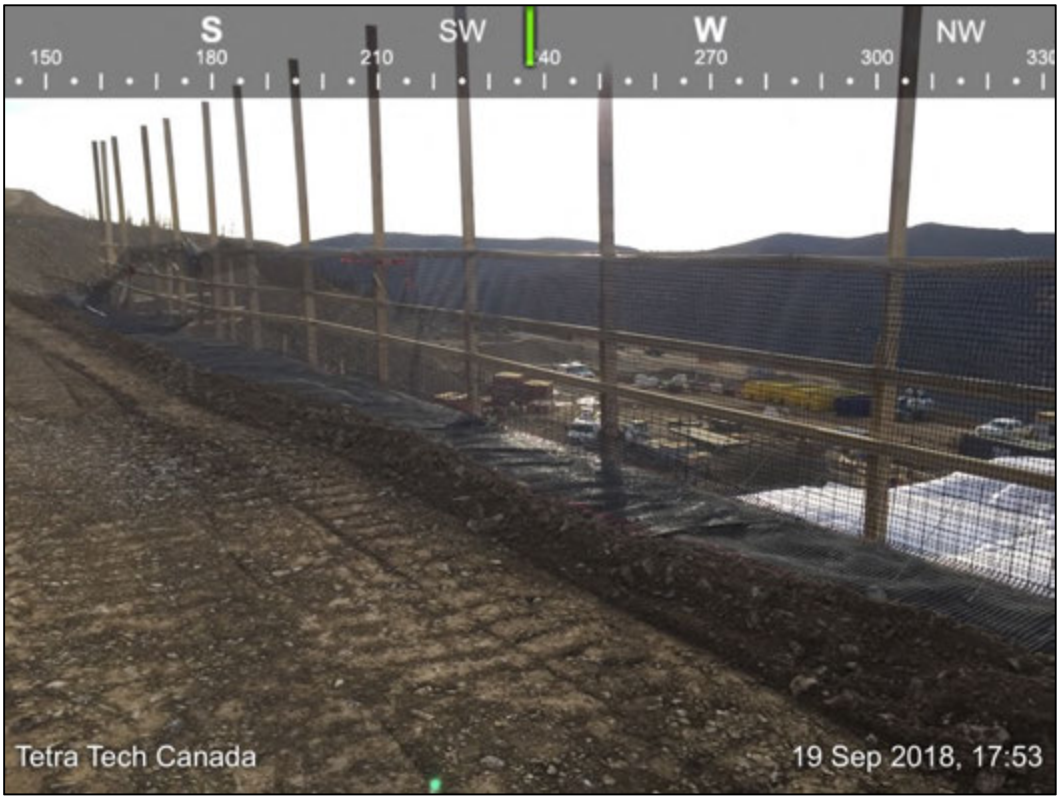


**Photo 8 - Approximate view of stations 0+070 to 0+140.**




**Photo 9 - Approximate view of stations 0+110 to 0+140.**




**Photo 10 - Typical gradation of material from Retained Fill stockpile.**

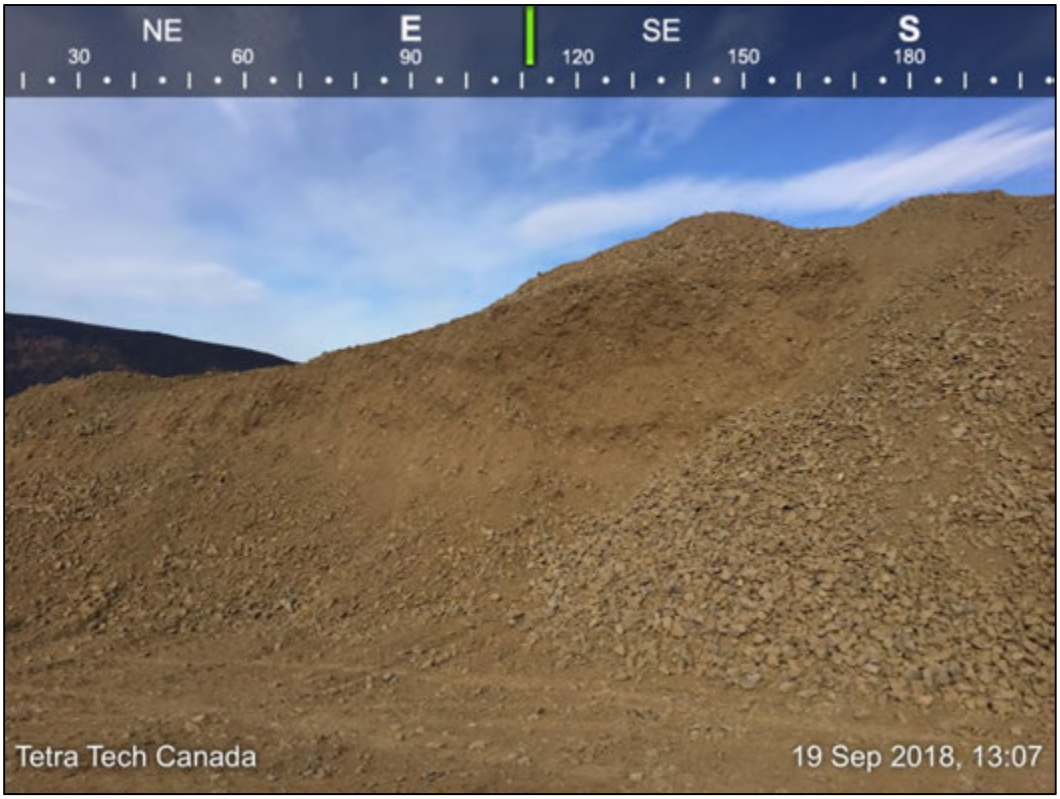


**Photo 11 – View of 100 mm Minus NFS Structural Fill stockpile near MSE site.**




**Photo 12 – Approximate view of station 0+140.**




**Photo 13 – Approximate view of station 0+100.**




**Photo 14 – View of the Retained Fill stockpile beside the MSE wall.**

TETRA TECH

# EARTHWORKS FIELD REPORT

ISSUED FOR REVIEW

| | | | |
|---|---|---|---|
| **To:** | Roman Bilobrowka; Calvin Goldschmidt; Ishan Fechter; Jerry Chrzaszcz; John Purves; Matt Coverdale; D'Arcy Comerford; Adam Chow; Aaron Wagner; Sam Elson; Warren Maki; Esra Akinci; Paul Farrell | | |
| **Cc:** | Chad Cowan; Robert Zschuppe; James Buyck; Reid Seal; John Purves; Chris Copley; Anthony Schoepp; Richard Oswell | **From:** | Mark Estrada |
| **Project:** | Secondary and Tertiary Crushing Stockpile Retaining Wall | **Date:** | September 20, 2018 |
| **Location:** | Eagle Gold Mine, YT | **Weather:** | Clear |
| **Client:** | JDS | | High 11°C |
| **File:** | ENG.WARC03235-05.004 | | Low -5°C |

## 1.0 MSE WALL CONSTRUCTION SUMMARY

| Equipment | Work |
|---|---|
| CAT D6T Dozer | Placing backfill |
| CAT 324 Excavator | Placing backfill |
| CAT 730 Rock Truck | Hauling backfill to MSE wall |
| CAT Skid Steer | Placing backfill |
| CAT Skid Steer | Placing backfill |
| CAT 740B Rock Truck | Hauling backfill to MSE wall |
| CAT 950K Loader | Loading backfill and moving equipment |
| CS55 Smooth Drum Compactor | Compacting backfill at the MSE wall |
| Plate Tamper | Compacting backfill at the MSE wall |

## 2.0 MECHANICALY STABILIZED EARTH WALL

- Nightshift completed lift #22.
- Nightshift placed materials for lift #23 at the following approximate locations:
    - WWF baskets, biaxial geogrids, TPG 100 uniaxial geogrids, and support struts between stations 0+040 to 0+140.
- Dayshift placed materials for lift #23 at the following approximate locations:
    - First layer of backfill between stations 0+040 to 0+140.

## 3.0 DISCUSSION/OTHER

- Tetra Tech on site for periodic spot checks only.
- Shift change today. Dayshift workers left site at 15:00. Dayshift cross shift crew starts tomorrow.

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61 Wasson Place
Whitehorse YT, Y1A 0H7 CANADA
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- The offset distances of corner WWF baskets at station 0+040 between lifts #20 and #22, and #22 and #23 does not comply with the drawings supplied by Tensar. The offset distance measured in the field between #20 and #22 was 1.9 m, when it is supposed to be 1.67 m. The offset distance measured in the field between #22 and #23 was 0.6 m, when it is supposed to be 1.11 m.

# 4.0 CLOSURE

We trust that the information provided herein is accurate and complete. Please contact the undersigned if you require additional information or have any concerns.

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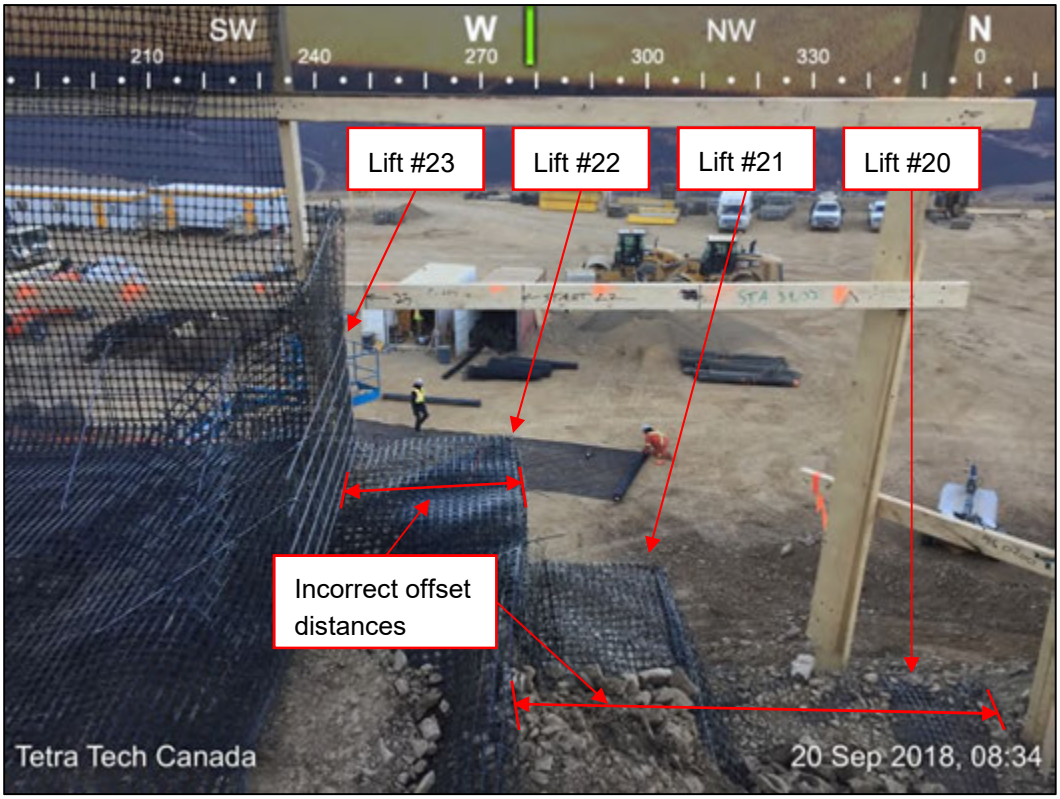


**Photo 1 – Approximate view of station 0+040.**

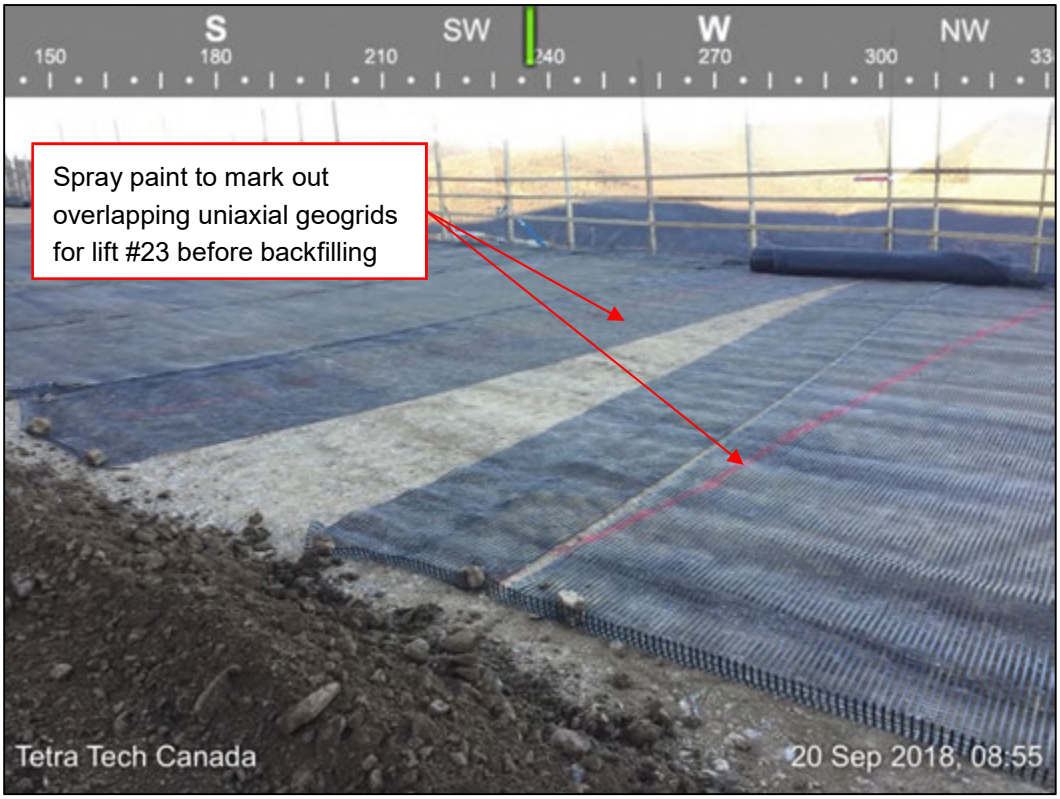


**Photo 2 – Approximate view of station 0+070.**

TETRA TECH

# EARTHWORKS FIELD REPORT

ISSUED FOR REVIEW

| | | | |
|---|---|---|---|
| **To:** | Roman Bilobrowka; Calvin Goldschmidt; Ishan Fechter; Jerry Chrzaszcz; John Purves; Matt Coverdale; D'Arcy Comerford; Adam Chow; Aaron Wagner; Sam Elson; Warren Maki; Esra Akinci; Paul Farrell | | |
| **Cc:** | Chad Cowan; Robert Zschuppe; James Buyck; Reid Seal; John Purves; Chris Copley; Anthony Schoepp; Richard Oswell | **From:** | Mark Estrada |
| **Project:** | Secondary and Tertiary Crushing Stockpile Retaining Wall | **Date:** | September 21, 2018 |
| **Location:** | Eagle Gold Mine, YT | **Weather:** | Clear |
| **Client:** | JDS | | High 12°C |
| **File:** | ENG.WARC03235-05.004 | | Low -2°C |

## 1.0 MSE WALL CONSTRUCTION SUMMARY

| Equipment | Work |
|---|---|
| CAT D6T Dozer | Placing backfill |
| CAT 324 Excavator | Placing backfill |
| CAT 730 Rock Truck | Hauling backfill to MSE wall |
| CAT Skid Steer | Placing backfill |
| CAT Skid Steer | Placing backfill |
| CAT 740B Rock Truck | Hauling backfill to MSE wall |
| CAT 950K Loader | Loading backfill and moving equipment |
| CS55 Smooth Drum Compactor | Compacting backfill at the MSE wall |
| Plate Tamper | Compacting backfill at the MSE wall |

## 2.0 MECHANICALY STABILIZED EARTH WALL

- Nightshift completed lift #23.
- Nightshift placed materials for lift #24 at the following approximate locations:
    - WWF baskets, biaxial geogrids, TPG 100 uniaxial geogrids, and support struts between stations 0+040 to 0+140.
- Dayshift placed materials for lift #24 at the following approximate locations:
    - First layer of backfill on TPG 100 uniaxial geogrids between stations 0+080 to 0+140.
    - Face rock material, geotextile, drain rock, and the second layer of backfill on top of the TPG 100 uniaxial geogrids between stations 0+040 to 0+140.

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61 Wasson Place
Whitehorse YT, Y1A 0H7 CANADA
Tel 867.668.3068 Fax 867.668.4349

## 3.0 DISCUSSION/OTHER

- Tetra Tech on site for periodic spot checks only on dayshift. No Tetra Tech nightshift QC.
- Significant deflection (15 – 30 mm) was observed when a loaded rock truck drove on the retained fill material placed on the MSE pad approximately between stations 0+040 to 0+120. The contractor was notified. The material was observed to have excessive moisture and a trace of organic material. It was recommended to the contractor to remove the unsuitable material until competent material is exposed. After cutting 1 m of unsuitable retain fill material with the dozer, the area was compacted with the CS55 Smooth Drum Compactor and a proof-roll test was conducted using a loaded rock truck. Severe depth of rutting (greater than 30 mm) was observed. It was recommended to the contractor to dig a test pit with an excavator to determine how thick the the layer of unsuitable retain fill is.

## 4.0 CLOSURE

We trust that the information provided herein is accurate and complete. Please contact the undersigned if you require additional information or have any concerns.

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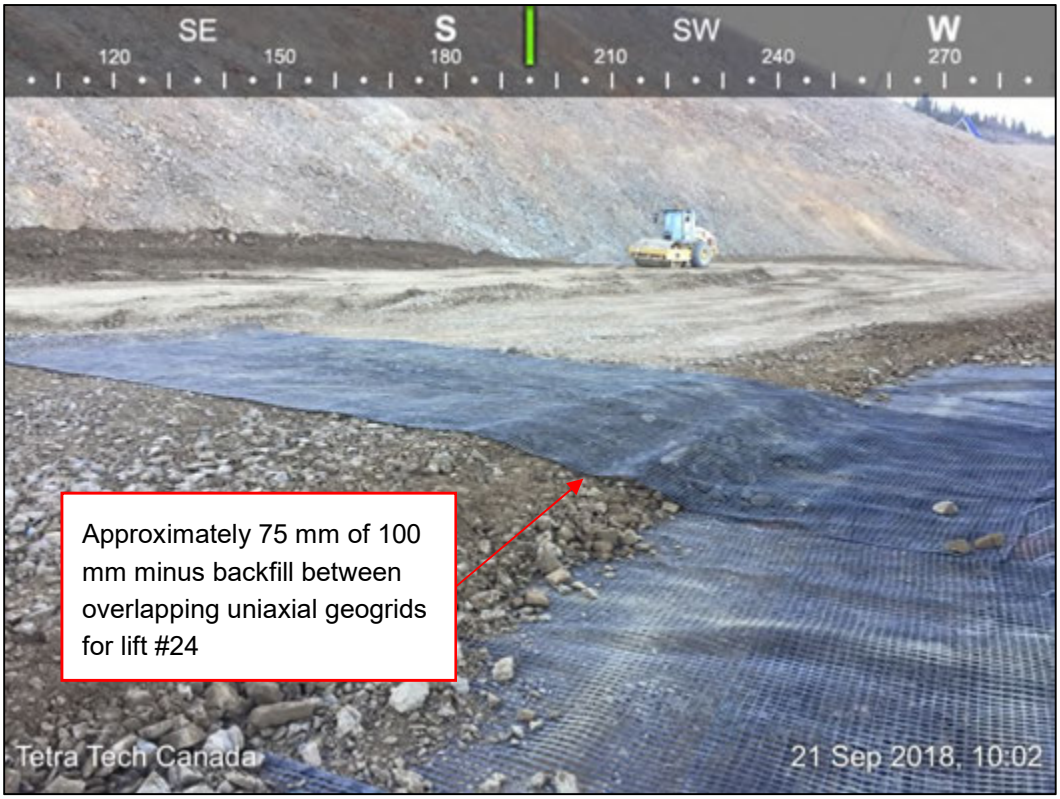


**Photo 1 – Approximate view of station 0+070.**




**Photo 2 – View of the Retained Fill borrow source near MSE wall.**




**Photo 3 – View of the Retained Fill borrow source area near MSE wall.**




**Photo 4 – Approximate view of stations 0+040 to 0+050.**

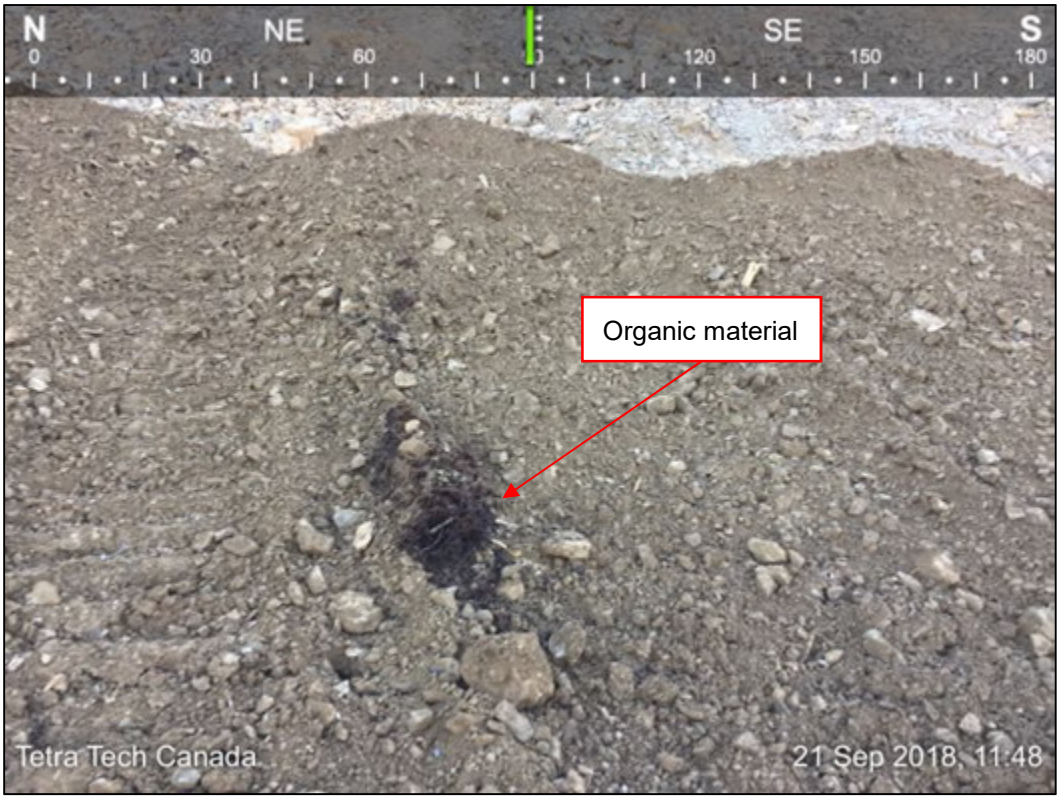


**Photo 5 – Close-up view of removed unsuitable retain fill material on MSE pad.**

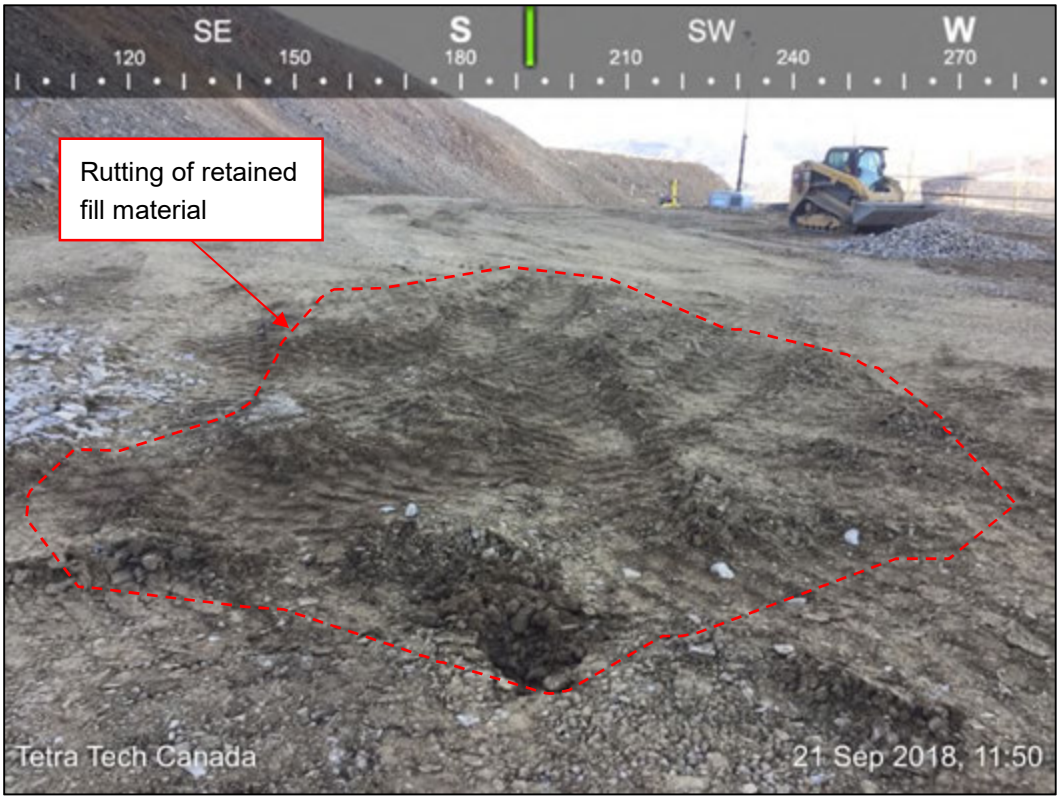


**Photo 6 – Approximate view of stations 0+100 to 0+140.**

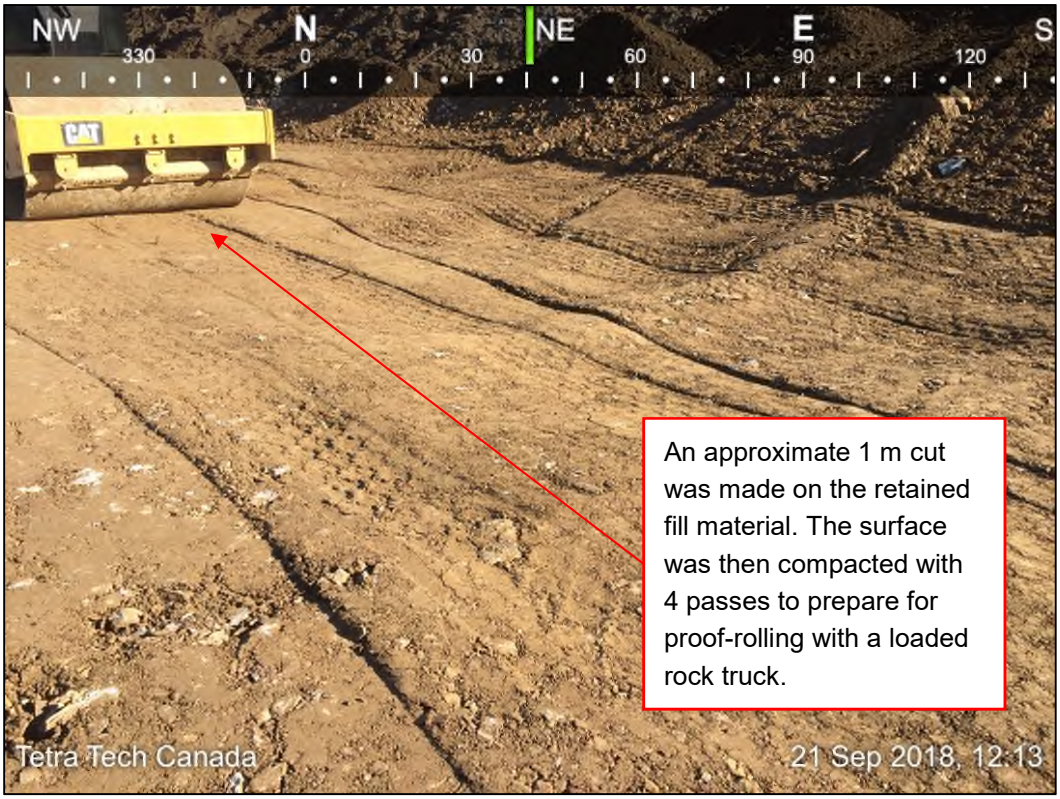


**Photo 7 – Approximate view of stations 0+050 to 0+060.**




**Photo 8 – Photo taken after proof-roll with rock truck. Approximate view of stations 0+050 to 0+140.**

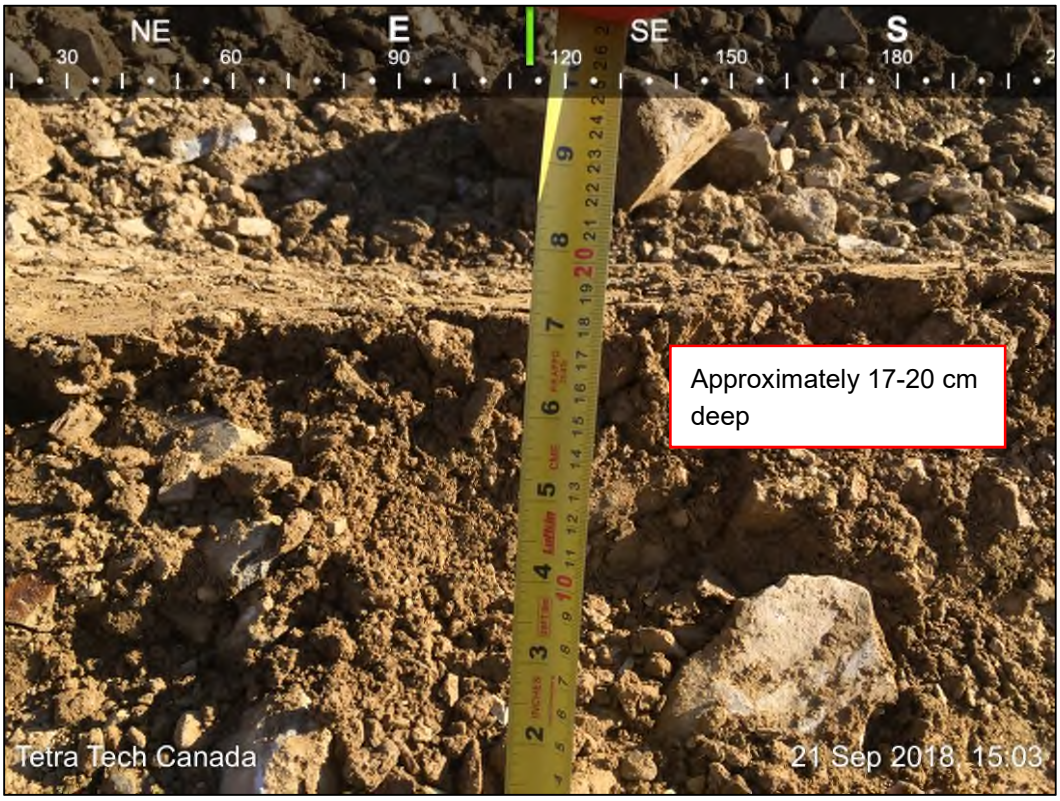


**Photo 9 – Depth of rutting from rock truck tires.**

TETRA TECH

# EARTHWORKS FIELD REPORT

ISSUED FOR REVIEW

| | | | |
|---|---|---|---|
| **To:** | Roman Bilobrowka; Calvin Goldschmidt; Ishan Fechter; Jerry Chrzaszcz; John Purves; Matt Coverdale; D'Arcy Comerford; Adam Chow; Aaron Wagner; Sam Elson; Warren Maki; Esra Akinci; Paul Farrell | | |
| **Cc:** | Chad Cowan; Robert Zschuppe; James Buyck; Reid Seal; John Purves; Chris Copley; Anthony Schoepp; Richard Oswell | **From:** | Mark Estrada |
| **Project:** | Secondary and Tertiary Crushing Stockpile Retaining Wall | **Date:** | September 22, 2018 |
| **Location:** | Eagle Gold Mine, YT | **Weather:** | Cloudy |
| **Client:** | JDS | | High 11°C |
| **File:** | ENG.WARC03235-05.004 | | Low -2°C |

## 1.0 MSE WALL CONSTRUCTION SUMMARY

| Equipment | Work |
|---|---|
| CAT D6T Dozer | Placing backfill |
| CAT 324 Excavator | Placing backfill |
| CAT 730 Rock Truck | Hauling backfill to MSE wall |
| CAT Skid Steer | Placing backfill |
| CAT Skid Steer | Placing backfill |
| CAT 740B Rock Truck | Hauling backfill to MSE wall |
| CAT 950K Loader | Loading backfill and moving equipment |
| CS55 Smooth Drum Compactor | Compacting backfill at the MSE wall |
| Plate Tamper | Compacting backfill at the MSE wall |

## 2.0 MECHANICALY STABILIZED EARTH WALL

- Dayshift completed lift #25.
- Dayshift placed materials for lift #26 at the following approximate locations:
    - WWF baskets, biaxial geogrid, and support struts between stations 0+040 to 0+140.
    - TPG 100 uniaxial geogrid, and the first layer of reinforced backfill between stations 0+040 to 0+130.
    - Face rock material, and geotextile between stations 0+040 to 0+110.
    - Drain rock between stations 0+040 to 0+070.
- Witnessed the first layer of reinforced backfill on lift #26 between stations 0+040 to 0+100 being compacted using a smooth drum compactor and plate tamper with four passes, to meet method specification.

Tetra Tech Canada Inc.
61 Wasson Place
Whitehorse YT, Y1A 0H7 CANADA
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## 3.0 DISCUSSION/OTHER

- Tetra Tech on site for periodic spot checks only on dayshift. No Tetra Tech nightshift QC.
- Observed moderate (5 – 15 mm) rutting of 100 mm Minus NFS Structural Fill material on lift #25 on the retain fill side from a loaded haul truck.

## 4.0 CLOSURE

We trust that the information provided herein is accurate and complete. Please contact the undersigned if you require additional information or have any concerns.

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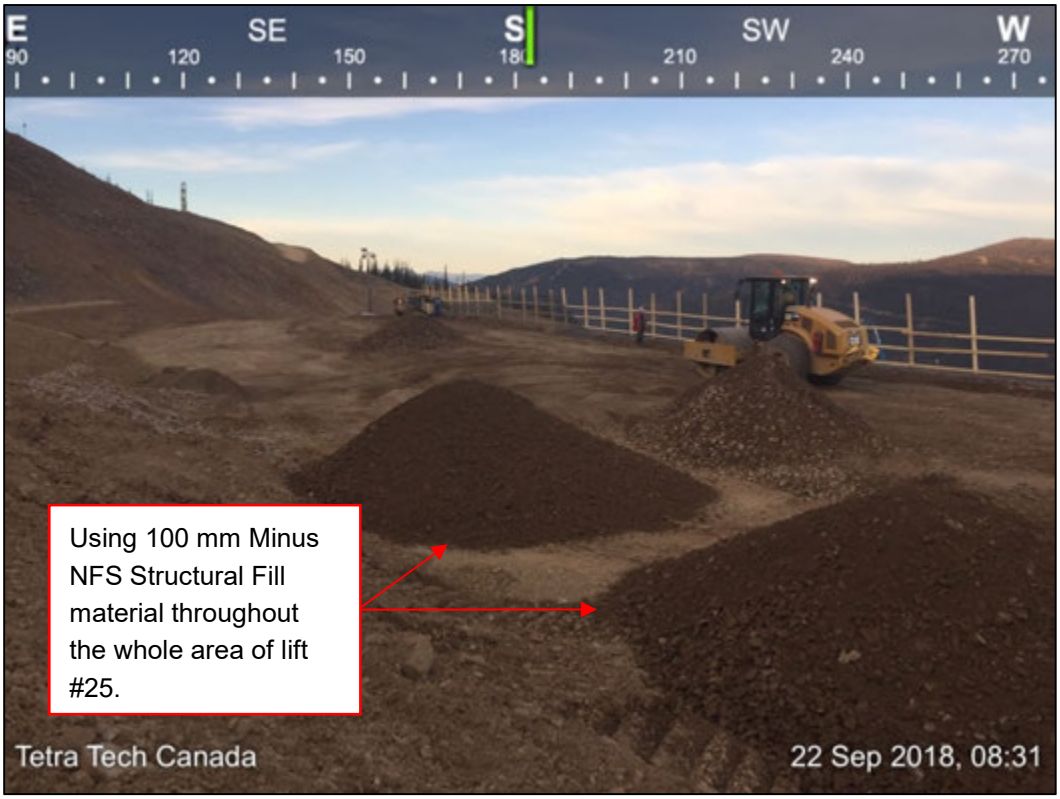


**Photo 1 – Approximate view of stations 0+070 to 0+140.**




**Photo 2 – Typical gradation of 100 Minus NFS Structural Fill material.**

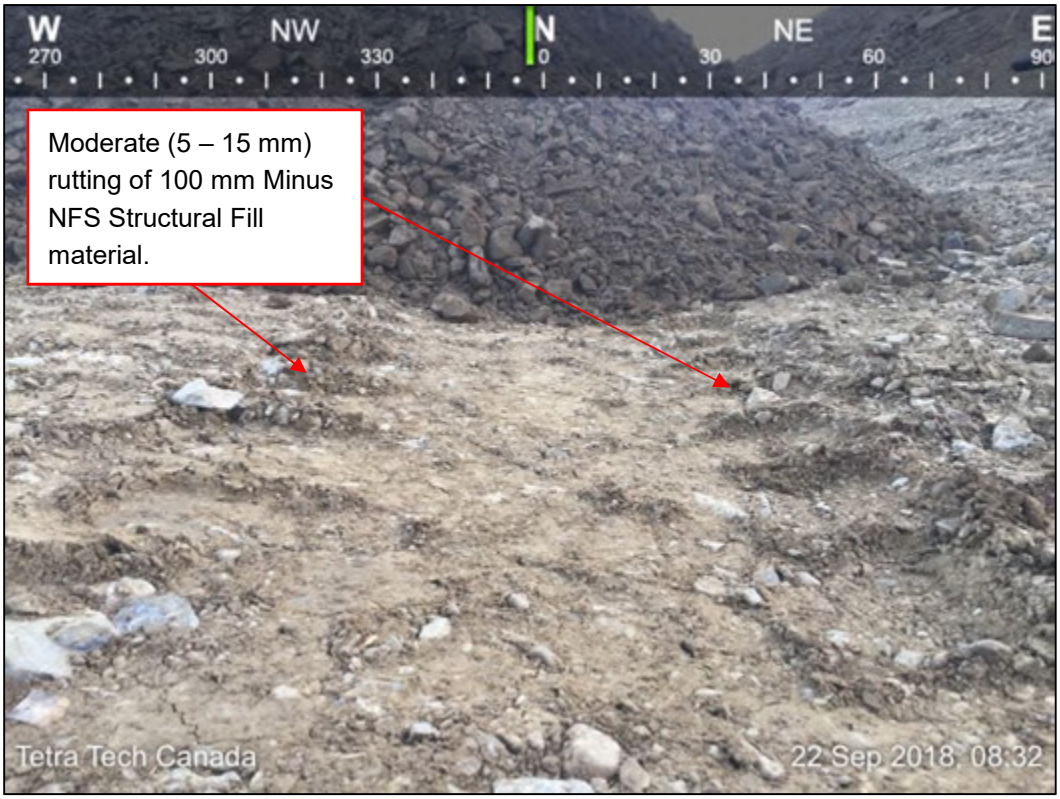


**Photo 3 – Rutting from rock truck tires. Approximate view of station 0+070 on the retain fill side.**




**Photo 4 – Compaction of first layer on lift #26 between stations 0+040 to 0+100.**

TETRA TECH

# EARTHWORKS FIELD REPORT

ISSUED FOR REVIEW

| | | | |
|---|---|---|---|
| **To:** | Roman Bilobrowka; Calvin Goldschmidt; Ishan Fechter; Jerry Chrzaszcz; John Purves; Matt Coverdale; D'Arcy Comerford; Adam Chow; Aaron Wagner; Sam Elson; Warren Maki; Esra Akinci; Paul Farrell | | |
| **Cc:** | Chad Cowan; Robert Zschuppe; James Buyck; Reid Seal; John Purves; Chris Copley; Anthony Schoepp; Richard Oswell | **From:** | Mark Estrada |
| **Project:** | Secondary and Tertiary Crushing Stockpile Retaining Wall | **Date:** | September 23, 2018 |
| **Location:** | Eagle Gold Mine, YT | **Weather:** | Mostly Cloudy |
| **Client:** | JDS | | High 12°C |
| **File:** | ENG.WARC03235-05.004 | | Low -2°C |

## 1.0 MSE WALL CONSTRUCTION SUMMARY

| Equipment | Work |
|---|---|
| CAT D6T Dozer | Placing backfill |
| CAT 324 Excavator | Placing backfill |
| CAT 730 Rock Truck | Hauling backfill to MSE wall |
| CAT Skid Steer | Placing backfill |
| CAT Skid Steer | Placing backfill |
| CAT 740B Rock Truck | Hauling backfill to MSE wall |
| CAT 950K Loader | Loading backfill and moving equipment |
| CS55 Smooth Drum Compactor | Compacting backfill at the MSE wall |
| Plate Tamper | Compacting backfill at the MSE wall |

## 2.0 MECHANICALY STABILIZED EARTH WALL

- Dayshift placed materials for lift #27 at the following approximate locations:
    - TPG 100D uniaxial geogrid between stations 0+040 to 0+070.
    - TPG 100 uniaxial geogrid between stations 0+070 to 0+140.
    - First layer of backfill and support struts between stations 0+080 to 0+140.
    - Face rock material between stations 0+060 to 0+140.
    - Geotextile, drain rock, and the second layer of backfill between stations 0+040 to 0+140.
- Dayshift placed materials for lift #28 at the following approximate locations:
    - WWF baskets, biaxial geogrids, and support struts between stations 0+040 to 0+50.
- Witnessed the first layer of reinforced backfill on lift #27 between stations 0+070 to 0+100 being compacted using a smooth drum compactor and plate tamper with four passes, to meet method specification.

Tetra Tech Canada Inc.
61 Wasson Place
Whitehorse YT, Y1A 0H7 CANADA
Tel 867.668.3068 Fax 867.668.4349

## 3.0 DISCUSSION/OTHER

- Tetra Tech on site for periodic spot checks only on dayshift. No Tetra Tech nightshift QC.
- Contractor ran out of TPG 100D uniaxial geogrids on lift #27. TPG 100 uniaxial geogrids were used to finish the remainder of lift #27, and are planning on being used for the next lifts.
- 20 mm drain rock material has an increased amount of fines particles.

## 4.0 CLOSURE

We trust that the information provided herein is accurate and complete. Please contact the undersigned if you require additional information or have any concerns.

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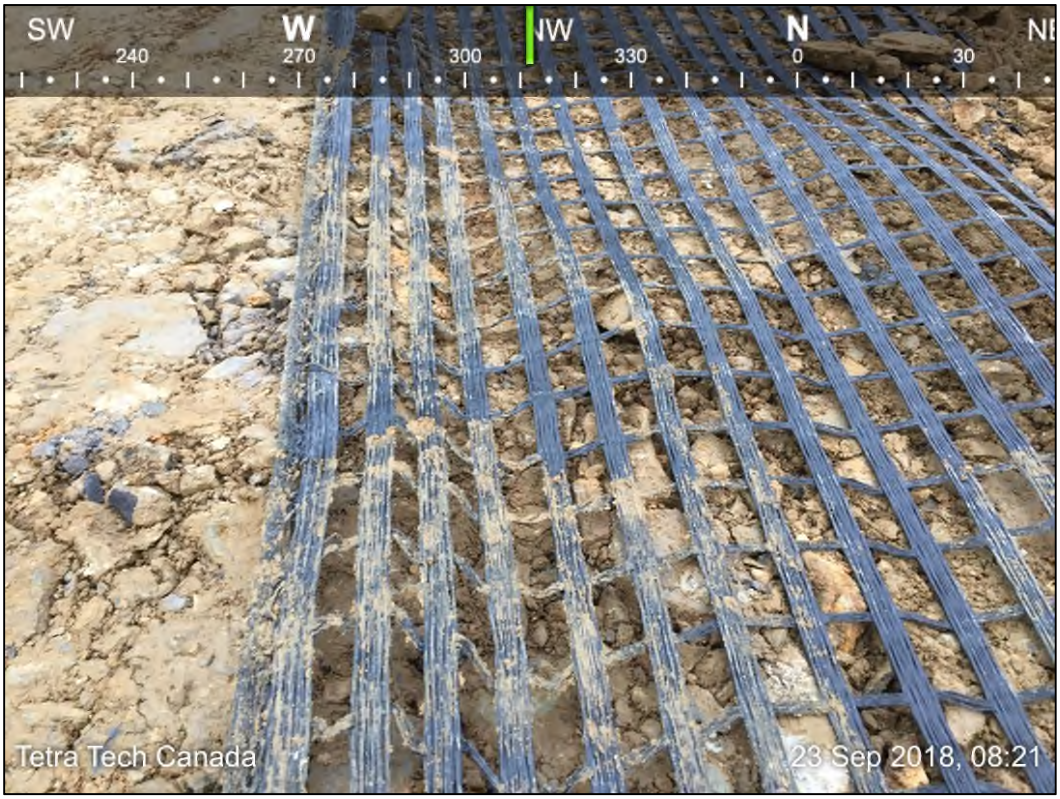


**Photo 1 – View of the TPG 100D uniaxial geogrid.**

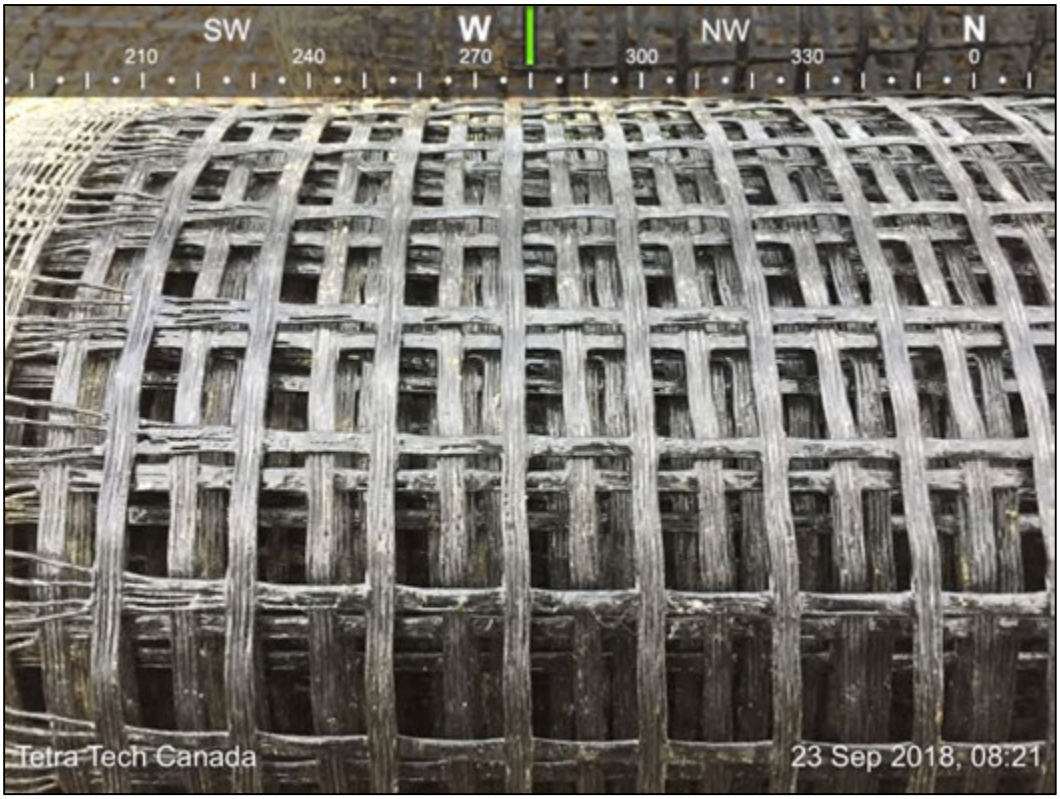


**Photo 2 – View of the TPG 100 uniaxial geogrid.**




**Photo 3 – View of the 100 mm Minus NFS Structural Fill Stockpile.**




**Photo 4 – Compaction of first layer on lift #27 between stations 0+070 to 0+100.**

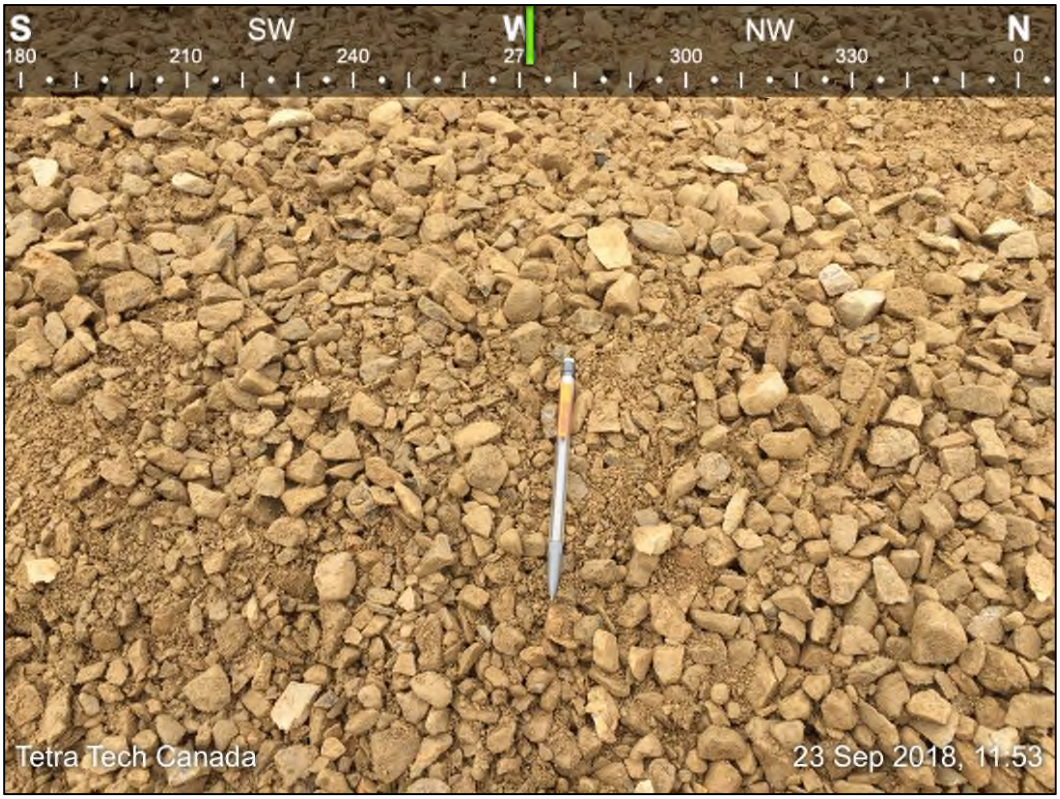


**Photo 5 – Typical gradation of 20 mm drain rock material.**

TETRA TECH

# EARTHWORKS FIELD REPORT

ISSUED FOR REVIEW

| | | | |
|---|---|---|---|
| **To:** | Roman Bilobrowka; Calvin Goldschmidt; Ishan Fechter; Jerry Chrzaszcz; John Purves; Matt Coverdale; D'Arcy Comerford; Adam Chow; Aaron Wagner; Sam Elson; Warren Maki; Esra Akinci; Paul Farrell | | |
| **Cc:** | Chad Cowan; Robert Zschuppe; James Buyck; Reid Seal; John Purves; Chris Copley; Anthony Schoepp; Richard Oswell | **From:** | Mark Estrada |
| **Project:** | Secondary and Tertiary Crushing Stockpile Retaining Wall | **Date:** | September 24, 2018 |
| **Location:** | Eagle Gold Mine, YT | **Weather:** | Partly Cloudy |
| **Client:** | JDS | | High 11°C |
| **File:** | ENG.WARC03235-05.004 | | Low 1°C |

## 1.0 MSE WALL CONSTRUCTION SUMMARY

| Equipment | Work |
|---|---|
| CAT D6T Dozer | Placing backfill |
| CAT 324 Excavator | Placing backfill |
| CAT 730 Rock Truck | Hauling backfill to MSE wall |
| CAT Skid Steer | Placing backfill |
| CAT Skid Steer | Placing backfill |
| CAT 740B Rock Truck | Hauling backfill to MSE wall |
| CAT 950K Loader | Loading backfill and moving equipment |
| CS55 Smooth Drum Compactor | Compacting backfill at the MSE wall |
| Plate Tamper | Compacting backfill at the MSE wall |

## 2.0 MECHANICALY STABILIZED EARTH WALL

- Dayshift finished lift #29.
- Dayshift placed materials for lift #30 at the following approximate locations:
    - WWF baskets and biaxial geogrid between stations 0+040 to 0+140.
    - TPG 100 uniaxial geogrid, first layer of backfill, and support struts between stations 0+040 to 0+070.

## 3.0 DISCUSSION/OTHER

- Tetra Tech on site for periodic spot checks only on dayshift. No Tetra Tech nightshift QC.

Tetra Tech Canada Inc.
61 Wasson Place
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# 4.0 CLOSURE

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**Photo 1 – Approximate view of station 0+070.**




**Photo 2 – View of the MSE wall.**

TETRA TECH

# EARTHWORKS FIELD REPORT

ISSUED FOR REVIEW

| | | | |
|---|---|---|---|
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| **Cc:** | Chad Cowan; Robert Zschuppe; James Buyck; Reid Seal; John Purves; Chris Copley; Anthony Schoepp; Richard Oswell | **From:** | Mark Estrada |
| **Project:** | Secondary and Tertiary Crushing Stockpile Retaining Wall | **Date:** | September 25, 2018 |
| **Location:** | Eagle Gold Mine, YT | **Weather:** | Partly Cloudy |
| **Client:** | JDS | | High 12°C |
| **File:** | ENG.WARC03235-05.004 | | Low -2°C |

## 1.0 MSE WALL CONSTRUCTION SUMMARY

| Equipment | Work |
|---|---|
| CAT D6T Dozer | Placing backfill |
| CAT 324 Excavator | Placing backfill |
| CAT 730 Rock Truck | Hauling backfill to MSE wall |
| CAT Skid Steer | Placing backfill |
| CAT Skid Steer | Placing backfill |
| CAT 740B Rock Truck | Hauling backfill to MSE wall |
| CAT 950K Loader | Loading backfill and moving equipment |
| CS55 Smooth Drum Compactor | Compacting backfill at the MSE wall |
| Plate Tamper | Compacting backfill at the MSE wall |

## 2.0 MECHANICALY STABILIZED EARTH WALL

- Nightshift finished lift #30.
- Nightshift placed materials for lift #31 at the following approximate locations:
    - WWF baskets, biaxial geogrids, TPG 100 uniaxial geogrids, first layer of backfill, support struts, and face rock material between stations 0+040 to 0+140.
- Dayshift finished lift #31.
- Dayshift placed materials for lift #32 at the following approximate locations:
    - WWF baskets, biaxial geogrids, TPG 100 uniaxial geogrids, first layer of backfill, and support struts between stations 0+040 to 0+140.

## 3.0 DISCUSSION/OTHER

- Tetra Tech on site for periodic spot checks only on dayshift. No Tetra Tech nightshift QC.

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# 4.0 CLOSURE

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**Photo 1 – Dozer spreading 100 mm Minus NFS Structural Fill throughout the whole pad on lift #31.**




**Photo 2 – Spreading 100 mm Minus NFS Structural Fill throughout the whole pad on lift #32.**

TETRA TECH

# EARTHWORKS FIELD REPORT

ISSUED FOR REVIEW

| | | | |
|---|---|---|---|
| **To:** | Roman Bilobrowka; Calvin Goldschmidt; Ishan Fechter; Jerry Chrzaszcz; Matt Coverdale; Mike Blusson; Adam Chow; Aaron Wagner; Esra Akinci; Paul Farrell; Tawnya Thornton, Jean-Francois Maille | | |
| **Cc:** | Chad Cowan; Robert Zschuppe; James Buyck; Richard Oswell; Scott Dimitroff; Edgar LopezNegrete; Anthony Schoepp; Kate Rogers; John Carnegie. | **From:** | Edgar Lopez-Negrete |
| **Project:** | Secondary and Tertiary Crushing Stockpile Retaining Wall | **Date:** | September 26, 2018 |
| **Location:** | Eagle Gold Mine, YT | **Weather:** | Partly Cloudy |
| **Client:** | JDS | | High 12°C |
| **File:** | ENG.WARC03235-05.004 | | Low -3°C |

## 1.0 MSE WALL CONSTRUCTION SUMMARY

| Equipment | Work |
|---|---|
| CAT D6T Dozer | Placing backfill |
| CAT 324 Excavator | Placing backfill |
| CAT 730 Rock Truck | Hauling backfill to MSE wall |
| CAT Skid Steer | Placing backfill |
| CAT Skid Steer | Placing backfill |
| CAT 740B Rock Truck | Hauling backfill to MSE wall |
| CAT 950K Loader | Loading backfill and moving equipment |
| CS55 Smooth Drum Compactor | Compacting backfill at the MSE wall |
| Plate Tamper | Compacting backfill at the MSE wall |

## 2.0 MECHANICALY STABILIZED EARTH WALL

- Dayshift finished lift #33. Compaction observed between stations 0+060 and 0+120. Small mound of material left over. Area surrounding excess material was packed. Excess material spread out on top of compacted material and repacked.
- Dayshift started lift #34:
    - Observed work on WWF baskets, biaxial geogrids, TPG 100 uniaxial geogrids, and support struts.

## 3.0 DISCUSSION/OTHER

- Tetra Tech on site for periodic spot checks only on dayshift. No Tetra Tech nightshift QC.

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# 4.0 CLOSURE

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**Photo 1 –lift #33 Compacted.**




**Photo 2 – lift #33 Compacted.**




**Photo 3 –lift #34 in progress.**




**Photo 4 – lift #34 in progress.**



**Photo 5 –lift #34 in progress.**



**Photo 6 – lift #34 in progress.**

TETRA TECH

# EARTHWORKS FIELD REPORT

ISSUED FOR REVIEW

| | | | |
|---|---|---|---|
| **To:** | Roman Bilobrowka; Calvin Goldschmidt; Ishan Fechter; Jerry Chrzaszcz; Matt Coverdale; Mike Blusson; Adam Chow; Aaron Wagner; Esra Akinci; Paul Farrell; Tawnya Thornton, Jean-Francois Maille | | |
| **Cc:** | Chad Cowan; Robert Zschuppe; James Buyck; Richard Oswell; Scott Dimitroff; Edgar LopezNegrete; Anthony Schoepp; Kate Rogers; John Carnegie. | **From:** | Edgar Lopez-Negrete |
| **Project:** | Secondary and Tertiary Crushing Stockpile Retaining Wall | **Date:** | September 27, 2018 |
| **Location:** | Eagle Gold Mine, YT | **Weather:** | Partly Cloudy |
| **Client:** | JDS | | High 12°C |
| **File:** | ENG.WARC03235-05.004 | | Low -5°C |

## 1.0 MSE WALL CONSTRUCTION SUMMARY

| Equipment | Work |
|---|---|
| CAT D6T Dozer | Placing backfill |
| CAT 324 Excavator | Placing backfill |
| CAT 730 Rock Truck | Hauling backfill to MSE wall |
| CAT Skid Steer | Placing backfill |
| CAT Skid Steer | Placing backfill |
| CAT 740B Rock Truck | Hauling backfill to MSE wall |
| CAT 950K Loader | Loading backfill and moving equipment |
| CS55 Smooth Drum Compactor | Compacting backfill at the MSE wall |
| Plate Tamper | Compacting backfill at the MSE wall |

## 2.0 MECHANICALY STABILIZED EARTH WALL

- Nightshift finished lift #34.
- Dayshift finished lift #35, compaction witnessed between 0+070 and 0+119.9 (entire lift):
    - WWF baskets, biaxial geogrids, TPG 100 uniaxial geogrids, first layer of backfill, support struts, and face rock material between stations 0+040 to 0+140.
- Backfill placed and compacted, except for areas which are to be cut out for concrete pedestals for conveyor belt. Area for pedestals in process of being surveyed.

## 3.0 DISCUSSION/OTHER

- Tetra Tech on site for periodic spot checks only on dayshift. No Tetra Tech nightshift QC.

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**Photo 1 –lift #35 In progress.**



**Photo 2 – lift #35 Compacted.**




**Photo 3 –lift #34 in progress.**




**Photo 4 – lift #34 in progress.**



**Photo 5 –lift #34 in progress.**



**Photo 6 – lift #34 in progress.**

TETRA TECH

# EARTHWORKS FIELD REPORT

ISSUED FOR REVIEW

| | | | |
|---|---|---|---|
| **To:** | Roman Bilobrowka; Calvin Goldschmidt; Ishan Fechter; Jerry Chrzaszcz; Matt Coverdale; Mike Blusson; Adam Chow; Aaron Wagner; Esra Akinci; Paul Farrell; Tawnya Thornton, Jean-Francois Maille | | |
| **Cc:** | Chad Cowan; Robert Zschuppe; James Buyck; Richard Oswell; Scott Dimitroff; Edgar LopezNegrete; Anthony Schoepp; Kate Rogers; John Carnegie. | **From:** | Edgar Lopez-Negrete |
| **Project:** | Secondary and Tertiary Crushing Stockpile Retaining Wall | **Date:** | September 28, 2018 |
| **Location:** | Eagle Gold Mine, YT | **Weather:** | Partly Cloudy |
| **Client:** | JDS | | High 7°C |
| **File:** | ENG.WARC03235-05.004 | | Low -7°C |

## 1.0 MSE WALL CONSTRUCTION SUMMARY

| Equipment | Work |
|---|---|
| CAT D6T Dozer | Placing backfill |
| CAT 324 Excavator | Placing backfill |
| CAT 730 Rock Truck | Hauling backfill to MSE wall |
| CAT Skid Steer | Placing backfill |
| CAT Skid Steer | Placing backfill |
| CAT 740B Rock Truck | Hauling backfill to MSE wall |
| CAT 950K Loader | Loading backfill and moving equipment |
| CS55 Smooth Drum Compactor | Compacting backfill at the MSE wall |
| Plate Tamper | Compacting backfill at the MSE wall |

## 2.0 MECHANICALY STABILIZED EARTH WALL

- Worked on construction of a berm along the top of the wall.
- Excavated area for concrete foundations and filled in low areas of back fill to lift 35 grade.
- Compacted backfill at lift 35 grade.

## 3.0 DISCUSSION/OTHER

- Tetra Tech on site for periodic spot checks only on dayshift. No Tetra Tech nightshift QC.

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# 4.0 CLOSURE

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TETRA TECH

# EARTHWORKS FIELD REPORT

ISSUED FOR REVIEW

| | | | |
|---|---|---|---|
| **To:** | Roman Bilobrowka; Calvin Goldschmidt; Ishan Fechter; Jerry Chrzaszcz; Matt Coverdale; Mike Blusson; Adam Chow; Aaron Wagner; Esra Akinci; Paul Farrell; Tawnya Thornton, Jean-Francois Maille | | |
| **Cc:** | Chad Cowan; Robert Zschuppe; James Buyck; Richard Oswell; Scott Dimitroff; Edgar LopezNegrete; Anthony Schoepp; Kate Rogers; John Carnegie. | **From:** | Edgar Lopez-Negrete |
| **Project:** | Secondary and Tertiary Crushing Stockpile Retaining Wall | **Date:** | September 27, 2018 |
| **Location:** | Eagle Gold Mine, YT | **Weather:** | Partly Cloudy |
| **Client:** | JDS | | High 8°C |
| **File:** | ENG.WARC03235-05.004 | | Low -7°C |

## 1.0 MSE WALL CONSTRUCTION SUMMARY

| Equipment | Work |
|---|---|
| CAT D6T Dozer | Placing backfill |
| CAT 324 Excavator | Placing backfill |
| CAT 730 Rock Truck | Hauling backfill to MSE wall |
| CAT Skid Steer | Placing backfill |
| CAT Skid Steer | Placing backfill |
| CAT 740B Rock Truck | Hauling backfill to MSE wall |
| CAT 950K Loader | Loading backfill and moving equipment |
| CS55 Smooth Drum Compactor | Compacting backfill at the MSE wall |
| Plate Tamper | Compacting backfill at the MSE wall |

## 2.0 MECHANICALY STABILIZED EARTH WALL

- Continued work on construction of a berm along the top of the wall.
- Excavated areas for concrete foundations and filled in low areas of back fill to lift 35 grade.
- Compacted backfill at lift 35 grade.
- Backfilled north ramp to make for safer approach.

## 3.0 DISCUSSION/OTHER

- Tetra Tech on site for periodic spot checks only on dayshift. No Tetra Tech nightshift QC.

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Tel 867.668.3068 Fax 867.668.4349

# 4.0 CLOSURE

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**Photo 1 –lift #35 In progress.**



**Photo 2 – lift #35 Compacted.**




**Photo 3 –lift #34 in progress.**




**Photo 4 – lift #34 in progress.**



**Photo 5 –lift #34 in progress.**



**Photo 6 – lift #34 in progress.**

# CONTRACTOR / INTERDISCIPLINARY RELEASE FORM

| | | | |
|---|---|---|---|
| **Project:** | Eagle Gold Project | **Revision No.** | 0 |
| **Contractor:** | Clark Builders | **Contract No:** | CB201 |
| **Area:** | 3100 – Primary Crusher | | |

| | | | |
|---|---|---|---|
| **Date:** | August 1, 2018 | **Drawing No:** | H354138-3100-231-260-0002 |
| **Discipline:** | Civil/Subgrade | | |

**The following:** **Area** ☒ **Equipment** ☐ **System** ☐ **Other** ☐

**(Provide complete description of area item, equipment system and Tag Numbers where applicable):**

Subgrade preparation to the underside of footing +0 and – 150mm at the Primary Crushing Building in the areas highlighted in the above mentioned drawing.

**Released to:** Clark Builders

**Release Basis:**

| | | | |
|---|---|---|---|
| ☒ | Civil | ☐ | Paintings/Coatings |
| ☐ | Structural | ☐ | Electrical |
| ☐ | Mechanical | ☐ | Tracing |
| ☐ | Piping | ☐ | Insulation |
| ☐ | NDE | ☐ | Fireproofing |
| ☐ | PHWT | ☐ | Walkdown/Punchout |
| ☐ | Pressure Test | ☐ | Other |

**Comments:**

Attached is the Primary Crusher Survey Control information for Clark Builder use.

Access to site and Laydowns are being worked ON
Site available to access and Mobilize Aug 4 2018

| | | | |
|---|---|---|---|
| DAN RUSSELL | PROJECT MGR | | AUG 1, 2018 |
| Requested By *(Print)* | Title | Signature | Date |
| Ishan Fechter | Superintendent | | Aug. 1, 2018 |
| Release Authorized By *(Print)* | Title | Signature | Date |
| GARRY DAHL | Superintendent | | Aug 4 2018 |
| Release Received/Accepted By *(Print)* | Title | Signature | Date |

| JDS Energy & Mining Inc. | **CONTRACTOR/INTERDISCIPLINE RELEASE FORM** | Victoria GOLD CORP |
|---|---|---|

| | | | |
|---|---|---|---|
| **Project:** | Eagle Gold Project | **Revision No.** | 0 |
| **Contractor:** | Clark Builders | **Contract No:** | CB201 |
| **Area:** | 3210 – Transfer Tower 1 | | |

| | | | |
|---|---|---|---|
| **Date** *(mm/dd/yy)*: | 08/27/2018 | **Drawing No:** | |
| **Discipline:** | Civil/Subgrade | | |

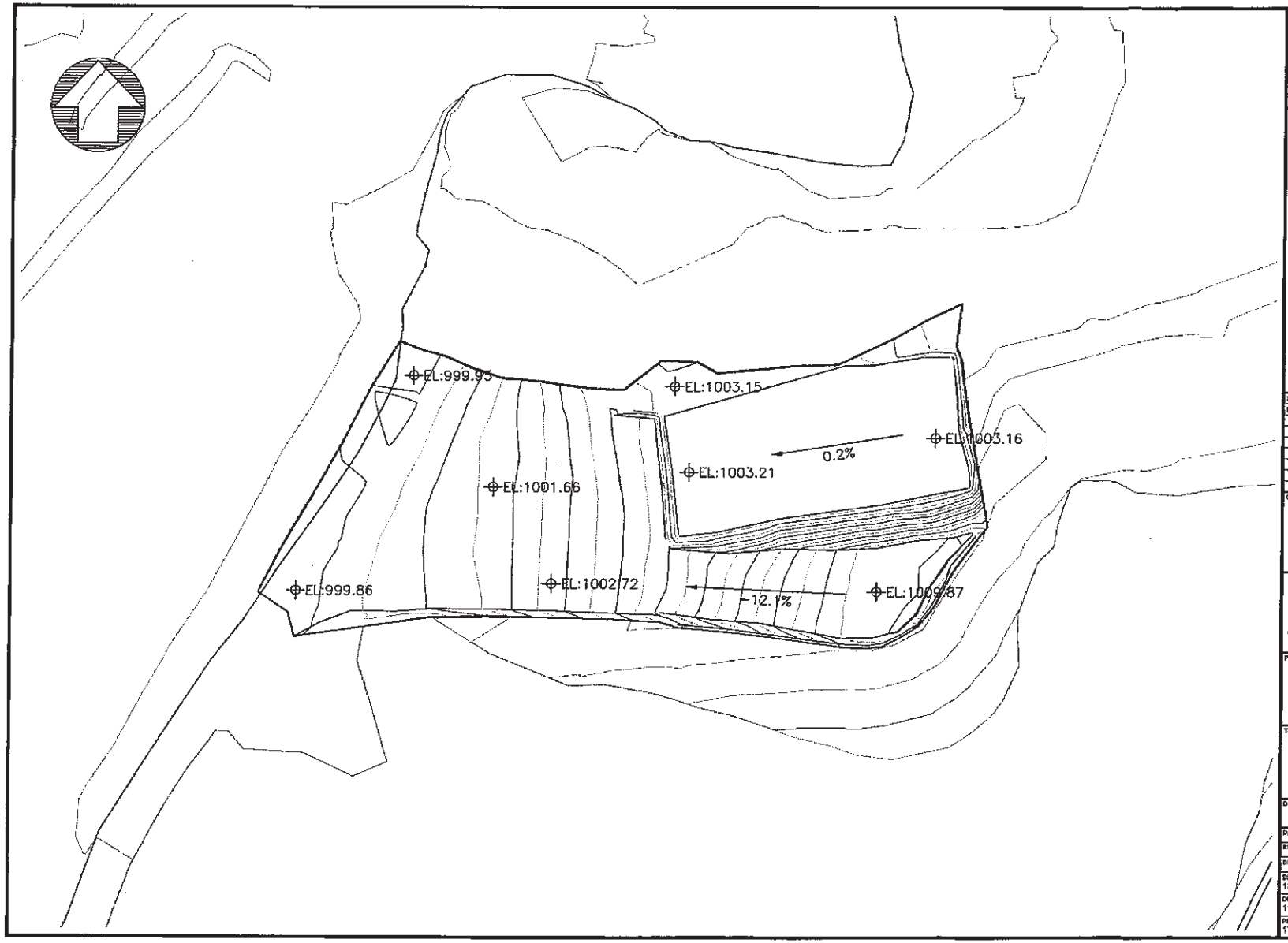
| **The following:** **Area** ☒ **Equipment** ☐ **System** ☐ **Other** ☐ |
|---|
| **(Provide complete description of area item, equipment system and Tag Numbers where applicable):** |
| **Sub-grade preparation to the underside of footing +0 and -150mm at Transfer Tower 1 as shown in Pelly As-Built** |
| |
| **Released to:** |

| **Release Basis:** | | | |
|---|---|---|---|
| ☒ | Civil | ☐ | Paintings/Coatings |
| ☐ | Structural | ☐ | Electrical |
| ☐ | Mechanical | ☐ | Tracing |
| ☐ | Piping | ☐ | Insulation |
| ☐ | NDE | ☐ | Fireproofing |
| ☐ | PHWT | ☐ | Walkdown/Punchout |
| ☐ | Pressure Test | ☐ | Other |

| **Comments:** |
|---|
| **Rockfill placement has been tested and confirmed compaction (see attached test report)** |
| **In areas of concrete foot print Clark will be required to sub-excavate to 3m below finished grade (1.5m below foundation) and backfill with NFS compacted to 95% modified proctor** |
| |
| |
| |
| |
| |

| | | | |
|---|---|---|---|
| DAN RUSSELL | PROJECT MGR | | AUG 27/18 |
| Requested By *(Print)* | Title | Signature | Date *(mm/dd/yy)* |
| Terry Chrzaszcz | Const. Sup. | | Aug 27/18 |
| Release Authorized By *(Print)* | Title | Signature | Date *(mm/dd/yy)* |
| GARRY DAHL | SUPT | | SEPT 17/18 |
| Release Received/Accepted By *(Print)* | Title | Signature | Date *(mm/dd/yy)* |

VICEAG05E




REFERENCE DRAWINGS:

| NO. | DRAWING FILE: |
|---|---|
| 01 | 160731 CRUSHRE AREA MASTER ASBUILT |

DRAWING NOTES:

1. First Ashuar Survey completed from August 18-21 2018

ISSUES:

| REV. | YY/MM/DD | INT. | DESCRIPTION |
|---|---|---|---|

CLIENT: Pelly Construction Ltd.

eshemuta Construction Surveyors

PROJECT:

EAGLE GOLD MINE CONSTRUCTION

TITLE:

TRANSFER STATION FINAL ASBUILT

DRAWING SCALE: H 1:750

| | | | |
|---|---|---|---|
| DATE: | 18/08/25 | DWG No: | 182120-005 |
| SURVEYED: | J.C.B. | CHECKED: | |
| DRAWN: | C.B. | APPROVED: | |

DRAWING FILE: 180925 TRANSFER STATION FINAL ASB

DRAWING VIEW: 11x17 Landscape

SHEET: 001

PROJECT NO.: 17003

Underhill Geomatics Ltd.
Surveyor: R. Seal
Survey Date: 2018-09-03

| Transfer Tower 1 Survey Control for Clark builders |
|---|
| Coordinates are ground level. SF=1 |
| Elevations are orthometric. |

| Point # | Northing | Easting | Elevation |
|---|---|---|---|
| 120 | 99971.551 | 59485.561 | 1005.036 |
| 121 | 99972.945 | 59541.010 | 1010.045 |
| WP 4 | 100192.726 | 59754.982 | |

| Point 120 to 121 |
|---|
| AZ=88°33'36" HD=55.467m |

Coordinate Methodology

Control Points are set based off of Traverse network from Primary Control
Control points are truncated to differentiate from UTM coordinates

# CONTRACTOR/INTERDISCIPLINE RELEASE FORM

| | | | |
|---|---|---|---|
| **Project:** | Eagle Gold Project | **Revision No.** | 0 |
| **Contractor:** | Heavy North | **Contract No:** | CC 206 |
| **Area:** | 3210 – CV-013 | | |

| | | | |
|---|---|---|---|
| **Date** *(mm/dd/yy)*: | 04/10/2018 | **Drawing No:** | H354138-3210-231-260-0015 |
| **Discipline:** | Civil/Subgrade | | |

**The following:** **Area** ☒ **Equipment** ☐ **System** ☐ **Other** ☐

**(Provide complete description of area item, equipment system and Tag Numbers where applicable):**

**Subgrade preparation for CV-013 Take-Up Tower**

**Released to:** Clark Builders

**Release Basis:**

| | | | |
|---|---|---|---|
| ☒ | Civil | ☐ | Paintings/Coatings |
| ☐ | Structural | ☐ | Electrical |
| ☐ | Mechanical | ☐ | Tracing |
| ☐ | Piping | ☐ | Insulation |
| ☐ | NDE | ☐ | Fireproofing |
| ☐ | PHWT | ☐ | Walkdown/Punchout |
| ☐ | Pressure Test | ☐ | Other |

**Comments:**

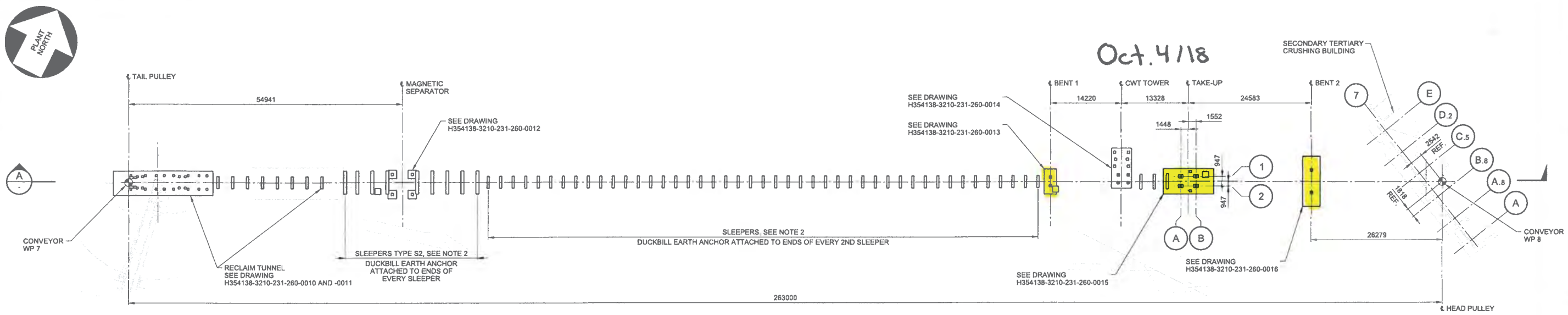
**Take-Up Tower sub-excavated to 1.5 meters below design U/S of footing elevation; backfilled with 4" NFS material to U/S footing elevation**

**Bent 1 sub-excavated to 1.5 meters below design U/S of footing elevation; backfilled with 38 mm NFS material to U/S footing elevation**

**Bent 2 excavated until rock was encountered at 1018.000; Hatch approved raising U/S of footing elevation by 0.5 meters to 1018.000 to U/S footing**

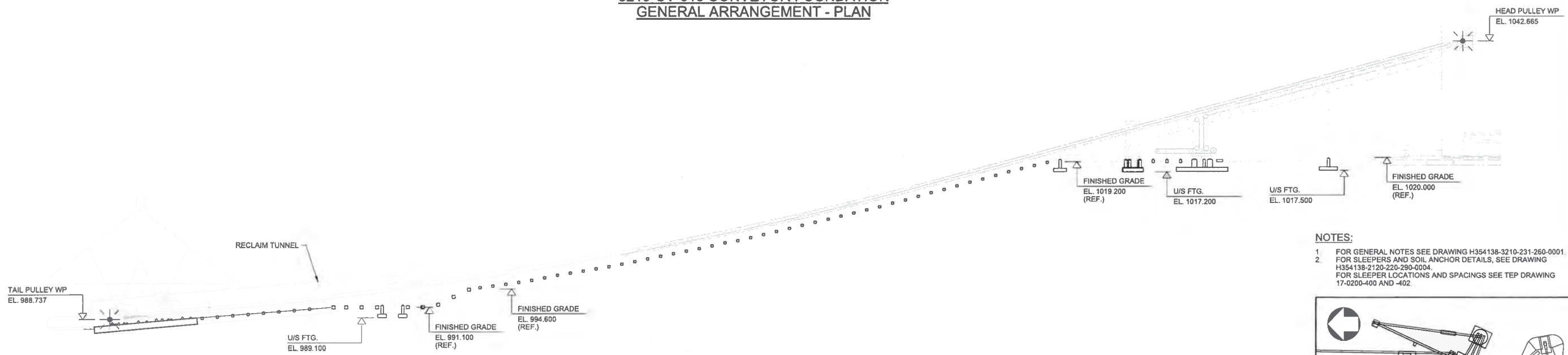
| | | | |
|---|---|---|---|
| Tony Jay | Project Coordinator | | 10/04/18 |
| Requested By *(Print)* | Title | Signature | Date *(mm/dd/yy)* |
| I.shan Fechter | Superintendent | | 10/04/18 |
| Release Authorized By *(Print)* | Title | Signature | Date *(mm/dd/yy)* |
| GARRY DAHL | Supt. | | Oct 5/18 |
| Release Received/Accepted By *(Print)* | Title | Signature | Date *(mm/dd/yy)* |

DWG. No. H354138-3210-231-260-0009




Oct. 4/18

## 3210-CV-013 CONVEYOR FOUNDATION GENERAL ARRANGEMENT - PLAN

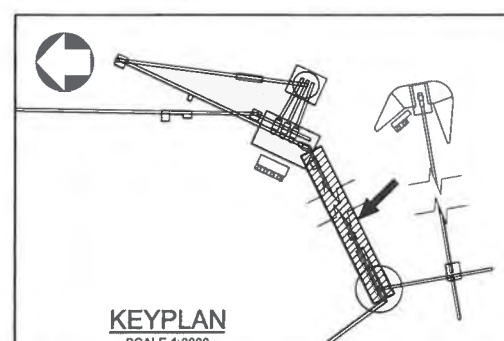



## SECTION A

NOTES:

1. FOR GENERAL NOTES SEE DRAWING H354138-3210-231-260-0001.
2. FOR SLEEPERS AND SOIL ANCHOR DETAILS, SEE DRAWING H354138-2120-220-290-0004.
   FOR SLEEPER LOCATIONS AND SPACINGS SEE TEP DRAWING 17-0200-400 AND -402.

0 4 8 12 16 20
1:400 SCALE IN METRES



KEYPLAN
SCALE 1:3000

THIS DRAWING WAS PREPARED FOR THE EXCLUSIVE USE OF STRATA GOLD ("CLIENT") AND IS ISSUED PURSUANT TO H354138 BETWEEN CLIENT AND HATCH LTD. ("HATCH"). UNLESS OTHERWISE AGREED IN WRITING WITH CLIENT OR SPECIFIED ON THIS DRAWING: (A) HATCH DOES NOT ACCEPT AND DISCLAIMS ANY AND ALL LIABILITY OR RESPONSIBILITY ARISING FROM ANY USE OF OR RELIANCE ON THIS DRAWING BY ANY THIRD PARTY OR ANY MODIFICATION OR MISUSE OF THIS DRAWING BY CLIENT, AND (B) THIS DRAWING IS CONFIDENTIAL AND ALL INTELLECTUAL PROPERTY RIGHTS EMBODIED OR REFERENCED IN THIS DRAWING REMAIN THE PROPERTY OF HATCH

| No. | DESCRIPTION | PJ BY | EA CHK'D | 2018-08-27 DATE |
|---|---|---|---|---|
| 0 | APPROVED FOR CONSTRUCTION | | | |

| ROLE | NAME | SIGNATURE & DATE |
|---|---|---|
| DRAFTSPERSON | P. JIVAEV | NR 2018-08-21 |
| DESIGNER | H. LI | NR 2018-08-21 |
| CHECKER | E. AKINCI | 2018-08-27 |
| DESIGN COORD. | S. PERKINS | |
| RESP. ENG. | E. AKINCI | 2018-08-27 |
| LEAD DISC. ENG. | E. AKINCI | 2018-08-27 |
| ENG. MANAGER | B. RUSTAD | 2018-08-27 |
| PROJ. MANAGER | B. RUSTAD | 2018-08-27 |

DRAWING APPROVAL STATUS: Approved for Construction

REFERENCE DRAWINGS — DRAWING No. — DRAWING TITLE

REG. PROFESSIONAL — 2018-08-27

HATCH

StrataGold Corporation

EAGLE GOLD PROJECT

COARSE ORE STOCKPILE/RECLAIM
3210-CV-013 CONVEYOR FOUNDATION
GENERAL ARRANGEMENT

SCALE 1:400 OR AS NOTED | DWG. No. H354138-3210-231-260-0009 | REV 0

SHEET SIZE: D

$FILE$
PRINTED: 27-AUG-2018 14:26
ldc_pwsservice

# CONTRACTOR/INTERDISCIPLINE RELEASE FORM

| | | | |
|---|---|---|---|
| **Project:** | Eagle Gold Project | **Revision No.** | 0 |
| **Contractor:** | Heavy North | **Contract No:** | CC 206 |
| **Area:** | 3210 – CV-013 | | |

| | | | |
|---|---|---|---|
| **Date** *(mm/dd/yy)*: | 04/10/2018 | **Drawing No:** | H354138-3210-231-260-0015 |
| **Discipline:** | Civil/Subgrade | | |

**The following:** **Area** ☒ **Equipment** ☐ **System** ☐ **Other** ☐

**(Provide complete description of area item, equipment system and Tag Numbers where applicable):**

**Subgrade preparation for CV-013 Take-Up Tower**

**Released to:** Clark Builders

**Release Basis:**

| | | | |
|---|---|---|---|
| ☒ | Civil | ☐ | Paintings/Coatings |
| ☐ | Structural | ☐ | Electrical |
| ☐ | Mechanical | ☐ | Tracing |
| ☐ | Piping | ☐ | Insulation |
| ☐ | NDE | ☐ | Fireproofing |
| ☐ | PHWT | ☐ | Walkdown/Punchout |
| ☐ | Pressure Test | ☐ | Other |

**Comments:**

**Take-Up Tower sub-excavated to 1.5 meters below design U/S of footing elevation; backfilled with 4" NFS material to U/S footing elevation**

**Bent 1 sub-excavated to 1.5 meters below design U/S of footing elevation; backfilled with 38 mm NFS material to U/S footing elevation**

**Bent 2 excavated until rock was encountered at 1018.000; Hatch approved raising U/S of footing elevation by 0.5 meters to 1018.000 to U/S footing**

| Requested By *(Print)* | Title | Signature | Date *(mm/dd/yy)* |
|---|---|---|---|
| Tony Jay | Project Coordinator | | 10/04/18 |

| Release Authorized By *(Print)* | Title | Signature | Date *(mm/dd/yy)* |
|---|---|---|---|
| Ishan Fechter | Superintendent | | 10/04/18 |

| Release Received/Accepted By *(Print)* | Title | Signature | Date *(mm/dd/yy)* |
|---|---|---|---|
| | | | |

# CONTRACTOR/INTERDISCIPLINE RELEASE FORM

| | | | |
|---|---|---|---|
| **Project:** | Eagle Gold Project | **Revision No.** | 0 |
| **Contractor:** | Heavy North | **Contract No:** | CC 206 |
| **Area:** | 3210 – CV-013 | | |

| | | | |
|---|---|---|---|
| **Date** *(mm/dd/yy)*: | 08/10/2018 | **Drawing No:** | H354138-3210-231-260-0012 |
| **Discipline:** | Civil/Subgrade | | |

**The following:** **Area** ☒ **Equipment** ☐ **System** ☐ **Other** ☐

**(Provide complete description of area item, equipment system and Tag Numbers where applicable):**

**Subgrade preparation for CV-013 Magnetic Separator**

**Released to:** Clark Builders

**Release Basis:**

| | | | |
|---|---|---|---|
| ☒ | Civil | ☐ | Paintings/Coatings |
| ☐ | Structural | ☐ | Electrical |
| ☐ | Mechanical | ☐ | Tracing |
| ☐ | Piping | ☐ | Insulation |
| ☐ | NDE | ☐ | Fireproofing |
| ☐ | PHWT | ☐ | Walkdown/Punchout |
| ☐ | Pressure Test | ☐ | Other |

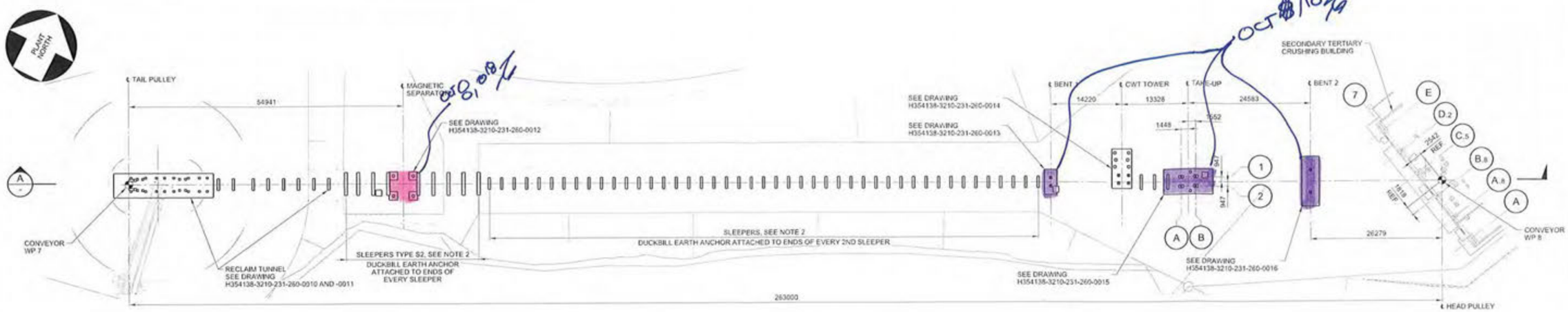
**Comments:**

**Magnetic Separator sub-excavated to 1.5 meters below design U/S of footing elevation; backfilled with 4" NFS material to U/S footing elevation – Ready for formwork/concrete placement**

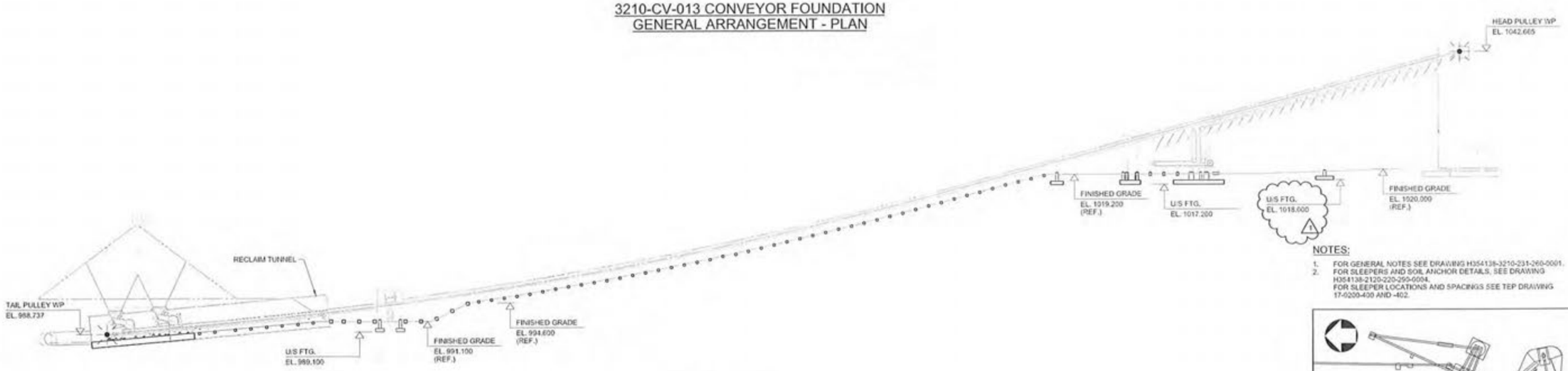
| | | | |
|---|---|---|---|
| Tony Joy | Project Coordinator | | 10/08/18 |
| Requested By *(Print)* | Title | Signature | Date *(mm/dd/yy)* |
| Ishan Fechter | Superintendent | | 10/08/18 |
| Release Authorized By *(Print)* | Title | Signature | Date *(mm/dd/yy)* |
| GARRY DAHA | Supt. | | 10/09/18 |
| Release Received/Accepted By *(Print)* | Title | Signature | Date *(mm/dd/yy)* |

VICEAG05E

DWG. No. H354138-3210-231-260-0009



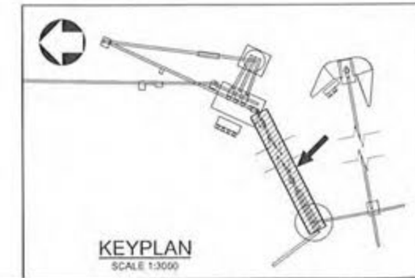

3210-CV-013 CONVEYOR FOUNDATION
GENERAL ARRANGEMENT - PLAN




SECTION A

NOTES:

1. FOR GENERAL NOTES SEE DRAWING H354138-3210-231-260-0001.
2. FOR SLEEPERS AND SOIL ANCHOR DETAILS, SEE DRAWING H354138-2120-220-290-0004.
   FOR SLEEPER LOCATIONS AND SPACINGS SEE TEP DRAWING 17-0200-400 AND -402.



KEYPLAN
SCALE 1:3000

0 4 8 12 16 20
1:400 SCALE IN METRES

| DRAWING No. | DRAWING TITLE |
|---|---|
| REFERENCE DRAWINGS | |

REG. PROFESSIONAL: 2018-10-11

| No. | DESCRIPTION | BY | CHK'D | DATE |
|---|---|---|---|---|
| 1 | BENT 2 U/S FOOTING ELEVATION REVISED DUE TO SITE CONDITIONS | PJ | EA | 2018-10-10 |
| 0 | APPROVED FOR CONSTRUCTION | PJ | EA | 2018-08-27 |

REVISIONS

HATCH

| ROLE | NAME | SIGNATURE & DATE |
|---|---|---|
| DRAFTSPERSON | P. JIVAEV | NR 2018-08-21 |
| DESIGNER | H. LI | NR 2018-08-21 |
| CHECKER | E. AKINCI | 2018-10-11 |
| DESIGN COORD. | S. PERKINS | 2018-10-11 |
| RESP. ENG. | E. AKINCI | 2018-10-11 |
| LEAD DISC. ENG. | E. AKINCI | 2018-10-11 |
| ENG. MANAGER | B. RUSTAD | 2018-10-11 |
| PROJ. MANAGER | B. RUSTAD | 2018-10-11 |

DRAWING APPROVAL STATUS: Approved for Construction

StrataGold Corporation

EAGLE GOLD PROJECT

COARSE ORE STOCKPILE/RECLAIM
3210-CV-013 CONVEYOR FOUNDATION
GENERAL ARRANGEMENT

SCALE 1:400 OR AS NOTED | DWG. No. H354138-3210-231-260-0009 | REV 1

SHEET SIZE: D

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PRINTED: 11-OCT-2018 13:00
kk_pwservice

# CONTRACTOR/INTERDISCIPLINE RELEASE FORM

| | | | |
|---|---|---|---|
| **Project:** | Eagle Gold Project | **Revision No.** | 0 |
| **Contractor:** | Heavy North | **Contract No:** | CC 206 |
| **Area:** | 3210-CV-02 | | |

| | | | |
|---|---|---|---|
| **Date** *(mm/dd/yy)*: | 13/10/2018 | **Drawing No:** | H354138-3210-231-260-0001 -0003 |
| **Discipline:** | Civil/Subgrade | | |

**The following:** **Area** ☒ **Equipment** ☐ **System** ☐ **Other** ☐

**(Provide complete description of area item, equipment system and Tag Numbers where applicable):**

Subgrade preparation for CV-002

**Released to:** Clark Builders

**Release Basis:**

| | | | |
|---|---|---|---|
| ☒ | Civil | ☐ | Paintings/Coatings |
| ☐ | Structural | ☐ | Electrical |
| ☐ | Mechanical | ☐ | Tracing |
| ☐ | Piping | ☐ | Insulation |
| ☐ | NDE | ☐ | Fireproofing |
| ☐ | PHWT | ☐ | Walkdown/Punchout |
| ☐ | Pressure Test | ☐ | Other |

**Comments:**

**CV-002 pad/footings south of TT-1, encountered bed rock, survey completed as-built, completed backfill to U/S FTG survey provided grade with 4" minus approved backfill material. TetraTech witnessed and monitored backfill operation as per test spec.**

| Requested By *(Print)* | Title | Signature | Date *(mm/dd/yy)* |
|---|---|---|---|
| Tony Jay | Project Coordinator | | 10/13/18 |
| Release Authorized By *(Print)* | Title | Signature | Date *(mm/dd/yy)* |
| Jerry Chrzaszcz | Superintendent | | Oct.13/18 |
| Release Received/Accepted By *(Print)* | Title | Signature | Date *(mm/dd/yy)* |
| Gary Dahl | Supt | | Oct 25/18 |

VICEAG05E

# CONTRACTOR/INTERDISCIPLINE RELEASE FORM

| | | | |
|---|---|---|---|
| **Project:** | Eagle Gold Project | **Revision No.** | 0 |
| **Contractor:** | Heavy North | **Contract No:** | CC 206 |
| **Area:** | 3210-CV-003 | | |

| | | | |
|---|---|---|---|
| **Date** *(mm/dd/yy)*: | 14/10/2018 | **Drawing No:** | H354138-3210-231-260-0001 |
| **Discipline:** | Civil/Subgrade | | |

**The following:** **Area** ☒ **Equipment** ☐ **System** ☐ **Other** ☐

**(Provide complete description of area item, equipment system and Tag Numbers where applicable):**

Subgrade preparation for CV-003 Winter Ore storage feed conveyor

**Released to:** Clark Builders

**Release Basis:**

| | | | |
|---|---|---|---|
| ☒ | Civil | ☐ | Paintings/Coatings |
| ☐ | Structural | ☐ | Electrical |
| ☐ | Mechanical | ☐ | Tracing |
| ☐ | Piping | ☐ | Insulation |
| ☐ | NDE | ☐ | Fireproofing |
| ☐ | PHWT | ☐ | Walkdown/Punchout |
| ☐ | Pressure Test | ☐ | Other |

**Comments:**

**Winter Ore storage feed conveyor sub-excavated to 1.5ms below design U/S of FTG elevation. Backfilled with 4" NFS material to U/S footing elevation with TetraTech witnessed backfill operation to design spec. Elevations and footprints confirmed and as-built by client survey.**

| Requested By *(Print)* | Title | Signature | Date *(mm/dd/yy)* |
|---|---|---|---|
| Tony Jay | Project Coordinator | | 10/14/18 |
| Release Authorized By *(Print)* | Title | Signature | Date *(mm/dd/yy)* |
| Jerry Chrzaszcz | Superintendent | | Oct 24/18 |
| Release Received/Accepted By *(Print)* | Title | Signature | Date *(mm/dd/yy)* |
| Garry DAHL | Supt | | Oct 25/18 |

# CONTRACTOR/INTERDISCIPLINE RELEASE FORM

| | | | |
|---|---|---|---|
| **Project:** | Eagle Gold Project | **Revision No.** | 0 |
| **Contractor:** | Heavy North | **Contract No:** | CC 206 |
| **Area:** | 3210-CV-001 | | |

| | | | |
|---|---|---|---|
| **Date** *(mm/dd/yy)*: | 15/10/2018 | **Drawing No:** | H354138-3210-231-260-0032 |
| **Discipline:** | Civil/Subgrade | | |

**The following:** **Area** ☒ **Equipment** ☐ **System** ☐ **Other** ☐

**(Provide complete description of area item, equipment system and Tag Numbers where applicable):**

Subgrade preparation for CV-001 Pedestal Pad East of TT-1

**Released to:** Clark Builders

**Release Basis:**

| | | | |
|---|---|---|---|
| ☒ | Civil | ☐ | Paintings/Coatings |
| ☐ | Structural | ☐ | Electrical |
| ☐ | Mechanical | ☐ | Tracing |
| ☐ | Piping | ☐ | Insulation |
| ☐ | NDE | ☐ | Fireproofing |
| ☐ | PHWT | ☐ | Walkdown/Punchout |
| ☐ | Pressure Test | ☐ | Other |

**Comments:**

**Pedestal Pad East of TT-1 sub-excavated to 1.5ms below design U/S of FTG elevation. Backfilled with 4" NFS material to U/S footing elevation with TetraTech witnessed backfill operation to design spec. Elevations and footprints confirmed and as-built by client survey.**

2018.10.21 - CLARK BUILDERS IS ACCEPTING THIS LOCATION UNDERSTANDING THAT FOOTING TOC ELEVATION MAY BE HIGHER THAN DESIGN TOC.
JDS HAS APPROVED/ALLOWED CLARK TO SHORTEN PEDESTALS AS REQUIRED TO ACHIEVE PROPER ELEVATION AT PEDESTAL TOC.

| Requested By (Print) | Title | Signature | Date (mm/dd/yy) |
|---|---|---|---|
| Tony Jay | Project Coordinator | | 10/15/18 |
| Release Authorized By (Print) | Title | Signature | Date (mm/dd/yy) |
| Terry Chrzaszcz | Const. Superintendent | | Oct. 19/18 |
| Release Received/Accepted By (Print) | Title | Signature | Date (mm/dd/yy) |
| Peter Nice | superintendent | | OCT 21/18 |

VICEAG05E

## Milliano, Ryan

**From:** Van Laar, Erik
**Sent:** October 21, 2018 11:31 AM
**To:** Nice, Peter
**Cc:** de Milliano, Ryan
**Subject:** CV-001 and CV-002

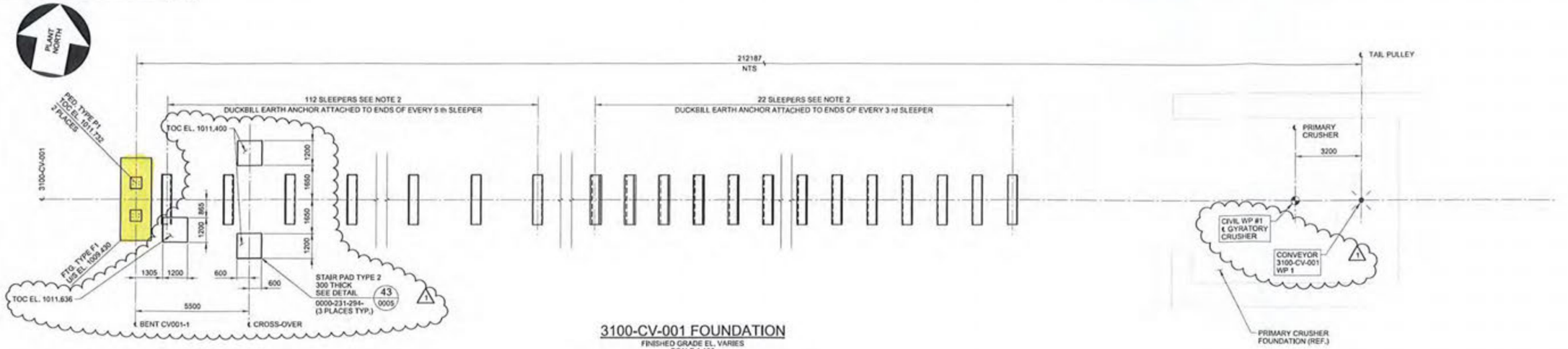
Peter,

The survey for underside of footings at the bent for CV-001 shows the final grade to be 15 to 30 mm high. The underside of footings at Bent 1 at CV-002 shows it to be 50 to 85 mm high, while the GTU is at grade.

Erik.

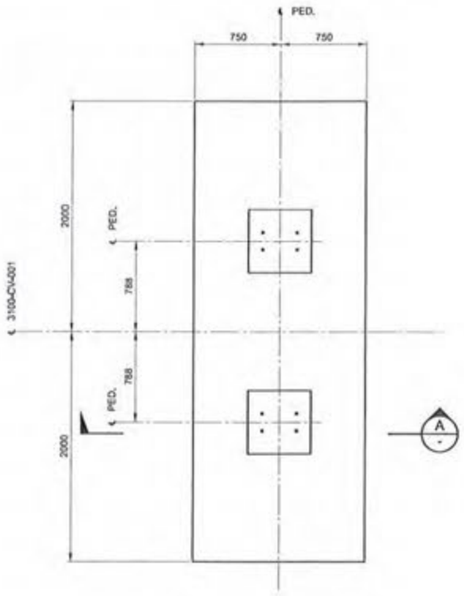
frontier
**Erik van Laar** Surveyor
D:780.395.3300 C: 587.532.8971
4703 52 Ave, Edmonton, Alberta, Canada, T6B 3R6

DWG. No. H354138-3100-231-260-0032



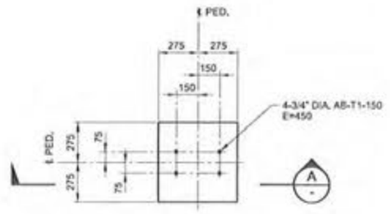

## 3100-CV-001 FOUNDATION

FINISHED GRADE EL. VARIES
SCALE 1:100

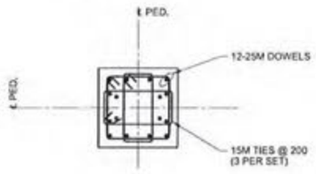



## FOOTING TYPE F1

SCALE 1:25



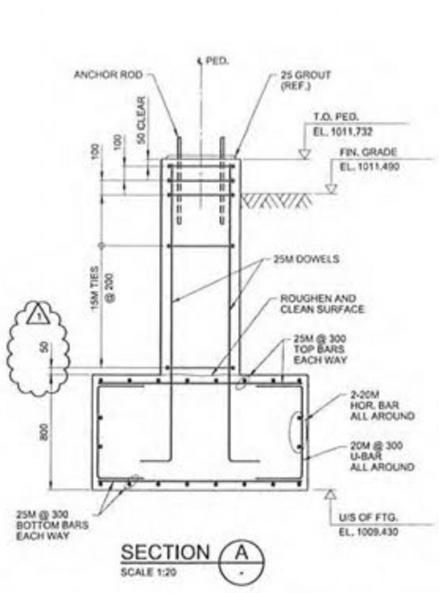

## ANCHOR SETTING




## REINFORCEMENT

## PEDESTAL TYPE P1

SCALE 1:20

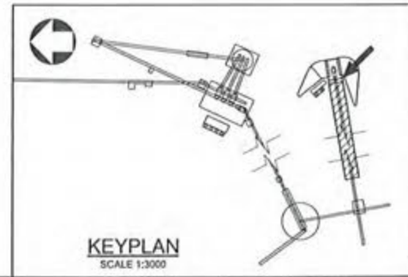



## SECTION A

SCALE 1:20

NOTES:

1. FOR CONCRETE TYPICAL DETAILS AND GENERAL NOTES SEE DRAWINGS H354138-0000-231-294-0001 TO 0007.
2. FOR SLEEPERS AND SOIL ANCHOR DETAILS, SEE DWG. H354138-2120-220-290-0004. FOR SLEEPER LOCATION AND SPACINGS SEE TEP DWG. 17-0200-100 AND102.
3. FOR FOUNDATION NOTES SEE DRAWING H354138-3210-231-260-0001.



KEYPLAN

SCALE 1:3000

0 1 2 3 4 5
1:100 SCALE IN METRES

| REVISIONS | | | | | |
|---|---|---|---|---|---|
| No. | DESCRIPTION | BY | CHK'D | DATE | |
| 1 | WORK POINT DESCRIPTION CLARIFIED, STAIR PADS ADDED | PJ | EA | 2018-10-12 | |
| 0 | APPROVED FOR CONSTRUCTION | EM | EA | 2018-08-17 | |

2018-10-12

| DRAWING APPROVAL STATUS: Approved for Construction | | | |
|---|---|---|---|
| ROLE | NAME | SIGNATURE & DATE | |
| DRAFTSPERSON | E. MENDIOLA | NR | 2018-08-13 |
| DESIGNER | H. LI | NR | 2018-08-13 |
| CHECKER | E. AKINCI | | 2018-10-12 |
| DESIGN COORD. | S. PERKINS | | 2018-10-12 |
| RESP. ENG. | E. AKINCI | | 2018-10-12 |
| LEAD DISC. ENG. | E. AKINCI | | 2018-10-12 |
| ENG. MANAGER | B. RUSTAD | | |
| PROJ. MANAGER | B.RUSTAD | | |

HATCH

StrataGold Corporation

EAGLE GOLD PROJECT

PRIMARY CRUSHING
3100-CV-001 CONVEYOR FOUNDATIONS
PLAN, SECTIONS AND DETAILS

| REFERENCE DRAWINGS | | REG. PROFESSIONAL |
|---|---|---|
| DRAWING No. | DRAWING TITLE | |

| SCALE | DWG. No. | REV |
|---|---|---|
| 1:100 OR AS NOTED | H354138-3100-231-260-0032 | 1 |

SHEET SIZE: D

$FILELS
PRINTED: 12-OCT-2018
BC_pwservice

## .e Milliano, Ryan

**From:** Van Laar, Erik
**Sent:** October 21, 2018 5:52 PM
**To:** de Milliano, Ryan
**Cc:** Nice, Peter
**Subject:** P4 Tertiary ore Building

**Follow Up Flag:** Follow up
**Flag Status:** Flagged

Ryan,

Can we get confirmation for the T.O.C for P4 plan number 3330-231-260-023,027. It might be 1037.750 but it is not explicitly stated.

Thank you,

Erik.

frontier
**Erik van Laar** Surveyor
D:780.395.3300 C: 587.532.8971
4703 52 Ave, Edmonton, Alberta, Canada, T6B 3R6

# CONTRACTOR/INTERDISCIPLINE RELEASE FORM

| | | | |
|---|---|---|---|
| **Project:** | Eagle Gold Project | **Revision No.** | 0 |
| **Contractor:** | Heavy North | **Contract No:** | CC 206 |
| **Area:** | 3210-CV-002 | | |

| | | | |
|---|---|---|---|
| **Date** *(mm/dd/yy)*: | 17/10/2018 | **Drawing No:** | H354138-3210-231-260-0001 |
| **Discipline:** | Civil/Subgrade | | 4 of 0003 |

**The following:** **Area** ☒ **Equipment** ☐ **System** ☐ **Other** ☐

**(Provide complete description of area item, equipment system and Tag Numbers where applicable):**

Subgrade preparation for CV-002 Course Ore Stockpile

Subgrade preparation for CV-002 Course Ore Stockpile Feed Conveyor

**Released to:** Clark Builders

**Release Basis:**

| | | | |
|---|---|---|---|
| ☒ | Civil | ☐ | Paintings/Coatings |
| ☐ | Structural | ☐ | Electrical |
| ☐ | Mechanical | ☐ | Tracing |
| ☐ | Piping | ☐ | Insulation |
| ☐ | NDE | ☐ | Fireproofing |
| ☐ | PHWT | ☐ | Walkdown/Punchout |
| ☐ | Pressure Test | ☐ | Other |

**Comments:**

CV-002 Course Ore Stockpile pad and conveyor feed pad north of TT-1 sub-excavated to 1.5ms below design U/S of FTG elevation. Backfilled with 4" NFS material to U/S footing elevation with TetraTech witnessed backfill operation to method spec. Elevations and footprints confirmed and as-built by client survey.

2018.10.21 - SURVEY SHOWED GRADE TO BE 50-85mm HIGHER THAN DESIGN. JDS HAS APPROVED FOR CLARK TO BUILD FOOTING AT THIS ELEV. WITH THE UNDERSTANDING THAT PEDESTALS WILL BE SHORTENED TO BE AT DESIGN ELEVATION AT TOP OF PEDESTAL TOC.

| Tony Jay | Project Coordinator | | 10/17/18 |
|---|---|---|---|
| Requested By *(Print)* | Title | Signature | Date *(mm/dd/yy)* |
| Jerry Chrzaszcz | Const. Superintendent | | Oct 18/18 |
| Release Authorized By *(Print)* | Title | Signature | Date *(mm/dd/yy)* |
| Peter Nice | Superintendent | | Oct 21/18 |
| Release Received/Accepted By *(Print)* | Title | Signature | Date *(mm/dd/yy)* |

VICEAG05E

DWG. No. H354138-3210-231-260-0001

AREA: 3210 COARSE ORE STOCKPILE/RECLAIM

## CONCRETE DETAILS DRAWING LIST

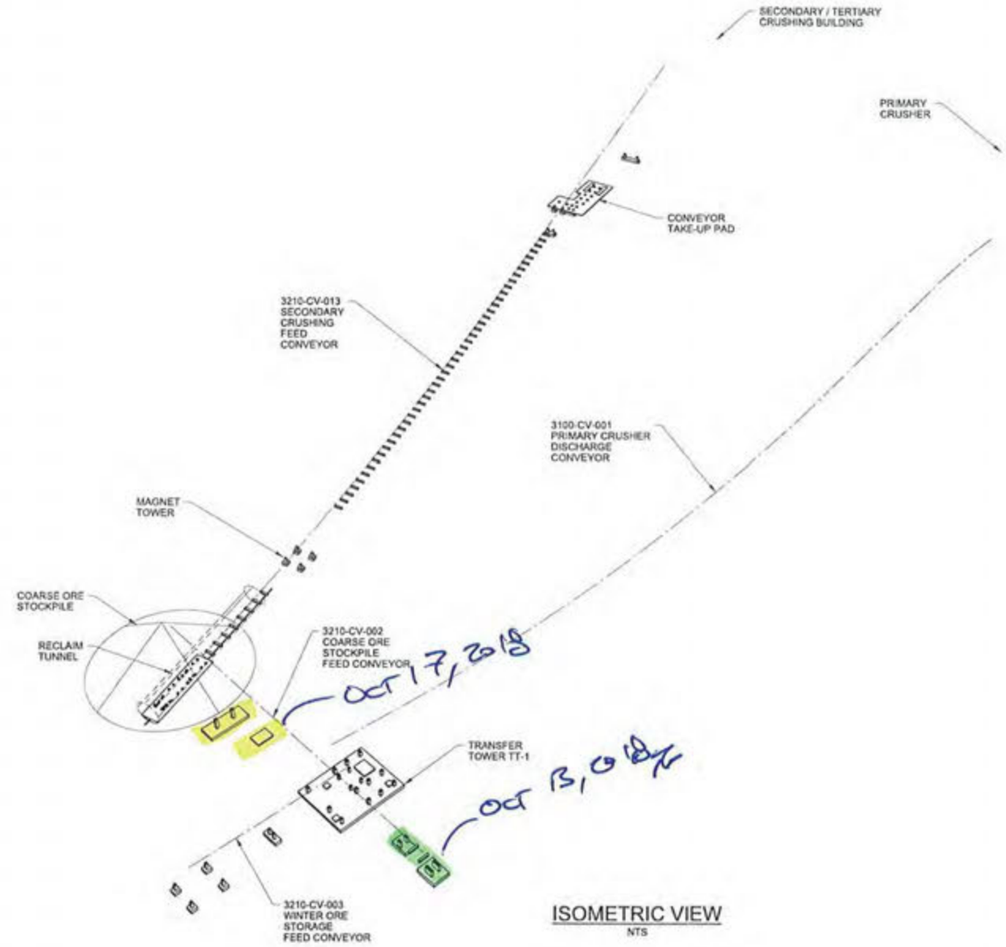
| DRAWING NUMBER | REV. | DRAWING TITLE | | |
|---|---|---|---|---|
| H354138-3210-231-260-0001 | 0 | COARSE ORE STOCLPILE/RECLAIM | GENERAL | TITLE SHEET, ISOMETRIC |
| H354138-3210-231-260-0002 | 0 | COARSE ORE STOCLPILE/RECLAIM | TRANSFER TOWER TT-1 FOUNDATION | PLAN, SECTIONS AND DETAILS |
| H354138-3210-231-260-0003 | 0 | COARSE ORE STOCLPILE/RECLAIM | 3210-CV-002 CONVEYOR FOUNDATION | PLAN, SECTIONS AND DETAILS - SHEET 1 |
| H354138-3210-231-260-0004 | 0 | COARSE ORE STOCLPILE/RECLAIM | 3210-CV-002 CONVEYOR FOUNDATION | PLAN, SECTIONS AND DETAILS - SHEET 2 |
| H354138-3210-231-260-0005 | 0 | COARSE ORE STOCLPILE/RECLAIM | 3220-CV-002 CONVEYOR FOUNDATION | PLAN, SECTIONS AND DETAILS - SHEET 3 |
| H354138-3210-231-260-0006 | 0 | COARSE ORE STOCLPILE/RECLAIM | 3220-CV-003 CONVEYOR FOUNDATION | PLAN, SECTIONS AND DETAILS |
| H354138-3210-231-260-0010 | 2 | COARSE ORE STOCLPILE/RECLAIM | RECLAIM TUNNEL FOUNDATION | PLAN AND SECTION |
| H354138-3210-231-260-0011 | 1 | COARSE ORE STOCLPILE/RECLAIM | RECLAIM TUNNEL FOUNDATION | SECTION AND DETAILS |

### FOUNDATION NOTES:

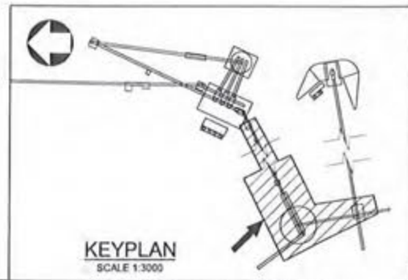
2.1 ALL CONCRETE FOUNDATION SUBGRADE SHALL BE EITHER ROCK OR 38 mm MINUS NFS STRUCTURAL BACKFILL DOWN TO 3 METERS BELOW THE FINISH GRADE COMPACTED TO 95% MODIFIED PROCTOR.
2.2 ALL BACKFILL AROUND AND ABOVE CONCRETE FOUNDATIONS, PEDESTALS AND PADS SHALL BE 38 mm MINUS NFS STRUCTURAL BACKFILL.
2.3 ALL FOUNDATION SUBGRADE SHALL BE INSPECTED AND APPROVED BY THE GEOTECHNICAL ENGINEER PRIOR TO PLACEMENT OF CONCRETE.
2.4 THE PREPARED FOOTING SUBGRADE SHALL BE PROTECTED FROM WATER INGRESS AND SOFTENING BY PROVIDING ADEQUATE DRAINAGE OR PLACING A LEAN CONCRETE MUD SLAB.

### GENERAL NOTES:

1.1 READ THESE DRAWINGS IN CONJUNCTION WITH ALL OTHER PERTINENT CONTRACT DOCUMENTS.
1.2 FOR CONCRETE TYPICAL DETAILS DRAWING SET AND GENERAL NOTES, SEE DRAWINGS 354138-0000-231-294-0001 TO -0007.
1.3 REFER TO MECHANICAL, PROCESS AND ELECTRICAL DRAWINGS FOR LOCATIONS AND DIMENSIONS OF OPENINGS, SLEEVES AND OTHER BUILDING COMPONENTS NOT SHOWN ON STRUCTURAL DRAWINGS. REPORT DISCREPENCIES TO THE OWNER OR HIS REPRESENTATIVE PRIOR TO PROCEEDING WITH THE WORK.
1.4 FOR GENERAL SITE LOCATION AND WORK POINT COORDINATES, SEE DRAWING H354138-2120-220-290-0001.
1.5 HIGH ENERGY COMPACTION EQUIPMENT SUCH AS LARGE ROLLERS MUST NOT BE USED FOR COMPACTING BACKFILL WITHIN 1 METER OF THE EDGE OF THE WALLS.
1.6 FOR GROUNDING LOOP SEE ELECTRICAL DRAWING H354138-3210-260-272-1000-0001. FOR GROUNDING INSTALLATION DETAILS SEE DRAWING SET H354138-3210-260-290-0001-0001 TO -0015.
1.7 FOR CAST-IN PLACE CONCRETE, SEE SPECIFICATION SECTION H354138-S032000.
1.8 FOR CONCRETE FORMWORK, SEE SPECIFICATION SECTION H354138-S031000.
1.9 FOR CONCRETE REINFORCEMENT, SEE SPECIFICATION SECTION H354138-S033000.
1.10 FOR GROUTING, SEE SPECIFICATION SECTION H354138-S036000.
1.11 CONSTRUCTION JOINTS NOT SHOWN ON THE DRAWINGS MUST BE APPROVED BY THE CONTRUCTION MANAGER.
1.12 IN CASE OF ANY DISCREPANCIES, INFORM THE CONSTRUCTION MANAGER BEFORE COMMENCING WORK.
1.13 ALL DIMENSIONS ARE IN MILLIMETERS AND ELEVATIONS ARE IN METERS.
1.14 PROVIDE 19mm X 19mm CHAMFER AT ALL EXPOSED CONCRETE CORNERS AND EDGES ABOVE GRADE LEVEL.
1.15 THE DRAWINGS SHOULD BE READ IN CONJUNCTION WITH THE PROJECT CIVIL DESIGN CRITERIA H354138-0000-220-210-0001.
1.16 FOR FURTHER GEOTECH INFORMATION, SEE "2011 GEOTECHNICAL INVESTIGATION FOR MINE SITE INFRASTRUCTURE FOUNDATION REPORT" BY BGC ENGINEERING DATED JAN 31, 2012.
1.17 SET ANCHOR RODS USING TEMPLATES WHICH MUST BE LEFT IN PLACE UNTIL THE CONCRETE HAS SET. ANCHOR RODS SHALL BE PLUMBED AND SECURED FROM MOVEMENT PRIOR TO CASTING CONCRETE.




ISOMETRIC VIEW
NTS



KEYPLAN
SCALE 1:3000

| | | | | | |
|---|---|---|---|---|---|
| DRAFTSPERSON | P. JIVAEV | NR | 2017-11-23 | | |
| DESIGNER | H. LI | NR | 2017-11-23 | | |
| CHECKER | E. AKINCI | | 2018-08-17 | | |
| DESIGN COORD. | S. PERKINS | | 2018-08-17 | | |
| RESP. ENG. | E. AKINCI | | 2018-08-17 | | |
| LEAD DISC. ENG. | E. AKINCI | | 2018-08-17 | | |
| ENG. MANAGER | B. RUSTAD | | 2018-08-17 | | |
| PROJ. MANAGER | B. RUSTAD | | 2018-08-17 | | |

| No. | DESCRIPTION | BY | CHK'D | DATE |
|---|---|---|---|---|
| 0 | APPROVED FOR CONSTRUCTION | PJ | EA | 2018-08-17 |

| ROLE | NAME | SIGNATURE & DATE |
|---|---|---|
| DRAWING APPROVAL STATUS: | Approved for Construction | |

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2018-08-17
REG. PROFESSIONAL

REFERENCE DRAWINGS
DRAWING No. | DRAWING TITLE

HATCH

StrataGold Corporation

EAGLE GOLD PROJECT

COARSE ORE STOCKPILE/RECLAIM
CONCRETE SUPPORT STRUCTURES
TITLE SHEET, ISOMETRIC VIEW

| SCALE | DWG. No. | REV |
|---|---|---|
| NTS OR AS NOTED | H354138-3210-231-260-0001 | 0 |

SHEET SIZE: D

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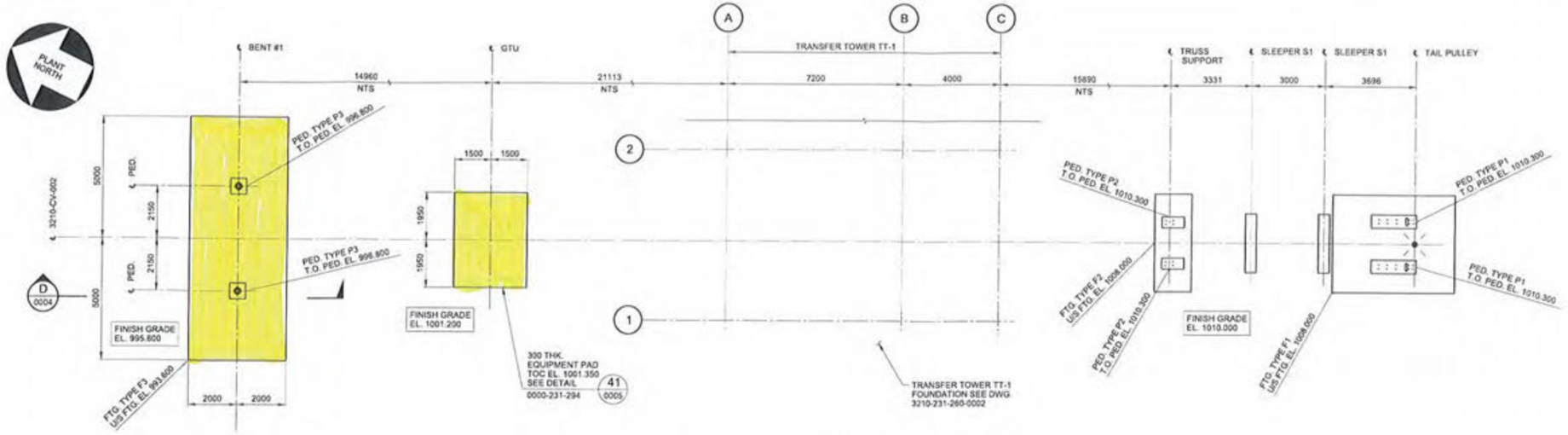
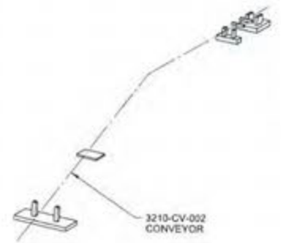
PRINTED: 17-AUG-2018 15:07
$USERNAME$

DWG. No. H354138-3210-231-260-0003



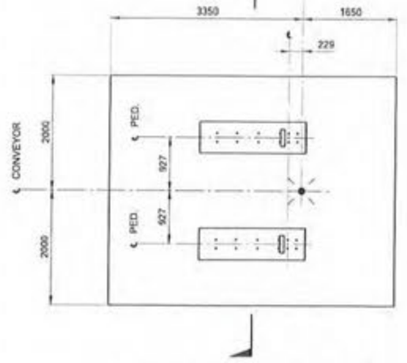

## 3210-CV-002 FOUNDATION PLAN

FINISHED GRADE EL. VARIES
SCALE 1:100



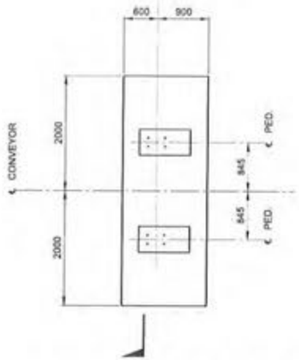

## ISOMETRIC VIEW

NTS



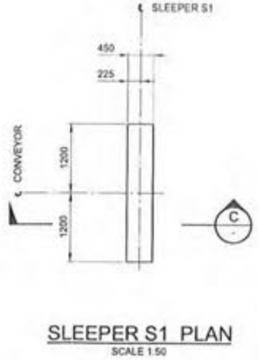

## FOOTING TYPE F-1 PLAN

SCALE 1:50



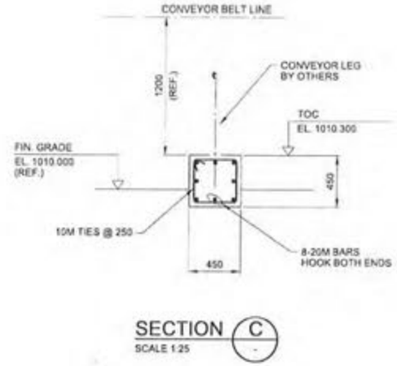

## FOOTING TYPE F-2 PLAN

SCALE 1:50




## SLEEPER S1 PLAN

SCALE 1:50

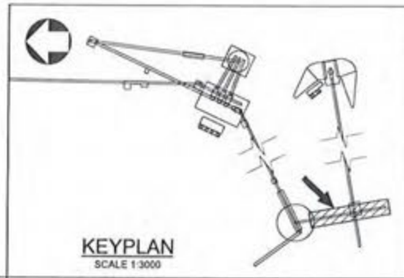



## SECTION C

SCALE 1:25

NOTES:

1. FOR NOTES SEE DRAWING H354138-3210-231-260-0001.



## KEYPLAN

SCALE 1:3000

1:100 SCALE IN METRES

| DRAWING No. | DRAWING TITLE |
|---|---|
| REFERENCE DRAWINGS | |

REG. PROFESSIONAL

2018-08-17

| No. | DESCRIPTION | BY | CHK'D | DATE |
|---|---|---|---|---|
| 0 | APPROVED FOR CONSTRUCTION | EM | EA | 2018-08-17 |

REVISIONS

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HATCH

| | | | |
|---|---|---|---|
| DRAFTSPERSON | E. MENDIOLA | NR | 2018-08-16 |
| DESIGNER | H. LI | NR | 2018-08-16 |
| CHECKER | E. AKINCI | | 2018-08-17 |
| DESIGN COORD. | S. PERKINS | | 2018-08-17 |
| RESP. ENG. | E. AKINCI | | 2018-08-17 |
| LEAD DISC. ENG. | E. AKINCI | | 2018-08-17 |
| ENG. MANAGER | B. RUSTAD | | 2018-08-17 |
| PROJ. MANAGER | B. RUSTAD | | 2018-08-17 |

| ROLE | NAME | SIGNATURE & DATE |
|---|---|---|
| DRAWING APPROVAL STATUS: | Approved for Construction | |

StrataGold Corporation

EAGLE GOLD PROJECT

COARSE ORE STOCKPILE/RECLAIM
3210-CV-002 CONVEYOR FOUNDATION
PLAN, SECTIONS AND DETAILS-SHEET 1

| SCALE | DWG. No. | REV |
|---|---|---|
| AS NOTED OR AS NOTED | H354138-3210-231-260-0003 | 0 |

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## ,e Milliano, Ryan

**From:** Van Laar, Erik
**Sent:** October 21, 2018 11:31 AM
**To:** Nice, Peter
**Cc:** de Milliano, Ryan
**Subject:** CV-001 and CV-002

**Follow Up Flag:** Follow up
**Flag Status:** Flagged

Peter,

The survey for underside of footings at the bent for CV-001 shows the final grade to be 15 to 30 mm high.
The underside of footings at Bent 1 at CV-002 shows it to be 50 to 85 mm high, while the GTU is at grade.

Erik.

frontier
**Erik van Laar** Surveyor
D:780.395.3300 C: 587.532.8971
4703 52 Ave, Edmonton, Alberta, Canada, T6B 3R6

# CONTRACTOR/INTERDISCIPLINE RELEASE FORM

| | | | |
|---|---|---|---|
| **Project:** | Eagle Gold Project | **Revision No.** | 0 |
| **Contractor:** | Ewing | **Contract No:** | CC 201 |
| **Area:** | 3210 – CV-013 | | |

| | | | |
|---|---|---|---|
| **Date** *(mm/dd/yy)*: | 04/11/2018 | **Drawing No:** | H354138-3210-231-260-0014 |
| **Discipline:** | Civil/Subgrade | | |

**The following:** **Area** ☒ **Equipment** ☐ **System** ☐ **Other** ☐

**(Provide complete description of area item, equipment system and Tag Numbers where applicable):**

**Subgrade preparation for CV-013 CWT Tower**

**Released to:** Clark Builders

**Release Basis:**

| | | | |
|---|---|---|---|
| ☒ | Civil | ☐ | Paintings/Coatings |
| ☐ | Structural | ☐ | Electrical |
| ☐ | Mechanical | ☐ | Tracing |
| ☐ | Piping | ☐ | Insulation |
| ☐ | NDE | ☐ | Fireproofing |
| ☐ | PHWT | ☐ | Walkdown/Punchout |
| ☐ | Pressure Test | ☐ | Other |

**Comments:**

**CWT Tower sub-excavated to 1.5 meters below design U/S of footing elevation; backfilled with 4" NFS material to U/S footing elevation 1017.200**

| | | | |
|---|---|---|---|
| Russell Worksane | Supervisor | | 11/4/18 |
| Requested By *(Print)* | Title | Signature | Date *(mm/dd/yy)* |
| Ishan Fechter | Superintendent | | 11/04/18 |
| Release Authorized By *(Print)* | Title | Signature | Date *(mm/dd/yy)* |
| Release Received/Accepted By *(Print)* | Title | Signature | Date *(mm/dd/yy)* |

CLARK BUILDERS
ENERGY & RESOURCES

# AREA CONCRETE TURNOVER

Rev 00 September 18, 2018

| | |
|---|---|
| OWNER REPRESENTATIVE(S): Ishan Fechter; Matt Coverdale | DATE OF TURNOVER: November 22, 2018 |
| CLARK BUILDERS REPRESENTIVE(S): Jackson Wenger; Garry Dahl; Dan Pelletier | AREA/ LOCATION: 3320/3310 Secondary Crusher and Screen support foundation/ Tertiary Crushing Building foundation |

| | |
|---|---|
| TURNOVER TYPE: | ☒ COMPLETE AREA ☐ PARTIAL AREA ☐ EQUIPMENT ☐ SYSTEM ☐ OTHER |
| COMPLETE DESCRIPTION OF AREA TO BE TURNED OVER: | Concrete installations for Secondary Crusher and Screen support foundation and Tertiary Crushing Building foundation. |
| SCOPES INCLUDED: | ☐ CIVIL/EARTHWORK ☒ CONCRETE ☒ ANCHOR BOLTS/EMBEDS ☒ GROUNDING ☐ GROUT |
| RELEASED FROM (Company): | Clark Builders |
| RELEASED TO (Company): | JDS Mining and Energy Inc. |

ATTACHMENT(S):

Att "A" - 2018.11.22 – 3300 Construction Walk Down Deficiency Sheet

| ITEM | ITEMS TO BE CHECKED | ACCEPT | ACCEPT W/NOTES | DECLINE | N/A | NOTES |
|---|---|---|---|---|---|---|
| 1.0 | Concrete structure dimensions and locations are within acceptable tolerances and is acceptable to the owner. | ☒ | ☐ | ☐ | ☐ | |
| 2.0 | Tolerances for anchor bolts and embedded items have been review and are acceptable. This includes projection and location of embedded items. | ☒ | ☐ | ☐ | ☐ | |
| 3.0 | Safe access to the work area has been prepared by the contractor. | ☒ | ☐ | ☐ | ☐ | |
| 4.0 | All hardware required has been provided to the receiving company from Clark builders. This includes all plates, washers, nuts, etc. | ☒ | ☐ | ☐ | ☐ | |
| 5.0 | As built survey completed on area. | ☒ | ☐ | ☐ | ☐ | As built survey provided to JDS. |
| 6.0 | Bearing surface adequately prepared for grout. | ☒ | ☐ | ☐ | ☐ | Grout to be performed by others. |
| 7.0 | Work area access has been adequately prepared. | ☒ | ☐ | ☐ | ☐ | Bollards not installed due to Waiward access request. |
| 8.0 | Outstanding RFI's for the area have been addressed prior to the area being turned over. | ☒ | ☐ | ☐ | ☐ | |
| 9.0 | Outstanding deficiencies for the area have been addressed prior to the area being turned over. | ☐ | ☒ | ☐ | ☐ | See attached deficiency list from site walk-down on November 22, 2018 |
| | | | | | | |

COMMENTS:

Bollards were not installed since Waiward required crane and equipment access to area to erect structural steel.

OWNER REPRESENTATIVE:

INSPECTOR: _____ TITLE _____ DATE: _____

CLARK BUILDERS REPRESENTATIVE:

INSPECTOR: Ryan deMilliano TITLE Project Coordinator DATE: Nov 29, 2018

CLARK BUILDERS
ENERGY & RESOURCES

CB-FWDPL-DOC-018 Rev 1.

# Construction Walk Down Deficiency Sheet

**"A"** items To be completed before Acceptance.
**"BSU"** Items To be completed before startup.
**"BCC"** Items To be completed before contract closure.
**"C"** Items is Not in Scope.

Project Name: CB201/ 18502 StrataGold Eagle Gold Project

System Description: Concrete Installations

Walkdown Attendees: Clark Builders: Dan Pelletier, Jackson Wenger, Garry Dahl
JDS Mining: Ishan Fechter, Matt Coverdale

Responsible Contractor: Clark Builders Energy & Resources

| Item No. | Date: (YYYY.MM.DD) | Area/ Location | Description | Discipline | Catagory (Dropdown) | Responsibility | Vendor (Dropdown) |
|---|---|---|---|---|---|---|---|
| 1 | 2018.11.22 | Sec./Tert. Crushing Bldg. | Remove concrete slag at base of 250 curb (West of crusher opening between GL2-3) | Carpentry | BCC | Clark Builders | No |
| 2 | 2018.11.22 | Sec./Tert. Crushing Bldg. | Remove block outs for 100x300 openings at North of crusher motor pads (4 places) | Carpentry | BCC | Clark Builders | No |
| 3 | 2018.11.22 | Sec./Tert. Crushing Bldg. | Remove camlock tie cones from 250mm curbs West of crusher opening | Carpentry | BCC | Clark Builders | No |

# CONTRACTOR/INTERDISCIPLINE RELEASE FORM

| | | | |
|---|---|---|---|
| **Project:** | Eagle Gold Project | **Revision No.** | 0 |
| **Contractor:** | Ewing | **Contract No:** | CC 201 |
| **Area:** | 3210 – Coarse Ore Reclaim Tunnel - Culvert | | |

| | | | |
|---|---|---|---|
| **Date** *(mm/dd/yy)*: | 25/11/2018 | **Drawing No:** | H354138-3210-231-260-0010 Rev. 5 |
| **Discipline:** | Civil/Subgrade/Multi-Plate Culvert | | |

**The following:** **Area** ☒ **Equipment** ☐ **System** ☐ **Other** ☐

**(Provide complete description of area item, equipment system and Tag Numbers where applicable):**

**Multi-Plate Culvert**

**Released to:** Clark Builders

**Release Basis:**

| | | | |
|---|---|---|---|
| ☒ | Civil | ☐ | Paintings/Coatings |
| ☒ | Structural | ☐ | Electrical |
| ☐ | Mechanical | ☐ | Tracing |
| ☐ | Piping | ☐ | Insulation |
| ☐ | NDE | ☐ | Fireproofing |
| ☐ | PHWT | ☐ | Walkdown/Punchout |
| ☐ | Pressure Test | ☐ | Other |

**Comments:**

**Reclaim Tunnel released for rebar and weeping tile installation**

**Note – No concrete to be placed until backfill of multi-plate culvert has been completed to EPCM satisfaction; commencement of concrete placement to be approved by EPCM prior to placement**

| | | | |
|---|---|---|---|
| Marshall Ewing | Foreman | | 11/25/18 |
| Requested By *(Print)* | Title | Signature | Date *(mm/dd/yy)* |
| Ishan Fechter | Superintendent | | 11/25/18 |
| Release Authorized By *(Print)* | Title | Signature | Date *(mm/dd/yy)* |
| Garry DAHL | Supt | | 11/25/18 |
| Release Received/Accepted By *(Print)* | Title | Signature | Date *(mm/dd/yy)* |

# CONTRACTOR/INTERDISCIPLINE RELEASE FORM

| | | | |
|---|---|---|---|
| **Project:** | Eagle Gold Project | **Revision No.** | 0 |
| **Contractor:** | Ewing | **Contract No:** | CC 201 |
| **Area:** | 3100 – Primary Crusher – Transformer Pad | | |

| | | | |
|---|---|---|---|
| **Date** *(mm/dd/yy)*: | 25/11/2018 | **Drawing No:** | H354138-3100-231-260-0031 Rev.2 |
| **Discipline:** | Civil/Subgrade | | |

**The following:** **Area** ☒ **Equipment** ☐ **System** ☐ **Other** ☐

**(Provide complete description of area item, equipment system and Tag Numbers where applicable):**

**Primary Crusher Transformer Pad Sub-Grade prepared to U/S of concrete**

**Released to:** Clark Builders

**Release Basis:**

| | | | |
|---|---|---|---|
| ☒ | Civil | ☐ | Paintings/Coatings |
| ☐ | Structural | ☐ | Electrical |
| ☐ | Mechanical | ☐ | Tracing |
| ☐ | Piping | ☐ | Insulation |
| ☐ | NDE | ☐ | Fireproofing |
| ☐ | PHWT | ☐ | Walkdown/Punchout |
| ☐ | Pressure Test | ☐ | Other |

**Comments:**

**Primary Crusher Transformer Pad prepared to U/S of concrete thickening elevation 1036.850**

**Transformer pad was sub-excavated 1.5m below U/S of concrete and backfilled with 200 mm lifts of 4" NFS material compacted as per Tetratech method spec**

**Sub-grade has been inspected and tested; sub-grade approved for concrete placement**

| Requested By *(Print)* | Title | Signature | Date *(mm/dd/yy)* |
|---|---|---|---|
| Marshall Ewing | Foreman | | 11/25/18 |

| Release Authorized By *(Print)* | Title | Signature | Date *(mm/dd/yy)* |
|---|---|---|---|
| Ishan Fechter | Superintendent | | 11/25/18 |

| Release Received/Accepted By *(Print)* | Title | Signature | Date *(mm/dd/yy)* |
|---|---|---|---|
| | | | |

CLARK BUILDERS
ENERGY & RESOURCES

# AREA CONCRETE TURNOVER

Rev 00 September 18, 2018

| | |
|---|---|
| OWNER REPRESENTATIVE(S): Jerry Chrzaszcz | DATE OF TURNOVER: December 9, 2018 |
| CLARK BUILDERS REPRESENTIVE(S): Ryan de Milliano; Garry Dahl; Jackson Wenger | AREA/ LOCATION: 3100 Primary Crusher Concrete Installations |

| | |
|---|---|
| TURNOVER TYPE: | ☒ COMPLETE AREA ☐ PARTIAL AREA ☐ EQUIPMENT ☐ SYSTEM ☐ OTHER |
| COMPLETE DESCRIPTION OF AREA TO BE TURNED OVER: | Primary Crusher Concrete installations turnover for concrete, embeds, electrical grounding. This turnover excludes the transformer pad, this will be submitted in another turnover. |
| SCOPES INCLUDED: | ☐ CIVIL/EARTHWORK ☒ CONCRETE ☒ ANCHOR BOLTS/EMBEDS ☒ GROUNDING ☐ GROUT |
| RELEASED FROM (Company): | Clark Builders |
| RELEASED TO (Company): | JDS |

| ATTACHMENT(S): |
|---|
| Attachment "A" – 2018.12.09 Site Walk-down |

| ITEM | ITEMS TO BE CHECKED | ACCEPT | ACCEPT W/NOTES | DECLINE | N/A | NOTES |
|---|---|---|---|---|---|---|
| 1.0 | Concrete structure dimensions and locations are within acceptable tolerances and is acceptable to the owner. | ☒ | ☐ | ☐ | ☐ | |
| 2.0 | Tolerances for anchor bolts and embedded items have been review and are acceptable. This includes projection and location of embedded items. | ☒ | ☐ | ☐ | ☐ | |
| 3.0 | Safe access to the work area has been prepared by the contractor. | ☒ | ☐ | ☐ | ☐ | |
| 4.0 | All hardware required has been provided to the receiving company from Clark builders. This includes all plates, washers, nuts, etc. | ☒ | ☐ | ☐ | ☐ | |
| 5.0 | As built survey completed on area. | ☒ | ☐ | ☐ | ☐ | |
| 6.0 | Bearing surface adequately prepared for grout. | ☒ | ☐ | ☐ | ☐ | |
| 7.0 | Work area access has been adequately prepared. | ☒ | ☐ | ☐ | ☐ | |
| 8.0 | Outstanding RFI's for the area have been addressed prior to the area being turned over. (List any related RFI's in the comments) | ☐ | ☒ | ☐ | ☐ | CB RFI 124 to be completed prior to leaving site. |
| 9.0 | Outstanding deficiencies for the area have been addressed prior to the area being turned over. | ☐ | ☒ | ☐ | ☐ | 2018.12.09 – CB to complete deficiencies noted in attached Walk-Down. |

COMMENTS:

As per CB RFI 120 (3100 Scope Change – Remove Ramp; Precast stair pads) Clark builders is not responsible for the installation of the ramp located on the west side of building and will provide precast pads for future installation after structural steel subcontractor is complete.

OWNER REPRESENTATIVE:

INSPECTOR: Jerry Chrzaszcz TITLE Const. Superintendent DATE: Dec 9/18

CLARK BUILDERS REPRESENTATIVE:

INSPECTOR: Ryan deMilliano TITLE Project Coordinator DATE: December 9, 2018

CLARK BUILDERS
ENERGY & RESOURCES

CB-FWDPL-DOC-018 Rev 1.

# Construction Walk Down Deficiency Sheet

**"A"** items To be completed before Acceptance.
**"BSU"** Items To be completed before startup.
**"BCC"** Items To be completed before contract closure.
**"C"** Items is Not in Scope.

Project Name: CB201/ 18502 StrataGold Eagle Gold Project

System Description: Concrete Installations

Walkdown Attendees: Clark Builders: Ryan de Milliano, Jackson Wenger, Garyy Dahl
JDS Mining: Jerry Chrzaszcz

Responsible Contractor: Clark Builders Energy & Resources

| Item No. | Date: (YYYY.MM.DD) | Area/ Location | Description | Discipline | Catagory (Dropdown) | Responsibility | Vendor (Dropdown) |
|---|---|---|---|---|---|---|---|
| 1 | 2018.12.09 | 3100 Primary Crusher | Interior embed plates at level 4 require repair due to slight shifting during placement of final wall concrete. RFI submitted and approved to allow wedges to be welded on to create vertical surface. (CB RFI 124). JDS NCR 01 also created. | Embed Steel | BCC | Clark Builders | No |
| 2 | 2018.12.09 | 3100 Primary Crusher | Embed plate EP-8 at elevation 1046.898 has small slope. CB can repair with thin wedge to crete level bearing surface. | Embed Steel | BCC | Clark Builders | No |
| 3 | 2018.12.09 | 3100 Primary Crusher | PERI plug installation ongoing and to be complete by Clark Builders. | Formwork | BCC | Clark Builders | No |
| 4 | 2018.12.09 | 3100 Primary Crusher | One through rod to be cut off at interior east wall. Structural steel contractor has offered to complete this due to the restricted work area currently. | Formwork | BCC | Clark Builders | No |
| 5 | | | | | | | |
| 6 | | | | | | | |
| 7 | | | | | | | |
| 8 | | | | | | | |

CLARK BUILDERS
ENERGY & RESOURCES



# AREA CONCRETE TURNOVER

Rev 00 September 18, 2018

| | |
|---|---|
| OWNER REPRESENTATIVE(S): Jerry Chraszcz | DATE OF TURNOVER: DECEMBER 9, 2018 |
| CLARK BUILDERS REPRESENTIVE(S): Ryan deMilliano | AREA/ LOCATION: 3100 CU001 |

| | |
|---|---|
| TURNOVER TYPE: | ☐ COMPLETE AREA ☒ PARTIAL AREA ☐ EQUIPMENT ☐ SYSTEM ☐ OTHER |
| COMPLETE DESCRIPTION OF AREA TO BE TURNED OVER: | CU001 BENT 1 FOUNDATION AND PEDESTALS. |
| SCOPES INCLUDED: | ☐ CIVIL/EARTHWORK ☒ CONCRETE ☒ ANCHOR BOLTS/EMBEDS ☒ GROUNDING ☐ GROUT |
| RELEASED FROM (Company): | CLARK BUILDERS |
| RELEASED TO (Company): | SDS |

ATTACHMENT(S): PHOTO (2018.12.08) OF CU001 (BENT 1)
MARKED UP DRAWING / CB-RFI 115.

| ITEM | ITEMS TO BE CHECKED | ACCEPT | ACCEPT W/NOTES | DECLINE | N/A | NOTES |
|---|---|---|---|---|---|---|
| 1.0 | Concrete structure dimensions and locations are within acceptable tolerances and is acceptable to the owner. | ☒ | ☐ | ☐ | ☐ | |
| 2.0 | Tolerances for anchor bolts and embedded items have been review and are acceptable. This includes projection and location of embedded items. | ☒ | ☐ | ☐ | ☐ | |
| 3.0 | Safe access to the work area has been prepared by the contractor. | ☒ | ☐ | ☐ | ☐ | |
| 4.0 | All hardware required has been provided to the receiving company from Clark builders. This includes all plates, washers, nuts, etc. | ☒ | ☐ | ☐ | ☐ | |
| 5.0 | As built survey completed on area. | ☒ | ☐ | ☐ | ☐ | |
| 6.0 | Bearing surface adequately prepared for grout. | ☒ | ☐ | ☐ | ☐ | |
| 7.0 | Work area access has been adequately prepared. | ☒ | ☐ | ☐ | ☐ | |
| 8.0 | Outstanding RFI's for the area have been addressed prior to the area being turned over. (List any related RFI's in the comments) | ☒ | ☐ | ☐ | ☐ | CB RFI 115 |
| 9.0 | Outstanding deficiencies for the area have been addressed prior to the area being turned over. | ☒ | ☐ | ☐ | ☐ | |
| | | | | | | |

COMMENTS:

GROUNDING TAIL PROVIDED FOR BENT 1
South pad needs to be chipped down, concrete is 3/4" to high.

OWNER REPRESENTATIVE:

INSPECTOR: _____ TITLE _____ DATE: _____

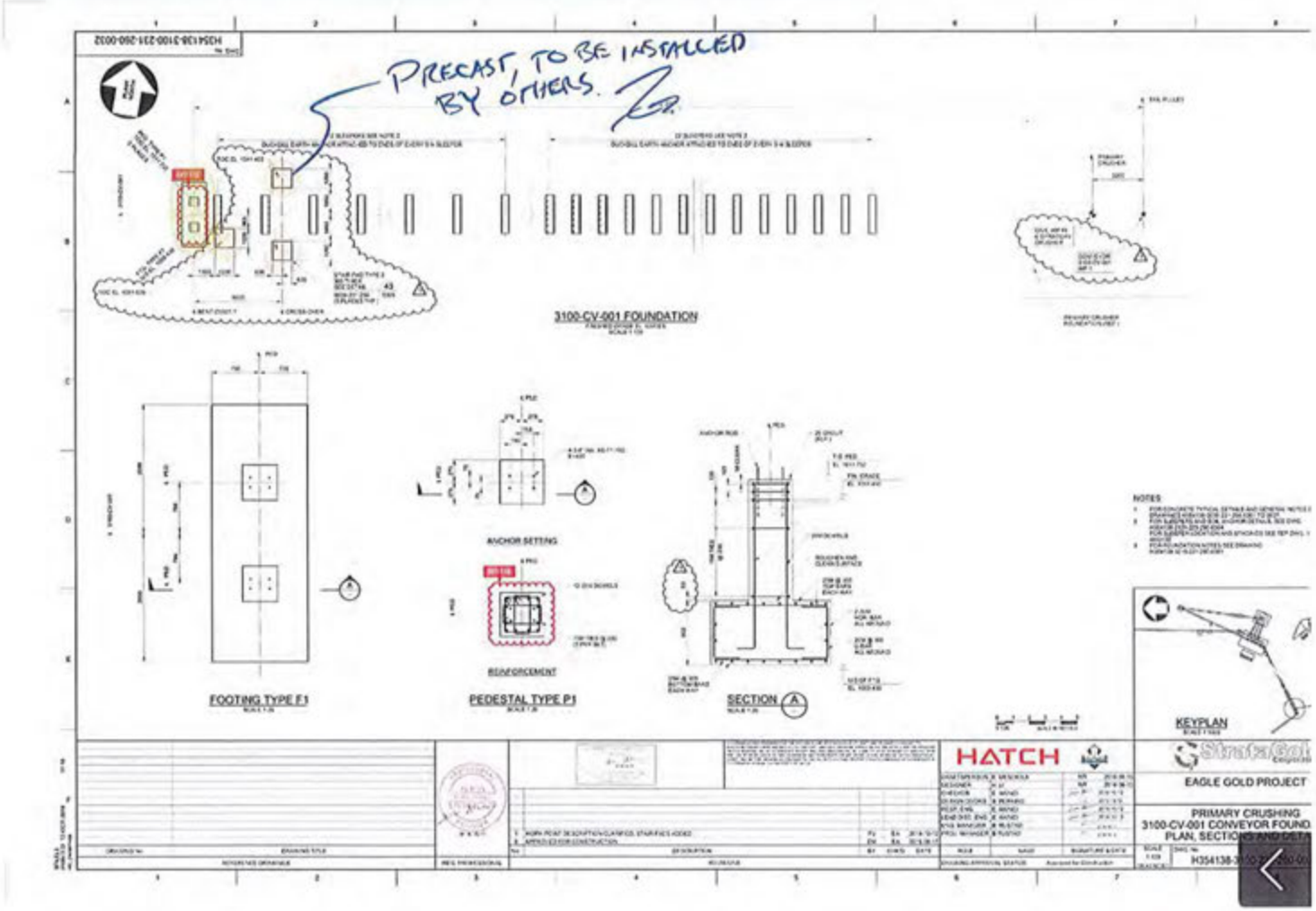
CLARK BUILDERS REPRESENTATIVE:

INSPECTOR: Ryan deMilliano TITLE Project Coordinator DATE: DECEMBER 9, 2018




Done

H354138-3100-231 -260-0032 Rev 1



RFI

DOWNLOADED

## 115 - 3100 CV001 Pedestal Anchor bolts and Stirrup Conflict

Ball in Court: N/A

Status: Closed

Due Date: Nov 21, 2018

### Information

Hide

| | |
|---|---|
| Project Stage: | Course of Construction |
| Location: | 3100 Primary Crushing |
| Manager: | Ryan de Milliano (Clark Builders - Edmonton) |
| Schedule Impact: | No |
| Cost Impact: | No |
| Required Assignees: | None |
| Assignees: | Matt Coverdale (JDS Energy and Mining) |
| Distribution: | Chris Copley (JDS Energy and Mining), Garry Dahl (Clark Builders - Edmonton), Gary Hosey (Clark Builders - Edmonton), Henry Rueda (... |
| Responsible Contractor: | Clark Builders - Edmonton |
| Received From: | Ryan de Milliano (Clark Builders - Edmonton) |

Linked Drawings (1)

### Discussion

Ryan de Milliano

Question

CLARK BUILDERS
ENERGY & RESOURCES



# AREA CONCRETE TURNOVER

Rev 00 September 18, 2018

| | |
|---|---|
| OWNER REPRESENTATIVE(S): Jerry Chraszcz | DATE OF TURNOVER: DECEMBER 10, 2018 |
| CLARK BUILDERS REPRESENTIVE(S): Ryan deMilliano | AREA/ LOCATION: 3210 CU002 |

| | |
|---|---|
| TURNOVER TYPE: | ☒ COMPLETE AREA ☐ PARTIAL AREA ☐ EQUIPMENT ☐ SYSTEM ☐ OTHER |
| COMPLETE DESCRIPTION OF AREA TO BE TURNED OVER: | 3210 CU002 / TRANSFER TOWER 1 |
| SCOPES INCLUDED: | ☐ CIVIL/EARTHWORK ☒ CONCRETE ☒ ANCHOR BOLTS/EMBEDS ☒ GROUNDING ☐ GROUT |
| RELEASED FROM (Company): | CLARK BUILDERS |
| RELEASED TO (Company): | SDS |

ATTACHMENT(S): ⊙ DRAWING 3210-231-260-0003 REV0 MARKED UP.
⊙ CB-RFI 111 - PI PED DOWELS ⊙ CB RFI 78

| ITEM | ITEMS TO BE CHECKED | ACCEPT | ACCEPT W/NOTES | DECLINE | N/A | NOTES |
|---|---|---|---|---|---|---|
| 1.0 | Concrete structure dimensions and locations are within acceptable tolerances and is acceptable to the owner. | ☒ | ☐ | ☐ | ☐ | |
| 2.0 | Tolerances for anchor bolts and embedded items have been review and are acceptable. This includes projection and location of embedded items. | ☒ | ☐ | ☐ | ☐ | |
| 3.0 | Safe access to the work area has been prepared by the contractor. | ☒ | ☐ | ☐ | ☐ | |
| 4.0 | All hardware required has been provided to the receiving company from Clark builders. This includes all plates, washers, nuts, etc. | ☒ | ☐ | ☐ | ☐ | |
| 5.0 | As built survey completed on area. | ☒ | ☐ | ☐ | ☐ | |
| 6.0 | Bearing surface adequately prepared for grout. | ☒ | ☐ | ☐ | ☐ | |
| 7.0 | Work area access has been adequately prepared. | ☒ | ☐ | ☐ | ☐ | |
| 8.0 | Outstanding RFI's for the area have been addressed prior to the area being turned over. (List any related RFI's in the comments) | ☒ | ☐ | ☐ | ☐ | RFI 111<br>RFI 078 |
| 9.0 | Outstanding deficiencies for the area have been addressed prior to the area being turned over. | ☒ | ☐ | ☐ | ☐ | |
| | | | | | | |

COMMENTS:

OWNER REPRESENTATIVE:

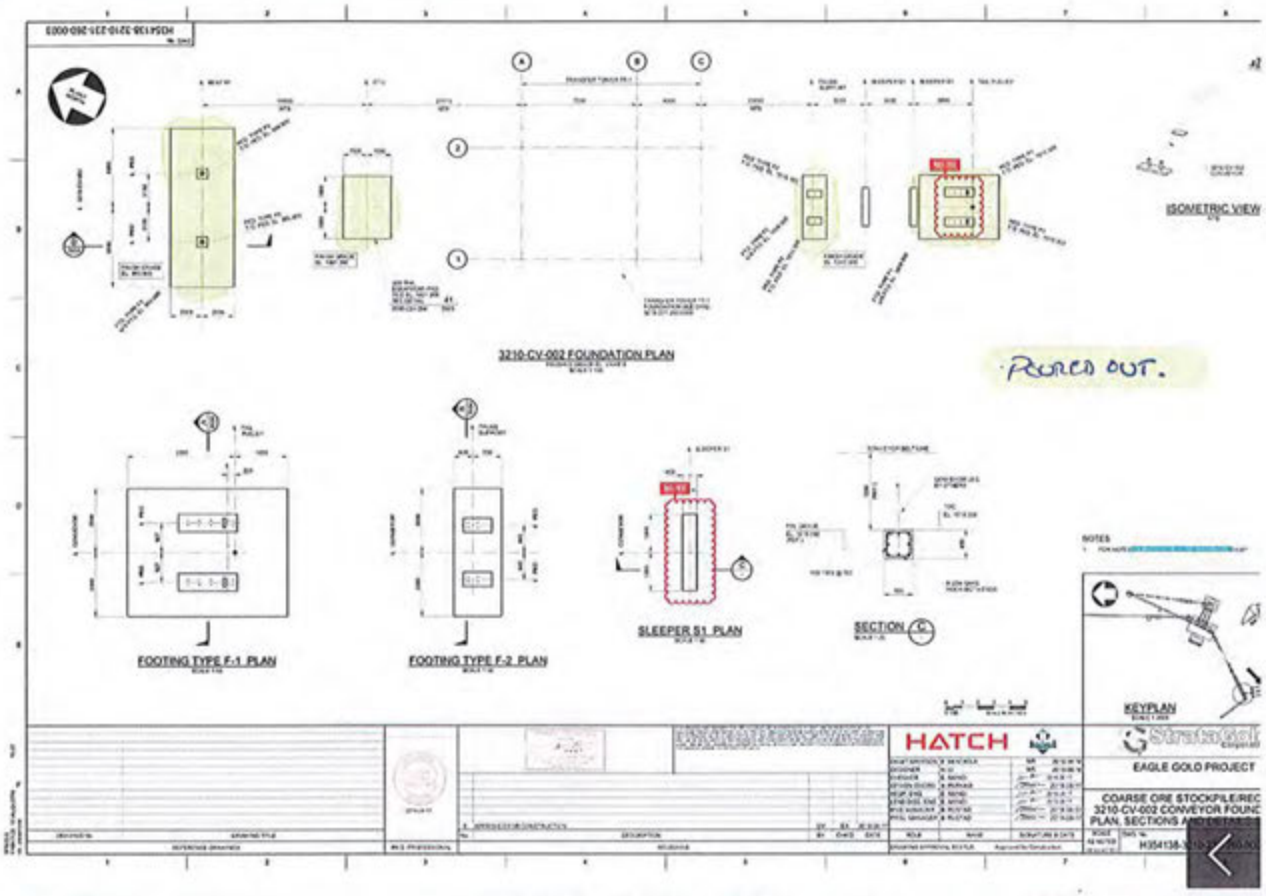
INSPECTOR: _____ TITLE _____ DATE: _____

CLARK BUILDERS REPRESENTATIVE:

INSPECTOR: Ryan deMilliano TITLE Project Coordinator DATE: DECEMBER/0 2018

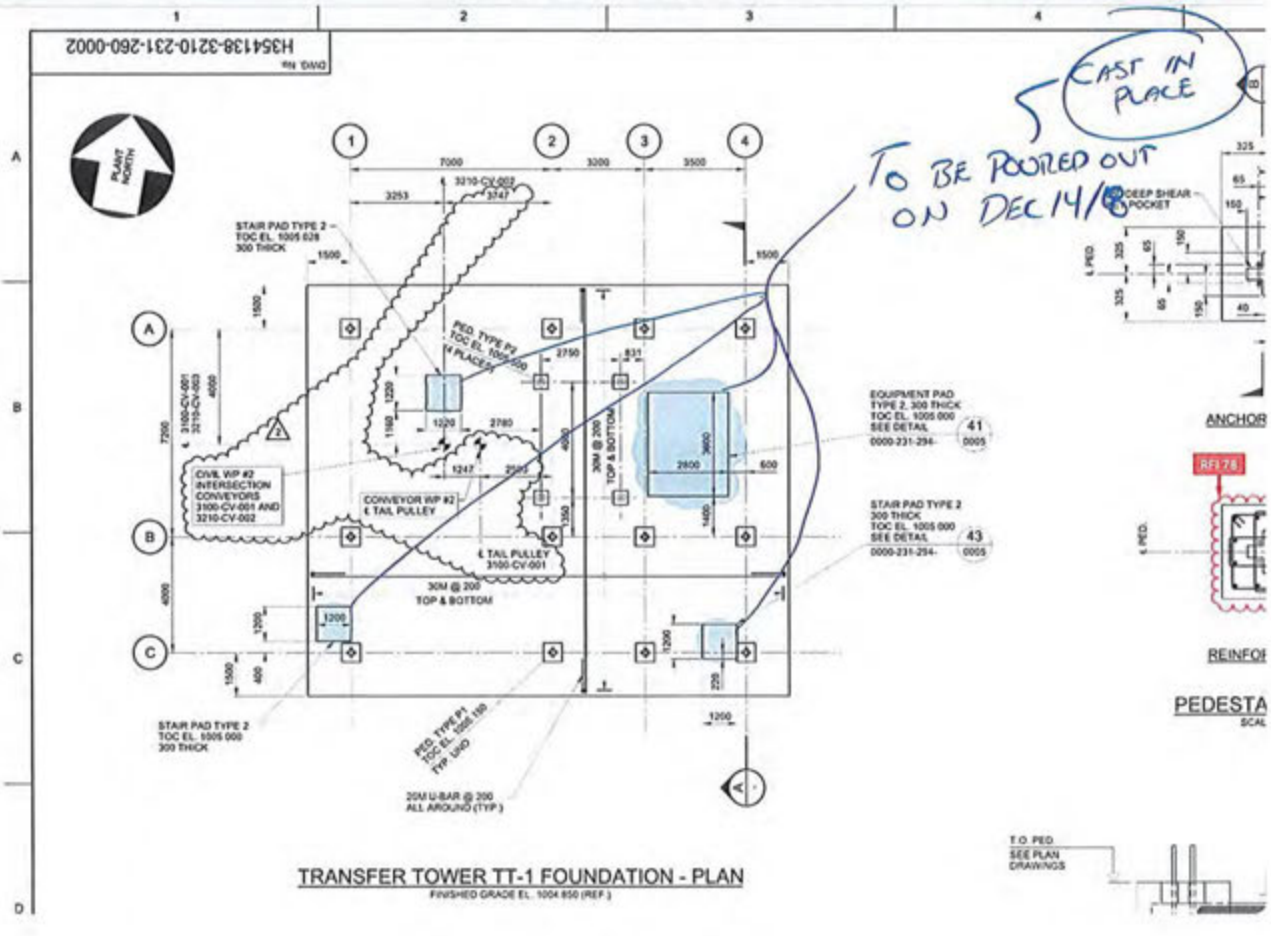
Done

H354138-3210-231-260-0003 Rev 0




Done

H354138-3210-231-260-0002 Rev 2



# RFI #111

Clark Builders
4703 - 52 Avenue
Edmonton, Alberta T6B 3R6
Phone: (780) 395-3300
Fax: (780) 395-3545

**Project:** 18502 - CB201-JDS - Stratagold Eagle Gold
Yukon Territory

## 3210 P1 Pedestal dowels 89mm back of design at CV002 Tail Pulley

| | | | |
|---|---|---|---|
| **TO:** | Matt Coverdale **(JDS Energy and Mining)** | **FROM:** | Ryan de Milliano **(Clark Builders - Edmonton)** Edmonton, Alberta |
| **DATE INITIATED:** | 15/11/2018 | **STATUS:** | Closed |
| **LOCATION:** | 3210 Coarse Ore Reclaim & Conveyor | **DUE DATE:** | 18/11/2018 |
| **PROJECT STAGE:** | Course of Construction | **COST CODE:** | |
| **SUB JOB:** | | **SCHEDULE IMPACT:** | No |
| **COST IMPACT:** | No | **SPEC SECTION:** | |
| **DRAWING NUMBER:** | | **REFERENCE:** | |
| **LINKED DRAWINGS:** | H354138-3210-231-260-0003, H354138-3210-231-260-0005 | | |
| **RECEIVED FROM:** | Erik Vanlaar **(Clark Builders - Edmonton)** | | |

**COPIES TO:**
Chris Copley **(JDS Energy and Mining)**, Matt Coverdale **(JDS Energy and Mining)**, Garry Dahl **(Clark Builders - Edmonton)**, Ryan de Milliano **(Clark Builders - Edmonton)**, Ishan Fechter **(JDS Energy and Mining)**, Gary Hosey **(Clark Builders - Edmonton)**, Jan Johnson **(Clark Builders - Edmonton)**, Peter Nice **(Clark Builders - Edmonton)**, Henry Rueda **(Clark Builders - Edmonton)**, Tawnya Thornton **(JDS Energy and Mining)**, Jackson Wenger **(Clark Builders - Edmonton)**

### Question from Ryan de Milliano (Clark Builders - Edmonton) at 01:35 PM on 15/11/2018

2 x P1 Pedestals located at CV002 Tail Pulley Foundation have been set 89 back of design. Please confirm this move will be acceptable. All anchor bolts will be set as per original design.

**Attachments:**
E26FE74B-E9D1-4A38-8B9B-CE8DCF8A2577-9231-0000026D921FB4DF_image.jpg

**Official Response:** **Ryan de Milliano (Clark Builders - Edmonton)** *responded on Tuesday, November 20th, 2018 at 8:28PM MST*

Engineering Response:

Request is acceptable providing that all the anchor bolts and the shear key pocket is in the original design location.

Esra Akinci Nov 15, 2018

**Attachments:**
CB201-RFI-111 - Hatch Response.pdf

## All Replies:

### Response from Ryan de Milliano (Clark Builders - Edmonton) at 08:28 PM on 20/11/2018

Engineering Response:

Request is acceptable providing that all the anchor bolts and the shear key pocket is in the original design location.

Esra Akinci Nov 15, 2018

**Attachments:**
CB201-RFI-111 - Hatch Response.pdf

**BY** **DATE** **COPIES TO**

CLARK BUILDERS

# RFI #78

Clark Builders
4703 - 52 Avenue
Edmonton, Alberta T6B 3R6
Phone: (780) 395-3300
Fax: (780) 395-3545

**Project:** 18502 - CB201-JDS - Stratagold Eagle Gold
Yukon Territory

## 0000 Anchor Bolt and Rebar Congestion at Pedestals

| | | | |
|---|---|---|---|
| **TO:** | Calvin Goldschmidt **(JDS Energy and Mining)** | **FROM:** | Ryan de Milliano **(Clark Builders - Edmonton)** Edmonton, Alberta |
| **DATE INITIATED:** | 30/09/2018 | **STATUS:** | Closed |
| **LOCATION:** | 0000 Site Wide | **DUE DATE:** | 05/10/2018 |
| **PROJECT STAGE:** | | **COST CODE:** | 03-3201 - REINFORCE STEEL/MESH |
| **SUB JOB:** | | **SCHEDULE IMPACT:** | No |
| **COST IMPACT:** | No | **SPEC SECTION:** | S032000 - Concrete Reinforcing Steel |
| **DRAWING NUMBER:** | Various | **REFERENCE:** | |
| **LINKED DRAWINGS:** | H354138-3210-231-260-0002, H354138-3210-231-260-0005, H354138-3330-231-260-0012 | | |
| **RECEIVED FROM:** | Ryan de Milliano **(Clark Builders - Edmonton)** | | |

**COPIES TO:**
Chris Copley **(JDS Energy and Mining)**, Matt Coverdale **(JDS Energy and Mining)**, Garry Dahl **(Clark Builders - Edmonton)**, Ryan de Milliano **(Clark Builders - Edmonton)**, Gary Hosey **(Clark Builders - Edmonton)**, Jan Johnson **(Clark Builders - Edmonton)**, Peter Nice **(Clark Builders - Edmonton)**, Henry Rueda **(Clark Builders - Edmonton)**, Jackson Wenger **(Clark Builders - Edmonton)**

### Question from Ryan de Milliano (Clark Builders - Edmonton) at 03:51 PM on 30/09/2018

When required, please confirm it would be acceptable to modify stirrups, with slight field bends, at locations where anchor bolts cannot fit into the forms at correct location.

Examples are P3 Pedestals (Drawing H354138-3210-231-260-0005) and P1 Pedestals (drawing H354138-3210-231-260-0002 r2). The interior stirrups add there is congestion to the pedestal that the anchor bolts cannot fit in correct position. Bowing out the stirrups will allow the anchor bolts to be in correct position and also allow concrete to surround the reinforcing entirely.

**Official Response:** **Ryan de Milliano (Clark Builders - Edmonton)** *responded on Tuesday, October 2nd, 2018 at 7:22PM MDT*
2018.10.01 HATCH Response:

"It is acceptable to modify the stirrups with slight field bends ONLY at the locations it will help locating the anchor bolts correctly."

Esra Akinci

**Attachments:**
CB201-RFI-078 - Hatch Response.pdf

## All Replies:

### Response from Ryan de Milliano (Clark Builders - Edmonton) at 07:22 PM on 02/10/2018

2018.10.01 HATCH Response:

"It is acceptable to modify the stirrups with slight field bends ONLY at the locations it will help locating the anchor bolts correctly."

Esra Akinci

**Attachments:**
CB201-RFI-078 - Hatch Response.pdf

CLARK BUILDERS
ENERGY & RESOURCES



# AREA CONCRETE TURNOVER

Rev 00 September 18, 2018

| | |
|---|---|
| OWNER REPRESENTATIVE(S): Jerry Chraszcz | DATE OF TURNOVER: DECEMBER 10, 2018 |
| CLARK BUILDERS REPRESENTIVE(S): Ryan deMilliano | AREA/ LOCATION: 3210 CU003 |

| | |
|---|---|
| TURNOVER TYPE: | ☒ COMPLETE AREA ☐ PARTIAL AREA ☐ EQUIPMENT ☐ SYSTEM ☐ OTHER |
| COMPLETE DESCRIPTION OF AREA TO BE TURNED OVER: | 3210 CU003 |
| SCOPES INCLUDED: | ☐ CIVIL/EARTHWORK ☒ CONCRETE ☒ ANCHOR BOLTS/EMBEDS ☒ GROUNDING ☐ GROUT |
| RELEASED FROM (Company): | CLARK BUILDERS |
| RELEASED TO (Company): | JDS |

ATTACHMENT(S): RFI 114
DRAWING MARKUP.

| ITEM | ITEMS TO BE CHECKED | ACCEPT | ACCEPT W/NOTES | DECLINE | N/A | NOTES |
|---|---|---|---|---|---|---|
| 1.0 | Concrete structure dimensions and locations are within acceptable tolerances and is acceptable to the owner. | ☒ | ☐ | ☐ | ☐ | |
| 2.0 | Tolerances for anchor bolts and embedded items have been review and are acceptable. This includes projection and location of embedded items. | ☒ | ☐ | ☐ | ☐ | |
| 3.0 | Safe access to the work area has been prepared by the contractor. | ☒ | ☐ | ☐ | ☐ | |
| 4.0 | All hardware required has been provided to the receiving company from Clark builders. This includes all plates, washers, nuts, etc. | ☒ | ☐ | ☐ | ☐ | |
| 5.0 | As built survey completed on area. | ☒ | ☐ | ☐ | ☐ | |
| 6.0 | Bearing surface adequately prepared for grout. | ☒ | ☐ | ☐ | ☐ | |
| 7.0 | Work area access has been adequately prepared. | ☒ | ☐ | ☐ | ☐ | |
| 8.0 | Outstanding RFI's for the area have been addressed prior to the area being turned over. (List any related RFI's in the comments) | ☒ | ☐ | ☐ | ☐ | |
| 9.0 | Outstanding deficiencies for the area have been addressed prior to the area being turned over. | ☒ | ☐ | ☐ | ☐ | |
| | | | | | | |

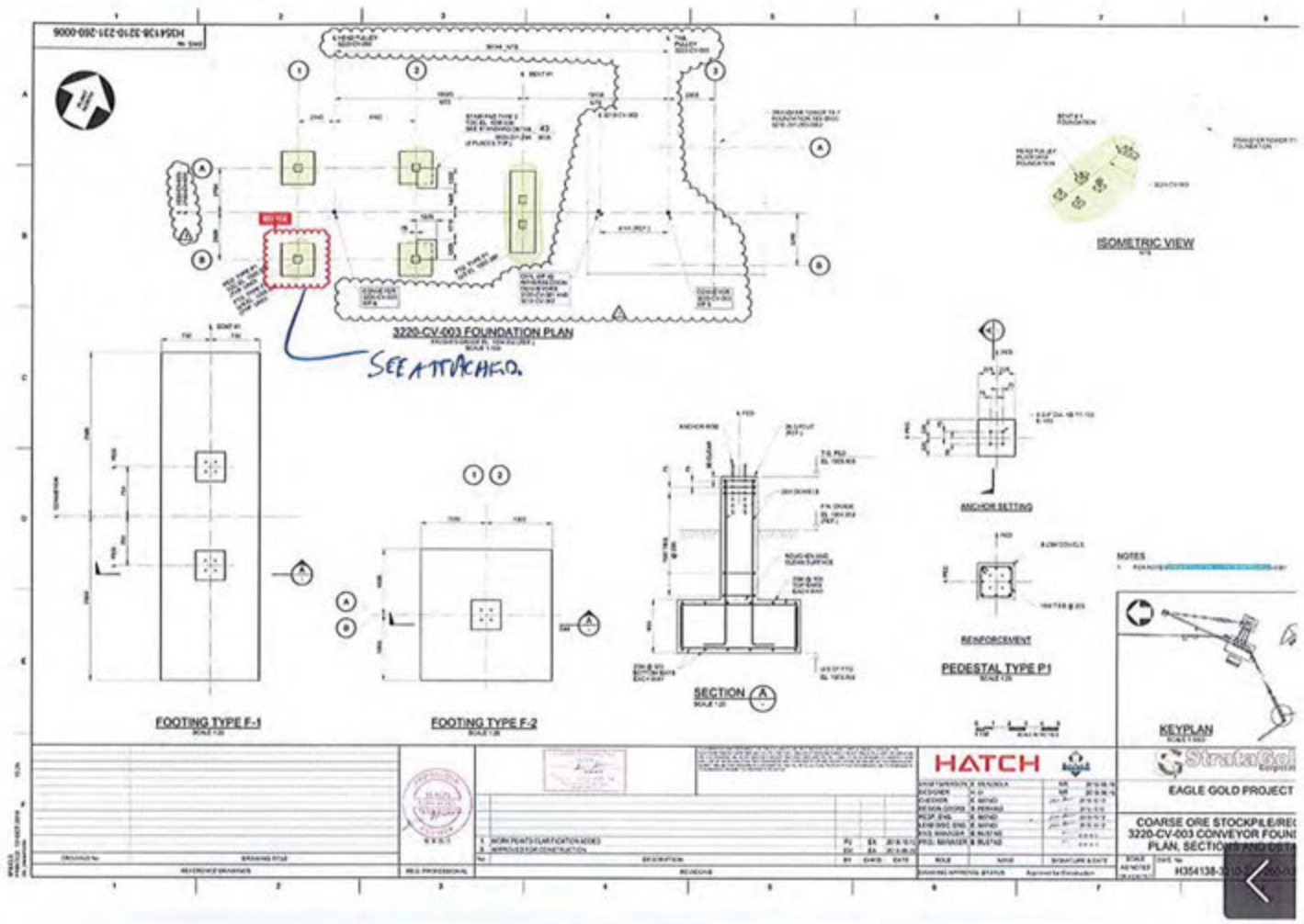
COMMENTS:

OWNER REPRESENTATIVE:
INSPECTOR: Jerry Chraszcz TITLE Const. Sup. DATE: Dec 11/18

CLARK BUILDERS REPRESENTATIVE:
INSPECTOR: Ryan deMilliano TITLE PROJECT COORDINATOR DATE: DECEMBER 10 2018

Done

H354138-3210-231-260-0006 Rev 1






CLARK BUILDERS

# RFI #114

Clark Builders
4703 - 52 Avenue
Edmonton, Alberta T6B 3R6
Phone: (780) 395-3300
Fax: (780) 395-3545

**Project:** 18502 - CB201-JDS - Stratagold Eagle Gold
Yukon Territory

## 3210 CV003 Pedestal Dowel Cover 150mm to TOC

| | | | |
|---|---|---|---|
| **TO:** | Matt Coverdale **(JDS Energy and Mining)** | **FROM:** | Ryan de Milliano **(Clark Builders - Edmonton)** Edmonton, Alberta |
| **DATE INITIATED:** | 17/11/2018 | **STATUS:** | Closed |
| **LOCATION:** | 3210 Coarse Ore Reclaim & Conveyor | **DUE DATE:** | 20/11/2018 |
| **PROJECT STAGE:** | Course of Construction | **COST CODE:** | |
| **SUB JOB:** | | **SCHEDULE IMPACT:** | No |
| **COST IMPACT:** | No | **SPEC SECTION:** | |
| **DRAWING NUMBER:** | | **REFERENCE:** | |
| **LINKED DRAWINGS:** | H354138-3210-231-260-0006 | | |
| **RECEIVED FROM:** | Ryan de Milliano **(Clark Builders - Edmonton)** | | |

**COPIES TO:**
Chris Copley **(JDS Energy and Mining)**, Matt Coverdale **(JDS Energy and Mining)**, Garry Dahl **(Clark Builders - Edmonton)**, Ryan de Milliano **(Clark Builders - Edmonton)**, Ishan Fechter **(JDS Energy and Mining)**, Peter Nice **(Clark Builders - Edmonton)**, Dan Pelletier **(Frontier Employees Inc.)**, Henry Rueda **(Clark Builders - Edmonton)**, Tawnya Thornton **(JDS Energy and Mining)**, Jackson Wenger **(Clark Builders - Edmonton)**

### Question from Ryan de Milliano (Clark Builders - Edmonton) at 01:34 PM on 17/11/2018

Please confirm it is acceptable to have 150mm of cover to pedestal TOC at one pedestal location (SW) on CV003.

**Attachments:**
1542486863649.350098_tempImage.jpeg

**Official Response:** **Ryan de Milliano (Clark Builders - Edmonton)** *responded on Tuesday, November 20th, 2018 at 8:40PM MST*

Engineering Response:

Request is accepted.

Esra Akinci Nov 17, 2018

**Attachments:**
CB201-RFI-114 - Hatch Response.pdf

## All Replies:

### Response from Ryan de Milliano (Clark Builders - Edmonton) at 08:40 PM on 20/11/2018

Engineering Response:

Request is accepted.

Esra Akinci Nov 17, 2018

**Attachments:**
CB201-RFI-114 - Hatch Response.pdf

**BY** _____ **DATE** _____ **COPIES TO** _____

# ATTACHMENT D

## Quality Control Inspection and Testing

TETRA TECH

# TECHNICAL MEMO

ISSUED FOR USE

| | | | |
|---|---|---|---|
| **To:** | Calvin Goldschmidt; Matt Coverdale; Ishan Fechter | | |
| **Cc:** | | **From:** | James Buyck |
| **Project:** | Secondary & Tertiary MSE Wall | **Date:** | September 27, 2018 |
| **Location:** | Eagle Gold Mine, YT | **Weather:** | Sunny |
| **Client:** | JDS Energy & Mining (Strata Gold Corp) | | High 25°C |
| **File:** | ENG.WARC03235-05.004 | | Low 19°C |

**Re:** **100 mm Minus Type 4 Material Test Fill**

## 1.0 INTRODUCTION AND OBJECTIVE

This memo presents the findings and results of a test fill to determine method specification of Type 4 Material used as backfill for the Mechanically Stabilized Earth (MSE) Wall located at the Secondary and Tertiary Crusher site.

As requested, Tetra Tech Canada Inc. (Tetra Tech), NELPCo's service provider, supervised the method specification to evaluate the engineering properties of the 100 mm Minus Type 4 structural fill. This material was screened from the borrow source located at the end of ROM Road.

The test fill for the method specification was conducted on August 11, 2018, and was supervised by Tetra Tech site representative, James Buyck. JDS representatives, Matt Coverdale and Ishan Fechter were also present.

The following summarizes the methodology, execution and results of the test fill.

## 2.0 TEST FILL CONSTRUCTION AND EXECUTION

The test fill performed is based on previous test fills developed by BGC Engineering for other projects associated with the mine site. The test fill was prepared by Heavy North Construction Ltd. (Heavy North) and survey provided by Underhill Geomatics Ltd. with on-site representation by Richard Morin.

### 2.1 Test Fill Material and borrow Description

The materials used in the test fill was generated by Nuway Crushing Limited (NCL) from the ROM Road borrow source area. The borrow source comprises drilled, blasted, and heavy equipment ripped materials. The Type 4 100 mm Minus material is produced using a McCloskey Screener. Gradation analysis and moisture content determination were also performed. Results are attached following this memo. In general, the material comprises 100 mm minus well graded gravel and sand portions. Laboratory determined moisture content was 4.2%.

Tetra Tech Canada Inc.
61 Wasson Place
Whitehorse YT, Y1A 0H7 CANADA
Tel 867.668.3068 Fax 867.668.4349




**Photo 1:** View of 100 mm Minus test fill material during survey of steel plates used to measure settlement after compaction with a CAT CS56B Series steel drum vibratory roller.

## 2.2 Test Fill Foundation

The area used for the test fill is located west of the Secondary and Tertiary Crusher site. The foundation base was level, compact, dry and previously compacted with heavy equipment traffic. There was no noted deflection in the foundation under roller traffic.

## 2.3 Test Fill Placement and Compaction

The test fill was constructed by end dumping of the Type 4 100 Minus and then levelling in-place using a CAT 324E Series excavator. The loose lift thickness of the test fill was about 0.3 to 0.4 m, and approximately 4 m x 6 m in size.



**Photo 2:** The CAT CS56B Series steel drum vibratory roller used for the test fill.

## 2.4 Moisture Conditioning

Moisture was not added to the test fill.

## 2.5 Test Fill Compaction and Settlement Measurements

To measure the rate of settlement under compaction three steel plates were placed in a row down the center of the lift and used as monitoring points (as shown in Photo 1, above). The settlement monitoring points were initially surveyed using a Total Station. The test fill was then compacted with one cycle (1 forward pass and 1 reverse pass) of the CAT CS56B Series steel drum roller on full vibration and an effective drum weight of 6,350 kg (13,990 lbs). After completion of one compaction cycle, each settlement point was surveyed. This was repeated for 4 full compaction cycles for the test fill. Specifications for the CAT CS56B Series compactor are included in Attachment 2.

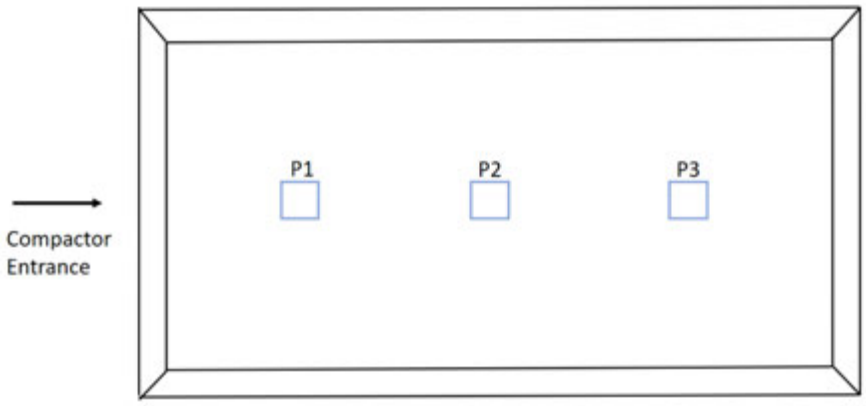



Figure 2: Approximate layout of survey monitoring points within test fill pad.

Settlement data collected is included in ***Table 1*** below.

| Number of Passes | Settlement Survey Results (mm) | | |
|---|---|---|---|
| | Plate No. 1 (P1) | Plate No. 2 (P2) | Plate No. 3 (P3) |
| 0 | N/A | N/A | N/A |
| 1 | 22 | 51 | 44 |
| 2 | 8 | 5 | 9 |
| 3 | 8 | 8 | 7 |
| 4 | 2 | 0 | 2 |

## 2.6 Test Fill Observations

Evident surface yield was observed within the test fill after the initial pass of the vibratory compactor, as indicated in the survey results that ranged from 21 to 55 mm. Subsequent passes resulted in reduced settlement and after four passes limited to 0 to 2 mm. It was also observed that after 4 passes, fracturing of the larger (50 to 100 mm) particles had occurred.

# 3.0 CONCLUSION

The results of the test fill indicate that the Type 4 Material can achieve sufficient densities with a minimum of 4 passes with a minimum 6,350 kg compactor set at high frequency, and in lifts up to 0.3 m thick.

Tetra Tech recommends that the following criteria be used for placement and compaction of the Type 4 Material for use as structural fill within the MSE wall:

- A maximum loose lift thickness of 0.3 m should be applied.

- The minimum number of passes with the CAT CS56B Series compactor should be at least, but not exceed, 4 passes. The number of passes to be adjusted should a larger or smaller compactor be used. Observation of the larger particles within the fill should also be noted and excessive fracturing be avoided.
- If gradation of the fill material vary significantly then additional testing may be required.

- Proof roll of the placed and compacted fill be conducted for each lift while observed and noted by Tetra Tech site representative. Proof rolling to be conducted with a loaded single axel end dump. legally loaded dual rear wheel truck with an effective single axle load of 18,000 lbs. (or 80 kN). This can be a truck that hauls gravel or excavated material or a water truck. In some cases, other equipment may be used to conduct a proof-roll; however, care must be taken to account for the different stresses applied from the variable load ratings of these vehicles.

# 4.0 CLOSURE

We trust that the information provided herein is accurate and complete. Please contact the undersigned if you require additional information or have any concerns.

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Chad Cowan, P.Eng.
Geotechnical Manager – Yukon, Arctic Region
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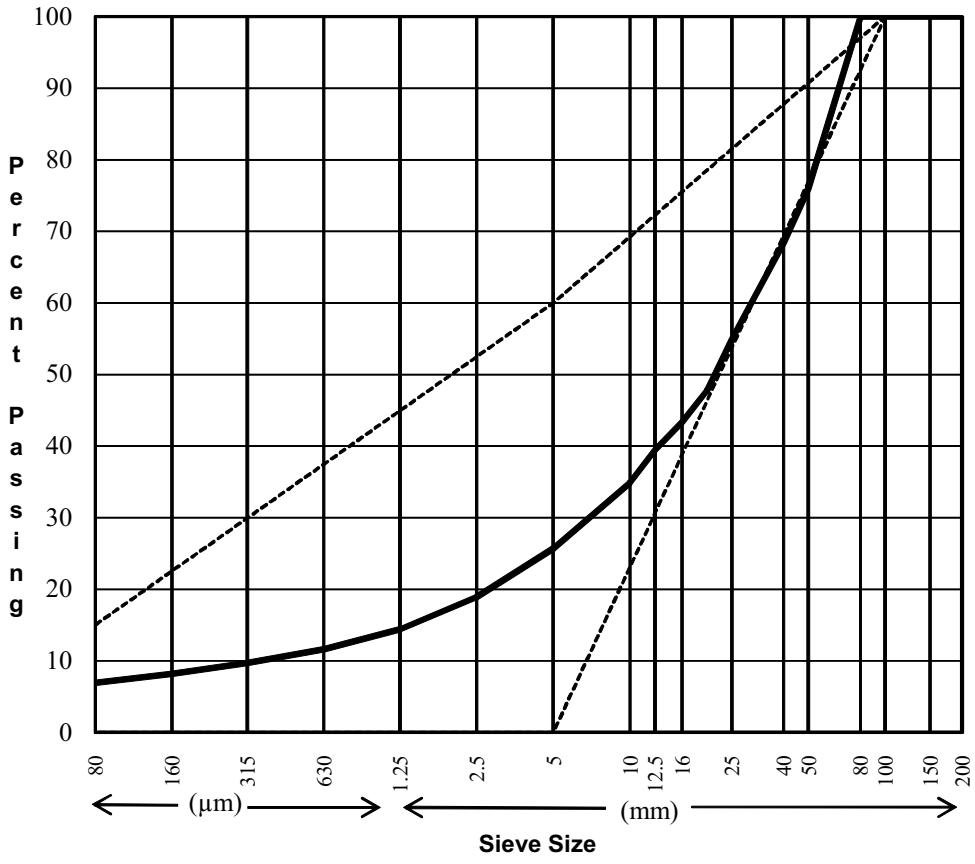
# SIEVE ANALYSIS REPORT

ASTM C136, C117

| | | | |
|---|---|---|---|
| Project: | Eagle Gold Project | Sample No.: | SA2 |
| Client: | JDS Energy & Mining | Date Sampled: | August 16, 2018 |
| Project No.: | 704-ENG.WARC3235-01 | Sampled By: | JB |
| Attention: | R. Bilobrowka | Date Tested: | August 16, 2018 |
| Description: | 100 mm Minus NFS Structural Fill | Tested By: | JB Lab: Lafarge Batch Pla |
| Source: | MSE Wall Site at Secondary Crusher | No. Crushed Faces: | N/A |
| Location: | Material Source near Secondary Crusher | Moisture Content: | 4.2% |
| Specification: | Tensar Geogrid Backfill Specification | | |

| Sieve Size | Percent Passing |
|---|---|
| 200 mm | |
| 150 mm | |
| 100 mm | |
| 80 mm | 100 |
| 50 mm | 76 |
| 40 mm | 68 |
| 25 mm | 55 |
| 20 mm | 48 |
| 16 mm | 43 |
| 12.5 mm | 39 |
| 10 mm | 35 |
| 5 mm | 26 |
| 2.5 mm | 19 |
| 1.25 mm | 14 |
| 630 µm | 12 |
| 315 µm | 10 |
| 160 µm | 8 |
| 80 µm | 6.9 |




**Remarks:**

**Reviewed By:** _____ P.Eng.

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TETRA TECH

# SPECIFICATIONS SMOOTH DRUM

| | CS44B[1] | CS54B | CS56B[2] | CS64B[3] | CS66B[4] |
|---|---|---|---|---|---|
| **Operating Weight** | | | | | |
| Machine with ROPS/FOPS - kg (lb) | 6943 (15,307) | 10 355 (22,822) | 11 290 (24,887) | – | – |
| Weight at the drum with ROPS/FOPS - kg (lb) | 3384 (7,460) | 5785 (12,754) | 6255 (13,788) | – | – |
| Static Linear Load with ROPS/FOPS - kg/cm (lb/in) | 20.2 (113) | 27.1 (151.8) | 29.3 (164.1) | – | – |
| Machine with CAB - kg (lb) | 7210 (15,895) | 10 555 (23,265) | 11 500 (25,346) | 12 055 (26,569) | 12 360 (27,245) |
| Weight at the drum with CAB - kg (lb) | 3518 (7,756) | 5880 (12,959) | 6350 (13,990) | 7120 (15,690) | 7355 (16,214) |
| Static Linear Load with CAB - kg/cm (lb/in) | 21 (118) | 27.6 (154.3) | 29.8 (166.6) | 33.4 (186.8) | 34.5 (193) |
| **Machine Dimensions** | | | | | |
| Overall length - m (ft/in) | 5.09 (16' 9") | 5.85 (19' 2") | 5.86 (19' 3") | 5.85 (19' 2") | 5.86 (19' 3") |
| Overall length with leveling blade option - m (ft/in) | 5.62 (18' 6") | – | 6.40 (21' 0") | – | 6.40 (21' 0") |
| Overall width - m (ft/in) | 1.8 (5' 11") | 2.30 (7' 7") | 2.30 (7' 7") | 2.33 (7' 8") | 2.33 (7' 8") |
| Overall width with leveling blade option - m (ft/in) | 2.12 (7' 0") | – | 2.50 (8' 3") | – | 2.50 (8' 3") |
| Maximum machine height - m (ft/in) | 2.85 (9' 4") | 3.11 (10' 3") | 3.11 (10' 3") | 3.11 (10' 3") | 3.11 (10' 3") |
| Wheelbase - m (ft/in) | 2.6 (8' 6") | 2.90 (9' 7") | 2.90 (9' 7") | 2.90 (9' 7") | 2.90 (9' 7") |
| Ground clearance - mm (in) | 411 (16.2) | 442 (17.4) | 442 (17.4) | 442 (17.4) | 442 (17.4) |
| Curb clearance - mm (in) | 369 (14.5) | 543 (21.4) | 494 (19.4) | 491 (19.3) | 494 (19.4) |
| Minimum turning radius, inside drum edge - m (ft/in) | 3.05 (10' 0") | 3.68 (12' 1") | 3.68 (12' 1") | 3.68 (12' 1") | 3.68 (12' 1") |
| **Drum Dimensions** | | | | | |
| Drum width - mm (in) | 1676 (66) | 2134 (84) | 2134 (84) | 2134 (84) | 2134 (84) |
| Drum shell thickness - mm (in) | 25 (1) | 25 (1) | 30 (1.18) | 25 (1) | 30 (1.18) |
| Drum diameter - mm (in) | 1221 (48.1) | 1534 (60.4) | 1534 (60.4) | 1534 (60.4) | 1534 (60.4) |
| **Padfoot Shell Kit Drum Dimensions** | | | | | |
| Drum diameter over pads - mm (in) | 1420 (55.9) | 1730 (68.1) | 1730 (68.1) | 1730 (68.1) | 1730 (68.1) |
| Number of pads | 98 | 120 | 120 | 120 | 120 |
| Pad height - mm (in) | 89 (3.5) | 90 (3.5) | 90 (3.5) | 90 (3.5) | 90 (3.5) |
| Pad surface area, oval face option - $cm^2$ ($in^2$) | 63.8 (9.9) | 63.5 (9.8) | 63.5 (9.8) | 63.5 (9.8) | 63.5 (9.8) |
| Pad surface area, square face option - $cm^2$ ($in^2$) | 95.5 (14.8) | 123 (19.1) | 123 (19.1) | 123 (19.1) | 123 (19.1) |
| **Vibratory System** | | | | | |
| Maximum frequency - Hz (vpm) | 31.9 (1914) | 30.5 (1830) | 30.5 (1830) | 30.5 (1830) | 30.5 (1830) |
| Nominal amplitude @ max frequency | | | | | |
| High - mm (in) | 1.67 (0.066) | 1.9 (0.075) | 2.1 (0.083) | 1.9 (0.075) | 2.1 (0.083) |
| Low - mm (in) | 0.84 (0.033) | 0.95 (0.037) | 0.98 (0.039) | 0.95 (0.037) | 0.98 (0.039) |
| Centrifugal force | | | | | |
| High - kN (lb) | 133 (29,900) | 234 (52,600) | 301 (67,600) | 234 (52,600) | 301 (67,600) |
| Low - kN (lb) | 67 (15,000) | 133 (29,900) | 141 (31,670) | 133 (29,900) | 141 (31,670) |
| **Power Train** | | | | | |
| Engine | Cat C3.4B | Cat C4.4 ACERT | Cat C4.4 ACERT† | Cat C4.4 ACERT | Cat C4.4 ACERT |
| Gross power ISO 14396 - kW (hp) @ 2200 rpm | 75 (100.6) | 98 (131) | 117 (157) | 98 (131) | 117 (157) |
| Maximum speed - km/h (mph) | 11.4 (7.0) | 11 (6.8) | 11.4 (7.0) | 11 (6.8) | 11.4 (7.0) |
| Tire Size | 14.9 x 24 | 23.1 x 26 | 23.1 x 26 | 23.1 x 26 | 23.1 x 26 |
| **Miscellaneous** | | | | | |
| Electrical system - volts | 12 | 24 | 24 | 24 | 24 |
| Articulation angle - degrees | 37 | 34 | 34 | 34 | 34 |
| Oscillation angle - degrees | 15 | 15 | 15 | 15 | 15 |
| Fuel tank capacity - L (gal) | 150 (40) | 242 (64) | 242 (64) | 242 (64) | 242 (64) |
| Diesel Exhaust Fluid refill capacity - L (gal) | 18.9 (5) | 15 (4) | 15 (4) | 15 (4) | 15 (4) |

Specifications may vary depending on machine configuration and region.
Consult your Cat dealer for specifics.
† Some markets feature C6.6

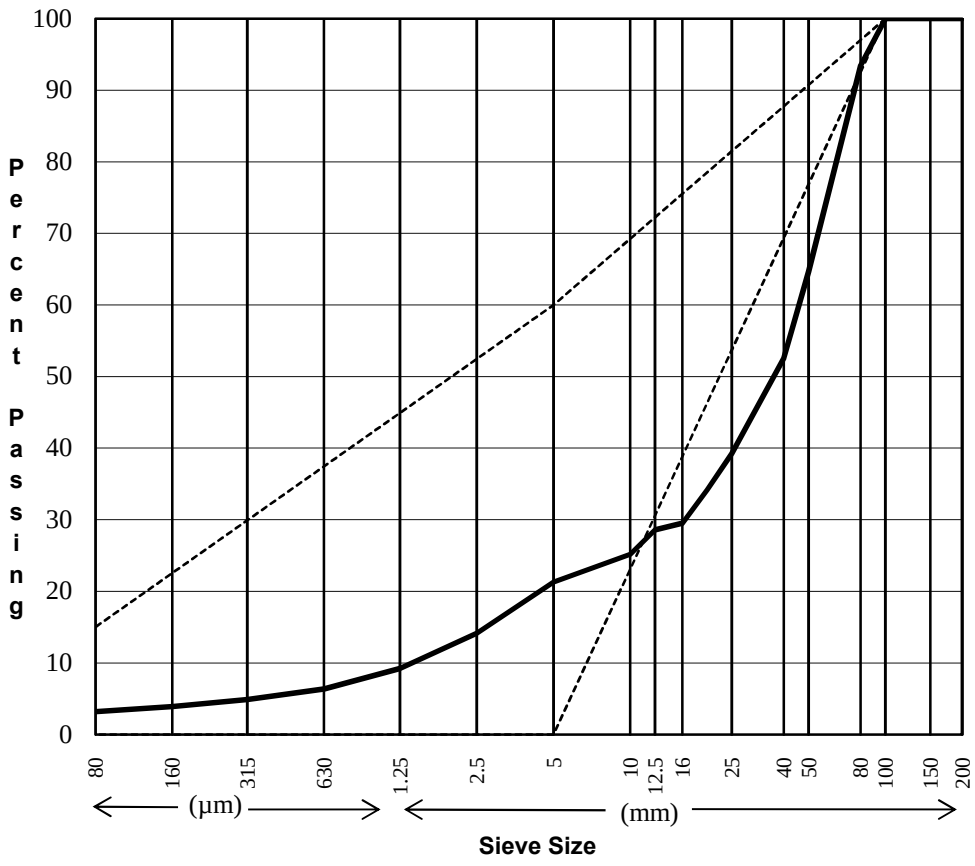
1 - Only available in Canada, EU and US
2 - Not available in Europe
3 - Not available in US, Canada, Europe
4 - Available in Europe only
5 - Not available in US, Canada

# SIEVE ANALYSIS REPORT

ASTM C136, C117

| | | | |
|---|---|---|---|
| Project: | Eagle Gold Project | Sample No.: | SA1 |
| Client: | JDS Energy & Mining | Date Sampled: | August 1, 2018 |
| Project No.: | 704-ENG.WARC3235-01 | Sampled By: | JP |
| Attention: | R. Bilobrowka | Date Tested: | August 12, 2018 |
| Description: | 100 mm Minus NFS Structural Fill | Tested By: | JB Lab: Lafarge Batch Pla |
| Source: | MSE Wall Site at Secondary Crusher | No. Crushed Faces: | N/A |
| Location: | Material Source near Secondary Crusher | Moisture Content: | |
| Specification: | Tensar Geogrid Backfill Specification | | |

| Sieve Size | Percent Passing |
|---|---|
| 200 mm | |
| 150 mm | |
| 100 mm | 100 |
| 80 mm | 93 |
| 50 mm | 65 |
| 40 mm | 53 |
| 25 mm | 39 |
| 20 mm | 34 |
| 16 mm | 30 |
| 12.5 mm | 29 |
| 10 mm | 25 |
| 5 mm | 21 |
| 2.5 mm | 14 |
| 1.25 mm | 9 |
| 630 µm | 6 |
| 315 µm | 5 |
| 160 µm | 4 |
| 80 µm | 3.2 |




**Remarks:**

**Reviewed By:** _____ P.Eng.

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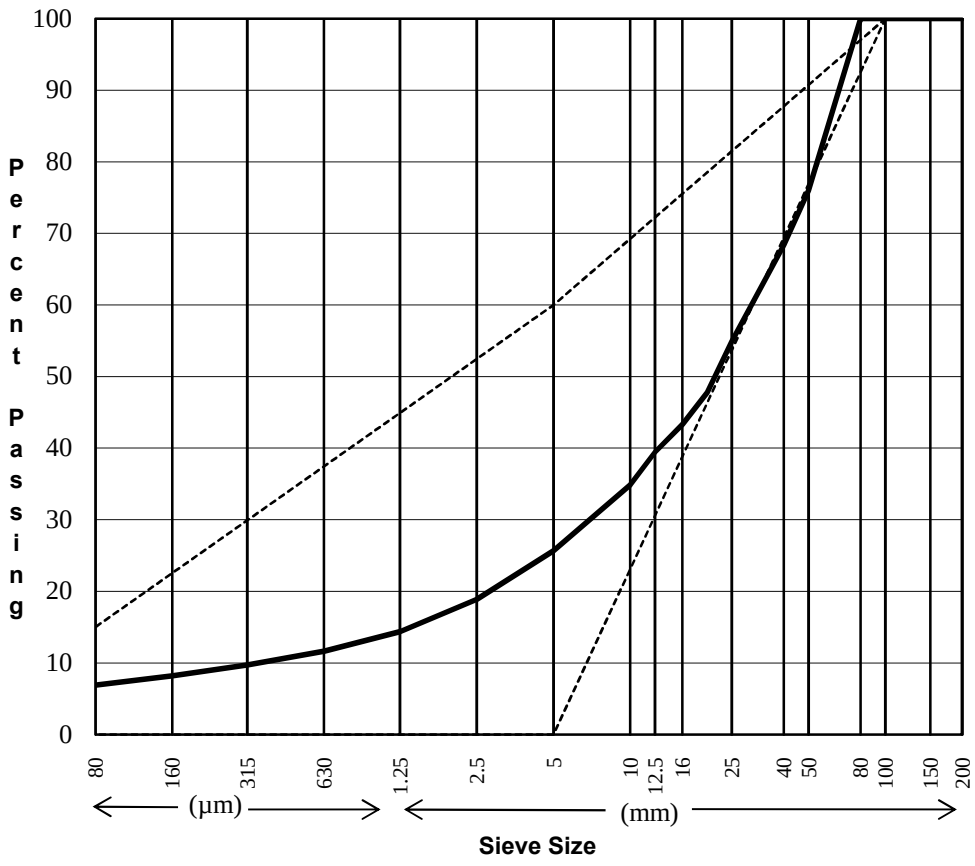
# SIEVE ANALYSIS REPORT

ASTM C136, C117

| | | | |
|---|---|---|---|
| Project: | Eagle Gold Project | Sample No.: | SA2 |
| Client: | JDS Energy & Mining | Date Sampled: | August 16, 2018 |
| Project No.: | 704-ENG.WARC3235-01 | Sampled By: | JB |
| Attention: | R. Bilobrowka | Date Tested: | August 16, 2018 |
| Description: | 100 mm Minus NFS Structural Fill | Tested By: | JB Lab: Lafarge Batch Pla |
| Source: | MSE Wall Site at Secondary Crusher | No. Crushed Faces: | N/A |
| Location: | Material Source near Secondary Crusher | Moisture Content: | |
| Specification: | Tensar Geogrid Backfill Specification | | |

| Sieve Size | Percent Passing |
|---|---|
| 200 mm | |
| 150 mm | |
| 100 mm | |
| 80 mm | 100 |
| 50 mm | 76 |
| 40 mm | 68 |
| 25 mm | 55 |
| 20 mm | 48 |
| 16 mm | 43 |
| 12.5 mm | 39 |
| 10 mm | 35 |
| 5 mm | 26 |
| 2.5 mm | 19 |
| 1.25 mm | 14 |
| 630 µm | 12 |
| 315 µm | 10 |
| 160 µm | 8 |
| 80 µm | 6.9 |

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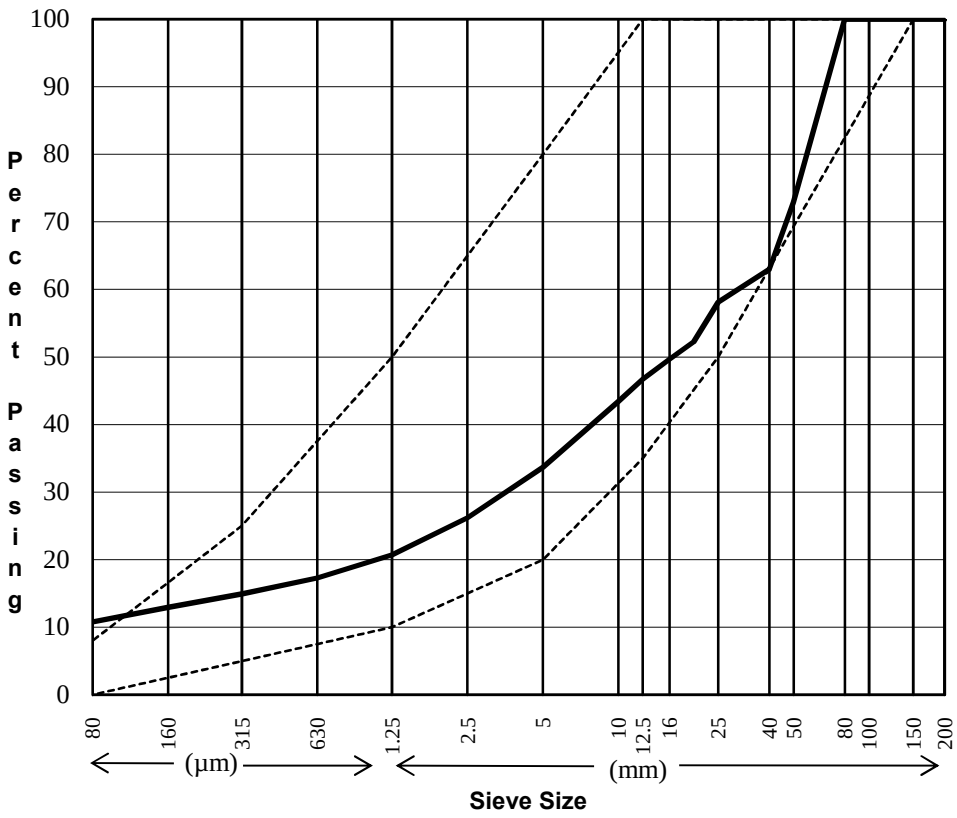
# SIEVE ANALYSIS REPORT

ASTM C136, C117

| | | | |
|---|---|---|---|
| Project: | Eagle Gold Project | Sample No.: | SA3 |
| Client: | JDS Energy & Mining | Date Sampled: | September 10 2018 |
| Project No.: | 704-ENG.WARC3235-01 | Sampled By: | ME |
| Attention: | R. Bilobrowka | Date Tested: | September 10 2018 |
| Description: | 100 mm Minus NFS Structural Fill | Tested By: ME | Lab: Lafarge Laydown |
| Source: | MSE Wall Site at Secondary Crusher | No. Crushed Faces: | N/A |
| Location: | Stockpile Onsite | Moisture Content: | 4.1% |
| Specification: | NFS Structural Fill | | |

| Sieve Size | Percent Passing |
|---|---|
| 200 mm | |
| 150 mm | |
| 100 mm | |
| 80 mm | 100 |
| 50 mm | 73 |
| 40 mm | 63 |
| 25 mm | 58 |
| 20 mm | 52 |
| 16 mm | 50 |
| 12.5 mm | 47 |
| 10 mm | 43 |
| 5 mm | 34 |
| 2.5 mm | 26 |
| 1.25 mm | 21 |
| 630 µm | 17 |
| 315 µm | 15 |
| 160 µm | 13 |
| 80 µm | 10.8 |




**Remarks:**

**Reviewed By:** _____ P.Eng.

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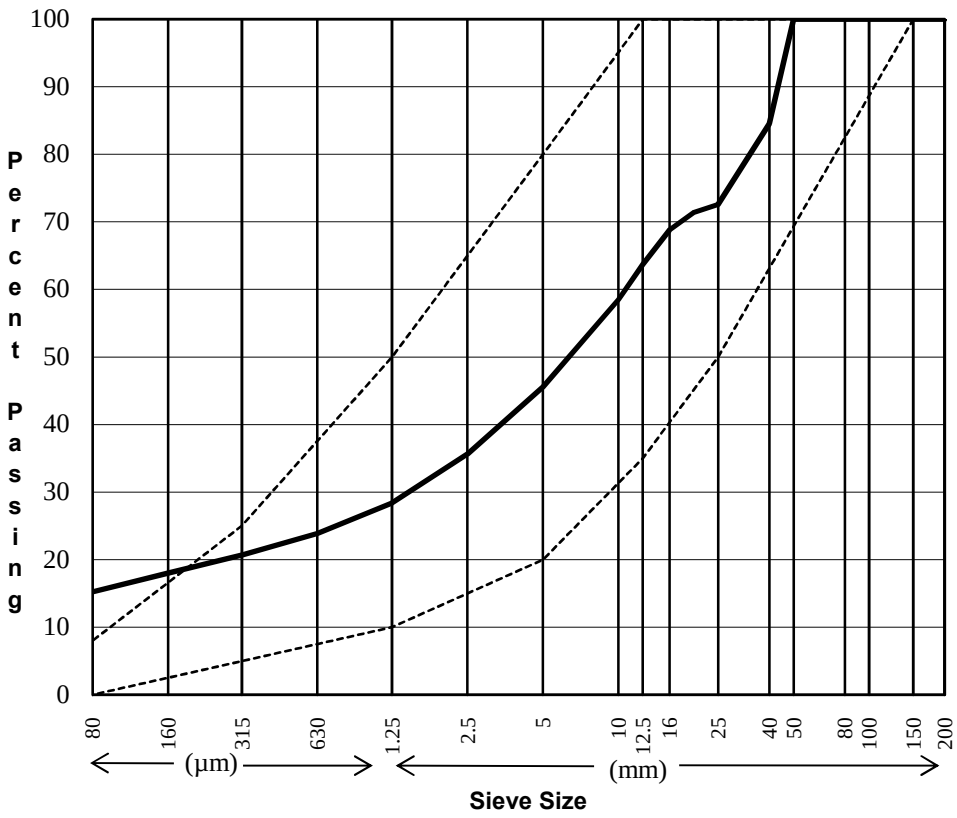
# SIEVE ANALYSIS REPORT

ASTM C136, C117

| | | | |
|---|---|---|---|
| Project: | Eagle Gold Project | Sample No.: | SA4 |
| Client: | JDS Energy & Mining | Date Sampled: | September 16 2018 |
| Project No.: | 704-ENG.WARC3235-01 | Sampled By: | ME |
| Attention: | R. Bilobrowka | Date Tested: | September 16 2018 |
| Description: | 100 mm Minus NFS Structural Fill | Tested By: ME | Lab: Lafarge Laydown |
| Source: | MSE Wall Site at Secondary Crusher | No. Crushed Faces: | N/A |
| Location: | Stockpile Onsite | Moisture Content: | 4.9% |
| Specification: | NFS Structural Fill | | |

| Sieve Size | Percent Passing |
|---|---|
| 200 mm | |
| 150 mm | |
| 100 mm | |
| 80 mm | |
| 50 mm | 100 |
| 40 mm | 85 |
| 25 mm | 73 |
| 20 mm | 71 |
| 16 mm | 69 |
| 12.5 mm | 64 |
| 10 mm | 59 |
| 5 mm | 46 |
| 2.5 mm | 36 |
| 1.25 mm | 28 |
| 630 µm | 24 |
| 315 µm | 21 |
| 160 µm | 18 |
| 80 µm | 15.2 |




**Remarks:**

**Reviewed By:** **ISSUED FOR REVIEW** P.Eng.

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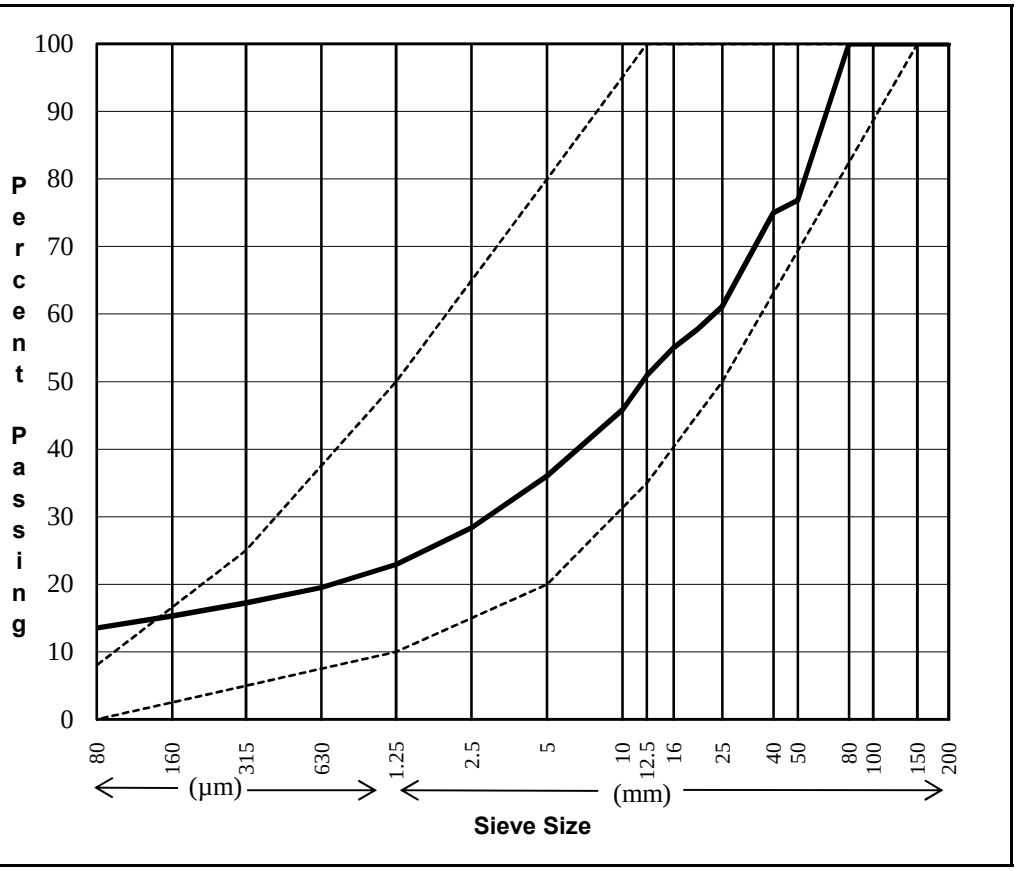
# SIEVE ANALYSIS REPORT

ASTM C136, C117

| | | | |
|---|---|---|---|
| Project: | Eagle Gold Project | Sample No.: | SA5 |
| Client: | JDS Energy & Mining | Date Sampled: | September 22, 2018 |
| Project No.: | 704-ENG.WARC3235-01 | Sampled By: | ME |
| Attention: | C. Abel/M. Blussen | Date Tested: | September 23 2018 |
| Description: | 100mm Minus NFS Product | Tested By: JC | Lab: Lafarge Lab |
| Source: | NCL Product McCloskey Screener | No. Crushed Faces: | N/A |
| Location: | End of ROM road | Moisture Content: | 3.4% |
| Specification: | NFS Structural Fill | | |

| Sieve Size | Percent Passing |
|---|---|
| 200 mm | |
| 150 mm | |
| 100 mm | |
| 80 mm | 100 |
| 50 mm | 77 |
| 40 mm | 75 |
| 25 mm | 61 |
| 20 mm | 58 |
| 16 mm | 55 |
| 12.5 mm | 51 |
| 10 mm | 46 |
| 5 mm | 36 |
| 2.5 mm | 28 |
| 1.25 mm | 23 |
| 630 µm | 20 |
| 315 µm | 17 |
| 160 µm | 15 |
| 80 µm | 13.5 |




**Remarks:** Exceeds Spec at 0.080 (13.5% passing)

**Reviewed By:** **ISSUED FOR REVIEW** P.Eng.

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GOLDER

**PRAIRIES AND NORTH LABORATORIES**

**ATTN:** Mike Blusson
Earthworks Superintendent
JDS ENERGY & MINING INC.

**Received:** 10-Aug-18
**Report Date:** 15-Aug-18
**Version:** Final

# Geotechnical Laboratory Testing Report

**Client:** JDS ENERGY & MINING INC.
**Project Title:** JDS/ Lab Testing/ 40 mm LDS
**Client Ref.#/ PO#:** Eagle Gold Project Aggregate Testing - PO# FP082
**Golder Billing:** 1894867.22.0
**Lab No.:** C822

**Matthew Becker**
Geotechnical Laboratory Manager
Calgary Geotechnical Laboratory
Golder Associates Ltd.

Our liability is limited to the cost of the test requested. The test results only relate to the sample as received. No liability in whole or in part is assumed for the collection, handling or transport of the sample, application or interpretation of the test data or results.

GOLDER

# GENERAL LAB TESTING SUMMARY

Project No.: 1894867 Phase: 22.0
Short Title: JDS/ Lab Testing/ 40 mm LDS Sched: C822
Tested By: FC Date: 15-Aug-18

| Sample Identification | | Laboratory Test Results | | | | |
|---|---|---|---|---|---|---|
| Sample No. | Lab No. | As Received Water Content (%) | Standard Proctor Max. Dry Density ($kg/m^3$) | Optimum Water Content (%) | Friction Angle ( ° ) | Cohesion (kPa) |
| 1 - *40 mm Aggregate* | C822-01 | 1.6 | 2091 | 6.2 | 42 | 0 |

GOLDER

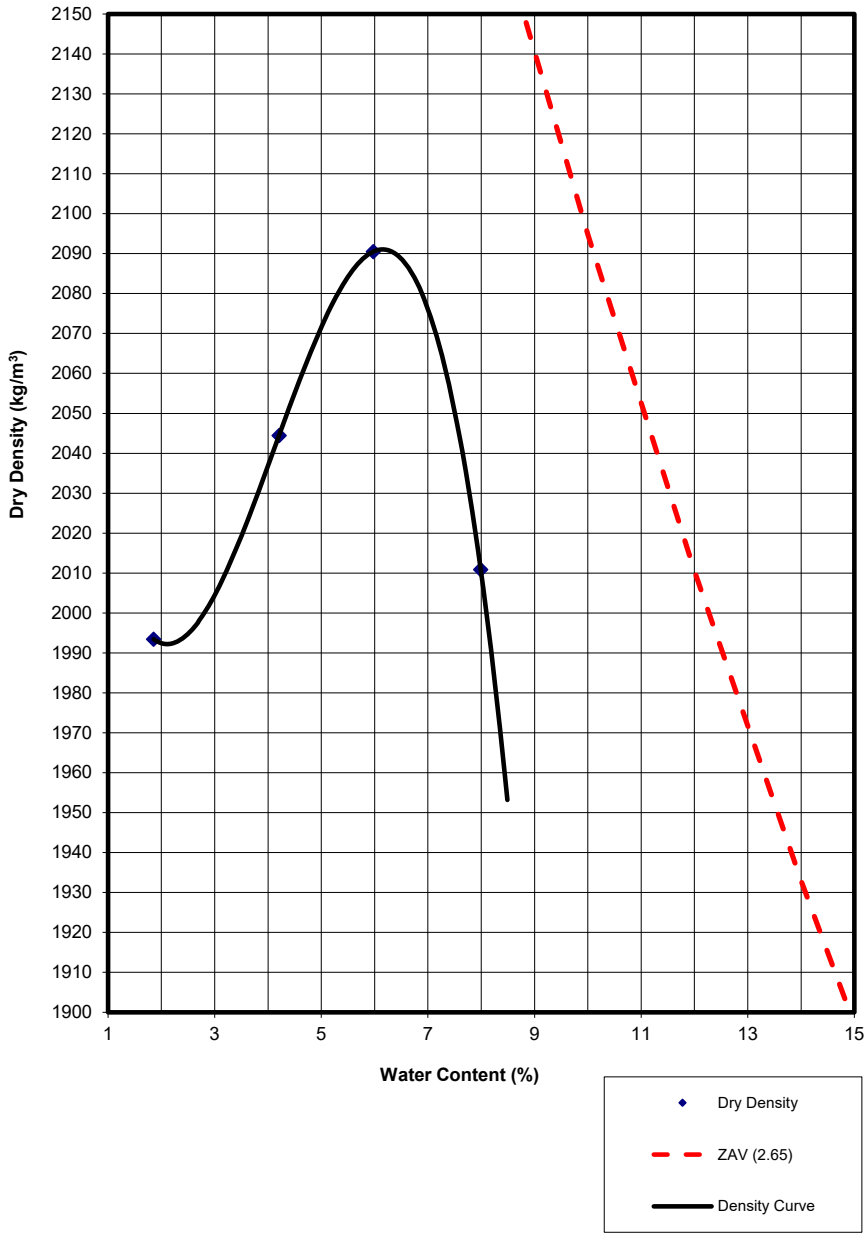
# LABORATORY COMPACTION CHARACTERISTICS OF SOIL USING STANDARD EFFORT

(ASTM D698)

| | | | |
|---|---|---|---|
| Project No.: | 1894867 | Phase: | 22.0 |
| Short Title: | JDS Mining LDS Testing | Lab No.: | C822-01 |
| Tested By: | FC | Test Date: | 13-Aug-18 |

| | | | |
|---|---|---|---|
| Borehole No.: | - | Date Sampled: | - |
| Sample No.: | 1 - *40 mm Aggregate* | Sample Source: | - |
| Sampled By: | JDS Mining | Remarks: | 40 mm maximum aggregate size |

## MOISTURE DENSITY RELATIONSHIP




### Maximum Dry Density

Max. Dry Density **2091** kg/m$^3$

Optimum w **6.2** %

Method **C**

### Rock Correction (if required)

% Oversize 30 %

Max. Dry Density 2232 kg/m$^3$ @ 4.9%

Assumed Specific Gravity = 2.65

Sample Description:

(GP-GM) sandy fine to coarse sub-angular GRAVEL, fine to medium sand, some coarse sand, some non-plastic fines; brown; non-cohesive, loose, moist.

As Received Water Content: 1.6%

# DIRECT SHEAR TEST OF SOILS UNDER CONSOLIDATED DRAINED CONDITIONS

(ASTM D3080/ D3080M-11)

**Sample Identification**

| | | | |
|---|---|---|---|
| Project No.: | 1894867 Phase: 22.0 | Test Condition: | Reconstituted - Moist |
| Client: | JDS Energy & Mining Inc. / StrataGold Corp. | Sample: | 40 mm Aggregate |
| Project Title: | JDS/ Lab Testing/ 40 mm LDS | Lab No.: | C822-01 |
| Client Ref.: | Eagle Gold Project Aggregate Testing - PO# FP082 | | |

**INITIAL - Sample Dimensions**

| Test No. | 1 | 2 | 3 |
|---|---|---|---|
| Shear Box Geometry | Square | Square | Square |
| Length, mm | 302 | 302 | 302 |
| Width, mm | 302 | 302 | 302 |
| Height, mm | 240 | 240 | 240 |
| Area, $cm^2$ | 912 | 912 | 912 |
| Volume, $cm^3$ | 21889 | 21889 | 21889 |

**Weight Volume Relationships**

| Test No. | 1 | 2 | 3 |
|---|---|---|---|
| Sample Type | Reconstituted | Reconstituted | Reconstituted |
| Initial Wet Wt, kg | 49.52 | 49.52 | 49.52 |
| Initial Dry Wt, kg | 46.42 | 46.42 | 46.42 |
| Initial w, % | 6.7 | 6.7 | 6.7 |
| Final w, % | 6.0 | 6.0 | 6.0 |
| Initial $\gamma_{wet}$, $kg/m^3$ | 2262 | 2262 | 2262 |
| Initial $\gamma_{dry}$, $kg/m^3$ | 2121 | 2121 | 2121 |
| Specific Gravity (assumed) | 2.65 | 2.65 | 2.65 |
| Initial Void Ratio, e | 0.25 | 0.25 | 0.25 |

**Equipment Description - LDS_30S**

| | | |
|---|---|---|
| Axial LDT | Serial # | BBD100410 |
| Axial Load Cell | Serial # | 1084597 |
| Vertical LDT | Serial # | BBD110464 |
| Vertical Load Cell | Serial # | 978593 |

**Remarks**

- Three test specimens were built and sheared at 100, 200, and 400 kPa normal stresses to develop the friction envelop of this material
- Each test specimen was built/ reconstituted to approximately 95% of the Standard Proctor of this material (I.e. 2232 $kg/m^3$, this value includes a 30% rock correction; at +2% of the Optimum water content)
- An area correction was applied to the normal and shear stress calculations during shear testing

Sample Description: (GP-GM) sandy fine to coarse sub-angular GRAVEL, fine to medium sand, some coarse sand, some non-plastic fines; brown; non-cohesive, loose, moist.

Tested By: FC/KH Date Completed: 14-Aug-18

Reviewed By: MB

GOLDER

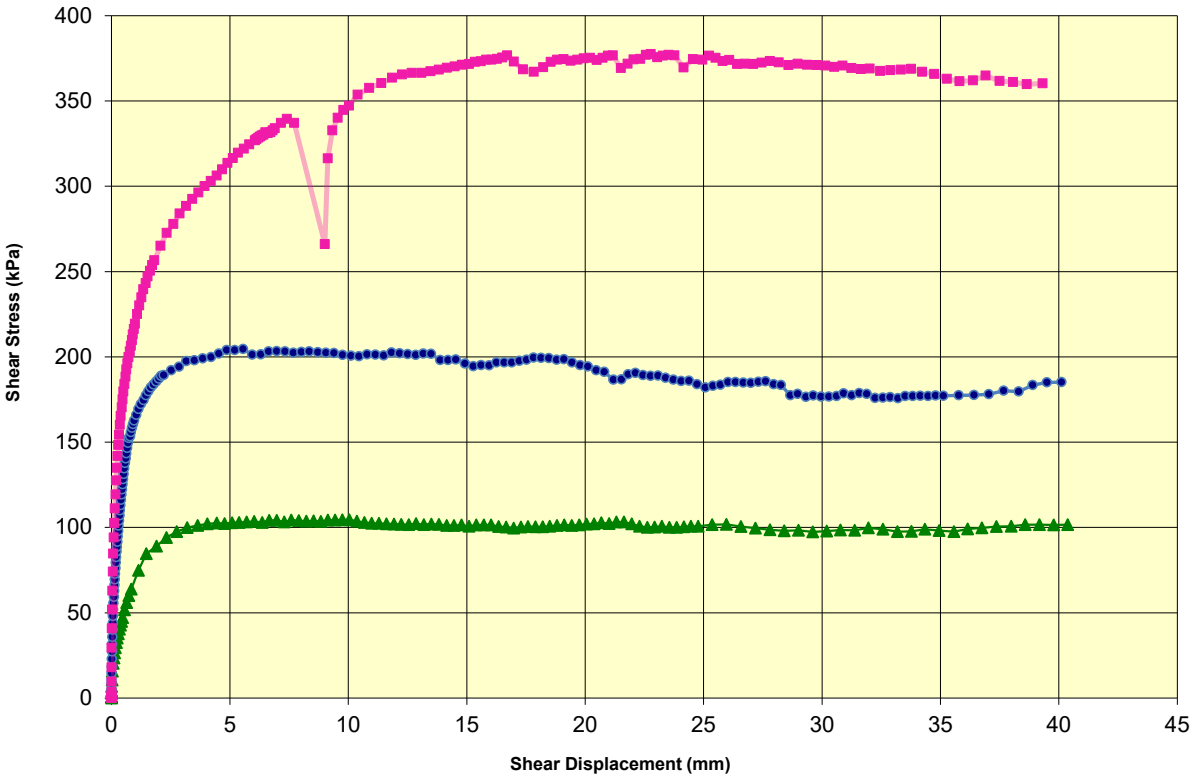
# DIRECT SHEAR TEST OF SOILS UNDER CONSOLIDATED DRAINED CONDITIONS

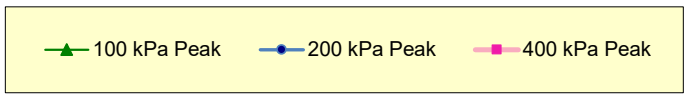
(ASTM D3080/ D3080M-11)

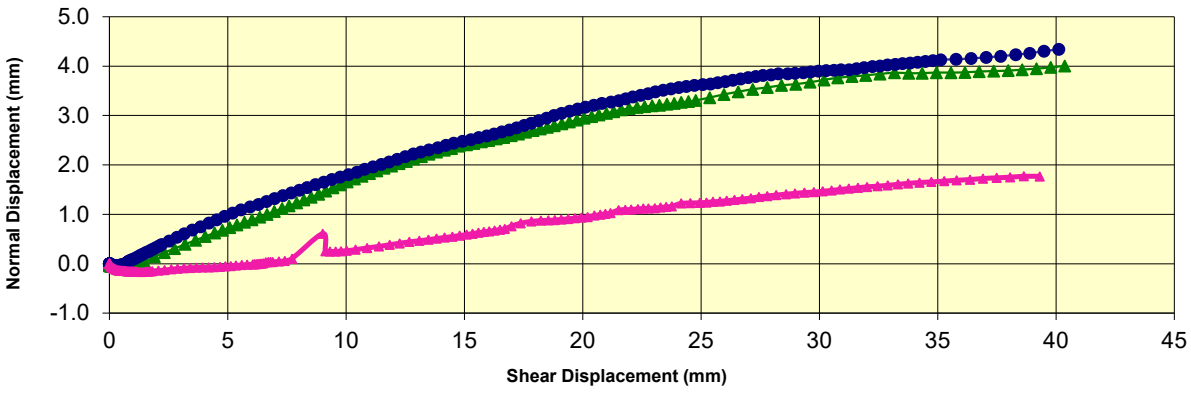
**Sample Identification**

| | | | | | |
|---|---|---|---|---|---|
| Project No.: | 1894867 | Phase: | 22.0 | Test Condition: | Reconstituted - Moist |
| Client: | JDS Energy & Mining Inc. / StrataGold Corp. | | | Sample: | 40 mm Aggregate |
| Project Title: | JDS/ Lab Testing/ 40 mm LDS | | | Lab No.: | C822-01 |

**Peak and Residual Shear Stress vs. Displacement**



GOLDER

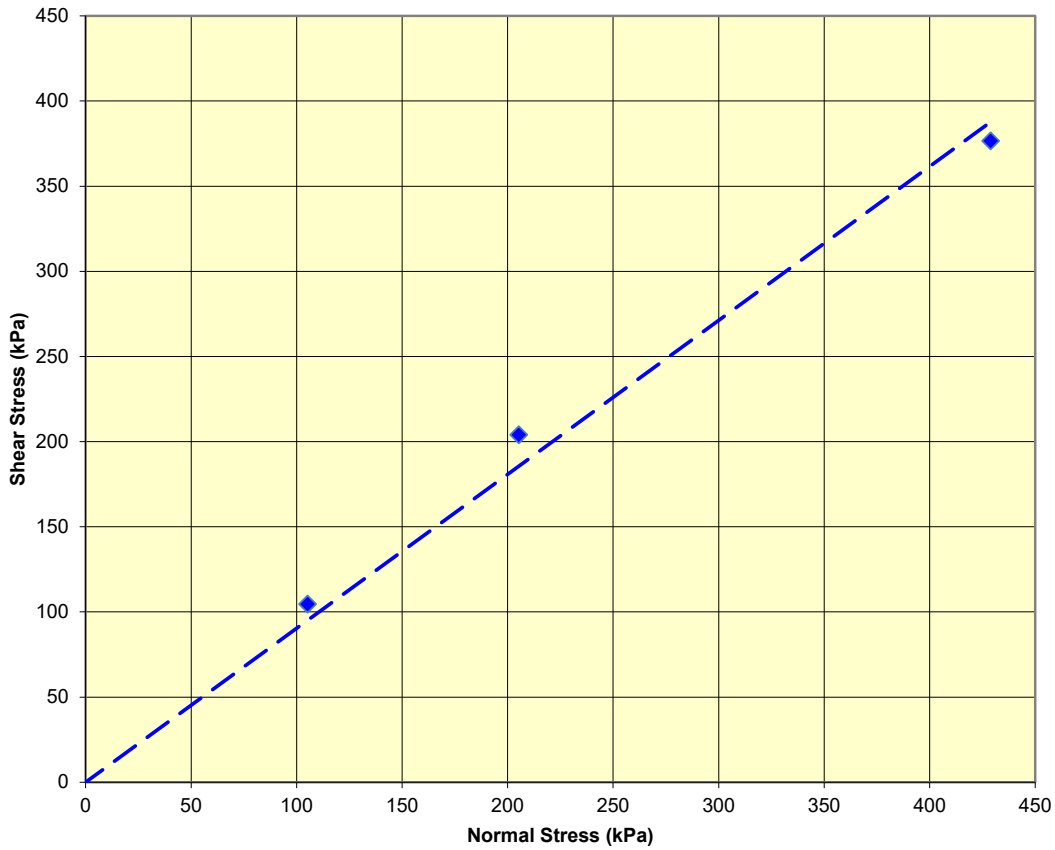
# DIRECT SHEAR TEST OF SOILS UNDER CONSOLIDATED DRAINED CONDITIONS

(ASTM D3080/ D3080M-11)

**Sample Identification**

| | | | | | |
|---|---|---|---|---|---|
| Project No.: | 1894867 | Phase: | 22.0 | Test Condition: | Reconstituted - Moist |
| Client: | JDS Energy & Mining Inc. / StrataGold Corp. | | | Sample: | 40 mm Aggregate |
| Project Title: | JDS/ Lab Testing/ 40 mm LDS | | | Lab No.: | C822-01 |

**Shear Stress vs. Normal Stress**




| | Peak | | |
|---|---|---|---|
| Test No. | 1 | 2 | 3 |
| Normal Stress, kPa | 105 | 205 | 429 |
| Shear Stress, kPa | 105 | 204 | 377 |

| | Peak |
|---|---|
| Friction Angle, Degrees | **42** |
| Apparent Cohesion, kPa | **0** |

# DIRECT SHEAR TEST OF SOILS UNDER CONSOLIDATED DRAINED CONDITIONS

(ASTM D3080/ D3080M-11)

| | | | |
|---|---|---|---|
| Project No.: | 1894867 | Phase: | 22.0 |
| Short Title: | JDS/ Lab Testing/ 40 mm LDS | Schedule No.: | C822 |
| Tested By: | FC/KH | Date: | 14-Aug-18 |

| | | | | | |
|---|---|---|---|---|---|
| Lab No.: | C822-01 | Test Condition: | Reconstituted - Moist | Sample: | 40 mm Aggregate |

Sample Description: (GP-GM) sandy fine to coarse sub-angular GRAVEL, fine to medium sand, some coarse sand, some non-plastic fines; brown; non-cohesive, loose, moist.

**Post-Test Photo - 400 kPa**



The testing services reported herein have been performed in accordance with the indicated recognized standard, or in accordance with local industry practice. This report is for the sole use of the designated client. This report constitutes a testing service only and does not represent any results interpretation or opinion regarding specification compliance or material suitability. Engineering interpretation can be provided by Golder Associates Ltd. upon request.

# CONTRACTOR / INTERDISCIPLINARY RELEASE FORM

| | | | |
|---|---|---|---|
| **Project:** | Eagle Gold Project | **Revision No.** | 0 |
| **Contractor:** | Clark Builders | **Contract No:** | CB201 |
| **Area:** | 3300 – Secondary / Tertiary Crusher | | |

| | | | |
|---|---|---|---|
| **Date:** | July 19, 2018 | **Drawing No:** | H354138-3310-231-260-0002 |
| **Discipline:** | Civil/Subgrade | | |

**The following:** **Area** ☒ **Equipment** ☐ **System** ☐ **Other** ☐

**(Provide complete description of area item, equipment system and Tag Numbers where applicable):**

Subgrade preparation to the underside of footing +0 and – 150mm at the Secondary/Tertiary Crushing Building in the areas highlighted in the above mentioned drawing.

**Released to:** Clark Builders

| **Release Basis:** | | | |
|---|---|---|---|
| ☒ | Civil | ☐ | Paintings/Coatings |
| ☐ | Structural | ☐ | Electrical |
| ☐ | Mechanical | ☐ | Tracing |
| ☐ | Piping | ☐ | Insulation |
| ☐ | NDE | ☐ | Fireproofing |
| ☐ | PHWT | ☐ | Walkdown/Punchout |
| ☐ | Pressure Test | ☐ | Other |

**Comments:**

The foundation on the North and West side of the building perimeter are also turned over to Clark to perform foundation preparation to the satisfaction of the Owners Engineer or Record (EOR).

This will required detailed excavation to suitable rock (similar to the other released areas) and backfilling and compacting with specified materials to the u/s of footings elevation.

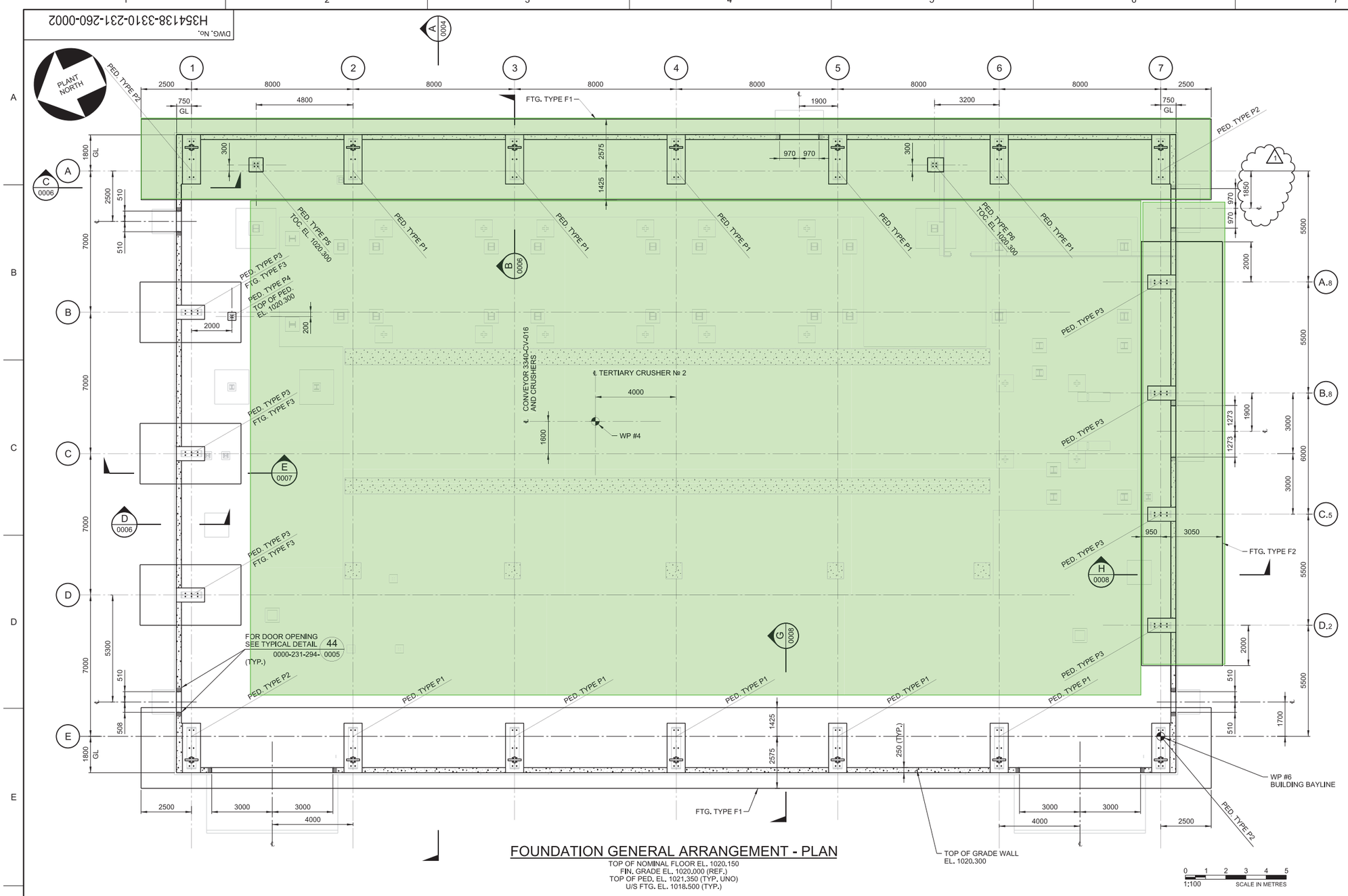
Also attached are Secondary Crusher Survey Control information for Clark Builder use.

| Requested By *(Print)* | Title | Signature | Date |
|---|---|---|---|
| | | | |

| Release Authorized By *(Print)* | Title | Signature | Date |
|---|---|---|---|
| | | | |

| Release Received/Accepted By *(Print)* | Title | Signature | Date |
|---|---|---|---|
| | | | |

DWG. No. H354138-3310-231-260-0002



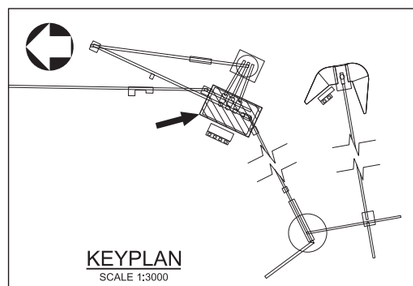

## FOUNDATION GENERAL ARRANGEMENT - PLAN

TOP OF NOMINAL FLOOR EL. 1020.150
FIN. GRADE EL. 1020.000 (REF.)
TOP OF PED. EL. 1021.350 (TYP. UNO)
U/S FTG. EL. 1018.500 (TYP.)

0 1 2 3 4 5
1:100 SCALE IN METRES

NOTES:

1. FOR GENERAL NOTES SEE DRAWING H354138-3310-231-260-0001.



KEYPLAN
SCALE 1:3000

THIS DRAWING WAS PREPARED FOR THE EXCLUSIVE USE OF STRATA GOLD ("CLIENT") AND IS ISSUED PURSUANT TO H354138 BETWEEN CLIENT AND HATCH LTD. ("HATCH"). UNLESS OTHERWISE AGREED IN WRITING WITH CLIENT OR SPECIFIED ON THIS DRAWING, (A) HATCH DOES NOT ACCEPT AND DISCLAIMS ANY AND ALL LIABILITY OR RESPONSIBILITY ARISING FROM ANY USE OF OR RELIANCE ON THIS DRAWING BY ANY THIRD PARTY OR ANY MODIFICATION OR MISUSE OF THIS DRAWING BY CLIENT, AND (B) THIS DRAWING IS CONFIDENTIAL AND ALL INTELLECTUAL PROPERTY RIGHTS EMBODIED OR REFERENCED IN THIS DRAWING REMAIN THE PROPERTY OF HATCH.

| No. | DESCRIPTION | BY | CHK'D | DATE |
|---|---|---|---|---|
| 1 | DOOR OPENING LOCARION REVISED | PJ | EA | 2018-06-05 |
| 0 | APPROVED FOR CONSTRUCTION | PJ | EA | 2018-05-17 |

| ROLE | NAME | SIGNATURE & DATE |
|---|---|---|
| DRAFTSPERSON | P. JIVAEV | NR |
| DESIGNER | H. LI | NR |
| CHECKER | E. AKINCI | |
| DESIGN COORD. | S. PERKINS | |
| RESP. ENG. | E. AKINCI | |
| LEAD DISC. ENG. | E. AKINCI | |
| ENG. MANAGER | B. RUSTAD | |
| PROJ. MANAGER | B. RUSTAD | |

DRAWING APPROVAL STATUS: Approved for Construction

EAGLE GOLD PROJECT

SEC/TERTIARY CRUSHING BUILDING
BUILDING FOUNDATION
FOUNDATION - PLAN

| DRAWING No. | DRAWING TITLE |
|---|---|
| REFERENCE DRAWINGS | REG. PROFESSIONAL |

SCALE 1:100 OR AS NOTED | DWG. No. H354138-3310-231-260-0002 | REV 1

SHEET SIZE: D

$FILELS
PRINTED: 05-JUN-2018
idc_pwservice
12:20

Underhill Geomatics Ltd.
Surveyor: D. Boyle

| Secondary Crusher Survey Control for Clark builders |
|---|
| Coordinates are ground level. SF=1 |
| Elevations are orthometric. |

| Point # | Northing | Easting | Elevation |
|---|---|---|---|
| 4438 | 100158.156 | 59737.177 | 1018.414 |
| 4439 | 100219.577 | 59765.767 | 1018.377 |
| WP 4 | 100192.726 | 59754.982 | |

| Point 4438 to 4439 |
|---|
| AZ=24°57'37" HD=67.750m |

Coordinate Methodology

Control Points are originally UTM NAD83 (CSRS) coordinates.
Control points are scaled to ground distances from WP4 at a CSF of 1.000526
Control points are truncated to differentiate from UTM coordinates.
Scaled UTM Northing - 7,000,000 = Ground Northing
Scaled UTM Easting - 400,000 = Ground Easting

# COMPACTION DENSITY TEST SUMMARY REPORT

ASTM Designation D6938

**Project:** Eagle Gold Project | **Test Apparatus:** Nuclear | **Troxler No:** 60841

QC Inspection & Testing | **Specified Compaction:** 95 % Mod. Proctor Max. Dry Density

**Project No.:** WARC.03235-05 | **Specified Moisture** (MC)**:** As Below

**Client:** JDS Energy & Mining/Hatch | **Temperature** **Air:** 14 ºC **Soil:** ºC

**Attention:** | **Date Tested:** 8/30/2018 **By:** AS

**Contractor:** Cobalt/Clark Construction | **Construction Period:** DAYSHIFT

**Soil Description:** GRAVEL, Sandy, trace silt

**Material Usage/Zone:** 38mm minus ODF

| **Date** yyyy/mm/dd | **Test No.** / Probe (mm) | **Location:** | El. | Dry Density (kg/m³ ) | MC % | Max. Dry Density | Opt. MC % | Comp % MPD |
|---|---|---|---|---|---|---|---|---|
| 8/30/2018 | **1** / 300 | Above primary crusher south drain, first lift | n/a | 2179 | 7.0 | 2250 | 6.0 | **96.8** |
| 8/30/2018 | **2** / 300 | Above primary crusher south drain, second lift | n/a | 2199 | 5.9 | 2250 | 6.0 | **97.7** |
| 8/30/2018 | **3** / 300 | Above primary crusher south drain, final lift | n/a | 2156 | 4.9 | 2250 | 6.0 | **95.8** |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

**Remarks:** Issued for Review

**Copies:**

**Reviewed By:** _____ P.Eng.

Data presented hereon is for the sole use of the stipulated client. Tetra Tech EBA is not responsible, nor can be held liable, for use made of this report by any other party, with or without the knowledge of Tetra Tech EBA. The testing services reported herein have been performed to recognized industry standards, unless noted. No other warranty is made. These data do not include or represent any interpretation or opinion of specification compliance or material suitability. Should engineering interpretation be required, Tetra Tech EBA will provide it upon written request.

TETRA TECH

# CONTRACTOR / INTERDISCIPLINARY RELEASE FORM

| | | | |
|---|---|---|---|
| **Project:** | Eagle Gold Project | **Revision No.** | 0 |
| **Contractor:** | Clark Builders | **Contract No:** | CB201 |
| **Area:** | 3300 – Secondary / Tertiary Crusher | | |

| | | | |
|---|---|---|---|
| **Date:** | September 13, 2018 | **Drawing No:** | H354138-3310-231-260-#### |
| **Discipline:** | Civil/Subgrade | | |

**The following:** **Area** ☒ **Equipment** ☐ **System** ☐ **Other** ☐

**(Provide complete description of area item, equipment system and Tag Numbers where applicable):**

Rough grade preparation to the underside of footing +0 and – 150mm at the Secondary/Tertiary Crushing pad. See highlighted drawing attached for extents of turnover area.

**Released to:** Clark Builders

**Release Basis:**

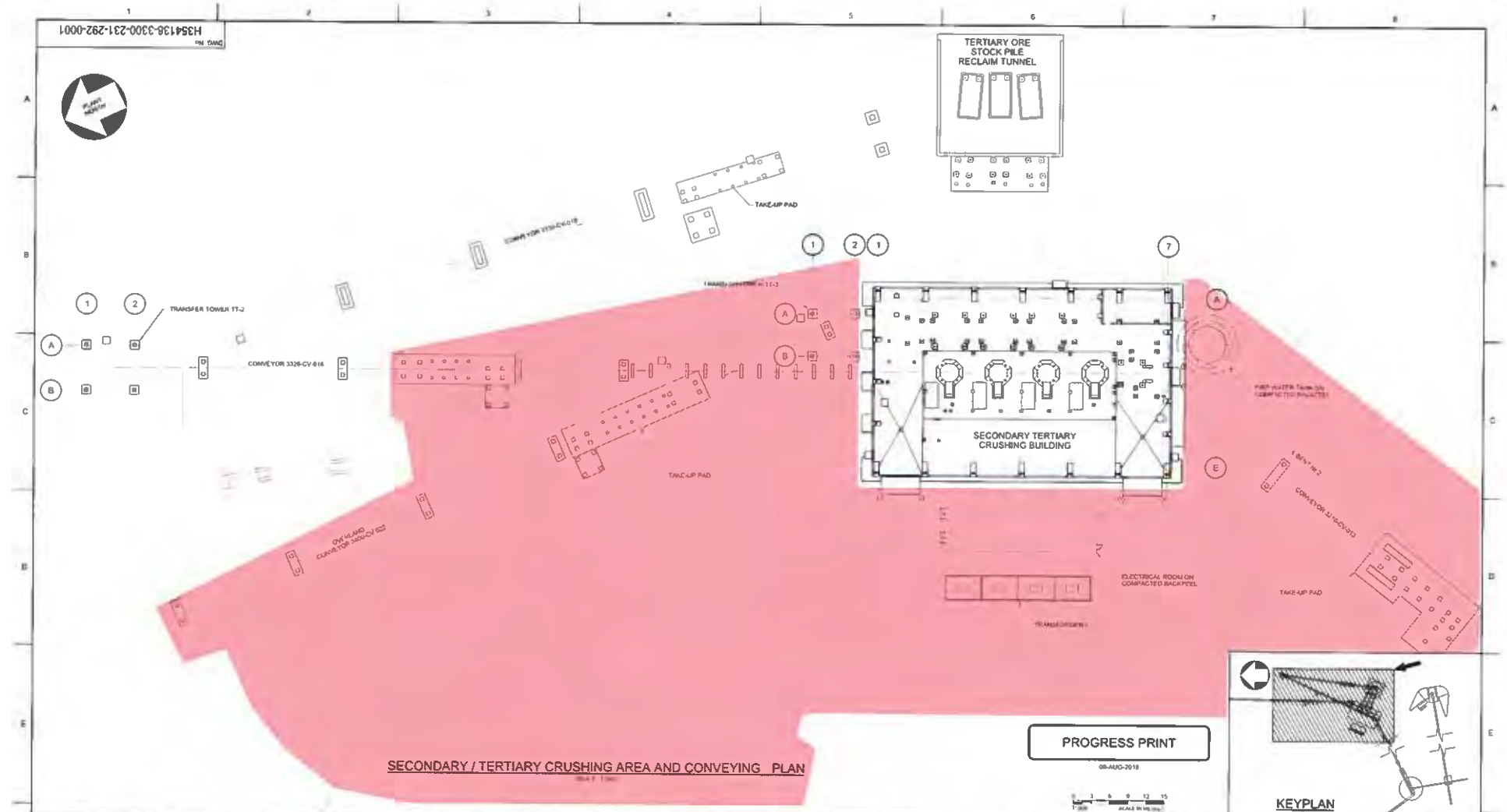
| | | | |
|---|---|---|---|
| ☒ | Civil | ☐ | Paintings/Coatings |
| ☐ | Structural | ☐ | Electrical |
| ☐ | Mechanical | ☐ | Tracing |
| ☐ | Piping | ☐ | Insulation |
| ☐ | NDE | ☐ | Fireproofing |
| ☐ | PHWT | ☐ | Walkdown/Punchout |
| ☐ | Pressure Test | ☐ | Other |

**Comments:**

All foundations within the highlighted area are turned over to Clark to perform foundation preparation to the satisfaction of the Owners Engineer or Record (EOR).

This will require detailed excavation to suitable rock (similar to the other released areas) or 3m below finished grade and backfilling and compacting (95% modified proctor) with specified materials (38mm NFS) to the u/s of footings elevation.

| | | | |
|---|---|---|---|
| Declan McGovern | General Foreman | | Sept 13/18 |
| Requested By *(Print)* | Title | Signature | Date |
| Clint Abel | Civil Superintendent | | Sept. 13/18 |
| Release Authorized By *(Print)* | Title | Signature | Date |
| Release Received/Accepted By *(Print)* | Title | Signature | Date |




SECONDARY / TERTIARY CRUSHING AREA AND CONVEYING PLAN

PROGRESS PRINT

08-AUG-2018



KEYPLAN

SCALE 1:3000

HATCH

StrataGold

| | | | |
|---|---|---|---|
| DRAFTSPERSON | P. JIVAEV | NR | 2018-08-07 |
| DESIGNER | | NR | |
| CHECKER | | | |
| DESIGN COORD. | | | |
| RESP. ENG | | | |
| LEAD DISC. ENG | | | |
| ENG. MANAGER | | | |
| PROJ. MANAGER | | | |

| ROLE | NAME | SIGNATURE & DATE |
|---|---|---|

DRAWING APPROVAL STATUS: Started

EAGLE GOLD PROJECT

SECONDARY AND TERTIARY CRUSHING FOUNDATIONS GENERAL ARRANGEMENT PLAN

| SCALE | DWG. No. | REV |
|---|---|---|
| AS NOTED | H354138-3300-231-292-0001 | A |

| DRAWING No. | DRAWING TITLE |
|---|---|
| REFERENCE DRAWINGS | |

REG. PROFESSIONAL

| No. | DESCRIPTION | BY | CHK'D | DATE |
|---|---|---|---|---|
| REVISIONS | | | | |

SPEC 1
PRINTED: 08-AUG-2018

CLARK BUILDERS
ENERGY & RESOURCES

CB-INSPECTION FORM-DOC-002 REV.00
JDS ENERGY & MINING INC. | STRATAGOLD EAGLE GOLD
PROJECT #: CB201 | 18502

PROJECT MANAGER: DUSTIN DOLYNCHUK, P.ENG
QA/QC COORDINATOR: RYAN DE MILLIANO, C.E.T.
SUPERINTENDENT: GARRY DAHL

# CONCRETE REINFORCEMENT PRE POUR

Rev 01 August 25, 2018

| | |
|---|---|
| SUBCONTRACTOR: Ultimate Reinforcing // McNish | INSPECTION DATE: October 1, 2018 |
| SUBCONTRACTOR CONTACT PERSON: Jimmy M. (Ultimate) | PROJ. POUR DATE: October 1, 2018 |
| INSPECTOR(S): Ryan deMilliano (CB), Ishan (JDS), Dan Pelletier (CB) | |
| LOCATION: 3100 - Primary Pedestals on Mat Foundation (x4) SEE ATTACHED. | |
| DRAWING REV: 03 / DRAWING NO.(S): 3100-231-260-0002 | SPEC SECTION(S): S03 20 00 – Concrete Reinforcing Steel |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Grade (400W unless otherwise noted) and type of steel delivered and installed as required by approved drawings. | X | | |
| 2.0 | Inspect rebar distribution, spacing and cover per design/project requirements. | X | | |
| 3.0 | Length of splices as specified | X | | |
| 4.0 | Staggered splices as specified | X | | |
| 5.0 | Any mechanical splices have been approved by the owner prior to install | | | X |
| 6.0 | Bars cleaned and free of material that may reduce bond including loose rust, scale, oil, structural defects and that they are uncoated and unpainted. | X | | |
| 7.0 | Dowels at wall ends, construction joints, and openings as specified (length, location, size, etc.) | | | X |
| 8.0 | No unauthorized field bent bars including hooks installed | X | | |
| 9.0 | Resolve conflicts between embedded items and reinforcement | X | | |
| 10.0 | When authorized, field bends done without heat and inspected for fissures or cracks. | | | X |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 11.0 | Bars tied and supported to prevent displacement | X | | |
| 12.0 | Spacers, tie wire and chairs as required | X | | |
| 13.0 | Conduits at design location and minimum separation from rebar as specified | | | X |
| 14.0 | No contact of bars is made with dissimilar metals as per CSA A23.1 | X | | |
| 15.0 | Bars, nails or tie wire not sticking out from surfaces that allow rusting/corrosion | X | | |
| 16.0 | Rebar welds are inspected by qualified inspectors certified to CSA W178.2 | | | X |
| 17.0 | No rebar congestion or other obstruction for deposit of concrete | X | | |
| 18.0 | Adjustments required for interfering items (piping, inserts, sleeves, etc.) have been submitted and approved by owner. | X | | |
| 19.0 | Rebar was stored off ground to prevent damage/corrosion | X | | |
| 20.0 | Review drawings for anchors, piping, sleeves, boxes | X | | |

COMMENTS:

ATTACHMENT(S):
Dwgs. FHL.

DEFICIENCIES NOTES:

CLARK BUILDERS:
INSPECTOR: Ryan deMilliano // TITLE Project Coordinator (alt) DATE: Oct 1, 2018

JDS ENERGY & MINING:
INSPECTOR: Ishan Fechter TITLE Superintendent DATE: Oct. 1/18

CLARK BUILDERS
ENERGY & RESOURCES

CB-INSPECTION FORM-DOC-002 REV.00
JDS ENERGY & MINING INC. | STRATAGOLD EAGLE GOLD
PROJECT #: CB201 | 18502

PROJECT MANAGER: DUSTIN DOLYNCHUK, P.ENG
QA/QC COORDINATOR: RYAN DE MILLIANO, C.E.T.
SUPERINTENDENT: GARRY DAHL

# FORMWORK & FALSEWORK PRE POUR | QA INSPECTION

Rev 01 August 25, 2018

| | |
|---|---|
| CONTRACTOR: Clark Builders | INSPECTION DATE: October 1, 2018 |
| CONTRACTOR CONTACT PERSON: Dave Delorme | DATE OF POUR: October 1, 2018 |
| INSPECTOR(S): Dan Pelletier, Ryan de Milliano | |
| LOCATION: 3100 - Primary Pedestals on Mat Foundation - (x4) | |
| DRAWING REV: 03 / DRAWING NO.(S): 3100-231-260-0002 | SPEC SECTION(S): 503 10 00 |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Location, survey, dimension and grades as required | ☑ | ☐ | ☐ |
| 2.0 | Plumbness and Flatness verified | ☑ | ☐ | ☐ |
| 3.0 | Joints are aligned and watertight. | ☑ | ☐ | ☐ |
| 4.0 | Formwork shop drawings are Engineered and reviewed | ☐ | ☐ | ☑ |
| 5.0 | Re-used formwork reconditioned and treated | ☑ | ☐ | ☐ |
| 6.0 | Formwork and ties according to finishing requirements. Confirm no holes in the concrete surface are greater than 25mm in diameter or expose steel at less than 25mm from surface. As per spec. | ☑ | ☐ | ☐ |
| 7.0 | Installation of embeds are located and secured | ☑ | ☐ | ☐ |
| 8.0 | Chamfer requirements checked. 25mm chamfers required for all exterior corners and edges exposed to view including horizontal edges of pads. | ☑ | ☐ | ☐ |
| 9.0 | Key ways and/or other provisions according to design are provided in construction joints | ☐ | ☐ | ☑ |
| 10.0 | Inspect types of form spacers, ties and bracing. | ☑ | ☐ | ☐ |
| 11.0 | Spacing of ties to be set to a pattern | ☑ | ☐ | ☐ |
| 12.0 | Expansion, construction, contraction joints as required & located as coordinated with structural Engineer | ☑ | ☐ | ☐ |
| 13.0 | Forms secured against movement during placing | ☑ | ☐ | ☐ |
| 14.0 | Forms are braced for alignment and blow out | ☑ | ☐ | ☐ |
| 15.0 | Forms are cleaned of all debris, and dry, prior to concrete placement including standing water. | ☑ | ☐ | ☐ |
| 16.0 | Openings in formwork permit inspection and cleaning, placing and compaction of concrete, and forming and processing of construction joints. | ☑ | ☐ | ☐ |
| 17.0 | Formwork has been coated with release agent prior to rebar placement. | ☐ | ☐ | ☐ |
| 18.0 | Anchor Bolts and Embeds are secured to formwork. | ☑ | ☐ | ☐ |

COMMENTS:

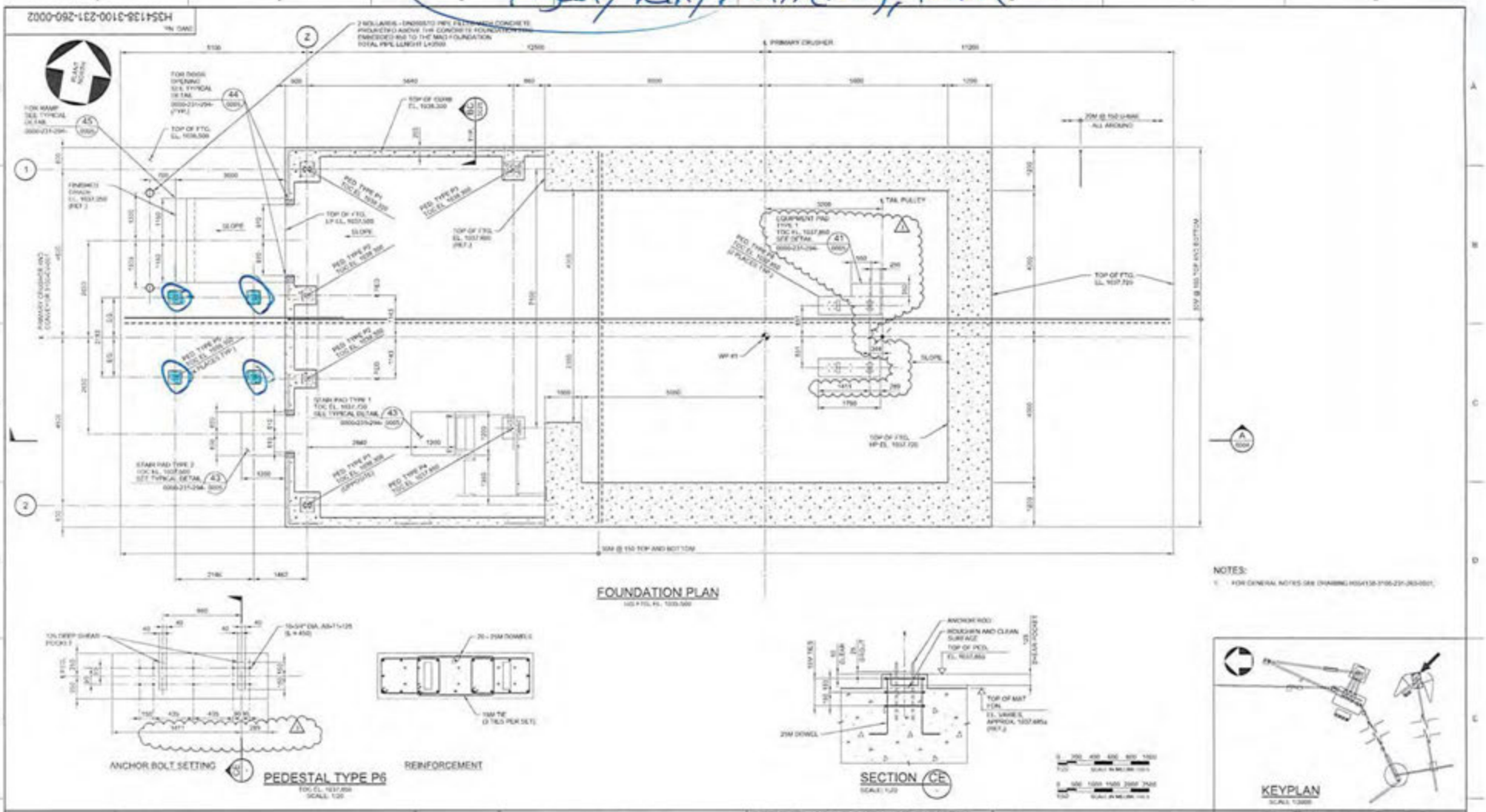
ATTACHMENT(S): PLG.

DEFICIENCIES NOTES:

INITIAL INSPECTION
INSPECTOR: Dan Pelletier / Dan Pelletier TITLE Foreman DATE: OCT 1, 2018

RE-INSPECTION (DEFICIENCIES COMPLETED)
INSPECTOR: N/A. TITLE _____ DATE: _____

CB. OCT 1, 2018 IKISP.
Ryan, Dan, MATT(JDS), ISHAN(JDS)




HATCH

StrataGold Corporation

EAGLE GOLD PROJECT

PRIMARY CRUSHING
CRUSHER SUPPORT STRUCTURE
FOUNDATION PLAN

DRAWING No. H354138-3100-231-260-0002 REV. 3

CLARK BUILDERS
ENERGY & RESOURCES



# CONCRETE REINFORCEMENT PRE POUR

Rev 00 May 4, 2018

| | |
|---|---|
| SUBCONTRACTOR: ULTIMATE REINFORCING / MCNISH | INSPECTION DATE: AUGUST 22, 2018 |
| SUBCONTRACTOR CONTACT PERSON: DEREK | ACTION BY: |
| INSPECTOR(S): Ryan deMilliano (CLARK BUILDERS QA/QC) | |
| LOCATION: AREA 3100 PRIMARY CRUSHER MAT FOUNDATION. | |
| DRAWING REV: 01 | DRAWING NO.(S): 3100-231-260-0004 / SPEC SECTION(S): 503 20 00 |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Grade (400W unless otherwise noted) and type of steel delivered and installed as required by approved drawings. | X | | |
| 2.0 | Inspect rebar distribution, spacing and cover per design/project requirements. | X | | |
| 3.0 | Length of splices as specified | X | | |
| 4.0 | Staggered splices as specified | X | | |
| 5.0 | Any mechanical splices have been approved by the owner prior to install | | | X |
| 6.0 | Bars cleaned and free of material that may reduce bond including loose rust, scale, oil, structural defects and that they are uncoated and unpainted. | X | | |
| 7.0 | Dowels at wall ends, construction joints, and openings as specified (length, location, size, etc.) | X | | |
| 8.0 | No unauthorized field bent bars including hooks installed | X | | |
| 8.5 | Resolve conflicts between embedded items and reinforcement | X | | |
| 9.0 | When authorized, field bends done without heat and inspected for fissures or cracks. | | | X |
| 10.0 | Bars tied and supported to prevent displacement | X | | |
| 11.0 | Spacers, tie wire and chairs as required | X | | |
| 12.0 | Conduits at design location and minimum separation from rebar as specified | X | | |
| 13.0 | No contact of bars is made with dissimilar metals as per CSA A23.1 | X | | |
| 14.0 | Bars, nails or tie wire not sticking out from surfaces that allow rusting/corrosion | X | | |
| 15.0 | Rebar is welds inspected by qualified inspectors certified to CSA W178.2 | | | X |
| 16.0 | No rebar congestion or other obstruction for deposit of concrete | X | | |
| 17.0 | Adjustments required for interfering items (piping, inserts, sleeves, etc.) have been submitted and approved by owner. | X | | |
| 18.0 | Rebar was stored off ground to prevent damage/corrosion | X | | |
| 19.0 | Review drawings for anchors, piping, sleeves, boxes | X | | |

COMMENTS:

RFI TO BE SUBMITTED FOR ANCHOR BOLTS BLOCKOUTS AT PEDESTALS P6 x2
RFI TO BE SUBMITTED FOR BLOCKOUTS AT BOLLARDS x2 ON LOWER STEP.

ATTACHMENT(S):

PLANS.

DEFICIENCIES NOTES:

GENERAL TIES ADDRESSED IN FIELD DURING INSPECTION BY PEREK W/ULTIMATE.

INITIAL INSPECTION

INSPECTOR: Ryan deMilliano TITLE QA/QC Coordinator DATE: Aug 22, 2018

JDS EB

RE-INSPECTION (DEFICIENCIES COMPLETED)

INSPECTOR: Garry C. TITLE Field Engineer DATE: Aug 22, 2018.

CLARK BUILDERS
ENERGY & RESOURCES

CB-INSPECTION FORM-DOC-002 REV.00
JDS ENERGY & MINING INC. | STRATAGOLD EAGLE GOLD
PROJECT #: CB201 | 18502

PROJECT MANAGER: DUSTIN DOLYNCHUK, P.ENG
QA/QC COORDINATOR: RYAN DE MILLIANO, C.E.T.
SUPERINTENDENT: GARRY DAHL

# FORMWORK & FALSEWORK PRE POUR | QA INSPECTION

Rev 00 May 4, 2018

| | |
|---|---|
| SUBCONTRACTOR: CLARK BUILDERS | INSPECTION DATE: AUGUST 22, 2018 |
| ~~SUBCONTRACTOR~~ CONTACT PERSON: DAN PELTIER | DATE OF POUR: |
| INSPECTOR(S): Ryan de Milliano (QA/QC) | |
| LOCATION: PRIMARY CRUSHER (AREA 3100) MAT FOUNDATION. | |
| DRAWING REV: 02 / DRAWING NO.(S): 3100-231-250-0002 | SPEC SECTION(S): 03 10 00 |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Location, survey, dimension and grades as required | X | | |
| 2.0 | Plumbness and Flatness verified | X | | |
| 3.0 | Joints are aligned and watertight. | X | | |
| 4.0 | Formwork shop drawings are Engineered and reviewed | X | | |
| 5.0 | Re-used formwork reconditioned and treated | | | X |
| 6.0 | Formwork and ties according to finishing requirements. Confirm no holes in the concrete surface are greater than 25mm in diameter or expose steel at less than 25mm from surface. As per spec. | X | | |
| 7.0 | Installation of embeds are located and secured | X | | |
| 8.0 | Chamfer requirements checked. 25mm chamfers required for all exterior corners and edges exposed to view including horizontal edges of pads. | X | | |
| 9.0 | Key ways and/or other provisions according to design are provided in construction joints | X | | |
| 10.0 | Inspect types of form spacers, ties and bracing. | X | | |
| 11.0 | Spacing of ties to be set to a pattern | X | | |
| 12.0 | Expansion, construction, contraction joints as required & located as coordinated with structural Engineer | X | | |
| 13.0 | Forms secured against movement during placing | X | | |
| 14.0 | Forms are braced for alignment and blow out | X | | |
| 15.0 | Forms are cleaned of all debris, and dry, prior to concrete placement including standing water. | X | | |
| 16.0 | Openings in formwork permit inspection and cleaning, placing and compaction of concrete, and forming and processing of construction joints. | X | | |
| 17.0 | Formwork has been coated with release agent prior to rebar placement. | X | | |
| | | | | |

COMMENTS:

FORMS SETUP ON MUDSLAB, MINOR DEBRIS TO BE CLEANED BEFORE POUR.

ATTACHMENT(S):

DWGS. (MARKED UP)

DEFICIENCIES NOTES:

INITIAL INSPECTION

INSPECTOR: Ryan de Milliano TITLE QA/QC COORDINATOR DATE: AUGUST 22, 2018

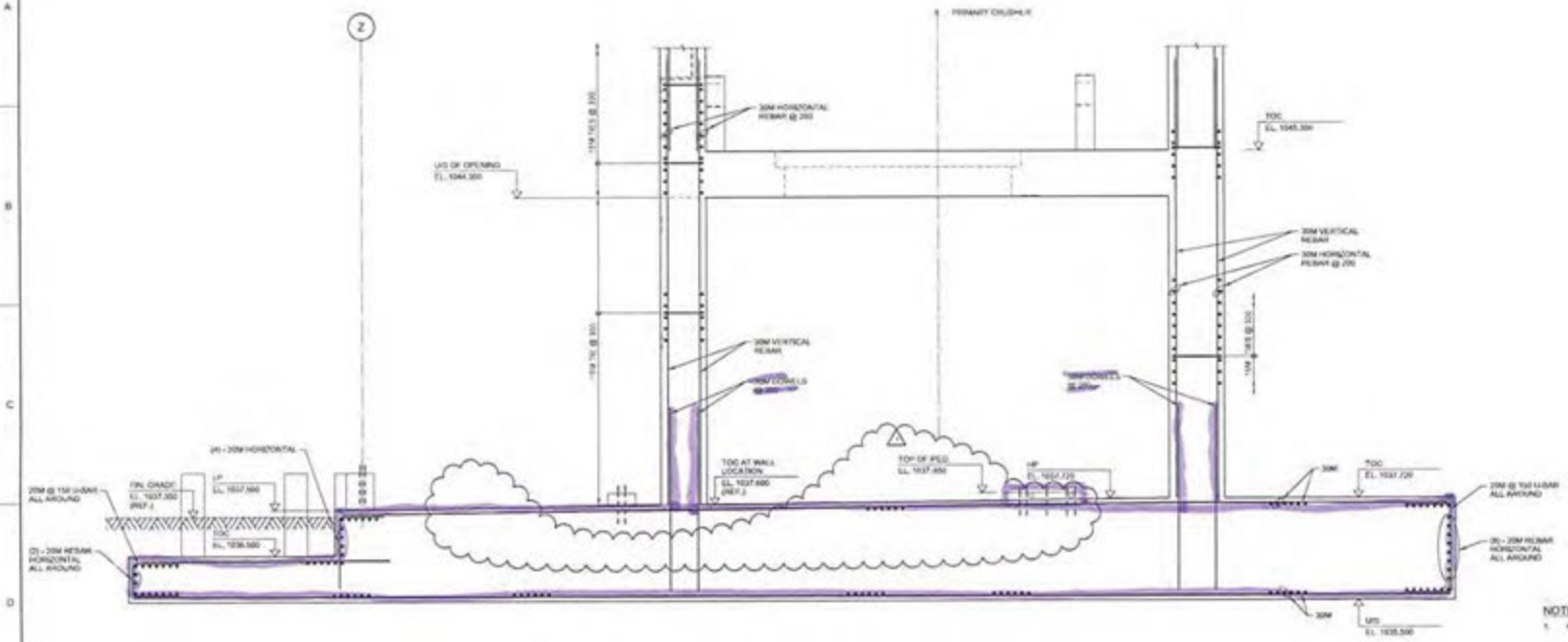
SDS.

RE-INSPECTION (DEFICIENCIES COMPLETED)

INSPECTOR: Darcy Comeau TITLE Field Engineer DATE: Aug 22 2018

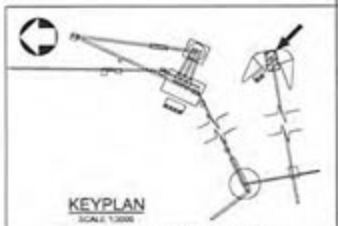
INSPECTION DATE : AUGUST 22, 2018

H354138-3100-231-260-0004




SECTION A A

NOTES:
1. FOR GENERAL NOTES SEE DRAWING H354138-3100-231-260-0001.




| | | | | | |
|---|---|---|---|---|---|
| DRAWING No. | DRAWING TITLE | | | | |
| REFERENCE DRAWINGS | | REG. PROFESSIONAL | | | |
| | | | 1 | CONVYOR PEDESTALS REVISED | PJ |
| | | | 0 | APPROVED FOR CONSTRUCTION | PJ |
| | | | No. | DESCRIPTION | BY |

REVISIONS

| | | | |
|---|---|---|---|
| DRAFTSPERSON | P. JEVACY | NR | 2018-03-20 |
| DESIGNER | N. LI | NR | 2018-03-20 |
| CHECKER | E. AKINCI | | 2018-08-08 |
| DESIGN COORD. | S. PERKINS | | |
| WP DP. ENG. | E. AKINCI | | 2018-08-08 |
| LEAD DISC. ENG. | E. AKINCI | | 2018-08-08 |
| ENG. MANAGER | B. RUSTAD | | |
| PROJ. MANAGER | B. RUSTAD | | |
| ROLE | NAME | SIGNATURE & DATE | |

DRAWING APPROVAL STATUS: Approved for Construction

HATCH

StrataGold Corporation

EAGLE GOLD PROJECT

PRIMARY CRUSHING
CRUSHER SUPPORT STRUCTURE
SECTIONS - SHEET 1

| SCALE | DWG. No. | REV |
|---|---|---|
| 1:50 | H354138-3100-231-260-0004 | 1 |

SHEET SIZE: D

INSPECTION DATE : AUGUST 22, 2019

H354138-3100-231-260-0003

PLAN WALL BASE

WALL TIE
TYPICAL DETAIL 1
SCALE: 1:25

NOTES:
1. FOR GENERAL NOTES SEE DRAWING H354138-3100-231-260-0001.

KEYPLAN

HATCH

StrataGold Corporation

EAGLE GOLD PROJECT

PRIMARY CRUSHING
CRUSHER SUPPORT STRUCTURE
WALL BASE PLAN

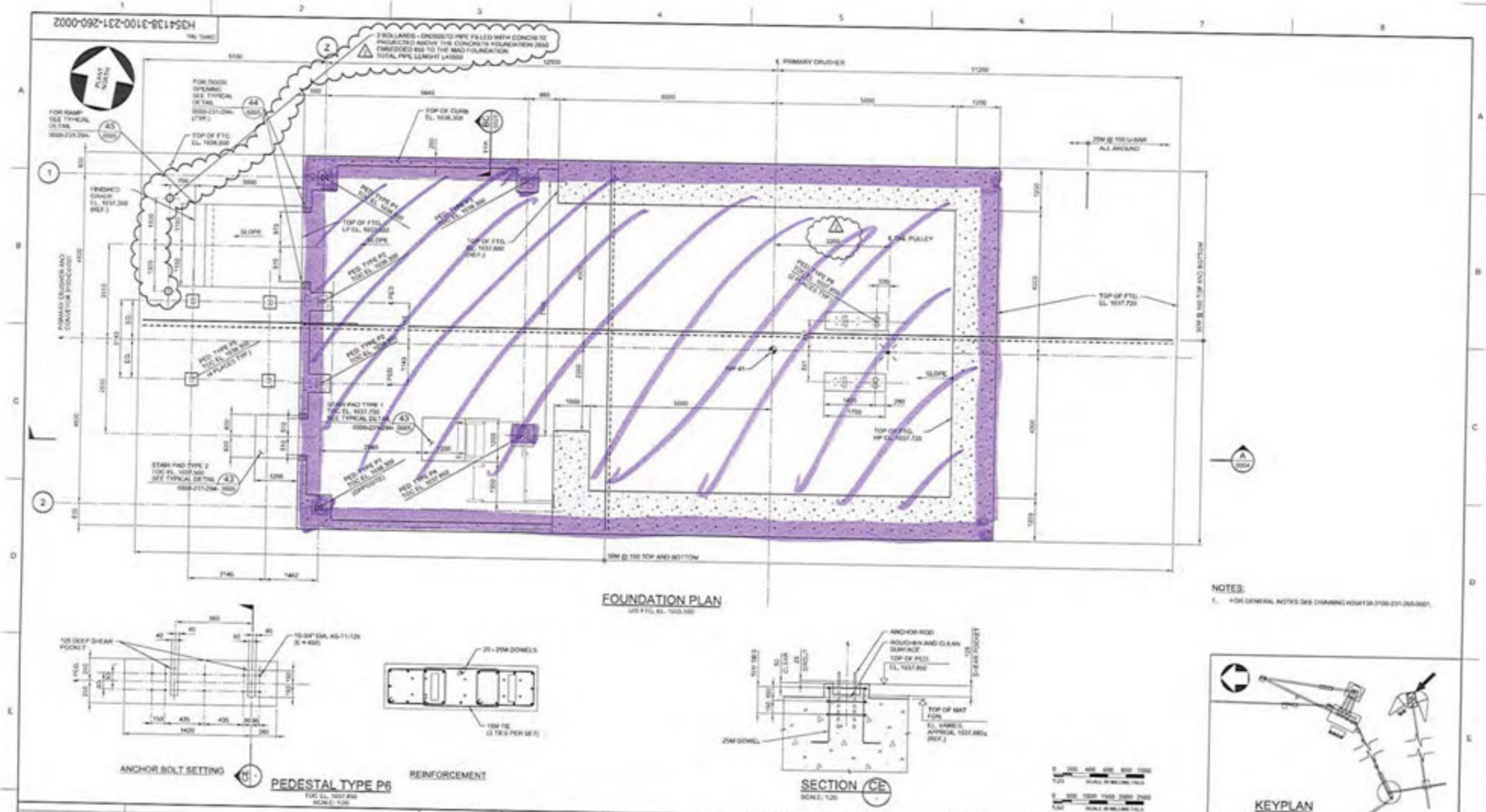
H354138-3100-231-260-0003

REV 1

| No. | DESCRIPTION | BY | CHKD | DATE |
|---|---|---|---|---|
| 1 | CONVEYOR PICK DETAILS REVISED | FU | EA | 2018-09-27 |
| 0 | APPROVED FOR CONSTRUCTION | FU | EA | 2018-04-17 |

| ROLE | NAME | SIGNATURE & DATE |
|---|---|---|
| DRAWING APPROVAL STATUS: | Approved for Construction | |

INSPECTION DATE : AUGUST 22, 2018



CLARK BUILDERS
ENERGY & RESOURCES

CB-INSPECTION FORM-DOC-002 REV.00
JDS ENERGY & MINING INC. | STRATAGOLD EAGLE GOLD
PROJECT #: CB201 | 18502

PROJECT MANAGER: DUSTIN DOLYNCHUK, P.ENG
QA/QC COORDINATOR: RYAN DE MILLIANO, C.E.T.
SUPERINTENDENT: GARRY DAHL

# CONCRETE REINFORCEMENT PRE POUR

Rev 00 May 4, 2018

| | |
|---|---|
| SUBCONTRACTOR: ULTIMATE REINFORCING | INSPECTION DATE: AUG. 30/18 31 |
| SUBCONTRACTOR CONTACT PERSON: DEREK BAUDIE | ACTION BY: |
| INSPECTOR(S): JACKSON WAGNER | |
| LOCATION: 3100 PRIMARY CRUSHING WALLS TO ELEV. 1044,800 | |
| DRAWING REV: / | DRAWING NO.(S): 3100-251-260-0003 / SPEC SECTION(S): 503 20 00 |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Grade (400W unless otherwise noted) and type of steel delivered and installed as required by approved drawings. | ☑ | ☐ | ☐ |
| 2.0 | Inspect rebar distribution, spacing and cover per design/project requirements. | ☑ | ☐ | ☐ |
| 3.0 | Length of splices as specified | ☑ | ☐ | ☐ |
| 4.0 | Staggered splices as specified | ☑ | ☐ | ☐ |
| 5.0 | Any mechanical splices have been approved by the owner prior to install | ☑ | ☐ | ☐ |
| 6.0 | Bars cleaned and free of material that may reduce bond including loose rust, scale, oil, structural defects and that they are uncoated and unpainted. | ☑ | ☐ | ☐ |
| 7.0 | Dowels at wall ends, construction joints, and openings as specified (length, location, size, etc.) | ☑ | ☐ | ☐ |
| 8.0 | No unauthorized field bent bars including hooks installed | ☑ | ☐ | ☐ |
| | Resolve conflicts between embedded items and reinforcement | ✓ | | |
| 9.0 | When authorized, field bends done without heat and inspected for fissures or cracks. | ☑ | ☐ | ☐ |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 10.0 | Bars tied and supported to prevent displacement | ☑ | ☐ | ☐ |
| 11.0 | Spacers, tie wire and chairs as required | ☑ | ☐ | ☐ |
| 12.0 | Conduits at design location and minimum separation from rebar as specified | ☐ | ☐ | ☑ |
| 13.0 | No contact of bars is made with dissimilar metals as per CSA A23.1 | ☑ | ☐ | ☐ |
| 14.0 | Bars, nails or tie wire not sticking out from surfaces that allow rusting/corrosion | ☑ | ☐ | ☐ |
| 15.0 | Rebar is welds inspected by qualified inspectors certified to CSA W178.2 | ☐ | ☐ | ☑ |
| 16.0 | No rebar congestion or other obstruction for deposit of concrete | ☑ | ☐ | ☐ |
| 17.0 | Adjustments required for interfering items (piping, inserts, sleeves, etc.) have been submitted and approved by owner. | ☐ | ☐ | ☑ |
| 18.0 | Rebar was stored off ground to prevent damage/corrosion | ✓ | | |
| 19.0 | Review drawings for anchors, piping, sleeves, boxes | ☑ | ☐ | ☐ |

COMMENTS:

| | ATTACHMENT(S): |
|---|---|
| 4# COOR & SPLICED L BARS AT EAST WALL ZONE APPROVED | RFI - 51 |
| | |
| | |

DEFICIENCIES NOTES:

Tie all vert splices
Clean out wall base of all debris
Tie horizontals on outside face

INITIAL INSPECTION

INSPECTOR: _____ TITLE Project Coordinator DATE: Aug 31

RE-INSPECTION (DEFICIENCIES COMPLETED)

INSPECTOR: _____ TITLE Superintendent DATE: Aug. 31

↳ ADAM CHOW.

CLARK BUILDERS
ENERGY & RESOURCES

CB-INSPECTION FORM-DOC-002 REV.00
JDS ENERGY & MINING INC. | STRATAGOLD EAGLE GOLD
PROJECT #: CB201 | 18502

PROJECT MANAGER: DUSTIN DOLYNCHUK, P.ENG
QA/QC COORDINATOR: RYAN DE MILLIANO, C.E.T.
SUPERINTENDENT: GARRY DAHL

# FORMWORK & FALSEWORK PRE POUR | QA INSPECTION

Rev 00 May 4, 2018

| | |
|---|---|
| SUBCONTRACTOR: SUPPLIER: PERI INSTALLER: CLARK BLD. | INSPECTION DATE: SEPTEMBER 5, 2018 |
| SUBCONTRACTOR CONTACT PERSON: GARRY DAHL | DATE OF POUR: SEPTEMBER 6, 2018 |
| INSPECTOR(S): GARRY DAHL / RYAN DEMILLIANO | |
| LOCATION: 3100 PRIMARY CRUSHER // WALLS FOOTING TO CREST + SUSPENDED SLABS | |
| DRAWING REV: 01 | DRAWING NO.(S): H354138-3100-231-260-0003 / SPEC SECTION(S): 503 1000 |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Location, survey, dimension and grades as required | ☑ | ☐ | ☐ |
| 2.0 | Plumbness and Flatness verified | ☑ | ☐ | ☐ |
| 3.0 | Joints are aligned and watertight. | ☑ | ☐ | ☐ |
| 4.0 | Formwork shop drawings are Engineered and reviewed | ☑ | ☐ | ☐ |
| 5.0 | Re-used formwork reconditioned and treated | ☑ | ☐ | ☐ |
| 6.0 | Formwork and ties according to finishing requirements. Confirm no holes in the concrete surface are greater than 25mm in diameter or expose steel at less than 25mm from surface. As per spec. | ☑ | ☐ | ☐ |
| 7.0 | Installation of embeds are located and secured | ☑ | ☐ | ☐ |
| 8.0 | Chamfer requirements checked. 25mm chamfers required for all exterior corners and edges exposed to view including horizontal edges of pads. | ☑ | ☐ | ☐ |
| 9.0 | Key ways and/or other provisions according to design are provided in construction joints | ☑ | ☐ | ☐ |
| 10.0 | Inspect types of form spacers, ties and bracing. | ☑ | ☐ | ☐ |
| 11.0 | Spacing of ties to be set to a pattern | ☑ | ☐ | ☐ |
| 12.0 | Expansion, construction, contraction joints as required & located as coordinated with structural Engineer | ☐ | ☐ | ☑ |
| 13.0 | Forms secured against movement during placing | ☑ | ☐ | ☐ |
| 14.0 | Forms are braced for alignment and blow out | ☑ | ☐ | ☐ |
| 15.0 | Forms are cleaned of all debris, and dry, prior to concrete placement including standing water. | ☑ | ☐ | ☐ |
| 16.0 | Openings in formwork permit inspection and cleaning, placing and compaction of concrete, and forming and processing of construction joints. | ☑ | ☐ | ☐ |
| 17.0 | Formwork has been coated with release agent prior to rebar placement. | ☑ | ☐ | ☐ |
| | | ☐ | ☐ | ☐ |

COMMENTS:

ATTACHMENT(S):

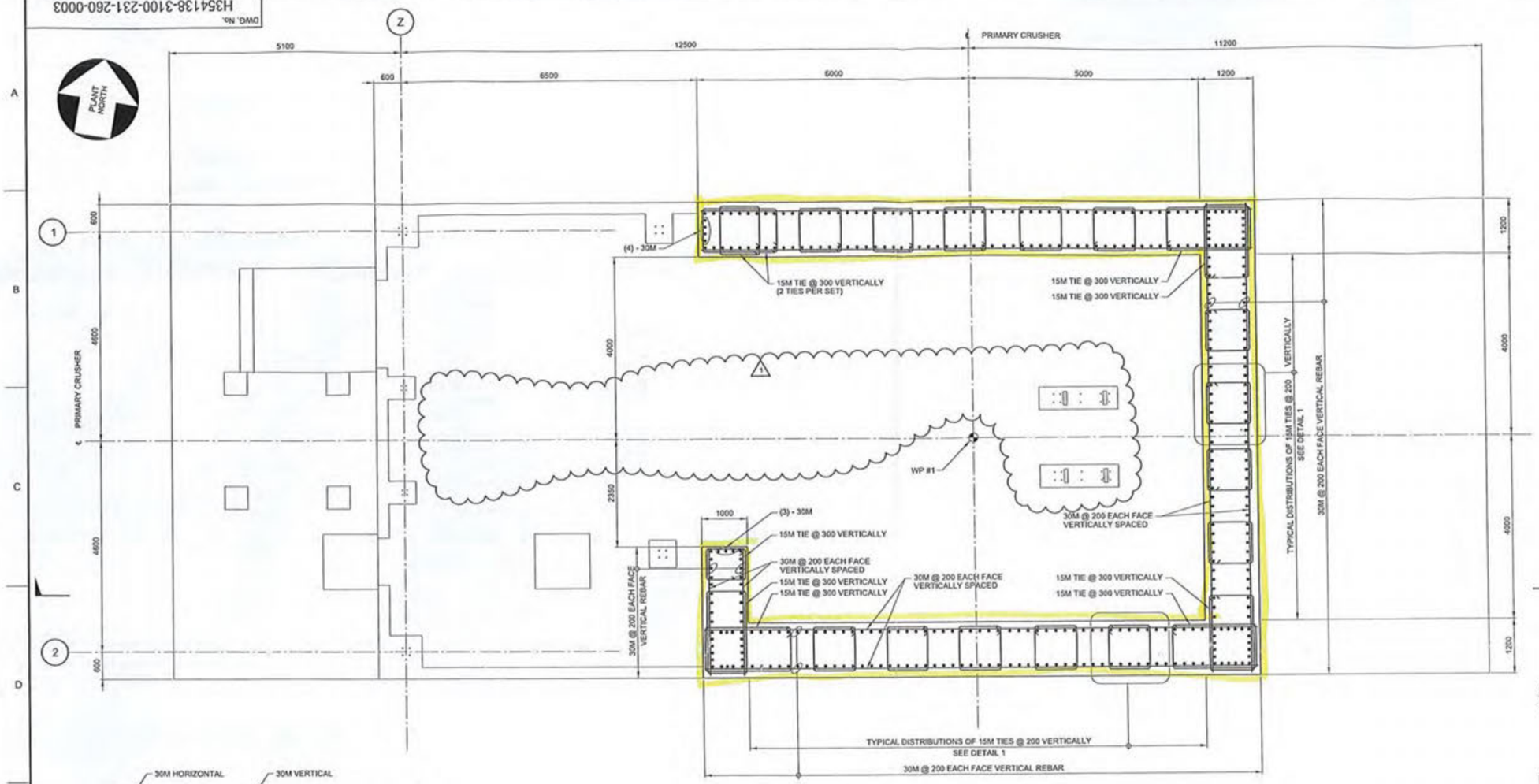
DEFICIENCIES NOTES:

INITIAL INSPECTION

INSPECTOR: GARRY DAHL / RYAN DEMILLIANO TITLE SUPERINTENDENT / COORDINATOR DATE: SEPT 5, 2018

RE-INSPECTION (DEFICIENCIES COMPLETED)

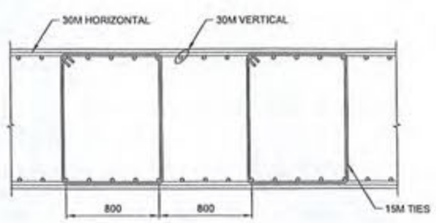
INSPECTOR: _____ TITLE _____ DATE: _____



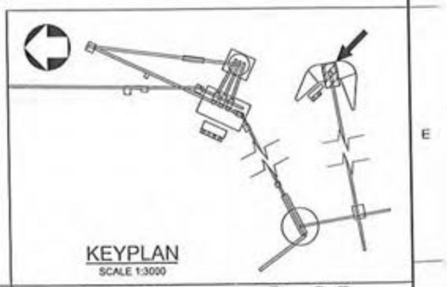

PLAN WALL BASE

NOTES:

1. FOR GENERAL NOTES SEE DRAWING H354138-3100-231-260-0001.




WALL TIE
TYPICAL DETAIL 1
SCALE: 1:25



KEYPLAN
SCALE 1:3000

0 250 500 750 1000 1250
1:25 SCALE IN MILLIMETRES

0 500 1000 1500 2000 2500
1:50 SCALE IN MILLIMETRES

| DRAWING No. | DRAWING TITLE |
|---|---|
| REFERENCE DRAWINGS | |

REG. PROFESSIONAL

| No. | DESCRIPTION | BY | CHK'D | DATE |
|---|---|---|---|---|
| 1 | CONVEYOR PEDESTALS REVISED | PJ | EA | 2018-05-31 |
| 0 | APPROVED FOR CONSTRUCTION | PJ | EA | 2018-04-13 |

REVISIONS

HATCH

| ROLE | NAME | SIGNATURE & DATE |
|---|---|---|
| DRAFTSPERSON | P. JIVAEV | NR 2018-03-20 |
| DESIGNER | H. LI | NR 2018-03-20 |
| CHECKER | E. AKINCI | |
| DESIGN COORD. | S. PERKINS | |
| RESP. ENG. | E. AKINCI | |
| LEAD DISC. ENG. | E. AKINCI | |
| ENG. MANAGER | B. RUSTAD | |
| PROJ. MANAGER | B. RUSTAD | |

DRAWING APPROVAL STATUS: Approved for Construction

StrataGold Corporation

EAGLE GOLD PROJECT

PRIMARY CRUSHING
CRUSHER SUPPORT STRUCTURE
WALL BASE PLAN

SCALE 1:50 OR AS NOTED

DWG. No. H354138-3100-231-260-0003

REV 1

SHEET SIZE: D

SFILES
PRINTED: 04-JUN-2018
idc_pwservice
10:56

CB-INSPECTION FORM-DOC-002 REV.00
JDS ENERGY & MINING INC. | STRATAGOLD EAGLE GOLD
PROJECT #: CB201 | 18502

PROJECT MANAGER: DUSTIN DOLYNCHUK, P.ENG
QA/QC COORDINATOR: RYAN DE MILLIANO, C.E.T.
SUPERINTENDENT: GARRY DAHL

CLARK BUILDERS
ENERGY & RESOURCES

# CONCRETE REINFORCEMENT PRE POUR

Rev 01 August 25, 2018

| | |
|---|---|
| SUBCONTRACTOR: Ultimate Reinforcing // McNish | INSPECTION DATE: SEPTEMBER 18, 2018 |
| SUBCONTRACTOR CONTACT PERSON: JIMMY | PROJ. POUR DATE: SEPTEMBER 18, 2018 |
| INSPECTOR(S): Ryan del Milano | |
| LOCATION: 3100 PRIMARY SUSPENDED SLAB @ ELEV 1045.300 | |
| DRAWING REV: 02 / DRAWING NO.(S): 3100-231-260-0005/6 | SPEC SECTION(S): S03 20 00 – Concrete Reinforcing Steel |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Grade (400W unless otherwise noted) and type of steel delivered and installed as required by approved drawings. | X | | |
| 2.0 | Inspect rebar distribution, spacing and cover per design/project requirements. SEE NOTES | X | | |
| 3.0 | Length of splices as specified | X | | |
| 4.0 | Staggered splices as specified | X | | |
| 5.0 | Any mechanical splices have been approved by the owner prior to install | | | X |
| 6.0 | Bars cleaned and free of material that may reduce bond including loose rust, scale, oil, structural defects and that they are uncoated and unpainted. | X | | |
| 7.0 | Dowels at wall ends, construction joints, and openings as specified (length, location, size, etc.) | X | | |
| 8.0 | No unauthorized field bent bars including hooks installed | X | | |
| 9.0 | Resolve conflicts between embedded items and reinforcement | X | | |
| 10.0 | When authorized, field bends done without heat and inspected for fissures or cracks. | | | X |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 11.0 | Bars tied and supported to prevent displacement | X | | |
| 12.0 | Spacers, tie wire and chairs as required | X | | |
| 13.0 | Conduits at design location and minimum separation from rebar as specified | | | X |
| 14.0 | No contact of bars is made with dissimilar metals as per CSA A23.1 | X | | |
| 15.0 | Bars, nails or tie wire not sticking out from surfaces that allow rusting/corrosion | X | | |
| 16.0 | Rebar welds are inspected by qualified inspectors certified to CSA W178.2 | | | X |
| 17.0 | No rebar congestion or other obstruction for deposit of concrete | X | | |
| 18.0 | Adjustments required for interfering items (piping, inserts, sleeves, etc.) have been submitted and approved by owner. | X | | |
| 19.0 | Rebar was stored off ground to prevent damage/corrosion | X | | |
| 20.0 | Review drawings for anchors, piping, sleeves, boxes | X | | |

COMMENTS:

RELATED RFIs REVIEWED. RFI 56 / RFI 47
~~Additional RFI required~~
TEMP AFTER HANDLING @ TIME OF POUR ± 12°C
→ RFI 66 CREATED & APPROVED BY HATCH.

ATTACHMENT(S):

DWG W/ HIGHLIGHTS.

DEFICIENCIES NOTES:

Additional RFI required for stirrups that, due to correct 30M placement, cannot enclose 2x 30M BARS TOP & BOTTOM AS SHOWN IN DWG.
• BOTTOM TO BE CLEANED THOROUGHLY, • TEMP @ ±2°C, TO BE H&H BEFORE PLACEMENT,
• MORE CHAIRS ON SOME LOCATIONS TO BE ADDED ISSUED FOR POUR.

CLARK BUILDERS:
INSPECTOR: Ryan del Milano TITLE Project Coordinator (QA) DATE: SEPT 18, 2018

JDS ENERGY & MINING:
INSPECTOR: Ethan Fechter TITLE Superintendent DATE: Sept. 18/18

* Ensure 30 mm cover for West wall dowels
~~POST-DATED NOTE — WAS NOT~~
NOTED DURING INSPECTION

CB-INSPECTION FORM-DOC-002 REV.00
JDS ENERGY & MINING INC. | STRATAGOLD EAGLE GOLD
PROJECT #: CB201 | 18502

PROJECT MANAGER: DUSTIN DOLYNCHUK, P.ENG
QA/QC COORDINATOR: RYAN DE MILLIANO, C.E.T.
SUPERINTENDENT: GARRY DAHL

CLARK BUILDERS
ENERGY & RESOURCES

# CONCRETE REINFORCEMENT PRE POUR

Rev 01 August 25, 2018

| | |
|---|---|
| SUBCONTRACTOR: Ultimate Reinforcing // McNish | INSPECTION DATE: SEPTEMBER 18 2018 |
| SUBCONTRACTOR CONTACT PERSON: SAMM | PROJ. POUR DATE: SEPTEMBER 18, 2018 |
| INSPECTOR(S): Ryan deMilliano | |
| LOCATION: 3100 PRIMARY SUSPENDED SLAB @ ELEV 1045.300 | |
| DRAWING REV: 02 / DRAWING NO.(S): 3100-231-260-0005/6 | SPEC SECTION(S): S03 20 00 – Concrete Reinforcing Steel |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Grade (400W unless otherwise noted) and type of steel delivered and installed as required by approved drawings. | X | | |
| 2.0 | Inspect rebar distribution, spacing and cover per design/project requirements. SEE NOTES | X | | |
| 3.0 | Length of splices as specified | X | | |
| 4.0 | Staggered splices as specified | X | | |
| 5.0 | Any mechanical splices have been approved by the owner prior to install | | | X |
| 6.0 | Bars cleaned and free of material that may reduce bond including loose rust, scale, oil, structural defects and that they are uncoated and unpainted. | X | | |
| 7.0 | Dowels at wall ends, construction joints, and openings as specified (length, location, size, etc.) | X | | |
| 8.0 | No unauthorized field bent bars including hooks installed | X | | |
| 9.0 | Resolve conflicts between embedded items and reinforcement | X | | |
| 10.0 | When authorized, field bends done without heat and inspected for fissures or cracks. | | | X |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 11.0 | Bars tied and supported to prevent displacement | X | | |
| 12.0 | Spacers, tie wire and chairs as required | X | | |
| 13.0 | Conduits at design location and minimum separation from rebar as specified | | | X |
| 14.0 | No contact of bars is made with dissimilar metals as per CSA A23.1 | X | | |
| 15.0 | Bars, nails or tie wire not sticking out from surfaces that allow rusting/corrosion | X | | |
| 16.0 | Rebar welds are inspected by qualified inspectors certified to CSA W178.2 | | | X |
| 17.0 | No rebar congestion or other obstruction for deposit of concrete | X | | |
| 18.0 | Adjustments required for interfering items (piping, inserts, sleeves, etc.) have been submitted and approved by owner. | X | | |
| 19.0 | Rebar was stored off ground to prevent damage/corrosion | X | | |
| 20.0 | Review drawings for anchors, piping, sleeves, boxes | X | | |

COMMENTS:

RELATED RFIs REVIEWED. RFI 56 / RFI 47
~~Additional RFI required~~
TEMP AFTER HOARDING @ TIME OF POUR ±12°C
→ RFI 66 CREATED & APPROVED BY HATCH

ATTACHMENT(S):

DWG W/ HIGHLIGHTS.

DEFICIENCIES NOTES:

Additional RFI required for stirrups that, due to correct ROM placement, cannot enclose 2 x 30M BARS Top & Bottom AS SHOWN IN DWG.
• Bottom to be cleaned thoroughly, • TEMP @ 12°C, TO BE H&H BAFFLE PLACEMENT
• MORE CHAIRS ON SOME LOCATIONS TO BE ADDED BEFORE POUR.

CLARK BUILDERS:
INSPECTOR: Ryan deMilliano TITLE Project Coordinator (QA) DATE: SEPT 18, 2018

JDS ENERGY & MINING:
INSPECTOR: Idan Fechter TITLE Superintendent DATE: Sept. 18/18

CB-INSPECTION FORM-DOC-002 REV.00
JDS ENERGY & MINING INC. | STRATAGOLD EAGLE GOLD
PROJECT #: CB201 | 18502

PROJECT MANAGER: DUSTIN DOLYNCHUK, P.ENG
QA/QC COORDINATOR: RYAN DE MILLIANO, C.E.T.
SUPERINTENDENT: GARRY DAHL

CLARK BUILDERS
ENERGY & RESOURCES

# FORMWORK & FALSEWORK PRE POUR | QA INSPECTION

Rev 01 August 25, 2018

| | |
|---|---|
| CONTRACTOR: Clark Builders / PERLI | INSPECTION DATE: SEPTEMBER 18, 2018 |
| CONTRACTOR CONTACT PERSON: DAVE DALORME / GARY HOSEY | DATE OF POUR: SEPTEMBER 18, 2018 |
| INSPECTOR(S): | |
| LOCATION: 3100 PRIMARY SUSPENDED SLAB @ ELEV. 1045.300 | |
| DRAWING REV: | DRAWING NO.(S): PERLI DWGS. / SPEC SECTION(S): |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Location, survey, dimension and grades as required | ☑ | ☐ | ☐ |
| 2.0 | Plumbness and Flatness verified | ☑ | ☐ | ☐ |
| 3.0 | Joints are aligned and watertight. | ☑ | ☐ | ☐ |
| 4.0 | Formwork shop drawings are Engineered and reviewed | ☑ | ☐ | ☐ |
| 5.0 | Re-used formwork reconditioned and treated | ☑ | ☐ | ☐ |
| 6.0 | Formwork and ties according to finishing requirements. Confirm no holes in the concrete surface are greater than 25mm in diameter or expose steel at less than 25mm from surface. As per spec. | ☑ | ☐ | ☐ |
| 7.0 | Installation of embeds are located and secured | ☑ | ☐ | ☐ |
| 8.0 | Chamfer requirements checked. 25mm chamfers required for all exterior corners and edges exposed to view including horizontal edges of pads. | ☐ | ☐ | ☑ |
| 9.0 | Key ways and/or other provisions according to design are provided in construction joints | ☐ | ☐ | ☑ |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 10.0 | Inspect types of form spacers, ties and bracing. | ☑ | ☐ | ☐ |
| 11.0 | Spacing of ties to be set to a pattern | ☐ | ☐ | ☑ |
| 12.0 | Expansion, construction, contraction joints as required & located as coordinated with structural Engineer | ☐ | ☐ | ☑ |
| 13.0 | Forms secured against movement during placing | ☑ | ☐ | ☐ |
| 14.0 | Forms are braced for alignment and blow out | ☑ | ☐ | ☐ |
| 15.0 | Forms are cleaned of all debris, and dry, prior to concrete placement including standing water. | ☑ | ☐ | ☐ |
| 16.0 | Openings in formwork permit inspection and cleaning, placing and compaction of concrete, and forming and processing of construction joints. | ☑ | ☐ | ☐ |
| 17.0 | Formwork has been coated with release agent prior to rebar placement. | ☑ | ☐ | ☐ |
| 18.0 | Anchor Bolts and Embeds are secured to formwork. | ☑ | ☐ | ☐ |

COMMENTS:

ATTACHMENT(S): DWG.

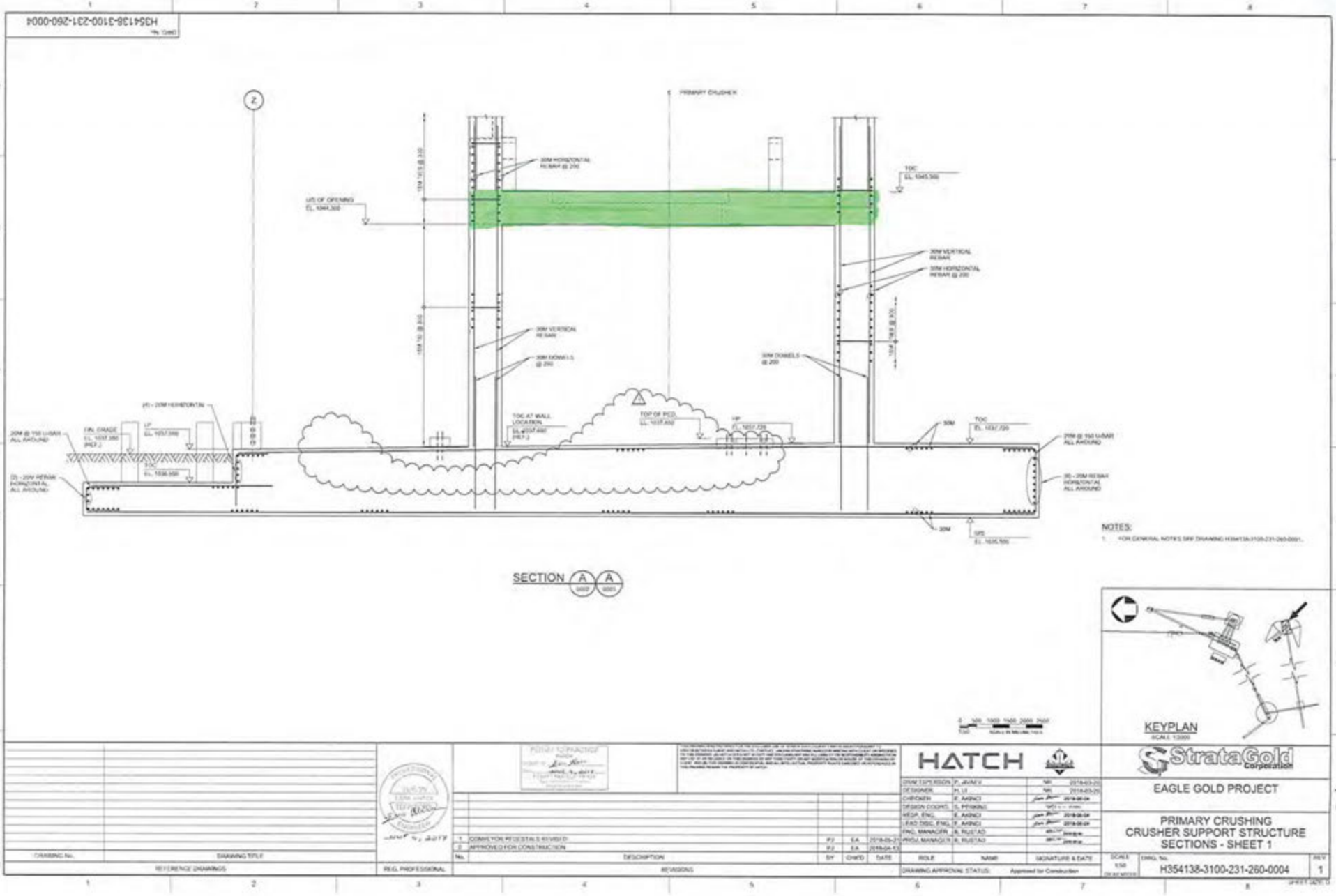
DEFICIENCIES NOTES:

INITIAL INSPECTION

INSPECTOR: G Hosey / G HOSEY TITLE SUPERINTENDENT DATE: SEP-18-18

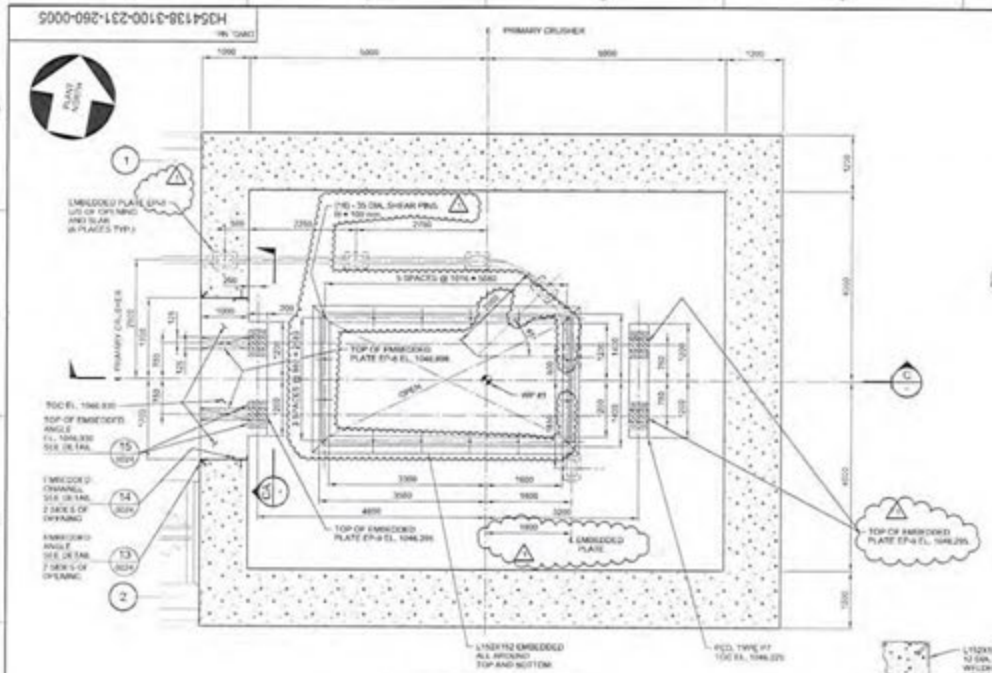
RE-INSPECTION (DEFICIENCIES COMPLETED)

INSPECTOR: N/R Ishan Fechter TITLE Superintendent DATE: Sept. 18/18



H354138-3100-231-260-0004
PRIMARY CRUSHER
30M HORIZONTAL REBAR @ 200
30M VERTICAL REBAR
30M DOWELS @ 200
TOC AT WALL LOCATION
TOP OF PED.
SECTION A A
NOTES:
KEYPLAN
HATCH
StrataGold Corporation
EAGLE GOLD PROJECT
PRIMARY CRUSHING
CRUSHER SUPPORT STRUCTURE
SECTIONS - SHEET 1
H354138-3100-231-260-0004
1
COMPLETOR PEDESTALS REVISED
APPROVED FOR CONSTRUCTION
DESCRIPTION
REVISIONS
DRAWING APPROVAL STATUS: Approved for Construction

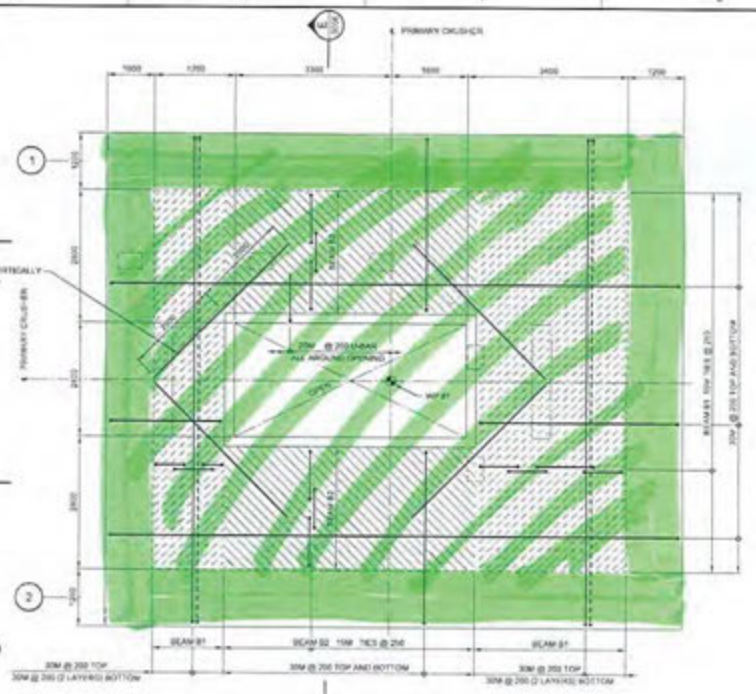
H354138-3100-231-260-0005



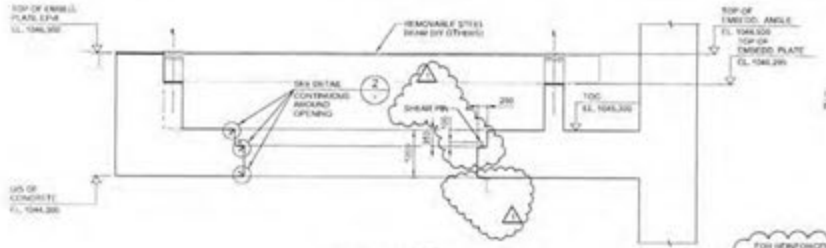

PLAN AT TOC EL. 1045.300



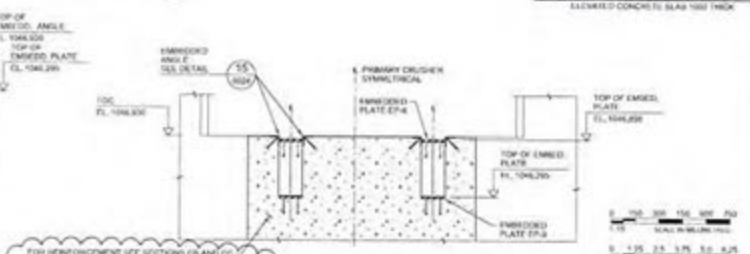

DETAIL 2




SLAB REINFORCEMENT PLAN



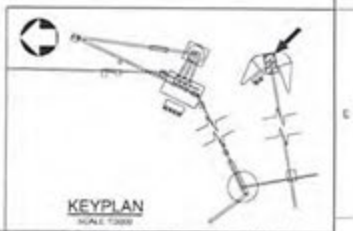

SECTION C




SECTION CA

NOTES:

1. FOR GENERAL NOTES SEE DRAWING H354138-3100-231-250-0001.



KEYPLAN

| | | | | |
|---|---|---|---|---|
| 1 | EMBEDDED PLATE TYPE CHANGED, DETAIL 2 REVISED, REINFORCEMENT CLARIFICATION ADDED, SHEAR PINS ADDED | PJ | EA | 2018-05-31 |
| 0 | APPROVED FOR CONSTRUCTION | PJ | EA | 2018-04-13 |
| No. | DESCRIPTION | BY | CHKD | DATE |

REVISIONS

| | | | |
|---|---|---|---|
| DRAWN | T.PERKINS | | 2018-03-20 |
| DESIGNER | PLLE | | 2018-03-20 |
| CHECKER | R. AVENCI | | 2018-04-04 |
| DESIGN COORD. | T. PERKINS | | 2018-04-04 |
| WP/P. ENG. | R. AVENCI | | 2018-04-04 |
| LEAD DISC. ENG. | R. AVENCI | | 2018-04-04 |
| ENG. MANAGER | S. RUSTAD | | 2018-04-04 |
| PROJ. MANAGER | S. RUSTAD | | 2018-04-04 |

| ROLE | NAME | SIGNATURE & DATE |
|---|---|---|
| DRAWING APPROVAL STATUS: | Approved for Construction | |

HATCH

StrataGold Corporation

EAGLE GOLD PROJECT

PRIMARY CRUSHING
CRUSHER SUPPORT STRUCTURE
ELEVATED SLAB PLAN - SHEET 1

| SCALE | DWG. No. | REV |
|---|---|---|
| 1:50 (AS AT 841mm) | H354138-3100-231-260-0005 | 1 |

DRAWING No. | DRAWING TITLE

REFERENCE DRAWING(S)

REG. PROFESSIONAL

CB-INSPECTION FORM-DOC-002 REV.00
JDS ENERGY & MINING INC. | STRATAGOLD EAGLE GOLD
PROJECT #: CB201 | 18502

PROJECT MANAGER: DUSTIN DOLYNCHUK, P.ENG
QA/QC COORDINATOR: RYAN DE MILLIANO, C.E.T.
SUPERINTENDENT: GARRY DAHL

CLARK BUILDERS
ENERGY & RESOURCES

# FORMWORK & FALSEWORK PRE POUR | QA INSPECTION

Rev 00 May 4, 2018

| | |
|---|---|
| SUBCONTRACTOR: CLARK BUILDERS | INSPECTION DATE: SEPT. 20/18 |
| SUBCONTRACTOR CONTACT PERSON: [redacted] TONY BELHAN | DATE OF POUR: SEPT. 21/18 |
| INSPECTOR(S): JACKSON WENGER ADAM CHOW | |
| LOCATION: 8100 PRIMARY CRUSHER [illegible] PEDESTALS AND GRADE BEAM AT STEP | |
| DRAWING REV: 1 | DRAWING NO.(S): H354188-8100-251-200-0002 / SPEC SECTION(S): 03 10 00 |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Location, survey, dimension and grades as required | ☑ | ☐ | ☐ |
| 2.0 | Plumbness and Flatness verified | ☑ | ☐ | ☐ |
| 3.0 | Joints are aligned and watertight. | ☑ | ☐ | ☐ |
| 4.0 | Formwork shop drawings are Engineered and reviewed | ☑ | ☐ | ☐ |
| 5.0 | Re-used formwork reconditioned and treated | ☑ | ☐ | ☐ |
| 6.0 | Formwork and ties according to finishing requirements. Confirm no holes in the concrete surface are greater than 25mm in diameter or expose steel at less than 25mm from surface. As per spec. | ☑ | ☐ | ☐ |
| 7.0 | Installation of embeds are located and secured | ☑ | ☐ | ☐ |
| 8.0 | Chamfer requirements checked. 25mm chamfers required for all exterior corners and edges exposed to view including horizontal edges of pads. | ☑ | ☐ | ☐ |
| 9.0 | Key ways and/or other provisions according to design are provided in construction joints | ☑ | ☐ | ☐ |
| 10.0 | Inspect types of form spacers, ties and bracing. | ☑ | ☐ | ☐ |
| 11.0 | Spacing of ties to be set to a pattern | ☑ | ☐ | ☐ |
| 12.0 | Expansion, construction, contraction joints as required & located as coordinated with structural Engineer | ☑ | ☐ | ☐ |
| 13.0 | Forms secured against movement during placing | ☑ | ☐ | ☐ |
| 14.0 | Forms are braced for alignment and blow out | ☑ | ☐ | ☐ |
| 15.0 | Forms are cleaned of all debris, and dry, prior to concrete placement including standing water. | ☑ | ☐ | ☐ |
| 16.0 | Openings in formwork permit inspection and cleaning, placing and compaction of concrete, and forming and processing of construction joints. | ☑ | ☐ | ☐ |
| 17.0 | Formwork has been coated with release agent prior to rebar placement. | ☑ | ☐ | ☐ |
| | | ☐ | ☐ | ☐ |

COMMENTS:

DOWELS INTO WALL PER RFI 64 RESPONSE

ATTACHMENT(S):

DEFICIENCIES NOTES:

INITIAL INSPECTION

INSPECTOR: [signature] TITLE: Mech DATE: Sept 20/18

RE-INSPECTION (DEFICIENCIES COMPLETED)

INSPECTOR: TONY BELHAN TITLE: PROJECT COORDINATOR DATE: SEPT 20/2018
JACKSON WENGER [signature]

CLARK BUILDERS
ENERGY & RESOURCES

# CONCRETE REINFORCEMENT PRE POUR

Rev 01 August 25, 2018

| | |
|---|---|
| SUBCONTRACTOR: Ultimate Reinforcing // McNish | INSPECTION DATE: SEPT. 20/18 |
| SUBCONTRACTOR CONTACT PERSON: CLAYTON MCGUIRE | PROJ. POUR DATE: |
| INSPECTOR(S): JACKSON WENGER ADAM CHOW | |
| LOCATION: PRIMARY CRUSHER 3100-250 mm GRADE BEAM AND PEDS @ STEP | |
| DRAWING REV: 1 | DRAWING NO.(S): H331188-3100-251-260-0002 |
| SPEC SECTION(S): S03 20 00 – Concrete Reinforcing Steel | |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Grade (400W unless otherwise noted) and type of steel delivered and installed as required by approved drawings. | ☑ | ☐ | ☐ |
| 2.0 | Inspect rebar distribution, spacing and cover per design/project requirements. | ☑ | ☐ | ☐ |
| 3.0 | Length of splices as specified | ☑ | ☐ | ☐ |
| 4.0 | Staggered splices as specified | ☑ | ☐ | ☐ |
| 5.0 | Any mechanical splices have been approved by the owner prior to install | ☑ | ☐ | ☐ |
| 6.0 | Bars cleaned and free of material that may reduce bond including loose rust, scale, oil, structural defects and that they are uncoated and unpainted. | ☑ | ☐ | ☐ |
| 7.0 | Dowels at wall ends, construction joints, and openings as specified (length, location, size, etc.) | ☑ | ☐ | ☐ |
| 8.0 | No unauthorized field bent bars including hooks installed | ☑ | ☐ | ☐ |
| 9.0 | Resolve conflicts between embedded items and reinforcement | ☑ | ☐ | ☐ |
| 10.0 | When authorized, field bends done without heat and inspected for fissures or cracks. | ☑ | ☐ | ☐ |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 11.0 | Bars tied and supported to prevent displacement | ☑ | ☐ | ☐ |
| 12.0 | Spacers, tie wire and chairs as required | ☑ | ☐ | ☐ |
| 13.0 | Conduits at design location and minimum separation from rebar as specified | ☑ | ☐ | ☐ |
| 14.0 | No contact of bars is made with dissimilar metals as per CSA A23.1 | ☑ | ☐ | ☐ |
| 15.0 | Bars, nails or tie wire not sticking out from surfaces that allow rusting/corrosion | ☑ | ☐ | ☐ |
| 16.0 | Rebar welds are inspected by qualified inspectors certified to CSA W178.2 | ☑ | ☐ | ☐ |
| 17.0 | No rebar congestion or other obstruction for deposit of concrete | ☑ | ☐ | ☐ |
| 18.0 | Adjustments required for interfering items (piping, inserts, sleeves, etc.) have been submitted and approved by owner. | ☑ | ☐ | ☐ |
| 19.0 | Rebar was stored off ground to prevent damage/corrosion | ☑ | ☐ | ☐ |
| 20.0 | Review drawings for anchors, piping, sleeves, boxes | ☑ | ☐ | ☐ |

6.0

COMMENTS:

REINFORCING DOWELED INTO WALL PER RFI CH RESPONSE

ATTACHMENT(S):

DEFICIENCIES NOTES:

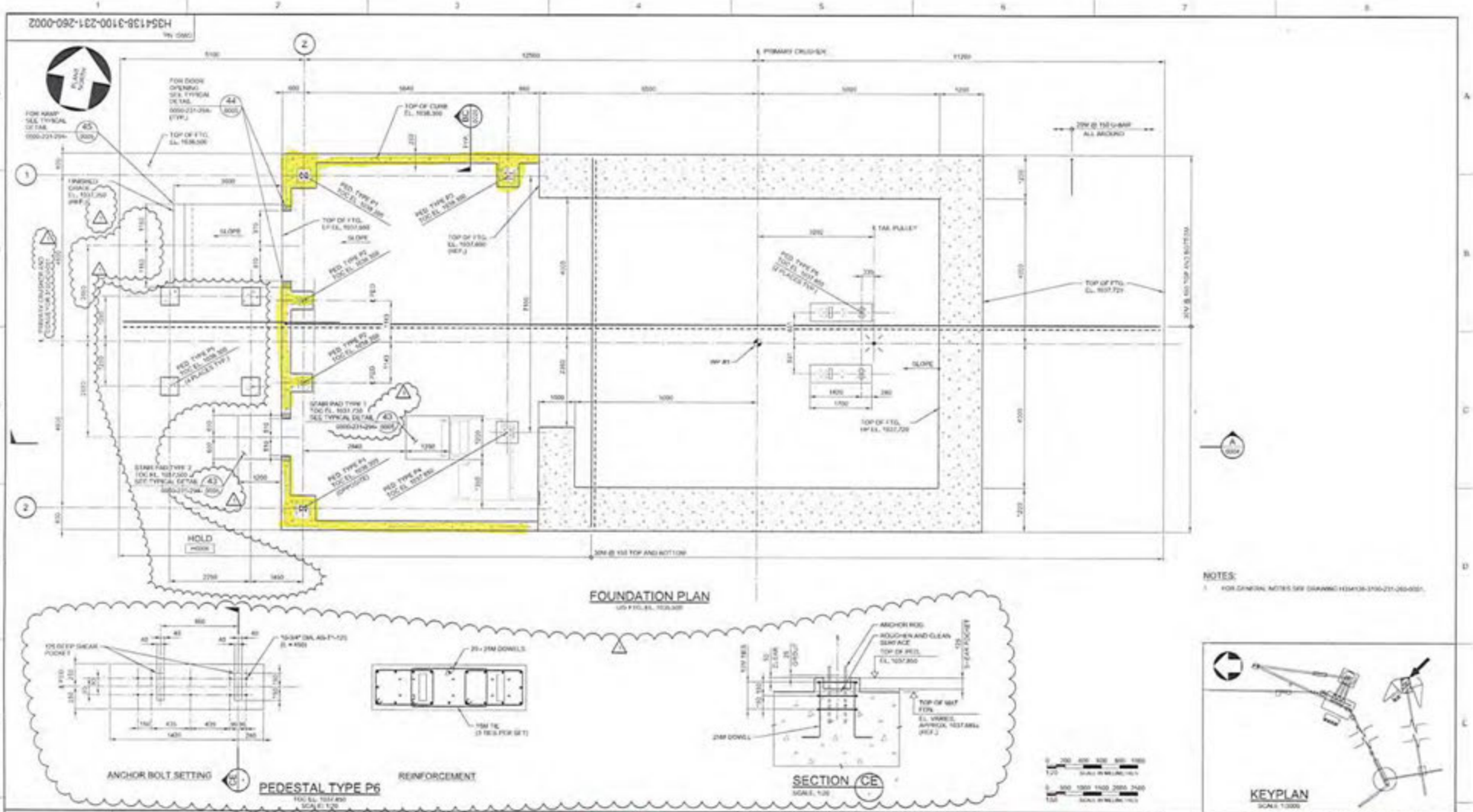
CLARK BUILDERS:

INSPECTOR: JACKSON WENGER TITLE PROJECT COORDINATOR DATE: SEPT 20/2018

JDS ENERGY & MINING:

INSPECTOR: [signature] TITLE Mech DATE: Sept 20/18

VSPEC




HATCH

StrataGold Corporation

EAGLE GOLD PROJECT

PRIMARY CRUSHING
CRUSHER SUPPORT STRUCTURE
FOUNDATION PLAN

| No. | DESCRIPTION | BY | CHK'D | DATE |
|---|---|---|---|---|
| 7 | HOLD HOSE REMOVED, PED. TYPE P6 AND SECTION CE ADDED, REFERENCE FOR TYPICAL DETAIL ADDED | PJ | EA | 2018-05-31 |
| 0 | APPROVED FOR CONSTRUCTION | PJ | EA | 2018-04-13 |

REVISIONS

DRAWING APPROVAL STATUS: Approved for Construction

DRAWING No. | DRAWING TITLE

REFERENCE DRAWINGS

REG. PROFESSIONAL

DWG. No. H354138-3100-231-260-0002 REV 1

CLARK BUILDERS
ENERGY & RESOURCES

# CONCRETE REINFORCEMENT PRE POUR

Rev 00 May 4, 2018

| | |
|---|---|
| SUBCONTRACTOR: CBCE | INSPECTION DATE: Sept. 25/18 |
| SUBCONTRACTOR CONTACT PERSON: DAN PELLETIER | ACTION BY: D. Pelletier |
| INSPECTOR(S): DAN PELLETIER | |
| LOCATION: PRIMARY CRUSHER, SECOND LIFT WALLS | |
| DRAWING REV: 10 | DRAWING NO.(S): 3100-231-260-0016/20 |
| SPEC SECTION(S): 03 20 00 | |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Grade (400W unless otherwise noted) and type of steel delivered and installed as required by approved drawings. | ☑ | ☐ | ☐ |
| 2.0 | Inspect rebar distribution, spacing and cover per design/project requirements. | ☑ | ☐ | ☐ |
| 3.0 | Length of splices as specified | ☑ | ☐ | ☐ |
| 4.0 | Staggered splices as specified | ☑ | ☐ | ☐ |
| 5.0 | Any mechanical splices have been approved by the owner prior to install | ☐ | ☐ | ☑ |
| 6.0 | Bars cleaned and free of material that may reduce bond including loose rust, scale, oil, structural defects and that they are uncoated and unpainted. | ☑ | ☐ | ☐ |
| 7.0 | Dowels at wall ends, construction joints, and openings as specified (length, location, size, etc.) | ☑ | ☐ | ☐ |
| 8.0 | No unauthorized field bent bars including hooks installed | ☐ | ☐ | ☑ |
| | Resolve conflicts between embedded items and reinforcement | ✓ | | |
| 9.0 | When authorized, field bends done without heat and inspected for fissures or cracks. | ☐ | ☐ | ☑ |
| 10.0 | Bars tied and supported to prevent displacement | ☑ | ☐ | ☐ |
| 11.0 | Spacers, tie wire and chairs as required | ☑ | ☐ | ☐ |
| 12.0 | Conduits at design location and minimum separation from rebar as specified | ☐ | ☐ | ☑ |
| 13.0 | No contact of bars is made with dissimilar metals as per CSA A23.1 | ☑ | ☐ | ☐ |
| 14.0 | Bars, nails or tie wire not sticking out from surfaces that allow rusting/corrosion | ☑ | ☐ | ☐ |
| 15.0 | Rebar is welds inspected by qualified inspectors certified to CSA W178.2 | ☐ | ☐ | ☑ |
| 16.0 | No rebar congestion or other obstruction for deposit of concrete | ☑ | ☐ | ☐ |
| 17.0 | Adjustments required for interfering items (piping, inserts, sleeves, etc.) have been submitted and approved by owner. | ☐ | ☐ | ☑ |
| 18.0 | Rebar was stored off ground to prevent damage/corrosion | ✓ | | |
| 19.0 | Review drawings for anchors, piping, sleeves, boxes | ☑ | ☐ | ☐ |

COMMENTS:

| | ATTACHMENT(S): |
|---|---|
| Install diagonal bars below opening on west wall ✓ D. P. | |
| Maintain cover on west wall ✓ D. P. | |
| Adjust collar spacing ✓ D. P. | |

DEFICIENCIES NOTES:

| |
|---|
| Cut horizontal bars at corners ✓ D. P. |
| |
| |

INITIAL INSPECTION

INSPECTOR: DAN PELLETIER D. Pelletier TITLE Carpenter Foreman DATE: Sept. 25/18

RE-INSPECTION (DEFICIENCIES COMPLETED)

INSPECTOR: Ishan Fechter TITLE Superintendent DATE: Sept. 25/18

CLARK BUILDERS
ENERGY & RESOURCES

# CONCRETE REINFORCEMENT PRE POUR

Rev 01 August 25, 2018

| | |
|---|---|
| SUBCONTRACTOR: Ultimate Reinforcing // McNish | INSPECTION DATE: SEPT. 23/18 |
| SUBCONTRACTOR CONTACT PERSON: TONY BELJAN | PROJ. POUR DATE: |
| INSPECTOR(S): | |
| LOCATION: 3100 PRIMARY CRUSHER (PARTIAL) & WALLS TO 1052 N, S, E WALLS ONLY | |
| DRAWING REV: / DRAWING NO.(S): 354138 | SPEC SECTION(S): S03 20 00 – Concrete Reinforcing Steel |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Grade (400W unless otherwise noted) and type of steel delivered and installed as required by approved drawings. | ☑ | ☐ | ☐ |
| 2.0 | Inspect rebar distribution, spacing and cover per design/project requirements. | ☑ | ☐ | ☐ |
| 3.0 | Length of splices as specified | ☑ | ☐ | ☐ |
| 4.0 | Staggered splices as specified | ☑ | ☐ | ☐ |
| 5.0 | Any mechanical splices have been approved by the owner prior to install | ☑ | ☐ | ☐ |
| 6.0 | Bars cleaned and free of material that may reduce bond including loose rust, scale, oil, structural defects and that they are uncoated and unpainted. | ☑ | ☐ | ☐ |
| 7.0 | Dowels at wall ends, construction joints, and openings as specified (length, location, size, etc.) | ☑ | ☐ | ☐ |
| 8.0 | No unauthorized field bent bars including hooks installed | ☑ | ☐ | ☐ |
| 9.0 | Resolve conflicts between embedded items and reinforcement | ☑ | ☐ | ☐ |
| 10.0 | When authorized, field bends done without heat and inspected for fissures or cracks. | ☑ | ☐ | ☐ |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 11.0 | Bars tied and supported to prevent displacement | ☑ | ☐ | ☐ |
| 12.0 | Spacers, tie wire and chairs as required | ☑ | ☐ | ☐ |
| 13.0 | Conduits at design location and minimum separation from rebar as specified | ☑ | ☐ | ☐ |
| 14.0 | No contact of bars is made with dissimilar metals as per CSA A23.1 | ☑ | ☐ | ☐ |
| 15.0 | Bars, nails or tie wire not sticking out from surfaces that allow rusting/corrosion | ☑ | ☐ | ☐ |
| 16.0 | Rebar welds are inspected by qualified inspectors certified to CSA W178.2 | ☐ | ☐ | ☑ |
| 17.0 | No rebar congestion or other obstruction for deposit of concrete | ☑ | ☐ | ☐ |
| 18.0 | Adjustments required for interfering items (piping, inserts, sleeves, etc.) have been submitted and approved by owner. | ☐ | ☐ | ☑ |
| 19.0 | Rebar was stored off ground to prevent damage/corrosion | ☑ | ☐ | ☐ |
| 20.0 | Review drawings for anchors, piping, sleeves, boxes | ☑ | ☐ | ☐ |

COMMENTS:

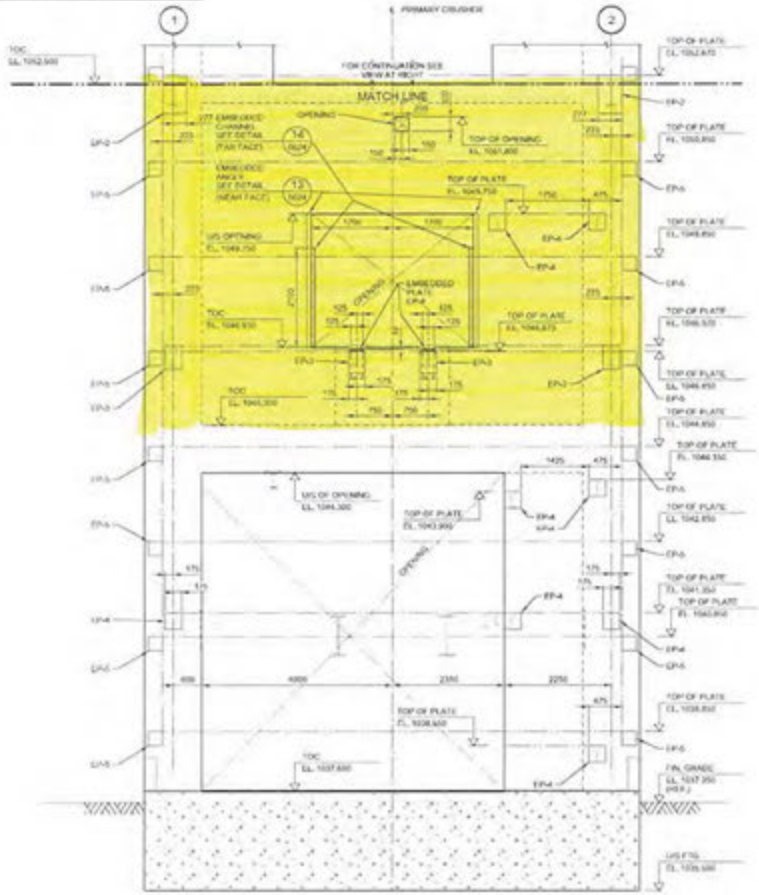
Tie all verts
Clean out debris before closing up
Cut corner horiz. where no cover

ATTACHMENT(S):

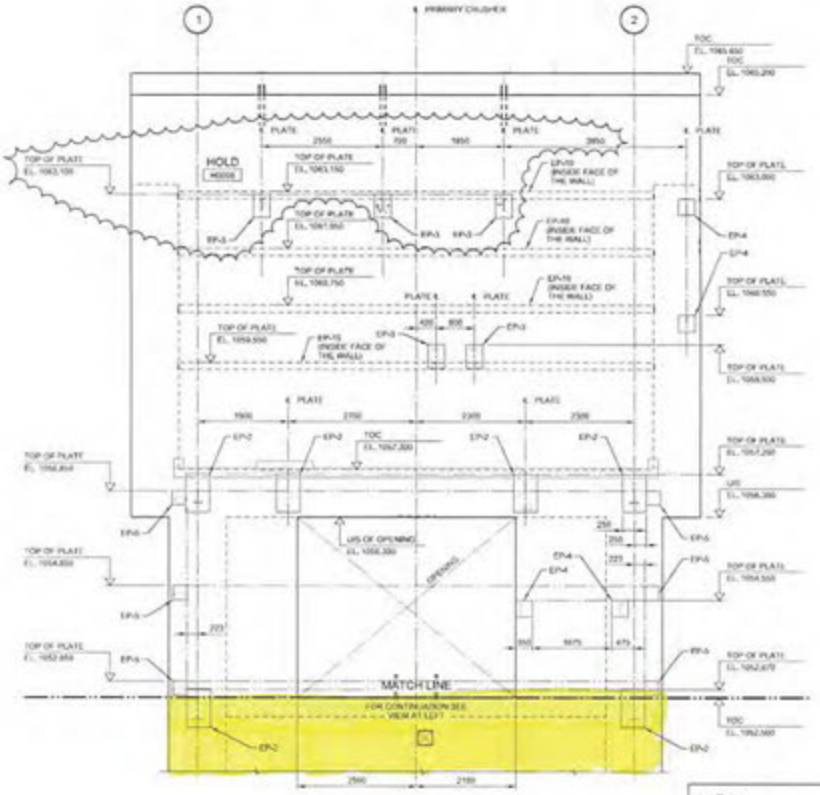
DEFICIENCIES NOTES:

CLARK BUILDERS:
INSPECTOR: PETER NICE BCN. TITLE Superintendent DATE: Sept 23/18

JDS ENERGY & MINING:
INSPECTOR: Ishan Fechter TITLE Superintendent DATE: Sept. 23/18

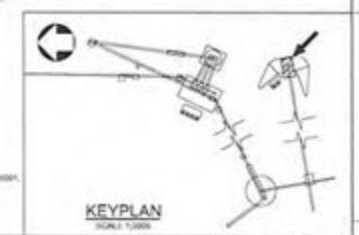



WALL ELEVATION WEST




NOTES:

1. FOR GENERAL NOTES SEE DRAWING H354138-3100-231-260-0001.



KEYPLAN

| DRAWING No. | DRAWING TITLE |
|---|---|
| REFERENCE DRAWINGS | |

REG. PROFESSIONAL

| No. | DESCRIPTION | BY | CHK'D | DATE |
|---|---|---|---|---|
| 1 | HOLD H0010 REMOVED, HOLD H0008 ADDED | PJ | EA | 2018-05-21 |
| 0 | APPROVED FOR CONSTRUCTION | PJ | EA | 2018-04-12 |

REVISIONS

HATCH

| | | | |
|---|---|---|---|
| DRAFTSPERSON | P. JAVALY | | 2018-03-20 |
| DESIGNER | H. LI | | 2018-03-20 |
| CHECKER | E. AKINOI | | 2018-05-24 |
| DESIGN COORD. | S. PERKINS | | |
| RESP. ENG. | E. AKINOI | | 2018-05-24 |
| LEAD DISC. ENG. | E. AKINOI | | 2018-05-24 |
| ENG. MANAGER | B. RUSTAD | | 2018-05-24 |
| PROJ. MANAGER | B. RUSTAD | | 2018-05-24 |

| ROLE | NAME | SIGNATURE & DATE |
|---|---|---|

DRAWING APPROVAL STATUS: Approved for Construction

StrataGold Corporation

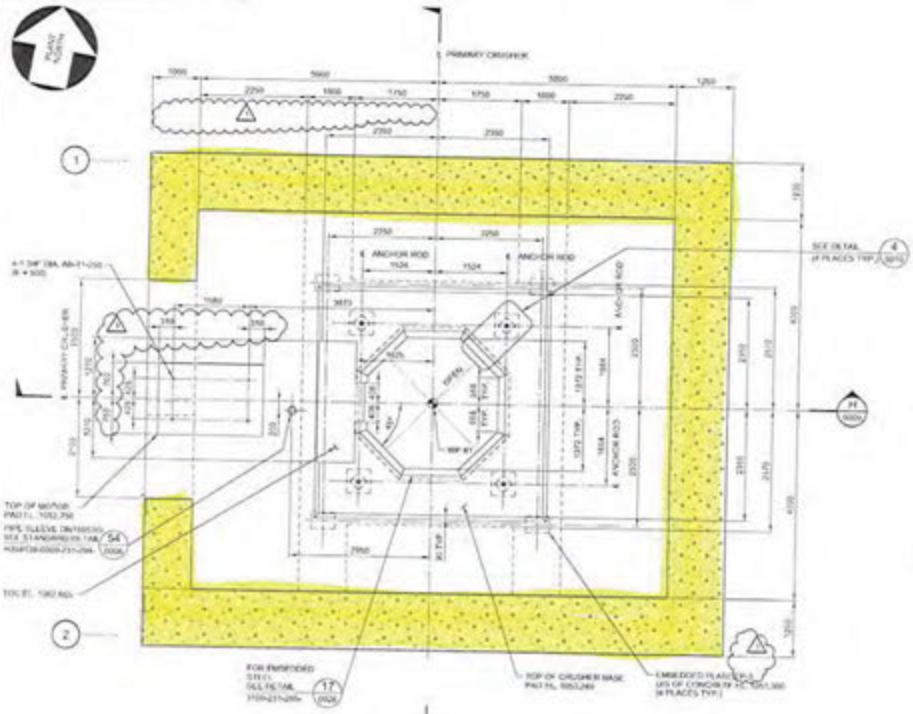
EAGLE GOLD PROJECT

PRIMARY CRUSHING
CRUSHER SUPPORT STRUCTURE
ELEVATIONS - SHEET 1

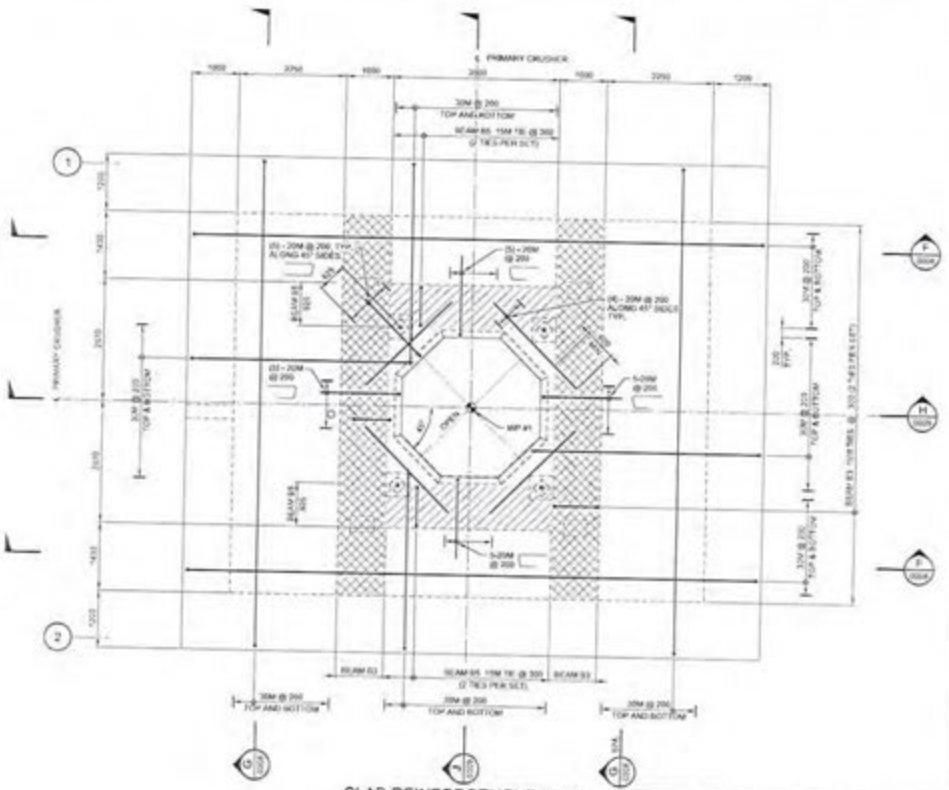
SCALE 1:50

DWG. No. H354138-3100-231-260-0016

REV 1



PLAN AT TOC EL. 1052.500

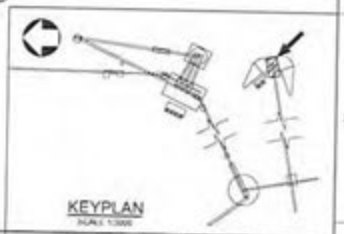


SLAB REINFORCEMENT PLAN

CRUSHER BASE AND MOTION PAD REINFORCEMENT NOT SHOWN FOR CLARITY

NOTES:

1. FOR GENERAL NOTES SEE DRAWING H354138-3100-231-250-0001.



KEYPLAN

SCALE 1:3000

HATCH

StrataGold Corporation

EAGLE GOLD PROJECT

PRIMARY CRUSHING
CRUSHER SUPPORT STRUCTURE
ELEVATED SLAB PLAN - SHEET 2

| ROLE | NAME | SIGNATURE & DATE |
|---|---|---|
| DRAWING APPROVAL STATUS: | Approved for Construction | |

SCALE: 1:50 ON A1 SHEETS

DWG. No.: H354138-3100-231-260-0007

REV: 1

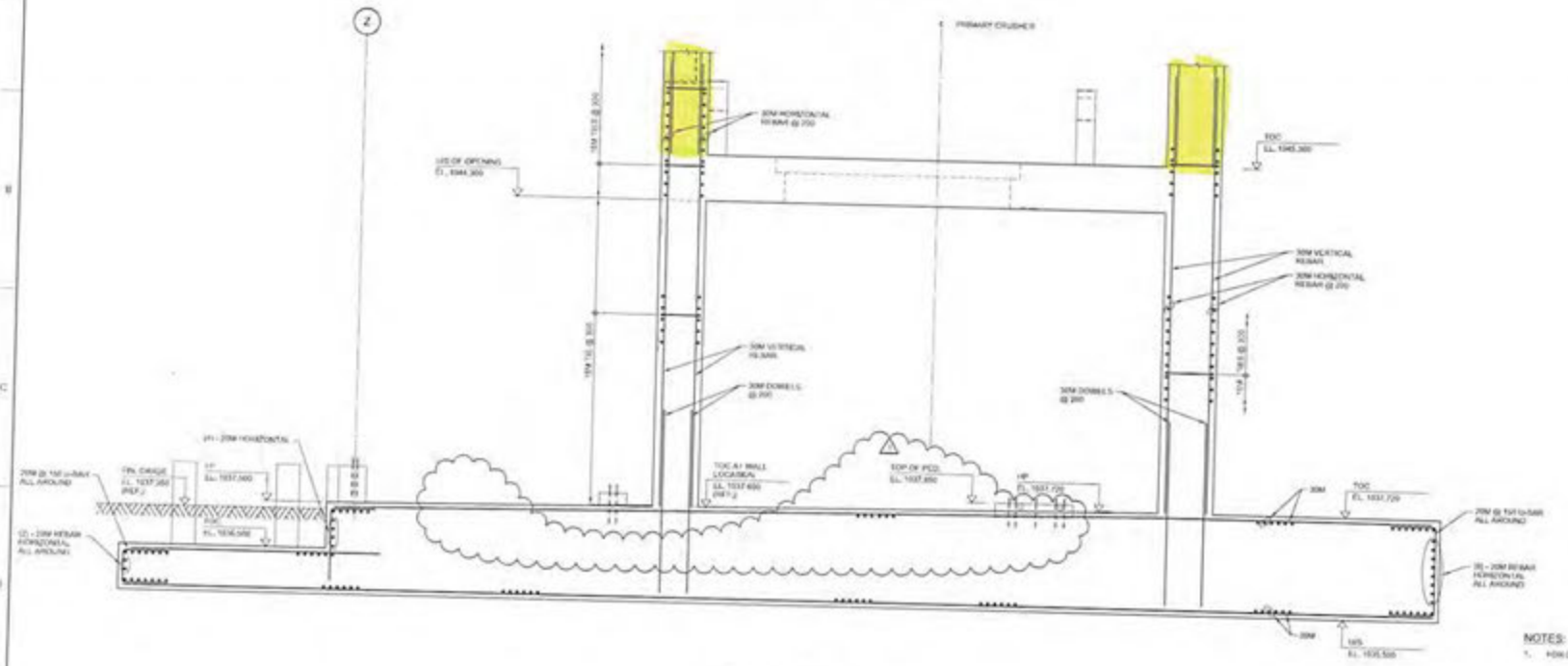
| No. | DESCRIPTION | BY | CHK'D | DATE |
|---|---|---|---|---|
| 1 | MOTOR PAD SIZE REVISED, HOLES REMOVED, EMBEDDED PLATE CHANGED | PZ | EA | 2018-03-27 |
| 0 | APPROVED FOR CONSTRUCTION | PZ | EA | 2018-04-17 |

REVISIONS

DRAWING No. | DRAWING TITLE

REFERENCE DRAWINGS:

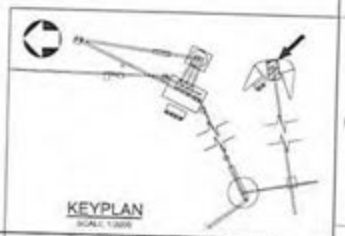
REG. PROFESSIONAL




SECTION A A

NOTES:

1. FOR GENERAL NOTES SEE DRAWING H354138-3100-231-260-0001.



KEYPLAN

SCALE 1:5000

HATCH

StrataGold Corporation

EAGLE GOLD PROJECT

PRIMARY CRUSHING
CRUSHER SUPPORT STRUCTURE
SECTIONS - SHEET 1

| ROLE | NAME | SIGNATURE & DATE |
|---|---|---|
| DRAWING APPROVAL STATUS: | Approved for Construction | |

SCALE 1:50

DWG. No. H354138-3100-231-260-0004

REV 1

| No. | DESCRIPTION | BY | CHKD | DATE |
|---|---|---|---|---|
| 1 | ISSUED FOR REVISED DETAILS REVISED | PJ | EA | 2019-05-31 |
| 0 | APPROVED FOR CONSTRUCTION | PJ | EA | 2019-04-12 |

REVISIONS

DRAWING No.

DRAWING TITLE

REFERENCE DRAWINGS

REG. PROFESSIONAL

DRAWN TOPERSON, P. (KAN) V. NEL 2019-03-20
DESIGNER H.LE NEL 2019-03-20
CHECKER E. AKINCI 2019-05-28
OFFICE COORD. S. PERKINS
HEAD, ENG. E. AKINCI 2019-05-24
LEAD DISC. ENG. E. AKINCI 2019-05-24
ENG. MANAGER B. RUSTAD
PROJ. MANAGER B. RUSTAD

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CB-INSPECTION FORM-DOC-002 REV.00
JDS ENERGY & MINING INC. | STRATAGOLD EAGLE GOLD
PROJECT #: CB201 | 18502

CLARK BUILDERS
ENERGY & RESOURCES

PROJECT MANAGER: DUSTIN DOLYNCHUK, P.ENG
QA/QC COORDINATOR: RYAN DE MILLIANO, C.E.T.
SUPERINTENDENT: GARRY DAHL

# CONCRETE REINFORCEMENT PRE POUR

Rev 01 August 25, 2018

| | |
|---|---|
| SUBCONTRACTOR: Ultimate Reinforcing // McNish | INSPECTION DATE: October 7, 2018 |
| SUBCONTRACTOR CONTACT PERSON: Jimmy M. | PROJ. POUR DATE: October 7, 2018 |
| INSPECTOR(S): Ryan deMilliano (CD), Ishan (JDS) | |
| LOCATION: 3100 11 Primary 2x P6 pedestals inside structure on Fdn. Mat (+) 1x P4 ped. | |
| DRAWING REV: 03 / DRAWING NO.(S): 3100-231-260-0002 | SPEC SECTION(S): S03 20 00 – Concrete Reinforcing Steel |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Grade (400W unless otherwise noted) and type of steel delivered and installed as required by approved drawings. | X | | |
| 2.0 | Inspect rebar distribution, spacing and cover per design/project requirements. | X | | |
| 3.0 | Length of splices as specified | X | | |
| 4.0 | Staggered splices as specified | X | | |
| 5.0 | Any mechanical splices have been approved by the owner prior to install | | | X |
| 6.0 | Bars cleaned and free of material that may reduce bond including loose rust, scale, oil, structural defects and that they are uncoated and unpainted. | X | | |
| 7.0 | Dowels at wall ends, construction joints, and openings as specified (length, location, size, etc.) | | | X |
| 8.0 | No unauthorized field bent bars including hooks installed | X | | |
| 9.0 | Resolve conflicts between embedded items and reinforcement | X | | |
| 10.0 | When authorized, field bends done without heat and inspected for fissures or cracks. | | | X |
| 11.0 | Bars tied and supported to prevent displacement | X | | |
| 12.0 | Spacers, tie wire and chairs as required | X | | |
| 13.0 | Conduits at design location and minimum separation from rebar as specified | | | X |
| 14.0 | No contact of bars is made with dissimilar metals as per CSA A23.1 | X | | |
| 15.0 | Bars, nails or tie wire not sticking out from surfaces that allow rusting/corrosion | X | | |
| 16.0 | Rebar welds are inspected by qualified inspectors certified to CSA W178.2 | | | X |
| 17.0 | No rebar congestion or other obstruction for deposit of concrete | X | | |
| 18.0 | Adjustments required for interfering items (piping, inserts, sleeves, etc.) have been submitted and approved by owner. | X | | |
| 19.0 | Rebar was stored off ground to prevent damage/corrosion | X | | |
| 20.0 | Review drawings for anchors, piping, sleeves, boxes | X | | |

COMMENTS:

Heat was on all pedestals at time of inspection. Temp inside hoarding +26°C

ATTACHMENT(S):

DWG (Highlighted)

DEFICIENCIES NOTES:

No deficiencies to note

CLARK BUILDERS:
INSPECTOR: Ryan deMilliano // [signature] TITLE Project Coordinator DATE: October 7, 2018

JDS ENERGY & MINING:
INSPECTOR: Ishan Fechter [signature] TITLE Superintendent DATE: Oct. 7/18

CLARK BUILDERS
ENERGY & RESOURCES

CB-INSPECTION FORM-DOC-002 REV.00
JDS ENERGY & MINING INC. | STRATAGOLD EAGLE GOLD
PROJECT #: CB201 | 18502

PROJECT MANAGER: DUSTIN DOLYNCHUK, P.ENG
QA/QC COORDINATOR: RYAN DE MILLIANO, C.E.T.
SUPERINTENDENT: GARRY DAHL

# FORMWORK & FALSEWORK PRE POUR | QA INSPECTION

Rev 01 August 25, 2018

CONTRACTOR: Clark Builders
INSPECTION DATE: OCTOBER 7, 2018
CONTRACTOR CONTACT PERSON: DAVE DELORME
DATE OF POUR: OCTOBER 7, 2018.
INSPECTOR(S): Dave D, Ryan deMilliano
LOCATION: 3100 / Primary 2x P6 PEDESTALS AND 1x P4 PEDESTAL ON FDN MAT.
DRAWING REV:
DRAWING NO.(S):
SPEC SECTION(S): 503 1000

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Location, survey, dimension and grades as required | X | | |
| 2.0 | Plumbness and Flatness verified | X | | |
| 3.0 | Joints are aligned and watertight. | X | | |
| 4.0 | Formwork shop drawings are Engineered and reviewed | X | | |
| 5.0 | Re-used formwork reconditioned and treated | X | | |
| 6.0 | Formwork and ties according to finishing requirements. Confirm no holes in the concrete surface are greater than 25mm in diameter or expose steel at less than 25mm from surface. As per spec. | X | | |
| 7.0 | Installation of embeds are located and secured. ANCHOR BOLTS. SEE (2) | X | | |
| 8.0 | Chamfer requirements checked. 25mm chamfers required for all exterior corners and edges exposed to view including horizontal edges of pads. | X | | |
| 9.0 | Key ways and/or other provisions according to design are provided in construction joints | X | | |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 10.0 | Inspect types of form spacers, ties and bracing. | X | | |
| 11.0 | Spacing of ties to be set to a pattern | X | | |
| 12.0 | Expansion, construction, contraction joints as required & located as coordinated with structural Engineer SEE RFI 45. | X | | |
| 13.0 | Forms secured against movement during placing | X | | |
| 14.0 | Forms are braced for alignment and blow out | X | | |
| 15.0 | Forms are cleaned of all debris, and dry, prior to concrete placement including standing water. | X | | |
| 16.0 | Openings in formwork permit inspection and cleaning, placing and compaction of concrete, and forming and processing of construction joints. | X | | |
| 17.0 | Formwork has been coated with release agent prior to rebar placement. | X | | |
| 18.0 | Anchor Bolts and Embeds are secured to formwork. SEE (2) | X | | |

COMMENTS:
RFI 45 issued for previous blockout to embed anchor bolts.

ATTACHMENT(S):
DWG (HIGHLIGHTED)

DEFICIENCIES NOTES:
(2) ANCHOR BOLTS TO BE SECURED PRIOR TO POUR FOR P4 PEDESTAL.

INITIAL INSPECTION
INSPECTOR: Ryan deMilliano TITLE Project Coordinator DATE: OCTOBER 7/18

RE-INSPECTION (DEFICIENCIES COMPLETED)
INSPECTOR: Dave Delorme TITLE FOREMAN DATE: OCT 7/18

INSPECTOR DATE/POUR = OCTOBER 7, 2018

HATCH

StrataGold Corporation

EAGLE GOLD PROJECT

PRIMARY CRUSHING
CRUSHER SUPPORT STRUCTURE
FOUNDATION PLAN

H354138-3100-231-260-0002

REV 3

FOUNDATION PLAN

PEDESTAL TYPE P6

ANCHOR BOLT SETTING

REINFORCEMENT

SECTION CE

KEYPLAN

NOTES:
1. FOR GENERAL NOTES SEE DRAWING H354138-3100-231-260-0001.

CLARK BUILDERS
ENERGY & RESOURCES

# CONCRETE POST POUR COLD WEATHER MONITORING

Rev 01 July 4, 2018

| | | | |
|---|---|---|---|
| CONTRACTOR: CLARK BUILDERS | | DATE OF POUR: OCTOBER 7, 2018 | |
| WEATHER/ AMBIENT TEMP (°C): VARIOUS. | | DATE FORMWORK STRIPPED: | |
| INSPECTOR(S): JACKSON WANGAR / Ryan deMilliano | | DATE OF INSPECTION: VARIOUS (START OCT 7, 2018) | |
| LOCATION: 3100 II PRIMARY 2x P6 PADESTALS & 1 x P4 PEDESTAL | | | |
| DRAWING NO.(S): 03 | DRAWING REV: 3100-231-260-0002 | SPEC SECTION(S): S03 30 00 – Cast-In-Place | |

TYPE OF CURING:

| | | | | | |
|---|---|---|---|---|---|
| CURING COMPOUND | ☐ | DAMP BURLAP OR FABRIC | ☐ | INSULATION (TARPS) | ☒ |
| POLYETHYLENE SHEETS | ☐ | WATER/FOG SPRAY/ PONDING | ☐ | FORMS (COVERED BY) | ☒ |

| COLD WEATHER REQUIREMENTS (WHEN AMB. TEMP < 5°C) | PASS | FAIL | N/A | REMARKS |
|---|---|---|---|---|
| Protection in place for 5 days at temperatures not lower than 20°C or until 70% of the 28-day strength has been reached. | ☐ | ☐ | ☐ | |
| Cold weather protection provided by means of heated enclosures, coverings, insulation, or a suitable approved combination of these methods during complete curing period. | ☒ | ☐ | ☐ | |
| During freezing weather, water curing terminated 12h before the end of the protection period (CSA A 23.1 clause 7.4.2.4.2) | ☐ | ☐ | ☒ | |
| | | | | |

CONCRETE CURING TEMPERATURE LOG (COLD WEATHER CONCRETEING ONLY)

| DATE | TIME (24 HR) | OUTSIDE AIR TEMP (°C) | TEMP INSIDE HOARDING (°C) | CONCRETE SURFACE TEMP (°C) | | INITIALS OF READER |
|---|---|---|---|---|---|---|
| | | | | HIGH (°C) | LOW (°C) | |
| OCT 7, 2018 (TIME OF POUR) | 10:00 | -10°C | +22°C / +13.5°C | N/A | N/A | |
| OCT 8, 2018 | 7:30 | -11°C | +40°C | +19° | N/A | |
| | | | | | | |
| | | | | | | |
| | | | | | | |

| | | |
|---|---|---|
| COMMENTS: | | |
| | | |
| ATTACHMENT(S): | | |
| | | |

**CLARK BUILDERS SITE REPRESENTATIVE**

PRINT/ SIGN: Ryan deMilliano TITLE Project Coordinator DATE: OCT 9, 2018

CLARK BUILDERS
ENERGY & RESOURCES



# CONCRETE REINFORCEMENT PRE POUR

Rev 01 August 25, 2018

| | |
|---|---|
| SUBCONTRACTOR: Ultimate Reinforcing // McNish | INSPECTION DATE: October 18, 2018 |
| SUBCONTRACTOR CONTACT PERSON: Clayton | PROJ. POUR DATE: October 18, 2018 |
| INSPECTOR(S): Ryan deMilliano (CB), Matt Coverdale (JDS) | |
| LOCATION: 3100 PRIMARY // SUSPENDED SLAB 1052.500 (TOC) | |
| DRAWING REV: 01 / DRAWING NO.(S): H354138-3100-231-260-0009 | SPEC SECTION(S): S03 20 00 – Concrete Reinforcing Steel |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Grade (400W unless otherwise noted) and type of steel delivered and installed as required by approved drawings. | ☑ | ☐ | ☐ |
| 2.0 | Inspect rebar distribution, spacing and cover per design/project requirements. | ☑ | ☐ | ☐ |
| 3.0 | Length of splices as specified | ☑ | ☐ | ☐ |
| 4.0 | Staggered splices as specified | ☑ | ☐ | ☐ |
| 5.0 | Any mechanical splices have been approved by the owner prior to install | ☐ | ☐ | ☑ |
| 6.0 | Bars cleaned and free of material that may reduce bond including loose rust, scale, oil, structural defects and that they are uncoated and unpainted. | ☑ | ☐ | ☐ |
| 7.0 | Dowels at wall ends, construction joints, and openings as specified (length, location, size, etc.) | ☑ | ☐ | ☐ |
| 8.0 | No unauthorized field bent bars including hooks installed | ☑ | ☐ | ☐ |
| 9.0 | Resolve conflicts between embedded items and reinforcement | ☑ | ☐ | ☐ |
| 10.0 | When authorized, field bends done without heat and inspected for fissures or cracks. | ☐ | ☐ | ☑ |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 11.0 | Bars tied and supported to prevent displacement | ☑ | ☐ | ☐ |
| 12.0 | Spacers, tie wire and chairs as required | ☑ | ☐ | ☐ |
| 13.0 | Conduits at design location and minimum separation from rebar as specified | ☐ | ☐ | ☑ |
| 14.0 | No contact of bars is made with dissimilar metals as per CSA A23.1 | ☑ | ☐ | ☐ |
| 15.0 | Bars, nails or tie wire not sticking out from surfaces that allow rusting/corrosion | ☑ | ☐ | ☐ |
| 16.0 | Rebar welds are inspected by qualified inspectors certified to CSA W178.2 | ☐ | ☐ | ☑ |
| 17.0 | No rebar congestion or other obstruction for deposit of concrete | ☑ | ☐ | ☐ |
| 18.0 | Adjustments required for interfering items (piping, inserts, sleeves, etc.) have been submitted and approved by owner. | ☑ | ☐ | ☐ |
| 19.0 | Rebar was stored off ground to prevent damage/corrosion | ☑ | ☐ | ☐ |
| 20.0 | Review drawings for anchors, piping, sleeves, boxes | ☑ | ☐ | ☐ |

COMMENTS:

CB RFI 96 allows us to modify steel after pour to lower hats.

ATTACHMENT(S):

DWG (HIGHLIGHTED)

DEFICIENCIES NOTES:

Some additional ties required. ✓ COMPLETED DURING INSPECTION ✓

Bottom of beams formwork to be cleaned of sand, tie wire, etc. ✓

CLARK BUILDERS:

INSPECTOR: // Ryan deMilliano TITLE Project Coordinator (QA) DATE: October 18, 2018

JDS ENERGY & MINING:

INSPECTOR: Matt C MC TITLE Field Eng DATE: Oct 18, 2018

CLARK BUILDERS
ENERGY & RESOURCES

CB-INSPECTION FORM-DOC-002 REV.00
JDS ENERGY & MINING INC. | STRATAGOLD EAGLE GOLD
PROJECT #: CB201 | 18502

PROJECT MANAGER: DUSTIN DOLYNCHUK, P.ENG
QA/QC COORDINATOR: RYAN DE MILLIANO, C.E.T.
SUPERINTENDENT: GARRY DAHL

# FORMWORK & FALSEWORK PRE POUR | QA INSPECTION

Rev 01 August 25, 2018

| | |
|---|---|
| CONTRACTOR: Clark Builders | INSPECTION DATE: October 18, 2018 |
| CONTRACTOR CONTACT PERSON: Tony Bolton w/ CB | DATE OF POUR: October 18, 2018 |
| INSPECTOR(S): Ryan deMilliano | |
| LOCATION: 2100 Primary // Suspended Slab 1052,500 (TOC) | |
| DRAWING REV: 01 | DRAWING NO.(S): 3100-231-260-0009 |
| | SPEC SECTION(S): 503 1000 |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Location, survey, dimension and grades as required | ☑ | ☐ | ☐ |
| 2.0 | Plumbness and Flatness verified | ☑ | ☐ | ☐ |
| 3.0 | Joints are aligned and watertight. | ☑ | ☐ | ☐ |
| 4.0 | Formwork shop drawings are Engineered and reviewed | ☑ | ☐ | ☐ |
| 5.0 | Re-used formwork reconditioned and treated | ☑ | ☐ | ☐ |
| 6.0 | Formwork and ties according to finishing requirements. Confirm no holes in the concrete surface are greater than 25mm in diameter or expose steel at less than 25mm from surface. As per spec. | ☑ | ☐ | ☐ |
| 7.0 | Installation of embeds are located and secured | ☑ | ☐ | ☐ |
| 8.0 | Chamfer requirements checked. 25mm chamfers required for all exterior corners and edges exposed to view including horizontal edges of pads. | ☑ | ☐ | ☐ |
| 9.0 | Key ways and/or other provisions according to design are provided in construction joints | ☑ | ☐ | ☐ |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 10.0 | Inspect types of form spacers, ties and bracing. | ☑ | ☐ | ☐ |
| 11.0 | Spacing of ties to be set to a pattern | ☑ | ☐ | ☐ |
| 12.0 | Expansion, construction, contraction joints as required & located as coordinated with structural Engineer | ☐ | ☐ | ☑ |
| 13.0 | Forms secured against movement during placing | ☑ | ☐ | ☐ |
| 14.0 | Forms are braced for alignment and blow out | ☑ | ☐ | ☐ |
| 15.0 | Forms are cleaned of all debris, and dry, prior to concrete placement including standing water. | ☑ | ☐ | ☐ |
| 16.0 | Openings in formwork permit inspection and cleaning, placing and compaction of concrete, and forming and processing of construction joints. | ☑ | ☐ | ☐ |
| 17.0 | Formwork has been coated with release agent prior to rebar placement. | ☑ | ☐ | ☐ |
| 18.0 | Anchor Bolts and Embeds are secured to formwork. | ☑ | ☐ | ☐ |

COMMENTS:
Cleaning in forms good prior to pour.

ATTACHMENT(S):
Pics.

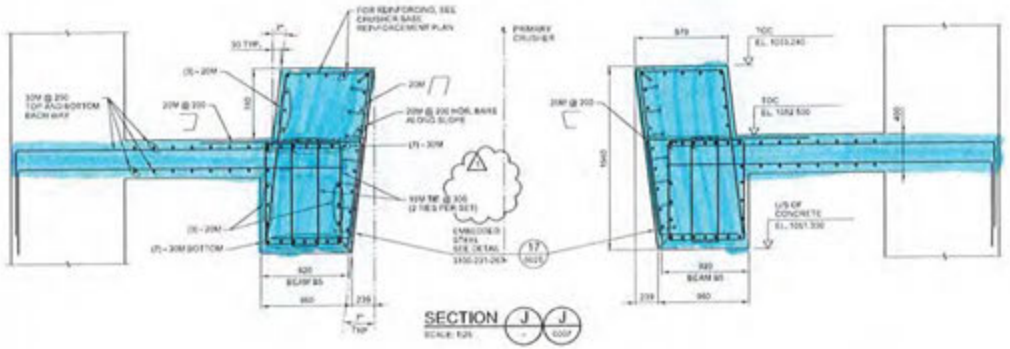
DEFICIENCIES NOTES:

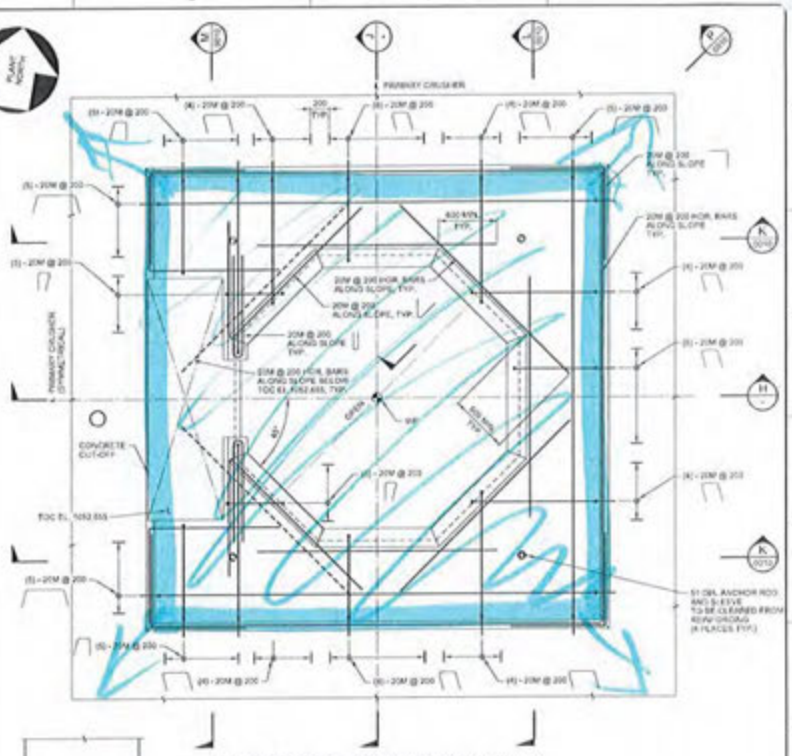
ITIAL INSPECTION
SPECTOR: Ryan deMilliano TITLE Project Coordinator DATE: Oct 18/18

INSPECTION (DEFICIENCIES COMPLETED)
PECTOR: Matt Caverdale MC TITLE Field Eng DATE: Oct 18/18

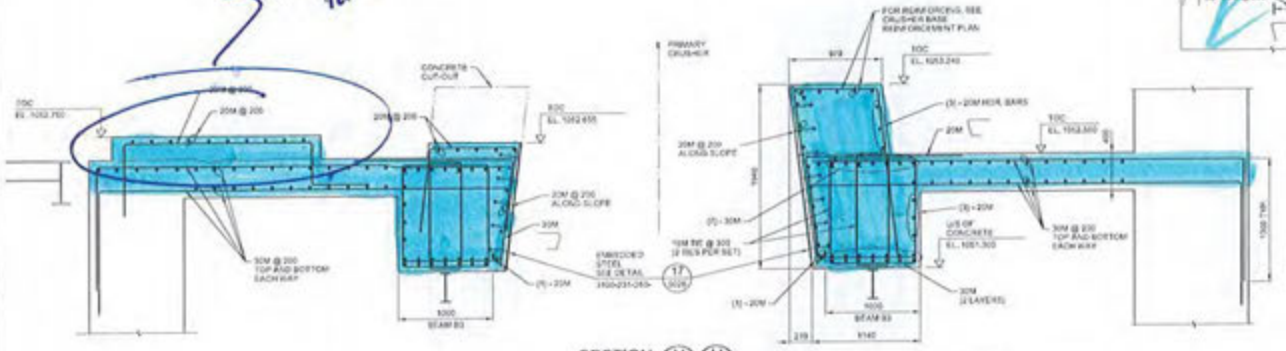
018

H354138-3100-231-260-0009

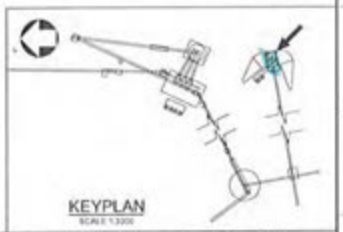



3 RFI 96
REINFORCING MODIFICATION.




NOTES:
1. FOR GENERAL NOTES SEE DRAWING H354138-3100-231-260-0001.




| DRAWING No. | DRAWING TITLE |
|---|---|
| REFERENCE DRAWINGS | |

REG. PROFESSIONAL

| No. | DESCRIPTION | BY | CHKD | DATE |
|---|---|---|---|---|
| 1 | HOLD REMOVED, SECTION J REINFORCEMENT REVISED | PZ | ER | 2018-05-31 |
| 2 | APPROVED FOR CONSTRUCTION | PZ | ER | 2018-06-15 |

REVISIONS

HATCH

| | | | |
|---|---|---|---|
| CHAIRPERSON | P. AVREY | NR | 2018-03-20 |
| DESIGNER | PLJI | NR | 2018-03-20 |
| CHECKER | E. AHENG | | 2018-06-04 |
| DESIGN COORD. | S. PERKINS | | |
| REGP. ENG. | E. AHENG | | 2018-06-04 |
| LEAD DISC. ENG. | E. AHENG | | 2018-06-04 |
| ENG. MANAGER | R. RUSTAD | | |
| PROJ. MANAGER | R. RUSTAD | | |
| ROLE | NAME | SIGNATURE & DATE | |

DRAWING APPROVAL STATUS: Approved for Construction

StrataGold Corporation

EAGLE GOLD PROJECT

PRIMARY CRUSHING
CRUSHER SUPPORT STRUCTURE
SECTIONS - SHEET 4

| SCALE | DWG. No. | REV |
|---|---|---|
| 1:25 (ORIGINAL SHEET) | H354138-3100-231-260-0009 | 1 |

# CONCRETE POST POUR COLD WEATHER MONITORING

Rev 01 July 4, 2018

| | |
|---|---|
| CONTRACTOR: CLARK BUILDERS. | DATE OF POUR: OCTOBER 18, 2018 |
| WEATHER/ AMBIENT TEMP (°C): AT POUR +6 °C | DATE FORMWORK STRIPPED: |
| INSPECTOR(S): Ryan deMillard | DATE OF INSPECTION: VARIOUS. |
| LOCATION: 3100 SOGMENTED SLABS 1052 | |
| DRAWING NO.(S): | DRAWING REV: |
| SPEC SECTION(S): S03 30 00 – Cast-In-Place | |

TYPE OF CURING:

| | | | | | |
|---|---|---|---|---|---|
| CURING COMPOUND | ☐ | DAMP BURLAP OR FABRIC | ☐ | INSULATION (TARPS) | ☒ |
| POLYETHYLENE SHEETS | ☐ | WATER/FOG SPRAY/ PONDING | ☐ | FORMS (COVERED BY) | ☒ |

| COLD WEATHER REQUIREMENTS (WHEN AMB. TEMP < 5°C) | PASS | FAIL | N/A | REMARKS |
|---|---|---|---|---|
| Protection in place for 5 days at temperatures not lower than 20°C or until 70% of the 28-day strength has been reached. | ☒ | ☐ | ☐ | |
| Cold weather protection provided by means of heated enclosures, coverings, insulation, or a suitable approved combination of these methods during complete curing period. | ☒ | ☐ | ☐ | |
| During freezing weather, water curing terminated 12h before the end of the protection period (CSA A 23.1 clause 7.4.2.4.2) | ☐ | ☐ | ☒ | |
| | | | | |

CONCRETE CURING TEMPERATURE LOG (COLD WEATHER CONCRETEING ONLY)

| DATE | TIME (24 HR) | OUTSIDE AIR TEMP (°C) | TEMP INSIDE HOARDING (°C) | CONCRETE SURFACE TEMP (°C) | | INITIALS OF READER |
|---|---|---|---|---|---|---|
| | | | | HIGH (°C) | LOW (°C) | |
| OCTOBER 18/18 @ TIME OF POUR | 14:00 | +5°C | N/A | FORMWORK +12°C | STEEL +5°C | [illegible] |
| OCTOBER 19/18 | 08:00 | +2°C | +14°C | +19°C | +16°C | R. deM |
| | | | | | | |
| | | | | | | |
| | | | | | | |

COMMENTS: OCTOBER 20 ONWARD. UNABLE TO ACCESS THE AREA BUT HEATING AND HOARDING INSPECTED. NO CONCERNS. WEATHER WAS ALSO VERY MILD -2°C → +5°C

ATTACHMENT(S):

**CLARK BUILDERS SITE REPRESENTATIVE**

PRINT/ SIGN: Ryan deMillard TITLE_____ DATE:_____

CLARK BUILDERS
ENERGY & RESOURCES

CB-INSPECTION FORM-DOC-002 REV.00
JDS ENERGY & MINING INC. | STRATAGOLD EAGLE GOLD
PROJECT #: CB201 | 18502

PROJECT MANAGER: DUSTIN DOLYNCHUK, P.ENG
QA/QC COORDINATOR: RYAN DE MILLIANO, C.E.T.
SUPERINTENDENT: GARRY DAHL

# CONCRETE REINFORCEMENT PRE POUR

Rev 01 August 25, 2018

| | |
|---|---|
| SUBCONTRACTOR: Ultimate Reinforcing // McNish | INSPECTION DATE: OCTOBER 21, 2018 |
| SUBCONTRACTOR CONTACT PERSON: CUTYTOP | PROJ. POUR DATE: OCTOBER 23, 2018 |
| INSPECTOR(S): RYAN DE MILLIANO (CB), MATT C. (CB) | |
| LOCATION: 3100 PRIMARY // WALLS 1652.500 → 1056.300 | |
| DRAWING REV: 02 / DRAWING NO.(S): 3100-231-260-0016 | SPEC SECTION(S): S03 20 00 -- Concrete Reinforcing Steel |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Grade (400W unless otherwise noted) and type of steel delivered and installed as required by approved drawings. | ☑ | ☐ | ☐ |
| 2.0 | Inspect rebar distribution, spacing and cover per design/project requirements. | ☑ | ☐ | ☐ |
| 3.0 | Length of splices as specified | ☑ | ☐ | ☐ |
| 4.0 | Staggered splices as specified | ☑ | ☐ | ☐ |
| 5.0 | Any mechanical splices have been approved by the owner prior to install | ☐ | ☐ | ☑ |
| 6.0 | Bars cleaned and free of material that may reduce bond including loose rust, scale, oil, structural defects and that they are uncoated and unpainted. | ☑ | ☐ | ☐ |
| 7.0 | Dowels at wall ends, construction joints, and openings as specified (length, location, size, etc.) | ☑ | ☐ | ☐ |
| 8.0 | No unauthorized field bent bars including hooks installed | ☑ | ☐ | ☐ |
| 9.0 | Resolve conflicts between embedded items and reinforcement | ☑ | ☐ | ☐ |
| 10.0 | When authorized, field bends done without heat and inspected for fissures or cracks. | ☐ | ☐ | ☑ |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 11.0 | Bars tied and supported to prevent displacement | ☑ | ☐ | ☐ |
| 12.0 | Spacers, tie wire and chairs as required | ☑ | ☐ | ☐ |
| 13.0 | Conduits at design location and minimum separation from rebar as specified | ☑ | ☐ | ☐ |
| 14.0 | No contact of bars is made with dissimilar metals as per CSA A23.1 | ☑ | ☐ | ☐ |
| 15.0 | Bars, nails or tie wire not sticking out from surfaces that allow rusting/corrosion | ☑ | ☐ | ☐ |
| 16.0 | Rebar welds are inspected by qualified inspectors certified to CSA W178.2 | ☑ | ☐ | ☐ |
| 17.0 | No rebar congestion or other obstruction for deposit of concrete | ☑ | ☐ | ☐ |
| 18.0 | Adjustments required for interfering items (piping, inserts, sleeves, etc.) have been submitted and approved by owner. | ☑ | ☐ | ☐ |
| 19.0 | Rebar was stored off ground to prevent damage/corrosion | ☑ | ☐ | ☐ |
| 20.0 | Review drawings for anchors, piping, sleeves, boxes | ☑ | ☐ | ☐ |

COMMENTS:

PRECLOSE UP INSPECTION → OCT 21, 2018
FINAL PAC CLOSE INSPECTION → OCTOBER 22, 2018
PREPOUR INSPECTION - OCTOBER 23, 2018 (CHECKED, TIED, COVER, PROJECTION)

ATTACHMENT(S):

PLAN (HIGHLIGHTED)

DEFICIENCIES NOTES:

- STIRRUPS TO BE TIED BETTER IN SUMP AREAS.
- TIE WIRE / STANDING WATER TO BE REMOVED PRIOR TO CLOSE UP.
- HORZ BARS PROTRUDING PAST MAT AND TO CLOSE TO CONNECTIONS TO BE CUT BEFORE CLOSE UP.

CLARK BUILDERS:

INSPECTOR: Ryan deMilliano // TITLE Project Coordinator DATE: Oct 21, 2018

JDS ENERGY & MINING:

INSPECTOR: Matt Cavendale TITLE Field Eng DATE: Oct 21, 2018

CLARK BUILDERS
ENERGY & RESOURCES

CB-INSPECTION FORM-DOC-002 REV.00
JDS ENERGY & MINING INC. | STRATAGOLD EAGLE GOLD
PROJECT #: CB201 | 18502

PROJECT MANAGER: DUSTIN DOLYNCHUK, P.ENG
QA/QC COORDINATOR: RYAN DE MILLIANO, C.E.T.
SUPERINTENDENT: GARRY DAHL

# FORMWORK & FALSEWORK PRE POUR | QA INSPECTION

Rev 01 August 25, 2018

| | |
|---|---|
| CONTRACTOR: Clark Builders | INSPECTION DATE: OCTOBER 21 2018 |
| CONTRACTOR CONTACT PERSON: TONY B. | DATE OF POUR: OCTOBER 23, 2018 |
| INSPECTOR(S): Ryan DeMilliano, TONY | |
| LOCATION: 3100 PRIMARY // LINES | |
| DRAWING REV: 02 | DRAWING NO.(S): 3100-231-260-0016 |
| SPEC SECTION(S): 503 1000 | |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Location, survey, dimension and grades as required | ☑ | ☐ | ☐ |
| 2.0 | Plumbness and Flatness verified | ☑ | ☐ | ☐ |
| 3.0 | Joints are aligned and watertight. | ☑ | ☐ | ☐ |
| 4.0 | Formwork shop drawings are Engineered and reviewed | ☑ | ☐ | ☐ |
| 5.0 | Re-used formwork reconditioned and treated | ☑ | ☐ | ☐ |
| 6.0 | Formwork and ties according to finishing requirements. Confirm no holes in the concrete surface are greater than 25mm in diameter or expose steel at less than 25mm from surface. As per spec. | ☑ | ☐ | ☐ |
| 7.0 | Installation of embeds are located and secured | ☑ | ☐ | ☐ |
| 8.0 | Chamfer requirements checked. 25mm chamfers required for all exterior corners and edges exposed to view including horizontal edges of pads. | ☑ | ☐ | ☐ |
| 9.0 | Key ways and/or other provisions according to design are provided in construction joints | ☑ | ☐ | ☐ |
| 10.0 | Inspect types of form spacers, ties and bracing. | ☑ | ☐ | ☐ |
| 11.0 | Spacing of ties to be set to a pattern | ☑ | ☐ | ☐ |
| 12.0 | Expansion, construction, contraction joints as required & located as coordinated with structural Engineer | ☑ | ☐ | ☑ |
| 13.0 | Forms secured against movement during placing | ☑ | ☐ | ☐ |
| 14.0 | Forms are braced for alignment and blow out | ☑ | ☐ | ☐ |
| 15.0 | Forms are cleaned of all debris, and dry, prior to concrete placement including standing water. | ☑ | ☐ | ☐ |
| 16.0 | Openings in formwork permit inspection and cleaning, placing and compaction of concrete, and forming and processing of construction joints. | ☑ | ☐ | ☐ |
| 17.0 | Formwork has been coated with release agent prior to rebar placement. | ☑ | ☐ | ☐ |
| 18.0 | Anchor Bolts and Embeds are secured to formwork. | ☑ | ☐ | ☐ |

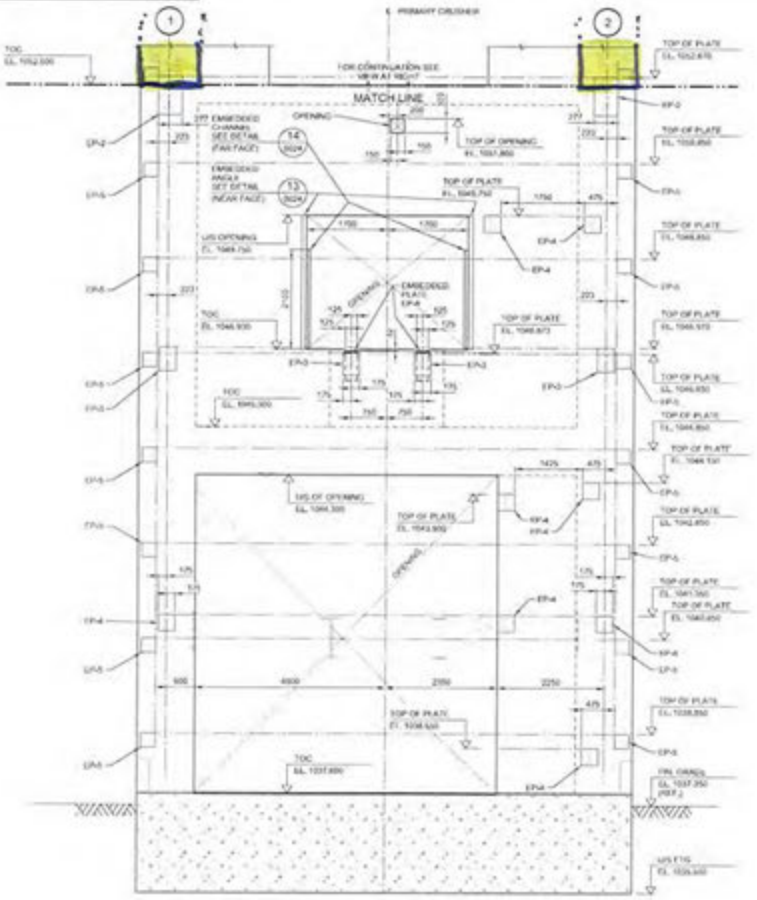
COMMENTS:
ENGINEERED PERI FORMWORK USED.
TIE SPACING APPEARS ADEQUATE.

ATTACHMENT(S):
PVG

DEFICIENCIES NOTES:
N/A.

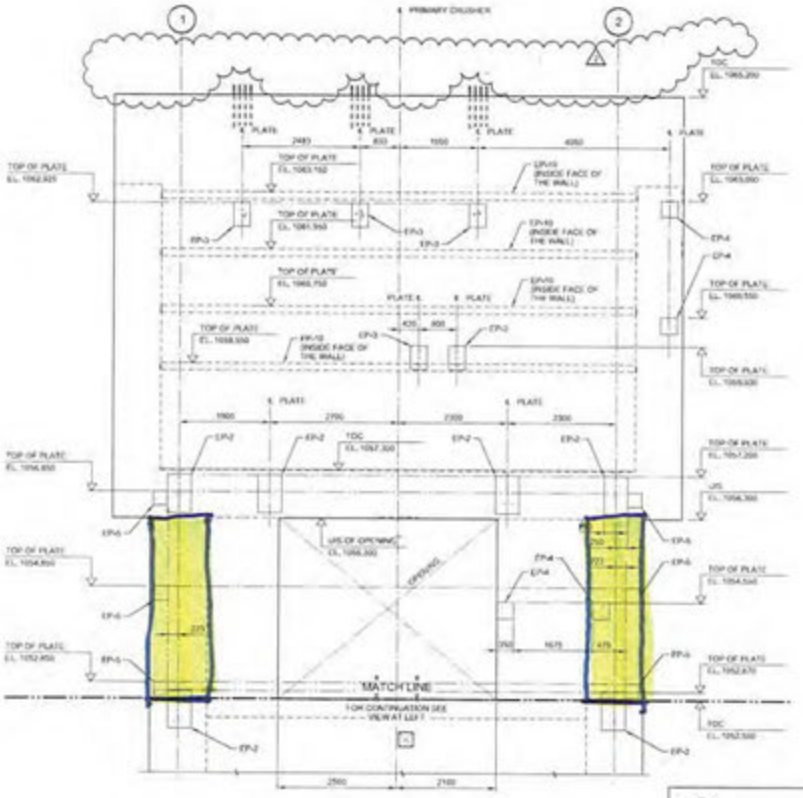
INITIAL INSPECTION
INSPECTOR: Ryan DeMilliano // TITLE Project Coordinator DATE: OCTOBER 21, 2018 / 00:27:03

RE-INSPECTION (DEFICIENCIES COMPLETED)
INSPECTOR: Matt Coverdale TITLE Field Eng DATE: Oct 21, 2018



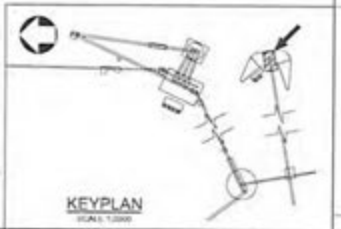

WALL ELEVATION WEST

LOOKING EAST




NOTES:

1. FOR GENERAL NOTES SEE DRAWING H354138-3100-231-260-0001.



KEYPLAN

SCALE 1:2000

| No. | DESCRIPTION | BY | CHKD | DATE |
|---|---|---|---|---|
| 2 | HOLD H0004 REMOVED, WALL AT EL. 1065.650 DELETED | PJ | FA | 2018-10-05 |
| 1 | HOLD H0010 REMOVED, HOLD H0008 ADDED | PJ | FA | 2018-09-27 |
| 0 | APPROVED FOR CONSTRUCTION | PJ | FA | 2018-04-13 |

REVISIONS

DRAWING No. | DRAWING TITLE

REFERENCE DRAWINGS

REG. PROFESSIONAL

HATCH

| ROLE | NAME | SIGNATURE & DATE |
|---|---|---|
| DRAW TSPERSON | P. JEVAEV | 2018-03-20 |
| DESIGNER | H. LE | 2018-03-20 |
| CHECKER | E. AKINO | 2018-10-05 |
| DESIGN COORD. | S. PERKINS | 2018-10-05 |
| RESP. ENG. | E. AKINO | 2018-10-05 |
| LEAD DISC. ENG. | E. AKINO | 2018-10-05 |
| ENG. MANAGER | B. RUSTAD | |
| PROJ. MANAGER | B. RUSTAD | |

DRAWING APPROVAL STATUS: Approved for Construction

StrataGold Corporation

EAGLE GOLD PROJECT

PRIMARY CRUSHING
CRUSHER SUPPORT STRUCTURE
ELEVATIONS - SHEET 1

SCALE 1:50

DWG. No. H354138-3100-231-260-0016

REV 2

SHEET SIZE: D

CLARK BUILDERS
ENERGY & RESOURCES

# CONCRETE POST POUR COLD WEATHER MONITORING

Rev 01 July 4, 2018

| | |
|---|---|
| CONTRACTOR: CLARK BUILDERS | DATE OF POUR: OCTOBER 23, 2018 |
| WEATHER/ AMBIENT TEMP (°C): VARIOUS (-4°C to +3°C) | DATE FORMWORK STRIPPED: |
| INSPECTOR(S): RYAN DE MILLIANO | DATE OF INSPECTION: OCT 21, 2018 |
| LOCATION: 3100 // PRIMARY WALLS 1052.500 → 1056.300 | |
| DRAWING NO.(S): 02 / DRAWING REV: 3100.231.260.0016 | SPEC SECTION(S): S03 30 00 – Cast-In-Place |

TYPE OF CURING:

| | | | | | |
|---|---|---|---|---|---|
| CURING COMPOUND | ☐ | DAMP BURLAP OR FABRIC | ☐ | INSULATION (TARPS) | ☒ |
| POLYETHYLENE SHEETS | ☐ | WATER/FOG SPRAY/ PONDING | ☐ | FORMS (COVERED BY) | ☒ |

| COLD WEATHER REQUIREMENTS (WHEN AMB. TEMP < 5°C) | PASS | FAIL | N/A | REMARKS |
|---|---|---|---|---|
| Protection in place for 5 days at temperatures not lower than 20°C or until 70% of the 28-day strength has been reached. | ☒ | ☐ | ☐ | |
| Cold weather protection provided by means of heated enclosures, coverings, insulation, or a suitable approved combination of these methods during complete curing period. | ☒ | ☐ | ☐ | |
| During freezing weather, water curing terminated 12h before the end of the protection period (CSA A 23.1 clause 7.4.2.4.2) | ☐ | ☐ | ☒ | |

CONCRETE CURING TEMPERATURE LOG (COLD WEATHER CONCRETEING ONLY)

| DATE | TIME (24 HR) | OUTSIDE AIR TEMP (°C) | TEMP INSIDE HOARDING (°C) | CONCRETE SURFACE TEMP (°C) HIGH (°C) | CONCRETE SURFACE TEMP (°C) LOW (°C) | INITIALS OF READER |
|---|---|---|---|---|---|---|
| OCTOBER 24, 2018 | 14:20 | +3°C | +23°C | +38°C | +32°C | [illegible] |
| *① OCTOBER 25, 2018 | 12:00 | +2°C | +15°C (AGAINST FORMWORK) | – | – | [illegible] |
| OCTOBER 26, 2018 | 13:10 | +1°C | HOARDING OFF AT TIME OF INSP. TO STRIP | +21°C FORMWORK | +17°C | [illegible] |
| OCTOBER 27, 2018 | 07:15 | -2°C | — | +10°C | +2°C | [illegible] |

COMMENTS: ① CONCRETE SURFACE UNABLE TO BE SPOT ACCURATELY BUT FORMS WERE WARM. [illegible]

ATTACHMENT(S):

**CLARK BUILDERS SITE REPRESENTATIVE**

PRINT/ SIGN: Ryan de Milliano // [signature] TITLE Project Coordinator DATE: October 24/18

CLARK BUILDERS
ENERGY & RESOURCES



# FORMWORK & FALSEWORK PRE POUR | QA INSPECTION

Rev 01 August 25, 2018

| | |
|---|---|
| CONTRACTOR: Clark Builders | INSPECTION DATE: NOV 2/2018 |
| CONTRACTOR CONTACT PERSON: Re DAVE DELORME | DATE OF POUR: NOV. 2/2018 |
| INSPECTOR(S): GARRY DAHL | |
| LOCATION: 3100 ELEVATED SLAB @ 1057.300 | |
| DRAWING REV: 1 | DRAWING NO.(S): 354138-3100-231-260-0011 / SPEC SECTION(S): 03 10 00 |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Location, survey, dimension and grades as required | ☑ | ☐ | ☐ |
| 2.0 | Plumbness and Flatness verified | ☑ | ☐ | ☐ |
| 3.0 | Joints are aligned and watertight. | ☑ | ☐ | ☐ |
| 4.0 | Formwork shop drawings are Engineered and reviewed | ☑ | ☐ | ☐ |
| 5.0 | Re-used formwork reconditioned and treated | ☑ | ☐ | ☐ |
| 6.0 | Formwork and ties according to finishing requirements. Confirm no holes in the concrete surface are greater than 25mm in diameter or expose steel at less than 25mm from surface. As per spec. | ☑ | ☐ | ☐ |
| 7.0 | Installation of embeds are located and secured | ☑ | ☐ | ☐ |
| 8.0 | Chamfer requirements checked. 25mm chamfers required for all exterior corners and edges exposed to view including horizontal edges of pads. | ☑ | ☐ | ☐ |
| 9.0 | Key ways and/or other provisions according to design are provided in construction joints | ☑ | ☐ | ☐ |
| 10.0 | Inspect types of form spacers, ties and bracing. | ☑ | ☐ | ☐ |
| 11.0 | Spacing of ties to be set to a pattern | ☑ | ☐ | ☐ |
| 12.0 | Expansion, construction, contraction joints as required & located as coordinated with structural Engineer | ☑ | ☐ | ☐ |
| 13.0 | Forms secured against movement during placing | ☑ | ☐ | ☐ |
| 14.0 | Forms are braced for alignment and blow out | ☑ | ☐ | ☐ |
| 15.0 | Forms are cleaned of all debris, and dry, prior to concrete placement including standing water. | ☑ | ☐ | ☐ |
| 16.0 | Openings in formwork permit inspection and cleaning, placing and compaction of concrete, and forming and processing of construction joints. | ☑ | ☐ | ☐ |
| 17.0 | Formwork has been coated with release agent prior to rebar placement. | ☑ | ☐ | ☐ |
| 18.0 | Anchor Bolts and Embeds are secured to formwork. | ☑ | ☐ | ☐ |

| COMMENTS: | ATTACHMENT(S): |
|---|---|
| Complete dowels | |
| Clean out + pre-heat | |
| | |

DEFICIENCIES NOTES:

INITIAL INSPECTION

INSPECTOR: Ishan Feather TITLE Superintendent DATE: Nov 2 2018

RE-INSPECTION (DEFICIENCIES COMPLETED)

INSPECTOR: _____ TITLE _____ DATE: _____

GARRY DAHL

CLARK BUILDERS
ENERGY & RESOURCES

# CONCRETE REINFORCEMENT PRE POUR

Rev 00 May 4, 2018

| | |
|---|---|
| SUBCONTRACTOR: ULTIMATE REINFORCING | INSPECTION DATE: NOV 2 2018 |
| SUBCONTRACTOR CONTACT PERSON: JIMMY MENCHENTON | ACTION BY: |
| INSPECTOR(S): GARRY DAHL | |
| LOCATION: 3100 ELEVATED SLAB @ 1057.300 | |
| DRAWING REV: 1 | DRAWING NO.(S): 354138-3100-231-260-0011 / SPEC SECTION(S): 30 20 00 |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Grade (400W unless otherwise noted) and type of steel delivered and installed as required by approved drawings. | ☑ | ☐ | ☐ |
| 2.0 | Inspect rebar distribution, spacing and cover per design/project requirements. | ☑ | ☐ | ☐ |
| 3.0 | Length of splices as specified | ☑ | ☐ | ☐ |
| 4.0 | Staggered splices as specified | ☑ | ☐ | ☐ |
| 5.0 | Any mechanical splices have been approved by the owner prior to install | ☑ | ☐ | ☐ |
| 6.0 | Bars cleaned and free of material that may reduce bond including loose rust, scale, oil, structural defects and that they are uncoated and unpainted. | ☑ | ☐ | ☐ |
| 7.0 | Dowels at wall ends, construction joints, and openings as specified (length, location, size, etc.) | ☑ | ☐ | ☐ |
| 8.0 | No unauthorized field bent bars including hooks installed | ☑ | ☐ | ☐ |
| | Resolve conflicts between embedded items and reinforcement | / | | |
| 9.0 | When authorized, field bends done without heat and inspected for fissures or cracks. | ☑ | ☐ | ☐ |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 10.0 | Bars tied and supported to prevent displacement | ☑ | ☐ | ☐ |
| 11.0 | Spacers, tie wire and chairs as required | ☑ | ☐ | ☐ |
| 12.0 | Conduits at design location and minimum separation from rebar as specified | ☐ | ☐ | ☑ |
| 13.0 | No contact of bars is made with dissimilar metals as per CSA A23.1 | ☑ | ☐ | ☐ |
| 14.0 | Bars, nails or tie wire not sticking out from surfaces that allow rusting/corrosion | ☑ | ☐ | ☐ |
| 15.0 | Rebar is welds inspected by qualified inspectors certified to CSA W178.2 | ☐ | ☐ | ☑ |
| 16.0 | No rebar congestion or other obstruction for deposit of concrete | ☑ | ☐ | ☐ |
| 17.0 | Adjustments required for interfering items (piping, inserts, sleeves, etc.) have been submitted and approved by owner. | ☐ | ☐ | ☑ |
| 18.0 | Rebar was stored off ground to prevent damage/corrosion | / | | |
| 19.0 | Review drawings for anchors, piping, sleeves, boxes | ☑ | ☐ | ☐ |

COMMENTS:

Complete closing up forms

ATTACHMENT(S):

DEFICIENCIES NOTES:

INITIAL INSPECTION

INSPECTOR: Ishan Fedder TITLE Superintendent DATE: Nov 2 2018

RE-INSPECTION (DEFICIENCIES COMPLETED)

INSPECTOR: _____ TITLE _____ DATE: _____

GARRY DAHL

CLARK BUILDERS
ENERGY & RESOURCES



PROJECT MANAGER: DUSTIN DOLYNCHUK, P.ENG
QA/QC COORDINATOR: RYAN DE MILLIANO, C.E.T.
SUPERINTENDENT: GARRY DAHL

# CONCRETE REINFORCEMENT PRE POUR

Rev 00 May 4, 2018

| | |
|---|---|
| SUBCONTRACTOR: ULTIMATE REINFORCING. | INSPECTION DATE: NOV 8, 2018 / RE INSP NOV 9/18 |
| SUBCONTRACTOR CONTACT PERSON: JIMMY. | PROJ. POOL: ACTION BY: NOV 10, 2018 |
| INSPECTOR(S): GARRY DAHL, RYAN DEMILLIANO, JERRY C. (JDS), Tanya (JDS) | |
| LOCATION: 3100 // PRIMARY WALLS. 1057.300 → | |
| DRAWING REV: | DRAWING NO.(S): / SPEC SECTION(S): |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Grade (400W unless otherwise noted) and type of steel delivered and installed as required by approved drawings. | ☐ | ☐ | ☑ |
| 2.0 | Inspect rebar distribution, spacing and cover per design/project requirements. | ☑ | ☐ | ☐ |
| 3.0 | Length of splices as specified | ☑ | ☐ | ☐ |
| 4.0 | Staggered splices as specified | ☑ | ☐ | ☐ |
| 5.0 | Any mechanical splices have been approved by the owner prior to install | ☑ | ☐ | ☐ |
| 6.0 | Bars cleaned and free of material that may reduce bond including loose rust, scale, oil, structural defects and that they are uncoated and unpainted. | ☑ | ☐ | ☐ |
| 7.0 | Dowels at wall ends, construction joints, and openings as specified (length, location, size, etc.) | ☑ | ☐ | ☐ |
| 8.0 | No unauthorized field bent bars including hooks installed | ☑ | ☐ | ☐ |
| | Resolve conflicts between embedded items and reinforcement | / | | |
| 9.0 | When authorized, field bends done without heat and inspected for fissures or cracks. | ☐ | ☐ | ☑ |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 10.0 | Bars tied and supported to prevent displacement | ☑ | ☐ | ☐ |
| 11.0 | Spacers, tie wire and chairs as required | ☑ | ☐ | ☐ |
| 12.0 | Conduits at design location and minimum separation from rebar as specified | ☑ | ☐ | ☐ |
| 13.0 | No contact of bars is made with dissimilar metals as per CSA A23.1 | ☑ | ☐ | ☐ |
| 14.0 | Bars, nails or tie wire not sticking out from surfaces that allow rusting/corrosion | ☑ | ☐ | ☐ |
| 15.0 | Rebar is welds inspected by qualified inspectors certified to CSA W178.2 | ☑ | ☐ | ☐ |
| 16.0 | No rebar congestion or other obstruction for deposit of concrete | ☑ | ☐ | ☐ |
| 17.0 | Adjustments required for interfering items (piping, inserts, sleeves, etc.) have been submitted and approved by owner. | ☑ | ☐ | ☐ |
| 18.0 | Rebar was stored off ground to prevent damage/corrosion | / | | |
| 19.0 | Review drawings for anchors, piping, sleeves, boxes | ☑ | ☐ | ☐ |

COMMENTS:

Nov 8, 2018 – STIRRUPS LOOSE, TO BE STRAIGHTENED/TIGHTENED → Nov 9/18 DONE
– COVER AT SOME LOCATIONS ON SOUTH ELEVATION TO BE INCREASED AND CHAINED

ATTACHMENT(S):

DEFICIENCIES NOTES:

CB
~~INITIAL~~ INSPECTION
INSPECTOR: // Ryan deMilliano TITLE Project Coordinator DATE: Nov 9, 2018

SDS
~~RE-INSPECTION~~ (DEFICIENCIES COMPLETED)
INSPECTOR: Jerry Chrzanowicz TITLE Const. Sup. DATE: Nov 11/18

CLARK BUILDERS
ENERGY & RESOURCES



PROJECT MANAGER: DUSTIN DOLYNCHUK, P.ENG
QA/QC COORDINATOR: RYAN DE MILLIANO, C.E.T.
SUPERINTENDENT: GARRY DAHL

# FORMWORK & FALSEWORK PRE POUR | QA INSPECTION

Rev 01 August 25, 2018

| | |
|---|---|
| CONTRACTOR: Clark Builders | INSPECTION DATE: Nov 8, 2018 |
| CONTRACTOR CONTACT PERSON: DAVE DELORME | DATE OF POUR: Nov 10, 2018 |
| INSPECTOR(S): Dave Delorme, Garry Dahl, Ryan DeMilliano, Stacey C (JDS) | |
| LOCATION: 3100 // PRIMARY WALLS 1057.300 → | |
| DRAWING REV: | DRAWING NO.(S): SPEC SECTION(S): |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Location, survey, dimension and grades as required | ☐ | ☐ | ☑ |
| 2.0 | Plumbness and Flatness verified | ☑ | ☐ | ☐ |
| 3.0 | Joints are aligned and watertight. | ☑ | ☐ | ☐ |
| 4.0 | Formwork shop drawings are Engineered and reviewed | ☑ | ☐ | ☐ |
| 5.0 | Re-used formwork reconditioned and treated | ☑ | ☐ | ☐ |
| 6.0 | Formwork and ties according to finishing requirements. Confirm no holes in the concrete surface are greater than 25mm in diameter or expose steel at less than 25mm from surface. As per spec. | ☑ | ☐ | ☐ |
| 7.0 | Installation of embeds are located and secured | ☑ | ☐ | ☐ |
| 8.0 | Chamfer requirements checked. 25mm chamfers required for all exterior corners and edges exposed to view including horizontal edges of pads. | ☐ | ☐ | ☑ |
| 9.0 | Key ways and/or other provisions according to design are provided in construction joints | ☐ | ☐ | ☑ |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 10.0 | Inspect types of form spacers, ties and bracing. | ☑ | ☐ | ☐ |
| 11.0 | Spacing of ties to be set to a pattern | ☑ | ☐ | ☐ |
| 12.0 | Expansion, construction, contraction joints as required & located as coordinated with structural Engineer | ☐ | ☐ | ☑ |
| 13.0 | Forms secured against movement during placing | ☑ | ☐ | ☐ |
| 14.0 | Forms are braced for alignment and blow out | ☑ | ☐ | ☐ |
| 15.0 | Forms are cleaned of all debris, and dry, prior to concrete placement including standing water. | ☑ | ☐ | ☐ |
| 16.0 | Openings in formwork permit inspection and cleaning, placing and compaction of concrete, and forming and processing of construction joints. | ☑ | ☐ | ☐ |
| 17.0 | Formwork has been coated with release agent prior to rebar placement. | ☑ | ☐ | ☐ |
| 18.0 | Anchor Bolts and Embeds are secured to formwork. | ☑ | ☐ | ☐ |

COMMENTS: ATTACHMENT(S):

DEFICIENCIES NOTES:

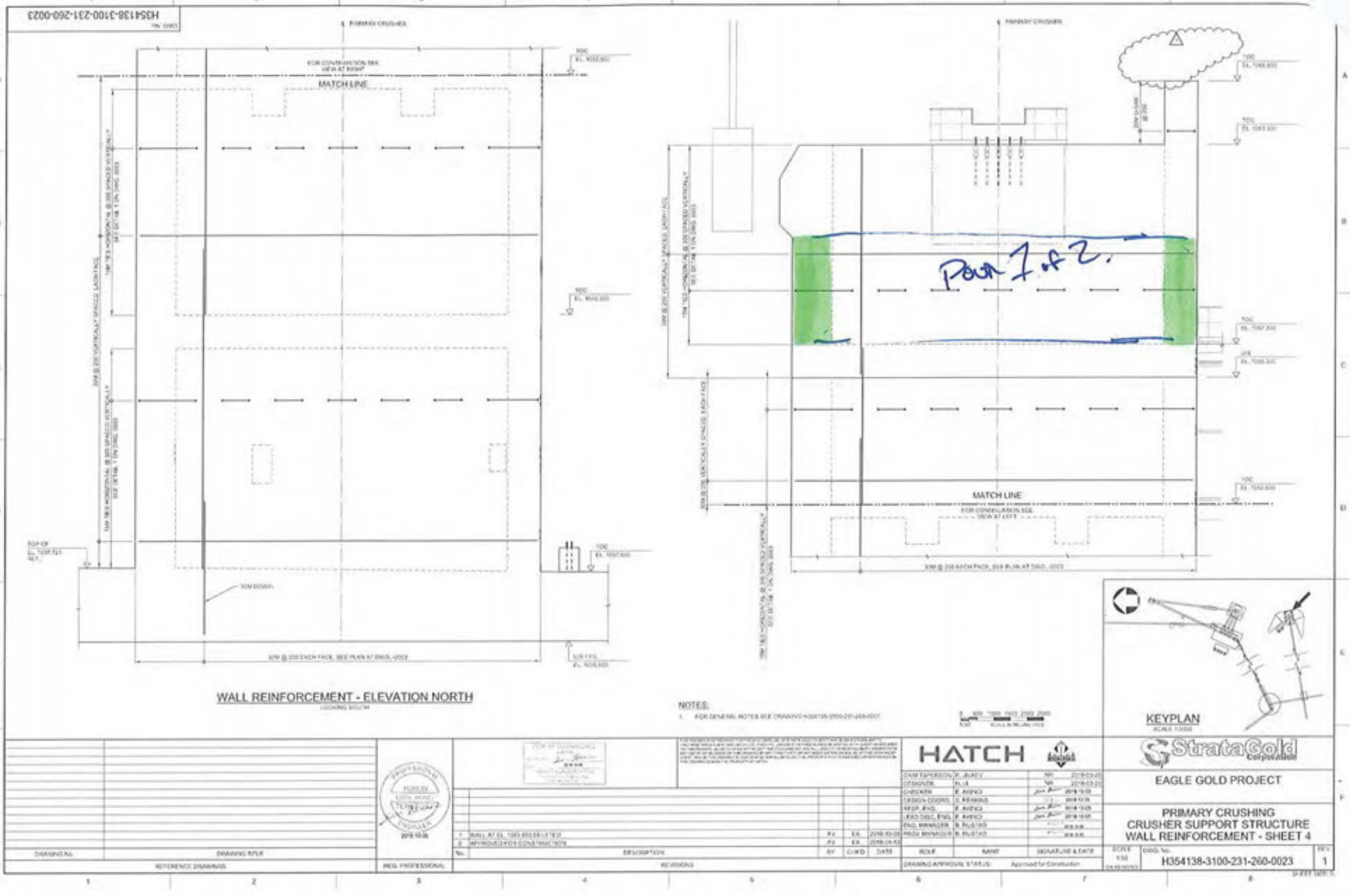
CB
INITIAL INSPECTION

INSPECTOR: Dave Delorme TITLE Carpenter forman DATE: Nov 9/18

JDS.
RE-INSPECTION (DEFICIENCIES COMPLETED)

INSPECTOR: _____ TITLE _____ DATE: _____

Nov 9/18



H354138-3100-231-260-0023
PRIMARY CRUSHER
MATCH LINE
FOR CONTINUATION SEE VIEW AT RIGHT
30M DOWEL
WALL REINFORCEMENT - ELEVATION NORTH
LOOKING SOUTH
Pour 1 of 2.
MATCH LINE
FOR CONTINUATION SEE VIEW AT LEFT
NOTES:
1. FOR GENERAL NOTES SEE DRAWING H354138-3100-231-260-0001
KEYPLAN
HATCH
StrataGold Corporation
EAGLE GOLD PROJECT
PRIMARY CRUSHING
CRUSHER SUPPORT STRUCTURE
WALL REINFORCEMENT - SHEET 4
H354138-3100-231-260-0023
1
DRAWING No.
DRAWING TITLE
REFERENCE DRAWINGS
REG. PROFESSIONAL
REVISIONS
DESCRIPTION
BY
CHK'D
DATE
ROLE
NAME
SIGNATURE & DATE
DRAWING APPROVAL STATUS: Approved for Construction

CLARK BUILDERS
ENERGY & RESOURCES

# CONCRETE POST POUR COLD WEATHER MONITORING

Rev 02 Nov 4, 2018

| | |
|---|---|
| CONTRACTOR: Clark Builders | DATE OF POUR: NOV 11 |
| AMBIENT TEMP at POUR (°C): | DATE FORMWORK STRIPPED: |
| LOCATION: Primary wall Slab 1057.300 – 1060.300 | SPEC SECTION(S): S03 30 00 – Cast-In-Place |

TYPE OF CURING:

| | | | | | |
|---|---|---|---|---|---|
| CURING COMPOUND | ☐ | DAMP BURLAP OR FABRIC | ☐ | INSULATION (TARPS) | ☐ |
| POLYETHYLENE SHEETS | ☐ | WATER/FOG SPRAY/ PONDING | ☐ | FORMS (COVERED BY) Tarps | ☑ |

| COLD WEATHER REQUIREMENTS (WHEN AMB. TEMP < 5°C) | PASS | FAIL | N/A | REMARKS |
|---|---|---|---|---|
| Protection in place and temperatures not lower than 20°C or until 70% of the 28-day strength has been reached. | ☑ | ☐ | ☐ | |
| Cold weather protection provided by means of heated enclosures, coverings, insulation, or a suitable approved combination of these methods during complete curing period. | ☑ | ☐ | ☐ | Frost fighters in place |
| Concrete test cylinders are kept within hoarding or in area where temperatures are ideal for curing. (No frozen Cylinders) | ☑ | ☐ | ☐ | |
| Heat is not directed onto concrete. This may result in thermal cracking. | ☑ | ☐ | ☐ | |
| During freezing weather, and standing water removed before the end of the protection period (CSA A 23.1 clause 7.4.2.4.2) | ☑ | ☐ | ☐ | |

CONCRETE CURING TEMPERATURE LOG (COLD WEATHER CONCRETEING ONLY)

| DATE | TIME (24 HR) | OUTSIDE AIR TEMP (°C) | TEMP INSIDE HOARDING (°C) | CONCRETE SURFACE TEMP (°C) | | INITIALS OF READER |
|---|---|---|---|---|---|---|
| | | | | HIGH (°C) | LOW (°C) | |
| Nov 11/18 | 7 Am | -14 | +15 | +14 | +10 | DD |
| NOV 11/18 | 11 AM | -10 | +19 | +19 | +14 | DD |
| NOV 11/18 | 2 pm | -12 | +20 | +21 | +17 | DD |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |

COMMENTS:

**CLARK BUILDERS SITE REPRESENTATIVE**

PRINT/ SIGN: Dave Delorme TITLE forman DATE: NOV 11/18

# CONCRETE POST POUR COLD WEATHER MONITORING

Rev 02 Nov 4, 2018

| | |
|---|---|
| CONTRACTOR: Clark Builders | DATE OF POUR: Nov 12 /18 |
| AMBIENT TEMP at POUR (°C): ~~30~~ -9 | DATE FORMWORK STRIPPED: |
| LOCATION: Primary Walls 1057.300 ↔ 1060.200 | SPEC SECTION(S): S03 30 00 – Cast-In-Place |

TYPE OF CURING:

| | | | | | |
|---|---|---|---|---|---|
| CURING COMPOUND | ☐ | DAMP BURLAP OR FABRIC | ☐ | INSULATION (TARPS) | ☑ |
| POLYETHYLENE SHEETS | ☐ | WATER/FOG SPRAY/ PONDING | ☐ | FORMS (COVERED BY) Tarps | ☑ |

| COLD WEATHER REQUIREMENTS (WHEN AMB. TEMP < 5°C) | PASS | FAIL | N/A | REMARKS |
|---|---|---|---|---|
| Protection in place and temperatures not lower than 20°C or until 70% of the 28-day strength has been reached. | ☑ | ☐ | ☐ | |
| Cold weather protection provided by means of heated enclosures, coverings, insulation, or a suitable approved combination of these methods during complete curing period. | ☑ | ☐ | ☐ | |
| Concrete test cylinders are kept within hoarding or in area where temperatures are ideal for curing. (No frozen Cylinders) | ☑ | ☐ | ☐ | |
| Heat is not directed onto concrete. This may result in thermal cracking. | ☑ | ☐ | ☐ | |
| During freezing weather, and standing water removed before the end of the protection period (CSA A 23.1 clause 7.4.2.4.2) | ☑ | ☐ | ☐ | |
| | | | | |

CONCRETE CURING TEMPERATURE LOG (COLD WEATHER CONCRETEING ONLY)

| DATE | TIME (24 HR) | OUTSIDE AIR TEMP (°C) | TEMP INSIDE HOARDING (°C) | CONCRETE SURFACE TEMP (°C) | | INITIALS OF READER |
|---|---|---|---|---|---|---|
| | | | | HIGH (°C) | LOW (°C) | |
| Nov 12 | 8 Am | -9 | +24 | +29 | +27 | DD |
| Nov 12 | 3 pm | -7 | +25 | +29 | +27 | DD |
| Nov 12 | 6 pm | -5 | +27 | +28 | +26 | DD |
| Nov 13 | 7:45 am | -1 | +20 | +34 | +32 | DD |
| Nov 13 | 1 pm | -5 | +19 | +33 | +33 | DD |
| | | | | | | |
| | | | | | | |

COMMENTS:

**CLARK BUILDERS SITE REPRESENTATIVE**

PRINT/ SIGN: Dave Delorme TITLE Foreman DATE: Nov 13, 2018

CB-INSPECTION FORM-DOC-002 REV.00
JDS ENERGY & MINING INC. | STRATAGOLD EAGLE GOLD
PROJECT #: CB201 | 18502

CLARK BUILDERS
ENERGY & RESOURCES

PROJECT MANAGER: DUSTIN DOLYNCHUK, P.ENG
QA/QC COORDINATOR: RYAN DE MILLIANO, C.E.T.
SUPERINTENDENT: GARRY DAHL

# CONCRETE REINFORCEMENT PRE POUR

Rev 01 August 25, 2018

| | |
|---|---|
| SUBCONTRACTOR: Ultimate Reinforcing // McNish | INSPECTION DATE: November 14, 2018 |
| SUBCONTRACTOR CONTACT PERSON: Jimmy M. | PROJ. POUR DATE: November ~~17~~ 20, 2018 |
| INSPECTOR(S): Ryan deMilliano; Jerry C; Matt C | |
| LOCATION: 3100 / PRIMARY WALLS TO 1063.300 / 1065.200 | |
| DRAWING REV: Various | DRAWING NO.(S): 3100-0016; 17; 18; 19; 20; 21; 22; 23; 14 SPEC SECTION(S): S03 20 00 – Concrete Reinforcing Steel |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Grade (400W unless otherwise noted) and type of steel delivered and installed as required by approved drawings. | ☑ | ☐ | ☐ |
| 2.0 | Inspect rebar distribution, spacing and cover per design/project requirements. | ☑ | ☐ | ☐ |
| 3.0 | Length of splices as specified | ☑ | ☐ | ☐ |
| 4.0 | Staggered splices as specified | ☑ | ☐ | ☐ |
| 5.0 | Any mechanical splices have been approved by the owner prior to install | ☐ | ☐ | ☑ |
| 6.0 | Bars cleaned and free of material that may reduce bond including loose rust, scale, oil, structural defects and that they are uncoated and unpainted. | ☑ | ☐ | ☐ |
| 7.0 | Dowels at wall ends, construction joints, and openings as specified (length, location, size, etc.) | ☑ | ☐ | ☐ |
| 8.0 | No unauthorized field bent bars including hooks installed | ☑ | ☐ | ☐ |
| 9.0 | Resolve conflicts between embedded items and reinforcement | ☑ | ☐ | ☐ |
| 10.0 | When authorized, field bends done without heat and inspected for fissures or cracks. | ☐ | ☐ | ☑ |
| 11.0 | Bars tied and supported to prevent displacement | ☑ | ☐ | ☐ |
| 12.0 | Spacers, tie wire and chairs as required | ☑ | ☐ | ☐ |
| 13.0 | Conduits at design location and minimum separation from rebar as specified | ☐ | ☐ | ☑ |
| 14.0 | No contact of bars is made with dissimilar metals as per CSA A23.1 | ☑ | ☐ | ☐ |
| 15.0 | Bars, nails or tie wire not sticking out from surfaces that allow rusting/corrosion | ☑ | ☐ | ☐ |
| 16.0 | Rebar welds are inspected by qualified inspectors certified to CSA W178.2 | ☐ | ☐ | ☑ |
| 17.0 | No rebar congestion or other obstruction for deposit of concrete | ☑ | ☐ | ☐ |
| 18.0 | Adjustments required for interfering items (piping, inserts, sleeves, etc.) have been submitted and approved by owner. | ☐ | ☐ | ☑ |
| 19.0 | Rebar was stored off ground to prevent damage/corrosion | ☑ | ☐ | ☐ |
| 20.0 | Review drawings for anchors, piping, sleeves, boxes | ☑ | ☐ | ☐ |

COMMENTS:

Nov 14/18 - 1st PRE CLOSEUP INSPECTION NOTES: CLEAN CONCRETE OF ALL DIRT/DUST/TIE WIRE. DONE
TIE SOME BARS THAT ARE LOOSE
Nov 15/18 - REINSPECTION - NW CORNER HAD A LOOSE EMBED, BESURE FOSFIT.
PICS TAKEN AS REQUESTED BY MATT C.

ATTACHMENT(S):

DEFICIENCIES NOTES:

Added rock breaker missing N15 horizontal bars & 3 E/W me
Clean rock breaker area & tie bottom of anchor bolts
Added plywood strip & southeast corner, ensure embeds are tight to form

CLARK BUILDERS:
INSPECTOR: Ryan deMilliano // [signature] TITLE Project Coordinator DATE: Nov 14 // Nov 15/18

JDS ENERGY & MINING:
INSPECTOR: Matt Coverdale me TITLE Field Eng DATE: Nov 20, 2018

CLARK BUILDERS
ENERGY & RESOURCES

CB-INSPECTION FORM-DOC-002 REV.00
JDS ENERGY & MINING INC. | STRATAGOLD EAGLE GOLD
PROJECT #: CB201 | 18502

PROJECT MANAGER: DUSTIN DOLYNCHUK, P.ENG
QA/QC COORDINATOR: RYAN DE MILLIANO, C.E.T.
SUPERINTENDENT: GARRY DAHL

# FORMWORK & FALSEWORK PRE POUR | QA INSPECTION

Rev 01 August 25, 2018

| | |
|---|---|
| CONTRACTOR: Clark Builders | INSPECTION DATE: Nov 20, 2018 |
| CONTRACTOR CONTACT PERSON: Dave Delorme / Brett | DATE OF POUR: Nov 17 - 20, 2018 |
| INSPECTOR(S): | |
| LOCATION: 3100 Primary / Walls to 1063.300 / 1065.200 | |
| DRAWING REV: Various | DRAWING NO.(S): 3100-0016-23; 14 / SPEC SECTION(S): 503 10 00 |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Location, survey, dimension and grades as required | ☑ | ☐ | ☐ |
| 2.0 | Plumbness and Flatness verified | ☑ | ☐ | ☐ |
| 3.0 | Joints are aligned and watertight. | ☑ | ☐ | ☐ |
| 4.0 | Formwork shop drawings are Engineered and reviewed | ☑ | ☐ | ☐ |
| 5.0 | Re-used formwork reconditioned and treated | ☑ | ☐ | ☐ |
| 6.0 | Formwork and ties according to finishing requirements. Confirm no holes in the concrete surface are greater than 25mm in diameter or expose steel at less than 25mm from surface. As per spec. | ☑ | ☐ | ☐ |
| 7.0 | Installation of embeds are located and secured | ☑ | ☐ | ☐ |
| 8.0 | Chamfer requirements checked. 25mm chamfers required for all exterior corners and edges exposed to view including horizontal edges of pads. | ☑ | ☐ | ☐ |
| 9.0 | Key ways and/or other provisions according to design are provided in construction joints | ☑ | ☐ | ☐ |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 10.0 | Inspect types of form spacers, ties and bracing. | ☑ | ☐ | ☐ |
| 11.0 | Spacing of ties to be set to a pattern | ☑ | ☐ | ☐ |
| 12.0 | Expansion, construction, contraction joints as required & located as coordinated with structural Engineer | ☑ | ☐ | ☐ |
| 13.0 | Forms secured against movement during placing | ☑ | ☐ | ☐ |
| 14.0 | Forms are braced for alignment and blow out | ☑ | ☐ | ☐ |
| 15.0 | Forms are cleaned of all debris, and dry, prior to concrete placement including standing water. | ☑ | ☐ | ☐ |
| 16.0 | Openings in formwork permit inspection and cleaning, placing and compaction of concrete, and forming and processing of construction joints. | ☑ | ☐ | ☐ |
| 17.0 | Formwork has been coated with release agent prior to rebar placement. | ☑ | ☐ | ☐ |
| 18.0 | Anchor Bolts and Embeds are secured to formwork. | ☑ | ☐ | ☐ |

COMMENTS:

ATTACHMENT(S): DWG (HIGHLIGHTED)

DEFICIENCIES NOTES:

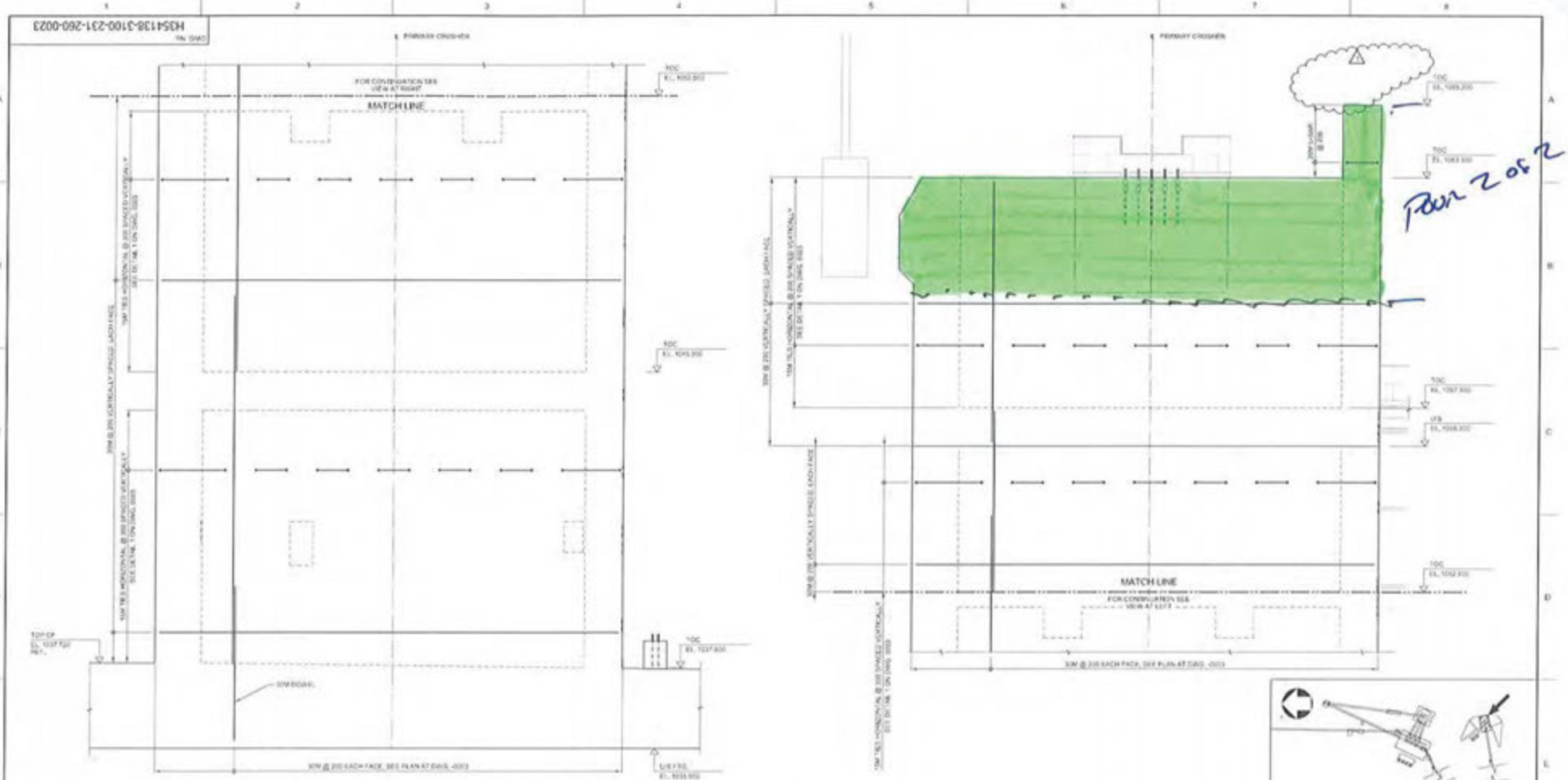
INITIAL INSPECTION

INSPECTOR: Brett / Brett TITLE Foreman DATE: Nov 20/18

RE-INSPECTION (DEFICIENCIES COMPLETED)

INSPECTOR: Matt Caverdale MC TITLE Field Eng DATE: Nov 20, 2018

Nov 14/18




NOTES:

1. FOR GENERAL NOTES SEE DRAWING H354138-3100-231-260-0001.

| No. | DESCRIPTION | BY | CHK'D | DATE |
|---|---|---|---|---|
| 1 | WALL AT EL. 1053.650 DELETED | PJ | EA | 2018-03-05 |
| 2 | APPROVED FOR CONSTRUCTION | PJ | EA | 2018-04-13 |

REVISIONS

| DRAWING No. | DRAWING TITLE |
|---|---|
| REFERENCE DRAWINGS | |

REG. PROFESSIONAL

HATCH

| ROLE | NAME | SIGNATURE & DATE |
|---|---|---|
| DRAFTSPERSON | P. JEAVEY | 2018-03-20 |
| DESIGNER | H. LE | 2018-03-20 |
| CHECKER | E. AKINCI | 2018-10-05 |
| DESIGN COORD. | S. PERKINS | 2018-10-05 |
| RESP. ENG. | E. AKINCI | 2018-10-05 |
| LEAD DISC. ENG. | E. AKINCI | 2018-10-05 |
| ENG. MANAGER | R. RUSTAD | 2018-10-05 |
| PROJ. MANAGER | R. RUSTAD | 2018-10-05 |

DRAWING APPROVAL STATUS: Approved for Construction

StrataGold Corporation

EAGLE GOLD PROJECT

PRIMARY CRUSHING
CRUSHER SUPPORT STRUCTURE
WALL REINFORCEMENT - SHEET 4

SCALE 1:50

DWG. No. H354138-3100-231-260-0023

REV 1

# CONCRETE POST POUR COLD WEATHER MONITORING

Rev 03 Nov 13, 2018

| | |
|---|---|
| CONTRACTOR: Clark Builders | DATE OF POUR: Nov. 20 |
| AMBIENT TEMP at POUR (°C): -3 | DATE FORMWORK STRIPPED: Nov. 23 |
| LOCATION: Primary Walls | |
| | SPEC SECTION(S): 503 30 00 – Cast-In-Place |

TYPE OF CURING:

| | | | | | |
|---|---|---|---|---|---|
| CURING COMPOUND | ☐ | DAMP BURLAP OR FABRIC | ☐ | INSULATION (TARPS) | ☑ |
| POLYETHYLENE SHEETS | ☐ | WATER/FOG SPRAY/ PONDING | ☐ | FORMS (COVERED BY) TARPS | ☑ |

| COLD WEATHER REQUIREMENTS (WHEN AMB. TEMP < 5°C) | PASS | FAIL | N/A | REMARKS |
|---|---|---|---|---|
| Protection in place and temperatures not lower than 20°C or until 70% of the 28-day strength has been reached. | ☑ | ☐ | ☐ | |
| Cold weather protection provided by means of heated enclosures, coverings, insulation, or a suitable approved combination of these methods during complete curing period. | ☑ | ☐ | ☐ | |
| Concrete test cylinders are kept within hoarding or in area where temperatures are ideal for curing. (No frozen Cylinders) | ☑ | ☐ | ☐ | |
| Heat is not directed onto concrete. This may result in thermal cracking. | ☑ | ☐ | ☐ | |
| During freezing weather, and standing water removed before the end of the protection period (CSA A 23.1 clause 7.4.2.4.2) | ☑ | ☐ | ☐ | |

CONCRETE CURING TEMPERATURE LOG (COLD WEATHER CONCRETEING ONLY)

| DATE | | TIME (24 HR) | OUTSIDE AIR TEMP (°C) | TEMP INSIDE HOARDING (°C) | CONCRETE SURFACE TEMP (°C) | | INITIALS OF READER |
|---|---|---|---|---|---|---|---|
| | | | | | HIGH (°C) | LOW (°C) | |
| Nov. 21 | AM | 7:30 AM | -5 | 22 | 36 | 29 | D.P. |
| Nov. 21 | MID | 1:30 PM | -2 | 25 | 31 | 30 | D.P. |
| Nov. 21 | PM | 6:30 PM | -3 | 24 | 37 | 29 | D.P. |
| Nov. 22 | AM | 8:30 AM | -9 | 22 | 36 | 29 | D.P. |
| Nov. 22 | MID | 1:30 PM | -10 | 21 | 34 | 28 | D.P. |
| Nov. 22 | PM | 6:30 PM | -11 | 22 | 34 | 29 | D.P. |
| | AM | | | | | | |
| | MID | | | | | | |
| | PM | | | | | | |

| COMMENTS: | |
|---|---|
| | |
| | |

**CLARK BUILDERS SITE REPRESENTATIVE**

PRINT/ SIGN: DAN PELLETIER TITLE Foreman DATE: Nov. 23

CLARK BUILDERS
ENERGY & RESOURCES

CB-INSPECTION FORM-DOC-002 REV.00
JDS ENERGY & MINING INC. | STRATAGOLD EAGLE GOLD
PROJECT #: CB201 | 18502

PROJECT MANAGER: DUSTIN DOLYNCHUK, P.ENG
QA/QC COORDINATOR: RYAN DE MILLIANO, C.E.T.
SUPERINTENDENT: GARRY DAHL

# CONCRETE REINFORCEMENT PRE POUR

Rev 01 August 25, 2018

SUBCONTRACTOR: Ultimate Reinforcing // McNish
INSPECTION DATE: November 14, 2018
SUBCONTRACTOR CONTACT PERSON: Jimmy M.
PROJ. POUR DATE: November ~~17~~ 20, 2018
INSPECTOR(S): Ryan deMilliano; Jerry C; Matt C
LOCATION: 3100 / PRIMARY WALLS TO 1063.300 / 1065.200
DRAWING REV: Various
DRAWING NO.(S): 3100-0016; 17; 18; 19; 20; 21; 22; 23; 14
SPEC SECTION(S): S03 20 00 – Concrete Reinforcing Steel

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Grade (400W unless otherwise noted) and type of steel delivered and installed as required by approved drawings. | ☑ | ☐ | ☐ |
| 2.0 | Inspect rebar distribution, spacing and cover per design/project requirements. | ☑ | ☐ | ☐ |
| 3.0 | Length of splices as specified | ☑ | ☐ | ☐ |
| 4.0 | Staggered splices as specified | ☑ | ☐ | ☐ |
| 5.0 | Any mechanical splices have been approved by the owner prior to install | ☐ | ☐ | ☑ |
| 6.0 | Bars cleaned and free of material that may reduce bond including loose rust, scale, oil, structural defects and that they are uncoated and unpainted. | ☑ | ☐ | ☐ |
| 7.0 | Dowels at wall ends, construction joints, and openings as specified (length, location, size, etc.) | ☑ | ☐ | ☐ |
| 8.0 | No unauthorized field bent bars including hooks installed | ☑ | ☐ | ☐ |
| 9.0 | Resolve conflicts between embedded items and reinforcement | ☑ | ☐ | ☐ |
| 10.0 | When authorized, field bends done without heat and inspected for fissures or cracks. | ☐ | ☐ | ☑ |
| 11.0 | Bars tied and supported to prevent displacement | ☑ | ☐ | ☐ |
| 12.0 | Spacers, tie wire and chairs as required | ☑ | ☐ | ☐ |
| 13.0 | Conduits at design location and minimum separation from rebar as specified | ☐ | ☐ | ☑ |
| 14.0 | No contact of bars is made with dissimilar metals as per CSA A23.1 | ☑ | ☐ | ☐ |
| 15.0 | Bars, nails or tie wire not sticking out from surfaces that allow rusting/corrosion | ☑ | ☐ | ☐ |
| 16.0 | Rebar welds are inspected by qualified inspectors certified to CSA W178.2 | ☐ | ☐ | ☑ |
| 17.0 | No rebar congestion or other obstruction for deposit of concrete | ☑ | ☐ | ☐ |
| 18.0 | Adjustments required for interfering items (piping, inserts, sleeves, etc.) have been submitted and approved by owner. | ☐ | ☐ | ☑ |
| 19.0 | Rebar was stored off ground to prevent damage/corrosion | ☑ | ☐ | ☐ |
| 20.0 | Review drawings for anchors, piping, sleeves, boxes | ☑ | ☐ | ☐ |

COMMENTS:

Nov 14/18 - 1st PRE CLOSEUP INSPECTION NOTES: CLEAN CONCRETE OF ALL DIRT/DUST/TIE WIRE. DONE
TIE SOME BARS THAT ARE LOOSE
Nov 15/18 - REINSPECTION - NW CORNER HAD A LOOSE EMBED, BE SURE TO SET IT
PICS TAKEN AS REQUESTED BY MATT C.

ATTACHMENT(S):

DEFICIENCIES NOTES:

Added rock breaker missing N15 horizontal bars & 3 E/W me
Clean rock breaker area & tie bottom of anchor bolts
Added plywood strip & southeast corner, ensure embeds are tight to form

CLARK BUILDERS:
INSPECTOR: Ryan deMilliano // [signature] TITLE Project Coordinator DATE: Nov 14 // Nov 15/18

JDS ENERGY & MINING:
INSPECTOR: Matt Coverdale me TITLE Field Eng DATE: Nov 20, 2018

CLARK BUILDERS
ENERGY & RESOURCES

CB-INSPECTION FORM-DOC-002 REV.00
JDS ENERGY & MINING INC. | STRATAGOLD EAGLE GOLD
PROJECT #: CB201 | 18502

PROJECT MANAGER: DUSTIN DOLYNCHUK, P.ENG
QA/QC COORDINATOR: RYAN DE MILLIANO, C.E.T.
SUPERINTENDENT: GARRY DAHL

# FORMWORK & FALSEWORK PRE POUR | QA INSPECTION

Rev 01 August 25, 2018

| | |
|---|---|
| CONTRACTOR: Clark Builders | INSPECTION DATE: Nov 20, 2018 |
| CONTRACTOR CONTACT PERSON: Dave Delorme / Brett | DATE OF POUR: Nov ~~17~~ 20 2018 |
| INSPECTOR(S): | |
| LOCATION: 3100 Primary / Walls to 1063.300 / 1065.200 | |
| DRAWING REV: Various | DRAWING NO.(S): 3100-0016-23; 14 |
| SPEC SECTION(S): 503 1000 | |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Location, survey, dimension and grades as required | ☑ | ☐ | ☐ |
| 2.0 | Plumbness and Flatness verified | ☑ | ☐ | ☐ |
| 3.0 | Joints are aligned and watertight. | ☑ | ☐ | ☐ |
| 4.0 | Formwork shop drawings are Engineered and reviewed | ☑ | ☐ | ☐ |
| 5.0 | Re-used formwork reconditioned and treated | ☑ | ☐ | ☐ |
| 6.0 | Formwork and ties according to finishing requirements. Confirm no holes in the concrete surface are greater than 25mm in diameter or expose steel at less than 25mm from surface. As per spec. | ☑ | ☐ | ☐ |
| 7.0 | Installation of embeds are located and secured | ☑ | ☐ | ☐ |
| 8.0 | Chamfer requirements checked. 25mm chamfers required for all exterior corners and edges exposed to view including horizontal edges of pads. | ☑ | ☐ | ☐ |
| 9.0 | Key ways and/or other provisions according to design are provided in construction joints | ☑ | ☐ | ☐ |
| 10.0 | Inspect types of form spacers, ties and bracing. | ☑ | ☐ | ☐ |
| 11.0 | Spacing of ties to be set to a pattern | ☑ | ☐ | ☐ |
| 12.0 | Expansion, construction, contraction joints as required & located as coordinated with structural Engineer | ☑ | ☐ | ☐ |
| 13.0 | Forms secured against movement during placing | ☑ | ☐ | ☐ |
| 14.0 | Forms are braced for alignment and blow out | ☑ | ☐ | ☐ |
| 15.0 | Forms are cleaned of all debris, and dry, prior to concrete placement including standing water. | ☑ | ☐ | ☐ |
| 16.0 | Openings in formwork permit inspection and cleaning, placing and compaction of concrete, and forming and processing of construction joints. | ☑ | ☐ | ☐ |
| 17.0 | Formwork has been coated with release agent prior to rebar placement. | ☑ | ☐ | ☐ |
| 18.0 | Anchor Bolts and Embeds are secured to formwork. | ☑ | ☐ | ☐ |

COMMENTS:

ATTACHMENT(S): DWG (HIGHLIGHTED)

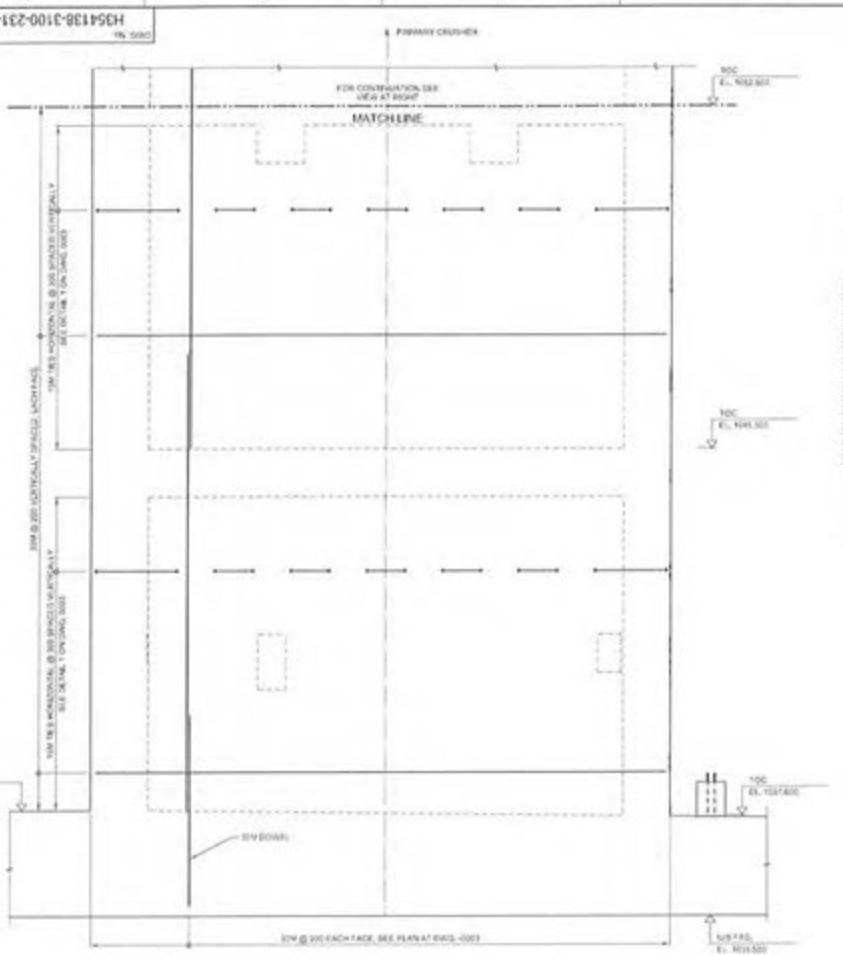
DEFICIENCIES NOTES:

INITIAL INSPECTION
INSPECTOR: [signature] / Brett TITLE Foreman DATE: Nov 20/18

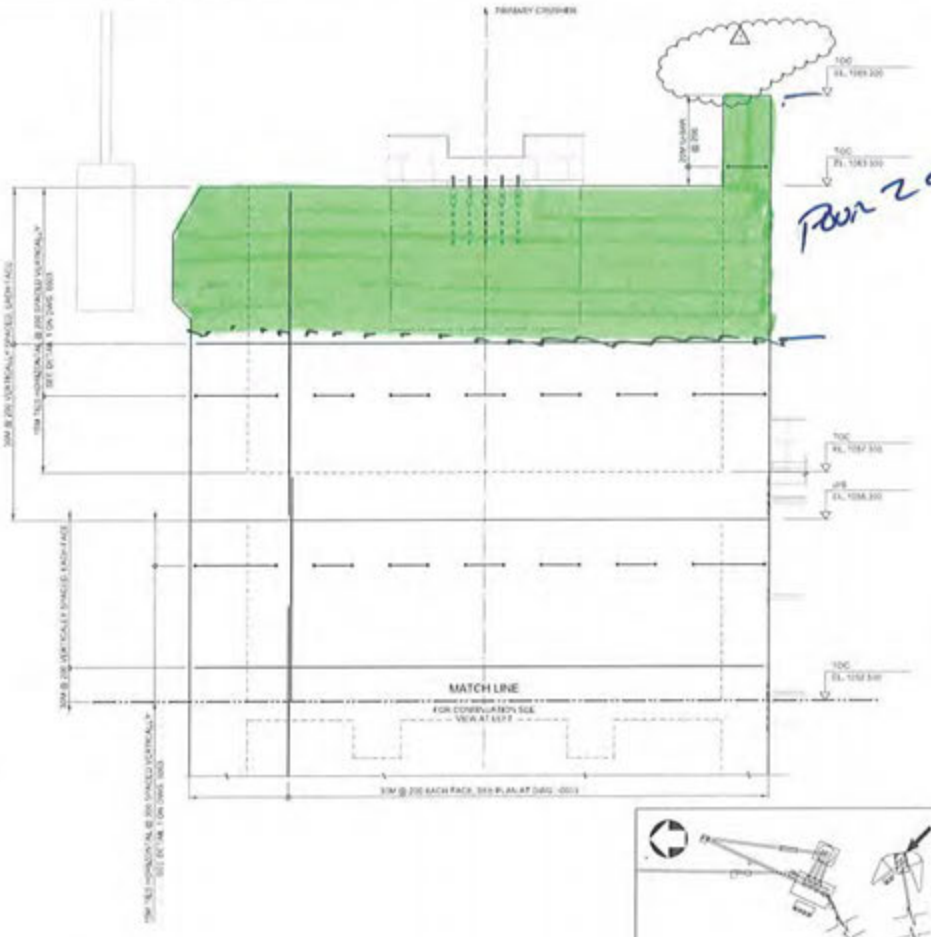
RE-INSPECTION (DEFICIENCIES COMPLETED)
INSPECTOR: Matt Coverdale MC TITLE Field Eng DATE: Nov 20, 2018

Nov 14/18

H354138-3100-231-260-0023




WALL REINFORCEMENT - ELEVATION NORTH
LOOKING SOUTH




Pour 2 of 2

NOTES:
1. FOR GENERAL NOTES SEE DRAWING H354138-3000-231-260-0001.




HATCH

| | | | |
|---|---|---|---|
| CHAIRPERSON | P. AVEY | | 2018-03-20 |
| DESIGNER | H. LI | | 2018-03-20 |
| CHECKER | E. AHENCI | | 2018-10-05 |
| DESIGN COORD. | S. PEARCE | | 2018-10-05 |
| MISA ENG. | E. AHENCI | | 2018-10-05 |
| GEOTECH. ENG. | E. AHENCI | | 2018-10-05 |
| ENG. MANAGER | R. RUSTAD | | 2018-10-05 |
| PROJ. MANAGER | R. RUSTAD | | 2018-10-05 |
| ROLE | NAME | SIGNATURE & DATE | |

DRAWING APPROVAL STATUS: Approved for Construction

StrataGold Corporation

EAGLE GOLD PROJECT

PRIMARY CRUSHING
CRUSHER SUPPORT STRUCTURE
WALL REINFORCEMENT - SHEET 4

| SCALE | DWG. No. | REV. |
|---|---|---|
| 1:50 (24 MS ACCESS) | H354138-3100-231-260-0023 | 1 |

| No. | DESCRIPTION | BY | CHKD | DATE |
|---|---|---|---|---|
| 1 | WALL AT EL. 1039.850 DELETED | PJ | EA | 2018-10-05 |
| 0 | APPROVED FOR CONSTRUCTION | PJ | EA | 2018-04-11 |

REVISIONS

| DRAWING No. | DRAWING TITLE |
|---|---|

REFERENCE DRAWINGS

REG. PROFESSIONAL

2018-10-05

# CONCRETE POST POUR COLD WEATHER MONITORING

Rev 02 Nov 4, 2018

| | |
|---|---|
| )NTRACTOR: Clark Builders | DATE OF POUR: Nov. 23 |
| NT TEMP at POUR (°C): -10 | DATE FORMWORK STRIPPED: |
| )CATION: CV-01 | |
| | SPEC SECTION(S): S03 30 00 – Cast-In-Place |

'PE OF CURING:

| | | | | | |
|---|---|---|---|---|---|
| )RING COMPOUND | ☐ | DAMP BURLAP OR FABRIC | ☐ | INSULATION (TARPS) | ☑ |
| )LYETHYLENE SHEETS | ☐ | WATER/FOG SPRAY/ PONDING | ☐ | FORMS (COVERED BY) | ☑ |

| )LD WEATHER REQUIREMENTS (WHEN AMB. TEMP < 5°C) | PASS | FAIL | N/A | REMARKS |
|---|---|---|---|---|
| )tection in place and temperatures not lower than 20°C or until 70% of the 28-y strength has been reached. | ☑ | ☐ | ☐ | |
| ld weather protection provided by means of heated enclosures, coverings, :ulation, or a suitable approved combination of these methods during mplete curing period. | ☑ | ☐ | ☐ | |
| ncrete test cylinders are kept within hoarding or in area where temperatures e ideal for curing. (No frozen Cylinders) | ☑ | ☐ | ☐ | |
| at is not directed onto concrete. This may result in thermal cracking. | ☑ | ☐ | ☐ | |
| ring freezing weather, and standing water removed before the end of the )tection period (CSA A 23.1 clause 7.4.2.4.2) | ☑ | ☐ | ☐ | |
| | | | | |

)NCRETE CURING TEMPERATURE LOG (COLD WEATHER CONCRETEING ONLY)

| DATE | TIME (24 HR) | OUTSIDE AIR TEMP (°C) | TEMP INSIDE HOARDING (°C) | CONCRETE SURFACE TEMP (°C) | | INITIALS OF READER |
|---|---|---|---|---|---|---|
| | | | | HIGH (°C) | LOW (°C) | |
| Nov. 23 | 6:30 PM | -11 | 22 | 22 | 21 | D.P. |
| Nov. 24 | 7:00 AM | -12 | 33 | 32 | 30 | D.P. |
| Nov. 24 | 1:30 PM | -10 | 28 | 30 | 29 | D.P. |
| Nov. 24 | 6:30 PM | -10 | 22 | 29 | 28 | D.P. |
| Nov. 25 | 7:00 AM | -6 | 29 | 32 | 31 | D.P. |
| Nov. 25 | 1:30 PM | -5 | 25 | 29 | 28 | D.P. |
| Nov. 25 | 6:30 PM | -7 | 22 | 27 | 26 | D.P. |
| IMMENTS: | Turning heaters on + off to control heat | | | | | |

**ARK BUILDERS SITE REPRESENTATIVE**

NT/ SIGN: DAN PELLETIER Dan Pelletier TITLE Foreman DATE: Nov. 26

# CONCRETE POST POUR COLD WEATHER MONITORING

Rev 02 Nov 4, 2018

| | |
|---|---|
| ONTRACTOR: Clark Builders | DATE OF POUR: Nov. 23 |
| NT TEMP at POUR (°C): -10 | DATE FORMWORK STRIPPED: |
| OCATION: CV-01 | |
| | SPEC SECTION(S): S03 30 00 – Cast-In-Place |

PE OF CURING:

| | | | | | |
|---|---|---|---|---|---|
| URING COMPOUND | ☐ | DAMP BURLAP OR FABRIC | ☐ | INSULATION (TARPS) | ☑ |
| OLYETHYLENE SHEETS | ☐ | WATER/FOG SPRAY/ PONDING | ☐ | FORMS (COVERED BY) | ☑ |

| OLD WEATHER REQUIREMENTS (WHEN AMB. TEMP < 5°C) | PASS | FAIL | N/A | REMARKS |
|---|---|---|---|---|
| otection in place and temperatures not lower than 20°C or until 70% of the 28-y strength has been reached. | ☑ | ☐ | ☐ | |
| ld weather protection provided by means of heated enclosures, coverings, ulation, or a suitable approved combination of these methods during mplete curing period. | ☑ | ☐ | ☐ | |
| ncrete test cylinders are kept within hoarding or in area where temperatures e ideal for curing. (No frozen Cylinders) | ☑ | ☐ | ☐ | |
| at is not directed onto concrete. This may result in thermal cracking. | ☑ | ☐ | ☐ | |
| uring freezing weather, and standing water removed before the end of the otection period (CSA A 23.1 clause 7.4.2.4.2) | ☑ | ☐ | ☐ | |
| | | | | |

ONCRETE CURING TEMPERATURE LOG (COLD WEATHER CONCRETEING ONLY)

| DATE | TIME (24 HR) | OUTSIDE AIR TEMP (°C) | TEMP INSIDE HOARDING (°C) | CONCRETE SURFACE TEMP (°C) | | INITIALS OF READER |
|---|---|---|---|---|---|---|
| | | | | HIGH (°C) | LOW (°C) | |
| Nov. 23 | 6:30 PM | -11 | 22 | 22 | 21 | D.P. |
| Nov. 24 | 7:00 AM | -12 | 33 | 32 | 30 | D.P. |
| Nov. 24 | 1:30 PM | -10 | 28 | 30 | 29 | D.P. |
| Nov. 24 | 6:30 PM | -10 | 22 | 29 | 28 | D.P. |
| Nov. 25 | 7:00 AM | -6 | 29 | 32 | 31 | D.P. |
| Nov. 25 | 1:30 PM | -5 | 25 | 29 | 28 | D.P. |
| Nov. 25 | 6:30 PM | -7 | 22 | 27 | 26 | D.P. |
| MMENTS: | Turning heaters on + off to control heat | | | | | |

**ARK BUILDERS SITE REPRESENTATIVE**

NT/ SIGN: DAN PELLETIER Dan Pelletier TITLE Foreman DATE: Nov. 26

CLARK BUILDERS
ENERGY & RESOURCES

CB-INSPECTION FORM-DOC-002 REV.00
JDS ENERGY & MINING INC. | STRATAGOLD EAGLE GOLD
PROJECT #: CB201 | 18502

PROJECT MANAGER: DUSTIN DOLYNCHUK, P.ENG
QA/QC COORDINATOR: RYAN DE MILLIANO, C.E.T.
SUPERINTENDENT: GARRY DAHL

# FORMWORK & FALSEWORK PRE POUR | QA INSPECTION

Rev 01 August 25, 2018

| | | | |
|---|---|---|---|
| CONTRACTOR: Clark Builders | | INSPECTION DATE: | November 29/2018 |
| CONTRACTOR CONTACT PERSON: | Garry Dahl/Henry Rueda | DATE OF POUR: | November 30/ 2018 |
| INSPECTOR(S): | Mat Coverdale | | |
| LOCATION: | 3100 Primary E-House Base Foundation | | |
| DRAWING REV: | DRAWING NO.(S): 3100-0031 | SPEC SECTION(S): | |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Location, survey, dimension and grades as required | ☑ | ☐ | ☐ |
| 2.0 | Plumbness and Flatness verified | ☑ | ☐ | ☐ |
| 3.0 | Joints are aligned and watertight. | ☑ | ☐ | ☐ |
| 4.0 | Formwork shop drawings are Engineered and reviewed | ☑ | ☐ | ☐ |
| 5.0 | Re-used formwork reconditioned and treated | ☑ | ☐ | ☐ |
| 6.0 | Formwork and ties according to finishing requirements. Confirm no holes in the concrete surface are greater than 25mm in diameter or expose steel at less than 25mm from surface. As per spec. | ☑ | ☐ | ☐ |
| 7.0 | Installation of embeds are located and secured | ☑ | ☐ | ☐ |
| 8.0 | Chamfer requirements checked. 25mm chamfers required for all exterior corners and edges exposed to view including horizontal edges of pads. | ☑ | ☐ | ☐ |
| 9.0 | Key ways and/or other provisions according to design are provided in construction joints | ☑ | ☐ | ☐ |
| 10.0 | Inspect types of form spacers, ties and bracing. | ☑ | ☐ | ☐ |
| 11.0 | Spacing of ties to be set to a pattern | ☑ | ☐ | ☐ |
| 12.0 | Expansion, construction, contraction joints as required & located as coordinated with structural Engineer | ☑ | ☐ | ☐ |
| 13.0 | Forms secured against movement during placing | ☑ | ☐ | ☐ |
| 14.0 | Forms are braced for alignment and blow out | ☑ | ☐ | ☐ |
| 15.0 | Forms are cleaned of all debris, and dry, prior to concrete placement including standing water. | ☑ | ☐ | ☐ |
| 16.0 | Openings in formwork permit inspection and cleaning, placing and compaction of concrete, and forming and processing of construction joints. | ☑ | ☐ | ☐ |
| 17.0 | Formwork has been coated with release agent prior to rebar placement. | ☑ | ☐ | ☐ |
| 18.0 | Anchor Bolts and Embeds are secured to formwork. | ☑ | ☐ | ☐ |

| COMMENTS: | ATTACHMENT(S): |
|---|---|
| | |
| | |
| | |

DEFICIENCIES NOTES:

INITIAL INSPECTION

INSPECTOR: Ishan Fechter TITLE Supt. DATE: Nov 29/18

RE-INSPECTION (DEFICIENCIES COMPLETED)

INSPECTOR: _____ TITLE _____ DATE: _____

GARRY DAHL

CLARK BUILDERS
ENERGY & RESOURCES

CB-INSPECTION FORM-DOC-002 REV.00
JDS ENERGY & MINING INC. | STRATAGOLD EAGLE GOLD
PROJECT #: CB201 | 18502

PROJECT MANAGER: DUSTIN DOLYNCHUK, P.ENG
QA/QC COORDINATOR: RYAN DE MILLIANO, C.E.T.
SUPERINTENDENT: GARRY DAHL

# CONCRETE REINFORCEMENT PRE POUR

Rev 01 August 25, 2018

| | | | |
|---|---|---|---|
| SUBCONTRACTOR: Ultimate Reinforcing // McNish | | INSPECTION DATE: | November 29/2018 |
| SUBCONTRACTOR CONTACT PERSON: | Garry Dahl/Henry Rueda | PROJ. POUR DATE: | November 30/ 2018 |
| INSPECTOR(S): | Mat Coverdale | | |
| LOCATION: | 3100 Primary E-House Base Foundation | | |
| DRAWING REV: | DRAWING NO.(S): 3100-0031 | SPEC SECTION(S): S03 20 00 – Concrete Reinforcing Steel | |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Grade (400W unless otherwise noted) and type of steel delivered and installed as required by approved drawings. | ☑ | ☐ | ☐ |
| 2.0 | Inspect rebar distribution, spacing and cover per design/project requirements. | ☑ | ☐ | ☐ |
| 3.0 | Length of splices as specified | ☑ | ☐ | ☐ |
| 4.0 | Staggered splices as specified | ☑ | ☐ | ☐ |
| 5.0 | Any mechanical splices have been approved by the owner prior to install | ☐ | ☐ | ☑ |
| 6.0 | Bars cleaned and free of material that may reduce bond including loose rust, scale, oil, structural defects and that they are uncoated and unpainted. | ☑ | ☐ | ☐ |
| 7.0 | Dowels at wall ends, construction joints, and openings as specified (length, location, size, etc.) | ☑ | ☐ | ☐ |
| 8.0 | No unauthorized field bent bars including hooks installed | ☑ | ☐ | ☐ |
| 9.0 | Resolve conflicts between embedded items and reinforcement | ☑ | ☐ | ☐ |
| 10.0 | When authorized, field bends done without heat and inspected for fissures or cracks. | ☑ | ☐ | ☐ |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 11.0 | Bars tied and supported to prevent displacement | ☑ | ☐ | ☐ |
| 12.0 | Spacers, tie wire and chairs as required | ☑ | ☐ | ☐ |
| 13.0 | Conduits at design location and minimum separation from rebar as specified | ☐ | ☐ | ☑ |
| 14.0 | No contact of bars is made with dissimilar metals as per CSA A23.1 | ☑ | ☐ | ☐ |
| 15.0 | Bars, nails or tie wire not sticking out from surfaces that allow rusting/corrosion | ☑ | ☐ | ☐ |
| 16.0 | Rebar welds are inspected by qualified inspectors certified to CSA W178.2 | ☐ | ☐ | ☑ |
| 17.0 | No rebar congestion or other obstruction for deposit of concrete | ☑ | ☐ | ☐ |
| 18.0 | Adjustments required for interfering items (piping, inserts, sleeves, etc.) have been submitted and approved by owner. | ☑ | ☐ | ☐ |
| 19.0 | Rebar was stored off ground to prevent damage/corrosion | ☑ | ☐ | ☐ |
| 20.0 | Review drawings for anchors, piping, sleeves, boxes | ☑ | ☐ | ☐ |

COMMENTS:

ATTACHMENT(S):

DEFICIENCIES NOTES:

CLARK BUILDERS:
INSPECTOR: GARRY DAHL TITLE Supt DATE: Nov 29/18

JDS ENERGY & MINING:
INSPECTOR: Ishan Fechter TITLE Supt. DATE: Nov. 29/18

CLARK BUILDERS
ENERGY & RESOURCES



# CONCRETE REINFORCEMENT PRE POUR

Rev 01 August 25, 2018

| | |
|---|---|
| SUBCONTRACTOR: Ultimate Reinforcing // McNish | INSPECTION DATE: Dec 2/18 |
| SUBCONTRACTOR CONTACT PERSON: GARRY DAHL | PROJ. POUR DATE: Dec 2/18 |
| INSPECTOR(S): GARRY DAHL / JDS | |
| LOCATION: Crusher Base & Machine Base on 1062.5 | |
| DRAWING REV: 1 | DRAWING NO.(S): 3100-23-260-0009 |
| SPEC SECTION(S): S03 20 00 – Concrete Reinforcing Steel | |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Grade (400W unless otherwise noted) and type of steel delivered and installed as required by approved drawings. | ☑ | ☐ | ☐ |
| 2.0 | Inspect rebar distribution, spacing and cover per design/project requirements. | ☑ | ☐ | ☐ |
| 3.0 | Length of splices as specified | ☑ | ☐ | ☐ |
| 4.0 | Staggered splices as specified | ☑ | ☐ | ☐ |
| 5.0 | Any mechanical splices have been approved by the owner prior to install | ☑ | ☐ | ☐ |
| 6.0 | Bars cleaned and free of material that may reduce bond including loose rust, scale, oil, structural defects and that they are uncoated and unpainted. | ☑ | ☐ | ☐ |
| 7.0 | Dowels at wall ends, construction joints, and openings as specified (length, location, size, etc.) | ☑ | ☐ | ☐ |
| 8.0 | No unauthorized field bent bars including hooks installed | ☑ | ☐ | ☐ |
| 9.0 | Resolve conflicts between embedded items and reinforcement | ☑ | ☐ | ☐ |
| 10.0 | When authorized, field bends done without heat and inspected for fissures or cracks. | ☑ | ☐ | ☐ |
| 11.0 | Bars tied and supported to prevent displacement | ☑ | ☐ | ☐ |
| 12.0 | Spacers, tie wire and chairs as required | ☑ | ☐ | ☐ |
| 13.0 | Conduits at design location and minimum separation from rebar as specified | ☑ | ☐ | ☐ |
| 14.0 | No contact of bars is made with dissimilar metals as per CSA A23.1 | ☑ | ☐ | ☐ |
| 15.0 | Bars, nails or tie wire not sticking out from surfaces that allow rusting/corrosion | ☑ | ☐ | ☐ |
| 16.0 | Rebar welds are inspected by qualified inspectors certified to CSA W178.2 | ☑ | ☐ | ☐ |
| 17.0 | No rebar congestion or other obstruction for deposit of concrete | ☑ | ☐ | ☐ |
| 18.0 | Adjustments required for interfering items (piping, inserts, sleeves, etc.) have been submitted and approved by owner. | ☑ | ☐ | ☐ |
| 19.0 | Rebar was stored off ground to prevent damage/corrosion | ☑ | ☐ | ☐ |
| 20.0 | Review drawings for anchors, piping, sleeves, boxes | ☑ | ☐ | ☐ |

COMMENTS:

ATTACHMENT(S):

DEFICIENCIES NOTES:

Anchor Bolts to be cut + threaded

CLARK BUILDERS:

INSPECTOR: GARRY DAHL TITLE Supt DATE: Dec 2/18

JDS ENERGY & MINING:

INSPECTOR: Istan Fechter TITLE Supt. DATE: Dec 2/18

CLARK BUILDERS
ENERGY & RESOURCES



PROJECT MANAGER: DUSTIN DOLYNCHUK, P.ENG
QA/QC COORDINATOR: RYAN DE MILLIANO, C.E.T.
SUPERINTENDENT: GARRY DAHL

# FORMWORK & FALSEWORK PRE POUR | QA INSPECTION

Rev 01 August 25, 2018

| | |
|---|---|
| CONTRACTOR: Clark Builders | INSPECTION DATE: Dec 2/18 |
| CONTRACTOR CONTACT PERSON: GARRY DAHL | DATE OF POUR: Dec 2/18 |
| INSPECTOR(S): GDAHL / JDS | |
| LOCATION: Crusher Box & Machine Base on EL 1052.5 | |
| DRAWING REV: 1 | DRAWING NO.(S): 3100-231-260-0009 / SPEC SECTION(S): |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Location, survey, dimension and grades as required | ☑ | ☐ | ☐ |
| 2.0 | Plumbness and Flatness verified | ☑ | ☐ | ☐ |
| 3.0 | Joints are aligned and watertight. | ☑ | ☐ | ☐ |
| 4.0 | Formwork shop drawings are Engineered and reviewed | ☑ | ☐ | ☐ |
| 5.0 | Re-used formwork reconditioned and treated | ☑ | ☐ | ☐ |
| 6.0 | Formwork and ties according to finishing requirements. Confirm no holes in the concrete surface are greater than 25mm in diameter or expose steel at less than 25mm from surface. As per spec. | ☑ | ☐ | ☐ |
| 7.0 | Installation of embeds are located and secured | ☑ | ☐ | ☐ |
| 8.0 | Chamfer requirements checked. 25mm chamfers required for all exterior corners and edges exposed to view including horizontal edges of pads. | ☑ | ☐ | ☐ |
| 9.0 | Key ways and/or other provisions according to design are provided in construction joints | ☐ | ☐ | ☑ |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 10.0 | Inspect types of form spacers, ties and bracing. | ☑ | ☐ | ☐ |
| 11.0 | Spacing of ties to be set to a pattern | ☑ | ☐ | ☐ |
| 12.0 | Expansion, construction, contraction joints as required & located as coordinated with structural Engineer | ☐ | ☐ | ☑ |
| 13.0 | Forms secured against movement during placing | ☑ | ☐ | ☐ |
| 14.0 | Forms are braced for alignment and blow out | ☑ | ☐ | ☐ |
| 15.0 | Forms are cleaned of all debris, and dry, prior to concrete placement including standing water. | ☑ | ☐ | ☐ |
| 16.0 | Openings in formwork permit inspection and cleaning, placing and compaction of concrete, and forming and processing of construction joints. | ☑ | ☐ | ☐ |
| 17.0 | Formwork has been coated with release agent prior to rebar placement. | ☑ | ☐ | ☐ |
| 18.0 | Anchor Bolts and Embeds are secured to formwork. | ☑ | ☐ | ☐ |

| COMMENTS: | ATTACHMENT(S): |
|---|---|
| | |
| | |
| | |

DEFICIENCIES NOTES:

INITIAL INSPECTION

INSPECTOR: Ishan Fechter TITLE Supt DATE: Dec 2/18

RE-INSPECTION (DEFICIENCIES COMPLETED)

INSPECTOR: _____ TITLE _____ DATE: _____

GARRY DAHL Dec 2/18

CLARK BUILDERS
ENERGY & RESOURCES

# CONCRETE REINFORCEMENT PRE POUR

Rev 01 August 25, 2018

| | |
|---|---|
| SUBCONTRACTOR: Ultimate Reinforcing // McNish | INSPECTION DATE: December 10 2018 |
| SUBCONTRACTOR CONTACT PERSON: Clinton | PROJ. POUR DATE: December 11, 2018 |
| INSPECTOR(S): Ryan deMilliano, Jerry C. (JDS) | |
| LOCATION: 3100 Transformer Walls | |
| DRAWING REV: 02 / DRAWING NO.(S): 3100 - 0031 | SPEC SECTION(S): S03 20 00 – Concrete Reinforcing Steel |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Grade (400W unless otherwise noted) and type of steel delivered and installed as required by approved drawings. | ☑ | ☐ | ☐ |
| 2.0 | Inspect rebar distribution, spacing and cover per design/project requirements. | ☑ | ☐ | ☐ |
| 3.0 | Length of splices as specified | ☑ | ☐ | ☐ |
| 4.0 | Staggered splices as specified | ☑ | ☐ | ☐ |
| 5.0 | Any mechanical splices have been approved by the owner prior to install | ☐ | ☐ | ☑ |
| 6.0 | Bars cleaned and free of material that may reduce bond including loose rust, scale, oil, structural defects and that they are uncoated and unpainted. | ☑ | ☐ | ☐ |
| 7.0 | Dowels at wall ends, construction joints, and openings as specified (length, location, size, etc.) | ☑ | ☐ | ☐ |
| 8.0 | No unauthorized field bent bars including hooks installed | ☑ | ☐ | ☐ |
| 9.0 | Resolve conflicts between embedded items and reinforcement | ☑ | ☐ | ☐ |
| 10.0 | When authorized, field bends done without heat and inspected for fissures or cracks. | ☑ | ☐ | ☑ |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 11.0 | Bars tied and supported to prevent displacement | ☑ | ☐ | ☐ |
| 12.0 | Spacers, tie wire and chairs as required | ☑ | ☐ | ☐ |
| 13.0 | Conduits at design location and minimum separation from rebar as specified | ☐ | ☐ | ☑ |
| 14.0 | No contact of bars is made with dissimilar metals as per CSA A23.1 | ☑ | ☐ | ☐ |
| 15.0 | Bars, nails or tie wire not sticking out from surfaces that allow rusting/corrosion | ☑ | ☐ | ☐ |
| 16.0 | Rebar welds are inspected by qualified inspectors certified to CSA W178.2 | ☐ | ☐ | ☑ |
| 17.0 | No rebar congestion or other obstruction for deposit of concrete | ☑ | ☐ | ☐ |
| 18.0 | Adjustments required for interfering items (piping, inserts, sleeves, etc.) have been submitted and approved by owner. | ☑ | ☐ | ☐ |
| 19.0 | Rebar was stored off ground to prevent damage/corrosion | ☑ | ☐ | ☐ |
| 20.0 | Review drawings for anchors, piping, sleeves, boxes | ☑ | ☐ | ☐ |

COMMENTS:

ATTACHMENT(S): DWG (HIGHLIGHTED)

DEFICIENCIES NOTES:

CLARK BUILDERS:
INSPECTOR: Ryan deMilliano TITLE Project Coordinator DATE: December 10, 2018

JDS ENERGY & MINING:
INSPECTOR: Jerry Chrzaszcz TITLE Const. Sup. DATE: Dec. 10/18

CLARK BUILDERS
ENERGY & RESOURCES

CB-INSPECTION FORM-DOC-002 REV.00
JDS ENERGY & MINING INC. | STRATAGOLD EAGLE GOLD
PROJECT #: CB201 | 18502

PROJECT MANAGER: DUSTIN DOLYNCHUK, P.ENG
QA/QC COORDINATOR: RYAN DE MILLIANO, C.E.T.
SUPERINTENDENT: GARRY DAHL

# FORMWORK & FALSEWORK PRE POUR | QA INSPECTION

Rev 01 August 25, 2018

| | |
|---|---|
| CONTRACTOR: Clark Builders | INSPECTION DATE: December 10, 2018 |
| CONTRACTOR CONTACT PERSON: Petre Nica / Tony | DATE OF POUR: December 11, 2018 |
| INSPECTOR(S): Ryan deMilliano, Jerry L. (JDS) | |
| LOCATION: 3100 Transformer walls. | |
| DRAWING REV: | DRAWING NO.(S): |
| | SPEC SECTION(S): |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Location, survey, dimension and grades as required | ☒ | ☐ | ☐ |
| 2.0 | Plumbness and Flatness verified | ☒ | ☐ | ☐ |
| 3.0 | Joints are aligned and watertight. | ☒ | ☐ | ☐ |
| 4.0 | Formwork shop drawings are Engineered and reviewed | ☒ | ☐ | ☒ |
| 5.0 | Re-used formwork reconditioned and treated | ☒ | ☐ | ☐ |
| 6.0 | Formwork and ties according to finishing requirements. Confirm no holes in the concrete surface are greater than 25mm in diameter or expose steel at less than 25mm from surface. As per spec. | ☒ | ☐ | ☐ |
| 7.0 | Installation of embeds are located and secured | ☒ | ☐ | ☐ |
| 8.0 | Chamfer requirements checked. 25mm chamfers required for all exterior corners and edges exposed to view including horizontal edges of pads. | ☒ | ☐ | ☐ |
| 9.0 | Key ways and/or other provisions according to design are provided in construction joints | ☒ | ☐ | ☐ |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 10.0 | Inspect types of form spacers, ties and bracing. | ☒ | ☐ | ☐ |
| 11.0 | Spacing of ties to be set to a pattern | ☒ | ☐ | ☐ |
| 12.0 | Expansion, construction, contraction joints as required & located as coordinated with structural Engineer | ☒ | ☐ | ☐ |
| 13.0 | Forms secured against movement during placing | ☒ | ☐ | ☐ |
| 14.0 | Forms are braced for alignment and blow out | ☒ | ☐ | ☐ |
| 15.0 | Forms are cleaned of all debris, and dry, prior to concrete placement including standing water. | ☒ | ☐ | ☐ |
| 16.0 | Openings in formwork permit inspection and cleaning, placing and compaction of concrete, and forming and processing of construction joints. | ☒ | ☐ | ☐ |
| 17.0 | Formwork has been coated with release agent prior to rebar placement. | ☒ | ☐ | ☐ |
| 18.0 | Anchor Bolts and Embeds are secured to formwork. | ☒ | ☐ | ☐ |

COMMENTS:

ATTACHMENT(S):

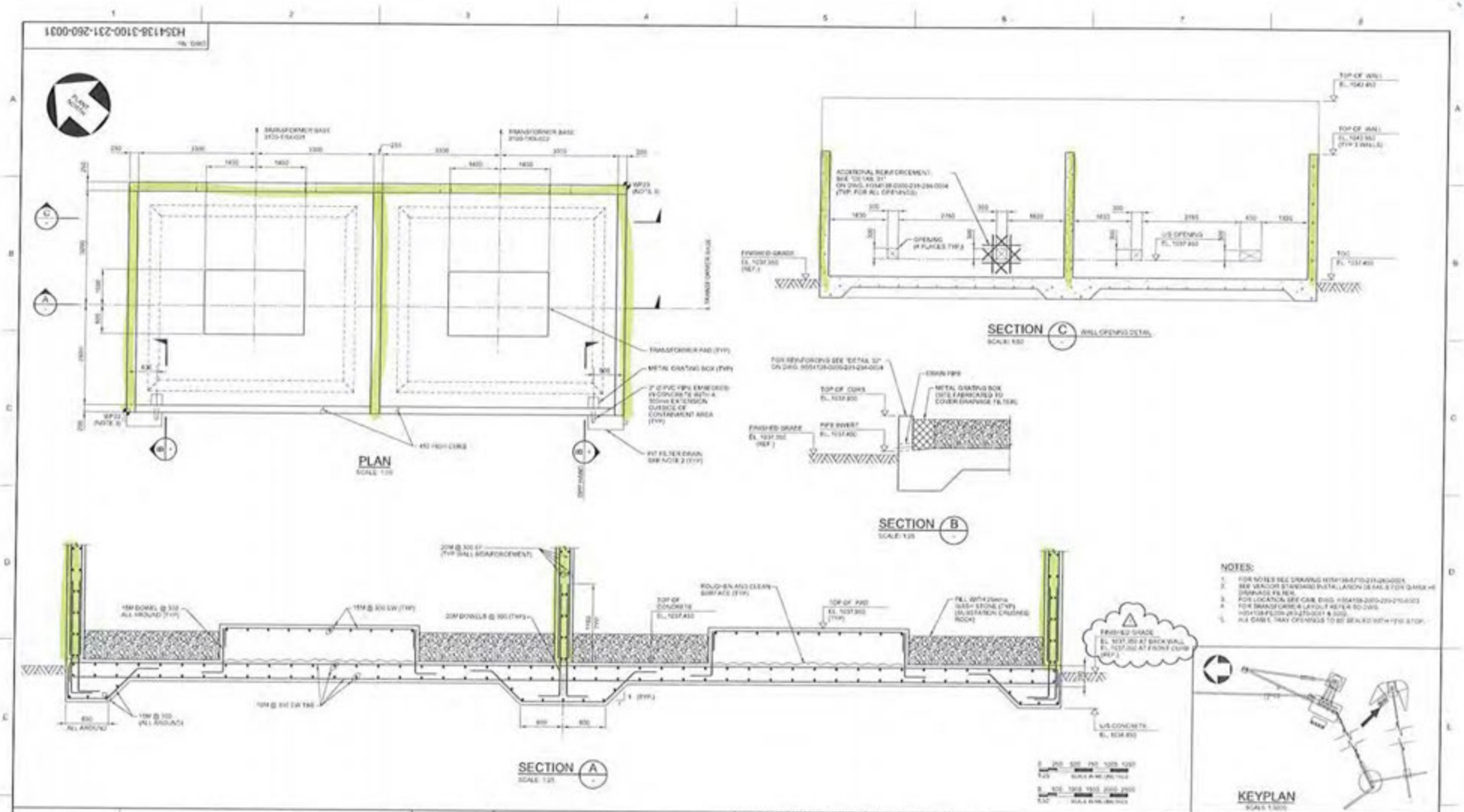
DEFICIENCIES NOTES:

IITIAL INSPECTION

SPECTOR: Ryan deMillano TITLE Project Coordinator DATE: Dec 19/18

-INSPECTION (DEFICIENCIES COMPLETED)

SPECTOR: _____ TITLE _____ DATE: _____




| No. | DESCRIPTION | BY | CHK'D | DATE |
|---|---|---|---|---|
| 2 | ELEVATION MODIFIED | RS | EA | 2018-09-27 |
| 1 | HOLD POINT RELEASED, NOTE 3 ADDED | PJ | EA | 2018-09-27 |
| 0 | APPROVED FOR CONSTRUCTION | RS | EA | 2018-09-27 |

REVISIONS

| DRAWING No. | DRAWING TITLE |
|---|---|
| REFERENCE DRAWINGS | |

REG. PROFESSIONAL

HATCH

| | | |
|---|---|---|
| DRAFTSPERSON | R. SAGARBARRIA | |
| DESIGNER | F. LIU | |
| CHECKER | E. AKINCI | |
| DESIGN COORD. | S. PERKINS | |
| RESP. ENG. | E. AKINCI | |
| LEAD DISC. ENG. | E. AKINCI | |
| ENG. MANAGER | R. RUSTAD | 2018-09-28 |
| PROJ. MANAGER | R. RUSTAD | 2018-09-28 |

| ROLE | NAME | SIGNATURE & DATE |
|---|---|---|

DRAWING APPROVAL STATUS: Approved for Construction

StrataGold Corporation

EAGLE GOLD PROJECT

PRIMARY CRUSHING
TRANSFORMER FOUNDATION
PLAN, SECTIONS AND DETAILS

SCALE: AS NOTED

DWG. No. H354138-3100-231-260-0031

REV 2

SHEET SIZE: D

# CONCRETE POST POUR COLD WEATHER MONITORING

Rev 03 Nov 13, 2018

| | |
|---|---|
| CONTRACTOR: Clark Builders | DATE OF POUR: Dec 13/18 |
| AMBIENT TEMP at POUR (°C): | DATE FORMWORK STRIPPED: |
| LOCATION: Primary landing pad | |
| | SPEC SECTION(S): S03 30 00 – Cast-In-Place |

TYPE OF CURING:

| | | | | | |
|---|---|---|---|---|---|
| CURING COMPOUND | ☐ | DAMP BURLAP OR FABRIC | ☐ | INSULATION (TARPS) | ☑ |
| POLYETHYLENE SHEETS | ☐ | WATER/FOG SPRAY/ PONDING | ☐ | FORMS (COVERED BY) | ☐ |

| COLD WEATHER REQUIREMENTS (WHEN AMB. TEMP < 5°C) | PASS | FAIL | N/A | REMARKS |
|---|---|---|---|---|
| Protection in place and temperatures not lower than 20°C or until 70% of the 28-day strength has been reached. | ☐ | ☐ | ☐ | |
| Cold weather protection provided by means of heated enclosures, coverings, insulation, or a suitable approved combination of these methods during complete curing period. | ☐ | ☐ | ☐ | |
| Concrete test cylinders are kept within hoarding or in area where temperatures are ideal for curing. (No frozen Cylinders) | ☐ | ☐ | ☐ | |
| Heat is not directed onto concrete. This may result in thermal cracking. | ☐ | ☐ | ☐ | |
| During freezing weather, and standing water removed before the end of the protection period (CSA A 23.1 clause 7.4.2.4.2) | ☐ | ☐ | ☐ | |

CONCRETE CURING TEMPERATURE LOG (COLD WEATHER CONCRETEING ONLY)

| DATE | | TIME (24 HR) | OUTSIDE AIR TEMP (°C) | TEMP INSIDE HOARDING (°C) | CONCRETE SURFACE TEMP (°C) | | INITIALS OF READER |
|---|---|---|---|---|---|---|---|
| | | | | | HIGH (°C) | LOW (°C) | |
| Dec 14/18 | AM | 8:09 | -15 | 52 | 48.4 | 36.5 | PN |
| | MID | | | | | | |
| Dec 14/18 | PM | 4:46 | -15 | 44 | 44.1 | 33.8 | PN |
| Dec 15/18 | AM | 6:54 | -25 | 24.1 | 29.7 | 23.4 | PN |
| Dec 15/18 | MID | | | | | | |
| Dec 15/18 | PM | 3:40 | -25 | 21.5 | 25.6 | 16.4 | PN |
| Dec 16/18 | AM | 7:16 | -6 | 24.8 | 27.1 | 11.8 | PN |
| | MID | | | | | | |
| Dec 16/18 | PM | 4:26 | -6 | 24.3 | 26.2 | 17.2 | PN |

| COMMENTS: | |
|---|---|
| | |
| | |

CLARK BUILDERS SITE REPRESENTATIVE

PRINT/ SIGN: _____ TITLE _____ DATE: _____

# CONCRETE POST POUR COLD WEATHER MONITORING

Rev 03 Nov 13, 2018

| | |
|---|---|
| CONTRACTOR: Clark Builders | DATE OF POUR: Dec 13/18 |
| AMBIENT TEMP at POUR (°C): | DATE FORMWORK STRIPPED: |
| LOCATION: Primary E-House Walls | |
| | SPEC SECTION(S): S03 30 00 – Cast-In-Place |

TYPE OF CURING:

| | | | | | |
|---|---|---|---|---|---|
| CURING COMPOUND | ☐ | DAMP BURLAP OR FABRIC | ☐ | INSULATION (TARPS) | ☑ |
| POLYETHYLENE SHEETS | ☐ | WATER/FOG SPRAY/ PONDING | ☐ | FORMS (COVERED BY) | ☐ |

| COLD WEATHER REQUIREMENTS (WHEN AMB. TEMP < 5°C) | PASS | FAIL | N/A | REMARKS |
|---|---|---|---|---|
| Protection in place and temperatures not lower than 20°C or until 70% of the 28-day strength has been reached. | ☐ | ☐ | ☐ | |
| Cold weather protection provided by means of heated enclosures, coverings, insulation, or a suitable approved combination of these methods during complete curing period. | ☐ | ☐ | ☐ | |
| Concrete test cylinders are kept within hoarding or in area where temperatures are ideal for curing. (No frozen Cylinders) | ☐ | ☐ | ☐ | |
| Heat is not directed onto concrete. This may result in thermal cracking. | ☐ | ☐ | ☐ | |
| During freezing weather, and standing water removed before the end of the protection period (CSA A 23.1 clause 7.4.2.4.2) | ☐ | ☐ | ☐ | |

CONCRETE CURING TEMPERATURE LOG (COLD WEATHER CONCRETEING ONLY)

| DATE | | TIME (24 HR) | OUTSIDE AIR TEMP (°C) | TEMP INSIDE HOARDING (°C) | CONCRETE SURFACE TEMP (°C) | | INITIALS OF READER |
|---|---|---|---|---|---|---|---|
| | | | | | HIGH (°C) | LOW (°C) | |
| Dec 14/18 | AM | 7:58 | -15 | 22.4 | 35.5 | 24.5 | PN |
| | MID | | | | | | |
| Dec 14/18 | PM | 4:54 | -15 | 15.8 | 29.8 | 18.7 | PN |
| Dec 15/18 | AM | 6:48 | -25 | 22.3 | 27.8 | 15.7 | PN |
| | MID | | | | | | |
| Dec 15/18 | PM | 4:39 | -25 | 19.7 | 24.1 | 13.6 | PN |
| Dec 16/18 | AM | 7:08 | -6 | 20.4 | 24.6 | 13.3 | PN |
| | MID | | | | | | |
| Dec 16/18 | PM | 4:18 | -6 | 11.8 | 12.1 | 10.6 | PN |

COMMENTS:

CLARK BUILDERS SITE REPRESENTATIVE

PRINT/ SIGN: _____ TITLE _____ DATE: _____

# CONCRETE POST POUR COLD WEATHER MONITORING

Rev 03 Nov 13, 2018

| | |
|---|---|
| CONTRACTOR: Clark Builders | DATE OF POUR: Dec 16, 2018 |
| AMBIENT TEMP at POUR (°C): | DATE FORMWORK STRIPPED: |
| LOCATION: Primary E-House curb | |
| | SPEC SECTION(S): S03 30 00 – Cast-In-Place |

TYPE OF CURING:

| | | | | | |
|---|---|---|---|---|---|
| CURING COMPOUND | ☐ | DAMP BURLAP OR FABRIC | ☐ | INSULATION (TARPS) | ☑ |
| POLYETHYLENE SHEETS | ☐ | WATER/FOG SPRAY/ PONDING | ☐ | FORMS (COVERED BY) | ☐ |

| COLD WEATHER REQUIREMENTS (WHEN AMB. TEMP < 5°C) | PASS | FAIL | N/A | REMARKS |
|---|---|---|---|---|
| Protection in place and temperatures not lower than 20°C or until 70% of the 28-day strength has been reached. | ☐ | ☐ | ☐ | |
| Cold weather protection provided by means of heated enclosures, coverings, insulation, or a suitable approved combination of these methods during complete curing period. | ☐ | ☐ | ☐ | |
| Concrete test cylinders are kept within hoarding or in area where temperatures are ideal for curing. (No frozen Cylinders) | ☐ | ☐ | ☐ | |
| Heat is not directed onto concrete. This may result in thermal cracking. | ☐ | ☐ | ☐ | |
| During freezing weather, and standing water removed before the end of the protection period (CSA A 23.1 clause 7.4.2.4.2) | ☐ | ☐ | ☐ | |

CONCRETE CURING TEMPERATURE LOG (COLD WEATHER CONCRETEING ONLY)

| DATE | | TIME (24 HR) | OUTSIDE AIR TEMP (°C) | TEMP INSIDE HOARDING (°C) | CONCRETE SURFACE TEMP (°C) | | INITIALS OF READER |
|---|---|---|---|---|---|---|---|
| | | | | | HIGH (°C) | LOW (°C) | |
| Dec 17/18 | AM | 8:00 | -10 | 40 | 48.3 | 41.2 | PN |
| | MID | | | | | | |
| Dec 17/18 | PM | 4:30 | -10 | 24 | 32.7 | 27.7 | PN |
| Dec 18/18 | AM | 6:53 | -5 | 22.8 | 30.4 | 20.9 | PN |
| | MID | | | | | | |
| Dec 18/18 | PM | 7:25 | -5 | | 6.1 | 5.2 | PN |
| | AM | | | | | | |
| | MID | | | | | | |
| | PM | | | | | | |

| COMMENTS: | |
|---|---|
| | |
| | |

CLARK BUILDERS SITE REPRESENTATIVE

PRINT/ SIGN: _____ TITLE _____ DATE: _____

CLARK BUILDERS
ENERGY & RESOURCES



PROJECT MANAGER: DUSTIN DOLYNCHUK, P.ENG
QA/QC COORDINATOR: RYAN DE MILLIANO, C.E.T.
SUPERINTENDENT: GARRY DAHL

# EXCAVATION AND BACKFILL PRE POUR INSPECTION

Rev 00 May 4, 2018

| | |
|---|---|
| SUBCONTRACTOR: COBALT | INSPECTION DATE: SEPT. 21/2018 |
| SUBCONTRACTOR CONTACT PERSON: KEVIN SUITS | |
| INSPECTOR(S): JACKSON WENGER/TETRATECH (MARK ESTRADA) | |
| LOCATION: TT 1 SUB BASE | |
| DRAWING REV: / | DRAWING NO.(S): IDR RECD FROM EPCM / SPEC SECTION(S): |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Drainage has been planned and is being provided continuously | ☐ | ☐ | ☑ |
| 2.0 | Survey complete, stakes and monuments located | ☑ | ☐ | ☐ |
| 3.0 | If needed, are barricades, stop logs, properly placed? | ☑ | ☐ | ☐ |
| 4.0 | Drawings are approved and stamped prior to work begins | ☑ | ☐ | ☐ |
| 5.0 | Utilities and other underground potential interferences to remain are located, stakes and protected? | ☐ | ☐ | ☑ |
| | | ☐ | ☐ | ☐ |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 6.0 | Backfill materials have been tested and approved to use | ☑ | ☐ | ☐ |
| 7.0 | Clarify compaction requirements by material, use, lift thickness, frequency, etc. | ☑ | ☐ | ☐ |
| 8.0 | Need of slope design for trenching or excavation has been reviewed | ☐ | ☐ | ☐ |
| 9.0 | Blast/fractured rock requirements have been reviewed | ☐ | ☐ | ☐ |
| 10.0 | Testing, inspection and compaction requirements have been reviewed | ☐ | ☐ | ☐ |
| | | ☐ | ☐ | ☐ |

COMMENTS:

VERIFICATION OF COMPACTION RESULTS

ATTACHMENT(S):

DEFICIENCIES NOTES:

CLARK BUILDERS INSPECTION

INSPECTOR: JACKSON WENGER TITLE PC DATE: SEPT. 21/2018

OTHER INSPECTORS

INSPECTOR: Ishan Fechter TITLE Superintendent DATE: Sept. 21/18

* Approved for backfill by Esra A. (Hatch) via email correspondence

# COMPACTION DENSITY TEST SUMMARY REPORT

ASTM Designation D6938

**Project:** Eagle Gold Project
QC Inspection & Testing
**Project No.:** WARC.03235-05
**Client:** JDS Energy & Mining/Hatch
**Attention:** R. Bilobrowka
**Contractor:** Clark/Cobalt Construction

**Test Apparatus:** Nuclear **Troxler No:** 64515
**Specified Compaction:** 95 % Mod. Proctor Max. Dry Density
**Specified Moisture** (MC): As Below
**Temperature** **Air:** 13 °C **Soil:** °C
**Date Tested:** 9/18/2018 **By:** M. Estrada
**Construction Period:** DAYSHIFT

**Soil Description:** GRAVEL, Sandy, trace silt
**Material Usage/Zone:** 38mm minus ODF

| Date mm/dd/yyyy | Test No. / Probe (mm) | Location: | Depth to Grade (m) | Dry Density (kg/m³) | MC % | Max. Dry Density | Opt. MC % | Comp % MPD |
|---|---|---|---|---|---|---|---|---|
| 9/18/2018 | 1 / 150 | Center, final lift | Gr | 2231 | 5.4 | 2250 | 6.0 | **99.2** |
| | - - - - - | | | | | | | |
| | - - - - - | | | | | | | |
| | - - - - - | | | | | | | |
| | - - - - - | | | | | | | |
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| | - - - - - | | | | | | | |
| | - - - - - | | | | | | | |
| | - - - - - | | | | | | | |

**Remarks:** Tetra Tech on site for spot checks only. Loose lifts of 200 mm were recommended, but was not witnessed upon placement by contractor. Material visually appeared coarse.

**Copies:**

**Reviewed By:** ISSUED FOR REVIEW C.E.T.

Data presented hereon is for the sole use of the stipulated client. Tetra Tech EBA is not responsible, nor can be held liable, for use made of this report by any other party, with or without the knowledge of Tetra Tech EBA. The testing services reported herein have been performed to recognized industry standards, unless noted. No other warranty is made. These data do not include or represent any interpretation or opinion of specification compliance or material suitability. Should engineering interpretation be required, Tetra Tech EBA will provide it upon written request.

TETRA TECH

# COMPACTION DENSITY TEST SUMMARY REPORT

ASTM Designation D6938

**Project:** Eagle Gold Project — QC Inspection & Testing
**Test Apparatus:** Nuclear **Troxler No:** 64515
**Specified Compaction:** 95 % Mod. Proctor Max. Dry Density
**Project No.:** WARC.03235-05 **Specified Moisture** (MC): As Below
**Client:** JDS Energy & Mining/Hatch **Temperature** **Air:** 13 °C **Soil:** °C
**Attention:** R. Bilobrowka **Date Tested:** 9/17/2018 **By:** M. Estrada
**Contractor:** Clark/Cobalt Construction **Construction Period:** DAYSHIFT

**Soil Description:** GRAVEL, Sandy, trace silt

**Material Usage/Zone:** 38mm minus ODF

| Date mm/dd/yyyy | Test No. / Probe (mm) | Location: | Depth to Grade (m) | Dry Density (kg/m³) | MC % | Max. Dry Density | Opt. MC % | Comp % MPD |
|---|---|---|---|---|---|---|---|---|
| 9/17/2018 | 1 / 200 | Center, lift #2 | N/A | 2187 | 7.6 | 2250 | 6.0 | **97.2** |
| 9/17/2018 | 2 / 200 | Trench, lift #2 | N/A | 2140 | 5.8 | 2250 | 6.0 | **95.1** |
| | | | | | | | | |
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| | | | | | | | | |

**Remarks:** Tetra Tech on site for spot checks only. Loose lifts of 200 mm were recommended, but was not witnessed upon placement by contractor. Material visually appeared coarse.

**Copies:**

**Reviewed By:** ISSUED FOR REVIEW C.E.T.

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TETRA TECH

CLARK BUILDERS
ENERGY & RESOURCES



# CONCRETE REINFORCEMENT PRE POUR

Rev 01 August 25, 2018

| | |
|---|---|
| SUBCONTRACTOR: Ultimate Reinforcing // McNish | INSPECTION DATE: Sept 26, 2018 |
| SUBCONTRACTOR CONTACT PERSON: Jimmy M. | PROJ. POUR DATE: Sept 26, 2018 |
| INSPECTOR(S): Dan Pelletier, Ishan Fechter (JDS) | |
| LOCATION: 3210 / Transfer Tower 1 Mat Foundation. | |
| DRAWING REV: 02 / DRAWING NO.(S): 435458-3210-231-760-0002 | SPEC SECTION(S): S03 20 00 – Concrete Reinforcing Steel |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Grade (400W unless otherwise noted) and type of steel delivered and installed as required by approved drawings. | ☑ | ☐ | ☐ |
| 2.0 | Inspect rebar distribution, spacing and cover per design/project requirements. | ☑ | ☐ | ☐ |
| 3.0 | Length of splices as specified | ☑ | ☐ | ☐ |
| 4.0 | Staggered splices as specified | ☑ | ☐ | ☐ |
| 5.0 | Any mechanical splices have been approved by the owner prior to install | ☐ | ☐ | ☑ |
| 6.0 | Bars cleaned and free of material that may reduce bond including loose rust, scale, oil, structural defects and that they are uncoated and unpainted. | ☑ | ☐ | ☐ |
| 7.0 | Dowels at wall ends, construction joints, and openings as specified (length, location, size, etc.) | ☑ | ☐ | ☐ |
| 8.0 | No unauthorized field bent bars including hooks installed | ☑ | ☐ | ☐ |
| 9.0 | Resolve conflicts between embedded items and reinforcement | ☑ | ☐ | ☐ |
| 10.0 | When authorized, field bends done without heat and inspected for fissures or cracks. | ☐ | ☐ | ☑ |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 11.0 | Bars tied and supported to prevent displacement | ☑ | ☐ | ☐ |
| 12.0 | Spacers, tie wire and chairs as required | ☑ | ☐ | ☐ |
| 13.0 | Conduits at design location and minimum separation from rebar as specified | ☐ | ☐ | ☑ |
| 14.0 | No contact of bars is made with dissimilar metals as per CSA A23.1 | ☑ | ☐ | ☐ |
| 15.0 | Bars, nails or tie wire not sticking out from surfaces that allow rusting/corrosion | ☑ | ☐ | ☐ |
| 16.0 | Rebar welds are inspected by qualified inspectors certified to CSA W178.2 | ☐ | ☐ | ☑ |
| 17.0 | No rebar congestion or other obstruction for deposit of concrete | ☑ | ☐ | ☐ |
| 18.0 | Adjustments required for interfering items (piping, inserts, sleeves, etc.) have been submitted and approved by owner. | ☑ | ☐ | ☐ |
| 19.0 | Rebar was stored off ground to prevent damage/corrosion | ☑ | ☐ | ☐ |
| 20.0 | Review drawings for anchors, piping, sleeves, boxes | ☑ | ☐ | ☐ |

| COMMENTS: | ATTACHMENT(S): |
|---|---|
| | |
| | |
| | |

DEFICIENCIES NOTES:

| |
|---|
| |
| |
| |

CLARK BUILDERS:
INSPECTOR: Dan Pelletier / TITLE Foreman DATE: Sept 26, 2018

JDS ENERGY & MINING:
INSPECTOR: Ishan Fechter TITLE Superintendent DATE: Sept. 26, 2018

CLARK BUILDERS
ENERGY & RESOURCES



PROJECT MANAGER: DUSTIN DOLYNCHUK, P.ENG
QA/QC COORDINATOR: RYAN DE MILLIANO, C.E.T.
SUPERINTENDENT: GARRY DAHL

# FORMWORK & FALSEWORK PRE POUR | QA INSPECTION

Rev 01 August 25, 2018

| | |
|---|---|
| CONTRACTOR: Clark Builders | |
| CONTRACTOR CONTACT PERSON: | INSPECTION DATE: |
| INSPECTOR(S): | DATE OF POUR: |
| LOCATION: | |
| DRAWING REV: / DRAWING NO.(S): | SPEC SECTION(S): |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Location, survey, dimension and grades as required | ☐ | ☐ | ☐ |
| 2.0 | Plumbness and Flatness verified | ☐ | ☐ | ☐ |
| 3.0 | Joints are aligned and watertight. | ☐ | ☐ | ☐ |
| 4.0 | Formwork shop drawings are Engineered and reviewed | ☐ | ☐ | ☐ |
| 5.0 | Re-used formwork reconditioned and treated | ☐ | ☐ | ☐ |
| 6.0 | Formwork and ties according to finishing requirements. Confirm no holes in the concrete surface are greater than 25mm in diameter or expose steel at less than 25mm from surface. As per spec. | ☐ | ☐ | ☐ |
| 7.0 | Installation of embeds are located and secured | ☐ | ☐ | ☐ |
| 8.0 | Chamfer requirements checked. 25mm chamfers required for all exterior corners and edges exposed to view including horizontal edges of pads. | ☐ | ☐ | ☐ |
| 9.0 | Key ways and/or other provisions according to design are provided in construction joints | ☐ | ☐ | ☐ |
| 10.0 | Inspect types of form spacers, ties and bracing. | ☐ | ☐ | ☐ |
| 11.0 | Spacing of ties to be set to a pattern | ☐ | ☐ | ☐ |
| 12.0 | Expansion, construction, contraction joints as required & located as coordinated with structural Engineer | ☐ | ☐ | ☐ |
| 13.0 | Forms secured against movement during placing | ☐ | ☐ | ☐ |
| 14.0 | Forms are braced for alignment and blow out | ☐ | ☐ | ☐ |
| 15.0 | Forms are cleaned of all debris, and dry, prior to concrete placement including standing water. | ☐ | ☐ | ☐ |
| 16.0 | Openings in formwork permit inspection and cleaning, placing and compaction of concrete, and forming and processing of construction joints. | ☐ | ☐ | ☐ |
| 17.0 | Formwork has been coated with release agent prior to rebar placement. | ☐ | ☐ | ☐ |
| 18.0 | Anchor Bolts and Embeds are secured to formwork. | ☐ | ☐ | ☐ |

COMMENTS:

ATTACHMENT(S):

DEFICIENCIES NOTES:

TIAL INSPECTION

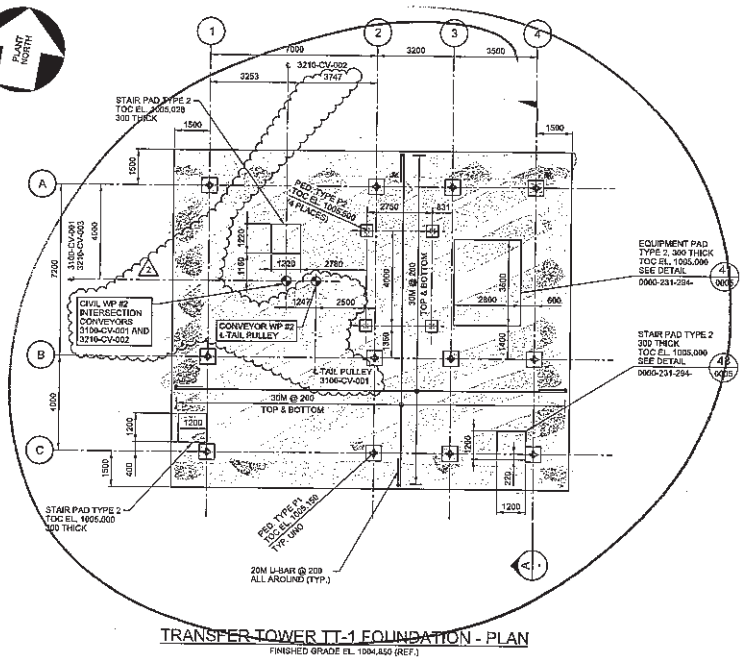
PECTOR: _____ TITLE _____ DATE: _____

NSPECTION (DEFICIENCIES COMPLETED)

ECTOR: Ishan Fechter TITLE Superintendent DATE: Sept. 26/18

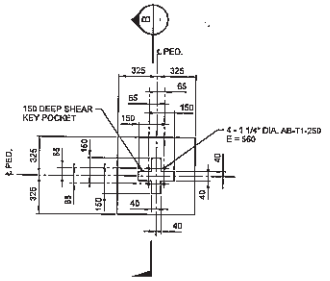
Sept 26, 20

DWG. No. H354138-3210-231-260-0002

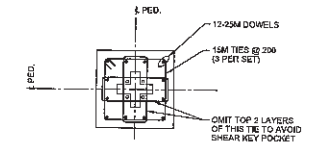



TRANSFER TOWER TT-1 FOUNDATION - PLAN

FINISHED GRADE EL. 1004.850 (REF.)



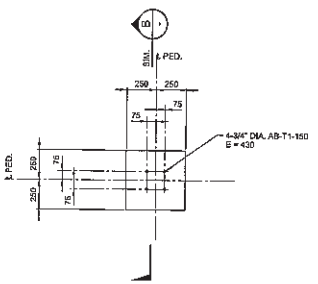

ANCHOR SETTING



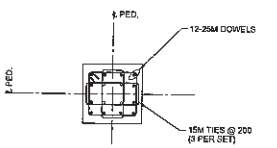

REINFORCEMENT

PEDESTAL TYPE P1

SCALE: 1:20



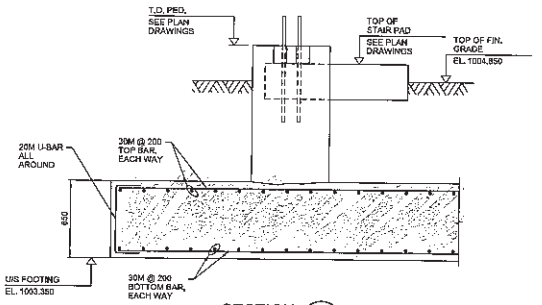

ANCHOR SETTING




REINFORCEMENT

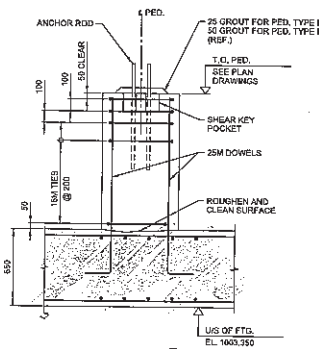
PEDESTAL TYPE P2

SCALE: 1:20




SECTION A

SCALE 1:20




SECTION B

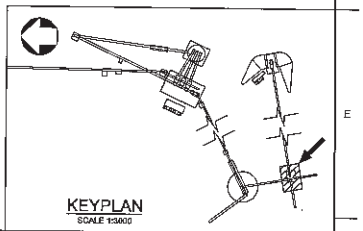
SCALE 1:20

0 1 2 3 4 5

1:100 SCALE IN METRES

NOTES:

1. FOR GENERAL NOTES SEE DRAWINGS H354138-3210-231-260-0001.



KEYPLAN

SCALE 1:5000

| DRAWING No. | DRAWING TITLE |
|---|---|
| REFERENCE DRAWINGS | |

REG. PROFESSIONAL

PERMIT TO PRACTICE HATCH Signature Date 2018-08-29 PERMIT NUMBER APPLIED FOR / EN ATTENTE

YUKON ASSOCIATION OF PROFESSIONAL ENGINEERS 2018-08-29

THIS DRAWING WAS PREPARED FOR THE EXCLUSIVE USE OF STRATA GOLD (CLIENT) AND IS ISSUED PURSUANT TO AGREEMENT BETWEEN CLIENT AND HATCH LTD. (CONSULTANT). UNLESS OTHERWISE AGREED IN WRITING WITH CLIENT OR SPECIFIED IN THE AGREEMENT, NEITHER CONSULTANT NOR ANY OF ITS EMPLOYEES, AGENTS, SUBCONSULTANTS AND SUBCONTRACTORS ASSUMES ANY RESPONSIBILITY FOR ANY USE OF OR RELIANCE ON THIS DRAWING BY ANY THIRD PARTY OR FOR ANY MODIFICATION OR ISSUE OF THIS DRAWING BY CLIENT. ANY USE OF THIS DRAWING IS CONFIDENTIAL AND ALL INTELLECTUAL PROPERTY RIGHTS EMBODIED OR REFERENCED IN THIS DRAWING REMAIN THE PROPERTY OF HATCH.

| No. | DESCRIPTION | BY | CHKD | DATE |
|---|---|---|---|---|
| 2 | CONVEYOR 3100-CV-001 WP ADDED | PJ | EA | 2018-08-29 |
| 1 | STAIR PAD SIZE REVIZED, GROUT SIZE ON SECTION 'B' CLARIFIED | PJ | EA | 2018-08-27 |
| 0 | APPROVED FOR CONSTRUCTION | SM | EA | 2018-08-17 |

REVISIONS

HATCH

| ROLE | NAME | SIGNATURE & DATE |
|---|---|---|
| DRAFTSPERSON | E. MENDIOLA | NR 2018-08-13 |
| DESIGNER | F. LIU | NR 2018-08-13 |
| CHECKER | E. AKINCI | 2018-08-29 |
| DESIGN COORD. | S. PERKINS | |
| RESP. ENG. | E. AKINCI | 2018-08-29 |
| LEAD DISC. ENG. | E. AKINCI | 2018-08-29 |
| ENG. MANAGER | B. RUSTAD | 2018-08-29 |
| PROJ. MANAGER | B. RUSTAD | 2018-08-29 |

DRAWING APPROVAL STATUS: Approved for Construction

StrataGold Corporation

EAGLE GOLD PROJECT

COARSE ORE STOCKPILE/RECLAIM TRANSFER TOWER TT-1 FOUNDATION PLAN, SECTIONS AND DETAILS

SCALE 1:100 OR AS NOTED

DWG. No. H354138-3210-231-260-0002

REV 2

SHEET SIZE: D

$FILE$ PRINTED: 25-AUG-2018 11:38

CLARK BUILDERS
ENERGY & RESOURCES

PROJECT MANAGER: DUSTIN DOLYNCHUK, P.ENG
QA/QC COORDINATOR: RYAN DE MILLIANO, C.E.T.
SUPERINTENDENT: GARRY DAHL

# CONCRETE REINFORCEMENT PRE POUR

Rev 01 August 25, 2018

| | |
|---|---|
| SUBCONTRACTOR: Ultimate Reinforcing // McNish | INSPECTION DATE: OCTOBER 1, 2018 |
| SUBCONTRACTOR CONTACT PERSON: Jimmy M. | PROJ. POUR DATE: OCTOBER 1, 2018 |
| INSPECTOR(S): Ryan deMilliano (CB), Ishan (JDS), Dan P. (CB) | |
| LOCATION: 3210 - TRANSFER TOWER 1 PEDESTALS. | |
| DRAWING REV: 02 / DRAWING NO.(S): 3210-231-260-0002 | SPEC SECTION(S): S03 20 00 – Concrete Reinforcing Steel |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A | ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|---|---|---|---|---|
| 1.0 | Grade (400W unless otherwise noted) and type of steel delivered and installed as required by approved drawings. | X | | | 11.0 | Bars tied and supported to prevent displacement | X | | |
| 2.0 | Inspect rebar distribution, spacing and cover per design/project requirements. | X | | | 12.0 | Spacers, tie wire and chairs as required | X | | |
| 3.0 | Length of splices as specified | X | | | 13.0 | Conduits at design location and minimum separation from rebar as specified | | | X |
| 4.0 | Staggered splices as specified | X | | | 14.0 | No contact of bars is made with dissimilar metals as per CSA A23.1 | X | | |
| 5.0 | Any mechanical splices have been approved by the owner prior to install | | | X | 15.0 | Bars, nails or tie wire not sticking out from surfaces that allow rusting/corrosion | X | | |
| 6.0 | Bars cleaned and free of material that may reduce bond including loose rust, scale, oil, structural defects and that they are uncoated and unpainted. | X | | | 16.0 | Rebar welds are inspected by qualified inspectors certified to CSA W178.2 | | | X |
| 7.0 | Dowels at wall ends, construction joints, and openings as specified (length, location, size, etc.) ANCHOR BOLTS. | X | | | 17.0 | No rebar congestion or other obstruction for deposit of concrete | X | | |
| 8.0 | No unauthorized field bent bars including hooks installed | X | | | 18.0 | Adjustments required for interfering items (piping, inserts, sleeves, etc.) have been submitted and approved by owner. | X | | |
| 9.0 | Resolve conflicts between embedded items and reinforcement | X | | | 19.0 | Rebar was stored off ground to prevent damage/corrosion | X | | |
| 10.0 | When authorized, field bends done without heat and inspected for fissures or cracks. | | | X | 20.0 | Review drawings for anchors, piping, sleeves, boxes | X | | |

COMMENTS:

Pre + post heat ✓
Add chairs + maintain cover ✓

ATTACHMENT(S):

DWG. (HIGHLIGHTED)

DEFICIENCIES NOTES:

CLARK BUILDERS:
INSPECTOR: Ryan deMilliano // [signature] TITLE Project Coordinator DATE: OCTOBER 1, 2018

JDS ENERGY & MINING:
INSPECTOR: Ishan Fechter [signature] TITLE Superintendent DATE: Oct. 7/18

CB-INSPECTION FORM-DOC-002 REV.00
JDS ENERGY & MINING INC. | STRATAGOLD EAGLE GOLD
PROJECT #: CB201 | 18502

PROJECT MANAGER: DUSTIN DOLYNCHUK, P.ENG
QA/QC COORDINATOR: RYAN DE MILLIANO, C.E.T.
SUPERINTENDENT: GARRY DAHL

CLARK BUILDERS
ENERGY & RESOURCES

# FORMWORK & FALSEWORK PRE POUR | QA INSPECTION

Rev 01 August 25, 2018

| | |
|---|---|
| CONTRACTOR: Clark Builders | INSPECTION DATE: October 1, 2018 |
| CONTRACTOR CONTACT PERSON: DAN PELLETIER | DATE OF POUR: October 1, 2018 |
| INSPECTOR(S): Dan Pelletier, Ryan de Milliano. | |
| LOCATION: 3210 - Transfer Tower 7 PEDESTALS. (X6) | |
| DRAWING REV: 02 | DRAWING NO.(S): 3210-231-260-0002 |
| SPEC SECTION(S): 503 10 00 | |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Location, survey, dimension and grades as required | ☑ | ☐ | ☐ |
| 2.0 | Plumbness and Flatness verified | ☑ | ☐ | ☐ |
| 3.0 | Joints are aligned and watertight. | ☑ | ☐ | ☐ |
| 4.0 | Formwork shop drawings are Engineered and reviewed | ☐ | ☐ | ☑ |
| 5.0 | Re-used formwork reconditioned and treated | ☑ | ☐ | ☐ |
| 6.0 | Formwork and ties according to finishing requirements. Confirm no holes in the concrete surface are greater than 25mm in diameter or expose steel at less than 25mm from surface. As per spec. | ☑ | ☐ | ☐ |
| 7.0 | Installation of embeds are located and secured | ☑ | ☐ | ☐ |
| 8.0 | Chamfer requirements checked. 25mm chamfers required for all exterior corners and edges exposed to view including horizontal edges of pads. | ☑ | ☐ | ☐ |
| 9.0 | Key ways and/or other provisions according to design are provided in construction joints | ☐ | ☐ | ☑ |
| 10.0 | Inspect types of form spacers, ties and bracing. | ☑ | ☐ | ☐ |
| 11.0 | Spacing of ties to be set to a pattern | ☑ | ☐ | ☐ |
| 12.0 | Expansion, construction, contraction joints as required & located as coordinated with structural Engineer | ☐ | ☐ | ☑ |
| 13.0 | Forms secured against movement during placing | ☑ | ☐ | ☐ |
| 14.0 | Forms are braced for alignment and blow out | ☑ | ☐ | ☐ |
| 15.0 | Forms are cleaned of all debris, and dry, prior to concrete placement including standing water. | ☑ | ☐ | ☐ |
| 16.0 | Openings in formwork permit inspection and cleaning, placing and compaction of concrete, and forming and processing of construction joints. | ☑ | ☐ | ☑ |
| 17.0 | Formwork has been coated with release agent prior to rebar placement. | ☑ | ☐ | ☐ |
| 18.0 | Anchor Bolts and Embeds are secured to formwork. | ☑ | ☐ | ☐ |

COMMENTS:

ATTACHMENT(S): DWG.

DEFICIENCIES NOTES:

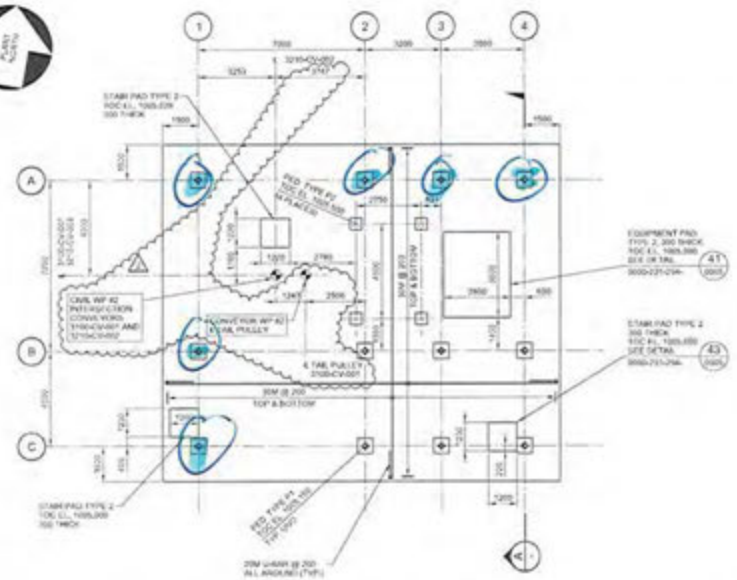
INITIAL INSPECTION
INSPECTOR: Dan Pelletier // TITLE Foreman DATE: October 1, 2018

RE-INSPECTION (DEFICIENCIES COMPLETED)
INSPECTOR: // ISHAN FECHTER TITLE Superintendent DATE: Oct. 7/18

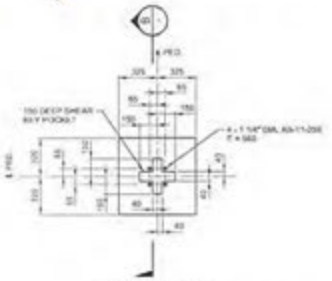
Rev 00: May 4, 2018

Oct 1, 2018 INSPECTION.
Ryan, Dan, Ishan, MATT

H354138-3210-231-260-0002



TRANSFER TOWER TT-1 FOUNDATION - PLAN



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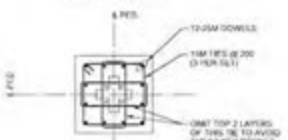
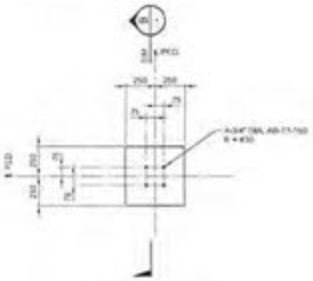
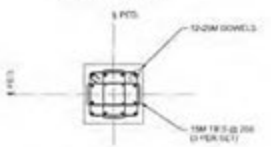


REINFORCEMENT

PEDESTAL TYPE P1

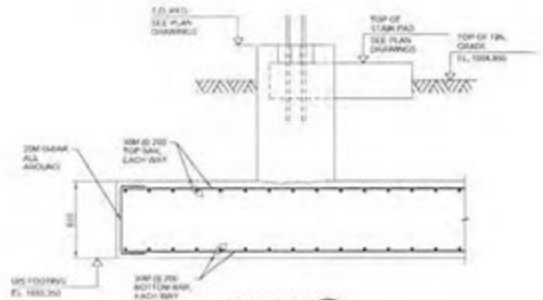


ANCHOR SETTING

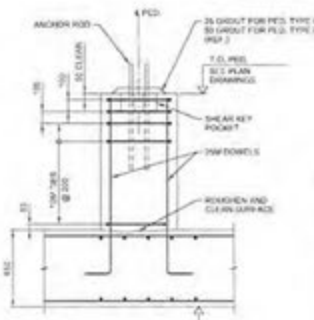


REINFORCEMENT

PEDESTAL TYPE P2



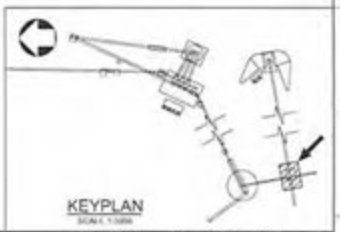
SECTION A



SECTION B

NOTES:

1. FOR GENERAL NOTES SEE DRAWING H354138-3210-231-260-0001.



KEYPLAN

| | | | | | |
|---|---|---|---|---|---|
| 2 | CONVEYOR 3100-CV-007 IMP ADDED | PJ | EA | 2018-09-28 | |
| 1 | STAIR PAD SIZE REVISED, GROUT SIZE ON SECTION 'B' CLARIFIED | PJ | EA | 2018-09-21 | |
| 0 | APPROVED FOR CONSTRUCTION | LM | EA | 2018-09-17 | |
| No. | DESCRIPTION | BY | CHK'D | DATE | |

| | | | |
|---|---|---|---|
| DRAWN | E. MENDOZA | | 2018-09-13 |
| DESIGN | P. LIU | | 2018-09-13 |
| CHECKER | E. AKINCI | | 2018-09-28 |
| DESIGN COORD. | S. PENKINS | | 2018-09-28 |
| MECP ENG. | E. AKINCI | | 2018-09-28 |
| CIVIL/STRUCT. ENG. | E. AKINCI | | 2018-09-28 |
| ENG. MANAGER | R. RUSTAD | | 2018-09-28 |
| PROJ. MANAGER | R. RUSTAD | | 2018-09-28 |
| ROLE | NAME | SIGNATURE & DATE | |

DRAWING APPROVAL STATUS: Approved for Construction

HATCH

StrataGold Corporation

EAGLE GOLD PROJECT

COARSE ORE STOCKPILE/RECLAIM TRANSFER TOWER TT-1 FOUNDATION PLAN, SECTIONS AND DETAILS

| SCALE | DWG. No. | REV |
|---|---|---|
| 1:100 | H354138-3210-231-260-0002 | 2 |

DRAWING No. | DRAWING TITLE

REFERENCE DRAWINGS

REG. PROFESSIONAL

REVISIONS

CB-INSPECTION FORM-DOC-002 REV.00
JDS ENERGY & MINING INC. | STRATAGOLD EAGLE GOLD
PROJECT #: CB201 | 18502

CLARK BUILDERS
ENERGY & RESOURCES

PROJECT MANAGER: DUSTIN DOLYNCHUK, P.ENG
QA/QC COORDINATOR: RYAN DE MILLIANO, C.E.T.
SUPERINTENDENT: GARRY DAHL

# CONCRETE REINFORCEMENT PRE POUR

Rev 01 August 25, 2018

| | |
|---|---|
| SUBCONTRACTOR: Ultimate Reinforcing // McNish | INSPECTION DATE: October 7, 2018 |
| SUBCONTRACTOR CONTACT PERSON: Jimmy M. | PROJ. POUR DATE: October 7, 2018 |
| INSPECTOR(S): Ryan deMilliano (CB) Ishan (JDS) | |
| LOCATION: 3210 \ TT 1 REMAINING PEDESTALS. (A.5/2, A.5/2.75, A.8/2, A.8/2.75) (B2, B3, B4) (C2, C3, C4) | |
| DRAWING REV: 02 | DRAWING NO.(S): H354138-3210-231-260-0002 | SPEC SECTION(S): S03 20 00 – Concrete Reinforcing Steel |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Grade (400W unless otherwise noted) and type of steel delivered and installed as required by approved drawings. | X | | |
| 2.0 | Inspect rebar distribution, spacing and cover per design/project requirements. | X | | |
| 3.0 | Length of splices as specified | X | | |
| 4.0 | Staggered splices as specified | | | X |
| 5.0 | Any mechanical splices have been approved by the owner prior to install | | | X |
| 6.0 | Bars cleaned and free of material that may reduce bond including loose rust, scale, oil, structural defects and that they are uncoated and unpainted. | X | | |
| 7.0 | Dowels at wall ends, construction joints, and openings as specified (length, location, size, etc.) | | | X |
| 8.0 | No unauthorized field bent bars including hooks installed | X | | |
| 9.0 | Resolve conflicts between embedded items and reinforcement | X | | |
| 10.0 | When authorized, field bends done without heat and inspected for fissures or cracks. | | | X |
| 11.0 | Bars tied and supported to prevent displacement | X | | |
| 12.0 | Spacers, tie wire and chairs as required | X | | |
| 13.0 | Conduits at design location and minimum separation from rebar as specified | | | X |
| 14.0 | No contact of bars is made with dissimilar metals as per CSA A23.1 | X | | |
| 15.0 | Bars, nails or tie wire not sticking out from surfaces that allow rusting/corrosion | X | | |
| 16.0 | Rebar welds are inspected by qualified inspectors certified to CSA W178.2 | | | X |
| 17.0 | No rebar congestion or other obstruction for deposit of concrete | X | | |
| 18.0 | Adjustments required for interfering items (piping, inserts, sleeves, etc.) have been submitted and approved by owner. | X | | |
| 19.0 | Rebar was stored off ground to prevent damage/corrosion | X | | |
| 20.0 | Review drawings for anchors, piping, sleeves, boxes | X | | |

COMMENTS:

2x locations required additional chairs on one side. Compared to inspection. Heat to be applied continuously until pour. Pave notified, group [illegible]

ATTACHMENT(S):

DWG (HIGHLIGHTED)

DEFICIENCIES NOTES:

2 chairs added to provided required cover.

CLARK BUILDERS:
INSPECTOR: Ryan deMilliano [signature] TITLE Project Coordinator DATE: October 7, 2018

JDS ENERGY & MINING:
INSPECTOR: Ishan Fechter [signature] TITLE Superintendent DATE: Oct. 7/18

CLARK BUILDERS
ENERGY & RESOURCES

CB-INSPECTION FORM-DOC-002 REV.00
JDS ENERGY & MINING INC. | STRATAGOLD EAGLE GOLD
PROJECT #: CB201 | 18502

PROJECT MANAGER: DUSTIN DOLYNCHUK, P.ENG
QA/QC COORDINATOR: RYAN DE MILLIANO, C.E.T.
SUPERINTENDENT: GARRY DAHL

# FORMWORK & FALSEWORK PRE POUR | QA INSPECTION

Rev 01 August 25, 2018

| | |
|---|---|
| CONTRACTOR: Clark Builders | INSPECTION DATE: Oct 7, 2018 |
| CONTRACTOR CONTACT PERSON: Dave Dalorme | DATE OF POUR: Oct 7, 2018 |
| INSPECTOR(S): Ryan deMilliano, Dave D. | |
| LOCATION: 3210 //TT I FOOTINGS 10 PEDESTALS. | |
| DRAWING REV: 02 / DRAWING NO.(S): 3210-231-260-0002 | SPEC SECTION(S): 503 10 00 |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Location, survey, dimension and grades as required | X | | |
| 2.0 | Plumbness and Flatness verified | X | | |
| 3.0 | Joints are aligned and watertight. | X | | |
| 4.0 | Formwork shop drawings are Engineered and reviewed | X | | X |
| 5.0 | Re-used formwork reconditioned and treated | X | | |
| 6.0 | Formwork and ties according to finishing requirements. Confirm no holes in the concrete surface are greater than 25mm in diameter or expose steel at less than 25mm from surface. As per spec. | X | | |
| 7.0 | Installation of embeds are located and secured | X | | |
| 8.0 | Chamfer requirements checked. 25mm chamfers required for all exterior corners and edges exposed to view including horizontal edges of pads. | X | | |
| 9.0 | Key ways and/or other provisions according to design are provided in construction joints | | | X |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 10.0 | Inspect types of form spacers, ties and bracing. | X | | |
| 11.0 | Spacing of ties to be set to a pattern | X | | |
| 12.0 | Expansion, construction, contraction joints as required & located as coordinated with structural Engineer | X | | |
| 13.0 | Forms secured against movement during placing | X | | |
| 14.0 | Forms are braced for alignment and blow out | X | | |
| 15.0 | Forms are cleaned of all debris, and dry, prior to concrete placement including standing water. | X | | |
| 16.0 | Openings in formwork permit inspection and cleaning, placing and compaction of concrete, and forming and processing of construction joints. | X | | |
| 17.0 | Formwork has been coated with release agent prior to rebar placement. | X | | |
| 18.0 | Anchor Bolts and Embeds are secured to formwork. | X | | |

COMMENTS:

Temp inside Hoarding @ time of pour 13.5°C - 20°C.

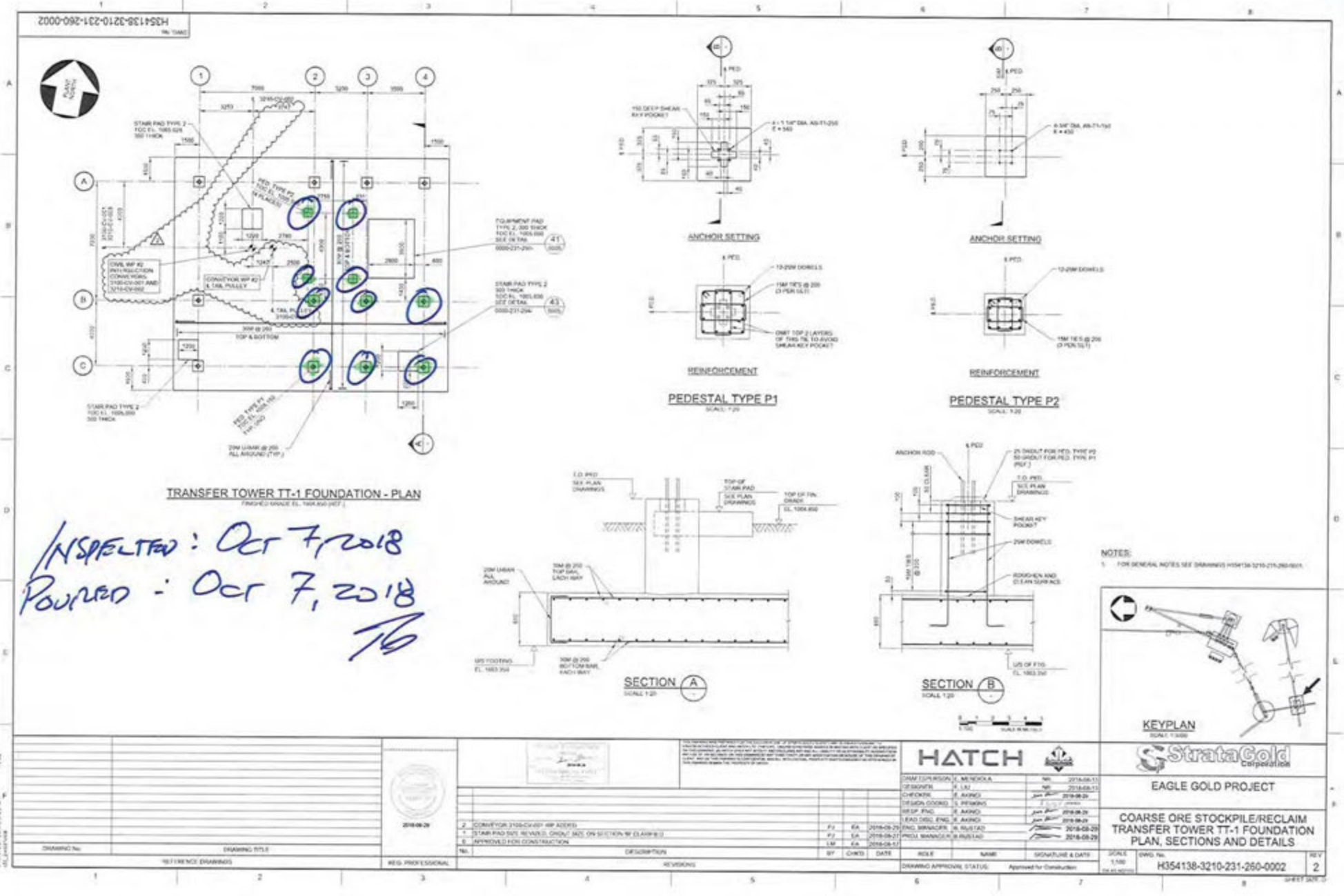
ATTACHMENT(S):

Dwg. Highlighted.

DEFICIENCIES NOTES:

INITIAL INSPECTION
INSPECTOR: Ryan // Dave // TITLE Project coordinator Foreman DATE: Oct 7/18

RE-INSPECTION (DEFICIENCIES COMPLETED)
INSPECTOR: Ishan Fechter TITLE Superintendent DATE: Oct. 7/18



H354138-3210-231-260-0002
TRANSFER TOWER TT-1 FOUNDATION - PLAN
ANCHOR SETTING
REINFORCEMENT
PEDESTAL TYPE P1
PEDESTAL TYPE P2
SECTION A
SECTION B
KEYPLAN
NOTES:
INSPECTED: Oct 7, 2018
POURED: Oct 7, 2018
HATCH
StrataGold Corporation
EAGLE GOLD PROJECT
COARSE ORE STOCKPILE/RECLAIM TRANSFER TOWER TT-1 FOUNDATION PLAN, SECTIONS AND DETAILS
H354138-3210-231-260-0002
REV 2

CLARK BUILDERS
ENERGY & RESOURCES

# CONCRETE POST POUR COLD WEATHER MONITORING

Rev 01 July 4, 2018

| | |
|---|---|
| CONTRACTOR: CLARK BUILDERS | DATE OF POUR: OCT 7, 2018 |
| WEATHER/ AMBIENT TEMP (°C): -9°C (OCT 7, 2018) | DATE FORMWORK STRIPPED: |
| INSPECTOR(S): JACKSON WENGER / Ryan deMilliano | DATE OF INSPECTION: START OF |
| LOCATION: 3210 // TRANSFER TOWER I REMAINING PEDESTALS. (x 10) | |
| DRAWING NO.(S): 02 | DRAWING REV: 3210-231-260-0002 |
| SPEC SECTION(S): S03 30 00 – Cast-In-Place | |

TYPE OF CURING:

| | | | | | |
|---|---|---|---|---|---|
| CURING COMPOUND | ☐ | DAMP BURLAP OR FABRIC | ☐ | INSULATION (TARPS) | ☒ |
| POLYETHYLENE SHEETS | ☐ | WATER/FOG SPRAY/ PONDING | ☐ | FORMS (COVERED BY) | ☒ |

| COLD WEATHER REQUIREMENTS (WHEN AMB. TEMP < 5°C) | PASS | FAIL | N/A | REMARKS |
|---|---|---|---|---|
| Protection in place for 5 days at temperatures not lower than 20°C or until 70% of the 28-day strength has been reached. | ☐ | ☐ | ☐ | |
| Cold weather protection provided by means of heated enclosures, coverings, insulation, or a suitable approved combination of these methods during complete curing period. | ☒ | ☐ | ☐ | |
| During freezing weather, water curing terminated 12h before the end of the protection period (CSA A 23.1 clause 7.4.2.4.2) | ☐ | ☐ | ☒ | |
| | | | | |

CONCRETE CURING TEMPERATURE LOG (COLD WEATHER CONCRETEING ONLY)

| DATE | TIME (24 HR) | OUTSIDE AIR TEMP (°C) | TEMP INSIDE HOARDING (°C) | CONCRETE SURFACE TEMP (°C) | | INITIALS OF READER |
|---|---|---|---|---|---|---|
| | | | | HIGH (°C) | LOW (°C) | |
| OCTOBER 7, 2018 (@ TIME OF POUR) | 10:00 | -9°C | +13.5°C | N/A | N/A | |
| OCT. 8, 2018 | 8:00 | -11°C | +19.9°C | +19°C | +16°C | BW |
| OCT 8, 2018 | 17:20 | -5°C | +17.7°C | +18°C | +15°C | |
| | | | | | | |
| | | | | | | |

| | |
|---|---|
| COMMENTS: | |
| | |
| ATTACHMENT(S): | |
| | |

**CLARK BUILDERS SITE REPRESENTATIVE**

PRINT/ SIGN: _____ TITLE: Project Coordinator DATE: _____

CLARK BUILDERS
ENERGY & RESOURCES

CB-INSPECTION FORM-DOC-002 REV.00
JDS ENERGY & MINING INC. | STRATAGOLD EAGLE GOLD
PROJECT #: CB201 | 18502

PROJECT MANAGER: DUSTIN DOLYNCHUK, P.ENG
QA/QC COORDINATOR: RYAN DE MILLIANO, C.E.T.
SUPERINTENDENT: GARRY DAHL

# CONCRETE REINFORCEMENT PRE POUR

Rev 01 August 25, 2018

| | |
|---|---|
| SUBCONTRACTOR: Ultimate Reinforcing // McNish | INSPECTION DATE: OCTOBER 21, 2018/OCT 22/18 |
| SUBCONTRACTOR CONTACT PERSON: CLAYTON | PROJ. POUR DATE: OCTOBER 23, 2018 |
| INSPECTOR(S): Ryan deMilliano | OCT 21, 2018 / OCT 22, 2018 |
| LOCATION: 3210 CU013 // BENT 1, Bent 2, TAKE UP PAD. → OCT 24, 2018 | |
| DRAWING REV: 00 | DRAWING NO.(S): 3210-231-260-0009 / SPEC SECTION(S): S03 20 00 – Concrete Reinforcing Steel |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Grade (400W unless otherwise noted) and type of steel delivered and installed as required by approved drawings. | ☑ | ☐ | ☐ |
| 2.0 | Inspect rebar distribution, spacing and cover per design/project requirements. | ☑ | ☐ | ☐ |
| 3.0 | Length of splices as specified | ☑ | ☐ | ☐ |
| 4.0 | Staggered splices as specified | ☑ | ☐ | ☐ |
| 5.0 | Any mechanical splices have been approved by the owner prior to install | ☐ | ☐ | ☑ |
| 6.0 | Bars cleaned and free of material that may reduce bond including loose rust, scale, oil, structural defects and that they are uncoated and unpainted. | ☑ | ☐ | ☐ |
| 7.0 | Dowels at wall ends, construction joints, and openings as specified (length, location, size, etc.) | ☑ | ☐ | ☐ |
| 8.0 | No unauthorized field bent bars including hooks installed | ☑ | ☐ | ☐ |
| 9.0 | Resolve conflicts between embedded items and reinforcement | ☑ | ☐ | ☐ |
| 10.0 | When authorized, field bends done without heat and inspected for fissures or cracks. | ☐ | ☐ | ☑ |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 11.0 | Bars tied and supported to prevent displacement | ☑ | ☐ | ☐ |
| 12.0 | Spacers, tie wire and chairs as required | ☑ | ☐ | ☐ |
| 13.0 | Conduits at design location and minimum separation from rebar as specified | ☐ | ☐ | ☑ |
| 14.0 | No contact of bars is made with dissimilar metals as per CSA A23.1 | ☑ | ☐ | ☐ |
| 15.0 | Bars, nails or tie wire not sticking out from surfaces that allow rusting/corrosion | ☑ | ☐ | ☐ |
| 16.0 | Rebar welds are inspected by qualified inspectors certified to CSA W178.2 | ☑ | ☐ | ☐ |
| 17.0 | No rebar congestion or other obstruction for deposit of concrete | ☑ | ☐ | ☐ |
| 18.0 | Adjustments required for interfering items (piping, inserts, sleeves, etc.) have been submitted and approved by owner. | ☐ | ☐ | ☑ |
| 19.0 | Rebar was stored off ground to prevent damage/corrosion | ☑ | ☐ | ☐ |
| 20.0 | Review drawings for anchors, piping, sleeves, boxes | ☑ | ☐ | ☐ |

COMMENTS:

- GROUNDING TAILS ADDED TO FOOTING REINFORCING AND TAILS WILL BE OUTSIDE OF FOOTING.

ATTACHMENT(S): PLUG

DEFICIENCIES NOTES:

heat before pour
cleanup of wire & paper tags

CLARK BUILDERS:
INSPECTOR: Ryan deMilliano // TITLE Project Coordinator DATE: OCTOBER 21, 2018
(1) OCTOBER 22, 2018 46.

JDS ENERGY & MINING:
INSPECTOR: Matt Caverdale YVE TITLE Field Eng DATE: Oct 21, 2018

CLARK BUILDERS
ENERGY & RESOURCES

CB-INSPECTION FORM-DOC-002 REV.00
JDS ENERGY & MINING INC. | STRATAGOLD EAGLE GOLD
PROJECT #: CB201 | 18502

PROJECT MANAGER: DUSTIN DOLYNCHUK, P.ENG
QA/QC COORDINATOR: RYAN DE MILLIANO, C.E.T.
SUPERINTENDENT: GARRY DAHL

# FORMWORK & FALSEWORK PRE POUR | QA INSPECTION

21 Tue.

Rev 01 August 25, 2018

| | |
|---|---|
| CONTRACTOR: Clark Builders | INSPECTION DATE: October 20-2018/Oct 22/18 |
| CONTRACTOR CONTACT PERSON: Jan Johnson | DATE OF POUR: October 22, 2018 |
| INSPECTOR(S): Ryan deMilliano | |
| LOCATION: 3210 CV013 // Bent 1, Bent 2, Take up tower. | |
| DRAWING REV: 00 | DRAWING NO.(S): 3210-231-260-0009 / SPEC SECTION(S): 503 10 00 |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Location, survey, dimension and grades as required | ☑ | ☐ | ☐ |
| 2.0 | Plumbness and Flatness verified | ☑ | ☐ | ☐ |
| 3.0 | Joints are aligned and watertight. | ☑ | ☐ | ☐ |
| 4.0 | Formwork shop drawings are Engineered and reviewed | ☑ | ☐ | ☐ |
| 5.0 | Re-used formwork reconditioned and treated | ☑ | ☐ | ☐ |
| 6.0 | Formwork and ties according to finishing requirements. Confirm no holes in the concrete surface are greater than 25mm in diameter or expose steel at less than 25mm from surface. As per spec. | ☑ | ☐ | ☐ |
| 7.0 | Installation of embeds are located and secured | ☑ | ☐ | ☐ |
| 8.0 | Chamfer requirements checked. 25mm chamfers required for all exterior corners and edges exposed to view including horizontal edges of pads. | ☑ | ☐ | ☐ |
| 9.0 | Key ways and/or other provisions according to design are provided in construction joints | ☑ | ☐ | ☐ |
| 10.0 | Inspect types of form spacers, ties and bracing. | ☑ | ☐ | ☐ |
| 11.0 | Spacing of ties to be set to a pattern | ☑ | ☐ | ☐ |
| 12.0 | Expansion, construction, contraction joints as required & located as coordinated with structural Engineer | ☐ | ☐ | ☑ |
| 13.0 | Forms secured against movement during placing | ☑ | ☐ | ☐ |
| 14.0 | Forms are braced for alignment and blow out | ☑ | ☐ | ☐ |
| 15.0 | Forms are cleaned of all debris, and dry, prior to concrete placement including standing water. | ☑ | ☐ | ☐ |
| 16.0 | Openings in formwork permit inspection and cleaning, placing and compaction of concrete, and forming and processing of construction joints. | ☑ | ☐ | ☐ |
| 17.0 | Formwork has been coated with release agent prior to rebar placement. | ☑ | ☐ | ☐ |
| 18.0 | Anchor Bolts and Embeds are secured to formwork. | ☑ | ☐ | ☐ |

COMMENTS:

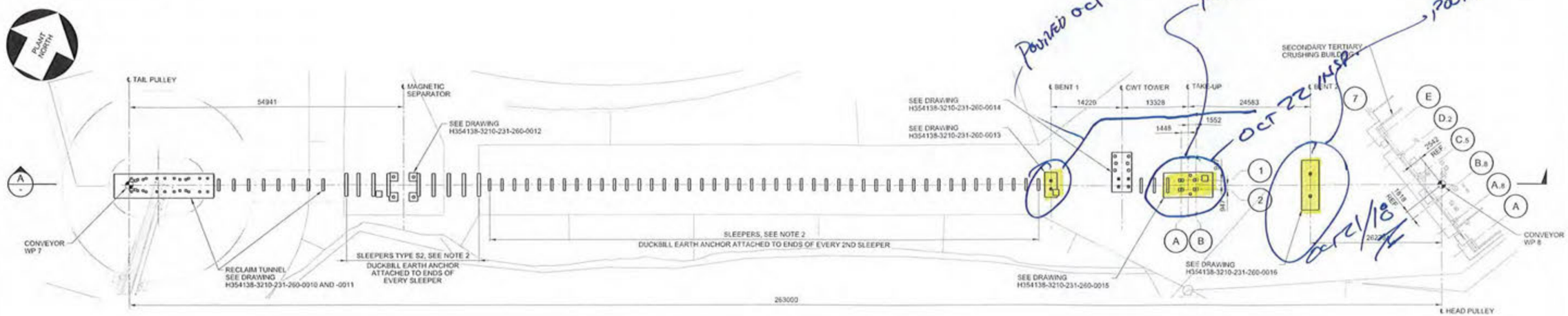
ATTACHMENT(S): Pics (Highlighted)

DEFICIENCIES NOTES:

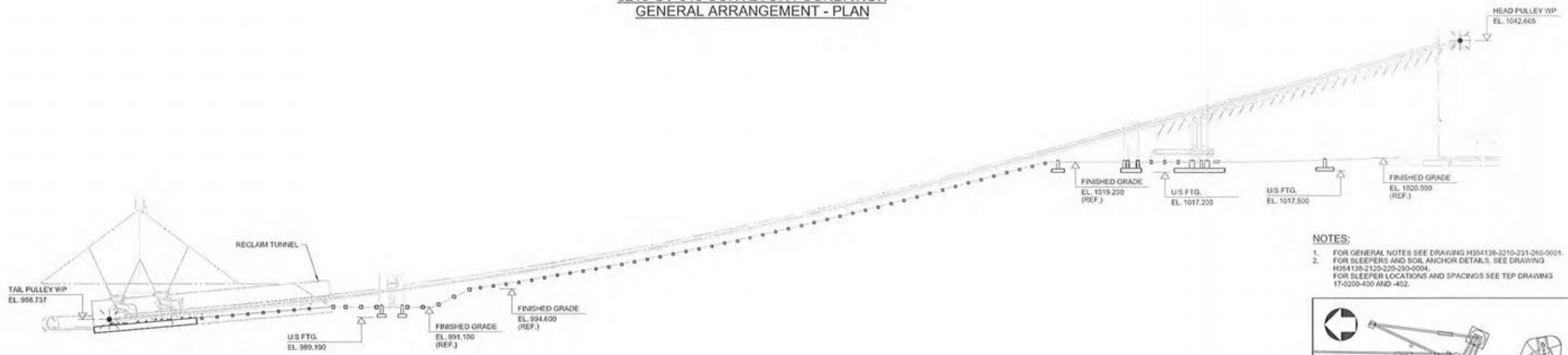
INITIAL INSPECTION
INSPECTOR: Ryan deMilliano // TITLE Clark Builders. DATE: October 22, 2018

RE-INSPECTION (DEFICIENCIES COMPLETED)
INSPECTOR: Matt Caverdale MC TITLE Field Eng DATE: Oct 21, 2018

DWG. No. H354138-3210-231-260-0009



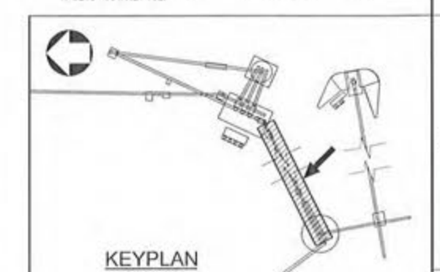

3210-CV-013 CONVEYOR FOUNDATION
GENERAL ARRANGEMENT - PLAN




SECTION A

NOTES:

1. FOR GENERAL NOTES SEE DRAWING H354138-3210-231-260-0001.
2. FOR SLEEPERS AND SOIL ANCHOR DETAILS, SEE DRAWING H354138-2120-220-290-0004.
   FOR SLEEPER LOCATIONS AND SPACINGS SEE TEP DRAWING 17-0200-400 AND -402.



KEYPLAN
SCALE 1:3000

0 4 8 12 16 20
1:400 SCALE IN METRES

| DRAWING No. | DRAWING TITLE |
|---|---|
| REFERENCE DRAWINGS | |

REG. PROFESSIONAL: 2018-08-27

| No. | DESCRIPTION | BY | CHK'D | DATE |
|---|---|---|---|---|
| 0 | APPROVED FOR CONSTRUCTION | PJ | EA | 2018-08-27 |

REVISIONS

HATCH

| ROLE | NAME | SIGNATURE & DATE |
|---|---|---|
| DRAFTSPERSON | P. JIVAEV | NR 2018-08-21 |
| DESIGNER | H. LI | NR 2018-08-21 |
| CHECKER | E. AKINCI | 2018-08-27 |
| DESIGN COORD. | S. PERKINS | |
| RESP. ENG. | E. AKINCI | 2018-08-27 |
| LEAD DISC. ENG. | E. AKINCI | 2018-08-27 |
| ENG. MANAGER | B. RUSTAD | 2018-08-27 |
| PROJ. MANAGER | B. RUSTAD | 2018-08-27 |

DRAWING APPROVAL STATUS: Approved for Construction

StrataGold Corporation

EAGLE GOLD PROJECT

COARSE ORE STOCKPILE/RECLAIM
3210-CV-013 CONVEYOR FOUNDATION
GENERAL ARRANGEMENT

SCALE 1:400 OR AS NOTED

DWG. No. H354138-3210-231-260-0009

REV

SHEET

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PRINTED: 27-AUG-2018 14:26
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CLARK BUILDERS
ENERGY & RESOURCES

CB-INSPECTION FORM-DOC-002 REV.01
CONCRETE POST POUR CURINGINSPECTION FORM
JDS ENERGY & MINING INC. | STRATAGOLD EAGLE GOLD
PROJECT #: CB201 | 18502

# CONCRETE POST POUR COLD WEATHER MONITORING

Rev 01 July 4, 2018

| | |
|---|---|
| CONTRACTOR: CLARK BUILDERS | DATE OF POUR: Oct 21; Oct 22 |
| WEATHER/ AMBIENT TEMP (°C): VARIOUS -5°C → +5°C | DATE FORMWORK STRIPPED: |
| INSPECTOR(S): RYAN DEMILLIANO | DATE OF INSPECTION: |
| LOCATION: 3210 BENT 1 & BENT 2 | |
| DRAWING NO.(S): — DRAWING REV: — | SPEC SECTION(S): S03 30 00 – Cast-In-Place |

TYPE OF CURING:

| | | | | | |
|---|---|---|---|---|---|
| CURING COMPOUND | ☒ | DAMP BURLAP OR FABRIC | ☐ | INSULATION (TARPS) | ☒ |
| POLYETHYLENE SHEETS | ☐ | WATER/FOG SPRAY/ PONDING | ☐ | FORMS (COVERED BY) | ☒ |

| COLD WEATHER REQUIREMENTS (WHEN AMB. TEMP < 5°C) | PASS | FAIL | N/A | REMARKS |
|---|---|---|---|---|
| Protection in place for 5 days at temperatures not lower than 20°C or until 70% of the 28-day strength has been reached. | ☒ | ☐ | ☐ | |
| Cold weather protection provided by means of heated enclosures, coverings, insulation, or a suitable approved combination of these methods during complete curing period. | ☒ | ☐ | ☐ | |
| During freezing weather, water curing terminated 12h before the end of the protection period (CSA A 23.1 clause 7.4.2.4.2) | ☐ | ☐ | ☒ | |

CONCRETE CURING TEMPERATURE LOG (COLD WEATHER CONCRETEING ONLY)

| DATE | TIME (24 HR) | OUTSIDE AIR TEMP (°C) | TEMP INSIDE HOARDING (°C) | CONCRETE SURFACE TEMP (°C) HIGH (°C) | CONCRETE SURFACE TEMP (°C) LOW (°C) | INITIALS OF READER |
|---|---|---|---|---|---|---|
| BENT 1 October 23, 2018 | 07:20 | -2°C | +22°C | +32°C | +21°C | [illegible] |
| ① October 24, 2018 | 14:15 | +3°C | +40°C | +42°C | +35°C | [illegible] |
| ② October 25, 2018 | 12:00 | +2°C | +20°C | +25°C | +19°C | [illegible] |
| October 26, 2018 BENT 1 & BENT 2 | #2 11:00 | 0°C | — | +16°C | +12°C | [illegible] |

COMMENTS: ① TEMP IN HOARDING HIGH. HEATERS SHUT OFF FOR REMAINDER OF DAY. WILL BE TURNED ON AGAIN AT NIGHT WHEN REQUIRED TO PREVENT SHOCK

ATTACHMENT(S): ② 2018.10.25 - TAKE UP PAD HAD GOOD TEMPS INSIDE HOARDING +20°C HOARD +30°C HIGH +25°C LOW - ONE

CLARK BUILDERS SITE REPRESENTATIVE

PRINT/ SIGN: Ryan deMilliano [signature] TITLE Project Coordinator DATE: Oct 25/2018

CLARK BUILDERS
ENERGY & RESOURCES



# CONCRETE POST POUR COLD WEATHER MONITORING

Rev 01 July 4, 2018

| | |
|---|---|
| CONTRACTOR: CLARK BUILDERS. | DATE OF POUR: Oct 24/18 |
| WEATHER/ AMBIENT TEMP (°C): Various -5°C to +5°C | DATE FORMWORK STRIPPED: – |
| INSPECTOR(S): Ryan deMilcuro | DATE OF INSPECTION: – |
| LOCATION: 3210 TAKE UP PAD ~~BATTERY BANK 1 & BANK 2~~ | |
| DRAWING NO.(S): – / DRAWING REV: – | SPEC SECTION(S): S03 30 00 – Cast-In-Place |

TYPE OF CURING:

| | | | | | |
|---|---|---|---|---|---|
| CURING COMPOUND | ☒ | DAMP BURLAP OR FABRIC | ☐ | INSULATION (TARPS) | ☒ |
| POLYETHYLENE SHEETS | ☐ | WATER/FOG SPRAY/ PONDING | ☐ | FORMS (COVERED BY) | ☒ |

| COLD WEATHER REQUIREMENTS (WHEN AMB. TEMP < 5°C) | PASS | FAIL | N/A | REMARKS |
|---|---|---|---|---|
| Protection in place for 5 days at temperatures not lower than 20°C or until 70% of the 28-day strength has been reached. | ☒ | ☐ | ☐ | |
| Cold weather protection provided by means of heated enclosures, coverings, insulation, or a suitable approved combination of these methods during complete curing period. | ☒ | ☐ | ☐ | |
| During freezing weather, water curing terminated 12h before the end of the protection period (CSA A 23.1 clause 7.4.2.4.2) | ☐ | ☐ | ☒ | |
| | | | | |

CONCRETE CURING TEMPERATURE LOG (COLD WEATHER CONCRETEING ONLY)

| | DATE | TIME (24 HR) | OUTSIDE AIR TEMP (°C) | TEMP INSIDE HOARDING (°C) | CONCRETE SURFACE TEMP (°C) HIGH (°C) | CONCRETE SURFACE TEMP (°C) LOW (°C) | INITIALS OF READER |
|---|---|---|---|---|---|---|---|
| ① | Oct 25, 2018 | 12:00 | +2°C | +25°C | +40°C | +32°C | ~~RD~~ |
| | Oct 26, 2018 | 11:00 | 0°C | +19°C | +20°C | +18°C | RD |
| | Oct 27, 2018 TUE | 07:00 | -2°C | – | +12°C | +5°C | RD |
| | | | | | | | |
| | | | | | | | |

COMMENTS: ① Temp too high. Heaters turned off until overnight to bring temp down. RD

ATTACHMENT(S):

**CLARK BUILDERS SITE REPRESENTATIVE**

PRINT/ SIGN: Ryan deMilcuro TITLE Project Coordinator DATE: Oct 29, 2018

CLARK BUILDERS
ENERGY & RESOURCES



PROJECT MANAGER: DUSTIN DOLYNCHUK, P.ENG
QA/QC COORDINATOR: RYAN DE MILLIANO, C.E.T.
SUPERINTENDENT: GARRY DAHL

# FORMWORK & FALSEWORK PRE POUR | QA INSPECTION

Rev 01 August 25, 2018

| | |
|---|---|
| CONTRACTOR: Clark Builders GARRY DAHL | INSPECTION DATE: NOV 1 2018 |
| CONTRACTOR CONTACT PERSON: | DATE OF POUR: NOV 1 2018 |
| INSPECTOR(S): | |
| LOCATION: Footing CV 1 (F1) CV2 Tail Pulley & Truss CV3 Head Pulley & Boot | |
| DRAWING REV: | DRAWING NO.(S): 3210 231-260-003;006 SPEC SECTION(S): |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Location, survey, dimension and grades as required | ☑ | ☐ | ☐ |
| 2.0 | Plumbness and Flatness verified | ☑ | ☐ | ☐ |
| 3.0 | Joints are aligned and watertight. | ☑ | ☐ | ☐ |
| 4.0 | Formwork shop drawings are Engineered and reviewed | ☐ | ☐ | ☑ |
| 5.0 | Re-used formwork reconditioned and treated | ☑ | ☐ | ☐ |
| 6.0 | Formwork and ties according to finishing requirements. Confirm no holes in the concrete surface are greater than 25mm in diameter or expose steel at less than 25mm from surface. As per spec. | ☐ | ☐ | ☑ |
| 7.0 | Installation of embeds are located and secured | ☑ | ☐ | ☐ |
| 8.0 | Chamfer requirements checked. 25mm chamfers required for all exterior corners and edges exposed to view including horizontal edges of pads. | ☐ | ☐ | ☑ |
| 9.0 | Key ways and/or other provisions according to design are provided in construction joints | ☐ | ☐ | ☑ |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 10.0 | Inspect types of form spacers, ties and bracing. | ☑ | ☐ | ☐ |
| 11.0 | Spacing of ties to be set to a pattern | ☑ | ☐ | ☐ |
| 12.0 | Expansion, construction, contraction joints as required & located as coordinated with structural Engineer | ☐ | ☐ | ☑ |
| 13.0 | Forms secured against movement during placing | ☑ | ☐ | ☐ |
| 14.0 | Forms are braced for alignment and blow out | ☑ | ☐ | ☐ |
| 15.0 | Forms are cleaned of all debris, and dry, prior to concrete placement including standing water. | ☑ | ☐ | ☐ |
| 16.0 | Openings in formwork permit inspection and cleaning, placing and compaction of concrete, and forming and processing of construction joints. | ☐ | ☐ | ☑ |
| 17.0 | Formwork has been coated with release agent prior to rebar placement. | ☑ | ☐ | ☐ |
| 18.0 | Anchor Bolts and Embeds are secured to formwork. | ☐ | ☐ | ☑ |

| COMMENTS: | ATTACHMENT(S): |
|---|---|
| | |
| | |
| | |

DEFICIENCIES NOTES:

INITIAL INSPECTION

INSPECTOR: Ishan Fechter TITLE Superintendent DATE: NOV 1 2018

RE-INSPECTION (DEFICIENCIES COMPLETED)

INSPECTOR: _____ TITLE _____ DATE: _____

Garry DAHL

CLARK BUILDERS
ENERGY & RESOURCES

# CONCRETE REINFORCEMENT PRE POUR

Rev 01 August 25, 2018

| | |
|---|---|
| SUBCONTRACTOR: Ultimate Reinforcing // McNish | INSPECTION DATE: Nov 1 2018 |
| SUBCONTRACTOR CONTACT PERSON: Garry DAHL | PROJ. POUR DATE: Nov 1 2018 |
| INSPECTOR(S): | |
| LOCATION: Footings CV1 F1, CV2 Tail Pulley & Truss CV3 Head Pully & Belt | |
| DRAWING REV: 0 | DRAWING NO.(S): 3210-231-260 003, 006 SPEC SECTION(S): S03 20 00 – Concrete Reinforcing Steel |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Grade (400W unless otherwise noted) and type of steel delivered and installed as required by approved drawings. | ☑ | ☐ | ☐ |
| 2.0 | Inspect rebar distribution, spacing and cover per design/project requirements. | ☑ | ☐ | ☐ |
| 3.0 | Length of splices as specified | ☑ | ☐ | ☐ |
| 4.0 | Staggered splices as specified | ☐ | ☐ | ☑ |
| 5.0 | Any mechanical splices have been approved by the owner prior to install | ☐ | ☐ | ☑ |
| 6.0 | Bars cleaned and free of material that may reduce bond including loose rust, scale, oil, structural defects and that they are uncoated and unpainted. | ☑ | ☐ | ☐ |
| 7.0 | Dowels at wall ends, construction joints, and openings as specified (length, location, size, etc.) | ☑ | ☐ | ☐ |
| 8.0 | No unauthorized field bent bars including hooks installed | ☑ | ☐ | ☐ |
| 9.0 | Resolve conflicts between embedded items and reinforcement | ☐ | ☐ | ☑ |
| 10.0 | When authorized, field bends done without heat and inspected for fissures or cracks. | ☐ | ☐ | ☑ |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 11.0 | Bars tied and supported to prevent displacement | ☑ | ☐ | ☐ |
| 12.0 | Spacers, tie wire and chairs as required | ☑ | ☐ | ☐ |
| 13.0 | Conduits at design location and minimum separation from rebar as specified | ☐ | ☐ | ☑ |
| 14.0 | No contact of bars is made with dissimilar metals as per CSA A23.1 | ☑ | ☐ | ☐ |
| 15.0 | Bars, nails or tie wire not sticking out from surfaces that allow rusting/corrosion | ☑ | ☐ | ☐ |
| 16.0 | Rebar welds are inspected by qualified inspectors certified to CSA W178.2 | ☐ | ☐ | ☑ |
| 17.0 | No rebar congestion or other obstruction for deposit of concrete | ☑ | ☐ | ☐ |
| 18.0 | Adjustments required for interfering items (piping, inserts, sleeves, etc.) have been submitted and approved by owner. | ☐ | ☐ | ☑ |
| 19.0 | Rebar was stored off ground to prevent damage/corrosion | ☑ | ☐ | ☐ |
| 20.0 | Review drawings for anchors, piping, sleeves, boxes | ☐ | ☐ | ☑ |

| COMMENTS: | ATTACHMENT(S): |
|---|---|
| | |
| | |
| | |

DEFICIENCIES NOTES:

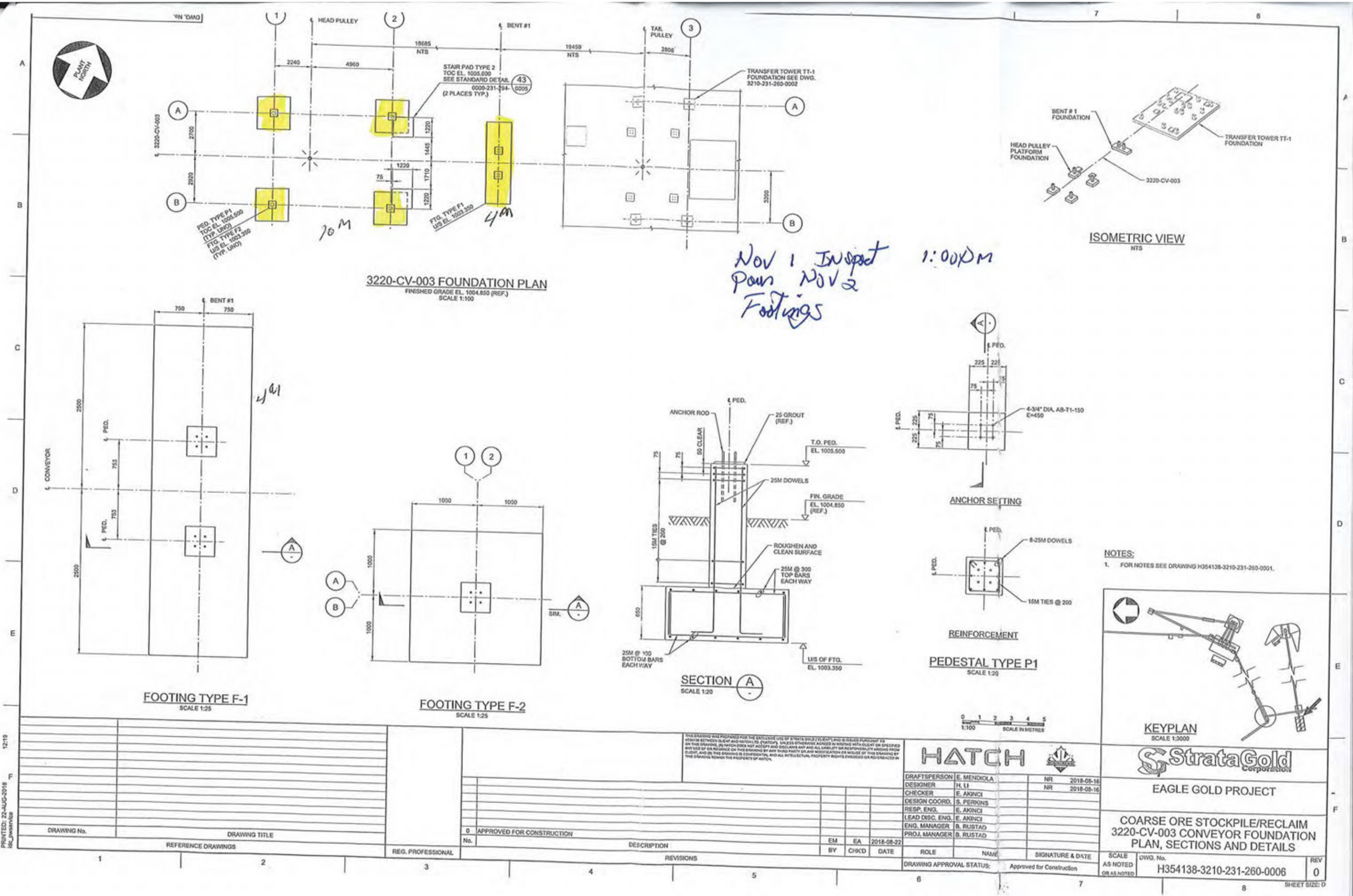
CLARK BUILDERS:

INSPECTOR: Ishan Fechter TITLE Super DATE: Nov 1 2018

JDS ENERGY & MINING:

INSPECTOR: _____ TITLE _____ DATE: _____

GARRY DAHL




| DRAWING No. | DRAWING TITLE |
|---|---|
| REFERENCE DRAWINGS | |

REG. PROFESSIONAL

| No. | DESCRIPTION | BY | CHK'D | DATE |
|---|---|---|---|---|
| 0 | APPROVED FOR CONSTRUCTION | EM | EA | 2018-08-22 |

REVISIONS

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HATCH

| | | | |
|---|---|---|---|
| DRAFTSPERSON | E. MENDIOLA | NR | 2018-08-16 |
| DESIGNER | H. LI | NR | 2018-08-16 |
| CHECKER | E. AKINCI | | |
| DESIGN COORD. | S. PERKINS | | |
| RESP. ENG. | E. AKINCI | | |
| LEAD DISC. ENG. | E. AKINCI | | |
| ENG. MANAGER | B. RUSTAD | | |
| PROJ. MANAGER | B. RUSTAD | | |
| ROLE | NAME | SIGNATURE & DATE | |

DRAWING APPROVAL STATUS: Approved for Construction

StrataGold Corporation

EAGLE GOLD PROJECT

COARSE ORE STOCKPILE/RECLAIM
3220-CV-003 CONVEYOR FOUNDATION
PLAN, SECTIONS AND DETAILS

SCALE AS NOTED OR AS NOTED

DWG. No. H354138-3210-231-260-0006

REV 0

SHEET SIZE: D

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PRINTED: 22-AUG-2018
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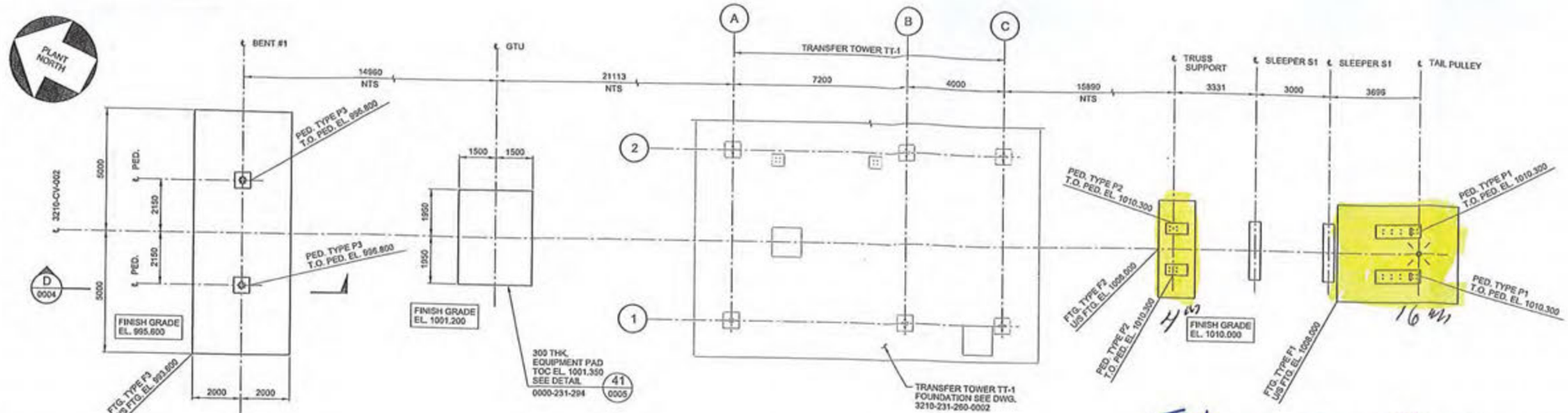
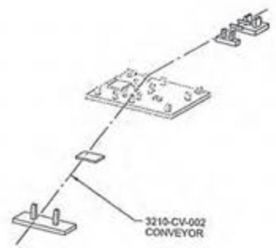
12:19

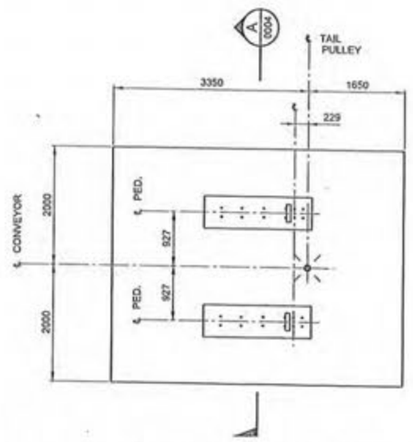



3210-CV-002 FOUNDATION PLAN
FINISHED GRADE EL. VARIES
SCALE 1:100

Footings Inspect THu 1:00 PM
Pour Fri




ISOMETRIC VIEW
NTS

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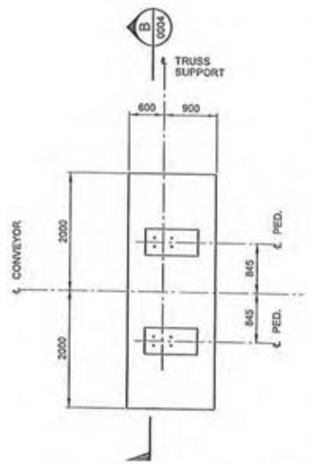
SCALE 1:50

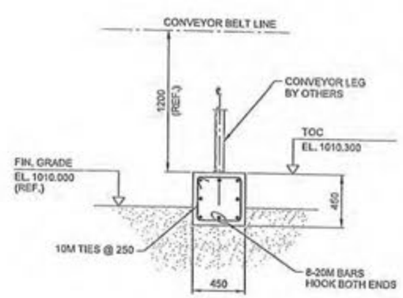



FOOTING TYPE F-2 PLAN
SCALE 1:50



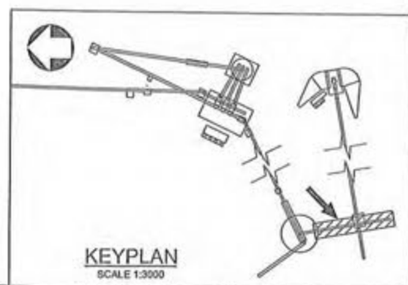

SLEEPER S1 PLAN
SCALE 1:50

450 X 2400
S1




SECTION C
SCALE 1:25

NOTES:
1. FOR NOTES SEE DRAWING H354138-3210-231-260-0001.



KEYPLAN
SCALE 1:3000

0 1 2 3 4 5
1:100 SCALE IN METRES

| DRAWING No. | DRAWING TITLE |
|---|---|
| REFERENCE DRAWINGS | |

REG. PROFESSIONAL

| No. | DESCRIPTION | BY | CHK'D | DATE |
|---|---|---|---|---|
| 0 | APPROVED FOR CONSTRUCTION | EM | EA | 2018-08-17 |

REVISIONS

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HATCH

| | | | |
|---|---|---|---|
| DRAFTSPERSON | E. MENDIOLA | NR | 2018-08-16 |
| DESIGNER | H. LI | NR | 2018-08-16 |
| CHECKER | E. AKINCI | | |
| DESIGN COORD. | S. PERKINS | | |
| RESP. ENG. | E. AKINCI | | |
| LEAD DISC. ENG. | E. AKINCI | | |
| ENG. MANAGER | B. RUSTAD | | |
| PROJ. MANAGER | B. RUSTAD | | |
| ROLE | NAME | SIGNATURE & DATE | |

DRAWING APPROVAL STATUS: Approved for Construction

StrataGold Corporation

EAGLE GOLD PROJECT

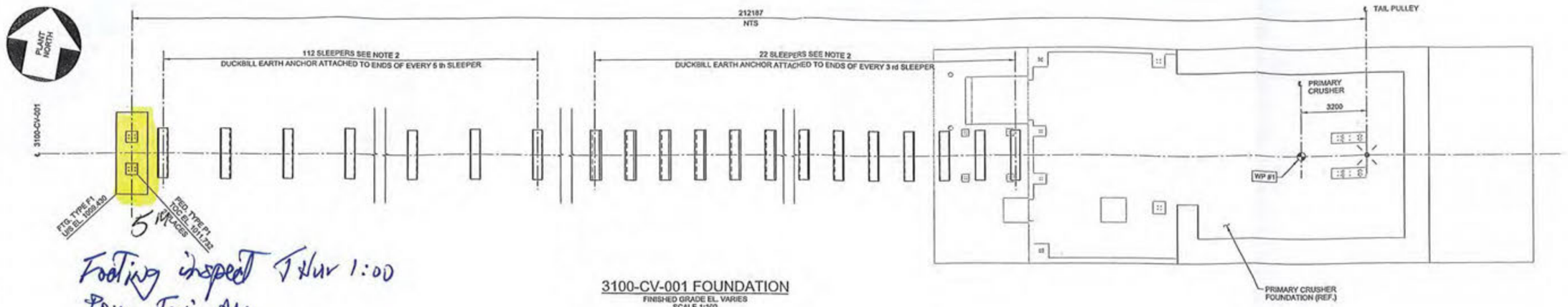
COARSE ORE STOCKPILE/RECLAIM
3210-CV-002 CONVEYOR FOUNDATION
PLAN, SECTIONS AND DETAILS-SHEET 1

SCALE AS NOTED OR AS NOTED | DWG. No. H354138-3210-231-260-0003 | REV 0

SHEET SIZE: D

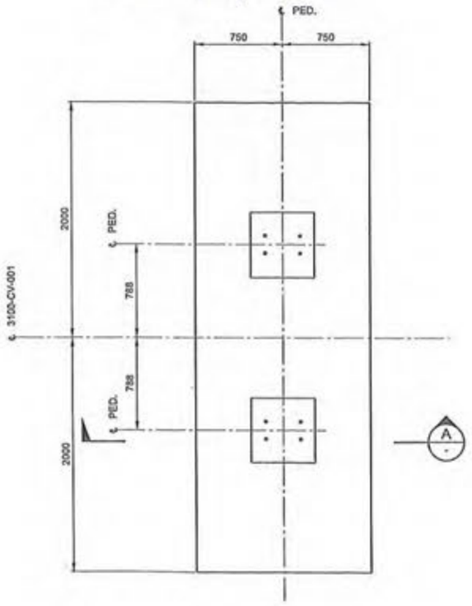
SFILELS PRINTED: 17-AUG-2018 15:07
idc_pwservice

DWG. No. H354138-3100-231-260-0032

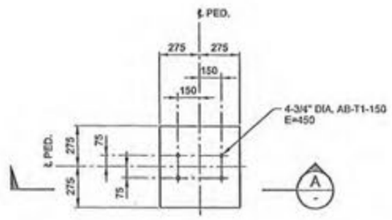



Footing inspect THur 1:00
Pour Fri AM

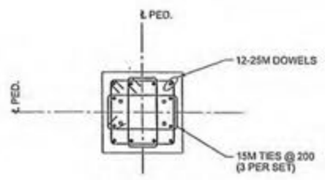
3100-CV-001 FOUNDATION
FINISHED GRADE EL. VARIES
SCALE 1:100




FOOTING TYPE F-1
SCALE 1:25

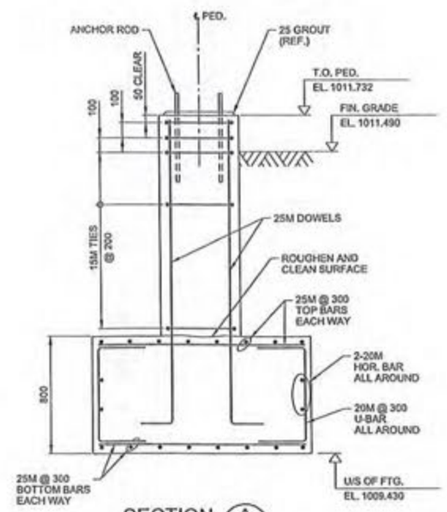



ANCHOR SETTING




REINFORCEMENT

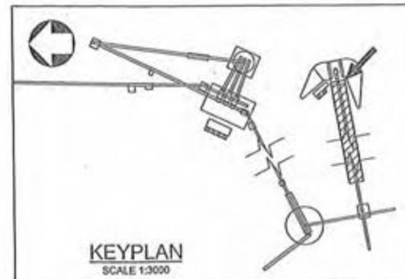
PEDESTAL TYPE P1
SCALE 1:20




SECTION A
SCALE 1:20

NOTES:

1. FOR CONCRETE TYPICAL DETAILS AND GENERAL NOTES SEE DRAWINGS H354138-0000-231-294-0001 TO 0007.
2. FOR SLEEPERS AND SOIL ANCHOR DETAILS, SEE DWG. H354138-2120-220-290-0004. FOR SLEEPER LOCATION AND SPACINGS SEE TEP DWG. 17-0200-100 AND102.
3. FOR FOUNDATION NOTES SEE DRAWING H354138-3210-231-260-0001.



KEYPLAN
SCALE 1:3000

0 1 2 3 4 5
1:100 SCALE IN METRES

| DRAWING No. | DRAWING TITLE |
|---|---|
| REFERENCE DRAWINGS | |

REG. PROFESSIONAL

| No. | DESCRIPTION | BY | CHK'D | DATE |
|---|---|---|---|---|
| 0 | APPROVED FOR CONSTRUCTION | EM | EA | 2018-08-17 |

REVISIONS

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HATCH

| ROLE | NAME | SIGNATURE & DATE | |
|---|---|---|---|
| DRAFTSPERSON | E. MENDIOLA | NR | 2018-08-13 |
| DESIGNER | H. LI | NR | 2018-08-13 |
| CHECKER | E. AKINCI | | |
| DESIGN COORD. | S. PERKINS | | |
| RESP. ENG. | E. AKINCI | | |
| LEAD DISC. ENG. | E. AKINCI | | |
| ENG. MANAGER | B. RUSTAD | | |
| PROJ. MANAGER | B.RUSTAD | | |

DRAWING APPROVAL STATUS: Approved for Construction

StrataGold Corporation

EAGLE GOLD PROJECT

PRIMARY CRUSHING
3100-CV-001 CONVEYOR FO...
PLAN, SECTIONS

SCALE 1:100 OR AS NOTED
DWG. No.

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PRINTED: 17-AUG-2018 13:18
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CLARK BUILDERS
ENERGY & RESOURCES

CB-INSPECTION FORM-DOC-002 REV.00
JDS ENERGY & MINING INC. | STRATAGOLD EAGLE GOLD
PROJECT #: CB201 | 18502

PROJECT MANAGER: DUSTIN DOLYNCHUK, P.ENG
QA/QC COORDINATOR: RYAN DE MILLIANO, C.E.T.
SUPERINTENDENT: GARRY DAHL

# FORMWORK & FALSEWORK PRE POUR | QA INSPECTION

Rev 01 August 25, 2018

| | | | |
|---|---|---|---|
| CONTRACTOR: Clark Builders | | INSPECTION DATE: | NOV 2 2018 |
| CONTRACTOR CONTACT PERSON: | GARRY DAHL | DATE OF POUR: | NOV 2 2018 |
| INSPECTOR(S): | GARRY DAHL / JDS | | |
| LOCATION: | CV 13 BENT 1&2 & Take Up | | |
| DRAWING REV: 0 | DRAWING NO.(S): 3210-231-260-0009 | SPEC SECTION(S): | |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Location, survey, dimension and grades as required | ☑ | ☐ | ☐ |
| 2.0 | Plumbness and Flatness verified | ☑ | ☐ | ☐ |
| 3.0 | Joints are aligned and watertight. | ☑ | ☐ | ☐ |
| 4.0 | Formwork shop drawings are Engineered and reviewed | ☐ | ☐ | ☑ |
| 5.0 | Re-used formwork reconditioned and treated | ☑ | ☐ | ☐ |
| 6.0 | Formwork and ties according to finishing requirements. Confirm no holes in the concrete surface are greater than 25mm in diameter or expose steel at less than 25mm from surface. As per spec. | ☑ | ☐ | ☐ |
| 7.0 | Installation of embeds are located and secured | ☑ | ☐ | ☐ |
| 8.0 | Chamfer requirements checked. 25mm chamfers required for all exterior corners and edges exposed to view including horizontal edges of pads. | ☑ | ☐ | ☐ |
| 9.0 | Key ways and/or other provisions according to design are provided in construction joints | ☐ | ☐ | ☑ |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 10.0 | Inspect types of form spacers, ties and bracing. | ☑ | ☐ | ☐ |
| 11.0 | Spacing of ties to be set to a pattern | ☑ | ☐ | ☐ |
| 12.0 | Expansion, construction, contraction joints as required & located as coordinated with structural Engineer | ☐ | ☐ | ☑ |
| 13.0 | Forms secured against movement during placing | ☑ | ☐ | ☐ |
| 14.0 | Forms are braced for alignment and blow out | ☑ | ☐ | ☐ |
| 15.0 | Forms are cleaned of all debris, and dry, prior to concrete placement including standing water. | ☑ | ☐ | ☐ |
| 16.0 | Openings in formwork permit inspection and cleaning, placing and compaction of concrete, and forming and processing of construction joints. | ☐ | ☐ | ☑ |
| 17.0 | Formwork has been coated with release agent prior to rebar placement. | ☑ | ☐ | ☐ |
| 18.0 | Anchor Bolts and Embeds are secured to formwork. | ☑ | ☐ | ☐ |

COMMENTS:

ATTACHMENT(S):

DEFICIENCIES NOTES:

INITIAL INSPECTION

INSPECTOR: Ishan Fechter [signature] TITLE Super DATE: NOV 2 2019

RE-INSPECTION (DEFICIENCIES COMPLETED)

INSPECTOR: _____ TITLE _____ DATE: _____

GARRY DAHL
[signature]

Rev 00: May 4, 2018

CLARK BUILDERS
ENERGY & RESOURCES

CB-INSPECTION FORM-DOC-002 REV.00
JDS ENERGY & MINING INC. | STRATAGOLD EAGLE GOLD
PROJECT #: CB201 | 18502

PROJECT MANAGER: DUSTIN DOLYNCHUK, P.ENG
QA/QC COORDINATOR: RYAN DE MILLIANO, C.E.T.
SUPERINTENDENT: GARRY DAHL

# CONCRETE REINFORCEMENT PRE POUR

Rev 01 August 25, 2018

| | |
|---|---|
| SUBCONTRACTOR: Ultimate Reinforcing // McNish | INSPECTION DATE: Nov 2 2018 |
| SUBCONTRACTOR CONTACT PERSON: GARRY DAHL | PROJ. POUR DATE: |
| INSPECTOR(S): GARRY DAHL / JDS | |
| LOCATION: CV 13 Bents 182 & Take UP | |
| DRAWING REV: 0 | DRAWING NO.(S): 3210-231-260-0009 |
| SPEC SECTION(S): S03 20 00 – Concrete Reinforcing Steel | |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Grade (400W unless otherwise noted) and type of steel delivered and installed as required by approved drawings. | ☑ | ☐ | ☐ |
| 2.0 | Inspect rebar distribution, spacing and cover per design/project requirements. | ☑ | ☐ | ☐ |
| 3.0 | Length of splices as specified | ☑ | ☐ | ☐ |
| 4.0 | Staggered splices as specified | ☑ | ☐ | ☐ |
| 5.0 | Any mechanical splices have been approved by the owner prior to install | ☐ | ☐ | ☑ |
| 6.0 | Bars cleaned and free of material that may reduce bond including loose rust, scale, oil, structural defects and that they are uncoated and unpainted. | ☑ | ☐ | ☐ |
| 7.0 | Dowels at wall ends, construction joints, and openings as specified (length, location, size, etc.) | ☑ | ☐ | ☐ |
| 8.0 | No unauthorized field bent bars including hooks installed | ☑ | ☐ | ☐ |
| 9.0 | Resolve conflicts between embedded items and reinforcement | ☑ | ☐ | ☐ |
| 10.0 | When authorized, field bends done without heat and inspected for fissures or cracks. | ☐ | ☐ | ☑ |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 11.0 | Bars tied and supported to prevent displacement | ☑ | ☐ | ☐ |
| 12.0 | Spacers, tie wire and chairs as required | ☑ | ☐ | ☐ |
| 13.0 | Conduits at design location and minimum separation from rebar as specified | ☐ | ☐ | ☑ |
| 14.0 | No contact of bars is made with dissimilar metals as per CSA A23.1 | ☑ | ☐ | ☐ |
| 15.0 | Bars, nails or tie wire not sticking out from surfaces that allow rusting/corrosion | ☑ | ☐ | ☐ |
| 16.0 | Rebar welds are inspected by qualified inspectors certified to CSA W178.2 | ☐ | ☐ | ☑ |
| 17.0 | No rebar congestion or other obstruction for deposit of concrete | ☑ | ☐ | ☐ |
| 18.0 | Adjustments required for interfering items (piping, inserts, sleeves, etc.) have been submitted and approved by owner. | ☐ | ☐ | ☑ |
| 19.0 | Rebar was stored off ground to prevent damage/corrosion | ☑ | ☐ | ☐ |
| 20.0 | Review drawings for anchors, piping, sleeves, boxes | ☑ | ☐ | ☐ |

COMMENTS:

ATTACHMENT(S):

DEFICIENCIES NOTES:

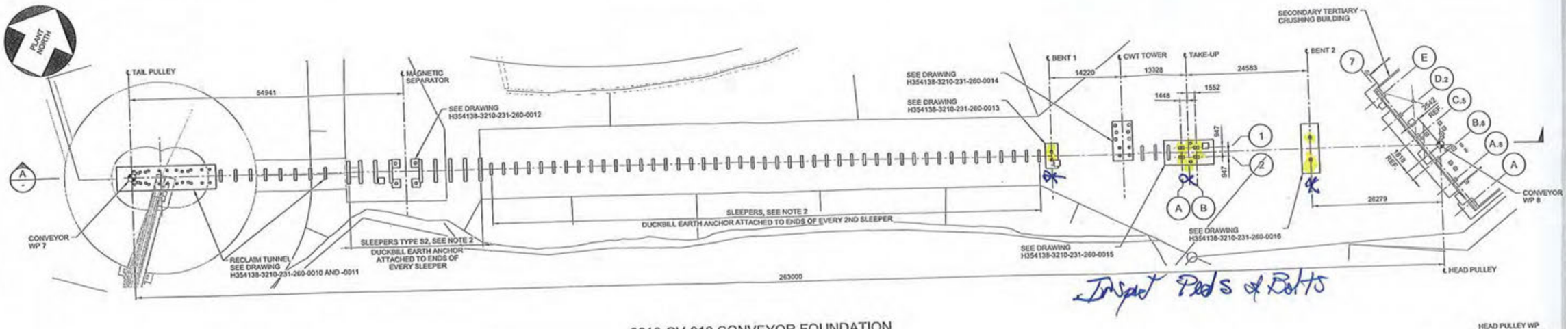
CLARK BUILDERS:

INSPECTOR: Ishan Fechter TITLE Super DATE: NOV 2/2018

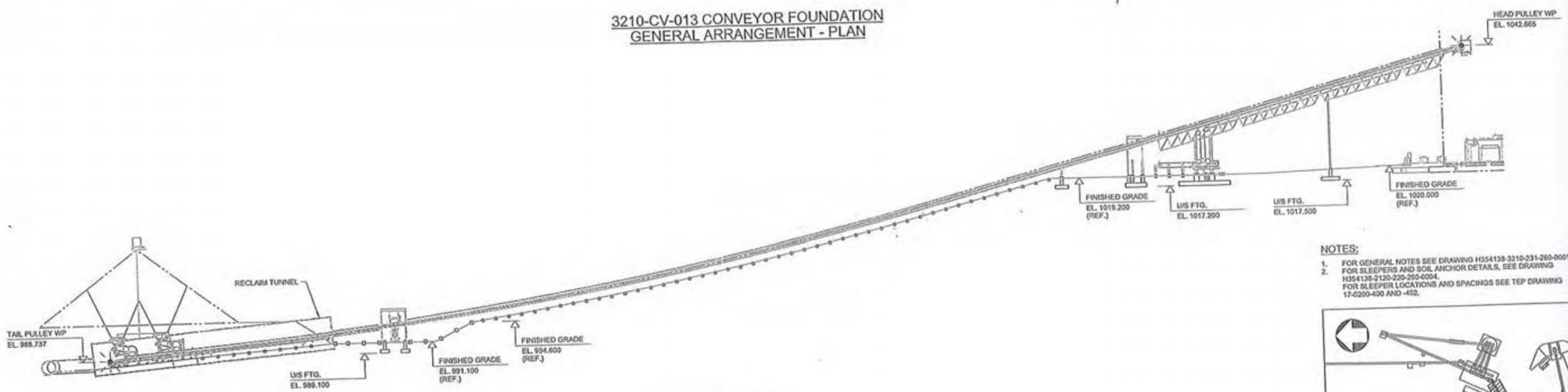
JDS ENERGY & MINING:

INSPECTOR: _____ TITLE _____ DATE: _____

GARRY DAHL



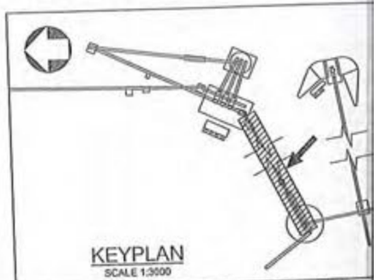

3210-CV-013 CONVEYOR FOUNDATION
GENERAL ARRANGEMENT - PLAN




SECTION A

NOTES:

1. FOR GENERAL NOTES SEE DRAWING H354138-3210-231-260-0001.
2. FOR SLEEPERS AND SOIL ANCHOR DETAILS, SEE DRAWING H354138-2120-220-290-0004.
FOR SLEEPER LOCATIONS AND SPACINGS SEE TEP DRAWING 17-0200-400 AND -402.



KEYPLAN
SCALE 1:3000

0 4 8 12 16 20
1:400 SCALE IN METRES

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| DRAWING No. | DRAWING TITLE |
|---|---|
| REFERENCE DRAWINGS | |

REG. PROFESSIONAL

| No. | DESCRIPTION | BY | CHK'D | DATE |
|---|---|---|---|---|
| 0 | APPROVED FOR CONSTRUCTION | PJ | EA | 2018-08-27 |

REVISIONS

HATCH

| | | | |
|---|---|---|---|
| DRAFTSPERSON | P. JIVAEV | NR | 2018-08-21 |
| DESIGNER | H. LI | NR | 2018-08-21 |
| CHECKER | E. AKINCI | | |
| DESIGN COORD. | S. FERKINS | | |
| RESP. ENG. | E. AKINCI | | |
| LEAD DISC. ENG. | E. AKINCI | | |
| ENG. MANAGER | B. RUSTAD | | |
| PROJ. MANAGER | B. RUSTAD | | |
| ROLE | NAME | SIGNATURE & DATE | |

DRAWING APPROVAL STATUS: Approved for Construction

StrataGold Corporation

EAGLE GOLD PROJECT

COARSE ORE STOCKPILE/RECLA
3210-CV-013 CONVEYOR FOUNDAT
GENERAL ARRANGEMENT

SCALE 1:400 OR AS NOTED

DWG. No. H354138-3210-231-260-0009

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PRINTED: 27-AUG-2018
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14:26

CLARK BUILDERS
ENERGY & RESOURCES



# CONCRETE REINFORCEMENT PRE POUR

Rev 01 August 25, 2018

| | |
|---|---|
| SUBCONTRACTOR: Ultimate Reinforcing // McNish | INSPECTION DATE: NOVEMBER 10, 2018 |
| SUBCONTRACTOR CONTACT PERSON: JIMMY M. | PROJ. POUR DATE: NOVEMBER 10, 2018 |
| INSPECTOR(S): | |
| LOCATION: 3210 // CWT FOUNDATION ON CV013 | |
| DRAWING REV: 00 / DRAWING NO.(S): 3210-0014 | SPEC SECTION(S): S03 20 00 – Concrete Reinforcing Steel |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Grade (400W unless otherwise noted) and type of steel delivered and installed as required by approved drawings. | ☑ | ☐ | ☐ |
| 2.0 | Inspect rebar distribution, spacing and cover per design/project requirements. | ☑ | ☐ | ☐ |
| 3.0 | Length of splices as specified | ☑ | ☐ | ☐ |
| 4.0 | Staggered splices as specified | ☑ | ☐ | ☐ |
| 5.0 | Any mechanical splices have been approved by the owner prior to install | ☐ | ☐ | ☑ |
| 6.0 | Bars cleaned and free of material that may reduce bond including loose rust, scale, oil, structural defects and that they are uncoated and unpainted. | ☑ | ☐ | ☐ |
| 7.0 | Dowels at wall ends, construction joints, and openings as specified (length, location, size, etc.) | ☑ | ☐ | ☐ |
| 8.0 | No unauthorized field bent bars including hooks installed | ☑ | ☐ | ☐ |
| 9.0 | Resolve conflicts between embedded items and reinforcement | ☑ | ☐ | ☐ |
| 10.0 | When authorized, field bends done without heat and inspected for fissures or cracks. | ☐ | ☐ | ☑ |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 11.0 | Bars tied and supported to prevent displacement | ☑ | ☐ | ☐ |
| 12.0 | Spacers, tie wire and chairs as required | ☑ | ☐ | ☐ |
| 13.0 | Conduits at design location and minimum separation from rebar as specified | ☐ | ☐ | ☑ |
| 14.0 | No contact of bars is made with dissimilar metals as per CSA A23.1 | ☑ | ☐ | ☐ |
| 15.0 | Bars, nails or tie wire not sticking out from surfaces that allow rusting/corrosion | ☑ | ☐ | ☐ |
| 16.0 | Rebar welds are inspected by qualified inspectors certified to CSA W178.2 | ☐ | ☐ | ☑ |
| 17.0 | No rebar congestion or other obstruction for deposit of concrete | ☑ | ☐ | ☐ |
| 18.0 | Adjustments required for interfering items (piping, inserts, sleeves, etc.) have been submitted and approved by owner. | ☐ | ☐ | ☑ |
| 19.0 | Rebar was stored off ground to prevent damage/corrosion | ☑ | ☐ | ☐ |
| 20.0 | Review drawings for anchors, piping, sleeves, boxes | ☑ | ☐ | ☐ |

COMMENTS:

HEATING AND HOARDING DONE WELL. INTERNAL TEMP. @ +25°C

ATTACHMENT(S):

DWG (HIGHLIGHTED)

DEFICIENCIES NOTES:

CLARK BUILDERS:
INSPECTOR: Ryan deMilliano TITLE Project Coordinator DATE: Nov 11, 2018

JDS ENERGY & MINING:
INSPECTOR: Terry Chrzaszcz TITLE Const. Sup. DATE: Nov 11/18

CLARK BUILDERS
ENERGY & RESOURCES

PROJECT MANAGER: DUSTIN DOLYNCHUK, P.ENG
QA/QC COORDINATOR: RYAN DE MILLIANO, C.E.T.
SUPERINTENDENT: GARRY DAHL

# FORMWORK & FALSEWORK PRE POUR | QA INSPECTION

Rev 01 August 25, 2018

| | |
|---|---|
| CONTRACTOR: Clark Builders | INSPECTION DATE: November 10, 2018 |
| CONTRACTOR CONTACT PERSON: DAN PELLETIER | DATE OF POUR: November ~~10~~ 12, 2018 |
| INSPECTOR(S): | |
| LOCATION: 3210 // CV013 CWT FOUNDATION | |
| DRAWING REV: 00 | DRAWING NO.(S): 3210-260-231-0014 SPEC SECTION(S): 503100 |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Location, survey, dimension and grades as required | ☑ | ☐ | ☐ |
| 2.0 | Plumbness and Flatness verified | ☑ | ☐ | ☐ |
| 3.0 | Joints are aligned and watertight. | ☑ | ☐ | ☐ |
| 4.0 | Formwork shop drawings are Engineered and reviewed | ☑ | ☐ | ☐ |
| 5.0 | Re-used formwork reconditioned and treated | ☑ | ☐ | ☐ |
| 6.0 | Formwork and ties according to finishing requirements. Confirm no holes in the concrete surface are greater than 25mm in diameter or expose steel at less than 25mm from surface. As per spec. | ☑ | ☐ | ☐ |
| 7.0 | Installation of embeds are located and secured | ☑ | ☐ | ☐ |
| 8.0 | Chamfer requirements checked. 25mm chamfers required for all exterior corners and edges exposed to view including horizontal edges of pads. | ☐ | ☐ | ☑ |
| 9.0 | Key ways and/or other provisions according to design are provided in construction joints | ☑ | ☐ | ☑ |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 10.0 | Inspect types of form spacers, ties and bracing. | ☑ | ☐ | ☐ |
| 11.0 | Spacing of ties to be set to a pattern | ☑ | ☐ | ☐ |
| 12.0 | Expansion, construction, contraction joints as required & located as coordinated with structural Engineer | ☐ | ☐ | ☑ |
| 13.0 | Forms secured against movement during placing | ☑ | ☐ | ☐ |
| 14.0 | Forms are braced for alignment and blow out | ☑ | ☐ | ☐ |
| 15.0 | Forms are cleaned of all debris, and dry, prior to concrete placement including standing water. | ☑ | ☐ | ☐ |
| 16.0 | Openings in formwork permit inspection and cleaning, placing and compaction of concrete, and forming and processing of construction joints. | ☑ | ☐ | ☐ |
| 17.0 | Formwork has been coated with release agent prior to rebar placement. | ☑ | ☐ | ☐ |
| 18.0 | Anchor Bolts and Embeds are secured to formwork. | ☐ | ☐ | ☑ |

COMMENTS:

PERI FORMWORK USED.

ATTACHMENT(S):

DWG (HIGHLIGHTED)

DEFICIENCIES NOTES:

INITIAL INSPECTION

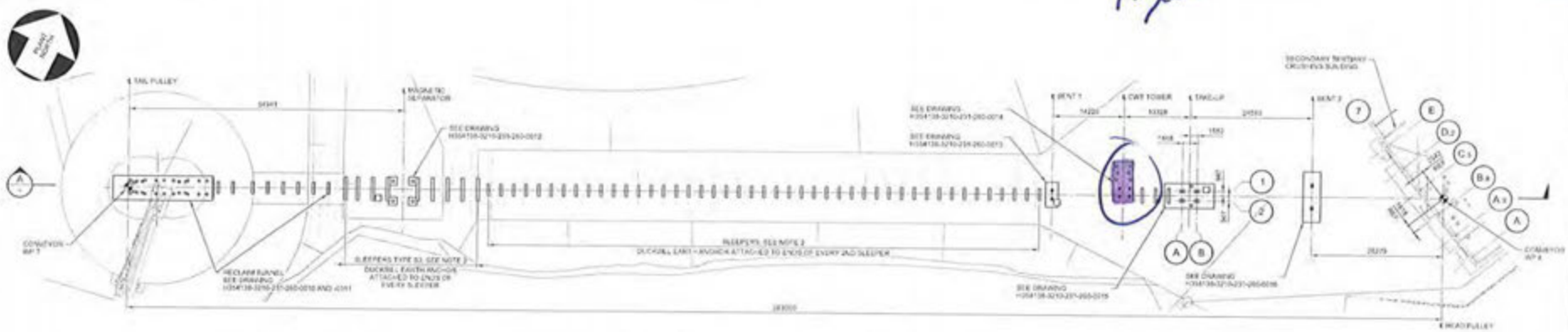
INSPECTOR: _____ TITLE Project Coordinator DATE: Nov 11/18

RE-INSPECTION (DEFICIENCIES COMPLETED)

INSPECTOR: _____ TITLE _____ DATE: _____

Nov 10/18
11/20

H354138-3210-231-260-0009



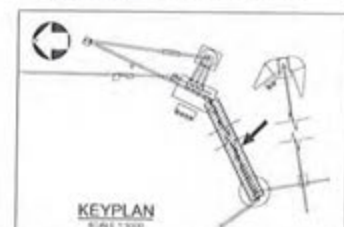

3210-CV-013 CONVEYOR FOUNDATION
GENERAL ARRANGEMENT - PLAN




SECTION A

NOTES:

1. FOR GENERAL NOTES SEE DRAWING H354138-3210-231-260-0001.
2. FOR SLEEPERS AND SOIL ANCHOR DETAILS, SEE DRAWING H354138-3210-230-260-0004.
FOR SLEEPER LOCATIONS AND SPACINGS SEE TEF DRAWING 17-0200-400 AND -402.



KEYPLAN
SCALE 1:3000

| DRAWING No. | DRAWING TITLE |
|---|---|
| REFERENCE DRAWINGS | |

REG. PROFESSIONAL

| No. | DESCRIPTION | BY | CHKD | DATE |
|---|---|---|---|---|
| 1 | BENT 2 U/S FOOTING ELEVATION REVISED DUE TO SITE CONDITIONS | PJ | EA | 2018-10-11 |
| 2 | APPROVED FOR CONSTRUCTION | PJ | EA | 2018-08-27 |

REVISIONS

HATCH

| ROLE | NAME | SIGNATURE & DATE |
|---|---|---|
| DRM TEFERSON | P. JUAREY | NR 2018-08-27 |
| DESIGNER | H. LI | NR 2018-08-27 |
| CHECKER | E. AHINCI | 2018-10-11 |
| DESIGN COORD. | S. PERKINS | 2018-10-11 |
| RESP. ENG. | E. AHINCI | 2018-10-11 |
| LEAD DISC. ENG. | E. AHINCI | 2018-10-11 |
| ENG. MANAGER | B. RUSTAD | |
| PROJ. MANAGER | B. RUSTAD | |

DRAWING APPROVAL STATUS: Approved for Construction

StrataGold Corporation

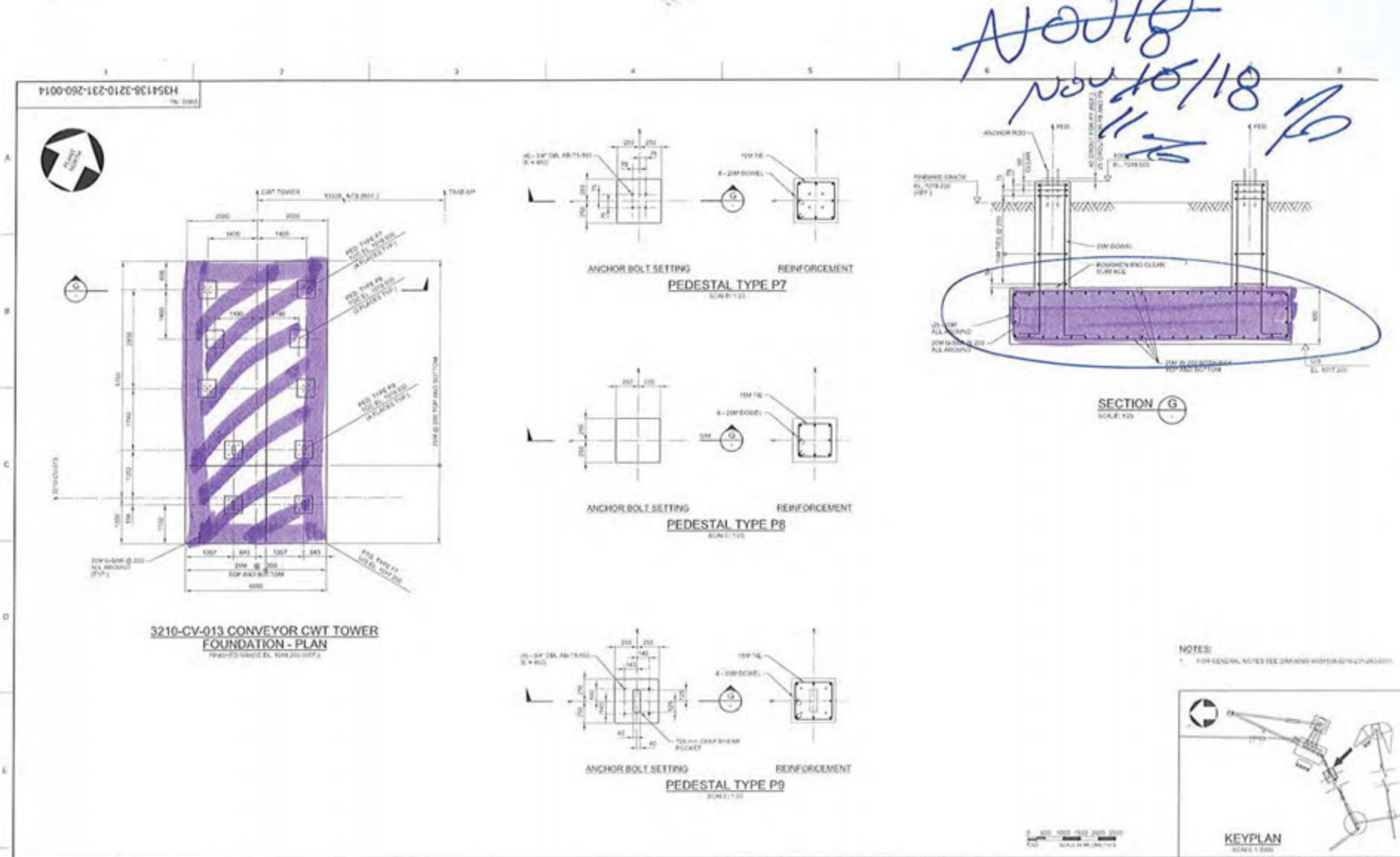
EAGLE GOLD PROJECT

COARSE ORE STOCKPILE/RECLAIM
3210-CV-013 CONVEYOR FOUNDATION
GENERAL ARRANGEMENT

SCALE 1:400

DWG. No. H354138-3210-231-260-0009

REV 1




HATCH

StrataGold Corporation

EAGLE GOLD PROJECT

COARSE ORE STOCKPILE/RECLAIM
3210-CV-013 CONVEYOR CWT TOWER
PLAN, SECTIONS AND DETAILS

| | | | |
|---|---|---|---|
| DRAFTSPERSON | P. JIVACV | NR | 2018-08-23 |
| DESIGNER | H. LI | NR | 2018-08-23 |
| CHECKER | E. AKINCI | | 2018-08-27 |
| DESIGN COORD. | S. PERKINS | | |
| RESP. ENG. | E. AKINCI | | 2018-08-27 |
| LEAD DISC. ENG. | E. AKINCI | | 2018-08-27 |
| ENG. MANAGER | R. RUSTAD | | 2018-08-27 |
| PROJ. MANAGER | R. RUSTAD | | 2018-08-27 |
| ROLE | NAME | SIGNATURE & DATE | |

DRAWING APPROVAL STATUS: Approved for Construction

| No. | DESCRIPTION | BY | CHKD | DATE |
|---|---|---|---|---|
| 0 | APPROVED FOR CONSTRUCTION | PJ | EA | 2018-08-27 |

REVISIONS

| DRAWING No. | DRAWING TITLE |
|---|---|
| REFERENCE DRAWINGS | |

REG. PROFESSIONAL

2018-08-27

SCALE 1:50 DRAWINGS

DWG. No. H354138-3210-231-260-0014

REV 0

# CONCRETE POST POUR COLD WEATHER MONITORING

Rev 02 Nov 4, 2018

| | |
|---|---|
| CONTRACTOR: Clark Builders | DATE OF POUR: Nov. 12 |
| AMBIENT TEMP at POUR (°C): -12 | DATE FORMWORK STRIPPED: Nov. 15 |
| LOCATION: CV-13 TAKE-UP FOUNDATION | |
| | SPEC SECTION(S): S03 30 00 – Cast-In-Place |

TYPE OF CURING:

| | | | | | |
|---|---|---|---|---|---|
| CURING COMPOUND | ☐ | DAMP BURLAP OR FABRIC | ☐ | INSULATION (TARPS) | ☑ |
| POLYETHYLENE SHEETS | ☐ | WATER/FOG SPRAY/ PONDING | ☐ | FORMS (COVERED BY) | ☑ |

| COLD WEATHER REQUIREMENTS (WHEN AMB. TEMP < 5°C) | PASS | FAIL | N/A | REMARKS |
|---|---|---|---|---|
| Protection in place and temperatures not lower than 20°C or until 70% of the 28-day strength has been reached. | ☑ | ☐ | ☐ | |
| Cold weather protection provided by means of heated enclosures, coverings, insulation, or a suitable approved combination of these methods during complete curing period. | ☑ | ☐ | ☐ | |
| Concrete test cylinders are kept within hoarding or in area where temperatures are ideal for curing. (No frozen Cylinders) | ☑ | ☐ | ☐ | |
| Heat is not directed onto concrete. This may result in thermal cracking. | ☑ | ☐ | ☐ | |
| During freezing weather, and standing water removed before the end of the protection period (CSA A 23.1 clause 7.4.2.4.2) | ☑ | ☐ | ☐ | |
| 8.0 | | | | |

CONCRETE CURING TEMPERATURE LOG (COLD WEATHER CONCRETEING ONLY)

| DATE | TIME (24 HR) | OUTSIDE AIR TEMP (°C) | TEMP INSIDE HOARDING (°C) | CONCRETE SURFACE TEMP (°C) | | INITIALS OF READER |
|---|---|---|---|---|---|---|
| | | | | HIGH (°C) | LOW (°C) | |
| Nov. 12 | 8:40 AM | -12 | 15.7° | | | D.P. |
| Nov. 12 | 12:00 PM | -4 | 32.2 | 30.3 | 25.4 | D.P. |
| Nov. 12 | 6:30 PM | -7 | 32.0 | 29.5 | 23.1 | D.P. |
| Nov. 13 | 6:00 AM | -5 | 32.7 | 36.6 | 33.7 | D.P. |
| Nov. 13 | 1:00 PM | -3 | 12 | 36.2 | 32.4 | D.P. |
| Nov. 13 | 6:00 PM | -12 | 32.8 | 38.7 | 36.4 | D.P. |
| Nov. 14 | 1:30 PM | -15 | 29.9 | 38.4 | 34.8 | D.P. |
| COMMENTS: | Shutting heaters off not to cook concrete | | | | | |

**CLARK BUILDERS SITE REPRESENTATIVE**

PRINT/ SIGN: DAN PELLETIER _____ TITLE Foreman DATE: Nov. 15

CLARK BUILDERS
ENERGY & RESOURCES

CB-INSPECTION FORM-DOC-002 REV.00
JDS ENERGY & MINING INC. | STRATAGOLD EAGLE GOLD
PROJECT #: CB201 | 18502

PROJECT MANAGER: DUSTIN DOLYNCHUK, P.ENG
QA/QC COORDINATOR: RYAN DE MILLIANO, C.E.T.
SUPERINTENDENT: GARRY DAHL

# CONCRETE REINFORCEMENT PRE POUR

Rev 01 August 25, 2018

| | |
|---|---|
| SUBCONTRACTOR: Ultimate Reinforcing // McNish | INSPECTION DATE: November 17, 2018 |
| SUBCONTRACTOR CONTACT PERSON: Cameron | PROJ. POUR DATE: November 17, 2018 |
| INSPECTOR(S): Ryan deMilliano, Dan Pelletier, Matt Coverdale (JDS) | |
| LOCATION: 3210 Cuoos / Pedestals (x6) | |
| DRAWING REV: | DRAWING NO.(S): |
| SPEC SECTION(S): S03 20 00 – Concrete Reinforcing Steel | |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Grade (400W unless otherwise noted) and type of steel delivered and installed as required by approved drawings. | ☑ | ☐ | ☐ |
| 2.0 | Inspect rebar distribution, spacing and cover per design/project requirements. | ☑ | ☐ | ☐ |
| 3.0 | Length of splices as specified | ☑ | ☐ | ☑ |
| 4.0 | Staggered splices as specified | ☑ | ☐ | ☑ |
| 5.0 | Any mechanical splices have been approved by the owner prior to install | ☐ | ☐ | ☑ |
| 6.0 | Bars cleaned and free of material that may reduce bond including loose rust, scale, oil, structural defects and that they are uncoated and unpainted. | ☑ | ☐ | ☐ |
| 7.0 | Dowels at wall ends, construction joints, and openings as specified (length, location, size, etc.) | ☑ | ☐ | ☐ |
| 8.0 | No unauthorized field bent bars including hooks installed | ☑ | ☐ | ☐ |
| 9.0 | Resolve conflicts between embedded items and reinforcement | ☑ | ☐ | ☐ |
| 10.0 | When authorized, field bends done without heat and inspected for fissures or cracks. | ☐ | ☐ | ☑ |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 11.0 | Bars tied and supported to prevent displacement | ☑ | ☐ | ☐ |
| 12.0 | Spacers, tie wire and chairs as required | ☑ | ☐ | ☐ |
| 13.0 | Conduits at design location and minimum separation from rebar as specified | ☐ | ☐ | ☑ |
| 14.0 | No contact of bars is made with dissimilar metals as per CSA A23.1 | ☑ | ☐ | ☐ |
| 15.0 | Bars, nails or tie wire not sticking out from surfaces that allow rusting/corrosion | ☑ | ☐ | ☐ |
| 16.0 | Rebar welds are inspected by qualified inspectors certified to CSA W178.2 | ☐ | ☐ | ☑ |
| 17.0 | No rebar congestion or other obstruction for deposit of concrete | ☑ | ☐ | ☐ |
| 18.0 | Adjustments required for interfering items (piping, inserts, sleeves, etc.) have been submitted and approved by owner. | ☑ | ☐ | ☐ |
| 19.0 | Rebar was stored off ground to prevent damage/corrosion | ☑ | ☐ | ☐ |
| 20.0 | Review drawings for anchors, piping, sleeves, boxes | ☑ | ☐ | ☐ |

COMMENTS:

1/F1 1/4 created to confirm it will be acceptable to have 150 mm cover at SW pedestal from top of dowels to TOC.

ATTACHMENT(S):

DWG. HIGHLIGHTED

APPROVED BY ENG.

DEFICIENCIES NOTES:

Clean out formwork boxes

CLARK BUILDERS:

INSPECTOR: Ryan deMilliano TITLE Project Coordinator DATE: Nov 17/18

JDS ENERGY & MINING:

INSPECTOR: Matt Coverdale TITLE Field Eng DATE: Nov 17/18

CLARK BUILDERS
ENERGY & RESOURCES

# FORMWORK & FALSEWORK PRE POUR | QA INSPECTION

Rev 01 August 25, 2018

| | |
|---|---|
| CONTRACTOR: Clark Builders | INSPECTION DATE: Nov 17/18 |
| CONTRACTOR CONTACT PERSON: Ian Pelletier | DATE OF POUR: Nov 17/18 |
| INSPECTOR(S): Ian Pelletier, Ryan deMilliano, Matt Coverdale (JDS | |
| LOCATION: 3210 RL003 / PEDESTALS (x6) | |
| DRAWING REV: | DRAWING NO.(S): SPEC SECTION(S): |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Location, survey, dimension and grades as required | ☑ | ☐ | ☐ |
| 2.0 | Plumbness and Flatness verified | ☑ | ☐ | ☐ |
| 3.0 | Joints are aligned and watertight. | ☑ | ☐ | ☐ |
| 4.0 | Formwork shop drawings are Engineered and reviewed | ☐ | ☐ | ☑ |
| 5.0 | Re-used formwork reconditioned and treated | ☑ | ☐ | ☐ |
| 6.0 | Formwork and ties according to finishing requirements. Confirm no holes in the concrete surface are greater than 25mm in diameter or expose steel at less than 25mm from surface. As per spec. | ☑ | ☐ | ☐ |
| 7.0 | Installation of embeds are located and secured | ☐ | ☐ | ☑ |
| 8.0 | Chamfer requirements checked. 25mm chamfers required for all exterior corners and edges exposed to view including horizontal edges of pads. | ☑ | ☐ | ☐ |
| 9.0 | Key ways and/or other provisions according to design are provided in construction joints | ☐ | ☐ | ☑ |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 10.0 | Inspect types of form spacers, ties and bracing. | ☑ | ☐ | ☐ |
| 11.0 | Spacing of ties to be set to a pattern | ☑ | ☐ | ☐ |
| 12.0 | Expansion, construction, contraction joints as required & located as coordinated with structural Engineer | ☑ | ☐ | ☐ |
| 13.0 | Forms secured against movement during placing | ☑ | ☐ | ☐ |
| 14.0 | Forms are braced for alignment and blow out | ☑ | ☐ | ☐ |
| 15.0 | Forms are cleaned of all debris, and dry, prior to concrete placement including standing water. | ☑ | ☐ | ☐ |
| 16.0 | Openings in formwork permit inspection and cleaning, placing and compaction of concrete, and forming and processing of construction joints. | ☑ | ☐ | ☐ |
| 17.0 | Formwork has been coated with release agent prior to rebar placement. | ☑ | ☐ | ☐ |
| 18.0 | Anchor Bolts and Embeds are secured to formwork. | ☑ | ☐ | ☐ |

COMMENTS:

ATTACHMENT(S):

DEFICIENCIES NOTES:

INITIAL INSPECTION

INSPECTOR: R deMilliano TITLE Project Coordinator DATE: Nov 17, 2018

RE-INSPECTION (DEFICIENCIES COMPLETED)

INSPECTOR: Matt Coverdale MC TITLE Field Eng DATE: Nov 17, 2018

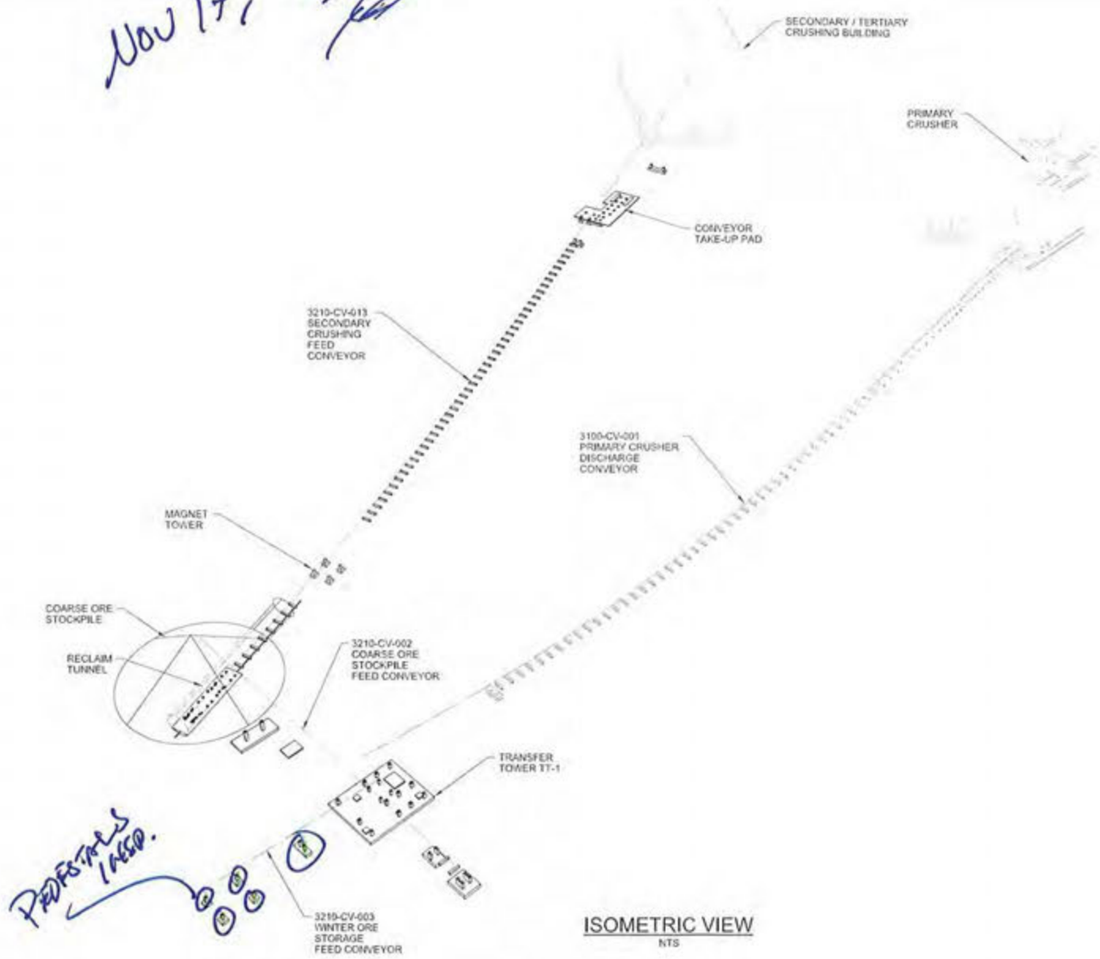
H354138-3210-231-260-0001

AREA: 3210 COARSE ORE STOCKPILE/RECLAIM

CONCRETE DETAILS DRAWING LIST

| DRAWING NUMBER | REV. | DRAWING TITLE | | |
|---|---|---|---|---|
| H354138-3210-231-260-0001 | 0 | COARSE ORE STOCLPILE/RECLAIM | GENERAL | TITLE SHEET, ISOMETRIC |
| H354138-3210-231-260-0002 | 0 | COARSE ORE STOCLPILE/RECLAIM | TRANSFER TOWER TT-1 FOUNDATION | PLAN, SECTIONS AND DETAILS |
| H354138-3210-231-260-0003 | 0 | COARSE ORE STOCLPILE/RECLAIM | 3210-CV-002 CONVEYOR FOUNDATION | PLAN, SECTIONS AND DETAILS - SHEET 1 |
| H354138-3210-231-260-0004 | 0 | COARSE ORE STOCLPILE/RECLAIM | 3210-CV-002 CONVEYOR FOUNDATION | PLAN, SECTIONS AND DETAILS - SHEET 2 |
| H354138-3210-231-260-0005 | 0 | COARSE ORE STOCLPILE/RECLAIM | 3220-CV-002 CONVEYOR FOUNDATION | PLAN, SECTIONS AND DETAILS - SHEET 3 |
| H354138-3210-231-260-0006 | 0 | COARSE ORE STOCLPILE/RECLAIM | 3220-CV-003 CONVEYOR FOUNDATION | PLAN, SECTIONS AND DETAILS |
| H354138-3210-231-260-0310 | 2 | COARSE ORE STOCLPILE/RECLAIM | RECLAIM TUNNEL FOUNDATION | PLAN AND SECTION |
| H354138-3210-231-260-0311 | 1 | COARSE ORE STOCLPILE/RECLAIM | RECLAIM TUNNEL FOUNDATION | SECTION AND DETAILS |

Nov 17, 18



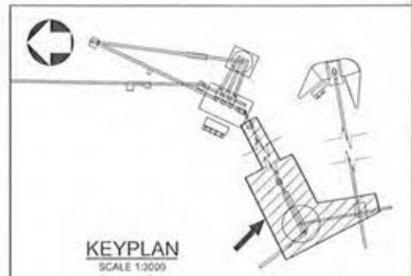

ISOMETRIC VIEW
NTS

## FOUNDATION NOTES:

2.1 ALL CONCRETE FOUNDATION SUBGRADE SHALL BE EITHER ROCK OR 38 mm MINUS NFS STRUCTURAL BACKFILL DOWN TO 3 METERS BELOW THE FINISH GRADE COMPACTED TO 95% MODIFIED PROCTOR.
2.2 ALL BACKFILL AROUND AND ABOVE CONCRETE FOUNDATIONS, PEDESTALS AND PADS SHALL BE 38 mm MINUS NFS STRUCTURAL BACKFILL.
2.3. ALL FOUNDATION SUBGRADE SHALL BE INSPECTED AND APPROVED BY THE GEOTECHNICAL ENGINEER PRIOR TO PLACEMENT OF CONCRETE.
2.4 THE PREPARED FOOTING SUBGRADE SHALL BE PROTECTED FROM WATER INGRESS AND SOFTENING BY PROVIDING ADEQUATE DRAINAGE OR PLACING A LEAN CONCRETE MUD SLAB.

## GENERAL NOTES;

1.1 READ THESE DRAWINGS IN CONJUNCTION WITH ALL OTHER PERTINENT CONTRACT DOCUMENTS.
1.2 FOR CONCRETE TYPICAL DETAILS DRAWING SET AND GENERAL NOTES, SEE DRAWINGS 354138-3000-231-294-0001 TO -0007.
1.3 REFER TO MECHANICAL, PROCESS AND ELECTRICAL DRAWINGS FOR LOCATIONS AND DIMENSIONS OF OPENINGS, SLEEVES AND OTHER BUILDING COMPONENTS NOT SHOWN ON STRUCTURAL DRAWINGS. REPORT DISCREPENCIES TO THE OWNER OR HIS REPRESENTATIVE PRIOR TO PROCEEDING WITH THE WORK.
1.4 FOR GENERAL SITE LOCATION AND WORK POINT COORDINATES, SEE DRAWING H354138-2120-220-290-0001.
1.5 HIGH ENERGY COMPACTION EQUIPMENT SUCH AS LARGE ROLLERS MUST NOT BE USED FOR COMPACTING BACKFILL WITHIN 1 METER OF THE EDGE OF THE WALLS.
1.6 FOR GROUNDING LOOP SEE ELECTRICAL DRAWING H354138-3210-260-272-1000-0001. FOR GROUNDING INSTALLATION DETAILS SEE DRAWING SET H354138-3210-260-290-0001-0001 TO -0015.
1.7 FOR CAST-IN PLACE CONCRETE, SEE SPECIFICATION SECTION H354138-5032000.
1.8 FOR CONCRETE FORMWORK, SEE SPECIFICATION SECTION H354138-5031000.
1.9 FOR CONCRETE REINFORCEMENT, SEE SPECIFICATION SECTION H354138-5033000.
1.10 FOR GROUTING, SEE SPECIFICATION SECTION H354138-5036000.
1.11 CONSTRUCTION JOINTS NOT SHOWN ON THE DRAWINGS MUST BE APPROVED BY THE CONTRUCTION MANAGER.
1.12 IN CASE OF ANY DISCREPANCIES, INFORM THE CONSTRUCTION MANAGER BEFORE COMMENCING WORK.
1.13 ALL DIMENSIONS ARE IN MILLIMETERS AND ELEVATIONS ARE IN METERS.
1.14 PROVIDE 19mm X 19mm CHAMFER AT ALL EXPOSED CONCRETE CORNERS AND EDGES ABOVE GRADE LEVEL.
1.15 THE DRAWINGS SHOULD BE READ IN CONJUNCTION WITH THE PROJECT CIVIL DESIGN CRITERIA H354138-0000-220-210-0001.
1.16 FOR FURTHER GEOTECH INFORMATION, SEE "2011 GEOTECHNICAL INVESTIGATION FOR MINE SITE INFRASTRUCTURE FOUNDATION REPORT" BY BGC ENGINEERING DATED JAN 31, 2012.
1.17 SET ANCHOR RODS USING TEMPLATES WHICH MUST BE LEFT IN PLACE UNTIL THE CONCRETE HAS SET. ANCHOR RODS SHALL BE PLUMBED AND SECURED FROM MOVEMENT PRIOR TO CASTING CONCRETE.



KEYPLAN
SCALE 1:3000

| DRAWING No. | DRAWING TITLE |
|---|---|
| REFERENCE DRAWINGS | |

REG. PROFESSIONAL

2018-08-17

| No. | DESCRIPTION | BY | CHK'D | DATE |
|---|---|---|---|---|
| 0 | APPROVED FOR CONSTRUCTION | PJ | EA | 2018-08-17 |
| REVISIONS | | | | |

HATCH

| | | | |
|---|---|---|---|
| DRAFTSPERSON | P. JIVAEV | NR | 2017-11-23 |
| DESIGNER | H. LI | NR | 2017-11-23 |
| CHECKER | E. AKINCI | | 2018-08-17 |
| DESIGN COORD. | S. PERKINS | | 2018-08-17 |
| RESP. ENG. | E. AKINCI | | 2018-08-17 |
| LEAD DISC. ENG. | E. AKINCI | | 2018-08-17 |
| ENG. MANAGER | B. RUSTAD | | 2018-08-17 |
| PROJ. MANAGER | B. RUSTAD | | 2018-08-17 |

| ROLE | NAME | SIGNATURE & DATE |
|---|---|---|
| DRAWING APPROVAL STATUS: | Approved for Construction | |

StrataGold Corporation

EAGLE GOLD PROJECT

COARSE ORE STOCKPILE/RECLAIM
CONCRETE SUPPORT STRUCTURES
TITLE SHEET, ISOMETRIC VIEW

| SCALE | DWG. No. | REV |
|---|---|---|
| NTS OR AS NOTED | H354138-3210-231-260-0001 | 0 |

SHEET SIZE: D

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PRINTED: 17-AUG-2018
15:07
bc_pwservice

CLARK BUILDERS
ENERGY & RESOURCES

# CONCRETE POST POUR COLD WEATHER MONITORING

Rev 02 Nov 4, 2018

| | |
|---|---|
| CONTRACTOR: Clark Builders | DATE OF POUR: Nov. 17 |
| AMBIENT TEMP at POUR (°C): -17 | DATE FORMWORK STRIPPED: Nov. 20 |
| LOCATION: CV-03 BENT 1 | |
| | SPEC SECTION(S): S03 30 00 – Cast-In-Place |

TYPE OF CURING:

| | | | | | |
|---|---|---|---|---|---|
| CURING COMPOUND | ☐ | DAMP BURLAP OR FABRIC | ☐ | INSULATION (TARPS) | ☑ |
| POLYETHYLENE SHEETS | ☐ | WATER/FOG SPRAY/ PONDING | ☐ | FORMS (COVERED BY) | ☑ |

| COLD WEATHER REQUIREMENTS (WHEN AMB. TEMP < 5°C) | PASS | FAIL | N/A | REMARKS |
|---|---|---|---|---|
| Protection in place and temperatures not lower than 20°C or until 70% of the 28-day strength has been reached. | ☑ | ☐ | ☐ | |
| Cold weather protection provided by means of heated enclosures, coverings, insulation, or a suitable approved combination of these methods during complete curing period. | ☑ | ☐ | ☐ | |
| Concrete test cylinders are kept within hoarding or in area where temperatures are ideal for curing. (No frozen Cylinders) | ☑ | ☐ | ☐ | |
| Heat is not directed onto concrete. This may result in thermal cracking. | ☑ | ☐ | ☐ | |
| During freezing weather, and standing water removed before the end of the protection period (CSA A 23.1 clause 7.4.2.4.2) | ☑ | ☐ | ☐ | |
| | | | | |

CONCRETE CURING TEMPERATURE LOG (COLD WEATHER CONCRETEING ONLY)

| DATE | TIME (24 HR) | OUTSIDE AIR TEMP (°C) | TEMP INSIDE HOARDING (°C) | CONCRETE SURFACE TEMP (°C) | | INITIALS OF READER |
|---|---|---|---|---|---|---|
| | | | | HIGH (°C) | LOW (°C) | |
| Nov. 17 | 6:30 PM | -19 | 32 | 24 | 23 | D. P. |
| Nov. 18 | 9:30 AM | -11 | 38 | 39 | 38 | D. P. |
| Nov. 18 | 1:30 PM | -8 | 30 | 33 | 31 | D. P. |
| Nov. 18 | 6:30 PM | -10 | 23 | 30 | 29 | D. P. |
| Nov. 19 | 7:00 AM | -5 | 24 | 30 | 28 | D. P. |
| Nov. 19 | 1:30 PM | -2 | 21 | 28 | 27 | D. P. |
| Nov. 19 | 6:30 PM | -3 | 20 | 27 | 27 | D. P. |
| COMMENTS: | Turning heaters off and on to control heat | | | | | |

**CLARK BUILDERS SITE REPRESENTATIVE**

PRINT/ SIGN: DAN PELLETIER TITLE Foreman DATE: Nov. 19

# CONCRETE POST POUR COLD WEATHER MONITORING

Rev 02 Nov 4, 2018

| | |
|---|---|
| CONTRACTOR: Clark Builders | DATE OF POUR: Nov. 17 |
| AMBIENT TEMP at POUR (°C): -17 | DATE FORMWORK STRIPPED: Nov. 20 |
| LOCATION: CV-3 G.L.1 | |
| | SPEC SECTION(S): S03 30 00 – Cast-In-Place |

TYPE OF CURING:

| | | | | | |
|---|---|---|---|---|---|
| CURING COMPOUND | ☐ | DAMP BURLAP OR FABRIC | ☐ | INSULATION (TARPS) | ☑ |
| POLYETHYLENE SHEETS | ☐ | WATER/FOG SPRAY/ PONDING | ☐ | FORMS (COVERED BY) | ☑ |

| COLD WEATHER REQUIREMENTS (WHEN AMB. TEMP < 5°C) | PASS | FAIL | N/A | REMARKS |
|---|---|---|---|---|
| Protection in place and temperatures not lower than 20°C or until 70% of the 28-day strength has been reached. | ☑ | ☐ | ☐ | |
| Cold weather protection provided by means of heated enclosures, coverings, insulation, or a suitable approved combination of these methods during complete curing period. | ☑ | ☐ | ☐ | |
| Concrete test cylinders are kept within hoarding or in area where temperatures are ideal for curing. (No frozen Cylinders) | ☑ | ☐ | ☐ | |
| Heat is not directed onto concrete. This may result in thermal cracking. | ☑ | ☐ | ☐ | |
| During freezing weather, and standing water removed before the end of the protection period (CSA A 23.1 clause 7.4.2.4.2) | ☑ | ☐ | ☐ | |
| | | | | |

NCRETE CURING TEMPERATURE LOG (COLD WEATHER CONCRETEING ONLY)

| DATE | TIME (24 HR) | OUTSIDE AIR TEMP (°C) | TEMP INSIDE HOARDING (°C) | CONCRETE SURFACE TEMP (°C) | | INITIALS OF READER |
|---|---|---|---|---|---|---|
| | | | | HIGH (°C) | LOW (°C) | |
| Nov. 17 | 6:30 PM | -19 | 31 | 25 | 23 | D.P. |
| Nov. 18 | 9:30 AM | -11 | 29 | 36 | 35 | D.P. |
| Nov. 18 | 1:30 PM | -8 | 23 | 32 | 30 | D.P. |
| Nov. 18 | 6:30 PM | -10 | 22 | 37 | 30 | D.P. |
| Nov. 19 | 7:00 AM | -5 | 25 | 32 | 31 | D.P. |
| Nov. 19 | 1:30 PM | -2 | 21 | 29 | 29 | D.P. |
| Nov. 19 | 6:30 PM | -3 | 23 | 29 | 28 | D.P. |
| COMMENTS: | Furnace heater off and on to maintain heat | | | | | |

**CLARK BUILDERS SITE REPRESENTATIVE**

PRINT/ SIGN: DAN PELLETIER TITLE Foreman DATE: Nov. 19

# CONCRETE POST POUR COLD WEATHER MONITORING

Rev 02 Nov 4, 2018

| | |
|---|---|
| CONTRACTOR: Clark Builders | DATE OF POUR: Nov. 17 |
| AMBIENT TEMP at POUR (°C): -17 | DATE FORMWORK STRIPPED: Nov. 20 |
| LOCATION: CV-03 G.L. 2 | |
| | SPEC SECTION(S): S03 30 00 – Cast-In-Place |

TYPE OF CURING:

| | | | | | |
|---|---|---|---|---|---|
| CURING COMPOUND | ☐ | DAMP BURLAP OR FABRIC | ☐ | INSULATION (TARPS) | ☑ |
| POLYETHYLENE SHEETS | ☐ | WATER/FOG SPRAY/ PONDING | ☐ | FORMS (COVERED BY) | ☑ |

| COLD WEATHER REQUIREMENTS (WHEN AMB. TEMP < 5°C) | PASS | FAIL | N/A | REMARKS |
|---|---|---|---|---|
| Protection in place and temperatures not lower than 20°C or until 70% of the 28-day strength has been reached. | ☑ | ☐ | ☐ | |
| Cold weather protection provided by means of heated enclosures, coverings, insulation, or a suitable approved combination of these methods during complete curing period. | ☑ | ☐ | ☐ | |
| Concrete test cylinders are kept within hoarding or in area where temperatures are ideal for curing. (No frozen Cylinders) | ☑ | ☐ | ☐ | |
| Heat is not directed onto concrete. This may result in thermal cracking. | ☑ | ☐ | ☐ | |
| During freezing weather, and standing water removed before the end of the protection period (CSA A 23.1 clause 7.4.2.4.2) | ☑ | ☐ | ☐ | |
| | | | | |

CRETE CURING TEMPERATURE LOG (COLD WEATHER CONCRETEING ONLY)

| DATE | TIME (24 HR) | OUTSIDE AIR TEMP (°C) | TEMP INSIDE HOARDING (°C) | CONCRETE SURFACE TEMP (°C) | | INITIALS OF READER |
|---|---|---|---|---|---|---|
| | | | | HIGH (°C) | LOW (°C) | |
| Nov. 17 | 6:30 PM | -19 | 33 | 25 | 24 | D.P. |
| Nov. 18 | 9:30 AM | -11 | 39 | 38 | 37 | D.P. |
| Nov. 18 | 1:30 PM | -8 | 28 | 34 | 32 | D.P. |
| Nov. 18 | 6:30 PM | -10 | 23 | 32 | 31 | D.P. |
| Nov. 19 | 7:00 AM | -5 | 25 | 34 | 32 | D.P. |
| Nov. 19 | 1:30 PM | -2 | 21 | 31 | 30 | D.P. |
| Nov. 19 | 6:30 PM | -3 | 22 | 29 | 28 | D.P. |

COMMENTS: Turning heaters off and on to control heat

**CLARK BUILDERS SITE REPRESENTATIVE**

PRINT/ SIGN: DAN PELLETIER Dan Pell TITLE Foreman DATE: Nov. 19

CLARK BUILDERS
ENERGY & RESOURCES

CB-INSPECTION FORM-DOC-002 REV.00
JDS ENERGY & MINING INC. | STRATAGOLD EAGLE GOLD
PROJECT #: CB201 | 18502

PROJECT MANAGER: DUSTIN DOLYNCHUK, P.ENG
QA/QC COORDINATOR: RYAN DE MILLIANO, C.E.T.
SUPERINTENDENT: GARRY DAHL

# CONCRETE REINFORCEMENT PRE POUR

Rev 01 August 25, 2018

| | |
|---|---|
| SUBCONTRACTOR: Ultimate Reinforcing // McNish | INSPECTION DATE: NOVEMBER 17, 2018 |
| SUBCONTRACTOR CONTACT PERSON: CLAYTON | PROJ. POUR DATE: NOVEMBER 17, 2018 |
| INSPECTOR(S): Ryan deMilliano, DAN Pelletier, Matt Coverdale (3DS) | |
| LOCATION: 3210 CU003 / PEDESTALS (x6) | |
| DRAWING REV: | DRAWING NO.(S): SPEC SECTION(S): S03 20 00 – Concrete Reinforcing Steel |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Grade (400W unless otherwise noted) and type of steel delivered and installed as required by approved drawings. | ☑ | ☐ | ☐ |
| 2.0 | Inspect rebar distribution, spacing and cover per design/project requirements. | ☑ | ☐ | ☐ |
| 3.0 | Length of splices as specified | ☑ | ☐ | ☑ |
| 4.0 | Staggered splices as specified | ☑ | ☐ | ☑ |
| 5.0 | Any mechanical splices have been approved by the owner prior to install | ☐ | ☐ | ☑ |
| 6.0 | Bars cleaned and free of material that may reduce bond including loose rust, scale, oil, structural defects and that they are uncoated and unpainted. | ☑ | ☐ | ☐ |
| 7.0 | Dowels at wall ends, construction joints, and openings as specified (length, location, size, etc.) | ☑ | ☐ | ☐ |
| 8.0 | No unauthorized field bent bars including hooks installed | ☑ | ☐ | ☐ |
| 9.0 | Resolve conflicts between embedded items and reinforcement | ☑ | ☐ | ☐ |
| 10.0 | When authorized, field bends done without heat and inspected for fissures or cracks. | ☐ | ☐ | ☑ |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 11.0 | Bars tied and supported to prevent displacement | ☑ | ☐ | ☐ |
| 12.0 | Spacers, tie wire and chairs as required | ☑ | ☐ | ☐ |
| 13.0 | Conduits at design location and minimum separation from rebar as specified | ☐ | ☐ | ☑ |
| 14.0 | No contact of bars is made with dissimilar metals as per CSA A23.1 | ☑ | ☐ | ☐ |
| 15.0 | Bars, nails or tie wire not sticking out from surfaces that allow rusting/corrosion | ☑ | ☐ | ☐ |
| 16.0 | Rebar welds are inspected by qualified inspectors certified to CSA W178.2 | ☐ | ☐ | ☑ |
| 17.0 | No rebar congestion or other obstruction for deposit of concrete | ☑ | ☐ | ☐ |
| 18.0 | Adjustments required for interfering items (piping, inserts, sleeves, etc.) have been submitted and approved by owner. | ☑ | ☐ | ☐ |
| 19.0 | Rebar was stored off ground to prevent damage/corrosion | ☑ | ☐ | ☐ |
| 20.0 | Review drawings for anchors, piping, sleeves, boxes | ☑ | ☐ | ☐ |

COMMENTS:

RFI 114 created to confirm it will be acceptable to have 150mm cover at SW pedestal from top of dowels to TOC.

ATTACHMENT(S):

DWG. HIGHLIGHTED

APPROVED BY ENG.

DEFICIENCIES NOTES:

Clean out formwork boxes

CLARK BUILDERS:
INSPECTOR: Ryan deMilliano TITLE Project Coordinator DATE: Nov 17/18

JDS ENERGY & MINING:
INSPECTOR: Matt Coverdale MC TITLE Field Eng DATE: Nov 17/18

CLARK BUILDERS
ENERGY & RESOURCES

CB-INSPECTION FORM-DOC-002 REV.00
JDS ENERGY & MINING INC. | STRATAGOLD EAGLE GOLD
PROJECT #: CB201 | 18502

PROJECT MANAGER: DUSTIN DOLYNCHUK, P.ENG
QA/QC COORDINATOR: RYAN DE MILLIANO, C.E.T.
SUPERINTENDENT: GARRY DAHL

# FORMWORK & FALSEWORK PRE POUR | QA INSPECTION

Rev 01 August 25, 2018

| | |
|---|---|
| CONTRACTOR: Clark Builders | INSPECTION DATE: Nov 17/18 |
| CONTRACTOR CONTACT PERSON: Dan Pelletier | DATE OF POUR: Nov 17/18 |
| INSPECTOR(S): Dan Pelletier, Ryan deMilliano, Matt Coverdale (JDS | |
| LOCATION: 3210 RL003 / PEDESTALS (x6) | |
| DRAWING REV: | DRAWING NO.(S): SPEC SECTION(S): |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Location, survey, dimension and grades as required | ☑ | ☐ | ☐ |
| 2.0 | Plumbness and Flatness verified | ☑ | ☐ | ☐ |
| 3.0 | Joints are aligned and watertight. | ☑ | ☐ | ☐ |
| 4.0 | Formwork shop drawings are Engineered and reviewed | ☐ | ☐ | ☑ |
| 5.0 | Re-used formwork reconditioned and treated | ☑ | ☐ | ☐ |
| 6.0 | Formwork and ties according to finishing requirements. Confirm no holes in the concrete surface are greater than 25mm in diameter or expose steel at less than 25mm from surface. As per spec. | ☑ | ☐ | ☐ |
| 7.0 | Installation of embeds are located and secured | ☐ | ☐ | ☑ |
| 8.0 | Chamfer requirements checked. 25mm chamfers required for all exterior corners and edges exposed to view including horizontal edges of pads. | ☑ | ☐ | ☐ |
| 9.0 | Key ways and/or other provisions according to design are provided in construction joints | ☐ | ☐ | ☑ |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 10.0 | Inspect types of form spacers, ties and bracing. | ☑ | ☐ | ☐ |
| 11.0 | Spacing of ties to be set to a pattern | ☑ | ☐ | ☐ |
| 12.0 | Expansion, construction, contraction joints as required & located as coordinated with structural Engineer | ☑ | ☐ | ☐ |
| 13.0 | Forms secured against movement during placing | ☑ | ☐ | ☐ |
| 14.0 | Forms are braced for alignment and blow out | ☑ | ☐ | ☐ |
| 15.0 | Forms are cleaned of all debris, and dry, prior to concrete placement including standing water. | ☑ | ☐ | ☐ |
| 16.0 | Openings in formwork permit inspection and cleaning, placing and compaction of concrete, and forming and processing of construction joints. | ☑ | ☐ | ☐ |
| 17.0 | Formwork has been coated with release agent prior to rebar placement. | ☑ | ☐ | ☐ |
| 18.0 | Anchor Bolts and Embeds are secured to formwork. | ☑ | ☐ | ☐ |

COMMENTS:

ATTACHMENT(S):

DEFICIENCIES NOTES:

INITIAL INSPECTION

INSPECTOR: R deMilliano TITLE Project Coordinator DATE: Nov 17, 2018

RE-INSPECTION (DEFICIENCIES COMPLETED)

INSPECTOR: Matt Coverdale MC TITLE Field Eng DATE: Nov 17, 2018

DWG. No. H354138-3210-231-260-0001

AREA: 3210 COARSE ORE STOCKPILE/RECLAIM

## CONCRETE DETAILS DRAWING LIST

| DRAWING NUMBER | REV. | DRAWING TITLE | | |
|---|---|---|---|---|
| H354138-3210-231-260-0001 | 0 | COARSE ORE STOCLPILE/RECLAIM | GENERAL | TITLE SHEET, ISOMETRIC |
| H354138-3210-231-260-0002 | 0 | COARSE ORE STOCLPILE/RECLAIM | TRANSFER TOWER TT-1 FOUNDATION | PLAN, SECTIONS AND DETAILS |
| H354138-3210-231-260-0003 | 0 | COARSE ORE STOCLPILE/RECLAIM | 3210-CV-002 CONVEYOR FOUNDATION | PLAN, SECTIONS AND DETAILS - SHEET 1 |
| H354138-3210-231-260-0004 | 0 | COARSE ORE STOCLPILE/RECLAIM | 3210-CV-002 CONVEYOR FOUNDATION | PLAN, SECTIONS AND DETAILS - SHEET 2 |
| H354138-3210-231-260-0005 | 0 | COARSE ORE STOCLPILE/RECLAIM | 3220-CV-002 CONVEYOR FOUNDATION | PLAN, SECTIONS AND DETAILS - SHEET 3 |
| H354138-3210-231-260-0006 | 0 | COARSE ORE STOCLPILE/RECLAIM | 3220-CV-003 CONVEYOR FOUNDATION | PLAN, SECTIONS AND DETAILS |
| H354138-3210-231-260-0010 | 2 | COARSE ORE STOCLPILE/RECLAIM | RECLAIM TUNNEL FOUNDATION | PLAN AND SECTION |
| H354138-3210-231-260-0011 | 1 | COARSE ORE STOCLPILE/RECLAIM | RECLAIM TUNNEL FOUNDATION | SECTION AND DETAILS |

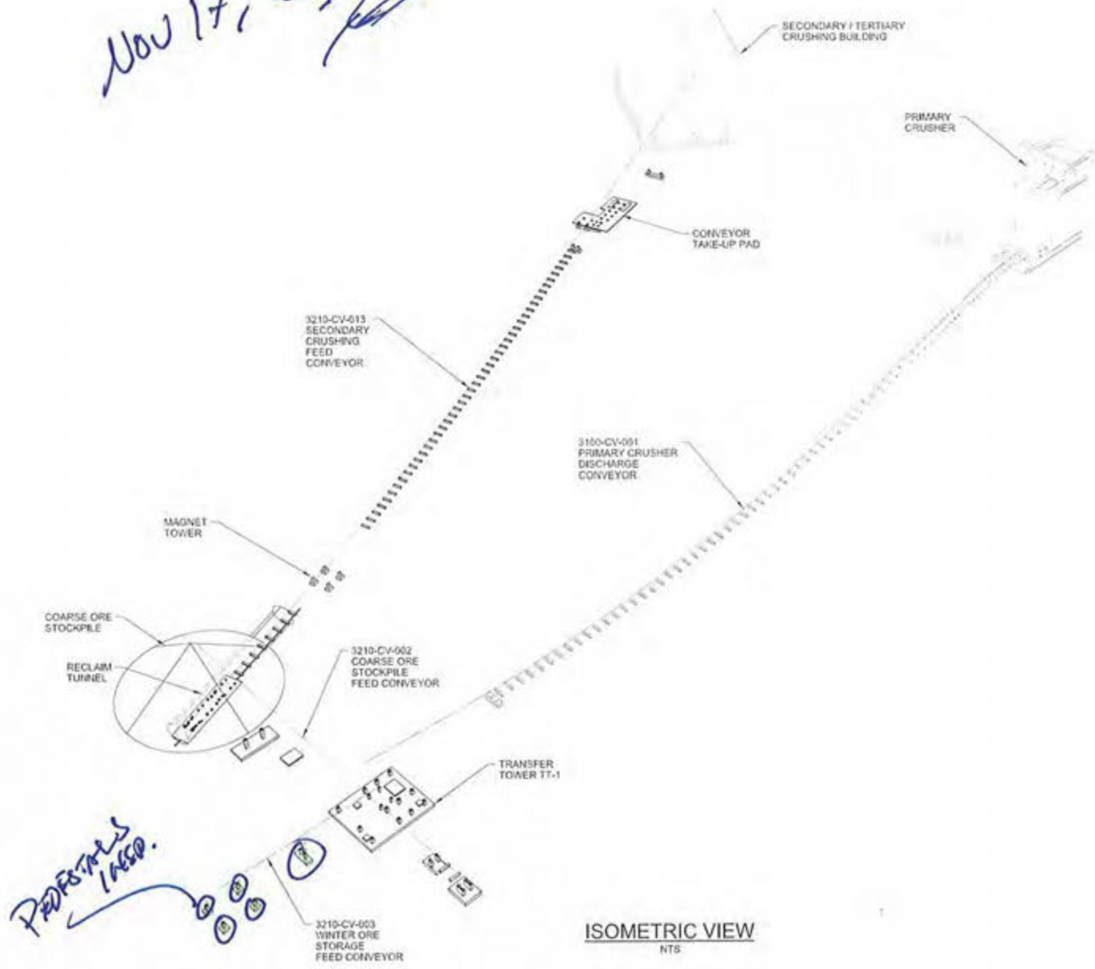
Nov 17, 18

### FOUNDATION NOTES:

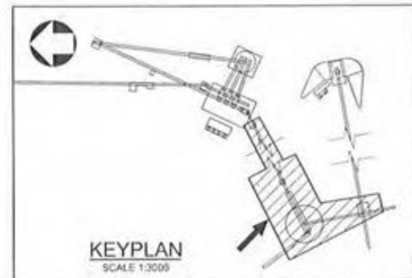
2.1 ALL CONCRETE FOUNDATION SUBGRADE SHALL BE EITHER ROCK OR 38 mm MINUS NFS STRUCTURAL BACKFILL DOWN TO 3 METERS BELOW THE FINISH GRADE COMPACTED TO 95% MODIFIED PROCTOR.
2.2 ALL BACKFILL AROUND AND ABOVE CONCRETE FOUNDATIONS, PEDESTALS AND PADS SHALL BE 38 mm MINUS NFS STRUCTURAL BACKFILL.
2.3 ALL FOUNDATION SUBGRADE SHALL BE INSPECTED AND APPROVED BY THE GEOTECHNICAL ENGINEER PRIOR TO PLACEMENT OF CONCRETE.
2.4 THE PREPARED FOOTING SUBGRADE SHALL BE PROTECTED FROM WATER INGRESS AND SOFTENING BY PROVIDING ADEQUATE DRAINAGE OR PLACING A LEAN CONCRETE MUD SLAB.

### GENERAL NOTES:

1.1 READ THESE DRAWINGS IN CONJUNCTION WITH ALL OTHER PERTINENT CONTRACT DOCUMENTS.
1.2 FOR CONCRETE TYPICAL DETAILS DRAWING SET AND GENERAL NOTES, SEE DRAWINGS 354138-0000-231-264-0001 TO -0007.
1.3 REFER TO MECHANICAL, PROCESS AND ELECTRICAL DRAWINGS FOR LOCATIONS AND DIMENSIONS OF OPENINGS, SLEEVES AND OTHER BUILDING COMPONENTS NOT SHOWN ON STRUCTURAL DRAWINGS. REPORT DISCREPENCIES TO THE OWNER OR HIS REPRESENTATIVE PRIOR TO PROCEEDING WITH THE WORK.
1.4 FOR GENERAL SITE LOCATION AND WORK POINT COORDINATES, SEE DRAWING H354138-2120-220-290-0001.
1.5 HIGH ENERGY COMPACTION EQUIPMENT SUCH AS LARGE ROLLERS MUST NOT BE USED FOR COMPACTING BACKFILL WITHIN 1 METER OF THE EDGE OF THE WALLS.
1.6 FOR GROUNDING LOOP SEE ELECTRICAL DRAWING H354138-3210-260-272-1000-0001, FOR GROUNDING INSTALLATION DETAILS SEE DRAWING SET H354138-3210-260-290-0001-0001 TO -0015.
1.7 FOR CAST-IN PLACE CONCRETE, SEE SPECIFICATION SECTION H354138-S032000.
1.8 FOR CONCRETE FORMWORK, SEE SPECIFICATION SECTION H354138-S031000.
1.9 FOR CONCRETE REINFORCEMENT, SEE SPECIFICATION SECTION H354138-S033000.
1.10 FOR GROUTING, SEE SPECIFICATION SECTION H354138-S035000.
1.11 CONSTRUCTION JOINTS NOT SHOWN ON THE DRAWINGS MUST BE APPROVED BY THE CONTRUCTION MANAGER.
1.12 IN CASE OF ANY DISCREPANCIES, INFORM THE CONSTRUCTION MANAGER BEFORE COMMENCING WORK.
1.13 ALL DIMENSIONS ARE IN MILLIMETERS AND ELEVATIONS ARE IN METERS.
1.14 PROVIDE 19mm X 19mm CHAMFER AT ALL EXPOSED CONCRETE CORNERS AND EDGES ABOVE GRADE LEVEL.
1.15 THE DRAWINGS SHOULD BE READ IN CONJUNCTION WITH THE PROJECT CIVIL DESIGN CRITERIA H354138-0000-220-210-0001.
1.16 FOR FURTHER GEOTECH INFORMATION, SEE "2011 GEOTECHNICAL INVESTIGATION FOR MINE SITE INFRASTRUCTURE FOUNDATION REPORT" BY BGC ENGINEERING DATED JAN 31, 2012.
1.17 SET ANCHOR RODS USING TEMPLATES WHICH MUST BE LEFT IN PLACE UNTIL THE CONCRETE HAS SET. ANCHOR RODS SHALL BE PLUMBED AND SECURED FROM MOVEMENT PRIOR TO CASTING CONCRETE.




ISOMETRIC VIEW
NTS



KEYPLAN
SCALE 1:3000

| No. | DESCRIPTION | BY | CHKD | DATE |
|---|---|---|---|---|
| 0 | APPROVED FOR CONSTRUCTION | PJ | EA | 2018-08-17 |

REVISIONS

REG. PROFESSIONAL 2018-08-17

| DRAWING No. | DRAWING TITLE |
|---|---|
| REFERENCE DRAWINGS | |

HATCH

| | | | |
|---|---|---|---|
| DRAFTSPERSON | P. JIVAEV | NR | 2017-11-23 |
| DESIGNER | H. LI | NR | 2017-11-23 |
| CHECKER | E. AKINCI | | 2018-08-17 |
| DESIGN COORD. | S. PERKINS | | 2018-08-17 |
| RESP. ENG. | E. AKINCI | | 2018-08-17 |
| LEAD DISC. ENG. | E. AKINCI | | 2018-08-17 |
| ENG. MANAGER | B. RUSTAD | | 2018-08-17 |
| PROJ. MANAGER | B. RUSTAD | | 2018-08-17 |

| ROLE | NAME | SIGNATURE & DATE |
|---|---|---|
| DRAWING APPROVAL STATUS: | Approved for Construction | |

StrataGold Corporation

EAGLE GOLD PROJECT

COARSE ORE STOCKPILE/RECLAIM
CONCRETE SUPPORT STRUCTURES
TITLE SHEET, ISOMETRIC VIEW

| SCALE | DWG. No. | REV |
|---|---|---|
| NTS | H354138-3210-231-260-0001 | 0 |

SHEET SIZE: D

$FILELS
PRINTED: 17-AUG-2018
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CLARK BUILDERS
ENERGY & RESOURCES

# CONCRETE POST POUR COLD WEATHER MONITORING

Rev 02 Nov 4, 2018

| | |
|---|---|
| CONTRACTOR: Clark Builders | DATE OF POUR: Nov. 17 |
| AMBIENT TEMP at POUR (°C): -17 | DATE FORMWORK STRIPPED: Nov. 20 |
| LOCATION: CV-03 BENT 1 | |
| | SPEC SECTION(S): S03 30 00 – Cast-In-Place |

TYPE OF CURING:

| | | | | | |
|---|---|---|---|---|---|
| CURING COMPOUND | ☐ | DAMP BURLAP OR FABRIC | ☐ | INSULATION (TARPS) | ☑ |
| POLYETHYLENE SHEETS | ☐ | WATER/FOG SPRAY/ PONDING | ☐ | FORMS (COVERED BY) | ☑ |

| COLD WEATHER REQUIREMENTS (WHEN AMB. TEMP < 5°C) | PASS | FAIL | N/A | REMARKS |
|---|---|---|---|---|
| Protection in place and temperatures not lower than 20°C or until 70% of the 28-day strength has been reached. | ☑ | ☐ | ☐ | |
| Cold weather protection provided by means of heated enclosures, coverings, insulation, or a suitable approved combination of these methods during complete curing period. | ☑ | ☐ | ☐ | |
| Concrete test cylinders are kept within hoarding or in area where temperatures are ideal for curing. (No frozen Cylinders) | ☑ | ☐ | ☐ | |
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| During freezing weather, and standing water removed before the end of the protection period (CSA A 23.1 clause 7.4.2.4.2) | ☑ | ☐ | ☐ | |

CONCRETE CURING TEMPERATURE LOG (COLD WEATHER CONCRETEING ONLY)

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| COMMENTS: | Turning heaters off and on to control heat | | | | | |

**CLARK BUILDERS SITE REPRESENTATIVE**

PRINT/ SIGN: DAN PELLETIER D. Pelletier TITLE Foreman DATE: Nov. 19

# CONCRETE POST POUR COLD WEATHER MONITORING

Rev 02 Nov 4, 2018

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| LOCATION: CV-3 G.L.1 | |
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TYPE OF CURING:

| | | | | | |
|---|---|---|---|---|---|
| CURING COMPOUND | ☐ | DAMP BURLAP OR FABRIC | ☐ | INSULATION (TARPS) | ☑ |
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| | | | | |

CONCRETE CURING TEMPERATURE LOG (COLD WEATHER CONCRETEING ONLY)

| DATE | TIME (24 HR) | OUTSIDE AIR TEMP (°C) | TEMP INSIDE HOARDING (°C) | CONCRETE SURFACE TEMP (°C) | | INITIALS OF READER |
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| Nov. 18 | 9:30 AM | -11 | 29 | 36 | 35 | D.P. |
| Nov. 18 | 1:30 PM | -8 | 23 | 32 | 30 | D.P. |
| Nov. 18 | 6:30 PM | -10 | 22 | 31 | 30 | D.P. |
| Nov. 19 | 7:00 AM | -5 | 25 | 32 | 31 | D.P. |
| Nov. 19 | 1:30 PM | -2 | 21 | 29 | 29 | D.P. |
| Nov. 19 | 6:30 PM | -3 | 23 | 29 | 28 | D.P. |

| COMMENTS: | Turned heaters off and on to maintain heat | |
|---|---|---|
| | | |

**CLARK BUILDERS SITE REPRESENTATIVE**

PRINT/ SIGN: DAN PELLETIER _____ TITLE Foreman DATE: Nov. 19

# CONCRETE POST POUR COLD WEATHER MONITORING

Rev 02 Nov 4, 2018

| | |
|---|---|
| CONTRACTOR: Clark Builders | DATE OF POUR: Nov. 17 |
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| LOCATION: CV-03 G.L.2 | |
| | SPEC SECTION(S): S03 30 00 -- Cast-In-Place |

TYPE OF CURING:

| | | | | | |
|---|---|---|---|---|---|
| CURING COMPOUND | ☐ | DAMP BURLAP OR FABRIC | ☐ | INSULATION (TARPS) | ☑ |
| POLYETHYLENE SHEETS | ☐ | WATER/FOG SPRAY/ PONDING | ☐ | FORMS (COVERED BY) | ☑ |

| COLD WEATHER REQUIREMENTS (WHEN AMB. TEMP < 5°C) | PASS | FAIL | N/A | REMARKS |
|---|---|---|---|---|
| Protection in place and temperatures not lower than 20°C or until 70% of the 28-day strength has been reached. | ☑ | ☐ | ☐ | |
| Cold weather protection provided by means of heated enclosures, coverings, insulation, or a suitable approved combination of these methods during complete curing period. | ☑ | ☐ | ☐ | |
| Concrete test cylinders are kept within hoarding or in area where temperatures are ideal for curing. (No frozen Cylinders) | ☑ | ☐ | ☐ | |
| Heat is not directed onto concrete. This may result in thermal cracking. | ☑ | ☐ | ☐ | |
| During freezing weather, and standing water removed before the end of the protection period (CSA A 23.1 clause 7.4.2.4.2) | ☑ | ☐ | ☐ | |
| | | | | |

CONCRETE CURING TEMPERATURE LOG (COLD WEATHER CONCRETEING ONLY)

| DATE | TIME (24 HR) | OUTSIDE AIR TEMP (°C) | TEMP INSIDE HOARDING (°C) | CONCRETE SURFACE TEMP (°C) | | INITIALS OF READER |
|---|---|---|---|---|---|---|
| | | | | HIGH (°C) | LOW (°C) | |
| Nov. 17 | 6:30 PM | -19 | 33 | 25 | 24 | D.P. |
| Nov. 18 | 9:30 AM | -11 | 39 | 38 | 37 | D.P. |
| Nov. 18 | 1:30 PM | -8 | 28 | 34 | 32 | D.P. |
| Nov. 18 | 6:30 PM | -10 | 23 | 32 | 31 | D.P. |
| Nov. 19 | 7:00 AM | -5 | 25 | 34 | 32 | D.P. |
| Nov. 19 | 1:30 PM | -2 | 21 | 31 | 30 | D.P. |
| Nov. 19 | 6:30 PM | -3 | 22 | 29 | 28 | D.P. |
| COMMENTS: | Turning heater off and on to control heat | | | | | |

**CLARK BUILDERS SITE REPRESENTATIVE**

PRINT/ SIGN: DAN PELLETIER Dan Pelletier TITLE Foreman DATE: Nov. 19

CB-INSPECTION FORM-DOC-002 REV.00
JDS ENERGY & MINING INC. | STRATAGOLD EAGLE GOLD
PROJECT #: CB201 | 18502

PROJECT MANAGER: DUSTIN DOLYNCHUK, P.ENG
QA/QC COORDINATOR: RYAN DE MILLIANO, C.E.T.
SUPERINTENDENT: GARRY DAHL

CLARK BUILDERS
ENERGY & RESOURCES

# CONCRETE REINFORCEMENT PRE POUR

Rev 01 August 25, 2018

| | |
|---|---|
| SUBCONTRACTOR: Ultimate Reinforcing // McNish | INSPECTION DATE: November 20, 2018 |
| SUBCONTRACTOR CONTACT PERSON: Clayton | PROJ. POUR DATE: November 21, 2018 |
| INSPECTOR(S): Ryan deMilliano, Dan Pelletier, Matt Coverdale (JDS) | |
| LOCATION: 3210 CV002 - Pedestals at Truss Support and Tail Pulley. | |
| DRAWING REV: 00 / DRAWING NO.(S): 3210-231-260-0003 | SPEC SECTION(S): S03 20 00 – Concrete Reinforcing Steel |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Grade (400W unless otherwise noted) and type of steel delivered and installed as required by approved drawings. | ☒ | ☐ | ☐ |
| 2.0 | Inspect rebar distribution, spacing and cover per design/project requirements. | ☒ | ☐ | ☐ |
| 3.0 | Length of splices as specified | ☒ | ☐ | ☐ |
| 4.0 | Staggered splices as specified | ☐ | ☐ | ☒ |
| 5.0 | Any mechanical splices have been approved by the owner prior to install | ☐ | ☐ | ☒ |
| 6.0 | Bars cleaned and free of material that may reduce bond including loose rust, scale, oil, structural defects and that they are uncoated and unpainted. | ☒ | ☐ | ☐ |
| 7.0 | Dowels at wall ends, construction joints, and openings as specified (length, location, size, etc.) | ☒ | ☐ | ☐ |
| 8.0 | No unauthorized field bent bars including hooks installed | ☒ | ☐ | ☐ |
| 9.0 | Resolve conflicts between embedded items and reinforcement | ☒ | ☐ | ☐ |
| 10.0 | When authorized, field bends done without heat and inspected for fissures or cracks. | ☐ | ☐ | ☒ |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 11.0 | Bars tied and supported to prevent displacement | ☒ | ☐ | ☐ |
| 12.0 | Spacers, tie wire and chairs as required | ☒ | ☐ | ☐ |
| 13.0 | Conduits at design location and minimum separation from rebar as specified | ☐ | ☐ | ☒ |
| 14.0 | No contact of bars is made with dissimilar metals as per CSA A23.1 | ☒ | ☐ | ☐ |
| 15.0 | Bars, nails or tie wire not sticking out from surfaces that allow rusting/corrosion | ☒ | ☐ | ☐ |
| 16.0 | Rebar welds are inspected by qualified inspectors certified to CSA W178.2 | ☐ | ☐ | ☒ |
| 17.0 | No rebar congestion or other obstruction for deposit of concrete | ☒ | ☐ | ☐ |
| 18.0 | Adjustments required for interfering items (piping, inserts, sleeves, etc.) have been submitted and approved by owner. | ☒ | ☐ | ☐ |
| 19.0 | Rebar was stored off ground to prevent damage/corrosion | ☒ | ☐ | ☐ |
| 20.0 | Review drawings for anchors, piping, sleeves, boxes | ☒ | ☐ | ☐ |

COMMENTS:

| | ATTACHMENT(S): |
|---|---|
| Heating to be applied to hoarding prior to pour to reach temp. | DWG (Highlighted) |

DEFICIENCIES NOTES:

- Stirrups at tail pulley pedestals to be covered past the shear key to allow proper cover.

CLARK BUILDERS:
INSPECTOR: Ryan deMilliano TITLE Project Coordinator DATE: Nov 20, 2018

JDS ENERGY & MINING:
INSPECTOR: Matt Coverdale TITLE Field Eng DATE: Nov 20, 2018

CB-INSPECTION FORM-DOC-002 REV.00
JDS ENERGY & MINING INC. | STRATAGOLD EAGLE GOLD
PROJECT #: CB201 | 18502

CLARK BUILDERS
ENERGY & RESOURCES

PROJECT MANAGER: DUSTIN DOLYNCHUK, P.ENG
QA/QC COORDINATOR: RYAN DE MILLIANO, C.E.T.
SUPERINTENDENT: GARRY DAHL

# FORMWORK & FALSEWORK PRE POUR | QA INSPECTION

Rev 01 August 25, 2018

| | |
|---|---|
| CONTRACTOR: Clark Builders | INSPECTION DATE: November 20, 2018 |
| CONTRACTOR CONTACT PERSON: Dan Pelletier | DATE OF POUR: November 21, 2018 |
| INSPECTOR(S): Ryan deMilliano, Dan Pelletier, Matt Coverdale (JDS) | |
| LOCATION: 3210 CV002 - PEDESTALS AT TRNSS SUPPORT AND TAIL PULLEY (x4) | |
| DRAWING REV: 00 / DRAWING NO.(S): 3210-231-260-0003 | SPEC SECTION(S): 503 C000 |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Location, survey, dimension and grades as required | ☑ | ☐ | ☐ |
| 2.0 | Plumbness and Flatness verified | ☑ | ☐ | ☐ |
| 3.0 | Joints are aligned and watertight. | ☑ | ☐ | ☐ |
| 4.0 | Formwork shop drawings are Engineered and reviewed | ☐ | ☐ | ☑ |
| 5.0 | Re-used formwork reconditioned and treated | ☑ | ☐ | ☐ |
| 6.0 | Formwork and ties according to finishing requirements. Confirm no holes in the concrete surface are greater than 25mm in diameter or expose steel at less than 25mm from surface. As per spec. | ☑ | ☐ | ☐ |
| 7.0 | Installation of embeds are located and secured | ☑ | ☐ | ☐ |
| 8.0 | Chamfer requirements checked. 25mm chamfers required for all exterior corners and edges exposed to view including horizontal edges of pads. | ☑ | ☐ | ☐ |
| 9.0 | Key ways and/or other provisions according to design are provided in construction joints SHEARKEY. | ☑ | ☐ | ☐ |
| 10.0 | Inspect types of form spacers, ties and bracing. | ☑ | ☐ | ☐ |
| 11.0 | Spacing of ties to be set to a pattern | ☑ | ☐ | ☐ |
| 12.0 | Expansion, construction, contraction joints as required & located as coordinated with structural Engineer | ☑ | ☐ | ☐ |
| 13.0 | Forms secured against movement during placing | ☑ | ☐ | ☐ |
| 14.0 | Forms are braced for alignment and blow out | ☑ | ☐ | ☐ |
| 15.0 | Forms are cleaned of all debris, and dry, prior to concrete placement including standing water. | ☑ | ☐ | ☐ |
| 16.0 | Openings in formwork permit inspection and cleaning, placing and compaction of concrete, and forming and processing of construction joints. | ☑ | ☐ | ☐ |
| 17.0 | Formwork has been coated with release agent prior to rebar placement. | ☑ | ☐ | ☐ |
| 18.0 | Anchor Bolts and Embeds are secured to formwork. | ☑ | ☐ | ☐ |

COMMENTS:

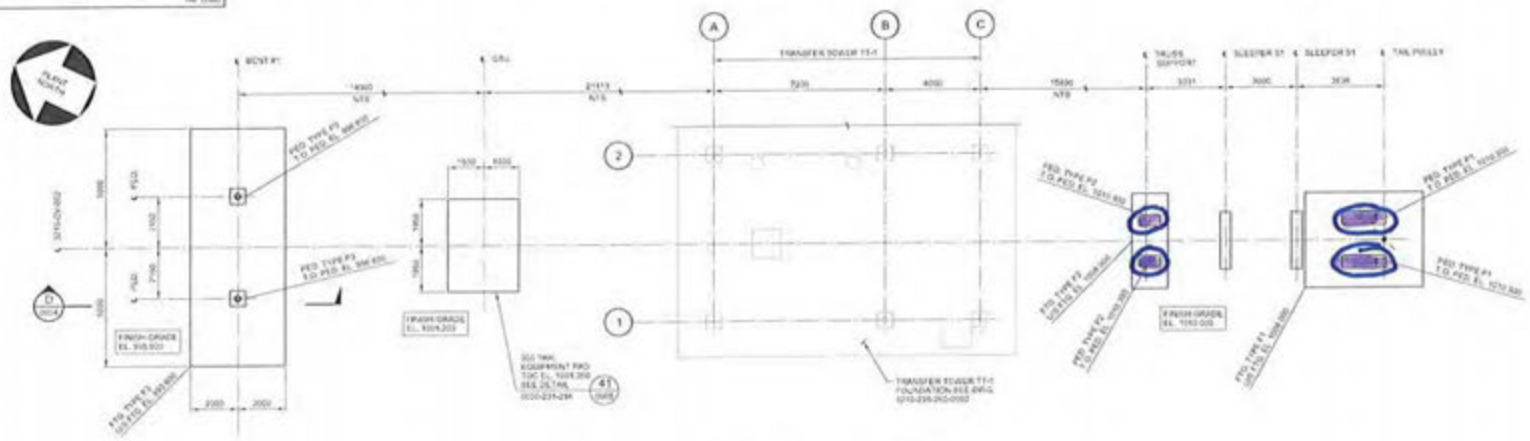
ATTACHMENT(S): DWG (HIGHLIGHTED)

DEFICIENCIES NOTES:

INITIAL INSPECTION
INSPECTOR: Ryan deMilliano // [signature] TITLE: Project Coordinator DATE: Nov 20, 2018

RE-INSPECTION (DEFICIENCIES COMPLETED)
INSPECTOR: Matt Coverdale [signature] TITLE: Field Eng DATE: Nov 20, 2018

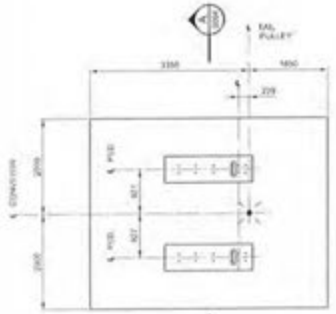
NOVEMBER 20, 2018 — PEDESTALS ON CV002 TRUSS SUPPORT AND TAIL PULLEY.



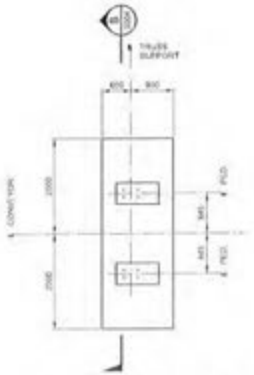
3210-CV-002 FOUNDATION PLAN



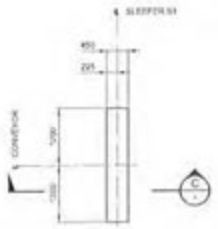
ISOMETRIC VIEW



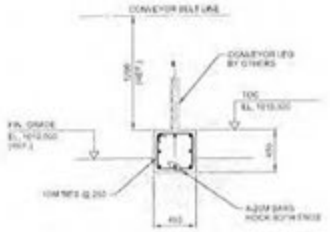
FOOTING TYPE F-1 PLAN



FOOTING TYPE F-2 PLAN



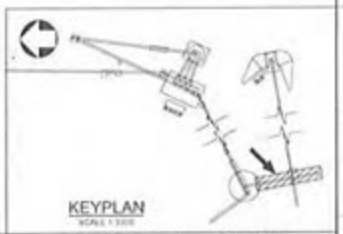
SLEEPER S1 PLAN



SECTION C

NOTES:

1. FOR NOTES SEE DRAWING H354138-3210-231-260-0001



KEYPLAN

| | | | |
|---|---|---|---|
| DRAWING No. | DRAWING TITLE | | |
| REFERENCE DRAWINGS | | REG. PROFESSIONAL | |

| No. | DESCRIPTION | BY | CHKD | DATE |
|---|---|---|---|---|
| 2 | APPROVED FOR CONSTRUCTION | DM | EA | 2018-09-17 |

REVISIONS

HATCH

| | | | |
|---|---|---|---|
| ITEM REFERENCE | K. MENDOZA | NR | 2018-09-17 |
| DESIGNER | R.LE | NR | 2018-09-17 |
| CHECKER | E. ARPIZ | | 2018-09-17 |
| TF/3D CORD | S. PERKINS | | 2018-09-17 |
| DESP. ENG. | E. ARPIZ | | 2018-09-17 |
| LEAD DISC. ENG. | E. ARPIZ | | 2018-09-17 |
| ENG. MANAGER | S. RUSTAD | | 2018-09-17 |
| PROJ. MANAGER | S. RUSTAD | | 2018-09-17 |
| ROLE | NAME | SIGNATURE & DATE | |
| DRAWING APPROVAL STATUS | Approved for Construction | | |

StrataGold Corporation

EAGLE GOLD PROJECT

COARSE ORE STOCKPILE/RECLAIM
3210-CV-002 CONVEYOR FOUNDATION
PLAN, SECTIONS AND DETAILS-SHEET 1

| SCALE | Hatch No. | REV |
|---|---|---|
| AS NOTED | H354138-3210-231-260-0003 | 0 |

CLARK BUILDERS
ENERGY & RESOURCES



PROJECT MANAGER: DUSTIN DOLYNCHUK, P.ENG
QA/QC COORDINATOR: RYAN DE MILLIANO, C.E.T.
SUPERINTENDENT: GARRY DAHL

# CONCRETE REINFORCEMENT PRE POUR

Rev 01 August 25, 2018

| | |
|---|---|
| SUBCONTRACTOR: Ultimate Reinforcing // McNish | INSPECTION DATE: NOVEMBER 20, 2018 |
| SUBCONTRACTOR CONTACT PERSON: CLAYTON | PROJ. POUR DATE: NOVEMBER 21, 2018 |
| INSPECTOR(S): Ryan deMilliano, Dan Pelletier, Matt Coverdale (JDS) | |
| LOCATION: 3210 CU002 - PEDESTALS AT TRUSS SUPPORT AND TAIL PULLEY. | |
| DRAWING REV: 00 / DRAWING NO.(S): 3210-231-260-0003 | SPEC SECTION(S): S03 20 00 – Concrete Reinforcing Steel |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Grade (400W unless otherwise noted) and type of steel delivered and installed as required by approved drawings. | ☒ | ☐ | ☐ |
| 2.0 | Inspect rebar distribution, spacing and cover per design/project requirements. | ☒ | ☐ | ☐ |
| 3.0 | Length of splices as specified | ☒ | ☐ | ☐ |
| 4.0 | Staggered splices as specified | ☐ | ☐ | ☒ |
| 5.0 | Any mechanical splices have been approved by the owner prior to install | ☐ | ☐ | ☒ |
| 6.0 | Bars cleaned and free of material that may reduce bond including loose rust, scale, oil, structural defects and that they are uncoated and unpainted. | ☒ | ☐ | ☐ |
| 7.0 | Dowels at wall ends, construction joints, and openings as specified (length, location, size, etc.) | ☒ | ☐ | ☐ |
| 8.0 | No unauthorized field bent bars including hooks installed | ☒ | ☐ | ☐ |
| 9.0 | Resolve conflicts between embedded items and reinforcement | ☒ | ☐ | ☐ |
| 10.0 | When authorized, field bends done without heat and inspected for fissures or cracks. | ☐ | ☐ | ☒ |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 11.0 | Bars tied and supported to prevent displacement | ☒ | ☐ | ☐ |
| 12.0 | Spacers, tie wire and chairs as required | ☒ | ☐ | ☐ |
| 13.0 | Conduits at design location and minimum separation from rebar as specified | ☐ | ☐ | ☒ |
| 14.0 | No contact of bars is made with dissimilar metals as per CSA A23.1 | ☒ | ☐ | ☐ |
| 15.0 | Bars, nails or tie wire not sticking out from surfaces that allow rusting/corrosion | ☒ | ☐ | ☐ |
| 16.0 | Rebar welds are inspected by qualified inspectors certified to CSA W178.2 | ☐ | ☐ | ☒ |
| 17.0 | No rebar congestion or other obstruction for deposit of concrete | ☒ | ☐ | ☐ |
| 18.0 | Adjustments required for interfering items (piping, inserts, sleeves, etc.) have been submitted and approved by owner. | ☒ | ☐ | ☐ |
| 19.0 | Rebar was stored off ground to prevent damage/corrosion | ☒ | ☐ | ☐ |
| 20.0 | Review drawings for anchors, piping, sleeves, boxes | ☒ | ☐ | ☐ |

COMMENTS:

HEATING TO BE APPLIED TO HOARDING PRIOR TO POUR TO REMOVE FROST + TEMP.

ATTACHMENT(S):

DWG (HIGHLIGHTED)

DEFICIENCIES NOTES:

- STIRRUPS AT TAIL PULLEY PEDESTALS TO BE LOWERED PAST THE SHEAR KEY TO ALLOW FOR FORMWORK.

CLARK BUILDERS:

INSPECTOR: Ryan deMilliano TITLE Project Coordinator DATE: Nov 20, 2018

JDS ENERGY & MINING:

INSPECTOR: Matt Coverdale MCE TITLE Field Eng DATE: Nov 20, 2018

CLARK BUILDERS
ENERGY & RESOURCES

CB-INSPECTION FORM-DOC-002 REV.00
JDS ENERGY & MINING INC. | STRATAGOLD EAGLE GOLD
PROJECT #: CB201 | 18502

PROJECT MANAGER: DUSTIN DOLYNCHUK, P.ENG
QA/QC COORDINATOR: RYAN DE MILLIANO, C.E.T.
SUPERINTENDENT: GARRY DAHL

# FORMWORK & FALSEWORK PRE POUR | QA INSPECTION

Rev 01 August 25, 2018

| | |
|---|---|
| CONTRACTOR: Clark Builders | INSPECTION DATE: NOVEMBER 20, 2018 |
| CONTRACTOR CONTACT PERSON: DAN PELLETIER. | DATE OF POUR: NOVEMBER 21, 2018 |
| INSPECTOR(S): Ryan deMilliano, Dan Pelletier, Matt Caverdale (JDS) | |
| LOCATION: 3210 CV002 - PEDESTALS AT TRUSS SUPPORT AND TAIL PULLEY (x4) | |
| DRAWING REV: 00 / DRAWING NO.(S): 3210-E31-260-0003 | SPEC SECTION(S): 503 0000 |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Location, survey, dimension and grades as required | ☑ | ☐ | ☐ |
| 2.0 | Plumbness and Flatness verified | ☑ | ☐ | ☐ |
| 3.0 | Joints are aligned and watertight. | ☑ | ☐ | ☐ |
| 4.0 | Formwork shop drawings are Engineered and reviewed | ☐ | ☐ | ☑ |
| 5.0 | Re-used formwork reconditioned and treated | ☑ | ☐ | ☐ |
| 6.0 | Formwork and ties according to finishing requirements. Confirm no holes in the concrete surface are greater than 25mm in diameter or expose steel at less than 25mm from surface. As per spec. | ☑ | ☐ | ☐ |
| 7.0 | Installation of embeds are located and secured | ☑ | ☐ | ☐ |
| 8.0 | Chamfer requirements checked. 25mm chamfers required for all exterior corners and edges exposed to view including horizontal edges of pads. | ☑ | ☐ | ☐ |
| 9.0 | Key ways and/or other provisions according to design are provided in construction joints SPECIFICALLY. | ☑ | ☐ | ☐ |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 10.0 | Inspect types of form spacers, ties and bracing. | ☑ | ☐ | ☐ |
| 11.0 | Spacing of ties to be set to a pattern | ☑ | ☐ | ☐ |
| 12.0 | Expansion, construction, contraction joints as required & located as coordinated with structural Engineer | ☑ | ☐ | ☐ |
| 13.0 | Forms secured against movement during placing | ☑ | ☐ | ☐ |
| 14.0 | Forms are braced for alignment and blow out | ☑ | ☐ | ☐ |
| 15.0 | Forms are cleaned of all debris, and dry, prior to concrete placement including standing water. | ☑ | ☐ | ☐ |
| 16.0 | Openings in formwork permit inspection and cleaning, placing and compaction of concrete, and forming and processing of construction joints. | ☑ | ☐ | ☐ |
| 17.0 | Formwork has been coated with release agent prior to rebar placement. | ☑ | ☐ | ☐ |
| 18.0 | Anchor Bolts and Embeds are secured to formwork. | ☑ | ☐ | ☐ |

COMMENTS:

ATTACHMENT(S): DWG (HIGHLIGHTED)

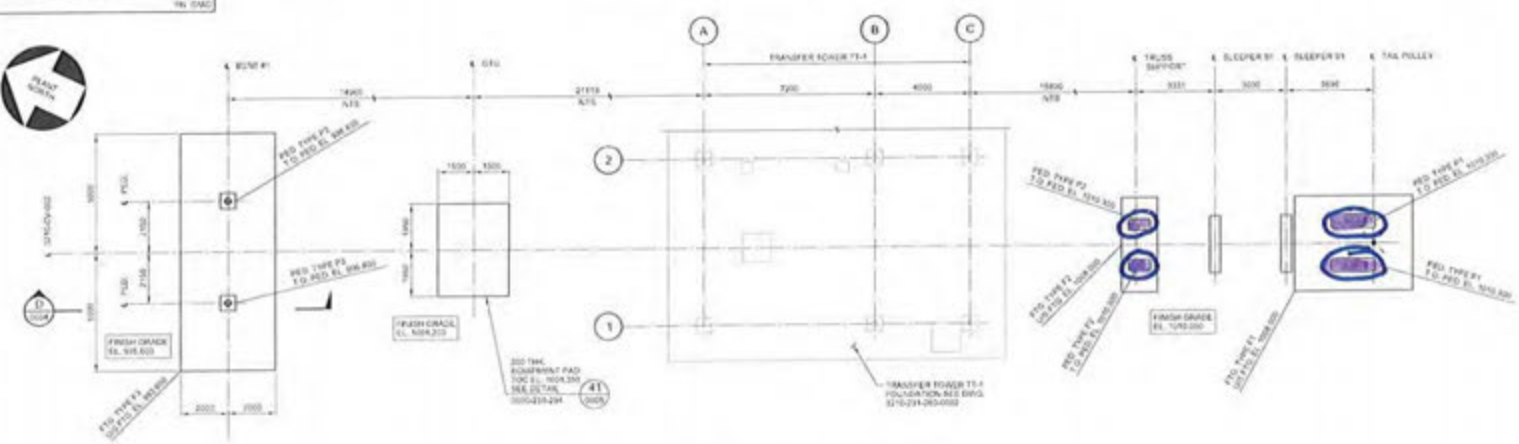
DEFICIENCIES NOTES:

INITIAL INSPECTION
INSPECTOR: Ryan deMilliano TITLE: Project Coordinator DATE: Nov 20, 2018

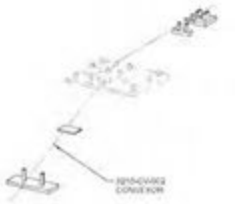
RE-INSPECTION (DEFICIENCIES COMPLETED)
INSPECTOR: Matt Caverdale TITLE: Field Eng DATE: Nov 20, 2018

NOVEMBER 20, 2018 — DETAILS OF CV 002 TIRES SUPPORT AND TAIL PULLEY.

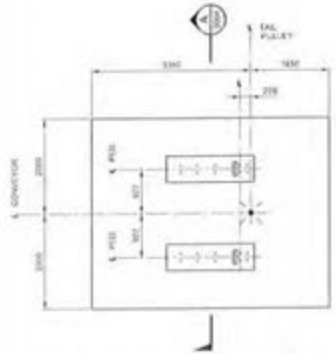
H354138-3210-231-260-0003



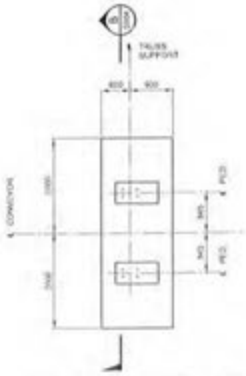
3210-CV-002 FOUNDATION PLAN



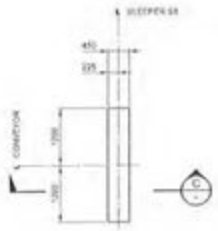
ISOMETRIC VIEW



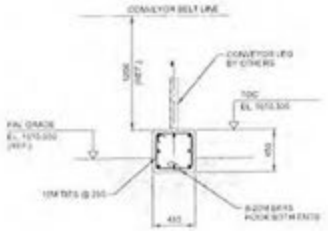
FOOTING TYPE F-1 PLAN



FOOTING TYPE F-2 PLAN



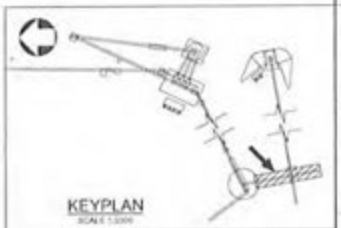
SLEEPER S1 PLAN



SECTION C

NOTES:

1. FOR NOTES SEE DRAWING H354138-3210-231-260-0001



KEYPLAN

HATCH

StrataGold Corporation

EAGLE GOLD PROJECT

COARSE ORE STOCKPILE/RECLAIM 3210-CV-002 CONVEYOR FOUNDATION PLAN, SECTIONS AND DETAILS-SHEET 1

DWG. No. H354138-3210-231-260-0003 REV. 0

SCALE AS NOTED

| DRAWING No. | DRAWING TITLE |
|---|---|
| REFERENCE DRAWINGS | |

REG. PROFESSIONAL

| No. | DESCRIPTION | BY | CHKD | DATE |
|---|---|---|---|---|
| 0 | APPROVED FOR CONSTRUCTION | SM | EA | 2018-09-17 |

REVISIONS

| ROLE | NAME | SIGNATURE & DATE |
|---|---|---|
| DRAWING APPROVAL STATUS | Approved for Construction | |

# CONCRETE POST POUR COLD WEATHER MONITORING

Rev 03 Nov 13, 2018

| | |
|---|---|
| CONTRACTOR: Clark Builders | DATE OF POUR: Nov. 21 |
| AMBIENT TEMP at POUR (°C): -3 | DATE FORMWORK STRIPPED: |
| LOCATION: CV-02 PED. 1 | |
| | SPEC SECTION(S): S03 30 00 – Cast-In-Place |

TYPE OF CURING:

| | | | | | |
|---|---|---|---|---|---|
| CURING COMPOUND | ☐ | DAMP BURLAP OR FABRIC | ☐ | INSULATION (TARPS) | ☑ |
| POLYETHYLENE SHEETS | ☐ | WATER/FOG SPRAY/ PONDING | ☐ | FORMS (COVERED BY) | ☑ |

| COLD WEATHER REQUIREMENTS (WHEN AMB. TEMP < 5°C) | PASS | FAIL | N/A | REMARKS |
|---|---|---|---|---|
| Protection in place and temperatures not lower than 20°C or until 70% of the 28-day strength has been reached. | ☑ | ☐ | ☐ | |
| Cold weather protection provided by means of heated enclosures, coverings, insulation, or a suitable approved combination of these methods during complete curing period. | ☑ | ☐ | ☐ | |
| Concrete test cylinders are kept within hoarding or in area where temperatures are ideal for curing. (No frozen Cylinders) | ☑ | ☐ | ☐ | |
| Heat is not directed onto concrete. This may result in thermal cracking. | ☑ | ☐ | ☐ | |
| During freezing weather, and standing water removed before the end of the protection period (CSA A 23.1 clause 7.4.2.4.2) | ☑ | ☐ | ☐ | |

NCRETE CURING TEMPERATURE LOG (COLD WEATHER CONCRETEING ONLY)

| DATE | | TIME (24 HR) | OUTSIDE AIR TEMP (°C) | TEMP INSIDE HOARDING (°C) | CONCRETE SURFACE TEMP (°C) | | INITIALS OF READER |
|---|---|---|---|---|---|---|---|
| | | | | | HIGH (°C) | LOW (°C) | |
| Nov. 21 | ~~AM~~ | 6:30 PM | -3 | 35 | 27 | 26 | D.P. |
| Nov. 22 | ~~MID~~ | 8:00AM | -9 | 32 | 34 | 33 | D.P. |
| Nov. 22 | ~~PM~~ | 2:00PM | -10 | 26 | 31 | 31 | D.P. |
| Nov. 22 | ~~AM~~ | 6:30PM | -11 | 24 | 29 | 28 | D.P. |
| Nov. 23 | ~~MID~~ | 7:30AM | -9 | 29 | 30 | 29 | D.P. |
| Nov. 23 | ~~PM~~ | 1:30PM | -10 | 26 | 29 | 27 | D.P. |
| Nov. 23 | ~~AM~~ | 6:30PM | -11 | 22 | 27 | 26 | D.P. |
| | MID | | | | | | |
| | PM | | | | | | |

| | |
|---|---|
| COMMENTS: | Turning heaters on + off to control heat |
| | |
| | |

CLARK BUILDERS SITE REPRESENTATIVE

PRINT/ SIGN: DAN PELLETIER Dan Pell TITLE Foreman DATE: Nov. 24

# CONCRETE POST POUR COLD WEATHER MONITORING

Rev 03 Nov 13, 2018

| | |
|---|---|
| CONTRACTOR: Clark Builders | DATE OF POUR: Nov. 21 |
| AMBIENT TEMP at POUR (°C): -3 | DATE FORMWORK STRIPPED: |
| LOCATION: CU-02 PED 2 | |
| | SPEC SECTION(S): S03 30 00 – Cast-In-Place |

TYPE OF CURING:

| | | | | | |
|---|---|---|---|---|---|
| CURING COMPOUND | ☐ | DAMP BURLAP OR FABRIC | ☐ | INSULATION (TARPS) | ☑ |
| POLYETHYLENE SHEETS | ☐ | WATER/FOG SPRAY/ PONDING | ☐ | FORMS (COVERED BY) | ☑ |

| COLD WEATHER REQUIREMENTS (WHEN AMB. TEMP < 5°C) | PASS | FAIL | N/A | REMARKS |
|---|---|---|---|---|
| Protection in place and temperatures not lower than 20°C or until 70% of the 28-day strength has been reached. | ☑ | ☐ | ☐ | |
| Cold weather protection provided by means of heated enclosures, coverings, insulation, or a suitable approved combination of these methods during complete curing period. | ☑ | ☐ | ☐ | |
| Concrete test cylinders are kept within hoarding or in area where temperatures are ideal for curing. (No frozen Cylinders) | ☑ | ☐ | ☐ | |
| Heat is not directed onto concrete. This may result in thermal cracking. | ☑ | ☐ | ☐ | |
| During freezing weather, and standing water removed before the end of the protection period (CSA A 23.1 clause 7.4.2.4.2) | ☑ | ☐ | ☐ | |

NCRETE CURING TEMPERATURE LOG (COLD WEATHER CONCRETEING ONLY)

| DATE | | TIME (24 HR) | OUTSIDE AIR TEMP (°C) | TEMP INSIDE HOARDING (°C) | CONCRETE SURFACE TEMP (°C) | | INITIALS OF READER |
|---|---|---|---|---|---|---|---|
| | | | | | HIGH (°C) | LOW (°C) | |
| Nov. 21 | ~~AM~~ | 6:30 PM | -3 | 35 | 28 | 26 | D.P. |
| Nov. 22 | ~~MID~~ | 8:00 AM | -9 | 33 | 36 | 34 | D.P. |
| Nov. 22 | ~~PM~~ | 2:00 PM | -10 | 27 | 33 | 32 | D.P. |
| Nov. 22 | ~~AM~~ | 6:30 PM | -11 | 25 | 31 | 28 | D.P. |
| Nov. 23 | ~~MID~~ | 7:30 AM | -9 | 30 | 32 | 30 | D.P. |
| Nov. 23 | ~~PM~~ | 1:30 PM | -10 | 27 | 30 | 29 | D.P. |
| Nov. 23 | ~~AM~~ | 6:30 PM | -11 | 25 | 28 | 27 | D.P. |
| | MID | | | | | | |
| | PM | | | | | | |

| COMMENTS: | Turning heaters off + on to control heat | |
|---|---|---|
| | | |
| | | |

LARK BUILDERS SITE REPRESENTATIVE

RINT/ SIGN: DAN PELLETIER TITLE Foreman DATE: Nov. 24

# CONCRETE POST POUR COLD WEATHER MONITORING

Rev 03 Nov 13, 2018

| | |
|---|---|
| CONTRACTOR: Clark Builders | DATE OF POUR: Nov. 21 |
| AMBIENT TEMP at POUR (°C): -3 | DATE FORMWORK STRIPPED: Nov 24 |
| LOCATION: CV-13 CWT TOWER | |
| | SPEC SECTION(S): S03 30 00 – Cast-In-Place |

TYPE OF CURING:

| | | | | | |
|---|---|---|---|---|---|
| CURING COMPOUND | ☐ | DAMP BURLAP OR FABRIC | ☐ | INSULATION (TARPS) | ☑ |
| POLYETHYLENE SHEETS | ☐ | WATER/FOG SPRAY/ PONDING | ☐ | FORMS (COVERED BY) | ☑ |

| COLD WEATHER REQUIREMENTS (WHEN AMB. TEMP < 5°C) | PASS | FAIL | N/A | REMARKS |
|---|---|---|---|---|
| Protection in place and temperatures not lower than 20°C or until 70% of the 28-day strength has been reached. | ☑ | ☐ | ☐ | |
| Cold weather protection provided by means of heated enclosures, coverings, insulation, or a suitable approved combination of these methods during complete curing period. | ☑ | ☐ | ☐ | |
| Concrete test cylinders are kept within hoarding or in area where temperatures are ideal for curing. (No frozen Cylinders) | ☑ | ☐ | ☐ | |
| Heat is not directed onto concrete. This may result in thermal cracking. | ☑ | ☐ | ☐ | |
| During freezing weather, and standing water removed before the end of the protection period (CSA A 23.1 clause 7.4.2.4.2) | ☑ | ☐ | ☐ | |

CONCRETE CURING TEMPERATURE LOG (COLD WEATHER CONCRETEING ONLY)

| DATE | | TIME (24 HR) | OUTSIDE AIR TEMP (°C) | TEMP INSIDE HOARDING (°C) | CONCRETE SURFACE TEMP (°C) | | INITIALS OF READER |
|---|---|---|---|---|---|---|---|
| | | | | | HIGH (°C) | LOW (°C) | |
| Nov. 21 | ~~AM~~ | 6:00 PM | -2 | 28 | 23 | 21 | D.P. |
| Nov. 22 | MID | 8:09 AM | -9 | 30 | 30 | 27 | D.P. |
| Nov. 22 | PM | 2:00 PM | -10 | 26 | 28 | 27 | D.P. |
| Nov. 22 | AM | 6:30 PM | -11 | 27 | 27 | 26 | D.P. |
| Nov. 23 | MID | 7:30 AM | -9 | 30 | 28 | 26 | D.P. |
| Nov. 23 | PM | 1:30 PM | -10 | 27 | 26 | 25 | D.P. |
| Nov. 23 | AM | 6:30 PM | -11 | 25 | 26 | 24 | D.P. |
| | MID | | | | | | |
| | PM | | | | | | |

| COMMENTS: | Turning heaters on + off to control heat | |
|---|---|---|
| | | |
| | | |

CLARK BUILDERS SITE REPRESENTATIVE

PRINT/ SIGN: DAN PELLETIER TITLE Foreman DATE: Nov. 24

# CONCRETE POST POUR COLD WEATHER MONITORING

Rev 03 Nov 13, 2018

| | |
|---|---|
| CONTRACTOR: Clark Builders | DATE OF POUR: Nov. 21 |
| AMBIENT TEMP at POUR (°C): -3 | DATE FORMWORK STRIPPED: Nov 24 |
| LOCATION: CV-13 CWT TOWER | |
| | SPEC SECTION(S): S03 30 00 – Cast-In-Place |

TYPE OF CURING:

| | | | | | |
|---|---|---|---|---|---|
| CURING COMPOUND | ☐ | DAMP BURLAP OR FABRIC | ☐ | INSULATION (TARPS) | ☑ |
| POLYETHYLENE SHEETS | ☐ | WATER/FOG SPRAY/ PONDING | ☐ | FORMS (COVERED BY) | ☑ |

| COLD WEATHER REQUIREMENTS (WHEN AMB. TEMP < 5°C) | PASS | FAIL | N/A | REMARKS |
|---|---|---|---|---|
| Protection in place and temperatures not lower than 20°C or until 70% of the 28-day strength has been reached. | ☑ | ☐ | ☐ | |
| Cold weather protection provided by means of heated enclosures, coverings, insulation, or a suitable approved combination of these methods during complete curing period. | ☑ | ☐ | ☐ | |
| Concrete test cylinders are kept within hoarding or in area where temperatures are ideal for curing. (No frozen Cylinders) | ☑ | ☐ | ☐ | |
| Heat is not directed onto concrete. This may result in thermal cracking. | ☑ | ☐ | ☐ | |
| During freezing weather, and standing water removed before the end of the protection period (CSA A 23.1 clause 7.4.2.4.2) | ☑ | ☐ | ☐ | |

CONCRETE CURING TEMPERATURE LOG (COLD WEATHER CONCRETEING ONLY)

| DATE | | TIME (24 HR) | OUTSIDE AIR TEMP (°C) | TEMP INSIDE HOARDING (°C) | CONCRETE SURFACE TEMP (°C) | | INITIALS OF READER |
|---|---|---|---|---|---|---|---|
| | | | | | HIGH (°C) | LOW (°C) | |
| Nov. 21 | ~~AM~~ | 6:00 PM | -2 | 28 | 23 | 21 | D.P. |
| Nov. 22 | MID | 8:09 AM | -9 | 30 | 30 | 27 | D.P. |
| Nov. 22 | PM | 2:00 PM | -10 | 26 | 28 | 27 | D.P. |
| Nov. 22 | AM | 6:30 PM | -11 | 27 | 27 | 26 | D.P. |
| Nov. 23 | MID | 7:30 AM | -9 | 30 | 28 | 26 | D.P. |
| Nov. 23 | PM | 1:30 PM | -10 | 27 | 26 | 25 | D.P. |
| Nov. 23 | AM | 6:30 PM | -11 | 25 | 26 | 24 | D.P. |
| | MID | | | | | | |
| | PM | | | | | | |

COMMENTS: Turning heaters on + off to control heat

CLARK BUILDERS SITE REPRESENTATIVE

PRINT/ SIGN: DAN PELLETIER TITLE Foreman DATE: Nov. 24

CLARK BUILDERS
ENERGY & RESOURCES



# CONCRETE REINFORCEMENT PRE POUR

Rev 01 August 25, 2018

| | |
|---|---|
| SUBCONTRACTOR: Ultimate Reinforcing // McNish | INSPECTION DATE: NOV 28/18 |
| SUBCONTRACTOR CONTACT PERSON: GARRY DAHL | PROJ. POUR DATE: NOV 28/18 |
| INSPECTOR(S): GARRY DAHL / JDS | |
| LOCATION: CV 2 Bent 1 & GTU & CV 13 Magnetic Tower | |
| DRAWING REV: 0 | DRAWING NO.(S): 3210-231-240-C0038 0009 |
| SPEC SECTION(S): S03 20 00 – Concrete Reinforcing Steel | |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Grade (400W unless otherwise noted) and type of steel delivered and installed as required by approved drawings. | ☑ | ☐ | ☐ |
| 2.0 | Inspect rebar distribution, spacing and cover per design/project requirements. | ☑ | ☐ | ☐ |
| 3.0 | Length of splices as specified | ☑ | ☐ | ☐ |
| 4.0 | Staggered splices as specified | ☑ | ☐ | ☐ |
| 5.0 | Any mechanical splices have been approved by the owner prior to install | ☐ | ☐ | ☒ |
| 6.0 | Bars cleaned and free of material that may reduce bond including loose rust, scale, oil, structural defects and that they are uncoated and unpainted. | ☒ | ☐ | ☐ |
| 7.0 | Dowels at wall ends, construction joints, and openings as specified (length, location, size, etc.) | ☒ | ☐ | ☐ |
| 8.0 | No unauthorized field bent bars including hooks installed | ☐ | ☐ | ☒ |
| 9.0 | Resolve conflicts between embedded items and reinforcement | ☒ | ☐ | ☐ |
| 10.0 | When authorized, field bends done without heat and inspected for fissures or cracks. | ☐ | ☐ | ☒ |
| 11.0 | Bars tied and supported to prevent displacement | ☒ | ☐ | ☐ |
| 12.0 | Spacers, tie wire and chairs as required | ☒ | ☐ | ☐ |
| 13.0 | Conduits at design location and minimum separation from rebar as specified | ☐ | ☐ | ☒ |
| 14.0 | No contact of bars is made with dissimilar metals as per CSA A23.1 | ☒ | ☐ | ☐ |
| 15.0 | Bars, nails or tie wire not sticking out from surfaces that allow rusting/corrosion | ☒ | ☐ | ☐ |
| 16.0 | Rebar welds are inspected by qualified inspectors certified to CSA W178.2 | ☐ | ☐ | ☒ |
| 17.0 | No rebar congestion or other obstruction for deposit of concrete | ☒ | ☐ | ☐ |
| 18.0 | Adjustments required for interfering items (piping, inserts, sleeves, etc.) have been submitted and approved by owner. | ☒ | ☐ | ☐ |
| 19.0 | Rebar was stored off ground to prevent damage/corrosion | ☒ | ☐ | ☐ |
| 20.0 | Review drawings for anchors, piping, sleeves, boxes | ☐ | ☐ | ☒ |

COMMENTS:

ATTACHMENT(S):

DEFICIENCIES NOTES:

CLARK BUILDERS:
INSPECTOR: [signature] TITLE Supt DATE: NOV 28/18

JDS ENERGY & MINING:
INSPECTOR: Ishan Fechter TITLE Supt. DATE: NOV. 28/18

CLARK BUILDERS
ENERGY & RESOURCES

# FORMWORK & FALSEWORK PRE POUR | QA INSPECTION

Rev 01 August 25, 2018

| | |
|---|---|
| CONTRACTOR: Clark Builders | INSPECTION DATE: Nov 28/18 |
| CONTRACTOR CONTACT PERSON: GARRY DAHL | DATE OF POUR: Nov 28/18 |
| INSPECTOR(S): GARRY DAHL / JDS | |
| LOCATION: CV 2 Bent 1 @ GTU & CV 13 Magnetic Tower | |
| DRAWING REV: 0 | DRAWING NO.(S): 3210-231-260-00038 0009 SPEC SECTION(S): |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Location, survey, dimension and grades as required | ☑ | ☐ | ☐ |
| 2.0 | Plumbness and Flatness verified | ☑ | ☐ | ☐ |
| 3.0 | Joints are aligned and watertight. | ☑ | ☐ | ☐ |
| 4.0 | Formwork shop drawings are Engineered and reviewed | ☑ | ☐ | ☐ |
| 5.0 | Re-used formwork reconditioned and treated | ☑ | ☐ | ☐ |
| 6.0 | Formwork and ties according to finishing requirements. Confirm no holes in the concrete surface are greater than 25mm in diameter or expose steel at less than 25mm from surface. As per spec. | ☑ | ☐ | ☐ |
| 7.0 | Installation of embeds are located and secured | ☑ | ☐ | ☑ |
| 8.0 | Chamfer requirements checked. 25mm chamfers required for all exterior corners and edges exposed to view including horizontal edges of pads. | ☑ | ☐ | ☐ |
| 9.0 | Key ways and/or other provisions according to design are provided in construction joints | ☑ | ☐ | ☐ |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 10.0 | Inspect types of form spacers, ties and bracing. | ☑ | ☐ | ☐ |
| 11.0 | Spacing of ties to be set to a pattern | ☑ | ☐ | ☐ |
| 12.0 | Expansion, construction, contraction joints as required & located as coordinated with structural Engineer | ☑ | ☐ | ☐ |
| 13.0 | Forms secured against movement during placing | ☑ | ☐ | ☐ |
| 14.0 | Forms are braced for alignment and blow out | ☑ | ☐ | ☐ |
| 15.0 | Forms are cleaned of all debris, and dry, prior to concrete placement including standing water. | ☑ | ☐ | ☐ |
| 16.0 | Openings in formwork permit inspection and cleaning, placing and compaction of concrete, and forming and processing of construction joints. | ☑ | ☐ | ☐ |
| 17.0 | Formwork has been coated with release agent prior to rebar placement. | ☑ | ☐ | ☐ |
| 18.0 | Anchor Bolts and Embeds are secured to formwork. | ☑ | ☐ | ☐ |

COMMENTS:

ATTACHMENT(S):

DEFICIENCIES NOTES:

INITIAL INSPECTION

INSPECTOR: Ishan Fedrito TITLE Supt DATE: Nov 28/18

RE-INSPECTION (DEFICIENCIES COMPLETED)

INSPECTOR: _____ TITLE _____ DATE: _____

GARRY DAHL

# CONCRETE POST POUR COLD WEATHER MONITORING

Rev 03 Nov 13, 2018

| | |
|---|---|
| ACTOR: Clark Builders | DATE OF POUR: Dec. 1 |
| MBIENT TEMP at POUR (°C): -9 | DATE FORMWORK STRIPPED: |
| CATION: Magnet Tower Footings | |
| | SPEC SECTION(S): S03 30 00 – Cast-In-Place |

PE OF CURING:

| | | | | | |
|---|---|---|---|---|---|
| RING COMPOUND | ☐ | DAMP BURLAP OR FABRIC | ☐ | INSULATION (TARPS) | ☑ |
| LYETHYLENE SHEETS | ☐ | WATER/FOG SPRAY/ PONDING | ☐ | FORMS (COVERED BY) | ☑ |

| LD WEATHER REQUIREMENTS (WHEN AMB. TEMP < 5°C) | PASS | FAIL | N/A | REMARKS |
|---|---|---|---|---|
| tection in place and temperatures not lower than 20°C or until 70% of the 28- strength has been reached. | ☑ | ☐ | ☐ | |
| d weather protection provided by means of heated enclosures, coverings, ulation, or a suitable approved combination of these methods during nplete curing period. | ☑ | ☐ | ☐ | |
| ncrete test cylinders are kept within hoarding or in area where temperatures ideal for curing. (No frozen Cylinders) | ☑ | ☐ | ☐ | |
| t is not directed onto concrete. This may result in thermal cracking. | ☑ | ☐ | ☐ | |
| ing freezing weather, and standing water removed before the end of the tection period (CSA A 23.1 clause 7.4.2.4.2) | ☑ | ☐ | ☐ | |

NCRETE CURING TEMPERATURE LOG (COLD WEATHER CONCRETEING ONLY)

| DATE | | TIME (24 HR) | OUTSIDE AIR TEMP (°C) | TEMP INSIDE HOARDING (°C) | CONCRETE SURFACE TEMP (°C) | | INITIALS OF READER |
|---|---|---|---|---|---|---|---|
| | | | | | HIGH (°C) | LOW (°C) | |
| Dec. 1 | AM | 6:00 PM | -11 | 28 | 24 | 20 | D.P. |
| Dec 2 | MID | 7:30 AM | -15 | 31 | 32 | 29 | D.P. |
| Dec 2 | PM | 1:30 PM | -17 | 28 | 31 | 28 | D.P. |
| Dec 2 | AM | 6:30 PM | -20 | 25 | 29 | 25 | D.P. |
| Dec. 3 | MID | 7:30 AM | -16 | 24 | 28 | 25 | D.P. |
| | PM | | | | | | |
| | AM | | | | | | |
| | MID | | | | | | |
| | PM | | | | | | |

| IMENTS: | | |
|---|---|---|
| | | |
| | | |

**RK BUILDERS SITE REPRESENTATIVE**

T/ SIGN: DAN PELLETIER TITLE Foreman DATE: Dec. 3

CLARK BUILDERS
ENERGY & RESOURCES

# CONCRETE REINFORCEMENT PRE POUR

Rev 01 August 25, 2018

| | |
|---|---|
| SUBCONTRACTOR: Ultimate Reinforcing // McNish | INSPECTION DATE: Dec 2/18 |
| SUBCONTRACTOR CONTACT PERSON: GARRY DAHL | PROJ. POUR DATE: Dec 3/18 |
| INSPECTOR(S): GARRY DAHL / JDS | |
| LOCATION: Culvert on CV 13 (3210) | |
| DRAWING REV: 0 | DRAWING NO.(S): 3210-231-260-0009 |
| SPEC SECTION(S): S03 20 00 – Concrete Reinforcing Steel | |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Grade (400W unless otherwise noted) and type of steel delivered and installed as required by approved drawings. | ☑ | ☐ | ☐ |
| 2.0 | Inspect rebar distribution, spacing and cover per design/project requirements. | ☑ | ☐ | ☐ |
| 3.0 | Length of splices as specified | ☑ | ☐ | ☐ |
| 4.0 | Staggered splices as specified | ☑ | ☐ | ☐ |
| 5.0 | Any mechanical splices have been approved by the owner prior to install | ☑ | ☐ | ☐ |
| 6.0 | Bars cleaned and free of material that may reduce bond including loose rust, scale, oil, structural defects and that they are uncoated and unpainted. | ☑ | ☐ | ☐ |
| 7.0 | Dowels at wall ends, construction joints, and openings as specified (length, location, size, etc.) | ☑ | ☐ | ☐ |
| 8.0 | No unauthorized field bent bars including hooks installed | ☑ | ☐ | ☐ |
| 9.0 | Resolve conflicts between embedded items and reinforcement | ☑ | ☐ | ☐ |
| 10.0 | When authorized, field bends done without heat and inspected for fissures or cracks. | ☑ | ☐ | ☐ |
| 11.0 | Bars tied and supported to prevent displacement | ☑ | ☐ | ☐ |
| 12.0 | Spacers, tie wire and chairs as required | ☑ | ☐ | ☐ |
| 13.0 | Conduits at design location and minimum separation from rebar as specified | ☑ | ☐ | ☐ |
| 14.0 | No contact of bars is made with dissimilar metals as per CSA A23.1 | ☑ | ☐ | ☐ |
| 15.0 | Bars, nails or tie wire not sticking out from surfaces that allow rusting/corrosion | ☑ | ☐ | ☐ |
| 16.0 | Rebar welds are inspected by qualified inspectors certified to CSA W178.2 | ☑ | ☐ | ☐ |
| 17.0 | No rebar congestion or other obstruction for deposit of concrete | ☑ | ☐ | ☐ |
| 18.0 | Adjustments required for interfering items (piping, inserts, sleeves, etc.) have been submitted and approved by owner. | ☑ | ☐ | ☐ |
| 19.0 | Rebar was stored off ground to prevent damage/corrosion | ☑ | ☐ | ☐ |
| 20.0 | Review drawings for anchors, piping, sleeves, boxes | ☑ | ☐ | ☐ |

COMMENTS:

ATTACHMENT(S):

DEFICIENCIES NOTES:

CLARK BUILDERS:

INSPECTOR: GARRY DAHL DDahl TITLE Supt DATE: Dec 2/18

JDS ENERGY & MINING:

INSPECTOR: Istvan Fechter TITLE Supt. DATE: Dec 2/18

CLARK BUILDERS
ENERGY & RESOURCES

CB-INSPECTION FORM-DOC-002 REV.00
JDS ENERGY & MINING INC. | STRATAGOLD EAGLE GOLD
PROJECT #: CB201 | 18502

PROJECT MANAGER: DUSTIN DOLYNCHUK, P.ENG
QA/QC COORDINATOR: RYAN DE MILLIANO, C.E.T.
SUPERINTENDENT: GARRY DAHL

# FORMWORK & FALSEWORK PRE POUR | QA INSPECTION

Rev 01 August 25, 2018

| | |
|---|---|
| CONTRACTOR: Clark Builders | INSPECTION DATE: Dec 2 2018 |
| CONTRACTOR CONTACT PERSON: GARRY DAHL | DATE OF POUR: Dec 3 2018 |
| INSPECTOR(S): GARRY DAHL / JDS | |
| LOCATION: Culvert on CV 13 | |
| DRAWING REV: 0 | DRAWING NO.(S): 3210-231-260-0009 / SPEC SECTION(S): |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Location, survey, dimension and grades as required | ☑ | ☐ | ☐ |
| 2.0 | Plumbness and Flatness verified | ☑ | ☐ | ☐ |
| 3.0 | Joints are aligned and watertight. | ☑ | ☐ | ☐ |
| 4.0 | Formwork shop drawings are Engineered and reviewed | ☐ | ☐ | ☑ |
| 5.0 | Re-used formwork reconditioned and treated | ☑ | ☐ | ☐ |
| 6.0 | Formwork and ties according to finishing requirements. Confirm no holes in the concrete surface are greater than 25mm in diameter or expose steel at less than 25mm from surface. As per spec. | ☑ | ☐ | ☐ |
| 7.0 | Installation of embeds are located and secured | ☑ | ☐ | ☐ |
| 8.0 | Chamfer requirements checked. 25mm chamfers required for all exterior corners and edges exposed to view including horizontal edges of pads. | ☐ | ☐ | ☑ |
| 9.0 | Key ways and/or other provisions according to design are provided in construction joints | ☑ | ☐ | ☐ |
| 10.0 | Inspect types of form spacers, ties and bracing. | ☑ | ☐ | ☐ |
| 11.0 | Spacing of ties to be set to a pattern | ☑ | ☐ | ☐ |
| 12.0 | Expansion, construction, contraction joints as required & located as coordinated with structural Engineer | ☐ | ☐ | ☑ |
| 13.0 | Forms secured against movement during placing | ☑ | ☐ | ☐ |
| 14.0 | Forms are braced for alignment and blow out | ☑ | ☐ | ☐ |
| 15.0 | Forms are cleaned of all debris, and dry, prior to concrete placement including standing water. | ☑ | ☐ | ☐ |
| 16.0 | Openings in formwork permit inspection and cleaning, placing and compaction of concrete, and forming and processing of construction joints. | ☐ | ☐ | ☑ |
| 17.0 | Formwork has been coated with release agent prior to rebar placement. | ☐ | ☐ | ☑ |
| 18.0 | Anchor Bolts and Embeds are secured to formwork. | ☑ | ☐ | ☐ |

COMMENTS:

ATTACHMENT(S):

DEFICIENCIES NOTES:

INITIAL INSPECTION

INSPECTOR: Isham Feehter TITLE Supt DATE: Dec 2/18

RE-INSPECTION (DEFICIENCIES COMPLETED)

INSPECTOR: _____ TITLE _____ DATE: _____

GARRY DAHL Dec 2/18

# CONCRETE POST POUR COLD WEATHER MONITORING

Rev 03 Nov 13, 2018

| | |
|---|---|
| CONTRACTOR: Clark Builders | DATE OF POUR: Dec. 3 |
| AMBIENT TEMP at POUR (°C): -16 | DATE FORMWORK STRIPPED: |
| LOCATION: Reclaim Tunnel Face | SPEC SECTION(S): S03 30 00 – Cast-In-Place |

TYPE OF CURING:

| | | | | | |
|---|---|---|---|---|---|
| CURING COMPOUND | ☐ | DAMP BURLAP OR FABRIC | ☐ | INSULATION (TARPS) | ☑ |
| POLYETHYLENE SHEETS | ☐ | WATER/FOG SPRAY/ PONDING | ☐ | FORMS (COVERED BY) | ☑ |

| COLD WEATHER REQUIREMENTS (WHEN AMB. TEMP < 5°C) | PASS | FAIL | N/A | REMARKS |
|---|---|---|---|---|
| Protection in place and temperatures not lower than 20°C or until 70% of the 28-day strength has been reached. | ☑ | ☐ | ☐ | |
| Cold weather protection provided by means of heated enclosures, coverings, insulation, or a suitable approved combination of these methods during complete curing period. | ☑ | ☐ | ☐ | |
| Concrete test cylinders are kept within hoarding or in area where temperatures are ideal for curing. (No frozen Cylinders) | ☑ | ☐ | ☐ | |
| Heat is not directed onto concrete. This may result in thermal cracking. | ☑ | ☐ | ☐ | |
| During freezing weather, and standing water removed before the end of the protection period (CSA A 23.1 clause 7.4.2.4.2) | ☑ | ☐ | ☐ | |

CONCRETE CURING TEMPERATURE LOG (COLD WEATHER CONCRETEING ONLY)

| DATE | | TIME (24 HR) | OUTSIDE AIR TEMP (°C) | TEMP INSIDE HOARDING (°C) | CONCRETE SURFACE TEMP (°C) | | INITIALS OF READER |
|---|---|---|---|---|---|---|---|
| | | | | | HIGH (°C) | LOW (°C) | |
| Dec. 3 | AM | 6:30 PM | -19 | 22 | 19 | 17 | D.P. |
| Dec. 4 | MID | 7:30 AM | -21 | 29 | 31 | 27 | D.P. |
| Dec. 4 | PM | 1:30 PM | -22 | 28 | 29 | 26 | D.P. |
| Dec. 4 | AM | 6:30 PM | -19 | 27 | 29 | 25 | D.P. |
| | MID | | | | | | |
| | PM | | | | | | |
| | AM | | | | | | |
| | MID | | | | | | |
| | PM | | | | | | |

COMMENTS:

CLARK BUILDERS SITE REPRESENTATIVE

PRINT/ SIGN: DAN PELLETIER TITLE Foreman DATE:

CLARK BUILDERS
ENERGY & RESOURCES

# INSPECTION REPORT

| | |
|---|---|
| PROJECT NAME: | DATE: DECEMBER 7, 2018 |
| PROJECT NO: CLAYTON | DATE OF INSPECTION: DECEMBER 7, 2018 |
| ATTENDEES: Ryan deMilliano, Jerry Chrzaszcz | |
| AREA: BLOCK CU013 MAG TOWER PEDESTALS (x4) | |
| WORK PERMIT NO: | NCR NO: 2018-0012 |

| ITEM | DESCRIPTION | YES | NO | N/A |
|---|---|---|---|---|
| 1 | Is the work area clean and free of debris? | | | ☐ |
| 2 | Are all workers wearing appropriate PPE? | | | ☐ |
| 3 | Are all workers tied off when working at heights? | | | ☐ |
| 4 | Are all workers trained for the tasks they are performing? | | | ☐ |
| 5 | Are all tools and equipment in good condition? | | | ☐ |
| 6 | Are all electrical cords and connections in good condition? | | | ☐ |
| 7 | Are all fire extinguishers charged and accessible? | | | ☐ |
| 8 | Are all emergency exits clear and accessible? | | | ☐ |
| 9 | Are all hazardous materials properly labeled and stored? | | | ☐ |
| 10 | Are all workers aware of the emergency procedures? | | | ☐ |
| 11 | Are all workers aware of the location of the first aid kit? | | | ☐ |
| 12 | Are all workers aware of the location of the eyewash station? | | | ☐ |
| 13 | Are all workers aware of the location of the spill kit? | | | ☐ |
| 14 | Are all workers aware of the location of the fire extinguishers? | | | ☐ |
| 15 | Are all workers aware of the location of the emergency exits? | | | ☐ |
| 16 | Are all workers aware of the location of the first aid kit? | | | ☐ |
| 17 | Are all workers aware of the location of the eyewash station? | | | ☐ |
| 18 | Are all workers aware of the location of the spill kit? | | | ☐ |
| 19 | Are all workers aware of the location of the fire extinguishers? | | | ☐ |
| 20 | Are all workers aware of the location of the emergency exits? | | | ☐ |

## ACTION ITEMS

| | | |
|---|---|---|
| | | |
| | | DWG. HIGHLIGHTED. |

## ADDITIONAL COMMENTS

| | | |
|---|---|---|
| | | |
| | | |
| | | |

SIGNATURE: Ryan deMilliano / Project Coordinator DATE: December 7, 2018

SIGNATURE: Jerry Chrzaszcz / Const. Supt. DATE: 12/7/18

CLARK BUILDERS
ENERGY & RESOURCES

# ÂÆĆĄD ÆĆÅĀĶĀĀĈÁDÆĆÅĀBĆÁĀBÆĊĆĀĮĀCĀĀÆĈBÁACĀÆÆ

| | |
|---|---|
| AÆÆĈĆ ACÆĆĪĀÆÆĘĐGĖĀĒĒĘĒGĦ | ÆĈBÁACĀÆÆĀĀCÁĪÆ Ā ĀĀ DECEMBER 7, 2018 |
| AÆÆĈĆ ACÆĆĀÆÆČ ACĀBÆĈÆÆĪĀ PETER NICE | À ČÁÆÆÂBÆĆ ĆĪÆ Ā DECEMBER 7, 2018 |
| ĀĈBÁACÆĆĮĈĪĆĪĀ Peter deMilliano Peter Nice | |
| ÅÆA ČĀÆÆĪĀ BRD MAG TOWER PEDESTALS (x4) | |
| ÀĆ D ĀÆĀĀĆĢĀĀ ĀĀĀĀ 3210-0012 | ÀĆ D ÆĀĀÆÆĪĪĈĪĆĪĀ Ā ĀĀĀ 5003-10-00 |

Ā

| ĀČÁĄ | ĀČÁĄĈĢÆÁĀĀĀÄÁÅÁÀĀ | BĈ ĈĀ | ÂÁÅĀ | Æi Ā |
|---|---|---|---|---|
| ŁĻĮĻĀ | ÅĜĖĖĐĤĒĜĠĀĦĦĢĦĪ ĪĀĒĖF ÉGĤĒĜĤĜĠĖĀĒĢĤĒĤĐĤĢĦĢĠĦĒĜĢĖĀ | ☐Ā | ☐Ā | ☐Ā |
| ĻĻĪĻĀ | BĘĦF ĐGÉĦĦĐĜĠĖĀĒĘĤĜĠÉĦĦĀĒĢĦĒĖĖĀ | ☐Ā | ☐Ā | ☐Ā |
| MĪĮĀ | ĂĢĒĢĦĦĀĐĢÉĒĜĜĖĘĒĀĐĠĖĀ ĐĤÉĜĤĒĖĖĤĀ | ☐Ā | ☐Ā | ☐Ā |
| NĪĻĀ | ÂĜĢFÌ ĜĢĖĦĀĒĢĜĀĢĦĐ ĒGĖĦĐĢÉĀĜĖĒĜÉÉĜĖĀĐGĖĀ GÉĪĒĒÌ ÉĖĀ | ☐Ā | ☐Ā | ☐Ā |
| ŃĪĻĀ | ĆÉĪĻĦĦÉĖĖĀĜĢFÌ ĜĢĖĜÉĪĜĜĖĖĦĜĜĖĖĀĐGĖĀĦĢÉĜĜĖĖĖĀ | ☐Ā | ☐Ā | ☐Ā |
| ÑĪĻĀ | ÂĜĢFÌ ĜĢĖĀĐGĖĀĤĒĜĜĜĐĖĜĀĤĜĜĒĜĜĦĜĜĒĀ GÉĢĦĜĜĖFÉGĦĦĀĜĜĜĢFĀĜĜĀĖĜĢĖĦĀĜĀĖÉĀĜĜĢĜÉĤÉĀ HĦĢĜĖĖĀĐĢÉĀĜĢÉĐĦÉĢĜĜĐĜĀL·ŃFFĀĒĢĜĜĀHĜĜĐĖÉĪĀĦĀĜĢĦĜĜÉĖĪĀ HĤÉÉĘĀĐĜĤĦĜĜĐĜĀL·ŃFFĀĒĢĜĜĀHĜĜĐĖÉĪĀĦĀĜĢĦĜĜÉĖĪĀ | ☐Ā | ☐Ā | ☐Ā |
| ÑĪĻĀ | ĀĢĦĤĐĘĘĐĜĦĜĜĀÉFĐĖÈHĀĐĜĀĘĜĐĤĖĀĐĢĀĖĦĢĢĖĀ | ☐Ā | ☐Ā | ☐Ā |
| ŅĪĻĀ | AËĐFĒÉĢĀĢĦĜĜĢFÉGĤĦĀĖÉÉÉÉÈÌĀĀL·ŃFFĀĒĜĜFĒÉĢĦĀ GÉĢĦĜĜĖĖĜĜĢĜĘĘĢĀĤÉĢĒĢĀĢĢĢÉĢĦĐĢĜĖĀĖÈĖÉĦĀÍ ĢĜĦÉÈĀĤĢĀ IĒÉÌ ĀĒĢĘĦĦĒĢĜĜĘĘĜĢĒĜĜĢÉĢĦĐĘĀÉĖĖĀĜĜĀĢĐÈĦĀÏ | ☐Ā | ☐Ā | ☐Ā |
| ŅĪĻĀ | ÅÉĪÂÌ ĐĤĀĐĐĦĜĢĀĜĦĒĢĀĜĜĒĦĜĜĦĐĘĒĢĒĊĀĤĜĜĒĦĒĜĀ ĐĢÉĀĜĢĜĒÈĖĒĀĜĀĜĜĦĘĦĦĒĜĜĜĜĦĦĀ | ☐Ā | ☐Ā | ☐Ā |

| ĀČÁĄ | ĀČÁĄĈĢÆÁĀĀĀÄÁÅÁÀĀ | BĈ ĈĀ | ÂÁÅĀ | Æi Ā |
|---|---|---|---|---|
| ŁĻĮĻĀ | ĜĦĜĖÉĦĀĜĜĖĦĀĜĜĀĖĢFĀĦĜĐĖĢĦĀĤĖĖĦĀĜĐÈĀĢĐĖĒĜĖĪĀĀ | ☐Ā | ☐Ā | ☐Ā |
| ŁŁĪĻĀ | ĈĜĐĖĒĜĀĜĜĀĦĖĖĀĤĜĜĀÉĦĀĤĜĜĐĀĜĜĦĖĢĜĀ | ☐Ā | ☐Ā | ☐Ā |
| ŁĻ·ĪĻĀ | ÁÍĜĐĢĦĖĜĜĀĖĜĜĦĦĜĖĖĜĜĀĖĜĜĦĢĐĦĖĜĜĀĜĖĜĦĐĦĀ ĢÉĢĦĜĖĖÈĀĀĘĢĖĐĦĖÉÈĐĦĀĖĜĜĢÈĖĜĐĦĖĖĀ ĦĤĢĦĦĖĢĐĀĜĖĖĜĖĢÉĜĀ | ☐Ā | ☐Ā | ☐Ā |
| ŁMĪĻĀ | ÂĜĢFHĀĖÉĦĢÉÈĀĐĖĐĖĜĦĤĦĀĜÍÉF ÉGĦĀĖĦĢĜĖĀĜĐĖĖĜĐĖĀ | ☐Ā | ☐Ā | ☐Ā |
| ŁNĪĻĀ | ÂĜĢFHĐĢÉĀĐĢĦĐÉÈĀĜĜĢĀĐĘĖĖĜĦÉĜĦĦĐĜĜÈĀĐĘĜĀĜĦĦĀ | ☐Ā | ☐Ā | ☐Ā |
| ŁŃĪĻĀ | ÂĜĢFHĐĢĖĀĖĘĐĢÉĖĀĜĖĀĐĖĘĖĀĐĢĦĖĀĐĜĜÈĀĢĜĪĀĜĜĖĢĀĜĀ EĜĜĖĢÉĤĦĜĜĀĘĐĖÉF ÉGĦĀĜĜĖĘĦÈĖĜĖĀĦĤĐÈĖĜĀĀ ĐĤÉĢĀ | ☐Ā | ☐Ā | ☐Ā |
| ŁŃĪĻĀ | ÆĜÉGĖĜĦĀĜĖĀĜĜĢFÌ ĜĢĖÈĀĜÉĢĦĀĦĖĜĜĖĖĦĖĜĀĜĐĖĀ EĘĖĐĢĖĜĪĀĜĖĦĐĖĜĖĐĀĜĖĀĜĜF ĜĐĖĤĖĜĀĜĖĀĜĜĖĢÉĤĦĀ ĐĢÈĀĜĜĢFĖĜĖĐĀĜĖĀĜĢĜĖĤĖĖĜĀĜĜĖĀĜĜĦĤĢĦĖĜĜĀ ĖĜĖĜĦĀ | ☐Ā | ☐Ā | ☐Ā |
| ŁŃĪĻĀ | ÂĜĢFÌĜĢĖÈĀĐĦĀĐĖĜĀĜĖĜĐĦĖĀÌĖĤĀĜĢĖĐĦÉĀĐĖĜĦĀ ĜĢĖĜĀĦĀĜĜĖĐĢĀĜĜĐĖÉFÉGĦĪĀ | ☐Ā | ☐Ā | ☐Ā |
| ŁŃĪĻĀ | GĖĖĜĢĀ ĜĘĦĤĀĐĐĀFĐ ÉÈĦĀĐĖĜĀĦÉĖĖĜĖÈĀĤĀĜ ÊĜĢFÌ ĜĢĖÈĀ | ☐Ā | ☐Ā | ☐Ā |

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| Ā | Ā DWG. HIGHLIGHTED. |

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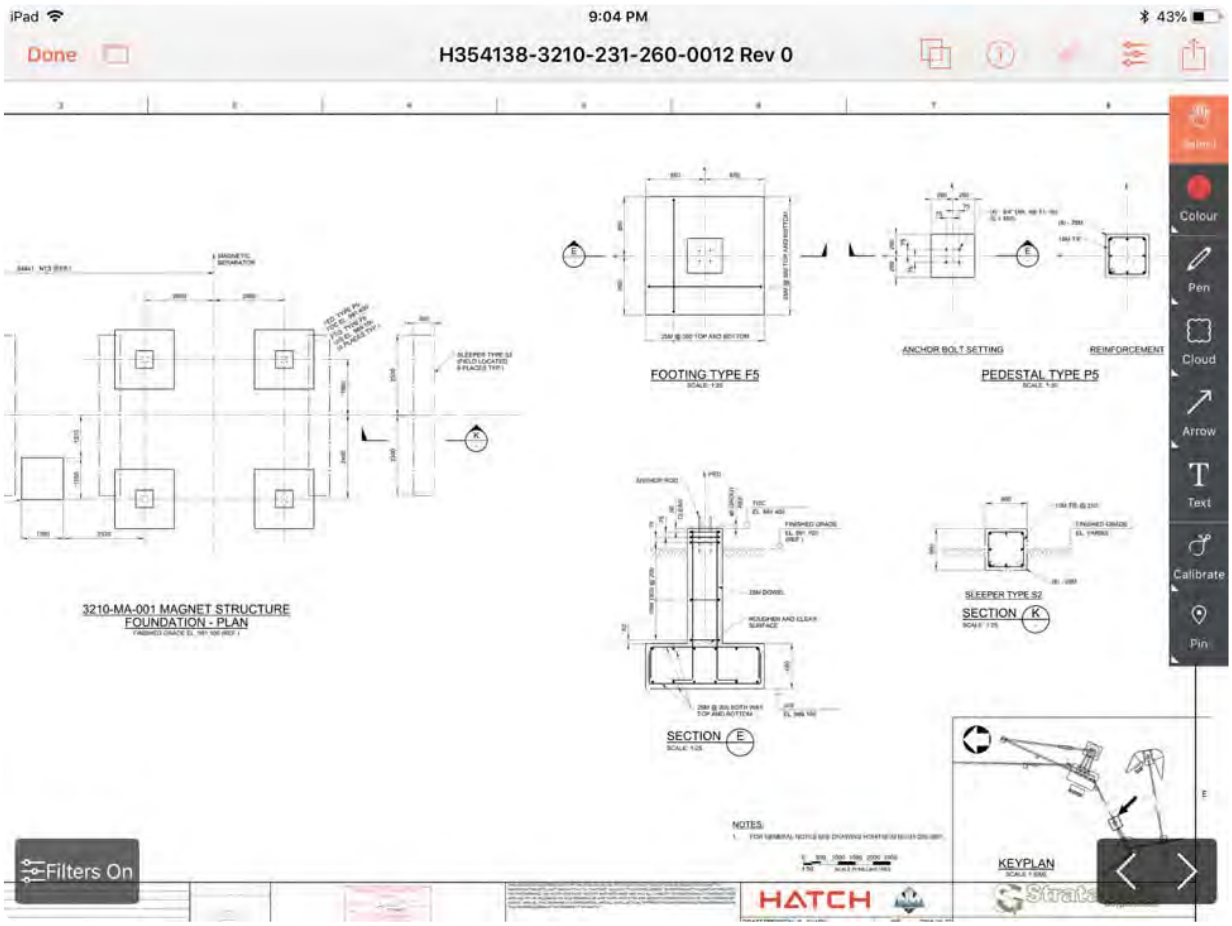
ĀÆĈĀAĈÁĆĪĀĀĀ Ryan deMilliano Project Coordinator Date: December 7, 2018

Ā

ĆÁIĀÆĈBÁACĀÆĈĀĀÁÂĀĀĀÁÆĀĈĀAÁB ÅÁĈÁÀĀĪ

ĀÆĈĀAĈÁĆĪĀĀĀ MR JJJ JJJ JJJ


North
M/H tower foundation
Pedestal inspection.


iPad
9:04 PM
43%
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H354138-3210-231-260-0012 Rev 0
Colour
Pen
Cloud
Arrow
Text
Calibrate
Pin
FOOTING TYPE F5
ANCHOR BOLT SETTING
REINFORCEMENT
PEDESTAL TYPE P5
3210-MA-001 MAGNET STRUCTURE
FOUNDATION - PLAN
SECTION E
SLEEPER TYPE S2
SECTION K
KEYPLAN
NOTES:
Filters On
HATCH

CLARK BUILDERS
ENERGY & RESOURCES

# CONCRETE REINFORCEMENT PRE POUR

Rev 01 August 25, 2018

| | |
|---|---|
| SUBCONTRACTOR: Ultimate Reinforcing // McNish | INSPECTION DATE: DECEMBER 7, 2018 (AM) |
| SUBCONTRACTOR CONTACT PERSON: CLAYTON | PROJ. POUR DATE: DECEMBER 7, 2018 (PM) |
| INSPECTOR(S): Ryan deMilliano, Jerry C. (3DS) | |
| LOCATION: 3210 CV002 BENT 7 PEDESTALS (x2) // CV013 MAG TWR PEDS (x4) | |
| DRAWING REV: 00 | DRAWING NO.(S): 3210/0012R0; 0003R0 |
| | SPEC SECTION(S): S03 20 00 – Concrete Reinforcing Steel |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Grade (400W unless otherwise noted) and type of steel delivered and installed as required by approved drawings. | ☑ | ☐ | ☐ |
| 2.0 | Inspect rebar distribution, spacing and cover per design/project requirements. | ☑ | ☐ | ☐ |
| 3.0 | Length of splices as specified | ☑ | ☐ | ☐ |
| 4.0 | Staggered splices as specified | ☐ | ☐ | ☑ |
| 5.0 | Any mechanical splices have been approved by the owner prior to install | ☐ | ☐ | ☑ |
| 6.0 | Bars cleaned and free of material that may reduce bond including loose rust, scale, oil, structural defects and that they are uncoated and unpainted. | ☑ | ☐ | ☐ |
| 7.0 | Dowels at wall ends, construction joints, and openings as specified (length, location, size, etc.) | ☐ | ☐ | ☑ |
| 8.0 | No unauthorized field bent bars including hooks installed | ☑ | ☐ | ☐ |
| 9.0 | Resolve conflicts between embedded items and reinforcement | ☑ | ☐ | ☐ |
| 10.0 | When authorized, field bends done without heat and inspected for fissures or cracks. | ☐ | ☐ | ☑ |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 11.0 | Bars tied and supported to prevent displacement | ☑ | ☐ | ☐ |
| 12.0 | Spacers, tie wire and chairs as required | ☑ | ☐ | ☐ |
| 13.0 | Conduits at design location and minimum separation from rebar as specified | ☐ | ☐ | ☑ |
| 14.0 | No contact of bars is made with dissimilar metals as per CSA A23.1 | ☑ | ☐ | ☐ |
| 15.0 | Bars, nails or tie wire not sticking out from surfaces that allow rusting/corrosion | ☑ | ☐ | ☐ |
| 16.0 | Rebar welds are inspected by qualified inspectors certified to CSA W178.2 | ☐ | ☐ | ☑ |
| 17.0 | No rebar congestion or other obstruction for deposit of concrete | ☑ | ☐ | ☐ |
| 18.0 | Adjustments required for interfering items (piping, inserts, sleeves, etc.) have been submitted and approved by owner. | ☑ | ☐ | ☐ |
| 19.0 | Rebar was stored off ground to prevent damage/corrosion | ☑ | ☐ | ☐ |
| 20.0 | Review drawings for anchors, piping, sleeves, boxes | ☑ | ☐ | ☐ |

| COMMENTS: | ATTACHMENT(S): |
|---|---|
| | |
| | |
| | |

DEFICIENCIES NOTES:

CLARK BUILDERS:

INSPECTOR: Ryan deM. Milliano // TITLE Project Coordinator DATE: December 7, 2018

JDS ENERGY & MINING:

INSPECTOR: _____ TITLE _____ DATE: _____

CLARK BUILDERS
ENERGY & RESOURCES



PROJECT MANAGER: DUSTIN DOLYNCHUK, P.ENG
QA/QC COORDINATOR: RYAN DE MILLIANO, C.E.T.
SUPERINTENDENT: GARRY DAHL

# FORMWORK & FALSEWORK PRE POUR | QA INSPECTION

Rev 01 August 25, 2018

| | |
|---|---|
| CONTRACTOR: Clark Builders | INSPECTION DATE: Dec 7, 2018 |
| CONTRACTOR CONTACT PERSON: Peter Nice | DATE OF POUR: Dec 7, 2018 |
| INSPECTOR(S): Ryan deMilliano | |
| LOCATION: 3210 CU002 BENT 1 PIERS (x2) // CU013 MAG TOWER PIERS (x4) | |
| DRAWING REV: 00 | DRAWING NO.(S): SPEC SECTION(S): 503 10 00 |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Location, survey, dimension and grades as required | ☑ | ☐ | ☐ |
| 2.0 | Plumbness and Flatness verified | ☑ | ☐ | ☐ |
| 3.0 | Joints are aligned and watertight. | ☑ | ☐ | ☐ |
| 4.0 | Formwork shop drawings are Engineered and reviewed | ☐ | ☐ | ☑ |
| 5.0 | Re-used formwork reconditioned and treated | ☑ | ☐ | ☐ |
| 6.0 | Formwork and ties according to finishing requirements. Confirm no holes in the concrete surface are greater than 25mm in diameter or expose steel at less than 25mm from surface. As per spec. | ☑ | ☐ | ☐ |
| 7.0 | Installation of embeds are located and secured | ☑ | ☐ | ☐ |
| 8.0 | Chamfer requirements checked. 25mm chamfers required for all exterior corners and edges exposed to view including horizontal edges of pads. | ☑ | ☐ | ☐ |
| 9.0 | Key ways and/or other provisions according to design are provided in construction joints | ☐ | ☐ | ☑ |
| 10.0 | Inspect types of form spacers, ties and bracing. | ☑ | ☐ | ☐ |
| 11.0 | Spacing of ties to be set to a pattern | ☑ | ☐ | ☐ |
| 12.0 | Expansion, construction, contraction joints as required & located as coordinated with structural Engineer | ☐ | ☐ | ☑ |
| 13.0 | Forms secured against movement during placing | ☑ | ☐ | ☐ |
| 14.0 | Forms are braced for alignment and blow out | ☑ | ☐ | ☐ |
| 15.0 | Forms are cleaned of all debris, and dry, prior to concrete placement including standing water. | ☑ | ☐ | ☐ |
| 16.0 | Openings in formwork permit inspection and cleaning, placing and compaction of concrete, and forming and processing of construction joints. | ☑ | ☐ | ☐ |
| 17.0 | Formwork has been coated with release agent prior to rebar placement. | ☑ | ☐ | ☐ |
| 18.0 | Anchor Bolts and Embeds are secured to formwork. | ☑ | ☐ | ☐ |

COMMENTS:

ATTACHMENT(S):

DEFICIENCIES NOTES:

INITIAL INSPECTION

INSPECTOR: Ryan deMilliano TITLE Project Coordinator DATE: Dec 7, 2018

RE-INSPECTION (DEFICIENCIES COMPLETED)

INSPECTOR: _____ TITLE _____ DATE: _____

CLARK BUILDERS
ENERGY & RESOURCES

CB-INSPECTION FORM-DOC-002 REV.00
JDS ENERGY & MINING INC. | STRATAGOLD EAGLE GOLD
PROJECT #: CB201 | 18502

PROJECT MANAGER: DUSTIN DOLYNCHUK, P.ENG
QA/QC COORDINATOR: RYAN DE MILLIANO, C.E.T.
SUPERINTENDENT: GARRY DAHL

# CONCRETE REINFORCEMENT PRE POUR

Rev 01 August 25, 2018

| | |
|---|---|
| SUBCONTRACTOR: Ultimate Reinforcing // McNish | INSPECTION DATE: DECEMBER 7, 2018 |
| SUBCONTRACTOR CONTACT PERSON: CLAYTON | PROJ. POUR DATE: DECEMBER 7, 2018 |
| INSPECTOR(S): Ryan deMilliano, Jerry Chrzaszcz | |
| LOCATION: 3210 CV013 MAG TOWER PEDESTALS (x4) | |
| DRAWING REV: 00 / DRAWING NO.(S): 3210-0012 | SPEC SECTION(S): S03 20 00 – Concrete Reinforcing Steel |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Grade (400W unless otherwise noted) and type of steel delivered and installed as required by approved drawings. | ☑ | ☐ | ☐ |
| 2.0 | Inspect rebar distribution, spacing and cover per design/project requirements. | ☑ | ☐ | ☐ |
| 3.0 | Length of splices as specified | ☐ | ☐ | ☑ |
| 4.0 | Staggered splices as specified | ☐ | ☐ | ☑ |
| 5.0 | Any mechanical splices have been approved by the owner prior to install | ☐ | ☐ | ☑ |
| 6.0 | Bars cleaned and free of material that may reduce bond including loose rust, scale, oil, structural defects and that they are uncoated and unpainted. | ☑ | ☐ | ☐ |
| 7.0 | Dowels at wall ends, construction joints, and openings as specified (length, location, size, etc.) | ☑ | ☐ | ☐ |
| 8.0 | No unauthorized field bent bars including hooks installed | ☑ | ☐ | ☐ |
| 9.0 | Resolve conflicts between embedded items and reinforcement | ☑ | ☐ | ☐ |
| 10.0 | When authorized, field bends done without heat and inspected for fissures or cracks. | ☐ | ☐ | ☑ |
| 11.0 | Bars tied and supported to prevent displacement | ☑ | ☐ | ☐ |
| 12.0 | Spacers, tie wire and chairs as required | ☑ | ☐ | ☐ |
| 13.0 | Conduits at design location and minimum separation from rebar as specified | ☐ | ☐ | ☑ |
| 14.0 | No contact of bars is made with dissimilar metals as per CSA A23.1 | ☑ | ☐ | ☐ |
| 15.0 | Bars, nails or tie wire not sticking out from surfaces that allow rusting/corrosion | ☑ | ☐ | ☐ |
| 16.0 | Rebar welds are inspected by qualified inspectors certified to CSA W178.2 | ☐ | ☐ | ☑ |
| 17.0 | No rebar congestion or other obstruction for deposit of concrete | ☑ | ☐ | ☐ |
| 18.0 | Adjustments required for interfering items (piping, inserts, sleeves, etc.) have been submitted and approved by owner. | ☑ | ☐ | ☐ |
| 19.0 | Rebar was stored off ground to prevent damage/corrosion | ☑ | ☐ | ☐ |
| 20.0 | Review drawings for anchors, piping, sleeves, boxes | ☑ | ☐ | ☐ |

| COMMENTS: | ATTACHMENT(S): |
|---|---|
| | |
| | |
| | DWG. HIGHLIGHTED. |

DEFICIENCIES NOTES:

CLARK BUILDERS:
INSPECTOR: Ryan deMilliano TITLE Project Coordinator DATE: December 7, 2018

JDS ENERGY & MINING:
INSPECTOR: Jerry C TITLE Const. Sup. DATE: Dec. 8/18

CLARK BUILDERS
ENERGY & RESOURCES



PROJECT MANAGER: DUSTIN DOLYNCHUK, P.ENG
QA/QC COORDINATOR: RYAN DE MILLIANO, C.E.T.
SUPERINTENDENT: GARRY DAHL

# FORMWORK & FALSEWORK PRE POUR | QA INSPECTION

Rev 01 August 25, 2018

| | |
|---|---|
| CONTRACTOR: Clark Builders | INSPECTION DATE: DECEMBER 7, 2018 |
| CONTRACTOR CONTACT PERSON: PETER NICE | DATE OF POUR: DECEMBER 7, 2018 |
| INSPECTOR(S): Ryan deMilliano Peter Nice | |
| LOCATION: 3210 MG TOWER PEDESTALS (x4) | |
| DRAWING REV: 00 / DRAWING NO.(S): 3210-0012 | SPEC SECTION(S): 503-10-00 |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Location, survey, dimension and grades as required | ☑ | ☐ | ☐ |
| 2.0 | Plumbness and Flatness verified | ☑ | ☐ | ☐ |
| 3.0 | Joints are aligned and watertight. | ☑ | ☐ | ☐ |
| 4.0 | Formwork shop drawings are Engineered and reviewed | ☐ | ☐ | ☑ |
| 5.0 | Re-used formwork reconditioned and treated | ☑ | ☐ | ☐ |
| 6.0 | Formwork and ties according to finishing requirements. Confirm no holes in the concrete surface are greater than 25mm in diameter or expose steel at less than 25mm from surface. As per spec. | ☑ | ☐ | ☐ |
| 7.0 | Installation of embeds are located and secured | ☐ | ☐ | ☑ |
| 8.0 | Chamfer requirements checked. 25mm chamfers required for all exterior corners and edges exposed to view including horizontal edges of pads. | ☑ | ☐ | ☐ |
| 9.0 | Key ways and/or other provisions according to design are provided in construction joints | ☐ | ☐ | ☑ |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 10.0 | Inspect types of form spacers, ties and bracing. | ☑ | ☐ | ☐ |
| 11.0 | Spacing of ties to be set to a pattern | ☑ | ☐ | ☐ |
| 12.0 | Expansion, construction, contraction joints as required & located as coordinated with structural Engineer | ☐ | ☐ | ☑ |
| 13.0 | Forms secured against movement during placing | ☑ | ☐ | ☐ |
| 14.0 | Forms are braced for alignment and blow out | ☑ | ☐ | ☐ |
| 15.0 | Forms are cleaned of all debris, and dry, prior to concrete placement including standing water. | ☑ | ☐ | ☐ |
| 16.0 | Openings in formwork permit inspection and cleaning, placing and compaction of concrete, and forming and processing of construction joints. | ☑ | ☐ | ☐ |
| 17.0 | Formwork has been coated with release agent prior to rebar placement. | ☑ | ☐ | ☐ |
| 18.0 | Anchor Bolts and Embeds are secured to formwork. | ☑ | ☐ | ☐ |

COMMENTS:

ATTACHMENT(S):

DWG. HIGHLIGHTED.

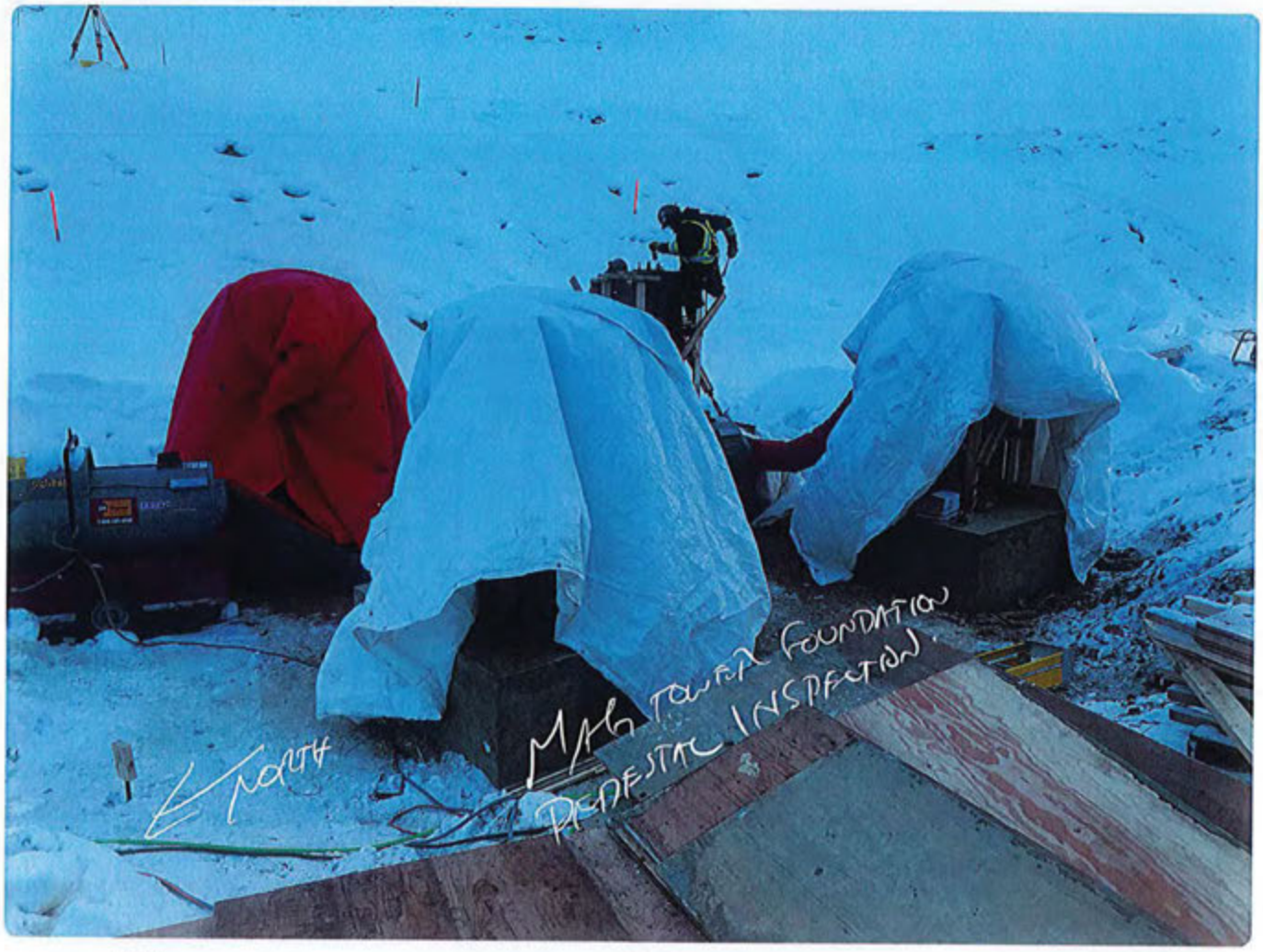
DEFICIENCIES NOTES:

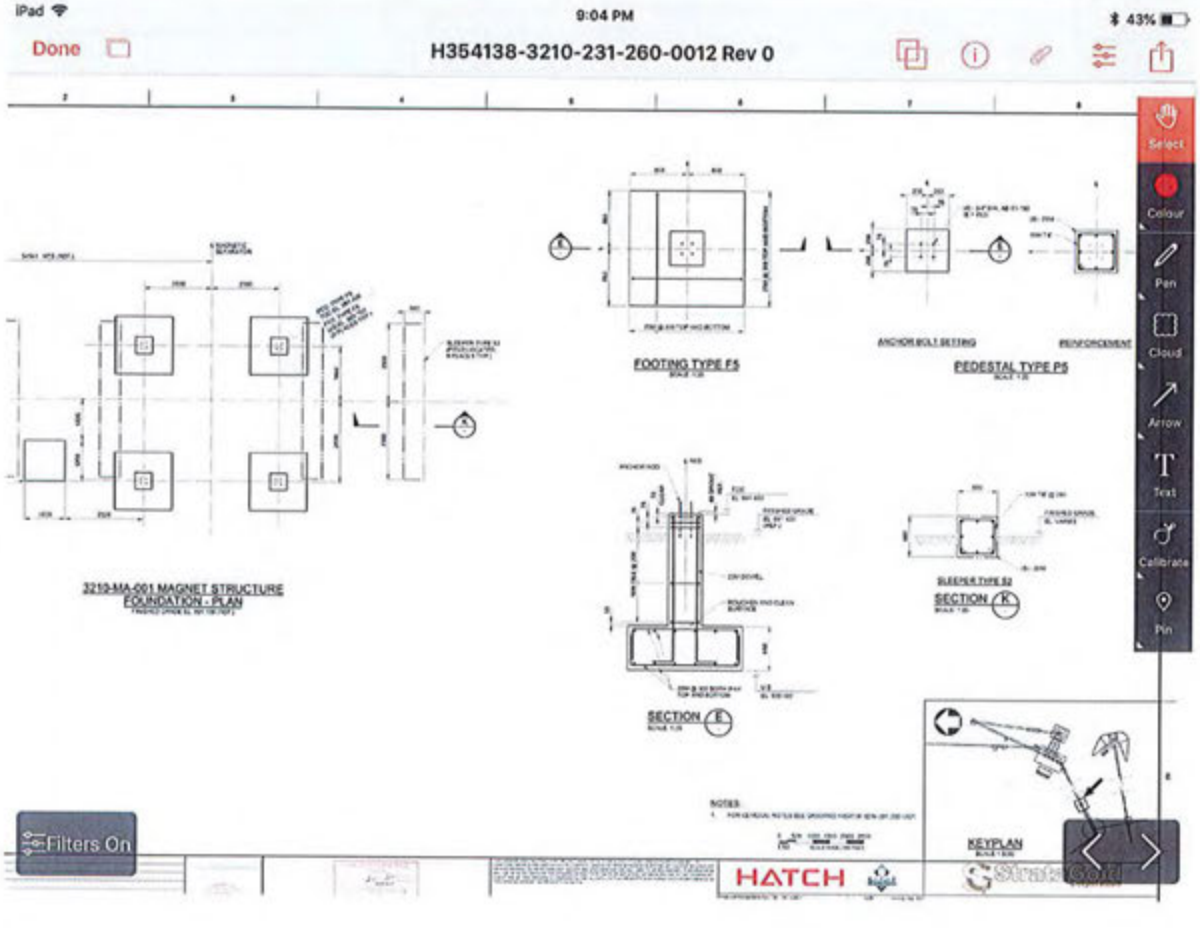
INITIAL INSPECTION

INSPECTOR: Ryan deMilliano TITLE Project Coordinator DATE: December 7, 2018

RE-INSPECTION (DEFICIENCIES COMPLETED)

INSPECTOR: N/A. TITLE _____ DATE: _____


NORTH
M/A TOWER FOUNDATION
PEDESTAL INSPECTION


iPad
9:04 PM
43%
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H354138-3210-231-260-0012 Rev 0
FOOTING TYPE F5
PEDESTAL TYPE P5
3210-MA-001 MAGNET STRUCTURE FOUNDATION - PLAN
SECTION
SECTION
KEYPLAN
Select
Colour
Pen
Cloud
Arrow
Text
Calibrate
Pin
Filters On
HATCH

CLARK BUILDERS
ENERGY & RESOURCES

# Ā

| | |
|---|---|
| Ā | DECEMBER 8, 2018 |
| Ā | DECEMBER 8, 2018 |
| Ā | Ryan deMilliano, Jerry Chrzaszcz |
| Ā | RIG CU002 BENT 1 PEDESTALS (x2) |
| Ā | 2210 - 0003 |

| Ā | Ā | Ā | Ā | Ā | Ā | Ā | Ā | Ā | Ā |
|---|---|---|---|---|---|---|---|---|---|
| Ā | Ā | Ā | Ā | Ā | Ā | Ā | Ā | Ā | Ā |

CLARK BUILDERS
ENERGY & RESOURCES

# Pre-Delivery Inspection Report

| | |
|---|---|
| Date of Inspection | December 8, 2018 |
| Inspected By | Peter Nice |
| Date of Delivery | December 8, 2018 |
| Delivered By | Peter Nice, Peter deMilliano |
| Unit Model | HR30 TT4 / CWT PEDESTALS (x20) |
| Unit Serial # | 2020 |
| Engine Serial # | 13380 / 0003 80005 |
| Hour Meter Reading | 5883 - 10 - 00 |

| | Item | Yes | No | N/A |
|---|---|---|---|---|
| 1 | Is the unit free of damage? | ☑ | ☐ | ☐ |
| 2 | Are all fluid levels correct? | ☑ | ☐ | ☐ |
| 3 | Are all guards in place and secure? | ☑ | ☐ | ☐ |
| 4 | Are all belts properly tensioned? | ☑ | ☐ | ☐ |
| 5 | Are all electrical connections tight? | ☑ | ☐ | ☐ |
| 6 | Are all hydraulic connections tight? | ☑ | ☐ | ☐ |
| 7 | Are all hydraulic hoses free of damage? | ☑ | ☐ | ☐ |
| 8 | Are all hydraulic hoses properly routed? | ☑ | ☐ | ☐ |
| 9 | Are all hydraulic hoses properly secured? | ☑ | ☐ | ☐ |
| 10 | Are all hydraulic hoses free of rubbing? | ☑ | ☐ | ☐ |
| 11 | Are all hydraulic hoses free of kinking? | ☑ | ☐ | ☐ |
| 12 | Are all hydraulic hoses free of twisting? | ☑ | ☐ | ☐ |
| 13 | Are all hydraulic hoses free of pinching? | ☑ | ☐ | ☐ |
| 14 | Are all hydraulic hoses free of abrasion? | ☑ | ☐ | ☐ |
| 15 | Are all hydraulic hoses free of leaks? | ☑ | ☐ | ☐ |
| 16 | Are all hydraulic hoses free of damage? | ☑ | ☐ | ☐ |
| 17 | Are all hydraulic hoses free of wear? | ☑ | ☐ | ☐ |
| 18 | Are all hydraulic hoses free of corrosion? | ☑ | ☐ | ☐ |
| 19 | Are all hydraulic hoses free of contamination? | ☑ | ☐ | ☐ |
| 20 | Are all hydraulic hoses free of air? | ☑ | ☐ | ☐ |
| 21 | Are all hydraulic hoses free of water? | ☑ | ☐ | ☐ |
| 22 | Are all hydraulic hoses free of debris? | ☑ | ☐ | ☐ |
| 23 | Are all hydraulic hoses free of foreign objects? | ☑ | ☐ | ☐ |
| 24 | Are all hydraulic hoses free of damage? | ☑ | ☐ | ☐ |
| 25 | Are all hydraulic hoses free of wear? | ☑ | ☐ | ☐ |
| 26 | Are all hydraulic hoses free of corrosion? | ☑ | ☐ | ☐ |
| 27 | Are all hydraulic hoses free of contamination? | ☑ | ☐ | ☐ |
| 28 | Are all hydraulic hoses free of air? | ☑ | ☐ | ☐ |
| 29 | Are all hydraulic hoses free of water? | ☑ | ☐ | ☐ |
| 30 | Are all hydraulic hoses free of debris? | ☑ | ☐ | ☐ |
| 31 | Are all hydraulic hoses free of foreign objects? | ☑ | ☐ | ☐ |
| 32 | Are all hydraulic hoses free of damage? | ☑ | ☐ | ☐ |
| 33 | Are all hydraulic hoses free of wear? | ☑ | ☐ | ☐ |
| 34 | Are all hydraulic hoses free of corrosion? | ☑ | ☐ | ☐ |
| 35 | Are all hydraulic hoses free of contamination? | ☑ | ☐ | ☐ |
| 36 | Are all hydraulic hoses free of air? | ☑ | ☐ | ☐ |
| 37 | Are all hydraulic hoses free of water? | ☑ | ☐ | ☐ |
| 38 | Are all hydraulic hoses free of debris? | ☑ | ☐ | ☐ |
| 39 | Are all hydraulic hoses free of foreign objects? | ☑ | ☐ | ☐ |
| 40 | Are all hydraulic hoses free of damage? | ☑ | ☐ | ☐ |

## Notes

| | |
|---|---|
| | |
| | |
| | DWG. HIGHLIGHTED. |

## Signatures

Inspected By: Peter Nice

Delivered By: Peter deMilliano, Peter Nice

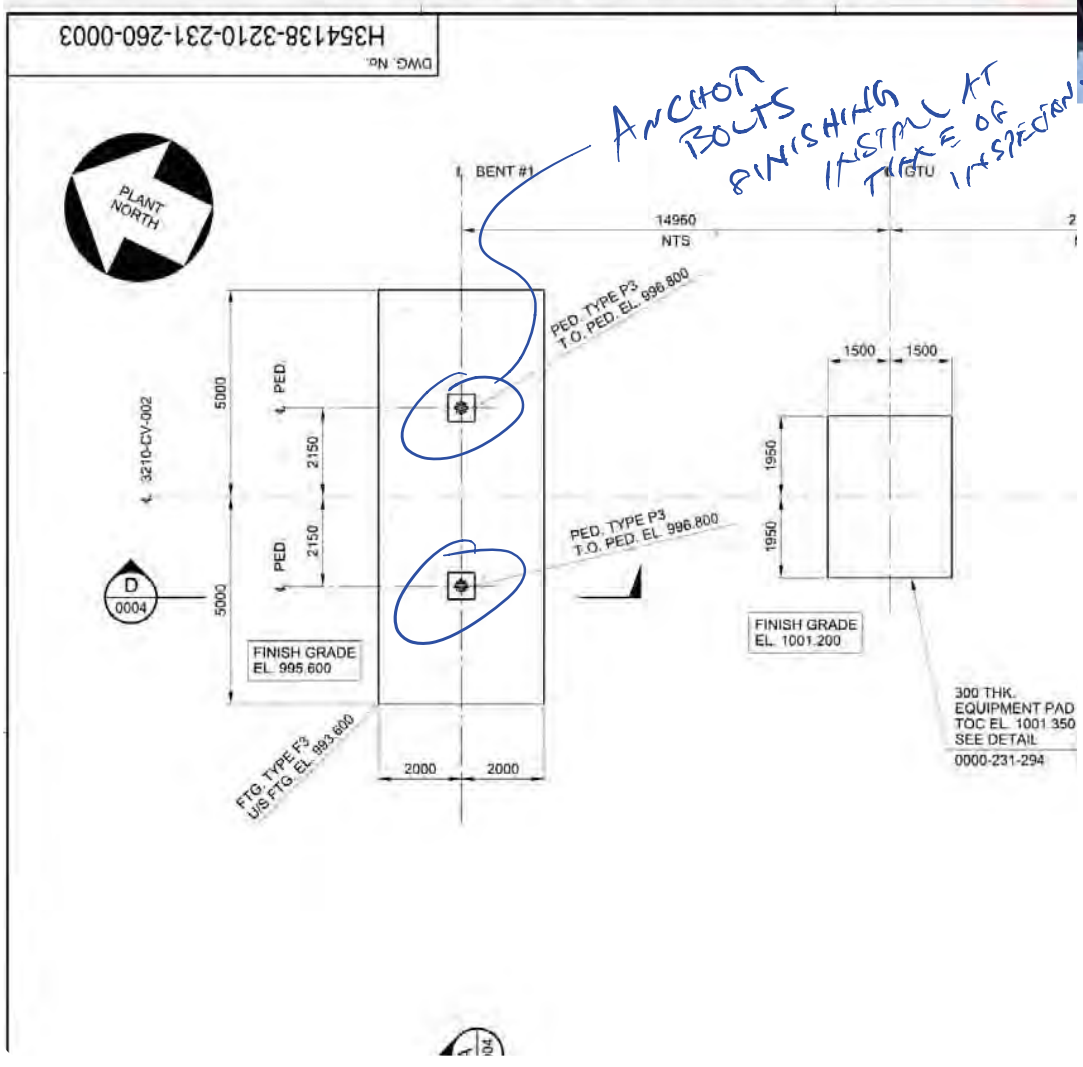
Received By: Project Coordinator

Date: December 8, 2018

Witness: NP




H354138-3210-231-260-0003 Rev 0



CLARK BUILDERS
ENERGY & RESOURCES

# CONCRETE REINFORCEMENT PRE POUR

Rev 01 August 25, 2018

| | |
|---|---|
| SUBCONTRACTOR: Ultimate Reinforcing // McNish | INSPECTION DATE: DECEMBER 8, 2018 |
| SUBCONTRACTOR CONTACT PERSON: CLAYTON | PROJ. POUR DATE: DECEMBER 8, 2018 |
| INSPECTOR(S): Ryan deMilliano, Jerry Chrzaszcz | |
| LOCATION: 3210 CU002 BENT 1 PEDESTALS (x2) | |
| DRAWING REV: 00 / DRAWING NO.(S): 3210 - 0003 | SPEC SECTION(S): S03 20 00 – Concrete Reinforcing Steel |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Grade (400W unless otherwise noted) and type of steel delivered and installed as required by approved drawings. | ☑ | ☐ | ☐ |
| 2.0 | Inspect rebar distribution, spacing and cover per design/project requirements. | ☑ | ☐ | ☐ |
| 3.0 | Length of splices as specified | ☐ | ☐ | ☑ |
| 4.0 | Staggered splices as specified | ☐ | ☐ | ☑ |
| 5.0 | Any mechanical splices have been approved by the owner prior to install | ☐ | ☐ | ☑ |
| 6.0 | Bars cleaned and free of material that may reduce bond including loose rust, scale, oil, structural defects and that they are uncoated and unpainted. | ☑ | ☐ | ☐ |
| 7.0 | Dowels at wall ends, construction joints, and openings as specified (length, location, size, etc.) | ☑ | ☐ | ☐ |
| 8.0 | No unauthorized field bent bars including hooks installed | ☑ | ☐ | ☐ |
| 9.0 | Resolve conflicts between embedded items and reinforcement | ☑ | ☐ | ☐ |
| 10.0 | When authorized, field bends done without heat and inspected for fissures or cracks. | ☐ | ☐ | ☑ |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 11.0 | Bars tied and supported to prevent displacement | ☑ | ☐ | ☐ |
| 12.0 | Spacers, tie wire and chairs as required | ☑ | ☐ | ☐ |
| 13.0 | Conduits at design location and minimum separation from rebar as specified | ☐ | ☐ | ☑ |
| 14.0 | No contact of bars is made with dissimilar metals as per CSA A23.1 | ☑ | ☐ | ☐ |
| 15.0 | Bars, nails or tie wire not sticking out from surfaces that allow rusting/corrosion | ☑ | ☐ | ☐ |
| 16.0 | Rebar welds are inspected by qualified inspectors certified to CSA W178.2 | ☐ | ☐ | ☑ |
| 17.0 | No rebar congestion or other obstruction for deposit of concrete | ☑ | ☐ | ☐ |
| 18.0 | Adjustments required for interfering items (piping, inserts, sleeves, etc.) have been submitted and approved by owner. | ☑ | ☐ | ☐ |
| 19.0 | Rebar was stored off ground to prevent damage/corrosion | ☑ | ☐ | ☐ |
| 20.0 | Review drawings for anchors, piping, sleeves, boxes | ☑ | ☐ | ☐ |

COMMENTS:

ATTACHMENT(S):

DWG. HIGHLIGHTED.

DEFICIENCIES NOTES:

CLARK BUILDERS:
INSPECTOR: RYAN DEMILLIANO // TITLE Project Coordinator DATE: December 8, 2018

JDS ENERGY & MINING:
INSPECTOR: Jerry C. TITLE Const. Sup. DATE: Dec. 8/18

CLARK BUILDERS
ENERGY & RESOURCES



PROJECT MANAGER: DUSTIN DOLYNCHUK, P.ENG
QA/QC COORDINATOR: RYAN DE MILLIANO, C.E.T.
SUPERINTENDENT: GARRY DAHL

# FORMWORK & FALSEWORK PRE POUR | QA INSPECTION

Rev 01 August 25, 2018

| | |
|---|---|
| CONTRACTOR: Clark Builders | INSPECTION DATE: December 8, 2018 |
| CONTRACTOR CONTACT PERSON: PETER NICE | DATE OF POUR: December 8, 2018 |
| INSPECTOR(S): Ryan deMilliano, Peter Nice | |
| LOCATION: 4300 TT4 / CWT PEDESTALS (x20) | |
| DRAWING REV: 00/01 | DRAWING NO.(S): 4360 / 00038 0005 |
| SPEC SECTION(S): 503-10-00 | |

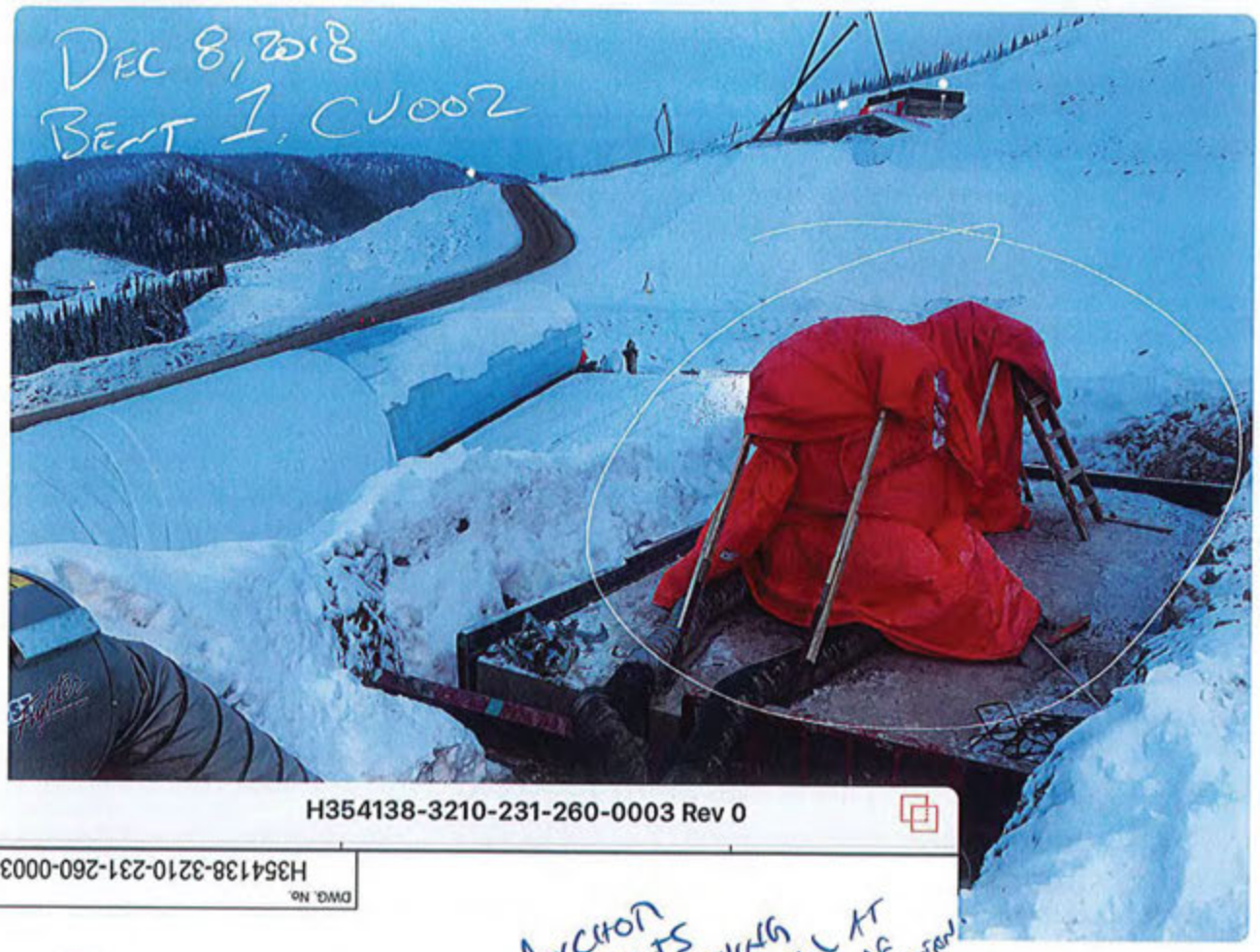
| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Location, survey, dimension and grades as required | ☑ | ☐ | ☐ |
| 2.0 | Plumbness and Flatness verified | ☑ | ☐ | ☐ |
| 3.0 | Joints are aligned and watertight. | ☑ | ☐ | ☐ |
| 4.0 | Formwork shop drawings are Engineered and reviewed | ☐ | ☐ | ☑ |
| 5.0 | Re-used formwork reconditioned and treated | ☑ | ☐ | ☐ |
| 6.0 | Formwork and ties according to finishing requirements. Confirm no holes in the concrete surface are greater than 25mm in diameter or expose steel at less than 25mm from surface. As per spec. | ☑ | ☐ | ☐ |
| 7.0 | Installation of embeds are located and secured | ☐ | ☐ | ☑ |
| 8.0 | Chamfer requirements checked. 25mm chamfers required for all exterior corners and edges exposed to view including horizontal edges of pads. | ☑ | ☐ | ☐ |
| 9.0 | Key ways and/or other provisions according to design are provided in construction joints | ☐ | ☐ | ☑ |
| 10.0 | Inspect types of form spacers, ties and bracing. | ☑ | ☐ | ☐ |
| 11.0 | Spacing of ties to be set to a pattern | ☑ | ☐ | ☐ |
| 12.0 | Expansion, construction, contraction joints as required & located as coordinated with structural Engineer | ☐ | ☐ | ☑ |
| 13.0 | Forms secured against movement during placing | ☑ | ☐ | ☐ |
| 14.0 | Forms are braced for alignment and blow out | ☑ | ☐ | ☐ |
| 15.0 | Forms are cleaned of all debris, and dry, prior to concrete placement including standing water. | ☑ | ☐ | ☐ |
| 16.0 | Openings in formwork permit inspection and cleaning, placing and compaction of concrete, and forming and processing of construction joints. | ☑ | ☐ | ☐ |
| 17.0 | Formwork has been coated with release agent prior to rebar placement. | ☑ | ☐ | ☐ |
| 18.0 | Anchor Bolts and Embeds are secured to formwork. | ☑ | ☐ | ☐ |

| COMMENTS: | ATTACHMENT(S): |
|---|---|
| | |
| | |
| | DWG. HIGHLIGHTED. |

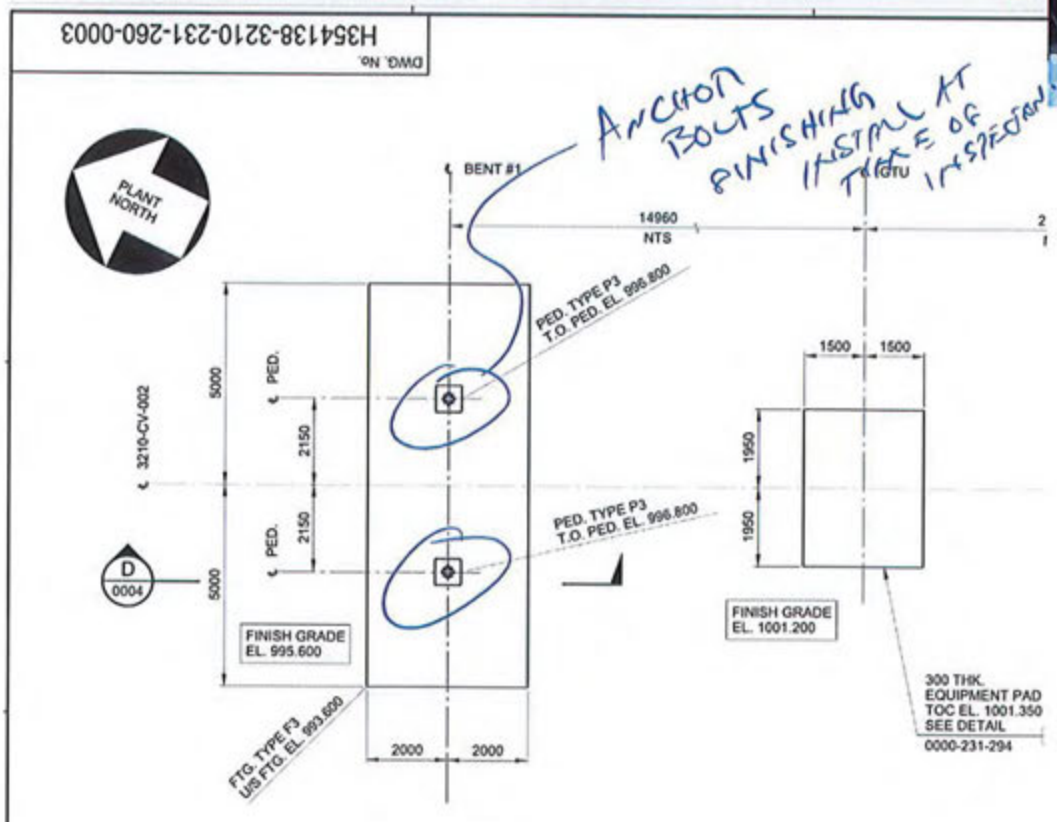
DEFICIENCIES NOTES:

INITIAL INSPECTION
INSPECTOR: RYAN DEMILLIANO TITLE Project Coordinator DATE: December 8, 2018

RE-INSPECTION (DEFICIENCIES COMPLETED)
INSPECTOR: _____ TITLE _____ DATE: _____




H354138-3210-231-260-0003 Rev 0



# CONCRETE POST POUR COLD WEATHER MONITORING

Rev 03 Nov 13, 2018

| | |
|---|---|
| CONTRACTOR: Clark Builders | DATE OF POUR: Dec 8/18 |
| AMBIENT TEMP at POUR (°C): | DATE FORMWORK STRIPPED: |
| LOCATION: Bent 1 CV-002 | |
| | SPEC SECTION(S): S03 30 00 – Cast-In-Place |

TYPE OF CURING:

| | | | | | |
|---|---|---|---|---|---|
| CURING COMPOUND | ☐ | DAMP BURLAP OR FABRIC | ☐ | INSULATION (TARPS) | ☑ |
| POLYETHYLENE SHEETS | ☐ | WATER/FOG SPRAY/ PONDING | ☐ | FORMS (COVERED BY) | ☐ |

| COLD WEATHER REQUIREMENTS (WHEN AMB. TEMP < 5°C) | PASS | FAIL | N/A | REMARKS |
|---|---|---|---|---|
| Protection in place and temperatures not lower than 20°C or until 70% of the 28-day strength has been reached. | ☐ | ☐ | ☐ | |
| Cold weather protection provided by means of heated enclosures, coverings, insulation, or a suitable approved combination of these methods during complete curing period. | ☐ | ☐ | ☐ | |
| Concrete test cylinders are kept within hoarding or in area where temperatures are ideal for curing. (No frozen Cylinders) | ☐ | ☐ | ☐ | |
| Heat is not directed onto concrete. This may result in thermal cracking. | ☐ | ☐ | ☐ | |
| During freezing weather, and standing water removed before the end of the protection period (CSA A 23.1 clause 7.4.2.4.2) | ☐ | ☐ | ☐ | |

CONCRETE CURING TEMPERATURE LOG (COLD WEATHER CONCRETEING ONLY)

| DATE | | TIME (24 HR) | OUTSIDE AIR TEMP (°C) | TEMP INSIDE HOARDING (°C) | CONCRETE SURFACE TEMP (°C) | | INITIALS OF READER |
|---|---|---|---|---|---|---|---|
| | | | | | HIGH (°C) | LOW (°C) | |
| Dec 9/18 | AM | 8:15 | +2 | 24.6 | 28.1 | 25.4 | CN |
| Dec 10/18 | MID | 8:00 | -3 | 22.4 | 26.5 | 21.3 | CN |
| Dec 10/18 | PM | 4:00 | -2 | 23.6 | 27.2 | 22.4 | CN |
| Dec 11/18 | AM | 8:15 | -6 | 22.8 | 26.3 | 21.1 | CN |
| | MID | | | | | | |
| | PM | | | | | | |
| | AM | | | | | | |
| | MID | | | | | | |
| | PM | | | | | | |

| COMMENTS: | |
|---|---|
| | |
| | |

CLARK BUILDERS SITE REPRESENTATIVE

PRINT/ SIGN: _____ TITLE _____ DATE: _____

CLARK BUILDERS
ENERGY & RESOURCES

# CONCRETE REINFORCEMENT PRE POUR

Rev 01 August 25, 2018

| | |
|---|---|
| SUBCONTRACTOR: Ultimate Reinforcing // McNish | INSPECTION DATE: December 10, 2018 |
| SUBCONTRACTOR CONTACT PERSON: | PROJ. POUR DATE: December 11, 2018 |
| INSPECTOR(S): Ryan deMilliano, Jerry C. (JDS) | |
| LOCATION: 3210 Reclaim Tunnel Pedestals. | |
| DRAWING REV: 05/02 / DRAWING NO.(S): 3210-0010/0011 | SPEC SECTION(S): S03 20 00 – Concrete Reinforcing Steel |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Grade (400W unless otherwise noted) and type of steel delivered and installed as required by approved drawings. | ☑ | ☐ | ☐ |
| 2.0 | Inspect rebar distribution, spacing and cover per design/project requirements. | ☑ | ☐ | ☐ |
| 3.0 | Length of splices as specified | ☑ | ☐ | ☐ |
| 4.0 | Staggered splices as specified | ☐ | ☐ | ☑ |
| 5.0 | Any mechanical splices have been approved by the owner prior to install | ☐ | ☐ | ☑ |
| 6.0 | Bars cleaned and free of material that may reduce bond including loose rust, scale, oil, structural defects and that they are uncoated and unpainted. | ☑ | ☐ | ☐ |
| 7.0 | Dowels at wall ends, construction joints, and openings as specified (length, location, size, etc.) | ☐ | ☐ | ☑ |
| 8.0 | No unauthorized field bent bars including hooks installed | ☑ | ☐ | ☐ |
| 9.0 | Resolve conflicts between embedded items and reinforcement | ☑ | ☐ | ☐ |
| 10.0 | When authorized, field bends done without heat and inspected for fissures or cracks. | ☑ | ☐ | ☑ |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 11.0 | Bars tied and supported to prevent displacement | ☑ | ☐ | ☐ |
| 12.0 | Spacers, tie wire and chairs as required | ☑ | ☐ | ☐ |
| 13.0 | Conduits at design location and minimum separation from rebar as specified | ☐ | ☐ | ☑ |
| 14.0 | No contact of bars is made with dissimilar metals as per CSA A23.1 | ☑ | ☐ | ☐ |
| 15.0 | Bars, nails or tie wire not sticking out from surfaces that allow rusting/corrosion | ☑ | ☐ | ☐ |
| 16.0 | Rebar welds are inspected by qualified inspectors certified to CSA W178.2 | ☐ | ☐ | ☑ |
| 17.0 | No rebar congestion or other obstruction for deposit of concrete | ☑ | ☐ | ☐ |
| 18.0 | Adjustments required for interfering items (piping, inserts, sleeves, etc.) have been submitted and approved by owner. | ☑ | ☐ | ☐ |
| 19.0 | Rebar was stored off ground to prevent damage/corrosion | ☑ | ☐ | ☐ |
| 20.0 | Review drawings for anchors, piping, sleeves, boxes | ☑ | ☐ | ☐ |

COMMENTS:

- RFI 125 – 3210 Reclaim Tunnel Pedestals Anchors Add

ATTACHMENT(S):

RFI 125
Photo (HIGHLIGHTED)

DEFICIENCIES NOTES:

CLARK BUILDERS:

INSPECTOR: Ryan deMilliano TITLE Project Coordinator DATE: December 10 2018

JDS ENERGY & MINING:

INSPECTOR: Jerry Chrzaszcz TITLE Const. Sup. DATE: Dec. 10/18

CLARK BUILDERS
ENERGY & RESOURCES



PROJECT MANAGER: DUSTIN DOLYNCHUK, P.ENG
QA/QC COORDINATOR: RYAN DE MILLIANO, C.E.T.
SUPERINTENDENT: GARRY DAHL

# FORMWORK & FALSEWORK PRE POUR | QA INSPECTION

Rev 01 August 25, 2018

| | |
|---|---|
| CONTRACTOR: Clark Builders | INSPECTION DATE: December 10, 2018 |
| CONTRACTOR CONTACT PERSON: Peter Nice | DATE OF POUR: December 11, 2018 |
| INSPECTOR(S): Ryan deMilliano, Garry Dahl, Peter Nice, | |
| LOCATION: 3210 Reclaim Tunnel Pedestals | |
| DRAWING REV: 05/02 / DRAWING NO.(S): 3210-0010/0011 | SPEC SECTION(S): 503100 |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Location, survey, dimension and grades as required | ☑ | ☐ | ☐ |
| 2.0 | Plumbness and Flatness verified | ☑ | ☐ | ☐ |
| 3.0 | Joints are aligned and watertight. | ☑ | ☐ | ☐ |
| 4.0 | Formwork shop drawings are Engineered and reviewed | ☐ | ☐ | ☑ |
| 5.0 | Re-used formwork reconditioned and treated | ☑ | ☐ | ☐ |
| 6.0 | Formwork and ties according to finishing requirements. Confirm no holes in the concrete surface are greater than 25mm in diameter or expose steel at less than 25mm from surface. As per spec. | ☑ | ☐ | ☐ |
| 7.0 | Installation of embeds are located and secured | ☑ | ☐ | ☐ |
| 8.0 | Chamfer requirements checked. 25mm chamfers required for all exterior corners and edges exposed to view including horizontal edges of pads. | ☑ | ☐ | ☐ |
| 9.0 | Key ways and/or other provisions according to design are provided in construction joints | ☐ | ☐ | ☑ |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 10.0 | Inspect types of form spacers, ties and bracing. | ☑ | ☐ | ☐ |
| 11.0 | Spacing of ties to be set to a pattern | ☐ | ☐ | ☑ |
| 12.0 | Expansion, construction, contraction joints as required & located as coordinated with structural Engineer | ☐ | ☐ | ☑ |
| 13.0 | Forms secured against movement during placing | ☑ | ☐ | ☐ |
| 14.0 | Forms are braced for alignment and blow out | ☑ | ☐ | ☐ |
| 15.0 | Forms are cleaned of all debris, and dry, prior to concrete placement including standing water. | ☑ | ☐ | ☐ |
| 16.0 | Openings in formwork permit inspection and cleaning, placing and compaction of concrete, and forming and processing of construction joints. | ☑ | ☐ | ☐ |
| 17.0 | Formwork has been coated with release agent prior to rebar placement. | ☑ | ☐ | ☐ |
| 18.0 | Anchor Bolts and Embeds are secured to formwork. | ☑ | ☐ | ☐ |

COMMENTS:

ATTACHMENT(S):

DEFICIENCIES NOTES:

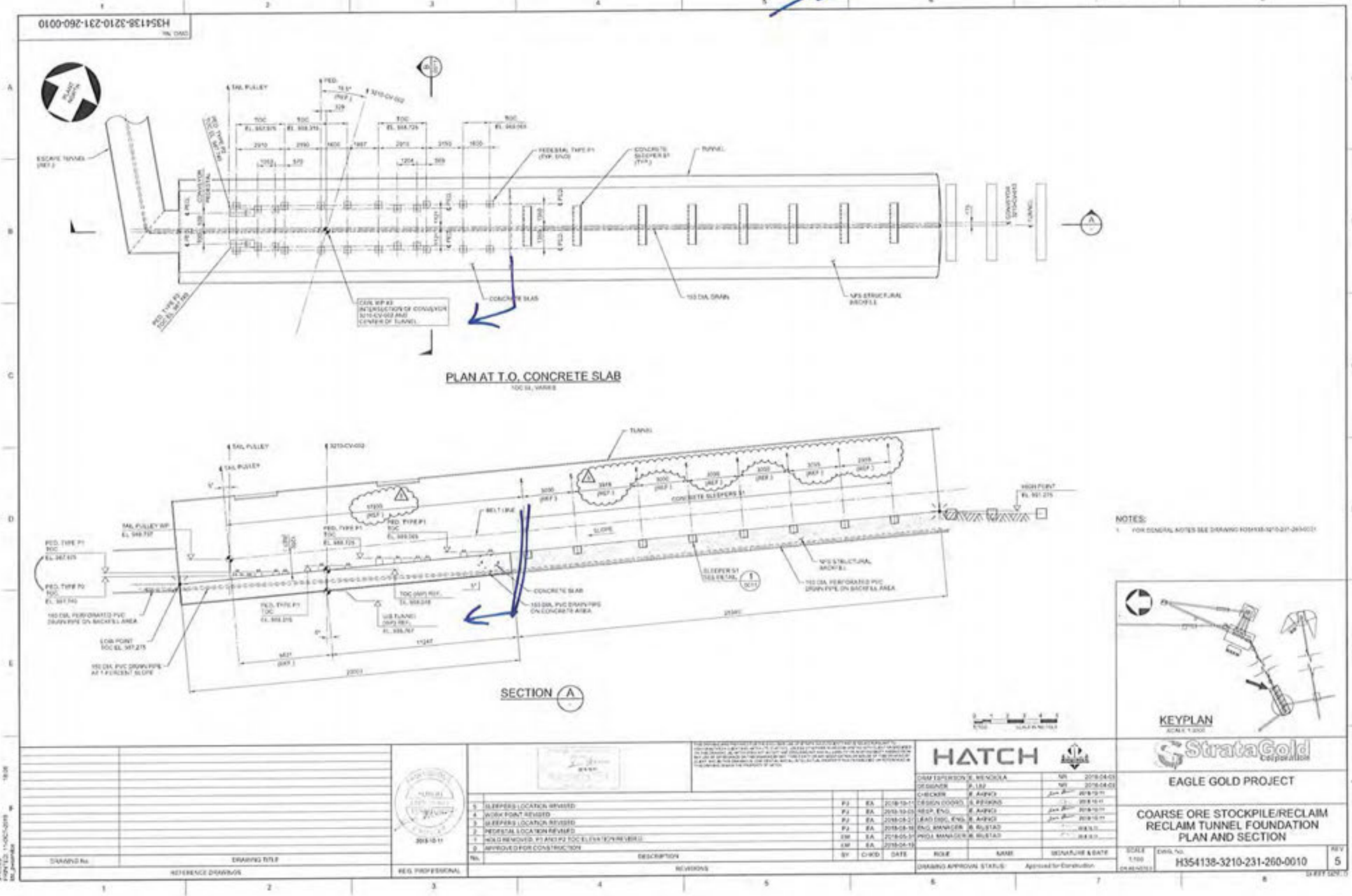
INITIAL INSPECTION

INSPECTOR: Ryan deMilliano TITLE Project Coordinator DATE: December 10, 2018

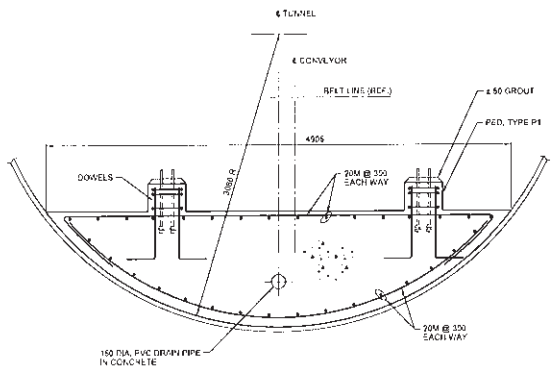
RE-INSPECTION (DEFICIENCIES COMPLETED)

INSPECTOR: _____ TITLE _____ DATE: _____

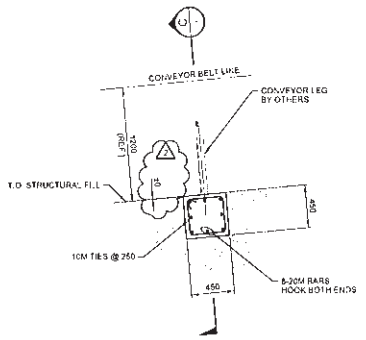
Dec 10, 2018



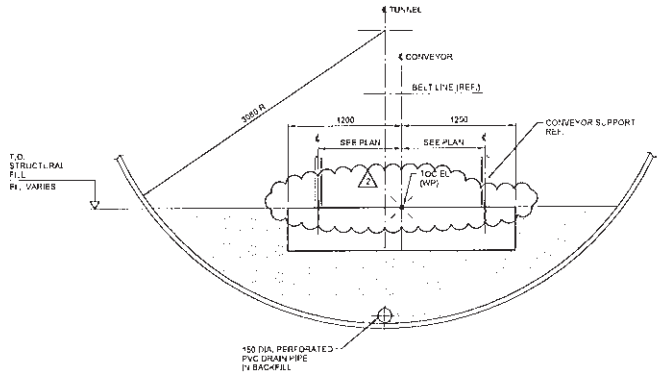
H354138-3210-231-260-0010
PLAN AT T.O. CONCRETE SLAB
SECTION A
KEYPLAN
NOTES:
HATCH
StrataGold Corporation
EAGLE GOLD PROJECT
COARSE ORE STOCKPILE/RECLAIM
RECLAIM TUNNEL FOUNDATION
PLAN AND SECTION
H354138-3210-231-260-0010
5



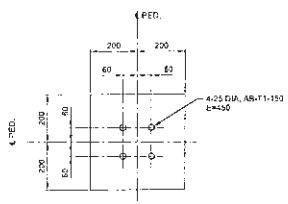

SECTION B
SCALE 1:25



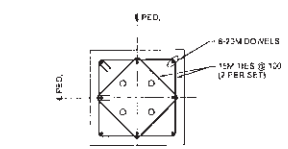

SLEEPER S1
DETAIL 1
SCALE 1:25




SECTION C
SCALE 1:25

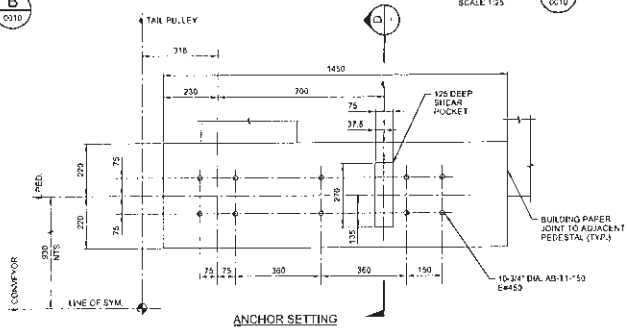



ANCHOR SETTING

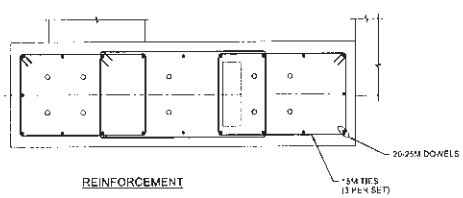



REINFORCEMENT

PEDESTAL TYPE P1
SCALE 1:10

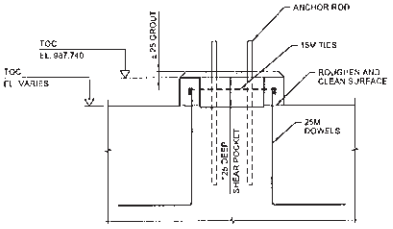



ANCHOR SETTING



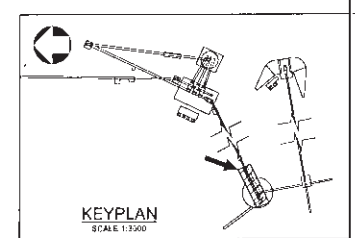

REINFORCEMENT

PEDESTAL TYPE P2
SCALE 1:10




SECTION D
SCALE 1:10

NOTES:
1. FOR GENERAL NOTES SEE DRAWING H354138-3210-231-260-0001.



KEYPLAN
SCALE 1:3000

0 100 200 300 400 500
1:10 SCALE IN MILLIMETRES

0 250 500 750 1000 1250
1:25 SCALE IN MILLIMETRES

| No. | DESCRIPTION | BY | CHK'D | DATE |
|---|---|---|---|---|
| 2 | SLEEPERS LOCATION REVISED | PJ | FA | 2018-10-11 |
| 1 | HOLD REMOVED, PED TYPE P2 REVISED. | EM | EA | 2018-05-31 |
| 0 | APPROVED FOR CONSTRUCTION | EM | FA | 2018-04-19 |

REVISIONS

| DRAWING No. | DRAWING TITLE |
|---|---|

REFERENCE DRAWINGS

REG. PROFESSIONAL 2018-10-11

HATCH

| | | | |
|---|---|---|---|
| DRAFTSPERSON | E. MENDIOLA | NR | 2018-04-09 |
| DESIGNER | F. LIU | NR | 2018-04-09 |
| CHECKER | E. AKINCI | | 2018-10-11 |
| DESIGN COORD. | S. PERKINS | | 2018-10-11 |
| RESP. ENG. | E. AKINCI | | 2018-10-11 |
| LEAD DISC. ENG. | E. AKINCI | | 2018-10-11 |
| ENG. MANAGER | B. RUSTAD | | 2018-10-11 |
| PROJ. MANAGER | B. RUSTAD | | 2018-10-11 |
| ROLE | NAME | SIGNATURE & DATE | |

DRAWING APPROVAL STATUS: Approved for Construction

StrataGold Corporation

EAGLE GOLD PROJECT

COARSE ORE STOCKPILE/RECLAIM
RECLAIM TUNNEL FOUNDATION
SECTION AND DETAILS

SCALE AS NOTED OR AS NOTED | DWG. No. H354138-3210-231-260-0011 | REV 2

SHEET SIZE: D

DWG. No. H354138-3210-231-260-0011

SFILE1$
PRINTED: 11-OCT-2018
idc_pwservice
13:00

# CONCRETE POST POUR COLD WEATHER MONITORING

Rev 03 Nov 13, 2018

| | |
|---|---|
| CONTRACTOR: Clark Builders | DATE OF POUR: Dec 10, 2018 |
| AMBIENT TEMP at POUR (°C): | DATE FORMWORK STRIPPED: |
| LOCATION: Reclaim Tunnel Peds P-1 | |
| | SPEC SECTION(S): S03 30 00 – Cast-In-Place |

TYPE OF CURING:

| | | | | | |
|---|---|---|---|---|---|
| CURING COMPOUND | ☐ | DAMP BURLAP OR FABRIC | ☐ | INSULATION (TARPS) | ☑ |
| POLYETHYLENE SHEETS | ☐ | WATER/FOG SPRAY/ PONDING | ☐ | FORMS (COVERED BY) | ☐ |

| COLD WEATHER REQUIREMENTS (WHEN AMB. TEMP < 5°C) | PASS | FAIL | N/A | REMARKS |
|---|---|---|---|---|
| Protection in place and temperatures not lower than 20°C or until 70% of the 28-day strength has been reached. | ☐ | ☐ | ☐ | |
| Cold weather protection provided by means of heated enclosures, coverings, insulation, or a suitable approved combination of these methods during complete curing period. | ☐ | ☐ | ☐ | |
| Concrete test cylinders are kept within hoarding or in area where temperatures are ideal for curing. (No frozen Cylinders) | ☐ | ☐ | ☐ | |
| Heat is not directed onto concrete. This may result in thermal cracking. | ☐ | ☐ | ☐ | |
| During freezing weather, and standing water removed before the end of the protection period (CSA A 23.1 clause 7.4.2.4.2) | ☐ | ☐ | ☐ | |

CONCRETE CURING TEMPERATURE LOG (COLD WEATHER CONCRETEING ONLY)

| DATE | | TIME (24 HR) | OUTSIDE AIR TEMP (°C) | TEMP INSIDE HOARDING (°C) | CONCRETE SURFACE TEMP (°C) | | INITIALS OF READER |
|---|---|---|---|---|---|---|---|
| | | | | | HIGH (°C) | LOW (°C) | |
| Dec 11, 2018 | AM | 8:30 | -4 | 14.8 | 16.2 | 12.9 | PN |
| | MID | | | | | | |
| Dec 11/18 | PM | 4:15 | -5 | 14.6 | 15.9 | 12.4 | PN |
| Dec 12/18 | AM | 7:30 | -13 | 12.1 | 13.2 | 10.9 | PN |
| | MID | | | | | | |
| Dec 12/18 | PM | 5:15 | -10 | 11:8 | 12.4 | 10.2 | PN |
| Dec 13/18 | AM | 7:40 | -17 | 16.3 | 14.4 | 12.3 | PN |
| | MID | | | | | | |
| Dec 13/18 | PM | 4:30 | -12 | 19.1 | 12.4 | 11.2 | PN |

COMMENTS:

CLARK BUILDERS SITE REPRESENTATIVE

PRINT/ SIGN: _____ TITLE _____ DATE: _____

CLARK BUILDERS
ENERGY & RESOURCES

# CONCRETE REINFORCEMENT PRE POUR

Rev 01 August 25, 2018

| | |
|---|---|
| SUBCONTRACTOR: Ultimate Reinforcing // McNish | INSPECTION DATE: DECEMBER 13, 2018 |
| SUBCONTRACTOR CONTACT PERSON: CLAYTON | PROJ. POUR DATE: DECEMBER 13, 2018 |
| INSPECTOR(S): Ryan deMilliano | |
| LOCATION: 3210 RECLAIM TUNNEL P2 PEDESTALS (x2) | |
| DRAWING REV: 05 / DRAWING NO.(S): 3210-0010 | SPEC SECTION(S): S03 20 00 – Concrete Reinforcing Steel |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Grade (400W unless otherwise noted) and type of steel delivered and installed as required by approved drawings. | ☑ | ☐ | ☐ |
| 2.0 | Inspect rebar distribution, spacing and cover per design/project requirements. | ☑ | ☐ | ☐ |
| 3.0 | Length of splices as specified | ☑ | ☐ | ☐ |
| 4.0 | Staggered splices as specified | ☑ | ☐ | ☐ |
| 5.0 | Any mechanical splices have been approved by the owner prior to install | ☐ | ☐ | ☑ |
| 6.0 | Bars cleaned and free of material that may reduce bond including loose rust, scale, oil, structural defects and that they are uncoated and unpainted. | ☑ | ☐ | ☐ |
| 7.0 | Dowels at wall ends, construction joints, and openings as specified (length, location, size, etc.) | ☑ | ☐ | ☐ |
| 8.0 | No unauthorized field bent bars including hooks installed | ☑ | ☐ | ☐ |
| 9.0 | Resolve conflicts between embedded items and reinforcement | ☑ | ☐ | ☐ |
| 10.0 | When authorized, field bends done without heat and inspected for fissures or cracks. | ☐ | ☐ | ☑ |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 11.0 | Bars tied and supported to prevent displacement | ☑ | ☐ | ☐ |
| 12.0 | Spacers, tie wire and chairs as required | ☑ | ☐ | ☐ |
| 13.0 | Conduits at design location and minimum separation from rebar as specified | ☐ | ☐ | ☑ |
| 14.0 | No contact of bars is made with dissimilar metals as per CSA A23.1 | ☑ | ☐ | ☐ |
| 15.0 | Bars, nails or tie wire not sticking out from surfaces that allow rusting/corrosion | ☑ | ☐ | ☐ |
| 16.0 | Rebar welds are inspected by qualified inspectors certified to CSA W178.2 | ☐ | ☐ | ☑ |
| 17.0 | No rebar congestion or other obstruction for deposit of concrete | ☑ | ☐ | ☐ |
| 18.0 | Adjustments required for interfering items (piping, inserts, sleeves, etc.) have been submitted and approved by owner. | ☑ | ☐ | ☐ |
| 19.0 | Rebar was stored off ground to prevent damage/corrosion | ☑ | ☐ | ☐ |
| 20.0 | Review drawings for anchors, piping, sleeves, boxes | ☑ | ☐ | ☐ |

COMMENTS:

ATTACHMENT(S):

DEFICIENCIES NOTES:

CLARK BUILDERS:
INSPECTOR: Ryan deMilliano TITLE Project Coordinator DATE: DECEMBER 13, 2018

JDS ENERGY & MINING:
INSPECTOR: Matt Coverdale TITLE Field Eng DATE: Dec 13, 2018

CLARK BUILDERS
ENERGY & RESOURCES

# FORMWORK & FALSEWORK PRE POUR | QA INSPECTION

Rev 01 August 25, 2018

| | |
|---|---|
| CONTRACTOR: Clark Builders | INSPECTION DATE: December 13, 2018 |
| CONTRACTOR CONTACT PERSON: PETER NICE | DATE OF POUR: DECEMBER 13, 2018 |
| INSPECTOR(S): Ryan deMilliano. | |
| LOCATION: 3210 RECLAIM TUNNEL P2 PEDESTALS (x2) | |
| DRAWING REV: 05 / DRAWING NO.(S): 3210-0010 | SPEC SECTION(S): S03 1000 |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Location, survey, dimension and grades as required | ☑ | ☐ | ☐ |
| 2.0 | Plumbness and Flatness verified | ☑ | ☐ | ☐ |
| 3.0 | Joints are aligned and watertight. | ☑ | ☐ | ☐ |
| 4.0 | Formwork shop drawings are Engineered and reviewed | ☐ | ☐ | ☑ |
| 5.0 | Re-used formwork reconditioned and treated | ☑ | ☐ | ☐ |
| 6.0 | Formwork and ties according to finishing requirements. Confirm no holes in the concrete surface are greater than 25mm in diameter or expose steel at less than 25mm from surface. As per spec. | ☑ | ☐ | ☐ |
| 7.0 | Installation of embeds are located and secured | ☐ | ☐ | ☑ |
| 8.0 | Chamfer requirements checked. 25mm chamfers required for all exterior corners and edges exposed to view including horizontal edges of pads. | ☑ | ☐ | ☐ |
| 9.0 | Key ways and/or other provisions according to design are provided in construction joints | ☐ | ☐ | ☑ |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 10.0 | Inspect types of form spacers, ties and bracing. | ☑ | ☐ | ☐ |
| 11.0 | Spacing of ties to be set to a pattern | ☑ | ☐ | ☐ |
| 12.0 | Expansion, construction, contraction joints as required & located as coordinated with structural Engineer | ☑ | ☐ | ☐ |
| 13.0 | Forms secured against movement during placing | ☑ | ☐ | ☐ |
| 14.0 | Forms are braced for alignment and blow out | ☑ | ☐ | ☐ |
| 15.0 | Forms are cleaned of all debris, and dry, prior to concrete placement including standing water. | ☑ | ☐ | ☐ |
| 16.0 | Openings in formwork permit inspection and cleaning, placing and compaction of concrete, and forming and processing of construction joints. | ☑ | ☐ | ☐ |
| 17.0 | Formwork has been coated with release agent prior to rebar placement. | ☑ | ☐ | ☐ |
| 18.0 | Anchor Bolts and Embeds are secured to formwork. | ☐ | ☐ | ☑ |

COMMENTS:

- P2 PEDESTAL DIMENSIONS WIDENED TO PROVIDE REQUIRED COVER
  - RFI TO BE SUBMITTED TO CONFIRM THIS IS ACCEPTABLE.

ATTACHMENT(S):

- PWG (HIGHLIGHTED)

DEFICIENCIES NOTES:

INITIAL INSPECTION

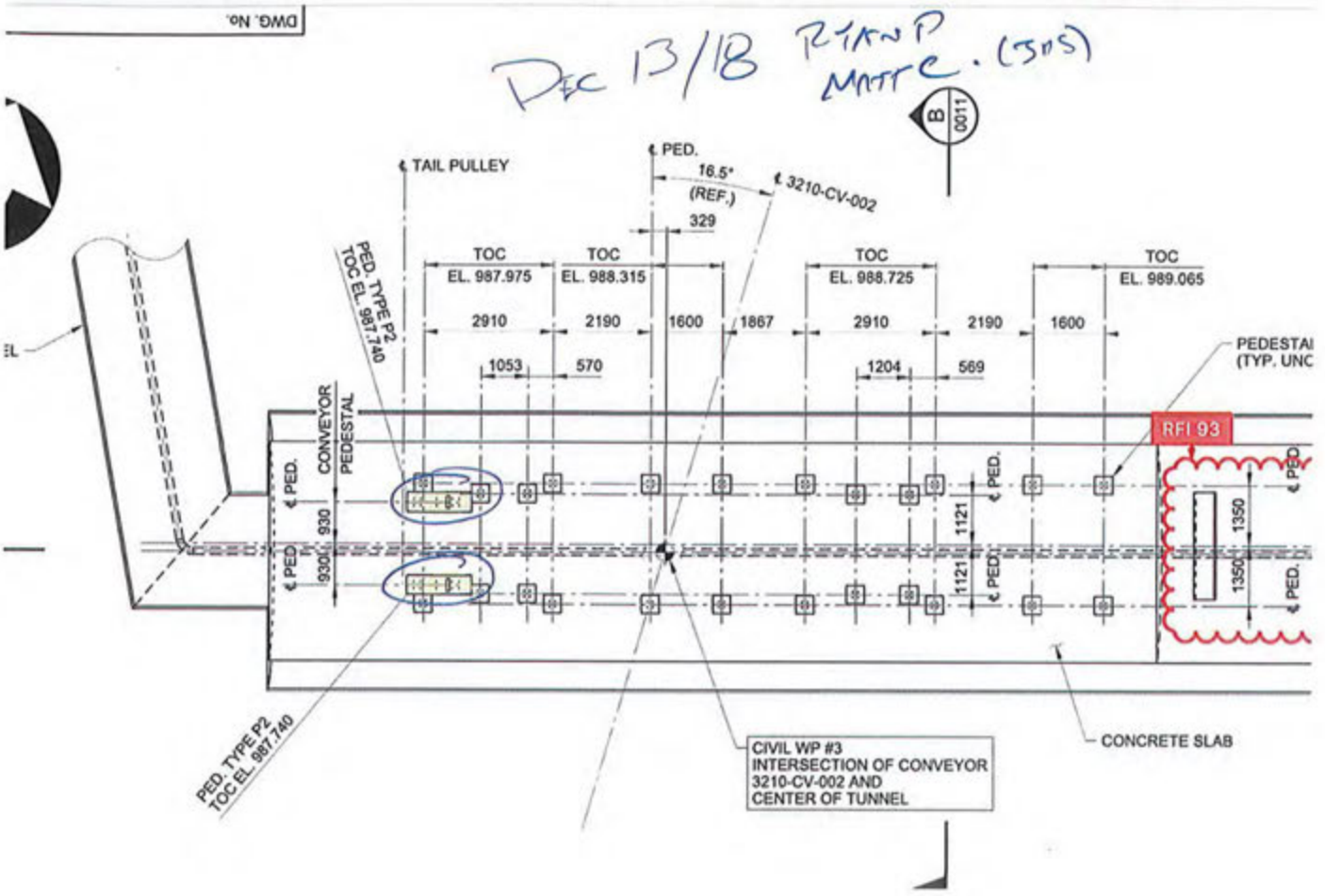
INSPECTOR: Ryan deMilliano TITLE Project Coordinator DATE: DECEMBER 13, 2018

RE-INSPECTION (DEFICIENCIES COMPLETED)

INSPECTOR: Matt Coverdale TITLE Field Eng DATE: Dec 13, 2018

Done

H354138-3210-231-260-0010 Rev 5



# CONCRETE POST POUR COLD WEATHER MONITORING

Rev 03 Nov 13, 2018

| | |
|---|---|
| CONTRACTOR: Clark Builders | DATE OF POUR: Dec 13, 2018 |
| AMBIENT TEMP at POUR (°C): | DATE FORMWORK STRIPPED: |
| LOCATION: Reclaim Tunnel P2's | |
| | SPEC SECTION(S): S03 30 00 – Cast-In-Place |

TYPE OF CURING:

| | | | | | |
|---|---|---|---|---|---|
| CURING COMPOUND | ☐ | DAMP BURLAP OR FABRIC | ☐ | INSULATION (TARPS) | ☑ |
| POLYETHYLENE SHEETS | ☐ | WATER/FOG SPRAY/ PONDING | ☐ | FORMS (COVERED BY) | ☐ |

| COLD WEATHER REQUIREMENTS (WHEN AMB. TEMP < 5°C) | PASS | FAIL | N/A | REMARKS |
|---|---|---|---|---|
| Protection in place and temperatures not lower than 20°C or until 70% of the 28-day strength has been reached. | ☐ | ☐ | ☐ | |
| Cold weather protection provided by means of heated enclosures, coverings, insulation, or a suitable approved combination of these methods during complete curing period. | ☐ | ☐ | ☐ | |
| Concrete test cylinders are kept within hoarding or in area where temperatures are ideal for curing. (No frozen Cylinders) | ☐ | ☐ | ☐ | |
| Heat is not directed onto concrete. This may result in thermal cracking. | ☐ | ☐ | ☐ | |
| During freezing weather, and standing water removed before the end of the protection period (CSA A 23.1 clause 7.4.2.4.2) | ☐ | ☐ | ☐ | |

CONCRETE CURING TEMPERATURE LOG (COLD WEATHER CONCRETEING ONLY)

| DATE | | TIME (24 HR) | OUTSIDE AIR TEMP (°C) | TEMP INSIDE HOARDING (°C) | CONCRETE SURFACE TEMP (°C) | | INITIALS OF READER |
|---|---|---|---|---|---|---|---|
| | | | | | HIGH (°C) | LOW (°C) | |
| Dec 14/18 | AM | 8:27 | -15 | 12.3 | 12.6 | 11.2 | PN |
| | MID | | | | | | |
| Dec 14/18 | PM | 5:28 | -15 | 12.0 | 18.4 | 11.3 | PN |
| Dec 15/18 | AM | 7:20 | -25 | 11.8 | 22.3 | 12.9 | PN |
| | MID | | | | | | |
| Dec 15/18 | PM | 4:08 | -25 | 13.8 | 20.2 | 11.4 | PN |
| Dec 16/18 | AM | 7:25 | -6 | 13.0 | 20.0 | 14.3 | PN |
| | MID | | | | | | |
| Dec 16/18 | PM | 4:46 | -6 | 11.2 | 10.8 | 10.1 | PN |

COMMENTS:

CLARK BUILDERS SITE REPRESENTATIVE

PRINT/ SIGN: _____ TITLE _____ DATE: _____

CLARK BUILDERS
ENERGY & RESOURCES

# [illegible]

| | |
|---|---|
| [illegible] | December 15, 2018 |
| [illegible] | December 15, 2018 |
| [illegible] Ryan deMilliano | |
| [illegible] 3210 TTI Stair / Equip. Pads (x4) | |
| [illegible] 02 | [illegible] 3210 - 0002 |

| [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] |
|---|---|---|---|---|---|---|---|---|---|
| [illegible] | [illegible] | ☑ | ☐ | ☐ | [illegible] | [illegible] | ☑ | ☐ | ☐ |
| [illegible] | [illegible] | ☑ | ☐ | ☐ | [illegible] | [illegible] | ☑ | ☐ | ☐ |
| [illegible] | [illegible] | ☑ | ☐ | ☐ | [illegible] | [illegible] | ☐ | ☐ | ☑ |
| [illegible] | [illegible] | ☑ | ☐ | ☐ | [illegible] | [illegible] | ☑ | ☐ | ☐ |
| [illegible] | [illegible] | ☐ | ☐ | ☑ | [illegible] | [illegible] | ☑ | ☐ | ☐ |
| [illegible] | [illegible] | ☑ | ☐ | ☐ | [illegible] | [illegible] | ☐ | ☐ | ☑ |
| [illegible] | [illegible] | ☐ | ☐ | ☑ | [illegible] | [illegible] | ☑ | ☐ | ☐ |
| [illegible] | [illegible] | ☑ | ☐ | ☐ | [illegible] | [illegible] | ☐ | ☐ | ☑ |
| [illegible] | [illegible] | ☐ | ☐ | ☑ | [illegible] | [illegible] | ☑ | ☐ | ☐ |
| [illegible] | [illegible] | ☐ | ☐ | ☑ | [illegible] | [illegible] | ☑ | ☐ | ☐ |

| [illegible] | [illegible] |
|---|---|
| [illegible] | [illegible] |
| [illegible] | [illegible] |
| [illegible] | [illegible] |

| [illegible] | [illegible] |
|---|---|
| [illegible] | [illegible] |
| [illegible] | [illegible] |
| [illegible] | [illegible] |

[illegible] Ryan deMilliano [illegible] Project Coordinator [illegible] December 15/18

[illegible] Matt Cousdale YUC Field Eng [illegible] Dec 15/18

CLARK BUILDERS
ENERGY & RESOURCES

# ÂÉĆĄD ÆĆÅĀĶĀÅĈÁDÆĆÅĀBĆÁĀBÆĊĆĀĮĀCĀĀÆĈBÁACĀÆÆ

| | |
|---|---|
| AÆÆCĈ ACÆĆĪĀÆÆCČ ACĀBĆĈÆÆĪĀ Ā ĀĀ | ĀÆĈBÁACĀÆÆĀĀCÁĪĀ Ā ĀĀ: DECEMBER 15, 2018 |
| AÆÆCĈ ACÆĆĀÆÆCČ ACĀBĆĈÆÆĪĀ Ā ĀĀ | À ČÁĀÆÁĀBÆĆ ĆĪĀ Ā ĀĀ: DECEMBER 15, 2018 |
| ĀÆĈBÁACĀÆĆĴĈĪĀ Ā Ā Ā: Ryan deMilliano | |
| ÅÆA ČĀÆÆĪĀ Ā Ā: 3210 TTI STAIR / EQUIP. PADS (x4) | |
| ÀĆ D ĀÆĀĀĆĀĀ Ā Ā Ā: 002 | ÀĆ D ĀÆĀĀÆÆĪĴĈĪĀ Ā ĴĀ: 3210 - 0002 |
| | ĈÁĀÆCÁACĀÆÆĴĈĪĀ Ā ĴĀ: SA31000 |

Ā

| ĀČÁĄ | ĀČÁĄĈĈÆÆĀÁĀĀAÄÁÅÁÀĀ | BĈ ĈĀ | ÂĀÁĀ | Æi Ā |
|---|---|---|---|---|
| ŁĪĻĀ | ÅĜĒĐĤĒĜĪĀĦĦĜĴĪ ĪĀĒĒFÉGĦĒĜĀĜGĒĀĜĢĦĐÉĦĐĦĦĢĜĢĦĒĜĢĒĀ | ☐Ā | ☐Ā | ☐Ā |
| ĻĪĻĀ | BĘĦF ĐGÉĦĦĐĜGĒĀĀĘĜĐGÉĦĦĀĒĢĦĒĒĒĀ | ☐Ā | ☐Ā | ☐Ā |
| MĪĻĀ | ĀĜĒĜĦĀĐĢÉĒĜĢĒĘĒĀĐĜĀ ĐĦÉĜĦĒĒĤĀ | ☐Ā | ☐Ā | ☐Ā |
| NĪĻĀ | ÂĜĢFÌ ĜĢĒĦĒĜĜĀĢĦĐ ĒĜĒĦĐĢÉĀĜĒĒGÉÉĢĒĀĐGĒĀ GÉĪĒĒÌ ÉĒĀ | ☐Ā | ☐Ā | ☐Ā |
| ŃĪĻĀ | ĆÉĪĻĦĦÉĒĒĀĜĢFÌ ĜĢĒĢÉĪĜĜĒĒĦĜĜĒĒĀĐGĒĀĦĢÉĒĒĒĒĀ | ☐Ā | ☐Ā | ☐Ā |
| ÑĪĻĀ | ÂĜĢFÌ ĜĢĒĀĐGĒĀĤĒĒĒĜĜĐĒĒĜĀĤĜĒĒĜĒĒĜĒĒĀ GÉĜĦĢĒÉFÉGĦĦĀĀĜĜĒĢFĀĜĀĒĜĒĦĀĜĀĒÉĀĜĜEĢÉĤÉĀ HĦĢĒÉĀĐĢÉĀĢÉĐĦÉĢĒĀĜĜĀL·ŃFF ĀĜĀĒĒĐÉĤÉĢĀĜĜĪĜĜĤÉĀ HĤÉÉĘĀĐĒĤĀĜĒĐĜĀL·ŃFFĀĒĢĜĜĀHĢĒĐEEÍĪĀĦĀĜĢĦĜÉÉĒĪĀ | ☐Ā | ☐Ā | ☐Ā |
| ÑĪĻĀ | ĀĜĦĤĐĘĘĐĜĦĜĜĀÉFĐÉÈHĀĐĢĀĘĢĐĤĒĀĐĜĀÉĒĦĢĢĒĀ | ☐Ā | ☐Ā | ☐Ā |
| ŃĪĻĀ | AËĐFĒÉĢĀĢĦĒĜĢFÉGĤĦĀĒÉÉÉÉÉÌĪĀĀL·ŃFFĀĒĐFÉÉĢĦĀ GÉĢĦĢĒÉĒĜĢĐĘĢĒĀĤÉĢĒĢĒĀĢĜĢÉĢĦĐĜÈĀĒĒÉĦÉÍĜĢĤÉÈĀĤĜĀ IĒÉÌ ĀĒĢĘĦĒĜĒĒĜĢĒĪĜĜĤĐĘĀÉĒĒĀĜĜĀĢĐÈĀĒĀ | ☐Ā | ☐Ā | ☐Ā |
| ŅĪĻĀ | ÅÉĪĀÌ ĐĤĀĐĐÌĜĢĀĜĦĒĢĀĜĜĒĦĜĜĦĐEEĢĒĒĜĀĤĜĜĒĦĒĜĀ ĐĢÉĀĜĢĜĒÈÈĒĀĜĀĜĜĦĢĦĒĦĒĜĀĜĜĜĦĤĀ | ☐Ā | ☐Ā | ☐Ā |

| ĀČÁĄ | ĀČÁĄĈĈÆÆĀÁĀĀAÄÁÅÁÀĀ | BĈ ĈĀ | ÂĀÁĀ | Æi Ā |
|---|---|---|---|---|
| ŁĻĪĻĀ | ĀĜĦĜĒÉĦĀĦĜĜĒÉĦĀĜĜĀĒĢFĀĦĜĐĒĢĦĀĦĒĒĦĀĜĐÈĀĢĐĒĜĒĪĀĀ | ☐Ā | ☐Ā | ☐Ā |
| ŁŁĪĻĀ | ĈĜĜĐĒĒĜĀĜĜĀĦĒĒĀĦĜĜĀĒÉĤĀĦĀĜĜĐĀĜĜĦĒĢĜĀ | ☐Ā | ☐Ā | ☐Ā |
| ŁĻ·ĪĻĀ | ÁÍĜĐĢĦĒĜĜĪĀĒĜĜĦĦĜĒĒĜĜĪĀĒĜĜĦĢĐĦĒĜĀĜĒĜĦĐĦĀ GÉĜĦĢĒĒÈĪĀĒĢĒĐĦÉÈĐĦĀĒĜĜĢÈĒĜĐĦĒĒĀ ĦĤĢĦĦĒĢĐĀĜĒĒĜÉĢĀ | ☐Ā | ☐Ā | ☐Ā |
| ŁMĪĻĀ | ÂĜĢFHĀĒĒĦĢÈĀĐĒĐĒĜĦĤĦĀĜÍÉF ÉGĦĀĒĦĢĜĒĀĜĐĒĒĜĐĀ | ☐Ā | ☐Ā | ☐Ā |
| ŁNĪĻĀ | ÂĜĢFHĐĜÉĀĐĢĐĒÈĀĜĜĀĐĒĒĜĦÉĜĦĐĜĜÈĀĐĒĢĜĀĜĦĦĀ | ☐Ā | ☐Ā | ☐Ā |
| ŁŃĪĻĀ | ÂĜĢFHĐĜĒĀĒĒĐGÉÈĀĜĒĀĐĒĢĒĀĐGĦĐĀĜÈĀĜĪĪĀĜĜĒĜĀĜĀ EĜĜĒĢÉĤĜĜĀĐĒÉF ÉGĦĀĜĒĢĦÈĜĒÉĀĦĤĐÈĒĜĀĀ ĐĦÉĢĀ | ☐Ā | ☐Ā | ☐Ā |
| ŁŃĪĻĀ | ÆĜÉGĒĜĦĀĜĒĀĜĢFÌ ĜĢÈĀĜÉĢĒĦĀĦĒĜĜÉEĦĒĜĒĀĤĜĐÈĀ EĒĘĐGĒĜĪĀĜĘĦĐĒĜĒĐĀĜÈĀĜĜF ĜĐEĦĒĜĀĜĒĀĜĜĢĒĢÉĦĐĀ ĐGÈĀĜĢĢFĒGĒĐĀGÈĀĜĢĜĒĦĤĢĦĒĜĀ ĒĜĒĜĦĀ | ☐Ā | ☐Ā | ☐Ā |
| ŁŃĪĻĀ | ÂĜĢFÌĜĢÈĀĐĦĀĐĜĀĒGĀEĜĐĐĦĒĀÌĒĤĀĜĢĒĢĐĦÉĀĐĒĜĦĀ ĜĢĒĢĀĦĀĜĢÉĐĢĀĜĐEÉFÉGĦĀ | ☐Ā | ☐Ā | ☐Ā |
| ŁŃĪĻĀ | GEÈĜĢĀ ĜĘĦĤĀĐĐĀFĐ ÉÈHĀĐĒĀHÉĐĒĢÈĀĤĀĜ ÊĜĢFÌ ĜĢÈĀ | ☐Ā | ☐Ā | ☐Ā |

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Brad Williams Project Coordinator December 15, 2018

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Matt Cavendish, MBE Field Eng Dec 15, 2018

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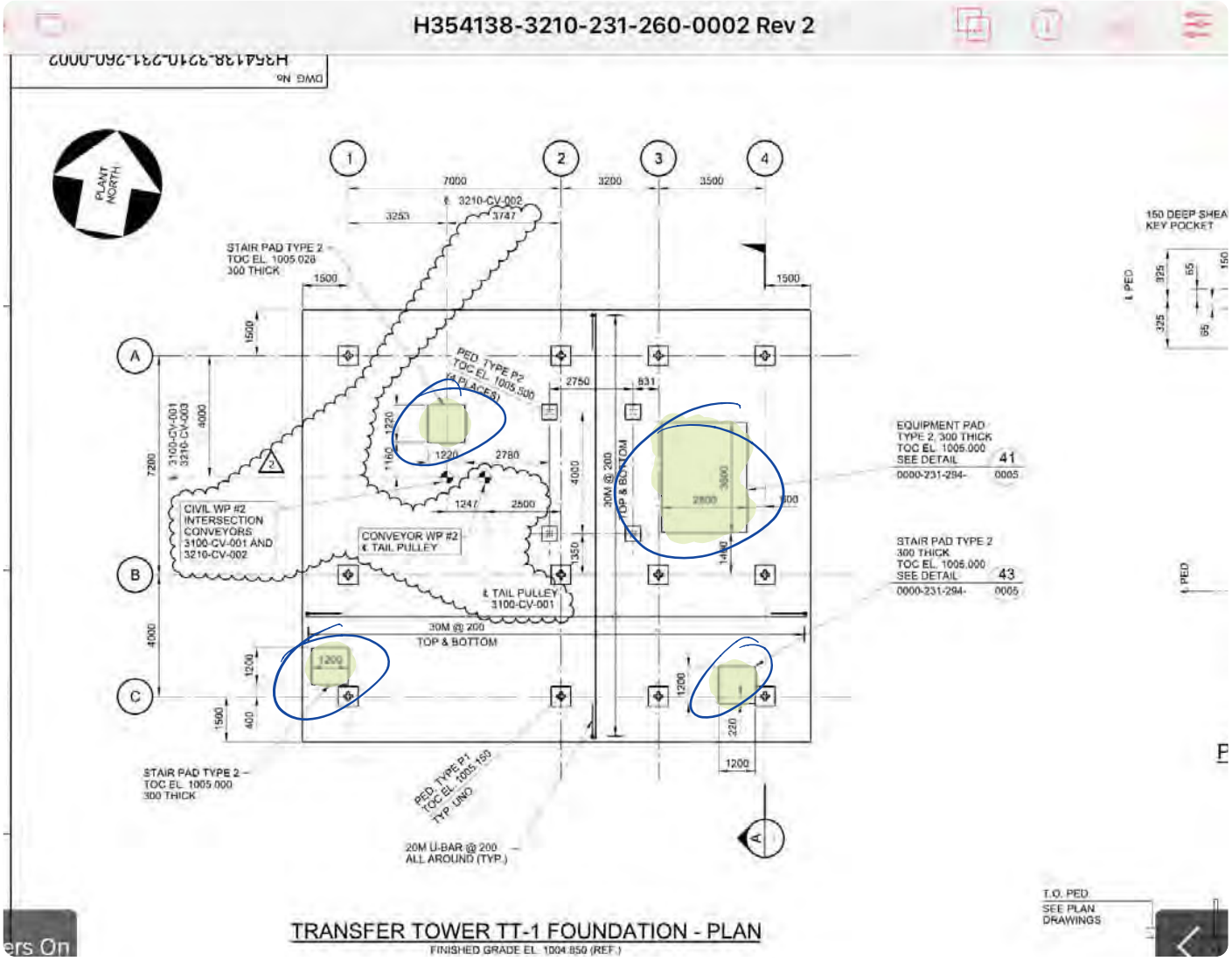






CLARK BUILDERS
ENERGY & RESOURCES

# Report of Accident / Incident

| | |
|---|---|
| Date of Accident: | Date Reported: DECEMBER 16, 2018 |
| Time of Accident: | Date Investigated: DECEMBER 16, 2018 |
| Name of Injured: Ryan deMilliano | |
| Address: 3310 Reclamation Tunnel Sleepers | |
| Age: 25 | Occupation: 2210-0010 |

| Name | Occupation | Injury | Hospital | Treatment |
|---|---|---|---|---|
| Ryan deMilliano | Labourer | Laceration to left hand | Yellowknife | Stitches |
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Witnesses

| Name | Address |
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Witnesses

| Name | Address |
|---|---|
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Witnesses

| Name | Address |
|---|---|
| | |
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| | |

Signature of Injured: Ryan deMilliano

Signature of Witness: Wyatt Cavendish

Signature of Witness: Fred King

Date: DECEMBER 16, 2018

Date: Dec 16/18

CLARK BUILDERS
ENERGY & RESOURCES

# ÂÉĆĄD ÆĆÅĀĶĀÅĈÁDÆĆÅĀBĆÁĀBÆĊĆĀĮĀCĀĀÆĈBÁACĀÆÆ

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| AÆÆCĈ ACÆĆĪĀAÆĘÐGĖĀĒĦĘĒGĦ | ÆĈBÁACĀÆÆĀĀCÁĪĀ DECEMBER 15, 2018 |
| AÆÆCĈ ACÆĆĀÆÆCˇ ACĀBÆĈĆÆÆĪĀ | À ČÁÆÆÂBÆĆˇĆĪĀ DECEMBER 15, 2018 |
| ĀÆĈBÁACĀÆĆĮĈĪĀ Ryan deMilliano | |
| ÅÆA ČĀÆÆĪĀ 3810 RECLAIM TUNNEL SLEEPERS. | |
| ÀĆ D ĀÆĀĀĆĢĀĀ 605 | ÀĆ D ÆĒĀÆÆĒĮĈĪĀ 3810-0010 ĈÁACĀÆÆĒĮĈĪĀ S03 1000 |

| ĀČÁĄ | ĀČÁĄĈĐÆĀÁĀĀAÄÁÅÁÀĀ | BĈ ĈĀ | ÂÁÄĀ | Æi Ā |
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| ŁĪĻĀ | ÅĜĒĐĤĒĜĪĀĦĦĢĦĪÏĀĒFÉGHĒĜĀĜĢÈĀĜĢĦĐÉĦĐĦĦĢĦĜĒĢĒĀ | ☐Ā | ☐Ā | ☐Ā |
| ĻĪĻĀ | BĘĦF ĐGÉĦĦĐĜĢÈĀĀĘĜĢÉĦĦĀĒĢĦĒĒÈĀ | ☐Ā | ☐Ā | ☐Ā |
| MĪĻĀ | ĂĢĒĢĦĦĀĐĢĒĒĐĜĢĒĒĀĐĢÈĀ ĐĦÉĜĦĒĒĤĀ | ☐Ā | ☐Ā | ☐Ā |
| NĪĻĀ | ÂĜĢFÌ ĜĢĖĦĒĜĜĀĢĦĐ ĒĜĒĦĐĢÉĀĜĒĒĜÉÉĢĖĀĐGÈĀ GÉĪĒĒÌ ÉÈĀ | ☐Ā | ☐Ā | ☐Ā |
| ÑĪĻĀ | ĆÉIĻĦĦÉÈĖĀĜĢFÌ ĜĢĖĢÉĪĜĜÈĒĦĜĜĒĀĐGÈĀĦĢÉĐĒÈĀ | ☐Ā | ☐Ā | ☐Ā |
| ÑĪĻĀ | ÂĜĢFÌ ĜĢĖĀĐGÈĀĤĒĐĐĜĜĐĒĜĀĤĜĒĒGĐĒĜĒĀ GÉĢĦĢĒĖFÉGĦĦĀĀĜĜĒĢĢFĀĜĀĒĢĒĦĜĀĒÉĀĜĢĒĢÉĤÉĀ HĦĢĐĒÉĀĐĢÉĀĢÉĐĦÉĢĒĐĜĀL·ÑĦF ĀĜĀÈĒĐ ÉĦÉĢĀĢĜĜĜĜĤĦÉĀ HĤÉÉĘĀĐĐĤĀĜĘĒĐĜĀL·ÑFFĀĒĢĜĜĀHĢĒĐEÉĪĀĦĀĜĢĦĜÉÉĒÌĀ | ☐Ā | ☐Ā | ☐Ā |
| ÑĪĻĀ | ĀĢĦĤĐĘĘĐĜĦĜĜĀÉFĐĖÈHĀĐĢĀĘĢĐĤĒĀĐĜĀÉĒĦĢĢĒĀ | ☐Ā | ☐Ā | ☐Ā |
| ŅĪĻĀ | AËĐFĒÉĢĀĢĦĒĜĢFÉGĤĦĀĒÉÉÉÉÈÌĀĀL·ÑFFĀĒĐĐFÉÉĢĦĀ GÉĢĦĢĒĖÈĜĢĐĘĘĀĤÉĢĒĜĢĜĢÉĢĦĐĜÈĀĒÈÉĦĐĀĜĤĢĐÈĀĤ ĪĒÉÌ ĀĒĜĘĦĒĜĒĒĜĢĒĪĜĢĤĐĘĀÉÉĒĪĀĜĜĀĢĐÈĀĤĀ | ☐Ā | ☐Ā | ☐Ā |
| ŅĪĻĀ | ÅÉÎĀÌ ĐĤĀĐĐÌĢĢĀĜĦĒĢĀĜĜĒĦĜĢĦĐEEĢĒĒĢĒĀĤĜĜĒĦĒĜĀ ĐĢÉĀĜĢĜĒÈÈĒĀĜĀĜĜĢĦĘĦĒĦĒĜĀĜĜĢĦĤĀ | ☐Ā | ☐Ā | ☐Ā |

| ĀČÁĄ | ĀČÁĄĈĐÆĀÁĀĀAÄÁÅÁÀĀ | BĈ ĈĀ | ÂÁÄĀ | Æi Ā |
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| ŁĻĪĻĀ | ĀĢĦĜĖĒĦĀĤĜĒĖĦĀĜĜĀĒĢFĀĦĢĐĒĢĦĀĦĒĒĦĀĜĐÈĀĢĐĒĒĢĒĪĀĀ | ☐Ā | ☐Ā | ☐Ā |
| ŁŁĪĻĀ | ĈĜĐEĒĜĀĜĀĦĒĒĀĦĜĜĀÉĦĤĀĦĜĐĀĜĜĦĒĢĜĀ | ☐Ā | ☐Ā | ☐Ā |
| ŁĻ·ĪĻĀ | ÁÍĜĐĢĦĒĜĜĦĀĜĢĦĦĦĢĒĒĜĜĦĢĐĦĒĜĀĜĒĢĦĐĦĀ ĢÉĢĦĢĒĖÈĪĀĒĢĒĐĦÉÈĐĦĒĜĢĢÈĒĢĐĦĒĒĀĦ ĒĦËĀ HĦĢĦĦĒĢĐĀĜĒĖĒĜÉĢĀ | ☐Ā | ☐Ā | ☐Ā |
| ŁMĪĻĀ | ÂĜĢFHĀĒÉĦĢÉÈĀĐĒĐĒĢĦĦĤĀĜÌÉF ÉGĦĀĒĦĢĜĒĀĢĐĒĒĢĐĀ | ☐Ā | ☐Ā | ☐Ā |
| ŁNĪĻĀ | ÂĜĢFHĐĢÉĀĐĢĦĐÉÈĀĜĢĀĐĒĢĒĒĢĦÉĢĦĐĀĢĜÈĀĐĒĢĜĀĢĦĦĀ | ☐Ā | ☐Ā | ☐Ā |
| ŁNĪĻĀ | ÂĜĢFHĐĢĒĀĒĒĐĢÉÈĀĜĐĀĐĒĢĒĦĐĦĀĢĜÈĀĐĒĢĦĀĢĜĒĢĀ EĜĢĒĢÉĤĦĜĀĘĦĐĒF ÉGĦĀĜĢĒĘĦÈĒĢĒĀĦĤĐÈĒĜĀĀ ĐĦÉĢĀ | ☐Ā | ☐Ā | ☐Ā |
| ŁNĪĻĀ | ÆĢÉGĒĜĦĀĜĒĀĜĢFÌ ĜĢÈĀĜÉĢĒĦĀĦĒĜĖĒĦĤĜĒĀĜĐÈĀ EĘĒĐĢĒĜÌĀĜĘĦĐĒĜĒĐĀĜÈĀĜĢĒĦĤĜĢĒĀĜĜĀĜĐÈĀĦĀ ĐĢÈĀĜĢĢFĒĢĒĐĀĜÈĀĜĢĢĜÉĦĦĒĜĜĀĜĜĢĦĤĢĦĒĜĀ ĒĜĒĜĦĀ | ☐Ā | ☐Ā | ☐Ā |
| ŁNĪĻĀ | ÂĜĢFÌĜĢÈĀĐĦĀĐĒĢĀEĜĐĐĦĒĀÌĒĤĀĜĢĦĒĢĒĐĦÉĀĐĒĢĦĀ ĜĢĒĢĀĦĀĜĢÉĐĢĀĢĐEÉFÉĢĦĪĀ | ☐Ā | ☐Ā | ☐Ā |
| ŁNĪĻĀ | GEËĜĢĀ ĜĘĦĤĀĐĐĀFĐ ÉÈĦĀĐĒĢĀĦÉĐĒĢÈĀĤĜĒĜĢFÌ ĜĢÈĀ | ☐Ā | ☐Ā | ☐Ā |

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ĀÆĈĐĀACÆĆĪĀĀĀ Ryan deMilliano JJJ JJ JJJ JJ JJJJ JJJ JJJ JJJ JJJ ĀJJJJJ JJJ ČĀĈÁJ Robert Goodwin JJJ JJ JJJJ JJJ JĀA ČÁĪĀJJJJ DECEMBER 16, 2018

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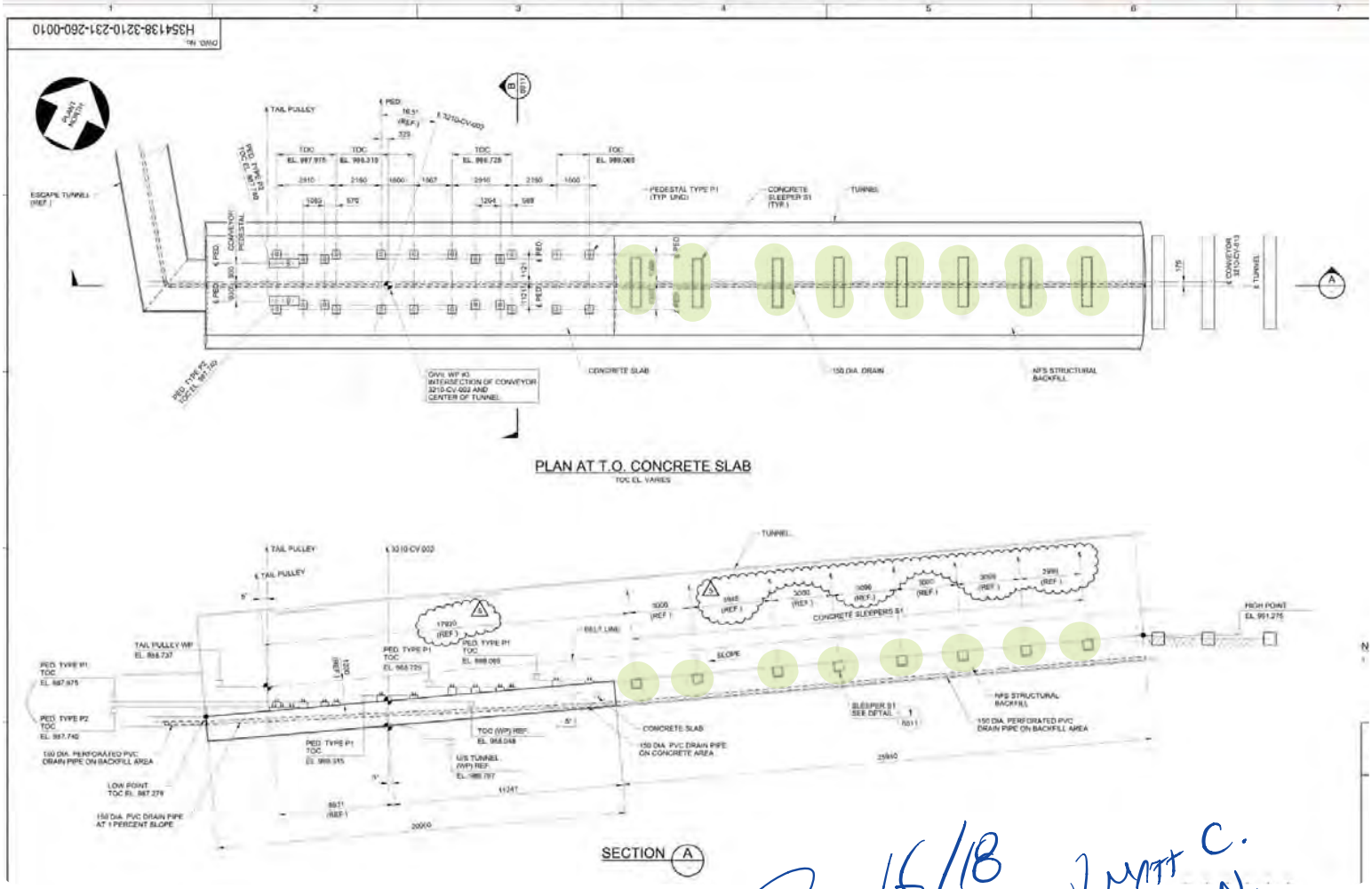



Dec 16/18
INSP. W/ MATT C.
PETER N.
RYAN D.

CLARK BUILDERS
ENERGY & RESOURCES

CB-INSPECTION FORM-DOC-002 REV.00
JDS ENERGY & MINING INC. | STRATAGOLD EAGLE GOLD
PROJECT #: CB201 | 18502

PROJECT MANAGER: DUSTIN DOLYNCHUK, P.ENG
QA/QC COORDINATOR: RYAN DE MILLIANO, C.E.T.
SUPERINTENDENT: GARRY DAHL

# CONCRETE PRE POUR | FIELD INSPECTION

Rev 00 May 4, 2018

| | | | |
|---|---|---|---|
| SUBCONTRACTOR: Clark Building | | INSPECTION DATE: Aug 13/18 | |
| SUBCONTRACTOR CONTACT PERSON: Garry DAHL | | DATE OF POUR: Aug 13/18 | |
| INSPECTOR(S): Garry DAHL | | | |
| LOCATION: Secondary Crusher Grade Beam Line A, F Egs line 1 | | | |
| DRAWING REV: | DRAWING NO.(S): 231-240-0002 | SPEC SECTION(S): | |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Location, survey, dimension and grades as required | ☑ | ☐ | ☐ |
| 2.0 | Plumbness and Flatness verified | ☑ | ☐ | ☐ |
| 3.0 | Joints are aligned and watertight. | ☑ | ☐ | ☐ |
| 4.0 | Formwork shop drawings are Engineered and reviewed | ☐ | ☐ | ☑ |
| 5.0 | Re-used formwork reconditioned and treated | ☑ | ☐ | ☐ |
| 6.0 | Formwork and ties according to finishing requirements. Confirm no holes in the concrete surface are greater than 25mm in diameter or expose steel at less than 25mm from surface. As per spec. | ☑ | ☐ | ☐ |
| 7.0 | Installation of embeds are located and secured | ☑ | ☐ | ☐ |
| 8.0 | Chamfer requirements checked. 25mm chamfers required for all exterior corners and edges exposed to view including horizontal edges of pads. | ☑ | ☐ | ☐ |
| 9.0 | Key ways and/or other provisions according to design are provided in construction joints | ☑ | ☐ | ☐ |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 10.0 | Inspect types of form spacers, ties and bracing. | ☑ | ☐ | ☐ |
| 11.0 | Spacing of ties to be set to a pattern | ☑ | ☐ | ☐ |
| 12.0 | Expansion, construction, contraction joints as required & located as coordinated with structural Engineer | ☑ | ☐ | ☐ |
| 13.0 | Forms secured against movement during placing | ☑ | ☐ | ☐ |
| 14.0 | Forms are braced for alignment and blow out | ☑ | ☐ | ☐ |
| 15.0 | Forms are cleaned of all debris, and dry, prior to concrete placement including standing water. | ☑ | ☐ | ☐ |
| 16.0 | Openings in formwork permit inspection and cleaning, placing and compaction of concrete, and forming and processing of construction joints. | ☑ | ☐ | ☐ |
| 17.0 | Formwork has been coated with release agent prior to rebar placement. | ☑ | ☐ | ☐ |
| | | ☐ | ☐ | ☐ |

COMMENTS:

ATTACHMENT(S):

DEFICIENCIES NOTES:

F3 @ Dx1 - Remove ~~sub~~grade to achieve min cover
F3 @ Dx1 - Splice wall dowels where short.

POUR METHOD:

INITIAL INSPECTION

INSPECTOR: Garry DAHL / D Dahl TITLE Superintendent DATE: Aug 13/18

RE-INSPECTION (DEFICIENCIES COMPLETED)

INSPECTOR: Matt Caverdale YMC TITLE Field Eng DATE: Aug 13/18.

CLARK BUILDERS
ENERGY & RESOURCES

CB-INSPECTION FORM-DOC-002 REV.00
JDS ENERGY & MINING INC. | STRATAGOLD EAGLE GOLD
PROJECT #: CB201 | 18502

PROJECT MANAGER: DUSTIN DOLYNCHUK, P.ENG
QA/QC COORDINATOR: RYAN DE MILLIANO, C.E.T.
SUPERINTENDENT: GARRY DAHL

# ORMWORK & FALSEWORK PRE POUR | QA INSPECTION

Rev 00 May 4, 2018

| | |
|---|---|
| SUBCONTRACTOR: Clark Builders | INSPECTION DATE: Aug 13/18 |
| SUBCONTRACTOR CONTACT PERSON: Garry DAHL | DATE OF POUR: Aug 13/18 |
| INSPECTOR(S): Garry DAHL | |
| LOCATION: Secondary crusher Grade beam LINE A, FTGS LINE 1 | |
| DRAWING REV: 1 | DRAWING NO.(S): 3310-231-200-0002 SPEC SECTION(S): |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Location, survey, dimension and grades as required | ☑ | ☐ | ☐ |
| 2.0 | Plumbness and Flatness verified | ☑ | ☐ | ☐ |
| 3.0 | Joints are aligned and watertight. | ☑ | ☐ | ☐ |
| 4.0 | Formwork shop drawings are Engineered and reviewed | ☐ | ☐ | ☑ |
| 5.0 | Re-used formwork reconditioned and treated | ☑ | ☐ | ☐ |
| 6.0 | Formwork and ties according to finishing requirements. Confirm no holes in the concrete surface are greater than 25mm in diameter or expose steel at less than 25mm from surface. As per spec. | ☑ | ☐ | ☐ |
| 7.0 | Installation of embeds are located and secured | ☑ | ☐ | ☐ |
| 8.0 | Chamfer requirements checked. 25mm chamfers required for all exterior corners and edges exposed to view including horizontal edges of pads. | ☑ | ☐ | ☐ |
| 9.0 | Key ways and/or other provisions according to design are provided in construction joints | ☑ | ☐ | ☐ |
| 10.0 | Inspect types of form spacers, ties and bracing. | ☑ | ☐ | ☐ |
| 11.0 | Spacing of ties to be set to a pattern | ☑ | ☐ | ☐ |
| 12.0 | Expansion, construction, contraction joints as required & located as coordinated with structural Engineer | ☐ | ☐ | ☑ |
| 13.0 | Forms secured against movement during placing | ☑ | ☐ | ☐ |
| 14.0 | Forms are braced for alignment and blow out | ☑ | ☐ | ☐ |
| 15.0 | Forms are cleaned of all debris, and dry, prior to concrete placement including standing water. | ☑ | ☐ | ☐ |
| 16.0 | Openings in formwork permit inspection and cleaning, placing and compaction of concrete, and forming and processing of construction joints. | ☐ | ☐ | ☑ |
| 17.0 | Formwork has been coated with release agent prior to rebar placement. | ☑ | ☐ | ☐ |
| | | ☐ | ☐ | ☐ |

COMMENTS:

ATTACHMENT(S):

DEFICIENCIES NOTES:

TIAL INSPECTION

SPECTOR: DDahl TITLE Superintendent DATE: Aug 13/18

-INSPECTION (DEFICIENCIES COMPLETED)

ECTOR: Matt Caverdale MC TITLE Field Eng DATE: Aug 13/18.

CLARK BUILDERS
ENERGY & RESOURCES



PROJECT MANAGER: DUSTIN DOLYNCHUK, P.ENG
QA/QC COORDINATOR: RYAN DE MILLIANO, C.E.T.
SUPERINTENDENT: GARRY DAHL

# ONCRETE REINFORCEMENT PRE POUR

Rev 00 May 4, 2018

| | |
|---|---|
| SUBCONTRACTOR: Clark Builders | INSPECTION DATE: Aug 13/18 |
| SUBCONTRACTOR CONTACT PERSON: GARRY DAHL | ACTION BY: |
| INSPECTOR(S): GARRY DAHL | |
| LOCATION: Secondary Crusher Beam line A, F Tgs Line 1 | |
| DRAWING REV: 1 / DRAWING NO.(S): 3310-23'-260-002 | SPEC SECTION(S): |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Grade (400W unless otherwise noted) and type of steel delivered and installed as required by approved drawings. | ☑ | ☐ | ☐ |
| 2.0 | Inspect rebar distribution, spacing and cover per design/project requirements. | ☑ | ☐ | ☐ |
| 3.0 | Length of splices as specified | ☑ | ☐ | ☐ |
| 4.0 | Staggered splices as specified | ☑ | ☐ | ☐ |
| 5.0 | Any mechanical splices have been approved by the owner prior to install | ☐ | ☐ | ☑ |
| 6.0 | Bars cleaned and free of material that may reduce bond including loose rust, scale, oil, structural defects and that they are uncoated and unpainted. | ☑ | ☐ | ☐ |
| 7.0 | Dowels at wall ends, construction joints, and openings as specified (length, location, size, etc.) | ☑ | ☐ | ☐ |
| 8.0 | No unauthorized field bent bars including hooks installed | ☐ | ☐ | ☑ |
| | Resolve conflicts between embedded items and reinforcement | | | |
| 9.0 | When authorized, field bends done without heat and inspected for fissures or cracks. | ☐ | ☐ | ☑ |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 10.0 | Bars tied and supported to prevent displacement | ☑ | ☐ | ☐ |
| 11.0 | Spacers, tie wire and chairs as required | ☑ | ☐ | ☐ |
| 12.0 | Conduits at design location and minimum separation from rebar as specified | ☐ | ☐ | ☑ |
| 13.0 | No contact of bars is made with dissimilar metals as per CSA A23.1 | ☑ | ☐ | ☐ |
| 14.0 | Bars, nails or tie wire not sticking out from surfaces that allow rusting/corrosion | ☑ | ☐ | ☐ |
| 15.0 | Rebar is welds inspected by qualified inspectors certified to CSA W178.2 | ☑ | ☐ | ☐ |
| 16.0 | No rebar congestion or other obstruction for deposit of concrete | ☑ | ☐ | ☐ |
| 17.0 | Adjustments required for interfering items (piping, inserts, sleeves, etc.) have been submitted and approved by owner. | ☐ | ☐ | ☑ |
| 18.0 | Rebar was stored off ground to prevent damage/corrosion | | | |
| 19.0 | Review drawings for anchors, piping, sleeves, boxes | ☐ | ☐ | ☑ |

COMMENTS:

ATTACHMENT(S):

DEFICIENCIES NOTES:

INITIAL INSPECTION

INSPECTOR: DJH TITLE Superintendent DATE: Aug 13/18

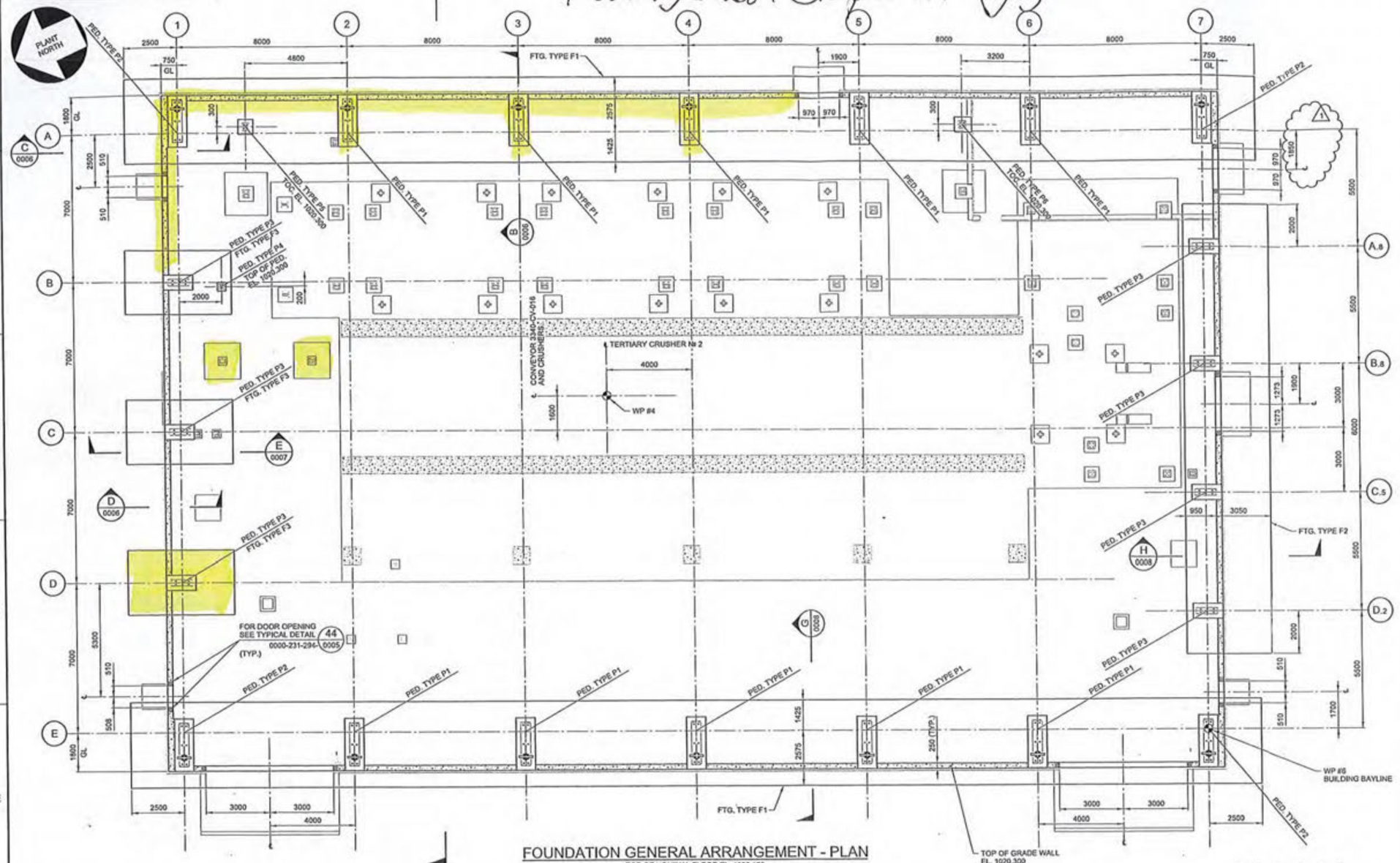
RE-INSPECTION (DEFICIENCIES COMPLETED)

INSPECTOR: Matt Caudle, Matt C TITLE Field Eng DATE: Aug 13/18

Fourning & Rebar Inspection Aug 13

DWG. No. H354138-3310-231-260-0002

PLANT NORTH

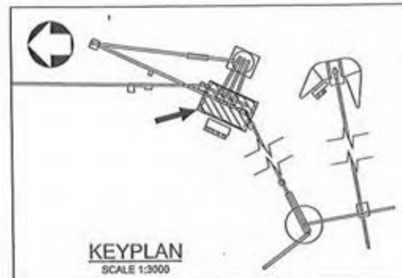



## FOUNDATION GENERAL ARRANGEMENT - PLAN

TOP OF NOMINAL FLOOR EL. 1020.150
FIN. GRADE EL. 1020.000 (REF.)
TOP OF PED. EL. 1021.350 (TYP. UNO)
U/S FTG. EL. 1018.500 (TYP.)

NOTES:

1. FOR GENERAL NOTES SEE DRAWING H354138-3310-231-260-0001.



KEYPLAN
SCALE 1:3000

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| No. | DESCRIPTION | BY | CHK'D | DATE |
|---|---|---|---|---|
| 1 | DOOR OPENING LOCARION REVISED | PJ | EA | 2018-06-06 |
| 0 | APPROVED FOR CONSTRUCTION | PJ | EA | 2018-05-17 |

REVISIONS

| DRAWING No. | DRAWING TITLE |
|---|---|
| REFERENCE DRAWINGS | |

REG. PROFESSIONAL

HATCH

| | | |
|---|---|---|
| DRAFTSPERSON | P. JIVAEV | NR |
| DESIGNER | H. LI | NR |
| CHECKER | E. AKINCI | |
| DESIGN COORD. | S. PERKINS | |
| RESP. ENG. | E. AKINCI | |
| LEAD DISC. ENG. | E. AKINCI | |
| ENG. MANAGER | B. RUSTAD | |
| PROJ. MANAGER | B. RUSTAD | |

| ROLE | NAME | SIGNATURE & DATE |
|---|---|---|
| DRAWING APPROVAL STATUS: | Approved for Construction | |

StrataGold Corporation

EAGLE GOLD PROJECT

SEC/TERTIARY CRUSHING BUILDING
BUILDING FOUNDATION
FOUNDATION - PLAN

| SCALE | DWG. No. | REV |
|---|---|---|
| 1:100 OR AS NOTED | H354138-3310-231-260-0002 | 1 |

SHEET SIZE: D

$FILE$
PRINTED: 05-JUN-2018
loc_pwservice

CB-INSPECTION FORM-DOC-002 REV.00
JOS ENERGY & MINING INC. | STRATAGOLD EAGLE GOLD
PROJECT #: CB201 | 18502

PROJECT MANAGER: DUSTIN DOLYNCHUK, P.ENG
QA/QC COORDINATOR: RYAN DE MILLIANO, C.E.T.
SUPERINTENDENT: GARRY DAHL

CLARK BUILDERS
ENERGY & RESOURCES

# CONCRETE PRE POUR | FIELD INSPECTION

Rev 00 May 4, 2018

| | | | |
|---|---|---|---|
| SUBCONTRACTOR: | Clark Builders | INSPECTION DATE: | Aug 16/18 |
| SUBCONTRACTOR CONTACT PERSON: | Garry Dahl | DATE OF POUR: | Aug 16/18 |
| INSPECTOR(S): | David Pelletier | | |
| LOCATION: | Secondary Crusher Grade Beam Line F 4-7, 7 E-D | | |
| DRAWING REV: | 1 | DRAWING NO.(S): | 260-0002 |
| SPEC SECTION(S): | | | |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Location, survey, dimension and grades as required | ☑ | ☐ | ☐ |
| 2.0 | Plumbness and Flatness verified | ☑ | ☐ | ☐ |
| 3.0 | Joints are aligned and watertight. | ☑ | ☐ | ☐ |
| 4.0 | Formwork shop drawings are Engineered and reviewed | ☑ | ☐ | ☐ |
| 5.0 | Re-used formwork reconditioned and treated | ☑ | ☐ | ☐ |
| 6.0 | Formwork and ties according to finishing requirements. Confirm no holes in the concrete surface are greater than 25mm in diameter or expose steel at less than 25mm from surface. As per spec. | ☑ | ☐ | ☐ |
| 7.0 | Installation of embeds are located and secured | ☑ | ☐ | ☐ |
| 8.0 | Chamfer requirements checked. 25mm chamfers required for all exterior corners and edges exposed to view including horizontal edges of pads. | ☑ | ☐ | ☐ |
| 9.0 | Key ways and/or other provisions according to design are provided in construction joints | ☑ | ☐ | ☐ |
| 10.0 | Inspect types of form spacers, ties and bracing. | ☑ | ☐ | ☐ |
| 11.0 | Spacing of ties to be set to a pattern | ☑ | ☐ | ☐ |
| 12.0 | Expansion, construction, contraction joints as required & located as coordinated with structural Engineer | ☑ | ☐ | ☐ |
| 13.0 | Forms secured against movement during placing | ☑ | ☐ | ☐ |
| 14.0 | Forms are braced for alignment and blow out | ☑ | ☐ | ☐ |
| 15.0 | Forms are cleaned of all debris, and dry, prior to concrete placement including standing water. | ☑ | ☐ | ☐ |
| 16.0 | Openings in formwork permit inspection and cleaning, placing and compaction of concrete, and forming and processing of construction joints. | ☑ | ☐ | ☐ |
| 17.0 | Formwork has been coated with release agent prior to rebar placement. | ☑ | ☐ | ☐ |
| | | ☐ | ☐ | ☐ |

COMMENTS:

Ensure grade beam horizontal bar is tied when entering pads before boxes installed.

ATTACHMENT(S):

DEFICIENCIES NOTES:

Trim dowels on all pads to achieve cover
Chair grade beam walls to achieve min cover.

POUR METHOD:

INITIAL INSPECTION

INSPECTOR: Matt Caverdale YMC TITLE Field Eng. DATE: Aug 16/18

RE-INSPECTION (DEFICIENCIES COMPLETED)

INSPECTOR: _____ TITLE _____ DATE: _____

CLARK BUILDERS
ENERGY & RESOURCES

PROJECT MANAGER: DUSTIN DOLYNCHUK, P.ENG
QA/QC COORDINATOR: RYAN DE MILLIANO, C.E.T.
SUPERINTENDENT: GARRY DAHL

# FORMWORK & FALSEWORK PRE POUR | QA INSPECTION

Rev 00 May 4, 2018

| | | | |
|---|---|---|---|
| SUBCONTRACTOR: | CLARK Builders | INSPECTION DATE: | Aug 16/18 |
| SUBCONTRACTOR CONTACT PERSON: | Garry DAHL | DATE OF POUR: | Aug 16/18 |
| INSPECTOR(S): | Daniel Pelletier | | |
| LOCATION: | Secondary Grade Beam LE 4-7, 7E-D | | |
| DRAWING REV: | 1 | DRAWING NO.(S): | 260-0002 |
| SPEC SECTION(S): | | | |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Location, survey, dimension and grades as required | ☑ | ☐ | ☐ |
| 2.0 | Plumbness and Flatness verified | ☑ | ☐ | ☐ |
| 3.0 | Joints are aligned and watertight. | ☑ | ☐ | ☐ |
| 4.0 | Formwork shop drawings are Engineered and reviewed | ☐ | ☐ | ☑ |
| 5.0 | Re-used formwork reconditioned and treated | ☑ | ☐ | ☐ |
| 6.0 | Formwork and ties according to finishing requirements. Confirm no holes in the concrete surface are greater than 25mm in diameter or expose steel at less than 25mm from surface. As per spec. | ☑ | ☐ | ☐ |
| 7.0 | Installation of embeds are located and secured | ☑ | ☐ | ☐ |
| 8.0 | Chamfer requirements checked. 25mm chamfers required for all exterior corners and edges exposed to view including horizontal edges of pads. | ☑ | ☐ | ☐ |
| 9.0 | Key ways and/or other provisions according to design are provided in construction joints | ☑ | ☐ | ☐ |
| 10.0 | Inspect types of form spacers, ties and bracing. | ☑ | ☐ | ☐ |
| 11.0 | Spacing of ties to be set to a pattern | ☑ | ☐ | ☐ |
| 12.0 | Expansion, construction, contraction joints as required & located as coordinated with structural Engineer | ☑ | ☐ | ☐ |
| 13.0 | Forms secured against movement during placing | ☑ | ☐ | ☐ |
| 14.0 | Forms are braced for alignment and blow out | ☑ | ☐ | ☐ |
| 15.0 | Forms are cleaned of all debris, and dry, prior to concrete placement including standing water. | ☑ | ☐ | ☐ |
| 16.0 | Openings in formwork permit inspection and cleaning, placing and compaction of concrete, and forming and processing of construction joints. | ☑ | ☐ | ☐ |
| 17.0 | Formwork has been coated with release agent prior to rebar placement. | ☑ | ☐ | ☐ |
| | | ☐ | ☐ | ☐ |

COMMENTS:

ATTACHMENT(S):

DEFICIENCIES NOTES:

INITIAL INSPECTION

INSPECTOR: Matt Coverdale MMC TITLE Field Engr. DATE: Aug 16/18

RE-INSPECTION (DEFICIENCIES COMPLETED)

INSPECTOR: _____ TITLE _____ DATE: _____

CLARK BUILDERS
ENERGY & RESOURCES

# CONCRETE REINFORCEMENT PRE POUR

Rev 00 May 4, 2018

| | |
|---|---|
| SUBCONTRACTOR: Clark Builders | INSPECTION DATE: Aug 16/18 |
| SUBCONTRACTOR CONTACT PERSON: Garry DAHL | ACTION BY: |
| INSPECTOR(S): David Pattison | |
| LOCATION: Secondary Grade Beam Lines E 4-7, 7E-D | |
| DRAWING REV: 1 | DRAWING NO.(S): 260-0002 / SPEC SECTION(S): |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Grade (400W unless otherwise noted) and type of steel delivered and installed as required by approved drawings. | ☑ | ☐ | ☐ |
| 2.0 | Inspect rebar distribution, spacing and cover per design/project requirements. | ☑ | ☐ | ☐ |
| 3.0 | Length of splices as specified | ☑ | ☐ | ☐ |
| 4.0 | Staggered splices as specified | ☑ | ☐ | ☐ |
| 5.0 | Any mechanical splices have been approved by the owner prior to install | ☐ | ☐ | ☑ |
| 6.0 | Bars cleaned and free of material that may reduce bond including loose rust, scale, oil, structural defects and that they are uncoated and unpainted. | ☑ | ☐ | ☐ |
| 7.0 | Dowels at wall ends, construction joints, and openings as specified (length, location, size, etc.) | ☑ | ☐ | ☐ |
| 8.0 | No unauthorized field bent bars including hooks installed | ☐ | ☐ | ☑ |
| | Resolve conflicts between embedded items and reinforcement | | | |
| 9.0 | When authorized, field bends done without heat and inspected for fissures or cracks. | ☐ | ☐ | ☑ |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 10.0 | Bars tied and supported to prevent displacement | ☑ | ☐ | ☐ |
| 11.0 | Spacers, tie wire and chairs as required | ☑ | ☐ | ☐ |
| 12.0 | Conduits at design location and minimum separation from rebar as specified | ☐ | ☐ | ☑ |
| 13.0 | No contact of bars is made with dissimilar metals as per CSA A23.1 | ☑ | ☐ | ☐ |
| 14.0 | Bars, nails or tie wire not sticking out from surfaces that allow rusting/corrosion | ☑ | ☐ | ☐ |
| 15.0 | Rebar is welds inspected by qualified inspectors certified to CSA W178.2 | ☐ | ☐ | ☑ |
| 16.0 | No rebar congestion or other obstruction for deposit of concrete | ☑ | ☐ | ☐ |
| 17.0 | Adjustments required for interfering items (piping, inserts, sleeves, etc.) have been submitted and approved by owner. | ☐ | ☐ | ☑ |
| 18.0 | Rebar was stored off ground to prevent damage/corrosion | | | |
| 19.0 | Review drawings for anchors, piping, sleeves, boxes | ☑ | ☐ | ☐ |

COMMENTS:

ATTACHMENT(S):

DEFICIENCIES NOTES:

INITIAL INSPECTION

INSPECTOR: Matt Cavedale PHE TITLE Field Eng. DATE: Aug/16/18

RE-INSPECTION (DEFICIENCIES COMPLETED)

INSPECTOR: _____ TITLE _____ DATE: _____

DWG. No. H354138-3320-231-260-0002

Forming & Rebar Inspection Aug 16 Thursday 10:00 AM

PLANT NORTH

TERTIARY CRUSHER № 3

TERTIARY CRUSHER № 2

TERTIARY CRUSHER № 1

SECONDARY CRUSHER

PED. TYPE P5A TOC EL. 1020.350 FTG. TYPE F8

PED. TYPE P5 TOC EL. 1020.350 FTG. TYPE F5

PED. TYPE P5 TOC EL. 1020.350 FTG. TYPE F5

CRUSHERS AND CONVEYOR 3320-CV-016

WP #4

℄ TAIL PULLEY

WP TAIL PULLEY WP #9

WP #5 BUILDING BAYLINE

# CRUSHER AND SCREEN SUPPORT - BASE PLAN - GENERAL ARRANGEMENT

TOP OF FOOTING EL. 1019.500
U/S FTG EL. 1018.500

0 1 2 3 4 5
1:100 SCALE IN METRES

NOTES:

1. FOR GENERAL NOTES SEE DRAWING H354138-3320-231-260-0001.

KEYPLAN
SCALE 1:3000

THIS DRAWING WAS PREPARED FOR THE EXCLUSIVE USE OF STRATA GOLD ("CLIENT") AND IS ISSUED PURSUANT TO AGREEMENT BETWEEN CLIENT AND HATCH LTD. ("HATCH"). UNLESS OTHERWISE AGREED IN WRITING WITH CLIENT OR SPECIFIED ON THIS DRAWING, (A) HATCH DOES NOT ACCEPT AND DISCLAIMS ANY AND ALL LIABILITY OR RESPONSIBILITY ARISING FROM ANY USE OF OR RELIANCE ON THIS DRAWING BY ANY THIRD PARTY OR ANY MODIFICATION OR MISUSE OF THIS DRAWING BY CLIENT, AND (B) THIS DRAWING IS CONFIDENTIAL AND ALL INTELLECTUAL PROPERTY RIGHTS EMBODIED OR REFERENCED IN THIS DRAWING REMAIN THE PROPERTY OF HATCH.

| No. | DESCRIPTION | BY | CHKD | DATE |
|---|---|---|---|---|
| 1 | HOLD REMOVED, FOOTING TYPE F6 ADDED | PJ | EA | 2018-05-28 |
| 0 | APPROVED FOR CONSTRUCTION | PJ | EA | 2018-05-04 |

REVISIONS

| ROLE | NAME | SIGNATURE & DATE |
|---|---|---|
| DRAFTSPERSON | P. JIVAEV | NR |
| DESIGNER | H. LI | NR |
| CHECKER | E. AKINCI | |
| DESIGN COORD. | S. PERKINS | |
| RESP. ENG. | E. AKINCI | |
| LEAD DISC. ENG. | E. AKINCI | |
| ENG. MANAGER | B. RUSTAD | |
| PROJ. MANAGER | B. RUSTAD | |

DRAWING APPROVAL STATUS: Approved for Construction

HATCH

StrataGold Corporation

EAGLE GOLD PROJECT

SECONDARY CRUSHING
CRUSHER AND SCREEN SUPPORT FDN.
BASE PLAN - GENERAL ARRANGEMENT

| SCALE | DWG. No. | REV |
|---|---|---|
| 1:100 OR AS NOTED | H354138-3320-231-260-0002 | 1 |

SHEET SIZE: D

DRAWING No. | DRAWING TITLE

REFERENCE DRAWINGS

REG. PROFESSIONAL

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PRINTED: 28-MAY-2018
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11:27

CLARK BUILDERS
ENERGY & RESOURCES



PROJECT MANAGER: DUSTIN DOLYNCHUK, P.ENG
QA/QC COORDINATOR: RYAN DE MILLIANO, C.E.T.
SUPERINTENDENT: GARRY DAHL

# ORMWORK & FALSEWORK PRE POUR | QA INSPECTION

Rev 00 May 4, 2018

| | |
|---|---|
| SUBCONTRACTOR: CBCI | INSPECTION DATE: Aug. 17/18 |
| SUBCONTRACTOR CONTACT PERSON: Dan Pelletier | DATE OF POUR: Aug. 18/18 |
| INSPECTOR(S): | |
| LOCATION: secondary crusher ; mat footing foundation | |
| DRAWING REV: | DRAWING NO.(S): / SPEC SECTION(S): |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Location, survey, dimension and grades as required | ☑ | ☐ | ☐ |
| 2.0 | Plumbness and Flatness verified | ☑ | ☐ | ☐ |
| 3.0 | Joints are aligned and watertight. | ☑ | ☐ | ☐ |
| 4.0 | Formwork shop drawings are Engineered and reviewed | ☐ | ☐ | ☑ |
| 5.0 | Re-used formwork reconditioned and treated | ☑ | ☐ | ☐ |
| 6.0 | Formwork and ties according to finishing requirements. Confirm no holes in the concrete surface are greater than 25mm in diameter or expose steel at less than 25mm from surface. As per spec. | ☑ | ☐ | ☐ |
| 7.0 | Installation of embeds are located and secured | ☐ | ☐ | ☑ |
| 8.0 | Chamfer requirements checked. 25mm chamfers required for all exterior corners and edges exposed to view including horizontal edges of pads. | ☐ | ☐ | ☑ |
| 9.0 | Key ways and/or other provisions according to design are provided in construction joints | ☐ | ☐ | ☑ |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 10.0 | Inspect types of form spacers, ties and bracing. | ☑ | ☐ | ☐ |
| 11.0 | Spacing of ties to be set to a pattern | ☑ | ☐ | ☐ |
| 12.0 | Expansion, construction, contraction joints as required & located as coordinated with structural Engineer | ☐ | ☐ | ☑ |
| 13.0 | Forms secured against movement during placing | ☑ | ☐ | ☐ |
| 14.0 | Forms are braced for alignment and blow out | ☑ | ☐ | ☐ |
| 15.0 | Forms are cleaned of all debris, and dry, prior to concrete placement including standing water. | ☑ | ☐ | ☐ |
| 16.0 | Openings in formwork permit inspection and cleaning, placing and compaction of concrete, and forming and processing of construction joints. | ☑ | ☐ | ☐ |
| 17.0 | Formwork has been coated with release agent prior to rebar placement. | ☑ | ☐ | ☐ |
| | | ☐ | ☐ | ☐ |

COMMENTS: ATTACHMENT(S):

DEFICIENCIES NOTES:

INITIAL INSPECTION

INSPECTOR: Dan Pelletier DAN PELLETIER TITLE Carpenter Foreman DATE: Aug. 17/18

RE-INSPECTION (DEFICIENCIES COMPLETED)

INSPECTOR: _____ TITLE _____ DATE: _____

CLARK BUILDERS
ENERGY & RESOURCES

CB-INSPECTION FORM-DOC-002 REV.00
JDS ENERGY & MINING INC. | STRATAGOLD EAGLE GOLD
PROJECT #: CB201 | 18502

PROJECT MANAGER: DUSTIN DOLYNCHUK, P.ENG
QA/QC COORDINATOR: RYAN DE MILLIANO, C.E.T.
SUPERINTENDENT: GARRY DAHL

# CONCRETE PRE POUR | FIELD INSPECTION

Rev 00 May 4, 2018

| | |
|---|---|
| SUBCONTRACTOR: CDCI | INSPECTION DATE: Aug. 17/18 |
| SUBCONTRACTOR CONTACT PERSON: | DATE OF POUR: Aug. 18/18 |
| INSPECTOR(S): DAN PELLETIER | |
| LOCATION: secondary crusher; mat footing foundation | |
| DRAWING REV: | DRAWING NO.(S): SPEC SECTION(S): |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Location, survey, dimension and grades as required | ☑ | ☐ | ☐ |
| 2.0 | Plumbness and Flatness verified | ☑ | ☐ | ☐ |
| 3.0 | Joints are aligned and watertight. | ☑ | ☐ | ☐ |
| 4.0 | Formwork shop drawings are Engineered and reviewed | ☐ | ☐ | ☑ |
| 5.0 | Re-used formwork reconditioned and treated | ☑ | ☐ | ☐ |
| 6.0 | Formwork and ties according to finishing requirements. Confirm no holes in the concrete surface are greater than 25mm in diameter or expose steel at less than 25mm from surface. As per spec. | ☑ | ☐ | ☐ |
| 7.0 | Installation of embeds are located and secured | ☐ | ☐ | ☑ |
| 8.0 | Chamfer requirements checked. 25mm chamfers required for all exterior corners and edges exposed to view including horizontal edges of pads. | ☐ | ☐ | ☑ |
| 9.0 | Key ways and/or other provisions according to design are provided in construction joints | ☐ | ☐ | ☑ |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 10.0 | Inspect types of form spacers, ties and bracing. | ☑ | ☐ | ☐ |
| 11.0 | Spacing of ties to be set to a pattern | ☑ | ☐ | ☐ |
| 12.0 | Expansion, construction, contraction joints as required & located as coordinated with structural Engineer | ☐ | ☐ | ☑ |
| 13.0 | Forms secured against movement during placing | ☑ | ☐ | ☐ |
| 14.0 | Forms are braced for alignment and blow out | ☑ | ☐ | ☐ |
| 15.0 | Forms are cleaned of all debris, and dry, prior to concrete placement including standing water. | ☑ | ☐ | ☐ |
| 16.0 | Openings in formwork permit inspection and cleaning, placing and compaction of concrete, and forming and processing of construction joints. | ☑ | ☐ | ☐ |
| 17.0 | Formwork has been coated with release agent prior to rebar placement. | ☑ | ☐ | ☐ |
| | | ☐ | ☐ | ☐ |

COMMENTS:

ATTACHMENT(S):

DEFICIENCIES NOTES:

POUR METHOD:

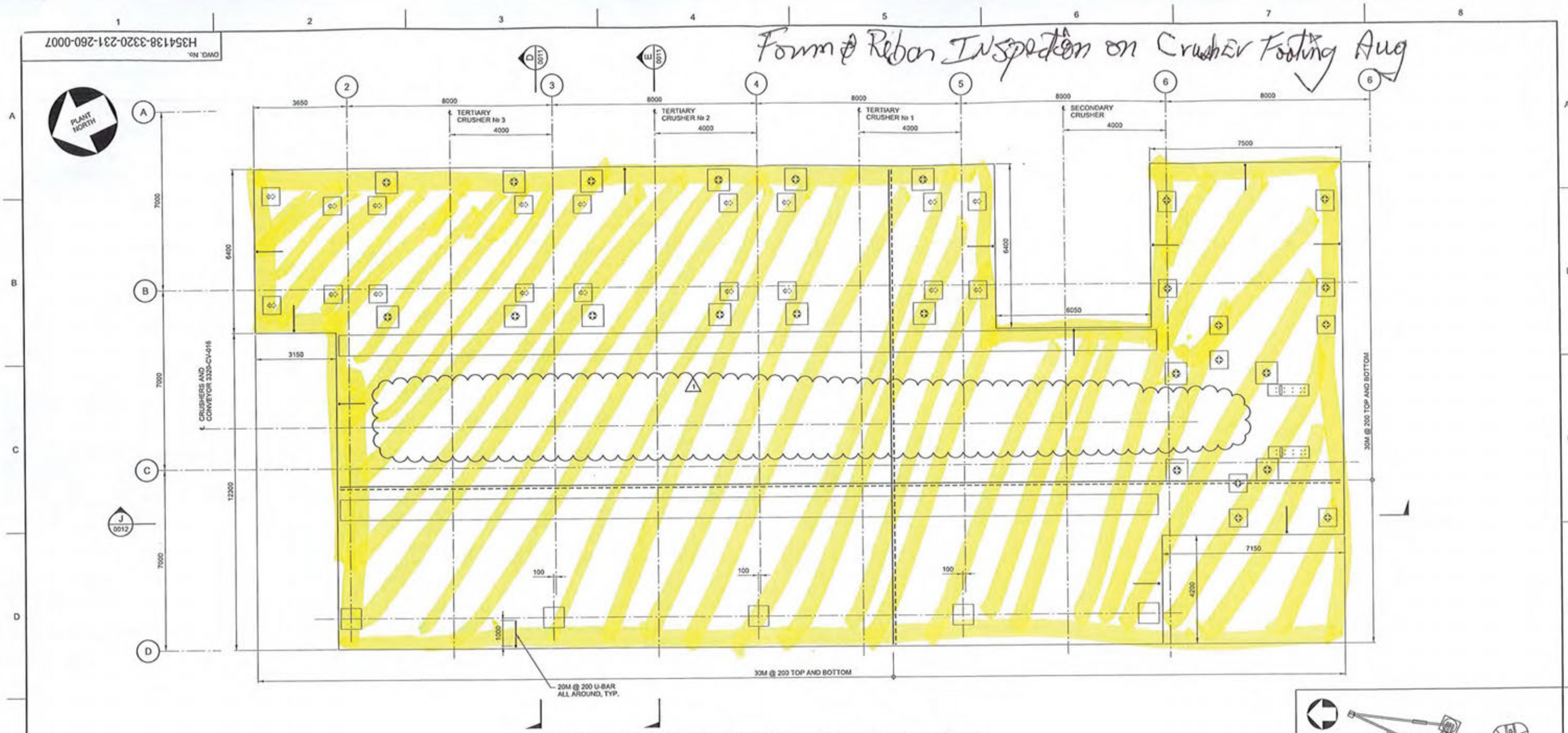
INITIAL INSPECTION

INSPECTOR: DAN PELLETIER TITLE Carpenter Foreman DATE: Aug. 17/18

RE-INSPECTION (DEFICIENCIES COMPLETED)

INSPECTOR: _____ TITLE _____ DATE: _____

Form & Rebar Inspection on Crusher Footing Aug



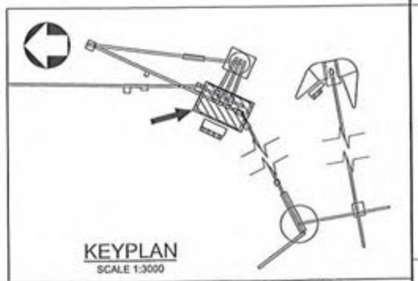

CRUSHER SUPPORT - MAT FOUNDATION REINFORCEMENT - PLAN

TOP OF FDN. EL. 1019.500
U/S FDN. EL. 1018.500

NOTES:

1. FOR NOTES SEE DRAWING H354138-3320-231-260-0001.

0 750 1500 2250 3000 3750
1:75 SCALE IN MILLIMETRES



KEYPLAN
SCALE 1:3000

| DRAWING No. | DRAWING TITLE |
|---|---|
| REFERENCE DRAWINGS | |

REG. PROFESSIONAL

| No. | DESCRIPTION | BY | CHK'D | DATE |
|---|---|---|---|---|
| 1 | CONVEYOR PEDESTALS REMOVED | PJ | EA | 2018-05-28 |
| 0 | APPROVED FOR CONSTRUCTION | PJ | EA | 2018-05-04 |

REVISIONS

HATCH

| ROLE | NAME | SIGNATURE & DATE |
|---|---|---|
| DRAFTSPERSON | P. JIVAEV | NR |
| DESIGNER | H. LI | NR |
| CHECKER | E. AKINCI | |
| DESIGN COORD. | S. PERKINS | |
| RESP. ENG. | E. AKINCI | |
| LEAD DISC. ENG. | E. AKINCI | |
| ENG. MANAGER | B. RUSTAD | |
| PROJ. MANAGER | B. RUSTAD | |

DRAWING APPROVAL STATUS: Approved for Construction

StrataGold Corporation

EAGLE GOLD PROJECT

SECONDARY CRUSHING
CRUSHER AND SCREEN SUPPORT FDN.
MAT FDN. REINFORCEMENT - PLAN

SCALE 1:75 OR AS NOTED | DWG. No. H354138-3320-231-260-0007 | REV 1

SHEET SIZE: D

$FILE$
PRINTED: 28-MAY-2018 11:27
ldc_pwservice

CLARK BUILDERS
ENERGY & RESOURCES

JDS ENERGY & MINING INC. | STRATAGOLD EAGLE GOLD
PROJECT #: CB201 | 18502

PROJECT MANAGER: DUSTIN DOLYNCHUK, P.ENG
QA/QC COORDINATOR: RYAN DE MILLIANO, C.E.T.
SUPERINTENDENT: GARRY DAHL

# EXCAVATION AND BACKFILL PRE POUR | QA INSPECTION

Rev 00 May 4, 2018

| | |
|---|---|
| SUBCONTRACTOR: CBCI | INSPECTION DATE: Aug. 17/18 |
| SUBCONTRACTOR CONTACT PERSON: Dan Pellett | ACTION BY: |
| INSPECTOR(S): Anthony Schoepp | |
| LOCATION: G.L. 1 D @ secondary crusher | |
| DRAWING REV: | DRAWING NO.(S): SPEC SECTION(S): |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Subsoil investigation report has been reviewed | ☑ | ☐ | ☐ |
| 2.0 | Survey complete, stakes and monuments located | ☑ | ☐ | ☐ |
| 3.0 | Procedures in place for hazardous materials? | ☑ | ☐ | ☐ |
| 4.0 | Required Ground Disturbance permits reviewed and approved | ☐ | ☐ | ☑ |
| 5.0 | Utilities and other underground potential interferences to remain are located, stakes and protected? | ☐ | ☐ | ☑ |
| 6.0 | Utilities companies notified | ☐ | ☐ | ☑ |
| 7.0 | Drawings are approved and stamped prior to work begins | ☑ | ☐ | ☐ |
| .0 | Drainage has been planned and is being provided continuously | ☑ | ☐ | ☐ |
| 9.0 | Need for well points has been checked | ☐ | ☐ | ☑ |
| 10.0 | Testing, inspection and compaction requirements have been reviewed | ☑ | ☐ | ☐ |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 11.0 | Backfill materials have been tested and approved to use | ☑ | ☐ | ☐ |
| 12.0 | Clarify compaction requirements by material, use, lift thickness, frequency, etc. | ☑ | ☐ | ☐ |
| 13.0 | Need of slope design for trenching or excavation has been reviewed | ☑ | ☐ | ☐ |
| 14.0 | Blast/fractured rock requirements have been reviewed | ☐ | ☐ | ☑ |
| 15.0 | Project specific quality requirements | ☑ | ☐ | ☐ |
| 16.0 | If needed, are barricades, stop logs, properly placed? | ☐ | ☐ | ☑ |
| | | ☐ | ☐ | ☐ |
| | | ☐ | ☐ | ☐ |
| | | ☐ | ☐ | ☐ |
| | | ☐ | ☐ | ☐ |

COMMENTS:

ATTACHMENT(S):

DEFICIENCIES NOTES:

INITIAL INSPECTION

INSPECTOR: [signature] TITLE E.I.T. DATE: Aug. 17, 2018

RE-INSPECTION (DEFICIENCIES COMPLETED)

INSPECTOR: _____ TITLE _____ DATE: _____

CB-INSPECTION FORM-DOC-002 REV.00
JDS ENERGY & MINING INC. | STRATAGOLD EAGLE GOLD
PROJECT #: CB201 | 18502

CLARK BUILDERS
ENERGY & RESOURCES

PROJECT MANAGER: DUSTIN DOLYNCHUK, P.ENG
QA/QC COORDINATOR: RYAN DE MILLIANO, C.E.T.
SUPERINTENDENT: GARRY DAHL

# FORMWORK & FALSEWORK PRE POUR | QA INSPECTION

Rev 00 May 4, 2018

| | |
|---|---|
| SUBCONTRACTOR: N/A | INSPECTION DATE: August 18, 2018 |
| SUBCONTRACTOR CONTACT PERSON: N/A | DATE OF POUR: AUGUST 19, 2018 |
| INSPECTOR(S): Ryan deMilliano (QA/QC) w/ CLARK BUILDERS | |
| LOCATION: AREA 3310 SEC/TERTIARY CRUSHING BUILDING BASE / ~~[illegible]~~ GL 1.5→7/A-D | |
| DRAWING REV: 02 / DRAWING NO.(S): 3310-231-260-00007//0008 | SPEC SECTION(S): S031000 |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Location, survey, dimension and grades as required | X | ☐ | ☐ |
| 2.0 | Plumbness and Flatness verified | X | ☐ | ☐ |
| 3.0 | Joints are aligned and watertight. | X | ☐ | ☐ |
| 4.0 | Formwork shop drawings are Engineered and reviewed | X | ☐ | ☐ |
| 5.0 | Re-used formwork reconditioned and treated | X | ☐ | ☐ |
| 6.0 | Formwork and ties according to finishing requirements. Confirm no holes in the concrete surface are greater than 25mm in diameter or expose steel at less than 25mm from surface. As per spec. | X | ☐ | ☐ |
| 7.0 | Installation of embeds are located and secured | ☐ | ☐ | X |
| 8.0 | Chamfer requirements checked. 25mm chamfers required for all exterior corners and edges exposed to view including horizontal edges of pads. | X | ☐ | ☐ |
| 9.0 | Key ways and/or other provisions according to design are provided in construction joints | X | ☐ | ☐ |
| 10.0 | Inspect types of form spacers, ties and bracing. | X | ☐ | ☐ |
| 11.0 | Spacing of ties to be set to a pattern | X | ☐ | ☐ |
| 12.0 | Expansion, construction, contraction joints as required & located as coordinated with structural Engineer | X | ☐ | ☐ |
| 13.0 | Forms secured against movement during placing | X | ☐ | ☐ |
| 14.0 | Forms are braced for alignment and blow out | X | ☐ | ☐ |
| 15.0 | Forms are cleaned of all debris, and dry, prior to concrete placement including standing water. | X | ☐ | ☐ |
| 16.0 | Openings in formwork permit inspection and cleaning, placing and compaction of concrete, and forming and processing of construction joints. | X | ☐ | ☐ |
| 17.0 | Formwork has been coated with release agent prior to rebar placement. | X | ☐ | ☐ |
| | | ☐ | ☐ | ☐ |

COMMENTS:

ATTACHMENT(S):

DEFICIENCIES NOTES:

CB ~~INITIAL~~ INSPECTION
INSPECTOR: Ryan deMilliano // [signature] TITLE QA/QC Coordinator DATE: Aug 18, 2018

JDS ~~RE-INSPECTION (DEFICIENCIES COMPLETED)~~
INSPECTOR: [signature] TITLE Field Eng DATE: Aug 18, 2018.

CLARK BUILDERS
ENERGY & RESOURCES



PROJECT MANAGER: DUSTIN DOLYNCHUK, P.ENG
QA/QC COORDINATOR: RYAN DE MILLIANO, C.E.T.
SUPERINTENDENT: GARRY DAHL

# CONCRETE REINFORCEMENT PRE POUR

Rev 00 May 4, 2018

| | |
|---|---|
| SUBCONTRACTOR: ULTIMATE REINFORCING / MCNISH | INSPECTION DATE: AUGUST 18, 2018 |
| SUBCONTRACTOR CONTACT PERSON: JIMMY MENCHENTON | ~~FOUL DATE~~ ACTION BY: AUGUST 19, 2018 |
| INSPECTOR(S): Ryan deMilliano (QA/QC) @CB | |
| LOCATION: AREA 3300 SECTER CRUSHING BUILDING BASE / ~~SOG~~ GL 1.5-D7 // A-D | |
| DRAWING REV: 02 / DRAWING NO.(S): 3300-231-260-0007/8 | SPEC SECTION(S): 503200 00 |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Grade (400W unless otherwise noted) and type of steel delivered and installed as required by approved drawings. | X | | |
| 2.0 | Inspect rebar distribution, spacing and cover per design/project requirements. | X | | |
| 3.0 | Length of splices as specified | X | | |
| 4.0 | Staggered splices as specified | X | | |
| 5.0 | Any mechanical splices have been approved by the owner prior to install | | | X |
| 6.0 | Bars cleaned and free of material that may reduce bond including loose rust, scale, oil, structural defects and that they are uncoated and unpainted. | X | | |
| 7.0 | Dowels at wall ends, construction joints, and openings as specified (length, location, size, etc.) | X | | |
| 8.0 | No unauthorized field bent bars including hooks installed | X | | |
| | Resolve conflicts between embedded items and reinforcement | X | | |
| 9.0 | When authorized, field bends done without heat and inspected for fissures or cracks. | | | X |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 10.0 | Bars tied and supported to prevent displacement | X | | |
| 11.0 | Spacers, tie wire and chairs as required COVER 40/50 | X | | |
| 12.0 | Conduits at design location and minimum separation from rebar as specified | | | X |
| 13.0 | No contact of bars is made with dissimilar metals as per CSA A23.1 | X | | |
| 14.0 | Bars, nails or tie wire not sticking out from surfaces that allow rusting/corrosion | X | | |
| 15.0 | Rebar is welds inspected by qualified inspectors certified to CSA W178.2 | X | | X |
| 16.0 | No rebar congestion or other obstruction for deposit of concrete | X | | |
| 17.0 | Adjustments required for interfering items (piping, inserts, sleeves, etc.) have been submitted and approved by owner. | X | | |
| 18.0 | Rebar was stored off ground to prevent damage/corrosion | X | | |
| 19.0 | Review drawings for anchors, piping, sleeves, boxes | X | | |

COMMENTS:

ATTACHMENT(S):

DEFICIENCIES NOTES:

ties on all wear - ADDRESSED/FIXED
Clean paper tags - ADDRESSED/FIXED
projecting dowels to be cut to achieve min cover. ADDRESSED/FIXED

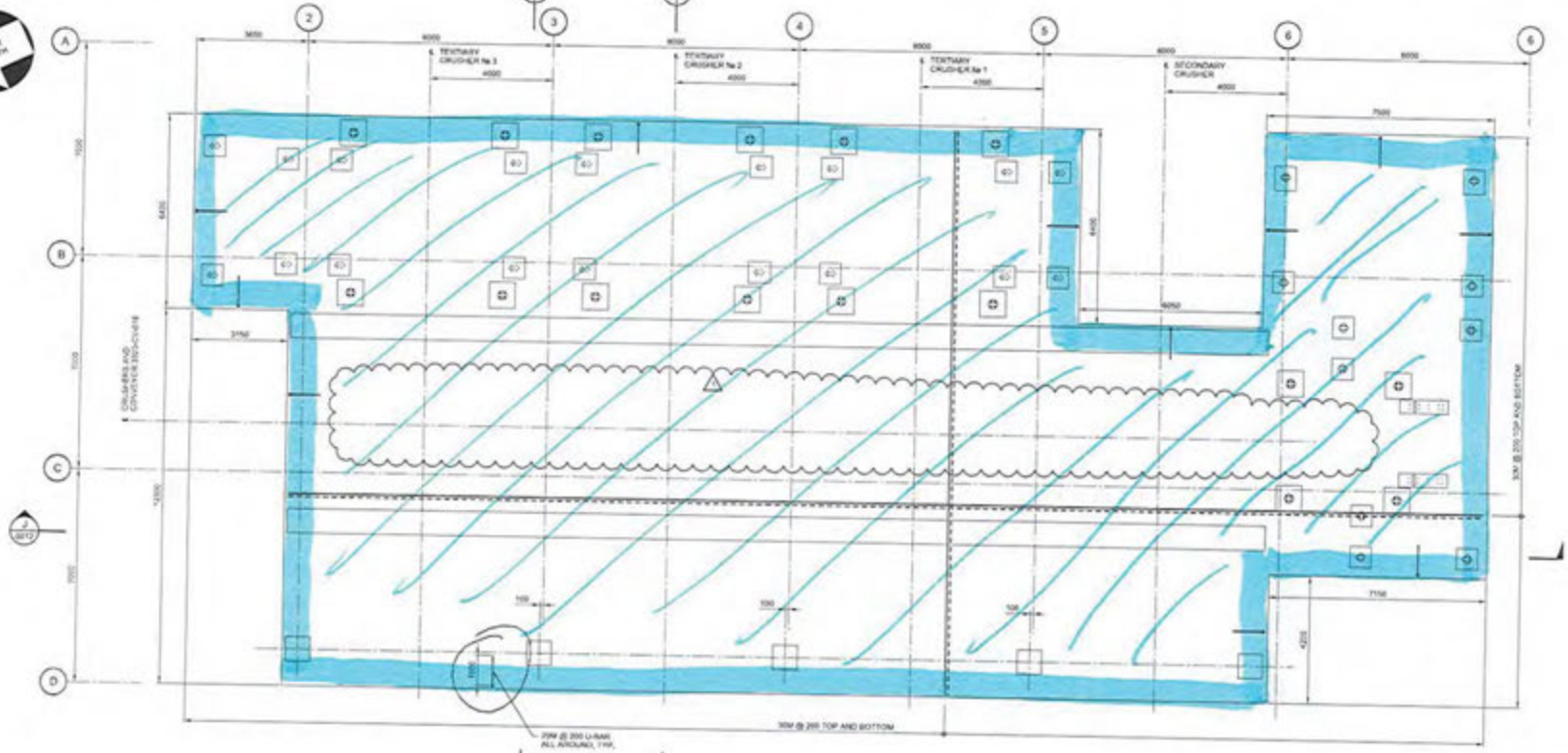
INITIAL INSPECTION

INSPECTOR: Ryan deMilliano // TITLE QA/QC Coordinator DATE: AUG 18, 2018

RE-INSPECTION (DEFICIENCIES COMPLETED)

INSPECTOR: Matt Coverdale YVR TITLE Field DATE: Aug 18, 2018.

INSPECTION DATE: AL
POUR DATE: AUG.

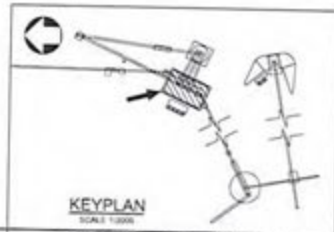



CRUSHER SUPPORT - MAT FOUNDATION REINFORCEMENT - PLAN

TOP OF FDN. EL. 1019.000
US FDN. EL. 1016.500

PERMIT TO PRACTICE
HATCH
MAY 22, 2018

NOTES:
1. FOR NOTES SEE DRAWING H354138-3320-231-260-0001.



KEYPLAN
SCALE 1:2000

HATCH

StrataGold Corporation

EAGLE GOLD PROJECT

SECONDARY CRUSHING
CRUSHER AND SCREEN SUPPORT FDN.
MAT FDN. REINFORCEMENT - PLAN

| ROLE | NAME | SIGNATURE & DATE |
|---|---|---|
| DRAF ESPERSON | P. JIVAEV | |
| DESIGNER | H. LE | |
| CHECKER | E. AKINOI | |
| DESIGN COORD. | S. PERKINS | |
| RESP. ENG. | E. AKINOI | |
| LEAD DISC. ENG. | E. AKINOI | |
| ENG. MANAGER | B. RUSTAD | |
| PROJ. MANAGER | B. RUSTAD | |

DRAWING APPROVAL STATUS: Approved for Construction

| No. | DESCRIPTION | BY | CHK'D | DATE |
|---|---|---|---|---|
| 1 | CONVEYOR PEDESTALS REMOVED | FJ | EA | 2018-05-28 |
| 0 | APPROVED FOR CONSTRUCTION | FJ | EA | 2018-05-04 |

REVISIONS

| DRAWING No. | DRAWING TITLE |
|---|---|
| REFERENCE DRAWINGS | |

REG. PROFESSIONAL

SCALE 1:75 DWG. No. H354138-3320-231-260-0007 REV 1

SHEET SIZE: D

DWG. No. H354138-3320-231-260-0007

CB-INSPECTION FORM-DOC-002 REV.00
JDS ENERGY & MINING INC. | STRATAGOLD EAGLE GOLD
PROJECT #: CB201 | 18502

CLARK BUILDERS
ENERGY & RESOURCES

PROJECT MANAGER: DUSTIN DOLYNCHUK, P.ENG
QA/QC COORDINATOR: RYAN DE MILLIANO, C.E.T.
SUPERINTENDENT: GARRY DAHL

# FORMWORK & FALSEWORK PRE POUR | QA INSPECTION

Rev 00 May 4, 2018

| | |
|---|---|
| ~~SUB~~CONTRACTOR: CLARK BUILDERS | INSPECTION DATE: AUGUST 22, 2018 (AM) |
| ~~SUB~~CONTRACTOR CONTACT PERSON: DAN PELLETIER. | DATE OF POUR: AUGUST 22, 2018 (PM) |
| INSPECTOR(S): DAN PELLETIER ; D'ARCY W/ JDS | |
| LOCATION: SEC/TERTIARY CRUSHING BUILDING. FOUNDATION \|\| GRADE WALL GL1 A.5→E // GLE 1→3 INCL. GRADES. PILASTERS | |
| DRAWING REV: 01 | DRAWING NO.(S): 3310-231-260-0002 |
| SPEC SECTION(S): | |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Location, survey, dimension and grades as required | ☑ | ☐ | ☐ |
| 2.0 | Plumbness and Flatness verified | ☑ | ☐ | ☐ |
| 3.0 | Joints are aligned and watertight. | ☑ | ☐ | ☐ |
| 4.0 | Formwork shop drawings are Engineered and reviewed | ☑ | ☐ | ☐ |
| 5.0 | Re-used formwork reconditioned and treated | ☑ | ☐ | ☐ |
| 6.0 | Formwork and ties according to finishing requirements. Confirm no holes in the concrete surface are greater than 25mm in diameter or expose steel at less than 25mm from surface. As per spec. | ☑ | ☐ | ☐ |
| 7.0 | Installation of embeds are located and secured | ☑ | ☐ | ☐ |
| 8.0 | Chamfer requirements checked. 25mm chamfers required for all exterior corners and edges exposed to view including horizontal edges of pads. | ☑ | ☐ | ☐ |
| 9.0 | Key ways and/or other provisions according to design are provided in construction joints | ☑ | ☐ | ☐ |
| 10.0 | Inspect types of form spacers, ties and bracing. | ☑ | ☐ | ☐ |
| 11.0 | Spacing of ties to be set to a pattern | ☑ | ☐ | ☐ |
| 12.0 | Expansion, construction, contraction joints as required & located as coordinated with structural Engineer | ☑ | ☐ | ☐ |
| 13.0 | Forms secured against movement during placing | ☑ | ☐ | ☐ |
| 14.0 | Forms are braced for alignment and blow out | ☑ | ☐ | ☐ |
| 15.0 | Forms are cleaned of all debris, and dry, prior to concrete placement including standing water. | ☑ | ☐ | ☐ |
| 16.0 | Openings in formwork permit inspection and cleaning, placing and compaction of concrete, and forming and processing of construction joints. | ☑ | ☐ | ☐ |
| 17.0 | Formwork has been coated with release agent prior to rebar placement. | ☑ | ☐ | ☐ |
| | | ☐ | ☐ | ☐ |

COMMENTS:

ATTACHMENT(S):

DEFICIENCIES NOTES:

INITIAL INSPECTION

INSPECTOR: DAN PELLETIER [signature] TITLE Foreman DATE: Aug 22/18

RE-INSPECTION (DEFICIENCIES COMPLETED)

INSPECTOR: [signature] D'Arcy C. TITLE Field Engineer DATE: Aug 22 2018.

CLARK BUILDERS
ENERGY & RESOURCES

# CONCRETE REINFORCEMENT PRE POUR

Rev 00 May 4, 2018

| | |
|---|---|
| SUBCONTRACTOR: ULTIMATE REINFORCING / MCNISH | INSPECTION DATE: AUGUST 22, 2018 |
| SUBCONTRACTOR CONTACT PERSON: DEREK / ULTIMATE | ACTION BY: |
| INSPECTOR(S): | |
| LOCATION: SECONDARY II GRADE WALL GL1 A.5→E // GLE 1-3 INCL. 6 PEDESTALS & PILASTERS | |
| DRAWING REV: 01 / DRAWING NO.(S): 3310 | SPEC SECTION(S): |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Grade (400W unless otherwise noted) and type of steel delivered and installed as required by approved drawings. | X | ☐ | ☐ |
| 2.0 | Inspect rebar distribution, spacing and cover per design/project requirements. | X | ☐ | ☐ |
| 3.0 | Length of splices as specified | X | ☐ | ☐ |
| 4.0 | Staggered splices as specified | X | ☐ | ☐ |
| 5.0 | Any mechanical splices have been approved by the owner prior to install | ☐ | ☐ | X |
| 6.0 | Bars cleaned and free of material that may reduce bond including loose rust, scale, oil, structural defects and that they are uncoated and unpainted. | X | ☐ | ☐ |
| 7.0 | Dowels at wall ends, construction joints, and openings as specified (length, location, size, etc.) | X | ☐ | ☐ |
| 8.0 | No unauthorized field bent bars including hooks installed | X | ☐ | ☐ |
| | Resolve conflicts between embedded items and reinforcement | X | | |
| 9.0 | When authorized, field bends done without heat and inspected for fissures or cracks. | ☐ | ☐ | X |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 10.0 | Bars tied and supported to prevent displacement | X | ☐ | ☐ |
| 11.0 | Spacers, tie wire and chairs as required | X | ☐ | ☐ |
| 12.0 | Conduits at design location and minimum separation from rebar as specified | ☐ | ☐ | X |
| 13.0 | No contact of bars is made with dissimilar metals as per CSA A23.1 | X | ☐ | ☐ |
| 14.0 | Bars, nails or tie wire not sticking out from surfaces that allow rusting/corrosion | X | ☐ | ☐ |
| 15.0 | Rebar is welds inspected by qualified inspectors certified to CSA W178.2 | ☐ | ☐ | X |
| 16.0 | No rebar congestion or other obstruction for deposit of concrete | X | ☐ | ☐ |
| 17.0 | Adjustments required for interfering items (piping, inserts, sleeves, etc.) have been submitted and approved by owner. | X | ☐ | ☐ |
| 18.0 | Rebar was stored off ground to prevent damage/corrosion | X | | |
| 19.0 | Review drawings for anchors, piping, sleeves, boxes | X | ☐ | ☐ |

COMMENTS:

ATTACHMENT(S):

DEFICIENCIES NOTES:

2x VERTICAL REBAR DOWELS IN PEDESTAL REQUIRED CUT TO GIVE COVER CLEARANCE.

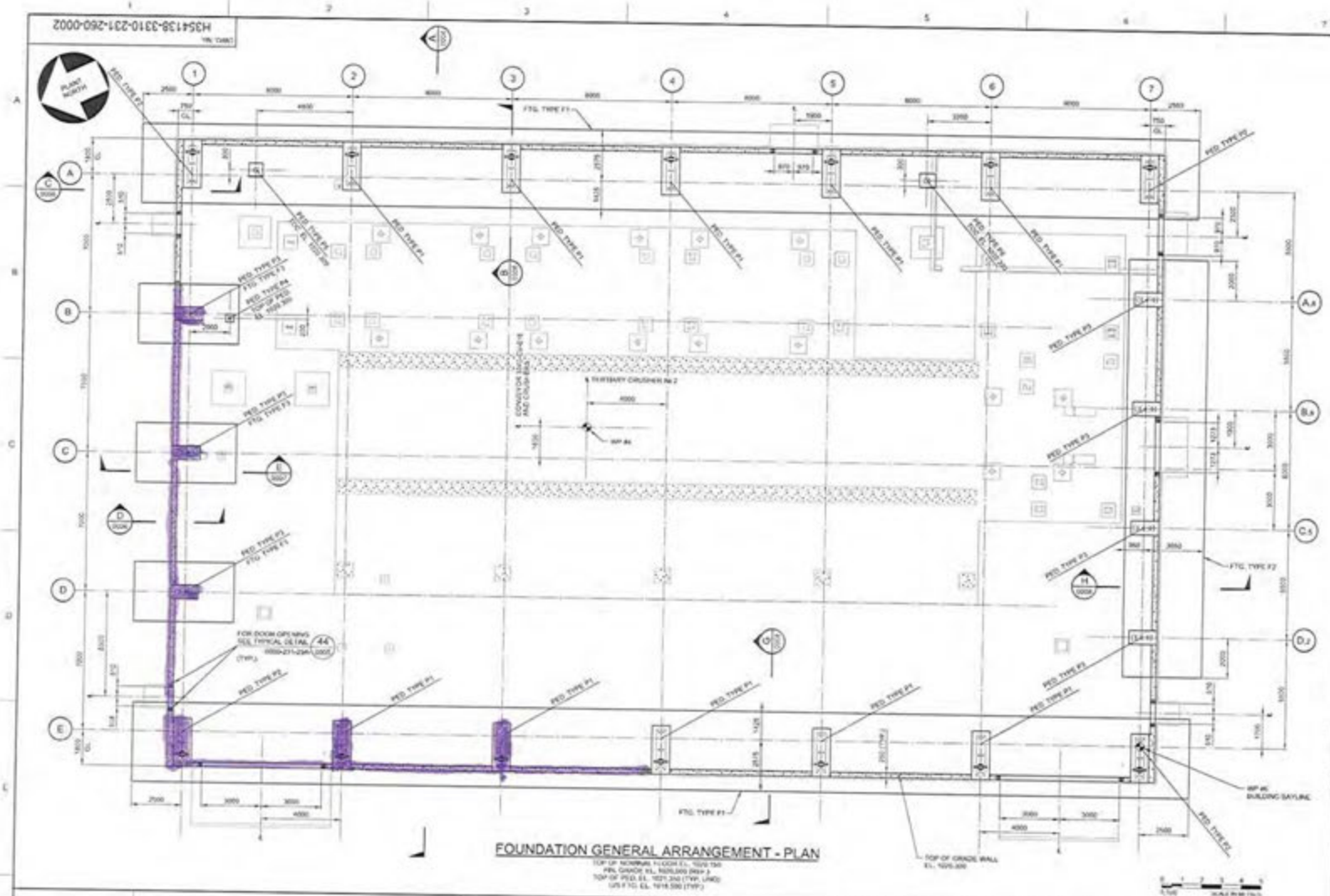
INITIAL INSPECTION

INSPECTOR: DAN PELLETIER TITLE Foreman DATE: Aug. 22/18

RE-INSPECTION (DEFICIENCIES COMPLETED)

INSPECTOR: D'Arcy Comeau TITLE Field Engineer. DATE: Aug 22 2018

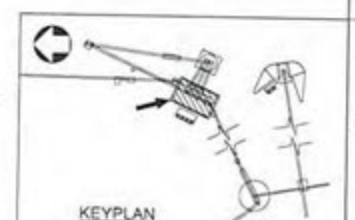
IN




FOUNDATION GENERAL ARRANGEMENT - PLAN

NOTES:

1. FOR GENERAL NOTES SEE DRAWING H354138-3310-231-260-0001



KEYPLAN

HATCH

StrataGold Corporation

EAGLE GOLD PROJECT

SEC/TERTIARY CRUSHING BUILDING
BUILDING FOUNDATION
FOUNDATION - PLAN

| ROLE | NAME | SIGNATURE & DATE |
|---|---|---|
| DRAFT/DESIGN | P. JAVEY | |
| DESIGNER | P. LE | |
| CHECKER | E. AKING | |
| DESIGN COORD. | S. HENKING | |
| RESP. ENG. | E. AKING | |
| LEAD DISC. ENG. | P. AKING | |
| ENG. MANAGER | B. RUSTAD | |
| PROJ. MANAGER | B. RUSTAD | |

DRAWING APPROVAL STATUS: Approved for Construction

| DRAWING No. | DRAWING TITLE |
|---|---|
| REFERENCE DRAWINGS | |

REG. PROFESSIONAL

| No. | DESCRIPTION | BY | CHK'D | DATE |
|---|---|---|---|---|
| 0 | APPROVED FOR CONSTRUCTION | PJ | EA | 2019-05-17 |

REVISIONS

SCALE 1:100

DWG. No. H354138-3310-231-260-0002

REV 0

SHEET SIZE: D

CLARK BUILDERS
ENERGY & RESOURCES

CB-INSPECTION FORM-DOC-002 REV.00
JDS ENERGY & MINING INC. | STRATAGOLD EAGLE GOLD
PROJECT #: CB201 | 18502

PROJECT MANAGER: DUSTIN DOLYNCHUK, P.ENG
QA/QC COORDINATOR: RYAN DE MILLIANO, C.E.T.
SUPERINTENDENT: GARRY DAHL

# FORMWORK & FALSEWORK PRE POUR | QA INSPECTION

Rev 00 May 4, 2018

| | |
|---|---|
| SUBCONTRACTOR: CLARK BUILDERS | INSPECTION DATE: AUGUST 23 2018 |
| SUBCONTRACTOR CONTACT PERSON: DAN PELLETIER | DATE OF POUR: AUGUST 27 2018 PROJ. |
| INSPECTOR(S): RYAN DEMILLIANO | |
| LOCATION: 3320 SECONDARY WALL (x1) ON GL C-D AND COLUMNS BETWEEN C-D | |
| DRAWING REV: 07 | DRAWING NO.(S): 3320-231-260-0008 / SPEC SECTION(S): 503 10 00 |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Location, survey, dimension and grades as required | ☒ | ☐ | ☐ |
| 2.0 | Plumbness and Flatness verified | ☒ | ☐ | ☐ |
| 3.0 | Joints are aligned and watertight. | ☒ | ☐ | ☐ |
| 4.0 | Formwork shop drawings are Engineered and reviewed | ☒ | ☐ | ☐ |
| 5.0 | Re-used formwork reconditioned and treated | ☒ | ☐ | ☐ |
| 6.0 | Formwork and ties according to finishing requirements. Confirm no holes in the concrete surface are greater than 25mm in diameter or expose steel at less than 25mm from surface. As per spec. | ☒ | ☐ | ☐ |
| 7.0 | Installation of embeds are located and secured | ☐ | ☐ | ☐ |
| 8.0 | Chamfer requirements checked. 25mm chamfers required for all exterior corners and edges exposed to view including horizontal edges of pads. | ☒ | ☐ | ☐ |
| 9.0 | Key ways and/or other provisions according to design are provided in construction joints | ☒ | ☐ | ☐ |
| 10.0 | Inspect types of form spacers, ties and bracing. | ☒ | ☐ | ☐ |
| 11.0 | Spacing of ties to be set to a pattern | ☒ | ☐ | ☐ |
| 12.0 | Expansion, construction, contraction joints as required & located as coordinated with structural Engineer | ☐ | ☐ | ☒ |
| 13.0 | Forms secured against movement during placing | ☒ | ☐ | ☐ |
| 14.0 | Forms are braced for alignment and blow out | ☒ | ☐ | ☐ |
| 15.0 | Forms are cleaned of all debris, and dry, prior to concrete placement including standing water. | ☒ | ☐ | ☐ |
| 16.0 | Openings in formwork permit inspection and cleaning, placing and compaction of concrete, and forming and processing of construction joints. | ☒ | ☐ | ☐ |
| 17.0 | Formwork has been coated with release agent prior to rebar placement. | ☒ | ☐ | ☐ |
| | | ☐ | ☐ | ☐ |

COMMENTS:

PERI formwork used.

ATTACHMENT(S):

Duty

DEFICIENCIES NOTES:

Inside and the wire at base needed to be cleaned. DONE

INITIAL INSPECTION

INSPECTOR: RYAN DEMILLIANO TITLE Project Coordinator DATE: AUG 23, 2018

RE-INSPECTION (DEFICIENCIES COMPLETED)

INSPECTOR: TITLE Field Engineer DATE: Aug 28 2018

CLARK BUILDERS
ENERGY & RESOURCES



# CONCRETE REINFORCEMENT PRE POUR

Rev 00 May 4, 2018

| | |
|---|---|
| SUBCONTRACTOR: ULTIMATE REINFORCING. | INSPECTION DATE: August 24, 2018 |
| SUBCONTRACTOR CONTACT PERSON: DEREK SAVOIE | ACTION BY: |
| INSPECTOR(S): Ryan deMilliano, D'Arcy | |
| LOCATION: Area 3320 Secondary Walk (RT) between GL C-D and Columns between C-D. | |
| DRAWING REV: 01 | DRAWING NO.(S): 3320-231-260-0008 / SPEC SECTION(S): 503 20 00 |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Grade (400W unless otherwise noted) and type of steel delivered and installed as required by approved drawings. | ☒ | ☐ | ☐ |
| 2.0 | Inspect rebar distribution, spacing and cover per design/project requirements. | ☒ | ☐ | ☐ |
| 3.0 | Length of splices as specified | ☒ | ☐ | ☐ |
| 4.0 | Staggered splices as specified | ☒ | ☐ | ☐ |
| 5.0 | Any mechanical splices have been approved by the owner prior to install | ☐ | ☐ | ☒ |
| 6.0 | Bars cleaned and free of material that may reduce bond including loose rust, scale, oil, structural defects and that they are uncoated and unpainted. | ☒ | ☐ with notes | ☐ |
| 7.0 | Dowels at wall ends, construction joints, and openings as specified (length, location, size, etc.) | ☒ | ☐ | ☐ |
| 8.0 | No unauthorized field bent bars including hooks installed | ☒ | ☐ | ☐ |
| | Resolve conflicts between embedded items and reinforcement | X | | |
| 9.0 | When authorized, field bends done without heat and inspected for fissures or cracks. | ☐ | ☐ | ☒ |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 10.0 | Bars tied and supported to prevent displacement | ☒ | ☐ | ☐ |
| 11.0 | Spacers, tie wire and chairs as required | ☒ | ☐ | ☐ |
| 12.0 | Conduits at design location and minimum separation from rebar as specified | ☒ | ☐ | ☐ |
| 13.0 | No contact of bars is made with dissimilar metals as per CSA A23.1 | ☒ | ☐ | ☐ |
| 14.0 | Bars, nails or tie wire not sticking out from surfaces that allow rusting/corrosion | ☒ | ☐ | ☐ |
| 15.0 | Rebar is welds inspected by qualified inspectors certified to CSA W178.2 | ☐ | ☐ | ☒ |
| 16.0 | No rebar congestion or other obstruction for deposit of concrete | ☒ | ☐ | ☐ |
| 17.0 | Adjustments required for interfering items (piping, inserts, sleeves, etc.) have been submitted and approved by owner. | ☐ | ☐ | ☒ |
| 18.0 | Rebar was stored off ground to prevent damage/corrosion | X | | |
| 19.0 | Review drawings for anchors, piping, sleeves, boxes | ☒ | ☐ | ☐ |

COMMENTS:

Splices from projecting dowels was very good.
Brush hammering and surface roughness was adequate. Some water/tie wire to be removed.

ATTACHMENT(S):

Plug.

DEFICIENCIES NOTES:

- Small number of projecting dowels required cleaning prior to pour/clean up of formwork.
- Top hooks required to be tied a few locations.

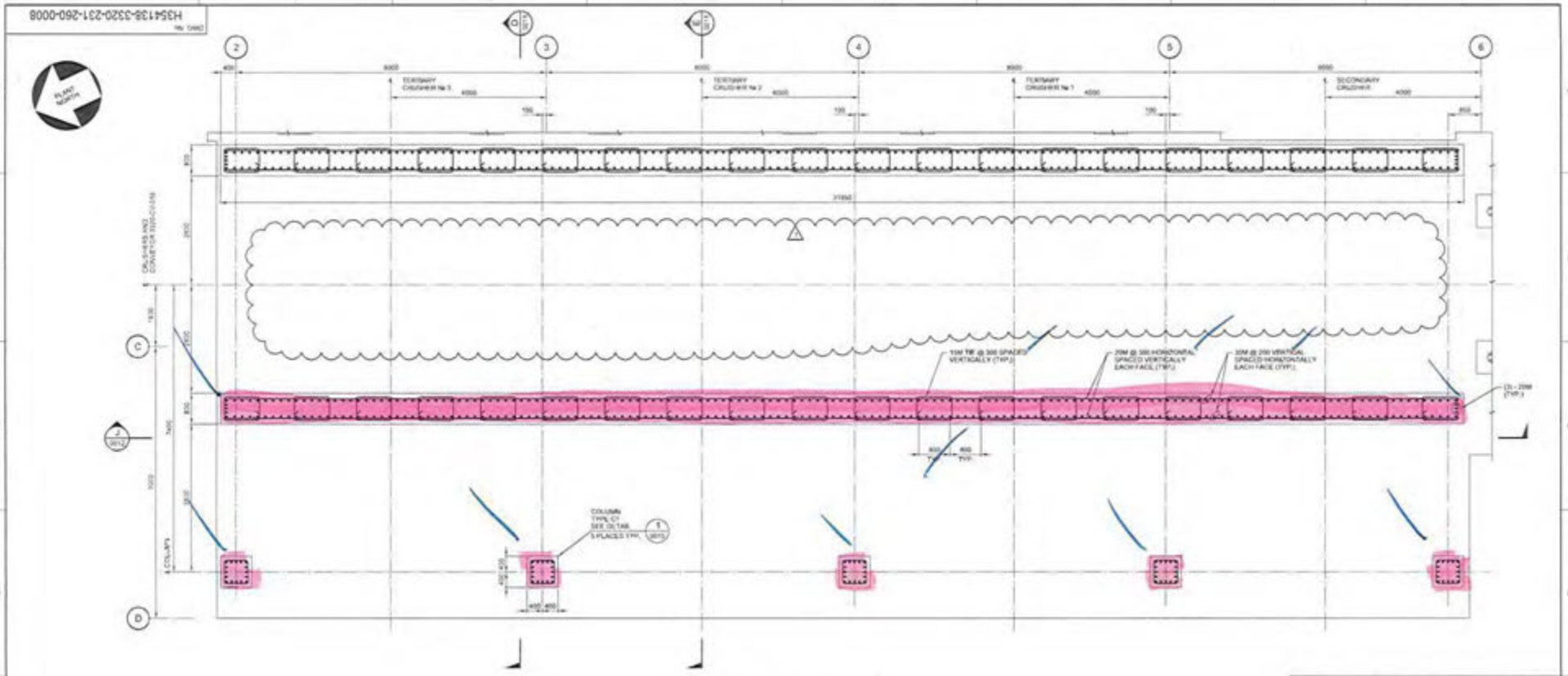
INITIAL INSPECTION

INSPECTOR: Ryan deMilliano TITLE Project Coordinator (QA) DATE: August 24, 2018

RE-INSPECTION (DEFICIENCIES COMPLETED)

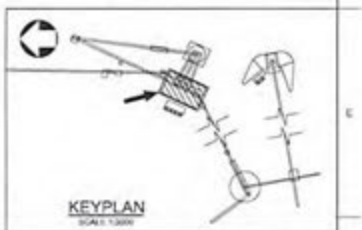
INSPECTOR: D'Arcy Comeau TITLE Field Engineer DATE: Aug 24 2018

August 24, 2018




WALL REINFORCEMENT - PLAN

NOTES:
1. FOR NOTES SEE DRAWING H354138-3320-231-260-0001.




| DRAWING No. | DRAWING TITLE |
|---|---|
| REFERENCE DRAWINGS | |

REG. PROFESSIONAL

| No. | DESCRIPTION | BY | CHKD | DATE |
|---|---|---|---|---|
| 1 | CONVEYOR PEDESTALS REMOVED | PJ | EA | 2018-05-28 |
| 0 | APPROVED FOR CONSTRUCTION | PJ | EA | 2018-05-04 |

REVISIONS

HATCH

| | | |
|---|---|---|
| DRAFT DISPERSION | P. JENEY | |
| DESIGNER | D. LI | |
| CHECKER | E. AKINCI | 2018-05-28 |
| DESIGN COORD. | S. PERKINS | |
| DESIGN ENG. | E. AKINCI | 2018-05-28 |
| LEAD DISC. ENG. | E. AKINCI | 2018-05-28 |
| ENG. MANAGER | R. RUSTAD | |
| PROJ. MANAGER | R. RUSTAD | |

| ROLE | NAME | SIGNATURE & DATE |
|---|---|---|

DRAWING APPROVAL STATUS: Approved for Construction

StrataGold Corporation

EAGLE GOLD PROJECT

SECONDARY CRUSHING
CRUSHER AND SCREEN SUPPORT FDN.
WALL REINFORCEMENT - PLAN

| SCALE | DWG. No. | REV |
|---|---|---|
| 1:50 (ON A1 SHEET) | H354138-3320-231-260-0008 | 1 |

SHEET SIZE: D

CLARK BUILDERS
ENERGY & RESOURCES

CB-INSPECTION FORM-DOC-002 REV.00
JDS ENERGY & MINING INC. | STRATAGOLD EAGLE GOLD
PROJECT #: CB201 | 18502

PROJECT MANAGER: DUSTIN DOLYNCHUK, P.ENG
QA/QC COORDINATOR: RYAN DE MILLIANO, C.E.T.
SUPERINTENDENT: GARRY DAHL

# FORMWORK & FALSEWORK PRE POUR | QA INSPECTION

Rev 00 May 4, 2018

| | |
|---|---|
| SUBCONTRACTOR: CLARK BUILDERS | INSPECTION DATE: August 25, 2018 |
| SUBCONTRACTOR CONTACT PERSON: DAN PELLETIER / GARRY HOSEY | DATE OF POUR: AUGUST 28, 2018 |
| INSPECTOR(S): Ryan de Milliano (CB QA) | |
| LOCATION: Area 3320 Secondary & Pedestals (x7) Type P1 // Footings (x2) GL 1.4/55 | |
| DRAWING REV: 01/00/01 | DRAWING NO.(S): 3320-231-260-0002 R1/4R0/8R1 SPEC SECTION(S): 503 2000 |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Location, survey, dimension and grades as required | X | ☐ | ☐ |
| 2.0 | Plumbness and Flatness verified | X | ☐ | ☐ |
| 3.0 | Joints are aligned and watertight. | X | ☐ | ☐ |
| 4.0 | Formwork shop drawings are Engineered and reviewed | X | ☐ | ☐ |
| 5.0 | Re-used formwork reconditioned and treated | X | ☐ | ☐ |
| 6.0 | Formwork and ties according to finishing requirements. Confirm no holes in the concrete surface are greater than 25mm in diameter or expose steel at less than 25mm from surface. As per spec. | X | ☐ | ☐ |
| 7.0 | Installation of embeds are located and secured | X | ☐ | ☐ |
| 8.0 | Chamfer requirements checked. 25mm chamfers required for all exterior corners and edges exposed to view including horizontal edges of pads. | X | ☐ | ☐ |
| 9.0 | Key ways and/or other provisions according to design are provided in construction joints | X | ☐ | ☐ |
| 10.0 | Inspect types of form spacers, ties and bracing. | X | ☐ | ☐ |
| 11.0 | Spacing of ties to be set to a pattern | X | ☐ | ☐ |
| 12.0 | Expansion, construction, contraction joints as required & located as coordinated with structural Engineer | X | ☐ | ☐ |
| 13.0 | Forms secured against movement during placing | X | ☐ | ☐ |
| 14.0 | Forms are braced for alignment and blow out | X | ☐ | ☐ |
| 15.0 | Forms are cleaned of all debris, and dry, prior to concrete placement including standing water. | X | ☐ | ☐ |
| 16.0 | Openings in formwork permit inspection and cleaning, placing and compaction of concrete, and forming and processing of construction joints. | X | ☐ | ☐ |
| 17.0 | Formwork has been coated with release agent prior to rebar placement. | X | ☐ | ☐ |
| | | ☐ | ☐ | ☐ |

COMMENTS:

ATTACHMENT(S):

DEFICIENCIES NOTES:

Some Standing water and styrofoam in bottom. Vacuumed out during inspection.

INITIAL INSPECTION

INSPECTOR: Ryan de Milliano TITLE Project Coordinator (QA) DATE: August 25, 2018

RE-INSPECTION (DEFICIENCIES COMPLETED)

INSPECTOR: N/R TITLE _____ DATE: _____

CLARK BUILDERS
ENERGY & RESOURCES

PROJECT MANAGER: DUSTIN DOLYNCHUK, P.ENG
QA/QC COORDINATOR: RYAN DE MILLIANO, C.E.T.
SUPERINTENDENT: GARRY DAHL

# CONCRETE REINFORCEMENT PRE POUR

Rev 00 May 4, 2018

| | |
|---|---|
| SUBCONTRACTOR: Ultimate Reinforcing / McNish | INSPECTION DATE: August 25, 2018 |
| SUBCONTRACTOR CONTACT PERSON: Dan Peltier / Gary Hosey | ACTION BY: |
| INSPECTOR(S): Ryan deMilliano (CB QA) | |
| LOCATION: Area 3320 Secondary ~~[illegible]~~ & Pedestals (x7) type P1 // 2 Footings (GL 1.4 & 5.5) | |
| DRAWING REV: 01/00/01 DRAWING NO.(S): 3320-231-260-0002/0004/0008 | SPEC SECTION(S): 5032000 |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A | ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|---|---|---|---|---|
| 1.0 | Grade (400W unless otherwise noted) and type of steel delivered and installed as required by approved drawings. | X | ☐ | ☐ | 10.0 | Bars tied and supported to prevent displacement | X | ☐ | ☐ |
| 2.0 | Inspect rebar distribution, spacing and cover per design/project requirements. | X | X | ☐ | 11.0 | Spacers, tie wire and chairs as required | X | ☐ | ☐ |
| 3.0 | Length of splices as specified | X | ☐ | ☐ | 12.0 | Conduits at design location and minimum separation from rebar as specified | ☐ | ☐ | X |
| 4.0 | Staggered splices as specified | X | ☐ | ☐ | 13.0 | No contact of bars is made with dissimilar metals as per CSA A23.1 | X | ☐ | ☐ |
| 5.0 | Any mechanical splices have been approved by the owner prior to install | ☐ | ☐ | X | 14.0 | Bars, nails or tie wire not sticking out from surfaces that allow rusting/corrosion | X | ☐ | ☐ |
| 6.0 | Bars cleaned and free of material that may reduce bond including loose rust, scale, oil, structural defects and that they are uncoated and unpainted. | X | ☐ | ☐ | 15.0 | Rebar is welds inspected by qualified inspectors certified to CSA W178.2 | X | ☐ | X |
| 7.0 | Dowels at wall ends, construction joints, and openings as specified (length, location, size, etc.) | X | ☐ | ☐ | 16.0 | No rebar congestion or other obstruction for deposit of concrete | X | ☐ | ☐ |
| 8.0 | No unauthorized field bent bars including hooks installed | X | ☐ | ☐ | 17.0 | Adjustments required for interfering items (piping, inserts, sleeves, etc.) have been submitted and approved by owner. | ☐ | ☐ | X |
| | Resolve conflicts between embedded items and reinforcement | X | | | 18.0 | Rebar was stored off ground to prevent damage/corrosion | X | | |
| 9.0 | When authorized, field bends done without heat and inspected for fissures or cracks. | ☐ | ☐ | X | 19.0 | Review drawings for anchors, piping, sleeves, boxes | X | ☐ | ☐ |

COMMENTS:

ATTACHMENT(S):

DEFICIENCIES NOTES:

7.0 Horz. bars on both footing required 4x20M on all sides. Only 2x20m at time of inspection. Deficit w/ultimate placed remaining horizontals. Photo taken/fixed

19.0 Anchors (x2) were not tied securely to the reinforcing, fixed during insp.

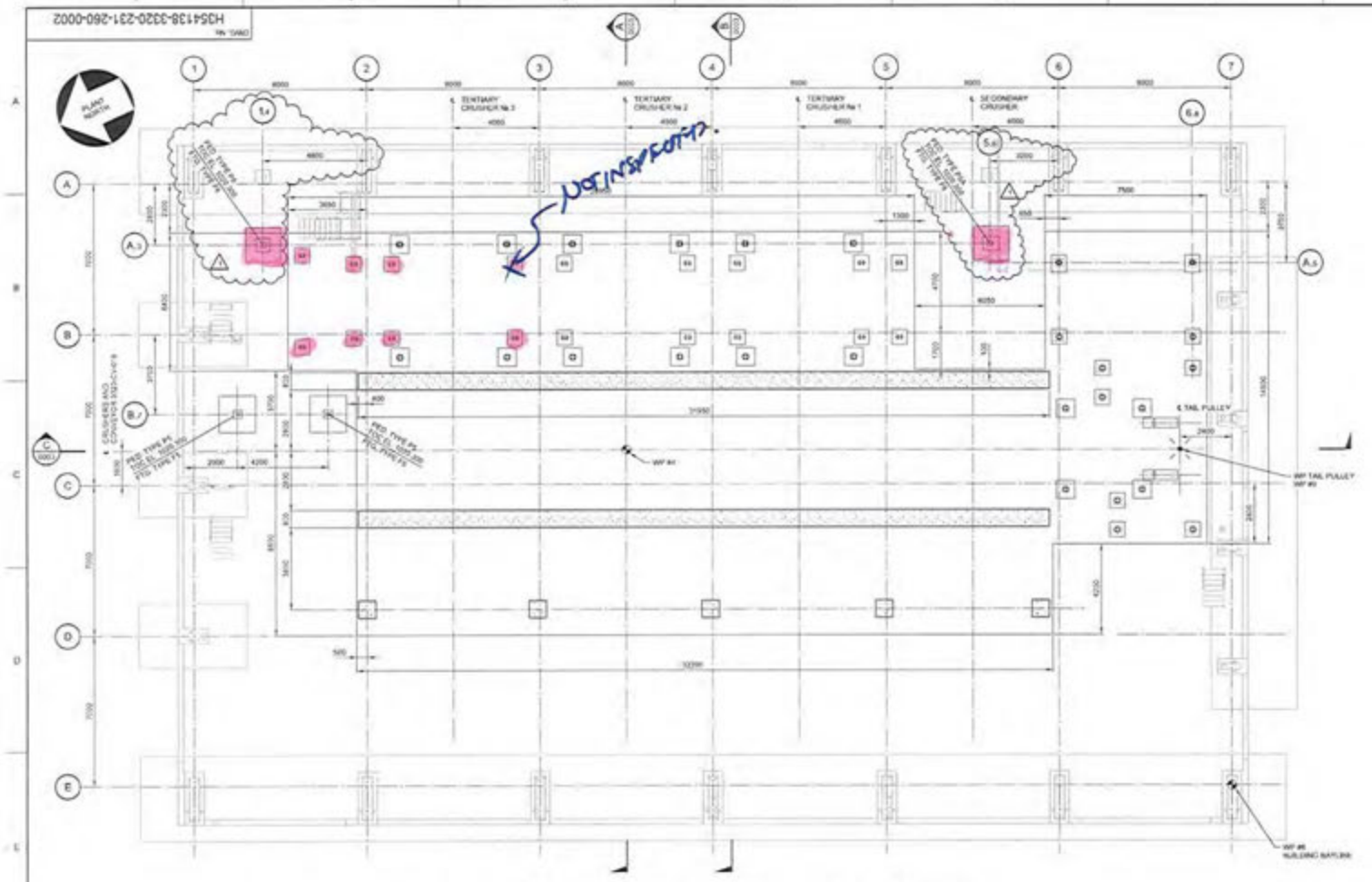
INITIAL INSPECTION

INSPECTOR: Ryan deMilliano // [signature] TITLE Project Coordinator DATE: August 25, 2018

RE-INSPECTION (DEFICIENCIES COMPLETED)

INSPECTOR: D'Arcy Comerford // [signature] TITLE Field Engineer DATE: Aug 25, 2018

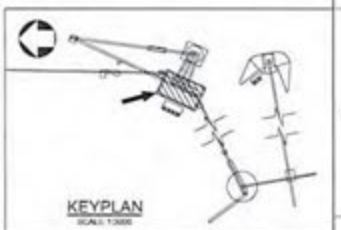
IN




CRUSHER AND SCREEN SUPPORT - BASE PLAN - GENERAL ARRANGEMENT

NOTES:

1. FOR GENERAL NOTES SEE DRAWING H354138-3320-231-260-0001.



KEYPLAN

SCALE: 1:3000

| DRAWING No. | DRAWING TITLE |
|---|---|
| REFERENCE DRAWINGS | |

REG. PROFESSIONAL

| No. | DESCRIPTION | BY | CHK'D | DATE |
|---|---|---|---|---|
| 1 | HOLD REMOVED, FOOTING TYPE F6 ADDED | PJ | EA | 2018-05-28 |
| 0 | APPROVED FOR CONSTRUCTION | PJ | EA | 2018-05-08 |

REVISIONS

HATCH

| | | |
|---|---|---|
| DRAFTSPERSON | P. JIVKEV | NR |
| DESIGNER | H. LE | NR |
| CHECKER | E. AKINCI | 2018-05-28 |
| DESIGN COORD. | S. PERKINS | |
| RESP. ENG. | E. AKINCI | 2018-05-28 |
| LEAD DISC. ENG. | E. AKINCI | 2018-05-28 |
| ENG. MANAGER | B. RUSTAD | |
| PROJ. MANAGER | B. RUSTAD | |

| ROLE | NAME | SIGNATURE & DATE |
|---|---|---|
| DRAWING APPROVAL STATUS: | Approved for Construction | |

StrataGold Corporation

EAGLE GOLD PROJECT

SECONDARY CRUSHING
CRUSHER AND SCREEN SUPPORT FDN.
BASE PLAN - GENERAL ARRANGEMENT

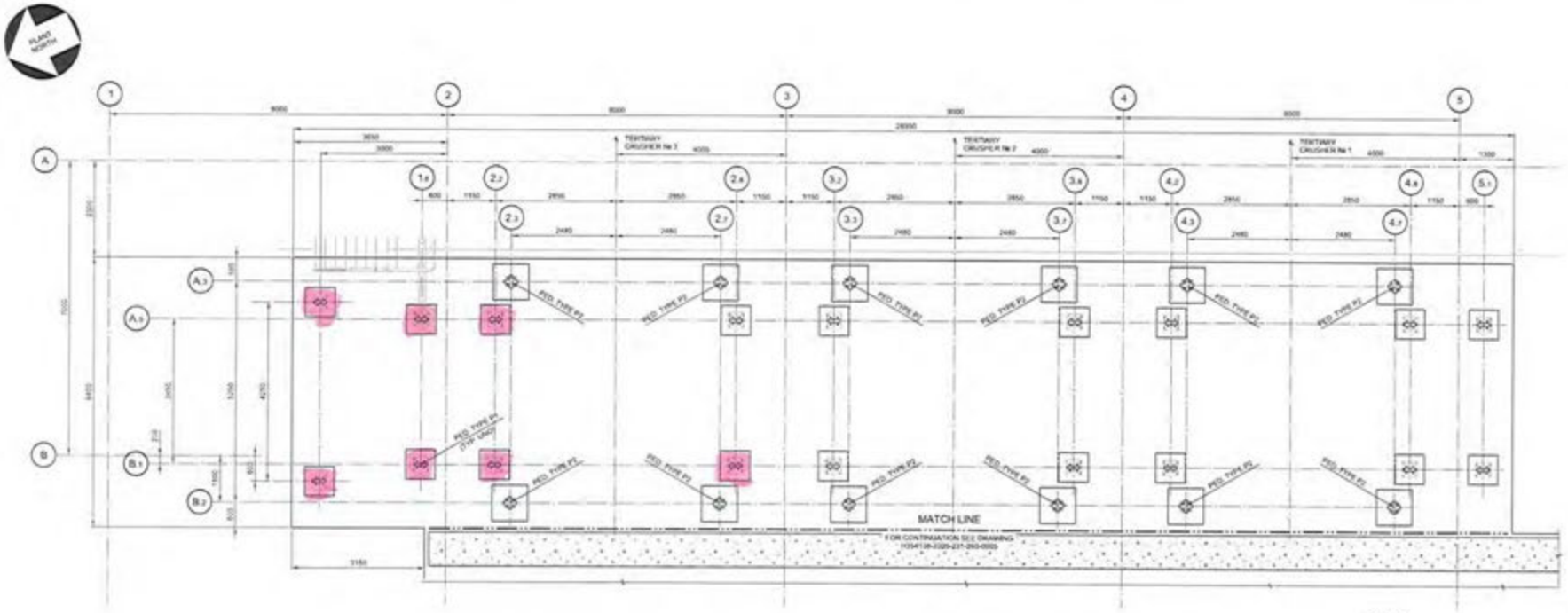
SCALE 1:100 OR AS NOTED

DWG. No. H354138-3320-231-260-0002

REV 1

SHEET SIZE: D

H354138-3320-231-260-0004



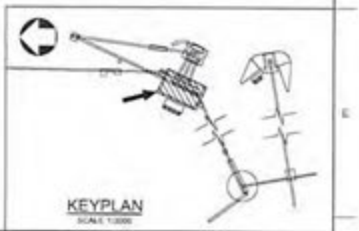

NOTES:

1. FOR GENERAL NOTES SEE DRAWING H354138-3320-231-260-0001.

## CRUSHER AND SCREEN SUPPORT FOUNDATION - PARTIAL PLAN

TOP OF PAD EL. 1020.350
TOP OF FOOTING EL. 1019.500
UG FTG EL. 1018.500

PERMIT TO PRACTICE
HATCH
Per: [illegible]
MAY 4, 2018
PERMIT NUMBER: P7152
Engineer of Record
Signature of Firm




| DRAWING No. | DRAWING TITLE |
|---|---|
| REFERENCE DRAWINGS | |

REG. PROFESSIONAL

| No. | DESCRIPTION | BY | CHKD | DATE |
|---|---|---|---|---|
| 0 | APPROVED FOR CONSTRUCTION | PJ | EA | 2018-05-04 |

REVISIONS

HATCH

| | | |
|---|---|---|
| DRAWTSPERSON | P. JEANCY | |
| DESIGNER | P. LI | |
| CHECKER | F. AKINCI | |
| DESIGN COORD. | S. PEKKING | |
| RFI SP. ENG. | F. AKINCI | |
| LEAD DISC. ENG. | F. AKINCI | |
| ENG. MANAGER | B. RUSTAD | |
| PROJ. MANAGER | B. RUSTAD | |

| ROLE | NAME | SIGNATURE & DATE |
|---|---|---|
| DRAWING APPROVAL STATUS: | Approved for Construction | |

StrataGold Corporation

EAGLE GOLD PROJECT

SECONDARY CRUSHING
CRUSHER AND SCREEN SUPPORT FDN.
PARTIAL PLAN - SHEET 1

| SCALE | DWG. No. | REV |
|---|---|---|
| 1:50 (24 AS NOTED) | H354138-3320-231-260-0004 | 0 |

# CONCRETE POST POUR INSPECTION

Rev 00 May 4, 2018

| | |
|---|---|
| INSPECTOR(S): Ryan deMilvano (CB) | SPEC SECTION(S): S03 30 00 – Cast-In-Place |
| TYPE OF FINISH: F1 Below Grade. | DATE OF INSPECTION: August 27, 2018 (MDW) |
| AREA AND LOCATION(S): Secondary Crusher: Footings and Pilasters Prior to Concrete and Backfill. | |

| GENERAL REQUIREMENTS | PASS | FAIL | N/A | REMARKS |
|---|---|---|---|---|
| Curing compounds not used on any surface against which additional concrete or materials are to be bonded. | ☒ | ☐ | ☐ | |
| Fresh concrete barricaded/ protected from mechanical disturbance. | ☒ | ☐ | ☐ | As req'd. |
| Where concrete is used for filling, the chipped opening shall not be less than 75mm in depth. | ☐ | ☐ | ☒ | |
| Patches exposed to view shall blend with surrounding surfaces. | ☒ | ☐ | ☐ | |
| Contractor shall clean all exposed concrete surfaces of all encrustations of cement, mortar, or grout and shall remove unsightly stains. | ☒ | ☐ | ☐ | |
| Concrete appears proper and devoid of any honeycomb, cold joints, droppings or other defects | ☒ | ☐ | ☐ | |
| Removal of all concrete rubble and dispose of at an appropriate location. | ☒ | ☐ | ☐ | |
| Surface of concrete finished against forms has a smooth, dense finish free from cracks, free from projections, pits, and honeycomb and in proper alignment. | ☒ | ☐ | ☐ | |
| COLD WEATHER REQUIREMENTS (WHEN AMB. TEMP < 5°C) | PASS | FAIL | N/A | REMARKS |
| Protection in place until 70% of the 28-day strength has been reached. | ☐ | ☐ | ☒ | |
| Cold weather protection provided by means of heated enclosures, coverings, insulation, or a suitable approved combination of these methods during complete curing period. | ☐ | ☐ | ☒ | |
| Water not sitting in recesses, shear pockets, groves, bolt sleeves during heat and Hoarding period. | ☐ | ☐ | ☒ | |

| | |
|---|---|
| COMMENTS: | |
| | |
| | |
| | |
| ATTACHMENT(S): | |
| | |

**INITIAL INSPECTION**

PRINT/ SIGN: Ryan deMilvano TITLE Project Coordinator (cert) DATE: August 27, 2018.

**JDS INSPECTION**

PRINT/ SIGN: D'ARCY TITLE _____ DATE: _____

— PARTIALLY BURRIED AT TIME OF POST POUR (PICTURES AND PREVIOUS INFORMAL INSPECTION ...

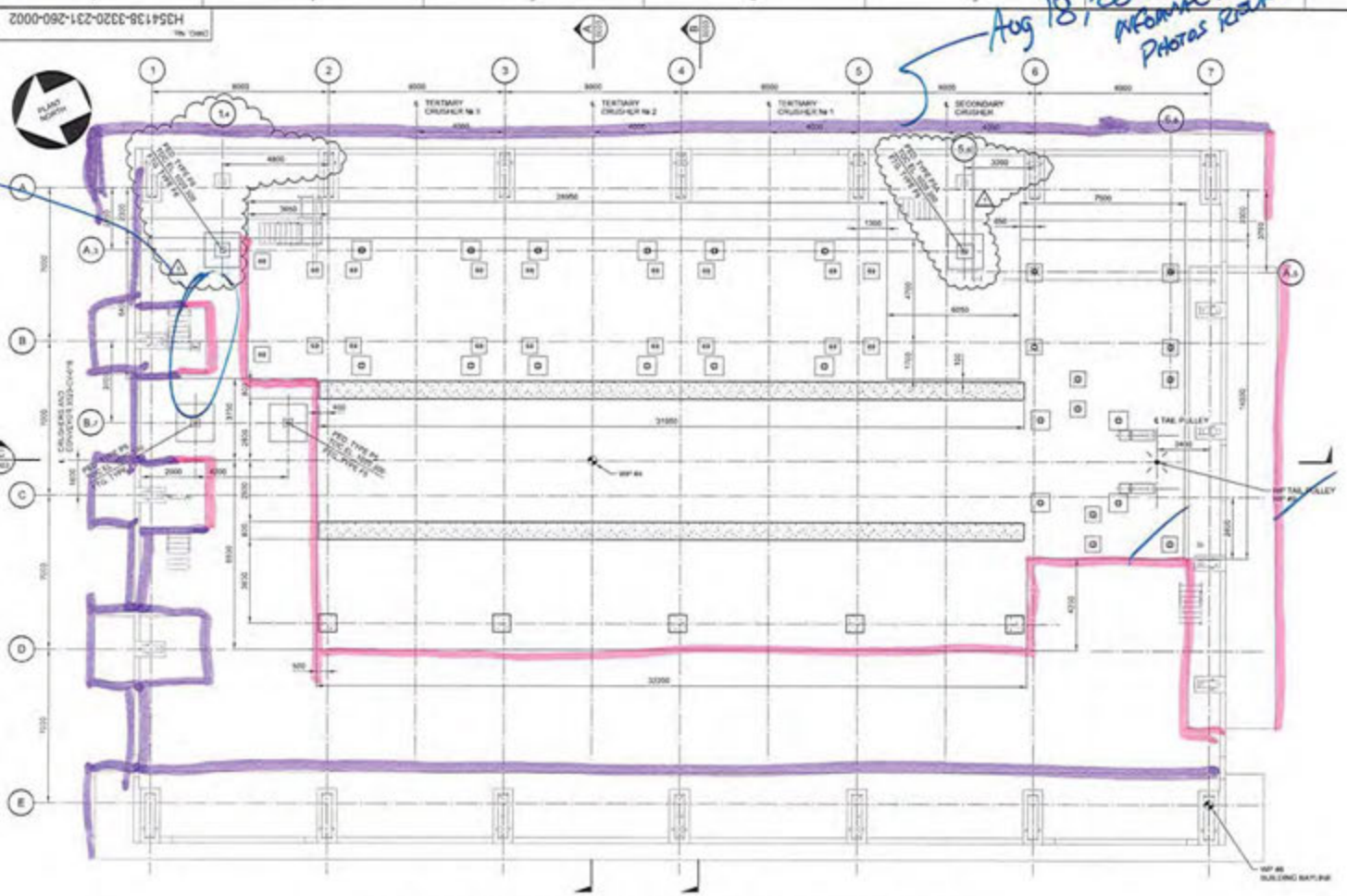
— EXPOSED/INSPECTED/PASSED.

Some splatter cleaned during inspection

Aug 18, 2018 INFORMAL INSPECTION. PHOTOS REVIEWED.

SOME SMALL CLEAN REQUIRED BEFORE BACKFILL

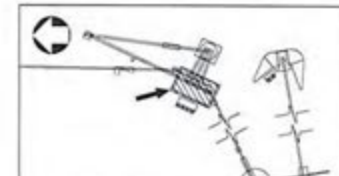
AUGUST 27, 2018




CRUSHER AND SCREEN SUPPORT - BASE PLAN - GENERAL ARRANGEMENT

PERMIT TO PRACTICE
HATCH
SIGNATURE
DATE MAY 28, 2018
PERMIT NUMBER PP154

NOTES:
1. FOR GENERAL NOTES SEE DRAWING H354138-3320-231-260-0001.



KEYPLAN

| No. | DESCRIPTION | BY | CHK'D | DATE |
|---|---|---|---|---|
| 1 | HOLD REMOVED, FOOTING TYPE F8 ADDED | PJ | EA | 2018-05-28 |
| 0 | APPROVED FOR CONSTRUCTION | PJ | EA | 2018-05-04 |

REVISIONS

| ROLE | NAME | SIGNATURE & DATE |
|---|---|---|
| DRAFTSPERSON | P. JAVAEV | NR |
| DESIGNER | H.LU | NR |
| CHECKER | E. AKINCI | |
| DESIGN COORD. | S. PERKINS | |
| RESP. ENG. | E. AKINCI | |
| LEAD DISC. ENG. | E. AKINCI | |
| ENG. MANAGER | B. RUSTAD | |
| PROJ. MANAGER | B. RUSTAD | |

DRAWING APPROVAL STATUS: Approved for Construction

HATCH

StrataGold Corporation

EAGLE GOLD PROJECT

SECONDARY CRUSHING
CRUSHER AND SCREEN SUPPORT FDN.
BASE PLAN - GENERAL ARRANGEMENT

SCALE 1:100 DR AS NOTED | DWG. No. H354138-3320-231-260-0002 | REV 1

SHEET SIZE: D

DRAWING No. | DRAWING TITLE | REFERENCE DRAWINGS | REG. PROFESSIONAL

CLARK BUILDERS
ENERGY & RESOURCES

CB-INSPECTION FORM-DOC-002 REV.00
JDS ENERGY & MINING INC. | STRATAGOLD EAGLE GOLD
PROJECT #: CB201 | 18502

PROJECT MANAGER: DUSTIN DOLYNCHUK, P.ENG
QA/QC COORDINATOR: RYAN DE MILLIANO, C.E.T.
SUPERINTENDENT: GARRY DAHL

# FORMWORK & FALSEWORK PRE POUR | QA INSPECTION

Rev 00 May 4, 2018

| | |
|---|---|
| SUBCONTRACTOR: CLARK BUILDERS | INSPECTION DATE: AUG. 29 |
| SUBCONTRACTOR CONTACT PERSON: DAN PELLETIER | DATE OF POUR: AUG. 31 |
| INSPECTOR(S): JACKSON WENGER | |
| LOCATION: 3320 SECONDARY/TERTIARY CRUSHING, WALL BETWEEN GLB-C, PEDESTALS | |
| DRAWING REV: 1 | DRAWING NO.(S): 3320-251-260-C088/0006/0007 SPEC SECTION(S): 033 10 00 |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Location, survey, dimension and grades as required | ☑ | ☐ | ☐ |
| 2.0 | Plumbness and Flatness verified | ☑ | ☐ | ☐ |
| 3.0 | Joints are aligned and watertight. | ☐ | ☐ | ☑ |
| 4.0 | Formwork shop drawings are Engineered and reviewed | ☑ | ☐ | ☐ |
| 5.0 | Re-used formwork reconditioned and treated | ☑ | ☐ | ☐ |
| 6.0 | Formwork and ties according to finishing requirements. Confirm no holes in the concrete surface are greater than 25mm in diameter or expose steel at less than 25mm from surface. As per spec. | ☑ | ☐ | ☐ |
| 7.0 | Installation of embeds are located and secured | ☑ | ☐ | ☐ |
| 8.0 | Chamfer requirements checked. 25mm chamfers required for all exterior corners and edges exposed to view including horizontal edges of pads. | ☑ | ☐ | ☐ |
| 9.0 | Key ways and/or other provisions according to design are provided in construction joints | ☑ | ☐ | ☐ |
| 10.0 | Inspect types of form spacers, ties and bracing. | ☑ | ☐ | ☐ |
| 11.0 | Spacing of ties to be set to a pattern | ☑ | ☐ | ☐ |
| 12.0 | Expansion, construction, contraction joints as required & located as coordinated with structural Engineer | ☑ | ☐ | ☐ |
| 13.0 | Forms secured against movement during placing | ☑ | ☐ | ☐ |
| 14.0 | Forms are braced for alignment and blow out | ☑ | ☐ | ☐ |
| 15.0 | Forms are cleaned of all debris, and dry, prior to concrete placement including standing water. | ☑ | ☐ | ☐ |
| 16.0 | Openings in formwork permit inspection and cleaning, placing and compaction of concrete, and forming and processing of construction joints. | ☑ | ☐ | ☐ |
| 17.0 | Formwork has been coated with release agent prior to rebar placement. | ☑ | ☐ | ☐ |
| | | ☐ | ☐ | ☐ |

COMMENTS:

the i check all anchor bolts.

ATTACHMENT(S):

DEFICIENCIES NOTES:

Clean boxes of debris
P4 A5 & 6.1 move bolt to achieve min cover

INITIAL INSPECTION

INSPECTOR: JACKSON WENGER TITLE PROJECT COORD. DATE: AUG. 29/2018

RE-INSPECTION (DEFICIENCIES COMPLETED)

INSPECTOR: Matt Cavendish TITLE Field Eng DATE: Aug 29/2018

CLARK BUILDERS
ENERGY & RESOURCES

# CONCRETE REINFORCEMENT PRE POUR

Rev 00 May 4, 2018

| | |
|---|---|
| SUBCONTRACTOR: ULTIMATE REINFORCING | INSPECTION DATE: AUG. 29/2018 |
| SUBCONTRACTOR CONTACT PERSON: DEREK SAUDL | ACTION BY: |
| INSPECTOR(S): JACKSON WENGER, MATT COVERDALE | |
| LOCATION: SECONDARY TERTIARY CRUSHING 3520 WALL BETWEEN GLC-B, PEDS | |
| DRAWING REV: 1 | DRAWING NO.(S): 3520-231-260-0008/6/9 SPEC SECTION(S): 03 20 00 |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Grade (400W unless otherwise noted) and type of steel delivered and installed as required by approved drawings. | ☑ | ☐ | ☐ |
| 2.0 | Inspect rebar distribution, spacing and cover per design/project requirements. | ☑ | ☐ | ☐ |
| 3.0 | Length of splices as specified | ☑ | ☐ | ☐ |
| 4.0 | Staggered splices as specified | ☑ | ☐ | ☐ |
| 5.0 | Any mechanical splices have been approved by the owner prior to install | ☐ | ☐ | ☑ |
| 6.0 | Bars cleaned and free of material that may reduce bond including loose rust, scale, oil, structural defects and that they are uncoated and unpainted. | ☑ | ☐ | ☐ |
| 7.0 | Dowels at wall ends, construction joints, and openings as specified (length, location, size, etc.) | ☑ | ☐ | ☐ |
| 8.0 | No unauthorized field bent bars including hooks installed | ☑ | ☐ | ☐ |
| | Resolve conflicts between embedded items and reinforcement | | | ✓ |
| 9.0 | When authorized, field bends done without heat and inspected for fissures or cracks. | ☐ | ☐ | ☑ |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 10.0 | Bars tied and supported to prevent displacement | ☑ | ☐ | ☐ |
| 11.0 | Spacers, tie wire and chairs as required | ☑ | ☐ | ☐ |
| 12.0 | Conduits at design location and minimum separation from rebar as specified | ☐ | ☐ | ☑ |
| 13.0 | No contact of bars is made with dissimilar metals as per CSA A23.1 | ☑ | ☐ | ☐ |
| 14.0 | Bars, nails or tie wire not sticking out from surfaces that allow rusting/corrosion | ☑ | ☐ | ☐ |
| 15.0 | Rebar is welds inspected by qualified inspectors certified to CSA W178.2 | ☐ | ☐ | ☑ |
| 16.0 | No rebar congestion or other obstruction for deposit of concrete | ☑ | ☐ | ☐ |
| 17.0 | Adjustments required for interfering items (piping, inserts, sleeves, etc.) have been submitted and approved by owner. | ☐ | ☐ | ☑ |
| 18.0 | Rebar was stored off ground to prevent damage/corrosion | ✓ | | |
| 19.0 | Review drawings for anchors, piping, sleeves, boxes | ☑ | ☐ | ☐ |

COMMENTS:
CLEAN WALL DOWELS PRIOR TO POUR

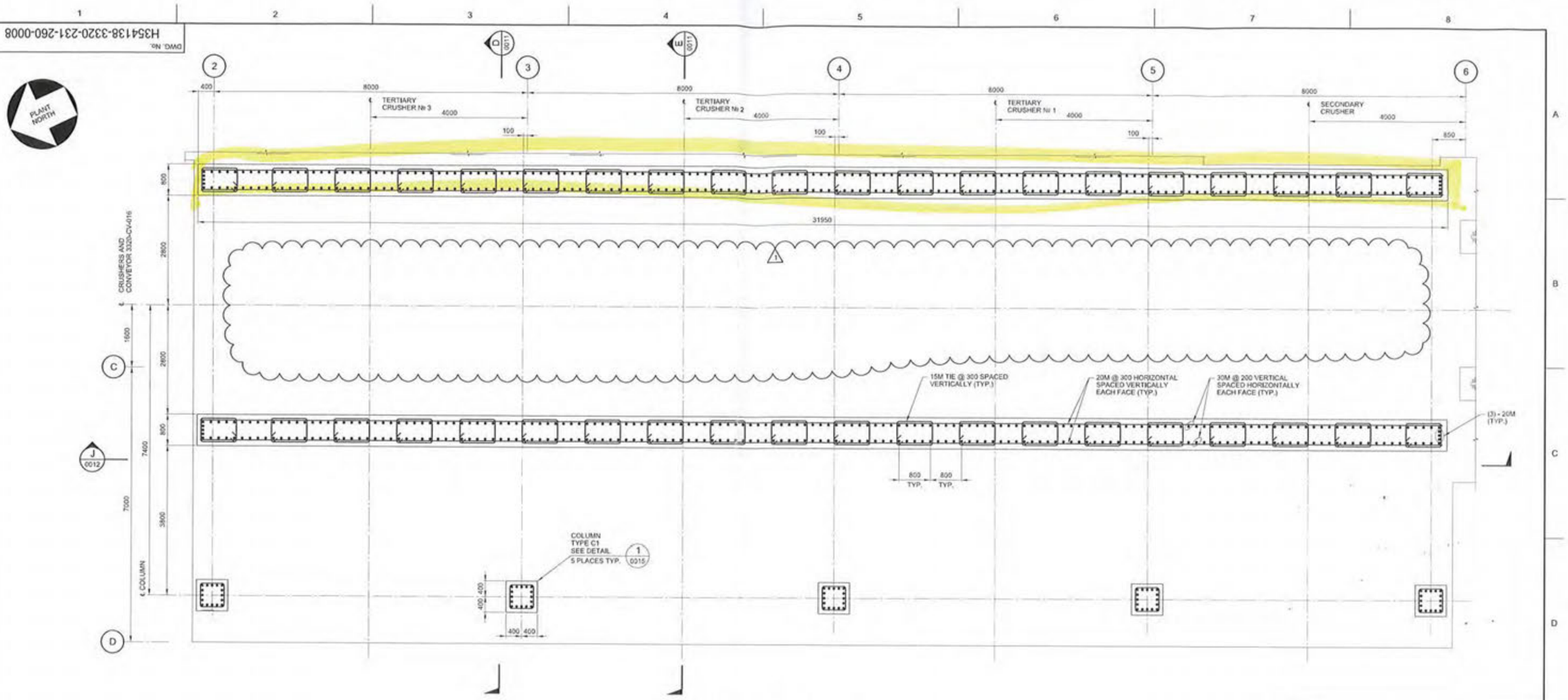
ATTACHMENT(S):

DEFICIENCIES NOTES:
- Ensure 300mm spacing on wall horizontals, clean concrete off bar
- Tie dowels to stirrups in all peds & missing ties.

INITIAL INSPECTION
INSPECTOR: JACKSON WENGER TITLE PROJECT COORDINATOR DATE: AUG. 29

RE-INSPECTION (DEFICIENCIES COMPLETED)
INSPECTOR: Matt Coverdale Matt C TITLE Field Eng DATE: Aug 29

DWG. No. H354138-3320-231-260-0008



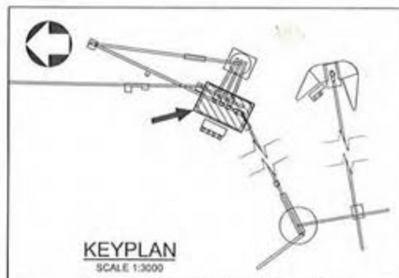

## WALL REINFORCEMENT - PLAN

TOP OF FTG. EL. 1019.500
L/S FTG. EL. 1018.500

NOTES:

1. FOR NOTES SEE DRAWING H354138-3320-231-260-0001.

0 500 1000 1500 2000 2500
1:50 SCALE IN MILLIMETRES



KEYPLAN
SCALE 1:3000

| No. | DESCRIPTION | BY | CHK'D | DATE |
|---|---|---|---|---|
| 1 | CONVEYOR PEDESTALS REMOVED | PJ | EA | 2018-05-28 |
| 0 | APPROVED FOR CONSTRUCTION | PJ | EA | 2018-05-04 |

REVISIONS

| DRAWING No. | DRAWING TITLE |
|---|---|

REFERENCE DRAWINGS

REG. PROFESSIONAL

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HATCH

| | | |
|---|---|---|
| DRAFTSPERSON | P. JIVAEV | NR |
| DESIGNER | H. LI | NR |
| CHECKER | E. AKINCI | |
| DESIGN COORD. | S. PERKINS | |
| RESP. ENG. | E. AKINCI | |
| LEAD DISC. ENG. | E. AKINCI | |
| ENG. MANAGER | B. RUSTAD | |
| PROJ. MANAGER | B. RUSTAD | |

| ROLE | NAME | SIGNATURE & DATE |
|---|---|---|
| DRAWING APPROVAL STATUS: | Approved for Construction | |

StrataGold Corporation

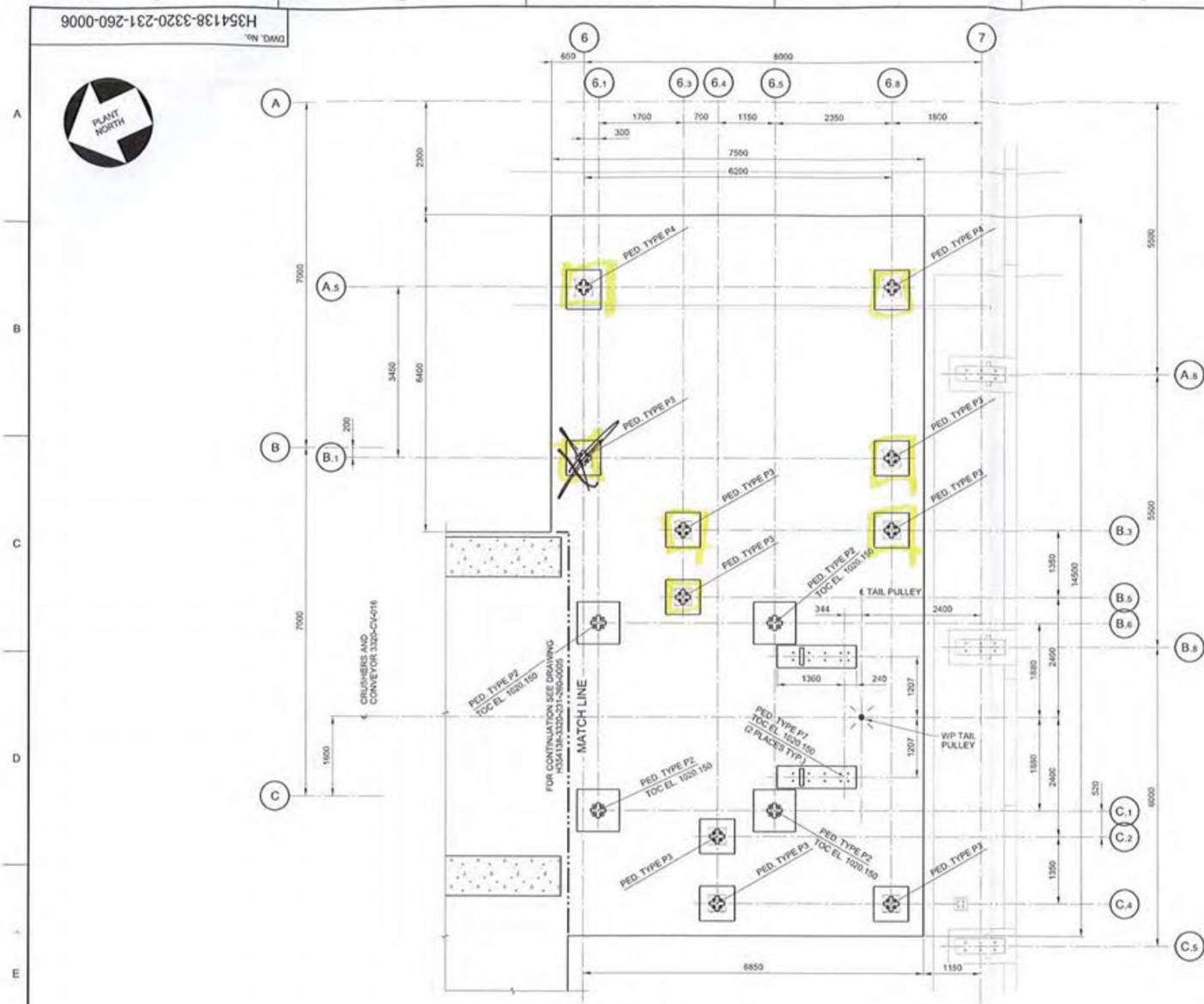
EAGLE GOLD PROJECT

SECONDARY CRUSHING
CRUSHER AND SCREEN SUPPORT FDN.
WALL REINFORCEMENT - PLAN

| SCALE | DWG. No. | REV |
|---|---|---|
| 1:50 OR AS NOTED | H354138-3320-231-260-0008 | 1 |

SHEET SIZE: D

SPLELS
PRINTED: 29-MAY-2018
By: pvaevnova
11:29



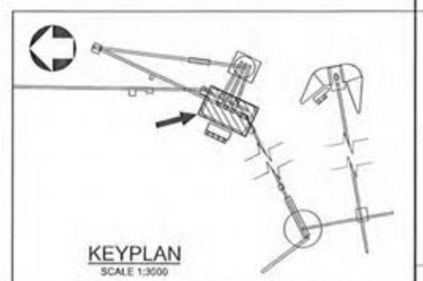

## CRUSHER AND SCREEN SUPPORT FOUNDATION - PARTIAL PLAN

TOP OF PED. EL. 1020.300 (TYP. UNO)
TOP OF FOOTING EL. 1019.500
U/S FTG. EL. 1018.500

0 500 1000 1500 2000 2500
1:50 SCALE IN MILLIMETRES

NOTES:

1. FOR GENERAL NOTES SEE DRAWING H354138-3320-231-260-0001.



KEYPLAN
SCALE 1:3000

| DRAWING No. | DRAWING TITLE |
|---|---|
| REFERENCE DRAWINGS | |

REG. PROFESSIONAL

| No. | DESCRIPTION | BY | CHK'D | DATE |
|---|---|---|---|---|
| 1 | HOLD REMOVED | PJ | EA | 2018-05-28 |
| 0 | APPROVED FOR CONSTRUCTION | PJ | EA | 2018-05-04 |

REVISIONS

HATCH

| ROLE | NAME | SIGNATURE & DATE |
|---|---|---|
| DRAFTSPERSON | P. JIVAEV | NR |
| DESIGNER | H. LI | NR |
| CHECKER | E. AKINCI | |
| DESIGN COORD. | S. PERKINS | |
| RESP. ENG. | E. AKINCI | |
| LEAD DISC. ENG. | E. AKINCI | |
| ENG. MANAGER | B. RUSTAD | |
| PROJ. MANAGER | B. RUSTAD | |

DRAWING APPROVAL STATUS: Approved for Construction

StrataGold Corporation

EAGLE GOLD PROJECT

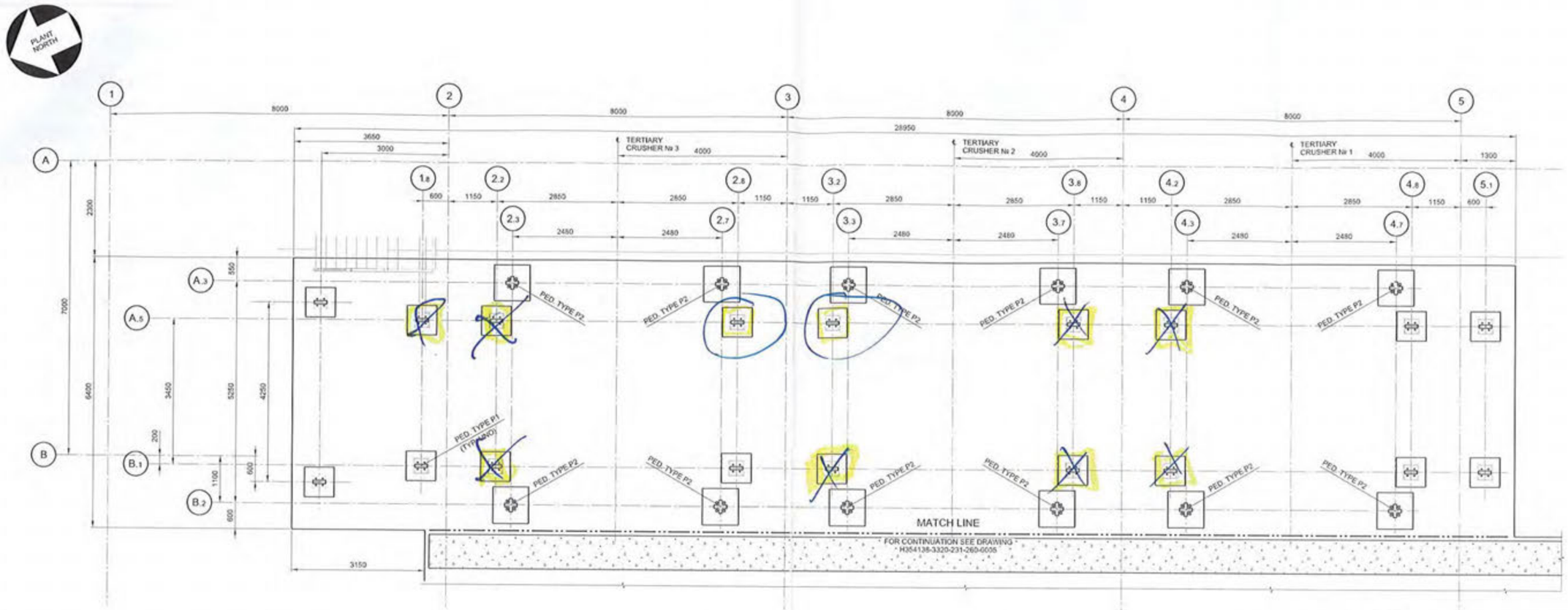
SECONDARY CRUSHING
CRUSHER AND SCREEN SUPPORT FDN.
PARTIAL PLAN - SHEET 3

SCALE 1:50 OR AS NOTED | DWG. No. H354138-3320-231-260-0006 | REV 1

SHEET SIZE: D

SFILELS
PRINTED: 28-MAY-2018 11:27
idc_pwservice

DWG. No. H354138-3320-231-260-0004



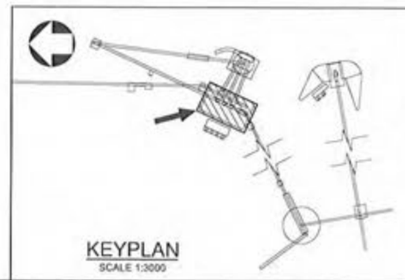

NOTES:

1. FOR GENERAL NOTES SEE DRAWING H354138-3320-231-260-0001.

## CRUSHER AND SCREEN SUPPORT FOUNDATION - PARTIAL PLAN

TOP OF PED. EL. 1020.300
TOP OF FOOTING EL. 1019.500
U/S FTG. EL. 1018.500

0 500 1000 1500 2000 2500
1:50 SCALE IN MILLIMETRES



KEYPLAN
SCALE 1:3000

| DRAWING No. | DRAWING TITLE |
|---|---|
| REFERENCE DRAWINGS | |

REG. PROFESSIONAL

| No. | DESCRIPTION | BY | CHK'D | DATE |
|---|---|---|---|---|
| 0 | APPROVED FOR CONSTRUCTION | PJ | EA | 2018-05-04 |

REVISIONS

HATCH

| ROLE | NAME | SIGNATURE & DATE |
|---|---|---|
| DRAFTSPERSON | P. JIVAEV | NR |
| DESIGNER | H. LI | NR |
| CHECKER | E. AKINCI | |
| DESIGN COORD. | S. PERKINS | |
| RESP. ENG. | E. AKINCI | |
| LEAD DISC. ENG. | E. AKINCI | |
| ENG. MANAGER | B. RUSTAD | |
| PROJ. MANAGER | B. RUSTAD | |

DRAWING APPROVAL STATUS: Approved for Construction

StrataGold Corporation

EAGLE GOLD PROJECT

SECONDARY CRUSHING
CRUSHER AND SCREEN SUPPORT FDN.
PARTIAL PLAN - SHEET 1

SCALE 1:50 OR AS NOTED | DWG. No. H354138-3320-231-260-0004 | REV 0

SHEET SIZE: D

SFILELS PRINTED: 04-MAY-2018 14:03
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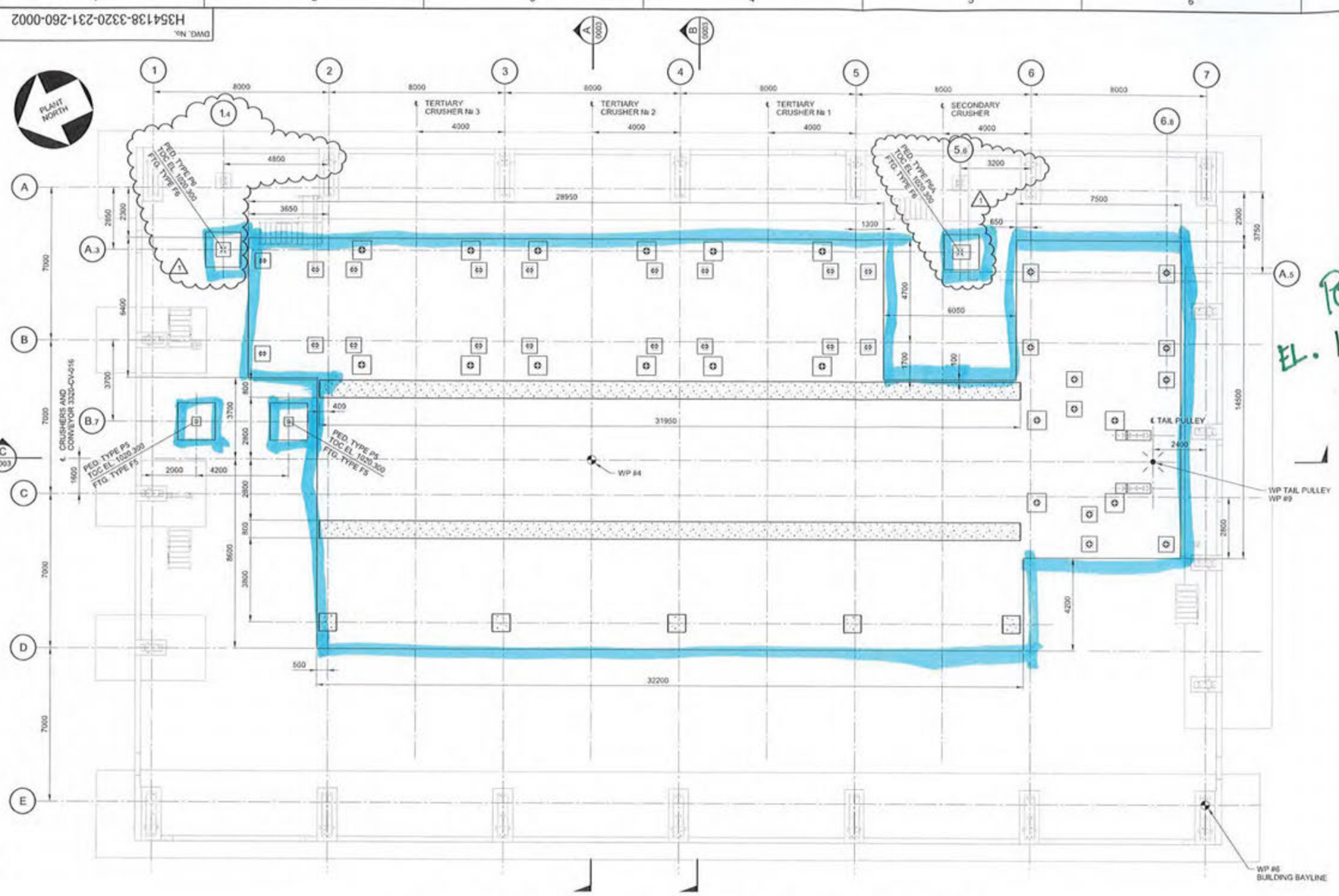
DWG. No. H354138-3320-231-260-0002



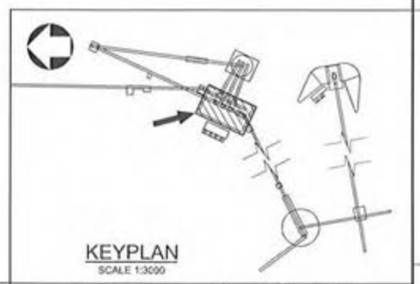

POST POUR/PIPE BACKFILL TO EL. 1019.500 (TOP OF FOOTING) SEPT. 3

## CRUSHER AND SCREEN SUPPORT - BASE PLAN - GENERAL ARRANGEMENT

TOP OF FOOTING EL. 1019.500
U/S FTG EL. 1018.500

NOTES:

1. FOR GENERAL NOTES SEE DRAWING H354138-3320-231-260-0001.



KEYPLAN
SCALE 1:3000

1:100 SCALE IN METRES

| REVISIONS | | | | | |
|---|---|---|---|---|---|
| No. | DESCRIPTION | BY | CHK'D | DATE | |
| 1 | HOLD REMOVED, FOOTING TYPE F6 ADDED | PJ | EA | 2018-05-28 | |
| 0 | APPROVED FOR CONSTRUCTION | PJ | EA | 2018-05-04 | |

| DRAWING No. | DRAWING TITLE |
|---|---|
| REFERENCE DRAWINGS | REG. PROFESSIONAL |

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HATCH

| | | |
|---|---|---|
| DRAFTSPERSON | P. JIVAEV | NR |
| DESIGNER | H. LI | NR |
| CHECKER | E. AKINCI | |
| DESIGN COORD. | S. PERKINS | |
| RESP. ENG. | E. AKINCI | |
| LEAD DISC. ENG. | E. AKINCI | |
| ENG. MANAGER | B. RUSTAD | |
| PROJ. MANAGER | B. RUSTAD | |
| ROLE | NAME | SIGNATURE & DATE |
| DRAWING APPROVAL STATUS: | Approved for Construction | |

StrataGold Corporation

EAGLE GOLD PROJECT

SECONDARY CRUSHING
CRUSHER AND SCREEN SUPPORT FDN.
BASE PLAN - GENERAL ARRANGEMENT

| SCALE | DWG. No. | REV |
|---|---|---|
| 1:100 OR AS NOTED | H354138-3320-231-260-0002 | 1 |

SHEET SIZE: D

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PRINTED: 28-MAY-2018
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CLARK BUILDERS
ENERGY & RESOURCES

# CONCRETE REINFORCEMENT PRE POUR

Rev 01 August 25, 2018

| | |
|---|---|
| SUBCONTRACTOR: Ultimate Reinforcing // McNish | INSPECTION DATE: Sept. 4/18 |
| SUBCONTRACTOR CONTACT PERSON: DAN PELLETIER | PROJ. POUR DATE: Sept. 4/18 |
| INSPECTOR(S): DAN PELLETIER | |
| LOCATION: Secondary Crusher Pedestals CP1, P2 + P3) | |
| DRAWING REV: / DRAWING NO.(S): | SPEC SECTION(S): S03 20 00 – Concrete Reinforcing Steel |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Grade (400W unless otherwise noted) and type of steel delivered and installed as required by approved drawings. | ☑ | ☐ | ☐ |
| 2.0 | Inspect rebar distribution, spacing and cover per design/project requirements. | ☑ | ☐ | ☐ |
| 3.0 | Length of splices as specified | ☐ | ☐ | ☑ |
| 4.0 | Staggered splices as specified | ☐ | ☐ | ☑ |
| 5.0 | Any mechanical splices have been approved by the owner prior to install | ☐ | ☐ | ☑ |
| 6.0 | Bars cleaned and free of material that may reduce bond including loose rust, scale, oil, structural defects and that they are uncoated and unpainted. | ☑ | ☐ | ☐ |
| 7.0 | Dowels at wall ends, construction joints, and openings as specified (length, location, size, etc.) | ☐ | ☐ | ☑ |
| 8.0 | No unauthorized field bent bars including hooks installed | ☑ | ☐ | ☐ |
| 9.0 | Resolve conflicts between embedded items and reinforcement | ☐ | ☐ | ☑ |
| 10.0 | When authorized, field bends done without heat and inspected for fissures or cracks. | ☐ | ☐ | ☑ |
| 11.0 | Bars tied and supported to prevent displacement | ☑ | ☐ | ☐ |
| 12.0 | Spacers, tie wire and chairs as required | ☑ | ☐ | ☐ |
| 13.0 | Conduits at design location and minimum separation from rebar as specified | ☐ | ☐ | ☑ |
| 14.0 | No contact of bars is made with dissimilar metals as per CSA A23.1 | ☑ | ☐ | ☐ |
| 15.0 | Bars, nails or tie wire not sticking out from surfaces that allow rusting/corrosion | ☑ | ☐ | ☐ |
| 16.0 | Rebar welds are inspected by qualified inspectors certified to CSA W178.2 | ☐ | ☐ | ☑ |
| 17.0 | No rebar congestion or other obstruction for deposit of concrete | ☑ | ☐ | ☐ |
| 18.0 | Adjustments required for interfering items (piping, inserts, sleeves, etc.) have been submitted and approved by owner. | ☐ | ☐ | ☑ |
| 19.0 | Rebar was stored off ground to prevent damage/corrosion | ☑ | ☐ | ☐ |
| 20.0 | Review drawings for anchors, piping, sleeves, boxes | ☑ | ☐ | ☐ |

COMMENTS:

ATTACHMENT(S):

DEFICIENCIES NOTES:

CLARK BUILDERS:

INSPECTOR: DAN PELLETIER TITLE Carpenter Foreman DATE: Sept. 4/18

JDS ENERGY & MINING:

INSPECTOR: _____ TITLE _____ DATE: _____

CLARK BUILDERS
ENERGY & RESOURCES



PROJECT MANAGER: DUSTIN DOLYNCHUK, P.ENG
QA/QC COORDINATOR: RYAN DE MILLIANO, C.E.T.
SUPERINTENDENT: GARRY DAHL

# FORMWORK & FALSEWORK PRE POUR | QA INSPECTION

Rev 01 August 25, 2018

| | |
|---|---|
| CONTRACTOR: Clark Builders | INSPECTION DATE: Sept. 4/18 |
| CONTRACTOR CONTACT PERSON: DAN PELLETIER | DATE OF POUR: Sept. 4/18 |
| INSPECTOR(S): DAN PELLETIER | |
| LOCATION: Secondary Crusher Pedestals (P1, P2+P3) | |
| DRAWING REV: | DRAWING NO.(S): SPEC SECTION(S): |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Location, survey, dimension and grades as required | ☑ | ☐ | ☐ |
| 2.0 | Plumbness and Flatness verified | ☑ | ☐ | ☐ |
| 3.0 | Joints are aligned and watertight. | ☑ | ☐ | ☐ |
| 4.0 | Formwork shop drawings are Engineered and reviewed | ☐ | ☐ | ☑ |
| 5.0 | Re-used formwork reconditioned and treated | ☑ | ☐ | ☐ |
| 6.0 | Formwork and ties according to finishing requirements. Confirm no holes in the concrete surface are greater than 25mm in diameter or expose steel at less than 25mm from surface. As per spec. | ☑ | ☐ | ☐ |
| 7.0 | Installation of embeds are located and secured | ☐ | ☐ | ☑ |
| 8.0 | Chamfer requirements checked. 25mm chamfers required for all exterior corners and edges exposed to view including horizontal edges of pads. | ☑ | ☐ | ☐ |
| 9.0 | Key ways and/or other provisions according to design are provided in construction joints | ☐ | ☐ | ☑ |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 10.0 | Inspect types of form spacers, ties and bracing. | ☑ | ☐ | ☐ |
| 11.0 | Spacing of ties to be set to a pattern | ☐ | ☐ | ☑ |
| 12.0 | Expansion, construction, contraction joints as required & located as coordinated with structural Engineer | ☐ | ☐ | ☑ |
| 13.0 | Forms secured against movement during placing | ☑ | ☐ | ☐ |
| 14.0 | Forms are braced for alignment and blow out | ☑ | ☐ | ☐ |
| 15.0 | Forms are cleaned of all debris, and dry, prior to concrete placement including standing water. | ☑ | ☐ | ☐ |
| 16.0 | Openings in formwork permit inspection and cleaning, placing and compaction of concrete, and forming and processing of construction joints. | ☑ | ☐ | ☐ |
| 17.0 | Formwork has been coated with release agent prior to rebar placement. | ☑ | ☐ | ☐ |
| 18.0 | Anchor Bolts and Embeds are secured to formwork. | ☑ | ☐ | ☐ |

COMMENTS:

ATTACHMENT(S):

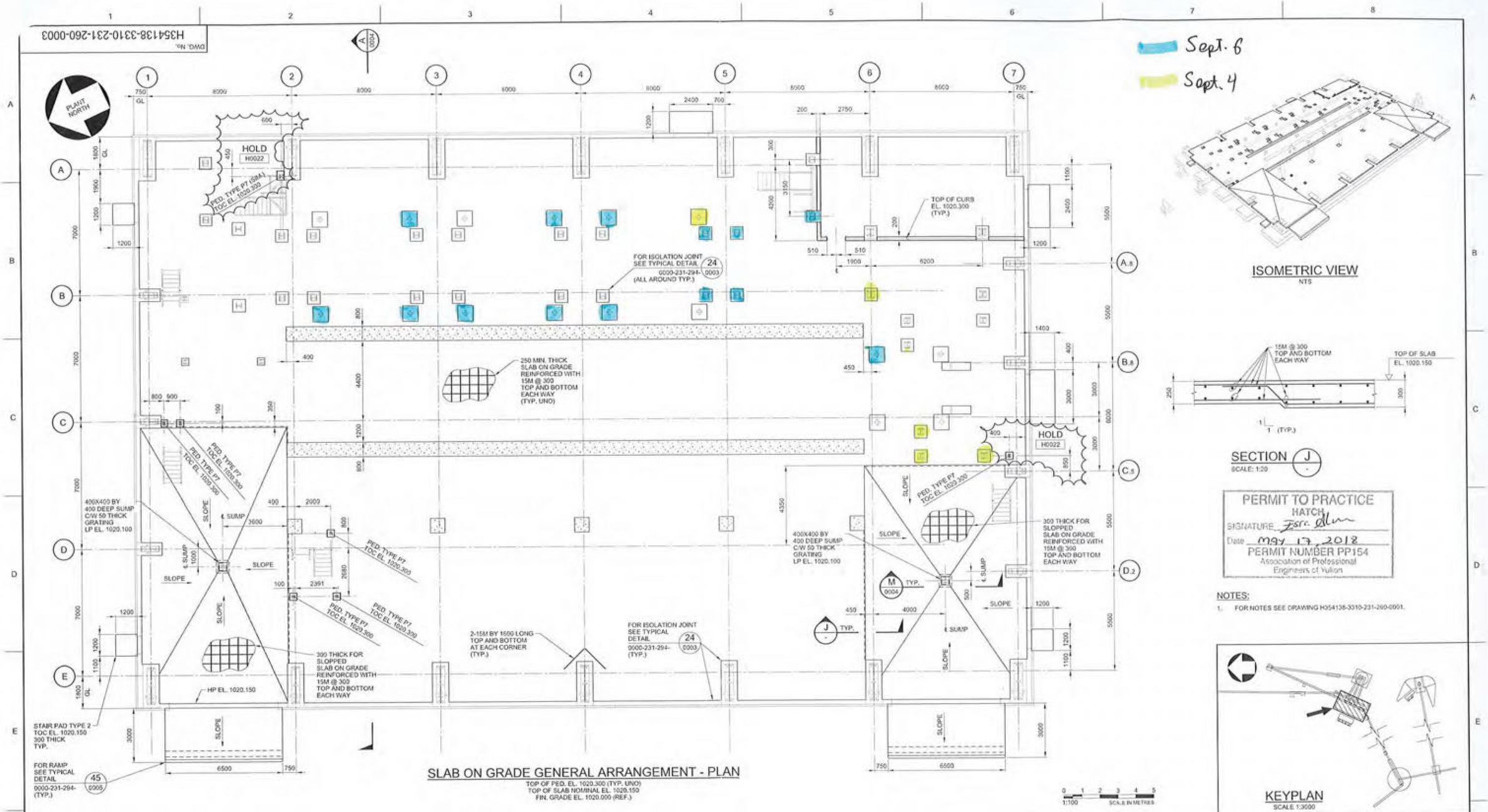
DEFICIENCIES NOTES:

INITIAL INSPECTION

INSPECTOR: DAN PELLETIER TITLE Carpenter Foreman DATE: Sept. 4/18

RE-INSPECTION (DEFICIENCIES COMPLETED)

INSPECTOR: _____ TITLE _____ DATE: _____




SLAB ON GRADE GENERAL ARRANGEMENT - PLAN

TOP OF PED. EL. 1020.300 (TYP. UNO)
TOP OF SLAB NOMINAL EL. 1020.150
FIN. GRADE EL. 1020.000 (REF.)



ISOMETRIC VIEW
NTS




SECTION J
SCALE: 1:20

PERMIT TO PRACTICE
HATCH
SIGNATURE Esra Akinci
Date MAY 17, 2018
PERMIT NUMBER PP154
Association of Professional Engineers of Yukon

NOTES:
1. FOR NOTES SEE DRAWING H354138-3310-231-260-0001.



KEYPLAN
SCALE 1:3000

| DRAWING No. | DRAWING TITLE |
|---|---|
| REFERENCE DRAWINGS | |

REG. PROFESSIONAL

PROFESSIONAL ENGINEER YUKON ESRA AKINCI TERRITORY
MAY 17, 2018

| No. | DESCRIPTION | BY | CHK'D | DATE |
|---|---|---|---|---|
| 0 | APPROVED FOR CONSTRUCTION | PJ | EA | 2018-05-17 |

REVISIONS

HATCH

| ROLE | NAME | SIGNATURE & DATE |
|---|---|---|
| DRAFTSPERSON | P. JIVAEV | NR |
| DESIGNER | H. LI | NR |
| CHECKER | E. AKINCI | |
| DESIGN COORD. | S. PERKINS | |
| RESP. ENG. | E. AKINCI | |
| LEAD DISC. ENG. | E. AKINCI | |
| ENG. MANAGER | B. RUSTAD | |
| PROJ. MANAGER | B. RUSTAD | |

DRAWING APPROVAL STATUS: Approved for Construction

StrataGold Corporation

EAGLE GOLD PROJECT

SEC/TERTIARY CRUSHING BUILDING
BUILDING FOUNDATION
SLAB ON GRADE - PLAN

SCALE 1:100 OR AS NOTED | DWG. No. H354138-3310-231-260-0003 | REV 0

SHEET SIZE: D

SFILE$ PRINTED: 17-MAY-2018 12:33

CLARK BUILDERS
ENERGY & RESOURCES

# CONCRETE REINFORCEMENT PRE POUR

Rev 00 May 4, 2018

| | |
|---|---|
| SUBCONTRACTOR: ULTIMATE REINFORCING | INSPECTION DATE: SEPT 7, 2018 |
| SUBCONTRACTOR CONTACT PERSON: JIMMY | ACTION BY: |
| INSPECTOR(S): ROMAN B, RYAN DEMILLIANO, GARRY DAHL | |
| LOCATION: SECONDARY PEDESTALS (14 LOCATIONS) | |
| DRAWING REV: 00 | DRAWING NO.(S): #3541 38-332-231-260-0004 SPEC SECTION(S): 503 20 00 |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Grade (400W unless otherwise noted) and type of steel delivered and installed as required by approved drawings. | X | | |
| 2.0 | Inspect rebar distribution, spacing and cover per design/project requirements. | X | | |
| 3.0 | Length of splices as specified | | | X |
| 4.0 | Staggered splices as specified | | | X |
| 5.0 | Any mechanical splices have been approved by the owner prior to install | | | X |
| 6.0 | Bars cleaned and free of material that may reduce bond including loose rust, scale, oil, structural defects and that they are uncoated and unpainted. | X | | |
| 7.0 | Dowels at wall ends, construction joints, and openings as specified (length, location, size, etc.) | X | | |
| 8.0 | No unauthorized field bent bars including hooks installed | X | | |
| | Resolve conflicts between embedded items and reinforcement | X | | |
| 9.0 | When authorized, field bends done without heat and inspected for fissures or cracks. | X | | |
| 10.0 | Bars tied and supported to prevent displacement | X | | |
| 11.0 | Spacers, tie wire and chairs as required | X | | |
| 12.0 | Conduits at design location and minimum separation from rebar as specified | | | X |
| 13.0 | No contact of bars is made with dissimilar metals as per CSA A23.1 | X | | |
| 14.0 | Bars, nails or tie wire not sticking out from surfaces that allow rusting/corrosion | X | | |
| 15.0 | Rebar is welds inspected by qualified inspectors certified to CSA W178.2 | | | X |
| 16.0 | No rebar congestion or other obstruction for deposit of concrete | X | | |
| 17.0 | Adjustments required for interfering items (piping, inserts, sleeves, etc.) have been submitted and approved by owner. | X | | |
| 18.0 | Rebar was stored off ground to prevent damage/corrosion | X | | |
| 19.0 | Review drawings for anchors, piping, sleeves, boxes | X | | |

COMMENTS:

Remove debris from bottom of formwork (tie wire/chamfer pieces) COMPLETED

ATTACHMENT(S):

DWG./SKETCH - W/MARKUPS.

DEFICIENCIES NOTES:

INITIAL INSPECTION

INSPECTOR: Ryan deMilliano TITLE Project Coordinator (QA) DATE: SEPT 7, 2018

JDS

RE-INSPECTION (DEFICIENCIES COMPLETED)

INSPECTOR: Roman Bilobrowka Site Manager DATE: Sept 7/18

CLARK BUILDERS
ENERGY & RESOURCES

# FORMWORK & FALSEWORK PRE POUR | QA INSPECTION

Rev 00 May 4, 2018

| | |
|---|---|
| SUBCONTRACTOR: CLARK BUILDERS | INSPECTION DATE: SEPT 7, 2018 |
| SUBCONTRACTOR CONTACT PERSON: DAVE P. (FOREMAN) | DATE OF POUR: SEPT 7, 208 |
| INSPECTOR(S): Ryan deMilliano / GARRY DAHL | |
| LOCATION: SECONDARY PADDOCKS. (14 LOCATIONS) | |
| DRAWING REV: 01 | DRAWING NO.(S): #354138-3320-231-260-0002 / SPEC SECTION(S): 503 10 00 |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Location, survey, dimension and grades as required | ☒ | ☐ | ☐ |
| 2.0 | Plumbness and Flatness verified | ☒ | ☐ | ☐ |
| 3.0 | Joints are aligned and watertight. | ☒ | ☐ | ☐ |
| 4.0 | Formwork shop drawings are Engineered and reviewed | ☒ | ☐ | ☒ |
| 5.0 | Re-used formwork reconditioned and treated | ☒ | ☐ | ☐ |
| 6.0 | Formwork and ties according to finishing requirements. Confirm no holes in the concrete surface are greater than 25mm in diameter or expose steel at less than 25mm from surface. As per spec. | ☒ | ☐ | ☐ |
| 7.0 | Installation of embeds are located and secured | ☒ | ☐ | ☐ |
| 8.0 | Chamfer requirements checked. 25mm chamfers required for all exterior corners and edges exposed to view including horizontal edges of pads. | ☒ | ☐ | ☐ |
| 9.0 | Key ways and/or other provisions according to design are provided in construction joints | ☒ | ☐ | ☐ |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 10.0 | Inspect types of form spacers, ties and bracing. | ☒ | ☐ | ☐ |
| 11.0 | Spacing of ties to be set to a pattern | ☒ | ☐ | ☐ |
| 12.0 | Expansion, construction, contraction joints as required & located as coordinated with structural Engineer | ☒ | ☐ | ☒ |
| 13.0 | Forms secured against movement during placing | ☒ | ☐ | ☐ |
| 14.0 | Forms are braced for alignment and blow out | ☒ | ☐ | ☐ |
| 15.0 | Forms are cleaned of all debris, and dry, prior to concrete placement including standing water. (CLEANED BEFORE PLACEMENT.) | ☒ | ☐ | ☐ |
| 16.0 | Openings in formwork permit inspection and cleaning, placing and compaction of concrete, and forming and processing of construction joints. | ☐ | ☐ | ☐ |
| 17.0 | Formwork has been coated with release agent prior to rebar placement. | ☐ | ☐ | ☐ |
| | | ☐ | ☐ | ☐ |

COMMENTS:

CLEAN FORMS OF LOOSE TIE WIRE & SMALL BITS OF CONCRETE. COMPLETED DURING INSP.

ATTACHMENT(S):

DWG/SKETCH W/MARKUPS

DEFICIENCIES NOTES:

INITIAL INSPECTION

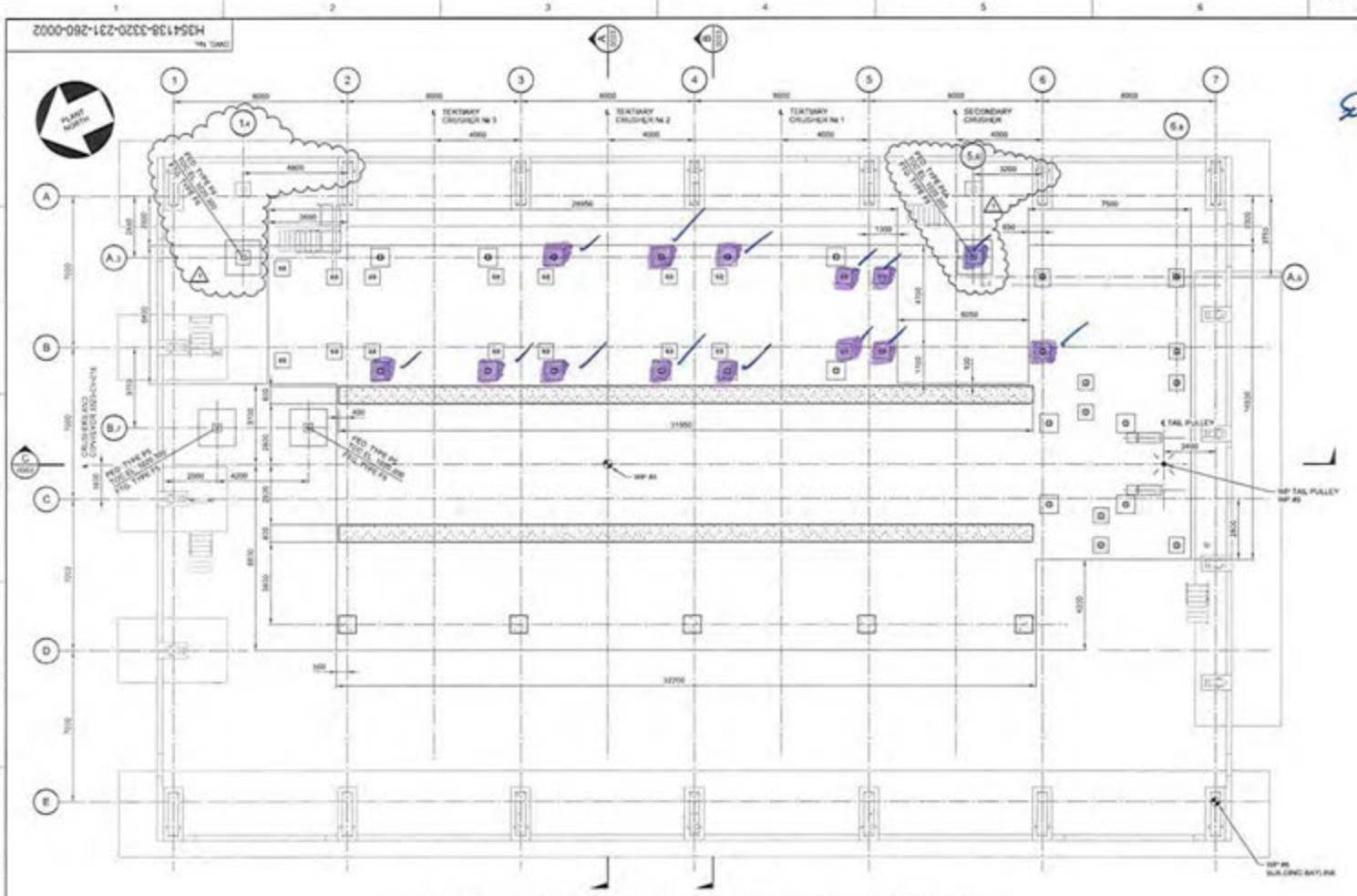
INSPECTOR: Ryan deMilliano TITLE Project Coordinator (QA) DATE: SEPT 7, 2018

RE-INSPECTION (DEFICIENCIES COMPLETED)

INSPECTOR: _____ TITLE _____ DATE: _____

INSP. DATE: Sep
Ryan Demiliano &
Roman Bilobrowka

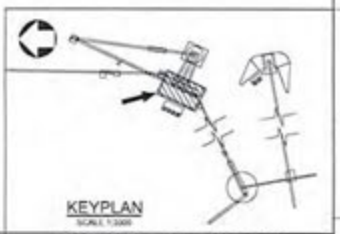
Scheduled
Pour date: Sept 7/18
est 7m³.




CRUSHER AND SCREEN SUPPORT - BASE PLAN - GENERAL ARRANGEMENT

PERMIT TO PRACTICE
HATCH
May 22, 2018
PERMIT NUMBER: P0154

NOTES:
1. FOR GENERAL NOTES SEE DRAWING H354138-3320-231-260-0001.



KEYPLAN
SCALE 1:2000

| No. | DESCRIPTION | BY | CHK'D | DATE |
|---|---|---|---|---|
| 1 | HOLD REMOVED, FOOTING TYPE FILADDED | PJ | EA | 2018-05-28 |
| 0 | APPROVED FOR CONSTRUCTION | PJ | EA | 2018-05-04 |

REVISIONS

| DRAWING No. | DRAWING TITLE |
|---|---|
| REFERENCE DRAWINGS | |

REG. PROFESSIONAL

HATCH

| | | | |
|---|---|---|---|
| DRAFTSPERSON | P. JIVAEV | | |
| DESIGNER | H. LI | | |
| CHECKER | E. AKINCI | | 2018-05-28 |
| DESIGN COORD. | S. PERKINS | | |
| RESP. ENG. | E. AKINCI | | 2018-05-28 |
| LEAD DISC. ENG. | E. AKINCI | | 2018-05-28 |
| ENG. MANAGER | B. RUSTAD | | |
| PROJ. MANAGER | B. RUSTAD | | |
| ROLE | NAME | SIGNATURE & DATE | |

DRAWING APPROVAL STATUS: Approved for Construction

StrataGold Corporation

EAGLE GOLD PROJECT

SECONDARY CRUSHING
CRUSHER AND SCREEN SUPPORT FDN.
BASE PLAN - GENERAL ARRANGEMENT

SCALE 1:100 (PLAN NOTED)
DWG. No. H354138-3320-231-260-0002
REV 1

CB-INSPECTION FORM-DOC-002 REV.00
JDS ENERGY & MINING INC. | STRATAGOLD EAGLE GOLD
PROJECT #: CB201 | 18502

CLARK BUILDERS
ENERGY & RESOURCES

PROJECT MANAGER: DUSTIN DOLYNCHUK, P.ENG
QA/QC COORDINATOR: RYAN DE MILLIANO, C.E.T.
SUPERINTENDENT: GARRY DAHL

# CONCRETE REINFORCEMENT PRE POUR

Rev 01 August 25, 2018

| | |
|---|---|
| SUBCONTRACTOR: Ultimate Reinforcing // McNish | INSPECTION DATE: Sunday September 9, 2018 |
| SUBCONTRACTOR CONTACT PERSON: ~~Derek Savoie~~ Jimmy | PROJ. POUR DATE: Sunday September 9, 2018 |
| INSPECTOR(S): Ryan DeMilliano ; Garry Dahl ; Roman. Bilobrowka | |
| LOCATION: 3320 Secondary / Crushing Building Pedestals (x4) | |
| DRAWING REV: 0 | DRAWING NO.(S): 3320-231-260-0004 | SPEC SECTION(S): S03 20 00 – Concrete Reinforcing Steel |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A | ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|---|---|---|---|---|
| 1.0 | Grade (400W unless otherwise noted) and type of steel delivered and installed as required by approved drawings. | X | | | 11.0 | Bars tied and supported to prevent displacement | X | | |
| 2.0 | Inspect rebar distribution, spacing and cover per design/project requirements. | X | | | 12.0 | Spacers, tie wire and chairs as required | X | | |
| 3.0 | Length of splices as specified | X | | | 13.0 | Conduits at design location and minimum separation from rebar as specified | | | X |
| 4.0 | Staggered splices as specified | | | X | 14.0 | No contact of bars is made with dissimilar metals as per CSA A23.1 | X | | |
| 5.0 | Any mechanical splices have been approved by the owner prior to install | | | X | 15.0 | Bars, nails or tie wire not sticking out from surfaces that allow rusting/corrosion | X | | |
| 6.0 | Bars cleaned and free of material that may reduce bond including loose rust, scale, oil, structural defects and that they are uncoated and unpainted. | X | | | 16.0 | Rebar is welds inspected by qualified inspectors certified to CSA W178.2 | | | X |
| 7.0 | Dowels at wall ends, construction joints, and openings as specified (length, location, size, etc.) | | | X | 17.0 | No rebar congestion or other obstruction for deposit of concrete | X | | |
| 8.0 | No unauthorized field bent bars including hooks installed | X | | | 18.0 | Adjustments required for interfering items (piping, inserts, sleeves, etc.) have been submitted and approved by owner. | X | | X |
| 9.0 | Resolve conflicts between embedded items and reinforcement | X | | | 19.0 | Rebar was stored off ground to prevent damage/corrosion | X | | |
| 10.0 | When authorized, field bends done without heat and inspected for fissures or cracks. | | | X | 20.0 | Review drawings for anchors, piping, sleeves, boxes | X | | |

COMMENTS:

- Anchor bolts on 2 of the peds required final survey. (Being done at insp.) Completed.
- 2x Type 6 rectangular peds not ready as scheduled. Rd to rebook.

ATTACHMENT(S):

DEFICIENCIES NOTES:

No major deficiencies, some anchor bolts need final set by survey before pour

CLARK BUILDERS:
INSPECTOR: Ryan deMilliano TITLE Project Coordinator (QA) DATE: Sept 9, 2018

JDS ENERGY & MINING:
INSPECTOR: Roman Bilobrowka TITLE Site Manager DATE: Sept 11, 2018 ← Signed Date
Sept 9, 2018 ← Attended Inspection

CLARK BUILDERS
ENERGY & RESOURCES

CB-INSPECTION FORM-DOC-002 REV.00
JDS ENERGY & MINING INC. | STRATAGOLD EAGLE GOLD
PROJECT #: CB201 | 18502

PROJECT MANAGER: DUSTIN DOLYNCHUK, P.ENG
QA/QC COORDINATOR: RYAN DE MILLIANO, C.E.T.
SUPERINTENDENT: GARRY DAHL

# FORMWORK & FALSEWORK PRE POUR | QA INSPECTION

Rev 01 August 25, 2018

| | |
|---|---|
| CONTRACTOR: Clark Builders | INSPECTION DATE: Sunday Sept 9 2018 |
| CONTRACTOR CONTACT PERSON: DAVE DELORME | DATE OF POUR: Sunday Sept 9, 208 |
| INSPECTOR(S): RyanDeMilliano; Garry Dahl; Roman Brotkowka | |
| LOCATION: 3320/3340 Secondary / Roof Footings. 4x Pedestals. | |
| DRAWING REV: | DRAWING NO.(S): SPEC SECTION(S): |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Location, survey, dimension and grades as required | X | ☐ | ☐ |
| 2.0 | Plumbness and Flatness verified | X | ☐ | ☐ |
| 3.0 | Joints are aligned and watertight. | X | ☐ | ☐ |
| 4.0 | Formwork shop drawings are Engineered and reviewed | X | ☐ | X |
| 5.0 | Re-used formwork reconditioned and treated | X | ☐ | ☐ |
| 6.0 | Formwork and ties according to finishing requirements. Confirm no holes in the concrete surface are greater than 25mm in diameter or expose steel at less than 25mm from surface. As per spec. | X | ☐ | ☐ |
| 7.0 | Installation of embeds are located and secured | ☐ | ☐ | X |
| 8.0 | Chamfer requirements checked. 25mm chamfers required for all exterior corners and edges exposed to view including horizontal edges of pads. | X | ☐ | ☐ |
| 9.0 | Key ways and/or other provisions according to design are provided in construction joints | X | ☐ | ☐ |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 10.0 | Inspect types of form spacers, ties and bracing. | X | ☐ | ☐ |
| 11.0 | Spacing of ties to be set to a pattern | X | ☐ | ☐ |
| 12.0 | Expansion, construction, contraction joints as required & located as coordinated with structural Engineer | ☐ | ☐ | X |
| 13.0 | Forms secured against movement during placing | X | ☐ | ☐ |
| 14.0 | Forms are braced for alignment and blow out | X | ☐ | ☐ |
| 15.0 | Forms are cleaned of all debris, and dry, prior to concrete placement including standing water. | X | ☐ | ☐ |
| 16.0 | Openings in formwork permit inspection and cleaning, placing and compaction of concrete, and forming and processing of construction joints. | X | ☐ | ☐ |
| 17.0 | Formwork has been coated with release agent prior to rebar placement. | X | ☐ | ☐ |
| 18.0 | Anchor Bolts and Embeds are secured to formwork. | X | ☐ | ☐ |

COMMENTS:

No additional comments. See reinforcing.

ATTACHMENT(S):

Dwg.

DEFICIENCIES NOTES:

No deficiencies noted.

INITIAL INSPECTION

INSPECTOR: RyanDeMilliano TITLE Project Coordinator/QA DATE: Sept 9, 2018

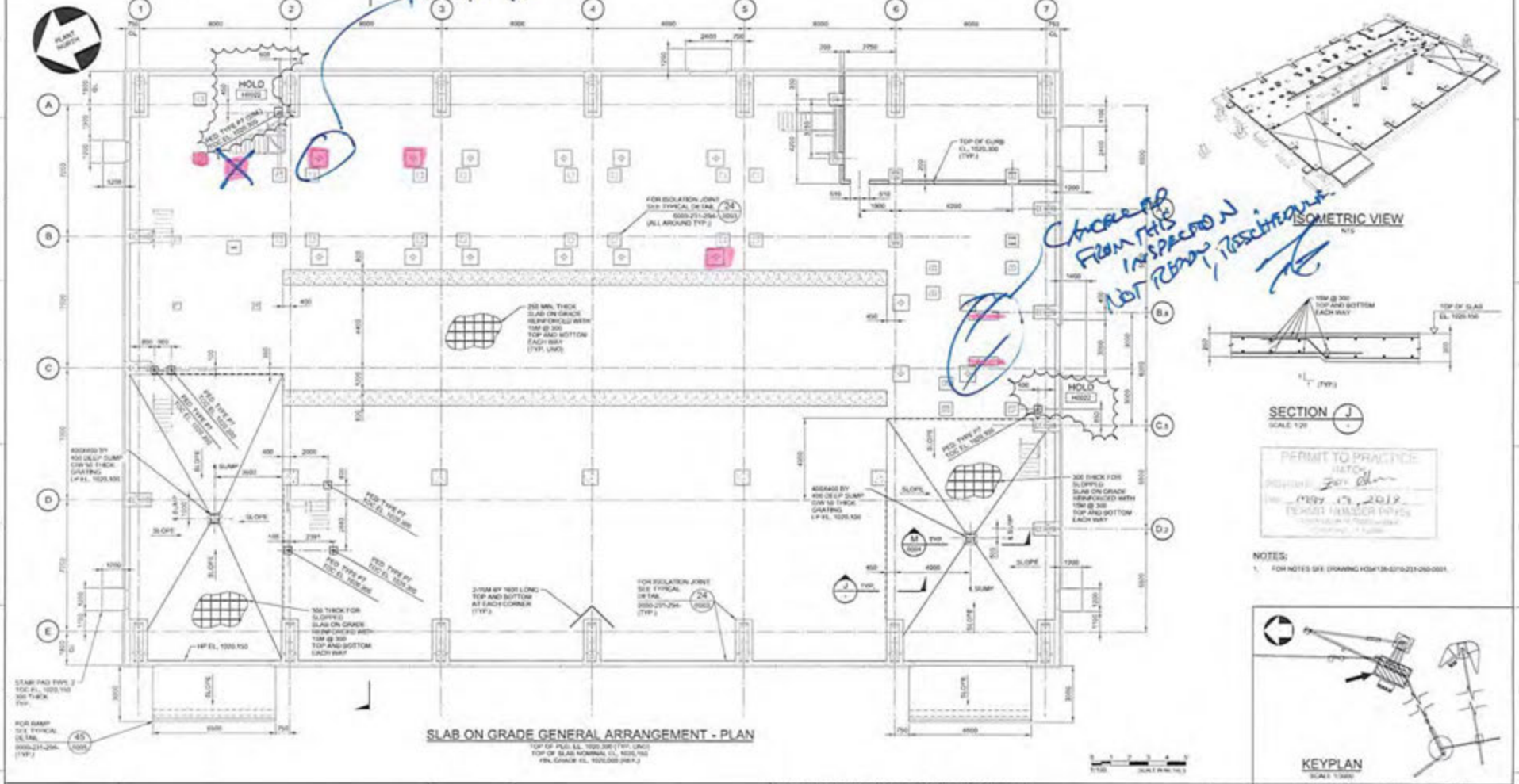
RE-INSPECTION (DEFICIENCIES COMPLETED)

INSPECTOR: No Reinspection Req'd TITLE _____ DATE: _____

INSP DATE - SEPT 9/18

ANCHOR BOLTS TO BE FIXED BY SURVEY BEFORE POUR.

CANCELLED FROM THIS INSPECTION NOT REQUIRED, J. BISCHEQUE




SLAB ON GRADE GENERAL ARRANGEMENT - PLAN

TOP OF PLG. EL. 1020.300 (TYP. UNO)
TOP OF SLAB NOMINAL EL. 1020.150
TRN. GRADE EL. 1020.000 (REF.)

ISOMETRIC VIEW






SECTION J
SCALE 1:20

PERMIT TO PRACTICE
HATCH
Per
DATE SEP 17, 2018
PERMIT NUMBER P7755

NOTES:
1. FOR NOTES SEE DRAWING H354138-3310-231-260-0001.



KEYPLAN
SCALE 1:5000

| | | | | | | |
|---|---|---|---|---|---|---|
| DRAWING No. | DRAWING TITLE | No. | DESCRIPTION | BY | CHKD | DATE |
| REFERENCE DRAWINGS | REG. PROFESSIONAL | 0 | APPROVED FOR CONSTRUCTION | PJ | EA | 2018-09-17 |
| | | REVISIONS | | | | |

HATCH

| | | | |
|---|---|---|---|
| DRAWING SUPERVISOR | P. JAMES | | |
| DESIGNER | H. LI | | |
| CHECKER | K. AMINO | | |
| DESIGN COORD. | S. PERKINS | | |
| RESP. ENG. | K. AMINO | | |
| LEAD DISC. ENG. | K. AMINO | | |
| ENG. MANAGER | B. RUSTAD | | |
| PROJ. MANAGER | B. RUSTAD | | |
| | ROLE | NAME | SIGNATURE & DATE |
| DRAWING APPROVAL STATUS: | Approved for Construction | | |

StrataGold Corporation

EAGLE GOLD PROJECT

SEC/TERTIARY CRUSHING BUILDING
BUILDING FOUNDATION
SLAB ON GRADE - PLAN

| SCALE | DWG. No. | REV |
|---|---|---|
| 1:100 | H354138-3310-231-260-0003 | 0 |

CLARK BUILDERS
ENERGY & RESOURCES

CB-INSPECTION FORM-DOC-002 REV.00
JDS ENERGY & MINING INC. | STRATAGOLD EAGLE GOLD
PROJECT #: CB201 | 18502

PROJECT MANAGER: DUSTIN DOLYNCHUK, P.ENG
QA/QC COORDINATOR: RYAN DE MILLIANO, C.E.T.
SUPERINTENDENT: GARRY DAHL

# CONCRETE REINFORCEMENT PRE POUR

Rev 01 August 25, 2018

| | |
|---|---|
| SUBCONTRACTOR: Ultimate Reinforcing // McNish | INSPECTION DATE: SEPT 10/18 |
| SUBCONTRACTOR CONTACT PERSON: ~~Derek Savoie~~ Jimmy. | PROJ. POUR DATE: Sept 10/18 |
| INSPECTOR(S): GARRY DAHL | |
| LOCATION: 3310 SECONDARY SUMP BASE @ GL 6-7 & D.2 | |
| DRAWING REV: 2 | DRAWING NO.(S): 3310-231-260-0003 |
| SPEC SECTION(S): S03 20 00 – Concrete Reinforcing Steel | |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Grade (400W unless otherwise noted) and type of steel delivered and installed as required by approved drawings. | ☑ | ☐ | ☐ |
| 2.0 | Inspect rebar distribution, spacing and cover per design/project requirements. | ☑ | ☐ | ☐ |
| 3.0 | Length of splices as specified | ☑ | ☐ | ☐ |
| 4.0 | Staggered splices as specified | ☐ | ☐ | ☑ |
| 5.0 | Any mechanical splices have been approved by the owner prior to install | ☐ | ☐ | ☑ |
| 6.0 | Bars cleaned and free of material that may reduce bond including loose rust, scale, oil, structural defects and that they are uncoated and unpainted. | ☑ | ☐ | ☐ |
| 7.0 | Dowels at wall ends, construction joints, and openings as specified (length, location, size, etc.) | ☑ | ☐ | ☐ |
| 8.0 | No unauthorized field bent bars including hooks installed | ☑ | ☐ | ☐ |
| 9.0 | Resolve conflicts between embedded items and reinforcement | ☐ | ☐ | ☑ |
| 10.0 | When authorized, field bends done without heat and inspected for fissures or cracks. | ☐ | ☐ | ☑ |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 11.0 | Bars tied and supported to prevent displacement | ☑ | ☐ | ☐ |
| 12.0 | Spacers, tie wire and chairs as required | ☑ | ☐ | ☐ |
| 13.0 | Conduits at design location and minimum separation from rebar as specified | ☐ | ☐ | ☑ |
| 14.0 | No contact of bars is made with dissimilar metals as per CSA A23.1 | ☑ | ☐ | ☐ |
| 15.0 | Bars, nails or tie wire not sticking out from surfaces that allow rusting/corrosion | ☑ | ☐ | ☐ |
| 16.0 | Rebar is welds inspected by qualified inspectors certified to CSA W178.2 | ☐ | ☐ | ☑ |
| 17.0 | No rebar congestion or other obstruction for deposit of concrete | ☑ | ☐ | ☐ |
| 18.0 | Adjustments required for interfering items (piping, inserts, sleeves, etc.) have been submitted and approved by owner. | ☑ | ☐ | ☐ |
| 19.0 | Rebar was stored off ground to prevent damage/corrosion | ☑ | ☐ | ☐ |
| 20.0 | Review drawings for anchors, piping, sleeves, boxes | ☐ | ☐ | ☑ |

COMMENTS:

ATTACHMENT(S):

DEFICIENCIES NOTES:

N/A

CLARK BUILDERS:

INSPECTOR: Garry DAHL TITLE Supt DATE: Sept 12/18

JDS ENERGY & MINING:

INSPECTOR: _____ TITLE _____ DATE: _____

CLARK BUILDERS
ENERGY & RESOURCES

# FORMWORK & FALSEWORK PRE POUR | QA INSPECTION

Rev 01 August 25, 2018

| | |
|---|---|
| CONTRACTOR: Clark Builders | INSPECTION DATE: Sept 10/18 |
| CONTRACTOR CONTACT PERSON: DAVE D. | DATE OF POUR: Sept 10/18 |
| INSPECTOR(S): GARRY DAHL (CB) | |
| LOCATION: 3310 SEC SUMP BETWEEN GL 6-7 & GL D.2 | |
| DRAWING REV: 2 | DRAWING NO.(S): 3310-231-760-0003 / SPEC SECTION(S): 503 10 00 |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Location, survey, dimension and grades as required | ☑ | ☐ | ☐ |
| 2.0 | Plumbness and Flatness verified | ☑ | ☐ | ☐ |
| 3.0 | Joints are aligned and watertight. | ☑ | ☐ | ☐ |
| 4.0 | Formwork shop drawings are Engineered and reviewed | ☐ | ☐ | ☑ |
| 5.0 | Re-used formwork reconditioned and treated | ☑ | ☐ | ☐ |
| 6.0 | Formwork and ties according to finishing requirements. Confirm no holes in the concrete surface are greater than 25mm in diameter or expose steel at less than 25mm from surface. As per spec. | ☐ | ☐ | ☑ |
| 7.0 | Installation of embeds are located and secured | ☐ | ☐ | ☑ |
| 8.0 | Chamfer requirements checked. 25mm chamfers required for all exterior corners and edges exposed to view including horizontal edges of pads. | ☐ | ☐ | ☑ |
| 9.0 | Key ways and/or other provisions according to design are provided in construction joints | ☐ | ☐ | ☑ |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 10.0 | Inspect types of form spacers, ties and bracing. | ☑ | ☐ | ☐ |
| 11.0 | Spacing of ties to be set to a pattern | ☑ | ☐ | ☐ |
| 12.0 | Expansion, construction, contraction joints as required & located as coordinated with structural Engineer | ☑ | ☐ | ☐ |
| 13.0 | Forms secured against movement during placing | ☑ | ☐ | ☐ |
| 14.0 | Forms are braced for alignment and blow out | ☑ | ☐ | ☐ |
| 15.0 | Forms are cleaned of all debris, and dry, prior to concrete placement including standing water. | ☑ | ☐ | ☐ |
| 16.0 | Openings in formwork permit inspection and cleaning, placing and compaction of concrete, and forming and processing of construction joints. | ☑ | ☐ | ☐ |
| 17.0 | Formwork has been coated with release agent prior to rebar placement. | ☑ | ☐ | ☐ |
| 18.0 | Anchor Bolts and Embeds are secured to formwork. | ☐ | ☐ | ☑ |

| COMMENTS: | ATTACHMENT(S): |
|---|---|
| | |

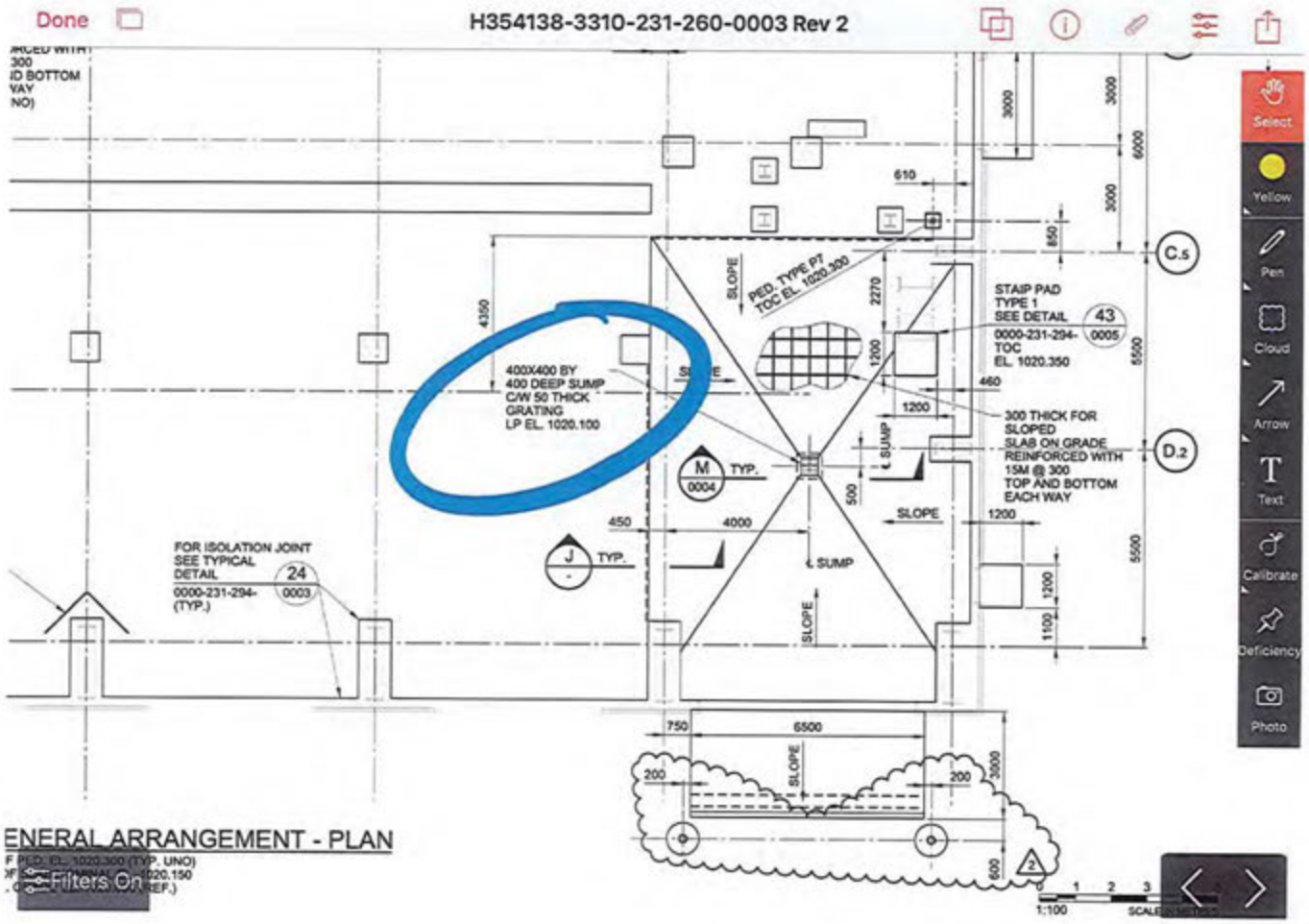
DEFICIENCIES NOTES:

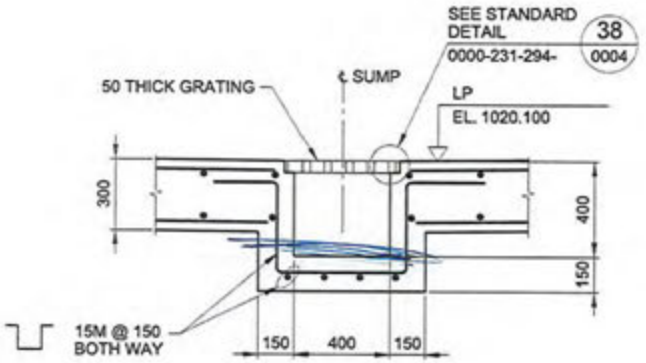
INITIAL INSPECTION

INSPECTOR: GARRY DAHL TITLE: SUPERINTENDENT DATE: SEPT 10, 2018

RE-INSPECTION (DEFICIENCIES COMPLETED)

INSPECTOR: _____ TITLE _____ DATE: _____


Done
H354138-3310-231-260-0003 Rev 2
Select
Yellow
Pen
Cloud
Arrow
Text
Calibrate
Deficiency
Photo
400X400 BY
400 DEEP SUMP
C/W 50 THICK
GRATING
LP EL. 1020.100
PED. TYPE P7
TOC EL. 1020.300
STAIR PAD
TYPE 1
SEE DETAIL 43
0000-231-294-0005
TOC
EL. 1020.350
300 THICK FOR
SLOPED
SLAB ON GRADE
REINFORCED WITH
15M @ 300
TOP AND BOTTOM
EACH WAY
FOR ISOLATION JOINT
SEE TYPICAL
DETAIL 24
0000-231-294-0003
(TYP.)
M TYP. 0004
J TYP.
SLOPE
℄ SUMP
C.5
D.2
ENERAL ARRANGEMENT - PLAN
Filters On
1:100




SECTION M 0003
SCALE: 1:20

Select
Colour
Pen
Cloud
Arrow
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Calibrate
Deficiency
Photo

Filters On

PERMIT TO PRACTICE
HATCH

CLARK BUILDERS
ENERGY & RESOURCES

CB-INSPECTION FORM-DOC-002 REV.01
CONCRETE POST POUR INSPECTION FORM
JDS ENERGY & MINING INC. | STRATAGOLD EAGLE GOLD
PROJECT #: CB201 | 18502

# CONCRETE POST POUR INSPECTION

Rev 00 May 4, 2018

| | |
|---|---|
| INSPECTOR(S): Ryan deMillard (CB) // D'Arcy Comeford (JDS) | SPEC SECTION(S): S03 30 00 – Cast-In-Place |
| TYPE OF FINISH: F1 (BELOW GRADE) | DATE OF INSPECTION: SEPT 10, 2018 |
| AREA AND LOCATION(s): 3310/3320 SECONDARY MAT FOUNDATION / FOOTINGS. GL A-C GL 1-7 | |

| GENERAL REQUIREMENTS | PASS | FAIL | N/A | REMARKS |
|---|---|---|---|---|
| Curing compounds not used on any surface against which additional concrete or materials are to be bonded. | ☒ | ☐ | ☐ | |
| Fresh concrete barricaded/ protected from mechanical disturbance. | ☒ | ☐ | ☐ | |
| Where concrete is used for filling, the chipped opening shall not be less than 75mm in depth. | ☐ | ☐ | ☒ | |
| Patches exposed to view shall blend with surrounding surfaces. | ☒ | ☐ | ☐ | |
| Contractor shall clean all exposed concrete surfaces of all encrustations of cement, mortar, or grout and shall remove unsightly stains. | ☒ | ☐ | ☐ | |
| Concrete appears proper and devoid of any honeycomb, cold joints, droppings or other defects | ☒ | ☒ | ☐ | SEE COMMENTS (2018.09.10) *REINSPECTION REQUIRED. |
| Removal of all concrete rubble and dispose of at an appropriate location. | ☒ | ☐ | ☐ | |
| Surface of concrete finished against forms has a smooth, dense finish free from cracks, free from projections, pits, and honeycomb and in proper alignment. | ☒ | ☐ | ☐ | |

| COLD WEATHER REQUIREMENTS (WHEN AMB. TEMP < 5°C) | PASS | FAIL | N/A | REMARKS |
|---|---|---|---|---|
| Protection in place until 70% of the 28-day strength has been reached. | ☐ | ☐ | ☒ | |
| Cold weather protection provided by means of heated enclosures, coverings, insulation, or a suitable approved combination of these methods during complete curing period. | ☐ | ☐ | ☒ | |
| Water not sitting in recesses, shear pockets, groves, bolt sleeves during heat and Hoarding period. | ☐ | ☐ | ☒ | |

COMMENTS: SEE ATTACHED DWG.

(2018.09.10) - CHIPPED CONCRETE FOUND, NOTIFIED DALE DELORME TO FIX PRIOR TO BACKFILL
- TIE ROD EXPOSED AT MULTIPLE LOCATIONS ON FOOTING (MAT) AND CORNER REAR PILASTER (SE)

ITEMS HAVE BEEN FIXED AND REPAIRED / PHOTOS TAKEN

ATTACHMENT(S):

**INITIAL INSPECTION**

PRINT/ SIGN: Ryan deMillard // TITLE Project Coordinator (QA/QC) DATE: ORIGINAL INSP. SEPT 10, 2018 RE INSPECTION: SEPT 13, 18

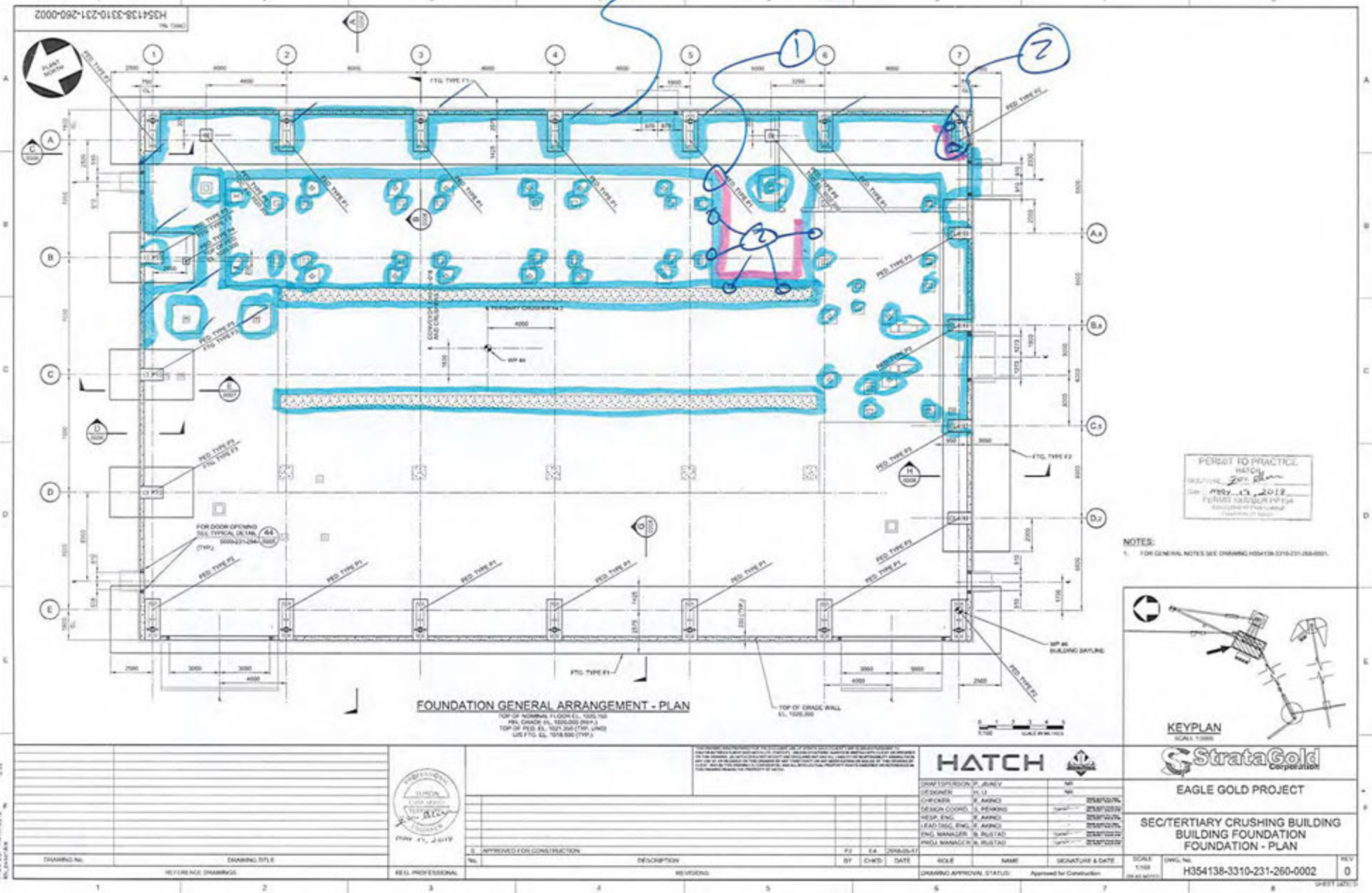
**JDS INSPECTION**

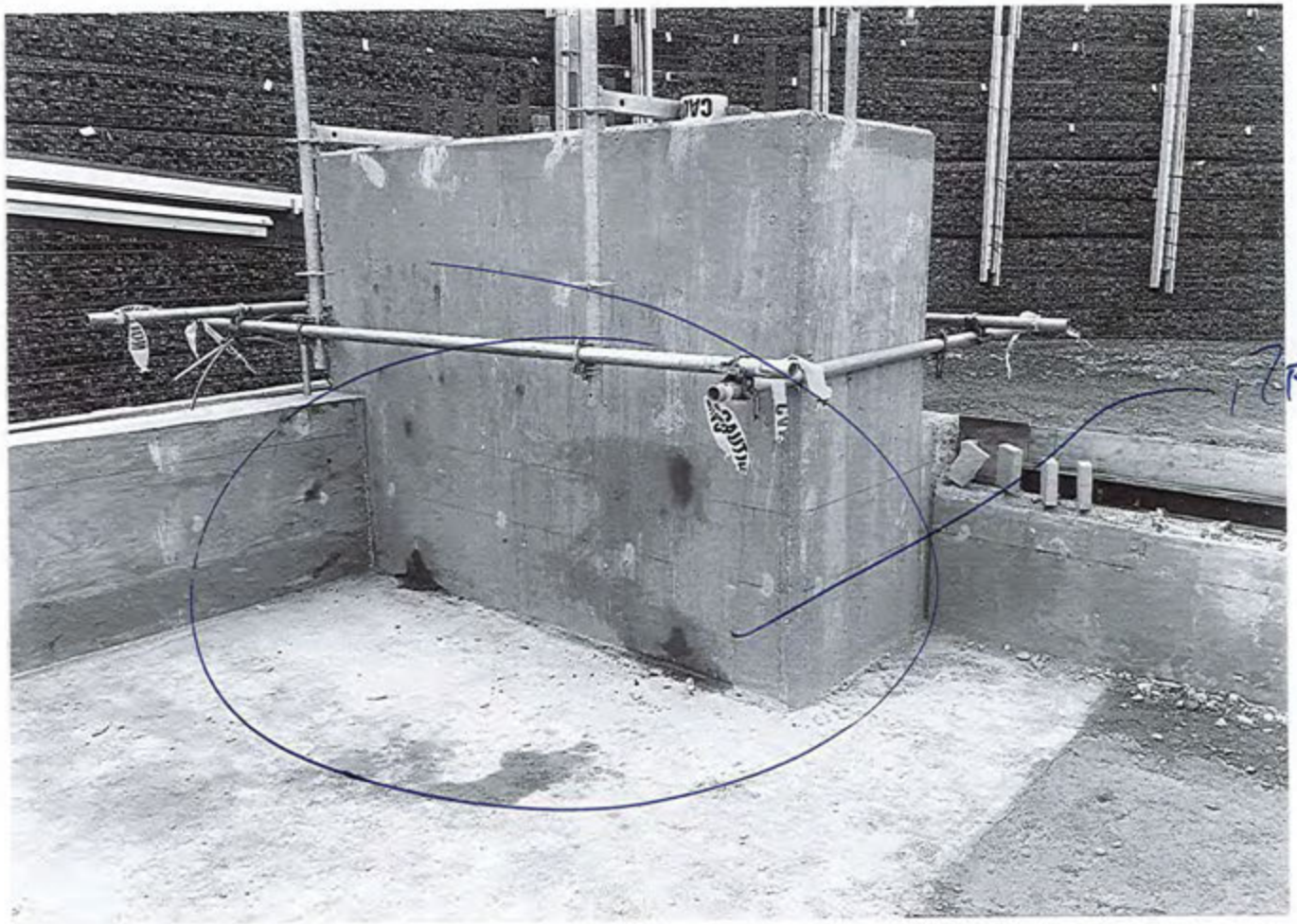
PRINT/ SIGN: D'Arcy Comeford // TITLE FIELD ENGINEER DATE: ORIG INSP: Sep 10, 2018. Re inspection:

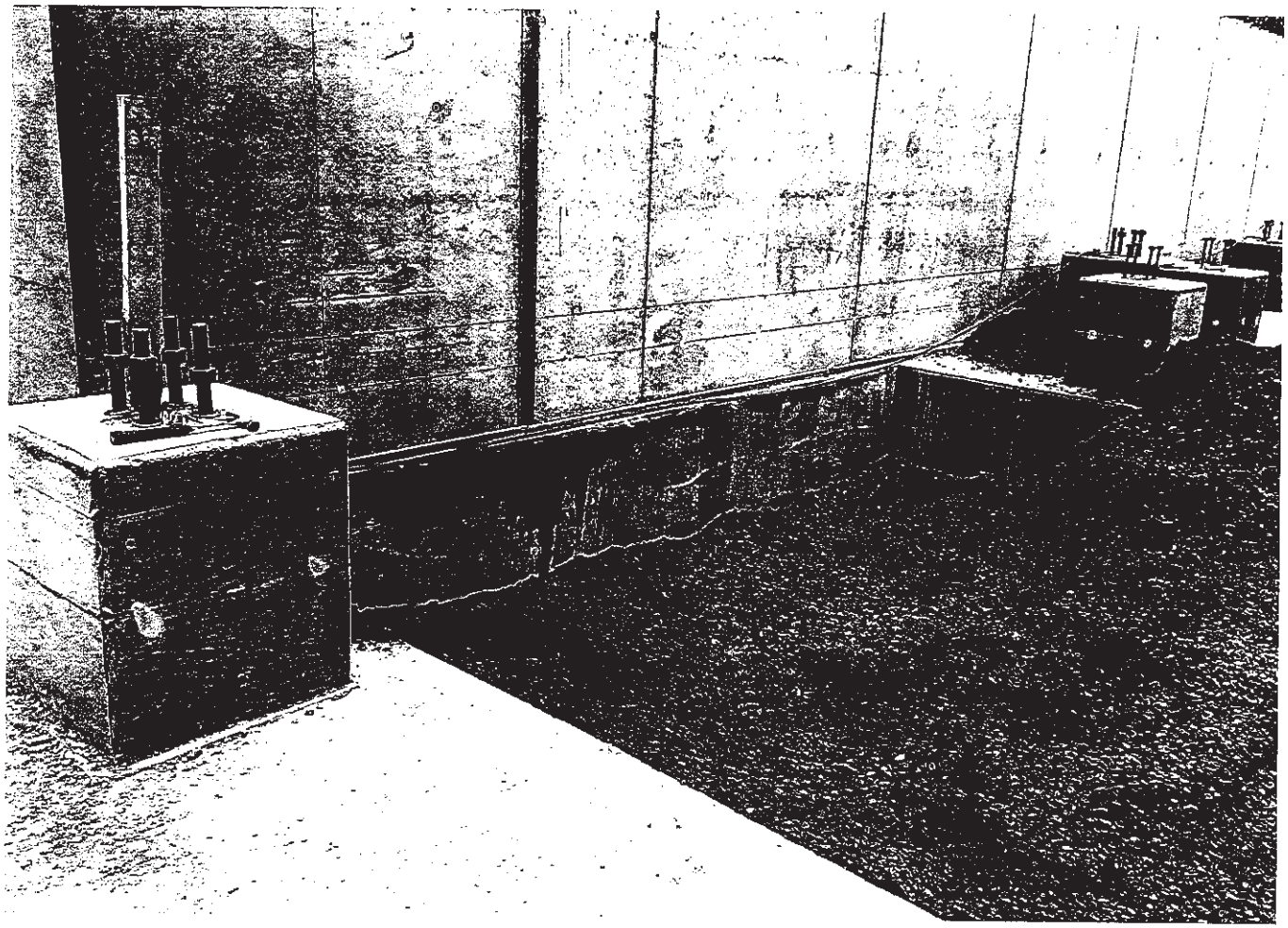
– DEFICIENCY FOUND.

– INSPECTED.

F1 FINISH ONLY TO U/S OF SOG.







CLARK BUILDERS
ENERGY & RESOURCES

# CONCRETE REINFORCEMENT PRE POUR

Rev 01 August 25, 2018

| | |
|---|---|
| SUBCONTRACTOR: Ultimate Reinforcing // McNish | INSPECTION DATE: September 10, 2018 |
| SUBCONTRACTOR CONTACT PERSON: ~~Derek Savoie~~ Jimmy | PROJ. POUR DATE: September 11, 2018 |
| INSPECTOR(S): Ryan deMilliano (CB) ; D'Arcy Comerford | |
| LOCATION: 3320 Secondary - 2x Type 7 Portals Between GL 6-7 GL B.8-C.5 | |
| DRAWING REV: 01 / DRAWING NO.(S): H354138-3320-231-260-0006 | SPEC SECTION(S): S03 20 00 – Concrete Reinforcing Steel |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Grade (400W unless otherwise noted) and type of steel delivered and installed as required by approved drawings. | X | | |
| 2.0 | Inspect rebar distribution, spacing and cover per design/project requirements. | X | | |
| 3.0 | Length of splices as specified | X | | |
| 4.0 | Staggered splices as specified | | | X |
| 5.0 | Any mechanical splices have been approved by the owner prior to install | | | X |
| 6.0 | Bars cleaned and free of material that may reduce bond including loose rust, scale, oil, structural defects and that they are uncoated and unpainted. | X | | |
| 7.0 | Dowels at wall ends, construction joints, and openings as specified (length, location, size, etc.) | X | | |
| 8.0 | No unauthorized field bent bars including hooks installed | X | | |
| 9.0 | Resolve conflicts between embedded items and reinforcement | X | | |
| 10.0 | When authorized, field bends done without heat and inspected for fissures or cracks. | | | X |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 11.0 | Bars tied and supported to prevent displacement | X | | |
| 12.0 | Spacers, tie wire and chairs as required | X | | |
| 13.0 | Conduits at design location and minimum separation from rebar as specified | | | X |
| 14.0 | No contact of bars is made with dissimilar metals as per CSA A23.1 | X | | |
| 15.0 | Bars, nails or tie wire not sticking out from surfaces that allow rusting/corrosion | X | | |
| 16.0 | Rebar is welds inspected by qualified inspectors certified to CSA W178.2 | | | X |
| 17.0 | No rebar congestion or other obstruction for deposit of concrete | X | | |
| 18.0 | Adjustments required for interfering items (piping, inserts, sleeves, etc.) have been submitted and approved by owner. RFI 62 | X | | |
| 19.0 | Rebar was stored off ground to prevent damage/corrosion | X | | |
| 20.0 | Review drawings for anchors, piping, sleeves, boxes | X | | |

COMMENTS:

2018 SEPT 10

RFI 62 SUBMITTED (Pending Response) - Request was to modify Anchor bolt Plates for cone bolts and Modify Stirrups.
→ Approved By Hatch

ATTACHMENT(S):

DWG ATTACHED. W/ Markup.

DEFICIENCIES NOTES:

CLARK BUILDERS
INSPECTOR: Ryan deMilliano TITLE Project Coordinator (QA/QC) DATE: SEPT 10/18

JDS ENERGY & MINING:
INSPECTOR: D'Arcy Comerford TITLE FIELD Engineer DATE: Sept 10/18

CB-INSPECTION FORM-DOC-002 REV.00
JDS ENERGY & MINING INC. | STRATAGOLD EAGLE GOLD
PROJECT #: CB201 | 18502

PROJECT MANAGER: DUSTIN DOLYNCHUK, P.ENG
QA/QC COORDINATOR: RYAN DE MILLIANO, C.E.T.
SUPERINTENDENT: GARRY DAHL

CLARK BUILDERS
ENERGY & RESOURCES

# FORMWORK & FALSEWORK PRE POUR | QA INSPECTION

Rev 01 August 25, 2018

| | |
|---|---|
| CONTRACTOR: Clark Builders | INSPECTION DATE: SEPTEMBER 10, 2018 |
| CONTRACTOR CONTACT PERSON: DAVE DELORME | DATE OF POUR: SEPTEMBER 11, 2018 |
| INSPECTOR(S): Ryan deMilliano | |
| LOCATION: 3320 SECONDARY - 2x TYPE 7 DED BEAMS. BETWEEN GL 6-7 & GL B.8-C.5 | |
| DRAWING REV: 01 | DRAWING NO.(S): #354138-3320-231-260-0006 / SPEC SECTION(S): 503 10 00 |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Location, survey, dimension and grades as required | X | | |
| 2.0 | Plumbness and Flatness verified | X | | |
| 3.0 | Joints are aligned and watertight. | X | | |
| 4.0 | Formwork shop drawings are Engineered and reviewed | X | | |
| 5.0 | Re-used formwork reconditioned and treated | X | | |
| 6.0 | Formwork and ties according to finishing requirements. Confirm no holes in the concrete surface are greater than 25mm in diameter or expose steel at less than 25mm from surface. As per spec. | X | | |
| 7.0 | Installation of embeds are located and secured | | | X |
| 8.0 | Chamfer requirements checked. 25mm chamfers required for all exterior corners and edges exposed to view including horizontal edges of pads. | X | | |
| 9.0 | Key ways and/or other provisions according to design are provided in construction joints | | | X |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 10.0 | Inspect types of form spacers, ties and bracing. | X | | |
| 11.0 | Spacing of ties to be set to a pattern | X | | |
| 12.0 | Expansion, construction, contraction joints as required & located as coordinated with structural Engineer | X | | |
| 13.0 | Forms secured against movement during placing | X | | |
| 14.0 | Forms are braced for alignment and blow out | X | | |
| 15.0 | Forms are cleaned of all debris, and dry, prior to concrete placement including standing water. | X | | |
| 16.0 | Openings in formwork permit inspection and cleaning, placing and compaction of concrete, and forming and processing of construction joints. | X | | |
| 17.0 | Formwork has been coated with release agent prior to rebar placement. | X | | |
| 18.0 | Anchor Bolts and Embeds are secured to formwork. | X | | |

COMMENTS:

Small bits of tie wire in forms, cleaned during inspection.

ATTACHMENT(S):

Punch W/Markup.

DEFICIENCIES NOTES:

INITIAL INSPECTION

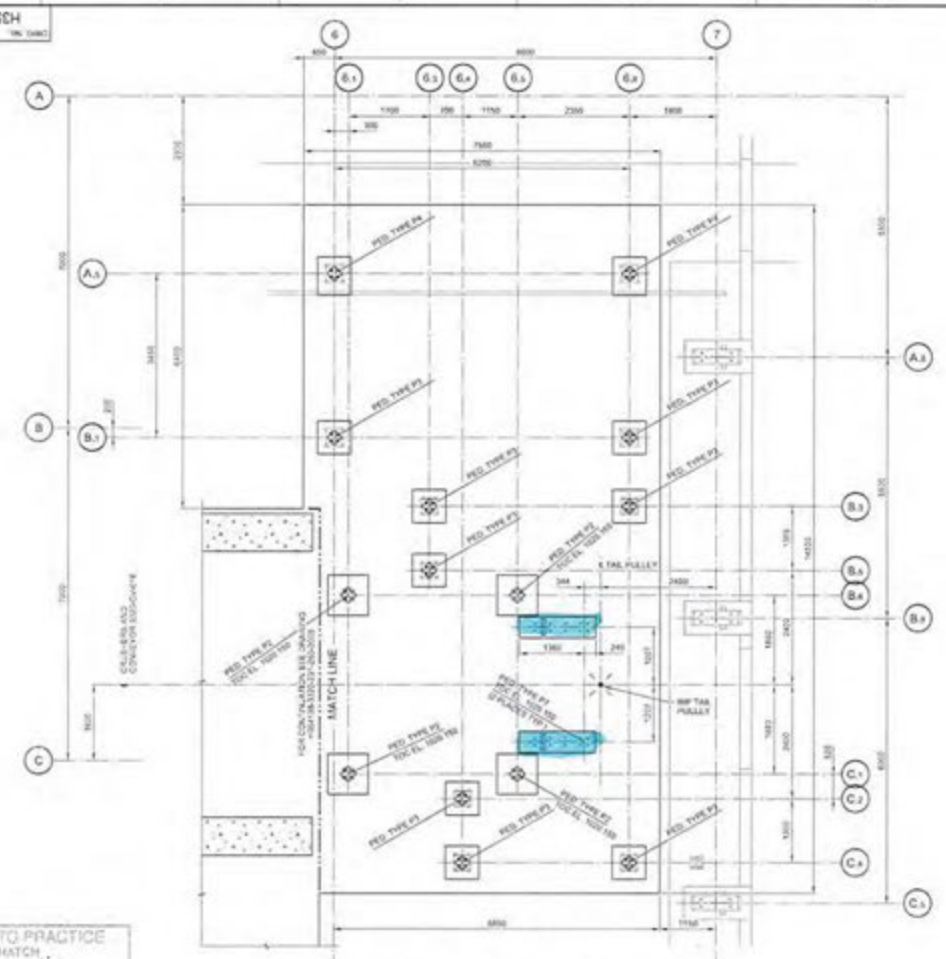
INSPECTOR: Ryan deMilliano TITLE Project Coordinator (QA) DATE: SEPTEMBER 10, 2018

RE-INSPECTION (DEFICIENCIES COMPLETED)

INSPECTOR: Darcy Comeau TITLE FIELD ENGINEER DATE: SEPTEMBER 10, 2018

H354138-3320-231-260-0006

• IHSP DATE: SEPT 10, 2018



# ELECTRICAL GROUNDING SYSTEMS
# INSPECTION FORM

Rev 00 May 4, 2018

| | |
|---|---|
| SUBCONTRACTOR: Clark Builders | DATE OF INSPECTION: Sept 10/18 |
| WEATHER/ AMBIENT TEMP (°C): 10 C | DATE INSTALLATION: Sept 7/18 |
| INSPECTOR(S): Ryan de Millano, Garry Daul, D'Arcy Comerford. (JDS) | |
| LOCATION: Secondary Crusher Main Perimeter Grounding | |
| DRAWING REV: | DRAWING NO.(S): | SPEC SECTION(S): |

| GROUNDING SYSTEMS REQUIREMENT | PASS | FAIL | N/A | REMARKS |
|---|---|---|---|---|
| Installation matches drawings and specifications. | X | ☐ | ☐ | |
| Conductor sizes and types. | X | ☐ | ☐ | |
| Burial depth (record minimum in inches) | X | ☐ | ☐ | |
| Ground rod and well locations. | ☐ | ☐ | X | 300x300 PLATES ONLY. |
| Connections checked (torqueing, no cold joints, burnouts or protection) | X | ☐ | ☐ | |
| System resistance to earth value (record in Ω) | X | ☐ | ☐ | |
| Ground mats. | ☐ | ☐ | X | PLATES USED. |
| CSA Certified or equivalent. | X | ☐ | ☐ | |
| | | | | |

| MANUFACTURER | DESCRIPTION | RANGE | ID. No. | CALIBRATION DUE DATE (YYYY.MM.DD) |
|---|---|---|---|---|
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |

| DISTANCE (m) | GROUND GRID (Ω) | REMOTE GRID (Ω) |
|---|---|---|
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |

| | | |
|---|---|---|
| OMMENTS: | | |
| | | |
| | | |
| ATTACHMENT(S): | | |
| | | |
| | | |
| | | |

CB.

**INITIAL INSPECTION**

PRINT/ SIGN: Ryan deMilhano TITLE Project coordinator DATE: Sept 10, 18

PRINT/ SIGN: _____ TITLE Superintendent DATE: Sept 10/18

JDS.

**~~RE-INSPECTION OF DEFICIENCIES~~ (IF REQUIRED)**

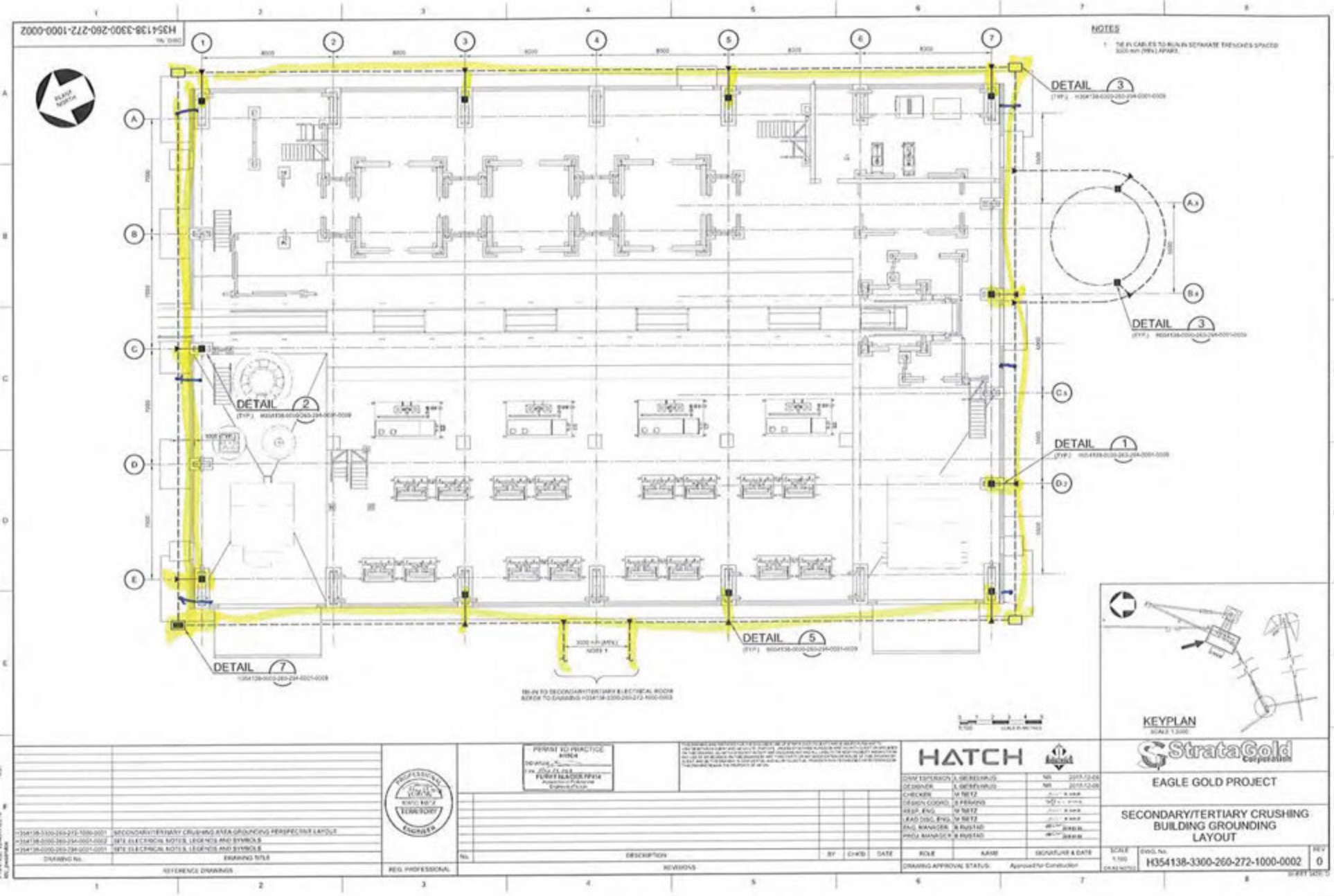
PRINT/ SIGN: D'Arcy Comeau TITLE Field Engineer DATE: Sept 10, 18.

PRINT/ SIGN: _____ TITLE _____ DATE: _____

TARON

PRINT/SIGN THOMAS FOSTER TITLE TARON FOREMAN 6:10 AM DATE: SEPT 11/18

Sept 10/18



H354138-3300-260-272-1000-0002
NOTES
1. TIE IN CABLES TO RUN IN SEPARATE TRENCHES SPACED 3000 mm (MIN.) APART.
DETAIL 1
DETAIL 2
DETAIL 3
DETAIL 5
DETAIL 7
KEYPLAN
HATCH
StrataGold Corporation
EAGLE GOLD PROJECT
SECONDARY/TERTIARY CRUSHING BUILDING GROUNDING LAYOUT
H354138-3300-260-272-1000-0002
0

CLARK BUILDERS
ENERGY & RESOURCES

# CONCRETE REINFORCEMENT PRE POUR

Rev 01 August 25, 2018

| | |
|---|---|
| SUBCONTRACTOR: Ultimate Reinforcing // McNish | INSPECTION DATE: September 17, 2018 |
| SUBCONTRACTOR CONTACT PERSON: ~~Derek Savoie~~ JIMMY | PROJ. POUR DATE: September 17, 2018 |
| INSPECTOR(S): Ryan deMilliano | |
| LOCATION: 3310 Secondary SOG GL 5-7 (A-E) | |
| DRAWING REV: | DRAWING NO.(S): SPEC SECTION(S): S03 20 00 – Concrete Reinforcing Steel |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Grade (400W unless otherwise noted) and type of steel delivered and installed as required by approved drawings. | X | | |
| 2.0 | Inspect rebar distribution, spacing and cover per design/project requirements. | X | | |
| 3.0 | Length of splices as specified | X | | |
| 4.0 | Staggered splices as specified | X | | |
| 5.0 | Any mechanical splices have been approved by the owner prior to install | | | X |
| 6.0 | Bars cleaned and free of material that may reduce bond including loose rust, scale, oil, structural defects and that they are uncoated and unpainted. | X | | |
| 7.0 | Dowels at wall ends, construction joints, and openings as specified (length, location, size, etc.) | X | | |
| 8.0 | No unauthorized field bent bars including hooks installed | X | | |
| 9.0 | Resolve conflicts between embedded items and reinforcement | X | | |
| 10.0 | When authorized, field bends done without heat and inspected for fissures or cracks. | | | X |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 11.0 | Bars tied and supported to prevent displacement | X | | |
| 12.0 | Spacers, tie wire and chairs as required | X | | |
| 13.0 | Conduits at design location and minimum separation from rebar as specified | X | | |
| 14.0 | No contact of bars is made with dissimilar metals as per CSA A23.1 | X | | |
| 15.0 | Bars, nails or tie wire not sticking out from surfaces that allow rusting/corrosion | X | | |
| 16.0 | Rebar is welds inspected by qualified inspectors certified to CSA W178.2 | | | X |
| 17.0 | No rebar congestion or other obstruction for deposit of concrete | X | | |
| 18.0 | Adjustments required for interfering items (piping, inserts, sleeves, etc.) have been submitted and approved by owner. | | | X |
| 19.0 | Rebar was stored off ground to prevent damage/corrosion | X | | |
| 20.0 | Review drawings for anchors, piping, sleeves, boxes | X | | |

COMMENTS:

Temp at time of pour prior to pour = +9°C – +23°C Good day
All angle bars at corners in place, some needed more ties to secure. Done

ATTACHMENT(S):

Photos.

DEFICIENCIES NOTES:

Dowels at wall ends, construction joints, and openings as specified (length, location, size, etc.)

CLARK BUILDERS
ENERGY & RESOURCES



PROJECT MANAGER: DUSTIN DOLYNCHUK, P.ENG
QA/QC COORDINATOR: RYAN DE MILLIANO, C.E.T.
SUPERINTENDENT: GARRY DAHL

# FORMWORK & FALSEWORK PRE POUR | QA INSPECTION

Rev 01 August 25, 2018

| | |
|---|---|
| CONTRACTOR: Clark Builders | INSPECTION DATE: Sept 17, 2018 |
| CONTRACTOR CONTACT PERSON: DAN PELLETIER | DATE OF POUR: Sept 17, 2018 |
| INSPECTOR(S): Ryan deMilliano / DAN PELLETIER | |
| LOCATION: 3310 SECONDARY SOGGS 5-7 (ME) | |
| DRAWING REV: | DRAWING NO.(S): / SPEC SECTION(S): |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Location, survey, dimension and grades as required | ☑ | ☐ | ☐ |
| 2.0 | Plumbness and Flatness verified | ☑ | ☐ | ☐ |
| 3.0 | Joints are aligned and watertight. | ☑ | ☐ | ☐ |
| 4.0 | Formwork shop drawings are Engineered and reviewed | ☑ | ☐ | ☐ |
| 5.0 | Re-used formwork reconditioned and treated | ☑ | ☐ | ☐ |
| 6.0 | Formwork and ties according to finishing requirements. Confirm no holes in the concrete surface are greater than 25mm in diameter or expose steel at less than 25mm from surface. As per spec. | ☑ | ☐ | ☐ |
| 7.0 | Installation of embeds are located and secured | ☐ | ☐ | ☑ |
| 8.0 | Chamfer requirements checked. 25mm chamfers required for all exterior corners and edges exposed to view including horizontal edges of pads. | ☐ | ☐ | ☑ |
| 9.0 | Key ways and/or other provisions according to design are provided in construction joints | ☑ | ☐ | ☐ |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 10.0 | Inspect types of form spacers, ties and bracing. | ☐ | ☐ | ☑ |
| 11.0 | Spacing of ties to be set to a pattern | ☐ | ☐ | ☑ |
| 12.0 | Expansion, construction, contraction joints as required & located as coordinated with structural Engineer | ☑ | ☐ | ☐ |
| 13.0 | Forms secured against movement during placing | ☑ | ☐ | ☐ |
| 14.0 | Forms are braced for alignment and blow out | ☑ | ☐ | ☐ |
| 15.0 | Forms are cleaned of all debris, and dry, prior to concrete placement including standing water. | ☑ | ☐ | ☐ |
| 16.0 | Openings in formwork permit inspection and cleaning, placing and compaction of concrete, and forming and processing of construction joints. | ☑ | ☐ | ☐ |
| 17.0 | Formwork has been coated with release agent prior to rebar placement. | ☑ | ☐ | ☐ |
| 18.0 | Anchor Bolts and Embeds are secured to formwork. | ☐ | ☐ | ☑ |

COMMENTS:

ATTACHMENT(S): Dwgs.

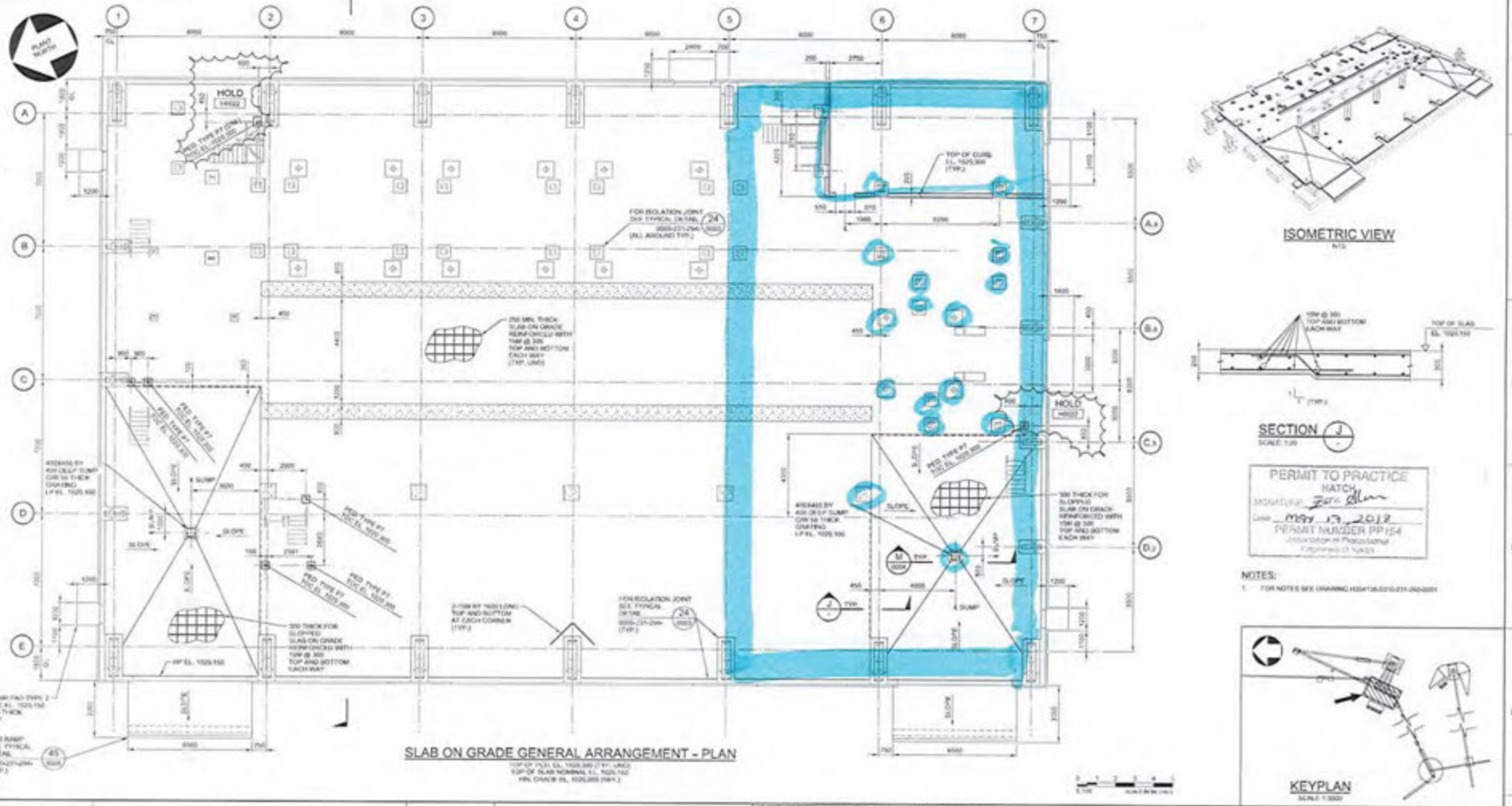
DEFICIENCIES NOTES:

INITIAL INSPECTION

INSPECTOR: DAN PELLETIER TITLE Foreman DATE: Sept, 17/18

RE-INSPECTION (DEFICIENCIES COMPLETED)

INSPECTOR: _____ TITLE _____ DATE: _____




SLAB ON GRADE GENERAL ARRANGEMENT - PLAN

TOP OF FILL EL. 1026.300 (TYP. UNO)
TOP OF SLAB NOMINAL EL. 1025.150
MIN. CHASE EL. 1025.000 (MIN.)



ISOMETRIC VIEW
N.T.S.




SECTION J
SCALE 1:20

PERMIT TO PRACTICE
HATCH
SIGNATURE
DATE MAY 17, 2018
PERMIT NUMBER PP154
Association of Professional
Engineers of Yukon

NOTES:
1. FOR NOTES SEE DRAWING H354138-3310-231-260-0001



KEYPLAN
SCALE 1:3000

| | | | | |
|---|---|---|---|---|
| DRAWING No. | DRAWING TITLE | | | |
| REFERENCE DRAWINGS | | REG. PROFESSIONAL | | |
| | | | | |
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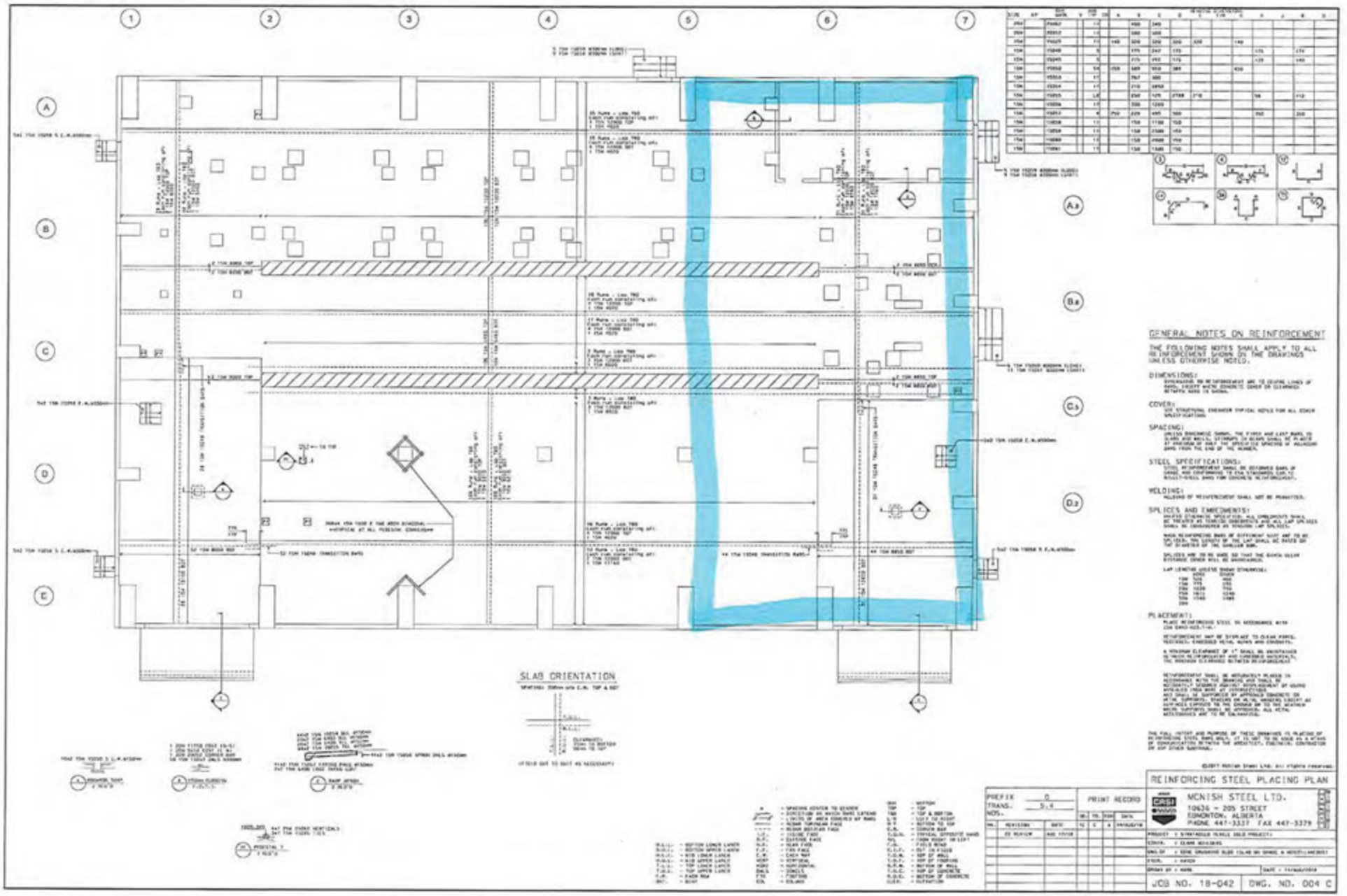


SLAB ORIENTATION

GENERAL NOTES ON REINFORCEMENT

THE FOLLOWING NOTES SHALL APPLY TO ALL REINFORCEMENT SHOWN ON THE DRAWINGS UNLESS OTHERWISE NOTED.

DIMENSIONS:

COVER:

SPACING:

STEEL SPECIFICATIONS:

WELDING:

SPLICES AND EMBEDMENTS:

PLACEMENT:

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REINFORCING STEEL PLACING PLAN

MCNISH STEEL LTD.
10636 - 205 STREET
EDMONTON, ALBERTA
PHONE 447-3337 FAX 447-3379

JOB NO. 18-042 DWG. NO. 004 C

CLARK BUILDERS
ENERGY & RESOURCES

# CONCRETE POST POUR COLD WEATHER MONITORING

Rev 01 July 4, 2018

| | |
|---|---|
| SUBCONTRACTOR: Clark Builders. | DATE OF POUR: September 17, 2018 |
| WEATHER/ AMBIENT TEMP (°C): | DATE FORMWORK STRIPPED: |
| INSPECTOR(S): Ryan deMilano | DATE OF INSPECTION: Sept 17 → |
| LOCATION: 3310 Secondary SOG GL 5-7 (A-E) | |
| DRAWING NO.(S): | DRAWING REV: |
| SPEC SECTION(S): S03 30 00 – Cast-In-Place | |

TYPE OF CURING:

| | | | | | |
|---|---|---|---|---|---|
| CURING COMPOUND | ☒ | DAMP BURLAP OR FABRIC | ☐ | INSULATION (TARPS) | ☐ |
| POLYETHYLENE SHEETS | ☐ | WATER/FOG SPRAY/ PONDING | ☐ | FORMS (COVERED BY) | ☒ |

| COLD WEATHER REQUIREMENTS (WHEN AMB. TEMP < 5°C) | PASS | FAIL | N/A | REMARKS |
|---|---|---|---|---|
| Protection in place for 5 days at temperatures not lower than 20°C or until 70% of the 28-day strength has been reached. | ☒ | ☐ | ☐ | |
| Cold weather protection provided by means of heated enclosures, coverings, insulation, or a suitable approved combination of these methods during complete curing period. | ☒ | ☐ | ☐ | |
| During freezing weather, water curing terminated 12h before the end of the protection period (CSA A 23.1 clause 7.4.2.4.2) | ☐ | ☐ | ☒ | |
| | | | | |

CONCRETE CURING TEMPERATURE LOG (COLD WEATHER CONCRETEING ONLY)

| DATE | TIME (24 HR) | OUTSIDE AIR TEMP (°C) | TEMP INSIDE HOARDING (°C) | CONCRETE SURFACE TEMP (°C) | | INITIALS OF READER |
|---|---|---|---|---|---|---|
| | | | | HIGH (°C) | LOW (°C) | |
| Sept 18, 2018 | 07:30 | -4°C | +10°C | +15.4°C | +9°C | [illegible] |
| Sept 18, 2018 | 18:00 | 0°C | +13°C | +14.5°C | +10°C | [illegible] |
| | | | | | | |
| | | | | | | |
| | | | | | | |

| | | |
|---|---|---|
| COMMENTS: | | |
| | | |
| ATTACHMENT(S): | | |
| | | |

**CLARK BUILDERS SITE REPRESENTATIVE**

PRINT/ SIGN: Ryan deMilano TITLE: Project Coordinator DATE: Sept 18, 2018

CLARK BUILDERS
ENERGY & RESOURCES

# CONCRETE REINFORCEMENT PRE POUR

Rev 00 May 4, 2018

| | |
|---|---|
| SUBCONTRACTOR: ULTIMATE REINFORCING | INSPECTION DATE: SEPT. 20/2018 |
| SUBCONTRACTOR CONTACT PERSON: CLAYTON MCGUIRE | ACTION BY: |
| INSPECTOR(S): JACKSON WIENGER, DAN PELLETIER ISHAN FECHTER, MATT COVERDALE | |
| LOCATION: 3310 SLAB ON GRADE GL 5-5 | |
| DRAWING REV: 2 | DRAWING NO.(S): 1854138-3310-201-260-0003 SPEC SECTION(S): 303 00 00 |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Grade (400W unless otherwise noted) and type of steel delivered and installed as required by approved drawings. | ☑ | ☐ | ☐ |
| 2.0 | Inspect rebar distribution, spacing and cover per design/project requirements. | ☐ | ☐ | ☐ |
| 3.0 | Length of splices as specified | ☐ | ☐ | ☐ |
| 4.0 | Staggered splices as specified | ☐ | ☐ | ☐ |
| 5.0 | Any mechanical splices have been approved by the owner prior to install | ☑ | ☐ | ☐ |
| 6.0 | Bars cleaned and free of material that may reduce bond including loose rust, scale, oil, structural defects and that they are uncoated and unpainted. | ☑ | ☐ | ☐ |
| 7.0 | Dowels at wall ends, construction joints, and openings as specified (length, location, size, etc.) | ☑ | ☐ | ☐ |
| 8.0 | No unauthorized field bent bars including hooks installed | ☑ | ☐ | ☐ |
| | Resolve conflicts between embedded items and reinforcement | ✓ | | |
| 9.0 | When authorized, field bends done without heat and inspected for fissures or cracks. | ☐ | ☐ | ☑ |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 10.0 | Bars tied and supported to prevent displacement | ☑ | ☐ | ☐ |
| 11.0 | Spacers, tie wire and chairs as required | ☑ | ☐ | ☐ |
| 12.0 | Conduits at design location and minimum separation from rebar as specified | ☐ | ☐ | ☑ |
| 13.0 | No contact of bars is made with dissimilar metals as per CSA A23.1 | ☑ | ☐ | ☐ |
| 14.0 | Bars, nails or tie wire not sticking out from surfaces that allow rusting/corrosion | ☑ | ☐ | ☐ |
| 15.0 | Rebar is welds inspected by qualified inspectors certified to CSA W178.2 | ☐ | ☐ | ☑ |
| 16.0 | No rebar congestion or other obstruction for deposit of concrete | ☑ | ☐ | ☐ |
| 17.0 | Adjustments required for interfering items (piping, inserts, sleeves, etc.) have been submitted and approved by owner. | ☐ | ☐ | ☑ |
| 18.0 | Rebar was stored off ground to prevent damage/corrosion | ✓ | | |
| 19.0 | Review drawings for anchors, piping, sleeves, boxes | ☑ | ☐ | ☐ |

| COMMENTS: | ATTACHMENT(S): |
|---|---|
| | |
| | |
| | |

DEFICIENCIES NOTES:

Complete cleaning

INITIAL INSPECTION

INSPECTOR: JACKSON WIENGER TITLE PE DATE: SEPT 20/18

RE-INSPECTION (DEFICIENCIES COMPLETED)

INSPECTOR: Ishan Fechter TITLE Super DATE: Sept. 20/18

CLARK BUILDERS
ENERGY & RESOURCES

CB-INSPECTION FORM-DOC-002 REV.00
JDS ENERGY & MINING INC. | STRATAGOLD EAGLE GOLD
PROJECT #: CB201 | 18502

PROJECT MANAGER: DUSTIN DOLYNCHUK, P.ENG
QA/QC COORDINATOR: RYAN DE MILLIANO, C.E.T.
SUPERINTENDENT: GARRY DAHL

# CONCRETE PRE POUR | FIELD INSPECTION

Rev 00 May 4, 2018

| | |
|---|---|
| SUBCONTRACTOR: CLARK BUILDERS | INSPECTION DATE: THURS. SEPT. 20/2018 |
| SUBCONTRACTOR CONTACT PERSON: DAN PELLETIER | DATE OF POUR: SEPT. 20/2018 |
| INSPECTOR(S): JACKSON WENGER/DANIEL PELLETIER | ISHAN FECHTER, MATT COVERDALE |
| LOCATION: SLAB ON GRADE 3310 GL 3-5 | |
| DRAWING REV: 2 | DRAWING NO.(S): 1954138-3310-231-260-0003 / SPEC SECTION(S): 03 30 00 |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Location, survey, dimension and grades as required | ☑ | ☐ | ☐ |
| 2.0 | Plumbness and Flatness verified | ☑ | ☐ | ☐ |
| 3.0 | Joints are aligned and watertight. | ☑ | ☐ | ☐ |
| 4.0 | Formwork shop drawings are Engineered and reviewed | ☐ | ☐ | ☑ |
| 5.0 | Re-used formwork reconditioned and treated | ☑ | ☐ | ☐ |
| 6.0 | Formwork and ties according to finishing requirements. Confirm no holes in the concrete surface are greater than 25mm in diameter or expose steel at less than 25mm from surface. As per spec. | ☐ | ☐ | ☑ |
| 7.0 | Installation of embeds are located and secured | ☐ | ☐ | ☑ |
| 8.0 | Chamfer requirements checked. 25mm chamfers required for all exterior corners and edges exposed to view including horizontal edges of pads. | ☐ | ☐ | ☑ |
| 9.0 | Key ways and/or other provisions according to design are provided in construction joints | ☑ | ☐ | ☐ |
| 10.0 | Inspect types of form spacers, ties and bracing. | ☑ | ☐ | ☐ |
| 11.0 | Spacing of ties to be set to a pattern | ☐ | ☐ | ☑ |
| 12.0 | Expansion, construction, contraction joints as required & located as coordinated with structural Engineer | ☑ | ☐ | ☐ |
| 13.0 | Forms secured against movement during placing | ☑ | ☐ | ☐ |
| 14.0 | Forms are braced for alignment and blow out | ☑ | ☐ | ☐ |
| 15.0 | Forms are cleaned of all debris, and dry, prior to concrete placement including standing water. | ☑ | ☐ | ☐ |
| 16.0 | Openings in formwork permit inspection and cleaning, placing and compaction of concrete, and forming and processing of construction joints. | ☑ | ☐ | ☐ |
| 17.0 | Formwork has been coated with release agent prior to rebar placement. | ☑ | ☐ | ☐ |
| | | ☐ | ☐ | ☐ |

COMMENTS:
CLEAN @ KEYWAY/SLAB JOINT

ATTACHMENT(S):

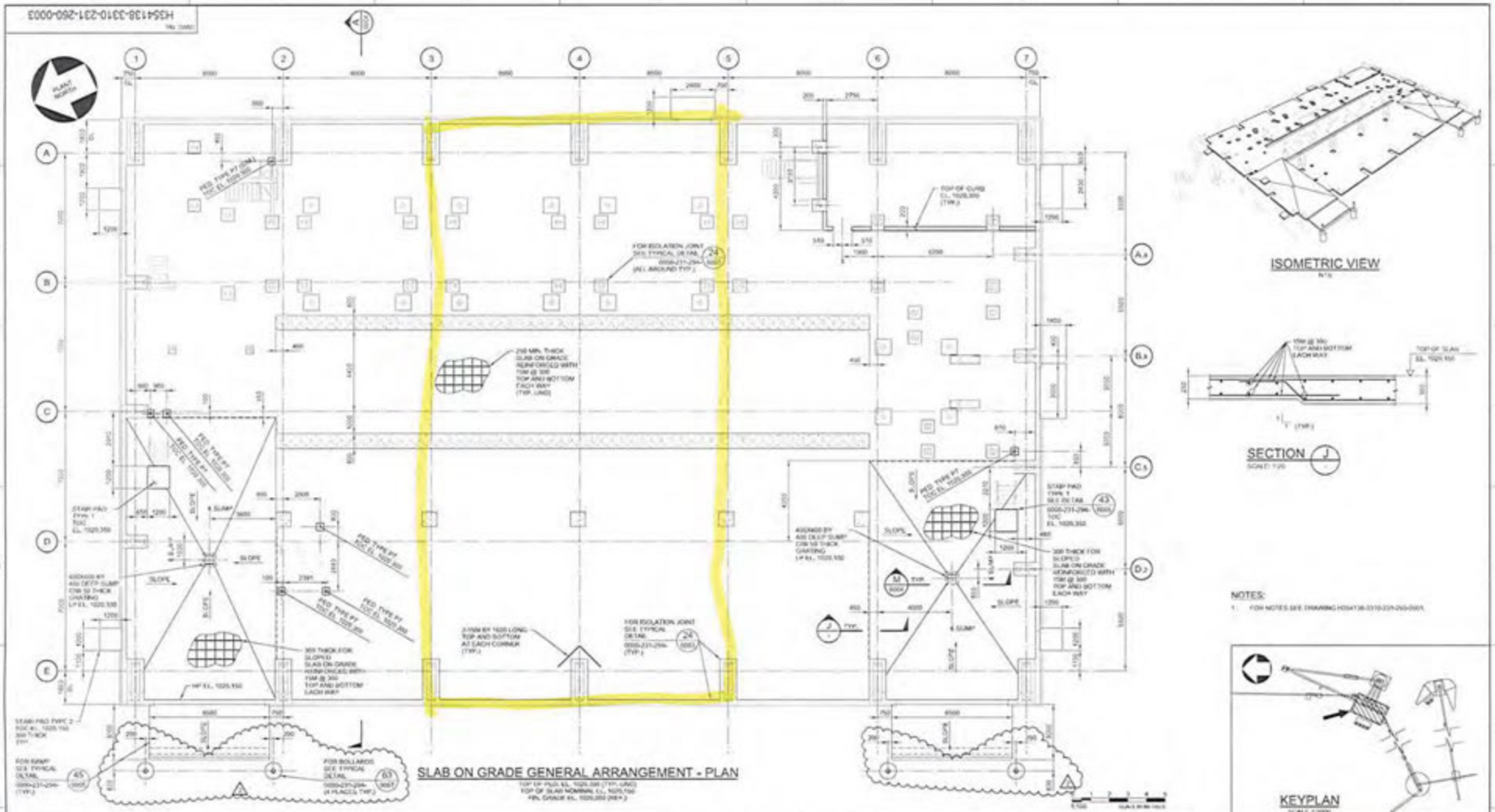
DEFICIENCIES NOTES:

POUR METHOD:

INITIAL INSPECTION
INSPECTOR: Ishan Fechter TITLE Super DATE: Sept. 20 18

RE-INSPECTION (DEFICIENCIES COMPLETED)
INSPECTOR: JACKSON WENGER TITLE PROJECT COORDINATOR DATE: SEPT. 20/18

Pour Sept 20/18






ISOMETRIC VIEW
N.T.S.



SECTION J
SCALE: 1:20



KEYPLAN
SCALE: 1:2000

HATCH

StrataGold Corporation

EAGLE GOLD PROJECT

SEC/TERTIARY CRUSHING BUILDING
BUILDING FOUNDATION
SLAB ON GRADE - PLAN

| DRAWING No. | DRAWING TITLE | SCALE | DWG. No. | REV |
|---|---|---|---|---|
| | | 1:100 (24 AS NOTED) | H354138-3310-231-260-0003 | 2 |

| No. | DESCRIPTION | BY | CHKD | DATE |
|---|---|---|---|---|
| 2 | ISSUED AS PER ACORD | PJ | EA | 2018-09-20 |
| 1 | ISSUED #0002 RELEASED, STAIR PADS ADDED, DOOR NO. LOCATION REVISED | PJ | EA | 2018-09-05 |
| 0 | APPROVED FOR CONSTRUCTION | PJ | EA | 2018-09-17 |

| ROLE | NAME | SIGNATURE & DATE |
|---|---|---|
| DRAWING APPROVAL STATUS: | Approved for Construction | |

CLARK BUILDERS
ENERGY & RESOURCES

CB-INSPECTION FORM-DOC-002 REV.00
JDS ENERGY & MINING INC. | STRATAGOLD EAGLE GOLD
PROJECT #: CB201 | 18502

PROJECT MANAGER: DUSTIN DOLYNCHUK, P.ENG
QA/QC COORDINATOR: RYAN DE MILLIANO, C.E.T.
SUPERINTENDENT: GARRY DAHL

# FORMWORK & FALSEWORK PRE POUR | QA INSPECTION

Rev 01 August 25, 2018

| | |
|---|---|
| CONTRACTOR: Clark Builders | INSPECTION DATE: 9/22/2018 |
| CONTRACTOR CONTACT PERSON: DAN PELLETIER | DATE OF POUR: 9/22/2018 |
| INSPECTOR(S): JACKSON WENGER MATT COVERDALE ISHAN FECHTER | |
| LOCATION: 3310 CONE CRUSHING SOG GL-1-3 | |
| DRAWING REV: 2 | DRAWING NO.(S): 354150-231-260-0003 |
| SPEC SECTION(S): 03 10 00 | |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Location, survey, dimension and grades as required | ☑ | ☐ | ☐ |
| 2.0 | Plumbness and Flatness verified | ☑ | ☐ | ☐ |
| 3.0 | Joints are aligned and watertight. | ☑ | ☐ | ☐ |
| 4.0 | Formwork shop drawings are Engineered and reviewed | ☐ | ☐ | ☑ |
| 5.0 | Re-used formwork reconditioned and treated | ☑ | ☐ | ☐ |
| 6.0 | Formwork and ties according to finishing requirements. Confirm no holes in the concrete surface are greater than 25mm in diameter or expose steel at less than 25mm from surface. As per spec. | ☑ | ☐ | ☐ |
| 7.0 | Installation of embeds are located and secured | ☑ | ☐ | ☐ |
| 8.0 | Chamfer requirements checked. 25mm chamfers required for all exterior corners and edges exposed to view including horizontal edges of pads. | ☑ | ☐ | ☐ |
| 9.0 | Key ways and/or other provisions according to design are provided in construction joints | ☑ | ☐ | ☐ |
| 10.0 | Inspect types of form spacers, ties and bracing. | ☑ | ☐ | ☐ |
| 11.0 | Spacing of ties to be set to a pattern | ☑ | ☐ | ☐ |
| 12.0 | Expansion, construction, contraction joints as required & located as coordinated with structural Engineer | ☑ | ☐ | ☐ |
| 13.0 | Forms secured against movement during placing | ☑ | ☐ | ☐ |
| 14.0 | Forms are braced for alignment and blow out | ☑ | ☐ | ☐ |
| 15.0 | Forms are cleaned of all debris, and dry, prior to concrete placement including standing water. FINAL CLEAN READY/COMPLETED | ☑ | ☐ | ☐ |
| 16.0 | Openings in formwork permit inspection and cleaning, placing and compaction of concrete, and forming and processing of construction joints. | ☑ | ☐ | ☐ |
| 17.0 | Formwork has been coated with release agent prior to rebar placement. | ☑ | ☐ | ☐ |
| 18.0 | Anchor Bolts and Embeds are secured to formwork. | ☑ | ☐ | ☐ |

COMMENTS:

INSTALL NEW DONNA CONNA WHERE LOOSE - FIXED

ATTACHMENT(S):

DEFICIENCIES NOTES:

INITIAL INSPECTION

INSPECTOR: JACKSON WENGER TITLE PE DATE: SEPT. 22 2018

RE-INSPECTION (DEFICIENCIES COMPLETED)

INSPECTOR: Ishan Fechter TITLE Superintendent DATE: Sept. 22/18

CLARK BUILDERS
ENERGY & RESOURCES

CB-INSPECTION FORM-DOC-002 REV.00
JDS ENERGY & MINING INC. | STRATAGOLD EAGLE GOLD
PROJECT #: CB201 | 18502

PROJECT MANAGER: DUSTIN DOLYNCHUK, P.ENG
QA/QC COORDINATOR: RYAN DE MILLIANO, C.E.T.
SUPERINTENDENT: GARRY DAHL

# CONCRETE REINFORCEMENT PRE POUR

Rev 01 August 25, 2018

| | |
|---|---|
| SUBCONTRACTOR: Ultimate Reinforcing // McNish | INSPECTION DATE: 9/22/2018 |
| SUBCONTRACTOR CONTACT PERSON: CLAYTON MCGUIRE | PROJ. POUR DATE: 9/22/2018 |
| INSPECTOR(S): JACKSON WENGER ISHAN FECHTER MATT COVERDALE | |
| LOCATION: 3310 CONE CRUSHING SOG GL 1-3 | |
| DRAWING REV: 2 / DRAWING NO.(S): 34318-201-260-0003 | SPEC SECTION(S): S03 20 00 – Concrete Reinforcing Steel |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Grade (400W unless otherwise noted) and type of steel delivered and installed as required by approved drawings. | ☑ | ☐ | ☐ |
| 2.0 | Inspect rebar distribution, spacing and cover per design/project requirements. | ☑ | ☐ | ☐ |
| 3.0 | Length of splices as specified | ☑ | ☐ | ☐ |
| 4.0 | Staggered splices as specified | ☑ | ☐ | ☐ |
| 5.0 | Any mechanical splices have been approved by the owner prior to install | ☑ | ☐ | ☐ |
| 6.0 | Bars cleaned and free of material that may reduce bond including loose rust, scale, oil, structural defects and that they are uncoated and unpainted. | ☑ | ☐ | ☐ |
| 7.0 | Dowels at wall ends, construction joints, and openings as specified (length, location, size, etc.) | ☑ | ☐ | ☐ |
| 8.0 | No unauthorized field bent bars including hooks installed | ☑ | ☐ | ☐ |
| 9.0 | Resolve conflicts between embedded items and reinforcement | ☑ | ☐ | ☐ |
| 10.0 | When authorized, field bends done without heat and inspected for fissures or cracks. | ☐ | ☐ | ☑ |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 11.0 | Bars tied and supported to prevent displacement | ☑ | ☐ | ☐ |
| 12.0 | Spacers, tie wire and chairs as required | ☑ | ☐ | ☐ |
| 13.0 | Conduits at design location and minimum separation from rebar as specified | ☐ | ☐ | ☑ |
| 14.0 | No contact of bars is made with dissimilar metals as per CSA A23.1 | ☑ | ☐ | ☐ |
| 15.0 | Bars, nails or tie wire not sticking out from surfaces that allow rusting/corrosion | ☑ | ☐ | ☐ |
| 16.0 | Rebar welds are inspected by qualified inspectors certified to CSA W178.2 | ☐ | ☐ | ☑ |
| 17.0 | No rebar congestion or other obstruction for deposit of concrete | ☑ | ☐ | ☐ |
| 18.0 | Adjustments required for interfering items (piping, inserts, sleeves, etc.) have been submitted and approved by owner. | ☐ | ☐ | ☑ |
| 19.0 | Rebar was stored off ground to prevent damage/corrosion | ☑ | ☐ | ☐ |
| 20.0 | Review drawings for anchors, piping, sleeves, boxes | ☑ | ☐ | ☐ |

COMMENTS:

MAT BAR ADJACENT TO PEDESTAL NOT TIED - FIXED

ATTACHMENT(S):

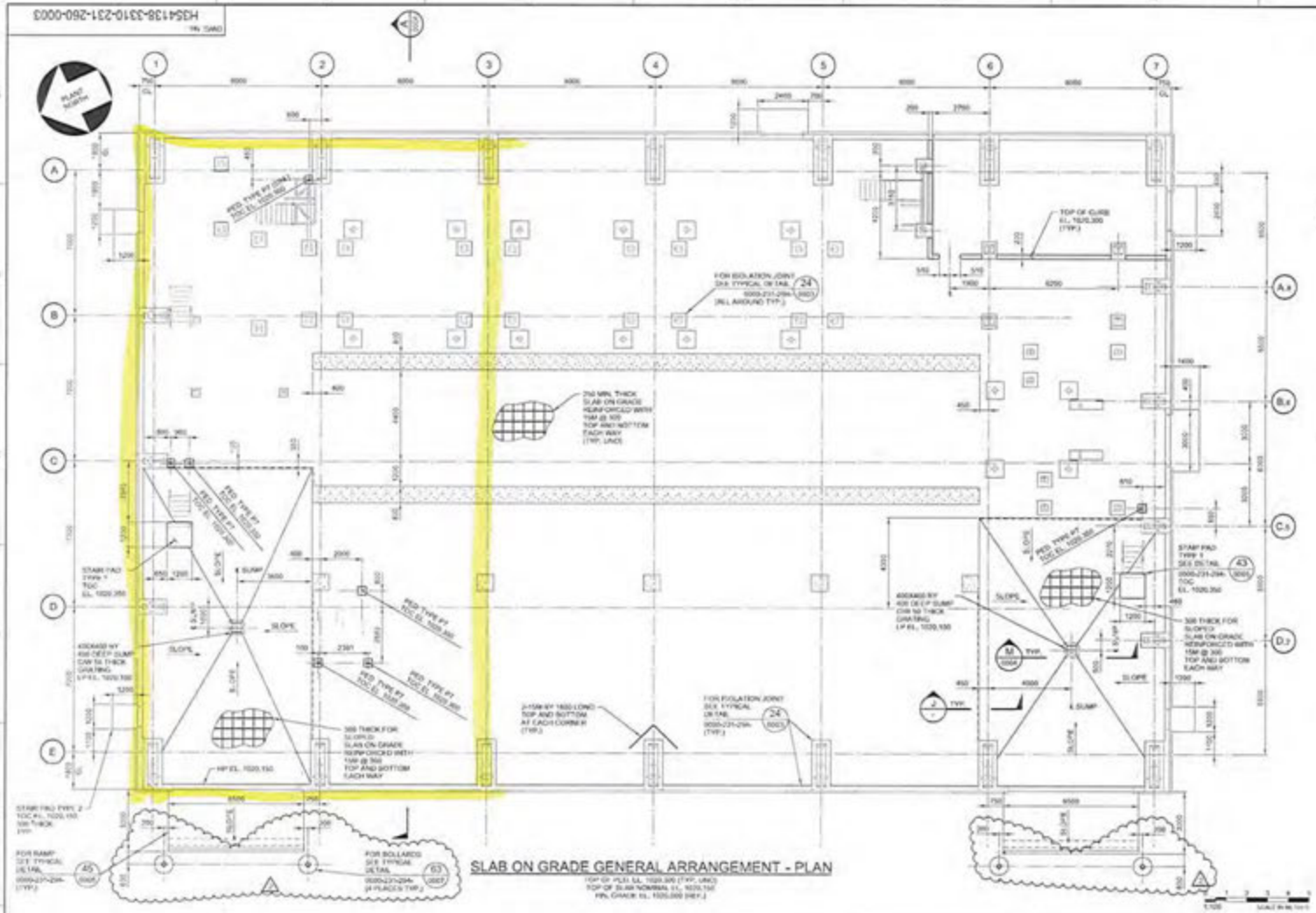
DEFICIENCIES NOTES:

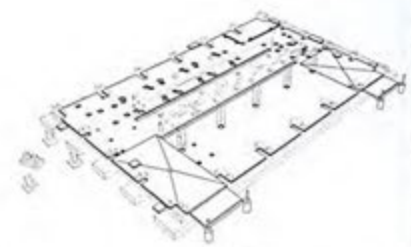
CLARK BUILDERS:

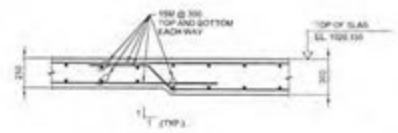
INSPECTOR: JACKSON WENGER TITLE PC DATE: SEPT. 22/2018

JDS ENERGY & MINING:

INSPECTOR: Ishan Fechter TITLE Superintendant DATE: Sept. 22/18

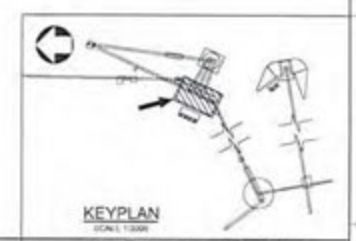



NOTES:

1. FOR NOTES SEE DRAWING H354138-3310-231-260-0001.




| No. | DESCRIPTION | BY | CHK'D | DATE |
|---|---|---|---|---|
| 2 | BOLLARDS ADDED | PJ | EA | 2018-08-09 |
| 1 | HOLD #6022 RELEASED, STAIR PADS ADDED, DOOR PAD LOCATION REVISED | PJ | EA | 2018-08-09 |
| 0 | APPROVED FOR CONSTRUCTION | PJ | EA | 2018-05-17 |

REVISIONS

HATCH

| | | |
|---|---|---|
| DRAW TOPERSON | P. JUREV | NR |
| DESIGNER | H. LI | NR |
| CHECKER | E. AKINCI | 2018-08-09 |
| DESIGN COORD. | S. PERKINS | |
| RESP. ENG. | E. AKINCI | 2018-08-09 |
| LEAD DISC. ENG. | E. AKINCI | 2018-08-09 |
| ENG. MANAGER | B. RUSTAD | 2018-08-09 |
| PROJ. MANAGER | B. RUSTAD | 2018-08-09 |

| ROLE | NAME | SIGNATURE & DATE |
|---|---|---|

DRAWING APPROVAL STATUS: Approved for Construction

StrataGold Corporation

EAGLE GOLD PROJECT

SEC/TERTIARY CRUSHING BUILDING
BUILDING FOUNDATION
SLAB ON GRADE - PLAN

SCALE 1:100 OR AS NOTED | DWG. No. H354138-3310-231-260-0003 | REV 2

SHEET SIZE D

DRAWING No. | DRAWING TITLE

REFERENCE DRAWINGS

REG. PROFESSIONAL

CB-INSPECTION FORM-DOC-002 REV.00
JDS ENERGY & MINING INC. | STRATAGOLD EAGLE GOLD
PROJECT #: CB201 | 18502

PROJECT MANAGER: DUSTIN DOLYNCHUK, P.ENG
QA/QC COORDINATOR: RYAN DE MILLIANO, C.E.T.
SUPERINTENDENT: GARRY DAHL

# CONCRETE REINFORCEMENT PRE POUR

Rev 01 August 25, 2018

| | |
|---|---|
| SUBCONTRACTOR: Ultimate Reinforcing // McNish | INSPECTION DATE: October 1, 2018 |
| SUBCONTRACTOR CONTACT PERSON: Jimmy M. | PROJ. POUR DATE: October 1, 2018 |
| INSPECTOR(S): Ryan deMilliano (CB), Don Pelletier (CB), /SWAN (JDS. | |
| LOCATION: 3310 - Secondary / Cone Crusher Bldg. Aprons / Pedestals / Curbs (As highlighted) | |
| DRAWING REV: 01 | DRAWING NO.(S): 3310-231-260-0002 / SPEC SECTION(S): S03 20 00 – Concrete Reinforcing Steel |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Grade (400W unless otherwise noted) and type of steel delivered and installed as required by approved drawings. | ☑ | ☐ | ☐ |
| 2.0 | Inspect rebar distribution, spacing and cover per design/project requirements. | ☑ | ☐ | ☐ |
| 3.0 | Length of splices as specified | ☑ | ☐ | ☐ |
| 4.0 | Staggered splices as specified | ☑ | ☐ | ☐ |
| 5.0 | Any mechanical splices have been approved by the owner prior to install | ☐ | ☐ | ☑ |
| 6.0 | Bars cleaned and free of material that may reduce bond including loose rust, scale, oil, structural defects and that they are uncoated and unpainted. | ☑ | ☐ | ☐ |
| 7.0 | Dowels at wall ends, construction joints, and openings as specified (length, location, size, etc.) | ☑ | ☐ | ☐ |
| 8.0 | No unauthorized field bent bars including hooks installed | ☑ | ☐ | ☐ |
| 9.0 | Resolve conflicts between embedded items and reinforcement | ☑ | ☐ | ☐ |
| 10.0 | When authorized, field bends done without heat and inspected for fissures or cracks. | ☐ | ☐ | ☑ |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 11.0 | Bars tied and supported to prevent displacement | ☑ | ☐ | ☐ |
| 12.0 | Spacers, tie wire and chairs as required | ☑ | ☐ | ☐ |
| 13.0 | Conduits at design location and minimum separation from rebar as specified | ☒ | ☐ | ☑ |
| 14.0 | No contact of bars is made with dissimilar metals as per CSA A23.1 | ☑ | ☐ | ☐ |
| 15.0 | Bars, nails or tie wire not sticking out from surfaces that allow rusting/corrosion | ☑ | ☐ | ☐ |
| 16.0 | Rebar welds are inspected by qualified inspectors certified to CSA W178.2 | ☐ | ☐ | ☑ |
| 17.0 | No rebar congestion or other obstruction for deposit of concrete | ☑ | ☐ | ☐ |
| 18.0 | Adjustments required for interfering items (piping, inserts, sleeves, etc.) have been submitted and approved by owner. | ☑ | ☐ | ☐ |
| 19.0 | Rebar was stored off ground to prevent damage/corrosion | ☑ | ☐ | ☐ |
| 20.0 | Review drawings for anchors, piping, sleeves, boxes | ☑ | ☐ | ☐ |

COMMENTS:

ATTACHMENT(S): DWG (Highlighted)

DEFICIENCIES NOTES:

CLARK BUILDERS:
INSPECTOR: Ryan deMilliano TITLE Project Coordinator DATE: October 1, 2018

JDS ENERGY & MINING:
INSPECTOR: Ishan Fechter TITLE Superintendent DATE: Oct. 1/18

CLARK BUILDERS
ENERGY & RESOURCES



# FORMWORK & FALSEWORK PRE POUR | QA INSPECTION

Rev 01 August 25, 2018

| | |
|---|---|
| CONTRACTOR: Clark Builders | INSPECTION DATE: October 1, 2018 |
| CONTRACTOR CONTACT PERSON: Dan Pelletier | DATE OF POUR: October 1, 2018 |
| INSPECTOR(S): Dan Pelletier, Ryan deMilliano | |
| LOCATION: 3310 - Secondary / Cone crusher bldg Apron / Pedestals. | |
| DRAWING REV: 01 | DRAWING NO.(S): 3310-231-260-0002 / SPEC SECTION(S): 503 1000 |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Location, survey, dimension and grades as required | ☑ | ☐ | ☐ |
| 2.0 | Plumbness and Flatness verified | ☑ | ☐ | ☐ |
| 3.0 | Joints are aligned and watertight. | ☑ | ☐ | ☐ |
| 4.0 | Formwork shop drawings are Engineered and reviewed | ☑ | ☐ | ☐ |
| 5.0 | Re-used formwork reconditioned and treated | ☑ | ☐ | ☐ |
| 6.0 | Formwork and ties according to finishing requirements. Confirm no holes in the concrete surface are greater than 25mm in diameter or expose steel at less than 25mm from surface. As per spec. | ☑ | ☐ | ☐ |
| 7.0 | Installation of embeds are located and secured | ☑ | ☐ | ☐ |
| 8.0 | Chamfer requirements checked. 25mm chamfers required for all exterior corners and edges exposed to view including horizontal edges of pads. | ☑ | ☐ | ☐ |
| 9.0 | Key ways and/or other provisions according to design are provided in construction joints | ☐ | ☐ | ☑ |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 10.0 | Inspect types of form spacers, ties and bracing. | ☑ | ☐ | ☐ |
| 11.0 | Spacing of ties to be set to a pattern | ☑ | ☐ | ☐ |
| 12.0 | Expansion, construction, contraction joints as required & located as coordinated with structural Engineer | ☑ | ☐ | ☐ |
| 13.0 | Forms secured against movement during placing | ☑ | ☐ | ☐ |
| 14.0 | Forms are braced for alignment and blow out | ☑ | ☐ | ☐ |
| 15.0 | Forms are cleaned of all debris, and dry, prior to concrete placement including standing water. | ☑ | ☐ | ☐ |
| 16.0 | Openings in formwork permit inspection and cleaning, placing and compaction of concrete, and forming and processing of construction joints. | ☑ | ☐ | ☐ |
| 17.0 | Formwork has been coated with release agent prior to rebar placement. | ☑ | ☐ | ☐ |
| 18.0 | Anchor Bolts and Embeds are secured to formwork. | ☑ | ☐ | ☐ |

COMMENTS:

ATTACHMENT(S):

DEFICIENCIES NOTES:

INITIAL INSPECTION

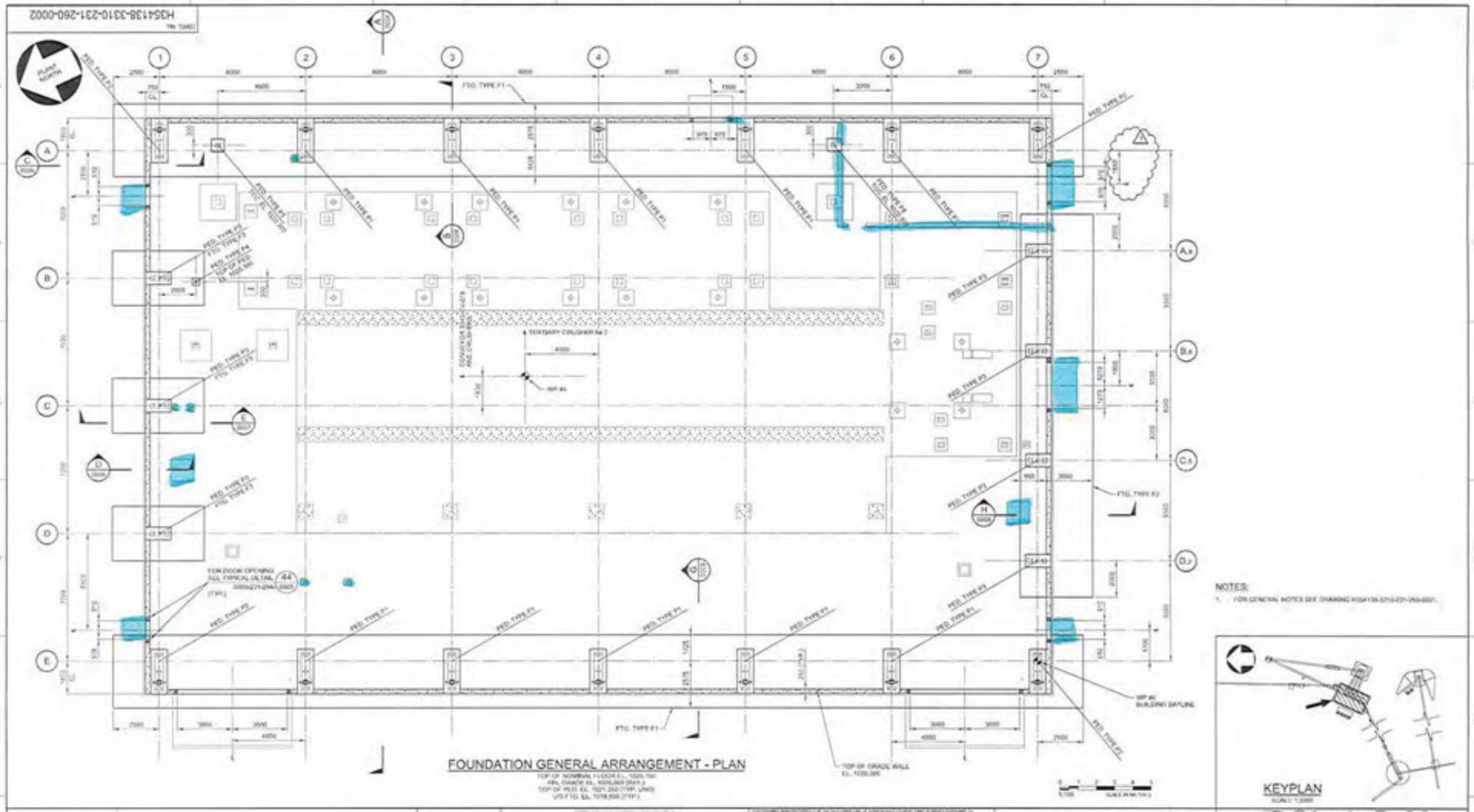
INSPECTOR: Dan Pelletier / Ryan deMilliano TITLE Foreman DATE: October 1, 2018

RE-INSPECTION (DEFICIENCIES COMPLETED)

INSPECTOR: M/R. TITLE _____ DATE: _____

IHSP DATE: OCT 1, 2018

ATTENDEES: ISHAN, RYAN D, GARY H, MATT C.,



CLARK BUILDERS
ENERGY & RESOURCES

# CONCRETE REINFORCEMENT PRE POUR

Rev 01 August 25, 2018

| | |
|---|---|
| SUBCONTRACTOR: Ultimate Reinforcing // McNish | INSPECTION DATE: Oct 14, 2018 |
| SUBCONTRACTOR CONTACT PERSON: | PROJ. POUR DATE: Oct 15, 2018 |
| INSPECTOR(S): Henry Rueda | |
| LOCATION: Area 3310 - GL 2to6 /B4 to D Secondary/Tertiary Building | |
| DRAWING REV: Ø | DRAWING NO.(S): 3320/0010-0011-0012-0013 / SPEC SECTION(S): S03 20 00 – Concrete Reinforcing Steel |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Grade (400W unless otherwise noted) and type of steel delivered and installed as required by approved drawings. | ☑ | ☐ | ☐ |
| 2.0 | Inspect rebar distribution, spacing and cover per design/project requirements. | ☑ | ☐ | ☐ |
| 3.0 | Length of splices as specified | ☑ | ☐ | ☐ |
| 4.0 | Staggered splices as specified | ☑ | ☐ | ☐ |
| 5.0 | Any mechanical splices have been approved by the owner prior to install | ☑ | ☐ | ☐ |
| 6.0 | Bars cleaned and free of material that may reduce bond including loose rust, scale, oil, structural defects and that they are uncoated and unpainted. | ☑ | ☐ | ☐ |
| 7.0 | Dowels at wall ends, construction joints, and openings as specified (length, location, size, etc.) | ☑ | ☐ | ☐ |
| 8.0 | No unauthorized field bent bars including hooks installed | ☑ | ☐ | ☐ |
| 9.0 | Resolve conflicts between embedded items and reinforcement | ☑ | ☐ | ☐ |
| 10.0 | When authorized, field bends done without heat and inspected for fissures or cracks. | ☐ | ☐ | ☑ |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 11.0 | Bars tied and supported to prevent displacement | ☑ | ☐ | ☐ |
| 12.0 | Spacers, tie wire and chairs as required | ☑ | ☐ | ☐ |
| 13.0 | Conduits at design location and minimum separation from rebar as specified | ☐ | ☐ | ☑ |
| 14.0 | No contact of bars is made with dissimilar metals as per CSA A23.1 | ☐ | ☐ | ☑ |
| 15.0 | Bars, nails or tie wire not sticking out from surfaces that allow rusting/corrosion | ☑ | ☐ | ☐ |
| 16.0 | Rebar welds are inspected by qualified inspectors certified to CSA W178.2 | ☐ | ☐ | ☑ |
| 17.0 | No rebar congestion or other obstruction for deposit of concrete | ☑ | ☐ | ☐ |
| 18.0 | Adjustments required for interfering items (piping, inserts, sleeves, etc.) have been submitted and approved by owner. | ☑ | ☐ | ☐ |
| 19.0 | Rebar was stored off ground to prevent damage/corrosion | ☑ | ☐ | ☐ |
| 20.0 | Review drawings for anchors, piping, sleeves, boxes | ☑ | ☐ | ☐ |

COMMENTS:

1. Move Embedded plate at 6/C.3
2. Rebar missing line B.4 & C.3
3. 20M U-BAR alignment incorrect as desinged.

ATTACHMENT(S):

Dwg 3320/-0010-0009
Dwg 3320/-0010-0011
DWG 3320/0011-0010

DEFICIENCIES NOTES:

1. Plate was relocated ✓
2. Rebars were added ✓
3. Structural designer was consulted & is ok to proceed. ✓

CLARK BUILDERS:

INSPECTOR: CB Henry Rueda TITLE: PM DATE: Oct 14/18

JDS ENERGY & MINING:

INSPECTOR: Jerry C JDS TITLE: Superintendent DATE: Oct 14/18

CLARK BUILDERS
ENERGY & RESOURCES

CB-INSPECTION FORM-DOC-002 REV.00
JDS ENERGY & MINING INC. | STRATAGOLD EAGLE GOLD
PROJECT #: CB201 | 18502

PROJECT MANAGER: DUSTIN DOLYNCHUK, P.ENG
QA/QC COORDINATOR: RYAN DE MILLIANO, C.E.T.
SUPERINTENDENT: GARRY DAHL

# FORMWORK & FALSEWORK PRE POUR | QA INSPECTION

Rev 01 August 25, 2018

| | |
|---|---|
| CONTRACTOR: Clark Builders | INSPECTION DATE: Oct 14/2018 |
| CONTRACTOR CONTACT PERSON: | DATE OF POUR: Oct 15/2018 |
| INSPECTOR(S): HENRY RUEDA | |
| LOCATION: SECONDARY / TERTIARY BUILDING - AREA 3310 GL → 2 to 6 / B4 to D | |
| DRAWING REV: Ø | DRAWING NO.(S): 3320/0010-0011-0012-0013 / SPEC SECTION(S): |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Location, survey, dimension and grades as required | ☑ | ☐ | ☐ |
| 2.0 | Plumbness and Flatness verified | ☑ | ☐ | ☐ |
| 3.0 | Joints are aligned and watertight. | ☑ | ☐ | ☐ |
| 4.0 | Formwork shop drawings are Engineered and reviewed | ☑ | ☐ | ☐ |
| 5.0 | Re-used formwork reconditioned and treated | ☑ | ☐ | ☐ |
| 6.0 | Formwork and ties according to finishing requirements. Confirm no holes in the concrete surface are greater than 25mm in diameter or expose steel at less than 25mm from surface. As per spec. | ☑ | ☐ | ☐ |
| 7.0 | Installation of embeds are located and secured | ☑ | ☐ | ☐ |
| 8.0 | Chamfer requirements checked. 25mm chamfers required for all exterior corners and edges exposed to view including horizontal edges of pads. | ☐ | ☐ | ☑ |
| 9.0 | Key ways and/or other provisions according to design are provided in construction joints | ☐ | ☐ | ☑ |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 10.0 | Inspect types of form spacers, ties and bracing. | ☑ | ☐ | ☐ |
| 11.0 | Spacing of ties to be set to a pattern | ☑ | ☐ | ☐ |
| 12.0 | Expansion, construction, contraction joints as required & located as coordinated with structural Engineer | ☐ | ☐ | ☑ |
| 13.0 | Forms secured against movement during placing | ☑ | ☐ | ☐ |
| 14.0 | Forms are braced for alignment and blow out | ☑ | ☐ | ☐ |
| 15.0 | Forms are cleaned of all debris, and dry, prior to concrete placement including standing water. | ☑ | ☐ | ☐ |
| 16.0 | Openings in formwork permit inspection and cleaning, placing and compaction of concrete, and forming and processing of construction joints. | ☐ | ☐ | ☑ |
| 17.0 | Formwork has been coated with release agent prior to rebar placement. | ☑ | ☐ | ☐ |
| 18.0 | Anchor Bolts and Embeds are secured to formwork. | ☑ | ☐ | ☐ |

COMMENTS:

Formwork ready for pour.

ATTACHMENT(S):

DEFICIENCIES NOTES:

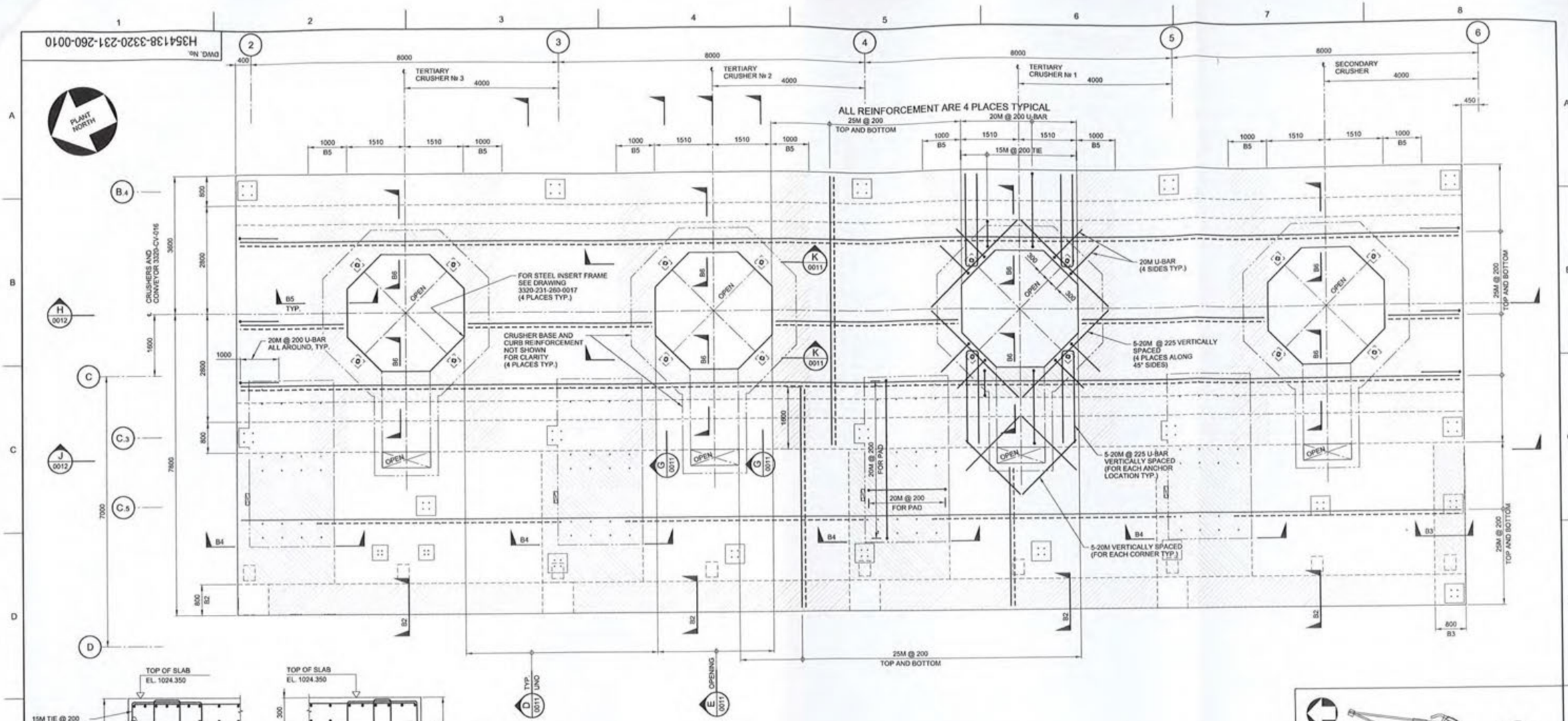
INITIAL INSPECTION

INSPECTOR: Jerry L JITS TITLE Superintendent DATE: Oct.14/18

CB. HENRY RUEDA PM Oct 14/18

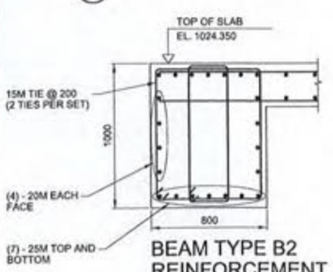
INSPECTION (DEFICIENCIES COMPLETED)

INSPECTOR: Jerry L JITS TITLE Superintendent DATE: Oct.15/18

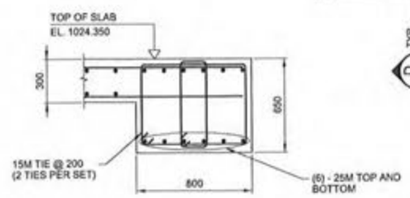



## CRUSHER SUPPORT - ELEVATED SLAB REINFORCEMENT - PLAN

TOP OF SLAB. EL. 1024.350




BEAM TYPE B2 REINFORCEMENT DETAIL 2 / -
SCALE: 1:20

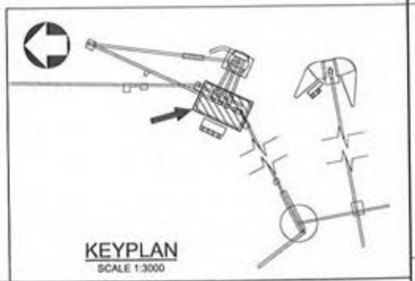



BEAM TYPE B3 REINFORCEMENT DETAIL 3 / - 3 / 0012
SCALE: 1:20

PERMIT TO PRACTICE
HATCH
SIGNATURE Isia Alin
Date MAY 4, 2018
PERMIT NUMBER PP154
Association of Professional Engineers of Yukon

NOTES:
1. FOR NOTES SEE DRAWING H354138-3320-231-260-0001.

0 500 1000 1500 2000 2500
1:50 SCALE IN MILLIMETRES



KEYPLAN
SCALE 1:3000

| DRAWING No. | DRAWING TITLE |
|---|---|
| REFERENCE DRAWINGS | |

PROFESSIONAL ENGINEER YUKON ESPIA AKINCI TERRITORY
Isia Alin
MAY 4, 2018
REG. PROFESSIONAL

| No. | DESCRIPTION | BY | CHK'D | DATE |
|---|---|---|---|---|
| 0 | APPROVED FOR CONSTRUCTION | PJ | EA | 2018-05-04 |

REVISIONS

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HATCH

| ROLE | NAME | SIGNATURE & DATE |
|---|---|---|
| DRAFTSPERSON | P. JIVAEV | NR |
| DESIGNER | H. LI | NR |
| CHECKER | E. AKINCI | |
| DESIGN COORD. | S. PERKINS | |
| RESP. ENG. | E. AKINCI | |
| LEAD DISC. ENG. | E. AKINCI | |
| ENG. MANAGER | B. RUSTAD | |
| PROJ. MANAGER | B. RUSTAD | |

DRAWING APPROVAL STATUS: Approved for Construction

StrataGold Corporation

EAGLE GOLD PROJECT

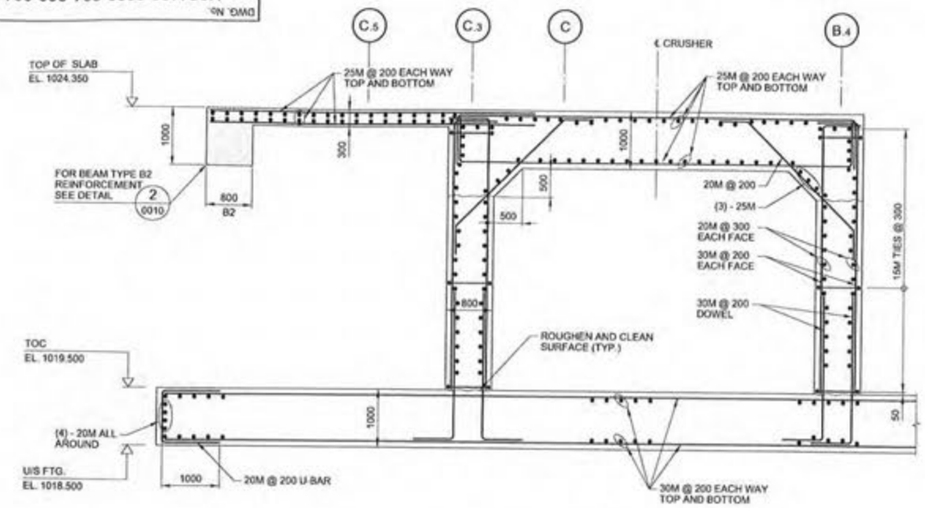
SECONDARY CRUSHING
CRUSHER AND SCREEN SUPPORT FDN.
ELEVATED SLAB REINFORCEMENT - PLAN

SCALE 1:50 OR AS NOTED | DWG. No. H354138-3320-231-260-0010 | REV 0

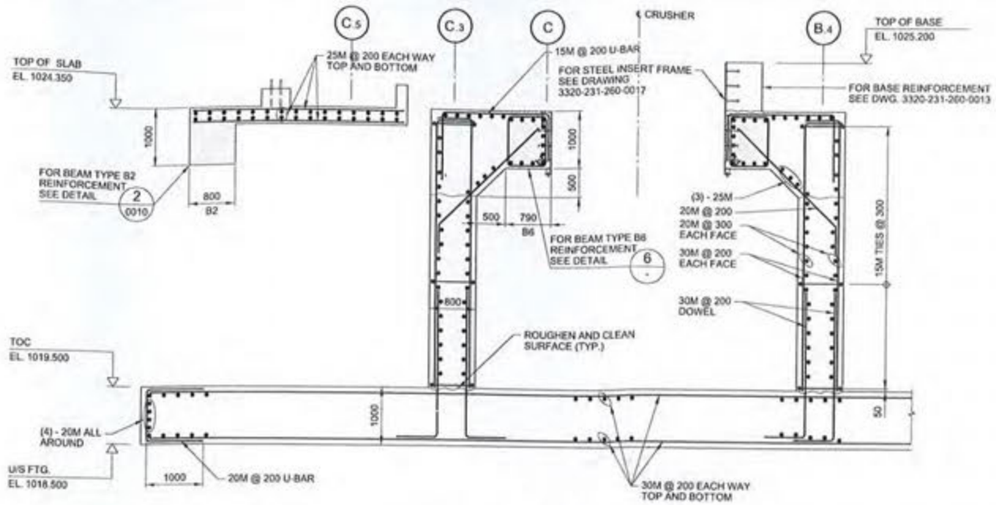
SHEET SIZE: D

$FILE$
PRINTED: 04-MAY-2018
idc_pwservice
14:03

DWG. No. H354138-3320-231-260-0011




SECTION D D D D
TYPICAL FOR WALL AND SLAB 0007 0008 0009 0010

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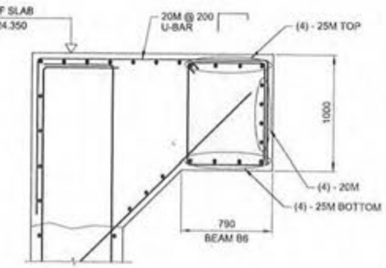
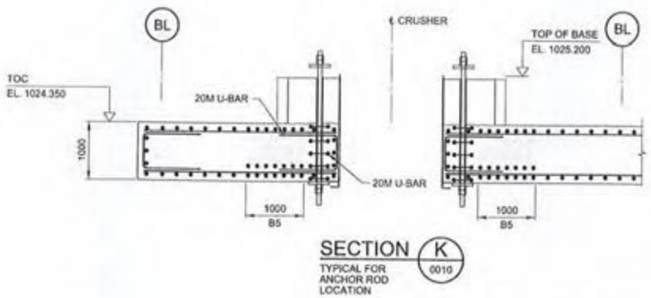
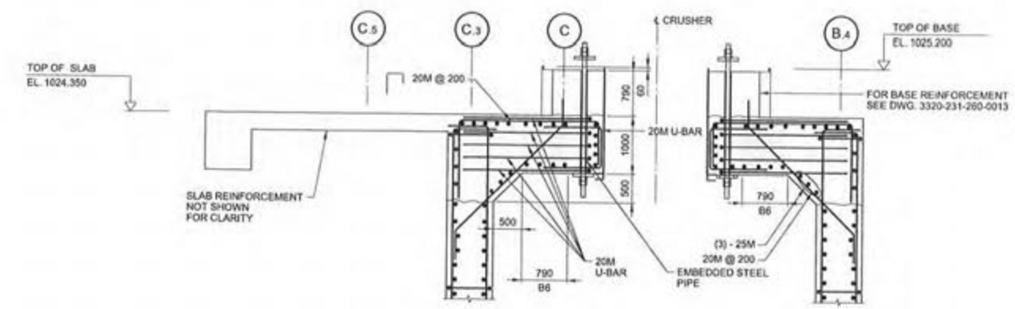
TYPICAL FOR SLAB OPENING LOCATION 0007 0008 0009 0010




BEAM TYPE B6
REINFORCEMENT
DETAIL 6
SCALE: 1:25




SECTION K
TYPICAL FOR ANCHOR ROD LOCATION 0010

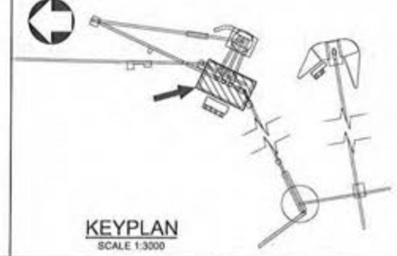



SECTION G
TYPICAL FOR ANCHOR ROD LOCATION 0010

PERMIT TO PRACTICE
HATCH
SIGNATURE: Isia Akinci
Date: MAY 4, 2018
PERMIT NUMBER PP154
Association of Professional Engineers of Yukon

NOTES:
1. FOR NOTES SEE DRAWING H354138-3320-231-260-0001.

0 500 1000 1500 2000 2500
1:50 SCALE IN MILLIMETRES



KEYPLAN
SCALE 1:3000

| DRAWING No. | DRAWING TITLE |
|---|---|
| REFERENCE DRAWINGS | REG. PROFESSIONAL |

PROFESSIONAL ENGINEER YUKON TERRITORY ISIA AKINCI
Isia Akinci
MAY 4, 2018

| No. | DESCRIPTION | BY | CHK'D | DATE |
|---|---|---|---|---|
| 0 | APPROVED FOR CONSTRUCTION | PJ | EA | 2018-05-04 |
| REVISIONS | | | | |

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HATCH

| | | |
|---|---|---|
| DRAFTSPERSON | P. JIVAEV | NR |
| DESIGNER | H. LI | NR |
| CHECKER | E. AKINCI | |
| DESIGN COORD. | S. PERKINS | |
| RESP. ENG. | E. AKINCI | |
| LEAD DISC. ENG. | E. AKINCI | |
| ENG. MANAGER | B. RUSTAD | |
| PROJ. MANAGER | B. RUSTAD | |
| ROLE | NAME | SIGNATURE & DATE |
| DRAWING APPROVAL STATUS: | Approved for Construction | |

StrataGold Corporation

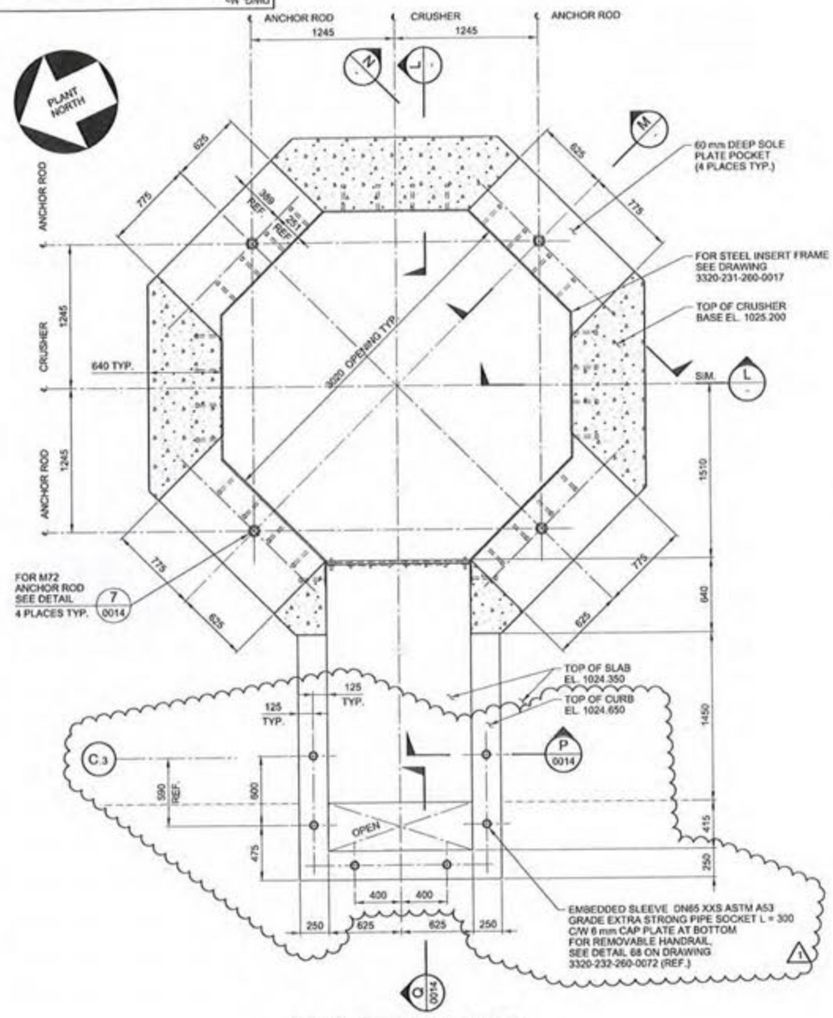
EAGLE GOLD PROJECT

SECONDARY CRUSHING
CRUSHER AND SCREEN SUPPORT FDN.
REINFORCEMENT SECTIONS - SHEET 1

SCALE 1:50 OR AS NOTED | DWG. No. H354138-3320-231-260-0011 | REV 0 | SHEET SIZE: D

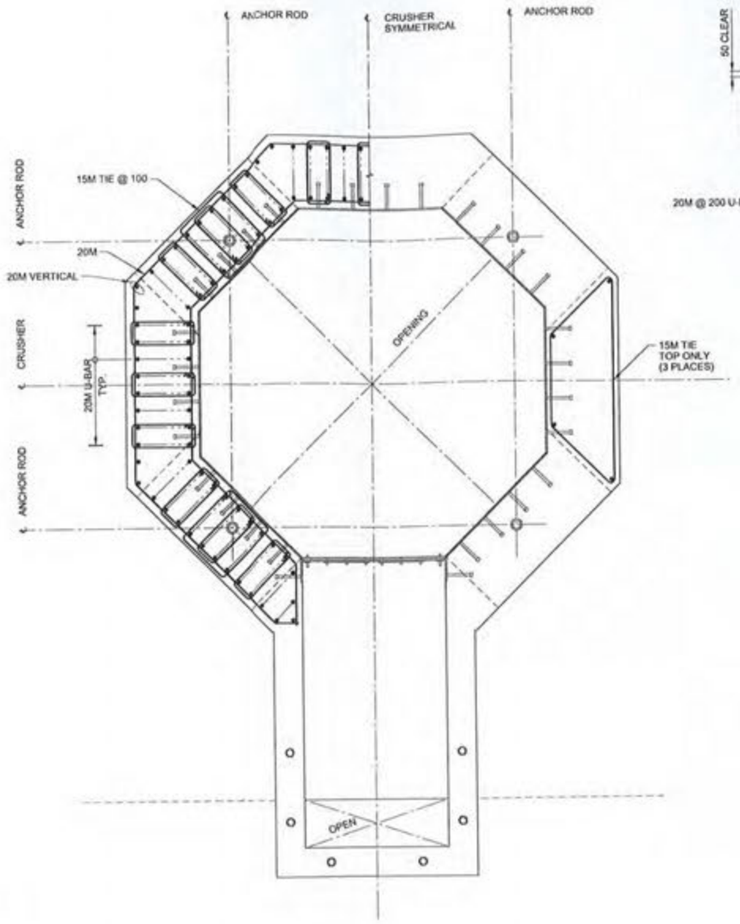
$FILE$
PRINTED: 04-MAY-2018
idc_pwservice
14:08

DWG. No. H354138-3320-231-260-0013



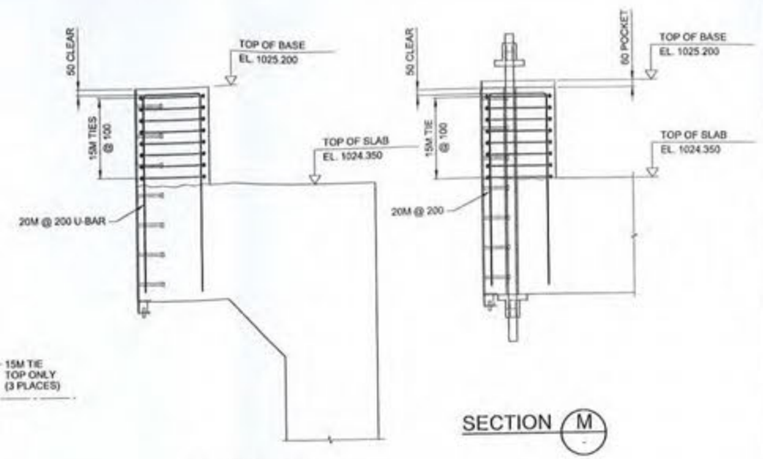

## CRUSHER BASE - PLAN

TOP OF BASE EL. 1025.200
TOP OF SLAB. EL. 1024.350




## CRUSHER BASE - REINFORCEMENT - PLAN

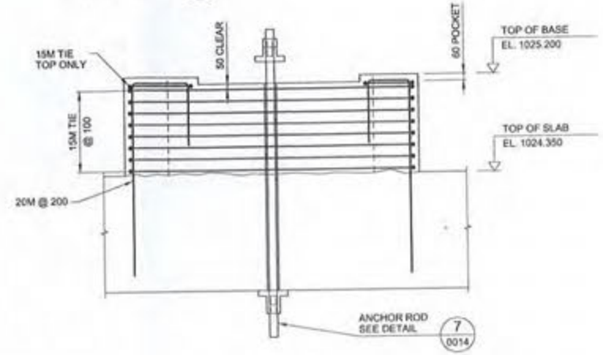
TOP OF BASE EL. 1025.200
TOP OF SLAB. EL. 1024.350




## SECTION M

## SECTION L

SCALE: 1:25




## SECTION N

NOTES:

1. FOR NOTES SEE DRAWING H354138-3320-231-260-0001.

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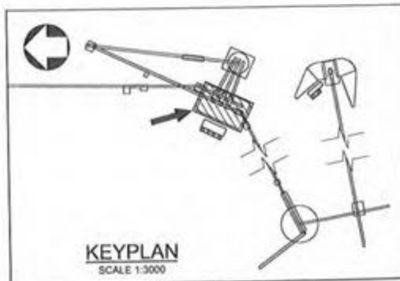
1:50 SCALE IN MILLIMETRES



KEYPLAN
SCALE 1:3000

PERMIT TO PRACTICE HATCH 2018-08-09

PROFESSIONAL ENGINEER TERRITORY OF YUKON 2018-08-09

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| No. | DESCRIPTION | BY | CHKD | DATE |
|---|---|---|---|---|
| 1 | CURB ELEVATION AND THICKNESS REVISED, EMBEDDED SLEEVES ADDED | PJ | EA | 2018-08-09 |
| 0 | APPROVED FOR CONSTRUCTION | PJ | EA | 2018-05-04 |

REVISIONS

| DRAWING No. | DRAWING TITLE |
|---|---|
| REFERENCE DRAWINGS | |

REG. PROFESSIONAL

HATCH

| ROLE | NAME | SIGNATURE & DATE |
|---|---|---|
| DRAFTSPERSON | P. JIVAEV | NR |
| DESIGNER | H. LI | NR |
| CHECKER | E. AKINCI | 2018-08-09 |
| DESIGN COORD. | S. PERKINS | |
| RESP. ENG. | E. AKINCI | 2018-08-09 |
| LEAD DISC. ENG. | E. AKINCI | 2018-08-09 |
| ENG. MANAGER | B. RUSTAD | 2018-08-09 |
| PROJ. MANAGER | B. RUSTAD | 2018-08-09 |

DRAWING APPROVAL STATUS: Approved for Construction

StrataGold Corporation

EAGLE GOLD PROJECT

SECONDARY CRUSHING
CRUSHER AND SCREEN SUPPORT FDN.
CRUSHER BASE REINFORCEMENT

SCALE 1:25 OR AS NOTED

DWG. No. H354138-3320-231-260-0013

REV 1

SHEET SIZE: D

SFILES PRINTED: 09-AUG-2018 18:11 dc_pwservice

DWG. No. H354138-3320-231-260-0009

PLANT NORTH

TERTIARY CRUSHER № 3

TERTIARY CRUSHER № 2

TERTIARY CRUSHER № 1

SECONDARY CRUSHER

PED. TYPE P10 TOC EL. 1024.650 10 PLACES TYP. ALONG BL B.4 AND C.3

PED. TYPE P10 TOC EL. 1024.650

FOR STEEL INSERT FRAME SEE DRAWING 3320-231-260-0017 (4 PLACES TYP.)

TOP OF BASE EL. 1025.200 (4 PLACES TYP.)

EMBEDDED SLEEVE FOR REMOVABLE HANDRAIL SEE CRUSHER BASE PLAN ON DRAWING 3320-231-260-0013 (TYP.)

TOP OF MOTOR PAD EL. 1024.450 (4 PLACES TYP.)

OPENING 4 PLACES TYP.

TOP OF CURB EL. 1024.650

PED. TYPE P11 TOC EL. 1024.650 8 PLACES TYP.

PED. TYPE P12 TOC EL. 1024.650

EMBEDDED PLATE U/S CONCRETE

FOR ANCHOR ROD SEE DETAIL 8 0014 4 PLACES TYP.

100X300 OPENING (4 PLACES TYP.)

EMBEDDED PLATE EP-1 U/S CONCRETE SEE DETAIL 11 0015 9 PLACES TYP.

SLAB THICKNESS = 1000

SLAB 300 THICK

MOTOR

CRUSHERS

# CRUSHER SUPPORT - ELEVATED SLAB - PLAN

TOP OF SLAB EL. 1024.350

NOTES:

1. FOR NOTES SEE DRAWING H354138-3320-231-260-0001.

1:50 SCALE IN MILLIMETRES 0 500 1000 1500 2000 2500

KEYPLAN SCALE 1:3000

PERMIT TO PRACTICE HATCH 2018-08-15 PROFESSIONAL ENGINEER 2018-08-15

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| No. | DESCRIPTION | BY | CHK'D | DATE |
|---|---|---|---|---|
| 1 | PED. P10 ADDED, PED. P11 AND P12 RELOCATED, TOP OF CURB REVISED, SECTION 'X' ADDED, BAY LINE C.5 REMOVED | PJ | EA | 2018-08-15 |
| 0 | APPROVED FOR CONSTRUCTION | PJ | EA | 2018-05-04 |

REVISIONS

| ROLE | NAME | SIGNATURE & DATE |
|---|---|---|
| DRAFTSPERSON | P. JIVAEV | NR |
| DESIGNER | H. LI | NR |
| CHECKER | E. AKINCI | 2018-08-15 |
| DESIGN COORD. | S. PERKINS | 2018-08-15 |
| RESP. ENG. | E. AKINCI | 2018-08-15 |
| LEAD DISC. ENG. | E. AKINCI | 2018-08-15 |
| ENG. MANAGER | B. RUSTAD | |
| PROJ. MANAGER | B. RUSTAD | |

DRAWING APPROVAL STATUS: Approved for Construction

REFERENCE DRAWINGS — DRAWING No. — DRAWING TITLE

REG. PROFESSIONAL

HATCH

StrataGold Corporation

EAGLE GOLD PROJECT

SECONDARY CRUSHING
CRUSHER AND SCREEN SUPPORT FDN.
ELEVATED SLAB PLAN

SCALE 1:50 OR AS NOTED

DWG. No. H354138-3320-231-260-0009

REV 1

SHEET SIZE: D

$FILE$
PRINTED: 15-AUG-2018
ide_pwservice
13:16

CLARK BUILDERS
ENERGY & RESOURCES

CB-INSPECTION FORM-DOC-002 REV.00
JDS ENERGY & MINING INC. | STRATAGOLD EAGLE GOLD
PROJECT #: CB201 | 18502

PROJECT MANAGER: DUSTIN DOLYNCHUK, P.ENG
QA/QC COORDINATOR: RYAN DE MILLIANO, C.E.T.
SUPERINTENDENT: GARRY DAHL

# CONCRETE REINFORCEMENT PRE POUR

Rev 01 August 25, 2018

| | |
|---|---|
| SUBCONTRACTOR: Ultimate Reinforcing // McNish | INSPECTION DATE: October 22, 2018 |
| SUBCONTRACTOR CONTACT PERSON: Graham | PROJ. POUR DATE: October 24, 2018 |
| INSPECTOR(S): R. van de Milano, Matt C (JDS) | |
| LOCATION: 3320/3310 Secondary // Pedestals, Octagonal Screen/Crusher Bases (x2) | |
| DRAWING REV: 00 | DRAWING NO.(S): 3320-231-260-0010 |
| SPEC SECTION(S): S03 20 00 – Concrete Reinforcing Steel | |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Grade (400W unless otherwise noted) and type of steel delivered and installed as required by approved drawings. | ☑ | ☐ | ☐ |
| 2.0 | Inspect rebar distribution, spacing and cover per design/project requirements. | ☑ | ☐ | ☐ |
| 3.0 | Length of splices as specified | ☑ | ☐ | ☐ |
| 4.0 | Staggered splices as specified | ☑ | ☐ | ☐ |
| 5.0 | Any mechanical splices have been approved by the owner prior to install | ☐ | ☐ | ☑ |
| 6.0 | Bars cleaned and free of material that may reduce bond including loose rust, scale, oil, structural defects and that they are uncoated and unpainted. | ☑ | ☐ | ☐ |
| 7.0 | Dowels at wall ends, construction joints, and openings as specified (length, location, size, etc.) | ☑ | ☐ | ☐ |
| 8.0 | No unauthorized field bent bars including hooks installed | ☑ | ☐ | ☐ |
| 9.0 | Resolve conflicts between embedded items and reinforcement | ☑ | ☐ | ☐ |
| 10.0 | When authorized, field bends done without heat and inspected for fissures or cracks. | ☐ | ☐ | ☑ |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 11.0 | Bars tied and supported to prevent displacement | ☑ | ☐ | ☐ |
| 12.0 | Spacers, tie wire and chairs as required | ☑ | ☐ | ☐ |
| 13.0 | Conduits at design location and minimum separation from rebar as specified | ☑ | ☐ | ☐ |
| 14.0 | No contact of bars is made with dissimilar metals as per CSA A23.1 | ☑ | ☐ | ☐ |
| 15.0 | Bars, nails or tie wire not sticking out from surfaces that allow rusting/corrosion | ☑ | ☐ | ☐ |
| 16.0 | Rebar welds are inspected by qualified inspectors certified to CSA W178.2 | ☑ | ☐ | ☐ |
| 17.0 | No rebar congestion or other obstruction for deposit of concrete | ☑ | ☐ | ☐ |
| 18.0 | Adjustments required for interfering items (piping, inserts, sleeves, etc.) have been submitted and approved by owner. | ☑ | ☐ | ☐ |
| 19.0 | Rebar was stored off ground to prevent damage/corrosion | ☑ | ☐ | ☐ |
| 20.0 | Review drawings for anchors, piping, sleeves, boxes | ☑ | ☐ | ☐ |

COMMENTS:

ATTACHMENT(S):

DEFICIENCIES NOTES:

Clean wire, water, sawdust

CLARK BUILDERS
INSPECTOR: Ryan de Milano // TITLE Project Coordinator DATE: Oct 22/18

JDS ENERGY & MINING:
INSPECTOR: Matt Caverdale MC TITLE Field Eng DATE: Oct 25/18

CB-INSPECTION FORM-DOC-002 REV.00
JDS ENERGY & MINING INC. | STRATAGOLD EAGLE GOLD
PROJECT #: CB201 | 18502

PROJECT MANAGER: DUSTIN DOLYNCHUK, P.ENG
QA/QC COORDINATOR: RYAN DE MILLIANO, C.E.T.
SUPERINTENDENT: GARRY DAHL

CLARK BUILDERS
ENERGY & RESOURCES

# FORMWORK & FALSEWORK PRE POUR | QA INSPECTION

Rev 01 August 25, 2018

| | |
|---|---|
| CONTRACTOR: Clark Builders | INSPECTION DATE: OCTOBER 22, 2018 |
| CONTRACTOR CONTACT PERSON: DAN DILLATTIE | DATE OF POUR: OCTOBER 24, 2018 |
| INSPECTOR(S): RYAN DAVILLAND, MATT C (JDS), DAN DILLATTIE. | |
| LOCATION: 3320 SECONDARY // PEDESTALS AND SCREEN/CRUSHER BASES (x2) | |
| DRAWING REV: 00 / DRAWING NO.(S): 3320-231-760-0010 | SPEC SECTION(S): 503100 |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Location, survey, dimension and grades as required | ☑ | ☐ | ☐ |
| 2.0 | Plumbness and Flatness verified | ☑ | ☐ | ☐ |
| 3.0 | Joints are aligned and watertight. | ☑ | ☐ | ☐ |
| 4.0 | Formwork shop drawings are Engineered and reviewed | ☑ | ☐ | ☐ |
| 5.0 | Re-used formwork reconditioned and treated | ☑ | ☐ | ☐ |
| 6.0 | Formwork and ties according to finishing requirements. Confirm no holes in the concrete surface are greater than 25mm in diameter or expose steel at less than 25mm from surface. As per spec. | ☑ | ☐ | ☐ |
| 7.0 | Installation of embeds are located and secured | ☑ | ☐ | ☐ |
| 8.0 | Chamfer requirements checked. 25mm chamfers required for all exterior corners and edges exposed to view including horizontal edges of pads. | ☑ | ☐ | ☐ |
| 9.0 | Key ways and/or other provisions according to design are provided in construction joints | ☐ | ☐ | ☑ |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 10.0 | Inspect types of form spacers, ties and bracing. | ☑ | ☐ | ☐ |
| 11.0 | Spacing of ties to be set to a pattern | ☑ | ☐ | ☐ |
| 12.0 | Expansion, construction, contraction joints as required & located as coordinated with structural Engineer | ☐ | ☐ | ☑ |
| 13.0 | Forms secured against movement during placing | ☑ | ☐ | ☐ |
| 14.0 | Forms are braced for alignment and blow out | ☑ | ☐ | ☐ |
| 15.0 | Forms are cleaned of all debris, and dry, prior to concrete placement including standing water. | ☑ | ☐ | ☐ |
| 16.0 | Openings in formwork permit inspection and cleaning, placing and compaction of concrete, and forming and processing of construction joints. | ☑ | ☐ | ☐ |
| 17.0 | Formwork has been coated with release agent prior to rebar placement. | ☑ | ☐ | ☐ |
| 18.0 | Anchor Bolts and Embeds are secured to formwork. | ☑ | ☐ | ☐ |

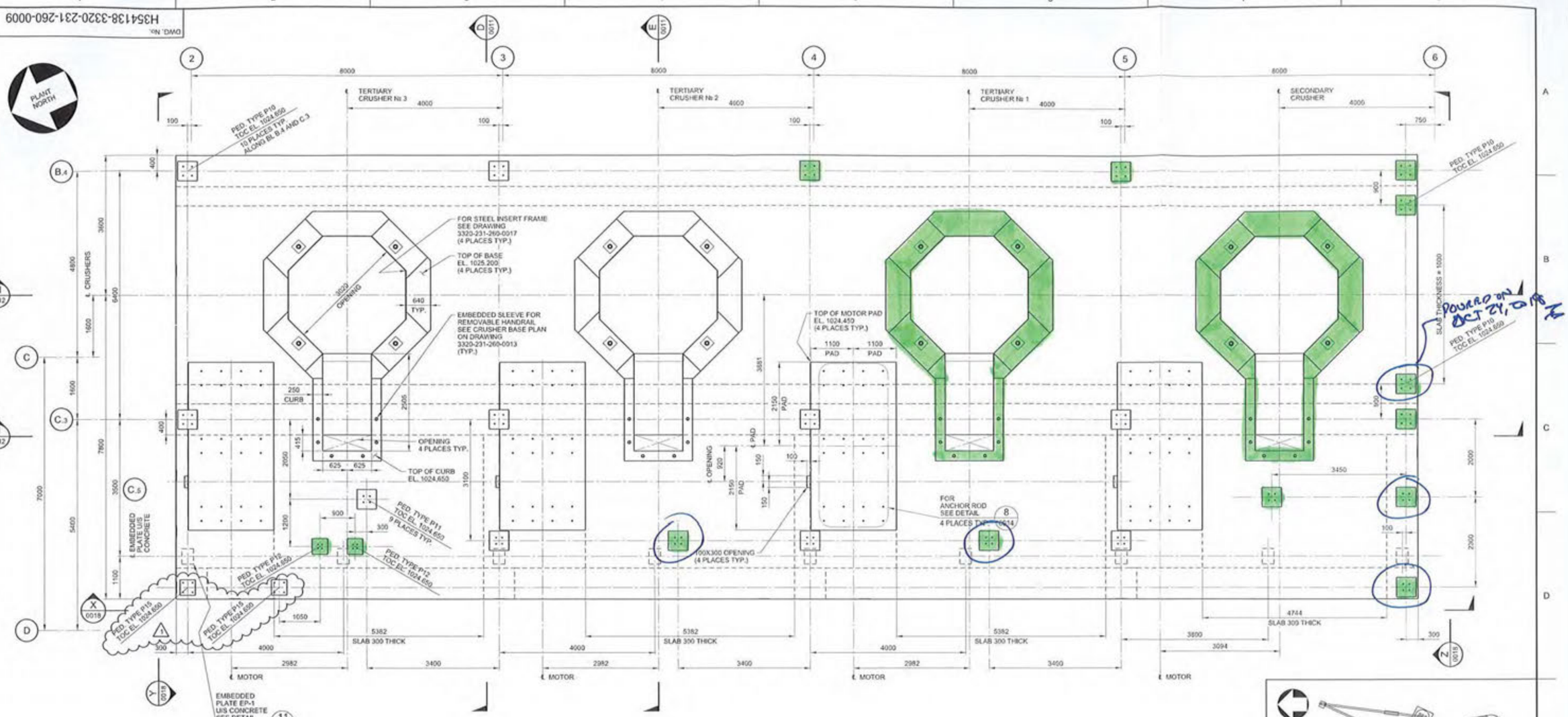
COMMENTS:

ATTACHMENT(S):
PWG.

DEFICIENCIES NOTES:
2 ANCHOR BOLTS TO BE LOCATED INTO CRUSHER BASE PLATE, REMOVED FOR REINFORCING. TO BE CLEANED INSIDE FORMWORK. SOUND CLEANED LATER POUR.

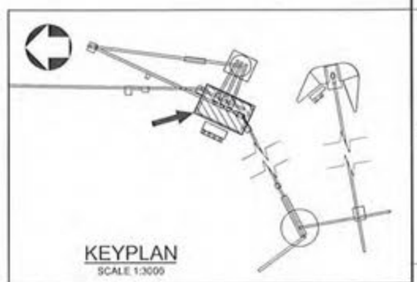
INITIAL INSPECTION
INSPECTOR: Ryan Davilland // TITLE Project Coordinator DATE: Oct 22, 2018

RE-INSPECTION (DEFICIENCIES COMPLETED)
INSPECTOR: Matt Coverdale MC TITLE Field Eng DATE: Oct 25, 2018




## CRUSHER SUPPORT - ELEVATED SLAB - PLAN

TOP OF SLAB EL. 1024.350



KEYPLAN

SCALE 1:3000

**NOTES:**

1. FOR NOTES SEE DRAWING H354138-3320-231-260-0001.

0 500 1000 1500 2000 2500

1:50 SCALE IN MILLIMETRES

| DRAWING No. | DRAWING TITLE |
|---|---|
| REFERENCE DRAWINGS | |

REG. PROFESSIONAL

PROFESSIONAL YUKON EDGA MONCI TERRITORY ENGINEER 2018 10 18

| No. | DESCRIPTION | BY | CHK'D | DATE |
|---|---|---|---|---|
| 2 | PED. TYPE P12 CHANGED TO PED. TYPE P15 - 2 PLACES ONLY | PJ | EA | 2018-10-18 |
| 1 | PED. P10 ADDED, PED. P11 AND P12 RELOCATED, TOP OF CURB REVISED, SECTION 'X' ADDED, BAY LINE C.5 REMOVED | PJ | EA | 2018-08-15 |
| 0 | APPROVED FOR CONSTRUCTION | PJ | EA | 2018-05-04 |

REVISIONS

HATCH

| ROLE | NAME | SIGNATURE & DATE |
|---|---|---|
| DRAFTSPERSON | P. JIVAEV | NR |
| DESIGNER | H. LI | NR |
| CHECKER | E. AKINCI | 2018-10-18 |
| DESIGN COORD. | S. PERKINS | 2018-10-18 |
| RESP. ENG. | E. AKINCI | 2018-10-18 |
| LEAD DISC. ENG. | E. AKINCI | 2018-10-18 |
| ENG. MANAGER | B. RUSTAD | 2018-10-18 |
| PROJ. MANAGER | B. RUSTAD | 2018-10-18 |

DRAWING APPROVAL STATUS: Approved for Construction

StrataGold Corporation

EAGLE GOLD PROJECT

SECONDARY CRUSHING
CRUSHER AND SCREEN SUPPORT FDN.
ELEVATED SLAB PLAN

SCALE 1:50 OR AS NOTED

DWG. No. H354138-3320-231-260-0009

REV 2

SHEET SIZE: D

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CLARK BUILDERS
ENERGY & RESOURCES

CB-INSPECTION FORM-DOC-002 REV.00
JDS ENERGY & MINING INC. | STRATAGOLD EAGLE GOLD
PROJECT #: CB201 | 18502

PROJECT MANAGER: DUSTIN DOLYNCHUK, P.ENG
QA/QC COORDINATOR: RYAN DE MILLIANO, C.E.T.
SUPERINTENDENT: GARRY DAHL

# FORMWORK & FALSEWORK PRE POUR | QA INSPECTION

Rev 01 August 25, 2018

| | |
|---|---|
| CONTRACTOR: Clark Builders | INSPECTION DATE: Oct 23, 2018 |
| CONTRACTOR CONTACT PERSON: DAN PELLETIER | DATE OF POUR: Oct 23/24, 2018 |
| INSPECTOR(S): PETER NICE (CB), LEHAN (JDS), NATI C (JDS) | |
| LOCATION: 3320 SECONDARY // West Aprons, East Apron, Motor Pad 1 & 2 | |
| DRAWING REV: | DRAWING NO.(S): SPEC SECTION(S): |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Location, survey, dimension and grades as required | ☑ | ☐ | ☐ |
| 2.0 | Plumbness and Flatness verified | ☑ | ☐ | ☐ |
| 3.0 | Joints are aligned and watertight. | ☑ | ☐ | ☐ |
| 4.0 | Formwork shop drawings are Engineered and reviewed | ☑ | ☐ | ☐ |
| 5.0 | Re-used formwork reconditioned and treated | ☑ | ☐ | ☐ |
| 6.0 | Formwork and ties according to finishing requirements. Confirm no holes in the concrete surface are greater than 25mm in diameter or expose steel at less than 25mm from surface. As per spec. | ☑ | ☐ | ☐ |
| 7.0 | Installation of embeds are located and secured | ☑ | ☐ | ☐ |
| 8.0 | Chamfer requirements checked. 25mm chamfers required for all exterior corners and edges exposed to view including horizontal edges of pads. | ☑ | ☐ | ☐ |
| 9.0 | Key ways and/or other provisions according to design are provided in construction joints | ☐ | ☐ | ☑ |
| 10.0 | Inspect types of form spacers, ties and bracing. | ☑ | ☐ | ☐ |
| 11.0 | Spacing of ties to be set to a pattern | ☑ | ☐ | ☐ |
| 12.0 | Expansion, construction, contraction joints as required & located as coordinated with structural Engineer | ☑ | ☐ | ☐ |
| 13.0 | Forms secured against movement during placing | ☑ | ☐ | ☐ |
| 14.0 | Forms are braced for alignment and blow out | ☑ | ☐ | ☐ |
| 15.0 | Forms are cleaned of all debris, and dry, prior to concrete placement including standing water. | ☑ | ☐ | ☐ |
| 16.0 | Openings in formwork permit inspection and cleaning, placing and compaction of concrete, and forming and processing of construction joints. | ☑ | ☐ | ☐ |
| 17.0 | Formwork has been coated with release agent prior to rebar placement. | ☑ | ☐ | ☐ |
| 18.0 | Anchor Bolts and Embeds are secured to formwork. | ☑ | ☐ | N/A |

COMMENTS:

ATTACHMENT(S):

DEFICIENCIES NOTES:

Place bollards in designed location as per drawing 231-260-0003 R2
Remove water & debris from formwork.

INITIAL INSPECTION

INSPECTOR: Matt Caverhill MMC TITLE Field Eng DATE: 2018 10 23

CLARK BUILDERS

~~RE-INSPECTION~~ (DEFICIENCIES COMPLETED)

INSPECTOR: PETER NICE // TITLE SUPERINTENDENT DATE: Oct 23/18

Rev 00: May 4, 2018

CLARK BUILDERS
ENERGY & RESOURCES



PROJECT MANAGER: DUSTIN DOLYNCHUK, P.ENG
QA/QC COORDINATOR: RYAN DE MILLIANO, C.E.T.
SUPERINTENDENT: GARRY DAHL

# CONCRETE REINFORCEMENT PRE POUR

Rev 01 August 25, 2018

| | |
|---|---|
| SUBCONTRACTOR: Ultimate Reinforcing // McNish | INSPECTION DATE: October 23, 2018 |
| SUBCONTRACTOR CONTACT PERSON: Clayton | PROJ. POUR DATE: October 23/24, 2018 |
| INSPECTOR(S): Matt C (JDS), Ishan (JDS), Peter Nice (CB) | |
| LOCATION: 3320 Secondary // West Aprons (Ramps), East Apron, Motor Pads #1&2 | |
| DRAWING REV: / DRAWING NO.(S): | SPEC SECTION(S): S03 20 00 – Concrete Reinforcing Steel |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Grade (400W unless otherwise noted) and type of steel delivered and installed as required by approved drawings. | ☑ | ☐ | ☐ |
| 2.0 | Inspect rebar distribution, spacing and cover per design/project requirements. | ☑ | ☐ | ☐ |
| 3.0 | Length of splices as specified | ☑ | ☐ | ☐ |
| 4.0 | Staggered splices as specified | ☑ | ☐ | ☐ |
| 5.0 | Any mechanical splices have been approved by the owner prior to install | ☐ | ☐ | ☑ |
| 6.0 | Bars cleaned and free of material that may reduce bond including loose rust, scale, oil, structural defects and that they are uncoated and unpainted. | ☑ | ☐ | ☐ |
| 7.0 | Dowels at wall ends, construction joints, and openings as specified (length, location, size, etc.) | ☑ | ☐ | ☑ |
| 8.0 | No unauthorized field bent bars including hooks installed | ☑ | ☐ | ☐ |
| 9.0 | Resolve conflicts between embedded items and reinforcement | ☑ | ☐ | ☐ |
| 10.0 | When authorized, field bends done without heat and inspected for fissures or cracks. | ☐ | ☐ | ☑ |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 11.0 | Bars tied and supported to prevent displacement | ☑ | ☐ | ☐ |
| 12.0 | Spacers, tie wire and chairs as required | ☑ | ☐ | ☐ |
| 13.0 | Conduits at design location and minimum separation from rebar as specified | ☐ | ☐ | ☑ |
| 14.0 | No contact of bars is made with dissimilar metals as per CSA A23.1 | ☑ | ☐ | ☐ |
| 15.0 | Bars, nails or tie wire not sticking out from surfaces that allow rusting/corrosion | ☑ | ☐ | ☐ |
| 16.0 | Rebar welds are inspected by qualified inspectors certified to CSA W178.2 | ☑ | ☐ | ☐ |
| 17.0 | No rebar congestion or other obstruction for deposit of concrete | ☑ | ☐ | ☐ |
| 18.0 | Adjustments required for interfering items (piping, inserts, sleeves, etc.) have been submitted and approved by owner. | ☑ | ☐ | ☐ |
| 19.0 | Rebar was stored off ground to prevent damage/corrosion | ☑ | ☐ | ☐ |
| 20.0 | Review drawings for anchors, piping, sleeves, boxes | ☑ | ☐ | ☐ |

COMMENTS:

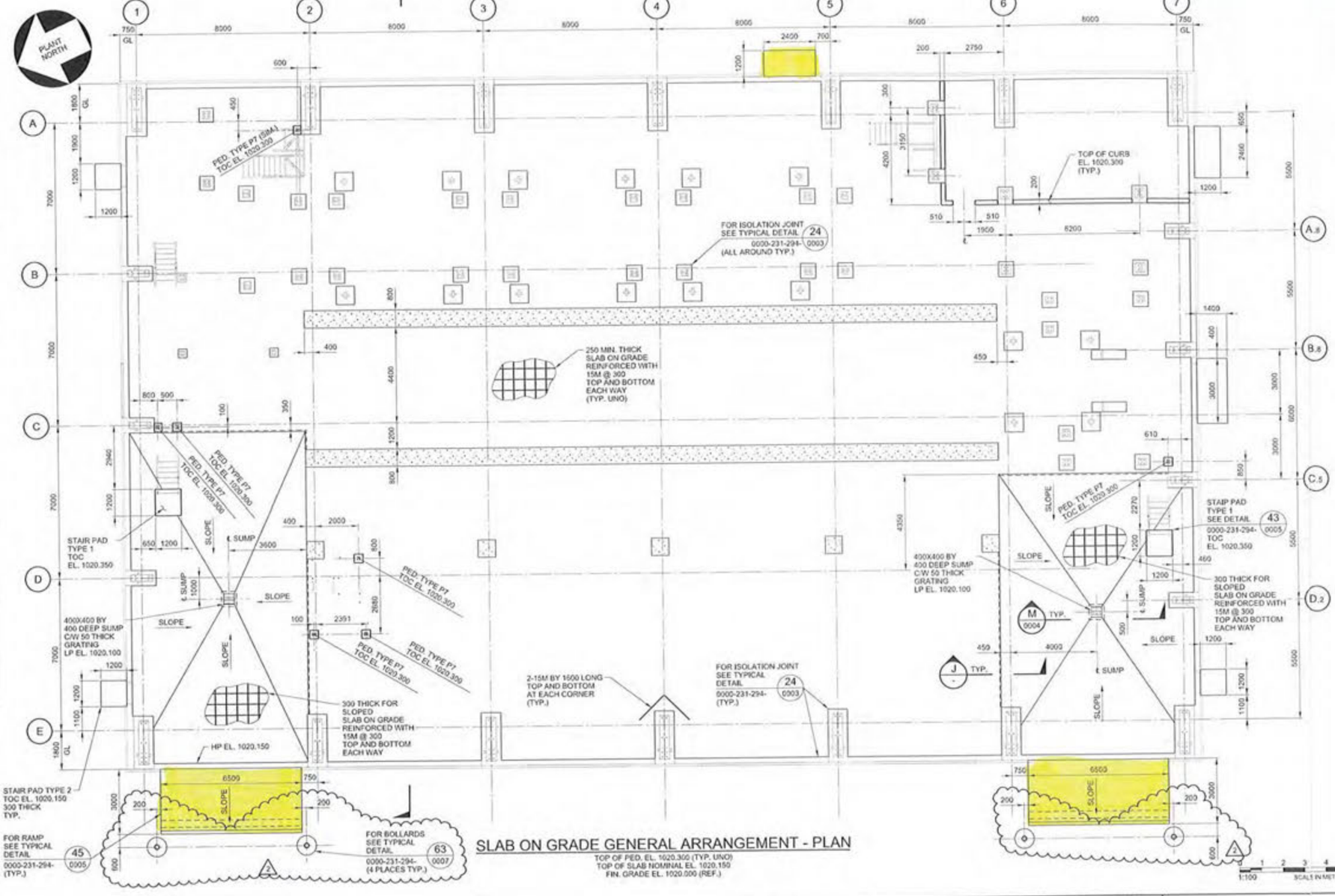
ATTACHMENT(S):

DEFICIENCIES NOTES:

Ensure 70mm of cover is achieved under top mat of motor pads

CLARK BUILDERS:
INSPECTOR: Peter Nice // TITLE Superintendent DATE: Oct 23/18

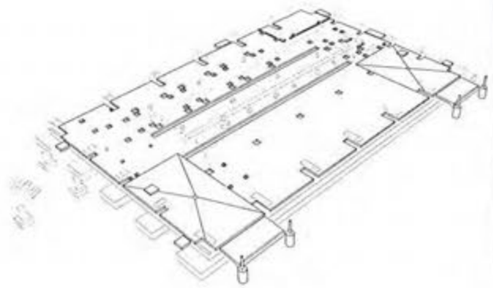
JDS ENERGY & MINING:
INSPECTOR: Matt Caverdale TITLE Field Eng DATE: 2018 10 23




## SLAB ON GRADE GENERAL ARRANGEMENT - PLAN

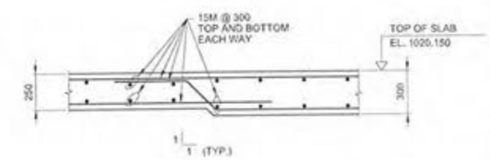
TOP OF PED. EL. 1020.300 (TYP. UNO)
TOP OF SLAB NOMINAL EL. 1020.150
FIN. GRADE EL. 1020.000 (REF.)

1:100 SCALE IN METRES



## ISOMETRIC VIEW

NTS

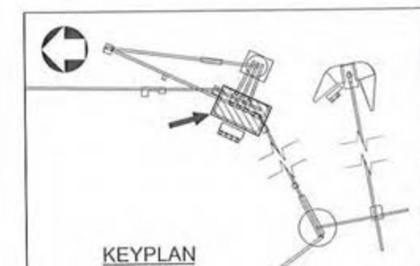



## SECTION J

SCALE: 1:20

NOTES:

1. FOR NOTES SEE DRAWING H354138-3310-231-260-0001.



## KEYPLAN

SCALE 1:3000

| DRAWING No. | DRAWING TITLE |
|---|---|
| REFERENCE DRAWINGS | |

REG. PROFESSIONAL: 2018-08-09

| No. | DESCRIPTION | BY | CHK'D | DATE |
|---|---|---|---|---|
| 2 | BOLLARDS ADDED | PJ | EA | 2018-08-09 |
| 1 | HOLD H0022 RELEASED, STAIR PADS ADDED, DOOR PAL LOCATION REVISED | PJ | EA | 2018-06-05 |
| 0 | APPROVED FOR CONSTRUCTION | PJ | EA | 2018-05-17 |

REVISIONS

HATCH

| ROLE | NAME | SIGNATURE & DATE |
|---|---|---|
| DRAFTSPERSON | P. JIVAEV | NR |
| DESIGNER | H. LI | NR |
| CHECKER | E. AKINCI | 2018-08-09 |
| DESIGN COORD. | S. PERKINS | |
| RESP. ENG. | E. AKINCI | 2018-08-09 |
| LEAD DISC. ENG. | E. AKINCI | 2018-08-09 |
| ENG. MANAGER | B. RUSTAD | 2018-08-09 |
| PROJ. MANAGER | B. RUSTAD | 2018-08-09 |

DRAWING APPROVAL STATUS: Approved for Construction

StrataGold Corporation

EAGLE GOLD PROJECT

SEC/TERTIARY CRUSHING BUILDING
BUILDING FOUNDATION
SLAB ON GRADE - PLAN

SCALE 1:100 OR AS NOTED | DWG. No. H354138-3310-231-260-0003 | REV 2

SHEET SIZE: D

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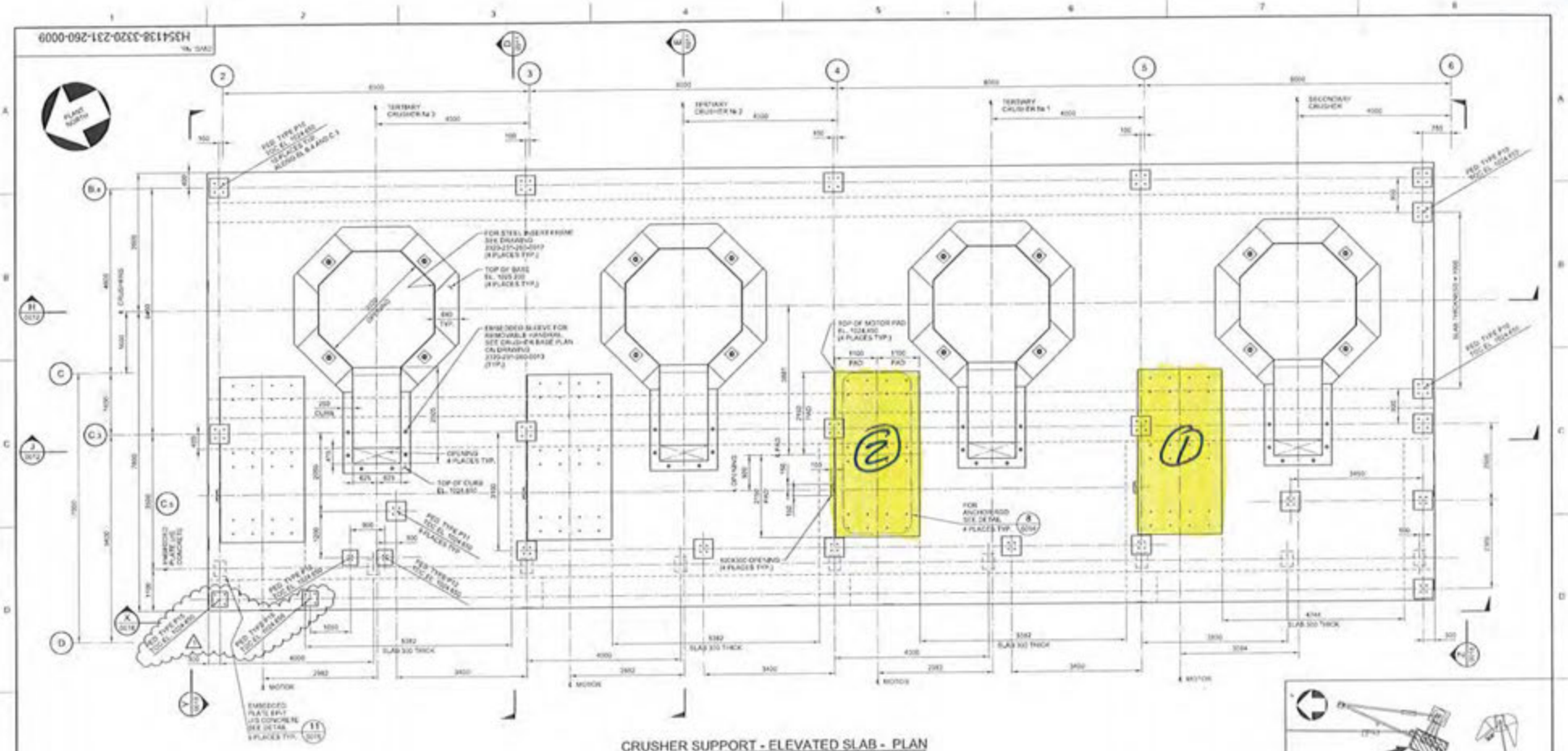



| No. | DESCRIPTION | BY | CHKD | DATE |
|---|---|---|---|---|
| 2 | PED. TYPE P12 CHANGED TO PED. TYPE P15 - 2 PLACES ONLY | PJ | EA | 2018-10-18 |
| 1 | PED. P10 ADDED, PED. P11 AND P12 RELOCATED, TOP OF CURB REVISED, SECTION 'A' ADDED, BAY LINE C.5 REMOVED | PJ | EA | 2018-08-15 |
| 0 | APPROVED FOR CONSTRUCTION | PJ | EA | 2018-05-04 |

REVISIONS

| DRAWING No. | DRAWING TITLE |
|---|---|
| REFERENCE DRAWINGS | |

REG. PROFESSIONAL

HATCH

| | | | |
|---|---|---|---|
| DRAFTS/PERSON | P. JAVACY | | |
| DESIGNER | P. LIS | | |
| CHECKER | E. AHINCI | | 2018-10-18 |
| DESIGN COORD. | S. PERKINS | | 2018-10-18 |
| RESP. ENG. | E. AHINCI | | 2018-10-18 |
| LEAD DISC. ENG. | E. AHINCI | | 2018-10-18 |
| ENG. MANAGER | R. RUSTAD | | 2018-10-18 |
| PROJ. MANAGER | R. RUSTAD | | 2018-10-18 |
| ROLE | NAME | SIGNATURE & DATE | |

DRAWING APPROVAL STATUS: Approved for Construction

StrataGold Corporation

EAGLE GOLD PROJECT

SECONDARY CRUSHING
CRUSHER AND SCREEN SUPPORT FDN.
ELEVATED SLAB PLAN

SCALE 1:50 | DWG. No. H354138-3320-231-260-0009 | REV 2

SHEET SIZE: D

CLARK BUILDERS
ENERGY & RESOURCES

# CONCRETE POST POUR COLD WEATHER MONITORING

Rev 01 July 4, 2018

| | | | |
|---|---|---|---|
| CONTRACTOR: CLARK BUILDERS | | DATE OF POUR: OCT 23 / OCT 24 | |
| WEATHER/ AMBIENT TEMP (°C): VARIOUS (-5°C - +5°C) | | DATE FORMWORK STRIPPED: | |
| INSPECTOR(S): RYAN DEMILLIANO | | DATE OF INSPECTION: VARIOUS OCT 23 → 26 | |
| LOCATION: SECONDARY MOTOR PADS / APRON / RAMPS | | | |
| DRAWING NO.(S): 02 | DRAWING REV: 3810-0003 | SPEC SECTION(S): S03 30 00 – Cast-In-Place | |

TYPE OF CURING:

| | | | | | |
|---|---|---|---|---|---|
| CURING COMPOUND | ☒ | DAMP BURLAP OR FABRIC | ☐ | INSULATION (TARPS) | ☒ |
| POLYETHYLENE SHEETS | ☐ | WATER/FOG SPRAY/ PONDING | ☐ | FORMS (COVERED BY) | ☒ |

| COLD WEATHER REQUIREMENTS (WHEN AMB. TEMP < 5°C) | PASS | FAIL | N/A | REMARKS |
|---|---|---|---|---|
| Protection in place for 5 days at temperatures not lower than 20°C or until 70% of the 28-day strength has been reached. | ☒ | ☐ | ☐ | |
| Cold weather protection provided by means of heated enclosures, coverings, insulation, or a suitable approved combination of these methods during complete curing period. | ☒ | ☐ | ☐ | |
| During freezing weather, water curing terminated 12h before the end of the protection period (CSA A 23.1 clause 7.4.2.4.2) | ☐ | ☐ | ☒ | |
| | | | | |

CONCRETE CURING TEMPERATURE LOG (COLD WEATHER CONCRETEING ONLY)

| DATE | TIME (24 HR) | OUTSIDE AIR TEMP (°C) | TEMP INSIDE HOARDING (°C) | CONCRETE SURFACE TEMP (°C) | | INITIALS OF READER |
|---|---|---|---|---|---|---|
| | | | | HIGH (°C) | LOW (°C) | |
| Oct 24, 2018 | 14:00 | +3°C | +20°C | +25°C | +20°C | |
| Oct 25, 2018 | 11:30 | +2°C | +21°C | +24°C | +19°C | |
| Oct 26, 2018 | 12:00 | 0°C | +14°C | +15°C | +10°C | |
| Oct 27, 2018 | 07:00 | -2°C | — | +6°C | +1°C | |
| | | | | | | |

| | |
|---|---|
| COMMENTS: | |
| | |
| ATTACHMENT(S): | |
| | |

**CLARK BUILDERS SITE REPRESENTATIVE**

PRINT/ SIGN: Ryan deMilliano TITLE Project Coordinator DATE: Oct 24/18

CLARK BUILDERS
ENERGY & RESOURCES



PROJECT MANAGER: DUSTIN DOLYNCHUK, P.ENG
QA/QC COORDINATOR: RYAN DE MILLIANO, C.E.T.
SUPERINTENDENT: GARRY DAHL

# CONCRETE REINFORCEMENT PRE POUR

Rev 01 August 25, 2018

| | |
|---|---|
| SUBCONTRACTOR: Ultimate Reinforcing // McNish | INSPECTION DATE: October 24, 2018 |
| SUBCONTRACTOR CONTACT PERSON: CLAYTON | PROJ. POUR DATE: October 24, 2018/Oct 25 |
| INSPECTOR(S): ~~Ryan deMilliano~~; MATT C (JDS), DAN PELLERIN (CB) | |
| LOCATION: 3320 SECONDARY // 2x MOTOR PADS (3, 4) SEE ATTACHED SKETCH. | |
| DRAWING REV: 02 / DRAWING NO.(S): 3320-0009 | SPEC SECTION(S): S03 20 00 – Concrete Reinforcing Steel |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Grade (400W unless otherwise noted) and type of steel delivered and installed as required by approved drawings. | ☑ | ☐ | ☐ |
| 2.0 | Inspect rebar distribution, spacing and cover per design/project requirements. | ☑ | ☐ | ☐ |
| 3.0 | Length of splices as specified | ☑ | ☐ | ☐ |
| 4.0 | Staggered splices as specified | ☑ | ☐ | ☐ |
| 5.0 | Any mechanical splices have been approved by the owner prior to install | ☐ | ☐ | ☑ |
| 6.0 | Bars cleaned and free of material that may reduce bond including loose rust, scale, oil, structural defects and that they are uncoated and unpainted. | ☑ | ☐ | ☐ |
| 7.0 | Dowels at wall ends, construction joints, and openings as specified (length, location, size, etc.) | ☐ | ☐ | ☑ |
| 8.0 | No unauthorized field bent bars including hooks installed | ☑ | ☐ | ☐ |
| 9.0 | Resolve conflicts between embedded items and reinforcement | ☑ | ☐ | ☐ |
| 10.0 | When authorized, field bends done without heat and inspected for fissures or cracks. | ☐ | ☐ | ☑ |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 11.0 | Bars tied and supported to prevent displacement CAN INCORRATE. | ☑ | ☐ | ☐ |
| 12.0 | Spacers, tie wire and chairs as required | ☑ | ☐ | ☐ |
| 13.0 | Conduits at design location and minimum separation from rebar as specified | ☐ | ☐ | ☑ |
| 14.0 | No contact of bars is made with dissimilar metals as per CSA A23.1 | ☑ | ☐ | ☐ |
| 15.0 | Bars, nails or tie wire not sticking out from surfaces that allow rusting/corrosion | ☑ | ☐ | ☐ |
| 16.0 | Rebar welds are inspected by qualified inspectors certified to CSA W178.2 | ☐ | ☐ | ☑ |
| 17.0 | No rebar congestion or other obstruction for deposit of concrete | ☑ | ☐ | ☐ |
| 18.0 | Adjustments required for interfering items (piping, inserts, sleeves, etc.) have been submitted and approved by owner. | ☐ | ☐ | ☑ |
| 19.0 | Rebar was stored off ground to prevent damage/corrosion | ☑ | ☐ | ☐ |
| 20.0 | Review drawings for anchors, piping, sleeves, boxes | ☑ | ☐ | ☐ |

COMMENTS:

- CONCRETE WAS CHIPPED DOWN ~~80~~ 70mm TO ALLOW FOR PROPER BOND TO TOP MAT REINFORCEMENT. ZS

ATTACHMENT(S):

DWG (HIGHLIGHT)

DEFICIENCIES NOTES:

CLARK BUILDERS:
INSPECTOR: Ryan deMilliano // TITLE Project Coordinator DATE: Oct 24/18

JDS ENERGY & MINING:
INSPECTOR: Ishan Fechter TITLE Superintendent DATE: Oct. 24/18

CLARK BUILDERS
ENERGY & RESOURCES

CB-INSPECTION FORM-DOC-002 REV.00
JDS ENERGY & MINING INC. | STRATAGOLD EAGLE GOLD
PROJECT #: CB201 | 18502

PROJECT MANAGER: DUSTIN DOLYNCHUK, P.ENG
QA/QC COORDINATOR: RYAN DE MILLIANO, C.E.T.
SUPERINTENDENT: GARRY DAHL

# FORMWORK & FALSEWORK PRE POUR | QA INSPECTION

Rev 01 August 25, 2018

| | |
|---|---|
| CONTRACTOR: Clark Builders | INSPECTION DATE: Oct 24/18 |
| CONTRACTOR CONTACT PERSON: Dan Pelletier | DATE OF POUR: Oct 24/18 |
| INSPECTOR(S): Matt C, Dan Pelletier. | |
| LOCATION: 3320 | |
| DRAWING REV: 02 | DRAWING NO.(S): 3320-0009 |
| | SPEC SECTION(S): |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Location, survey, dimension and grades as required | ☑ | ☐ | ☐ |
| 2.0 | Plumbness and Flatness verified | ☑ | ☐ | ☐ |
| 3.0 | Joints are aligned and watertight. | ☑ | ☐ | ☐ |
| 4.0 | Formwork shop drawings are Engineered and reviewed | ☐ | ☐ | ☑ |
| 5.0 | Re-used formwork reconditioned and treated | ☑ | ☐ | ☐ |
| 6.0 | Formwork and ties according to finishing requirements. Confirm no holes in the concrete surface are greater than 25mm in diameter or expose steel at less than 25mm from surface. As per spec. | ☑ | ☐ | ☐ |
| 7.0 | Installation of embeds are located and secured | ☑ | ☐ | ☐ |
| 8.0 | Chamfer requirements checked. 25mm chamfers required for all exterior corners and edges exposed to view including horizontal edges of pads. | ☑ | ☐ | ☐ |
| 9.0 | Key ways and/or other provisions according to design are provided in construction joints | ☑ | ☐ | ☐ |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 10.0 | Inspect types of form spacers, ties and bracing. | ☑ | ☐ | ☐ |
| 11.0 | Spacing of ties to be set to a pattern | N/A | ☐ | ☑ |
| 12.0 | Expansion, construction, contraction joints as required & located as coordinated with structural Engineer | ☑ | ☐ | ☐ |
| 13.0 | Forms secured against movement during placing | ☑ | ☐ | ☐ |
| 14.0 | Forms are braced for alignment and blow out | ☑ | ☐ | ☐ |
| 15.0 | Forms are cleaned of all debris, and dry, prior to concrete placement including standing water. | ☑ | ☐ | ☐ |
| 16.0 | Openings in formwork permit inspection and cleaning, placing and compaction of concrete, and forming and processing of construction joints. | ☑ | ☐ | ☐ |
| 17.0 | Formwork has been coated with release agent prior to rebar placement. | ☑ | ☐ | ☐ |
| 18.0 | Anchor Bolts and Embeds are secured to formwork. | ☑ | ☐ | ☐ |

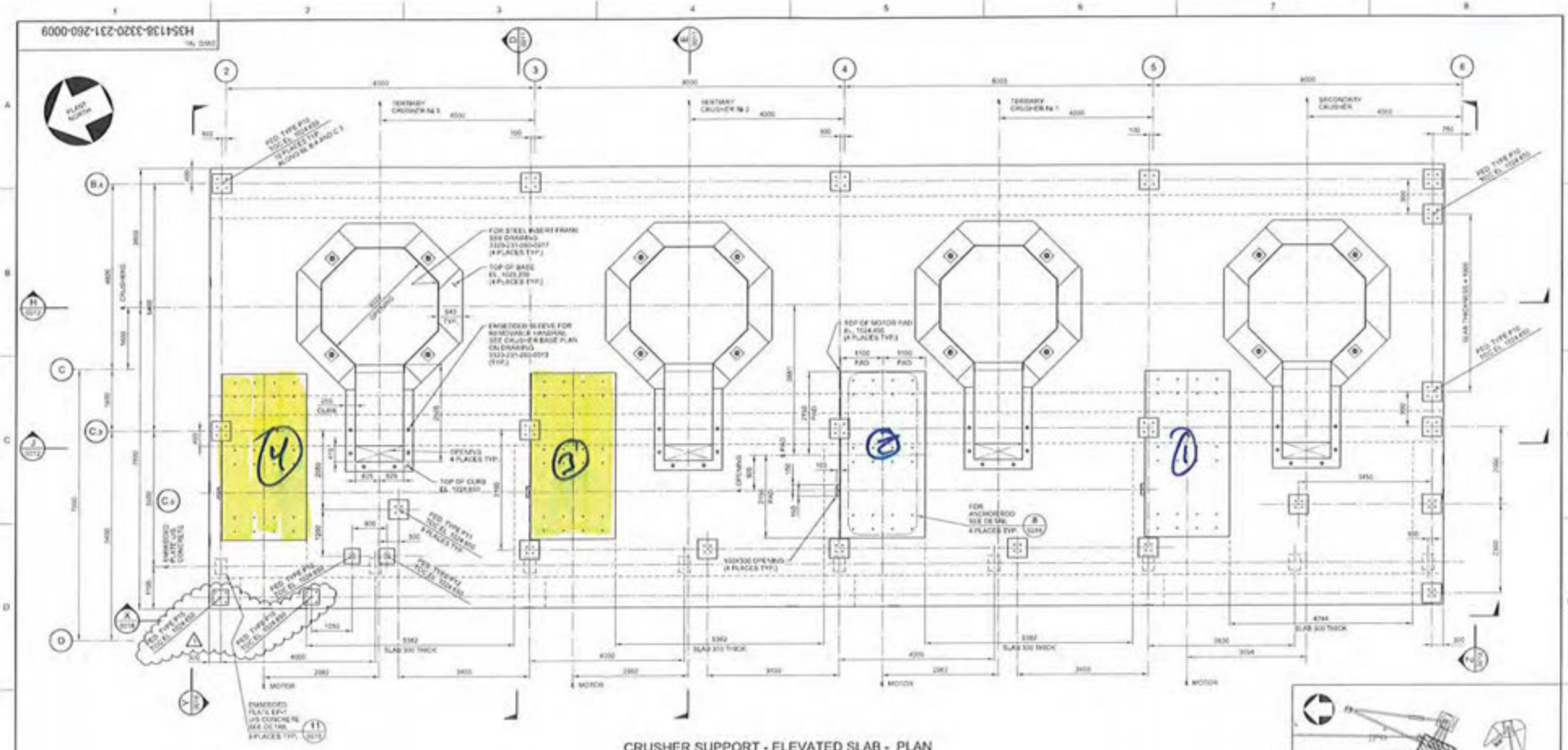
COMMENTS:

ATTACHMENT(S):

DEFICIENCIES NOTES:

INITIAL INSPECTION
INSPECTOR: Ryan de Milliano TITLE Project Coordinator DATE: Oct 24/18

RE-INSPECTION (DEFICIENCIES COMPLETED)
INSPECTOR: Matt Coverdale TITLE Field Eng DATE: Oct 24/18

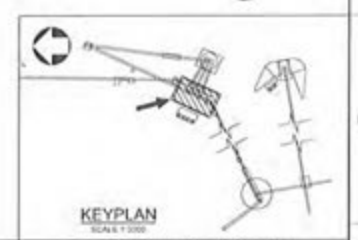



CRUSHER SUPPORT - ELEVATED SLAB - PLAN

TOP OF SLAB EL. 1024.300

NOTES:

1. FOR NOTES SEE DRAWING H354138-3320-231-260-0001.



KEYPLAN

SCALE 1:2000

| No. | DESCRIPTION | BY | CHKD | DATE |
|---|---|---|---|---|
| 2 | PED. TYPE P12 CHANGED TO PED. TYPE P15 - 2 PLACES ONLY | PJ | EA | 2018-10-18 |
| 1 | PED. P10 ADDED, PED. P11 AND P12 RELOCATED, TOP OF CURB REVISED, SECTION 'A' ADDED, BAY LINE C.5 REMOVED | PJ | EA | 2018-05-03 |
| 3 | APPROVED FOR CONSTRUCTION | PJ | EA | 2018-05-04 |

REVISIONS

| DRAWING No. | DRAWING TITLE |
|---|---|
| REFERENCE DRAWINGS | |

REG. PROFESSIONAL

HATCH

| | | |
|---|---|---|
| DRAFTSPERSON | P. JAVACY | |
| DESIGNER | H. LIU | |
| CHECKER | E. AKINCI | 2018-10-18 |
| DESIGN COORD. | S. PERKINS | 2018-10-18 |
| RESP. ENG. | E. AKINCI | 2018-10-18 |
| LEAD DISC. ENG. | E. AKINCI | 2018-10-18 |
| ENG. MANAGER | B. RUSTAD | 2018-10-18 |
| PROJ. MANAGER | B. RUSTAD | 2018-10-18 |
| ROLE | NAME | SIGNATURE & DATE |

DRAWING APPROVAL STATUS: Approved for Construction

StrataGold Corporation

EAGLE GOLD PROJECT

SECONDARY CRUSHING
CRUSHER AND SCREEN SUPPORT FDN.
ELEVATED SLAB PLAN

SCALE 1:50 DRAWING NO.

DWG. No. H354138-3320-231-260-0009

REV 2

CLARK BUILDERS
ENERGY & RESOURCES

# CONCRETE POST POUR COLD WEATHER MONITORING

Rev 01 July 4, 2018

| | |
|---|---|
| CONTRACTOR: CLARK BUILDERS | DATE OF POUR: OCT 24, 2018 |
| WEATHER/ AMBIENT TEMP (°C): -3°C > +4°C | DATE FORMWORK STRIPPED: N/A. |
| INSPECTOR(S): RYAN DEMILLIANO | DATE OF INSPECTION: OCT 24/18 — 0 |
| LOCATION: 3320 SECONDARY SUSP SLAB MOTOR PADS 2x NORTH. | |
| DRAWING NO.(S): — | DRAWING REV: — SPEC SECTION(S): S03 30 00 – Cast-In-Place |

TYPE OF CURING:

| | | | | | |
|---|---|---|---|---|---|
| CURING COMPOUND | ☑ | DAMP BURLAP OR FABRIC | ☐ | INSULATION (TARPS) | ☑ |
| POLYETHYLENE SHEETS | ☐ | WATER/FOG SPRAY/ PONDING | ☐ | FORMS (COVERED BY) | ☐ |

| COLD WEATHER REQUIREMENTS (WHEN AMB. TEMP < 5°C) | PASS | FAIL | N/A | REMARKS |
|---|---|---|---|---|
| Protection in place for 5 days at temperatures not lower than 20°C or until 70% of the 28-day strength has been reached. | ☑ | ☐ | ☐ | |
| Cold weather protection provided by means of heated enclosures, coverings, insulation, or a suitable approved combination of these methods during complete curing period. | ☐ | ☐ | ☐ | |
| During freezing weather, water curing terminated 12h before the end of the protection period (CSA A 23.1 clause 7.4.2.4.2) | ☐ | ☐ | ☑ | |
| | | | | |

CONCRETE CURING TEMPERATURE LOG (COLD WEATHER CONCRETEING ONLY)

| DATE | TIME (24 HR) | OUTSIDE AIR TEMP (°C) | TEMP INSIDE HOARDING (°C) | CONCRETE SURFACE TEMP (°C) | | INITIALS OF READER |
|---|---|---|---|---|---|---|
| | | | | HIGH (°C) | LOW (°C) | |
| OCT 25 2018 | 11:00 | +2°C | +20°C | +23°C | +19°C | ZD |
| OCT 26, 2018 | 11:15 | 0°C | +17°C | +15°C | +12°C | ZD |
| OCT 27, 2018 | 07:00 | -2°C | — | +9°C | +2°C | ZD |
| | | | | | | |
| | | | | | | |

| | |
|---|---|
| COMMENTS: | |
| | |
| ATTACHMENT(S): | |
| | |

**CLARK BUILDERS SITE REPRESENTATIVE**

PRINT/ SIGN: Ryan deMilliano TITLE Project Coordinator DATE: OCT 25, 2018

CLARK BUILDERS
ENERGY & RESOURCES

CB-INSPECTION FORM-DOC-002 REV.00
JDS ENERGY & MINING INC. | STRATAGOLD EAGLE GOLD
PROJECT #: CB201 | 18502

PROJECT MANAGER: DUSTIN DOLYNCHUK, P.ENG
QA/QC COORDINATOR: RYAN DE MILLIANO, C.E.T.
SUPERINTENDENT: GARRY DAHL

# CONCRETE REINFORCEMENT PRE POUR

Rev 01 August 25, 2018

| | |
|---|---|
| SUBCONTRACTOR: Ultimate Reinforcing // McNish | INSPECTION DATE: OCTOBER 28, 2018 |
| SUBCONTRACTOR CONTACT PERSON: CLAYTON | PROJ. POUR DATE: OCTOBER 28, 2018 |
| INSPECTOR(S): Ryan deMilliano | |
| LOCATION: 3320 SECONDARY // PEDESTALS, MCC RUSITER / SCREEN BASES (2x ON NORTH) | |
| DRAWING REV: 02 / DRAWING NO.(S): 3320-231-260-0009 | SPEC SECTION(S): S03 20 00 – Concrete Reinforcing Steel |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Grade (400W unless otherwise noted) and type of steel delivered and installed as required by approved drawings. | ☑ | ☐ | ☐ |
| 2.0 | Inspect rebar distribution, spacing and cover per design/project requirements. | ☑ | ☐ | ☐ |
| 3.0 | Length of splices as specified | ☑ | ☐ | ☐ |
| 4.0 | Staggered splices as specified | ☑ | ☐ | ☐ |
| 5.0 | Any mechanical splices have been approved by the owner prior to install | ☐ | ☐ | ☑ |
| 6.0 | Bars cleaned and free of material that may reduce bond including loose rust, scale, oil, structural defects and that they are uncoated and unpainted. (1) | ☑ | ☐ | ☐ |
| 7.0 | Dowels at wall ends, construction joints, and openings as specified (length, location, size, etc.) | ☐ | ☐ | ☑ |
| 8.0 | No unauthorized field bent bars including hooks installed | ☑ | ☐ | ☐ |
| 9.0 | Resolve conflicts between embedded items and reinforcement | ☑ | ☐ | ☐ |
| 10.0 | When authorized, field bends done without heat and inspected for fissures or cracks. | ☐ | ☐ | ☑ |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 11.0 | Bars tied and supported to prevent displacement | ☑ | ☐ | ☐ |
| 12.0 | Spacers, tie wire and chairs as required | ☑ | ☐ | ☐ |
| 13.0 | Conduits at design location and minimum separation from rebar as specified | ☐ | ☐ | ☑ |
| 14.0 | No contact of bars is made with dissimilar metals as per CSA A23.1 | ☑ | ☐ | ☐ |
| 15.0 | Bars, nails or tie wire not sticking out from surfaces that allow rusting/corrosion | ☑ | ☐ | ☐ |
| 16.0 | Rebar welds are inspected by qualified inspectors certified to CSA W178.2 | ☐ | ☐ | ☑ |
| 17.0 | No rebar congestion or other obstruction for deposit of concrete | ☑ | ☐ | ☐ |
| 18.0 | Adjustments required for interfering items (piping, inserts, sleeves, etc.) have been submitted and approved by owner. | ☑ | ☐ | ☐ |
| 19.0 | Rebar was stored off ground to prevent damage/corrosion | ☑ | ☐ | ☐ |
| 20.0 | Review drawings for anchors, piping, sleeves, boxes | ☑ | ☐ | ☐ |

COMMENTS:

ATTACHMENT(S):

DEFICIENCIES NOTES:

(1) Prior to pouring crusher bases reinforcing to be cleared of any remaining material that could reduce bond.

(2) Once material removed from bars, bottom of forms will be vacuumed and loose reinforcing fixed.

CLARK BUILDERS:
INSPECTOR: Ryan deMilliano // TITLE Project Coordinator DATE: OCTOBER 28/18

JDS ENERGY & MINING:
INSPECTOR: Ishan Feehley TITLE Superintendent DATE: Oct. 31/18

CLARK BUILDERS
ENERGY & RESOURCES

CB-INSPECTION FORM-DOC-002 REV.00
JDS ENERGY & MINING INC. | STRATAGOLD EAGLE GOLD
PROJECT #: CB201 | 18502

PROJECT MANAGER: DUSTIN DOLYNCHUK, P.ENG
QA/QC COORDINATOR: RYAN DE MILLIANO, C.E.T.
SUPERINTENDENT: GARRY DAHL

# FORMWORK & FALSEWORK PRE POUR | QA INSPECTION

Rev 01 August 25, 2018

| | | | |
|---|---|---|---|
| CONTRACTOR: Clark Builders | | INSPECTION DATE: | October 28, 2018 |
| CONTRACTOR CONTACT PERSON: | Dan Pelletier | DATE OF POUR: | October 28, 2018 |
| INSPECTOR(S): | Ryan deMilliano, Ishan, Matt. | | |
| LOCATION: | 3320 // SECONDARY SUMP SLAB PENETRATIONS AND 2x CRUSHER BASES (NORTH) | | |
| DRAWING REV: | 02 | DRAWING NO.(S): | 3320-231-250-0009 |
| SPEC SECTION(S): | 503100 | | |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Location, survey, dimension and grades as required | ☑ | ☐ | ☐ |
| 2.0 | Plumbness and Flatness verified | ☑ | ☐ | ☐ |
| 3.0 | Joints are aligned and watertight. | ☑ | ☐ | ☐ |
| 4.0 | Formwork shop drawings are Engineered and reviewed | ☑ | ☐ | ☐ |
| 5.0 | Re-used formwork reconditioned and treated | ☑ | ☐ | ☐ |
| 6.0 | Formwork and ties according to finishing requirements. Confirm no holes in the concrete surface are greater than 25mm in diameter or expose steel at less than 25mm from surface. As per spec. | ☑ | ☐ | ☐ |
| 7.0 | Installation of embeds are located and secured | ☑ | ☐ | ☐ |
| 8.0 | Chamfer requirements checked. 25mm chamfers required for all exterior corners and edges exposed to view including horizontal edges of pads. | ☑ | ☐ | ☐ |
| 9.0 | Key ways and/or other provisions according to design are provided in construction joints | ☑ | ☐ | ☐ |
| 10.0 | Inspect types of form spacers, ties and bracing. | ☑ | ☐ | ☐ |
| 11.0 | Spacing of ties to be set to a pattern | ☑ | ☐ | ☐ |
| 12.0 | Expansion, construction, contraction joints as required & located as coordinated with structural Engineer | ☑ | ☐ | ☐ |
| 13.0 | Forms secured against movement during placing | ☑ | ☐ | ☐ |
| 14.0 | Forms are braced for alignment and blow out | ☑ | ☐ | ☐ |
| 15.0 | Forms are cleaned of all debris, and dry, prior to concrete placement including standing water. | ☑ | ☐ | ☐ |
| 16.0 | Openings in formwork permit inspection and cleaning, placing and compaction of concrete, and forming and processing of construction joints. | ☑ | ☐ | ☐ |
| 17.0 | Formwork has been coated with release agent prior to rebar placement. | ☑ | ☐ | ☐ |
| 18.0 | Anchor Bolts and Embeds are secured to formwork. | ☑ | ☐ | ☐ |

COMMENTS:

ATTACHMENT(S):

DEFICIENCIES NOTES:

- Forms to be cleaned at concrete surface prior to pour.

INITIAL INSPECTION
INSPECTOR: Ryan deMilliano TITLE Project Coordinator DATE: Oct 28, 2018

RE-INSPECTION (DEFICIENCIES COMPLETED)
INSPECTOR: Ishan Feehan TITLE Superintendent DATE: Oct 31/18

CLARK BUILDERS
ENERGY & RESOURCES

# CONCRETE POST POUR COLD WEATHER MONITORING

Rev 01 July 4, 2018

| | | |
|---|---|---|
| CONTRACTOR: CLARK BUILDERS | | DATE OF POUR: Oct 28, 2018 |
| WEATHER/ AMBIENT TEMP (°C): | | DATE FORMWORK STRIPPED: |
| INSPECTOR(S): Ryan deMilliano | | DATE OF INSPECTION: |
| LOCATION: | | |
| DRAWING NO.(S): | DRAWING REV: | SPEC SECTION(S): S03 30 00 – Cast-In-Place |

TYPE OF CURING:

| | | | | | |
|---|---|---|---|---|---|
| CURING COMPOUND | ☐ | DAMP BURLAP OR FABRIC | ☐ | INSULATION (TARPS) | ☒ |
| POLYETHYLENE SHEETS | ☐ | WATER/FOG SPRAY/ PONDING | ☐ | FORMS (COVERED BY) | ☒ |

| COLD WEATHER REQUIREMENTS (WHEN AMB. TEMP < 5°C) | PASS | FAIL | N/A | REMARKS |
|---|---|---|---|---|
| Protection in place for 5 days at temperatures not lower than 20°C or until 70% of the 28-day strength has been reached. | ☒ | ☐ | ☐ | |
| Cold weather protection provided by means of heated enclosures, coverings, insulation, or a suitable approved combination of these methods during complete curing period. | ☒ | ☐ | ☐ | |
| During freezing weather, water curing terminated 12h before the end of the protection period (CSA A 23.1 clause 7.4.2.4.2) | ☒ | ☐ | ☐ | |
| | | | | |

CONCRETE CURING TEMPERATURE LOG (COLD WEATHER CONCRETEING ONLY)

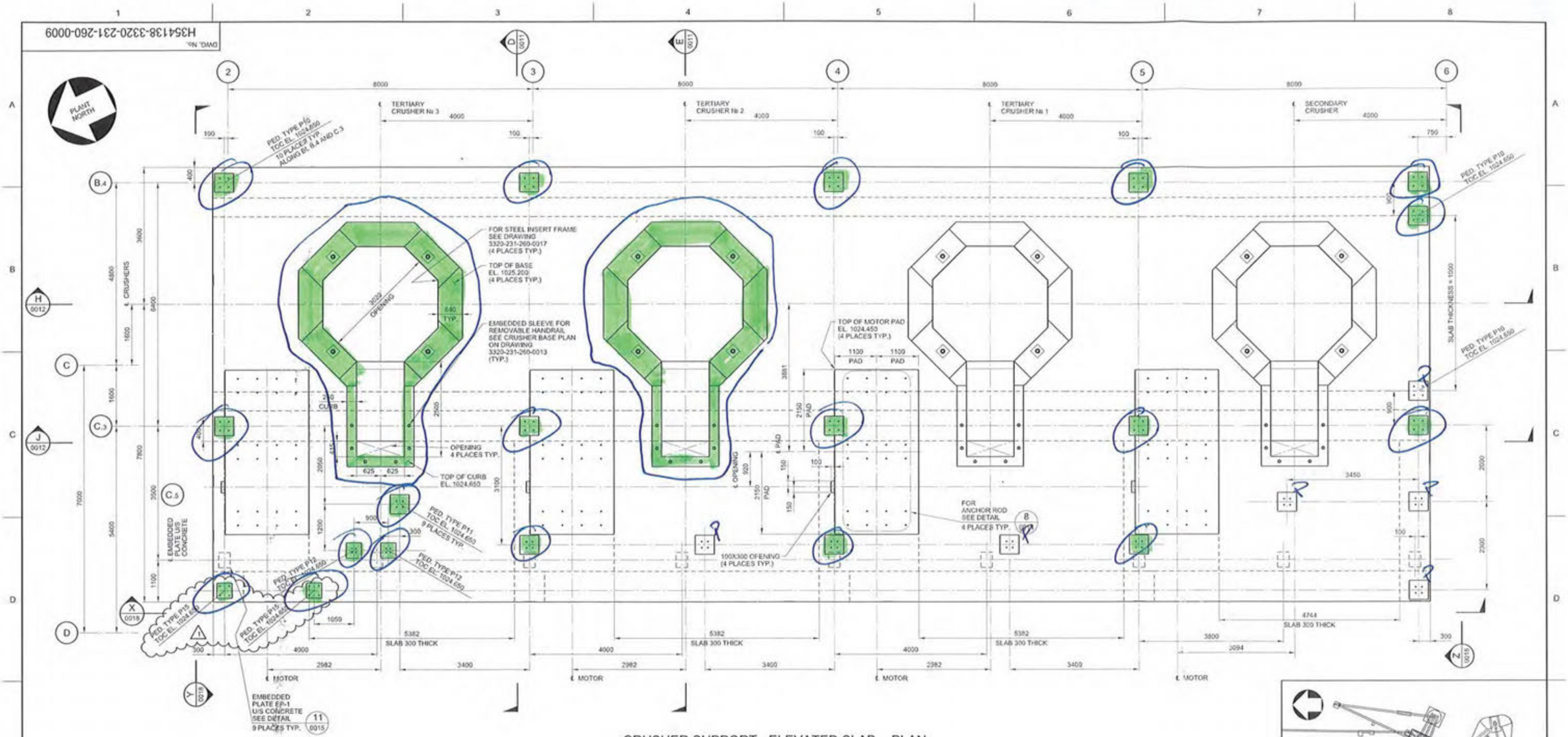
| DATE | TIME (24 HR) | OUTSIDE AIR TEMP (°C) | TEMP INSIDE HOARDING (°C) | CONCRETE SURFACE TEMP (°C) | | INITIALS OF READER |
|---|---|---|---|---|---|---|
| | | | | HIGH (°C) | LOW (°C) | |
| Oct 29/18 | 06:20 | -9°C | +13°C → +24°C | +20°C | +14°C | [signature] |
| Oct 30/18 | 11:35 | -4°C | +10°C → +17°C | +18°C | +12°C | [signature] |
| | | | | | | |
| | | | | | | |
| | | | | | | |

COMMENTS: CLARK SET UP enough heaters to cover all peds and crusher bases. Space heaters and indirects w/trunks used AND MONITORED BY DAN PECHEN [signature]

ATTACHMENT(S):

CLARK BUILDERS SITE REPRESENTATIVE

PRINT/ SIGN: Ryan deMilliano // [signature] TITLE Project Coordinator DATE: Oct 29/18



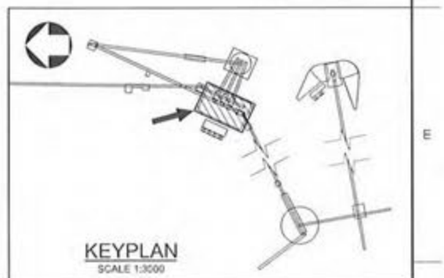

## CRUSHER SUPPORT - ELEVATED SLAB - PLAN

TOP OF SLAB EL. 1024.350

NOTES:

1. FOR NOTES SEE DRAWING H354138-3320-231-260-0001.

0 500 1000 1500 2000 2500
1:50 SCALE IN MILLIMETRES



KEYPLAN
SCALE 1:3000

| DRAWING No. | DRAWING TITLE |
|---|---|
| REFERENCE DRAWINGS | |

REG. PROFESSIONAL

| No. | DESCRIPTION | BY | CHK'D | DATE |
|---|---|---|---|---|
| 2 | PED. TYPE P12 CHANGED TO PED. TYPE P15 - 2 PLACES ONLY | PJ | EA | 2018-10-18 |
| 1 | PED. P10 ADDED, PED. P11 AND P12 RELOCATED, TOP OF CURB REVISED, SECTION 'X' ADDED, BAY LINE C.5 REMOVED | PJ | EA | 2018-08-15 |
| 0 | APPROVED FOR CONSTRUCTION | PJ | EA | 2018-05-04 |

REVISIONS

HATCH

| ROLE | NAME | SIGNATURE & DATE |
|---|---|---|
| DRAFTSPERSON | P. JIVAEV | NR |
| DESIGNER | H. LI | NR |
| CHECKER | E. AKINCI | 2018-10-18 |
| DESIGN COORD. | S. PERKINS | 2018-10-18 |
| RESP. ENG. | E. AKINCI | 2018-10-18 |
| LEAD DISC. ENG. | E. AKINCI | 2018-10-18 |
| ENG. MANAGER | B. RUSTAD | 2018-10-18 |
| PROJ. MANAGER | B. RUSTAD | 2018-10-18 |

DRAWING APPROVAL STATUS: Approved for Construction

StrataGold Corporation

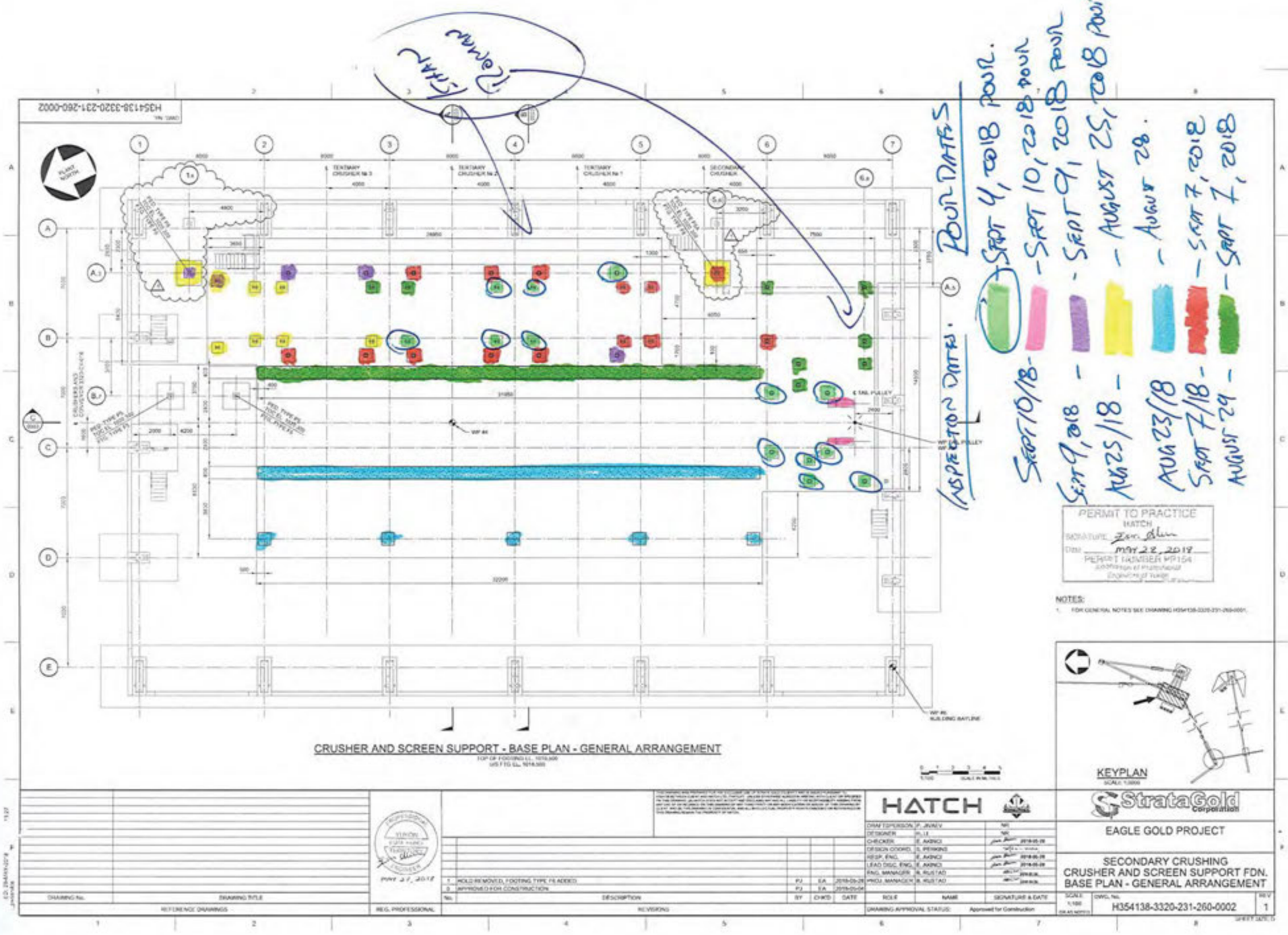
EAGLE GOLD PROJECT

SECONDARY CRUSHING
CRUSHER AND SCREEN SUPPORT FDN.
ELEVATED SLAB PLAN

SCALE 1:50 OR AS NOTED | DWG. No. H354138-3320-231-260-0009 | REV 2

SHEET SIZE: D

SFILELS
PRINTED: 18-OCT-2018 17:55
ldc_pwservice


Pour Dates
Sept 4, 2018 pour.
Sept 10/18 - Sept 10, 2018 pour
Sept 1, 2018 - Sept 1, 2018 pour
Aug 25/18 - August 25, 2018 pour
Aug 23/18 - Aug 28.
Sept 7/18 - Sept 7, 2018
August 24 - Sept 7, 2018
Inspection Dates.
PERMIT TO PRACTICE
HATCH
Mar 22, 2018
NOTES:
1. FOR GENERAL NOTES SEE DRAWING H354138-3320-231-260-0001.
KEYPLAN
CRUSHER AND SCREEN SUPPORT - BASE PLAN - GENERAL ARRANGEMENT
HATCH
StrataGold Corporation
EAGLE GOLD PROJECT
SECONDARY CRUSHING
CRUSHER AND SCREEN SUPPORT FDN.
BASE PLAN - GENERAL ARRANGEMENT
H354138-3320-231-260-0002
1
Approved for Construction

CLARK BUILDERS
ENERGY & RESOURCES

CB-INSPECTION FORM-DOC-002 REV.00
JDS ENERGY & MINING INC. | STRATAGOLD EAGLE GOLD
PROJECT #: CB201 | 18502

PROJECT MANAGER: DUSTIN DOLYNCHUK, P.ENG
QA/QC COORDINATOR: RYAN DE MILLIANO, C.E.T.
SUPERINTENDENT: GARRY DAHL

# CONCRETE REINFORCEMENT PRE POUR

Rev 01 August 25, 2018

| | |
|---|---|
| SUBCONTRACTOR: Ultimate Reinforcing // McNish | INSPECTION DATE: October 20, 2018 |
| SUBCONTRACTOR CONTACT PERSON: CLAYTON | PROJ. POUR DATE: October 22, 2018 |
| INSPECTOR(S): Ryan deMilliano (CB) | |
| LOCATION: 3400 TT3 // MAT FOUNDATION (FOOTING) | |
| DRAWING REV: 00 | DRAWING NO.(S): HSS4138-3400-221-26a-0003 |
| SPEC SECTION(S): S03 20 00 – Concrete Reinforcing Steel | |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Grade (400W unless otherwise noted) and type of steel delivered and installed as required by approved drawings. | ☑ | ☐ | ☐ |
| 2.0 | Inspect rebar distribution, spacing and cover per design/project requirements. | ☑ | ☐ | ☐ |
| 3.0 | Length of splices as specified | ☑ | ☐ | ☐ |
| 4.0 | Staggered splices as specified | ☑ | ☐ | ☐ |
| 5.0 | Any mechanical splices have been approved by the owner prior to install | ☐ | ☐ | ☑ |
| 6.0 | Bars cleaned and free of material that may reduce bond including loose rust, scale, oil, structural defects and that they are uncoated and unpainted. | ☑ | ☐ | ☐ |
| 7.0 | Dowels at wall ends, construction joints, and openings as specified (length, location, size, etc.) | ☑ | ☐ | ☐ |
| 8.0 | No unauthorized field bent bars including hooks installed | ☑ | ☐ | ☐ |
| 9.0 | Resolve conflicts between embedded items and reinforcement | ☑ | ☐ | ☐ |
| 10.0 | When authorized, field bends done without heat and inspected for fissures or cracks. | ☐ | ☐ | ☑ |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 11.0 | Bars tied and supported to prevent displacement | ☑ | ☐ | ☐ |
| 12.0 | Spacers, tie wire and chairs as required | ☑ | ☐ | ☐ |
| 13.0 | Conduits at design location and minimum separation from rebar as specified | ☐ | ☐ | ☑ |
| 14.0 | No contact of bars is made with dissimilar metals as per CSA A23.1 | ☑ | ☐ | ☐ |
| 15.0 | Bars, nails or tie wire not sticking out from surfaces that allow rusting/corrosion | ☑ | ☐ | ☐ |
| 16.0 | Rebar welds are inspected by qualified inspectors certified to CSA W178.2 | ☐ | ☐ | ☑ |
| 17.0 | No rebar congestion or other obstruction for deposit of concrete | ☑ | ☐ | ☐ |
| 18.0 | Adjustments required for interfering items (piping, inserts, sleeves, etc.) have been submitted and approved by owner. | ☐ | ☐ | ☑ |
| 19.0 | Rebar was stored off ground to prevent damage/corrosion | ☑ | ☐ | ☐ |
| 20.0 | Review drawings for anchors, piping, sleeves, boxes | ☑ | ☐ | ☐ |

COMMENTS:

- COVER, HEAT & BOARD OVERNIGHT. ENSURE SNOW MELTED AND NO POOLING WATER AT POUR.
- CLEAN GARBAGE BEFORE POUR (BLOCKS OF EDGE, REBAR)
- * GARRY & MATT INSPECTED ON OCT 21, 2018.

ATTACHMENT(S):

- DWG (HIGHLIGHTED)

DEFICIENCIES NOTES:

- SOME BARS ON TOP MAT REQUIRE CUTTING OF ENDS TO ACHIEVE 75mm COVER. CUT BEFORE POUR
- Clean up wire & paper tags
- Continue to heat until all snow is melted

CLARK BUILDERS:
INSPECTOR: Ryan deMilliano // TITLE Project Coordinator DATE: Oct 20, 2018

* JDS ENERGY & MINING:
INSPECTOR: Matt Coverdale TITLE Field Eng DATE: Oct 21, 2018

CLARK BUILDERS
ENERGY & RESOURCES

CB-INSPECTION FORM-DOC-002 REV.00
JDS ENERGY & MINING INC. | STRATAGOLD EAGLE GOLD
PROJECT #: CB201 | 18502

PROJECT MANAGER: DUSTIN DOLYNCHUK, P.ENG
QA/QC COORDINATOR: RYAN DE MILLIANO, C.E.T.
SUPERINTENDENT: GARRY DAHL

# FORMWORK & FALSEWORK PRE POUR | QA INSPECTION

Rev 01 August 25, 2018

| | |
|---|---|
| CONTRACTOR: Clark Builders | INSPECTION DATE: October 20, 2018 |
| CONTRACTOR CONTACT PERSON: Dan Pelletier / James Mandahl | DATE OF POUR: October 22, 2018 ✓ |
| INSPECTOR(S): Ryan deMilliano | |
| LOCATION: 3400 TT3 // Mat Foundation (Footing) | |
| DRAWING REV: 00 | DRAWING NO.(S): 3400-231-260-0003 / SPEC SECTION(S): 503 10 00 |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Location, survey, dimension and grades as required | ☑ | ☐ | ☐ |
| 2.0 | Plumbness and Flatness verified | ☑ | ☐ | ☐ |
| 3.0 | Joints are aligned and watertight. | ☑ | ☐ | ☐ |
| 4.0 | Formwork shop drawings are Engineered and reviewed | ☑ | ☐ | ☐ |
| 5.0 | Re-used formwork reconditioned and treated | ☑ | ☐ | ☐ |
| 6.0 | Formwork and ties according to finishing requirements. Confirm no holes in the concrete surface are greater than 25mm in diameter or expose steel at less than 25mm from surface. As per spec. | ☑ | ☐ | ☑ |
| 7.0 | Installation of embeds are located and secured | ☐ | ☐ | ☑ |
| 8.0 | Chamfer requirements checked. 25mm chamfers required for all exterior corners and edges exposed to view including horizontal edges of pads. | ☐ | ☐ | ☑ |
| 9.0 | Key ways and/or other provisions according to design are provided in construction joints | ☐ | ☐ | ☑ |
| 10.0 | Inspect types of form spacers, ties and bracing. | ☑ | ☐ | ☐ |
| 11.0 | Spacing of ties to be set to a pattern | ☑ | ☐ | ☐ |
| 12.0 | Expansion, construction, contraction joints as required & located as coordinated with structural Engineer | ☐ | ☐ | ☑ |
| 13.0 | Forms secured against movement during placing | ☑ | ☐ | ☐ |
| 14.0 | Forms are braced for alignment and blow out | ☑ | ☐ | ☐ |
| 15.0 | Forms are cleaned of all debris, and dry, prior to concrete placement including standing water. | ☑ | ☐ | ☐ |
| 16.0 | Openings in formwork permit inspection and cleaning, placing and compaction of concrete, and forming and processing of construction joints. | ☑ | ☐ | ☐ |
| 17.0 | Formwork has been coated with release agent prior to rebar placement. | ☑ | ☐ | ☐ |
| 18.0 | Anchor Bolts and Embeds are secured to formwork. | ☐ | ☐ | ☑ |

COMMENTS:

ATTACHMENT(S):

DEFICIENCIES NOTES:

INITIAL INSPECTION
INSPECTOR: Ryan deMilliano TITLE Project Coordinator DATE: Oct 20/18

RE-INSPECTION (DEFICIENCIES COMPLETED)
INSPECTOR: Matt Coverdale MC TITLE Field Eng DATE: Oct 21/18

OCT 2018

H354138-3400-231-260-0003



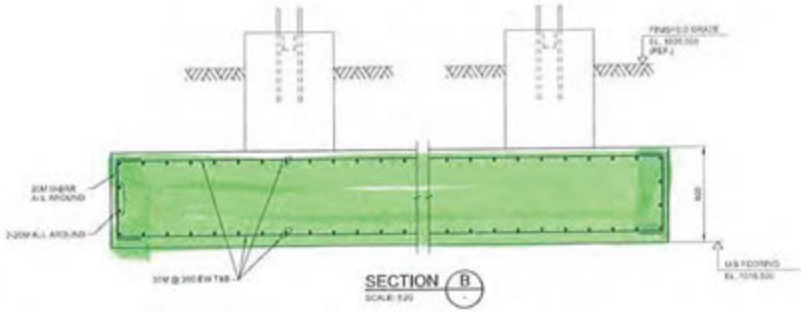

TRANSFER TOWER TT-3 FOUNDATION - PLAN

SCALE: 1:50

FINISHED GRADE EL. 1101.500 (REF.)

TOP MAT REINFORCING TO BE CUT BACK TO F.H.M CONCRETE BEFORE POUR

DATE OCT 21

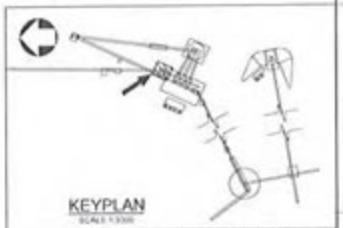



SECTION B

SCALE: 1:20

NOTES:

1. FOR NOTES SEE DRAWING H354138-3400-231-260-0004.
2. FOR THE CONVEYOR WORK POINTS SEE TRP DRAWINGS 154200-001 AND 154200-102




HATCH

| | | |
|---|---|---|
| DRAWN/DESIGN | K. SARASWATHI | |
| DESIGNER | P.I.E. | |
| CHECKER | E. ANING | |
| DESIGN COORD. | S. PERKINS | |
| RESP. ENG. | E. ANING | |
| LEAD DISC. ENGR. | E. ANING | |
| ENG. MANAGER | R. RUSTAD | |
| PROJ. MANAGER | R. RUSTAD | |

| ROLE | NAME | SIGNATURE & DATE |
|---|---|---|
| DRAWING APPROVAL STATUS: | Approved for Construction | |

StrataGold Corporation

EAGLE GOLD PROJECT

OVERLAND CONVEYING
TRANSFER TOWER TT-3 FOUNDATION
PLAN, SECTIONS AND DETAILS - SHT. 1

| SCALE | DWG. No. | REV |
|---|---|---|
| AS NOTED | H354138-3400-231-260-0003 | 0 |

| No. | DESCRIPTION | BY | CHKD | DATE |
|---|---|---|---|---|
| 0 | APPROVED FOR CONSTRUCTION | RS | EA | 2018-09-21 |

REVISIONS

DRAWING No. | DRAWING TITLE

REFERENCE DRAWINGS

REG. PROFESSIONAL

2018-09-21

# CONCRETE POST POUR COLD WEATHER MONITORING

Rev 01 July 4, 2018

| | |
|---|---|
| CONTRACTOR: CLARK BUILDERS. | DATE OF POUR: OCTOBER 22, 2018 |
| WEATHER/ AMBIENT TEMP (°C): -3°C → +5°C | DATE FORMWORK STRIPPED: |
| INSPECTOR(S): RYAN DERILLYARD | DATE OF INSPECTION: OCTOBER 22 - 25, 2018 |
| LOCATION: 3400 TT3 MAT FOUNDATION. (FOOTING) | |
| DRAWING NO.(S): | DRAWING REV: / SPEC SECTION(S): S03 30 00 – Cast-In-Place |

TYPE OF CURING:

| | | | | | |
|---|---|---|---|---|---|
| CURING COMPOUND | ☒ | DAMP BURLAP OR FABRIC | ☐ | INSULATION (TARPS) | ☒ |
| POLYETHYLENE SHEETS | ☐ | WATER/FOG SPRAY/ PONDING | ☐ | FORMS (COVERED BY) | ☒ |

| COLD WEATHER REQUIREMENTS (WHEN AMB. TEMP < 5°C) | PASS | FAIL | N/A | REMARKS |
|---|---|---|---|---|
| Protection in place for 5 days at temperatures not lower than 20°C or until 70% of the 28-day strength has been reached. | ☒ | ☐ | ☐ | |
| Cold weather protection provided by means of heated enclosures, coverings, insulation, or a suitable approved combination of these methods during complete curing period. | ☒ | ☐ | ☐ | |
| During freezing weather, water curing terminated 12h before the end of the protection period (CSA A 23.1 clause 7.4.2.4.2) | ☐ | ☐ | ☒ | |

CONCRETE CURING TEMPERATURE LOG (COLD WEATHER CONCRETEING ONLY)

| DATE | TIME (24 HR) | OUTSIDE AIR TEMP (°C) | TEMP INSIDE HOARDING (°C) | CONCRETE SURFACE TEMP (°C) | | INITIALS OF READER |
|---|---|---|---|---|---|---|
| | | | | HIGH (°C) | LOW (°C) | |
| OCTOBER 23, 2018 | 17:15 | 0°C | +22°C | +32°C | +22°C | |
| OCTOBER 24, 2018 | 14:30 | +3°C | +21°C | +30°C | +22°C | |
| OCTOBER 25, 2018 | 12:00 | +2°C | +16°C | +22°C | +18°C | |
| OCTOBER 26, 2018 | 11:45 | 0°C | – | +14°C | +8°C | |

| | | |
|---|---|---|
| COMMENTS: | | |
| ATTACHMENT(S): | | |

**CLARK BUILDERS SITE REPRESENTATIVE**

PRINT/ SIGN: Ryan Derillyard TITLE Project Coordinator DATE: Oct 27/18

CLARK BUILDERS
ENERGY & RESOURCES



PROJECT MANAGER: DUSTIN DOLYNCHUK, P.ENG
QA/QC COORDINATOR: RYAN DE MILLIANO, C.E.T.
SUPERINTENDENT: GARRY DAHL

# FORMWORK & FALSEWORK PRE POUR | QA INSPECTION

Rev 01 August 25, 2018

| | |
|---|---|
| CONTRACTOR: Clark Builders | INSPECTION DATE: NOV. 34 2018 |
| CONTRACTOR CONTACT PERSON: PETER NICE | DATE OF POUR: NOV. 35 2018 |
| INSPECTOR(S): JACKSON WENGER | |
| LOCATION: 3400 TAKEUP E GTU FOUNDATION | |
| DRAWING REV: 1 | DRAWING NO.(S): 354138-3400-231-260-0006/7 SPEC SECTION(S): 03 10 00 |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Location, survey, dimension and grades as required | ☑ | ☐ | ☐ |
| 2.0 | Plumbness and Flatness verified | ☑ | ☐ | ☐ |
| 3.0 | Joints are aligned and watertight. | ☑ | ☐ | ☐ |
| 4.0 | Formwork shop drawings are Engineered and reviewed | ☐ | ☐ | ☑ |
| 5.0 | Re-used formwork reconditioned and treated | ☑ | ☐ | ☐ |
| 6.0 | Formwork and ties according to finishing requirements. Confirm no holes in the concrete surface are greater than 25mm in diameter or expose steel at less than 25mm from surface. As per spec. | ☑ | ☐ | ☐ |
| 7.0 | Installation of embeds are located and secured | ☐ | ☐ | ☑ |
| 8.0 | Chamfer requirements checked. 25mm chamfers required for all exterior corners and edges exposed to view including horizontal edges of pads. | ☑ | ☐ | ☐ |
| 9.0 | Key ways and/or other provisions according to design are provided in construction joints | ☑ | ☐ | ☐ |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 10.0 | Inspect types of form spacers, ties and bracing. | ☑ | ☐ | ☐ |
| 11.0 | Spacing of ties to be set to a pattern | ☑ | ☐ | ☐ |
| 12.0 | Expansion, construction, contraction joints as required & located as coordinated with structural Engineer | ☑ | ☐ | ☐ |
| 13.0 | Forms secured against movement during placing | ☑ | ☐ | ☐ |
| 14.0 | Forms are braced for alignment and blow out | ☑ | ☐ | ☐ |
| 15.0 | Forms are cleaned of all debris, and dry, prior to concrete placement including standing water. | ☑ | ☐ | ☐ |
| 16.0 | Openings in formwork permit inspection and cleaning, placing and compaction of concrete, and forming and processing of construction joints. | ☑ | ☐ | ☐ |
| 17.0 | Formwork has been coated with release agent prior to rebar placement. | ☑ | ☐ | ☐ |
| 18.0 | Anchor Bolts and Embeds are secured to formwork. | ☐ | ☐ | ☑ |

COMMENTS: ATTACHMENT(S):

DEFICIENCIES NOTES:

INITIAL INSPECTION

INSPECTOR: JACKSON WENGER TITLE COORDINATOR DATE: NOV.4/18

RE-INSPECTION (DEFICIENCIES COMPLETED)

INSPECTOR: Ishan Feehter TITLE Superintendent DATE: Nov. 4 / 18

CLARK BUILDERS
ENERGY & RESOURCES

PROJECT MANAGER: DUSTIN DOLYNCHUK, P.ENG
QA/QC COORDINATOR: RYAN DE MILLIANO, C.E.T.
SUPERINTENDENT: GARRY DAHL

# CONCRETE REINFORCEMENT PRE POUR

Rev 01 August 25, 2018

| | |
|---|---|
| SUBCONTRACTOR: Ultimate Reinforcing // McNish | INSPECTION DATE: NOV. 3 4 2018 |
| SUBCONTRACTOR CONTACT PERSON: JIMMY MENCHENTON | PROJ. POUR DATE: NOV. 3 5 2018 |
| INSPECTOR(S): JACKSON WENGER | |
| LOCATION: 3400 TAKEUP & GTU FOUNDATION | |
| DRAWING REV: 1 | DRAWING NO.(S): 35138-3400-231-260-00061 7 / SPEC SECTION(S): S03 20 00 – Concrete Reinforcing Steel |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Grade (400W unless otherwise noted) and type of steel delivered and installed as required by approved drawings. | ☑ | ☐ | ☐ |
| 2.0 | Inspect rebar distribution, spacing and cover per design/project requirements. | ☑ | ☐ | ☐ |
| 3.0 | Length of splices as specified | ☑ | ☐ | ☐ |
| 4.0 | Staggered splices as specified | ☑ | ☐ | ☐ |
| 5.0 | Any mechanical splices have been approved by the owner prior to install | ☑ | ☐ | ☐ |
| 6.0 | Bars cleaned and free of material that may reduce bond including loose rust, scale, oil, structural defects and that they are uncoated and unpainted. | ☑ | ☐ | ☐ |
| 7.0 | Dowels at wall ends, construction joints, and openings as specified (length, location, size, etc.) | ☑ | ☐ | ☐ |
| 8.0 | No unauthorized field bent bars including hooks installed | ☑ | ☐ | ☐ |
| 9.0 | Resolve conflicts between embedded items and reinforcement | ☑ | ☐ | ☐ |
| 10.0 | When authorized, field bends done without heat and inspected for fissures or cracks. | ☑ | ☐ | ☐ |
| 11.0 | Bars tied and supported to prevent displacement | ☑ | ☐ | ☐ |
| 12.0 | Spacers, tie wire and chairs as required | ☑ | ☐ | ☐ |
| 13.0 | Conduits at design location and minimum separation from rebar as specified | ☐ | ☐ | ☑ |
| 14.0 | No contact of bars is made with dissimilar metals as per CSA A23.1 | ☑ | ☐ | ☐ |
| 15.0 | Bars, nails or tie wire not sticking out from surfaces that allow rusting/corrosion | ☑ | ☐ | ☐ |
| 16.0 | Rebar welds are inspected by qualified inspectors certified to CSA W178.2 | ☐ | ☐ | ☑ |
| 17.0 | No rebar congestion or other obstruction for deposit of concrete | ☑ | ☐ | ☐ |
| 18.0 | Adjustments required for interfering items (piping, inserts, sleeves, etc.) have been submitted and approved by owner. | ☐ | ☐ | ☑ |
| 19.0 | Rebar was stored off ground to prevent damage/corrosion | ☑ | ☐ | ☐ |
| 20.0 | Review drawings for anchors, piping, sleeves, boxes | ☑ | ☐ | ☐ |

COMMENTS: | ATTACHMENT(S):

DEFICIENCIES NOTES:

CLARK BUILDERS:

INSPECTOR: JACKSON WENGER TITLE COORDINATOR DATE: NOV. 4/18

JDS ENERGY & MINING:

INSPECTOR: Ishan Fechter TITLE Superintendent DATE: Nov. 4/18

CLARK BUILDERS
ENERGY & RESOURCES



# CONCRETE REINFORCEMENT PRE POUR

Rev 01 August 25, 2018

| | |
|---|---|
| SUBCONTRACTOR: Ultimate Reinforcing // McNish | INSPECTION DATE: Nov 7 2018 |
| SUBCONTRACTOR CONTACT PERSON: Gavvy DAHL | PROJ. POUR DATE: Nov 8 2018 |
| INSPECTOR(S): GARRY DAHL / JDS | |
| LOCATION: CV 22 Transfer Tower 3 Pedestals | |
| DRAWING REV: 0 DRAWING NO.(S): 3400-231-260-0003 | SPEC SECTION(S): S03 20 00 – Concrete Reinforcing Steel |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Grade (400W unless otherwise noted) and type of steel delivered and installed as required by approved drawings. | ☑ | ☐ | ☐ |
| 2.0 | Inspect rebar distribution, spacing and cover per design/project requirements. | ☑ | ☐ | ☐ |
| 3.0 | Length of splices as specified | ☑ | ☐ | ☐ |
| 4.0 | Staggered splices as specified | ☐ | ☐ | ☑ |
| 5.0 | Any mechanical splices have been approved by the owner prior to install | ☐ | ☐ | ☑ |
| 6.0 | Bars cleaned and free of material that may reduce bond including loose rust, scale, oil, structural defects and that they are uncoated and unpainted. | ☑ | ☐ | ☐ |
| 7.0 | Dowels at wall ends, construction joints, and openings as specified (length, location, size, etc.) | ☐ | ☐ | ☑ |
| 8.0 | No unauthorized field bent bars including hooks installed | ☐ | ☐ | ☑ |
| 9.0 | Resolve conflicts between embedded items and reinforcement | ☑ | ☐ | ☐ |
| 10.0 | When authorized, field bends done without heat and inspected for fissures or cracks. | ☐ | ☐ | ☑ |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 11.0 | Bars tied and supported to prevent displacement | ☑ | ☐ | ☐ |
| 12.0 | Spacers, tie wire and chairs as required | ☑ | ☐ | ☐ |
| 13.0 | Conduits at design location and minimum separation from rebar as specified | ☐ | ☐ | ☑ |
| 14.0 | No contact of bars is made with dissimilar metals as per CSA A23.1 | ☑ | ☐ | ☐ |
| 15.0 | Bars, nails or tie wire not sticking out from surfaces that allow rusting/corrosion | ☑ | ☐ | ☐ |
| 16.0 | Rebar welds are inspected by qualified inspectors certified to CSA W178.2 | ☐ | ☐ | ☑ |
| 17.0 | No rebar congestion or other obstruction for deposit of concrete | ☑ | ☐ | ☐ |
| 18.0 | Adjustments required for interfering items (piping, inserts, sleeves, etc.) have been submitted and approved by owner. | ☐ | ☐ | ☑ |
| 19.0 | Rebar was stored off ground to prevent damage/corrosion | ☑ | ☐ | ☐ |
| 20.0 | Review drawings for anchors, piping, sleeves, boxes | ☑ | ☐ | ☐ |

| COMMENTS: | ATTACHMENT(S): |
|---|---|
| | |

DEFICIENCIES NOTES:

CLARK BUILDERS:
INSPECTOR: [signature] TITLE Supt. DATE: Nov 7/18

JDS ENERGY & MINING:
INSPECTOR: [signature] TITLE Field Eng DATE: Nov 7/18

GAVVY DAHL

CLARK BUILDERS
ENERGY & RESOURCES

CB-INSPECTION FORM-DOC-002 REV.00
JDS ENERGY & MINING INC. | STRATAGOLD EAGLE GOLD
PROJECT #: CB201 | 18502

PROJECT MANAGER: DUSTIN DOLYNCHUK, P.ENG
QA/QC COORDINATOR: RYAN DE MILLIANO, C.E.T.
SUPERINTENDENT: GARRY DAHL

# FORMWORK & FALSEWORK PRE POUR | QA INSPECTION

Rev 01 August 25, 2018

| | |
|---|---|
| CONTRACTOR: Clark Builders | INSPECTION DATE: NOV 7 2018 |
| CONTRACTOR CONTACT PERSON: Garry DAHL | DATE OF POUR: NOV 9 2018 |
| INSPECTOR(S): Garry DAHL / JDS | |
| LOCATION: CV 22 Transfer Tower 3 | |
| DRAWING REV: 0 | DRAWING NO.(S): 3400-231-260-0003 |
| | SPEC SECTION(S): |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Location, survey, dimension and grades as required | ☑ | ☐ | ☐ |
| 2.0 | Plumbness and Flatness verified | ☑ | ☐ | ☐ |
| 3.0 | Joints are aligned and watertight. | ☑ | ☐ | ☐ |
| 4.0 | Formwork shop drawings are Engineered and reviewed | ☑ | ☐ | ☐ |
| 5.0 | Re-used formwork reconditioned and treated | ☑ | ☐ | ☐ |
| 6.0 | Formwork and ties according to finishing requirements. Confirm no holes in the concrete surface are greater than 25mm in diameter or expose steel at less than 25mm from surface. As per spec. | ☑ | ☐ | ☐ |
| 7.0 | Installation of embeds are located and secured | ☑ | ☐ | ☐ |
| 8.0 | Chamfer requirements checked. 25mm chamfers required for all exterior corners and edges exposed to view including horizontal edges of pads. | ☑ | ☐ | ☐ |
| 9.0 | Key ways and/or other provisions according to design are provided in construction joints | ☐ | ☐ | ☑ |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 10.0 | Inspect types of form spacers, ties and bracing. | ☑ | ☐ | ☐ |
| 11.0 | Spacing of ties to be set to a pattern | ☑ | ☐ | ☐ |
| 12.0 | Expansion, construction, contraction joints as required & located as coordinated with structural Engineer | ☐ | ☐ | ☑ |
| 13.0 | Forms secured against movement during placing | ☑ | ☐ | ☐ |
| 14.0 | Forms are braced for alignment and blow out | ☑ | ☐ | ☐ |
| 15.0 | Forms are cleaned of all debris, and dry, prior to concrete placement including standing water. | ☑ | ☐ | ☐ |
| 16.0 | Openings in formwork permit inspection and cleaning, placing and compaction of concrete, and forming and processing of construction joints. | ☐ | ☐ | ☑ |
| 17.0 | Formwork has been coated with release agent prior to rebar placement. | ☑ | ☐ | ☐ |
| 18.0 | Anchor Bolts and Embeds are secured to formwork. | ☑ | ☐ | ☐ |

COMMENTS:

ATTACHMENT(S):

DEFICIENCIES NOTES:

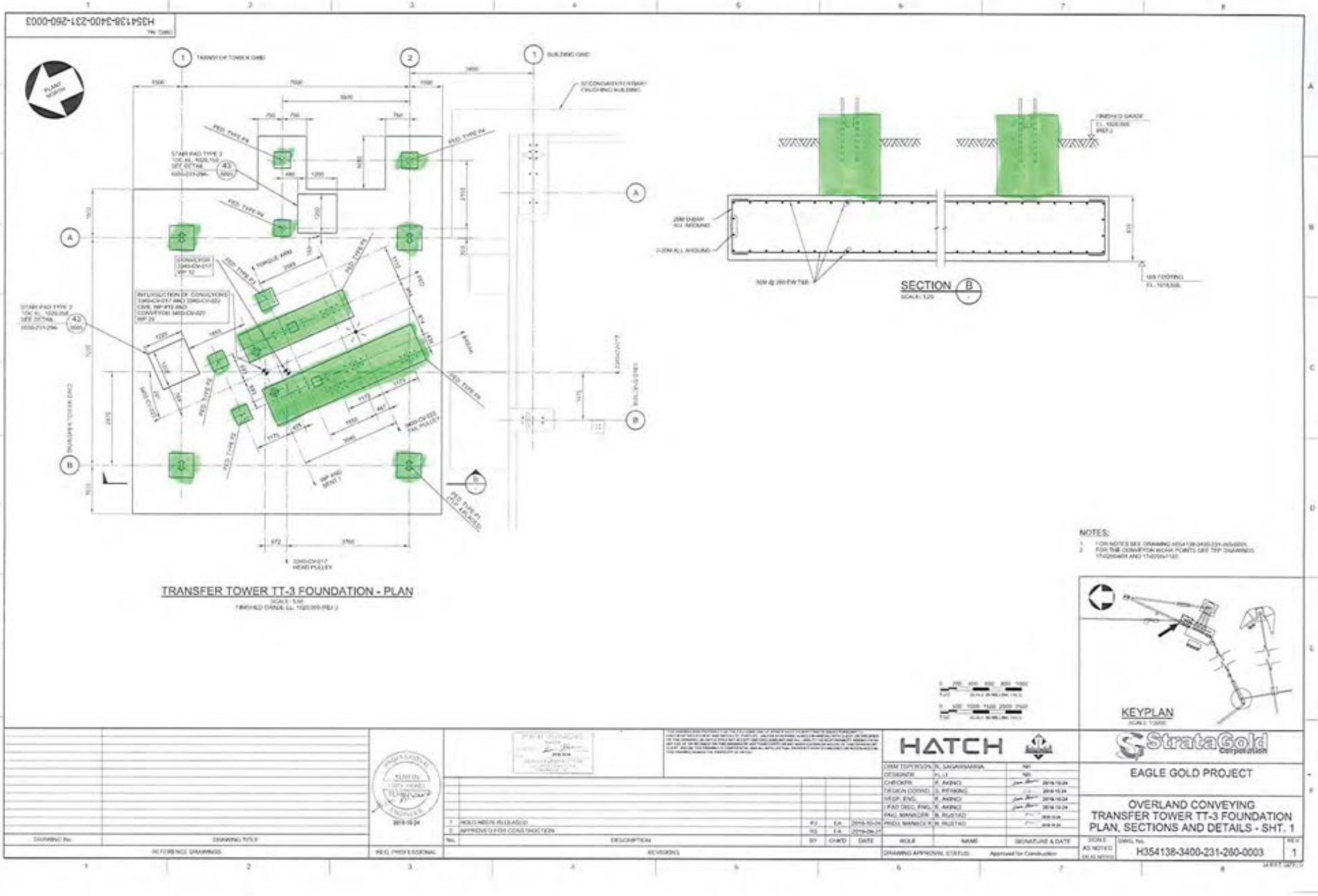
INITIAL INSPECTION

INSPECTOR: Tawnya Thornton TITLE _____ DATE: NOV 7 2018

RE-INSPECTION (DEFICIENCIES COMPLETED)

INSPECTOR: _____ TITLE _____ DATE: _____

GAVRY DAHL


H354138-3400-231-260-0003
TRANSFER TOWER TT-3 FOUNDATION - PLAN
SECTION B
NOTES:
KEYPLAN
HATCH
StrataGold Corporation
EAGLE GOLD PROJECT
OVERLAND CONVEYING
TRANSFER TOWER TT-3 FOUNDATION
PLAN, SECTIONS AND DETAILS - SHT. 1
H354138-3400-231-260-0003
REV 1
REFERENCE DRAWINGS
REVISIONS
DRAWING No.
DRAWING TITLE
REG. PROFESSIONAL
DESCRIPTION
DATE
ROLE
NAME
SIGNATURE & DATE
DRAWING APPROVAL STATUS
Approved for Construction

CLARK BUILDERS
ENERGY & RESOURCES

CB-INSPECTION FORM-DOC-002 REV.00
JDS ENERGY & MINING INC. | STRATAGOLD EAGLE GOLD
PROJECT #: CB201 | 18502

PROJECT MANAGER: DUSTIN DOLYNCHUK, P.ENG
QA/QC COORDINATOR: RYAN DE MILLIANO, C.E.T.
SUPERINTENDENT: GARRY DAHL

# CONCRETE REINFORCEMENT PRE POUR

Rev 01 August 25, 2018

| | |
|---|---|
| SUBCONTRACTOR: Ultimate Reinforcing // McNish | INSPECTION DATE: November 10, 2018 |
| SUBCONTRACTOR CONTACT PERSON: Jimmy M. | PROJ. POUR DATE: November 10, 2018 |
| INSPECTOR(S): | |
| LOCATION: 3400 // CUO22 Bents. 2,3,4,5 | |
| DRAWING REV: 01 / DRAWING NO.(S): 3400-0002 | SPEC SECTION(S): ~~503~~ 20 00 – Concrete Reinforcing Steel |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Grade (400W unless otherwise noted) and type of steel delivered and installed as required by approved drawings. | ☑ | ☐ | ☐ |
| 2.0 | Inspect rebar distribution, spacing and cover per design/project requirements. | ☑ | ☐ | ☐ |
| 3.0 | Length of splices as specified | ☑ | ☐ | ☐ |
| 4.0 | Staggered splices as specified | ☑ | ☐ | ☐ |
| 5.0 | Any mechanical splices have been approved by the owner prior to install | ☐ | ☐ | ☑ |
| 6.0 | Bars cleaned and free of material that may reduce bond including loose rust, scale, oil, structural defects and that they are uncoated and unpainted. | ☑ | ☐ | ☐ |
| 7.0 | Dowels at wall ends, construction joints, and openings as specified (length, location, size, etc.) | ☐ | ☐ | ☑ |
| 8.0 | No unauthorized field bent bars including hooks installed | ☑ | ☐ | ☐ |
| 9.0 | Resolve conflicts between embedded items and reinforcement | ☑ | ☐ | ☐ |
| 10.0 | When authorized, field bends done without heat and inspected for fissures or cracks. | ☐ | ☐ | ☑ |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 11.0 | Bars tied and supported to prevent displacement | ☑ | ☐ | ☐ |
| 12.0 | Spacers, tie wire and chairs as required | ☑ | ☐ | ☐ |
| 13.0 | Conduits at design location and minimum separation from rebar as specified | ☐ | ☐ | ☑ |
| 14.0 | No contact of bars is made with dissimilar metals as per CSA A23.1 | ☑ | ☐ | ☐ |
| 15.0 | Bars, nails or tie wire not sticking out from surfaces that allow rusting/corrosion | ☑ | ☐ | ☐ |
| 16.0 | Rebar welds are inspected by qualified inspectors certified to CSA W178.2 | ☑ | ☐ | ☑ |
| 17.0 | No rebar congestion or other obstruction for deposit of concrete | ☑ | ☐ | ☐ |
| 18.0 | Adjustments required for interfering items (piping, inserts, sleeves, etc.) have been submitted and approved by owner. | ☑ | ☐ | ☐ |
| 19.0 | Rebar was stored off ground to prevent damage/corrosion | ☑ | ☐ | ☐ |
| 20.0 | Review drawings for anchors, piping, sleeves, boxes | ☑ | ☐ | ☐ |

COMMENTS:

ATTACHMENT(S):

DEFICIENCIES NOTES:

CLARK BUILDERS:
INSPECTOR: Ryan de Milliano // TITLE Project Coordinator DATE: Nov 11/18

JDS ENERGY & MINING:
INSPECTOR: Terry Chrzuszcz TITLE Const. Sup. DATE: Nov 11/18

CLARK BUILDERS
ENERGY & RESOURCES

# FORMWORK & FALSEWORK PRE POUR | QA INSPECTION

Rev 01 August 25, 2018

| | |
|---|---|
| CONTRACTOR: Clark Builders | INSPECTION DATE: November 10, 2018 |
| CONTRACTOR CONTACT PERSON: Dan Pelletier | PREVIOUS DATE OF POUR: November 10, 2018 |
| INSPECTOR(S): | |
| LOCATION: 3400 // CV022 | |
| DRAWING REV: 01 / DRAWING NO.(S): 3400-231-260-0002 | SPEC SECTION(S): 503000 |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Location, survey, dimension and grades as required | ☑ | ☐ | ☐ |
| 2.0 | Plumbness and Flatness verified | ☑ | ☐ | ☐ |
| 3.0 | Joints are aligned and watertight. | ☑ | ☐ | ☐ |
| 4.0 | Formwork shop drawings are Engineered and reviewed | ☑ | ☐ | ☐ |
| 5.0 | Re-used formwork reconditioned and treated | ☑ | ☐ | ☐ |
| 6.0 | Formwork and ties according to finishing requirements. Confirm no holes in the concrete surface are greater than 25mm in diameter or expose steel at less than 25mm from surface. As per spec. | ☑ | ☐ | ☐ |
| 7.0 | Installation of embeds are located and secured | ☑ | ☐ | ☐ |
| 8.0 | Chamfer requirements checked. 25mm chamfers required for all exterior corners and edges exposed to view including horizontal edges of pads. | ☐ | ☐ | ☑ |
| 9.0 | Key ways and/or other provisions according to design are provided in construction joints | ☐ | ☐ | ☑ |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 10.0 | Inspect types of form spacers, ties and bracing. | ☑ | ☐ | ☐ |
| 11.0 | Spacing of ties to be set to a pattern | ☑ | ☐ | ☐ |
| 12.0 | Expansion, construction, contraction joints as required & located as coordinated with structural Engineer | ☐ | ☐ | ☑ |
| 13.0 | Forms secured against movement during placing | ☑ | ☐ | ☐ |
| 14.0 | Forms are braced for alignment and blow out | ☑ | ☐ | ☐ |
| 15.0 | Forms are cleaned of all debris, and dry, prior to concrete placement including standing water. | ☑ | ☐ | ☐ |
| 16.0 | Openings in formwork permit inspection and cleaning, placing and compaction of concrete, and forming and processing of construction joints. | ☑ | ☐ | ☐ |
| 17.0 | Formwork has been coated with release agent prior to rebar placement. | ☑ | ☐ | ☐ |
| 18.0 | Anchor Bolts and Embeds are secured to formwork. | ☐ | ☐ | ☑ |

COMMENTS:

ATTACHMENT(S):

DEFICIENCIES NOTES:

INITIAL INSPECTION

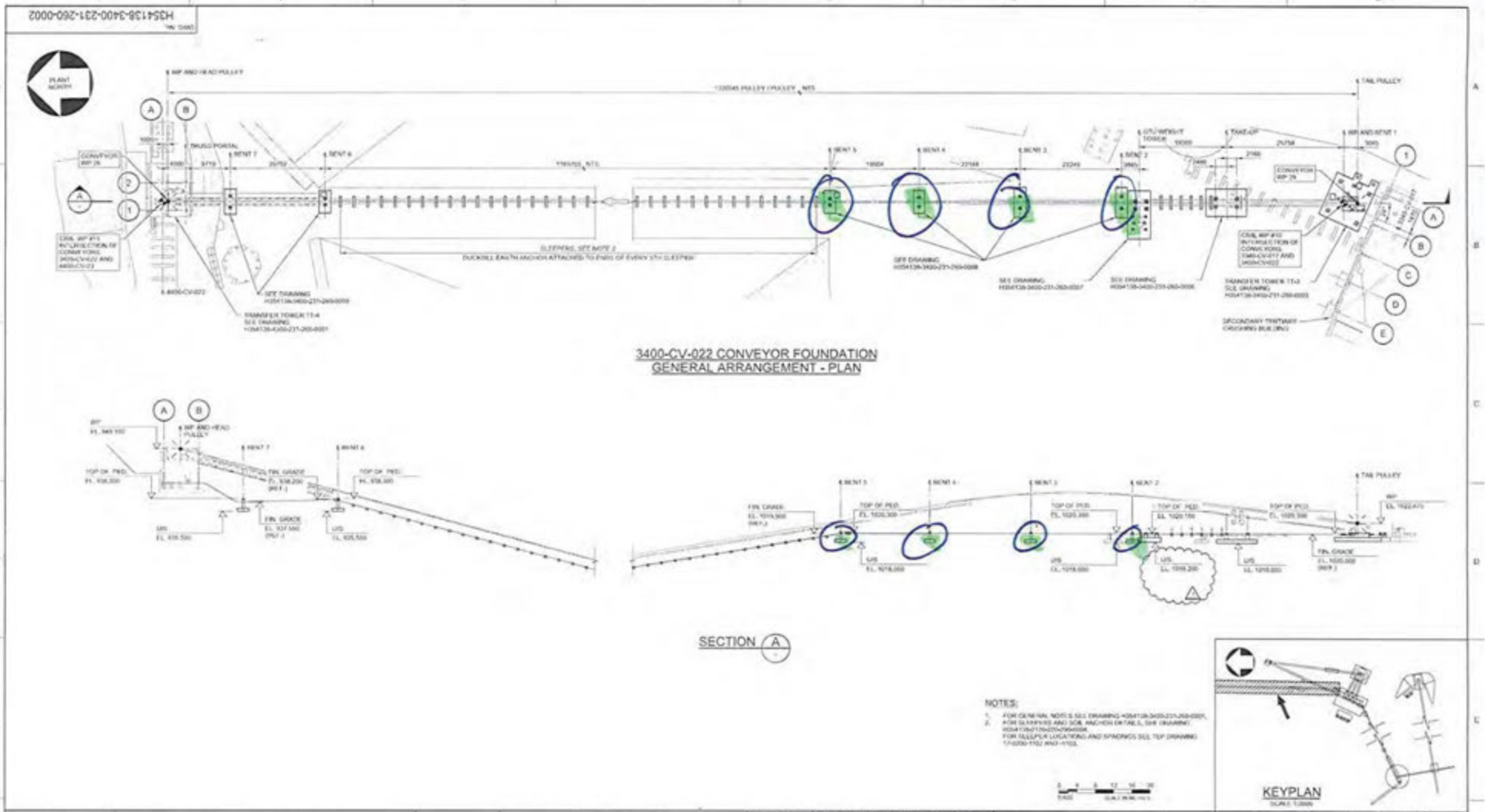
INSPECTOR: Ryan deMilliano TITLE Project Coordinator DATE: Nov 11/18

RE-INSPECTION (DEFICIENCIES COMPLETED)

INSPECTOR: _____ TITLE _____ DATE: _____

Nov 10/18

3




| | | | | | |
|---|---|---|---|---|---|
| 1 | GTU FOOTING U/S ELEVATION REVISED DUE TO SITE CONDITIONS | P.J. | E.A. | 2018-10-10 |
| 0 | APPROVED FOR CONSTRUCTION | P.J. | E.A. | 2018-09-17 |
| No. | DESCRIPTION | BY | CHK'D | DATE |

REVISIONS

| | | | |
|---|---|---|---|
| DRAFTSPERSON | P. JAVIER | NH | 2018-08-29 |
| DESIGNER | H. LI | NH | 2018-08-29 |
| CHECKER | E. AKINCI | | 2018-10-11 |
| DESIGN COORD. | S. PERKINS | | 2018-10-11 |
| RESP. ENG. | E. AKINCI | | 2018-10-11 |
| LEAD DISC. ENG. | E. AKINCI | | 2018-10-11 |
| ENG. MANAGER | B. RUSTAD | | 2018-10-11 |
| PROJ. MANAGER | B. RUSTAD | | 2018-10-11 |
| ROLE | NAME | SIGNATURE & DATE | |

DRAWING APPROVAL STATUS: Approved for Construction

HATCH

StrataGold Corporation

EAGLE GOLD PROJECT

OVERLAND CONVEYING
3400-CV-022 CONVEYOR FOUNDATION
GENERAL ARRANGEMENT

SCALE 1:400 DRAWING NOTES

DWG. No. H354138-3400-231-260-0002 REV 1

REFERENCE DRAWINGS

REG. PROFESSIONAL

2018-10-11

# CONCRETE POST POUR COLD WEATHER MONITORING

Rev 02 Nov 4, 2018

| | |
|---|---|
| CONTRACTOR: Clark Builders | DATE OF POUR: Nov. 23 |
| AMBIENT TEMP at POUR (°C): −10 | DATE FORMWORK STRIPPED: |
| LOCATION: CV-22 BENT 2 | |
| | SPEC SECTION(S): S03 30 00 – Cast-In-Place |

TYPE OF CURING:

| | | | | | |
|---|---|---|---|---|---|
| CURING COMPOUND | ☐ | DAMP BURLAP OR FABRIC | ☐ | INSULATION (TARPS) | ☑ |
| POLYETHYLENE SHEETS | ☐ | WATER/FOG SPRAY/ PONDING | ☐ | FORMS (COVERED BY) | ☑ |

| COLD WEATHER REQUIREMENTS (WHEN AMB. TEMP < 5°C) | PASS | FAIL | N/A | REMARKS |
|---|---|---|---|---|
| Protection in place and temperatures not lower than 20°C or until 70% of the 28-day strength has been reached. | ☑ | ☐ | ☐ | |
| Cold weather protection provided by means of heated enclosures, coverings, insulation, or a suitable approved combination of these methods during complete curing period. | ☑ | ☐ | ☐ | |
| Concrete test cylinders are kept within hoarding or in area where temperatures are ideal for curing. (No frozen Cylinders) | ☑ | ☐ | ☐ | |
| Heat is not directed onto concrete. This may result in thermal cracking. | ☑ | ☐ | ☐ | |
| During freezing weather, and standing water removed before the end of the protection period (CSA A 23.1 clause 7.4.2.4.2) | ☑ | ☐ | ☐ | |
| | | | | |

NCRETE CURING TEMPERATURE LOG (COLD WEATHER CONCRETEING ONLY)

| DATE | TIME (24 HR) | OUTSIDE AIR TEMP (°C) | TEMP INSIDE HOARDING (°C) | CONCRETE SURFACE TEMP (°C) | | INITIALS OF READER |
|---|---|---|---|---|---|---|
| | | | | HIGH (°C) | LOW (°C) | |
| Nov. 23 | 6:30 PM | −11 | 23 | 22 | 21 | D.P. |
| Nov. 24 | 7:00 AM | −12 | 29 | 30 | 29 | D.P. |
| Nov. 24 | 1:30 PM | −10 | 25 | 29 | 29 | D.P. |
| Nov. 24 | 6:30 PM | −10 | 22 | 28 | 27 | D.P. |
| Nov. 25 | 7:00 AM | −6 | 28 | 31 | 30 | D.P. |
| Nov. 25 | 1:30 PM | −5 | 26 | 29 | 27 | D.P. |
| Nov. 25 | 6:30 PM | −7 | 22 | 26 | 25 | D.P. |
| COMMENTS: | Turning heaters on+off to control heat | | | | | |

**CLARK BUILDERS SITE REPRESENTATIVE**

PRINT/ SIGN: DAN PELLETIER TITLE Foreman DATE: Nov. 26

# CONCRETE POST POUR COLD WEATHER MONITORING

Rev 03 Nov 13, 2018

| | |
|---|---|
| CONTRACTOR: Clark Builders | DATE OF POUR: Nov. 21 |
| AMBIENT TEMP at POUR (°C): -3 | DATE FORMWORK STRIPPED: Nov 24 |
| LOCATION: CV-22 BENT 4 | |
| | SPEC SECTION(S): S03 30 00 – Cast-In-Place |

TYPE OF CURING:

| | | | | | |
|---|---|---|---|---|---|
| CURING COMPOUND | ☐ | DAMP BURLAP OR FABRIC | ☐ | INSULATION (TARPS) | ☑ |
| POLYETHYLENE SHEETS | ☐ | WATER/FOG SPRAY/ PONDING | ☐ | FORMS (COVERED BY) | ☑ |

| COLD WEATHER REQUIREMENTS (WHEN AMB. TEMP < 5°C) | PASS | FAIL | N/A | REMARKS |
|---|---|---|---|---|
| Protection in place and temperatures not lower than 20°C or until 70% of the 28-day strength has been reached. | ☑ | ☐ | ☐ | |
| Cold weather protection provided by means of heated enclosures, coverings, insulation, or a suitable approved combination of these methods during complete curing period. | ☑ | ☐ | ☐ | |
| Concrete test cylinders are kept within hoarding or in area where temperatures are ideal for curing. (No frozen Cylinders) | ☑ | ☐ | ☐ | |
| Heat is not directed onto concrete. This may result in thermal cracking. | ☑ | ☐ | ☐ | |
| During freezing weather, and standing water removed before the end of the protection period (CSA A 23.1 clause 7.4.2.4.2) | ☑ | ☐ | ☐ | |

CONCRETE CURING TEMPERATURE LOG (COLD WEATHER CONCRETEING ONLY)

| DATE | | TIME (24 HR) | OUTSIDE AIR TEMP (°C) | TEMP INSIDE HOARDING (°C) | CONCRETE SURFACE TEMP (°C) | | INITIALS OF READER |
|---|---|---|---|---|---|---|---|
| | | | | | HIGH (°C) | LOW (°C) | |
| Nov. 21 | ~~AM~~ | 6:00 PM | -2 | 37 | 31 | 29 | D.P. |
| Nov. 22 | ~~MID~~ | 8:09 AM | -9 | 31 | 35 | 34 | D.P. |
| Nov. 22 | ~~PM~~ | 2:00 PM | -10 | 28 | 33 | 33 | D.P. |
| Nov. 22 | ~~AM~~ | 6:30 PM | -11 | 25 | 31 | 30 | D.P. |
| Nov. 23 | ~~MID~~ | 7:30 AM | -9 | 29 | 30 | 30 | D.P. |
| Nov. 23 | ~~PM~~ | 1:30 PM | -10 | 26 | 29 | 28 | D.P. |
| Nov. 23 | ~~AM~~ | 6:30 PM | -11 | 24 | 28 | 27 | D.P. |
| | MID | | | | | | |
| | PM | | | | | | |

COMMENTS: Turning heater on + off to control heat

CLARK BUILDERS SITE REPRESENTATIVE

PRINT/ SIGN: DAN PELLETIER TITLE Foreman DATE: Nov 24

CLARK BUILDERS
ENERGY & RESOURCES

PROJECT MANAGER: DUSTIN DOLYNCHUK, P.ENG
QA/QC COORDINATOR: RYAN DE MILLIANO, C.E.T.
SUPERINTENDENT: GARRY DAHL

# CONCRETE REINFORCEMENT PRE POUR

REMADE FORM NOV 15 '18 ORIG. MISSING.

Rev 01 August 25, 2018

| | |
|---|---|
| SUBCONTRACTOR: Ultimate Reinforcing // McNish | INSPECTION DATE: Nov 10/18 |
| SUBCONTRACTOR CONTACT PERSON: Jimmy | PROJ. POUR DATE: Nov 10/18 |
| INSPECTOR(S): Dan Pellatier, Tawnya (JDS), Jerry (JDS) | |
| LOCATION: 3400 Cuoz Bent 2,3,4,5 | |
| DRAWING REV: 01 / DRAWING NO.(S): 3400-231-260-0002 | SPEC SECTION(S): S03 20 00 – Concrete Reinforcing Steel |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Grade (400W unless otherwise noted) and type of steel delivered and installed as required by approved drawings. | ☑ | ☐ | ☐ |
| 2.0 | Inspect rebar distribution, spacing and cover per design/project requirements. | ☑ | ☐ | ☐ |
| 3.0 | Length of splices as specified | ☑ | ☐ | ☐ |
| 4.0 | Staggered splices as specified | ☑ | ☐ | ☐ |
| 5.0 | Any mechanical splices have been approved by the owner prior to install | ☐ | ☐ | ☑ |
| 6.0 | Bars cleaned and free of material that may reduce bond including loose rust, scale, oil, structural defects and that they are uncoated and unpainted. | ☑ | ☐ | ☐ |
| 7.0 | Dowels at wall ends, construction joints, and openings as specified (length, location, size, etc.) | ☑ | ☐ | ☐ |
| 8.0 | No unauthorized field bent bars including hooks installed | ☑ | ☐ | ☐ |
| 9.0 | Resolve conflicts between embedded items and reinforcement | ☐ | ☐ | ☑ |
| 10.0 | When authorized, field bends done without heat and inspected for fissures or cracks. | ☐ | ☐ | ☑ |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 11.0 | Bars tied and supported to prevent displacement | ☑ | ☐ | ☐ |
| 12.0 | Spacers, tie wire and chairs as required | ☑ | ☐ | ☐ |
| 13.0 | Conduits at design location and minimum separation from rebar as specified | ☐ | ☐ | ☑ |
| 14.0 | No contact of bars is made with dissimilar metals as per CSA A23.1 | ☑ | ☐ | ☐ |
| 15.0 | Bars, nails or tie wire not sticking out from surfaces that allow rusting/corrosion | ☑ | ☐ | ☐ |
| 16.0 | Rebar welds are inspected by qualified inspectors certified to CSA W178.2 | ☑ | ☐ | ☐ |
| 17.0 | No rebar congestion or other obstruction for deposit of concrete | ☑ | ☐ | ☐ |
| 18.0 | Adjustments required for interfering items (piping, inserts, sleeves, etc.) have been submitted and approved by owner. | ☐ | ☐ | ☑ |
| 19.0 | Rebar was stored off ground to prevent damage/corrosion | ☑ | ☐ | ☐ |
| 20.0 | Review drawings for anchors, piping, sleeves, boxes | ☑ | ☐ | ☐ |

COMMENTS:

ATTACHMENT(S):

DEFICIENCIES NOTES:

CLARK BUILDERS:

INSPECTOR: _____ TITLE _____ DATE: _____

JDS ENERGY & MINING:

INSPECTOR: _____ TITLE _____ DATE: _____

CB-INSPECTION FORM-DOC-002 REV.00
JDS ENERGY & MINING INC. | STRATAGOLD EAGLE GOLD
PROJECT #: CB201 | 18502

PROJECT MANAGER: DUSTIN DOLYNCHUK, P.ENG
QA/QC COORDINATOR: RYAN DE MILLIANO, C.E.T.
SUPERINTENDENT: GARRY DAHL

CLARK BUILDERS
ENERGY & RESOURCES

# FORMWORK & FALSEWORK PRE POUR | QA INSPECTION

Rev 01 August 25, 2018

| | |
|---|---|
| CONTRACTOR: Clark Builders | INSPECTION DATE: Nov 10/18 |
| CONTRACTOR CONTACT PERSON: Dan Pelletier | DATE OF POUR: Nov 18/18 |
| INSPECTOR(S): | |
| LOCATION: 3400 CV022 Bent 7,345 | |
| DRAWING REV: | DRAWING NO.(S): / SPEC SECTION(S): |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Location, survey, dimension and grades as required | ☑ | ☐ | ☐ |
| 2.0 | Plumbness and Flatness verified | ☑ | ☐ | ☐ |
| 3.0 | Joints are aligned and watertight. | ☑ | ☐ | ☐ |
| 4.0 | Formwork shop drawings are Engineered and reviewed | ☐ | ☐ | ☑ |
| 5.0 | Re-used formwork reconditioned and treated | ☑ | ☐ | ☐ |
| 6.0 | Formwork and ties according to finishing requirements. Confirm no holes in the concrete surface are greater than 25mm in diameter or expose steel at less than 25mm from surface. As per spec. | ☑ | ☐ | ☐ |
| 7.0 | Installation of embeds are located and secured | ☐ | ☐ | ☑ |
| 8.0 | Chamfer requirements checked. 25mm chamfers required for all exterior corners and edges exposed to view including horizontal edges of pads. | ☑ | ☐ | ☐ |
| 9.0 | Key ways and/or other provisions according to design are provided in construction joints | ☐ | ☐ | ☑ |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 10.0 | Inspect types of form spacers, ties and bracing. | ☑ | ☐ | ☐ |
| 11.0 | Spacing of ties to be set to a pattern | ☑ | ☐ | ☐ |
| 12.0 | Expansion, construction, contraction joints as required & located as coordinated with structural Engineer | ☐ | ☐ | ☑ |
| 13.0 | Forms secured against movement during placing | ☑ | ☐ | ☐ |
| 14.0 | Forms are braced for alignment and blow out | ☑ | ☐ | ☐ |
| 15.0 | Forms are cleaned of all debris, and dry, prior to concrete placement including standing water. | ☑ | ☐ | ☐ |
| 16.0 | Openings in formwork permit inspection and cleaning, placing and compaction of concrete, and forming and processing of construction joints. | ☑ | ☐ | ☐ |
| 17.0 | Formwork has been coated with release agent prior to rebar placement. | ☑ | ☐ | ☐ |
| 18.0 | Anchor Bolts and Embeds are secured to formwork. | ☐ | ☐ | ☑ |

COMMENTS:

ATTACHMENT(S):

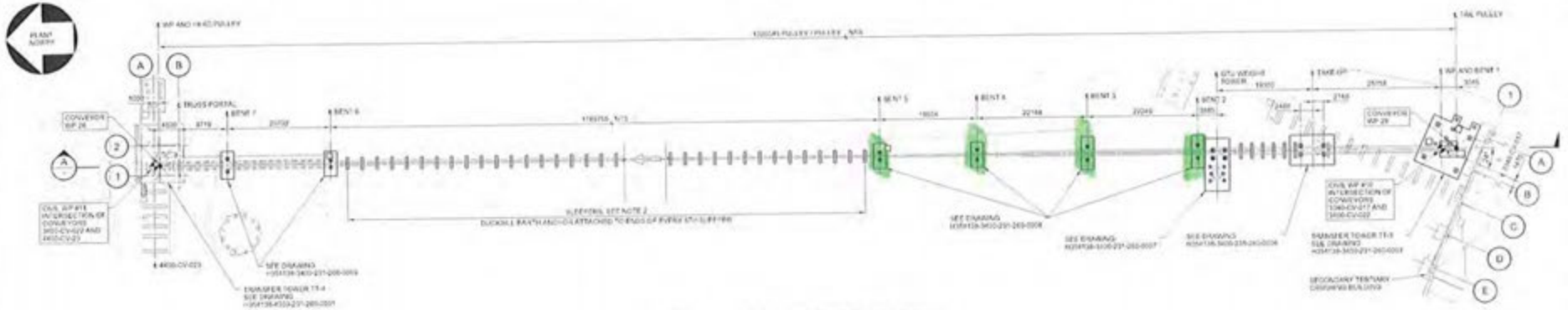
DEFICIENCIES NOTES:

INITIAL INSPECTION

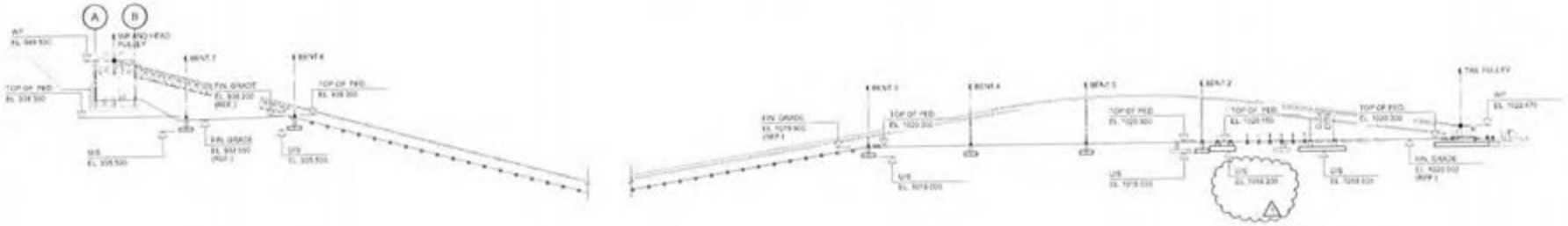
INSPECTOR: _____ TITLE _____ DATE: _____

RE-INSPECTION (DEFICIENCIES COMPLETED)

INSPECTOR: _____ TITLE _____ DATE: _____



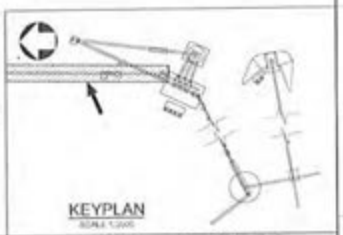

3400-CV-022 CONVEYOR FOUNDATION
GENERAL ARRANGEMENT - PLAN




SECTION A

NOTES:

1. FOR GENERAL NOTES SEE DRAWING H354138-3400-231-260-0001
2. FOR SLEEPERS AND SOIL ANCHOR DETAILS SEE DRAWING H354138-2120-220-290-0004
   FOR SLEEPER LOCATIONS AND SPRINGS SEE TEP DRAWING 17-0200-1102 AND -4103



KEYPLAN

| No | DESCRIPTION | BY | CHK'D | DATE |
|---|---|---|---|---|
| 1 | GTU FOOTING U/S ELEVATION REVISED DUE TO SITE CONDITIONS | PJ | EA | 2016-10-10 |
| 0 | IN PROGRESS FOR CONSTRUCTION | PJ | EA | 2016-09-12 |

REVISIONS

DRAWING No. | DRAWING TITLE
REFERENCE DRAWINGS

REG. PROFESSIONAL

HATCH

| | | | |
|---|---|---|---|
| CHIEF EXPERTISE | P. JUREV | NA | 2016-09-28 |
| DESIGNER | P. LI | NA | 2016-09-28 |
| CHECKER | E. AVINO | | 2016-10-11 |
| DESIGN COORD. | S. FERRARI | | 2016-10-11 |
| DESIP. ENG. | E. AVINO | | 2016-10-11 |
| LEAD DISC. ENG. | E. AVINO | | 2016-10-11 |
| ENG. MANAGER | B. RUSTAD | | 2016-10-11 |
| PROJ. MANAGER | B. RUSTAD | | 2016-10-11 |

| ROLE | NAME | SIGNATURE & DATE |
|---|---|---|
| DRAWING APPROVAL STATUS | Approved for Construction | |

StrataGold Corporation

EAGLE GOLD PROJECT

OVERLAND CONVEYING
3400-CV-022 CONVEYOR FOUNDATION
GENERAL ARRANGEMENT

SCALE 1:400 | DWG. No. H354138-3400-231-260-0002 | REV 1

# CONCRETE POST POUR COLD WEATHER MONITORING

Rev 02 Nov 4, 2018

| | |
|---|---|
| CONTRACTOR: Clark Builders | DATE OF POUR: Nov. 10 |
| AMBIENT TEMP at POUR (°C): -14 | DATE FORMWORK STRIPPED: Nov. 13 |
| LOCATION: CV-22 Bat 5 | |
| | SPEC SECTION(S): S03 30 00 – Cast-In-Place |

TYPE OF CURING:

| | | | | | |
|---|---|---|---|---|---|
| CURING COMPOUND | ☐ | DAMP BURLAP OR FABRIC | ☐ | INSULATION (TARPS) | ☑ |
| POLYETHYLENE SHEETS | ☐ | WATER/FOG SPRAY/ PONDING | ☐ | FORMS (COVERED BY) | ☑ |

| COLD WEATHER REQUIREMENTS (WHEN AMB. TEMP < 5°C) | PASS | FAIL | N/A | REMARKS |
|---|---|---|---|---|
| Protection in place and temperatures not lower than 20°C or until 70% of the 28-day strength has been reached. | ☑ | ☐ | ☐ | |
| Cold weather protection provided by means of heated enclosures, coverings, insulation, or a suitable approved combination of these methods during complete curing period. | ☑ | ☐ | ☐ | |
| Concrete test cylinders are kept within hoarding or in area where temperatures are ideal for curing. (No frozen Cylinders) | ☑ | ☐ | ☐ | |
| Heat is not directed onto concrete. This may result in thermal cracking. | ☑ | ☐ | ☐ | |
| During freezing weather, and standing water removed before the end of the protection period (CSA A 23.1 clause 7.4.2.4.2) | ☑ | ☐ | ☐ | |
| | | | | |

CONCRETE CURING TEMPERATURE LOG (COLD WEATHER CONCRETEING ONLY)

| DATE | TIME (24 HR) | OUTSIDE AIR TEMP (°C) | TEMP INSIDE HOARDING (°C) | CONCRETE SURFACE TEMP (°C) | | INITIALS OF READER |
|---|---|---|---|---|---|---|
| | | | | HIGH (°C) | LOW (°C) | |
| Nov. 10 | 6:45 PM | -14.7 | 20.1 | 22.4 | 20.7 | D.P. |
| Nov. 11 | 6:10 AM | -14.3 | 24.4 | 30.6 | 28.4 | D.P. |
| Nov. 11 | 1:30 PM | -12.5 | 27.2 | 35.4 | 32.3 | D.P |
| Nov. 11 | 6:00 PM | -12.4 | 29.3 | 39.2 | 36.4 | D.P |
| Nov. 12 | 8:20 AM | -14.3 | 38.4 | 39.1 | 34.5 | D.P. |
| Nov. 12 | 1:00 PM | -4 | ~~27~~ 10.5 | 27.7 | 26.3 | D.P. |
| Nov. 12 | 6:30 PM | -7 | 11.8 | 24.3 | 23.2 | D.P |

COMMENTS: Shutting off heaters not Too much concrete when it got close above 35°

**CLARK BUILDERS SITE REPRESENTATIVE**

PRINT/ SIGN: DAN PELLETIER TITLE Foreman DATE: Nov. 12

# CONCRETE POST POUR COLD WEATHER MONITORING

Rev 02 Nov 4, 2018

| | |
|---|---|
| CONTRACTOR: Clark Builders | DATE OF POUR: Nov. 10 |
| AMBIENT TEMP at POUR (°C): -14 | DATE FORMWORK STRIPPED: Nov. 13 |
| LOCATION: CV-22 Bay 4 | |
| | SPEC SECTION(S): S03 30 00 -- Cast-In-Place |

TYPE OF CURING:

| | | | | | |
|---|---|---|---|---|---|
| CURING COMPOUND | ☐ | DAMP BURLAP OR FABRIC | ☐ | INSULATION (TARPS) | ☑ |
| POLYETHYLENE SHEETS | ☐ | WATER/FOG SPRAY/ PONDING | ☐ | FORMS (COVERED BY) | ☑ |

| COLD WEATHER REQUIREMENTS (WHEN AMB. TEMP < 5°C) | PASS | FAIL | N/A | REMARKS |
|---|---|---|---|---|
| Protection in place and temperatures not lower than 20°C or until 70% of the 28-day strength has been reached. | ☑ | ☐ | ☐ | |
| Cold weather protection provided by means of heated enclosures, coverings, insulation, or a suitable approved combination of these methods during complete curing period. | ☑ | ☐ | ☐ | |
| Concrete test cylinders are kept within hoarding or in area where temperatures are ideal for curing. (No frozen Cylinders) | ☑ | ☐ | ☐ | |
| Heat is not directed onto concrete. This may result in thermal cracking. | ☑ | ☐ | ☐ | |
| During freezing weather, and standing water removed before the end of the protection period (CSA A 23.1 clause 7.4.2.4.2) | ☑ | ☐ | ☐ | |
| | | | | |

CONCRETE CURING TEMPERATURE LOG (COLD WEATHER CONCRETEING ONLY)

| DATE | TIME (24 HR) | OUTSIDE AIR TEMP (°C) | TEMP INSIDE HOARDING (°C) | CONCRETE SURFACE TEMP (°C) | | INITIALS OF READER |
|---|---|---|---|---|---|---|
| | | | | HIGH (°C) | LOW (°C) | |
| Nov. 10 | 6:45 PM | -14.7 | 20.0 | 22.1 | 20.1 | D.P. |
| Nov. 11 | 6:10 AM | -14.3 | 22.4 | 26.7 | 20.7 | D.P. |
| Nov. 11 | 1:30 PM | -12.5 | 25.7 | 32.6 | 31.4 | D.P. |
| Nov. 11 | 6:00PM | -12.4 | 27.8 | 38.4 | 34.2 | D.P. |
| Nov. 12 | 8:20Am | -14.3 | 35.7 | 38.7 | 37 | D.P. |
| Nov. 12 | 1:00PM | -4 | 13.1 | 28.8 | 26.2 | D.P. |
| Nov. 12 | 6:30PM | -7 | 10.3 | 27.9 | 22.4 | D.P. |

| | |
|---|---|
| COMMENTS: | Shutting off heaters to keep temperature around 35° |

**CLARK BUILDERS SITE REPRESENTATIVE**

PRINT/ SIGN: DAN POLLETIER TITLE Foreman DATE: Nov. 12

# CONCRETE POST POUR COLD WEATHER MONITORING

Rev 02 Nov 4, 2018

| | |
|---|---|
| CONTRACTOR: Clark Builders | DATE OF POUR: Nov. 10 |
| AMBIENT TEMP at POUR (°C): -14 | DATE FORMWORK STRIPPED: Nov. 13 |
| LOCATION: CV-22 Bat 3 | |
| | SPEC SECTION(S): S03 30 00 – Cast-In-Place |

TYPE OF CURING:

| | | | | | |
|---|---|---|---|---|---|
| CURING COMPOUND | ☐ | DAMP BURLAP OR FABRIC | ☐ | INSULATION (TARPS) | ☑ |
| POLYETHYLENE SHEETS | ☐ | WATER/FOG SPRAY/ PONDING | ☐ | FORMS (COVERED BY) | ☑ |

| COLD WEATHER REQUIREMENTS (WHEN AMB. TEMP < 5°C) | PASS | FAIL | N/A | REMARKS |
|---|---|---|---|---|
| Protection in place and temperatures not lower than 20°C or until 70% of the 28-day strength has been reached. | ☑ | ☐ | ☐ | |
| Cold weather protection provided by means of heated enclosures, coverings, insulation, or a suitable approved combination of these methods during complete curing period. | ☑ | ☐ | ☐ | |
| Concrete test cylinders are kept within hoarding or in area where temperatures are ideal for curing. (No frozen Cylinders) | ☑ | ☐ | ☐ | |
| Heat is not directed onto concrete. This may result in thermal cracking. | ☑ | ☐ | ☐ | |
| During freezing weather, and standing water removed before the end of the protection period (CSA A 23.1 clause 7.4.2.4.2) | ☑ | ☐ | ☐ | |
| | | | | |

CONCRETE CURING TEMPERATURE LOG (COLD WEATHER CONCRETEING ONLY)

| DATE | TIME (24 HR) | OUTSIDE AIR TEMP (°C) | TEMP INSIDE HOARDING (°C) | CONCRETE SURFACE TEMP (°C) | | INITIALS OF READER |
|---|---|---|---|---|---|---|
| | | | | HIGH (°C) | LOW (°C) | |
| Nov. 10 | 6:45 PM | -14.7 | 23.2 | 27.7 | 24.3 | D.P. |
| Nov. 11 | 6:10 AM | -14.3 | 22.4 | 26.6 | 23.2 | D.P. |
| Nov. 11 | 1:30 PM | -12.5 | 27.3 | 34.4 | 29.4 | D.P. |
| Nov. 11 | 6:00 PM | -12.4 | 26.7 | 34.5 | 32.2 | D.P. |
| Nov. 12 | 8:20 AM | -14.3 | 31.6 | 33.7 | 32.8 | D.P. |
| Nov. 12 | 1:00 PM | -4 | 13.5 | 25.9 | 23.8 | D.P. |
| Nov. 12 | 6:30 PM | -7 | 13.1 | 22.3 | 21.1 | D.P. |
| COMMENTS: | Shutting off heaters to keep concrete around 35° | | | | | |

**CLARK BUILDERS SITE REPRESENTATIVE**

PRINT/ SIGN: DAN PELLETIER TITLE Foreman DATE: Nov. 12

# CONCRETE POST POUR COLD WEATHER MONITORING

Rev 02 Nov 4, 2018

| | |
|---|---|
| CONTRACTOR: Clark Builders | DATE OF POUR: Nov. 12 |
| AMBIENT TEMP at POUR (°C): -12 | DATE FORMWORK STRIPPED: Nov. 15 |
| LOCATION: CV-22 BENT 2 | |
| | SPEC SECTION(S): S03 30 00 – Cast-In-Place |

TYPE OF CURING:

| | | | | | |
|---|---|---|---|---|---|
| CURING COMPOUND | ☐ | DAMP BURLAP OR FABRIC | ☐ | INSULATION (TARPS) | ☑ |
| POLYETHYLENE SHEETS | ☐ | WATER/FOG SPRAY/ PONDING | ☐ | FORMS (COVERED BY) | ☑ |

| COLD WEATHER REQUIREMENTS (WHEN AMB. TEMP < 5°C) | PASS | FAIL | N/A | REMARKS |
|---|---|---|---|---|
| Protection in place and temperatures not lower than 20°C or until 70% of the 28-day strength has been reached. | ☑ | ☐ | ☐ | |
| Cold weather protection provided by means of heated enclosures, coverings, insulation, or a suitable approved combination of these methods during complete curing period. | ☑ | ☐ | ☐ | |
| Concrete test cylinders are kept within hoarding or in area where temperatures are ideal for curing. (No frozen Cylinders) | ☐ | ☐ | ☐ | |
| Heat is not directed onto concrete. This may result in thermal cracking. | ☑ | ☐ | ☐ | |
| During freezing weather, and standing water removed before the end of the protection period (CSA A 23.1 clause 7.4.2.4.2) | ☑ | ☐ | ☐ | |
| | | | | |

CONCRETE CURING TEMPERATURE LOG (COLD WEATHER CONCRETEING ONLY)

| DATE | TIME (24 HR) | OUTSIDE AIR TEMP (°C) | TEMP INSIDE HOARDING (°C) | CONCRETE SURFACE TEMP (°C) | | INITIALS OF READER |
|---|---|---|---|---|---|---|
| | | | | HIGH (°C) | LOW (°C) | |
| Nov. 12 | 8:40 AM | -12° | 21.3 | | | D.P. |
| Nov. 12 | 1:00 PM | -4 | 33 | 26.5 | 25.1 | D.P. |
| Nov. 12 | 6:30 PM | -7 | 32.3 | 31.8 | 26.9 | D.P. |
| Nov. 13 | 6:00 AM | -5 | 22.1 | 27.1 | 25.1 | D.P. |
| Nov. 13 | 1:00 PM | -3 | 17.3 | 26.7 | 24.3 | D.P. |
| Nov. 13 | 6:00 PM | -12 | 38.2 | 38.4 | 36.3 | D.P. |
| Nov. 14 | 1:30 PM | -15 | 23.4 | 29.1 | 24.1 | D.P. |
| COMMENTS: | Shutting heaters off when it gets too hot in tents | | | | | |

**CLARK BUILDERS SITE REPRESENTATIVE**

PRINT/ SIGN: DAN PELLETIER TITLE Foreman DATE:

CLARK BUILDERS
ENERGY & RESOURCES

# CONCRETE REINFORCEMENT PRE POUR

Rev 01 August 25, 2018

| | |
|---|---|
| SUBCONTRACTOR: Ultimate Reinforcing // McNish | INSPECTION DATE: November 10, 2018 |
| SUBCONTRACTOR CONTACT PERSON: Jimmy M. | PROJ. POUR DATE: November 10, 2018 |
| INSPECTOR(S): | |
| LOCATION: 3400 // CUO22 Bents. 2,3,4,5 | |
| DRAWING REV: 01 / DRAWING NO.(S): 3400-0002 | SPEC SECTION(S): ~~503~~ 20 00 – Concrete Reinforcing Steel |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Grade (400W unless otherwise noted) and type of steel delivered and installed as required by approved drawings. | ☑ | ☐ | ☐ |
| 2.0 | Inspect rebar distribution, spacing and cover per design/project requirements. | ☑ | ☐ | ☐ |
| 3.0 | Length of splices as specified | ☑ | ☐ | ☐ |
| 4.0 | Staggered splices as specified | ☑ | ☐ | ☐ |
| 5.0 | Any mechanical splices have been approved by the owner prior to install | ☐ | ☐ | ☑ |
| 6.0 | Bars cleaned and free of material that may reduce bond including loose rust, scale, oil, structural defects and that they are uncoated and unpainted. | ☑ | ☐ | ☐ |
| 7.0 | Dowels at wall ends, construction joints, and openings as specified (length, location, size, etc.) | ☐ | ☐ | ☑ |
| 8.0 | No unauthorized field bent bars including hooks installed | ☑ | ☐ | ☐ |
| 9.0 | Resolve conflicts between embedded items and reinforcement | ☑ | ☐ | ☐ |
| 10.0 | When authorized, field bends done without heat and inspected for fissures or cracks. | ☐ | ☐ | ☑ |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 11.0 | Bars tied and supported to prevent displacement | ☑ | ☐ | ☐ |
| 12.0 | Spacers, tie wire and chairs as required | ☑ | ☐ | ☐ |
| 13.0 | Conduits at design location and minimum separation from rebar as specified | ☐ | ☐ | ☑ |
| 14.0 | No contact of bars is made with dissimilar metals as per CSA A23.1 | ☑ | ☐ | ☐ |
| 15.0 | Bars, nails or tie wire not sticking out from surfaces that allow rusting/corrosion | ☑ | ☐ | ☐ |
| 16.0 | Rebar welds are inspected by qualified inspectors certified to CSA W178.2 | ☑ | ☐ | ☑ |
| 17.0 | No rebar congestion or other obstruction for deposit of concrete | ☑ | ☐ | ☐ |
| 18.0 | Adjustments required for interfering items (piping, inserts, sleeves, etc.) have been submitted and approved by owner. | ☑ | ☐ | ☐ |
| 19.0 | Rebar was stored off ground to prevent damage/corrosion | ☑ | ☐ | ☐ |
| 20.0 | Review drawings for anchors, piping, sleeves, boxes | ☑ | ☐ | ☐ |

COMMENTS:

ATTACHMENT(S):

DEFICIENCIES NOTES:

CLARK BUILDERS:
INSPECTOR: Ryan deMilliano // TITLE Project Coordinator DATE: Nov 11/18

JDS ENERGY & MINING:
INSPECTOR: Terry Chrzanzez TITLE Const. Sup. DATE: Nov 11/18

CLARK BUILDERS
ENERGY & RESOURCES

CB-INSPECTION FORM-DOC-002 REV.00
JDS ENERGY & MINING INC. | STRATAGOLD EAGLE GOLD
PROJECT #: CB201 | 18502

PROJECT MANAGER: DUSTIN DOLYNCHUK, P.ENG
QA/QC COORDINATOR: RYAN DE MILLIANO, C.E.T.
SUPERINTENDENT: GARRY DAHL

# FORMWORK & FALSEWORK PRE POUR | QA INSPECTION

Rev 01 August 25, 2018

| | |
|---|---|
| CONTRACTOR: Clark Builders | INSPECTION DATE: November 10, 2018 |
| CONTRACTOR CONTACT PERSON: Dan Pelletier | PROPOSED DATE OF POUR: November 10, 2018 |
| INSPECTOR(S): | |
| LOCATION: 3400 // CV022 | |
| DRAWING REV: 01 | DRAWING NO.(S): 3400-231-200-0002 SPEC SECTION(S): 503000 |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Location, survey, dimension and grades as required | ☑ | ☐ | ☐ |
| 2.0 | Plumbness and Flatness verified | ☑ | ☐ | ☐ |
| 3.0 | Joints are aligned and watertight. | ☑ | ☐ | ☐ |
| 4.0 | Formwork shop drawings are Engineered and reviewed | ☑ | ☐ | ☐ |
| 5.0 | Re-used formwork reconditioned and treated | ☑ | ☐ | ☐ |
| 6.0 | Formwork and ties according to finishing requirements. Confirm no holes in the concrete surface are greater than 25mm in diameter or expose steel at less than 25mm from surface. As per spec. | ☑ | ☐ | ☐ |
| 7.0 | Installation of embeds are located and secured | ☑ | ☐ | ☐ |
| 8.0 | Chamfer requirements checked. 25mm chamfers required for all exterior corners and edges exposed to view including horizontal edges of pads. | ☐ | ☐ | ☑ |
| 9.0 | Key ways and/or other provisions according to design are provided in construction joints | ☐ | ☐ | ☑ |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 10.0 | Inspect types of form spacers, ties and bracing. | ☑ | ☐ | ☐ |
| 11.0 | Spacing of ties to be set to a pattern | ☑ | ☐ | ☐ |
| 12.0 | Expansion, construction, contraction joints as required & located as coordinated with structural Engineer | ☐ | ☐ | ☑ |
| 13.0 | Forms secured against movement during placing | ☑ | ☐ | ☐ |
| 14.0 | Forms are braced for alignment and blow out | ☑ | ☐ | ☐ |
| 15.0 | Forms are cleaned of all debris, and dry, prior to concrete placement including standing water. | ☑ | ☐ | ☐ |
| 16.0 | Openings in formwork permit inspection and cleaning, placing and compaction of concrete, and forming and processing of construction joints. | ☑ | ☐ | ☐ |
| 17.0 | Formwork has been coated with release agent prior to rebar placement. | ☑ | ☐ | ☐ |
| 18.0 | Anchor Bolts and Embeds are secured to formwork. | ☐ | ☐ | ☑ |

COMMENTS:

ATTACHMENT(S):

DEFICIENCIES NOTES:

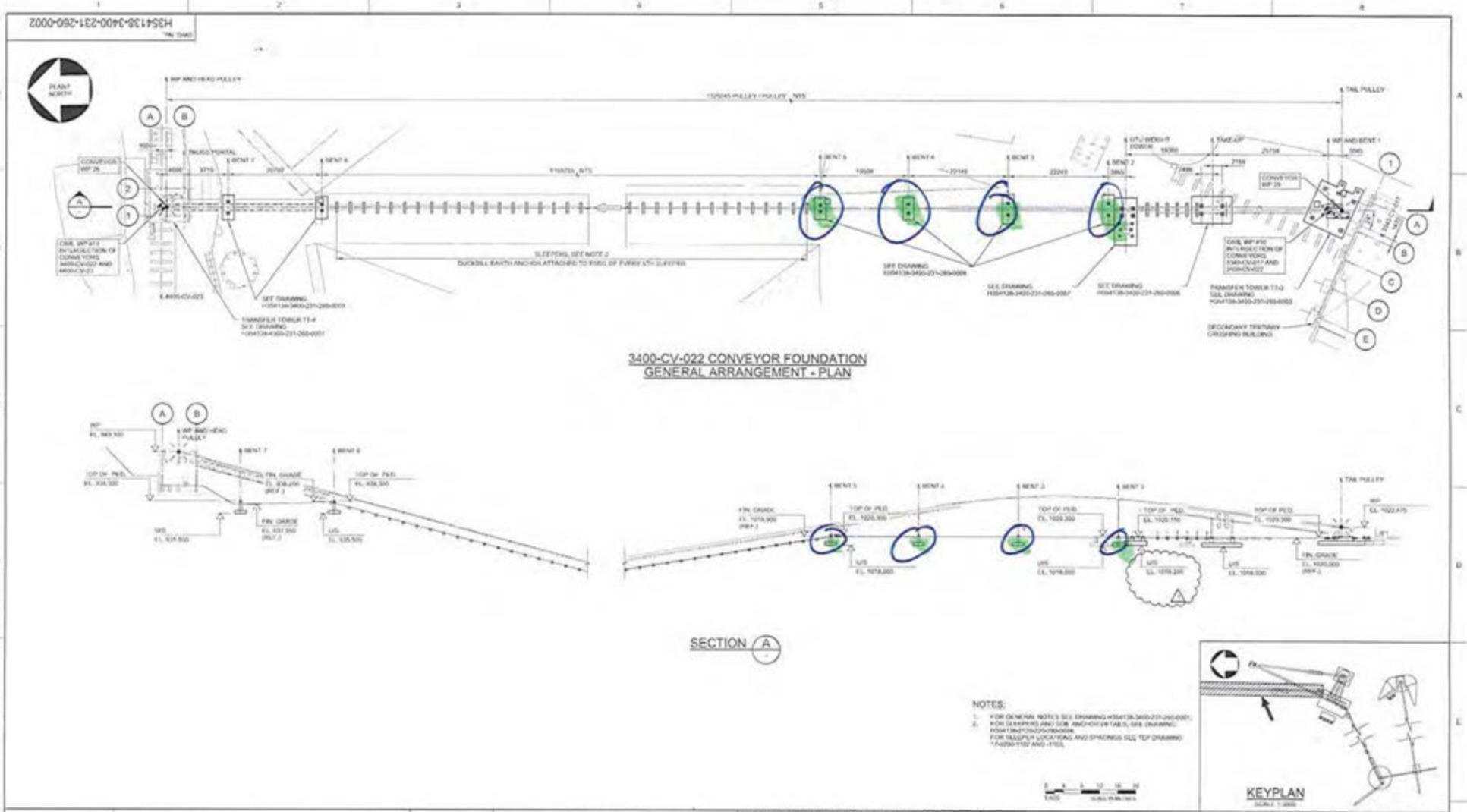
INITIAL INSPECTION

INSPECTOR: [signature] // Ryan deMilliano TITLE Project Coordinator DATE: Nov 11/18

RE-INSPECTION (DEFICIENCIES COMPLETED)

INSPECTOR: _____ TITLE _____ DATE: _____

Nov 10/18




| No. | DESCRIPTION | BY | CHK'D | DATE |
|---|---|---|---|---|
| 1 | G/N FOOTING UNLEVELLING REVISED DUE TO SITE CONDITIONS | PJ | EA | 2018-10-10 |
| 0 | APPROVED FOR CONSTRUCTION | PJ | EA | 2018-09-12 |

REVISIONS

| ROLE | NAME | SIGNATURE & DATE |
|---|---|---|
| DRAFTSPERSON | P. JAVEY | |
| DESIGNER | H. LE | |
| CHECKER | E. AKINOI | |
| DESIGN COORD. | S. PERKINS | |
| RESP. ENG. | E. AKINOI | |
| LEAD DISC. ENG. | E. AKINOI | |
| ENG. MANAGER | B. RUSTAD | |
| PROJ. MANAGER | B. RUSTAD | |

DRAWING APPROVAL STATUS: Approved for Construction

HATCH

StrataGold Corporation

EAGLE GOLD PROJECT

OVERLAND CONVEYING
3400-CV-022 CONVEYOR FOUNDATION
GENERAL ARRANGEMENT

SCALE 1:400

DWG. No. H354138-3400-231-260-0002

REV 1

DRAWING No. | DRAWING TITLE

REFERENCE DRAWINGS

REG. PROFESSIONAL

CLARK BUILDERS
ENERGY & RESOURCES

# CONCRETE REINFORCEMENT PRE POUR

Rev 01 August 25, 2018

| | |
|---|---|
| SUBCONTRACTOR: Ultimate Reinforcing // McNish | INSPECTION DATE: Nov 13, 2018 |
| SUBCONTRACTOR CONTACT PERSON: Jimmy M. | PROJ. POUR DATE: Nov 13, 2018 |
| INSPECTOR(S): Ryan de Milliano, Dan Pelletier, Jerry C. (3DS) | |
| LOCATION: 3330 CV016 PEDESTALS (x18) / 3400 CV072 PEDESTALS. (x4) | |
| DRAWING REV: 01 | DRAWING NO.(S): 3330-0004(R1) // 3400-0006(R1) SPEC SECTION(S): S03 20 00 – Concrete Reinforcing Steel |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Grade (400W unless otherwise noted) and type of steel delivered and installed as required by approved drawings. | ☑ | ☐ | ☐ |
| 2.0 | Inspect rebar distribution, spacing and cover per design/project requirements. | ☑ | ☐ | ☐ |
| 3.0 | Length of splices as specified | ☑ | ☐ | ☐ |
| 4.0 | Staggered splices as specified | ☑ | ☐ | ☐ |
| 5.0 | Any mechanical splices have been approved by the owner prior to install | ☐ | ☐ | ☑ |
| 6.0 | Bars cleaned and free of material that may reduce bond including loose rust, scale, oil, structural defects and that they are uncoated and unpainted. | ☑ | ☐ | ☐ |
| 7.0 | Dowels at wall ends, construction joints, and openings as specified (length, location, size, etc.) | ☐ | ☐ | ☑ |
| 8.0 | No unauthorized field bent bars including hooks installed | ☑ | ☐ | ☐ |
| 9.0 | Resolve conflicts between embedded items and reinforcement | ☑ | ☐ | ☐ |
| 10.0 | When authorized, field bends done without heat and inspected for fissures or cracks. | ☐ | ☐ | ☑ |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 11.0 | Bars tied and supported to prevent displacement | ☑ | ☐ | ☐ |
| 12.0 | Spacers, tie wire and chairs as required | ☑ | ☐ | ☐ |
| 13.0 | Conduits at design location and minimum separation from rebar as specified | ☐ | ☐ | ☑ |
| 14.0 | No contact of bars is made with dissimilar metals as per CSA A23.1 | ☑ | ☐ | ☐ |
| 15.0 | Bars, nails or tie wire not sticking out from surfaces that allow rusting/corrosion | ☑ | ☐ | ☐ |
| 16.0 | Rebar welds are inspected by qualified inspectors certified to CSA W178.2 | ☐ | ☐ | ☑ |
| 17.0 | No rebar congestion or other obstruction for deposit of concrete | ☑ | ☐ | ☐ |
| 18.0 | Adjustments required for interfering items (piping, inserts, sleeves, etc.) have been submitted and approved by owner. | ☐ | ☐ | ☑ |
| 19.0 | Rebar was stored off ground to prevent damage/corrosion | ☑ | ☐ | ☐ |
| 20.0 | Review drawings for anchors, piping, sleeves, boxes | ☑ | ☐ | ☐ |

COMMENTS:

INSIDE REBARCING TEMP WAS GOOD AT ALL LOCATIONS BEFORE POUR.

ATTACHMENT(S):

DWG (HIGHLIGHTED)

DEFICIENCIES NOTES:

CLARK BUILDERS:
INSPECTOR: // Ryan de Milliano TITLE Project Coordinator DATE: Nov 13/18

JDS ENERGY & MINING:
INSPECTOR: Jerry C (3DS) TITLE [signature] DATE: Nov 13/18

CLARK BUILDERS
ENERGY & RESOURCES

# FORMWORK & FALSEWORK PRE POUR | QA INSPECTION

Rev 01 August 25, 2018

| | |
|---|---|
| CONTRACTOR: Clark Builders | INSPECTION DATE: Nov 13/18 |
| CONTRACTOR CONTACT PERSON: Dan Pelletier | DATE OF POUR: Nov 13/18 |
| INSPECTOR(S): Ryan deM.Milano, Jerry C. (JDS), Dan Pelletier. | |
| LOCATION: 3330 CV016 Pedestals (x18) / CV022 3400 Pedestals. (x4) | |
| DRAWING REV: | DRAWING NO.(S): SPEC SECTION(S): |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Location, survey, dimension and grades as required | ☑ | ☐ | ☐ |
| 2.0 | Plumbness and Flatness verified | ☑ | ☐ | ☐ |
| 3.0 | Joints are aligned and watertight. | ☑ | ☐ | ☐ |
| 4.0 | Formwork shop drawings are Engineered and reviewed | ☑ | ☐ | ☐ |
| 5.0 | Re-used formwork reconditioned and treated | ☑ | ☐ | ☐ |
| 6.0 | Formwork and ties according to finishing requirements. Confirm no holes in the concrete surface are greater than 25mm in diameter or expose steel at less than 25mm from surface. As per spec. | ☑ | ☐ | ☐ |
| 7.0 | Installation of embeds are located and secured | ☑ | ☐ | ☐ |
| 8.0 | Chamfer requirements checked. 25mm chamfers required for all exterior corners and edges exposed to view including horizontal edges of pads. | ☑ | ☐ | ☐ |
| 9.0 | Key ways and/or other provisions according to design are provided in construction joints | ☐ | ☐ | ☑ |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 10.0 | Inspect types of form spacers, ties and bracing. | ☑ | ☐ | ☐ |
| 11.0 | Spacing of ties to be set to a pattern | ☑ | ☐ | ☐ |
| 12.0 | Expansion, construction, contraction joints as required & located as coordinated with structural Engineer | ☐ | ☐ | ☑ |
| 13.0 | Forms secured against movement during placing | ☑ | ☐ | ☐ |
| 14.0 | Forms are braced for alignment and blow out | ☑ | ☐ | ☐ |
| 15.0 | Forms are cleaned of all debris, and dry, prior to concrete placement including standing water. | ☑ | ☐ | ☐ |
| 16.0 | Openings in formwork permit inspection and cleaning, placing and compaction of concrete, and forming and processing of construction joints. | ☐ | ☐ | ☑ |
| 17.0 | Formwork has been coated with release agent prior to rebar placement. | ☑ | ☐ | ☐ |
| 18.0 | Anchor Bolts and Embeds are secured to formwork. | ☑ | ☐ | ☐ |

COMMENTS:

ATTACHMENT(S):

DEFICIENCIES NOTES:

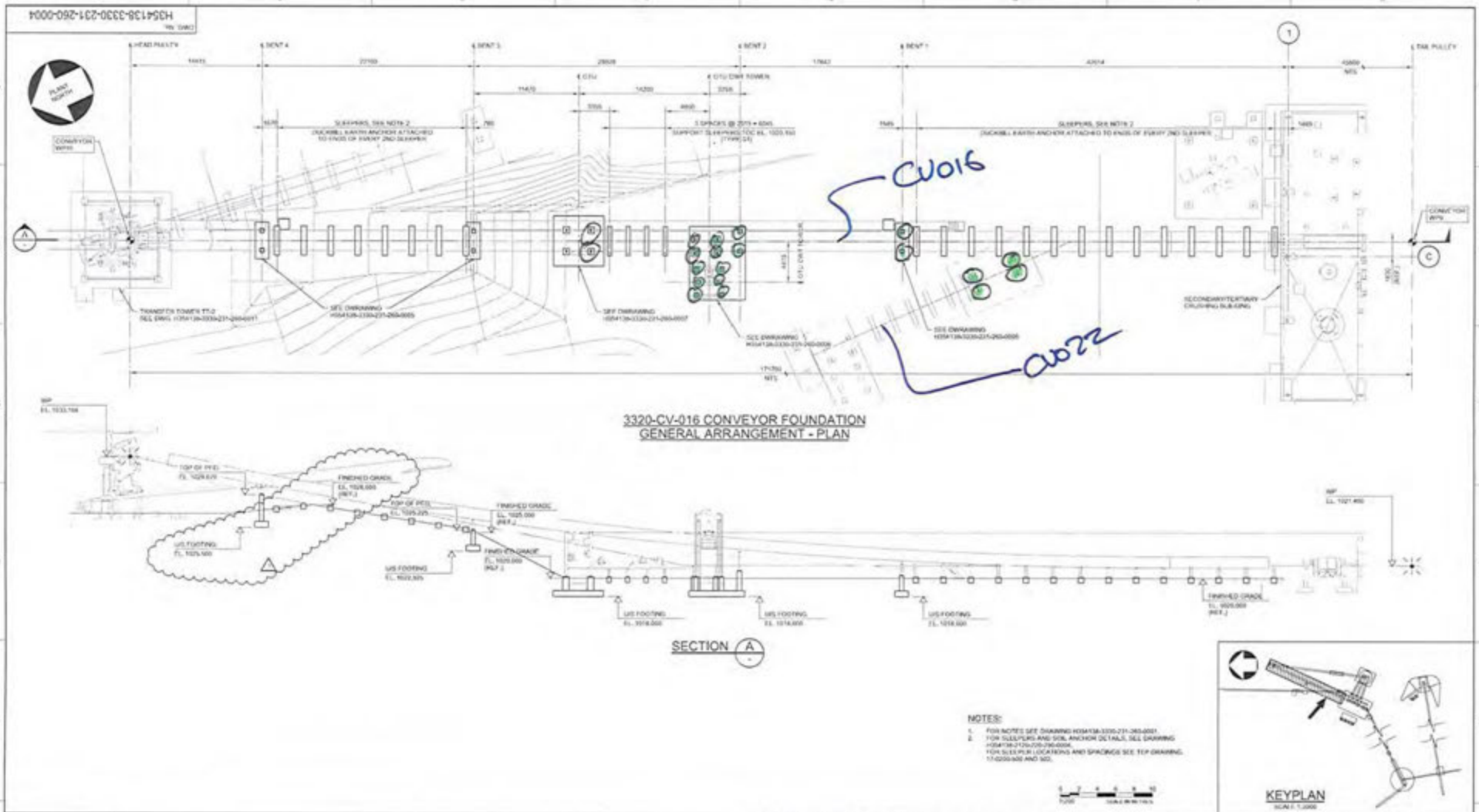
INITIAL INSPECTION

INSPECTOR: Ryan deM.Milano TITLE Project Coordinator DATE: Nov 13/18

RE-INSPECTION (DEFICIENCIES COMPLETED)

INSPECTOR: N/R TITLE DATE:

Nov 13/18




NOTES:

1. FOR NOTES SEE DRAWING H354138-3330-231-260-0001.
2. FOR SLEEPERS AND SOIL ANCHOR DETAILS, SEE DRAWING H354138-2120-200-200-0004.
FOR SLEEPER LOCATIONS AND SPACINGS SEE TEP DRAWING 17-0200-600 AND 602.

| No. | DESCRIPTION | BY | CHK'D | DATE |
|---|---|---|---|---|
| 1 | FINISHED GRADE ELEVATION AND BENT 4 REVISED | PJ | EA | 2018-09-11 |
| 2 | APPROVED FOR CONSTRUCTION | RS | EA | 2018-09-30 |

REVISIONS

| DRAWING No. | DRAWING TITLE |
|---|---|
| REFERENCE DRAWINGS | |

REG. PROFESSIONAL

HATCH

| ROLE | NAME | SIGNATURE & DATE |
|---|---|---|
| DRAW ESPERSON | K. SAGARWARIA | NR |
| DESIGNER | H. LI | NR |
| CHECKER | E. AKINCI | 2018-09-11 |
| DESIGN COORD. | S. PERKINS | 2018-09-11 |
| RESP. ENG. | E. AKINCI | 2018-09-11 |
| LEAD DISC. ENG. | E. AKINCI | 2018-09-11 |
| ENG. MANAGER | B. RUSTAD | 2018-09-11 |
| PROJ. MANAGER | B. RUSTAD | 2018-09-11 |

DRAWING APPROVAL STATUS: Approved for Construction

StrataGold Corporation

EAGLE GOLD PROJECT

TERTIARY TRANSFER CONVEYORS
3320-CV-016 CONVEYOR FOUNDATION
GENERAL ARRANGEMENT

SCALE 1:200 | DWG. No. H354138-3330-231-260-0004 | REV 1

# CONCRETE POST POUR COLD WEATHER MONITORING

Rev 02 Nov 4, 2018

| | |
|---|---|
| TRACTOR: Clark Builders | DATE OF POUR: Nov. 13 |
| MBIENT TEMP at POUR (°C): -4 | DATE FORMWORK STRIPPED: Nov. 16 |
| LOCATION: CV-16 6+U | |
| | SPEC SECTION(S): S03 30 00 – Cast-In-Place |

TYPE OF CURING:

| | | | | | |
|---|---|---|---|---|---|
| CURING COMPOUND | ☐ | DAMP BURLAP OR FABRIC | ☐ | INSULATION (TARPS) | ☑ |
| POLYETHYLENE SHEETS | ☐ | WATER/FOG SPRAY/ PONDING | ☐ | FORMS (COVERED BY) | ☑ |

| COLD WEATHER REQUIREMENTS (WHEN AMB. TEMP < 5°C) | PASS | FAIL | N/A | REMARKS |
|---|---|---|---|---|
| Protection in place and temperatures not lower than 20°C or until 70% of the 28-day strength has been reached. | ☑ | ☐ | ☐ | |
| Cold weather protection provided by means of heated enclosures, coverings, insulation, or a suitable approved combination of these methods during complete curing period. | ☑ | ☐ | ☐ | |
| Concrete test cylinders are kept within hoarding or in area where temperatures are ideal for curing. (No frozen Cylinders) | ☑ | ☐ | ☐ | |
| Heat is not directed onto concrete. This may result in thermal cracking. | ☑ | ☐ | ☐ | |
| During freezing weather, and standing water removed before the end of the protection period (CSA A 23.1 clause 7.4.2.4.2) | ☑ | ☐ | ☐ | |
| | | | | |

CONCRETE CURING TEMPERATURE LOG (COLD WEATHER CONCRETEING ONLY)

| DATE | TIME (24 HR) | OUTSIDE AIR TEMP (°C) | TEMP INSIDE HOARDING (°C) | CONCRETE SURFACE TEMP (°C) | | INITIALS OF READER |
|---|---|---|---|---|---|---|
| | | | | HIGH (°C) | LOW (°C) | |
| Nov. 13 | 6:00 PM | -12 | 30.6 | 28.1 | 24.3 | D.P. |
| Nov 14 | 07:00 AM | -16°C | +22°C | +28 | +23 | SG |
| Nov. 14 | 1230 PM | -15 | 22 | 31 | 27 | D.P |
| Nov. 14 | 6:00PM | -16 | 27 | 33 | 29 | D.P. |
| Nov. 15 | 7:00AM | -17 | 29 | 32 | 27 | D.P. |
| Nov. 15 | 1:30 PM | -15 | 24 | 33 | 27 | D.P. |
| Nov. 16 | 6:00PM | -20 | 22 | 29 | 24 | D.P. |
| COMMENTS: | Shutting ~~temperature~~ heaters to maintain temperature | | | | | |

**CLARK BUILDERS SITE REPRESENTATIVE**

PRINT/ SIGN: DAN PELLETIER TITLE Foreman DATE: Nov 15

# CONCRETE POST POUR COLD WEATHER MONITORING

Rev 02 Nov 4, 2018

| | |
|---|---|
| NTRACTOR: Clark Builders | DATE OF POUR: Nov. 13 |
| MBIENT TEMP at POUR (°C): -4 | DATE FORMWORK STRIPPED: |
| LOCATION: CU 16 BENT 1 GTU CWT TOWER | |
| | SPEC SECTION(S): S03 30 00 -- Cast-In-Place |

TYPE OF CURING:

| | | | | | |
|---|---|---|---|---|---|
| CURING COMPOUND | ☐ | DAMP BURLAP OR FABRIC | ☐ | INSULATION (TARPS) | ☑ |
| POLYETHYLENE SHEETS | ☐ | WATER/FOG SPRAY/ PONDING | ☐ | FORMS (COVERED BY) | ☑ |

| COLD WEATHER REQUIREMENTS (WHEN AMB. TEMP < 5°C) | PASS | FAIL | N/A | REMARKS |
|---|---|---|---|---|
| Protection in place and temperatures not lower than 20°C or until 70% of the 28-day strength has been reached. | ☑ | ☐ | ☐ | |
| Cold weather protection provided by means of heated enclosures, coverings, insulation, or a suitable approved combination of these methods during complete curing period. | ☑ | ☐ | ☐ | |
| Concrete test cylinders are kept within hoarding or in area where temperatures are ideal for curing. (No frozen Cylinders) | ☐ | ☐ | ☐ | |
| Heat is not directed onto concrete. This may result in thermal cracking. | ☑ | ☐ | ☐ | |
| During freezing weather, and standing water removed before the end of the protection period (CSA A 23.1 clause 7.4.2.4.2) | ☑ | ☐ | ☐ | |
| | | | | |

CONCRETE CURING TEMPERATURE LOG (COLD WEATHER CONCRETEING ONLY)

| DATE | TIME (24 HR) | OUTSIDE AIR TEMP (°C) | TEMP INSIDE HOARDING (°C) | CONCRETE SURFACE TEMP (°C) | | INITIALS OF READER |
|---|---|---|---|---|---|---|
| | | | | HIGH (°C) | LOW (°C) | |
| Nov. 13 | 6:00 PM | -12 | 25.6 | 23.4 | 21.2 | D.P. |
| Nov 14 | 07:00 | -16 | +24 | +30 | +23 | [illegible] |
| Nov. 14 | 1:30 | -15 | 25 | 31 | 23 | D.P. |
| Nov. 14 | 6:00 PM | -16 | 28 | 33 | 27 | D.P. |
| Nov. 15 | 7:00 AM | -17 | 30 | 34 | 29 | D.P. |
| Nov. 16 | 1:30 PM | -15 | 22 | 32 | 27 | D.P. |
| | | | | | | |

| COMMENTS: | Shutting heaters off to maintain temperature | |
|---|---|---|

**CLARK BUILDERS SITE REPRESENTATIVE**

PRINT/ SIGN: DAN PELLETIER Dan Pell TITLE Foreman DATE:

# CONCRETE POST POUR COLD WEATHER MONITORING

Rev 02 Nov 4, 2018

| | |
|---|---|
| CONTRACTOR: Clark Builders | DATE OF POUR: Nov. 13 |
| AMBIENT TEMP at POUR (°C): -4 | DATE FORMWORK STRIPPED: |
| LOCATION: CV-16 Bank 1 | |
| | SPEC SECTION(S): 503 30 00 – Cast-In-Place |

TYPE OF CURING:

| | | | | | |
|---|---|---|---|---|---|
| CURING COMPOUND | ☐ | DAMP BURLAP OR FABRIC | ☐ | INSULATION (TARPS) | ☑ |
| POLYETHYLENE SHEETS | ☐ | WATER/FOG SPRAY/ PONDING | ☐ | FORMS (COVERED BY) | ☑ |

| COLD WEATHER REQUIREMENTS (WHEN AMB. TEMP < 5°C) | PASS | FAIL | N/A | REMARKS |
|---|---|---|---|---|
| Protection in place and temperatures not lower than 20°C or until 70% of the 28-day strength has been reached. | ☑ | ☐ | ☐ | |
| Cold weather protection provided by means of heated enclosures, coverings, insulation, or a suitable approved combination of these methods during complete curing period. | ☑ | ☐ | ☐ | |
| Concrete test cylinders are kept within hoarding or in area where temperatures are ideal for curing. (No frozen Cylinders) | ☑ | ☐ | ☐ | |
| Heat is not directed onto concrete. This may result in thermal cracking. | ☑ | ☐ | ☐ | |
| During freezing weather, and standing water removed before the end of the protection period (CSA A 23.1 clause 7.4.2.4.2) | ☑ | ☐ | ☐ | |
| | | | | |

CONCRETE CURING TEMPERATURE LOG (COLD WEATHER CONCRETEING ONLY)

| DATE | TIME (24 HR) | OUTSIDE AIR TEMP (°C) | TEMP INSIDE HOARDING (°C) | CONCRETE SURFACE TEMP (°C) | | INITIALS OF READER |
|---|---|---|---|---|---|---|
| | | | | HIGH (°C) | LOW (°C) | |
| Nov. 13 | 6:00 PM | -12 | 32.4 | 31.4 | 29.3 | D.P. |
| Nov 14 | 07:00 | -16°C | +24°C | +28°C | +21°C | ~~D~~ |
| Nov 14 | 1:30 | -15 | 24 | 32 | 28 | D.P. |
| Nov. 14 | 6:00 PM | -16 | 28 | 33 | 27 | D.P. |
| Nov. 15 | 7:00 AM | -17 | 31 | 31 | 26 | D.P. |
| Nov. 15 | 1:30 PM | -14 | 22 | 29 | 23 | D.P. |
| | | | | | | |

| COMMENTS: | Shutting heaters off to maintain temperature | |
|---|---|---|
| | | |

**CLARK BUILDERS SITE REPRESENTATIVE**

PRINT/ SIGN: DAN PELLETIER TITLE Foreman DATE:

# CONCRETE POST POUR COLD WEATHER MONITORING

Rev 02 Nov 4, 2018

| | |
|---|---|
| CONTRACTOR: Clark Builders | DATE OF POUR: Nov. 13 |
| AMBIENT TEMP at POUR (°C): -3 | DATE FORMWORK STRIPPED: |
| LOCATION: CV-22 TAKE-UP | |
| | SPEC SECTION(S): S03 30 00 – Cast-In-Place |

TYPE OF CURING:

| | | | | | |
|---|---|---|---|---|---|
| CURING COMPOUND | ☐ | DAMP BURLAP OR FABRIC | ☐ | INSULATION (TARPS) | ☑ |
| POLYETHYLENE SHEETS | ☐ | WATER/FOG SPRAY/ PONDING | ☐ | FORMS (COVERED BY) | ☑ |

| COLD WEATHER REQUIREMENTS (WHEN AMB. TEMP < 5°C) | PASS | FAIL | N/A | REMARKS |
|---|---|---|---|---|
| Protection in place and temperatures not lower than 20°C or until 70% of the 28-day strength has been reached. | ☑ | ☐ | ☐ | |
| Cold weather protection provided by means of heated enclosures, coverings, insulation, or a suitable approved combination of these methods during complete curing period. | ☑ | ☐ | ☐ | |
| Concrete test cylinders are kept within hoarding or in area where temperatures are ideal for curing. (No frozen Cylinders) | ☐ | ☐ | ☐ | |
| Heat is not directed onto concrete. This may result in thermal cracking. | ☑ | ☐ | ☐ | |
| During freezing weather, and standing water removed before the end of the protection period (CSA A 23.1 clause 7.4.2.4.2) | ☑ | ☐ | ☐ | |
| | | | | |

CONCRETE CURING TEMPERATURE LOG (COLD WEATHER CONCRETEING ONLY)

| DATE | TIME (24 HR) | OUTSIDE AIR TEMP (°C) | TEMP INSIDE HOARDING (°C) | CONCRETE SURFACE TEMP (°C) | | INITIALS OF READER |
|---|---|---|---|---|---|---|
| | | | | HIGH (°C) | LOW (°C) | |
| Nov. 13 | 6:00 PM | -12 | 28.7 | 27.3 | 25.2 | D.P. |
| Nov 14 | 0700 | -16°C | +21 | +30 | +28 | [illegible] |
| Nov. 14 | 1:30 PM | -15 | 22 | 31 | 27 | D.P. |
| Nov. 14 | 6:00 PM | -16 | 24 | 33 | 28 | D.P. |
| Nov. 15 | 7:00 AM | -17 | 29 | 34 | 28 | D.P. |
| Nov. 15 | 1:30 PM | -15 | 26 | 33 | 30 | D.P. |
| | | | | | | |

| COMMENTS: | Shutting heaters to maintain temperature | |
|---|---|---|
| | | |

**CLARK BUILDERS SITE REPRESENTATIVE**

PRINT/ SIGN: DAN PELLETIER Dan Pelletier TITLE Foreman DATE:

CLARK BUILDERS
ENERGY & RESOURCES

CB-INSPECTION FORM-DOC-002 REV.00
JDS ENERGY & MINING INC. | STRATAGOLD EAGLE GOLD
PROJECT #: CB201 | 18502

PROJECT MANAGER: DUSTIN DOLYNCHUK, P.ENG
QA/QC COORDINATOR: RYAN DE MILLIANO, C.E.T.
SUPERINTENDENT: GARRY DAHL

# CONCRETE REINFORCEMENT PRE POUR

Rev 01 August 25, 2018

| | |
|---|---|
| SUBCONTRACTOR: Ultimate Reinforcing // McNish | INSPECTION DATE: NOVEMBER 16, 2018 |
| SUBCONTRACTOR CONTACT PERSON: CLAYTON | PROJ. POUR DATE: NOVEMBER 16, 2018 |
| INSPECTOR(S): MATT COVERDALE (JDS) ; DAN PELLETIER | |
| LOCATION: CV-22 GTU TOWER ; CV-16 BENT, 4+5 | |
| DRAWING REV: | DRAWING NO.(S): SPEC SECTION(S): S03 20 00 – Concrete Reinforcing Steel |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Grade (400W unless otherwise noted) and type of steel delivered and installed as required by approved drawings. | ☒ | ☐ | ☐ |
| 2.0 | Inspect rebar distribution, spacing and cover per design/project requirements. | ☒ | ☐ | ☐ |
| 3.0 | Length of splices as specified | ☒ | ☐ | ☐ |
| 4.0 | Staggered splices as specified | ☐ | ☐ | ☒ |
| 5.0 | Any mechanical splices have been approved by the owner prior to install | ☐ | ☐ | ☒ |
| 6.0 | Bars cleaned and free of material that may reduce bond including loose rust, scale, oil, structural defects and that they are uncoated and unpainted. | ☒ | ☐ | ☐ |
| 7.0 | Dowels at wall ends, construction joints, and openings as specified (length, location, size, etc.) | ☒ | ☐ | ☐ |
| 8.0 | No unauthorized field bent bars including hooks installed | ☒ | ☐ | ☐ |
| 9.0 | Resolve conflicts between embedded items and reinforcement | ☒ | ☐ | ☐ |
| 10.0 | When authorized, field bends done without heat and inspected for fissures or cracks. | ☐ | ☐ | ☒ |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 11.0 | Bars tied and supported to prevent displacement | ☒ | ☐ | ☐ |
| 12.0 | Spacers, tie wire and chairs as required | ☒ | ☐ | ☐ |
| 13.0 | Conduits at design location and minimum separation from rebar as specified | ☐ | ☐ | ☒ |
| 14.0 | No contact of bars is made with dissimilar metals as per CSA A23.1 | ☒ | ☐ | ☐ |
| 15.0 | Bars, nails or tie wire not sticking out from surfaces that allow rusting/corrosion | ☒ | ☐ | ☐ |
| 16.0 | Rebar welds are inspected by qualified inspectors certified to CSA W178.2 | ☐ | ☐ | ☒ |
| 17.0 | No rebar congestion or other obstruction for deposit of concrete | ☒ | ☐ | ☐ |
| 18.0 | Adjustments required for interfering items (piping, inserts, sleeves, etc.) have been submitted and approved by owner. | ☐ | ☐ | ☒ |
| 19.0 | Rebar was stored off ground to prevent damage/corrosion | ☒ | ☐ | ☐ |
| 20.0 | Review drawings for anchors, piping, sleeves, boxes | ☒ | ☐ | ☐ |

COMMENTS:

- Some dowels to be cut to achieve cover on top of pedestals.

ATTACHMENT(S):

DWG (HIGHLIGHTED)

DEFICIENCIES NOTES:

CLARK BUILDERS:

INSPECTOR: DAN PELLETIER TITLE FOREMAN DATE: NOVEMBER 16, 2018

JDS ENERGY & MINING:

INSPECTOR: Matt Coverdale TITLE Field Eng DATE: Nov 16, 2018

CLARK BUILDERS
ENERGY & RESOURCES

# FORMWORK & FALSEWORK PRE POUR | QA INSPECTION

Rev 01 August 25, 2018

| | |
|---|---|
| CONTRACTOR: Clark Builders | INSPECTION DATE: November 16, 2018 |
| CONTRACTOR CONTACT PERSON: Dan Pelletier. | DATE OF POUR: November 16, 2018 |
| INSPECTOR(S): Dan Pelletier | |
| LOCATION: CV-22 GTU TOWER; CV-16 BENT 3+4 | |
| DRAWING REV: | DRAWING NO.(S): SPEC SECTION(S): 503 1000 |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Location, survey, dimension and grades as required | ☑ | ☐ | ☐ |
| 2.0 | Plumbness and Flatness verified | ☑ | ☐ | ☐ |
| 3.0 | Joints are aligned and watertight. | ☑ | ☐ | ☐ |
| 4.0 | Formwork shop drawings are Engineered and reviewed | ☐ | ☐ | ☑ |
| 5.0 | Re-used formwork reconditioned and treated | ☑ | ☐ | ☐ |
| 6.0 | Formwork and ties according to finishing requirements. Confirm no holes in the concrete surface are greater than 25mm in diameter or expose steel at less than 25mm from surface. As per spec. | ☑ | ☐ | ☐ |
| 7.0 | Installation of embeds are located and secured | ☐ | ☐ | ☑ |
| 8.0 | Chamfer requirements checked. 25mm chamfers required for all exterior corners and edges exposed to view including horizontal edges of pads. | ☑ | ☐ | ☐ |
| 9.0 | Key ways and/or other provisions according to design are provided in construction joints | ☐ | ☐ | ☑ |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 10.0 | Inspect types of form spacers, ties and bracing. | ☑ | ☐ | ☐ |
| 11.0 | Spacing of ties to be set to a pattern | ☑ | ☐ | ☐ |
| 12.0 | Expansion, construction, contraction joints as required & located as coordinated with structural Engineer | ☐ | ☐ | ☑ |
| 13.0 | Forms secured against movement during placing | ☑ | ☐ | ☐ |
| 14.0 | Forms are braced for alignment and blow out | ☑ | ☐ | ☐ |
| 15.0 | Forms are cleaned of all debris, and dry, prior to concrete placement including standing water. (SEE POINT 1) | ☑ | ☐ | ☐ |
| 16.0 | Openings in formwork permit inspection and cleaning, placing and compaction of concrete, and forming and processing of construction joints. | ☐ | ☐ | ☑ |
| 17.0 | Formwork has been coated with release agent prior to rebar placement. | ☑ | ☐ | ☐ |
| 18.0 | Anchor Bolts and Embeds are secured to formwork. | ☑ | ☐ | ☐ |

COMMENTS:

1. • A couple forms had some tie wire and nails which need to be removed before pour.

ATTACHMENT(S):

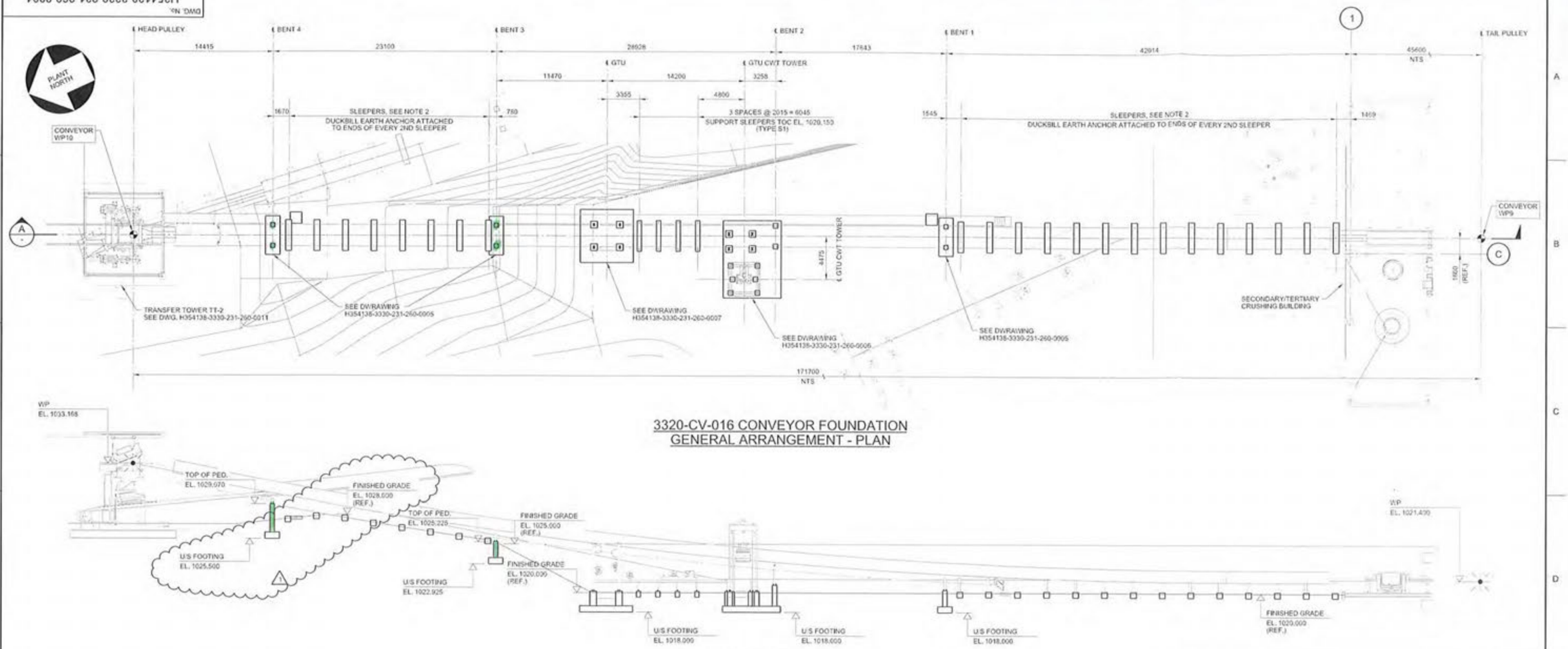
DEFICIENCIES NOTES:

INITIAL INSPECTION

INSPECTOR: Dan Pelletier TITLE Foreman DATE: Nov 16, 2018

RE-INSPECTION (DEFICIENCIES COMPLETED)

INSPECTOR: N/R Matt Caverdale MC TITLE Field Eng DATE: Nov 16, 2018.




3320-CV-016 CONVEYOR FOUNDATION
GENERAL ARRANGEMENT - PLAN

SECTION A

NOTES:

1. FOR NOTES SEE DRAWING H354138-3330-231-260-0001.
2. FOR SLEEPERS AND SOIL ANCHOR DETAILS, SEE DRAWING H354138-2120-220-290-0004.
   FOR SLEEPER LOCATIONS AND SPACINGS SEE TEP DRAWING 17-0200-500 AND 502.

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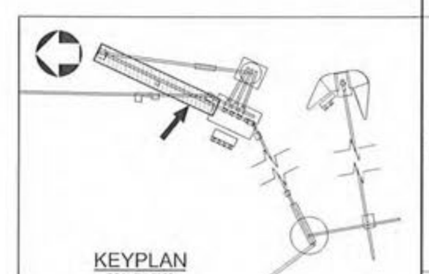


KEYPLAN
SCALE 1:3000

| DRAWING No. | DRAWING TITLE |
|---|---|
| REFERENCE DRAWINGS | |

REG. PROFESSIONAL

PROFESSIONAL ENGINEER YUKON EDNA AKINCI TERRITORY 2018-09-11

| No. | DESCRIPTION | BY | CHK'D | DATE |
|---|---|---|---|---|
| 1 | FINISHED GRADE ELEVATION AND BENT 4 REVISED | PJ | EA | 2018-09-11 |
| 0 | APPROVED FOR CONSTRUCTION | RS | EA | 2018-08-30 |

REVISIONS

HATCH

| ROLE | NAME | SIGNATURE & DATE |
|---|---|---|
| DRAFTSPERSON | R. SAGARBARRIA | NR |
| DESIGNER | H. LI | NR |
| CHECKER | E. AKINCI | 2018-09-11 |
| DESIGN COORD. | S. PERKINS | 2018-09-11 |
| RESP. ENG. | E. AKINCI | 2018-09-11 |
| LEAD DISC. ENG. | E. AKINCI | 2018-09-11 |
| ENG. MANAGER | B. RUSTAD | 2018-09-11 |
| PROJ. MANAGER | B. RUSTAD | 2018-09-11 |

DRAWING APPROVAL STATUS: Approved for Construction

StrataGold Corporation

EAGLE GOLD PROJECT

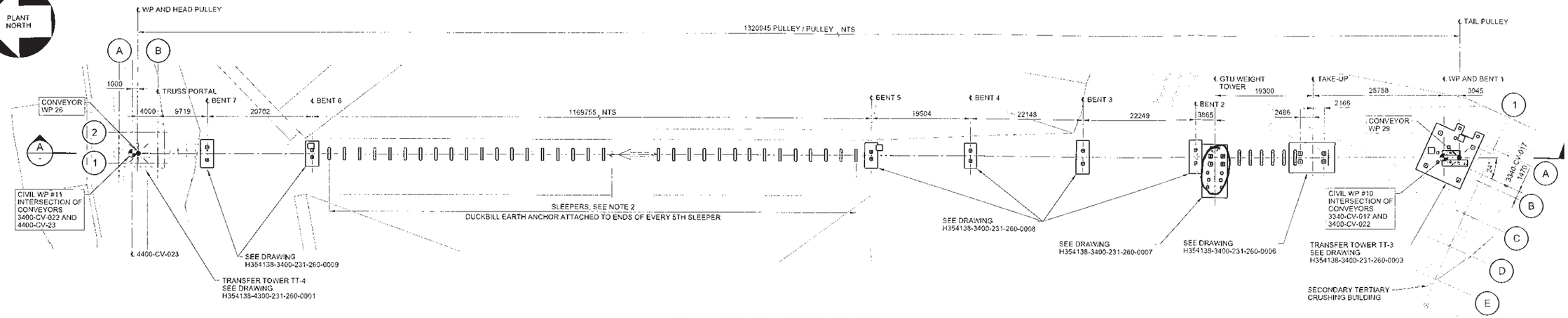
TERTIARY TRANSFER CONVEYORS
3320-CV-016 CONVEYOR FOUNDATION
GENERAL ARRANGEMENT

SCALE 1:200 OR AS NOTED | DWG. No. H354138-3330-231-260-0004 | REV 1

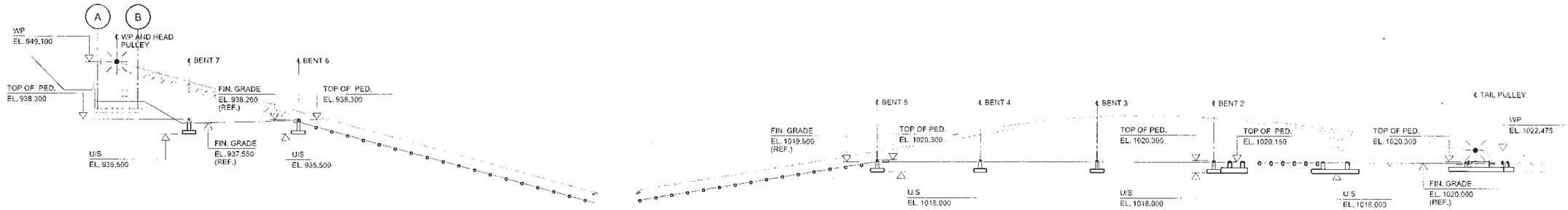
SHEET SIZE: D

SFILELS PRINTED: 11-SEP-2018 11:52

DWG. No. H354138-3400-231-260-0002




3400-CV-022 CONVEYOR FOUNDATION
GENERAL ARRANGEMENT - PLAN

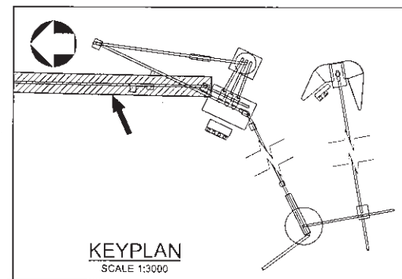



SECTION A

NOTES:

1. FOR GENERAL NOTES SEE DRAWING H354138-3400-231-260-0001.
2. FOR SLEEPERS AND SOIL ANCHOR DETAILS, SEE DRAWING H354138-2120-220-290-0004.
   FOR SLEEPER LOCATIONS AND SPACINGS SEE TEP DRAWING 17-0200-1102 AND -1103.

0 4 8 12 16 20
1:400 SCALE IN METRES



KEYPLAN
SCALE 1:3000

| DRAWING No. | DRAWING TITLE |
|---|---|
| REFERENCE DRAWINGS | |

REG. PROFESSIONAL

PROFESSIONAL ENGINEER YUKON TERRITORY 2018 09 12

| No. | DESCRIPTION | BY | CHK'D | DATE |
|---|---|---|---|---|
| 0 | APPROVED FOR CONSTRUCTION | PJ | EA | 2018-09-12 |

REVISIONS

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HATCH

| ROLE | NAME | SIGNATURE & DATE |
|---|---|---|
| DRAFTSPERSON | P. JIVAEV | NR 2018-08-28 |
| DESIGNER | H. LI | NR 2018-08-28 |
| CHECKER | E. AKINCI | 2018-09-12 |
| DESIGN COORD. | S. PERKINS | 2018-09-12 |
| RESP. ENG. | E. AKINCI | 2018-09-12 |
| LEAD DISC. ENG. | E. AKINCI | 2018-09-12 |
| ENG. MANAGER | B. RUSTAD | 2018-09-12 |
| PROJ. MANAGER | B. RUSTAD | 2018-09-12 |

DRAWING APPROVAL STATUS: Approved for Construction

StrataGold Corporation

EAGLE GOLD PROJECT

OVERLAND CONVEYING
3400-CV-022 CONVEYOR FOUNDATION
GENERAL ARRANGEMENT

SCALE 1:400 OR AS NOTED | DWG. No. H354138-3400-231-260-0002 | REV 0

SHEET SIZE: D

SFILELS PRINTED: 12-SEP-2018 10:48
idc_pwservice

# CONCRETE POST POUR COLD WEATHER MONITORING

Rev 02 Nov 4, 2018

| | |
|---|---|
| CONTRACTOR: Clark Builders | DATE OF POUR: Nov. 16 |
| AMBIENT TEMP at POUR (°C): -19 | DATE FORMWORK STRIPPED: Nov. 19 |
| LOCATION: CV-22 GTU tower | |
| | SPEC SECTION(S): S03 30 00 – Cast-In-Place |

TYPE OF CURING:

| | | | | | |
|---|---|---|---|---|---|
| CURING COMPOUND | ☐ | DAMP BURLAP OR FABRIC | ☐ | INSULATION (TARPS) | ☑ |
| POLYETHYLENE SHEETS | ☐ | WATER/FOG SPRAY/ PONDING | ☐ | FORMS (COVERED BY) | ☑ |

| COLD WEATHER REQUIREMENTS (WHEN AMB. TEMP < 5°C) | PASS | FAIL | N/A | REMARKS |
|---|---|---|---|---|
| Protection in place and temperatures not lower than 20°C or until 70% of the 28-day strength has been reached. | ☑ | ☐ | ☐ | |
| Cold weather protection provided by means of heated enclosures, coverings, insulation, or a suitable approved combination of these methods during complete curing period. | ☑ | ☐ | ☐ | |
| Concrete test cylinders are kept within hoarding or in area where temperatures are ideal for curing. (No frozen Cylinders) | ☑ | ☐ | ☐ | |
| Heat is not directed onto concrete. This may result in thermal cracking. | ☑ | ☐ | ☐ | |
| During freezing weather, and standing water removed before the end of the protection period (CSA A 23.1 clause 7.4.2.4.2) | ☑ | ☐ | ☐ | |
| | | | | |

CONCRETE CURING TEMPERATURE LOG (COLD WEATHER CONCRETEING ONLY)

| DATE | TIME (24 HR) | OUTSIDE AIR TEMP (°C) | TEMP INSIDE HOARDING (°C) | CONCRETE SURFACE TEMP (°C) | | INITIALS OF READER |
|---|---|---|---|---|---|---|
| | | | | HIGH (°C) | LOW (°C) | |
| Nov. 16 | 6:30 PM | -27 | 27 | 28 | 23 | D.P. |
| Nov. 17 | 7:30 AM | -15 | 33 | 36 | 31 | D.P. |
| Nov. 17 | 1:30 PM | -12 | 22 | 33 | 31 | D.P. |
| Nov. 17 | 6:30 PM | -19 | 29 | 38 | 33 | D.P. |
| Nov. 18 | 9:30 AM | -11 | 22 | 31 | 27 | D.P. |
| Nov. 18 | 1:30 PM | -8 | 20 | 28 | 25 | D.P. |
| Nov. 19 | 6:30 PM | -10 | 18 | 27 | 25 | D.P. |
| COMMENTS: | Temps heaters off to cold test | | | | | |

**CLARK BUILDERS SITE REPRESENTATIVE**

PRINT/ SIGN: DAN PELLETIER D. Pel TITLE Foreman DATE: Nov. 19

CLARK BUILDERS
ENERGY & RESOURCES

CB-INSPECTION FORM-DOC-002 REV.00
JDS ENERGY & MINING INC. | STRATAGOLD EAGLE GOLD
PROJECT #: CB201 | 18502

PROJECT MANAGER: DUSTIN DOLYNCHUK, P.ENG
QA/QC COORDINATOR: RYAN DE MILLIANO, C.E.T.
SUPERINTENDENT: GARRY DAHL

# CONCRETE REINFORCEMENT PRE POUR

Rev 01 August 25, 2018

| | |
|---|---|
| SUBCONTRACTOR: Ultimate Reinforcing // McNish | INSPECTION DATE: Nov 20/18 |
| SUBCONTRACTOR CONTACT PERSON: Clayton | PROJ. POUR DATE: Nov 21/18 |
| INSPECTOR(S): Ryan deMilliano, Dan Pelletier, Matt Coverdale (JDS) | |
| LOCATION: 3400 CV022 - Rfnt 3 Pedestals (x2) | |
| DRAWING REV: 001 / DRAWING NO.(S): 3400-231-260-0002 | SPEC SECTION(S): S03 20 00 – Concrete Reinforcing Steel |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Grade (400W unless otherwise noted) and type of steel delivered and installed as required by approved drawings. | ☑ | ☐ | ☐ |
| 2.0 | Inspect rebar distribution, spacing and cover per design/project requirements. | ☑ | ☐ | ☐ |
| 3.0 | Length of splices as specified | ☑ | ☐ | ☐ |
| 4.0 | Staggered splices as specified | ☐ | ☐ | ☑ |
| 5.0 | Any mechanical splices have been approved by the owner prior to install | ☐ | ☐ | ☑ |
| 6.0 | Bars cleaned and free of material that may reduce bond including loose rust, scale, oil, structural defects and that they are uncoated and unpainted. | ☑ | ☐ | ☐ |
| 7.0 | Dowels at wall ends, construction joints, and openings as specified (length, location, size, etc.) | ☑ | ☐ | ☐ |
| 8.0 | No unauthorized field bent bars including hooks installed | ☑ | ☐ | ☐ |
| 9.0 | Resolve conflicts between embedded items and reinforcement | ☑ | ☐ | ☐ |
| 10.0 | When authorized, field bends done without heat and inspected for fissures or cracks. | ☐ | ☐ | ☑ |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 11.0 | Bars tied and supported to prevent displacement | ☑ | ☐ | ☐ |
| 12.0 | Spacers, tie wire and chairs as required | ☑ | ☐ | ☐ |
| 13.0 | Conduits at design location and minimum separation from rebar as specified | ☐ | ☐ | ☑ |
| 14.0 | No contact of bars is made with dissimilar metals as per CSA A23.1 | ☑ | ☐ | ☐ |
| 15.0 | Bars, nails or tie wire not sticking out from surfaces that allow rusting/corrosion | ☑ | ☐ | ☐ |
| 16.0 | Rebar welds are inspected by qualified inspectors certified to CSA W178.2 | ☐ | ☐ | ☑ |
| 17.0 | No rebar congestion or other obstruction for deposit of concrete | ☑ | ☐ | ☐ |
| 18.0 | Adjustments required for interfering items (piping, inserts, sleeves, etc.) have been submitted and approved by owner. | ☑ | ☐ | ☐ |
| 19.0 | Rebar was stored off ground to prevent damage/corrosion | ☑ | ☐ | ☐ |
| 20.0 | Review drawings for anchors, piping, sleeves, boxes | ☑ | ☐ | ☐ |

COMMENTS:

Heat prios to pour mve

ATTACHMENT(S):

DEFICIENCIES NOTES:

CLARK BUILDERS:
INSPECTOR: Ryan deMilliano // TITLE Project Coordinator DATE: Nov 20/18

JDS ENERGY & MINING:
INSPECTOR: Matt Coverdale MC TITLE Field Eng DATE: Nov 20/2018

CLARK BUILDERS
ENERGY & RESOURCES

CB-INSPECTION FORM-DOC-002 REV.00
JDS ENERGY & MINING INC. | STRATAGOLD EAGLE GOLD
PROJECT #: CB201 | 18502

PROJECT MANAGER: DUSTIN DOLYNCHUK, P.ENG
QA/QC COORDINATOR: RYAN DE MILLIANO, C.E.T.
SUPERINTENDENT: GARRY DAHL

# FORMWORK & FALSEWORK PRE POUR | QA INSPECTION

Rev 01 August 25, 2018

| | |
|---|---|
| CONTRACTOR: Clark Builders | INSPECTION DATE: Nov 20/18 |
| CONTRACTOR CONTACT PERSON: Dan Pelletier | DATE OF POUR: Nov 21/18 |
| INSPECTOR(S): Ryan deMilliano, Dan Pelletier, Matt Coverdale (JDS) | |
| LOCATION: 3400 CJ022' - [redacted] BENT 3 PEDESTALS (x2) | |
| DRAWING REV: 01 | DRAWING NO.(S): 3400-231-260-0002 / SPEC SECTION(S): 503 10 00 |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Location, survey, dimension and grades as required | ☑ | ☐ | ☐ |
| 2.0 | Plumbness and Flatness verified | ☑ | ☐ | ☐ |
| 3.0 | Joints are aligned and watertight. | ☑ | ☐ | ☐ |
| 4.0 | Formwork shop drawings are Engineered and reviewed | ☐ | ☐ | ☑ |
| 5.0 | Re-used formwork reconditioned and treated | ☑ | ☐ | ☐ |
| 6.0 | Formwork and ties according to finishing requirements. Confirm no holes in the concrete surface are greater than 25mm in diameter or expose steel at less than 25mm from surface. As per spec. | ☑ | ☐ | ☐ |
| 7.0 | Installation of embeds are located and secured | ☑ | ☐ | ☐ |
| 8.0 | Chamfer requirements checked. 25mm chamfers required for all exterior corners and edges exposed to view including horizontal edges of pads. | ☑ | ☐ | ☐ |
| 9.0 | Key ways and/or other provisions according to design are provided in construction joints [redacted]. | ☑ | ☐ | ☐ |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 10.0 | Inspect types of form spacers, ties and bracing. | ☑ | ☐ | ☐ |
| 11.0 | Spacing of ties to be set to a pattern | ☑ | ☐ | ☐ |
| 12.0 | Expansion, construction, contraction joints as required & located as coordinated with structural Engineer | ☑ | ☐ | ☐ |
| 13.0 | Forms secured against movement during placing | ☑ | ☐ | ☐ |
| 14.0 | Forms are braced for alignment and blow out | ☑ | ☐ | ☐ |
| 15.0 | Forms are cleaned of all debris, and dry, prior to concrete placement including standing water. | ☑ | ☐ | ☐ |
| 16.0 | Openings in formwork permit inspection and cleaning, placing and compaction of concrete, and forming and processing of construction joints. | ☑ | ☐ | ☐ |
| 17.0 | Formwork has been coated with release agent prior to rebar placement. | ☑ | ☐ | ☐ |
| 18.0 | Anchor Bolts and Embeds are secured to formwork. | ☑ | ☐ | ☐ |

COMMENTS:

Heat prior to pour rec

ATTACHMENT(S):

DWG (HIGHLIGHTED)

DEFICIENCIES NOTES:

INITIAL INSPECTION

INSPECTOR: Ryan deMilliano TITLE Project Coordinator DATE: Nov 2018

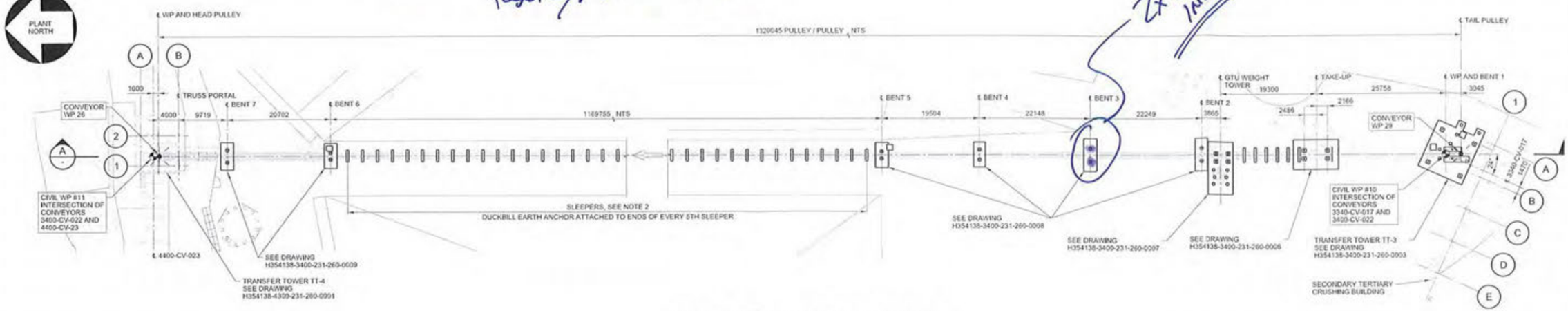
RE-INSPECTION (DEFICIENCIES COMPLETED)

INSPECTOR: Matt Coverdale TITLE Field Eng DATE: Nov 20/2018

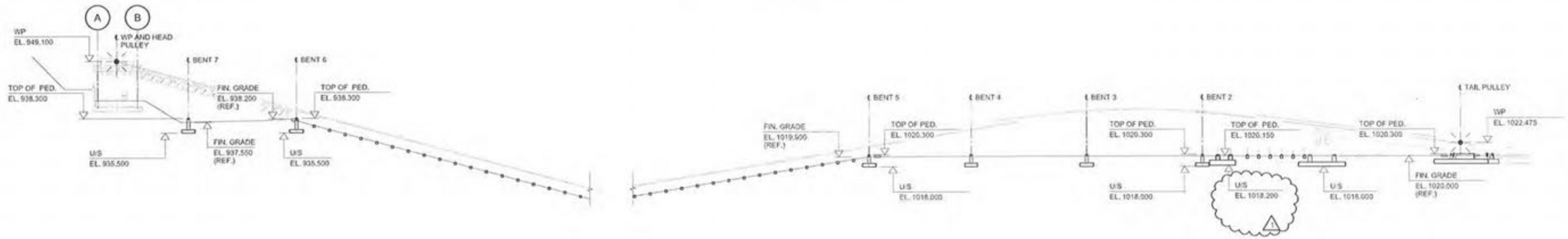
DWG. No. H354138-3400-231-260-0002

Nov 20, 2018
Ryan d/Matt C inspection.

2x Pedestals Inspection




3400-CV-022 CONVEYOR FOUNDATION
GENERAL ARRANGEMENT - PLAN

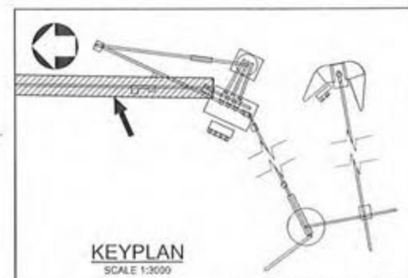



SECTION A

NOTES:

1. FOR GENERAL NOTES SEE DRAWING H354138-3400-231-260-0001.
2. FOR SLEEPERS AND SOIL ANCHOR DETAILS, SEE DRAWING H354138-2120-220-290-0004.
FOR SLEEPER LOCATIONS AND SPACINGS SEE TEP DRAWING 17-0200-1102 AND -1103.

0 4 8 12 16 20
1:400 SCALE IN METRES



KEYPLAN
SCALE 1:3000

| DRAWING No. | DRAWING TITLE |
|---|---|
| REFERENCE DRAWINGS | |

REG. PROFESSIONAL

2018-10-11

| No. | DESCRIPTION | BY | CHK'D | DATE |
|---|---|---|---|---|
| 1 | GTU FOOTING U/S ELEVATION REVISED DUE TO SITE CONDITIONS | PJ | EA | 2018-10-10 |
| 0 | APPROVED FOR CONSTRUCTION | PJ | EA | 2018-09-12 |

REVISIONS

HATCH

| ROLE | NAME | SIGNATURE & DATE |
|---|---|---|
| DRAFTSPERSON | P. JIVAEV | NR 2018-08-28 |
| DESIGNER | H. LI | NR 2018-08-28 |
| CHECKER | E. AKINCI | 2018-10-11 |
| DESIGN COORD. | S. PERKINS | 2018-10-11 |
| RESP. ENG. | E. AKINCI | 2018-10-11 |
| LEAD DISC. ENG. | E. AKINCI | 2018-10-11 |
| ENG. MANAGER | B. RUSTAD | 2018-10-11 |
| PROJ. MANAGER | B. RUSTAD | 2018-10-11 |

DRAWING APPROVAL STATUS: Approved for Construction

StrataGold Corporation

EAGLE GOLD PROJECT

OVERLAND CONVEYING
3400-CV-022 CONVEYOR FOUNDATION
GENERAL ARRANGEMENT

SCALE 1:400 OR AS NOTED | DWG. No. H354138-3400-231-260-0002 | REV 1

SHEET SIZE: D

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CLARK BUILDERS
ENERGY & RESOURCES



PROJECT MANAGER: DUSTIN DOLYNCHUK, P.ENG
QA/QC COORDINATOR: RYAN DE MILLIANO, C.E.T.
SUPERINTENDENT: GARRY DAHL

# CONCRETE REINFORCEMENT PRE POUR

Rev 01 August 25, 2018

| | |
|---|---|
| SUBCONTRACTOR: Ultimate Reinforcing // McNish | INSPECTION DATE: Nov 20/18 |
| SUBCONTRACTOR CONTACT PERSON: Clayton | PROJ. POUR DATE: Nov 21/18 |
| INSPECTOR(S): Ryan deMilliano, Dan Pelletier, Matt Coverdale (JDS) | |
| LOCATION: 3400 CV022 - Rmt 3 Pedestals (x2) | |
| DRAWING REV: 001 / DRAWING NO.(S): 3400-231-260-0002 | SPEC SECTION(S): S03 20 00 – Concrete Reinforcing Steel |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Grade (400W unless otherwise noted) and type of steel delivered and installed as required by approved drawings. | ☑ | ☐ | ☐ |
| 2.0 | Inspect rebar distribution, spacing and cover per design/project requirements. | ☑ | ☐ | ☐ |
| 3.0 | Length of splices as specified | ☑ | ☐ | ☐ |
| 4.0 | Staggered splices as specified | ☐ | ☐ | ☑ |
| 5.0 | Any mechanical splices have been approved by the owner prior to install | ☐ | ☐ | ☑ |
| 6.0 | Bars cleaned and free of material that may reduce bond including loose rust, scale, oil, structural defects and that they are uncoated and unpainted. | ☑ | ☐ | ☐ |
| 7.0 | Dowels at wall ends, construction joints, and openings as specified (length, location, size, etc.) | ☑ | ☐ | ☐ |
| 8.0 | No unauthorized field bent bars including hooks installed | ☑ | ☐ | ☐ |
| 9.0 | Resolve conflicts between embedded items and reinforcement | ☑ | ☐ | ☐ |
| 10.0 | When authorized, field bends done without heat and inspected for fissures or cracks. | ☐ | ☐ | ☑ |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 11.0 | Bars tied and supported to prevent displacement | ☑ | ☐ | ☐ |
| 12.0 | Spacers, tie wire and chairs as required | ☑ | ☐ | ☐ |
| 13.0 | Conduits at design location and minimum separation from rebar as specified | ☐ | ☐ | ☑ |
| 14.0 | No contact of bars is made with dissimilar metals as per CSA A23.1 | ☑ | ☐ | ☐ |
| 15.0 | Bars, nails or tie wire not sticking out from surfaces that allow rusting/corrosion | ☑ | ☐ | ☐ |
| 16.0 | Rebar welds are inspected by qualified inspectors certified to CSA W178.2 | ☐ | ☐ | ☑ |
| 17.0 | No rebar congestion or other obstruction for deposit of concrete | ☑ | ☐ | ☐ |
| 18.0 | Adjustments required for interfering items (piping, inserts, sleeves, etc.) have been submitted and approved by owner. | ☑ | ☐ | ☐ |
| 19.0 | Rebar was stored off ground to prevent damage/corrosion | ☑ | ☐ | ☐ |
| 20.0 | Review drawings for anchors, piping, sleeves, boxes | ☑ | ☐ | ☐ |

COMMENTS:

Heat prior to pour ww

ATTACHMENT(S):

DEFICIENCIES NOTES:

CLARK BUILDERS:
INSPECTOR: Ryan deMilliano // TITLE Project Coordinator DATE: Nov 20/18

JDS ENERGY & MINING:
INSPECTOR: Matt Coverdale MC TITLE Field Eng DATE: Nov 20/2018

CLARK BUILDERS
ENERGY & RESOURCES

CB-INSPECTION FORM-DOC-002 REV.00
JDS ENERGY & MINING INC. | STRATAGOLD EAGLE GOLD
PROJECT #: CB201 | 18502

PROJECT MANAGER: DUSTIN DOLYNCHUK, P.ENG
QA/QC COORDINATOR: RYAN DE MILLIANO, C.E.T.
SUPERINTENDENT: GARRY DAHL

# FORMWORK & FALSEWORK PRE POUR | QA INSPECTION

Rev 01 August 25, 2018

| | |
|---|---|
| CONTRACTOR: Clark Builders | INSPECTION DATE: Nov 20/18 |
| CONTRACTOR CONTACT PERSON: Dan Pelletier | DATE OF POUR: Nov 21/18 |
| INSPECTOR(S): Ryan deMilliano, Dan Pelletier, Matt Coverdale (JDS) | |
| LOCATION: 3400 CV022 - ~~[illegible]~~ Bent 3 Pedestals (x2) | |
| DRAWING REV: 01 | DRAWING NO.(S): 3400-231-260-0002 |
| SPEC SECTION(S): S03 10 00 | |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Location, survey, dimension and grades as required | ☑ | ☐ | ☐ |
| 2.0 | Plumbness and Flatness verified | ☑ | ☐ | ☐ |
| 3.0 | Joints are aligned and watertight. | ☑ | ☐ | ☐ |
| 4.0 | Formwork shop drawings are Engineered and reviewed | ☐ | ☐ | ☑ |
| 5.0 | Re-used formwork reconditioned and treated | ☑ | ☐ | ☐ |
| 6.0 | Formwork and ties according to finishing requirements. Confirm no holes in the concrete surface are greater than 25mm in diameter or expose steel at less than 25mm from surface. As per spec. | ☑ | ☐ | ☐ |
| 7.0 | Installation of embeds are located and secured | ☑ | ☐ | ☐ |
| 8.0 | Chamfer requirements checked. 25mm chamfers required for all exterior corners and edges exposed to view including horizontal edges of pads. | ☑ | ☐ | ☐ |
| 9.0 | Key ways and/or other provisions according to design are provided in construction joints. | ☑ | ☐ | ☐ |
| 10.0 | Inspect types of form spacers, ties and bracing. | ☑ | ☐ | ☐ |
| 11.0 | Spacing of ties to be set to a pattern | ☑ | ☐ | ☐ |
| 12.0 | Expansion, construction, contraction joints as required & located as coordinated with structural Engineer | ☑ | ☐ | ☐ |
| 13.0 | Forms secured against movement during placing | ☑ | ☐ | ☐ |
| 14.0 | Forms are braced for alignment and blow out | ☑ | ☐ | ☐ |
| 15.0 | Forms are cleaned of all debris, and dry, prior to concrete placement including standing water. | ☑ | ☐ | ☐ |
| 16.0 | Openings in formwork permit inspection and cleaning, placing and compaction of concrete, and forming and processing of construction joints. | ☑ | ☐ | ☐ |
| 17.0 | Formwork has been coated with release agent prior to rebar placement. | ☑ | ☐ | ☐ |
| 18.0 | Anchor Bolts and Embeds are secured to formwork. | ☑ | ☐ | ☐ |

COMMENTS:

Heat prior to pour me

ATTACHMENT(S):

DWG (HIGHLIGHTED)

DEFICIENCIES NOTES:

INITIAL INSPECTION

INSPECTOR: Ryan deMilliano // [signature] TITLE Project Coordinator DATE: Nov 20/18

RE-INSPECTION (DEFICIENCIES COMPLETED)

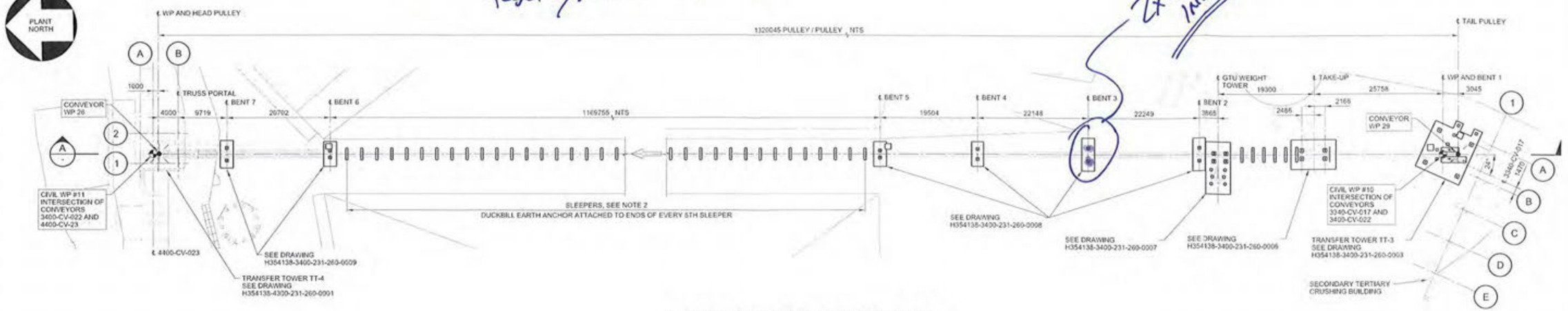
INSPECTOR: Matt Coverdale [signature] TITLE Field Eng DATE: Nov 20/2018

DWG. No. H354138-3400-231-260-0002

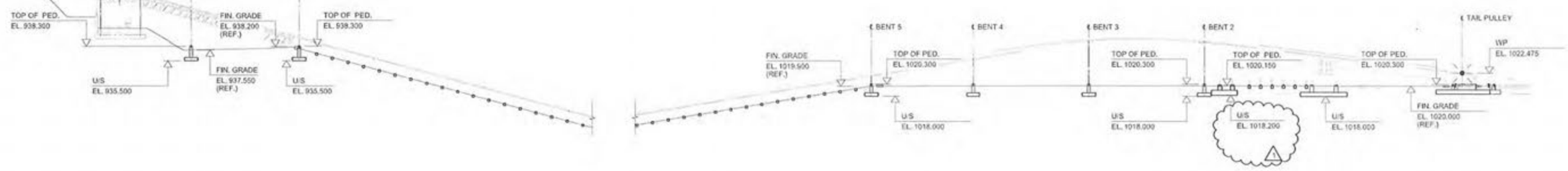
Nov 20, 2018
Ryan L / Matt C Inspection.

2x Pedestals Inspection

PLANT NORTH




## 3400-CV-022 CONVEYOR FOUNDATION GENERAL ARRANGEMENT - PLAN




## SECTION A

NOTES:

1. FOR GENERAL NOTES SEE DRAWING H354138-3400-231-260-0001.
2. FOR SLEEPERS AND SOIL ANCHOR DETAILS, SEE DRAWING H354138-2120-220-290-0004.
   FOR SLEEPER LOCATIONS AND SPACINGS SEE TEP DRAWING 17-0200-1102 AND -1103.

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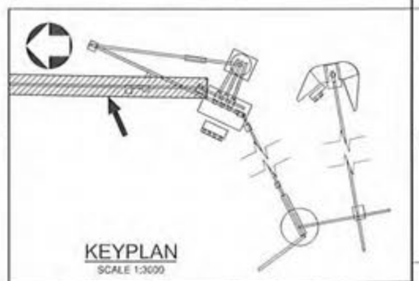
1:400 SCALE IN METRES



KEYPLAN
SCALE 1:3000

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| | | | | | |
|---|---|---|---|---|---|
| DRAFTSPERSON | P. JIVAEV | NR | 2018-08-28 | HATCH | StrataGold Corporation |
| DESIGNER | H. LI | NR | 2018-08-28 | | |
| CHECKER | E. AKINCI | | 2018-10-11 | | |
| DESIGN COORD. | S. PERKINS | | 2018-10-11 | | |
| RESP. ENG. | E. AKINCI | | 2018-10-11 | | |
| LEAD DISC. ENG. | E. AKINCI | | 2018-10-11 | | |
| ENG. MANAGER | B. RUSTAD | | 2018-10-11 | | |
| PROJ. MANAGER | B. RUSTAD | | 2018-10-11 | | |
| ROLE | NAME | SIGNATURE & DATE | | | |
| DRAWING APPROVAL STATUS: | Approved for Construction | | | | |

| No. | DESCRIPTION | BY | CHK'D | DATE |
|---|---|---|---|---|
| 1 | GTU FOOTING U/S ELEVATION REVISED DUE TO SITE CONDITIONS | PJ | EA | 2018-10-10 |
| 0 | APPROVED FOR CONSTRUCTION | PJ | EA | 2018-09-12 |

REVISIONS

| DRAWING No. | DRAWING TITLE |
|---|---|
| REFERENCE DRAWINGS | |

REG. PROFESSIONAL
2018-10-11

EAGLE GOLD PROJECT

OVERLAND CONVEYING
3400-CV-022 CONVEYOR FOUNDATION
GENERAL ARRANGEMENT

| SCALE | DWG. No. | REV |
|---|---|---|
| 1:400 OR AS NOTED | H354138-3400-231-260-0002 | 1 |

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# CONCRETE POST POUR COLD WEATHER MONITORING

Rev 03 Nov 13, 2018

| | |
|---|---|
| CONTRACTOR: Clark Builders | DATE OF POUR: Nov. 21 |
| AMBIENT TEMP at POUR (°C): -3 | DATE FORMWORK STRIPPED: Nov. 24 |
| LOCATION: CV-22 BENT 3 | |
| | SPEC SECTION(S): S03 30 00 – Cast-In-Place |

TYPE OF CURING:

| | | | | | |
|---|---|---|---|---|---|
| CURING COMPOUND | ☐ | DAMP BURLAP OR FABRIC | ☐ | INSULATION (TARPS) | ☑ |
| POLYETHYLENE SHEETS | ☐ | WATER/FOG SPRAY/ PONDING | ☐ | FORMS (COVERED BY) | ☑ |

| COLD WEATHER REQUIREMENTS (WHEN AMB. TEMP < 5°C) | PASS | FAIL | N/A | REMARKS |
|---|---|---|---|---|
| Protection in place and temperatures not lower than 20°C or until 70% of the 28-day strength has been reached. | ☑ | ☐ | ☐ | |
| Cold weather protection provided by means of heated enclosures, coverings, insulation, or a suitable approved combination of these methods during complete curing period. | ☑ | ☐ | ☐ | |
| Concrete test cylinders are kept within hoarding or in area where temperatures are ideal for curing. (No frozen Cylinders) | ☑ | ☐ | ☐ | |
| Heat is not directed onto concrete. This may result in thermal cracking. | ☑ | ☐ | ☐ | |
| During freezing weather, and standing water removed before the end of the protection period (CSA A 23.1 clause 7.4.2.4.2) | ☑ | ☐ | ☐ | |

NCRETE CURING TEMPERATURE LOG (COLD WEATHER CONCRETEING ONLY)

| DATE | | TIME (24 HR) | OUTSIDE AIR TEMP (°C) | TEMP INSIDE HOARDING (°C) | CONCRETE SURFACE TEMP (°C) | | INITIALS OF READER |
|---|---|---|---|---|---|---|---|
| | | | | | HIGH (°C) | LOW (°C) | |
| Nov. 21 | AM | 6:00 PM | -2 | 33 | 25 | 23 | D.P. |
| Nov. 22 | ~~MID~~ | 899 AM | -9 | 23 | 31 | 29 | D.P. |
| Nov. 22 | ~~PM~~ | 2:00 PM | -10 | 26 | 30 | 30 | D.P. |
| Nov. 22 | AM | 6:30 PM | -11 | 25 | 29 | 28 | D.P. |
| Nov. 23 | MID | 7:30 AM | -9 | 28 | 29 | 27 | D.P. |
| Nov. 23 | PM | 1:30 PM | -10 | 26 | 28 | 27 | D.P. |
| Nov. 23 | AM | 6:30 PM | -11 | 24 | 27 | 26 | D.P. |
| | MID | | | | | | |
| | PM | | | | | | |

| COMMENTS: | Turning heaters on+off to control heat | |
|---|---|---|
| | | |
| | | |

LARK BUILDERS SITE REPRESENTATIVE

RINT/ SIGN: DAN PELLETIER TITLE Foreman DATE: Nov. 24

CLARK BUILDERS
ENERGY & RESOURCES

CB-INSPECTION FORM-DOC-002 REV.00
JDS ENERGY & MINING INC. | STRATAGOLD EAGLE GOLD
PROJECT #: CB201 | 18502

PROJECT MANAGER: DUSTIN DOLYNCHUK, P.ENG
QA/QC COORDINATOR: RYAN DE MILLIANO, C.E.T.
SUPERINTENDENT: GARRY DAHL

# CONCRETE REINFORCEMENT PRE POUR

Rev 01 August 25, 2018

| | |
|---|---|
| SUBCONTRACTOR: Ultimate Reinforcing // McNish | INSPECTION DATE: At December 10, 2018 |
| SUBCONTRACTOR CONTACT PERSON: | PROJ. POUR DATE: December 10, 2018 |
| INSPECTOR(S): Ryan deMilliano, Jerry C. (JDS) | |
| LOCATION: 3400 CW22 Bents 6/7 Pedestals. | |
| DRAWING REV: 01 / DRAWING NO.(S): 3400-0002/0009 | SPEC SECTION(S): S03 20 00 – Concrete Reinforcing Steel |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Grade (400W unless otherwise noted) and type of steel delivered and installed as required by approved drawings. | ☑ | ☐ | ☐ |
| 2.0 | Inspect rebar distribution, spacing and cover per design/project requirements. | ☑ | ☐ | ☐ |
| 3.0 | Length of splices as specified | ☑ | ☐ | ☐ |
| 4.0 | Staggered splices as specified | ☐ | ☐ | ☑ |
| 5.0 | Any mechanical splices have been approved by the owner prior to install | ☐ | ☐ | ☑ |
| 6.0 | Bars cleaned and free of material that may reduce bond including loose rust, scale, oil, structural defects and that they are uncoated and unpainted. | ☑ | ☐ | ☐ |
| 7.0 | Dowels at wall ends, construction joints, and openings as specified (length, location, size, etc.) | ☐ | ☐ | ☑ |
| 8.0 | No unauthorized field bent bars including hooks installed | ☑ | ☐ | ☐ |
| 9.0 | Resolve conflicts between embedded items and reinforcement | ☑ | ☐ | ☐ |
| 10.0 | When authorized, field bends done without heat and inspected for fissures or cracks. | ☐ | ☐ | ☑ |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 11.0 | Bars tied and supported to prevent displacement | ☑ | ☐ | ☐ |
| 12.0 | Spacers, tie wire and chairs as required | ☑ | ☐ | ☐ |
| 13.0 | Conduits at design location and minimum separation from rebar as specified | ☐ | ☐ | ☑ |
| 14.0 | No contact of bars is made with dissimilar metals as per CSA A23.1 | ☑ | ☐ | ☐ |
| 15.0 | Bars, nails or tie wire not sticking out from surfaces that allow rusting/corrosion | ☑ | ☐ | ☐ |
| 16.0 | Rebar welds are inspected by qualified inspectors certified to CSA W178.2 | ☐ | ☐ | ☑ |
| 17.0 | No rebar congestion or other obstruction for deposit of concrete | ☑ | ☐ | ☐ |
| 18.0 | Adjustments required for interfering items (piping, inserts, sleeves, etc.) have been submitted and approved by owner. | ☑ | ☐ | ☐ |
| 19.0 | Rebar was stored off ground to prevent damage/corrosion | ☑ | ☐ | ☐ |
| 20.0 | Review drawings for anchors, piping, sleeves, boxes | ☑ | ☐ | ☐ |

COMMENTS:

ATTACHMENT(S): Dwg.

DEFICIENCIES NOTES:

CLARK BUILDERS:
INSPECTOR: Ryan deMilliano TITLE Project Coordinator DATE: Dec 10/18

JDS ENERGY & MINING:
INSPECTOR: Jerry Chrzaszcz TITLE Const. Sup. DATE: Dec. 10/18

CLARK BUILDERS
ENERGY & RESOURCES

CB-INSPECTION FORM-DOC-002 REV.00
JDS ENERGY & MINING INC. | STRATAGOLD EAGLE GOLD
PROJECT #: CB201 | 18502

PROJECT MANAGER: DUSTIN DOLYNCHUK, P.ENG
QA/QC COORDINATOR: RYAN DE MILLIANO, C.E.T.
SUPERINTENDENT: GARRY DAHL

# FORMWORK & FALSEWORK PRE POUR | QA INSPECTION

Rev 01 August 25, 2018

| | |
|---|---|
| CONTRACTOR: Clark Builders | INSPECTION DATE: Dec 10, 2018 |
| CONTRACTOR CONTACT PERSON: | DATE OF POUR: Dec 10, 2018 |
| INSPECTOR(S): Ryan deMilliano, Jerry C. (JDS) | |
| LOCATION: 3400 CV022 TENT 6/7 PEDESTALS. | |
| DRAWING REV: 01 | DRAWING NO.(S): 3400 0002/0009 |
| | SPEC SECTION(S): 03 10 00 |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Location, survey, dimension and grades as required | ☑ | ☐ | ☐ |
| 2.0 | Plumbness and Flatness verified | ☑ | ☐ | ☐ |
| 3.0 | Joints are aligned and watertight. | ☑ | ☐ | ☐ |
| 4.0 | Formwork shop drawings are Engineered and reviewed | ☐ | ☐ | ☑ |
| 5.0 | Re-used formwork reconditioned and treated | ☑ | ☐ | ☐ |
| 6.0 | Formwork and ties according to finishing requirements. Confirm no holes in the concrete surface are greater than 25mm in diameter or expose steel at less than 25mm from surface. As per spec. | ☑ | ☐ | ☐ |
| 7.0 | Installation of embeds are located and secured | ☑ | ☐ | ☐ |
| 8.0 | Chamfer requirements checked. 25mm chamfers required for all exterior corners and edges exposed to view including horizontal edges of pads. | ☑ | ☐ | ☐ |
| 9.0 | Key ways and/or other provisions according to design are provided in construction joints | ☐ | ☐ | ☑ |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 10.0 | Inspect types of form spacers, ties and bracing. | ☑ | ☐ | ☐ |
| 11.0 | Spacing of ties to be set to a pattern | ☐ | ☐ | ☑ |
| 12.0 | Expansion, construction, contraction joints as required & located as coordinated with structural Engineer | ☐ | ☐ | ☑ |
| 13.0 | Forms secured against movement during placing | ☑ | ☐ | ☐ |
| 14.0 | Forms are braced for alignment and blow out | ☑ | ☐ | ☐ |
| 15.0 | Forms are cleaned of all debris, and dry, prior to concrete placement including standing water. | ☑ | ☐ | ☐ |
| 16.0 | Openings in formwork permit inspection and cleaning, placing and compaction of concrete, and forming and processing of construction joints. | ☑ | ☐ | ☐ |
| 17.0 | Formwork has been coated with release agent prior to rebar placement. | ☑ | ☐ | ☐ |
| 18.0 | Anchor Bolts and Embeds are secured to formwork. | ☑ | ☐ | ☐ |

MMENTS:

ATTACHMENT(S):

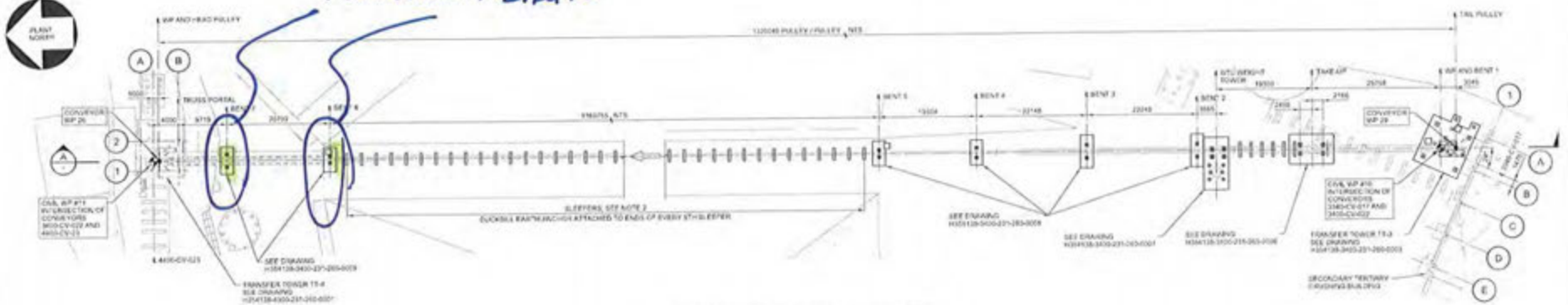
CIENCIES NOTES:

NSPECTION
OR: Ryan deMilliano TITLE Project Coordinator DATE: Dec 10/18

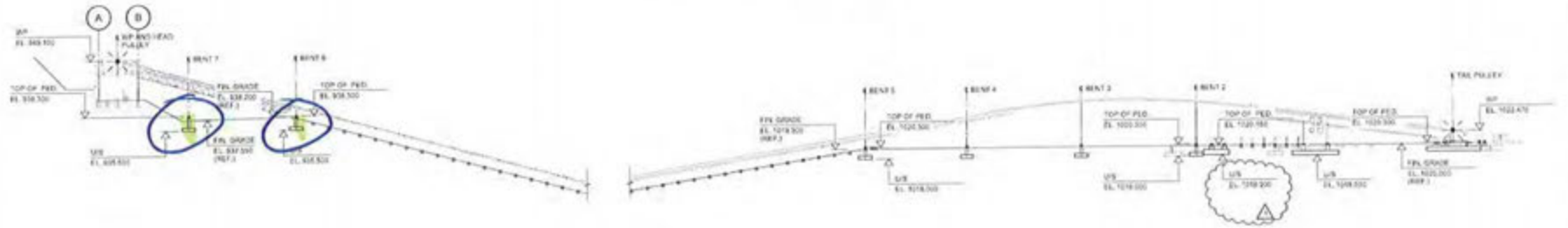
CTION (DEFICIENCIES COMPLETED)
OR: _____ TITLE _____ DATE: _____

DEC 10/18

PROPOSALS INSPECTED



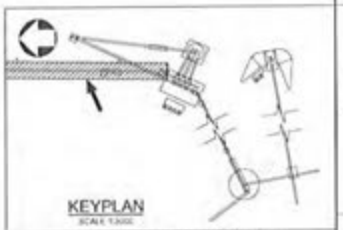
3400-CV-022 CONVEYOR FOUNDATION
GENERAL ARRANGEMENT - PLAN



SECTION A

NOTES:

1. FOR GENERAL NOTES SEE DRAWING H354138-3400-231-260-0001.
2. FOR SLEEPERS AND SOIL ANCHOR DETAILS SEE DRAWING H354138-2720-220-260-0004.
   FOR SLEEPER LOCATIONS AND SPACINGS SEE TOP DRAWING 17-0220-5102 AND -5103.



KEYPLAN

| | | | | |
|---|---|---|---|---|
| 1 | GTU FOOTING U/S ELEVATION REVISED DUE TO SITE CONDITIONS | PJ | EA | 2018-10-11 |
| 0 | APPROVED FOR CONSTRUCTION | PJ | EA | 2018-09-11 |
| No. | DESCRIPTION | BY | CHKD | DATE |

REVISIONS

HATCH

| ROLE | NAME | SIGNATURE & DATE |
|---|---|---|
| DRAWING APPROVAL STATUS: | Approved For Construction | |

StrataGold Corporation

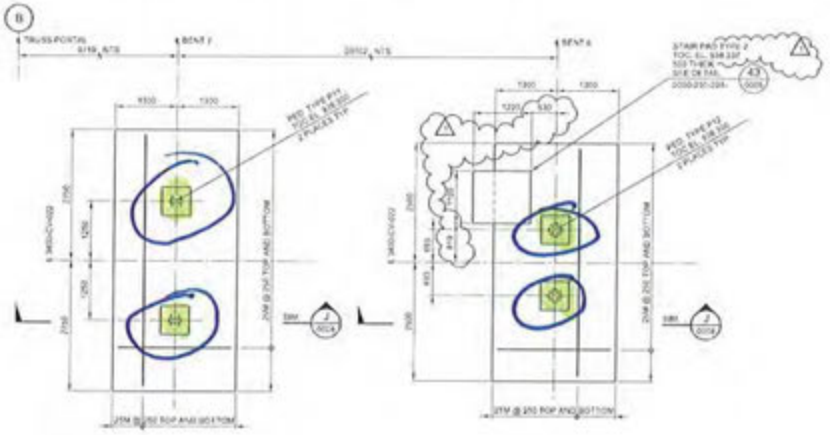
EAGLE GOLD PROJECT

OVERLAND CONVEYING
3400-CV-022 CONVEYOR FOUNDATION
GENERAL ARRANGEMENT

| SCALE | DWG. No. | REV. |
|---|---|---|
| 1:400 | H354138-3400-231-260-0002 | 1 |

DRAWING No. | DRAWING TITLE
REFERENCE DRAWINGS

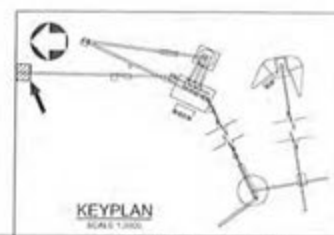
REG. PROFESSIONAL



3400-CV-022 CONVEYOR
BENT 7 FOUNDATION - PLAN

3400-CV-022 CONVEYOR
BENT 6 FOUNDATION - PLAN

NOTES:



KEYPLAN

HATCH

StrataGold Corporation

EAGLE GOLD PROJECT

OVERLAND CONVEYING
3400-CV-022 BENTS 6 AND 7 FDN.
PLAN, SECTIONS AND DETAILS

| | | | | |
|---|---|---|---|---|
| 1 | STAIR PRO NEXT TO BENT 6 LOCATION AND ELEVATION REVISED | P2 | EA | 2018-10-24 |
| 2 | APPROVED FOR CONSTRUCTION | P2 | EA | 2018-09-12 |

| | | | |
|---|---|---|---|
| DRAWING APPROVAL STATUS: | Approved for Construction | | |

DWG. No. H354138-3400-231-260-0009 REV 1

# Field Service Report

Victoria Gold, Mayo, YK
MP1250 (Serial # MP1250118)
MP1250 Main frame installation

Customer PO: SC325
Metso Job Number: 20312043
Site visit: November 21-30, 2018

by
Kim Lee Lemire
Field Service Representative
Kimlee.lemire@metso.com

January 9, 2019

Metso Minerals Canada Inc.
795 George V, Lachine, QC H8S 2R9

# Customer contacts




**Calvin Goldschmidt**
**Project Manager**

Cell **(604) 377-4522**

email calving@jdsmining.ca
web jdsmining.ca

# Introduction

This report summarizes the work that was performed by the Metso Field Service Representative during a Metso Field Service Visit.

Details of the day-to-day functions can be found in Appendix A (Time Sheets). Data taken on site during the visit is included in Appendix B (Data Sheets).

To arrange a Metso Field Service Visit or for any questions regarding this report, please use the following address:

Metso Minerals Canada, Field Service Department

795 George V, Lachine, QC H8S 2R9

Tel: 514-485-4134

e-mail: francois.chabot@metso.com

# Purpose of visit

- To perform the installation of the sole plate and main frame on crusher base.

# History and scope of work

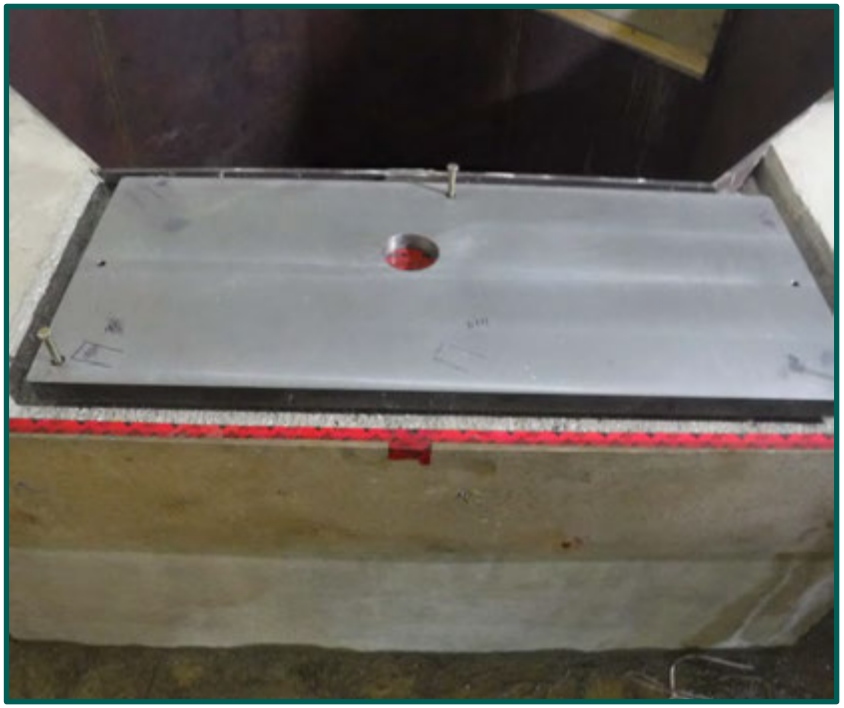
- Installation of sole plates
- Grouting of sole plates
- Installation of main frame
- Installation of adjustment ring

# Visit details and findings – special findings

- Some of the sole plates were found to be out of specifications.
- Even after machining most sole plate were still banana shaped.

# Installation





When I arrived on site, the BPC team already had the sole plates for 3 crushers set in place and leveled. BPC had concerns about some of the sole plates since some of them were banana shaped and some were pretty rough on the top machine surface. We started by reviewing the secondary crusher sole plates and overall they were still within Metso tolerances of 0.010”.



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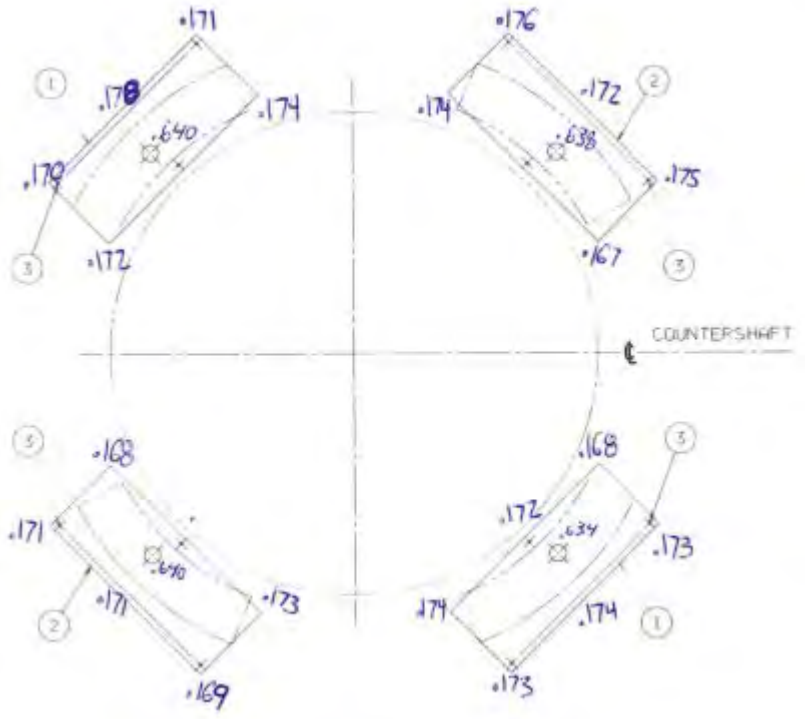
# Secondary crusher sole plates






The elevations were recorded on the sole plate drawing for records. As we can see the sole plates were still under the 0.010" elevation tolerances. 0.009" was the best we could do here since the flatness of the machining varies a lot from corner to corner of every sole plates. It was found that most of the sole plates were curled up on each side making it very difficult to properly set them within the tolerances. Even knowing that the manifest says these sole plate came with the Metso Package, the way they look made me doubt. Metso sole plate is normally machined to a flatness of 0.004" and the part number is stamped on the top surface. 6 of the plates were very rough on the top side and none of the plates have Metso part number stamped on them.

# Grouting of sole plates





The grout was poured once the concrete was up to temperature. A grout form was filled out to ensure that all the parameters of the grout and preparation were met before grout was poured. Once ready, the grout was mixed and poured in multiple stages since this product only allows us to pour 1.5” at a time.



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# Final recording





Once the grout had cured for 3 days, the test pours were broken at 15 125 PSI which is acceptable for the placement of the main frame onto the sole plates. Before the main frame was installed, the elevation of every sole plate was recorded. After the measurements were recorded, we notice that most of the number had changed and the plate warped. The difference between the highest point to the lowest point was now of 0.016'' which is out of our tolerances. It seems the stress that was already in the plates reacted with the heat generated from the grout when curing. When curing, the grout reached a temperature of 220ºF which is very high for a Epoxy grout. Once the frame is installed on the sole plate a feeler gauge test will be done to see if any soft foot can be detected. This will indicate if shims must be used to correct the elevation difference.



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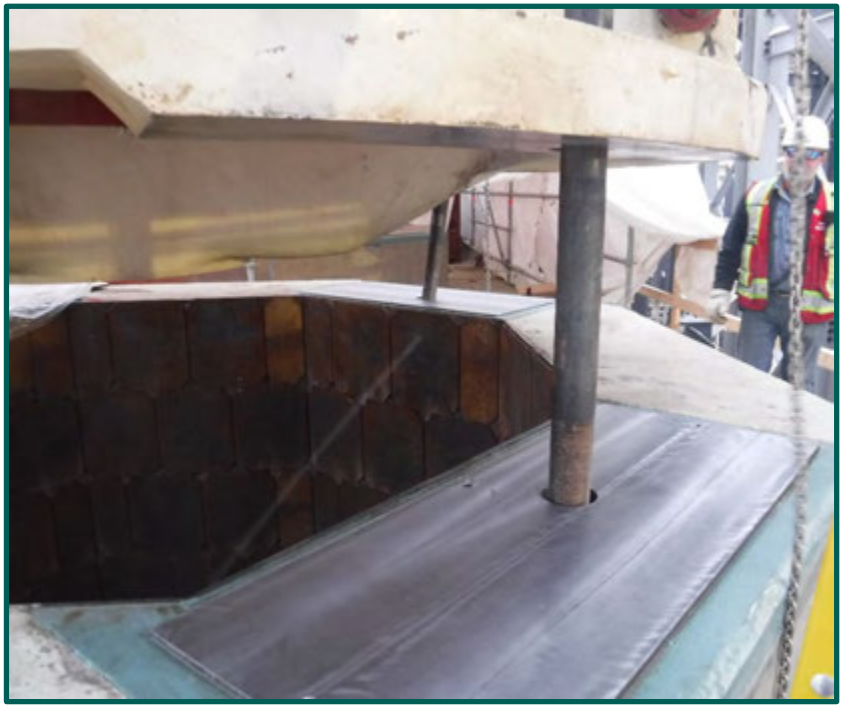
# Main frame installation





The night before the main frame was installed, it was cleaned from the rust protective agent and loaded on the truck ready to be transported to the secondary crusher area. After a pre-lift meeting was conducted, the frame was lifted and once it was close above the sole plates, the anchor bolts were engaged in their hole to help guide the main frame in position. Before the main frame was set on the sole plates, it was lowered on wooden blocks 12 inches away from the sole plates. The sole plates and crusher machined pads were once more cleaned from any debris and the crusher was set on the sole plates.



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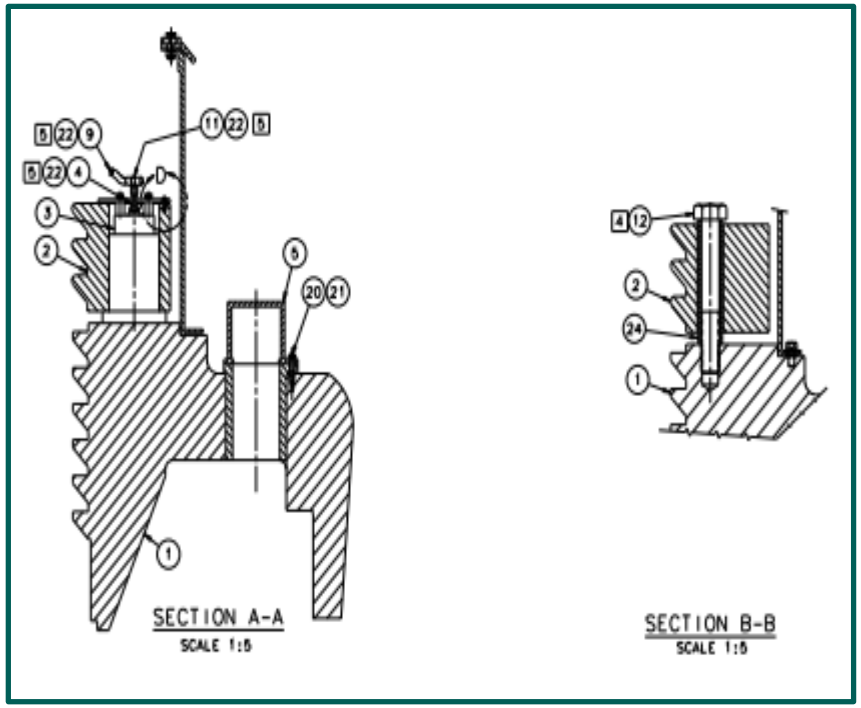
# Adjustment ring assembly






Prior to my arrival on site, all the adjustment ring and clamping ring were assembled. In order to assemble both rings, all the clamping cylinders were installed along with the hoses. Once the clamping ring is assembled, 8 bolts with spacer tubes were installed to secure the clamping ring on the adjustment ring. The bolts are going to be torqued to specification later on during the assembly of the crusher.



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# Adjustment ring





Once the crusher was set on the sole plates, the main frame seat liner were greased with a 3% Moly base grease before the adjustment ring was installed. The adjustment ring was lifted from the same location as the main frame. Once the adjustment ring was on top of the crusher it was properly aligned with the crusher main frame and set on the main frame seat liners.



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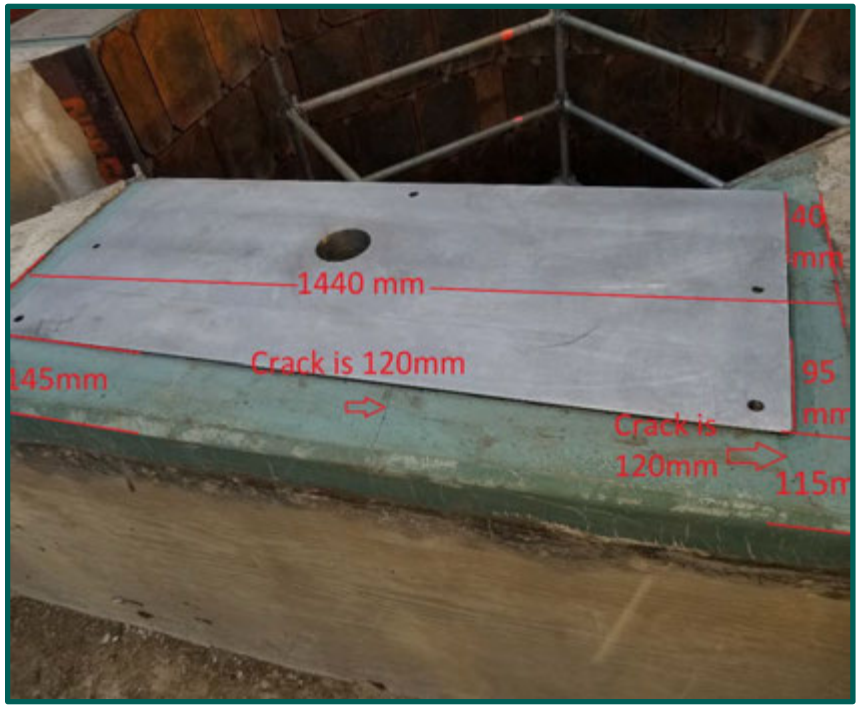
# Grout after cure






The secondary crusher was installed on the sole plates 5 days after the grout was poured. Cracks were first found on the secondary crusher sole plate grout. Some of the cracks were found before the crusher was installed, some after. We discussed with the grout supplier later, after we found those cracks. He reviewed our pocket dimensions, preparation and pour parameters. After the review, he assured us it was not uncommon and could be fixed. The structural integrity of the grout was not compromised. The cracks will be repaired as per supplier recommendation when the ambient temperature and conditions can be controlled.

# Conclusion and recommendations

- Sole could not be set properly due to unknown factor that made them warped during the grout curing process
- Cracks in grout will have to be repaired as per supplier recommendation when environment can be controlled.



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# Future work

- Clamping ring bolt still needs to be torqued
- Setting up soft foot and assembly of the crusher



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# Appendix A

## Time Sheets

**FEUILLE DE TEMPS HEBDOMADAIRE**
**WEEKLY TIME SHEET**

| | | | |
|---|---|---|---|
| CLIENT / CUSTOMER | **Victoria Gold (JDS)** | # BON DE SERVICE / SERVICE ORDER # | **20312043** |
| SITE DU PROJET / PROJECT SITE | **Eagle Gold** | REPRESENTANT / REPRESENTATIVE | **KIM LEE LEMIRE** |
| EQUIPEMENT / EQUIPMENT | **MP12500** | # SERIE DE L'EQUIP. EQUIP. SERIAL NO. | **MP1250118-119-120-122** |

| | |
|---|---|
| TRAVAUX / SCOPE | |

Semaine/Week: 19-Nov-17

| JOUR / DAY | DATE | VOYAGEMENT TRAVEL | ATTENTE LAYOVER | REGULIER STAIGHT | TEMPS + DEMI TIME + HALF | TEMPS DOUBLE DOUBLE TIME | BUREAU OFFICE | TOTAL | Un instant / Take 5 | Risques / Risk Observations | Quasi Accident / Near Miss | Inspection | NOTES: |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Preparation | | | | | | | | | | | | | |
| Lundi / Monday | 19-Nov-17 | 4.0 | 6.0 | | | | | 10.0 | | | | | |
| Mardi / Tuesday | 20-Nov-17 | 14.0 | | | | | | 14.0 | | | | | |
| Mercredi / Wednesday | 21-Nov-17 | 3.0 | | 8.0 | 1.0 | | | 12.0 | | | | | |
| Jeudi / Thursday | 22-Nov-17 | 6.0 | | 4.0 | | | | 10.0 | | | | | |
| Vendredi / Friday | 23-Nov-17 | | | 8.0 | 2.0 | | | 10.0 | | | | | |
| Samedi / Saturday | 24-Nov-17 | 6.0 | | 7.5 | | | | 13.5 | | | | | |
| Dimanche / Sunday | 25-Nov-17 | | | 8.0 | 4.0 | | | 12.0 | | | | | |
| Rapport / Report | | | | | | | | | | | | | |
| **TOTAL** | | 33.0 | 6.0 | 35.5 | 7.0 | 0.0 | 0.0 | 81.5 | | | | | |

| **SIGNATURE DU CLIENT - PERSONNE AUTORISE / SIGNATURE OF CUSTOMER OR SITE-AUTHORIZED:** | **DATE** | **SIGNATURE DU REPRESANTANT METSO / SIGNATURE OF METSO SERVICE REP.:** | **DATE** |
|---|---|---|---|
| | | | |

***JOURNAL QUOTIDIEN - PROGRÈS: / DAILY LOG - PROGRESS:***

| | |
|---|---|
| Lundi / Monday | Travelled to the airport, flight was delayed 2 times before it was cancelled. Rebooked for the next day and travelled back home. |
| Mardi / Tuesday | Travelled from home to Whitehorse |
| Mercredi / Wednesday | Travelled from Whitehorse to Mayo, Chris Gardner picked me up and the airport and we drove to site. Arrived on site I meet up with JDS and went over the crusher so look at the sole plates. The secondary crusher sole plates elevation was reviewed along with #1 tertiary crusher. The machining of some sole plates was not up to our specification and will be sent to get machined. Most of the sole plates are banana shaped. |
| Jeudi / Thursday | Oversee machining of sole plates. |
| Vendredi / Friday | Machine shop in Whitehorse finished 3 sole plates before the end of their shift, loaded the sole plates on the truck. |
| Samedi / Saturday | Drove back to mine site, installed sole plates for tertiary crusher #3 and level them up. |
| Dimanche / Sunday | The sole plates and concrete temperature was normalized when we arrive at the beginning of the shift, we proceeded to the final levelling of the sole plates and poured the grout, the main frame of the secondary crusher was cleaned and prepared for transportation. |

**Metso Minerals Canada Inc. 795 George V, Lachine, Québec, H8S 2R9**
Tel. 514-485-4000, Fax 514-485-4210, www.metso.com

# FEUILLE DE TEMPS HEBDOMADAIRE
# WEEKLY TIME SHEET

| | | | |
|---|---|---|---|
| CLIENT / CUSTOMER | **Victoria Gold (JDS)** | # BON DE SERVICE / SERVICE ORDER # | **20312043** |
| SITE DU PROJET / PROJECT SITE | **Eagle Gold** | REPRESENTANT / REPRESENTATIVE | **KIM LEE LEMIRE** |
| EQUIPEMENT / EQUIPMENT | **MP12500** | # SERIE DE L'EQUIP. EQUIP. SERIAL NO. | **MP1250118-119-120-122** |

| | |
|---|---|
| TRAVAUX / SCOPE | |

Semaine/Week: 10-Dec-17

| JOUR / DAY | DATE | VOYAGEMENT TRAVEL | ATTENTE LAYOVER | REGULIER STAIGHT | TEMPS + DEMI TIME + HALF | TEMPS DOUBLE DOUBLE TIME | BUREAU OFFICE | TOTAL | Un instant / Take 5 | Risques / Risk Observations | Quasi Accident / Near Miss | Inspection | NOTES: |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Preparation | | | | | | | | | | | | | |
| Lundi / Monday | 10-Dec-17 | 6.0 | | 6.0 | | | | 12.0 | | | | | |
| Mardi / Tuesday | 11-Dec-17 | | | 8.0 | 4.0 | | | 12.0 | | | | | |
| Mercredi / Wednesday | 12-Dec-17 | | | 8.0 | 4.0 | | | 12.0 | | | | | |
| Jeudi / Thursday | 13-Dec-17 | | | 8.0 | 4.0 | | | 12.0 | | | | | |
| Vendredi / Friday | 14-Dec-17 | | | 8.0 | 4.0 | | | 12.0 | | | | | |
| Samedi / Saturday | 15-Dec-17 | | | | 12.0 | | | 12.0 | | | | | |
| Dimanche / Sunday | 16-Dec-17 | 14.0 | | | | | | 14.0 | | | | | |
| Rapport / Report | | | | | | | | | | | | | |
| | **TOTAL** | 20.0 | 0.0 | 38.0 | 28.0 | 0.0 | 0.0 | 86.0 | | | | | |

| **SIGNATURE DU CLIENT - PERSONNE AUTORISE / SIGNATURE OF CUSTOMER OR SITE-AUTHORIZED:** | **DATE** | **SIGNATURE DU REPRESANTANT METSO / SIGNATURE OF METSO SERVICE REP.:** | **DATE** |
|---|---|---|---|
| | | | |

| ***JOURNAL QUOTIDIEN - PROGRÈS: / DAILY LOG - PROGRESS:*** | |
|---|---|
| Lundi / Monday | Travelled from white horse to site and started preparing for first day. |
| Mardi / Tuesday | See email resume of site visits sent out Tue 2018-12-18 4:01 PM for details. |
| Mercredi / Wednesday | See email resume of site visits sent out Tue 2018-12-18 4:01 PM for details. |
| Jeudi / Thursday | See email resume of site visits sent out Tue 2018-12-18 4:01 PM for details. |
| Vendredi / Friday | See email resume of site visits sent out Tue 2018-12-18 4:01 PM for details. |
| Samedi / Saturday | See email resume of site visits sent out Tue 2018-12-18 4:01 PM for details. |
| Dimanche / Sunday | Travelling from site to Vancouver, flight was delayed arrived in Vancouver late evening. |

**Metso Minerals Canada Inc. 795 George V, Lachine, Québec, H8S 2R9**

Tel. 514-485-4000, Fax 514-485-4210, www.metso.com

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# FEUILLE DE TEMPS HEBDOMADAIRE
# WEEKLY TIME SHEET

| | | | |
|---|---|---|---|
| CLIENT / CUSTOMER | **Victoria Gold (JDS)** | # BON DE SERVICE / SERVICE ORDER # | **20312043** |
| SITE DU PROJET / PROJECT SITE | **Eagle Gold** | REPRESENTANT / REPRESENTATIVE | **KIM LEE LEMIRE** |
| EQUIPEMENT / EQUIPMENT | **MP12500** | # SERIE DE L'EQUIP. EQUIP. SERIAL NO. | **MP1250118-119-120-122** |

| | |
|---|---|
| TRAVAUX / SCOPE | |

Semaine/Week: 17-Dec-17

| JOUR / DAY | DATE | VOYAGEMENT TRAVEL | ATTENTE LAYOVER | REGULIER STAIGHT | TEMPS + DEMI TIME + HALF | TEMPS DOUBLE DOUBLE TIME | BUREAU OFFICE | TOTAL | Un instant / Take 5 | Risques / Risk Observations | Quasi Accident / Near Miss | Inspection | NOTES: |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Preparation | | | | | | | | | | | | | |
| Lundi / Monday | 17-Dec-17 | 14.0 | | | | | | 14.0 | | | | | |
| Mardi / Tuesday | 18-Dec-17 | | | | | | | 0.0 | | | | | |
| Mercredi / Wednesday | 19-Dec-17 | | | | | | | 0.0 | | | | | |
| Jeudi / Thursday | 20-Dec-17 | | | | | | | 0.0 | | | | | |
| Vendredi / Friday | 21-Dec-17 | | | | | | | 0.0 | | | | | |
| Samedi / Saturday | 22-Dec-17 | | | | | | | 0.0 | | | | | |
| Dimanche / Sunday | 23-Dec-17 | | | | | | | 0.0 | | | | | |
| Rapport / Report | | | | | | | | | | | | | |
| | **TOTAL** | 14.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 14.0 | | | | | |

| **SIGNATURE DU CLIENT - PERSONNE AUTORISE / SIGNATURE OF CUSTOMER OR SITE-AUTHORIZED:** | **DATE** | **SIGNATURE DU REPRESANTANT METSO / SIGNATURE OF METSO SERVICE REP.:** | **DATE** |
|---|---|---|---|
| | | | |

***JOURNAL QUOTIDIEN - PROGRÈS: / DAILY LOG - PROGRESS:***

| | |
|---|---|
| Lundi / Monday | Traveled from Vancouver to Home. |
| Mardi / Tuesday | |
| Mercredi / Wednesday | |
| Jeudi / Thursday | |
| Vendredi / Friday | |
| Samedi / Saturday | |
| Dimanche / Sunday | |

**Metso Minerals Canada Inc. 795 George V, Lachine, Québec, H8S 2R9**

Tel. 514-485-4000, Fax 514-485-4210, www.metso.com

# Appendix B

## Data Sheets

# Mine Construction & Mine Project Specialists

**CWB + COR certified + Construction + Demolition + Cranes + Millwrighting + Welding**

**600 Exeter Station Rd**
**Box 1914 100 Mile House BC V0K 2E0**
**Phone 250 395 1288 Fax 250 395 1280 Email bpcontracting@live.ca**


EX-B9-1

## GROUT PLACEMENT RECORD

| | |
|---|---|
| **Project:** Victoria Gold | **Project No.:** Cm-02 |
| **Contractor:** BPC | **Date:** Nov 21/18 |
| **Equipment No.:** MP12500118 | |
| **Description:** Cone Crusher | **Drawing No.:** FND12500118 |
| **Ambient Temperature at time of Placement:** 69 F | **Grout Manufacturer:** UNISORB |
| **Type of Grout:** ☐ Cementitious, ☑ Polymer (Epoxy) | **Grout Product:** V-100 |

| Item | Installation Check (Verify) | REJECT | ACCEPT | N/A |
|---|---|---|---|---|
| 1 | Pads, Foundations, Anchor Bolts and Equipment are in the proper location and have been completed and accepted? | | ✓ | |
| 2 | The area to be grouted has been properly prepared by exposing sound concrete. | | ✓ | |
| 3 | The surfaces to be grouted have been properly cleaned and prepared. | | ✓ | |
| 4 | The proper type grout is being used for this specific application. | | ✓ | |
| 5 | The formwork is adequate and in accordance with the manufacturer's recommendations. | | ✓ | |
| 6 | Cementitious Grout: The surface to be grouted has been saturated with water in accordance with the manufacturer's recommendations. | | | ✓ |
| 7 | Polymer (Epoxy) Grout: The surfaces to be grouted are dry. | | ✓ | |
| 8 | The bonding agent has been applied per the recommendations of the grout manufacturer. | | | ✓ |
| 9 | The mixing and placement of grout is in accordance with the grout manufacturer's recommendations. | | ✓ | |
| 10 | The temperature on the surfaces to be grouted and the temperature of the grout are as recommended by the grout manufacturer. | | ✓ | |
| 11 | The visible bearing areas have been grouted adequately. | | ✓ | |
| 12 | Test cubes taken by third party. | | ✓ | |
| 13 | (If Applicable) _____ | | | |

**Comments:** _____

**Client Signature:** Print Adam Chow Sign [signature] Date Nov 27 18

**Vendor Rep. Signature:** Print Kimlee Lemire Sign [signature] Date Nov 27-18

**Contractor Signature:** Print Chris Parker Sign [signature] Date Nov 27/18

# Field Service Report

Victoria Gold, Mayo, YK
MP1250 (Serial # MP1250119)
MP1250 Main frame installation

Customer PO: SC325
Metso Job Number: 20312043
Site visit: November 21-30, 2018

by
Kim Lee Lemire
Field Service Representative
Kimlee.lemire@metso.com

January 9, 2019

Metso Minerals Canada Inc.
795 George V, Lachine, QC H8S 2R9

# Customer contacts




**Calvin Goldschmidt**
**Project Manager**

Cell **(604) 377-4522**

email calving@jdsmining.ca
web jdsmining.ca

# Introduction

This report summarizes the work that was performed by the Metso Field Service Representative during a Metso Field Service Visit.

Details of the day-to-day functions can be found in Appendix A (Time Sheets). Data taken on site during the visit is included in Appendix B (Data Sheets).

To arrange a Metso Field Service Visit or for any questions regarding this report, please use the following address:

Metso Minerals Canada, Field Service Department

795 George V, Lachine, QC H8S 2R9

Tel: 514-485-4134

e-mail: francois.chabot@metso.com

# Purpose of visit

- To perform the installation of the sole plate and main frame on crusher base.

# History and scope of work

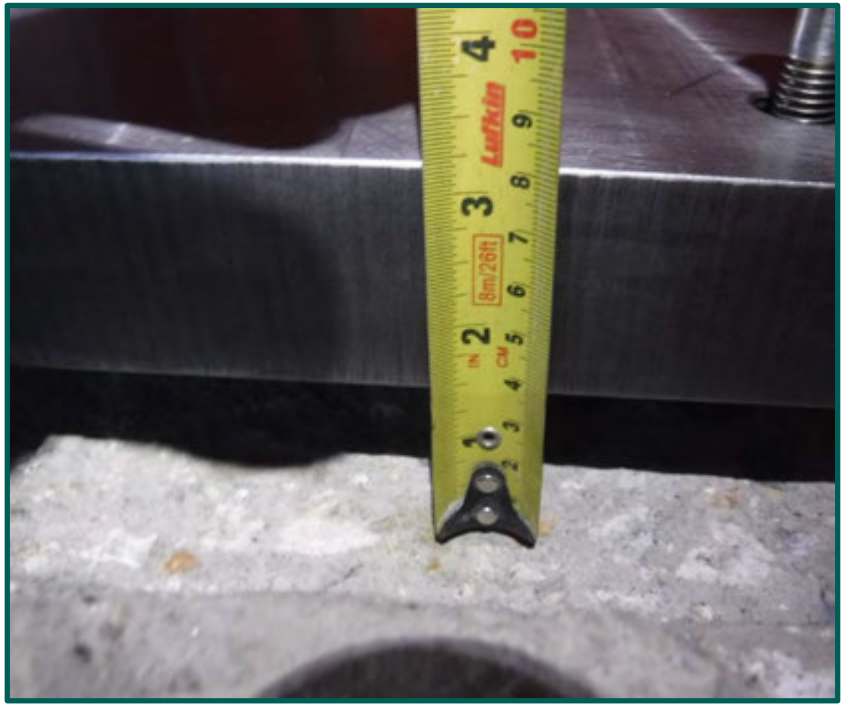
- Installation of sole plates
- Grouting of sole plates
- Installation of main frame
- Installation of adjustment ring

# Visit details and findings – special findings

- Some of the sole plates were found to be out of specifications.
- Even after machining most sole plate were still banana shaped.

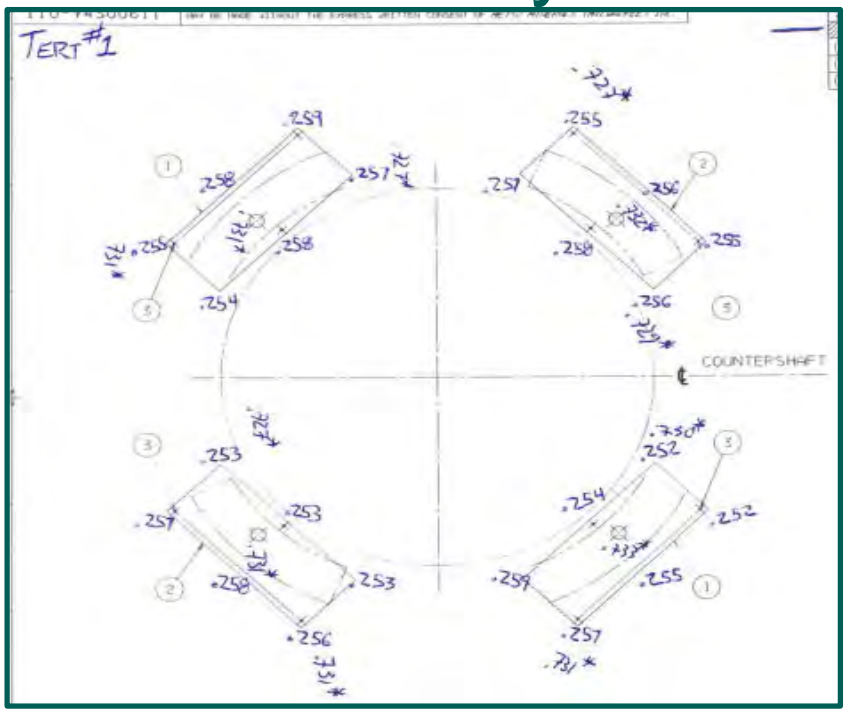
# Installation






When I arrived on site, the BPC team already had the sole plates for 3 crushers set in place and leveled. BPC had concerns about some of the sole plates since some of them were banana shaped and some were pretty rough on the top machine surface. The second crusher to be reviewed was #1 tertiary crusher. The sole plates were set within tolerances at 0.007” of elevation difference. All the grout specification related to preparation to gout was verified and respected.

# Tertiary #1 crusher sole plates

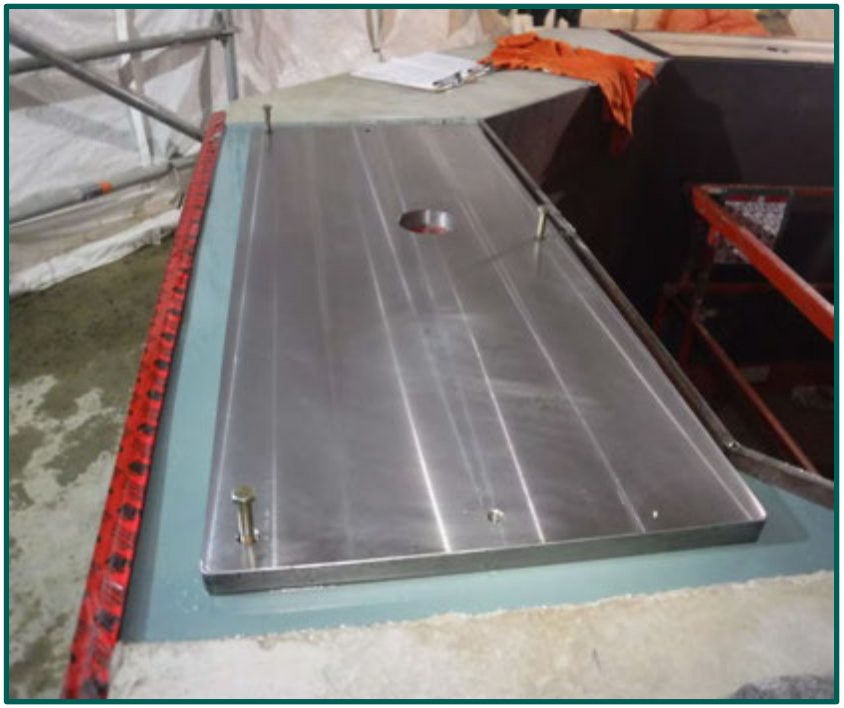





The elevations were recorded on the sole plate drawing for records. As we can see, the sole plates were still under the 0.010'' elevation tolerances. 0.007'' was the best we could do here since the flatness of the machining varies a lot from corner to corner of every sole plate. It was found that most of the sole plates were curled up on each side making it very difficult to properly set them within the tolerances. Even knowing that the manifest says these sole plate came with the Metso Package, the way they looks made me doubt. Metso sole plates are normally machined to a flatness of 0.004'' and the part number is stamped on the top surface. 6 of the plates were very rough on the top side and none of the plates have Metso part number stamped on them.** Note: Only the number starting with .25** should be taken in consideration on the LHS picture**

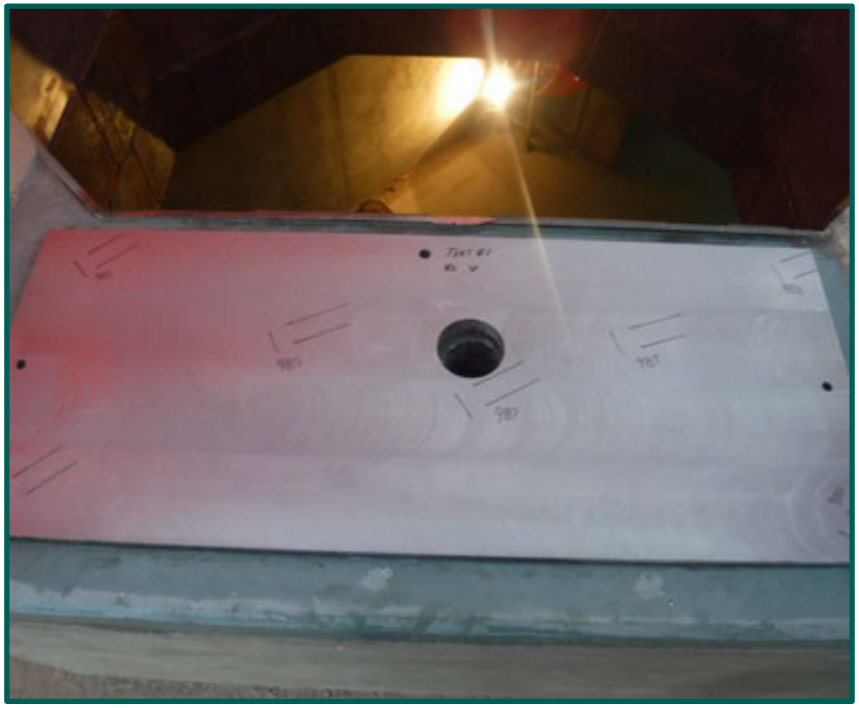
# Grouting of sole plates





The grout was poured once the concrete was up to temperature. A grout form was filled out to ensure that all the parameters of the grout and preparation were respected before grout was poured. Once ready, the grout was mixed and poured in multiple stages since this product only allow us to pour 1.5'' at a time.

# Final recording





Once the grout had cured for 3 days, the test pours were broken at 15 125 PSI which is acceptable for the placement of the main frame onto the sole plates. Before the main frame was installed, the elevation of every sole plate was recorded. After the measurements were recorded, we noticed that most of the numbers had changed and the plates warped. The difference between the highest point to the lowest point was now of 0.016'' which is out of our tolerances. It seems that the stress that was already in the plates reacted with the heat generated from the grout when curing. When curing, the grout reached a temperature of 220ºF which is very high for a Epoxy grout. Once the frame is installed on the sole plate, a feeler gauge test will be done to see if any soft foot can be noticed. This will indicate if shims must be used to correct the elevation difference.



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# Main frame installation





While the secondary crusher main frame was getting installed, #1 tertiary crusher main frame was cleaned from the rust protective agent and loaded on the truck ready to be transported to the secondary crusher area. After a pre-lift meeting was conducted, the frame was lifted and once it was close above the sole plates, the anchor bolts were engaged in their hole to help guide the main frame in position. Before the main frame was set on the sole plates, it was lowered on wooden blocks 12 inches away from the sole plates. The sole plates and crusher machined pads were once more cleaned from any debris and the crusher was set on the sole plates.



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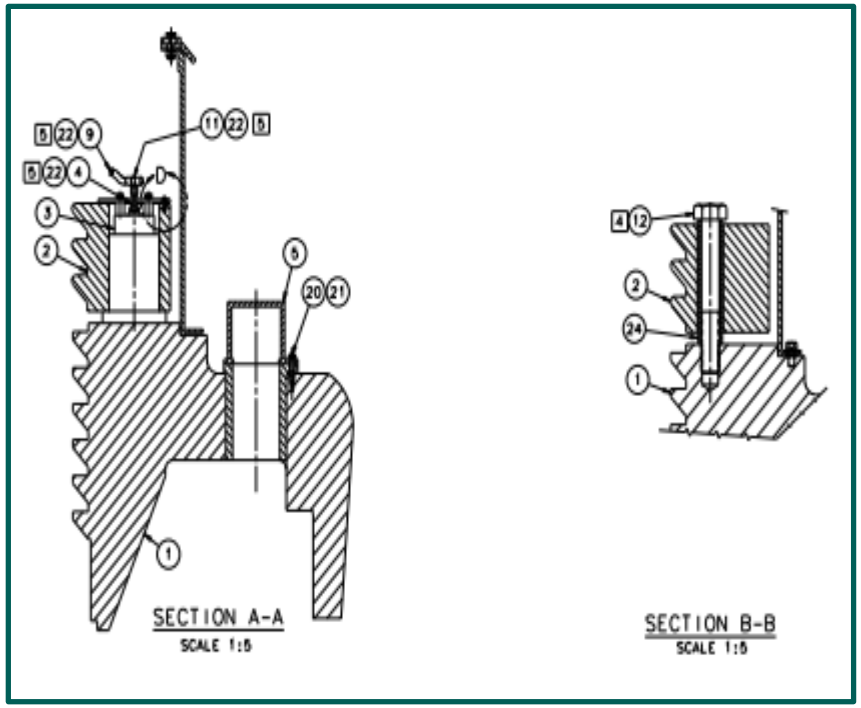
# Adjustment ring assembly






Prior to my arrival on site, all the adjustment ring and clamping ring were assembled. In order to assemble both rings, all the clamping cylinders were installed along with the hoses. Once the clamping ring is assembled, 8 bolts with spacer tubes were installed to secure the clamping ring on the adjustment ring. The bolts are going to be torqued to specification later on during the assembly of the crusher.

# Adjustment ring





Once the crusher was set on the sole plates, the main frame seat liner were greased with a 3% Moly base grease before the adjustment ring was installed. The adjustment ring was lifted from the same location as the main frame. Once the adjustment ring was on top of the crusher, it was properly aligned with the crusher main frame and set on the main frame seat liners.



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# Grout after cure





As mentioned in the secondary crusher service report cracks were also found in tertiary crusher #1 grout. The cracks will be repaired as per supplier recommendation when the ambient temperature and conditions can be controlled.



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# Conclusion and recommendations

- Sole could not be set properly due to unknown factor that made them warped during the grout curing process.
- Cracks in grout will have to be repaired as per supplier recommendation when environment can be controlled.



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# Future work

- Clamping ring bolt still needs to be torqued.
- Setting up soft foot and assembly of the crusher.



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# Appendix A

## Time Sheets

**FEUILLE DE TEMPS HEBDOMADAIRE**
**WEEKLY TIME SHEET**

| | | | |
|---|---|---|---|
| CLIENT / CUSTOMER | **Victoria Gold (JDS)** | # BON DE SERVICE / SERVICE ORDER # | **20312043** |
| SITE DU PROJET / PROJECT SITE | **Eagle Gold** | REPRESENTANT / REPRESENTATIVE | **KIM LEE LEMIRE** |
| EQUIPEMENT / EQUIPMENT | **MP12500** | # SERIE DE L'EQUIP. EQUIP. SERIAL NO. | **MP1250118-119-120-122** |

| | |
|---|---|
| TRAVAUX / SCOPE | |

Semaine/Week: 19-Nov-17

| JOUR / DAY | DATE | VOYAGEMENT TRAVEL | ATTENTE LAYOVER | REGULIER STAIGHT | TEMPS + DEMI TIME + HALF | TEMPS DOUBLE DOUBLE TIME | BUREAU OFFICE | TOTAL | Un instant / Take 5 | Risques / Risk Observations | Quasi Accident / Near Miss | Inspection | NOTES: |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Preparation | | | | | | | | | | | | | |
| Lundi / Monday | 19-Nov-17 | 4.0 | 6.0 | | | | | 10.0 | | | | | |
| Mardi / Tuesday | 20-Nov-17 | 14.0 | | | | | | 14.0 | | | | | |
| Mercredi / Wednesday | 21-Nov-17 | 3.0 | | 8.0 | 1.0 | | | 12.0 | | | | | |
| Jeudi / Thursday | 22-Nov-17 | 6.0 | | 4.0 | | | | 10.0 | | | | | |
| Vendredi / Friday | 23-Nov-17 | | | 8.0 | 2.0 | | | 10.0 | | | | | |
| Samedi / Saturday | 24-Nov-17 | 6.0 | | 7.5 | | | | 13.5 | | | | | |
| Dimanche / Sunday | 25-Nov-17 | | | 8.0 | 4.0 | | | 12.0 | | | | | |
| Rapport / Report | | | | | | | | | | | | | |
| **TOTAL** | | 33.0 | 6.0 | 35.5 | 7.0 | 0.0 | 0.0 | 81.5 | | | | | |

| **SIGNATURE DU CLIENT - PERSONNE AUTORISE / SIGNATURE OF CUSTOMER OR SITE-AUTHORIZED:** | **DATE** | **SIGNATURE DU REPRESANTANT METSO / SIGNATURE OF METSO SERVICE REP.:** | **DATE** |
|---|---|---|---|
| | | | |

***JOURNAL QUOTIDIEN - PROGRÈS: / DAILY LOG - PROGRESS:***

| | |
|---|---|
| Lundi / Monday | Travelled to the airport, flight was delayed 2 times before it was cancelled. Rebooked for the next day and travelled back home. |
| Mardi / Tuesday | Travelled from home to Whitehorse |
| Mercredi / Wednesday | Travelled from Whitehorse to Mayo, Chris Gardner picked me up and the airport and we drove to site. Arrived on site I meet up with JDS and went over the crusher so look at the sole plates. The secondary crusher sole plates elevation was reviewed along with #1 tertiary crusher. The machining of some sole plates was not up to our specification and will be sent to get machined. Most of the sole plates are banana shaped. |
| Jeudi / Thursday | Oversee machining of sole plates. |
| Vendredi / Friday | Machine shop in Whitehorse finished 3 sole plates before the end of their shift, loaded the sole plates on the truck. |
| Samedi / Saturday | Drove back to mine site, installed sole plates for tertiary crusher #3 and level them up. |
| Dimanche / Sunday | The sole plates and concrete temperature was normalized when we arrive at the beginning of the shift, we proceeded to the final levelling of the sole plates and poured the grout, the main frame of the secondary crusher was cleaned and prepared for transportation. |

**Metso Minerals Canada Inc. 795 George V, Lachine, Québec, H8S 2R9**
Tel. 514-485-4000, Fax 514-485-4210, www.metso.com

# FEUILLE DE TEMPS HEBDOMADAIRE
# WEEKLY TIME SHEET

| | | | |
|---|---|---|---|
| CLIENT / CUSTOMER | **Victoria Gold (JDS)** | # BON DE SERVICE / SERVICE ORDER # | **20312043** |
| SITE DU PROJET / PROJECT SITE | **Eagle Gold** | REPRESENTANT / REPRESENTATIVE | **KIM LEE LEMIRE** |
| EQUIPEMENT / EQUIPMENT | **MP12500** | # SERIE DE L'EQUIP. EQUIP. SERIAL NO. | **MP1250118-119-120-122** |

| | |
|---|---|
| TRAVAUX / SCOPE | |

Semaine/Week: 10-Dec-17

| JOUR / DAY | DATE | VOYAGEMENT TRAVEL | ATTENTE LAYOVER | REGULIER STAIGHT | TEMPS + DEMI TIME + HALF | TEMPS DOUBLE DOUBLE TIME | BUREAU OFFICE | TOTAL | Un instant / Take 5 | Risques / Risk Observations | Quasi Accident / Near Miss | Inspection | NOTES: |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Preparation | | | | | | | | | | | | | |
| Lundi / Monday | 10-Dec-17 | 6.0 | | 6.0 | | | | 12.0 | | | | | |
| Mardi / Tuesday | 11-Dec-17 | | | 8.0 | 4.0 | | | 12.0 | | | | | |
| Mercredi / Wednesday | 12-Dec-17 | | | 8.0 | 4.0 | | | 12.0 | | | | | |
| Jeudi / Thursday | 13-Dec-17 | | | 8.0 | 4.0 | | | 12.0 | | | | | |
| Vendredi / Friday | 14-Dec-17 | | | 8.0 | 4.0 | | | 12.0 | | | | | |
| Samedi / Saturday | 15-Dec-17 | | | | 12.0 | | | 12.0 | | | | | |
| Dimanche / Sunday | 16-Dec-17 | 14.0 | | | | | | 14.0 | | | | | |
| Rapport / Report | | | | | | | | | | | | | |
| | **TOTAL** | 20.0 | 0.0 | 38.0 | 28.0 | 0.0 | 0.0 | 86.0 | | | | | |

| **SIGNATURE DU CLIENT - PERSONNE AUTORISE / SIGNATURE OF CUSTOMER OR SITE-AUTHORIZED:** | **DATE** | **SIGNATURE DU REPRESANTANT METSO / SIGNATURE OF METSO SERVICE REP.:** | **DATE** |
|---|---|---|---|
| | | | |

| ***JOURNAL QUOTIDIEN - PROGRÈS: / DAILY LOG - PROGRESS:*** | |
|---|---|
| Lundi / Monday | Travelled from white horse to site and started preparing for first day. |
| Mardi / Tuesday | See email resume of site visits sent out Tue 2018-12-18 4:01 PM for details. |
| Mercredi / Wednesday | See email resume of site visits sent out Tue 2018-12-18 4:01 PM for details. |
| Jeudi / Thursday | See email resume of site visits sent out Tue 2018-12-18 4:01 PM for details. |
| Vendredi / Friday | See email resume of site visits sent out Tue 2018-12-18 4:01 PM for details. |
| Samedi / Saturday | See email resume of site visits sent out Tue 2018-12-18 4:01 PM for details. |
| Dimanche / Sunday | Travelling from site to Vancouver, flight was delayed arrived in Vancouver late evening. |

**Metso Minerals Canada Inc. 795 George V, Lachine, Québec, H8S 2R9**

Tel. 514-485-4000, Fax 514-485-4210, www.metso.com

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# FEUILLE DE TEMPS HEBDOMADAIRE
# WEEKLY TIME SHEET

| | | | |
|---|---|---|---|
| CLIENT / CUSTOMER | **Victoria Gold (JDS)** | # BON DE SERVICE / SERVICE ORDER # | **20312043** |
| SITE DU PROJET / PROJECT SITE | **Eagle Gold** | REPRESENTANT / REPRESENTATIVE | **KIM LEE LEMIRE** |
| EQUIPEMENT / EQUIPMENT | **MP12500** | # SERIE DE L'EQUIP. EQUIP. SERIAL NO. | **MP1250118-119-120-122** |

| | |
|---|---|
| TRAVAUX / SCOPE | |

Semaine/Week: 17-Dec-17

| JOUR / DAY | DATE | VOYAGEMENT TRAVEL | ATTENTE LAYOVER | REGULIER STAIGHT | TEMPS + DEMI TIME + HALF | TEMPS DOUBLE DOUBLE TIME | BUREAU OFFICE | TOTAL | Un instant / Take 5 | Risques / Risk Observations | Quasi Accident / Near Miss | Inspection | NOTES: |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Preparation | | | | | | | | | | | | | |
| Lundi / Monday | 17-Dec-17 | 14.0 | | | | | | 14.0 | | | | | |
| Mardi / Tuesday | 18-Dec-17 | | | | | | | 0.0 | | | | | |
| Mercredi / Wednesday | 19-Dec-17 | | | | | | | 0.0 | | | | | |
| Jeudi / Thursday | 20-Dec-17 | | | | | | | 0.0 | | | | | |
| Vendredi / Friday | 21-Dec-17 | | | | | | | 0.0 | | | | | |
| Samedi / Saturday | 22-Dec-17 | | | | | | | 0.0 | | | | | |
| Dimanche / Sunday | 23-Dec-17 | | | | | | | 0.0 | | | | | |
| Rapport / Report | | | | | | | | | | | | | |
| | **TOTAL** | 14.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 14.0 | | | | | |

| **SIGNATURE DU CLIENT - PERSONNE AUTORISE / SIGNATURE OF CUSTOMER OR SITE-AUTHORIZED:** | **DATE** | **SIGNATURE DU REPRESANTANT METSO / SIGNATURE OF METSO SERVICE REP.:** | **DATE** |
|---|---|---|---|
| | | | |

***JOURNAL QUOTIDIEN - PROGRÈS: / DAILY LOG - PROGRESS:***

| | |
|---|---|
| Lundi / Monday | Traveled from Vancouver to Home. |
| Mardi / Tuesday | |
| Mercredi / Wednesday | |
| Jeudi / Thursday | |
| Vendredi / Friday | |
| Samedi / Saturday | |
| Dimanche / Sunday | |

**Metso Minerals Canada Inc. 795 George V, Lachine, Québec, H8S 2R9**

Tel. 514-485-4000, Fax 514-485-4210, www.metso.com

# Appendix B

## Data Sheets

**Mine Construction & Mine Project Specialists**
CWB + COR certified + Construction + Demolition + Cranes + Millwrighting + Welding
600 Exeter Station Rd
Box 1914 100 Mile House BC V0K 2E0
Phone 250 395 1288 Fax 250 395 1280 Email bpcontracting@live.ca

EX-B9-1

# GROUT PLACEMENT RECORD

| | |
|---|---|
| **Project:** Victoria Gold | **Project No.:** CM-02 |
| **Contractor:** BPC | **Date:** Nov 21/18 |
| **Equipment No.:** MP12500119 | |
| **Description:** Cone Crusher | **Drawing No.:** FND12500119 |
| **Ambient Temperature at time of Placement:** 72 F | **Grout Manufacturer:** UNISORB |
| **Type of Grout:** ☐ Cementitious, ☑ Polymer (Epoxy) | **Grout Product:** V-100 |

| Item | Installation Check (Verify) | REJECT | ACCEPT | N/A |
|---|---|---|---|---|
| 1 | Pads, Foundations, Anchor Bolts and Equipment are in the proper location and have been completed and accepted? | | ✓ | |
| 2 | The area to be grouted has been properly prepared by exposing sound concrete. | | ✓ | |
| 3 | The surfaces to be grouted have been properly cleaned and prepared. | | ✓ | |
| 4 | The proper type grout is being used for this specific application. | | ✓ | |
| 5 | The formwork is adequate and in accordance with the manufacturer's recommendations. | | ✓ | |
| 6 | Cementitious Grout: The surface to be grouted has been saturated with water in accordance with the manufacturer's recommendations. | | | ✓ |
| 7 | Polymer (Epoxy) Grout: The surfaces to be grouted are dry. | | ✓ | |
| 8 | The bonding agent has been applied per the recommendations of the grout manufacturer. | | | ✓ |
| 9 | The mixing and placement of grout is in accordance with the grout manufacturer's recommendations. | | ✓ | |
| 10 | The temperature on the surfaces to be grouted and the temperature of the grout are as recommended by the grout manufacturer. | | ✓ | |
| 11 | The visible bearing areas have been grouted adequately. | | ✓ | |
| 12 | Test cubes taken by third party. | | ✓ | |
| 13 | (If Applicable) _____ | | | |

**Comments:** _____

| | | | | | |
|---|---|---|---|---|---|
| **Client Signature:** | **Print** Adam | **Sign** | | **Date** Nov 27.18 |
| **Vendor Rep. Signature:** | **Print** Kinlee Lemire | **Sign** | | **Date** Nov 27-18 |
| **Contractor Signature:** | **Print** Chris Gorman | **Sign** | | **Date** Nov 27-18 |

# Field Service Report

Victoria Gold, Mayo, YK
MP1250  (Serial # MP1250120)
MP1250 Main frame installation

Customer PO: SC325
Metso Job Number: 20312043
Site visit: November 21-30, 2018

by
Kim Lee Lemire
Field Service Representative
Kimlee.lemire@metso.com

January 9, 2019

Metso Minerals Canada Inc.
795 George V, Lachine, QC H8S 2R9

# Customer contacts




**Calvin Goldschmidt**
**Project Manager**

Cell **(604) 377-4522**

email calving@jdsmining.ca
web jdsmining.ca

# Introduction

This report summarizes the work that was performed by the Metso Field Service Representative during a Metso Field Service Visit.

Details of the day-to-day functions can be found in Appendix A (Time Sheets). Data taken on site during the visit is included in Appendix B (Data Sheets).

To arrange a Metso Field Service Visit or for any questions regarding this report, please use the following address:

Metso Minerals Canada, Field Service Department

795 George V, Lachine, QC H8S 2R9

Tel: 514-485-4134

e-mail: francois.chabot@metso.com

# Purpose of visit

- To perform the installation of the sole plate and main frame on crusher base.

# History and scope of work

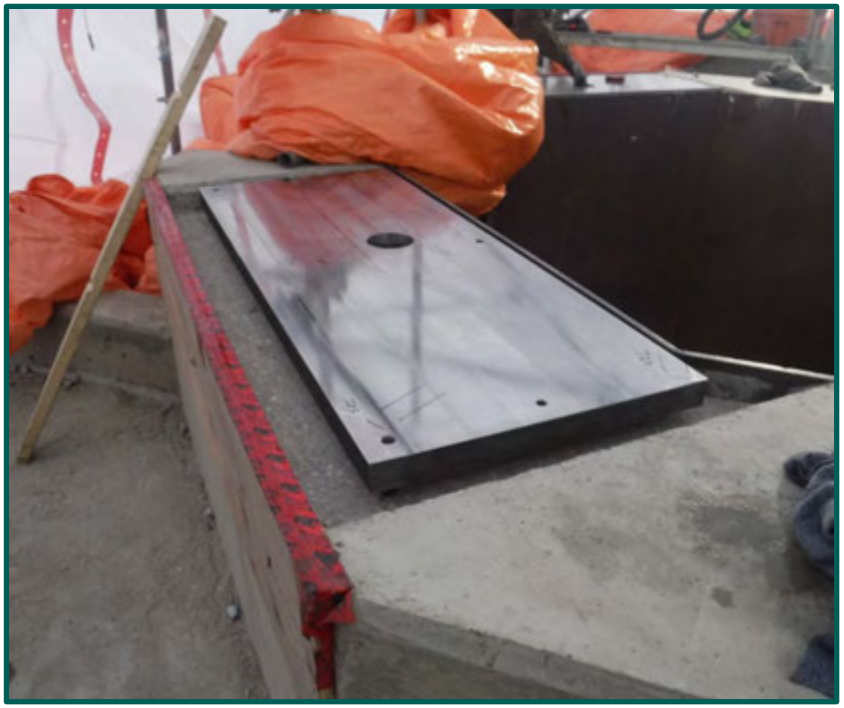
- Installation of sole plates
- Grouting of sole plates
- Installation of main frame
- Installation of adjustment ring

# Visit details and findings – special findings

- Some of the sole plates were found to be out of specifications.
- Even after machining, most sole plates were still banana shaped.

# Installation





The surface flatness of 3 of the 4 sole plates on #2 tertiary crusher was not acceptable. A total of 6 sole plates were sent to the machine shop to be machined. Once 3 sole plates were back from the machine shop, they were installed with the remaining sole plate.



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# Sole plates



1.1



1.2



1.3

Pictures 1.1 and 1.2 shows the condition of the sole plates before they were sent to the machine shop. The ridge between the cutting tool passes were up to 0.009” thick. Picture 1.3 is the result after they were machined at Quantum Machining Work in Whitehorse.



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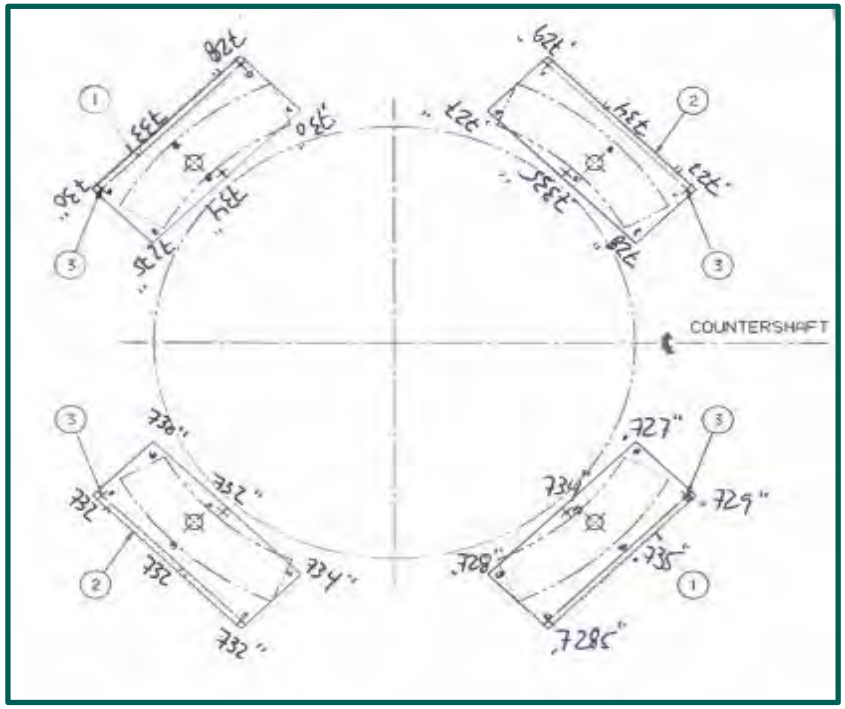
# Tertiary #2 crusher sole plates






The elevation was recorded on the sole plate drawing for records. As we can see, the sole plates were still under the 0.010” elevation tolerances. 0.008” was the best we could do, it seems that with the temperature change from transportation from Whitehorse to site caused the plate to deform like the other 2 sets of sole plates.

# Grouting of sole plates



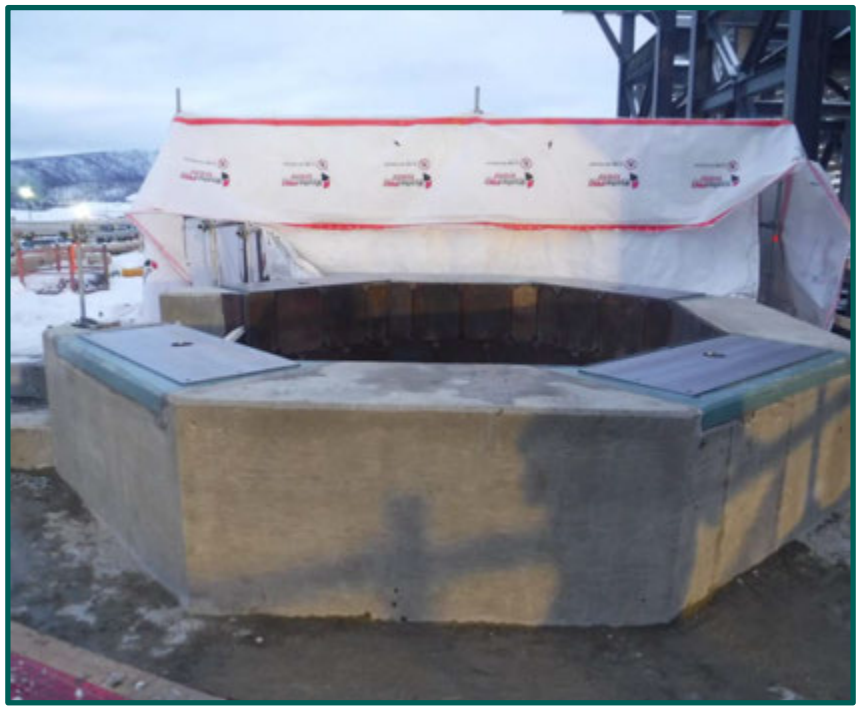


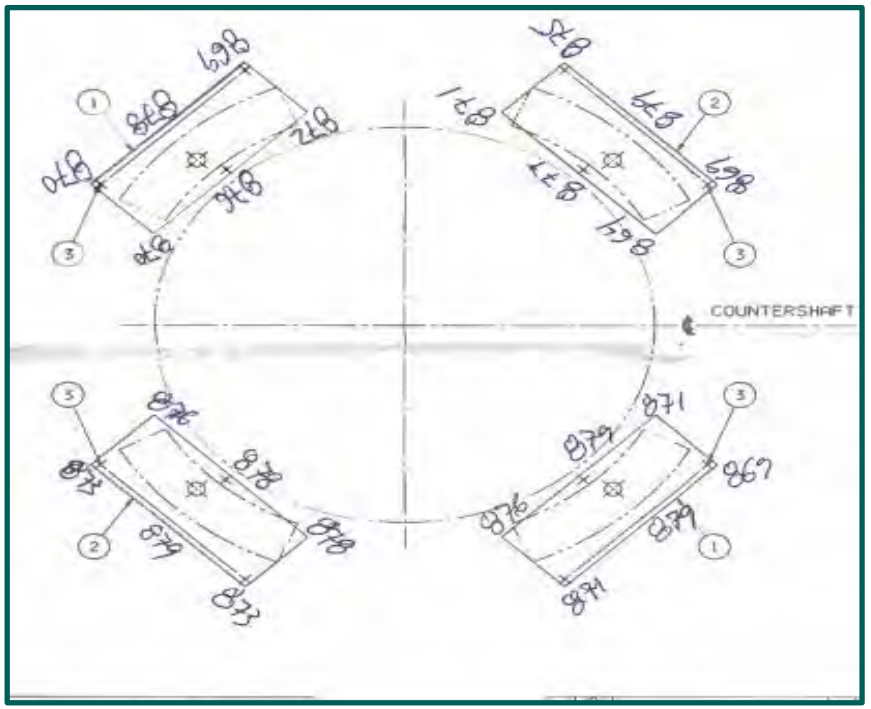
The grout was poured once the concrete was up to temperature. A grout form was filled to ensure that all the parameters of the grout and preparation were respected before grout was poured. Once ready, the grout was mixed and poured in multiple stages since this product only allow us to pour 1.5” at a time.



metso

# Final recording






Once the grout had cure for 3 days, the elevation measurements were confirmed and showed that the sole plates have once again deformed during the curing process of the gout. The difference in elevation from the lowest to the highest point is now of 0.015”. Once the frame is placed on the sole plates, it will be adjusted if needed.

# Main frame installation





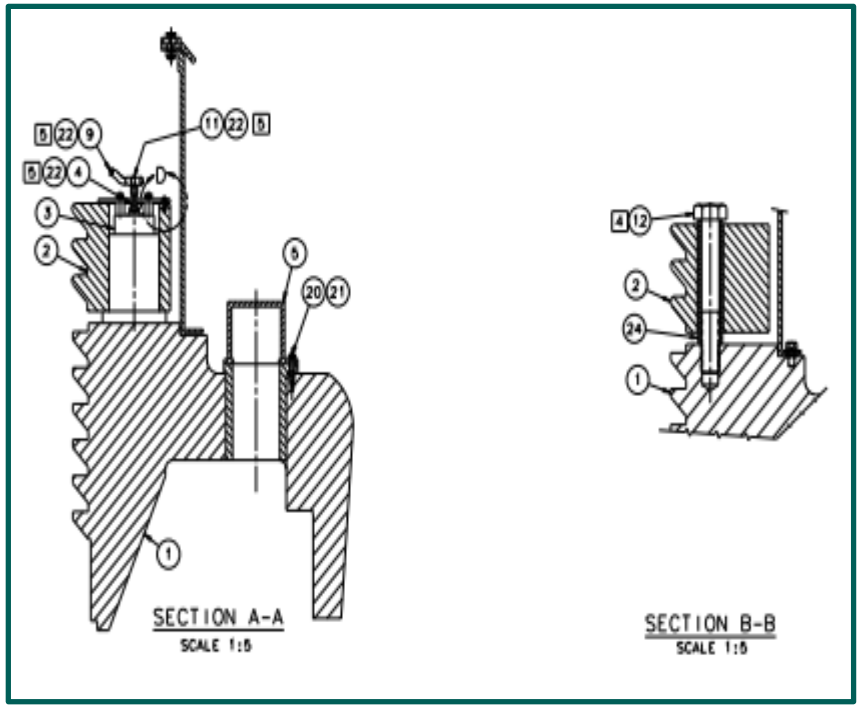
Before the main frame was installed, it was cleaned from the rust protective agent and loaded on the truck ready to be transported to the secondary crusher area. After a pre-lift meeting was conducted, the frame was lifted and once it was close above the sole plates, the anchor bolts were engaged in their hole to help guide the main frame in position. Before the main frame was set on the sole plates, it was lowered on wooden blocks 12 inches away from the sole plates. The sole plates and crusher machined pads were once more cleaned from any debris and the crusher was set on the sole plates.



metso

# Adjustment ring assembly






Prior to my arrival on site, the adjustment ring and clamping ring were assembled. In order to assemble both rings, all the clamping cylinders were installed along with the hoses. Once the clamping ring is assembled, 8 bolts with spacer tubes were installed to secure the clamping ring on the adjustment ring. The bolts are going to be torqued to specification later on during the assembly of the crusher.



metso

# Adjustment ring





Once the crusher was set on the sole plates, the main frame seat liner were greased with a 3% Moly base grease before the adjustment ring was installed. The adjustment ring was lifted from the same location as the main frame. Once the adjustment ring was on top of the crusher, it was properly aligned with the crusher main frame and set on the main frame seat liners.



metso

# Grout after cure






As per mention in the secondary crusher service report, cracks were also found in tertiary crusher #1 grout. The cracks will be repaired as per supplier recommendation when the ambient temperature and conditions can be controlled. Cracks were covered with tape to prevent water infiltration.



metso

# Conclusion and recommendations

- Sole plates could not be set properly due to unknown factor that made them warp during the grout curing process.
- Cracks in grout will have to be repaired as per supplier recommendation when environment can be controlled.



metso

# Future work

- Clamping ring bolt still needs to be torqued.
- Setting up soft foot and assembly of the crusher.

# Appendix A

## Time Sheets

**FEUILLE DE TEMPS HEBDOMADAIRE**
**WEEKLY TIME SHEET**

| | | | |
|---|---|---|---|
| CLIENT / CUSTOMER | **Victoria Gold (JDS)** | # BON DE SERVICE / SERVICE ORDER # | **20312043** |
| SITE DU PROJET / PROJECT SITE | **Eagle Gold** | REPRESENTANT / REPRESENTATIVE | **KIM LEE LEMIRE** |
| EQUIPEMENT / EQUIPMENT | **MP12500** | # SERIE DE L'EQUIP. EQUIP. SERIAL NO. | **MP1250118-119-120-122** |

| | |
|---|---|
| TRAVAUX / SCOPE | |

Semaine/Week: 19-Nov-17

| JOUR / DAY | DATE | VOYAGEMENT TRAVEL | ATTENTE LAYOVER | REGULIER STAIGHT | TEMPS + DEMI TIME + HALF | TEMPS DOUBLE DOUBLE TIME | BUREAU OFFICE | TOTAL | Un instant / Take 5 | Risques / Risk Observations | Quasi Accident / Near Miss | Inspection | NOTES: |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Preparation | | | | | | | | | | | | | |
| Lundi / Monday | 19-Nov-17 | 4.0 | 6.0 | | | | | 10.0 | | | | | |
| Mardi / Tuesday | 20-Nov-17 | 14.0 | | | | | | 14.0 | | | | | |
| Mercredi / Wednesday | 21-Nov-17 | 3.0 | | 8.0 | 1.0 | | | 12.0 | | | | | |
| Jeudi / Thursday | 22-Nov-17 | 6.0 | | 4.0 | | | | 10.0 | | | | | |
| Vendredi / Friday | 23-Nov-17 | | | 8.0 | 2.0 | | | 10.0 | | | | | |
| Samedi / Saturday | 24-Nov-17 | 6.0 | | 7.5 | | | | 13.5 | | | | | |
| Dimanche / Sunday | 25-Nov-17 | | | 8.0 | 4.0 | | | 12.0 | | | | | |
| Rapport / Report | | | | | | | | | | | | | |
| **TOTAL** | | 33.0 | 6.0 | 35.5 | 7.0 | 0.0 | 0.0 | 81.5 | | | | | |

| **SIGNATURE DU CLIENT - PERSONNE AUTORISE / SIGNATURE OF CUSTOMER OR SITE-AUTHORIZED:** | **DATE** | **SIGNATURE DU REPRESANTANT METSO / SIGNATURE OF METSO SERVICE REP.:** | **DATE** |
|---|---|---|---|
| | | | |

***JOURNAL QUOTIDIEN - PROGRÈS: / DAILY LOG - PROGRESS:***

| | |
|---|---|
| Lundi / Monday | Travelled to the airport, flight was delayed 2 times before it was cancelled. Rebooked for the next day and travelled back home. |
| Mardi / Tuesday | Travelled from home to Whitehorse |
| Mercredi / Wednesday | Travelled from Whitehorse to Mayo, Chris Gardner picked me up and the airport and we drove to site. Arrived on site I meet up with JDS and went over the crusher so look at the sole plates. The secondary crusher sole plates elevation was reviewed along with #1 tertiary crusher. The machining of some sole plates was not up to our specification and will be sent to get machined. Most of the sole plates are banana shaped. |
| Jeudi / Thursday | Oversee machining of sole plates. |
| Vendredi / Friday | Machine shop in Whitehorse finished 3 sole plates before the end of their shift, loaded the sole plates on the truck. |
| Samedi / Saturday | Drove back to mine site, installed sole plates for tertiary crusher #3 and level them up. |
| Dimanche / Sunday | The sole plates and concrete temperature was normalized when we arrive at the beginning of the shift, we proceeded to the final levelling of the sole plates and poured the grout, the main frame of the secondary crusher was cleaned and prepared for transportation. |

**Metso Minerals Canada Inc. 795 George V, Lachine, Québec, H8S 2R9**
Tel. 514-485-4000, Fax 514-485-4210, www.metso.com

# FEUILLE DE TEMPS HEBDOMADAIRE
# WEEKLY TIME SHEET

| | | | |
|---|---|---|---|
| CLIENT / CUSTOMER | **Victoria Gold (JDS)** | # BON DE SERVICE / SERVICE ORDER # | **20312043** |
| SITE DU PROJET / PROJECT SITE | **Eagle Gold** | REPRESENTANT / REPRESENTATIVE | **KIM LEE LEMIRE** |
| EQUIPEMENT / EQUIPMENT | **MP12500** | # SERIE DE L'EQUIP. EQUIP. SERIAL NO. | **MP1250118-119-120-122** |

| | |
|---|---|
| TRAVAUX / SCOPE | |

Semaine/Week: 10-Dec-17

| JOUR / DAY | DATE | VOYAGEMENT TRAVEL | ATTENTE LAYOVER | REGULIER STAIGHT | TEMPS + DEMI TIME + HALF | TEMPS DOUBLE DOUBLE TIME | BUREAU OFFICE | TOTAL | Un instant / Take 5 | Risques / Risk Observations | Quasi Accident / Near Miss | Inspection | NOTES: |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Preparation | | | | | | | | | | | | | |
| Lundi / Monday | 10-Dec-17 | 6.0 | | 6.0 | | | | 12.0 | | | | | |
| Mardi / Tuesday | 11-Dec-17 | | | 8.0 | 4.0 | | | 12.0 | | | | | |
| Mercredi / Wednesday | 12-Dec-17 | | | 8.0 | 4.0 | | | 12.0 | | | | | |
| Jeudi / Thursday | 13-Dec-17 | | | 8.0 | 4.0 | | | 12.0 | | | | | |
| Vendredi / Friday | 14-Dec-17 | | | 8.0 | 4.0 | | | 12.0 | | | | | |
| Samedi / Saturday | 15-Dec-17 | | | | 12.0 | | | 12.0 | | | | | |
| Dimanche / Sunday | 16-Dec-17 | 14.0 | | | | | | 14.0 | | | | | |
| Rapport / Report | | | | | | | | | | | | | |
| | **TOTAL** | 20.0 | 0.0 | 38.0 | 28.0 | 0.0 | 0.0 | 86.0 | | | | | |

| **SIGNATURE DU CLIENT - PERSONNE AUTORISE / SIGNATURE OF CUSTOMER OR SITE-AUTHORIZED:** | **DATE** | **SIGNATURE DU REPRESANTANT METSO / SIGNATURE OF METSO SERVICE REP.:** | **DATE** |
|---|---|---|---|
| | | | |

| ***JOURNAL QUOTIDIEN - PROGRÈS: / DAILY LOG - PROGRESS:*** | |
|---|---|
| Lundi / Monday | Travelled from white horse to site and started preparing for first day. |
| Mardi / Tuesday | See email resume of site visits sent out Tue 2018-12-18 4:01 PM for details. |
| Mercredi / Wednesday | See email resume of site visits sent out Tue 2018-12-18 4:01 PM for details. |
| Jeudi / Thursday | See email resume of site visits sent out Tue 2018-12-18 4:01 PM for details. |
| Vendredi / Friday | See email resume of site visits sent out Tue 2018-12-18 4:01 PM for details. |
| Samedi / Saturday | See email resume of site visits sent out Tue 2018-12-18 4:01 PM for details. |
| Dimanche / Sunday | Travelling from site to Vancouver, flight was delayed arrived in Vancouver late evening. |

**Metso Minerals Canada Inc. 795 George V, Lachine, Québec, H8S 2R9**

Tel. 514-485-4000, Fax 514-485-4210, www.metso.com

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# FEUILLE DE TEMPS HEBDOMADAIRE
# WEEKLY TIME SHEET

| | | | |
|---|---|---|---|
| CLIENT / CUSTOMER | **Victoria Gold (JDS)** | # BON DE SERVICE / SERVICE ORDER # | **20312043** |
| SITE DU PROJET / PROJECT SITE | **Eagle Gold** | REPRESENTANT / REPRESENTATIVE | **KIM LEE LEMIRE** |
| EQUIPEMENT / EQUIPMENT | **MP12500** | # SERIE DE L'EQUIP. EQUIP. SERIAL NO. | **MP1250118-119-120-122** |

| | |
|---|---|
| TRAVAUX / SCOPE | |

Semaine/Week: 17-Dec-17

| JOUR / DAY | DATE | VOYAGEMENT TRAVEL | ATTENTE LAYOVER | REGULIER STAIGHT | TEMPS + DEMI TIME + HALF | TEMPS DOUBLE DOUBLE TIME | BUREAU OFFICE | TOTAL | Un instant / Take 5 | Risques / Risk Observations | Quasi Accident / Near Miss | Inspection | NOTES: |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Preparation | | | | | | | | | | | | | |
| Lundi / Monday | 17-Dec-17 | 14.0 | | | | | | 14.0 | | | | | |
| Mardi / Tuesday | 18-Dec-17 | | | | | | | 0.0 | | | | | |
| Mercredi / Wednesday | 19-Dec-17 | | | | | | | 0.0 | | | | | |
| Jeudi / Thursday | 20-Dec-17 | | | | | | | 0.0 | | | | | |
| Vendredi / Friday | 21-Dec-17 | | | | | | | 0.0 | | | | | |
| Samedi / Saturday | 22-Dec-17 | | | | | | | 0.0 | | | | | |
| Dimanche / Sunday | 23-Dec-17 | | | | | | | 0.0 | | | | | |
| Rapport / Report | | | | | | | | | | | | | |
| | **TOTAL** | 14.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 14.0 | | | | | |

| **SIGNATURE DU CLIENT - PERSONNE AUTORISE / SIGNATURE OF CUSTOMER OR SITE-AUTHORIZED:** | **DATE** | **SIGNATURE DU REPRESANTANT METSO / SIGNATURE OF METSO SERVICE REP.:** | **DATE** |
|---|---|---|---|
| | | | |

***JOURNAL QUOTIDIEN - PROGRÈS: / DAILY LOG - PROGRESS:***

| | |
|---|---|
| Lundi / Monday | Traveled from Vancouver to Home. |
| Mardi / Tuesday | |
| Mercredi / Wednesday | |
| Jeudi / Thursday | |
| Vendredi / Friday | |
| Samedi / Saturday | |
| Dimanche / Sunday | |

**Metso Minerals Canada Inc. 795 George V, Lachine, Québec, H8S 2R9**

Tel. 514-485-4000, Fax 514-485-4210, www.metso.com

# Appendix B

## Data Sheets

**Mine Construction & Mine Project Specialists**
CWB + COR certified + Construction + Demolition + Cranes + Millwrighting + Welding
600 Exeter Station Rd
Box 1914 100 Mile House BC V0K 2E0
Phone 250 395 1288 Fax 250 395 1280 Email bpcontracting@live.ca

EX-B9-1

# GROUT PLACEMENT RECORD

| | |
|---|---|
| **Project:** Victoria Gold | **Project No.:** CM-02 |
| **Contractor:** BPC | **Date:** Nov 25-18 |
| **Equipment No.:** MP12500120 | |
| **Description:** Cone Crusher | **Drawing No.:** FND12500119 |
| **Ambient Temperature at time of Placement:** 69.9°F | **Grout Manufacturer:** UNISORB |
| **Type of Grout:** ☐ Cementitious, ☑ Polymer (Epoxy) | **Grout Product:** V-100 |

| Item | Installation Check (Verify) | REJECT | ACCEPT | N/A |
|---|---|---|---|---|
| 1 | Pads, Foundations, Anchor Bolts and Equipment are in the proper location and have been completed and accepted? | | ✓ | |
| 2 | The area to be grouted has been properly prepared by exposing sound concrete. | | ✓ | |
| 3 | The surfaces to be grouted have been properly cleaned and prepared. | | ✓ | |
| 4 | The proper type grout is being used for this specific application. | | ✓ | |
| 5 | The formwork is adequate and in accordance with the manufacturer's recommendations. | | ✓ | |
| 6 | Cementitious Grout: The surface to be grouted has been saturated with water in accordance with the manufacturer's recommendations. | | | ✓ |
| 7 | Polymer (Epoxy) Grout: The surfaces to be grouted are dry. | | ✓ | |
| 8 | The bonding agent has been applied per the recommendations of the grout manufacturer. | | | ✓ |
| 9 | The mixing and placement of grout is in accordance with the grout manufacturer's recommendations. | | ✓ | |
| 10 | The temperature on the surfaces to be grouted and the temperature of the grout are as recommended by the grout manufacturer. | | ✓ | |
| 11 | The visible bearing areas have been grouted adequately. | | ✓ | |
| 12 | Test cubes taken by third party. | | ✓ | |
| 13 | (If Applicable) _____ | | | |

**Comments:** _____

| | | | | | |
|---|---|---|---|---|---|
| **Client Signature:** | **Print** | Adam Chow | **Sign** | | **Date** Nov 27-18 |
| **Vendor Rep. Signature:** | **Print** | Kimberly Lemira | **Sign** | | **Date** Nov 27-18 |
| **Contractor Signature:** | **Print** | Chris Cook | **Sign** | | **Date** Nov 27/18 |

# Field Service Report

Victoria Gold, Mayo, YK
MP1250 (Serial # MP1250122)
MP1250 Main frame installation

Customer PO: SC325
Metso Job Number: 20312043
Site visit: November 21-30, 2018

by
Kim Lee Lemire
Field Service Representative
Kimlee.lemire@metso.com

January 3, 2019

Metso Minerals Canada Inc.
795 George V, Lachine, QC H8S 2R9

# Customer contacts




**Calvin Goldschmidt**
**Project Manager**

Cell **(604) 377-4522**

email calving@jdsmining.ca
web jdsmining.ca

# Introduction

This report summarizes the work that was performed by the Metso Field Service Representative during a Metso Field Service Visit.

Details of the day-to-day functions can be found in Appendix A (Time Sheets). Data taken on site during the visit is included in Appendix B (Data Sheets).

To arrange a Metso Field Service Visit or for any questions regarding this report, please use the following address:

Metso Minerals Canada, Field Service Department

795 George V, Lachine, QC H8S 2R9

Tel: 514-485-4134

e-mail: francois.chabot@metso.com

# Purpose of visit

- To perform the installation of the sole plate and main frame on crusher base.

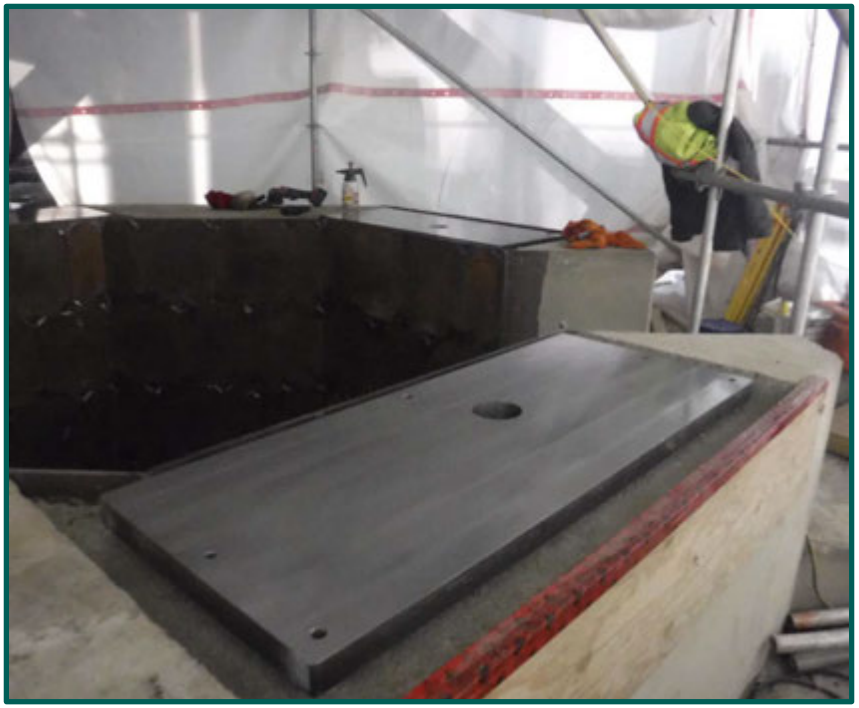
# History and scope of work

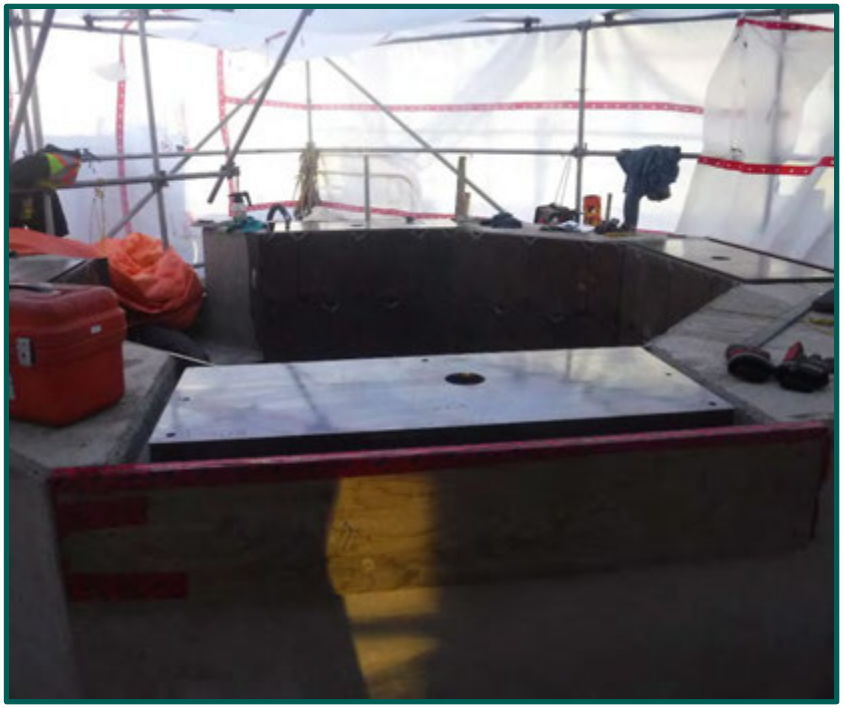
- Installation of sole plates
- Grouting of sole plates
- Installation of main frame
- Installation of adjustment ring

# Visit details and findings – special findings

- Some of the sole plates were found to be out of specifications.
- Even after machining, most sole plates were still banana shaped.

# Installation





The surface flatness of 3 of the 4 sole plates on #3 tertiary crusher was not acceptable. A total of 6 sole plates were sent to the machine shop to be machined. Once 3 sole plates were back from the machine shop, they were installed with the remaining sole plate.



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# Sole plates



1.1



1.2



1.3

Pictures 1.1 and 1.2 shows the condition of the sole plates before they were sent to the machine shop. The ridge between the cutting tool passes were up to 0.009” thick. Picture 1.3 is the result after they were machined at Quantum Machining Work in Whitehorse.



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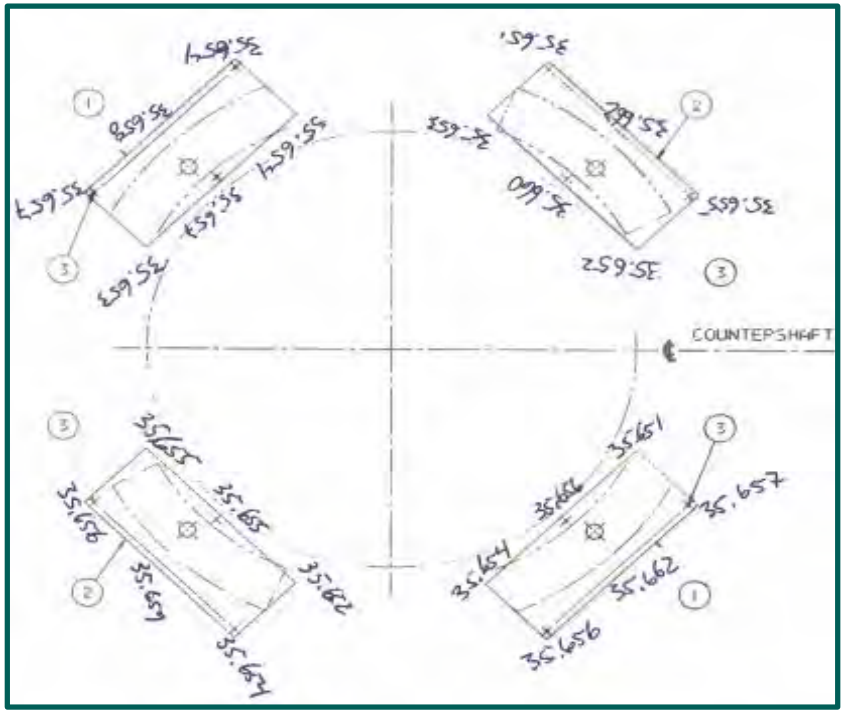
# Tertiary crusher sole plates






The elevations were recorded on the sole plate drawing for records. As we can see, the sole plates were 0.001” over the 0.010” elevation tolerances. 0.011” was the best we could do, it seems that with the temperature change from transportation from Whitehorse to site caused the plate to deform like the other 2 sets of sole plates.

# Grouting of sole plates





The grout was poured once the concrete was up to temperature. A grout form was filled to ensure that all the parameters of the grout and preparation were respected before grout was poured. Once ready the grout was mixed and poured in multiple stages since this product only allow us to pour 1.5” at a time.



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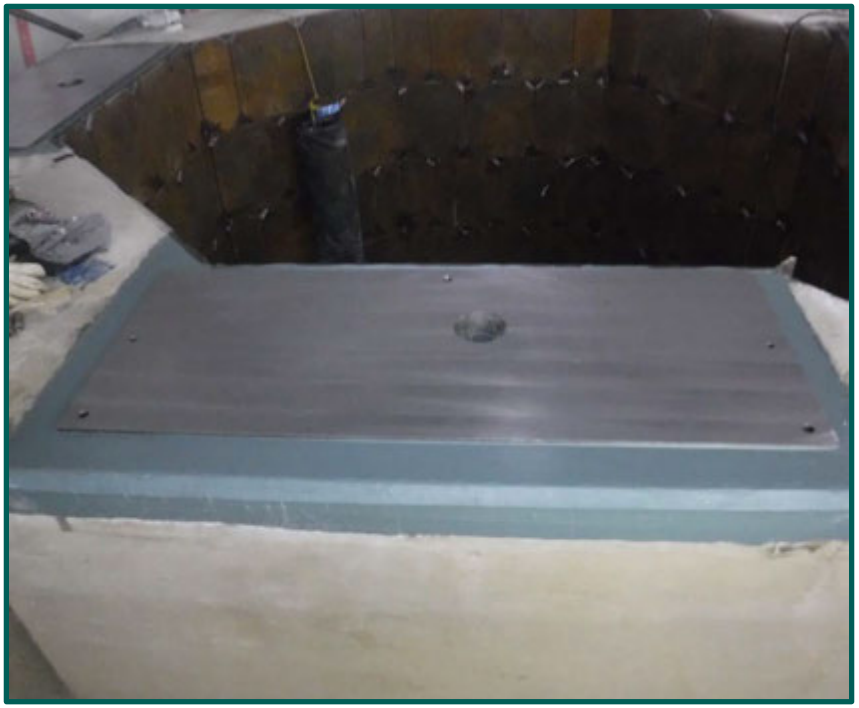
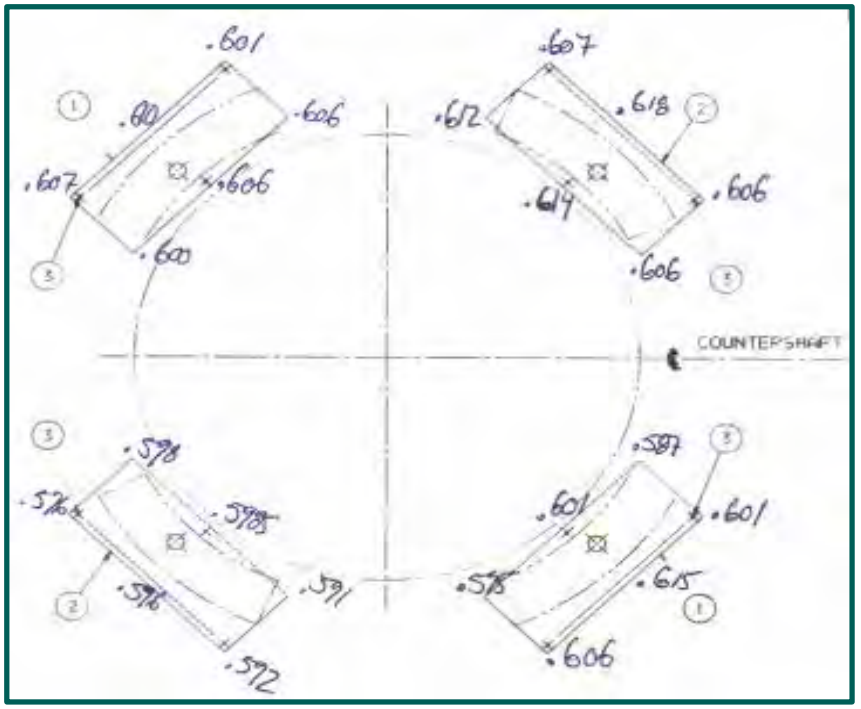
# Final recording




.601
.607
.606
.607
.606
.606
.606

# Main frame installation





Before the main frame was installed, it was cleaned from the rust protective agent and loaded on the truck ready to be transported to the secondary crusher area. After a pre-lift meeting was conducted, the frame was lifted and once it was close above the sole plates, the anchor bolts were engaged in their holes to help guide the main frame in position. Before the main frame was set on the sole plates, it was lowered on wooden blocks 12 inches away from the sole plates. The sole plates and crusher machined pads were once more cleaned from any debris and the crusher was set on the sole plates.



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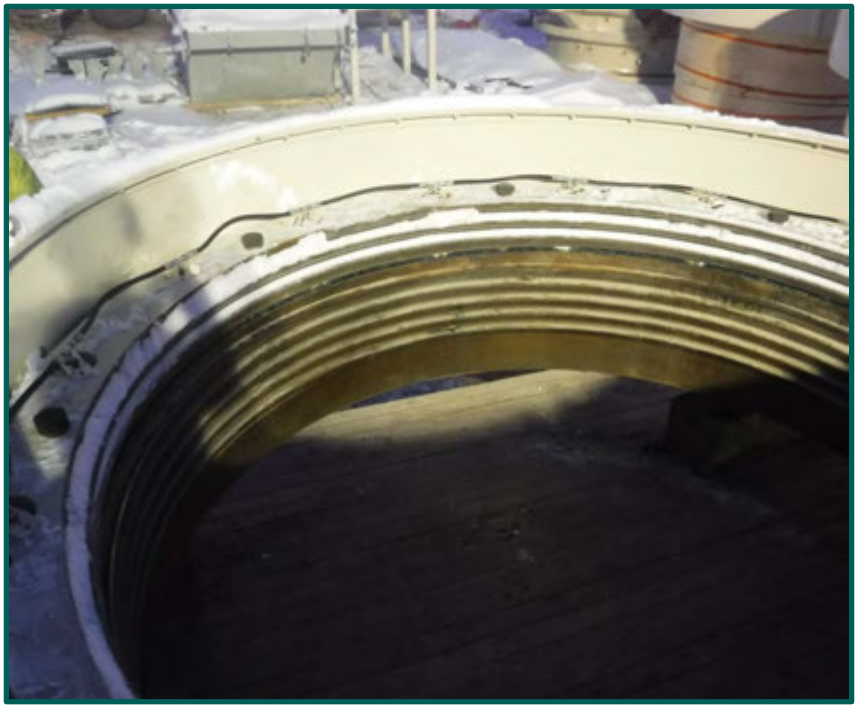
# Adjustment ring assembly





While the grout was curing, both clamping rings and adjustment ring were clean and assembled. In order to assemble both rings, the clamping cylinders were installed along with the hoses. Once the clamping ring is assembled, 8 bolts with spacer tubes were installed to secure the clamping ring on the adjustment ring. The bolts are going to be torqued to specification later on during the assembly of the crusher.



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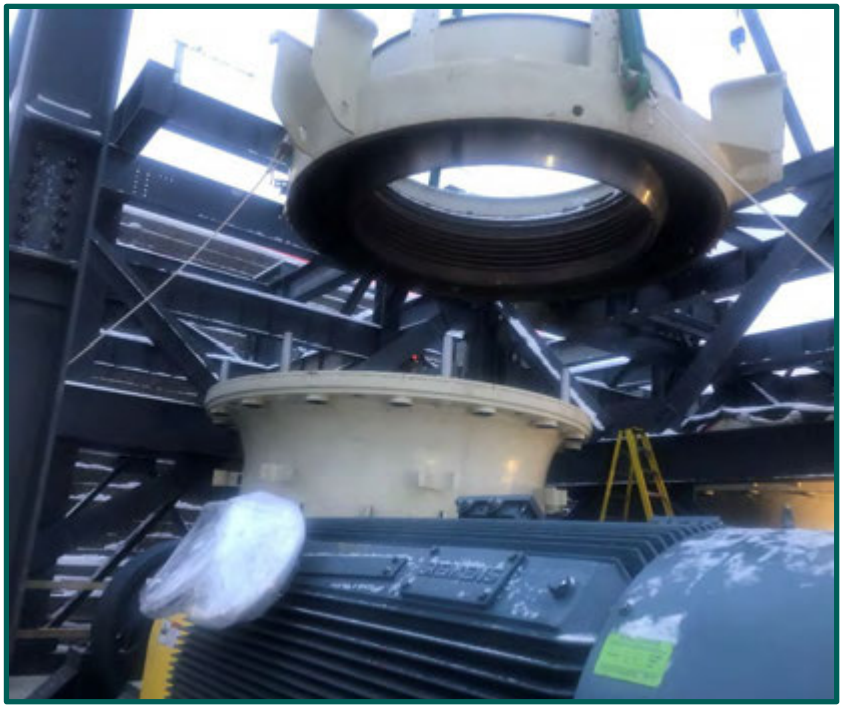
# Adjustment ring





Once the crusher was set on the sole plates, the main frame seat liner were greased with a 3% Moly base grease before the adjustment ring was installed. The adjustment ring was lifted from the same location as the main frame. Once the adjustment ring was on top of the crusher, it was properly aligned with the crusher main frame and set on the main frame seat liners.



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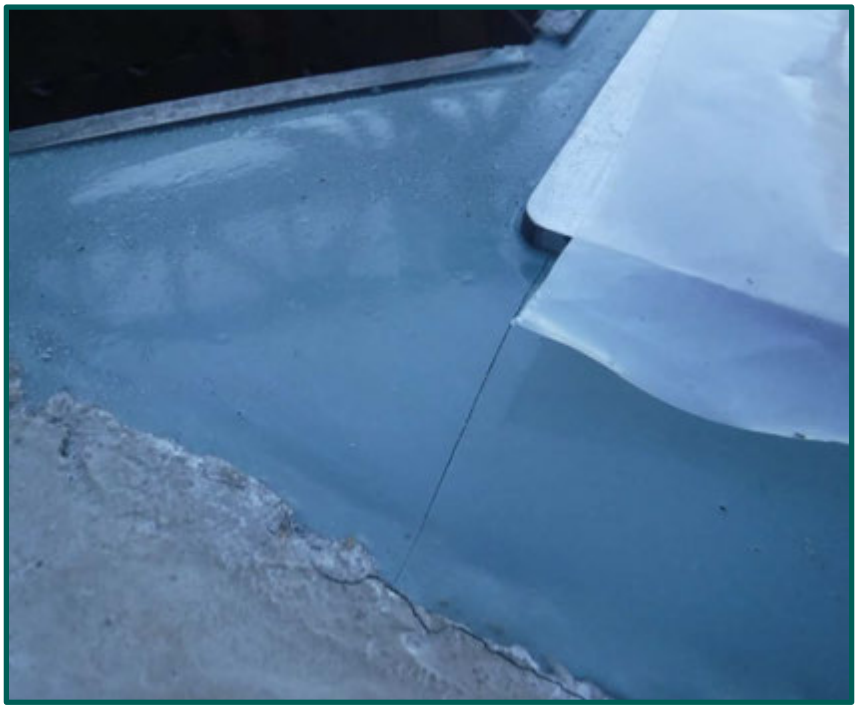
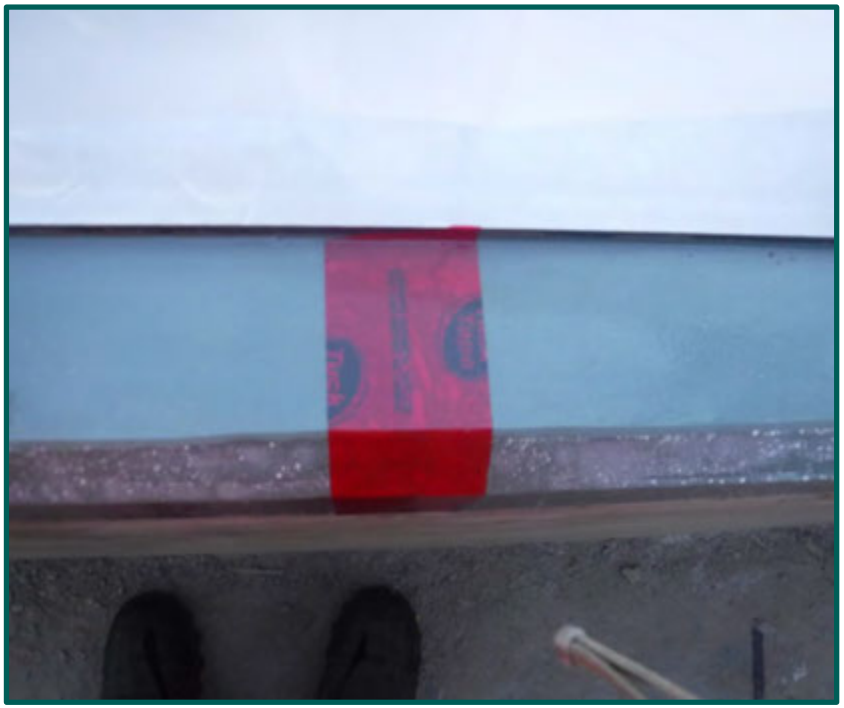
# Grout after cure





As per mention in the secondary crusher service report, cracks were also found in tertiary crusher #1 grout. The cracks will be repaired as per supplier recommendation when the ambient temperature and conditions can be controlled. Cracks were covered with tape to prevent water infiltration.



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# Conclusion and recommendations

- Sole plates could not be set properly due to unknown factor that made them warp during the grout curing process
- Cracks in grout will have to be repaired as per supplier recommendation when environment can be controlled.



metso

# Future work

- Clamping ring bolt still needs to be torqued.
- Setting up soft foot and assembly of the crusher.

# Appendix A

## Time Sheets

**FEUILLE DE TEMPS HEBDOMADAIRE**
**WEEKLY TIME SHEET**

| | | | |
|---|---|---|---|
| CLIENT / CUSTOMER | **Victoria Gold (JDS)** | # BON DE SERVICE / SERVICE ORDER # | **20312043** |
| SITE DU PROJET / PROJECT SITE | **Eagle Gold** | REPRESENTANT / REPRESENTATIVE | **KIM LEE LEMIRE** |
| EQUIPEMENT / EQUIPMENT | **MP12500** | # SERIE DE L'EQUIP. EQUIP. SERIAL NO. | **MP1250118-119-120-122** |

| | |
|---|---|
| TRAVAUX / SCOPE | |

Semaine/Week: 19-Nov-17

| JOUR / DAY | DATE | VOYAGEMENT TRAVEL | ATTENTE LAYOVER | REGULIER STAIGHT | TEMPS + DEMI TIME + HALF | TEMPS DOUBLE DOUBLE TIME | BUREAU OFFICE | TOTAL | Un instant / Take 5 | Risques / Risk Observations | Quasi Accident / Near Miss | Inspection | NOTES: |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Preparation | | | | | | | | | | | | | |
| Lundi / Monday | 19-Nov-17 | 4.0 | 6.0 | | | | | 10.0 | | | | | |
| Mardi / Tuesday | 20-Nov-17 | 14.0 | | | | | | 14.0 | | | | | |
| Mercredi / Wednesday | 21-Nov-17 | 3.0 | | 8.0 | 1.0 | | | 12.0 | | | | | |
| Jeudi / Thursday | 22-Nov-17 | 6.0 | | 4.0 | | | | 10.0 | | | | | |
| Vendredi / Friday | 23-Nov-17 | | | 8.0 | 2.0 | | | 10.0 | | | | | |
| Samedi / Saturday | 24-Nov-17 | 6.0 | | 7.5 | | | | 13.5 | | | | | |
| Dimanche / Sunday | 25-Nov-17 | | | 8.0 | 4.0 | | | 12.0 | | | | | |
| Rapport / Report | | | | | | | | | | | | | |
| **TOTAL** | | 33.0 | 6.0 | 35.5 | 7.0 | 0.0 | 0.0 | 81.5 | | | | | |

| **SIGNATURE DU CLIENT - PERSONNE AUTORISE / SIGNATURE OF CUSTOMER OR SITE-AUTHORIZED:** | **DATE** | **SIGNATURE DU REPRESANTANT METSO / SIGNATURE OF METSO SERVICE REP.:** | **DATE** |
|---|---|---|---|
| | | | |

***JOURNAL QUOTIDIEN - PROGRÈS: / DAILY LOG - PROGRESS:***

| | |
|---|---|
| Lundi / Monday | Travelled to the airport, flight was delayed 2 times before it was cancelled. Rebooked for the next day and travelled back home. |
| Mardi / Tuesday | Travelled from home to Whitehorse |
| Mercredi / Wednesday | Travelled from Whitehorse to Mayo, Chris Gardner picked me up and the airport and we drove to site. Arrived on site I meet up with JDS and went over the crusher so look at the sole plates. The secondary crusher sole plates elevation was reviewed along with #1 tertiary crusher. The machining of some sole plates was not up to our specification and will be sent to get machined. Most of the sole plates are banana shaped. |
| Jeudi / Thursday | Oversee machining of sole plates. |
| Vendredi / Friday | Machine shop in Whitehorse finished 3 sole plates before the end of their shift, loaded the sole plates on the truck. |
| Samedi / Saturday | Drove back to mine site, installed sole plates for tertiary crusher #3 and level them up. |
| Dimanche / Sunday | The sole plates and concrete temperature was normalized when we arrive at the beginning of the shift, we proceeded to the final levelling of the sole plates and poured the grout, the main frame of the secondary crusher was cleaned and prepared for transportation. |

**Metso Minerals Canada Inc. 795 George V, Lachine, Québec, H8S 2R9**
Tel. 514-485-4000, Fax 514-485-4210, www.metso.com

# FEUILLE DE TEMPS HEBDOMADAIRE
# WEEKLY TIME SHEET

| | | | |
|---|---|---|---|
| CLIENT / CUSTOMER | **Victoria Gold (JDS)** | # BON DE SERVICE / SERVICE ORDER # | **20312043** |
| SITE DU PROJET / PROJECT SITE | **Eagle Gold** | REPRESENTANT / REPRESENTATIVE | **KIM LEE LEMIRE** |
| EQUIPEMENT / EQUIPMENT | **MP12500** | # SERIE DE L'EQUIP. EQUIP. SERIAL NO. | **MP1250118-119-120-122** |

| | |
|---|---|
| TRAVAUX / SCOPE | |

Semaine/Week: 10-Dec-17

| JOUR / DAY | DATE | VOYAGEMENT TRAVEL | ATTENTE LAYOVER | REGULIER STAIGHT | TEMPS + DEMI TIME + HALF | TEMPS DOUBLE DOUBLE TIME | BUREAU OFFICE | TOTAL | Un instant / Take 5 | Risques / Risk Observations | Quasi Accident / Near Miss | Inspection | NOTES: |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Preparation | | | | | | | | | | | | | |
| Lundi / Monday | 10-Dec-17 | 6.0 | | 6.0 | | | | 12.0 | | | | | |
| Mardi / Tuesday | 11-Dec-17 | | | 8.0 | 4.0 | | | 12.0 | | | | | |
| Mercredi / Wednesday | 12-Dec-17 | | | 8.0 | 4.0 | | | 12.0 | | | | | |
| Jeudi / Thursday | 13-Dec-17 | | | 8.0 | 4.0 | | | 12.0 | | | | | |
| Vendredi / Friday | 14-Dec-17 | | | 8.0 | 4.0 | | | 12.0 | | | | | |
| Samedi / Saturday | 15-Dec-17 | | | | 12.0 | | | 12.0 | | | | | |
| Dimanche / Sunday | 16-Dec-17 | 14.0 | | | | | | 14.0 | | | | | |
| Rapport / Report | | | | | | | | | | | | | |
| | **TOTAL** | 20.0 | 0.0 | 38.0 | 28.0 | 0.0 | 0.0 | 86.0 | | | | | |

| **SIGNATURE DU CLIENT - PERSONNE AUTORISE / SIGNATURE OF CUSTOMER OR SITE-AUTHORIZED:** | **DATE** | **SIGNATURE DU REPRESANTANT METSO / SIGNATURE OF METSO SERVICE REP.:** | **DATE** |
|---|---|---|---|
| | | | |

| ***JOURNAL QUOTIDIEN - PROGRÈS: / DAILY LOG - PROGRESS:*** | |
|---|---|
| Lundi / Monday | Travelled from white horse to site and started preparing for first day. |
| Mardi / Tuesday | See email resume of site visits sent out Tue 2018-12-18 4:01 PM for details. |
| Mercredi / Wednesday | See email resume of site visits sent out Tue 2018-12-18 4:01 PM for details. |
| Jeudi / Thursday | See email resume of site visits sent out Tue 2018-12-18 4:01 PM for details. |
| Vendredi / Friday | See email resume of site visits sent out Tue 2018-12-18 4:01 PM for details. |
| Samedi / Saturday | See email resume of site visits sent out Tue 2018-12-18 4:01 PM for details. |
| Dimanche / Sunday | Travelling from site to Vancouver, flight was delayed arrived in Vancouver late evening. |

**Metso Minerals Canada Inc. 795 George V, Lachine, Québec, H8S 2R9**

Tel. 514-485-4000, Fax 514-485-4210, www.metso.com

metso

# FEUILLE DE TEMPS HEBDOMADAIRE
# WEEKLY TIME SHEET

| | | | |
|---|---|---|---|
| CLIENT / CUSTOMER | **Victoria Gold (JDS)** | # BON DE SERVICE / SERVICE ORDER # | **20312043** |
| SITE DU PROJET / PROJECT SITE | **Eagle Gold** | REPRESENTANT / REPRESENTATIVE | **KIM LEE LEMIRE** |
| EQUIPEMENT / EQUIPMENT | **MP12500** | # SERIE DE L'EQUIP. EQUIP. SERIAL NO. | **MP1250118-119-120-122** |

| | |
|---|---|
| TRAVAUX / SCOPE | |

Semaine/Week: 17-Dec-17

| JOUR / DAY | DATE | VOYAGEMENT TRAVEL | ATTENTE LAYOVER | REGULIER STAIGHT | TEMPS + DEMI TIME + HALF | TEMPS DOUBLE DOUBLE TIME | BUREAU OFFICE | TOTAL | Un instant / Take 5 | Risques / Risk Observations | Quasi Accident / Near Miss | Inspection | NOTES: |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Preparation | | | | | | | | | | | | | |
| Lundi / Monday | 17-Dec-17 | 14.0 | | | | | | 14.0 | | | | | |
| Mardi / Tuesday | 18-Dec-17 | | | | | | | 0.0 | | | | | |
| Mercredi / Wednesday | 19-Dec-17 | | | | | | | 0.0 | | | | | |
| Jeudi / Thursday | 20-Dec-17 | | | | | | | 0.0 | | | | | |
| Vendredi / Friday | 21-Dec-17 | | | | | | | 0.0 | | | | | |
| Samedi / Saturday | 22-Dec-17 | | | | | | | 0.0 | | | | | |
| Dimanche / Sunday | 23-Dec-17 | | | | | | | 0.0 | | | | | |
| Rapport / Report | | | | | | | | | | | | | |
| | **TOTAL** | 14.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 14.0 | | | | | |

| **SIGNATURE DU CLIENT - PERSONNE AUTORISE / SIGNATURE OF CUSTOMER OR SITE-AUTHORIZED:** | **DATE** | **SIGNATURE DU REPRESANTANT METSO / SIGNATURE OF METSO SERVICE REP.:** | **DATE** |
|---|---|---|---|
| | | | |

***JOURNAL QUOTIDIEN - PROGRÈS: / DAILY LOG - PROGRESS:***

| | |
|---|---|
| Lundi / Monday | Traveled from Vancouver to Home. |
| Mardi / Tuesday | |
| Mercredi / Wednesday | |
| Jeudi / Thursday | |
| Vendredi / Friday | |
| Samedi / Saturday | |
| Dimanche / Sunday | |

**Metso Minerals Canada Inc. 795 George V, Lachine, Québec, H8S 2R9**

Tel. 514-485-4000, Fax 514-485-4210, www.metso.com

# Appendix B

## Data Sheets

## Mine Construction & Mine Project Specialists

CWB + COR certified + Construction + Demolition + Cranes + Millwrighting + Welding

600 Exeter Station Rd
Box 1914 100 Mile House BC V0K 2E0
Phone 250 395 1288 Fax 250 395 1280 Email bpcontracting@live.ca


EX-B9-1

# GROUT PLACEMENT RECORD

| | |
|---|---|
| **Project:** Victoria Gold | **Project No.:** CM-02 |
| **Contractor:** BPC | **Date:** 12-12-2018 |
| **Equipment No.:** MP1250 122 | |
| **Description:** Tertiary #3 | **Drawing No.:** FND 1250122 |
| **Ambient Temperature at time of Placement:** Avg 72°F | **Grout Manufacturer:** Unisorb |
| **Type of Grout:** ☐ Cementitious, ☒ Polymer (Epoxy) | **Grout Product:** V-100 |

| Item | Installation Check (Verify) | REJECT | ACCEPT | N/A |
|---|---|---|---|---|
| 1 | Pads, Foundations, Anchor Bolts and Equipment are in the proper location and have been completed and accepted? | | ✓ | |
| 2 | The area to be grouted has been properly prepared by exposing sound concrete. | | ✓ | |
| 3 | The surfaces to be grouted have been properly cleaned and prepared. | | ✓ | |
| 4 | The proper type grout is being used for this specific application. | | ✓ | |
| 5 | The formwork is adequate and in accordance with the manufacturer's recommendations. | | ✓ | |
| 6 | Cementitious Grout: The surface to be grouted has been saturated with water in accordance with the manufacturer's recommendations. | | | ✓ |
| 7 | Polymer (Epoxy) Grout: The surfaces to be grouted are dry. | | ✓ | |
| 8 | The bonding agent has been applied per the recommendations of the grout manufacturer. | | | ✓ |
| 9 | The mixing and placement of grout is in accordance with the grout manufacturer's recommendations. | | ✓ | |
| 10 | The temperature on the surfaces to be grouted and the temperature of the grout are as recommended by the grout manufacturer. | | ✓ | |
| 11 | The visible bearing areas have been grouted adequately. | | ✓ | |
| 12 | Test cubes taken by third party. | | ✓ | |
| 13 | (If Applicable) _____ | | | |

**Comments:** _____

| | | | | | |
|---|---|---|---|---|---|
| **Client Signature:** | **Print** Terry Christmas | **Sign** | | **Date** | Dec. 12/18 |
| **Vendor Rep. Signature:** | **Print** Kimber Lemire | **Sign** | | **Date** | 12/12/2018 |
| **Contractor Signature:** | **Print** Chris Cook | **Sign** | | **Date** | 12/12/18 |

## Mine Construction & Mine Project Specialists

**CWB + COR certified + Construction + Demolition + Cranes + Millwrighting + Welding**

**600 Exeter Station Rd**
**Box 1914 100 Mile House BC V0K 2E0**
**Phone 250 395 1288 Fax 250 395 1280 Email bpcontracting@live.ca**


EX-B9-1

# GROUT PLACEMENT RECORD

| | |
|---|---|
| **Project:** Victoria Gold | **Project No.:** CM-02 |
| **Contractor:** BPC | **Date:** 12-12-2018 |
| **Equipment No.:** MP1250 122 | |
| **Description:** Tertiary #3 | **Drawing No.:** FND 1250122 |
| **Ambient Temperature at time of Placement:** Avg 72°F | **Grout Manufacturer:** Unisorb |
| **Type of Grout:** ☐ Cementitious, ☒ Polymer (Epoxy) | **Grout Product:** V-100 |

| Item | Installation Check (Verify) | REJECT | ACCEPT | N/A |
|---|---|---|---|---|
| 1 | Pads, Foundations, Anchor Bolts and Equipment are in the proper location and have been completed and accepted? | | ✓ | |
| 2 | The area to be grouted has been properly prepared by exposing sound concrete. | | ✓ | |
| 3 | The surfaces to be grouted have been properly cleaned and prepared. | | ✓ | |
| 4 | The proper type grout is being used for this specific application. | | ✓ | |
| 5 | The formwork is adequate and in accordance with the manufacturer's recommendations. | | ✓ | |
| 6 | Cementitious Grout: The surface to be grouted has been saturated with water in accordance with the manufacturer's recommendations. | | | ✓ |
| 7 | Polymer (Epoxy) Grout: The surfaces to be grouted are dry. | | ✓ | |
| 8 | The bonding agent has been applied per the recommendations of the grout manufacturer. | | | ✓ |
| 9 | The mixing and placement of grout is in accordance with the grout manufacturer's recommendations. | | ✓ | |
| 10 | The temperature on the surfaces to be grouted and the temperature of the grout are as recommended by the grout manufacturer. | | ✓ | |
| 11 | The visible bearing areas have been grouted adequately. | | ✓ | |
| 12 | Test cubes taken by third party. | | ✓ | |
| 13 | (If Applicable) _____ | | | |

**Comments:** _____

| | | | | | |
|---|---|---|---|---|---|
| **Client Signature:** | **Print** Jerry Chrzanowski | **Sign** | | **Date** | Dec. 12/18 |
| **Vendor Rep. Signature:** | **Print** Kimber Lemire | **Sign** | | **Date** | 12/12/2018 |
| **Contractor Signature:** | **Print** Chris Cook | **Sign** | | **Date** | 12/12/18 |

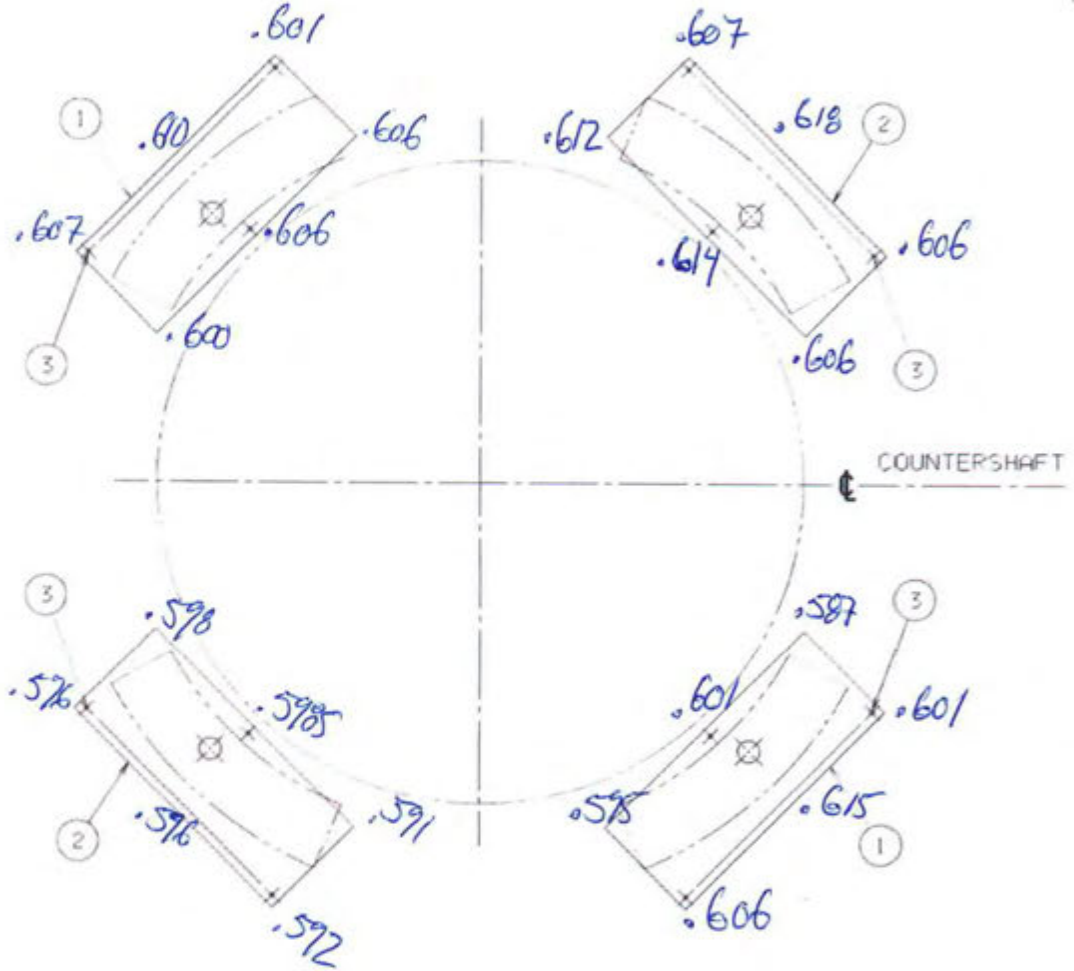
Test #3 After pour

NO. 110-94300611

ALL INFORMATION CONTAINED ON THIS DRAWING IS CONSIDERED TO BE BOTH CONFIDENTIAL AND PROPRIETARY BY METSO MINERALS (MILWAUKEE) INC. NO USE OR REPRODUCTION THEREOF MAY BE MADE WITHOUT THE EXPRESS WRITTEN CONSENT OF METSO MINERALS (MILWAUKEE) INC.

BILL OF MATERIAL

| ITEM NO. | PART NUMBER | QTY REQ | PART NAME | DWG SIZE | WT. EACH KG |
|---|---|---|---|---|---|
| | 1094300611 | | SOLE PLATE ASSY | | 1088 |
| (1) | 1057526220 | 2 | SOLE PLATE | A3 | 272 |
| (2) | 1057526221 | 2 | SOLE PLATE | A3 | 272 |
| (3) | 1002993014 | 12 | SOC HD SETSCREW M20x60 | - | |




SURFACE PREPARATION, CLEANING AND PAINTING SYMBOLS ACCORDING TO COMPANY STANDARD 03-01-01.

CAD STORED. DO NOT CHANGE MANUALLY

DUAL DIMEN | mm / inches"

IMPLIED TOLERANCES FINISHED DIMENSIONS

MILLIMETRES: XXX. (≥500) ±1; XXX. (<500) ±1.5; .X ±0.5; .XX ±0.13

INCHES: .XX (±19.68) ±.12; .XX (<19.68) ±.06; .XXX ±.020; .XXXX ±.005

125 MACHINE FINISH UNLESS OTHERWISE STATED

ANGLE TOLERANCE COMPANY STD 02-02-13

3RD ANGLE PROJECTION

metso minerals

Metso Minerals Inc.
3075 S. Chase Ave
Milwaukee, WI 53207

| | | | |
|---|---|---|---|
| DRAWN MRM DATE 23AUG99 | SUPERSEDES | ASSEMBLY | GR 38 |
| CHKD APE DATE 23AUG99 | SUPERSEDED BY | | CRUSHER |
| APPD JJL DATE 23AUG99 | PRODUCT | MP1000 | |

DESCRIPTION

PART NAME: SOLE PLATE ASSY

| DWG SIZE | PREFIX | DRAWING NUMBER | SUFFIX | REV. |
|---|---|---|---|---|
| A2 | 110 | 94300611 | | 00 |

SCALE 1:16

| MF | REV. | DESCRIPTION OF CHANGE | LOC. | BY DATE | END ORDER NUMBER |
|---|---|---|---|---|---|
| | - | ISSUED | MRM 23AUG99 | | 101167 |

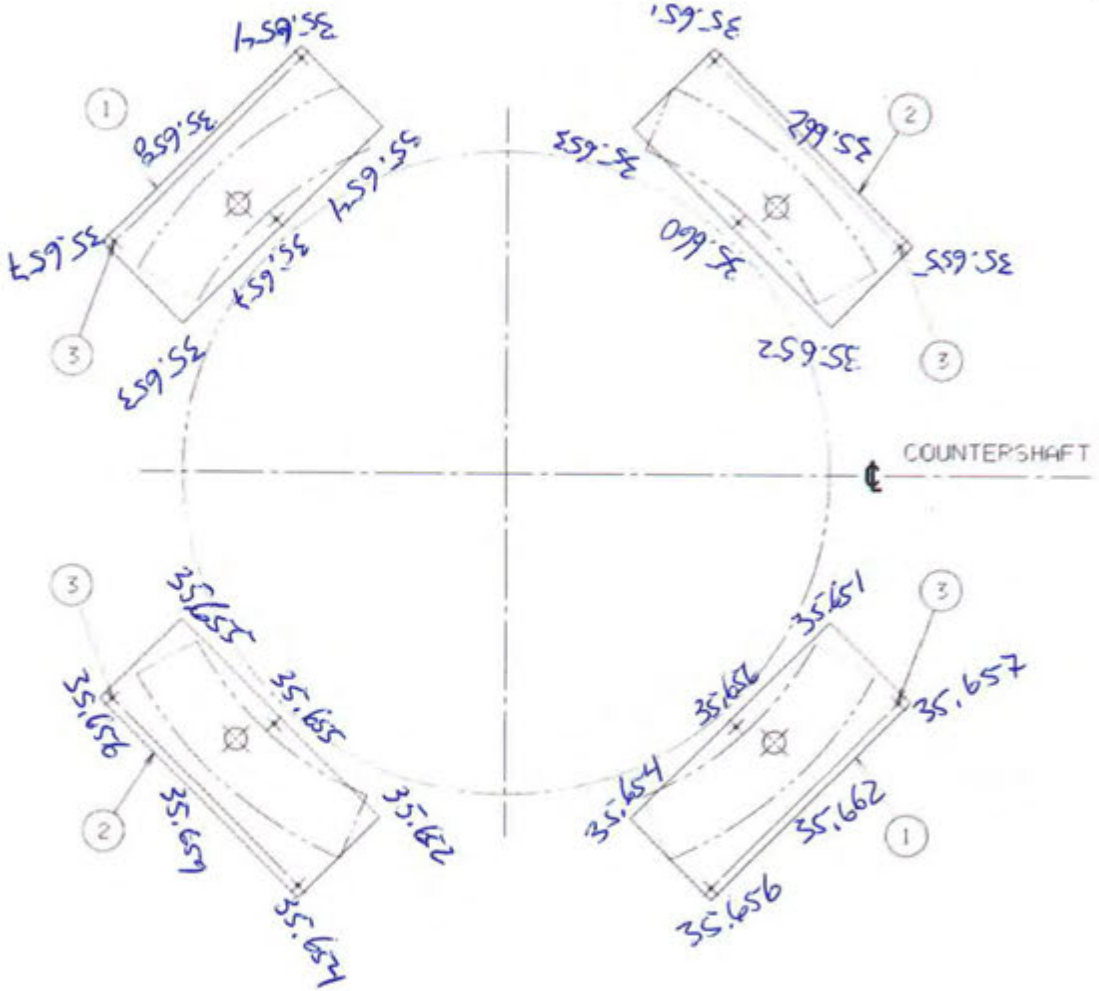
INSERT #3 PRE-POUR

NO. 110-94300611

ALL INFORMATION CONTAINED ON THIS DRAWING IS CONSIDERED TO BE BOTH CONFIDENTIAL AND PROPRIETARY BY METSO MINERALS (MILWAUKEE) INC. NO USE OR REPRODUCTION THEREOF MAY BE MADE WITHOUT THE EXPRESS WRITTEN CONSENT OF METSO MINERALS (MILWAUKEE) INC.

BILL OF MATERIAL

| ITEM NO. | PART NUMBER | QTY REQ | PART NAME | DWG SIZE | WT. EACH KG |
|---|---|---|---|---|---|
| | 1094300611 | | SOLE PLATE ASSY | | 1088 |
| (1) | 1057526220 | 2 | SOLE PLATE | A3 | 272 |
| (2) | 1057526221 | 2 | SOLE PLATE | A3 | 272 |
| (3) | 1002993014 | 12 | SOC HD SETSCREW M20x60 | - | |




SURFACE PREPARATION, CLEANING AND PAINTING SYMBOLS ACCORDING TO COMPANY STANDARD 03-01-01.

| MF | REV. | DESCRIPTION OF CHANGE | LOC. | BY DATE | ENG. ORDER NUMBER |
|---|---|---|---|---|---|
| | - | ISSUED | MHH 23AUG99 | | 101167 |

CAD STORED. DO NOT CHANGE MANUALLY

DUAL DIMEN | mm / inches"

IMPLIED TOLERANCES FINISHED DIMENSIONS

MILLIMETRES: XXX. (≥500) ±1; XXX. (<500) ±1.5; .X ±0.5; .XX ±0.13

INCHES: .XX (±19.68) ±.12; .XX (±19.68) ±.06; .XXX ±.020; .XXXX ±.005

125 MACHINE FINISH UNLESS OTHERWISE STATED

ANGLE TOLERANCE COMPANY STD 02-02-13

3RD ANGLE PROJECTION

SCALE 1:16

metso minerals

Metso Minerals Inc.
3073 S. Chase Ave.
Milwaukee, WI 53207

| | | | |
|---|---|---|---|
| DRAWN MHH DATE 23AUG99 | SUPERSEDES | ASSEMBLY | GR 38 |
| CHKD APE DATE 23AUG99 | SUPERSEDED BY | | CRUSHER |
| APPD JJL DATE 23AUG99 | PRODUCT | MP1000 | |

DESCRIPTION

PART NAME: SOLE PLATE ASSY

| DWG SIZE | DRAWING NUMBER PREFIX | CODE | SUFFIX | REV. |
|---|---|---|---|---|
| A2 | 110 | 94300611 | | 00 |

MATERIAL TEST REPORTS FOR THE FOLLOWING ARE AVAILABLE UPON REQUEST:

- ANGLE MATERIAL
- CHANNEL MATERIAL
- PLATE MATERIAL
- WIDE FLANGE MATERIAL
- ROUND BAR MATERIAL
- BOLT MATERIAL
- HSS TUBE - COLD FORMED

# EAGLE GOLD PROJECT

## WATER MANAGEMENT INFRASTRUCTURE CONSTRUCTION REPORT

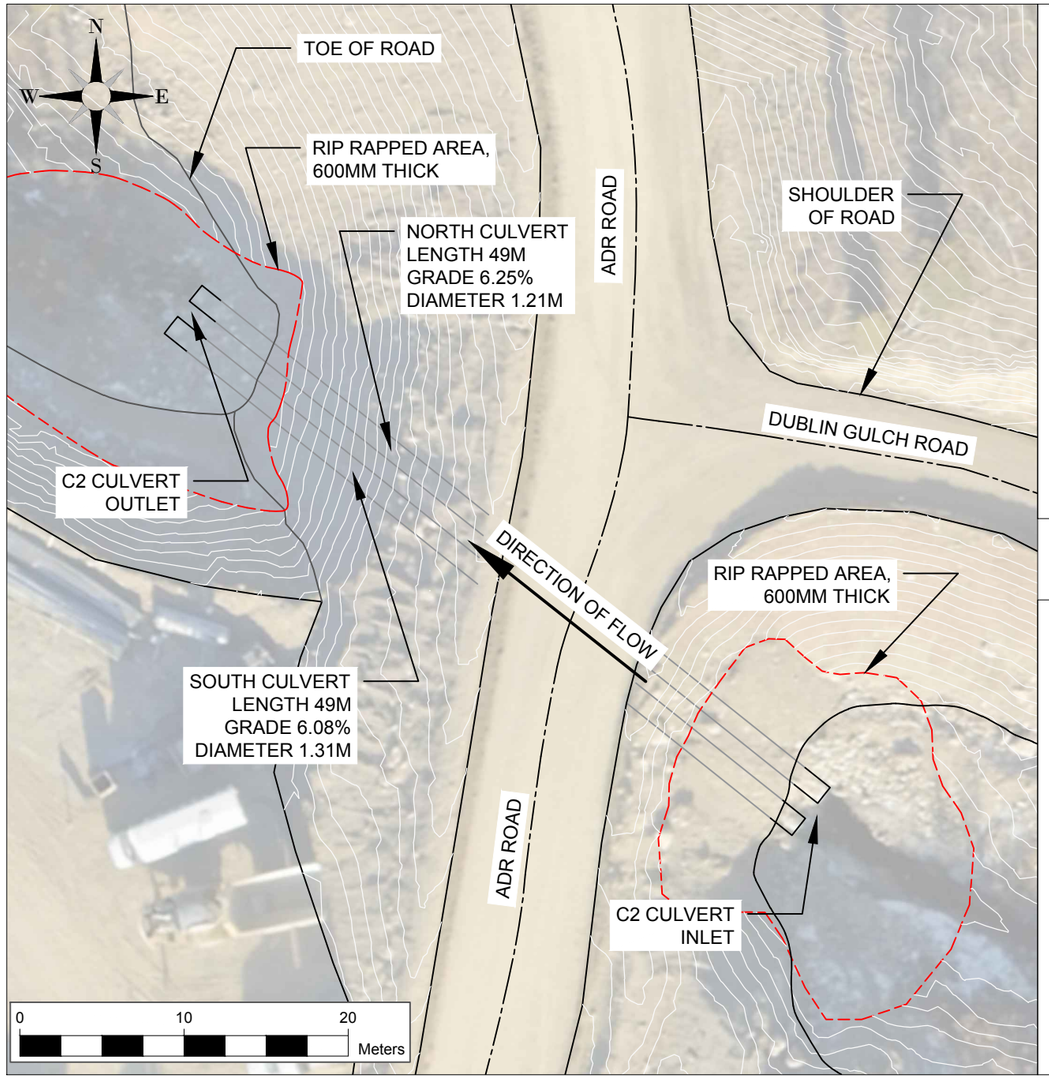
*MARCH 2018*

## List of Attachments

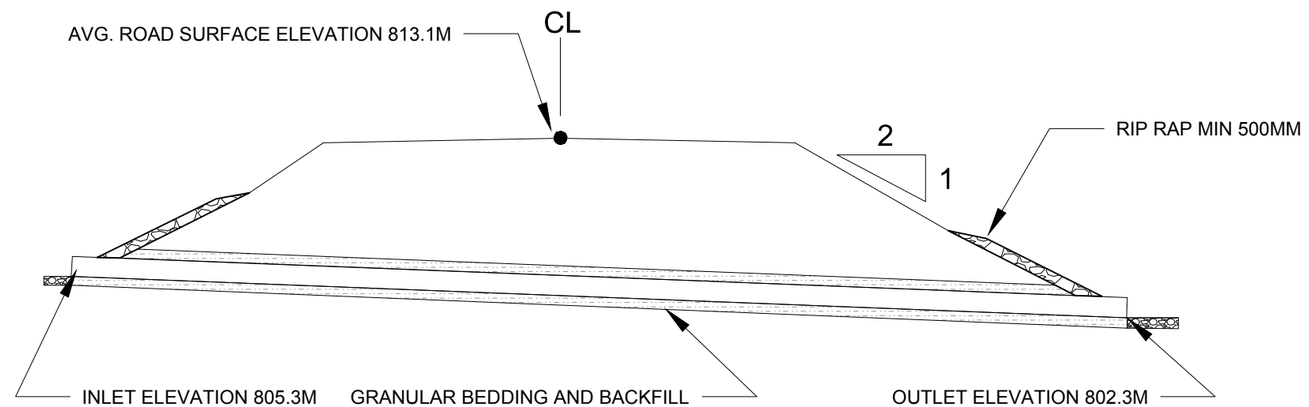
Attachment A Record Drawings

# ATTACHMENT A

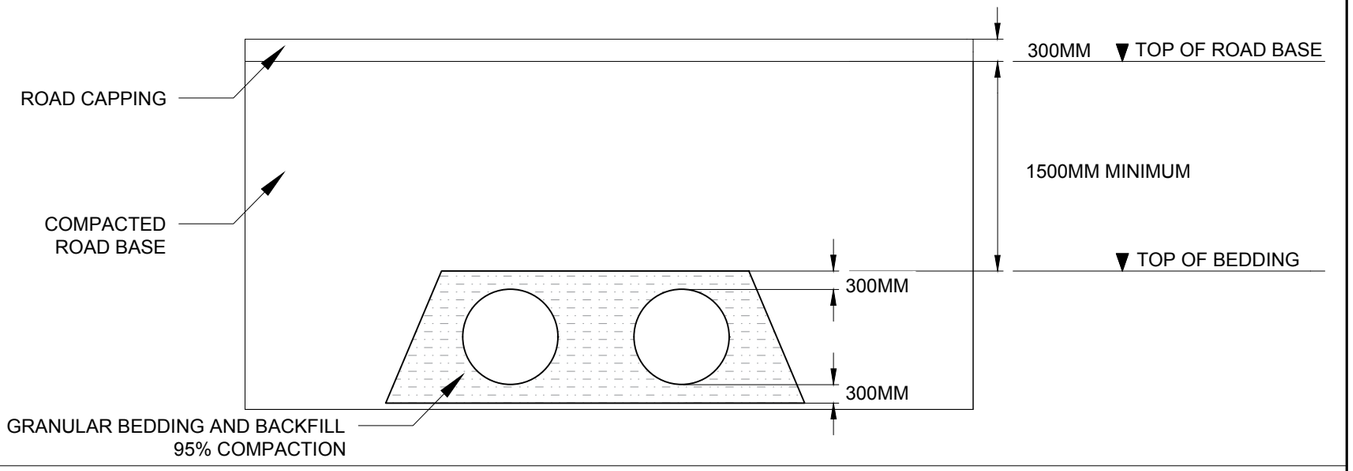
## Record Drawings




CULVERT CROSSING PLAN VIEW




ROAD CROSS SECTION LOOKING NORTH




CULVERT CROSS SECTIONS

REFERENCE DRAWINGS

| NO. | DWG NO. | TITLE |
|---|---|---|
| | | |

NOTES:

DRAWING REVISION

| NO. | DESCRIPTION | DATE |
|---|---|---|
| 0 | ASBUILT | 2018/12/06 |

| | NAME | DATE |
|---|---|---|
| DRAWN BY: | BF-JDS | 2018/12/06 |
| DESIGNED BY: | | YYYY/MM/DD |
| CHECKED BY: | | |
| APPROVED BY: | | YYYY/MM/DD |

JDS ENERGY & MINING PREPARED THIS DOCUMENT FOR THE EXCLUSIVE USE OF THE CLIENT. ANY USE BY THIRD PARTIES IS AT THEIR OWN RISK.

Victoria GOLD CORP

JDS Energy & Mining Inc.

EAGLE PROJECT
VICTORIA GOLD

DUBLIN CROSSING
CULVERT C2
AS-BUILT DRAWING

DWG NO. VICEAG05E-228-2300-0001

REV. 0

W:\V - 05 - Eng\P\220 CW\228 HYDROTECH\2300 Site Water MGMT\VICEAG05E-228-2300-0001-R0 - Dublin Gulch Crossing C2 Asbuilt_0.dwg Dec 09, 2018 - 7:28am

# EAGLE GOLD PROJECT

## PROCESS PLANT AREA CONSTRUCTION REPORT

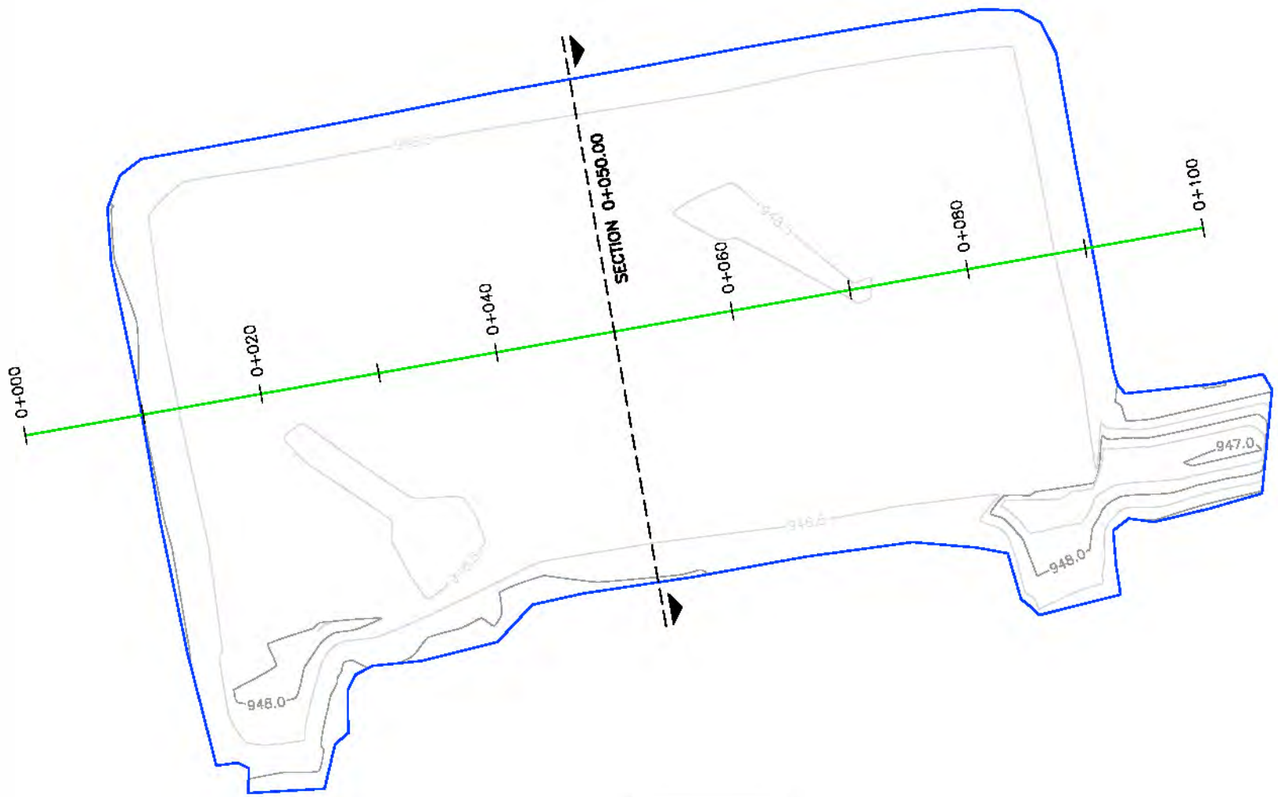
*MARCH 2018*

## List of Attachments

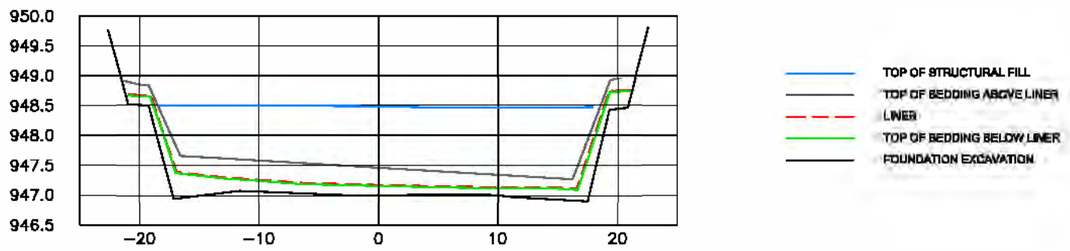
| | |
|---|---|
| Attachment A | Record Drawings |
| Attachment B | Request for Information Forms |
| Attachment C | Field Review Reports |
| Attachment D | Quality Control Inspection and Testing |

# ATTACHMENT A

## Record Drawings




0+050.00




REFERENCE DRAWINGS:

| NO. | DRAWING FILE: |
|---|---|
| 01 | VICEAG05E-220-2150-002 |

DRAWING NOTES:

1. AS-BUILT SURVEYS EXECUTED BETWEEN JUNE 26 AND JULY 20, 2018.
2. CONTOURS = 0.5m

ISSUES:

| REV. | YY/MM/DD | INIT. | DESCRIPTION |
|---|---|---|---|
| 0.0 | 19/07/23 | CB | ISSUED FOR INFORMATION |

CLIENT: Pelly Construction Ltd

eshemuta Construction Surveyors

PROJECT:

EAGLE GOLD MINE CONSTRUCTION

TITLE:

ADR PLANT PAD FOUNDATION FINAL AS-BUILT PLAN & SECTION

DRAWING SCALE:

H 1:500 V 1:100

| | |
|---|---|
| DATE: 19/07/23 | DWG No: 182150-004 |
| SURVEYED: BAX, CM, EJ | CHECKED: CB |
| DRAWN: BAX, CM, CB | APPROVED: |

DRAWING FILE: 180725 ADR PLANT PAD FOUNDATION FINAL AS-BUILT PLAN & SECTION.DWG

DRAWING VIEW: 11x17 Landscape

PROJECT NO.: 17003

SHEET: 001

DWG. No. H354138-2150-220-290-0002

GRID NORTH

459150 E | 459200 E | 459250 E | 459300 E

7101650 N | 7101600 N

ADR 1 947.20
ADR 2 947.20
ADR 3 948.70
ADR 4 948.70
ADR 5 949.20
ADR 6 949.33
ADR 7 948.74
ADR 8 948.77
ADR 9 948.77
ADR 10 947.06
ADR 11 947.06
ADR 12 947.16
ADR 13 949.45
ADR 14 949.46
ADR 15 947.30
ADR 16 948.20
ADR 17 948.20

ADR BUILDING
F.G. EL. 950.00

SLOPE

15% RAMP

HEAP LEACH PAD
(BY OTHERS)

HLF PERIMETER ROAD

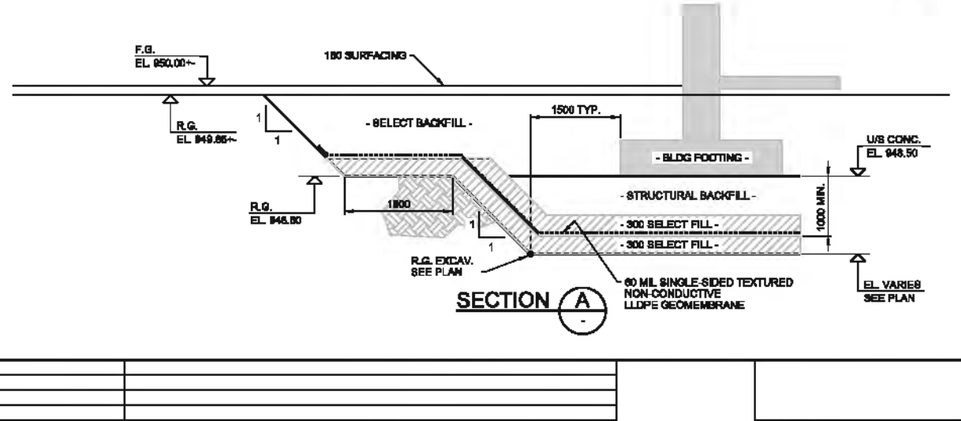
HLF EMBANKMENT

PROVIDE 600x600 ANCHOR TRENCH FOR ADR LINER PAD AT EL. +-949.00 - TYP.

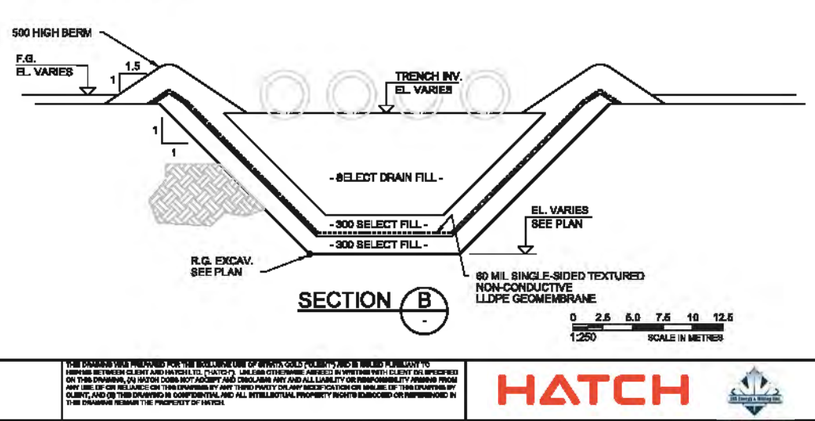
TIE-IN HLF LINER TRENCH TO EXCAV. ADR LINER EXTRUSION WELDED TO HLF LLDPE

## NOTES:

1. ALL DIMENSION IN MILLIMETERS, ELEVATIONS IN METERS.
2. FOR DETAILS AROUND THE HEAP LEACH FACILITY SEE LATEST DWGS FROM BGC ENGINEERING INC.
3. FOR GRADING OF ADR BENCH AREA SEE DWG. 2150-220-290-0001.




SECTION A




SECTION B

0 2.5 5.0 7.5 10 12.5
1:250 SCALE IN METRES

PROGRESS PRINT

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| DRAFTSPERSON | D NESJAN | NR | DEC 2017 |
|---|---|---|---|
| DESIGNER | D NESJAN | NR | DEC. 2017 |
| CHECKER | S PERKINS | | |
| DESIGN COORD. | S PERKINS | | |
| RESP. ENG. | E. AKINCI | | |
| LEAD DISC. ENG. | E. AKINCI | | |
| ENG. MANAGER | B. RUSTAD | | |
| PROJ. MANAGER | B. RUSTAD | | |

| DRAWING No. | DRAWING TITLE |
|---|---|
| REFERENCE DRAWINGS | |

REG. PROFESSIONAL

| No. | DESCRIPTION | BY | CHK'D | DATE |
|---|---|---|---|---|
| REVISIONS | | | | |

| ROLE | NAME | SIGNATURE | DATE |
|---|---|---|---|
| DRAWING APPROVAL STATUS: Started | | | |

EAGLE GOLD PROJECT

ADR PLANT AND LAYDOWN PAD FOUNDATION AND LINER EXCAVATION PLAN AND SECTIONS

| SCALE | DWG. No. | REV |
|---|---|---|
| AS NOTED (OR AS NOTED) | H354138-2150-220-290-0002 | A |

SHEET SIZE: D

mes2870 07/25/18 c:\p\bcpdgeotechnical\354138\0\dwg_to_dxf\mes2870-H354138-2150-220-290-0002.dgn 12:48:46

DWG. No. H354138-5710-231-260-0001

AREA: 5710 ADR PROCESS PLANT BUILDING

CONCRETE DETAILS DRAWING LIST

| DRAWING NUMBER | REV. | DRAWING TITLE | | |
|---|---|---|---|---|
| H354138-5710-231-260-0001 | 0 | ADR PROCESS PLANT BUILDING | BUILDING FOUNDATION | TITLE SHEET, ISOMETRIC VIEW |
| H354138-5710-231-260-0002 | 0 | ADR PROCESS PLANT BUILDING | BUILDING FOUNDATION | FOUNDATION - PLAN |
| H354138-5710-231-260-0003 | 0 | ADR PROCESS PLANT BUILDING | BUILDING FOUNDATION | ELEVATIONS |
| H354138-5710-231-260-0004 | 0 | ADR PROCESS PLANT BUILDING | BUILDING FOUNDATION | PLAN, SECTIONS AND DETAILS - SHEET 1 |
| H354138-5710-231-260-0005 | 0 | ADR PROCESS PLANT BUILDING | BUILDING FOUNDATION | PLAN, SECTIONS AND DETAILS - SHEET 2 |
| H354138-5710-231-260-0006 | 0 | ADR PROCESS PLANT BUILDING | BUILDING FOUNDATION | PLAN, SECTIONS AND DETAILS - SHEET 3 |
| H354138-5710-231-260-0007 | 0 | ADR PROCESS PLANT BUILDING | INTERIOR FOUNDATION | GENERAL ARRANGEMENT |
| H354138-5710-231-260-0008 | 0 | ADR PROCESS PLANT BUILDING | BARREN SOLUTION SUMP STRUCTURE | PLAN, SECTIONS - SHEET 1 |
| H354138-5710-231-260-0009 | 0 | ADR PROCESS PLANT BUILDING | BARREN SOLUTION SUMP STRUCTURE | PLAN, SECTIONS - SHEET 2 |
| H354138-5710-231-260-0010 | 0 | ADR PROCESS PLANT BUILDING | INTERIOR FOUNDATION | PLAN, SECTIONS AND DETAILS - SHEET 1 |
| H354138-5710-231-260-0011 | 0 | ADR PROCESS PLANT BUILDING | INTERIOR FOUNDATION | PLAN, SECTIONS AND DETAILS - SHEET 2 |
| H354138-5710-231-260-0012 | 0 | ADR PROCESS PLANT BUILDING | INTERIOR FOUNDATION | PLAN, SECTIONS AND DETAILS - SHEET 3 |
| H354138-5710-231-260-0013 | 0 | ADR PROCESS PLANT BUILDING | INTERIOR FOUNDATION | PLAN, SECTIONS AND DETAILS - SHEET 4 |
| H354138-5710-231-260-0019 | A | ADR PROCESS PLANT BUILDING | SLAB ON GRADE | GENERAL ARRANGEMENT |
| H354138-5710-231-260-0020 | A | ADR PROCESS PLANT BUILDING | SLAB ON GRADE | SECTIONS |
| H354138-5710-231-260-0021 | A | ADR PROCESS PLANT BUILDING | SLAB ON GRADE | PARTIAL PLAN - SHEET 1 |
| H354138-5710-231-260-0022 | A | ADR PROCESS PLANT BUILDING | SLAB ON GRADE | PARTIAL PLAN - SHEET 2 |
| H354138-5710-231-260-0023 | A | ADR PROCESS PLANT BUILDING | SLAB ON GRADE | PARTIAL PLAN - SHEET 3 |
| H354138-5710-231-260-0024 | A | ADR PROCESS PLANT BUILDING | SLAB ON GRADE | PARTIAL PLAN - SHEET 4 |
| H354138-5710-231-260-0025 | A | ADR PROCESS PLANT BUILDING | SLAB ON GRADE | PARTIAL PLAN - SHEET 5 |
| H354138-5710-231-260-0026 | A | ADR PROCESS PLANT BUILDING | SLAB ON GRADE | PLAN, SECTIONS AND DETAILS - SHEET 1 |
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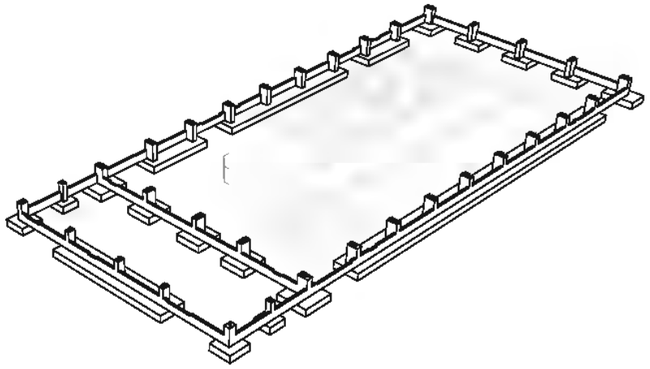
| H354138-5710-231-260-0028 | A | ADR PROCESS PLANT BUILDING | SLAB ON GRADE | PLAN, SECTIONS AND DETAILS - SHEET 3 |
| H354138-5710-231-260-0029 | A | ADR PROCESS PLANT BUILDING | SLAB ON GRADE | PLAN, SECTIONS AND DETAILS - SHEET 4 |
| H354138-5710-231-260-0030 | A | ADR PROCESS PLANT BUILDING | SLAB ON GRADE | PLAN, SECTIONS AND DETAILS - SHEET 5 |
| H354138-5710-231-260-0031 | A | ADR PROCESS PLANT BUILDING | SLAB ON GRADE | PLAN, SECTIONS AND DETAILS - SHEET 6 |

## BUILDING FOUNDATION NOTES:

2.1 BUILDING FOUNDATION SUBGRADE SHALL CONSIST OF SOUND BEDROCK.
2.2 THE PREPARED FOOTING SUBGRADE SHALL BE PROTECTED FROM WATER INGRESS AND SOFTENING BY PROVIDING ADEQUATE DRAINAGE OR PLACING A LEAN CONCRETE MUD SLAB.
2.3 ALL FOUNDATION SUBGRADE SHALL BE INSPECTED AND APPROVED BY THE GEOTECHNICAL ENGINEER PRIOR TO PLACEMENT OF CONCRETE.
2.4 ALL STRUCTURAL BACKFILL UNDER AND AROUND THE BUILDING FOUNDATIONS AND SLAB ON GRADE SHALL BE "NFS STRUCTURAL FILL" AS DESCRIBED IN H354138-0000-220-210-0001 CIVIL DESIGN CRITERIA TABLE 4-1.
2.5 FOR BUILDING FOUNDATION EXCAVATION AND LINER SEE DRAWING H354138-2150-220-260-0002.

## GENERAL NOTES:

1.1 READ THESE DRAWINGS IN CONJUNCTION WITH ALL OTHER PERTINENT CONTRACT DOCUMENTS.
1.2 FOR CONCRETE TYPICAL DETAILS DRAWING SET AND GENERAL NOTES, SEE DRAWINGS 354138-0000-231-294-0001 TO -0007.
1.3 REFER TO MECHANICAL, PROCESS AND ELECTRICAL DRAWINGS FOR LOCATIONS AND DIMENSIONS OF OPENINGS, SLEEVES AND OTHER BUILDING COMPONENTS NOT SHOWN ON STRUCTURAL DRAWINGS. REPORT DISCREPENCIES TO THE OWNER OR HIS REPRESENTATIVE PRIOR TO PROCEEDING WITH THE WORK.
1.4 FOR GENERAL SITE LOCATION AND WORK POINT COORDINATES, SEE DRAWING H354138-2000-220-270-0002.
1.5 HIGH ENERGY COMPACTION EQUIPMENT SUCH AS LARGE ROLLERS MUST NOT BE USED FOR COMPACTING BACKFILL WITHIN 1 METER OF THE EDGE OF THE WALLS.
1.6 FOR GROUNDING LOOP SEE ELECTRICAL DRAWING H354138-8000-260-272-1000-0001 TO 0003. FOR GROUNDING INSTALLATION DETAILS SEE DRAWING SET H354138-0000-260-294-0001-0009 AND 0010.
1.7 FOR FINISHED GRADING PLAN SEE DRAWING H354138-2150-220-290-0001.
1.8 FOR CAST-IN PLACE CONCRETE, SEE SPECIFICATION SECTION H354138-5032000.
1.9 FOR CONCRETE FORMWORK, SEE SPECIFICATION SECTION H354138-5031000.
1.10 FOR CONCRETE REINFORCEMENT, SEE SPECIFICATION SECTION H354138-5033000.
1.11 FOR GROUTING, SEE SPECIFICATION SECTION H354138-5039000.
1.12 CONSTRUCTION JOINTS NOT SHOWN ON THE DRAWINGS MUST BE APPROVED BY THE CONTRUCTION MANAGER.
1.13 IN CASE OF ANY DISCREPANCIES, INFORM THE CONSTRUCTION MANAGER BEFORE COMMENCING WORK.
1.14 ALL DIMENSIONS ARE IN MILLIMETERS AND ELEVATIONS ARE IN METERS.
1.15 PROVIDE 19mm X 19mm CHAMFER AT ALL EXPOSED CONCRETE CORNERS AND EDGES ABOVE GRADE LEVEL, EXCEPT TOP OF ALL THE PEDESTALS, GRADE BEAMS AND CURBS, WHERE WALL CLADDING TO BE CONNECTED.
1.16 THE DRAWINGS SHOULD BE READ IN CONJUNCTION WITH THE PROJECT CIVIL DESIGN CRITERIA H354138-0000-220-210-0001.
1.17 FOR FURTHER GEOTECH INFORMATION, SEE "2011 GEOTECHNICAL INVESTIGATION FOR MINE SITE INFRASTRUCTURE FOUNDATION REPORT" BY BGC ENGINEERING DATED JAN 31, 2012.
1.18 SET ANCHOR RODS USING TEMPLATES WHICH MUST BE LEFT IN PLACE UNTIL THE CONCRETE HAS SET. ANCHOR RODS SHALL BE PLUMBED AND SECURED FROM MOVEMENT PRIOR TO CASTING CONCRETE.



ISOMETRIC VIEW
NTS

PERMIT TO PRACTICE
HATCH
SIGNATURE Esra Akinci
Date MAY 24, 2018
PERMIT NUMBER PP154
Association of Professional Engineers of Yukon

PROFESSIONAL ENGINEER YUKON ESRA AKINCI TERRITORY
MAY 24, 2018

THIS DRAWING WAS PREPARED FOR THE EXCLUSIVE USE OF STRATA GOLD CORPORATION AND IS ISSUED PURSUANT TO AGREEMENT BETWEEN CLIENT AND HATCH LTD. ("HATCH"). UNLESS OTHERWISE AGREED IN WRITING WITH CLIENT OR SPECIFIED ON THIS DRAWING, (a) HATCH DOES NOT ACCEPT AND DISCLAIMS ANY AND ALL LIABILITY OR RESPONSIBILITY ARISING FROM ANY USE OF OR RELIANCE ON THIS DRAWING BY ANY THIRD PARTY OR ANY MODIFICATION OR MISUSE OF THIS DRAWING BY CLIENT, AND (b) THIS DRAWING IS CONFIDENTIAL AND ALL INTELLECTUAL PROPERTY RIGHTS EMBODIED OR REFERENCED IN THIS DRAWING REMAIN THE PROPERTY OF HATCH.

| | | | | |
|---|---|---|---|---|
| DRAFTSPERSON | P. JIVAEV | NR | 2018-03-28 | |
| DESIGNER | F. LIU | NR | 2018-03-28 | |
| CHECKER | E. AKINCI | | | |
| DESIGN COORD. | S. PERKINS | | | |
| RESP. ENG. | E. AKINCI | | | |
| LEAD DISC. ENG. | E. AKINCI | | | |
| ENG. MANAGER | B. RUSTAD | | | |
| PROJ. MANAGER | B. RUSTAD | | | |

| No. | DESCRIPTION | BY | CHKD | DATE |
|---|---|---|---|---|
| 0 | APPROVED FOR CONSTRUCTION | PJ | EA | 2018-05-23 |

DRAWING APPROVAL STATUS: Approved for Construction

EAGLE GOLD PROJECT

ADR PROCESS PLANT BUILDING
BUILDING FOUNDATION
TITLE SHEET, ISOMETRIC VIEW

SCALE NTS OR AS NOTED | DWG. No. H354138-5710-231-260-0001 | REV 0

SHEET SIZE: D

DRAWING No. | DRAWING TITLE | REFERENCE DRAWINGS | REG. PROFESSIONAL | REVISIONS | ROLE | NAME | SIGNATURE & DATE

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PRINTED: 24-MAY-2018
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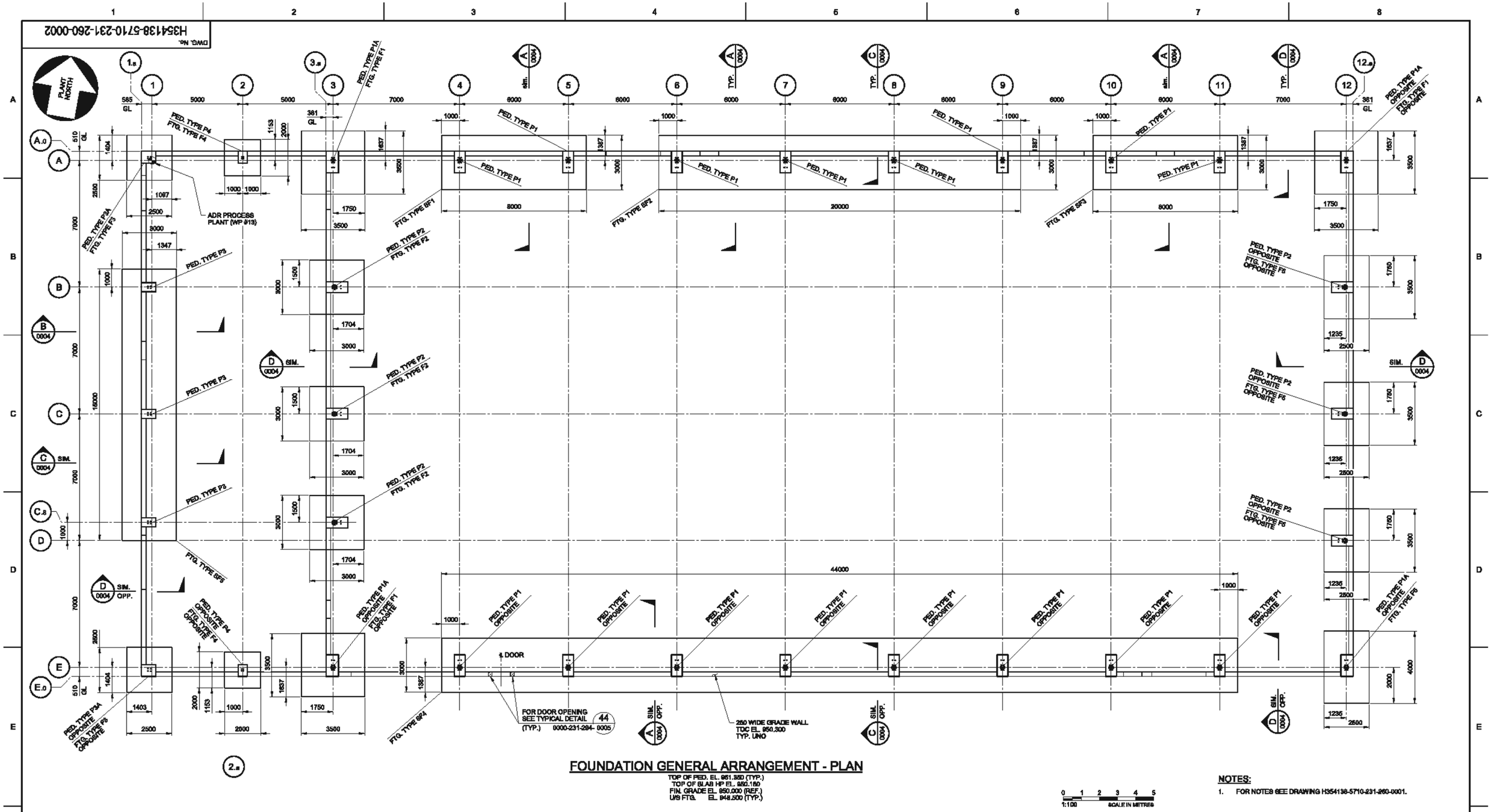
1034




## FOUNDATION GENERAL ARRANGEMENT - PLAN

TOP OF PED. EL. 951.350 (TYP.)
TOP OF SLAB HP EL. 950.150
FIN. GRADE EL. 950.000 (REF.)
U/S FTG. EL. 948.500 (TYP.)

0 1 2 3 4 5
1:100 SCALE IN METRES

**NOTES:**

1. FOR NOTES SEE DRAWING H354138-5710-231-260-0001.

THIS DRAWING WAS PREPARED FOR THE EXCLUSIVE USE OF STRATA GOLD PLUMBS AND IS ISSUED PURSUANT TO HIGH SPEED CLIENT AND HATCH LTD. ("HATCH"). UNLESS OTHERWISE AGREED IN WRITING WITH CLIENT OR SPECIFIED ON THIS DRAWING, (A) HATCH DOES NOT ACCEPT AND DISCLAIMS ANY AND ALL LIABILITY OR RESPONSIBILITY ARISING FROM ANY USE OF OR RELIANCE ON THIS DRAWING BY ANY THIRD PARTY OR ANY MODIFICATION OR REUSE OF THIS DRAWING BY CLIENT, AND (B) THIS DRAWING IS CONFIDENTIAL AND ALL INTELLECTUAL PROPERTY RIGHTS EMBODIED OR REFERENCED IN THIS DRAWING REMAIN THE PROPERTY OF HATCH.

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|---|---|
| REFERENCE DRAWINGS | |

REG. PROFESSIONAL

| No. | DESCRIPTION | BY | CHK'D | DATE |
|---|---|---|---|---|
| 0 | APPROVED FOR CONSTRUCTION | PJ | EA | 2018-05-23 |

REVISIONS

HATCH

| ROLE | NAME | SIGNATURE & DATE |
|---|---|---|
| DRAFTSPERSON | P. JIVAEV/E. MENDIOLA | NR 2018-03-28 |
| DESIGNER | F. LIU | NR 2018-03-28 |
| CHECKER | E. AKINCI | |
| DESIGN COORD. | S. PERKINS | |
| RESP. ENG. | E. AKINCI | |
| LEAD DISC. ENG. | E. AKINCI | |
| ENG. MANAGER | B. RUSTAD | |
| PROJ. MANAGER | B. RUSTAD | |

DRAWING APPROVAL STATUS: Approved for Construction

Strata Gold Corporation

EAGLE GOLD PROJECT

ADR PROCESS PLANT BUILDING
BUILDING FOUNDATION
FOUNDATION - PLAN

SCALE 1:100 OR AS NOTED | DWG. No. H354138-5710-231-260-0002 | REV 0

SHEET SIZE: D

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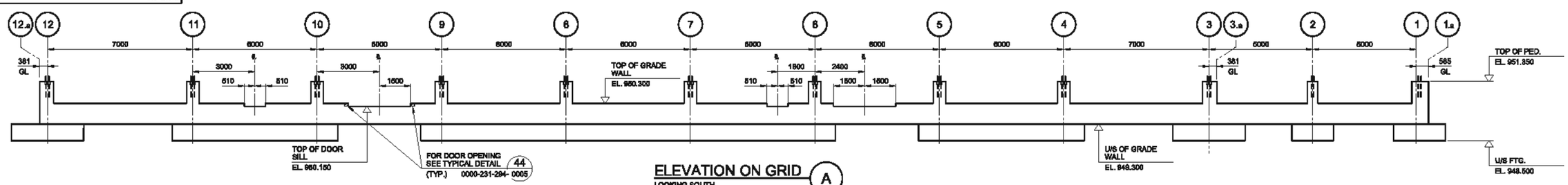
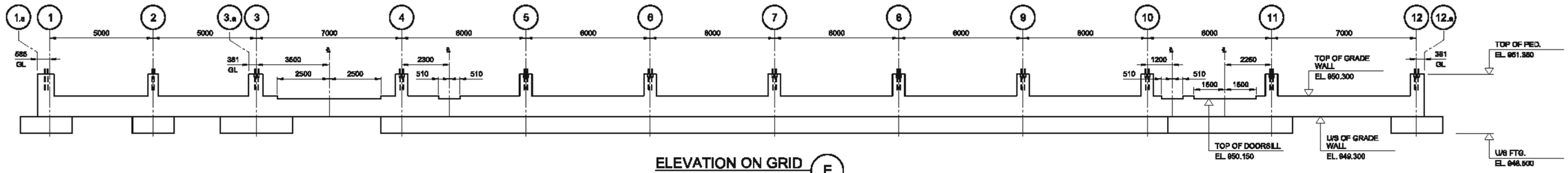
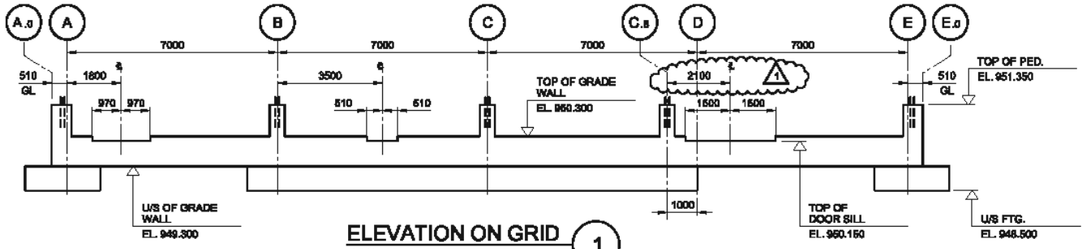
DWG. No. H354138-5710-231-260-0003



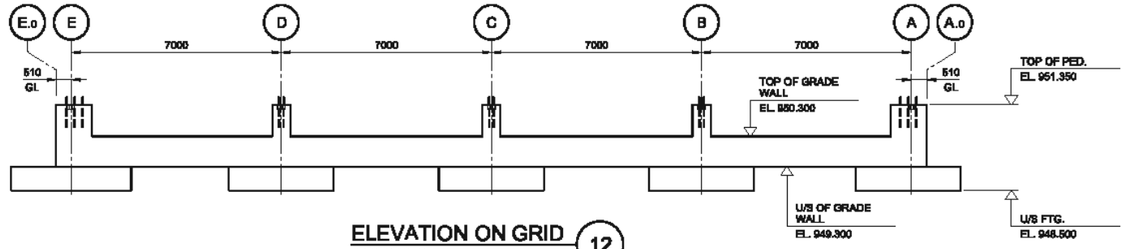

ELEVATION ON GRID A
LOOKING SOUTH



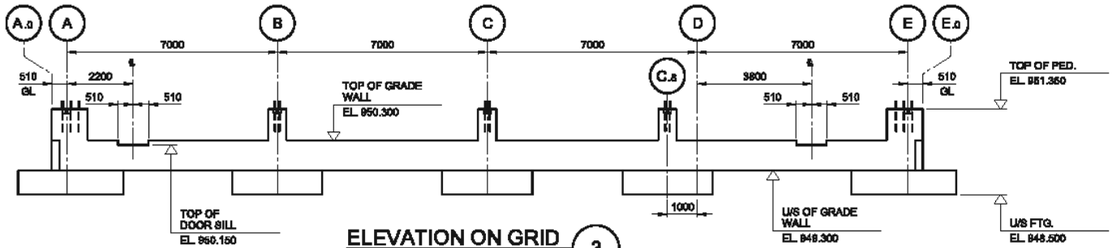

ELEVATION ON GRID E
LOOKING NORTH




ELEVATION ON GRID 1
LOOKING EAST




ELEVATION ON GRID 12
LOOKING WEST




ELEVATION ON GRID 3
LOOKING EAST

**NOTES:**

1. FOR NOTES SEE DRAWING H354138-5710-231-260-0001.

0 1 2 3 4 5
1:100 SCALE IN METRES

| DRAWING No. | DRAWING TITLE |
|---|---|
| REFERENCE DRAWINGS | |

REG. PROFESSIONAL

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| No. | DESCRIPTION | BY | CHK'D | DATE |
|---|---|---|---|---|
| 1 | OPENING LOCATION FOR DOOR AT GRID LINE '1' CHANGED | PJ | EA | 2018-07-31 |
| 0 | APPROVED FOR CONSTRUCTION | PJ | EA | 2018-05-23 |

REVISIONS

HATCH

| ROLE | NAME | SIGNATURE & DATE | |
|---|---|---|---|
| DRAFTSPERSON | P. JIVAEV/E. MENDIOLA | NR | 2018-02-30 |
| DESIGNER | F. LIU | NR | 2018-02-30 |
| CHECKER | E. AKINCI | | |
| DESIGN COORD. | S. PERKINS | | |
| RESP. ENG. | E. AKINCI | | |
| LEAD DISC. ENG. | E. AKINCI | | |
| ENG. MANAGER | B. RUSTAD | | |
| PROJ. MANAGER | B. RUSTAD | | |

DRAWING APPROVAL STATUS: Approved for Construction

Strata Gold Corporation

EAGLE GOLD PROJECT

ADR PROCESS PLANT BUILDING
BUILDING FOUNDATION
ELEVATIONS

SCALE 1:100 OR AS NOTED | DWG. No. H354138-5710-231-260-0003 | REV 1

SHEET SIZE: D

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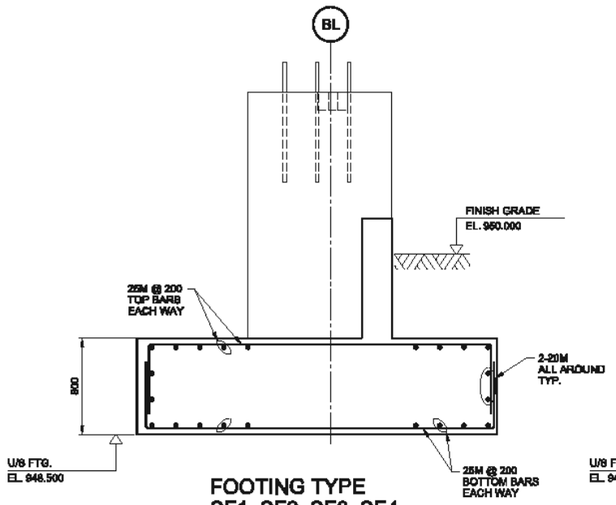


FOOTING TYPE
SF1, SF2, SF3, SF4
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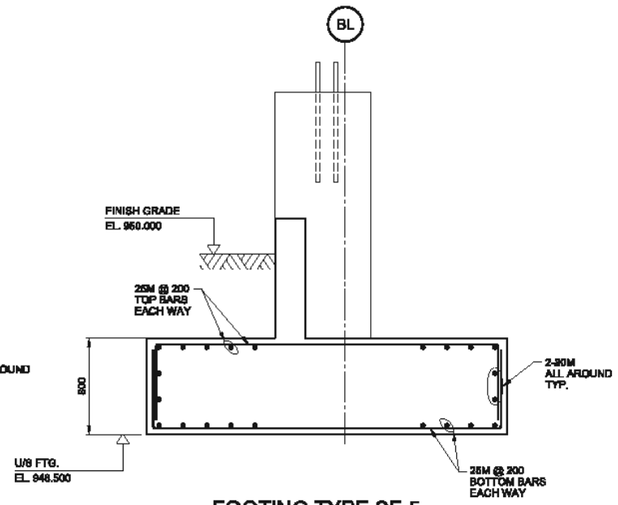


FOOTING TYPE SF-5
SECTION B
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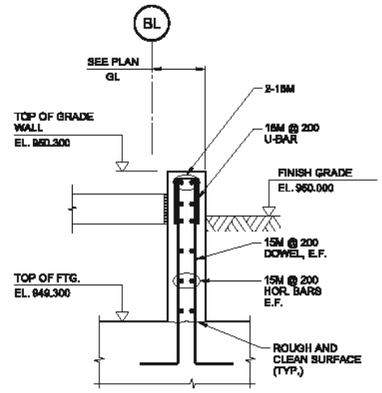
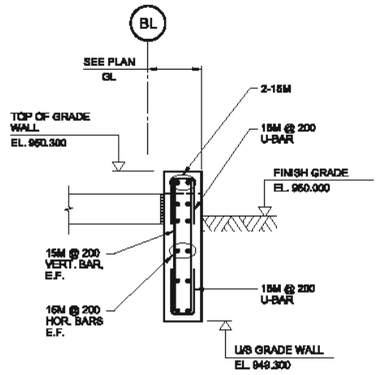



GRADE WALL ON
TOP OF FOOTING
SECTION C
SCALE: 1:20 0002




GRADE WALL
BETWEEN FOOTING
SECTION D
SCALE: 1:20 0002

0 200 400 600 800 1000
1:20 SCALE IN MILLIMETRES

0 250 500 750 1000 1250
1:25 SCALE IN MILLIMETRES

**NOTES:**

1. FOR NOTES SEE DRAWING H354138-5710-231-260-0001.

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|---|---|
| REFERENCE DRAWINGS | |

REG. PROFESSIONAL

| No. | DESCRIPTION | BY | CHKD | DATE |
|---|---|---|---|---|
| 0 | APPROVED FOR CONSTRUCTION | PJ | EA | 2018-05-23 |

REVISIONS

| ROLE | NAME | SIGNATURE & DATE |
|---|---|---|
| DRAFTSPERSON | P. JIVAEVIE. MENDIOLA | NR 2018-02-30 |
| DESIGNER | F. LIU | NR 2018-02-30 |
| CHECKER | E. AKINCI | |
| DESIGN COORD. | S. PERKINS | |
| RESP. ENG. | E. AKINCI | |
| LEAD DISC. ENG. | E. AKINCI | |
| ENG. MANAGER | S. RUSTAD | |
| PROJ. MANAGER | S.RUSTAD | |
| DRAWING APPROVAL STATUS: | Approved for Construction | |

HATCH

Stratabound Minerals Corporation

EAGLE GOLD PROJECT

ADR PROCESS PLANT BUILDING
BUILDING FOUNDATION
PLAN, SECTIONS AND DETAILS - SHEET 1

SCALE 1:25 OR AS NOTED

DWG. No. H354138-5710-231-260-0004

REV 0

SHEET SIZE: D

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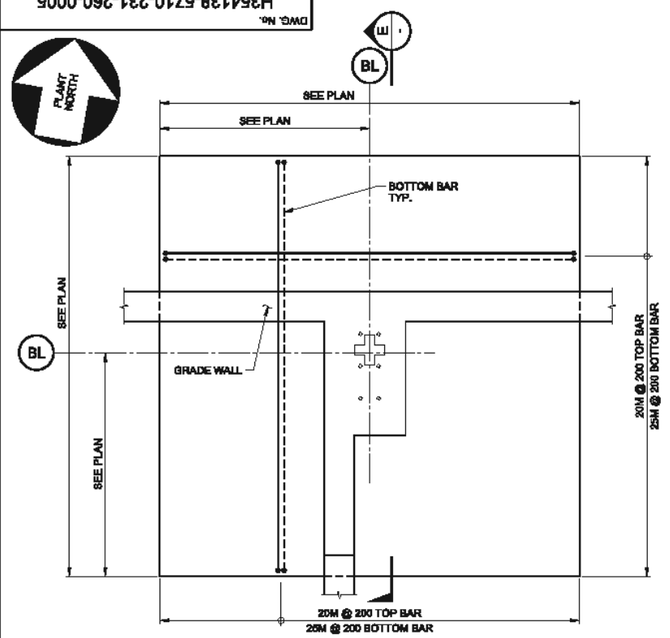
10:34

DWG. No. H354138-5710-231-260-0005

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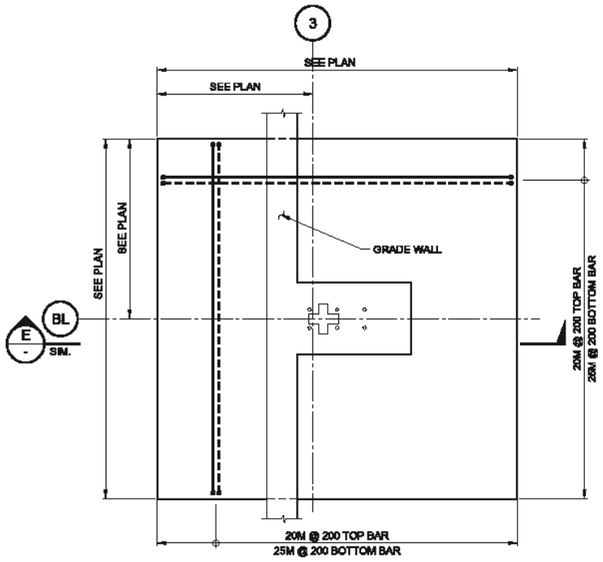


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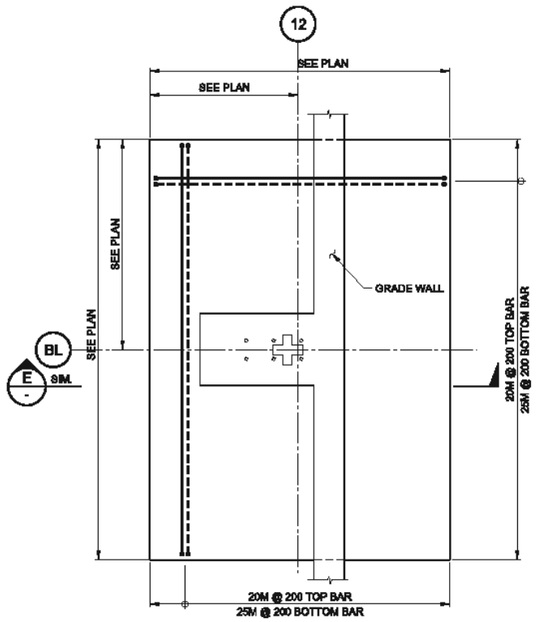


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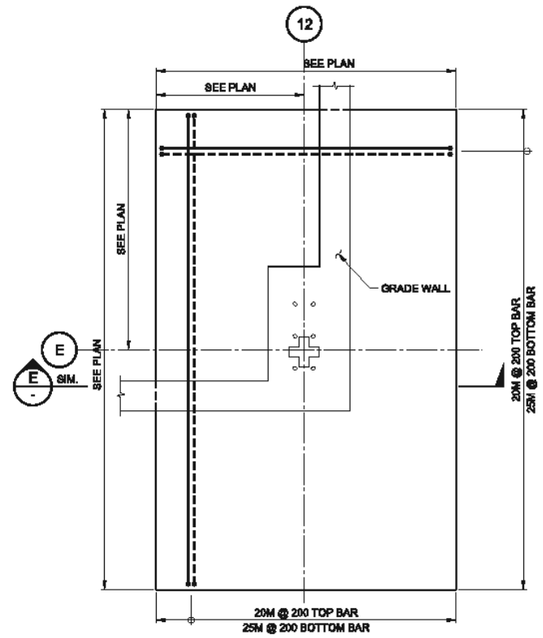


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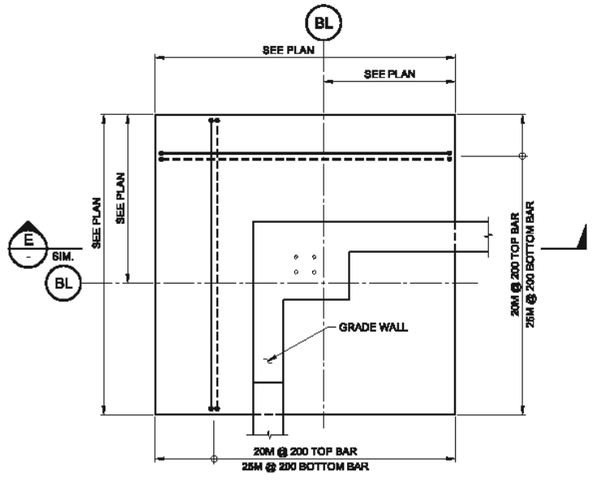


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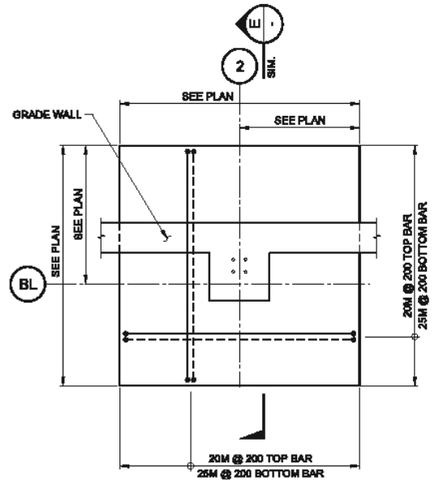


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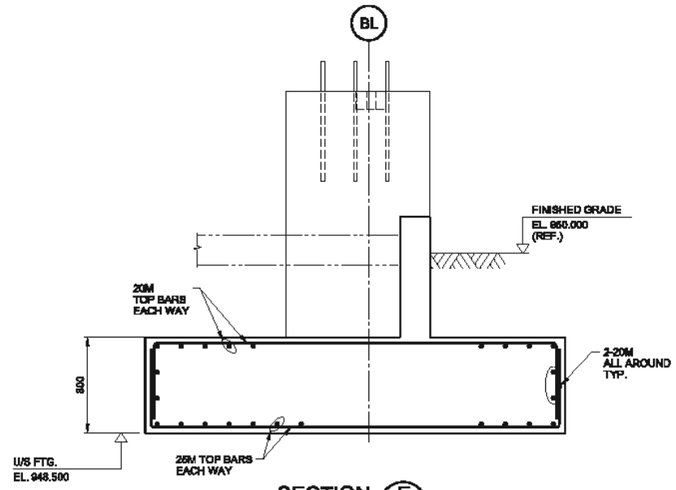


SECTION E
SCALE: 1:25

0 250 500 750 1000 1250
1:25 SCALE IN MILLIMETRES

**NOTES:**

1. FOR NOTES SEE DRAWING H354138-5710-231-260-0001.

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| | | | |
|---|---|---|---|
| DRAFTSPERSON | P. JIVAEVIE, MENDIOLA | NR | 2018-02-30 |
| DESIGNER | F. LIU | NR | 2018-02-30 |
| CHECKER | E. AKINCI | | |
| DESIGN COORD. | S. PERKINS | | |
| RESP. ENG. | E. AKINCI | | |
| LEAD DISC. ENG. | E. AKINCI | | |
| ENG. MANAGER | B. RUSTAD | | |
| PROJ. MANAGER | B. RUSTAD | | |

| No. | DESCRIPTION | BY | CHK'D | DATE |
|---|---|---|---|---|
| 0 | APPROVED FOR CONSTRUCTION | PJ | EA | 2018-05-23 |

| DRAWING No. | DRAWING TITLE |
|---|---|

REFERENCE DRAWINGS

REG. PROFESSIONAL

REVISIONS

| ROLE | NAME | SIGNATURE & DATE |
|---|---|---|
| DRAWING APPROVAL STATUS: | Approved for Construction | |

Strata Gold Corporation

EAGLE GOLD PROJECT

ADR PROCESS PLANT BUILDING
BUILDING FOUNDATION
PLAN, SECTIONS AND DETAILS - SHEET 2

| SCALE | DWG. No. | REV |
|---|---|---|
| 1:25 OR AS NOTED | H354138-5710-231-260-0005 | 0 |

SHEET SIZE: D

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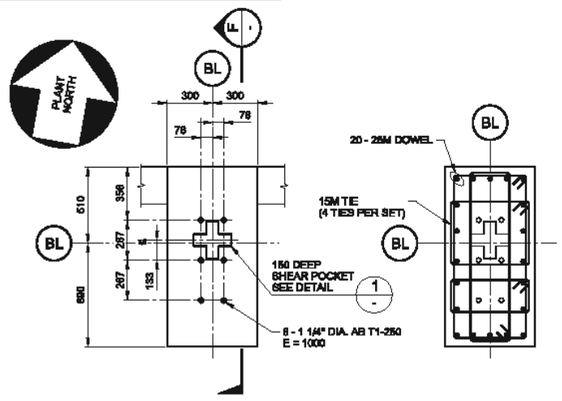
PRINTED: 24-MAY-2018
kit_pwarwick
10:34

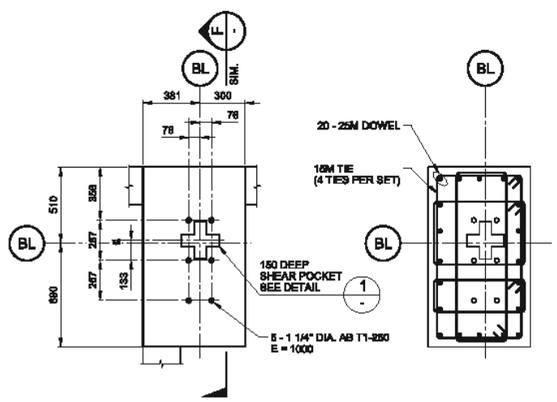
DWG. No. H354138-5710-231-260-0006




ANCHOR ROD SETTING REINFORCING

## PEDESTAL TYPE P1

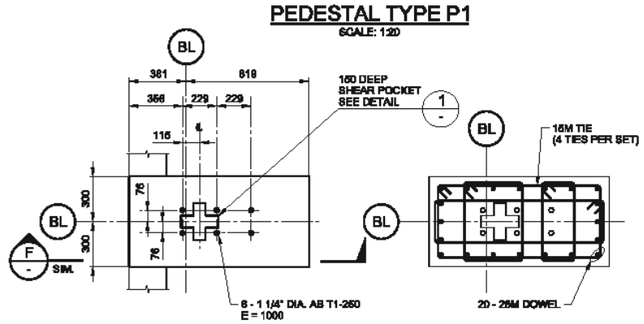
SCALE: 1:20




ANCHOR ROD SETTING REINFORCING

## PEDESTAL TYPE P1A

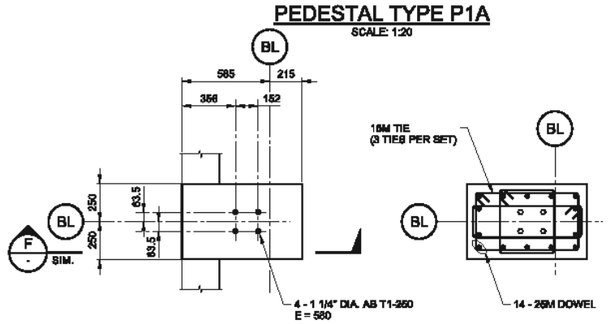
SCALE: 1:20




ANCHOR ROD SETTING REINFORCING

## PEDESTAL TYPE P2

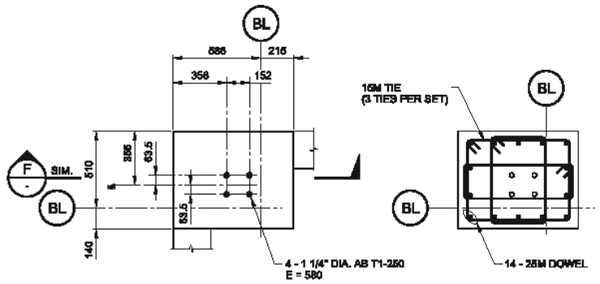
SCALE: 1:20




ANCHOR ROD SETTING REINFORCING

## PEDESTAL TYPE P3

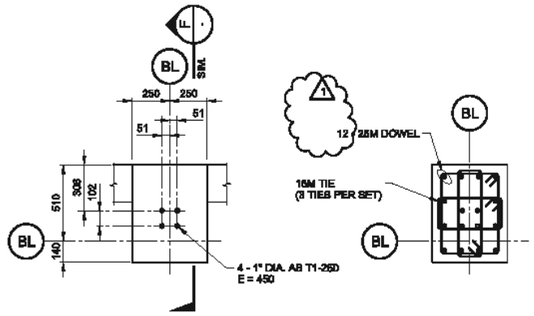
SCALE: 1:20




ANCHOR ROD SETTING REINFORCING

## PEDESTAL TYPE P3A

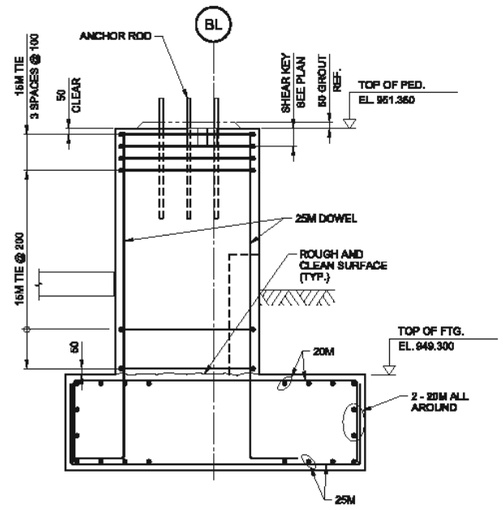
SCALE: 1:20




ANCHOR ROD SETTING REINFORCING

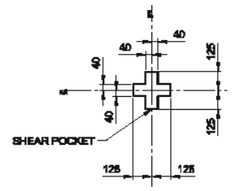
## PEDESTAL TYPE P4

SCALE: 1:20

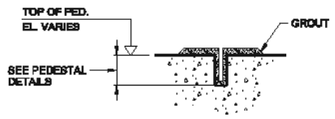



## SECTION F

SCALE: 1:25




PLAN




SECTION

## TYPICAL SHEAR POCKET DETAIL 1

SCALE 1:20

0 200 400 600 800 1000
1:20 SCALE IN MILLIMETRES

0 250 500 750 1000 1250
1:25 SCALE IN MILLIMETRES

**NOTES:**

1. FOR NOTES SEE DRAWING H354138-5710-231-260-0001.

THIS DRAWING WAS PREPARED FOR THE EXCLUSIVE USE OF STRATA GOLD FOLIENTY AND IS ISSUED PURSUANT TO AGREEMENTS BETWEEN CLIENT AND HATCH LTD. ("HATCH"). UNLESS OTHERWISE AGREED IN WRITING WITH CLIENT OR SPECIFIED ON THIS DRAWING, (a) HATCH DOES NOT ACCEPT AND DISCLAIMS ANY AND ALL LIABILITY OR RESPONSIBILITY ARISING FROM ANY USE OF OR RELIANCE ON THIS DRAWING BY ANY THIRD PARTY OR ANY MODIFICATION OR MISUSE OF THIS DRAWING BY CLIENT, AND (b) THIS DRAWING IS CONFIDENTIAL AND ALL INTELLECTUAL PROPERTY RIGHTS EMBODIED OR REFERENCED IN THIS DRAWING REMAIN THE PROPERTY OF HATCH.

| REVISIONS | | | | |
|---|---|---|---|---|
| No. | DESCRIPTION | BY | CHKD | DATE |
| 1 | PEDESTAL TYPE P4 - NUMBERS OF DOWEL CORRECTED | PJ | EA | 2018-07-31 |
| 0 | APPROVED FOR CONSTRUCTION | PJ | EA | 2018-05-23 |

| REFERENCE DRAWINGS | | REG. PROFESSIONAL |
|---|---|---|
| DRAWING No. | DRAWING TITLE | |

HATCH

| | | | |
|---|---|---|---|
| DRAFTSPERSON | P. JIVAEVIE. MENDIOLA | NR | 2018-04-26 |
| DESIGNER | F. LIUR | NR | 2018-04-26 |
| CHECKER | E. AKINCI | | |
| DESIGN COORD. | S. PERKINS | | |
| RESP. ENG. | E. AKINCI | | |
| LEAD DISC. ENG. | E. AKINCI | | |
| ENG. MANAGER | B. RUSTAD | | |
| PROJ. MANAGER | B. RUSTAD | | |
| ROLE | NAME | SIGNATURE & DATE | |
| DRAWING APPROVAL STATUS: | Approved for Construction | | |

Strata Gold Corporation

EAGLE GOLD PROJECT

ADR PROCESS PLANT BUILDING
BUILDING FOUNDATION
PLAN, SECTIONS AND DETAILS - SHEET 3

| SCALE | DWG. No. | REV |
|---|---|---|
| AS NOTED OR AS NOTED | H354138-5710-231-260-0006 | 1 |

SHEET SIZE: D

$FILE$
PRINTED: 31-JUL-2018
kd_jaswicks
12:54

DWG. No. H354138-5710-231-260-0007

PLANT NORTH

RFI 38

TANK FOOTING TOC EL. 950.350 FOR REINFORCEMENT SEE DETAIL 3 / 0013 5710-231-260-

8-1" DIA. AB-T4-430 (E = 450)

5200-TK-007

400

STEEL BOLT CIRCLE

2000 TYP. ALL SIDES

TANK

TANK FOOTING TOC EL. 950.350 FOR REINFORCEMENT SEE DETAIL 3 / 0013 5710-231-260-

5630-TK-017

2400

80 DEEP POCKET

1040

1300

3400

1650

5630-TK-016

TANK FOOTING TOC EL 950.350 FOR REINFORCEMENT SEE DETAIL 3 / 0013 5710-231-260-

PED. TYPE P4 TOC EL. 950.350 FTG. TYPE F11

PED. TYPE P8 TOC EL. 950.450 FTG. TYPE F12

PED. TYPE P8 TOC EL. 950.450 FTG. TYPE F12

PED. TYPE P8 TOC EL. 950.450 FTG. TYPE F12

TYPICAL FOR FTG. TYPE F12

SEE PARTIAL PLAN ON DRAWING H354138-5710-231-260-0011

FOOTING TYPE F7 SEE DRAWING H354138-5710-231-260-0010

FOR BARREN SOLUTION SUMP TANK STRUCTURE, SEE DWG. H354138-5710-231-260-0006

# INTERIOR FOUNDATION - PLAN

FIN. GRADE EL. 950.000 (REF.)
U/S FTG. EL. 948.600 (TYP.)

1:100 SCALE IN METRES

**NOTES:**

1. FOR NOTES SEE DRAWING H354138-5710-231-260-0001.

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| | | | | | |
|---|---|---|---|---|---|
| DRAFTSPERSON | E. MENDIOLA | | NR | 2018-04-18 | |
| DESIGNER | F. LIU | | NR | 2018-04-18 | |
| CHECKER | E. AKINCI | | | | |
| DESIGN COORD. | S. PERKINS | | | | |
| RESP. ENG. | E. AKINCI | | | | |
| LEAD DISC. ENG. | E. AKINCI | | | | |
| ENG. MANAGER | B. RUSTAD | | | | |
| PROJ. MANAGER | B. RUSTAD | | | | |
| ROLE | NAME | | SIGNATURE & DATE | | |
| DRAWING APPROVAL STATUS: | Approved for Construction | | | | |

| No. | DESCRIPTION | BY | CHK'D | DATE |
|---|---|---|---|---|
| 1 | TANK 5200-TK-007 SIZE CHANGED. TANK 5630-TK-015 POCKET ROTATED | PJ | EA | 2018-07-23 |
| 0 | APPROVED FOR CONSTRUCTION | PJ | EA | 2018-05-31 |

REFERENCE DRAWINGS — DRAWING No. — DRAWING TITLE

REG. PROFESSIONAL

REVISIONS

HATCH

StrataGold Corporation

EAGLE GOLD PROJECT

ADR PROCESS PLANT BUILDING
INTERIOR FOUNDATION
GENERAL ARRANGEMENT

SCALE 1:100 OR AS NOTED

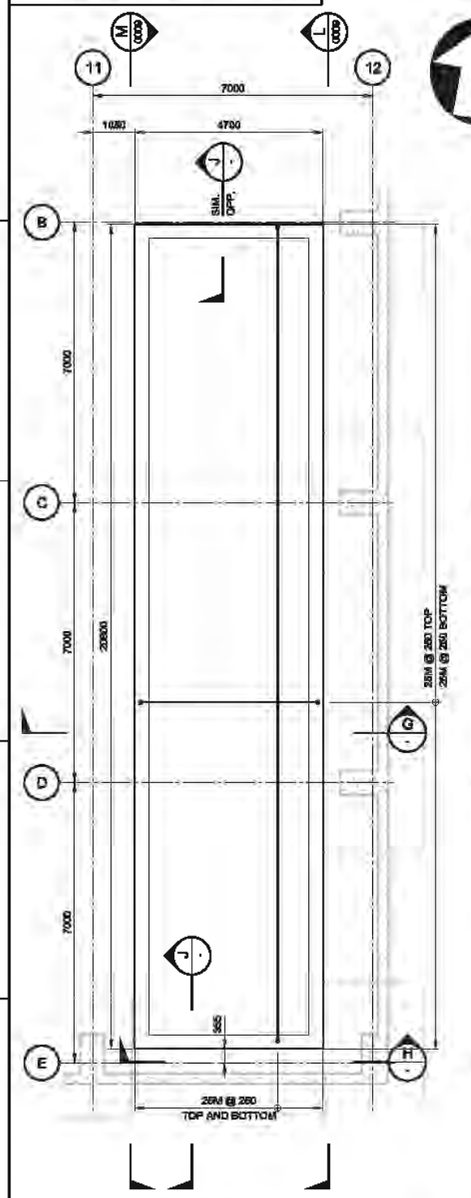
DWG. No. H354138-5710-231-260-0007

REV 1

SHEET SIZE: D

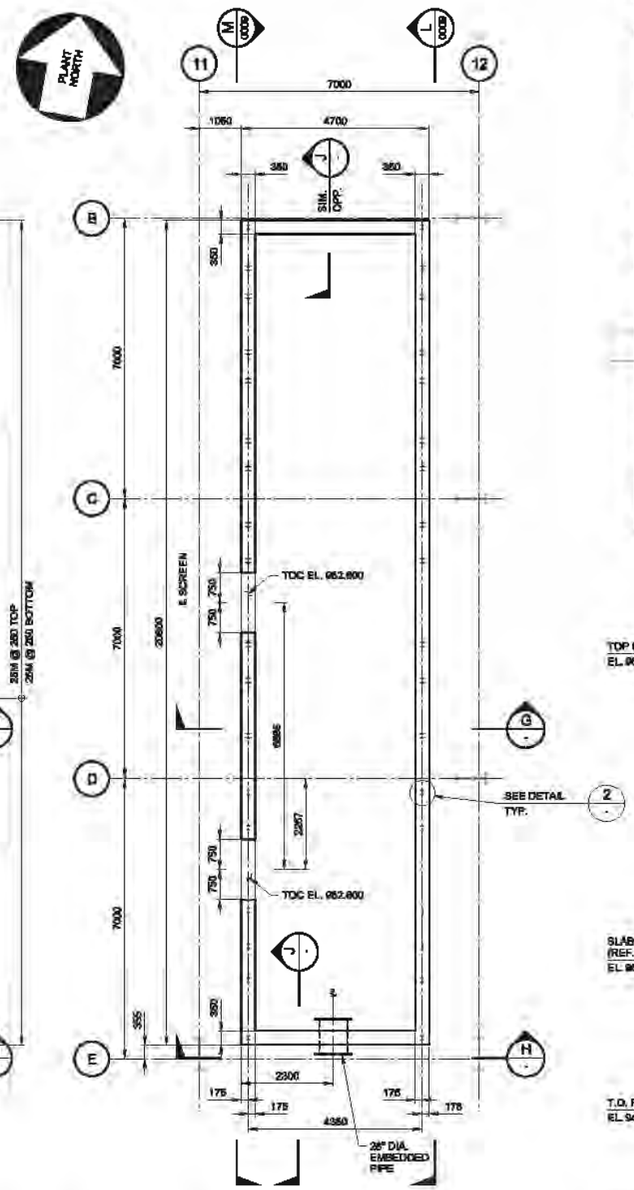
$FILE$
PRINTED: 23-JUL-2018
$d_jsmith$

DWG. No. H354138-5710-231-260-0008



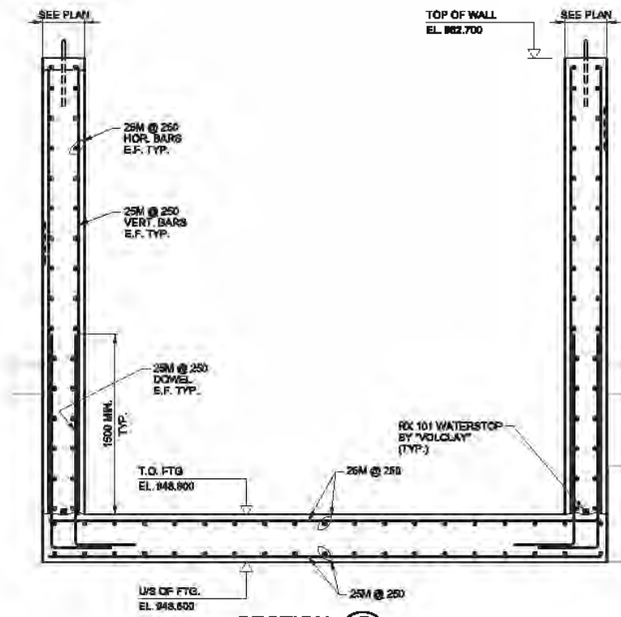

## BASE PLAN

U/S OF CONCRETE SLAB EL. 948.600
SCALE: 1:75



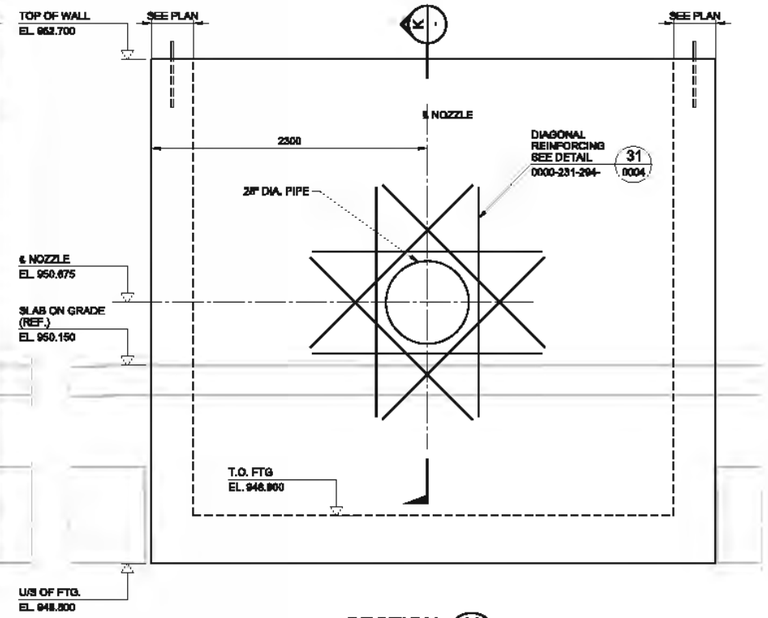

## TOP PLAN

TOP OF CONCRETE WALL EL. 952.700 (TYP. UNO)
SCALE: 1:75



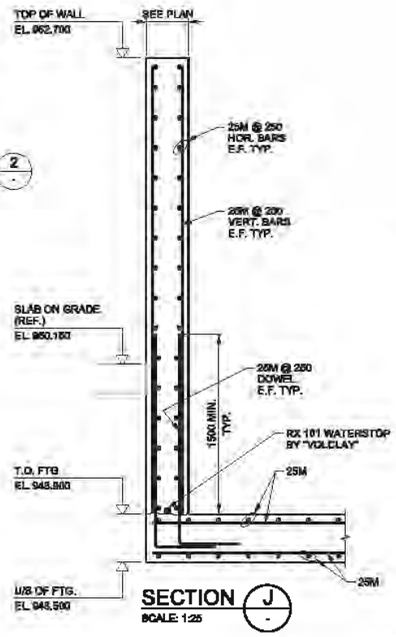

## SECTION G

SCALE: 1:25



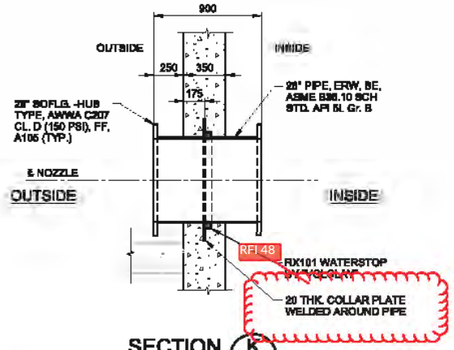

## SECTION H

SCALE: 1:25




## SECTION J

SCALE: 1:25




## SECTION K

SCALE: 1:25




## DETAIL 2

SCALE: 1:20

0 250 500 750 1000 1250
1:25 SCALE IN MILLIMETRES

0 750 1500 2250 3000 3750
1:75 SCALE IN MILLIMETRES

**NOTES:**

1. FOR NOTES SEE DRAWING H354138-5710-231-260-0007.

# BARREN SOLUTION SUMP TANK

THIS DRAWING WAS PREPARED FOR THE EXCLUSIVE USE OF STRATA GOLD CORPORATION AND IS ISSUED PURSUANT TO AGREEMENT BETWEEN CLIENT AND HATCH LTD. ("HATCH"). UNLESS OTHERWISE AGREED IN WRITING WITH CLIENT OR SPECIFIED ON THIS DRAWING, OR HATCH DOES NOT ACCEPT AND DISCLAIMS ANY AND ALL LIABILITY OR RESPONSIBILITY ARISING FROM ANY USE OF OR RELIANCE ON THIS DRAWING BY ANY THIRD PARTY OR ANY MODIFICATION OR REUSE OF THIS DRAWING BY CLIENT, AND ON THIS DRAWING IS CONFIDENTIAL AND ALL INTELLECTUAL PROPERTY RIGHTS EMBODIED OR REFERENCED IN THIS DRAWING REMAIN THE PROPERTY OF HATCH.

| No. | DESCRIPTION | BY | CHK'D | DATE |
|---|---|---|---|---|
| 0 | APPROVED FOR CONSTRUCTION | PJ | EA | 2018-05-31 |

| ROLE | NAME | SIGNATURE & DATE |
|---|---|---|
| DRAFTSPERSON | P. JIVAEVIE. MENDIOLA | NR 2018-04-10 |
| DESIGNER | F. LIU | NR 2018-04-10 |
| CHECKER | E. AKINCI | |
| DESIGN COORD. | S. PERKINS | |
| RESP. ENG. | E. AKINCI | |
| LEAD DISC. ENG. | E. AKINCI | |
| ENG. MANAGER | B. RUSTAD | |
| PROJ. MANAGER | B. RUSTAD | |

DRAWING APPROVAL STATUS: Approved for Construction

HATCH

Strata Gold Corporation

EAGLE GOLD PROJECT

ADR PROCESS PLANT BUILDING
BARREN SOLUTION SUMP TANK
PLAN, SECTIONS - SHEET 1

| DRAWING No. | DRAWING TITLE |
|---|---|
| REFERENCE DRAWINGS | |

REG. PROFESSIONAL

| SCALE | DWG. No. | REV |
|---|---|---|
| AS NOTED OR AS NOTED | H354138-5710-231-260-0008 | 1 |

SHEET SIZE: D

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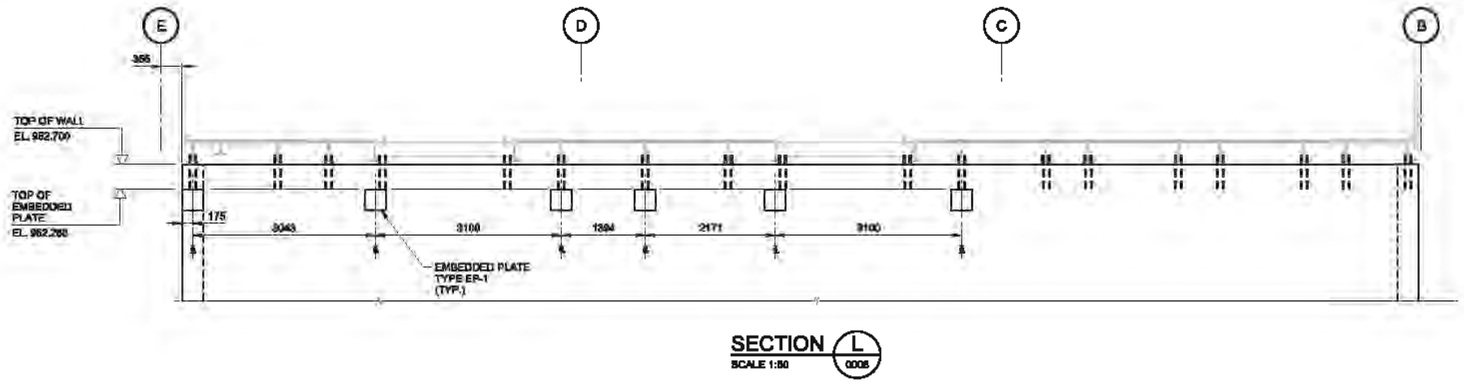
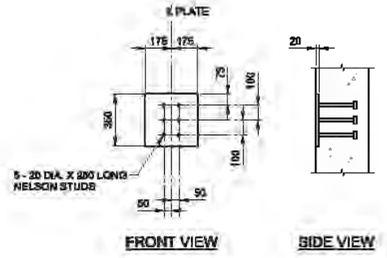
PRINTED: 11-JUL-2018
18:40
M4_pessette

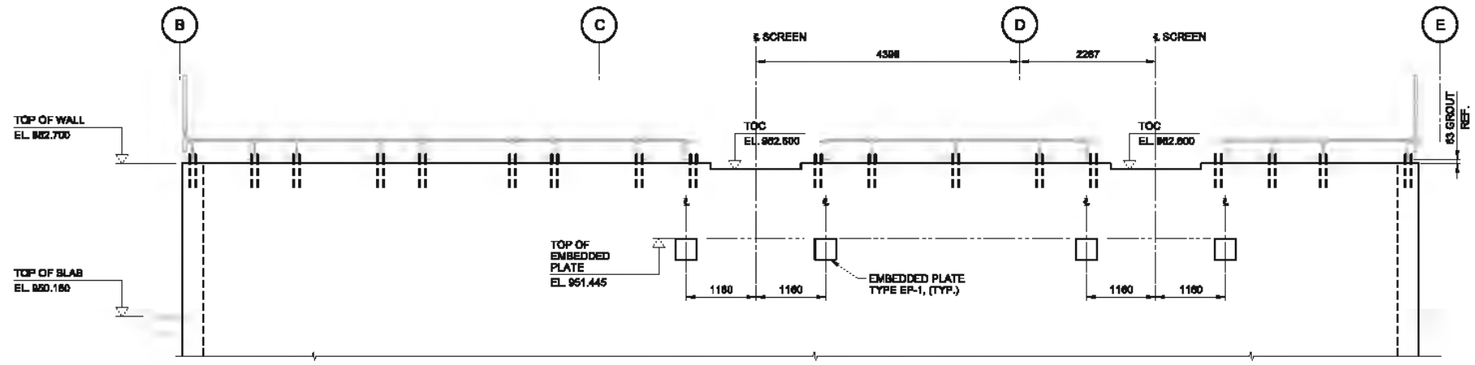
DWG. No. H354138-5710-231-260-0009




SECTION L
SCALE 1:50




EMBEDDED PLATE TYPE EP-1
SCALE 1:20




SECTION M
SCALE 1:20

0 200 400 600 800 1000
1:20 SCALE IN MILLIMETRES

0 500 1000 1500 2000 2500
1:50 SCALE IN MILLIMETRES

NOTES:
1. FOR NOTES SEE DRAWING H354138-5710-231-260-0001.

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| No. | DESCRIPTION | BY | CHK'D | DATE |
|---|---|---|---|---|
| 1 | APPROVED FOR CONSTRUCTION | RS | EA | 2018-07-11 |
| 0 | APPROVED FOR CONSTRUCTION | PJ | EA | 2018-06-31 |

REVISIONS

| ROLE | NAME | SIGNATURE & DATE |
|---|---|---|
| DRAFTSPERSON | P. JIVAEV | NR 2018-04-10 |
| DESIGNER | F. LIU | NR 2018-04-10 |
| CHECKER | E. AKINCI | |
| DESIGN COORD. | S. PERKINS | |
| RESP. ENG. | E. AKINCI | |
| LEAD DISC. ENG. | E. AKINCI | |
| ENG. MANAGER | B. RUSTAD | |
| PROJ. MANAGER | B. RUSTAD | |

DRAWING APPROVAL STATUS: Approved for Construction

HATCH

StrataGold Corporation

EAGLE GOLD PROJECT

ADR PROCESS PLANT BUILDING
BARREN SOLUTION SUMP TANK
PLAN, SECTIONS - SHEET 2

| DRAWING No. | DRAWING TITLE |
|---|---|
| REFERENCE DRAWINGS | |

REG. PROFESSIONAL

SCALE 1:50 OR AS NOTED

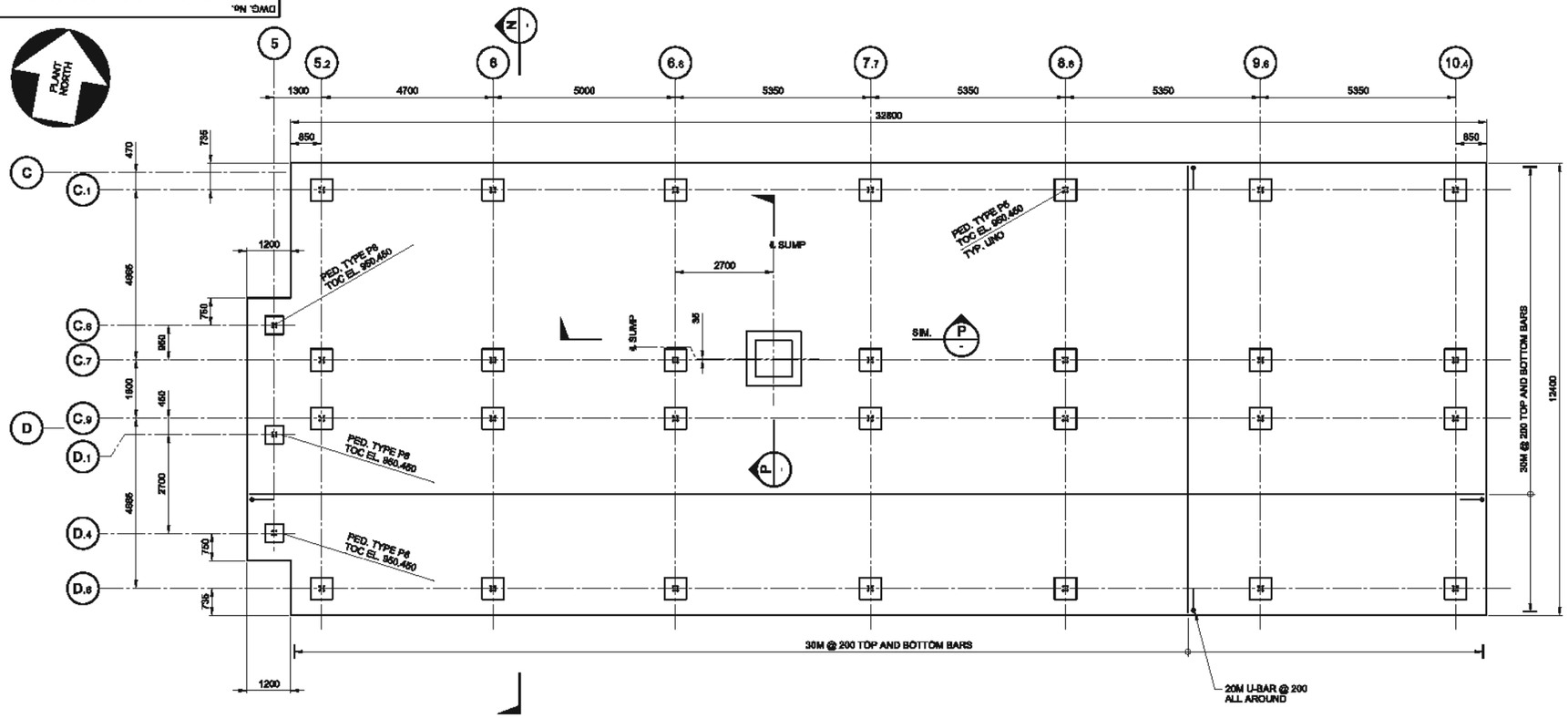
DWG. No. H354138-5710-231-260-0009

REV 1

SHEET SIZE: D

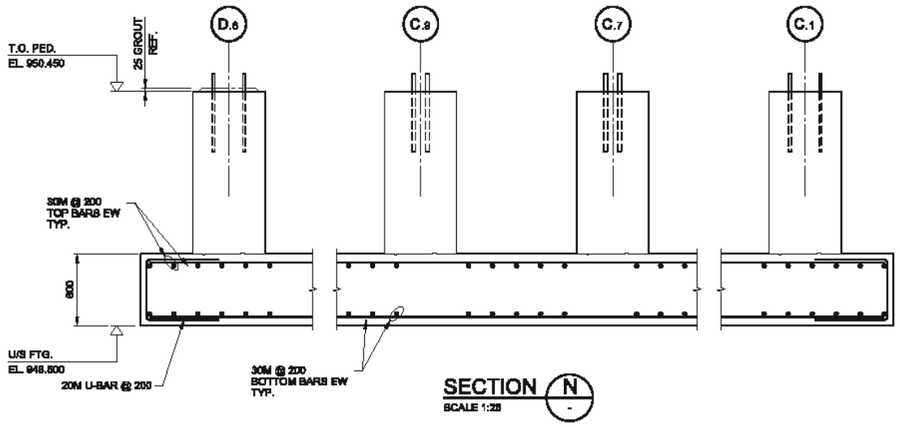
$FILE$
PRINTED: 11-JUL-2018
16:14
hd_jpeschke

DWG. No. H354138-5710-231-260-0010



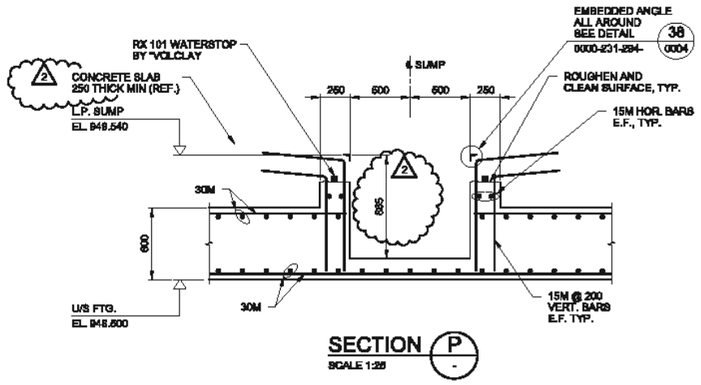

## FOOTING TYPE F7 - PLAN

SCALE 1:75




## SECTION N

SCALE 1:25




## SECTION P

SCALE 1:25

0 250 500 750 1000 1250
1:25 SCALE IN MILLIMETRES

0 750 1500 2250 3000 3750
1:75 SCALE IN MILLIMETRES

**NOTES:**

1. FOR NOTES SEE DRAWING H354138-5710-231-260-0001.

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| No. | DESCRIPTION | BY | CHKD | DATE |
|---|---|---|---|---|
| 2 | SUMP DEPTH REDUCED, SLAB THICKNESS CLARIFIED | PJ | EA | 2018-07-31 |
| 1 | EMBEDDED ANGLE AROUND SUMP - REFERENCE DETAIL 38 ADDED | RS | EA | 2018-07-11 |
| 0 | APPROVED FOR CONSTRUCTION | PJ | EA | 2018-05-31 |

REVISIONS

| ROLE | NAME | SIGNATURE & DATE |
|---|---|---|
| DRAFTSPERSON | E. MENDIOLA | NR 2018-04-20 |
| DESIGNER | F. LIU | NR 2018-04-20 |
| CHECKER | E. AKINCI | |
| DESIGN COORD. | S. PERKINS | |
| RESP. ENG. | E. AKINCI | |
| LEAD DISC. ENG. | E. AKINCI | |
| ENG. MANAGER | B. RUSTAD | |
| PROJ. MANAGER | B. RUSTAD | |

DRAWING APPROVAL STATUS: Approved for Construction

HATCH

Strata Gold Corporation

EAGLE GOLD PROJECT

ADR PROCESS PLANT BUILDING
INTERIOR FOUNDATION
PLAN, SECTIONS AND DETAILS - SHEET 1

SCALE: AS NOTED OR AS NOTED

DWG. No. H354138-5710-231-260-0010

REV 2

SHEET SIZE: D

DRAWING No. | DRAWING TITLE

REFERENCE DRAWINGS

REG. PROFESSIONAL

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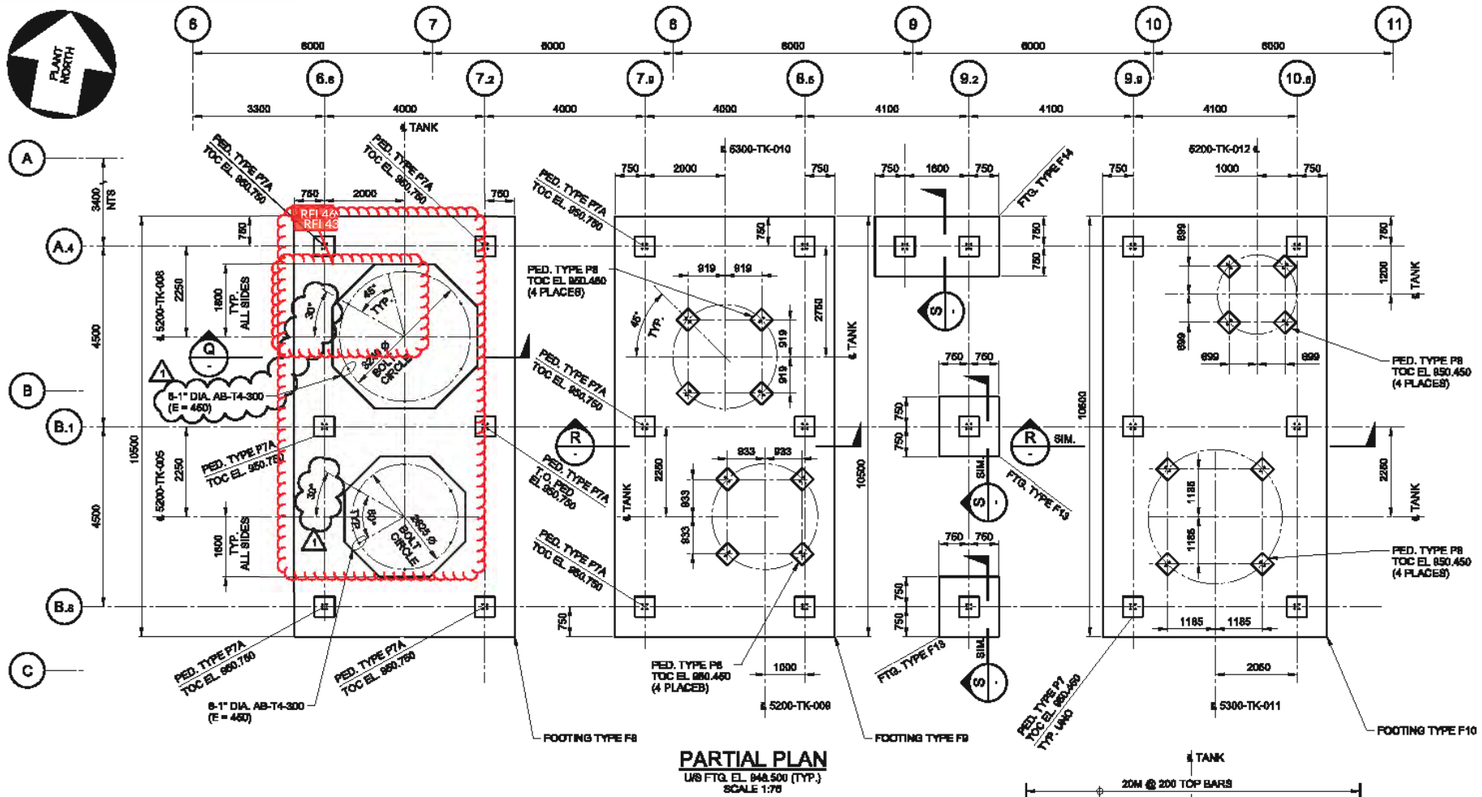
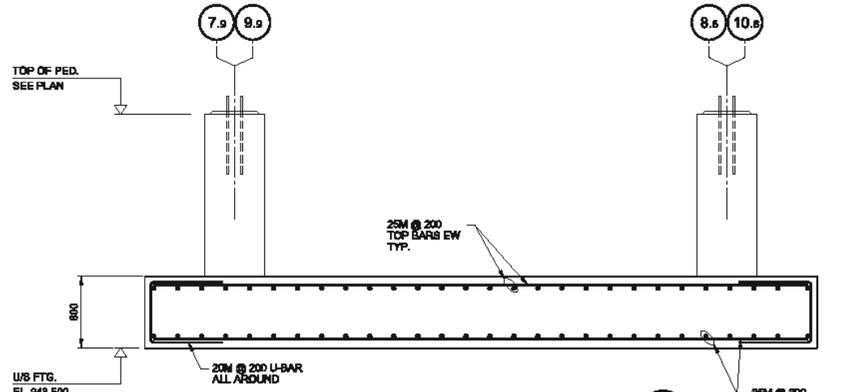
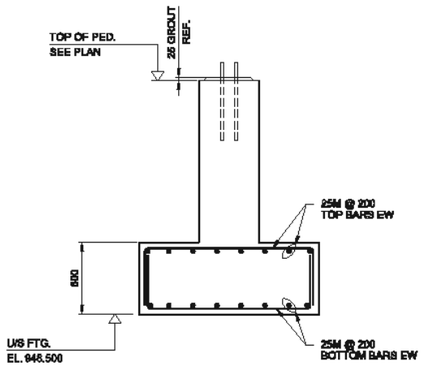
PRINTED: 31-JUL-2018
nt_jwsawicki



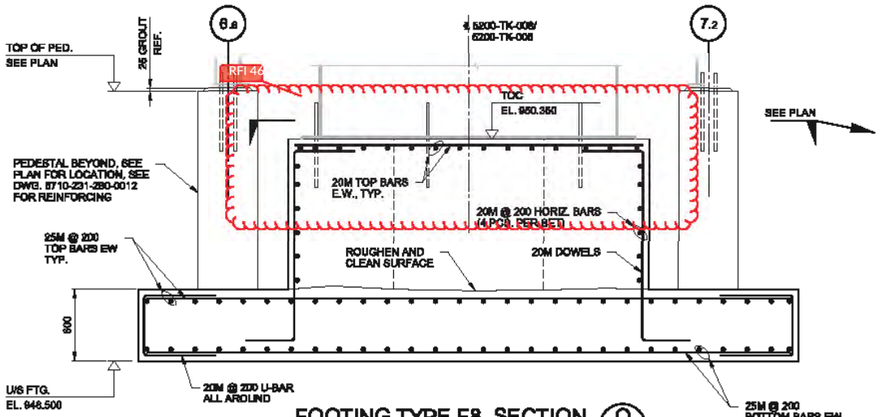

PARTIAL PLAN
U/S FTG. EL. 948.500 (TYP.)
SCALE 1:75



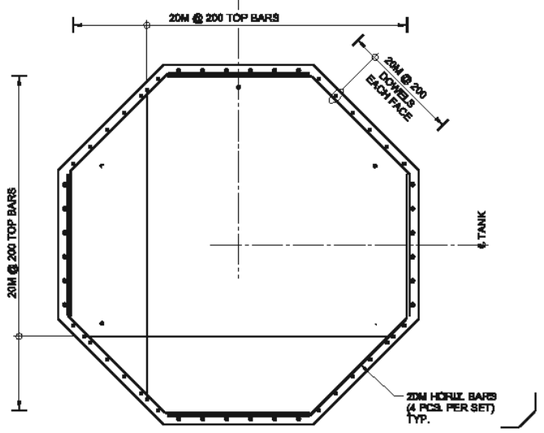

FOOTING TYPE F9 AND F10, SECTION R
SCALE 1:25




FOOTING TYPE F11, F12, F13 AND F14
SECTION S S
SCALE 1:25




FOOTING TYPE F8, SECTION Q
SCALE 1:25




5200-TK-005/008 - REINFORCEMENT PLAN
SCALE 1:25

0 250 500 750 1000 1250
1:25 SCALE IN MILLIMETRES

0 750 1500 2250 3000 3750
1:75 SCALE IN MILLIMETRES

NOTES:
1. FOR NOTES SEE DRAWING H354138-5710-231-260-0001.

| DRAWING No. | DRAWING TITLE |
|---|---|
| REFERENCE DRAWINGS | |

REG. PROFESSIONAL

| No. | DESCRIPTION | BY | CHK'D | DATE |
|---|---|---|---|---|
| 1 | APPROVED FOR CONSTRUCTION | RS | EA | 2018-07-11 |
| 0 | APPROVED FOR CONSTRUCTION | PJ | EA | 2018-05-31 |

REVISIONS

THIS DRAWING WAS PREPARED FOR THE EXCLUSIVE USE OF STRATA GOLD (CLIENT) AND IS ISSUED PURSUANT TO HSM138 BETWEEN CLIENT AND HATCH LTD. ("HATCH"). UNLESS OTHERWISE AGREED IN WRITING WITH CLIENT OR SPECIFIED ON THIS DRAWING, (A) HATCH DOES NOT ACCEPT AND DISCLAIMS ANY AND ALL LIABILITY OR RESPONSIBILITY ARISING FROM ANY USE OF OR RELIANCE ON THIS DRAWING BY ANY THIRD PARTY OR ANY MODIFICATION OR REUSE OF THIS DRAWING BY CLIENT, AND (B) THIS DRAWING IS CONFIDENTIAL AND ALL INTELLECTUAL PROPERTY RIGHTS EMBODIED ON REFERENCED IN THIS DRAWING REMAIN THE PROPERTY OF HATCH.

HATCH

| ROLE | NAME | SIGNATURE & DATE |
|---|---|---|
| DRAFTSPERSON | E.MENDIOLA | NR 2018-04-20 |
| DESIGNER | F. LIU | NR 2018-04-20 |
| CHECKER | E. AKINCI | |
| DESIGN COORD. | S. PERKINS | |
| RESP. ENG. | E. AKINCI | |
| LEAD DISC. ENG. | E. AKINCI | |
| ENG. MANAGER | B. RUSTAD | |
| PROJ. MANAGER | B. RUSTAD | |

DRAWING APPROVAL STATUS: Approved for Construction

Strata Gold Corporation

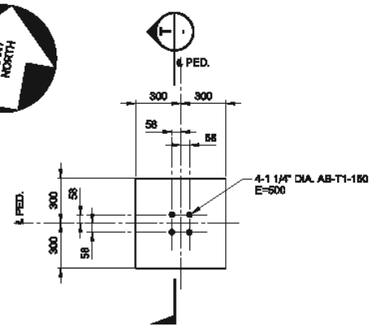
EAGLE GOLD PROJECT

ADR PROCESS PLANT BUILDING
INTERIOR FOUNDATION
PLAN, SECTIONS AND DETAILS - SHEET 2

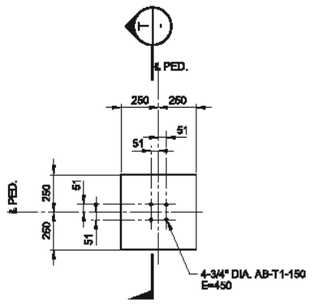
SCALE: AS NOTED OR AS NOTED
DWG. No.: H354138-5710-231-260-0011
REV: 1
SHEET SIZE: D

SFILE$
PRINTED: 11-JUL-2018
13:17
kdc_pwservice

DWG. No. H354138-5710-231-260-0012




ANCHOR SETTING

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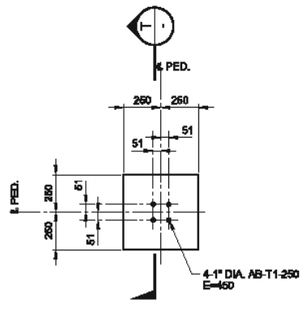


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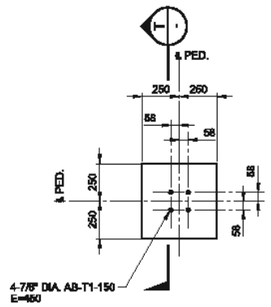


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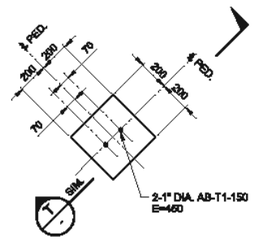


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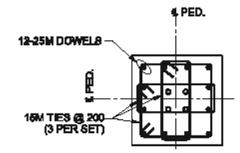
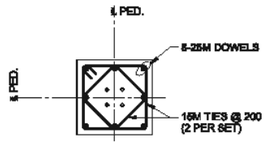



REINFORCEMENT

## PEDESTAL TYPE P5
SCALE 1:20




REINFORCEMENT

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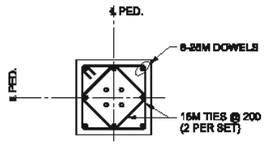
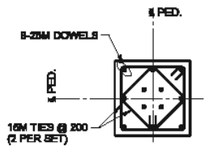
SCALE 1:20



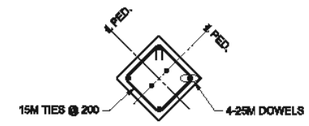

REINFORCEMENT

## PEDESTAL TYPE P6A
SCALE 1:20



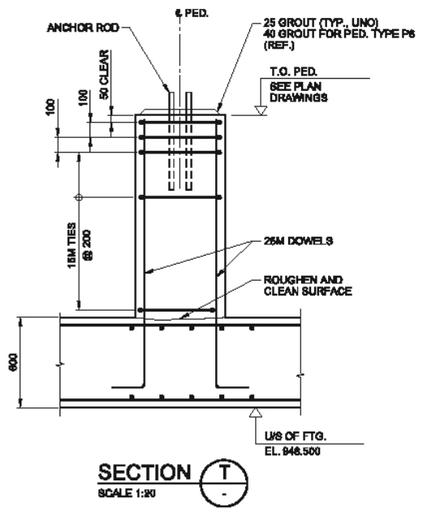

REINFORCEMENT

## PEDESTAL TYPE P7
## PEDESTAL TYPE P7A
SCALE 1:20




REINFORCEMENT

## PEDESTAL TYPE P8
SCALE 1:20




## SECTION T
SCALE 1:20

NOTES:

1. FOR NOTES SEE DRAWING H354138-5710-231-260-0001.

0 200 400 600 800 1000
1:20 SCALE IN MILLIMETRES

THIS DRAWING WAS PREPARED FOR THE EXCLUSIVE USE OF STRATA GOLD CORP. AND IS ISSUED PURSUANT TO AGREEMENT BETWEEN CLIENT AND HATCH LTD. (HATCH). UNLESS OTHERWISE AGREED IN WRITING WITH CLIENT OR SPECIFIED ON THIS DRAWING, HATCH DOES NOT ACCEPT ANY AND DISCLAIMS ANY AND ALL LIABILITY OR RESPONSIBILITY ARISING FROM ANY USE OF OR RELIANCE ON THIS DRAWING BY ANY THIRD PARTY OR ANY MODIFICATION OR RELIANCE OF THIS DRAWING BY CLIENT. AND (2) THIS DRAWING IS CONFIDENTIAL AND ALL INTELLECTUAL PROPERTY RIGHTS EMBODIED OR REFERENCED IN THIS DRAWING REMAIN THE PROPERTY OF HATCH.

| No. | DESCRIPTION | BY | CHK'D | DATE |
|---|---|---|---|---|
| 0 | APPROVED FOR CONSTRUCTION | PJ | EA | 2018-05-31 |

| ROLE | NAME | SIGNATURE & DATE |
|---|---|---|
| DRAFTSPERSON | E. MENDIOLA | NR 2018-04-24 |
| DESIGNER | F. LIU | NR 2018-04-24 |
| CHECKER | E. AKINCI | |
| DESIGN COORD. | S. PERKINS | |
| RESP. ENG. | E. AKINCI | |
| LEAD DISC. ENG. | E. AKINCI | |
| ENG. MANAGER | B. RUSTAD | |
| PROJ. MANAGER | B. RUSTAD | |

DRAWING APPROVAL STATUS: Approved for Construction

HATCH

Strata Gold Corporation

EAGLE GOLD PROJECT

ADR PROCESS PLANT BUILDING
INTERIOR FOUNDATION
PLAN, SECTIONS AND DETAILS - SHEET 3

| DRAWING No. | DRAWING TITLE |
|---|---|
| REFERENCE DRAWINGS | |

REG. PROFESSIONAL

SCALE: AS NOTED OR AS NOTED

DWG. No. H354138-5710-231-260-0012

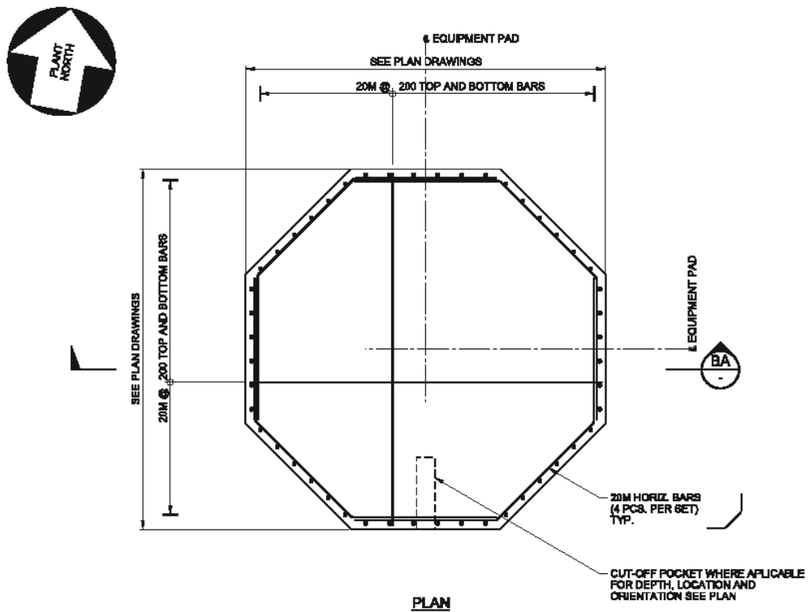
REV 0

SHEET SIZE: D

$FILE$
PRINTED: 31-MAY-2018
Mc_jamesWcb

17:52

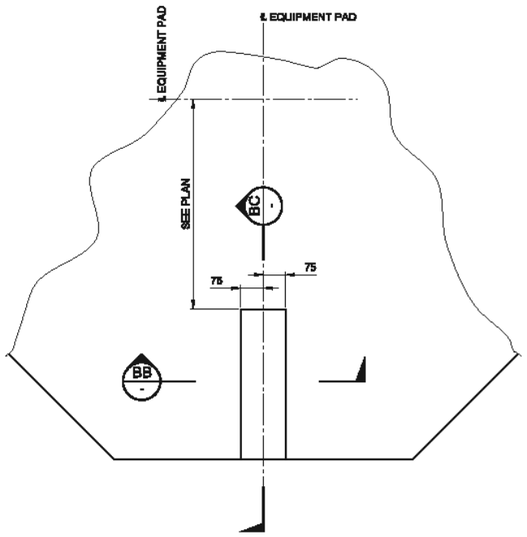
DWG. No. H354138-5710-231-260-0013




PLAN

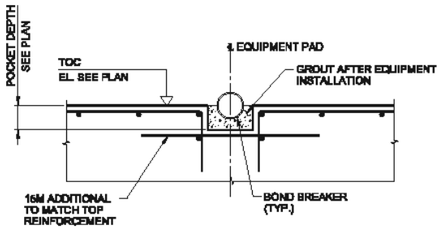
## TYPICAL TANK FOOTING REINFORCEMENT DETAIL 3 / 0007

SCALE 1:25



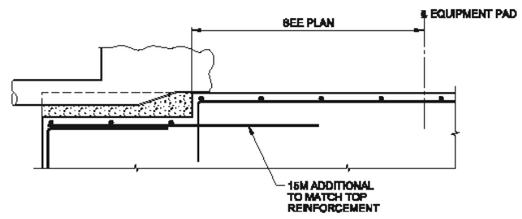

## TYPICAL CUT-OFF POCKET

SCALE: 1:10



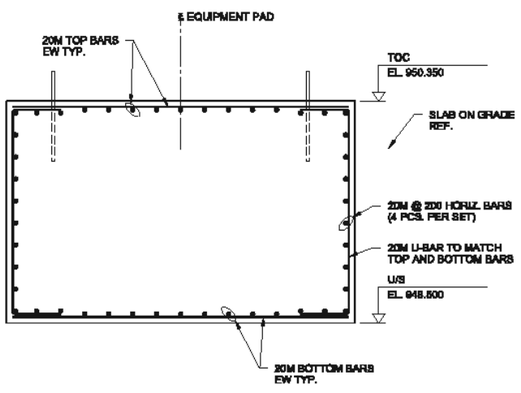

## SECTION BB / -

SCALE: 1:10




## SECTION BC / -

SCALE: 1:10




## SECTION BA / -

SCALE: 1:25

0 100 200 300 400 500
1:10 SCALE IN MILLIMETRES

0 250 500 750 1000 1250
1:25 SCALE IN MILLIMETRES

**NOTES:**

1. FOR NOTES SEE DRAWING H354138-5710-231-260-0001.

THIS DRAWING WAS PREPARED FOR THE EXCLUSIVE USE OF STRATA GOLD FOLIENTY AND IS ISSUED PURSUANT TO AGREEMENT BETWEEN CLIENT AND HATCH LTD. (HATCH). UNLESS OTHERWISE AGREED IN WRITING WITH CLIENT OR SPECIFIED ON THIS DRAWING, OR HATCH DOES NOT ACCEPT AND DISCLAIMS ANY AND ALL LIABILITY OR RESPONSIBILITY ARISING FROM ANY USE OF OR RELIANCE ON THIS DRAWING BY ANY THIRD PARTY OR ANY MODIFICATION OR RELIANCE OF THIS DRAWING BY CLIENT, AND (C) THIS DRAWING IS CONFIDENTIAL AND ALL INTELLECTUAL PROPERTY RIGHTS EMBODIED OR REFERENCED IN THIS DRAWING REMAIN THE PROPERTY OF HATCH.

| No. | DESCRIPTION | BY | CHK'D | DATE |
|---|---|---|---|---|
| 0 | APPROVED FOR CONSTRUCTION | PJ | EA | 2018-05-31 |

| ROLE | NAME | SIGNATURE & DATE |
|---|---|---|
| DRAFTSPERSON | E. MENDIOLA | NR 2018-05-11 |
| DESIGNER | F. LIU | NR 2018-05-11 |
| CHECKER | E. AKINCI | |
| DESIGN COORD. | S. PERKINS | |
| RESP. ENG. | E. AKINCI | |
| LEAD DISC. ENG. | E. AKINCI | |
| ENG. MANAGER | B. RUSTAD | |
| PROJ. MANAGER | B. RUSTAD | |

DRAWING APPROVAL STATUS: Approved for Construction

HATCH

Strata Gold Corporation

EAGLE GOLD PROJECT

ADR PROCESS PLANT BUILDING
INTERIOR FOUNDATION
PLAN, SECTIONS AND DETAILS - SHEET 4

| DRAWING No. | DRAWING TITLE |
|---|---|
| REFERENCE DRAWINGS | REG. PROFESSIONAL |

SCALE: AS NOTED OR AS NOTED

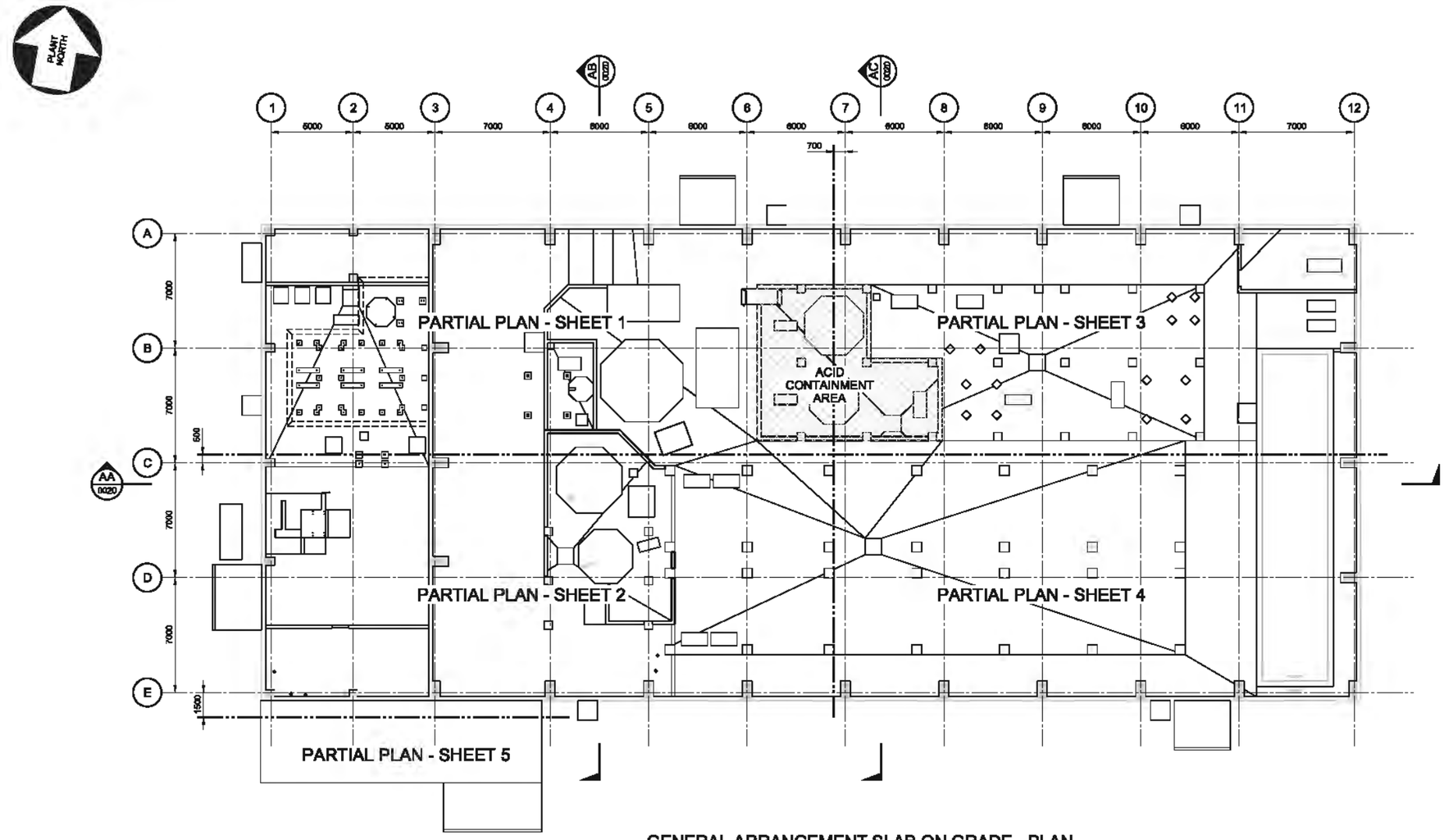
DWG. No. H354138-5710-231-260-0013

REV 0

SHEET SIZE: D

$FILE$
PRINTED: 31-MAY-2018
Mc_jsantos
17:52

DWG. No. H354138-5710-231-260-0019




## GENERAL ARRANGEMENT SLAB ON GRADE - PLAN

TOP OF SLAB NOM. EL. 950.150
FIN. GRADE EL. 950.000 (REF.)

**NOTES:**

1. FOR NOTES SEE DRAWING H354138-5710-231-260-0001.
2. ALL EXPOSED CONCRETE IN ACID CONTAINMENT AREA SHALL BE RH58 COATING OF POLYESTER PAINT CAPABLE OF RESISTING A SOLUTION OF 30% HYDROCHLORIC ACID. SURFACE PREPARATION OF CONCRETE AND INSTALLATION OF PAINT SHALL BE AS PER MANUFACTURERS RECOMMENDATIONS.
3. INSIDE ADR PROCESS PLANT BUILDING CONTAINMENT AREA, ALL CONSTRUCTION JOINTS INCLUDING THE ONES BETWEEN SLAB ON GRADE AND EQUIPMENT/TANK PADS AND PEDESTALS TO BE SEALED ACCORDING TO THE STANDARD DETAILS 28 AND 29 ON DRAWING H354138-0000-231-294-0003.

0 1.5 3.0 4.5 6.0 7.5
1:150 SCALE IN METRES

| DRAWING No. | DRAWING TITLE |
|---|---|
| REFERENCE DRAWINGS | |

REG. PROFESSIONAL

| No. | DESCRIPTION | BY | CHK'D | DATE |
|---|---|---|---|---|
| 0 | APPROVED FOR CONSTRUCTION | EM | EA | 2018-06-05 |

REVISIONS

| ROLE | NAME | SIGNATURE & DATE |
|---|---|---|
| DRAFTSPERSON | P. JIVAEV | NR 2018-02-30 |
| DESIGNER | F. LIU | NR 2018-05-17 |
| CHECKER | E. AKINCI | |
| DESIGN COORD. | S. PERKINS | |
| RESP. ENG. | E. AKINCI | |
| LEAD DISC. ENG. | E. AKINCI | |
| ENG. MANAGER | B. RUSTAD | |
| PROJ. MANAGER | B. RUSTAD | |

DRAWING APPROVAL STATUS: Approved for Construction

HATCH

StrataGold Corporation

EAGLE GOLD PROJECT

ADR PROCESS PLANT BUILDING
SLAB ON GRADE
GENERAL ARRANGEMENT

SCALE 1:150 OR AS NOTED | DWG. No. H354138-5710-231-260-0019 | REV 0

SHEET SIZE: D

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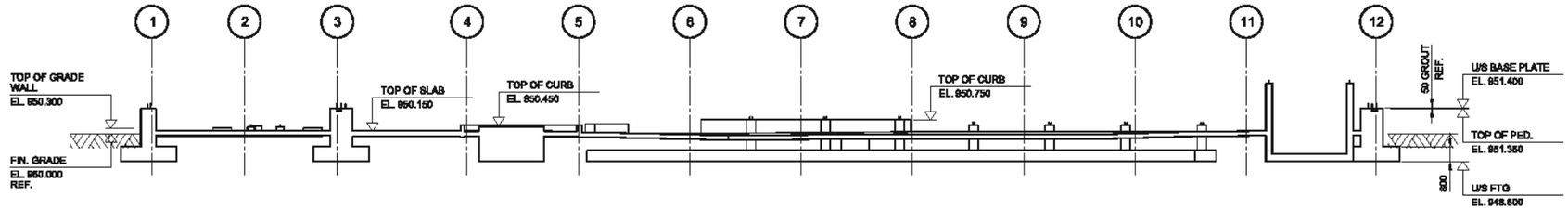
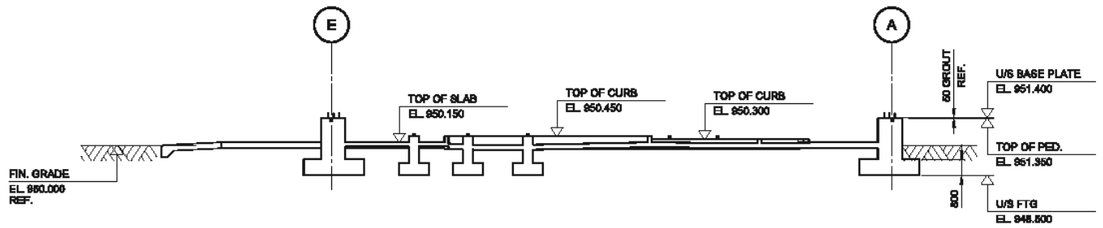
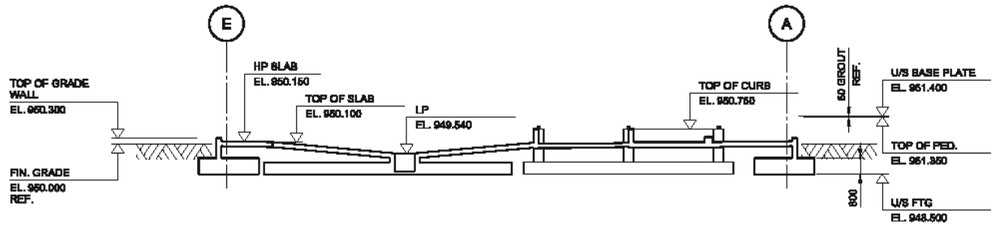
DWG. No. H354138-5710-231-260-0020




SECTION AA 0019




SECTION AB 0019




SECTION AC 0019

**NOTES:**

1. FOR NOTES SEE DRAWING H354138-5710-231-260-0001.

1:150 SCALE IN METRES

THIS DRAWING WAS PREPARED FOR THE EXCLUSIVE USE OF STRATA GOLD FOLIENTY AND IS ISSUED PURSUANT TO AGREEMENT BETWEEN CLIENT AND HATCH LTD. (HATCH). UNLESS OTHERWISE AGREED IN WRITING WITH CLIENT OR SPECIFIED ON THIS DRAWING, HATCH DOES NOT ACCEPT ANY DISCLAIMS ANY AND ALL LIABILITY OR RESPONSIBILITY ARISING FROM ANY USE OF OR RELIANCE ON THIS DRAWING BY ANY THIRD PARTY OR ANY MODIFICATION OR REUSE OF THIS DRAWING BY CLIENT, AND (2) THIS DRAWING IS CONFIDENTIAL AND ALL INTELLECTUAL PROPERTY RIGHTS EMBODIED OR REFERENCED IN THIS DRAWING REMAIN THE PROPERTY OF HATCH.

| | | | | |
|---|---|---|---|---|
| DRAFTSPERSON | P. JIVAEV | NR | 2018-02-30 | |
| DESIGNER | F. LIU | NR | 2018-05-17 | |
| CHECKER | E. AKINCI | | | |
| DESIGN COORD. | S. PERKINS | | | |
| RESP. ENG. | E. AKINCI | | | |
| LEAD DISC. ENG. | E. AKINCI | | | |
| ENG. MANAGER | B. RUSTAD | | | |
| PROJ. MANAGER | B. RUSTAD | | | |

| No. | DESCRIPTION | BY | CHKD | DATE |
|---|---|---|---|---|
| 0 | APPROVED FOR CONSTRUCTION | EM | EA | 2018-06-06 |

| DRAWING No. | DRAWING TITLE |
|---|---|
| REFERENCE DRAWINGS | |

REG. PROFESSIONAL

REVISIONS

| ROLE | NAME | SIGNATURE & DATE |
|---|---|---|
| DRAWING APPROVAL STATUS: | Approved for Construction | |

Stratabound Minerals Corporation

EAGLE GOLD PROJECT

ADR PROCESS PLANT BUILDING
SLAB ON GRADE
SECTIONS

| SCALE | DWG. No. | REV |
|---|---|---|
| 1:150 OR AS NOTED | H354138-5710-231-260-0020 | 0 |

SHEET SIZE: D

$FILE$
PRINTED: 05-JUN-2018
Mt_jivaev.wcs

DWG. No. H354138-5710-231-260-0021

# SLAB ON GRADE - PARTIAL PLAN

SLAB HP EL. 950.150
FIN. GRADE EL. 950.000 (REF.)

0 500 1000 1500 2000 2500
1:50 SCALE IN MILLIMETRES

## NOTES:

1. FOR NOTES SEE DRAWING H354138-5710-231-260-0001.
2. FOR CONSTRUCTION JOINTS SEE NOTE 3 ON DRAWING H354138-5710-231-260-0019.

RFI 69
RFI 74
RFI 61

FINISHED GRADE EL. 950.000 (REF.)
RAMP SEE STANDARD DETAIL 45 0000-231-294- 0006
DN 200 STD. PIPE BOLLARDS SEE STANDARD DETAIL 83 0000-231-294- 0007 (TYP.)
STAIR PAD TYPE 2 SEE STANDARD DETAIL (TYP.) 43 0000-231-294- 0006 TOC EL 950.150
MATCH LINE
FOR CONTINUATION SEE DRAWING H354138-5710-231-260-0023
STAIR PAD TYPE 2 TOC EL 950.160
FOR SUMP 1000X1000 BY 900 DEEP SEE DETAIL 23 0030 5710-231-260- LP EL. 949.950
TOP OF SLAB EL 950.180
℄ TANK
℄ 5400-TK-024
℄ 5400-RE-001
℄ 5400-RE-002
℄ 5400-RE-003
℄ SUMP
ELECTROWINNING RETURN TANK SEE DETAIL 22 0030 TOC EL 950.350
CURB
TOP OF CURB EL. 950.300
PED. TYPE P12 T.O. PED. EL. 950.350 (4 PLACES)
FOR CURB SEE STANDARD DETAIL (TYP.) 33 0000-231-294- 0004 TOC EL. 950.300 (TYP. UNO)
300 MIN. THICK SLAB ON GRADE REINFORCED WITH 15M @ 300 TOP AND BOTTOM EACH WAY
CONSTRUCTION JOINT, TYP. SEE NOTE 3, 5710-231-260-0019
HP EL. 950.150
HP EL. 950.300
SLOPE
EQUIPMENT PAD TYPE 1 TOC EL 950.325
250 MIN. THICK SLAB ON GRADE REINFORCED WITH 15M @ 300 TOP AND BOTTOM EACH WAY (TYP. UNO)
2-15M BY 1500 LONG TOP AND BOTTOM AT EACH CORNER (TYP.)
STANDARD TOP MOUNTED HANDRAIL CONNECT TO CONCRETE SEE DETAILS ON STANDARD DRAWING 0000-232-294-0003
TOC EL. 950.750
TOP OF SLAB EL. 950.110
TOP OF SLAB EL. 950.150
EQUIPMENT PAD TYPE 1 TOC EL 950.350
STANDARD SIDE MOUNTED HANDRAIL
EQUIPMENT PAD TYPE 1 TOC EL 950.300 SEE STANDARD DETAIL (TYP.) 41 0005 0000-231-294- (3 PLACES TYP.)
ELECTROWINNING RETURN PUMP SEE DETAIL 4 0028 TOC EL 950.265
PED. TYPE P13 TOC EL 950.400 (TYP. UNO)
℄ DISCH.
HP EL. 950.150
STAIR PAD TYPE 2 TOC EL 950.160
STAIR PAD TYPE 1 TOC EL. 950.300
CAUSTIC METERING PUMPS EQUIPMENT PAD TYPE 1 SEE STANDARD DETAIL 41 0005 0000-231-294- TOC EL 950.350
STAIR PAD TYPE 1 SEE STANDARD DETAIL (TYP.) 43 0005 0000-231-294- TOC EL 950.300
LP EL. 950.100
CONSTRUCTION JOINT, TYP. SEE NOTE 3, 5710-231-260-0019
PED. TYPE P11 TOP OF PED. EL. 950.300 (4 PLACES)
CAUSTIC MIXING TANK PAD SEE DETAIL 11 0028 TOC EL 950.300
℄ 5400-EW-002
℄ 5400-EW-001
℄ 5400-EW-003
PED. TYPE P14 TOC EL 950.400 (6 PLACES TYP.)
MATCH LINE
FOR CONTINUATION SEE DRAWING H354138-5710-231-260-0022
TOP OF CURB EL. 950.300
TOP OF CURB EL. 950.450
300 THICK SLAB
ELECTROWINNING SLUDGE FILTER FEED PUMP PAD SEE DETAIL 5 0028 TOC EL 950.360
℄ PAD
STAIR PAD TYPE 1 TOC EL. 950.300
STRIP SOLUTION PUMP SEE DETAIL 9 0028 TOC EL. 950.230
5200-TK-007 TOC EL 950.350
TOP OF SLAB EL. 950.085 (REF.)
TOP OF SLAB EL. 950.045
TOP OF SLAB EL. 950.010
CONSTRUCTION JOINT, TYP. SEE NOTE 3, 5710-231-260-0019
HP EL. 950.160
HP EL. 950.150
5200-TK-006 TOC EL 950.350
NEUTRALIZED ACID PUMP SEE DETAIL 10 0028 TOC EL. 950.750
ACID WASH CIRCULATION PUMP SEE DETAIL 10 0028 TOC EL. 950.750
TOP OF SLAB EL. 950.160
TOP OF CURB EL. 950.750
ACID CONTAINMENT AREA, SEE NOTE 2, 5710-231-260-0019
ACID RESISTANT CONCRETE COAT FOR CONTAINMENT AREA SEE NOTE 2 ON DRAWING H354138-5710-231-260-0019

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
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| | | | | | | | | | | | |
| | | | | | | | | | | | |

DWG. No. H354138-5710-231-260-0022

PLANT NORTH

EQUIPMENT PAD TYPE 2 SEE STANDARD DETAIL 41 0000-231-294- 0005
TOC EL. 950.150

HP EL. 950.150

SLOPE

300 THICK SLAB

FOR CONTINUATION SEE DRAWING H354138-5710-231-260-0021

MATCH LINE

TOP OF CURB EL. 950.460

TOP OF SLAB EL. 950.115 (REF.)

TOP OF CURB EL. 950.460

TOP OF SLAB EL. 950.010

PED. TYPE P15 TOC EL. 950.450 (4 PLACES TYP.)

SEE DETAIL 31 0081

TOP OF SLAB EL 950.150

DN 200 STD. PIPE BOLLARD SEE STANDARD DETAIL 63 0007 0000-231-294- (TYP.)

& FURNACE

CYANIDE AREA SUMP 1000 X1000 BY 900 DEEP SEE DETAIL 23 0080
5710-231-260-
LP EL. 950.000

& SUMP

& TANK

6200-TK-017 TOC EL. 950.350

6200-TK-018 TOC EL. 950.350

RFI 39

TOP OF SLAB EL. 950.015 (REF.)

CARBON COLUMN LINE 1 CARBON TRANSFER PUMPS SEE DETAIL 20 0030
TOC EL. 950.325

& SUCTION

& PUMP

TOP OF SLAB EL. 950.045

CYANIDE METERING PUMPS FOR EQUIPMENT PAD TYPE 1 SEE STANDARD DETAIL 41 0005
0000-231-294-
TOC EL. 950.300

CONSTRUCTION JOINT, TYP., SEE NOTE 3 DWG. 5710-231-260-0019

CYANIDE TRANSFER PUMP SEE DETAIL 13 0029
TOC EL. 950.250

TOP OF SLAB EL. 950.085 (REF.)

CARBON COLUMN LINE 2 CARBON PUMPS SEE DETAIL 21 0030
TOC EL. 950.325

300 MIN. THICK SLAB ON GRADE REINFORCED WITH 15M @ 300 TOP AND BOTTOM EACH WAY

250 MIN. THICK SLAB ON GRADE REINFORCED WITH 15M @ 300 TOP AND BOTTOM EACH WAY (TYP. UNO)

RFI 73

TOP OF SLAB EL. 950.045

STAIR PAD TYPE 1 SEE STANDARD DETAIL 43 0005
0000-231-294-
TOC EL. 950.350

TOP OF SLAB EL. 950.150

AJ 0026

FINISHED GRADE EL. 950.000 (REF.)

FOR RAMP SEE STANDARD DETAIL 45 0005
0000-231-294-

TOP OF CURB EL. 950.300

TOP OF SLAB EL. 950.150

& DOOR

EL. 950.100

FOR CURB SEE STANDARD DETAIL (TYP.) 33 0004
0000-231-294-
TOC EL. 950.300
(TYP. UNO)

2-15M BY 1600 LONG TOP AND BOTTOM AT EACH CORNER (TYP.)

HP EL. 950.160

MATCH LINE

FOR CONTINUATION SEE DRAWING H354138-5710-231-260-0025

STAIR PAD TYPE 2 SEE STANDARD DETAIL 43 0005
0000-231-294-
TOC EL. 950.150

MATCH LINE

FOR CONTINUATION SEE DRAWING H354138-5710-231-260-0024

## SLAB ON GRADE - PARTIAL PLAN

SLAB HP EL. 950.150
FIN. GRADE EL. 950.000 (REF.)

0 500 1000 1500 2000 2500
1:50 SCALE IN MILLIMETRES

**NOTES:**

1. FOR NOTES SEE DRAWING H354138-5710-231-260-0001.
2. FOR CONSTRUCTION JOINTS SEE NOTE 3 ON DRAWING H354138-5710-231-260-0019.

THIS DRAWING WAS PREPARED FOR THE EXCLUSIVE USE OF STRATA GOLD CORPORATION AND IS ISSUED PURSUANT TO AGREEMENTS BETWEEN CLIENT AND HATCH LTD. (HATCH). UNLESS OTHERWISE AGREED IN WRITING WITH CLIENT OR SPECIFIED ON THIS DRAWING, OR HATCH DOES NOT ACCEPT AND DISCLAIMS ANY AND ALL LIABILITY OR RESPONSIBILITY ARISING FROM ANY USE OF OR RELIANCE ON THIS DRAWING BY ANY THIRD PARTY OR ANY MODIFICATION OR MISUSE OF THIS DRAWING BY CLIENT, AND (2) THIS DRAWING IS CONFIDENTIAL AND ALL INTELLECTUAL PROPERTY RIGHTS EMBODIED OR REFERENCED IN THIS DRAWING REMAIN THE PROPERTY OF HATCH.

| DRAWING No. | DRAWING TITLE |
|---|---|
| REFERENCE DRAWINGS | |

REG. PROFESSIONAL

| No. | DESCRIPTION | BY | CHK'D | DATE |
|---|---|---|---|---|
| 1 | HOLDS H0024, H0025 AND H0028 REMOVED, PED. P15 ELEVATION AND LOCATION UPDATED, BOLLARDS ADDED | PJ | EA | 2018-08-14 |
| 0 | APPROVED FOR CONSTRUCTION | EM | EA | 2018-08-06 |

REVISIONS

| ROLE | NAME | SIGNATURE & DATE |
|---|---|---|
| DRAFTSPERSON | P. JIVAEV | NR 2018-05-17 |
| DESIGNER | F. LIU | NR 2018-05-17 |
| CHECKER | E. AKINCI | |
| DESIGN COORD. | S. PERKINS | |
| RESP. ENG. | E. AKINCI | |
| LEAD DISC. ENG. | E. AKINCI | |
| ENG. MANAGER | B. RUSTAD | |
| PROJ. MANAGER | B. RUSTAD | |

DRAWING APPROVAL STATUS: Approved for Construction

HATCH

StrataGold Corporation

EAGLE GOLD PROJECT

ADR PROCESS PLANT BUILDING
SLAB ON GRADE
PARTIAL PLAN - SHEET 2

SCALE 1:50 OR AS NOTED

DWG. No. H354138-5710-231-260-0022

REV 1

SHEET SIZE: D

FILE:
PRINTED: 14-AUG-2018 15:45
KM_jvaievk

DWG. No. H354138-5710-231-260-0023

PLANT NORTH

RFI 58

RFI 58

FINISHED GRADE EL. 960.000 (REF.)

DN 200 STD. PIPE BOLLARD SEE STANDARD DETAIL 63 0000-231-294- 0007 (TYP.)

FOR RAMP SEE STANDARD DETAIL 45 0000-231-294- 0005

STAIR PAD TYPE 2 SEE STANDARD DETAIL (TYP.) 43 0000-231-294- 0005 TOC EL. 950.150

HP EL. 950.150

2263 (REF.)

STRIP CARBON TRANSFER PUMP SEE DETAIL 17 TOC EL. 950.325 0029

REGEN. CARBON TRANSFER PUMP SEE DETAIL 17 TOC EL. 950.385 0029

250 MIN. THICK SLAB ON GRADE REINFORCED WITH 15M @ 300 TOP AND BOTTOM EACH WAY (TYP. UNO)

2-15M BY 1500 LONG TOP AND BOTTOM AT EACH CORNER (TYP.)

EL. 950.110

DOOR SILL EL. 950.135

FIRE WATER PUMP SEE DETAIL 19 TOC EL. 950.360 0029

HP EL. 950.200

FOR CURB SEE STANDARD DETAIL (TYP.) 33 0000-231-294- 0004 TOC EL. 950.300

FRESH WATER SUPPLY PUMP SEE DETAIL 18 TOC EL. 950.380 0029

TOP OF SLAB EL. 950.150

TOP OF SLAB EL. 950.110

BLOW-OFF COLUMN EQUIP. PAD TYPE 1 SEE STANDARD DETAIL (TYP.) 41 0000-231-294- 0008 TOC EL. 950.360

STAIR PAD TYPE 1 TOC EL. 950.050

CARBON REGEN. AREA SUMP 1000X1000 BY 900 DEEP SEE DETAIL 23 0030 LP EL. 949.850

CONSTRUCTION JOINT, TYP. SEE NOTE 3, DWG. 5710-231-260-0019

FOR EQUIPMENT PEDESTALS AND FOOTING SEE DRAWING 5710-231-260-0011

TOP OF SLAB EL. 949.990 (REF.)

TOP OF SLAB EL. 950.050 (REF.)

CARBON FINES FILTER FEED PUMP SEE DETAIL 15 TOC EL. 950.170 0029

ATTRITION CARBON TRANSFER PUMP SEE DETAIL 16 TOC EL. 950.385 0029

ACID WASH CARBON TRANSFER PUMP SEE DETAIL 14 TOC EL. 950.780 0029

TOP OF SLAB EL. 950.040 (REF.)

TOP OF CURB EL. 950.750

EL. 950.100

1000X1000 BY 900 DEEP SUMP SEE DETAIL 23 0030 LP EL. 950.000

TOP OF CURB EL. 950.300

TOP OF SLAB EL. 950.150

FOR BARREN SOLUTION SUMP STRUCTURE SEE DRAWING 5710-231-260-0008

STAIR PAD TYPE 1 SEE STANDARD DETAIL (TYP.) 43 0000-231-294- 0005 TOC EL. 950.300

ACID RESISTANT CONCRETE COAT FOR CONTAINMENT AREA SEE NOTE 2 ON DRAWING 5710-231-260-0019

FOR CONTINUATION SEE DRAWING H354138-5710-231-260-0021

MATCH LINE

FOR CONTINUATION SEE DRAWING H354138-5710-231-260-0024

MATCH LINE

## SLAB ON GRADE - PARTIAL PLAN

SLAB HP EL. 950.150
FIN. GRADE EL. 950.000 (REF.)

1:50 SCALE IN MILLIMETRES

NOTES:
1. FOR NOTES SEE DRAWING H354138-5710-231-260-0001.
2. FOR CONSTRUCTION JOINTS SEE NOTE 3 ON DRAWING H354138-5710-231-260-0019.

THIS DRAWING WAS PREPARED FOR THE EXCLUSIVE USE OF STRATA GOLD CORPORATION AND IS ISSUED PURSUANT TO AGREEMENT BETWEEN CLIENT AND HATCH LTD. (HATCH). UNLESS OTHERWISE AGREED IN WRITING WITH CLIENT OR SPECIFIED ON THIS DRAWING, OR HATCH DOES NOT ACCEPT ANY AND DISCLAIMS ANY AND ALL LIABILITY OR RESPONSIBILITY ARISING FROM ANY USE OF OR RELIANCE ON THIS DRAWING BY ANY THIRD PARTY OR ANY MODIFICATION OR MISUSE OF THIS DRAWING BY CLIENT, AND (2) THIS DRAWING IS CONFIDENTIAL AND ALL INTELLECTUAL PROPERTY RIGHTS EMBODIED OR REFERENCED IN THIS DRAWING REMAIN THE PROPERTY OF HATCH.

| No. | DESCRIPTION | BY | CHK'D | DATE |
|---|---|---|---|---|
| 1 | HOLDS H0028 RELEASED, STAIR PAD LOCATION UPDATED, BOLLARDS ADDED, CURB AND PUMP LOCATION ADDED | PJ | EA | 2018-05-14 |
| 0 | APPROVED FOR CONSTRUCTION | EM | EA | 2018-05-06 |

| ROLE | NAME | SIGNATURE & DATE |
|---|---|---|
| DRAFTSPERSON | P. JIVAEV | NR 2018-05-17 |
| DESIGNER | F. LIU | NR 2018-05-17 |
| CHECKER | E. AKINCI | |
| DESIGN COORD. | S. PERKINS | |
| RESP. ENG. | E. AKINCI | |
| LEAD DISC. ENG. | E. AKINCI | |
| ENG. MANAGER | B. RUSTAD | |
| PROJ. MANAGER | B. RUSTAD | |

DRAWING APPROVAL STATUS: Approved for Construction

HATCH

StrataGold Corporation

EAGLE GOLD PROJECT

ADR PROCESS PLANT BUILDING
SLAB ON GRADE
PARTIAL PLAN - SHEET 3

SCALE 1:50 OR AS NOTED

DWG. No. H354138-5710-231-260-0023

REV 1

SHEET SIZE: D

REFERENCE DRAWINGS | DRAWING No. | DRAWING TITLE

REG. PROFESSIONAL

FILE:
PRINTED: 14-AUG-2018 15:46
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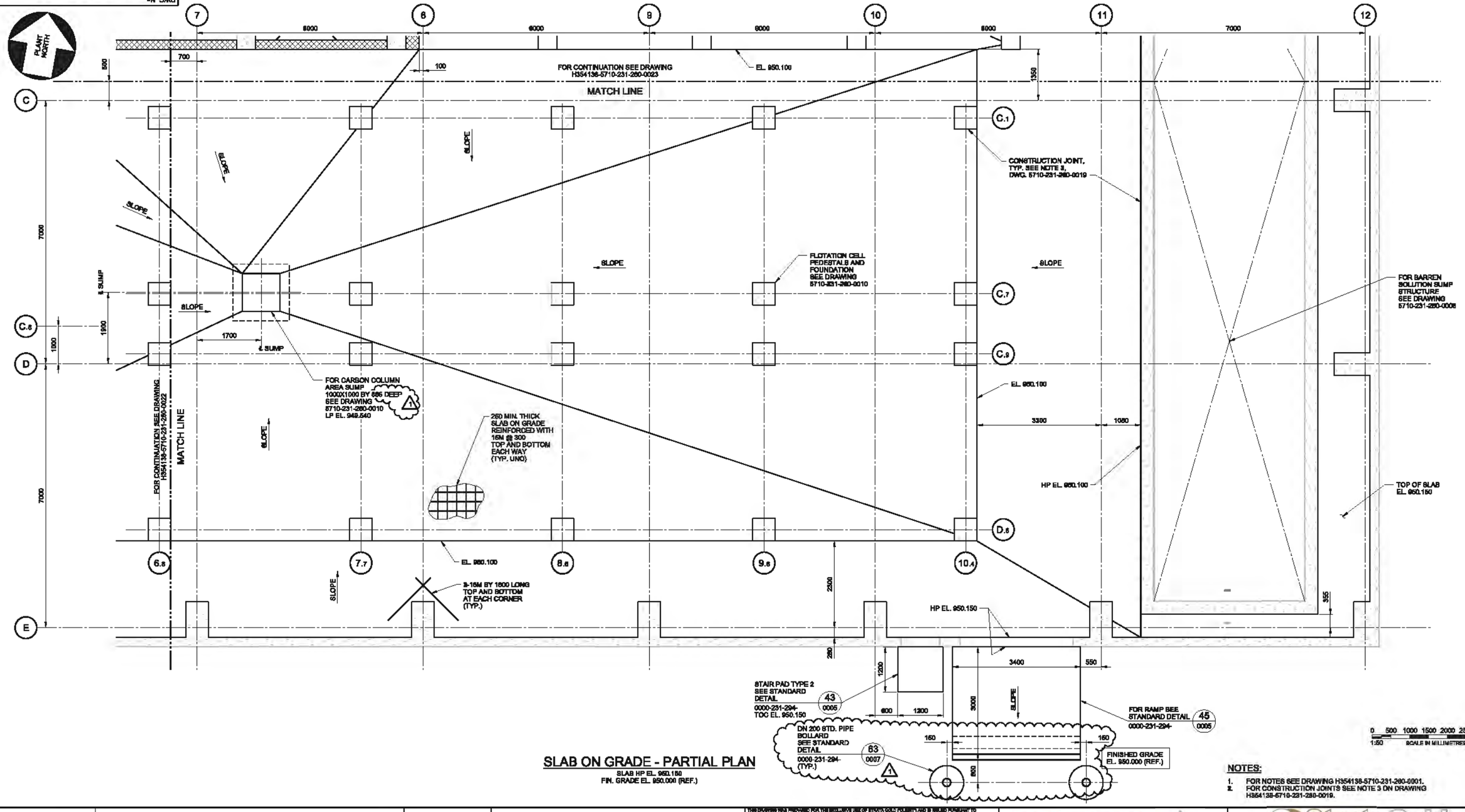
DWG. No. H354138-5710-231-260-0024




## SLAB ON GRADE - PARTIAL PLAN

SLAB HP EL. 950.150
FIN. GRADE EL. 950.000 (REF.)

**NOTES:**

1. FOR NOTES SEE DRAWING H354138-5710-231-260-0001.
2. FOR CONSTRUCTION JOINTS SEE NOTE 3 ON DRAWING H354138-5710-231-260-0019.

| DRAWING No. | DRAWING TITLE |
|---|---|
| REFERENCE DRAWINGS | |

REG. PROFESSIONAL

| No. | DESCRIPTION | BY | CHK'D | DATE |
|---|---|---|---|---|
| 1 | BOLLARDS ADDED, SUMP DEPTH REVISED | PJ | EA | 2018-08-14 |
| 0 | APPROVED FOR CONSTRUCTION | PJ | EA | 2018-08-06 |

REVISIONS

THIS DRAWING WAS PREPARED FOR THE EXCLUSIVE USE OF MINERA GOLD FORTUNA AND IS ISSUED PURSUANT TO AGREEMENT BETWEEN CLIENT AND HATCH LTD. ("HATCH"). UNLESS OTHERWISE AGREED TO IN WRITING WITH CLIENT OR SPECIFIED ON THIS DRAWING, OR HATCH DOES NOT ACCEPT AND DISCLAIMS ANY AND ALL LIABILITY OR RESPONSIBILITY ARISING FROM ANY USE OF OR RELIANCE ON THIS DRAWING BY ANY THIRD PARTY OR ANY MODIFICATION OR REUSE OF THIS DRAWING BY CLIENT, AND (B) THIS DRAWING IS CONFIDENTIAL AND ALL INTELLECTUAL PROPERTY RIGHTS EMBODIED OR REFERENCED IN THIS DRAWING REMAIN THE PROPERTY OF HATCH.

HATCH

| | | | |
|---|---|---|---|
| DRAFTSPERSON | P. JIVAEV | NR | 2018-05-17 |
| DESIGNER | F. LIU | NR | 2018-05-17 |
| CHECKER | E. AKINCI | | |
| DESIGN COORD. | S. PERKINS | | |
| RESP. ENG. | E. AKINCI | | |
| LEAD DISC. ENG. | E. AKINCI | | |
| ENG. MANAGER | B. RUSTAD | | |
| PROJ. MANAGER | B. RUSTAD | | |
| ROLE | NAME | SIGNATURE & DATE | |
| DRAWING APPROVAL STATUS: | Approved for Construction | | |

StrataGold Corporation

EAGLE GOLD PROJECT

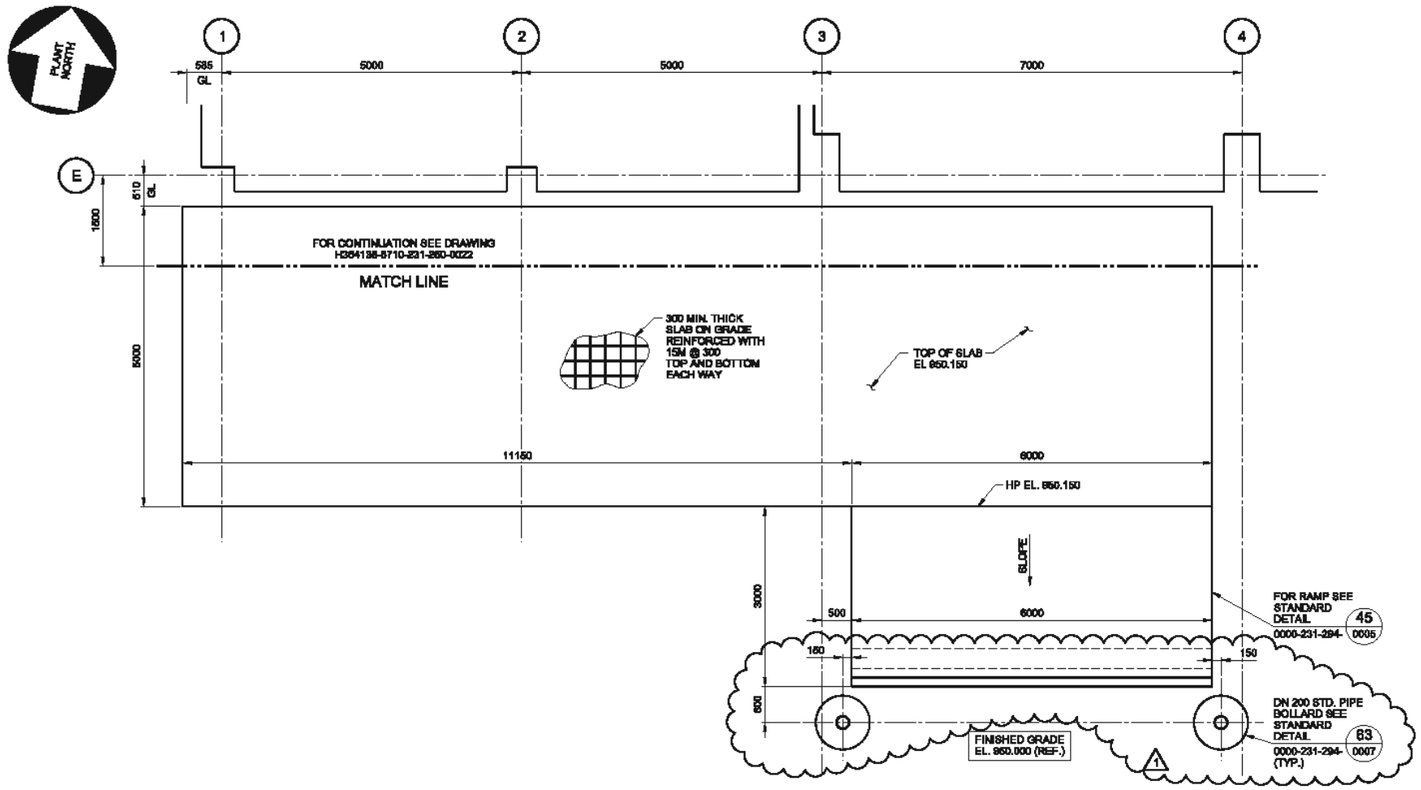
ADR PROCESS PLANT BUILDING
SLAB ON GRADE
PARTIAL PLAN - SHEET 4

| SCALE | DWG. No. | REV |
|---|---|---|
| 1:50 OR AS NOTED | H354138-5710-231-260-0024 | 1 |

SHEET SIZE: D

FILE:
PRINTED: 14-AUG-2018 15:45
KK_jsaavedra

DWG. No. H354138-5710-231-260-0025




## SLAB ON GRADE - PARTIAL PLAN

SLAB HP EL. 950.150
FIN. GRADE EL. 950.000 (REF.)

**NOTES:**

1. FOR NOTES SEE DRAWING H354138-5710-231-260-0001.
2. FOR CONSTRUCTION JOINTS SEE NOTE 3 ON DRAWING H354138-5710-231-250-0018.

0 500 1000 1500 2000 2500
1:50 SCALE IN MILLIMETRES

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| No. | DESCRIPTION | BY | CHK'D | DATE |
|---|---|---|---|---|
| 1 | BOLLARDS ADDED | PJ | EA | 2018-08-14 |
| 0 | APPROVED FOR CONSTRUCTION | PJ | EA | 2018-08-06 |

REFERENCE DRAWINGS — DRAWING No. — DRAWING TITLE

REG. PROFESSIONAL

| | | | |
|---|---|---|---|
| DRAFTSPERSON | E. MENDIOLA | NR | 2018-05-15 |
| DESIGNER | F. LIU | NR | 2018-05-15 |
| CHECKER | E. AKINCI | | |
| DESIGN COORD. | S. PERKINS | | |
| RESP. ENG. | E. AKINCI | | |
| LEAD DISC. ENG. | E. AKINCI | | |
| ENG. MANAGER | B. RUSTAD | | |
| PROJ. MANAGER | B.RUSTAD | | |
| ROLE | NAME | SIGNATURE & DATE | |

DRAWING APPROVAL STATUS: Approved for Construction

EAGLE GOLD PROJECT

ADR PROCESS PLANT BUILDING
SLAB ON GRADE
PARTIAL PLAN - SHEET 5

SCALE 1:50 OR AS NOTED | DWG. No. H354138-5710-231-260-0025 | REV 1

SHEET SIZE: D

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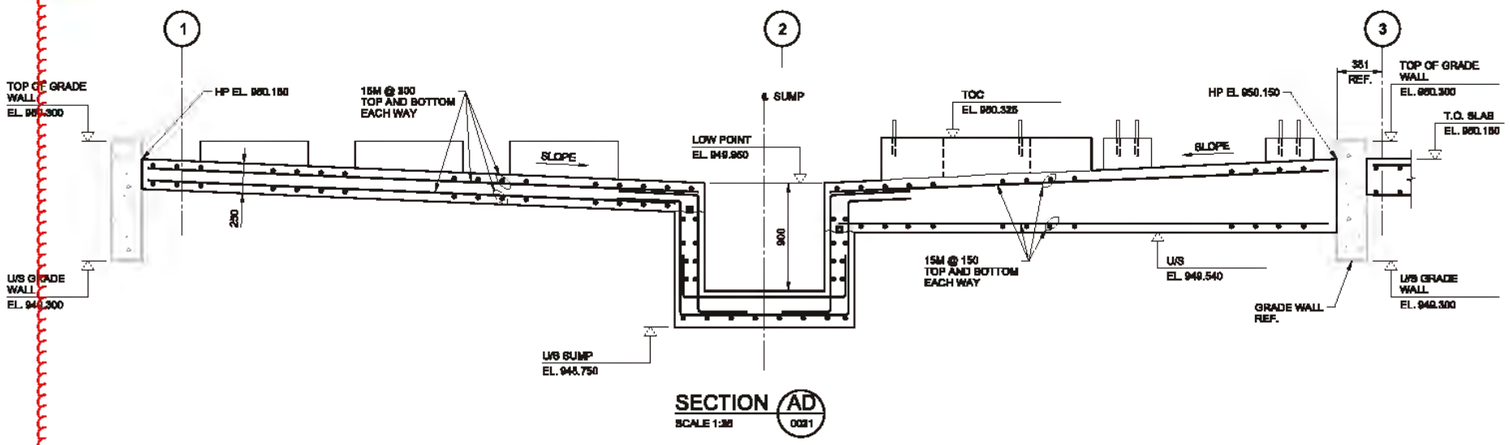
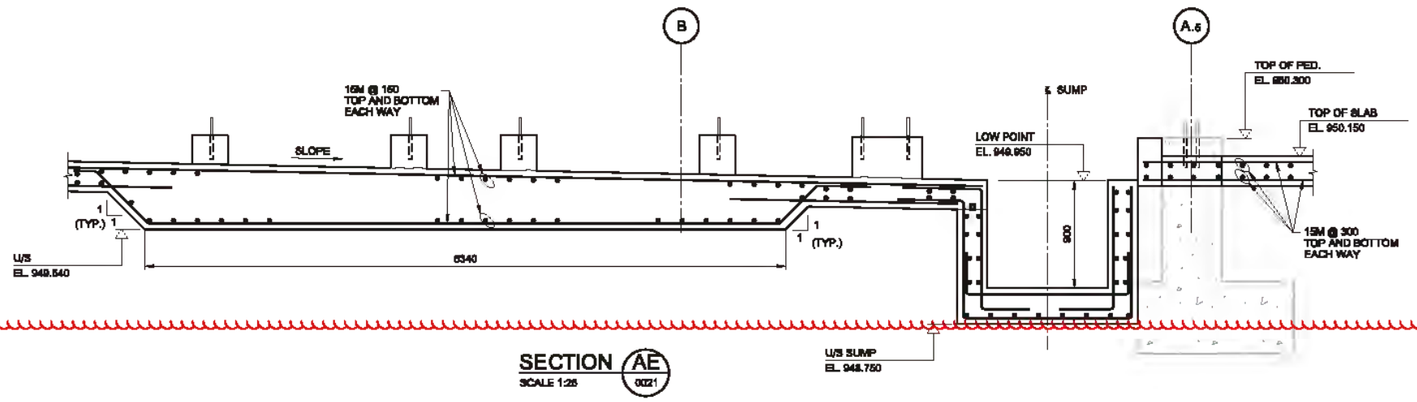
DWG. No. H354138-5710-231-260-0026

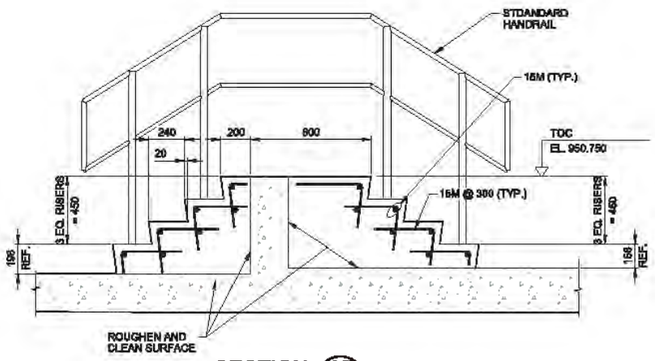
REFERENCE DRAWINGS



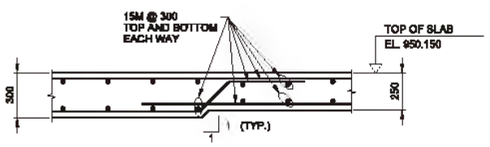

SECTION AD
SCALE 1:25 0021




SECTION AE
SCALE 1:25 0021




SECTION AF
SCALE 1:20 0021




SECTION AJ
SCALE: 1:20 0022

0 250 500 750 1000 1250
1:25 SCALE IN MILLIMETRES

NOTES:
1. FOR NOTES SEE DRAWING H354138-5710-231-260-0021.

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| No. | DESCRIPTION | BY | CHK'D | DATE |
|---|---|---|---|---|
| 0 | APPROVED FOR CONSTRUCTION | EM | EA | 2018-06-06 |

| ROLE | NAME | SIGNATURE & DATE |
|---|---|---|
| DRAFTSPERSON | E. MENDIOLA | NR 2018-05-15 |
| DESIGNER | F. LIU | NR 2018-05-15 |
| CHECKER | E. AKINCI | |
| DESIGN COORD. | S. PERKINS | |
| RESP. ENG. | E. AKINCI | |
| LEAD DISC. ENG. | E. AKINCI | |
| ENG. MANAGER | B. RUSTAD | |
| PROJ. MANAGER | B. RUSTAD | |

DRAWING APPROVAL STATUS: Approved for Construction

HATCH

StrataGold Corporation

EAGLE GOLD PROJECT

ADR PROCESS PLANT BUILDING
SLAB ON GRADE
PLAN, SECTIONS AND DETAILS - SHEET 1

SCALE: AS NOTED OR AS NOTED

DWG. No. H354138-5710-231-260-0026

REV 0

SHEET SIZE: D

REG. PROFESSIONAL

FILE:
PRINTED: 05-JUN-2018 19:15
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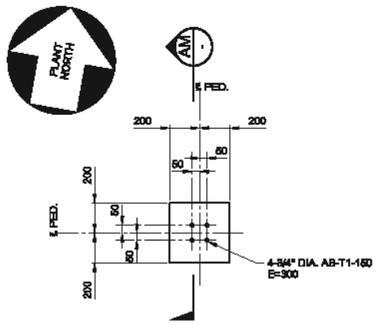
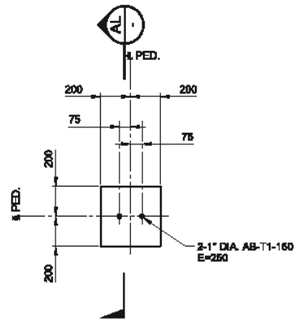
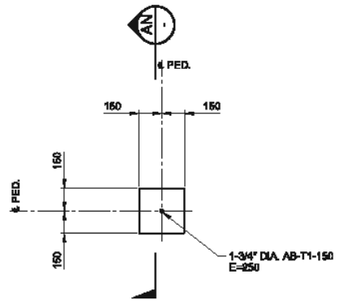
DWG. No. H354138-5710-231-260-0027




ANCHOR SETTING




ANCHOR SETTING

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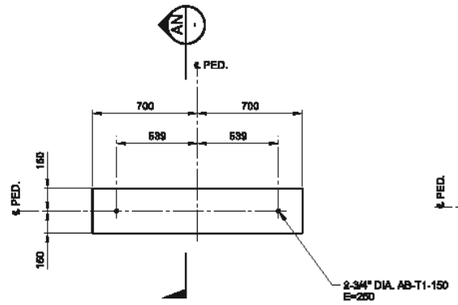


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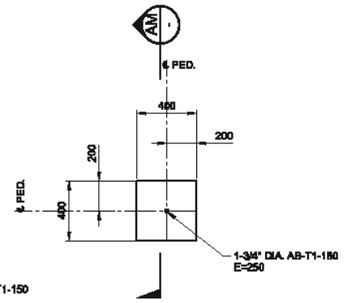


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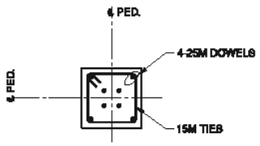
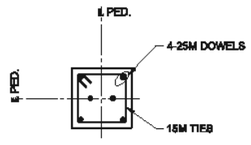



REINFORCEMENT

## PEDESTAL TYPE P11
SCALE 1:20




REINFORCEMENT

## PEDESTAL TYPE P12
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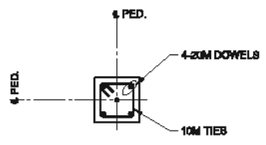


REINFORCEMENT

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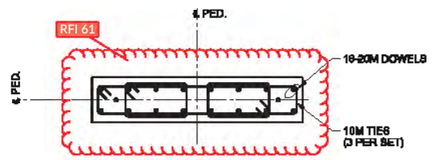
SCALE 1:20




REINFORCEMENT

## PEDESTAL TYPE P14
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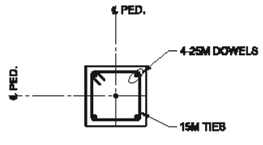
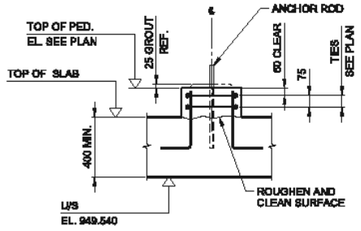


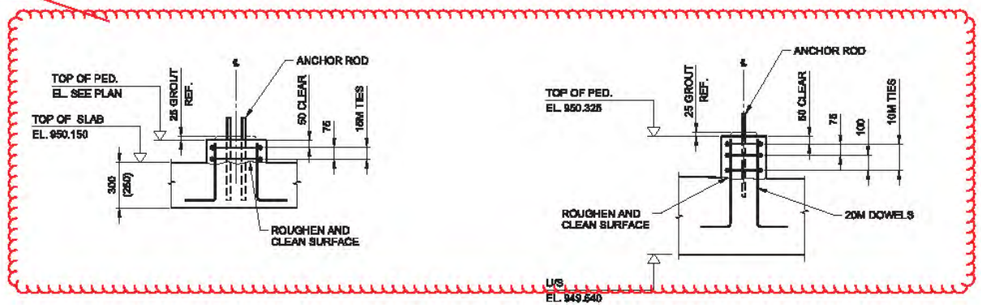

REINFORCEMENT

## PEDESTAL TYPE P15
SCALE 1:20




## SECTION AL
SCALE: 1:20

RFI 53




## SECTION AM
SCALE: 1:20

## SECTION AN
SCALE: 1:20

0 200 400 600 800 1000
1:20 SCALE IN MILLIMETRES

**NOTES:**

1. FOR NOTES SEE DRAWING H354138-5710-231-260-0001.

THIS DRAWING WAS PREPARED FOR THE EXCLUSIVE USE OF STRATA GOLD CORP. AND IS ISSUED PURSUANT TO AGREEMENT BETWEEN CLIENT AND HATCH LTD. (HATCH). UNLESS OTHERWISE AGREED TO IN WRITING BY HATCH, CLIENT OR SPECIFIED ON THIS DRAWING, (A) HATCH DOES NOT ACCEPT ANY LIABILITY AND DISCLAIMS ANY AND ALL LIABILITY OR RESPONSIBILITY ARISING FROM ANY USE OF OR RELIANCE ON THIS DRAWING BY ANY THIRD PARTY OR ANY MODIFICATION OR RELIANCE OF THIS DRAWING BY CLIENT, AND (B) THIS DRAWING IS CONFIDENTIAL AND ALL INTELLECTUAL PROPERTY RIGHTS EMBODIED OR REFERENCED IN THIS DRAWING REMAIN THE PROPERTY OF HATCH.

| No. | DESCRIPTION | BY | CHK'D | DATE |
|---|---|---|---|---|
| 0 | APPROVED FOR CONSTRUCTION | EM | EA | 2018-06-06 |

| ROLE | NAME | SIGNATURE & DATE |
|---|---|---|
| DRAFTSPERSON | E. MENDIOLA | NR 2018-05-16 |
| DESIGNER | F. LIU | NR 2018-05-16 |
| CHECKER | E. AKINCI | |
| DESIGN COORD. | S. PERKINS | |
| RESP. ENG. | E. AKINCI | |
| LEAD DISC. ENG. | E. AKINCI | |
| ENG. MANAGER | S. RUSTAD | |
| PROJ. MANAGER | S.RUSTAD | |

DRAWING APPROVAL STATUS: Approved for Construction

HATCH

Strata Gold Corporation

EAGLE GOLD PROJECT

ADR PROCESS PLANT BUILDING
SLAB ON GRADE
PLAN, SECTIONS AND DETAILS - SHEET 2

| DRAWING No. | DRAWING TITLE |
|---|---|
| REFERENCE DRAWINGS | |

REG. PROFESSIONAL

SCALE 1:20 OR AS NOTED

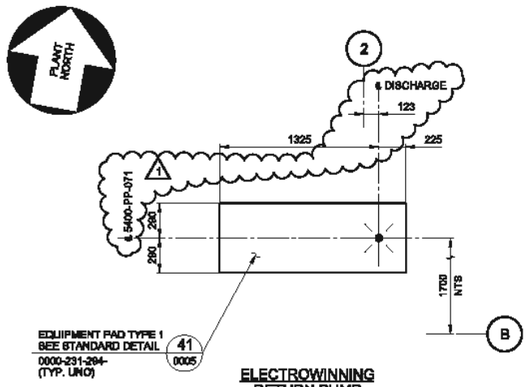
DWG. No. H354138-5710-231-260-0027

REV 0

SHEET SIZE: D

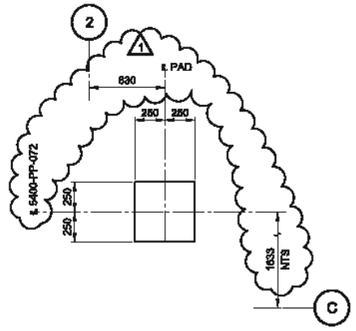
$FILE$
PRINTED: 05-JUN-2018
10:15
kd_jsanchez

DWG. No. H354138-5710-231-260-0028



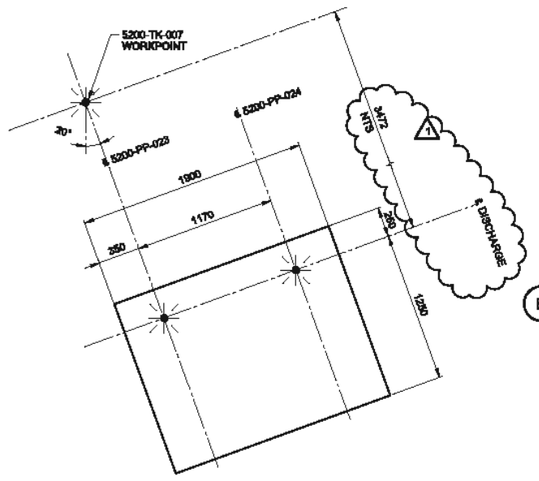

ELECTROWINNING
RETURN PUMP

DETAIL 4
SCALE: 1:25 0021



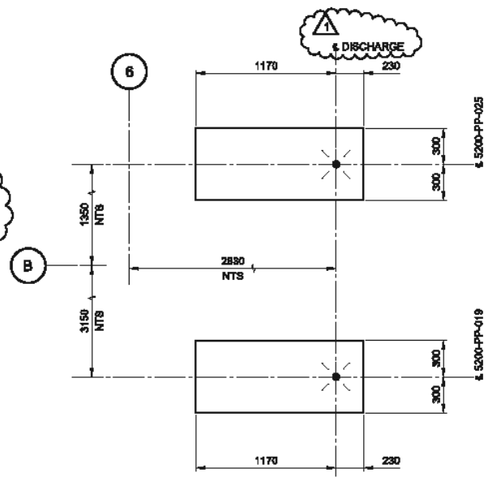

ELECTROWINNING SLUDGE
FILTER FEED PUMP

DETAIL 5
SCALE: 1:25 0021



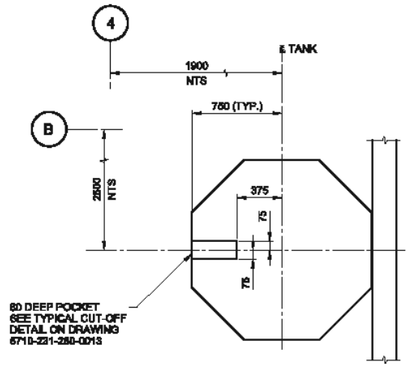

STRIP SOLUTION
PUMP No. 1/ No. 2

DETAIL 9
SCALE: 1:25 0021




ACID WASH CIRCULATION/
NEUTRALIZED ACID
PUMP

DETAIL 10
SCALE: 1:25 0021




CAUSTIC MIXING TANK

DETAIL 11
SCALE: 1:25 0021

**NOTES:**

1. FOR NOTES SEE DRAWING H354138-5710-231-260-0001.

0 200 400 600 800 1000
1:20 SCALE IN MILLIMETRES

THIS DRAWING WAS PREPARED FOR THE EXCLUSIVE USE OF STRATA GOLD PLC (SRTA) AND IS ISSUED PURSUANT TO AGREEMENTS BETWEEN CLIENT AND HATCH LTD. (HATCH). UNLESS OTHERWISE AGREED IN WRITING WITH CLIENT OR SPECIFIED ON THIS DRAWING, (A) HATCH DOES NOT ACCEPT AND DISCLAIMS ANY AND ALL LIABILITY OR RESPONSIBILITY ARISING FROM ANY USE OF OR RELIANCE ON THIS DRAWING BY ANY THIRD PARTY OR ANY MODIFICATION OR MISUSE OF THIS DRAWING BY CLIENT, AND (B) THIS DRAWING IS CONFIDENTIAL AND ALL INTELLECTUAL PROPERTY RIGHTS EMBODIED OR REFERENCED IN THIS DRAWING REMAIN THE PROPERTY OF HATCH.

| REVISIONS | | | | |
|---|---|---|---|---|
| No. | DESCRIPTION | BY | CHK'D | DATE |
| 1 | HOLD H0028 RELEASED, PADS LOCATION REVISED, EQUIPMENT TAG PROVIDED | PJ | EA | 2018-08-14 |
| 0 | APPROVED FOR CONSTRUCTION | PJ | EA | 2018-08-06 |

| DRAWING No. | DRAWING TITLE |
|---|---|

REFERENCE DRAWINGS

REG. PROFESSIONAL

HATCH

| | | | |
|---|---|---|---|
| DRAFTSPERSON | E. MENDIOLA | NR | 2018-05-17 |
| DESIGNER | F. LIU | NR | 2018-05-17 |
| CHECKER | E. AKINCI | | |
| DESIGN COORD. | S. PERKINS | | |
| RESP. ENG. | E. AKINCI | | |
| LEAD DISC. ENG. | E. AKINCI | | |
| ENG. MANAGER | S. RUSTAD | | |
| PROJ. MANAGER | S. RUSTAD | | |
| ROLE | NAME | SIGNATURE & DATE | |
| DRAWING APPROVAL STATUS: | Approved for Construction | | |

Strata Gold Corporation

EAGLE GOLD PROJECT

ADR PROCESS PLANT BUILDING
SLAB ON GRADE
PLAN, SECTIONS AND DETAILS - SHEET 3

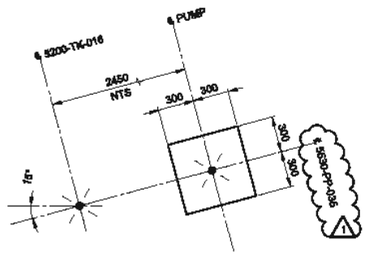
| SCALE | DWG. No. | REV |
|---|---|---|
| 1:25 OR AS NOTED | H354138-5710-231-260-0028 | 1 |

SHEET SIZE: D

$FILE$
PRINTED: 14-AUG-2018
kit_pwarwick
15:45

DWG. No. H354138-5710-231-260-0029

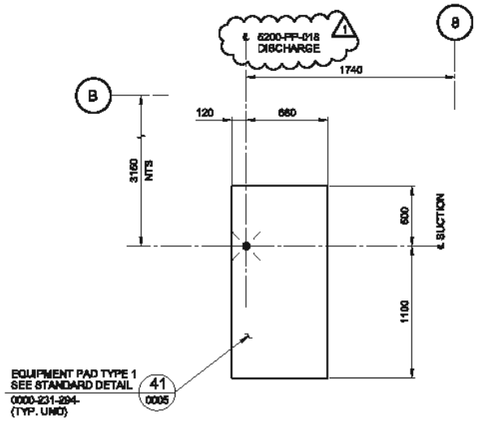
PLANT NORTH




CYANIDE TRANSFER PUMP

DETAIL 13 (0022)

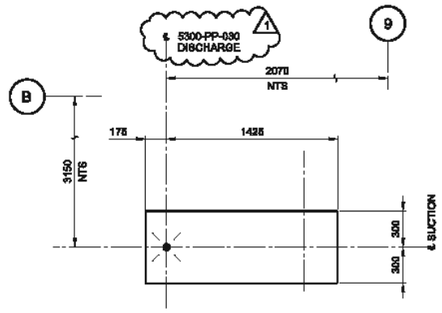
SCALE: 1:25




ACID WASH CARBON TRANSFER PUMP

DETAIL 14 (0023)

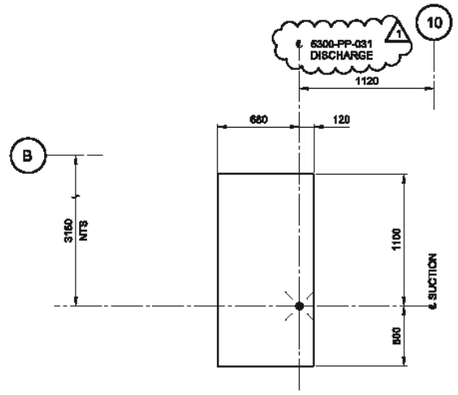
SCALE: 1:25




CARBON FINES FILTER FEED PUMP

DETAIL 15 (0023)

SCALE: 1:25




ATTRITION CARBON TRANSFER PUMP

DETAIL 16 (0023)

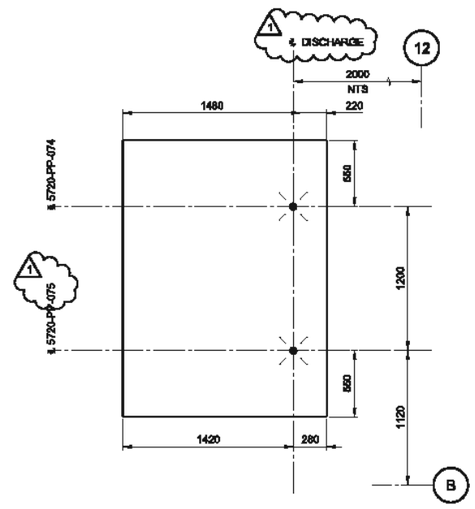
SCALE: 1:25




STRIP/REGEN CARBON TRANSFER PUMP

DETAIL 17 (0023)

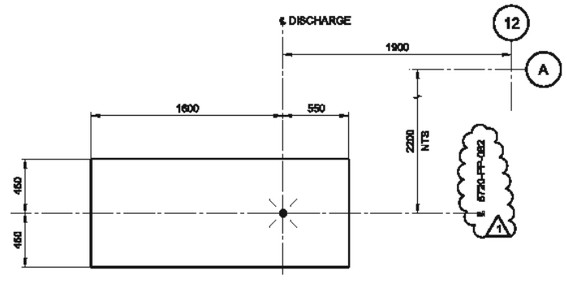
SCALE: 1:25




FRESH WATER SUPPLY PUMP No. 1/2

DETAIL 18 (0023)

SCALE: 1:25




FIRE WATER PUMP

DETAIL 19 (0023)

SCALE: 1:25

**NOTES:**

1. FOR NOTES SEE DRAWING H354138-5710-231-260-0001.

0 250 500 750 1000 1250
1:25 SCALE IN MILLIMETRES

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| No. | DESCRIPTION | BY | CHK'D | DATE |
|---|---|---|---|---|
| 1 | HOLD H0028 RELEASED. EQUIPMENT TAG PROVIDED. | PJ | EA | 2018-05-14 |
| 0 | APPROVED FOR CONSTRUCTION | PJ | EA | 2018-05-06 |

| ROLE | NAME | SIGNATURE & DATE |
|---|---|---|
| DRAFTSPERSON | E. MENDIOLA | NR 2018-05-17 |
| DESIGNER | F. LIU | NR 2018-05-17 |
| CHECKER | E. AKINCI | |
| DESIGN COORD. | S. PERKINS | |
| RESP. ENG. | E. AKINCI | |
| LEAD DISC. ENG. | E. AKINCI | |
| ENG. MANAGER | B. RUSTAD | |
| PROJ. MANAGER | B. RUSTAD | |

DRAWING APPROVAL STATUS: Approved for Construction

EAGLE GOLD PROJECT

ADR PROCESS PLANT BUILDING
SLAB ON GRADE
PLAN, SECTIONS AND DETAILS - SHEET 4

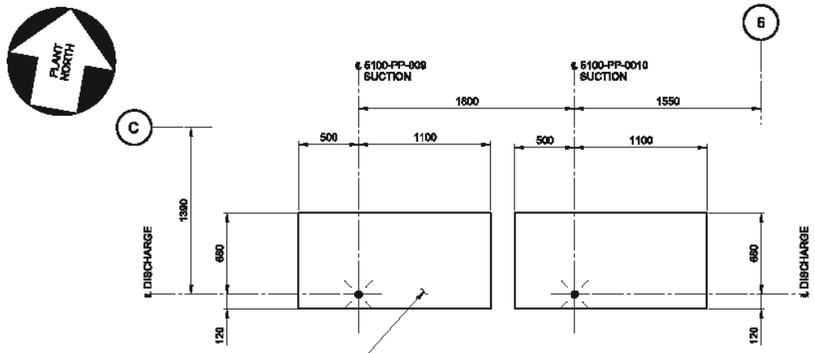
SCALE 1:25 OR AS NOTED | DWG. No. H354138-5710-231-260-0029 | REV 1

SHEET SIZE: D

DRAWING No. | DRAWING TITLE | REFERENCE DRAWINGS | REG. PROFESSIONAL

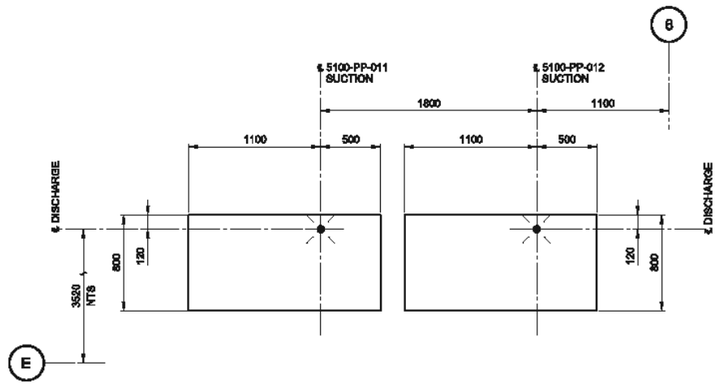
FILE:
PRINTED: 14-AUG-2018 15:46
kkt_pasewicz

DWG. No. H354138-5710-231-260-0030



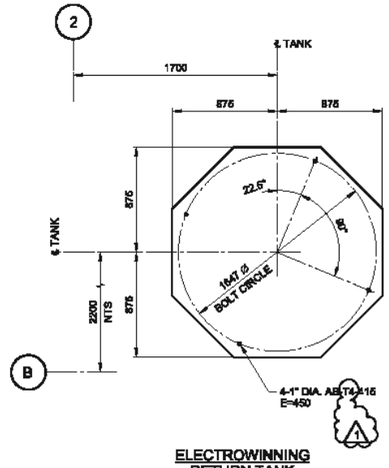

CARBON COLUMN LINE 1
CARBON TRANSFER PUMPS

DETAIL 20 0022
SCALE: 1:25



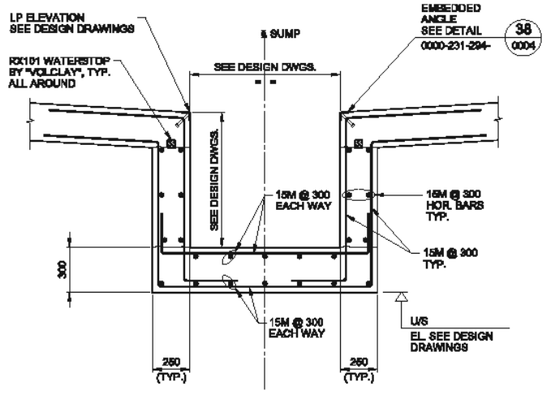

CARBON COLUMN LINE 2
CARBON TRANSFER PUMPS

DETAIL 21 0022
SCALE: 1:25




ELECTROWINNING
RETURN TANK

DETAIL 22 0021
SCALE: 1:25




DETAIL 23 23 23
SCALE 1:20 00021 0022 0023

0 250 500 750 1000 1250
1:25 SCALE IN MILLIMETRES

0 200 400 600 800 1000
1:20 SCALE IN MILLIMETRES

**NOTES:**

1. FOR NOTES SEE DRAWING H354138-5710-231-260-0001.

THIS DRAWING WAS PREPARED FOR THE EXCLUSIVE USE OF STRATA GOLD ("CLIENT") AND IS ISSUED PURSUANT TO HIGH SIDE SERVICES CLIENT AND HATCH LTD. ("HATCH"). UNLESS OTHERWISE AGREED IN WRITING WITH CLIENT OR SPECIFIED ON THIS DRAWING, (A) HATCH DOES NOT ACCEPT AND DISCLAIMS ANY AND ALL LIABILITY OR RESPONSIBILITY ARISING FROM ANY USE OF OR RELIANCE ON THIS DRAWING BY ANY THIRD PARTY OR ANY MODIFICATION OR REPLACE OF THIS DRAWING BY CLIENT, AND (B) THIS DRAWING IS CONFIDENTIAL AND ALL INTELLECTUAL PROPERTY RIGHTS EMBODIED OR REFERENCED IN THIS DRAWING REMAIN THE PROPERTY OF HATCH.

| No. | DESCRIPTION | BY | CHK'D | DATE |
|---|---|---|---|---|
| 1 | DETAIL 22 ANCHOR ROD CORRECTED | PJ | EA | 2018-08-09 |
| 0 | APPROVED FOR CONSTRUCTION | EM | EA | 2018-08-06 |

REVISIONS

| DRAWING No. | DRAWING TITLE |
|---|---|

REFERENCE DRAWINGS

REG. PROFESSIONAL

HATCH

| ROLE | NAME | SIGNATURE & DATE |
|---|---|---|
| DRAFTSPERSON | E. MENDIOLA | NR 2018-05-17 |
| DESIGNER | F. LIU | NR 2018-05-17 |
| CHECKER | E. AKINCI | |
| DESIGN COORD. | S. PERKINS | |
| RESP. ENG. | E. AKINCI | |
| LEAD DISC. ENG. | E. AKINCI | |
| ENG. MANAGER | B. RUSTAD | |
| PROJ. MANAGER | B. RUSTAD | |

DRAWING APPROVAL STATUS: Approved for Construction

Strata Gold Corporation

EAGLE GOLD PROJECT

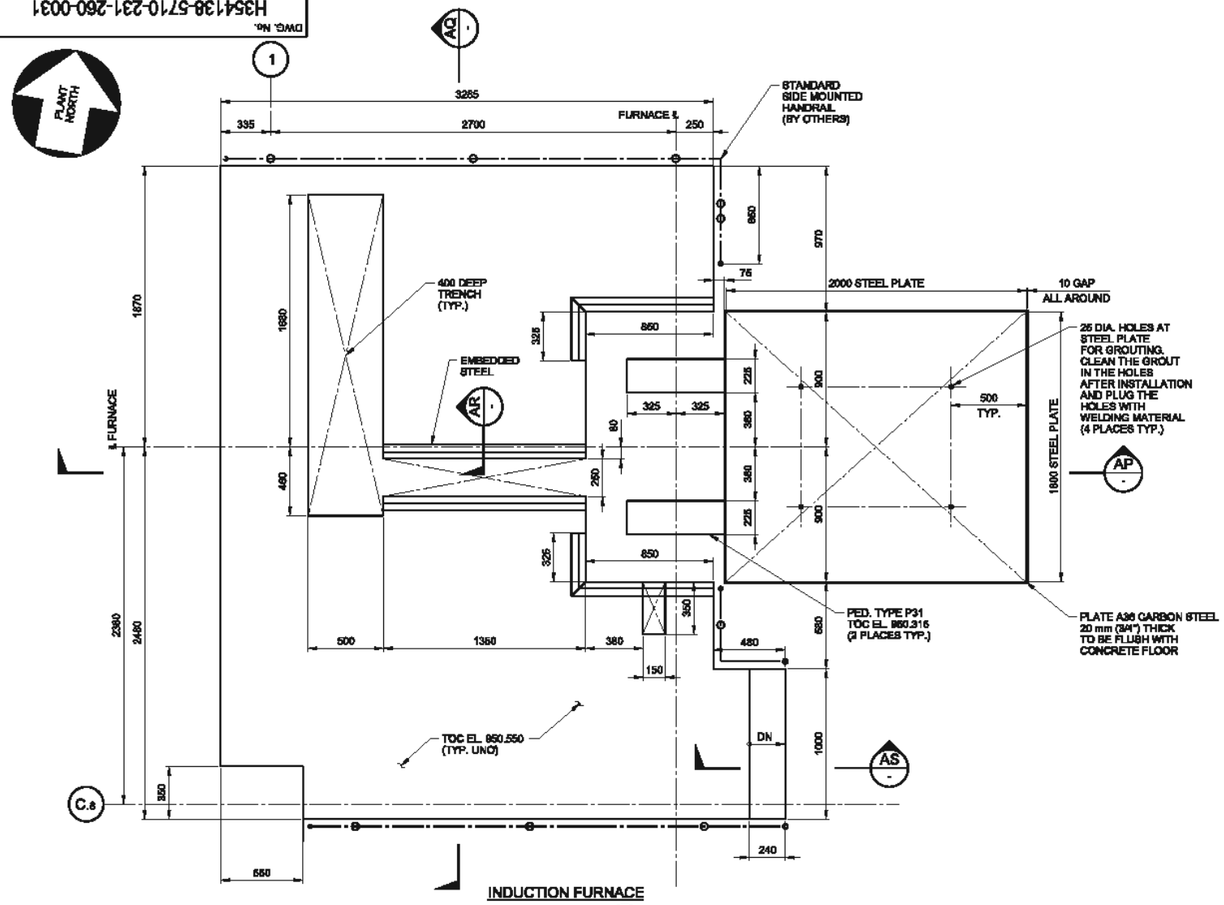
ADR PROCESS PLANT BUILDING
SLAB ON GRADE
PLAN, SECTIONS AND DETAILS - SHEET 5

SCALE AS NOTED OR AS NOTED | DWG. No. H354138-5710-231-260-0030 | REV 1

SHEET SIZE: D

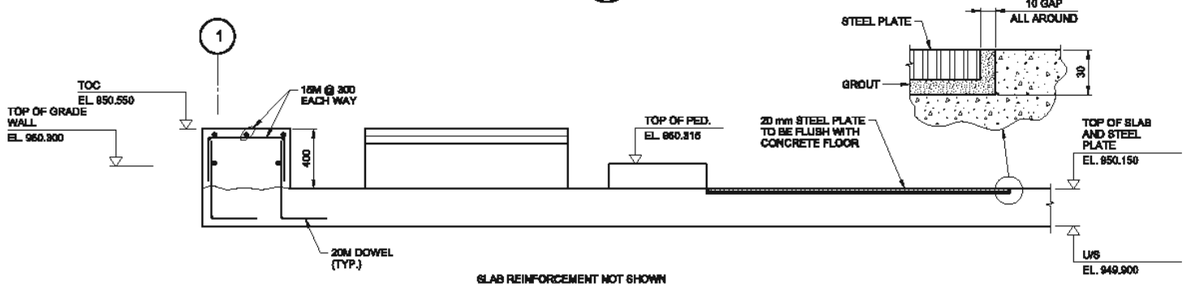
SFILE$
PRINTED: 09-AUG-2018 19:11
kic_pwservice

DWG. No. H354138-5710-231-260-0031



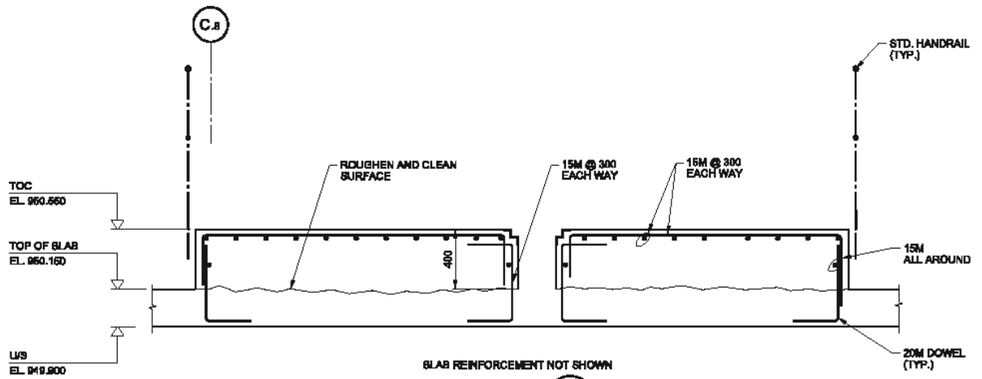

INDUCTION FURNACE

DETAIL 31 (0022)



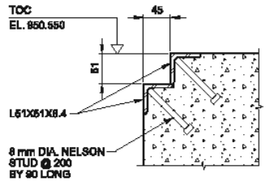

SLAB REINFORCEMENT NOT SHOWN

SECTION AP



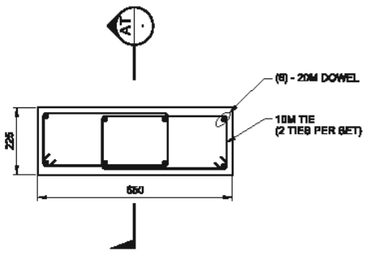

SLAB REINFORCEMENT NOT SHOWN

SECTION AQ



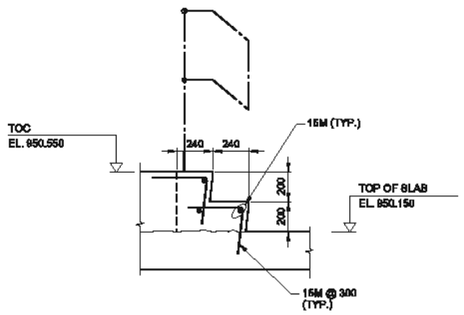

SECTION AR

SCALE: 1:5

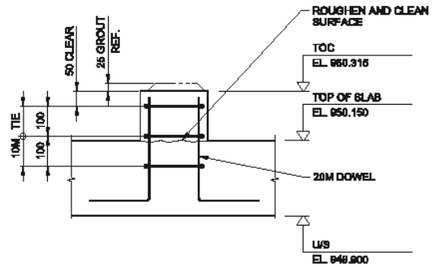



PEDESTAL TYPE P31

SCALE: 1:10




SECTION AS




SECTION AT

SCALE: 1:10

0 200 400 600 800 1000

1:20 SCALE IN MILLIMETRES

**NOTES:**

1. FOR NOTES SEE DRAWING H354138-5710-231-260-0001.

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| No. | DESCRIPTION | BY | CHK'D | DATE |
|---|---|---|---|---|
| 1 | HOLD H0028 RELEASED | PJ | EA | 2018-05-14 |
| 0 | APPROVED FOR CONSTRUCTION | EM | EA | 2018-05-08 |

| ROLE | NAME | SIGNATURE & DATE |
|---|---|---|
| DRAFTSPERSON | E. MENDIOLA | NR 2018-05-17 |
| DESIGNER | F. LIU | NR 2018-05-17 |
| CHECKER | E. AKINCI | |
| DESIGN COORD. | S. PERKINS | |
| RESP. ENG. | E. AKINCI | |
| LEAD DISC. ENG. | E. AKINCI | |
| ENG. MANAGER | B. RUSTAD | |
| PROJ. MANAGER | B. RUSTAD | |

DRAWING APPROVAL STATUS: Approved for Construction

HATCH

Strata Gold Corporation

EAGLE GOLD PROJECT

ADR PROCESS PLANT BUILDING
SLAB ON GRADE
PLAN, SECTIONS AND DETAILS - SHEET 6

SCALE: 1:20 OR AS NOTED

DWG. No. H354138-5710-231-260-0031

REV: 1

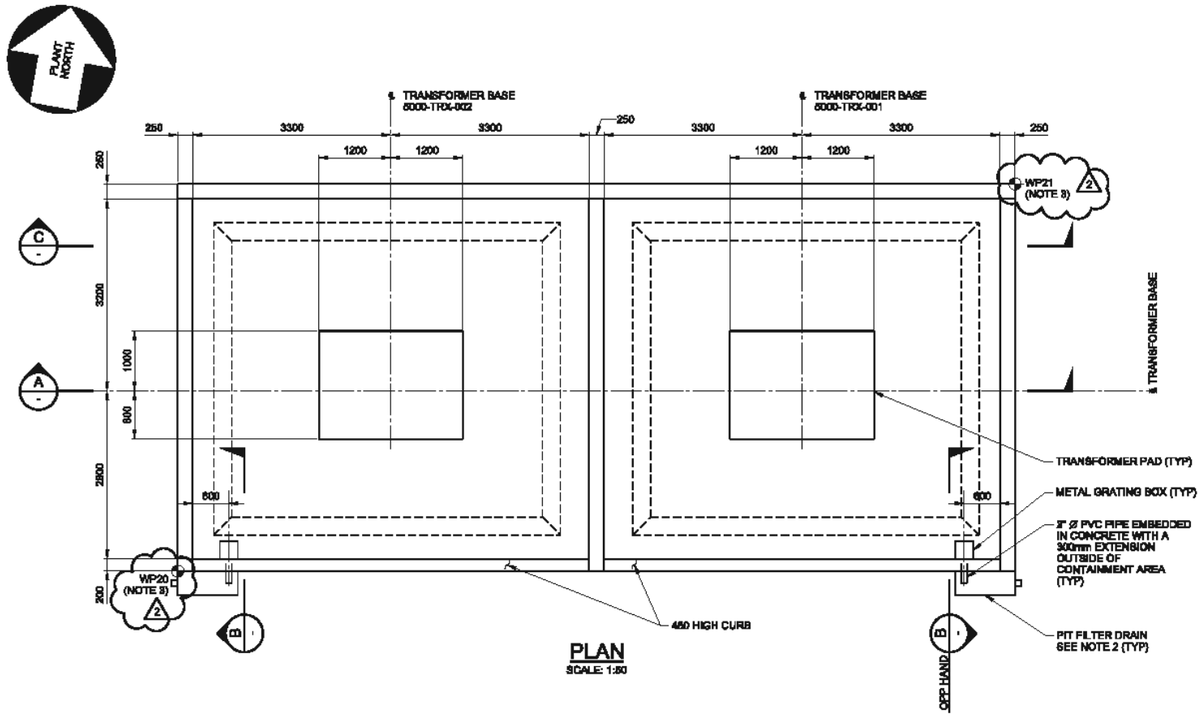
SHEET SIZE: D

REFERENCE DRAWINGS — DRAWING No. / DRAWING TITLE

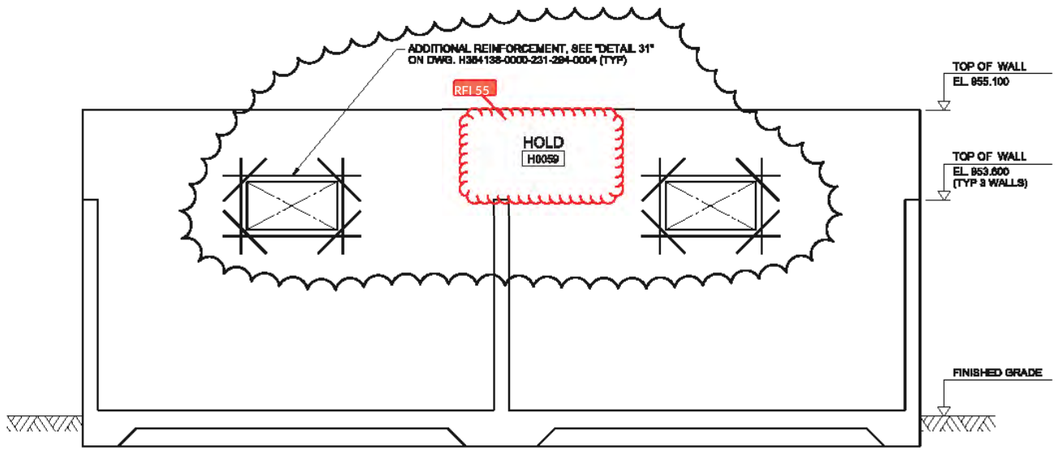
REG. PROFESSIONAL

FILED:
PRINTED: 14-AUG-2018 17:15
kd_pwservice

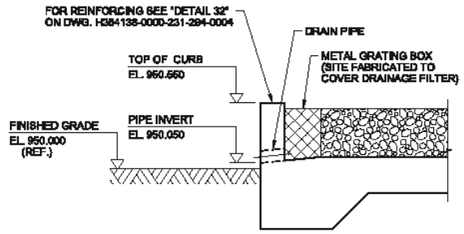
DWG. No. H354138-5710-231-260-0032



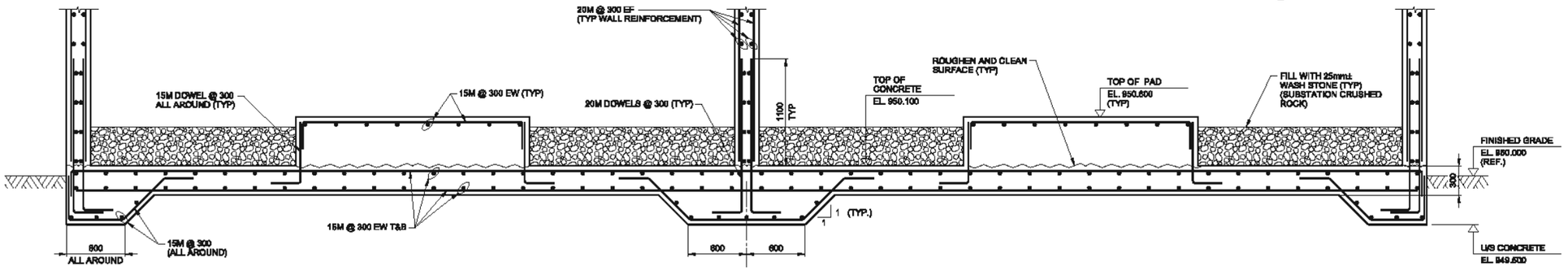

PLAN
SCALE: 1:50




SECTION C
SCALE: 1:50
WALL OPENING DETAIL




SECTION B
SCALE: 1:25




SECTION A
SCALE: 1:25

0 250 500 750 1000 1250
1:25 SCALE IN MILLIMETRES

0 500 1000 1500 2000 2500
1:50 SCALE IN MILLIMETRES

NOTES:

1. FOR NOTES SEE DRAWING H354138-5710-231-260-0001.
2. SEE VENDOR STANDARD INSTALLATION DETAILS FOR G-MAX HF DRAINAGE FILTER.
3. FOR LOCATION SEE CIVIL DWG. H354138-2000-220-270-0002.
4. FOR TRANSFORMER LAYOUT REFER TO DWG. H354138-PE004-260-270-0006.

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| No. | DESCRIPTION | BY | CHK'D | DATE |
|---|---|---|---|---|
| 2 | WP RE-NUMBERED | RS | EA | 2018-08-22 |
| 1 | PAD LOCATION UPDATED | RS | EA | 2018-08-21 |
| 0 | APPROVED FOR CONSTRUCTION | RS | EA | 2018-08-21 |

REVISIONS

| ROLE | NAME | SIGNATURE & DATE |
|---|---|---|
| DRAFTSPERSON | R. SAGARBARRIA | NR |
| DESIGNER | F. LIU | NR |
| CHECKER | E. AKINCI | |
| DESIGN COORD. | S. PERKINS | |
| RESP. ENG. | E. AKINCI | |
| LEAD DISC. ENG. | E. AKINCI | |
| ENG. MANAGER | B. RUSTAD | |
| PROJ. MANAGER | B. RUSTAD | |

DRAWING APPROVAL STATUS: Approved for Construction

HATCH

Strata Gold Corporation

EAGLE GOLD PROJECT

ADR PROCESS PLANT BUILDING
TRANSFORMER FOUNDATION
PLAN, SECTIONS AND DETAILS

| DRAWING No. | DRAWING TITLE |
|---|---|
| REFERENCE DRAWINGS | |

REG. PROFESSIONAL

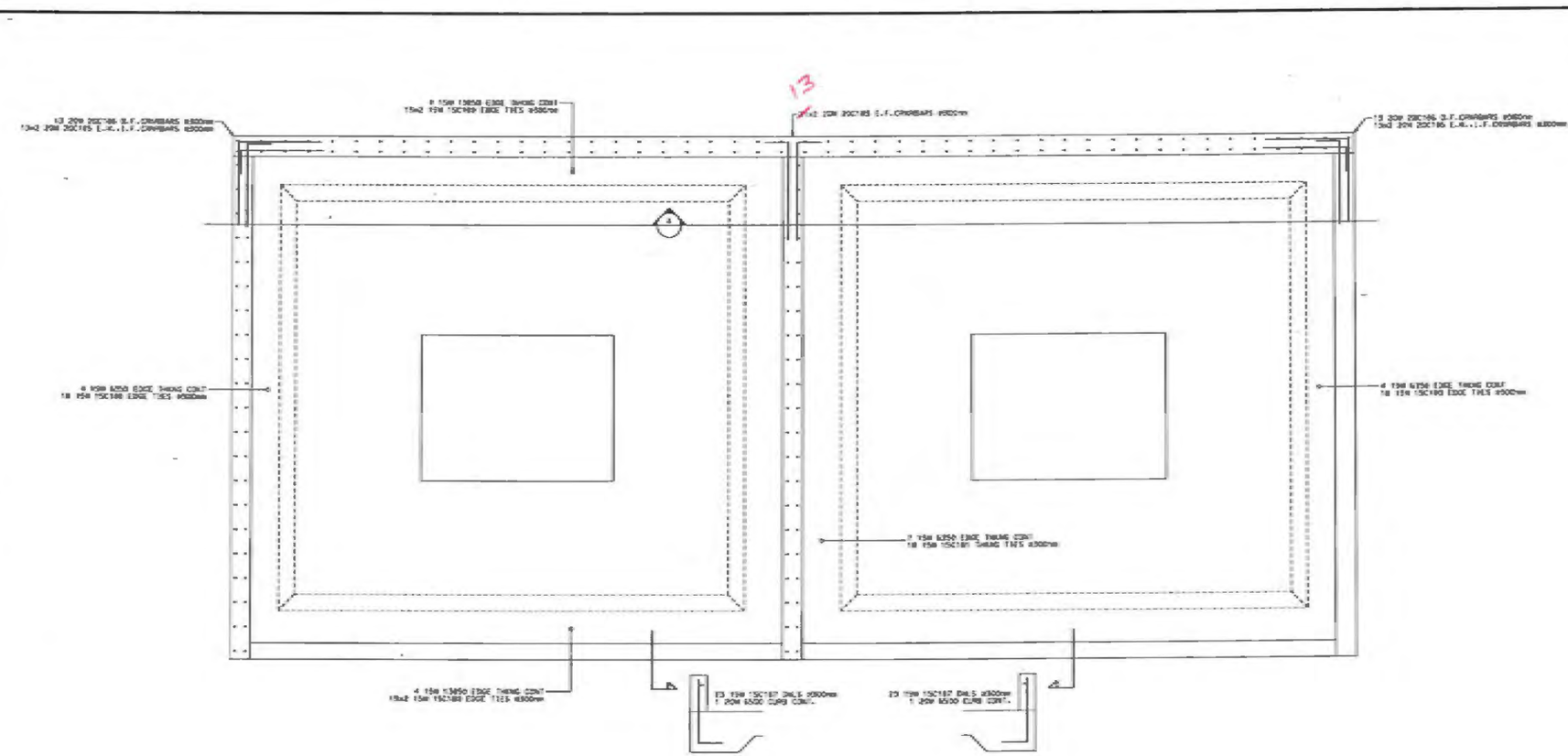
SCALE: AS NOTED OR AS NOTED

DWG. No. H354138-5710-231-260-0032

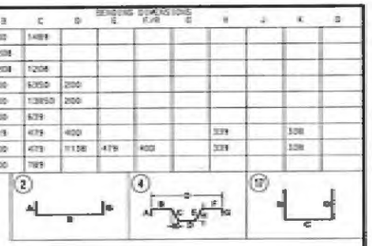
REV 2

SHEET SIZE: D

$FILE$
PRINTED: 22-AUG-2018
kd_jaesarwics
16:48




| SIZE | EP | BAR MARK | V | END TYP | CD | BENDING DIMENSIONS A | B | C | D | E | F/G | G | H | J | K | O |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 20M | | 20C182 | | 17 | | | 400 | 1489 | | | | | | | | |
| 20M | | 20C185 | | 2 | | 300 | 1208 | | | | | | | | | |
| 20M | | 20C186 | | 17 | | | 1208 | 1208 | | | | | | | | |
| 15M | | 15C177 | | 17 | | | 200 | 6350 | 200 | | | | | | | |
| 15M | | 15C178 | | 17 | | | 200 | 13850 | 200 | | | | | | | |
| 15M | | 15C179 | | 17 | | | 400 | 679 | | | | | | | | |
| 15M | | 15C180 | | 4 | | 339 | 519 | 479 | 400 | | | | 339 | | 339 | |
| 15M | | 15C181 | | 4 | | | 400 | 479 | 1138 | 479 | 400 | | 339 | | 339 | |
| 15M | | 15C182 | | 17 | | | 300 | 789 | | | | | | | | |




## GENERAL NOTES ON REINFORCEMENT

THE FOLLOWING NOTES SHALL APPLY TO ALL REINFORCEMENT SHOWN ON THE DRAWINGS UNLESS OTHERWISE NOTED.

**DIMENSIONS:**
DIMENSIONS TO REINFORCEMENT ARE TO CENTRE LINES OF BARS, EXCEPT WHERE CONCRETE COVER OR CLEARANCE BETWEEN BARS IS SHOWN.

**COVER:**
SEE SUBSTRUCTURE ENGINEER TYPICAL NOTES FOR ALL COVER SPECIFICATIONS

**SPACING:**
UNLESS OTHERWISE SHOWN, THE FIRST AND LAST BARS IN SLABS AND WALLS, STIRRUPS IN BEAMS SHALL BE PLACED AT MAXIMUM OF HALF THE SPECIFIED SPACING OF ADJACENT BARS FROM THE END OF THE MEMBER.

**STEEL SPECIFICATIONS:**
STEEL REINFORCEMENT SHALL BE DEFORMED BARS OF GRADE 400 CONFORMING TO CSA STANDARDS G30.12 BILLET-STEEL BARS FOR CONCRETE REINFORCEMENT.

**WELDING:**
WELDING OF REINFORCEMENT SHALL NOT BE PERMITTED.

**SPLICES AND EMBEDMENTS:**
UNLESS OTHERWISE SPECIFIED, ALL EMBEDMENTS SHALL BE TREATED AS TENSION EMBEDMENTS AND ALL LAP SPLICES SHALL BE CONSIDERED AS TENSION LAP SPLICES.

WHEN REINFORCING BARS OF DIFFERENT SIZE ARE TO BE SPLICED, THE LENGTH OF THE LAP SHALL BE BASED ON THE DIAMETER OF THE SMALLER BAR.

SPLICES ARE TO BE MADE SO THAT THE OTHER CLEAR DISTANCE CRITERIA WILL BE MAINTAINED.

LAP LENGTHS UNLESS SHOWN OTHERWISE:

| | NORTH | CORNER |
|---|---|---|
| 10M | 520 | 480 |
| 15M | 775 | 585 |
| 20M | 1030 | 780 |
| 25M | 1675 | 1240 |
| 30M | 1940 | 1480 |
| 35M | | |

**PLACEMENT:**
PLACE REINFORCING STEEL IN ACCORDANCE WITH CSA CAN/S-A23.1-M.

REINFORCEMENT MAY BE DISPLACED TO CLEAR PIPES, RECESSES, EMBEDDED METAL WORKS AND CONDUITS.

A MINIMUM CLEARANCE OF 1" SHALL BE MAINTAINED BETWEEN REINFORCEMENT AND EMBEDDED MATERIALS. THE MINIMUM CLEARANCE BETWEEN REINFORCEMENT

REINFORCEMENT SHALL BE ACCURATELY PLACED IN ACCORDANCE WITH THE DRAWINGS AND SHALL BE ADEQUATELY SECURED AGAINST DISPLACEMENT BY USING ANNEALED IRON WIRE AT INTERSECTIONS AND SHALL BE SUPPORTED BY APPROVED CONCRETE OR METAL SUPPORTS, SPACERS OR METAL HANGERS EXCEPT AT SURFACES EXPOSED TO THE GROUND OR TO THE WEATHER WHERE SUPPORTS SHALL BE APPROVED. ALL METAL ACCESSORIES ARE TO BE GALVANIZED.

THE FULL INTENT AND PURPOSE OF THESE DRAWINGS IS PLACING OF REINFORCING STEEL BARS ONLY. IT IS NOT TO BE USED AS A MEANS OF COMMUNICATION BETWEEN THE ARCHITECT, ENGINEER, CONTRACTOR OR ANY OTHER SUBTRADE.

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**HATCH Vendor/Contractor Document Review**

| Doc Number | E354138-CB201-230-260-0011 | SUB | 01 |
|---|---|---|---|
| Date Received | 2018-09-01 | | |

| Review Grade | Next Submittal Status |
|---|---|
| ☐ C1 - Proceed to next submission & status | ☐ Certified |
| ☒ C2 - Proceed with exceptions as noted to next submission & status | ☐ As-Built |
| ☐ C3 - Do not proceed. Revise as noted & resubmit | ☐ Internal Review |
| Next Submittal Date: | ☐ Certified/☐ As-Built |
| ☐ C4 - No further submission required - Complete (select status below) | |
| ☐ Certified Final ☐ Final ☐ Cancelled ☐ Superseded | |

Package Engineer: Name, signature and date
ESRA AKINCI, PA Sep 6, 2018

Reviewed only for general conformity with the specifications. Acceptance by the engineer does not warrant or represent that the information contained on this drawing/document is either accurate or complete. The sole responsibility for correct design, details & dimensions shall remain with the party submitting the drawing/document.

| PREFIX | C |
|---|---|
| TRANS. NOS. | 4..11 |

PRINT RECORD

| NO. | REVISION | DATE | TO | C | A | STAMP/INITIALS |
|---|---|---|---|---|---|---|

REINFORCING STEEL PLACING PLAN

MCNISH STEEL LTD.
10636 - 205 STREET
EDMONTON, ALBERTA
PHONE 447-3337 FAX 447-3379

PROJECT : STRATHCOLD (FALKLE GOLD PROJECT)
CONTR. : CLARK BUILDERS
DWG.OF : ADR PROCESS BLDG (TRANSFORMER FOUNDATIONS)
ENGR. : HATCH
DRAWN BY : MARK DATE : 31/AUG/2018

JOB NO. 18-042 DWG. NO. 003 P

| SIZE | EP | BAR MARK | # | BND TYP | BND DIA | BENDING DIMENSIONS A | B | C | D | E | F | G | H | J | K | O |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 15M | | 15C97 | | | 3 | | | 335 | 1467 | | | | 1033 | | 1035 | |
| 15M | | 15C98 | | | 3 | | | 335 | 247 | 775 | | | 175 | | 174 | |
| 15M | | 15C99 | | | 17 | | | 210 | 2850 | | | | | | | |
| 15M | | 15C100 | | | 48 | | | 250 | 125 | 3788 | 210 | | 34 | | 112 | |
| 15M | | 15C101 | | | 17 | | | 300 | 1200 | | | | | | | |
| 15M | | 15C102 | | | 4 | 250 | 225 | 485 | 500 | | | | 350 | | 350 | |
| 15M | | 15C103 | | | 17 | | | 150 | 1100 | 150 | | | | | | |
| 15M | | 15C104 | | | 17 | | | 150 | 2300 | 150 | | | | | | |

# DRIENTATION

TYPICAL W.A.L.L.

(FIELD CUT TO SUIT AS REQUIRED)

## GENERAL NOTES ON REINFORCEMENT

THE FOLLOWING NOTES SHALL APPLY TO ALL REINFORCEMENT SHOWN ON THE DRAWINGS UNLESS OTHERWISE NOTED.

**DIMENSIONS:**
DIMENSIONS TO REINFORCEMENT ARE TO CENTRE LINES OF BARS, EXCEPT WHERE CONCRETE COVER OF CLEARANCE BETWEEN BARS IS SHOWN.

**COVER:**
SEE STRUCTURAL ENGINEER TYPICAL NOTES FOR ALL COVER SPECIFICATIONS

**SPACING:**
UNLESS OTHERWISE SHOWN, THE FIRST AND LAST BARS IN SLABS AND WALLS, STIRRUPS IN BEAMS SHALL BE PLACED AT MAXIMUM OF HALF THE SPECIFIED SPACING OF ADJACENT BARS FROM THE END OF THE MEMBER.

**STEEL SPECIFICATIONS:**
STEEL REINFORCEMENT SHALL BE DEFORMED BARS OF GRADE 400 CONFORMING TO CSA STANDARDS G30.12 BILLET-STEEL BARS FOR CONCRETE REINFORCEMENT.

**WELDING:**
WELDING OF REINFORCEMENT SHALL NOT BE PERMITTED.

**SPLICES AND EMBEDMENTS:**
UNLESS OTHERWISE SPECIFIED, ALL EMBEDMENTS SHALL BE TREATED AS TENSION EMBEDMENTS AND ALL LAP SPLICES SHALL BE CONSIDERED AS TENSION LAP SPLICES.

WHEN REINFORCING BARS OF DIFFERENT SIZE ARE TO BE SPLICED, THE LENGTH OF THE LAP SHALL BE BASED ON THE DIAMETER OF THE SMALLER BAR.

SPLICES ARE TO BE MADE SO THAT THE EITHER CLEAR DISTANCE COVER WILL BE MAINTAINED.

LAP LENGTHS UNLESS SHOWN OTHERWISE:

| | HORIZ | OTHER |
|---|---|---|
| 10M | 500 | 400 |
| 15M | 735 | 585 |
| 20M | 1020 | 795 |
| 25M | 1575 | 1240 |
| 30M | 1940 | 1480 |
| 35M | | |

**PLACEMENT:**
PLACE REINFORCING STEEL IN ACCORDANCE WITH CSA CAN3-A23.1-M.

REINFORCEMENT MAY BE DISPLACE TO CLEAR PIPES, RECESSES, EMBEDDED METAL WORKS AND CONDUITS.

A MINIMUM CLEARANCE OF 1" SHALL BE MAINTAINED BETWEEN REINFORCEMENT AND EMBEDDED MATERIALS. THE MINIMUM CLEARANCE BETWEEN REINFORCEMENT

REINFORCEMENT SHALL BE ACCURATELY PLACED IN ACCORDANCE WITH THE DRAWING AND SHALL BE ADEQUATELY SECURED AGAINST DISPLACEMENT BY USING ANNEALED IRON WIRE AT INTERSECTIONS AND SHALL BE SUPPORTED BY APPROVED CONCRETE OR METAL SUPPORTS, SPACERS OR METAL HANGERS EXCEPT AT SURFACES EXPOSED TO THE GROUND OR TO THE WEATHER WHERE SUPPORTS SHALL BE APPROVED. ALL METAL ACCESSORIES ARE TO BE GALVANIZED.

THE FULL INTENT AND PURPOSE OF THESE DRAWINGS IS PLACING OF REINFORCING STEEL BARS ONLY. IT IS NOT TO BE USED AS A MEANS OF COMMUNICATION BETWEEN THE ARCHITECT, ENGINEER, CONTRACTOR OR ANY OTHER SUBTRADE.

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| | |
|---|---|
| @ | - SPACING CENTER TO CENTER |
| | - DIRECTION IN WHICH BARS EXTEND |
| | - LIMITS OF AREA COVERED BY BARS |
| | - REBAR TOP/NEAR FACE |
| | - REBAR BOTTOM/FAR FACE |
| I.F. | - INSIDE FACE |
| O.F. | - OUTSIDE FACE |
| N.F. | - NEAR FACE |
| F.F. | - FAR FACE |
| E.B. | - EACH WAY |
| VERT | - VERTICAL |
| HORZ | - HORIZONTAL |
| DWLS | - DOWELS |
| FTG | - FOOTING |
| COL | - COLUMN |
| BOT | - BOTTOM |
| TOP | - TOP |
| 1EB | - TOP & BOTTOM |
| L-R | - LEFT TO RIGHT |
| B-T | - BOTTOM TO TOP |
| C.B. | - CORNER BAR |
| T.O.B. | - TYPICAL OPPOSITE HAND |
| R.H. | - FROM RIGHT TO LEFT |
| F.B. | - FIELD BEND |
| C.I.F. | - CUT IN FIELD |
| T.O.W. | - TOP OF WALL |
| T.O.F. | - TOP OF FOOTING |
| B.O.W. | - BOTTOM OF WALL |
| T.O.C. | - TOP OF CONCRETE |
| B.O.C. | - BOTTOM OF CONCRETE |
| ELEV. | - ELEVATION |

B.L.L. - BOTTOM LOWER LAYER
B.U.L. - BOTTOM UPPER LAYER
M.L.L. - MID LOWER LAYER
M.U.L. - MID UPPER LAYER
T.L.L. - TOP LOWER LAYER
T.U.L. - TOP UPPER LAYER
E.R. - EACH ROW
BWT. - BENT

| PREFIX | C |
|---|---|
| TRANS. NOS. | 4.9 |

PRINT RECORD

| NO. | REVISION | DATE | TC | IC | A | IS/AUG/18 |
|---|---|---|---|---|---|---|
| | CC REVIEW | AUG 2018 | | | | |

MCNISH STEEL LTD.
10636 - 205 STREET
EDMONTON, ALBERTA
PHONE 447-3337 FAX 447-3379

REINFORCING STEEL PLACING PLAN

PROJECT = STRATHCOLD (EAGLE GOLD PROJECT)
CONTR. = CLARK BUILDERS
DWG. OF = ADR PROCESS BLDG (E.B.G. NW QUADRANT)
ENGR. = HATCH
DRAWN BY = MARK
DATE = 15/AUG/2018

JOB NO. 18-042 | DWG. NO. 003 J

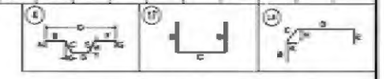
E354138-CB201-230-260-0009 SUB02

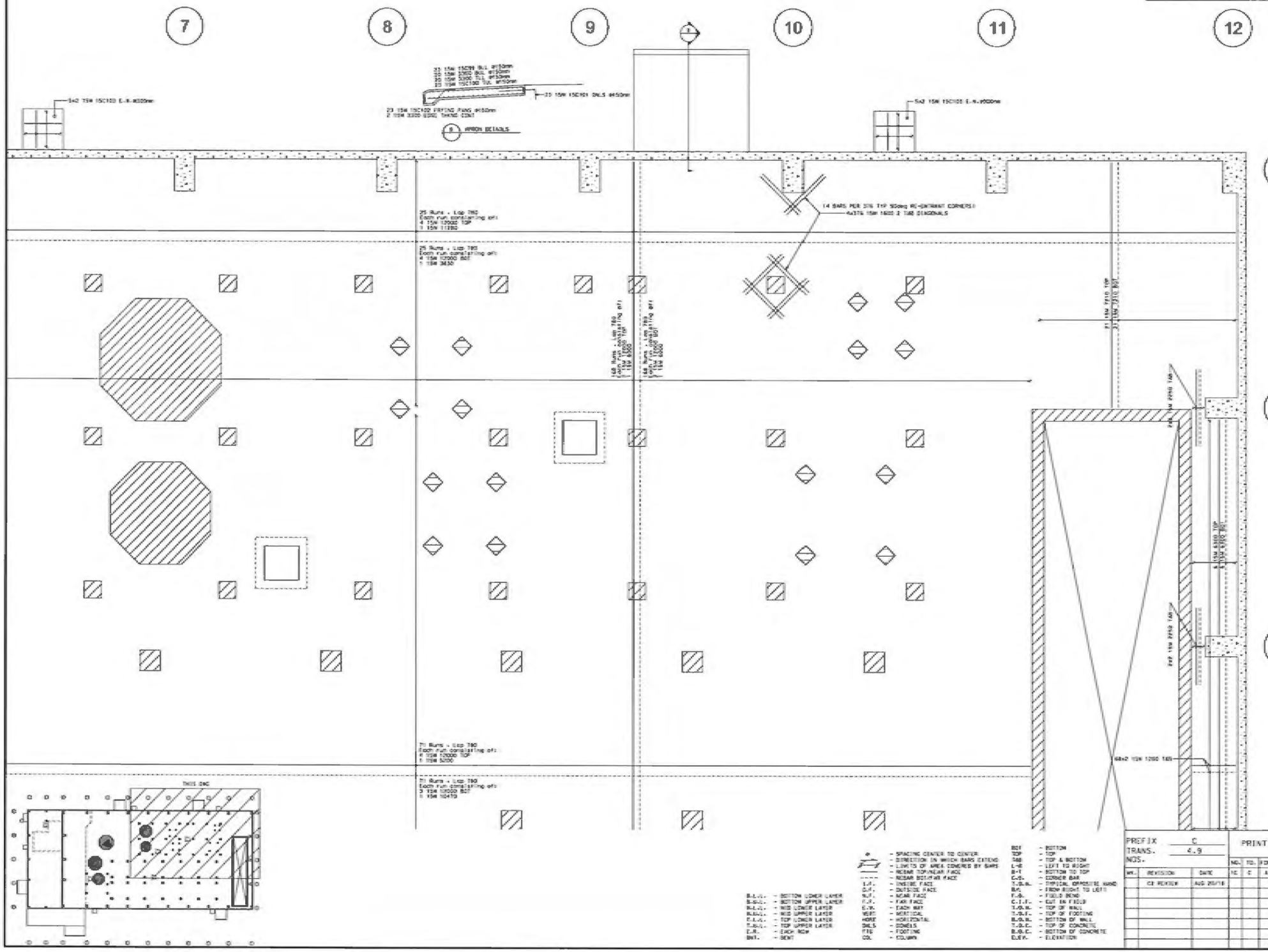
| | | | | | | |
|---|---|---|---|---|---|---|
| Current Status | Preliminary ( ) | Internal Review ( ) | Certified ( ) | Certified Final ( ) | As Built ( ) | Final ( ) |
| Next Status | | Internal Review ( ) | Certified ( ) | | As Built ( ) | |
| Review Grade | C1 ( ) Proceed to next submission and status. | C2 ( ) Proceed with exceptions as noted to next submission and status. | | C3 ( ) Do not proceed. Revise as noted and resubmit. | C4 (X) Complete. No further submission required | |

Reviewed only for general conformity with the drawings and specifications. The Consulting Engineer does not warrant or represent that the information contained on this drawing is either accurate or complete. Sole responsibility for correct design, details and dimensions shall remain with party submitting the drawing.

HATCH | Signature | ESRA AKINCI | Date | Aug 22, 2018

| SIZE | EP | Bar Mark | N | Bend Type | CC | A | B | C | D | E | F | G | H | J | K | O |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 15M | | 15C99 | | 11 | | | 315 | 2850 | | | | | | | | |
| 15M | | 15C100 | | L8 | | | 350 | 125 | 2788 | 270 | | | 56 | | 112 | |
| 15M | | 15C101 | | 11 | | | 300 | 1200 | | | | | | | | |
| 15M | | 15C102 | | 4 | | 350 | 229 | 485 | 300 | | | | 350 | | 350 | |
| 15M | | 15C103 | | 11 | | | 150 | 1100 | 150 | | | | | | | |






## GENERAL NOTES ON REINFORCEMENT

THE FOLLOWING NOTES SHALL APPLY TO ALL REINFORCEMENT SHOWN ON THE DRAWINGS UNLESS OTHERWISE NOTED.

**DIMENSIONS:**
DIMENSIONS TO REINFORCEMENT ARE TO CENTRE LINES OF BARS, EXCEPT WHERE CONCRETE COVER OR CLEARANCE BETWEEN BARS IS SHOWN.

**COVER:**
SEE STRUCTURAL ENGINEER TYPICAL NOTES FOR ALL COVER SPECIFICATIONS

**SPACING:**
UNLESS OTHERWISE SHOWN, THE FIRST AND LAST BARS IN SLABS AND WALLS, STIRRUPS IN BEAMS SHALL BE PLACED AT A MINIMUM OF HALF THE SPECIFIED SPACING OF ADJACENT BARS FROM THE END OF THE MEMBER.

**STEEL SPECIFICATIONS:**
STEEL REINFORCEMENT SHALL BE DEFORMED BARS OF GRADE 400 CONFORMING TO CSA STANDARDS G30.12 BILLET-STEEL BARS FOR CONCRETE REINFORCEMENT.

**WELDING:**
WELDING OF REINFORCEMENT SHALL NOT BE PERMITTED.

**SPLICES AND EMBEDMENTS:**
UNLESS OTHERWISE SPECIFIED, ALL EMBEDMENTS SHALL BE TREATED AS TENSION EMBEDMENTS AND ALL LAP SPLICES SHALL BE CONSIDERED AS TENSION LAP SPLICES.

WHEN REINFORCING BARS OF DIFFERENT SIZE ARE TO BE SPLICED, THE LENGTH OF THE LAP SHALL BE BASED ON THE DIAMETER OF THE SMALLER BAR.

SPLICES ARE TO BE MADE SO THAT THE GIVEN CLEAR DISTANCE COVER WILL BE MAINTAINED.

LAP LENGTHS UNLESS SHOWN OTHERWISE:

| | HORZ | OTHER |
|---|---|---|
| 10M | 320 | 400 |
| 15M | 775 | 580 |
| 20M | 1030 | 750 |
| 25M | 1515 | 1140 |
| 30M | 1940 | 1485 |
| 35M | | |

**PLACEMENT:**
PLACE REINFORCING STEEL IN ACCORDANCE WITH CSA A23.1-04.

REINFORCEMENT MAY BE DISPLACED TO CLEAR PIPES, RECESSES, EMBEDDED METAL WORKS AND CONDUITS.

A MINIMUM CLEARANCE OF 1" SHALL BE MAINTAINED BETWEEN REINFORCEMENT AND EMBEDDED MATERIALS. THE MINIMUM CLEARANCE BETWEEN REINFORCEMENT

REINFORCEMENT SHALL BE ACCURATELY PLACED IN ACCORDANCE WITH THE DRAWING AND SHALL BE ADEQUATELY SECURED AGAINST DISPLACEMENT BY USING ANNEALED IRON WIRE AT INTERSECTIONS AND SHALL BE SUPPORTED BY APPROVED CONCRETE OR METAL SUPPORTS. SPACERS OR METAL HANGERS EXCEPT AT SURFACES EXPOSED TO THE GROUND OR TO THE WEATHER WHERE SUPPORTS SHALL BE APPROVED. ALL METAL ACCESSORIES ARE TO BE GALVANIZED.

THE FULL INTENT AND PURPOSE OF THESE DRAWINGS IS PLACING OF REINFORCING STEEL BARS ONLY. IT IS NOT TO BE USED AS A MEANS OF COMMUNICATION BETWEEN THE ARCHITECT, ENGINEER, CONTRACTOR OR ANY OTHER SUBTRADE.

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B.L.L. - BOTTOM LOWER LAYER
B.U.L. - BOTTOM UPPER LAYER
B.K.L. - BOX LOWER LAYER
B.U.L. - BOX UPPER LAYER
T.L.L. - TOP LOWER LAYER
T.U.L. - TOP UPPER LAYER
E.R. - EACH ROW
BNT. - BENT

@ - SPACING CENTER TO CENTER
- DIRECTION IN WHICH BARS EXTEND
- LIMITS OF AREA COVERED BY BARS
- REBAR TOP/NEAR FACE
- REBAR BOTTOM FACE
I.F. - INSIDE FACE
O.F. - OUTSIDE FACE
N.F. - NEAR FACE
F.F. - FAR FACE
E.W. - EACH WAY
VERT. - VERTICAL
HORIZ - HORIZONTAL
DWLS - DOWELS
FTG - FOOTING
COL - COLUMN

BOT - BOTTOM
TOP - TOP
T&B - TOP & BOTTOM
L-R - LEFT TO RIGHT
B-T - BOTTOM TO TOP
C-S. - CORNER BAR
T.S.B. - TYPICAL OPPOSITE HAND
R.L. - FROM RIGHT TO LEFT
F.B. - FIELD BEND
C.I.F. - CUT IN FIELD
T.O.W. - TOP OF WALL
T.O.F. - TOP OF FOOTING
B.O.W. - BOTTOM OF WALL
T.O.C. - TOP OF CONCRETE
B.O.C. - BOTTOM OF CONCRETE
ELEV. - ELEVATION

| PREFIX TRANS. NOS. | C 4.9 |
|---|---|

| NO. | REVISION | DATE |
|---|---|---|
| 1 | CE REVISION | AUG 20/18 |

PRINT RECORD

| NO. | TO. | FOR | DATE |
|---|---|---|---|
| 1 | C | A | 15/AUG/18 |

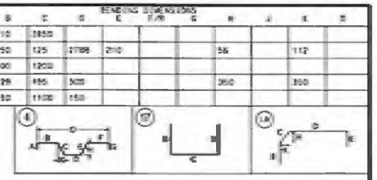
# REINFORCING STEEL PLACING PLAN

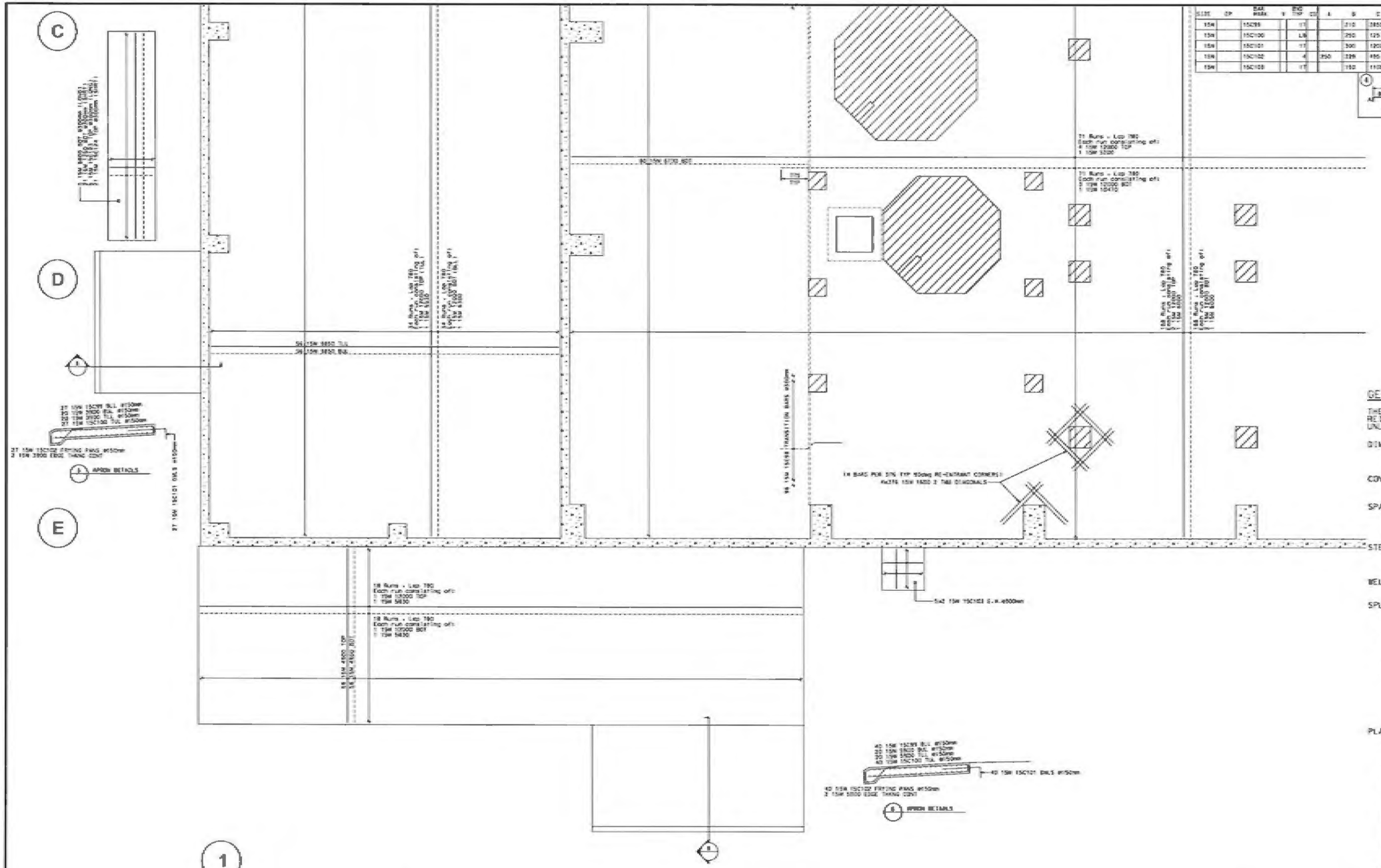
MCNISH STEEL LTD.
10636 - 205 STREET
EDMONTON, ALBERTA
PHONE 447-3337 FAX 447-3319

PROJECT : STRATHCOLD (EAGLE GOLD PROJECT)
CONTR. : OLMIN BUILDERS
ENG.-OF : ADR PROCESS BLDG (S.U.C. NAE QUADRANT)
ENGR. :
DRAWN BY : MARK
DATE : 15/AUG/2018

JOB NO. 18-042 | DWG. NO. 003 K

| SIZE | QTY | BAR MARK | V | END TYP | CD | A | B | C | D | E | BENDING DIMENSIONS F,FA | G | H | J | K | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 15M | | 15C99 | | 17 | | | 210 | 3850 | | | | | | | | |
| 15M | | 15C100 | | L/R | | | 250 | 125 | 2700 | 210 | | | 56 | | 112 | |
| 15M | | 15C101 | | 17 | | | 300 | 1200 | | | | | | | | |
| 15M | | 15C102 | | 4 | | 350 | 225 | 955 | 500 | | | | 350 | | 300 | |
| 15M | | 15C103 | | 17 | | | 150 | 1100 | 150 | | | | | | | |






## ORIENTATION

TYPICAL E.W.O.




(FIELD CUT TO SUIT AS REQUIRED)

## GENERAL NOTES ON REINFORCEMENT

THE FOLLOWING NOTES SHALL APPLY TO ALL REINFORCEMENT SHOWN ON THE DRAWINGS UNLESS OTHERWISE NOTED.

**DIMENSIONS:**
DIMENSIONS TO REINFORCEMENT ARE TO CENTRE LINES OF BARS, EXCEPT WHERE CONCRETE COVER OR CLEARANCE BETWEEN BARS IS SHOWN.

**COVER:**
SEE STRUCTURAL ENGINEER TYPICAL NOTES FOR ALL COVER SPECIFICATIONS

**SPACING:**
UNLESS OTHERWISE SHOWN, THE FIRST AND LAST BARS IN SLABS AND WALLS, STIRRUPS IN BEAMS SHALL BE PLACED AT DISTANCE OF HALF THE SPECIFIED SPACING OF ADJACENT BARS FROM THE END OF THE MEMBER.

**STEEL SPECIFICATIONS:**
STEEL REINFORCEMENT SHALL BE DEFORMED BARS OF GRADE 400 CONFORMING TO CSA STANDARDS G30.12 BILLET-STEEL BARS FOR CONCRETE REINFORCEMENT.

**WELDING:**
WELDING OF REINFORCEMENT SHALL NOT BE PERMITTED.

**SPLICES AND EMBEDMENTS:**
UNLESS OTHERWISE SPECIFIED, ALL EMBEDMENTS SHALL BE TREATED AS TENSION EMBEDMENTS AND ALL LAP SPLICES SHALL BE CONSIDERED AS TENSION LAP SPLICES.

WHEN REINFORCING BARS OF DIFFERENT SIZE ARE TO BE SPLICED, THE LENGTH OF THE LAP SHALL BE BASED ON THE DIAMETER OF THE SMALLER BAR.

SPLICES ARE TO BE MADE SO THAT THE GIVEN CLEAR DISTANCE COVER WILL BE MAINTAINED.

LAP LENGTHS UNLESS SHOWN OTHERWISE:

| | HOOP | OTHER |
|---|---|---|
| 10M | 590 | 400 |
| 15M | 715 | 590 |
| 20M | 1400 | 790 |
| 25M | 1625 | 1240 |
| 30M | 1940 | 1485 |
| 35M | | |

**PLACEMENT:**
PLACE REINFORCING STEEL IN ACCORDANCE WITH CSA CAN3-A23.1-M.

REINFORCEMENT MAY BE DISPLACED TO CLEAR PIPES, RECESSES, EMBEDDED METAL WORKS AND CONDUITS.

A MINIMUM CLEARANCE OF 1" SHALL BE MAINTAINED BETWEEN REINFORCEMENT AND EMBEDDED MATERIALS. THE MINIMUM CLEARANCE BETWEEN REINFORCEMENT

REINFORCEMENT SHALL BE ACCURATELY PLACED IN ACCORDANCE WITH THE DRAWING AND SHALL BE ADEQUATELY SECURED AGAINST DISPLACEMENT BY USING MANEALED IRON WIRE AT INTERSECTIONS AND SHALL BE SUPPORTED BY APPROVED CONCRETE OR METAL SUPPORTS, SPACERS OR METAL HANGERS EXCEPT AT SURFACES EXPOSED TO THE GROUND OR TO THE WEATHER WHERE SUPPORTS SHALL BE APPROVED. ALL METAL ACCESSORIES ARE TO BE GALVANIZED.

THE FULL INTENT AND PURPOSE OF THESE DRAWINGS IS PLACING OF REINFORCING STEEL BARS ONLY. IT IS NOT TO BE USED AS A MEANS OF COMMUNICATION BETWEEN THE ARCHITECT, ENGINEER, CONTRACTOR OR ANY OTHER SUBTRADE.

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@ - SPACING CENTER TO CENTER
 - DIRECTION IN WHICH BARS EXTEND
LIMITS OF AREA COVERED BY BARS
——— - REBAR TOP/NEAR FACE
– – – - REBAR BOT/FAR FACE
I.F. - INSIDE FACE
O.F. - OUTSIDE FACE
N.F. - NEAR FACE
F.F. - FAR FACE
E.W. - EACH WAY
VERT - VERTICAL
HORIZ - HORIZONTAL
DWLS - DOWELS
FTG - FOOTING
COL - COLUMN

B.L.L. - BOTTOM LOWER LAYER
B.U.L. - BOTTOM UPPER LAYER
M.L.L. - MID LOWER LAYER
M.U.L. - MID UPPER LAYER
T.L.L. - TOP LOWER LAYER
T.U.L. - TOP UPPER LAYER
E.R. - EACH ROW
BNT. - BENT

BOT - BOTTOM
TOP - TOP
T&B - TOP & BOTTOM
L-R - LEFT TO RIGHT
B-T - BOTTOM TO TOP
C.B. - CORNER BAR
T.E.H. - TYPICAL OPPOSITE HAND
R.H. - FROM RIGHT TO LEFT
F.B. - FIELD BEND
C.I.F. - CUT IN FIELD
T.O.W. - TOP OF WALL
T.O.F. - TOP OF FOOTING
B.O.W. - BOTTOM OF WALL
T.O.C. - TOP OF CONCRETE
B.O.C. - BOTTOM OF CONCRETE
ELEV. - ELEVATION

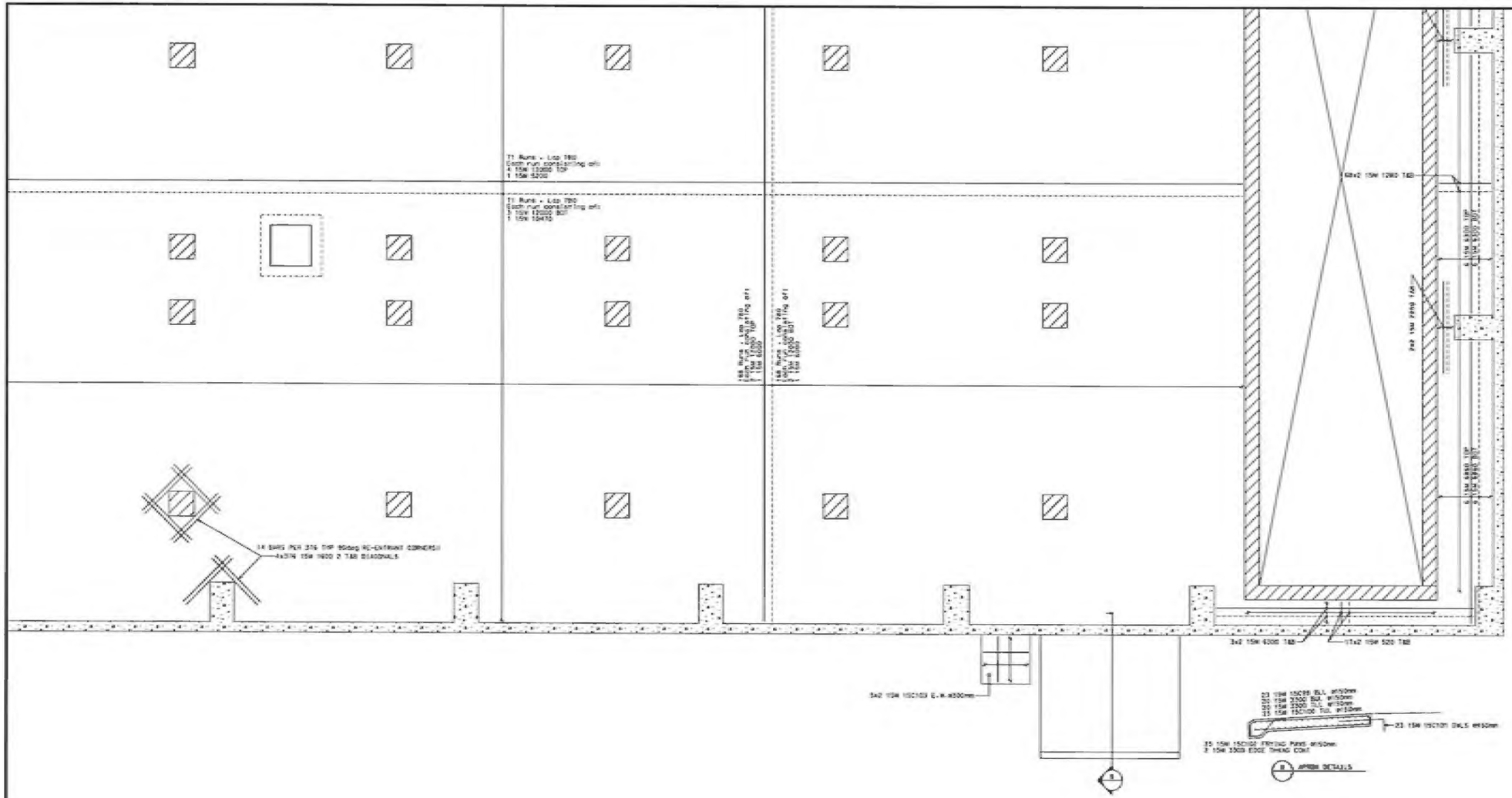
| PREFIX TRANS. NOS. | C 4.9 | PRINT RECORD | | | | |
|---|---|---|---|---|---|---|
| NO. | REVISION | DATE | NO. | TO. | SIH | DATE |
| | C2 REVISED | AUG 20/18 | | | | |

CRSI
MCNISH STEEL LTD.
10636 - 205 STREET
EDMONTON, ALBERTA
PHONE 447-3337 FAX 447-3379

# REINFORCING STEEL PLACING PLAN

PROJECT : STRATHCOLLO LEAGUE COLD PROJECT1
CONTR. : CLARK BUILDERS
DWG.OF : HOR PROCESS BLDG (S.O.G. S/W QUADRANT)
ENGR. : HATCH
DRAWN BY : MWN DATE : 15/AUG/2018

JOB NO. 18-042 | DWG. NO. 003 L




## ORIENTATION

TYPICAL W.W.P.




(FIELD CUT TO SUIT AS REQUIRED)

## GENERAL NOTES ON REINFORCEMENT

THE FOLLOWING NOTES SHALL APPLY TO ALL REINFORCEMENT SHOWN ON THE DRAWINGS UNLESS OTHERWISE NOTED.

**DIMENSIONS:**
DIMENSIONS TO REINFORCEMENT ARE TO CENTRE LINES OF BARS. EXCEPT WHERE CONCRETE COVER OR CLEARANCE BETWEEN BARS IS SHOWN.

**COVER:**
SEE STRUCTURAL ENGINEER TYPICAL NOTES FOR ALL OTHER SPECIFICATIONS

**SPACING:**
UNLESS OTHERWISE SHOWN, THE FIRST AND LAST BARS IN SLABS AND WALLS, STIRRUPS IN BEAMS SHALL BE PLACED AT A MINIMUM OF HALF THE SPECIFIED SPACING OF REMAINING BARS FROM THE END OF THE MEMBER.

**STEEL SPECIFICATIONS:**
STEEL REINFORCEMENT SHALL BE DEFORMED BARS OF GRADE 400 CONFORMING TO CSA STANDARDS G30.12 BILLET-STEEL BARS FOR CONCRETE REINFORCEMENT.

**WELDING:**
WELDING OF REINFORCEMENT SHALL NOT BE PERMITTED.

**SPLICES AND EMBEDMENTS:**
UNLESS OTHERWISE SPECIFIED, ALL EMBEDMENTS SHALL BE TREATED AS TENSION EMBEDMENTS AND ALL LAP SPLICES SHALL BE CONSIDERED AS TENSION LAP SPLICES.

WHEN REINFORCING BARS OF DIFFERENT SIZE ARE TO BE SPLICED, THE LENGTH OF THE LAP SHALL BE BASED ON THE DIAMETER OF THE SMALLER BAR.

SPLICES ARE TO BE MADE SO THAT THE GIVEN CLEAR DISTANCE COVER WILL BE MAINTAINED.

LAP LENGTHS UNLESS SHOWN OTHERWISE:

| | HSR3 | OTHER |
|---|---|---|
| 10M | 525 | 408 |
| 15M | 775 | 595 |
| 20M | 1030 | 790 |
| 25M | 1575 | 1210 |
| 30M | 1940 | 1485 |
| 35M | | |

**PLACEMENT:**
PLACE REINFORCING STEEL IN ACCORDANCE WITH CSA A23.1-94.

REINFORCEMENT MAY BE DISPLACE TO CLEAR PIPES, RECESSES, EMBEDDED METAL WORKS AND CONDUITS.

A MINIMUM CLEARANCE OF 1" SHALL BE MAINTAINED BETWEEN REINFORCEMENT AND EMBEDDED MATERIALS. THE MINIMUM CLEARANCE BETWEEN REINFORCEMENT

REINFORCEMENT SHALL BE ACCURATELY PLACED IN ACCORDANCE WITH THE DRAWING AND SHALL BE ADEQUATELY SECURED AGAINST DISPLACEMENT BY USING ANNEALED IRON WIRE AT INTERSECTIONS AND SHALL BE SUPPORTED BY APPROVED CONCRETE OR METAL SUPPORTS. SPACERS OR METAL HANGERS EXCEPT AT SURFACES EXPOSED TO THE GROUND OR TO THE WEATHER WHERE SUPPORTS SHALL BE APPROVED. ALL METAL ACCESSORIES ARE TO BE GALVANIZED.

THE FULL INTENT AND PURPOSE OF THESE DRAWINGS IS PLACING OF REINFORCING STEEL BARS ONLY. IT IS NOT TO BE USED AS A MEANS OF COMMUNICATION BETWEEN THE ARCHITECT, ENGINEER, CONTRACTOR OR ANY OTHER SUBTRADE.

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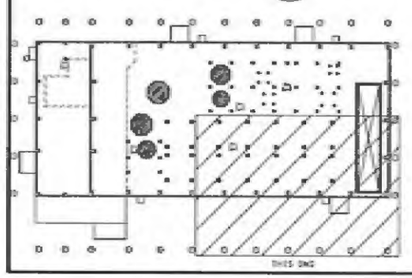
7



8

| SIZE | EP | BAR MARK | V | END TYP | CD |
|---|---|---|---|---|---|
| 15M | | 15C99 | | LT | |
| 15M | | 15C100 | | LB | |
| 15M | | 15C101 | | LT | |
| 15M | | 15C102 | | K | |
| 15M | | 15C103 | | LT | |

9

| BENDING DIMENSIONS | A | B | C | D | E | F/G | G | H | J | K | O |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 210 | 2850 | | | | | | | | |
| | | 250 | 125 | 2700 | 310 | | | 50 | | 112 | |
| | | 300 | 1300 | | | | | | | | |
| | 750 | 725 | 495 | 300 | | | | 350 | | 550 | |
| | | 150 | 1100 | 150 | | | | | | | |

10

B.L.L. - BOTTOM LOWER LAYER
B.U.L. - BOTTOM UPPER LAYER
T.L.L. - TOP LOWER LAYER
T.U.L. - TOP UPPER LAYER
EA. - EACH
BAT. - BEAT

- SPACING CENTER TO CENTER
- DIRECTION IN WHICH BARS EXTEND
- LIMITS OF AREA COVERED BY BARS
- REBAR TOP/MAJOR FACE
- REBAR BOTTOM/MINOR FACE
- INSIDE FACE
- OUTSIDE FACE
- NEAR FACE
- FAR FACE
- EACH WAY
- VERTICAL
- HORIZONTAL
- DOWELS
- FOOTING
- COLUMN

11

BOT - BOTTOM
TOP - TOP
T&B - TOP & BOTTOM
L-R - LEFT TO RIGHT
B-T - BOTTOM TO TOP
C.B. - CORNER BAR
T.O.N. - TYPICAL OPPOSITE HAND
R.H. - FROM RIGHT TO LEFT
F.B. - FIELD BEND
C.U.F. - CUT ON FIELD
T.O.W. - TOP OF WALL
T.O.F. - TOP OF FOOTING
B.O.W. - BOTTOM OF WALL
T.O.C. - TOP OF CONCRETE
B.O.C. - BOTTOM OF CONCRETE
ELEV. - ELEVATION

12

PREFIX C
TRANS. 4-9
NOS.

PRINT RECORD

| NO. | REVISION | DATE | TO | C | A | BY/AUG/18 |
|---|---|---|---|---|---|---|
| 02 | REVISION | AUG 20/18 | | | | |

# REINFORCING STEEL PLACING PLAN

MCNISH STEEL LTD.
10636 - 205 STREET
EDMONTON, ALBERTA
PHONE 447-3337 FAX 447-3379

PROJECT : STRATACOLD (EAGLE GOLD PROJECT)
CONTR. : CLARK BUILDERS
DWG-OF : ADR PROCESS BLDG (S.O.G. S/E QUADRANT)
ENGR. : HATCH
DRAWN BY : MARK DATE : 15/AUG/2018

JOB NO. 18-042 DWG. NO. 003 M

| SIZE | EP | BAR MARK | N | BAG TYP | CD | BENDING DIMENSIONS A | B | C | D | E | F/R | G | H | J | K | O |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 25M | | 25C173 | | 11 | | | 400 | 850 | | | | | | | | |
| 25M | | 25C174 | | 11 | | | 400 | 2190 | | | | | | | | |
| 25M | | 25C175 | | 11 | | | 400 | 2140 | | | | | | | | |
| 25M | | 25C176 | | 11 | | | 400 | 3190 | | | | | | | | |
| 20M | | 20C85 | | 11 | | | 1650 | 300 | | | | | | | | |
| 20M | | 20C118 | | 11 | | | 255 | 400 | | | | | | | | |
| 20M | | 20C120 | | 11 | | | 300 | 475 | | | | | | | | |
| 20M | | 20C121 | | 20 | | | 300 | 450 | 300 | | | | | | | |
| 20M | | 20C169 | | 11 | | | 400 | 750 | | | | | | | | |
| 15M | | 15C81 | | 11 | | | 300 | 775 | | | | | | | | |
| 15M | | 15C85 | | 11 | | 140 | 300 | 300 | 320 | 320 | | 140 | | | | |
| 15M | | 15C101 | | 11 | | | 500 | 12500 | | | | | | | | |
| 15M | | 15C103 | | 11 | | | 150 | 11100 | 150 | | | | | | | |
| 15M | | 15C105 | | 11 | | | 250 | 800 | 250 | | | | | | | |
| 15M | | 15C109 | | 11 | | | 400 | 800 | 400 | | | | | | | |
| 15M | | 15C110 | | 11 | | | 400 | 14450 | 400 | | | | | | | |
| 15M | | 15C111 | | 11 | | | 400 | 480 | 400 | | | | | | | |

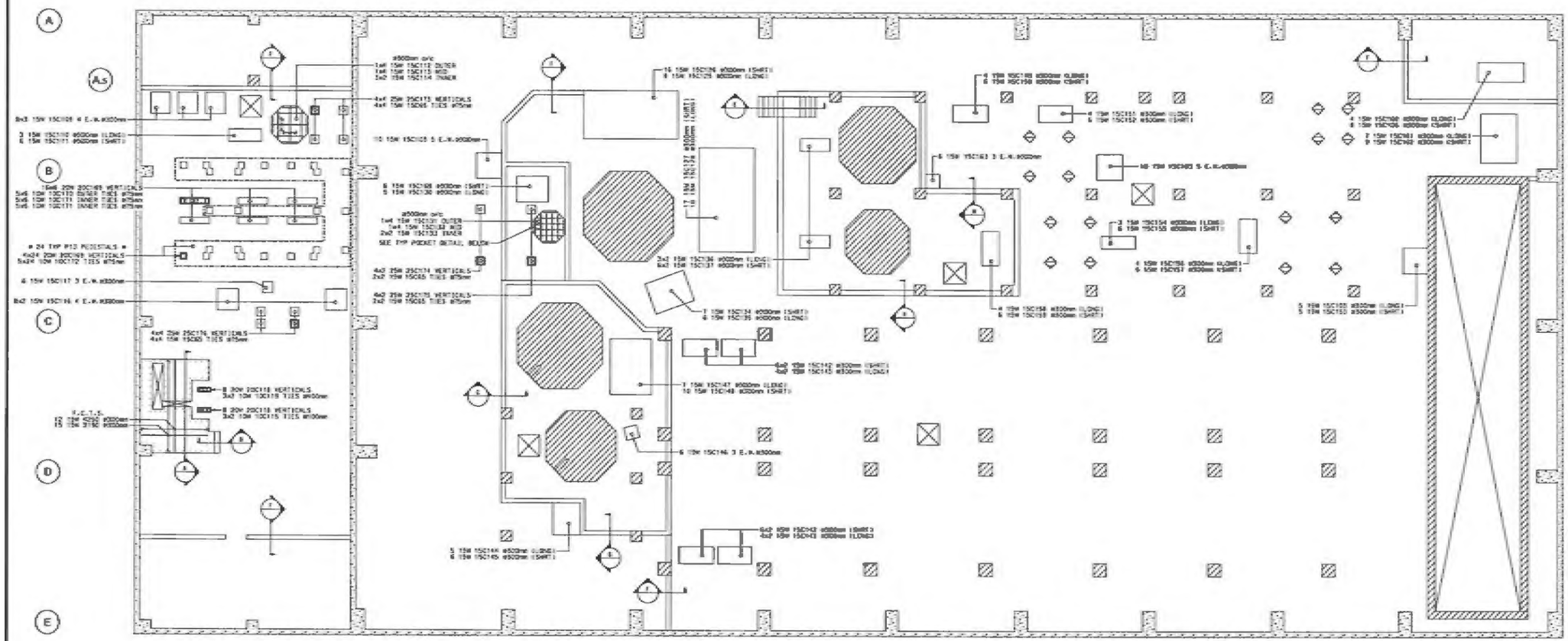
| SIZE | EP | BAR MARK | N | BAG TYP | CD | BENDING DIMENSIONS A | B | C | D | E | F/R | G | H | J | K | O |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 15M | | 15C112 | | 11 | | | 450 | 725 | 450 | | | | | | | |
| 15M | | 15C113 | | 11 | | | 450 | 1267 | 450 | | | | | | | |
| 15M | | 15C114 | | 11 | | | 450 | 1650 | 450 | | | | | | | |
| 15M | | 15C115 | | 11 | | | 250 | 300 | | | | | | | | |
| 15M | | 15C116 | | 11 | | | 150 | 900 | 150 | | | | | | | |
| 15M | | 15C117 | | 11 | | | 300 | 450 | 300 | | | | | | | |
| 15M | | 15C122 | | 11 | | | 300 | 350 | | | | | | | | |
| 15M | | 15C125 | | 11 | | | 325 | 4300 | 325 | | | | | | | |
| 15M | | 15C126 | | 11 | | | 325 | 2150 | 325 | | | | | | | |
| 15M | | 15C127 | | 11 | | | 450 | 2500 | 450 | | | | | | | |
| 15M | | 15C128 | | 11 | | | 450 | 4750 | 450 | | | | | | | |
| 15M | | 15C130 | | 11 | | | 350 | 1400 | 350 | | | | | | | |
| 15M | | 15C131 | | 11 | | | 250 | 630 | 250 | | | | | | | |
| 15M | | 15C132 | | 11 | | | 250 | 1170 | 250 | | | | | | | |
| 15M | | 15C133 | | 11 | | | 250 | 1400 | 250 | | | | | | | |
| 15M | | 15C134 | | 11 | | | 425 | 1400 | 425 | | | | | | | |
| 15M | | 15C135 | | 11 | | | 425 | 1800 | 425 | | | | | | | |

| SIZE | EP | BAR MARK | N | BAG TYP | CD | BENDING DIMENSIONS A | B | C | D | E | F/R | G | H | J | K | O |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 15M | | 15C136 | | 11 | | | 725 | 1300 | 725 | | | | | | | |
| 15M | | 15C137 | | 11 | | | 725 | 500 | 725 | | | | | | | |
| 15M | | 15C138 | | 11 | | | 250 | 150 | | | | | | | | |
| 15M | | 15C140 | | 11 | | | 250 | 400 | | | | | | | | |
| 15M | | 15C142 | | 11 | | | 400 | 700 | 400 | | | | | | | |
| 15M | | 15C143 | | 11 | | | 400 | 1500 | 400 | | | | | | | |
| 15M | | 15C144 | | 11 | | | 150 | 1385 | 150 | | | | | | | |
| 15M | | 15C145 | | 11 | | | 150 | 1200 | 150 | | | | | | | |
| 15M | | 15C146 | | 11 | | | 200 | 500 | 200 | | | | | | | |
| 15M | | 15C147 | | 11 | | | 250 | 2500 | 250 | | | | | | | |
| 15M | | 15C148 | | 11 | | | 250 | 1900 | 250 | | | | | | | |
| 15M | | 15C149 | | 11 | | | 300 | 1500 | 300 | | | | | | | |
| 15M | | 15C150 | | 11 | | | 300 | 700 | 300 | | | | | | | |
| 15M | | 15C151 | | 11 | | | 350 | 1500 | 350 | | | | | | | |
| 15M | | 15C152 | | 11 | | | 350 | 700 | 350 | | | | | | | |
| 15M | | 15C153 | | 11 | | | 150 | 1050 | 150 | | | | | | | |
| 15M | | 15C154 | | 11 | | | 275 | 1500 | 275 | | | | | | | |

| SIZE | EP | BAR MARK | N | BAG TYP | CD | BENDING DIMENSIONS A | B | C | D | E | F/R | G | H | J | K |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 15M | | 15C155 | | 11 | | | 275 | 500 | 275 | | | | | | |
| 15M | | 15C156 | | 11 | | | 475 | 1500 | 475 | | | | | | |
| 15M | | 15C157 | | 11 | | | 475 | 700 | 475 | | | | | | |
| 15M | | 15C158 | | 11 | | | 600 | 1500 | 600 | | | | | | |
| 15M | | 15C159 | | 11 | | | 600 | 700 | 600 | | | | | | |
| 15M | | 15C160 | | 11 | | | 250 | 2050 | 250 | | | | | | |
| 15M | | 15C161 | | 11 | | | 275 | 2200 | 275 | | | | | | |
| 15M | | 15C162 | | 11 | | | 275 | 1400 | 275 | | | | | | |
| 15M | | 15C163 | | 11 | | | 300 | 550 | 300 | | | | | | |
| 15M | | 15C165 | | 11 | | | 400 | 500 | | | | | | | |
| 15M | | 15C166 | | 11 | | | 500 | 700 | | | | | | | |
| 15M | | 15C167 | | 11 | | | 250 | 150 | | | | | | | |
| 15M | | 15C168 | | 11 | | | 250 | 11100 | 250 | | | | | | |
| 10M | | 10C119 | | 11 | | 100 | 250 | 145 | 250 | 145 | | 100 | | | |
| 10M | | 10C170 | | 11 | | 100 | 2200 | 1300 | 2200 | 1300 | | 100 | | | |
| 10M | | 10C171 | | 11 | | 100 | 413 | 200 | 413 | 200 | | 100 | | | |
| 10M | | 10C172 | | 11 | | 100 | 2200 | 200 | 2200 | 200 | | 100 | | | |

(1) (2) (3) (4) (5) (6) (7) (8) (9) (10) (11) (12)

(11) (17) (20)


A
A.5
B
C
D
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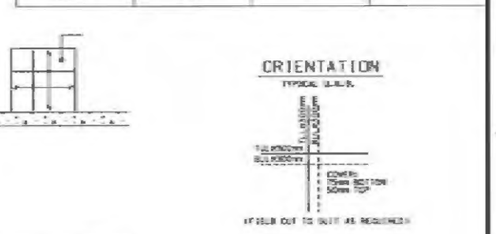
6
7
8
B
B
B

| SIZE | EP | BAR MARK | V | BEND TYP | CD | BENDING DIMENSIONS A | B | C | D | E | F/R | G | H | J | K | O |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 15M | | 15C97 | | 3 | | | 775 | 1463 | | | | | 1033 | | 1033 | |
| 15M | | 15C98 | | 3 | | | 775 | 247 | 775 | | | | 175 | | 174 | |
| 15M | | 15C99 | | 17 | | | 210 | 2950 | | | | | | | | |
| 15M | | 15C100 | | 18 | | | 250 | 125 | 2788 | 210 | | | 56 | | 112 | |
| 15M | | 15C101 | | 17 | | | 200 | 12000 | | | | | | | | |
| 15M | | 15C102 | | 4 | | 250 | 225 | 495 | 300 | | | | 350 | | 250 | |
| 15M | | 15C103 | | 17 | | | 150 | 37100 | 150 | | | | | | | |
| 15M | | 15C104 | | 17 | | | 150 | 25300 | 150 | | | | | | | |




HATCH Vendor/Contractor Document Review

| | | | |
|---|---|---|---|
| Doc Number | E354138-CB201-230-260-0009 | SUB | 01 |
| Date Received | 2018-08-20 | | |

| Review Grade | Next Submittal Status |
|---|---|
| ☐ C1 - Proceed to next submission & status | ☐ Certified |
| ☑ C2 - Proceed with exceptions as noted to next submission & status | ☐ As-Built |
| ☐ C3 - Do not proceed. Revise as noted & resubmit | ☐ Internal Review |
| Next Submittal Date: | ☐ Certified ☐ As-Built |

☐ C4 - No further submission required - Complete (select status below)
☐ Certified Final ☐ Final ☐ Cancelled ☐ Superseded

Package Engineer: Name, signature and date
ESKA AGINCI, EA, Aug 20, 2018

Reviewed only for general conformity with the specifications. Acceptance by the engineer does not warrant or represent that the information contained on this drawing/document is either accurate or complete. The sole responsibility for correct design, details & dimensions shall remain with the party submitting the drawing/document.

## GENERAL NOTES ON REINFORCEMENT

THE FOLLOWING NOTES SHALL APPLY TO ALL REINFORCEMENT SHOWN ON THE DRAWINGS UNLESS OTHERWISE NOTED.

**DIMENSIONS:**
DIMENSIONS TO REINFORCEMENT ARE TO CENTRE LINES OF BARS, EXCEPT WHERE CONCRETE COVER OR CLEARANCE BETWEEN BARS IS SHOWN.

**COVER:**
SEE STRUCTURAL ENGINEER TYPICAL NOTES FOR ALL COVER SPECIFICATIONS.

**SPACING:**
UNLESS DIMENSIONS SHOWN, THE FIRST AND LAST BARS IN SLABS AND WALLS, STIRRUPS IN BEAMS SHALL BE PLACED AT A MAXIMUM OF HALF THE SPECIFIED SPACING OF ADJACENT BARS FROM THE END OF THE MEMBER.

**STEEL SPECIFICATIONS:**
STEEL REINFORCEMENT SHALL BE DEFORMED BARS OF GRADE 400R CONFORMING TO CSA STANDARD G30.18 BILLET-STEEL BARS FOR CONCRETE REINFORCEMENT.

**WELDING:**
WELDING OF REINFORCEMENT SHALL NOT BE PERMITTED.

**SPLICES AND EMBEDMENTS:**
UNLESS OTHERWISE SPECIFIED, ALL EMBEDMENTS SHALL BE TREATED AS TENSION EMBEDMENTS AND ALL LAP SPLICES SHALL BE CONSIDERED AS TENSION LAP SPLICES.

WHEN REINFORCING BARS OF DIFFERENT SIZE ARE TO BE SPLICED, THE LENGTH OF THE LAP SHALL BE BASED ON THE DIAMETER OF THE SMALLER BAR.

SPLICES ARE TO BE MADE SO THAT THE GIVEN CLEAR DISTANCE COVER WILL BE MAINTAINED.

LAP LENGTHS UNLESS SHOWN OTHERWISE:

| | HORIZ | OTHER |
|---|---|---|
| 10M | 300 | 400 |
| 15M | 375 | 525 |
| 20M | 1050 | 750 |
| 25M | 1675 | 1240 |
| 30M | 1940 | 1485 |
| 35M | | |

**PLACEMENT:**
PLACE REINFORCING STEEL IN ACCORDANCE WITH CSA A23.1-M-94.

REINFORCEMENT MAY BE DISPLACED TO CLEAR PIPES, RECESSES, EMBEDDED METAL WORKS AND CONDUITS.

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| | |
|---|---|
| B.L.L. | BOTTOM LOWER LAYER |
| B.U.L. | BOTTOM UPPER LAYER |
| M.L.L. | MID LOWER LAYER |
| M.U.L. | MID UPPER LAYER |
| T.L.L. | TOP LOWER LAYER |
| T.U.L. | TOP UPPER LAYER |
| E.R. | EACH ROW |
| BET. | BETWEEN |
| @ | SPACING CENTER TO CENTER |
| | DIRECTION IN WHICH BARS EXTEND |
| | LIMITS OF AREA COVERED BY BARS |
| | REBAR TOP/NEAR FACE |
| | REBAR BOTTOM FACE |
| I.F. | INSIDE FACE |
| O.F. | OUTSIDE FACE |
| N.F. | NEAR FACE |
| F.F. | FAR FACE |
| E.W. | EACH WAY |
| VERT | VERTICAL |
| HORIZ | HORIZONTAL |
| DWLS | DOWELS |
| FTG | FOOTING |
| COL | COLUMN |
| BOT | BOTTOM |
| TOP | TOP |
| T&B | TOP & BOTTOM |
| L-R | LEFT TO RIGHT |
| B-T | BOTTOM TO TOP |
| C.B. | CORNER BAR |
| T.O.W. | TOP OF WALL |
| T.O.F. | TOP OF FOOTING |
| B.O.W. | BOTTOM OF WALL |
| T.O.C. | TOP OF CONCRETE |
| B.O.C. | BOTTOM OF CONCRETE |
| ELEV. | ELEVATION |

| PREFIX | C |
|---|---|
| TRANS-NOS. | 4.8 |

PRINT RECORD

| NO. | REVISION | DATE |
|---|---|---|

| NO. | TO. | FOR | DATE |
|---|---|---|---|
| | C | A | 15/AUG/18 |

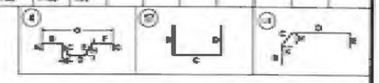
REINFORCING STEEL PLACING PLAN

MCNISH STEEL LTD.
10636 - 205 STREET
EDMONTON, ALBERTA
PHONE 447-3557 FAX 447-3379

PROJECT : STRATHCOLD (EAGLE GOLD PROJECT)
CONTR. : CLARK BUILDERS
ENGR. : HATCH
DRAWN BY : MWR
DATE : 15/AUG/2018

JOB NO. 18-042 | DWG. NO. 003 J

| SIZE | EP | BAR MARK | # | SHAPE TYP | CD | A | B | C | D | BENDING DIMENSIONS E | F/R | G | H | J | K | O |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 15M | | 15C99 | | | | | 2110 | 2850 | | | | | | | | |
| 15M | | 15C100 | | | | | 2500 | 1025 | 2788 | 2110 | | | 145 | | 1142 | |
| 15M | | 15C101 | | | | | 3600 | 12000 | | | | | | | | |
| 15M | | 15C102 | | | | 250 | 229 | 4595 | 300 | | | | 350 | | 350 | |
| 15M | | 15C103 | | | | | 150 | 11100 | 150 | | | | | | | |



7 8 9 10 11 12

A B C




IF REBAR CUT TO SUIT AS REQUIRED

## GENERAL NOTES ON REINFORCEMENT

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**DIMENSIONS:**
DIMENSIONS TO REINFORCEMENT ARE TO CENTRE LINES OF BARS, EXCEPT WHERE CONCRETE COVER OR CLEARANCE BETWEEN BARS IS SHOWN.

**COVER:**
SEE STRUCTURAL ENGINEER TYPICAL NOTES FOR ALL COVER SPECIFICATIONS

**SPACING:**
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WHEN REINFORCING BARS OF DIFFERENT SIZE ARE TO BE SPLICED, THE LENGTH OF THE LAP SHALL BE BASED ON THE DIAMETER OF THE SMALLER BAR.

SPLICES ARE TO BE MADE SO THAT THE EITHER CLEAR DISTANCE COVER WILL BE MAINTAINED.

LAP LENGTHS UNLESS SHOWN OTHERWISE:

| | NORM | WINTER |
|---|---|---|
| 10M | 590 | 600 |
| 15M | 770 | 785 |
| 20M | 1030 | 1050 |
| 25M | 1470 | 1490 |
| 30M | 1940 | 1985 |
| 35M | | |

**PLACEMENT:**
PLACE REINFORCING STEEL IN ACCORDANCE WITH CSA S269.3-92-M.

REINFORCEMENT MAY BE DISPLACED TO CLEAR PIPES, RECESSES, EMBEDDED METAL WORKS AND CONDUITS.

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REINFORCEMENT SHALL BE ACCURATELY PLACED IN ACCORDANCE WITH THE DRAWING AND SHALL BE ADEQUATELY SECURED AGAINST DISPLACEMENT BY USING WIRE-TIED IRON WORK AT INTERSECTIONS AND SHALL BE SUPPORTED BY APPROVED CONCRETE OR METAL SUPPORTS. SPACERS OR METAL HANGERS EXCEPT AT SURFACES EXPOSED TO THE GROUND OR TO THE WEATHER WHERE SUPPORTS SHALL BE APPROVED. ALL METAL ACCESSORIES ARE TO BE GALVANIZED.

THE FULL INTENT AND PURPOSE OF THESE ERRATICS IS PLACING OF REINFORCING STEEL BARS ONLY. IT IS NOT TO BE USED AS A MEANS OF COMMUNICATION BETWEEN THE ARCHITECT, ENGINEER, CONTRACTOR OR ANY OTHER SUBTRADE.

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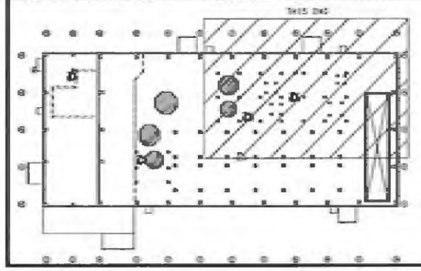



B.B.L.L. - BOTTOM LOWER LAYER
B.B.U.L. - BOTTOM UPPER LAYER
M.B.L.L. - MID LOWER LAYER
M.B.U.L. - MID UPPER LAYER
T.T.L.L. - TOP LOWER LAYER
T.T.U.L. - TOP UPPER LAYER
E.R. - EACH WAY
BNT. - BENT

@ - SPACING CENTER TO CENTER
- DIRECTION IN WHICH BARS EXTEND
- LIMITS OF AREA CONCRETE BY BARS
- REBAR TOP/NEAR FACE
- REBAR BOTTOM FACE
I.F. - INSIDE FACE
O.F. - OUTSIDE FACE
N.F. - NEAR FACE
F.F. - FAR FACE
E.W. - EACH WAY
VERT - VERTICAL
HORIZ - HORIZONTAL
DWLS - DOWELS
FTG - FOOTING
COL - COLUMN

BOT - BOTTOM
TOP - TOP
T&B - TOP & BOTTOM
L-R - LEFT TO RIGHT
B-T - BOTTOM TO TOP
C.B. - CORNER BAR
T.S.A. - TYPICAL OPPOSITE HAND
R/L - FROM RIGHT TO LEFT
F.O. - FIELD BEND
C.I.F. - CUT IN FIELD
T.O.W. - TOP OF WALL
T.O.F. - TOP OF FOOTING
B.O.W. - BOTTOM OF WALL
T.O.C. - TOP OF CONCRETE
B.O.C. - BOTTOM OF CONCRETE
ELEV. - ELEVATION

| PREFIX | C |
|---|---|
| TRANS. NOS. | 4.8 |

| PRINT RECORD | | | | |
|---|---|---|---|---|
| NO. | REVISION | DATE | YC | TC | YSM | DATE YR/MO/DY18 |
| | | | | | | |

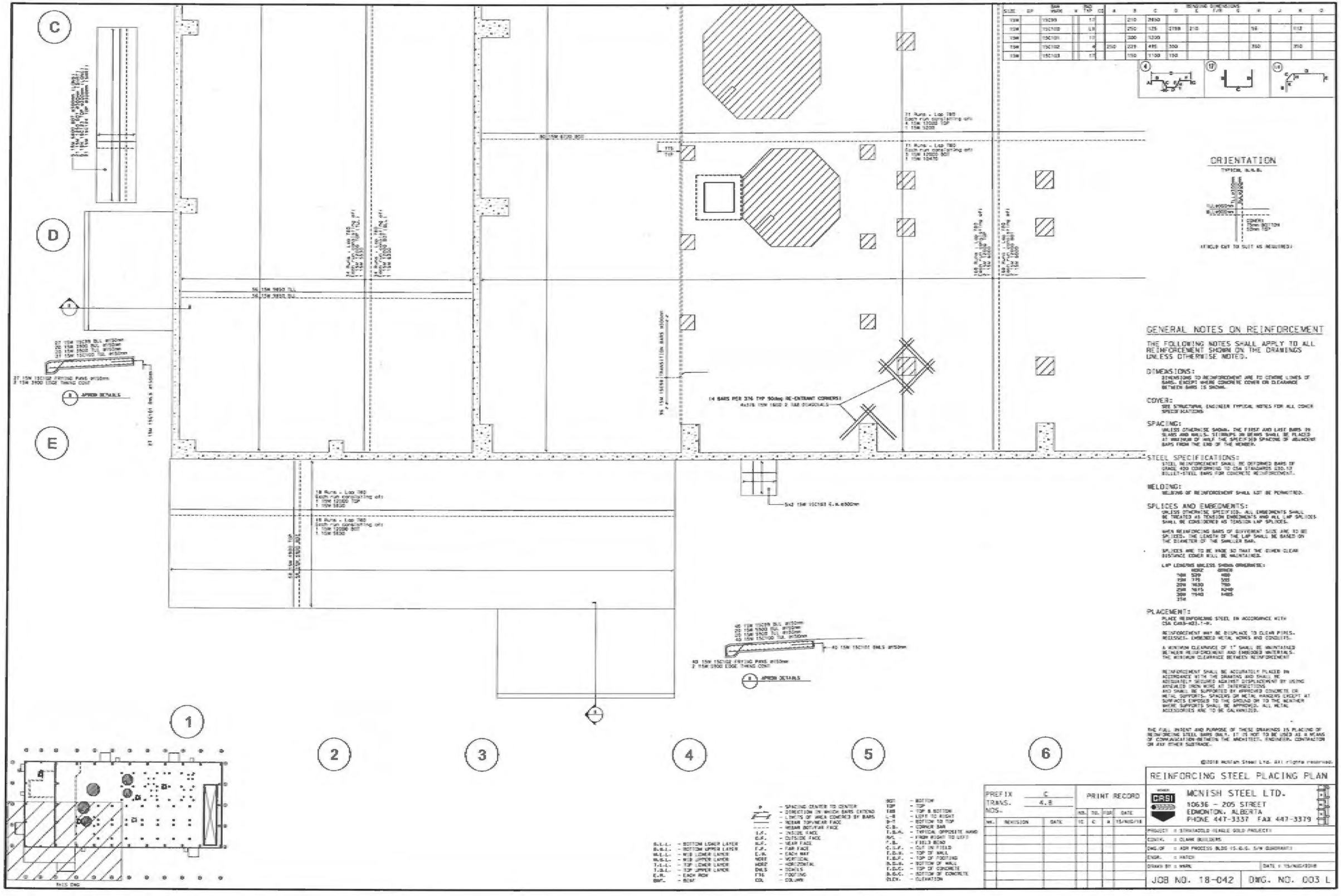
CRSI

MCNISH STEEL LTD.
10636 - 205 STREET
EDMONTON, ALBERTA
PHONE 447-3337 FAX 447-3379

REINFORCING STEEL PLACING PLAN

PROJECT = STRATHCOLD (EAGLE GOLD PROJECT)
CONTR. = CLARK BUILDERS
ENG./DF = ADR PROCESS (5.00 IS./D.C. AVE QUADRANT)
ENGR. = WATCH
DRAWN BY = WARK DATE = YR/MO/DY18

JOB NO. 18-042 DWG. NO. 003 K




## GENERAL NOTES ON REINFORCEMENT

THE FOLLOWING NOTES SHALL APPLY TO ALL REINFORCEMENT SHOWN ON THE DRAWINGS UNLESS OTHERWISE NOTED.

**DIMENSIONS:**
DIMENSIONS TO REINFORCEMENT ARE TO CENTRE LINES OF BARS, EXCEPT WHERE CONCRETE COVER OR CLEARANCE BETWEEN BARS IS SHOWN.

**COVER:**
SEE STRUCTURAL ENGINEER TYPICAL NOTES FOR ALL COVER SPECIFICATIONS

**SPACING:**
UNLESS OTHERWISE SHOWN, THE FIRST AND LAST BARS IN SLABS AND WALLS, STIRRUPS IN BEAMS SHALL BE PLACED AT A MAXIMUM OF HALF THE SPECIFIED SPACING OF ADJACENT BARS FROM THE END OF THE MEMBER.

**STEEL SPECIFICATIONS:**
STEEL REINFORCEMENT SHALL BE DEFORMED BARS OF GRADE 400 CONFORMING TO CSA STANDARDS G30.18 BILLET-STEEL BARS FOR CONCRETE REINFORCEMENT.

**WELDING:**
WELDING OF REINFORCEMENT SHALL NOT BE PERMITTED.

**SPLICES AND EMBEDMENTS:**
UNLESS OTHERWISE SPECIFIED, ALL EMBEDMENTS SHALL BE TREATED AS TENSION EMBEDMENTS AND ALL LAP SPLICES SHALL BE CONSIDERED AS TENSION LAP SPLICES.

WHEN REINFORCING BARS OF DIFFERENT SIZE ARE TO BE SPLICED, THE LENGTH OF THE LAP SHALL BE BASED ON THE DIAMETER OF THE SMALLER BAR.

SPLICES ARE TO BE MADE SO THAT THE MINIMUM CLEAR DISTANCE COVER WILL BE MAINTAINED.

LAP LENGTHS UNLESS SHOWN OTHERWISE:

| | HOOK | STRAIGHT |
|---|---|---|
| 10M | 320 | 480 |
| 15M | 470 | 705 |
| 20M | 630 | 945 |
| 25M | 785 | 1180 |
| 30M | 940 | 1405 |
| 35M | | |

**PLACEMENT:**
PLACE REINFORCING STEEL IN ACCORDANCE WITH CSA CAN3-A23.1-M.

REINFORCEMENT MAY BE DISPLACED TO CLEAR PIPES, RECESSES, EMBEDDED METAL WORKS AND CONDUITS.

A MINIMUM CLEARANCE OF 1" SHALL BE MAINTAINED BETWEEN REINFORCEMENT AND EMBEDDED MATERIALS. THE MINIMUM CLEARANCE BETWEEN REINFORCEMENT

REINFORCEMENT SHALL BE ACCURATELY PLACED IN ACCORDANCE WITH THE DRAWINGS AND SHALL BE ADEQUATELY SECURED AGAINST DISPLACEMENT BY USING ANNEALED IRON WIRE AT INTERSECTIONS. AND SHALL BE SUPPORTED BY APPROVED CONCRETE OR METAL SUPPORTS. SPACERS OR METAL HANGERS EXCEPT AT SURFACES EXPOSED TO THE WEATHER WHERE SUPPORTS SHALL BE APPROVED. ALL METAL ACCESSORIES ARE TO BE GALVANIZED.

THE FULL INTENT AND PURPOSE OF THESE DRAWINGS IS PLACING OF REINFORCING STEEL BARS ONLY. IT IS NOT TO BE USED AS A MEANS OF COMMUNICATION BETWEEN THE ARCHITECT, ENGINEER, CONTRACTOR OR ANY OTHER SUBTRADE.

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S.L.L. - BOTTOM LOWER LAYER
S.U.L. - BOTTOM UPPER LAYER
W.L.L. - W/B LOWER LAYER
W.U.L. - W/B UPPER LAYER
T.L.L. - TOP LOWER LAYER
T.U.L. - TOP UPPER LAYER
E.W. - EACH WAY
BWT. - BEAM

@ - SPACING CENTER TO CENTER
- DIRECTION IN WHICH BARS EXTEND
- LIMITS OF AREA CONFINED BY BARS
- REBAR TOP/NEAR FACE
- REBAR BOTTOM/ FAR FACE
I.F. - INSIDE FACE
O.F. - OUTSIDE FACE
N.F. - NEAR FACE
F.F. - FAR FACE
E.W. - EACH WAY
VERT - VERTICAL
HORIZ - HORIZONTAL
DWLS - DOWELS
FTG - FOOTING
COL - COLUMN

BOT - BOTTOM
TOP - TOP
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L-R - LEFT TO RIGHT
B-T - BOTTOM TO TOP
C.B. - CORNER BAR
T.B.A. - TYPICAL OPPOSITE HAND
R/L - FROM RIGHT TO LEFT
F.B. - FIELD BEND
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T.O.W. - TOP OF WALL
T.O.F. - TOP OF FOOTING
B.O.W. - BOTTOM OF WALL
T.O.C. - TOP OF CONCRETE
B.O.C. - BOTTOM OF CONCRETE
ELEV. - ELEVATION

| PREFIX | C |
|---|---|
| TRANS. | 4.8 |
| NOS. | |

PRINT RECORD

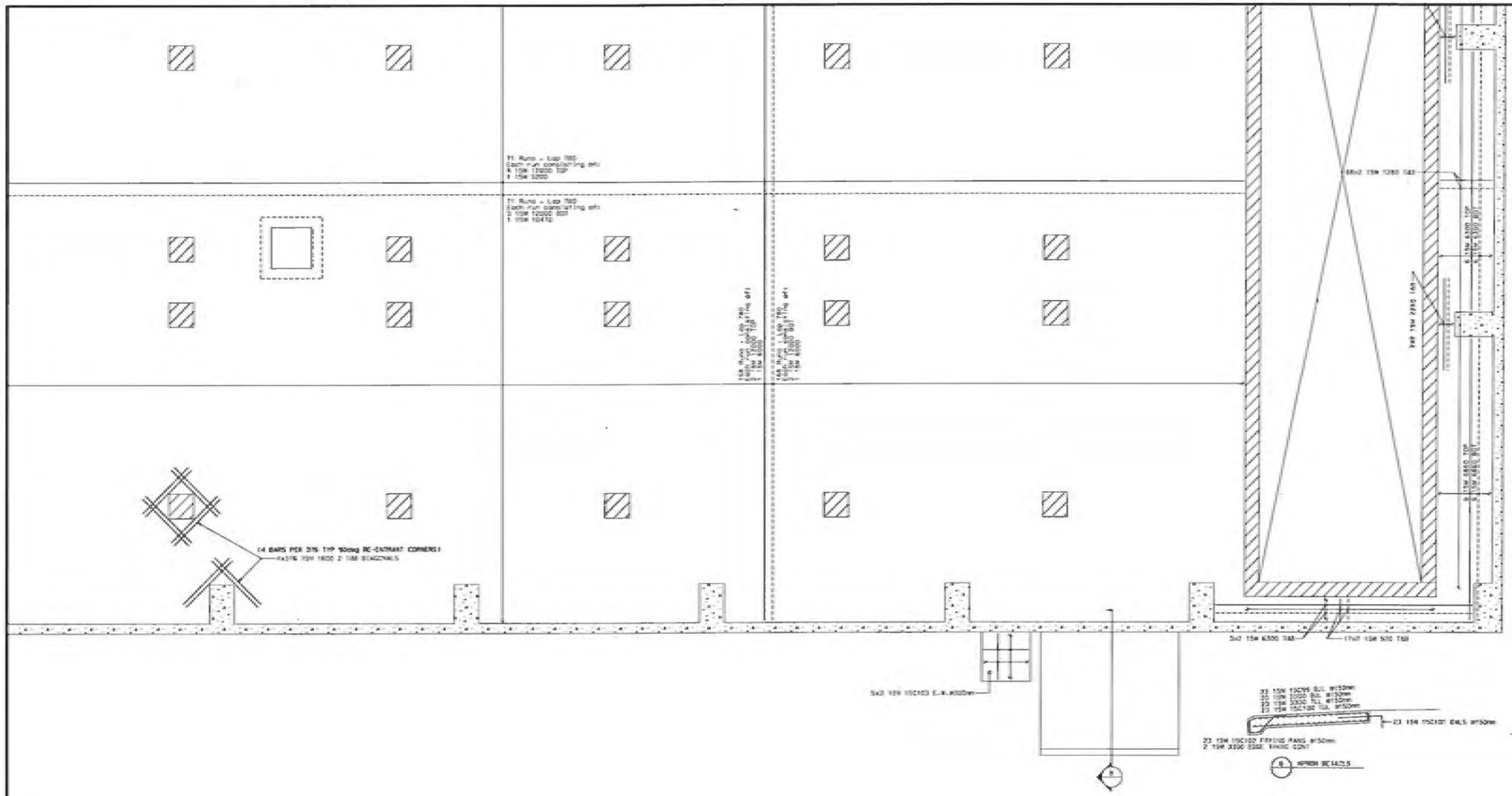
| NO. | REVISION | DATE | NO. | TO. | FOR | DATE |
|---|---|---|---|---|---|---|
| | | | IC | C | R | YR/MO/DY |

REINFORCING STEEL PLACING PLAN

MCNISH STEEL LTD.
10636 - 205 STREET
EDMONTON, ALBERTA
PHONE 447-3337 FAX 447-3379

PROJECT : STRATHCOLD (EAGLE GOLD PROJECT)
CONTR. : CLARK BUILDERS
DWG.OF : ADP PROCESS BLDG (S-B/G, S/W QUADRANT)
ENGR. : HATCH
DRAWN BY : MARK DATE : YR/MO/DY

JOB NO. 18-042 | DWG. NO. 003 L




C

D

E

## ORIENTATION




IT SHOULD NOT BE SHOT AS REQUIRED!

## GENERAL NOTES ON REINFORCEMENT

THE FOLLOWING NOTES SHALL APPLY TO ALL REINFORCEMENT SHOWN ON THE DRAWINGS UNLESS OTHERWISE NOTED.

**DIMENSIONS:**
DIMENSIONS TO REINFORCEMENT ARE TO CENTRE LINES OF BARS, EXCEPT WHERE CONCRETE COVER OR CLEARANCE BETWEEN BARS IS SHOWN.

**COVER:**
SEE STRUCTURAL ENGINEER TYPICAL NOTES FOR ALL COVER SPECIFICATIONS

**SPACING:**
UNLESS OTHERWISE SHOWN, THE FIRST AND LAST BARS IN SLABS AND WALLS, STIRRUPS IN BEAMS SHALL BE PLACED AT A MAXIMUM OF HALF THE SPECIFIED SPACING OF ADJACENT BARS FROM THE END OF THE MEMBER.

**STEEL SPECIFICATIONS:**
STEEL REINFORCEMENT SHALL BE DEFORMED BARS OF GRADE 400 CONFORMING TO CSA STANDARDS G30.18 BILLET-STEEL BARS FOR CONCRETE REINFORCEMENT.

**WELDING:**
WELDING OF REINFORCEMENT SHALL NOT BE PERMITTED.

**SPLICES AND EMBEDMENTS:**
UNLESS OTHERWISE SPECIFIED, ALL EMBEDMENTS SHALL BE TREATED AS TENSION EMBEDMENTS AND ALL LAP SPLICES SHALL BE CONSIDERED AS TENSION LAP SPLICES.

WHEN REINFORCING BARS OF DIFFERENT SIZE ARE TO BE SPLICED, THE LENGTH OF THE LAP SHALL BE BASED ON THE DIAMETER OF THE SMALLER BAR.

SPLICES ARE TO BE MADE SO THAT THE OTHER CLEAR DISTANCE COVER WILL BE MAINTAINED.

**LAP LENGTHS UNLESS SHOWN OTHERWISE:**

| SIZE | HOOK | OTHER |
|---|---|---|
| 10M | 320 | 400 |
| 15M | 770 | 965 |
| 20M | 1030 | 730 |
| 25M | 1375 | 1240 |
| 30M | 1940 | 1695 |
| 35M | | |

**PLACEMENT:**
PLACE REINFORCING STEEL IN ACCORDANCE WITH CSA A23.1-04.

REINFORCEMENT MAY BE DISPLACED TO CLEAR PIPES, RECESSES, EMBEDDED METAL WORKS AND CONDUITS.

A MINIMUM CLEARANCE OF 1" SHALL BE MAINTAINED BETWEEN REINFORCEMENT AND EMBEDDED MATERIALS. THE MINIMUM CLEARANCE BETWEEN REINFORCEMENT

REINFORCEMENT SHALL BE ACCURATELY PLACED IN ACCORDANCE WITH THE DRAWING AND SHALL BE ACCURATELY SECURED AGAINST DISPLACEMENT BY USING ANNEALED IRON WIRE AT INTERSECTIONS AND SHALL BE SUPPORTED BY APPROVED CONCRETE OR METAL SUPPORTS. SPACERS OR METAL HANGERS EXCEPT AT SURFACES EXPOSED TO THE GROUND OR TO THE WEATHER WHERE SUPPORTS SHALL BE APPROVED. ALL METAL ACCESSORIES ARE TO BE GALVANIZED.

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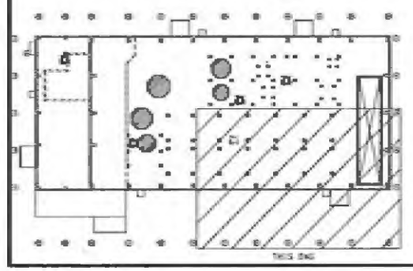
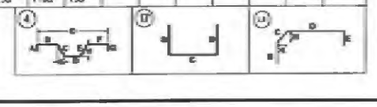



8

9

| SIZE | GP | BAR MARK | N | BND TYP | ZZ | BENDING DIMENSIONS A | B | C | D | E | F | G | H | J | K | O |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 15M | | 15C99 | 11 | | | | 310 | 3550 | | | | | | | | |
| 15M | | 15C100 | 18 | | | | 250 | 135 | 2700 | 310 | | | 56 | | 112 | |
| 15M | | 15C101 | 11 | | | | 300 | 1300 | | | | | | | | |
| 15M | | 15C102 | 4 | | | 250 | 329 | 485 | 300 | | | | 250 | | 250 | |
| 15M | | 15C103 | 31 | | | | 150 | 1100 | 150 | | | | | | | |




10

| | |
|---|---|
| B.L.L. | - BOTTOM LOWER LAYER |
| B.U.L. | - BOTTOM UPPER LAYER |
| M.L.L. | - MID LOWER LAYER |
| M.U.L. | - MID UPPER LAYER |
| T.L.L. | - TOP LOWER LAYER |
| T.U.L. | - TOP UPPER LAYER |
| E.W. | - EACH WAY |
| BOT. | - BOTH |

- SPACING CENTRE TO CENTER
- DIRECTION IN WHICH BARS EXTEND
- LIMITS OF AREA COVERED BY BARS
- REBAR TOP/NEAR FACE
- REBAR BOT/FAR FACE

| | |
|---|---|
| I.F. | - INSIDE FACE |
| O.F. | - OUTSIDE FACE |
| N.F. | - NEAR FACE |
| F.F. | - FAR FACE |
| E.W. | - EACH WAY |
| VERT | - VERTICAL |
| HORIZ | - HORIZONTAL |
| DWLS | - DOWELS |
| FTG | - FOOTING |
| COL | - COLUMN |

11

| | |
|---|---|
| BOT | - BOTTOM |
| TOP | - TOP |
| T&B | - TOP & BOTTOM |
| L-R | - LEFT TO RIGHT |
| B-T | - BOTTOM TO TOP |
| C.B. | - CORNER BAR |
| T.E.M. | - TYPICAL OPPOSITE HAND |
| R/L | - FROM RIGHT TO LEFT |
| F.B. | - FIELD BEND |
| O.C.F. | - OUT ON FIELD |
| T.B.W. | - TOP OF WALL |
| T.B.F. | - TOP OF FOOTING |
| B.B.W. | - BOTTOM OF WALL |
| T.B.C. | - TOP OF CONCRETE |
| B.B.C. | - BOTTOM OF CONCRETE |
| ELEV. | - ELEVATION |

12

| PREFIX | C |
|---|---|
| TRANS. NOS. | 4-8 |

PRINT RECORD

| NO. | REVISION | DATE |
|---|---|---|

| NO. | TO. | FOR | DATE |
|---|---|---|---|
| 01 | C | A | 15/AUG/18 |

REINFORCING STEEL PLACING PLAN

MCNISH STEEL LTD.
10636 - 205 STREET
EDMONTON, ALBERTA
PHONE 447-3337 FAX 447-3579

PROJECT : STRATHCOLD (SINGLE GOLF PROJECT)
CONTR. : CLARK BUILDERS
DWG.OF : AGR PROCESS BLDG (S.O.G. S/E QUADRANT)
ENGR. : HATCH
DRAWN BY : MARK
DATE : 15/AUG/2018

JOB NO. 18-042 | DWG. NO. 003 M

| SIZE | EP | BAR MARK | N | END TYP | CD | A | B | C | D | BENDING DIMENSIONS E | F/R | G | H | J | K | O |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 20M | | 20C85 | | 11 | | | 1000 | 500 | | | | | | | | |
| 20M | | 20C118 | | 11 | | | 295 | 490 | | | | | | | | |
| 20M | | 20C129 | | 11 | | | 300 | 475 | | | | | | | | |
| 20M | | 20C131 | | 20 | | | 300 | 450 | 300 | | | | | | | |
| 15M | | 15C45 | | 11 | | | 300 | 775 | | | | | | | | |
| 15M | | 15C101 | | 11 | | | 300 | 1300 | | | | | | | | |
| 15M | | 15C103 | | 11 | | | 150 | 1100 | 150 | | | | | | | |
| 15M | | 15C106 | | 11 | | | 250 | 800 | 250 | | | | | | | |
| 15M | | 15C108 | | 11 | | | 400 | 800 | 400 | | | | | | | |
| 15M | | 15C110 | | 11 | | | 400 | 1490 | 400 | | | | | | | |
| 15M | | 15C111 | | 11 | | | 400 | 480 | 400 | | | | | | | |
| 15M | | 15C112 | | 11 | | | 450 | 733 | 450 | | | | | | | |
| 15M | | 15C113 | | 11 | | | 450 | 1267 | 450 | | | | | | | |
| 15M | | 15C114 | | 11 | | | 450 | 1650 | 450 | | | | | | | |
| 15M | | 15C115 | | 11 | | | 250 | 300 | | | | | | | | |
| 15M | | 15C116 | | 11 | | | 150 | 500 | 150 | | | | | | | |
| 15M | | 15C117 | | 11 | | | 500 | 400 | 500 | | | | | | | |

| SIZE | EP | BAR MARK | N | END TYP | CD | A | B | C | D | BENDING DIMENSIONS E | F/R | G | H | J | K | O |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 15M | | 15C122 | | 11 | | | 300 | 350 | | | | | | | | |
| 15M | | 15C125 | | 11 | | | 325 | 4300 | 325 | | | | | | | |
| 15M | | 15C126 | | 11 | | | 325 | 2150 | 325 | | | | | | | |
| 15M | | 15C127 | | 11 | | | 450 | 2500 | 450 | | | | | | | |
| 15M | | 15C128 | | 11 | | | 450 | 4750 | 450 | | | | | | | |
| 15M | | 15C129 | | 11 | | | 1100 | 350 | 1100 | | | | | | | |
| 15M | | 15C130 | | 11 | | | 350 | 1400 | 350 | | | | | | | |
| 15M | | 15C131 | | 11 | | | 250 | 630 | 250 | | | | | | | |
| 15M | | 15C132 | | 11 | | | 250 | 1170 | 250 | | | | | | | |
| 15M | | 15C133 | | 11 | | | 250 | 1400 | 250 | | | | | | | |
| 15M | | 15C134 | | 11 | | | 425 | 1400 | 425 | | | | | | | |
| 15M | | 15C135 | | 11 | | | 425 | 1800 | 425 | | | | | | | |
| 15M | | 15C139 | | 11 | | | 725 | 1300 | 725 | | | | | | | |
| 15M | | 15C137 | | 11 | | | 725 | 500 | 725 | | | | | | | |
| 15M | | 15C138 | | 11 | | | 250 | 750 | | | | | | | | |
| 15M | | 15C140 | | 11 | | | 250 | 400 | | | | | | | | |
| 15M | | 15C142 | | 11 | | | 400 | 700 | 400 | | | | | | | |

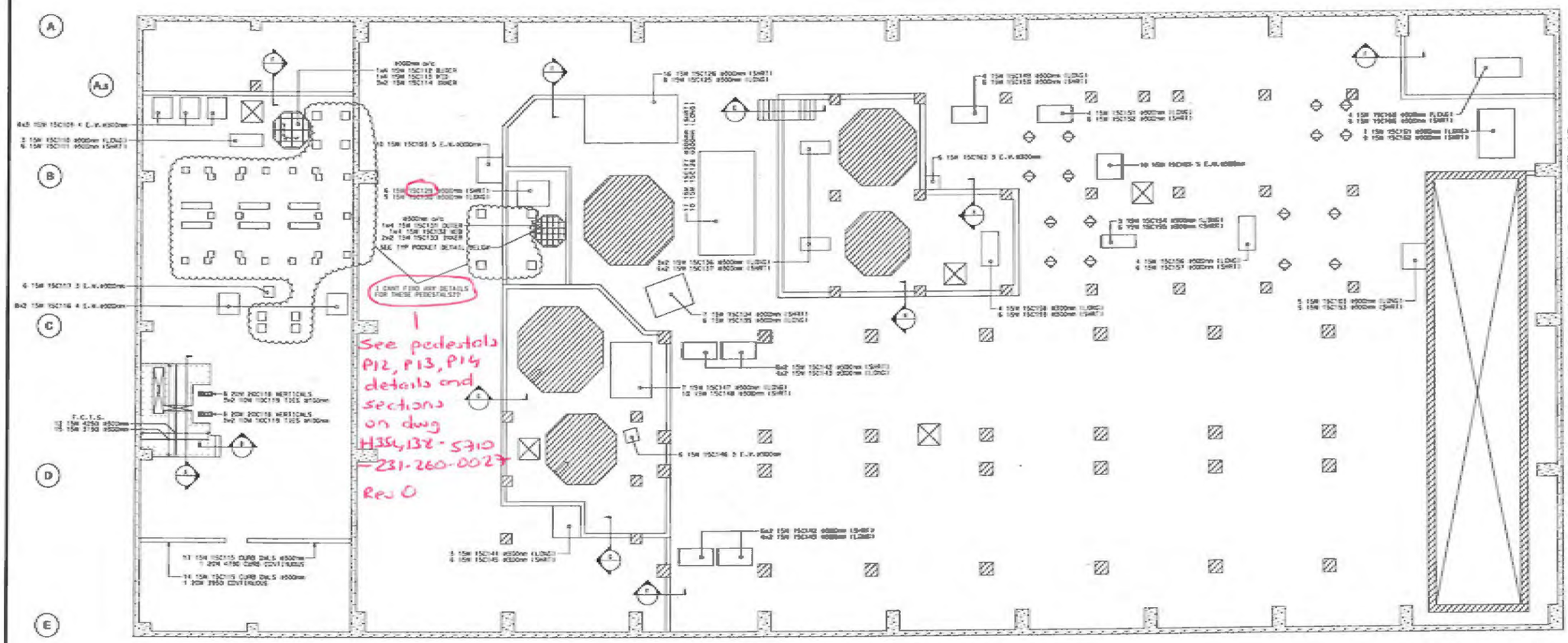
B C D
150 1100 350

| SIZE | EP | BAR MARK | N | END TYP | CD | A | B | C | D | BENDING DIMENSIONS E | F/R | G | H | J | K | O |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 15M | | 15C143 | | 11 | | | 400 | 11400 | 400 | | | | | | | |
| 15M | | 15C144 | | 11 | | | 150 | 11850 | 150 | | | | | | | |
| 15M | | 15C145 | | 11 | | | 150 | 12200 | 150 | | | | | | | |
| 15M | | 15C146 | | 11 | | | 250 | 500 | 250 | | | | | | | |
| 15M | | 15C147 | | 11 | | | 250 | 25500 | 250 | | | | | | | |
| 15M | | 15C148 | | 11 | | | 250 | 11800 | 250 | | | | | | | |
| 15M | | 15C149 | | 11 | | | 300 | 11500 | 300 | | | | | | | |
| 15M | | 15C150 | | 11 | | | 300 | 700 | 300 | | | | | | | |
| 15M | | 15C151 | | 11 | | | 350 | 1500 | 350 | | | | | | | |
| 15M | | 15C152 | | 11 | | | 350 | 750 | 350 | | | | | | | |
| 15M | | 15C153 | | 11 | | | 750 | 1550 | 750 | | | | | | | |
| 15M | | 15C154 | | 11 | | | 375 | 1500 | 375 | | | | | | | |
| 15M | | 15C155 | | 11 | | | 375 | 900 | 375 | | | | | | | |
| 15M | | 15C156 | | 11 | | | 475 | 1500 | 475 | | | | | | | |
| 15M | | 15C157 | | 11 | | | 475 | 700 | 475 | | | | | | | |
| 15M | | 15C158 | | 11 | | | 800 | 1500 | 800 | | | | | | | |
| 15M | | 15C159 | | 11 | | | 800 | 700 | 800 | | | | | | | |

| SIZE | EP | BAR MARK | N | END TYP | CD | A | B | C | D | BENDING DIMENSIONS E | F/R | G | H | J | K | O |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 15M | | 15C160 | | 11 | | | 250 | 20250 | 250 | | | | | | | |
| 15M | | 15C161 | | 11 | | | 275 | 20550 | 275 | | | | | | | |
| 15M | | 15C162 | | 11 | | | 275 | 16620 | 275 | | | | | | | |
| 15M | | 15C163 | | 11 | | | 300 | 550 | 300 | | | | | | | |
| 15M | | 15C165 | | 11 | | | 400 | 1000 | | | | | | | | |
| 15M | | 15C166 | | 11 | | | 300 | 7100 | | | | | | | | |
| 10M | | 10C119 | | 11 | | 100 | 397 | 145 | 397 | 145 | | 100 | | | | |

(37) (28) (11)

(1) (2) (3) (4) (5) (6) (7) (8) (9) (10) (11) (12)




## GENERAL NOTES ON REINFORCEMENT

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**COVER:**
SEE STRUCTURAL ENGINEER TYPICAL NOTES FOR ALL COVER SPECIFICATIONS

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UNLESS OTHERWISE SHOWN, THE FIRST AND LAST BARS IN SLABS AND WALLS, STIRRUPS IN BEAMS SHALL BE PLACED AT A MAXIMUM OF HALF THE SPECIFIED SPACING OF ADJACENT BARS FROM THE END OF THE MEMBER.

**STEEL SPECIFICATIONS:**
STEEL REINFORCEMENT SHALL BE DEFORMED BARS OF GRADE 400 CONFORMING TO CSA STANDARDS G30.12 BILLET-STEEL BARS FOR CONCRETE REINFORCEMENT.

**WELDING:**
WELDING OF REINFORCEMENT SHALL NOT BE PERMITTED.

**SPLICES AND EMBEDMENTS:**
UNLESS OTHERWISE SPECIFIED, ALL EMBEDMENTS SHALL BE TREATED AS TENSION EMBEDMENTS AND ALL LAP SPLICES SHALL BE CONSIDERED AS TENSION LAP SPLICES.

WHEN REINFORCING BARS OF DIFFERENT SIZE ARE TO BE SPLICED, THE LENGTH OF THE LAP SHALL BE BASED ON THE DIAMETER OF THE SMALLER BAR.

SPLICES ARE TO BE MADE SO THAT THE GIVEN CLEAR DISTANCE COVER WILL BE MAINTAINED.

LAP LENGTHS UNLESS SHOWN OTHERWISE:

| | 15M | 20M/25 |
|---|---|---|
| 30M | 525 | 400 |
| 25M | 975 | 595 |
| 20M | 1300 | 790 |
| 15M | 1975 | 1240 |
| 10M | 1940 | 1485 |
| 25M | | |

**PLACEMENT:**
PLACE REINFORCING STEEL IN ACCORDANCE WITH CSA CAN3-A23.1-M.

REINFORCEMENT MAY BE DISPLACED TO CLEAR PIPES, RECESSES, EMBEDDED METAL WORKS AND CONDUITS.

A MINIMUM CLEARANCE OF 1" SHALL BE MAINTAINED BETWEEN REINFORCEMENT AND EMBEDDED MATERIALS. THE MINIMUM CLEARANCE BETWEEN REINFORCEMENT .

REINFORCEMENT SHALL BE ACCURATELY PLACED IN ACCORDANCE WITH THE DRAWING AND SHALL BE ADEQUATELY SECURED AGAINST DISPLACEMENT BY USING ANNEALED IRON WIRE AT INTERSECTIONS. BAR SHALL BE SUPPORTED BY APPROVED CONCRETE OR METAL SUPPORTS, SPACERS OR METAL HANGERS EXCEPT AT SURFACES EXPOSED TO THE GROUND OR TO THE WEATHER WHERE SUPPORTS SHALL BE APPROVED. ALL METAL ACCESSORIES ARE TO BE GALVANIZED.

THE FULL INTENT AND PURPOSE OF THESE DRAWINGS IS PLACING OF REINFORCING STEEL BARS ONLY. IT IS NOT TO BE USED AS A MEANS OF COMMUNICATION BETWEEN THE ARCHITECT, ENGINEER, CONTRACTOR OR ANY OTHER SURFACE.

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| | |
|---|---|
| B.O.L.L. | BOTTOM LOWER LAYER |
| B.U.L. | BOTTOM UPPER LAYER |
| M.L.L. | MID LOWER LAYER |
| M.U.L. | MID UPPER LAYER |
| T.L.L. | TOP LOWER LAYER |
| T.U.L. | TOP UPPER LAYER |
| E.B. | EACH WAY |
| BMT. | BENT |
| @ | SPACING CENTER TO CENTER |
| | DIRECTION IN WHICH BARS EXTEND |
| | LIMITS OF AREA COVERED BY BARS |
| | REBAR TOP/NEAR FACE |
| | REBAR BOTTOM/FAR FACE |
| I.F. | INSIDE FACE |
| O.F. | OUTSIDE FACE |
| N.F. | NEAR FACE |
| F.F. | FAR FACE |
| E.W. | EACH WAY |
| VERT | VERTICAL |
| HORZ | HORIZONTAL |
| DWLS | DOWELS |
| FTG | FOOTING |
| COL | COLUMN |
| BOT | BOTTOM |
| TOP | TOP |
| T&B | TOP & BOTTOM |
| L-R | LEFT TO RIGHT |
| B-T | BOTTOM TO TOP |
| C.B. | CORNER BAR |
| T.O.B.L. | TYPICAL OPPOSITE HAND |
| R/L | KNOW RIGHT TO LEFT |
| F.O. | FIELD DETAIL |
| C.I.F. | CUT IN FIELD |
| T.O.W. | TOP OF WALL |
| T.O.F. | TOP OF FOOTING |
| B.O.W. | BOTTOM OF WALL |
| T.O.C. | TOP OF CONCRETE |
| B.O.C. | BOTTOM OF CONCRETE |
| ELEV. | ELEVATION |

PREFIX C
TRANS. 4.8
NOS.

PRINT RECORD

| NO. | REVISION | DATE | NO. | TO. | FOR | DATE |
|---|---|---|---|---|---|---|
| | | | 10 | C | A | 17/AUG/2018 |

# REINFORCING STEEL PLACING PLAN

McNISH STEEL LTD.
10636 - 205 STREET
EDMONTON, ALBERTA
PHONE 447-3337 FAX 447-3379

PROJECT : STRATHCOLD (EAGLE SOLID PROJECT)
CONTR. : ELMAR BUILDERS
ENG. OF : AGR PROCESS BLDG (PADS, CURBS & MISC.)
ENGR. : MATCH
DRAWN BY : MARK
DATE : 17/AUG/2018

JOB NO. 18-042 | DWG. NO. 003 N

McNISH **STEEL**

10636 - 205 Street Edmonton, Alberta T5S 1Z1
Phone 780.447.3337 | mcnishsteel.com

**To:** STRATAGOLD EAGLE
TEXT GARRY AT BASE OF ACCESS ROAD THAT YOU'RE ON YOUR WAY UP MAYO, YT

**Transmittal:** 4.3
**Job Name:** STRATAGOLD EAGLE

**Location:** MAYO, YT
**Job Number:** 18-042
**Sales Order:**
**Sent Via:** Email

**Attn:** JACKSONFTGS

| Drawing | Description | Rev | Qty | Reason Sent | Date Sent |
|---|---|---|---|---|---|
| 003 C | ADR BLDG (INTERIOR KEY PLAN) | | 1 | For Approval | 7/23/2018 |
| 003 D | ~~ADR BLDG (BARREN SOLUTION SUMP)~~ SUBMITTED PACKAGE 005-A JW | | 1 | For Approval | 7/23/2018 |
| 003 E | ADR BLDG (FTG TYPE F7) | | 1 | For Approval | 7/23/2018 |
| 003 F | ADR BLDG (FTGS F8-F10, F13 & F14) | | 1 | For Approval | 7/23/2018 |
| 003 G | ADR BLDG (FTGS F11, F12 & TANKS) | | 1 | For Approval | 7/23/2018 |

**Note:**

**HATCH Vendor/Contractor Document Review**

| | | | |
|---|---|---|---|
| Doc Number | E354138-CB201-230-260-0007 | SUB | 01 |
| Date Received | 2018-07-25 | | |

| Review Grade | Next Submittal Status |
|---|---|
| ☐ C1 - Proceed to next submission & status | ☐ Certified |
| ☒ C2 - Proceed with exceptions as noted to next submission & status | ☐ As-Built |
| ☐ C3 - Do not proceed. Revise as noted & resubmit | ☐ Internal Review |
| Next Submittal Date: | ☐ Certified/☐ As-Built |

☐ C4 - No further submission required - Complete (select status below)
☐ Certified Final ☐ Final ☐ Cancelled ☐ Superseded

**Package Engineer:** Name, signature and date
ESA AKINI, ZA, July 26, 2018

Reviewed only for general conformity with the specifications. Acceptance by the engineer does not warrant or represent that the information contained on this drawing/document is either accurate or complete. The sole responsibility for correct design, details & dimensions shall remain with the party submitting the drawing/document.

**By:** Mark Tillmanns
**Signature:** _____
**Received:** _____


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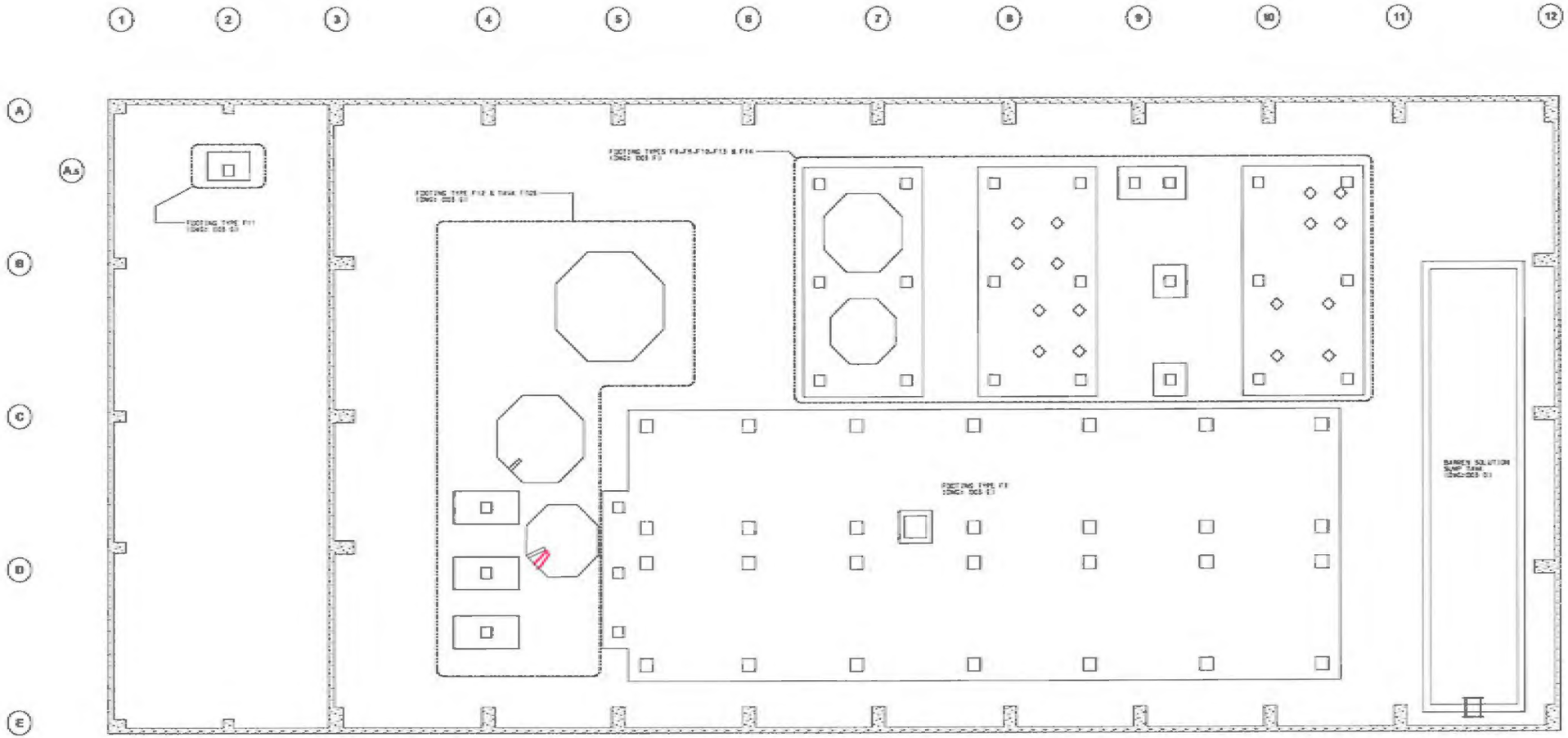


## GENERAL NOTES ON REINFORCEMENT

THE FOLLOWING NOTES SHALL APPLY TO ALL REINFORCEMENT SHOWN ON THE DRAWINGS UNLESS OTHERWISE NOTED.

**DIMENSIONS:**
DIMENSIONS TO REINFORCEMENT ARE TO CENTRE LINES OF BARS. EXCEPT WHERE CONCRETE COVER OR CLEARANCE BETWEEN BARS IS SHOWN.

**COVER:**
SEE STRUCTURAL ENGINEER TYPICAL NOTES FOR ALL COVER SPECIFICATIONS

**SPACING:**
UNLESS OTHERWISE SHOWN, THE FIRST AND LAST BARS IN SLABS AND WALLS, STIRRUPS IN BEAMS SHALL BE PLACED AT MAXIMUM OF HALF THE SPECIFIED SPACING OF ADJACENT BARS FROM THE END OF THE MEMBER.

**STEEL SPECIFICATIONS:**
STEEL REINFORCEMENT SHALL BE DEFORMED BARS OF GRADE 400 CONFORMING TO CSA STANDARDS G30.12 BILLET-STEEL BARS FOR CONCRETE REINFORCEMENT.

**WELDING:**
WELDING OF REINFORCEMENT SHALL NOT BE PERMITTED.

**SPLICES AND EMBEDMENTS:**
UNLESS OTHERWISE SPECIFIED, ALL EMBEDMENTS SHALL BE TREATED AS TENSION EMBEDMENTS AND ALL LAP SPLICES SHALL BE CONSIDERED AS TENSION LAP SPLICES.

WHEN REINFORCING BARS OF DIFFERENT SIZE ARE TO BE SPLICED, THE LENGTH OF THE LAP SHALL BE BASED ON THE DIAMETER OF THE SMALLER BAR.

SPLICES ARE TO BE MADE SO THAT THE GIVEN CLEAR DISTANCE CONCR WILL BE MAINTAINED.

LAP LENGTHS UNLESS SHOWN OTHERWISE:

| | 400R | 500R |
|---|---|---|
| 15M | 500 | 450 |
| 20M | 715 | 585 |
| 25M | 1020 | 790 |
| 30M | 1515 | 1240 |
| 35M | 1540 | 1405 |

**PLACEMENT:**
PLACE REINFORCING STEEL IN ACCORDANCE WITH CSA CAN3-A23.1-M.

REINFORCEMENT MAY BE DISPLACED TO CLEAR PIPES, RECESSES, EMBEDDED METAL ASHES AND CONDUITS.

A MINIMUM CLEARANCE OF 1" SHALL BE MAINTAINED BETWEEN REINFORCEMENT AND EMBEDDED MATERIALS. THE MINIMUM CLEARANCE BETWEEN REINFORCEMENT

REINFORCEMENT SHALL BE ACCURATELY PLACED IN ACCORDANCE WITH THE DRAWING AND SHALL BE ADEQUATELY SECURED AGAINST DISPLACEMENT BY USING ANNEALED TIED WIRE AT INTERSECTIONS AND SHALL BE SUPPORTED BY APPROVED CONCRETE OR METAL SUPPORTS. SPACERS OR METAL HANGERS EXCEPT AT SURFACES EXPOSED TO THE GROUND OR TO THE WEATHER WHERE SUPPORTS SHALL BE APPROVED. ALL METAL ACCESSORIES ARE TO BE GALVANIZED.

THE FULL INTENT AND PURPOSE OF THESE DRAWINGS IS PLACING OF REINFORCING STEEL BARS ONLY. IT IS NOT TO BE USED AS A MEANS OF COMMUNICATION BETWEEN THE ARCHITECT, ENGINEER, CONTRACTOR OR ANY OTHER SUBTRADE.

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| | | | |
|---|---|---|---|
| B.L.L. | - BOTTOM LOWER LAYER | @ | - SPACING CENTER TO CENTER |
| B.U.L. | - BOTTOM UPPER LAYER | | - DIRECTION IN WHICH BARS EXTEND |
| W.L.L. | - WEB LOWER LAYER | | - LIMITS OF AREA CONCRETE BY BARS |
| W.U.L. | - WEB UPPER LAYER | ---- | - REBAR TOP/NEAR FACE |
| T.L.L. | - TOP LOWER LAYER | ---- | - REBAR BOT/FAR FACE |
| T.U.L. | - TOP UPPER LAYER | I.F. | - INSIDE FACE |
| E.W. | - EACH WAY | O.F. | - OUTSIDE FACE |
| BAT. | - BENT | N.F. | - NEAR FACE |
| | | F.F. | - FAR FACE |
| | | E.W. | - EACH WAY |
| | | VERT | - VERTICAL |
| | | HORIZ | - HORIZONTAL |
| | | DWLS | - DOWELS |
| | | FTG | - FOOTING |
| | | COL | - COLUMN |
| | | BOT | - BOTTOM |
| | | TOP | - TOP |
| | | T&B | - TOP & BOTTOM |
| L-R | - LEFT TO RIGHT | | |
| B-T | - BOTTOM TO TOP | | |
| C.B. | - CORNER BAR | | |
| T.O.H. | - TYPICAL OPPOSITE HAND | | |
| AVL | - FROM RIGHT TO LEFT | | |
| F.B. | - FIELD BEND | | |
| C.I.P. | - CUT IN FIELD | | |
| T.O.B. | - TOP OF WALL | | |
| T.O.F. | - TOP OF FOOTING | | |
| B.O.W. | - BOTTOM OF WALL | | |
| T.O.C. | - TOP OF CONCRETE | | |
| B.O.E. | - BOTTOM OF CONCRETE | | |
| ELEV. | - ELEVATION | | |

| PREFIX | C |
|---|---|
| TRANS. NOS. | 4.3 |

PRINT RECORD

| NO. | REVISION | DATE | TO | C | R | FOR 20/JUL/18 |
|---|---|---|---|---|---|---|

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MONISH STEEL LTD.
10636 - 205 STREET
EDMONTON, ALBERTA
PHONE 447-3337 FAX 447-3379

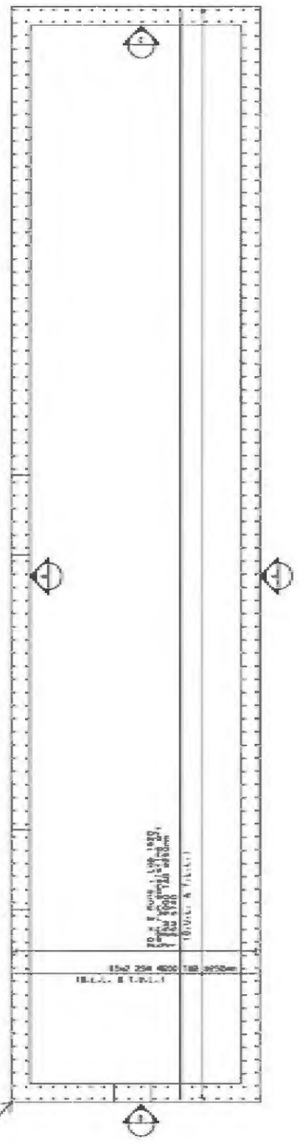
REINFORCING STEEL PLACING PLAN

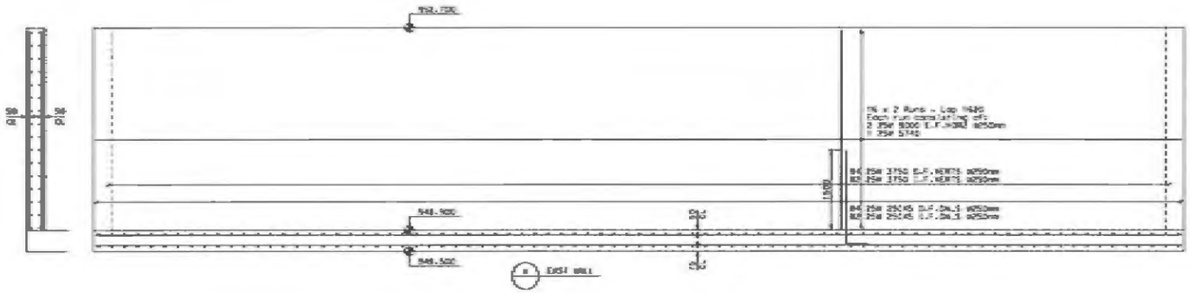
PROJECT : STRATHCOLD VEHICLE SOLID PROJECT1
CONTR. : CLARK BUILDERS
DWG.OF : ADR PROCESS BLDG 1 INTERIOR KEY PLAN1
ENGR. : HATCH
DRAWN BY : MARK
DATE : 20/JUL/2018

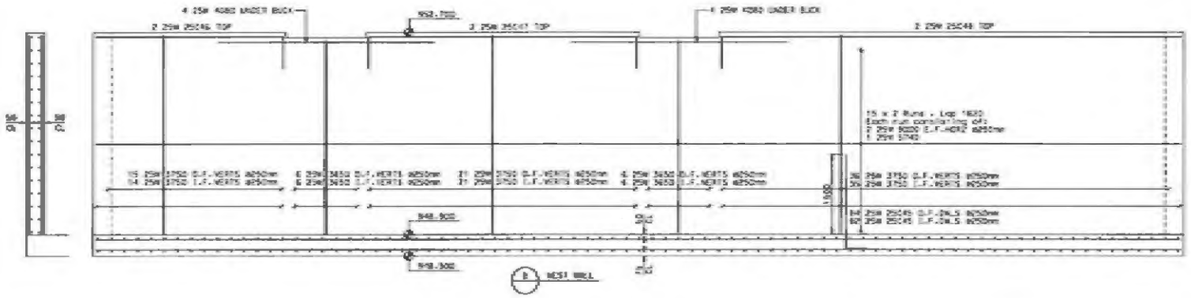
JOB NO. 18-042 | DWG. NO. 003 C

11 12

B C D E




| SIZE | EP | BAR MARK | # | BEND TYP | CD | A | B | C | D | BENDING DIMENSIONS E | F | G | H | J | K | S |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 25M | | 25C45 | | 1T | | 400 | 1820 | | | | | | | | | |
| 25M | | 25C46 | | 1T | | 400 | 3578 | | | | | | | | | |
| 25M | | 25C47 | | 1T | | 400 | 5065 | 600 | | | | | | | | |
| 25M | | 25C48 | | 1T | | 400 | 8701 | | | | | | | | | |
| 25M | | 25C49 | | 1T | | 1110 | 1110 | | | | | | | | | |
| 25M | | 25C51 | | 1T | | 340 | 1110 | | | | | | | | | |

340







## GENERAL NOTES ON REINFORCEMENT

THE FOLLOWING NOTES SHALL APPLY TO ALL REINFORCEMENT SHOWN ON THE DRAWINGS UNLESS OTHERWISE NOTED.

**DIMENSIONS:**
DIMENSIONS TO REINFORCEMENT ARE TO CENTRE LINES OF BARS, EXCEPT WHERE CONCRETE COVER OR CLEARANCE BETWEEN BARS IS SHOWN.

**COVER:**
SEE STRUCTURAL ENGINEER TYPICAL NOTES FOR ALL COVER SPECIFICATIONS

**SPACING:**
UNLESS OTHERWISE SHOWN, THE FIRST AND LAST BARS IN SLABS AND WALLS, STIRRUPS IN BEAMS SHALL BE PLACED AT MAXIMUM OF HALF THE SPECIFIED SPACING OF ADJACENT BARS FROM THE END OF THE MEMBER.

**STEEL SPECIFICATIONS:**
STEEL REINFORCEMENT SHALL BE DEFORMED BARS OF GRADE 400 CONFORMING TO CSA STANDARDS G30.12 BILLET-STEEL BARS FOR CONCRETE REINFORCEMENT.

**WELDING:**
WELDING OF REINFORCEMENT SHALL NOT BE PERMITTED.

**SPLICES AND EMBEDMENTS:**
UNLESS OTHERWISE SPECIFIED, ALL EMBEDMENTS SHALL BE TREATED AS TENSION EMBEDMENTS AND ALL LAP SPLICES SHALL BE CONSIDERED AS TENSION LAP SPLICES.

WHEN REINFORCING BARS OF DIFFERENT SIZE ARE TO BE SPLICED, THE LENGTH OF THE LAP SHALL BE BASED ON THE DIAMETER OF THE SMALLER BAR.

SPLICES ARE TO BE MADE SO THAT THE EITHER CLEAR DISTANCE COVER WILL BE MAINTAINED.

LAP LENGTHS UNLESS SHOWN OTHERWISE:

| | HORZ | OTHER |
|---|---|---|
| 10M | 520 | 400 |
| 15M | 775 | 595 |
| 20M | 1030 | 790 |
| 25M | 1570 | 1240 |
| 30M | 1940 | 1485 |
| 35M | | |

**PLACEMENT:**
PLACE REINFORCING STEEL IN ACCORDANCE WITH CSA A23.1-04.

REINFORCEMENT MAY BE DISPLACED TO CLEAR PIPES, RECESSES, EMBEDDED METAL ARMS AND CONDUITS.

A MINIMUM CLEARANCE OF 1" SHALL BE MAINTAINED BETWEEN REINFORCEMENT AND EMBEDDED MATERIALS. THE MINIMUM CLEARANCE BETWEEN REINFORCEMENT

REINFORCEMENT SHALL BE ACCURATELY PLACED IN ACCORDANCE WITH THE DRAWING AND SHALL BE ADEQUATELY SECURED AGAINST DISPLACEMENT BY USING ANNEALED IRON WIRE AT INTERSECTIONS AND SHALL BE SUPPORTED BY APPROVED CONCRETE OR METAL SUPPORTS. SPACERS OR METAL HANGERS EXCEPT AT SURFACES EXPOSED TO THE GROUND OR TO THE WEATHER WHERE SUPPORTS SHALL BE APPROVED. ALL METAL ACCESSORIES ARE TO BE GALVANIZED.

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| | |
|---|---|
| B/L.L. | - BOTTOM LOWER LAYER |
| B/U.L. | - BOTTOM UPPER LAYER |
| M/L.L. | - MID LOWER LAYER |
| M/U.L. | - MID UPPER LAYER |
| T/L.L. | - TOP LOWER LAYER |
| T/U.L. | - TOP UPPER LAYER |
| E.R. | - EACH ROW |
| BWT. | - BOAT |
| @ | - SPACING CENTER TO CENTER |
| | - DIRECTION IN WHICH BARS EXTEND |
| | - LIMITS OF AREA COVERED BY BARS |
| | - REBAR FOR/NEAR FACE |
| | - REBAR BOT/FAR FACE |
| I.F. | - INSIDE FACE |
| O.F. | - OUTSIDE FACE |
| N.F. | - NEAR FACE |
| F.F. | - FAR FACE |
| E.W. | - EACH WAY |
| VERT | - VERTICAL |
| HORZ | - HORIZONTAL |
| DWLS | - DOWELS |
| FTG | - FOOTING |
| COL | - COLUMN |
| BOT | - BOTTOM |
| TOP | - TOP |
| T&B | - TOP & BOTTOM |
| L-R | - LEFT TO RIGHT |
| B-T | - BOTTOM TO TOP |
| C.B. | - CORNER BAR |
| T.B.A. | - TYPICAL OPPOSITE HAND |
| 4WL | - FROM RIGHT TO LEFT |
| F.B. | - FIELD BEND |
| C.I.F. | - CUT IN FIELD |
| T.S.B. | - TOP OF WALL |
| T.O.F. | - TOP OF FOOTING |
| B.O.W. | - BOTTOM OF WALL |
| T.O.C. | - TOP OF CONCRETE |
| B.O.C. | - BOTTOM OF CONCRETE |
| ELEV. | - ELEVATION |

| PREFIX TRANS. NOS. | C 4.3 |
|---|---|

PRINT RECORD

| NO. | REVISION | DATE |
|---|---|---|

| NO. | TO: | FOR: | DATE |
|---|---|---|---|
| 1C | C | A | 20/JUL/18 |

# REINFORCING STEEL PLACING PLAN

MCNISH STEEL LTD.
10636 - 205 STREET
EDMONTON, ALBERTA
PHONE 447-3337 FAX 447-3379

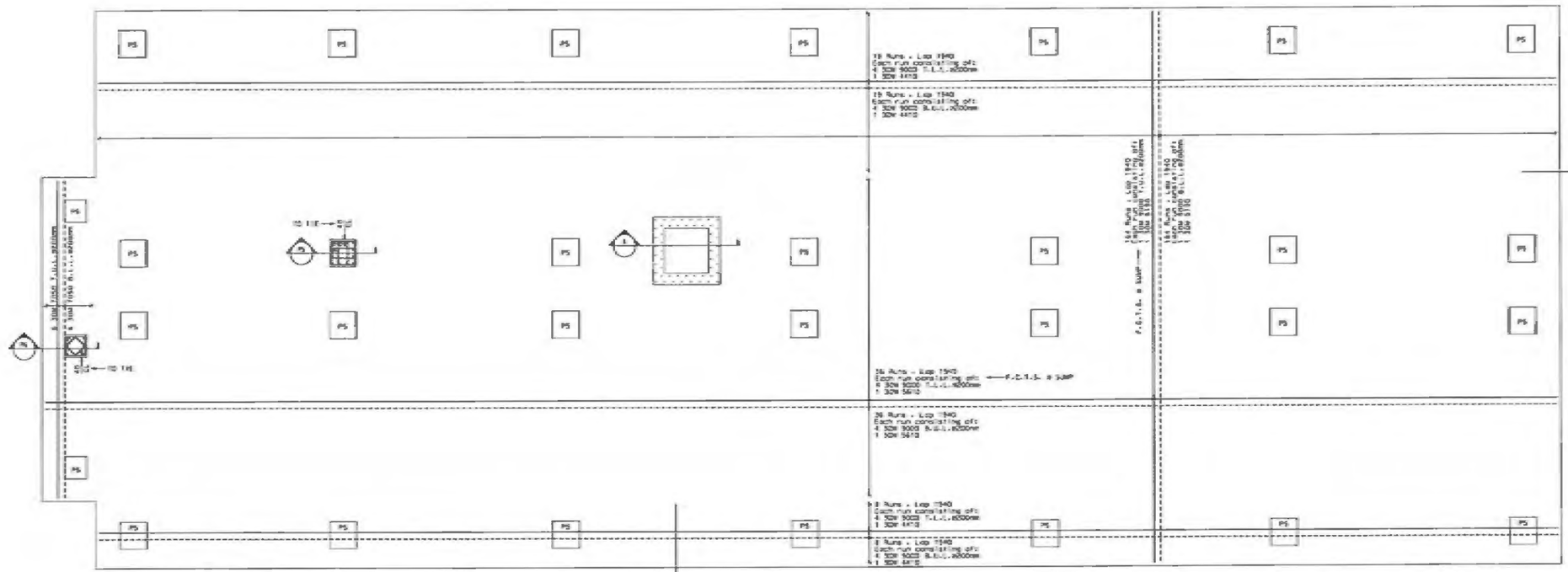
PROJECT : STRATHCOLD FERGLE GOLD PROJECT
CONTR. : CLARK BUILDERS
ENGR. : HATCH
DRAWN BY : MWK
DATE : 20/JUL/2018

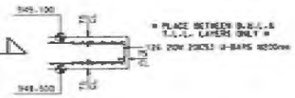
JOB NO. 18-042 | DWG. NO. 003 D

5 6 7 8 9 10

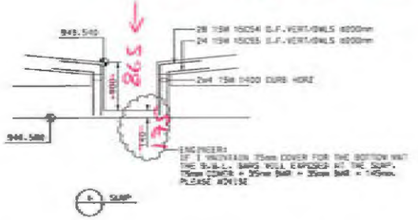
C

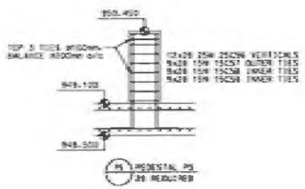
D

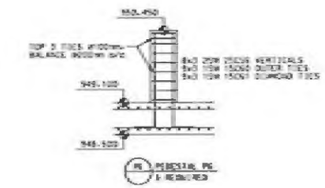





concrete dwg will be updated







| SIZE | EP | BAR MARK | N | BND TYP | DD | A | B | C | D | BENDING DIMENSIONS E | F/H | G | H | J | K | O |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 25M | | 25C56 | | 17 | | | 400 | 1757 | | | | | | | | |
| 20M | | 20C52 | | 17 | | | 1000 | 450 | 1000 | | | | | | | |
| 20M | | 20C53 | | 17 | | | 1000 | 383 | 1000 | | | | | | | |
| 15M | | 15C54 | | 17 | | | 775 | 944 | | | | | | | | |
| 15M | | 15C55 | | 17 | | | 775 | 807 | | | | | | | | |
| 15M | | 15C57 | | 11 | | 140 | 520 | 520 | 520 | 520 | | 140 | | | | |
| 15M | | 15C58 | | 11 | | 140 | 216 | 520 | 216 | 520 | | 140 | | | | |
| 15M | | 15C60 | | 11 | | 140 | 420 | 420 | 420 | 420 | | 140 | | | | |
| 15M | | 15C61 | | 14 | | 140 | 323 | 323 | 323 | 323 | | 140 | 420 | | 420 | 323 |

17 | 11 | 14

B - SPACING CENTER TO CENTER
- DIRECTION IN WHICH BARS EXTEND
- LIMITS OF AREA COVERED BY BARS
- REBAR TOP/NEAR FACE
- REBAR BOTTOM/ FAR FACE
I.F. - INSIDE FACE
O.F. - OUTSIDE FACE
N.F. - NEAR FACE
F.F. - FAR FACE
E.W. - EACH WAY
VERT - VERTICAL
HORZ - HORIZONTAL
DWLS - DOWELS
FTG - FOOTING
COL - COLUMN

B.U.L. - BOTTOM LOWER LAYER
B.U.-U. - BOTTOM UPPER LAYER
M.U.-L. - MID LOWER LAYER
M.U.-U. - MID UPPER LAYER
T.U.-L. - TOP LOWER LAYER
T.U.-U. - TOP UPPER LAYER
E.W. - EACH WAY
Bal. - BENT

BOT - BOTTOM
TOP - TOP
T&B - TOP & BOTTOM
L-R - LEFT TO RIGHT
B-T - BOTTOM TO TOP
C.B. - CORNER BAR
T.B.W. - TYPICAL CONCRETE WALL
R/L - FROM RIGHT TO LEFT
F.B. - FIELD BEND
E.I.F. - CUT IN FIELD
T.O.W. - TOP OF WALL
T.O.F. - TOP OF FOOTING
B.O.W. - BOTTOM OF WALL
T.O.C. - TOP OF CONCRETE
B.O.C. - BOTTOM OF CONCRETE
ELEV. - ELEVATION

## GENERAL NOTES ON REINFORCEMENT

THE FOLLOWING NOTES SHALL APPLY TO ALL REINFORCEMENT SHOWN ON THE DRAWINGS UNLESS OTHERWISE NOTED.

DIMENSIONS:
DIMENSIONS TO REINFORCEMENT ARE TO CENTRE LINES OF BARS, EXCEPT WHERE CONCRETE COVER OR CLEARANCE BETWEEN BARS IS SHOWN.

COVER:
SEE STRUCTURAL ENGINEER TYPICAL NOTES FOR ALL COVER SPECIFICATIONS

SPACING:
UNLESS OTHERWISE SHOWN, THE FIRST AND LAST BARS IN SLABS AND WALLS, STIRRUPS IN BEAMS SHALL BE PLACED AT MAXIMUM OF HALF THE SPECIFIED SPACING OF ADJACENT BARS FROM THE END OF THE MEMBER.

STEEL SPECIFICATIONS:
STEEL REINFORCEMENT SHALL BE DEFORMED BARS OF GRADE 400R CONFORMING TO CSA STANDARDS G30.18 BILLET-STEEL BARS FOR CONCRETE REINFORCEMENT.

WELDING:
WELDING OF REINFORCEMENT SHALL NOT BE PERMITTED.

SPLICES AND EMBEDMENTS:
UNLESS OTHERWISE SPECIFIED, ALL EMBEDMENTS SHALL BE TREATED AS TENSION EMBEDMENTS AND ALL LAP SPLICES SHALL BE CONSIDERED AS TENSION LAP SPLICES.

WHEN REINFORCING BARS OF DIFFERENT SIZE ARE TO BE SPLICED, THE LENGTH OF THE LAP SHALL BE BASED ON THE DIAMETER OF THE SMALLER BAR.

SPLICES ARE TO BE MADE SO THAT THE GIVEN CLEAR DISTANCE COVER WILL BE MAINTAINED.

LAP LENGTHS, UNLESS SHOWN OTHERWISE:

| | HORZ | OTHER |
|---|---|---|
| 10M | 500 | 400 |
| 15M | 775 | 595 |
| 20M | 1030 | 790 |
| 25M | 1670 | 1290 |
| 30M | 1940 | 1485 |
| 35M | | |

PLACEMENT:
PLACE REINFORCING STEEL IN ACCORDANCE WITH CSA A23.1-14.

REINFORCEMENT MAY BE DISPLACE TO CLEAR PIPES, RECESSES, EMBEDDED METAL WORKS AND CONDUITS.

A MINIMUM CLEARANCE OF 1" SHALL BE MAINTAINED BETWEEN REINFORCEMENT AND EMBEDDED MATERIALS. THE MINIMUM CLEARANCE BETWEEN REINFORCEMENT

REINFORCEMENT SHALL BE ACCURATELY PLACED IN ACCORDANCE WITH THE DRAWINGS AND SHALL BE ADEQUATELY SECURED AGAINST DISPLACEMENT BY USING WITHDRAWN FROM WORK AT INTERSECTIONS AND SHALL BE SUPPORTED BY APPROVED CONCRETE OR METAL SUPPORTS, SPACERS OR METAL HANGERS EXCEPT AT SURFACES EXPOSED TO THE GROUND OR TO THE WEATHER WHERE SUPPORTS SHALL BE APPROVED. ALL METAL ACCESSORIES ARE TO BE GALVANIZED.

THE FULL INTENT AND PURPOSE OF THESE DRAWINGS IS PLACING OF REINFORCING STEEL BARS ONLY. IT IS NOT TO BE USED AS A MEANS OF COMMUNICATION BETWEEN THE ARCHITECT, ENGINEER, CONTRACTOR OR ANY OTHER SUBTRADE.

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TRANS. 4.3
NOS.

PRINT RECORD

| NO. | REVISION | DATE | TIC | TID | TOP | DATE |
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| | | | | | | 20/JUL/18 |

REINFORCING STEEL PLACING PLAN

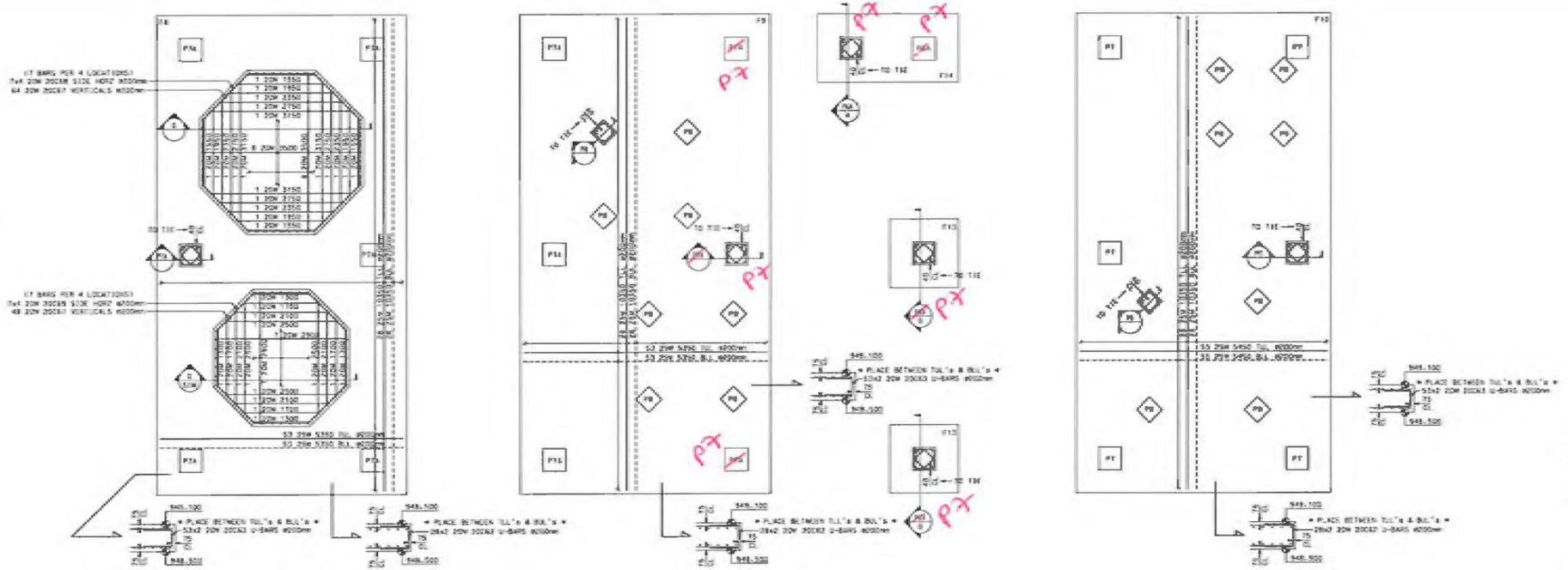
MCNISH STEEL LTD.
10636 - 205 STREET
EDMONTON, ALBERTA
PHONE 447-3337 FAX 447-3319

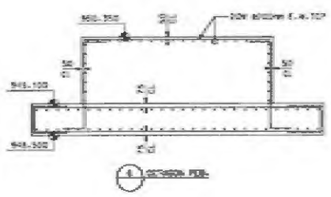
PROJECT : STRATACOLD FENGLE GOLD PROJECT
CONTR. : CLARK BUILDERS
ENGR. : MATCH
DRAWN BY : WMM
DATE : 20/JUL/2018

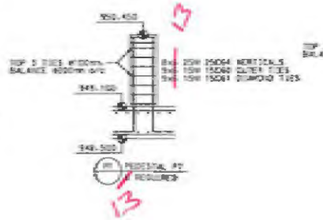
JOB NO. 18-042 DWG. NO. 003 E

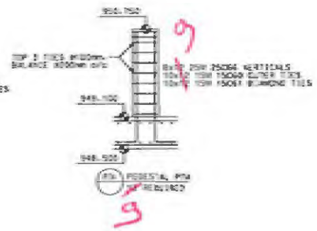
7 8 9 10

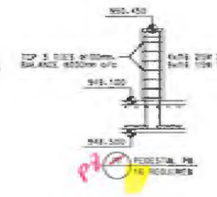
B

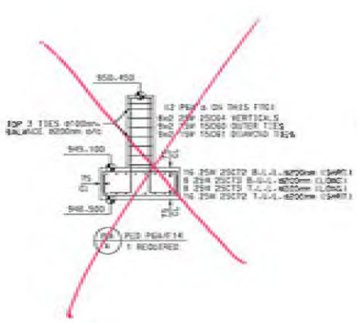


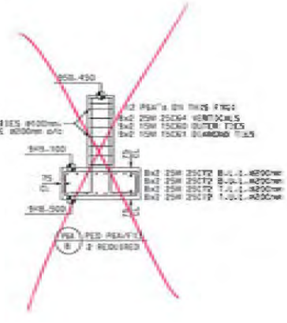




| SIZE | UP | BAR MARK | N | BND TYP | CD | A | B | C | D | BENDING DIMENSIONS E | F,G | G | H | J | K | O |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 25M | | 25CB4 | | 67 | | | 400 | 1750 | | | | | | | | |
| 25M | | 25CB6 | | 67 | | | 400 | 2065 | | | | | | | | |
| 25M | | 25C72 | | 67 | | | 400 | 1350 | 400 | | | | | | | |
| 25M | | 25C73 | | 67 | | | 400 | 2950 | 400 | | | | | | | |
| 20M | | 20CB2 | | 67 | | | 600 | 950 | 600 | | | | | | | |
| 20M | | 20CB3 | | 67 | | | 600 | 364 | 600 | | | | | | | |
| 20M | | 20CB7 | | 20 | | | 400 | 1625 | 400 | | | | | | | |
| 20M | | 20CB8 | | 3 | | | | 1400 | 1432 | 1400 | | | 590 | | 980 | |
| 20M | | 20CB9 | | 3 | | | | 1150 | 1183 | 1150 | | | 813 | | 813 | |
| 15M | | 15CB2 | | 73 | | 140 | 420 | 620 | 420 | 420 | | 140 | | | | |
| 15M | | 15CB1 | | 74 | | 140 | 323 | 523 | 323 | 323 | | 140 | 420 | | 420 | 323 |
| 15M | | 15CB3 | | 73 | | 140 | 320 | 320 | 320 | 320 | | 140 | | | | |

3 17 20 31 32 34

P - SPACING CENTER TO CENTER
 - DIRECTION IN WHICH BARS EXTEND
---- - LIMITS OF AREA COVERED BY BARS
---- - REBAR TOP/FACE/FAR FACE
---- - REBAR BOTTOM FACE
I.F. - INSIDE FACE
O.F. - OUTSIDE FACE
N.F. - NEAR FACE
F.F. - FAR FACE
E.W. - EACH WAY
VERT - VERTICAL
HORZ - HORIZONTAL
DWLS - DOWELS
FTG - FOOTING
COL - COLUMN

B.U.L. - BOTTOM LOWER LAYER
B.U.U. - BOTTOM UPPER LAYER
M.L.L. - MID LOWER LAYER
M.U.L. - MID UPPER LAYER
T.L.L. - TOP LOWER LAYER
T.U.L. - TOP UPPER LAYER
E.M. - EACH MAT
BWT. - BOTWT

BOT - BOTTOM
TOP - TOP
T&B - TOP & BOTTOM
L-R - LEFT TO RIGHT
B-T - BOTTOM TO TOP
C.B. - CORNER BAR
T.O.W. - TYPICAL OPPOSITE HAND
R.H. - FROM RIGHT TO LEFT
F.B. - FIELD BEND
C.I.F. - CUT IN FIELD
T.O.W. - TOP OF WALL
T.O.F. - TOP OF FOOTING
B.O.W. - BOTTOM OF WALL
T.O.C. - TOP OF CONCRETE
B.O.C. - BOTTOM OF CONCRETE
ELEV. - ELEVATION

## GENERAL NOTES ON REINFORCEMENT

THE FOLLOWING NOTES SHALL APPLY TO ALL REINFORCEMENT SHOWN ON THE DRAWINGS UNLESS OTHERWISE NOTED.

**DIMENSIONS:**
DIMENSIONS TO REINFORCEMENT ARE TO CENTRE LINES OF BARS. EXCEPT WHERE CONCRETE COVER OR CLEARANCE BETWEEN BARS IS SHOWN.

**COVER:**
SEE STRUCTURAL ENGINEER TYPICAL NOTES FOR ALL COVER SPECIFICATIONS

**SPACING:**
UNLESS OTHERWISE SHOWN, THE FIRST AND LAST BARS IN SLABS AND WALLS, STIRRUPS IN BEAMS SHALL BE PLACED AT A MAXIMUM OF ONE HALF THE SPECIFIED SPACING OF ADJACENT BARS FROM THE END OF THE MEMBER.

**STEEL SPECIFICATIONS:**
STEEL REINFORCEMENT SHALL BE DEFORMED BARS OF GRADE 400 CONFORMING TO CSA STANDARDS G30.18 BILLET-STEEL BARS FOR CONCRETE REINFORCEMENT.

**WELDING:**
WELDING OF REINFORCEMENT SHALL NOT BE PERMITTED.

**SPLICES AND EMBEDMENTS:**
UNLESS OTHERWISE SPECIFIED, ALL EMBEDMENTS SHALL BE TREATED AS TENSION EMBEDMENTS AND ALL LAP SPLICES SHALL BE CONSIDERED AS TENSION LAP SPLICES.

WHEN REINFORCING BARS OF DIFFERENT SIZE ARE TO BE SPLICED, THE LENGTH OF THE LAP SHALL BE BASED ON THE DIAMETER OF THE SMALLER BAR.

SPLICES ARE NOT TO BE MADE SO THAT THE 67MM CLEAR DISTANCE COVER WILL BE MAINTAINED.

LAP LENGTHS UNLESS SHOWN OTHERWISE:

| | HORZ | BTM/SDE |
|---|---|---|
| 10M | 520 | 400 |
| 15M | 775 | 595 |
| 20M | 1400 | 790 |
| 25M | 1975 | 1240 |
| 30M | 1940 | 1485 |
| 35M | | |

**PLACEMENT:**
PLACE REINFORCING STEEL IN ACCORDANCE WITH CSA A23.1-14.

REINFORCEMENT MAY BE DISPLACED TO CLEAR PIPES, RECESSES, EMBEDDED METAL WORKS AND CONDUITS.

A MINIMUM CLEARANCE OF 1" SHALL BE MAINTAINED BETWEEN REINFORCEMENT AND EMBEDDED MATERIALS. THE MINIMUM CLEARANCE BETWEEN REINFORCEMENT

REINFORCEMENT SHALL BE ACCURATELY PLACED IN ACCORDANCE WITH THE DRAWING AND SHALL BE ADEQUATELY SECURED AGAINST DISPLACEMENT BY USING APPROVED TIEING WIRE AT INTERSECTIONS AND SHALL BE SUPPORTED BY APPROVED CONCRETE OR METAL SUPPORTS. SPACERS OR METAL HANGERS EXCEPT AT SURFACES EXPOSED TO THE GROUND OR TO THE WEATHER WHERE SUPPORTS SHALL BE APPROVED. ALL METAL ACCESSORIES ARE TO BE GALVANIZED.

THE FULL INTENT AND PURPOSE OF THESE DRAWINGS IS PLACING OF REINFORCING STEEL BARS ONLY. IT IS NOT TO BE USED AS A MEANS OF COMMUNICATION BETWEEN THE ARCHITECT, ENGINEER, CONTRACTOR OR ANY OTHER SUBTRADE.

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| NO. | REVISION | DATE | TO | C | # | 20/JUL/18 |
|---|---|---|---|---|---|---|

REINFORCING STEEL PLACING PLAN

MCNISH STEEL LTD.
10636 - 205 STREET
EDMONTON, ALBERTA
PHONE 447-3337 FAX 447-3379

PROJECT : STRATACOLD VEHICLE COLD PROJECT)
CONTR. : CLARK BUILDERS
ENGR. : MMM
DRAWN BY : MARK
DATE : 20/JUL/2018

JOB NO. 18-042 DWG. NO. 003 F

2

A.5

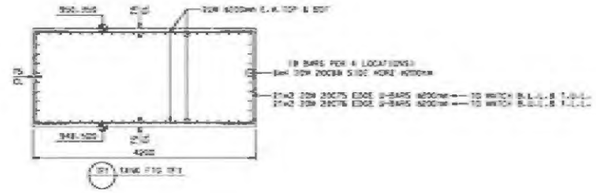
4

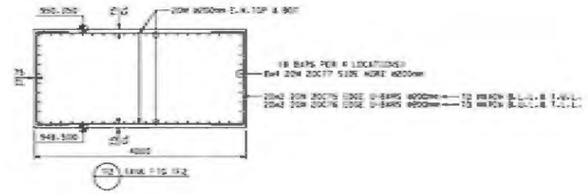
5

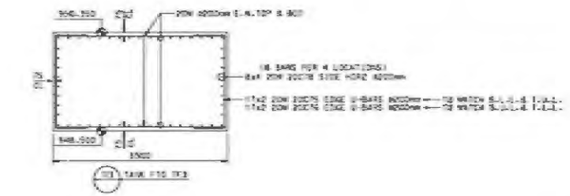
B

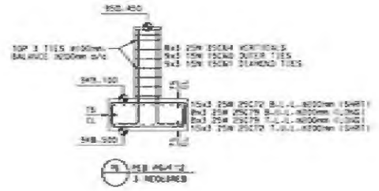
C

D



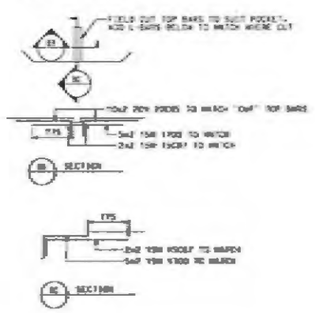


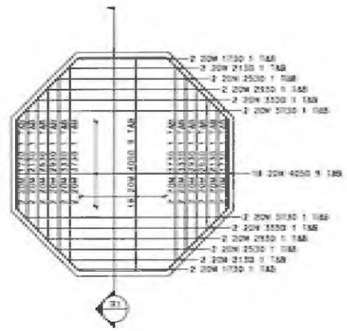


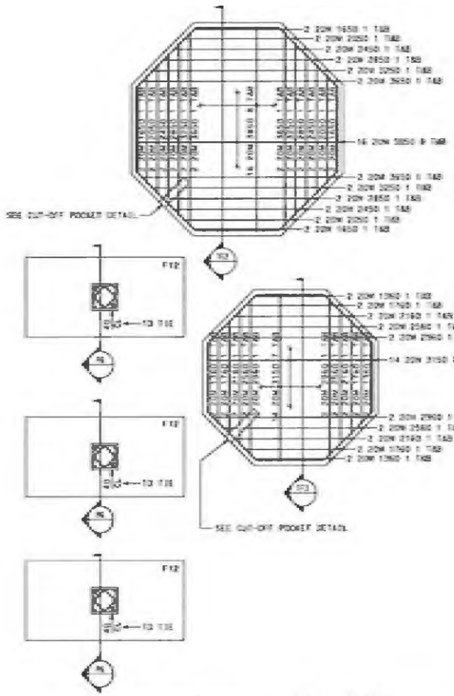


TYP CUT-OFF POCKET DETAIL

2 SIMILAR LOCATIONS







| SIZE | EP | BAR MARK | V | SHAPE TYP | CD | A | B | C | D | BENDING DIMENSIONS E | F/R | G | H | J | K | D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 25M | | 25C64 | | 11 | | | 400 | 1760 | | | | | | | | |
| 25M | | 25C12 | | 11 | | | 400 | 1350 | 400 | | | | | | | |
| 25M | | 25C79 | | 11 | | | 400 | 2850 | 400 | | | | | | | |
| 25M | | 25C80 | | 11 | | | 400 | 1978 | | | | | | | | |
| 25M | | 25C81 | | 11 | | | 400 | 1150 | 400 | | | | | | | |
| 25M | | 25C82 | | 11 | | | 400 | 1850 | 400 | | | | | | | |
| 20M | | 20C75 | | 11 | | | 600 | 1700 | 600 | | | | | | | |
| 20M | | 20C76 | | 11 | | | 600 | 1454 | 600 | | | | | | | |
| 20M | | 20C77 | | 3 | | | | 1350 | 1576 | 1350 | | | 1086 | | 1086 | |
| 20M | | 20C78 | | 5 | | | | 1250 | 1287 | 1250 | | | 884 | | 884 | |
| 20M | | 20C85 | | 11 | | | 1830 | 300 | | | | | | | | |
| 20M | | 20C88 | | 5 | | | | 1650 | 1428 | 1650 | | | 1167 | | 1166 | |
| 15M | | 15C60 | | T1 | 140 | | 420 | 420 | 420 | 420 | | 140 | | | | |
| 15M | | 15C61 | | T4 | 140 | | 323 | 323 | 323 | 525 | | 140 | 420 | | 420 | 323 |
| 15M | | 15C87 | | 11 | | | 300 | 1500 | | | | | | | | |

3 | 17 | 11 | 14

## GENERAL NOTES ON REINFORCEMENT

THE FOLLOWING NOTES SHALL APPLY TO ALL REINFORCEMENT SHOWN ON THE DRAWINGS UNLESS OTHERWISE NOTED.

**DIMENSIONS:**
DIMENSIONS TO REINFORCEMENT ARE TO CENTRE LINES OF BARS. EXCEPT WHERE CONCRETE COVER OR CLEARANCE BETWEEN BARS IS SHOWN.

**COVER:**
SEE STRUCTURAL ENGINEER TYPICAL NOTES FOR ALL COVER SPECIFICATIONS.

**SPACING:**
UNLESS OTHERWISE SHOWN, THE FIRST AND LAST BARS IN SLABS AND WALLS, STIRRUPS IN BEAMS SHALL BE PLACED AT A MAXIMUM OF HALF THE SPECIFIED SPACING OF ADJACENT BARS FROM THE END OF THE MEMBER.

**STEEL SPECIFICATIONS:**
STEEL REINFORCEMENT SHALL BE DEFORMED BARS OF GRADE 400 CONFORMING TO CSA STANDARD G30.18 BILLET-STEEL BARS FOR CONCRETE REINFORCEMENT.

**WELDING:**
WELDING OF REINFORCEMENT SHALL NOT BE PERMITTED.

**SPLICES AND EMBEDMENTS:**
UNLESS OTHERWISE SPECIFIED, ALL EMBEDMENTS SHALL BE GREATER AS TENSION EMBEDMENTS AND ALL LAP SPLICES SHALL BE CONSIDERED AS TENSION LAP SPLICES.

WHEN REINFORCING BARS OF DIFFERENT SIZE ARE TO BE SPLICED, THE LENGTH OF THE LAP SHALL BE BASED ON THE DIAMETER OF THE SMALLER BAR.

SPLICES ARE TO BE MADE SO THAT THE GIVEN CLEAR DISTANCE COVER WILL BE MAINTAINED.

LAP LENGTHS UNLESS SHOWN OTHERWISE:

| | HORIZ | DOWEL |
|---|---|---|
| 10M | 530 | 400 |
| 15M | 775 | 585 |
| 20M | 1035 | 780 |
| 25M | 1625 | 1240 |
| 30M | 1940 | 1485 |
| 35M | | |

**PLACEMENT:**
PLACE REINFORCING STEEL IN ACCORDANCE WITH CSA A23.1-04.

REINFORCEMENT MAY BE DISPLACED TO CLEAR PIPES, RECESSES, EMBEDDED METAL WORKS AND CONDUITS.

A MINIMUM CLEARANCE OF 1" SHALL BE MAINTAINED BETWEEN REINFORCEMENT AND EMBEDDED MATERIALS. THE MINIMUM CLEARANCE BETWEEN REINFORCEMENT

REINFORCEMENT SHALL BE ACCURATELY PLACED IN ACCORDANCE WITH THE DRAWING AND SHALL BE ADEQUATELY SECURED AGAINST DISPLACEMENT BY USING ANNEALED IRON WIRE AT INTERSECTIONS AND SHALL BE SUPPORTED BY APPROVED CONCRETE OR METAL SUPPORTS, SPACERS OR METAL HANGERS EXCEPT AT SURFACES EXPOSED TO THE GROUND OR TO THE WEATHER WHERE SUPPORTS SHALL BE APPROVED. ALL METAL ACCESSORIES ARE TO BE GALVANIZED.

THE FULL INTENT AND PURPOSE OF THESE DRAWINGS IS PLACING OF REINFORCING STEEL BARS ONLY. IT IS NOT TO BE USED AS A MEANS OF COMMUNICATION BETWEEN THE ARCHITECT, ENGINEER, CONTRACTOR OR ANY OTHER SUBTRADE.

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@ - SPACING CENTER TO CENTER
 - DIRECTION IN WHICH BARS EXTEND
 - LIMITS OF AREA COVERED BY BARS
T&B - BOTH TOP/NEAR FACE
B&T - BOTH BOT/FAR FACE
I.F. - INSIDE FACE
O.F. - OUTSIDE FACE
N.F. - NEAR FACE
F.F. - FAR FACE
E.W. - EACH WAY
VERT - VERTICAL
HORIZ - HORIZONTAL
DWLS - DOWELS
TYP - TYPICAL
COL - COLUMN

B.L.L. - BOTTOM LOWER LAYER
B.U.L. - BOTTOM UPPER LAYER
W.L.L. - W.B. LOWER LAYER
W.U.L. - W.B. UPPER LAYER
T.L.L. - TOP LOWER LAYER
T.U.L. - TOP UPPER LAYER
E.W. - EACH WAY
EXT. - EXIST

BOT - BOTTOM
TOP - TOP
T&B - TOP & BOTTOM
L-R - LEFT TO RIGHT
B-T - BOTTOM TO TOP
C.B. - CORNER BAR
T.O.H. - TYPICAL OPPOSITE HAND
R.H. - FROM RIGHT TO LEFT
F.B. - FIELD BEND
C.I.F. - CUT IN FIELD
T.O.W. - TOP OF WALL
T.O.F. - TOP OF FOOTING
B.O.W. - BOTTOM OF WALL
T.O.C. - TOP OF CONCRETE
B.O.C. - BOTTOM OF CONCRETE
ELEV. - ELEVATION

| PREFIX TRANS. NOS. | C 4.3 | PRINT RECORD | | | | |
|---|---|---|---|---|---|---|
| NO. | REVISION | DATE | NO. | TO | FOR | DATE |
| | | | 1C | C | A | 09/JUL/2018 |

MCNISH STEEL LTD.
10636 - 205 STREET
EDMONTON, ALBERTA
PHONE 447-3331 FAX 447-3379

# REINFORCING STEEL PLACING PLAN

PROJECT = STRATHCOLD (KEADLE GOLD PROJECT)
CONTR. = CLARK BUILDERS
DWG.OF = 40M PROCESS BLDG (FOOTING (TYPE F31,F12 & TANK FTG'S)
ENGR. = MATCH
DRAWN BY = MARK | DATE = 20/JUL/2018

JOB NO. 18-042 | DWG. NO. 003 G

McNISH STEEL

10636-205 Street Edmonton, Alberta T5S 1Z1
Phone 780.447.3337 | mcnishsteel.com

To: STRATAGOLD EAGLE
MAYO, YT

Transmittal: 4.1
Job Name: STRATAGOLD EAGLE

Location: MAYO, YT
Job Number: 18-042
Sales Order:
Sent Via: Email

Attn: JACKSON/DUSTIN

| Drawing | Description | Rev | Qty | Reason Sent | Date Sent |
|---|---|---|---|---|---|
| 003 A | ADR PROCESS BLDG (FOOTINGS) | 1 | 1 | For Information | 7/9/2018 |
| 003 B | ADR PROCESS BLDG (GR.BEAMS & PEDS) | 1 | 1 | Revised | 7/9/2018 |

Note:

**HATCH Vendor/Contractor Document Review**

| | | | |
|---|---|---|---|
| Doc Number | E354138-CB201-230-260-0003 | SUB | 02 |
| Date Received | 2018-07-10 | | |

| Review Grade | Next Submittal Status |
|---|---|
| ☐ C1 - Proceed to next submission & status<br>☐ C2 - Proceed with exceptions as noted to next submission & status | ☐ Certified<br>☐ As-Built |
| ☐ C3 - Do not proceed, Revise as noted & resubmit | ☐ Internal Review |
| Next Submittal Date: | ☐ Certified/☐ As-Built |
| ☒ C4 - No further submission required - Complete (select status below)<br>☐ Certified Final ☒ Final ☐ Cancelled ☐ Superseded | |

Package Engineer: Name, signature and date
ESRA AKINCI, EA, July 10, 2018

Reviewed only for general conformity with the specifications. Acceptance by the engineer does not warrant or represent that the information contained on this drawing/document is either accurate or complete. The sole responsibility for correct design, details & dimensions shall remain with the party submitting the drawing/document.

By: Mark Tillmanns

Signature: _____

Received: _____



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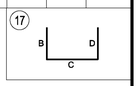
| SIZE | EP | BAR MARK | V | BND TYP | CD | A | B | C | D | BENDING DIMENSIONS E | F/R | G | H | J | K | O |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 25M | | 25C1 | | 17 | | | 500 | 2850 | 500 | | | | | | | |
| 25M | | 25C2 | | 17 | | | 500 | 7850 | 500 | | | | | | | |
| 25M | | 25C4 | | 17 | | | 500 | 8563 | | | | | | | | |
| 25M | | 25C5 | | 17 | | | 500 | 7907 | | | | | | | | |
| 25M | | 25C6 | | 17 | | | 500 | 5527 | | | | | | | | |
| 25M | | 25C7 | | 17 | | | 500 | 7387 | | | | | | | | |
| 25M | | 25C8 | | 17 | | | 500 | 3350 | 500 | | | | | | | |
| 25M | | 25C11 | | 17 | | | 500 | 2350 | 500 | | | | | | | |
| 25M | | 25C13 | | 17 | | | 500 | 1850 | 500 | | | | | | | |
| 25M | | 25C15 | | 17 | | | 500 | 3850 | 500 | | | | | | | |
| 20M | | 20C9 | | 17 | | | 500 | 3350 | 500 | | | | | | | |
| 20M | | 20C10 | | 17 | | | 500 | 2850 | 500 | | | | | | | |
| 20M | | 20C12 | | 17 | | | 500 | 2350 | 500 | | | | | | | |
| 20M | | 20C14 | | 17 | | | 500 | 1850 | 500 | | | | | | | |
| 20M | | 20C16 | | 17 | | | 500 | 3850 | 500 | | | | | | | |

17













SEE DRAWING 002B FOR PEDESTALS AND GRADEBEAMS

## GENERAL NOTES ON REINFORCEMENT

THE FOLLOWING NOTES SHALL APPLY TO ALL REINFORCEMENT SHOWN ON THE DRAWINGS UNLESS OTHERWISE NOTED.

**DIMENSIONS:**
DIMENSIONS TO REINFORCEMENT ARE TO CENTRE LINES OF BARS. EXCEPT WHERE CONCRETE COVER OR CLEARANCE BETWEEN BARS IS SHOWN.

**COVER:**
SEE STRUCTURAL ENGINEER TYPICAL NOTES FOR ALL COVER SPECIFICATIONS

**SPACING:**
UNLESS OTHERWISE SHOWN, THE FIRST AND LAST BARS IN SLABS AND WALLS, STIRRUPS IN BEAMS SHALL BE PLACED AT MAXIMUM OF HALF THE SPECIFIED SPACING OF ADJACENT BARS FROM THE END OF THE MEMBER.

**STEEL SPECIFICATIONS:**
STEEL REINFORCEMENT SHALL BE DEFORMED BARS OF GRADE 400 CONFORMING TO CSA STANDARDS G30.12 BILLET-STEEL BARS FOR CONCRETE REINFORCEMENT.

**WELDING:**
WELDING OF REINFORCEMENT SHALL NOT BE PERMITTED.

**SPLICES AND EMBEDMENTS:**
UNLESS OTHERWISE SPECIFIED, ALL EMBEDMENTS SHALL BE TREATED AS TENSION EMBEDMENTS AND ALL LAP SPLICES SHALL BE CONSIDERED AS TENSION LAP SPLICES.

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LAP LENGTHS UNLESS SHOWN OTHERWISE:

| | HORZ | OTHER |
|---|---|---|
| 10M | 520 | 400 |
| 15M | 775 | 595 |
| 20M | 1030 | 790 |
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**PLACEMENT:**
PLACE REINFORCING STEEL IN ACCORDANCE WITH CSA CAN3-A23.1-M.

REINFORCEMENT MAY BE DISPLACE TO CLEAR PIPES, RECESSES, EMBEDDED METAL WORKS AND CONDUITS.

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| VERT | - VERTICAL |
| HORZ | - HORIZONTAL |
| DWLS | - DOWELS |
| FTG | - FOOTING |
| COL | - COLUMN |
| BOT | - BOTTOM |
| TOP | - TOP |
| T&B | - TOP & BOTTOM |
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B.L.L. - BOTTOM LOWER LAYER
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PREFIX C
TRANS. 4.1
NOS.

PRINT RECORD

| MK. | REVISION | DATE | NO. 1C | TO. C | FOR A | DATE 20/JUN/18 |
|---|---|---|---|---|---|---|
| | C2 REVIEW | JUN 25/18 | | | | |

MEMBER CRSI

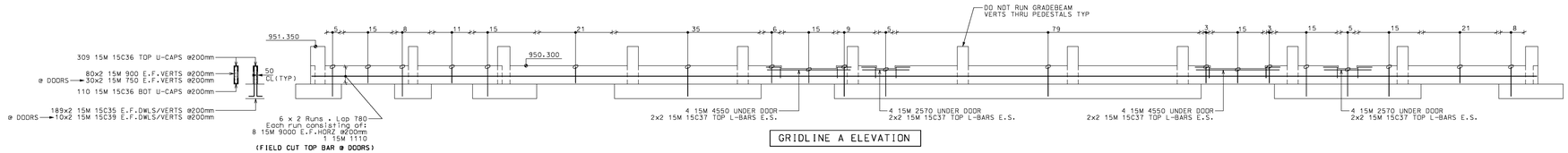
MCNISH STEEL LTD.
10636 - 205 STREET
EDMONTON, ALBERTA
PHONE 447-3337 FAX 447-3379

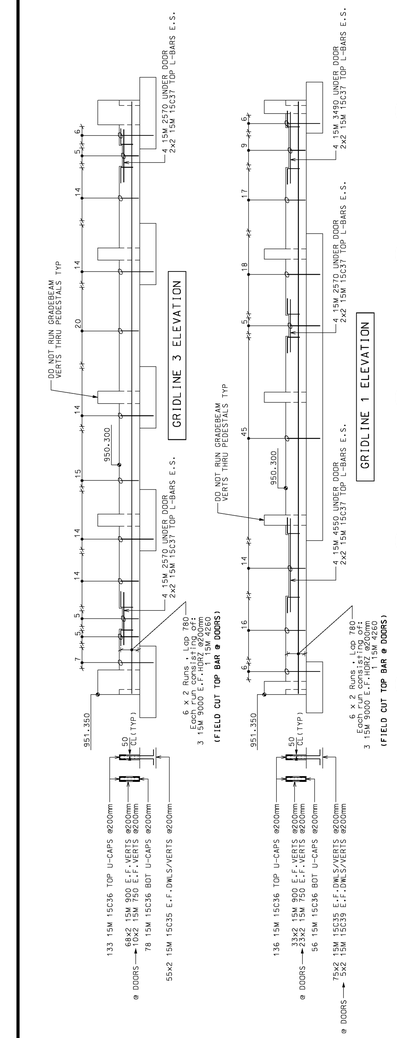
# REINFORCING STEEL PLACING PLAN

PROJECT : STRATAGOLD (EAGLE GOLD PROJECT)
CONTR. : CLARK BUILDERS
DWG.OF : ADR PROCESS BLDG (PAD & STRIP FTGS)
ENGR. : HATCH
DRAWN BY : MARK DATE : 20/JUN/2018

JOB NO. 18-042 DWG. NO. 003 A

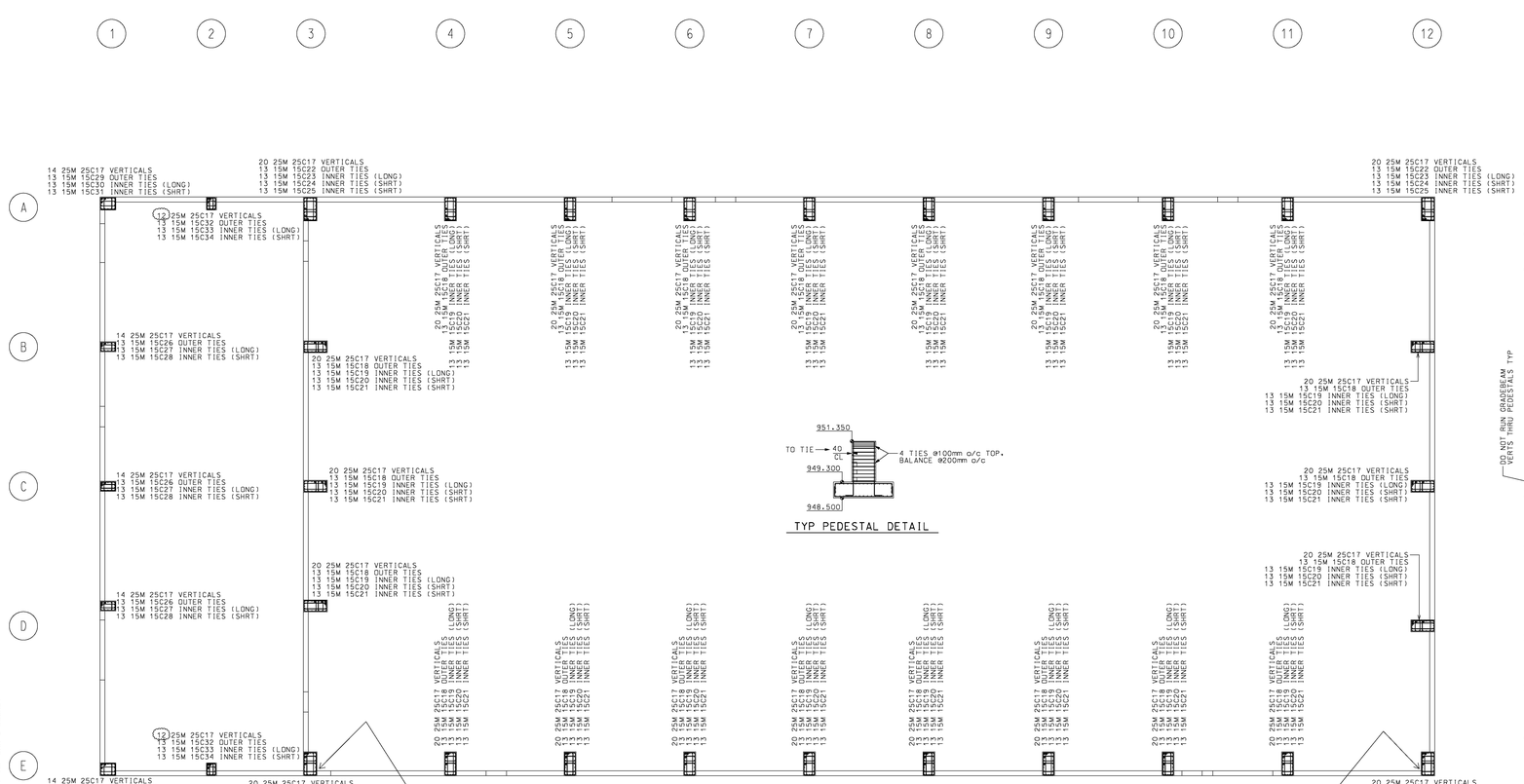
| SIZE | EP | BAR MARK | V | BND TYP | CD | BENDING DIMENSIONS A | B | C | D | E | F/R | G | H | J | K | O |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 25M | | 25C17 | | 17 | | | 400 | 2669 | | | | | | | | |
| 15M | | 15C18 | | T1 | | 140 | 520 | 1120 | 520 | 1120 | | 140 | | | | |
| 15M | | 15C19 | | T1 | | 140 | 292 | 1120 | 292 | 1120 | | 140 | | | | |
| 15M | | 15C20 | | T1 | | 140 | 240 | 520 | 240 | 520 | | 140 | | | | |
| 15M | | 15C21 | | T1 | | 140 | 416 | 520 | 416 | 520 | | 140 | | | | |
| 15M | | 15C22 | | T1 | | 140 | 601 | 1120 | 601 | 1120 | | 140 | | | | |
| 15M | | 15C23 | | T1 | | 140 | 332 | 1120 | 332 | 1120 | | 140 | | | | |
| 15M | | 15C24 | | T1 | | 140 | 240 | 601 | 240 | 601 | | 140 | | | | |
| 15M | | 15C25 | | T1 | | 140 | 416 | 601 | 416 | 601 | | 140 | | | | |
| 15M | | 15C26 | | T1 | | 140 | 420 | 720 | 420 | 720 | | 140 | | | | |
| 15M | | 15C27 | | T1 | | 140 | 183 | 720 | 183 | 720 | | 140 | | | | |
| 15M | | 15C28 | | T1 | | 140 | 392 | 420 | 392 | 420 | | 140 | | | | |
| 15M | | 15C29 | | T1 | | 140 | 570 | 720 | 570 | 720 | | 140 | | | | |
| 15M | | 15C30 | | T1 | | 140 | 233 | 720 | 233 | 720 | | 140 | | | | |
| 15M | | 15C31 | | T1 | | 140 | 392 | 570 | 392 | 570 | | 140 | | | | |
| 15M | | 15C32 | | T1 | | 140 | 420 | 570 | 420 | 570 | | 140 | | | | |
| 15M | | 15C33 | | T1 | | 140 | 183 | 570 | 183 | 570 | | 140 | | | | |
| 15M | | 15C34 | | T1 | | 140 | 233 | 420 | 233 | 420 | | 140 | | | | |
| 15M | | 15C35 | | 17 | | | 300 | 1619 | | | | | | | | |
| 15M | | 15C36 | | 17 | | | 300 | 150 | 300 | | | | | | | |
| 15M | | 15C37 | | 17 | | | 600 | 775 | | | | | | | | |
| 15M | | 15C38 | | 17 | | | 600 | 440 | 600 | | | | | | | |
| 15M | | 15C39 | | 17 | | | 300 | 1469 | | | | | | | | |
| 15M | | 15C40 | | 17 | | | 775 | 775 | | | | | | | | |
| 15M | | 15C41 | | 17 | | | 300 | 775 | | | | | | | | |
| 15M | | 15C42 | | 17 | | | 300 | 975 | | | | | | | | |

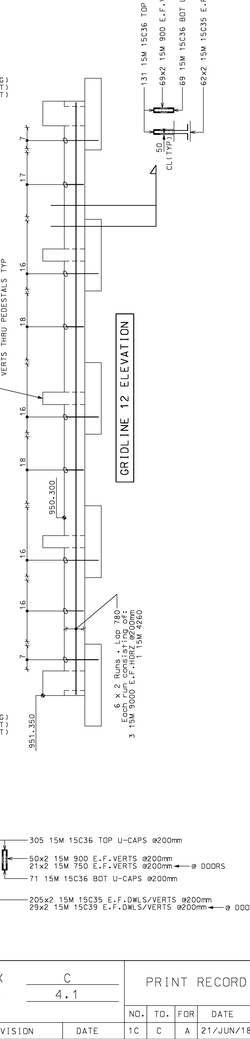


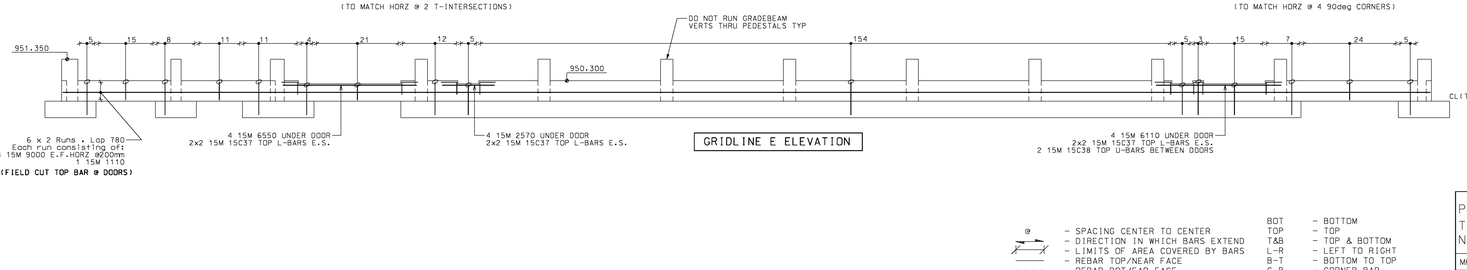









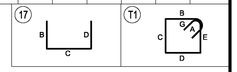







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| | |
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| BNT. | - BENT |

PREFIX C
TRANS. 4.1
NOS.

PRINT RECORD

| MK. | REVISION | DATE | NO. 1C | TO. C | FOR A | DATE 21/JUN/18 |
|---|---|---|---|---|---|---|
| | C2 REVIEW | JUN 25/18 | | | | |

MEMBER CRSI

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10636 - 205 STREET
EDMONTON, ALBERTA
PHONE 447-3337 FAX 447-3379

# REINFORCING STEEL PLACING PLAN

PROJECT : STRATAGOLD (EAGLE GOLD PROJECT)
CONTR. : CLARK BUILDERS
DWG.OF : ADR PROCESS BLDG (GR.BEAMS & PEDESTALS)
ENGR. : HATCH
DRAWN BY : MARK DATE : 21/JUN/2018

JOB NO. 18-042 DWG. NO. 003 B

McNISH STEEL

10636-205 Street Edmonton, Alberta T5S 1Z1
Phone 780.447.3337 | mcnishsteel.com

CLARK BUILDERS SUBMITTAL REVIEW
THIS SUBMITTAL HAS BEEN REVIEWED FOR CONFORMITY WITH THE GENERAL DESIGN CONCEPT ONLY. SUCH REVIEW SHALL NOT RELIEVE THE SUBCONTRACTOR/SUPPLIER OF HIS RESPONSIBILITY FOR ERRORS OR OMISSIONS OR MEETING THE REQUIREMENTS OF THE CONTRACT DOCUMENTS.

| | | | |
|---|---|---|---|
| ✓ | REVIEWED | SUB. NO. | [illegible] |
| | SEE COMMENTS | PROJECT: | [illegible] |
| | AMEND & RESUBMIT | BY: | [illegible] |
| | RECEIVED | DATE: | [illegible] |

To: STRATAGOLD EAGLE
MAYO, YT

Transmittal: 04
Job Name: STRATAGOLD EAGLE

Location: MAYO, YT
Job Number: 18-042
Sales Order:
Sent Via: Email

Attn: DUSTIN/JACKSON

| Drawing | Description | Rev | Qty | Reason Sent | Date Sent |
|---|---|---|---|---|---|
| 003 A | ADR PROCESS BLDG (FOOTINGS) | | 1 | For Approval | 6/21/2018 |
| 003 A | ADR PROCESS BLDG (GR.BEAMS & PEDS) | | 1 | For Approval | 6/21/2018 |

Note:

HATCH Vendor/Contractor Document Review

| | | | |
|---|---|---|---|
| Doc Number | E354138-CB201-230-260-0003 | SUB | 01 |
| Date Received | 2018-06-22 | | |

| Review Grade | Next Submittal Status |
|---|---|
| ☐ C1 - Proceed to next submission & status<br>☒ C2 - Proceed with exceptions as noted to next submission & status | ☐ Certified<br>☐ As-Built |
| ☐ C3 - Do not proceed. Revise as noted & resubmit | ☐ Internal Review |
| Next Submittal Date: | ☐ Certified/☐ As-Built |

☐ C4 - No further submission required - Complete (select status below)
☐ Certified Final ☐ Final ☐ Cancelled ☐ Superseded

Package Engineer: Name, signature and date
ESRA AKINCI, EA, JUNE 25, 2018

Reviewed only for general conformity with the specifications. Acceptance by the engineer does not warrant or represent that the information contained on this drawing/document is either accurate or complete. The sole responsibility for correct design, details & dimensions shall remain with the party submitting the drawing/document.

By: Mark Tillmanns
Signature: _____
Received: _____


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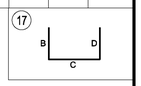
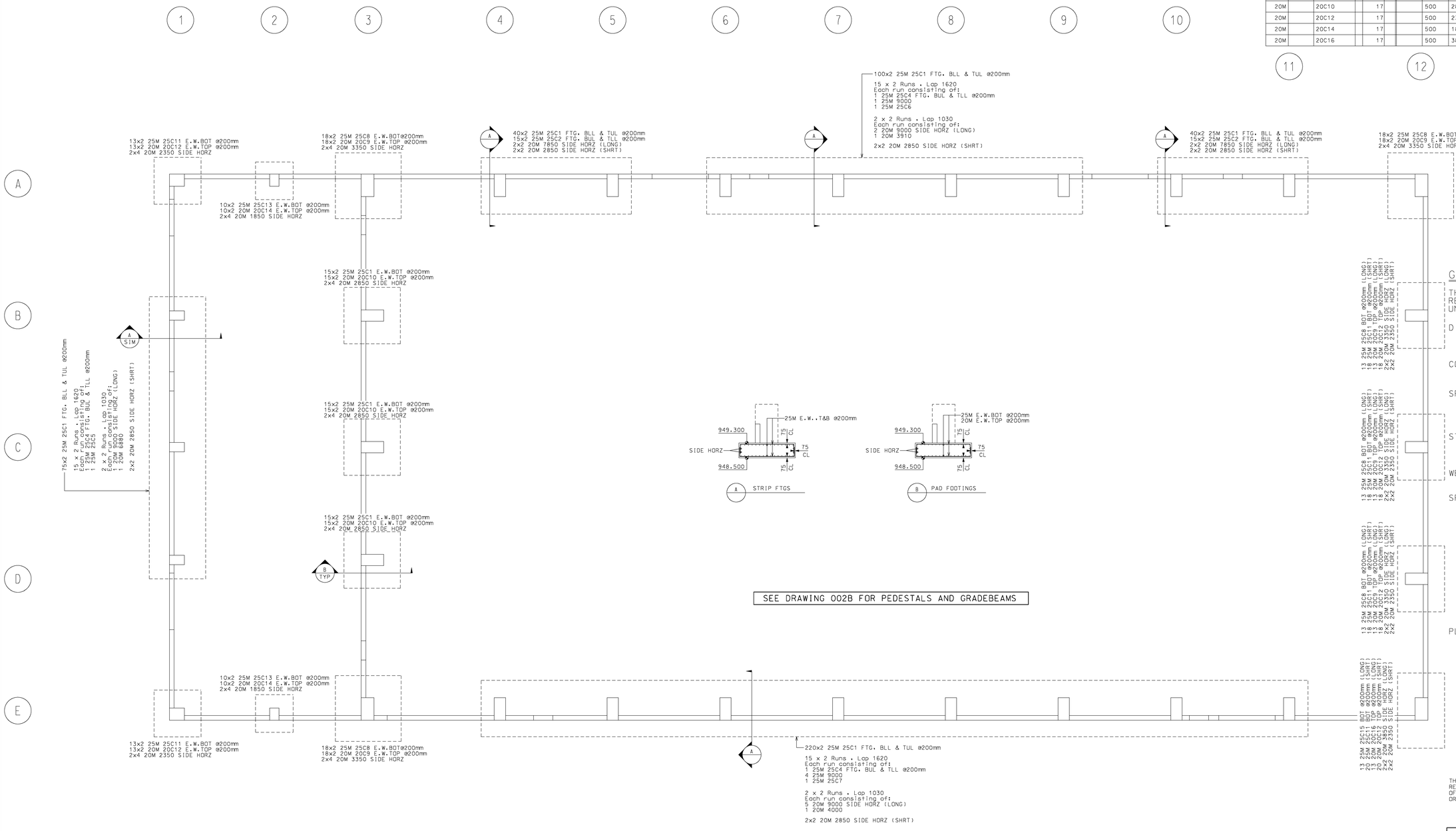
| SIZE | EP | BAR MARK | V | BND TYP | CD | A | B | C | D | BENDING DIMENSIONS E | F/R | G | H | J | K | O |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 25M | | 25C1 | | 17 | | | 500 | 2850 | 500 | | | | | | | |
| 25M | | 25C2 | | 17 | | | 500 | 7850 | 500 | | | | | | | |
| 25M | | 25C4 | | 17 | | | 500 | 8563 | | | | | | | | |
| 25M | | 25C5 | | 17 | | | 500 | 7907 | | | | | | | | |
| 25M | | 25C6 | | 17 | | | 500 | 5527 | | | | | | | | |
| 25M | | 25C7 | | 17 | | | 500 | 7387 | | | | | | | | |
| 25M | | 25C8 | | 17 | | | 500 | 3350 | 500 | | | | | | | |
| 25M | | 25C11 | | 17 | | | 500 | 2350 | 500 | | | | | | | |
| 25M | | 25C13 | | 17 | | | 500 | 1850 | 500 | | | | | | | |
| 25M | | 25C15 | | 17 | | | 500 | 3850 | 500 | | | | | | | |
| 20M | | 20C9 | | 17 | | | 500 | 3350 | 500 | | | | | | | |
| 20M | | 20C10 | | 17 | | | 500 | 2850 | 500 | | | | | | | |
| 20M | | 20C12 | | 17 | | | 500 | 2350 | 500 | | | | | | | |
| 20M | | 20C14 | | 17 | | | 500 | 1850 | 500 | | | | | | | |
| 20M | | 20C16 | | 17 | | | 500 | 3850 | 500 | | | | | | | |

17

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TRANS. 04
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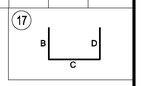
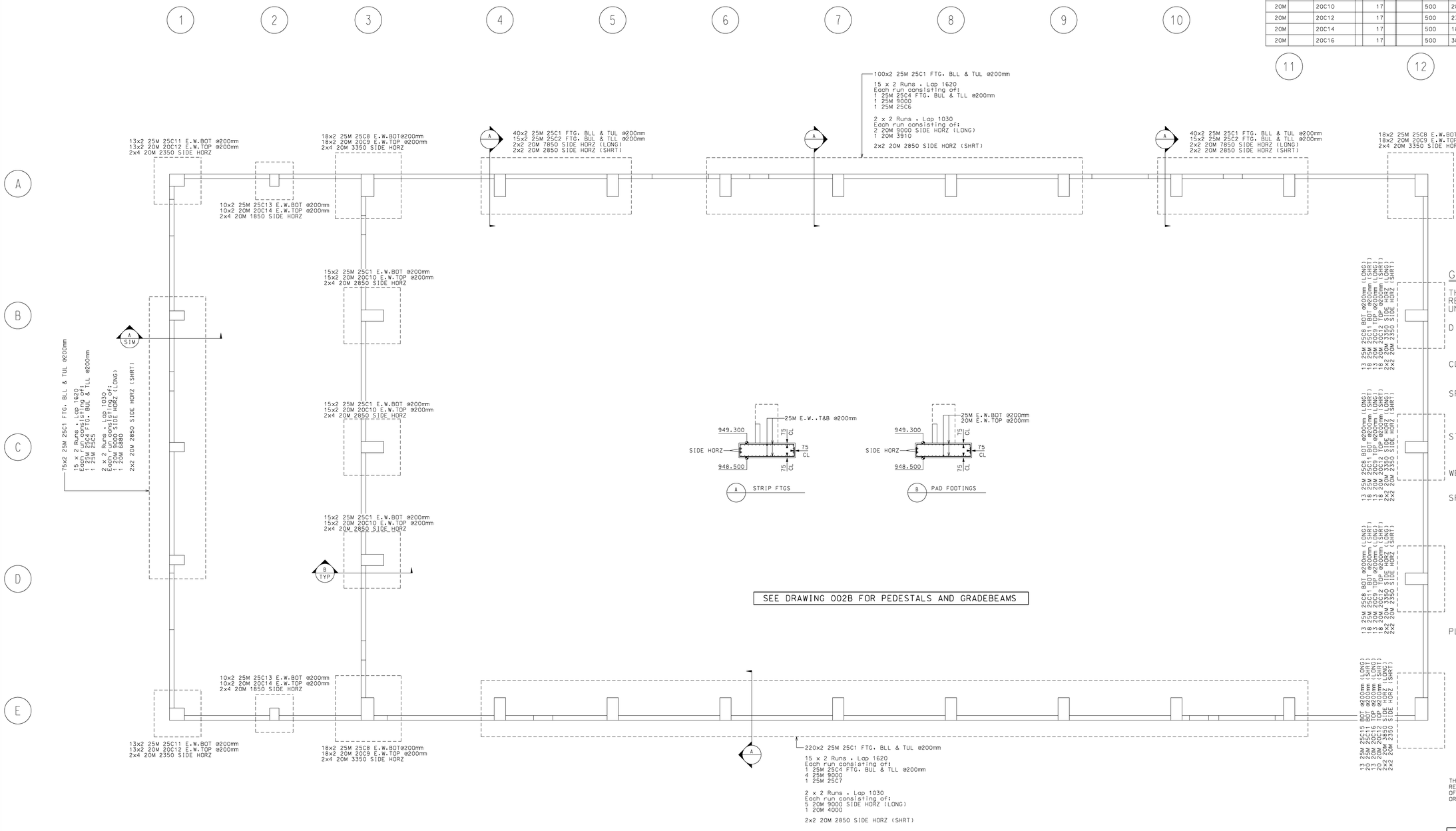
| 25M | | 25C2 | | 17 | | | 500 | 7850 | 500 | | | | | | | |
| 25M | | 25C4 | | 17 | | | 500 | 8563 | | | | | | | | |
| 25M | | 25C5 | | 17 | | | 500 | 7907 | | | | | | | | |
| 25M | | 25C6 | | 17 | | | 500 | 5527 | | | | | | | | |
| 25M | | 25C7 | | 17 | | | 500 | 7387 | | | | | | | | |
| 25M | | 25C8 | | 17 | | | 500 | 3350 | 500 | | | | | | | |
| 25M | | 25C11 | | 17 | | | 500 | 2350 | 500 | | | | | | | |
| 25M | | 25C13 | | 17 | | | 500 | 1850 | 500 | | | | | | | |
| 25M | | 25C15 | | 17 | | | 500 | 3850 | 500 | | | | | | | |
| 20M | | 20C9 | | 17 | | | 500 | 3350 | 500 | | | | | | | |
| 20M | | 20C10 | | 17 | | | 500 | 2850 | 500 | | | | | | | |
| 20M | | 20C12 | | 17 | | | 500 | 2350 | 500 | | | | | | | |
| 20M | | 20C14 | | 17 | | | 500 | 1850 | 500 | | | | | | | |
| 20M | | 20C16 | | 17 | | | 500 | 3850 | 500 | | | | | | | |

17




## GENERAL NOTES ON REINFORCEMENT

THE FOLLOWING NOTES SHALL APPLY TO ALL REINFORCEMENT SHOWN ON THE DRAWINGS UNLESS OTHERWISE NOTED.

**DIMENSIONS:**
DIMENSIONS TO REINFORCEMENT ARE TO CENTRE LINES OF BARS. EXCEPT WHERE CONCRETE COVER OR CLEARANCE BETWEEN BARS IS SHOWN.

**COVER:**
SEE STRUCTURAL ENGINEER TYPICAL NOTES FOR ALL COVER SPECIFICATIONS

**SPACING:**
UNLESS OTHERWISE SHOWN, THE FIRST AND LAST BARS IN SLABS AND WALLS, STIRRUPS IN BEAMS SHALL BE PLACED AT MAXIMUM OF HALF THE SPECIFIED SPACING OF ADJACENT BARS FROM THE END OF THE MEMBER.

**STEEL SPECIFICATIONS:**
STEEL REINFORCEMENT SHALL BE DEFORMED BARS OF GRADE 400 CONFORMING TO CSA STANDARDS G30.12 BILLET-STEEL BARS FOR CONCRETE REINFORCEMENT.

**WELDING:**
WELDING OF REINFORCEMENT SHALL NOT BE PERMITTED.

**SPLICES AND EMBEDMENTS:**
UNLESS OTHERWISE SPECIFIED, ALL EMBEDMENTS SHALL BE TREATED AS TENSION EMBEDMENTS AND ALL LAP SPLICES SHALL BE CONSIDERED AS TENSION LAP SPLICES.

WHEN REINFORCING BARS OF DIFFERENT SIZE ARE TO BE SPLICED, THE LENGTH OF THE LAP SHALL BE BASED ON THE DIAMETER OF THE SMALLER BAR.

SPLICES ARE TO BE MADE SO THAT THE GIVEN CLEAR DISTANCE COVER WILL BE MAINTAINED.

LAP LENGTHS UNLESS SHOWN OTHERWISE:

| | HORZ | OTHER |
|---|---|---|
| 10M | 520 | 400 |
| 15M | 775 | 595 |
| 20M | 1030 | 790 |
| 25M | 1615 | 1240 |
| 30M | 1940 | 1485 |
| 35M | | |

**PLACEMENT:**
PLACE REINFORCING STEEL IN ACCORDANCE WITH CSA CAN3-A23.1-M.

REINFORCEMENT MAY BE DISPLACE TO CLEAR PIPES, RECESSES, EMBEDDED METAL WORKS AND CONDUITS.

A MINIMUM CLEARANCE OF 1" SHALL BE MAINTAINED BETWEEN REINFORCEMENT AND EMBEDDED MATERIALS. THE MINIMUM CLEARANCE BETWEEN REINFORCEMENT

REINFORCEMENT SHALL BE ACCURATELY PLACED IN ACCORDANCE WITH THE DRAWING AND SHALL BE ADEQUATELY SECURED AGAINST DISPLACEMENT BY USING ANNEALED IRON WIRE AT INTERSECTIONS AND SHALL BE SUPPORTED BY APPROVED CONCRETE OR METAL SUPPORTS. SPACERS OR METAL HANGERS EXCEPT AT SURFACES EXPOSED TO THE GROUND OR TO THE WEATHER WHERE SUPPORTS SHALL BE APPROVED. ALL METAL ACCESSORIES ARE TO BE GALVANIZED.

THE FULL INTENT AND PURPOSE OF THESE DRAWINGS IS PLACING OF REINFORCING STEEL BARS ONLY. IT IS NOT TO BE USED AS A MEANS OF COMMUNICATION BETWEEN THE ARCHITECT, ENGINEER, CONTRACTOR OR ANY OTHER SUBTRADE.

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| | |
|---|---|
| @ | - SPACING CENTER TO CENTER |
| | - DIRECTION IN WHICH BARS EXTEND |
| | - LIMITS OF AREA COVERED BY BARS |
| | - REBAR TOP/NEAR FACE |
| | - REBAR BOT/FAR FACE |
| I.F. | - INSIDE FACE |
| O.F. | - OUTSIDE FACE |
| N.F. | - NEAR FACE |
| F.F. | - FAR FACE |
| E.W. | - EACH WAY |
| VERT | - VERTICAL |
| HORZ | - HORIZONTAL |
| DWLS | - DOWELS |
| FTG | - FOOTING |
| COL | - COLUMN |
| BOT | - BOTTOM |
| TOP | - TOP |
| T&B | - TOP & BOTTOM |
| L-R | - LEFT TO RIGHT |
| B-T | - BOTTOM TO TOP |
| C.B. | - CORNER BAR |
| T.O.H. | - TYPICAL OPPOSITE HAND |
| R/L | - FROM RIGHT TO LEFT |
| F.B. | - FIELD BEND |
| C.I.F. | - CUT IN FIELD |
| T.O.W. | - TOP OF WALL |
| T.O.F. | - TOP OF FOOTING |
| B.O.W. | - BOTTOM OF WALL |
| T.O.C. | - TOP OF CONCRETE |
| B.O.C. | - BOTTOM OF CONCRETE |
| ELEV. | - ELEVATION |

B.L.L. - BOTTOM LOWER LAYER
B.U.L. - BOTTOM UPPER LAYER
M.L.L. - MID LOWER LAYER
M.U.L. - MID UPPER LAYER
T.L.L. - TOP LOWER LAYER
T.U.L. - TOP UPPER LAYER
E.R. - EACH ROW
BNT. - BENT

PREFIX C
TRANS. 04
NOS.

PRINT RECORD

| MK. | REVISION | DATE | NO. 1C | TO. C | FOR A | DATE 20/JUN/18 |
|---|---|---|---|---|---|---|

MEMBER CRSI

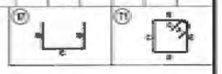
MCNISH STEEL LTD.
10636 - 205 STREET
EDMONTON, ALBERTA
PHONE 447-3337 FAX 447-3379

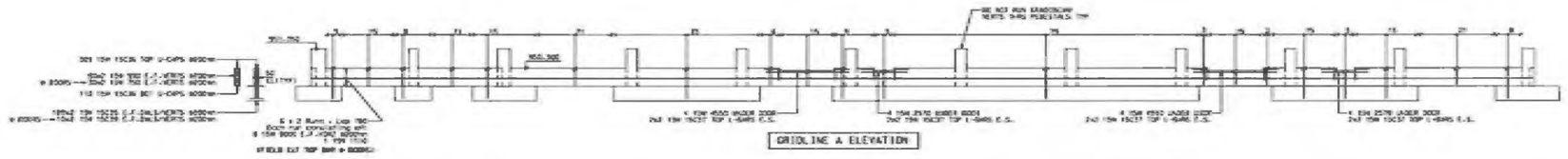
# REINFORCING STEEL PLACING PLAN

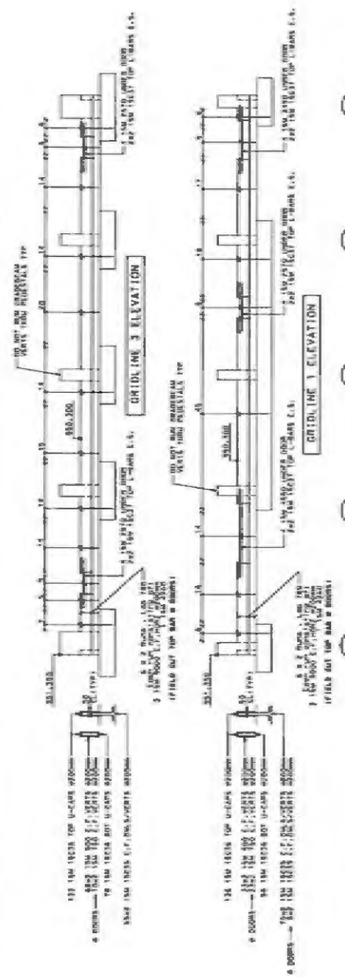
PROJECT : STRATAGOLD (EAGLE GOLD PROJECT)
CONTR. : CLARK BUILDERS
DWG.OF : ADR PROCESS BLDG (PAD & STRIP FTGS)
ENGR. : HATCH
DRAWN BY : MARK DATE : 20/JUN/2018

JOB NO. 18-042 DWG. NO. 003 A

| SIZE | QTY | BAR MARK | V | BEND TYPE | CD | A | B | C | D | BENDING DIMENSIONS E | F/R | G | H | J | K | O |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 10M | | 10C11 | | 11 | | | 400 | 2685 | | | | | | | | |
| 10M | | 10C18 | | 11 | | 140 | 620 | 1105 | 520 | 1120 | | 140 | | | | |
| 10M | | 10C19 | | 11 | | 140 | 252 | 1120 | 252 | 1120 | | 140 | | | | |
| 10M | | 10C20 | | 11 | | 140 | 240 | 520 | 240 | 520 | | 140 | | | | |
| 10M | | 10C21 | | 11 | | 140 | 416 | 520 | 416 | 520 | | 140 | | | | |
| 10M | | 10C22 | | 11 | | 140 | 601 | 1120 | 601 | 1120 | | 140 | | | | |
| 10M | | 10C23 | | 11 | | 140 | 332 | 1120 | 332 | 1120 | | 140 | | | | |
| 10M | | 10C24 | | 11 | | 140 | 240 | 601 | 240 | 601 | | 140 | | | | |
| 10M | | 10C25 | | 11 | | 140 | 416 | 601 | 416 | 601 | | 140 | | | | |
| 10M | | 10C26 | | 11 | | 140 | 420 | 720 | 420 | 720 | | 140 | | | | |
| 10M | | 10C27 | | 11 | | 140 | 183 | 720 | 183 | 720 | | 140 | | | | |
| 10M | | 10C28 | | 11 | | 140 | 350 | 420 | 350 | 420 | | 140 | | | | |
| 10M | | 10C29 | | 11 | | 140 | 570 | 720 | 570 | 720 | | 140 | | | | |
| 10M | | 10C30 | | 11 | | 140 | 210 | 720 | 210 | 720 | | 140 | | | | |
| 10M | | 10C31 | | 11 | | 140 | 390 | 570 | 390 | 570 | | 140 | | | | |
| 10M | | 10C32 | | 11 | | 140 | 420 | 570 | 420 | 570 | | 140 | | | | |
| 10M | | 10C33 | | 11 | | 140 | 183 | 570 | 183 | 570 | | 140 | | | | |
| 10M | | 10C34 | | 11 | | 140 | 353 | 420 | 203 | 420 | | 140 | | | | |
| 10M | | 10C35 | | 13 | | | 305 | 1675 | | | | | | | | |
| 10M | | 10C36 | | 13 | | | 300 | 550 | 300 | | | | | | | |
| 10M | | 10C37 | | 13 | | | 620 | 775 | | | | | | | | |
| 10M | | 10C38 | | 13 | | | 420 | 440 | 420 | | | | | | | |
| 10M | | 10C39 | | 13 | | | 305 | 1980 | | | | | | | | |
| 10M | | 10C40 | | 13 | | | 775 | 775 | | | | | | | | |
| 10M | | 10C41 | | 13 | | | 300 | 775 | | | | | | | | |
| 10M | | 10C42 | | 13 | | | 300 | 375 | | | | | | | | |

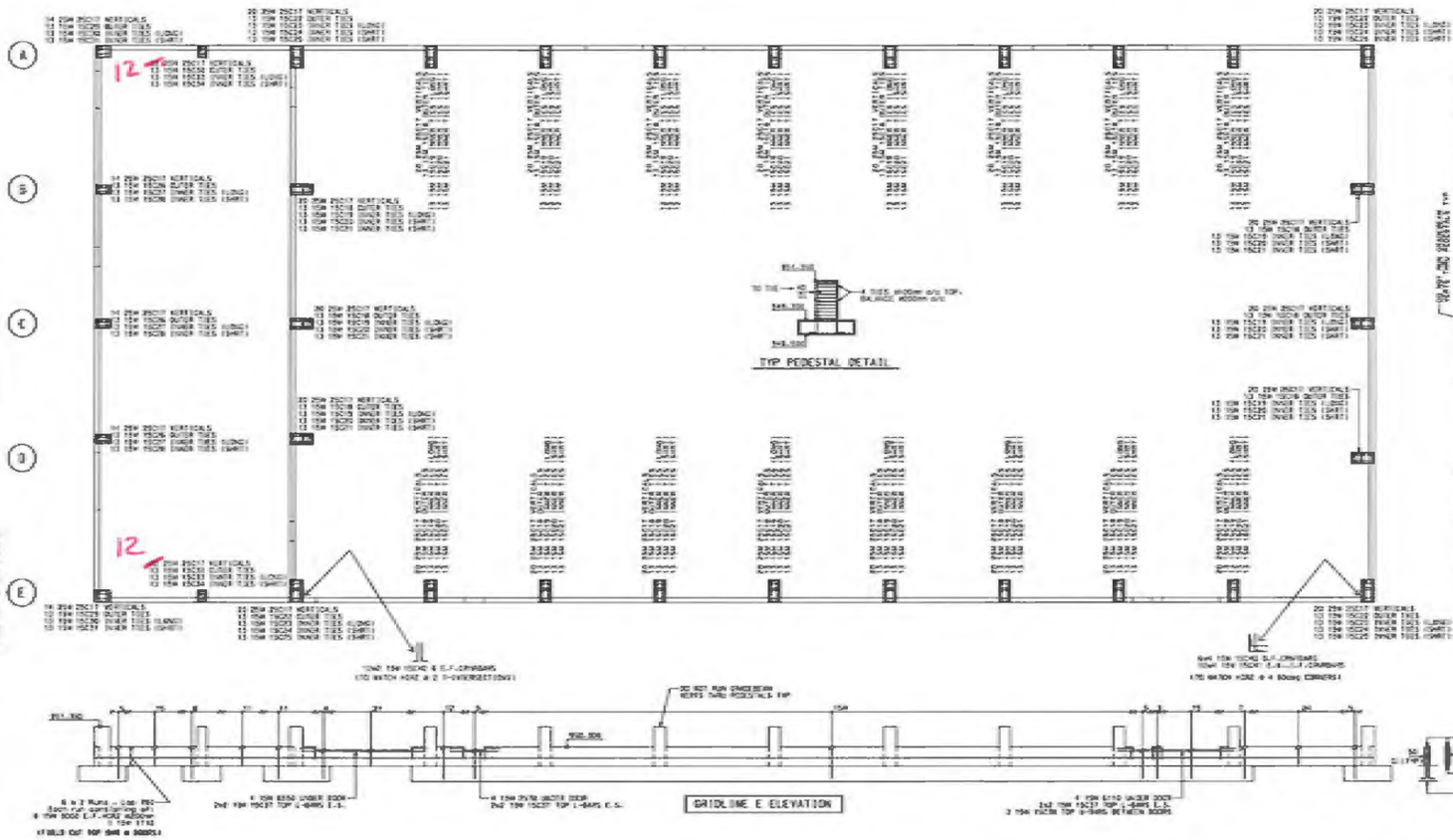


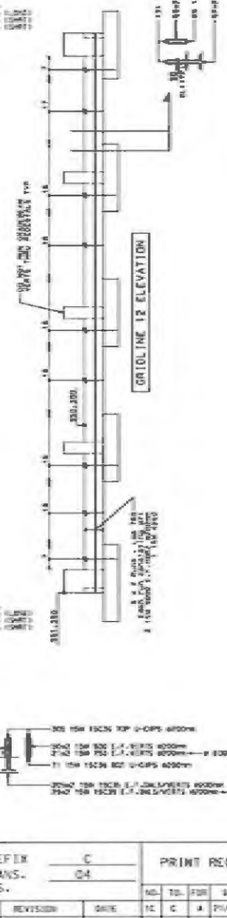













## GENERAL NOTES ON REINFORCEMENT

THE FOLLOWING NOTES SHALL APPLY TO ALL REINFORCEMENT SHOWN ON THE DRAWINGS UNLESS OTHERWISE NOTED.

**DIMENSIONS:**
DIMENSIONS TO REINFORCEMENT ARE TO CENTRE LINES OF BARS, EXCEPT WHERE CONCRETE COVER OR CLEARANCE BETWEEN BARS IS SHOWN.

**COVER:**
SEE STRUCTURAL ENGINEER TYPICAL NOTES FOR ALL COVER SPECIFICATIONS

**SPACING:**
UNLESS OTHERWISE SHOWN, THE FIRST AND LAST BARS IN SLABS AND WALLS, STIRRUPS IN BEAMS SHALL BE PLACED AT A MAXIMUM OF HALF THE SPECIFIED SPACING OF ADJACENT BARS FROM THE END OF THE MEMBER.

**STEEL SPECIFICATIONS:**
STEEL REINFORCEMENT SHALL BE DEFORMED BARS OF GRADE 400R CONFORMING TO CSA STANDARD G30.18 BILLET-STEEL BARS FOR CONCRETE REINFORCEMENT.

**WELDING:**
WELDING OF REINFORCEMENT SHALL NOT BE PERMITTED.

**SPLICES AND EMBEDMENTS:**
UNLESS OTHERWISE SPECIFIED, ALL EMBEDMENTS SHALL BE TREATED AS TENSION EMBEDMENTS AND ALL LAP SPLICES SHALL BE CONSIDERED AS TENSION LAP SPLICES.

WHEN REINFORCING BARS OF DIFFERENT SIZE ARE TO BE SPLICED, THE LENGTH OF THE LAP SHALL BE BASED ON THE DIAMETER OF THE SMALLER BAR.

SPLICES ARE TO BE MADE SO THAT THE GIVEN CLEAR DISTANCE COVER WILL BE MAINTAINED.

LAP LENGTHS UNLESS SHOWN OTHERWISE:

| | HORIZ | OTHER |
|---|---|---|
| 10M | 530 | 400 |
| 15M | 775 | 585 |
| 20M | 1000 | 755 |
| 25M | 1415 | 1240 |
| 30M | 1940 | 1485 |
| 35M | | |

**PLACEMENT:**
PLACE REINFORCING BARS IN ACCORDANCE WITH CSA A23.1-04.

REINFORCEMENT MAY BE DISPLACED TO CLEAR PIPES, RECESSES, EMBEDDED METAL NORMS AND CONDUITS.

A MINIMUM CLEARANCE OF 1" SHALL BE MAINTAINED BETWEEN REINFORCEMENT AND EMBEDDED MATERIALS. THE MINIMUM CLEARANCE BETWEEN REINFORCEMENT

REINFORCEMENT SHALL BE ACCURATELY PLACED IN ACCORDANCE WITH THE DRAWING AND SHALL BE ADEQUATELY SECURED AGAINST DISPLACEMENT BY USING APPROVED TIES FROM BARS AT INTERSECTIONS AND SHALL BE SUPPORTED BY APPROVED CONCRETE OR METAL SUPPORTS. SPACERS OF METAL HANGERS SUPPS AT SURFACES EXPOSED TO THE GROUND OR TO THE WEATHER WHERE SUPPORTS SHALL BE APPROVED. ALL METAL ACCESSORIES ARE TO BE GALVANIZED.

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| | |
|---|---|
| B | - SPACING CENTER TO CENTER |
| | - DIRECTION IN WHICH BARS EXTEND |
| | - LIMITS OF AREA COVERED BY BARS |
| | - REBAR TOP/REAR FACE |
| | - REBAR BOTTOM FACE |
| I.F. | - INSIDE FACE |
| O.F. | - OUTSIDE FACE |
| N.F. | - NEAR FACE |
| F.F. | - FAR FACE |
| E.W. | - EACH WAY |
| VERT | - VERTICAL |
| HORZ | - HORIZONTAL |
| DWLS | - DOWELS |
| FTG | - FOOTING |
| COL | - COLUMN |
| B.U.L. | - BOTTOM UPPER LAYER |
| B.M.L. | - BOTTOM MIDDLE LAYER |
| B.L.L. | - BOTTOM LOWER LAYER |
| M.U.L. | - MID UPPER LAYER |
| M.M.L. | - MID MIDDLE LAYER |
| M.L.L. | - MID LOWER LAYER |
| T.U.L. | - TOP UPPER LAYER |
| T.M.L. | - TOP MIDDLE LAYER |
| T.L.L. | - TOP LOWER LAYER |
| E.W. | - EACH WAY |
| BWL | - BOWL |
| BOT | - BOTTOM |
| TOP | - TOP |
| T&B | - TOP & BOTTOM |
| L-R | - LEFT TO RIGHT |
| B-T | - BOTTOM TO TOP |
| C.B. | - CORNER BAR |
| T.B.R. | - TYPICAL OPPOSITE HAND |
| R.H. | - FROM RIGHT TO LEFT |
| F.B. | - FIELD BEND |
| C.I.F. | - CUT IN FIELD |
| T.O.W. | - TOP OF WALL |
| T.O.F. | - TOP OF FOOTING |
| B.O.W. | - BOTTOM OF WALL |
| T.O.C. | - TOP OF CONCRETE |
| B.O.C. | - BOTTOM OF CONCRETE |
| ELEV. | - ELEVATION |

PREFIX C
TRANS. NOS. 04

PRINT RECORD

| NO. | TO. | FOR | DATE |
|---|---|---|---|
| | | | |

| NO. | REVISION | DATE | BY |
|---|---|---|---|
| | | | |

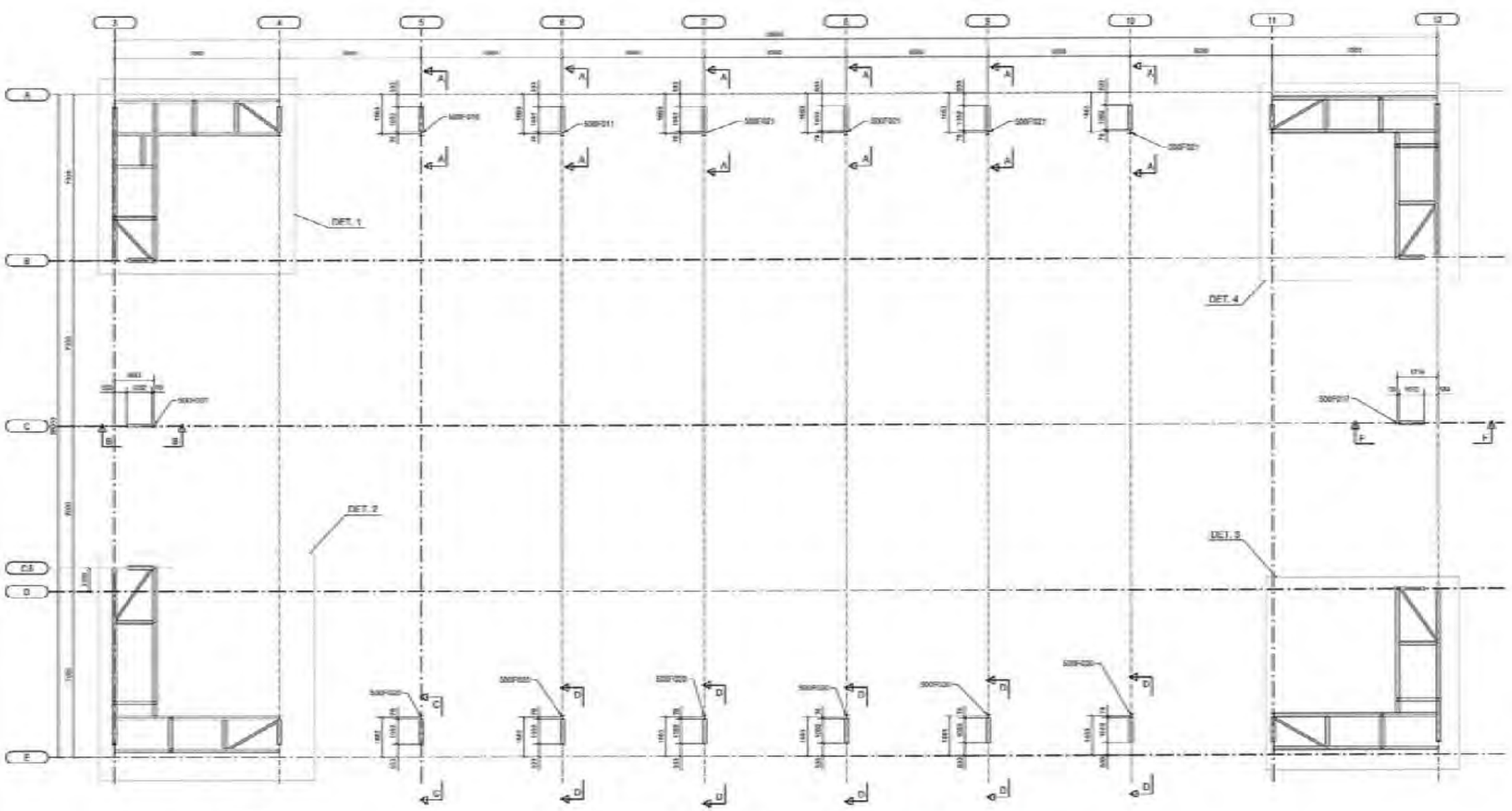
CRSI

MCNISH STEEL LTD.
10636 - 205 STREET
EDMONTON, ALBERTA
PHONE 447-3337 FAX 447-3379

# REINFORCING STEEL PLACING PLAN

PROJECT : STRATHCOLD (EAGLE GOLD PROJECT)
CONTR. : CLARK BUILDERS
ENGR. : MACH
DRAWN BY : MARK
DATE : 25/JUN/2018

JOB NO. 18-042 | DWG. NO. 003 B




PIPE AND CABLE TRAY SUPPORT GENERAL ARRANGEMENT PLAN

REF: H354136-5000-232-260-0009

SUPREME GROUP REVIEWED BY QUALITY CONTROL
BY: Amanda Shaw QM
DATE: March 20/19

PERMIT TO PRACTICE
SUPREME CONSTRUCTION MANAGEMENT LP
SIGNATURE
Date DECEMBER 27, 2018
PERMIT NUMBER PP599
Association of Professional Engineers of Yukon

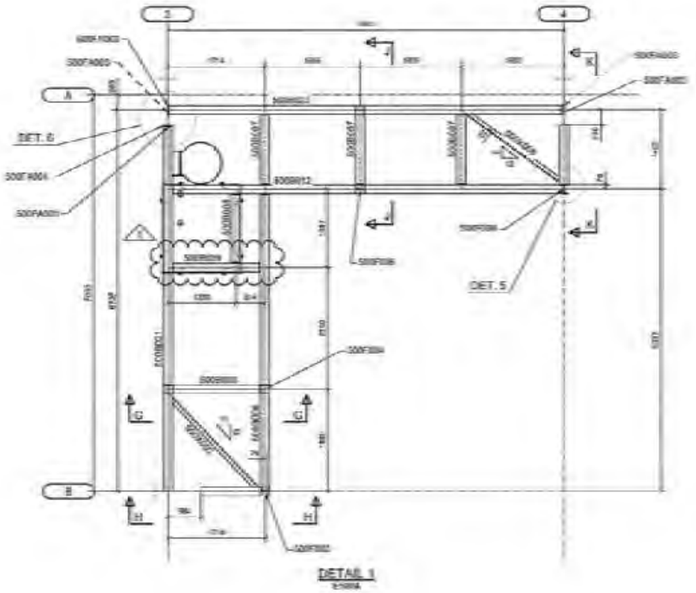
PROFESSIONAL ENGINEER
YUKON TERRITORY
AMIR JAMSHIDI

DOWCO CONSULTANTS LTD.
Tel: (604) 606-5500 Fax:(604) 606-5517

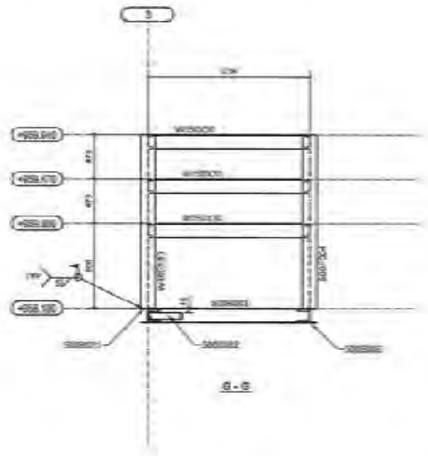
SUPREME IS SOLELY RESPONSIBLE FOR CONNECTION DESIGN THAT WAS NOT PROVIDED BY THE ENGINEER OF RECORD. CONNECTIONS DESIGNED BY THE ENGINEER OF RECORD, SECTION AND MEMBER SIZES ARE NOT THE RESPONSIBILITY OF SUPREME. ENGINEER OF RECORD IS RESPONSIBLE TO ENSURE THE STRUCTURE IS ERECTED AS PER STAMPED DRAWINGS. ERECTION IS NOT THE RESPONSIBILITY OF SUPREME.

WORK WITH SHEET WITH DWG NO. F5000, F5001, F5002 & F5003

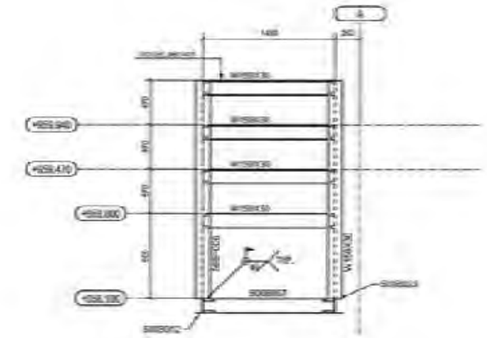
SUPREME STEEL



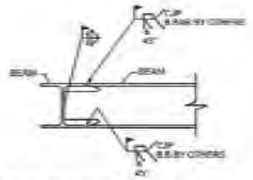

DETAIL 1



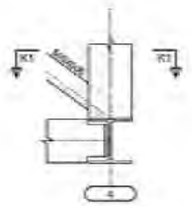
G - G



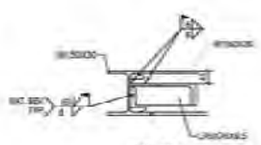
J - J



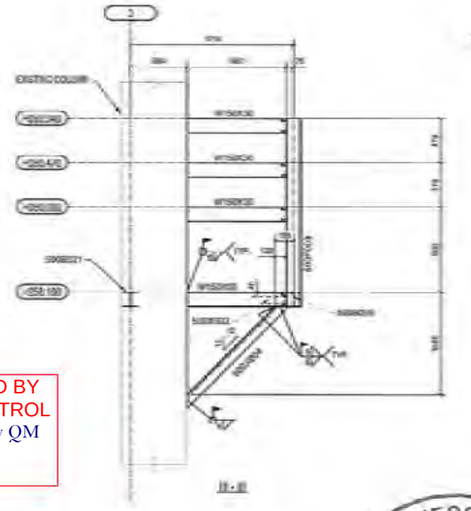
TYPICAL BEAM CONNECTION DETAIL



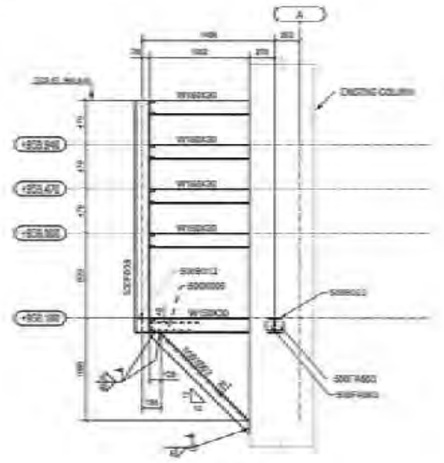
DETAIL 5



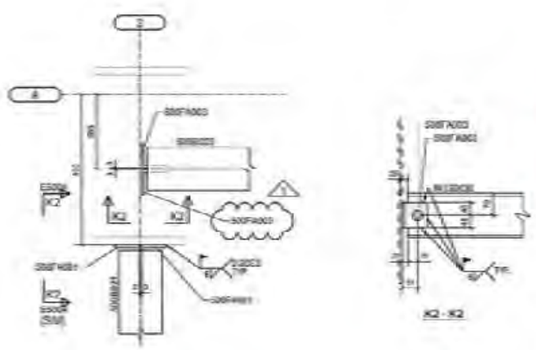
K1 - K1



H - H



K - K



DETAIL 6

SUPREME GROUP REVIEWED BY QUALITY CONTROL
BY: Amanda Shaw QM
DATE: March 20/19

PERMIT TO PRACTICE
SUPREME CONSTRUCTION MANAGEMENT LP
SIGNATURE
Date DECEMBER 27, 2018
PERMIT NUMBER PP599
Association of Professional Engineers of Yukon

PROFESSIONAL ENGINEER
YUKON TERRITORY
AMIR JAMSHIDI

WORK WITH SHEET WITH DWG NO. E500A, E500C, E500D & E500E

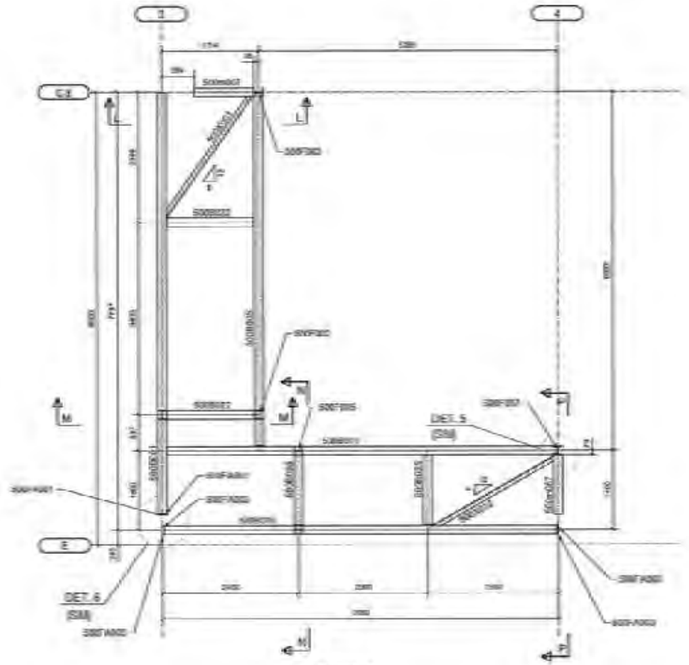
SUPREME IS SOLEY RESPONSIBLE FOR CONNECTION DESIGN THAT WAS NOT PROVIDED BY THE ENGINEER OF RECORD. CONNECTIONS DESIGNED BY THE ENGINEER OF RECORD, SECTION AND MEMBER SIZES ARE NOT THE RESPONSIBILITY OF SUPREME. ENGINEER OF RECORD IS RESPONSIBLE TO ENSURE THE STRUCTURE IS ERECTED AS PER STAMPED DRAWINGS. ERECTION IS NOT THE RESPONSIBILITY OF SUPREME.

| No. | DD/MM/YYYY | REVISION | CODE | BY |
|---|---|---|---|---|
| 1 | 16.12.2018 | Also Revised | | SRC |
| 2 | 16.11.2018 | For Fabrication | | |
| A | 17.11.2018 | For Approval | | |

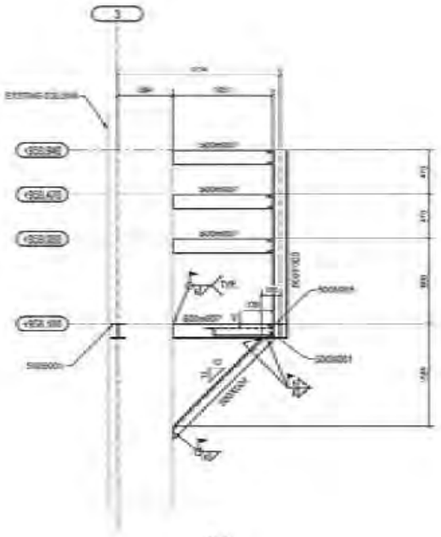
SUPREME STEEL

Client: JDS ENERGY & MINING INC.
Proj: AUR PROCESS PLANT
Proj: EAGLE GOLD PROJECT, YT
Ref: H354138-5000-232-260-00010
Desc: INTERIOR STEEL SECTIONS AND DETAILS (1)

Drawn: CES | Checked: AMG
Job: 10234 | Div: 0500
Drawing: E500B




DETAIL 2

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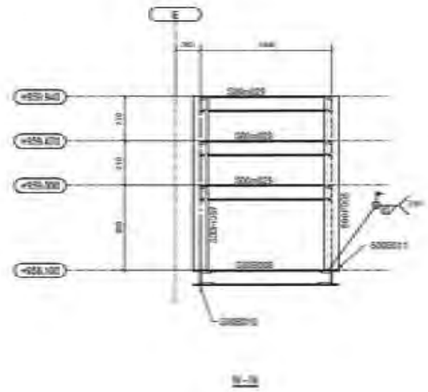
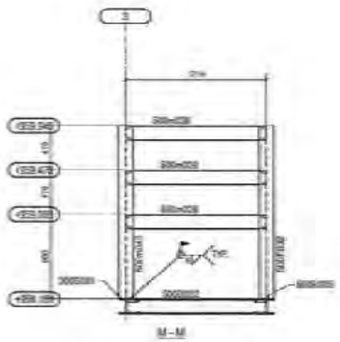



E - E




M - M




P - P

SUPREME GROUP REVIEWED BY QUALITY CONTROL
BY: Amanda Shaw QM
DATE: March 20/19

PERMIT TO PRACTICE
SUPREME CONSTRUCTION MANAGEMENT LP
SIGNATURE
Date DECEMBER 29 2018
PERMIT NUMBER PP599
Association of Professional Engineers of Yukon

PROFESSIONAL ENGINEER
YUKON TERRITORY
AMIR JAMSHIDI

DOWCO CORSE IANTS LTD.
Tel (604) 606-0300 Fax (604) 585-5267
Drawing Prepared on Tekla Structures
Scale # 3/16" Dig Plot #
Printed by: amg - 11/16/2018 @ 10:07:55

SUPREME IS SOLEY RESPONSIBLE FOR CONNECTION DESIGN THAT WAS NOT PROVIDED BY THE ENGINEER OF RECORD. CONNECTIONS DESIGNED BY THE ENGINEER OF RECORD, SECTION AND MEMBER SIZES ARE NOT THE RESPONSIBILITY OF SUPREME. ENGINEERS OF RECORD IS RESPONSIBLE TO ENSURE THE STRUCTURE IS ERECTED AS PER STAMPED DRAWINGS. ERECTION IS NOT THE RESPONSIBILITY OF SUPREME.

WORK WITH SHEET WITH DWG NO. E100A, E100B, E100D & E100E

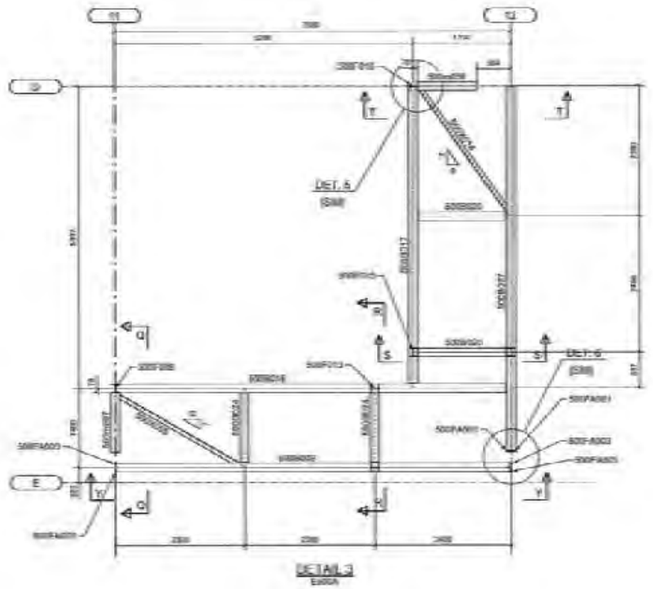
| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 2 | 11/16/2018 | For Construction | | | | | |
| 1 | 11/15/2018 | For Approval | | | | | |
| NO. | DATE | ISSUANCE | | | | | |

Ref Dwg: 18354-108-S000-250-2800-E001.1

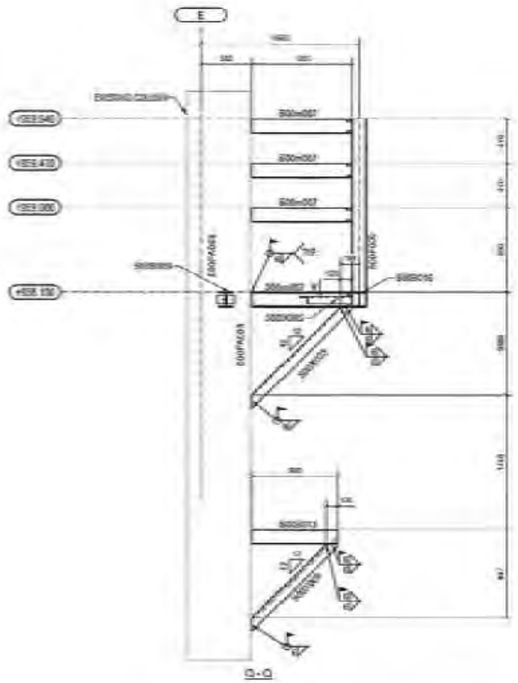
SUPREME STEEL

Customer: Commonwealth Construction
Structure: ADP Finance Plant
Location:
Dwg Title: ADMINISTRATION AND FINANCE BUILDING ARCHITECTURE

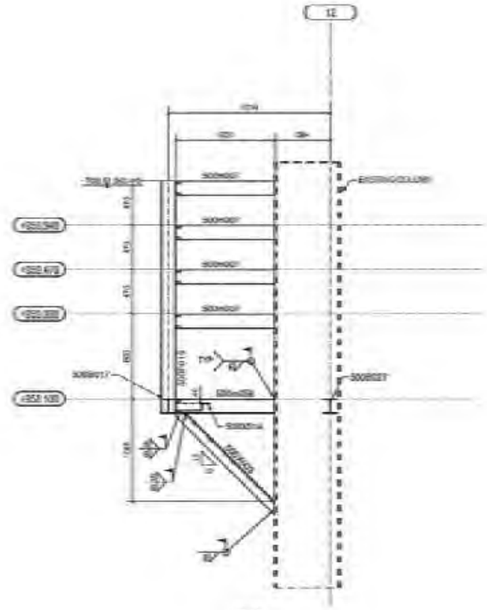
| Drawn by: | Job | Check by: | Appr. | Connection | Bag Number | Division |
|---|---|---|---|---|---|---|
| Date: 11/16/2018 | | Date: 11/16/2018 | | 18354 | E100C | ADP Project |



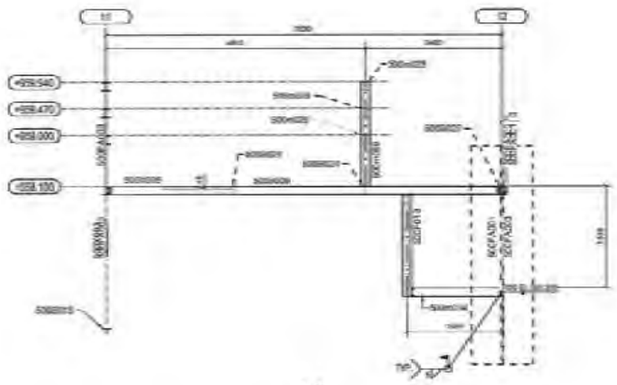

DETAIL 3
S500A



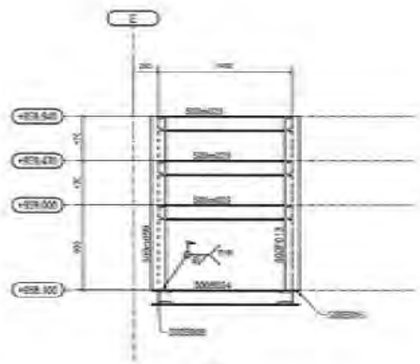
Q-Q



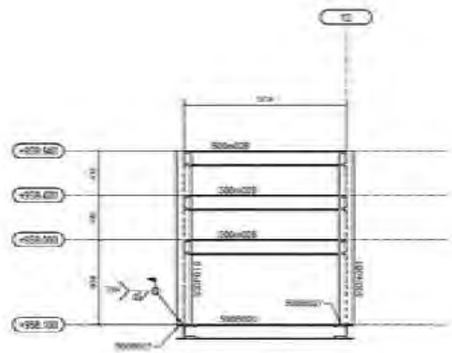
T-T



V-V



R-R



S-S

PERMIT TO PRACTICE
SUPREME CONSTRUCTION MANAGEMENT LP
SIGNATURE
Date DECEMBER 27, 2018
PERMIT NUMBER PP599
Association of Professional Engineers of Yukon

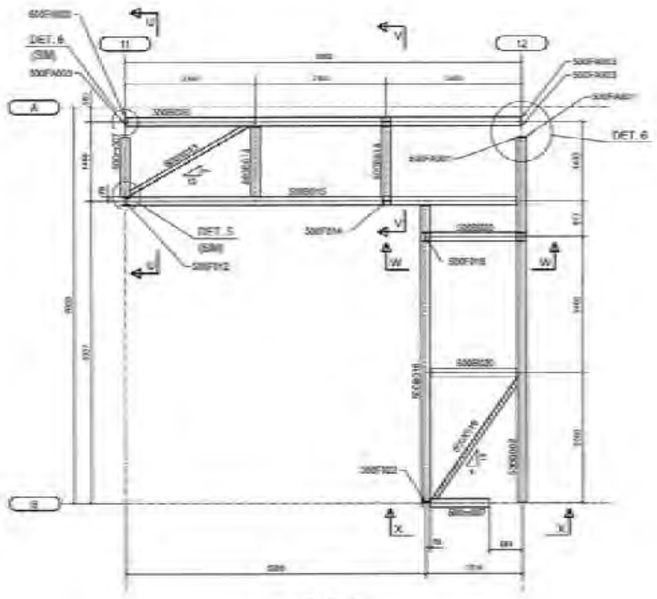
PROFESSIONAL ENGINEER
YUKON
AMIR JAMSHIDI
TERRITORY

SUPREME GROUP
REVIEWED BY QUALITY CONTROL
BY: Amanda Shaw QM
DATE: March 20/19

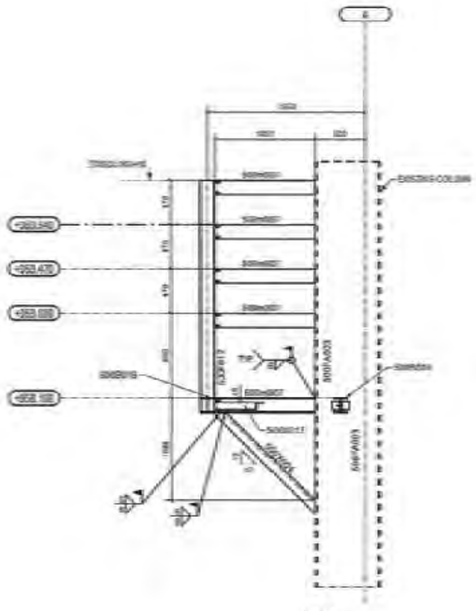
DOWCO
DOWCO CONSULTANTS LTD.
Drawing Prepared as Table Structure

SUPREME IS SOLEY RESPONSIBLE FOR CONNECTION DESIGN THAT WAS NOT PROVIDED BY THE ENGINEER OF RECORD. CONNECTIONS DESIGNED BY THE ENGINEER OF RECORD, SECTION AND MEMBER SIZES ARE NOT THE RESPONSIBILITY OF SUPREME. ENGINEER OF RECORD IS RESPONSIBLE TO ENSURE THE STRUCTURE IS ERECTED AS PER STAMPED DRAWINGS. ERECTION IS NOT THE RESPONSIBILITY OF SUPREME.

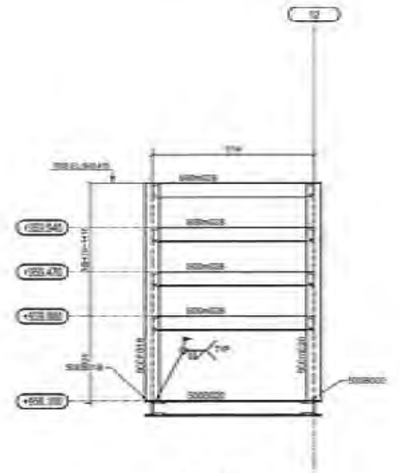
SUPREME STEEL



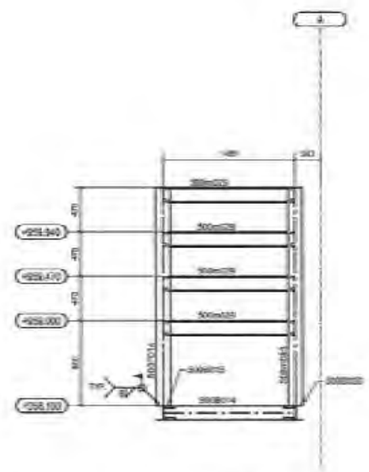

DETAIL 4



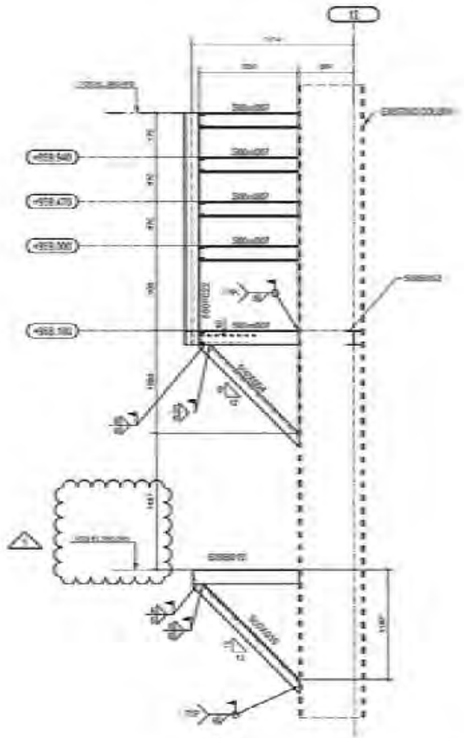
U-U



W-W



V-V



X-X

PERMIT TO PRACTICE
SUPREME CONSTRUCTION MANAGEMENT LP
SIGNATURE
Date DECEMBER 27, 2018
PERMIT NUMBER PP599
Association of Professional Engineers of Yukon

PROFESSIONAL
YUKON
AMIR JAMSHIDI
TERRITORY
ENGINEER

SUPREME GROUP REVIEWED BY QUALITY CONTROL
BY: Amanda Shaw QM
DATE: March 20/19

SUPREME IS SOLELY RESPONSIBLE FOR CONNECTION DESIGN THAT WAS NOT PROVIDED BY THE ENGINEER OF RECORD. CONNECTIONS DESIGNED BY THE ENGINEER OF RECORD, SECTION AND MEMBER SIZES ARE NOT THE RESPONSIBILITY OF SUPREME. ENGINEER OF RECORD IS RESPONSIBLE TO ENSURE THE STRUCTURE IS ERECTED AS PER STAMPED DRAWINGS. ERECTION IS NOT THE RESPONSIBILITY OF SUPREME.

WORK WITH SHEET WITH DWG NO. E500A, E500B, E500C & E500D

| No | DD.MM.YYYY | REVISION | CODE | BY |
|---|---|---|---|---|
| 1 | 21.11.2018 | Elevation Updated to Dwg 0014_R1 | | SHC |
| 0 | 18.11.2018 | For Fabrication | | |
| A | 12.11.2018 | For Approval | | |

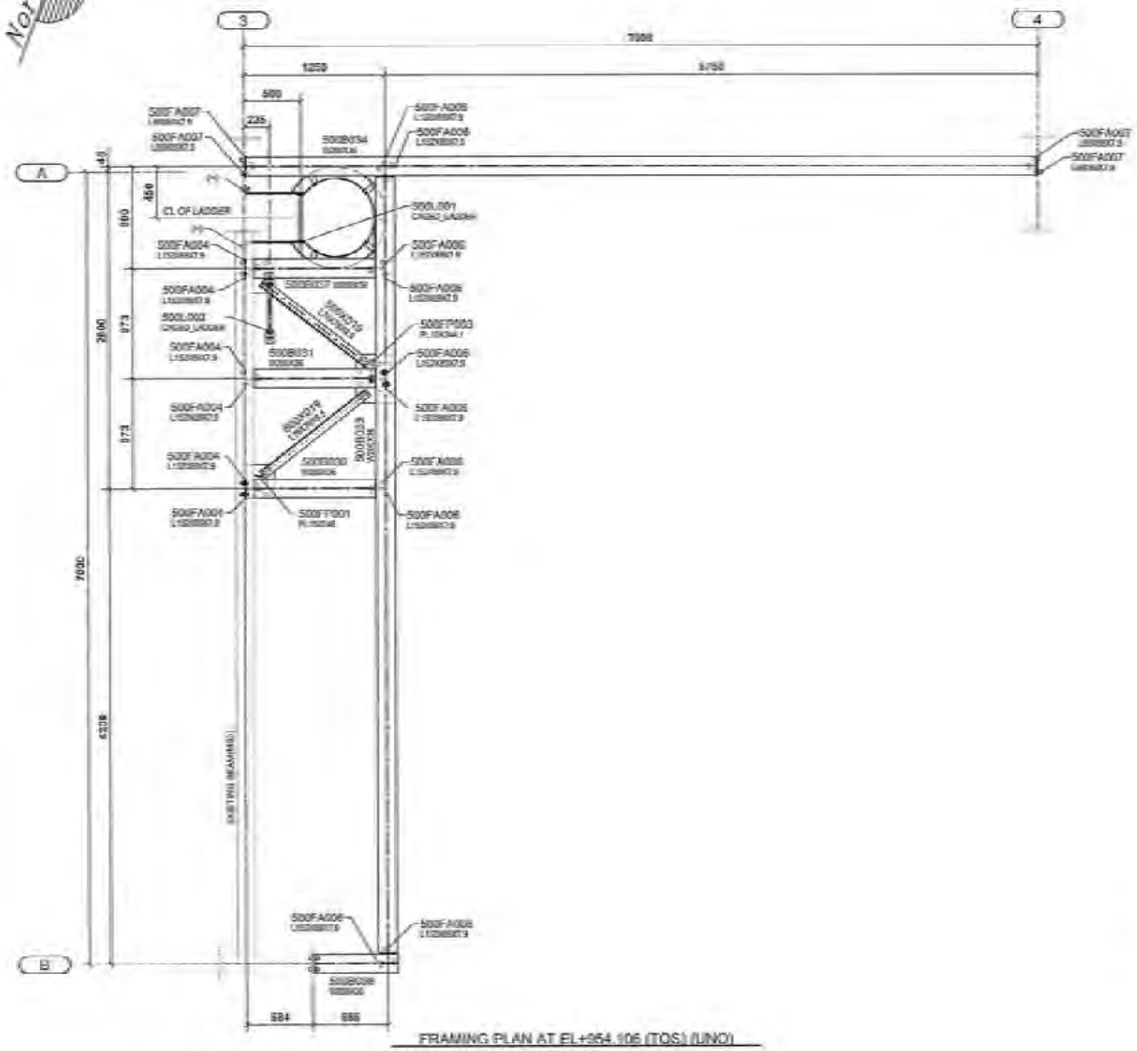
SUPREME STEEL

Client: JDS ENERGY & MINING INC.
Proj: ADR PROCESS PLANT
Area: EAGLE GOLD PROJECT, YT
Ref: H354138-5000-232-260-00013
Desc: INTERIOR STEEL SECTIONS AND DETAILS

Drawn: CES 09Nov2018
Checked: ANG 12Nov2018
Job: 10234
Div: 0500
Drawing: E500E

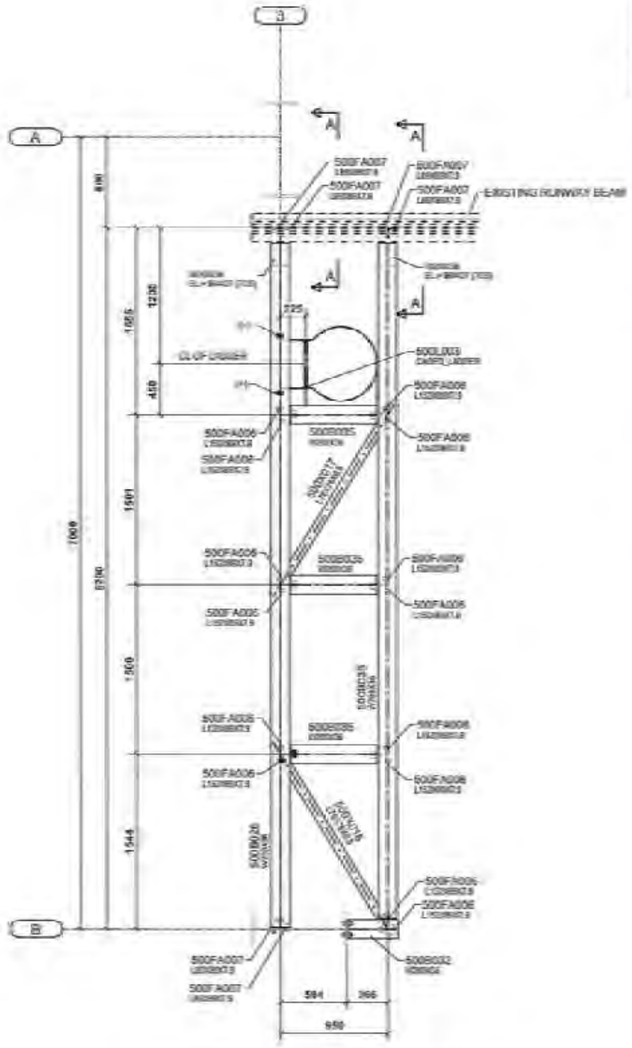
North

| BEAM SIZE | CLIP ANGLE MARKS U/N | N=ROWS OF BOLTS U/N |
|---|---|---|
| W200x36 | 500FA004, 500FA006, 500FA007 | 2 |
| | | |



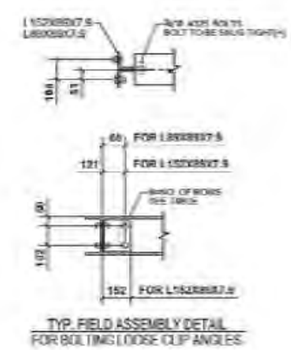

FRAMING PLAN AT EL+954.106 (TOS) (UNO)

T.O. FINISH FLOOR EL.+954.114 (UNO)
ALL HORIZONTAL BRACINGS L76x76x6.5 AT U/S OF W200x36(U.N.O)




FRAMING PLAN AT EL+964.628 (TOS) (UNO)

T.O. FINISH FLOOR EL.+964.680 (UNO)
ALL HORIZONTAL BRACINGS L76x76x6.5 AT U/S OF W200x36(U.N.O)




TYP. FIELD ASSEMBLY DETAIL
FOR BOLTING LOOSE CLIP ANGLES

PERMIT TO PRACTICE
SUPREME CONSTRUCTION MANAGEMENT LP
SIGNATURE
Date DECEMBER, 27, 2018
PERMIT NUMBER PP599
Association of Professional Engineers of Yukon

PROFESSIONAL ENGINEER
YUKON TERRITORY
AMIR JAMSHIDI

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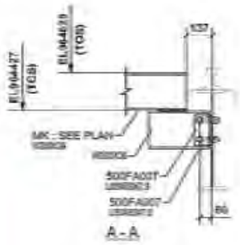
SUPREME GROUP
REVIEWED BY QUALITY CONTROL
BY: Amanda Shaw QM
DATE: March 20/19




A - A

WORK WITH SHOP DWG NO. E-500A, E-500B, E-500C & E-500D

BOLTING REQUIREMENTS:
ALL BOLTS TO BE ¾" DIA. A325 U/N
ALL BOLTS IN THE OUTSTANDING LEGS, ENDPLATES AND THE HORIZONTAL BRACE TO BE PRE-TENSIONED USING TURN OFF THE NUT METHOD.

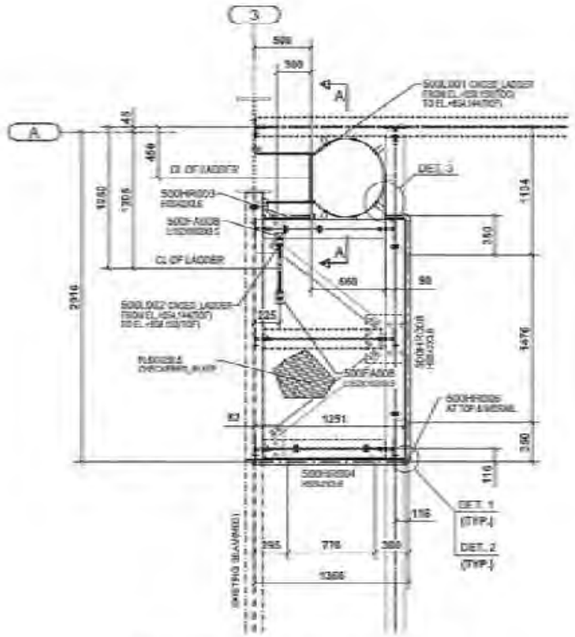
*= INDICATES JOINTS WITH 1" DIA. BOLTS
+= INDICATES JOINTS WHERE BOLTS CAN BE SNUG TIGHT.

| | | | | |
|---|---|---|---|---|
| 4 | 28.12.2018 | For Fabrication | | AKG |
| A | 06.12.2018 | For Approval | | AKG |
| No. | dd.mm.yyyy | REVISION | CODE | BY |

SUPREME STEEL

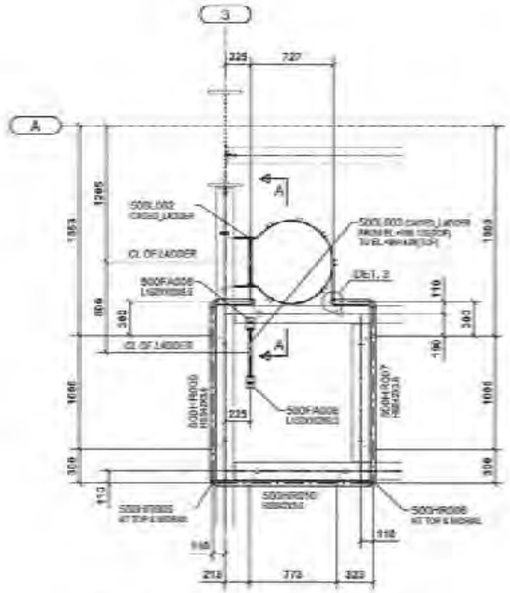
Client: JDS ENERGY & MINING INC.
Proj: ADR PROCESS PLANT
Area: EAGLE GOLD PROJECT, YT
Ref:
Item: CRANE ACCESS PLATFORM PLAN & ELEVATION

| Drawn: RBA | Checked: AKG |
|---|---|
| 19/Oct/2018 | 19/Oct/2018 |
| Job: 10234 | Dr: 0500 |
| Drawing: E500F | |



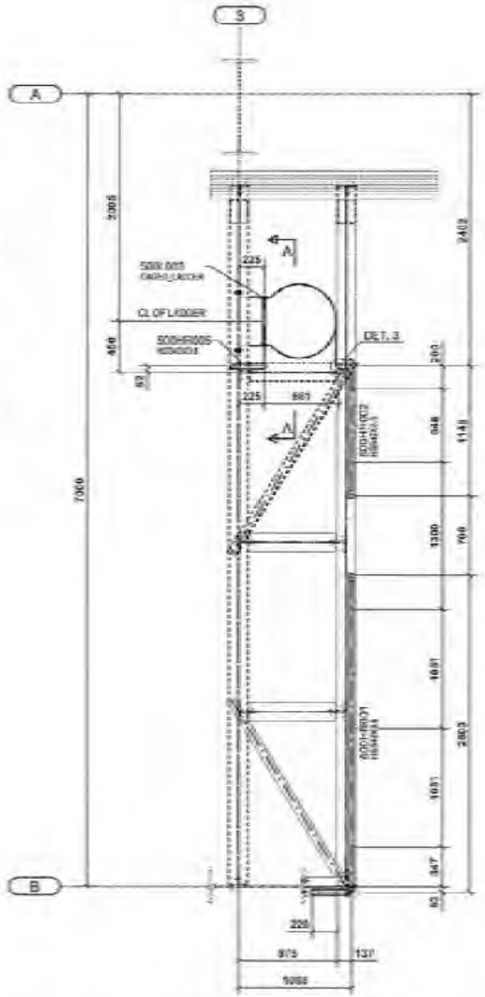

FRAMING PLAN AT EL+954.106 (TOS) (UNO)

T.O. FINISH FLOOR EL. +954.106 (UNO)



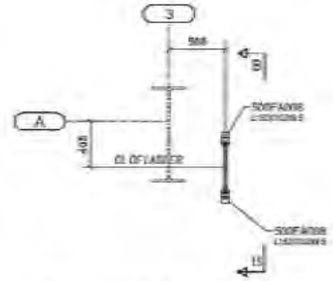

FRAMING PLAN AT EL+958.100(TOS) (UNO)

T.O. FINISH FLOOR EL.+958.132 (UNO)

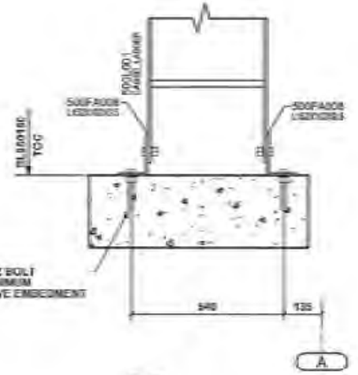



FRAMING PLAN AT EL+964.628 (TOS) (UNO)

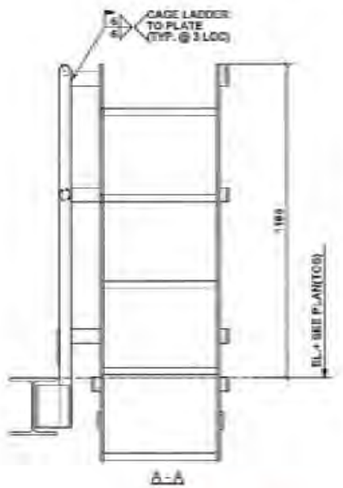
T.O. FINISH FLOOR EL.+964.660 (UNO)

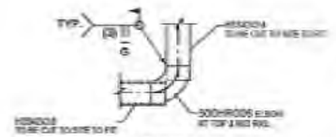



FRAMING PLAN AT EL+950.150 (TOC)



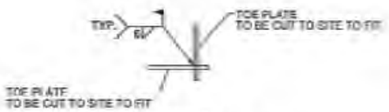

B-B




DETAIL 1

TOE PLATE TYPICAL DETAIL @ CORNER




DETAIL 2

TOE PLATE TYPICAL DETAIL @ CORNER




DETAIL 3

TOUCH UP PAINT AT ALL FIELD WELDED HANDRAIL JOINTS TO BE SAFETY YELLOW

SUPREME GROUP REVIEWED BY QUALITY CONTROL

BY: Amanda Shaw QM

DATE: March 20/19

PERMIT TO PRACTICE

SUPREME CONSTRUCTION MANAGEMENT LP

SIGNATURE

Date DECEMBER 27, 2018

PERMIT NUMBER PP599

Association of Professional Engineers of Yukon

PROFESSIONAL ENGINEER YUKON TERRITORY AMIR JAMSHIDI

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| | | | | |
|---|---|---|---|---|
| 0 | 20.12.2018 | For Fabrication | | ANG |
| A | 18.12.2018 | For Approval | | ANG |
| NO | DD.MM.YYYY | REVISION | CODE | BY |

SUPREME STEEL

Cust: JDS ENERGY & MINING INC.

Proj: ADH- CRANE ACCESS PLATFORM

Area: EAGLE GOLD PROJECT, YT

Ref: H254138-3210-232-260-0012

Desc: ADR- HANDRAIL & LADDER PLAN

Drawn: KSA 18/Dec/2018 | Checked: ANG 18/Dec/2018

Job: 10234 | Dwg: 500

Drawing: E500G

A

# ATTACHMENT B

## Request for Information Forms

Clark Builders

Printed on Sun Nov 11, 2018 at 06:17 pm MST

Job #: 18502 CB201-JDS - Stratagold Eagle Gold

Yukon Territory

## RFI LOG

| # | Subject | Status | Responsible Contractor | Received From | Assignee | Date Initiated | RFI Manager | Due Date | Closed Date | Ball in Court | Location | Schedule Impact | Cost Code | Cost Impact |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 74 | 5710 Equipment Pad Poured 45mm too high | Closed | Clark Builders - ... | Vanlaar, Erik (Clark Builders - Edmonton) | Goldschmidt, Calv... | 09/28/2018 | Ryan de Milliano | 10/03/2018 | 10/02/18 | | 5710 ADR Plant | No | 03-3140 - FORM-EQUIPMENT PADS | No |
| 73 | 5710 Carbon Line Pads- Mono Pour | Closed | Clark Builders | None | Goldschmidt, Calv... | 09/24/2018 | Jackson Wenger | 09/25/2018 | 09/28/18 | | 5710 ADR Plant | No | 03 - CONCRETE | No |
| 69 | 5710 ADR Bollard Installation | Closed | Clark Builders - ... | Nice, Peter (Clark Builders - Edmonton) | Goldschmidt, Calv... | 09/19/2018 | Jackson Wenger | 09/24/2018 | 09/28/18 | | 5710 ADR Plant | No | 02-2305 - BASES-BOLLARDS/POSTS | TBD |
| 61 | 5710 ADR 2 Pedestals Dowel Cover Modification | Closed | Clark Builders - ... | Nice, Peter (Clark Builders - Edmonton) | de Milliano, Ryan... Goldschmidt, Calv... | 09/07/2018 | Ryan de Milliano | 09/12/2018 | 10/30/18 | | 5710 ADR Plant | No | 03-3201 - REINFORCE STEEL/ MESH | No |
| 58 | ADR Slab Joint Details | Closed | Clark Builders - ... | Dahl, Garry (Clark Builders - Edmonton) | Coverdale, Matt (... | 09/03/2018 | Jackson Wenger | 09/08/2018 | 09/08/18 | | 5710 ADR Plant | Yes (Unknown) | | Yes (Unknown) |
| 55 | Cable Opening in ADR TRX Pad North Wall | Closed | Clark Builders | None | Coverdale, Matt (... | 09/01/2018 | Jackson Wenger | 09/05/2018 | 09/12/18 | | 5710 ADR Plant | | | |
| 53 | ADR SOG/Equipment Pedestals | Closed | Clark Builders - ... | Nice, Peter (Clark Builders - Edmonton) | Coverdale, Matt (... | 09/01/2018 | Jackson Wenger | 09/03/2018 | 09/09/18 | | 5710 ADR Plant | No | 03-3155 - FORM-TYPICAL SLABS | No |
| 52 | ADR SOG Reinforcing @ NW Corner | Closed | Clark Builders - ... | Nice, Peter (Clark Builders - Edmonton) | Wenger, Jackson (... | 09/01/2018 | Jackson Wenger | 09/06/2018 | 09/01/18 | | 5710 ADR Plant | | | |
| 48 | Barren Solution Tank Concrete Embed Collar at Pipe | Closed | Clark Builders - ... | Nice, Peter (Clark Builders - Edmonton) | Goldschmidt, Calv... | 08/24/2018 | Jackson Wenger | 08/29/2018 | 09/02/18 | | 5710 ADR Plant | | | |
| 46 | 5710 ADR Tank Footings (x2) 150mm Cover on Top Mats | Closed | Clark Builders - ... | Nice, Peter (Clark Builders - Edmonton) | Goldschmidt, Calv... | 08/23/2018 | Ryan de Milliano | 08/28/2018 | 09/02/18 | | 5710 ADR Plant | No | 03-3201 - REINFORCE STEEL/ MESH | No |
| 39 | 5710 ADR Cyanide Area Sump Reinforcing conflict with Tank Footing | Closed | Ultimate Reinforcing | Menchenton, Jimmy (Ultimate Reinforcing) | Goldschmidt, Calv... | 08/19/2018 | Ryan de Milliano | 08/24/2018 | 10/31/18 | | 5710 ADR Plant | No | | No |
| 38 | 5710 ADR Tank Footing Anchor Bolt Projection Cast Short | Closed | Clark Builders - ... | Dahl, Garry (Clark Builders - Edmonton) | Goldschmidt, Calv... | 08/18/2018 | Ryan de Milliano | 08/23/2018 | 09/08/18 | | 5710 ADR Plant | TBD | 05-5650 - ANCHOR BOLTS | No |
| 35 | 5710 Extend ADR F7 Footing to meet existing Strip footing | Closed | Clark Builders - ... | Dahl, Garry (Clark Builders - Edmonton) | Goldschmidt, Calv... | 08/17/2018 | Ryan de Milliano | 08/22/2018 | 08/19/18 | | 5710 ADR Plant | No | | TBD |
| 34 | Missing Pedestal Details for ADR Interior Foundation | Closed | Clark Builders - ... | Dahl, Garry (Clark Builders - Edmonton) | Goldschmidt, Calv... | 08/13/2018 | Ryan de Milliano | 08/18/2018 | 08/18/18 | | 5710 ADR Plant | No | | No |

| # | Subject | Status | Responsible Contractor | Received From | Assignee | Date Initiated | RFI Manager | Due Date | Closed Date | Ball in Court | Location | Schedule Impact | Cost Code | Cost Impact |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 30 | 5710 Sump Base Pour Break | Closed | Clark Builders | None | Goldschmidt, Calv... | 08/06/2018 | Jackson Wenger | 08/09/2018 | 08/18/18 | | 5710 ADR Plant | | | |
| 26 | ADR Octagonal Tank Footing Anchor Bolts | Closed | Clark Builders | None | Goldschmidt, Calv... | 08/03/2018 | Jackson Wenger | 08/09/2018 | 08/04/18 | | 5710 ADR Plant | | | |
| 23 | ADR Barren Solution Sump Tank – 28” Pipe Supply | Closed | Norfab MFG (1993)... | VanHalst, Ryan (Norfab MFG (1993) Inc.) | Goldschmidt, Calv... | 08/02/2018 | Ryan de Milliano | 08/03/2018 | 08/03/18 | | 5710 ADR Plant | TBD | 03-3190 - FORM-SET EMBEDS | No |
| 20 | ADR Barren Solution Sump Tank – 28” Pipe Clarification | Closed | Clark Builders - ... | de Milliano, Ryan (Clark Builders - Edmonton) | Goldschmidt, Calv... | 08/01/2018 | Ryan de Milliano | 08/06/2018 | 08/05/18 | | 5710 ADR Plant | TBD | | TBD |
| (None) | 5710 Electrical Grounding Conduit at Transformer Pad | Draft | Tarpon Energy | None | Unassigned | | Ryan de Milliano | | | de Milliano, Ryan... | 5710 ADR Plant | No | | No |

# RFI #20

Clark Builders
4703 - 52 Avenue
Edmonton, Alberta T6B 3R6
Phone: (780) 395-3300
Fax: (780) 395-3545

**Project:** 18502 - CB201-JDS - Stratagold Eagle Gold
Yukon Territory

# ADR Barren Solution Sump Tank – 28” Pipe Clarification

| | | | |
|---|---|---|---|
| **TO:** | Calvin Goldschmidt **(JDS Energy and Mining)** | **FROM::** | Ryan de Milliano **(Clark Builders - Edmonton)** Edmonton, Alberta |
| **DATE INITIATED:** | 01/08/2018 | **STATUS:** | Open |
| **LOCATION:** | 5710 ADR Plant | **DUE DATE:** | 06/08/2018 |
| **SUB JOB:** | | **COST CODE:** | |
| **COST IMPACT:** | TBD | **SCHEDULE IMPACT:** | TBD |
| **DRAWING NUMBER:** | | **SPEC SECTION:** | |
| **LINKED DRAWINGS:** | | **REFERENCE:** | H354138-5710-231-260-0008 Rev 01 |
| **RECEIVED FROM:** | Ryan de Milliano **(Clark Builders - Edmonton)** | | |

**COPIES TO:**
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## Question from Ryan de Milliano (Clark Builders - Edmonton) at 09:23 AM on 01/08/2018

Drawing number H354138-5710-231-260-0008 identifies a 900mm long 28” diameter pipe on the south wall of the Barren Solution Sump Tank. The prime contract, SOW Concrete Installations (Part 3.2), allowed for embedded pipe sleeves, but not for this type of process pipe fittings.

Please clarify whether or not this embedded process pipe with flange will be provided by others or if Clark Builders will be responsible for acquiring the pipe and flange assembly. If Clark Builders is required to provide, provide weld details for the slip on flanges.

Awaiting an Official Response

### All Replies:

Please provide and install the 28" diameter pipe on the south wall of the Barren Solution Sump Tank.
Follow the detail below for welding the flanges to the pipe

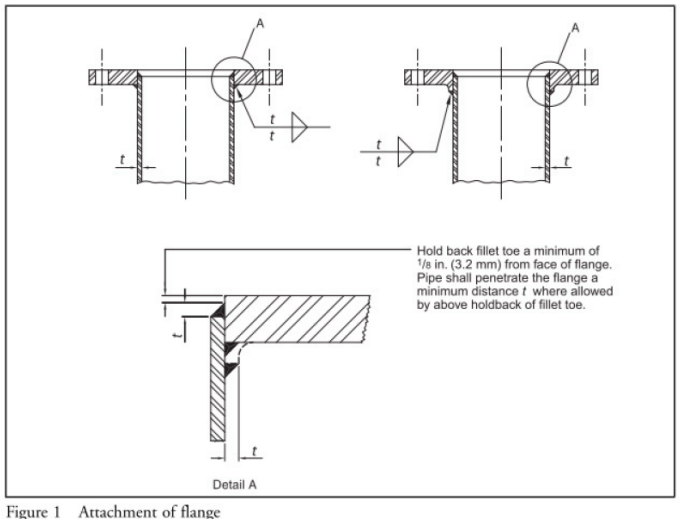

Figure 1 Attachment of flange

| Esra Akinci | Aug 02, 2018 | |
|---|---|---|
| **BY** | **DATE** | **COPIES TO** |

# RFI #23

Clark Builders
4703 - 52 Avenue
Edmonton, Alberta T6B 3R6
Phone: (780) 395-3300
Fax: (780) 395-3545

**Project:** 18502 - CB201-JDS - Stratagold Eagle Gold
Yukon Territory

# ADR Barren Solution Sump Tank – 28” Pipe Supply

| | | | |
|---|---|---|---|
| **TO:** | Calvin Goldschmidt **(JDS Energy and Mining)** | **FROM::** | Ryan de Milliano **(Clark Builders - Edmonton)** Edmonton, Alberta |
| **DATE INITIATED:** | 02/08/2018 | **STATUS:** | Open |
| **LOCATION:** | 5710 ADR Plant | **DUE DATE:** | 03/08/2018 |
| **SUB JOB:** | | **COST CODE:** | 03-3190 - FORM-SET EMBEDS |
| **COST IMPACT:** | No | **SCHEDULE IMPACT:** | TBD |
| **DRAWING NUMBER:** | H354138-5710-231-260-0008 Rev 1 | **SPEC SECTION:** | |
| **LINKED DRAWINGS:** | | **REFERENCE:** | |
| **RECEIVED FROM:** | Ryan VanHalst **(Norfab MFG (1993) Inc.)** | | |

**COPIES TO:**
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## Question from Ryan de Milliano (Clark Builders - Edmonton) at 02:14 PM on 02/08/2018

RFI Details:
Our steel fabricator has been able to acquire a small length of pipe that matches what is required for the contract document. Since this material has been salvaged, it is non-certified. Our fabricator has noted that, due to US tariffs, it will be very difficult to acquire this size of pipe from their regular suppliers and may require sourcing from overseas which could have an impact on schedule.

Request:
Clark Builders is requesting permission to proceed with the non-certified pipe acquired from out fabricator. We can complete a positive material identification test to determine chemical composition and grade of steel, if required. Since we are beginning to form walls next week for this tank, this is a high priority RFI.

Related Clark Builders RFI:
RFI #20 ADR Barren Solution Sump Tank – 28” Pipe Clarification

Awaiting an Official Response

**All Replies:**

Request is approved.

Please complete a material identification test.

| Esra Akinci | Aug 3, 2018 | |
|---|---|---|
| **BY** | **DATE** | **COPIES TO** |

# RFI #26

Clark Builders
4703 - 52 Avenue
Edmonton, Alberta T6B 3R6
Phone: (780) 395-3300
Fax: (780) 395-3545

**Project:** 18502 - CB201-JDS - Stratagold Eagle Gold
Yukon Territory

# ADR Octagonal Tank Footing Anchor Bolts

| | | | |
|---|---|---|---|
| **TO:** | Calvin Goldschmidt **(JDS Energy and Mining)** | **FROM::** | Jackson Wenger **(Clark Builders - Edmonton)** |
| **DATE INITIATED:** | 03/08/2018 | **STATUS:** | Open |
| **LOCATION:** | 5710 ADR Plant | **DUE DATE:** | 09/08/2018 |
| **SUB JOB:** | | **COST CODE:** | |
| **COST IMPACT:** | | **SCHEDULE IMPACT:** | |
| **DRAWING NUMBER:** | | **SPEC SECTION:** | |
| **LINKED DRAWINGS:** | | **REFERENCE:** | |
| **RECEIVED FROM:** | | | |

**COPIES TO:**
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## Question from Jackson Wenger (Clark Builders - Edmonton) at 08:49 PM on 03/08/2018

Please confirm that octagonal tank base footing shown in attached snapshot from drawing H354138-5710-231-260-0007 at grid lines C & D/ 4-5 do not require anchor bolts (or anchors for these pads are field-set hilti type anchors by equipment installer).

**Attachments:**
1533350257217.931885_tempImage.jpeg

Awaiting an Official Response

## All Replies:

Confirmed.

Marked up tanks do not require any embedded anchors, they will be anchored down by the mechanical installer using Hilti type anchors.

| BY | DATE | COPIES TO |
|---|---|---|
| Esra Akinci | Aug 4, 2018 | |

# RFI #30

Clark Builders
4703 - 52 Avenue
Edmonton, Alberta T6B 3R6
Phone: (780) 395-3300
Fax: (780) 395-3545

**Project:** 18502 - CB201-JDS - Stratagold Eagle Gold
Yukon Territory

## 5710 Sump Base Pour Break

| | | | |
|---|---|---|---|
| **TO:** | Calvin Goldschmidt **(JDS Energy and Mining)** | **FROM::** | Jackson Wenger **(Clark Builders - Edmonton)** |
| **DATE INITIATED:** | 06/08/2018 | **STATUS:** | Open |
| **LOCATION:** | 5710 ADR Plant | **DUE DATE:** | 09/08/2018 |
| **SUB JOB:** | | **COST CODE:** | |
| **COST IMPACT:** | | **SCHEDULE IMPACT:** | |
| **DRAWING NUMBER:** | | **SPEC SECTION:** | |
| **LINKED DRAWINGS:** | | **REFERENCE:** | |
| **RECEIVED FROM:** | | | |

**COPIES TO:**
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### Question from Jackson Wenger (Clark Builders - Edmonton) at 09:43 AM on 06/08/2018

Current joint layout for 5710 sump pits in footings will make forming and finishing sump pits difficult. Clark Builders is requesting an additional construction joint, with additional waterstop, so the sump pit base can be cast prior to footing installation. Please see attached drawing snapshot for details.

**Attachments:**
1533570134362.813965_tempImage.jpeg

Awaiting an Official Response

**All Replies:**

Request is accepted.

| | | |
|---|---|---|
| Esra Akinci | Aug 6, 2018 | |
| **BY** | **DATE** | **COPIES TO** |

# RFI #34

Clark Builders
4703 - 52 Avenue
Edmonton, Alberta T6B 3R6
Phone: (780) 395-3300
Fax: (780) 395-3545

**Project:** 18502 - CB201-JDS - Stratagold Eagle Gold
Yukon Territory

# Missing Pedestal Details for ADR Interior Foundation

| | | | |
|---|---|---|---|
| **TO:** | Calvin Goldschmidt **(JDS Energy and Mining)** | **FROM::** | Ryan de Milliano **(Clark Builders - Edmonton)** Edmonton, Alberta |
| **DATE INITIATED:** | 13/08/2018 | **STATUS:** | Open |
| **LOCATION:** | 5710 ADR Plant | **DUE DATE:** | 18/08/2018 |
| **SUB JOB:** | | **COST CODE:** | |
| **COST IMPACT:** | No | **SCHEDULE IMPACT:** | No |
| **DRAWING NUMBER:** | | **SPEC SECTION:** | |
| **LINKED DRAWINGS:** | | **REFERENCE:** | |
| **RECEIVED FROM:** | Garry Dahl **(Clark Builders - Edmonton)** | | |

**COPIES TO:**
D'Arcy Comerford **(JDS Energy and Mining)**, Chris Copley **(JDS Energy and Mining)**, Matt Coverdale **(JDS Energy and Mining)**, Garry Dahl **(Clark Builders - Edmonton)**, Jackson Wenger **(Clark Builders - Edmonton)**

## Question from Ryan de Milliano (Clark Builders - Edmonton) at 01:41 PM on 13/08/2018

Provide pedestal type; elevation and anchor bolt settings for the pedestals shown in the attached marked up drawing. (12 Total)

**Attachments:**
1534189223949.956787_tempImage.jpeg

Awaiting an Official Response

## All Replies:

They are all Pedestal Type 7,  since Pedestal Type 7 is marked as (TYP. UNO) on this plan

| BY | DATE | COPIES TO |
|---|---|---|
| Esra Akinci | Aug 13, 2018 | |

# RFI #35

Clark Builders
4703 - 52 Avenue
Edmonton, Alberta T6B 3R6
Phone: (780) 395-3300
Fax: (780) 395-3545

**Project:** 18502 - CB201-JDS - Stratagold Eagle Gold
Yukon Territory

## 5710 Extend ADR F7 Footing to meet existing Strip footing

| | | | |
|---|---|---|---|
| **TO:** | Calvin Goldschmidt **(JDS Energy and Mining)** | **FROM::** | Ryan de Milliano **(Clark Builders - Edmonton)** Edmonton, Alberta |
| **DATE INITIATED:** | 17/08/2018 | **STATUS:** | Open |
| **LOCATION:** | 5710 ADR Plant | **DUE DATE:** | 22/08/2018 |
| **SUB JOB:** | | **COST CODE:** | |
| **COST IMPACT:** | TBD | **SCHEDULE IMPACT:** | No |
| **DRAWING NUMBER:** | | **SPEC SECTION:** | |
| **LINKED DRAWINGS:** | | **REFERENCE:** | |
| **RECEIVED FROM:** | Garry Dahl **(Clark Builders - Edmonton)** | | |

**COPIES TO:**
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### Question from Ryan de Milliano (Clark Builders - Edmonton) at 01:52 PM on 17/08/2018

There is an 8” gap between the placed Cone Crusher strip footing and the Type F7 footing to be placed at the ADR. Please confirm it is acceptable to pour the additional the south side of the footing with the Pour.

Awaiting an Official Response

### All Replies:

8" gap between the mat foundation and the building foundation can be filled with concrete while pouring of the mat, provided that an isolation joint is created at the face of the building foundation by pre-molded joint filler as shown on Dwg H354138-0000-231-294-0003 - Detail24

| BY | DATE | COPIES TO |
|---|---|---|
| Esra Akinci | Aug 19, 2018 | |

# RFI #38

Clark Builders
4703 - 52 Avenue
Edmonton, Alberta T6B 3R6
Phone: (780) 395-3300
Fax: (780) 395-3545

**Project:** 18502 - CB201-JDS - Stratagold Eagle Gold
Yukon Territory

# 5710 ADR Tank Footing Anchor Bolt Projection Cast Short

| | | | |
|---|---|---|---|
| **TO:** | Calvin Goldschmidt **(JDS Energy and Mining)** | **FROM::** | Ryan de Milliano **(Clark Builders - Edmonton)** Edmonton, Alberta |
| **DATE INITIATED:** | 18/08/2018 | **STATUS:** | Open |
| **LOCATION:** | 5710 ADR Plant | **DUE DATE:** | 23/08/2018 |
| **SUB JOB:** | | **COST CODE:** | 05-5650 - ANCHOR BOLTS |
| **COST IMPACT:** | No | **SCHEDULE IMPACT:** | TBD |
| **DRAWING NUMBER:** | H354138-5710-231-260-0007 R1 | **SPEC SECTION:** | S033000 - Cast-In-Place Concrete |
| **LINKED DRAWINGS:** | | **REFERENCE:** | |
| **RECEIVED FROM:** | Garry Dahl **(Clark Builders - Edmonton)** | | |

**COPIES TO:**
D'Arcy Comerford **(JDS Energy and Mining)**, Chris Copley **(JDS Energy and Mining)**, Matt Coverdale **(JDS Energy and Mining)**, Garry Dahl **(Clark Builders - Edmonton)**, Calvin Goldschmidt **(JDS Energy and Mining)**, Jackson Wenger **(Clark Builders - Edmonton)**

## Question from Ryan de Milliano (Clark Builders - Edmonton) at 05:57 PM on 18/08/2018

The AB-T4 anchor bolts for tank footing, located at GL B-5, had a specified projection of 430mm from the top of concrete. Currently they are as built with a projection from TOC of 250mm.

Option 1: Leave as is.
Option 2: If 250mm of projection is not sufficient for design, would it be possible to use a threaded coupler, additional steel and tack weld the coupler in place to achieve required 430mm projection.

**Attachments:**
IMG_0093.PNG IMG_0094.PNG

Awaiting an Official Response

## All Replies:

Threaded couplers and threaded anchor rods for extension need to be supplied. But do not weld them at this point. Couplers need to be installed after the tank is placed due to the chairs. Please see Section K-K on the attached tank dwg.

| BY | DATE | COPIES TO |
|---|---|---|
| Esra Akinci | Aug 20, 2018 | |

# RFI #39

Clark Builders
4703 - 52 Avenue
Edmonton, Alberta T6B 3R6
Phone: (780) 395-3300
Fax: (780) 395-3545

**Project:** 18502 - CB201-JDS - Stratagold Eagle Gold
Yukon Territory

# 5710 ADR Cyanide Area Sump Reinforcing conflict with Tank Footing

| | | | |
|---|---|---|---|
| **TO:** | Calvin Goldschmidt **(JDS Energy and Mining)** | **FROM:** | Ryan de Milliano **(Clark Builders - Edmonton)** Edmonton, Alberta |
| **DATE INITIATED:** | 19/08/2018 | **STATUS:** | Open |
| **LOCATION:** | 5710 ADR Plant | **DUE DATE:** | 24/08/2018 |
| **PROJECT STAGE:** | | **COST CODE:** | |
| **SUB JOB:** | | **SCHEDULE IMPACT:** | No |
| **COST IMPACT:** | No | **SPEC SECTION:** | |
| **DRAWING NUMBER:** | | **REFERENCE:** | |
| **LINKED DRAWINGS:** | H354138-5710-231-260-0022 | | |
| **RECEIVED FROM:** | Jimmy Menchenton **(Ultimate Reinforcing)** | | |

**COPIES TO:**
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## Question from Ryan de Milliano (Clark Builders - Edmonton) at 09:58 AM on 19/08/2018

The cyanide sump reinforcing steel at grid lines 4-D conflict with the adjacent footing. Clark is requesting permission to cut conflicting reinforcing so that the vertical steel of the Sump will fit.

**Attachments:**
IMG_0098.PNG IMG_0097.PNG

Awaiting an Official Response

## All Replies:

Request is accepted

| Esra Akinci | Oct 31, 2018 | |
|---|---|---|
| **BY** | **DATE** | **COPIES TO** |

# RFI #46

Clark Builders
4703 - 52 Avenue
Edmonton, Alberta T6B 3R6
Phone: (780) 395-3300
Fax: (780) 395-3545

**Project:** 18502 - CB201-JDS - Stratagold Eagle Gold
Yukon Territory

# 5710 ADR Tank Footings (x2) 150mm Cover on Top Mats

| | | | |
|---|---|---|---|
| **TO:** | Calvin Goldschmidt **(JDS Energy and Mining)** | **FROM::** | Ryan de Milliano **(Clark Builders - Edmonton)** Edmonton, Alberta |
| **DATE INITIATED:** | 23/08/2018 | **STATUS:** | Open |
| **LOCATION:** | 5710 ADR Plant | **DUE DATE:** | 28/08/2018 |
| **SUB JOB:** | | **COST CODE:** | 03-3201 - REINFORCE STEEL/MESH |
| **COST IMPACT:** | No | **SCHEDULE IMPACT:** | No |
| **DRAWING NUMBER:** | H34138-5710-231-260-0011 Rev 01 | **SPEC SECTION:** | S032000 - Concrete Reinforcing Steel |
| **LINKED DRAWINGS:** | | **REFERENCE:** | |
| **RECEIVED FROM:** | Peter Nice **(Clark Builders - Edmonton)** | | |

**COPIES TO:**
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## Question from Ryan de Milliano (Clark Builders - Edmonton) at 10:09 AM on 23/08/2018

At the two octagon tank footing, on GL 7 between A and C, the projecting Z bar dowels place the horizontal mat with a cover of 150mm to TOC.

Our proposed solutions are:
1. Add 2x30M horizontals on to the top of hooks, then replace mat onto the 30M bars and flip the mat and place/ tie to the 30M bars.
2. Field bend 20M straight bars to match Z bars installed. Then splice the new 20M's with hooks to each projecting Z bar. Then re0ave mat on the newly spliced 20M bars to active the correct cover.

**Attachments:**
IMG_0246.PNG IMG_0248.PNG IMG_0245.PNG

Awaiting an Official Response

## All Replies:

Please follow proposed solution #2.

| Esra Akinci | Aug 24, 2018 | |
|---|---|---|
| **BY** | **DATE** | **COPIES TO** |

# RFI #48

Clark Builders
4703 - 52 Avenue
Edmonton, Alberta T6B 3R6
Phone: (780) 395-3300
Fax: (780) 395-3545

**Project:** 18502 - CB201-JDS - Stratagold Eagle Gold
Yukon Territory

# Barren Solution Tank Concrete Embed Collar at Pipe

| | | | |
|---|---|---|---|
| **TO:** | Calvin Goldschmidt **(JDS Energy and Mining)** | **FROM::** | Jackson Wenger **(Clark Builders - Edmonton)** |
| **DATE INITIATED:** | 24/08/2018 | **STATUS:** | Open |
| **LOCATION:** | 5710 ADR Plant | **DUE DATE:** | 29/08/2018 |
| **SUB JOB:** | | **COST CODE:** | |
| **COST IMPACT:** | | **SCHEDULE IMPACT:** | |
| **DRAWING NUMBER:** | | **SPEC SECTION:** | |
| **LINKED DRAWINGS:** | | **REFERENCE:** | |
| **RECEIVED FROM:** | Peter Nice **(Clark Builders - Edmonton)** | | |

**COPIES TO:**
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## Question from Jackson Wenger (Clark Builders - Edmonton) at 10:14 AM on 24/08/2018

Please confirm that stitch weld for the embedment collar on the nozzle penetration at the barren solution tank is adequate. Collar is stitch welded at 2.5” every 9.5”. Markup attached for reference.

**Attachments:**
1535127186295.363037_tempImage.jpeg

Awaiting an Official Response

## All Replies:

2.5" at every 9.5" stitch weld around the collar is adequate.

| | | |
|---|---|---|
| Esra Akinci | Aug 25, 2018 | |
| **BY** | **DATE** | **COPIES TO** |

JDS Energy & Mining LTD
c/o Calvin Goldschmidt; Site Engineering Manager
900-999 West Hastings St
Vancouver, BC
V6C 2W2

August 31, 2018

Attention:

**Reference: RFI #52 – Eagle Gold Project**

# RFI #52- ADR Slab on Grade Gridlines A-B/1-3

## Project: Eagle Gold Project

Reinforcing detailing/fabrication for ADR plant SOG between gridlines A-B/1-3 has been detailed showing a continuous top and bottom mat running north-south through the curb at GL1-3, north of the electrowinning pumps.

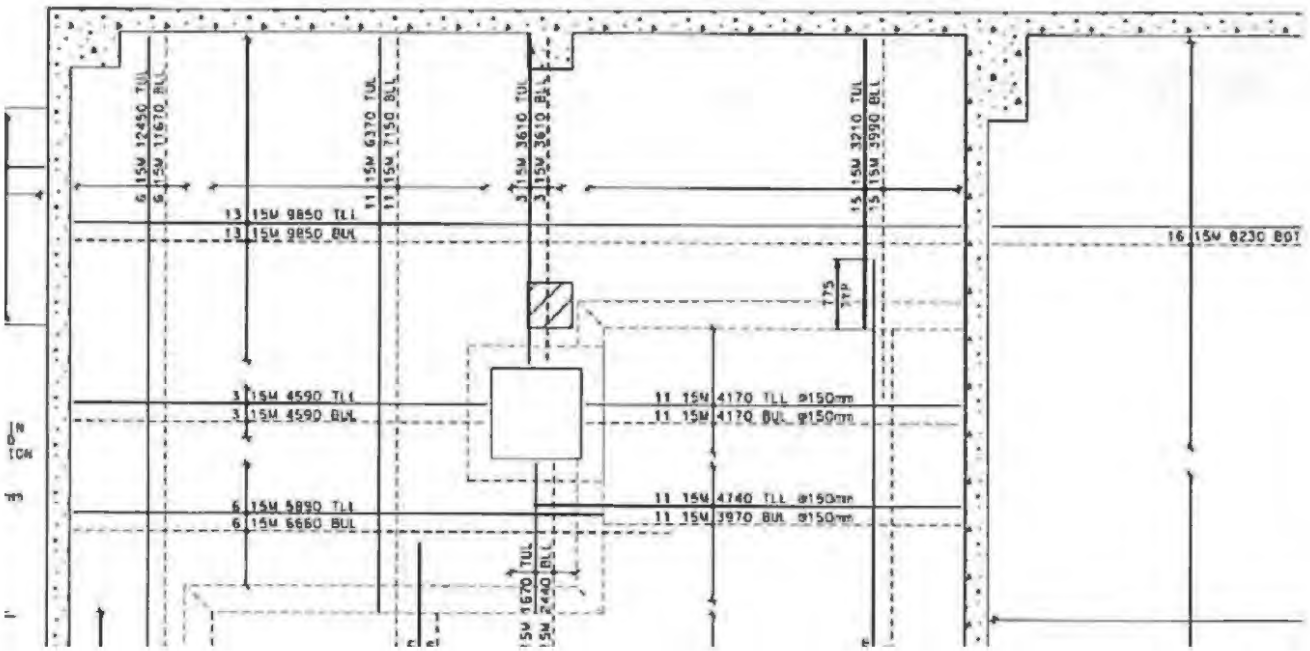
Slab north of curb is elevation 950.150, and slab on south side of curb slopes towards central sump (low point 949.950).

Clark Builders is requesting to cut top mat reinforcing 50 mm from south face of curb, while keeping bottom mat continuous, with additional L-dowels for affixing a bulkhead, so both slabs can be poured at the same time.

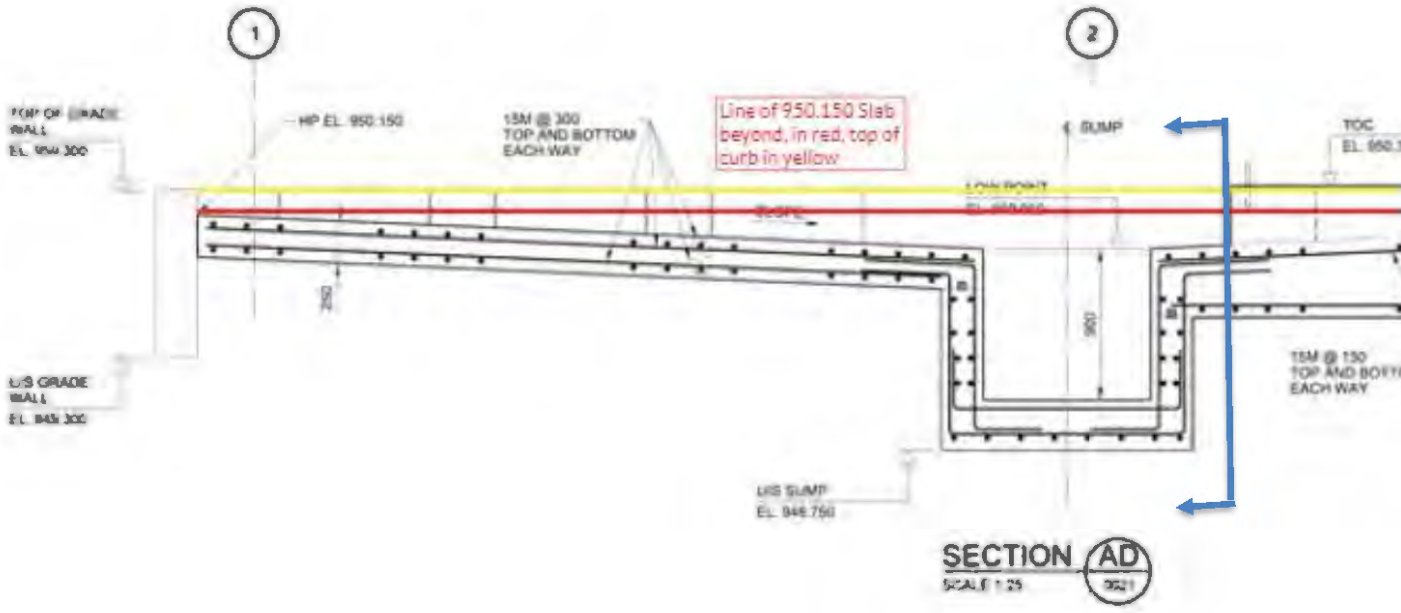
Please see sketches below.

Thank You,

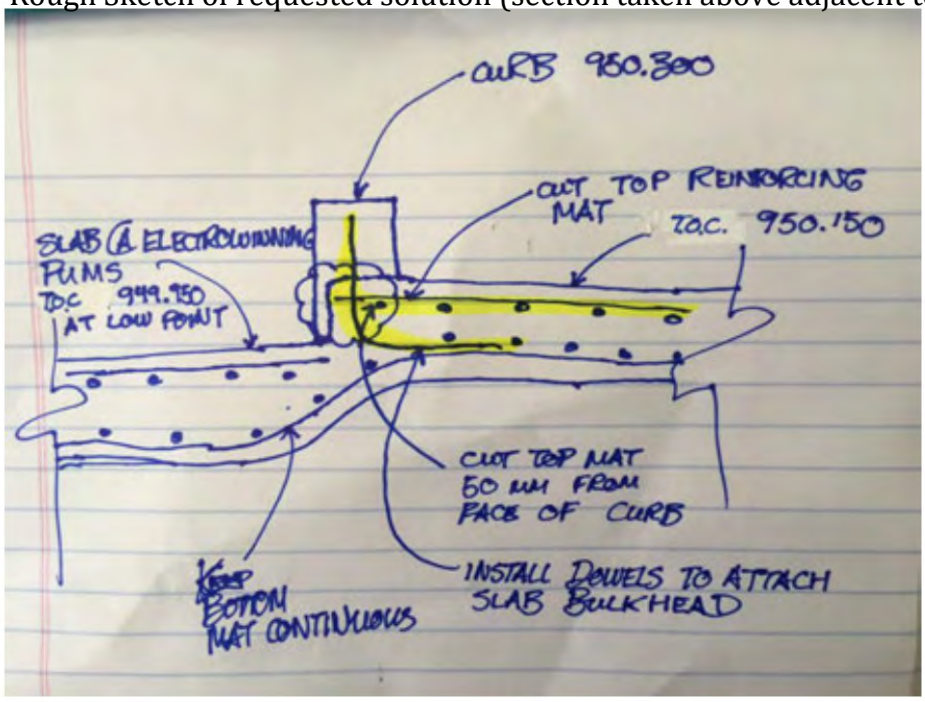
Current Reinforcing Shop Drawing Screenshot



Section AD from drawing 5710231-260-0021, with curb and slab highlighted.



Rough Sketch of requested solution (section taken above adjacent to sump)




END OF RFI #52

Sincerely,

**CLARK BUILDERS**

Jackson Wenger | Project Coordinator
D: 780.395.3486 | E: Jackson.wenger@clarkbuilders.com

# RFI #55

Clark Builders
4703 - 52 Avenue
Edmonton, Alberta T6B 3R6
Phone: (780) 395-3300
Fax: (780) 395-3545

**Project:** 18502 - CB201-JDS - Stratagold Eagle Gold
Yukon Territory

## Cable Opening in ADR TRX Pad North Wall

| | | | |
|---|---|---|---|
| **TO:** | Matt Coverdale **(JDS Energy and Mining)** | **FROM::** | Jackson Wenger **(Clark Builders - Edmonton)** |
| **DATE INITIATED:** | 01/09/2018 | **STATUS:** | Open |
| **LOCATION:** | 5710 ADR Plant | **DUE DATE:** | 05/09/2018 |
| **SUB JOB:** | | **COST CODE:** | |
| **COST IMPACT:** | | **SCHEDULE IMPACT:** | |
| **DRAWING NUMBER:** | | **SPEC SECTION:** | |
| **LINKED DRAWINGS:** | | **REFERENCE:** | |
| **RECEIVED FROM:** | | | |

**COPIES TO:**
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### Question from Jackson Wenger (Clark Builders - Edmonton) at 02:02 PM on 01/09/2018

Please provide/confirm the opening location at the north wall on the ADR transformer pad. Location of opening for cable is currently shown as hold item on H354138-5710-231-260-0032 Rev 2. Reinforcing drawings for ADR transformer pads have been submitted and do not show the opening; reinforcement will be field cut to suit w/reinforcing around opening per typical detail.

**Attachments:**
1535831940328.268066_tempImage.jpeg

Awaiting an Official Response

**All Replies:**

Opening sizes and locations on ADR Transformer North Wall are expected to be given by the Electrical Group next week.

But if the rebars need to be prepared urgently as per the pour schedule, please provide straight bars to be cut around the openings on Site and also provide corner bars to be located around the corners of the opening as per the standard Detail 31 on Dwg H354138-231-294-0004

| Esra Akinci | Sep 2, 2018 | |
|---|---|---|
| **BY** | **DATE** | **COPIES TO** |

# RFI #58

Clark Builders
4703 - 52 Avenue
Edmonton, Alberta T6B 3R6
Phone: (780) 395-3300
Fax: (780) 395-3545

**Project:** 18502 - CB201-JDS - Stratagold Eagle Gold
Yukon Territory

## ADR Slab Joint Details

| | | | |
|---|---|---|---|
| **TO:** | Matt Coverdale **(JDS Energy and Mining)** | **FROM::** | Jackson Wenger **(Clark Builders - Edmonton)** |
| **DATE INITIATED:** | 03/09/2018 | **STATUS:** | Open |
| **LOCATION:** | 5710 ADR Plant | **DUE DATE:** | 08/09/2018 |
| **SUB JOB:** | | **COST CODE:** | |
| **COST IMPACT:** | Yes (Unknown) | **SCHEDULE IMPACT:** | Yes (Unknown) |
| **DRAWING NUMBER:** | | **SPEC SECTION:** | S033000 - Cast-In-Place Concrete |
| **LINKED DRAWINGS:** | | **REFERENCE:** | |
| **RECEIVED FROM:** | Garry Dahl **(Clark Builders - Edmonton)** | | |

**COPIES TO:**
D'Arcy Comerford **(JDS Energy and Mining)**, Chris Copley **(JDS Energy and Mining)**, Matt Coverdale **(JDS Energy and Mining)**, Garry Dahl **(Clark Builders - Edmonton)**, Gary Hosey **(Clark Builders - Edmonton)**, Jan Johnson **(Clark Builders - Edmonton)**, Peter Nice **(Clark Builders - Edmonton)**, Jackson Wenger **(Clark Builders - Edmonton)**, Ryan de Milliano **(Clark Builders - Edmonton)**

### Question from Jackson Wenger (Clark Builders - Edmonton) at 07:45 PM on 03/09/2018

Please see attached RFI regarding typical joint details for ADR Slab on Grade.

RFI is high priority.

**Attachments:**
RFI-58- ADR Slab Joint Details.pdf

Awaiting an Official Response

### All Replies:

Please see attached sketch.

Red lines show where the waterstops need to be added to the expansion joints around the SOG, and the attached TDS shows the technical details of the expansion joint sealent to be used with the waterstop.

| BY | DATE | COPIES TO |
|---|---|---|
| Esra Akinci | Sep 4, 2019 | |

# RFI #61

Clark Builders
4703 - 52 Avenue
Edmonton, Alberta T6B 3R6
Phone: (780) 395-3300
Fax: (780) 395-3545

**Project:** 18502 - CB201-JDS - Stratagold Eagle Gold
Yukon Territory

## 5710 ADR 2 Pedestals Dowel Cover Modification

| | | | |
|---|---|---|---|
| **TO:** | Calvin Goldschmidt **(JDS Energy and Mining)** | **FROM::** | Ryan de Milliano **(Clark Builders - Edmonton)** Edmonton, Alberta |
| **DATE INITIATED:** | 07/09/2018 | **STATUS:** | Open |
| **LOCATION:** | 5710 ADR Plant | **DUE DATE:** | 12/09/2018 |
| **SUB JOB:** | | **COST CODE:** | |
| **COST IMPACT:** | No | **SCHEDULE IMPACT:** | No |
| **DRAWING NUMBER:** | | **SPEC SECTION:** | |
| **LINKED DRAWINGS:** | | **REFERENCE:** | |
| **RECEIVED FROM:** | Peter Nice **(Clark Builders - Edmonton)** | | |

**COPIES TO:**
D'Arcy Comerford **(JDS Energy and Mining)**, Chris Copley **(JDS Energy and Mining)**, Matt Coverdale **(JDS Energy and Mining)**, Garry Dahl **(Clark Builders - Edmonton)**, Gary Hosey **(Clark Builders - Edmonton)**, Jan Johnson **(Clark Builders - Edmonton)**, Peter Nice **(Clark Builders - Edmonton)**, Jackson Wenger **(Clark Builders - Edmonton)**, Ryan de Milliano **(Clark Builders - Edmonton)**

**Question from Ryan de Milliano (Clark Builders - Edmonton) at 11:30 AM on 07/09/2018**

A total of 16 projecting 20M bars at 2 x ‘PED. TYPE P14’ locations require modification. Projecting dowels will not have the required cover. Proposed solution: Cut required dowel down and drill/epoxy new dowels beside, in correct location. Embedment depth for new drilled 20M dowels will be minimum 6”.

Awaiting an Official Response

**All Replies:**

Please do not cut the dowels.

Instead add 50mm clear cover to one side of the pedestal to increase the pedetal width from 300mm to 350mm. But keep the anchor bolt locations same as before, aligning with the other pedestals and being 150mm from one side and 200mm from the other side.

| Esra Akinci | Sep 10, 2018 | |
|---|---|---|
| **BY** | **DATE** | **COPIES TO** |

# RFI #69

Clark Builders
4703 - 52 Avenue
Edmonton, Alberta T6B 3R6
Phone: (780) 395-3300
Fax: (780) 395-3545

**Project:** 18502 - CB201-JDS - Stratagold Eagle Gold
Yukon Territory

## 5710 ADR Bollard Installation

| | | | |
|---|---|---|---|
| **TO:** | Calvin Goldschmidt **(JDS Energy and Mining)** | **FROM::** | Jackson Wenger **(Clark Builders - Edmonton)** |
| **DATE INITIATED:** | 19/09/2018 | **STATUS:** | Open |
| **LOCATION:** | 5710 ADR Plant | **DUE DATE:** | 24/09/2018 |
| **SUB JOB:** | | **COST CODE:** | |
| **COST IMPACT:** | | **SCHEDULE IMPACT:** | |
| **DRAWING NUMBER:** | | **SPEC SECTION:** | |
| **LINKED DRAWINGS:** | | **REFERENCE:** | |
| **RECEIVED FROM:** | | | |

**COPIES TO:**
D'Arcy Comerford **(JDS Energy and Mining)**, Chris Copley **(JDS Energy and Mining)**, Matt Coverdale **(JDS Energy and Mining)**, Garry Dahl **(Clark Builders - Edmonton)**, Gary Hosey **(Clark Builders - Edmonton)**, Jan Johnson **(Clark Builders - Edmonton)**, Peter Nice **(Clark Builders - Edmonton)**, Henry Rueda **(Clark Builders - Edmonton)**, Jackson Wenger **(Clark Builders - Edmonton)**, Ryan de Milliano **(Clark Builders - Edmonton)**

### Question from Jackson Wenger (Clark Builders - Edmonton) at 09:07 AM on 19/09/2018

Due to the acid liner installation at the ADR plant, the standard bollard detail/depth cannot be used at exterior apron slabs. Clark Builders is proposing an approx. 600mm thick pad with 4 reinforcing stubs welded to bollard base, instead of typical detail. Markup attached for ref.

**Attachments:**
1537369528781.753174_templmage.jpeg

Awaiting an Official Response

### All Replies:

Request is accepted

| Esra Akinci | Sep 19, 2018 | |
|---|---|---|
| **BY** | **DATE** | **COPIES TO** |

# RFI #73

Clark Builders
4703 - 52 Avenue
Edmonton, Alberta T6B 3R6
Phone: (780) 395-3300
Fax: (780) 395-3545

**Project:** 18502 - CB201-JDS - Stratagold Eagle Gold
Yukon Territory

## 5710 Carbon Line Pads- Mono Pour

| | | | |
|---|---|---|---|
| **TO:** | Calvin Goldschmidt **(JDS Energy and Mining)** | **FROM::** | Jackson Wenger **(Clark Builders - Edmonton)** |
| **DATE INITIATED:** | 24/09/2018 | **STATUS:** | Open |
| **LOCATION:** | 5710 ADR Plant | **DUE DATE:** | 25/09/2018 |
| **SUB JOB:** | | **COST CODE:** | |
| **COST IMPACT:** | | **SCHEDULE IMPACT:** | |
| **DRAWING NUMBER:** | | **SPEC SECTION:** | |
| **LINKED DRAWINGS:** | | **REFERENCE:** | |
| **RECEIVED FROM:** | | | |

**COPIES TO:**
D'Arcy Comerford **(JDS Energy and Mining)**, Matt Coverdale **(JDS Energy and Mining)**, Garry Dahl **(Clark Builders - Edmonton)**, Branden Fraser **(JDS Energy and Mining)**, Calvin Goldschmidt **(JDS Energy and Mining)**, Gary Hosey **(Clark Builders - Edmonton)**, Jan Johnson **(Clark Builders - Edmonton)**, Peter Nice **(Clark Builders - Edmonton)**, Henry Rueda **(Clark Builders - Edmonton)**, Jackson Wenger **(Clark Builders - Edmonton)**, Ryan de Milliano **(Clark Builders - Edmonton)**

### Question from Jackson Wenger (Clark Builders - Edmonton) at 03:07 PM on 24/09/2018

Clark Builders is requesting permission to form and place carbon line pumps pads as one continuous pad, for carbon column line 1 & 2 pumps.

**Attachments:**
1537822965490.652100_tempImage.jpeg

Awaiting an Official Response

### All Replies:

Request is accepted

| | | |
|---|---|---|
| Esra Akinci | Sep 24, 2018 | |
| **BY** | **DATE** | **COPIES TO** |

# RFI #74

Clark Builders
4703 - 52 Avenue
Edmonton, Alberta T6B 3R6
Phone: (780) 395-3300
Fax: (780) 395-3545

**Project:** 18502 - CB201-JDS - Stratagold Eagle Gold
Yukon Territory

## 5710 Equipment Pad Poured 45mm too high

| | | | |
|---|---|---|---|
| **TO:** | Calvin Goldschmidt **(JDS Energy and Mining)** | **FROM:** | Ryan de Milliano **(Clark Builders - Edmonton)** Edmonton, Alberta |
| **DATE INITIATED:** | 28/09/2018 | **STATUS:** | Open |
| **LOCATION:** | 5710 ADR Plant | **DUE DATE:** | 03/10/2018 |
| **PROJECT STAGE:** | | **COST CODE:** | 03-3140 - FORM-EQUIPMENT PADS |
| **SUB JOB:** | | **SCHEDULE IMPACT:** | No |
| **COST IMPACT:** | No | **SPEC SECTION:** | S033000 - Cast-In-Place Concrete |
| **DRAWING NUMBER:** | H354138-5710-231-260-0021 R1 | **REFERENCE:** | |
| **LINKED DRAWINGS:** | | | |
| **RECEIVED FROM:** | Erik Vanlaar **(Clark Builders - Edmonton)** | | |

**COPIES TO:**
Chris Copley **(JDS Energy and Mining)**, Matt Coverdale **(JDS Energy and Mining)**, Garry Dahl **(Clark Builders - Edmonton)**, Jan Johnson **(Clark Builders - Edmonton)**, James Meadahl **(Frontier Employees Inc.)**, Peter Nice **(Clark Builders - Edmonton)**, Henry Rueda **(Clark Builders - Edmonton)**, Jackson Wenger **(Clark Builders - Edmonton)**, Ryan de Milliano **(Clark Builders - Edmonton)**

### Question from Ryan de Milliano (Clark Builders - Edmonton) at 10:59 PM on 28/09/2018

Equipment pad, located near GL 2-B for the Electrowinning Return Pump, was poured as per revision 00 at an TOC EL 950.310, not the TOC EL 950.265 as noted in revision 01. The concrete is therefore 45mm higher.

In order to avoid cover issues with the reinforcement, please confirm it be acceptable to leave the equipment pad at the current TOC EL.

**Attachments:**
file-14.png file1-5.png

Awaiting an Official Response

### All Replies:

Please grind 30mm of concrete to bring the TOC down to El. 950.280 so that there will be apprx. 15mm of clear cover left which is acceptable for this particular case, as it would be more difficult to change the elevation of the pump together with all the piping and the tank it is connected to.

| Esra Akinci | Oct 1, 2018 | |
|---|---|---|
| **BY** | **DATE** | **COPIES TO** |

# ATTACHMENT C

## Field Review Reports

TETRA TECH

# FIELD REVIEW REPORT

ISSUED FOR REVIEW

| | | | |
|---|---|---|---|
| **To:** | R. Bilobrowka; C. Goldschmidt; C. Abel; I. Fechter | **Date:** | July 15, 2018 |
| **c:** | | **Memo No.:** | 001 |
| **From:** | J. Buyck; C. Cowan | **File:** | 704-ENG.WARC03532-05 |
| **Subject:** | ADR Process Plant and Laydown Foundation Pad Proof Roll Testing | | |

*This 'Issued for Review' document is provided solely for the purpose of client review and presents our interim findings and recommendations to date. Our usable findings and recommendations are provided only through an 'Issued for Use' document, which will be issued subsequent to this review. Final design should not be undertaken based on the interim recommendations made herein. Once our report is issued for use, the 'Issued for Review' document should be either returned to Tetra Tech Canada Inc. (Tetra Tech) or destroyed.*

## 1.0 INTRODUCTION

Tetra Tech Canada Inc. (Tetra Tech) was requested to supervise proof-roll of the Non-Frost Susceptible (NFS) structural fill placed within the ADR Plant and Laydown Pad Foundation. The following summarizes the objectives and results of the work performed.

The bases for conducting the proof-roll was to provide additional means of ensuring the pad foundation is prepared to specification. Because of the coarseness of the 150 mm minus NFS structural fill material specified, results of the field density (compaction) testing with a Nuclear densometer showed enough inconsistencies. This is fairly typical and not unexpected when testing material of this type. The proof-roll is considered a supplementary measure to the compaction testing. The total thickness of NFS structural fill placed is about 0.9 m.

## 2.0 SCOPE

The objective of the proof roll was to reveal any soft or yielding material, and to supplement the field density (compaction) testing completed throughout the three lifts of the Non-Frost Susceptible (NFS) material placed, moisture-conditioned and compacted throughout the ADR site.

## 3.0 WORK PERFORMED

On July 15, 2018, a fully-loaded Volvo A40F Series Articulated dump truck was used to slowly drive (less than 5 km/h) throughout the area to be proof-rolled. It is understood that a single axel load of 18,000 lbs (80kN) would have been sufficient; however, because of availability, the larger articulated truck was used.

As required, observations were made from a point where visual contact could be maintained with the operator, and 2 to 3 m distance and at an approximate 45° angle from the tires. The truck made subsequent passes parallel to the previous lane until sufficient coverage of the site had been observed to assess the general subgrade condition.

Tetra Tech Canada Inc.
61 Wasson Place
Whitehorse, YT Y1A 0H7 CANADA
Tel 867.668.3068 Fax 867.668.4349

## 4.0 RESULTS

The observations of the proof-roll were made, as required, and the amount of deflection and rutting were found to be negligible (0 – 5 mm). throughout the entire area.

As mentioned above, compaction testing was also performed. This was completed for each three lifts of the NFS material placed, as well as the sand bedding the liner. The results of the testing are provided in a separate report.

## 5.0 LIMITATIONS OF REPORT

This report and its contents are intended for the sole use of JDS Energy & Mining and their agents. Tetra Tech Canada Inc. (Tetra Tech) does not accept any responsibility for the accuracy of any of the data, the analysis, or the recommendations contained or referenced in the report when the report is used or relied upon by any Party other than JDS Energy & Mining, or for any Project other than the proposed development at the subject site. Any such unauthorized use of this report is at the sole risk of the user. Use of this document is subject to the Limitations on the Use of this Document attached in the Appendix or Contractual Terms and Conditions executed by both parties.

# 6.0 CLOSURE

We trust this technical memo meets your present requirements. If you have any questions or comments, please contact the undersigned.

Respectfully submitted,
Tetra Tech Canada Inc.

James Buyck
Senior Geotechnical Technician
Engineering Practice, Arctic Group
James.Buyck@tetratech.com

Chad Cowan
Geotechnical Manager
Engineering Practice – Yukon, Arctic Group
Chad.Cowan@tetratech.com

## PHOTOGRAPHS



**Photo 1:** Proof-roll testing of subgrade with Volvo A40F series articulated dump truck in-progress.



**Photo 2:** Continued proof-rolling.

## PHOTOGRAPHS



**Photo 3:** View looking east from west end of ADR Process Plant Pad Foundation.

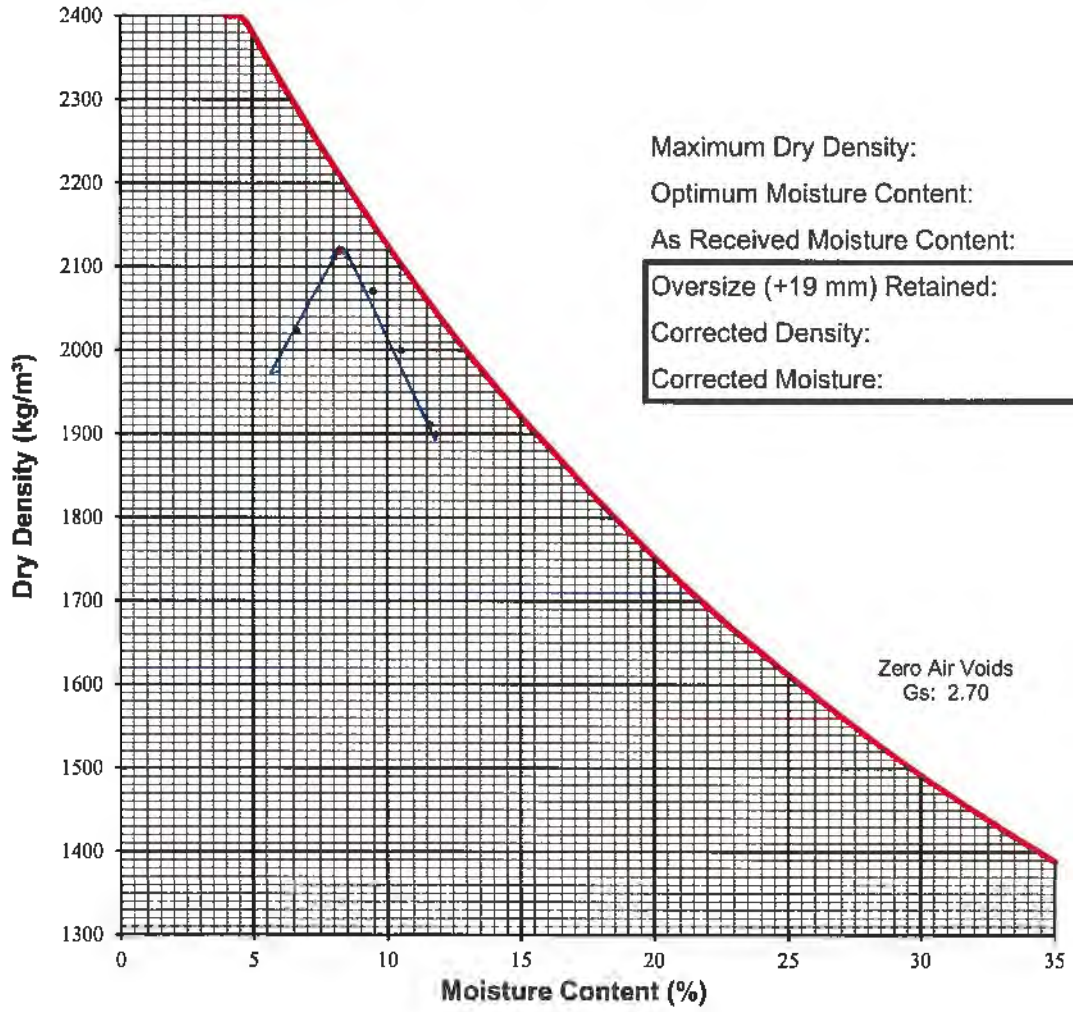


**Photo 4:** View looking southeast from west end of completed ADR Process Plant Pad Foundation.

# MOISTURE-DENSITY RELATIONSHIP (Proctor) REPORT

ASTM D698 Standard

| | | | |
|---|---|---|---|
| Project: | Eagle Gold Project | Sample No.: | SA01 |
| Client: | JDS | Sampled By: | - |
| Attention: | - | Sample Date. | - |
| Project No.: | ENG.WARC | Test Date: | July 10, 2018 |
| Description: | GRAVEL - sandy, trace silt | Preparation: | Moist |
| Source: | - | Compaction: | Manual |




| | | |
|---|---|---|
| Maximum Dry Density: | **2120** | kg/m³ |
| Optimum Moisture Content: | **8.2** | % |
| As Received Moisture Content: | **3.5** | % |
| Oversize (+19 mm) Retained: | **30** | % |
| Corrected Density: | **2255** | % |
| Corrected Moisture: | **6.0** | % |

**Remarks:**

**Reviewed By:** _____ C.E.T.

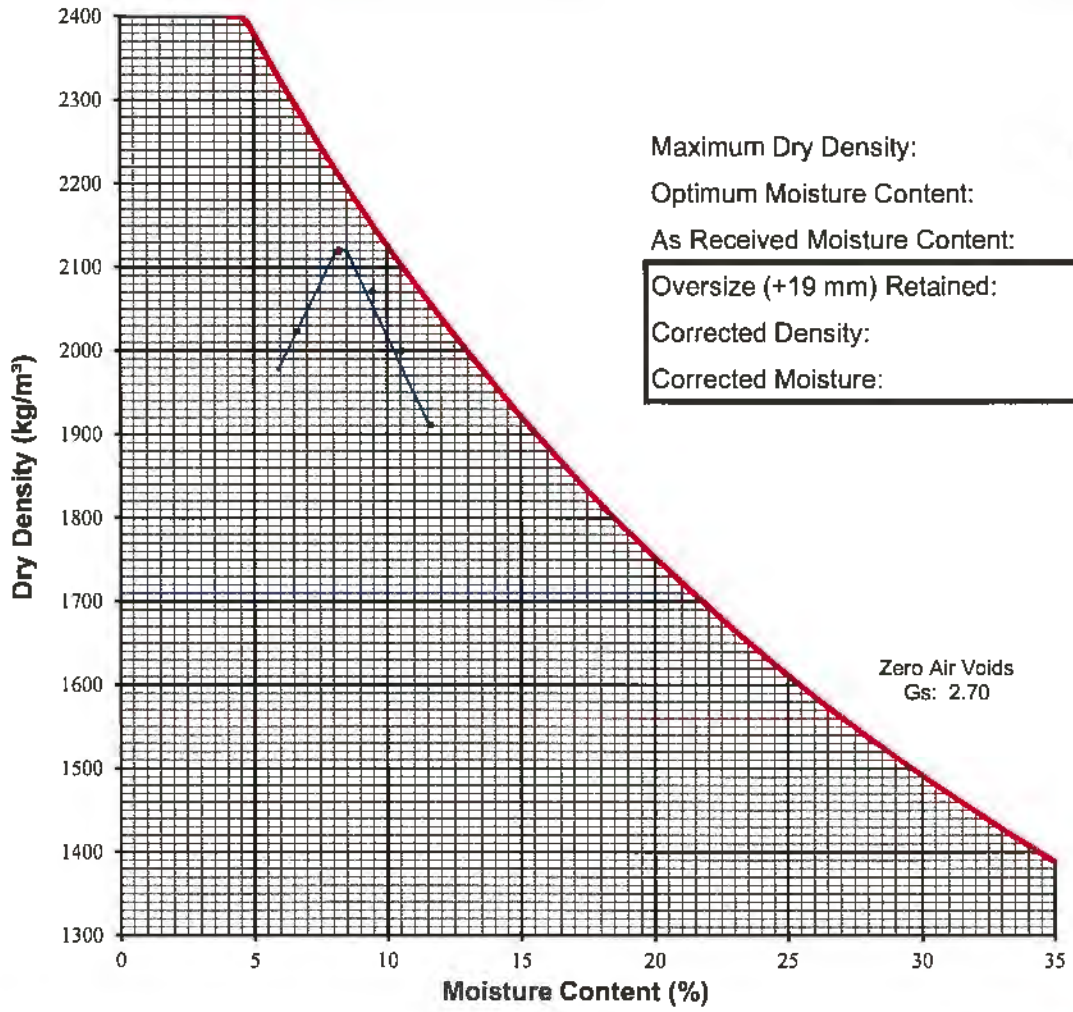
Data presented hereon is for the sole use of the stipulated client. Tetra Tech is not responsible, nor can be held liable, for use made of this report by any other party, with or without the knowledge of Tetra Tech. The testing services reported herein have been performed to recognized industry standards, unless noted. No other warranty is made. These data do not include or represent any interpretation or opinion of specification compliance or material suitability. Should engineering interpretation be required, Tetra Tech will provide it upon written request.

TETRA TECH

# MOISTURE-DENSITY RELATIONSHIP (Proctor) REPORT

ASTM D698 Standard

| | | | |
|---|---|---|---|
| Project: | Eagle Gold Project | Sample No.: | SA01 |
| Client: | JDS | Sampled By: | - |
| Attention: | - | Sample Date: | - |
| Project No.: | ENG.WARC | Test Date: | July 10, 2018 |
| Description: | GRAVEL - sandy, trace silt | Preparation: | Moist |
| Source: | - | Compaction: | Manual |




| | | |
|---|---|---|
| Maximum Dry Density: | **2120** | kg/m³ |
| Optimum Moisture Content: | **8.2** | % |
| As Received Moisture Content: | **3.5** | % |
| Oversize (+19 mm) Retained: | **40** | % |
| Corrected Density: | **2304** | % |
| Corrected Moisture: | **5.3** | % |

**Remarks:**

**Reviewed By:** _____ C.E.T.

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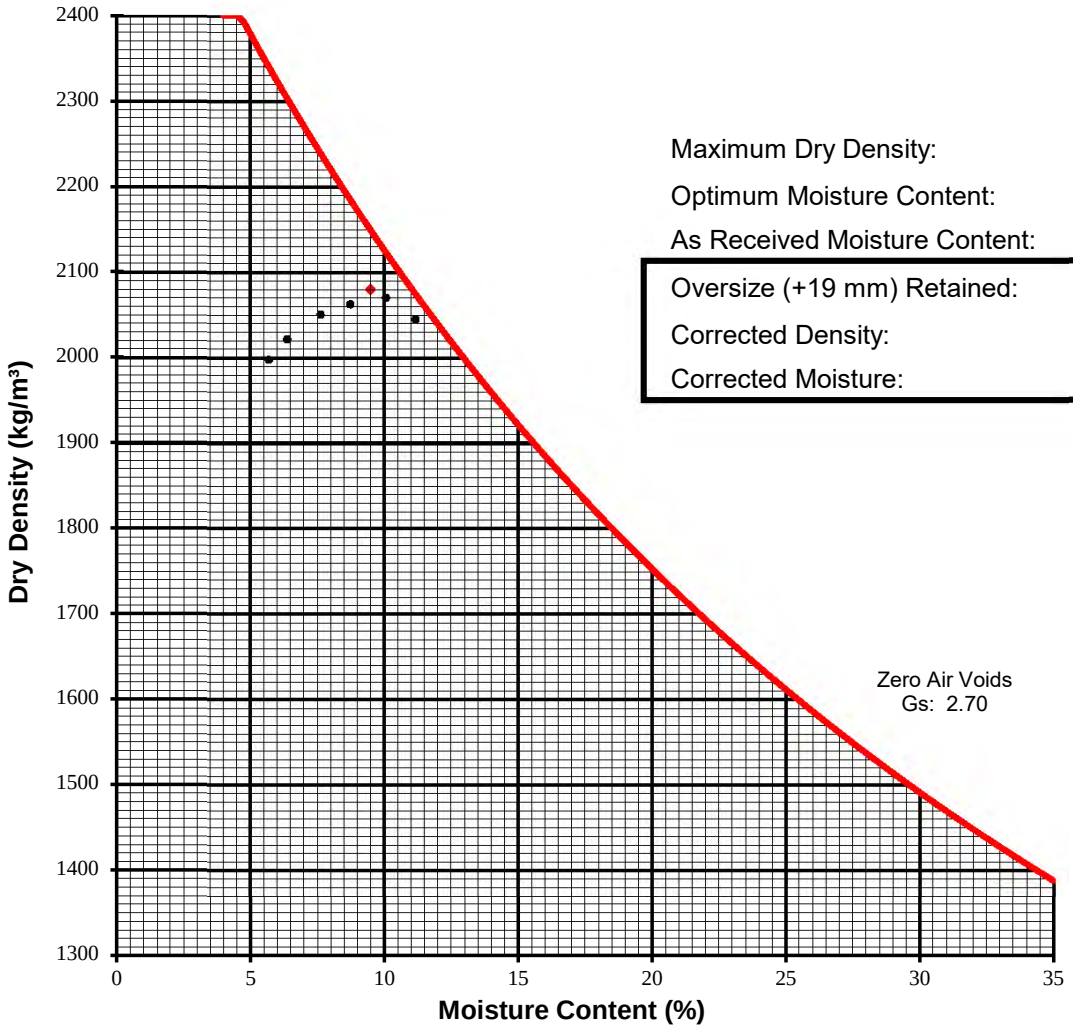
TETRA TECH

# MOISTURE-DENSITY RELATIONSHIP (Proctor) REPORT

ASTM D698 Standard

| | | | |
|---|---|---|---|
| Project: | 2018 Dublin Gulch Project | Sample No.: | Reject Sand PR1 |
| Client: | JDS/BGC | Sampled By: | JMP |
| Attention: | Clint/Roy | Sample Date: | June 22 2018 |
| Project No.: | WARC-03235-05 | Test Date: | June 23 2018 |
| Description: | Reject Sand, contains some gravel, some silt | Preparation: | Moist |
| Source: | NCL Dublin Gulch reject Stockpile | Compaction: | Manual |




| | | |
|---|---|---|
| Maximum Dry Density: | **2080** | kg/m³ |
| Optimum Moisture Content: | **9.5** | % |
| As Received Moisture Content: | **5.7** | % |
| Oversize (+19 mm) Retained: | | % |
| Corrected Density: | **2080** | % |
| Corrected Moisture: | **9.5** | % |

**Remarks:** Overliner drain fill reject sand 10mm minus

**Reviewed By:** _____ C.E.T.

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TETRA TECH

# SIEVE ANALYSIS REPORT

ASTM C136 & C117

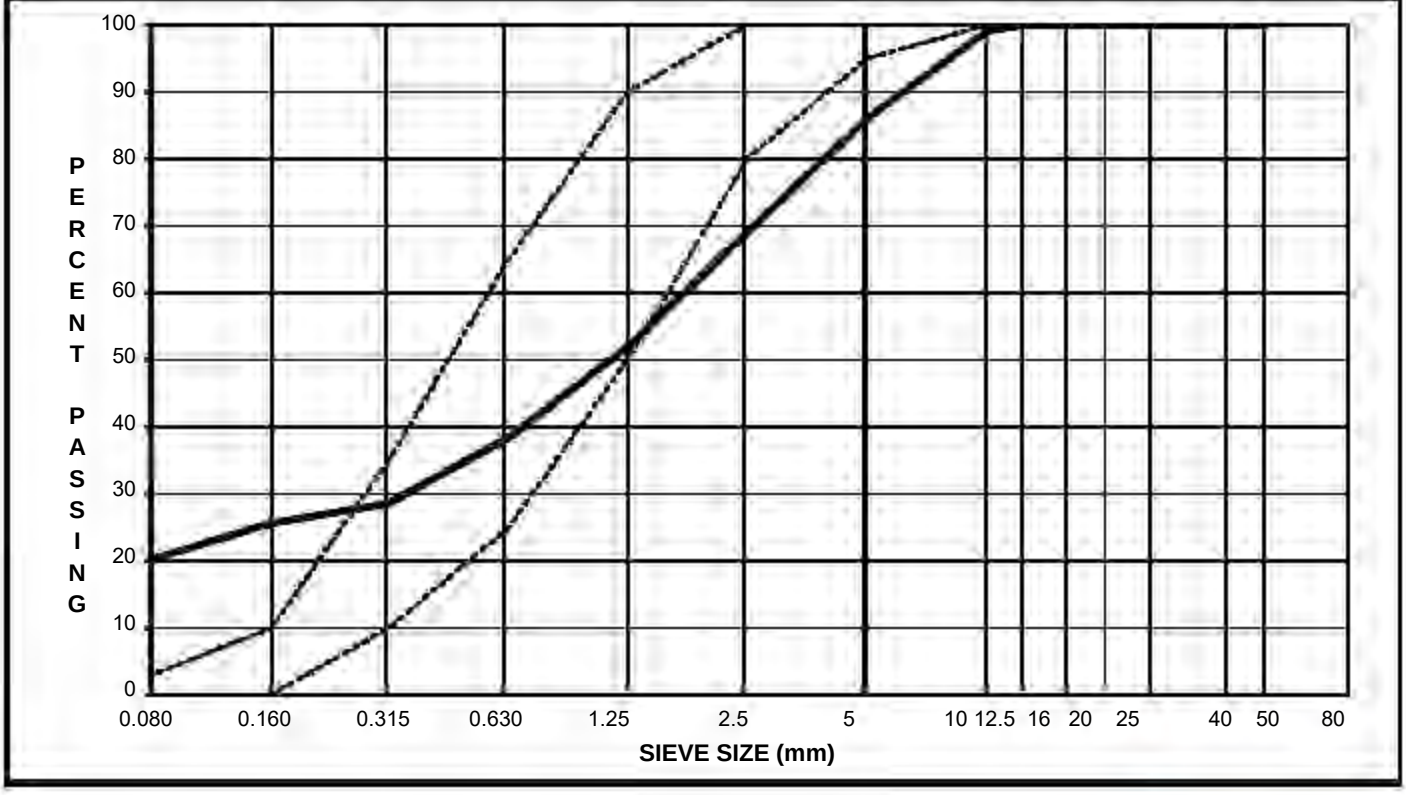
| | | | |
|---|---|---|---|
| Project: | Eagle Gold Project | Sample Number: | SA1 - 09:15 hrs |
| Project No.: | 704-ENG.WARC03532-01 | Date Sampled: | July 12, 2018 |
| Client: | JDS | Sampled By: | JB Tested By: JB |
| Attention: | Mr. Clint Abel | Specification: | CSA 23.1 FA1 Fine Aggregate |
| Description: | 12.5 mm Minus SFM (Reject Sand) | Fracture (2 faces): | N/A |
| Location: | Stockpile along Eagle Pup Access | Moisture Content: | 6.9% |

**Aggregate Gradation (% Passing)**

| **Sieve Size** (*um*) | 50000 | 40000 | 25000 | 20000 | 16000 | 12500 | 10000 | 5000 | 2500 | 1250 | 630 | 315 | 160 | 80 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Upper Limit** | | | | | | | 100 | 100 | 100 | 90 | 65 | 35 | 10 | 3 |
| **Lower Limit** | | | | | | | 100 | 95 | 80 | 50 | 25 | 10 | 0 | 0 |
| **Test Result** | **100** | **100** | **100** | **100** | **100** | **100** | **99** | **86** | **69** | **52** | **38** | **29** | **25.6** | **20.2** |

**Remarks:** *Trace Organics

**Reviewed By:** C.E.T.

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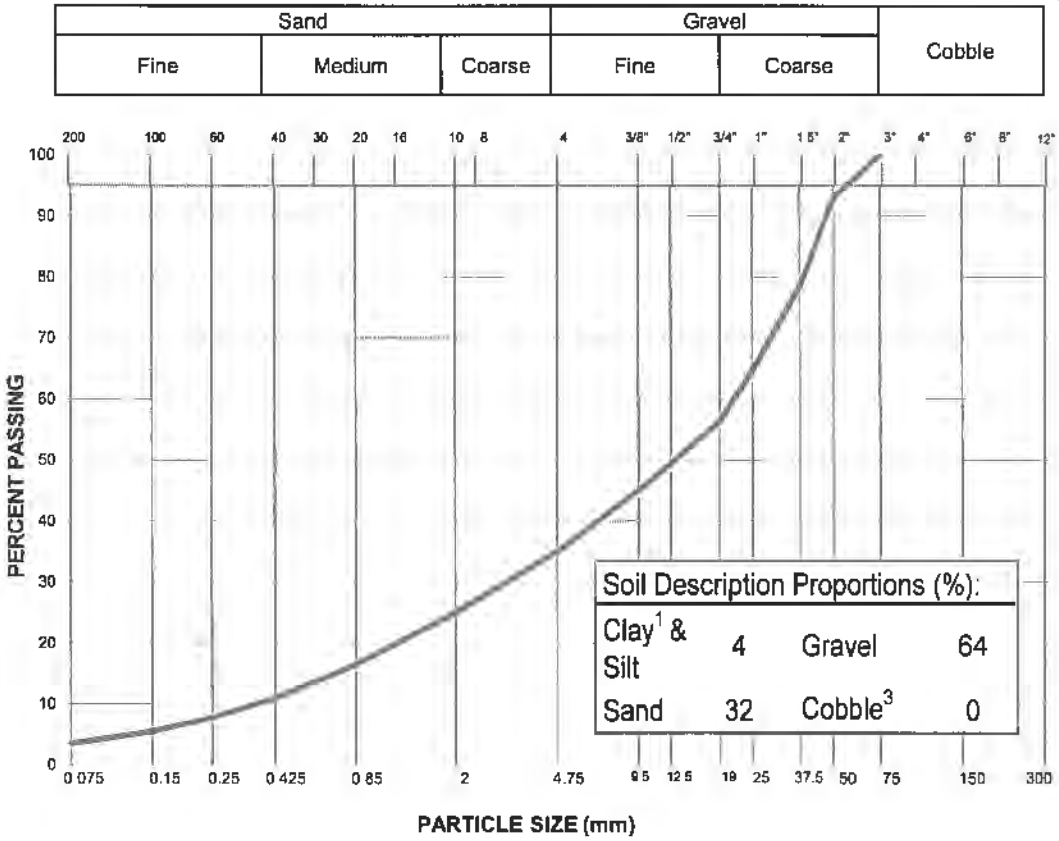
TETRA TECH

# PARTICLE SIZE ANALYSIS REPORT

ASTM D7928 & C136

| | | | |
|---|---|---|---|
| Project: | Eagle Gold Project | Sample No.: | SA01 |
| Project No.: | ENG.WARC | Material Type: | - |
| Site: | - | Sample Loc.: | - |
| Client: | JDS | Sample Depth: | - |
| Client Rep.: | - | Sampling Method: | - |
| Date Tested: | July 11, 2018 By: AT | Date Sampled: | - |
| Soil Description[2]: | GRAVEL - sandy, trace silt | Sampled By: | - |
| | | USC Classification: | Cu: 58.0 |
| Moisture Content: | 3.5% | | Cc: 1.4 |

| Particle Size (mm) | Percent Passing |
|---|---|
| 300 | |
| 200 | |
| 150 | |
| 100 | |
| 75 | 100 |
| 50 | 93 |
| 38 | 79 |
| 25 | 65 |
| 19 | 56 |
| 12.5 | 49 |
| 10 | 46 |
| 5 | 36 |
| 2 | 25 |
| 0.85 | 16 |
| 0.425 | 11 |
| 0.25 | 8 |
| 0.15 | 5 |
| 0.075 | 3.5 |




Notes:
[1] The upper clay size of 2 um, per the Canadian Foundation Engineering Manual
[2] The description is visually based & subject to Tt WM4400 description protocols
[3] If cobbles are present, sampling procedure may not meet ASTM C702 & D75

Specification:

**Remarks:**

**Reviewed By:** _____ C.E.T.

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TETRA TECH

# COMPACTION DENSITY TEST SUMMARY REPORT

ASTM Designation D6938

**Project:** Eagle Gold Project | **Test Apparatus:** Nuclear | **Troxler No:** 60841

QC Inspection & Testing | **Specified Compaction:** 95 % Mod. Proctor Max. Dry Density

**Project No.:** WARC.03235-05 | **Specified Moisture** (MC)**:** As Below

**Client:** JDS Energy & Mining/BGC | **Temperature** **Air:** 15 ºC **Soil:** ºC

**Attention:** R.Morlan/D. Granda | **Date Tested:** 2018-06-29 **By:** J.Buyck

**Contractor:** Pelly Construction | **Construction Period:** DAYSHIFT

**Soil Description:** Type 2 Select Fill Material - SAND, trace silt , trace gravel (12.5 mm reject sand)

**Material Usage/Zone:** **ADR Building/First layer of liner sand bedding material.**

| **Date** yyyy/mm/dd | **Test No.** / Probe (mm) | **Location:** | Depth to Grade (m) | Dry Density (kg/m³ ) | MC % | Max. Dry Density (kg/m³ ) | Opt. MC % | Comp % MPD |
|---|---|---|---|---|---|---|---|---|
| 2018-06-29 | **1** / 100 | NW corner - 2nd lift | 947.0 | 2067 | 8.7 | 2080 | 9.5 | **99.4** |
| 2018-06-29 | **2** / 100 | Centre - 2nd lift | 947.0 | 2078 | 7.2 | 2080 | 9.5 | **99.9** |
| 2018-06-29 | **3** / 100 | NE Corner - 2nd lift | 947.0 | 2089 | 7.2 | 2080 | 9.5 | **100.4** |
| 2018-06-29 | **4** / 100 | SE corner - 2nd lift | 947.0 | 2060 | 7.8 | 2080 | 9.5 | **99.0** |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

**Remarks:** Depths from grade are based on survey point provided by Pelly. The remainder of the results are approximate and does not account for the various elevations resulting from the required sloped base.

**Copies:**

**Reviewed By:** C.E.T.

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TETRA TECH

# COMPACTION DENSITY TEST SUMMARY REPORT

ASTM Designation D6938

**Project:** Eagle Gold Project | **Test Apparatus:** Nuclear | **Troxler No:** 60841

QC Inspection & Testing | **Specified Compaction:** 95 % Mod. Proctor Max. Dry Density

**Project No.:** WARC.03235-05 | **Specified Moisture** (MC)**:** As Below

**Client:** JDS Energy & Mining/BGC | **Temperature** **Air:** 15 ºC **Soil:** ºC

**Attention:** M. Blusson/C. Abel | **Date Tested:** 2018-07-09 **By:** JB/RO

**Contractor:** Pelly Construction | **Construction Period:** DAYSHIFT

**Soil Description:** 150 mm Minus NFS Structural Fill (GRAVEL & SAND, trace silt)

**Material Usage/Zone: ADR Building/First layer of 150 mm minus NFS structural fill**

| **Date** yyyy/mm/dd | **Test No.** / Probe (mm) | **Location:** | El. | Dry Density (kg/m³ ) | MC % | Max. Dry Density (kg/m³ ) | Opt. MC % | Comp % MPD |
|---|---|---|---|---|---|---|---|---|
| 2018-07-09 | **10** BS | SW Corner | ~947.7 | 2200 | 3.5 | 2255 | 6.0 | **97.6** |
| 2018-07-09 | **11** BS | NE Corner | ~947.7 | 2208 | 4.7 | 2255 | 6.0 | **97.9** |
| 2018-07-09 | **12** BS | Middle | ~947.7 | 2201 | 3.9 | 2255 | 6.0 | **97.6** |
| 2018-07-09 | **13** BS | NW Corner | ~947.7 | 2201 | 4.4 | 2255 | 6.0 | **97.6** |
| 2018-07-09 | **14** BS | SW Corner | ~947.7 | 2213 | 4.0 | 2255 | 6.0 | **98.1** |
| | | | | | | | | |
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**Remarks:** Elevations provided are from the survey pick-up by Underhill Geomatics. The point taken from the middle of the site was utilized.

**Copies:**

**Reviewed By:** C.E.T.

Data presented hereon is for the sole use of the stipulated client. Tetra Tech EBA is not responsible, nor can be held liable, for use made of this report by any other party, with or without the knowledge of Tetra Tech EBA. The testing services reported herein have been performed to recognized industry standards, unless noted. No other warranty is made. These data do not include or represent any interpretation or opinion of specification compliance or material suitability. Should engineering interpretation be required, Tetra Tech EBA will provide it upon written request.

TETRA TECH

# COMPACTION DENSITY TEST SUMMARY REPORT

ASTM Designation D6938

**Project:** Eagle Gold Project | **Test Apparatus:** Nuclear | **Troxler No:** 60841

QC Inspection & Testing | **Specified Compaction:** 95 % Mod. Proctor Max. Dry Density

**Project No.:** WARC.03235-05 | **Specified Moisture** (MC)**:** As Below

**Client:** JDS Energy & Mining/BGC | **Temperature** **Air:** 15 ºC **Soil:** ºC

**Attention:** M. Blusson/C. Abel | **Date Tested:** 2018-07-11 **By:** JB

**Contractor:** Pelly Construction | **Construction Period:** DAYSHIFT

**Soil Description:** 150 mm Minus NFS Structural Fill (GRAVEL & SAND, trace silt)

**Material Usage/Zone: ADR Building/First layer of 150 mm minus NFS structural fill**

| **Date** yyyy/mm/dd | **Test No.** Probe (mm) | **Location:** | El. | Dry Density (kg/m³ ) | MC % | Max. Dry Density (kg/m³ ) | Opt. MC % | Comp % MPD |
|---|---|---|---|---|---|---|---|---|
| 2018-07-11 | **15** BS | SW Corner - 2nd lift | ~948.1 | 2220 | 3.2 | 2255 | 6.0 | **98.4** |
| 2018-07-11 | **16** BS | NE Corner - 2nd lift | ~948.1 | 2235 | 3.5 | 2255 | 6.0 | **99.1** |
| 2018-07-11 | **17** BS | Middle - 2nd lift | ~948.1 | 2219 | 3.5 | 2255 | 6.0 | **98.4** |
| 2018-07-11 | **18** BS | SW Corner - 2nd lift | ~948.1 | 2209 | 4.9 | 2255 | 6.0 | **98.0** |
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**Remarks:** Elevations provided are from the survey pick-up by Underhill Geomatics. The point taken from the middle of the site was utilized.

**Copies:**

**Reviewed By:** C.E.T.

Data presented hereon is for the sole use of the stipulated client. Tetra Tech EBA is not responsible, nor can be held liable, for use made of this report by any other party, with or without the knowledge of Tetra Tech EBA. The testing services reported herein have been performed to recognized industry standards, unless noted. No other warranty is made. These data do not include or represent any interpretation or opinion of specification compliance or material suitability. Should engineering interpretation be required, Tetra Tech EBA will provide it upon written request.

TETRA TECH

# COMPACTION DENSITY TEST SUMMARY REPORT

ASTM Designation D6938

**Project:** Eagle Gold Project | **Test Apparatus:** Nuclear | **Troxler No:** 60841

QC Inspection & Testing | **Specified Compaction:** 95 % Mod. Proctor Max. Dry Density

**Project No.:** WARC.03235-05 | **Specified Moisture** (MC)**:** As Below

**Client:** JDS Energy & Mining/BGC | **Temperature** **Air:** 15 ºC **Soil:** ºC

**Attention:** M. Blusson/C. Abel | **Date Tested:** 2018-07-15 **By:** JB

**Contractor:** Pelly Construction | **Construction Period:** DAYSHIFT

**Soil Description:** 150 mm Minus NFS Structural Fill (GRAVEL & SAND, trace silt)

**Material Usage/Zone: ADR Building/First layer of 150 mm minus NFS structural fill**

| **Date** yyyy/mm/dd | **Test No.** / Probe (mm) | **Location:** | El. | Dry Density (kg/m³ ) | MC % | Max. Dry Density (kg/m³ ) | Opt. MC % | Comp % MPD |
|---|---|---|---|---|---|---|---|---|
| 2018-07-15 | **19** / 300 | SW Corner - final lift | 948.5 | 2223 | 6.0 | 2255 | 6.0 | **98.6** |
| 2018-07-15 | **20** / 300 | Middle - final lift | 948.5 | 2237 | 5.6 | 2255 | 6.0 | **99.2** |
| 2018-07-15 | **21** / 300 | SE Corner - final lift | 948.5 | 2251 | 5.3 | 2255 | 6.0 | **99.8** |
| 2018-07-15 | **22** / 300 | NE Corner - final lift | 948.5 | 2224 | 6.0 | 2255 | 6.0 | **98.6** |
| 2018-07-15 | **23** / 300 | NE Corner - final lift | 948.5 | 2224 | 6.0 | 2255 | 6.0 | **98.6** |
| | | | | | | | | |
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**Remarks:** Elevations provided are from the survey pick-up by Underhill Geomatics.

**Copies:**

**Reviewed By:** C.E.T.

Data presented hereon is for the sole use of the stipulated client. Tetra Tech EBA is not responsible, nor can be held liable, for use made of this report by any other party, with or without the knowledge of Tetra Tech EBA. The testing services reported herein have been performed to recognized industry standards, unless noted. No other warranty is made. These data do not include or represent any interpretation or opinion of specification compliance or material suitability. Should engineering interpretation be required, Tetra Tech EBA will provide it upon written request.

TETRA TECH

# CONTRACTOR / INTERDISCIPLINARY RELEASE FORM

| | | | |
|---|---|---|---|
| **Project:** | Eagle Gold Project | **Revision No.** | 0 |
| **Contractor:** | Clark Builders | **Contract No:** | CB201 |
| **Area:** | 5000 – ADR | | |

| | | | |
|---|---|---|---|
| **Date:** | July 16, 2018 | **Drawing No:** | H354138-2150-220-290-0002 |
| **Discipline:** | Civil/Subgrade | | |

**The following:** **Area** ☒ **Equipment** ☐ **System** ☐ **Other** ☐

**(Provide complete description of area item, equipment system and Tag Numbers where applicable):**

Subgrade preparation to the underside of ADR Plant footings to +0 and – 50mm per the above mentioned drawing.

**Released to:** Clark Builders

**Release Basis:**

| | | | |
|---|---|---|---|
| ☒ | Civil | ☐ | Paintings/Coatings |
| ☐ | Structural | ☐ | Electrical |
| ☐ | Mechanical | ☐ | Tracing |
| ☐ | Piping | ☐ | Insulation |
| ☐ | NDE | ☐ | Fireproofing |
| ☐ | PHWT | ☐ | Walkdown/Punchout |
| ☐ | Pressure Test | ☐ | Other |

**Comments:**

The area was lined, tested, backfilled and compacted to the specifications. The area was proof rolled and witnessed by EPCM and Clark Builders representatives.

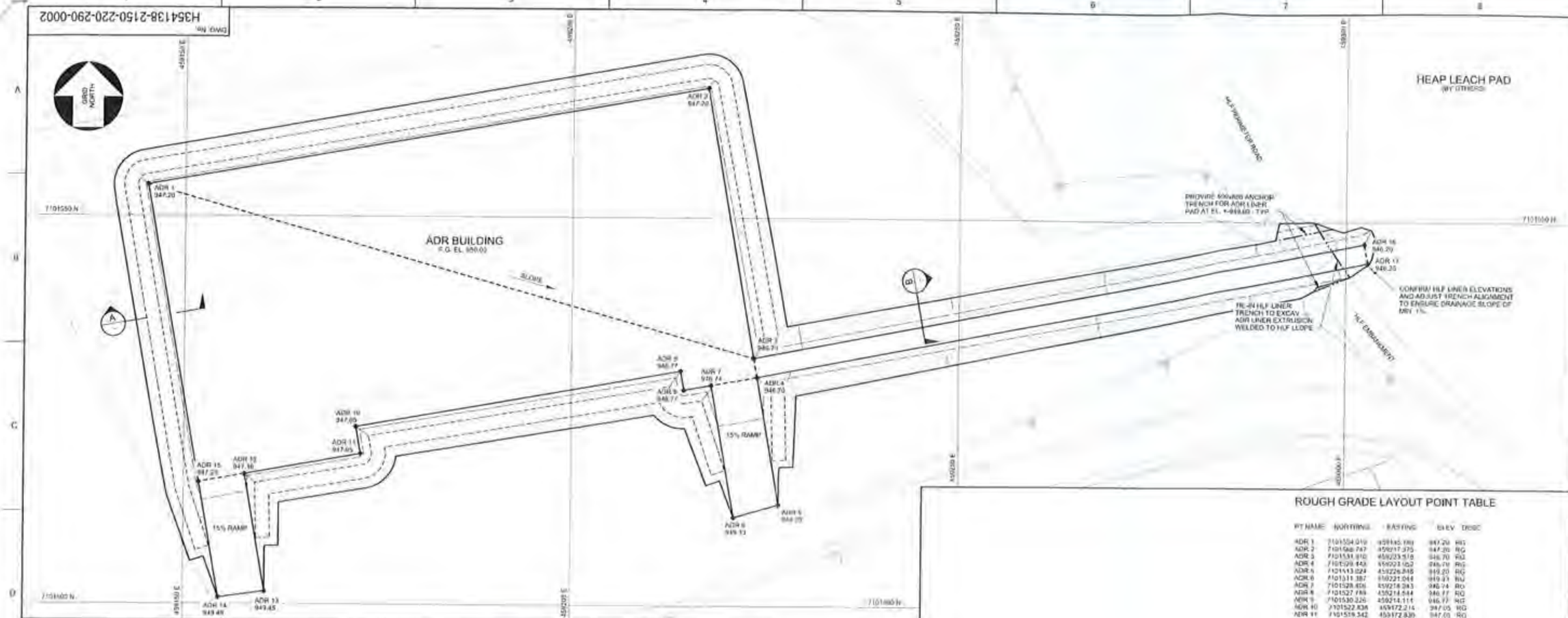
Also attached are ADR area Survey Control information for Clark Builder use.

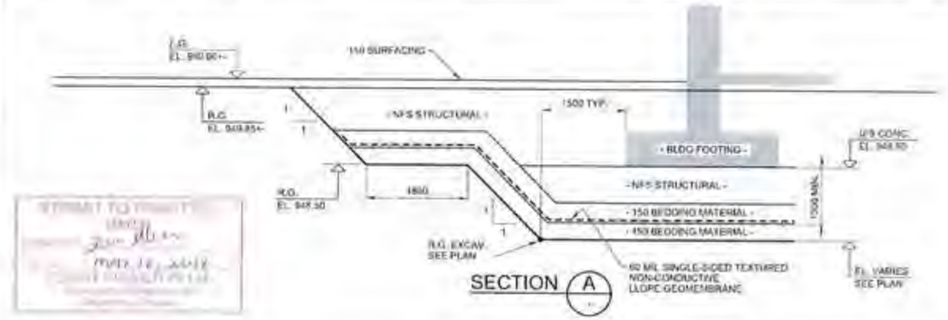
A Memorandum from EBA confirming proof rolling and backfill materials meet specifications.

A QC report on the Liner is to follow. Clark received with conditions

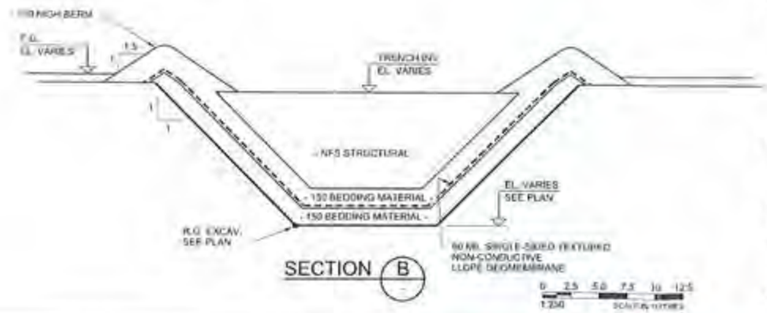
| | | | |
|---|---|---|---|
| Jerry Chrzaszcz | Const. Sup. | | July 19/18 |
| Requested By *(Print)* | Title | Signature | Date |
| Calvin Goldschmidt | Contract Manager | | July 19/18 |
| Release Authorized By *(Print)* | Title | Signature | Date |
| Garry DAHL | Superintendent | | July 19/18 |
| Release Received/Accepted By *(Print)* | Title | Signature | Date |

VICEAG05E




SECTION A




SECTION B

0 2.5 5.0 7.5 10 12.5
1:250 SCALE IN METRES

## ROUGH GRADE LAYOUT POINT TABLE

| PT NAME | NORTHING | EASTING | ELEV | DESC |
|---|---|---|---|---|
| ADR 1 | 7101554.010 | 459145.180 | 947.20 | RG |
| ADR 2 | 7101566.747 | 459217.375 | 947.20 | RG |
| ADR 3 | 7101531.810 | 459223.518 | 946.70 | RG |
| ADR 4 | 7101529.443 | 459223.052 | 946.70 | RG |
| ADR 5 | 7101513.024 | 459226.848 | 949.20 | RG |
| ADR 6 | 7101511.387 | 459221.044 | 949.33 | RG |
| ADR 7 | 7101528.406 | 459214.243 | 946.74 | RG |
| ADR 8 | 7101527.789 | 459214.544 | 946.77 | RG |
| ADR 9 | 7101530.226 | 459214.111 | 946.77 | RG |
| ADR 10 | 7101522.836 | 459172.214 | 947.05 | RG |
| ADR 11 | 7101519.342 | 459172.839 | 947.05 | RG |
| ADR 12 | 7101516.703 | 459157.861 | 947.16 | RG |
| ADR 13 | 7101501.633 | 459160.518 | 949.45 | RG |
| ADR 14 | 7101506.818 | 459154.570 | 949.46 | RG |
| ADR 15 | 7101515.661 | 459141.062 | 947.20 | RG |
| ADR 16 | 7101547.156 | 459102.353 | 946.20 | RG |
| ADR 17 | 7101544.699 | 459102.787 | 946.20 | RG |

## NOTES:

1. ALL DIMENSION IN MILLIMETERS. ELEVATIONS IN METERS.
2. FOR DETAILS AROUND THE HEAP LEACH FACILITY SEE LATEST DWGS FROM BGC ENGINEERING INC.
3. ALL STRUCTURAL BACKFILL UNDER AND AROUND THE BUILDING FOUNDATIONS AND SLAB SHALL BE NFS STRUCTURAL BACKFILL AS DESCRIBED IN H354138-0000-220-210-0001 DWG. DESIGN CRITERIA TABLE 4-1.
4. FOR GRADING OF ADR BENCH AREA SEE DWG. 2150-220-290-0001

| DRAWING No. | DRAWING TITLE |
|---|---|
| REFERENCE DRAWINGS | |

REG. PROFESSIONAL

| No. | DESCRIPTION | BY | CHKD | DATE |
|---|---|---|---|---|
| REVISIONS | | | | |

HATCH

| ROLE | NAME | SIGNATURE & DATE |
|---|---|---|
| DRAFTSPERSON | D NESJAN | NR DEC 2017 |
| DESIGNER | D NESJAN | NR DEC. 2017 |
| CHECKER | E AKINCI | |
| DESIGN COORD. | S PERKINS | |
| RESP. ENG. | E. AKINCI | |
| LEAD DISC. ENG. | E. AKINCI | |
| ENG. MANAGER | B. RUSTAD | |
| PROJ. MANAGER | B. RUSTAD | |

DRAWING APPROVAL STATUS: Approved for Construction

Eagle Gold Corporation

EAGLE GOLD PROJECT

ADR PLANT AND LAYDOWN PAD FOUNDATION AND LINER EXCAVATION PLAN AND SECTIONS

SCALE: AS NOTED OR AS NOTED

DWG. No. H354138-2150-220-290-0002

REV 0

SHEET SIZE: D

SHEET 1 OF 1

Underhill Geomatics Ltd.
Surveyor: D.Boyle

| ADR Plant Survey Control for Clark Builders |
|---|
| Coordinates are ground level control. SF=1 |
| Elevations are orthometric. |

| Point | Northing | Easting | Elevation |
|---|---|---|---|
| 4432 | 101535.445 | 59141.579 | 949.800 |
| 4433 | 101550.358 | 59226.308 | 949.222 |
| WP 13 | 101550.931 | 59148.983 | |

Coordinate methodology

Control points are originally UTM NAD83 (CSRS) coordinates.
Control points are scaled to ground distances from WP13 at a CSF of 1.000529.
Control points are truncated to differentiate from UTM coordinates.
Scaled UTM Northing - 7,000,000 = Ground Northing
Scaled UTM Easting - 400,000 = Ground Easting

# CONTRACTOR/INTERDISCIPLINE RELEASE FORM

| | | | |
|---|---|---|---|
| **Project:** | Eagle Gold Project | **Revision No.** | 0 |
| **Contractor:** | Clark Builders | **Contract No:** | CB201 |
| **Area:** | 5710 – ADR E House Transformer Base | | |

| | | | |
|---|---|---|---|
| **Date** *(mm/dd/yy)*: | 08/31/2018 | **Drawing No:** | H354138-5710-231-260-0032 |
| **Discipline:** | Civil/Subgrade | | |

**The following:** **Area** ☒ **Equipment** ☐ **System** ☐ **Other** ☐

**(Provide complete description of area item, equipment system and Tag Numbers where applicable):**

**Subgrade preparation to 949.850 m**

**Released to:** Clark Builders

**Release Basis:**

| | | | |
|---|---|---|---|
| ☒ | Civil | ☐ | Paintings/Coatings |
| ☐ | Structural | ☐ | Electrical |
| ☐ | Mechanical | ☐ | Tracing |
| ☐ | Piping | ☐ | Insulation |
| ☐ | NDE | ☐ | Fireproofing |
| ☐ | PHWT | ☐ | Walkdown/Punchout |
| ☐ | Pressure Test | ☐ | Other |

**Comments:**

**Clark Builders to complete subgrade detail excavation and preparation as per drawing H354138-5710-231-260-0032**

| | | | |
|---|---|---|---|
| DEAN SEREDO | FIELD ENGINEER | | Aug 31/18 |
| Requested By *(Print)* | Title | Signature | Date *(mm/dd/yy)* |
| Ishan Fechter | Const. Super | | Aug. 31/18 |
| Release Authorized By *(Print)* | Title | Signature | Date *(mm/dd/yy)* |
| Garry Dahl | Supt | | Sept 12/18 |
| Release Received/Accepted By *(Print)* | Title | Signature | Date *(mm/dd/yy)* |

## Dahl, Garry

**From:** Ishan Fechter <IshanF@jdsmining.ca>
**Sent:** Friday, August 31, 2018 4:11 PM
**To:** Dahl, Garry
**Cc:** Dolynchuk, Dustin; Wenger, Jackson; Jerry Chrzaszcz; Adam Chow; Roman Bilobrowka; Chris Copley; Calvin Goldschmidt; Matt Coverdale; D'Arcy Comerford
**Subject:** IDR - 5710 ADR Transformers
**Attachments:** IDR - 5710 ADR Transformers.pdf

Garry,

Find attached IDR – 5710 ADR Transformers.

Please sign and return upon acceptance.

The coordinates are below for your use.

| | | | | |
|---|---|---|---|---|
| 2257 | 101536.9 | 59121.19 | 949.5 | Outside Substation Corner US Key Footing |
| 2258 | 101543.3 | 59120.07 | 949.5 | Outside Substation Corner US Key Footing |
| 2259 | 101545.7 | 59133.81 | 949.5 | Outside Substation Corner US Key Footing |
| 2260 | 101539.4 | 59134.93 | 949.5 | Outside Substation Corner US Key Footing |

Regards,

Ishan

## Dahl, Garry

**From:** Ishan Fechter <IshanF@Jdsmining.ca>
**Sent:** Friday, August 31, 2018 4:11 PM
**To:** Dahl, Garry
**Cc:** Dolynchuk, Dustin; Wenger, Jackson; Jerry Chrzaszcz; Adam Chow; Roman Bilobrowka; Chris Copley; Calvin Goldschmidt; Matt Coverdale; D'Arcy Comerford
**Subject:** IDR - 5710 ADR Transformers
**Attachments:** IDR - 5710 ADR Transformers.pdf

Garry,

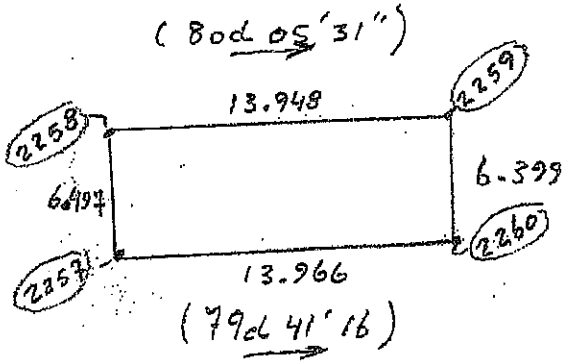
Find attached IDR – 5710 ADR Transformers.

Please sign and return upon acceptance.

The coordinates are below for your use.

| | | | | |
|---|---|---|---|---|
| 2257 | 101536.9<br>101536.9 | 59121.19<br>59121.20 | 949.5 | Outside Substation Corner US Key Footing |
| 2258 | 101543.3 | 59120.07 | 949.5 | Outside Substation Corner US Key Footing |
| 2259 | 101545.7<br>101545.73 | 59133.81<br>59133.82 | 949.5 | Outside Substation Corner US Key Footing |
| 2260 | 101539.4<br>101539.33 | 59134.93<br>59134.95 | 949.5 | Outside Substation Corner US Key Footing |

6.497




Regards, Adj. coords; Aligned w/ existing building and 90° corners.

Ishan (80°00'00")

received / Sept.01.1

**Dahl, Garry**

**From:** Ishan Fechter <IshanF@jdsmining.ca>
**Sent:** Saturday, September 1, 2018 2:04 PM
**To:** Wenger, Jackson
**Cc:** Calvin Goldschmidt; Matt Coverdale; Dahl, Garry; Nice, Peter; Chris Copley; RichardMorin
**Subject:** RE: IDR - 5710 ADR Transformers

Yes Jackson please proceed as per your surveyor's suggestion.

Ishan

**From:** Wenger, Jackson [mailto:jackson.wenger@clarkbuilders.com]
**Sent:** September 1, 2018 1:58 PM
**To:** Ishan Fechter <IshanF@jdsmining.ca>
**Cc:** Calvin Goldschmidt <Calving@jdsmining.ca>; Matt Coverdale <MattC@jdsmining.ca>; Dahl, Garry <garry.dahl@clarkbuilders.com>; Nice, Peter <peter.nice@clarkbuilders.com>; Chris Copley <chrisc@jdsmining.ca>
**Subject:** RE: IDR - 5710 ADR Transformers

Hi Ishan:

Our surveyor has laid out the coordinates below, and has proposed some minor adjustments to align the transformer base with the ADR building, and square the corners. Adjustments are attached.

Please confirm that this is acceptable, and we can proceed.

Thank You,

CLARK BUILDERS
ENERGY & RESOURCES

**Jackson Wenger**, Project Coordinator
SITE: 587-200-4441 C: 780 699 4681
www.clarkbuilders.com
4703 52 Ave, Edmonton, Alberta, Canada, T6B 3R6

CLARK BUILDERS
ENERGY & RESOURCES

# AREA CONCRETE TURNOVER

Rev 00 September 18, 2018

| | |
|---|---|
| OWNER REPRESENTATIVE(S): Ishan Fechter | DATE OF TURNOVER: September 18, 2018 |
| CLARK BUILDERS REPRESENTIVE(S): Ryan deMelianko | AREA/ LOCATION: 5710 ADR Perimeter Pilasters, Grade Beams, Ctgs. (See Attached) |

| | |
|---|---|
| TURNOVER TYPE: | ☐ COMPLETE AREA ☒ PARTIAL AREA ☐ EQUIPMENT ☐ SYSTEM ☐ OTHER |
| COMPLETE DESCRIPTION OF AREA TO BE TURNED OVER: | |
| SCOPES INCLUDED: | ☐ CIVIL/EARTHWORK ☒ CONCRETE ☒ ANCHOR BOLTS/EMBEDS ☐ GROUNDING ☐ GROUT |
| RELEASED FROM (Company): | CLARK BUILDERS |
| RELEASED TO (Company): | JDS |

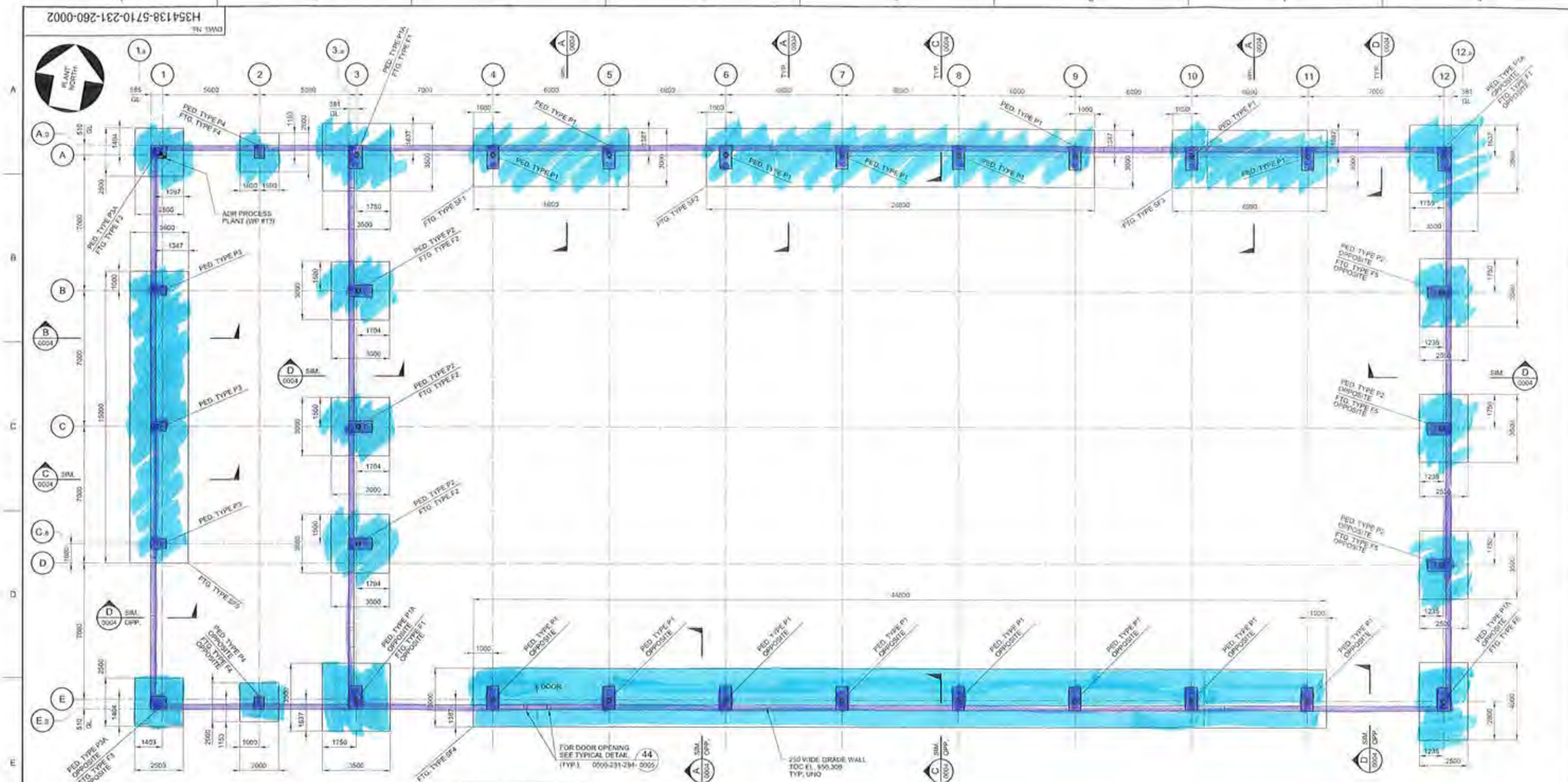
ATTACHMENT(S): DWG. #354138-5710-231-260-0002 R0

| ITEM | ITEMS TO BE CHECKED | ACCEPT | ACCEPT W/NOTES | DECLINE | N/A | NOTES |
|---|---|---|---|---|---|---|
| 1.0 | Concrete structure dimensions and locations are within acceptable tolerances and is acceptable to the owner. | ☒ | ☐ | ☐ | ☐ | |
| 2.0 | Tolerances for anchor bolts and embedded items have been review and are acceptable. This includes projection and location of embedded items. | ☒ | ☐ | ☐ | ☐ | |
| 3.0 | Safe access to the work area has been prepared by the contractor. | ☒ | ☐ | ☐ | ☐ | |
| 4.0 | All hardware required has been provided to the receiving company from Clark builders. This includes all plates, washers, nuts, etc. | ☒ | ☐ | ☐ | ☐ | |
| 5.0 | As built survey completed on area. | ☒ | ☐ | ☐ | ☐ | |
| 6.0 | Bearing surface adequately prepared for grout. | ☒ | ☐ | ☐ | ☐ | |
| 7.0 | Work area access has been adequately prepared. | ☒ | ☐ | ☐ | ☐ | |
| 8.0 | Outstanding RFI's for the area have been addressed prior to the area being turned over. (List any related RFI's in the comments) | ☒ | ☐ | ☐ | ☐ | |
| 9.0 | Outstanding deficiencies for the area have been addressed prior to the area being turned over. | ☒ | ☐ | ☐ | ☐ | |
| | | | | | | |

COMMENTS:

OWNER REPRESENTATIVE:
INSPECTOR: Ishan Fechter TITLE Superintendent DATE: September 18, 2018

CLARK BUILDERS REPRESENTATIVE:
INSPECTOR: Ryan deMelianko TITLE Project Coordinator (QA) DATE: September 18, 2018




PERMIT TO PRACTICE
HATCH
MAY 24, 2018
PERMIT NUMBER PP154

## FOUNDATION GENERAL ARRANGEMENT - PLAN

TOP OF PED. EL. 951.350 (TYP.)
TOP OF SLAB HP EL. 950.150
FIN. GRADE EL. 950.000 (REF.)
U/S FTG. EL. 948.500 (TYP.)

1:100 SCALE IN METRES

NOTES:
1. FOR NOTES SEE DRAWING H354138-5710-231-260-0001.

| DRAWING No. | DRAWING TITLE |
|---|---|
| REFERENCE DRAWINGS | |

REG. PROFESSIONAL

| No. | DESCRIPTION | BY | CHK'D | DATE |
|---|---|---|---|---|
| 0 | APPROVED FOR CONSTRUCTION | PJ | EA | 2018-05-23 |

REVISIONS

HATCH

| ROLE | NAME | SIGNATURE & DATE |
|---|---|---|
| DRAFTSPERSON | P. JIVAEV/E. MENDIOLA | NR 2018-03-28 |
| DESIGNER | F. LIU | NR 2018-03-28 |
| CHECKER | E. AKINCI | 2018-05-24 |
| DESIGN COORD. | S. PERKINS | |
| RESP. ENG. | E. AKINCI | 2018-05-24 |
| LEAD DISC. ENG. | E. AKINCI | 2018-05-24 |
| ENG. MANAGER | B. RUSTAD | 2018-05-24 |
| PROJ. MANAGER | B. RUSTAD | 2018-05-24 |

DRAWING APPROVAL STATUS: Approved for Construction

StrataGold Corporation

EAGLE GOLD PROJECT

ADR PROCESS PLANT BUILDING
BUILDING FOUNDATION
FOUNDATION - PLAN

SCALE 1:100 OR AS NOTED
DWG. No. H354138-5710-231-260-0002
REV 0
SHEET SIZE: D

SFILE: PRINTED: 24-MAY-2018

CLARK BUILDERS
ENERGY & RESOURCES

# AREA CONCRETE TURNOVER

Rev 00 September 18, 2018

| | |
|---|---|
| OWNER REPRESENTATIVE(S): | DATE OF TURNOVER: |
| CLARK BUILDERS REPRESENTIVE(S): Ryan deMilliano | AREA/ LOCATION: 5710 ADR PROCESS PLANT BUILDING. |

| | |
|---|---|
| TURNOVER TYPE: | ☒ COMPLETE AREA ☐ PARTIAL AREA ☐ EQUIPMENT ☐ SYSTEM ☐ OTHER |
| COMPLETE DESCRIPTION OF AREA TO BE TURNED OVER: | ADR PROCESS PLANT BUILDING. INTERIOR FOUNDATION AND ALL CONCRETE INSTALLATION'S |
| SCOPES INCLUDED: | ☐ CIVIL/EARTHWORK ☒ CONCRETE ☐ ANCHOR BOLTS/EMBEDS ☐ GROUNDING ☐ GROUT |
| RELEASED FROM (Company): | Clark Builders |
| RELEASED TO (Company): | JDS |

ATTACHMENT(S): • Dwg #354138-231-260-0019 Rev 00 (REFERENCE)
• Construction Walkdown (2018.10.28) WITH JDS DEFICIENCY LIST.

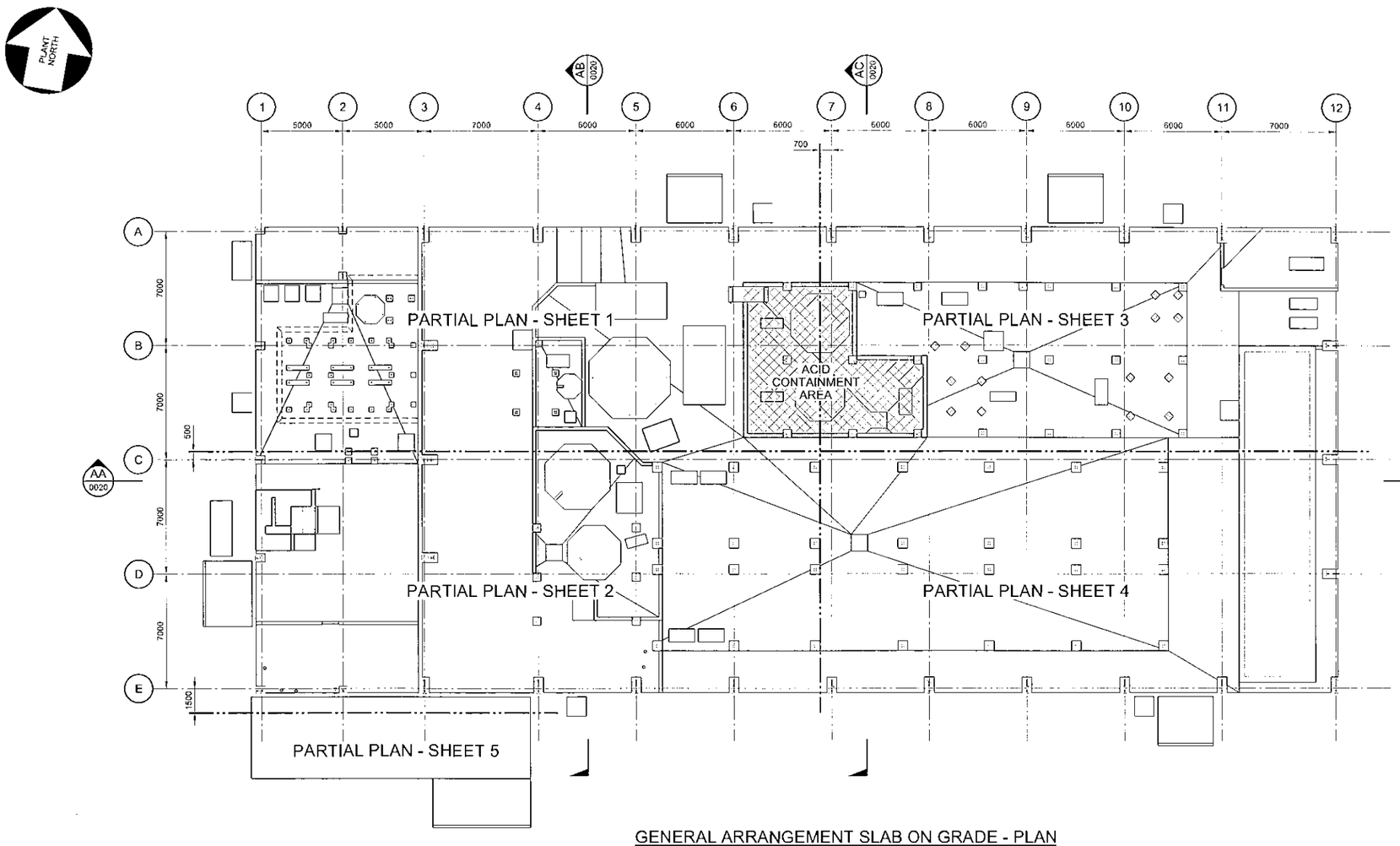
| ITEM | ITEMS TO BE CHECKED | ACCEPT | ACCEPT W/NOTES | DECLINE | N/A | NOTES |
|---|---|---|---|---|---|---|
| 1.0 | Concrete structure dimensions and locations are within acceptable tolerances and is acceptable to the owner. | ☒ | ☐ | ☐ | ☐ | |
| 2.0 | Tolerances for anchor bolts and embedded items have been review and are acceptable. This includes projection and location of embedded items. | ☒ | ☐ | ☐ | ☐ | |
| 3.0 | Safe access to the work area has been prepared by the contractor. | ☒ | ☐ | ☐ | ☐ | |
| 4.0 | All hardware required has been provided to the receiving company from Clark builders. This includes all plates, washers, nuts, etc. | ☒ | ☐ | ☐ | ☐ | |
| 5.0 | As built survey completed on area. | ☒ | ☐ | ☐ | ☐ | |
| 6.0 | Bearing surface adequately prepared for grout. | ☒ | ☐ | ☐ | ☐ | |
| 7.0 | Work area access has been adequately prepared. | ☒ | ☐ | ☐ | ☐ | |
| 8.0 | Outstanding RFI's for the area have been addressed prior to the area being turned over. (List any related RFI's in the comments) | ☒ | ☐ | ☐ | ☐ | |
| 9.0 | Outstanding deficiencies for the area have been addressed prior to the area being turned over. | ☐ | ☒ | ☐ | ☐ | Construction Walk Down W/Deficiency list attached. |

COMMENTS:

OWNER REPRESENTATIVE:
INSPECTOR: Jerry Chrzaszcz TITLE Const. Superintendent DATE: Nov. 10/18

CLARK BUILDERS REPRESENTATIVE:
INSPECTOR: Ryan deMilliano TITLE Project Coordinator DATE: Nov 10/18

DWG. No. H354138-5710-231-260-0019




## GENERAL ARRANGEMENT SLAB ON GRADE - PLAN

TOP OF SLAB NOM. EL. 950.150
FIN. GRADE EL. 950.000 (REF.)

NOTES:

1. FOR NOTES SEE DRAWING H354138-5710-231-260-0001.
2. ALL EXPOSED CONCRETE IN ACID CONTAINMENT AREA SHALL BE GIVEN A COATING OF POLYESTER PAINT CAPABLE OF RESISTING A SOLUTION OF 30% HYDROCHLORIC ACID. SURFACE PREPARATION OF CONCRETE AND INSTALLATION OF PAINT SHALL BE AS PER MANUFACTURERS RECOMMENDATIONS.
3. INSIDE ADR PROCESS PLANT BUILDING CONTAINMENT AREA, ALL CONSTRUCTION JOINTS INCLUDING THE ONES BETWEEN SLAB ON GRADE AND EQUIPMENT/TANK PADS AND PEDESTALS TO BE SEALED ACCORDING TO THE STANDARD DETAILS 23 AND 29 ON DRAWING H354138-0000-231-294-0003.

0 1.5 3.0 4.5 6.0 7.5
1:150 SCALE IN METRES

PERMIT TO PRACTICE HATCH LTD. JUNE 5, 2018

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| No. | DESCRIPTION | BY | CHK'D | DATE |
|---|---|---|---|---|
| 0 | APPROVED FOR CONSTRUCTION | EM | EA | 2018-06-05 |

REVISIONS

| ROLE | NAME | SIGNATURE & DATE |
|---|---|---|
| DRAFTSPERSON | P. JIVAEV | NR 2018-02-20 |
| DESIGNER | F. LIU | NR 2018-05-17 |
| CHECKER | E. AKINCI | 2018-06-06 |
| DESIGN COORD. | S. PERKINS | 2018-06-06 |
| RESP. ENG. | E. AKINCI | 2018-06-06 |
| LEAD DISC. ENG. | E. AKINCI | 2018-06-06 |
| ENG. MANAGER | B. RUSTAD | 2018-06-05 |
| PROJ. MANAGER | B. RUSTAD | 2018-06-05 |

DRAWING APPROVAL STATUS: Approved for Construction

HATCH

StrataGold Corporation

EAGLE GOLD PROJECT

ADR PROCESS PLANT BUILDING
SLAB ON GRADE
GENERAL ARRANGEMENT

| SCALE | DWG. No. | REV |
|---|---|---|
| 1:150 OR AS NOTED | H354138-5710-231-260-0019 | 0 |

SHEET SIZE: D

DRAWING No. | DRAWING TITLE
REFERENCE DRAWINGS

REG. PROFESSIONAL

JUNE 5, 2018

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PRINTED: 05-JUN-2018
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CLARK BUILDERS
ENERGY & RESOURCES

CB-FWDPL-DOC-018 Rev 1.

# Construction Walk Down Deficiency Sheet

**"A"** items To be completed before Acceptance.
**"BSU"** Items To be completed before startup.
**"BCC"** Items To be completed before contract closure.
**"C"** Items is Not in Scope.

Project Name: CB201/ 18502 StrataGold Eagle Gold Project

System Description: Concrete Installations

Walkdown Attendees: Clark Builders: Ryan de Milliano, Jackson Wenger
JDS Mining: Ishan Fechter, Matt Coverdale

Responsible Contractor: Clark Builders Energy & Resources

| Item No. | Date: (YYYY.MM.DD) | Area/ Location | Description | Discipline | Catagory (Dropdown) | Responsibility | Vendor (Dropdown) |
|---|---|---|---|---|---|---|---|
| 1 | 2018.10.28 | ADR Transformer | Finishing general on all walls, curbs, slabs. | Concrete Finishes | BCC | Clark Builders | No |
| 2 | 2018.10.28 | ADR Transformer | Sack Rub required on interior faces of blast walls | Concrete Finishes | BCC | Clark Builders | No |
| 3 | 2018.10.28 | ADR Building | Electrical Grounding conduit to be repaired and aligned properly for connection to building. | Electrical Grounding | C | JDS | No |
| 4 | 2018.10.28 | ADR Building | Remaining saw cut caulking required. (Once Building envelope is installed and interior is heated properly. | Caulking | BCC | Clark Builders | No |
| 5 | 2018.10.28 | ADR Building | GL 7.3/B Blow-off column Equip. pad Type 1 forming to be stripped and finished as required. | Concrete Finishes | BCC | Clark Builders | No |
| 6 | 2018.10.28 | ADR Building | GL A.5/6 Stair faces to be finished. | Concrete Finishes | BCC | Clark Builders | No |
| 7 | 2018.10.28 | ADR Building | General site slag removal at bases of formed structures (i.e. curbs, pedestals, walls, stairs, etc.) | Concrete Finishes | BCC | Clark Builders | No |
| 8 | 2018.10.28 | ADR Building | Induction furnace plate requires lifting hook to be removed and ground down to smooth surface. | Steel | BCC | Clark Builders | No |
| 9 | 2018.10.28 | ADR Building | Induction furnace corner not flush with concrete, concrete to be flush with the plate. | Concrete Finishes | BCC | Clark Builders | No |
| 10 | 2018.10.28 | ADR Building | Induction furnace channel between pads to be patched. | Concrete Finishes | BCC | Clark Builders | No |

CLARK BUILDERS
ENERGY & RESOURCES

CB-FWDPL-DOC-018 Rev 1.

# Construction Walk Down Deficiency Sheet

**"A"** items To be completed before Acceptance.
**"BSU"** Items To be completed before startup.
**"BCC"** Items To be completed before contract closure.
**"C"** Items is Not in Scope.

Project Name: CB201/ 18502 StrataGold Eagle Gold Project

System Description: Concrete Installations

Walkdown Attendees: Clark Builders: Ryan de Milliano, Jackson Wenger
JDS Mining: Ishan Fechter, Matt Coverdale

Responsible Contractor: Clark Builders Energy & Resources

| Item No. | Date: (YYYY.MM.DD) | Area/ Location | Description | Discipline | Catagory (Dropdown) | Responsibility | Vendor (Dropdown) |
|---|---|---|---|---|---|---|---|
| 11 | 2018.10.28 | ADR Building | GL. 2/A.5 Anchor Bolt to be threaded down to correct location. Current extra washers installed to support the bolts. | Anhor Bolts | BCC | Clark Builders | No |
| 12 | 2018.10.28 | ADR Building | As per RFI 74, Pad poured 45mm too high required to be chipped down 30mm. | Concrete Structure | BCC | Clark Builders | No |
| 13 | 2018.10.28 | ADR Building | Air pockets in concrete, general, to be patched. | Concrete Finishes | BCC | Clark Builders | No |
| 14 | | | | | | | |
| 15 | | | | | | | |

TETRA TECH

January 15, 2018

ISSUED FOR USE
FILE: ENG.WARC03235-03.004
Via Email: calving@jdsmining.ca

JDS Mining
Suite 900, 999 West Hastings Street
Vancouver, BC V6C 2W2

**Attention:** Mr. Calvin Goldschmidt

**Subject:** Aggregate Analysis
20 mm Coarse Aggregate – Sample L-1
Fine Aggregate – Sample L-2
Mayo Area, Yukon

Pursuant to your request, Tetra Tech Canada Inc. (Tetra Tech), has completed testing on the samples submitted by JDS Mining. The samples were identified as being produced at the Mayo Area, Yukon, and received by Tetra Tech on November 27, 2017. The results are enclosed and summarized below.

## Summary of Test Results

| Test | Specifications | L-1 20 mm | L-2 Concrete Sand |
|---|---|---|---|
| Material Finer than 80 µm (CSA A23.2-5A) | CSA A23.1-14, Table 12, Maximum material finer than 80 µm % by mass of total sample: coarse – 1.0, fine – 3.0 | 2.3 | 13.2 |
| Relative Density and Absorption of Coarse and Fine Aggregate (CSA A23.2-6A, 12A) | Bulk relative density | 2.63 | 2.55 |
| | Bulk relative density (saturated surface-dry) | 2.65 | 2.67 |
| | Apparent relative density | 2.71 | 2.72 |
| | Absorption (percentage) | 1.1 | 1.0 |
| Los Angeles Abrasion of Small Size Coarse Aggregate CSA A 23.2-16A | CSA A23.1 Table 12, Maximum Abrasion loss 50% by mass of sample | 22.6 | -- |
| Micro-Deval Test (CSA A23.2-23A, 29A) | CSA A23.1-14, Table 12, Maximum Micro-Deval loss % by mass of total sample: coarse – 17, fine – 20 | -- | 15 |
| Colour Plate (CSA A23.3-7A) | CSA A23.1-14, Clause 4.2.3.3.2, Maximum 3 | -- | 1 |
| Fineness Modulus | Table 10, Minimum 2.3, Maximum 3.1 (FA1) | -- | 3.02 |

Tetra Tech Canada Inc.
Riverbend Atrium One, 115, 200 Rivercrest Drive SE
Calgary, AB T2C 2X5 CANADA
Tel 403.203.3355 Fax 403.203.3301

The petrographic analysis was performed in accordance with Canadian Standards Association (CSA) A23.2-15A, petrographic examination of aggregates. The summary of the petrographic analysis of the aggregate, the 20 mm coarse aggregate L-1, is presented in the enclosed Table 1. The material is composed predominantly of gneiss/granite, with some quartzite/quartz, amphibolite and skarn, and a trace of slate and petrified wood. The petrographic number (PN) is 109.

The summary of the petrographic analysis of the fine aggregate L-2 is presented in the enclosed Table 2. The material is composed predominantly of gneiss/granite and quartzite/quartz, with some skarn and amphibolite, and a trace of slate and petrified wood.

CSA suggested PN limit (CSA 23.2-14, Table A2.1) for concrete Classes C1, C2, and F1 is a maximum of 125, and for all other concrete, the PN limit is 140. Alberta Transportation specifies a maximum PN of 130. Alberta Transportation specifies a maximum ironstone content of 0.8% for coarse aggregates, and 1.5% (retained on the 2.5 mm sieve) for fine aggregates.

The petrographic analysis is not related to the potential for alkali-aggregate reactivity (AAR) of this aggregate when used in Portland cement concrete. AAR potential must be separately assessed.

This letter report and its contents are intended for the sole use of JDS Mining and their agents. Tetra Tech Canada Inc. does not accept any responsibility for the accuracy of any of the data, the analysis, or the recommendations contained or referenced in the letter report when the letter report is used or relied upon by any party other JDS Mining or for any project other than the proposed development at the subject site. Any such unauthorized use of this letter report is at the sole risk of the user. Use of this document is subject to the Limitations on the Use of This Document and is provided with this letter report or the Contractual Terms and Conditions executed by both parties.

We trust this report meets your present requirements. If you have any questions or comments, please contact the undersigned.

Respectfully submitted,
Tetra Tech Canada Inc.

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/dlc

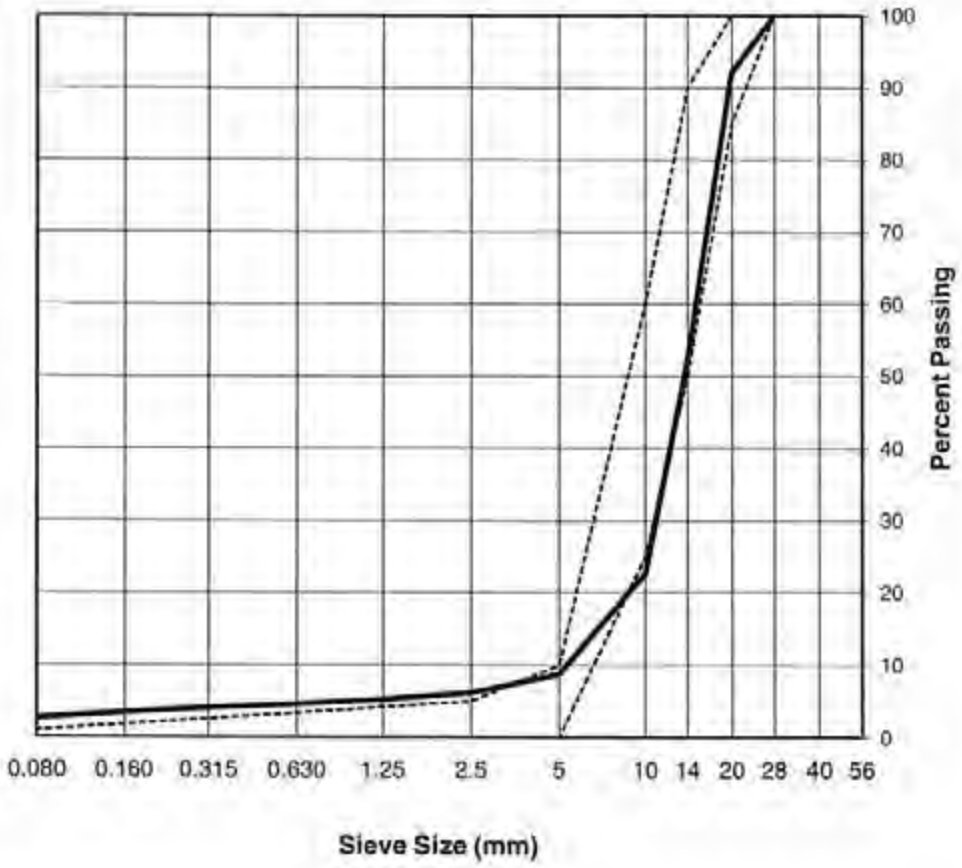
Enclosures (8): Concrete Aggregate Analysis Report – Samples L-1 and L-2
Los Angeles Abrasion of Small Size Coarse Aggregate – Sample L-1
Tables 1 and 2 – Summary of Petrographic Analysis of Coarse and Fine Test Reports
Practice Size Analysis (Hydrometer) – Sample L-2
Micro-Deval Abrasion of Aggregate – Sample L-2
Tetra Tech's Limitations on the Use of This Document

# CONCRETE AGGREGATE ANALYSIS REPORT

CSA A23.2-2A, CSA A23.2-5A and CSA A23.2-12A

| | | | |
|---|---|---|---|
| **Project No.:** | 704-ENG.WARC03235-03.004 | **Sample No.:** | L-1 |
| **Project:** | NELPCo - Eagle Gold Project - On-site QC testing | **Date Received:** | November 27, 2017 |
| **Client:** | JDS Mining | **Date Tested:** | December 6, 2017 |
| **Attention:** | Calvin Goldschmidt | **Tested by:** | EM/JB **Office:** Calgary |
| **Email:** | calving@jdsmining.ca | **Moisture Content:** | 0.8% |
| **Description:** | Coarse Aggregate | **Colour Plate No.:** | Not Tested |
| **Source:** | Mayo Area, Yukon | **Bulk Relative Density:** | 2.63 |
| **Location:** | Eagle Gold Property | **Bulk Relative Density (SSD):** | 2.66 |
| **Supplier:** | Eagle Gold Property | **Apparent Relative Density:** | 2.71 |
| **Specification:** | CSA Group I 20-5 mm Coarse Aggregate | **Absorption:** | 1.1% |

| Sieve Sizes | Percent Passing |
|---|---|
| | |
| | |
| | |
| 28 | 100 |
| 20 | 92 |
| 14 | 52 |
| 10 | 23 |
| 5 | 9 |
| 2.5 | 6 |
| 1.25 | 5 |
| 0.630 | 5 |
| 0.315 | 4 |
| 0.160 | 3 |
| 0.080 | 2.7 |
| | |




**Remarks:**

CCIL

**Reviewed By:** _____ P.Geol.

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TETRA TECH

# LOS ANGELES ABRASION OF SMALL-SIZE COARSE AGGREGATE

CAN/CSA A23.2 - 16A

| | | | |
|---|---|---|---|
| **Project No:** | 704-ENG.WARC03235-03.004 | **Sample No.:** | L-1 |
| **Project:** | NELPCo - Eagle Gold Project - On-site QC testing | **Date Received:** | November 27, 2017 |
| **Client:** | JDS Mining | **Sampled By:** | Client |
| | | **Date Tested:** | December 21, 2017 |
| **Attention:** | Calvin Goldschmidt **Fax:** | **Tested By:** | EM |
| **Email:** | calving@jdsmining.ca | **Office:** | Calgary |

| | |
|---|---|
| **Description:** | Coarse Aggregate |
| **Source:** | Mayo Area, Yukon |
| **Sample Location:** | Eagle Gold Property |
| **Supplier** | Eagle Gold Property |

| **Test Grading** Sieve Size (mm) | | **Mass of Indicated Sizes** (g) | | | | | |
|---|---|---|---|---|---|---|---|
| Passing | Retained | **Grading A** | **Grading B** | **Grading C** | **Grading D** | **Grading E** | **Sample L-1** |
| 40 | 28 | 1250 ± 25 | -- | -- | -- | -- | |
| 28 | 20 | 1250 ± 25 | -- | -- | -- | -- | |
| 20 | 14 | 1250 ± 10 | 2500 ± 10 | -- | -- | -- | 2500.4 |
| 14 | 10 | 1250 ± 10 | 2500 ± 10 | 2500 ± 10 | -- | -- | 2501.0 |
| 10 | 5 | -- | -- | 2500 ± 10 | 5000 ± 10 | -- | |
| 5 | 2.5 | -- | -- | | -- | 5000 ± 10 | |
| | Total: | 5,000 ± 10 | | | | | 5,001.4 |

| **Test Grading** | **Size Range** | **Initial Mass** (g) | **Final Mass** (g) | **Mass Loss** (g) | **Loss** (%) |
|---|---|---|---|---|---|
| B | 20-10 mm | 5001.4 | 3871.2 | 1130.2 | **22.6** |

CSA A23.1, Table 12: Maximum Abrasion Loss 50% by mass of sample

(Note §§: 35% by mass of sample for concrete surface subjected to significant wear)

**Remarks:**

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TETRA TECH

**Table: 1**

## Summary of Petrographic Analysis of Coarse Aggregate Test Report

CSA A23.2-15A

| | | | |
|---|---|---|---|
| **Project:** | NELPCo - Eagle Gold Project - On-site Q | **Sample No.:** | L-1 |
| **Client:** | JDS Mining | **Date Received:** | November 27, 2017 |
| **Project No.:** | 704-ENG.WARC03235-03.004 | **Date Tested:** | January 5, 2018 |
| **Source:** | Mayo Area, Yukon | **Petrographer:** | Miroslav Simecek |
| **Description:** | Coarse Aggregate | **Office:** | Calgary |

| Rock Type | Petrographic Multiplier | 28 - 20 mm % in fraction | 20 - 14 mm % in fraction | 14 - 10 mm % in fraction | 10 - 5 mm % in fraction | Weighted Average % |
|---|---|---|---|---|---|---|
| **Good - High Strength** | | | | | | |
| Quartzite | 1 | 27.1 | 23.3 | 21.3 | 23.2 | 23.0 |
| Gneiss/Granite | 1 | 32.8 | 54.9 | 59.4 | 40.4 | 52.3 |
| Amphibolite | 1 | 23.7 | 10.0 | 8.7 | 15.1 | 11.6 |
| Skarn | 1 | 11.3 | 6.9 | 7.4 | 14.5 | 8.6 |
| **Fair - Medium Strength** | | | | | | |
| Quartzite | 3 | 0.0 | 0.6 | 0.5 | 1.4 | 0.6 |
| Gneiss/Granite | 3 | 4.5 | 1.5 | 1.5 | 2.5 | 1.9 |
| Amphibolite | 3 | 0.6 | 0.6 | 0.5 | 1.1 | 0.6 |
| Slate | 3 | 0.0 | 1.1 | 0.7 | 1.3 | 0.9 |
| Petrified wood | 3 | 0.0 | 1.0 | 0.0 | 0.6 | 0.5 |
| **Poor - Low Strength** | | | | | | |
| **Deleterious** | | | | | | |
| Ironstone | 10 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| **Petrographic Number :** | | **110** | **110** | **107** | **114** | |
| Percent of Fraction in Sample: | | 7.9 | 39.7 | 29.8 | 14.0 | |

**Weighted Average Petrographic Number:** **109**

Weighted Average Chert Content: **0.0 %** Weighted Average Ironstone Content: **0.0 %**

Note: Petrographic evaluation of coarse aggregate suitability/acceptance should be confirmed by the suite of CSA Table 12 testing and AAR testing

**Remarks:**

CCIL

**Petrographer:** _____ P.Geol.

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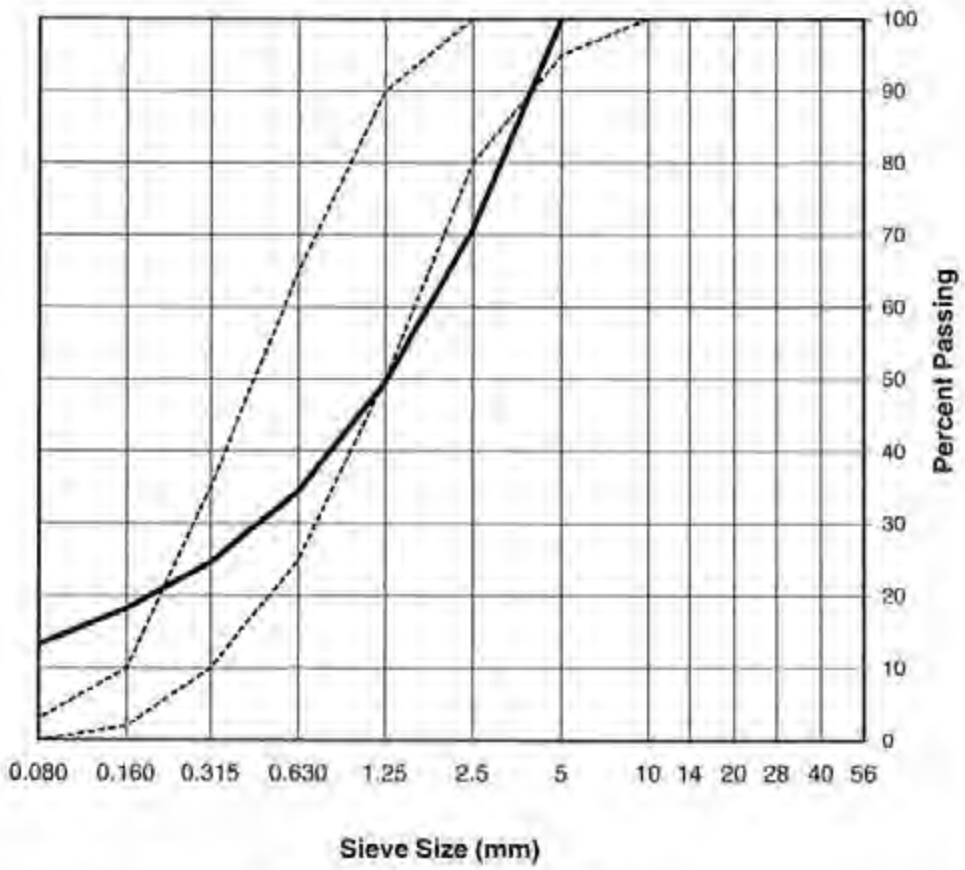
# CONCRETE AGGREGATE ANALYSIS REPORT

CSA A23.2-2A, CSA A23.2-5A, CSA A23.2-6 and CSA A23.2-7A

| | | | |
|---|---|---|---|
| **Project No.:** | 704-ENG.WARC03235-03.004 | **Sample No.:** | L-2 |
| **Project:** | NELPCo - Eagle Gold Project - On-site QC testing | **Date Received:** | November 27, 2017 |
| **Client:** | JDS Mining | **Date Tested:** | December 6, 2017 |
| **Attention:** | Calvin Goldschmidt | **Tested by:** | EM/JB **Office:** Calgary |
| **Email:** | calving@jdsmining.ca | **Moisture Content:** | 4.8% |
| **Description:** | Fine Aggregate | **Colour Plate No.:** | 1 |
| **Source:** | Mayo Area, Yukon | **Bulk Relative Density:** | 2.65 |
| **Location:** | Eagle Gold Property | **Bulk Relative Density (SSD):** | 2.67 |
| **Supplier:** | Eagle Gold Property | **Apparent Relative Density:** | 2.72 |
| **Specification:** | CSA FA1 Fine Aggregate | **Absorption:** | 1.0% |

| Sieve Sizes | Percent Passing |
|---|---|
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| 5 | 100 |
| 2.5 | 71 |
| 1.25 | 50 |
| 0.630 | 35 |
| 0.315 | 25 |
| 0.160 | 18 |
| 0.080 | 13.3 |
| FM | 3.02 |




**Remarks:** Material passing 0.08 mm sieve consists of 2% clay and 11.3% silt.

CCIL

**Reviewed By:** _____ P.Geol.

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TETRA TECH

**Table: 2**

## SUMMARY OF PETROGRAPHIC ANALYSIS OF FINE AGGREGATE

CSA A23.2-15A

| | | | |
|---|---|---|---|
| Project: | NELPCo - Eagle Gold Project - On-site QC te | Sample No.: | L-2 |
| Client: | JDS Mining | Date Received: | November 27, 2017 |
| Project No.: | 704-ENG.WARC03235-03.004 | Date Tested: | January 5, 2018 |
| Source: | Mayo Area, Yukon | Petrographer: | Miroslav Simecek |
| Description: | Fine Aggregate | Office: | Calgary |

| Rock Type | 5.0-2.5mm % in fraction | 2.5-1.25mm % in fraction | 1.25-630µm % in fraction | 630-315µm % in fraction | 315-160µm % in fraction | Weighted Average |
|---|---|---|---|---|---|---|
| Quartzite/Quartz* | 25.7 | 28.6 | 27.5 | 25.8 | 26.6 | 26.9 |
| Gneiss/Granite | 43.6 | 41.1 | 43.5 | 44.3 | 41.9 | 42.9 |
| Amphibolite | 14.1 | 13.1 | 13.3 | 13.6 | 14.7 | 13.7 |
| Skarn | 13.7 | 13.7 | 13.9 | 15.1 | 15.8 | 14.1 |
| Slate | 2.2 | 2.3 | 1.8 | 1.2 | 1.0 | 1.9 |
| Petrified Wood | 0.7 | 1.2 | 0.0 | 0.0 | 0.0 | 0.6 |
| Percent of Fraction: | 29.2% | 21.2% | 15.1% | 9.9% | 6.4% | |

**Weighted Average Chert Content:** **0.0%**

**Weighted Total Ironstone Content:** **0.0%** (Retained on the 2.5mm sieve)

**Notes:**

(1) Silica present in the above-identified rock types (*) has a potential for reaction with alkali compounds in Portland cement. The potential for alkali-aggregate reactivity (AAR) must be separately assessed.

(2) See CSA A23.1 and A23.2 for assessment of AAR in new concrete construction. In the absence of test results, this aggregate should be considered moderately reactive.

(3) Petrographic evaluation of fine aggregate suitability/acceptance should be confirmed by the suite of CSA Table 12 testing and AAR testing

**Remarks:**

**Petrographer:** _____ P.Geol.

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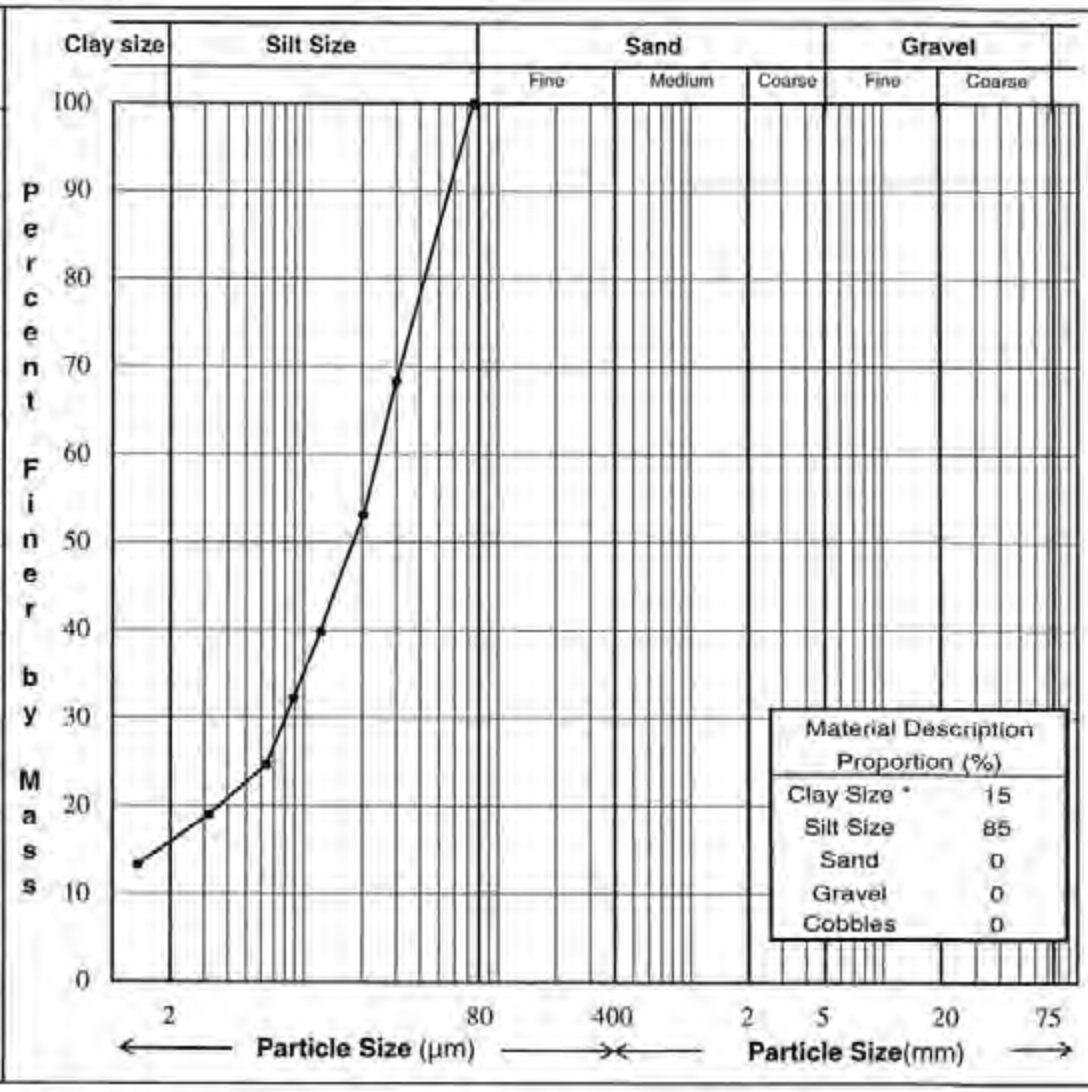
TETRA TECH

# PARTICLE SIZE ANALYSIS (Hydrometer) TEST REPORT

ASTM D7928

| | | | |
|---|---|---|---|
| Project: | NELPCo - Eagle Gold Project - On Site QC Testing | Sample No.: | L-2 |
| Client: | JDS Mining | Borehole/ TP: | Mayo Area Yukon |
| Project No.: | 704-ENG.WARC03235-03.004 | Depth: | |
| Location: | Eagle Gold Property | Date Tested | January 2, 2018 |
| Description **: | SILT, trace clay | Tested By: | MS |

| Particle Size | Percent Passing |
|---|---|
| 100 mm | |
| 75 mm | |
| 50 mm | |
| 38 mm | |
| 25 mm | |
| 19 mm | |
| 13 mm | |
| 10 mm | |
| 5 mm | |
| 2 mm | |
| 850 µm | |
| 425 µm | |
| 250 µm | |
| 150 µm | |
| 75 µm | 100 |
| 30 µm | 68 |
| 20 µm | 53 |
| 12 µm | 40 |
| 9 µm | 32 |
| 6 µm | 25 |
| 3 µm | 19 |
| 1 µm | 13 |




**Remarks:** * The description is behaviour based & subject to Tetra Tech Canada description protocols.

** Unless expressly stated, this test was performed by the Air Dry Method

**Reviewed By:** _____ P.Geol.

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TETRA TECH

# MICRO-DEVAL ABRASION OF FINE AGGREGATE

CAN/CSA A23.2 - 23A

| | | | |
|---|---|---|---|
| **Project No:** | 704-ENG.WARC03235-03.004 | **Sample No.:** | L-2 |
| **Project:** | NELPCo - Eagle Gold Project - On-site QC testing | **Date Received:** | November 27, 2017 |
| **Client:** | JDS Mining | **Sampled By:** | Client |
| | | **Date Tested:** | December 22, 2017 |
| **Attention:** | Calvin Goldschmidt **Fax:** | **Tested By:** | EM |
| **Email:** | calving@jdsmining.ca | **Office:** | Calgary |

| | |
|---|---|
| **Description:** | Fine Aggregate |
| **Source:** | Mayo Area, Yukon |
| **Sample Location:** | Eagle Gold Property |
| **Supplier:** | Eagle Gold Property |

CSA A23.2, Table 12: Maximum Abrasion Loss 20%

| | |
|---|---|
| Initial Mass (g): | 500.0 |
| Final Mass (g): | 424.8 |
| Mass Loss (g): | 75.2 |
| **Loss (%):** | **15.0%** |

**Remarks:**

CCIL

**Reviewed By:** _____ P.Geol.

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## CONSTRUCTION MATERIALS ENGINEERING AND TESTING

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This document pertains to a specific site, a specific development, and a specific scope of work. The document may include plans, drawings, profiles and other supporting documents that collectively constitute the document (the "Professional Document").

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### 1.11 NOTIFICATION AND LEVEL OF SERVICE

Unless the Client requests or the building code requires full-time services, the Client understands that services provided by TETRA TECH are on an "On-Call" basis. The Client shall assume responsibility for adequate notification and scheduling of TETRA TECH services. TETRA TECH will make every reasonable effort to meet the Client's schedule, but will not guarentee service availabilify without direct confirmation from with the Client or their agent.

### 1.12 CERTIFICATIONS

The Client will not require TETRA TECH to execute any certification regarding Services performed or the Work tested or observed unless: 1) TETRA TECH believes that it has performed sufficient Services to provide e sufficient basis to issue the certification; 2) TETRA TECH believes that the Services performed and Work tested or observed meet the criteria of the certification; and 3) TETRA TECH has reviewed and approved in writing the exact form of such certification prior to execution of the Service Agreement. Any certification by TETRA TECH is limited to the expression of a professional opinion based upon the Services performed by TETRA TECH, and does not constitute a warranty or guarantee, either express or implied.

### 1.13 WEATHER AND PROTECTION OF MATERIALS

Performance of the Services by TETRA TECH and/or its designated subcontractor may be delayed or excused when such performance is commercially impossible or impracticable as a result of weather events, strikes, shortages or other causes beyond their reasonable control which may also impact cost estimates.

Excavation and construction operations expose materials to climatic elements (freeze/thaw, wet/dry) and/or mechanical disturbance which can cause severe deterioration. Unless otherwise specifically indicated in this report, the walls and floors of excavations, and stockpiles, must be protected from the elements, particularly moisture, desiccation, frost action and construction activities.

### 1.14 CALCULATIONS AND DESIGN

Where TETRA TECH has undertaken design calculations and has prepared project specific designs in accordance with terms of reference that were previously set out in consultation with, and agreement of, TETRA TECH's client. These designs have been prepared to a standard that is consistent with industry practice. Notwithstanding, if any error or omission is detected by TETRA TECH's Client or any perty that is euthorized to use the Design Report, the error or omission should be immediately drawn to the attention of TETRA TECH.

### 1.15 INFLUENCE OF CONSTRUCTION ACTIVITY

There is a direct corralation between construction activity and structural performance of adjacent buildings and other installations. The influence of all anticipated construction activities should be considered by the contractor, owner, architect and prime engineer in consultation with a geotechnical engineer when the finel design and construction techniques are known.

### 1.16 SAMPLES

The Client will provide samples for testing (at the Client's expense). TETRA TECH will retain unused portions of samples only until such time as internal review is accomplished for intended purpose. Further storage or transfer of samples can be made at the Client's expense upon written request, otherwise semples will be discarded. The duration of sample retention must be discussed in advance.

### 1.17 GEOTECHNICAL CONDITIONS

A Geotechnical Report is commonly the basis upon which the specific project design or testing has been completed. It is incumbent upon TETRA TECH's Client, and eny other authorized party, to be knowledgeable of the level of risk that has been incorporated into the project design, in consideration of the level of the geotechnical information that was reasonably acquired to facilitate completion of the design.

If a Geotechnical Report was prepared for the project by TETRA TECH or others, it will be referenced in the Construction Materials or Materials Design Report. The Geotechnical Report contains Generel Conditions that should be read in conjunction with these General Conditions for this Report.

TETRA TECH

January 15, 2018

ISSUED FOR USE
FILE: ENG.WARC03235-03.004
Via Email: calving@jdsmining.ca

JDS Mining
Suite 900, 999 West Hastings Street
Vancouver, BC V6C 2W2

**Attention:** Mr. Calvin Goldschmidt

**Subject:** Mitigated Accelerated Alkali-Aggregate Reactivity
Coarse Fraction with 25% Genesee Fly Ash – L-1
Fine Fraction with 25% Genesee Fly Ash – L-2
Mayo Area, Yukon

As requested, Tetra Tech Canada Inc. (Tetra Tech), has completed testing of coarse fraction (L-1) and fine fraction (L-2) for mitigated accelerated alkali-aggregate reactivity. The samples were obtained from Eagle Gold Property and were received by Tetra Tech in Calgary laboratory on November 27, 2017.

The testing is done in accordance with Canadian Standards Association (CSA) A23.2-25A, the test method for detection of alkali-silica reactive aggregate by accelerated expansion of mortar bars and A23.2-28A the test method for effectiveness of supplementary cementing materials to prevent alkali-silica reaction in mortar bars.

The enclosed results represent the expansion of the mortar bars after 14 days of testing (Figure 1). The results are summarized in Table 1 below.

**Table 1: Aggregate Analysis**

| Source | Aggregate Tested | 14 Day Results (% Expansion and Remarks) |
|---|---|---|
| Mayo Area, Yukon | Coarse fraction with 25% Genesee fly ash | 0.030 – Mitigated (Figure 1) |
| Mayo Area, Yukon | Fine fraction with 25% Genesee fly ash | 0.031 – Mitigated (Figure 2) |

Holcim Mississauga Type GU hydraulic cement with the total alkali content of 0.90% was used in the concrete mixes, and the mortar bars were placed in a 1N NaOH solution at 80°C for 14 days (CSA A23.2-25A).

As a means of qualifying the testing laboratory and validating the testing process, Spratt aggregate is tested on a regular basis. According to Clause 11.2 of CSA 23.2-09-25A, the expansion of mortar bars using Spratt aggregate shall fall between 0.30% and 0.55% after 14 days. The results from our laboratory testing fall within these limits and are presented on Figure 3.

This letter report and its contents are intended for the sole use of JDS Mining and their agents. Tetra Tech Canada Inc. does not accept any responsibility for the accuracy of any of the data, the analysis, or the recommendations contained or referenced in the letter report when the letter report is used or relied upon by any party other JDS Mining or for any project other than the proposed development at the subject site. Any such unauthorized use of this letter report is at the sole risk of the user. Use of this document is subject to the Limitations on the Use of This Document and is provided with this letter report or the Contractual Terms and Conditions executed by both parties.

Tetra Tech Canada Inc.
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Calgary, AB T2C 2X5 CANADA
Tel 403.203.3355 Fax 403.203.3301

We trust the information provided meets your present requirements. However, should you have any questions, please contact the undersigned.

Respectfully submitted,
Tetra Tech Canada Inc.

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PERMIT TO PRACTICE
TETRA TECH CANADA INC.
SIGNATURE
Date Jan 15, 2018
PERMIT NUMBER PP003
Association of Professional Engineers of Yukon

/dlc

Enclosures (3): Effectiveness of Supplementary Cementing Material to Prevent ASR in Mortar Bars – Figures 1 & 2
Validation of CSA A23.2-25A Testing Process Using Spratt Aggregate – Figure 3
Tetra Tech's Limitations on the Use of This Document

## Effectiveness of Supplementary Cementing Materials to Prevent ASR in Mortar Bars

CSA A23.2-25A, CSA A23.2-28A

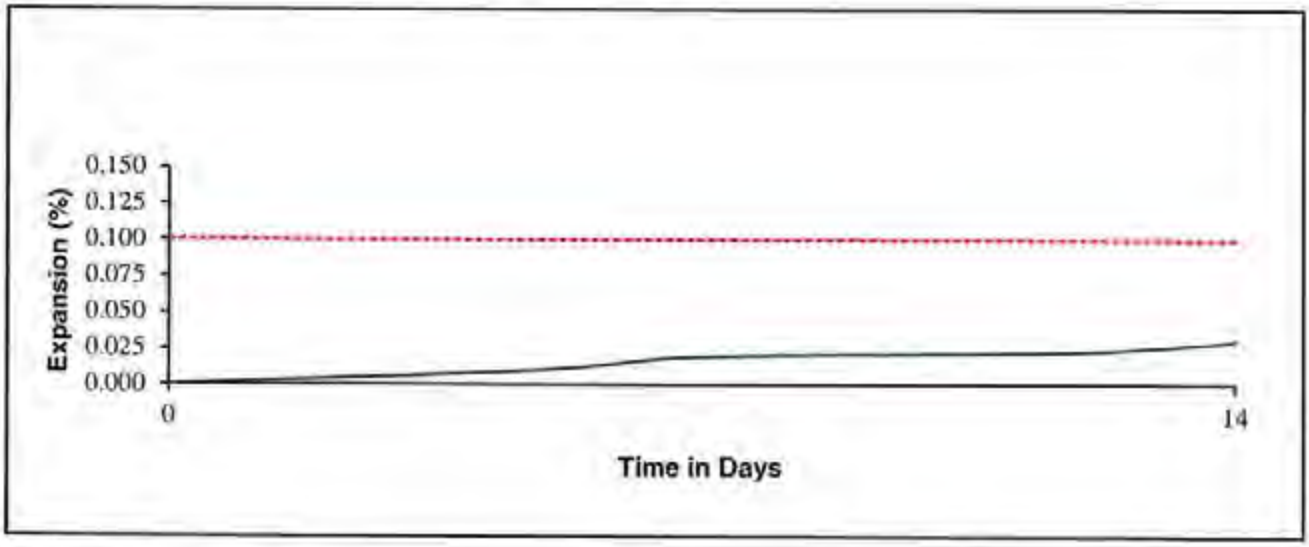
| | | | |
|---|---|---|---|
| **Project No:** | 704-ENG.WARC03235-03.004 | **Sample No.:** | C1 |
| **Project:** | NELPCo - Eagle Gold Project - On-site QC Testing | **Date Cast:** | 4-Dec-17 |
| **Client:** | JDS Mining | **Test By:** | KH/EM |
| **Attention:** | Calvin Goldschmidt **Fax:** | **W/cm:** | 0.50 |
| **E-mail:** | calving@jdsmining.ca | **Alkali Content of Cement:** | 0.90% $Na_2O$ Equivalent |

**Description:** Coarse Fraction with 25% Genesee Fly Ash

**Source:** Mayo Area, Yukon

**Sample Location:** Eagle Gold Property

**Supplier:** Eagle Gold Property




| Demostrating the effectiveness of supplementary cementing materials to prevent alkali-silica reaction (CSA A23.2-28A, Clause 9) | Expansion limits at 14 days (%) |
|---|---|
| Mitigated | <0.100 |
| Non-mitigated | >0.100 |

| Time (Days) | Expansion (%) |
|---|---|
| 0 | 0.000 |
| 5 | 0.010 |
| 7 | 0.019 |
| 12 | 0.023 |
| 14 | 0.030 |

**Figure 1:** Expansion of Mortar Bars with Mississauga GU Cement

**Office:** Calgary, AB **Reviewed By:** _____ P.Geol.

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## Effectiveness of Supplementary Cementing Materials to Prevent ASR in Mortar Bars

CSA A23.2-25A, CSA A23.2-28A

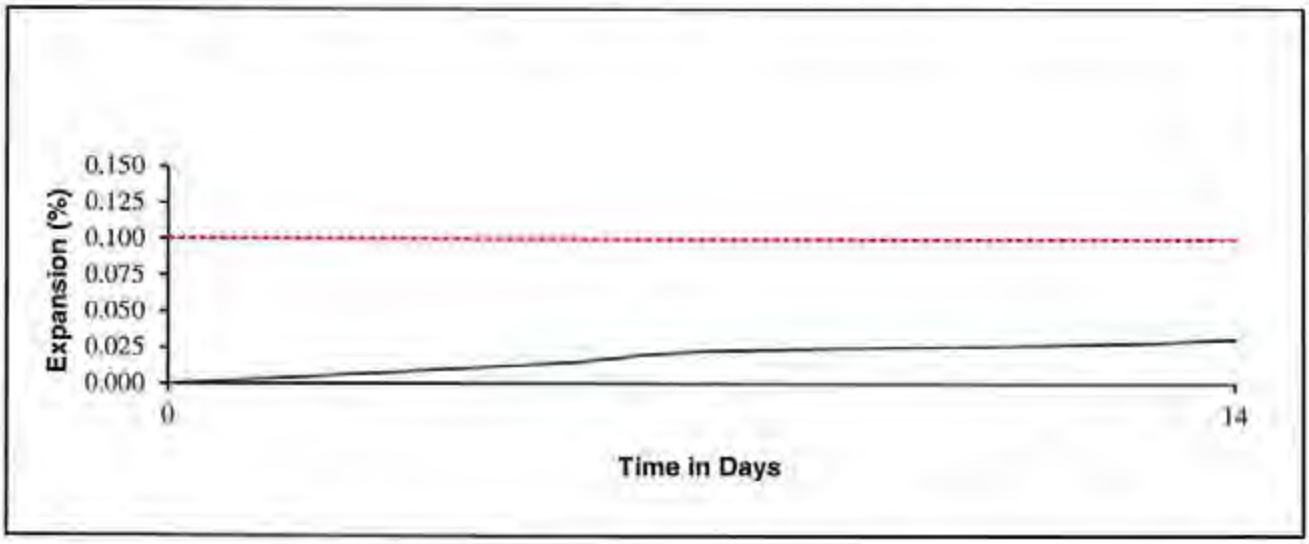
| | | | |
|---|---|---|---|
| **Project No:** | 704-ENG.WARC03235-03.004 | **Sample No.:** | C2 |
| **Project:** | NELPCo - Eagle Gold Project - On-site QC Testing | **Date Cast:** | 4-Dec-17 |
| **Client:** | JDS Mining | **Test By:** | KH/EM |
| **Attention:** | Calvin Goldschmidt **Fax:** | **W/cm:** | 0.50 |
| **E-mail:** | calving@jdsmining.ca | **Alkali Content of Cement:** | 0.90% $Na_2O$ Equivalent |

**Description:** Fine Fraction with 25% Genesee Fly Ash

**Source:** Mayo Area, Yukon

**Sample Location:** Eagle Gold Property

**Supplier:** Eagle Gold Property




| Demostrating the effectiveness of supplementary cementing materials to prevent alkali-silica reaction (CSA A23.2-28A, Clause 9) | Expansion limits at 14 days (%) |
|---|---|
| Mitigated | <0.100 |
| Non-mitigated | >0.100 |

| Time (Days) | Expansion (%) |
|---|---|
| 0 | 0.000 |
| 5 | 0.014 |
| 7 | 0.022 |
| 12 | 0.027 |
| 14 | 0.031 |

**Figure 2:** Expansion of Mortar Bars with Mississauga GU Cement

**Office:** Calgary, AB **Reviewed By:** _____ P.Geol.

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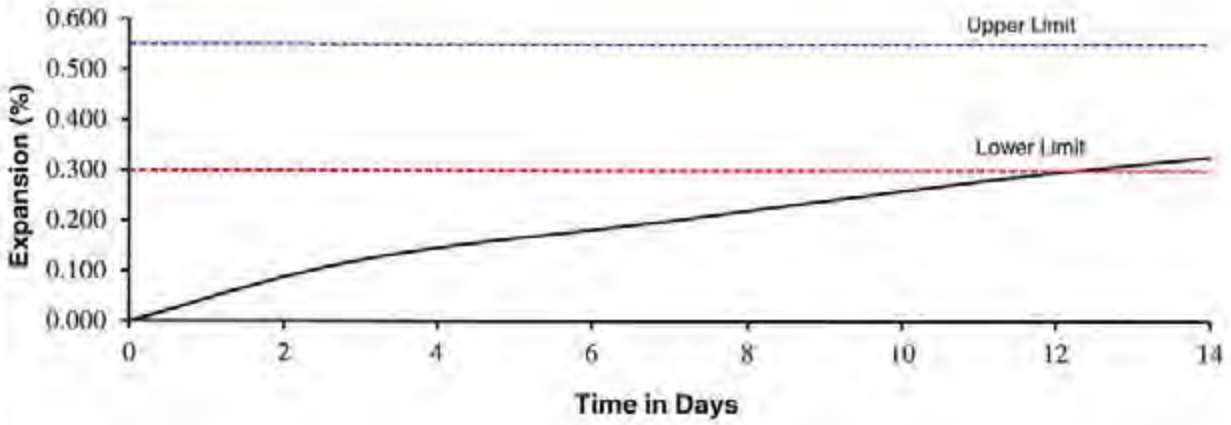
# Validation of CSA A23.2-25A Testing Process Using Spratt Aggregate

CSA A23.2-25A

| | | | |
|---|---|---|---|
| **Project No:** | CGEO-OH | **Sample No.:** | Spratt |
| **Project:** | Internal QC | **Date Cast:** | 26-Apr-17 |
| **Client:** | Tetra Tech | **Test By:** | EM |
| | | **W/cm:** | 0.50 |
| | | **Alkali Content of Cement:** | 0.97 % $Na_2O$ Equivalent |

**Description:** Spratt Aggregate (Quarry #3)




| Laboratory Validation of Testing Process using Spratt Aggregate (CSA A23.2-09-25A, Clause 11.2) | |
|---|---|
| Lower Limit @ 14 d | 0.30% |
| Upper Limit @ 14 d | 0.55% |

| Time (Days) | Expansion (%) |
|---|---|
| 0 | 0.000 |
| 4 | 0.122 |
| 7 | 0.200 |
| 11 | 0.278 |
| 14 | 0.326 |

**Figure 3:** Expansion of Mortar Bars with Mississauga GU Cement

**Office:** Calgary, AB **Reviewed By:** _____ P.Geol.

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TETRA TECH is not responsible for Contractor's means, methods, techniques or sequences during the performance of its Work. TETRA TECH will not supervise or direct Contractor's Work, nor be liable for any failure of Contractor to complete its Work in accordance with the Project's plans, specifications and applicable codes, laws and regulations. The Client understands and agrees that Contractor, not TETRA TECH, has sole responsibility for the safety of persons and property at the Project Site.

### 1.11 NOTIFICATION AND LEVEL OF SERVICE

Unless the Client requests or the building code requires full-time services, the Client understands that services provided by TETRA TECH are on an "On-Call" basis. The Client shall assume responsibility for adequate notification and scheduling of TETRA TECH services. TETRA TECH will make every reasonable effort to meet the Client's schedule, but will not guarantee service availability without direct confirmation from with the Client or their agent.

### 1.12 CERTIFICATIONS

The Client will not require TETRA TECH to execute any certification regarding Services performed or the Work tested or observed unless: 1) TETRA TECH believes that it has performed sufficient Services to provide a sufficient basis to issue the certification; 2) TETRA TECH believes that the Services performed and Work tested or observed meet the criteria of the certification; and 3) TETRA TECH has reviewed and approved in writing the exact form of such certification prior to execution of the Service Agreement. Any certification by TETRA TECH is limited to the expression of a professional opinion based upon the Services performed by TETRA TECH, and does not constitute a warranty or guarantee, either express or implied.

### 1.13 WEATHER AND PROTECTION OF MATERIALS

Performance of the Services by TETRA TECH and/or its designated subcontractor may be delayed or excused when such performance is commercially impossible or impracticable as a result of weather events, strikes, shortages or other causes beyond their reasonable control which may also impact cost estimates.

Excavation and construction operations expose materials to climatic elements (freeze/thaw, wet/dry) and/or mechanical disturbance which can cause severe deterioration. Unless otherwise specifically indicated in this report, the walls and floors of excavations, and stockpiles, must be protected from the elements, particularly moisture, desiccation, frost action and construction activities.

### 1.14 CALCULATIONS AND DESIGN

Where TETRA TECH has undertaken design calculations and has prepared project specific designs in accordance with terms of reference that were previously set out in consultation with, and agreement of, TETRA TECH's client. These designs have been prepared to a standard that is consistent with industry practice. Notwithstanding, if any error or omission is detected by TETRA TECH's Client or any party that is authorized to use the Design Report, the error or omission should be immediately drawn to the attention of TETRA TECH.

### 1.15 INFLUENCE OF CONSTRUCTION ACTIVITY

There is a direct correlation between construction activity and structural performance of adjacent buildings and other installations. The influence of all anticipated construction activities should be considered by the contractor, owner, architect and prime engineer in consultation with a geotechnical engineer when the final design and construction techniques are known.

### 1.16 SAMPLES

The Client will provide samples for testing (at the Client's expense). TETRA TECH will retain unused portions of samples only until such time as internal review is accomplished for intended purpose. Further storage or transfer of samples can be made at the Client's expense upon written request, otherwise samples will be discarded. The duration of sample retention must be discussed in advance.

### 1.17 GEOTECHNICAL CONDITIONS

A Geotechnical Report is commonly the basis upon which the specific project design or testing has been completed. It is incumbent upon TETRA TECH's Client, and any other authorized party, to be knowledgeable of the level of risk that has been incorporated into the project design, in consideration of the level of the geotechnical information that was reasonably acquired to facilitate completion of the design.

If a Geotechnical Report was prepared for the project by TETRA TECH or others, it will be referenced in the Construction Materials or Materials Design Report. The Geotechnical Report contains General Conditions that should be read in conjunction with these General Conditions for this Report.

TETRA TECH

January 22, 2018

ISSUED FOR USE
EBA FILE: ENG.WARC03235-03.004-01
Via Email: calving@jdsmining.ca

JDS Mining
Suite 900, 999 West Hastings Street
Vancouver, BC V6C 2W2

**Attention:** Mr. Calvin Goldschmidt

**Subject:** 30 MPa Structural and 10 MPa Fillcrete Concrete Mix Designs
Eagle Gold Property – Near Mayo, Yukon

# 1.0 INTRODUCTION

As requested by JDS Mining, Tetra Tech Canada Inc. (Tetra Tech) has prepared theoretical concrete mix designs for the 30 MPa structural and 10 MPa fillcrete concrete to be used on the Eagle Gold project near Mayo, Yukon.

Authorization to proceed was received in the form of an email from Mr. Calvin Goldschmidt dated August 11, 2017.

This report has been completed in accordance with generally accepted Materials Engineering practices. For additional conditions regarding the use of this report, please refer to the Limitations On Use Of This Document in Appendix A.

# 2.0 CEMENTING MATERIALS

## 2.1 Portland Cement

It is assumed that all concrete will be produced using Type GU Portland cement supplied by Lafarge North America. Once the concrete supply contract has been awarded, the contractor should be asked to supply a current mill sheet for the cement being considered for use on this project.

## 2.2 Fly Ash

Fly ash will be required for all concrete produced using the aggregates proposed. Both the 30 MPa structural and 10 MPa fillcrete mix designs have been based on the use of 25% fly ash (by total cementitious materials) to mitigate the potential for damage caused by Alkali-Aggregate Reactivity. As with the cement, once the concrete supply contract has been awarded, the contractor should be asked to supply a current mill sheet for the fly ash being considered for use on this project.

The addition of fly ash to the cementitious materials blend can be accomplished by having separate silos for both the cement and the flay ash or purchasing a blended cement/fly ash product. This will eliminate the need for a second silo.

Tetra Tech Canada Inc.
61 Wasson Place
Whitehorse, YT Y1A 0H7 CANADA
Tel 867.668.3068 Fax 867.668.4349

# 3.0 ADMIXTURES

The lab trails for the two theoretical mix designs presented in this report were completed using SIKA admixture products. BASF and GRACE also produce admixtures that will satisfy the objectives of these mix designs. It is recommended that the successful contractor supply technical documentation for the admixtures that they are proposing for use.

# 4.0 MIXING WATER FOR CONCRETE PRODUCTION

It has been confirmed that mixing water used on this project will be from an on-site water source. Previously performed water quality testing by ALS has confirmed that the water is not considered potable so additional assessment has been completed on the ALS analytical test data to evaluate potential for use as mixing water. The assessment completed is summarized in the Technical Memo presented in Appendix B of this report and concludes that the proposed water source is acceptable for use during the batching of concrete.

# 5.0 AGGREGATE PROPERTIES

The concrete aggregates to be used on this project are from aggregate source(s) located on the Eagle Gold property. During the production of the 20 mm coarse aggregate and the 14 mm fillcrete aggregate, Tetra Tech provided QC testing (sieve analysis and natural moisture content testing).

The results were quite variable but an approximate average of the aggregate gradings has been used to develop a suitable aggregate blend for the production of 30 MPa structural concrete (the fillcrete will be produced from the 14 mm aggregate stockpile). The proposed aggregate blend is discuyssed below.

## 5.1 Aggregate Grading

The theoretical split used for the development of the 30 MPa mix design is based on 56% coarse aggregate and 44% fillcrete aggregate. Based on the testing completed, theoretical splits have been completed so that the material retained on the 5 mm sieve can be compared the CSA A23.1 Table 11 grading requirements for coarse concrete aggregates and CSA A23.1 Table 10 grading requirements for fine aggregates. Results are presented in Tables 1 and 2, below.

As summarized in Table 1, the theoretical grading of the coarse aggregate fraction (material retained on the 5 mm sieve) is slightly coarser than the CSA A23.1 Table 11 grading requirements for 20-5 mm coarse aggregate (on the 10 mm sieve size).

**Table 1: Coarse Aggregate Grading (theoretical + 5 mm fraction) (percent passing by mass)**

| Aggregate | Sieve Size (mm) | | | | | | |
|---|---|---|---|---|---|---|---|
| | 28 | 20 | 14 | 10 | 5 | 2.5 | 0.080 |
| **20-5 mm** | **100** | **92.4** | **53.5** | **23.3** | **0.0** | **0.0** | **0.0** |
| CSA Min. | 100 | 85 | 50 | 25 | 0 | 0 | 0 |
| CSA Max. | 100 | 100 | 90 | 60 | 10 | 5 | 1 |
| Pass/Fail | Pass | Pass | Pass | Fail | Pass | Pass | Pass |

As summarized in Table 2, the fine aggregate fraction is siltier than the CSA 23.1 Table 10 grading requirements for FA1 fine aggregate.

**Table 2: Fine Aggregate Grading (percent passing by mass)**

| Aggregate | Sieve Size (mm) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | **10** | **5** | **2.5** | **1.25** | **0.630** | **0.315** | **0.160** | **0.080** | **FM** |
| Concrete Sand | **100** | **100** | **74.7** | **55.1** | **39.8** | **28.8** | **22.5** | **16.3** | **2.79** |
| Specified Min. | 100 | 95 | 80 | 50 | 25 | 10 | 0 | 0 | 2.2 |
| Specified Max. | 100 | 100 | 100 | 90 | 65 | 35 | 10 | 3 | 3.1 |
| **Pass/Fail** | Pass | Pass | Fail | Pass | Pass | Pass | Fail | Fail | Pass |

Due to excess fines in the fillcrete aggregate stockpile, the fine fraction of the theoretical aggregate blend is considered non-compliant by CSA A23.1 standards.

## 5.2 Additional Aggregate Testing

To properly assess the potential of the aggregates proposed for use on the Eagle Gold project, additional testing was performed on both the coarse and fillcrete aggregates. The results of this testing are presented in Appendix C of this report.

Many of the tests completed were to assess aggregate durability. Results for the Petrographic Analysis of coarse and fine aggregates; L.A. Abrasion testing of the coarse aggregates; and Micro Deval testing of the fine aggregates all suggest that the aggregates can be considered for use in concrete production.

However, since there are excessive fines (passing the 80 micron screen size) in the fillcrete aggregate stockpile, a hydrometer was also performed to determine the clay content of the fine aggregate fraction. CSA A23.1 – Table 12 considers 1% clay content (in the overall aggregate blend) acceptable but testing has determined that there is 2% clay. This may prove problematic in batching, placing and finishing.

Alkali - Aggregate Reactivity must be assessed for all new concrete aggregate sources. This test, performed in accordance with CSA A23.2 – 14A is a 52 week test and assesses the need for fly ash or other cementitious materials to mitigate potential for damage to the concrete caused by reactivity. In the absence of the 52 week test results, 25% cement replacement with fly ash was chosen based on experience from other projects and used for developing the mix designs presented in this report. Mitigated and accelerated testing completed in accordance to CSA A23.2 – 25A and 28A was completed and test results suggest that 25% fly ash replacement satisfies project objectives. The results and interpretation of the reactivity testing performed is presented in Appendix D.

# 6.0 LAB TRIALS

Lab trials of the 30 MPa structural and 10 MPa fillcrete mix designs were performed on December 16, 2017. The 28 day compressive strengths for both mixes met project objectives.

Compressive strength results are presented in Appendix E.

# 7.0 BATCH WEIGHTS

Batch weights for the 30 MPa structural concrete and the 10 MPa fillcrete mixes are presented below:

**Table 3: Theoretical Batch Weights**

| Material | 30 MPa with 25% Fly Ash | 10 MPa with 25% Fly Ash (Fillcrete) |
|---|---|---|
| Target Water / Cementing Materials Ratio | 0.40 | 0.60 |
| Water (kg/m$^3$) | 140 | 150 |
| Cement (kg/m$^3$) | 300 | 200 |
| Fly Ash (kg/m$^3$) | 100 | 70 |
| Coarse Aggregate (kg/m$^3$) | 995 | n/a |
| Fine Aggregate (kg/m$^3$) | 840 | 1995 |
| Air Entrainment: SIKA AER (mL/m$^3$) | 60 | 100 |
| Plasticizer: SIKA VISCOCRETE (mL/m3) | 700 | 900 |
| Theoretical Yield (kg/m$^3$) | 1.002 | 1.002 |

Notes: Concrete produced using silty aggregates have additional challenges. Consider the following:

- Water demand can be quite variable depending on how much silt is in the aggregate blend. On-going slump adjustments will be necessary. As well, extra mixing time should be implemented to wash fines off the coarse aggregate at the start of the mixing sequence.
- Finer silt particles may be similar in size and shape to the cement and fly ash particles. This makes air entrainment dosage rates difficult to determine. Plant trials will be required.
- Concrete finishers must be made aware of the high fines content so they can adjust their placing and finishing techniques.

# 8.0 LIMITATIONS OF REPORT

This report and its contents are intended for the sole use of JDS Mining and their agents. Tetra Tech Canada Inc. does not accept any responsibility for the accuracy of any of the data, the analysis, or the recommendations contained or referenced in the report when the report is used or relied upon by any Party other than JDS Mining, or for any Project other than the proposed development at the subject site. Any such unauthorized use of this report is at the sole risk of the user. Use of this report is subject to the terms and conditions stated in Tetra Tech's Services Agreement. Tetra Tech's Limitations On Use Of This Document are attached.

CLARK BUILDERS
ENERGY & RESOURCES



# AREA CONCRETE TURNOVER

Rev 00 September 18, 2018

| | |
|---|---|
| OWNER REPRESENTATIVE(S): ISHAN FECHTER | DATE OF TURNOVER: SEPTEMBER 18, 2018 |
| CLARK BUILDERS REPRESENTIVE(S): Ryan deMilliano | AREA/ LOCATION: 5710 ADR PERIMETER PILASTERS, GRADE BEAMS, CTGS (SEE ATTACHED) |

| | |
|---|---|
| TURNOVER TYPE: | ☐ COMPLETE AREA ☒ PARTIAL AREA ☐ EQUIPMENT ☐ SYSTEM ☐ OTHER |
| COMPLETE DESCRIPTION OF AREA TO BE TURNED OVER: | PERIMETER PILASTER/Grade wall/Footing turnover of CONCRETE INSTALLATION. |
| SCOPES INCLUDED: | ☐ CIVIL/EARTHWORK ☒ CONCRETE ☒ ANCHOR BOLTS/EMBEDS ☐ GROUNDING ☐ GROUT |
| RELEASED FROM (Company): | CLARK BUILDERS |
| RELEASED TO (Company): | JDS |

ATTACHMENT(S): DWG. #354138-5710-231-260-0002 R0

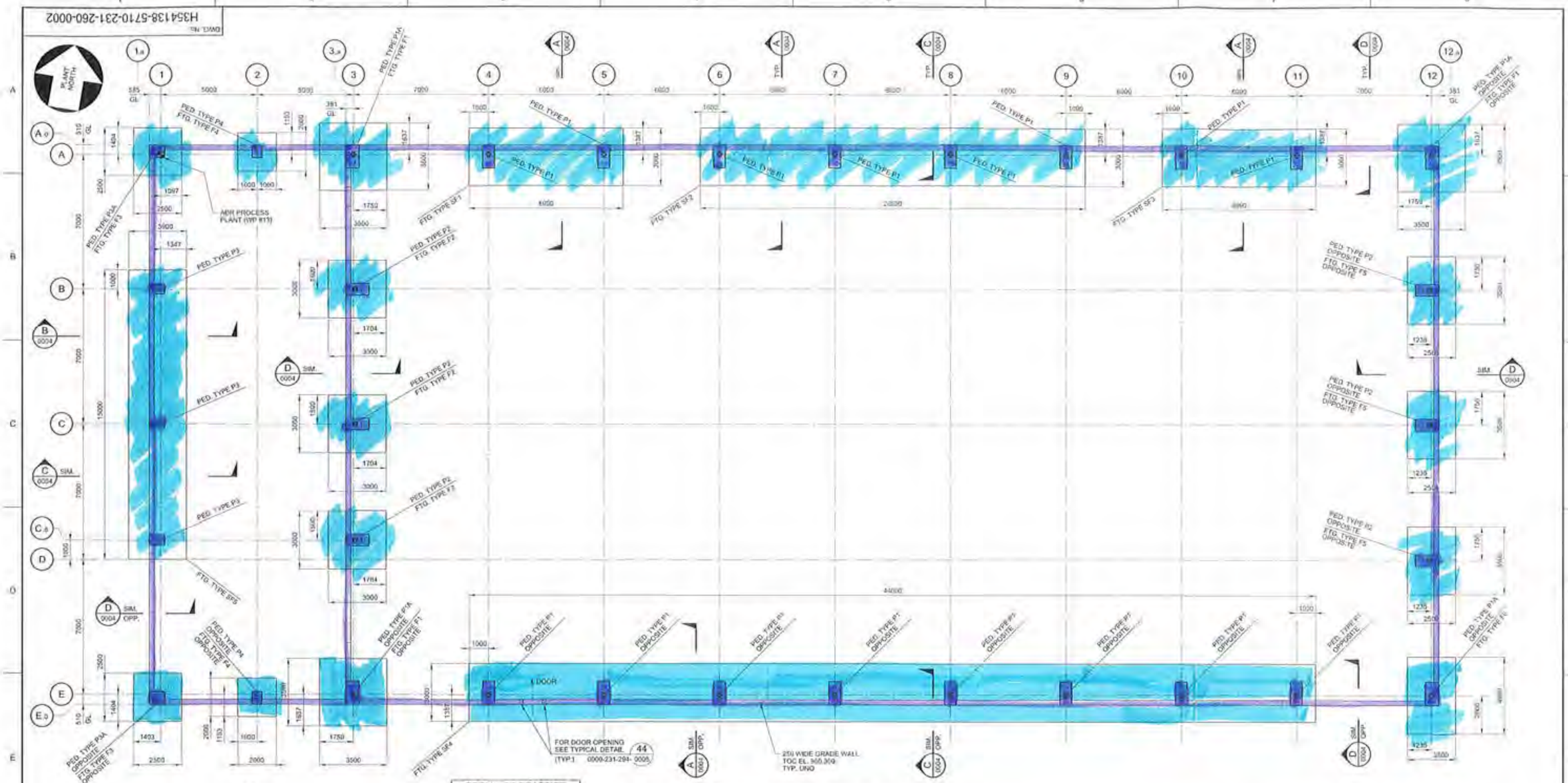
| ITEM | ITEMS TO BE CHECKED | ACCEPT | ACCEPT W/NOTES | DECLINE | N/A | NOTES |
|---|---|---|---|---|---|---|
| 1.0 | Concrete structure dimensions and locations are within acceptable tolerances and is acceptable to the owner. | ☒ | ☐ | ☐ | ☐ | |
| 2.0 | Tolerances for anchor bolts and embedded items have been review and are acceptable. This includes projection and location of embedded items. | ☒ | ☐ | ☐ | ☐ | |
| 3.0 | Safe access to the work area has been prepared by the contractor. | ☒ | ☐ | ☐ | ☐ | |
| 4.0 | All hardware required has been provided to the receiving company from Clark builders. This includes all plates, washers, nuts, etc. | ☒ | ☐ | ☐ | ☐ | |
| 5.0 | As built survey completed on area. | ☒ | ☐ | ☐ | ☐ | |
| 6.0 | Bearing surface adequately prepared for grout. | ☒ | ☐ | ☐ | ☐ | |
| 7.0 | Work area access has been adequately prepared. | ☒ | ☐ | ☐ | ☐ | |
| 8.0 | Outstanding RFI's for the area have been addressed prior to the area being turned over. (List any related RFI's in the comments) | ☒ | ☐ | ☐ | ☐ | |
| 9.0 | Outstanding deficiencies for the area have been addressed prior to the area being turned over. | ☒ | ☐ | ☐ | ☐ | |
| | | | | | | |

COMMENTS:

OWNER REPRESENTATIVE:
INSPECTOR: Ishan Fechter TITLE Superintendent DATE: SEPTEMBER 18, 2018

CLARK BUILDERS REPRESENTATIVE:
INSPECTOR: RYAN DEMILLIANO TITLE Project Coordinator (QA) DATE: SEPTEMBER 18, 2018

DWG. No. H354138-5710-231-260-0002




PERMIT TO PRACTICE
HATCH
MAY 24, 2018
PERMIT NUMBER: P0154

## FOUNDATION GENERAL ARRANGEMENT - PLAN

TOP OF PED. EL. 951.350 (TYP.)
TOP OF SLAB HP EL. 950.150
FIN. GRADE EL. 950.000 (REF.)
U/S FTG. EL. 942.500 (TYP.)

1:100 SCALE IN METRES

NOTES:
1. FOR NOTES SEE DRAWING H354138-5710-231-260-0001

| | | | | | | |
|---|---|---|---|---|---|---|
| DRAWING No. | DRAWING TITLE | No. | DESCRIPTION | BY | CHKD | DATE |
| REFERENCE DRAWINGS | | 5 | APPROVED FOR CONSTRUCTION | PJ | EA | 2018-05-23 |

REG. PROFESSIONAL
MAY 24, 2018

HATCH

| | | | |
|---|---|---|---|
| DRAFTSPERSON | P. JIVAEVE MENDIOLA | NR | 2018-03-28 |
| DESIGNER | F. LIU | NR | 2018-03-28 |
| CHECKER | E. AKINCI | | 2018-05-24 |
| DESIGN COORD. | S. PERKINS | | |
| RESP. ENG. | E. AKINCI | | 2018-05-24 |
| LEAD DISC. ENG. | E. AKINCI | | 2018-05-24 |
| ENG. MANAGER | B. RUSTAD | | |
| PROJ. MANAGER | B. RUSTAD | | |

| ROLE | NAME | SIGNATURE & DATE |
|---|---|---|
| DRAWING APPROVAL STATUS: | Approved for Construction | |

StrataGold Corporation

EAGLE GOLD PROJECT

ADR PROCESS PLANT BUILDING
BUILDING FOUNDATION
FOUNDATION - PLAN

| SCALE | DWG. No. | REV |
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CLARK BUILDERS
ENERGY & RESOURCES

# AREA CONCRETE TURNOVER

Rev 00 September 18, 2018

| | |
|---|---|
| OWNER REPRESENTATIVE(S): Jerry Chrzaszcz | DATE OF TURNOVER: November 10, 2018 |
| CLARK BUILDERS REPRESENTIVE(S): Ryan deMilliano | AREA/ LOCATION: 5710 ADR Process Plant Building. |

| | |
|---|---|
| TURNOVER TYPE: | ☒ COMPLETE AREA ☐ PARTIAL AREA ☐ EQUIPMENT ☐ SYSTEM ☐ OTHER |
| COMPLETE DESCRIPTION OF AREA TO BE TURNED OVER: | ADR Process Plant Building. Interior Foundation and all concrete installation. |
| SCOPES INCLUDED: | ☐ CIVIL/EARTHWORK ☒ CONCRETE ☒ ANCHOR BOLTS/EMBEDS ☒ GROUNDING ☐ GROUT |
| RELEASED FROM (Company): | Clark Builders |
| RELEASED TO (Company): | JDS |

ATTACHMENT(S): • Dwg #354138-231-260-0019 Rev 00 (Reference)
• Construction Walkdown (2018.10.28) with JDS Deficiency List.

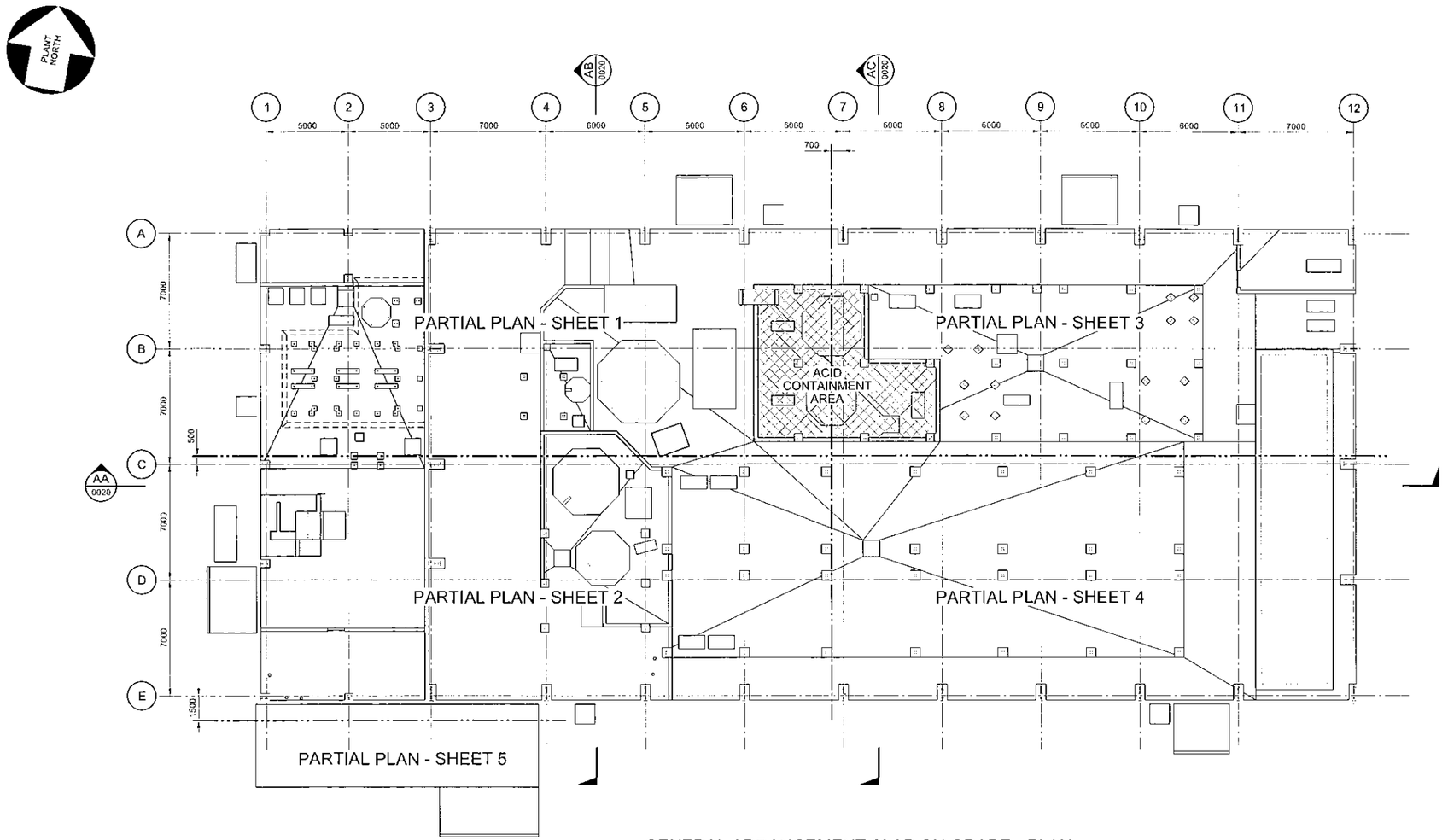
| ITEM | ITEMS TO BE CHECKED | ACCEPT | ACCEPT W/NOTES | DECLINE | N/A | NOTES |
|---|---|---|---|---|---|---|
| 1.0 | Concrete structure dimensions and locations are within acceptable tolerances and is acceptable to the owner. | ☒ | ☐ | ☐ | ☐ | |
| 2.0 | Tolerances for anchor bolts and embedded items have been review and are acceptable. This includes projection and location of embedded items. | ☒ | ☐ | ☐ | ☐ | |
| 3.0 | Safe access to the work area has been prepared by the contractor. | ☒ | ☐ | ☐ | ☐ | |
| 4.0 | All hardware required has been provided to the receiving company from Clark builders. This includes all plates, washers, nuts, etc. | ☒ | ☐ | ☐ | ☐ | |
| 5.0 | As built survey completed on area. | ☒ | ☐ | ☐ | ☐ | |
| 6.0 | Bearing surface adequately prepared for grout. | ☒ | ☐ | ☐ | ☐ | |
| 7.0 | Work area access has been adequately prepared. | ☒ | ☐ | ☐ | ☐ | |
| 8.0 | Outstanding RFI's for the area have been addressed prior to the area being turned over. (List any related RFI's in the comments) | ☒ | ☐ | ☐ | ☐ | |
| 9.0 | Outstanding deficiencies for the area have been addressed prior to the area being turned over. | ☐ | ☒ | ☐ | ☐ | Construction Walk Down w/ Deficiency list attached. |

COMMENTS:

OWNER REPRESENTATIVE:
INSPECTOR: Jerry Chrzaszcz TITLE Const. Superintendent DATE: Nov. 10/18

CLARK BUILDERS REPRESENTATIVE:
INSPECTOR: Ryan deMilliano TITLE Project Coordinator DATE: Nov 10/18

DWG. No. H354138-5710-231-260-0019




## GENERAL ARRANGEMENT SLAB ON GRADE - PLAN

TOP OF SLAB NOM. EL. 950.150
FIN. GRADE EL. 950.000 (REF.)

NOTES:

1. FOR NOTES SEE DRAWING H354138-5710-231-260-0001.
2. ALL EXPOSED CONCRETE IN ACID CONTAINMENT AREA SHALL BE GIVEN A COATING OF POLYESTER PAINT CAPABLE OF RESISTING A SOLUTION OF 30% HYDROCHLORIC ACID. SURFACE PREPARATION OF CONCRETE AND INSTALLATION OF PAINT SHALL BE AS PER MANUFACTURERS RECOMMENDATIONS.
3. INSIDE ADR PROCESS PLANT BUILDING CONTAINMENT AREA, ALL CONSTRUCTION JOINTS INCLUDING THE ONES BETWEEN SLAB ON GRADE AND EQUIPMENT/TANK PADS AND PEDESTALS TO BE SEALED ACCORDING TO THE STANDARD DETAILS 23 AND 29 ON DRAWING H354138-0000-231-264-0003.

0 1.5 3.0 4.5 6.0 7.5
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| No. | DESCRIPTION | BY | CHK'D | DATE |
|---|---|---|---|---|
| 0 | APPROVED FOR CONSTRUCTION | EM | EA | 2018-06-05 |

REVISIONS

REG. PROFESSIONAL — JUNE 5, 2018

REFERENCE DRAWINGS

| DRAWING No. | DRAWING TITLE |
|---|---|

HATCH

| ROLE | NAME | SIGNATURE & DATE |
|---|---|---|
| DRAFTSPERSON | P. JIVAEV | NR 2018-02-30 |
| DESIGNER | F. LIU | NR 2018-05-17 |
| CHECKER | E. AKINCI | 2018-06-06 |
| DESIGN COORD. | S. PERKINS | 2018-06-06 |
| RESP. ENG. | E. AKINCI | 2018-06-06 |
| LEAD DISC. ENG. | E. AKINCI | 2018-06-06 |
| ENG. MANAGER | B. RUSTAD | 2018-06-05 |
| PROJ. MANAGER | B. RUSTAD | 2018-06-05 |

DRAWING APPROVAL STATUS: Approved for Construction

StrataGold Corporation

EAGLE GOLD PROJECT

ADR PROCESS PLANT BUILDING
SLAB ON GRADE
GENERAL ARRANGEMENT

| SCALE | DWG. No. | REV |
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CLARK BUILDERS
ENERGY & RESOURCES

CB-FWDPL-DOC-018 Rev 1.

# Construction Walk Down Deficiency Sheet

**"A"** items To be completed before Acceptance.
**"BSU"** Items To be completed before startup.
**"BCC"** Items To be completed before contract closure.
**"C"** Items is Not in Scope.

Project Name: CB201/ 18502 StrataGold Eagle Gold Project

System Description: Concrete Installations

Walkdown Attendees: Clark Builders: Ryan de Milliano, Jackson Wenger
JDS Mining: Ishan Fechter, Matt Coverdale

Responsible Contractor: Clark Builders Energy & Resources

| Item No. | Date: (YYYY.MM.DD) | Area/ Location | Description | Discipline | Catagory (Dropdown) | Responsibility | Vendor (Dropdown) |
|---|---|---|---|---|---|---|---|
| 1 | 2018.10.28 | ADR Transformer | Finishing general on all walls, curbs, slabs. | Concrete Finishes | BCC | Clark Builders | No |
| 2 | 2018.10.28 | ADR Transformer | Sack Rub required on interior faces of blast walls | Concrete Finishes | BCC | Clark Builders | No |
| 3 | 2018.10.28 | ADR Building | Electrical Grounding conduit to be repaired and aligned properly for connection to building. | Electrical Grounding | C | JDS | No |
| 4 | 2018.10.28 | ADR Building | Remaining saw cut caulking required. (Once Building envelope is installed and interior is heated properly. | Caulking | BCC | Clark Builders | No |
| 5 | 2018.10.28 | ADR Building | GL 7.3/B Blow-off column Equip. pad Type 1 forming to be stripped and finished as required. | Concrete Finishes | BCC | Clark Builders | No |
| 6 | 2018.10.28 | ADR Building | GL A.5/6 Stair faces to be finished. | Concrete Finishes | BCC | Clark Builders | No |
| 7 | 2018.10.28 | ADR Building | General site slag removal at bases of formed structures (i.e. curbs, pedestals, walls, stairs, etc.) | Concrete Finishes | BCC | Clark Builders | No |
| 8 | 2018.10.28 | ADR Building | Induction furnace plate requires lifting hook to be removed and ground down to smooth surface. | Steel | BCC | Clark Builders | No |
| 9 | 2018.10.28 | ADR Building | Induction furnace corner not flush with concrete, concrete to be flush with the plate. | Concrete Finishes | BCC | Clark Builders | No |
| 10 | 2018.10.28 | ADR Building | Induction furnace channel between pads to be patched. | Concrete Finishes | BCC | Clark Builders | No |

CLARK BUILDERS
ENERGY & RESOURCES

CB-FWDPL-DOC-018 Rev 1.

# Construction Walk Down Deficiency Sheet

**"A"** items To be completed before Acceptance.
**"BSU"** Items To be completed before startup.
**"BCC"** Items To be completed before contract closure.
**"C"** Items is Not in Scope.

Project Name: CB201/ 18502 StrataGold Eagle Gold Project

System Description: Concrete Installations

Walkdown Attendees: Clark Builders: Ryan de Milliano, Jackson Wenger
JDS Mining: Ishan Fechter, Matt Coverdale

Responsible Contractor: Clark Builders Energy & Resources

| Item No. | Date: (YYYY.MM.DD) | Area/ Location | Description | Discipline | Catagory (Dropdown) | Responsibility | Vendor (Dropdown) |
|---|---|---|---|---|---|---|---|
| 11 | 2018.10.28 | ADR Building | GL. 2/A.5 Anchor Bolt to be threaded down to correct location. Current extra washers installed to support the bolts. | Anhor Bolts | BCC | Clark Builders | No |
| 12 | 2018.10.28 | ADR Building | As per RFI 74, Pad poured 45mm too high required to be chipped down 30mm. | Concrete Structure | BCC | Clark Builders | No |
| 13 | 2018.10.28 | ADR Building | Air pockets in concrete, general, to be patched. | Concrete Finishes | BCC | Clark Builders | No |
| 14 | | | | | | | |
| 15 | | | | | | | |

CRS CraneSystems

☐ #501, 17665-66A Ave. Surrey, BC V3S 2A7 Tel: (604) 575-8053 Toll Free: 1-866-543-8850 Fax: (604) 575-8227

☑ 333 Strathmoor Way Sherwood Park, AB T8H 2K2 Tel: (780) 416-8800 Toll Free: 1-800-668-6698 Fax: (780) 416-8808

☐ #325, 11979-40th St. S.E. Calgary, AB T2Z 4M3 Tel: (403) 692-8804 Toll Free: 1-800-668-6698 Fax: (403) 692-8808

☐ 7093 Torbram Rd. Mississauga, ON L4T 1G7 Tel: (905) 678-6788 Toll Free: 1-800-668-6698

# LOAD TEST PROCEDURE

| | | | | | |
|---|---|---|---|---|---|
| A | ADR Process | Equipment # | 5100-CN-002 | Date | Nov 14 2018 |
| Capacity | 10 Tonne | Inspector | Chris Shakeshaft | WO # | 64853 |
| Hoist Mfg. | R&M | Bridge Mfg. | CRS Crane | Serial # | 3822 |

☑ Prior to testing crane, check commissioning report to confirm safe operation of crane
☑ Confirm safety procedures are in place
☑ Advise that area is to be cleared prior to test

1) **Test** With no load, confirm the operation of all:

| | | | | | |
|---|---|---|---|---|---|
| a) Motions | ✓ | d) Indicators | ✓ | g) Interlocks | ✓ |
| b) Speeds | ✓ | e) Circuits | ✓ | h) Sequence of operation | ✓ |
| c) Limits switches | ✓ | f) Controls | ✓ | i) Emergency stop function | ✓ |

Disconnect overweight protection if possible and proceed with next step.

2) **100% Operation Test** Lift 100% of rated load and check operation of the crane to prove itself capable of dealing with the load without difficulty. This involves confirming proper operation of all motions and speeds, the holding brake, travel brakes, and hook. It should not be done over live equipment without a lift study. Trolley/bridge travel over the entire area.

| Load | 22000 Kg./Lbs. |
|---|---|

Comments/Observations No issues

3) **100% Hoist Load Brake Test** Raise the load to clear the floor and measure distance to the floor. Take a second measurement after 10 minutes and confirm the load has not dropped.

Comments/Observations No drift of Load hook

**Brake Test** All brakes shall be tested under full load conditions, from maximum speed to rest, three times in quick succession without over heating.

Comments/Observations Hoist only VFD Bridge & trolley

4) **100% Deflection Load Test** There are 2 different locations the hoist will be tested. Lift study to be completed if done over live equipment.

a) The first is with the bridge end trucks located over a column for maximum support and the trolley in the center of the bridge. The object is to measure the bridge deflection.

Comments/Observations No issues

Total Deflection 19 mm

b) The second position is the trolley on one side of the bridge end truck with the bridge end trucks centered between the two columns. The object is to measure runway deflection.

Comments/Observations No issues

5) **125% Operation Test** Lift 125% of rated load and check operation of the crane to prove itself capable of dealing with the load without difficulty. This involves confirming proper operation of all motions, the holding brake, travel brakes, and hook. High speeds need not be attained, but the overload condition shall see one full rotation of all geared members to confirm every gear sees the overload condition. This test should be done in a very confined location. The overload protection may have to be bypassed to allow this test.

| Load | 27500 Kg./Lbs. | 27,500 lbs |
|---|---|---|

Comments/Observations

6) **Overload Test** The intent of this procedure is to set the overloads. Adjust the overload protection to prevent the lifting of the load by applying a load ranging from 110-125%. Check the crane operation to allow the load to be lowered in the event of an overload.

| Load | 24200 Kg./Lbs. |
|---|---|

Comments/Observations

**Inspector:**

Print Chris Shakeshaft
Sign [signature]
Date Nov 14 2018

CRS.

Print
Sign
Date

**Owner/Buyer:**

Print Rob Gutowski
Sign [signature]
Date Nov 14 2018

Print Adam Crow
Sign [signature]
Date Nov 14 2018

CRS CraneSystems

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# LOAD TEST PROCEDURE

| | | | | | |
|---|---|---|---|---|---|
| Area | ADR Process | Equipment # | 5100-CN-002 | Date | Nov 14 2018 |
| Capacity | 10 Tonne | Inspector | Chris Shakeshaft | WO # | 64853 |
| Hoist Mfg. | R&M | Bridge Mfg. | CRS Crane | Serial # | 3822 |

☑ Prior to testing crane, check commissioning report to confirm safe operation of crane

☑ Confirm safety procedures are in place

☑ Advise that area is to be cleared prior to test

1) **Test** With no load, confirm the operation of all:

| | | | | | |
|---|---|---|---|---|---|
| a) Motions | ✓ | d) Indicators | ✓ | g) Interlocks | ✓ |
| b) Speeds | ✓ | e) Circuits | ✓ | h) Sequence of operation | ✓ |
| c) Limits switches | ✓ | f) Controls | ✓ | i) Emergency stop function | ✓ |

Disconnect overweight protection if possible and proceed with next step.

2) **100% Operation Test** Lift 100% of rated load and check operation of the crane to prove itself capable of dealing with the load without difficulty. This involves confirming proper operation of all motions and speeds, the holding brake, travel brakes, and hook. It should not be done over live equipment without a lift study. Trolley/bridge travel over the entire area.

| Load | 22000 ~~Kg~~/Lbs. |
|---|---|

Comments/Observations No issues

3) **100% Hoist Load Brake Test** Raise the load to clear the floor and measure distance to the floor. Take a second measurement after 10 minutes and confirm the load has not dropped.

Comments/Observations No drift of Load hook

**Brake Test** All brakes shall be tested under full load conditions, from maximum speed to rest, three times in quick succession without over heating.

Comments/Observations Hoist only VFD Bridge & trolley

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Comments/Observations No issues

Total Deflection 19 mm

b) The second position is the trolley on one side of the bridge end truck with the bridge end trucks centered between the two columns. The object is to measure runway deflection.

Comments/Observations No issues

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| Load | 27500 ~~Kg~~/Lbs. | 27,500 Lbs |
|---|---|---|

Comments/Observations

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| Load | 24000 ~~Kg~~/Lbs. |
|---|---|

Comments/Observations

**Inspector:**

Print Chris Shakeshaft

Sign

Date Nov 14 2018

CRS.

Print

Sign

Date

**Owner/Buyer:**

Print Rob Gutowski

Sign

Date Nov 14 2018

Print Adam Crow

Sign

Date Nov 14, 2018

CRS CraneSystems

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# COMMISSION FORM

Congratulations on your purchase of a new crane from CRS CraneSystems Inc. Your warranty period begins as of the date below and we certify that the following field installations checks have been performed making the crane ready for service.

Customer: Strata Gold Date: Nov 13 2015

Crane: 3822 By CRS CraneSystems Inc. ✓ By Others _____

| Check # | Check Point | Accepted |
|---|---|---|
| 1 | Check bolts for tightness | CWS |
| 2 | Confirm voltage | CWS |
| 3 | Remove all shipping oil plugs / protection | CWS |
| 4 | Check phase rotations on all speeds | CWS |
| 5 | Confirm operation of motor brakes | CWS |
| 6 | Set and test all limits | CWS |
| 7 | Check all approaches | CWS |
| 8 | Check all clearances | CWS |
| 9 | Check festoon stack up | CWS |
| 10 | Check power bar travel at both ends | CWS |
| 11 | Check reeving and dead end complete with clip | CWS |
| 12 | Check direction markings to pendant / radio | CWS |
| 13 | Confirm all speeds / motors are operating | CWS |
| 14 | Final lube on ropes / open gear / chain | CWS |
| 15 | Touch up paint / housekeeping Too cold for paint. | |
| 16 | Check end stops / bumpers | CWS |
| 17 | Check anti-collision devices | N/A |
| 18 | Confirm span / wheel tread | CWS |
| 19 | On board disconnect | CWS |

Runway: _____ By CRS CraneSystems Inc. _____ By Others Ficcity steel

| Check # | Check Point | Accepted |
|---|---|---|
| 1 | Check welds / bolts on runway beams | CWS |
| 2 | Check rail alignment / fastening / level | CWS |
| 3 | Check end stops | CWS |
| 4 | Check tie plates / bolts | CWS |
| 5 | Check span | CWS |
| 6 | Check power bar is installed correctly | CWS |
| 7 | Disconnect marked and at eye level Temp Power | |

Columns/Corbels: _____ By CRS CraneSystems Inc. _____ By Others Ficcity steel

| Check # | Check Point | Accepted |
|---|---|---|
| 1 | Check welds / bolts | CWS |
| 2 | Check alignment / level | CWS |
| 3 | Check base plates / anchors | CWS |
| 4 | Grout | N/A |
| 5 | Tie backs / supports / x braces | CWS |

Load test results on a separate page which is attached Yes.

DATE: Nov 14 2015
CRANE SERIAL #: 3822
TECHNICIAN: Chris Shakeshaft.
CRANE OWNER: R. Gutowski

CRS CraneSystems

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Congratulations on your purchase of a new crane from CRS CraneSystems Inc. Your warranty period begins as of the date below and we certify that the following field installations checks have been performed making the crane ready for service.

Customer: Strata Gold Date: Nov 13 2018

Crane: 3822 By CRS CraneSystems Inc. ✓ By Others

| Check # | Check Point | Accepted |
|---|---|---|
| 1 | Check bolts for tightness | CWS |
| 2 | Confirm voltage | CWS |
| 3 | Remove all shipping oil plugs / protection | CWS |
| 4 | Check phase rotations on all speeds | CWS |
| 5 | Confirm operation of motor brakes | CWS |
| 6 | Set and test all limits | CWS |
| 7 | Check all approaches | CWS |
| 8 | Check all clearances | CWS |
| 9 | Check festoon stack up | CWS |
| 10 | Check power bar travel at both ends | CWS |
| 11 | Check reeving and dead end complete with clip | CWS |
| 12 | Check direction markings to pendant / radio | CWS |
| 13 | Confirm all speeds / motors are operating | CWS |
| 14 | Final lube on ropes / open gear / chain | CWS |
| 15 | Touch up paint / housekeeping Too cold for paint | |
| 16 | Check end stops / bumpers | CWS |
| 17 | Check anti-collision devices | N/A |
| 18 | Confirm span / wheel tread | CWS |
| 19 | On board disconnect | CWS |

Runway: By CRS CraneSystems Inc. By Others Priority Steel

| Check # | Check Point | Accepted |
|---|---|---|
| 1 | Check welds / bolts on runway beams | CWS |
| 2 | Check rail alignment / fastening / level | CWS |
| 3 | Check end stops | CWS |
| 4 | Check tie plates / bolts | CWS |
| 5 | Check span | CWS |
| 6 | Check power bar is installed correctly | CWS |
| 7 | Disconnect marked and at eye level Temp Power | |

Columns/Corbels: By CRS CraneSystems Inc. By Others Priority Steel

| Check # | Check Point | Accepted |
|---|---|---|
| 1 | Check welds / bolts | CWS |
| 2 | Check alignment / level | CWS |
| 3 | Check base plates / anchors | CWS |
| 4 | Grout | N/A |
| 5 | Tie backs / supports / x braces | CWS |

Load test results on a separate page which is attached Yes

DATE: Nov 14 2018

CRANE SERIAL #: 3822

TECHNICIAN: Chris Shakeshaft

CRANE OWNER: E. Gutowski [signature]

# ATTACHMENT D

## Quality Control Inspection and Testing

LAYFIELD Canada

# Project Completion QA/QC Package for

# Pelly Construction

## Eagle Gold ADR pad

**Supply and Install EL6160HD**

Prepared By: Jason Wheeler

Reviewed By: Jason Wheeler

Date Submitted: July 17, 2018

# Layfield Canada Ltd.

# Table of Contents

for

# Pelly Construction

## Eagle Gold ADR Pad

**New Construction**


| | | |
|---|---|---|
| 1) | Certificate of Acceptance of Soil Subgrade Surface | 1 pgs. |
| 2) | Geosynthetic Inventory Log | 1 pgs. |
| 3) | Geomembrane Deployment Log | 2 pgs. |
| 4) | Geomembrane Seam and Test Log | 2 pgs. |
| 5) | Geomembrane Detail and Test Log | 1 pgs. |
| 6) | Geomembrane Destructive Test Report | 1 pgs. |
| 7) | As-built Drawing | 1 pgs. |
| 8) | Certificate of Final Inspection and Acceptance | 1 pgs. |
| 9) | Geomembrane Mill Certificates | 3 pgs. |
| 10) | Installation Warranty | 1 pgs. |

LAYFIELD
ENVIRONMENTAL CONTAINMENT

# CERTIFICATE OF INSPECTION OF SOIL SUBGRADE SURFACE

**PROJECT NAME:** Victoria Gold ADR Pad
**PROJECT NUMBER:** CT001020
**OWNER/CONTRACTOR:** Victoria Gold / Pelly Construction.
**LOCATION:** Victoria Gold Mine YT

*I, the undersigned, a duly appointed representative of Layfield Canada Ltd. (Layfield), have visually observed the soil subgrade surface described below, and:*

☑ *found it to be an acceptable surface on which to install geomembrane; OR*
☐ *found it to be an Unacceptable surface on which to install geomembrane*

**Area Inspected** (☐ Partial or ☑ Complete): Entire ADR Pad has been inspected
**Dimensions of Subgrade Inspection:** 74m x 40m. Plus SW corner Approx 3500m2
**Anchor Trench Dimensions:** N/A
**Comments:** Ditch to Heapleach pad to be completed later.

*This certification is based on observations of the surface of the subgrade only. No subterranean inspections or tests have been performed by Layfield and Layfield makes no representations or warranties regarding conditions which may exist below the surface of the subgrade. Layfield accepts no responsibility for conformance of the subgrade to this project's specifications.*

***The soil subgrade inspected on this date refers to its present condition. Any changes in the subgrade condition that result from the effects of inclement weather and/or other forces beyond the control of Layfield and remedial work to correct the resulting deficiencies, will be the direct responsibility of the General Contractor.***

**LAYFIELD REPRESENTATIVE:**

**Date:** 06/28/18
**Signature:**
**Name:** Chad Messervey
**Title:** Project Supervisor

**OWNERS REPRESENTATIVE:**

*I, the undersigned, a duly appointed representative of the Owner, hereby understand the soil subgrade surface inspection described above and authorize Layfield to proceed with deployment of geosynthetics on the subgrade provided.*

**Date:** 06/29/18
**Signature:**
**Name:** SHIPENG ZHENG
**Title:** Field Engineer
**Company:** Pelly Construction Ltd

# INVENTORY LOG

PROJECT NUMBER: CT001020
PROJECT TITLE: ADR PAD
DATE OF INVENTORY: 2018/06/28
PRODUCT TYPE: EL6160HD
MATERIAL MANUFACTURER: Layfield

| # | ROLL NUMBER | MATERIAL DIMENSIONS | | | REMARKS |
|---|---|---|---|---|---|
| | | THICKNESS | LENGTH (m) | WIDTH (m) | |
| 1 | 330270651-E000606-001 | 60Mil | 170 | 6.8 | |
| 2 | 330270651-E000606-002 | 60Mil | 170 | 6.8 | |
| 3 | 330270651-E000606-003 | 60Mil | 170 | 6.8 | |
| 4 | 330270651-E000606-004 | 60Mil | 170 | 6.8 | |
| 5 | 330270651-E000606-005 | 60Mil | 170 | 6.8 | |
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TOTAL PAGE AREA: 5780 $m^2$

QC TECH: Cory MacLellan
SUPERVISOR: Chad Messervey
SUBMISSION DATE: 2018/07/01
SHEET NUMBER: 1 of 1

LAYFIELD

# GEOMEMBRANE DEPLOYMENT LOG

PROJECT NUMBER CT001020
PROJECT TITLE ADR PAD

AREA / LAYER Primary
DEPLOYMENT DATE 2018/06/29

| PANEL NUMBER | ROLL NUMBER | LENGTH (m) | WIDTH (m) | AIR TEMP °C | PANEL CONDITION | CHECKED BY | SUBGRADE CONDITION |
|---|---|---|---|---|---|---|---|
| 1 | 330270651-E000606-002 | 80 | 6.8 | 18 | Good | CM | Good |
| 2 | 330270651-E000606-002 | 80 | 6.8 | 18 | Good | CM | Good |
| 3 | 330270651-E000606-004 | 80 | 6.8 | 18 | Good | CM | Good |
| 4 | 330270651-E000606-004 | 80 | 6.8 | 18 | Good | CM | Good |
| 5 | 330270651-E000606-001 | 80 | 6.8 | 18 | Good | CM | Good |
| 6 | 330270651-E000606-001 | 80 | 6.8 | 18 | Good | CM | Good |
| 7 | 330270651-E000606-003 | 39.5 | 6.8 | 18 | Good | CM | Good |
| 8 | 330270651-E000606-003 | 14 | 6.8 | 18 | Good | CM | Good |
| 9 | 330270651-E000606-003 | 14 | 6.8 | 18 | Good | CM | Good |
| 10 | 330270651-E000606-003 | 6.5 | 6.8 | 18 | Good | CM | Good |
| 12 | 330270651-E000606-003 | 6.5 | 6.8 | 18 | Good | CM | Good |
| 13 | 330270651-E000606-003 | 6 | 6.8 | 18 | Good | CM | Good |
| 11 | 330270651-E000606-003 | 6 | 6.8 | 18 | Good | CM | Good |
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TOTAL PAGE AREA 3893 $m^2$

QC TECH Cory MacLellan
SUPERVISOR Chad Messervey
SUBMISSION DATE 2018/07/01
SHEET NUMBER 1 of 2

# GEOMEMBRANE DEPLOYMENT LOG

PROJECT NUMBER CT001020
PROJECT TITLE ADR PAD
AREA / LAYER Primary
DEPLOYMENT DATE 2018/06/30

| PANEL NUMBER | ROLL NUMBER | LENGTH (m) | WIDTH (m) | AIR TEMP °C | PANEL CONDITION | CHECKED BY | SUBGRADE CONDITION |
|---|---|---|---|---|---|---|---|
| 14 | 330270651-E000606-001 | 5 | 6.8 | 10 | Good | CM | Good |
| 15 | 330270651-E000606-004 | 7.5 | 6.8 | 10 | Good | CM | Good |
| 16 | 330270651-E000606-003 | 17 | 6.8 | 10 | Good | CM | Good |
| 17 | 330270651-E000606-003 | 17 | 6.8 | 10 | Good | CM | Good |
| 18 | 330270651-E000606-003 | 4.5 | 0.8 | 10 | Good | CM | Good |
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TOTAL PAGE AREA 319.8 $m^2$

QC TECH Cory MacLellan
SUPERVISOR Chad Messervey
SUBMISSION DATE 2018/07/01
SHEET NUMBER 2 of 2

# GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER CT001020
PROJECT TITLE ADR PAD
AREA / LAYER Primary
SEAM DATE 2018/06/29

## TRIAL SEAMS

| # | MACHINE NUMBER | TIME | WELD TECH | AIR TEMP °C | SPEED | WEDGE TEMP °C | INSIDE PEEL (PPI) | | | | | OUTSIDE PEEL (PPI) | | | | | SHEAR (PPI) | | | | | CHK'D BY | LINER TO LINER TYPE AND REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | EC-WW-054 | 1300 | DH | 18 | 75.0% | 443 | 106 | 102 | 112 | 107 | 107 | 113 | 91 | 110 | 108 | 111 | 120 | 128 | 118 | 126 | 128 | CM | |
| 2 | EC-WW-054 | 1700 | DH | 10 | 70.0% | 443 | 99 | 101 | 102 | 104 | 111 | 110 | 109 | 98 | 104 | 106 | 121 | 122 | 123 | 130 | 131 | CM | |
| | | | | | | | | | | | | | | | | | | | | | | | |
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## WELD SEAMS

| PANEL NUMBERS | SEAM SECTION FROM | SEAM SECTION TO | START TIME | AIR TEMP °C | WELD TECH | MACHINE NUMBER | WELD LENGTH | DESTRUCT NUMBER | QC TEST METH. | QC TEST DATE Y-M-D | AIR PRESSURE TEST (PSI) TIME START | TIME END | PRESSURE START | PRESSURE END | VERIFY PASS | VERIFY QC TECH |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 / 2 | EEOS | WEOS | 1410 | 18 | DH | EC-WW-054 | 80.0 | | AP+PS | 30/6/18 | 1650 | 1655 | 40 | 40 | P | CM |
| 2 / 3 | EEOS | 1B | 1445 | 18 | DH | EC-WW-054 | 40.0 | DS-1 | AP+PS | 1/7/18 | 750 | 755 | 40 | 40 | P | CM |
| 2 / 3 | 1B | WEOS | 1458 | 18 | DH | EC-WW-054 | 40.0 | | AP+PS | 1/7/18 | 1010 | 1015 | 40 | 40 | P | CM |
| 3 / 4 | EEOS | WEOS | 1510 | 18 | DH | EC-WW-054 | 80.0 | | AP+PS | 30/6/18 | 1720 | 1725 | 40 | 40 | P | CM |
| 4 / 5 | EEOS | 1C | 1545 | 18 | DH | EC-WW-054 | 40.0 | DS-2 | AP+PS | 30/6/18 | 1310 | 1315 | 40 | 40 | P | CM |
| 4 / 5 | 1C | WEOS | 1558 | 18 | DH | EC-WW-054 | 40.0 | | AP+PS | 1/7/18 | 720 | 725 | 40 | 40 | P | CM |
| 5 / 6 | EEOS | WEOS | 1650 | 18 | DH | EC-WW-054 | 80.0 | | AP+PS | 30/6/18 | 1725 | 1730 | 40 | 40 | P | CM |
| 8 / 9 | NEOS | SEOS | 1720 | 18 | DH | EC-WW-054 | 14.0 | | AP+PS | 30/6/18 | 1434 | 1439 | 40 | 40 | P | CM |
| 9 / 10 | NEOS | SEOS | 1730 | 18 | DH | EC-WW-054 | 6.5 | | AP+PS | 30/6/18 | 1431 | 1436 | 40 | 40 | P | CM |
| 10 / 11 | NEOS | SEOS | 1740 | 18 | DH | EC-WW-054 | 6.5 | | AP+PS | 30/6/18 | 1426 | 1431 | 40 | 40 | P | CM |
| 12 / 13 | NEOS | SEOS | 1747 | 18 | DH | EC-WW-054 | 6.0 | | AP+PS | 30/6/18 | 1425 | 1430 | 40 | 40 | P | CM |
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| PAGE TOTAL | | | | | | | 433.0 | | | | | | | | | |

TEST METHOD
AL - AIR LANCE
AP - AIR PRESSURE
PS - POINT STRESS
ST - SPARK TEST
VB - EXTRUDED & VAC BOX

REMARKS:

QC TECH Cory MacLellan
SUPERVISOR Chad Messervey
SUBMISSION DATE 2018/07/01
SHEET NUMBER 1 of 2

# GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER CT001020 AREA / LAYER Primary
PROJECT TITLE ADR PAD SEAM DATE 2018/06/30

## TRIAL SEAMS

| # | MACHINE NUMBER | TIME | WELD TECH | AIR TEMP °C | SPEED | WEDGE TEMP °C | INSIDE PEEL (PPI) | | | | | OUTSIDE PEEL (PPI) | | | | | SHEAR (PPI) | | | | | CHK'D BY | LINER TO LINER TYPE AND REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | EC-WW-054 | 800 | DH | 10 | 70.0% | 443 | 90 | 117 | 104 | 108 | 117 | 107 | 121 | 112 | 113 | 115 | 130 | 132 | 134 | 129 | 129 | CM | |
| 2 | EC-WW-054 | 1130 | DH | 10 | 70.0% | 443 | 110 | 115 | 114 | 113 | 98 | 101 | 105 | 112 | 121 | 113 | 131 | 128 | 121 | 122 | 119 | CM | |
| | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | |

## WELD SEAMS

| PANEL NUMBERS | SEAM SECTION FROM | SEAM SECTION TO | START TIME | AIR TEMP °C | WELD TECH | MACHINE NUMBER | WELD LENGTH | DESTRUCT NUMBER | QC TEST METH. | QC TEST DATE Y-M-D | AIR PRESSURE TEST (PSI) TIME START | TIME END | PRESSURE START | PRESSURE END | VERIFY PASS | VERIFY QC TECH |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 6 / 7 | EEOS | WEOS | 840 | 10 | DH | EC-WW-054 | 39.5 | DS-3 | AP+PS | 1/7/18 | 1440 | 1445 | 40 | 40 | P | CM |
| 17 / 18 | EEOS | WEOS | 948 | 10 | DH | EC-WW-054 | 4.0 | | AP+PS | 1/7/18 | 745 | 750 | 40 | 40 | P | CM |
| 16 / 18 | EEOS | WEOS | 954 | 10 | DH | EC-WW-054 | 4.0 | | AP+PS | 1/7/18 | 745 | 750 | 40 | 40 | P | CM |
| 16 / 17 | NEOS | SEOS | 955 | 10 | DH | EC-WW-054 | 13.0 | DS-4 | AP+PS | 1/7/18 | 747 | 752 | 40 | 40 | P | CM |
| 7 / 14 | NEOS | SEOS | 1000 | 10 | DH | EC-WW-054 | 4.5 | | AP+PS | 1/7/18 | 738 | 743 | 40 | 40 | P | CM |
| 14 / 15 | NEOS | SEOS | 1020 | 10 | DH | EC-WW-054 | 6.8 | | AP+PS | 1/7/18 | 740 | 745 | 40 | 40 | P | CM |
| 6 / 14 | EEOS | WEOS | 1100 | 10 | DH | EC-WW-054 | 5.0 | | AP+PS | 1/7/18 | 740 | 745 | 40 | 40 | P | CM |
| 6 / 15 | EEOS | WEOS | 1102 | 10 | DH | EC-WW-054 | 7.0 | | AP+PS | 1/7/18 | 740 | 745 | 40 | 40 | P | CM |
| 6 / 16 | EEOS | WEOS | 1104 | 10 | DH | EC-WW-054 | 6.8 | | AP+PS | 1/7/18 | 741 | 746 | 40 | 40 | P | CM |
| 6 / 17 | EEOS | WEOS | 1106 | 10 | DH | EC-WW-054 | 6.8 | | AP+PS | 1/7/18 | 747 | 752 | 40 | 40 | P | CM |
| 15 / 16 | NEOS | SEOS | 1110 | 10 | DH | EC-WW-054 | 6.8 | | AP+PS | 1/7/18 | 741 | 746 | 40 | 40 | P | CM |
| 7 / 8 | NEOS | SEOS | 1130 | 10 | DH | EC-WW-054 | 5.0 | | AP+PS | 30/6/18 | 1440 | 1445 | 40 | 40 | P | CM |
| 11 / 12 | EEOS | WEOS | 1159 | 10 | DH | EC-WW-054 | 5.0 | | AP+PS | 30/6/18 | 1425 | 1430 | 40 | 40 | P | CM |
| 11 / 13 | EEOS | WEOS | 1201 | 10 | DH | EC-WW-054 | 1.8 | | AP+PS | 30/6/18 | 1425 | 1430 | 40 | 40 | P | CM |
| 10 / 13 | EEOS | WEOS | 1201 | 10 | DH | EC-WW-054 | 5.0 | | AP+PS | 30/6/18 | 1426 | 1431 | 40 | 40 | P | CM |
| 6 / 10 | WEOS | EEOS | 1203 | 10 | DH | EC-WW-054 | 1.8 | | AP+PS | 30/6/18 | 1429 | 1434 | 40 | 40 | P | CM |
| 6 / 8 | EEOS | WEOS | 1204 | 10 | DH | EC-WW-054 | 6.8 | | AP+PS | 1/7/18 | 1434 | 1439 | 40 | 40 | P | CM |
| 6 / 9 | EEOS | WEOS | 1204 | 10 | DH | EC-WW-054 | 6.8 | | AP+PS | 1/7/18 | 1431 | 1436 | 40 | 40 | P | CM |
| / | | | | | | | | | | | | | | | | |
| / | | | | | | | | | | | | | | | | |
| | | | | | | PAGE TOTAL | 136.4 | | | | | | | | | |

TEST METHOD
AL - AIR LANCE
AP - AIR PRESSURE
PS - POINT STRESS
ST - SPARK TEST
VB - EXTRUDED & VAC BOX

REMARKS:

QC TECH Cory MacLellan
SUPERVISOR Chad Messervey
SUBMISSION DATE 2018/07/01
SHEET NUMBER 2 of 2

# GEOMEMBRANE DETAIL & TEST LOG

PROJECT NUMBER CT001020 AREA / LAYER Primary

PROJECT TITLE ADR PAD

## TRIAL SEAMS

| # | MACHINE NUMBER | DATE YYYY-MM-DD | TIME | WELD TECH | AIR TEMP °C | PREHEAT TEMP °C | EXTRUDER TEMP °C | PEEL (PPI) | | | | | SHEAR (PPI) | | | | | CHK'D BY | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | EC-EX-035 | 2018/06/30 | 1300 | BB | 10 | 232 | 229 | 81 | 81 | 105 | 100 | 95 | 112 | 117 | 112 | 115 | 112 | CM | |
| 2 | EC-EX-035 | 2018/07/01 | 700 | BB | 10 | 232 | 229 | 100 | 113 | 103 | 127 | 110 | 138 | 144 | 151 | 143 | 141 | CM | |
| 3 | | | | | | | | | | | | | | | | | | | |
| 4 | | | | | | | | | | | | | | | | | | | |
| 5 | | | | | | | | | | | | | | | | | | | |
| 6 | | | | | | | | | | | | | | | | | | | |

| DETAIL CODE | PANEL NUMBER(S) | LOCATION DESCRIPTION | DETAIL TYPE | REPAIR TYPE | MACHINE NUMBER | REPAIR DATE YYYY-MM-DD | START TIME | WELD TECH | AIR TEMP °C | TEST DATE YYYY-MM-DD | TEST METH. | QC TECH |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1A | 1 / 2 | 2M W OF EEOS | BO | P | EC-EX-035 | 2018/07/01 | 715 | BB | 11 | 2018/07/01 | VB+PS | CM |
| 1B | 2 / 3 | 40 W OF EEOS | DS1 | P | EC-EX-035 | 2018/07/01 | 720 | BB | 11 | 2018/07/01 | VB+PS | CM |
| 1C | 4 / 5 | 40 W OF EEOS | DS2 | P | EC-EX-035 | 2018/07/01 | 730 | BB | 11 | 2018/07/01 | VB+PS | CM |
| 1D | 17 / 18 | INTERSECTION OF 6 | T | G&W | EC-EX-035 | 2018/07/01 | 745 | BB | 11 | 2018/07/01 | VB+PS | CM |
| 1E | 16 / 18 | INTERSECTION OF 6 | T | G&W | EC-EX-035 | 2018/07/01 | 750 | BB | 11 | 2018/07/01 | VB+PS | CM |
| 1F | 15 / 16 | INTERSECTION OF 6 | T | G&W | EC-EX-035 | 2018/07/01 | 755 | BB | 11 | 2018/07/01 | VB+PS | CM |
| 1G | 14 / 15 | INTERSECTION OF 6 | T | G&W | EC-EX-035 | 2018/07/01 | 810 | BB | 11 | 2018/07/01 | VB+PS | CM |
| 1H | 7 / 14 | INTERSECTION OF 6 | WS+T | P | EC-EX-035 | 2018/07/01 | 820 | BB | 11 | 2018/07/01 | VB+PS | CM |
| 1I | 7 / 8 | INTERSECTION OF 6 | WS+T | G&W | EC-EX-035 | 2018/06/30 | 1430 | BB | 11 | 2018/06/30 | VB+PS | CM |
| 1J | 8 / 9 | INTERSECTION OF 6 | T | G&W | EC-EX-035 | 2018/06/30 | 1300 | BB | 11 | 2018/06/30 | VB+PS | CM |
| 1K | 9 / 10 | INTERSECTION OF 6 | T | G&W | EC-EX-035 | 2018/06/30 | 1315 | BB | 11 | 2018/06/30 | VB+PS | CM |
| 1L | 10 / 11 | INTERSECTION OF 13 | T | P | EC-EX-035 | 2018/06/30 | 1330 | BB | 11 | 2018/06/30 | VB+PS | CM |
| 1M | 12 / 13 | INTERSECTION OF 11 | T | G&W | EC-EX-035 | 2018/06/30 | 1345 | BB | 11 | 2018/06/30 | VB+PS | CM |
| 1N | 9 / 10 | 2.2M N OF SEOS | BO | P | EC-EX-035 | 2018/06/30 | 1400 | BB | 11 | 2018/06/30 | VB+PS | CM |
| 1O | 17 / 18 | INTERSECTION OF 16 | T | G&W | EC-EX-035 | 2018/07/01 | 830 | BB | 11 | 2018/07/01 | VB+PS | CM |
| | / | | | | | | | | | | | |
| | / | | | | | | | | | | | |
| | / | | | | | | | | | | | |
| | / | | | | | | | | | | | |
| | / | | | | | | | | | | | |

DETAIL TYPE: AD - DAMAGE; AT - AIR TEST LEAK; BO - FUSION WELDER BURN; CR - CRACK; D - INSTALLATION DAMAGE; DS-# - DESTRUCT SAMPLE NUMBER; EE - EARTHWORK EQUIPMENT DAMAGE; EXT - EXTENSION; FAB - FABRICATION; FS - FAILED SEAM LENGTH; ID - INSUFFICIENT OVERLAP; MD - MANUFACTURER/DELIVERY DAMAGE; P - PENETRATION; PT - PRESSURE TEST CUT; SI - SEPS SUBJECT IRREGULARITY; T - THREE PANEL INTERSECTION; VL - VACUUM TEST LEAK; WRK - WRINKLE; WLD - WELDER/RESTART; OTHER

TEST METHOD: AL - AIR LANCE; PS - POINT STRESS; VB - VAC BOX; ST - SPARK TEST

REPAIR TYPE: GRW - GRIND & WELD; RS - RECONSTRUCTED SEAM; HAW - HOT AIR WELD; S - SPOT; C - CAP; P - PATCH; E - EXTRUDE

REMARKS

QC TECH Cory MacLellan

SUPERVISOR Chad Messervey

SUBMISSION DATE 2018/07/01

SHEET NUMBER 1 of 1

# LAYFIELD GEOMEMBRANE DESTRUCT LOG

PROJECT NUMBER CT001020
PROJECT TITLE ADR PAD
AREA / LAYER Primary
3RD PARTY
ARCHIVE LAYFIELD ☐ OWNER ☐ ENGINEER ☐

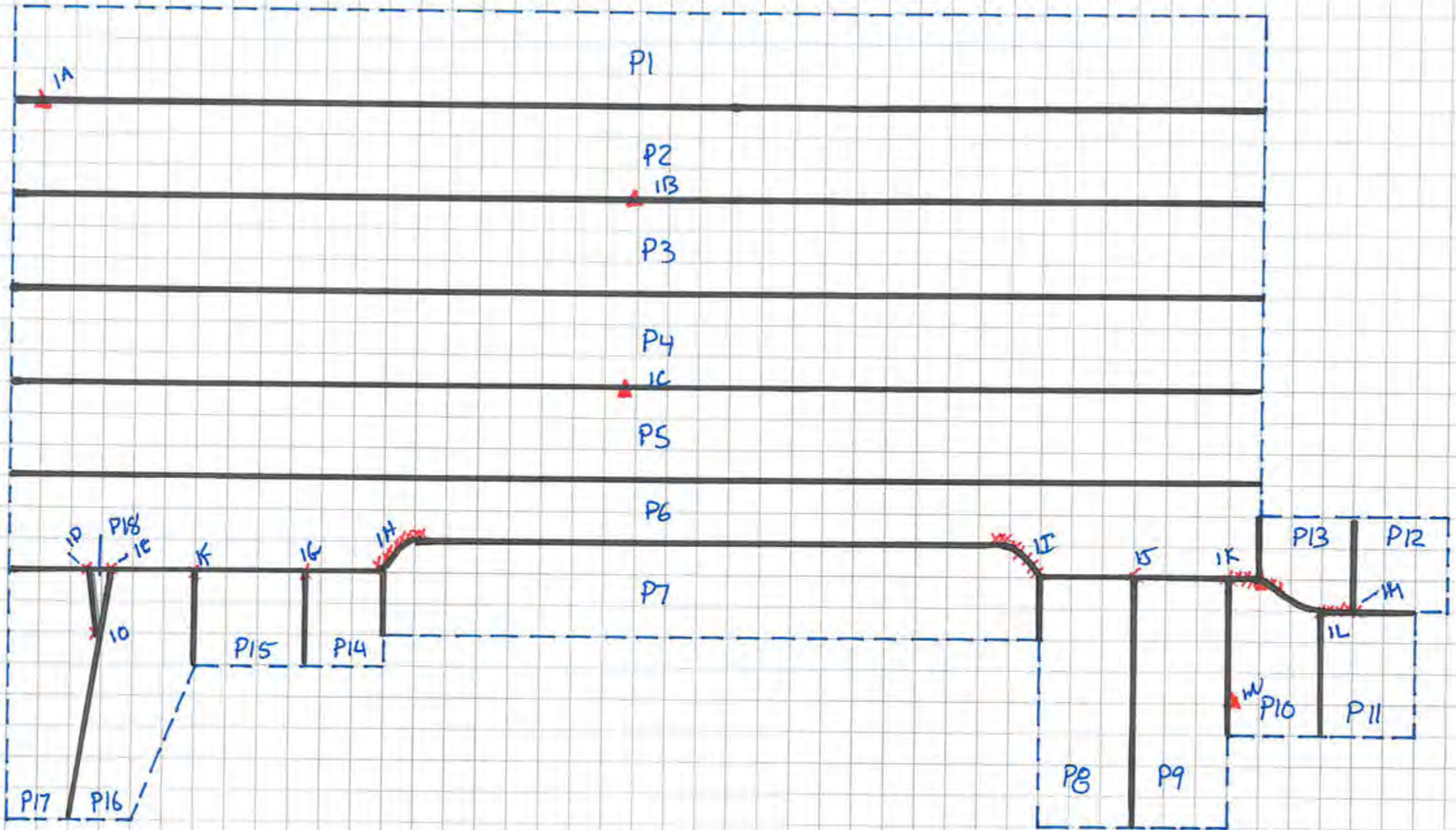
| DESTRUCT SAMPLE NUMBER | TYPE OF SEAM | PANEL NUMBERS | TEST DATE YYYY-MM-DD | TEST TEMP °C | INITIALS 3RD PARTY | INITIALS PRESENT LAYFIELD | INITIALS PASS 3RD PARTY | INITIALS LAB PASS | INSIDE PEEL STRENGTH (PPI) | | | | | OUTSIDE PEEL STRENGTH (PPI) | | | | | SHEAR STRENGTH (PPI) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SAMPLE LOCATION | | | | | | | | | LOCUS OF BREAK | | | | | LOCUS OF BREAK | | | | | LOCUS OF BREAK | | | | |
| DS-1 | SPF | 2/3 | 2018/06/30 | 18 | | PASS | | | 115 | 121 | 120 | 118 | 114 | 121 | 123 | 120 | 124 | 123 | 133 | 138 | 139 | 140 | 138 |
| 40M W OF EEOS | | | | | | | | | SE1 | SE1 | SE1 | SE1 | SE1 | SE1 | SE1 | SE1 | SE1 | SE1 | BRK | BRK | BRK | BRK | BRK |
| DS-2 | SPF | 4/5 | 2018/06/30 | 18 | | PASS | | | 120 | 125 | 123 | 124 | 125 | 120 | 112 | 120 | 121 | 120 | 137 | 143 | 142 | 140 | 140 |
| 40M W OF EEOS | | | | | | | | | SE1 | SE1 | SE1 | SE1 | SE1 | SE1 | SE1 | SE1 | SE1 | SE1 | BRK | BRK | BRK | BRK | BRK |
| DS-3 | SPF | 6/7 | 2018/06/30 | 18 | | PASS | | | 106 | 119 | 120 | 124 | 120 | 124 | 126 | 123 | 131 | 98 | 141 | 145 | 143 | 143 | 142 |
| WEOS CUTOFF | | | | | | | | | SE1 | SE1 | SE1 | SE1 | SE1 | SE1 | SE1 | SE1 | SE1 | SE1 | BRK | BRK | BRK | BRK | BRK |
| DS-4 | SPF | 16/17 | 2018/06/30 | 18 | | PASS | | | 109 | 128 | 124 | 113 | 115 | 112 | 116 | 114 | 130 | 112 | 144 | 141 | 135 | 145 | 136 |
| SEOS CUTOFF | | | | | | | | | SE1 | SE1 | SE1 | SE1 | SE1 | SE1 | SE1 | SE1 | SE1 | SE1 | BRK | BRK | BRK | BRK | BRK |
| DS- | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | |
| DS- | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | |
| DS- | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | |
| DS- | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | |

TYPE OF SEAM: SPF - SPLIT FUSION SOF - SOLID FUSION SLV - SOLVENT
EXT - EXTRUSION HAF - HOT AIR FUSION

QC TECH Cory MacLellan
SUBMITTED BY Chad Messervey
SUBMISSION DATE 2018/07/01
SHEET NUMBER 1 of 1

| No. | Revisions | Date (MM/DD/YY) | By |
|---|---|---|---|

N




PROJECT NAME
Victoria Gold
ADR PAD

MATERIAL TYPE
@6160 HD

LAYFIELD

LEGEND

- Extent of Liner
- Toe of Slope
- Liner Field Seam
- xxx Extrusion Welding
- △ Patch
- P2 Panel Number
- 1A Repair Number

| Quote No. | Project No. |
|---|---|
| | CT004020 |

| Dwg: 1 of 1 | Scale: NTS |
|---|---|

| Dwn: | Chkd: | Appd: |
|---|---|---|
| Date: | Revision: | |

LAYFIELD
ENVIRONMENTAL CONTAINMENT

# CERTIFICATE OF FINAL INSPECTION AND ACCEPTANCE

**PROJECT NAME:** Victoria Gold Mine ADR Pad.
**PROJECT NUMBER:** CT001020 **DATE:** 07/01/18
**OWNER:** Victoria Gold / Pelly Construction
**LOCATION:** Victoria Gold Mine, YT

**Scope of Installation(s):** THE WORK
Area/Layer: Primary Containment Liner Area Inspected: ☐ Partial or ☑ Complete
Dimensions: 41m x 80m + Ditch liner and entry ramps. Approximate 4200m2. Layfield has completed installation of EL 6160 containment Liner for ADR Pad. All QA. testing has been completed. Scope of Work complete

**Part 1 – LAYFIELD CANADA LTD.**

I, Chad Messervey, a duly appointed representative of Layfield Canada Ltd. (Layfield), have visually observed the installations (as outlined above), and have found the Work to be complete and free of defects and declare that the Work was completed in accordance with the project specifications, Layfield's QC program and the terms and conditions of the contract.

**Layfield Representative:**

**Name:** Chad Messervey
**Title:** Project Supervisor
**Date:** 07/01/18 **Signature:**

**Part 2 – OWNER (or Representative)**

I, Declan McGovern, a duly appointed representative of Pelly Construction Ltd.
Grand Foreman, do hereby take over and accept the installation(s) described above, and confirm that the work has been completed in accordance with the project specifications and the terms of the conditions of the contract.

I have evaluated and measured the work together with the Layfield representative, and agree that the measurements shown are both true and correct, and that the installation has met our approval.

**Owners Representative:**

**Name:** Declan McGovern
**Title:** General Foreman.
**Company:** Pelly Construction. Ltd.
**Date:** July 8/18 **Signature:**

**Comments:** Ditch Liner only Partially complete as per Client request. QA. Package to follow.

LAYFIELD *Leaders in Film & Geosynthetic Technology*

## Mill Certification Report

| | | | |
|---|---|---|---|
| **Job #** | E0006006 | | |
| **Start Date** | 9/20/2017 | **Customer Name** | LAYFIELD GEO EDMONTON - 322082 |
| **Req Delivery Date** | 9/20/2017 | **Job Description** | EL6160HD 270" 60MIL SE TEX-1 |
| **Close Date** | 9/21/2017 | **Warehouse** | 42 |
| | | **Qty Manufactured** | 8920 FT |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Inspection #** | 27477 | **Job** | E0006006 | **Status** | Complete | **Result** | Pass |
| **Stock Code** | 330270681 | EL6160X 270" 60MIL SE TEX-1 | | **Inspection Date** | 9/19/2017 | **Completion Date** | 9/20/2017 |
| **Notes** | | | | | | | |

| Serial | Result | Roll Length<br>ft | Roll Weight - Net<br>lbs | SE Width Right Side<br>(6.5 in +/- 1 in) | SE Width Left Side<br>(6.5 in +/- 1 in) | Sheet Width<br>(270 in +/- 2 in) | Roll Area<br>m2 |
|---|---|---|---|---|---|---|---|
| 330270651-E0006006-001 | Pass | 560 | 4216 | 6.00 | 5.50 | 269.25 | 1170.56856187291 |
| 330270651-E0006006-002 | Pass | 560 | 4211 | 6.25 | 5.75 | 270.00 | 1170.56856187291 |
| 330270651-E0006006-003 | Pass | 560 | 4206 | 6.25 | 5.75 | 271.00 | 1170.56856187291 |
| 330270651-E0006006-004 | Pass | 560 | 4221 | 6.25 | 5.75 | 270.75 | 1170.56856187291 |
| 330270651-E0006006-006 | Pass | 560 | 4201 | 6.25 | 5.75 | 270.00 | 1170.56856187291 |

LAYFIELD *Leaders in Film & Geosynthetic Technology*

## Mill Certification Report

| | | | |
|---|---|---|---|
| **Job #** | E0006006 | | |
| **Start Date** | 9/20/2017 | **Customer Name** | LAYFIELD GEO EDMONTON - J22082 |
| **Req Delivery Date** | 9/20/2017 | **Job Description** | EL6160HD 270" 60MIL SE TEX-1 |
| **Close Date** | 9/21/2017 | **Warehouse** | 42 |
| | | **Qty Manufactured** | 8920 FT |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Inspection #** | 27477 | **Job** | E0006006 | **Status** | Complete | **Result** | Pass |
| **Stock Code** | 330270651 | EL6160X 270" 60MIL SE TEX-1 | | **Inspection Date** | 9/19/2017 | **Completion Date** | 9/20/2017 |
| **Notes** | | | | | | | |

| Serial | Thickness - Average ASTM D5994 (57 mil to 63 mil) | Thickness - Minimum ASTM D5994 (54 mil to 66 mil) | Asperity - Printed Average ASTM D7466 (18 mil to 30 mil) | Break Strength - MD Average ASTM D638 (120 lbs/in to 300 lbs/in) | Break Elongation MD Average ASTM D638 (335 % to 1000 %) | Break Strength - TD Average ASTM D638 (120 lbs/in to 300 lbs/in) | Break Elongation TD Average ASTM D638 (335 % to 1000 %) |
|---|---|---|---|---|---|---|---|
| 330270651-E0006006-001 | 60.49 | 58.1 | 20.7 | 228.26 | 862.11178 | 206.32 | 796.24676 |
| 330270651-E0006006-002 | 59.61 | 57 | 22.3 | 228.26 | 862.11178 | 206.32 | 796.24676 |
| 330270651-E0006006-003 | 59.01 | 56.3 | 24.3 | 228.26 | 862.11178 | 206.32 | 796.24676 |
| 330270651-E0006006-004 | 58.67 | 55.7 | 26.7 | 228.26 | 862.11178 | 206.32 | 796.24676 |
| 330270651-E0006006-006 | 59.56 | 54.5 | 26.15 | 222.74 | 884.77788 | 195.86 | 817.57956 |

LAYFIELD Leaders in Film & Geosynthetic Technology

# Mill Certification Report

| | | | |
|---|---|---|---|
| **Job #** | E0006006 | | |
| **Start Date** | 9/20/2017 | **Customer Name** | LAYFIELD GEO EDMONTON - 322082 |
| **Req Delivery Date** | 9/20/2017 | **Job Description** | EL6160HD 270" 60MIL GE TEX-1 |
| **Close Date** | 9/21/2017 | **Warehouse** | 42 |
| | | **Qty Manufactured** | 9920 FT |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Inspection #** | 27477 | **Job** | E0006006 | **Status** | Complete | **Result** | Pass |
| **Stock Code** | 3302706S1 | EL6160X 270" 60MIL GE TEX-1 | | **Inspection Date** | 9/19/2017 | **Completion Date** | 9/20/2017 |
| **Notes** | | | | | | | |

| Serial | Tear Strength - MD Average ASTM D1004 (33 lbs to 75 lbs) | Tear Strength - TD Average ASTM D1004 (33 lbs to 75 lbs) | Puncture Strength - Average ASTM D4833 (66 lbs to 125 lbs) | Carbon Black Content ASTM D4218 (2 % to 3 %) | Density ASTM D1505 (0.925 g/cc to 0.939 g/cc) | Carbon Black Dispersion ASTM D5596 | OIT - High Pressure ASTM D5885 |
|---|---|---|---|---|---|---|---|
| 330270651-E0006006-001 | 44.4 | 47.4 | 111.8 | 2.50 | 0.927 | >= 9 in Category 1 or 2 | Pass > 2000 mins |
| 330270651-E0006006-002 | 44.4 | 47.4 | 111.8 | 2.50 | 0.927 | >= 9 in Category 1 or 2 | Pass > 2000 mins |
| 330270651-E0006006-003 | 44.4 | 47.4 | 111.8 | 2.50 | 0.927 | >= 9 in Category 1 or 2 | Pass > 2000 mins |
| 330270651-E0006006-004 | 44.4 | 47.4 | 111.8 | 2.50 | 0.927 | >= 9 in Category 1 or 2 | Pass > 2000 mins |
| 330270651-E0006006-005 | 44.4 | 47.4 | 111.8 | 2.50 | 0.927 | >= 9 in Category 1 or 2 | Pass > 2000 mins |

**LAYFIELD CANADA LTD.**
17720 – 129 Avenue NW Edmonton, Alberta T5V 0C4 Canada
Phone: (780) 453-6731
Fax: (780) 452-9495
Toll Free: 1 800 840-2884
Web: www.layfieldgroup.com
E-Mail: edm@layfieldgroup.com

## INSTALLATION WARRANTY

Layfield Reference No. : (Job #) CT001020

LAYFIELD CANADA LTD. (LAYFIELD) hereby warrants to Pelly Construction , (the Customer) that the work performed by LAYFIELD on the Installation described as ADR Pad will:

1. Meet the field seam specifications set out in the contract between LAYFIELD and the Customer (as amended by LAYFIELD's quotation), all workmanship to meet the requirements of LAYFIELD's Field Installation Quality Assurance program, and be free of defects at the time of completion of the installation; and

2. Be free of installation defects from the date of the completion of the installation (July 1, 2018), for a period of One year so long as the completed Installation is used for the purposes and in the manner for which the Installation was designed.

Should damage or defects within the scope of the aforesaid warranties occur, LAYFIELD shall repair the damage or defects, PROVIDED THAT the area to be repaired must first be made ready by the Customer and be in a clean, dry, unencumbered condition, free from all water, soil, sludge, residuals, and liquids of any kind.

To enable LAYFIELD to investigate and determine the cause of any alleged damage or defect, notice and details of any claim hereunder must be presented in writing to LAYFIELD within thirty (30) days after the alleged damage or defect was first noticed or observed. Failure to provide such notice and details shall invalidate all warranties provided hereunder.

The liability of LAYFIELD under the aforesaid warranties are subject to the following conditions:

a. LAYFIELD's only obligation shall be to repair or replace any defective workmanship and in no event shall LAYFIELD be liable for any amount in excess of the cost of the Installation;

b. No allowance will be made for repairs, replacements or alterations made by the Customer unless with the prior written consent of LAYFIELD;

c. The warranties hereunder extend only to the Customer and are not transferable;

d. The warranties hereunder shall not apply to any damage or defects resulting from misuse, mechanical abuse by machinery, equipment or persons, excessive pressures or stresses, exposure of the completed Installation of harmful chemicals, unusual weather conditions, casualty catastrophe such as (but not limited to) earthquake, flood, hail, tornado, or any other act of God;

e. Under no circumstances shall LAYFIELD be liable for any special, direct, indirect, or consequential damages including the loss of use of the Installation howsoever caused;

f. The warranties hereunder are given in lieu of all other warranties, express, implied, statutory, or otherwise, and the Customer expressly waives all other warranties and claims whatsoever except those specifically given herein, and the Customer acknowledges that the warranties hereunder are accepted in preference to and to the exclusion of any or all other warranties; and

g. An Installation Warranty will not be provided for lining projects unless the installation is completed by LAYFIELD personnel or designated LAYFIELD subcontractors.

LAYFIELD CANADA LTD.

Greg Van Petten, Estimating Manager

LAYFIELD CANADA LTD.

Ed Wilanowski, Director of Innovation and Diversification

LAYFIELD
ENVIRONMENTAL CONTAINMENT

# CERTIFICATE OF INSPECTION OF SOIL SUBGRADE SURFACE

**PROJECT NAME:** Victoria Gold ADR Pad
**PROJECT NUMBER:** [illegible]
**OWNER/CONTRACTOR:** Victoria Gold / Reilly Construction
**LOCATION:** Victoria Gold Mine [illegible]

*I, the undersigned, a duly appointed representative of Layfield Canada Ltd. (Layfield), have visually observed the soil subgrade surface described below, and:*

☑ *found it to be an acceptable surface on which to install geomembrane; OR*

☐ *found it to be an Unacceptable surface on which to install geomembrane*

**Area Inspected** (☐Partial or ☑Complete): Entire ADR Pad has been inspected
**Dimensions of Subgrade Inspection:** 74m x 40m Pics SW Corner Approx 3500m²
**Anchor Trench Dimensions:** N/A
**Comments:** Back to asphalt pad to be completed later

*This certification is based on observations of the surface of the subgrade only. No subterranean inspections or tests have been performed by Layfield and Layfield makes no representations or warranties regarding conditions which may exist below the surface of the subgrade. Layfield accepts no responsibility for conformance of the subgrade to this project's specifications.*

***The soil subgrade inspected on this date refers to its present condition. Any changes in the subgrade condition that result from the effects of inclement weather and/or other forces beyond the control of Layfield and remedial work to correct the resulting deficiencies, will be the direct responsibility of the General Contractor.***

**LAYFIELD REPRESENTATIVE:**

**Date:** 06/28/18
**Signature:** [signature]
**Name:** Chad Mercerdey
**Title:** Project Supervisor

**OWNERS REPRESENTATIVE:**

*I, the undersigned, a duly appointed representative of the Owner, hereby understand the soil subgrade surface inspection described above and authorize Layfield to proceed with deployment of geosynthetics on the subgrade provided.*

**Date:** 06/29/18
**Signature:** [signature]
**Name:** [illegible]
**Title:** [illegible]
**Company:** Reilly Construction Ltd.

LAYFIELD
ENVIRONMENTAL CONTAINMENT

# CERTIFICATE OF FINAL INSPECTION AND ACCEPTANCE

**PROJECT NAME:** Victoria Gold Mine ADR Pad
**PROJECT NUMBER:** [illegible] **DATE:** 07/01/18
**OWNER:** Victoria Gold / Pelly Construction
**LOCATION:** Victoria Gold Mine YT

**Scope of Installation(s):** **THE WORK**
Area/Layer: Primary Containment Liner Area Inspected: ☐ Partial or ☑ Complete
Dimensions: 41m x 80m + Ditch liner and entry ramps approximate 4200m2 Layfield has completed installation of FL 6160 containment liner for ADR Pad. All QA testing has been completed. Scope of work complete

## Part 1 – LAYFIELD CANADA LTD.

I, Chad Messervey, a duly appointed representative of Layfield Canada Ltd. (Layfield), have visually observed the installations (as outlined above), and have found the Work to be complete and free of defects and declare that the Work was completed in accordance with the project specifications, Layfield's QC program and the terms and conditions of the contract.

**Layfield Representative:**

**Name:** Chad Messervey
**Title:** Project Supervisor
**Date:** 07/01/18 **Signature:**

## Part 2 – OWNER (or Representative)

I, Dacha McGovern, a duly appointed representative of Pelly Construction Ltd Carol Forman, do hereby take over and accept the installation(s) described above, and confirm that the work has been completed in accordance with the project specifications and the terms of the conditions of the contract.

I have evaluated and measured the work together with the Layfield representative, and agree that the measurements shown are both true and correct, and that the installation has met our approval.

**Owners Representative:**

**Name:** Dacha McGovern
**Title:** Carol Forman
**Company:** Pelly Construction Ltd
**Date:** July 2/18 **Signature:**

**Comments:** Ditch liner only partially complete as per client request. QA package to follow

LAYFIELD
ENVIRONMENTAL CONTAINMENT

# CERTIFICATE OF FINAL INSPECTION AND ACCEPTANCE

**PROJECT NAME:** VICTORIA GOLD ADR PAD
**PROJECT NUMBER:** CTOO 1020 **DATE:** 09 JULY 2018.
**OWNER:** VICTORIA GOLDEN MINE.
**LOCATION:** YUKON NT

**Scope of Installation(s):** **THE WORK**
Area/Layer: LINER EXPOSE. Area Inspected: ☑ Partial or ☐ Complete
Dimensions: 3 PATCHES DIFFERENT SIZES ON SLOPE
1 PATCH 3'X1' ON FLOOR

## Part 1 – LAYFIELD CANADA LTD.

I, Raymundo Castillo, a duly appointed representative of Layfield Canada Ltd. (Layfield), have visually observed the installations (as outlined above), and have found the Work to be complete and free of defects and declare that the Work was completed in accordance with the project specifications, Layfield's QC program and the terms and conditions of the contract.

**Layfield Representative:**
**Name:** Raymundo Castillo
**Title:** TECHNICIAN.
**Date:** 09-July 2018 **Signature:**

## Part 2 – OWNER (or Representative)

I, _____, a duly appointed representative of _____, do hereby take over and accept the installation(s) described above, and confirm that the work has been completed in accordance with the project specifications and the terms of the conditions of the contract.

I have evaluated and measured the work together with the Layfield representative, and agree that the measurements shown are both true and correct, and that the installation has met our approval.

**Owners Representative:**
**Name:** _____
**Title:** _____
**Company:** _____
**Date:** _____ **Signature:** _____

**Comments:** _____

CLARK BUILDERS
ENERGY & RESOURCES

# FORMWORK & FALSEWORK PRE POUR | QA INSPECTION

Rev 00 May 4, 2018

| | | | |
|---|---|---|---|
| SUBCONTRACTOR: | Clark Builders | INSPECTION DATE: | July 22 2018 |
| SUBCONTRACTOR CONTACT PERSON: | Garry DAHL | DATE OF POUR: | July 23 2018 |
| INSPECTOR(S): | Garry DAHL | | |
| LOCATION: | ADR Footings Lines 1 to 3 | | |
| DRAWING REV: 0 | DRAWING NO.(S): 260-0007 | SPEC SECTION(S): | 03 10 00 |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Location, survey, dimension and grades as required | ☑ | ☐ | ☐ |
| 2.0 | Plumbness and Flatness verified | ☑ | ☐ | ☐ |
| 3.0 | Joints are aligned and watertight. | ☐ | ☐ | ☑ |
| 4.0 | Formwork shop drawings are Engineered and reviewed | ☐ | ☐ | ☑ |
| 5.0 | Re-used formwork reconditioned and treated | ☐ | ☐ | ☑ |
| 6.0 | Formwork and ties according to finishing requirements. Confirm no holes in the concrete surface are greater than 25mm in diameter or expose steel at less than 25mm from surface. As per spec. | ☑ | ☐ | ☐ |
| 7.0 | Installation of embeds are located and secured | ☐ | ☐ | ☑ |
| 8.0 | Chamfer requirements checked. 25mm chamfers required for all exterior corners and edges exposed to view including horizontal edges of pads. | ☐ | ☐ | ☑ |
| 9.0 | Key ways and/or other provisions according to design are provided in construction joints | ☐ | ☐ | ☑ |
| 10.0 | Inspect types of form spacers, ties and bracing. | ☑ | ☐ | ☐ |
| 11.0 | Spacing of ties to be set to a pattern | ☑ | ☐ | ☐ |
| 12.0 | Expansion, construction, contraction joints as required & located as coordinated with structural Engineer | ☐ | ☐ | ☑ |
| 13.0 | Forms secured against movement during placing | ☑ | ☐ | ☐ |
| 14.0 | Forms are braced for alignment and blow out | ☑ | ☐ | ☐ |
| 15.0 | Forms are cleaned of all debris, and dry, prior to concrete placement including standing water. | ☑ | ☐ | ☐ |
| 16.0 | Openings in formwork permit inspection and cleaning, placing and compaction of concrete, and forming and processing of construction joints. | ☐ | ☐ | ☑ |
| 17.0 | Formwork has been coated with release agent prior to rebar placement. | ☑ | ☐ | ☐ |
| | | ☐ | ☐ | ☐ |

COMMENTS:

ATTACHMENT(S):

DEFICIENCIES NOTES:

INITIAL INSPECTION
INSPECTOR: Garry DAHL TITLE Supt DATE: July 22/18

INSPECTION (DEFICIENCIES COMPLETED)
INSPECTOR: Matt Cavendale TITLE Field Eng DATE: July 22/18.

CLARK BUILDERS
ENERGY & RESOURCES

# CONCRETE REINFORCEMENT PRE POUR

Rev 00 May 4, 2018

| | | | |
|---|---|---|---|
| SUBCONTRACTOR: | Clark Builders | INSPECTION DATE: | July 22 2018 |
| SUBCONTRACTOR CONTACT PERSON: | Garry DAHL | ACTION BY: | |
| INSPECTOR(S): | Garry DAHL | | |
| LOCATION: | ADR Line 1 to 3 Footings | | |
| DRAWING REV: | 0 | DRAWING NO.(S): | 260-0002 |
| SPEC SECTION(S): | 032000 | | |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Grade (400W unless otherwise noted) and type of steel delivered and installed as required by approved drawings. | ☑ | ☐ | ☐ |
| 2.0 | Inspect rebar distribution, spacing and cover per design/project requirements. | ☑ | ☐ | ☐ |
| 3.0 | Length of splices as specified | ☑ | ☐ | ☐ |
| 4.0 | Staggered splices as specified | ☑ | ☐ | ☐ |
| 5.0 | Any mechanical splices have been approved by the owner prior to install | ☐ | ☐ | ☑ |
| 6.0 | Bars cleaned and free of material that may reduce bond including loose rust, scale, oil, structural defects and that they are uncoated and unpainted. | ☑ | ☐ | ☐ |
| 7.0 | Dowels at wall ends, construction joints, and openings as specified (length, location, size, etc.) | ☐ | ☐ | ☑ |
| 8.0 | No unauthorized field bent bars including hooks installed | ☐ | ☐ | ☑ |
| | Resolve conflicts between embedded items and reinforcement | | | ☑ |
| 9.0 | When authorized, field bends done without heat and inspected for fissures or cracks. | ☐ | ☐ | ☑ |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 10.0 | Bars tied and supported to prevent displacement | ☑ | ☐ | ☐ |
| 11.0 | Spacers, tie wire and chairs as required | ☑ | ☐ | ☐ |
| 12.0 | Conduits at design location and minimum separation from rebar as specified | ☐ | ☐ | ☑ |
| 13.0 | No contact of bars is made with dissimilar metals as per CSA A23.1 | ☑ | ☐ | ☐ |
| 14.0 | Bars, nails or tie wire not sticking out from surfaces that allow rusting/corrosion | ☑ | ☐ | ☐ |
| 15.0 | Rebar is welds inspected by qualified inspectors certified to CSA W178.2 | ☐ | ☐ | ☑ |
| 16.0 | No rebar congestion or other obstruction for deposit of concrete | ☑ | ☐ | ☐ |
| 17.0 | Adjustments required for interfering items (piping, inserts, sleeves, etc.) have been submitted and approved by owner. | ☐ | ☐ | ☑ |
| 18.0 | Rebar was stored off ground to prevent damage/corrosion | ☑ | | |
| 19.0 | Review drawings for anchors, piping, sleeves, boxes | ☐ | ☐ | ☑ |

COMMENTS:

ATTACHMENT(S):

DEFICIENCIES NOTES:

INITIAL INSPECTION

INSPECTOR: Garry DAHL TITLE Supt DATE: July 22/18

RE-INSPECTION (DEFICIENCIES COMPLETED)

INSPECTOR: Matt Coverdale TITLE Field Eng DATE: July 22/18

CLARK BUILDERS
ENERGY & RESOURCES

# CONCRETE PRE POUR | FIELD INSPECTION

Rev 00 May 4, 2018

| | | | |
|---|---|---|---|
| SUBCONTRACTOR: | Clark Builders | INSPECTION DATE: | July 22 2018 |
| SUBCONTRACTOR CONTACT PERSON: | Garry DAHL | DATE OF POUR: | July 23 2018 |
| INSPECTOR(S): | Garry DAHL | | |
| LOCATION: | ADR Line 1 to 3 Footings | | |
| DRAWING REV: | 0 | DRAWING NO.(S): | 260-0002 |
| SPEC SECTION(S): | 03 30 00 | | |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Location, survey, dimension and grades as required | ☑ | ☐ | ☐ |
| 2.0 | Plumbness and Flatness verified | ☑ | ☐ | ☐ |
| 3.0 | Joints are aligned and watertight. | ☐ | ☐ | ☑ |
| 4.0 | Formwork shop drawings are Engineered and reviewed | ☐ | ☐ | ☑ |
| 5.0 | Re-used formwork reconditioned and treated | ☐ | ☐ | ☑ |
| 6.0 | Formwork and ties according to finishing requirements. Confirm no holes in the concrete surface are greater than 25mm in diameter or expose steel at less than 25mm from surface. As per spec. | ☑ | ☐ | ☐ |
| 7.0 | Installation of embeds are located and secured | ☐ | ☐ | ☑ |
| 8.0 | Chamfer requirements checked. 25mm chamfers required for all exterior corners and edges exposed to view including horizontal edges of pads. | ☐ | ☐ | ☑ |
| 9.0 | Key ways and/or other provisions according to design are provided in construction joints | ☐ | ☐ | ☑ |
| 10.0 | Inspect types of form spacers, ties and bracing. | ☑ | ☐ | ☐ |
| 11.0 | Spacing of ties to be set to a pattern | ☑ | ☐ | ☐ |
| 12.0 | Expansion, construction, contraction joints as required & located as coordinated with structural Engineer | ☐ | ☐ | ☑ |
| 13.0 | Forms secured against movement during placing | ☑ | ☐ | ☐ |
| 14.0 | Forms are braced for alignment and blow out | ☑ | ☐ | ☐ |
| 15.0 | Forms are cleaned of all debris, and dry, prior to concrete placement including standing water. | ☑ | ☐ | ☐ |
| 16.0 | Openings in formwork permit inspection and cleaning, placing and compaction of concrete, and forming and processing of construction joints. | ☐ | ☐ | ☑ |
| 17.0 | Formwork has been coated with release agent prior to rebar placement. | ☑ | ☐ | ☐ |
| | | ☐ | ☐ | ☐ |

COMMENTS:

ATTACHMENT(S):

DEFICIENCIES NOTES:

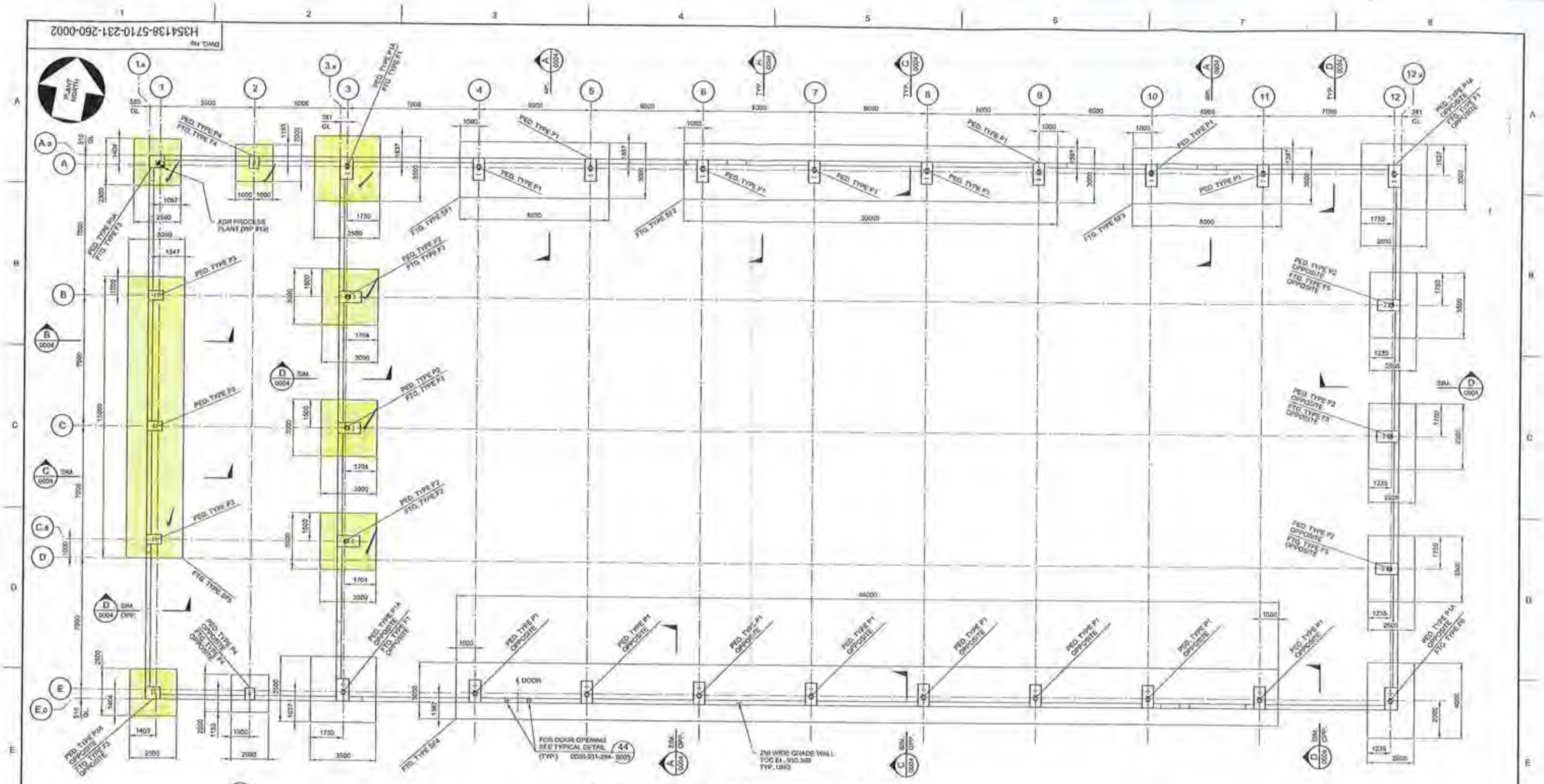
POUR METHOD:

INITIAL INSPECTION

INSPECTOR: Garry DAHL TITLE Supt. DATE: July 22/18

FINAL INSPECTION (DEFICIENCIES COMPLETED)

INSPECTOR: Matt Cavedale TITLE Field Eng. DATE: July 22/18




## FOUNDATION GENERAL ARRANGEMENT - PLAN

TOP OF PED. EL. 951.353 (TYP.)
TOP OF SLAB HP EL. 950.150
HN. GRADE EL. 950.100 (REF.)
U/S FTG. EL. 948.500 (TYP.)

1:100 SCALE IN METRES

NOTES:

1. FOR NOTES SEE DRAWING H354138-5710-231-260-0001

| DRAWING No. | DRAWING TITLE |
|---|---|
| REFERENCE DRAWINGS | |

REG. PROFESSIONAL

| No. | DESCRIPTION | BY | CHK'D | DATE |
|---|---|---|---|---|
| 0 | APPROVED FOR CONSTRUCTION | PJ | EA | 2018-05-23 |

REVISIONS

HATCH

| | | | |
|---|---|---|---|
| DRAFTSPERSON | P. JIVAEVIE MENDIOLA | NR | 2018-03-28 |
| DESIGNER | F. LIU | NR | 2018-03-28 |
| CHECKER | E. AKINCI | | |
| DESIGN COORD. | S. PERKINS | | |
| RESP. ENG. | E. AKINCI | | |
| LEAD DISC. ENG. | E. AKINCI | | |
| ENG. MANAGER | B. RUSTAD | | |
| PROJ. MANAGER | B. RUSTAD | | |
| ROLE | NAME | SIGNATURE & DATE | |

DRAWING APPROVAL STATUS: Approved for Construction

StrataGold Corporation

EAGLE GOLD PROJECT

ADR PROCESS PLANT BUILDING
BUILDING FOUNDATION
FOUNDATION - PLAN

SCALE 1:100 OR AS NOTED | DWG. No. H354138-5710-231-260-0002 | REV 0

CLARK BUILDERS
ENERGY & RESOURCES

CB-INSPECTION FORM-DOC-002 REV.00
JDS ENERGY & MINING INC. | STRATAGOLD EAGLE GOLD
PROJECT #: CB201 | 18502

PROJECT MANAGER: DUSTIN DOLYNCHUK, P.ENG
QA/QC COORDINATOR: RYAN DE MILLIANO, C.E.T.
SUPERINTENDENT: GARRY DAHL

# FORMWORK & FALSEWORK PRE POUR | QA INSPECTION

Rev 00 May 4, 2018

| | | | |
|---|---|---|---|
| SUBCONTRACTOR: | Clark Builders | INSPECTION DATE: | July 22 2018 |
| SUBCONTRACTOR CONTACT PERSON: | Garry DAHL | DATE OF POUR: | July 23 2018 |
| INSPECTOR(S): | Garry DAHL | | |
| LOCATION: | ADR Footings lines 1 to 3 | | |
| DRAWING REV: | 0 | DRAWING NO.(S): | 260 - 0002 |
| SPEC SECTION(S): | 03 10 00 | | |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Location, survey, dimension and grades as required | ☑ | ☐ | ☐ |
| 2.0 | Plumbness and Flatness verified | ☑ | ☐ | ☐ |
| 3.0 | Joints are aligned and watertight. | ☐ | ☐ | ☑ |
| 4.0 | Formwork shop drawings are Engineered and reviewed | ☐ | ☐ | ☑ |
| 5.0 | Re-used formwork reconditioned and treated | ☐ | ☐ | ☑ |
| 6.0 | Formwork and ties according to finishing requirements. Confirm no holes in the concrete surface are greater than 25mm in diameter or expose steel at less than 25mm from surface. As per spec. | ☑ | ☐ | ☐ |
| 7.0 | Installation of embeds are located and secured | ☐ | ☐ | ☑ |
| 8.0 | Chamfer requirements checked. 25mm chamfers required for all exterior corners and edges exposed to view including horizontal edges of pads. | ☐ | ☐ | ☑ |
| 9.0 | Key ways and/or other provisions according to design are provided in construction joints | ☐ | ☐ | ☑ |
| 10.0 | Inspect types of form spacers, ties and bracing. | ☑ | ☐ | ☐ |
| 11.0 | Spacing of ties to be set to a pattern | ☑ | ☐ | ☐ |
| 12.0 | Expansion, construction, contraction joints as required & located as coordinated with structural Engineer | ☐ | ☐ | ☑ |
| 13.0 | Forms secured against movement during placing | ☑ | ☐ | ☐ |
| 14.0 | Forms are braced for alignment and blow out | ☑ | ☐ | ☐ |
| 15.0 | Forms are cleaned of all debris, and dry, prior to concrete placement including standing water. | ☑ | ☐ | ☐ |
| 16.0 | Openings in formwork permit inspection and cleaning, placing and compaction of concrete, and forming and processing of construction joints. | ☐ | ☐ | ☑ |
| 17.0 | Formwork has been coated with release agent prior to rebar placement. | ☑ | ☐ | ☐ |
| | | ☐ | ☐ | ☐ |

COMMENTS:

ATTACHMENT(S):

DEFICIENCIES NOTES:

INITIAL INSPECTION

INSPECTOR: Garry DAHL TITLE Supt DATE: July 22/18

RE-INSPECTION (DEFICIENCIES COMPLETED)

INSPECTOR: Matt Cavendale TITLE Field Eng DATE: July 22/18

CLARK BUILDERS
ENERGY & RESOURCES

# CONCRETE REINFORCEMENT PRE POUR

Rev 00 May 4, 2018

| | |
|---|---|
| SUBCONTRACTOR: Clark Builders | INSPECTION DATE: July 22 2018 |
| SUBCONTRACTOR CONTACT PERSON: Garry DAHL | ACTION BY: |
| INSPECTOR(S): Garry DAHL | |
| LOCATION: ADR LINE 1 TO 3 Footings | |
| DRAWING REV: 0 / DRAWING NO.(S): 260-0002 | SPEC SECTION(S): 03 20 00 |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Grade (400W unless otherwise noted) and type of steel delivered and installed as required by approved drawings. | ☑ | ☐ | ☐ |
| 2.0 | Inspect rebar distribution, spacing and cover per design/project requirements. | ☑ | ☐ | ☐ |
| 3.0 | Length of splices as specified | ☑ | ☐ | ☐ |
| 4.0 | Staggered splices as specified | ☑ | ☐ | ☐ |
| 5.0 | Any mechanical splices have been approved by the owner prior to install | ☐ | ☐ | ☑ |
| 6.0 | Bars cleaned and free of material that may reduce bond including loose rust, scale, oil, structural defects and that they are uncoated and unpainted. | ☑ | ☐ | ☐ |
| 7.0 | Dowels at wall ends, construction joints, and openings as specified (length, location, size, etc.) | ☐ | ☐ | ☑ |
| 8.0 | No unauthorized field bent bars including hooks installed | ☐ | ☐ | ☑ |
| | Resolve conflicts between embedded items and reinforcement | | | ✓ |
| 9.0 | When authorized, field bends done without heat and inspected for fissures or cracks. | ☐ | ☐ | ☑ |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 10.0 | Bars tied and supported to prevent displacement | ☑ | ☐ | ☐ |
| 11.0 | Spacers, tie wire and chairs as required | ☑ | ☐ | ☐ |
| 12.0 | Conduits at design location and minimum separation from rebar as specified | ☐ | ☐ | ☑ |
| 13.0 | No contact of bars is made with dissimilar metals as per CSA A23.1 | ☑ | ☐ | ☐ |
| 14.0 | Bars, nails or tie wire not sticking out from surfaces that allow rusting/corrosion | ☑ | ☐ | ☐ |
| 15.0 | Rebar is welds inspected by qualified inspectors certified to CSA W178.2 | ☐ | ☐ | ☑ |
| 16.0 | No rebar congestion or other obstruction for deposit of concrete | ☑ | ☐ | ☐ |
| 17.0 | Adjustments required for interfering items (piping, inserts, sleeves, etc.) have been submitted and approved by owner. | ☐ | ☐ | ☑ |
| 18.0 | Rebar was stored off ground to prevent damage/corrosion | ✓ | | |
| 19.0 | Review drawings for anchors, piping, sleeves, boxes | ☐ | ☐ | ☑ |

COMMENTS:

ATTACHMENT(S):

DEFICIENCIES NOTES:

INITIAL INSPECTION

INSPECTOR: Garry DAHL TITLE Supt DATE: July 22/18

RE-INSPECTION (DEFICIENCIES COMPLETED)

INSPECTOR: Matt Coverdale TITLE Field Eng DATE: July 22/18

CLARK BUILDERS
ENERGY & RESOURCES

PROJECT MANAGER: DUSTIN DOLYNCHUK, P.ENG
QA/QC COORDINATOR: RYAN DE MILLIANO, C.E.T.
SUPERINTENDENT: GARRY DAHL

# CONCRETE PRE POUR | FIELD INSPECTION

Rev 00 May 4, 2018

| | |
|---|---|
| SUBCONTRACTOR: Clark Builders | INSPECTION DATE: July 22 2018 |
| SUBCONTRACTOR CONTACT PERSON: Garry DAHL | DATE OF POUR: July 23 2018 |
| INSPECTOR(S): Garry DAHL | |
| LOCATION: ADR Line 1 to 3 Footings | |
| DRAWING REV: 0 / DRAWING NO.(S): 260-0002 | SPEC SECTION(S): 03 30 00 |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Location, survey, dimension and grades as required | ☑ | ☐ | ☐ |
| 2.0 | Plumbness and Flatness verified | ☑ | ☐ | ☐ |
| 3.0 | Joints are aligned and watertight. | ☐ | ☐ | ☑ |
| 4.0 | Formwork shop drawings are Engineered and reviewed | ☐ | ☐ | ☑ |
| 5.0 | Re-used formwork reconditioned and treated | ☐ | ☐ | ☑ |
| 6.0 | Formwork and ties according to finishing requirements. Confirm no holes in the concrete surface are greater than 25mm in diameter or expose steel at less than 25mm from surface. As per spec. | ☑ | ☐ | ☐ |
| 7.0 | Installation of embeds are located and secured | ☐ | ☐ | ☑ |
| 8.0 | Chamfer requirements checked. 25mm chamfers required for all exterior corners and edges exposed to view including horizontal edges of pads. | ☐ | ☐ | ☑ |
| 9.0 | Key ways and/or other provisions according to design are provided in construction joints | ☐ | ☐ | ☑ |
| 10.0 | Inspect types of form spacers, ties and bracing. | ☑ | ☐ | ☐ |
| 11.0 | Spacing of ties to be set to a pattern | ☑ | ☐ | ☐ |
| 12.0 | Expansion, construction, contraction joints as required & located as coordinated with structural Engineer | ☐ | ☐ | ☑ |
| 13.0 | Forms secured against movement during placing | ☑ | ☐ | ☐ |
| 14.0 | Forms are braced for alignment and blow out | ☑ | ☐ | ☐ |
| 15.0 | Forms are cleaned of all debris, and dry, prior to concrete placement including standing water. | ☑ | ☐ | ☐ |
| 16.0 | Openings in formwork permit inspection and cleaning, placing and compaction of concrete, and forming and processing of construction joints. | ☐ | ☐ | ☑ |
| 17.0 | Formwork has been coated with release agent prior to rebar placement. | ☑ | ☐ | ☐ |
| | | ☐ | ☐ | ☐ |

| COMMENTS: | ATTACHMENT(S): |
|---|---|
| | |
| | |
| | |

| DEFICIENCIES NOTES: | POUR METHOD: |
|---|---|
| | |
| | |

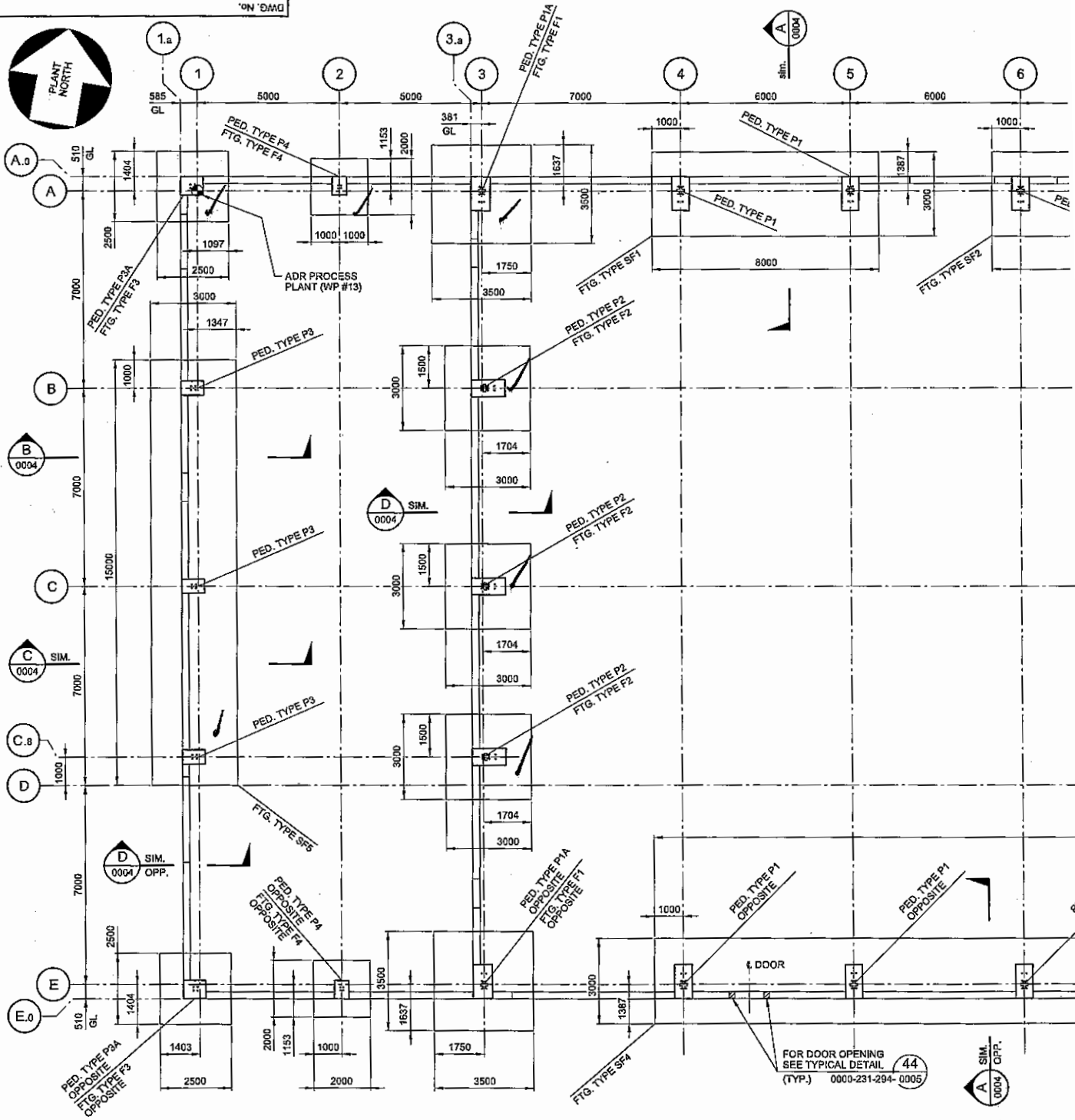
INITIAL INSPECTION

INSPECTOR: Garry DAHL TITLE Supt. DATE: July 22/18

RE-INSPECTION (DEFICIENCIES COMPLETED)

INSPECTOR: Matt Coverdale TITLE Field Eng. DATE: July 22/18

DWG. No. H354138-5710-231-260-0002




## FOUNDATION GENERA

TOP OF PED. E
TOP OF SLAB
FIN. GRADE E
U/S FTG. E

| DRAWING No. | DRAWING TITLE | | 0 | APPROVED FOR CONSTRUCTION |
|---|---|---|---|---|
| REFERENCE DRAWINGS | | REG. PROFESSIONAL | No. | DES |

$FILE$
PRINTED: 24-MAY-2018 10:34
idc_pwservice

CLARK BUILDERS
ENERGY & RESOURCES

# FORMWORK & FALSEWORK PRE POUR | QA INSPECTION

Rev.00 May 4, 2018

| | | | |
|---|---|---|---|
| SUBCONTRACTOR: | Clark Builders | INSPECTION DATE: | July 25. 2018 |
| SUBCONTRACTOR CONTACT PERSON: | James Meabahl | DATE OF POUR: | July 26. 2018 |
| INSPECTOR(S): | James Meabahl | | |
| LOCATION: | ADR LINE A-10-12, B12-E12 | | |
| DRAWING REV: | 0 | DRAWING NO.(S): | 260-0002 |
| | | SPEC SECTION(S): | 03 10 00 |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Location, survey, dimension and grades as required | ☑ | ☐ | ☐ |
| 2.0 | Plumbness and Flatness verified | ☑ | ☐ | ☐ |
| 3.0 | Joints are aligned and watertight. | ☑ | ☐ | ☑ |
| 4.0 | Formwork shop drawings are Engineered and reviewed | ☐ | ☐ | ☑ |
| 5.0 | Re-used formwork reconditioned and treated | ☐ | ☐ | ☑ |
| 6.0 | Formwork and ties according to finishing requirements. Confirm no holes in the concrete surface are greater than 25mm in diameter or expose steel at less than 25mm from surface. As per spec. | ☑ | ☐ | ☐ |
| 7.0 | Installation of embeds are located and secured | ☐ | ☐ | ☑ |
| 8.0 | Chamfer requirements checked. 25mm chamfers required for all exterior corners and edges exposed to view including horizontal edges of pads. | ☐ | ☐ | ☑ |
| 9.0 | Key ways and/or other provisions according to design are provided in construction joints | ☐ | ☐ | ☑ |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 10.0 | Inspect types of form spacers, ties and bracing. | ☑ | ☐ | ☐ |
| 11.0 | Spacing of ties to be set to a pattern | ☑ | ☐ | ☐ |
| 12.0 | Expansion, construction, contraction joints as required & located as coordinated with structural Engineer | ☐ | ☐ | ☑ |
| 13.0 | Forms secured against movement during placing | ☑ | ☐ | ☐ |
| 14.0 | Forms are braced for alignment and blow out | ☑ | ☐ | ☐ |
| 15.0 | Forms are cleaned of all debris, and dry, prior to concrete placement including standing water. | ☑ | ☐ | ☐ |
| 16.0 | Openings in formwork permit inspection and cleaning, placing and compaction of concrete, and forming and processing of construction joints. | ☐ | ☐ | ☑ |
| 17.0 | Formwork has been coated with release agent prior to rebar placement. | ☑ | ☐ | ☐ |
| | | ☐ | ☐ | ☐ |

COMMENTS:

ATTACHMENT(S):

DEFICIENCIES NOTES:

INITIAL INSPECTION

INSPECTOR: _____ TITLE FOREMAN DATE: July 25. 2018

RE-INSPECTION (DEFICIENCIES COMPLETED)

INSPECTOR: _____ TITLE Field Engineer DATE: July 25 2018.

CLARK BUILDERS
ENERGY & RESOURCES



# CONCRETE PRE POUR | FIELD INSPECTION

Rev 00 May 4, 2018

| | |
|---|---|
| SUBCONTRACTOR: Clark Builders | INSPECTION DATE: July 25. 2018 |
| SUBCONTRACTOR CONTACT PERSON: James Meadahl | DATE OF POUR: July 26. 2018 |
| INSPECTOR(S): James Meadahl | |
| LOCATION: ADR Line A-10-12, B12-E12 | |
| DRAWING REV: C / DRAWING NO.(S): 260-002 | SPEC SECTION(S): 03 30 00 |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Location, survey, dimension and grades as required | ☑ | ☐ | ☐ |
| 2.0 | Plumbness and Flatness verified | ☑ | ☐ | ☐ |
| 3.0 | Joints are aligned and watertight. | ☐ | ☐ | ☑ |
| 4.0 | Formwork shop drawings are Engineered and reviewed | ☐ | ☐ | ☑ |
| 5.0 | Re-used formwork reconditioned and treated | ☐ | ☐ | ☑ |
| 6.0 | Formwork and ties according to finishing requirements. Confirm no holes in the concrete surface are greater than 25mm in diameter or expose steel at less than 25mm from surface. As per spec. | ☑ | ☐ | ☐ |
| 7.0 | Installation of embeds are located and secured | ☐ | ☐ | ☑ |
| 8.0 | Chamfer requirements checked. 25mm chamfers required for all exterior corners and edges exposed to view including horizontal edges of pads. | ☐ | ☐ | ☑ |
| 9.0 | Key ways and/or other provisions according to design are provided in construction joints | ☐ | ☐ | ☑ |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 10.0 | Inspect types of form spacers, ties and bracing. | ☑ | ☐ | ☐ |
| 11.0 | Spacing of ties to be set to a pattern | ☑ | ☐ | ☐ |
| 12.0 | Expansion, construction, contraction joints as required & located as coordinated with structural Engineer | ☐ | ☐ | ☑ |
| 13.0 | Forms secured against movement during placing | ☑ | ☐ | ☐ |
| 14.0 | Forms are braced for alignment and blow out | ☑ | ☐ | ☐ |
| 15.0 | Forms are cleaned of all debris, and dry, prior to concrete placement including standing water. | ☐ | ☐ | ☑ |
| 16.0 | Openings in formwork permit inspection and cleaning, placing and compaction of concrete, and forming and processing of construction joints. | ☐ | ☐ | ☑ |
| 17.0 | Formwork has been coated with release agent prior to rebar placement. | ☑ | ☐ | ☐ |
| | | ☐ | ☐ | ☐ |

COMMENTS:

ATTACHMENT(S):

DEFICIENCIES NOTES:

POUR METHOD:

INITIAL INSPECTION

INSPECTOR: [signature] TITLE FOREMAN DATE: July 25. 2018

RE-INSPECTION (DEFICIENCIES COMPLETED)

INSPECTOR: [signature] TITLE FIELD ENGINEER DATE: July 25, 2018

CLARK BUILDERS
ENERGY & RESOURCES

# CONCRETE REINFORCEMENT PRE POUR

Rev 00 May 4, 2018

| | |
|---|---|
| SUBCONTRACTOR: Clark Builders | INSPECTION DATE: July 25 2018 |
| SUBCONTRACTOR CONTACT PERSON: James Meadahl | ACTION BY: |
| INSPECTOR(S): James Meadahl | |
| LOCATION: ADR LINE A-10-12, B12-E-12 | |
| DRAWING REV: 0 / DRAWING NO.(S): 260-002 | SPEC SECTION(S): 03 20 00 |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Grade (400W unless otherwise noted) and type of steel delivered and installed as required by approved drawings. | ☑ | ☐ | ☐ |
| 2.0 | Inspect rebar distribution, spacing and cover per design/project requirements. | ☑ | ☐ | ☐ |
| 3.0 | Length of splices as specified | ☑ | ☐ | ☐ |
| 4.0 | Staggered splices as specified | ☑ | ☐ | ☐ |
| 5.0 | Any mechanical splices have been approved by the owner prior to install | ☐ | ☐ | ☑ |
| 6.0 | Bars cleaned and free of material that may reduce bond including loose rust, scale, oil, structural defects and that they are uncoated and unpainted. | ☑ | ☐ | ☐ |
| 7.0 | Dowels at wall ends, construction joints, and openings as specified (length, location, size, etc.) | ☐ | ☐ | ☑ |
| 8.0 | No unauthorized field bent bars including hooks installed | ☐ | ☐ | ☑ |
| | Resolve conflicts between embedded items and reinforcement | | | ✓ |
| 9.0 | When authorized, field bends done without heat and inspected for fissures or cracks. | ☐ | ☐ | ☑ |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 10.0 | Bars tied and supported to prevent displacement | ☑ | ☐ | ☐ |
| 11.0 | Spacers, tie wire and chairs as required | ☑ | ☐ | ☐ |
| 12.0 | Conduits at design location and minimum separation from rebar as specified | ☐ | ☐ | ☑ |
| 13.0 | No contact of bars is made with dissimilar metals as per CSA A23.1 | ☑ | ☐ | ☐ |
| 14.0 | Bars, nails or tie wire not sticking out from surfaces that allow rusting/corrosion | ☑ | ☐ | ☐ |
| 15.0 | Rebar is welds inspected by qualified inspectors certified to CSA W178.2 | ☐ | ☐ | ☑ |
| 16.0 | No rebar congestion or other obstruction for deposit of concrete | ☑ | ☐ | ☐ |
| 17.0 | Adjustments required for interfering items (piping, inserts, sleeves, etc.) have been submitted and approved by owner. | ☐ | ☐ | ☑ |
| 18.0 | Rebar was stored off ground to prevent damage/corrosion | ✓ | | |
| 19.0 | Review drawings for anchors, piping, sleeves, boxes | ☐ | ☐ | ☑ |

COMMENTS:

ATTACHMENT(S):

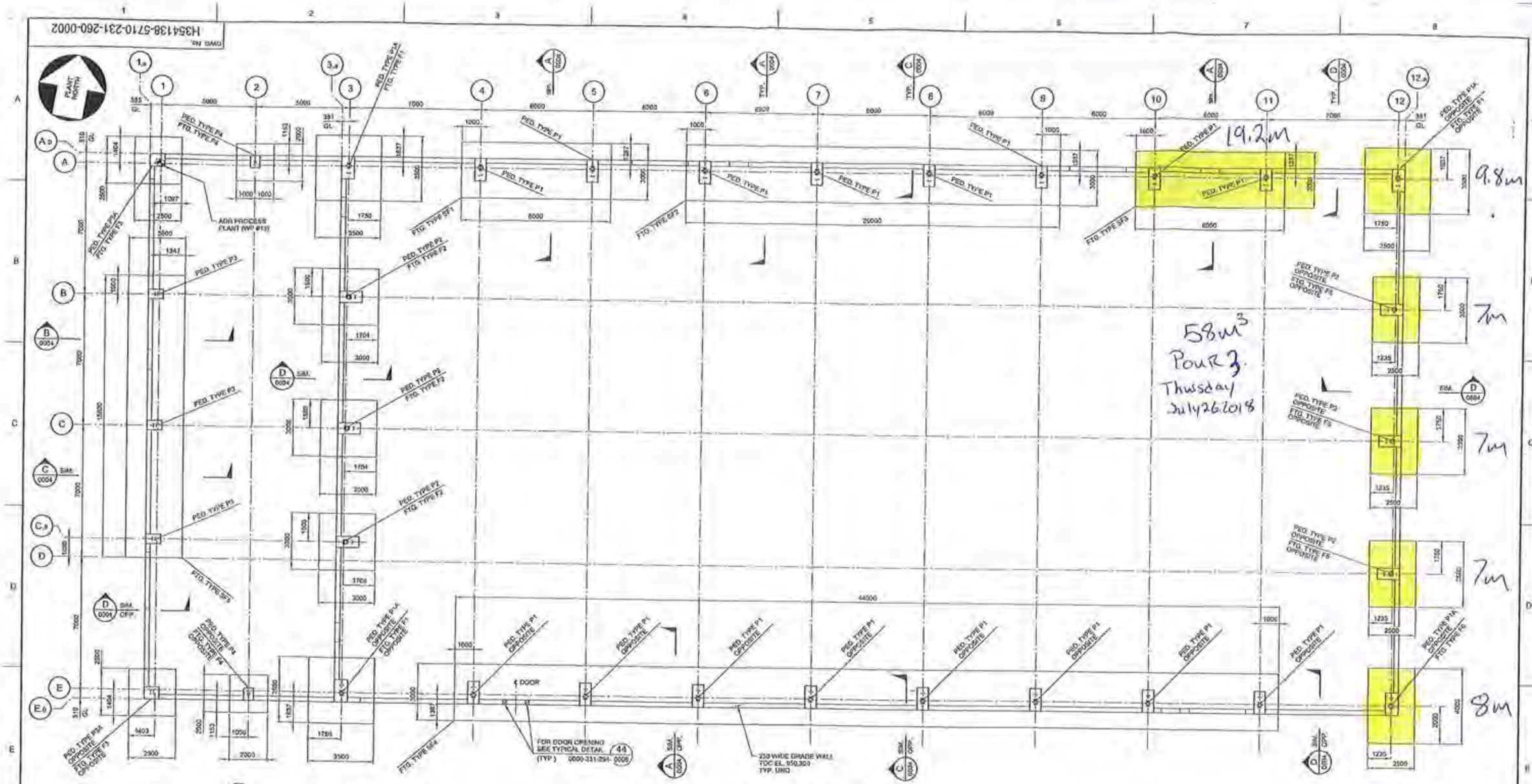
DEFICIENCIES NOTES:

INITIAL INSPECTION

INSPECTOR: James Meadahl TITLE Foreman DATE: July 25 2018

RE-INSPECTION (DEFICIENCIES COMPLETED)

SPECTOR: D'Arcy Lamerland TITLE Field Engineer DATE: July 25 2018




## FOUNDATION GENERAL ARRANGEMENT - PLAN

TOP OF PED. EL. 951.350 (TYP.)
TOP OF SLAB HP EL. 950.150
FIN. GRADE EL. 950.000 (REF.)
U/S FTG. EL. 948.500 (TYP.)

1:100 SCALE IN METRES

NOTES:

1. FOR NOTES SEE DRAWING H354138-5710-231-260-0001.

| DRAWING No. | DRAWING TITLE |
|---|---|
| REFERENCE DRAWINGS | |

REG. PROFESSIONAL

| No. | DESCRIPTION | BY | CHKD | DATE |
|---|---|---|---|---|
| 0 | APPROVED FOR CONSTRUCTION | PJ | EA | 2018-05-23 |

REVISIONS

HATCH

| ROLE | NAME | SIGNATURE & DATE |
|---|---|---|
| DRAFTSPERSON | P. JIVAEVIE, MENDIOLA | NR 2018-03-26 |
| DESIGNER | F. LIU | NR 2018-03-28 |
| CHECKER | E. AKINCI | |
| DESIGN COORD. | S. PERKINS | |
| RESP. ENG. | E. AKINCI | |
| LEAD DISC. ENG. | E. AKINCI | |
| ENG. MANAGER | B. RUSTAD | |
| PROJ. MANAGER | B. RUSTAD | |

DRAWING APPROVAL STATUS: Approved for Construction

StrataGold Corporation

EAGLE GOLD PROJECT

ADR PROCESS PLANT BUILDING
BUILDING FOUNDATION
FOUNDATION - PLAN

SCALE 1:100 OR AS NOTED

DWG. No. H354138-5710-231-260-0002

REV. 0

$FILE$
PRINTED: 24-MAY-2018

CLARK BUILDERS
ENERGY & RESOURCES

PROJECT MANAGER: DUSTIN DOLYNCHUK, P.ENG
QA/QC COORDINATOR: RYAN DE MILLIANO, C.E.T.
SUPERINTENDENT: GARRY DAHL

# FORMWORK & FALSEWORK PRE POUR | QA INSPECTION

Rev 00 May 4, 2018

| | | | |
|---|---|---|---|
| SUBCONTRACTOR: | Clark Builders | INSPECTION DATE: | July 25. 2018 |
| SUBCONTRACTOR CONTACT PERSON: | James Meadahl | DATE OF POUR: | July 26. 2018 |
| INSPECTOR(S): | James Meadahl | | |
| LOCATION: | ADR LINE A-10-12, B12-E12 | | |
| DRAWING REV: | 0 | DRAWING NO.(S): | 260-0002 |
| SPEC SECTION(S): | 03 10 00 | | |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Location, survey, dimension and grades as required | ☑ | ☐ | ☐ |
| 2.0 | Plumbness and Flatness verified | ☑ | ☐ | ☐ |
| 3.0 | Joints are aligned and watertight. | ☑ | ☐ | ☑ |
| 4.0 | Formwork shop drawings are Engineered and reviewed | ☐ | ☐ | ☑ |
| 5.0 | Re-used formwork reconditioned and treated | ☐ | ☐ | ☑ |
| 6.0 | Formwork and ties according to finishing requirements. Confirm no holes in the concrete surface are greater than 25mm in diameter or expose steel at less than 25mm from surface. As per spec. | ☑ | ☐ | ☐ |
| 7.0 | Installation of embeds are located and secured | ☐ | ☐ | ☑ |
| 8.0 | Chamfer requirements checked. 25mm chamfers required for all exterior corners and edges exposed to view including horizontal edges of pads. | ☐ | ☐ | ☑ |
| 9.0 | Key ways and/or other provisions according to design are provided in construction joints | ☐ | ☐ | ☑ |
| 10.0 | Inspect types of form spacers, ties and bracing. | ☑ | ☐ | ☐ |
| 11.0 | Spacing of ties to be set to a pattern | ☑ | ☐ | ☐ |
| 12.0 | Expansion, construction, contraction joints as required & located as coordinated with structural Engineer | ☐ | ☐ | ☑ |
| 13.0 | Forms secured against movement during placing | ☑ | ☐ | ☐ |
| 14.0 | Forms are braced for alignment and blow out | ☑ | ☐ | ☐ |
| 15.0 | Forms are cleaned of all debris, and dry, prior to concrete placement including standing water. | ☑ | ☐ | ☐ |
| 16.0 | Openings in formwork permit inspection and cleaning, placing and compaction of concrete, and forming and processing of construction joints. | ☐ | ☐ | ☑ |
| 17.0 | Formwork has been coated with release agent prior to rebar placement. | ☑ | ☐ | ☐ |
| | | ☐ | ☐ | ☐ |

COMMENTS:

ATTACHMENT(S):

DEFICIENCIES NOTES:

INITIAL INSPECTION

INSPECTOR: _____ TITLE FOREMAN DATE: July 25. 2018

RE-INSPECTION (DEFICIENCIES COMPLETED)

INSPECTOR: _____ TITLE Field Engineer DATE: July 25 2018

CLARK BUILDERS
ENERGY & RESOURCES

# CONCRETE PRE POUR | FIELD INSPECTION

Rev 00 May 4, 2018

| | |
|---|---|
| SUBCONTRACTOR: Clark Builders | INSPECTION DATE: July 25. 2018 |
| SUBCONTRACTOR CONTACT PERSON: James Meadahl | DATE OF POUR: July 26. 2018 |
| INSPECTOR(S): James Meadahl | |
| LOCATION: ADR LINE A-10-12, B12-E12 | |
| DRAWING REV: 0 / DRAWING NO.(S): 260-002 | SPEC SECTION(S): 03 30 00 |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Location, survey, dimension and grades as required | ☑ | ☐ | ☐ |
| 2.0 | Plumbness and Flatness verified | ☑ | ☐ | ☐ |
| 3.0 | Joints are aligned and watertight. | ☐ | ☐ | ☑ |
| 4.0 | Formwork shop drawings are Engineered and reviewed | ☐ | ☐ | ☑ |
| 5.0 | Re-used formwork reconditioned and treated | ☐ | ☐ | ☑ |
| 6.0 | Formwork and ties according to finishing requirements. Confirm no holes in the concrete surface are greater than 25mm in diameter or expose steel at less than 25mm from surface. As per spec. | ☑ | ☐ | ☐ |
| 7.0 | Installation of embeds are located and secured | ☐ | ☐ | ☑ |
| 8.0 | Chamfer requirements checked. 25mm chamfers required for all exterior corners and edges exposed to view including horizontal edges of pads. | ☐ | ☐ | ☑ |
| 9.0 | Key ways and/or other provisions according to design are provided in construction joints | ☐ | ☐ | ☑ |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 10.0 | Inspect types of form spacers, ties and bracing. | ☑ | ☐ | ☐ |
| 11.0 | Spacing of ties to be set to a pattern | ☑ | ☐ | ☐ |
| 12.0 | Expansion, construction, contraction joints as required & located as coordinated with structural Engineer | ☐ | ☐ | ☑ |
| 13.0 | Forms secured against movement during placing | ☑ | ☐ | ☐ |
| 14.0 | Forms are braced for alignment and blow out | ☑ | ☐ | ☐ |
| 15.0 | Forms are cleaned of all debris, and dry, prior to concrete placement including standing water. | ☐ | ☐ | ☑ |
| 16.0 | Openings in formwork permit inspection and cleaning, placing and compaction of concrete, and forming and processing of construction joints. | ☐ | ☐ | ☑ |
| 17.0 | Formwork has been coated with release agent prior to rebar placement. | ☑ | ☐ | ☐ |
| | | ☐ | ☐ | ☐ |

COMMENTS:

ATTACHMENT(S):

DEFICIENCIES NOTES:

POUR METHOD:

INITIAL INSPECTION

INSPECTOR: _____ TITLE FOREMAN DATE: July 25. 2018

RE-INSPECTION (DEFICIENCIES COMPLETED)

INSPECTOR: _____ TITLE FIELD ENGINEER DATE: July 25, 2018

CLARK BUILDERS
ENERGY & RESOURCES

# CONCRETE REINFORCEMENT PRE POUR

Rev 00 May 4, 2018

| | |
|---|---|
| SUBCONTRACTOR: Clark Builders | INSPECTION DATE: July 25, 2018 |
| SUBCONTRACTOR CONTACT PERSON: James Meadahl | ACTION BY: |
| INSPECTOR(S): James meadahl | |
| LOCATION: ADR LINE A-10-12, B12-E-12 | |
| DRAWING REV: 0 / DRAWING NO.(S): 260-002 | SPEC SECTION(S): 03 20 00 |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Grade (400W unless otherwise noted) and type of steel delivered and installed as required by approved drawings. | ☑ | ☐ | ☐ |
| 2.0 | Inspect rebar distribution, spacing and cover per design/project requirements. | ☑ | ☐ | ☐ |
| 3.0 | Length of splices as specified | ☑ | ☐ | ☐ |
| 4.0 | Staggered splices as specified | ☑ | ☐ | ☐ |
| 5.0 | Any mechanical splices have been approved by the owner prior to install | ☐ | ☐ | ☑ |
| 6.0 | Bars cleaned and free of material that may reduce bond including loose rust, scale, oil, structural defects and that they are uncoated and unpainted. | ☑ | ☐ | ☐ |
| 7.0 | Dowels at wall ends, construction joints, and openings as specified (length, location, size, etc.) | ☐ | ☐ | ☑ |
| 8.0 | No unauthorized field bent bars including hooks installed | ☐ | ☐ | ☑ |
| | Resolve conflicts between embedded items and reinforcement | | | ✓ |
| 9.0 | When authorized, field bends done without heat and inspected for fissures or cracks. | ☐ | ☐ | ☑ |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 10.0 | Bars tied and supported to prevent displacement | ☑ | ☐ | ☐ |
| 11.0 | Spacers, tie wire and chairs as required | ☑ | ☐ | ☐ |
| 12.0 | Conduits at design location and minimum separation from rebar as specified | ☐ | ☐ | ☑ |
| 13.0 | No contact of bars is made with dissimilar metals as per CSA A23.1 | ☑ | ☐ | ☐ |
| 14.0 | Bars, nails or tie wire not sticking out from surfaces that allow rusting/corrosion | ☑ | ☐ | ☐ |
| 15.0 | Rebar is welds inspected by qualified inspectors certified to CSA W178.2 | ☐ | ☐ | ☑ |
| 16.0 | No rebar congestion or other obstruction for deposit of concrete | ☑ | ☐ | ☐ |
| 17.0 | Adjustments required for interfering items (piping, inserts, sleeves, etc.) have been submitted and approved by owner. | ☐ | ☐ | ☑ |
| 18.0 | Rebar was stored off ground to prevent damage/corrosion | ✓ | | |
| 19.0 | Review drawings for anchors, piping, sleeves, boxes | ☐ | ☐ | ☑ |

COMMENTS:

ATTACHMENT(S):

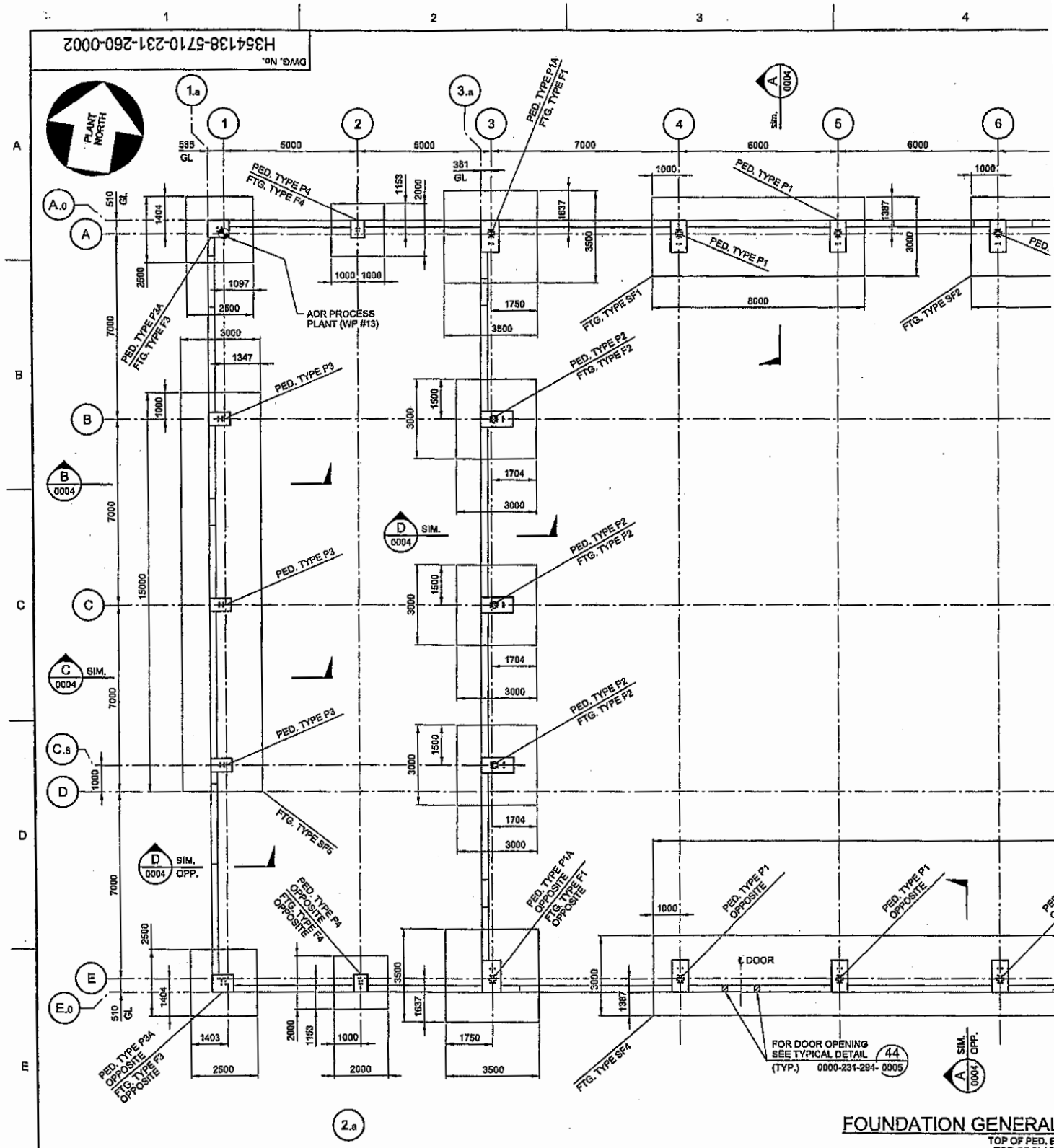
DEFICIENCIES NOTES:

INITIAL INSPECTION

INSPECTOR: James Meadahl TITLE Foreman DATE: July 25. 2018

RE-INSPECTION (DEFICIENCIES COMPLETED)

INSPECTOR: D'Arcy Comeau TITLE Field Engineer DATE: July 25. 2018




| DRAWING No. | DRAWING TITLE | REG. PROFESSIONAL | No. | DESCRIPTION |
|---|---|---|---|---|
| REFERENCE DRAWINGS | | | 0 | APPROVED FOR CONSTRUCTION |

$FILEL$
PRINTED: 24-MAY-2018
10:34

CLARK BUILDERS
ENERGY & RESOURCES

# CONCRETE REINFORCEMENT PRE POUR

Rev 02 May 4, 2018

| | |
|---|---|
| SUBCONTRACTOR: CLARK BUILDERS | INSPECTION DATE: July 26 2018 |
| SUBCONTRACTOR CONTACT PERSON: JAMES MEADAHL | ACTION BY: |
| INSPECTOR(S): JACKSON WENGER | |
| LOCATION: AIR - GL A/4-11 | |
| DRAWING REV: 0 | DRAWING NO.(S): H354138-5710-251-200-002 |
| SPEC SECTION(S): 03 20 00 | |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Grade (400W unless otherwise noted) and type of steel delivered and installed as required by approved drawings. | ☑ | ☐ | ☐ |
| 2.0 | Inspect rebar distribution, spacing and cover per design/project requirements. | ☑ | ☐ | ☐ |
| 3.0 | Length of splices as specified | ☑ | ☐ | ☐ |
| 4.0 | Staggered splices as specified | ☑ | ☐ | ☐ |
| 5.0 | Any mechanical splices have been approved by the owner prior to install | ☐ | ☐ | ☑ |
| 6.0 | Bars cleaned and free of material that may reduce bond including loose rust, scale, oil, structural defects and that they are uncoated and unpainted. | ☑ | ☐ | ☐ |
| 7.0 | Dowels at wall ends, construction joints, and openings as specified (length, location, size, etc.) | ☑ | ☐ | ☐ |
| 8.0 | No unauthorized field bent bars including hooks installed | ☑ | ☐ | ☐ |
| | Resolve conflicts between embedded items and reinforcement | | | ✓ |
| 9.0 | When authorized, field bends done without heat and inspected for fissures or cracks. | ☐ | ☐ | ☑ |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 10.0 | Bars tied and supported to prevent displacement | ☑ | ☐ | ☐ |
| 11.0 | Spacers, tie wire and chairs as required | ☑ | ☐ | ☐ |
| 12.0 | Conduits at design location and minimum separation from rebar as specified | ☐ | ☐ | ☑ |
| 13.0 | No contact of bars is made with dissimilar metals as per CSA A23.1 | ☑ | ☐ | ☐ |
| 14.0 | Bars, nails or tie wire not sticking out from surfaces that allow rusting/corrosion | ☑ | ☐ | ☐ |
| 15.0 | Rebar is welds inspected by qualified inspectors certified to CSA W178.2 | ☐ | ☐ | ☑ |
| 16.0 | No rebar congestion or other obstruction for deposit of concrete | ☑ | ☐ | ☐ |
| 17.0 | Adjustments required for interfering items (piping, inserts, sleeves, etc.) have been submitted and approved by owner. | ☐ | ☐ | ☑ |
| 18.0 | Rebar was stored off ground to prevent damage/corrosion | ✓ | | |
| 19.0 | Review drawings for anchors, piping, sleeves, boxes | ☑ | ☐ | ☐ |

COMMENTS:

ATTACHMENT(S):

DEFICIENCIES NOTES:

INITIAL INSPECTION

INSPECTOR: JACKSON WENGER TITLE PROJECT COORD DATE: July 26 2018

RE-INSPECTION (DEFICIENCIES COMPLETED)

INSPECTOR: [signature] TITLE Field Engineer DATE: July 26 2018

CLARK BUILDERS
ENERGY & RESOURCES

# CONCRETE PRE POUR | FIELD INSPECTION

Rev 00 May 4, 2018

| | |
|---|---|
| SUBCONTRACTOR: CLARK BUILDERS | INSPECTION DATE: JULY 26 2018 |
| SUBCONTRACTOR CONTACT PERSON: JAMES MEADAHL | DATE OF POUR: JULY 27 2018 |
| INSPECTOR(S): JACKSON WENGER | |
| LOCATION: ADR - GL A/4 - 11 | |
| DRAWING REV: 0 | DRAWING NO.(S): H354133-5710-231-260-002 |
| SPEC SECTION(S): 03 30 00 | |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Location, survey, dimension and grades as required | ☑ | ☐ | ☐ |
| 2.0 | Plumbness and Flatness verified | ☑ | ☐ | ☐ |
| 3.0 | Joints are aligned and watertight. | ☐ | ☐ | ☑ |
| 4.0 | Formwork shop drawings are Engineered and reviewed | ☐ | ☐ | ☑ |
| 5.0 | Re-used formwork reconditioned and treated | ☐ | ☐ | ☑ |
| ) | Formwork and ties according to finishing requirements. Confirm no holes in the concrete surface are greater than 25mm in diameter or expose steel at less than 25mm from surface. As per spec | ☑ | ☐ | ☐ |
| 7.0 | Installation of embeds are located and secured | ☐ | ☐ | ☑ |
| 8.0 | Chamfer requirements checked. 25mm chamfers required for all exterior corners and edges exposed to view including horizontal edges of pads. | ☐ | ☐ | ☑ |
| 9.0 | Key ways and/or other provisions according to design are provided in construction joints | ☑ | ☐ | ☐ |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 10.0 | Inspect types of form spacers, ties and bracing. | ☑ | ☐ | ☐ |
| 11.0 | Spacing of ties to be set to a pattern | ☑ | ☐ | ☐ |
| 12.0 | Expansion, construction, contraction joints as required & located as coordinated with structural Engineer | ☐ | ☐ | ☑ |
| 13.0 | Forms secured against movement during placing | ☑ | ☐ | ☐ |
| 14.0 | Forms are braced for alignment and blow out | ☑ | ☐ | ☐ |
| 15.0 | Forms are cleaned of all debris, and dry, prior to concrete placement including standing water. | ☑ | ☐ | ☐ |
| 16.0 | Openings in formwork permit inspection and cleaning, placing and compaction of concrete, and forming and processing of construction joints. | ☑ | ☐ | ☐ |
| 17.0 | Formwork has been coated with release agent prior to rebar placement. | ☑ | ☐ | ☐ |
| | | ☐ | ☐ | ☐ |

COMMENTS:

ATTACHMENT(S):

DEFICIENCIES NOTES:

POUR METHOD: CHUTE

INITIAL INSPECTION

INSPECTOR: JACKSON WENGER TITLE PROJECT COORDINATOR DATE: JULY 26 2018

INSPECTION (DEFICIENCIES COMPLETED)

INSPECTOR: [signature] TITLE FIELD ENGINEER DATE: JULY 26 2018

CLARK BUILDERS
ENERGY & RESOURCES

# FORMWORK & FALSEWORK PRE POUR | QA INSPECTION

Rev 00 May 4, 2018

| | |
|---|---|
| SUBCONTRACTOR: CLARK BUILDERS | INSPECTION DATE: July 26 2018 |
| SUBCONTRACTOR CONTACT PERSON: JAMES MEADAHL | DATE OF POUR: July 27 2018 |
| INSPECTOR(S): JACKSON WENGER | |
| LOCATION: ADR – GL A 4-11, | |
| DRAWING REV: 0 | DRAWING NO.(S): H354138-5710-231-260-002 |
| | SPEC SECTION(S): 03 10 00 |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Location, survey, dimension and grades as required | ☑ | ☐ | ☐ |
| 2.0 | Plumbness and Flatness verified | ☑ | ☐ | ☐ |
| 3.0 | Joints are aligned and watertight. | ☑ | ☐ | ☑ |
| 4.0 | Formwork shop drawings are Engineered and reviewed | ☐ | ☐ | ☑ |
| 5.0 | Re-used formwork reconditioned and treated | ☐ | ☐ | ☑ |
| 0 | Formwork and ties according to finishing requirements. Confirm no holes in the concrete surface are greater than 25mm in diameter or expose steel at less than 25mm from surface. As per spec. | ☑ | ☐ | ☐ |
| 7.0 | Installation of embeds are located and secured | ☐ | ☐ | ☑ |
| 8.0 | Chamfer requirements checked. 25mm chamfers required for all exterior corners and edges exposed to view including horizontal edges of pads. | ☐ | ☐ | ☑ |
| 9.0 | Key ways and/or other provisions according to design are provided in construction joints | ☑ | ☐ | ☐ |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 10.0 | Inspect types of form spacers, ties and bracing | ☑ | ☐ | ☐ |
| 11.0 | Spacing of ties to be set to a pattern | ☑ | ☐ | ☐ |
| 12.0 | Expansion, construction, contraction joints as required & located as coordinated with structural Engineer | ☐ | ☐ | ☑ |
| 13.0 | Forms secured against movement during placing | ☑ | ☐ | ☐ |
| 14.0 | Forms are braced for alignment and blow out | ☑ | ☐ | ☐ |
| 15.0 | Forms are cleaned of all debris, and dry, prior to concrete placement including standing water. | ☑ | ☐ | ☐ |
| 16.0 | Openings in formwork permit inspection and cleaning, placing and compaction of concrete, and forming and processing of construction joints. | ☑ | ☐ | ☐ |
| 17.0 | Formwork has been coated with release agent prior to rebar placement. | ☑ | ☐ | ☐ |
| | | ☐ | ☐ | ☐ |

COMMENTS:

ATTACHMENT(S):

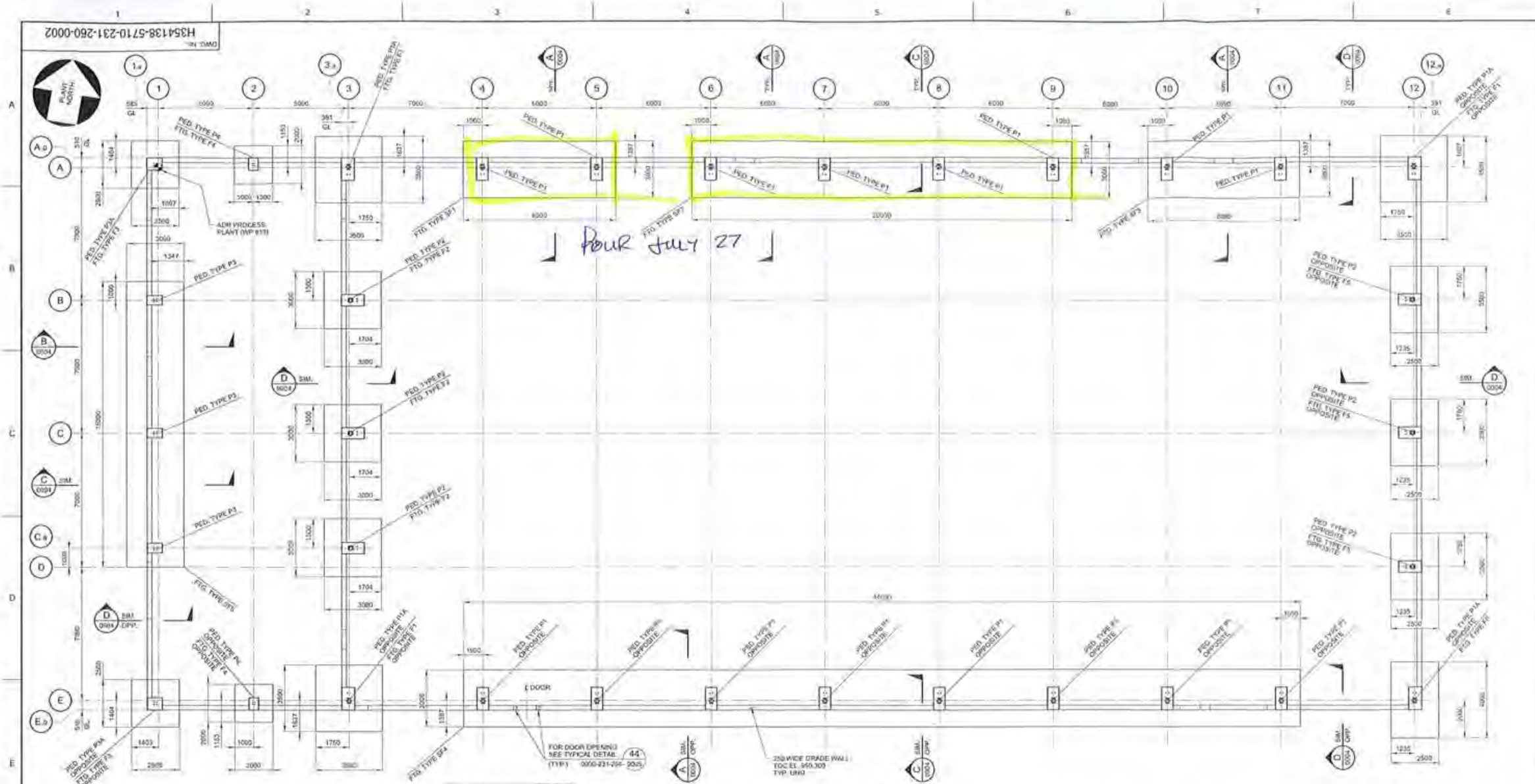
DEFICIENCIES NOTES:

INITIAL INSPECTION

INSPECTOR: JACKSON WENGER TITLE PROJECT COORD DATE: JULY 26 2018

RE-INSPECTION (DEFICIENCIES COMPLETED)

INSPECTOR: JACKSON WENGER TITLE FIELD ENGINEER DATE: July 27 2018




## FOUNDATION GENERAL ARRANGEMENT - PLAN

TOP OF PED. EL. 951.350 (TYP.)
TOP OF SLAB 18" EL. 950.150
FIN. GRADE EL. 950.000 (REF.)
LAB FTG. EL. 948.500 (TYP.)

NOTES:

1. FOR NOTES SEE DRAWING H354138-5710-231-260-0001

| DRAWING No. | DRAWING TITLE |
|---|---|
| REFERENCE DRAWINGS | |

REG. PROFESSIONAL

| No. | DESCRIPTION | BY | CHK'D | DATE |
|---|---|---|---|---|
| 0 | APPROVED FOR CONSTRUCTION | PJ | EA | 2018-05-25 |

REVISIONS

HATCH

| | | | |
|---|---|---|---|
| DRAFTSPERSON | P. JIVAEVE MENDIOLA | NR | 2018-03-26 |
| DESIGNER | F. LIU | NR | 2018-03-26 |
| CHECKER | E. AKINCI | | 2018-05-24 |
| DESIGN COORD. | S. PERKINS | | |
| RESP. ENG. | E. AKINCI | | 2018-05-24 |
| LEAD DISC. ENG. | E. AKINCI | | 2018-05-24 |
| ENG. MANAGER | B. RUSTAD | | |
| PROJ. MANAGER | B. RUSTAD | | |

| ROLE | NAME | SIGNATURE & DATE |
|---|---|---|
| DRAWING APPROVAL STATUS: | Approved for Construction | |

StrataGold Corporation

EAGLE GOLD PROJECT

ADR PROCESS PLANT BUILDING
BUILDING FOUNDATION
FOUNDATION - PLAN

SCALE 1:100 DRAWN BY: DWG No. H354138-5710-231-260-0002 REV. 0

SHEET SIZE: D

CLARK BUILDERS
ENERGY & RESOURCES

# CONCRETE REINFORCEMENT PRE POUR

Rev 00 May 4, 2018

| | |
|---|---|
| SUBCONTRACTOR: CLARK BUILDERS | INSPECTION DATE: July 26 2018 |
| SUBCONTRACTOR CONTACT PERSON: JAMES MEADAHL | ACTION BY: |
| INSPECTOR(S): JACKSON WENGER | |
| LOCATION: ADR - GL A/4-11 | |
| DRAWING REV: 0 | DRAWING NO.(S): H354138-5710-231-200-002 / SPEC SECTION(S): 03 20 00 |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Grade (400W unless otherwise noted) and type of steel delivered and installed as required by approved drawings. | ☑ | ☐ | ☐ |
| 2.0 | Inspect rebar distribution, spacing and cover per design/project requirements. | ☑ | ☐ | ☐ |
| 3.0 | Length of splices as specified | ☑ | ☐ | ☐ |
| 4.0 | Staggered splices as specified | ☑ | ☐ | ☐ |
| 5.0 | Any mechanical splices have been approved by the owner prior to install | ☐ | ☐ | ☑ |
| 6.0 | Bars cleaned and free of material that may reduce bond including loose rust, scale, oil, structural defects and that they are uncoated and unpainted. | ☑ | ☐ | ☐ |
| 7.0 | Dowels at wall ends, construction joints, and openings as specified (length, location, size, etc.) | ☑ | ☐ | ☐ |
| 8.0 | No unauthorized field bent bars including hooks installed | ☑ | ☐ | ☐ |
| | Resolve conflicts between embedded items and reinforcement | | | ✓ |
| 9.0 | When authorized, field bends done without heat and inspected for fissures or cracks. | ☐ | ☐ | ☑ |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 10.0 | Bars tied and supported to prevent displacement | ☑ | ☐ | ☐ |
| 11.0 | Spacers, tie wire and chairs as required | ☑ | ☐ | ☐ |
| 12.0 | Conduits at design location and minimum separation from rebar as specified | ☐ | ☐ | ☑ |
| 13.0 | No contact of bars is made with dissimilar metals as per CSA A23.1 | ☑ | ☐ | ☐ |
| 14.0 | Bars, nails or tie wire not sticking out from surfaces that allow rusting/corrosion | ☑ | ☐ | ☐ |
| 15.0 | Rebar is welds inspected by qualified inspectors certified to CSA W178.2 | ☐ | ☐ | ☑ |
| 16.0 | No rebar congestion or other obstruction for deposit of concrete | ☑ | ☐ | ☐ |
| 17.0 | Adjustments required for interfering items (piping, inserts, sleeves, etc.) have been submitted and approved by owner. | ☐ | ☐ | ☑ |
| 18.0 | Rebar was stored off ground to prevent damage/corrosion | ✓ | | |
| 19.0 | Review drawings for anchors, piping, sleeves, boxes | ☑ | ☐ | ☐ |

COMMENTS:

ATTACHMENT(S):

DEFICIENCIES NOTES:

INITIAL INSPECTION

INSPECTOR: JACKSON WENGER TITLE PROJECT COORD DATE: July 26 2018

RE-INSPECTION (DEFICIENCIES COMPLETED)

INSPECTOR: [signature] TITLE Field Engineer DATE: July 26 2018

CLARK BUILDERS
ENERGY & RESOURCES

# CONCRETE PRE POUR | FIELD INSPECTION

Rev 00 May 4, 2018

| | |
|---|---|
| SUBCONTRACTOR: CLARK BUILDERS | INSPECTION DATE: JULY 26 2018 |
| SUBCONTRACTOR CONTACT PERSON: JAMES MEADAHL | DATE OF POUR: JULY 27 2018 |
| INSPECTOR(S): JACKSON WENGER | |
| LOCATION: ADR - GL A/4 - 11 | |
| DRAWING REV: 0 | DRAWING NO.(S): 4354138-5710-231-260-002 |
| SPEC SECTION(S): 03 30 00 | |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Location, survey, dimension and grades as required | ☑ | ☐ | ☐ |
| 2.0 | Plumbness and Flatness verified | ☑ | ☐ | ☐ |
| 3.0 | Joints are aligned and watertight. | ☐ | ☐ | ☑ |
| 4.0 | Formwork shop drawings are Engineered and reviewed | ☐ | ☐ | ☑ |
| 5.0 | Re-used formwork reconditioned and treated | ☐ | ☐ | ☑ |
| 6.0 | Formwork and ties according to finishing requirements. Confirm no holes in the concrete surface are greater than 25mm in diameter or expose steel at less than 25mm from surface. As per spec. | ☑ | ☐ | ☐ |
| 7.0 | Installation of embeds are located and secured | ☐ | ☐ | ☑ |
| 8.0 | Chamfer requirements checked. 25mm chamfers required for all exterior corners and edges exposed to view including horizontal edges of pads. | ☐ | ☐ | ☑ |
| 9.0 | Key ways and/or other provisions according to design are provided in construction joints | ☑ | ☐ | ☐ |
| 10.0 | Inspect types of form spacers, ties and bracing. | ☑ | ☐ | ☐ |
| 11.0 | Spacing of ties to be set to a pattern | ☑ | ☐ | ☐ |
| 12.0 | Expansion, construction, contraction joints as required & located as coordinated with structural Engineer | ☐ | ☐ | ☑ |
| 13.0 | Forms secured against movement during placing | ☑ | ☐ | ☐ |
| 14.0 | Forms are braced for alignment and blow out | ☑ | ☐ | ☐ |
| 15.0 | Forms are cleaned of all debris, and dry, prior to concrete placement including standing water. | ☑ | ☐ | ☐ |
| 16.0 | Openings in formwork permit inspection and cleaning, placing and compaction of concrete, and forming and processing of construction joints. | ☑ | ☐ | ☐ |
| 17.0 | Formwork has been coated with release agent prior to rebar placement. | ☑ | ☐ | ☐ |
| | | ☐ | ☐ | ☐ |

COMMENTS:

ATTACHMENT(S):

DEFICIENCIES NOTES:

POUR METHOD: CHUTE

INITIAL INSPECTION

INSPECTOR: JACKSON WENGER TITLE PROJECT COORDINATOR DATE: JULY 26 2018

RE-INSPECTION (DEFICIENCIES COMPLETED)

INSPECTOR: [signature] TITLE FIELD ENGINEER DATE: JULY 26 2018

CLARK BUILDERS
ENERGY & RESOURCES

# FORMWORK & FALSEWORK PRE POUR | QA INSPECTION

Rev 00 May 4, 2018

| | |
|---|---|
| SUBCONTRACTOR: CLARK BUILDERS | INSPECTION DATE: July 26 2018 |
| SUBCONTRACTOR CONTACT PERSON: JAMES MEADAHL | DATE OF POUR: July 27 2018 |
| INSPECTOR(S): JACKSON WENGER | |
| LOCATION: ADR – GL A 4-11, | |
| DRAWING REV: 0 | DRAWING NO.(S): H354138-5710-231-260-002 |
| | SPEC SECTION(S): 03 10 00 |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Location, survey, dimension and grades as required | ☑ | ☐ | ☐ |
| 2.0 | Plumbness and Flatness verified | ☑ | ☐ | ☐ |
| 3.0 | Joints are aligned and watertight. | ☑ | ☐ | ☑ |
| 4.0 | Formwork shop drawings are Engineered and reviewed | ☐ | ☐ | ☑ |
| 5.0 | Re-used formwork reconditioned and treated | ☑ | ☐ | ☑ |
| 6.0 | Formwork and ties according to finishing requirements. Confirm no holes in the concrete surface are greater than 25mm in diameter or expose steel at less than 25mm from surface. As per spec. | ☑ | ☐ | ☐ |
| 7.0 | Installation of embeds are located and secured | ☐ | ☐ | ☑ |
| 8.0 | Chamfer requirements checked. 25mm chamfers required for all exterior corners and edges exposed to view including horizontal edges of pads. | ☐ | ☐ | ☑ |
| 9.0 | Key ways and/or other provisions according to design are provided in construction joints | ☑ | ☐ | ☐ |
| 10.0 | Inspect types of form spacers, ties and bracing. | ☑ | ☐ | ☐ |
| 11.0 | Spacing of ties to be set to a pattern | ☑ | ☐ | ☐ |
| 12.0 | Expansion, construction, contraction joints as required & located as coordinated with structural Engineer | ☐ | ☐ | ☑ |
| 13.0 | Forms secured against movement during placing | ☑ | ☐ | ☐ |
| 14.0 | Forms are braced for alignment and blow out | ☑ | ☐ | ☐ |
| 15.0 | Forms are cleaned of all debris, and dry, prior to concrete placement including standing water. | ☑ | ☐ | ☐ |
| 16.0 | Openings in formwork permit inspection and cleaning, placing and compaction of concrete, and forming and processing of construction joints. | ☑ | ☐ | ☐ |
| 17.0 | Formwork has been coated with release agent prior to rebar placement. | ☑ | ☐ | ☐ |
| | | ☐ | ☐ | ☐ |

COMMENTS:

ATTACHMENT(S):

DEFICIENCIES NOTES:

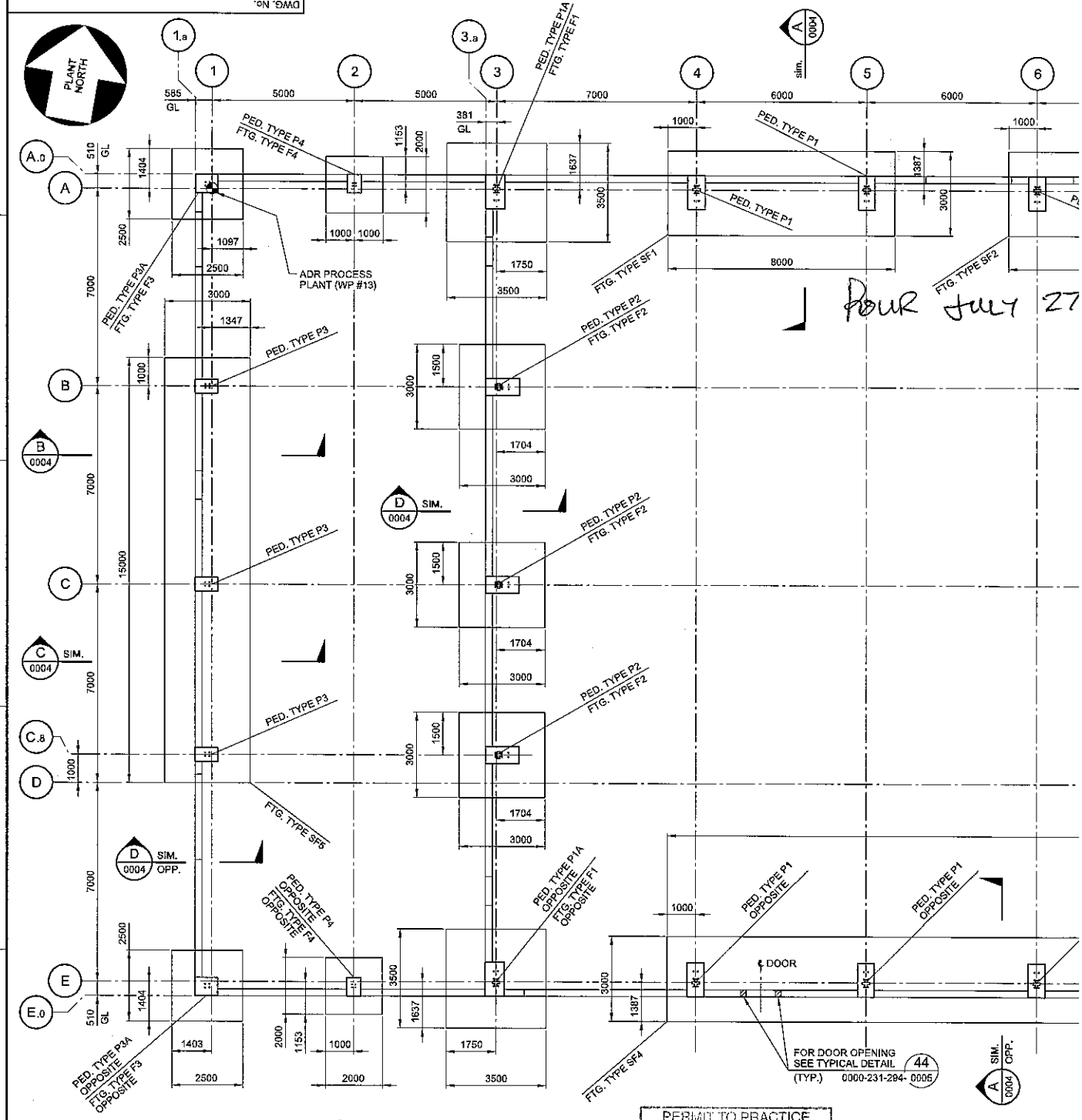
INITIAL INSPECTION

INSPECTOR: JACKSON WENGER TITLE PROJECT COORD DATE: July 26 2018

RE-INSPECTION (DEFICIENCIES COMPLETED)

INSPECTOR: [signature] TITLE FIELD ENGINEER DATE: July 27 2018

DWG. No. H354138-5710-231-260-0002




FOUR July 27

PERMIT TO PRACTICE
HATCH
SIGNATURE Esra Allen
Date MAY 24, 2018
PERMIT NUMBER PP154
Association of Professional Engineers of Yukon

## FOUNDATION GENERA

TOP OF PED
TOP OF SL
FIN. GRADE
U/S FTG.

PROFESSIONAL ENGINEER YUKON TERRITORY ESRA AMICI Esra Allen
MAY 24, 2018

| DRAWING No. | DRAWING TITLE | REG. PROFESSIONAL |
|---|---|---|
| REFERENCE DRAWINGS | | |

| No. | |
|---|---|
| 0 | APPROVED FOR CONSTRUCTION |

$FILE$
PRINTED: 24-MAY-2018
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CLARK BUILDERS
ENERGY & RESOURCES

# EXCAVATION AND BACKFILL PRE POUR | QA INSPECTION

Rev 00 May 4, 2018

| | |
|---|---|
| SUBCONTRACTOR: CLARK BUILDERS | INSPECTION DATE: JULY 28, 2018 |
| SUBCONTRACTOR CONTACT PERSON: Jackson Wenger | ACTION BY: |
| INSPECTOR(S): Jackson Wenger | |
| LOCATION: ADR PLANT | |
| DRAWING REV: 0 / DRAWING NO.(S): 240-C002 | SPEC SECTION(S): |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Subsoil investigation report has been reviewed | ☐ | ☐ | ☑ |
| 2.0 | Survey complete, stakes and monuments located | ☑ | ☐ | ☐ |
| 3.0 | Procedures in place for hazardous materials? | ☑ | ☐ | ☐ |
| 4.0 | Required Ground Disturbance permits reviewed and approved | ☐ | ☐ | ☑ |
| 5.0 | Utilities and other underground potential interferences to remain are located, stakes and protected? | ☑ | ☐ | ☐ |
| 6.0 | Utilities companies notified | ☐ | ☐ | ☑ |
| 7 | Drawings are approved and stamped prior to work begins | ☑ | ☐ | ☐ |
| 8.0 | Drainage has been planned and is being provided continuously | ☑ | ☐ | ☐ |
| 9.0 | Need for well points has been checked | ☐ | ☐ | ☑ |
| 10.0 | Testing, inspection and compaction requirements have been reviewed | ☑ | ☐ | ☐ |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 11.0 | Backfill materials have been tested and approved to use | ☑ | ☐ | ☐ |
| 12.0 | Clarify compaction requirements by material, use, lift thickness, frequency, etc. | ☑ | ☐ | ☐ |
| 13.0 | Need of slope design for trenching or excavation has been reviewed | ☐ | ☐ | ☑ |
| 14.0 | Blast/fractured rock requirements have been reviewed | ☑ | ☐ | ☐ |
| 15.0 | Project specific quality requirements | ☑ | ☐ | ☐ |
| 16.0 | If needed, are barricades, stop logs, properly placed? | ☑ | ☐ | ☐ |
| | | ☐ | ☐ | ☐ |
| | | ☐ | ☐ | ☐ |
| | | ☐ | ☐ | ☐ |
| | | ☐ | ☐ | ☐ |

COMMENTS:

Tie holes need to be patched prior to backfill as per general standard.

ATTACHMENT(S):

DEFICIENCIES NOTES:

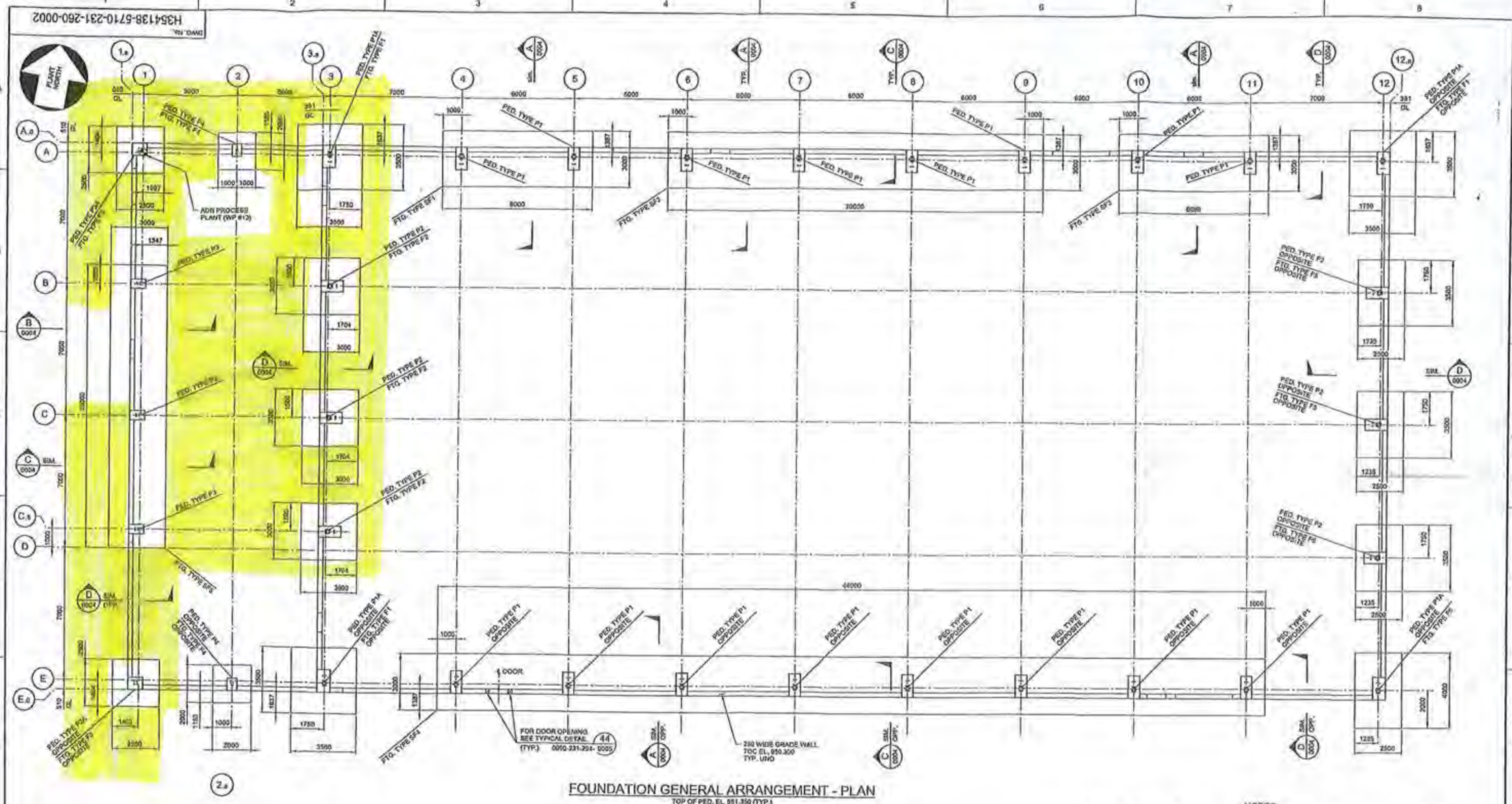
INITIAL INSPECTION

INSPECTOR: JACKSON WENGER TITLE COORDINATOR DATE: JULY 28, 2018

RE-INSPECTION (DEFICIENCIES COMPLETED)

INSPECTOR: Darcy Comeau TITLE Field Engineer DATE: July 28, 2018

DWG. No. H354138-5710-231-260-0002




## FOUNDATION GENERAL ARRANGEMENT - PLAN

TOP OF PED. EL. 951.350 (TYP.)
TOP OF SLAB HP EL. 950.150
FIN. GRADE EL. 950.000 (REF.)
U/S FTG. EL. 949.500 (TYP.)

1:100 SCALE IN METRES

NOTES:
1. FOR NOTES SEE DRAWING H354138-5710-231-260-0001.

TOR:

| | | | | | | |
|---|---|---|---|---|---|---|
| | | | | 0 | APPROVED FOR CONSTRUCTION | PJ / EA / 2018-05-23 |
| DRAWING No. | DRAWING TITLE | | | No. | DESCRIPTION | BY / CHK'D / DATE |
| REFERENCE DRAWINGS | | REG. PROFESSIONAL | | REVISIONS | | |

FILES PRINTED: 24-MAY-2018
IRC_personVar

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HATCH

| | | | |
|---|---|---|---|
| DRAFTSPERSON | P. JIVAEVIL MENDIOLA | NR | 2018-03-26 |
| DESIGNER | F. LIU | NR | 2018-03-26 |
| CHECKER | E. AKINCI | | |
| DESIGN COORD. | S. PERKINS | | |
| RESP. ENG. | E. AKINCI | | |
| LEAD DISC. ENG. | E. AKINCI | | |
| ENG. MANAGER | B. RUSTAD | | |
| PROJ. MANAGER | B. RUSTAD | | |
| ROLE | NAME | SIGNATURE & DATE | |
| DRAWING APPROVAL STATUS: | Approved for Construction | | |

StrataGold Corporation

EAGLE GOLD PROJECT

ADR PROCESS PLANT BUILDING
BUILDING FOUNDATION
FOUNDATION - PLAN

| SCALE | DWG. No. | REV |
|---|---|---|
| 1:100 (SEE AS NOTED) | H354138-5710-231-260-0002 | 0 |

CLARK BUILDERS
ENERGY & RESOURCES

# FORMWORK & FALSEWORK PRE POUR | QA INSPECTION

Rev 00 May 4, 2018

| | |
|---|---|
| SUBCONTRACTOR: N/A | INSPECTION DATE: July 28/2018 |
| SUBCONTRACTOR CONTACT PERSON: | DATE OF POUR: July 29 2018 |
| INSPECTOR(S): Jackson Wenger | |
| LOCATION: ADR PLANT Strip footing A4-A11 | |
| DRAWING REV: C | DRAWING NO.(S): #354138-5710-231-200-002 SPEC SECTION(S): 03 10 00 |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Location, survey, dimension and grades as required | ☑ | ☐ | ☐ |
| 2.0 | Plumbness and Flatness verified | ☑ | ☐ | ☐ |
| 3.0 | Joints are aligned and watertight. | ☐ | ☐ | ☑ |
| 4.0 | Formwork shop drawings are Engineered and reviewed | ☐ | ☐ | ☑ |
| 5.0 | Re-used formwork reconditioned and treated | ☑ | ☐ | ☐ |
| 6.0 | Formwork and ties according to finishing requirements. Confirm no holes in the concrete surface are greater than 25mm in diameter or expose steel at less than 25mm from surface. As per spec. | ☑ | ☐ | ☐ |
| 7.0 | Installation of embeds are located and secured | ☐ | ☐ | ☑ |
| 8.0 | Chamfer requirements checked. 25mm chamfers required for all exterior corners and edges exposed to view including horizontal edges of pads. | ☐ | ☐ | ☑ |
| 9.0 | Key ways and/or other provisions according to design are provided in construction joints | ☐ | ☐ | ☑ |
| 10.0 | Inspect types of form spacers, ties and bracing. | ☑ | ☐ | ☐ |
| 11.0 | Spacing of ties to be set to a pattern | ☑ | ☐ | ☐ |
| 12.0 | Expansion, construction, contraction joints as required & located as coordinated with structural Engineer | ☐ | ☐ | ☑ |
| 13.0 | Forms secured against movement during placing | ☑ | ☐ | ☐ |
| 14.0 | Forms are braced for alignment and blow out | ☑ | ☐ | ☐ |
| 15.0 | Forms are cleaned of all debris, and dry, prior to concrete placement including standing water. | ☑ | ☐ | ☐ |
| 16.0 | Openings in formwork permit inspection and cleaning, placing and compaction of concrete, and forming and processing of construction joints. | ☑ | ☐ | ☐ |
| 17.0 | Formwork has been coated with release agent prior to rebar placement. | ☑ | ☐ | ☐ |
| | | ☐ | ☐ | ☐ |

COMMENTS:

ATTACHMENT(S):

DEFICIENCIES NOTES:

INITIAL INSPECTION

INSPECTOR: Jackson Wenger TITLE Project Coordinator DATE: July 28/2018

RE-INSPECTION (DEFICIENCIES COMPLETED)

INSPECTOR: [signature] Completed TITLE Field Engineer DATE: July 29, 2018

CLARK BUILDERS
ENERGY & RESOURCES

# CONCRETE REINFORCEMENT PRE POUR

Rev 00 May 4, 2018

| | |
|---|---|
| SUBCONTRACTOR: ULTIMATE REINFORCING | INSPECTION DATE: July 28/2018 |
| SUBCONTRACTOR CONTACT PERSON: JIMMY MENCHENTON | ACTION BY: |
| INSPECTOR(S): JACKSON WENGER | |
| LOCATION: ADR PLANT FOOTING A4-A11 | |
| DRAWING REV: 0 | DRAWING NO.(S): H354138-5710-231-200-002 SPEC SECTION(S): 03 20 00 |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Grade (400W unless otherwise noted) and type of steel delivered and installed as required by approved drawings. | ☑ | ☐ | ☐ |
| 2.0 | Inspect rebar distribution, spacing and cover per design/project requirements. | ☑ | ☐ | ☐ |
| 3.0 | Length of splices as specified | ☑ | ☐ | ☐ |
| 4.0 | Staggered splices as specified | ☑ | ☐ | ☐ |
| 5.0 | Any mechanical splices have been approved by the owner prior to install | ☐ | ☐ | ☑ |
| 6.0 | Bars cleaned and free of material that may reduce bond including loose rust, scale, oil, structural defects and that they are uncoated and unpainted. | ☑ | ☐ | ☐ |
| 7.0 | Dowels at wall ends, construction joints, and openings as specified (length, location, size, etc.) | ☑ | ☐ | ☐ |
| 8.0 | No unauthorized field bent bars including hooks installed | ☑ | ☐ | ☐ |
| | Resolve conflicts between embedded items and reinforcement | | | ✓ |
| 9.0 | When authorized, field bends done without heat and inspected for fissures or cracks. | ☐ | ☐ | ☑ |
| 10.0 | Bars tied and supported to prevent displacement | ☑ | ☐ | ☐ |
| 11.0 | Spacers, tie wire and chairs as required | ☑ | ☐ | ☐ |
| 12.0 | Conduits at design location and minimum separation from rebar as specified | ☐ | ☐ | ☑ |
| 13.0 | No contact of bars is made with dissimilar metals as per CSA A23.1 | ☑ | ☐ | ☐ |
| 14.0 | Bars, nails or tie wire not sticking out from surfaces that allow rusting/corrosion | ☑ | ☐ | ☐ |
| 15.0 | Rebar is welds inspected by qualified inspectors certified to CSA W178.2 | ☐ | ☐ | ☑ |
| 16.0 | No rebar congestion or other obstruction for deposit of concrete | ☑ | ☐ | ☐ |
| 17.0 | Adjustments required for interfering items (piping, inserts, sleeves, etc.) have been submitted and approved by owner. | ☐ | ☐ | ☑ |
| 18.0 | Rebar was stored off ground to prevent damage/corrosion | ✓ | | |
| 19.0 | Review drawings for anchors, piping, sleeves, boxes | ☐ | ☐ | ☑ |

COMMENTS:

ATTACHMENT(S):

DEFICIENCIES NOTES:

INITIAL INSPECTION

INSPECTOR: JACKSON WENGER TITLE PROJECT COORDINATOR DATE: JULY 28/2018

RE-INSPECTION (DEFICIENCIES COMPLETED)

INSPECTOR: R Jackson Completed TITLE FIELD ENGINEER DATE: July 29/2018

CLARK BUILDERS
ENERGY & RESOURCES

# CONCRETE PRE POUR | FIELD INSPECTION

Rev 00 May 4, 2018

| | |
|---|---|
| SUBCONTRACTOR: | INSPECTION DATE: July 28/2018 |
| SUBCONTRACTOR CONTACT PERSON: | DATE OF POUR: July 29 2018 |
| INSPECTOR(S): JACKSON WENGER | |
| LOCATION: ADR PLANT Spread footing A4-A11 | |
| DRAWING REV: 0 | DRAWING NO.(S): H354138-5710-231-2C0002 SPEC SECTION(S): 03 30 00 |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Location, survey, dimension and grades as required | ☑ | ☐ | ☐ |
| 2.0 | Plumbness and Flatness verified | ☑ | ☐ | ☐ |
| 3.0 | Joints are aligned and watertight. | ☐ | ☐ | ☑ |
| 4.0 | Formwork shop drawings are Engineered and reviewed | ☐ | ☐ | ☑ |
| 5.0 | Re-used formwork reconditioned and treated | ☑ | ☐ | ☐ |
| 6.0 | Formwork and ties according to finishing requirements. Confirm no holes in the concrete surface are greater than 25mm in diameter or expose steel at less than 25mm from surface. As per spec. | ☐ | ☐ | ☑ |
| 7.0 | Installation of embeds are located and secured | ☐ | ☐ | ☑ |
| 8.0 | Chamfer requirements checked. 25mm chamfers required for all exterior corners and edges exposed to view including horizontal edges of pads. | ☐ | ☐ | ☑ |
| 9.0 | Key ways and/or other provisions according to design are provided in construction joints | ☐ | ☐ | ☑ |
| 10.0 | Inspect types of form spacers, ties and bracing. | ☑ | ☐ | ☐ |
| 11.0 | Spacing of ties to be set to a pattern | ☑ | ☐ | ☐ |
| 12.0 | Expansion, construction, contraction joints as required & located as coordinated with structural Engineer | ☐ | ☐ | ☑ |
| 13.0 | Forms secured against movement during placing | ☑ | ☐ | ☐ |
| 14.0 | Forms are braced for alignment and blow out | ☑ | ☐ | ☐ |
| 15.0 | Forms are cleaned of all debris, and dry, prior to concrete placement including standing water. | ☑ | ☐ | ☐ |
| 16.0 | Openings in formwork permit inspection and cleaning, placing and compaction of concrete, and forming and processing of construction joints. | ☑ | ☐ | ☐ |
| 17.0 | Formwork has been coated with release agent prior to rebar placement. | ☑ | ☐ | ☐ |
| | | ☐ | ☐ | ☐ |

COMMENTS:

ATTACHMENT(S):

DEFICIENCIES NOTES:

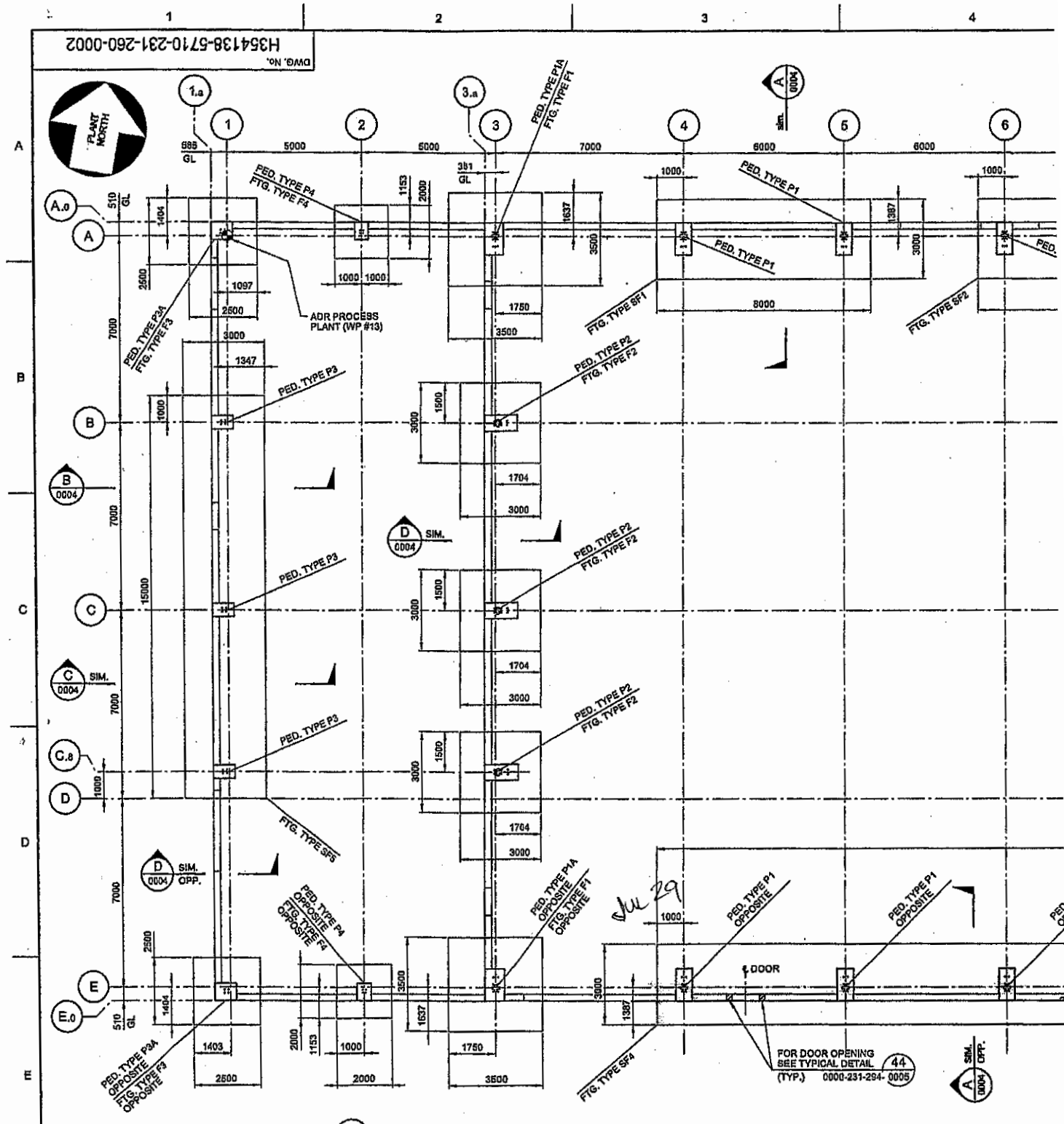
POUR METHOD: CHUTE

INITIAL INSPECTION

INSPECTOR: _____ TITLE Project Coord DATE: July 28, 2018

RE-INSPECTION (DEFICIENCIES COMPLETED)

INSPECTOR: _____ TITLE Field Engineer DATE: July 29, 2018


DWG. No.
H354138-5710-231-260-0002
PLANT NORTH
1.a
3.a
A
6004
sim.
1
2
3
4
5
6
686 GL
5000
5000
7000
6000
6000
381 GL
1000
PED. TYPE P1A
FTG. TYPE F1
PED. TYPE P4
FTG. TYPE F4
1153
2000
1637
3500
PED. TYPE P1
1387
3000
PED.
A.0
510 GL
A
1404
2500
1000 1000
1097
2500
1750
3500
FTG. TYPE SF1
8000
FTG. TYPE SF2
PED. TYPE P3A
FTG. TYPE F3
ADR PROCESS PLANT (WP #13)
7000
3000
1347
PED. TYPE P3
PED. TYPE P2
FTG. TYPE F2
B
1000
1500
3000
1704
3000
B
0004
7000
D
0004
SIM.
PED. TYPE P3
PED. TYPE P2
FTG. TYPE F2
C
15000
1500
3000
1704
3000
C
0004
SIM.
7000
PED. TYPE P3
PED. TYPE P2
FTG. TYPE F2
C.8
D
1000
1500
3000
1764
3000
FTG. TYPE SF5
D
0004
SIM.
OPP.
7000
PED. TYPE P4
OPPOSITE
FTG. TYPE F4
OPPOSITE
PED. TYPE P1A
OPPOSITE
FTG. TYPE F1
OPPOSITE
Jul 29
1000
PED. TYPE P1
OPPOSITE
PED. TYPE P1
OPPOSITE
DOOR
2500
1404
E
E.0
510 GL
1403
2500
2000
1153
1000
1750
3500
1637
3500
1387
3000
PED. TYPE P3A
OPPOSITE
FTG. TYPE F3
OPPOSITE
FTG. TYPE SF4
FOR DOOR OPENING
SEE TYPICAL DETAIL
(TYP.)
0000-231-294-0005
44
A
0004
SIM.
OPP.
2.a
FOUNDATION GENERAL
TOP OF PED. EL
TOP OF SLAB
FIN. GRADE EL
U/S FTG. EL
DRAWING No.
DRAWING TITLE
REFERENCE DRAWINGS
REG. PROFESSIONAL
0
APPROVED FOR CONSTRUCTION
No.
DESC
$FILE$
PRINTED: 24-MAY-2018
idc_pwsindice
10:34
F

CLARK BUILDERS
ENERGY & RESOURCES



# FORMWORK & FALSEWORK PRE POUR | QA INSPECTION

Rev 00 May 4, 2018

| | |
|---|---|
| SUBCONTRACTOR: N/A | INSPECTION DATE: July 28/2018 |
| SUBCONTRACTOR CONTACT PERSON: | DATE OF POUR: July 29 2018 |
| INSPECTOR(S): Jackson Wenger | |
| LOCATION: ADR PLANT Strip footing B4-A11 | |
| DRAWING REV: C | DRAWING NO.(S): #354138-5710-231-260-002 SPEC SECTION(S): 03 10 00 |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Location, survey, dimension and grades as required | ☑ | ☐ | ☐ |
| 2.0 | Plumbness and Flatness verified | ☑ | ☐ | ☐ |
| 3.0 | Joints are aligned and watertight. | ☐ | ☐ | ☑ |
| 4.0 | Formwork shop drawings are Engineered and reviewed | ☐ | ☐ | ☑ |
| 5.0 | Re-used formwork reconditioned and treated | ☑ | ☐ | ☐ |
| 6.0 | Formwork and ties according to finishing requirements. Confirm no holes in the concrete surface are greater than 25mm in diameter or expose steel at less than 25mm from surface. As per spec. | ☑ | ☐ | ☐ |
| 7.0 | Installation of embeds are located and secured | ☐ | ☐ | ☑ |
| 8.0 | Chamfer requirements checked. 25mm chamfers required for all exterior corners and edges exposed to view including horizontal edges of pads. | ☐ | ☐ | ☑ |
| 9.0 | Key ways and/or other provisions according to design are provided in construction joints | ☐ | ☐ | ☑ |
| 10.0 | Inspect types of form spacers, ties and bracing. | ☑ | ☐ | ☐ |
| 11.0 | Spacing of ties to be set to a pattern | ☑ | ☐ | ☐ |
| 12.0 | Expansion, construction, contraction joints as required & located as coordinated with structural Engineer | ☐ | ☐ | ☑ |
| 13.0 | Forms secured against movement during placing | ☑ | ☐ | ☐ |
| 14.0 | Forms are braced for alignment and blow out | ☑ | ☐ | ☐ |
| 15.0 | Forms are cleaned of all debris, and dry, prior to concrete placement including standing water. | ☑ | ☐ | ☐ |
| 16.0 | Openings in formwork permit inspection and cleaning, placing and compaction of concrete, and forming and processing of construction joints. | ☑ | ☐ | ☐ |
| 17.0 | Formwork has been coated with release agent prior to rebar placement. | ☑ | ☐ | ☐ |
| | | ☐ | ☐ | ☐ |

COMMENTS:

ATTACHMENT(S):

DEFICIENCIES NOTES:

INITIAL INSPECTION

INSPECTOR: Jackson Wenger TITLE Project Coordinator DATE: July 28/2018

RE-INSPECTION (DEFICIENCIES COMPLETED)

INSPECTOR: [signature] TITLE Field Engineer DATE: July 29, 2018

CLARK BUILDERS
ENERGY & RESOURCES

# CONCRETE REINFORCEMENT PRE POUR

Rev 00 May 4, 2018

| | |
|---|---|
| SUBCONTRACTOR: ULTIMATE REINFORCING | INSPECTION DATE: July 28/2018 |
| SUBCONTRACTOR CONTACT PERSON: JIMMY MENCHENTON | ACTION BY: |
| INSPECTOR(S): JACKSON WENGER | |
| LOCATION: ADR PLANT FOOTING #4-A11 | |
| DRAWING REV: 0 | DRAWING NO.(S): H354138-5710231-200-002 SPEC SECTION(S): 03 20 00 |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Grade (400W unless otherwise noted) and type of steel delivered and installed as required by approved drawings. | ☑ | ☐ | ☐ |
| 2.0 | Inspect rebar distribution, spacing and cover per design/project requirements. | ☑ | ☐ | ☐ |
| 3.0 | Length of splices as specified | ☑ | ☐ | ☐ |
| 4.0 | Staggered splices as specified | ☑ | ☐ | ☐ |
| 5.0 | Any mechanical splices have been approved by the owner prior to install | ☐ | ☐ | ☑ |
| 6.0 | Bars cleaned and free of material that may reduce bond including loose rust, scale, oil, structural defects and that they are uncoated and unpainted. | ☑ | ☐ | ☐ |
| 7.0 | Dowels at wall ends, construction joints, and openings as specified (length, location, size, etc.) | ☑ | ☐ | ☐ |
| 8.0 | No unauthorized field bent bars including hooks installed | ☑ | ☐ | ☐ |
| | Resolve conflicts between embedded items and reinforcement | | | ✓ |
| 9.0 | When authorized, field bends done without heat and inspected for fissures or cracks. | ☐ | ☐ | ☑ |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 10.0 | Bars tied and supported to prevent displacement | ☑ | ☐ | ☐ |
| 11.0 | Spacers, tie wire and chairs as required | ☑ | ☐ | ☐ |
| 12.0 | Conduits at design location and minimum separation from rebar as specified | ☐ | ☐ | ☑ |
| 13.0 | No contact of bars is made with dissimilar metals as per CSA A23.1 | ☑ | ☐ | ☐ |
| 14.0 | Bars, nails or tie wire not sticking out from surfaces that allow rusting/corrosion | ☑ | ☐ | ☐ |
| 15.0 | Rebar is welds inspected by qualified inspectors certified to CSA W178.2 | ☐ | ☐ | ☑ |
| 16.0 | No rebar congestion or other obstruction for deposit of concrete | ☑ | ☐ | ☐ |
| 17.0 | Adjustments required for interfering items (piping, inserts, sleeves, etc.) have been submitted and approved by owner. | ☐ | ☐ | ☑ |
| 18.0 | Rebar was stored off ground to prevent damage/corrosion | ✓ | | |
| 19.0 | Review drawings for anchors, piping, sleeves, boxes | ☐ | ☐ | ☑ |

COMMENTS:

ATTACHMENT(S):

DEFICIENCIES NOTES:

INITIAL INSPECTION

INSPECTOR: JACKSON WENGER TITLE PROJECT COORDINATOR DATE: JULY 28/2018

RE-INSPECTION (DEFICIENCIES COMPLETED)

INSPECTOR: [signature] TITLE Field Engineer DATE: July 29/2018

CLARK BUILDERS
ENERGY & RESOURCES

# CONCRETE PRE POUR | FIELD INSPECTION

Rev 00 May 4, 2018

| | |
|---|---|
| SUBCONTRACTOR: | INSPECTION DATE: July 28/2018 |
| SUBCONTRACTOR CONTACT PERSON: | DATE OF POUR: July 29 2018 |
| INSPECTOR(S): JACKSON WENGER | |
| LOCATION: ADR PLANT Spread footing B4-A11 | |
| DRAWING REV: 0 | DRAWING NO.(S): H354138-5710-231-2600 SPEC SECTION(S): 03 30 00 |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Location, survey, dimension and grades as required | ☑ | ☐ | ☐ |
| 2.0 | Plumbness and Flatness verified | ☑ | ☐ | ☐ |
| 3.0 | Joints are aligned and watertight. | ☐ | ☐ | ☑ |
| 4.0 | Formwork shop drawings are Engineered and reviewed | ☐ | ☐ | ☑ |
| 5.0 | Re-used formwork reconditioned and treated | ☑ | ☐ | ☐ |
| 6.0 | Formwork and ties according to finishing requirements. Confirm no holes in the concrete surface are greater than 25mm in diameter or expose steel at less than 25mm from surface. As per spec. | ☐ | ☐ | ☑ |
| 7.0 | Installation of embeds are located and secured | ☐ | ☐ | ☑ |
| 8.0 | Chamfer requirements checked. 25mm chamfers required for all exterior corners and edges exposed to view including horizontal edges of pads. | ☐ | ☐ | ☑ |
| 9.0 | Key ways and/or other provisions according to design are provided in construction joints | ☐ | ☐ | ☑ |
| 10.0 | Inspect types of form spacers, ties and bracing. | ☑ | ☐ | ☐ |
| 11.0 | Spacing of ties to be set to a pattern | ☑ | ☐ | ☐ |
| 12.0 | Expansion, construction, contraction joints as required & located as coordinated with structural Engineer | ☐ | ☐ | ☑ |
| 13.0 | Forms secured against movement during placing | ☑ | ☐ | ☐ |
| 14.0 | Forms are braced for alignment and blow out | ☑ | ☐ | ☐ |
| 15.0 | Forms are cleaned of all debris, and dry, prior to concrete placement including standing water. | ☑ | ☐ | ☐ |
| 16.0 | Openings in formwork permit inspection and cleaning, placing and compaction of concrete, and forming and processing of construction joints. | ☑ | ☐ | ☐ |
| 17.0 | Formwork has been coated with release agent prior to rebar placement. | ☑ | ☐ | ☐ |
| | | ☐ | ☐ | ☐ |

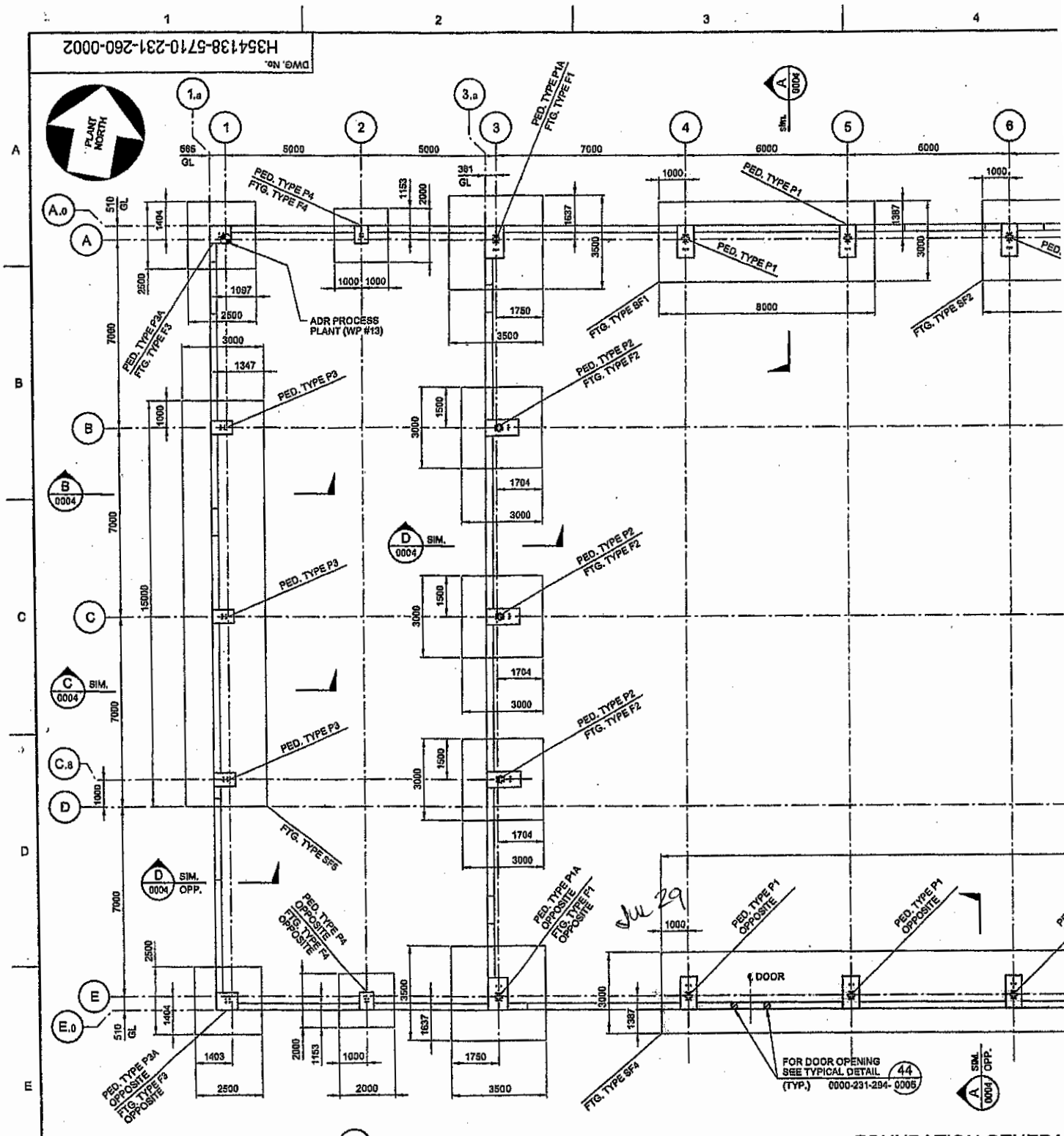
| COMMENTS: | ATTACHMENT(S): |
|---|---|
| | |
| DEFICIENCIES NOTES: | POUR METHOD: |
| | CHUTE |

INITIAL INSPECTION

INSPECTOR: _____ TITLE Project Coord DATE: July 28, 2018

RE-INSPECTION (DEFICIENCIES COMPLETED)

INSPECTOR: _____ TITLE Field Engineer DATE: July 29, 2018




FOUNDATION GENERAL

TOP OF PED. E
TOP OF SLAB
FIN. GRADE E
U/S FTG. E

| DRAWING No. | DRAWING TITLE | REG. PROFESSIONAL | No. | DESC |
|---|---|---|---|---|
| | | | 0 | APPROVED FOR CONSTRUCTION |

REFERENCE DRAWINGS

SFILELS
PRINTED: 24-MAY-2018 10:34
kdc_pwservice

CLARK BUILDERS
ENERGY & RESOURCES

CB-INSPECTION FORM-DOC-002 REV.00
JDS ENERGY & MINING INC. | STRATAGOLD EAGLE GOLD
PROJECT #: CB201 | 18502

PROJECT MANAGER: DUSTIN DOLYNCHUK, P.ENG
QA/QC COORDINATOR: RYAN DE MILLIANO, C.E.T.
SUPERINTENDENT: GARRY DAHL

# XCAVATION AND BACKFILL PRE POUR | QA INSPECTION

Rev 00 May 4, 2018

| | |
|---|---|
| SUBCONTRACTOR: COBALT | INSPECTION DATE: July 29, 2018 |
| SUBCONTRACTOR CONTACT PERSON: THOMAS GOBEIL | ACTION BY: |
| INSPECTOR(S): JACKSON WENGER | |
| LOCATION: ADR PLANT GLA, GL12 | |
| DRAWING REV: 0 | DRAWING NO.(S): H354138-2140-220-2900002 SPEC SECTION(S): |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Subsoil investigation report has been reviewed | ☐ | ☐ | ☑ |
| 2.0 | Survey complete, stakes and monuments located | ☑ | ☐ | ☐ |
| 3.0 | Procedures in place for hazardous materials? | ☐ | ☐ | ☑ |
| 4.0 | Required Ground Disturbance permits reviewed and approved | ☐ | ☐ | ☑ |
| 5.0 | Utilities and other underground potential interferences to remain are located, stakes and protected? | ☐ | ☐ | ☑ |
| 6.0 | Utilities companies notified | ☐ | ☐ | ☑ |
| 7.0 | Drawings are approved and stamped prior to work begins | ☑ | ☐ | ☐ |
| 8.0 | Drainage has been planned and is being provided continuously | ☐ | ☐ | ☑ |
| 9.0 | Need for well points has been checked | ☐ | ☐ | ☑ |
| 10.0 | Testing, inspection and compaction requirements have been reviewed | ☑ | ☐ | ☐ |
| 11.0 | Backfill materials have been tested and approved to use | ☑ | ☐ | ☐ |
| 12.0 | Clarify compaction requirements by material, use, lift thickness, frequency, etc. | ☑ | ☐ | ☐ |
| 13.0 | Need of slope design for trenching or excavation has been reviewed | ☐ | ☐ | ☑ |
| 14.0 | Blast/fractured rock requirements have been reviewed | ☑ | ☐ | ☐ |
| 15.0 | Project specific quality requirements | ☑ | ☐ | ☐ |
| 16.0 | If needed, are barricades, stop logs, properly placed? | ☑ | ☐ | ☐ |
| | | ☐ | ☐ | ☐ |
| | | ☐ | ☐ | ☐ |
| | | ☐ | ☐ | ☐ |
| | | ☐ | ☐ | ☐ |

COMMENTS:

ATTACHMENT(S):

DEFICIENCIES NOTES:

INITIAL INSPECTION

INSPECTOR: JACKSON WENGER TITLE PROJECT COORD DATE: JULY 29 2018

RE-INSPECTION (DEFICIENCIES COMPLETED)

INSPECTOR: ~~[illegible]~~ TITLE ~~Foreman Engineer~~ DATE: ~~July 29, 2018~~

[illegible] Foreman Engineer July 29 2018

DWG. No. H354138-5710-231-260-0002

PLANT NORTH

ADR PROCESS PLANT (WP #13)

FOR DOOR OPENING SEE TYPICAL DETAIL (TYP.) 44 0000-231-294-0005

250 WIDE GRADE WALL TOC EL. 950.300 TYP. UNO

DOOR

# FOUNDATION GENERAL ARRANGEMENT - PLAN

TOP OF PED. EL. 951.250 (TYP.)
TOP OF SLAB TOP EL. 950.150
FIN. GRADE EL. 950.000 (REF.)
U/S FTG. EL. 948.600 (TYP.)

SCALE IN METRES

NOTES:
1. FOR NOTES SEE DRAWING H354138-5710-231-260-0001.

| | | | | | | |
|---|---|---|---|---|---|---|
| | | | | | | |
| | | | | | | |
| | | | | | | |

CLARK BUILDERS
ENERGY & RESOURCES

# EXCAVATION AND BACKFILL PRE POUR | QA INSPECTION

Rev 00 May 4, 2018

| | |
|---|---|
| SUBCONTRACTOR: CLARK BUILDERS / COBALT | INSPECTION DATE: July 31 2018 |
| SUBCONTRACTOR CONTACT PERSON: DARREN KUFFENSTEIN | ACTION BY: |
| INSPECTOR(S): JACKSON WERNER | |
| LOCATION: ADR PLANT GRIDLINE E | |
| DRAWING REV: 0 | DRAWING NO.(S): 354138-2150-220-310002 / SPEC SECTION(S): |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Subsoil investigation report has been reviewed | ☐ | ☐ | ☑ |
| 2.0 | Survey complete, stakes and monuments located | ☑ | ☐ | ☐ |
| 3.0 | Procedures in place for hazardous materials? | ☐ | ☐ | ☑ |
| 4.0 | Required Ground Disturbance permits reviewed and approved | ☐ | ☐ | ☑ |
| 5.0 | Utilities and other underground potential interferences to remain are located, stakes and protected? | ☐ | ☐ | ☑ |
| 6.0 | Utilities companies notified | ☐ | ☐ | ☑ |
| 7.0 | Drawings are approved and stamped prior to work begins | ☑ | ☐ | ☐ |
| 8.0 | Drainage has been planned and is being provided continuously | ☐ | ☐ | ☑ |
| 9.0 | Need for well points has been checked | ☐ | ☐ | ☑ |
| 10.0 | Testing, inspection and compaction requirements have been reviewed | ☑ | ☐ | ☐ |
| 11.0 | Backfill materials have been tested and approved to use | ☑ | ☐ | ☐ |
| 12.0 | Clarify compaction requirements by material, use, lift thickness, frequency, etc. | ☑ | ☐ | ☐ |
| 13.0 | Need of slope design for trenching or excavation has been reviewed | ☐ | ☐ | ☑ |
| 14.0 | Blast/fractured rock requirements have been reviewed | ☑ | ☐ | ☐ |
| 15.0 | Project specific quality requirements | ☑ | ☐ | ☐ |
| 16.0 | If needed, are barricades, stop logs, properly placed? | ☑ | ☐ | ☐ |
| | | ☐ | ☐ | ☐ |
| | | ☐ | ☐ | ☐ |
| | | ☐ | ☐ | ☐ |
| | | ☐ | ☐ | ☐ |

COMMENTS:

ATTACHMENT(S):

DEFICIENCIES NOTES:

INITIAL INSPECTION

INSPECTOR: JACKSON WERNER TITLE: PROJECT COORDINATOR DATE: JULY 31, 2018

RE-INSPECTION (DEFICIENCIES COMPLETED)

INSPECTOR: _____ TITLE: _____ DATE: _____




## FOUNDATION GENERAL ARRANGEMENT - PLAN

TOP OF PED. EL. 951.350 (TYP.)
TOP OF SLAB HP EL. 950.150
FIN. GRADE EL. 950.000 (REF.)
US FTG. EL. 948.500 (TYP.)

1:100 SCALE IN METRES

NOTES:

1. FOR NOTES SEE DRAWING H354138-5710-231-260-0001.

| DRAWING No. | DRAWING TITLE |
|---|---|
| REFERENCE DRAWINGS | |

REG. PROFESSIONAL

| No. | DESCRIPTION | BY | CHK'D | DATE |
|---|---|---|---|---|
| 0 | APPROVED FOR CONSTRUCTION | PJ | EA | 2018-05-23 |

REVISIONS

HATCH

| ROLE | NAME | SIGNATURE & DATE |
|---|---|---|
| DRAFTSPERSON | P. JIVAEVIE, MENDIOLA | NR 2018-03-26 |
| DESIGNER | F. LIU | NR 2018-03-28 |
| CHECKER | E. AKINCI | |
| DESIGN COORD. | S. PERKINS | |
| RESP. ENG. | E. AKINCI | |
| LEAD DISC. ENG. | E. AKINCI | |
| ENG. MANAGER | B. RUSTAD | |
| PROJ. MANAGER | B. RUSTAD | |

DRAWING APPROVAL STATUS: Approved for Construction

StrataGold Corporation

EAGLE GOLD PROJECT

ADR PROCESS PLANT BUILDING
BUILDING FOUNDATION
FOUNDATION - PLAN

SCALE 1:100 OR AS NOTED

DWG. No. H354138-5710-231-260-0002

REV 0

SFILE.S
PRINTED: 24-MAY-2018

CLARK BUILDERS
ENERGY & RESOURCES

# CONCRETE REINFORCEMENT PRE POUR

Rev 00 May 4, 2018

| | |
|---|---|
| SUBCONTRACTOR: CLARK Builders. | INSPECTION DATE: Aug 3. 2018 |
| SUBCONTRACTOR CONTACT PERSON: JamesMeadahl | ACTION BY: |
| INSPECTOR(S): JamesMeadahl | |
| LOCATION: ADR STRATA GOLD GRADE BEAM LIN1; A1 - A-5, LINE A 3-D-3. ACID TANK BASE | |
| DRAWING REV: Ø | DRAWING NO.(S): 260-0002/260-0008 SPEC SECTION(S): |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Grade (400W unless otherwise noted) and type of steel delivered and installed as required by approved drawings. | ☑ | ☐ | ☐ |
| 2.0 | Inspect rebar distribution, spacing and cover per design/project requirements. | ☑ | ☐ | ☐ |
| 3.0 | Length of splices as specified | ☑ | ☐ | ☐ |
| 4.0 | Staggered splices as specified | ☑ | ☐ | ☐ |
| 5.0 | Any mechanical splices have been approved by the owner prior to install | ☐ | ☐ | ☑ |
| 6.0 | Bars cleaned and free of material that may reduce bond including loose rust, scale, oil, structural defects and that they are uncoated and unpainted. | ☑ | ☐ | ☐ |
| 7.0 | Dowels at wall ends, construction joints, and openings as specified (length, location, size, etc.) | ☑ | ☐ | ☐ |
| 8.0 | No unauthorized field bent bars including hooks installed | ☑ | ☐ | ☐ |
| | Resolve conflicts between embedded items and reinforcement | / | | |
| 9.0 | When authorized, field bends done without heat and inspected for fissures or cracks. | ☑ | ☐ | ☐ |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 10.0 | Bars tied and supported to prevent displacement | ☑ | ☐ | ☐ |
| 11.0 | Spacers, tie wire and chairs as required | ☑ | ☐ | ☐ |
| 12.0 | Conduits at design location and minimum separation from rebar as specified | ☐ | ☐ | ☑ |
| 13.0 | No contact of bars is made with dissimilar metals as per CSA A23.1 | ☑ | ☐ | ☐ |
| 14.0 | Bars, nails or tie wire not sticking out from surfaces that allow rusting/corrosion | ☑ | ☐ | ☐ |
| 15.0 | Rebar is welds inspected by qualified inspectors certified to CSA W178.2 | ☐ | ☐ | ☑ |
| 16.0 | No rebar congestion or other obstruction for deposit of concrete | ☑ | ☐ | ☐ |
| 17.0 | Adjustments required for interfering items (piping, inserts, sleeves, etc.) have been submitted and approved by owner. | ☑ | ☐ | ☑ |
| 18.0 | Rebar was stored off ground to prevent damage/corrosion | / | | |
| 19.0 | Review drawings for anchors, piping, sleeves, boxes | ☑ | ☐ | ☐ |

COMMENTS:

* Pour Break Locations to be moved per RFI #25 to be varified prior to pour.
(~~* Waterstop & Keyway to be installed as per General Details.~~) RC.

ATTACHMENT(S):

DEFICIENCIES NOTES:

INITIAL INSPECTION

INSPECTOR: _____ TITLE _____ DATE: _____

RE-INSPECTION (DEFICIENCIES COMPLETED)

INSPECTOR: DAncy Comerford TITLE Field Engineer DATE: Aug. 3 2018

CLARK BUILDERS
ENERGY & RESOURCES

PROJECT MANAGER: DUSTIN DOLYNCHUK, P.ENG
QA/QC COORDINATOR: RYAN DE MILLIANO, C.E.T.
SUPERINTENDENT: GARRY DAHL

# FORMWORK & FALSEWORK PRE POUR | QA INSPECTION

Rev 00 May 4, 2018

| | |
|---|---|
| SUBCONTRACTOR: CLARK BUILDERS | INSPECTION DATE: Aug 3. 2018 |
| SUBCONTRACTOR CONTACT PERSON: James Meadahl | DATE OF POUR: Aug 6. 2018 |
| INSPECTOR(S): James Meadahl | |
| LOCATION: ADR STRATAGOLD LINE 1, A1-A5, LINE A3-D-3, ACID TANK BASE | |
| DRAWING REV: 0 / DRAWING NO.(S): 260-0002 / 260-0008 | SPEC SECTION(S): |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Location, survey, dimension and grades as required | ☑ | ☐ | ☐ |
| 2.0 | Plumbness and Flatness verified | ☑ | ☐ | ☐ |
| 3.0 | Joints are aligned and watertight. | ☑ | ☐ | ☐ |
| 4.0 | Formwork shop drawings are Engineered and reviewed | ☑ | ☐ | ☐ |
| 5.0 | Re-used formwork reconditioned and treated | ☑ | ☐ | ☐ |
| .0 | Formwork and ties according to finishing requirements. Confirm no holes in the concrete surface are greater than 25mm in diameter or expose steel at less than 25mm from surface. As per spec. | ☑ | ☐ | ☐ |
| 7.0 | Installation of embeds are located and secured | ☑ | ☐ | ☐ |
| 8.0 | Chamfer requirements checked. 25mm chamfers required for all exterior corners and edges exposed to view including horizontal edges of pads. | ☑ | ☐ | ☐ |
| 9.0 | Key ways and/or other provisions according to design are provided in construction joints | ☑ | ☐ | ☐ |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 10.0 | Inspect types of form spacers, ties and bracing. | ☑ | ☐ | ☐ |
| 11.0 | Spacing of ties to be set to a pattern | ☑ | ☐ | ☐ |
| 12.0 | Expansion, construction, contraction joints as required & located as coordinated with structural Engineer | ☑ | ☐ | ☐ |
| 13.0 | Forms secured against movement during placing | ☑ | ☐ | ☐ |
| 14.0 | Forms are braced for alignment and blow out | ☑ | ☐ | ☐ |
| 15.0 | Forms are cleaned of all debris, and dry, prior to concrete placement including standing water. | ☑ | ☐ | ☐ |
| 16.0 | Openings in formwork permit inspection and cleaning, placing and compaction of concrete, and forming and processing of construction joints. | ☑ | ☐ | ☐ |
| 17.0 | Formwork has been coated with release agent prior to rebar placement. | ☑ | ☐ | ☐ |
| | | ☐ | ☐ | ☐ |

COMMENTS:

* POUR BREAK LOCATIONS TO BE MOVED AS PER RFI # 25. TO BE VARIFIED PRIOR TO POUR.

ATTACHMENT(S):

DEFICIENCIES NOTES:

INITIAL INSPECTION

INSPECTOR: _____ TITLE _____ DATE: _____

RE-INSPECTION (DEFICIENCIES COMPLETED)

INSPECTOR: Darcy Comerford TITLE Field Engineer DATE: Aug. 3. 2018.

CLARK BUILDERS
ENERGY & RESOURCES

CB-INSPECTION FORM-DOC-002 REV.00
JDS ENERGY & MINING INC. | STRATAGOLD EAGLE GOLD
PROJECT #: CB201 | 18502

PROJECT MANAGER: DUSTIN DOLYNCHUK, P.ENG
QA/QC COORDINATOR: RYAN DE MILLIANO, C.E.T.
SUPERINTENDENT: GARRY DAHL

# EXCAVATION AND BACKFILL PRE POUR | QA INSPECTION

Rev 00 May 4, 2018

| | |
|---|---|
| SUBCONTRACTOR: CLARKBUILDERS | INSPECTION DATE: Aug 3. 2018 |
| SUBCONTRACTOR CONTACT PERSON: Jamesmeadahl | ACTION BY: |
| INSPECTOR(S): Jamesmeadahl | |
| LOCATION: ADR STRATA GOLD LINE 1, A1-A5, A-3-D-3, ACID TANK BASE | |
| DRAWING REV: 0 | DRAWING NO.(S): 260-0002/260-0008 SPEC SECTION(S): |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Subsoil investigation report has been reviewed | ☑ | ☐ | ☐ |
| 2.0 | Survey complete, stakes and monuments located | ☑ | ☐ | ☐ |
| 3.0 | Procedures in place for hazardous materials? | ☐ | ☐ | ☑ |
| 4.0 | Required Ground Disturbance permits reviewed and approved | ☐ | ☐ | ☑ |
| 5.0 | Utilities and other underground potential interferences to remain are located, stakes and protected? | ☐ | ☐ | ☑ |
| 6.0 | Utilities companies notified | ☐ | ☐ | ☑ |
| .0 | Drawings are approved and stamped prior to work begins | ☑ | ☐ | ☐ |
| 8.0 | Drainage has been planned and is being provided continuously | ☐ | ☐ | ☑ |
| 9.0 | Need for well points has been checked | ☐ | ☐ | ☑ |
| 10.0 | Testing, inspection and compaction requirements have been reviewed | ☑ | ☐ | ☐ |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 11.0 | Backfill materials have been tested and approved to use | ☑ | ☐ | ☐ |
| 12.0 | Clarify compaction requirements by material, use, lift thickness, frequency, etc. | ☑ | ☐ | ☐ |
| 13.0 | Need of slope design for trenching or excavation has been reviewed | ☐ | ☐ | ☑ |
| 14.0 | Blast/fractured rock requirements have been reviewed | ☑ | ☐ | ☐ |
| 15.0 | Project specific quality requirements | ☑ | ☐ | ☐ |
| 16.0 | If needed, are barricades, stop logs, properly placed? | ☑ | ☐ | ☐ |
| | | ☐ | ☐ | ☐ |
| | | ☐ | ☐ | ☐ |
| | | ☐ | ☐ | ☐ |
| | | ☐ | ☐ | ☐ |

| COMMENTS: | ATTACHMENT(S): |
|---|---|
| | |
| | |
| | |

DEFICIENCIES NOTES:

INITIAL INSPECTION

INSPECTOR: _____ TITLE _____ DATE: _____

RE-INSPECTION (DEFICIENCIES COMPLETED)

INSPECTOR: _____ TITLE _____ DATE: _____

H354138-5710-231-260-0002

PLANT NORTH

ADR PROCESS PLANT (WP #13)

Pour 1 Aug 6

30m³

FOUNDATION GENERAL ARRANGEMENT - PLAN

TOP OF PED. EL. 951.350 (TYP.)
TOP OF SLAB PIP EL. 950.150
FIN. GRADE EL. 950.000 (REF.)
U/S FTG. EL. 949.500 (TYP.)

NOTES:
1. FOR NOTES SEE DRAWING H354138-5710-231-260-0001.

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

CLARK BUILDERS
ENERGY & RESOURCES

PROJECT MANAGER: DUSTIN DOLYNCHUK, P.ENG
QA/QC COORDINATOR: RYAN DE MILLIANO, C.E.T.
SUPERINTENDENT: GARRY DAHL

# FORMWORK & FALSEWORK PRE POUR | QA INSPECTION

Rev 00 May 4, 2018

| | |
|---|---|
| SUBCONTRACTOR: N/A | INSPECTION DATE: July 28/2018 |
| SUBCONTRACTOR CONTACT PERSON: | DATE OF POUR: July 29 2018 |
| INSPECTOR(S): Jackson Wenger | |
| LOCATION: ADR PLANT Strip footing B4-A11 | |
| DRAWING REV: 0 | DRAWING NO.(S): #354138-5710-23L-200-002 SPEC SECTION(S): 03 10 00 |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Location, survey, dimension and grades as required | ☑ | ☐ | ☐ |
| 2.0 | Plumbness and Flatness verified | ☑ | ☐ | ☐ |
| 3.0 | Joints are aligned and watertight. | ☐ | ☐ | ☑ |
| 4.0 | Formwork shop drawings are Engineered and reviewed | ☐ | ☐ | ☑ |
| 5.0 | Re-used formwork reconditioned and treated | ☑ | ☐ | ☐ |
| 6.0 | Formwork and ties according to finishing requirements. Confirm no holes in the concrete surface are greater than 25mm in diameter or expose steel at less than 25mm from surface. As per spec. | ☑ | ☐ | ☐ |
| 7.0 | Installation of embeds are located and secured | ☐ | ☐ | ☑ |
| 8.0 | Chamfer requirements checked. 25mm chamfers required for all exterior corners and edges exposed to view including horizontal edges of pads. | ☐ | ☐ | ☑ |
| 9.0 | Key ways and/or other provisions according to design are provided in construction joints | ☐ | ☐ | ☑ |
| 10.0 | Inspect types of form spacers, ties and bracing. | ☑ | ☐ | ☐ |
| 11.0 | Spacing of ties to be set to a pattern | ☑ | ☐ | ☐ |
| 12.0 | Expansion, construction, contraction joints as required & located as coordinated with structural Engineer | ☐ | ☐ | ☑ |
| 13.0 | Forms secured against movement during placing | ☑ | ☐ | ☐ |
| 14.0 | Forms are braced for alignment and blow out | ☑ | ☐ | ☐ |
| 15.0 | Forms are cleaned of all debris, and dry, prior to concrete placement including standing water. | ☑ | ☐ | ☐ |
| 16.0 | Openings in formwork permit inspection and cleaning, placing and compaction of concrete, and forming and processing of construction joints. | ☑ | ☐ | ☐ |
| 17.0 | Formwork has been coated with release agent prior to rebar placement. | ☑ | ☐ | ☐ |
| | | ☐ | ☐ | ☐ |

COMMENTS:

ATTACHMENT(S):

DEFICIENCIES NOTES:

INITIAL INSPECTION

INSPECTOR: Jackson Wenger TITLE: Project Coordinator DATE: July 28/2018

**** INSPECTION (DEFICIENCIES COMPLETED)

INSPECTOR: [signature] TITLE: Field Engineer DATE: July 29 2018

CLARK BUILDERS
ENERGY & RESOURCES

# CONCRETE REINFORCEMENT PRE POUR

Rev 00 May 4, 2018

| | |
|---|---|
| SUBCONTRACTOR: ULTIMATE REINFORCING | INSPECTION DATE: July 28/2018 |
| SUBCONTRACTOR CONTACT PERSON: JIMMY MENCHENTON | ACTION BY: |
| INSPECTOR(S): JACKSON WENGER | |
| LOCATION: ADR PLANT Footing #4-A11 | |
| DRAWING REV: 0 | DRAWING NO.(S): H354138-5710231-200-002 SPEC SECTION(S): 03 20 00 |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Grade (400W unless otherwise noted) and type of steel delivered and installed as required by approved drawings. | ☑ | ☐ | ☐ |
| 2.0 | Inspect rebar distribution, spacing and cover per design/project requirements. | ☑ | ☐ | ☐ |
| 3.0 | Length of splices as specified | ☑ | ☐ | ☐ |
| 4.0 | Staggered splices as specified | ☑ | ☐ | ☐ |
| 5.0 | Any mechanical splices have been approved by the owner prior to install | ☐ | ☐ | ☑ |
| 6.0 | Bars cleaned and free of material that may reduce bond including loose rust, scale, oil, structural defects and that they are uncoated and unpainted. | ☑ | ☐ | ☐ |
| 7.0 | Dowels at wall ends, construction joints, and openings as specified (length, location, size, etc.) | ☑ | ☐ | ☐ |
| 8.0 | No unauthorized field bent bars including hooks installed | ☑ | ☐ | ☐ |
| | Resolve conflicts between embedded items and reinforcement | | | ✓ |
| 9.0 | When authorized, field bends done without heat and inspected for fissures or cracks. | ☐ | ☐ | ☑ |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 10.0 | Bars tied and supported to prevent displacement | ☑ | ☐ | ☐ |
| 11.0 | Spacers, tie wire and chairs as required | ☑ | ☐ | ☐ |
| 12.0 | Conduits at design location and minimum separation from rebar as specified | ☐ | ☐ | ☑ |
| 13.0 | No contact of bars is made with dissimilar metals as per CSA A23.1 | ☑ | ☐ | ☐ |
| 14.0 | Bars, nails or tie wire not sticking out from surfaces that allow rusting/corrosion | ☑ | ☐ | ☐ |
| 15.0 | Rebar is welds inspected by qualified inspectors certified to CSA W178.2 | ☐ | ☐ | ☑ |
| 16.0 | No rebar congestion or other obstruction for deposit of concrete | ☑ | ☐ | ☐ |
| 17.0 | Adjustments required for interfering items (piping, inserts, sleeves, etc.) have been submitted and approved by owner. | ☐ | ☐ | ☑ |
| 18.0 | Rebar was stored off ground to prevent damage/corrosion | ✓ | | |
| 19.0 | Review drawings for anchors, piping, sleeves, boxes | ☐ | ☐ | ☑ |

COMMENTS:

ATTACHMENT(S):

DEFICIENCIES NOTES:

INITIAL INSPECTION

INSPECTOR: JACKSON WENGER TITLE PROJECT COORDINATOR DATE: JULY 26/2018

RE-INSPECTION (DEFICIENCIES COMPLETED)

INSPECTOR: [signature] TITLE FIELD ENGINEER DATE: July 29/2018

CLARK BUILDERS
ENERGY & RESOURCES

# CONCRETE PRE POUR | FIELD INSPECTION

Rev 00 May 4, 2018

| | |
|---|---|
| SUBCONTRACTOR: | INSPECTION DATE: July 28/2018 |
| SUBCONTRACTOR CONTACT PERSON: | DATE OF POUR: July 29 2018 |
| INSPECTOR(S): JACKSON WENGER | |
| LOCATION: ADR PLANT Spread footing FH-111 | |
| DRAWING REV: 0 | DRAWING NO.(S): H554138-5710-231-260-008 SPEC SECTION(S): 03 30 00 |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Location, survey, dimension and grades as required | ☑ | ☐ | ☐ |
| 2.0 | Plumbness and Flatness verified | ☑ | ☐ | ☐ |
| 3.0 | Joints are aligned and watertight. | ☐ | ☐ | ☑ |
| 4.0 | Formwork shop drawings are Engineered and reviewed | ☐ | ☐ | ☑ |
| 5.0 | Re-used formwork reconditioned and treated | ☑ | ☐ | ☐ |
| 6.0 | Formwork and ties according to finishing requirements. Confirm no holes in the concrete surface are greater than 25mm in diameter or expose steel at less than 25mm from surface. As per spec. | ☐ | ☐ | ☑ |
| 7.0 | Installation of embeds are located and secured | ☐ | ☐ | ☑ |
| 8.0 | Chamfer requirements checked. 25mm chamfers required for all exterior corners and edges exposed to view including horizontal edges of pads. | ☐ | ☐ | ☑ |
| 9.0 | Key ways and/or other provisions according to design are provided in construction joints | ☐ | ☐ | ☑ |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 10.0 | Inspect types of form spacers, ties and bracing. | ☑ | ☐ | ☐ |
| 11.0 | Spacing of ties to be set to a pattern | ☑ | ☐ | ☐ |
| 12.0 | Expansion, construction, contraction joints as required & located as coordinated with structural Engineer | ☐ | ☐ | ☑ |
| 13.0 | Forms secured against movement during placing | ☑ | ☐ | ☐ |
| 14.0 | Forms are braced for alignment and blow out | ☑ | ☐ | ☐ |
| 15.0 | Forms are cleaned of all debris, and dry, prior to concrete placement including standing water. | ☑ | ☐ | ☐ |
| 16.0 | Openings in formwork permit inspection and cleaning, placing and compaction of concrete, and forming and processing of construction joints. | ☑ | ☐ | ☐ |
| 17.0 | Formwork has been coated with release agent prior to rebar placement. | ☑ | ☐ | ☐ |
| | | ☐ | ☐ | ☐ |

COMMENTS:

ATTACHMENT(S):

DEFICIENCIES NOTES:

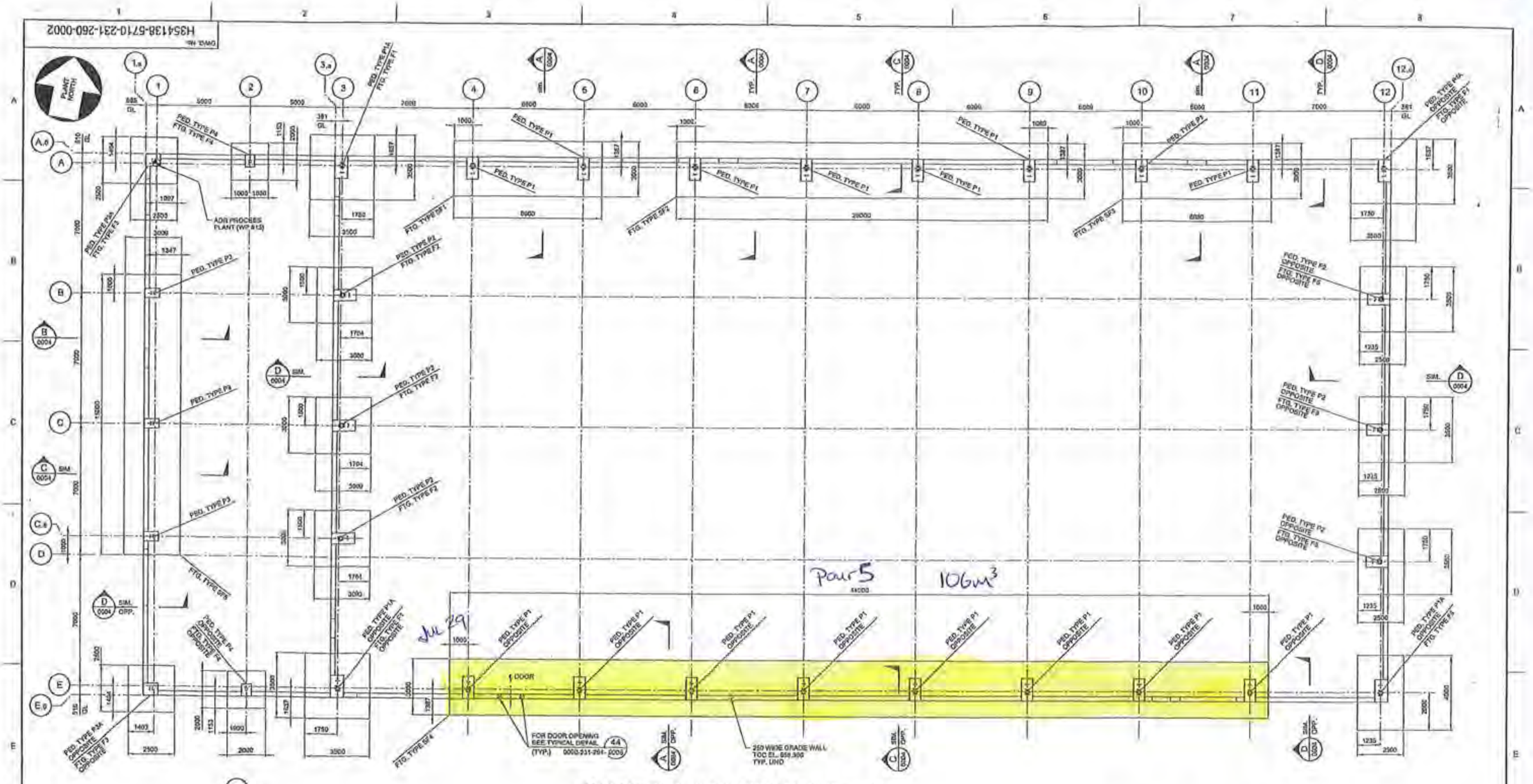
POUR METHOD: CHUTE

INITIAL INSPECTION

INSPECTOR: _____ TITLE Project Coord DATE: July 28, 2018

RE-INSPECTION (DEFICIENCIES COMPLETED)

INSPECTOR: _____ TITLE Field Engineer DATE: July 29, 2018




## FOUNDATION GENERAL ARRANGEMENT - PLAN

TOP OF FED. EL. 651.350 (TYP.)
TOP OF SLAB HP EL. 656.150
FIN. GRADE EL. 650.000 (REF.)
U/S FTG. EL. 646.500 (TYP.)

1:100 SCALE IN METRES

NOTES:
1. FOR NOTES SEE DRAWING H354138-5710-231-260-0001.

| DRAWING No. | DRAWING TITLE |
|---|---|
| REFERENCE DRAWINGS | |

REG. PROFESSIONAL

| No. | DESCRIPTION | BY | CHK'D | DATE |
|---|---|---|---|---|
| B | APPROVED FOR CONSTRUCTION | PJ | EA | 2018-05-23 |

REVISIONS

HATCH

| ROLE | NAME | SIGNATURE & DATE |
|---|---|---|
| DRAFTSPERSON | P. JIVAEVIE, MENDIOLA | NR 2018-03-28 |
| DESIGNER | F. LIU | NR 2018-03-28 |
| CHECKER | E. AIGNCI | |
| DESIGN COORD. | S. PERKINS | |
| RESP. ENG. | E. AIKINCI | |
| LEAD DISC. ENG. | E. AIGNCI | |
| ENG. MANAGER | B. RUSTAD | |
| PROJ. MANAGER | B. RUSTAD | |

DRAWING APPROVAL STATUS: Approved for Construction

StrataGold Corporation

EAGLE GOLD PROJECT

ADR PROCESS PLANT BUILDING
BUILDING FOUNDATION
FOUNDATION - PLAN

SCALE 1:100 UNLESS NOTED

DWG. No. H354138-5710-231-260-0002

REV 0

CLARK BUILDERS
ENERGY & RESOURCES

# CONCRETE REINFORCEMENT PRE POUR

Rev 00 May 4, 2018

| | |
|---|---|
| SUBCONTRACTOR: CLARK BUILDERS | INSPECTION DATE: Aug 7. 2018 |
| SUBCONTRACTOR CONTACT PERSON: | ACTION BY: |
| INSPECTOR(S): | |
| LOCATION: ADR STRATAGOLD GRADE BEAM A-5 - B 12, Foundation E2 - E3 | |
| DRAWING REV: Ø | DRAWING NO.(S): 260-0002 / SPEC SECTION(S): |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Grade (400W unless otherwise noted) and type of steel delivered and installed as required by approved drawings. | ☑ | ☐ | ☐ |
| 2.0 | Inspect rebar distribution, spacing and cover per design/project requirements. | ☑ | ☐ | ☐ |
| 3.0 | Length of splices as specified | ☑ | ☐ | ☐ |
| 4.0 | Staggered splices as specified | ☑ | ☐ | ☐ |
| 5.0 | Any mechanical splices have been approved by the owner prior to install | ☐ | ☐ | ☑ |
| 6.0 | Bars cleaned and free of material that may reduce bond including loose rust, scale, oil, structural defects and that they are uncoated and unpainted. | ☑ | ☐ | ☐ |
| 7.0 | Dowels at wall ends, construction joints, and openings as specified (length, location, size, etc.) | ☑ | ☐ | ☐ |
| 8.0 | No unauthorized field bent bars including hooks installed | ☑ | ☐ | ☐ |
| | Resolve conflicts between embedded items and reinforcement | / | | |
| 9.0 | When authorized, field bends done without heat and inspected for fissures or cracks. | ☐ | ☐ | ☑ |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 10.0 | Bars tied and supported to prevent displacement | ☑ | ☐ | ☐ |
| 11.0 | Spacers, tie wire and chairs as required | ☑ | ☐ | ☐ |
| 12.0 | Conduits at design location and minimum separation from rebar as specified | ☒ | ☐ | ☑ |
| 13.0 | No contact of bars is made with dissimilar metals as per CSA A23.1 | ☑ | ☐ | ☐ |
| 14.0 | Bars, nails or tie wire not sticking out from surfaces that allow rusting/corrosion | ☑ | ☐ | ☐ |
| 15.0 | Rebar is welds inspected by qualified inspectors certified to CSA W178.2 | ☐ | ☐ | ☑ |
| 16.0 | No rebar congestion or other obstruction for deposit of concrete | ☑ | ☐ | ☐ |
| 17.0 | Adjustments required for interfering items (piping, inserts, sleeves, etc.) have been submitted and approved by owner. | ☐ | ☐ | ☑ |
| 18.0 | Rebar was stored off ground to prevent damage/corrosion | / | | |
| 19.0 | Review drawings for anchors, piping, sleeves, boxes | ☑ | ☐ | ☐ |

COMMENTS:

ATTACHMENT(S):

DEFICIENCIES NOTES:

INITIAL INSPECTION

INSPECTOR: _____ TITLE _____ DATE: _____

RE-INSPECTION (DEFICIENCIES COMPLETED)

SPECTOR: DHeny Comerford TITLE FIELD ENGINEER DATE: Aug 6, 2018

CLARK BUILDERS
ENERGY & RESOURCES

CB-INSPECTION FORM-DOC-002 REV.00
JDS ENERGY & MINING INC. | STRATAGOLD EAGLE GOLD
PROJECT #: CB201 | 18502

PROJECT MANAGER: DUSTIN DOLYNCHUK, P.ENG
QA/QC COORDINATOR: RYAN DE MILLIANO, C.E.T.
SUPERINTENDENT: GARRY DAHL

# EXCAVATION AND BACKFILL PRE POUR | QA INSPECTION

Rev 00 May 4, 2018

| | |
|---|---|
| SUBCONTRACTOR: CLARK BUILDERS | INSPECTION DATE: Aug 7. 2018 |
| SUBCONTRACTOR CONTACT PERSON: | ACTION BY: |
| INSPECTOR(S): | |
| LOCATION: ADR STRATA GOLD GRADEBEAM A-5-B12, FOUNDATION E2-E3 | |
| DRAWING REV: Ø | DRAWING NO.(S): 260-0002 / SPEC SECTION(S): |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Subsoil investigation report has been reviewed | ☑ | ☐ | ☐ |
| 2.0 | Survey complete, stakes and monuments located | ☑ | ☐ | ☐ |
| 3.0 | Procedures in place for hazardous materials? | ☐ | ☐ | ☑ |
| 4.0 | Required Ground Disturbance permits reviewed and approved | ☐ | ☐ | ☑ |
| 5.0 | Utilities and other underground potential interferences to remain are located, stakes and protected? | ☐ | ☐ | ☑ |
| 6.0 | Utilities companies notified | ☐ | ☐ | ☑ |
| .0 | Drawings are approved and stamped prior to work begins | ☑ | ☐ | ☐ |
| 8.0 | Drainage has been planned and is being provided continuously | ☐ | ☐ | ☑ |
| 9.0 | Need for well points has been checked | ☐ | ☐ | ☑ |
| 10.0 | Testing, inspection and compaction requirements have been reviewed | ☑ | ☐ | ☐ |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 11.0 | Backfill materials have been tested and approved to use | ☑ | ☐ | ☐ |
| 12.0 | Clarify compaction requirements by material, use, lift thickness, frequency, etc. | ☑ | ☐ | ☐ |
| 13.0 | Need of slope design for trenching or excavation has been reviewed | ☐ | ☐ | ☑ |
| 14.0 | Blast/fractured rock requirements have been reviewed | ☑ | ☐ | ☐ |
| 15.0 | Project specific quality requirements | ☑ | ☐ | ☐ |
| 16.0 | If needed, are barricades, stop logs, properly placed? | ☑ | ☐ | ☐ |
| | | ☐ | ☑ | ☐ |
| | | ☐ | ☐ | ☐ |
| | | ☐ | ☐ | ☐ |
| | | ☐ | ☐ | ☐ |

COMMENTS:

ATTACHMENT(S):

DEFICIENCIES NOTES:

INITIAL INSPECTION

INSPECTOR: _____ TITLE _____ DATE: _____

RE-INSPECTION (DEFICIENCIES COMPLETED)

INSPECTOR: D'Arcy Constantino TITLE Field Engineer DATE: Aug 8. 2018

CLARK BUILDERS
ENERGY & RESOURCES



PROJECT MANAGER: DUSTIN DOLYNCHUK, P.ENG
QA/QC COORDINATOR: RYAN DE MILLIANO, C.E.T.
SUPERINTENDENT: GARRY DAHL

# CONCRETE PRE POUR | FIELD INSPECTION

Rev 00 May 4, 2018

| | |
|---|---|
| SUBCONTRACTOR: CLARK BUILDERS. | INSPECTION DATE: Aug 7. 2018 |
| SUBCONTRACTOR CONTACT PERSON: | DATE OF POUR: Aug 8-2018 |
| INSPECTOR(S): | |
| LOCATION: ADR, STRATAGOLD, GRADEBEAM A-5-B-12, FOUNDATION E-2, E3 | |
| DRAWING REV: 0 / DRAWING NO.(S): 260-0002 | SPEC SECTION(S): |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Location, survey, dimension and grades as required | ☑ | ☐ | ☐ |
| 2.0 | Plumbness and Flatness verified | ☑ | ☐ | ☐ |
| 3.0 | Joints are aligned and watertight. | ☑ | ☐ | ☐ |
| 4.0 | Formwork shop drawings are Engineered and reviewed | ☑ | ☐ | ☐ |
| 5.0 | Re-used formwork reconditioned and treated | ☑ | ☐ | ☐ |
| 6.0 | Formwork and ties according to finishing requirements. Confirm no holes in the concrete surface are greater than 25mm in diameter or expose steel at less than 25mm from surface. As per spec. | ☑ | ☐ | ☐ |
| 7.0 | Installation of embeds are located and secured | ☑ | ☐ | ☐ |
| 8.0 | Chamfer requirements checked. 25mm chamfers required for all exterior corners and edges exposed to view including horizontal edges of pads. | ☑ | ☐ | ☐ |
| 9.0 | Key ways and/or other provisions according to design are provided in construction joints | ☑ | ☐ | ☐ |
| 10.0 | Inspect types of form spacers, ties and bracing. | ☑ | ☐ | ☐ |
| 11.0 | Spacing of ties to be set to a pattern | ☑ | ☐ | ☐ |
| 12.0 | Expansion, construction, contraction joints as required & located as coordinated with structural Engineer | ☑ | ☐ | ☐ |
| 13.0 | Forms secured against movement during placing | ☑ | ☐ | ☐ |
| 14.0 | Forms are braced for alignment and blow out | ☑ | ☐ | ☐ |
| 15.0 | Forms are cleaned of all debris, and dry, prior to concrete placement including standing water. | ☑ | ☐ | ☐ |
| 16.0 | Openings in formwork permit inspection and cleaning, placing and compaction of concrete, and forming and processing of construction joints. | ☑ | ☐ | ☐ |
| 17.0 | Formwork has been coated with release agent prior to rebar placement. | ☑ | ☐ | ☐ |
| | | ☐ | ☐ | ☐ |

COMMENTS:

ATTACHMENT(S):

DEFICIENCIES NOTES:

POUR METHOD:

INITIAL INSPECTION

INSPECTOR: _____ TITLE _____ DATE: _____

RE-INSPECTION (DEFICIENCIES COMPLETED)

INSPECTOR: D'Arcy Lonergan TITLE Field Engineer DATE: Aug 6. 2018.

CLARK BUILDERS
ENERGY & RESOURCES

# FORMWORK & FALSEWORK PRE POUR | QA INSPECTION

Rev 00 May 4, 2018

| | |
|---|---|
| SUBCONTRACTOR: CLARK BUILDERS | INSPECTION DATE: Aug 7. 2018 |
| SUBCONTRACTOR CONTACT PERSON: | DATE OF POUR: |
| INSPECTOR(S): | |
| LOCATION: ADR STRATA GOLD GRADEBEAM A-5-B-12, FOUNDATION E2-E3 | |
| DRAWING REV: Ø | DRAWING NO.(S): / SPEC SECTION(S): |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Location, survey, dimension and grades as required | ☑ | ☐ | ☐ |
| 2.0 | Plumbness and Flatness verified | ☑ | ☐ | ☐ |
| 3.0 | Joints are aligned and watertight. | ☑ | ☐ | ☐ |
| 4.0 | Formwork shop drawings are Engineered and reviewed | ☑ | ☐ | ☐ |
| 5.0 | Re-used formwork reconditioned and treated | ☑ | ☐ | ☐ |
| 6.0 | Formwork and ties according to finishing requirements. Confirm no holes in the concrete surface are greater than 25mm in diameter or expose steel at less than 25mm from surface. As per spec. | ☑ | ☐ | ☐ |
| 7.0 | Installation of embeds are located and secured | ☑ | ☐ | ☒ |
| 8.0 | Chamfer requirements checked. 25mm chamfers required for all exterior corners and edges exposed to view including horizontal edges of pads. | ☐ | ☐ | ☐ |
| 9.0 | Key ways and/or other provisions according to design are provided in construction joints | ☑ | ☐ | ☐ |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 10.0 | Inspect types of form spacers, ties and bracing. | ☑ | ☐ | ☐ |
| 11.0 | Spacing of ties to be set to a pattern | ☑ | ☐ | ☐ |
| 12.0 | Expansion, construction, contraction joints as required & located as coordinated with structural Engineer | ☒ | ☐ | ☑ |
| 13.0 | Forms secured against movement during placing | ☑ | ☐ | ☐ |
| 14.0 | Forms are braced for alignment and blow out | ☑ | ☐ | ☐ |
| 15.0 | Forms are cleaned of all debris, and dry, prior to concrete placement including standing water. | ☑ | ☐ | ☐ |
| 16.0 | Openings in formwork permit inspection and cleaning, placing and compaction of concrete, and forming and processing of construction joints. | ☑ | ☐ | ☐ |
| 17.0 | Formwork has been coated with release agent prior to rebar placement. | ☑ | ☐ | ☐ |
| | | ☐ | ☐ | ☐ |

COMMENTS: ATTACHMENT(S):

DEFICIENCIES NOTES:

INITIAL INSPECTION

INSPECTOR: _____ TITLE _____ DATE: _____

RE-INSPECTION (DEFICIENCIES COMPLETED)

INSPECTOR: D'Arcy Comeau TITLE Field Engineer DATE: Aug 6 2018.

CLARK BUILDERS
ENERGY & RESOURCES



PROJECT MANAGER: DUSTIN DOLYNCHUK, P.ENG
QA/QC COORDINATOR: RYAN DE MILLIANO, C.E.T.
SUPERINTENDENT: GARRY DAHL

# CONCRETE REINFORCEMENT PRE POUR

Rev 00 May 4, 2018

| | |
|---|---|
| SUBCONTRACTOR: CLARK BUILDERS | INSPECTION DATE: Aug 08, 2018 |
| SUBCONTRACTOR CONTACT PERSON: | ACTION BY: |
| INSPECTOR(S): | |
| LOCATION: ADR STRATA GOLD FTG 1 2 3 LINE 4, FTG 11 A.5 L2 B3 LINE 9 | |
| DRAWING REV: Ø | DRAWING NO.(S): 260-0007, 260-0023 SPEC SECTION(S): |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Grade (400W unless otherwise noted) and type of steel delivered and installed as required by approved drawings. | ☑ | ☐ | ☐ |
| 2.0 | Inspect rebar distribution, spacing and cover per design/project requirements. | ☑ | ☐ | ☐ |
| 3.0 | Length of splices as specified | ☑ | ☐ | ☐ |
| 4.0 | Staggered splices as specified | ☑ | ☐ | ☐ |
| 5.0 | Any mechanical splices have been approved by the owner prior to install | ☐ | ☐ | ☑ |
| 6.0 | Bars cleaned and free of material that may reduce bond including loose rust, scale, oil, structural defects and that they are uncoated and unpainted. | ☑ | ☐ | ☐ |
| 7.0 | Dowels at wall ends, construction joints, and openings as specified (length, location, size, etc.) | ☑ | ☐ | ☐ |
| 8.0 | No unauthorized field bent bars including hooks installed | ☑ | ☐ | ☒ |
| | Resolve conflicts between embedded items and reinforcement | / | | |
| 9.0 | When authorized, field bends done without heat and inspected for fissures or cracks. | ☐ | ☐ | ☑ |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 10.0 | Bars tied and supported to prevent displacement | ☑ | ☐ | ☐ |
| 11.0 | Spacers, tie wire and chairs as required | ☑ | ☐ | ☐ |
| 12.0 | Conduits at design location and minimum separation from rebar as specified | ☒ | ☐ | ☑ |
| 13.0 | No contact of bars is made with dissimilar metals as per CSA A23.1 | ☑ | ☐ | ☐ |
| 14.0 | Bars, nails or tie wire not sticking out from surfaces that allow rusting/corrosion | ☑ | ☐ | ☐ |
| 15.0 | Rebar is welds inspected by qualified inspectors certified to CSA W178.2 | ☐ | ☐ | ☑ |
| 16.0 | No rebar congestion or other obstruction for deposit of concrete | ☑ | ☐ | ☐ |
| 17.0 | Adjustments required for interfering items (piping, inserts, sleeves, etc.) have been submitted and approved by owner. | ☐ | ☐ | ☑ |
| 18.0 | Rebar was stored off ground to prevent damage/corrosion | | | |
| 19.0 | Review drawings for anchors, piping, sleeves, boxes | ☑ | ☐ | ☐ |

COMMENTS:

| | ATTACHMENT(S): |
|---|---|
| | |
| | |
| | |

DEFICIENCIES NOTES:

Missing chairs, ensure min cover is maintained
Ensure water is removed prior to concrete placement.

INITIAL INSPECTION

INSPECTOR: Matt Caverdale YMC TITLE Field Eng EPCM DATE: Aug 8, 2018

RE-INSPECTION (DEFICIENCIES COMPLETED)

SPECTOR: James Archibald TITLE Foreman DATE: Aug 8. 2018

CB-INSPECTION FORM-DOC-002 REV.00
JDS ENERGY & MINING INC. | STRATAGOLD EAGLE GOLD
PROJECT #: CB201 | 18502

CLARK BUILDERS
ENERGY & RESOURCES

PROJECT MANAGER: DUSTIN DOLYNCHUK, P.ENG
QA/QC COORDINATOR: RYAN DE MILLIANO, C.E.T.
SUPERINTENDENT: GARRY DAHL

# FORMWORK & FALSEWORK PRE POUR | QA INSPECTION

Rev 00 May 4, 2018

| | |
|---|---|
| SUBCONTRACTOR: CLARKBUILDERS | INSPECTION DATE: Aug 08. 2018 |
| SUBCONTRACTOR CONTACT PERSON: | DATE OF POUR: |
| INSPECTOR(S): | |
| LOCATION: ADR STRATA GOLD FT612x3 LINE 4, FTG U A.5 x L2 | 3 & 9 |
| DRAWING REV: Ø DRAWING NO.(S): 260-0007, 260 0023 | SPEC SECTION(S): |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Location, survey, dimension and grades as required | ☑ | ☐ | ☐ |
| 2.0 | Plumbness and Flatness verified | ☑ | ☐ | ☐ |
| 3.0 | Joints are aligned and watertight. | ☑ | ☐ | ☐ |
| 4.0 | Formwork shop drawings are Engineered and reviewed | ☑ | ☐ | ☐ |
| 5.0 | Re-used formwork reconditioned and treated | ☑ | ☐ | ☐ |
| 6.0 | Formwork and ties according to finishing requirements. Confirm no holes in the concrete surface are greater than 25mm in diameter or expose steel at less than 25mm from surface. As per spec. | ☑ | ☐ | ☐ |
| 7.0 | Installation of embeds are located and secured | ☐ | ☐ | ☑ |
| 8.0 | Chamfer requirements checked. 25mm chamfers required for all exterior corners and edges exposed to view including horizontal edges of pads. | ☑ | ☐ | ☐ |
| 9.0 | Key ways and/or other provisions according to design are provided in construction joints | ☐ | ☐ | ☑ |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 10.0 | Inspect types of form spacers, ties and bracing. | ☑ | ☐ | ☐ |
| 11.0 | Spacing of ties to be set to a pattern | ☑ | ☐ | ☐ |
| 12.0 | Expansion, construction, contraction joints as required & located as coordinated with structural Engineer | ☐ | ☐ | ☑ |
| 13.0 | Forms secured against movement during placing | ☑ | ☐ | ☐ |
| 14.0 | Forms are braced for alignment and blow out | ☑ | ☐ | ☐ |
| 15.0 | Forms are cleaned of all debris, and dry, prior to concrete placement including standing water. | ☑ | ☐ | ☐ |
| 16.0 | Openings in formwork permit inspection and cleaning, placing and compaction of concrete, and forming and processing of construction joints. | ☑ | ☐ | ☐ |
| 17.0 | Formwork has been coated with release agent prior to rebar placement. | ☑ | ☐ | ☐ |
| | | ☐ | ☐ | ☐ |

COMMENTS:

ATTACHMENT(S):

DEFICIENCIES NOTES:

INITIAL INSPECTION

INSPECTOR: Matt Coverdale MC TITLE Field Eng EPCM DATE: Aug 08, 2018

RE-INSPECTION (DEFICIENCIES COMPLETED)

INSPECTOR: James Meadahl TITLE FOREMAN DATE: Aug 8. 2018

CLARK BUILDERS
ENERGY & RESOURCES



PROJECT MANAGER: DUSTIN DOLYNCHUK, P.ENG
QA/QC COORDINATOR: RYAN DE MILLIANO, C.E.T.
SUPERINTENDENT: GARRY DAHL

# CONCRETE PRE POUR | FIELD INSPECTION

Rev 00 May 4, 2018

| | |
|---|---|
| SUBCONTRACTOR: CLARK BUILDERS | INSPECTION DATE: Aug 08. 2018 |
| SUBCONTRACTOR CONTACT PERSON: | DATE OF POUR: |
| INSPECTOR(S): | |
| LOCATION: ADR STRATA GOLD FTG 12x3 LINE 4 FTG 11 A.5 x L2. B:9 | |
| DRAWING REV: Ø DRAWING NO.(S): | SPEC SECTION(S): |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Location, survey, dimension and grades as required | ☑ | ☐ | ☐ |
| 2.0 | Plumbness and Flatness verified | ☑ | ☐ | ☐ |
| 3.0 | Joints are aligned and watertight. | ☑ | ☐ | ☐ |
| 4.0 | Formwork shop drawings are Engineered and reviewed | ☑ | ☐ | ☐ |
| 5.0 | Re-used formwork reconditioned and treated | ☑ | ☐ | ☐ |
| 6.0 | Formwork and ties according to finishing requirements. Confirm no holes in the concrete surface are greater than 25mm in diameter or expose steel at less than 25mm from surface. As per spec. | ☑ | ☐ | ☐ |
| 7.0 | Installation of embeds are located and secured | ☐ | ☐ | ☑ |
| 8.0 | Chamfer requirements checked. 25mm chamfers required for all exterior corners and edges exposed to view including horizontal edges of pads. | ☑ | ☐ | ☐ |
| 9.0 | Key ways and/or other provisions according to design are provided in construction joints | ☐ | ☐ | ☑ |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 10.0 | Inspect types of form spacers, ties and bracing. | ☑ | ☐ | ☐ |
| 11.0 | Spacing of ties to be set to a pattern | ☑ | ☐ | ☐ |
| 12.0 | Expansion, construction, contraction joints as required & located as coordinated with structural Engineer | ☑ | ☐ | ☐ |
| 13.0 | Forms secured against movement during placing | ☑ | ☐ | ☐ |
| 14.0 | Forms are braced for alignment and blow out | ☑ | ☐ | ☐ |
| 15.0 | Forms are cleaned of all debris, and dry, prior to concrete placement including standing water. | ☑ | ☐ | ☐ |
| 16.0 | Openings in formwork permit inspection and cleaning, placing and compaction of concrete, and forming and processing of construction joints. | ☑ | ☐ | ☐ |
| 17.0 | Formwork has been coated with release agent prior to rebar placement. | ☑ | ☐ | ☐ |
| | | ☐ | ☐ | ☐ |

COMMENTS:

ATTACHMENT(S):

DEFICIENCIES NOTES:

POUR METHOD:

INITIAL INSPECTION

INSPECTOR: Matt Cavanagh YME TITLE Field Eng DATE: Aug 08, 2018

RE-INSPECTION (DEFICIENCIES COMPLETED)

INSPECTOR: James Macdonald TITLE FOREman DATE: Aug 8 - 2018

CLARK BUILDERS
ENERGY & RESOURCES

# CONCRETE REINFORCEMENT PRE POUR

Rev 00 May 4, 2018

| | |
|---|---|
| SUBCONTRACTOR: CLARK BUILDERS | INSPECTION DATE: Aug 8, 2018 |
| SUBCONTRACTOR CONTACT PERSON: | ACTION BY: |
| INSPECTOR(S): | |
| LOCATION: ADR STRATA GOLD FOOTING Isha 10-B & Footings line 4-C to D | |
| DRAWING REV: 1 / DRAWING NO.(S): 260-0011 | SPEC SECTION(S): |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Grade (400W unless otherwise noted) and type of steel delivered and installed as required by approved drawings. | ☑ | ☐ | ☐ |
| 2.0 | Inspect rebar distribution, spacing and cover per design/project requirements. | ☑ | ☐ | ☐ |
| 3.0 | Length of splices as specified | ☑ | ☐ | ☐ |
| 4.0 | Staggered splices as specified | ☑ | ☐ | ☐ |
| 5.0 | Any mechanical splices have been approved by the owner prior to install | ☐ | ☐ | ☑ |
| 6.0 | Bars cleaned and free of material that may reduce bond including loose rust, scale, oil, structural defects and that they are uncoated and unpainted. | ☑ | ☐ | ☐ |
| 7.0 | Dowels at wall ends, construction joints, and openings as specified (length, location, size, etc.) | ☑ | ☐ | ☐ |
| 8.0 | No unauthorized field bent bars including hooks installed | ☑ | ☐ | ☐ |
| | Resolve conflicts between embedded items and reinforcement | / | | |
| 9.0 | When authorized, field bends done without heat and inspected for fissures or cracks | ☐ | ☐ | ☑ |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 10.0 | Bars tied and supported to prevent displacement | ☑ | ☐ | ☐ |
| 11.0 | Spacers, tie wire and chairs as required | ☑ | ☐ | ☐ |
| 12.0 | Conduits at design location and minimum separation from rebar as specified | ☐ | ☐ | ☑ |
| 13.0 | No contact of bars is made with dissimilar metals as per CSA A23.1 | ☑ | ☐ | ☐ |
| 14.0 | Bars, nails or tie wire not sticking out from surfaces that allow rusting/corrosion | ☑ | ☐ | ☐ |
| 15.0 | Rebar is welds inspected by qualified inspectors certified to CSA W178.2 | ☐ | ☐ | ☑ |
| 16.0 | No rebar congestion or other obstruction for deposit of concrete | ☑ | ☐ | ☐ |
| 17.0 | Adjustments required for interfering items (piping, inserts, sleeves, etc.) have been submitted and approved by owner. | ☐ | ☐ | ☑ |
| 18.0 | Rebar was stored off ground to prevent damage/corrosion | / | | |
| 19.0 | Review drawings for anchors, piping, sleeves, boxes | ☑ | ☐ | ☐ |

COMMENTS:

Ensure cover is maintained all sides

ATTACHMENT(S):

CLARK BUILDERS QA/QC REVIEWED DATE: Sept 10/18 NAME: Ryan DeMiljano SIGNATURE

DEFICIENCIES NOTES:

INITIAL INSPECTION

INSPECTOR: Ishan Fechter TITLE: Superintendent DATE: Aug. 11, 2018

RE-INSPECTION (DEFICIENCIES COMPLETED)

INSPECTOR: _____ TITLE: _____ DATE: _____

CLARK BUILDERS
ENERGY & RESOURCES



# CONCRETE PRE POUR | FIELD INSPECTION

Rev 03 May 4, 2018

| | |
|---|---|
| SUBCONTRACTOR: ClarkBuilders | INSPECTION DATE: Aug 8. 2018 |
| SUBCONTRACTOR CONTACT PERSON: | DATE OF POUR: |
| INSPECTOR(S): | |
| LOCATION: ADR Strata Gold, Footing 6 10, 3x Footings on GL 4 | |
| DRAWING REV: 1 / DRAWING NO.(S): 260-0011 | SPEC SECTION(S): |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Location, survey, dimension and grades as required | ☑ | ☐ | ☐ |
| 2.0 | Plumbness and Flatness verified | ☑ | ☐ | ☐ |
| 3.0 | Joints are aligned and watertight. | ☑ | ☐ | ☐ |
| 4.0 | Formwork shop drawings are Engineered and reviewed | ☑ | ☐ | ☐ |
| 5.0 | Re-used formwork reconditioned and treated | ☑ | ☐ | ☐ |
| 6.0 | Formwork and ties according to finishing requirements. Confirm no holes in the concrete surface are greater than 25mm in diameter or expose steel at less than 25mm from surface. As per spec. | ☑ | ☐ | ☐ |
| 7.0 | Installation of embeds are located and secured | ☐ | ☐ | ☑ |
| 8.0 | Chamfer requirements checked. 25mm chamfers required for all exterior corners and edges exposed to view including horizontal edges of pads. | ☐ | ☐ | ☑ |
| 9.0 | Key ways and/or other provisions according to design are provided in construction joints | ☐ | ☐ | ☑ |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 10.0 | Inspect types of form spacers, ties and bracing. | ☑ | ☐ | ☐ |
| 11.0 | Spacing of ties to be set to a pattern | ☐ | ☐ | ☑ |
| 12.0 | Expansion, construction, contraction joints as required & located as coordinated with structural Engineer | ☐ | ☐ | ☑ |
| 13.0 | Forms secured against movement during placing | ☑ | ☐ | ☐ |
| 14.0 | Forms are braced for alignment and blow out | ☑ | ☐ | ☐ |
| 15.0 | Forms are cleaned of all debris, and dry, prior to concrete placement including standing water. | ☑ | ☐ | ☐ |
| 16.0 | Openings in formwork permit inspection and cleaning, placing and compaction of concrete, and forming and processing of construction joints. | ☑ | ☐ | ☐ |
| 17.0 | Formwork has been coated with release agent prior to rebar placement. | ☑ | ☐ | ☐ |
| | | ☐ | ☐ | ☐ |

COMMENTS:

ATTACHMENT(S):

DEFICIENCIES NOTES:

POUR METHOD:

INITIAL INSPECTION

INSPECTOR: Ishan Fechter TITLE Superintendent DATE: Aug. 11, 2018

RE-INSPECTION (DEFICIENCIES COMPLETED)

SPECTOR: _____ TITLE _____ DATE: _____

CLARK BUILDERS
ENERGY & RESOURCES

PROJECT MANAGER: DUSTIN DOLYNCHUK, P.ENG
QA/QC COORDINATOR: RYAN DE MILLIANO, C.E.T.
SUPERINTENDENT: GARRY DAHL

# EXCAVATION AND BACKFILL PRE POUR | QA INSPECTION

Rev 00 May 4, 2018

| | |
|---|---|
| SUBCONTRACTOR: CLARK BUILDERS | INSPECTION DATE: Aug 8. 2018 |
| SUBCONTRACTOR CONTACT PERSON: | ACTION BY: |
| INSPECTOR(S): | |
| LOCATION: ADR FOOTING 10, 3x FOOTINGS ON GL 4 | |
| DRAWING REV: 1 | DRAWING NO.(S): 260-0011 / SPEC SECTION(S): |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Subsoil investigation report has been reviewed | ☑ | ☐ | ☐ |
| 2.0 | Survey complete, stakes and monuments located | ☑ | ☐ | ☐ |
| 3.0 | Procedures in place for hazardous materials? | ☐ | ☐ | ☑ |
| 4.0 | Required Ground Disturbance permits reviewed and approved | ☐ | ☐ | ☑ |
| 5.0 | Utilities and other underground potential interferences to remain are located, stakes and protected? | ☐ | ☐ | ☑ |
| 6.0 | Utilities companies notified | ☐ | ☐ | ☑ |
| .0 | Drawings are approved and stamped prior to work begins | ☑ | ☐ | ☐ |
| 8.0 | Drainage has been planned and is being provided continuously | ☐ | ☐ | ☑ |
| 9.0 | Need for well points has been checked | ☐ | ☐ | ☑ |
| 10.0 | Testing, inspection and compaction requirements have been reviewed | ☑ | ☐ | ☐ |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 11.0 | Backfill materials have been tested and approved to use | ☑ | ☐ | ☐ |
| 12.0 | Clarify compaction requirements by material, use, lift thickness, frequency, etc. | ☑ | ☐ | ☐ |
| 13.0 | Need of slope design for trenching or excavation has been reviewed | ☐ | ☐ | ☑ |
| 14.0 | Blast/fractured rock requirements have been reviewed | ☐ | ☐ | ☑ |
| 15.0 | Project specific quality requirements | ☑ | ☐ | ☐ |
| 16.0 | If needed, are barricades, stop logs, properly placed? | ☐ | ☐ | ☑ |
| | | ☐ | ☐ | ☐ |
| | | ☐ | ☐ | ☐ |
| | | ☐ | ☐ | ☐ |
| | | ☐ | ☐ | ☐ |

COMMENTS:

ATTACHMENT(S):

DEFICIENCIES NOTES:

INITIAL INSPECTION

INSPECTOR: _____ TITLE _____ DATE: _____

RE-INSPECTION (DEFICIENCIES COMPLETED)

INSPECTOR: _____ TITLE _____ DATE: _____

CLARK BUILDERS
ENERGY & RESOURCES



PROJECT MANAGER: DUSTIN DOLYNCHUK, P.ENG
QA/QC COORDINATOR: RYAN DE MILLIANO, C.E.T.
SUPERINTENDENT: GARRY DAHL

# FORMWORK & FALSEWORK PRE POUR | QA INSPECTION

Rev 00 May 4, 2018

| | |
|---|---|
| SUBCONTRACTOR: CLARK Builders | INSPECTION DATE: Aug 8. 2018 |
| SUBCONTRACTOR CONTACT PERSON: | DATE OF POUR: |
| INSPECTOR(S): | |
| LOCATION: ADR STRATA GOLD FOOTING 10 | |
| DRAWING REV: 1 / DRAWING NO.(S): 260-011 | SPEC SECTION(S): |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Location, survey, dimension and grades as required | ☑ | ☐ | ☐ |
| 2.0 | Plumbness and Flatness verified | ☑ | ☐ | ☐ |
| 3.0 | Joints are aligned and watertight. | ☑ | ☐ | ☐ |
| 4.0 | Formwork shop drawings are Engineered and reviewed | ☑ | ☐ | ☐ |
| 5.0 | Re-used formwork reconditioned and treated | ☑ | ☐ | ☐ |
| 6.0 | Formwork and ties according to finishing requirements. Confirm no holes in the concrete surface are greater than 25mm in diameter or expose steel at less than 25mm from surface. As per spec. | ☑ | ☐ | ☐ |
| 7.0 | Installation of embeds are located and secured | ☒ | ☐ | ☑ |
| 8.0 | Chamfer requirements checked. 25mm chamfers required for all exterior corners and edges exposed to view including horizontal edges of pads. | ☑ | ☐ | ☐ |
| 9.0 | Key ways and/or other provisions according to design are provided in construction joints | ☐ | ☐ | ☑ |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 10.0 | Inspect types of form spacers, ties and bracing. | ☑ | ☐ | ☐ |
| 11.0 | Spacing of ties to be set to a pattern | ☑ | ☐ | ☐ |
| 12.0 | Expansion, construction, contraction joints as required & located as coordinated with structural Engineer | ☐ | ☐ | ☑ |
| 13.0 | Forms secured against movement during placing | ☑ | ☐ | ☐ |
| 14.0 | Forms are braced for alignment and blow out | ☑ | ☐ | ☐ |
| 15.0 | Forms are cleaned of all debris, and dry, prior to concrete placement including standing water. | ☑ | ☐ | ☐ |
| 16.0 | Openings in formwork permit inspection and cleaning, placing and compaction of concrete, and forming and processing of construction joints. | ☑ | ☐ | ☐ |
| 17.0 | Formwork has been coated with release agent prior to rebar placement. | ☑ | ☐ | ☐ |
| | | ☐ | ☐ | ☐ |

COMMENTS:

ATTACHMENT(S):

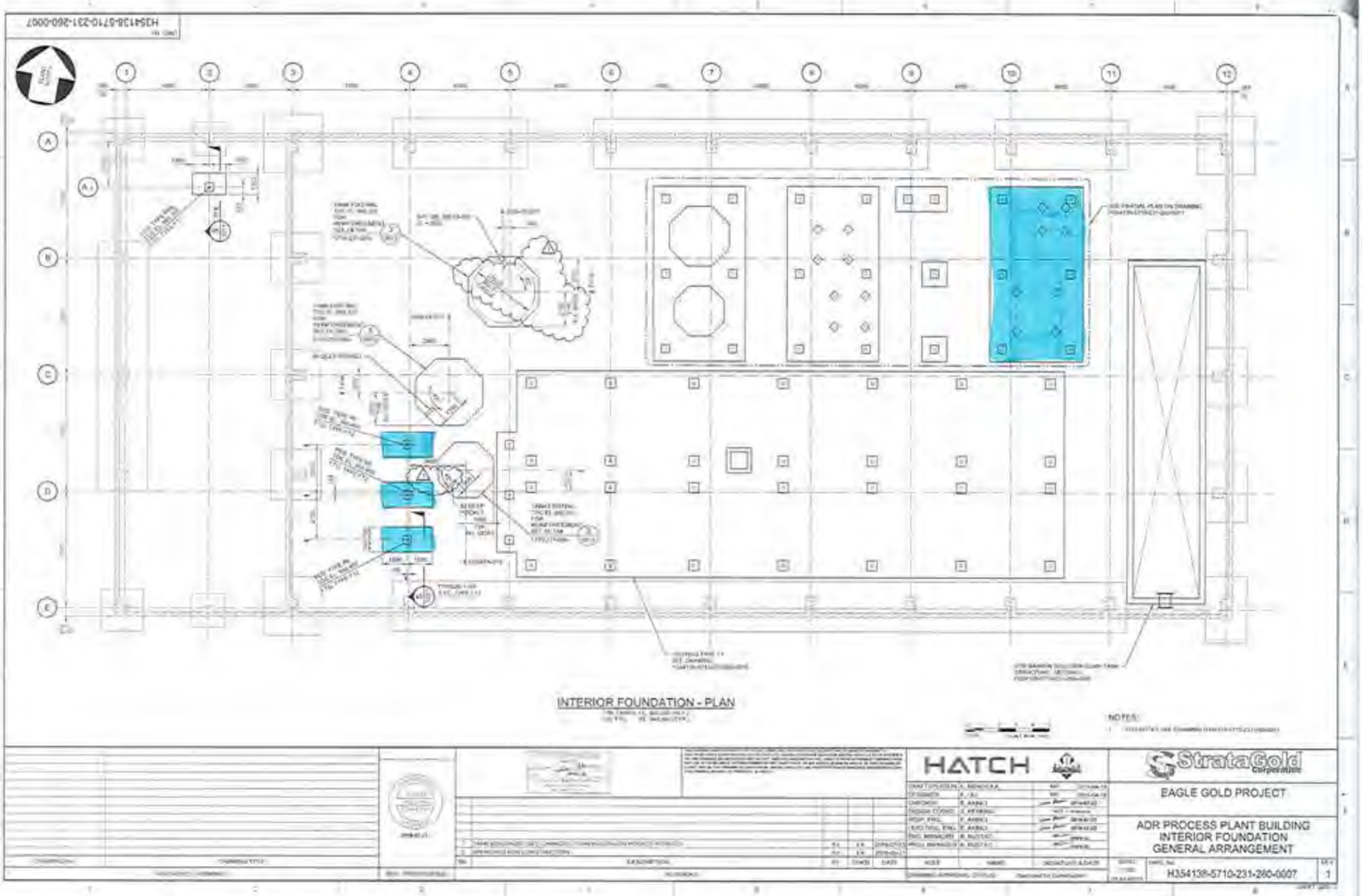
DEFICIENCIES NOTES:

INITIAL INSPECTION

INSPECTOR: Ishan Fechter TITLE Superintendent DATE: Aug. 11, 2018

RE-INSPECTION (DEFICIENCIES COMPLETED)

SPECTOR: _____ TITLE _____ DATE: _____


INTERIOR FOUNDATION - PLAN
NOTES:
HATCH
StrataGold corporation
EAGLE GOLD PROJECT
ADR PROCESS PLANT BUILDING
INTERIOR FOUNDATION
GENERAL ARRANGEMENT
H354138-5710-231-260-0007
1

CLARK BUILDERS
ENERGY & RESOURCES



PROJECT MANAGER: DUSTIN DOLYNCHUK, P.ENG
QA/QC COORDINATOR: RYAN DE MILLIANO, C.E.T.
SUPERINTENDENT: GARRY DAHL

# CONCRETE REINFORCEMENT PRE POUR

Rev 00 May 4, 2018

| | |
|---|---|
| SUBCONTRACTOR: CLARK BUILDERS. | INSPECTION DATE: Aug 7, 2018 |
| SUBCONTRACTOR CONTACT PERSON: | ACTION BY: |
| INSPECTOR(S): | |
| LOCATION: ADR STRATAGOLD GRADE BEAM A-5 - B 12, Foundation E2 - E3. | |
| DRAWING REV: Ø | DRAWING NO.(S): 260-0002 / SPEC SECTION(S): |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Grade (400W unless otherwise noted) and type of steel delivered and installed as required by approved drawings. | ☑ | ☐ | ☐ |
| 2.0 | Inspect rebar distribution, spacing and cover per design/project requirements. | ☑ | ☐ | ☐ |
| 3.0 | Length of splices as specified | ☑ | ☐ | ☐ |
| 4.0 | Staggered splices as specified | ☑ | ☐ | ☐ |
| 5.0 | Any mechanical splices have been approved by the owner prior to install | ☐ | ☐ | ☑ |
| 6.0 | Bars cleaned and free of material that may reduce bond including loose rust, scale, oil, structural defects and that they are uncoated and unpainted. | ☑ | ☐ | ☐ |
| 7.0 | Dowels at wall ends, construction joints, and openings as specified (length, location, size, etc.) | ☑ | ☐ | ☐ |
| 8.0 | No unauthorized field bent bars including hooks installed | ☑ | ☐ | ☐ |
| | Resolve conflicts between embedded items and reinforcement | / | | |
| 9.0 | When authorized, field bends done without heat and inspected for fissures or cracks. | ☐ | ☐ | ☑ |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 10.0 | Bars tied and supported to prevent displacement | ☑ | ☐ | ☐ |
| 11.0 | Spacers, tie wire and chairs as required | ☑ | ☐ | ☐ |
| 12.0 | Conduits at design location and minimum separation from rebar as specified | ☒ | ☐ | ☑ |
| 13.0 | No contact of bars is made with dissimilar metals as per CSA A23.1 | ☑ | ☐ | ☐ |
| 14.0 | Bars, nails or tie wire not sticking out from surfaces that allow rusting/corrosion | ☑ | ☐ | ☐ |
| 15.0 | Rebar is welds inspected by qualified inspectors certified to CSA W178.2 | ☐ | ☐ | ☑ |
| 16.0 | No rebar congestion or other obstruction for deposit of concrete | ☑ | ☐ | ☐ |
| 17.0 | Adjustments required for interfering items (piping, inserts, sleeves, etc.) have been submitted and approved by owner. | ☐ | ☐ | ☑ |
| 18.0 | Rebar was stored off ground to prevent damage/corrosion | / | | |
| 19.0 | Review drawings for anchors, piping, sleeves, boxes | ☑ | ☐ | ☐ |

COMMENTS:

ATTACHMENT(S):

DEFICIENCIES NOTES:

INITIAL INSPECTION

INSPECTOR: _____ TITLE _____ DATE: _____

RE-INSPECTION (DEFICIENCIES COMPLETED)

SPECTOR: DHenry Comerford TITLE Field Engineer DATE: Aug 6, 2018

CLARK BUILDERS
ENERGY & RESOURCES

# CONCRETE REINFORCEMENT PRE POUR

Rev 00 May 4, 2018

| | |
|---|---|
| SUBCONTRACTOR: CLARK BUILDERS. | INSPECTION DATE: Aug 10. 2018 |
| SUBCONTRACTOR CONTACT PERSON: | ACTION BY: |
| INSPECTOR(S): | |
| LOCATION: ADR STRATA GOLD Octagon FOOTING & LINE B-5, 7-B, 8-B, 4.5 C&D | |
| DRAWING REV: 0 / DRAWING NO.(S): 260-0007, 260-0013 | SPEC SECTION(S): |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Grade (400W unless otherwise noted) and type of steel delivered and installed as required by approved drawings. | ☑ | ☐ | ☐ |
| 2.0 | Inspect rebar distribution, spacing and cover per design/project requirements. | ☑ | ☐ | ☐ |
| 3.0 | Length of splices as specified | ☑ | ☐ | ☐ |
| 4.0 | Staggered splices as specified | ☑ | ☐ | ☐ |
| 5.0 | Any mechanical splices have been approved by the owner prior to install | ☐ | ☐ | ☑ |
| 6.0 | Bars cleaned and free of material that may reduce bond including loose rust, scale, oil, structural defects and that they are uncoated and unpainted. | ☑ | ☐ | ☐ |
| 7.0 | Dowels at wall ends, construction joints, and openings as specified (length, location, size, etc.) | ☑ | ☐ | ☐ |
| 8.0 | No unauthorized field bent bars including hooks installed | ☑ | ☐ | ☒ |
| | Resolve conflicts between embedded items and reinforcement | / | | |
| 9.0 | When authorized, field bends done without heat and inspected for fissures or cracks. | ☐ | ☐ | ☑ |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 10.0 | Bars tied and supported to prevent displacement | ☑ | ☐ | ☐ |
| 11.0 | Spacers, tie wire and chairs as required | ☑ | ☐ | ☐ |
| 12.0 | Conduits at design location and minimum separation from rebar as specified | ☐ | ☐ | ☑ |
| 13.0 | No contact of bars is made with dissimilar metals as per CSA A23.1 | ☑ | ☐ | ☐ |
| 14.0 | Bars, nails or tie wire not sticking out from surfaces that allow rusting/corrosion | ☑ | ☐ | ☐ |
| 15.0 | Rebar is welds inspected by qualified inspectors certified to CSA W178.2 | ☐ | ☐ | ☑ |
| 16.0 | No rebar congestion or other obstruction for deposit of concrete | ☑ | ☐ | ☐ |
| 17.0 | Adjustments required for interfering items (piping, inserts, sleeves, etc.) have been submitted and approved by owner. | ☑ | ☐ | ☐ |
| 18.0 | Rebar was stored off ground to prevent damage/corrosion | / | | |
| 19.0 | Review drawings for anchors, piping, sleeves, boxes | ☑ | ☐ | ☐ |

COMMENTS:

Install additional chairs for F8 + F9 footings on south + north side ensure to maintain design cover

ATTACHMENT(S):

CLARK BUILDERS QA/QC REVIEWED
DATE: Aug 10/18
NAME: Ryan de Milliano
SIGNATURE:

DEFICIENCIES NOTES:

Ensure pocket installed for TK-016
Ensure anchor bolts installed for TK-007
Ensure rebar removed for access is re-installed prior to pour

INITIAL INSPECTION

INSPECTOR: Ishan Fechter TITLE Superintendant DATE: Aug. 11, 2018

RE-INSPECTION (DEFICIENCIES COMPLETED)

INSPECTOR: James Meadahl TITLE FOREMAN DATE: Aug 11, 2018

CLARK BUILDERS
ENERGY & RESOURCES



# FORMWORK & FALSEWORK PRE POUR | QA INSPECTION

Rev 00 May 4, 2018

| | |
|---|---|
| SUBCONTRACTOR: CLARK BUILDER | INSPECTION DATE: Aug 11. 2018 |
| SUBCONTRACTOR CONTACT PERSON: | DATE OF POUR: |
| INSPECTOR(S): | |
| LOCATION: ADR STRATA GOLD Octagon B-5 | |
| DRAWING REV: Ø | DRAWING NO.(S): 260-0007, 260-0013 / SPEC SECTION(S): |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Location, survey, dimension and grades as required | ☑ | ☐ | ☐ |
| 2.0 | Plumbness and Flatness verified | ☑ | ☐ | ☐ |
| 3.0 | Joints are aligned and watertight. | ☑ | ☐ | ☐ |
| 4.0 | Formwork shop drawings are Engineered and reviewed | ☑ | ☐ | ☐ |
| 5.0 | Re-used formwork reconditioned and treated | ☑ | ☐ | ☐ |
| 6.0 | Formwork and ties according to finishing requirements. Confirm no holes in the concrete surface are greater than 25mm in diameter or expose steel at less than 25mm from surface. As per spec. | ☑ | ☐ | ☐ |
| 7.0 | Installation of embeds are located and secured | ☑ | ☐ | ☐ |
| 8.0 | Chamfer requirements checked. 25mm chamfers required for all exterior corners and edges exposed to view including horizontal edges of pads. | ☑ | ☐ | ☐ |
| 9.0 | Key ways and/or other provisions according to design are provided in construction joints | ☐ | ☐ | ☑ |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 10.0 | Inspect types of form spacers, ties and bracing | ☑ | ☐ | ☐ |
| 11.0 | Spacing of ties to be set to a pattern | ☑ | ☐ | ☐ |
| 12.0 | Expansion, construction, contraction joints as required & located as coordinated with structural Engineer | ☐ | ☐ | ☑ |
| 13.0 | Forms secured against movement during placing | ☑ | ☐ | ☐ |
| 14.0 | Forms are braced for alignment and blow out | ☑ | ☐ | ☐ |
| 15.0 | Forms are cleaned of all debris, and dry, prior to concrete placement including standing water. | ☑ | ☐ | ☐ |
| 16.0 | Openings in formwork permit inspection and cleaning, placing and compaction of concrete, and forming and processing of construction joints. | ☑ | ☐ | ☐ |
| 17.0 | Formwork has been coated with release agent prior to rebar placement. | ☑ | ☐ | ☐ |
| | | ☐ | ☐ | ☐ |

COMMENTS:

ATTACHMENT(S):

DEFICIENCIES NOTES:

INITIAL INSPECTION

INSPECTOR: Ishan Fechter TITLE Superintendent DATE: Aug. 11, 2018

RE-INSPECTION (DEFICIENCIES COMPLETED)

INSPECTOR: James Macdalel TITLE FOREMAN DATE: Aug 11. 2018

CLARK BUILDERS
ENERGY & RESOURCES



PROJECT MANAGER: DUSTIN DOLYNCHUK, P.ENG
QA/QC COORDINATOR: RYAN DE MILLIANO, C.E.T.
SUPERINTENDENT: GARRY DAHL

# CONCRETE PRE POUR | FIELD INSPECTION

Rev 00 May 4, 2018

| | |
|---|---|
| SUBCONTRACTOR: CLARK BUILDERS | INSPECTION DATE: Aug 11. 2018 |
| SUBCONTRACTOR CONTACT PERSON: | DATE OF POUR: |
| INSPECTOR(S): | |
| LOCATION: ADR STRATAGOLD B-5 Octogon | |
| DRAWING REV: 6 / DRAWING NO.(S): 260-0007, 260-0013 | SPEC SECTION(S): |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Location, survey, dimension and grades as required | ☑ | ☐ | ☐ |
| 2.0 | Plumbness and Flatness verified | ☑ | ☐ | ☐ |
| 3.0 | Joints are aligned and watertight. | ☑ | ☐ | ☐ |
| 4.0 | Formwork shop drawings are Engineered and reviewed | ☑ | ☐ | ☐ |
| 5.0 | Re-used formwork reconditioned and treated | ☑ | ☐ | ☐ |
| 6.0 | Formwork and ties according to finishing requirements. Confirm no holes in the concrete surface are greater than 25mm in diameter or expose steel at less than 25mm from surface. As per spec. | ☑ | ☐ | ☐ |
| 7.0 | Installation of embeds are located and secured | ☐ | ☐ | ☑ |
| 8.0 | Chamfer requirements checked. 25mm chamfers required for all exterior corners and edges exposed to view including horizontal edges of pads. | ☑ | ☐ | ☐ |
| 9.0 | Key ways and/or other provisions according to design are provided in construction joints | ☐ | ☐ | ☑ |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 10.0 | Inspect types of form spacers, ties and bracing. | ☑ | ☐ | ☐ |
| 11.0 | Spacing of ties to be set to a pattern | ☑ | ☐ | ☐ |
| 12.0 | Expansion, construction, contraction joints as required & located as coordinated with structural Engineer | ☑ | ☐ | ☑ |
| 13.0 | Forms secured against movement during placing | ☑ | ☐ | ☐ |
| 14.0 | Forms are braced for alignment and blow out | ☑ | ☐ | ☐ |
| 15.0 | Forms are cleaned of all debris, and dry, prior to concrete placement including standing water. | ☑ | ☐ | ☐ |
| 16.0 | Openings in formwork permit inspection and cleaning, placing and compaction of concrete, and forming and processing of construction joints. | ☑ | ☐ | ☐ |
| 17.0 | Formwork has been coated with release agent prior to rebar placement. | ☑ | ☐ | ☐ |
| | | ☐ | ☐ | ☐ |

COMMENTS:

Ensure anchor bolts installed as per drawing

ATTACHMENT(S):

DEFICIENCIES NOTES:

POUR METHOD:

INITIAL INSPECTION

INSPECTOR: Ishan Fechter TITLE Superintendent DATE: Aug. 11, 2018

RE-INSPECTION (DEFICIENCIES COMPLETED)

INSPECTOR: James Meadahl TITLE FOREMAN DATE: Aug 11. 2018

CLARK BUILDERS
ENERGY & RESOURCES

# EXCAVATION AND BACKFILL PRE POUR | QA INSPECTION

Rev 00 May 4, 2018

| | |
|---|---|
| SUBCONTRACTOR: CLARK BUILDERS | INSPECTION DATE: Aug 11. 2018 |
| SUBCONTRACTOR CONTACT PERSON: | ACTION BY: |
| INSPECTOR(S): | |
| LOCATION: ADR STRATA GOLD | |
| DRAWING REV: Ø | DRAWING NO.(S): 260-0007, 260-0013 / SPEC SECTION(S): |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Subsoil investigation report has been reviewed | ☑ | ☐ | ☐ |
| 2.0 | Survey complete, stakes and monuments located | ☑ | ☐ | ☐ |
| 3.0 | Procedures in place for hazardous materials? | ☐ | ☐ | ☑ |
| 4.0 | Required Ground Disturbance permits reviewed and approved | ☐ | ☐ | ☑ |
| 5.0 | Utilities and other underground potential interferences to remain are located, stakes and protected? | ☐ | ☐ | ☑ |
| 6.0 | Utilities companies notified | ☐ | ☐ | ☑ |
| 7.0 | Drawings are approved and stamped prior to work begins | ☑ | ☐ | ☐ |
| 8.0 | Drainage has been planned and is being provided continuously | ☐ | ☐ | ☑ |
| 9.0 | Need for well points has been checked | ☐ | ☐ | ☑ |
| 10.0 | Testing, Inspection and compaction requirements have been reviewed | ☑ | ☐ | ☑ |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 11.0 | Backfill materials have been tested and approved to use | ☑ | ☐ | ☐ |
| 12.0 | Clarify compaction requirements by material, use, lift thickness, frequency, etc. | ☑ | ☐ | ☐ |
| 13.0 | Need of slope design for trenching or excavation has been reviewed | ☐ | ☐ | ☑ |
| 14.0 | Blast/fractured rock requirements have been reviewed | ☑ | ☐ | ☐ |
| 15.0 | Project specific quality requirements | ☑ | ☐ | ☐ |
| 16.0 | If needed, are barricades, stop logs, properly placed? | ☐ | ☐ | ☑ |
| | | ☐ | ☐ | ☐ |
| | | ☐ | ☐ | ☐ |
| | | ☐ | ☐ | ☐ |
| | | ☐ | ☐ | ☐ |

COMMENTS:

ATTACHMENT(S):

DEFICIENCIES NOTES:

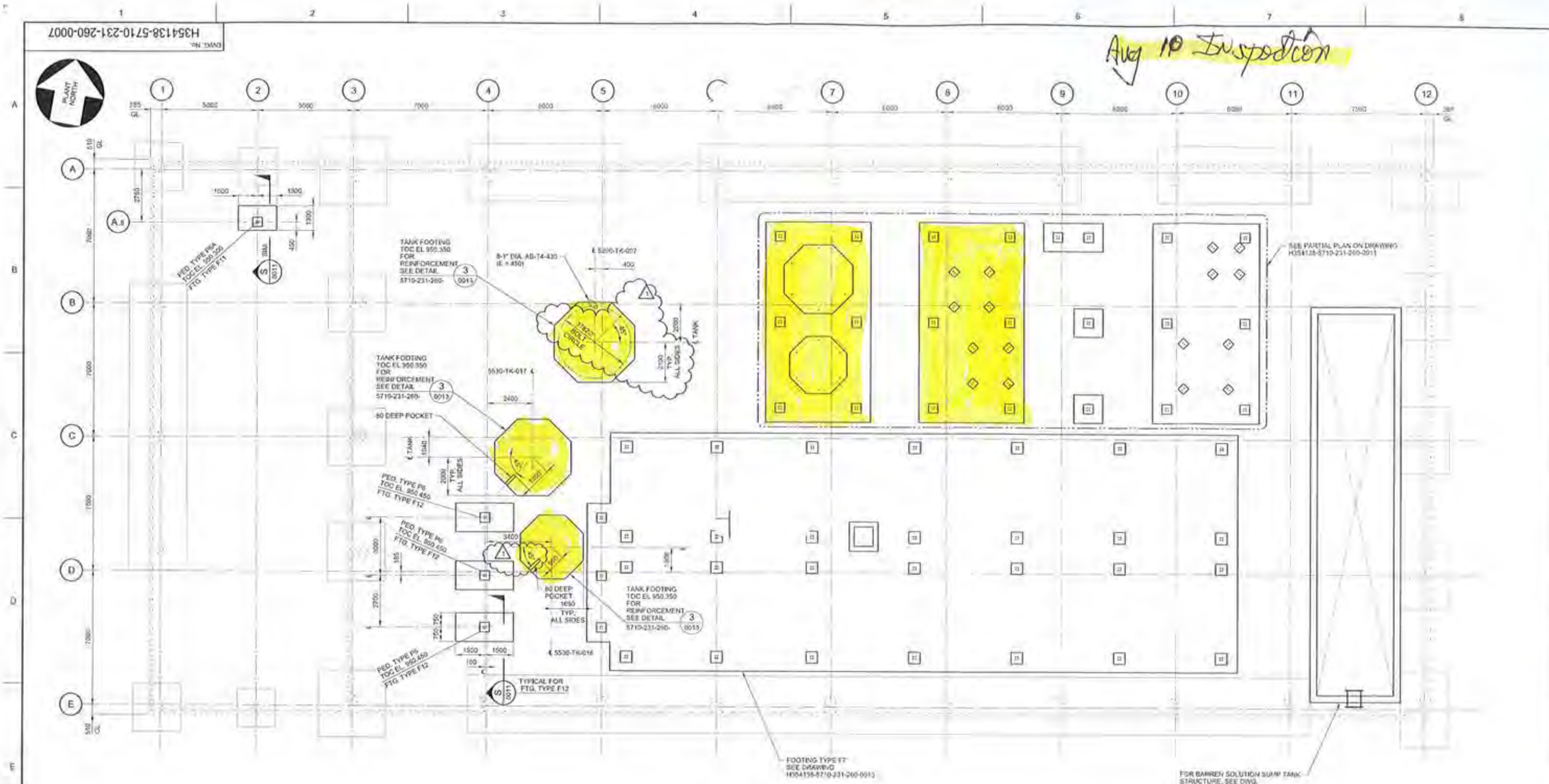
INITIAL INSPECTION

INSPECTOR: James Woodall TITLE: Foreman DATE: Aug 11. 2018

RE-INSPECTION (DEFICIENCIES COMPLETED)

INSPECTOR: _____ TITLE: _____ DATE: _____

Aug 10 Inspection




## INTERIOR FOUNDATION - PLAN

FIN. GRADE EL. 950.000 (REF.)
U/S FTG. EL. 948.500 (TYP.)

1:100 SCALE IN METRES

NOTES:

1. FOR NOTES SEE DRAWING H354138-5710-231-260-0001

| No. | DESCRIPTION | BY | CHK'D | DATE |
|---|---|---|---|---|
| 1 | TANK 5200-TK-007 SIZE CHANGED, TANK 5530-TK-016 POCKET ROTATED | PJ | EA | 2018-07-23 |
| 0 | APPROVED FOR CONSTRUCTION | PJ | EA | 2018-05-31 |

REVISIONS

| DRAWING No. | DRAWING TITLE |
|---|---|
| | |

REFERENCE DRAWINGS

REG. PROFESSIONAL 2018-07-23

HATCH

| ROLE | NAME | SIGNATURE & DATE |
|---|---|---|
| DRAFTSPERSON | E. MENDIOLA | NR 2018-04-18 |
| DESIGNER | F. LIU | NR 2018-04-18 |
| CHECKER | E. AKINCI | 2018-07-23 |
| DESIGN COORD. | S. PERKINS | |
| RESP. ENG. | E. AKINCI | 2018-07-23 |
| LEAD DISC. ENG. | E. AKINCI | 2018-07-23 |
| ENG. MANAGER | B. RUSTAD | |
| PROJ. MANAGER | B. RUSTAD | |

DRAWING APPROVAL STATUS: Approved for Construction

StrataGold Corporation

EAGLE GOLD PROJECT

ADR PROCESS PLANT BUILDING
INTERIOR FOUNDATION
GENERAL ARRANGEMENT

SCALE 1:100 OR AS NOTED | DWG. No. H354138-5710-231-260-0007 | REV 1

SHEET SIZE: D

SFILES PRINTED: 23-JUL-2018 16:09

CLARK BUILDERS
ENERGY & RESOURCES

# CONCRETE REINFORCEMENT PRE POUR

Rev 00 May 4, 2018

| | |
|---|---|
| SUBCONTRACTOR: CLARK BUILDERS | INSPECTION DATE: Aug 14 2018 |
| SUBCONTRACTOR CONTACT PERSON: | ACTION BY: |
| INSPECTOR(S): | |
| LOCATION: ADR STRATA GOLD Grade Beam #1N0 12 & F @ 12.5' E | |
| DRAWING REV: 1 / DRAWING NO.(S): 360-0011 | SPEC SECTION(S): |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Grade (400W unless otherwise noted) and type of steel delivered and installed as required by approved drawings. | ☑ | ☐ | ☐ |
| 2.0 | Inspect rebar distribution, spacing and cover per design/project requirements. | ☑ | ☐ | ☐ |
| 3.0 | Length of splices as specified | ☑ | ☐ | ☐ |
| 4.0 | Staggered splices as specified | ☑ | ☐ | ☐ |
| 5.0 | Any mechanical splices have been approved by the owner prior to install | ☐ | ☐ | ☑ |
| 6.0 | Bars cleaned and free of material that may reduce bond including loose rust, scale, oil, structural defects and that they are uncoated and unpainted. | ☑ | ☐ | ☐ |
| 7.0 | Dowels at wall ends, construction joints, and openings as specified (length, location, size, etc.) | ☑ | ☐ | ☐ |
| 8.0 | No unauthorized field bent bars including hooks installed | ☑ | ☐ | ☐ |
| | Resolve conflicts between embedded items and reinforcement | / | | |
| 9.0 | When authorized, field bends done without heat and inspected for fissures or cracks. | ☐ | ☐ | ☑ |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 10.0 | Bars tied and supported to prevent displacement | ☑ | ☐ | ☐ |
| 11.0 | Spacers, tie wire and chairs as required | ☑ | ☐ | ☐ |
| 12.0 | Conduits at design location and minimum separation from rebar as specified | ☒ | ☐ | ☑ |
| 13.0 | No contact of bars is made with dissimilar metals as per CSA A23.1 | ☑ | ☐ | ☐ |
| 14.0 | Bars, nails or tie wire not sticking out from surfaces that allow rusting/corrosion | ☑ | ☐ | ☐ |
| 15.0 | Rebar is welds inspected by qualified inspectors certified to CSA W178.2 | ☐ | ☐ | ☑ |
| 16.0 | No rebar congestion or other obstruction for deposit of concrete | ☑ | ☐ | ☐ |
| 17.0 | Adjustments required for interfering items (piping, inserts, sleeves, etc.) have been submitted and approved by owner. | ☐ | ☐ | ☑ |
| 18.0 | Rebar was stored off ground to prevent damage/corrosion | / | | |
| 19.0 | Review drawings for anchors, piping, sleeves, boxes | ☑ | ☐ | ☐ |

COMMENTS:

ATTACHMENT(S):

DEFICIENCIES NOTES:

Ensure all chamfer installed on exposed surfaces.

INITIAL INSPECTION

INSPECTOR: GARRY DAHL TITLE Superintendent DATE: Aug 14/18

RE-INSPECTION (DEFICIENCIES COMPLETED)

INSPECTOR: Matt Cavedale TITLE Field Eng DATE: Aug 14/18.

CLARK BUILDERS
ENERGY & RESOURCES

CB-INSPECTION FORM-DOC-002 REV.00
IDS ENERGY & MINING INC. | STRATAGOLD EAGLE GOLD
PROJECT #: CB201 | 18502

PROJECT MANAGER: DUSTIN DOLYNCHUK, P.ENG
QA/QC COORDINATOR: RYAN DE MILLIANO, C.E.T.
SUPERINTENDENT: GARRY DAHL

# FORMWORK & FALSEWORK PRE POUR | QA INSPECTION

Rev 00 May 4, 2018

SUBCONTRACTOR: CLARKBUILDERS
INSPECTION DATE: Aug 14, 2018
SUBCONTRACTOR CONTACT PERSON: Garry DAHL
DATE OF POUR: Aug 14, 2018
INSPECTOR(S): Garry DAHL
LOCATION: ADR STRATAGOLD
Grade Beam line 12 & E 7.5 to 12
DRAWING REV: 1
DRAWING NO.(S): 260-0011
SPEC SECTION(S):

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Location, survey, dimension and grades as required | ☑ | ☐ | ☐ |
| 2.0 | Plumbness and Flatness verified | ☑ | ☐ | ☐ |
| 3.0 | Joints are aligned and watertight. | ☑ | ☐ | ☐ |
| 4.0 | Formwork shop drawings are Engineered and reviewed | ☑ | ☐ | ☐ |
| 5.0 | Re-used formwork reconditioned and treated | ☑ | ☐ | ☐ |
| 6.0 | Formwork and ties according to finishing requirements. Confirm no holes in the concrete surface are greater than 25mm in diameter or expose steel at less than 25mm from surface. As per spec. | ☑ | ☐ | ☐ |
| 7.0 | Installation of embeds are located and secured | ☑ | ☐ | ☐ |
| 8.0 | Chamfer requirements checked. 25mm chamfers required for all exterior corners and edges exposed to view including horizontal edges of pads. | ☑ | ☐ | ☐ |
| 9.0 | Key ways and/or other provisions according to design are provided in construction joints | ☐ | ☐ | ☑ |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 10.0 | Inspect types of form spacers, ties and bracing. | ☑ | ☐ | ☐ |
| 11.0 | Spacing of ties to be set to a pattern | ☑ | ☐ | ☐ |
| 12.0 | Expansion, construction, contraction joints as required & located as coordinated with structural Engineer | ☐ | ☐ | ☑ |
| 13.0 | Forms secured against movement during placing | ☑ | ☐ | ☐ |
| 14.0 | Forms are braced for alignment and blow out | ☑ | ☐ | ☐ |
| 15.0 | Forms are cleaned of all debris, and dry, prior to concrete placement including standing water. | ☑ | ☐ | ☐ |
| 16.0 | Openings in formwork permit inspection and cleaning, placing and compaction of concrete, and forming and processing of construction joints. | ☑ | ☐ | ☐ |
| 17.0 | Formwork has been coated with release agent prior to rebar placement. | ☑ | ☐ | ☐ |
| | | ☐ | ☐ | ☐ |

COMMENTS:

ATTACHMENT(S):

DEFICIENCIES NOTES:

Chair gradebeam walls to ensure side min cover
tuck in tie wire to ensure not touching formwork.

INITIAL INSPECTION

INSPECTOR: [signature] TITLE Superintendent DATE: Aug 14/18

RE-INSPECTION (DEFICIENCIES COMPLETED)

SPECTOR: [signature] TITLE Field Eng DATE: Aug 14/18.

CLARK BUILDERS
ENERGY & RESOURCES

CB-INSPECTION FORM-DOC-002 REV.00
IDS ENERGY & MINING INC. | STRATAGOLD EAGLE GOLD
PROJECT #: CB201 | 18502

PROJECT MANAGER: DUSTIN DOLYNCHUK, P.ENG
QA/QC COORDINATOR: RYAN DE MILLIANO, C.E.T.
SUPERINTENDENT: GARRY DAHL

# EXCAVATION AND BACKFILL PRE POUR | QA INSPECTION

Rev 00 May 4, 2018

| | |
|---|---|
| SUBCONTRACTOR: Clark builders | INSPECTION DATE: Aug 14 2018 |
| SUBCONTRACTOR CONTACT PERSON: GARRY DAHL | ACTION BY: |
| INSPECTOR(S): GARRY DAHL | |
| LOCATION: ADR STRATA GOLD | Grade Beam Line 12 & E 8-12 |
| DRAWING REV: 1 | DRAWING NO.(S): 260-0011 |
| | SPEC SECTION(S): |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Subsoil investigation report has been reviewed | ☑ | ☐ | ☐ |
| 2.0 | Survey complete, stakes and monuments located | ☑ | ☐ | ☐ |
| 3.0 | Procedures in place for hazardous materials? | ☐ | ☐ | ☑ |
| 4.0 | Required Ground Disturbance permits reviewed and approved | ☐ | ☐ | ☑ |
| 5.0 | Utilities and other underground potential interferences to remain are located, stakes and protected? | ☐ | ☐ | ☑ |
| 6.0 | Utilities companies notified | ☐ | ☐ | ☑ |
| 7.0 | Drawings are approved and stamped prior to work begins | ☑ | ☐ | ☐ |
| 8.0 | Drainage has been planned and is being provided continuously | ☐ | ☐ | ☑ |
| 9.0 | Need for well points has been checked | ☐ | ☐ | ☑ |
| 10.0 | Testing, inspection and compaction requirements have been reviewed | ☑ | ☐ | ☐ |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 11.0 | Backfill materials have been tested and approved to use | ☑ | ☐ | ☐ |
| 12.0 | Clarify compaction requirements by material, use, lift thickness, frequency, etc. | ☑ | ☐ | ☐ |
| 13.0 | Need of slope design for trenching or excavation has been reviewed | ☐ | ☐ | ☑ |
| 14.0 | Blast/fractured rock requirements have been reviewed | ☐ | ☐ | ☐ |
| 15.0 | Project specific quality requirements | ☑ | ☐ | ☐ |
| 16.0 | If needed, are barricades, stop logs, properly placed? | ☑ | ☐ | ☐ |
| | | ☐ | ☐ | ☐ |
| | | ☐ | ☐ | ☐ |
| | | ☐ | ☐ | ☐ |
| | | ☐ | ☐ | ☐ |

COMMENTS:

ATTACHMENT(S):

DEFICIENCIES NOTES:

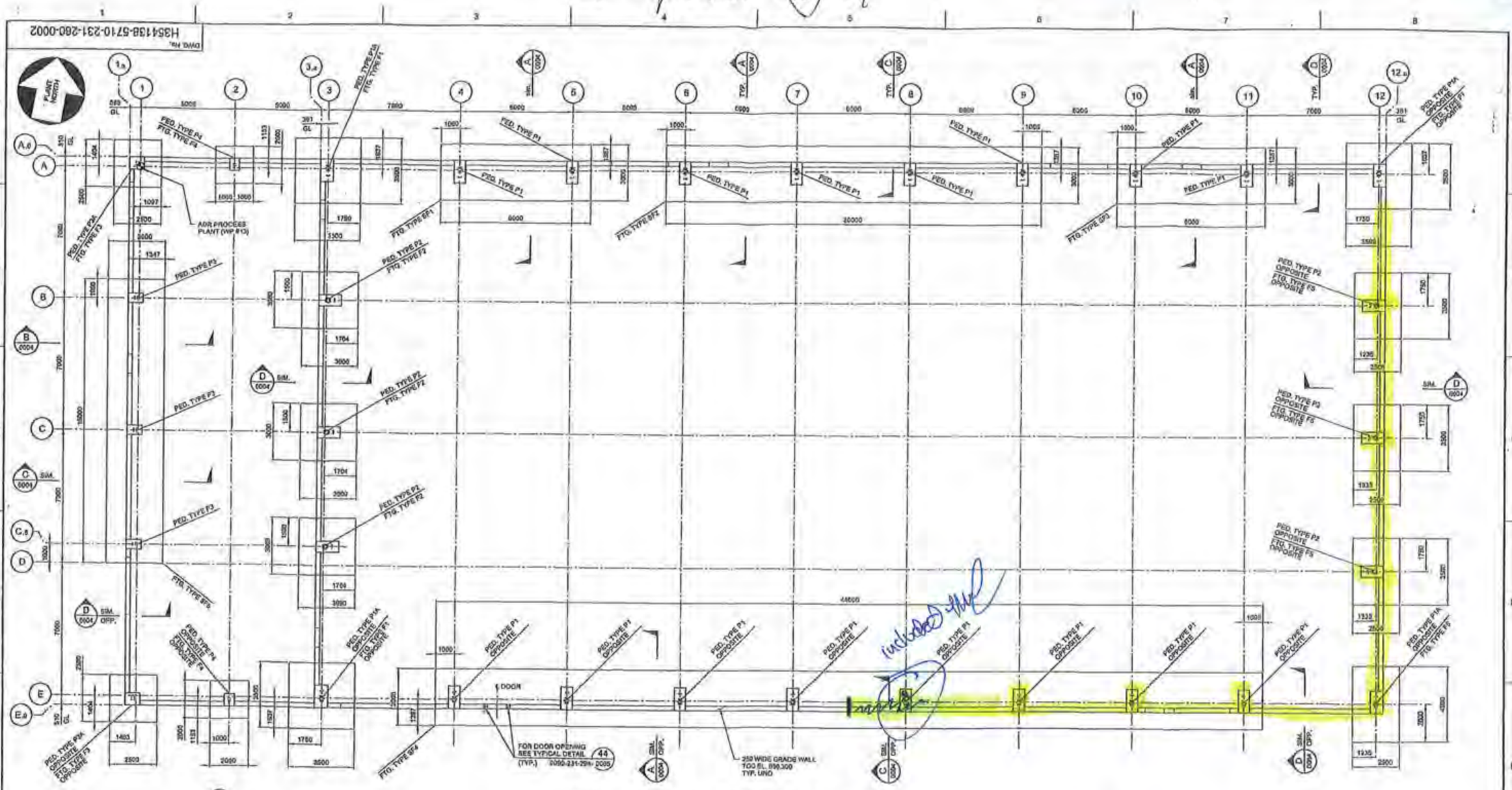
INITIAL INSPECTION

INSPECTOR: GDahl TITLE Superintendent DATE: Aug 14/18

RE-INSPECTION (DEFICIENCIES COMPLETED)

SPECTOR: [signature] TITLE Field Eng DATE: Aug 14/18

Inspection Aug 14




## FOUNDATION GENERAL ARRANGEMENT - PLAN

TOP OF PED. EL. 951.350 (TYP.)
TOP OF SLAB HP EL. 950.150
FIN. GRADE EL. 950.000 (REF.)
U/S FTG. EL. 948.500 (TYP.)

1:100 SCALE IN METRES

NOTES:

1. FOR NOTES SEE DRAWING H354138-5710-231-260-0001.

| DRAWING No. | DRAWING TITLE |
|---|---|
| REFERENCE DRAWINGS | |

REG. PROFESSIONAL

| No. | DESCRIPTION | BY | CHKD | DATE |
|---|---|---|---|---|
| 0 | APPROVED FOR CONSTRUCTION | FJ | EA | 2018-05-23 |

REVISIONS

HATCH

| ROLE | NAME | SIGNATURE & DATE |
|---|---|---|
| DRAFTSPERSON | F. JIVAEWE, MENDIOLA | NR 2018-03-23 |
| DESIGNER | F. LIU | NR 2018-03-23 |
| CHECKER | E. AKINCI | |
| DESIGN COORD. | S. FERKINS | |
| RESP. ENG. | E. AKINCI | |
| LEAD DISC. ENG. | E. AKINCI | |
| ENG. MANAGER | B. RUSTAD | |
| PROJ. MANAGER | B. RUSTAD | |

DRAWING APPROVAL STATUS: Approved for Construction

StrataGold Corporation

EAGLE GOLD PROJECT

ADR PROCESS PLANT BUILDING
BUILDING FOUNDATION
FOUNDATION - PLAN

SCALE 1:100 OR AS NOTED

DWG. No. H354138-5710-231-260-0002

REV 0

SPLEL3
PRINTED: 24-MAY-2018

CLARK BUILDERS
ENERGY & RESOURCES

# CONCRETE REINFORCEMENT PRE POUR

Rev 00 May 4, 2018

| | |
|---|---|
| SUBCONTRACTOR: Clark Builders. | INSPECTION DATE: Aug. 16. 2018 |
| SUBCONTRACTOR CONTACT PERSON: James Meadahl | ACTION BY: |
| INSPECTOR(S): James Meadahl | |
| LOCATION: ADR STRATA GOLD Peds on Footings F, 10 ~~4~~, F13, F14, ~~F8 (TYP)~~ | |
| DRAWING REV: 1 / DRAWING NO.(S): 260-0011 | SPEC SECTION(S): |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Grade (400W unless otherwise noted) and type of steel delivered and installed as required by approved drawings. | ☑ | ☐ | ☐ |
| 2.0 | Inspect rebar distribution, spacing and cover per design/project requirements. | ☑ | ☐ | ☐ |
| 3.0 | Length of splices as specified | ☑ | ☐ | ☐ |
| 4.0 | Staggered splices as specified | ☑ | ☐ | ☐ |
| 5.0 | Any mechanical splices have been approved by the owner prior to install | ☐ | ☐ | ☑ |
| 6.0 | Bars cleaned and free of material that may reduce bond including loose rust, scale, oil, structural defects and that they are uncoated and unpainted. | ☑ | ☐ | ☐ |
| 7.0 | Dowels at wall ends, construction joints, and openings as specified (length, location, size, etc.) | ☑ | ☐ | ☒ |
| 8.0 | No unauthorized field bent bars including hooks installed | ☐ | ☐ | ☑ |
| | Resolve conflicts between embedded items and reinforcement | ✓ | | |
| 9.0 | When authorized, field bends done without heat and inspected for fissures or cracks. | ☐ | ☐ | ☑ |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 10.0 | Bars tied and supported to prevent displacement | ☑ | ☐ | ☐ |
| 11.0 | Spacers, tie wire and chairs as required | ☑ | ☐ | ☐ |
| 12.0 | Conduits at design location and minimum separation from rebar as specified | ☐ | ☐ | ☑ |
| 13.0 | No contact of bars is made with dissimilar metals as per CSA A23.1 | ☑ | ☐ | ☐ |
| 14.0 | Bars, nails or tie wire not sticking out from surfaces that allow rusting/corrosion | ☑ | ☐ | ☐ |
| 15.0 | Rebar is welds inspected by qualified inspectors certified to CSA W178.2 | ☐ | ☐ | ☑ |
| 16.0 | No rebar congestion or other obstruction for deposit of concrete | ☑ | ☐ | ☐ |
| 17.0 | Adjustments required for interfering items (piping, inserts, sleeves, etc.) have been submitted and approved by owner. | ☑ | ☐ | ☐ |
| 18.0 | Rebar was stored off ground to prevent damage/corrosion | ✓ | | |
| 19.0 | Review drawings for anchors, piping, sleeves, boxes | ☑ | ☐ | ☐ |

COMMENTS:

ATTACHMENT(S):

DEFICIENCIES NOTES:

- Clean out nails & debri from bottom of boxes.
- Tie anchorbolts

INITIAL INSPECTION

INSPECTOR: Matt Caverdale TITLE Field Eng DATE: Aug 17, 2018.

RE-INSPECTION (DEFICIENCIES COMPLETED)

INSPECTOR: _____ TITLE _____ DATE: _____

James Meadahl Aug 16. 2018

CLARK BUILDERS
ENERGY & RESOURCES

# FORMWORK & FALSEWORK PRE POUR | QA INSPECTION

Rev 00 May 4, 2018

| | |
|---|---|
| SUBCONTRACTOR: CLARK BUILDERS | INSPECTION DATE: Aug 16.2018 |
| SUBCONTRACTOR CONTACT PERSON: JAMES MEADAHL | DATE OF POUR: |
| INSPECTOR(S): James MEADAHL | |
| LOCATION: ADR STRATA GOLD Pads on F10, ~~F9~~, F13, FM, | |
| DRAWING REV: 1 / DRAWING NO.(S): 260-0011 | SPEC SECTION(S): |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Location, survey, dimension and grades as required | ☑ | ☐ | ☐ |
| 2.0 | Plumbness and Flatness verified | ☑ | ☐ | ☐ |
| 3.0 | Joints are aligned and watertight. | ☐ | ☐ | ☑ |
| 4.0 | Formwork shop drawings are Engineered and reviewed | ☑ | ☐ | ☐ |
| 5.0 | Re-used formwork reconditioned and treated | ☑ | ☐ | ☐ |
| 6.0 | Formwork and ties according to finishing requirements. Confirm no holes in the concrete surface are greater than 25mm in diameter or expose steel at less than 25mm from surface. As per spec. | ☑ | ☐ | ☐ |
| 7.0 | Installation of embeds are located and secured | ☐ | ☐ | ☑ |
| 8.0 | Chamfer requirements checked. 25mm chamfers required for all exterior corners and edges exposed to view including horizontal edges of pads. | ☑ | ☐ | ☐ |
| 9.0 | Key ways and/or other provisions according to design are provided in construction joints | ☐ | ☐ | ☑ |
| 10.0 | Inspect types of form spacers, ties and bracing. | ☑ | ☐ | ☐ |
| 11.0 | Spacing of ties to be set to a pattern | ☑ | ☐ | ☐ |
| 12.0 | Expansion, construction, contraction joints as required & located as coordinated with structural Engineer | ☐ | ☐ | ☑ |
| 13.0 | Forms secured against movement during placing | ☑ | ☐ | ☐ |
| 14.0 | Forms are braced for alignment and blow out | ☑ | ☐ | ☐ |
| 15.0 | Forms are cleaned of all debris, and dry, prior to concrete placement including standing water. | ☑ | ☐ | ☐ |
| 16.0 | Openings in formwork permit inspection and cleaning, placing and compaction of concrete, and forming and processing of construction joints. | ☑ | ☐ | ☐ |
| 17.0 | Formwork has been coated with release agent prior to rebar placement. | ☑ | ☐ | ☐ |
| | | ☐ | ☐ | ☐ |

COMMENTS: ATTACHMENT(S):

DEFICIENCIES NOTES:

INITIAL INSPECTION

INSPECTOR: Matt Caverdale MC TITLE Field Eng DATE: Aug 17, 2018

RE-INSPECTION (DEFICIENCIES COMPLETED)

INSPECTOR: _____ TITLE _____ DATE: _____

James Meadahl Aug 16. 2018

CLARK BUILDERS
ENERGY & RESOURCES

PROJECT MANAGER: DUSTIN DOLYNCHUK, P.ENG
QA/QC COORDINATOR: RYAN DE MILLIANO, C.E.T.
SUPERINTENDENT: GARRY DAHL

# CONCRETE PRE POUR | FIELD INSPECTION

Rev 00 May 4, 2018

| | |
|---|---|
| SUBCONTRACTOR: CLARK BUILDERS | INSPECTION DATE: Aug 16. 2018 |
| SUBCONTRACTOR CONTACT PERSON: James Meadahl | DATE OF POUR: |
| INSPECTOR(S): James Meadahl | |
| LOCATION: ADR STRATA GOLD Peds on F10, ~~F9~~, F13, F14 | |
| DRAWING REV: 1 / DRAWING NO.(S): 260-0011 | SPEC SECTION(S): |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Location, survey, dimension and grades as required | ☑ | ☐ | ☐ |
| 2.0 | Plumbness and Flatness verified | ☑ | ☐ | ☐ |
| 3.0 | Joints are aligned and watertight. | ☐ | ☐ | ☑ |
| 4.0 | Formwork shop drawings are Engineered and reviewed | ☑ | ☐ | ☐ |
| 5.0 | Re-used formwork reconditioned and treated | ☑ | ☐ | ☐ |
| 6.0 | Formwork and ties according to finishing requirements. Confirm no holes in the concrete surface are greater than 25mm in diameter or expose steel at less than 25mm from surface. As per spec. | ☑ | ☐ | ☐ |
| 7.0 | Installation of embeds are located and secured | ☐ | ☐ | ☑ |
| 8.0 | Chamfer requirements checked. 25mm chamfers required for all exterior corners and edges exposed to view including horizontal edges of pads. | ☑ | ☐ | ☐ |
| 9.0 | Key ways and/or other provisions according to design are provided in construction joints | ☐ | ☐ | ☑ |
| 10.0 | Inspect types of form spacers, ties and bracing. | ☑ | ☐ | ☐ |
| 11.0 | Spacing of ties to be set to a pattern | ☑ | ☐ | ☐ |
| 12.0 | Expansion, construction, contraction joints as required & located as coordinated with structural Engineer | ☐ | ☐ | ☑ |
| 13.0 | Forms secured against movement during placing | ☑ | ☐ | ☐ |
| 14.0 | Forms are braced for alignment and blow out | ☑ | ☐ | ☐ |
| 15.0 | Forms are cleaned of all debris, and dry, prior to concrete placement including standing water. | ☑ | ☐ | ☐ |
| 16.0 | Openings in formwork permit inspection and cleaning, placing and compaction of concrete, and forming and processing of construction joints. | ☑ | ☐ | ☐ |
| 17.0 | Formwork has been coated with release agent prior to rebar placement. | ☑ | ☐ | ☐ |
| | | ☐ | ☐ | ☐ |

| COMMENTS: | ATTACHMENT(S): |
|---|---|
| | |

| DEFICIENCIES NOTES: | POUR METHOD: |
|---|---|
| | |

INITIAL INSPECTION

INSPECTOR: Matt Coverdale TITLE Field Eng DATE: Aug 17, 2018.

RE-INSPECTION (DEFICIENCIES COMPLETED)

INSPECTOR: _____ TITLE _____ DATE: _____

James Meadahl Aug 16. 2018

CLARK BUILDERS
ENERGY & RESOURCES

CB-INSPECTION FORM-DOC-002 REV.00
JOS ENERGY & MINING INC. | STRATAGOLD EAGLE GOLD
PROJECT #: CB201 | 18502

PROJECT MANAGER: DUSTIN DOLYNCHUK, P.ENG
QA/QC COORDINATOR: RYAN DE MILLIANO, C.E.T.
SUPERINTENDENT: GARRY DAHL

# FORMWORK & FALSEWORK PRE POUR | QA INSPECTION

Rev 00 May 4, 2018

| | |
|---|---|
| SUBCONTRACTOR: N/A (CB own forces work) | INSPECTION DATE: August 18, 2018 |
| SUBCONTRACTOR CONTACT PERSON: N/A | DATE OF POUR: August 18, 2018 |
| INSPECTOR(S): Ryan DeMilliano (QA/QC) w/ Clark Builders. | |
| LOCATION: Area 5710 ADR (x9) Pedestals & 2x Sump Pakes. | |
| DRAWING REV: 00;01;01 / DRAWING NO.(S): 5710-231-260-0012; 0023; 0070 | SPEC SECTION(S): 503100 |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Location, survey, dimension and grades as required | ☒ | ☐ | ☐ |
| 2.0 | Plumbness and Flatness verified | ☒ | ☐ | ☐ |
| 3.0 | Joints are aligned and watertight. | ☒ | ☐ | ☐ |
| 4.0 | Formwork shop drawings are Engineered and reviewed | ☒ | ☐ | ☐ |
| 5.0 | Re-used formwork reconditioned and treated | ☒ | ☐ | ☐ |
| 6.0 | Formwork and ties according to finishing requirements. Confirm no holes in the concrete surface are greater than 25mm in diameter or expose steel at less than 25mm from surface. As per spec. | ☒ | ☐ | ☐ |
| 7.0 | Installation of embeds are located and secured | ☐ | ☐ | ☐ |
| 8.0 | Chamfer requirements checked. 25mm chamfers required for all exterior corners and edges exposed to view including horizontal edges of pads. | ☒ | ☐ | ☐ |
| 9.0 | Key ways and/or other provisions according to design are provided in construction joints | ☒ | ☐ | ☐ |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 10.0 | Inspect types of form spacers, ties and bracing. | ☒ | ☐ | ☐ |
| 11.0 | Spacing of ties to be set to a pattern | ☒ | ☐ | ☒ |
| 12.0 | Expansion, construction, contraction joints as required & located as coordinated with structural Engineer | ☐ | ☐ | ☒ |
| 13.0 | Forms secured against movement during placing | ☒ | ☐ | ☐ |
| 14.0 | Forms are braced for alignment and blow out | ☒ | ☐ | ☐ |
| 15.0 | Forms are cleaned of all debris, and dry, prior to concrete placement including standing water. | ☒ | ☐ | ☐ |
| 16.0 | Openings in formwork permit inspection and cleaning, placing and compaction of concrete, and forming and processing of construction joints. | ☒ | ☐ | ☐ |
| 17.0 | Formwork has been coated with release agent prior to rebar placement. | ☒ | ☐ | ☐ |
| | | ☐ | ☐ | ☐ |

COMMENTS:

ATTACHMENT(S):

DEFICIENCIES NOTES:

Complete anchor bolt HES.
tripp davels on 2 pads.

INITIAL INSPECTION
INSPECTOR: Ryan de Milliano / TITLE QA/QC DATE: August 18/18

3DS
RE-INSPECTION (DEFICIENCIES COMPLETED)
INSPECTOR: Matt Cavendale MC TITLE Field Eng DATE: Aug 18/18

CLARK BUILDERS
ENERGY & RESOURCES



# CONCRETE REINFORCEMENT PRE POUR

Rev 00 May 4, 2018

| | |
|---|---|
| SUBCONTRACTOR: ULTIMATE REINFORCING. | INSPECTION DATE: AUGUST 18, 2018 |
| SUBCONTRACTOR CONTACT PERSON: | ACTION BY: |
| INSPECTOR(S): RYAN DE MILLIANO (QA/QC) W/CLARK BUILDERS | |
| LOCATION: AREA 5710 ADR – 9x PEDESTALS & 2x SUMP BASES. | |
| DRAWING REV: 00 / DRAWING NO.(S): 5710-231-260-0012 | SPEC SECTION(S): 503 00 00 |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Grade (400W unless otherwise noted) and type of steel delivered and installed as required by approved drawings. | X | | |
| 2.0 | Inspect rebar distribution, spacing and cover per design/project requirements. | X | | |
| 3.0 | Length of splices as specified | X | | |
| 4.0 | Staggered splices as specified | | | X |
| 5.0 | Any mechanical splices have been approved by the owner prior to install | | | X |
| 6.0 | Bars cleaned and free of material that may reduce bond including loose rust, scale, oil, structural defects and that they are uncoated and unpainted. | X | | |
| 7.0 | Dowels at wall ends, construction joints, and openings as specified (length, location, size, etc.) | X | | |
| 8.0 | No unauthorized field bent bars including hooks installed | X | | |
| | Resolve conflicts between embedded items and reinforcement | X | | |
| 9.0 | When authorized, field bends done without heat and inspected for fissures or cracks | | | X |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 10.0 | Bars tied and supported to prevent displacement | X | | |
| 11.0 | Spacers, tie wire and chairs as required | X | | |
| 12.0 | Conduits at design location and minimum separation from rebar as specified | | | X |
| 13.0 | No contact of bars is made with dissimilar metals as per CSA A23.1 | X | | |
| 14.0 | Bars, nails or tie wire not sticking out from surfaces that allow rusting/corrosion | X | | |
| 15.0 | Rebar is welds inspected by qualified inspectors certified to CSA W178.2 | | | X |
| 16.0 | No rebar congestion or other obstruction for deposit of concrete | X | | |
| 17.0 | Adjustments required for interfering items (piping, inserts, sleeves, etc.) have been submitted and approved by owner. | | | X |
| 18.0 | Rebar was stored off ground to prevent damage/corrosion | X | | |
| 19.0 | Review drawings for anchors, piping, sleeves, boxes | X | | |

COMMENTS:

ANCHOR BOLTS REVIEWED AND CHECKED BY SURVEYOR PRIOR TO POUR
FORMS CLOSED AT TIME OF THE INSPECTION.

ATTACHMENT(S):

DEFICIENCIES NOTES:

N/A

INITIAL INSPECTION

INSPECTOR: Ryan deMilliano TITLE QA/QC COORDINATOR DATE: AUG 18, 2018

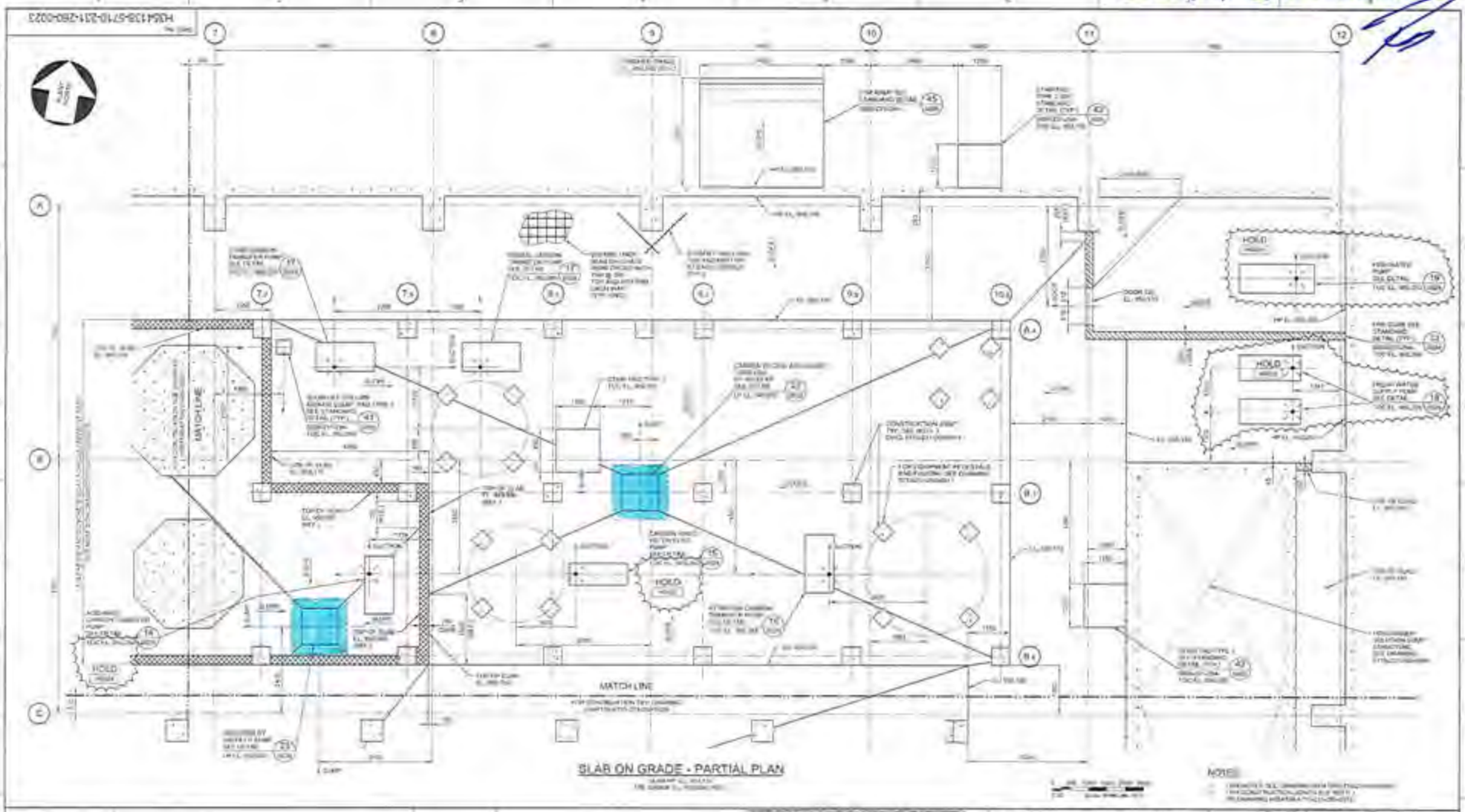
JDS.

RE-INSPECTION (DEFICIENCIES COMPLETED)

INSPECTOR: Matt Caverdale TITLE Field Eng DATE: Aug 18, 18.

INS.
POUR D... = 1.

2 SUMP BASE SLABS INSP




HATCH

StrataGold Corporation

EAGLE GOLD PROJECT

ADR PROCESS PLANT BUILDING
SLAB ON GRADE
PARTIAL PLAN - SHEET 3

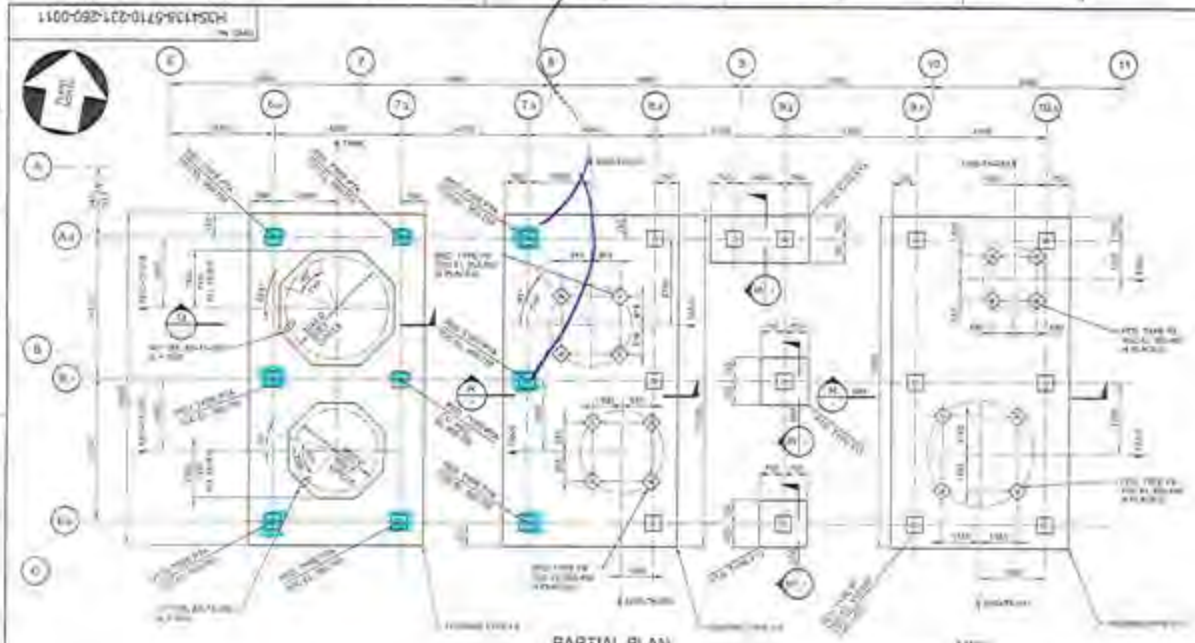
H354138-5710-231-280-0023

0

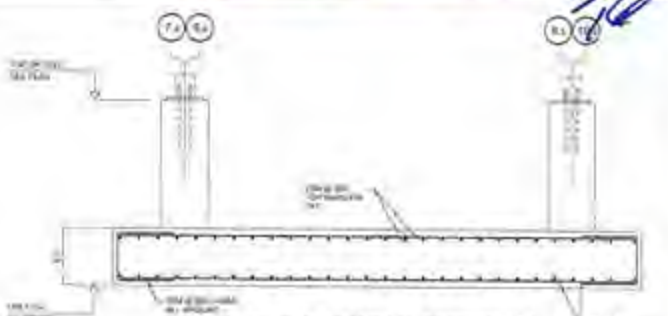
3 high vert. bars AT TIME OF INSP.
CUT/FIXED BEFORE POUR

INSP. DATE –
POUR DATE – , 20.

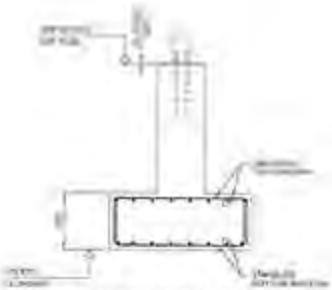
9x PEDESTAL INSPECTION



PARTIAL PLAN



FOOTING TYPE F9 AND F10, SECTION (R)



FOOTING TYPE F11, F12, F13 AND F14
SECTION (S) (S)



FOOTING TYPE F8, SECTION (Q)



5200-TH-005/008 - REINFORCEMENT PLAN

NOTES:

HATCH

Strata Gold Corporation

EAGLE GOLD PROJECT

ADR PROCESS PLANT BUILDING
INTERIOR FOUNDATION
PLAN, SECTIONS AND DETAILS - SHEET 2

H054138-5710-231-280-0011 | 0

CLARK BUILDERS
ENERGY & RESOURCES

PROJECT MANAGER: DUSTIN DOLYNCHUK, P.ENG
QA/QC COORDINATOR: RYAN DE MILLIANO, C.E.T.
SUPERINTENDENT: GARRY DAHL

# FORMWORK & FALSEWORK PRE POUR | QA INSPECTION

Rev 00: May 4, 2018

| | |
|---|---|
| SUBCONTRACTOR: N/A (CB our forces work) | INSPECTION DATE: August 18, 2018 |
| SUBCONTRACTOR CONTACT PERSON: N/A | DATE OF POUR: August 18, 2018 |
| INSPECTOR(S): Ryan DeMilliano (QA/QC) of Clark Builders. | |
| LOCATION: Area 5710 ADR (x9) Pedestals & 2x Sump Pumps | |
| DRAWING REV: 00; 01; 01 / DRAWING NO.(S): 5710-231-260-0012 | SPEC SECTION(S): 0023 0020 / 503100 |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Location, survey, dimension and grades as required | ☒ | ☐ | ☐ |
| 2.0 | Plumbness and Flatness verified | ☒ | ☐ | ☐ |
| 3.0 | Joints are aligned and watertight | ☒ | ☐ | ☐ |
| 4.0 | Formwork shop drawings are Engineered and reviewed | ☒ | ☐ | ☐ |
| 5.0 | Re-used formwork reconditioned and treated | ☒ | ☐ | ☐ |
| 6.0 | Formwork and ties according to finishing requirements. Confirm no holes in the concrete surface are greater than 25mm in diameter or expose steel at less than 25mm from surface. As per spec. | ☒ | ☐ | ☐ |
| 7.0 | Installation of embeds are located and secured | ☐ | ☐ | ☐ |
| 8.0 | Chamfer requirements checked. 25mm chamfers required for all exterior corners and edges exposed to view including horizontal edges of pads. | ☒ | ☐ | ☐ |
| 9.0 | Key ways and/or other provisions according to design are provided in construction joints | ☒ | ☐ | ☐ |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 10.0 | Inspect types of form spacers, ties and bracing | ☒ | ☐ | ☐ |
| 11.0 | Spacing of ties to be set to a pattern | ☒ | ☐ | ☒ |
| 12.0 | Expansion, construction, contraction joints as required & located as coordinated with structural Engineer | ☐ | ☐ | ☒ |
| 13.0 | Forms secured against movement during placing | ☒ | ☐ | ☐ |
| 14.0 | Forms are braced for alignment and blow out | ☒ | ☐ | ☐ |
| 15.0 | Forms are cleaned of all debris, and dry, prior to concrete placement including standing water. | ☒ | ☐ | ☐ |
| 16.0 | Openings in formwork permit inspection and cleaning, placing and compaction of concrete, and forming and processing of construction joints. | ☒ | ☐ | ☐ |
| 17.0 | Formwork has been coated with release agent prior to rebar placement. | ☒ | ☐ | ☐ |
| | | ☐ | ☐ | ☐ |

COMMENTS:

ATTACHMENT(S):

DEFICIENCIES NOTES:

Complete anchor bolt HES.
trip levels on 2 pads.

INITIAL INSPECTION
INSPECTOR: Ryan deMilliano/ TITLE QA/QC DATE: August 18/18

3PS
RE-INSPECTION (DEFICIENCIES COMPLETED)
INSPECTOR: Matt Cawsdale MC TITLE Field Eng DATE: Aug 18 18

CLARK BUILDERS
ENERGY & RESOURCES

# CONCRETE REINFORCEMENT PRE POUR

Rev 00 May 4, 2018

| | |
|---|---|
| SUBCONTRACTOR: ULTIMATE REINFORCING. | INSPECTION DATE: AUGUST 18, 2018 |
| SUBCONTRACTOR CONTACT PERSON: | ACTION BY: |
| INSPECTOR(S): RYAN DE MILLIANO (QA/QC) W/CLARK BUILDERS | |
| LOCATION: AREA 5710 ADR - 9x PEDESTALS & 2x SUMP BASES. | |
| DRAWING REV: 00 | DRAWING NO (S): 5710-231-260-0012 / SPEC SECTION(S): 503 20 00 |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Grade (400W unless otherwise noted) and type of steel delivered and installed as required by approved drawings. | X | | |
| 2.0 | Inspect rebar distribution, spacing and cover per design/project requirements. | X | | |
| 3.0 | Length of splices as specified | X | | |
| 4.0 | Staggered splices as specified | | | X |
| 5.0 | Any mechanical splices have been approved by the owner prior to install | | | X |
| 6.0 | Bars cleaned and free of material that may reduce bond including loose rust, scale, oil, structural defects and that they are uncoated and unpainted | X | | |
| 7.0 | Dowels at wall ends, construction joints, and openings as specified (length, location, size, etc.) | X | | |
| 8.0 | No unauthorized field bent bars including hooks installed | X | | |
| | Resolve conflicts between embedded items and reinforcement | X | | |
| 9.0 | When authorized, field bends done without heat and inspected for fissures or cracks | | | X |
| 10.0 | Bars tied and supported to prevent displacement | X | | |
| 11.0 | Spacers, tie wire and chairs as required | X | | |
| 12.0 | Conduits at design location and minimum separation from rebar as specified | | | X |
| 13.0 | No contact of bars is made with dissimilar metals as per CSA A23.1 | X | | |
| 14.0 | Bars, nails or tie wire not sticking out from surfaces that allow rusting/corrosion | X | | |
| 15.0 | Rebar is welds inspected by qualified inspectors certified to CSA W178.2 | | | X |
| 16.0 | No rebar congestion or other obstruction for deposit of concrete | X | | |
| 17.0 | Adjustments required for interfering items (piping, inserts, sleeves, etc.) have been submitted and approved by owner. | | | X |
| 18.0 | Rebar was stored off ground to prevent damage/corrosion | X | | |
| 19.0 | Review drawings for anchors, piping, sleeves, boxes | X | | |

COMMENTS:

ANCHOR BOLTS REVIEWED AND CHECKED BY SURVEYOR PRIOR TO POUR
FORMS CLOSED AT TIME OF FINAL INSPECTION.

ATTACHMENT(S):

DEFICIENCIES NOTES:

N/A

INITIAL INSPECTION
INSPECTOR: Ryan de Milliano / JDS. TITLE QA/QC COORDINATOR DATE: AUG 18, 2018

RE-INSPECTION (DEFICIENCIES COMPLETED)
INSPECTOR: Matt Cavendish MC TITLE Field Eng DATE: Aug 18, 18.

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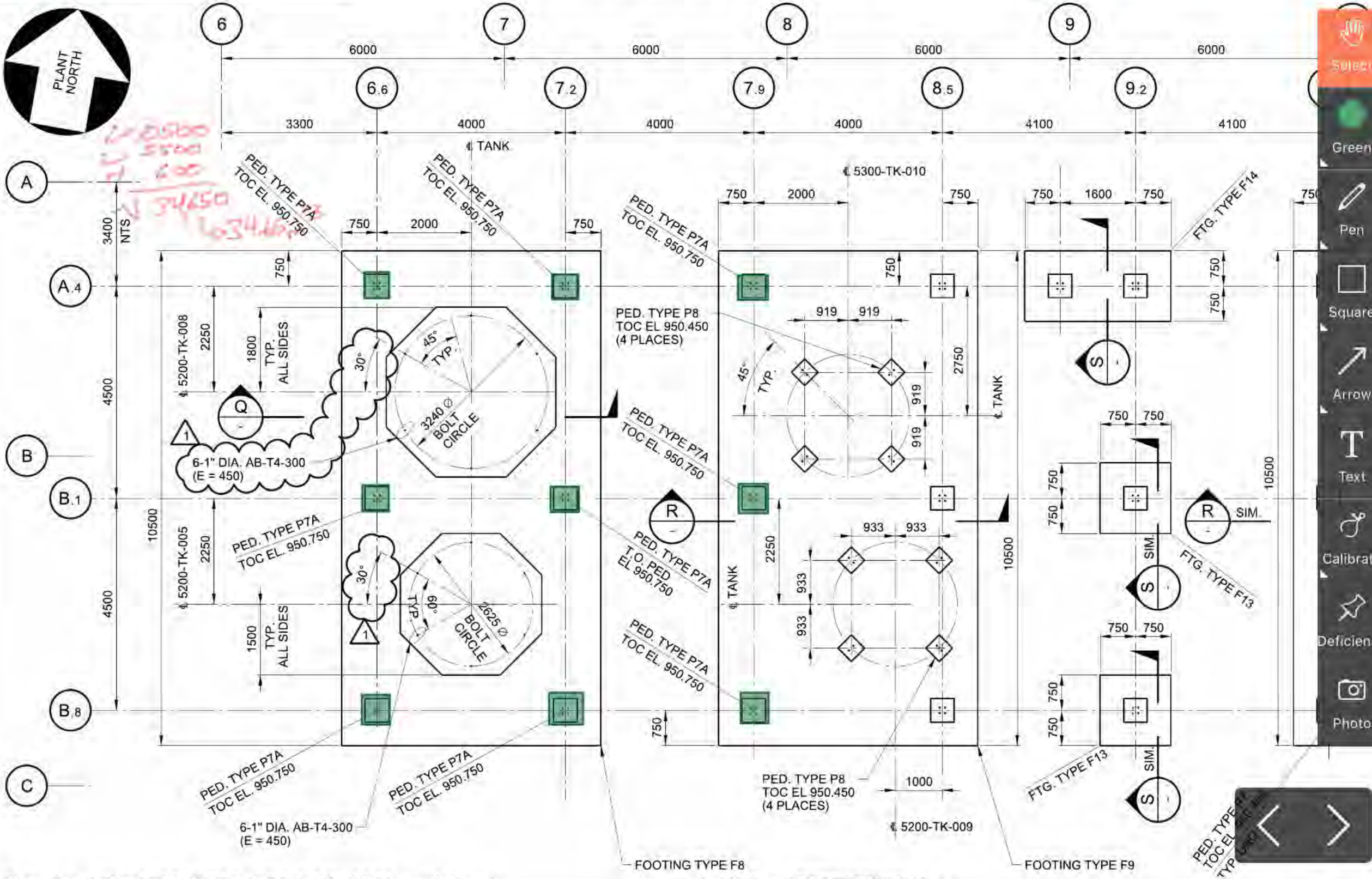
Done
H354138-5710-231-260-0011 Rev 1




Drawing H354138-5710-231-260-0011, revision 1

Discipline: STRUCTURAL

Drawings updated on 2018-07-12

Markups updated on Aug 18, 2018 at 2:30 PM

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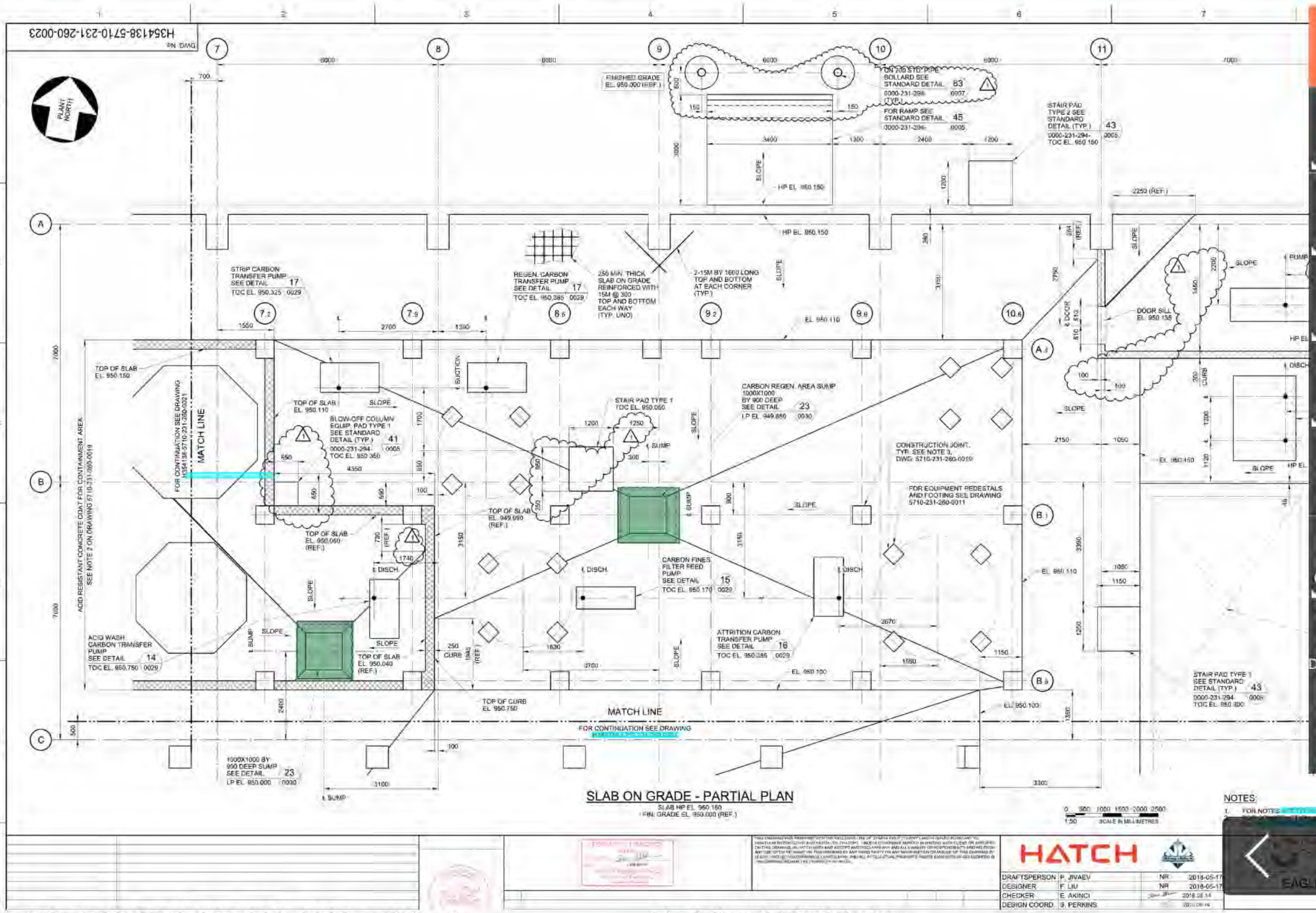
Done

H354138-5710-231-260-0023 Rev 1




Select
Red
Pen
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Text
Calibrate
Deficiency
Photo

Drawing H354138-5710-231-260-0023, revision 1

Discipline: STRUCTURAL

Drawings updated on 2018-08-16

Markups updated on Aug 18, 2018 at 2:35 PM



CLARK BUILDERS
ENERGY & RESOURCES



PROJECT MANAGER: DUSTIN DOLYNCHUK, P.ENG
QA/QC COORDINATOR: RYAN DE MILLIANO, C.E.T.
SUPERINTENDENT: GARRY DAHL

# FORMWORK & FALSEWORK PRE POUR | QA INSPECTION

Rev 00 May 4, 2018

SUBCONTRACTOR: CLARK BUILDERS
INSPECTION DATE: AUGUST 20, 2018
SUBCONTRACTOR CONTACT PERSON: N/A
DATE OF POUR: AUGUST 21, 2018
INSPECTOR(S): RYAN DE MILLIANO (QA/QC); JAMES MEADAIR
LOCATION: AREA 5710 ADL TYPE F7 MAT FOUNDATION // SUMP @ A.5/2 & D4 (2 SUMPS)
DRAWING REV: 07
DRAWING NO.(S): 5710-231-260-0010
SPEC SECTION(S): 503 2000

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Location, survey, dimension and grades as required | X | | |
| 2.0 | Plumbness and Flatness verified | X | | |
| 3.0 | Joints are aligned and watertight | X | | |
| 4.0 | Formwork shop drawings are Engineered and reviewed | X | | |
| 5.0 | Re-used formwork reconditioned and treated | X | | |
| 6.0 | Formwork and ties according to finishing requirements. Confirm no holes in the concrete surface are greater than 25mm in diameter or expose steel at less than 25mm from surface. As per spec. | X | | |
| 7.0 | Installation of embeds are located and secured | | | X |
| 8.0 | Chamfer requirements checked. 25mm chamfers required for all exterior corners and edges exposed to view including horizontal edges of pads. | | | X |
| 9.0 | Key ways and/or other provisions according to design are provided in construction joints | | | X |
| 10.0 | Inspect types of form spacers, ties and bracing | X | | |
| 11.0 | Spacing of ties to be set to a pattern | | | X |
| 12.0 | Expansion, construction, contraction joints as required & located as coordinated with structural Engineer | | | X |
| 13.0 | Forms secured against movement during placing | X | | |
| 14.0 | Forms are braced for alignment and blow out | X | | |
| 15.0 | Forms are cleaned of all debris, and dry, prior to concrete placement including standing water. | X | | |
| 16.0 | Openings in formwork permit inspection and cleaning, placing and compaction of concrete, and forming and processing of construction joints | X | | |
| 17.0 | Formwork has been coated with release agent prior to rebar placement | X | | |
| | | | | |

COMMENTS:

ATTACHMENT(S):
DWGS
RFI 35

DEFICIENCIES NOTES:
Tie every 4 bars, complete ties on all u bars.
Finish ties on sumps & ensure main cover (chair sides).

INITIAL INSPECTION
INSPECTOR: RYAN DE MILLIANO // TITLE: QA/QC COORDINATOR DATE: AUGUST 20, 2018
JAMES MEADAIR //

RE-INSPECTION (DEFICIENCIES COMPLETED)
INSPECTOR: Matt Cardoble MattC TITLE: Field Eng DATE: Aug 20, 2018

CLARK BUILDERS
ENERGY & RESOURCES

# CONCRETE REINFORCEMENT PRE POUR

Rev 00 May 8, 2018

SUBCONTRACTOR: ULTIMATE REINFORCING.
SUBCONTRACTOR CONTACT PERSON: DEREK
INSPECTION DATE: AUGUST 20, 2018
REVISED DATE ACTION BY: AUGUST 21, 2018
INSPECTOR(S): RYAN DEMILLIANO (QA/QC)
LOCATION: AREA 5710 ADR TYPE F7 MAT FOOTING / FOUNDATION // SIMP @ A.5/2 & D4 (2 SHDS)
DRAWING REV: 02 | DRAWING NO.(S): 5710-231-260-0010 | SPEC SECTION(S): 503 2000

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Grade (400W unless otherwise noted) and type of steel delivered and installed as required by approved drawings | X | ☐ | ☐ |
| 2.0 | Inspect rebar distribution, spacing and cover per design/project requirements | X | ☐ | ☐ |
| 3.0 | Length of splices as specified | X | ☐ | ☐ |
| 4.0 | Staggered splices as specified | ☐ | ☐ | X |
| 5.0 | Any mechanical splices have been approved by the owner prior to install | ☐ | ☐ | X |
| 6.0 | Bars cleaned and free of material that may reduce bond including loose rust, scale, oil, structural defects and that they are uncoated and unpainted. | X | ☐ | ☐ |
| 7.0 | Dowels at wall ends, construction joints, and openings as specified (length, location, size, etc.) | X | ☐ | ☐ |
| 8.0 | No unauthorized field bent bars including hooks installed | X | ☐ | ☐ |
| | Resolve conflicts between embedded items and reinforcement | X | | |
| 9.0 | When authorized, field bends done without heat and inspected for fissures or cracks | ☐ | ☐ | X |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 10.0 | Bars tied and supported to prevent displacement | X | ☐ | ☐ |
| 11.0 | Spacers, tie wire and chairs as required | X | ☐ | ☐ |
| 12.0 | Conduits at design location and minimum separation from rebar as specified | ☐ | ☐ | X |
| 13.0 | No contact of bars is made with dissimilar metals as per CSA A23.1 | X | ☐ | ☐ |
| 14.0 | Bars, nails or tie wire not sticking out from surfaces that allow rusting/corrosion | X | ☐ | ☐ |
| 15.0 | Rebar is welds inspected by qualified inspectors certified to CSA W178.2 | ☐ | ☐ | X |
| 16.0 | No rebar congestion or other obstruction for deposit of concrete | X | ☐ | ☐ |
| 17.0 | Adjustments required for interfering items (piping, inserts, sleeves, etc.) have been submitted and approved by owner. | X | ☐ | ☐ |
| 18.0 | Rebar was stored off ground to prevent damage/corrosion | X | | |
| 19.0 | Review drawings for anchors, piping, sleeves, boxes | ☐ | ☐ | X |

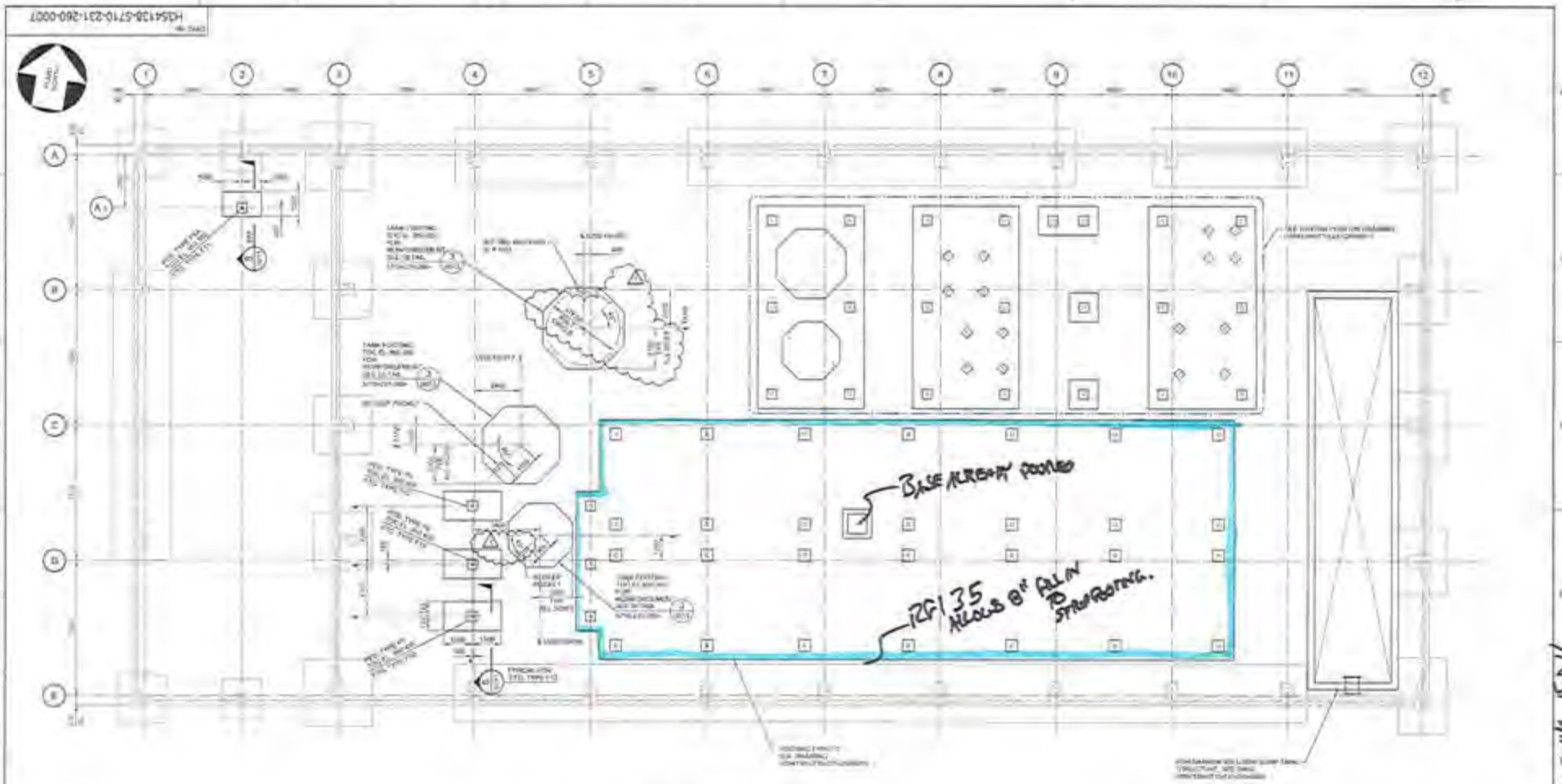
COMMENTS:
- SOME LOOSE PROJECTING REBAR. PEREL FIX PRIOR TO SITE @ INSP.

ATTACHMENT(S):
DWGS
RFI 35

DEFICIENCIES NOTES:
MORE TIES REQUIRED (GENERAL). every 4 bars

INITIAL INSPECTION
INSPECTOR: RYAN DEMILLIANO // TITLE QA/QC COORDINATOR DATE: AUG 20/2018

RE-INSPECTION (DEFICIENCIES COMPLETED)
INSPECTOR: Matt Coverdale TITLE Field Eng DATE: Aug 20/18




INTERIOR FOUNDATION - PLAN

NOTES:

HATCH

StrataGold Corporation

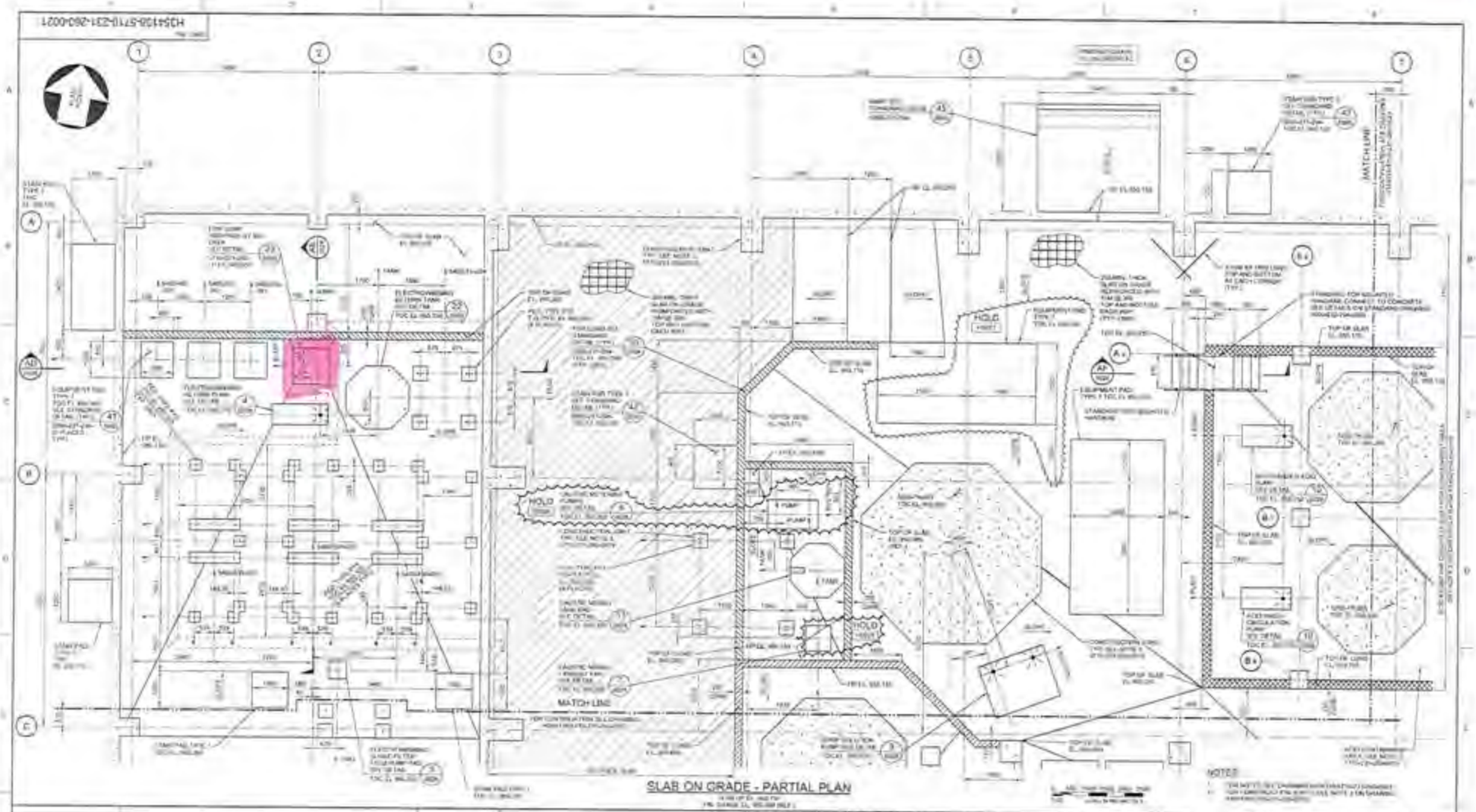
EAGLE GOLD PROJECT

ADR PROCESS PLANT BUILDING
INTERIOR FOUNDATION
GENERAL ARRANGEMENT

H354138-5710-231-260-0007

1

INSP DWG: AUGUST 20/18




HATCH

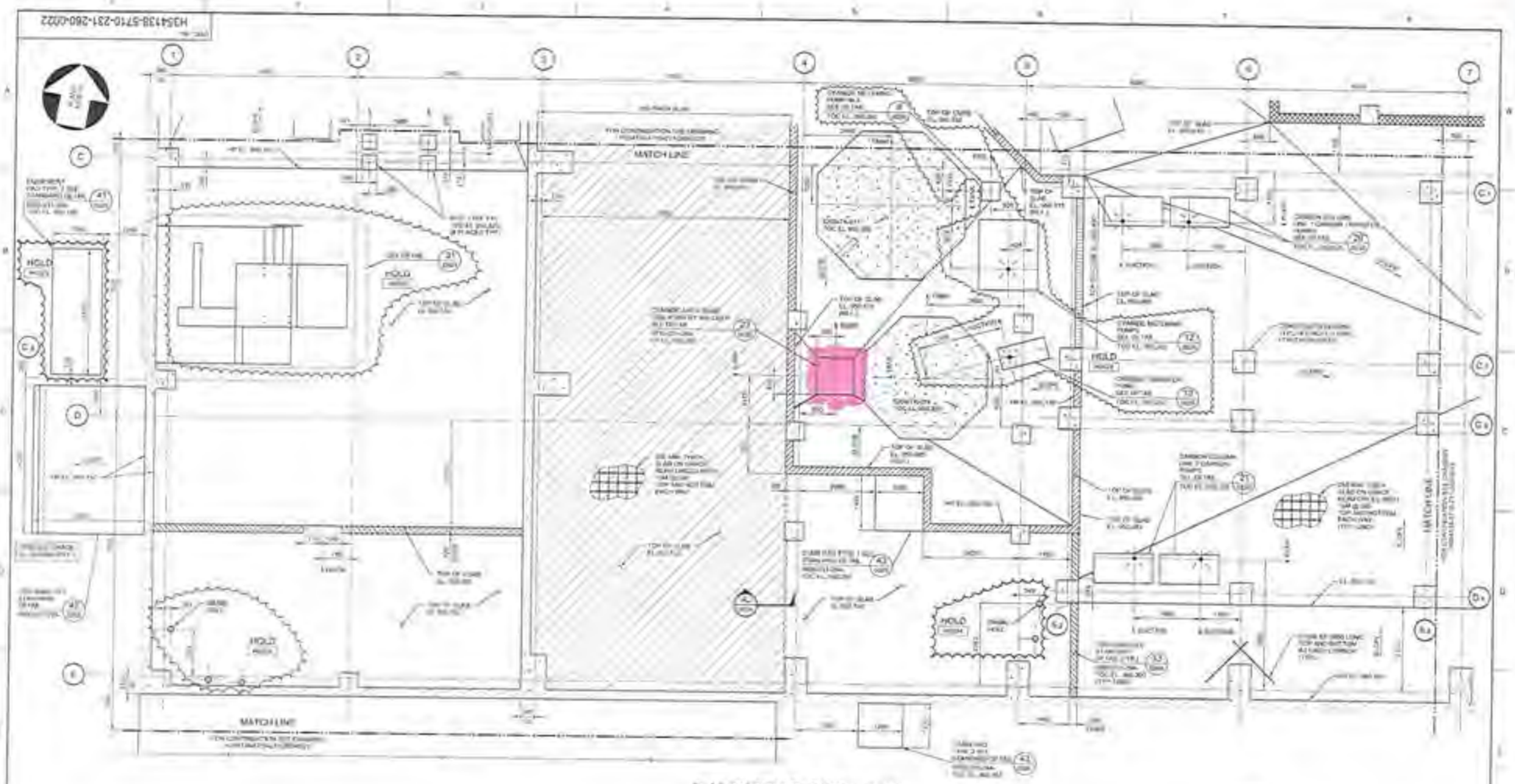
StrataGold

EAGLE GOLD PROJECT

ADR PROCESS PLANT BUILDING
SLAB ON GRADE
PARTIAL PLAN - SHEET 1

H354138-5710-231-260-0021

0


H354138-5710-231-260-0022
MATCH LINE
HOLD
SLAB ON GRADE - PARTIAL PLAN
NOTES
HATCH
Starla Gold Corporation
EAGLE GOLD PROJECT
ADR PROCESS PLANT BUILDING
SLAB ON GRADE
PARTIAL PLAN - SHEET 2
H354138-5710-231-260-0022
0

August 20/18

CLARK BUILDERS

# RFI #35

Clark Builders
4703 - 52 Avenue
Edmonton, Alberta T6B 3R6
Phone: (780) 395-3300
Fax: (780) 395-3545

**Project:** 18502 - CB201-JDS - Stratagold Eagle Gold
Yukon Territory

## 5710 Extend ADR F7 Footing to meet existing Strip footing

| | | | |
|---|---|---|---|
| **TO:** | Calvin Goldschmidt **(JDS Energy and Mining)** | **FROM::** | Ryan de Milliano **(Clark Builders - Edmonton)** Edmonton, Alberta |
| **DATE INITIATED:** | 17/08/2018 | **STATUS:** | Open |
| **LOCATION:** | 5710 ADR Plant | **DUE DATE:** | 22/08/2018 |
| **SUB JOB:** | | **COST CODE:** | |
| **COST IMPACT:** | TBD | **SCHEDULE IMPACT:** | No |
| **DRAWING NUMBER:** | | **SPEC SECTION:** | |
| **LINKED DRAWINGS:** | | **REFERENCE:** | |
| **RECEIVED FROM:** | Garry Dahl **(Clark Builders - Edmonton)** | | |

**COPIES TO:**
D'Arcy Comerford **(JDS Energy and Mining)**, Chris Copley **(JDS Energy and Mining)**, Matt Coverdale **(JDS Energy and Mining)**, Garry Dahl **(Clark Builders - Edmonton)**, Jackson Wenger **(Clark Builders - Edmonton)**

**Question from Ryan de Milliano (Clark Builders - Edmonton) at 01:52 PM on 17/08/2018**

There is an 8" gap between the placed Cone Crusher strip footing and the Type F7 footing to be placed at the ADR. Please confirm it is acceptable to pour the additional the south side of the footing with the Pour.

Awaiting an Official Response

**All Replies:**

8" gap between the mat foundation and the building foundation can be filled with concrete while pouring of the mat, provided that an isolation joint is created at the face of the building foundation by pre-molded joint filler as shown on Dwg H354138-0000-231-294-0003 - Detail24

| Esra Akinci | Aug 19, 2018 | |
|---|---|---|
| **BY** | **DATE** | **COPIES TO** |

CLARK BUILDERS
ENERGY & RESOURCES



PROJECT MANAGER: DUSTIN DOLYNCHUK, P.ENG
QA/QC COORDINATOR: RYAN DE MILLIANO, C.E.T.
SUPERINTENDENT: GARRY DAHL

# CONCRETE REINFORCEMENT PRE POUR

Rev 00 May 4, 2018

| | |
|---|---|
| SUBCONTRACTOR: Clark Builders | INSPECTION DATE: Aug 21. 2018 |
| SUBCONTRACTOR CONTACT PERSON: James Meadahl | ACTION BY: |
| INSPECTOR(S): James Meadahl | |
| LOCATION: ADR GRADEBEAM GR 1E - 8E GR 3D - 5E, Sump base GR 4, GR 2, Oct 4m between 4-5 GR | |
| DRAWING REV: 0 / DRAWING NO.(S): 260-0002 Rev 0, 007, 0080 | SPEC SECTION(S): |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Grade (400W unless otherwise noted) and type of steel delivered and installed as required by approved drawings. | ☑ | ☐ | ☐ |
| 2.0 | Inspect rebar distribution, spacing and cover per design/project requirements. | ☑ | ☐ | ☐ |
| 3.0 | Length of splices as specified | ☑ | ☐ | ☐ |
| 4.0 | Staggered splices as specified | ☑ | ☐ | ☐ |
| 5.0 | Any mechanical splices have been approved by the owner prior to install | ☐ | ☐ | ☑ |
| 6.0 | Bars cleaned and free of material that may reduce bond including loose rust, scale, oil, structural defects and that they are uncoated and unpainted. | ☑ | ☐ | ☐ |
| 7.0 | Dowels at wall ends, construction joints, and openings as specified (length, location, size, etc.) | ☑ | ☐ | ☐ |
| 8.0 | No unauthorized field bent bars including hooks installed | ☑ | ☐ | ☐ |
| | Resolve conflicts between embedded items and reinforcement | ✓ | | |
| 9.0 | When authorized, field bends done without heat and inspected for fissures or cracks. | ☐ | ☐ | ☑ |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 10.0 | Bars tied and supported to prevent displacement | ☑ | ☐ | ☐ |
| 11.0 | Spacers, tie wire and chairs as required | ☑ | ☐ | ☐ |
| 12.0 | Conduits at design location and minimum separation from rebar as specified | ☐ | ☐ | ☑ |
| 13.0 | No contact of bars is made with dissimilar metals as per CSA A23.1 | ☑ | ☐ | ☐ |
| 14.0 | Bars, nails or tie wire not sticking out from surfaces that allow rusting/corrosion | ☑ | ☐ | ☐ |
| 15.0 | Rebar is welds inspected by qualified inspectors certified to CSA W178.2 | ☑ | ☐ | ☐ |
| 16.0 | No rebar congestion or other obstruction for deposit of concrete | ☑ | ☐ | ☐ |
| 17.0 | Adjustments required for interfering items (piping, inserts, sleeves, etc.) have been submitted and approved by owner. | ☑ | ☐ | ☐ |
| 18.0 | Rebar was stored off ground to prevent damage/corrosion | ✓ | | |
| 19.0 | Review drawings for anchors, piping, sleeves, boxes | ☑ | ☐ | ☐ |

COMMENTS:

| | ATTACHMENT(S): |
|---|---|
| | |
| | |
| | |

DEFICIENCIES NOTES:

INITIAL INSPECTION

INSPECTOR: James Meadahl TITLE FOREMAN DATE: Aug 21. 2018

RE-INSPECTION (DEFICIENCIES COMPLETED)

INSPECTOR: [signature] TITLE Field Engineer DATE: Aug 24. 2018

CLARK BUILDERS
ENERGY & RESOURCES

PROJECT MANAGER: DUSTIN DOLYNCHUK, P.ENG
QA/QC COORDINATOR: RYAN DE MILLIANO, C.E.T.
SUPERINTENDENT: GARRY DAHL

# FORMWORK & FALSEWORK PRE POUR | QA INSPECTION

Rev 00 May 4, 2018

| | |
|---|---|
| SUBCONTRACTOR: Clark builders | INSPECTION DATE: Aug 21. 2018 |
| SUBCONTRACTOR CONTACT PERSON: James Meadahl | DATE OF POUR: Aug 21. 2018 |
| INSPECTOR(S): James Meadahl | |
| LOCATION: MDR GRADEBEAM 1E-8E GR3D-3E, Sumpbase 6R4, 6R2, Oct. 4m between 4-6R | |
| DRAWING REV: | DRAWING NO.(S): SPEC SECTION(S): |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Location, survey, dimension and grades as required | ☑ | ☐ | ☐ |
| 2.0 | Plumbness and Flatness verified | ☑ | ☐ | ☐ |
| 3.0 | Joints are aligned and watertight. | ☑ | ☐ | ☐ |
| 4.0 | Formwork shop drawings are Engineered and reviewed | ☑ | ☐ | ☐ |
| 5.0 | Re-used formwork reconditioned and treated | ☑ | ☐ | ☐ |
| 6.0 | Formwork and ties according to finishing requirements. Confirm no holes in the concrete surface are greater than 25mm in diameter or expose steel at less than 25mm from surface. As per spec. | ☑ | ☐ | ☐ |
| 7.0 | Installation of embeds are located and secured | ☑ | ☐ | ☐ |
| 8.0 | Chamfer requirements checked. 25mm chamfers required for all exterior corners and edges exposed to view including horizontal edges of pads. | ☑ | ☐ | ☐ |
| 9.0 | Key ways and/or other provisions according to design are provided in construction joints | ☑ | ☐ | ☐ |
| 10.0 | Inspect types of form spacers, ties and bracing. | ☑ | ☐ | ☐ |
| 11.0 | Spacing of ties to be set to a pattern | ☑ | ☐ | ☐ |
| 12.0 | Expansion, construction, contraction joints as required & located as coordinated with structural Engineer | ☑ | ☐ | ☐ |
| 13.0 | Forms secured against movement during placing | ☑ | ☐ | ☐ |
| 14.0 | Forms are braced for alignment and blow out | ☑ | ☐ | ☐ |
| 15.0 | Forms are cleaned of all debris, and dry, prior to concrete placement including standing water. | ☑ | ☐ | ☐ |
| 16.0 | Openings in formwork permit inspection and cleaning, placing and compaction of concrete, and forming and processing of construction joints. | ☑ | ☐ | ☐ |
| 17.0 | Formwork has been coated with release agent prior to rebar placement. | ☑ | ☐ | ☐ |
| | | ☐ | ☐ | ☐ |

COMMENTS:

ATTACHMENT(S):

DEFICIENCIES NOTES:

INITIAL INSPECTION

INSPECTOR: James Meadahl TITLE FOREMAN DATE: Aug 21. 2018

RE-INSPECTION (DEFICIENCIES COMPLETED)

SPECTOR: TITLE Field Engineer DATE: Aug 21. 2018

CLARK BUILDERS
ENERGY & RESOURCES

# EXCAVATION AND BACKFILL PRE POUR | QA INSPECTION

Rev 00 May 4, 2018

| | |
|---|---|
| SUBCONTRACTOR: Clarkbuilders. | INSPECTION DATE: Aug 21. 2018 |
| SUBCONTRACTOR CONTACT PERSON: Jamesmeadahl | ACTION BY: |
| INSPECTOR(S): Jamesmeadahl | |
| LOCATION: ADR GRADERBEAMGRID-BE GR3D-3E, SUMPbasesGR4, GR2, OCT 4m betweenGR4-5 | |
| DRAWING REV: 0 | DRAWING NO.(S): 260-002, 007, 0030 / SPEC SECTION(S): |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Subsoil investigation report has been reviewed | ☑ | ☐ | ☐ |
| 2.0 | Survey complete, stakes and monuments located | ☑ | ☐ | ☐ |
| 3.0 | Procedures in place for hazardous materials? | ☑ | ☐ | ☐ |
| 4.0 | Required Ground Disturbance permits reviewed and approved | ☐ | ☐ | ☑ |
| 5.0 | Utilities and other underground potential interferences to remain are located, stakes and protected? | ☐ | ☐ | ☑ |
| 6.0 | Utilities companies notified | ☐ | ☐ | ☑ |
| 7.0 | Drawings are approved and stamped prior to work begins | ☑ | ☐ | ☐ |
| 8.0 | Drainage has been planned and is being provided continuously | ☑ | ☐ | ☐ |
| 9.0 | Need for well points has been checked | ☐ | ☐ | ☑ |
| 10.0 | Testing, inspection and compaction requirements have been reviewed | ☑ | ☐ | ☐ |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 11.0 | Backfill materials have been tested and approved to use | ☑ | ☐ | ☐ |
| 12.0 | Clarify compaction requirements by material, use, lift thickness, frequency, etc. | ☑ | ☐ | ☐ |
| 13.0 | Need of slope design for trenching or excavation has been reviewed | ☑ | ☐ | ☐ |
| 14.0 | Blast/fractured rock requirements have been reviewed | ☑ | ☐ | ☐ |
| 15.0 | Project specific quality requirements | ☑ | ☐ | ☐ |
| 16.0 | If needed, are barricades, stop logs, properly placed? | ☐ | ☐ | ☑ |
| | | ☐ | ☐ | ☐ |
| | | ☐ | ☐ | ☐ |
| | | ☐ | ☐ | ☐ |
| | | ☐ | ☐ | ☐ |

COMMENTS:

ATTACHMENT(S):

DEFICIENCIES NOTES:

INITIAL INSPECTION

INSPECTOR: Jamesmeadahl TITLE FOREMAN DATE: Aug 21. 2018

RE-INSPECTION (DEFICIENCIES COMPLETED)

INSPECTOR: [signature] Nancy Lowe TITLE Field Engineer DATE: Aug 21 2018

CLARK BUILDERS
ENERGY & RESOURCES

CB-INSPECTION FORM-DOC-002 REV.00
JDS ENERGY & MINING INC. | STRATAGOLD EAGLE GOLD
PROJECT #: CB201 | 18502

PROJECT MANAGER: DUSTIN DOLYNCHUK, P.ENG
QA/QC COORDINATOR: RYAN DE MILLIANO, C.E.T.
SUPERINTENDENT: GARRY DAHL

# CONCRETE REINFORCEMENT PRE POUR

Rev 00 May 4, 2018

| | |
|---|---|
| SUBCONTRACTOR: Clark Builders | INSPECTION DATE: Aug 21. 2018 |
| SUBCONTRACTOR CONTACT PERSON: James Mcadam | ACTION BY: |
| INSPECTOR(S): James Mcadam | |
| LOCATION: ADR GRADEBEAM GR 1E - BE GR 3 D - 3E, Sumpbase E GR 4, GR 2, Oct 4m between 4-5 GR | |
| DRAWING REV: 0 | DRAWING NO.(S): 260-0002 Rev 0, 007, 0080 / SPEC SECTION(S): |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Grade (400W unless otherwise noted) and type of steel delivered and installed as required by approved drawings. | ☑ | ☐ | ☐ |
| 2.0 | Inspect rebar distribution, spacing and cover per design/project requirements. | ☑ | ☐ | ☐ |
| 3.0 | Length of splices as specified | ☑ | ☐ | ☐ |
| 4.0 | Staggered splices as specified | ☑ | ☐ | ☐ |
| 5.0 | Any mechanical splices have been approved by the owner prior to install | ☐ | ☐ | ☑ |
| 6.0 | Bars cleaned and free of material that may reduce bond including loose rust, scale, oil, structural defects and that they are uncoated and unpainted. | ☑ | ☐ | ☐ |
| 7.0 | Dowels at wall ends, construction joints, and openings as specified (length, location, size, etc.) | ☑ | ☐ | ☐ |
| 8.0 | No unauthorized field bent bars including hooks installed | ☑ | ☐ | ☐ |
| | Resolve conflicts between embedded items and reinforcement | / | | |
| 9.0 | When authorized, field bends done without heat and inspected for fissures or cracks. | ☐ | ☐ | ☑ |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 10.0 | Bars tied and supported to prevent displacement | ☑ | ☐ | ☐ |
| 11.0 | Spacers, tie wire and chairs as required | ☑ | ☐ | ☐ |
| 12.0 | Conduits at design location and minimum separation from rebar as specified | ☐ | ☐ | ☑ |
| 13.0 | No contact of bars is made with dissimilar metals as per CSA A23.1 | ☑ | ☐ | ☐ |
| 14.0 | Bars, nails or tie wire not sticking out from surfaces that allow rusting/corrosion | ☑ | ☐ | ☐ |
| 15.0 | Rebar is welds inspected by qualified inspectors certified to CSA W178.2 | ☑ | ☐ | ☐ |
| 16.0 | No rebar congestion or other obstruction for deposit of concrete | ☑ | ☐ | ☐ |
| 17.0 | Adjustments required for interfering items (piping, inserts, sleeves, etc.) have been submitted and approved by owner. | ☑ | ☐ | ☐ |
| 18.0 | Rebar was stored off ground to prevent damage/corrosion | / | | |
| 19.0 | Review drawings for anchors, piping, sleeves, boxes | ☑ | ☐ | ☐ |

COMMENTS:

| | ATTACHMENT(S): |
|---|---|
| | |
| | |
| | |

DEFICIENCIES NOTES:

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|---|
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INITIAL INSPECTION

INSPECTOR: James Mcadam TITLE FOREMAN DATE: Aug 21. 2018

RE-INSPECTION (DEFICIENCIES COMPLETED)

INSPECTOR: [signature] TITLE Field Engineer DATE: Aug 21. 2018

CLARK BUILDERS
ENERGY & RESOURCES

PROJECT MANAGER: DUSTIN DOLYNCHUK, P.ENG
QA/QC COORDINATOR: RYAN DE MILLIANO, C.E.T.
SUPERINTENDENT: GARRY DAHL

# FORMWORK & FALSEWORK PRE POUR | QA INSPECTION

Rev 00 May 4, 2018

| | |
|---|---|
| SUBCONTRACTOR: Clarkbuilders | INSPECTION DATE: Aug 21. 2018 |
| SUBCONTRACTOR CONTACT PERSON: James Meadahl | DATE OF POUR: Aug 21. 2018 |
| INSPECTOR(S): James Meadahl | |
| LOCATION: ADR GRADEBEAM 1E-8E GR3D-3E, Sumpbase 6R4, 6R2, Oct. 4m between 4-5GR | |
| DRAWING REV: | DRAWING NO.(S): SPEC SECTION(S): |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Location, survey, dimension and grades as required | ☑ | ☐ | ☐ |
| 2.0 | Plumbness and Flatness verified | ☑ | ☐ | ☐ |
| 3.0 | Joints are aligned and watertight. | ☑ | ☐ | ☐ |
| 4.0 | Formwork shop drawings are Engineered and reviewed | ☑ | ☐ | ☐ |
| 5.0 | Re-used formwork reconditioned and treated | ☑ | ☐ | ☐ |
| 6.0 | Formwork and ties according to finishing requirements. Confirm no holes in the concrete surface are greater than 25mm in diameter or expose steel at less than 25mm from surface. As per spec. | ☑ | ☐ | ☐ |
| 7.0 | Installation of embeds are located and secured | ☑ | ☐ | ☐ |
| 8.0 | Chamfer requirements checked. 25mm chamfers required for all exterior corners and edges exposed to view including horizontal edges of pads. | ☑ | ☐ | ☐ |
| 9.0 | Key ways and/or other provisions according to design are provided in construction joints | ☑ | ☐ | ☐ |
| 10.0 | Inspect types of form spacers, ties and bracing. | ☑ | ☐ | ☐ |
| 11.0 | Spacing of ties to be set to a pattern | ☑ | ☐ | ☐ |
| 12.0 | Expansion, construction, contraction joints as required & located as coordinated with structural Engineer | ☑ | ☐ | ☐ |
| 13.0 | Forms secured against movement during placing | ☑ | ☐ | ☐ |
| 14.0 | Forms are braced for alignment and blow out | ☑ | ☐ | ☐ |
| 15.0 | Forms are cleaned of all debris, and dry, prior to concrete placement including standing water. | ☑ | ☐ | ☐ |
| 16.0 | Openings in formwork permit inspection and cleaning, placing and compaction of concrete, and forming and processing of construction joints. | ☑ | ☐ | ☐ |
| 17.0 | Formwork has been coated with release agent prior to rebar placement. | ☑ | ☐ | ☐ |
| | | ☐ | ☐ | ☐ |

COMMENTS:

ATTACHMENT(S):

DEFICIENCIES NOTES:

INITIAL INSPECTION

INSPECTOR: James Meadahl TITLE FOREMAN DATE: Aug 21. 2018

RE-INSPECTION (DEFICIENCIES COMPLETED)

SPECTOR: TITLE Field Engineer DATE: Aug 21. 2018

CLARK BUILDERS
ENERGY & RESOURCES

# EXCAVATION AND BACKFILL PRE POUR | QA INSPECTION

Rev 00 May 4, 2018

| | |
|---|---|
| SUBCONTRACTOR: Clarkbuilders. | INSPECTION DATE: Aug 21. 2018 |
| SUBCONTRACTOR CONTACT PERSON: Jamesmeadahl | ACTION BY: |
| INSPECTOR(S): Jamesmeadahl | |
| LOCATION: ADR GRADERBEAMGRIE-BE GR3D-3E, SUMPbasesGR4, GR2, OCT 4m betweenGR4-5 | |
| DRAWING REV: 0 | DRAWING NO.(S): 260-002, 007, 0030 / SPEC SECTION(S): |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Subsoil investigation report has been reviewed | ☑ | ☐ | ☐ |
| 2.0 | Survey complete, stakes and monuments located | ☑ | ☐ | ☐ |
| 3.0 | Procedures in place for hazardous materials? | ☑ | ☐ | ☐ |
| 4.0 | Required Ground Disturbance permits reviewed and approved | ☐ | ☐ | ☑ |
| 5.0 | Utilities and other underground potential interferences to remain are located, stakes and protected? | ☐ | ☐ | ☑ |
| 6.0 | Utilities companies notified | ☐ | ☐ | ☑ |
| 7.0 | Drawings are approved and stamped prior to work begins | ☑ | ☐ | ☐ |
| 8.0 | Drainage has been planned and is being provided continuously | ☑ | ☐ | ☐ |
| 9.0 | Need for well points has been checked | ☐ | ☐ | ☑ |
| 10.0 | Testing, inspection and compaction requirements have been reviewed | ☑ | ☐ | ☐ |
| 11.0 | Backfill materials have been tested and approved to use | ☑ | ☐ | ☐ |
| 12.0 | Clarify compaction requirements by material, use, lift thickness, frequency, etc. | ☑ | ☐ | ☐ |
| 13.0 | Need of slope design for trenching or excavation has been reviewed | ☑ | ☐ | ☐ |
| 14.0 | Blast/fractured rock requirements have been reviewed | ☑ | ☐ | ☐ |
| 15.0 | Project specific quality requirements | ☑ | ☐ | ☐ |
| 16.0 | If needed, are barricades, stop logs, properly placed? | ☐ | ☐ | ☑ |
| | | ☐ | ☐ | ☐ |
| | | ☐ | ☐ | ☐ |
| | | ☐ | ☐ | ☐ |
| | | ☐ | ☐ | ☐ |

COMMENTS:

ATTACHMENT(S):

DEFICIENCIES NOTES:

INITIAL INSPECTION

INSPECTOR: Jamesmeadahl TITLE FOREMAN DATE: Aug 21. 2018

RE-INSPECTION (DEFICIENCIES COMPLETED)

INSPECTOR: [signature] TITLE Field Engineer DATE: Aug 21 2018

CLARK BUILDERS
ENERGY & RESOURCES

CB-INSPECTION FORM-DOC-002 REV.00
JDS ENERGY & MINING INC. | STRATAGOLD EAGLE GOLD
PROJECT #: CB201 | 18502

PROJECT MANAGER: DUSTIN DOLYNCHUK, P.ENG
QA/QC COORDINATOR: RYAN DE MILLIANO, C.E.T.
SUPERINTENDENT: GARRY DAHL

# FORMWORK & FALSEWORK PRE POUR | QA INSPECTION

Rev 00 May 4, 2018

| | |
|---|---|
| SUBCONTRACTOR: CLARK BUILDERS | INSPECTION DATE: AUGUST 23, 2018 |
| SUBCONTRACTOR CONTACT PERSON: JAMES MEADAWL (FOREMAN) EST. | DATE OF POUR: AUGUST 25, 2018 |
| INSPECTOR(S): RYAN DEMILLIANO | |
| LOCATION: AREA 5710 ADR II PEDESTALS 8x TYPE P8 & 2x TYPE P7A @/NEAR GL 8.5 | |
| DRAWING REV: 01 | DRAWING NO.(S): H354138-5710-231-260-001/0012 | SPEC SECTION(S): S03 2000 |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Location, survey, dimension and grades as required | ☒ | ☐ | ☐ |
| 2.0 | Plumbness and Flatness verified | ☒ | ☐ | ☐ |
| 3.0 | Joints are aligned and watertight. | ☒ | ☐ | ☐ |
| 4.0 | Formwork shop drawings are Engineered and reviewed | ☒ | ☐ | ☐ |
| 5.0 | Re-used formwork reconditioned and treated | ☒ | ☐ | ☐ |
| 6.0 | Formwork and ties according to finishing requirements. Confirm no holes in the concrete surface are greater than 25mm in diameter or expose steel at less than 25mm from surface. As per spec. | ☒ | ☐ | ☐ |
| 7.0 | Installation of embeds are located and secured | ☒ | ☐ | ☐ |
| 8.0 | Chamfer requirements checked. 25mm chamfers required for all exterior corners and edges exposed to view including horizontal edges of pads. | ☒ | ☐ | ☐ |
| 9.0 | Key ways and/or other provisions according to design are provided in construction joints | ☐ | ☐ | ☒ |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 10.0 | Inspect types of form spacers, ties and bracing. | ☒ | ☐ | ☐ |
| 11.0 | Spacing of ties to be set to a pattern | ☐ | ☐ | ☒ |
| 12.0 | Expansion, construction, contraction joints as required & located as coordinated with structural Engineer | ☐ | ☐ | ☒ |
| 13.0 | Forms secured against movement during placing | ☒ | ☐ | ☐ |
| 14.0 | Forms are braced for alignment and blow out | ☒ | ☐ | ☐ |
| 15.0 | Forms are cleaned of all debris, and dry, prior to concrete placement including standing water. | ☒ | ☐ | ☐ |
| 16.0 | Openings in formwork permit inspection and cleaning, placing and compaction of concrete, and forming and processing of construction joints. | ☒ | ☐ | ☐ |
| 17.0 | Formwork has been coated with release agent prior to rebar placement. | ☒ | ☐ | ☐ |
| | | ☐ | ☐ | ☐ |

COMMENTS:

ATTACHMENT(S): DWG.

DEFICIENCIES NOTES:

Additional chairs added to ensure proper cover. Completed during inspection

INITIAL INSPECTION
INSPECTOR: [signature] / Ryan de Milliano TITLE Project Coordinator (QA/QC) DATE: August 23, 2018

RE-INSPECTION (DEFICIENCIES COMPLETED)
INSPECTOR: [signature] D'Arcy Cameron TITLE Field Engineer DATE: Aug 23, 2018

CLARK BUILDERS
ENERGY & RESOURCES

# CONCRETE REINFORCEMENT PRE POUR

Rev 00 May 4, 2018

| | |
|---|---|
| SUBCONTRACTOR: Ultimate Reinforcing / McNish | INSPECTION DATE: August 23, 2018 |
| SUBCONTRACTOR CONTACT PERSON: Derek S. | ISSUE FOR ACTION BY: August 25, 2018 |
| INSPECTOR(S): Ryan deMilliano (QA/QC@CB) | |
| LOCATION: Area 5710 ADR II Pedestals 8x Type PB2, 3x Type PB1. @/near GL 8.5 | |
| DRAWING REV: 01 | DRAWING NO.(S): 5710-231-260-C001/0012 SPEC SECTION(S): |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Grade (400W unless otherwise noted) and type of steel delivered and installed as required by approved drawings. | X | | |
| 2.0 | Inspect rebar distribution, spacing and cover per design/project requirements. | X | | |
| 3.0 | Length of splices as specified | X | | |
| 4.0 | Staggered splices as specified | | | X |
| 5.0 | Any mechanical splices have been approved by the owner prior to install | | | X |
| 6.0 | Bars cleaned and free of material that may reduce bond including loose rust, scale, oil, structural defects and that they are uncoated and unpainted. | X | | |
| 7.0 | Dowels at wall ends, construction joints, and openings as specified (length, location, size, etc.) | | | X |
| 8.0 | No unauthorized field bent bars including hooks installed | X | | |
| | Resolve conflicts between embedded items and reinforcement | X | | |
| 9.0 | When authorized, field bends done without heat and inspected for fissures or cracks. | | | X |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 10.0 | Bars tied and supported to prevent displacement | X | | |
| 11.0 | Spacers, tie wire and chairs as required | X | | |
| 12.0 | Conduits at design location and minimum separation from rebar as specified | | | X |
| 13.0 | No contact of bars is made with dissimilar metals as per CSA A23.1 | X | | |
| 14.0 | Bars, nails or tie wire not sticking out from surfaces that allow rusting/corrosion | X | | |
| 15.0 | Rebar is welds inspected by qualified inspectors certified to CSA W178.2 | X | | |
| 16.0 | No rebar congestion or other obstruction for deposit of concrete | X | | |
| 17.0 | Adjustments required for interfering items (piping, inserts, sleeves, etc.) have been submitted and approved by owner. | | | X |
| 18.0 | Rebar was stored off ground to prevent damage/corrosion | X | | |
| 19.0 | Review drawings for anchors, piping, sleeves, boxes | X | | |

COMMENTS:

Inspection went very well, very minor changes.

ATTACHMENT(S):

DWG.

DEFICIENCIES NOTES:

Add some chairs, Bent.

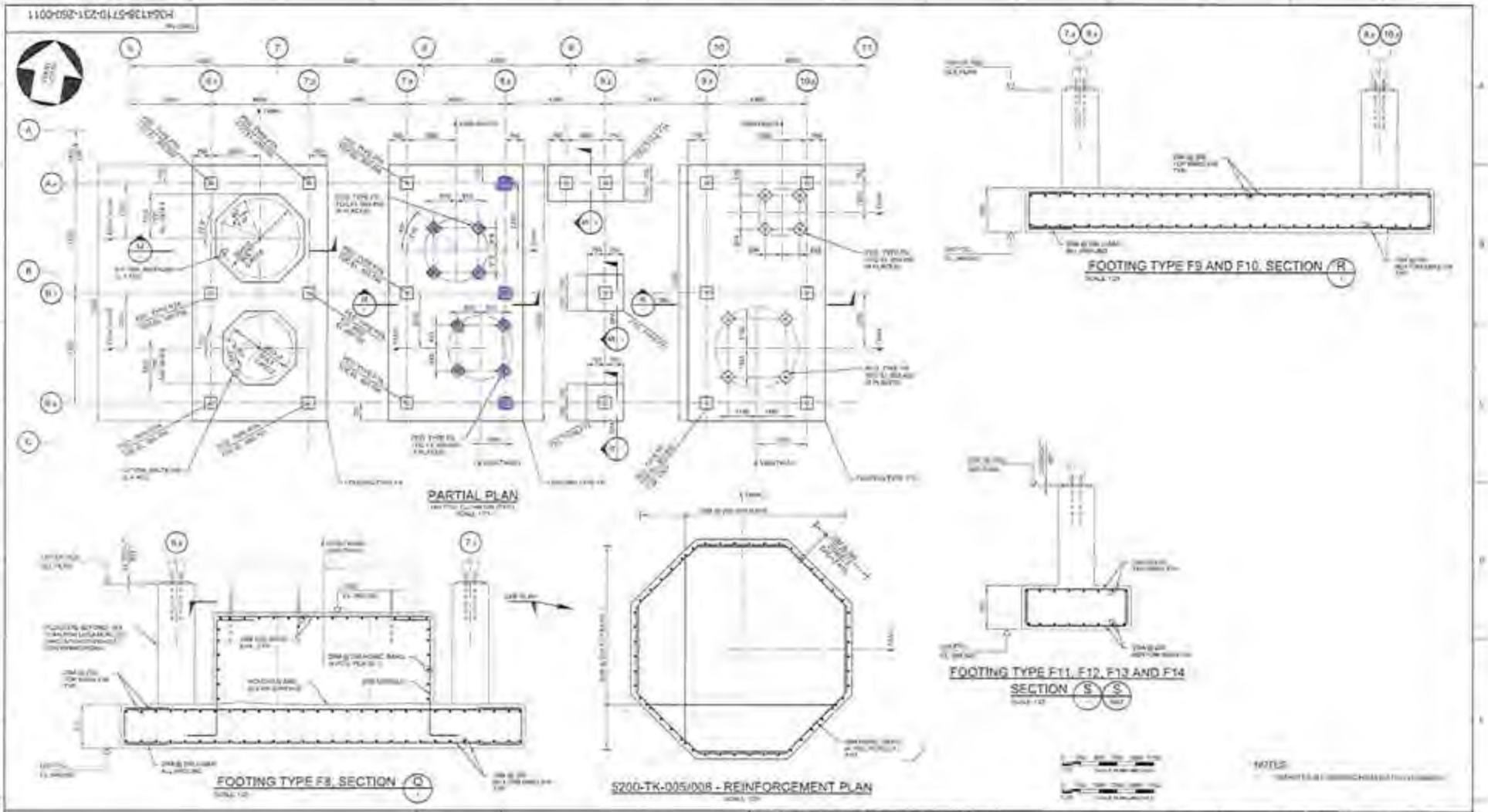
INITIAL INSPECTION

INSPECTOR: Ryan deMilliano TITLE Project Coordinator/QA/QC DATE: August 23, 2018

RE-INSPECTION (DEFICIENCIES COMPLETED)

INSPECTOR: D'Arcy Comerford TITLE Field Engineer DATE: Aug 23, 2018

INSPECTION DATE : AUGUST




HATCH

Stratagold Corporation

EAGLE GOLD PROJECT

ADR PROCESS PLANT BUILDING
INTERIOR FOUNDATION
PLAN, SECTIONS AND DETAILS - SHEET 2

H154139-5710-231-260-0011 | 0

CLARK BUILDERS
ENERGY & RESOURCES

# CONCRETE POST POUR INSPECTION

Rev 00 May 4, 2018

INSPECTOR(S): Ryan deMillard / James Meadmore (Contractor)
SPEC SECTION(S): S03 30 00 – Cast-In-Place
TYPE OF FINISH: F1 - Non-Exposed.
DATE OF INSPECTION: August 24 2018
AREA AND LOCATION(s): Area 5710 ADR II GL 1-6 (A-E): • Footings • Pedestals • Grade Beams • Tank Footings

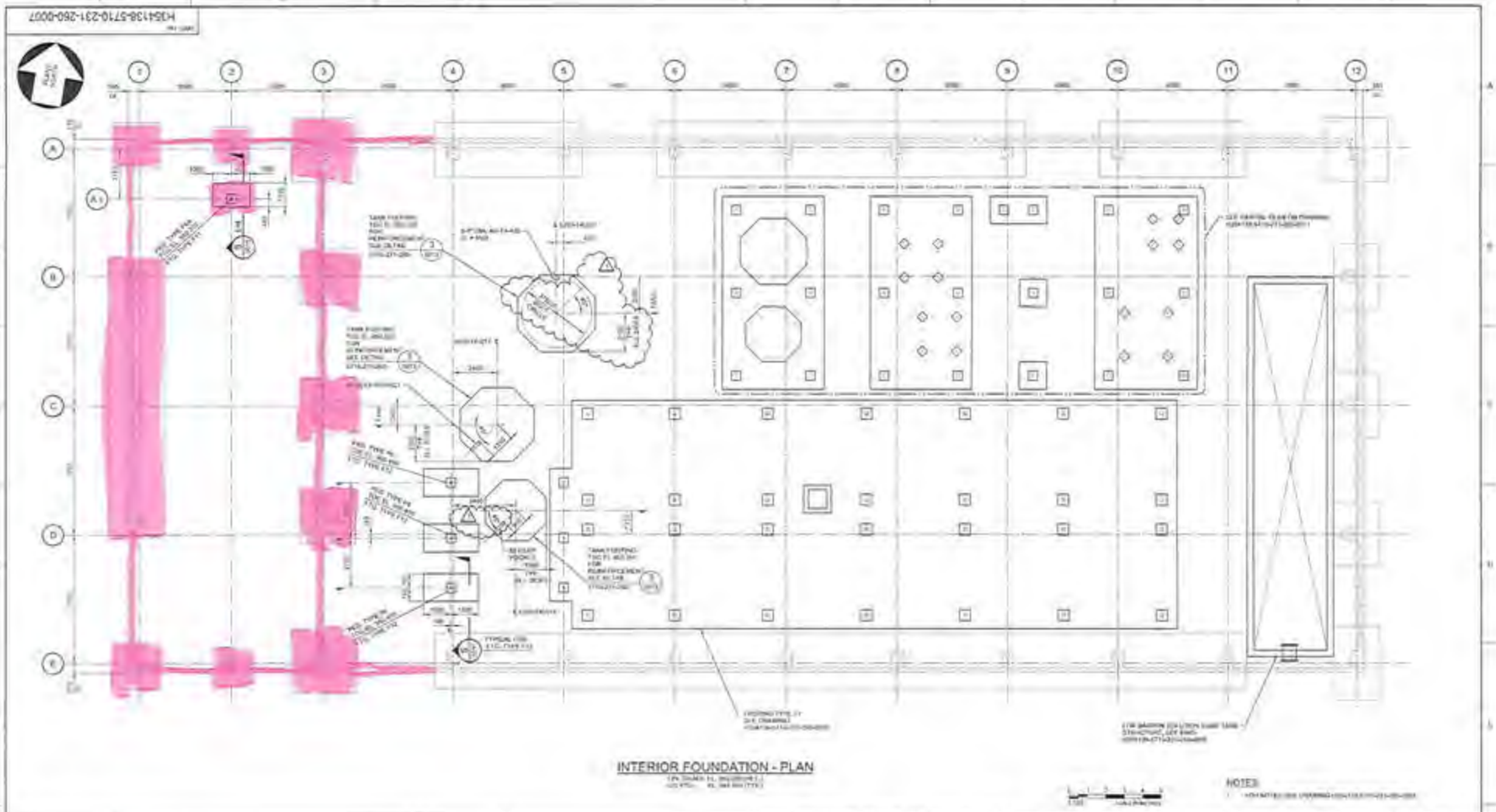
| GENERAL REQUIREMENTS | PASS | FAIL | N/A | REMARKS |
|---|---|---|---|---|
| Curing compounds not used on any surface against which additional concrete or materials are to be bonded. | ☒ | ☐ | ☐ | |
| Fresh concrete barricaded/ protected from mechanical disturbance. | ☒ | ☐ | ☐ | |
| Where concrete is used for filling, the chipped opening shall not be less than 75mm in depth. | ☒ | ☐ | ☐ | |
| Patches exposed to view shall blend with surrounding surfaces. | ☒ | ☐ | ☐ | |
| Contractor shall clean all exposed concrete surfaces of all encrustations of cement, mortar, or grout and shall remove unsightly stains. | ☒ | ☐ | ☐ | Small amount to be cleaned. Done. |
| Concrete appears proper and devoid of any honeycomb, cold joints, droppings or other defects | ☒ | ☐ | ☐ | |
| Removal of all concrete rubble and dispose of at an appropriate location. | ☒ | ☐ | ☐ | |
| Surface of concrete finished against forms has a smooth, dense finish free from cracks, free from projections, pits, and honeycomb and in proper alignment. | ☒ | ☐ | ☐ | |
| COLD WEATHER REQUIREMENTS (WHEN AMB. TEMP < 5°C) | PASS | FAIL | N/A | REMARKS |
| Protection in place until 70% of the 28-day strength has been reached. | ☐ | ☐ | ☒ | |
| Cold weather protection provided by means of heated enclosures, coverings, insulation, or a suitable approved combination of these methods during complete curing period. | ☐ | ☐ | ☒ | |
| Water not sitting in recesses, shear pockets, groves, bolt sleeves during heat and Hoarding period. | ☐ | ☐ | ☒ | |

COMMENTS: Backfill in area to begin August 25, 2018. Tetratech notified.

ATTACHMENT(S):

**INITIAL INSPECTION** (Clark Builders)
PRINT/ SIGN: Ryan deMillard TITLE Project Coordinator (QA) DATE: August 24, 2018

**JDS INSPECTION**
PRINT/ SIGN: [signature] TITLE F.E. DATE: Aug 24 2018


H354138-5710-231-260-0007
INTERIOR FOUNDATION - PLAN
NOTES:
HATCH
Stratagold Corporation
EAGLE GOLD PROJECT
ADR PROCESS PLANT BUILDING
INTERIOR FOUNDATION
GENERAL ARRANGEMENT
H354138-5710-231-260-0007
1

CB-INSPECTION FORM-DOC-002 REV.00
JDS ENERGY & MINING INC. | STRATAGOLD EAGLE GOLD
PROJECT #: CB201 | 18502

CLARK BUILDERS
ENERGY & RESOURCES

PROJECT MANAGER: DUSTIN DOLYNCHUK, P.ENG
QA/QC COORDINATOR: RYAN DE MILLIANO, C.E.T.
SUPERINTENDENT: GARRY DAHL

# FORMWORK & FALSEWORK PRE POUR | QA INSPECTION

Rev 00 May 4, 2018

| | |
|---|---|
| ~~SUB~~CONTRACTOR: CLARK BUILDERS | INSPECTION DATE: AUGUST 24, 2018 |
| ~~SUB~~CONTRACTOR CONTACT PERSON: JAMES MEADAHL / PETER NICE | ~~PROJ.~~ DATE OF POUR: AUG 26, 2018 |
| INSPECTOR(S): Ryan deMilliano (CB PC/QA) | |
| LOCATION: AREA 5710 ADR // PEDESTALS ON GL 4 & GL 2 (4 TOTAL) | |
| DRAWING REV: 01 | DRAWING NO.(S): 5710-231-260-0007 |
| SPEC SECTION(S): S03 10 00 | |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Location, survey, dimension and grades as required | X | ☐ | ☐ |
| 2.0 | Plumbness and Flatness verified | X | ☐ | ☐ |
| 3.0 | Joints are aligned and watertight. | X | ☐ | ☐ |
| 4.0 | Formwork shop drawings are Engineered and reviewed | X | ☐ | ☐ |
| 5.0 | Re-used formwork reconditioned and treated | X | ☐ | ☐ |
| 6.0 | Formwork and ties according to finishing requirements. Confirm no holes in the concrete surface are greater than 25mm in diameter or expose steel at less than 25mm from surface. As per spec. | X | ☐ | ☐ |
| 7.0 | Installation of embeds are located and secured | X | ☐ | ☐ |
| 8.0 | Chamfer requirements checked. 25mm chamfers required for all exterior corners and edges exposed to view including horizontal edges of pads. | X | ☐ | ☐ |
| 9.0 | Key ways and/or other provisions according to design are provided in construction joints | ☐ | ☐ | X |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 10.0 | Inspect types of form spacers, ties and bracing. | X | ☐ | ☐ |
| 11.0 | Spacing of ties to be set to a pattern | X | ☐ | ☐ |
| 12.0 | Expansion, construction, contraction joints as required & located as coordinated with structural Engineer | X | ☐ | ☐ |
| 13.0 | Forms secured against movement during placing | X | ☐ | ☐ |
| 14.0 | Forms are braced for alignment and blow out | X | ☐ | ☐ |
| 15.0 | Forms are cleaned of all debris, and dry, prior to concrete placement including standing water. | X | ☐ | ☐ |
| 16.0 | Openings in formwork permit inspection and cleaning, placing and compaction of concrete, and forming and processing of construction joints. | X | ☐ | ☐ |
| 17.0 | Formwork has been coated with release agent prior to rebar placement. | X | ☐ | ☐ |
| | | ☐ | ☐ | ☐ |

COMMENTS:
ANCHOR BOLTS STILL REQ'D TO BE SECURED ON 2x PEDS.
↳ WILL FOLLOW UP @ POUR

ATTACHMENT(S):
DWGS
REINSPECTED/COMPLETE

DEFICIENCIES NOTES:
N/A.

CB
INITIAL INSPECTION
INSPECTOR: Ryan deMilliano / [signature] TITLE PROJECT COORDINATOR DATE: AUGUST 24, 2018

JDS
~~RE-INSPECTION (DEFICIENCIES COMPLETED)~~
INSPECTOR: [signature] D'ARCY LOMERFORD TITLE FIELD ENGINEER DATE: Aug 24 2018

CLARK BUILDERS
ENERGY & RESOURCES

# CONCRETE REINFORCEMENT PRE POUR

Rev 00 May 4, 2018

| | |
|---|---|
| SUBCONTRACTOR: ~~CLARK BUILDERS~~ ULTIMATE | INSPECTION DATE: AUGUST 24, 2018 |
| SUBCONTRACTOR CONTACT PERSON: DEREK | ~~ACTION BY:~~ |
| INSPECTOR(S): Ryan deMilliano (CB PC/QA) | |
| LOCATION: AREA 5710 ADR / PROFESIALS 3N GL 4 & GL 2 (4 TOTAL) | |
| DRAWING REV: 01 / DRAWING NO.(S): 5710-231-260-0007 | SPEC SECTION(S): ~~03~~ 03 10 00 |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Grade (400W unless otherwise noted) and type of steel delivered and installed as required by approved drawings. | X | ☐ | ☐ |
| 2.0 | Inspect rebar distribution, spacing and cover per design/project requirements. | X | ☐ | ☐ |
| 3.0 | Length of splices as specified | X | ☐ | ☐ |
| 4.0 | Staggered splices as specified | ☐ | ☐ | X |
| 5.0 | Any mechanical splices have been approved by the owner prior to install | ☐ | ☐ | X |
| 6.0 | Bars cleaned and free of material that may reduce bond including loose rust, scale, oil, structural defects and that they are uncoated and unpainted. | X | ☐ | ☐ |
| 7.0 | Dowels at wall ends, construction joints, and openings as specified (length, location, size, etc.) | ☐ | ☐ | X |
| 8.0 | No unauthorized field bent bars including hooks installed | X | ☐ | ☐ |
| | Resolve conflicts between embedded items and reinforcement | X | | |
| 9.0 | When authorized, field bends done without heat and inspected for fissures or cracks. | ☐ | ☐ | X |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 10.0 | Bars tied and supported to prevent displacement | X | ☐ | ☐ |
| 11.0 | Spacers, tie wire and chairs as required | X | ☐ | ☐ |
| 12.0 | Conduits at design location and minimum separation from rebar as specified | ☐ | ☐ | X |
| 13.0 | No contact of bars is made with dissimilar metals as per CSA A23.1 | X | ☐ | ☐ |
| 14.0 | Bars, nails or tie wire not sticking out from surfaces that allow rusting/corrosion | X | ☐ | ☐ |
| 15.0 | Rebar is welds inspected by qualified inspectors certified to CSA W178.2 | ☐ | ☐ | X |
| 16.0 | No rebar congestion or other obstruction for deposit of concrete | X | ☐ | ☐ |
| 17.0 | Adjustments required for interfering items (piping, inserts, sleeves, etc.) have been submitted and approved by owner | X | ☐ | ☐ |
| 18.0 | Rebar was stored off ground to prevent damage/corrosion | X | | |
| 19.0 | Review drawings for anchors, piping, sleeves, boxes | X | ☐ | ☐ |

COMMENTS:

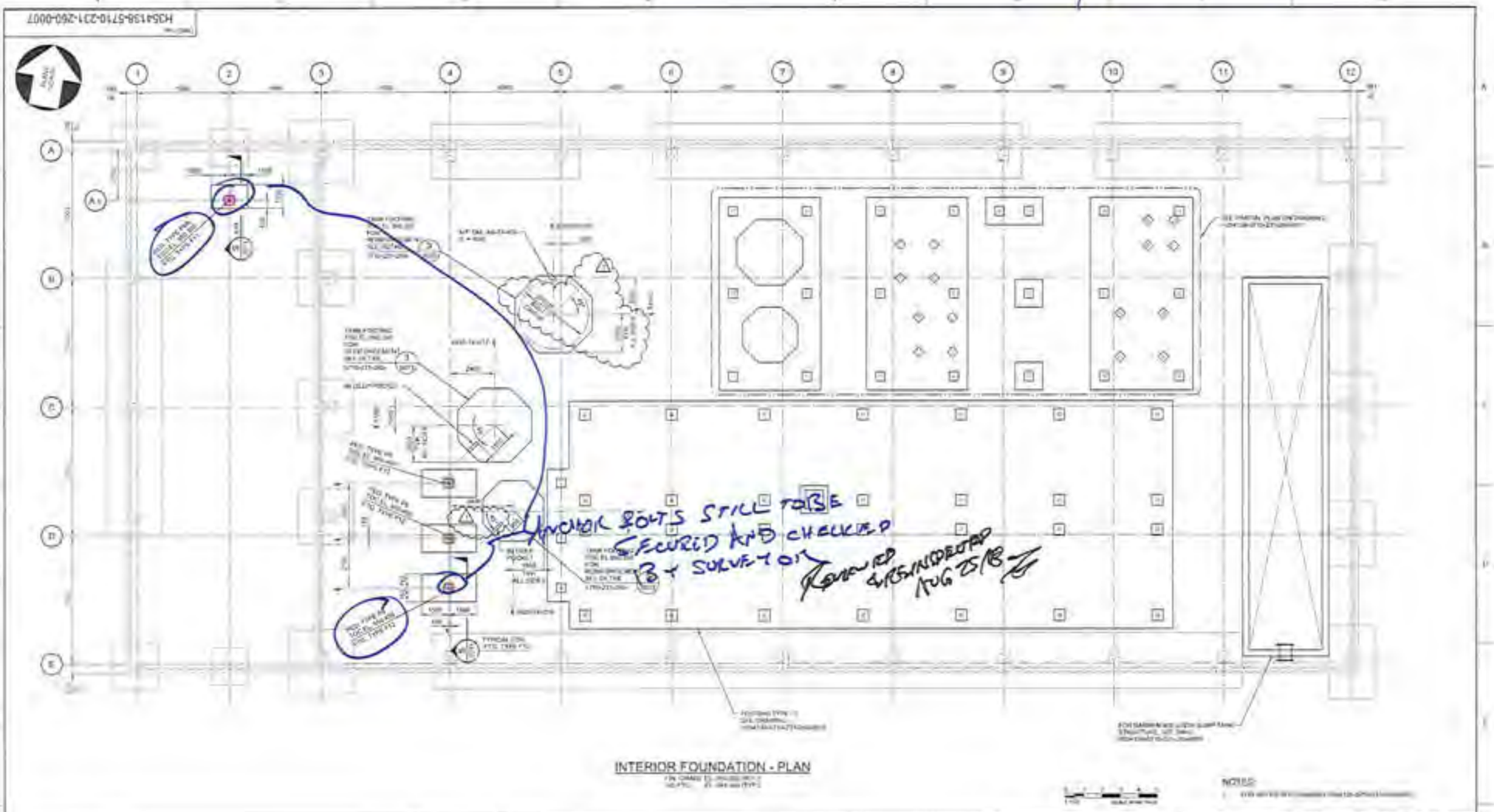
ATTACHMENT(S): DWG. (SKETCHUP)

DEFICIENCIES NOTES:

CB
INITIAL INSPECTION
INSPECTOR: Ryan deMilliano TITLE PROJECT COORDINATOR (QA) DATE: August 24, 2018

JDS
RE-INSPECTION (DEFICIENCIES COMPLETED)
INSPECTOR: D'Arcy Crawford TITLE Field Engineer DATE: Aug 24, 2018

ENG DATE = AUGUST 24, 018
INSPECTORS : Ryan deMiliano / D'ARCY (STS)




INTERIOR FOUNDATION - PLAN

NOTES:

HATCH

StrataGold

EAGLE GOLD PROJECT

ADR PROCESS PLANT BUILDING
INTERIOR FOUNDATION
GENERAL ARRANGEMENT

H354138-5710-231-260-0007

1

CLARK BUILDERS
ENERGY & RESOURCES

# CONCRETE POST POUR INSPECTION

Rev 00 May 4, 2018

| | |
|---|---|
| INSPECTOR(S): Ryan deMillano / P'Arcy (JDS) | SPEC SECTION(S): 503 30 00 – Cast-In-Place |
| TYPE OF FINISH: F1 | DATE OF INSPECTION: August 25, 2018 |
| AREA AND LOCATION(s): AREA 5710 FOOTINGS & FLOORS. GL 3-12 (A-C) + GL 3-5 (A-F) SEE ATTACHED SKETCH. | |

| GENERAL REQUIREMENTS | PASS | FAIL | N/A | REMARKS |
|---|---|---|---|---|
| Curing compounds not used on any surface against which additional concrete or materials are to be bonded. | ☒ | ☐ | ☐ | |
| Fresh concrete barricaded/ protected from mechanical disturbance. | ☒ | ☐ | ☐ | |
| Where concrete is used for filling, the chipped opening shall not be less than 75mm in depth. | ☐ | ☐ | ☒ | |
| Patches exposed to view shall blend with surrounding surfaces. | ☒ | ☐ | ☐ | |
| Contractor shall clean all exposed concrete surfaces of all encrustations of cement, mortar, or grout and shall remove unsightly stains. | ☒ | ☐ | ☐ | Some removal required. Done at end of inspection |
| Concrete appears proper and devoid of any honeycomb, cold joints, droppings or other defects | ☒ | ☐ | ☐ | |
| Removal of all concrete rubble and dispose of at an appropriate location. | ☒ | ☐ | ☐ | |
| Surface of concrete finished against forms has a smooth, dense finish free from cracks, free from projections, pits, and honeycomb and in proper alignment. | ☒ | ☐ | ☐ | |
| COLD WEATHER REQUIREMENTS (WHEN AMB. TEMP < 5°C) | PASS | FAIL | N/A | REMARKS |
| Protection in place until 70% of the 28-day strength has been reached. | ☐ | ☐ | ☒ | |
| Cold weather protection provided by means of heated enclosures, coverings, insulation, or a suitable approved combination of these methods during complete curing period. | ☐ | ☐ | ☒ | |
| Water not sitting in recesses, shear pockets, groves, bolt sleeves during heat and Hoarding period. | ☐ | ☐ | ☒ | |

| | |
|---|---|
| COMMENTS: | |
| ATTACHMENT(S): | |

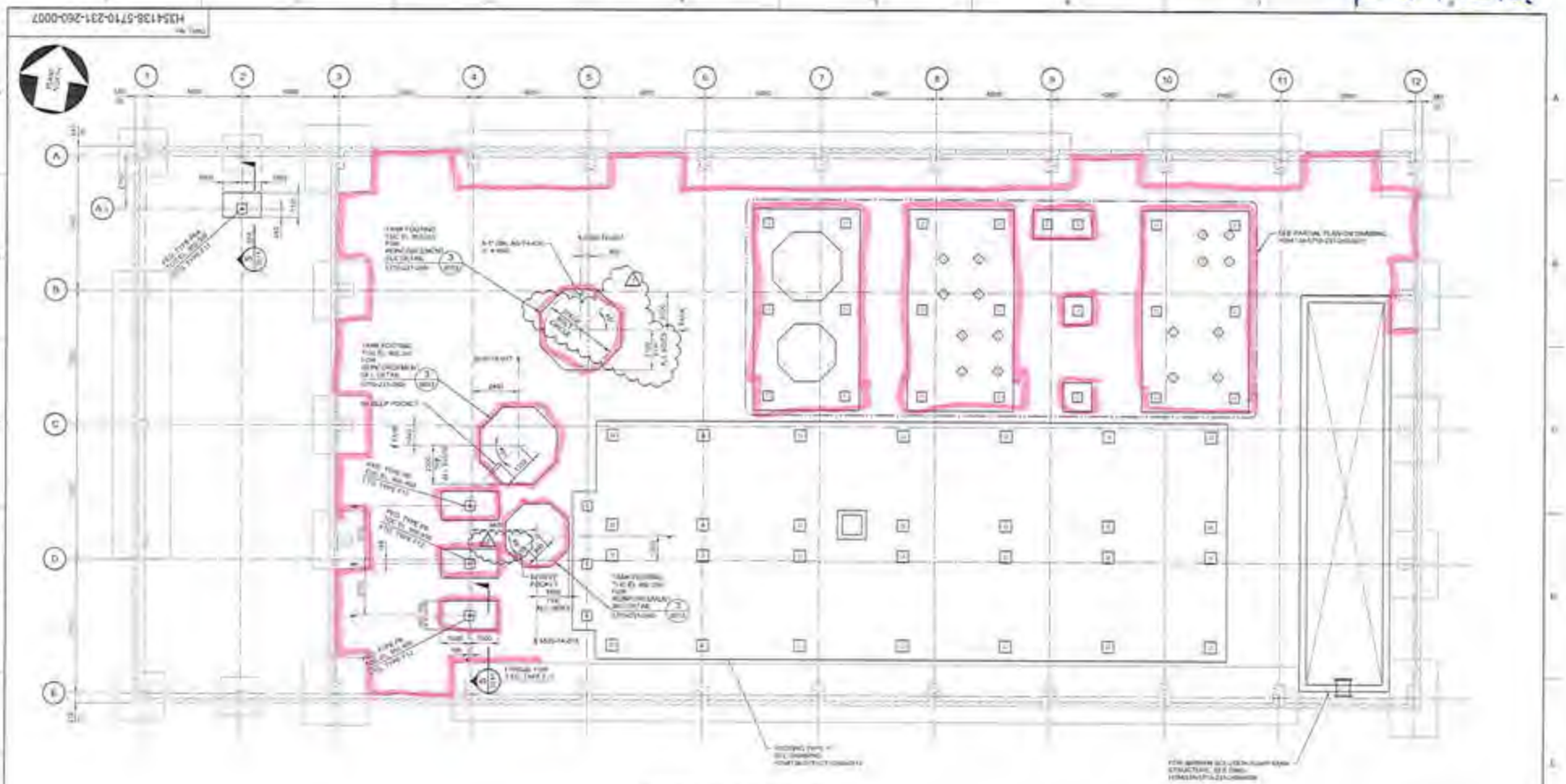
**INITIAL INSPECTION**

PRINT/ SIGN: Ryan deMillano TITLE Project Coordinator (QA) DATE: August 25, 2018

**JDS INSPECTION**

PRINT/ SIGN: P'Arcy Comerford TITLE F.E. DATE: Aug 25 2018

AUGUST 25 2018
FOOTING INSPECTION
POST POUR.



INTERIOR FOUNDATION - PLAN

NOTES

HATCH

StrataGold corporation

EAGLE GOLD PROJECT

ADR PROCESS PLANT BUILDING
INTERIOR FOUNDATION
GENERAL ARRANGEMENT

H354136-5710-231-260-0007

1

CB-INSPECTION FORM-DOC-002 REV.00
JDS ENERGY & MINING INC. | STRATAGOLD EAGLE GOLD
PROJECT #: CB201 | 18502

CLARK BUILDERS
ENERGY & RESOURCES

PROJECT MANAGER: DUSTIN DOLYNCHUK, P.ENG
QA/QC COORDINATOR: RYAN DE MILLIANO, C.E.T.
SUPERINTENDENT: GARRY DAHL

# CONCRETE REINFORCEMENT PRE POUR

Rev 01 August 25, 2018

| | |
|---|---|
| SUBCONTRACTOR: Ultimate Reinforcing // McNish | INSPECTION DATE: August ~~26~~ 25, 2018 |
| SUBCONTRACTOR CONTACT PERSON: Derek Savoie | PROJ. POUR DATE: August 26, 2018 |
| INSPECTOR(S): Ryan deMilliano (QA) | |
| LOCATION: Area 5710 ADR Tank Footings (octogon) (x2) on GL 7 | |
| DRAWING REV: 01 / DRAWING NO.(S): 5710-231-260-0011 | SPEC SECTION(S): S03 20 00 – Concrete Reinforcing Steel |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Grade (400W unless otherwise noted) and type of steel delivered and installed as required by approved drawings. | X | | |
| 2.0 | Inspect rebar distribution, spacing and cover per design/project requirements. | X | | |
| 3.0 | Length of splices as specified | X | | |
| 4.0 | Staggered splices as specified | X | | |
| 5.0 | Any mechanical splices have been approved by the owner prior to install | | | X |
| 6.0 | Bars cleaned and free of material that may reduce bond including loose rust, scale, oil, structural defects and that they are uncoated and unpainted. | X | | |
| 7.0 | Dowels at wall ends, construction joints, and openings as specified (length, location, size, etc.) | | | X |
| 8.0 | No unauthorized field bent bars including hooks installed | X | | |
| 9.0 | Resolve conflicts between embedded items and reinforcement | X | | |
| 10.0 | When authorized, field bends done without heat and inspected for fissures or cracks. | X | | |
| 11.0 | Bars tied and supported to prevent displacement | X | | |
| 12.0 | Spacers, tie wire and chairs as required | X | | |
| 13.0 | Conduits at design location and minimum separation from rebar as specified | X | | |
| 14.0 | No contact of bars is made with dissimilar metals as per CSA A23.1 | X | | |
| 15.0 | Bars, nails or tie wire not sticking out from surfaces that allow rusting/corrosion | X | | |
| 16.0 | Rebar is welds inspected by qualified inspectors certified to CSA W178.2 | | | X |
| 17.0 | No rebar congestion or other obstruction for deposit of concrete | X | | |
| 18.0 | Adjustments required for interfering items (piping, inserts, sleeves, etc.) have been submitted and approved by owner. | X | | |
| 19.0 | Rebar was stored off ground to prevent damage/corrosion | X | | |
| 20.0 | Review drawings for anchors, piping, sleeves, boxes | X | | |

COMMENTS:

BARS ADJUSTED/TOP MAT LIFTED AS PER RFI 46 RESPONSE
↑ CAUGHT IN AN INFORMAL INSPECTION BY FIELD TEAM AT CLARK

ATTACHMENT(S):

- RFI 46 - 150mm Cover Issue.
- DWG.

DEFICIENCIES NOTES:

2x LOOSE BARS TIED ONSITE DURING INSPECTION.

CLARK BUILDERS:
INSPECTOR: Ryan deMilliano [signature] TITLE: Project Coordinator (QA) DATE: August 25, 2018

JDS ENERGY & MINING:
INSPECTOR: D Harry Comerford [signature] TITLE: Field Engineer DATE: Aug 25, 2018

CLARK BUILDERS
ENERGY & RESOURCES

CB-INSPECTION FORM-DOC-002 REV.00
IDS ENERGY & MINING INC. | STRATAGOLD EAGLE GOLD
PROJECT #: CB201 | 18502

PROJECT MANAGER: DUSTIN DOLYNCHUK, P.ENG
QA/QC COORDINATOR: RYAN DE MILLIANO, C.E.T.
SUPERINTENDENT: GARRY DAHL

# FORMWORK & FALSEWORK PRE POUR | QA INSPECTION

Rev 01 August 25, 2018

| | |
|---|---|
| CONTRACTOR: Clark Builders | INSPECTION DATE: AUGUST 25, 2018 |
| CONTRACTOR CONTACT PERSON: | DATE OF POUR: |
| INSPECTOR(S): Ryan deMilliano (CB QA) | |
| LOCATION: AREA 5710 ADR TANK FOOTING. (OCTOGON) x2 ON GL 7. | |
| DRAWING REV: 01 | DRAWING NO.(S): 5710-231-260-0011 |
| SPEC SECTION(S): S03 10 00 | |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Location, survey, dimension and grades as required | X | ☐ | ☐ |
| 2.0 | Plumbness and Flatness verified | X | ☐ | ☐ |
| 3.0 | Joints are aligned and watertight. | X | ☐ | ☐ |
| 4.0 | Formwork shop drawings are Engineered and reviewed | X | ☐ | ☐ |
| 5.0 | Re-used formwork reconditioned and treated | X | ☐ | ☐ |
| 6.0 | Formwork and ties according to finishing requirements. Confirm no holes in the concrete surface are greater than 25mm in diameter or expose steel at less than 25mm from surface. As per spec. | X | ☐ | ☐ |
| 7.0 | Installation of embeds are located and secured → CHECKED BEFORE POUR *INSTALLED DAY OF POUR (ANCHOR BOLTS) | X | ☐ | ☐ |
| 8.0 | Chamfer requirements checked. 25mm chamfers required for all exterior corners and edges exposed to view including horizontal edges of pads. | X | ☐ | ☐ |
| 9.0 | Key ways and/or other provisions according to design are provided in construction joints | ☐ | ☐ | X |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 10.0 | Inspect types of form spacers, ties and bracing. | X | ☐ | ☐ |
| 11.0 | Spacing of ties to be set to a pattern | ☐ | ☐ | X |
| 12.0 | Expansion, construction, contraction joints as required & located as coordinated with structural Engineer | X | ☐ | ☐ |
| 13.0 | Forms secured against movement during placing | X | ☐ | ☐ |
| 14.0 | Forms are braced for alignment and blow out | X | ☐ | ☐ |
| 15.0 | Forms are cleaned of all debris, and dry, prior to concrete placement including standing water. | X | ☐ | ☐ |
| 16.0 | Openings in formwork permit inspection and cleaning, placing and compaction of concrete, and forming and processing of construction joints. | X | ☐ | ☐ |
| 17.0 | Formwork has been coated with release agent prior to rebar placement. | X | ☐ | ☐ |
| 18.0 | Anchor Bolts and Embeds are secured to formwork. | X | ☐ | ☐ |

COMMENTS:

ATTACHMENT(S):

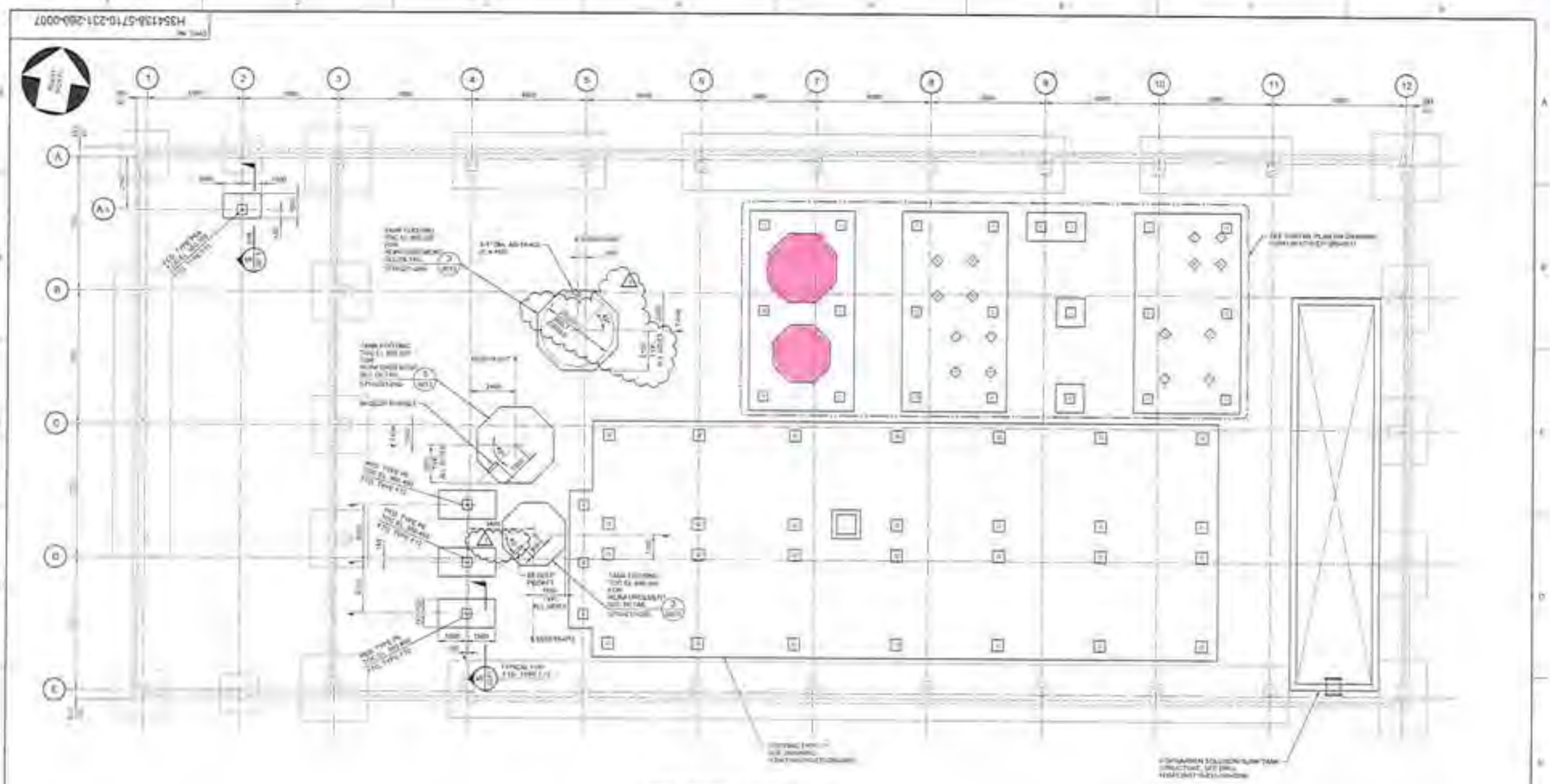
DEFICIENCIES NOTES:

INITIAL INSPECTION

INSPECTOR: [signature] / Ryan deMilliano TITLE Project Coordinator (QA) DATE: AUGUST 25/18

RE-INSPECTION (DEFICIENCIES COMPLETED)

INSPECTOR: N/A TITLE DATE:



INTERIOR FOUNDATION - PLAN

NOTES:

HATCH

StrataGold

EAGLE GOLD PROJECT

ADR PROCESS PLANT BUILDING
INTERIOR FOUNDATION
GENERAL ARRANGEMENT

H354138-5710-231-260-0007

CLARK BUILDERS
ENERGY & RESOURCES

PROJECT MANAGER: DUSTIN DOLYNCHUK, P.ENG
QA/QC COORDINATOR: RYAN DE MILLIANO, C.E.T.
SUPERINTENDENT: GARRY DAHL

# FORMWORK & FALSEWORK PRE POUR | QA INSPECTION

27 16

Rev 00 May 4, 2018

| | |
|---|---|
| SUBCONTRACTOR: CLARK BUILDERS. | INSPECTION DATE: AUGUST 25, 2018 |
| SUBCONTRACTOR CONTACT PERSON: JAMES MEADAHL / PETER NICE | APPROX. DATE OF POUR: AUGUST 28, 2018 |
| INSPECTOR(S): RYAN DEMILLIANO (CBQA) | |
| LOCATION: AREA 5710 AUTR BARRE SOC SUMP TANK WALLS. GL 11-12; B-E | |
| DRAWING REV: 00 / DRAWING NO.(S): 5710-231-260-0008 | SPEC SECTION(S): S03 20 00 |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Location, survey, dimension and grades as required | X | | |
| 2.0 | Plumbness and Flatness verified | X | | |
| 3.0 | Joints are aligned and watertight. | X | | |
| 4.0 | Formwork shop drawings are Engineered and reviewed | X | | |
| 5.0 | Re-used formwork reconditioned and treated | X | | |
| 6.0 | Formwork and ties according to finishing requirements. Confirm no holes in the concrete surface are greater than 25mm in diameter or expose steel at less than 25mm from surface. As per spec. | X | | |
| 7.0 | Installation of embeds are located and secured | X | | |
| 8.0 | Chamfer requirements checked. 25mm chamfers required for all exterior corners and edges exposed to view including horizontal edges of pads. | X | | |
| 9.0 | Key ways and/or other provisions according to design are provided in construction joints | X | | |
| 10.0 | Inspect types of form spacers, ties and bracing. | X | | |
| 11.0 | Spacing of ties to be set to a pattern | X | | |
| 12.0 | Expansion, construction, contraction joints as required & located as coordinated with structural Engineer | | | X |
| 13.0 | Forms secured against movement during placing | X | | |
| 14.0 | Forms are braced for alignment and blow out | X | | |
| 15.0 | Forms are cleaned of all debris, and dry, prior to concrete placement including standing water. | X | | |
| 16.0 | Openings in formwork permit inspection and cleaning, placing and compaction of concrete, and forming and processing of construction joints. | X | | |
| 17.0 | Formwork has been coated with release agent prior to rebar placement. | X | | |
| | | | | |

COMMENTS:

NOT AVAILABLE FOR INSPECTION AT TIME OF REBAR INSP. WALLS TO BE CLOSED UP TODAY (AUGUST 25, 2018).

ATTACHMENT(S):

DEFICIENCIES NOTES:

INITIAL INSPECTION

INSPECTOR: Ryan deMilliano [signature] TITLE Project Coordinator (QA) DATE: AUGUST 25, 2018

JDS

RE-INSPECTION (DEFICIENCIES COMPLETED)

INSPECTOR: N/A. TITLE _____ DATE: _____

CLARK BUILDERS
ENERGY & RESOURCES

# CONCRETE REINFORCEMENT PRE POUR

Rev 00 May 4, 2018

| | |
|---|---|
| SUBCONTRACTOR: Ultimate Reinforcing / McNish | INSPECTION DATE: August 25, 2018 |
| SUBCONTRACTOR CONTACT PERSON: Derek S. | ACTION BY: Close up DATE: August 26, 2018 |
| INSPECTOR(S): Ryan deMilliano (CB QA) | |
| LOCATION: Area 5710 ADR Basin Sawtooth Tank Walls GL 11-12 ; B-E | |
| DRAWING REV: 00 | DRAWING NO.(S): 5710-231-260-0008 |
| SPEC SECTION(S): 503 2000 | |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Grade (400W unless otherwise noted) and type of steel delivered and installed as required by approved drawings | X | | |
| 2.0 | Inspect rebar distribution, spacing and cover per design/project requirements. | X | | |
| 3.0 | Length of splices as specified | X | | |
| 4.0 | Staggered splices as specified | X | | |
| 5.0 | Any mechanical splices have been approved by the owner prior to install | | | X |
| 6.0 | Bars cleaned and free of material that may reduce bond including loose rust, scale, oil, structural defects and that they are uncoated and unpainted. | X | | |
| 7.0 | Dowels at wall ends, construction joints, and openings as specified (length, location, size, etc.) | X | | |
| 8.0 | No unauthorized field bent bars including hooks installed | X | | |
| | Resolve conflicts between embedded items and reinforcement | X | | |
| 9.0 | When authorized, field bends done without heat and inspected for fissures or cracks | | | X |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 10.0 | Bars tied and supported to prevent displacement | X | | |
| 11.0 | Spacers, tie wire and chairs as required | X | | |
| 12.0 | Conduits at design location and minimum separation from rebar as specified THROUGH P DAR | X | | X |
| 13.0 | No contact of bars is made with dissimilar metals as per CSA A23.1 | X | | |
| 14.0 | Bars, nails or tie wire not sticking out from surfaces that allow rusting/corrosion | X | | |
| 15.0 | Rebar is welds inspected by qualified inspectors certified to CSA W178.2 | | | X |
| 16.0 | No rebar congestion or other obstruction for deposit of concrete | X | | |
| 17.0 | Adjustments required for interfering items (piping, inserts, sleeves, etc.) have been submitted and approved by owner. | X | | |
| 18.0 | Rebar was stored off ground to prevent damage/corrosion | X | | |
| 19.0 | Review drawings for anchors, piping, sleeves, boxes | X | | |

COMMENTS:

* Provide pictures of completed walers for re-install to IDS.

ATTACHMENT(S):

DEFICIENCIES NOTES:

Top Hooks (HORZ) at door openings require "L" tobe tied to prevent movement.

INITIAL INSPECTION

INSPECTOR: Ryan deMilliano TITLE Project Coordinator (QA) DATE: August 25, 2018

RE-INSPECTION (DEFICIENCIES COMPLETED)

INSPECTOR: D'Arcy TITLE Field Engineer DATE: Aug 25 2018

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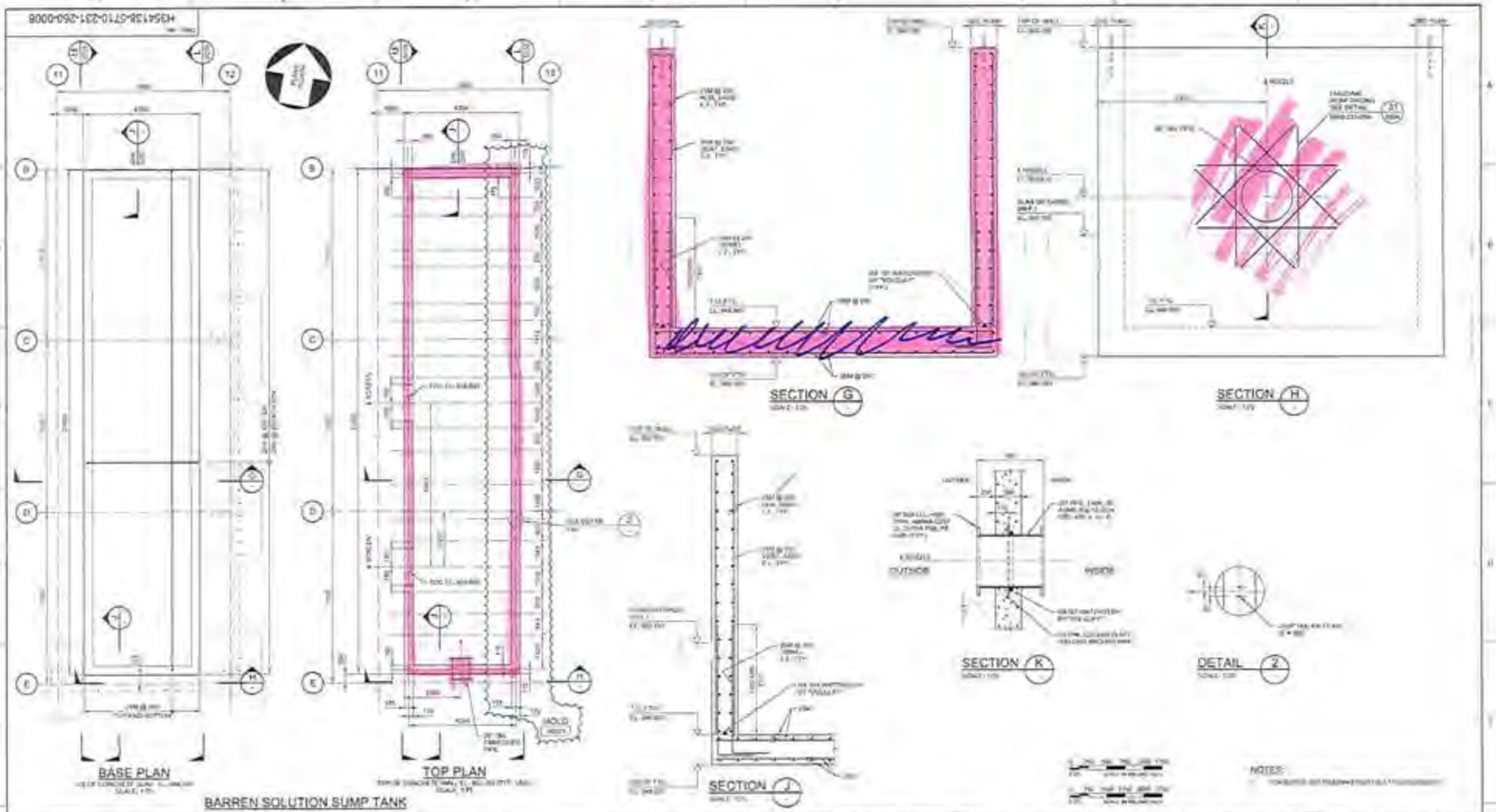
BASE PLAN
TOP PLAN
SECTION G
SECTION H
SECTION J
SECTION K
DETAIL 2
BARREN SOLUTION SUMP TANK
NOTES:
HATCH
StrataGold
EAGLE GOLD PROJECT
ADR PROCESS PLANT BUILDING
BARREN SOLUTION SUMP TANK
PLAN, SECTIONS - SHEET 1
H354138-5710-231-260-0008
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CLARK BUILDERS
ENERGY & RESOURCES

PROJECT MANAGER: DUSTIN DOLYNCHUK, P.ENG
QA/QC COORDINATOR: RYAN DE MILLIANO, C.E.T.
SUPERINTENDENT: GARRY DAHL

# CONCRETE REINFORCEMENT PRE POUR

AUG. 31/18

Rev 00 May 4, 2018

| | |
|---|---|
| SUBCONTRACTOR: ULTIMATE REINFORCING | INSPECTION DATE: AUG. 30/18 |
| SUBCONTRACTOR CONTACT PERSON: DEREK SAUCIE | ACTION BY: |
| INSPECTOR(S): | |
| LOCATION: 5710 ADR PLANT PEDESTALS GL5→10.4/C-D.6 | |
| DRAWING REV: 1 / DRAWING NO.(S): 5710-231-260-0010 | SPEC SECTION(S): 503 20 00 |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Grade (400W unless otherwise noted) and type of steel delivered and installed as required by approved drawings. | ☑ | ☐ | ☐ |
| 2.0 | Inspect rebar distribution, spacing and cover per design/project requirements. | ☑ | ☐ | ☐ |
| 3.0 | Length of splices as specified | ☑ | ☐ | ☐ |
| 4.0 | Staggered splices as specified | ☑ | ☐ | ☐ |
| 5.0 | Any mechanical splices have been approved by the owner prior to install | ☑ | ☐ | ☐ |
| 6.0 | Bars cleaned and free of material that may reduce bond including loose rust, scale, oil, structural defects and that they are uncoated and unpainted. | ☑ | ☐ | ☐ |
| 7.0 | Dowels at wall ends, construction joints, and openings as specified (length, location, size, etc.) | ☑ | ☐ | ☐ |
| 8.0 | No unauthorized field bent bars including hooks installed | ☑ | ☐ | ☐ |
| | Resolve conflicts between embedded items and reinforcement | / | | |
| 9.0 | When authorized, field bends done without heat and inspected for fissures or cracks. | ☑ | ☐ | ☐ |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 10.0 | Bars tied and supported to prevent displacement | ☑ | ☐ | ☐ |
| 11.0 | Spacers, tie wire and chairs as required | ☑ | ☐ | ☐ |
| 12.0 | Conduits at design location and minimum separation from rebar as specified | ☐ | ☐ | ☑ |
| 13.0 | No contact of bars is made with dissimilar metals as per CSA A23.1 | ☑ | ☐ | ☐ |
| 14.0 | Bars, nails or tie wire not sticking out from surfaces that allow rusting/corrosion | ☑ | ☐ | ☐ |
| 15.0 | Rebar is welds inspected by qualified inspectors certified to CSA W178.2 | ☐ | ☐ | ☑ |
| 16.0 | No rebar congestion or other obstruction for deposit of concrete | ☑ | ☐ | ☐ |
| 17.0 | Adjustments required for interfering items (piping, inserts, sleeves, etc.) have been submitted and approved by owner. | ☐ | ☐ | ☑ |
| 18.0 | Rebar was stored off ground to prevent damage/corrosion | / | | |
| 19.0 | Review drawings for anchors, piping, sleeves, boxes | ☑ | ☐ | ☐ |

COMMENTS:

ATTACHMENT(S):

DEFICIENCIES NOTES:

INITIAL INSPECTION

INSPECTOR: Peter Nicu PA Ni TITLE Superintendent DATE: Aug 31, 2018

RE-INSPECTION (DEFICIENCIES COMPLETED)

INSPECTOR: Adam. Chow TITLE Superintendent DATE: Aug 31, 2018

CLARK BUILDERS
ENERGY & RESOURCES

PROJECT MANAGER: DUSTIN DOLYNCHUK, P.ENG
QA/QC COORDINATOR: RYAN DE MILLIANO, C.E.T.
SUPERINTENDENT: GARRY DAHL

# FORMWORK & FALSEWORK PRE POUR | QA INSPECTION

Rev 00 May 4, 2018

| | |
|---|---|
| SUBCONTRACTOR: CLARK BUILDERS | INSPECTION DATE: AUG. 31/2018 |
| SUBCONTRACTOR CONTACT PERSON: PETER NICE/JAMES MEADHL | DATE OF POUR: |
| INSPECTOR(S): | |
| LOCATION: 5710 ADR PLANT PEDESTALS GL 5-10.4/C-D.6 | |
| DRAWING REV: 1 | DRAWING NO.(S): 5710-251-220-0010 |
| | SPEC SECTION(S): 303 10 00 |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Location, survey, dimension and grades as required | ☑ | ☐ | ☐ |
| 2.0 | Plumbness and Flatness verified | ☑ | ☐ | ☐ |
| 3.0 | Joints are aligned and watertight. | ☑ | ☐ | ☐ |
| 4.0 | Formwork shop drawings are Engineered and reviewed | ☐ | ☐ | ☑ |
| 5.0 | Re-used formwork reconditioned and treated | ☑ | ☐ | ☐ |
| 6.0 | Formwork and ties according to finishing requirements. Confirm no holes in the concrete surface are greater than 25mm in diameter or expose steel at less than 25mm from surface. As per spec. | ☑ | ☐ | ☐ |
| 7.0 | Installation of embeds are located and secured | ☑ | ☐ | ☐ |
| 8.0 | Chamfer requirements checked. 25mm chamfers required for all exterior corners and edges exposed to view including horizontal edges of pads. | ☑ | ☐ | ☐ |
| 9.0 | Key ways and/or other provisions according to design are provided in construction joints | ☐ | ☐ | ☑ |
| 10.0 | Inspect types of form spacers, ties and bracing. | ☑ | ☐ | ☐ |
| 11.0 | Spacing of ties to be set to a pattern | ☑ | ☐ | ☐ |
| 12.0 | Expansion, construction, contraction joints as required & located as coordinated with structural Engineer | ☐ | ☐ | ☑ |
| 13.0 | Forms secured against movement during placing | ☑ | ☐ | ☐ |
| 14.0 | Forms are braced for alignment and blow out | ☑ | ☐ | ☐ |
| 15.0 | Forms are cleaned of all debris, and dry, prior to concrete placement including standing water. | ☑ | ☐ | ☐ |
| 16.0 | Openings in formwork permit inspection and cleaning, placing and compaction of concrete, and forming and processing of construction joints. | ☑ | ☐ | ☐ |
| 17.0 | Formwork has been coated with release agent prior to rebar placement. | ☑ | ☐ | ☐ |
| | | ☐ | ☐ | ☐ |

COMMENTS:

ATTACHMENT(S):

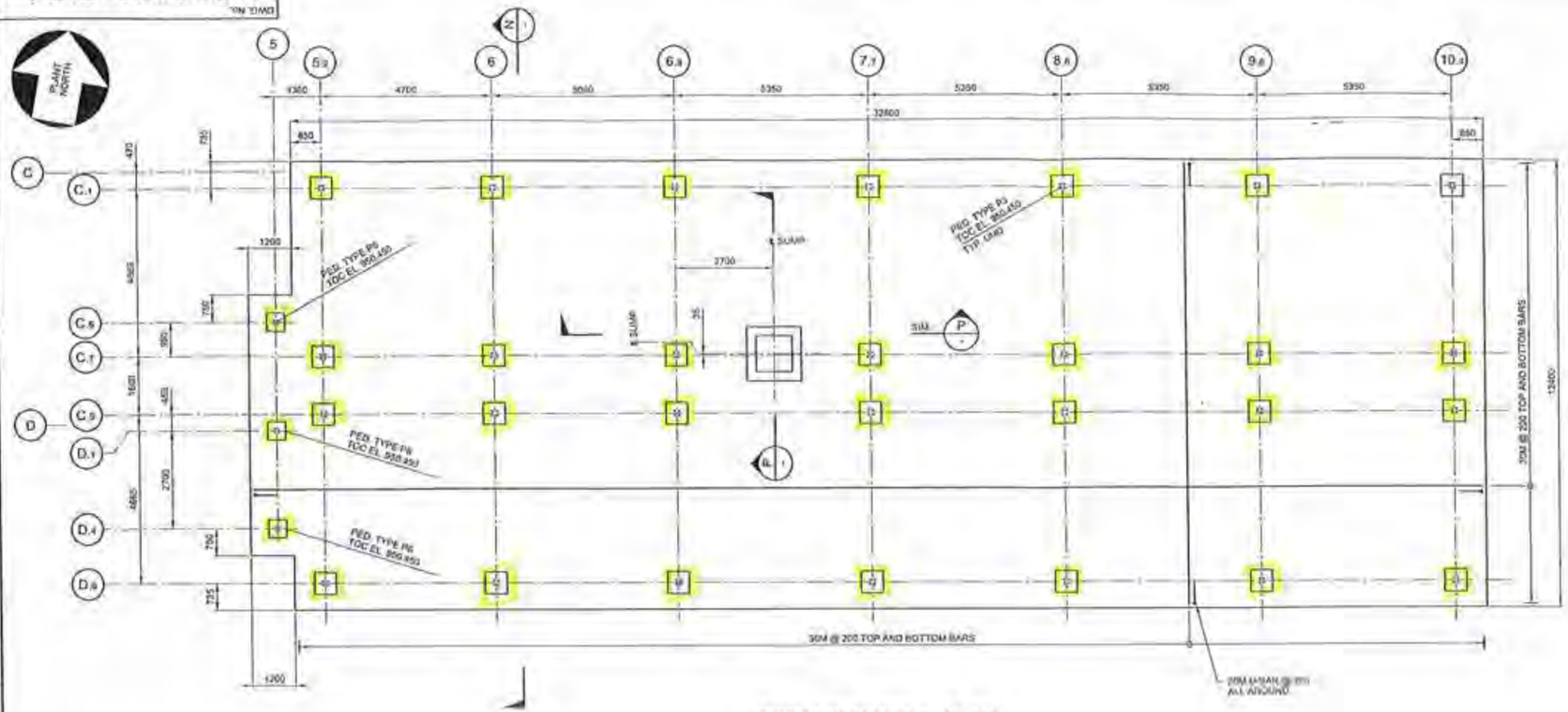
DEFICIENCIES NOTES:

INITIAL INSPECTION

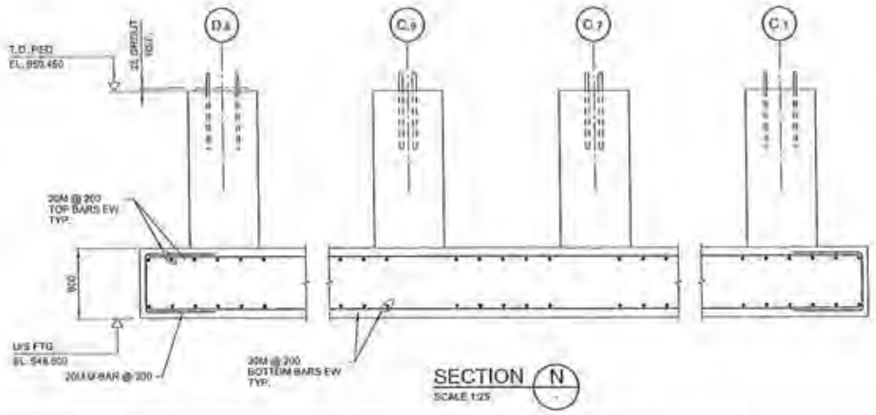
INSPECTOR: Peter Nice TITLE Superintendent DATE: Aug 31/18

RE-INSPECTION (DEFICIENCIES COMPLETED)

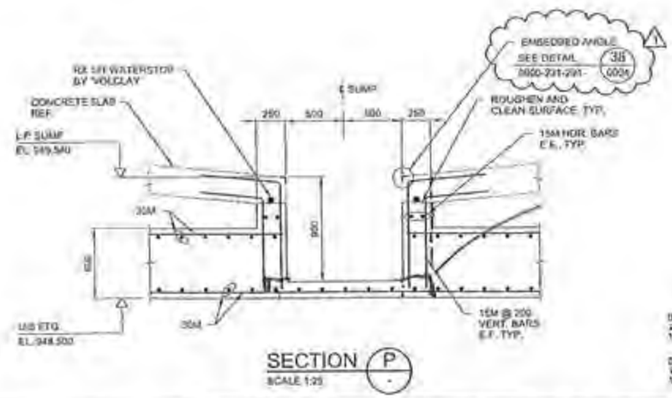
INSPECTOR: _____ TITLE _____ DATE: _____




FOOTING TYPE F7 - PLAN
SCALE 1:25




SECTION N
SCALE 1:25




SECTION P
SCALE 1:25

0 250 500 750 1000 1250
1:25 SCALE IN MILLIMETRES

0 750 1500 2250 3000 3750
1:75 SCALE IN MILLIMETRES

NOTES:

1. FOR NOTES SEE DRAWING H354138-5710-231-260-0010

| DRAWING No. | DRAWING TITLE |
|---|---|
| REFERENCE DRAWINGS | |

REG. PROFESSIONAL

| No. | DESCRIPTION | BY | CHK'D | DATE |
|---|---|---|---|---|
| 1 | APPROVED FOR CONSTRUCTION | RS | EA | 2018-07-11 |
| 0 | APPROVED FOR CONSTRUCTION | PJ | EA | 2018-05-31 |

REVISIONS

HATCH

| | | | |
|---|---|---|---|
| DRAFTSPERSON | E. MENDIOLA | NR. | 2018-04-20 |
| DESIGNER | F. LIU | NR. | 2018-04-20 |
| CHECKER | E. AKINCI | | |
| DESIGN COORD. | S. PERKINS | | |
| RESP. ENG. | E. AKINCI | | |
| LEAD DISC. ENG. | E. AKINCI | | |
| ENG. MANAGER | B. RUSTAD | | |
| PROJ. MANAGER | B. RUSTAD | | |
| ROLE | NAME | SIGNATURE & DATE | |

DRAWING APPROVAL STATUS: Approved for Construction

StrataGold Corporation

EAGLE GOLD PROJECT

ADR PROCESS PLANT BUILDING
INTERIOR FOUNDATION
PLAN, SECTIONS AND DETAILS - SHEET 1

SCALE AS NOTED OR AS NOTED | DWG. No. H354138-5710-231-260-0010 | REV 1

SHEET SIZE: D

SFILE:
PRINTED: 11-JUL-2018

CLARK BUILDERS
ENERGY & RESOURCES

# EXCAVATION AND BACKFILL PRE POUR | QA INSPECTION

Rev 00 May 4, 2018

| | |
|---|---|
| SUBCONTRACTOR: COBALT | INSPECTION DATE: SEPT. 2/2018 |
| SUBCONTRACTOR CONTACT PERSON: KEVIN SMITS | ACTION BY: |
| INSPECTOR(S): JACKSON WENGER | |
| LOCATION: 5710 ADR PLANT GRIDLINES 1-3 & 4 | |
| DRAWING REV: 0 | DRAWING NO.(S): 554158-280-220-210-0002 / SPEC SECTION(S): CIVIL |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Subsoil investigation report has been reviewed | ☑ | ☐ | ☐ |
| 2.0 | Survey complete, stakes and monuments located | ☑ | ☐ | ☐ |
| 3.0 | Procedures in place for hazardous materials? | ☑ | ☐ | ☐ |
| 4.0 | Required Ground Disturbance permits reviewed and approved | ☑ | ☐ | ☐ |
| 5.0 | Utilities and other underground potential interferences to remain are located, stakes and protected? | ☑ | ☐ | ☐ |
| 6.0 | Utilities companies notified | ☐ | ☐ | ☑ |
| 7.0 | Drawings are approved and stamped prior to work begins | ☑ | ☐ | ☐ |
| 8.0 | Drainage has been planned and is being provided continuously | ☑ | ☐ | ☐ |
| 9.0 | Need for well points has been checked | ☑ | ☐ | ☐ |
| 10.0 | Testing, inspection and compaction requirements have been reviewed | ☑ | ☐ | ☐ |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 11.0 | Backfill materials have been tested and approved to use | ☑ | ☐ | ☐ |
| 12.0 | Clarify compaction requirements by material, use, lift thickness, frequency, etc. | ☑ | ☐ | ☐ |
| 13.0 | Need of slope design for trenching or excavation has been reviewed | ☑ | ☐ | ☐ |
| 14.0 | Blast/fractured rock requirements have been reviewed | ☑ | ☐ | ☐ |
| 15.0 | Project specific quality requirements | ☑ | ☐ | ☐ |
| 16.0 | If needed, are barricades, stop logs, properly placed? | ☑ | ☐ | ☐ |
| | | ☐ | ☐ | ☐ |
| | | ☐ | ☐ | ☐ |
| | | ☐ | ☐ | ☐ |
| | | ☐ | ☐ | ☐ |

COMMENTS:

COMPACTION TESTING RECORDS ATTACHED

ATTACHMENT(S):

PGS 2,3,4,5,

DEFICIENCIES NOTES:

INITIAL INSPECTION

INSPECTOR: JACKSON WENGER TITLE PROJECT COORDINATOR DATE: SEPT. 2/2018

RE-INSPECTION (DEFICIENCIES COMPLETED)

INSPECTOR: Matt Coverdale TITLE Field Engineer DATE: Sept 02,2018

# COMPACTION DENSITY TEST SUMMARY REPORT

ASTM Designation D6938

**Project:** Eagle Gold Project — **Test Apparatus:** Nuclear — **Troxler No:** 60841

QC Inspection & Testing — **Specified Compaction:** 95 % Mod. Proctor Max. Dry Density

**Project No.:** WARC.03235-05 — **Specified Moisture** (MC): As Below

**Client:** JDS Energy & Mining/Hatch — **Temperature** **Air:** 5 °C **Soil:** °C

**Attention:** — **Date Tested:** 8/27/2018 **By:** AS

**Contractor:** Cobalt/Clark Construction — **Construction Period:** DAYSHIFT

**Soil Description:** GRAVEL, Sandy, trace silt

**Material Usage/Zone:** 38mm minus ODF

| Date mm/dd/yyyy | Test No. / Probe (mm) | Location: | El. | Dry Density (kg/m³) | MC % | Max. Dry Density | Opt. MC % | Comp % MPD |
|---|---|---|---|---|---|---|---|---|
| 8/27/2018 | 31 / 150 | Gridlines 4,B 1st lift | n/a | 2202 | 6.4 | 2250 | 6.0 | **97.9** |
| 8/27/2018 | 32 / 150 | Gridlines 4,C 1st lift | n/a | 2225 | 5.8 | 2250 | 6.0 | **98.9** |
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**Remarks:** Issued for Review

**Copies:**

**Reviewed By:** _____ P.Eng.

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TETRA TECH

# COMPACTION DENSITY TEST SUMMARY REPORT

ASTM Designation D6938

**Project:** Eagle Gold Project — **Test Apparatus:** Nuclear — **Troxler No:** 60841

QC Inspection & Testing — **Specified Compaction:** 95 % Mod. Proctor Max. Dry Density

**Project No.:** WARC.03235-05 — **Specified Moisture (MC):** As Below

**Client:** JDS Energy & Mining/Hatch — **Temperature** **Air:** 8 °C **Soil:** °C

**Attention:** — **Date Tested:** 8/28/2018 **By:** AS

**Contractor:** Cobalt/Clark Construction — **Construction Period:** DAYSHIFT

**Soil Description:** GRAVEL, Sandy, trace silt

**Material Usage/Zone:** 38mm minus ODF

| Date mm/dd/yyyy | Test No. / Probe (mm) | Location: | El. | Dry Density (kg/m³) | MC % | Max. Dry Density | Opt. MC % | Comp % MPD |
|---|---|---|---|---|---|---|---|---|
| 8/28/2018 | 33 / 300 | Gridlines 1,B 2nd lift | n/a | 2206 | 6.8 | 2250 | 6.0 | **98.0** |
| 8/28/2018 | 34 / 300 | Gridlines 2,B 2nd lift | n/a | 2250 | 5.9 | 2250 | 6.0 | **100.0** |
| 8/28/2018 | 35 / 300 | Gridlines 2,C 2nd lift | n/a | 2259 | 5.4 | 2250 | 6.0 | **100.4** |
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**Remarks:** Issued for Review

**Copies:**

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TETRA TECH

# COMPACTION DENSITY TEST SUMMARY REPORT

ASTM Designation D6938

**Project:** Eagle Gold Project — **Test Apparatus:** Nuclear — **Troxler No:** 60841

QC Inspection & Testing — **Specified Compaction:** 95 % Mod. Proctor Max. Dry Density

**Project No.:** WARC.03235-05 — **Specified Moisture (MC):** As Below

**Client:** JDS Energy & Mining/Hatch — **Temperature Air:** 14 °C **Soil:** °C

**Attention:** — **Date Tested:** 8/29/2018 **By:** AS

**Contractor:** Cobalt/Clark Construction — **Construction Period:** DAYSHIFT

**Soil Description:** GRAVEL, Sandy, trace silt

**Material Usage/Zone:** 38mm minus ODF

| Date mm/dd/yyyy | Test No. / Probe (mm) | Location: | El. | Dry Density (kg/m³) | MC % | Max. Dry Density | Opt. MC % | Comp % MPD |
|---|---|---|---|---|---|---|---|---|
| 8/29/2018 | 36 / 300 | Gridlines 2,B 3rd lift | n/a | 2202 | 6.7 | 2250 | 6.0 | **97.9** |
| 8/29/2018 | 37 / 300 | Gridlines 3,B final lift | GR | 2284 | 5.9 | 2250 | 6.0 | **101.5** |
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**Remarks:** Issued for Review

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TETRA TECH

# COMPACTION DENSITY TEST SUMMARY REPORT

ASTM Designation D6938

**Project:** Eagle Gold Project — **Test Apparatus:** Nuclear — **Troxler No:** 60841

QC Inspection & Testing — **Specified Compaction:** 95 % Mod. Proctor Max. Dry Density

**Project No.:** WARC.03235-05 — **Specified Moisture** (MC): As Below

**Client:** JDS Energy & Mining/Hatch — **Temperature** **Air:** 7 °C **Soil:** °C

**Attention:** — **Date Tested:** 8/30/2018 **By:** AS

**Contractor:** Cobalt/Clark Construction — **Construction Period:** DAYSHIFT

**Soil Description:** GRAVEL, Sandy, trace silt

**Material Usage/Zone:** 38mm minus ODF

| Date mm/dd/yyyy | Test No. / Probe (mm) | Location: | El. | Dry Density (kg/m³) | MC % | Max. Dry Density | Opt. MC % | Comp % MPD |
|---|---|---|---|---|---|---|---|---|
| 8/30/2018 | **38** / 300 | Gridlines 2,B final lift | GR | 2292 | 4.7 | 2250 | 6.0 | **101.9** |
| 8/30/2018 | **39** / 300 | Gridlines 3,D second lift | n/a | 2214 | 4.4 | 2250 | 6.0 | **98.4** |
| 8/30/2018 | **40** / 300 | Gridlines 4,B first lift | n/a | 2169 | 4.9 | 2250 | 6.0 | **96.4** |
| 8/30/2018 | 41 / 300 | Gridlines 4,B second lift | n/a | 2156 | 4.9 | 2250 | 6.0 | **95.8** |
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**Remarks:** Issued for Review

**Copies:**

**Reviewed By:** _____ P.Eng.

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TETRA TECH

CLARK BUILDERS
ENERGY & RESOURCES

# CONCRETE POST POUR INSPECTION

Rev 00 May 4, 2018

| | |
|---|---|
| INSPECTOR(S): JACKSON WENGER | SPEC SECTION(S): S03 30 00 – Cast-In-Place |
| TYPE OF FINISH: FACE OF FORM/FLOAT | DATE OF INSPECTION: SEPT. 2/2018 |

AREA AND LOCATION(s): ADR (5110) FT FOOTING, BARREN SOLUTION TANK EXT, GB-GL 12, GB E/4-12

| GENERAL REQUIREMENTS | PASS | FAIL | N/A | REMARKS |
|---|---|---|---|---|
| Curing compounds not used on any surface against which additional concrete or materials are to be bonded. | ☑ | ☐ | ☐ | |
| Fresh concrete barricaded/ protected from mechanical disturbance. | ☑ | ☐ | ☐ | |
| Where concrete is used for filling, the chipped opening shall not be less than 75mm in depth. | ☑ | ☐ | ☐ | |
| Patches exposed to view shall blend with surrounding surfaces. | ☑ | ☐ | ☐ | |
| Contractor shall clean all exposed concrete surfaces of all encrustations of cement, mortar, or grout and shall remove unsightly stains. | ☑ | ☐ | ☐ | |
| Concrete appears proper and devoid of any honeycomb, cold joints, droppings or other defects | ☑ | ☐ | ☐ | |
| Removal of all concrete rubble and dispose of at an appropriate location. | ☑ | ☐ | ☐ | |
| Surface of concrete finished against forms has a smooth, dense finish free from cracks, free from projections, pits, and honeycomb and in proper alignment. | ☑ | ☐ | ☐ | |
| **COLD WEATHER REQUIREMENTS (WHEN AMB. TEMP < 5°C)** | **PASS** | **FAIL** | **N/A** | **REMARKS** |
| Protection in place until 70% of the 28-day strength has been reached. | ☐ | ☐ | ☐ | |
| Cold weather protection provided by means of heated enclosures, coverings, insulation, or a suitable approved combination of these methods during complete curing period. | ☐ | ☐ | ☐ | |
| Water not sitting in recesses, shear pockets, groves, bolt sleeves during heat and Hoarding period. | ☐ | ☐ | ☐ | |

| | |
|---|---|
| COMMENTS: | |
| ATTACHMENT(S): | |

**INITIAL INSPECTION**

PRINT/ SIGN: JACKSON WENGER _____ TITLE PROJECT COORDINATOR DATE: SEPT. 2/2018

**JDS INSPECTION**

PRINT/ SIGN: Matt Coverdale _____ TITLE Field Engineer DATE: Sept 03/18

H354138-5710-231-260-0007

PLANT NORTH

TANK FOOTING TOC EL 550.550 FOR REINFORCEMENT SEE DETAIL 5710-231-260- 3 5013

TANK FOOTING TOC EL 550.350 FOR REINFORCEMENT SEE DETAIL 5710-231-260- 3 5013

TANK FOOTING TOC EL 550.350 FOR REINFORCEMENT SEE DETAIL 5710-231-260- 3 5013

PED. TYPE P4 TOC EL 550.550 FTG. TYPE F11

PED. TYPE P8 TOC EL 550.450 FTG. TYPE F12

PED. TYPE P9 TOC EL 550.450 FTG. TYPE F12

PED. TYPE P8 TOC EL 550.450 FTG. TYPE F12

8-1" DIA. AB-T4-030 (E = 45°)

5530-TK-017 E

5530-TK-018

5530-TK-017

5530-TK-016

5530-TK-015

5530-TK-014

5530-TK-013

5530-TK-012

5530-TK-011

5530-TK-010

5530-TK-009

5530-TK-008

5530-TK-007

5530-TK-006

5530-TK-005

5530-TK-004

5530-TK-003

5530-TK-002

5530-TK-001

8Ø DEEP POCKET

8Ø DEEP POCKET 1650 TYP. ALL SIDES

TYPICAL FOR FTG. TYPE F12

FOOTING TYPE F7 SEE DRAWING H354138-5710-231-260-0013

SEE PARTIAL PLAN ON DRAWING H354138-5710-231-265-0011

FOR BARREN SOLUTION SUMP TANK STRUCTURE, SEE DWG H354138-5710-231-265-0008

POST POUR INSPECTION/REB - BACKFILL SEPT. 2

## INTERIOR FOUNDATION - PLAN

FIN. GRADE EL. 550.600 (REF.)
T/S FTG. EL. 548.500 (TYP.)

SCALE 1:100

NOTES:
1. FOR NOTES SEE DRAWING H354138-5710-231-260-0001

| | | | | | |
|---|---|---|---|---|---|
| | | | | HATCH | StrataGold Corporation |
| | | | | CRAFTSPERSON E. MENDIOLA MR 2018-04-18 | EAGLE GOLD PROJECT |
| | | | | DESIGNER F. LIU MR 2018-04-18 | |
| | | | | CHECKER E. AKINCI | ADR PROCESS PLANT BUILDING |
| | | | | DESIGN COORD. S. PERKINS | INTERIOR FOUNDATION |
| | | | | RESP. ENG. E. AKINCI | GENERAL ARRANGEMENT |
| | | | | LEAD DISC. ENG. E. AKINCI | |
| | | | | ENG. MANAGER B. RUSTAD | |
| | | | | PROJ. MANAGER B. RUSTAD | |
| DRAWING No. | DRAWING TITLE | | 0 APPROVED FOR CONSTRUCTION | PJ EA 2018-05-31 | ROLE NAME SIGNATURE & DATE |
| REFERENCE DRAWINGS | | REG. PROFESSIONAL | No. DESCRIPTION | BY CHKD DATE | DRAWING APPROVAL STATUS: Approved for Construction |
| | | | REVISIONS | | SCALE 1:100 (ON A1 SHEET) DWG. No. H354138-5710-231-260-0007 REV. 0 |

SHEET SIZE: D

H354138-5710-231-260-0019

SEPT. 2
SOG PRE-POUR/
REINFORCING
INSPECTION/
BACKFILL
RELEASE

PARTIAL PLAN - SHEET 1

PARTIAL PLAN - SHEET 2

PARTIAL PLAN - SHEET 3

PARTIAL PLAN - SHEET 4

PARTIAL PLAN - SHEET 5

ACID CONTAINMENT AREA

# GENERAL ARRANGEMENT SLAB ON GRADE - PLAN

TOP OF SLAB NOM. EL. 959.150
FIN. GRADE EL. 958.600 (REF.)

NOTES:

1. FOR NOTES SEE DRAWING H354138-5710-231-260-0001.
2. ALL EXPOSED CONCRETE IN ACID CONTAINMENT AREA SHALL BE GIVEN A COATING OF POLYESTER PAINT CAPABLE OF RESISTING A SOLUTION OF 30% HYDROCHLORIC ACID. SURFACE PREPARATION OF CONCRETE AND INSTALLATION OF PAINT SHALL BE AS PER MANUFACTURERS RECOMMENDATIONS.
3. IN/ON ADR PROCESS PLANT BUILDING CONTAINMENT AREA, ALL CONSTRUCTION JOINTS INCLUDING THE ONES BETWEEN SLAB ON GRADE AND EQUIPMENT/TANK PADS AND PEDESTALS TO BE SEALED ACCORDING TO THE STANDARD DETAILS 23 AND 29 ON DRAWING H354138-5050-231-254-0003.

0 1.5 3.0 4.5 6.0 7.5
1:150 SCALE IN METRES

| REV | DRAWING No. | DRAWING TITLE |
|---|---|---|
| | REFERENCE DRAWINGS | |

REG. PROFESSIONAL

| No. | DESCRIPTION | BY | CHK'D | DATE |
|---|---|---|---|---|
| 0 | APPROVED FOR CONSTRUCTION | EM | EA | 2018-06-05 |
| | REVISIONS | | | |

HATCH

| | | | |
|---|---|---|---|
| DRAFTSPERSON | P. JWAEV | HR | 2018-02-20 |
| DESIGNER | F. LIU | HR | 2018-05-17 |
| CHECKER | E. AKINCI | | |
| DESIGN COORD. | S. PERKINS | | |
| RESP. ENG. | E. AKINCI | | |
| LEAD DISC. ENG. | E. AKINCI | | |
| ENG. MANAGER | B. RUSTAD | | |
| PROJ. MANAGER | B. RUSTAD | | |

| ROLE | NAME | SIGNATURE & DATE |
|---|---|---|
| DRAWING APPROVAL STATUS: | Approved for Construction | |

StrataGold Corporation

EAGLE GOLD PROJECT

ADR PROCESS PLANT BUILDING
SLAB ON GRADE
GENERAL ARRANGEMENT

| SCALE | DWG. No. | REV |
|---|---|---|
| 1:150 (FOR 11x17) | H354138-5710-231-260-0019 | 0 |

SHEET SIZE: D

PLOTTED: 05-JUN-2018

CLARK BUILDERS
ENERGY & RESOURCES

# CONCRETE REINFORCEMENT PRE POUR

Rev 00 May 4, 2018

| | |
|---|---|
| SUBCONTRACTOR: Clark Builders | INSPECTION DATE: Sept 2 2018 |
| SUBCONTRACTOR CONTACT PERSON: Peter Nice | ACTION BY: |
| INSPECTOR(S): | |
| LOCATION: ADR Slab Lift 1 to 3 | |
| DRAWING REV: | DRAWING NO.(S): 231-260-0022 SPEC SECTION(S): 0 |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Grade (400W unless otherwise noted) and type of steel delivered and installed as required by approved drawings. | ☑ | ☐ | ☐ |
| 2.0 | Inspect rebar distribution, spacing and cover per design/project requirements. | ☑ | ☐ | ☐ |
| 3.0 | Length of splices as specified | ☑ | ☐ | ☐ |
| 4.0 | Staggered splices as specified | ☑ | ☐ | ☐ |
| 5.0 | Any mechanical splices have been approved by the owner prior to install | ☑ | ☐ | ☐ |
| 6.0 | Bars cleaned and free of material that may reduce bond including loose rust, scale, oil, structural defects and that they are uncoated and unpainted. | ☑ | ☐ | ☐ |
| 7.0 | Dowels at wall ends, construction joints, and openings as specified (length, location, size, etc.) | ☑ | ☐ | ☐ |
| 8.0 | No unauthorized field bent bars including hooks installed | ☐ | ☐ | ☑ |
| | Resolve conflicts between embedded items and reinforcement | | | |
| 9.0 | When authorized, field bends done without heat and inspected for fissures or cracks. | ☑ | ☐ | ☐ |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 10.0 | Bars tied and supported to prevent displacement | ☑ | ☐ | ☐ |
| 11.0 | Spacers, tie wire and chairs as required | ☑ | ☐ | ☐ |
| 12.0 | Conduits at design location and minimum separation from rebar as specified | ☐ | ☐ | ☑ |
| 13.0 | No contact of bars is made with dissimilar metals as per CSA A23.1 | ☐ | ☐ | ☑ |
| 14.0 | Bars, nails or tie wire not sticking out from surfaces that allow rusting/corrosion | ☑ | ☐ | ☐ |
| 15.0 | Rebar is welds inspected by qualified inspectors certified to CSA W178.2 | ☐ | ☐ | ☑ |
| 16.0 | No rebar congestion or other obstruction for deposit of concrete | ☑ | ☐ | ☐ |
| 17.0 | Adjustments required for interfering items (piping, inserts, sleeves, etc.) have been submitted and approved by owner. | ☐ | ☐ | ☑ |
| 18.0 | Rebar was stored off ground to prevent damage/corrosion | / | | |
| 19.0 | Review drawings for anchors, piping, sleeves, boxes | ☑ | ☐ | ☐ |

COMMENTS:

Follow RFI accepted for slab transition zone.

ATTACHMENT(S):

DEFICIENCIES NOTES:

INITIAL INSPECTION

INSPECTOR: Peter Nice TITLE Superintendent DATE: Sept 3 2018
Garry Dahl

RE-INSPECTION (DEFICIENCIES COMPLETED)

INSPECTOR: Matt Coverdale TITLE Field Eng. DATE: Sep 2, 2018

CLARK BUILDERS
ENERGY & RESOURCES

# FORMWORK & FALSEWORK PRE POUR | QA INSPECTION

Rev 00 May 4, 2018

| | |
|---|---|
| SUBCONTRACTOR: Clark Builders | INSPECTION DATE: Sept 2 2018 |
| SUBCONTRACTOR CONTACT PERSON: Peter Nice | DATE OF POUR: Sept 3 2018 |
| INSPECTOR(S): | |
| LOCATION: ADR Slab Lines 1 to 3 | |
| DRAWING REV: 0 | DRAWING NO.(S): 25-260-0022 / SPEC SECTION(S): |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Location, survey, dimension and grades as required | ☑ | ☐ | ☐ |
| 2.0 | Plumbness and Flatness verified | ☑ | ☐ | ☐ |
| 3.0 | Joints are aligned and watertight. | ☑ | ☐ | ☐ |
| 4.0 | Formwork shop drawings are Engineered and reviewed | ☐ | ☐ | ☑ |
| 5.0 | Re-used formwork reconditioned and treated | ☑ | ☐ | ☐ |
| 6.0 | Formwork and ties according to finishing requirements. Confirm no holes in the concrete surface are greater than 25mm in diameter or expose steel at less than 25mm from surface. As per spec. | ☑ | ☐ | ☐ |
| 7.0 | Installation of embeds are located and secured | ☑ | ☐ | ☐ |
| 8.0 | Chamfer requirements checked. 25mm chamfers required for all exterior corners and edges exposed to view including horizontal edges of pads. | ☑ | ☐ | ☐ |
| 9.0 | Key ways and/or other provisions according to design are provided in construction joints | ☑ | ☐ | ☐ |
| 10.0 | Inspect types of form spacers, ties and bracing. | ☑ | ☐ | ☐ |
| 11.0 | Spacing of ties to be set to a pattern | ☑ | ☐ | ☐ |
| 12.0 | Expansion, construction, contraction joints as required & located as coordinated with structural Engineer | ☑ | ☐ | ☐ |
| 13.0 | Forms secured against movement during placing | ☑ | ☐ | ☐ |
| 14.0 | Forms are braced for alignment and blow out | ☑ | ☐ | ☐ |
| 15.0 | Forms are cleaned of all debris, and dry, prior to concrete placement including standing water. | ☑ | ☐ | ☐ |
| 16.0 | Openings in formwork permit inspection and cleaning, placing and compaction of concrete, and forming and processing of construction joints. | ☑ | ☐ | ☐ |
| 17.0 | Formwork has been coated with release agent prior to rebar placement. | ☑ | ☐ | ☐ |
| | | ☐ | ☐ | ☐ |

COMMENTS:

- Ensure steel plate recess installed prior to slab pour.
- P13 pad in wrong location → move to correct.

ATTACHMENT(S):

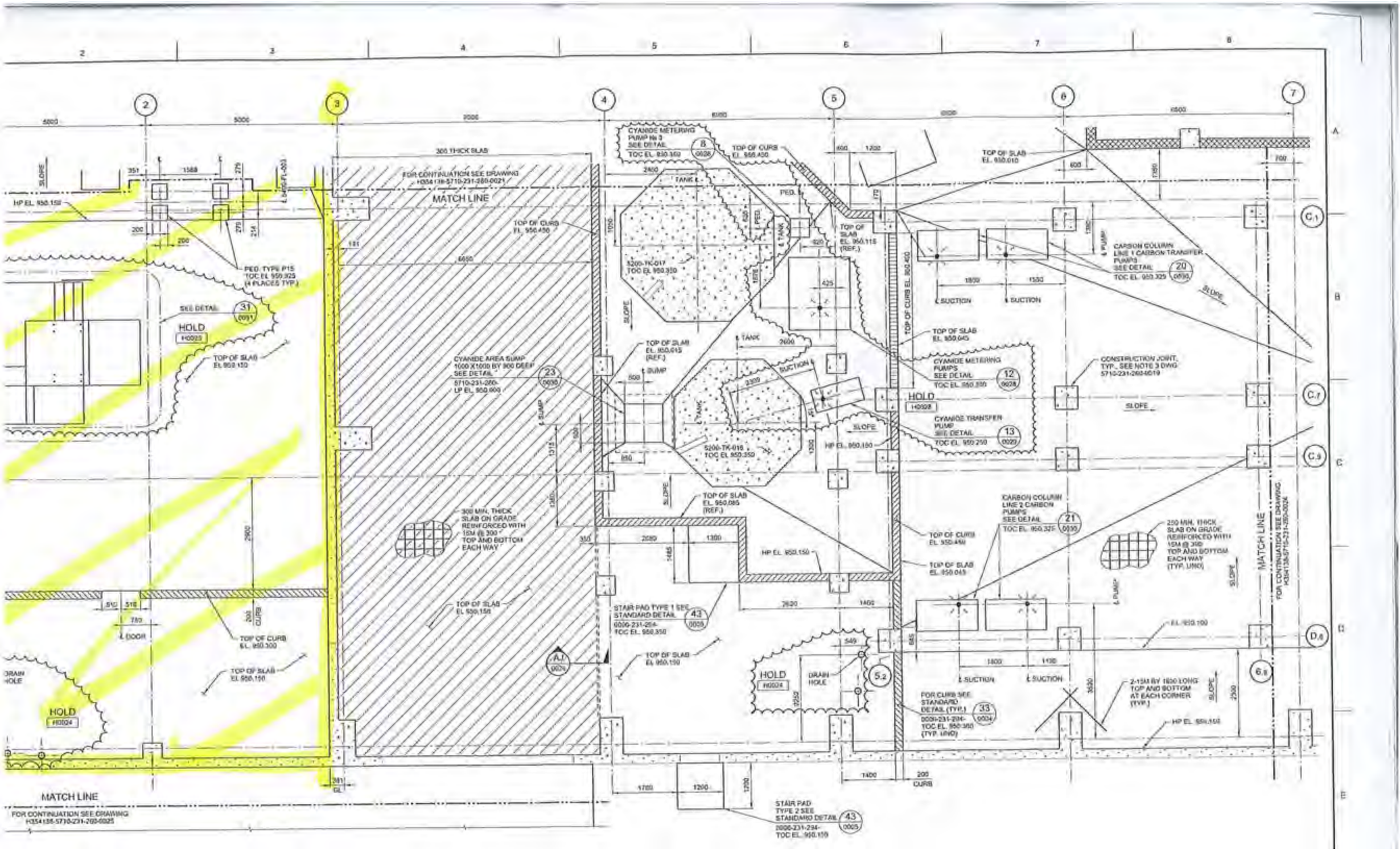
DEFICIENCIES NOTES:

INITIAL INSPECTION

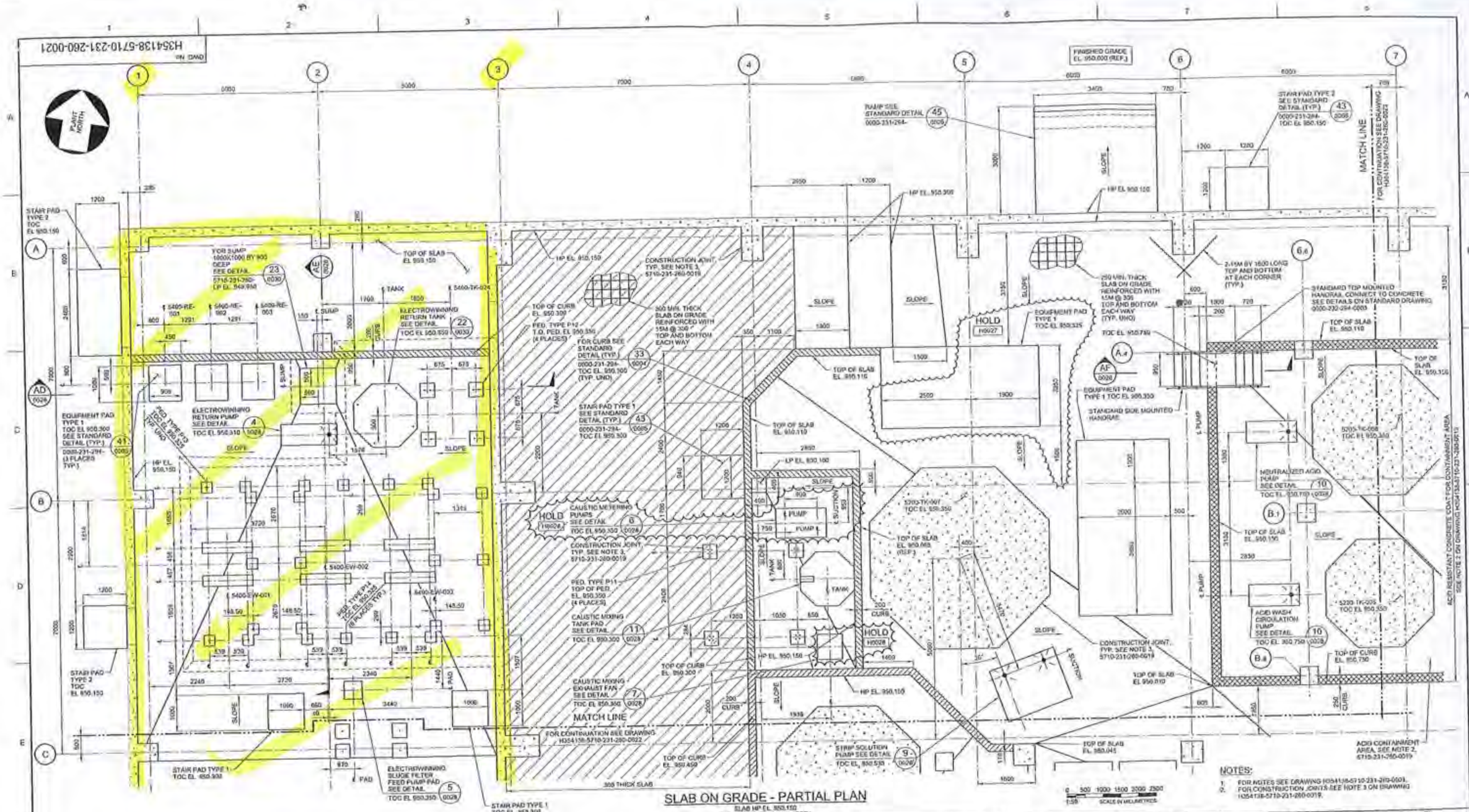
INSPECTOR: [signature] TITLE Superintendent DATE: Sept 2 2018

RE-INSPECTION (DEFICIENCIES COMPLETED)

INSPECTOR: Matt Cavedale TITLE Field Eng DATE: Sep 2, 2018.



MATCH LINE
FOR CONTINUATION SEE DRAWING H354138-5710-231-260-0021
300 THICK SLAB
CYANIDE METERING PUMP No 3 SEE DETAIL 8 0028 TOC EL. 950.350
TOP OF CURB EL. 950.450
TOP OF SLAB EL. 950.010
TOP OF SLAB EL. 950.115 (REF.)
TOP OF CURB EL. 950.400
CARBON COLUMN LINE 1 CARBON TRANSFER PUMPS SEE DETAIL 20 0030 TOC EL. 950.325
CYANIDE METERING PUMPS SEE DETAIL 12 0028 TOC EL. 950.350
CYANIDE TRANSFER PUMP SEE DETAIL 13 0029 TOC EL. 950.250
CONSTRUCTION JOINT, TYP., SEE NOTE 3 DWG 5710-231-260-0019
CYANIDE AREA SUMP 1000 X1000 BY 900 DEEP SEE DETAIL 23 0030 5710-231-260-LP EL. 950.000
TOP OF SLAB EL. 950.015 (REF.)
TOP OF SLAB EL. 950.045
TOP OF SLAB EL. 950.085 (REF.)
300 MIN. THICK SLAB ON GRADE REINFORCED WITH 15M @ 300 TOP AND BOTTOM EACH WAY
CARBON COLUMN LINE 2 CARBON PUMPS SEE DETAIL 21 0030 TOC EL. 950.325
250 MIN. THICK SLAB ON GRADE REINFORCED WITH 15M @ 300 TOP AND BOTTOM EACH WAY (TYP. UNO)
STAIR PAD TYPE 1 SEE STANDARD DETAIL 43 0005 0000-231-294- TOC EL. 950.350
STAIR PAD TYPE 2 SEE STANDARD DETAIL 43 0005 0000-231-294- TOC EL. 950.150
FOR CURB SEE STANDARD DETAIL (TYP.) 33 0004 0000-231-294- TOC EL. 950.350 (TYP. UNO)
2-15M BY 1800 LONG TOP AND BOTTOM AT EACH CORNER (TYP.)
HP EL. 950.150
PED. TYPE P15 TOC EL 950.325 (4 PLACES TYP.)
SEE DETAIL 31 0031
HOLD H0023
HOLD H0024
HOLD H0028
TOP OF SLAB EL. 950.150
TOP OF CURB EL. 950.300
TOP OF SLAB EL. 950.100
DRAIN HOLE
SLOPE
SUCTION
SUMP
TANK
PED.
CURB
DOOR




## SLAB ON GRADE - PARTIAL PLAN

SLAB HP EL. 950.150
FIN. GRADE EL. 950.000 (REF.)

NOTES:

1. FOR NOTES SEE DRAWING H354138-5710-231-260-0001.
2. FOR CONSTRUCTION JOINTS SEE NOTE 3 ON DRAWING H354138-5710-231-260-0019.

| DRAWING No. | DRAWING TITLE |
|---|---|
| REFERENCE DRAWINGS | |

REG. PROFESSIONAL

| No. | DESCRIPTION | BY | CHKD | DATE |
|---|---|---|---|---|
| 0 | APPROVED FOR CONSTRUCTION | EM | EA | 2018-06-05 |

REVISIONS

HATCH

| ROLE | NAME | SIGNATURE & DATE |
|---|---|---|
| DRAFTSPERSON | P. JIVAEV | NR 2018-05-17 |
| DESIGNER | F. LIU | NR 2018-05-17 |
| CHECKER | E. AKINCI | |
| DESIGN COORD. | S. PERKINS | |
| RESP. ENG. | E. AKINCI | |
| LEAD DISC. ENG. | E. AKINCI | |
| ENG. MANAGER | B. RUSTAD | |
| PROJ. MANAGER | B. RUSTAD | |

DRAWING APPROVAL STATUS: Approved for Construction

StrataGold Corporation

EAGLE GOLD PROJECT

ADR PROCESS PLANT BUILDING
SLAB ON GRADE
PARTIAL PLAN - SHEET 1

SCALE 1:50 DRAWN BY

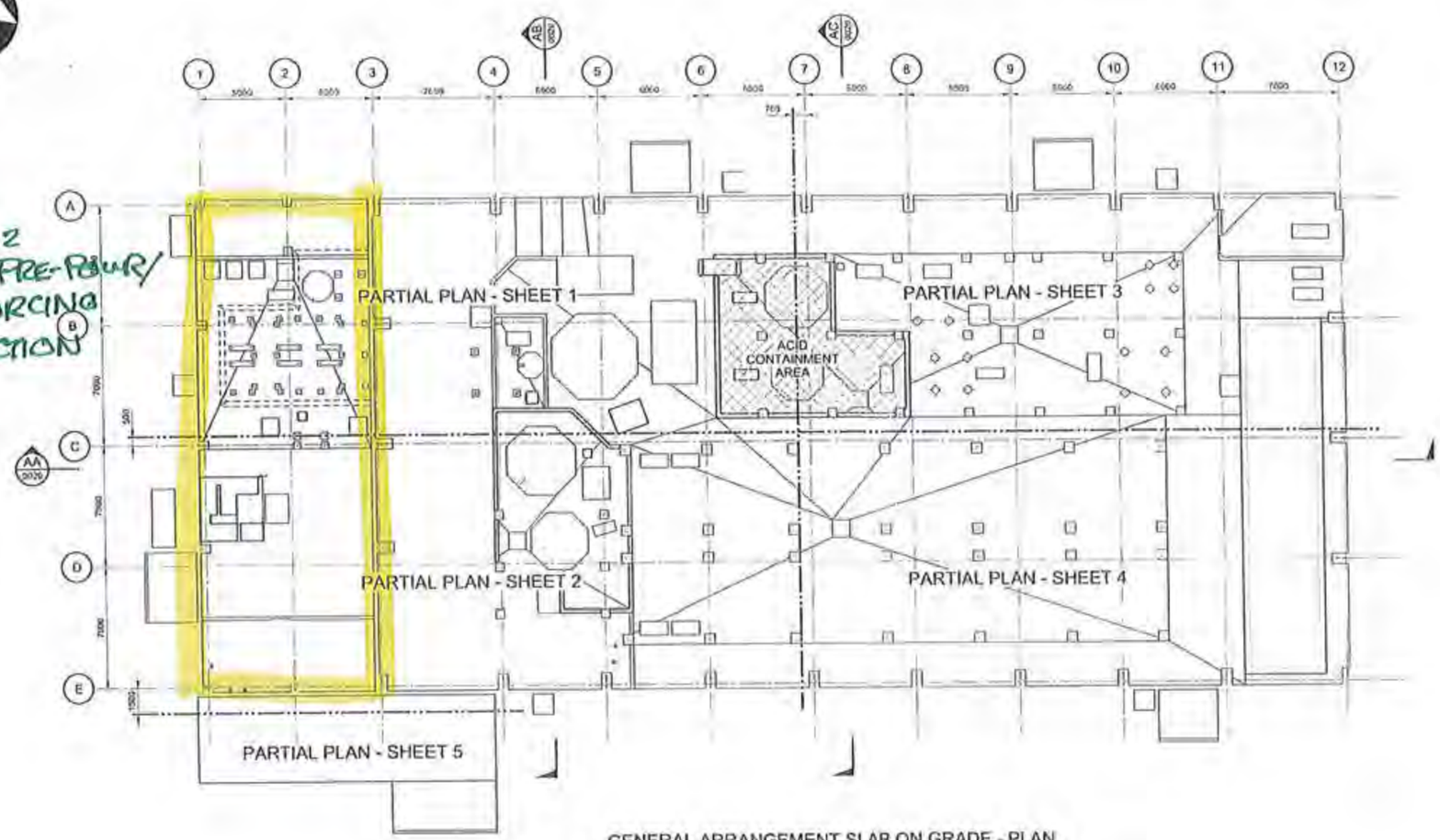
DWG. No. H354138-5710-231-260-0021

REV 0

SHEET SIZE: D

H354138-5710-231-260-0019

SEPT. 2
SOG PRE-POUR/
REINFORCING
INSPECTION




## GENERAL ARRANGEMENT SLAB ON GRADE - PLAN

TOP OF SLAB NOM. EL. 950.150
FIN. GRADE EL. 550.000 (REF.)

NOTES:

1. FOR NOTES SEE DRAWING H354138-5710-231-260-0001.
2. ALL EXPOSED CONCRETE IN ACID CONTAINMENT AREA SHALL BE GIVEN A COATING OF POLYESTER PAINT CAPABLE OF RESISTING A SOLUTION OF 30% HYDROCHLORIC ACID. SURFACE PREPARATION OF CONCRETE AND INSTALLATION OF PAINT SHALL BE AS PER MANUFACTURERS RECOMMENDATIONS.
3. INSIDE ADR PROCESS PLANT BUILDING CONTAINMENT AREA, ALL CONSTRUCTION JOINTS INCLUDING THE ONES BETWEEN SLAB ON GRADE AND EQUIPMENT/TANK PADS AND PEDESTALS TO BE SEALED ACCORDING TO THE STANDARD DETAILS 23 AND 29 ON DRAWING H354138-0000-231-394-0003.

0 1.5 3.0 4.5 6.0 7.5
1:150 SCALE IN METRES

| DRAWING No. | DRAWING TITLE |
|---|---|
| REFERENCE DRAWINGS | |

REG. PROFESSIONAL

| No. | DESCRIPTION | BY | CHK'D | DATE |
|---|---|---|---|---|
| 0 | APPROVED FOR CONSTRUCTION | EM | EA | 2018-06-05 |

REVISIONS

HATCH

| | | | |
|---|---|---|---|
| DRAFTSPERSON | P. JIVAEV | NR | 2018-02-30 |
| DESIGNER | F. LIU | NR | 2018-05-17 |
| CHECKER | E. AKINCI | | |
| DESIGN COORD. | S. PERKINS | | |
| RESP. ENG. | E. AKINCI | | |
| LEAD DISC. ENG. | E. AKINCI | | |
| ENG. MANAGER | B. RUSTAD | | |
| PROJ. MANAGER | B. RUSTAD | | |
| ROLE | NAME | SIGNATURE & DATE | |

DRAWING APPROVAL STATUS: Approved for Construction

StrataGold Corporation

EAGLE GOLD PROJECT

ADR PROCESS PLANT BUILDING
SLAB ON GRADE
GENERAL ARRANGEMENT

SCALE 1:150 FOR AS NOTED | DWG. No. H354138-5710-231-260-0019 | REV 0

SHEET SIZE: D

SPILELS PRINTED: 05-JUN-2018 12:54

CLARK BUILDERS
ENERGY & RESOURCES

# FORMWORK & FALSEWORK PRE POUR | QA INSPECTION

Rev 00 May 4, 2018

| | |
|---|---|
| SUBCONTRACTOR: CLARK BUILDERS | INSPECTION DATE: SEPT.2/2018, SEPT.5/2018 |
| SUBCONTRACTOR CONTACT PERSON: PETER NICE | DATE OF POUR: SEPT.3/2018 |
| INSPECTOR(S): JACKSON WENGER | |
| LOCATION: 5710 ADR PLANT SOG GL-1-3 | |
| DRAWING REV: 1 | DRAWING NO.(S): 554188-5710-231-260-0021/0022 SPEC SECTION(S): 03 10 00 |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Location, survey, dimension and grades as required | ☑ | ☐ | ☐ |
| 2.0 | Plumbness and Flatness verified | ☑ | ☐ | ☐ |
| 3.0 | Joints are aligned and watertight. | ☑ | ☐ | ☐ |
| 4.0 | Formwork shop drawings are Engineered and reviewed | ☐ | ☐ | ☑ |
| 5.0 | Re-used formwork reconditioned and treated | ☑ | ☐ | ☐ |
| 6.0 | Formwork and ties according to finishing requirements. Confirm no holes in the concrete surface are greater than 25mm in diameter or expose steel at less than 25mm from surface. As per spec. | ☑ | ☐ | ☐ |
| 7.0 | Installation of embeds are located and secured | ☑ | ☐ | ☐ |
| 8.0 | Chamfer requirements checked. 25mm chamfers required for all exterior corners and edges exposed to view including horizontal edges of pads. | ☑ | ☐ | ☐ |
| 9.0 | Key ways and/or other provisions according to design are provided in construction joints | ☑ | ☐ | ☐ |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 10.0 | Inspect types of form spacers, ties and bracing. | ☑ | ☐ | ☐ |
| 11.0 | Spacing of ties to be set to a pattern | ☑ | ☐ | ☐ |
| 12.0 | Expansion, construction, contraction joints as required & located as coordinated with structural Engineer | ☑ | ☐ | ☐ |
| 13.0 | Forms secured against movement during placing | ☑ | ☐ | ☐ |
| 14.0 | Forms are braced for alignment and blow out | ☑ | ☐ | ☐ |
| 15.0 | Forms are cleaned of all debris, and dry, prior to concrete placement including standing water. | ☑ | ☐ | ☐ |
| 16.0 | Openings in formwork permit inspection and cleaning, placing and compaction of concrete, and forming and processing of construction joints. | ☑ | ☐ | ☐ |
| 17.0 | Formwork has been coated with release agent prior to rebar placement. | ☑ | ☐ | ☐ |
| | | ☐ | ☐ | ☐ |

COMMENTS:

FORMS FOR STEEL PLATE DEPRESSION NOT INSTALLED
INSTALLED AS OF 8:AM SEPT.5

ATTACHMENT(S):

DEFICIENCIES NOTES:

INITIAL INSPECTION
INSPECTOR: Matt Coverdale TITLE: Field Engineer DATE: Sept 03/18

RE-INSPECTION (DEFICIENCIES COMPLETED)
INSPECTOR: JACKSON WENGER TITLE: PROJECT COORDINATOR DATE: SEPT.3/18

CLARK BUILDERS
ENERGY & RESOURCES

# CONCRETE REINFORCEMENT PRE POUR

Rev 00 May 4, 2018

| | |
|---|---|
| SUBCONTRACTOR: ULTIMATE REINFORCING | INSPECTION DATE: SEPT. 2 2018, SEPT. 3 2018 |
| SUBCONTRACTOR CONTACT PERSON: DEREK GAUDET | ACTION BY: |
| INSPECTOR(S): JACKSON WENGER | |
| LOCATION: ADR PLANT 5710 SOG GL 1-3 | |
| DRAWING REV: 01 | DRAWING NO.(S): 554138-5710-231-260-0021/0022 SPEC SECTION(S): 03 20 000 |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Grade (400W unless otherwise noted) and type of steel delivered and installed as required by approved drawings. | ☑ | ☐ | ☐ |
| 2.0 | Inspect rebar distribution, spacing and cover per design/project requirements. | ☑ | ☐ | ☐ |
| 3.0 | Length of splices as specified | ☑ | ☐ | ☐ |
| 4.0 | Staggered splices as specified | ☑ | ☐ | ☐ |
| 5.0 | Any mechanical splices have been approved by the owner prior to install | ☑ | ☐ | ☐ |
| 6.0 | Bars cleaned and free of material that may reduce bond including loose rust, scale, oil, structural defects and that they are uncoated and unpainted. | ☑ | ☐ | ☐ |
| 7.0 | Dowels at wall ends, construction joints, and openings as specified (length, location, size, etc.) | ☑ | ☐ | ☐ |
| 8.0 | No unauthorized field bent bars including hooks installed | ☑ | ☐ | ☐ |
| | Resolve conflicts between embedded items and reinforcement | / | | |
| 9.0 | When authorized, field bends done without heat and inspected for fissures or cracks. | ☑ | ☐ | ☐ |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 10.0 | Bars tied and supported to prevent displacement | ☑ | ☐ | ☐ |
| 11.0 | Spacers, tie wire and chairs as required | ☑ | ☐ | ☐ |
| 12.0 | Conduits at design location and minimum separation from rebar as specified | ☑ | ☐ | ☐ |
| 13.0 | No contact of bars is made with dissimilar metals as per CSA A23.1 | ☑ | ☐ | ☐ |
| 14.0 | Bars, nails or tie wire not sticking out from surfaces that allow rusting/corrosion | ☑ | ☐ | ☐ |
| 15.0 | Rebar is welds inspected by qualified inspectors certified to CSA W178.2 | ☑ | ☐ | ☐ |
| 16.0 | No rebar congestion or other obstruction for deposit of concrete | ☑ | ☐ | ☐ |
| 17.0 | Adjustments required for interfering items (piping, inserts, sleeves, etc.) have been submitted and approved by owner. | ☑ | ☐ | ☐ |
| 18.0 | Rebar was stored off ground to prevent damage/corrosion | / | | |
| 19.0 | Review drawings for anchors, piping, sleeves, boxes | ☑ | ☐ | ☐ |

COMMENTS:

ADD REINFORCING @ DOORS PER DWGS - CORRECTED ON SITE
SLAB TRANSITION STEEL PER RFI 52 RESPONSE

ATTACHMENT(S):

DEFICIENCIES NOTES:

Tie all vertical dowels
Ensure all horizontal splices are tied at both ends

INITIAL INSPECTION

INSPECTOR: Matt Coverdale TITLE Field Engineer DATE: Sept 03/18

RE-INSPECTION (DEFICIENCIES COMPLETED)

INSPECTOR: JACKSON WENGER TITLE PROJECT COORDINATOR DATE: SEPT. 5/18

DWG. No. H354138-5710-231-260-0021

PLANT NORTH

FOR REVIEW SEPT 2

STAIR PAD TYPE 3 TOC EL 950.150

EQUIPMENT PAD TYPE 1 TOC EL 950.300 SEE STANDARD DETAIL (TYP.) 0000-231-294- (3 PLACES TYP.)

STAIR PAD TYPE 3 TOC EL. 950.150

STAIR PAD TYPE 1 TOC EL. 950.300

ELECTROWINNING SLUDGE FILTER FEED PUMP PAD SEE DETAIL TOC EL 950.350

ELECTROWINNING RETURN PUMP SEE DETAIL TOC EL 950.205

ELECTROWINNING RETURN TANK SEE DETAIL TOC EL 950.355

TOP OF SLAB EL 950.150

TOP OF CURB EL 950.300

PED. TYPE P12 T.O. PED. EL 950.352 (4 PLACES)

FOR CURB SEE STANDARD DETAIL (TYP.) 0000-231-294- TOC EL. 950.306 (TYP. UNO)

300 MIN. THICK SLAB ON GRADE REINFORCED WITH 15M @ 300 TOP AND BOTTOM EACH WAY

CONSTRUCTION JOINT, TYP. SEE NOTE 3. 5710-231-260-0019

STAIR PAD TYPE 1 SEE STANDARD DETAIL (TYP.) 0000-231-294- TOC EL. 950.300

CAUSTIC METERING PUMPS EQUIPMENT PAD TYPE 1 SEE STANDARD DETAIL 0000-231-294- TOC EL 950.350

PED. TYPE P11 TOP OF PED. EL. 950.300 (4 PLACES)

CAUSTIC MIXING TANK PAD SEE DETAIL TOC EL 950.300

MATCH LINE

FOR CONTINUATION SEE DRAWING H354138-5710-231-260-0022

300 THICK SLAB

STRIP SOLUTION PUMP SEE DETAIL TOC EL. 950.530

RAMP SEE STANDARD DETAIL 0000-231-294-

FINISHED GRADE EL. 950.000 (REF.)

ON 250 STEEL PIPE BOLLARDS SEE STANDARD DETAIL 0000-231-294- (TYP.)

STAIR PAD TYPE 2 SEE STANDARD DETAIL (TYP.) 0000-231-294- TOC EL 950.150

MATCH LINE FOR CONTINUATION SEE DRAWING H354138-5710-231-260-0023

250 MIN. THICK SLAB ON GRADE REINFORCED WITH 15M @ 300 TOP AND BOTTOM EACH WAY (TYP. UNO)

2-150 DIA. 1500 LONG TOP AND BOTTOM AT EACH CORNER (TYP.)

EQUIPMENT PAD TYPE 1 TOC EL 950.225

TOC EL. 950.750

STANDARD TOP MOUNTED HANDRAIL CONNECT TO CONCRETE SEE DETAILS ON STANDARD DRAWING 0000-231-294-0003

TOP OF SLAB EL. 950.110

EQUIPMENT PAD TYPE 1 TOC EL 950.350

STANDARD SIDE MOUNTED HANDRAIL

5200-TK-026 TOC EL 950.350

NEUTRALIZED ACID PUMP SEE DETAIL TOC EL. 950.750

ACID WASH CIRCULATION PUMP SEE DETAIL TOC EL. 950.750

5200-TK-027 TOC EL 950.350

TOP OF SLAB EL 950.045 (REF.)

TOP OF SLAB EL 950.150

TOP OF SLAB EL 950.010

TOP OF CURB EL. 950.750

TOP OF CURB EL. 950.045

CONSTRUCTION JOINT, TYP. SEE NOTE 3. 5710-231-260-0019

ACID CONTAINMENT AREA, SEE NOTE 2. 5710-231-260-0019

ACID RESISTANT CONCRETE COAT FOR CONTAINMENT AREA SEE NOTE 2 ON DRAWING H354138-5710-231-260-0003

## SLAB ON GRADE - PARTIAL PLAN

SLAB HP EL. 950.150
FIN. GRADE EL. 950.000 (REF.)

SCALE 1:50

NOTES:
1. FOR NOTES SEE DRAWING H354138-5710-231-260-0001.
2. FOR CONSTRUCTION JOINTS SEE NOTE 3 ON DRAWING H354138-5710-231-260-0019.

| No. | DESCRIPTION | BY | CHK'D | DATE |
|---|---|---|---|---|
| 1 | P11, P13, P14 EL. UPDATED, HOLD H0327, H0328 REMOVED, 3DLLAR0 ADDED, PED. P11 EL. CORRECTED | PJ | EA | 2018-06-14 |
| 0 | APPROVED FOR CONSTRUCTION | EM | EA | 2018-06-05 |

| DRAWING No. | DRAWING TITLE |
|---|---|
| REFERENCE DRAWINGS | |

REG. PROFESSIONAL

| ROLE | NAME | SIGNATURE & DATE |
|---|---|---|
| DRAFTSPERSON | P. JIWAEV | RP 2018-05-17 |
| DESIGNER | F. LIU | NR 2018-05-17 |
| CHECKER | E. ABINCI | 2018.06.14 |
| DESIGN COORD. | S. PERKINS | 2018.06.14 |
| RESP. ENG. | E. ABINCI | 2018.06.14 |
| LEAD DISC. ENG. | E. ABINCI | 2018.06.14 |
| ENG. MANAGER | B. RUSTAD | |
| PROJ. MANAGER | B. RUSTAD | |
| DRAWING APPROVAL STATUS: | Approved for Construction | |

HATCH

StrataGold Corporation

EAGLE GOLD PROJECT

ADR PROCESS PLANT BUILDING
SLAB ON GRADE
PARTIAL PLAN - SHEET 1

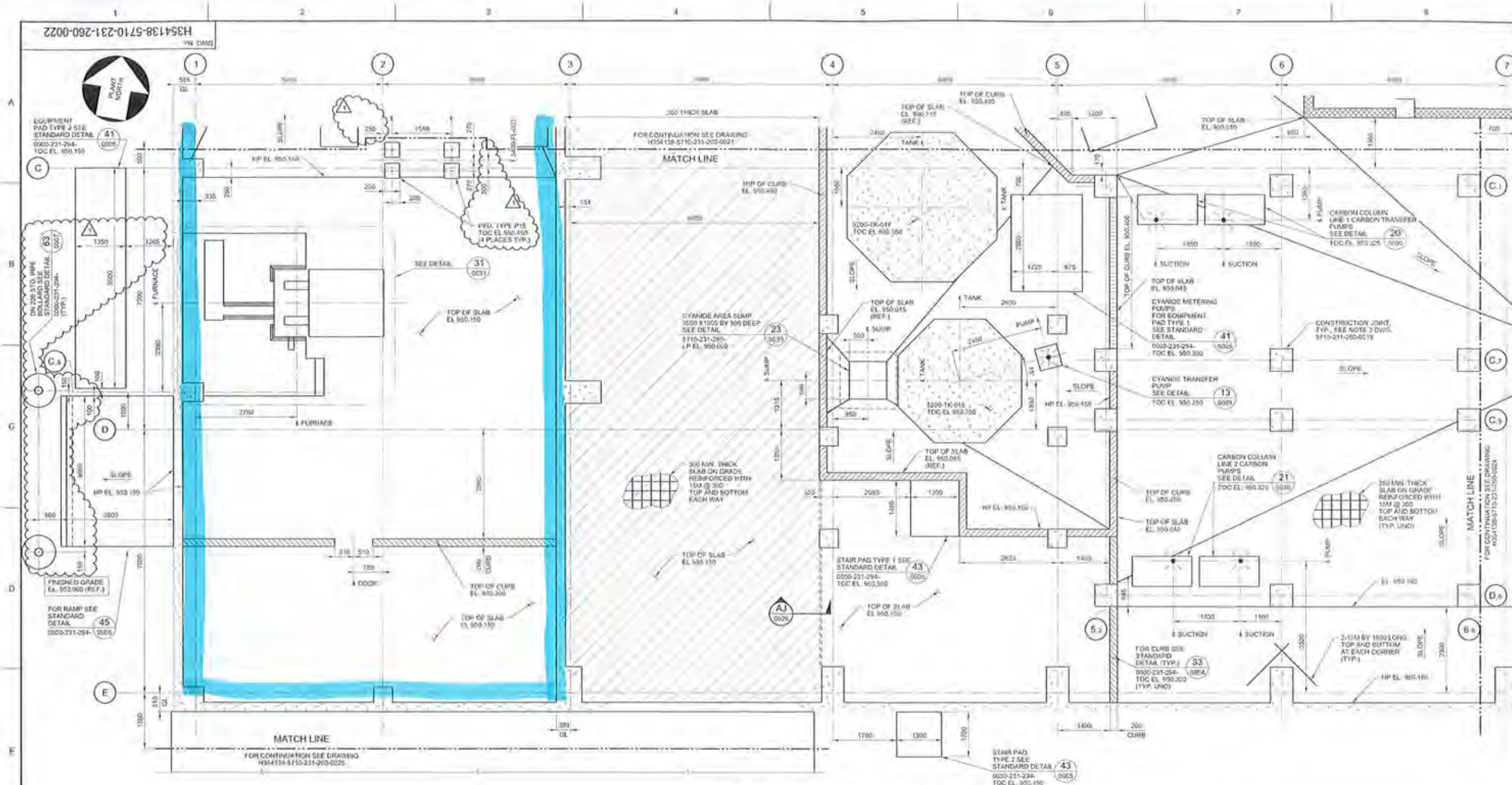
SCALE 1:50

DWG. No. H354138-5710-231-260-0021

REV 1

SHEET SIZE: D

STUDIES PRINTED: 16-AUG-2018 By: jhancock




## SLAB ON GRADE - PARTIAL PLAN

SLAB HP EL. 950.150
FIN. GRADE EL. 950.000 (REF.)

0 500 1000 1500 2000 2500
1:50 SCALE IN MILLIMETRES

**NOTES:**

1. FOR NOTES SEE DRAWING H354138-5710-231-260-0001.
2. FOR CONSTRUCTION JOINTS SEE NOTE 3 ON DRAWING H354138-5710-231-260-0019.

| No. | DESCRIPTION | BY | CHK'D | DATE |
|---|---|---|---|---|
| 1 | HOLDS H0024, H0025 AND H0026 REMOVED, PED. P15 ELEVATION AND LOCATION UPDATED, BOLLARDS ADDED | PJ | EA | 2018-08-14 |
| 0 | APPROVED FOR CONSTRUCTION | EM | EA | 2018-06-05 |

REVISIONS

| DRAWING No. | DRAWING TITLE |
|---|---|
| REFERENCE DRAWINGS | |

REG. PROFESSIONAL

HATCH

| | | | |
|---|---|---|---|
| DRAFTSPERSON | P. JIVAEV | NR | 2018-05-17 |
| DESIGNER | F. LIU | NR | 2018-05-17 |
| CHECKER | E. AKINCI | | |
| DESIGN COORD. | S. PERKINS | | |
| RESP. ENG. | E. AKINCI | | |
| LEAD DISC. ENG. | E. AKINCI | | |
| ENG. MANAGER | B. RUSTAD | | |
| PROJ. MANAGER | B. RUSTAD | | |

| ROLE | NAME | SIGNATURE & DATE |
|---|---|---|
| DRAWING APPROVAL STATUS: | Approved for Construction | |

StrataGold Corporation

EAGLE GOLD PROJECT

ADR PROCESS PLANT BUILDING
SLAB ON GRADE
PARTIAL PLAN - SHEET 2

SCALE 1:50 | DWG. No. H354138-5710-231-260-0022 | REV 1

SHEET SIZE: D

SPILE 5
PRINTED: 14-AUG-2018

CLARK BUILDERS
ENERGY & RESOURCES

CB-INSPECTION FORM-DOC-002 REV.01
CONCRETE POST POUR INSPECTION FORM
JDS ENERGY & MINING INC. | STRATAGOLD EAGLE GOLD
PROJECT #: CB201 | 18502

# CONCRETE POST POUR INSPECTION

Fox 00 May 4, 2018

| | |
|---|---|
| INSPECTOR(S): Ryan deMilliano | SPEC SECTION(S): 503 30 00 – Cast-In-Place |
| TYPE OF FINISH: F1 BELOW GRADE | DATE OF INSPECTION: Sept. 6, 2018 |

AREA AND LOCATION(s): ADR REMAINING PEDESTALS, FOOTINGS AND PILASTERS PRIOR TO BACKFILL.

| GENERAL REQUIREMENTS | PASS | FAIL | N/A | REMARKS |
|---|---|---|---|---|
| Curing compounds not used on any surface against which additional concrete or materials are to be bonded. | ☒ | ☐ | ☐ | |
| Fresh concrete barricaded/ protected from mechanical disturbance. | ☒ | ☐ | ☐ | |
| Where concrete is used for filling, the chipped opening shall not be less than 75mm in depth. | ☐ | ☐ | ☒ | ~~GROUT~~/SIKA USED TO PATCH. |
| Patches exposed to view shall blend with surrounding surfaces. | ☒ | ☐ | ☐ | |
| Contractor shall clean all exposed concrete surfaces of all encrustations of cement, mortar, or grout and shall remove unsightly stains. | ☒ | ☐ | ☐ | |
| Concrete appears proper and devoid of any honeycomb, cold joints, droppings or other defects | ☒ | ☐ | ☐ | |
| Removal of all concrete rubble and dispose of at an appropriate location. | ☒ | ☐ | ☐ | |
| Surface of concrete finished against forms has a smooth, dense finish free from cracks, free from projections, pits, and honeycomb and in proper alignment. | ☒ | ☐ | ☐ | |

| COLD WEATHER REQUIREMENTS (WHEN AMB. TEMP < 5°C) | PASS | FAIL | N/A | REMARKS |
|---|---|---|---|---|
| Protection in place until 70% of the 28-day strength has been reached. | ☐ | ☐ | ☒ | |
| Cold weather protection provided by means of heated enclosures, coverings, insulation, or a suitable approved combination of these methods during complete curing period. | ☐ | ☐ | ☒ | |
| Water not sitting in recesses, shear pockets, groves, bolt sleeves during heat and Hoarding period. | ☒ | ☐ | ☐ | |

COMMENTS: SOME BACKFILL IN PLACE AT TIME OF INSPECTION. PHOTOS REVIEWED BY RD FROM DATES PRECEEDING BACKFILL. AS WELL RD REQUESTED 2 RANDOM SPOTS BE DUG BACK TO CONFIRM FINISH WAS ACCEPTABLE AND ALL REQUIRED PATCHING COMPLETED.

ATTACHMENT(S): DWG.

**INITIAL INSPECTION**

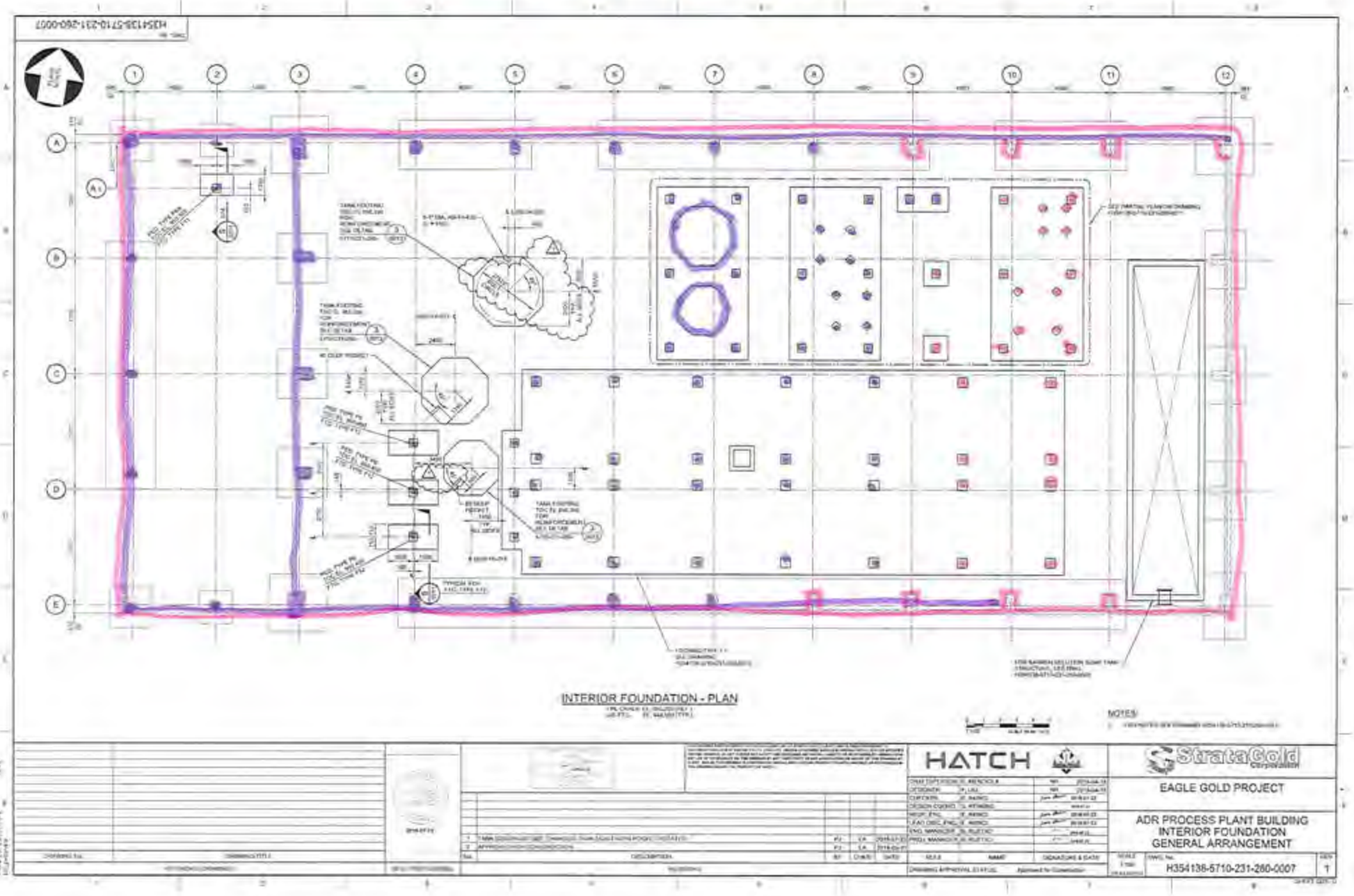
PRINT/ SIGN: Ryan deMilliano [signature] TITLE QA/QC Coordinator DATE: Sept 6, 2018

**JDS INSPECTION**

INT/ SIGN: _____ TITLE _____ DATE: _____

— Portion of concrete buried to bring backfill to U/S of SOG at time of inspection - Reviewed photos/inspected exposed. Sept E

— Entire surface exposed/inspected.



CLARK BUILDERS
ENERGY & RESOURCES

# ELECTRICAL GROUNDING SYSTEMS INSPECTION FORM

Rev 00 May 4, 2018

| | |
|---|---|
| SUBCONTRACTOR: TARPON | DATE OF INSPECTION: September 7, 2018 |
| WEATHER/ AMBIENT TEMP (°C): +14°C SUNNY | DATE INSTALLATION: September / August 2018 |
| INSPECTOR(S): Ryan Ishikawa, Tom Foster (Tarpon Instrument), Garry Dahl, Don Carte (JDS) | |
| LOCATION: 5710 ADR // Main Perimeter Grounding Loop. | |
| DRAWING REV: 00 | DRAWING NO.(S): 5000-260-272-1000-0002 SPEC SECTION(S): |

| GROUNDING SYSTEMS REQUIREMENT | PASS | FAIL | N/A | REMARKS |
|---|---|---|---|---|
| Installation matches drawings and specifications. | ☒ | ☐ | ☐ | |
| Conductor sizes and types. | ☒ | ☐ | ☐ | 4/0 – Bare Copper |
| Burial depth (record minimum in inches) | ☒ | ☐ | ☐ | 750mm from Grade |
| Ground rod and well locations. PLATES | ☒ | ☐ | ☐ | |
| Connections checked (torqueing, no cold joints, burnouts or protection) | ☒ | ☐ | ☐ | |
| System resistance to earth value (record in Ω) | ☐ | ☐ | ☒ | Done by others Later |
| Ground mats. | ☐ | ☐ | ☒ | |
| CSA Certified or equivalent. | ☒ | ☐ | ☐ | |
| | | | | |

| MANUFACTURER | DESCRIPTION | RANGE | ID. No. | CALIBRATION DUE DATE (YYYY.MM.DD) |
|---|---|---|---|---|
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |

| DISTANCE (m) | GROUND GRID (Ω) | REMOTE GRID (Ω) |
|---|---|---|
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |

| | | |
|---|---|---|
| COMMENTS: | | |
| | | |
| | | |
| ATTACHMENT(S): | | |
| | | |
| | | |
| | | |

**INITIAL INSPECTION**

PRINT/ SIGN: Ryan Cemilliano // [signature] TITLE Project Coordinator (QA/QC) DATE: SEPTEMBER 7/18

PRINT/ SIGN: _____ TITLE _____ DATE: _____

**RE-INSPECTION OF DEFICIENCIES (IF REQUIRED)**

PRINT/ SIGN: N/R. TITLE _____ DATE: _____

PRINT/ SIGN: _____ TITLE _____ DATE: _____

JDS

PRINT/SIGN Don Carter Don Carter 09/07/2018
DATE

TARPON

PRINT/SIGN THOMAS FOSTER [signature] 09/07/2018
DATE

CB

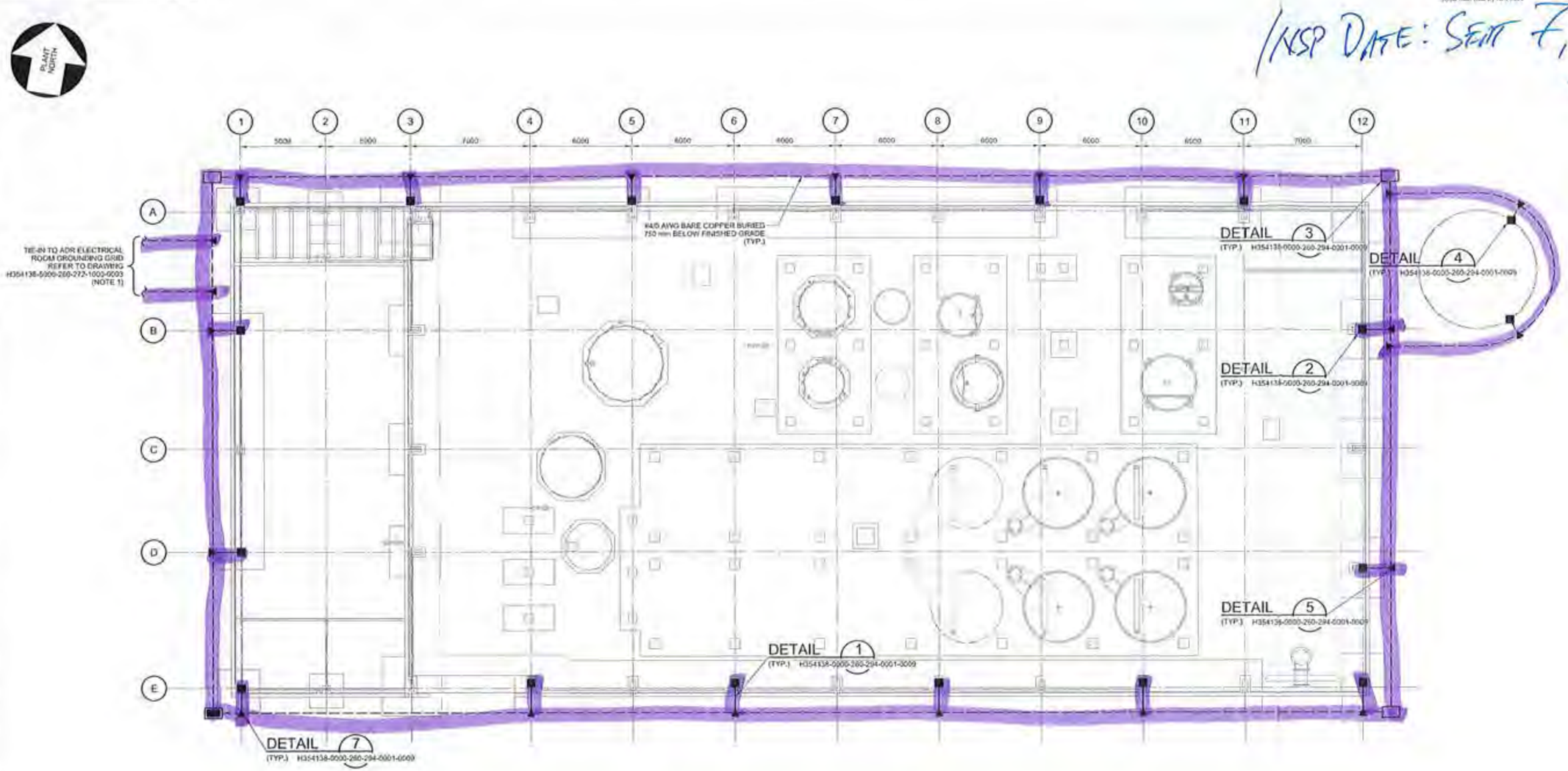
PRINT/SIGN GARRY DAHL [signature] DATE 09/07/2018

DWG. No. H354138-5000-260-272-1000-0002

NOTES

1. TIE-IN CABLES TO RUN IN SEPARATE TRENCHES SPACED 1000 mm (MIN.) APART.

INSP DATE: SEPT 7, 2018




| DRAWING No. | DRAWING TITLE |
|---|---|
| H354138-5000-260-272-1000-0001 | ADR PLANT AREA GROUNDING PERSPECTIVE LAYOUT |
| H354138-0000-260-294-0001-0002 | SITE ELECTRICAL NOTES, LEGENDS AND SYMBOLS |
| H354138-0000-260-294-0001-0001 | SITE ELECTRICAL NOTES, LEGENDS AND SYMBOLS |

REFERENCE DRAWINGS

PROFESSIONAL ENGINEER — MARC TIETZ — TERRITORY

REG. PROFESSIONAL

PERMIT TO PRACTICE HATCH — PERMIT NUMBER PP154 — Association of Professional Engineers of Yukon

| No. | DESCRIPTION | BY | CHK'D | DATE |
|---|---|---|---|---|

REVISIONS

HATCH

| ROLE | NAME | SIGNATURE & DATE |
|---|---|---|
| DRAFTSPERSON | L GIEBELHAUS | NR 2017-12-13 |
| DESIGNER | L GIEBELHAUS | NR 2017-12-13 |
| CHECKER | M TIETZ | |
| DESIGN COORD. | S PERKINS | |
| RESP. ENG. | M TIETZ | |
| LEAD DISC. ENG. | M TIETZ | |
| ENG. MANAGER | B RUSTAD | |
| PROJ. MANAGER | B RUSTAD | |

DRAWING APPROVAL STATUS: Approved for Construction

StrataGold Corporation

EAGLE GOLD PROJECT

ADR PLANT
BUILDING GROUNDING
LAYOUT

SCALE 1:125 OR AS NOTED | DWG. No. H354138-5000-260-272-1000-0002 | REV 0

SHEET SIZE: D

$FILE$ PRINTED: 22-MAY-2018 16:21

CLARK BUILDERS
ENERGY & RESOURCES

CB-INSPECTION FORM-DOC-002 REV.00
JDS ENERGY & MINING INC. | STRATAGOLD EAGLE GOLD
PROJECT #: CB201 | 18502

PROJECT MANAGER: DUSTIN DOLYNCHUK, P.ENG
QA/QC COORDINATOR: RYAN DE MILLIANO, C.E.T.
SUPERINTENDENT: GARRY DAHL

# CONCRETE REINFORCEMENT PRE POUR

Rev 01 August 25, 2018

| | |
|---|---|
| SUBCONTRACTOR: Ultimate Reinforcing // McNish | INSPECTION DATE: Sunday September 9, 2018 |
| SUBCONTRACTOR CONTACT PERSON: ~~Derek Savoie~~ Jimmy | PROJ. POUR DATE: Monday September 10, 2018 |
| INSPECTOR(S): Ryan DeMilliano, Peter Nice; Roman Bilobrowka (JDS) | |
| LOCATION: 5710 APR // SOG Pour #2/4 (GL 3-6) (A-E) | |
| DRAWING REV: 01 / DRAWING NO.(S): 5710-231-260-021 // 0022 | SPEC SECTION(S): S03 20 00 – Concrete Reinforcing Steel |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Grade (400W unless otherwise noted) and type of steel delivered and installed as required by approved drawings. | X | | |
| 2.0 | Inspect rebar distribution, spacing and cover per design/project requirements. | X | | |
| 3.0 | Length of splices as specified | X | | |
| 4.0 | Staggered splices as specified | X | | |
| 5.0 | Any mechanical splices have been approved by the owner prior to install | | | X |
| 6.0 | Bars cleaned and free of material that may reduce bond including loose rust, scale, oil, structural defects and that they are uncoated and unpainted. | X | | |
| 7.0 | Dowels at wall ends, construction joints, and openings as specified (length, location, size, etc.) | X | | |
| 8.0 | No unauthorized field bent bars including hooks installed | X | | |
| 9.0 | Resolve conflicts between embedded items and reinforcement | X | | |
| 10.0 | When authorized, field bends done without heat and inspected for fissures or cracks. | X | | |
| 11.0 | Bars tied and supported to prevent displacement SEE NOTE (1) | X | | |
| 12.0 | Spacers, tie wire and chairs as required | X | X | |
| 13.0 | Conduits at design location and minimum separation from rebar as specified | | | X |
| 14.0 | No contact of bars is made with dissimilar metals as per CSA A23.1 | X | | |
| 15.0 | Bars, nails or tie wire not sticking out from surfaces that allow rusting/corrosion | X | | |
| 16.0 | Rebar is welds inspected by qualified inspectors certified to CSA W178.2 | | | X |
| 17.0 | No rebar congestion or other obstruction for deposit of concrete | X | | |
| 18.0 | Adjustments required for interfering items (piping, inserts, sleeves, etc.) have been submitted and approved by owner. | X | | |
| 19.0 | Rebar was stored off ground to prevent damage/corrosion | X | | |
| 20.0 | Review drawings for anchors, piping, sleeves, boxes | X | | |

COMMENTS:

ATTACHMENT(S):

DEFICIENCIES NOTES:

(1) Some areas required more chairing to prevent movement during pour
→ Blocks.

Reinspected Dry of pour
Good

CLARK BUILDERS:
INSPECTOR: Ryan DeMilliano // [signature] TITLE: Project Coordinator (QA) DATE: September 9, 2018

JDS ENERGY & MINING:
INSPECTOR: JDS Roman Bilobrowka [signature] TITLE: Site Manager DATE: Sept 9/18

CLARK BUILDERS
ENERGY & RESOURCES

# FORMWORK & FALSEWORK PRE POUR | QA INSPECTION

Rev 04 August 25, 2018

| | |
|---|---|
| CONTRACTOR: Clark Builders | INSPECTION DATE: Sunday September 9, 2018 |
| CONTRACTOR CONTACT PERSON: Peter Nica (CB Superintendent) | DATE OF POUR: Monday Sept 10, 2018 |
| INSPECTOR(S): Ryan deMilliano ; Garry Dahl ; Peter Nica ; Roman Bilobrowka (IDS) | |
| LOCATION: 5710 ADR // SOG Pour 2/4 (GL 3-6) GL A-E | |
| DRAWING REV: 01 | DRAWING NO.(S): 5710-231-260-1021/0022 |
| SPEC SECTION(S): 503 10 00 | |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Location, survey, dimension and grades as required | X | ☐ | ☐ |
| 2.0 | Plumbness and Flatness verified | X | ☐ | ☐ |
| 3.0 | Joints are aligned and watertight. | X | ☐ | ☐ |
| 4.0 | Formwork shop drawings are Engineered and reviewed | ☐ | ☐ | X |
| 5.0 | Re-used formwork reconditioned and treated | X | ☐ | ☐ |
| 6.0 | Formwork and ties according to finishing requirements. Confirm no holes in the concrete surface are greater than 25mm in diameter or expose steel at less than 25mm from surface. As per spec. | X | ☐ | ☐ |
| 7.0 | Installation of embeds are located and secured | X | ☐ | ☐ |
| 8.0 | Chamfer requirements checked. 25mm chamfers required for all exterior corners and edges exposed to view including horizontal edges of pads. | ☐ | ☐ | X |
| 9.0 | Key ways and/or other provisions according to design are provided in construction joints | X | ☐ | ☐ |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 10.0 | Inspect types of form spacers, ties and bracing. | X | ☐ | ☐ |
| 11.0 | Spacing of ties to be set to a pattern | X | ☐ | ☐ |
| 12.0 | Expansion, construction, contraction joints as required & located as coordinated with structural Engineer | X | ☐ | ☐ |
| 13.0 | Forms secured against movement during placing | X | ☐ | ☐ |
| 14.0 | Forms are braced for alignment and blow out | X | ☐ | ☐ |
| 15.0 | Forms are cleaned of all debris, and dry, prior to concrete placement including standing water. | X | ☐ | ☐ |
| 16.0 | Openings in formwork permit inspection and cleaning, placing and compaction of concrete, and forming and processing of construction joints. | X | ☐ | ☐ |
| 17.0 | Formwork has been coated with release agent prior to rebar placement. | X | ☐ | ☐ |
| 18.0 | Anchor Bolts and Embeds are secured to formwork. | X | ☐ | ☐ |

COMMENTS:

ATTACHMENT(S):

DEFICIENCIES NOTES:

- Water stop ended at doorways. Requested that it continue onto concrete backstop. Continuous seal.

INITIAL INSPECTION

INSPECTOR: Ryan deMilliano TITLE: Project Coordinator/QA DATE: Sept 9/18

RE-INSPECTION (DEFICIENCIES COMPLETED)

INSPECTOR: _____ TITLE _____ DATE: _____

CLARK BUILDERS
ENERGY & RESOURCES

PROJECT MANAGER: DUSTIN DOLYNCHUK, P.ENG
QA/QC COORDINATOR: RYAN DE MILLIANO, C.E.T.
SUPERINTENDENT: GARRY DAHL

# EXCAVATION AND BACKFILL PRE POUR | QA INSPECTION

Rev 00 May 4, 2018

| | |
|---|---|
| SUBCONTRACTOR: Cobalt | INSPECTION DATE: Sept 7, 2018 |
| SUBCONTRACTOR CONTACT PERSON: | ~~ACTION BY:~~ Pour scheduled for Sept 10/18 |
| INSPECTOR(S): Ryan de Milliano, Peter Nice, Garry Dahl | |
| LOCATION: 5710 ADR // SOG POUR #2/4 GL 3-6 GL A-E | |
| DRAWING REV: 7 | DRAWING NO.(S): 5710-231-280-0021/0022 |
| SPEC SECTION(S): | |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Subsoil investigation report has been reviewed | X | ☐ | ☐ |
| 2.0 | Survey complete, stakes and monuments located | X | ☐ | ☐ |
| 3.0 | Procedures in place for hazardous materials? | X | ☐ | ☐ |
| 4.0 | Required Ground Disturbance permits reviewed and approved Green field. | ☐ | ☐ | X |
| 5.0 | Utilities and other underground potential interferences to remain are located, stakes and protected? | ☐ | ☐ | X |
| 6.0 | Utilities companies notified | ☐ | ☐ | X |
| 7.0 | Drawings are approved and stamped prior to work begins | X | ☐ | ☐ |
| 8.0 | Drainage has been planned and is being provided continuously | X | ☐ | ☐ |
| 9.0 | Need for well points has been checked | X | ☐ | ☐ |
| 10.0 | Testing, inspection and compaction requirements have been reviewed | X | ☐ | ☐ |
| 11.0 | Backfill materials have been tested and approved to use | X | ☐ | ☐ |
| 12.0 | Clarify compaction requirements by material, use, lift thickness, frequency, etc. | X | ☐ | ☐ |
| 13.0 | Need of slope design for trenching or excavation has been reviewed | X | ☐ | ☐ |
| 14.0 | Blast/fractured rock requirements have been reviewed | ☐ | ☐ | X |
| 15.0 | Project specific quality requirements | X | ☐ | ☐ |
| 16.0 | If needed, are barricades, stop logs, properly placed? | X | ☐ | ☐ |
| | | ☐ | ☐ | ☐ |
| | | ☐ | ☐ | ☐ |
| | | ☐ | ☐ | ☐ |
| | | ☐ | ☐ | ☐ |

COMMENTS:

- Poly laid at time of inspection.
- Informal inspection on Sept 6 completed w/ Cobalt.

ATTACHMENT(S):

DWG.

DEFICIENCIES NOTES:

INITIAL INSPECTION

INSPECTOR: Ryan de Milliano / [signature] TITLE Project Coordinator / QA DATE: Sept 7, 2018

RE-INSPECTION (DEFICIENCIES COMPLETED)

INSPECTOR: _____ TITLE _____ DATE: _____

IHSD DATE - SEAT 9/18




HATCH

StrataGold Corporation

EAGLE GOLD PROJECT

ADR PROCESS PLANT BUILDING
BUILDING FOUNDATION
FOUNDATION - PLAN

H354138-5710-231-260-0002

0

# CONCRETE POST POUR COLD WEATHER MONITORING

Rev 01 July 4, 2018

| | |
|---|---|
| SUBCONTRACTOR: CLARK BUILDERS. | DATE OF POUR: SEPTEMBER 10, 2018 |
| WEATHER/ AMBIENT TEMP (°C): DATE OF POUR +12°C | DATE FORMWORK STRIPPED: |
| INSPECTOR(S): RYAN DEMILLIANO / PEARL NICE | DATE OF INSPECTION: SEPT 11, 2018 |
| LOCATION: ADR SOG GL 3-6 | |
| DRAWING NO.(S): N/A. | DRAWING REV: N/A |
| SPEC SECTION(S): S03 30 00 – Cast-In-Place | |

TYPE OF CURING:

| | | | | | |
|---|---|---|---|---|---|
| CURING COMPOUND | ☐ | DAMP BURLAP OR FABRIC | ☐ | INSULATION (TARPS) | ☒ |
| POLYETHYLENE SHEETS | ☐ | WATER/FOG SPRAY/ PONDING | ☐ | FORMS (COVERED BY) | ☐ |

| COLD WEATHER REQUIREMENTS (WHEN AMB. TEMP < 5°C) | PASS | FAIL | N/A | REMARKS |
|---|---|---|---|---|
| Protection in place for 5 days at temperatures not lower than 20°C or until 70% of the 28-day strength has been reached. | ☒ | ☐ | ☐ | |
| Cold weather protection provided by means of heated enclosures, coverings, insulation, or a suitable approved combination of these methods during complete curing period. | ☒ | ☐ | ☐ | INSPECTED ON SEPT 9/18 |
| During freezing weather, water curing terminated 12h before the end of the protection period (CSA A 23.1 clause 7.4.2.4.2) | ☐ | ☐ | ☒ | NOT FREEZING, LOWS +1 OVERNIGHT. SEPT 9, 2018 |

CONCRETE CURING TEMPERATURE LOG (COLD WEATHER CONCRETEING ONLY)

| DATE | TIME (24 HR) | OUTSIDE AIR TEMP (°C) | TEMP INSIDE HOARDING (°C) | CONCRETE SURFACE TEMP (°C) | | INITIALS OF READER |
|---|---|---|---|---|---|---|
| | | | | HIGH (°C) | LOW (°C) | |
| SEPT 10/18 | 22:01 | +7°C | +17°C | — | — | |
| SEPT 11/18 | 07:30 | -1°C | +15°C | +26°C | +22°C | |
| SEPT 12, 2018 | 07:16 | -3°C | +16°C | +17°C | +9°C | |
| SEPT 12, 2018 | 19:30 | +8°C | +15°C | +15°C | +7°C | |
| SEPT 13, 2018 | 18:20 | +5°C | N/A | +11°C | +4°C | |

COMMENTS: TEMP @ POUR DATE = HIGH +12°C LOW +5°C
HEATING AND HOARDING SET UP AND INSPECTED PRIOR TO POUR. (SEPT 9, 2018)
– HEATED OVERNIGHT, TEMP IN HOARDING @ POUR N+15°C

ATTACHMENT(S):

**CLARK BUILDERS SITE REPRESENTATIVE**

PRINT/ SIGN: Ryan deMilliano TITLE: Project Coordinator DATE: SEPT 13, 2018

CLARK BUILDERS

JDS Energy & Mining LTD
c/o Calvin Goldschmidt, Engineering and Contracts Manager
900-999 West Hastings St
Vancouver, BC
V6C 2W2

Date: September 10, 2018

Attention: Calvin Goldschmidt, D'Arcy Comerford, Matt Coverdale

CC'ed: Roman Bilobrowka, Jerry Chrzaszcz, Ishan Fechter

**Reference: CB201 Inspection of Liner Repair – StrataGold Eagle Gold Project**

# CONFIRMATION OF REPAIR | Liner at 5710 ADR

## Project: 5710 ADR Eagle Gold Project

This letter is to confirm that Clark Builders has completed the required repair of the liner that was damaged by Clark Builders at the ADR. Liner damage was located on the west side of the ADR footprint between GL B-C (See attached Photos and marked up drawing).

This letter confirms the turnover of patched area to JDS and Layfield from Clark Builders.

Regards,

Clark Builders

| PRINT/SIGN | POSITION | DATE |
|---|---|---|
| Ryan McMillan | Project Coordinator (QA) | September 10, 2018 |

JDS

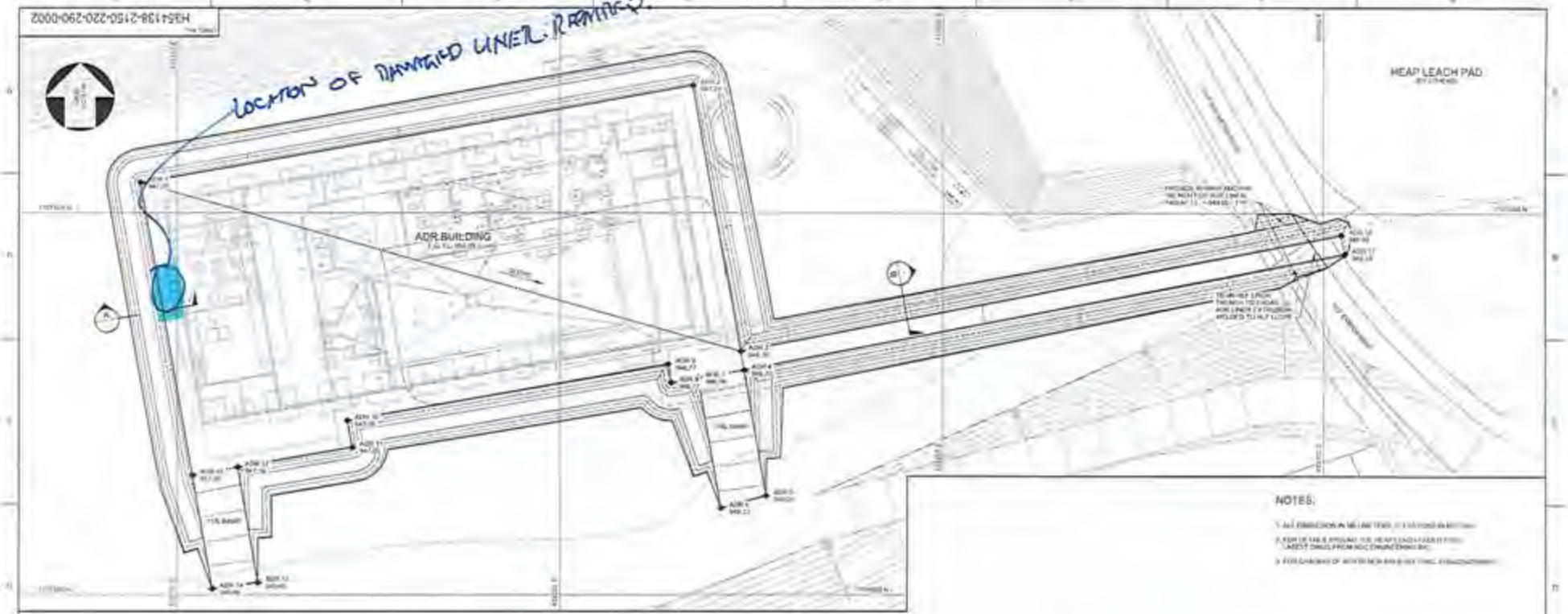
| PRINT/SIGN | POSITION | DATE |
|---|---|---|
| D'Arcy Comerford | Fuzzo Engineer | September 10, 2018 |

Attachments:
Photos and Marked up Drawing

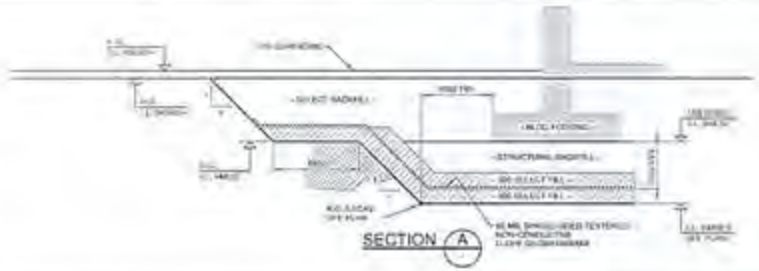
Sept 10, 2018

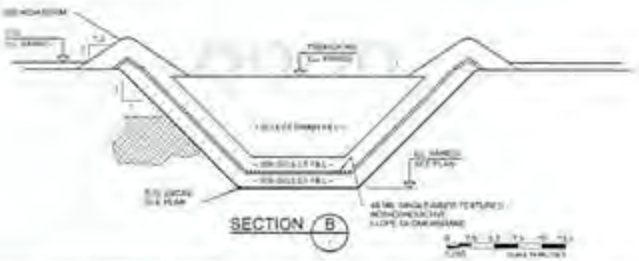
H354138-2150-220-290-0002

LOCATION OF DAMAGED LINER REPAIRED.




NOTES:




PROGRESS PRINT

HATCH

StrataGold corporation

EAGLE GOLD PROJECT

ADR PLANT AND LAYDOWN PAD FOUNDATION AND LINER EXCAVATION PLAN AND SECTIONS

H354138-2150-220-290-0002 A

SEPT 10, 2018
LINEARIZATION



SEPT 10 2018
LINER REPAIR.



CLARK BUILDERS
ENERGY & RESOURCES

CB-INSPECTION FORM-DOC-002 REV.00
IDS ENERGY & MINING INC. | STRATAGOLD EAGLE GOLD
PROJECT #: CB201 | 18502

PROJECT MANAGER: DUSTIN DOLYNCHUK, P.ENG
QA/QC COORDINATOR: RYAN DE MILLIANO, C.E.T.
SUPERINTENDENT: GARRY DAHL

# CONCRETE REINFORCEMENT PRE POUR

Rev 01 August 25, 2018

| | |
|---|---|
| SUBCONTRACTOR: Ultimate Reinforcing // McNish | INSPECTION DATE: September 13, 2018 |
| SUBCONTRACTOR CONTACT PERSON: ~~Derek Savoie~~ Jimmy | PROJ. POUR DATE: September 14, 2018 |
| INSPECTOR(S): Ryan deMilliano, D'Arcy (IDS), Jerry (IDS) | |
| LOCATION: 5710 ADR SOG GL 6-9 A-E POUR 3/4 | |
| DRAWING REV: Various → Revisions 01 01 01 01 | DRAWING NO.(S): 5710-231-260-0023/0024/22/21 SPEC SECTION(S): S03 20 00 – Concrete Reinforcing Steel |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A | ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|---|---|---|---|---|
| 1.0 | Grade (400W unless otherwise noted) and type of steel delivered and installed as required by approved drawings. | X | ☐ | ☐ | 11.0 | Bars tied and supported to prevent displacement | X | ☐ | ☐ |
| 2.0 | Inspect rebar distribution, spacing and cover per design/project requirements. | X | ☐ | ☐ | 12.0 | Spacers, tie wire and chairs as required | X | ☐ | ☐ |
| 3.0 | Length of splices as specified | X | ☐ | ☐ | 13.0 | Conduits at design location and minimum separation from rebar as specified | ☐ | ☐ | X |
| 4.0 | Staggered splices as specified | X | ☐ | ☐ | 14.0 | No contact of bars is made with dissimilar metals as per CSA A23.1 | X | ☐ | ☐ |
| 5.0 | Any mechanical splices have been approved by the owner prior to install | ☐ | ☐ | X | 15.0 | Bars, nails or tie wire not sticking out from surfaces that allow rusting/corrosion | X | ☐ | ☐ |
| 6.0 | Bars cleaned and free of material that may reduce bond including loose rust, scale, oil, structural defects and that they are uncoated and unpainted. | X | ☐ | ☐ | 16.0 | Rebar is welds inspected by qualified inspectors certified to CSA W178.2 | ☐ | ☐ | X |
| 7.0 | Dowels at wall ends, construction joints, and openings as specified (length, location, size, etc.) | X | ☐ | ☐ | 17.0 | No rebar congestion or other obstruction for deposit of concrete | X | ☐ | ☐ |
| 8.0 | No unauthorized field bent bars including hooks installed | X | ☐ | ☐ | 18.0 | Adjustments required for interfering items (piping, inserts, sleeves, etc.) have been submitted and approved by owner | X | ☐ | ☐ |
| 9.0 | Resolve conflicts between embedded items and reinforcement | X | ☐ | ☐ | 19.0 | Rebar was stored off ground to prevent damage/corrosion | X | ☐ | ☐ |
| 10.0 | When authorized, field bends done without heat and inspected for fissures or cracks. | ☐ | ☐ | X | 20.0 | Review drawings for anchors, piping, sleeves, boxes | X | ☐ | ☐ |

COMMENTS:

TEMP IN HOARDING MORNING OF POUR: @ 6:15 AM = -3°C → +3°C
*TOO COLD TO POUR, CONCRETE DELAYED UNTIL REINFORCEMENT/FORMWORK ABOVE +10°C
TEMP REINSPECTED FOR TEMP @ 8:50 AM REINFORCING/FORMWORK @ +15°C

ATTACHMENT(S):

DEFICIENCIES NOTES:

• MORE TIES REQUIRED TO SUPPORT BAR; CHAIRING TO BE ADDED TO SUPPORT TOP MAT IN SOME LOCATIONS.

CLARK BUILDERS:
INSPECTOR: Ryan deMilliano [signature] TITLE Project Coordinator (QA) DATE:

IDS ENERGY & MINING:
INSPECTOR: D'Arcy Cameron [signature] TITLE Field Engineer DATE: Sep 14, 2018

CLARK BUILDERS
ENERGY & RESOURCES

# FORMWORK & FALSEWORK PRE POUR | QA INSPECTION

Rev 01 August 25, 2018

| | |
|---|---|
| CONTRACTOR: Clark Builders | INSPECTION DATE: SEPT 13, 2018 |
| CONTRACTOR CONTACT PERSON: JAMES MEADAHL / PETER NICE | DATE OF POUR: SEPT 14, 2018 |
| INSPECTOR(S): Ryan deMilliano / Garry Dahl | |
| LOCATION: ADR SOG GL6-9 A-E POUR 3/4 | |
| DRAWING REV: 01 | DRAWING NO.(S): 570-231-260-0021/22/23/24 SPEC SECTION(S): 503100 |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Location, survey, dimension and grades as required | ☒ | ☐ | ☐ |
| 2.0 | Plumbness and Flatness verified | ☒ | ☐ | ☐ |
| 3.0 | Joints are aligned and watertight. | ☒ | ☐ | ☐ |
| 4.0 | Formwork shop drawings are Engineered and reviewed | ☐ | ☐ | ☒ |
| 5.0 | Re-used formwork reconditioned and treated | ☒ | ☐ | ☐ |
| 6.0 | Formwork and ties according to finishing requirements. Confirm no holes in the concrete surface are greater than 25mm in diameter or expose steel at less than 25mm from surface. As per spec. | ☒ | ☐ | ☐ |
| 7.0 | Installation of embeds are located and secured | ☐ | ☐ | ☒ |
| 8.0 | Chamfer requirements checked. 25mm chamfers required for all exterior corners and edges exposed to view including horizontal edges of pads. | ☐ | ☐ | ☒ |
| 9.0 | Key ways and/or other provisions according to design are provided in construction joints @ GL9 | ☒ | ☐ | ☐ |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 10.0 | Inspect types of form spacers, ties and bracing. | ☒ | ☐ | ☐ |
| 11.0 | Spacing of ties to be set to a pattern | ☒ | ☐ | ☐ |
| 12.0 | Expansion, construction, contraction joints as required & located as coordinated with structural Engineer (2) | ☒ | ☐ | ☐ |
| 13.0 | Forms secured against movement during placing | ☒ | ☐ | ☐ |
| 14.0 | Forms are braced for alignment and blow out | ☒ | ☐ | ☐ |
| 15.0 | Forms are cleaned of all debris, and dry, prior to concrete placement including standing water. | ☒ | ☐ | ☐ |
| 16.0 | Openings in formwork permit inspection and cleaning, placing and compaction of concrete, and forming and processing of construction joints. | ☒ | ☐ | ☐ |
| 17.0 | Formwork has been coated with release agent prior to rebar placement. | ☒ | ☐ | ☐ |
| 18.0 | Anchor Bolts and Embeds are secured to formwork. | ☐ | ☐ | ☒ |

COMMENTS:

(1) FORMWORK IN GOOD CONDITION AND WELL BRACED.
(2) STRING LINE WILL BE STRUNG @ GL9 BULKHEAD AND MONITORED FOR ANY MOVEMENT.

ATTACHMENT(S):

DEFICIENCIES NOTES:

TEMPERATURE LOW @ SCHEDULED POUR TIME OF 6:30AM. CONCRETE WAS POSTPONED UNTIL TEMP WAS ABOVE +10°C IN HOARDING.

INITIAL INSPECTION

INSPECTOR: Ryan deMilliano TITLE Project Coordinator (QA) DATE: SEPT 13, 2018

RE-INSPECTION (DEFICIENCIES COMPLETED)

INSPECTOR: N/A TITLE _____ DATE: _____

CLARK BUILDERS
ENERGY & RESOURCES

# EXCAVATION AND BACKFILL PRE POUR INSPECTION

Rev 00 May 4, 2018

| | |
|---|---|
| SUBCONTRACTOR: Comact | INSPECTION DATE: Sept 10 Sept 7, 2018 |
| SUBCONTRACTOR CONTACT PERSON: | |
| INSPECTOR(S): Ryan deMilliano | |
| LOCATION: 5710 ADR U/C EOG GL6-9 POUR 3/4 | |
| DRAWING REV: | DRAWING NO.(S): / SPEC SECTION(S): |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Drainage has been planned and is being provided continuously | ☐ | ☐ | ☒ |
| 2.0 | Survey complete, stakes and monuments located | ☒ | ☐ | ☐ |
| 3.0 | If needed, are barricades, stop logs, properly placed? | ☒ | ☐ | ☐ |
| 4.0 | Drawings are approved and stamped prior to work begins | ☒ | ☐ | ☐ |
| 5.0 | Utilities and other underground potential interferences to remain are located, stakes and protected? | ☐ | ☐ | ☒ |
| | | ☐ | ☐ | ☐ |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 6.0 | Backfill materials have been tested and approved to use | ☒ | ☐ | ☐ |
| 7.0 | Clarify compaction requirements by material, use, lift thickness, frequency, etc. | ☒ | ☐ | ☐ |
| 8.0 | Need of slope design for trenching or excavation has been reviewed | ☒ | ☐ | ☐ |
| 9.0 | Blast/fractured rock requirements have been reviewed | ☐ | ☐ | ☒ |
| 10.0 | Testing, inspection and compaction requirements have been reviewed | ☒ | ☐ | ☐ |
| | | ☐ | ☐ | ☐ |

| MMENTS: Comact | ATTACHMENT(S): |
|---|---|
| CLARK ONLY RESPONSIBLE FOR TRENCHING TO U/S OF SOG. | DWG. |

DEFICIENCIES NOTES:

CLARK BUILDERS INSPECTION

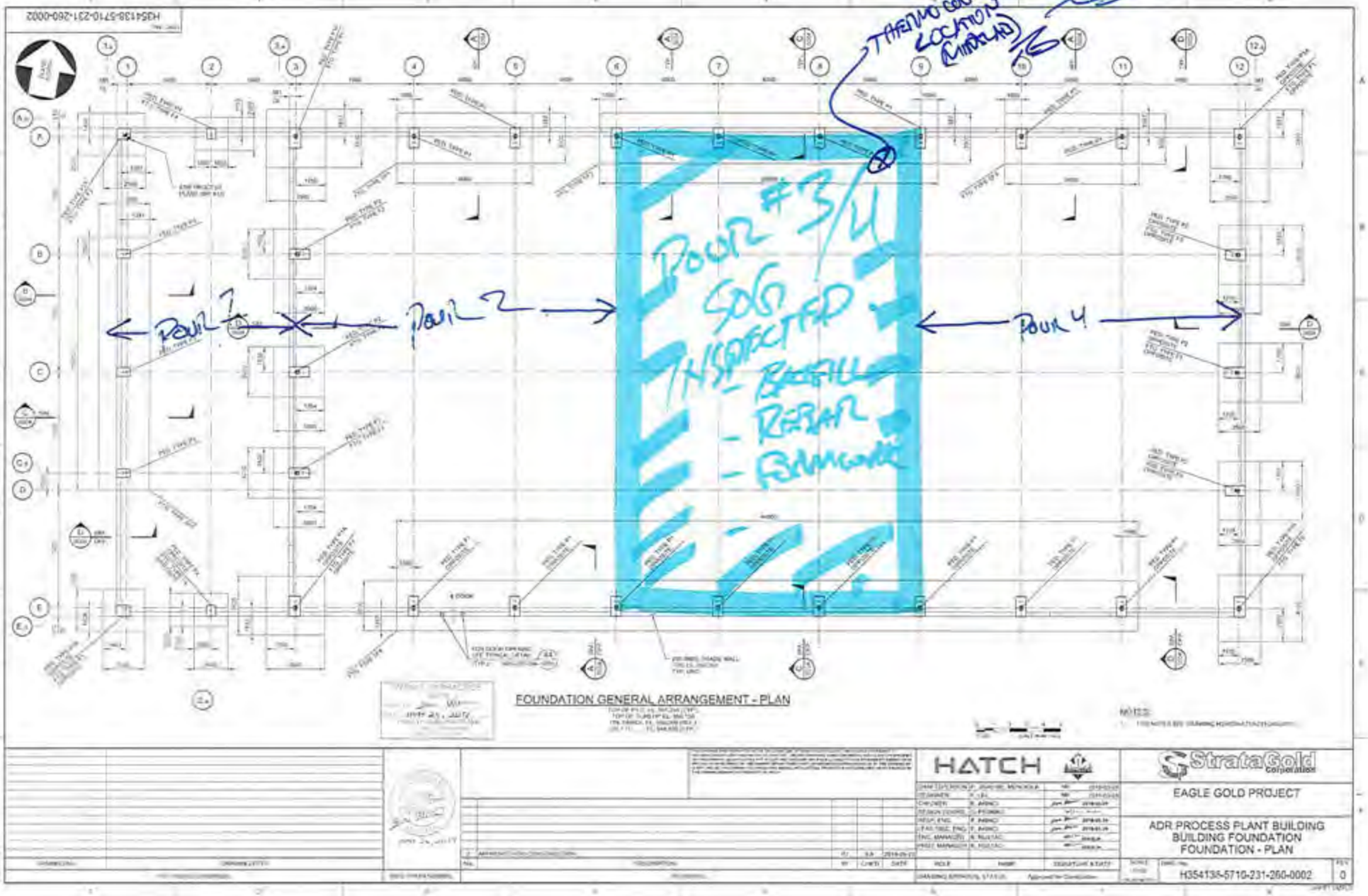
INSPECTOR: Ryan deMilliano TITLE Project Coordinator (QA) DATE: Sept 10, 2018

OTHER INSPECTORS

INSPECTOR: _____ TITLE _____ DATE: _____

5710 AL. - SOG GL 6-9 A-E

SEPT 5, 2018




HATCH

StrataGold Corporation

EAGLE GOLD PROJECT

ADR PROCESS PLANT BUILDING
BUILDING FOUNDATION
FOUNDATION - PLAN

H354138-5710-231-260-0002 0

CLARK BUILDERS
ENERGY & RESOURCES

# CONCRETE POST POUR COLD WEATHER MONITORING

Rev 01 July 4, 2016

| | |
|---|---|
| SUBCONTRACTOR: CLARK BUILDERS | DATE OF POUR: SEPT 14, 2018 |
| WEATHER/ AMBIENT TEMP (°C): SUNNY/CLEAR +5°C | DATE FORMWORK STRIPPED: |
| INSPECTOR(S): RYAN DEMILLIANO (CB) | DATE OF INSPECTION: SEPT 15-17, 2018 |
| LOCATION: 5710 ADR SOG GL 6-9 A-E | |
| DRAWING NO.(S): — | DRAWING REV: — |
| SPEC SECTION(S): S03 30 00 – Cast-In-Place | |

TYPE OF CURING:

| | | | | | |
|---|---|---|---|---|---|
| CURING COMPOUND | ☒ | DAMP BURLAP OR FABRIC | ☐ | INSULATION (TARPS) | ☐ |
| POLYETHYLENE SHEETS | ☐ | WATER/FOG SPRAY/ PONDING | ☐ | FORMS (COVERED BY) SIDES (NORTH/EAST) | ☒ |

| COLD WEATHER REQUIREMENTS (WHEN AMB. TEMP < 5°C) | PASS | FAIL | N/A | REMARKS |
|---|---|---|---|---|
| Protection in place for 5 days at temperatures not lower than 20°C or until 70% of the 28-day strength has been reached. | ☒ | ☐ | ☐ | |
| Cold weather protection provided by means of heated enclosures, coverings, insulation, or a suitable approved combination of these methods during complete curing period. | ☒ | ☐ | ☐ | |
| During freezing weather, water curing terminated 12h before the end of the protection period (CSA A 23.1 clause 7.4.2.4.2) | ☒ | ☐ | ☐ | |
| | | | | |

CONCRETE CURING TEMPERATURE LOG (COLD WEATHER CONCRETEING ONLY)

| DATE | TIME (24 HR) | OUTSIDE AIR TEMP (°C) | TEMP INSIDE HOARDING (°C) | CONCRETE SURFACE TEMP (°C) | | INITIALS OF READER |
|---|---|---|---|---|---|---|
| | | | | HIGH (°C) | LOW (°C) | |
| SEPT 15, 2018 | 07:05 | -7°C | +14.2°C | +20.4 | +3.1 | |
| SEPT 16, 2018 | 07:02 | -10°C | +10°C | +15.0 | +0.2°C | |
| SEPT 17, 2018 | 12:05 | +2°C | +15°C | +15.0 | +10°C | |
| SEPT 18, 2018 | 06:10 | -5°C | +15°C | +14.5 | +11°C | |
| | | | | | | |

COMMENTS: AMBIENT TEMP @ END OF POUR: +8°C
SEPT 15 @ 20:05 ⇒ GAPS NEAR ~~DOOR~~ ENTRANCE DRIFT, ASKED TO CLOSE TO KEEP WARM IN HERE.

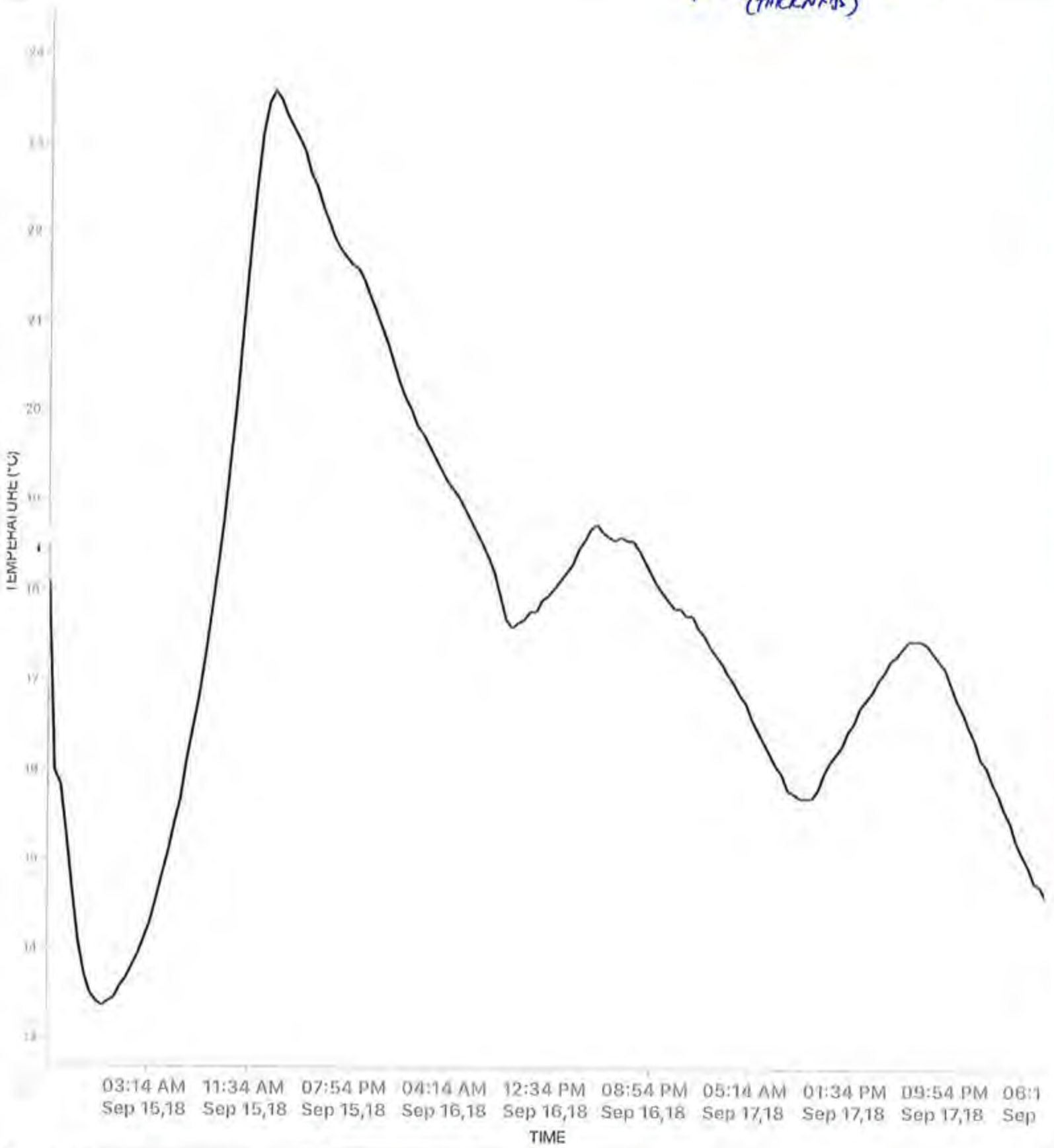
ATTACHMENT(S):

**CLARK BUILDERS SITE REPRESENTATIVE**

PRINT/ SIGN: Ryan deMilliano TITLE Project Coordinator (CA) DATE: SEPT 17/18

PERATURE

MIDSLAB LOCATION.
(THERMAIS)



CLARK BUILDERS
ENERGY & RESOURCES

CB-INSPECTION FORM-DOC-002 REV.00
JDS ENERGY & MINING INC. | STRATAGOLD EAGLE GOLD
PROJECT #: CB201 | 18502

PROJECT MANAGER: DUSTIN DOLYNCHUK, P.ENG
QA/QC COORDINATOR: RYAN DE MILLIANO, C.E.T.
SUPERINTENDENT: GARRY DAHL

# CONCRETE REINFORCEMENT PRE POUR

Rev 00 May 4, 2018

| | |
|---|---|
| SUBCONTRACTOR: Ultimate Reinforcing. | INSPECTION DATE: September 15, 2018 |
| SUBCONTRACTOR CONTACT PERSON: Jimmy | ~~ACTION BY:~~ Pour Date: September 16, 2018 |
| INSPECTOR(S): Ryan de Milliano (CB); Garry Dahl; Jerry (JDS); Darcy C. (JDS) → Pour Start Time: 10:30 AM. | |
| LOCATION: 5710 ADR 50G GL 9-12 (A-E) | |
| DRAWING REV: 00 | DRAWING NO.(S): 5710-231-260-0023/0024 SPEC SECTION(S): 503 2000 |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Grade (400W unless otherwise noted) and type of steel delivered and installed as required by approved drawings. | X | | |
| 2.0 | Inspect rebar distribution, spacing and cover per design/project requirements. | X | | |
| 3.0 | Length of splices as specified | X | | |
| 4.0 | Staggered splices as specified | X | | |
| 5.0 | Any mechanical splices have been approved by the owner prior to install | | | X |
| 6.0 | Bars cleaned and free of material that may reduce bond including loose rust, scale, oil, structural defects and that they are uncoated and unpainted. | X | | |
| 7.0 | Dowels at wall ends, construction joints, and openings as specified (length, location, size, etc.) | | | X |
| 8.0 | No unauthorized field bent bars including hooks installed | X | | |
| | Resolve conflicts between embedded items and reinforcement | X | | |
| 9.0 | When authorized, field bends done without heat and inspected for fissures or cracks. | | | X |
| 10.0 | Bars tied and supported to prevent displacement | X | | |
| 11.0 | Spacers, tie wire and chairs as required | X | | |
| 12.0 | Conduits at design location and minimum separation from rebar as specified | | | X |
| 13.0 | No contact of bars is made with dissimilar metals as per CSA A23.1 | X | | |
| 14.0 | Bars, nails or tie wire not sticking out from surfaces that allow rusting/corrosion | X | | |
| 15.0 | Rebar is welds inspected by qualified inspectors certified to CSA W178.2 | | | X |
| 16.0 | No rebar congestion or other obstruction for deposit of concrete | X | | |
| 17.0 | Adjustments required for interfering items (piping, inserts, sleeves, etc.) have been submitted and approved by owner. | X | | |
| 18.0 | Rebar was stored off ground to prevent damage/corrosion | X | | |
| 19.0 | Review drawings for anchors, piping, sleeves, boxes | X | | |

COMMENTS:

• Tarping & Heating required to Achieve 5°C rebar 0° surface
Installing Remaining Waterstop @ GL 'A' at time of inspection. Review once complete.
Temp informs @ 06:30 ≥ +14°C → +30°C. Tarps removed to make last adjustments. Reinstalled and heat applied prior to pour.

ATTACHMENT(S): DWG

DEFICIENCIES NOTES:

(1) Corner bars missing @ South corners of Barren Sump Sol. Tank. Added inspected.

CB ~~INITIAL INSPECTION~~

INSPECTOR: Ryan de Milliano TITLE Project Coordinator (QA) DATE: Sept 16, 2018

JDS ~~RE-INSPECTION (DEFICIENCIES COMPLETED)~~

INSPECTOR: D'Arcy Comerford TITLE Field Engineer DATE: Sep 16, 2018

CLARK BUILDERS
ENERGY & RESOURCES

# FORMWORK & FALSEWORK PRE POUR | QA INSPECTION

Rev 00 May 4, 2018

| | | | |
|---|---|---|---|
| SUBCONTRACTOR: | CLARK BUILDERS | INSPECTION DATE: | SEPTEMBER 15, 2018 |
| SUBCONTRACTOR CONTACT PERSON: | JAMES MEADATH | DATE OF POUR: | SEPTEMBER 16, 2018 |
| INSPECTOR(S): | Ryan deMilliano | | |
| LOCATION: | 5710 ADIT SOG GL 9-12 (A-E) | | |
| DRAWING REV: | C0 | DRAWING NO.(S): | 5710-231-260023/6027 |
| SPEC SECTION(S): | 503 10 00 | | |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Location, survey, dimension and grades as required | ☒ | ☐ | ☐ |
| 2.0 | Plumbness and Flatness verified | ☒ | ☐ | ☐ |
| 3.0 | Joints are aligned and watertight. | ☒ | ☐ | ☐ |
| 4.0 | Formwork shop drawings are Engineered and reviewed | ☒ | ☐ | ☐ |
| 5.0 | Re-used formwork reconditioned and treated | ☒ | ☐ | ☐ |
| 6.0 | Formwork and ties according to finishing requirements. Confirm no holes in the concrete surface are greater than 25mm in diameter or expose steel at less than 25mm from surface. As per spec. | ☒ | ☐ | ☐ |
| 7.0 | Installation of embeds are located and secured | ☐ | ☐ | ☒ |
| 8.0 | Chamfer requirements checked. 25mm chamfers required for all exterior corners and edges exposed to view including horizontal edges of pads. | ☒ | ☐ | ☐ |
| 9.0 | Key ways and/or other provisions according to design are provided in construction joints | ☒ | ☐ | ☐ |
| 10.0 | Inspect types of form spacers, ties and bracing. | ☒ | ☐ | ☐ |
| 11.0 | Spacing of ties to be set to a pattern | ☒ | ☐ | ☐ |
| 12.0 | Expansion, construction, contraction joints as required & located as coordinated with structural Engineer | ☒ | ☐ | ☐ |
| 13.0 | Forms secured against movement during placing | ☒ | ☐ | ☐ |
| 14.0 | Forms are braced for alignment and blow out | ☒ | ☐ | ☐ |
| 15.0 | Forms are cleaned of all debris, and dry, prior to concrete placement including standing water. | ☒ | ☐ | ☐ |
| 16.0 | Openings in formwork permit inspection and cleaning, placing and compaction of concrete, and forming and processing of construction joints. | ☒ | ☐ | ☐ |
| 17.0 | Formwork has been coated with release agent prior to rebar placement. | ☒ | ☐ | ☐ |
| | | ☐ | ☐ | ☐ |

COMMENTS:

Only Formwork @ Door openings.

ATTACHMENT(S):

Dwgs.

DEFICIENCIES NOTES:

INITIAL INSPECTION

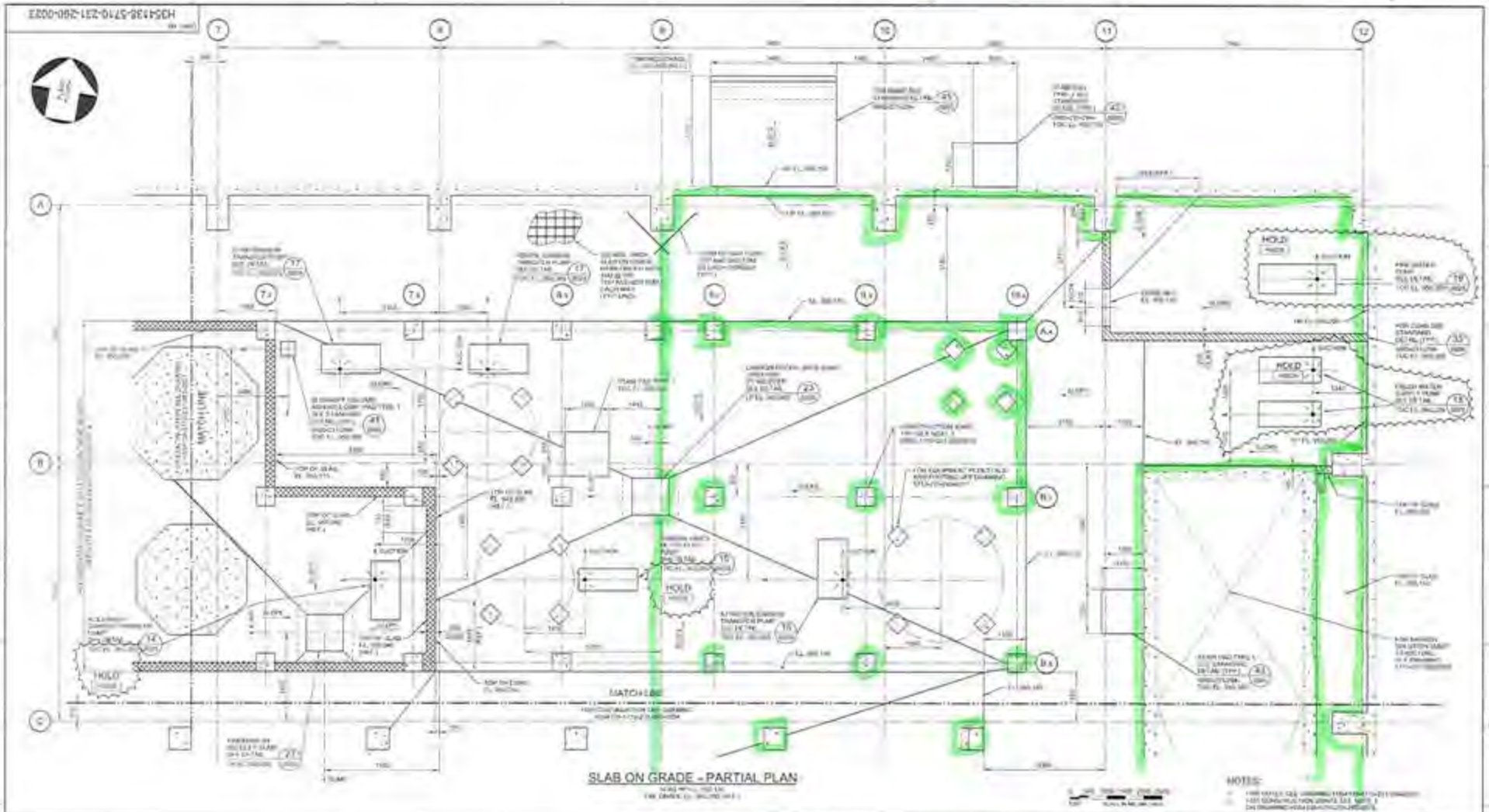
INSPECTOR: Ryan deMilliano TITLE Project Coordinator (QA) DATE: September.

QC (Formwork) Inspection.

RE-INSPECTION (DEFICIENCIES COMPLETED)

INSPECTOR: _____ TITLE _____ DATE: _____

POUR DATE SEPT 16/18




HATCH

StrataGold Corporation

EAGLE GOLD PROJECT

ADR PROCESS PLANT BUILDING
SLAB ON GRADE
PARTIAL PLAN - SHEET 3

H354138-5710-231-260-0023

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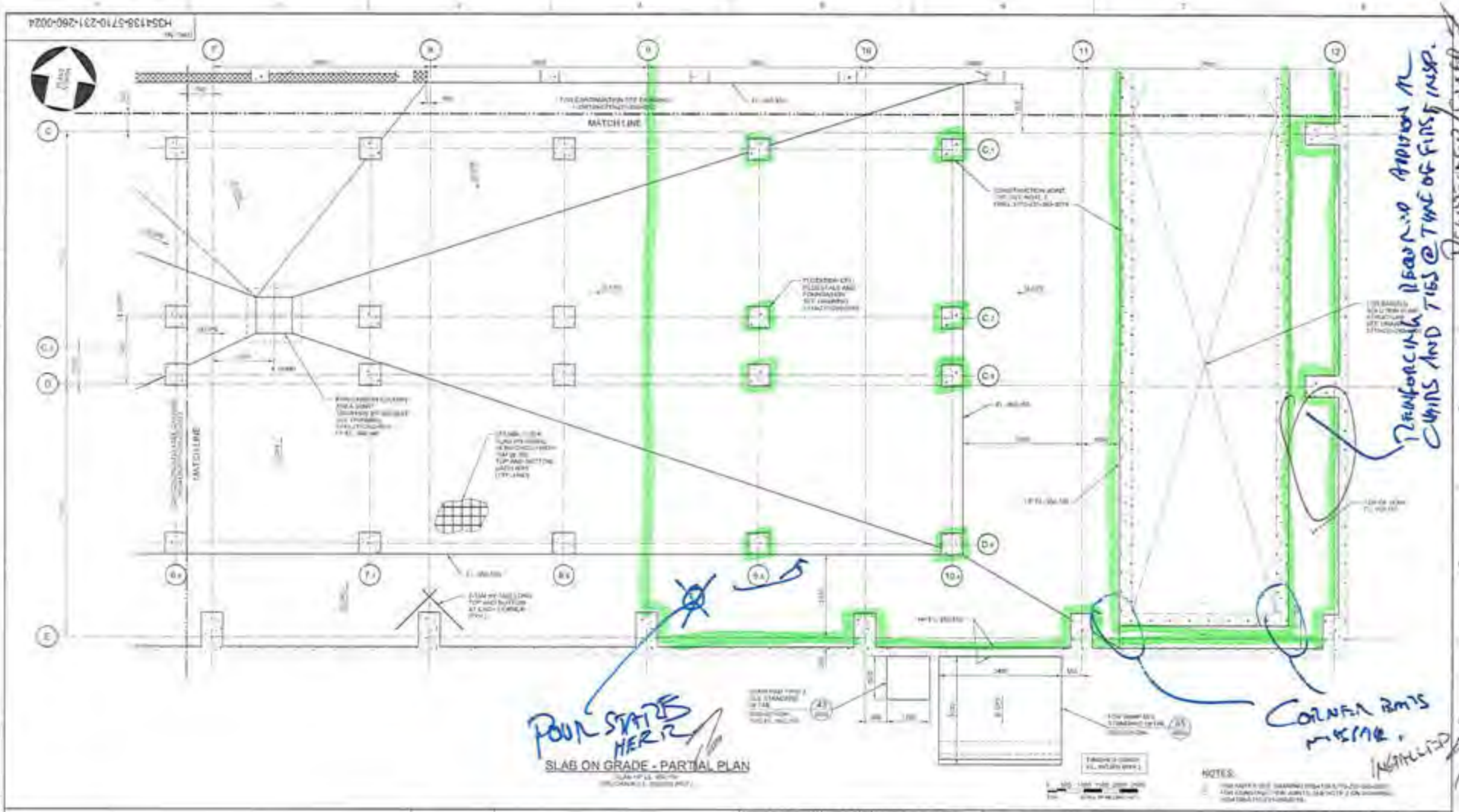



HATCH

StrataGold Corporation

EAGLE GOLD PROJECT

ADR PROCESS PLANT BUILDING
SLAB ON GRADE
PARTIAL PLAN - SHEET 4

H354138-5710-Z31-260-0024

0

CLARK BUILDERS
ENERGY & RESOURCES

# CONCRETE POST POUR COLD WEATHER MONITORING

Rev.01 July 4, 2016

| | | | |
|---|---|---|---|
| CONTRACTOR: CLARK BUILDERS | | DATE OF POUR: SEPTEMBER 16, 2018 | |
| WEATHER/ AMBIENT TEMP (°C): SEE BELOW | | DATE FORMWORK STRIPPED: | |
| INSPECTOR(S): Ryan DeWilliers | | DATE OF INSPECTION: SEPT 17, 2018 | |
| LOCATION: 6710 ADR SOG GL 9-12 (A-E) POUR 4/4 | | | |
| DRAWING NO.(S): N/A | DRAWING REV: N/A | SPEC SECTION(S): 503 30 00 – Cast-In-Place | |

TYPE OF CURING:

| | | | | | |
|---|---|---|---|---|---|
| CURING COMPOUND | ☒ | DAMP BURLAP OR FABRIC | ☐ | INSULATION (TARPS) | ☐ |
| POLYETHYLENE SHEETS | ☐ | WATER/FOG SPRAY/ PONDING | ☐ | FORMS (COVERED BY) | ☒ |

| COLD WEATHER REQUIREMENTS (WHEN AMB. TEMP < 5°C) | PASS | FAIL | N/A | REMARKS |
|---|---|---|---|---|
| Protection in place for 5 days at temperatures not lower than 20°C or until 70% of the 28-day strength has been reached. | ☒ | ☐ | ☐ | |
| Cold weather protection provided by means of heated enclosures, coverings, insulation, or a suitable approved combination of these methods during complete curing period. | ☒ | ☐ | ☐ | |
| During freezing weather, water curing terminated 12h before the end of the protection period (CSA A 23.1 clause 7.4.2.4.2) | ☐ | ☐ | ☒ | |
| | | | | |

CONCRETE CURING TEMPERATURE LOG (COLD WEATHER CONCRETEING ONLY)

| DATE | TIME (24 HR) | OUTSIDE AIR TEMP (°C) | TEMP INSIDE HOARDING (°C) | CONCRETE SURFACE TEMP (°C) | | INITIALS OF READER |
|---|---|---|---|---|---|---|
| | | | | HIGH (°C) | LOW (°C) | |
| SEPT 18, 2018 | 06:10 | -4°C | +15°C | +20°C | +14°C | RD |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |

| | |
|---|---|
| COMMENTS: | |
| | |
| ATTACHMENT(S): | |
| | |

**CLARK BUILDERS SITE REPRESENTATIVE**

PRINT/ SIGN: Ryan D TITLE Project Coordinator DATE: SEPT 18, 2018

CLARK BUILDERS
ENERGY & RESOURCES

# AREA CONCRETE TURNOVER

Rev 00 September 18, 2018

| | |
|---|---|
| OWNER REPRESENTATIVE(S): ISHAN FECHTER | DATE OF TURNOVER: SEPTEMBER 18, 2018 |
| CLARK BUILDERS REPRESENTIVE(S): Ryan deMilliano | AREA/ LOCATION: 5710 ADR PERIMETER PILASTERS, GRADE BEAMS, CTGS. (SEE ATTACHED) |

| | |
|---|---|
| TURNOVER TYPE: | ☐ COMPLETE AREA ☒ PARTIAL AREA ☐ EQUIPMENT ☐ SYSTEM ☐ OTHER |
| COMPLETE DESCRIPTION OF AREA TO BE TURNED OVER: | |
| SCOPES INCLUDED: | ☐ CIVIL/EARTHWORK ☒ CONCRETE ☒ ANCHOR BOLTS/EMBEDS ☐ GROUNDING ☐ GROUT |
| RELEASED FROM (Company): | CLARK BUILDERS |
| RELEASED TO (Company): | JDS |

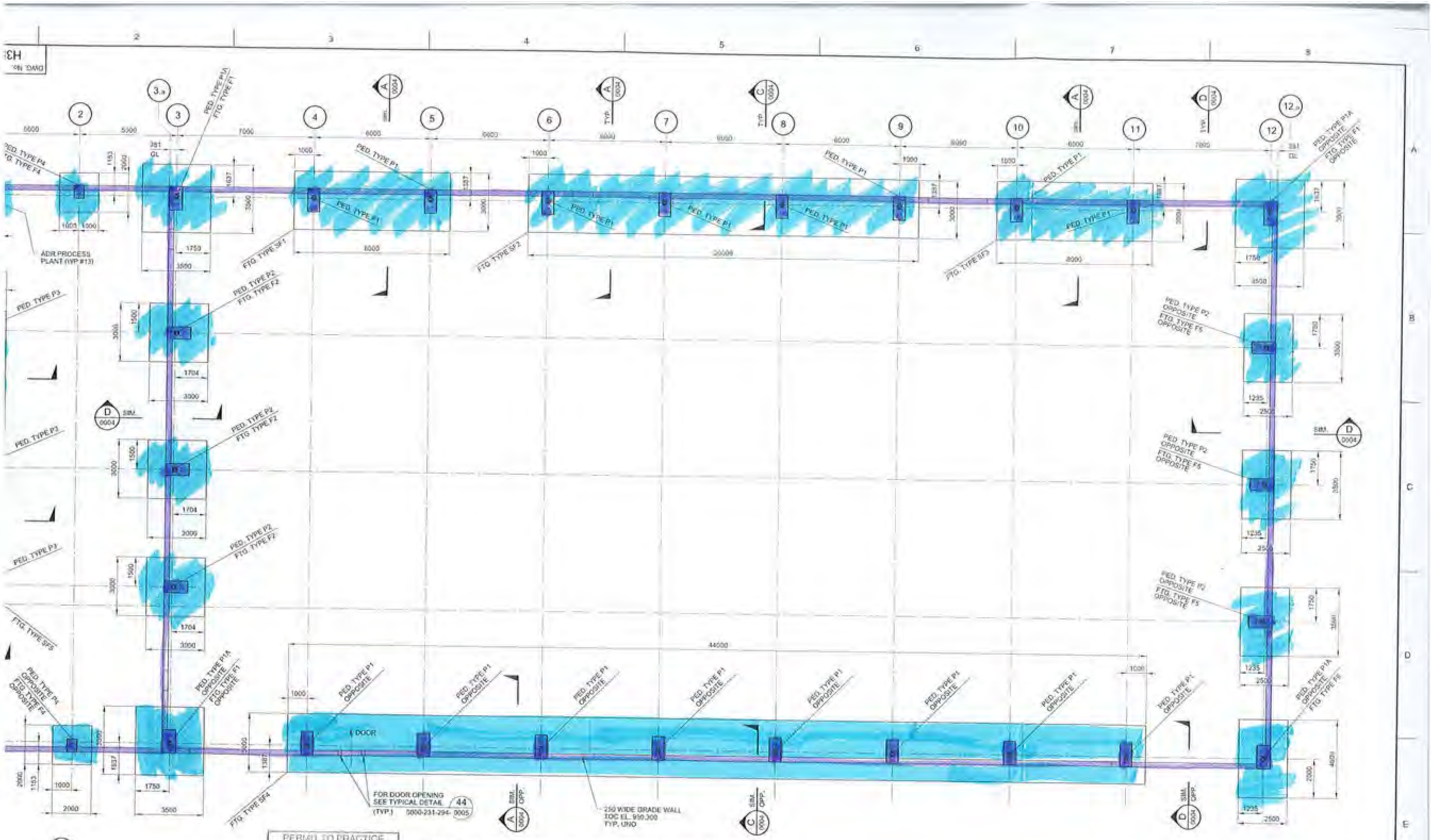
ATTACHMENT(S): DWG. #354138-5710-231-260-0002 R0

| ITEM | ITEMS TO BE CHECKED | ACCEPT | ACCEPT W/NOTES | DECLINE | N/A | NOTES |
|---|---|---|---|---|---|---|
| 1.0 | Concrete structure dimensions and locations are within acceptable tolerances and is acceptable to the owner. | ☒ | ☐ | ☐ | ☐ | |
| 2.0 | Tolerances for anchor bolts and embedded items have been review and are acceptable. This includes projection and location of embedded items. | ☒ | ☐ | ☐ | ☐ | |
| 3.0 | Safe access to the work area has been prepared by the contractor. | ☒ | ☐ | ☐ | ☐ | |
| 4.0 | All hardware required has been provided to the receiving company from Clark builders. This includes all plates, washers, nuts, etc. | ☒ | ☐ | ☐ | ☐ | |
| 5.0 | As built survey completed on area. | ☒ | ☐ | ☐ | ☐ | |
| 6.0 | Bearing surface adequately prepared for grout. | ☒ | ☐ | ☐ | ☐ | |
| 7.0 | Work area access has been adequately prepared. | ☒ | ☐ | ☐ | ☐ | |
| 8.0 | Outstanding RFI's for the area have been addressed prior to the area being turned over. (List any related RFI's in the comments) | ☒ | ☐ | ☐ | ☐ | |
| 9.0 | Outstanding deficiencies for the area have been addressed prior to the area being turned over. | ☒ | ☐ | ☐ | ☐ | |
| | | | | | | |

COMMENTS:

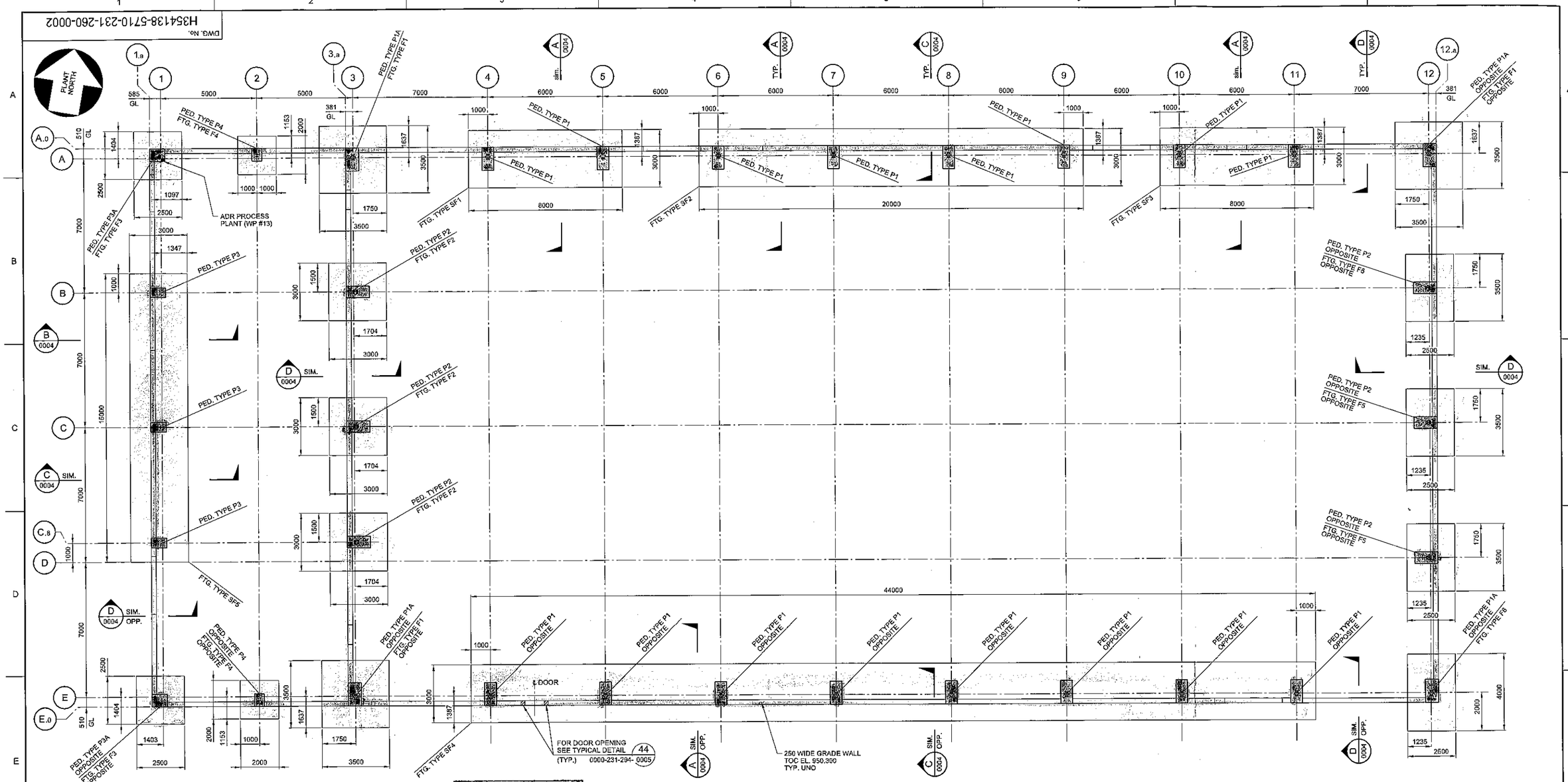
OWNER REPRESENTATIVE:
INSPECTOR: Ishan Fechter TITLE Superintendent DATE: SEPTEMBER 18, 2018

CLARK BUILDERS REPRESENTATIVE:
INSPECTOR: RYAN DEMILLIANO TITLE Project Coordinator (QA) DATE: SEPTEMBER 18, 2018




PERMIT TO PRACTICE
HATCH

# FOUNDATION GENERAL ARRANGEMENT - PLAN




PERMIT TO PRACTICE
HATCH
SIGNATURE Esra Akinci
Date MAY 24, 2018
PERMIT NUMBER PP154
Association of Professional Engineers of Yukon

## FOUNDATION GENERAL ARRANGEMENT - PLAN

TOP OF PED. EL. 951.350 (TYP.)
TOP OF SLAB HP EL. 950.150
FIN. GRADE EL. 950.000 (REF.)
U/S FTG. EL. 948.500 (TYP.)

1:100 SCALE IN METRES

NOTES:

1. FOR NOTES SEE DRAWING H354138-5710-231-260-0001.

| DRAWING No. | DRAWING TITLE |
|---|---|
| REFERENCE DRAWINGS | |

PROFESSIONAL ENGINEER YUKON ESRA AKINCI TERRITORY
MAY 24, 2018
REG. PROFESSIONAL

| No. | DESCRIPTION | BY | CHK'D | DATE |
|---|---|---|---|---|
| 0 | APPROVED FOR CONSTRUCTION | PJ | EA | 2018-05-23 |

REVISIONS

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HATCH

| ROLE | NAME | SIGNATURE & DATE |
|---|---|---|
| DRAFTSPERSON | P. JIVAEV/E. MENDIOLA | NR 2018-03-28 |
| DESIGNER | F. LIU | NR 2018-03-28 |
| CHECKER | E. AKINCI | 2018-05-24 |
| DESIGN COORD. | S. PERKINS | 2018-05-24 |
| RESP. ENG. | E. AKINCI | 2018-05-24 |
| LEAD DISC. ENG. | E. AKINCI | 2018-05-24 |
| ENG. MANAGER | B. RUSTAD | 2018-05-24 |
| PROJ. MANAGER | B. RUSTAD | 2018-05-24 |

DRAWING APPROVAL STATUS: Approved for Construction

StrataGold Corporation

EAGLE GOLD PROJECT

ADR PROCESS PLANT BUILDING
BUILDING FOUNDATION
FOUNDATION - PLAN

SCALE 1:100 OR AS NOTED | DWG. No. H354138-5710-231-260-0002 | REV 0

SHEET SIZE: D

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PRINTED: 24-MAY-2018 10:34
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CLARK BUILDERS
ENERGY & RESOURCES

# AREA CONCRETE TURNOVER

Rev 00 September 18, 2018

| | |
|---|---|
| OWNER REPRESENTATIVE(S): Ishan Fechter | DATE OF TURNOVER: September 18, 2018 |
| CLARK BUILDERS REPRESENTIVE(S): Ryan deMilliano | AREA/ LOCATION: 5710 ADR Perimeter Pilasters, Grade Beams, Ctgs. (See Attached) |

| | |
|---|---|
| TURNOVER TYPE: | ☐ COMPLETE AREA ☒ PARTIAL AREA ☐ EQUIPMENT ☐ SYSTEM ☐ OTHER |
| COMPLETE DESCRIPTION OF AREA TO BE TURNED OVER: | |
| SCOPES INCLUDED: | ☐ CIVIL/EARTHWORK ☒ CONCRETE ☒ ANCHOR BOLTS/EMBEDS ☐ GROUNDING ☐ GROUT |
| RELEASED FROM (Company): | Clark Builders |
| RELEASED TO (Company): | JDS |

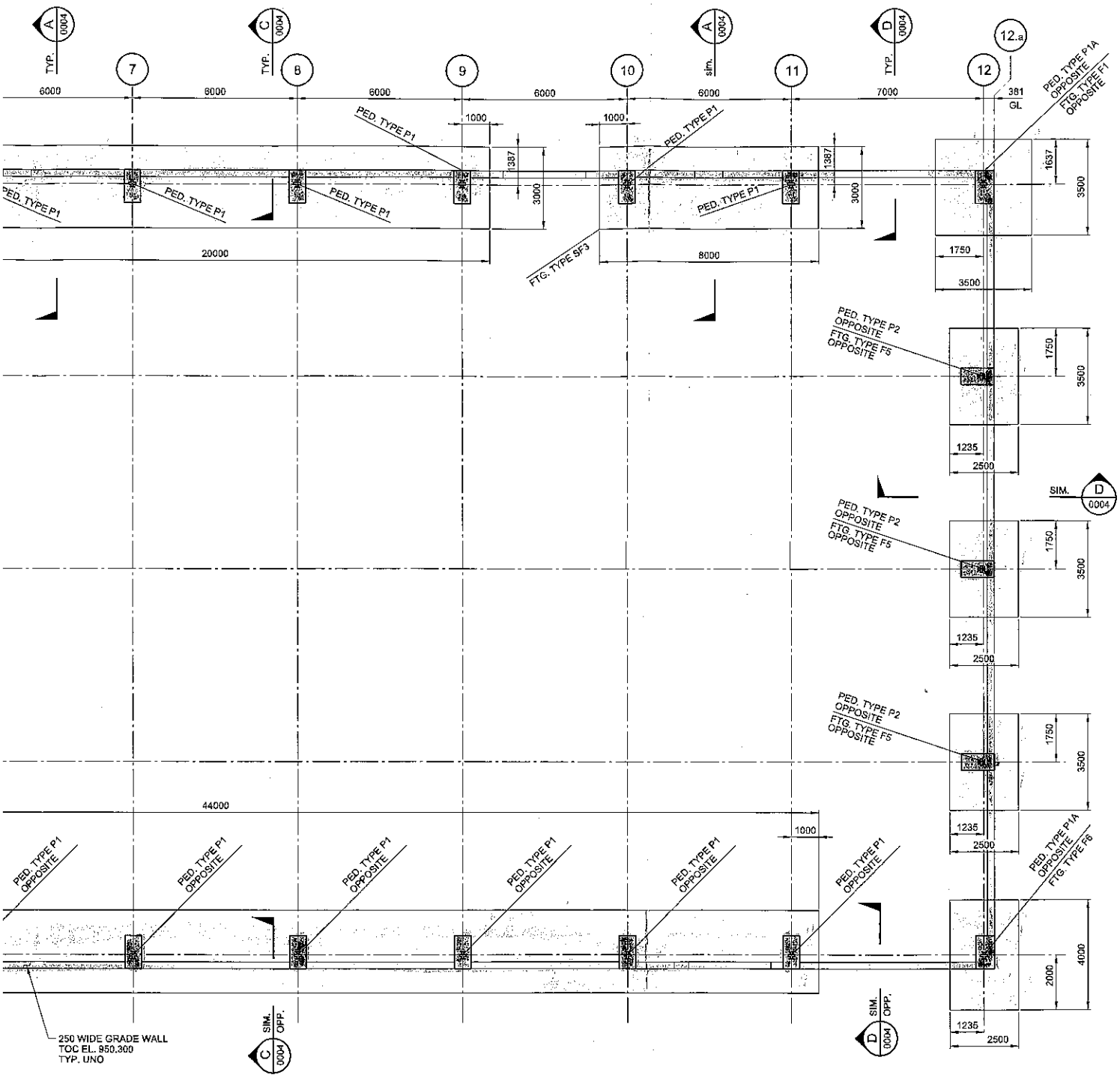
ATTACHMENT(S): Dwg. #354138-5710-231-260-0002 R0

| ITEM | ITEMS TO BE CHECKED | ACCEPT | ACCEPT W/NOTES | DECLINE | N/A | NOTES |
|---|---|---|---|---|---|---|
| 1.0 | Concrete structure dimensions and locations are within acceptable tolerances and is acceptable to the owner. | ☒ | ☐ | ☐ | ☐ | |
| 2.0 | Tolerances for anchor bolts and embedded items have been review and are acceptable. This includes projection and location of embedded items. | ☒ | ☐ | ☐ | ☐ | |
| 3.0 | Safe access to the work area has been prepared by the contractor. | ☒ | ☐ | ☐ | ☐ | |
| 4.0 | All hardware required has been provided to the receiving company from Clark builders. This includes all plates, washers, nuts, etc. | ☒ | ☐ | ☐ | ☐ | |
| 5.0 | As built survey completed on area. | ☒ | ☐ | ☐ | ☐ | |
| 6.0 | Bearing surface adequately prepared for grout. | ☒ | ☐ | ☐ | ☐ | |
| 7.0 | Work area access has been adequately prepared. | ☒ | ☐ | ☐ | ☐ | |
| 8.0 | Outstanding RFI's for the area have been addressed prior to the area being turned over. (List any related RFI's in the comments) | ☒ | ☐ | ☐ | ☐ | |
| 9.0 | Outstanding deficiencies for the area have been addressed prior to the area being turned over. | ☒ | ☐ | ☐ | ☐ | |
| | | | | | | |

COMMENTS:

OWNER REPRESENTATIVE:
INSPECTOR: Ishan Fechter TITLE Superintendent DATE: September 18, 2018

CLARK BUILDERS REPRESENTATIVE:
INSPECTOR: Ryan deMilliano TITLE Project Coordinator (QA) DATE: September 18, 2018




## AL ARRANGEMENT - PLAN

ED. EL. 951.350 (TYP.)
SLAB HP EL. 950.150
DE EL. 950.000 (REF.)
EL. 948.500 (TYP.)

1:100 SCALE IN METRES

NOTES:

1. FOR NOTES SEE DRAWING H354138-5710-231-260-0001.

THIS DRAWING WAS PREPARED FOR THE EXCLUSIVE USE OF STRATA GOLD ("CLIENT") AND IS ISSUED PURSUANT TO H354138 BETWEEN CLIENT AND HATCH LTD. ("HATCH"). UNLESS OTHERWISE AGREED IN WRITING WITH CLIENT OR SPECIFIED ON THIS DRAWING, (A) HATCH DOES NOT ACCEPT AND DISCLAIMS ANY AND ALL LIABILITY OR RESPONSIBILITY ARISING FROM ANY USE OF OR RELIANCE ON THIS DRAWING BY ANY THIRD PARTY OR ANY MODIFICATION OR MISUSE OF THIS DRAWING BY CLIENT, AND (B) THIS DRAWING IS CONFIDENTIAL AND ALL INTELLECTUAL PROPERTY RIGHTS EMBODIED OR REFERENCED IN THIS DRAWING REMAIN THE PROPERTY OF HATCH.

HATCH

| ROLE | NAME | SIGNATURE & DATE |
|---|---|---|
| DRAFTSPERSON | P. JIVAEV/E. MENDIOLA | NR 2018-03-28 |
| DESIGNER | F. LIU | NR 2018-03-28 |
| CHECKER | E. AKINCI | 2018-05-24 |
| DESIGN COORD. | S. PERKINS | 2018-05-24 |
| RESP. ENG. | E. AKINCI | 2018-05-24 |
| LEAD DISC. ENG. | E. AKINCI | 2018-05-24 |
| ENG. MANAGER | B. RUSTAD | 2018-05-24 |
| PROJ. MANAGER | B. RUSTAD | 2018-05-24 |

| DESCRIPTION | BY | CHK'D | DATE |
|---|---|---|---|
| REVISIONS | PJ | EA | 2018-05-23 |

DRAWING APPROVAL STATUS: Approved for Construction

StrataGold Corporation

EAGLE GOLD PROJECT

ADR PROCESS PLANT BUILDING
BUILDING FOUNDATION
FOUNDATION - PLAN

| SCALE | DWG. No. | REV |
|---|---|---|
| 1:100 OR AS NOTED | H354138-5710-231-260-0002 | 0 |

SHEET SIZE: D

CLARK BUILDERS
ENERGY & RESOURCES



PROJECT MANAGER: DUSTIN DOLYNCHUK, P.ENG
QA/QC COORDINATOR: RYAN DE MILLIANO, C.E.T.
SUPERINTENDENT: GARRY DAHL

# CONCRETE REINFORCEMENT PRE POUR

Rev 01 August 25, 2018

| | |
|---|---|
| SUBCONTRACTOR: Ultimate Reinforcing // McNish | INSPECTION DATE: SEPT. 20 / 18 |
| SUBCONTRACTOR CONTACT PERSON: CLAYTON MCGUIRE | PROJ. POUR DATE: SEPT. 21/18 |
| INSPECTOR(S): JACKSON WENGER / ADAM CHOW | |
| LOCATION: [redacted] TRX PAD BASE & CURB GL 1/3, EQ PAD FOUNDATION | |
| DRAWING REV: | DRAWING NO.(S): SPEC SECTION(S): S03 20 00 – Concrete Reinforcing Steel |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Grade (400W unless otherwise noted) and type of steel delivered and installed as required by approved drawings. | ☑ | ☐ | ☐ |
| 2.0 | Inspect rebar distribution, spacing and cover per design/project requirements. | ☑ | ☐ | ☐ |
| 3.0 | Length of splices as specified | ☑ | ☐ | ☐ |
| 4.0 | Staggered splices as specified | ☑ | ☐ | ☐ |
| 5.0 | Any mechanical splices have been approved by the owner prior to install | ☑ | ☐ | ☐ |
| 6.0 | Bars cleaned and free of material that may reduce bond including loose rust, scale, oil, structural defects and that they are uncoated and unpainted. | ☑ | ☐ | ☐ |
| 7.0 | Dowels at wall ends, construction joints, and openings as specified (length, location, size, etc.) | ☑ | ☐ | ☐ |
| 8.0 | No unauthorized field bent bars including hooks installed | ☑ | ☐ | ☐ |
| 9.0 | Resolve conflicts between embedded items and reinforcement | ☑ | ☐ | ☐ |
| 10.0 | When authorized, field bends done without heat and inspected for fissures or cracks. | ☑ | ☐ | ☐ |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 11.0 | Bars tied and supported to prevent displacement | ☑ | ☐ | ☐ |
| 12.0 | Spacers, tie wire and chairs as required | ☑ | ☐ | ☐ |
| 13.0 | Conduits at design location and minimum separation from rebar as specified | ☑ | ☐ | ☐ |
| 14.0 | No contact of bars is made with dissimilar metals as per CSA A23.1 | ☑ | ☐ | ☐ |
| 15.0 | Bars, nails or tie wire not sticking out from surfaces that allow rusting/corrosion | ☑ | ☐ | ☐ |
| 16.0 | Rebar welds are inspected by qualified inspectors certified to CSA W178.2 | ☑ | ☐ | ☐ |
| 17.0 | No rebar congestion or other obstruction for deposit of concrete | ☑ | ☐ | ☐ |
| 18.0 | Adjustments required for interfering items (piping, inserts, sleeves, etc.) have been submitted and approved by owner. | ☑ | ☐ | ☐ |
| 19.0 | Rebar was stored off ground to prevent damage/corrosion | ☑ | ☐ | ☐ |
| 20.0 | Review drawings for anchors, piping, sleeves, boxes | ☑ | ☐ | ☐ |

COMMENTS:

ATTACHMENT(S):

DEFICIENCIES NOTES:

CLARK BUILDERS:
INSPECTOR: JACKSON WENGER TITLE PROJECT COORDINATOR DATE: SEP 20/18

JDS ENERGY & MINING:
INSPECTOR: Adam Chow TITLE Mech. DATE: Sept 20/18

CLARK BUILDERS
ENERGY & RESOURCES

PROJECT MANAGER: DUSTIN DOLYNCHUK, P.ENG
QA/QC COORDINATOR: RYAN DE MILLIANO, C.E.T
SUPERINTENDENT: GARRY DAHL

# FORMWORK & FALSEWORK PRE POUR | QA INSPECTION

Rev 00 May 4, 2018

| | |
|---|---|
| SUBCONTRACTOR: CLARK BUILDERS | INSPECTION DATE: SEPT. 20/18 |
| SUBCONTRACTOR CONTACT PERSON: JAMES MCDAHL | DATE OF POUR: SEPT. 21/18 |
| INSPECTOR(S): JACKSON WENGER ADAM CHOW | |
| LOCATION: ADR GL 13 ~~REBOILS AND EQUIPMENT PADS~~ TRX BASE & CURB GL1-3 & ECD PADS @ FURNACE | |
| DRAWING REV: | DRAWING NO.(S): SPEC SECTION(S): 503 10 00 |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Location, survey, dimension and grades as required | ☑ | ☐ | ☐ |
| 2.0 | Plumbness and Flatness verified | ☑ | ☐ | ☐ |
| 3.0 | Joints are aligned and watertight. | ☑ | ☐ | ☐ |
| 4.0 | Formwork shop drawings are Engineered and reviewed | ☑ | ☐ | ☐ |
| 5.0 | Re-used formwork reconditioned and treated | ☑ | ☐ | ☐ |
| 6.0 | Formwork and ties according to finishing requirements. Confirm no holes in the concrete surface are greater than 25mm in diameter or expose steel at less than 25mm from surface. As per spec. | ☑ | ☐ | ☐ |
| 7.0 | Installation of embeds are located and secured | ☐ | ☐ | ☑ |
| 8.0 | Chamfer requirements checked. 25mm chamfers required for all exterior corners and edges exposed to view including horizontal edges of pads. | ☑ | ☐ | ☐ |
| 9.0 | Key ways and/or other provisions according to design are provided in construction joints | ☑ | ☐ | ☐ |
| 10.0 | Inspect types of form spacers, ties and bracing. | ☑ | ☐ | ☐ |
| 11.0 | Spacing of ties to be set to a pattern | ☑ | ☐ | ☐ |
| 12.0 | Expansion, construction, contraction joints as required & located as coordinated with structural Engineer | ☑ | ☐ | ☐ |
| 13.0 | Forms secured against movement during placing | ☑ | ☐ | ☐ |
| 14.0 | Forms are braced for alignment and blow out | ☑ | ☐ | ☐ |
| 15.0 | Forms are cleaned of all debris, and dry, prior to concrete placement including standing water. | ☑ | ☐ | ☐ |
| 16.0 | Openings in formwork permit inspection and cleaning, placing and compaction of concrete, and forming and processing of construction joints. | ☐ | ☐ | ☑ |
| 17.0 | Formwork has been coated with release agent prior to rebar placement. | ☑ | ☐ | ☐ |
| | | ☐ | ☐ | ☐ |

COMMENTS:

ATTACHMENT(S):

DEFICIENCIES NOTES:

INITIAL INSPECTION

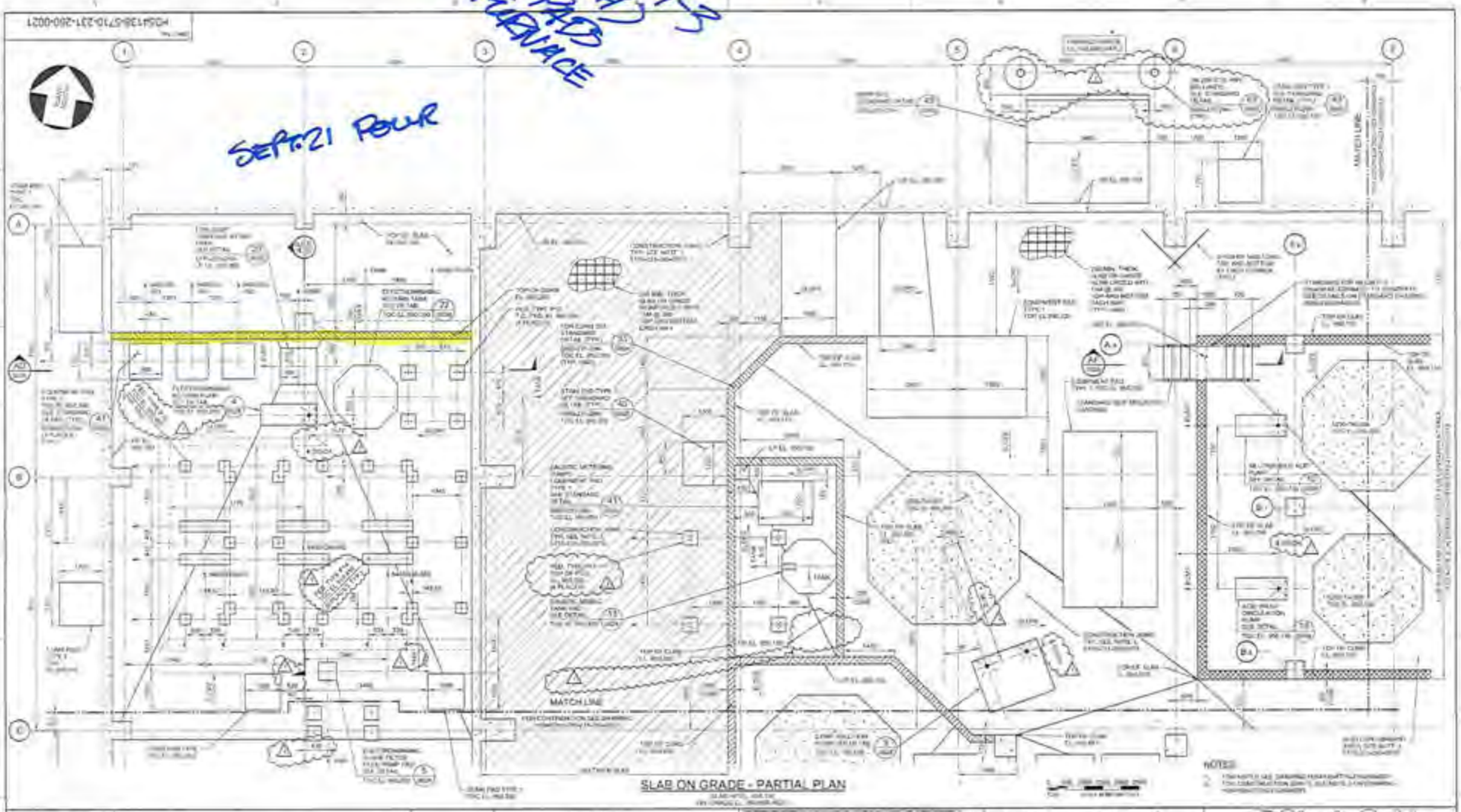
INSPECTOR: _____ TITLE mech DATE: Sept 20/18

RE-INSPECTION (DEFICIENCIES COMPLETED)

INSPECTOR: _____ TITLE JACKSON WENGER DATE: SEPT 20/18

TILT PAD CURB 1-3 (BOTH) EQ PAD @ FURNACE

SEPT 21 POUR




SLAB ON GRADE - PARTIAL PLAN

HATCH

StrataGold Corporation

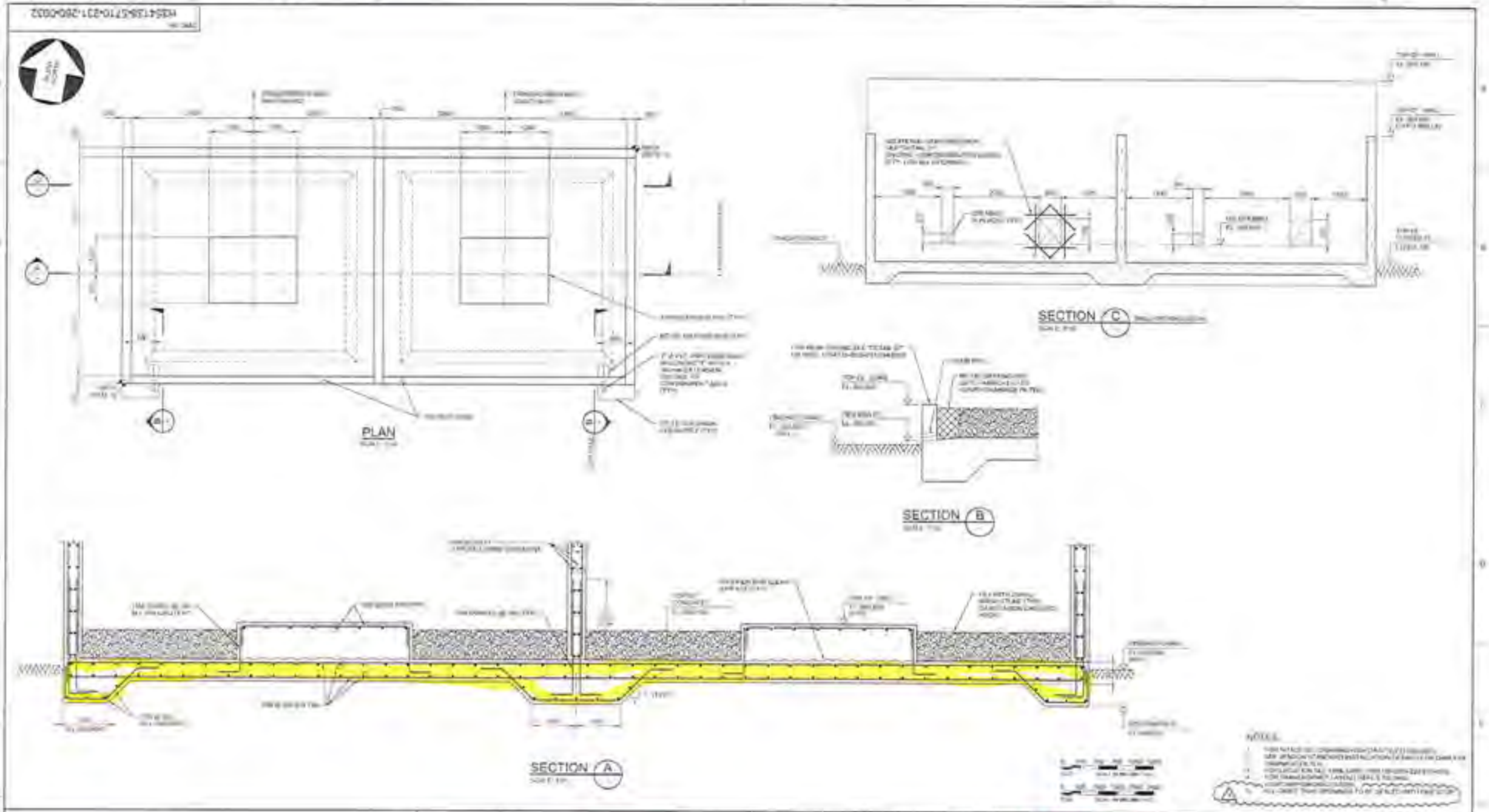
EAGLE GOLD PROJECT

ADR PROCESS PLANT BUILDING
SLAB ON GRADE
PARTIAL PLAN - SHEET 1

H354138-5710-231-260-0021

1

Pour Sept. 20/18




HATCH

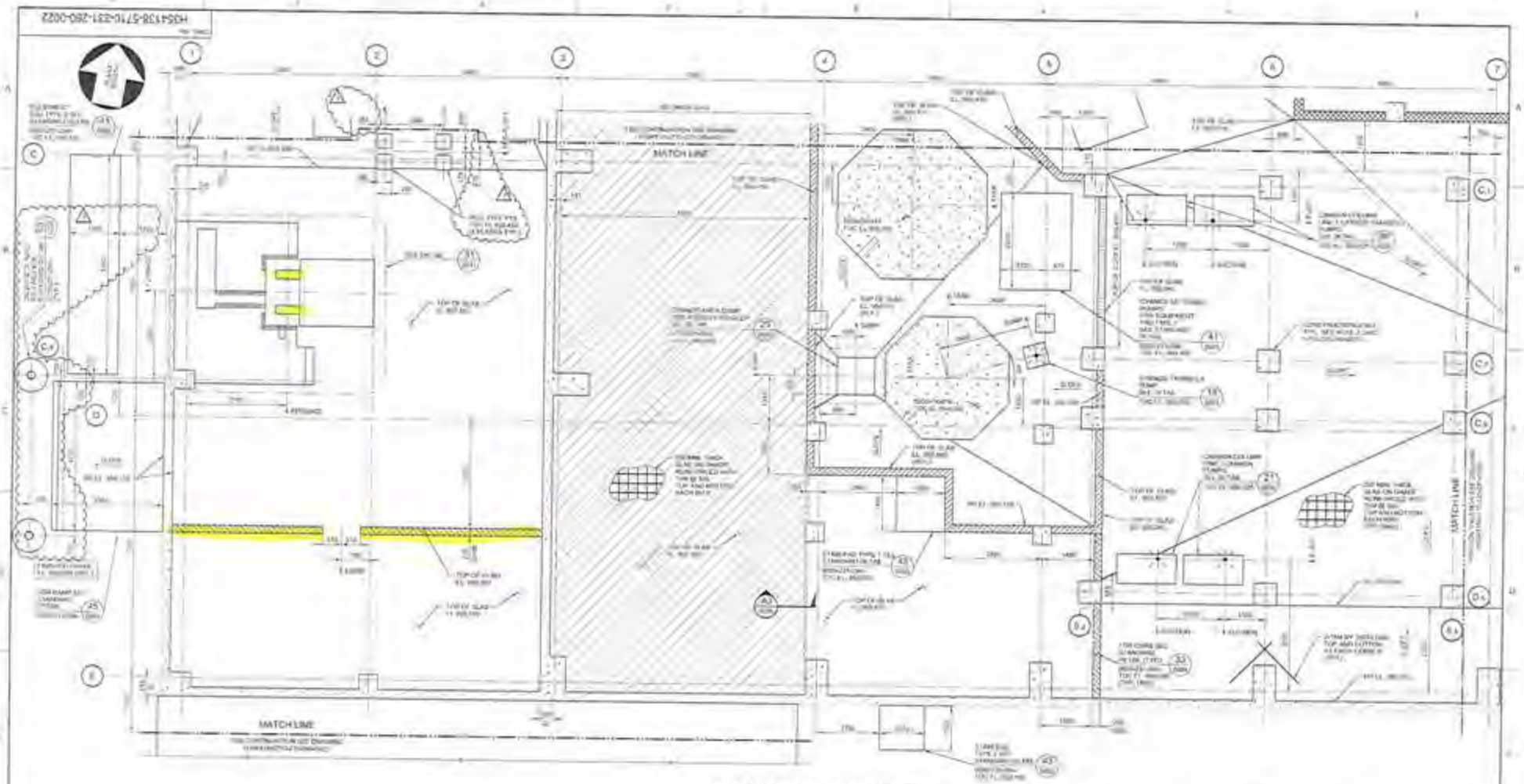
StrataGold Corporation

EAGLE GOLD PROJECT

ADR PROCESS PLANT BUILDING
TRANSFORMER FOUNDATION
PLAN, SECTIONS AND DETAILS

H354138-5710-231-260-0012

3




SLAB ON GRADE - PARTIAL PLAN

NOTES:

HATCH

StrataGold Corporation

EAGLE GOLD PROJECT

ADR PROCESS PLANT BUILDING
SLAB ON GRADE
PARTIAL PLAN - SHEET 2

H354138-5710-231-260-0022

CLARK BUILDERS
ENERGY & RESOURCES

# CONCRETE REINFORCEMENT PRE POUR

Rev 01 August 25, 2018

| | |
|---|---|
| SUBCONTRACTOR: Ultimate Reinforcing // McNish | INSPECTION DATE: SEPT.21/2018 |
| SUBCONTRACTOR CONTACT PERSON: CLAYTON MCGUIRE | PROJ. POUR DATE: SEPT. 21/2018 |
| INSPECTOR(S): PETER NICE ISHAN FECHTER | |
| LOCATION: ADR 5710 231 200-0021 SEE ATTACHED LIST | |
| DRAWING REV: 1 / DRAWING NO (S): 5710 231 260 0021/22 | SPEC SECTION(S): 503 20 00 – Concrete Reinforcing Steel |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Grade (400W unless otherwise noted) and type of steel delivered and installed as required by approved drawings. | ☑ | ☐ | ☐ |
| 2.0 | Inspect rebar distribution, spacing and cover per design/project requirements. | ☑ | ☐ | ☐ |
| 3.0 | Length of splices as specified | ☑ | ☐ | ☐ |
| 4.0 | Staggered splices as specified | ☑ | ☐ | ☐ |
| 5.0 | Any mechanical splices have been approved by the owner prior to install | ☑ | ☐ | ☐ |
| 6.0 | Bars cleaned and free of material that may reduce bond including loose rust, scale, oil, structural defects and that they are uncoated and unpainted | ☑ | ☐ | ☐ |
| 7.0 | Dowels at wall ends, construction joints, and openings as specified (length, location, size, etc.) | ☑ | ☐ | ☐ |
| 8.0 | No unauthorized field bent bars including hooks installed | ☐ | ☐ | ☑ |
| 9.0 | Resolve conflicts between embedded items and reinforcement | ☑ | ☐ | ☐ |
| 10.0 | When authorized, field bends done without heat and inspected for fissures or cracks | ☐ | ☐ | ☑ |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 11.0 | Bars tied and supported to prevent displacement | ☑ | ☐ | ☐ |
| 12.0 | Spacers, tie wire and chairs as required | ☑ | ☐ | ☐ |
| 13.0 | Conduits at design location and minimum separation from rebar as specified | ☑ | ☐ | ☑ |
| 14.0 | No contact of bars is made with dissimilar metals as per CSA A23.1 | ☑ | ☐ | ☐ |
| 15.0 | Bars, nails or tie wire not sticking out from surfaces that allow rusting/corrosion | ☑ | ☐ | ☐ |
| 16.0 | Rebar welds are inspected by qualified inspectors certified to CSA W178.2 | ☐ | ☐ | ☑ |
| 17.0 | No rebar congestion or other obstruction for deposit of concrete | ☑ | ☐ | ☐ |
| 18.0 | Adjustments required for interfering items (piping, inserts, sleeves, etc.) have been submitted and approved by owner. | ☐ | ☐ | ☑ |
| 19.0 | Rebar was stored off ground to prevent damage/corrosion | ☑ | ☐ | ☐ |
| 20.0 | Review drawings for anchors, piping, sleeves, boxes | ☑ | ☐ | ☐ |

COMMENTS:

ATTACHMENT(S):

DEFICIENCIES NOTES:

CLARK BUILDERS:
INSPECTOR: PETER NICE TITLE _____ DATE: SEPT.21/18

JDS ENERGY & MINING
INSPECTOR: Ishan Fechter TITLE Superintendent DATE: Sept. 21/18

CLARK BUILDERS
ENERGY & RESOURCES

# FORMWORK & FALSEWORK PRE POUR | QA INSPECTION

Rev 03 August 15, 2018

| | |
|---|---|
| CONTRACTOR: Clark Builders | INSPECTION DATE: SEPT. 21/2018 |
| CONTRACTOR CONTACT PERSON: JAMES HEATHAHL | DATE OF POUR: SEPT. 21/2018 |
| INSPECTOR(S): PETER NICE ISHAN FECHTER | |
| LOCATION: ADR PLANT EW RETURN TRANS EW SLUGE FILTERS, ST PAD T1 GL-C/1-3, STRIP SOLUTION SEE ATTACHED | |
| DRAWING REV: 1 | DRAWING NO (S): 5710 200 231 C821/22 SPEC SECTION(S): CB 10 00 |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Location, survey, dimension and grades as required | ☑ | ☐ | ☐ |
| 2.0 | Plumbness and Flatness verified | ☑ | ☐ | ☐ |
| 3.0 | Joints are aligned and watertight: | ☑ | ☐ | ☐ |
| 4.0 | Formwork shop drawings are Engineered and reviewed | ☐ | ☐ | ☑ |
| 5.0 | Re-used formwork reconditioned and treated | ☑ | ☐ | ☐ |
| 6.0 | Formwork and ties according to finishing requirements. Confirm no holes in the concrete surface are greater than 25mm in diameter or expose steel at less than 25mm from surface. As per spec. | ☑ | ☐ | ☐ |
| 7.0 | Installation of embeds are located and secured | ☑ | ☐ | ☐ |
| 8.0 | Chamfer requirements checked. 25mm chamfers required for all exterior corners and edges exposed to view including horizontal edges of pads. | ☑ | ☐ | ☐ |
| 9.0 | Key ways and/or other provisions according to design are provided in construction joints | ☑ | ☐ | ☐ |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 10.0 | Inspect types of form spacers, ties and bracing. | ☑ | ☐ | ☐ |
| 11.0 | Spacing of ties to be set to a pattern | ☑ | ☐ | ☐ |
| 12.0 | Expansion, construction, contraction joints as required & located as coordinated with structural Engineer | ☑ | ☐ | ☐ |
| 13.0 | Forms secured against movement during placing | ☑ | ☐ | ☐ |
| 14.0 | Forms are braced for alignment and blow out | ☑ | ☐ | ☐ |
| 15.0 | Forms are cleaned of all debris, and dry, prior to concrete placement including standing water. | ☑ | ☐ | ☐ |
| 16.0 | Openings in formwork permit inspection and cleaning, placing and compaction of concrete, and forming and processing of construction joints. | ☑ | ☐ | ☐ |
| 17.0 | Formwork has been coated with release agent prior to rebar placement. | ☑ | ☐ | ☐ |
| 18.0 | Anchor Bolts and Embeds are secured to formwork. | ☑ | ☐ | ☐ |

COMMENTS:

ATTACHMENT(S):

DEFICIENCIES NOTES:

INITIAL INSPECTION

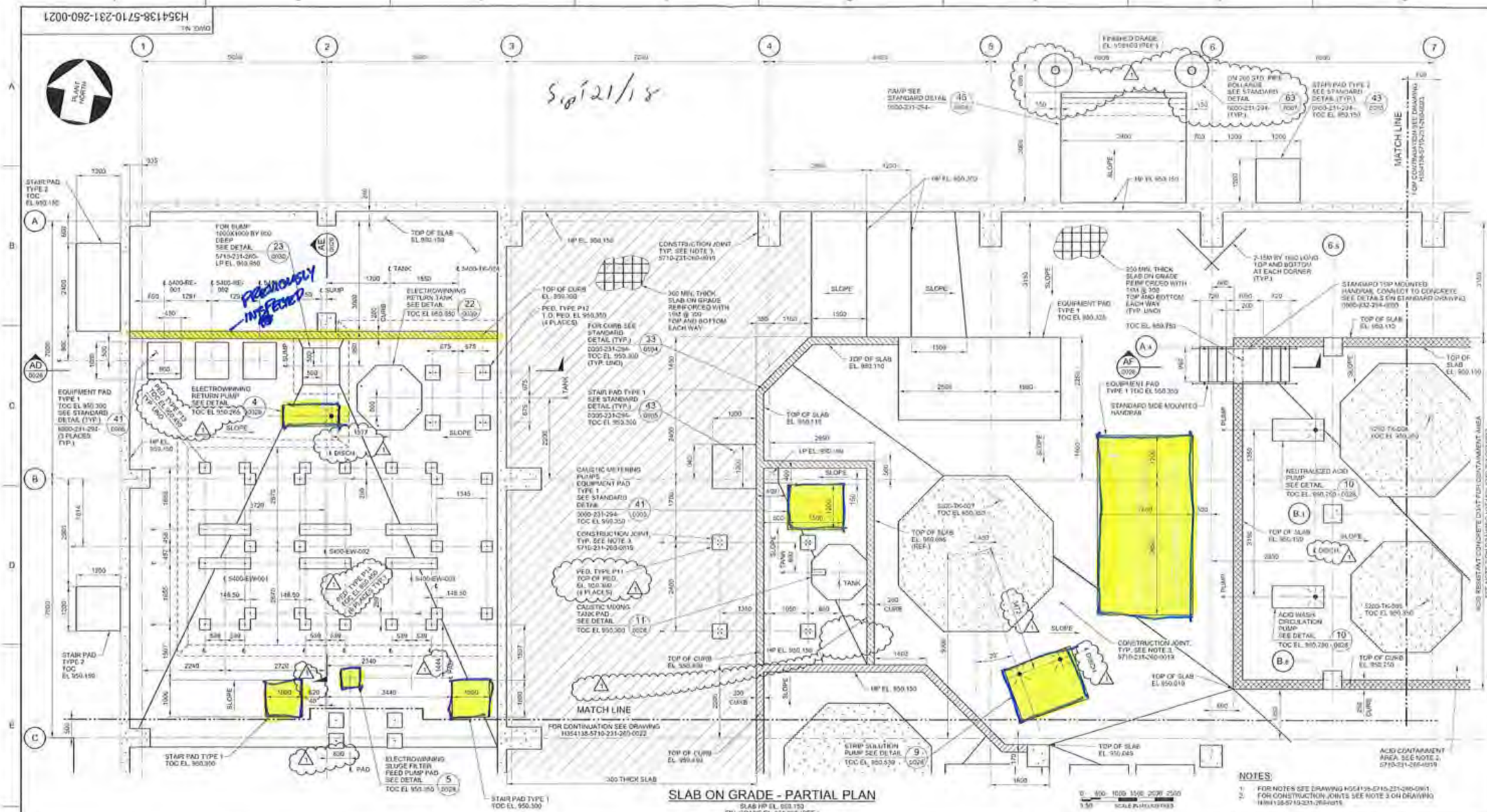
INSPECTOR: PETER NICE TITLE _____ DATE: SEPT. 21/18

RE-INSPECTION (DEFICIENCIES COMPLETED)

INSPECTOR: Ishan Fechter TITLE Superintendent DATE: Sept. 21/18

T21 INSPECTION

N RETURN PUMP
EW SLUDGE FILTER PUMP PAD
STAIR PAD T1 (2) GLC/1-3
CAUSTIC METER PUMP
STRIP SOLUTION PUMP
EQ PAD GL 5-C/B
CYANIDE METERING PUMP




## SLAB ON GRADE - PARTIAL PLAN

SLAB HP EL. 950.150
FIN. GRADE EL. 950.000 (REF.)

NOTES:

1. FOR NOTES SEE DRAWING H354138-5710-231-260-0001.
2. FOR CONSTRUCTION JOINTS SEE NOTE 3 ON DRAWING H354138-5710-231-260-0019.

| No. | DESCRIPTION | BY | CHK'D | DATE |
|---|---|---|---|---|
| 1 | PED. P13, P14 EL. UPDATED, HOLD H0027, H0028 REMOVED, BOLLARD ADDED, PED. P11 EL. CORRECTED | PJ | EA | 2018-08-14 |
| 0 | APPROVED FOR CONSTRUCTION | EM | EA | 2018-06-05 |

REVISIONS

| DRAWING No. | DRAWING TITLE |
|---|---|
| | |

REFERENCE DRAWINGS

REG. PROFESSIONAL

HATCH

| | | | |
|---|---|---|---|
| DRAFTSPERSON | P. JIVAEV | NR | 2018-05-17 |
| DESIGNER | F. LIU | NR | 2018-05-17 |
| CHECKER | E. AKINCI | | 2018-08-14 |
| DESIGN COORD. | S. PERKINS | | 2018-08-14 |
| RESP. ENG. | E. AKINCI | | 2018-08-14 |
| LEAD DISC. ENG. | E. AKINCI | | 2018-08-14 |
| ENG. MANAGER | B. RUSTAD | | 2018-08-14 |
| PROJ. MANAGER | B. RUSTAD | | |

| ROLE | NAME | SIGNATURE & DATE |
|---|---|---|

DRAWING APPROVAL STATUS: Approved for Construction

StrataGold Corporation

EAGLE GOLD PROJECT

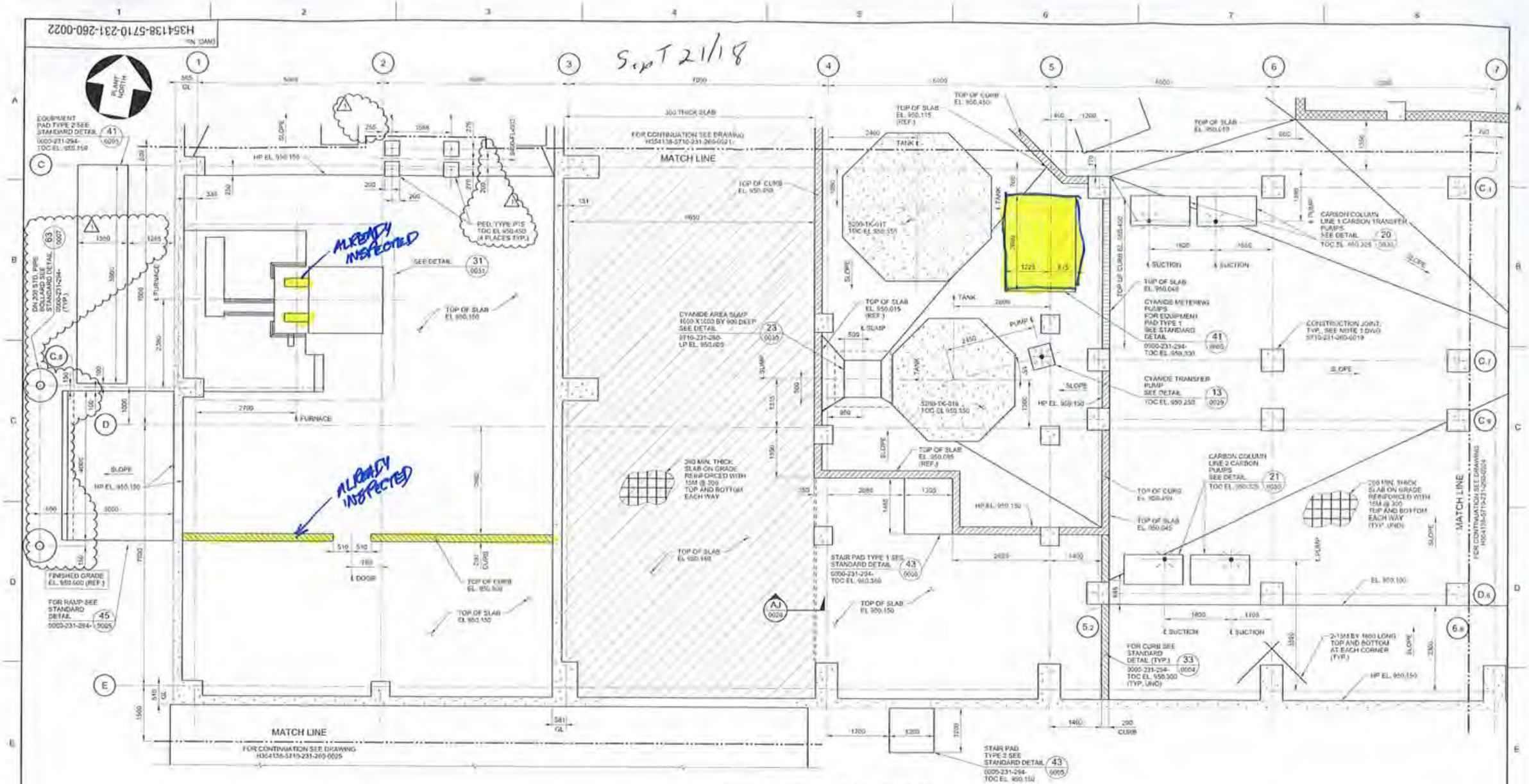
ADR PROCESS PLANT BUILDING
SLAB ON GRADE
PARTIAL PLAN - SHEET 1

SCALE 1:50 DRAWN/CHECKED

DWG. No. H354138-5710-231-260-0021

REV 1

SHEET SIZE: D




## SLAB ON GRADE - PARTIAL PLAN

SLAB HP EL. 950.150
FIN. GRADE EL. 950.000 (REF.)

0 500 1000 1500 2000 2500
1:50 SCALE IN MILLIMETRES

NOTES:

1. FOR NOTES SEE DRAWING H354138-5710-231-260-0001.
2. FOR CONSTRUCTION JOINTS SEE NOTE 3 ON DRAWING H354138-5710-231-260-0019.

| No. | DESCRIPTION | BY | CHK'D | DATE |
|---|---|---|---|---|
| 1 | HOLDS H0024, H0025 AND H0026 REMOVED, PED. P15 ELEVATION AND LOCATION UPDATED, BOLLARDS ADDED | PJ | EA | 2018-08-14 |
| 0 | APPROVED FOR CONSTRUCTION | EM | EA | 2018-06-08 |

REVISIONS

| DRAWING No. | DRAWING TITLE |
|---|---|
| | |

REFERENCE DRAWINGS

REG. PROFESSIONAL

HATCH

| | | | |
|---|---|---|---|
| DRAFTSPERSON | P. JIVAEV | NR | 2018-05-17 |
| DESIGNER | F. LIU | NR | 2018-05-17 |
| CHECKER | E. AKINCI | | |
| DESIGN COORD | S. PERKINS | | |
| RESP. ENG. | E. AKINCI | | |
| LEAD DISC. ENG. | E. AKINCI | | |
| ENG. MANAGER | B. RUSTAD | | |
| PROJ. MANAGER | B. RUSTAD | | |

| ROLE | NAME | SIGNATURE & DATE |
|---|---|---|
| | | |

DRAWING APPROVAL STATUS: Approved for Construction

StrataGold Corporation

EAGLE GOLD PROJECT

ADR PROCESS PLANT BUILDING
SLAB ON GRADE
PARTIAL PLAN - SHEET 2

SCALE 1:50 UNLESS NOTED

DWG. No. H354138-5710-231-260-0022

REV 1

SHEET SIZE: D

SPLEILS
PRINTED: 14-AUG-2018

CLARK BUILDERS
ENERGY & RESOURCES

# CONCRETE REINFORCEMENT PRE POUR

Rev 01 August 25, 2018

| | |
|---|---|
| SUBCONTRACTOR: Ultimate Reinforcing // McNish | INSPECTION DATE: Sep 23, 2018 |
| SUBCONTRACTOR CONTACT PERSON: CLAYTON MCGUIRE | PROJ. POUR DATE: SEP. 23, 2018 |
| INSPECTOR(S): PETER NICE MATT COVERDALE | |
| LOCATION: ADR - CURBS RED EQUIP PEDESTALS - SEE ATTACHED LIST | |
| DRAWING REV: 1 | DRAWING NO.(S): 384158 5710 231 002/0022 |
| | SPEC SECTION(S): 503 20 00 – Concrete Reinforcing Steel |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Grade (400W unless otherwise noted) and type of steel delivered and installed as required by approved drawings. | ☑ | ☐ | ☐ |
| 2.0 | Inspect rebar distribution, spacing and cover per design/project requirements. | ☑ | ☐ | ☐ |
| 3.0 | Length of splices as specified | ☑ | ☐ | ☐ |
| 4.0 | Staggered splices as specified | ☑ | ☐ | ☐ |
| 5.0 | Any mechanical splices have been approved by the owner prior to install | ☑ | ☐ | ☐ |
| 6.0 | Bars cleaned and free of material that may reduce bond including loose rust, scale, oil, structural defects and that they are uncoated and unpainted. | ☑ | ☐ | ☐ |
| 7.0 | Dowels at wall ends, construction joints, and openings as specified (length, location, size, etc.) | ☑ | ☐ | ☐ |
| 8.0 | No unauthorized field bent bars including hooks installed | ☑ | ☐ | ☐ |
| 9.0 | Resolve conflicts between embedded items and reinforcement | ☑ | ☐ | ☐ |
| 10.0 | When authorized, field bends done without heat and inspected for fissures or cracks. | ☑ | ☐ | ☐ |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 11.0 | Bars tied and supported to prevent displacement | ☑ | ☐ | ☐ |
| 12.0 | Spacers, tie wire and chairs as required | ☑ | ☐ | ☐ |
| 13.0 | Conduits at design location and minimum separation from rebar as specified | ☑ | ☐ | ☐ |
| 14.0 | No contact of bars is made with dissimilar metals as per CSA A23.1 | ☑ | ☐ | ☐ |
| 15.0 | Bars, nails or tie wire not sticking out from surfaces that allow rusting/corrosion | ☑ | ☐ | ☐ |
| 16.0 | Rebar welds are inspected by qualified inspectors certified to CSA W178.2 | ☑ | ☐ | ☑ |
| 17.0 | No rebar congestion or other obstruction for deposit of concrete | ☑ | ☐ | ☐ |
| 18.0 | Adjustments required for interfering items (piping, inserts, sleeves, etc.) have been submitted and approved by owner. | ☑ | ☐ | ☐ |
| 19.0 | Rebar was stored off ground to prevent damage/corrosion | ☑ | ☐ | ☐ |
| 20.0 | Review drawings for anchors, piping, sleeves, boxes | ☑ | ☐ | ☐ |

COMMENTS:

ATTACHMENT(S):

DEFICIENCIES NOTES:

All acid containment curbs to have waterstop.
ensure all buffalo board installed [corners]
ensure all water is removed from inside of formwork & debris

CLARK BUILDERS:

INSPECTOR: _____ TITLE _____ DATE: _____

JDS ENERGY & MINING:

INSPECTOR: Matt Coverdale MMC TITLE Field Eng DATE: Sep 23, 2018

CLARK BUILDERS
ENERGY & RESOURCES

PROJECT MANAGER: DUSTIN DOLYNCHUK, P.ENG
QA/QC COORDINATOR: RYAN DE MILLIANO, C.E.T.
SUPERINTENDENT: GARRY DAHL

# FORMWORK & FALSEWORK PRE POUR | QA INSPECTION

Rev 01 August 25, 2018

| | |
|---|---|
| CONTRACTOR: Clark Builders | INSPECTION DATE: Sep 23, 2018 |
| CONTRACTOR CONTACT PERSON: | DATE OF POUR: SEPT. 23 2018 |
| INSPECTOR(S): | |
| LOCATION: ADR - | |
| DRAWING REV: 1 | DRAWING NO.(S): 354138-570 231 001/0022 |
| SPEC SECTION(S): 03 10 00 | |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Location, survey, dimension and grades as required | ☐ | ☐ | ☐ |
| 2.0 | Plumbness and Flatness verified | ☐ | ☐ | ☐ |
| 3.0 | Joints are aligned and watertight | ☐ | ☐ | ☐ |
| 4.0 | Formwork shop drawings are Engineered and reviewed | ☐ | ☐ | ☐ |
| 5.0 | Re-used formwork reconditioned and treated | ☐ | ☐ | ☐ |
| 6.0 | Formwork and ties according to finishing requirements. Confirm no holes in the concrete surface are greater than 25mm in diameter or expose steel at less than 25mm from surface. As per spec. | ☐ | ☐ | ☐ |
| 7.0 | Installation of embeds are located and secured | ☐ | ☐ | ☐ |
| 8.0 | Chamfer requirements checked. 25mm chamfers required for all exterior corners and edges exposed to view including horizontal edges of pads. | ☐ | ☐ | ☐ |
| 9.0 | Key ways and/or other provisions according to design are provided in construction joints | ☐ | ☐ | ☐ |
| 10.0 | Inspect types of form spacers, ties and bracing. | ☐ | ☐ | ☐ |
| 11.0 | Spacing of ties to be set to a pattern | ☐ | ☐ | ☐ |
| 12.0 | Expansion, construction, contraction joints as required & located as coordinated with structural Engineer | ☐ | ☐ | ☐ |
| 13.0 | Forms secured against movement during placing | ☐ | ☐ | ☐ |
| 14.0 | Forms are braced for alignment and blow out | ☐ | ☐ | ☐ |
| 15.0 | Forms are cleaned of all debris, and dry, prior to concrete placement including standing water | ☐ | ☐ | ☐ |
| 16.0 | Openings in formwork permit inspection and cleaning, placing and compaction of concrete, and forming and processing of construction joints | ☐ | ☐ | ☐ |
| 17.0 | Formwork has been coated with release agent prior to rebar placement. | ☐ | ☐ | ☐ |
| 18.0 | Anchor Bolts and Embeds are secured to formwork. | ☐ | ☐ | ☐ |

COMMENTS:

see notes on concrete prepour.

ATTACHMENT(S):

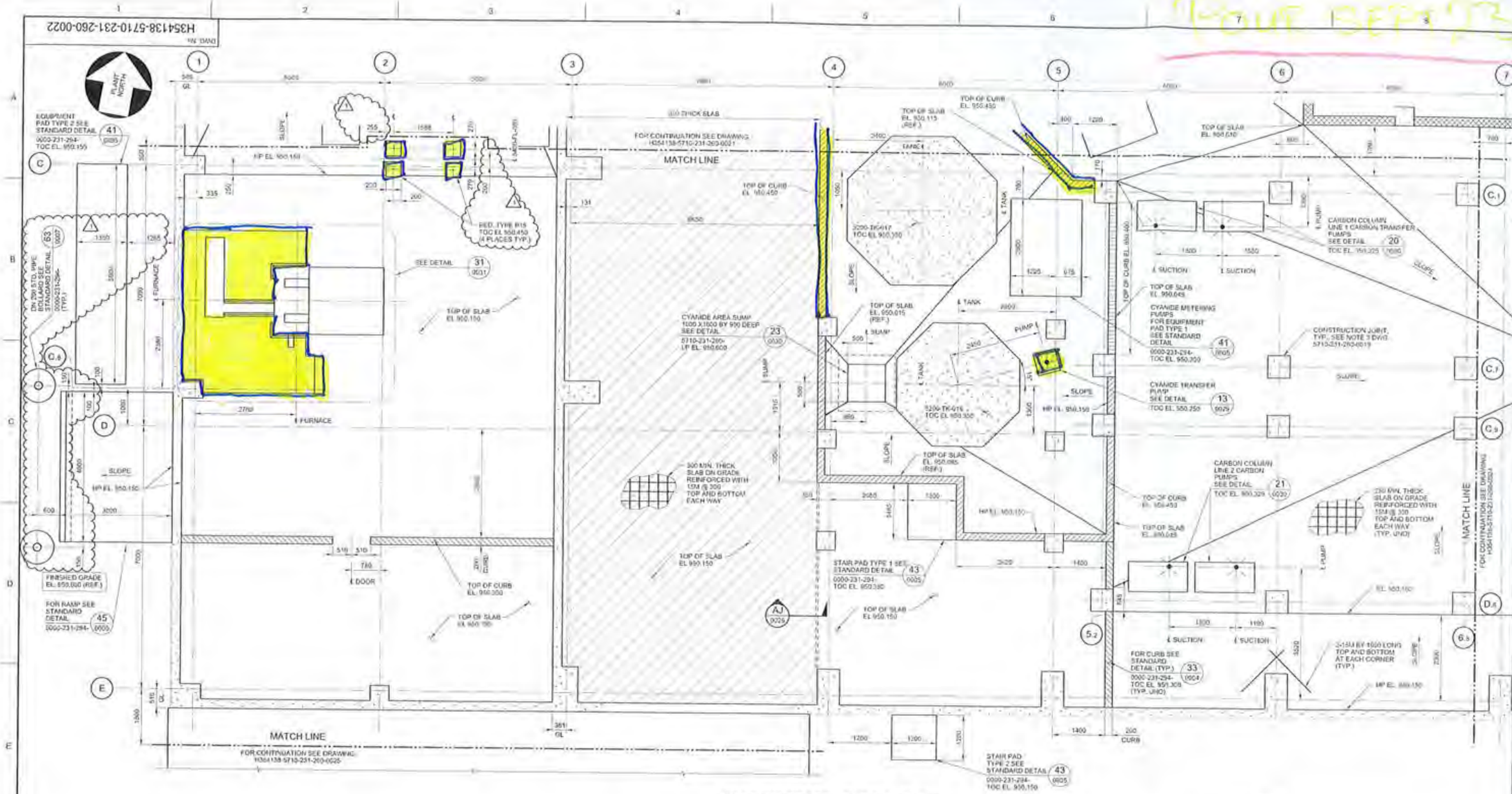
DEFICIENCIES NOTES:

INITIAL INSPECTION

INSPECTOR: Matt Coverdale YME TITLE Field Eng DATE: Sep 23, 2018

RE-INSPECTION (DEFICIENCIES COMPLETED)

INSPECTOR: _____ TITLE _____ DATE: _____




## SLAB ON GRADE - PARTIAL PLAN

SLAB HP EL. 950.150
FIN. GRADE EL. 950.000 (REF.)

0 500 1000 1500 2000 2500
1:50 SCALE IN MILLIMETRES

NOTES:

1. FOR NOTES SEE DRAWING H354138-5710-231-260-0001.
2. FOR CONSTRUCTION JOINTS SEE NOTE 3 ON DRAWING H354138-5710-231-260-0019.

| DRAWING No. | DRAWING TITLE |
|---|---|
| REFERENCE DRAWINGS | |

REG. PROFESSIONAL

| No. | DESCRIPTION | BY | CHK'D | DATE |
|---|---|---|---|---|
| 1 | HOLDS H0024, H0025 AND H0028 REMOVED. PED. P15 ELEVATION AND LOCATION UPDATED. BOLLARDS ADDED | PJ | EA | 2018-08-14 |
| 0 | APPROVED FOR CONSTRUCTION | EM | EA | 2018-06-05 |

REVISIONS

HATCH

| | | | |
|---|---|---|---|
| DRAFTSPERSON | P. JIVAEV | NR | 2018-05-17 |
| DESIGNER | F. LIU | NR | 2018-05-17 |
| CHECKER | E. AKINCI | | |
| DESIGN COORD. | S. PERKINS | | |
| RESP. ENG. | E. AKINCI | | |
| LEAD DISC. ENG. | E. AKINCI | | |
| ENG. MANAGER | B. RUSTAD | | |
| PROJ. MANAGER | B. RUSTAD | | |

| ROLE | NAME | SIGNATURE & DATE |
|---|---|---|
| DRAWING APPROVAL STATUS | Approved for Construction | |

StrataGold Corporation

EAGLE GOLD PROJECT

ADR PROCESS PLANT BUILDING
SLAB ON GRADE
PARTIAL PLAN - SHEET 2

SCALE 1:50 OF AS NOTED

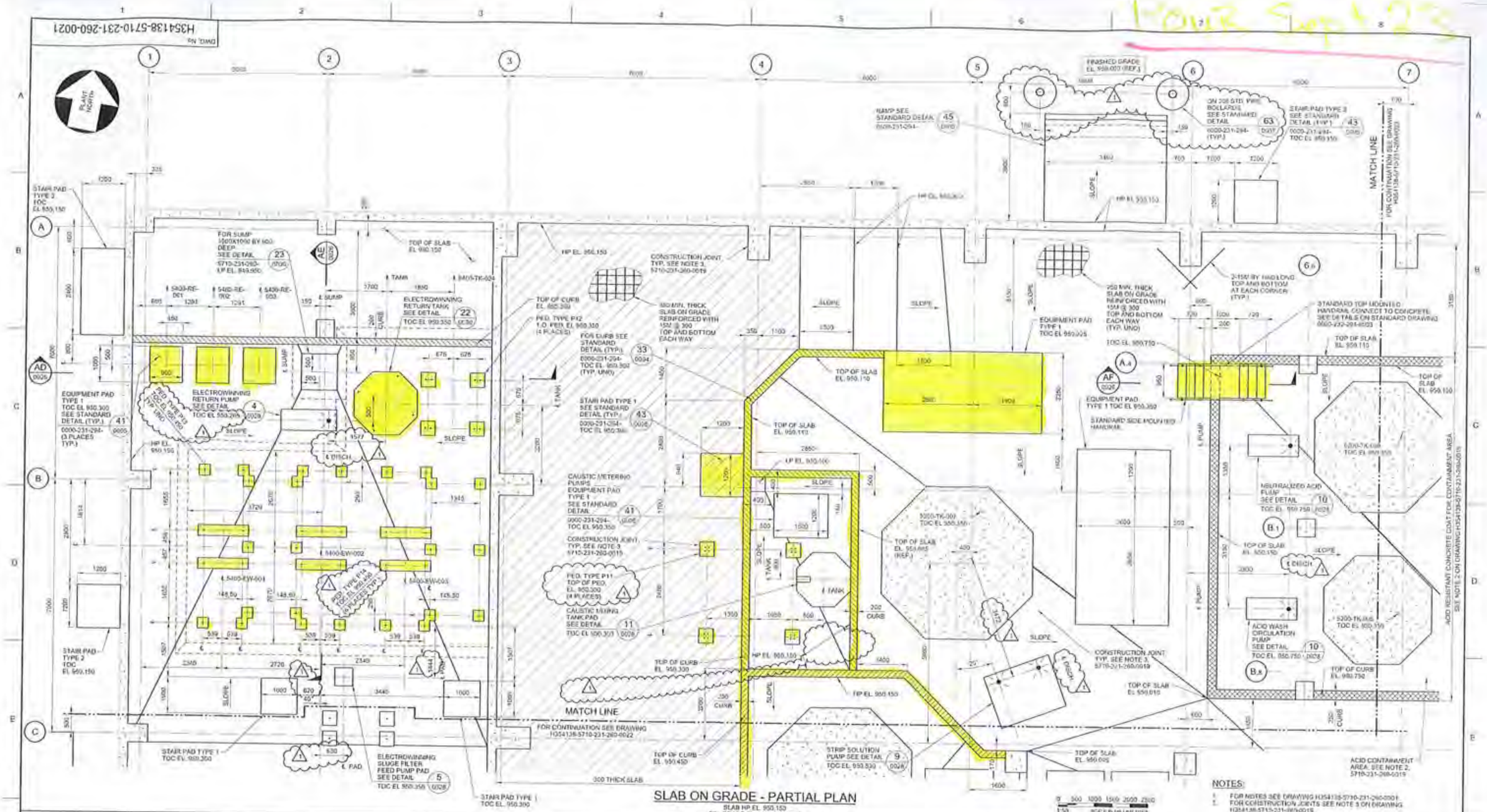
DWG. No. H354138-5710-231-260-0022

REV 1

SHEET SIZE: D

SFILE: PRINTED: 14-AUG-2018

Pour Sept 23




## SLAB ON GRADE - PARTIAL PLAN

SLAB HP EL. 950.150
FIN. GRADE EL. 950.000 (REF.)

NOTES:

1. FOR NOTES SEE DRAWING H354138-5710-231-260-0001
2. FOR CONSTRUCTION JOINTS SEE NOTE 3 ON DRAWING H354138-5710-231-260-0019

| No. | DESCRIPTION | BY | CHK'D | DATE |
|---|---|---|---|---|
| 1 | PED. P13, P14 EL. UPDATED, HOLD H0027, H0028 REMOVED, BOLLARD ADDED, PED. P11 EL. CORRECTED | PJ | EA | 2018-08-14 |
| 0 | APPROVED FOR CONSTRUCTION | EM | EA | 2018-06-08 |

REVISIONS

| ROLE | NAME | SIGNATURE & DATE |
|---|---|---|
| DRAFTSPERSON | P. JIVAEV | NR 2018-05-17 |
| DESIGNER | F. LIU | NR 2018-05-17 |
| CHECKER | E. AKINCI | 2018-08-14 |
| DESIGN COORD. | S. PERKINS | 2018-08-14 |
| RESP. ENG. | E. AKINCI | 2018-08-14 |
| LEAD DISC. ENG. | E. AKINCI | 2018-08-14 |
| ENG. MANAGER | B. RUSTAD | |
| PROJ. MANAGER | B. RUSTAD | |

DRAWING APPROVAL STATUS: Approved for Construction

HATCH

StrataGold Corporation

EAGLE GOLD PROJECT

ADR PROCESS PLANT BUILDING
SLAB ON GRADE
PARTIAL PLAN - SHEET 1

SCALE 1:50 OF ALL NOTED | DWG. No. H354138-5710-231-260-0021 | REV 1

SHEET SIZE: D

DRAWING No. | DRAWING TITLE | REFERENCE DRAWINGS | REG. PROFESSIONAL | 2018-08-14

SFILE1 PRINTED: 14-AUG-2018

CB-INSPECTION FORM-DOC-002 REV 00
IDS ENERGY & MINING INC. | STRATAGOLD EAGLE GOLD
PROJECT #: CB201 | 18502

CLARK BUILDERS
ENERGY & RESOURCES

PROJECT MANAGER: DUSTIN DOLYNCHUK, P.ENG
QA/QC COORDINATOR: RYAN DE MILLIANO, C.E.T.
SUPERINTENDENT: GARRY DAHL

# FORMWORK & FALSEWORK PRE POUR | QA INSPECTION

Rev 01 August 25, 2019

| | |
|---|---|
| CONTRACTOR: Clark Builders | INSPECTION DATE: Sept 27/18 |
| CONTRACTOR CONTACT PERSON: Peter Nice | DATE OF POUR: Sept 27/18 |
| INSPECTOR(S): PETER NICE, MATT (JDS), ISHAN (JDS) | |
| LOCATION: ADR CURBS, EQUIPMENT PADS BETWEEN GL 4-6 (5 PADS) SEE ATTACHED | |
| DRAWING REV: 1 | DRAWING NO.(S): 231-260-0021, 22, 30 SPEC SECTION(S): |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Location, survey, dimension and grades as required | ☑ | ☐ | ☐ |
| 2.0 | Plumbness and Flatness verified | ☑ | ☐ | ☐ |
| 3.0 | Joints are aligned and watertight. | ☑ | ☐ | ☐ |
| 4.0 | Formwork shop drawings are Engineered and reviewed | ☑ | ☐ | ☐ |
| 5.0 | Re-used formwork reconditioned and treated | ☑ | ☐ | ☐ |
| 6.0 | Formwork and ties according to finishing requirements. Confirm no holes in the concrete surface are greater than 25mm in diameter or expose steel at less than 25mm from surface. As per spec. | ☑ | ☐ | ☐ |
| 7.0 | Installation of embeds are located and secured | ☑ | ☐ | ☑ |
| 8.0 | Chamfer requirements checked. 25mm chamfers required for all exterior corners and edges exposed to view including horizontal edges of pads. | ☑ | ☐ | ☐ |
| 9.0 | Key ways and/or other provisions according to design are provided in construction joints | ☑ | ☐ | ☐ |
| 10.0 | Inspect types of form spacers, ties and bracing. | ☑ | ☐ | ☐ |
| 11.0 | Spacing of ties to be set to a pattern | ☑ | ☐ | ☐ |
| 12.0 | Expansion, construction, contraction joints as required & located as coordinated with structural Engineer | ☑ | ☐ | ☐ |
| 13.0 | Forms secured against movement during placing | ☑ | ☐ | ☐ |
| 14.0 | Forms are braced for alignment and blow out | ☑ | ☐ | ☐ |
| 15.0 | Forms are cleaned of all debris, and dry, prior to concrete placement including standing water | ☑ | ☐ | ☐ |
| 16.0 | Openings in formwork permit inspection and cleaning, placing and compaction of concrete, and forming and processing of construction joints. | ☑ | ☐ | ☐ |
| 17.0 | Formwork has been coated with release agent prior to rebar placement. | ☑ | ☐ | ☐ |
| 18.0 | Anchor Bolts and Embeds are secured to formwork. | ☑ | ☐ | ☐ |

COMMENTS:

ATTACHMENT(S):

DEFICIENCIES NOTES:

INITIAL INSPECTION

INSPECTOR: Peter Nice P.A. Nice TITLE Superintendent DATE: Sept 27/18

ITE INSPECTION (DEFICIENCIES COMPLETED)

INSPECTOR: Matt Coverdale MC TITLE Field Eng DATE: Sep 27/18

CLARK BUILDERS
ENERGY & RESOURCES

# CONCRETE REINFORCEMENT PRE POUR

Rev 01 August 25, 2018

| | |
|---|---|
| SUBCONTRACTOR: Ultimate Reinforcing // McNish | INSPECTION DATE: SEPTEMBER 27, 2018 |
| SUBCONTRACTOR CONTACT PERSON: JIMMY | PROJ. POUR DATE: SEPTEMBER 27, 2018 |
| INSPECTOR(S): PETER NICA, MAC C. (JDS), ISHAN (JDS. | |
| LOCATION: 5710 ADR CURBS AND EQUIPMENT PADS. BETWEEN GL 4-6 (SEE ATTACHED) | |
| DRAWING REV: 7 | DRAWING NO.(S): 5710-23-260-0022, 25, 30 |
| SPEC SECTION(S): S03 20 00 – Concrete Reinforcing Steel | |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Grade (400W unless otherwise noted) and type of steel delivered and installed as required by approved drawings. | X | | |
| 2.0 | Inspect rebar distribution, spacing and cover per design/project requirements | X | | |
| 3.0 | Length of splices as specified | X | | |
| 4.0 | Staggered splices as specified | X | | |
| 5.0 | Any mechanical splices have been approved by the owner prior to install | | | X |
| 6.0 | Bars cleaned and free of material that may reduce bond including loose rust, scale, oil, structural defects and that they are uncoated and unpainted. | X | | |
| 7.0 | Dowels at wall ends, construction joints, and openings as specified (length, location, size, etc.) | X | | |
| 8.0 | No unauthorized field bent bars including hooks installed | X | | |
| 9.0 | Resolve conflicts between embedded items and reinforcement | X | | |
| 10.0 | When authorized, field bends done without heat and inspected for fissures or cracks. | | | X |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 11.0 | Bars tied and supported to prevent displacement | X | | |
| 12.0 | Spacers, tie wire and chairs as required | X | | |
| 13.0 | Conduits at design location and minimum separation from rebar as specified | | | X |
| 14.0 | No contact of bars is made with dissimilar metals as per CSA A23.1 | X | | |
| 15.0 | Bars, nails or tie wire not sticking out from surfaces that allow rusting/corrosion | X | | |
| 16.0 | Rebar welds are inspected by qualified inspectors certified to CSA W178.2 | | | X |
| 17.0 | No rebar congestion or other obstruction for deposit of concrete | X | | |
| 18.0 | Adjustments required for interfering items (piping, inserts, sleeves, etc.) have been submitted and approved by owner. | X | | |
| 19.0 | Rebar was stored off ground to prevent damage/corrosion | X | | |
| 20.0 | Review drawings for anchors, piping, sleeves, boxes | X | | |

COMMENTS:

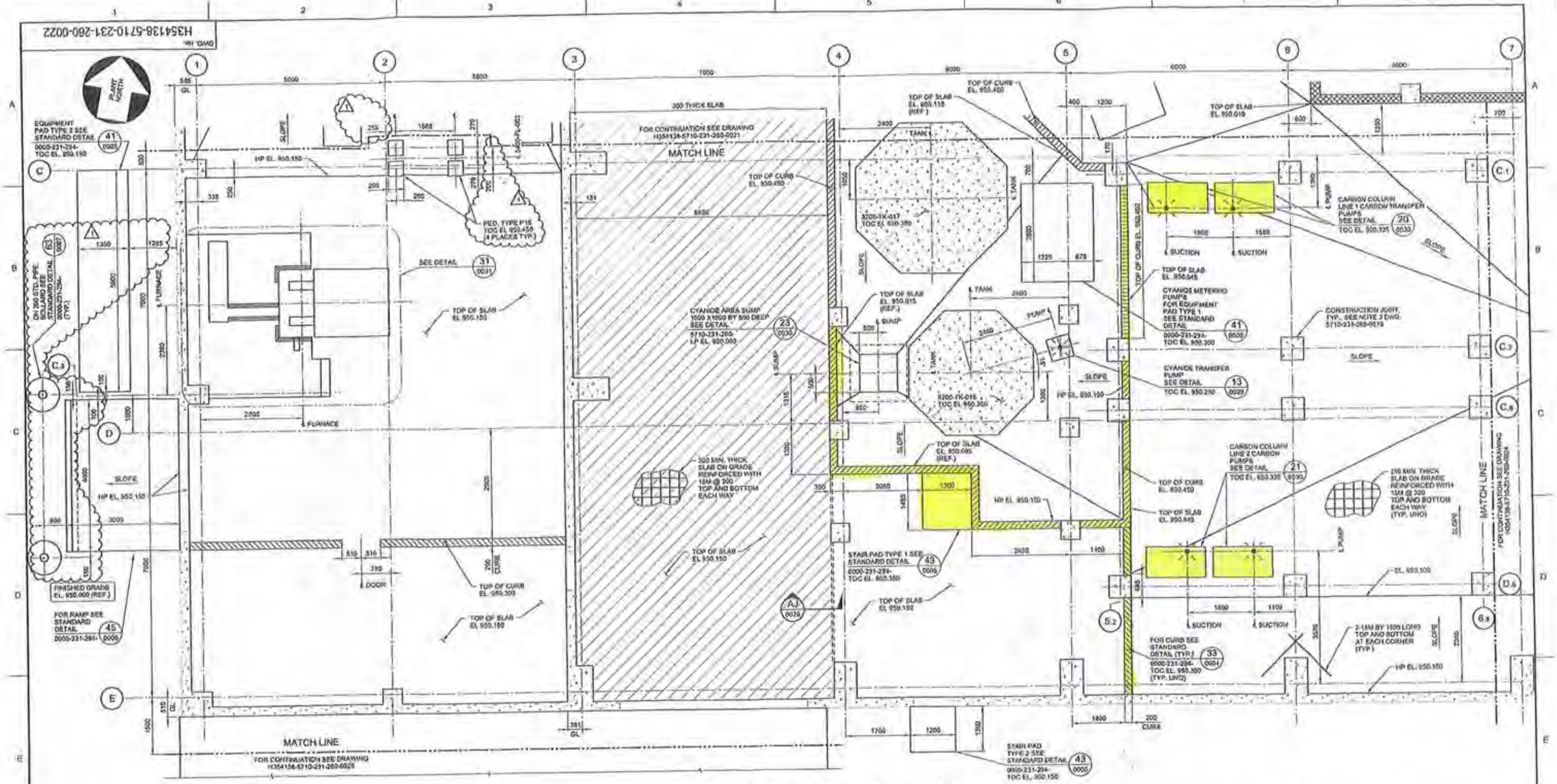
ATTACHMENT(S):

DEFICIENCIES NOTES:

WATERSTOP REQUIRED IN ONE PLACE, COMPLETED PRIOR TO POUR (PHOTOS RECEIVED)

CLARK BUILDERS:
INSPECTOR: PETER NICA // TITLE SUPER DATE: SEPT 27/18

JDS ENERGY & MINING:
INSPECTOR: Matt Coverdale MC TITLE Field Eng DATE: Sep 27/18.




## SLAB ON GRADE - PARTIAL PLAN

SLAB HP EL. 950.150
FIN. GRADE EL. 950.000 (REF.)

0 500 1000 1500 2000 2500
1:50 SCALE IN MILLIMETRES

NOTES:

1. FOR NOTES SEE DRAWING H354138-5710-231-260-0001.
2. FOR CONSTRUCTION JOINTS SEE NOTE 3 ON DRAWING H354138-5710-231-260-0019.

| No. | DESCRIPTION | BY | CHK'D | DATE |
|---|---|---|---|---|
| 1 | HOLDS H0024, H0025 AND H0026 REMOVED, PED. P15 ELEVATION AND LOCATION UPDATED, BOLLARDS ADDED | PJ | EA | 2018-06-14 |
| 0 | APPROVED FOR CONSTRUCTION | EM | EA | 2018-06-05 |

REVISIONS

| DRAWING No. | DRAWING TITLE |
|---|---|
| REFERENCE DRAWINGS | |

REG. PROFESSIONAL

HATCH

| ROLE | NAME | SIGNATURE & DATE |
|---|---|---|
| DRAFTSPERSON | P. JIVAEV | NR 2018-05-17 |
| DESIGNER | F. LIU | NR 2018-05-17 |
| CHECKER | E. AKINCI | |
| DESIGN COORD. | S. PERKINS | |
| RESP. ENG. | E. AKINCI | |
| LEAD DISC. ENG. | E. AKINCI | |
| ENG. MANAGER | B. RUSTAD | |
| PROJ. MANAGER | B. RUSTAD | |

DRAWING APPROVAL STATUS: Approved for Construction

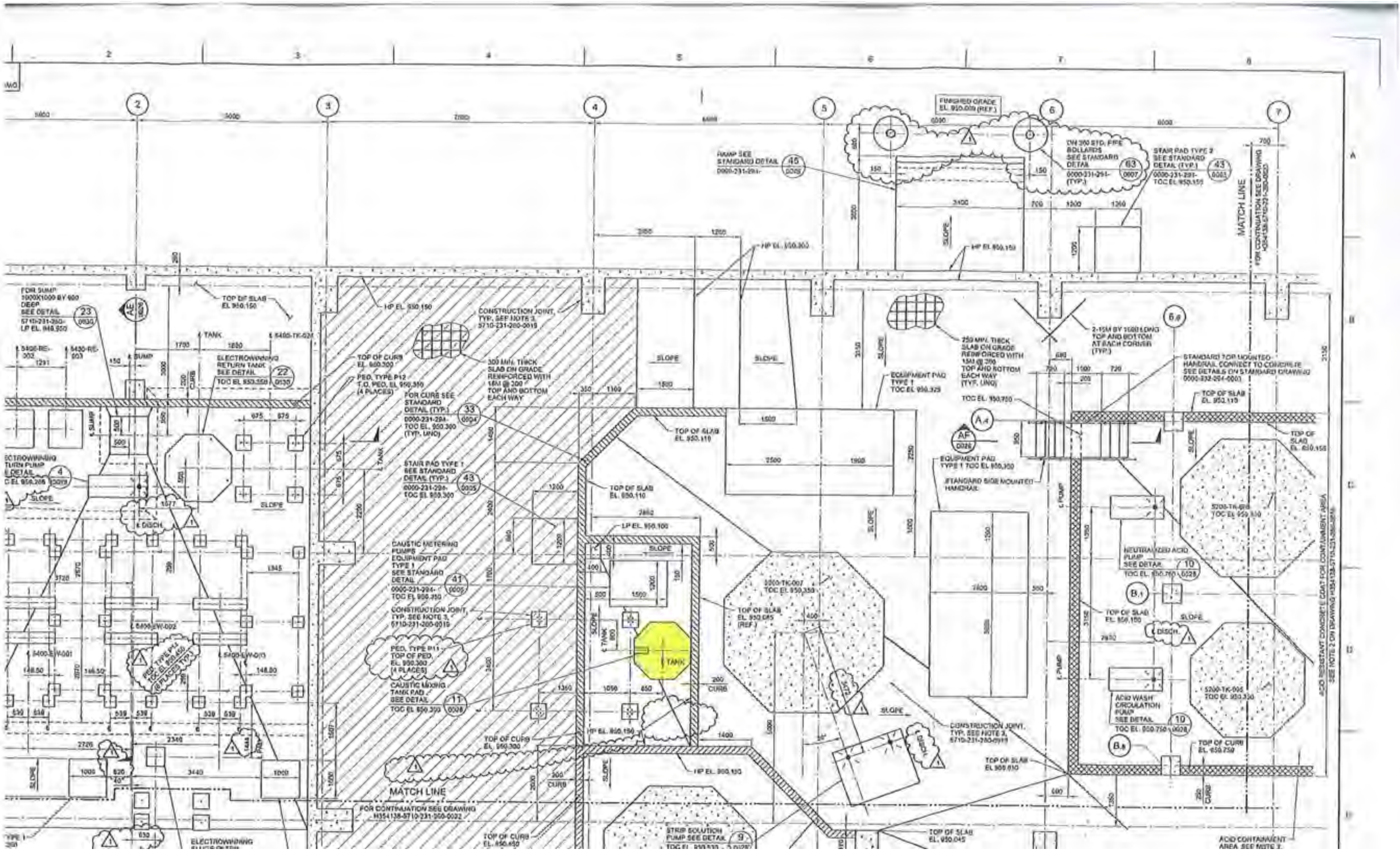
StrataGold Corporation

EAGLE GOLD PROJECT

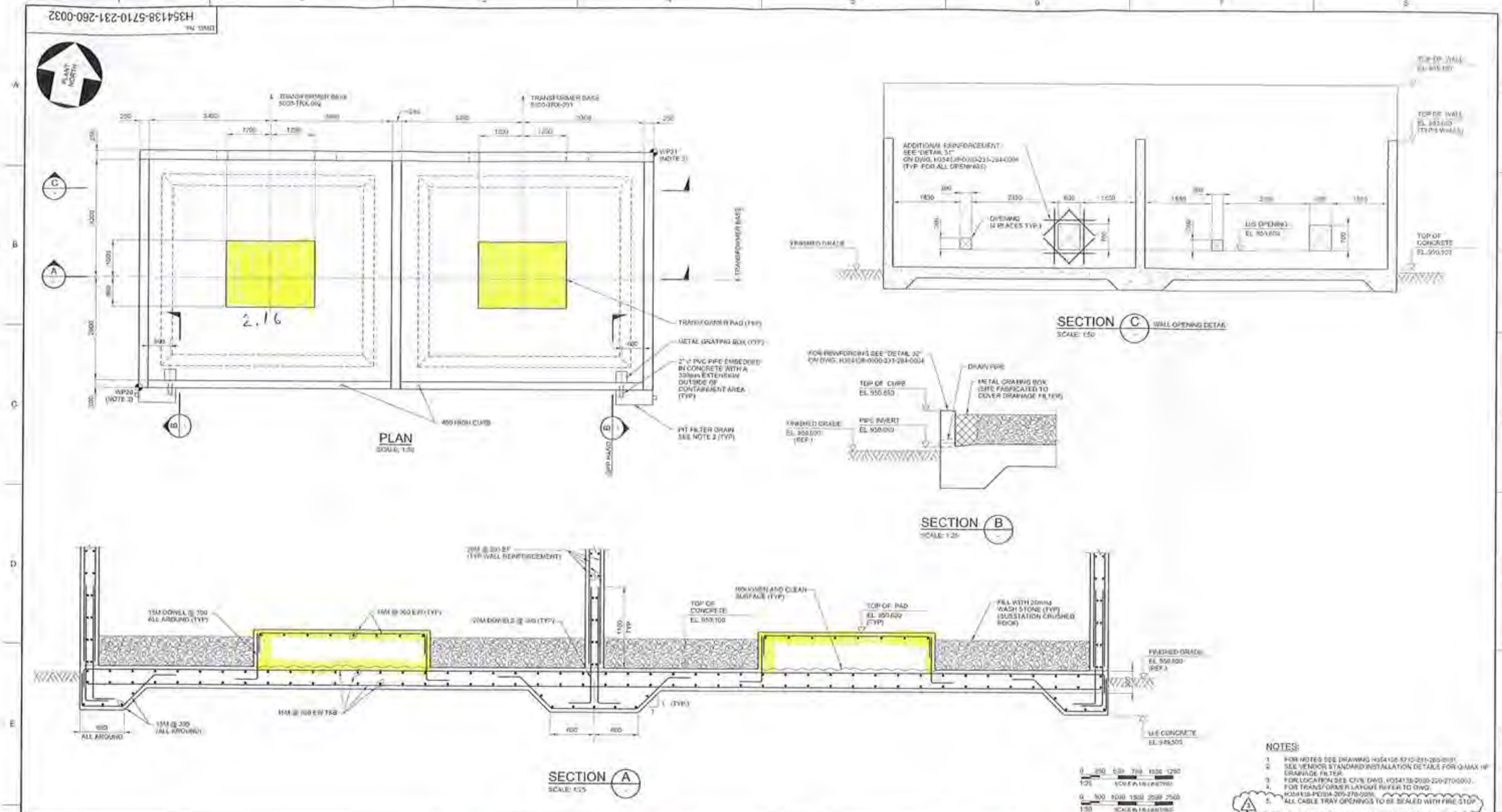
ADR PROCESS PLANT BUILDING
SLAB ON GRADE
PARTIAL PLAN - SHEET 2

SCALE 1:50 (AS NOTED)
DWG. No. H354138-5710-231-260-0022
REV 1
SHEET SIZE: D

SFIELD
PRINTED: 14-AUG-2018



FINISHED GRADE EL. 950.000 (REF.)
RAMP SEE STANDARD DETAIL
DN 300 STD. PIPE BOLLARDS SEE STANDARD DETAIL
STAIR PAD TYPE 2 SEE STANDARD DETAIL (TYP.)
MATCH LINE
FOR CONTINUATION SEE DRAWING
FOR SUMP 1000X1000 BY 600 DEEP SEE DETAIL
TOP OF SLAB EL. 950.150
HP EL. 950.150
CONSTRUCTION JOINT, TYP. SEE NOTE 3, 5710-231-200-0019
TOP OF CURB EL. 950.300
PED. TYPE P12 T.O. PED. EL. 950.350 (4 PLACES)
300 MIN. THICK SLAB ON GRADE REINFORCED WITH 15M @ 200 TOP AND BOTTOM EACH WAY
FOR CURB SEE STANDARD DETAIL (TYP.)
STAIR PAD TYPE 1 SEE STANDARD DETAIL (TYP.)
CAUSTIC METERING PUMPS EQUIPMENT PAD TYPE 1 SEE STANDARD DETAIL
CONSTRUCTION JOINT, TYP. SEE NOTE 3, 5710-231-200-0019
PED. TYPE P11 TOP OF PED. EL. 950.300 (4 PLACES)
CAUSTIC MIXING TANK PAD SEE DETAIL
TOP OF CURB EL. 950.300
MATCH LINE
FOR CONTINUATION SEE DRAWING H354138-5710-231-200-0022
ELECTROWINNING RETURN TANK SEE DETAIL
TOP OF SLAB EL. 950.110
LP EL. 950.100
TOP OF SLAB EL. 950.085 (REF.)
TANK
SLOPE
CURB
EQUIPMENT PAD TYPE 1 TOC EL. 950.325
250 MIN. THICK SLAB ON GRADE REINFORCED WITH 15M @ 200 TOP AND BOTTOM EACH WAY (TYP. UNO)
2-15M BY 1000 LONG TOP AND BOTTOM AT EACH CORNER (TYP.)
STANDARD TOP MOUNTED HANDRAIL CONNECT TO CONCRETE SEE DETAILS ON STANDARD DRAWING
TOP OF SLAB EL. 950.110
EQUIPMENT PAD TYPE 1 TOC EL. 950.350
STANDARD SIDE MOUNTED HANDRAIL
NEUTRALIZED ACID PUMP SEE DETAIL
ACID WASH CIRCULATION PUMP SEE DETAIL
CONSTRUCTION JOINT, TYP. SEE NOTE 3, 5710-231-200-0019
TOP OF SLAB EL. 950.150
TOP OF CURB EL. 950.750
TOP OF SLAB EL. 950.010
STRIP SOLUTION PUMP SEE DETAIL
TOP OF SLAB EL. 950.045
ACID CONTAINMENT AREA SEE NOTE 2
ACID RESISTANT CONCRETE COAT FOR CONTAINMENT AREA SEE NOTE 2 ON DRAWING H354138-5710-231-200-0016




NOTES:

1. FOR NOTES SEE DRAWING H354138-5710-231-260-0031.
2. SEE VENDOR STANDARD INSTALLATION DETAILS FOR Q-MAX HP DRAINAGE FILTER.
3. FOR LOCATION SEE CIVIL DWG. H354138-2000-220-270-0002.
4. FOR TRANSFORMER LAYOUT REFER TO DWG. H354138-PE004-205-270-0006.
5. ALL CABLE TRAY OPENINGS TO BE SEALED WITH FIRE STOP.

| DRAWING No. | DRAWING TITLE |
|---|---|
| REFERENCE DRAWINGS | |

REG. PROFESSIONAL

PROFESSIONAL ENGINEER YUKON ESRA AKINCI TERRITORY 2018-09-07

PERMIT TO PRACTICE

| No. | DESCRIPTION | BY | CHK'D | DATE |
|---|---|---|---|---|
| 3 | HOLD H0058 RELEASED, NOTE 5 ADDED | PJ | EA | 2018-09-07 |
| 2 | WP RE-NUMBERED | RS | EA | 2018-08-22 |
| 1 | PAD LOCATION UPDATED | RS | EA | 2018-08-21 |
| 0 | APPROVED FOR CONSTRUCTION | RS | EA | 2018-08-21 |

REVISIONS

HATCH

| ROLE | NAME | SIGNATURE & DATE |
|---|---|---|
| DRAFTSPERSON | R. SAGARBARRIA | NR |
| DESIGNER | F. LIU | NR |
| CHECKER | E. AKINCI | 2018-09-07 |
| DESIGN COORD. | S. PERKINS | 2018-09-07 |
| RESP. ENG. | E. AKINCI | 2018-09-07 |
| LEAD DISC. ENG. | E. AKINCI | 2018-09-07 |
| ENG. MANAGER | B. RUSTAD | 2018-09-07 |
| PROJ. MANAGER | B. RUSTAD | 2018-09-07 |

DRAWING APPROVAL STATUS: Approved for Construction

StrataGold Corporation

EAGLE GOLD PROJECT

ADR PROCESS PLANT BUILDING
TRANSFORMER FOUNDATION
PLAN, SECTIONS AND DETAILS

SCALE: AS NOTED OR AS NOTED

DWG. No. H354138-5710-231-260-0032

REV. 3

SHEET SIZE: D

CLARK BUILDERS
ENERGY & RESOURCES

# CONCRETE REINFORCEMENT PRE POUR

Rev 01 August 25, 2018

SUBCONTRACTOR: Ultimate Reinforcing // McNish
INSPECTION DATE: Sat September 29, 2018
SUBCONTRACTOR CONTACT PERSON: Jimmy M.
PROJ. POUR DATE: Sun September 30, 2018
INSPECTOR(S): Ryan deMilliano (QA)
LOCATION: 6710 ADR Curbs and Equipment Pads.
DRAWING REV: 01
DRAWING NO.(S): 5710-231-260-0021/0023
SPEC SECTION(S): S03 20 00 – Concrete Reinforcing Steel

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Grade (400W unless otherwise noted) and type of steel delivered and installed as required by approved drawings. | ☒ | ☐ | ☐ |
| 2.0 | Inspect rebar distribution, spacing and cover per design/project requirements. | ☒ | ☐ | ☐ |
| 3.0 | Length of splices as specified | ☒ | ☐ | ☐ |
| 4.0 | Staggered splices as specified | ☒ | ☐ | ☐ |
| 5.0 | Any mechanical splices have been approved by the owner prior to install | ☐ | ☐ | ☒ |
| 6.0 | Bars cleaned and free of material that may reduce bond including loose rust, scale, oil, structural defects and that they are uncoated and unpainted. | ☒ | ☐ | ☐ |
| 7.0 | Dowels at wall ends, construction joints, and openings as specified (length, location, size, etc.) | ☐ | ☐ | ☒ |
| 8.0 | No unauthorized field bent bars including hooks installed | ☒ | ☐ | ☐ |
| 9.0 | Resolve conflicts between embedded items and reinforcement | ☐ | ☐ | ☒ |
| 10.0 | When authorized, field bends done without heat and inspected for fissures or cracks. | ☐ | ☐ | ☒ |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 11.0 | Bars tied and supported to prevent displacement | ☒ | ☐ | ☐ |
| 12.0 | Spacers, tie wire and chairs as required | ☒ | ☐ | ☐ |
| 13.0 | Conduits at design location and minimum separation from rebar as specified | ☐ | ☐ | ☒ |
| 14.0 | No contact of bars is made with dissimilar metals as per CSA A23.1 | ☒ | ☐ | ☐ |
| 15.0 | Bars, nails or tie wire not sticking out from surfaces that allow rusting/corrosion | ☒ | ☐ | ☐ |
| 16.0 | Rebar welds are inspected by qualified inspectors certified to CSA W178.2 | ☐ | ☐ | ☒ |
| 17.0 | No rebar congestion or other obstruction for deposit of concrete | ☒ | ☐ | ☐ |
| 18.0 | Adjustments required for interfering items (piping, inserts, sleeves, etc.) have been submitted and approved by owner. | ☐ | ☐ | ☒ |
| 19.0 | Rebar was stored off ground to prevent damage/corrosion | ☒ | ☐ | ☐ |
| 20.0 | Review drawings for anchors, piping, sleeves, boxes | ☒ | ☐ | ☐ |

COMMENTS:

ATTACHMENT(S):

DEFICIENCIES NOTES:

CLARK BUILDERS:
INSPECTOR: Ryan deMilliano TITLE Project Coordinator DATE: Sept 29/18

IDS ENERGY & MINING:
INSPECTOR: John Fechter TITLE Superintendent DATE: Sept. 29/18

CLARK BUILDERS
ENERGY & RESOURCES

# FORMWORK & FALSEWORK PRE POUR | QA INSPECTION

Rev 01 August 23, 2018

| | |
|---|---|
| CONTRACTOR: Clark Builders | INSPECTION DATE: SEPTEMBER 29, 2018 |
| CONTRACTOR CONTACT PERSON: PETER NICE | DATE OF POUR: SEPTEMBER 30, 2018 |
| INSPECTOR(S): Ryan DeMilliano / PETER NICE | |
| LOCATION: 5710 ADR CULSS & EQUIPMENT PAD | |
| DRAWING REV: 01 | DRAWING NO.(S): 5710-231-260-C024/23 |
| SPEC SECTION(S): | |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Location, survey, dimension and grades as required | X | | |
| 2.0 | Plumbness and Flatness verified | X | | |
| 3.0 | Joints are aligned and watertight. | X | | |
| 4.0 | Formwork shop drawings are Engineered and reviewed | | | X |
| 5.0 | Re-used formwork reconditioned and treated | X | | |
| 6.0 | Formwork and ties according to finishing requirements. Confirm no holes in the concrete surface are greater than 25mm in diameter or expose steel at less than 25mm from surface. As per spec. | X | | |
| 7.0 | Installation of embeds are located and secured | | | X |
| 8.0 | Chamfer requirements checked. 25mm chamfers required for all exterior corners and edges exposed to view including horizontal edges of pads. | X | | |
| 9.0 | Key ways and/or other provisions according to design are provided in construction joints | | | X |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 10.0 | Inspect types of form spacers, ties and bracing. | X | | |
| 11.0 | Spacing of ties to be set to a pattern | X | | |
| 12.0 | Expansion, construction, contraction joints as required & located as coordinated with structural Engineer | X | | |
| 13.0 | Forms secured against movement during placing | X | | |
| 14.0 | Forms are braced for alignment and blow out | X | | |
| 15.0 | Forms are cleaned of all debris, and dry, prior to concrete placement including standing water. | X | | |
| 16.0 | Openings in formwork permit inspection and cleaning, placing and compaction of concrete, and forming and processing of construction joints. | | | X |
| 17.0 | Formwork has been coated with release agent prior to rebar placement. | X | | |
| 18.0 | Anchor Bolts and Embeds are secured to formwork. | | | X |

COMMENTS:

ATTACHMENT(S):

DEFICIENCIES NOTES:

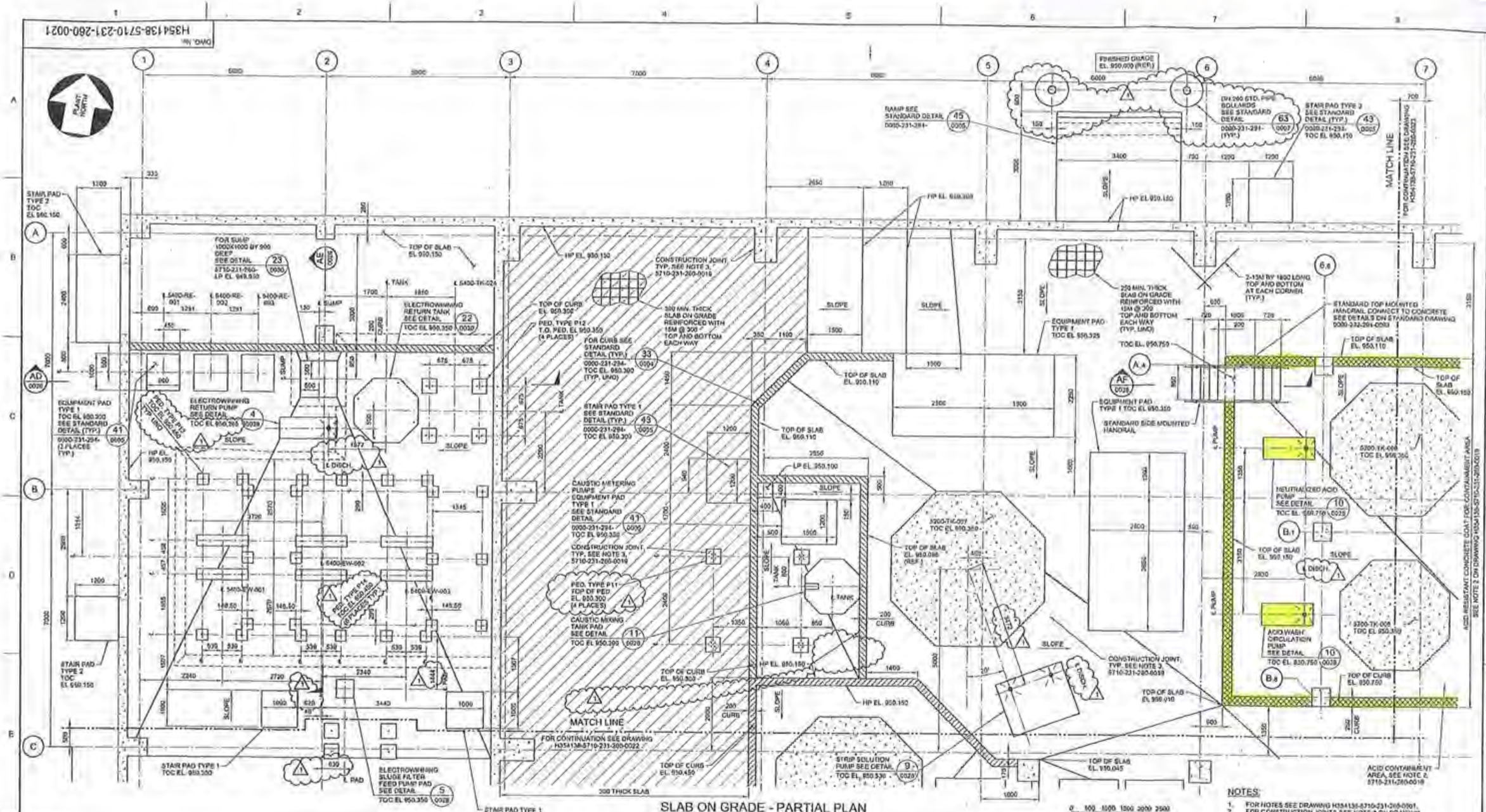
INITIAL INSPECTION

INSPECTOR: PETER NICE // RYAN DEMILLIANO // TITLE Super // Project Coordinator. DATE: Sept 29/18

RE-INSPECTION (DEFICIENCIES COMPLETED)

INSPECTOR: N/A TITLE DATE:

DWG. No. H354138-5710-231-260-0021




## SLAB ON GRADE - PARTIAL PLAN

SLAB HP EL 950.150
FIN. GRADE EL. 950.000 (REF.)

1:50 SCALE IN MILLIMETRES

NOTES:
1. FOR NOTES SEE DRAWING H354138-5710-231-260-0001.
2. FOR CONSTRUCTION JOINTS SEE NOTE 3 ON DRAWING H354138-5710-231-260-0018.

SPECS. REVISED: 14-AUG-2018 dc_thelevick

| DRAWING No. | DRAWING TITLE |
|---|---|
| REFERENCE DRAWINGS | |

REG. PROFESSIONAL

2018-05-14

| NO. | DESCRIPTION | BY | CHK'D | DATE |
|---|---|---|---|---|
| 1 | PED. P13, P14 EL. UPDATED, HOLD H0027, H0028 REMOVED, BOLLARD ADDED, PED. P11 EL. CORRECTED | PJ | EA | 2018-05-14 |
| 0 | APPROVED FOR CONSTRUCTION | EM | EA | 2018-05-00 |

REVISIONS

HATCH

| ROLE | NAME | SIGNATURE & DATE |
|---|---|---|
| DRAFTSPERSON | P. JIVAEV | NR 2018-05-17 |
| DESIGNER | F. LEI | NR 2018-05-17 |
| CHECKER | E. AKINCI | 2018-05-14 |
| DESIGN COORD. | S. PERRINS | 2018-05-14 |
| RESP. ENG. | E. AKINCI | 2018-05-14 |
| LEAD DISC. ENG. | E. AKINCI | 2018-05-14 |
| ENG. MANAGER | B. RUSTAD | |
| PRO J. MANAGER | B. RUSTAD | |
| DRAWING APPROVAL STATUS: | Approved for Construction | |

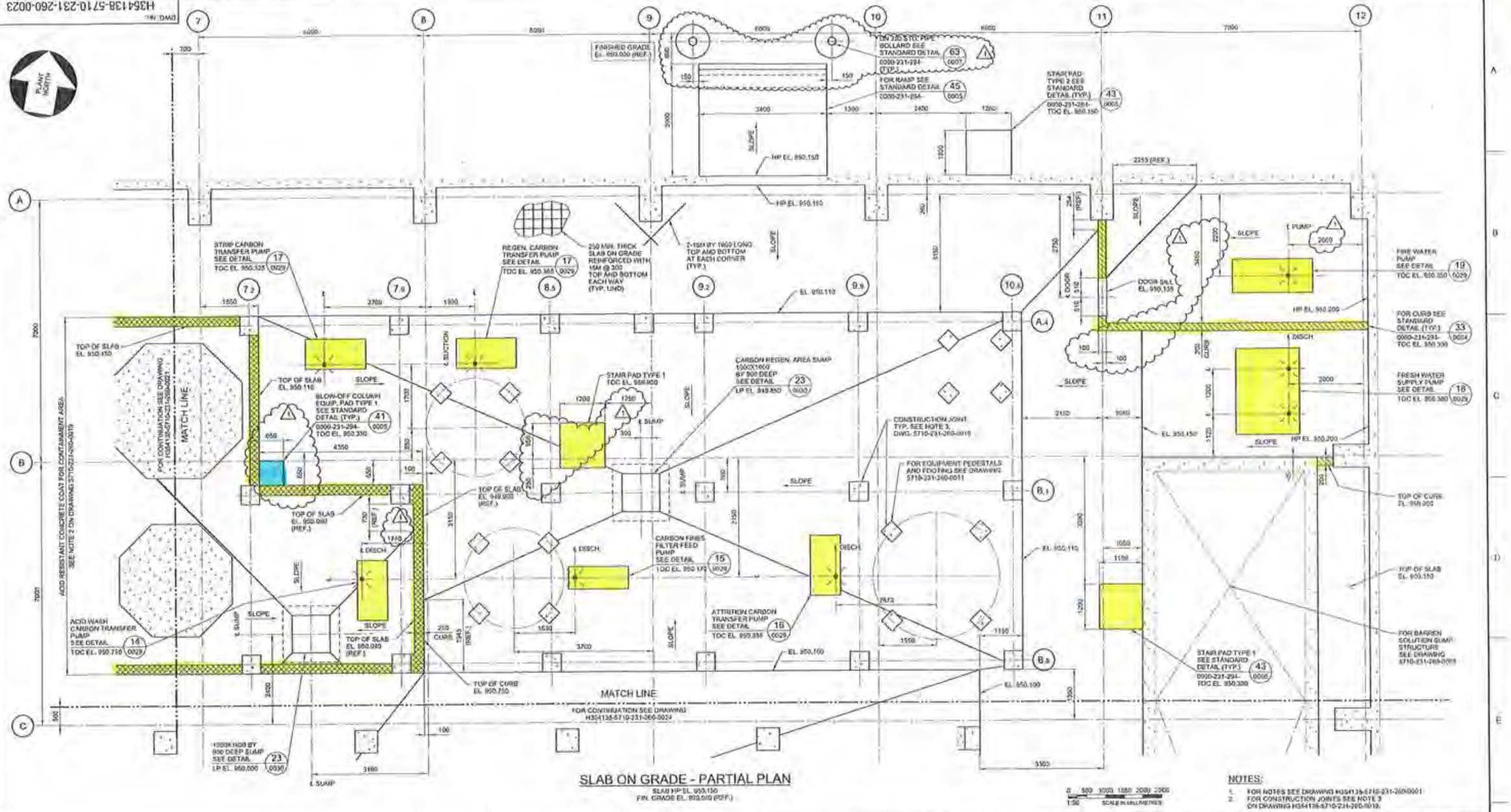
StrataGold Corporation

EAGLE GOLD PROJECT

ADR PROCESS PLANT BUILDING
SLAB ON GRADE
PARTIAL PLAN - SHEET 1

| SCALE | DWG. No. | REV |
|---|---|---|
| 1:50 | H354138-5710-231-260-0021 | 1 |

SHEET SIZE: D




## SLAB ON GRADE - PARTIAL PLAN

SLAB HP EL. 950.150
FIN. GRADE EL. 950.000 (REF.)

1:50 SCALE IN MILLIMETRES

NOTES:
1. FOR NOTES SEE DRAWING H354138-5710-231-260-0001
2. FOR CONSTRUCTION JOINTS SEE NOTE 3 ON DRAWING H354138-5710-231-260-0019.

| No. | DESCRIPTION | BY | CHKD | DATE |
|---|---|---|---|---|
| 1 | HOLDS H0029 RELEASED, STAIR PAD LOCATION UPDATED, BOLLARDS ADDED, CURB AND PUMP LOCATION ADDED | PJ | EA | 2018-08-14 |
| 0 | APPROVED FOR CONSTRUCTION | EM | EA | 2018-06-05 |

REVISIONS

| DRAWING No. | DRAWING TITLE |
|---|---|
| REFERENCE DRAWINGS | |

REG. PROFESSIONAL

HATCH

| | | | |
|---|---|---|---|
| DRAFTSPERSON | P. JIYAEV | NR | 2018-05-17 |
| DESIGNER | F. LIU | NR | 2018-05-17 |
| CHECKER | E. AKINCI | | |
| DESIGN COORD. | S. PERSONS | | |
| RESP. ENG. | E. AKINCI | | |
| LEAD DISC. ENG. | E. AKINCI | | |
| ENG. MANAGER | B. RUSTAD | | |
| PROJ. MANAGER | B. RUSTAD | | |
| | ROLE | NAME | SIGNATURE & DATE |
| DRAWING APPROVAL STATUS: | Approved for Construction | | |

StrataGold Corporation

EAGLE GOLD PROJECT

ADR PROCESS PLANT BUILDING
SLAB ON GRADE
PARTIAL PLAN - SHEET 3

SCALE 1:50 ON A1 SIZE | DWG. No. H354138-5710-231-260-0023 | REV 1

SHEET SIZE: D

PLOTTED: 14-AUG-2018

CLARK BUILDERS
ENERGY & RESOURCES

# CONCRETE POST POUR INSPECTION

Rev 03 May 4, 2018

| | |
|---|---|
| INSPECTOR(S): JACKSON WENGER | SPEC SECTION(S): 503 30 00 – Cast-In-Place |
| TYPE OF FINISH: BACK RUBS | DATE OF INSPECTION: OCT. 13 2018 |
| AREA AND LOCATION(s): S/W BARREN SOL. TANK | |

| GENERAL REQUIREMENTS | PASS | FAIL | N/A | REMARKS |
|---|---|---|---|---|
| Curing compounds not used on any surface against which additional concrete or materials are to be bonded. | ☑ | ☐ | ☐ | |
| Fresh concrete barricaded/ protected from mechanical disturbance. | ☑ | ☐ | ☐ | |
| Where concrete is used for filling, the chipped opening shall not be less than 75mm in depth. | ☑ | ☐ | ☐ | |
| Patches exposed to view shall blend with surrounding surfaces. | ☑ | ☐ | ☐ | |
| Contractor shall clean all exposed concrete surfaces of all encrustations of cement, mortar, or grout and shall remove unsightly stains. | ☑ | ☐ | ☐ | |
| Concrete appears proper and devoid of any honeycomb, cold joints, droppings or other defects | ☑ | ☐ | ☐ | |
| Removal of all concrete rubble and dispose of at an appropriate location. | ☑ | ☐ | ☐ | |
| Surface of concrete finished against forms has a smooth, dense finish free from cracks, free from projections, pits, and honeycomb and in proper alignment. | ☑ | ☐ | ☐ | |
| OLD WEATHER REQUIREMENTS (WHEN AMB. TEMP < 5°C) | PASS | FAIL | N/A | REMARKS |
| Protection in place until 70% of the 28-day strength has been reached. | ☑ | ☐ | ☐ | |
| Cold weather protection provided by means of heated enclosures, coverings, insulation, or a suitable approved combination of these methods during complete curing period. | ☑ | ☐ | ☐ | |
| Water not sitting in recesses, shear pockets, groves, bolt sleeves during heat and Hoarding period. | ☑ | ☐ | ☐ | |

| | |
|---|---|
| COMMENTS: | |
| ATTACHMENT(S): | |

**INITIAL INSPECTION**

PRINT/ SIGN: JACKSON WENGER TITLE COORD-MAJOR DATE: OCT. 13

**JDS INSPECTION**

PRINT/ SIGN: [signature] TAWNYA TITLE _____ DATE: _____

CLARK BUILDERS
ENERGY & RESOURCES

# FORMWORK & FALSEWORK PRE POUR | QA INSPECTION

Rev 01 August 23, 2018

CONTRACTOR: Clark Builders
INSPECTION DATE: OCT. 12/2018
CONTRACTOR CONTACT PERSON: GREG WATSON
DATE OF POUR:
INSPECTOR(S): JACKSON WENGER
LOCATION: ADR: PLANT 5710 TIE BLAST WALLS
DRAWING REV: 3
DRAWING NO.(S): 5710/0032
SPEC SECTION(S): 03 30 00

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Location, survey, dimension and grades as required | ☑ | ☐ | ☐ |
| 2.0 | Plumbness and Flatness verified | ☑ | ☐ | ☐ |
| 3.0 | Joints are aligned and watertight | ☑ | ☐ | ☐ |
| 4.0 | Formwork shop drawings are Engineered and reviewed | ☐ | ☐ | ☑ |
| 5.0 | Re-used formwork reconditioned and treated | ☑ | ☐ | ☐ |
| 6.0 | Formwork and ties according to finishing requirements. Confirm no holes in the concrete surface are greater than 25mm in diameter or expose steel at less than 25mm from surface. As per spec. | ☑ | ☐ | ☐ |
| 7.0 | Installation of embeds are located and secured | ☐ | ☐ | ☑ |
| 8.0 | Chamfer requirements checked. 25mm chamfers required for all exterior corners and edges exposed to view including horizontal edges of pads. | ☑ | ☐ | ☐ |
| 9.0 | Key ways and/or other provisions according to design are provided in construction joints | ☑ | ☐ | ☐ |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 10.0 | Inspect types of form spacers, ties and bracing. | ☑ | ☐ | ☐ |
| 11.0 | Spacing of ties to be set to a pattern | ☑ | ☐ | ☐ |
| 12.0 | Expansion, construction, contraction joints as required & located as coordinated with structural Engineer | ☑ | ☐ | ☐ |
| 13.0 | Forms secured against movement during placing | ☑ | ☐ | ☐ |
| 14.0 | Forms are braced for alignment and blow out | ☑ | ☐ | ☐ |
| 15.0 | Forms are cleaned of all debris, and dry, prior to concrete placement including standing water. | ☑ | ☐ | ☐ |
| 16.0 | Openings in formwork permit inspection and cleaning, placing and compaction of concrete, and forming and processing of construction joints. | ☑ | ☐ | ☐ |
| 17.0 | Formwork has been coated with release agent prior to rebar placement. | ☑ | ☐ | ☐ |
| 18.0 | Anchor Bolts and Embeds are secured to formwork. | ☐ | ☐ | ☑ |

COMMENTS:
VERIFY PRIOR TO POUR

ATTACHMENT(S):

DEFICIENCIES NOTES:

INITIAL INSPECTION
INSPECTOR: JACKSON WENGER TITLE COORDINATOR DATE: OCT. 13/2018

RE-INSPECTION (DEFICIENCIES COMPLETED)
INSPECTOR: _____ TITLE _____ DATE: _____

CLARK BUILDERS
ENERGY & RESOURCES

PROJECT MANAGER: DUSTIN DOLYNCHUK, P.ENG
QA/QC COORDINATOR: RYAN DE MILLIANO, C.E.T.
SUPERINTENDENT: GARRY DAHL

# CONCRETE REINFORCEMENT PRE POUR

Rev 01 August 25, 2018

SUBCONTRACTOR: Ultimate Reinforcing // McNish
INSPECTION DATE: OCT 13 2018
SUBCONTRACTOR CONTACT PERSON: JIMMY MONCHENTON
PROJ. POUR DATE
INSPECTOR(S): JACKSON WENGER
LOCATION:
DRAWING REV: 3 DRAWING NO.(S): 5710/00332
SPEC SECTION(S): S03 20 00 – Concrete Reinforcing Steel

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Grade (400W unless otherwise noted) and type of steel delivered and installed as required by approved drawings. | ☑ | ☐ | ☐ |
| 2.0 | Inspect rebar distribution, spacing and cover per design/project requirements. SEE COMMENT | ☐ | ☐ | ☐ |
| 3.0 | Length of splices as specified | ☑ | ☐ | ☐ |
| 4.0 | Staggered splices as specified | ☑ | ☐ | ☐ |
| 5.0 | Any mechanical splices have been approved by the owner prior to install | ☑ | ☐ | ☐ |
| 6.0 | Bars cleaned and free of material that may reduce bond including loose rust, scale, oil, structural defects and that they are uncoated and unpainted. | ☑ | ☐ | ☐ |
| 7.0 | Dowels at wall ends, construction joints, and openings as specified (length, location, size, etc.) | ☑ | ☐ | ☐ |
| 8.0 | No unauthorized field bent bars including hooks installed | ☑ | ☐ | ☐ |
| 9.0 | Resolve conflicts between embedded items and reinforcement | ☑ | ☐ | ☐ |
| 10.0 | When authorized, field bends done without heat and inspected for fissures or cracks. | ☑ | ☐ | ☐ |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 11.0 | Bars tied and supported to prevent displacement | ☑ | ☐ | ☐ |
| 12.0 | Spacers, tie wire and chairs as required SEE COMMENT | ☐ | ☐ | ☐ |
| 13.0 | Conduits at design location and minimum separation from rebar as specified | ☑ | ☐ | ☐ |
| 14.0 | No contact of bars is made with dissimilar metals as per CSA A23.1 | ☑ | ☐ | ☐ |
| 15.0 | Bars, nails or tie wire not sticking out from surfaces that allow rusting/corrosion | ☑ | ☐ | ☐ |
| 16.0 | Rebar welds are inspected by qualified inspectors certified to CSA W178.2 | ☐ | ☐ | ☑ |
| 17.0 | No rebar congestion or other obstruction for deposit of concrete | ☑ | ☐ | ☐ |
| 18.0 | Adjustments required for interfering items (piping, inserts, sleeves, etc.) have been submitted and approved by owner. | ☑ | ☐ | ☐ |
| 19.0 | Rebar was stored off ground to prevent damage/corrosion | ☑ | ☐ | ☐ |
| 20.0 | Review drawings for anchors, piping, sleeves, boxes | ☑ | ☐ | ☐ |

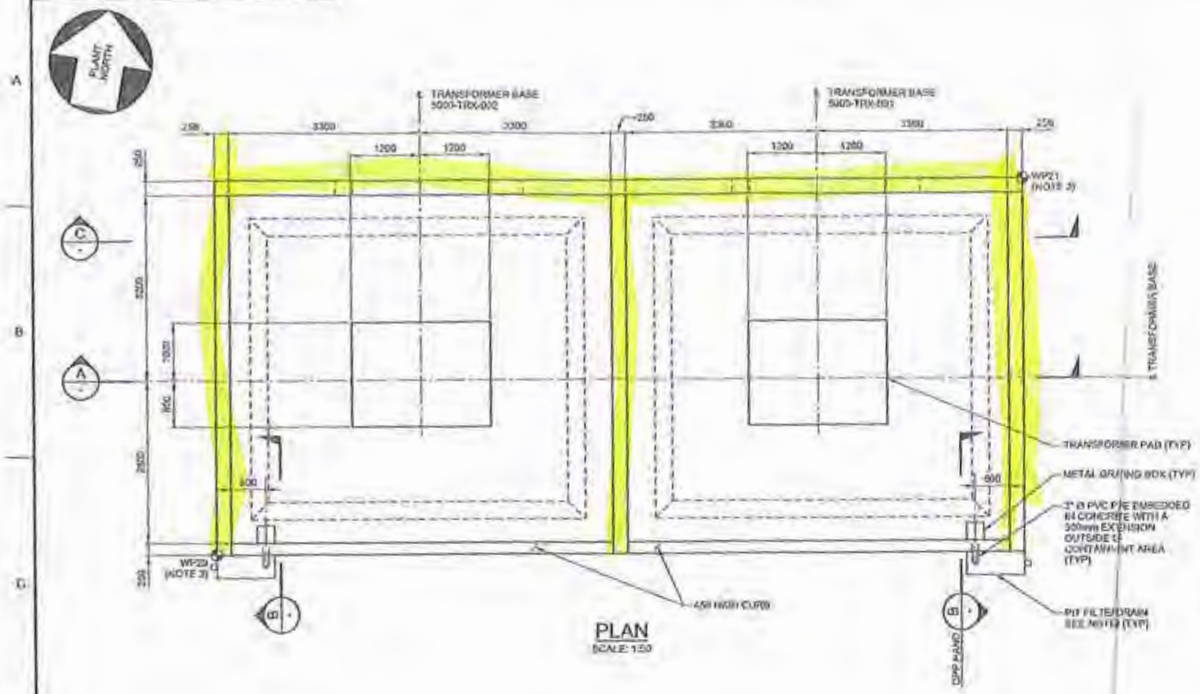
COMMENTS:
REINFORCING NOT CHECKED AT TIME OF INSPECTION OPENING ADDITIONAL REINFORCING TO BE INSTALLED PRIOR TO POUR CLOSING FORMS

ATTACHMENT(S):

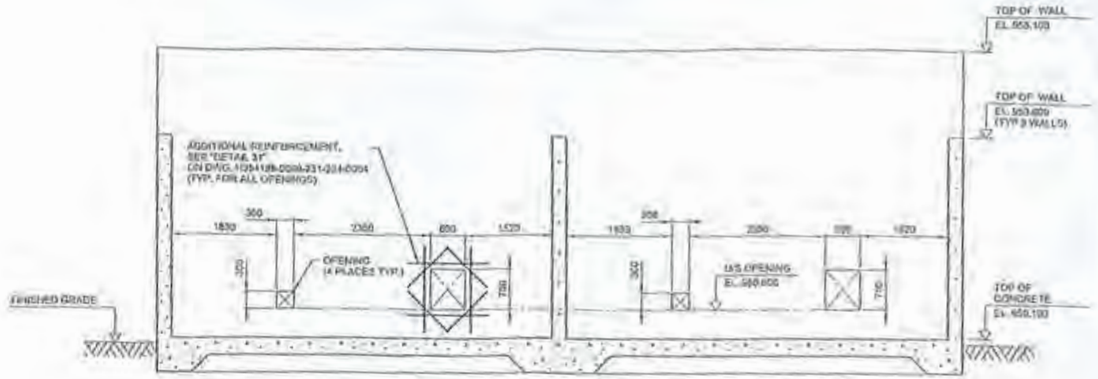
DEFICIENCIES NOTES:
VERIFY PRIOR TO POUR

CLARK BUILDERS:
INSPECTOR: _____ TITLE COORDINATOR DATE: OCT. 13/2018

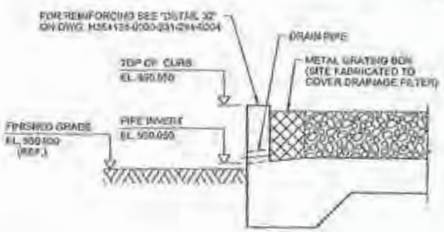
JDS ENERGY & MINING:
INSPECTOR: TAUNYA _____ TITLE _____ DATE: _____



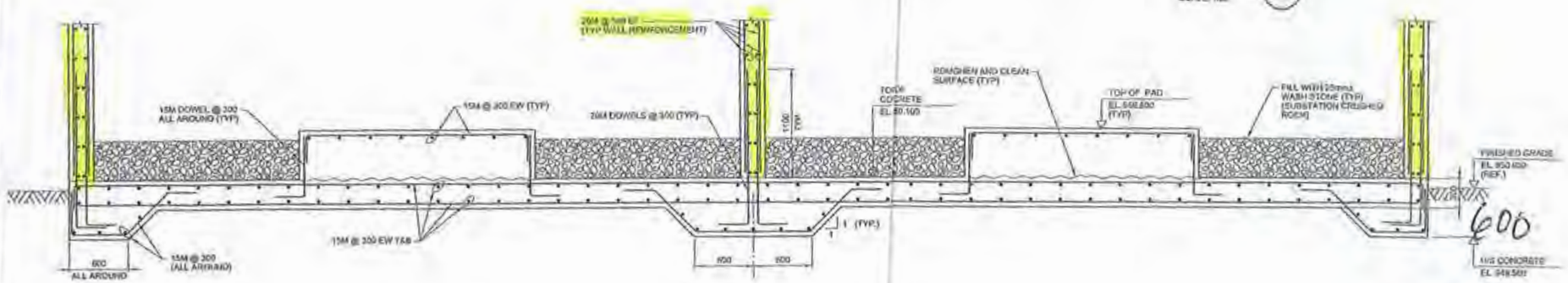

PLAN
SCALE: 1:50




SECTION C WALL OPENING DETAIL
SCALE: 1:50




SECTION B
SCALE: 1:25




SECTION A
SCALE: 1:25

NOTES:
1. FOR NOTES SEE DRAWING H354138-5710-231-260-0001.
2. SEE VENDOR STANDARD INSTALLATION DETAILS FOR Q-MAX HF DRAINAGE FILTER.
3. FOR LOCATION SEE CIVIL DWG. H354138-2000-230-270-0002.
4. FOR TRANSFORMER LAYOUT REFER TO DWG. H354138-PE004-260-270-0008.
5. ALL CABLE TRAY OPENINGS TO BE SEALED WITH FIRE STOP.

| No. | DESCRIPTION | BY | CHK'D | DATE |
|---|---|---|---|---|
| 3 | HOLD H0059 RELEASED, NOTE 5 ADDED | PJ | EA | 2018-09-07 |
| 2 | WP RE-NUMBERED | RS | EA | 2018-08-22 |
| 1 | PAD LOCATION UPDATED | RS | EA | 2018-08-21 |
| 0 | APPROVED FOR CONSTRUCTION | RS | EA | 2018-08-31 |

REVISIONS

| ROLE | NAME | SIGNATURE & DATE |
|---|---|---|
| DRAFTSPERSON | R. SAGARSARRIA | NR |
| DESIGNER | F. LIU | NR |
| CHECKER | S. AKINCI | 2018-09-07 |
| DESIGN COORD. | G. PERKINS | 2018-09-07 |
| RESP. ENG. | E. AKINCI | 2018-09-07 |
| LEAD DISC. ENG. | E. AKINCI | 2018-09-07 |
| ENG. MANAGER | B. RUSTAD | 2018-09-07 |
| PROJ. MANAGER | B. RUSTAD | 2018-09-07 |

DRAWING APPROVAL STATUS: Approved for Construction

HATCH

StrataGold Corporation

EAGLE GOLD PROJECT

ADR PROCESS PLANT BUILDING
TRANSFORMER FOUNDATION
PLAN, SECTIONS AND DETAILS

SCALE AS NOTED OR AS NOTED | DWG. No. H354138-5710-231-260-0032 | REV 3

SHEET SIZE D

DRAWING No. | DRAWING TITLE | REFERENCE DRAWINGS | REG. PROFESSIONAL

PROFESSIONAL ENGINEER YUKON TERRITORY 2018-09-07

PLANT TO PRACTICE

SPILELS PRINTED: 08-SEP-2018 Mc_pwdevlor

CLARK BUILDERS
ENERGY & RESOURCES

PROJECT MANAGER: DUSTIN DOLYNCHUK, P.ENG
QA/QC COORDINATOR: RYAN DE MILLIAND, C.E.T.
SUPERINTENDENT: GARRY DAHL

# FORMWORK & FALSEWORK PRE POUR | QA INSPECTION

Rev 01 August 23, 2016

CONTRACTOR: Clark Builders
INSPECTION DATE: OCT. 13/2018
CONTRACTOR CONTACT PERSON: GREG WATSON
DATE OF POUR:
INSPECTOR(S): JACKSON WENGER
LOCATION: ADR: PLANT 5710 TK & BLAST WALLS
DRAWING REV: 3
DRAWING NO.(S): 5710/0032
SPEC SECTION(S): 033000

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Location, survey, dimension and grades as required | ☑ | ☐ | ☐ |
| 2.0 | Plumbness and Flatness verified | ☑ | ☐ | ☐ |
| 3.0 | Joints are aligned and watertight. | ☑ | ☐ | ☐ |
| 4.0 | Formwork shop drawings are Engineered and reviewed | ☐ | ☐ | ☑ |
| 5.0 | Re-used formwork reconditioned and treated | ☑ | ☐ | ☐ |
| 6.0 | Formwork and ties according to finishing requirements. Confirm no holes in the concrete surface are greater than 25mm in diameter or expose steel at less than 25mm from surface. As per spec. | ☑ | ☐ | ☐ |
| 7.0 | Installation of embeds are located and secured | ☐ | ☐ | ☑ |
| 8.0 | Chamfer requirements checked. 25mm chamfers required for all exterior corners and edges exposed to view including horizontal edges of pads | ☑ | ☐ | ☐ |
| 9.0 | Key ways and/or other provisions according to design are provided in construction joints | ☑ | ☐ | ☐ |
| 10.0 | Inspect types of form spacers, ties and bracing. | ☑ | ☐ | ☐ |
| 11.0 | Spacing of ties to be set to a pattern | ☑ | ☐ | ☐ |
| 12.0 | Expansion, construction, contraction joints as required & located as coordinated with structural Engineer | ☑ | ☐ | ☐ |
| 13.0 | Forms secured against movement during placing | ☑ | ☐ | ☐ |
| 14.0 | Forms are braced for alignment and blow out | ☑ | ☐ | ☐ |
| 15.0 | Forms are cleaned of all debris, and dry, prior to concrete placement including standing water | ☑ | ☐ | ☐ |
| 16.0 | Openings in formwork permit inspection and cleaning, placing and compaction of concrete, and forming and processing of construction joints. | ☑ | ☐ | ☐ |
| 17.0 | Formwork has been coated with release agent prior to rebar placement. | ☑ | ☐ | ☐ |
| 18.0 | Anchor Bolts and Embeds are secured to formwork. | ☐ | ☐ | ☑ |

COMMENTS:
VERIFY PRIOR TO POUR

ATTACHMENT(S):

DEFICIENCIES NOTES:

INITIAL INSPECTION
INSPECTOR: JACKSON WENGER TITLE COORDINATOR DATE: OCT. 13/2018

RE-INSPECTION (DEFICIENCIES COMPLETED)
INSPECTOR: [signature] / TRUNK TITLE DATE:

CLARK BUILDERS
ENERGY & RESOURCES

PROJECT MANAGER: DUSTIN DOLYNCHUK, P.ENG
QA/QC COORDINATOR: RYAN DE MILLIANO, C.E.T.
SUPERINTENDENT: GARRY DAHL

# CONCRETE REINFORCEMENT PRE POUR

Rev 01 August 25, 2018

| | |
|---|---|
| SUBCONTRACTOR: Ultimate Reinforcing // McNish | INSPECTION DATE: OCT 13 2018 |
| SUBCONTRACTOR CONTACT PERSON: JIMMY MONCHENTON | PROJ. POUR DATE: |
| INSPECTOR(S): JACOBON WENGER | |
| LOCATION: | |
| DRAWING REV: 3 | DRAWING NO.(S): 5710/00332 |
| SPEC SECTION(S): S03 20 00 – Concrete Reinforcing Steel | |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Grade (400W unless otherwise noted) and type of steel delivered and installed as required by approved drawings. | ☑ | ☐ | ☐ |
| 2.0 | Inspect rebar distribution, spacing and cover per design/project requirements. SEE COMMENT | ☐ | ☐ | ☐ |
| 3.0 | Length of splices as specified | ☑ | ☐ | ☐ |
| 4.0 | Staggered splices as specified | ☑ | ☐ | ☐ |
| 5.0 | Any mechanical splices have been approved by the owner prior to install | ☑ | ☐ | ☐ |
| 6.0 | Bars cleaned and free of material that may reduce bond including loose rust, scale, oil, structural defects and that they are uncoated and unpainted. | ☑ | ☐ | ☐ |
| 7.0 | Dowels at wall ends, construction joints, and openings as specified (length, location, size, etc.) | ☑ | ☐ | ☐ |
| 8.0 | No unauthorized field bent bars including hooks installed | ☑ | ☐ | ☐ |
| 9.0 | Resolve conflicts between embedded items and reinforcement | ☑ | ☐ | ☐ |
| 10.0 | When authorized, field bends done without heat and inspected for fissures or cracks. | ☑ | ☐ | ☐ |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 11.0 | Bars tied and supported to prevent displacement | ☑ | ☐ | ☐ |
| 12.0 | Spacers, tie wire and chairs as required SEE COMMENT | ☐ | ☐ | ☐ |
| 13.0 | Conduits at design location and minimum separation from rebar as specified | ☑ | ☐ | ☐ |
| 14.0 | No contact of bars is made with dissimilar metals as per CSA A23.1 | ☑ | ☐ | ☐ |
| 15.0 | Bars, nails or tie wire not sticking out from surfaces that allow rusting/corrosion | ☑ | ☐ | ☐ |
| 16.0 | Rebar welds are inspected by qualified inspectors certified to CSA W178.2 | ☐ | ☐ | ☑ |
| 17.0 | No rebar congestion or other obstruction for deposit of concrete | ☑ | ☐ | ☐ |
| 18.0 | Adjustments required for interfering items (piping, inserts, sleeves, etc.) have been submitted and approved by owner | ☑ | ☐ | ☐ |
| 19.0 | Rebar was stored off ground to prevent damage/corrosion | ☑ | ☐ | ☐ |
| 20.0 | Review drawings for anchors, piping, sleeves, boxes | ☑ | ☐ | ☐ |

COMMENTS:

REINFORCING NOT CHECKED AT TIME OF INSPECTION
OPENING ADDITIONAL REINFORCING TO BE
INSTALLED PRIOR TO FINAL CLOSING FORMS

ATTACHMENT(S):

DEFICIENCIES NOTES:

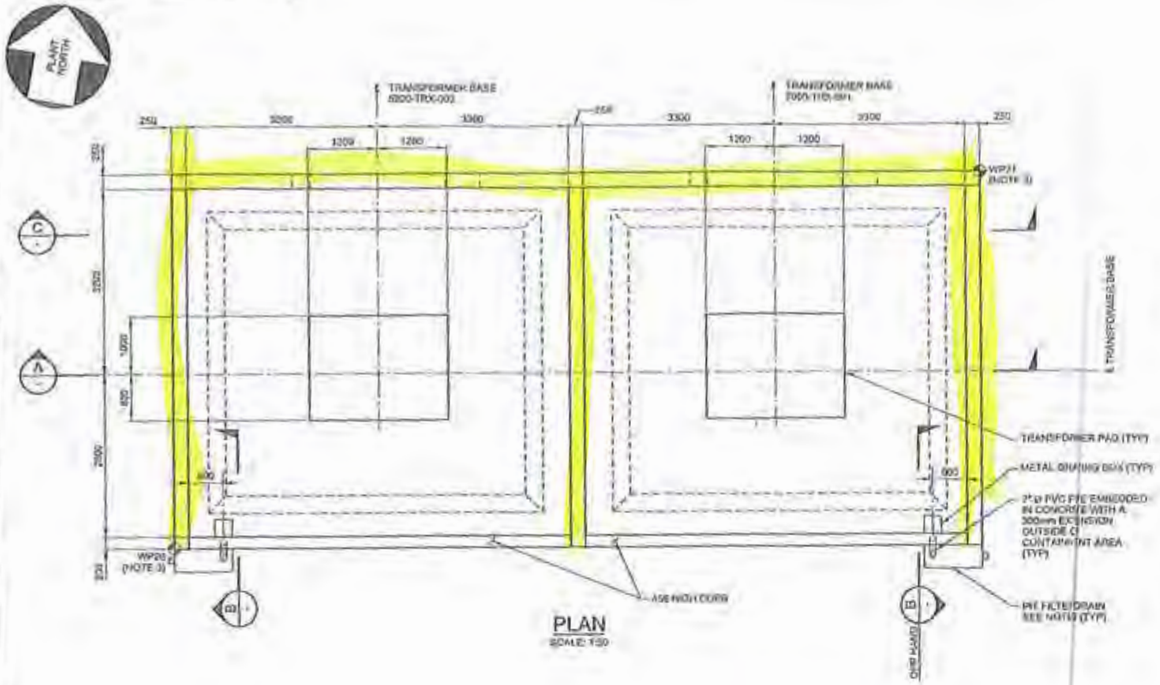
VERIFY PRIOR TO POUR

CLARK BUILDERS:

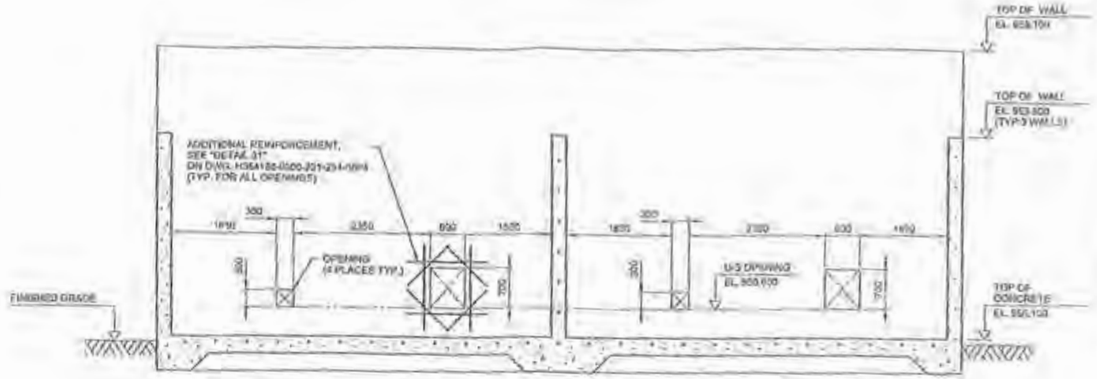
INSPECTOR: _____ TITLE: COORDINATOR DATE: OCT. 13/2018

JDS ENERGY & MINING:

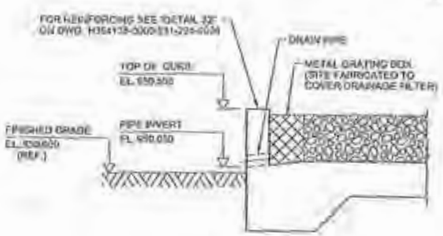
INSPECTOR: TAWNYA TITLE: _____ DATE: _____



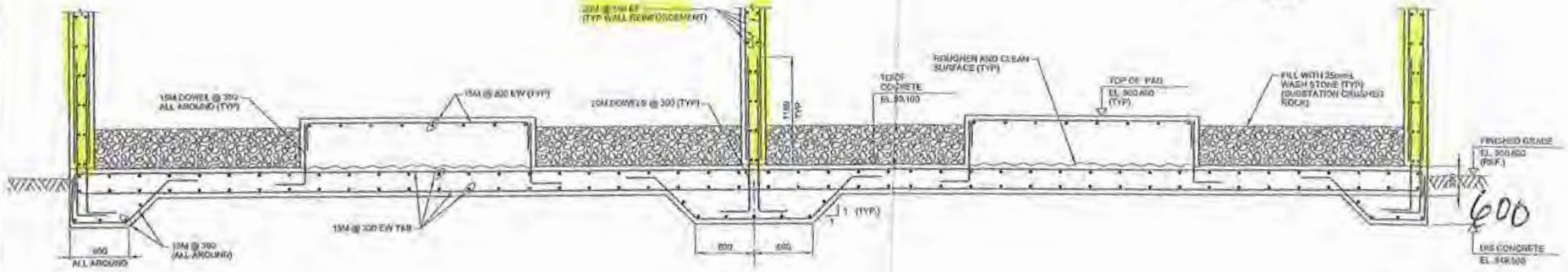

PLAN
SCALE: 1:50




SECTION C WALL OPENING DETAIL
SCALE: 1:50




SECTION B
SCALE: 1:25




SECTION A
SCALE: 1:25

NOTES:
1. FOR NOTES SEE DRAWING H354138-5710-231-260-0001.
2. SEE VENDOR STANDARD INSTALLATION DETAILS FOR Q-MAX HP DRAINAGE FILTER.
3. FOR LOCATION SEE CIVIL DWG. H354138-0000-220-270-0002.
4. FOR TRANSFORMER LAYOUT REFER TO DWG. H354138-PE004-260-270-0006.
5. ALL CABLE TRAY OPENINGS TO BE SEALED WITH FIRE STOP.

| DRAWING No. | DRAWING TITLE |
|---|---|
| REFERENCE DRAWINGS | |

REG. PROFESSIONAL

| No. | DESCRIPTION | BY | CHKD | DATE |
|---|---|---|---|---|
| 3 | HOLD H0006 RELEASED, NOTE 5 ADDED | PJ | EA | 2018-09-07 |
| 2 | WP RE-NUMBERED | RS | EA | 2018-08-22 |
| 1 | PAD LOCATION UPDATED | RS | EA | 2018-08-21 |
| 0 | APPROVED FOR CONSTRUCTION | RS | EA | 2018-08-21 |

REVISIONS

HATCH

| ROLE | NAME | SIGNATURE & DATE |
|---|---|---|
| DRAFTSPERSON | R. SAGUASARRIA | NR |
| DESIGNER | F. MU | NR |
| CHECKER | E. AKINCI | 2018-09-07 |
| DESIGN COORD. | S. PERKINS | 2018-09-07 |
| RESP. ENG. | E. AKINCI | 2018-09-07 |
| LEAD DISC. ENG. | E. AKINCI | 2018-09-07 |
| ENG. MANAGER | B. RUSTAD | 2018-09-07 |
| PROJ. MANAGER | B. RUSTAD | 2018-09-07 |

DRAWING APPROVAL STATUS: Approved by Construction

StrataGold Corporation

EAGLE GOLD PROJECT

ADR PROCESS PLANT BUILDING
TRANSFORMER FOUNDATION
PLAN, SECTIONS AND DETAILS

SCALE: AS NOTED
DWG. No. H354138-5710-231-260-0032
REV 3
SHEET SIZE: D

# CONCRETE POST POUR INSPECTION

Rev 03 May 4, 2018

| | |
|---|---|
| INSPECTOR(S): JACKSON WENGER | SPEC SECTION(S): 503 30 00 – Cast-In-Place |
| TYPE OF FINISH: BACK RUB | DATE OF INSPECTION: OCT. 13 2018 |
| AREA AND LOCATION(s): 5M O BARREN SOL. TANK | |

| GENERAL REQUIREMENTS | PASS | FAIL | N/A | REMARKS |
|---|---|---|---|---|
| Curing compounds not used on any surface against which additional concrete or materials are to be bonded. | ☑ | ☐ | ☐ | |
| Fresh concrete barricaded/ protected from mechanical disturbance. | ☑ | ☐ | ☐ | |
| Where concrete is used for filling, the chipped opening shall not be less than 75mm in depth. | ☑ | ☐ | ☐ | |
| Patches exposed to view shall blend with surrounding surfaces. | ☑ | ☐ | ☐ | |
| Contractor shall clean all exposed concrete surfaces of all encrustations of cement, mortar, or grout and shall remove unsightly stains. | ☑ | ☐ | ☐ | |
| Concrete appears proper and devoid of any honeycomb, cold joints, droppings or other defects | ☑ | ☐ | ☐ | |
| Removal of all concrete rubble and dispose of at an appropriate location. | ☑ | ☐ | ☐ | |
| Surface of concrete finished against forms has a smooth, dense finish free from cracks, free from projections, pits, and honeycomb and in proper alignment. | ☑ | ☐ | ☐ | |
| OLD WEATHER REQUIREMENTS (WHEN AMB. TEMP < 5°C) | PASS | FAIL | N/A | REMARKS |
| Protection in place until 70% of the 28-day strength has been reached. | ☑ | ☐ | ☐ | |
| Cold weather protection provided by means of heated enclosures, coverings, insulation, or a suitable approved combination of these methods during complete curing period. | ☑ | ☐ | ☐ | |
| Water not sitting in recesses, shear pockets, groves, bolt sleeves during heat and Hoarding period. | ☑ | ☐ | ☐ | |

| | |
|---|---|
| COMMENTS: | |
| ATTACHMENT(S): | |

**INITIAL INSPECTION**

PRINT/ SIGN: JACKSON WENGER TITLE COORD-MAJOR DATE: OCT. 13

**JDS INSPECTION**

.NT/ SIGN: [signature] / TAWNYA TITLE _____ DATE: _____

CLARK BUILDERS
ENERGY & RESOURCES



PROJECT MANAGER: DUSTIN DOLYNCHUK, P.ENG
QA/QC COORDINATOR: RYAN DE MILLIANO, C.E.T.
SUPERINTENDENT: GARRY DAHL

# FORMWORK & FALSEWORK PRE POUR | QA INSPECTION

Rev 01 August 25, 2018

| | |
|---|---|
| CONTRACTOR: Clark Builders | INSPECTION DATE: October 18, 2018 |
| CONTRACTOR CONTACT PERSON: James Mandahl | DATE OF POUR: October 18, 2018 |
| INSPECTOR(S): James Mandahl | |
| LOCATION: 5710 ADR Transformer Pad // Curb | |
| DRAWING REV: 02 | DRAWING NO.(S): 570-231-260-0032 |
| SPEC SECTION(S): 503 20 00 | |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Location, survey, dimension and grades as required | X | ☐ | ☐ |
| 2.0 | Plumbness and Flatness verified | X | ☐ | ☐ |
| 3.0 | Joints are aligned and watertight | X | ☐ | ☐ |
| 4.0 | Formwork shop drawings are Engineered and reviewed | X | ☐ | ☐ |
| 5.0 | Re-used formwork reconditioned and treated | X | ☐ | ☐ |
| 6.0 | Formwork and ties according to finishing requirements. Confirm no holes in the concrete surface are greater than 25mm in diameter or expose steel at less than 25mm from surface. As per spec. | X | ☐ | ☐ |
| 7.0 | Installation of embeds are located and secured | X | ☐ | ☐ |
| 8.0 | Chamfer requirements checked. 25mm chamfers required for all exterior corners and edges exposed to view including horizontal edges of pads. | X | ☐ | ☐ |
| 9.0 | Key ways and/or other provisions according to design are provided in construction joints | ☐ | ☐ | X |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 10.0 | Inspect types of form spacers, ties and bracing. | X | ☐ | ☐ |
| 11.0 | Spacing of ties to be set to a pattern | X | ☐ | ☐ |
| 12.0 | Expansion, construction, contraction joints as required & located as coordinated with structural Engineer | ☐ | ☐ | X |
| 13.0 | Forms secured against movement during placing | X | ☐ | ☐ |
| 14.0 | Forms are braced for alignment and blow out | X | ☐ | ☐ |
| 15.0 | Forms are cleaned of all debris, and dry, prior to concrete placement including standing water. | X | ☐ | ☐ |
| 16.0 | Openings in formwork permit inspection and cleaning, placing and compaction of concrete, and forming and processing of construction joints. | X | ☐ | ☐ |
| 17.0 | Formwork has been coated with release agent prior to rebar placement. | X | ☐ | ☐ |
| 18.0 | Anchor Bolts and Embeds are secured to formwork. | X | ☐ | ☐ |

COMMENTS:

ATTACHMENT(S):

DEFICIENCIES NOTES:

INITIAL INSPECTION
INSPECTOR: James Mandahl TITLE: Foreman DATE: October 18, 2018

RE-INSPECTION (DEFICIENCIES COMPLETED)
INSPECTOR: Matt C TITLE: Field Eng DATE: Oct 19, 2018

CLARK BUILDERS
ENERGY & RESOURCES

# CONCRETE REINFORCEMENT PRE POUR

Rev01 August 25, 2018

SUBCONTRACTOR: Ultimate Reinforcing // McNish
INSPECTION DATE: October 18, 2018
SUBCONTRACTOR CONTACT PERSON: Clayton
PROJ. POUR DATE: October 18, 2018
INSPECTOR(S): James Meadall
LOCATION: 5710 ADR Transformer Pad // Curbs
DRAWING REV: 02
DRAWING NO.(S): 5710-231-260-0032
SPEC SECTION(S): 503 20 00 – Concrete Reinforcing Steel

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Grade (400W unless otherwise noted) and type of steel delivered and installed as required by approved drawings. | ☑ | ☐ | ☐ |
| 2.0 | Inspect rebar distribution, spacing and cover per design/project requirements. | ☑ | ☐ | ☐ |
| 3.0 | Length of splices as specified | ☑ | ☐ | ☐ |
| 4.0 | Staggered splices as specified | ☑ | ☐ | ☐ |
| 5.0 | Any mechanical splices have been approved by the owner prior to install | ☐ | ☐ | ☑ |
| 6.0 | Bars cleaned and free of material that may reduce bond including loose rust, scale, oil, structural defects and that they are uncoated and unpainted. | ☑ | ☐ | ☐ |
| 7.0 | Dowels at wall ends, construction joints, and openings as specified (length, location, size, etc.) | ☑ | ☐ | ☐ |
| 8.0 | No unauthorized field bent bars including hooks installed | ☑ | ☐ | ☐ |
| 9.0 | Resolve conflicts between embedded items and reinforcement | ☑ | ☐ | ☐ |
| 10.0 | When authorized, field bends done without heat and inspected for fissures or cracks | ☐ | ☐ | ☑ |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 11.0 | Bars tied and supported to prevent displacement | ☑ | ☐ | ☐ |
| 12.0 | Spacers, tie wire and chairs as required | ☑ | ☐ | ☐ |
| 13.0 | Conduits at design location and minimum separation from rebar as specified | ☑ | ☐ | ☐ |
| 14.0 | No contact of bars is made with dissimilar metals as per CSA A23.1 | ☑ | ☐ | ☐ |
| 15.0 | Bars, nails or tie wire not sticking out from surfaces that allow rusting/corrosion | ☑ | ☐ | ☐ |
| 16.0 | Rebar welds are inspected by qualified inspectors certified to CSA W178.2 | ☑ | ☐ | ☐ |
| 17.0 | No rebar congestion or other obstruction for deposit of concrete | ☑ | ☐ | ☐ |
| 18.0 | Adjustments required for interfering items (piping, inserts, sleeves, etc.) have been submitted and approved by owner. | ☑ | ☐ | ☐ |
| 19.0 | Rebar was stored off ground to prevent damage/corrosion | ☑ | ☐ | ☐ |
| 20.0 | Review drawings for anchors, piping, sleeves, boxes | ☑ | ☐ | ☐ |

COMMENTS:

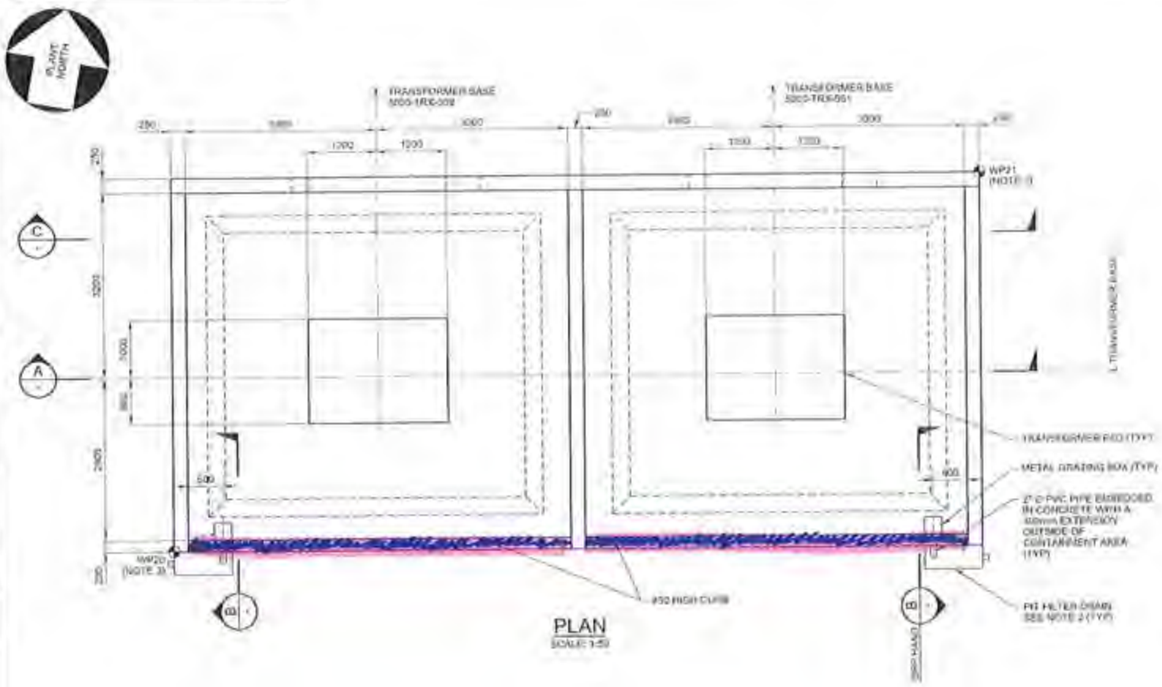
ATTACHMENT(S):
Drwg (Highlighted)

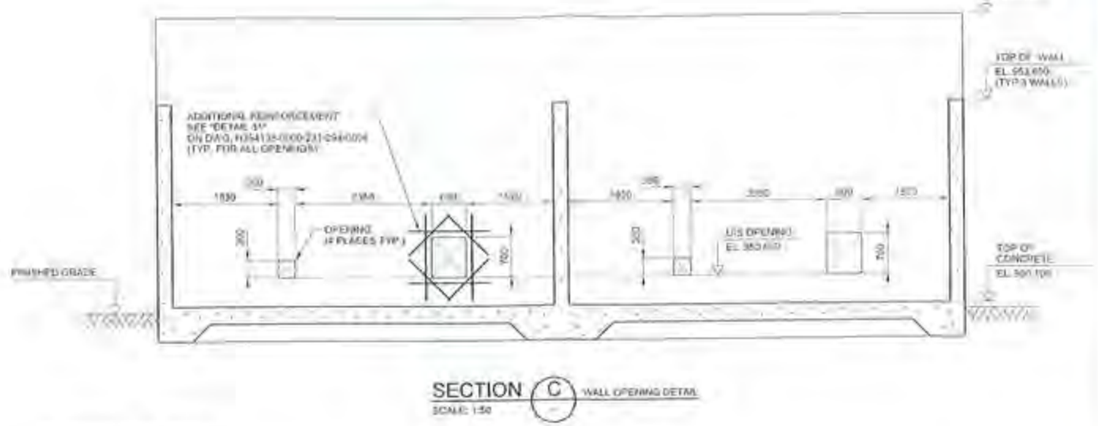
DEFICIENCIES NOTES:

CLARK BUILDERS:
INSPECTOR: James Meadall // TITLE: Foreman DATE: October 18, 2018

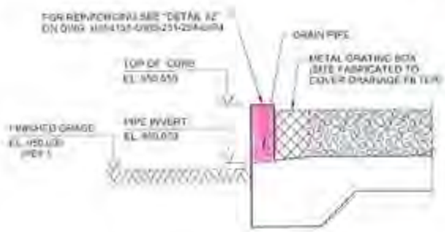
JDS ENERGY & MINING:
INSPECTOR: Matt Coverdale MC TITLE: Field Eng DATE: Oct 19, 2018
↳ Matt was asked if he would like to inspect the curbs prior to pour. Matt noted that he will not need to inspect curbs and that Jones inspection will be adequate.
. Inspected by JDS Jerry C MC

DWG. No. H354138-5710-231-260-0032

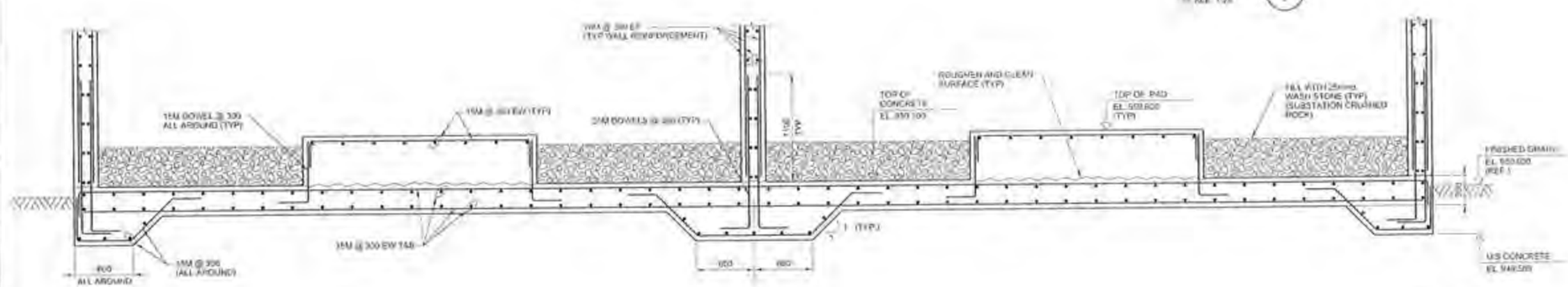



SECTION C WALL OPENING DETAIL
SCALE 1:50




SECTION B
SCALE 1:25




SECTION A
SCALE 1:50

NOTES:

1. FOR NOTES SEE DRAWING H354138-5710-231-260-0001.
2. SEE VENDOR STANDARD INSTALLATION DETAILS FOR CHANGE OF DRAINAGE FILTER.
3. FOR LOCATION SEE CIVIL DWG. H354138-2000-220-0010-0001.
4. FOR TRANSFORMER LAYOUT REFER TO DWG. H354138-PE004-260-270-0036.
5. ALL CABLE TRAY OPENINGS TO BE SEALED WITH FIRE STOP.

| No. | DESCRIPTION | BY | CHK'D | DATE |
|---|---|---|---|---|
| 3 | HOLD H1059 RELEASED, NOTE 5 ADDED | PJ | EA | 2018-09-07 |
| 2 | WP RE-NUMBERED | RS | EA | 2018-08-22 |
| 1 | PAD LOCATION UPDATED | RS | EA | 2018-08-21 |
| 0 | APPROVED FOR CONSTRUCTION | RS | EA | 2018-06-21 |

REVISIONS

| DRAWING No. | DRAWING TITLE |
|---|---|
| REFERENCE DRAWINGS | |

REG. PROFESSIONAL

2018-09-07

| | | | |
|---|---|---|---|
| DRAFTSPERSON | R. SAGARSARSA | | |
| DESIGNER | F. LIU | | |
| CHECKER | E. AKINCI | | 2018-09-07 |
| DESIGN COORD | S. PERSONS | | 2018-09-07 |
| RESP. ENG. | E. AKINCI | | 2018-09-07 |
| LEAD DISC. ENG. | E. AKINCI | | 2018-09-07 |
| ENG. MANAGER | B. RUSTAD | | 2018-09-07 |
| PROJ. MANAGER | B. RUSTAD | | 2018-09-07 |
| ROLE | NAME | SIGNATURE & DATE | |
| DRAWING APPROVAL STATUS: | Approved for Construction | | |

HATCH

StrataGold Corporation

EAGLE GOLD PROJECT

ADR PROCESS PLANT BUILDING
TRANSFORMER FOUNDATION
PLAN, SECTIONS AND DETAILS

| SCALE | DWG. No. | REV |
|---|---|---|
| AS NOTED (24"x36") | H354138-5710-231-260-0032 | 3 |

SHEET SIZE: D

PLOTTED: 06-SEP-2018 17:08

CLARK BUILDERS
ENERGY & RESOURCES



# GROUT PRE POUR | QA INSPECTION

Rev 00 May 4, 2018

| | |
|---|---|
| SUBCONTRACTOR: Clark Builders | INSPECTION DATE: Oct 21, 2018 |
| SUBCONTRACTOR CONTACT PERSON: Peter Nice | ACTION BY: Peter Nice |
| INSPECTOR(S): Peter Nice | |
| LOCATION: ADR (INDUCTION FURNACE PLATE) | |
| DRAWING REV: 1 | DRAWING NO.(S): -5710-231-260-0031 / SPEC SECTION(S): |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Grout material is an approved product for the project. | ☑ | ☐ | ☐ |
| 2.0 | Grout manufacturer instructions followed with regards to handling, mixing, preparing, pouring, finishing and curing | ☑ | ☐ | ☐ |
| 3.0 | Surfaces free of any oil, grease, dirt and dust. | ☑ | ☐ | ☐ |
| 4.0 | Standing water removed from surface prior to placing grout. | ☑ | ☐ | ☐ |
| 5.0 | Surface rough prior to grout placement. | ☑ | ☐ | ☐ |
| 6.0 | Nothing has been added to the grout including cement, sand, gravel or admixtures. | ☑ | ☐ | ☐ |
| 7.0 | No vibration tools used during placement of grout. | ☑ | ☐ | ☐ |
| 8.0 | Profiles of exposed surfaces to be bevelled at 45° | ☐ | ☐ | ☑ |
| 9.0 | Surface temperature of substrate within acceptable range as per manufacturer's instructions. | ☑ | ☐ | ☐ |
| 10.0 | Grout thickness a minimum of 25mm (1 inch), or as specified by drawings. 10 mm | ☑ | ☐ | ☐ |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 11.0 | Grout finish is smooth in appearance | ☑ | ☐ | ☐ |
| | | ☐ | ☐ | ☐ |
| | | ☐ | ☐ | ☐ |
| | | ☐ | ☐ | ☐ |
| | | ☐ | ☐ | ☐ |
| | | ☐ | ☐ | ☐ |
| | | ☐ | ☐ | ☐ |
| | | ☐ | ☐ | ☐ |
| | | ☐ | ☐ | ☐ |

COMMENTS:

H354138-5710-231-260-0031 Attached

ATTACHMENT(S):

DEFICIENCIES NOTES:

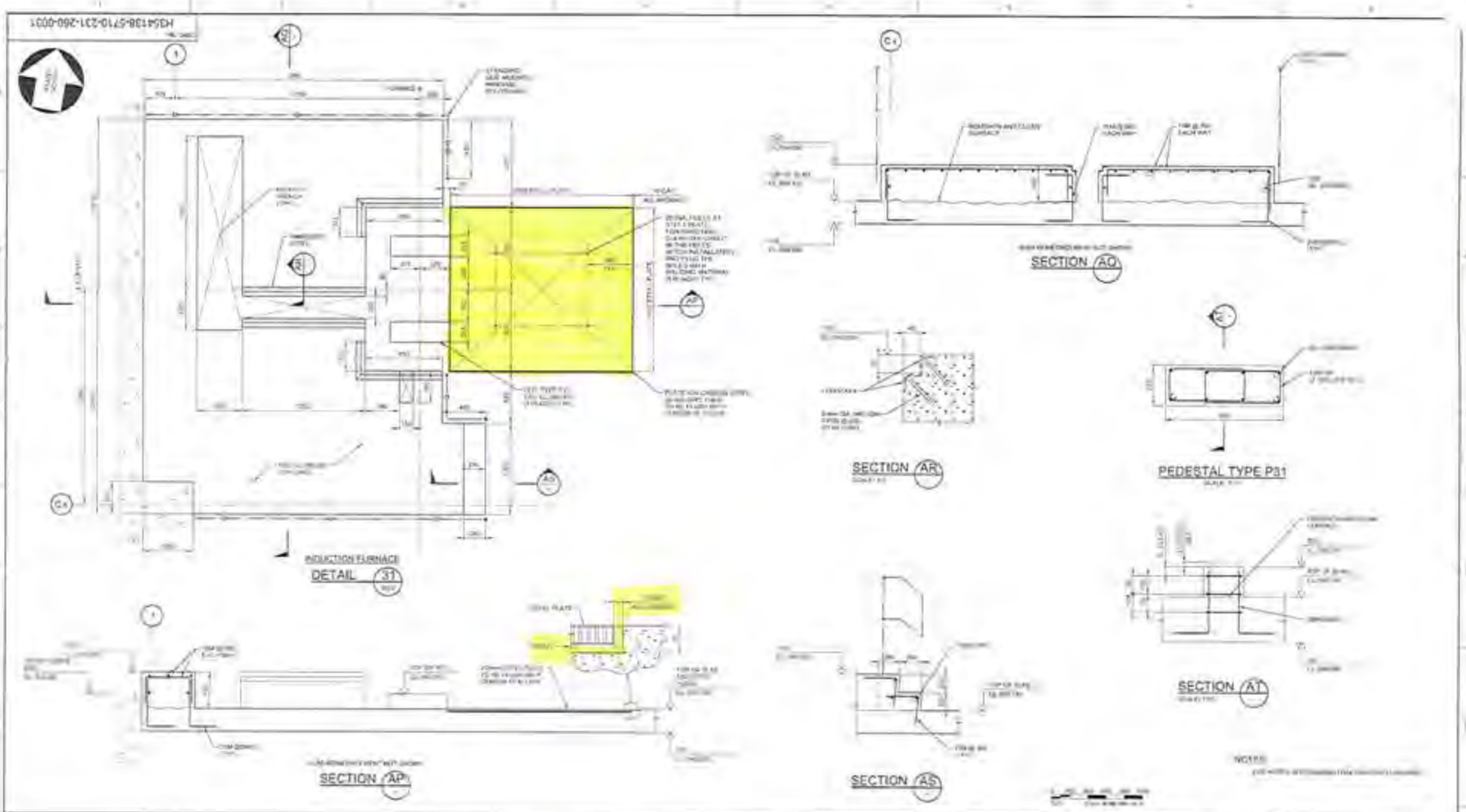
INITIAL INSPECTION

INSPECTOR: Peter Nice & ADR TITLE Superintendent DATE: Oct 21/18

RE-INSPECTION (DEFICIENCIES COMPLETED)

INSPECTOR: _____ TITLE: _____ DATE: _____

H354136-5710-231-260-0031




HATCH

StrataGold Corporation

EAGLE GOLD PROJECT

ADR PROCESS PLANT BUILDING
SLAB ON GRADE
PLAN, SECTIONS AND DETAILS - SHEET 6

DWG No. H354136-5710-231-260-0031

REV 1

CLARK BUILDERS
ENERGY & RESOURCES

# GROUT PRE POUR | QA INSPECTION

Rev 00 May 4, 2018

| | |
|---|---|
| SUBCONTRACTOR: Clark Builders | INSPECTION DATE: Oct 21, 2018 |
| SUBCONTRACTOR CONTACT PERSON: Peter Nice | ACTION BY: Peter Nice |
| INSPECTOR(S): Peter Nice | |
| LOCATION: ADR (INDUCTION FURNACE PLATE) | |
| DRAWING REV: 1 | DRAWING NO.(S): 5710-231-260-0031 / SPEC SECTION(S): |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Grout material is an approved product for the project. | ☑ | ☐ | ☐ |
| 2.0 | Grout manufacturer instructions followed with regards to handling, mixing, preparing, pouring, finishing and curing | ☑ | ☐ | ☐ |
| 3.0 | Surfaces free of any oil, grease, dirt and dust. | ☑ | ☐ | ☐ |
| 4.0 | Standing water removed from surface prior to placing grout. | ☑ | ☐ | ☐ |
| 5.0 | Surface rough prior to grout placement. | ☑ | ☐ | ☐ |
| 6.0 | Nothing has been added to the grout including cement, sand, gravel or admixtures. | ☑ | ☐ | ☐ |
| 7.0 | No vibration tools used during placement of grout. | ☑ | ☐ | ☐ |
| 8.0 | Profiles of exposed surfaces to be bevelled at 45° | ☐ | ☐ | ☑ |
| 9.0 | Surface temperature of substrate within acceptable range as per manufacturer's instructions. | ☑ | ☐ | ☐ |
| 10.0 | Grout thickness a minimum of 25mm (1 inch), or as specified by drawings. 10 mm | ☑ | ☐ | ☐ |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 11.0 | Grout finish is smooth in appearance | ☑ | ☐ | ☐ |
| | | ☐ | ☐ | ☐ |
| | | ☐ | ☐ | ☐ |
| | | ☐ | ☐ | ☐ |
| | | ☐ | ☐ | ☐ |
| | | ☐ | ☐ | ☐ |
| | | ☐ | ☐ | ☐ |
| | | ☐ | ☐ | ☐ |
| | | ☐ | ☐ | ☐ |

COMMENTS:

H354138-5710-231-260-0031 Attached

ATTACHMENT(S):

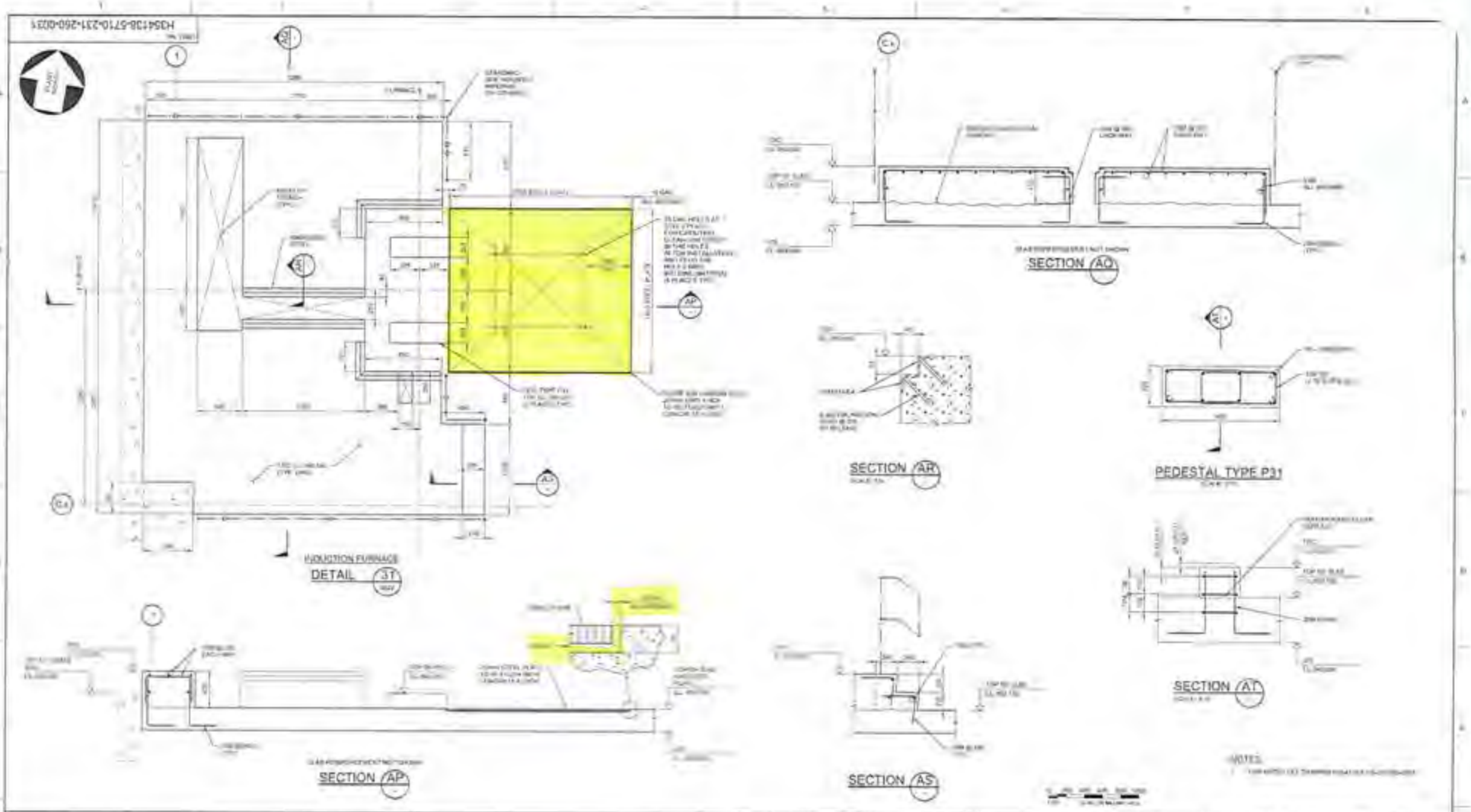
DEFICIENCIES NOTES:

INITIAL INSPECTION

INSPECTOR: Peter Nice & AD TITLE Superintendent DATE: Oct 21/18

RE-INSPECTION (DEFICIENCIES COMPLETED)

INSPECTOR: _____ TITLE _____ DATE: _____




HATCH

StrataGold

EAGLE GOLD PROJECT

ADR PROCESS PLANT BUILDING
SLAB ON GRADE
PLAN, SECTIONS AND DETAILS - SHEET 6

H354138-5710-231-260-0031

1

CLARK BUILDERS
ENERGY & RESOURCES

PROJECT MANAGER: DUSTIN DOLYNCHUK, P.ENG
QA/QC COORDINATOR: RYAN DE MILLIANO, C.E.T
SUPERINTENDENT: GARRY DAHL

# FORMWORK & FALSEWORK PRE POUR | QA INSPECTION

Rev 00 May 4, 2018

| | |
|---|---|
| SUBCONTRACTOR: CLARK BUILDERS | INSPECTION DATE: |
| SUBCONTRACTOR CONTACT PERSON: JAMES MEADAHL | DATE OF POUR: |
| INSPECTOR(S): | |
| LOCATION: ADR PLANT GL 10-12/B#-E BARREN SOL. SUMP TANK | |
| DRAWING REV: 1 | DRAWING NO.(S): 1001188-510-201-260-0006 |
| SPEC SECTION(S): 03 10 00 | |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Location, survey, dimension and grades as required | ☑ | ☐ | ☐ |
| 2.0 | Plumbness and Flatness verified | ☑ | ☐ | ☐ |
| 3.0 | Joints are aligned and watertight. | ☐ | ☐ | ☑ |
| 4.0 | Formwork shop drawings are Engineered and reviewed | ☐ | ☐ | ☑ |
| 5.0 | Re-used formwork reconditioned and treated | ☑ | ☐ | ☐ |
| 6.0 | Formwork and ties according to finishing requirements. Confirm no holes in the concrete surface are greater than 25mm in diameter or expose steel at less than 25mm from surface. As per spec | ☑ | ☐ | ☐ |
| 7.0 | Installation of embeds are located and secured | ☐ | ☐ | ☑ |
| 8.0 | Chamfer requirements checked. 25mm chamfers required for all exterior corners and edges exposed to view including horizontal edges of pads. | ☐ | ☐ | ☑ |
| 9.0 | Key ways and/or other provisions according to design are provided in construction joints | ☑ | ☐ | ☐ |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 10.0 | Inspect types of form spacers, ties and bracing. | ☑ | ☐ | ☐ |
| 11.0 | Spacing of ties to be set to a pattern | ☑ | ☐ | ☐ |
| 12.0 | Expansion, construction, contraction joints as required & located as coordinated with structural Engineer | ☑ | ☐ | ☐ |
| 13.0 | Forms secured against movement during placing | ☑ | ☐ | ☐ |
| 14.0 | Forms are braced for alignment and blow out | ☑ | ☐ | ☐ |
| 15.0 | Forms are cleaned of all debris, and dry, prior to concrete placement including standing water. | ☑ | ☐ | ☐ |
| 16.0 | Openings in formwork permit inspection and cleaning, placing and compaction of concrete, and forming and processing of construction joints. | ☑ | ☐ | ☐ |
| 17.0 | Formwork has been coated with release agent prior to rebar placement | ☑ | ☐ | ☐ |
| | | ☐ | ☐ | ☐ |

COMMENTS:

ATTACHMENT(S):

DEFICIENCIES NOTES:

INITIAL INSPECTION

INSPECTOR: [signature] / PETER NICE TITLE Superintendent DATE:

RE-INSPECTION (DEFICIENCIES COMPLETED)

INSPECTOR: _____ TITLE: _____ DATE: _____

CLARK BUILDERS
ENERGY & RESOURCES

# CONCRETE REINFORCEMENT PRE POUR

Rev 00 May 4, 2018

| | |
|---|---|
| SUBCONTRACTOR: CLARK BUILDERS | INSPECTION DATE: |
| SUBCONTRACTOR CONTACT PERSON: | ACTION BY: |
| INSPECTOR(S): | |
| LOCATION: ADR PLANT GL 11-12 / B-E BARREN SOLUTION SUMP TANK BASE | |
| DRAWING REV: 1 | DRAWING NO.(S): 1891BB-570-231-260-0008 / SPEC SECTION(S): 03 20 00 |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Grade (400W unless otherwise noted) and type of steel delivered and installed as required by approved drawings. | ☑ | ☐ | ☐ |
| 2.0 | Inspect rebar distribution, spacing and cover per design/project requirements. | ☑ | ☐ | ☐ |
| 3.0 | Length of splices as specified | ☑ | ☐ | ☐ |
| 4.0 | Staggered splices as specified | ☑ | ☐ | ☐ |
| 5.0 | Any mechanical splices have been approved by the owner prior to install | ☐ | ☐ | ☑ |
| 6.0 | Bars cleaned and free of material that may reduce bond including loose rust, scale, oil, structural defects and that they are uncoated and unpainted. | ☑ | ☐ | ☐ |
| 7.0 | Dowels at wall ends, construction joints, and openings as specified (length, location, size, etc.) | ☑ | ☐ | ☐ |
| 8.0 | No unauthorized field bent bars including hooks installed | ☑ | ☐ | ☐ |
| | Resolve conflicts between embedded items and reinforcement | | | ☑ |
| 9.0 | When authorized, field bends done without heat and inspected for fissures or cracks. | ☐ | ☐ | ☑ |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 10.0 | Bars tied and supported to prevent displacement | ☑ | ☐ | ☐ |
| 11.0 | Spacers, tie wire and chairs as required | ☑ | ☐ | ☐ |
| 12.0 | Conduits at design location and minimum separation from rebar as specified | ☐ | ☐ | ☑ |
| 13.0 | No contact of bars is made with dissimilar metals as per CSA A23.1 | ☑ | ☐ | ☐ |
| 14.0 | Bars, nails or tie wire not sticking out from surfaces that allow rusting/corrosion | ☑ | ☐ | ☐ |
| 15.0 | Rebar is welds inspected by qualified inspectors certified to CSA W178.2 | ☐ | ☐ | ☑ |
| 16.0 | No rebar congestion or other obstruction for deposit of concrete | ☑ | ☐ | ☐ |
| 17.0 | Adjustments required for interfering items (piping, inserts, sleeves, etc.) have been submitted and approved by owner. | ☐ | ☐ | ☑ |
| 18.0 | Rebar was stored off ground to prevent damage/corrosion | ☑ | | |
| 19.0 | Review drawings for anchors, piping, sleeves, boxes | ☑ | ☐ | ☐ |

COMMENTS:

ATTACHMENT(S):

DEFICIENCIES NOTES:

INITIAL INSPECTION

INSPECTOR: _____ TITLE: _____ DATE: _____

RE-INSPECTION (DEFICIENCIES COMPLETED)

INSPECTOR: _____ TITLE: _____ DATE: _____

CLARK BUILDERS
ENERGY & RESOURCES

CB-INSPECTION FORM-DOC-002 REV.00
JDS ENERGY & MINING INC. | STRATAGOLD EAGLE GOLD
PROJECT #: CB201 | 18502

PROJECT MANAGER: DUSTIN DOLYNCHUK, P.ENG
QA/QC COORDINATOR: RYAN DE MILLIANO, C.E.T.
SUPERINTENDENT: GARRY DAHL

# CONCRETE PRE POUR | FIELD INSPECTION

Rev 00 May 4, 2018

| | |
|---|---|
| SUBCONTRACTOR: CLARK BUILDERS | INSPECTION DATE: |
| SUBCONTRACTOR CONTACT PERSON: JAMES MEADAHL | DATE OF POUR: |
| INSPECTOR(S): | |
| LOCATION: AJR PLANT | |
| DRAWING REV: 1 | DRAWING NO.(S): M55938-5710-231-200-0008 / SPEC SECTION(S): 03 30 00 |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Location, survey, dimension and grades as required | ☑ | ☐ | ☐ |
| 2.0 | Plumbness and Flatness verified | ☑ | ☐ | ☐ |
| 3.0 | Joints are aligned and watertight. | ☐ | ☐ | ☑ |
| 4.0 | Formwork shop drawings are Engineered and reviewed | ☐ | ☐ | ☑ |
| 5.0 | Re-used formwork reconditioned and treated | ☑ | ☐ | ☐ |
| 6.0 | Formwork and ties according to finishing requirements. Confirm no holes in the concrete surface are greater than 25mm in diameter or expose steel at less than 25mm from surface. As per spec. | ☑ | ☐ | ☐ |
| 7.0 | Installation of embeds are located and secured | ☐ | ☐ | ☑ |
| 8.0 | Chamfer requirements checked. 25mm chamfers required for all exterior corners and edges exposed to view including horizontal edges of pads. | ☐ | ☐ | ☑ |
| 9.0 | Key ways and/or other provisions according to design are provided in construction joints | ☑ | ☐ | ☐ |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 10.0 | Inspect types of form spacers, ties and bracing. | ☑ | ☐ | ☐ |
| 11.0 | Spacing of ties to be set to a pattern | ☑ | ☐ | ☐ |
| 12.0 | Expansion, construction, contraction joints as required & located as coordinated with structural Engineer | ☑ | ☐ | ☐ |
| 13.0 | Forms secured against movement during placing | ☑ | ☐ | ☐ |
| 14.0 | Forms are braced for alignment and blow out | ☑ | ☐ | ☐ |
| 15.0 | Forms are cleaned of all debris, and dry, prior to concrete placement including standing water. | ☑ | ☐ | ☐ |
| 16.0 | Openings in formwork permit inspection and cleaning, placing and compaction of concrete, and forming and processing of construction joints. | ☑ | ☐ | ☐ |
| 17.0 | Formwork has been coated with release agent prior to rebar placement. | ☑ | ☐ | ☐ |
| | | ☐ | ☐ | ☐ |

COMMENTS:

ATTACHMENT(S):

DEFICIENCIES NOTES:

POUR METHOD:

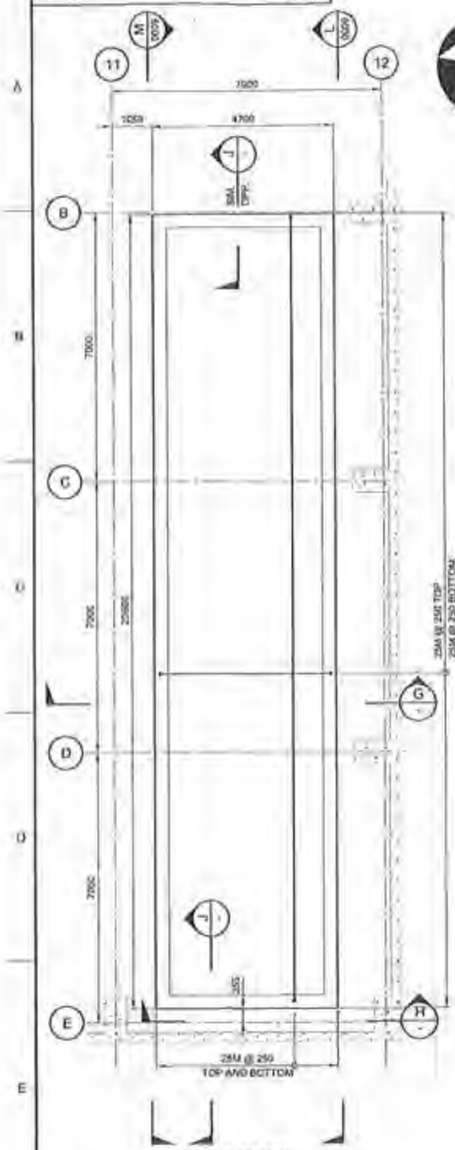
INITIAL INSPECTION

INSPECTOR: _____ TITLE _____ DATE: _____

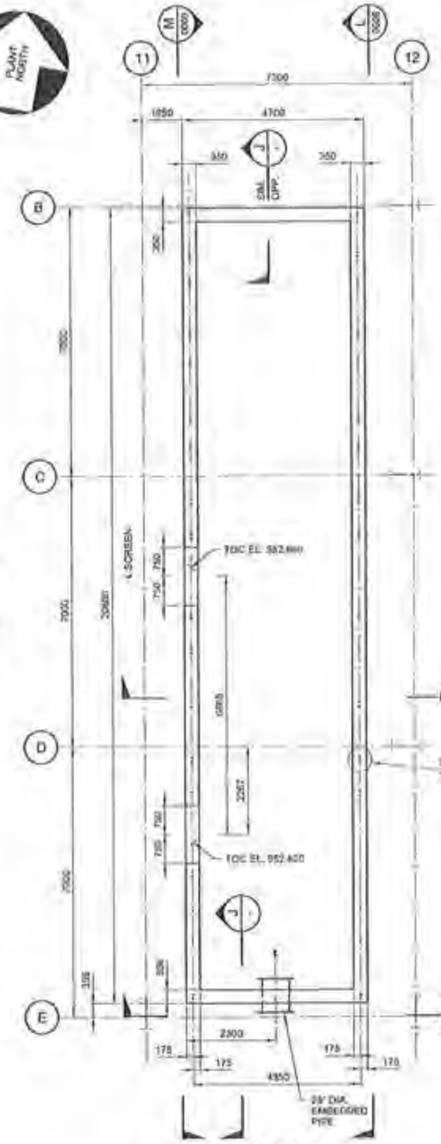
RE-INSPECTION (DEFICIENCIES COMPLETED)

INSPECTOR: _____ TITLE _____ DATE: _____

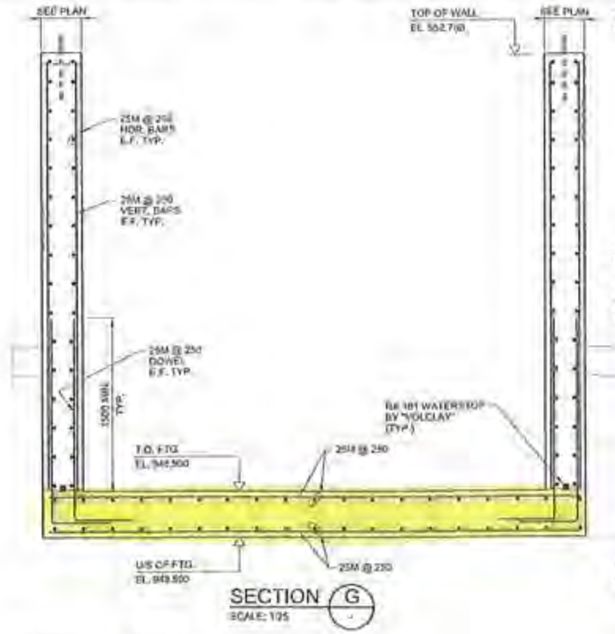
DWG. No. H354138-5710-231-260-0008



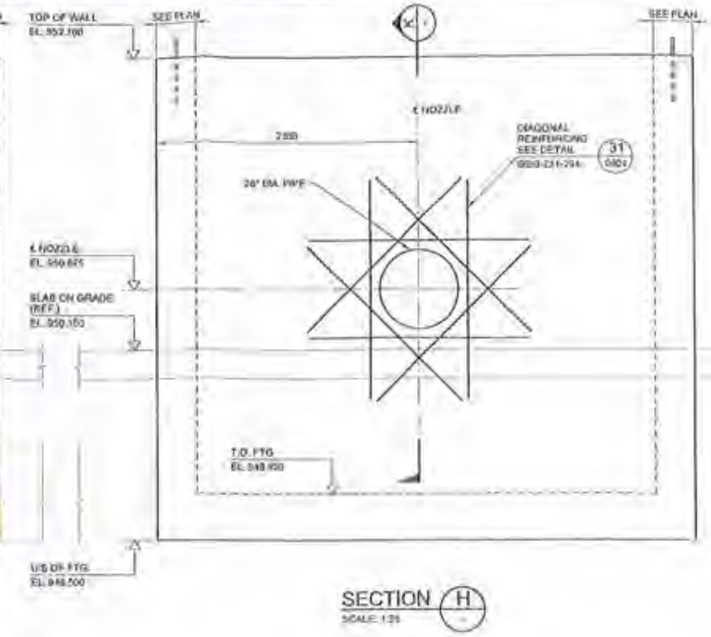

BASE PLAN
U/S OF CONCRETE SLAB EL. 948.500
SCALE: 1:75




TOP PLAN
TOP OF CONCRETE WALL EL. VCZ.708 (TYP. U/NO)
SCALE: 1:75

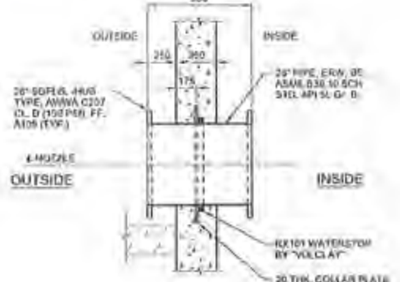



SECTION G
SCALE: 1:25




SECTION H
SCALE: 1:25




SECTION K
SCALE: 1:25




DETAIL 2
SCALE: 1:20

0 250 500 750 1000 1250
1:25 SCALE IN MILLIMETRES

0 750 1500 2250 3000 3750
1:75 SCALE IN MILLIMETRES

NOTES:
1. FOR NOTES SEE DRAWING H354138-5710-231-250-0001

# BARREN SOLUTION SUMP TANK

| DRAWING No. | DRAWING TITLE |
|---|---|
| REFERENCE DRAWINGS | |

REG. PROFESSIONAL

| No. | DESCRIPTION | BY | CHKD | DATE |
|---|---|---|---|---|
| 0 | APPROVED FOR CONSTRUCTION | PJ | EA | 2018-05-31 |

REVISIONS

HATCH

| | | | |
|---|---|---|---|
| DRAFTSPERSON | P. JIMENEZ-MENDIOLA | MR | 2018-04-10 |
| DESIGNER | F. LIU | MR | 2018-05-10 |
| CHECKER | E. AGNOLI | | |
| DESIGN COORD. | S. PERKINS | | |
| RESP. ENG. | E. AGNOLI | | |
| LEAD DISC. ENG. | E. AGNOLI | | |
| ENG. MANAGER | B. RUSTAD | | |
| PROJ. MANAGER | B. RUSTAD | | |

| ROLE | NAME | SIGNATURE & DATE |
|---|---|---|
| DRAWING APPROVAL STATUS: | Approved for Construction | |

StrataGold Corporation

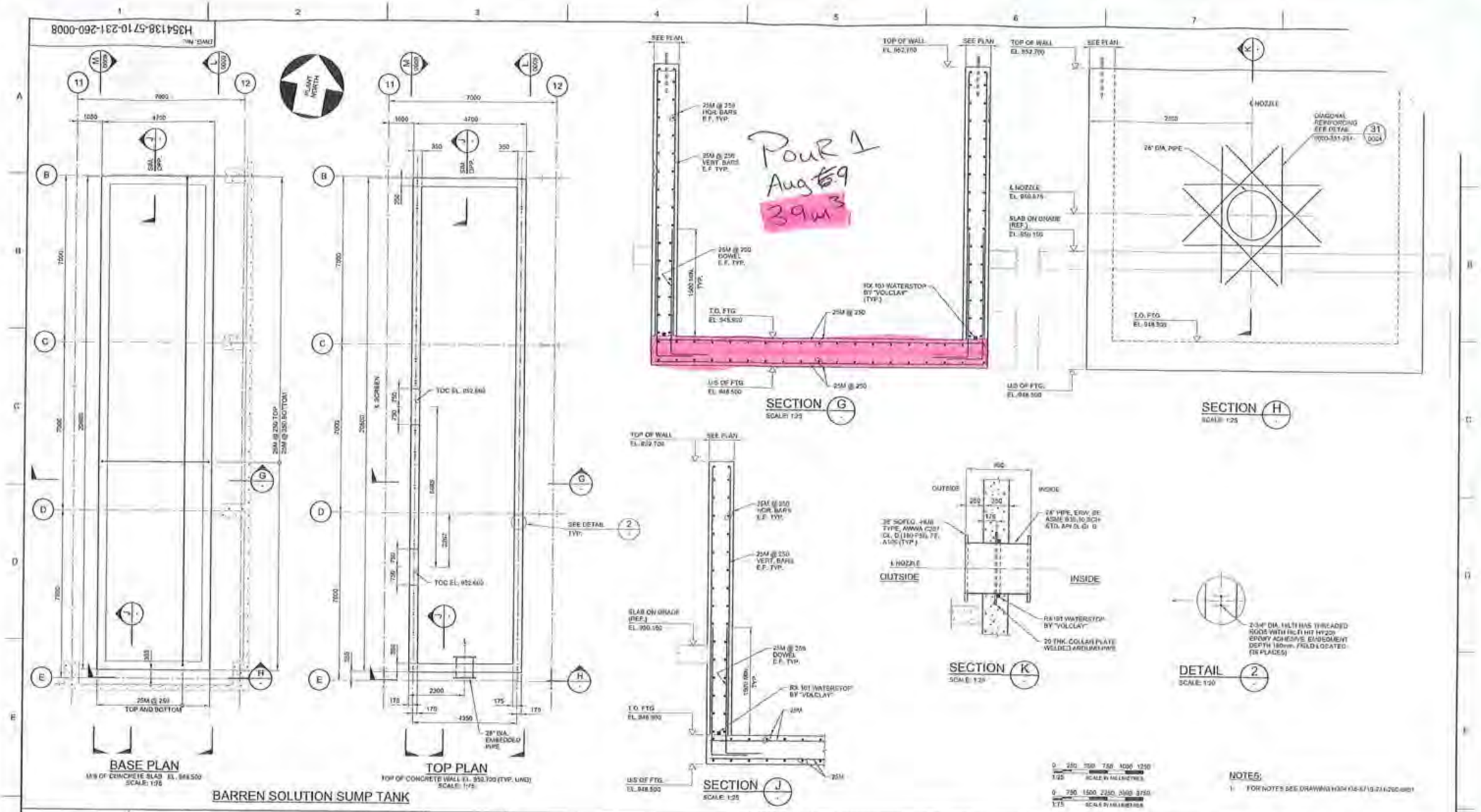
EAGLE GOLD PROJECT

ADR PROCESS PLANT BUILDING
BARREN SOLUTION SUMP TANK
PLAN, SECTIONS - SHEET 1

| SCALE | DWG. No | REV. |
|---|---|---|
| AS NOTED (IF AS NOTED) | H354138-5710-231-260-0008 | 1 |

SHEET SIZE: D

SP FILE PRINTED: 11-JUL-2018 mr_jimenezp




NOTES:

1. FOR NOTES SEE DRAWING H354138-5710-231-260-0001

| DRAWING No. | DRAWING TITLE |
|---|---|
| REFERENCE DRAWINGS | |

REG. PROFESSIONAL

| No. | DESCRIPTION | BY | CHK'D | DATE |
|---|---|---|---|---|
| 0 | APPROVED FOR CONSTRUCTION | PJ | EA | 2018-05-31 |

REVISIONS

HATCH

| | | | |
|---|---|---|---|
| DRAFTSPERSON | P. JIVAEV/E. MENDIOLA | NR | 2018-04-10 |
| DESIGNER | F. LIU | NR | 2018-04-10 |
| CHECKER | E. AKINCI | | |
| DESIGN COORD. | S. PERKINS | | |
| RESP. ENG. | E. AKINCI | | |
| LEAD DISC. ENG. | E. AKINCI | | |
| ENG. MANAGER | B. RUSTAD | | |
| PROJ. MANAGER | B. RUSTAD | | |
| ROLE | NAME | SIGNATURE & DATE | |

DRAWING APPROVAL STATUS: Approved for Construction

StrataGold Corporation

EAGLE GOLD PROJECT

ADR PROCESS PLANT BUILDING
BARREN SOLUTION SUMP TANK
PLAN, SECTIONS - SHEET 1

SCALE: AS NOTED OR AS NOTED

DWG. No: H354138-5710-231-260-0008

REV: 1

SHEET SIZE: D

CLARK BUILDERS
ENERGY & RESOURCES

CB-INSPECTION FORM-DOC-002 REV.00
JDS ENERGY & MINING INC. | STRATAGOLD EAGLE GOLD
PROJECT #: CB201 | 18502

PROJECT MANAGER: DUSTIN DOLYNCHUK, P.ENG
QA/QC COORDINATOR: RYAN DE MILLIANO, C.E.T.
SUPERINTENDENT: GARRY DAHL

# FORMWORK & FALSEWORK PRE POUR | QA INSPECTION

Rev 00 May 4, 2018

| | |
|---|---|
| SUBCONTRACTOR: CLARK BUILDERS | INSPECTION DATE: |
| SUBCONTRACTOR CONTACT PERSON: JAMES MEADAHL | DATE OF POUR: |
| INSPECTOR(S): | |
| LOCATION: ADR PLANT INTERIOR TANK FOOTINGS 6.6-7.7/A.4-B.8 & 7.9-8.5/A.4-B.8 & 9.9-10.6/A.4-B.8 | |
| DRAWING REV: 1 | DRAWING NO.(S): 1B54138-5710-231-260-0011 SPEC SECTION(S): 03 10 00 |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Location, survey, dimension and grades as required | ☑ | ☐ | ☐ |
| 2.0 | Plumbness and Flatness verified | ☑ | ☐ | ☐ |
| 3.0 | Joints are aligned and watertight | ☐ | ☐ | ☑ |
| 4.0 | Formwork shop drawings are Engineered and reviewed | ☐ | ☐ | ☑ |
| 5.0 | Re-used formwork reconditioned and treated | ☑ | ☐ | ☐ |
| 6.0 | Formwork and ties according to finishing requirements. Confirm no holes in the concrete surface are greater than 25mm in diameter or expose steel at less than 25mm from surface. As per spec. | ☑ | ☐ | ☐ |
| 7.0 | Installation of embeds are located and secured | ☐ | ☐ | ☐ |
| 8.0 | Chamfer requirements checked. 25mm chamfers required for all exterior corners and edges exposed to view including horizontal edges of pads. | ☐ | ☐ | ☐ |
| 9.0 | Key ways and/or other provisions according to design are provided in construction joints | ☐ | ☐ | ☐ |
| 10.0 | Inspect types of form spacers, ties and bracing. | ☑ | ☐ | ☐ |
| 11.0 | Spacing of ties to be set to a pattern | ☑ | ☐ | ☐ |
| 12.0 | Expansion, construction, contraction joints as required & located as coordinated with structural Engineer | ☐ | ☐ | ☐ |
| 13.0 | Forms secured against movement during placing | ☐ | ☐ | ☐ |
| 14.0 | Forms are braced for alignment and blow out | ☐ | ☐ | ☐ |
| 15.0 | Forms are cleaned of all debris, and dry, prior to concrete placement including standing water. | ☐ | ☐ | ☐ |
| 16.0 | Openings in formwork permit inspection and cleaning, placing and compaction of concrete, and forming and processing of construction joints. | ☐ | ☐ | ☐ |
| 17.0 | Formwork has been coated with release agent prior to rebar placement. | ☐ | ☐ | ☐ |
| | | ☐ | ☐ | ☐ |

COMMENTS:

ATTACHMENT(S):

DEFICIENCIES NOTES:

INITIAL INSPECTION

INSPECTOR: PAN // PETER NICE. TITLE Superintendent DATE:

RE-INSPECTION (DEFICIENCIES COMPLETED)

PECTOR: TITLE DATE:

CLARK BUILDERS
ENERGY & RESOURCES

# CONCRETE REINFORCEMENT PRE POUR

Rev 00 May 4, 2018

| | |
|---|---|
| SUBCONTRACTOR: CLARK BUILDERS | INSPECTION DATE: |
| SUBCONTRACTOR CONTACT PERSON: | ACTION BY: |
| INSPECTOR(S): | |
| LOCATION: ADR PLANT GL A.4-B.8 / 6.6-7.2, 7.9-8.5, 9.9-10.6 | |
| DRAWING REV: 1 | DRAWING NO.(S): 1354138-5710-231-260-0011 / SPEC SECTION(S): 03 20 00 |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Grade (400W unless otherwise noted) and type of steel delivered and installed as required by approved drawings. | ☐ | ☐ | ☐ |
| 2.0 | Inspect rebar distribution, spacing and cover per design/project requirements. | ☐ | ☐ | ☐ |
| 3.0 | Length of splices as specified | ☐ | ☐ | ☐ |
| 4.0 | Staggered splices as specified | ☐ | ☐ | ☐ |
| 5.0 | Any mechanical splices have been approved by the owner prior to install | ☐ | ☐ | ☐ |
| 6.0 | Bars cleaned and free of material that may reduce bond including loose rust, scale, oil, structural defects and that they are uncoated and unpainted. | ☐ | ☐ | ☐ |
| 7.0 | Dowels at wall ends, construction joints, and openings as specified (length, location, size, etc.) | ☐ | ☐ | ☐ |
| 8.0 | No unauthorized field bent bars including hooks installed | ☐ | ☐ | ☐ |
| | Resolve conflicts between embedded items and reinforcement | | | |
| 9.0 | When authorized, field bends done without heat and inspected for fissures or cracks. | ☐ | ☐ | ☐ |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 10.0 | Bars tied and supported to prevent displacement | ☐ | ☐ | ☐ |
| 11.0 | Spacers, tie wire and chairs as required | ☐ | ☐ | ☐ |
| 12.0 | Conduits at design location and minimum separation from rebar as specified | ☐ | ☐ | ☐ |
| 13.0 | No contact of bars is made with dissimilar metals as per CSA A23.1 | ☐ | ☐ | ☐ |
| 14.0 | Bars, nails or tie wire not sticking out from surfaces that allow rusting/corrosion | ☐ | ☐ | ☐ |
| 15.0 | Rebar is welds inspected by qualified inspectors certified to CSA W178.2 | ☐ | ☐ | ☐ |
| 16.0 | No rebar congestion or other obstruction for deposit of concrete | ☐ | ☐ | ☐ |
| 17.0 | Adjustments required for interfering items (piping, inserts, sleeves, etc.) have been submitted and approved by owner | ☐ | ☐ | ☐ |
| 18.0 | Rebar was stored off ground to prevent damage/corrosion | | | |
| 19.0 | Review drawings for anchors, piping, sleeves, boxes | ☐ | ☐ | ☐ |

COMMENTS:

ATTACHMENT(S):

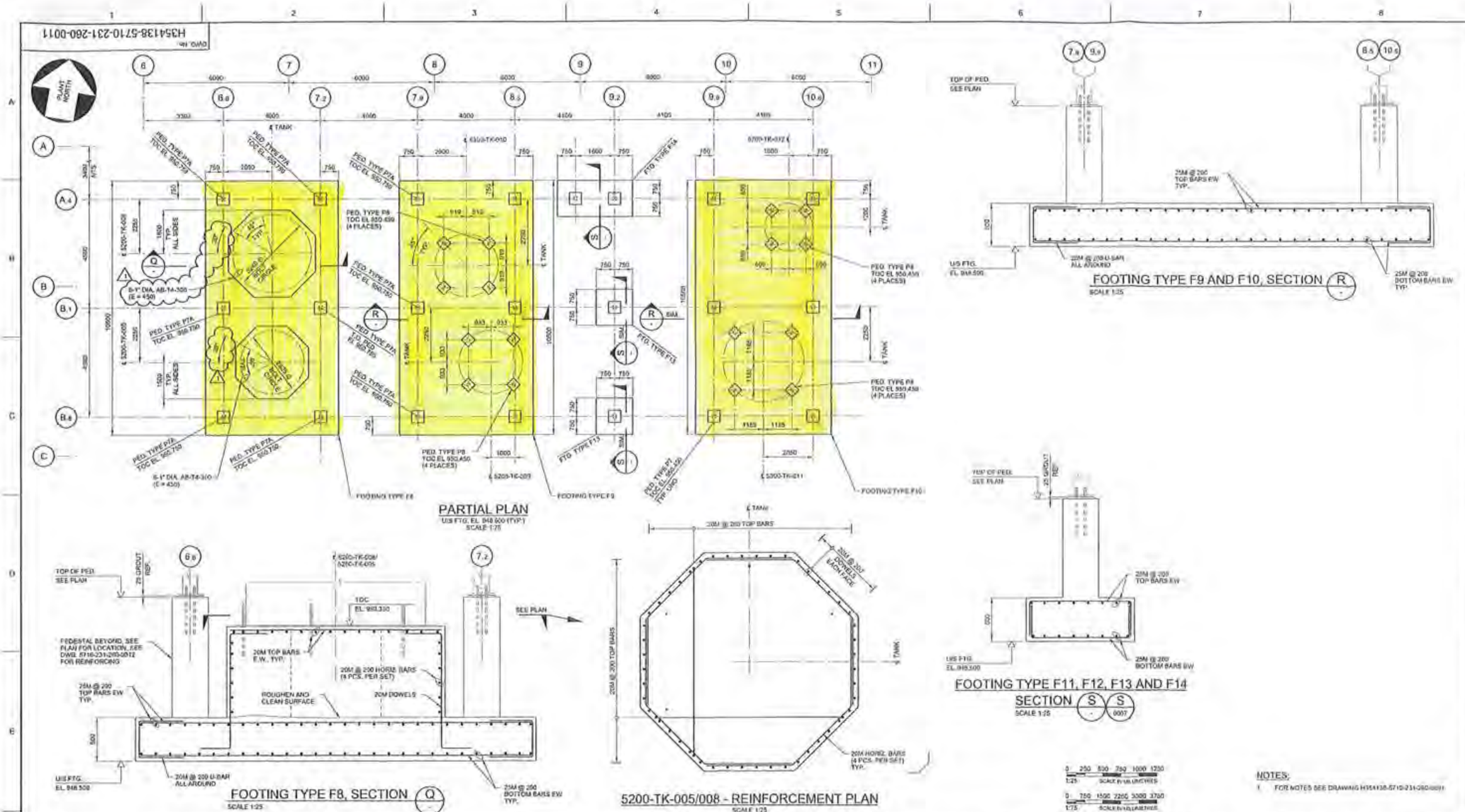
DEFICIENCIES NOTES:

INITIAL INSPECTION

INSPECTOR: _____ TITLE _____ DATE: _____

RE-INSPECTION (DEFICIENCIES COMPLETED)

INSPECTOR: _____ TITLE _____ DATE: _____




NOTES:

1. FOR NOTES SEE DRAWING H354138-5710-231-260-0011

| DRAWING No. | DRAWING TITLE | REG. PROFESSIONAL |
|---|---|---|
| REFERENCE DRAWINGS | | |

| No. | DESCRIPTION | BY | CHK'D | DATE |
|---|---|---|---|---|
| 1 | APPROVED FOR CONSTRUCTION | RS | EA | 2018-07-11 |
| 0 | APPROVED FOR CONSTRUCTION | PJ | EA | 2018-05-31 |

REVISIONS

HATCH

| ROLE | NAME | SIGNATURE & DATE |
|---|---|---|
| DRAFTSPERSON | E MENDIOLA | NR 2018-04-20 |
| DESIGNER | F. LIU | NR 2018-04-20 |
| CHECKER | E. AKINCI | |
| DESIGN COORD. | S. PERKINS | |
| RESP. ENG. | E. AKINCI | |
| LEAD DISC. ENG. | E. AKINCI | |
| ENG. MANAGER | B. RUSTAD | |
| PROJ. MANAGER | B. RUSTAD | |

DRAWING APPROVAL STATUS: Approved for Construction

StrataGold Corporation

EAGLE GOLD PROJECT

ADR PROCESS PLANT BUILDING
INTERIOR FOUNDATION
PLAN, SECTIONS AND DETAILS - SHEET 2

SCALE: AS NOTED (DEAS NOTED)

DWG. No. H354138-5710-231-260-0011

REV 1

SHEET SIZE: D

CLARK BUILDERS
ENERGY & RESOURCES

CB-FWDPL-DOC-018 Rev 1.

# Construction Walk Down Deficiency Sheet

**"A"** items To be completed before Acceptance.
**"BSU"** Items To be completed before startup.
**"BCC"** Items To be completed before contract closure.
**"C"** Items is Not in Scope.

Project Name: CB201/ 18502 StrataGold Eagle Gold Project

System Description: Concrete Installations

Walkdown Attendees: Clark Builders: Ryan de Milliano, Jackson Wenger
JDS Mining: Ishan Fechter, Matt Coverdale

Responsible Contractor: Clark Builders Energy & Resources

| Item No. | Date: (YYYY.MM.DD) | Area/ Location | Description | Discipline | Catagory (Dropdown) | Responsibility | Vendor (Dropdown) |
|---|---|---|---|---|---|---|---|
| 1 | 2018.10.28 | ADR Transformer | Finishing general on all walls, curbs, slabs. | Concrete Finishes | BCC | Clark Builders | No |
| 2 | 2018.10.28 | ADR Transformer | Sack Rub required on interior faces of blast walls | Concrete Finishes | BCC | Clark Builders | No |
| 3 | 2018.10.28 | ADR Building | Electrical Grounding conduit to be repaired and aligned properly for connection to building. | Electrical Grounding | C | JDS | No |
| 4 | 2018.10.28 | ADR Building | Remaining saw cut caulking required. (Once Building envelope is installed and interior is heated properly. | Caulking | BCC | Clark Builders | No |
| 5 | 2018.10.28 | ADR Building | GL 7.3/B Blow-off column Equip. pad Type 1 forming to be stripped and finished as required. | Concrete Finishes | BCC | Clark Builders | No |
| 6 | 2018.10.28 | ADR Building | GL A.5/6 Stair faces to be finished. | Concrete Finishes | BCC | Clark Builders | No |
| 7 | 2018.10.28 | ADR Building | General site slag removal at bases of formed structures (i.e. curbs, pedestals, walls, stairs, etc.) | Concrete Finishes | BCC | Clark Builders | No |
| 8 | 2018.10.28 | ADR Building | Induction furnace plate requires lifting hook to be removed and ground down to smooth surface. | Steel | BCC | Clark Builders | No |
| 9 | 2018.10.28 | ADR Building | Induction furnace corner not flush with concrete, concrete to be flush with the plate. | Concrete Finishes | BCC | Clark Builders | No |
| 10 | 2018.10.28 | ADR Building | Induction furnace channel between pads to be patched. | Concrete Finishes | BCC | Clark Builders | No |

CLARK BUILDERS
ENERGY & RESOURCES

CB-FWDPL-DOC-018 Rev 1.

# Construction Walk Down Deficiency Sheet

**"A"** items To be completed before Acceptance.
**"BSU"** Items To be completed before startup.
**"BCC"** Items To be completed before contract closure.
**"C"** Items is Not in Scope.

Project Name: CB201/ 18502 StrataGold Eagle Gold Project

System Description: Concrete Installations

Walkdown Attendees: Clark Builders: Ryan de Milliano, Jackson Wenger
JDS Mining: Ishan Fechter, Matt Coverdale

Responsible Contractor: Clark Builders Energy & Resources

| Item No. | Date: (YYYY.MM.DD) | Area/ Location | Description | Discipline | Catagory (Dropdown) | Responsibility | Vendor (Dropdown) |
|---|---|---|---|---|---|---|---|
| 11 | 2018.10.28 | ADR Building | GL. 2/A.5 Anchor Bolt to be threaded down to correct location. Current extra washers installed to support the bolts. | Anhor Bolts | BCC | Clark Builders | No |
| 12 | 2018.10.28 | ADR Building | As per RFI 74, Pad poured 45mm too high required to be chipped down 30mm. | Concrete Structure | BCC | Clark Builders | No |
| 13 | 2018.10.28 | ADR Building | Air pockets in concrete, general, to be patched. | Concrete Finishes | BCC | Clark Builders | No |
| 14 | | | | | | | |
| 15 | | | | | | | |

CLARK BUILDERS
ENERGY & RESOURCES

# StrataGold Eagle Gold Project

## System/ Area Construction Completion Certificate

| | | |
|---|---|---|
| **Project No.:** 18502 / CB201 | **Contractor Name:** Clark Builders Energy & Resources | **PARTIAL:** ☐ **FINAL:** ☒ |
| **System No.:** N/A | **T/O Package No.:** 01 | |

**System/Component/Area Description:**
5710 ADR Process Plant Building Concrete Installations for Building Foundation
5710 ADR Transformer Foundation Concrete Installations

**Punch list Items: (Attached)**
5710 ADR Process Plant Building and Transformer Foundation Concrete Installations.

We the Area Works Subcontractor assures that the above mentioned System/Area has been constructed inspected, tested and punch listed in accordance with the applicable drawings and specifications and is considered Construction Complete. All supporting drawings and documents have been reviewed, acceptable, and ready for handing over. Punch List Items may be completed after acceptance of the System/Area.

**Turnover Package Punch List Attached:** **Yes:** ☒ **No:** ☐

| Discipline | CB PM Representative | | CB Quality Representative | | Client (JDS) Representative | |
|---|---|---|---|---|---|---|
| Civil / Structural | Name | GARY DAHL | Name | Ryan deMilliano | Name | |
| | Sign | | Sign | | Sign | |
| Mechanical | Name | N/A | Name | N/A | Name | N/A |
| | Sign | N/A | Sign | N/A | Sign | N/A |
| Mechanical - Plumbing | Name | N/A | Name | N/A | Name | N/A |
| | Sign | N/A | Sign | N/A | Sign | N/A |
| Piping | Name | N/A | Name | N/A | Name | N/A |
| | Sign | N/A | Sign | N/A | Sign | N/A |
| Electrical | Name | GARY DAHL | Name | RYAN deMILLIANO | Name | |
| | Sign | | Sign | | Sign | |
| Insulation | Name | N/A | Name | N/A | Name | N/A |
| | Sign | N/A | Sign | N/A | Sign | N/A |
| Quality | Name | GARY DAHL | Name | Ryan deMilliano | Name | |
| | Sign | | Sign | | Sign | |

The System/Area defined by the following System/Area Turnover Package is complete and is hereby ready for Construction Completion Acceptance.

**CB PROJECT MANAGER:** _____ **DATE:** Oct 30 2018

**CB SITE PROJECT /QUALITY:** Ryan deMilliano **DATE:** OCTOBER 30, 2018

**CLIENT/OWNER PROJECT MANAGER:** _____ **DATE:** _____

# CHRONOLOGICAL CONCRETE TEST RESULTS

| | | | | | |
|---|---|---|---|---|---|
| Project: | Eagle Gold Project - Secondary Crusher | Supplier: | Lafarge | Project No.: | WARC03235-05 |
| Client: | JDS | Plant Location: | Access Road - km 42.5 | Date Tested | July 16 - Aug 6, 2018 |
| Attention: | Mr. J. Graham/I. Fecher/J. Chrzaszcz | Cement Type: | 70:30 | Tested By: | J.Purves/J.Buyck |
| Copies to: | Clark/Lafarge | Design Strength | 30 MPa @ 28-days | Page: | 1 of 7 |

| Test Number | Date Cast | Ticket Number | Location and Element | 3-Day Result | 3-Day Break Date | 7-Day (MPa) a | 7-Day (MPa) F.C. | 7-Day Break Date | 28-Day a | 28-Day b | 28-Day Break Date |
|---|---|---|---|---|---|---|---|---|---|---|---|
| T-1 | July 16 2018 | | 30MPa Trial Batch (blocks) | - | 19-Jul | - | - | 23-Jul | - | | 13-Aug |
| T-2 | July 17 2018 | | 30MPa Trial Batch (blocks) | 22.4 | 20-Jul | 26.6 | - | 24-Jul | - | | 14-Aug |
| T-3 | July 17 2018 | | 30MPa Trial Batch (blocks) | 15.7 | 20-Jul | 20.4 | - | 24-Jul | - | | 14-Aug |
| T-4 | July 17 2018 | | 10MPa Trial Batch (blocks) | 5.3 | 20-Jul | 12.4 | - | 24-Jul | - | | 14-Aug |
| T-5 | July 21 2018 | | 30 MPa Trial Batch (blocks) | 18.0 | 24-Jul | 24.0 | - | 28-Jul | 36.4 | 31.6 | 18-Aug |
| T-6 | July 23 2018 | 194089 | ADR Footings | 28.9 | 26-Jul | 31.3 | - | 30-Jul | 48.9 | 47.8 | 20-Aug |
| T-7 | July 24 2018 | 194101 | ADR Footings | 20.9 | 27-Jul | 26.3 | - | 31-Jul | 39.9 | 40.7 | 21-Aug |
| T-8 | July 26 2018 | 194112 | ADR - Footing Block GL E12 | 25.7 | 29-Jul | 32.0 | - | 31-Jul | 44.5 | 44.5 | 23-Aug |
| T-9 | July 26 2018 | 194119 | ADR - E- 11 Footings | 21.9 | 17-Oct | 28.7 | - | 31-Jul | 42.2 | 42.2 | 11-Nov |
| T-10 | July 27 2018 | 194126 | ADR Footings | 25.8 | 30-Jul | 36.7 | - | 31-Jul | 45.7 | 45.7 | 24-Aug |
| T-11 | July 27 2018 | 194131 | Secondary Footings | 23.4 | 30-Jul | 29.3 | 24.2* | 31-Jul | 45.7 | 45.7 | 24-Aug |
| T-12 | July 29 2018 | 194139 | Secondary Footings | 21.7 | 01-Aug | 28.7 | 24.0* | 31-Jul | 40.0 | 40.0 | 26-Aug |
| T-13 | July 29 2018 | 194144 | Secondary Footings | 24.5 | 01-Aug | 30.9 | 24.9* | 31-Jul | 41.6 | 41.6 | 26-Aug |
| T-14 | Aug 2 2018 | 194160 | Secondary Footings | 24.2 | 05-Aug | 25.7 | 22.4* | 31-Jul | 45.1 | 45.1 | 30-Aug |
| T-15 | Aug 2 2018 | 194172 | Secondary Footings | 16.8 | 05-Aug | 23.7 | 20.3* | 31-Jul | 32.6 | 32.6 | 30-Aug |
| T-16 | Aug 3 2018 | 194182 | Secondary Footings | 21.1 | 06-Aug | 31.1 | - | 31-Jul | 39.0 | 39.0 | 31-Aug |
| T-17 | Aug 3 2018 | 194197 | Secondary Footings | 22.6 | 06-Aug | 34.4 | - | 31-Jul | 42.4 | 42.4 | 31-Aug |
| T-18 | Aug 5 2018 | 194230 | Secondary Footings | 17.6 | 08-Aug | 23.6 | - | 31-Jul | 31.0 | 31.0 | 02-Sep |
| T-19 | Aug 5 2018 | 194255 | Secondary Footings | 21.9 | 08-Aug | 30.6 | - | 31-Jul | 40.2 | 40.2 | 02-Sep |
| T-20 | Aug 6 2018 | 194265 | ADR Grade Beam 1-E | 33.3 | 09-Aug | 36.1 | - | 31-Jul | 46.2 | 46.2 | 03-Sep |
| | | | | | | | | | | | |

**Remarks:** F.C. = Field Cure

**Reviewed By:** _____ P.Eng.

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# CHRONOLOGICAL CONCRETE TEST RESULTS

| | | | | | |
|---|---|---|---|---|---|
| Project: | Eagle Gold Project - Secondary Crusher | Supplier: | Lafarge | Project No.: | WARC03235-05 |
| Client: | JDS | Plant Location: | Access Road - km 42.5 | Date Tested | Aug 9 to Aug 21, 2018 |
| Attention: | Mr. J. Graham/I. Fecher/J. Chrzaszcz | Cement Type: | 70:30 | Tested By: | J.Purves/J.Buyck |
| Copies to: | Clark/Lafarge | Design Strength | 30 MPa @ 28-days | Page: | 2 of 7 |

| Test Number | Date Cast | Ticket Number | Location and Element | 3-Day Result | 3-Day Break Date | 7-Day (MPa) a | 7-Day (MPa) F.C. | 7-Day Break Date | 28-Day(MPa) a | 28-Day(MPa) b | 28-Day Break Date |
|---|---|---|---|---|---|---|---|---|---|---|---|
| T-21 | Aug 9 2018 | 194281 | ADR Pads | 24.5 | 13-Aug | 34.5 | - | 17-Aug | 44.9 | 41.6 | 07-Sep |
| T-22 | Aug 10 2018 | 194288 | ADR - Barren Solution Sump | 30.3 | 13-Aug | 36.3 | - | 17-Aug | 44.6 | 45.0 | 07-Sep |
| T-23 | Aug 10 2018 | 194294 | Secondary Crusher - Gr Beams | 24.2 | 13-Aug | 34.8 | - | 17-Aug | 43.6 | 43.3 | 07-Sep |
| T-24 | Aug 11 2018 | 194303 | ADR - Footings F10 & F9 | 28.9 | 14-Aug | 35.5 | - | 18-Aug | 44.2 | 44.8 | 08-Sep |
| T-25 | Aug 11 2018 | - | **Trial Batch Adjusted Mix** | 2-day/18.2 | 13-Aug | 31.6 | - | 18-Aug | 40.5 | 40.4 | 07-Sep |
| T-26 | Aug 14 2018 | 194314 | Secondary Crusher - Gr Beams/Pilasters | 21.7 | 17-Aug | 29.8 | - | 21-Aug | 36.6 | 39.0 | 11-Sep |
| T-27 | Aug 14 2018 | 194322 | ADR - Grade Beams/Pilasters/Footings | 21.7 | 17-Aug | 27.1 | - | 21-Aug | 34.2 | 34.5 | 11-Sep |
| T-28 | Aug 15 2018 | 194333 | ADR - Footing Type 8; Octagon Footing GL 5/3/D5 | 28.1 | 18-Aug | 32.4 | - | 22-Aug | 42.0 | 39.2 | 12-Sep |
| T-29 | Aug 16 2018 | 194342 | Secondary Crusher Beam/Pilasters | 24.9 | 17-Oct | 29.1 | - | 21-Oct | 39.7 | 34.1 | 11-Nov |
| T-30 | Aug 18 2018 | 194358 | ADR - Footing Columns | 23.8 | 21-Aug | 28.4 | 31.4* | 25-Aug | 38.9 | 38.4 | 15-Sep |
| T-31 | Aug 19 2018 | 194372 | Secondary Crusher Base Slab (first lift) | 23.3 | 22-Aug | 28.9 | 24.2 | 26-Aug | 37.1 | 37.8 | 16-Sep |
| T-32 | Aug 19 2018 | 194381 | Secondary Crusher Base Slab (first lift) | 21.1 | 22-Aug | 27.2 | 22.7 | 26-Aug | 36.0 | 36.4 | 16-Sep |
| T-33 | Aug 19 2018 | 194387 | Secondary Crusher Base Slab (first lift) | 20.3 | 22-Aug | 25.7 | 22.5 | 26-Aug | 33.7 | 33.1 | 16-Sep |
| T-34 | Aug 19 2018 | 194389 | Secondary Crusher Base Slab (first lift) | 20.8 | 22-Aug | 27.3 | 23.9 | 26-Aug | 35.9 | 36.5 | 16-Sep |
| T-35 | Aug 19 2018 | 194396 | Secondary Crusher Base Slab (first lift) | 20.8 | 22-Aug | 27.6 | 23.5 | 26-Aug | 37.4 | 36.7 | 16-Sep |
| T-36 | Aug 19 2018 | 194401 | Secondary Crusher Base Slab (first lift) | 21.8 | 22-Aug | 27.0 | 23.3 | 26-Aug | 37.1 | 36.4 | 16-Sep |
| T-37 | Aug 20 2018 | 194425 | Secondary Crusher Base Slab (last lift) | 22.8 | 23-Aug | 28.6 | 25.2 | 27-Aug | 38.7 | 38.3 | 17-Sep |
| T-38 | Aug 20 2018 | 194441 | Secondary Crusher Base Slab (last lift) | 18.6 | 23-Aug | 25.0 | 21.3 | 27-Aug | 35.0 | 36.2 | 17-Sep |
| T-39 | Aug 20 2018 | 194444 | Secondary Crusher Base Slab (last lift) | 18.5 | 23-Aug | 25.4 | 22.2 | 27-Aug | 34.2 | 34.8 | 17-Sep |
| T-40 | Aug 21 2018 | 194467 | ADR Octogon & Gridline 4-5, A | 20.4 | 24-Aug | 25.2 | 22.6 | 28-Aug | 37.4 | 36.3 | 18-Sep |
| | | | | | | | | | | | |

**Remarks:** F.C. = Field Cure / *14-Day

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# CHRONOLOGICAL CONCRETE TEST RESULTS

| | | | | | |
|---|---|---|---|---|---|
| Project: | Eagle Gold Project - Secondary Crusher | Supplier: | Lafarge | Project No.: | WARC03235-05 |
| Client: | JDS | Plant Location: | Access Road - km 42.5 | Date Tested | Aug 22 to Sep 3, 2018 |
| Attention: | Mr. J. Graham/I. Fecher/J. Chrzaszcz | Cement Type: | 70:30 | Tested By: | J.Purves/J.Buyck |
| Copies to: | Clark/Lafarge | Design Strength | 30 MPa @ 28-days | Page: | 3 of 7 |

| Test Number | Date Cast | Ticket Number | Location and Element | 3-Day Result | 3-Day Break Date | 7-Day (MPa) - | 7-Day (MPa) F.C. | 7-Day Break Date | 28-Day(MPa) a | 28-Day(MPa) b | 28-Day Break Date |
|---|---|---|---|---|---|---|---|---|---|---|---|
| T-41 | Aug 22 2018 | 194475 | Secondary Crusher Grade Beam 3-4, E | 17.9 | 25-Aug | 22.9 | 21.0* | 29-Aug | 32.7 | 32.0 | 19-Sep |
| T-42 | Aug 23 2018 | 194479 | Primary Crusher Slab (Bottom Lift) | 21.8 | 26-Aug | 26.9 | 27.2 | 30-Aug | 39.6 | 31.1 | 20-Sep |
| T-43 | Aug 23 2018 | 194494 | Primary Crusher Slab (Bottom Lift) | 22.6 | 26-Aug | 27.4 | 28.6 | 30-Aug | 36.3 | 37.8 | 20-Sep |
| T-44 | Aug 23 2018 | 194518 | Primary Crusher Slab (Bottom Lift) | 23.1 | 26-Aug | 30.7 | 30.2 | 30-Aug | 39.9 | 38.8 | 20-Sep |
| T-45 | Aug 24 2018 | | Primary Crusher Slab (Top Lift) | 22.3 | 27-Aug | 26.9 | 24.8 | 31-Aug | 36.7 | 36.5 | 21-Sep |
| T-46 | Aug 24 2018 | | Primary Crusher Slab (Top Lift) | 21.9 | 27-Aug | 27.3 | 24.5 | 31-Aug | 38.0 | 36.6 | 21-Sep |
| T-47 | Aug 24 2018 | 194563 | Primary Crusher Slab (Top Lift) | 19.4 | 27-Aug | 24.0 | 22.2 | 31-Aug | 34.5 | 34.4 | 21-Sep |
| T-48 | Aug 25 2018 | 194565 | ADR - Pedestals | 20.2 | 28-Aug | 24.1 | 21.4 | 01-Sep | 38.5 | 37.7 | 22-Sep |
| T-49 | Aug 25 2018 | | Secondary Crusher Pedestals | 20.2 | 17-Oct | 24.1 | 21.4 | 21-Oct | 34.1 | 34.1 | 11-Nov |
| T-50 | Aug 26 2018 | 194575 | ADR Octogon | 22.1 | 29-Aug | 27.2 | 22.3 | 02-Sep | 37.2 | 36.5 | 23-Sep |
| T-51 | Aug 27 2018 | 194580 | ADR Slab | 23.0 | 30-Aug | 29.3 | 24.2 | 03-Sep | 40.2 | 39.4 | 24-Sep |
| T-52 | Aug 27 2018 | 194594 | ADR Slab | 22.5 | 30-Aug | 28.7 | 24.0 | 03-Sep | 37.8 | 37.0 | 24-Sep |
| T-53 | Aug 27 2018 | 194615 | ADR Slab | 24.2 | 30-Aug | 30.9 | 24.9 | 03-Sep | 41.0 | 40.2 | 24-Sep |
| T-54 | Aug 28 2018 | 194620 | Secondary Crusher Wall | 23.1 | 31-Aug | 25.7 | 22.4 | 04-Sep | 35.5 | 35.9 | 25-Sep |
| T-55 | Aug 28 2018 | 194626 | Secondary Crusher Wall | 20.4 | 31-Aug | 23.7 | 20.3 | 04-Sep | 28.8 | 33.9 | 25-Sep |
| T-56 | Aug 29 2018 | 194631 | ADR Solution Tank | 21.9 | 01-Sep | 26.7 | 22.8 | 05-Sep | 39.8 | 39.4 | 26-Sep |
| T-57 | Aug 31 2018 | 194645-6 | ADR Interior Pedestals | 22.9 | 03-Sep | 28.8 | 25.2 | 07-Sep | 40.3 | 38.6 | 28-Sep |
| T-58 | Sep 1 2018 | 194649 | Secondary Crusher Interior Wall (2nd) | 19.7 | 04-Sep | 26.3 | 21.3 | 08-Sep | 37.8 | 39.3 | 29-Sep |
| T-59 | Sep 1 2018 | 194652 | Secondary Crusher Interior Wall (2nd) | 19.7 | 04-Sep | 25.2 | 20.2 | 08-Sep | 37.3 | 35.3 | 29-Sep |
| T-60 | Sep 3 2018 | 194670 | ADR - GL 1 - E | 21.5 | 06-Sep | 24.2 | ** | 10-Sep | 34.9 | 35.1 | 01-Oct |
| T-61 | Sep 3 2018 | 194675 | ADR - Slab GL 1-2, Near GL C | 21.5 | 06-Sep | 19.3 | ** | 10-Sep | 32.4 | 30.6 | 01-Oct |

**Remarks:** F.C. = Field Cure / *Denotes 14-day field cure

**Beeing held for 56-day testing

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# CHRONOLOGICAL CONCRETE TEST RESULTS

| | | | | | |
|---|---|---|---|---|---|
| Project: | Eagle Gold Project - Secondary Crusher | Supplier: | Lafarge | Project No.: | WARC03235-05 |
| Client: | JDS | Plant Location: | Access Road - km 42.5 | Date Tested | Sept 4 to Sept 18, 2018 |
| Attention: | Mr. J. Graham/I. Fecher/J. Chrzaszcz | Cement Type: | 70:30 | Tested By: | J.Purves/J.Buyck |
| Copies to: | Clark/Lafarge | Design Strength | 30 MPa @ 28-days | Page: | 4 of 7 |

| Test Number | Date Cast | Ticket Number | Location and Element | 3-Day Result | 3-Day Break Date | 7-Day (MPa) a | 7-Day (MPa) F.C. | 7-Day Break Date | 28-Day(MPa) a | 28-Day(MPa) b | 28-Day Break Date |
|---|---|---|---|---|---|---|---|---|---|---|---|
| T-62 | Sep 4 2018 | 194685 | Secondary Crusher - Column | 21.9 | 07-Sep | 25.3 | 23.0 | 11-Sep | 35.4 | 34.3 | 02-Oct |
| T-63 | Sep 6 2018 | 194697 | Primary Crusher - Walls 1st Level | 20.2 | 09-Sep | 26.9 | 22.6 | 13-Sep | 38.1 | 37.6 | 04-Oct |
| T-64 | Sep 6 2018 | 194708 | Primary Crusher - Walls 1st Level | 22.4 | 09-Sep | 31.2 | 25.7 | 13-Sep | 41.6 | 41.5 | 04-Oct |
| T-65 | Sep 6 2018 | 194717 | Primary Crusher - Walls 1st Level | 21.2 | 09-Sep | 25.4 | 21.5 | 13-Sep | 35.9 | 35.6 | 04-Oct |
| T-66 | Sep 7 2018 | 194726 | Primary Crusher - Walls 1st Level | 18.0 | 10-Sep | 24.8 | 23.6 | 14-Sep | 34.4 | 34.7 | 05-Oct |
| T-67 | Sep 9 2018 | 194732 | Secondary Crusher - Pedestals | 13.1 | 12-Sep | 17.9 | 15.2 | 16-Sep | 24.0 | 26.6 | 07-Oct |
| T-68 | Sep 10 2018 | 194739 | ADR - Slab on Grade GL 3 to 6 | 26.1 | 13-Sep | 33.3 | 25.4 | 17-Sep | 37.7 | 38.0 | 08-Oct |
| T-69 | Sep 10 2018 | 194994 | ADR - Slab on grade GL 3 to 6 | 20.0 | 13-Sep | 27.2 | 20.7 | 17-Sep | 31.6 | 32.4 | 08-Oct |
| T-70 | Sep 12 2018 | 194755 | **Trial Batch** using Sand Reject Material | 7.4 | 17-Oct | 11.5 | 11.4 | 21-Oct | 13.8 | 14.7 | 11-Nov |
| T-71 | Sep 13 2018 | 194756 | ***TRAIL BATCH** using Sand Reject Material | 14.5/14.6 | 16-Sep | 21.5 | 19.4 | 20-Sep | **See CTFR | | 11-Oct |
| T-72 | Sep 13 2018 | 194757 | ***TRAIL BATCH** Using Sand Reject Material | 19.8/19.2 | 16-Sep | 26.2 | 25.3 | 20-Sep | **See CTFR | | 11-Oct |
| T-73 | Sep 14 2018 | 194761 | ADR Slab on Grade GL 6 to 9 | 24.1 | 17-Sep | 28.1 | 21.3 | 21-Sep | 33,8 | 40.4 | 12-Oct |
| T-74 | Sep 14 2018 | 194768 | ADR Slab on Grade GL 6 to 9 | 30.7 | 17-Sep | 34.4 | 32.1 | 21-Sep | 41.9 | 44.8 | 12-Oct |
| T-75 | Sep 15 2018 | 194777 | ***TRIAL BATCH*** Using Sand Reject Material | 21.4/21.5 | 18-Sep | 24.4 | 24.4 | 22-Sep | 33.5 | 32.9 | 13-Oct |
| T-76 | Sep 16 2018 | 194783 | ADR - Slab on Grade GL 9 to 12 | 26.3 | 19-Sep | 27.2 | 23.2 | 23-Sep | 40.6 | 40.0 | 14-Oct |
| T-77 | Sep 16 2018 | 194789 | ADR - Slab on Grade GL 9 to 12 | 27.1 | 19-Sep | 32.8 | 23.3 | 23-Sep | 31.8 | 31.1 | 14-Oct |
| T-78 | Sep 17 2018 | 194800 | Seconday Crusher - Slab on grade | 28.7 | 20-Sep | 35.1 | 23.6 | 24-Sep | 45.7 | 46.1 | 15-Oct |
| T-79 | Sep 17 2018 | 194809 | Seconday Crusher - Slab on grade | 24.7 | 20-Sep | 29.2 | 23.6 | 24-Sep | 33.8 | 34.4 | 15-Oct |
| T-80 | Sep 18 2018 | 194827 | Primary Crusher - Suspended Slab | 35.0 | 21-Sep | 43.8 | 32.2 | 25-Sep | 52.3 | 51.7 | 16-Oct |
| T-81 | Sep 18 2018 | 194828 | Primary Crusher - Suspended Slab | 36.8 | 21-Sep | 45.7 | 31.0 | 25-Sep | 50.8 | 50.2 | 16-Oct |
| | | | | | | | | | | | |

**Remarks:** F.C. = Field Cure

**Held for 56-day break; **CTFR = Concrete Strength Test Result form

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# CHRONOLOGICAL CONCRETE TEST RESULTS

Project: Eagle Gold Project - Secondary Crusher | Supplier: Lafarge | Project No.: WARC03235-05

Client: JDS | Plant Location: Access Road - km 42.5 | Date Tested: Sept 22 to Oct 1, 2018

Attention: Mr. J. Graham/I. Fecher/J. Chrzaszcz | Cement Type: 70:30 | Tested By: JB/JRC

Copies to: Clark/Lafarge | Design Strength: 30 MPa @ 28-days | Page: 5 of 7

| Test Number | Date Cast | Ticket Number | Location and Element | 3-Day Result | 3-Day Break Date | 7-Day (MPa) a | 7-Day (MPa) F.C. | 7-Day Break Date | 28-Day(MPa) a | 28-Day(MPa) b | 28-Day Break Date |
|---|---|---|---|---|---|---|---|---|---|---|---|
| T-82 | Sep 19 2018 | 194834 | Trial Batch: High Early Design Mix | 33.7/32.7 | 22-Sep | 39.9 | 24.4 | 26-Sep | 55.4 | 53.0 | 17-Oct |
| T-83 | Sep 20 2018 | 194838 | Secondary Crusher - Slab on grade | 27.4 | 23-Sep | 34.0 | 25.4 | 27-Sep | 45.2 | 45.2 | 18-Oct |
| T-84 | Sep 20 2018 | 194850 | Secondary Crusher - Slab on grade | 27.6 | 23-Sep | 35.5 | 26.2 | 27-Sep | 45.8 | 45.3 | 18-Oct |
| T-85 | Sep 21 2018 | 194853 | Primary Crusher - Grade Beam | 26.5 | 24-Sep | 32.7 | 25.6 | 28-Sep | 44.4 | 42.4 | 19-Oct |
| T-86 | Sep 21 2018 | 194857 | ADR - E house Transformer base | 22.6 | 24-Sep | 29.5 | 21.0 | 28-Sep | 40.2 | 35.9 | 19-Oct |
| T-87 | Sep 22 2018 | 194867 | Secondary Crusher - Slab on grade | 27.7 | 25-Sep | 34.8 | 26.5 | 29-Sep | 45.2 | 45.4 | 20-Oct |
| T-88 | Sep 22 2018 | 194877 | Secondary Crusher - Slab on grade | 24.6 | 25-Sep | 30.5 | 25.2 | 29-Sep | 40.8 | 40.3 | 20-Oct |
| T-89 | Sep 23 2018 | 194882 | ADR - Curbs and Pads | - | 26-Sep | 28.1 | 20.8 | 30-Sep | 37.6 | 36.5 | 21-Oct |
| T-90 | Sept 23 2018 | 194885 | Trial Batch/Material used at ADR | 40.2 | 26-Sep | 48.3 | 39.3 | 30-Sep | 54.9 | 59.1 | 21-Oct |
| T-91 | Sep 23 2018 | 194886 | Trial Batch: 534L of water High Early Design | 42.2/41.5 | 26-Sep | 48.7 | 40.6 | 30-Sep | 59.6 | 58.3 | 21-Oct |
| T-92 | Sep 24 2018 | 194889 | Trial Batch: 504L of water High Early Design | 40.8/39.1 | 27-Sep | 43.0 | 37.9 | 01-Oct | 54.5 | 54.3 | 22-Oct |
| T-93 | Sep 26 2018 | 194898 | Transfer Tower 1 - Base Slab | 24.9 | 29-Sep | 27.0 | 18.6 | 03-Oct | 43.4 | 43.0 | 24-Oct |
| T-94 | Sep 26 2018 | 194906 | Transfer Tower 1 - Base Slab | 26.4 | 29-Sep | 28.0 | 19.5 | 03-Oct | 36.3 | 37.5 | 24-Oct |
| T-95 | Sep 27 2018 | 194915 | ADR- Pads, Beds & Curbs | 21.2 | 30-Sep | 23.3 | 21.4 | 04-Oct | 32.3 | 31.7 | 25-Oct |
| T-96 | Sep 29 2018 | 194921 | Primary Crusher - Level 2 Walls | 23.3 | 02-Oct | 28.2 | 27.7 | 06-Oct | 38.6 | 39.1 | 27-Oct |
| T-97 | Sep 29 2018 | 194932 | Primary Crusher - Level 2 Walls | 27.5 | 02-Oct | 32.0 | 19.9 | 06-Oct | 45.0 | 41.5 | 27-Oct |
| T-98 | Sep 29 2018 | 194944 | Primary Crusher - Level 2 Walls | 24.4 | 02-Oct | 29.2 | 17.7 | 06-Oct | 39.2 | 42.5 | 27-Oct |
| T-99 | Sep 30 2018 | 194957 | Primary Crusher - Level 2 Walls | 28.0 | 03-Oct | 35.1 | 27.0 | 07-Oct | 46.2 | 43.0 | 28-Oct |
| T-100 | Sep 30 2018 | 194965 | ADR - Pads & Curbs | 22.4 | 03-Oct | 27.1 | 17.5 | 07-Oct | 39.2 | 39.7 | 28-Oct |
| T-101 | Oct 1 2018 | 194967 | Transfer Tower 1 - Pads | 23.3 | 04-Oct | 26.9 | 13.3 | 08-Oct | 37.7 | 36.4 | 29-Oct |
| T-102 | Oct 1 2018 | 194969 | ***TRIAL BATCH #5***New Reject Sand | 19.0/18.2 | 04-Oct | 23.3 | - | 08-Oct | 32.6 | 31.3 | 29-Oct |

**Remarks:** F.C. = Field Cure

CCIL

**Reviewed By:** _____ P.Eng.

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# CHRONOLOGICAL CONCRETE TEST RESULTS

Project: Eagle Gold Project - Secondary Crusher | Supplier: Lafarge | Project No.: WARC03235-05

Client: JDS | Plant Location: Access Road - km 42.5 | Date Tested: Oct. 5 to Nov 19, 2018

Attention: Mr. J. Graham/I. Fecher/J. Chrzaszcz | Cement Type: 70:30 | Tested By: JB/JRC

Copies to: Clark/Lafarge | Design Strength 30 MPa @ 28-days | Page: 6 of

| Test Number | Date Cast | Ticket Number | Location and Element | 3-Day Result | 3-Day Break Date | 7-Day (MPa) a | 7-Day (MPa) F.C. | 7-Day Break Date | 28-Day(MPa) a | 28-Day(MPa) b | 28-Day Break Date |
|---|---|---|---|---|---|---|---|---|---|---|---|
| T-103 | Oct 2 2018 | 194971 | ***TRIAL BATCH #6***New Reject Sand | 13.3/13.1 | 05-Oct | See CFTR* | | 09-Oct | 17.5 | 22.9 | 30-Oct |
| T-104 | Oct 2 2018 | 194972 | ***TRIAL BATCH #7***New Reject Sand | 19.7/19.8 | 05-Oct | See CFTR* | | 09-Oct | 22.3 | 31.8 | 30-Oct |
| T-105 | Oct 3 2018 | 194974 | Transfer Tower 2 | 20.6 | 06-Oct | 27.3 | 18.7 | 10-Oct | 38.6 | 37.3 | 31-Oct |
| T-106 | Oct 3 2018 | 194980 | Transfer Tower 2 | 21.3 | 06-Oct | 20.4 | 19.3 | 10-Oct | 35.4 | 34.7 | 31-Oct |
| T-107 | Oct 4 2018 | 194989 | ***TRIAL BATCH #7***Original Sand | 19.3 | 07-Oct | 25.2 | N/A | 11-Oct | 37.7 | 38.7 | 01-Nov |
| T-108 | Oct 4 2018 | 194990 | ***TRIAL BATCH #8***Recent Reject Sand | 26.3 | 07-Oct | 31.6 | N/A | 11-Oct | 42.1 | 41.5 | 01-Nov |
| T-109 | Oct 7 2018 | 194994 | 3100 Pedestals & 3210 TT1 Remaining Pedestals | 23.7 | 10-Oct | 29.3 | 21.8 | 14-Oct | 43.7 | 40.8 | 04-Nov |
| T-110 | Oct 9 2018 | 194995 | Transfer Tower 2 - Pedestals | 26.0 | 12-Oct | 30.6 | 24.6 | 16-Oct | | | 06-Nov |
| T-111 | Oct 14 2018 | 25080 | ADR - E-Building Walls | 21.5 | 17-Oct | 28.6 | 22.7 | 21-Oct | | | 11-Nov |
| T-112 | Oct 15 2018 | 25090 | Secondary Crusher - Suspended Slab Pour #1 | 19.1 | 18-Oct | 23.4 | 19.3 | 22-Oct | | | 12-Nov |
| T-113 | Oct 15 2018 | 25107 | Secondary Crusher - Suspended Slab Pour #1 | 20.4 | 18-Oct | 25.6 | 21.8 | 22-Oct | | | 12-Nov |
| T-114 | Oct 15 2018 | 25121 | Secondary Crusher - Suspended Slab Pour #2 | 21.4 | 19-Oct | 25.2 | 18.7 | 23-Oct | | | 13-Nov |
| T-115 | Oct 16 2018 | 25128 | Secondary Crusher Suspended Slab Pour #2 | 23.8 | 19-Oct | 28.8 | 19.8 | 23-Oct | ** | | 13-Nov |
| T- 116 | Oct 18 2018 | 25132 | Primary Crusher - Suspended Slab Level 2 | 18.7 | 21-Oct | 21.5 | 18.2 | 25-Oct | | | 15-Nov |
| T-117 | Oct 19 2018 | 25147 | Ore Storage Bin - Base Slab Pour #1 | 19.2 | 22-Oct | 23.4 | 16.4 | 26-Oct | | | 16-Nov |
| T-118 | Oct 20 2018 | 25155 | Ore Storage Bin - Base Slab Pour #2 | 22.1 | 23-Oct | 29.4 | 19.3 | 27-Oct | | | 17-Nov |
| T-119 | Oct 20 2018 | 25169 | Ore Storage Bin - Base Slab Pour #2 | 17.2 | 23-Oct | 22.6 | 15.1 | 27-Oct | | | 17-Nov |
| T-120 | Oct 20 2018 | 25182 | Ore Storage Bin - Base Slab Pour #2 | 18.5 | 23-Oct | 22.9 | 15.8 | 27-Oct | | | 17-Nov |
| T-121 | Oct 21 2018 | 25188 | Ore Storage Bin - Base Slab Pour #3 | 17.6 | 24-Oct | 22.6 | 15.1 | 28-Oct | | | 18-Nov |
| T-122 | Oct 21 2018 | 25198 | Ore Storage Bin - Base Slab Pour #3 | 16.4 | 24-Oct | 21.8 | 13.8 | 28-Oct | | | 18-Nov |
| T-123 | Oct 22 2018 | 25206 | Transfer Tower 3 - Base Slab | 18.2 | 25-Oct | 23.7 | 17.3 | 29-Oct | | | 19-Nov |

**Remarks:** F.C. = Field Cure

**CTFR = Concrete Strength Test Result form

**Reviewed By:** _____ P.Eng.

Data presented hereon is for the sole use of the stipulated client. Tetra Tech EBA is not responsible, nor can be held liable, for use made of this report by any other party, with or without the knowledge of Tetra Tech EBA. The testing services reported herein have been performed to recognized industry standards, unless noted. No other warranty is made. These data do not include or represent any interpretation or opinion of specification compliance or material suitability. Should engineering interpretation be required, Tetra Tech EBA will provide it upon written request.

TETRA TECH

# CHRONOLOGICAL CONCRETE TEST RESULTS

Project: Eagle Gold Project - Secondary Crusher | Supplier: Lafarge | Project No.: WARC03235-05

Client: JDS | Plant Location: Access Road - km 42.5 | Date Tested: Oct 23 to XXX XX, 2018

Attention: Mr. J. Graham/I. Fecher/J. Chrzaszcz | Cement Type: 70:30 | Tested By: JB/JRC

Copies to: Clark/Lafarge | Design Strength 30 MPa @ 28-days | Page: 7 of

| Test Number | Date Cast | Ticket Number | Location and Element | 3-Day Result | 3-Day Break Date | 7-Day (MPa) a | 7-Day (MPa) F.C. | 7-Day Break Date | 28-Day(MPa) a | 28-Day(MPa) b | 28-Day Break Date |
|---|---|---|---|---|---|---|---|---|---|---|---|
| T-124 | Oct 23 2018 | 25222 | CV13 - Bent 2 - Base Slab | 19.5 | 26-Oct | 23.6 | 18.4 | 30-Oct | | | 20-Nov |
| T-125 | Oct 23 2018 | 25229 | Primary Crusher - Level 3 Walls | 21.3 | 26-Oct | 24.7 | 18.8 | 30-Oct | | | 20-Nov |
| T-126 | Oct 23 2018 | 25241 | Primary Crusher - Level 3 Walls | 17.5 | 26-Oct | 20.0 | 15.7 | 30-Oct | | | 20-Nov |
| T-127 | Oct 24 2018 | 25252 | Take Up Tower | 20.3 | 27-Oct | 26.4 | 24.7 | 31-Oct | | | 21-Nov |
| T-128 | Oct 25 2018 | 25262 | CV19 - Bent 2: Base Slab | 18.3 | 28-Oct | 24.2 | 19.4 | 01-Nov | | | 22-Nov |
| T-129 | Oct 25 2018 | 25271 | CV19 - GTU: Base Slab | 18.1 | 28-Oct | 24.7 | 19.8 | 01-Nov | | | 22-Nov |
| T-130 | Oct 28 2018 | 25280 | Secondary Crusher - Crusher Base Pads | 19.1 | 31-Oct | 23.3 | 19.9 | 04-Nov | | | 25-Nov |
| T-131 | Oct 31 2018 | 25283 | CWT Tower & Bent 3 - Pad Footing | 10.8 | 03-Nov | 13.4 | 9.5 | 07-Nov | | | 28-Nov |
| T-132 | Nov 1 2018 | 25287 | Ore Storage at Secondary Site - Pad Footing | 20.4 | 04-Nov | 26.1 | 18.9 | 08-Nov | | | 29-Nov |
| T-133 | Nov 2 2018 | 25304 | Primary Crusher - Suspended Slab | 19.6 | 05-Nov | 25.3 | 23.2 | 09-Nov | | | 30-Nov |
| T-134 | Nov 2 2018 | 25307 | Primary Crusher - Suspended Slab | 19.4 | 05-Nov | 24.7 | 23.2 | 09-Nov | | | 30-Nov |
| T-135 | Nov 4 2018 | 25322 | Secondary - Ore Bin Storage Walls, Level 1 | 22.2 | 07-Nov | | | 11-Nov | | | 02-Dec |
| T-136 | Nov 4 2018 | 25337 | Secondary - Ore Bin Storage Walls, Level 1 | 20.4 | 07-Nov | | | 11-Nov | | | 02-Dec |
| T-137 | Nov 4 2018 | 25345 | Secondary - Ore Bin Storage Walls, Level 1 | 19.8 | 07-Nov | | | 11-Nov | | | 02-Dec |
| T-138 | Nov 5 2018 | 25355 | Secondary Ftgs. and Peds. Ore Bin - (x2) Columns | 18.9 | 08-Nov | | | 12-Nov | | | 03-Dec |
| T-139 | Nov 6 2018 | 25369 | Secondary Crusher - Pad Footings (x5) at CV16 | 20.1 | 09-Nov | | | 13-Nov | | | 04-Dec |
| T-140 | Nov 8 2018 | 25379 | Transfer Tower 3 - Pedestals | | 11-Nov | | | 15-Nov | | | 06-Dec |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |

**Remarks:** F.C. = Field Cure

*CTFR = Concrete Strength Test Result form

**Reviewed By:** _____ P.Eng.

Data presented hereon is for the sole use of the stipulated client. Tetra Tech EBA is not responsible, nor can be held liable, for use made of this report by any other party, with or without the knowledge of Tetra Tech EBA. The testing services reported herein have been performed to recognized industry standards, unless noted. No other warranty is made. These data do not include or represent any interpretation or opinion of specification compliance or material suitability. Should engineering interpretation be required, Tetra Tech EBA will provide it upon written request.

TETRA TECH

MATERIAL TEST REPORTS FOR THE FOLLOWING ARE AVAILABLE UPON REQUEST:

- ANGLE MATERIAL
- CHANNEL MATERIAL
- PLATE MATERIAL
- WIDE FLANGE MATERIAL
- ROUND BAR MATERIAL
- BOLT MATERIAL
- HSS TUBE - COLD FORMED




# EAGLE GOLD PROJECT

## POWER SUPPLY CONSTRUCTION REPORT

*MARCH 2018*

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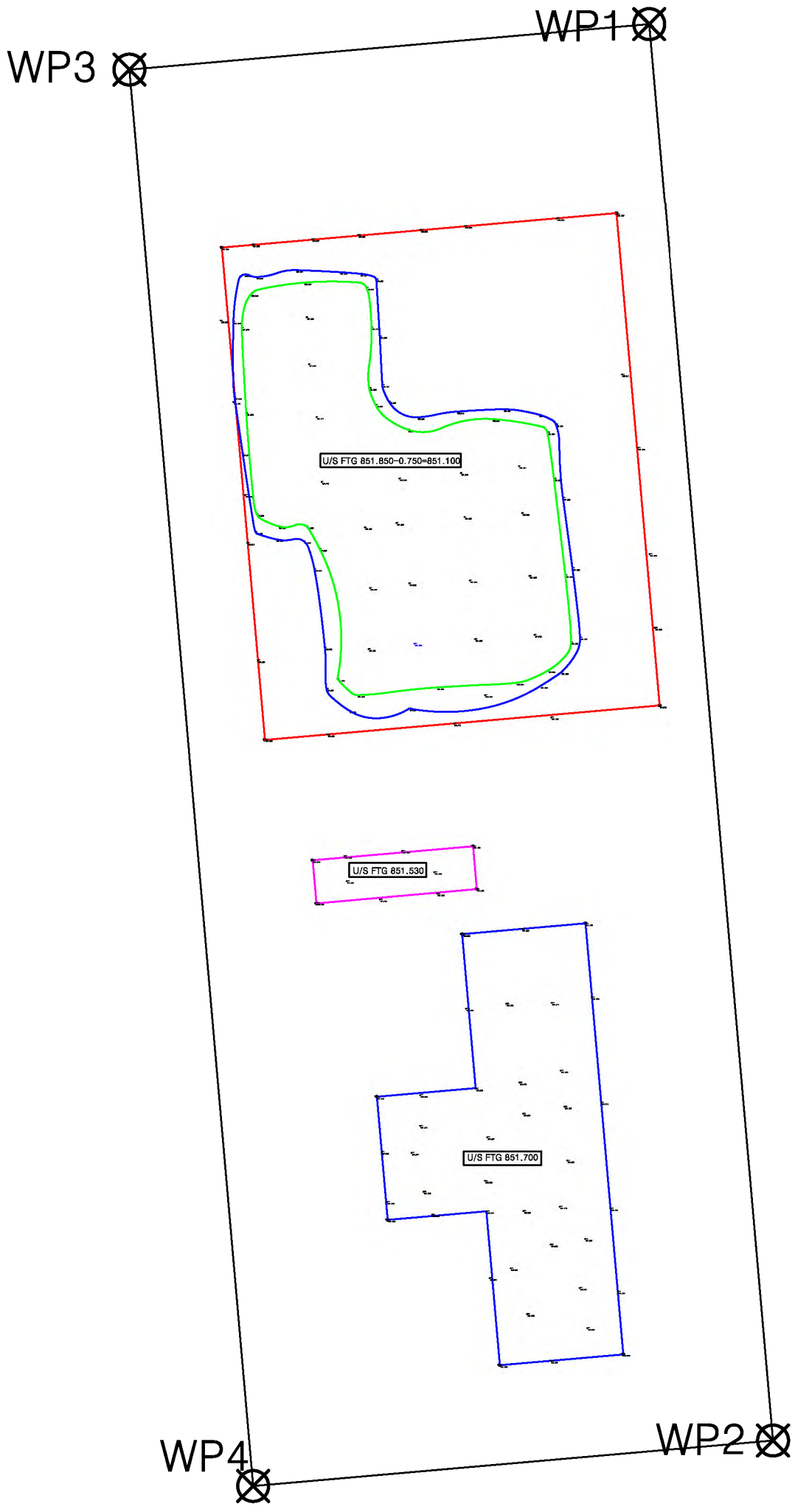
## List of Attachments

| | |
|---|---|
| Attachment A | Record Drawings |
| Attachment B | Request for Information Forms |
| Attachment C | Field Review Reports |
| Attachment D | Quality Control Inspection and Testing |

# ATTACHMENT A

## Record Drawings




SUBSTATION and DIESEL POWER PLANT SUBGRADE ASB October 26 2018

## GENERAL NOTES

1) THE DRAWINGS AND THESE NOTES AND SPECIFICATIONS DEFINE THE REQUIREMENTS FOR THE SUPPLY, INSTALLATION AND TESTING WITH RESPECT TO THE SUBSTATION AND POWER STATION GROUNDING SYSTEM. FOR A LISTING OF APPLICABLE DRAWINGS REFER TO DRAWING No. 001-2700-E-6531.
2) THE ENTIRE INSTALLATION SHALL COMPLY WITH THE YUKON QUARTZ MINING ACT AND REGULATIONS, IN PARTICULAR PART 15 - SURFACE AND UNDERGROUND MINES OR PROJECTS.
3) THE ENTIRE INSTALLATION SHALL BE IN ACCORDANCE WITH THE CANADIAN ELECTRICAL CODE C22.1-18 (THE C.E.C) AS ADOPTED FOR USE IN THE YUKON.
4) THE INSTALLATION SHALL COMPLY WITH THE REQUIREMENTS OF CSA STANDARD M421 THE USE OF ELECTRICITY IN MINES.
5) THE CONTRACTOR SHALL SUPPLY AND INSTALL ALL MATERIAL AND EQUIPMENT IN ACCORDANCE WITH THE CANADIAN ELECTRICAL CODE, WHETHER OR NOT ALL DETAILS ARE SPECIFIED OR SHOWN ON THE DRAWINGS. THE CONTRACTOR SHALL, AS AN INTEGRAL PART OF THE CONTRACT, PROVIDE AN INSTALLATION THAT IS FULLY IN COMPLIANCE WITH THE C.E.C. THIS INCLUDES THE SUPPLY AND INSTALLATION OF ALL NECESSARY SMALL MATERIALS INCLUDING CONNECTORS, ETC. NOT NECESSARILY SHOWN ON THE DRAWINGS OR SPECIFIED HEREIN.
6) ALL GROUNDING MATERIAL AND EQUIPMENT SHALL BE CSA APPROVED AND SHALL CONFORM TO CSA STANDARD C22.2 No. 41 GROUNDING AND BONDING & EQUIPMENT.
7) PROVIDE ADDITIONAL (MECHANICAL) PROTECTION FOR GROUND CONDUCTORS WHERE EXPOSED TO DAMAGE, AS MAY BE REQUIRED BY THE C.E.C.

## SPECIFIC GROUNDING NOTES & SPECIFICATIONS

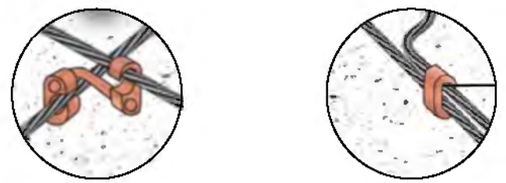
1) UNDERGROUND (BELOW GRADE) GROUNDING CONNECTIONS SHALL BE MADE USING CADWELD (EXOTHERMIC WELDING) OR CSA APPROVED GROUNDING COMPRESSION CONNECTORS.
2) WHEN EXOTHERMIC WELDING IS USED, IT MUST BE CARRIED OUT IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS. ABOVE GRADE CONNECTIONS MAY BE BOLTED USING CSA APPROVED GROUNDING CONNECTORS.
3) COMPRESSION CONNECTORS SHALL BE COPPER, AS MANUFACTURED BY BURNDY, T&B, OR OTHER APPROVED MANUFACTURER (APPROVED IN WRITING ). COMPRESSION CONNECTOR INSTALLATION SHALL BE CARRIED OUT IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS, INCLUDING THE USE OF APPROPRIATE TOOLS, JOINT COMPOUND WHERE RECOMMENDED, ETC. FOR BONDING TO REBAR, SELECT CONNECTORS OF APPROPRIATE SIZE.
4) UNLESS SHOWN OTHERWISE, ALL GROUND WIRE SHALL BE BARE, STRANDED, 2/0 AWG SOFT OR MEDIUM HARD DRAWN COPPER GROUND WIRE.
5) INSTALL 1/2 OR 3/4 INCH PVC CONDUIT SLEEVE FOR MECHANICAL PROTECTION OF GROUND LEADS WHERE THEY EXIT TOP OF FOUNDATION. FILL WITH RTV SILICONE TO MAKE WATERTIGHT.
6) THE MAIN GROUND GRID SHALL BE INSTALLED AS SHOWN ON THE DRAWINGS AND SHALL GENERALLY BE BETWEEN 500 AND 600 mm BELOW FINISHED GRADE. FINISHED GRADE IS DEFINED AS THE TOP OF THE\ STRUCTURAL PADS OR THE TOP OF THE YARD AREA, IN BOTH CASES BEFORE THE 150 mm LAYER OF OF CRUSHED ROCK IS INSTALLED. NOTE, THE FOREGOING MEANS THE GROUND GRID WILL BE AT VARYING ELEVATIONS ACROSS THE YARD. REFER TO THE WORK-POINTS AND DIMENSIONS ON THE DRAWINGS. RODS AND GROUND CONDUCTORS SHALL BE LOCATED EXACTLY IN THE LOCATIONS SHOWN ON THE DRAWINGS AS YARD TOUCH AND STEP POTENTIALS HAVE BEEN CALCULATED BASED ON THE LAYOUT AS SHOWN ON THE DRAWINGS. NEATLY COIL UP GROUNDING TAILS AND MARK THE LOCATION WITH WOODEN STAKES DRIVEN INTO THE GROUND (IN CASE IT SNOWS BEOFRE FINAL CONNECTIONS ARE MADE).
7) THE 150 mm LAYER OF WASHED, CRUSHED, HIGH RESISTANCE ROCK WILL BE PLACED BY THE SUBSTATION CONTRACTOR, AFTER THE MAJORITY OF THE SUBSTATION INSTALLATION WORK IS COMPLETE.
8) MAKE CONNECTIONS TO THE GROUNDING CONDUCTORS INSTALLED WITHIN THE CONCRETE FOUNDATIONS
9) THE SUBSTATION FENCE AND FENCE GROUNDING WILL BE INSTALLED BY THE SUBSTATION CONTRACTOR, AFTER THE MAJORITY OF THE SUBSTATION WORK IS REQUIRED. HOWEVER, THIS CONTRACTOR SHALL LEAVE MINIMUM 3 M GROUND WIRE TAILS AS SHOWN ON THE DRAWINGS FOR CONNECTION (BY OTHERS) TO THE FENCE.
10) GROUNDING CONNECTIONS TO TRANSFORMERS, CIRCUIT SWITCHERS, CAPACITOR BANK MODULE AND POWER-PLANT MODULES WILL BE BY THE SUBSTATION CONTRACTOR. HOWEVER, THIS CONTRACTOR SHALL LEAVE 3 m GROUND WIRE TAILS TO FACILITATE THESE FUTURE CONNECTIONS.
11) GROUNDING CONNECTIONS TO THE 4 POLE STRUCTURE, 2 POLE STRUCTURE, INCOMING LINE DEAD-END STRUCTURE, THE 4 LIGHTNING MAST POLES AND THE TWO GUY ANCHORS IN THE SUBSTATION YARD WILL BE BY THE MAIN SUBSTATION CONTRACTOR, BUT THIS CONTRACTOR SHALL LEAVE GROUND WIRE TAILS AS SHOWN ON THE DRAWINGS TO FACILITATE THESE CONNECTIONS.
12) 2/0 AWG BARE COPPER GROUND LEADS SHALL BE RUN TO EDGE OF THE PLANT AREA, FOR CONNECTION BY OTHERS TO THE FUEL TANK AREA . 2/0 AWG GROUND WIRE SHALL ALSO BE RUN NEXT TO THE CONDUITS FOR THE PLANT 13.8 KV FEEDER CABLES, AS SHOWN ON THE DRAWINGS.
13) GROUND RODS SHALL BE COPPER CLAD STEEL, SECTIONAL TYPE, 6 M LONG. ALL RODS SHALL BE DRIVEN TO TO FULL DEPTH. AS THE STATION IS BUILT ON GRANULAR FILL, THIS IS BELIEVED TO BE ENTIRELY POSSIBLE. HOWEVER, IF A ROD CANNOT BE DRIVEN, PERHAPS BECAUSE IT HIT A ROCK, IT'S LOCATION SHALL BE MOVED SLIGHTLY AND IT SHALL BE DRIVEN IN THE NEW LOCATION. NOTE, THE 6 M LENGTH IS REQUIRED TO ENSURE THE RODS EXTEND BELOW THE FROST LEVEL.
14) ALL GROUND RODS AND THE GROUND GRID SHALL BE INSTALLED IN LOCATIONS MEASURED EXACTLY AS PER THE DRAWINGS. ANY EXCEPTIONS SHALL BE APPROVED IN WRITING BY THE WN BRAZIER ASSOCIATES INC., OTHERWISE RESPONSIBILITY AS THE ENGINEER OF RECORD WILL NOT BE POSSIBLE. THE TOP OF THE GROUND RODS SHALL BE AT THE SAME ELEVATION AS THE GROUND GRID.
15) A 150 mm LAYER OF WASHED, CRUSHED ROCK (AS PER SPEC.) WILL BE PLACED OVER THE ENTIRE SUBSTATION AND POWER-PLANT AREA BY THE SUBSTATION CONTRACTOR, AFTER THE MAIN CONSTRUCTION WORK IS COMPLETE.
16) SUPPLY AND INSTALL 2 INCH, 4 INCH AND 6 INCH (AS SHOWN) SCHED. 40 PVC CONDUIT WITH 90° SWEEP 90, 36 INCH RADIUS AS SHOWN. THESE CONDUITS GO BELOW THE GROUND GRID LEVEL. INSTALL SUITABLE PULL CORDS. INSTALL WARNING TAPE ABOVE CONDUITS. COMPACT TRENCH BACKFILL AS PER ORIGINAL CIVIL SPECIFICATIONS.
17) SUPPLY AND INSTALL CONCRETE PULL BOXES AS SHOWN (FOR THE PLANT FEEDER CABLES).

## GROUNDING QUALITY CONTROL AND TESTING

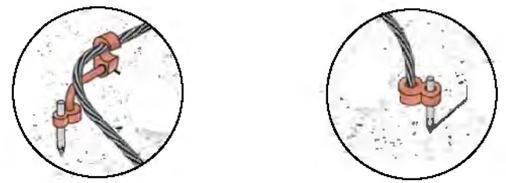
1) INSPECT THE GROUNDING AND BONDING SYSTEM CONDUCTORS AND CONNECTIONS AND RODS AFTER INSTALLATION TO CONFIRM PROPER INSTALLATION LOCATION AND DEPTH, CONNECTION INTEGRITY AND, IN GENERAL, TO CONFIRM PROPER INSTALLATION AS PER THE DRAWING, GOOD INDUSTRIAL PRACTICE AND FOR COMPLIANCE WITH THE SPECIFICATIONS. CONFIRM GRID CONDUCTORS AND RODS ARE INSTALLED IN LOCATIONS AS SHOWN ON THE DRAWINGS. CONFIRM GROUND WIRE TAILS ARE LEFT AS REQUIRED FOR FOR LATER CONNECTION BY OTHERS. PROVIDE SUITABLE DOCUMENTATION FOR RECORD PURPOSES INCLUDING PHOTOGRAPHS.
2) CARRY OUT A GROUND RESISTANCE TEST ON THE COMPLETED GRID, AFTER BACKFILLING TO FINISHED GRADE. THE TESTING SHALL BE DONE BY AN EXPERIENCED TESTING COMPANY ACCEPTABLE TO THE OWNER. THE TEST SHALL NOT BE CARRIED OUT ON A RAINY DAY. THE TEST SHALL BE CARRIED OUT ON THE GRID BEFORE CONNECTION TO THE FUEL TANK AREA, THE FEEDER CABLES, OR THE GROUNDING SYSTEM ON THE INCOMING 69 KV POWER LINE.
3) GROUND TESTING SHALL BE BY THE "FALL OF POTENTIAL MRTHOD" IN ACCORDANCE WITH IEEE STANDARD 81-2012: "GUIDE FOR MEASURING EARTH RESISTIVITY, GROUND IMPEDANCE, AND EARTH SURFACE POTENTIALS OF A GROUND SYSTEM." THE TEST SHALL BE BY A RECOGNIZED TESTING FIRM. A TEST REPORT SHALL BE PROVIDED, SIGNED AND SEALED BY A PROFESSIONAL ELECTRICAL ENGINEER REGISTERED IN THE YUKON.
3) PROVIDE ONE SET OF MARKED UP "AS BUILT" DRAWINGS TO WN BRAZIER ASSOCIATES INC. AFTER COMPLETION OF THE PROJECT.
4) PROVIDE COPIES OF ALL QA/QC DOCUMENTATION.



TYPICAL COMPRESSION CONNECTION TO REBAR



TYPICAL GROUND WIRE COMPRESSION CONNECTIONS



TYPICAL GROUND ROD COMPRESSION CONNECTIONS

DETAIL 1 GROUNDING CONNECTIONS

PROFESSIONAL ENGINEER YUKON W. NEIL BRAZIER TERRITORY

PERMIT TO PRACTICE W.N. BRAZIER ASSOCIATES INC. SIGNATURE Date PERMIT NUMBER PP295 Association of Professional Engineers of Yukon

ISSUED FOR CONSTRUCTION

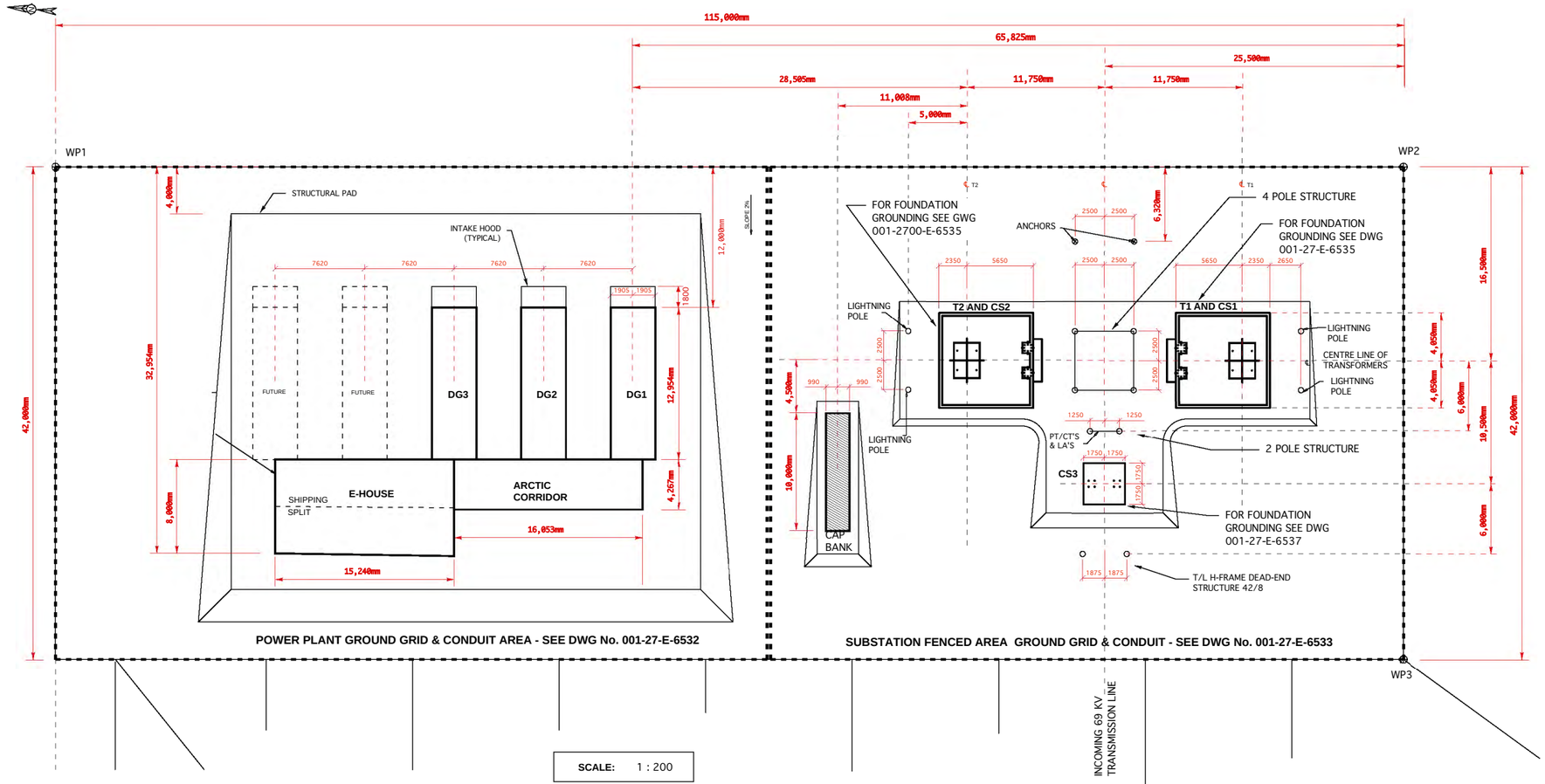
| REV | ISSUED FOR | DESCRIPTION OF REVISION | DATE |
|---|---|---|---|
| 0 | CONSTRUCTION | | 27 Aug 2018 |

StrataGold

TITLE: EAGLE GOLD PROJECT
MAIN SUBSTATION & POWERPLANT
GROUNDING NOTES & SPECIFICATIONS

W.N. Brazier Associates Inc.

| | | | |
|---|---|---|---|
| DRAWN: | WNB | DATE: | AUG /2018 |
| CHECKED: | WNB | DATE: | AUG /2018 |
| APPROVED: | WNB | DATE: | AUG /2018 |
| DRAWING NO: | 001 - 27OO - E - 653O | | 0 |




**SCALE:** 1 : 200

**WORK-POINT TABLE**

| POINT | NORTHING (m) | EASTING (m) |
|---|---|---|
| WP1 | 7100026.4245 | 458789.4274 |
| WP2 | 7099911.8619 | 458799.4479 |
| WP3 | 7099908.2015 | 458757.6080 |

**NOTES**

1) FOR GENERAL NOTES AND SPECIFICATIONS REFER TO DRAWING No. 001-2700-E-6530

**SUBSTATION REFERENCE DRAWINGS**

| DRAWINGS FOR | DRAWING NUMBER |
|---|---|
| SUBSTATION CIVIL EARTHWORKS | 1407.2-C-2010 & 2015 |
| CIVIL FOUNDATION PLAN | 1407.2-C-2016 |
| GROUNDING GENERAL NOTES & SPECIFICATIONS | 001-2700-E-6530 |
| POWER PLANT AREA GROUND GRID | 001-2700-E-6532 |
| SUBSTATION AREA GROUND GRID | 001-2700-E-6533 |
| TRANSFORMER FOUNDATION CONCRETE OUTLINE | 1407.2-C-3015 |
| TRANSFORMER FOUNDATION GROUNDING | 001-2700-E-6535 |
| CIRCUIT SWITCHER CS3 FOUNDATION CONCRETE OUTLINE | 1407.2-C-3025 |
| CIRCUIT SWITCHER CS3 FOUNDATION GROUNDING | 001-2700-E-6537 |
| 4 POLE STRUCTURE (WORK BY WOOD POLE STRUCTURE CONTRACTOR AND SUBSTATION CONTRACTOR) | 1407.2-C-3040 |
| 2 POLE PT & LA STRUCTURE (BY WOOD POLE STRUCTURE CONTRACTOR AND SUBSTATION CONTRACTOR) | 1407.2-C-3045 |
| LIGHTNING (MAST) POLES (GROUNDING WORK BY WOOD POLE STRUCTURE CONTRACTOR AND SUBSTATION CONTRACTOR) | 1407.2-C-3045 |
| SUBSTATION FENCE GROUNDING (BY SUBSTATION CONTRACTOR) | |
| LAST TRANSMISSION LINE STRUCTURE GROUNDING (WORK BY LINE CONTRACTOR & SUBSTATION CONTRACTOR) | 1407.2-T-3060 |
| LAST LINE STRUCTURE MODIFICATIONS (WORK BY LINE CONTRACTOR & SUBSTATION CONTRACTOR) | 1407.2 - XXXXX |
| INCOMING TRANSMISSION LINE POLE GROUNDING (12 STRUCTURES, WORK BY LINE CONTRACTOR) | 1407.2-T-4450-1 & 2 |
| FUEL STORAGE AREA GROUNDING (BY OTHERS) | TO BE ADVISED |
| OUTGOING 13.8 KV FEEDERS, HATCH DRAWING (BY OTHERS) | H354138-6330-260-273-0001-0001 |

**POWER PLANT VENDOR GROUNDING DRAWINGS**
(THE MAJORITY OF THE GROUNDING SHOWN ON THESE DRAWINGS IS INTERNAL TO THE MODULES AND BY WAJAX. HOWEVER THESE DRAWINGS ALSO SHO INTER MODULE GROUNDING WHICH SHALL BE BY THE POWER-PLANT AND SUBSTATION INSTALLATION CONTRACTOR)

| AREA | DRAWING TITLE | WAJAX (SILHOUETTE) DRAWING No. |
|---|---|---|
| POWER-PLANT | PLAN LAYOUT | 4718-01-SITE 1-GAD-001 |
| GENSET MODULES | PLAN VIEW | 4718-01- GA1-GAD-003 |
| GENSET MODULES | GROUNDING LAYOUT DRAWING | 4718-01-GA1-ELEC-008 |
| ARCTIC CORRIDOR | GROUNDING LAYUT DRAWING | 4718-01- AC1-ELEC-008 |
| E-HOUSE | GENERAL ARRANGEMENT | 4718-01-EH1-GAD-003 |
| E-HOUSE | GROUNDING LAYOUT DRAWING | 4718-01-EH1-ELEC-008 |

STRUCTURAL PAD PLAN
SCALE: 1:200

ISSUED FOR CONSTRUCTION

PROFESSIONAL ENGINEER YUKON W. NEIL BRAZIER TERRITORY

PERMIT TO PRACTICE
W.N. BRAZIER ASSOCIATES INC.
SIGNATURE W.N. Brazier
Date 13/27/18
PERMIT NUMBER PP295
Association of Professional Engineers of Yukon

| REV | ISSUED FOR | DESCRIPTION OF REVISION | DATE |
|---|---|---|---|
| 0 | CONSTRUCTION | | 27 Aug 2018 |

StrataGold Corporation

TITLE: EAGLE GOLD PROJECT
MAIN SUBSTATION & POWERPLANT
GROUNDING KEY PLAN

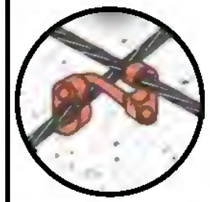
W.N. Brazier Associates Inc.

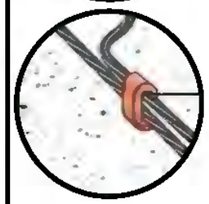
| | | | | |
|---|---|---|---|---|
| DRAWN: | WNB | DATE: | AUG /2018 | |
| CHECKED: | WNB | DATE: | AUG /2018 | |
| APPROVED: | WNB | DATE: | AUG /2018 | |
| DRAWING NO: | 001 - 27OO - E - 6531 | | | 0 |



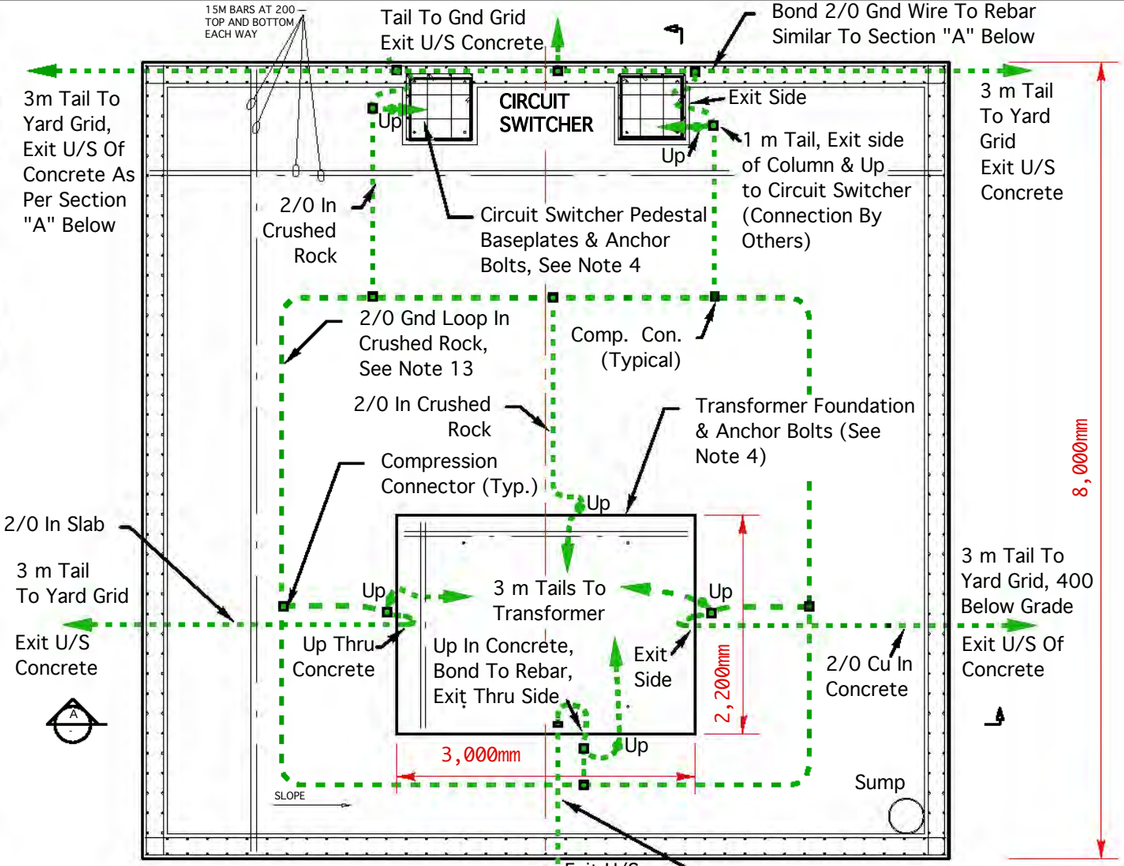


Typical Compression Connections To Rebar



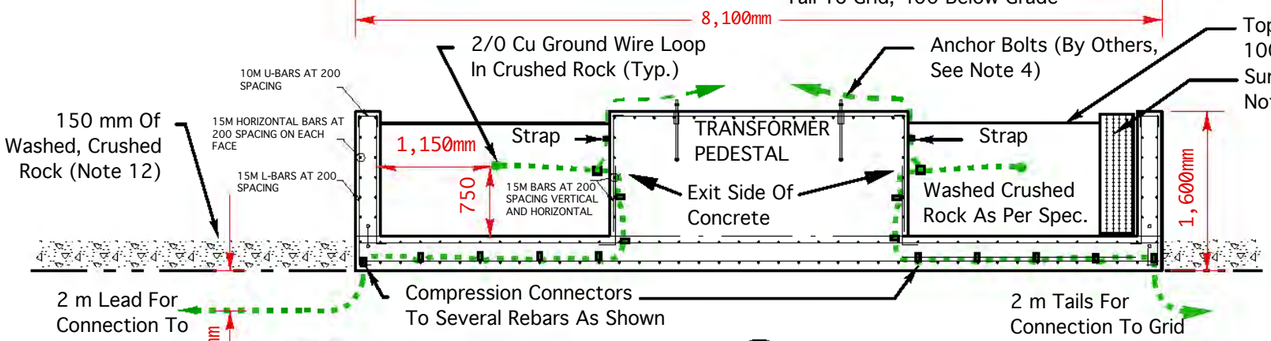


Typical Ground Wire Connections

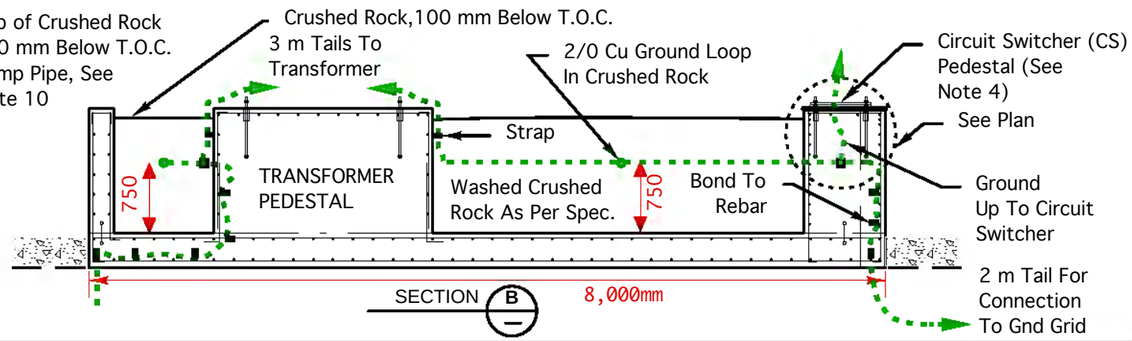



## GROUNDING NOTES

1) FOR GENERAL NOTES REFER TO DRAWING No. 001-2700-E-6537.
2) FOR CONCRETE FOUNDATION DETAILS REFER TO DRAWING No. 1407.2 - C - 3016. FOR THE STRUCTURAL PAD GRADING PLAN SEE DRAWING No. 1407.2 - C - 2015. FOR CONCRETE FOUNDATION (LOCATION) PLAN SEE DRAWING No. 1407.2 - C - 2016. FOR CS3 FOUNDATION GROUNDING SEE DRAWING No. 001-2700-E-6537. FOR STATION GROUND GRID REFER TO DRAWING No. 001-2700-E-6531.
3) THIS DRAWING SHOWS EMBEDDED GROUND LEADS THROUGH THE FOUNDATION TO THE EQUIPMENT AND INCLUDES REBAR GROUNDING. AS THE C.E.C. DOES NOT SPECIFICALLY REQUIRE REBAR GROUNDING, BOND GROUND WIRE TO REBAR AT SEVERAL LOCATIONS AS SHOWN. USE APPROVED COMPRESSION CONNECTORS OF SUITABLE SIZE.
4) AS THE CIRCUIT SWITCHERS AND TRANSFORMERS, ETC. WILL BE GROUNDED AS SHOWN ON OTHER DRAWINGS, GROUNDING OF ANCHOR BOLTS IS NOT INCLUDED ON THIS DRAWING AS THEY WILL BE GROUNDED BY VIRTUE OF THE FACT THE ASSOCIATED ELECTRICAL EQUIPMENT WILL BE SOLIDLY GROUNDED.
5) GROUND CONNECTIONS MAY BE MADE USING CSA APPROVED COMPRESSION CONNECTORS OR EXOTHERMIC WELDING AS SHOWN.
6) WHEN EXOTHERMIC WELDING IS USED, IT MUST BE CARRIED OUT IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS.
7) COMPRESSION CONNECTORS SHALL BE COPPER, AS MANUFACTURED BY BURNDY, T&B, OR OTHER APPROVED MANUFACTURER (APPROVED IN WRITING ). COMPRESSION CONNECTOR INSTALLATION SHALL BE CARRIED OUT IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS, INCLUDING THE USE OF APPROPRIATE TOOLS, JOINT COMPOUND WHERE RECOMMENDED, ETC. FOR BONDING TO REBAR SELECT CONNECTORS OF APPROPRIATE SIZE.
8) UNLESS SHOWN OTHERWISE, ALL GROUND WIRE SHALL BE BARE, STRANDED, 2/0 AWG SOFT OR MEDIUM HARD DRAWN COPPER GROUND WIRE.
9) INSTALL 1/2 OR 3/4 INCH PVC CONDUIT SLEEVE FOR MECHANICAL PROTECTION OF GROUND LEADS WHERE THEY EXIT TOP OF SLAB. FILL WITH RTV SILICONE TO MAKE WATERTIGHT.
10) IF SUMP PIPE IS STEEL, BOND TO GROUND.
11) THIS DRAWING IS TYPICAL FOR TWO FOUNDATIONS, TRANSFORMER T1 & CIRCUIT SWITCHER CS1 AND ALSO FOR TRANSFORMER T2 & CIRCUIT SWITCHER CS2. SEE DRAWING 1407.2 - C - 2016. NOTE, EACH FOUNDATION CIRCUIT SWITCHER END POINTS TOWARD THE 4 POLE STRUCTURE.
12) A 150 mm LAYER OF WASHED, CRUSHED ROCK (AS PER SPEC.) WILL BE PLACED OVER THE ENTIRE SUBSTATION AND POWERPLANT AREA BY THE SUBSTATION CONTRACTOR, AFTER THE MAIN CONSTRUCTION WORK IS COMPLETE.
13) RUN A LOOP OF 2/0 AWG GROUND WIRE IN SUMP CRUSHED ROCK 400 mm BELOW SURFACE.




SECTION A




SECTION B

PROFESSIONAL ENGINEER YUKON W. NEIL BRAZIER TERRITORY

PERMIT TO PRACTICE
W.N. BRAZIER ASSOCIATES INC.
SIGNATURE
Date 13 Aug. 2018
PERMIT NUMBER PP295
Association of Professional Engineers of Yukon

ISSUED FOR CONSTRUCTION

| REV. | DATE | DESCRIPTION OF REVISION |
|---|---|---|
| 0 | AUG. 13/18 | CONSTRUCTION |

STRATAGOLD CORPORATION

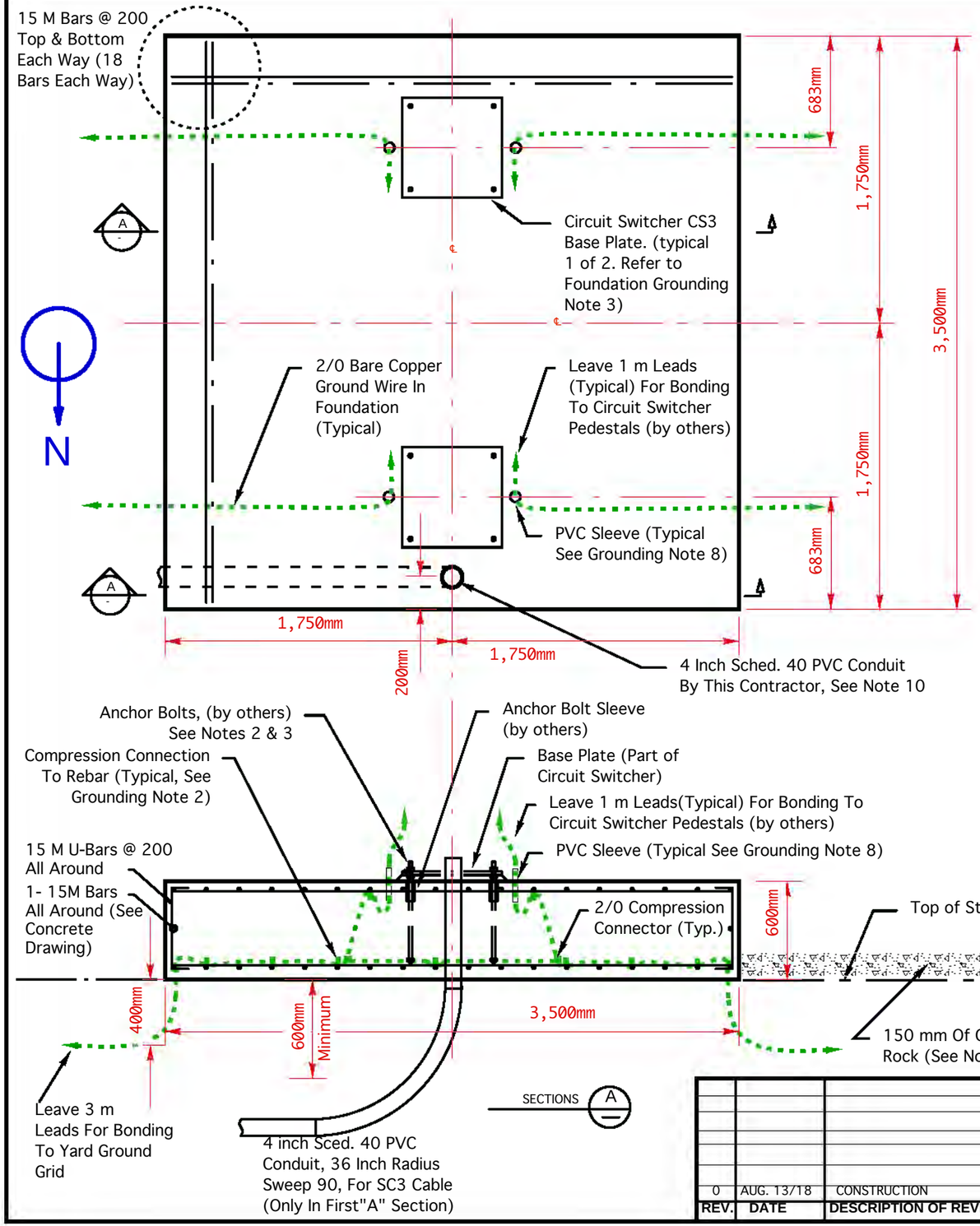
W.N. Brazier Associates Inc.

| | |
|---|---|
| DRAWN BY: WNB | DATE: JULY2018 |
| CHECKED BY: WNB | DATE: AUG. 10/18 |
| APPROVED BY: WNB | DATE: AUG. 13/18 |

EAGLE GOLD PROJECT
MAIN SUBSTATION & POWERPLANT
FOUNDAT'N GROUNDING - T1, CS1, T2, CS2

DRAWING NO: 001-2700 - E - 6535 REV. 0

DETAIL 2




## GENERAL NOTES

1) THE ENTIRE INSTALLATION SHALL BE IN ACCORDANCE WITH THE CANADIAN ELECTRICAL CODE C22.1-18 (THE C.E.C).THE CONTRACTOR SHALL SUPPLY AND INSTALL EQUIPMENT ALL IN ACCORDANCE WITH THIS STANDARD, WHETHER OR NOT ALL DETAILS ARE SPECIFIED OR SHOWN ON THE DRAWINGS. THE CONTRACTOR SHALL AS AN INTEGRAL PART OF THE CONTRACT, PROVIDE AN INSTALLATION FULLY IN COMPLIANCE WITH THE C.E.C. THIS INCLUDES THE SUPPLY AND INSTALLATION OF ALL NECESSARY SMALL MATERIALS, NOT NECESSARILY SHOWN ON THE DRAWINGS.
2) ALL GROUNDING MATERIAL AND EQUIPMENT SHALL BE CSA APPROVED AND SHALL CONFORM TO CSA STANDARD C22.2 No. 41 GROUNDING AND BONDING & EQUIPMENT.
3) PROVIDE ADDITIONAL (MECHANICAL) PROTECTION OF GROUND CONDUCTORS AS MAY BE REQUIRED BY THE C.E.C.

## FOUNDATION REBAR GROUNDING NOTES

1) FOR CONCRETE FOUNDATION DETAILS REFER TO DRAWING No. 1407.2 - C - 3025. FOR THE STRUCTURAL PAD GRADING PLAN SEE DRAWING No. 1407.2 - C - 2015. FOR CONCRETE FOUNDATION (LOCATION) PLAN SEE DRAWING No. 1407.2 - C - 2016. FOR TRANSFORMER FOUNDATION GROUNDING SEE DRAWING No. 001-2700-E-6535. FOR STATION GROUND GRID REFER TO DRAWING No. 001-2700-E-6531.
2) THIS DRAWING SHOWS EMBEDDED GROUND LEADS THROUGH THE FOUNDATION TO THE EQUIPMENT (CS3) AND INCLUDES REBAR GROUNDING. AS THE C.E.C. DOES NOT SPECIFICALLY REQUIRE REBAR GROUNDING, BOND GROUND WIRE TO REBAR AT SEVERAL LOCATIONS AS SHOWN. USE APPROVED COMPRESSION CONNECTORS OF SUITABLE SIZE.
3) AS THE CIRCUIT SWITCHERS AND TRANSFORMERS, ETC. WILL BE GROUNDED AS SHOWN ON OTHER DRAWINGS, GROUNDING OF ANCHOR BOLTS IS NOT INCLUDED ON THIS DRAWING AS THEY WILL BE GROUNDED BY VIRTUE OF THE FACT THE ASSOCIATED ELECTRICAL EQUIPMENT WILL BE SOLIDLY GROUNDED.
4) GROUND CONNECTIONS MAY BE MADE USING CSA APPROVED COMPRESSION CONNECTORS. OR EXOTHERMIC WELDING AS SHOWN.
5) WHEN EXOTHERMIC WELDING IS USED, IT MUST BE CARRIED OUT IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS.
6) COMPRESSION CONNECTORS SHALL BE COPPER, AS MANUFACTURED BY BURNDY, T&B, OR OTHER APPROVED MANUFACTURER (APPROVED IN WRITING ). COMPRESSION CONNECTOR INSTALLATION SHALL BE CARRIED OUT IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS, INCLUDING THE USE OF APPROPRIATE TOOLS, JOINT COMPOUND WHERE RECOMMENDED, ETC. FOR BONDING TO REBAR, SELECT CONNECTORS OF APPROPRIATE SIZE.
7) UNLESS SHOWN OTHERWISE, ALL GROUND WIRE SHALL BE BARE, STRANDED, 2/0 AWG SOFT OR MEDIUM HARD DRAWN COPPER GROUND WIRE.
8) INSTALL 1/2 OR 3/4 INCH PVC CONDUIT SLEEVE FOR MECHANICAL PROTECTION OF GROUND LEADS WHERE THEY EXIT TOP OF FOUNDATION. FILL WITH RTV SILICONE TO MAKE WATERTIGHT.
9) A 150 mm LAYER OF WASHED, CRUSHED ROCK (AS PER SPEC.) WILL BE PLACED OVER THE ENTIRE SUBSTATION AND POWERPLANT AREA BY THE SUBSTATION CONTRACTOR, AFTER THE MAIN CONSTRUCTION WORK IS COMPLETE.
10) EMBED 4 INCH SCHED. 40 PVC CONDUIT WITH 90° SWEEP 90, 36 INCH RADIUS AS SHOWN. NOTE, THIS IS ONLY ON THE LOWER SECTION A, NOT THE TO SECTION. INSTALL BEFORE FORMING FOUNDATION. DUCTWORK IN YARD MUST BE MIN. 600 BELOW GRADE BUT SWEEP 90 WILL REQUIRE GREATER BURIAL DEPTH.

ISSUED FOR CONSTRUCTION

PROFESSIONAL ENGINEER — YUKON — W. NEIL BRAZIER — TERRITORY

PERMIT TO PRACTICE
W.N. BRAZIER ASSOCIATES INC.
SIGNATURE
Date 13 Aug. 2018
PERMIT NUMBER PP295
Association of Professional Engineers of Yukon

| REV. | DATE | DESCRIPTION OF REVISION |
|---|---|---|
| 0 | AUG. 13/18 | CONSTRUCTION |

STRATAGOLD CORPORATION

W.N. Brazier Associates Inc.

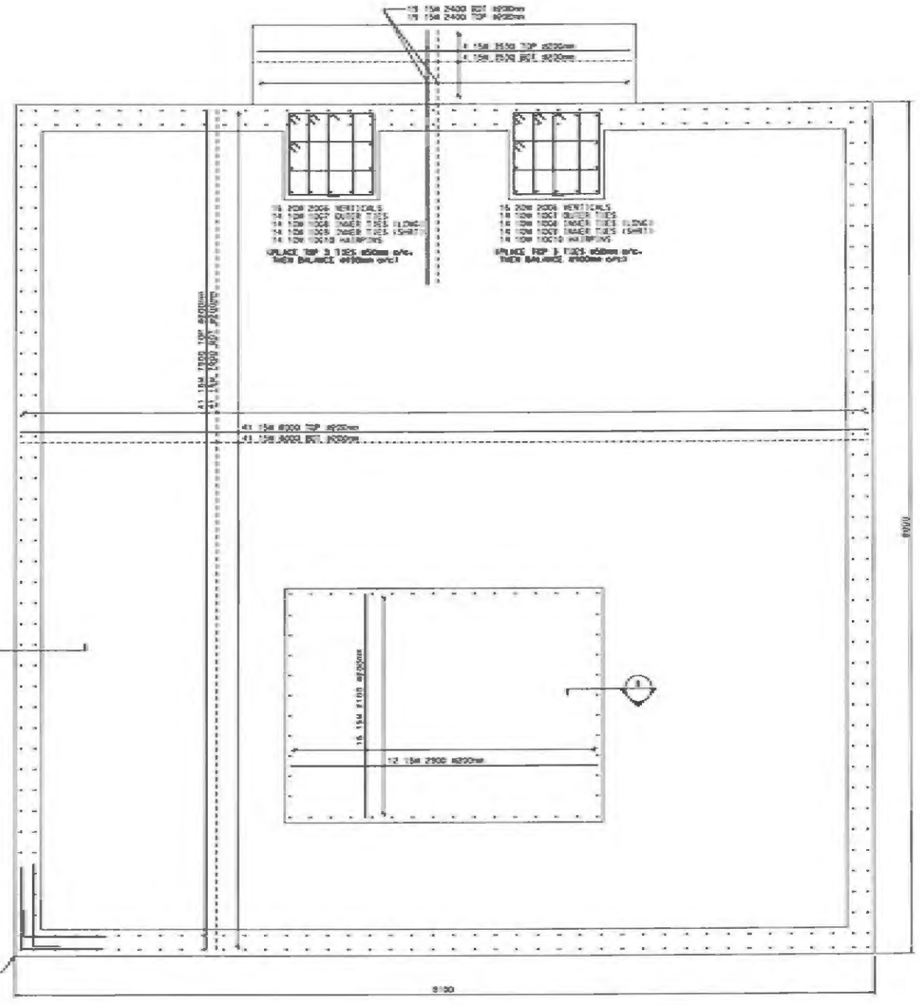
| | |
|---|---|
| DRAWN BY: WNB | DATE: JULY2018 |
| CHECKED BY: WNB | DATE: AUG. 10/18 |
| APPROVED BY: WNB | DATE: AUG. 13/18 |

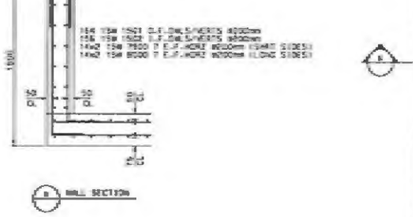
EAGLE GOLD PROJECT
MAIN SUBSTATION & POWERPLANT
FOUNDATION GROUNDING - CS3

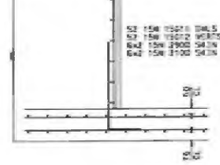
DRAWING NO: 001-2700 - E - 6537

REV. 0

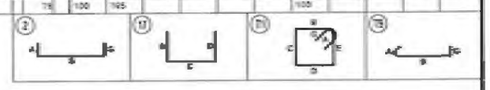
2 REQUIRED







| SIZE | EP | BAR MARK | # | BND TYP | DD | A | B | C | D | E | F/R | G | H | J | K | O |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 20M | | 2005 | | 17 | | | 400 | 1438 | | | | | | | | |
| 15M | | 1501 | | 17 | | | 300 | 1438 | | | | | | | | |
| 15M | | 1502 | | 17 | | | 300 | 1300 | | | | | | | | |
| 15M | | 1504 | | 17 | | | 775 | 775 | | | | | | | | |
| 15M | | 1505 | | 2 | 250 | 775 | | | | | | | | | | |
| 15M | | 15011 | | 17 | | | 300 | 950 | | | | | | | | |
| 15M | | 15012 | | 17 | | | 300 | 1250 | | | | | | | | |
| 10M | | 1003 | | 17 | | | 450 | 150 | 450 | | | | | | | |
| 10M | | 1007 | | 71 | 100 | 800 | 765 | 800 | 765 | | | 1100 | | | | |
| 10M | | 1008 | | 71 | 100 | 375 | 800 | 375 | 800 | | | 1100 | | | | |
| 10M | | 1009 | | 71 | 100 | 425 | 765 | 425 | 765 | | | 1100 | | | | |
| 10M | | 10010 | | 75 | 100 | 765 | | | | | | 1100 | | | | |



HATCH Vendor/Contractor Document Review

| | | | |
|---|---|---|---|
| Doc Number | E354138-CB201-230-260-0014 | SUB | 01 |
| Date Received | 2018-09-24 | | |

| Review Grade | Next Submittal Status |
|---|---|
| ☐ C1 - Proceed to next submission & status<br>☐ C2 - Proceed with exceptions as noted to next submission & status | ☐ Certified<br>☐ As-Built |
| ☐ C3 - Do not proceed. Revise as noted & resubmit | ☐ Internal Review<br>☐ Certified/☐ As-Built |
| Next Submittal Date: | |
| ☒ C4 - No further submission required - Complete (select status below)<br>☐ Certified Final ☐ Final ☒ Cancelled ☐ Superseded | |

Package Engineer: Name, signature and date
ESEA AKINCI, ZA, Sep 26 2018

Reviewed only for general conformity with the specifications. Acceptance by the engineer does not warrant or represent that the information contained on this drawing/document is either accurate or complete. The sole responsibility for correct design, details & dimensions shall remain with the party submitting the drawing/document.

NOT IN HATCH SCOPE



## GENERAL NOTES ON REINFORCEMENT

THE FOLLOWING NOTES SHALL APPLY TO ALL REINFORCEMENT SHOWN ON THE DRAWINGS UNLESS OTHERWISE NOTED.

DIMENSIONS:
DIMENSIONS TO REINFORCEMENT ARE TO CENTRE LINES OF BARS, UNLESS WHERE CONCRETE COVER OR CLEARANCE BETWEEN BARS IS SHOWN.

COVER:
SEE CONSTRUCTION ENGINEER TYPICAL NOTES FOR ALL COVER SPECIFICATIONS

SPACING:
UNLESS OTHERWISE SHOWN, THE FIRST AND LAST BARS IN SLABS AND WALLS, STIRRUPS IN BEAMS SHALL BE PLACED AT MAXIMUM OF HALF THE SPECIFIED SPACING OF ADJACENT BARS FROM THE END OF THE MEMBER.

STEEL SPECIFICATIONS:
STEEL REINFORCEMENT SHALL BE DEFORMED BARS OF GRADE 400 CONFORMING TO CSA STANDARDS G30.18 M1987-400R BARS FOR CONCRETE REINFORCEMENT.

WELDING:
WELDING OF REINFORCEMENT SHALL NOT BE PERMITTED.

SPLICES AND EMBEDMENTS:
UNLESS OTHERWISE SPECIFIED, ALL EMBEDMENTS SHALL BE TREATED AS TENSION EMBEDMENTS AND ALL LAP SPLICES SHALL BE CONSIDERED AS TENSION LAP SPLICES.

WHEN REINFORCING BARS OF DIFFERENT SIZE ARE TO BE SPLICED, THE LENGTH OF THE LAP SHALL BE BASED ON THE DIAMETER OF THE SMALLER BAR.

SPLICES ARE TO BE MADE SO THAT THE GIVEN CLEAR DISTANCE COVER WILL BE MAINTAINED.

LAP LENGTHS UNLESS SHOWN OTHERWISE:

| | HOOK | STRAIGHT |
|---|---|---|
| 10M | 320 | 400 |
| 15M | 375 | 500 |
| 20M | 1000 | 700 |
| 25M | 1675 | 1240 |
| 30M | 1940 | 1495 |
| 35M | | |

PLACEMENT:
PLACE REINFORCING STEEL IN ACCORDANCE WITH CSA CAN3-A23.1-M8.

REINFORCEMENT MAY BE DISPLACED TO CLEAR PIPES, RECESSES, EMBEDDED METAL WORKS AND CONDUITS.

A MINIMUM CLEARANCE OF 1" SHALL BE MAINTAINED BETWEEN REINFORCEMENT AND EMBEDDED MATERIALS. THE MINIMUM CLEARANCE BETWEEN REINFORCEMENT

REINFORCEMENT SHALL BE ACCURATELY PLACED IN ACCORDANCE WITH THE DRAWING AND SHALL BE ADEQUATELY SECURED AGAINST DISPLACEMENT BY USING ANNEALED IRON WIRE AT INTERSECTIONS AND SHALL BE SUPPORTED BY APPROVED CONCRETE OR METAL SUPPORTS, SPACERS OR METAL HANGERS EXCEPT AT SURFACES EXPOSED TO THE GROUND OR TO THE WEATHER WHERE SUPPORTS SHALL BE APPROVED. ALL METAL ACCESSORIES ARE TO BE GALVANIZED.

THE FULL INTENT AND PURPOSE OF THESE DRAWINGS IS PLACING OF REINFORCING STEEL BARS ONLY. IT IS NOT TO BE USED AS A MEANS OF COMMUNICATION BETWEEN THE ARCHITECT, ENGINEER, CONTRACTOR OR ANY OTHER SUBTRADE.

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| | |
|---|---|
| @ | - SPACING CENTER TO CENTER |
| | - DIRECTION IN WHICH BARS EXTEND |
| | - LIMITS OF AREA COVERED BY BARS |
| ——— | - NEBAR TOP/NEAR FACE |
| - - - - - | - NEBAR BOT/FAR FACE |
| I.F. | - INSIDE FACE |
| O.F. | - OUTSIDE FACE |
| N.F. | - NEAR FACE |
| F.F. | - FAR FACE |
| E.W. | - EACH WAY |
| VERT | - VERTICAL |
| HORIZ | - HORIZONTAL |
| DWLS | - DOWELS |
| FTG | - FOOTING |
| COL. | - COLUMN |
| BOT | - BOTTOM |
| TOP | - TOP |
| T&B | - TOP & BOTTOM |
| L-R | - LEFT TO RIGHT |
| B-T | - BOTTOM TO TOP |
| C.B. | - CORNER BAR |
| T.O.S. | - TAPERING OPPOSITE HAND |
| R/L | - FROM RIGHT TO LEFT |
| F.B. | - FIELD BEND |
| C.I.F. | - CUT IN FIELD |
| T.O.W. | - TOP OF WALL |
| T.O.F. | - TOP OF FOOTING |
| B.O.W. | - BOTTOM OF WALL |
| T.O.C. | - TOP OF CONCRETE |
| B.O.C. | - BOTTOM OF CONCRETE |
| ELEV. | - ELEVATION |

| | | | | | |
|---|---|---|---|---|---|
| B-L.-L. | - BOTTOM LOWER LAYER | | | | |
| B-U.-L. | - BOTTOM UPPER LAYER | | | | |
| M.L.-L. | - MSB LOWER LAYER | | | | |
| M.U.-L. | - MSB UPPER LAYER | | | | |
| T.L.-L. | - TOP LOWER LAYER | | | | |
| T.U.-L. | - TOP UPPER LAYER | | | | |
| E.M. | - EACH MAT | | | | |
| BNT. | - BENT | | | | |

PREFIX G
TRANS. 8.0
NOS.

PRINT RECORD

| NO. | REVISION | DATE | TO | BY | DATE |
|---|---|---|---|---|---|
| | | | | | |

REINFORCING STEEL PLACING PLAN

MCNISH STEEL LTD.
10636 - 205 STREET
EDMONTON, ALBERTA
PHONE 447-5337 FAX 447-5379

PROJECT = STRATHCOLD (EAGLE GOLD PROJECT)
CONTR. = CLARK BUILDERS
DWG.OF = SUBSTATION (TRANSFORMER & OIL CONTAINMENT FOUNDATION)
ENGR. = HATCH
DRAWN BY = MARK DATE = 17/SEP/2018

JOB NO. 18-042 DWG. NO. 007 A

| SIZE | EP | BAR MARK | V | END TYP | CD | A | B | C | D | BENDING DIMENSIONS E | F/R | G | H | J | K | O |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
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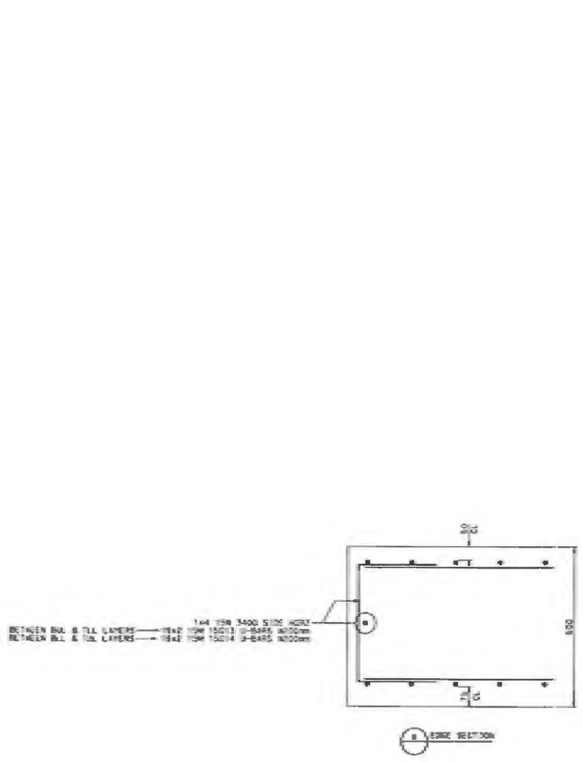
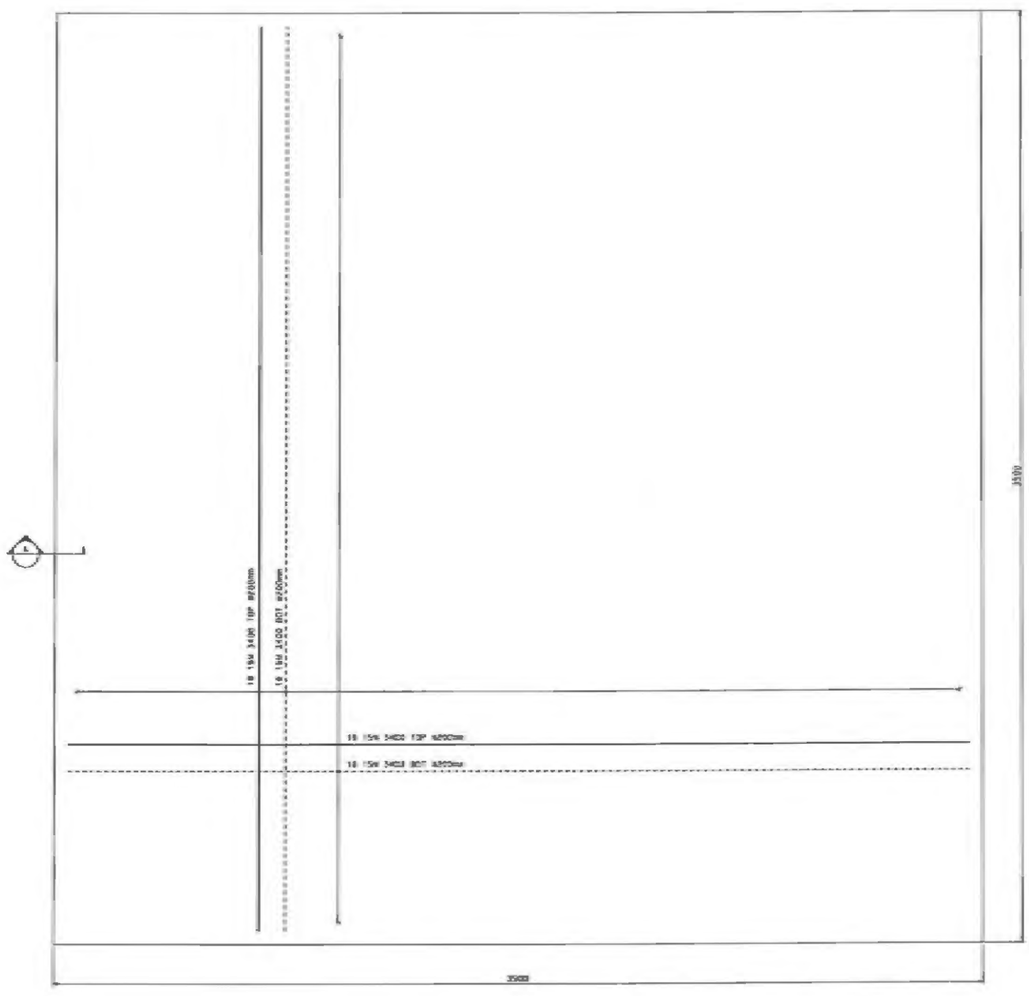
| 15M | | 15D14 | | 11 | | | 500 | 4375 | 300 | | | | | | | |




**HATCH** Vendor/Contractor Document Review

| | | | |
|---|---|---|---|
| Doc Number | E354138-CB201-230-260-0015 | SUB | 01 |
| Date Received | 2018-09-24 | | |

| Review Grade | Next Submittal Status |
|---|---|
| ☐ C1 - Proceed to next submission & status<br>☐ C2 - Proceed with exceptions as noted to next submission & status | ☐ Certified<br>☐ As-Built |
| ☐ C3 - Do not proceed. Revise as noted & resubmit | ☐ Internal Review |
| Next Submittal Date: | ☐ Certified/☐ As-Built |
| ☒ C4 - No further submission required - Complete (select status below)<br>☐ Certified Final ☐ Final ☒ Cancelled ☐ Superseded | |

**Package Engineer:** Name, signature and date
ESEA AKINLEA Sep 26 2018

Reviewed only for general conformity with the specifications. Acceptance by the engineer does not warrant or represent that the information contained on this drawing/document is either accurate or complete. The sole responsibility for correct design, details & dimensions shall remain with the party submitting the drawing/document.

NOT IN HATCH SCOPE

## GENERAL NOTES ON REINFORCEMENT

THE FOLLOWING NOTES SHALL APPLY TO ALL REINFORCEMENT SHOWN ON THE DRAWINGS UNLESS OTHERWISE NOTED.

DIMENSIONS:
DIMENSIONS TO REINFORCEMENT ARE TO CENTRE LINES OF BARS, EXCEPT WHERE CONCRETE COVER OR CLEARANCE BETWEEN BARS IS SHOWN.

COVER:
SEE STRUCTURAL ENGINEERS TYPICAL NOTES FOR ALL COVER SPECIFICATIONS

SPACING:
UNLESS OTHERWISE SHOWN, THE FIRST AND LAST BARS IN SLABS AND WALLS, STIRRUPS IN BEAMS SHALL BE PLACED AT MAXIMUM OF HALF THE SPECIFIED SPACING OF ADJACENT BARS FROM THE END OF THE MEMBER.

STEEL SPECIFICATIONS:
STEEL REINFORCEMENT SHALL BE DEFORMED BARS OF GRADE 400 CONFORMING TO CSA STANDARDS G30.12 BILLET-STEEL BARS FOR CONCRETE REINFORCEMENT.

WELDING:
WELDING OF REINFORCEMENT SHALL NOT BE PERMITTED.

SPLICES AND EMBEDMENTS:
UNLESS OTHERWISE SPECIFIED, ALL EMBEDMENTS SHALL BE TREATED AS TENSION EMBEDMENTS AND ALL LAP SPLICES SHALL BE CONSIDERED AS TENSION LAP SPLICES.

WHEN REINFORCING BARS OF DIFFERENT SIZE ARE TO BE SPLICED, THE LENGTH OF THE LAP SHALL BE BASED ON THE DIAMETER OF THE SMALLER BAR.

SPLICES ARE TO BE MADE SO THAT THE GIVEN CLEAR DISTANCE COVER WILL BE MAINTAINED.

LAP LENGTHS UNLESS SHOWN OTHERWISE:

| | HORZ | BOWER |
|---|---|---|
| 10M | 520 | 450 |
| 15M | 775 | 595 |
| 20M | 1030 | 790 |
| 25M | 1315 | 1240 |
| 30M | 1940 | 1485 |
| 35M | | |

PLACEMENT:
PLACE REINFORCING STEEL IN ACCORDANCE WITH CSA CAN3-A23.1-M.

REINFORCEMENT MAY BE DISPLACED TO CLEAR PIPES, RECESSES, EMBEDDED METAL WORKS AND CONDUITS.

A MINIMUM CLEARANCE OF 1" SHALL BE MAINTAINED BETWEEN REINFORCEMENT AND EMBEDDED MATERIALS. THE MINIMUM CLEARANCE BETWEEN REINFORCEMENT

REINFORCEMENT SHALL BE ACCURATELY PLACED IN ACCORDANCE WITH THE DRAWING AND SHALL BE ADEQUATELY SECURED AGAINST DISPLACEMENT BY USING ANNEALED IRON WIRE AT INTERSECTIONS AND SHALL BE SUPPORTED BY APPROVED CONCRETE OR METAL SUPPORTS. SPACERS OR METAL HANGERS EXCEPT AT SURFACES EXPOSED TO THE GROUND OR TO THE WEATHER WHERE SUPPORTS SHALL BE APPROVED. ALL METAL ACCESSORIES ARE TO BE GALVANIZED.

THE FULL INTENT AND PURPOSE OF THESE DRAWINGS IS PLACING OF REINFORCING STEEL BARS ONLY. IT IS NOT TO BE USED AS A MEANS OF COMMUNICATION BETWEEN THE ARCHITECT, ENGINEER, CONTRACTOR OR ANY OTHER SUBTRADE.

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B.L.L.. - BOTTOM LOWER LAYER
B.U.L.. - BOTTOM UPPER LAYER
M.L.L.. - MID LOWER LAYER
M.U.L.. - MID UPPER LAYER
T.L.L.. - TOP LOWER LAYER
T.U.L.. - TOP UPPER LAYER
E.W. - EACH WAY
Bet. - BENT

@ - SPACING CENTER TO CENTER
- DIRECTION IN WHICH BARS EXTEND
- LIMITS OF AREA COVERED BY BARS
- REBAR TOP/NEAR FACE
- REBAR BOT/FAR FACE
I.F. - INSIDE FACE
O.F. - OUTSIDE FACE
N.F. - NEAR FACE
F.F. - FAR FACE
E.W. - EACH WAY
VERT - VERTICAL
HORZ - HORIZONTAL
DWLS - DOWELS
FTG - FOOTING
COL - COLUMN

BOT - BOTTOM
TOP - TOP
T&B - TOP & BOTTOM
L-R - LEFT TO RIGHT
B-T - BOTTOM TO TOP
C.B. - CORNER BAR
T.O.M. - TYPICAL OPPOSITE HAND
R/L - FROM RIGHT TO LEFT
F.B. - FIELD BEND
C.I.F. - CUT IN FIELD
T.O.W. - TOP OF WALL
T.O.F. - TOP OF FOOTING
B.O.W. - BOTTOM OF WALL
T.O.C. - TOP OF CONCRETE
B.O.C. - BOTTOM OF CONCRETE
ELEV. - ELEVATION

PREFIX G
TRANS. 8.0
NOS.

PRINT RECORD

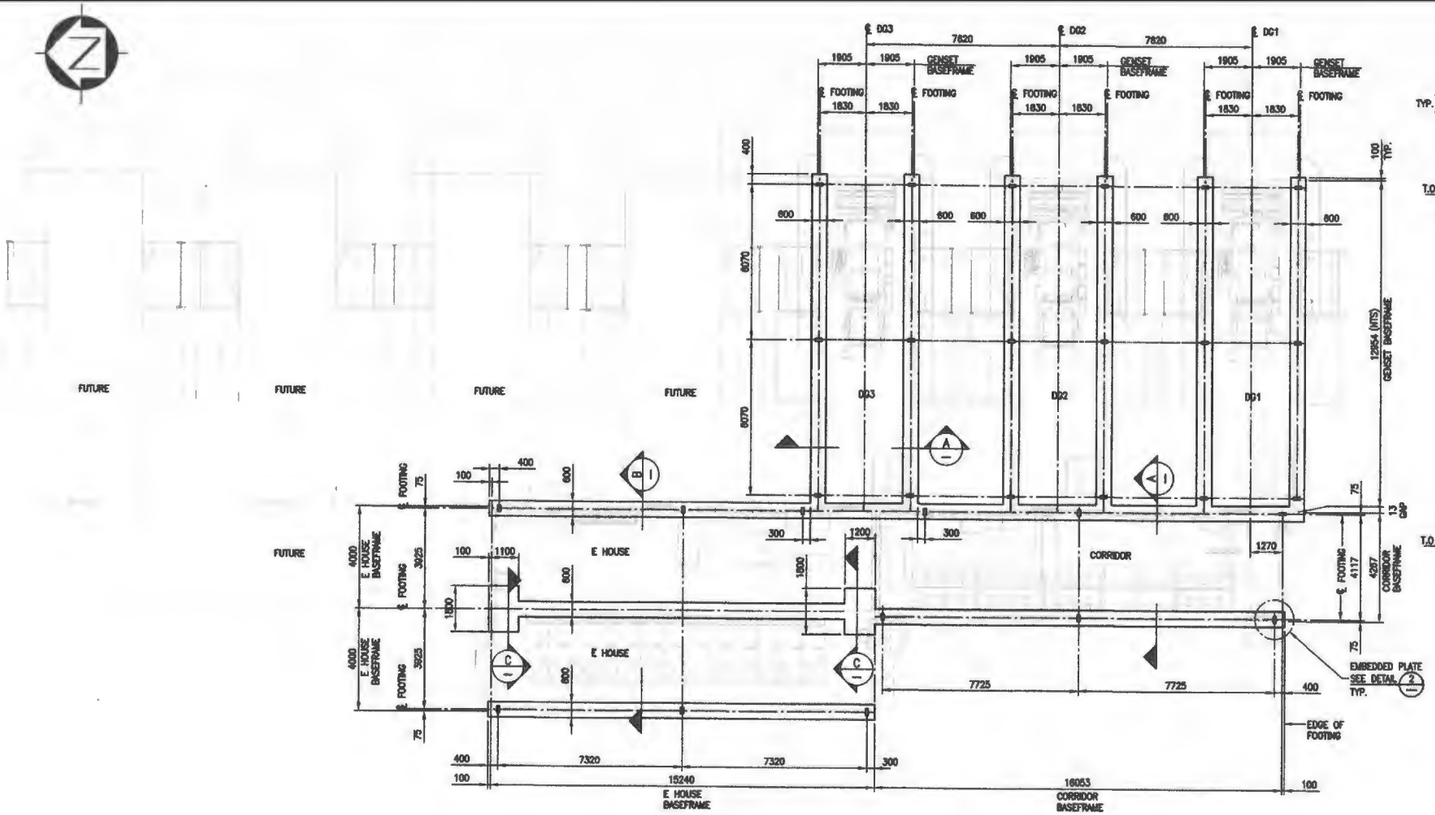
| NO. | REVISION | DATE | NO. | TOL. | FOR | DATE |
|---|---|---|---|---|---|---|
| | | | 1C | C | A | YY/SEP/XX |

# REINFORCING STEEL PLACING PLAN

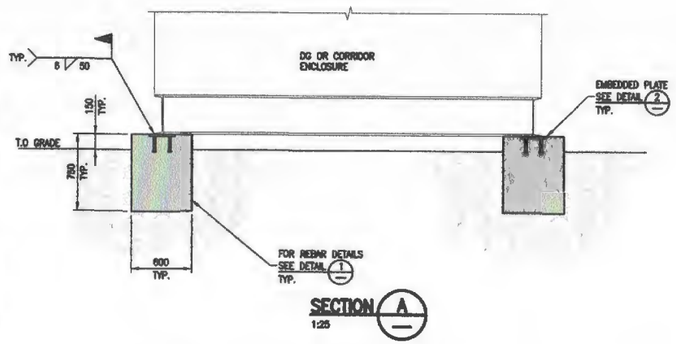
MCNISH STEEL LTD.
10636 - 205 STREET
EDMONTON, ALBERTA
PHONE 447-3337 FAX 447-3319

PROJECT : STRATHCOLD (EAGLE GOLD PROJECT)
CONTR. : CLARK BUILDERS
ENG. OF : SUBSTATION (CIRCUIT SWITCHER FOUNDATIONS)
ENGR. : HATCH
DRAWN BY : MARK DATE : 17/SEP/2018

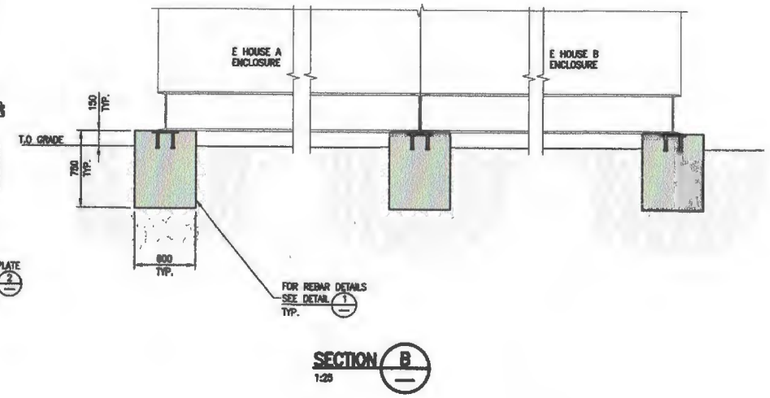
JOB NO. 18-042 DWG. NO. 007 B




## FOUNDATION PLAN
1:100

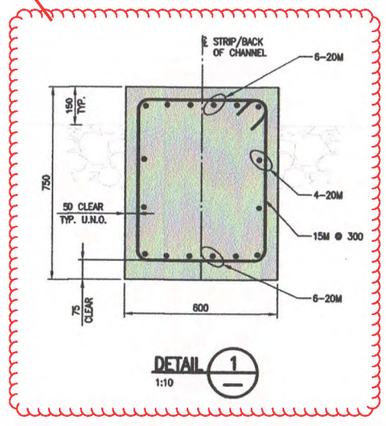



## SECTION A
1:25

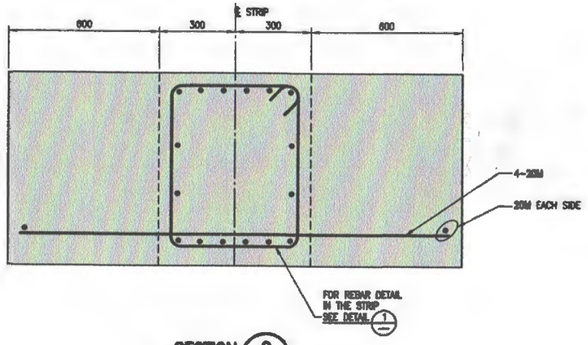



## SECTION B
1:25

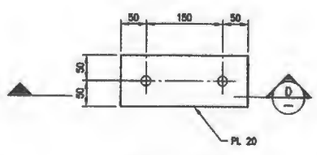
RFI 108



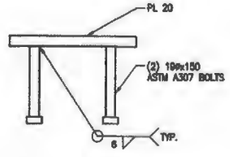

## DETAIL 1
1:10




## SECTION C
1:10




## DETAIL 2
1:5




## SECTION D
1:5

## NOTES:

1) ALL CONCRETE WORK SHALL CONFORM TO THE REQUIREMENTS OF NBC 2015 AND:
   A: CAN/CSA-A23.1-14 CONCRETE MATERIALS AND METHODS OF CONCRETE CONSTRUCTIONS
   B: CAN/CSA-A23.2-14 METHODS OF TEST FOR CONCRETE
   C: CAN/CSA-A23.3-14 DESIGN OF CONCRETE STRUCTURES
2) CAST-IN-PLACE CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 30MPa AT 28 DAYS UNLESS NOTED OTHERWISE.
3) COLD WEATHER HANDLING METHODS OF CONCRETE MIXES SHALL CONFORM TO CAN/CSA-A23.1
4) REINFORCING STEEL SHALL BE DEFORMED BARS CONFORMING TO CAN/CSA-G30.18. ALL REINFORCING STEELS SHALL BE MINIMUM GRADE 400MPa.
5) GEOTECHNICAL SHALL BE AS "GEOTECHNICAL RECOMMENDATIONS FOR SUBSTATION STRIP FOOTINGS" DATED 17 SEPT 2018, BY TETRA-TECH. IN GENERAL,
   BEARING SURFACE: 100mm THICK LAYER OF CRUSHED 20mm MINUS GRAVEL COMPACTED TO 98% SPMDD.
   BACKFILL: GRANULAR FILL COMPACTED TO 95% SPMDD.

PERMIT TO PRACTICE
JAMES R. MACKENZIE
SIGNATURE
Date OCT 03 2018
PERMIT NUMBER PP244
Association of Professional Engineers of Yukon

| REV. | Y/M/D | DESCRIPTION | DRN | APP'D |
|---|---|---|---|---|
| 1 | 18/10/03 | REISSUED FOR CONSTRUCTION | YH | JRM |
| 0 | 18/10/01 | ISSUED FOR CONSTRUCTION | YH | JRM |

Title: EAGLE GOLD PROJECT 69 KV SUBSTATION AND DIESEL POWER PLANT FOUNDATIONS
Location: DUBLIN GULCH, YUKON

J.R.MacKenzie, P.Eng., Struct. Eng.
Civil and Structural Engineer
Address: 7018 GOODLAD STREET, BURNABY, B.C. CANADA V5E 2H8
Email: jim@jrmackenzie.com
Tel: 604 968 2457
Fax: 604 648 8341

WAJAX

| Design by: | Checked by: | Drawn by: | Rev. No.: |
|---|---|---|---|
| J.R. MACKENZIE | | YH | 1 |
| Scale: AS NOTED | Date: | Date: 18/09/30 | Dwg. No.: 18-132-0001 |

PROFESSIONAL ENGINEER YUKON TERRITORY JAMES R. MACKENZIE

ISSUED FOR CONSTRUCTION

| REV. | DATE | DESCRIPTION OF REVISION |
|---|---|---|
| 0 | 3/10/2018 | FOR CONSTRUCTION |

STRATAGOLD CORPORATION

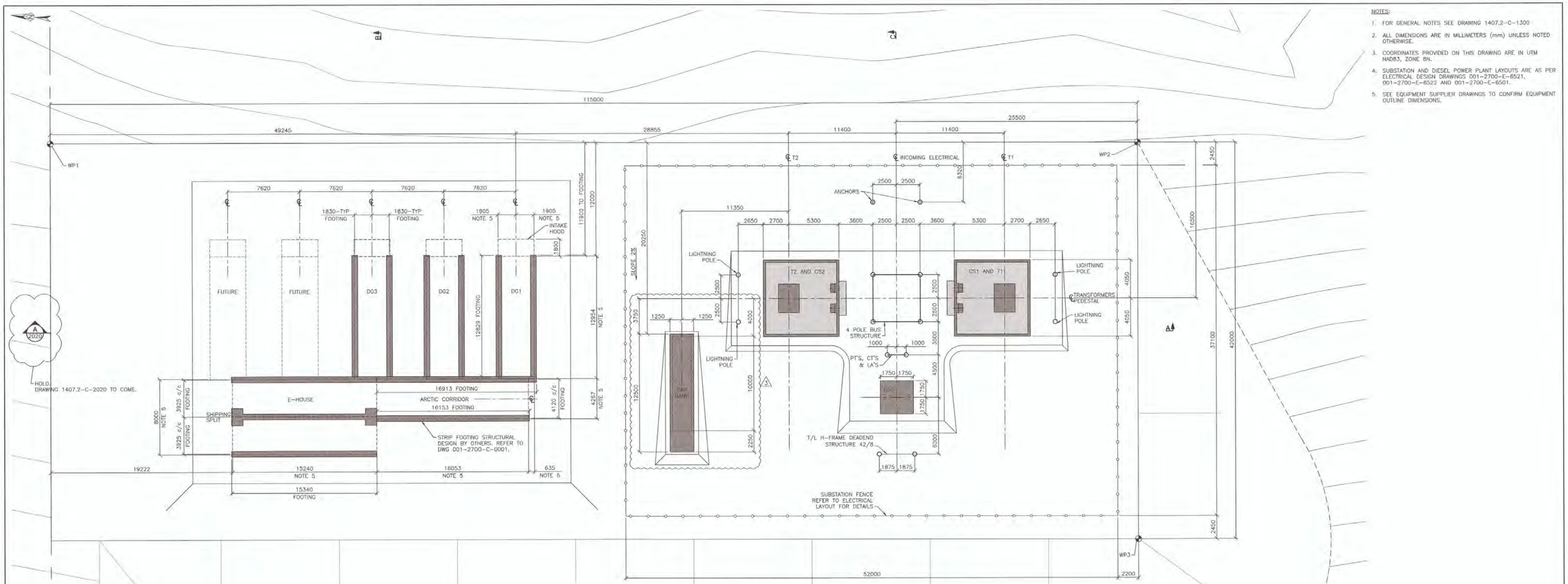
W.N. Brazier Associates Inc.

EAGLE GOLD PROJECT, 69 KV SUBSTATION & DIESEL POWER PLANT, MODULE FOUNDATIONS - CONCRETE

DRAWING NO: 001-2700-C-0002 REV. 0

NOTES:

1. FOR GENERAL NOTES SEE DRAWING 1407.2-C-1300
2. ALL DIMENSIONS ARE IN MILLIMETERS (mm) UNLESS NOTED OTHERWISE.
3. COORDINATES PROVIDED ON THIS DRAWING ARE IN UTM NAD83, ZONE 8N.
4. SUBSTATION AND DIESEL POWER PLANT LAYOUTS ARE AS PER ELECTRICAL DESIGN DRAWINGS 001-2700-E-6521, 001-2700-E-6522 AND 001-2700-E-6501.
5. SEE EQUIPMENT SUPPLIER DRAWINGS TO CONFIRM EQUIPMENT OUTLINE DIMENSIONS.




STRUCTURAL PAD PLAN
SCALE: 1:200

| WORKPOINT TABLE | | | |
|---|---|---|---|
| TYPE | POINT | NORTHING (m) | EASTING (m) |
| WORKPOINT | WP1 | 7100026.4245 | 458789.4274 |
| | WP2 | 7099911.8619 | 458799.4479 |
| | WP3 | 7099908.2015 | 458757.6080 |

| NO. | DATE | REVISION | DES | DWN | CHK | APR |
|---|---|---|---|---|---|---|
| — | | | | | | |
| — | | | | | | |
| 3 | OCT 4/18 | CAP BANK FOUNDATION REVISED | MEO | SE | PC | MEO |
| 2 | SEP 27/18 | FOOTINGS ADDED / DIMENSIONS REVISED | PC | SE | PC | MEO |
| 1 | SEP 6/18 | MOVED POWERHOUSE WEST | MP | SE | NB | PC |
| 0 | AUG 21/18 | ISSUED FOR CONSTRUCTION | MEO | SE | NB | MEO |

CLIENT: StrataGold Corporation
DATE: AUG 21/18
DESIGN: MEO
DRAWN: SE
CHECKED: NB
APPROVED: MEO

Clean Energy CONSULTING INC. www.cleanenergyconsulting.ca
WN BRAZIER ASSOCIATES INC

ISSUED FOR CONSTRUCTION

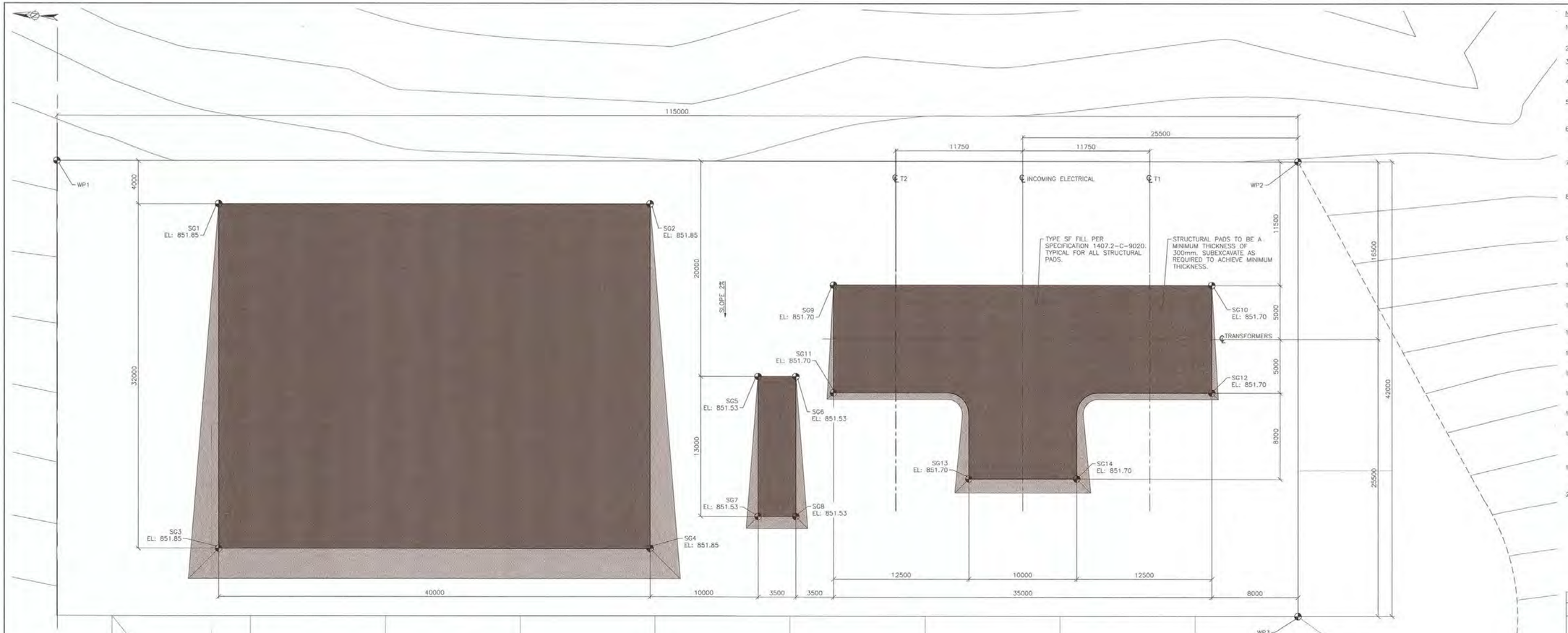
PERMIT TO PRACTICE
CLEAN ENERGY CONSULTING INC.
SIGNATURE
Date Oct 5, 2018
PERMIT NUMBER: PP424
Association of Professional Engineers of Yukon

PROFESSIONAL ENGINEER YUKON TERRITORY MATTHEW OBEE 5 OCT 2018

EAGLE GOLD PROJECT
69 kV SUBSTATION AND DIESEL POWER PLANT
CONCRETE FOUNDATION PLAN

PROJECT No. 1407.2
DRAWING No. 1407.2-C-2016
REV. 3

THIS DRAWING IS PROTECTED BY COPYRIGHT LAW AND CANNOT BE REPRODUCED IN ANY MANNER EXCEPT BY WRITTEN PERMISSION OF CLEAN ENERGY CONSULTING INC.




NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETERS (mm) UNLESS NOTED OTHERWISE.
2. ELEVATIONS ARE IN METERS (m) UNLESS NOTED OTHERWISE.
3. ELEVATIONS SHOWN ON THIS DRAWING ARE TO GEODETIC DATUM IN UTM NAD83, ZONE 8N.
4. ALL EXCAVATION AND FILLS TO BE IN ACCORDANCE WITH SPECIFICATION 1407.2-C-9020 EXCAVATION AND BACKFILLING.
5. EXCAVATE TO REMOVE VEGETATION, TOPSOIL, ORGANICS, AND ICE-RICH PERMAFROST, EXPOSING UNFROZEN OR NON-ICE-RICH MINERAL SOIL.
6. CUT OUT SOFT AREAS OF SUBGRADE NOT CAPABLE OF COMPACTION IN PLACE. BACKFILL WITH FILL AND COMPACT TO DENSITY EQUAL TO OR GREATER THAN REQUIREMENTS FOR SUBSEQUENT FILL MATERIAL.
7. SCARIFY AND PROOF ROLL SUBGRADE SURFACE TO A DEPTH INDICATED TO IDENTIFY SOFT SPOTS; FILL AND COMPACT TO DENSITY EQUAL TO OR GREATER THAN REQUIREMENTS FOR SUBSEQUENT FILL MATERIAL.
8. ENSURE THERE IS NO ICE RICH MATERIAL BELOW PLANNED FILL AREA. ALL ICE RICH MATERIAL SHOULD BE REMOVED PRIOR TO FILL PLACEMENT AND THE ADJACENT GROUND ALLOWED SUFFICIENT TIME TO THAW, DRAIN AND DRY AS APPLICABLE.
9. THE OWNER'S GEOTECHNICAL ENGINEER MAY PRESCRIBE THE USE OF GEOTEXTILE FOLLOWING REVIEW OF SUBGRADE CONDITIONS.
10. A GEOTECHNICAL ENGINEER MUST CONFIRM SUITABILITY OF SUBGRADE PRIOR TO PLACEMENT OF NEW FILL SECTIONS.
11. PLACE AND COMPACT MATERIAL IN EQUAL CONTINUOUS LAYERS NOT EXCEEDING 200 mm LOOSE THICKNESS.
12. COMPACT FILL TO WITHIN THE BOUNDS OF 98% STANDARD PROCTOR DRY DENSITY WITH A DEGREE OF SATURATION OF ±2% OF OPTIMUM.
13. EMPLOY A PLACEMENT METHOD THAT DOES NOT DISTURB OR DAMAGE OTHER WORK.
14. MAINTAIN OPTIMUM MOISTURE CONTENT (±2%) OF BACKFILL MATERIALS TO ATTAIN REQUIRED COMPACTION DENSITY.
15. MAKE GRADUAL GRADE CHANGES. BLEND SLOPE INTO LEVEL AREAS.
16. THE SUBGRADE PREPARATION MUST EXTEND TO OUTER LIMITS OF FILL SLOPE.
17. STRUCTURAL FILL PADS TO BE A MINIMUM OF 300mm THICK SUBEXCAVATE AS REQUIRED TO ACHIEVE MINIMUM THICKNESS.
18. STRUCTURAL FILL PAD ELEVATIONS TO BE WITHIN ±25mm TOLERANCE OF ELEVATIONS SHOWN WITH A MAXIMUM TOTAL ELEVATION DIFFERENCE <25mm BETWEEN CORNERS ON DIAGONAL.
19. ALL FILL SLOPES FROM STRUCTURAL PADS TO BE VERY GRADUAL SUCH THAT INSULATING AGGREGATE WILL NO SLUFF. 4H:1V MINIMUM.
20. PROVIDE APPROXIMATELY 3m³ STOCKPILE OF STRUCTURAL FILL MATERIAL FOR USE BY EQUIPMENT INSTALLATION CONTRACTOR TO FILL ANY VOIDS UNDER EQUIPMENT SKIDS OR RIG MAT SUPPORTS.

STRUCTURAL PAD SETTING OUT TABLE

| TYPE | POINT | NORTHING (m) | EASTING (m) |
|---|---|---|---|
| STRUCTURAL PAD GRADING CORNER | SG1 | 7100011.1330 | 458786.7499 |
| | SG2 | 7099971.2850 | 458790.2338 |
| | SG3 | 7100008.3440 | 458754.8716 |
| | SG4 | 7099968.4938 | 458758.3557 |
| | SG5 | 7099959.9288 | 458775.1685 |
| | SG6 | 7099956.4685 | 458775.4712 |
| | SG7 | 7099958.7958 | 458762.2180 |
| | SG8 | 7099955.3091 | 458762.5230 |
| | SG9 | 7099953.6962 | 458784.2463 |
| | SG10 | 7099918.8294 | 458787.2967 |
| | SG11 | 7099952.8247 | 458774.2843 |
| | SG12 | 7099917.9579 | 458777.3348 |
| | SG13 | 7099939.6750 | 458767.4042 |
| | SG14 | 7099929.7131 | 458768.2758 |

2

WORKPOINT TABLE

| TYPE | POINT | NORTHING (m) | EASTING (m) |
|---|---|---|---|
| WORKPOINT | WP1 | 7100026.4245 | 458789.4274 |
| | WP2 | 7099911.8619 | 458799.4479 |
| | WP3 | 7099908.2015 | 458757.6080 |

STRUCTURAL PAD PLAN
SCALE: 1:200

ISSUED FOR CONSTRUCTION

PERMIT TO PRACTICE
CLEAN ENERGY CONSULTING INC.
SIGNATURE
Date Aug 21, 2018
PERMIT NUMBER: PP424
Association of Professional Engineers of Yukon

| NO. | DATE | REVISION | DES | DWN | CHK | APR |
|---|---|---|---|---|---|---|
| – | | | | | | |
| – | | | | | | |
| – | | | | | | |
| 2 | AUG 21/18 | WORKPOINTS UPDATED | MEO | SE | NB | MEO |
| 1 | JUL 6/18 | GENERAL REVISION | MEO | SE | NB | MEO |
| 0 | JUN 22/18 | ISSUED FOR CONSTRUCTION | MEO | SE | NB | MEO |

CLIENT: StrataGold Corporation
DESIGN: MEO
DRAWN: SE
CHECKED: NB
APPROVED: MEO
DATE: JUN 22/18

Clean Energy CONSULTING INC. www.cleanenergyconsulting.ca
WN BRAZIER ASSOCIATES INC

SEAL: PROFESSIONAL ENGINEER YUKON TERRITORY MATTHEW OBEE Aug 21, 2018

EAGLE GOLD PROJECT
69 kV SUBSTATION AND DIESEL POWER PLANT
STRUCTURAL PAD GRADING PLAN

PROJECT No. 1407.2
DRAWING No. 1407.2-C-2015
REV. 2

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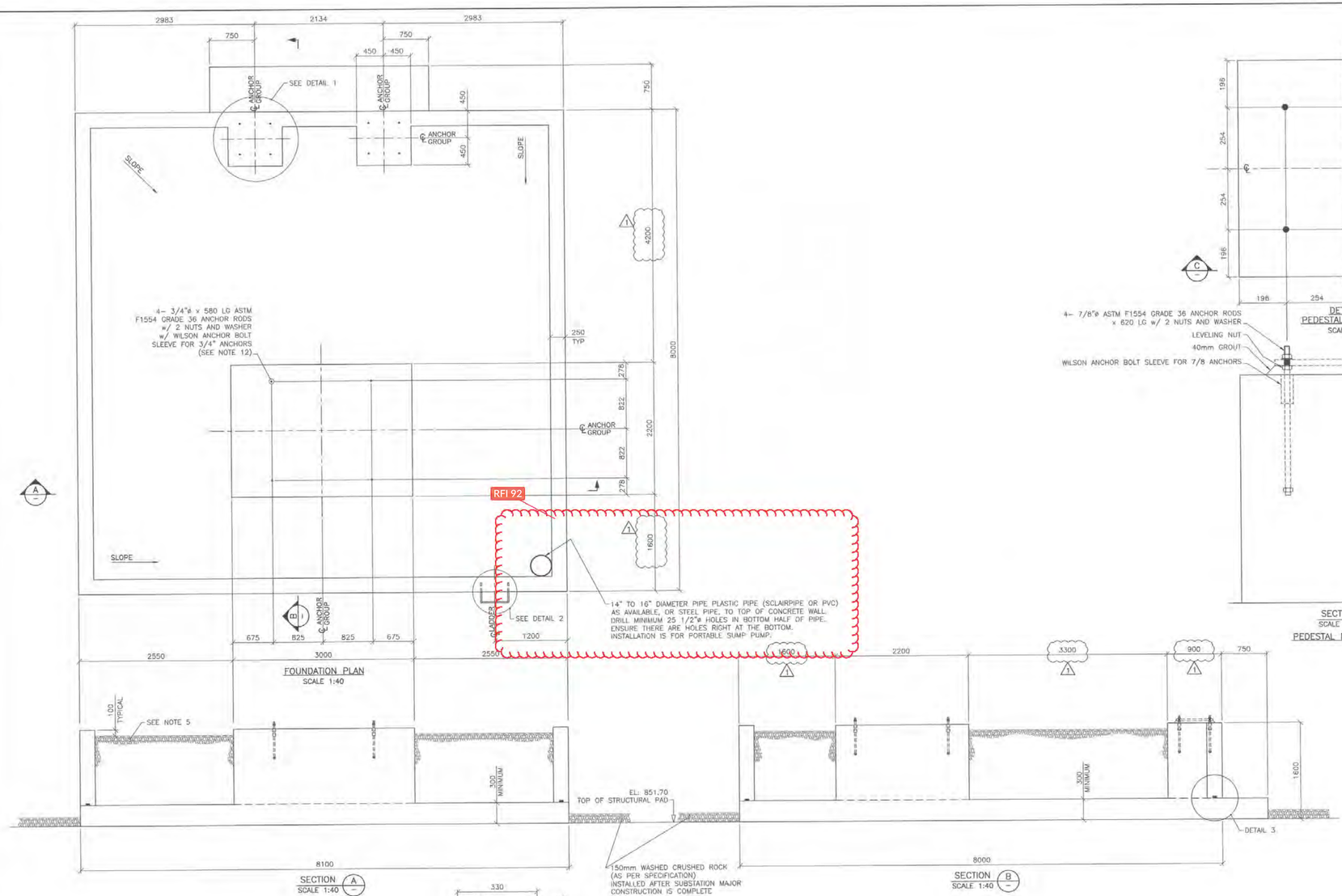
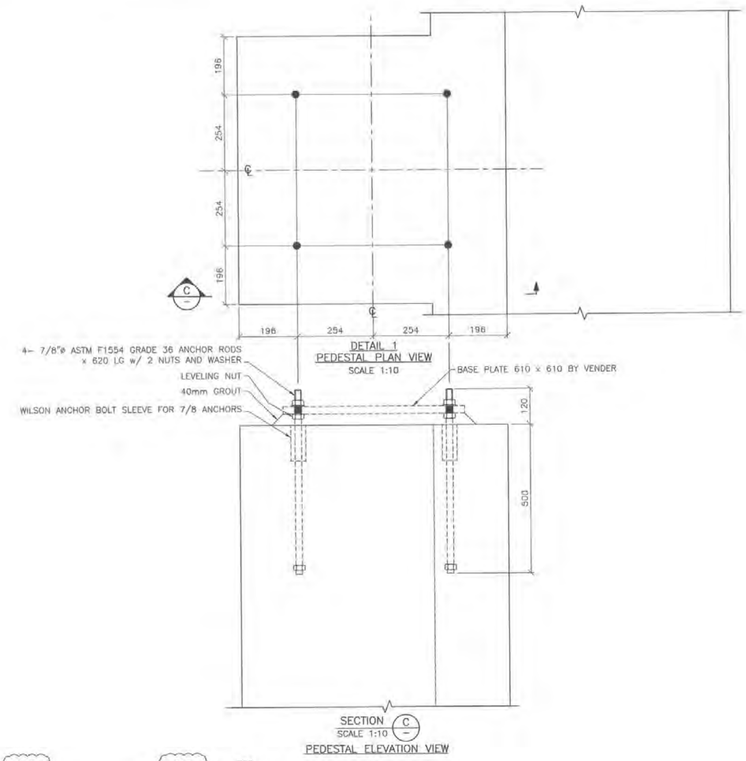



FOUNDATION PLAN
SCALE 1:40

SECTION A
SCALE 1:40

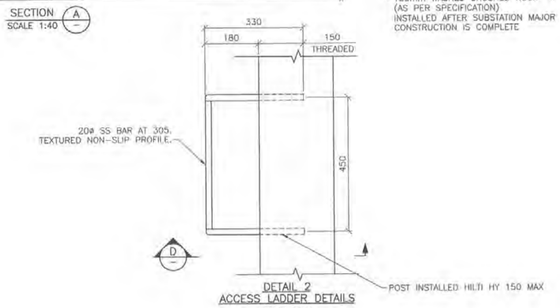
SECTION B
SCALE 1:40



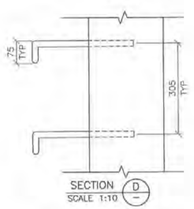

DETAIL 1
PEDESTAL PLAN VIEW
SCALE 1:10

SECTION C
SCALE 1:10

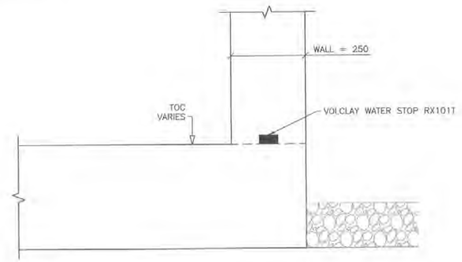
PEDESTAL ELEVATION VIEW




DETAIL 2
ACCESS LADDER DETAILS
SCALE 1:10




SECTION D
SCALE 1:10




DETAIL 3
WATERSTOP
SCALE 1:10

NOTES:

1. FOR GENERAL CONSTRUCTION NOTES SEE DRAWING 1407.2-T-1300.
2. ALL DIMENSIONS ARE IN MILLIMETERS (mm) UNLESS NOTED OTHERWISE.
3. FOR FOUNDATION LOCATION AND ORIENTATION SEE DRAWING 1407.2-C-2016.
4. TRANSFORMER PADS AND CONTAINMENT FOR T1 AND T2 ARE THE SAME EXCEPT THAT THEIR INSTALLATION ORIENTATION IS MIRRORED. REFER TO SITE PLANS
5. TRANSFORMER CONTAINMENT TO BE FILLED WITH SAME WASHED AND CRUSHED FILL USED FOR SUBSTATION TOPPING LAYER.
6. CONTAINMENT SHALL BE FILLED TO WITHIN 100mm OF TOP OF CONTAINMENT WALL.
7. FOR CAST-IN-PLACE CONCRETE SPECIFICATIONS AND INSTALLATION REQUIREMENTS REFER TO SPECIFICATION 1407.2-C-9005.
8. TRANSFORMER PEDESTAL ELEVATION TOLERANCE TO BE ±3mm.
9. TRANSFORMER ANCHOR BOLTS AS PER VIRGINIA TRANSFORMER DRAWING NO. 47010MA375 REV 2.
9. CIRCUIT SWITCHER ANCHOR BOLTS AS PER SOUTHERN STATES DRAWING NO. D-152702 REV 1.
10. REFER TO DRAWING 001-2700-E-6535 FOR FOUNDATION GROUNDING.
11. ALL CONSTRUCTION JOINTS AROUND CONTAINMENT WALLS, PENETRATIONS, OR IN BASE SLAB TO BE SEALED WITH VOLCLAY WATERSTOP RX101T OR APPROVED ALTERNATIVE.
12. TRANSFORMER ANCHOR SLEEVES TO BE FILLED WITH GROUT PRIOR TO INSTALLATION OF TRANSFORMER BY ELETRICAL CONTRACTOR, FOLLOWING VERIFICATION OF SPACING.
13. BASE SLAB MINIMUM THICKNESS TO BE 300mm. THE MAXIMUM THICKNESS TO BE ≤ 350mm. SLAB TO SLOPE FROM 3 OPPOSING CORNERS TOWARDS CORNER WITH SUMP.

ISSUED FOR CONSTRUCTION

PERMIT TO PRACTICE
CLEAN ENERGY CONSULTING INC.
SIGNATURE pp
Date Sept 27 2018
PERMIT NUMBER: PP424
Association of Professional Engineers of Yukon

| NO. | DATE | REVISION | DES | DWN | CHK | APR |
|---|---|---|---|---|---|---|
| – | | | | | | |
| – | | | | | | |
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| – | | | | | | |
| 1 | SEP 27/18 | PEDESTAL LOCATION REVISED | PC | SE | PC | MEO |
| 0 | AUG 21/18 | ISSUED FOR CONSTRUCTION | MEO | SE | NB | MEO |

CLIENT: StrataGold Corporation
DATE: AUG 21/18
DESIGN: MEO
DRAWN: SE
CHECKED: NB
APPROVED: MEO

Clean Energy CONSULTING INC. www.cleanenergyconsulting.ca

WN BRAZIER ASSOCIATES INC

SEAL: PROFESSIONAL ENGINEER YUKON TERRITORY MATTHEW OBEE Sept 27, 2018

EAGLE GOLD PROJECT
69 kV SUBSTATION AND DIESEL POWER PLANT
TRANSFORMER AND OIL CONTAINMENT CONCRETE OUTLINE

PROJECT No. 1407.2
DRAWING No. 1407.2-C-3015
REV. 1

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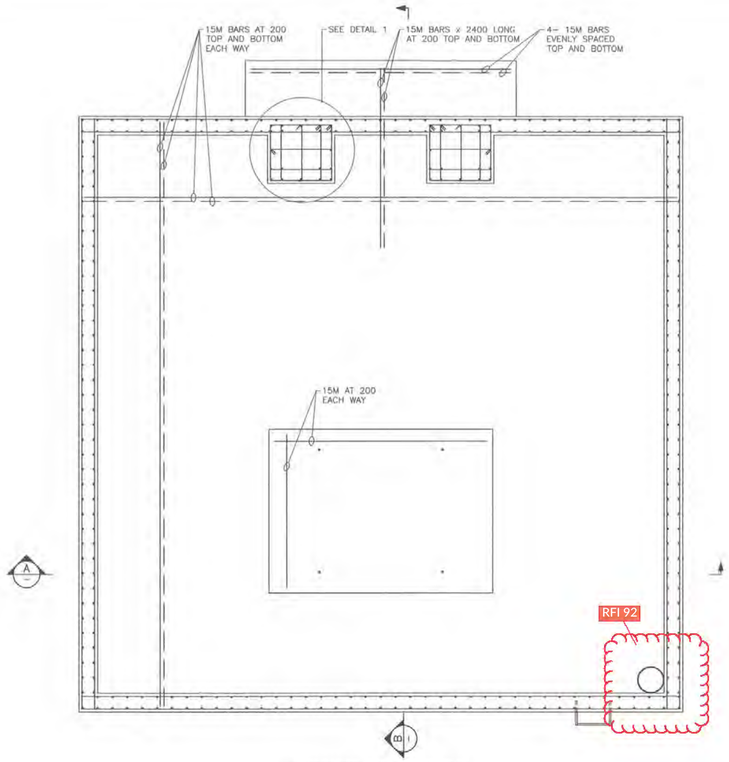
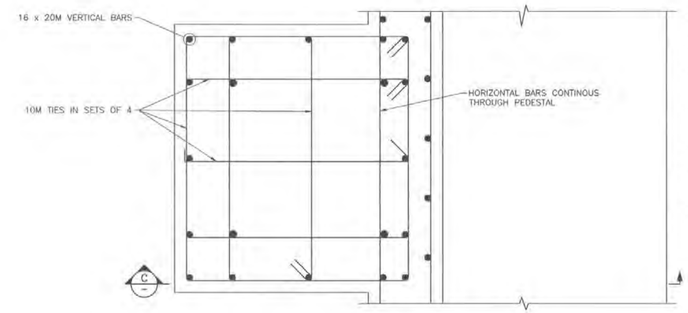


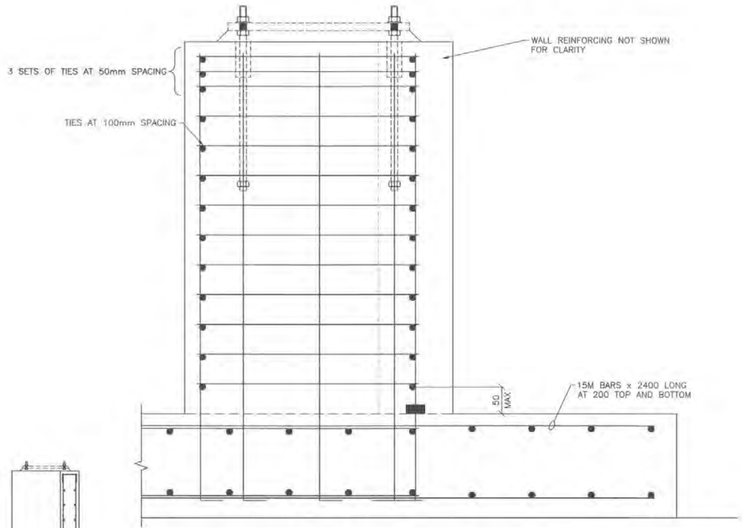

FOUNDATION REINFORCING PLAN
SCALE 1:40



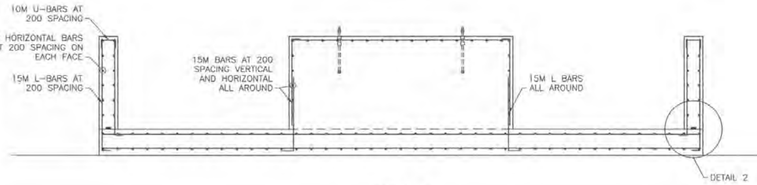

DETAIL 1
PEDESTAL REINFORCING PLAN VIEW

NOTES:

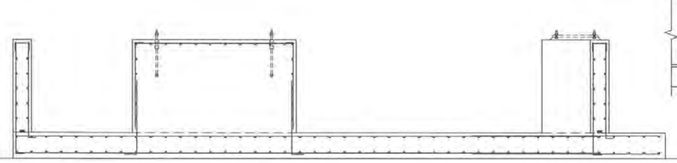
1. FOR GENERAL CONSTRUCTION NOTES SEE DRAWING 1407.2–T–1300.
2. ALL DIMENSIONS ARE IN MILLIMETERS (mm) UNLESS NOTED OTHERWISE.
3. FOR FOUNDATION LOCATION AND ORIENTATION SEE DRAWING 1407.2–C–2016.
4. TRANSFORMER PADS AND CONTAINMENT FOR T1 AND T2 ARE THE SAME EXCEPT THAT THEIR INSTALLATION ORIENTATION IS MIRRORED. REFER TO SITE PLANS.
5. TRANSFORMER CONTAINMENT TO BE FILLED WITH WASHED AND CRUSHED FILL USED FOR SUBSTATION TOPPING LAYER. VOID RATIO >30%.
6. CONTAINMENT SHALL BE FILLED TO WITHIN 50mm OF TOP OF CONTAINMENT WALL.
7. FOR CAST–IN–PLACE CONCRETE SPECIFICATIONS AND INSTALLATION REQUIREMENTS REFER TO SPECIFICATION 1407.2–C–9005.
6. SEE DRAWING #001–2700–E–8535 "EAGLE GOLD PROJECT, MAIN POWER SUPPLY ELECTRICAL, 69 kV SUBSTATION FOUNDATION GROUNDING."




SECTION C
PEDESTAL REINFORCING ELEVATION VIEW
SCALE 1:10




SECTION A
SCALE 1:40



SECTION B
SCALE 1:40

ISSUED FOR CONSTRUCTION

PERMIT TO PRACTICE
CLEAN ENERGY CONSULTING INC.
SIGNATURE PP
Date SEP 27, 2018
PERMIT NUMBER: PP424
Association of Professional Engineers of Yukon

| NO. | DATE | REVISION | DES | DWN | CHK | APR |
|---|---|---|---|---|---|---|
| – | | | | | | |
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| – | | | | | | |
| 1 | SEP 27/18 | PEDESTAL LOCATION REVISED | PC | SE | PC | MEO |
| 0 | AUG 21/18 | ISSUED FOR CONSTRUCTION | MEO | SE | NB | MEO |

CLIENT: StrataGold Corporation
DATE: AUG 21/18
DESIGN: MEO
DRAWN: SE
CHECKED: NB
APPROVED: MEO

Clean Energy CONSULTING INC. www.cleanenergyconsulting.ca

WN BRAZIER ASSOCIATES INC

SEAL: PROFESSIONAL ENGINEER YUKON TERRITORY MATTHEW OBEE SEPT 27, 2018

EAGLE GOLD PROJECT
69 kV SUBSTATION AND DIESEL POWER PLANT
TRANSFORMER AND OIL CONTAINMENT CONCRETE REINFORCING

PROJECT No. 1407.2
DRAWING No. 1407.2–C–3016
REV. 1

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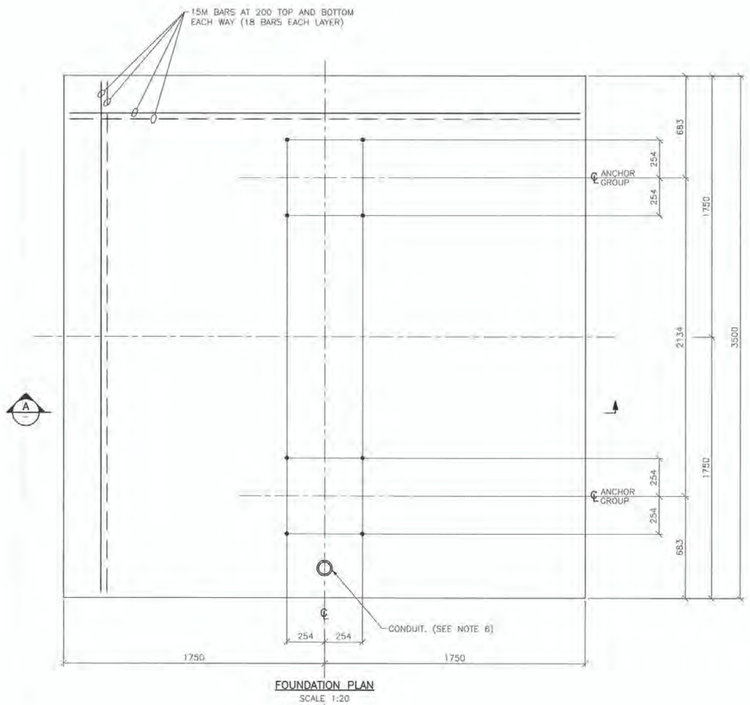
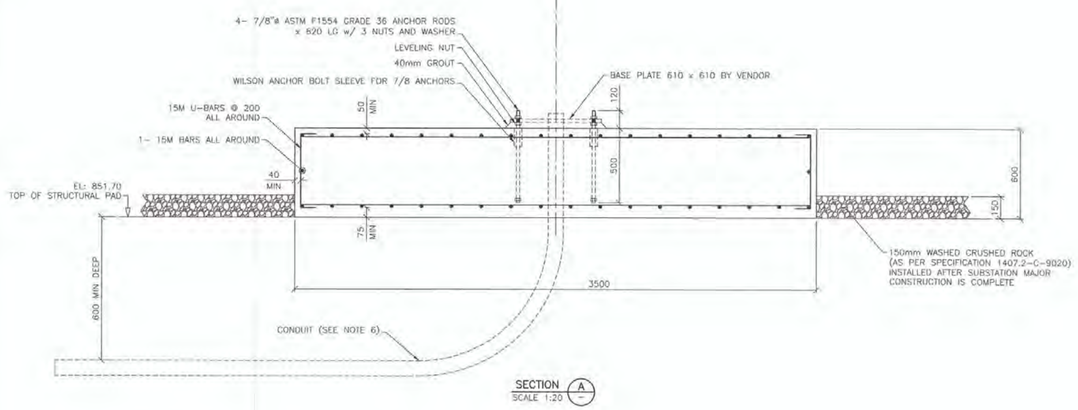



FOUNDATION PLAN
SCALE 1:20




SECTION A
SCALE 1:20

NOTES:

1. FOR GENERAL CONSTRUCTION NOTES SEE DRAWING 1407.2-T-1300.
2. ALL DIMENSIONS ARE IN MILLIMETERS (mm) UNLESS NOTED OTHERWISE.
3. FOR FOUNDATION LOCATION AND ORIENTATION SEE DRAWING 1407.2-C-2016.
4. FOR CAST-IN-PLACE CONCRETE SPECIFICATIONS AND INSTALLATION REQUIREMENTS REFER TO SPECIFICATION 1407.2-C-9005.
5. FOUNDATION DIMENSIONS AND ANCHOR LOCATION ESTABLISHED FROM VENDER DRAWING, SOUTHERN STATES DRAWING D-152702 REV 1.
6. SEE DRAWING #001-2700-E-6537 "EAGLE GOLD PROJECT, MAIN POWER SUPPLY ELECTRICAL, 69 kV SUBSTATION FOUNDATION GROUNDING."

ISSUED FOR CONSTRUCTION

PERMIT TO PRACTICE
CLEAN ENERGY CONSULTING INC.
SIGNATURE
Date Aug 21, 2018
PERMIT NUMBER: PP424
Association of Professional Engineers of Yukon

| NO. | DATE | REVISION | DES | DRN | CHK | APR |
|---|---|---|---|---|---|---|
| 0 | AUG 21/18 | ISSUED FOR CONSTRUCTION | MEO | SE | NB | MEO |

CLIENT: StrataGold Corporation

| | |
|---|---|
| DATE | AUG 21/18 |
| DESIGN | MEO |
| DRAWN | SE |
| CHECKED | NB |
| APPROVED | MEO |

Clean Energy CONSULTING INC. www.cleanenergyconsulting.ca

WN BRAZIER ASSOCIATES INC

SEAL: PROFESSIONAL ENGINEER YUKON TERRITORY MATTHEW OBEE Aug 21, 2018

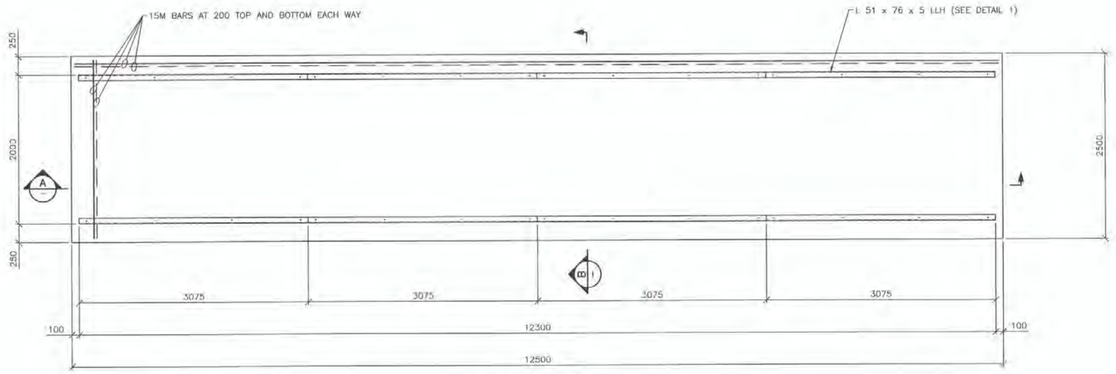
EAGLE GOLD PROJECT
69 kV SUBSTATION AND DIESEL POWER PLANT
CIRCUIT SWITCHER CS3 CONCRETE FOUNDATION

| PROJECT No. | DRAWING No. | REV. |
|---|---|---|
| 1407.2 | 1407.2-C-3025 | 0 |

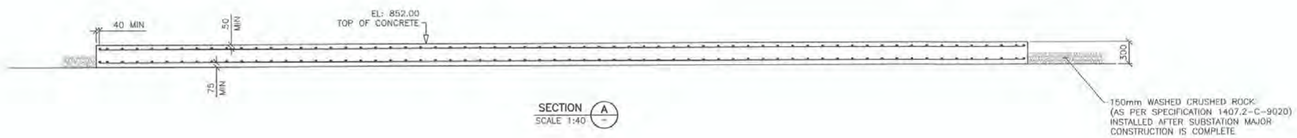
THIS DRAWING IS PROTECTED BY COPYRIGHT LAW AND CANNOT BE REPRODUCED IN ANY MANNER EXCEPT BY WRITTEN PERMISSION OF CLEAN ENERGY CONSULTING INC.

NOTES:

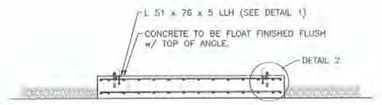
1. FOR GENERAL CONSTRUCTION NOTES SEE DRAWING 1407.2-I-1300.
2. ALL DIMENSIONS ARE IN MILLIMETERS (mm) UNLESS NOTED OTHERWISE.
3. FOR FOUNDATION LOCATION AND ORIENTATION SEE DRAWING 1407.2-C-2016.
4. FOR CAST-IN-PLACE CONCRETE SPECIFICATIONS AND INSTALLATION REQUIREMENTS REFER TO SPECIFICATION 1407.2-C-9005.
5. FOUNDATION DIMENSIONS AND ANCHOR LOCATION ESTABLISHED FROM VENDER DRAWING. NEPSI DWG H354138-PE103-001. NOTE SPACE ALLOWED FOR 2 FUTURE MODULES.
6. SEE DRAWING #001-2700-E-6537 "EAGLE GOLD PROJECT, MAIN POWER SUPPLY ELECTRICAL, 69 kV SUBSTATION FOUNDATION GROUNDING."



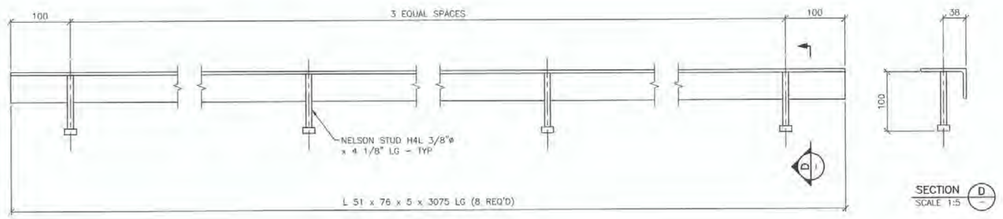

FOUNDATION PLAN
SCALE 1:40




SECTION A
SCALE 1:40

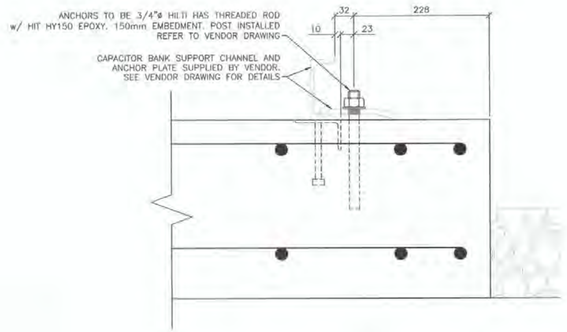



SECTION B
SCALE 1:40




SECTION D
SCALE 1:5

DETAIL 1
8 REQ'D
SCALE 1:5




DETAIL 2
SCALE 1:5

ISSUED FOR CONSTRUCTION

PERMIT TO PRACTICE
CLEAN ENERGY CONSULTING INC.
SIGNATURE
Date OCT 5, 2018
PERMIT NUMBER: PP424
Association of Professional Engineers of Yukon

| NO. | DATE | REVISION | DES | DWN | CHK | APR |
|---|---|---|---|---|---|---|
| 0 | OCT 4/18 | ISSUED FOR CONSTRUCTION | MEO | SE | MEO | MEO |

CLIENT: StrataGold Corporation

| | |
|---|---|
| DATE | OCT 4/18 |
| DESIGN | MEO |
| DRAWN | SE |
| CHECKED | MEO |
| APPROVED | MEO |

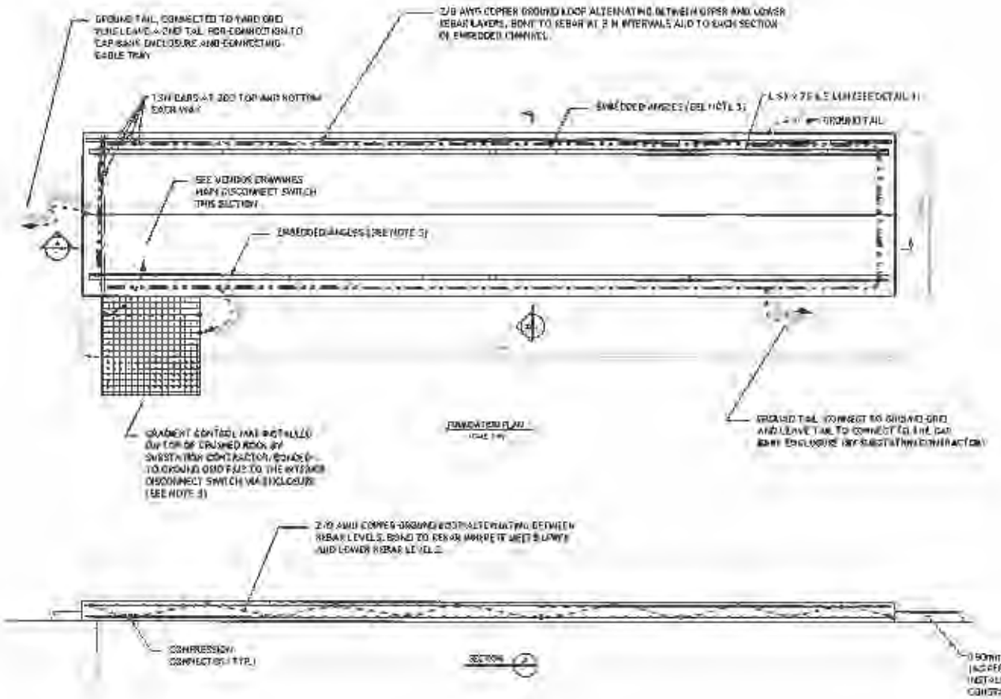
Clean Energy CONSULTING INC.
www.cleanenergyconsulting.ca
WN BRAZIER ASSOCIATES INC

SEAL: PROFESSIONAL ENGINEER — YUKON TERRITORY — MATTHEW OBEE — 5 OCT 2018

EAGLE GOLD PROJECT
69 kV SUBSTATION AND DIESEL POWER PLANT
CAPACITOR BANK CONCRETE FOUNDATION

| PROJECT No. | DRAWING No. | REV. |
|---|---|---|
| 1407.2 | 1407.2-C-3030 | 0 |

THIS DRAWING IS PROTECTED BY COPYRIGHT LAW AND CANNOT BE REPRODUCED IN ANY MANNER EXCEPT BY WRITTEN PERMISSION OF CLEAN ENERGY CONSULTING INC.




GROUNDING NOTES:

1) FOR GENERAL GROUNDING NOTES REFER TO DRAWING No. 001-2700-E-6537.
2) FOR CONCRETE FOUNDATION DETAILS REFER TO DRAWING No. 1407.1 - C - 2530. FOR THE STRUCTURAL PAD GRADING PLAN SEE DRAWING No. 1407.2 - C - 2012. FOR CONCRETE FOUNDATION LOCATION PLAN SEE DRAWING No. 1407.2 - C - 2016. FOR SUBSTATION GROUND GRID REFER TO DRAWING No. 001-2700-E-6535.
3) THIS DRAWING SHOWS EMBEDDED GROUND LEADS THROUGH THE FOUNDATION TO THE EQUIPMENT MOUNTING CHANNELS AND INCLUDES REBAR GROUNDING. AS THE C.E.C. DOES NOT SPECIFICALLY REQUIRE REBAR GROUNDING, IT IS ONLY NECESSARY TO BOND TO REBAR AT SEVERAL LOCATIONS AS SHOWN. USE APPROVED COMPRESSION CONNECTORS OF SUITABLE SIZE. BOND EACH EQUIPMENT MOUNTING CHANNEL TO GROUND VIA CONNECTING THE GROUND WIRE TO AT LEAST ONE SUPPORT BOLT ON EACH CHANNEL, BY USING A SUITABLY SIZED COMPRESSION CONNECTOR SIMILAR TO THOSE USED FOR REBAR.
4) AS THE CAPACITOR BANK WILL BE GROUNDED AS SHOWN ON OTHER DRAWINGS, GROUNDING OF THE ANCHOR BOLTS (TO BE DRILLED LATER) IS NOT INCLUDED NOR REQUIRED AS THEY WILL BE GROUNDED BY VIRTUE OF THE FACT THE ASSOCIATED ELECTRICAL EQUIPMENT WILL BE SOLIDLY GROUNDED.
5) GROUND CONNECTIONS TO BE MADE USING CSA APPROVED COMPRESSION CONNECTORS.
6) COMPRESSION CONNECTORS SHALL BE COPPER, AS MANUFACTURED BY BURNDY TEE OR OTHER APPROVED MANUFACTURER (APPROVED IN WRITING). COMPRESSION CONNECTOR INSTALLATION SHALL BE CARRIED OUT IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS, INCLUDING THE USE OF APPROPRIATE TOOLS, JOINT COMPOUND WHERE RECOMMENDED, ETC., FOR BONDING TO REBAR SELECT CONNECTORS AND TOOLS OF APPROPRIATE SIZE.
7) UNLESS SHOWN OTHERWISE, ALL GROUND WIRE SHALL BE BARE STRANDED 2/0 AWG SOFT OR MEDIUM HARD DRAWN COPPER GROUND WIRE.
8) A 150 MM LAYER OF WASHED, CRUSHED ROCK (AS PER SPEC.) WILL BE PLACED OVER THE ENTIRE SUBSTATION AND POWERPLANT AREA BY THE SUBSTATION CONTRACTOR, AFTER THE MAIN CONSTRUCTION WORK IS COMPLETE.
9) AS SHOWN LEAVE GROUND TAILS FOR NOT ONLY CONNECTION TO THE GROUND GRID BUT ALSO FOR CONNECTION TO THE CAPACITOR BANK ENCLOSURE AND THE GRADIENT CONTROL MAT IN FRONT OF THE DISCONNECT SWITCH CUBICLE (MAT AND TAIL CONNECTIONS BY MAIN SUBSTATION CONTRACTOR).

ISSUED FOR CONSTRUCTION

| REV | ISSUED FOR | DESCRIPTION OF REVISION | DATE |
|---|---|---|---|
| | | | |
| | | | |
| | | | |
| 0 | CONSTRUCTION | | 15 Oct. 2018 |
| A | COMMENT | | |

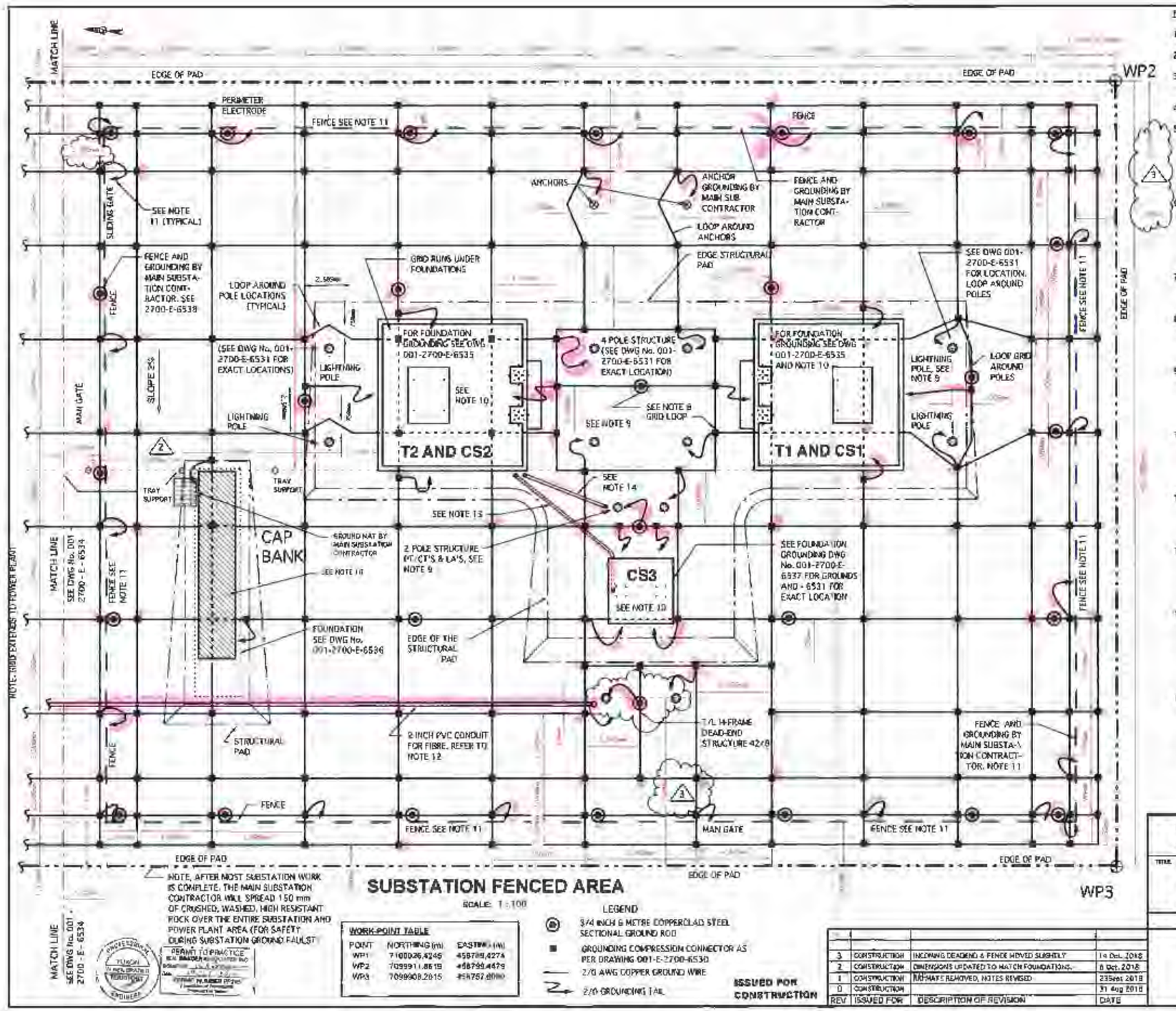
Barrick Gold

PROJ: EAGLE GOLD PROJECT
MAIN SUBSTATION & POWER-PLANT
CAP BANK FOUNDATION GROUNDING

W.N. Brazier Associates Inc.

| | | | |
|---|---|---|---|
| DRAWN: | WNB | DATE: | OCT / 2018 |
| CHECKED: | WNB | DATE: | OCT / 2018 |
| APPROVED: | WNB | DATE: | OCT / 2018 |
| DRAWING #: | 001 - 2700 - E - 6536 | | 0 |

WALKED DOWN
OCT. 15/18
Attachment
OCT 15/18




NOTE, AFTER MOST SUBSTATION WORK IS COMPLETE, THE MAIN SUBSTATION CONTRACTOR WILL SPREAD 150 mm OF CRUSHED, WASHED, HIGH RESISTANT ROCK OVER THE ENTIRE SUBSTATION AND POWER PLANT AREA (FOR SAFETY DURING SUBSTATION GROUND FAULST

## SUBSTATION FENCED AREA

SCALE: 1:100

| WORK POINT TABLE | | |
|---|---|---|
| POINT | NORTHING (m) | EASTING (m) |
| WP1 | 7100026.6245 | 458788.4274 |
| WP2 | 7099911.8619 | 458799.4679 |
| WP3 | 7099808.2615 | 458757.8080 |

LEGEND

- 3/4 INCH 6 METRE COPPERCLAD STEEL SECTIONAL GROUND ROD
- GROUNDING COMPRESSION CONNECTOR AS PER DRAWING 001-E-2700-6530
- 2/0 AWG COPPER GROUND WIRE
- 2/0 GROUNDING TAIL

ISSUED FOR CONSTRUCTION

**NOTES**

1) FOR GENERAL NOTES AND SPECIFICATIONS REFER TO DRAWING No. 001-2700-E-6530.
2) FOR KEY PLAN AND DIMENSIONS REFER TO DRAWING No. 001-2700-E-6531.
3) FOR TRANSFORMER T1 AND CIRCUIT SWITCHER CS1 AND TRANSFORMER T2 AND CIRCUIT SWITCHER CS2 GROUNDING REFER TO DRAWING No. 001-2700-E-6535.
4) FOR INCOMING CIRCUIT SWITCHER CS3 GROUNDING REFER TO DRAWING No. 001-2700-E-6537.
5) THE GROUND GRID SHALL BE INSTALLED AT THE LOCATIONS SHOWN SO THAT LATER POLE HOLES MISS THE GRID. NOTE, POLE STRUCTURES AND OTHER INSTALLATION WORK WILL BE CARRIED OUT AFTER THE GRID IS INSTALLED, SO THE ACCURATE LOCATION OF THE GROUND GRID IS CRITICAL. NOTE, THE GROUND RODS ARE GENERALLY PLACED AT THE EDGES OF THE GRID AS THEY ARE MORE EFFECTIVE THERE.
6) THE GROUND GRID SHALL BE INSTALLED BETWEEN 500 AND 600 BELOW FINISHED GRADE WHERE FINISHED GRAD IS THE TOP OF THE STRUCTURAL PADS OR GENERAL YARD AREA, BEFORE THE FINAL PLACING OF THE 150 mm DEEP LAYER OF CRUSHED, WASHED, INSULATING ROCK. UNDER NO CIRCUMSTANCES SHALL THE GROUND GRID (AND TOP OF THE GROUND RODS) BE OUTSIDE THESE ELEVATION LIMITS.
7) THE SPACING OF THE GROUND GRID CONDUCTORS NEAR THE EDGES OF THE PAD ARE PURPOSELY CLOSER TOGETHER IN ORDER TO REDUCE TOUCH POTENTIALS DURING A 69 KV SYSTEM GROUND FAULT.
8) GROUND RODS SHALL BE 3/4 OR 1 INCH SECTIONAL TYPE, 6 METRES LONG DRIVEN TO FULL DEPTH, TO ENSURE THE ROD EXTENDS DOWN BELOW THE WINTER FROST LINE. WHERE RODS ARE SHOWN ON THE GRID CONDUCTORS, USE CONNECTORS AS PER THE DETAILS ON DRAWING 001-2700-E-6530.
9) LOOP CONDUCTORS AROUND POLE LOCATIONS SO THAT THEY ARE NOT DAMAGED BY LATER POLE INSTALLATION WORK. STAKE EXACT POLE LOCATIONS BEFORE GRID INSTALLATION WORK BEGINS, AS THE CONCRETE FOUNDATIONS WILL BE POURED LATER AFTER MORE BACKFILL IS PLACED. RUN GROUND GRID UNDERNEATH FOUNDATIONS. SEE DWG 1407.2-C-2016.
10) LEAVE TYPICALLY 3 m (OR AS SHOWN) GROUND WIRE TAILS FOR CONNECTION BY MAIN SUBSTATION CONTRACTOR. MARK EACH WITH A WOODEN POST. NOTE, THE TRANSFORMERS, CIRCUIT SWITCHERS, CAPACITOR BANK, ETC. WILL BE INSTALLED LATER BY THE MAIN SUBSTATION CONTRACTOR, WHO WILL MAKE THE FINAL GROUNDING CONNECTIONS.
11) THE SUBSTATION FENCE AND FENCE GROUNDING WILL BE BY THE MAIN SUBSTATION CONTRACTOR. LEAVE GROUND TAILS FOR CONNECTION TO FENCE AND GATES BY OTHERS. LEAVE MINIMUM 1 METRE TAILS FOR FENCE GROUNDING (FOR CONNECTION BY THE MAIN SUBST. CONTRACTOR). SEE DWG 1407.2-C-2016
12) INSTALL 2 INCH SCHED. 40 PVC CONDUIT FOR FIBRE FROM TRANSMISSION LINE. BRING UP NEAR H FRAME POLE. USE SWEEP 90s. MARK/SUPPORT WITH A TEMPORARY WOOD POST. THE CONDUIT (FOR FIBRE) MAY BE PLACED UNDER OR OVER THE GROUND GRID (AT THE APPROX. SAME ELEVATION). LEAVE A PULL CORD, COMPACT BACKFILL AND INSTALL MARKER TAPE.
13) INSTALL 4 INCH PVC SCHED. 40 CONDUIT TO JOIN WITH CONDUIT IN CS3 FOUNDATION, FOR LOW VOLTAGE POWER AND CONTROL CABLES. USE SWEEP 90 FOR VERTICAL AT TRANSFORMER FOUNDATION. (THE CABLES BY MAIN SUBSTATION CONTRACTOR WILL EXIT TO CABLE TRAY TO E-HOUSE.) INSTALL PULL CORD, SUPPORT AT TRANSFORMER WITH A TEMPORARY WOOD STAKE. LV CONDUIT MAY BE INSTALLED JUST BELLOW GROUND GRID LEVEL. COMPACT BACKFILL AND INSTALL MARKER TAPE.
14) INSTALL 4 INCH PVC SCHED. 40 CONDUIT TO THE "TWO POLE STRUCTURE" FOR CABLES FROM 69 KV COMBINED PT'S AND CT'S (INSTALLED AND WIRED BY THE MAIN SUBSTATION CONTRACTOR). LEAVE PULL CORD AND SUPPORT WITH TEMPORARY WOOD STAKES AT BOTH ENDS. COMPACT BACK-FILL AND INSTALL MARKER TAPE

| REV | ISSUED FOR | DESCRIPTION OF REVISION | DATE |
|---|---|---|---|
| 3 | CONSTRUCTION | INCOMING DEADEND & FENCE MOVED SLIGHTLY | 16 Oct. 2018 |
| 2 | CONSTRUCTION | DIMENSIONS UPDATED TO MATCH FOUNDATIONS. | 8 Oct. 2018 |
| 1 | CONSTRUCTION | MATRATE REMOVED, NOTES REVISED | 23Sept 2018 |
| 0 | CONSTRUCTION | | 31 Aug 2018 |

StrataGold

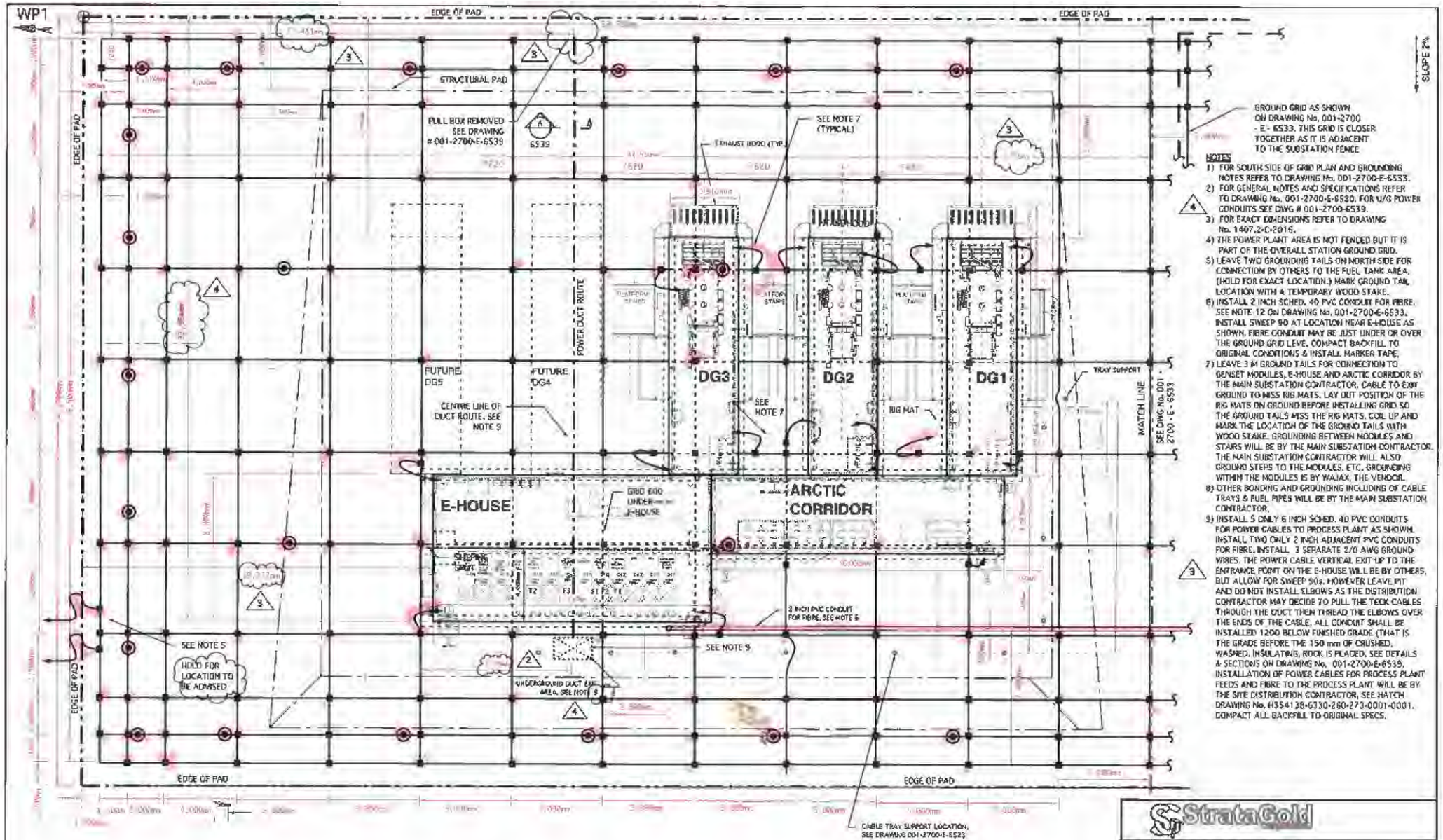
TITLE: **EAGLE GOLD PROJECT**
**MAIN SUBSTATION & POWER-PLANT**
**SUBSTATION AREA GROUND GRID.**

**W.N. Brazier Associates Inc.**

| | | | |
|---|---|---|---|
| DRAWN: | WNB | DATE: | AUG / 2018 |
| CHECKED: | WNB | DATE: | AUG / 2018 |
| APPROVED: | WNB | DATE: | AUG / 2018 |
| DRAWING NO: | 001 - 2700 - E - 6533 | | 3 |

WALKED DOWN
Nick
OCT. 15/18

Attachment
OCT 15/18




PERMIT TO PRACTICE W.N. BRAZIER ASSOCIATES INC. RM OF NWT

**WORK-POINT TABLE**

| POINT | NORTHING (m) | EASTING (m) |
|---|---|---|
| WP1 | 7100026.4245 | 458789.4274 |
| WP2 | 7099911.2812 | 458796.4479 |
| WP3 | 7099905.2015 | 458757.6060 |

LEGEND
- 3/4 INCH 6 METRE COPPERCLAD STEEL SECTIONAL GROUND ROD
- GROUNDING COMPRESSION CONNECTOR AS PER DRAWING 001-E-2700-6530
- 2/0 AWG COPPER GROUND WIRE
- 2/0 GROUNDING TAIL

SCALE: 1 : 100

**ISSUED FOR CONSTRUCTION**

| REV | | | |
|---|---|---|---|
| 4 | CONSTRUCTION | MINOR UPDATE - REVISED ONE DIMENSION & NOTES | Oct 8 2018 |
| 3 | CONSTRUCTION | REVISED PER WAJAX & FOR SITE FOUNDATION CHANGE | 22 Sept 2018 |
| 2 | CONSTRUCTION | MOVED GENSET MODULES TO MATCH WAJAX DRAWING | 13 Sept 2018 |
| 1 | CONSTRUCTION | PULL BOX, REVISED NOTE 9 | 8 Sept 2018 |
| 0 | CONSTRUCTION | | 31 Aug 2018 |
| REV | ISSUED FOR | DESCRIPTION OF REVISION | DATE |

StrataGold

TITLE: **EAGLE GOLD PROJECT**
**MAIN SUBSTATION & POWER-PLANT GENSET & E-HOUSE AREA GROUND GRID**
**W.N. Brazier Associates Inc.**

| | | | |
|---|---|---|---|
| DRAWN: | WNB | DATE: | AUG /2018 |
| CHECKED: | WNB | DATE: | AUG /2018 |
| APPROVED: | WNB | DATE: | AUG /2018 |
| DRAWING NO. | 001 - 2700 - E - 6534 | | 4 |

WALKED DOWN
Nic B
OCT. 15/18

Structural
OCT 15/18

| Drawing # | Rev # |
|---|---|
| **Specifications** | |
| 1407-T-9001 | 3 |
| 1407-T-9005 | 1 |
| 1407-T-9010 | 1 |
| 1407-T-9015 | 0 |
| 1407-T-9020 | 1 |
| 1407-T-9025 | 1 |
| 1407-T-9035 | 0 |
| **General** | |
| 1407-T-1000 | 2 |
| 1407-T-1100 | 2 |
| 1407-T-1200 | 2 |
| 1407-T-1300 | 0 |
| 1407-T-1400 | 2 |
| 1407-T-1404 | 2 |
| 1407-T-1405 | 2 |
| 1407-T-1450 | 0 |
| 1407-T-1500 | 2 |
| 1407-T-1700 | 2 |
| ~~1407-T-1900~~ | ~~0~~ |
| **Foundation** | |
| 1407-T-2000 | 0 |
| 1407-T-2004 | 0 |
| 1407-T-2005 | 0 |
| 1407-T-2006 | 0 |
| 1407-T-2015 | 0 |
| 1407-T-2016 | 0 |
| 1407-T-2017 | 0 |
| 1407-T-2050 | 0 |
| 1407-T-2051 | 0 |
| 1407-T-2060 | 0 |
| **Structural** | |
| 1407-T-3000 | 0 |
| 1407-T-3005 | 0 |
| 1407-T-3006 | 0 |
| 1407-T-3007 | 0 |
| 1407-T-3010 | 0 |
| 1407-T-3020 | 0 |
| 1407-T-3035 | 0 |
| 1407-T-3036 | 0 |
| 1407-T-3040 | 0 |
| 1407-T-3050 | 0 |
| 1407-T-3055 | 0 |
| 1407-T-3056 | 0 |
| 1407-T-3060 | 0 |
| **Hardware** | |
| 1407-T-4050 | 0 |
| 1407-T-4055 | 0 |
| 1407-T-4100 | 0 |
| 1407-T-4101 | 0 |
| 1407-T-4105 | 0 |

| | |
|---|---|
| 1407-T-4106 | 0 |
| 1407-T-4110 | 0 |
| 1407-T-4120 | 0 |
| 1407-T-4125 | 0 |
| 1407-T-4130 | 0 |
| 1407-T-4135 | 0 |
| 1407-T-4140 | 0 |
| 1407-T-4145 | 0 |
| 1407-T-4150 | 0 |
| 1407-T-4155 | 0 |
| 1407-T-4160 | 0 |
| 1407-T-4165 | 0 |
| 1407-T-4200 | 0 |
| 1407-T-4400 | 0 |
| 1407-T-4405 | 0 |
| 1407-T-4450 | 0 |
| **Right of Way** | |
| 1407-T-5000 | 0 |
| 1407-T-5005 | 0 |
| 1407-T-5010 | 0 |
| 1407-T-5015 | 0 |
| 1407-T-5016 | 0 |
| **Crossing** | |
| ~~1407-T-6000~~ | ~~0~~ |
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| Description |
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| |
| Construction Specification (52 pages) |
| Composite Line Post Insulator Specification (9 pages) |
| Conductor and Shield Wire Hardware Specification (15 pages) |
| Conductor and Shield Wire Specification (10 pages) |
| Hardware Specification (14 pages) |
| Glass Suspension Insulator Specification (8 pages) |
| ADSS Fibre Optic Specification (9 pages) |
| |
| Drawing List |
| Route Map (14 pages) |
| Plan and Profile (54 pages) |
| Wood Poles - General Construction Notes (2 pages) |
| Structure List (27 pages) |
| Center Staking sheet (3 pages) |
| Structure Staking sheet (21 pages) |
| Sag Data |
| Phasing Diagram (2 pages) |
| Bill of Materials (3 pages) |
| ~~South McQuesten Transmission Line Connection~~ |
| |
| Standard Pole Setting Depths for Wood Pole Structures |
| Typical Pole Setting Details |
| Galvanized Corrugated Metal Pipe (GCMP) Pole Setting Details for Weak Soils |
| Permafrost Pole Setting Details |
| Alternate Pole Setting Detail for Tangents in Permafrost |
| Augered Pole Setting Detail for Structures in Permafrost |
| Pole Setting Detail for Structures in Swamp and Wetland |
| Standard Log Anchor System for Wood Pole Structures |
| Standard Rock Anchor System for Wood Pole Structures |
| Standard Plate Anchor System for Wood Pole Structures |
| |
| Wood Pole Structure Family |
| Post Tangent Structure 0 - 3 |
| Post Tangent Guyed Structure 3 - 15 |
| Post Tangent Roll Structure 0 - 3 |
| Vertical Medium Angle Structure 15 - 30 |
| Deadend Structure - Double Arm Flat 0 - 45 |
| Vertical Deadend Heavy Angle Structure 45 - 90 |
| Vertical Deadend Medium Angle Structure 25 - 45 |
| Single Steel Arm  H-Frame Structure 0 - 3 |
| Post Vertical with OHSW Structure 0 -3 |
| Vertical Deadend Heavy Angle with OHSW Structure 45 - 90 |
| Vertical Deadend Medium Angle with OHSW Structure 25 - 45 |
| Double Arm H-Frame Deadend with OHSW Structure (2 pages) |
| |
| Single Guy Assembly |
| Double Guy Assembly |
| Single 70 KN Jumper Suspension Hardware Assembly |
| Single 70 KN Insulator String Suspension Hardware Assembly |
| Deadend Assembly Hardware - 70 KN |

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|---|
| Reversed Insulator Deadend Assembly Hardware - 70 KN |
| Hold Down Weight Assembly |
| ADSS Suspension Assembly |
| ADSS Suspension Guyed Assembly |
| ADSS Deadend Downlead Assembly |
| ADSS Double Deadend Assembly |
| ADSS Double Deadend Downlead for Splice Locations Assembly |
| ADSS Splice Box Assembly |
| Suspension OHSW Hardware Assembly |
| OHSW Deadend Hardware Assembly |
| OHSW Doube Deadend Hardware Assembly |
| OHSW Doube Deadend Hardware for H-Frame Deadend Assembly |
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| Refer to RFI006, 012 to 015 |
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| Refer to RFI006, 012 to 015. GW1 location on 0/10A |
| Refer to RFI001, 002, 003, 005, 009, 010 and 011 |
| OBSOLETE |
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| Drawing issued after the BID (New) |
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| RFI-034 |
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| RFI-026 |
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| Wire Size 7/16" Grade 220 (RFI009) |
| Wire Size 7/16" Grade 220 (RFI009) |
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| 69338-1 Cartridge Ampact Blue (RFI005) |

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| 60962-E6 Tongue Y-clevis extension 3/4" bolt and 60969-E socket clevis extended 5/8" bolt (RFI010) 69338-1 Cartridge Ampact Blue (RFI005) |
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| Wire Size 7/16" Grade 220 (RFI009) |
| Wire Size 7/16" Grade 220 (RFI009) |
| Wire Size 7/16" Grade 220 (RFI009) |
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| 69338-1 Cartridge Ampact Blue (RFI005), Wire Size 7/16" Grade 220 (RFI009) |
| RFI-038 |
| 350WT Cat.4 (RFI011) |
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| RFI-037 rev1 |
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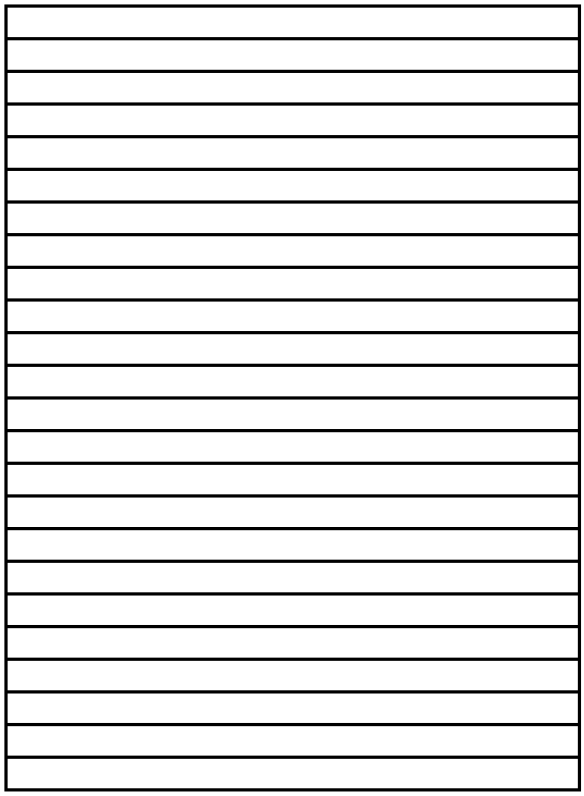

Clean Energy
CONSULTING INC.

FORBES BROS AS-BUILT

CHANGES REQUIRED YES ☐ NO ☐
Name (Print) _____
Signature _____
Date _____

# DETAILED DESIGN
# EAGLE GOLD 69 KV TRANSMISSION LINE

## ADSS FIBRE OPTIC SPECIFICATION

StrataGold Corporation

| | | | |
|---|---|---|---|
| Project No.: | 1407 | | |
| Document No.: | 1407-T-9035 | Client Project No.: | |
| Document Rev. No.: | 0 | Client Document No.: | |
| Prepared By: | Philip Clark | Client Doc. Rev. No.: | |
| CEC Contact: | Philip Clark | Client Contact: | |

**Project Description:**
The Eagle Gold 69 kV transmission line is a new wood pole 45 km circuit connecting the Eagle Gold mine site to the proposed Yukon Energy Corporation McQuesten Substation. The Eagle Gold mine site is located approximately 85 km northeast of Mayo, Yukon Territory.

**Document Description:**
ADSS Fibre Optic Cable Specification

**Sealed:**

PROFESSIONAL ENGINEER
YUKON TERRITORY
MATTHEW OBEE
FEB 8, 2018

## REVISION HISTORY

| Revision | Status | Date | Prepared By | Checked By | Approved By | Description of Revision |
|---|---|---|---|---|---|---|
| 0 | IFP | 9-Feb-18 | PC | MEO | MEO | Issued for Purchase |
| | | | | | | |
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Status:

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|---|---|---|---|
| PRE | - Preliminary | IFP | - Issued for Purchase |
| IFR | - Issued for Review and Comment | IFC | - Issued for Construction |
| IFA | - Issued for Approval | AB | - As Built |
| IFQ | - Issued for Quotation | | |

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# 1 SCOPE

This Specification covers the technical requirements for the supply of All-Dielectric Self-Supporting fibre optic communication cable (ADSS) for use on AC overhead transmission lines.

# 2 DEFINITIONS

Item Drawings
Drawings showing specific dimensional and strength information for an item shall be provided by the Contractor with bid submission.

Drawings
Assembly drawings showing general dimensional and strength requirements for items shall be provided by the Owner with the bid package.

Owner
StrataGold Corporation.

Contractor
The party tendering on the requirements of this Specification.

# 3 CODES AND STANDARDS

## 3.1 Abbreviations

CSA - Canadian Standards Association
ISO - International Organization for Standards
RUS – Rural Utilities Service
IEEE – Institute of Electrical and Electronics Engineers

## 3.2 Codes and Standards

Codes, standards, or other documents referred to in this Specification shall be considered as part of this Specification. Reference to the following standards shall be considered to refer to the latest editions and revisions thereto, unless otherwise indicated. The following codes and standards are referenced:

### 3.2.1 Canadian Standards Association (CSA)

| | |
|---|---|
| CAN/CSA-ISO 9001-16 | Quality Management Systems – Requirements |

### 3.2.2 Rural Utilities Service (RUS)

| | |
|---|---|
| RUS BULLETIN 1753F-601a | Single mode aerial self-supporting cable |

### 3.2.3 Institute of Electrical and Electronics Engineers (IEEE)

| | |
|---|---|
| IEEE 1222:2011 | Testing and Performance For All-Dielectric Self-Supporting (ADSS) Fiber Optic Cable For Use On Electric Utility Power Lines. |

### 3.2.4 International Electrotechnical Commission (IEC)

| | |
|---|---|
| IEC 60794 | Optical Fibre Cables - Basic Optical Cable Test Procedures |

### 3.3 Conflict Between this Specification, Drawings, and Referenced Documents

In the event of conflict between this Specification and the above referenced documents, the requirements of this Specification shall take precedence. In the case of conflict between several referenced documents, the more stringent requirement shall be followed. If a conflict exists between this Specification or the referenced documents and the attached Drawings, the attached Drawings shall be followed. If clarification is necessary, contact the Owner.

## 4 GENERAL REQUIREMENTS

The fibre optic cable shall generally comply with the technical requirements of RUS BULLETIN 1753F-601a for single mode aerial self-supporting cable.

### 4.1 Cable Specification

The fibre optic cable shall be as specified below:

- 24 fibre cable: ADSS: ZTT type OFC – 24 G.652D – FASA – S1 (200m) Span.

The details of this cable are outlined in Figure 1. Factory splices are not allowed. The cable shall be suitable for service down to at least minus 50°C.

**G.652D Fiber**

| Category | Description | Specifications | |
|---|---|---|---|
| | | Before cabling | After cabling |
| Optical Specifications | Attenuation @1310 nm | ≤0.34 dB/km | ≤0.35 dB/km |
| | Attenuation @1550 nm | ≤0.20 dB/km | ≤0.25 dB/km |
| | Zero Dispersion Wavelength | 1300~1324 nm | |
| | Zero Dispersion Slope | ≤0.092 ps/nm$^2$·km | |
| | PMD (Polarization Mode Dispersion) | ≤0.2 ps/√km | |
| | Cable Cutoff Wavelength ($\lambda_{cc}$) | ≤1260 nm | |
| | Macro bending Loss<br>(100 turns; Φ50 mm) @1550 nm<br>(100 turns; Φ50 mm) @1625 nm | <br>≤ 0.05 dB<br>≤ 0.10 dB | |
| | Mode Field Diameter @1310 nm | 9.2±0.4μm | |
| Dimensional Specifications | Cladding Diameter | 125 ±1μm | |
| | Core/clad concentricity error | ≤0.6μm | |
| | Cladding Non-Circularity | ≤1.0% | |
| Mechanical Specifications | Proof stress | ≥0.69Gpa | |

**Figure 1 - ADSS Cable Specifications (OFC – 24 G.652D – FASA – S1)**

### 4.2 Cable Supplier

This cable is available from:
Company:
ZTT

Address:
No.5, Zhongtian road, Nantong economic and technological development zone, Jiangsu Province, China, Zip code: 226010,
Tel: +86-513-89191138; Fax: +86-513-8359 9670

Contacts:
Kenshin.zhou@zttcable.com,

Website
www.zttcable.com

## 5 TESTING

### 5.1 General

ADSS cable shall be factory tested in accordance with IEEE Standard 1222:2011 "Testing And Performance For All-Dielectric Self-Supporting (ADSS) Fiber Optic Cable For Use On Electric Utility Power Lines." In particular, refer to section 6 "Tests and Requirements". All 24 fibres shall be tested.

Refer also to IEC Standard 60794 (or latest edition) "Basic Optical Cable Test Procedure" for factory testing requirements.

### 5.2 Factory Tests

The Contractor shall provide certified copies of cable factory type tests and factory production tests.

## 6 QUALITY CONTROL

The manufacturer shall have a proven successful record in the design and manufacture of the ADSS cable supplied.

The manufacturer shall have a currently implemented Quality Assurance Program. The design function shall be certified by an accredited auditor to CAN/CSA-ISO 9001. The manufacturer may be asked to submit a copy of their Quality Assurance Manual, detailing the requirements of their program thirty (30) days after award of the contract.

The manufacturer shall provide access to, and when requested, copies of inspection and test results, production records, process control charts, and other records compiled during the Work.

The manufacturer shall submit a Test and Inspection Plan at least thirty (30) days prior to commencing production of the ADSS cable.

The Contractor shall submit three (3) certified copies of the final quality assurance reports certifying compliance of the work to this specification within 14 days of completion of final inspection and testing. The final quality assurance report shall be a bound collection of QA documents or may be in electronic

form. The documents compiled during manufacturing and the documents compiled during delivery of the Work, include but are not limited to:

- Subcontractor inspection reports
- Receiving inspection reports
- Mill test certificates
- Material qualification test reports
- Component dimensional inspection data reports
- Instrument and gauge calibration certificates and records
- Component test reports
- Accepted non-conformance reports
- Certified test report in accordance with standards
- Shipping quality reports
- Inspection and test plans and test procedures

Each document within the final quality assurance report shall be referenced to the actual components of the work to which they apply.

# 7 GENERAL

Inspection shall be carried out in accordance with CAN/CSA-ISO 9001 and the requirements of this specification.

## 7.1 Location of Tests

### 7.1.1 Test Location and Accessibility

All tests and inspections shall be made at the manufacturer's plant prior to shipment unless otherwise agreed between the manufacturer and the Owner at the time of purchase and shall be conducted to avoid unnecessary interference with the manufacturer's operations. The manufacturer shall afford the Owner’s inspector all reasonable facilities without charge to satisfy him that the material is being furnished in accordance with this specification. The inspector shall have full access to all processes and data required for the performance of his duties.

### 7.1.2 Reporting Timeline

All tests shall be made within 10 days after notice has been given to the Contractor that the material is ready for testing and the material shall be accepted or rejected at the manufacturer's plant. If the Contractor does not have a representative present at the manufacturer's plant to test the material at the expiration of 10 days, the manufacturer shall perform the tests and provide the Contractor with certified copies of the results. The Contractor shall accept or reject material in accordance with the results of such tests.

## 7.2 Acceptance or Rejection

### 7.2.1 Rejection Criteria

Failure of a test specimen to comply with any of the requirements of this specification shall constitute grounds for rejection of the lot represented by the specimen.

#### 7.2.2 Retesting

If a lot is rejected, the manufacturer shall have the option to test every individual coil of wire or drum of complete ADSS cable in the lot at their own cost. Those individual coils or drums which successfully pass the test shall be deemed to meet the requirements.

## 8 PACKAGING AND HANDLING

### 8.1 Protection of ADSS Cable

a) The outer layer of the ADSS cable on the drum shall be protected by wood lagging or a hardboard wrapping. Such protective cover shall not be placed less than 1 inch (25.4 mm) away from the drum rim and shall be held symmetrically in place by two steel bands.
b) The protective cover shall provide adequate protection to prevent the ADSS cable underneath from being damaged.
c) No absorbent material shall be used for the protective cover.

### 8.2 Handling

When handling the ADSS cable during transport, all loads shall be applied to the drum. No load shall be applied to the ADSS cable directly.

## 9 IDENTIFICATION

### 9.1 Drum Production Number

Drum Production Numbers shall start with "1" and shall be assigned consecutively as the ADSS cable is being manufactured. The series shall correspond to the duration of the Purchase Order.

The Drum Production Number shall be shown twice in large figures painted on the hardboard wrapping or wood lagging, 180° apart for easier stock reference.

### 9.2 Drum Number

The Contractor's Permanent Drum Number shall be marked or fastened securely on the spokes on the outside of the drum and on the drum.

### 9.3 Tagging of Drums

The following information shall be stamped in raised or indented letters on a metal label securely attached to the side of the drum.

a) Manufacturer’s name and address
b) Contract / Purchase Order Number
c) Type of the cable
d) Gross weight of the cable and drum
e) Weight of empty drum with lagging
f) Net weight of the cable
g) Length of the cable
h) Drum and lot number
i) Name and address of the consignee
j) Month and year of manufacture

## 10 SHIPPING INFORMATION

### 10.1 Packing Slips

Packing lists shall be included with each and every shipment. The packing lists shall contain the following information:

a) Owner address
a) Owner Purchase Order Number
b) Owner Work Order Number
c) Type of ADSS cable
d) Quantity of drums
e) For each drum:
   - Length of ADSS cable in metres
   - Net and gross mass of drum in kilograms
   - Drum Production Number
f) Total mass of the shipment in kilograms

### 10.2 Notification of Shipment

The Contractor shall notify the Owner not less than 2 working days prior to the actual arrival of each shipment at the delivery point.

The Contractor shall, on the date of each dispatch, provide the Owner through e-mail the following information:

a) Purchase Order number
b) Items and quantities of the shipment
c) Carrier's name
d) Bill off-loading number
e) Estimated date of arrival at the destination

## 11 RESPONSIBILITY OF CONTRACTORS

a) The Contractor shall assume full responsibility for the manufacture of the ADSS cable specified and for any work performed by sub-Contractors.

b) The Contractor shall correct at his own expense, any defects in material or workmanship which may appear in the final product.

c) Inspection performed by the Owner, or such other delegate appointed by the Owner, shall not relieve the Contractor of his responsibility.

d) The Contractor, as part of the bid submission, shall clearly acknowledge that the product will be in full compliance with the required CSA and RUS standards.

e) Any deviations from the Specification requirements shall be submitted at the time of bid for consideration by the Owner. Unless approval in writing is granted, the work shall be performed in accordance with the "Specification."

f) The Contractor shall provide a proposed production schedule to the Owner and a monthly progress report subsequently. These schedule and progress reports shall be in the form of a bar-chart showing the progress of:

- Material procurement
- Manufacturing
- Testing
- Shipping

## 12 INFORMATION TO BE PROVIDED BY THE CONTRACTOR

### 12.1 Information to be Provided with the Tender Submittal

In addition to requirements specified elsewhere in the Contract Documents, the following technical submissions are required with the Contractor's tender submittal:

- Test and Inspection Plan as per Section 6 of this Specification
- Item Drawings detailing the dimensions and mechanical properties of the material supplied
- Quantity of material to be supplied
- Schedule reflecting critical dates, milestones, and deliveries
- Drum dimensions, proposed length of ADSS cable on drums in metres, and gross shipping mass of drums in kilograms

### 12.2 Supply of Schedule

The Contractor shall provide to the Owner, within twenty (20) days of the Effective Date of Contract, a detailed Schedule for the work.

The Schedule shall indicate the commencement and completion dates for the principal activities of the work, including but not limited to:

- Submittal of Quality Control and Procedures Manual
- Design Submittal for review (the Owner shall complete this review within 15 business days)
- Placement of orders for material
- Receipt of material
- Manufacture, testing, and shipment of hardware
- Test results (if required) submittal to the Owner
- First shipment and arrival at destination
- Last shipment and arrival at destination

#### 12.2.1 Conformance with Schedule

All activities required for completion of the work shall be carried out in accordance with the sequence and times shown on the Schedule or subsequent revisions as approved by the Owner.

#### 12.2.2 Changes to Schedule

If the Contractor believes it necessary or advantageous to change the sequence of events shown on the Schedule, the Contractor shall submit a proposed revision to the Owner for approval. No change shall be made in the order in which the work activities are being performed until the Owner approves the revised Schedule.

**END OF SECTION**

Clean Energy
CONSULTING INC.

PERMIT TO PRACTICE
CLEAN ENERGY CONSULTING INC.
SIGNATURE
Date JUNE 29, 2018
PERMIT NUMBER PP424
Association of Professional Engineers of Yukon

# DETAILED DESIGN
# EAGLE GOLD 69 KV TRANSMISSION LINE

## GLASS SUSPENSION INSULATOR SPECIFICATION

StrataGold Corporation

| | | | |
|---|---|---|---|
| Project No.: | 1407 | | |
| Document No.: | 1407-T-9025 | Client Project No.: | |
| Document Rev. No.: | 1 | Client Document No.: | |
| Prepared By: | Philip Clark | Client Doc. Rev. No.: | |
| CEC Contact: | Philip Clark | Client Contact: | |

**Project Description:**
The Eagle Gold 6 9kV transmission line is a new wood pole 4 5km circuit connecting the Eagle Gold mine site to the proposed Yukon Energy Corporation McQuesten Substation. The Eagle Gold mine site is located approximately 85 km northeast of Mayo, Yukon Territory.

**Sealed:**

PROFESSIONAL ENGINEER
YUKON TERRITORY
MATTHEW OBEE
JUNE 29, 2018

**Document Description:**
Glass Suspension Insulator Specification

FORBES BROS AS-BUILT
CHANGES REQUIRED YES ☐ NO ☐
Name (Print)
Signature
Date

## REVISION HISTORY

| Revision | Status | Date | Prepared By | Checked By | Approved By | Description of Revision |
|---|---|---|---|---|---|---|
| A | IFR | 13-Jun-17 | PC | NJ | - | Basic Engineering |
| 0 | IFP | 09-Feb-18 | PC | MEO | MEO | Issued for Purchase |
| 1 | IFP | 28-Jun-18 | PC | MEO | MEO | Charpy level & CSA C83 version updated |
| | | | | | | |
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Status:

| | | | |
|---|---|---|---|
| PRE | - Preliminary | IFP | - Issued for Purchase |
| IFR | - Issued for Review and Comment | IFC | - Issued for Construction |
| IFA | - Issued for Approval | AB | - As Built |
| IFQ | - Issued for Quotation | | |

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# 1 SCOPE

This Specification covers the technical requirements for the design, manufacture, inspection, testing, and supply of toughened glass suspension type insulators used on AC overhead transmission lines. This Specification does not include composite line post insulators.

# 2 DEFINITIONS

Item Drawings
Drawings showing specific dimensional and strength information for an item shall be provided by the Contractor with bid submission.

Drawings
Assembly drawings showing general dimensional and strength requirements for items shall be provided by the Owner with the bid package.

Owner
StrataGold Corporation.

Contractor
The party tendering on the requirements of this Specification.

Unless otherwise indicated, definitions of the technical terms in this Specification shall have their meaning assigned in CAN/CSA-C411.1-10, AC Suspension Insulators.

# 3 CODES AND STANDARDS

## 3.1 Abbreviations

CSA - Canadian Standards Association
ISO - International Organization for Standards
ASTM - American Society for Testing and Materials

## 3.2 Codes and Standards

Codes, standards, or other documents referred to in this Specification shall be considered as part of this Specification. Reference to the following standards shall be considered to refer to the latest editions and revisions thereto, unless otherwise indicated. The following codes and standards are referenced:

### 3.2.1 Canadian Standards Association (CSA)

| | |
|---|---|
| CAN/CSA-C83-17 | Communications and Power Line Hardware |
| CAN/CSA-C411.1-16 | AC suspension insulators |
| CAN/CSA-ISO 9001:16 | Quality Management System – Requirements |

### 3.2.2 American Society for Testing and Materials (ASTM)

| | |
|---|---|
| A370–17 | Standard Test Methods and Definitions for Mechanical Testing of Steel Products |

| | |
|---|---|
| E23–16b | Standard Test Methods for Notched Bar Impact Testing of Metallic Materials |

### 3.3 Conflict Between this Specification, Drawings, and Referenced Documents

In the event of conflict between this Specification and the above referenced documents, the requirements of this Specification shall take precedence. In the case of conflict between several referenced documents, the more stringent requirement shall be followed. If a conflict exists between this Specification or the referenced documents and the Drawings, the Drawings shall be followed. If clarification is necessary, contact the Owner.

## 4 GENERAL REQUIREMENTS

### 4.1 Design, Materials, Manufacture

#### 4.1.1 Insulator Type

All insulators supplied to this Specification shall be ball-and-socket type and shall be furnished with a positive locking device of the split cotter key style conforming to the requirements of CAN/CSA C411.1 Clause 4.

#### 4.1.2 Head Design

"Dovetail" head designs are not acceptable.

#### 4.1.3 Dimensions and Mechanical Characteristics

Physical dimensions and mechanical characteristics of the insulators shall be in accordance with CAN/CSA-C411.1 designations CS-3 and CS-5.

### 4.2 Inspection and Testing

#### 4.2.1 Type Tests

Schedule B Type Tests shall be performed as part of the prequalification process on any insulators submitted by a Contractor for the Owner approval. The tests are intended to verify the main electrical and mechanical characteristics of an insulator unit.

Type Tests shall also be repeated if dimensions or material described on the manufacturer's Item Drawings are modified or if manufacturing processes have changed. When the change affects only certain characteristics, subject to agreement between the Owner and the Contractor, only the tests relevant to those characteristics need be repeated.

All insulators covered by this specification shall comply with the requirements of the Schedule B Type Tests specified in CSA C411.1-16 Clause 6. The number of samples selected for each test shall be in accordance with CSA C411.1-16 Clause 6.2.4.2.

#### 4.2.2 Sample Tests and Routine Tests

Insulators covered by this specification shall be subjected to the Sample Tests and Routine Tests as specified in CAN/CSA-C411.1-16.

In addition, the Owner may, at its sole discretion, require one or more of the Type Tests as specified in CAN/CSA C411.1-16 to be completed on insulators selected from the production quantity at any time. Failure of any test will constitute failure of the entire order.

a) Sample Tests

The Contractor shall provide Sample Test reports consisting of detailed test data verifying that all the Sampling tests have been performed in accordance with CAN/CSA-C411.1 Clause 7.

Sample Tests shall be performed on randomly selected insulators from each manufactured batch as specified in CAN/CSA-C411.1 Clause 7. The Owner reserves the right to select specific insulators for sample testing.

*Exception to Clause 7.11 Retesting Procedure in CAN/CSA-C411.1*
The retesting specified in Clause 7.11.1 shall not apply if any sample insulator fails any of the specified sample tests. In this case the entire batch shall be rejected. In addition to the Sample Tests specified above, Charpy impact tests shall be completed on one randomly selected pin from each heat treatment lot before assembling insulators in accordance with the requirements of ASTM A370 and ASTM E23. The material must also provide a minimum of 27 J at -30°C as specified in CSA C83, Section 7.2.4. No failure is permitted for any heat lot of pins.

b) Routine Tests

Each Insulator shall be subjected to the Routine Tests specified in CAN/CSA-C411.1, Clause 8, to eliminate insulators with manufacturing defects.

### 4.2.3 Quality Control

a) Responsibility for Quality Control

Quality control is the responsibility of the Contractor.

b) Submission of Quality Control Procedures

The Contractor shall provide and maintain an independently audited quality verification program in accordance with CAN/CSA-ISO 9001. Within thirty (30) days of the Effective Date of Contract, the Contractor shall furnish to the Owner two (2) copies of their complete Quality Control and Procedures Manual, and description of the organization to be used on this contract.

c) Submission of Test and Inspection Plan

The Contractor shall submit a test and inspection plan in accordance with CAN/CSA-ISO 9001 for approval by the Owner. This test and inspection plan shall be submitted with the tender documents.

d) Monitoring and Verification

Throughout the period of the contract, the Owner or other authorized representatives of the Owner, may monitor the Contractor's methods, procedures, and processes in all phases of the work for compliance with the Quality Control and Procedures Manual and the Test and Inspection Plan submitted by the Contractor.

e) Single Point of Contact
Before beginning the work, the Contractor shall designate to the Owner, in writing, one employee or member of their organization who shall have authority to act in all matters relative to the quality control provisions of the contract.

f) Conformance to Quality Control Procedures and Inspection Plan
Failure by the Contractor to maintain the quality control procedures committed to in their Quality Control and Procedures Manual and Test and Inspection Plan will be considered a failure to meet the requirements of this Specification.

### 4.3 Shipping

#### 4.3.1 Shipping Containers

Insulators shall be supplied in weatherproof shipping containers constructed to ensure acceptance and safe delivery by common or other carrier to the destination specified in the purchasing documents.

#### 4.3.2 Container Marking

Each shipping container (if used) shall bear a weather-resistant marking or a weather-resistant tag clearly showing, at a minimum, the following information:

- Manufacturer's name or trademark
- Name of the item
- Purchase order number
- Work order number (if applicable)
- Destination
- Gross weight of the container and insulators
- Number of insulators in the container (by type, where the container holds more than one type)

#### 4.3.3 Insulator Packaging

- Insulators shall be pre-assembled in strings of 5 units.
- All insulator crates and/or pallets shall be wrapped to prevent contamination due to dust, dirt collected, and/or road salt on insulators during shipping and storage.

#### 4.3.4 Insulator Marking

Insulators shall be permanently marked on the metal fittings with the following information. Markings shall be durable and legible.

- Manufacturer's name or trademark
- Electromechanical Failing Load Rating in kN, identified by the symbol "M&E"
- Tension Proof -Test Load in kN, identified by the word "TEST"
- Date code or year of manufacture

## 5 INFORMATION TO BE PROVIDED BY THE SUPPLIER

### 5.1 Information to be Provided with the Tender Submittal

In addition to requirements specified elsewhere in the Contract Documents, the following technical submissions are required with the Contractor's tender submittal:

- A copy of the current CAN/CSA-ISO-9001 certificate.
- Test and Inspection Plan as per Clause 4.2.3 of this Specification.
- Item Drawings detailing the electrical and mechanical properties of the insulators to be supplied, including dimensions, strengths, flashover, puncture voltage, and other information required by this Specification.
- Certified Type Test reports for all insulator types included in the bid submission.
- Schedule reflecting critical dates, milestones, and deliveries.
- Details of all manufacturing plant locations to be used in production of the order, including a list of orders supplied in the past three years to major Canadian electrical utilities from each plant.
- The Owner reserves the right, at its sole discretion, to limit supply to manufacturing plants of its choice, should they feel an individual manufacturing plant does not meet acceptable quality standards.

## 5.2 Supply of Schedule

The Contractor shall provide to the Owner, within twenty (20) days of the Effective Date of Contract, a detailed Schedule for the work.

The Schedule shall indicate the commencement and completion dates for the principal activities of the work, including but not limited to:

- Submittal of Quality Control and Procedures Manual
- Design Submittal for review (the Owner shall complete this review within 15 business days)
- Placement of orders for material
- Receipt of material
- Type Tests, if required (including proposed location of tests)
- Manufacture, testing, and shipment of insulators
- Sample Test and Routine Test results submittal to the Owner
- Manufacture of production
- First shipment and arrival at destination
- Last shipment and arrival at destination

### 5.2.1 Conformance with Schedule

The Schedule is expected to match and provide additional detail for the Timing Schedule submitted with the Contractor's tender. All activities required for completion of the work shall be carried out in accordance with the sequence and times shown on the Schedule or subsequent revisions as approved by the Owner.

### 5.2.2 Changes to Schedule

If the Contractor believes it necessary or advantageous to change the sequence of events shown on the Schedule, the Contractor shall submit a proposed revision to the Owner for approval. No change shall be made in the order in which the work activities are being performed until the Owner's approval for the revised Schedule has been obtained.

## 5.3 Units of Measure

All drawings and information shall be in the SI dimensional system only and the English language.

### 5.4 Sample Test and Routine Test Results Submittal

Following completion of Sample Tests and Routine Tests the Contractor shall submit a package to the Owner containing a complete report of all test results and showing that the insulators have been tested in accordance with the requirements of this Specification. These test results and certificates shall be signed by a qualified party recognized in North America. The report will also provide detailed descriptions of the nature of any failures, including photographs and a description of the failed sample(s) and mitigation steps taken to avoid future failures.

**END OF SECTION**

Clean Energy
CONSULTING INC.

PERMIT TO PRACTICE
CLEAN ENERGY CONSULTING INC.
SIGNATURE
Date JUNE 29, 2018
PERMIT NUMBER PP424
Association of Professional Engineers of Yukon

# DETAILED DESIGN
# EAGLE GOLD 69 KV TRANSMISSION LINE

## HARDWARE SPECIFICATION

StrataGold Corporation

| | | | |
|---|---|---|---|
| Project No.: | 1407 | | |
| Document No.: | 1407-T-9020 | Client Project No.: | |
| Document Rev. No.: | 1 | Client Document No.: | |
| Prepared By: | Philip Clark | Client Doc. Rev. No.: | |
| CEC Contact: | Philip Clark | Client Contact: | |

**Project Description:**
The Eagle Gold 69 kV transmission line is a new wood pole 45 km circuit connecting the Eagle Gold mine site to the proposed Yukon Energy Corporation McQuesten Substation. The Eagle Gold mine site is located approximately 85 km northeast of Mayo, Yukon Territory.

**Sealed:**

PROFESSIONAL ENGINEER
YUKON TERRITORY
MATTHEW OBEE
JUNE 29, 2018

**Document Description:**
Hardware Specification

FORBES BROS

AS-BUILT

CHANGES REQUIRED YES ☐ NO ☐
Name (Print) _____
Signature _____
Date _____

## REVISION HISTORY

| Revision | Status | Date | Prepared By | Checked By | Approved By | Description of Revision |
|---|---|---|---|---|---|---|
| A | IFR | 13-Jul-17 | PC | NJ | - | Basic Engineering |
| 0 | IFP | 09-Feb-18 | PC | MEO | MEO | Issued for Purchase |
| 1 | IFP | 28-Jun-18 | PC | MEO | MEO | Charpy level & CSA C83 version updated |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |

Status:

| | | | |
|---|---|---|---|
| PRE | - Preliminary | IFP | - Issued for Purchase |
| IFR | - Issued for Review and Comment | IFC | - Issued for Construction |
| IFA | - Issued for Approval | AB | - As Built |
| IFQ | - Issued for Quotation | | |

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# 1 SCOPE

This Specification covers the technical requirements for the design, manufacture, inspection, testing, and supply of galvanized steel hardware used on AC overhead transmission lines. Conductor hardware is not included in this Specification.

# 2 DEFINITIONS

Item Drawings
Drawings showing specific dimensional and strength information for an item shall be provided by the Contractor with bid submission.

Drawings
Assembly drawings showing general dimensional and strength requirements for items shall be provided by the Owner with the bid package.

Owner
StrataGold Corporation.

Contractor
The party tendering on the requirements of this Specification.

# 3 CODES AND STANDARDS

## 3.1 Abbreviations

CSA - Canadian Standards Association
ISO - International Organization for Standards
ASTM - America Society for Testing and Materials
ASME - America Society for Mechanical Engineers

## 3.2 Codes and Standards

Codes, standards, or other documents referred to in this Specification shall be considered as part of this Specification. Reference to the following standards shall be considered to refer to the latest editions and revisions thereto, unless otherwise indicated. The following codes and standards are referenced:

### 3.2.1 Canadian Standards Association (CSA)

| | |
|---|---|
| CAN/CSA-C83-17 | Communications and Power Line Hardware |
| CAN/CSA C411.1-16 | AC Suspension Insulators |
| CAN/CSA G40.20-13/G40.21-13 | General Requirements for Rolled or Welded Structural Quality Steel/Structural Quality Steel |
| CAN/CSA G12-14 | Zinc-Coated Steel Wire Strand |
| CAN/CSA C108.3.1-M84 (R2014) | Limits and Measurement Methods of Electromagnetic Noise from AC Power Systems, 0.15 – 30 MHz |
| CAN/CSA G164-92(R2003) | Hot Dip Galvanizing of Irregularly Shaped Articles |
| CAN/CSA W59-13 | Welded Steel Construction (Metal-Arc Welding) |

| | |
|---|---|
| CAN/CSA ISO 9001:16 | Quality Management System - Requirements |

### 3.2.2 American Society for Testing and Materials (ASTM)

| | |
|---|---|
| A153/A153M-16a | Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware |
| A307-14E1 | Standard Specification for Carbon Steel Bolts, Studs, and Threaded Rod 60000 PSI Tensile Strength |
| A275/A275M-15 | Standard Test Method for Magnetic Particle Examination of Steel Forgings |
| A276/A276M-17 | Standard Specification for Stainless Steel Bars and Shapes |
| A370-17 | Standard Test Methods and Definitions for Mechanical Testing of Steel Products |
| A563-15 | Standard Specification for Carbon and Alloy Steel Nuts |
| E23–16b | Notched Bar Impact Testing of Metallic Materials |
| E165/E165M-12 | Standard Test Method for Liquid Penetrant Examination |
| E709–15 | Standard Guide for Magnetic Particle Examination |
| F436–16 | Standard Specification for Hardened Steel Washers |
| F568M–07 | Carbon and Alloy Steel Externally Threaded Metric Fasteners (Withdrawn) |

### 3.2.3 American Society of Mechanical Engineers (ASME)

| | |
|---|---|
| B1.1-03 (R2008) | Unified Inch Screw Threads |
| B18.2.1-12 | Square and Hex Bolts and Screws (inch series) |
| B18.2.3.5M | Metric Hex Bolts |
| B18.2.4.1M | Metric Hex Nuts, Style 1 |
| B18.2.4.2M | Metric Hex Nuts, Style 2 |
| B18.2.4.5M | Metric Hex Jam Nuts – Errata |
| B18.21.1 | Lock Washers (inch series) |

## 3.3 Conflict Between this Specification, Drawings, and Referenced Documents

In the event of conflict between this Specification and the above referenced documents, the requirements of this Specification shall take precedence. In the case of conflict between several referenced documents, the more stringent requirement shall be followed. If a conflict exists between this Specification or the referenced documents and the Drawings, the Drawings shall be followed. If clarification is necessary, contact the Owner.

# 4 GENERAL REQUIREMENTS

## 4.1 Design and Materials

### 4.1.1 Structural Steels

Hardware fabricated from structural steel shall use material in accordance with the requirements of CSA Standards CAN/CSA G40.20/G40.21 unless otherwise specified on the Drawings. All structural steel to be Grade WT, Category 4 (-45°C).

### 4.1.2 Structural Bolts

Structural bolts are those bolts which do not require CSA Standard CAN/CSA C83 compliance, either by their description or by the Drawings. Unless otherwise specified on the Drawings, structural bolts and nuts may be provided to CSA or ASTM specifications as follows:

a) Bolts shall meet the requirements of ASTM Standard A325. Nuts shall conform to Grade A of ASTM Standard A563. Washers shall conform to ASTM Standard F436.

b) Steel bolts and nuts shall be hot dip galvanized in accordance with ASTM Standards A153/A153M.

c) The country of origin of all bolts shall be identified by the Contractor and is subject to approval by the Owner.

### 4.1.3 Lock Washers

Unless otherwise specified on the Drawings, lock washers may be provided to either of the following Standards:

a) CSA Standard Lock Washers
Spring lock washer shall be in accordance with CSA Standard CAN/CSA C83.34.

b) ASME Standard Lock Washers
Spring lock washers shall conform to ASME Standard B18.21.1 for regular helical spring lock washers.

### 4.1.4 Line Hardware

a) Bolts and Washers
Other than items covered by Clause 4.1.2 of this Specification, all steel bolts, nuts, and washers shall be provided in accordance with CSA Standards CAN/CSA C83; or ASME Standards B1.1, B18.2.1 Tables 1 and 4, B18.2.3.5M, B18.2.4.1M, B18.2.4.2M and B18.2.4.5M.

All bolts shall be secured by means of a nut and cotter pin. Bolts or pins secured with cotter keys alone are not acceptable.

The country of origin of all bolts shall be identified by the Contractor and is subject to approval by the Owner.

b) Cotter Pins
Cotter pins shall conform to CSA Standard CAN/CSA C83.42, and the material is to be stainless steel.

c) Cotter Keys
Cotter keys in sockets to be attached to insulators shall conform to CSA Standard CAN/CSA C83.124 Style 1.

d) Stainless Steel Components

Unless otherwise specified, all stainless steel components shall meet the requirements of ASTM Standard A276/A276M or equivalent.

e) Impact Properties

The Eagle Gold 69 kV transmission Line will be built in an area with medium to heavy weather conditions, including wet snow, icing combined with wind, and extreme cold. Hardware components should be manufactured from materials having the capability of providing good low temperature impact properties and the components should, in general, be produced using good commercial manufacturing techniques that will ensure the required properties are created.

Following the above objectives, materials such as ductile iron and malleable iron shall not be used.

The basic requirement for energy absorption (low temperature impact properties) for all ferrous components is Level 1.5 from CSA Standard CAN/CSA C83.

The specific requirement is a minimum of 27 J at -30°C for three standard Charpy V-notch bars tested in accordance with CSA Standard CAN/CSA-G40.20. Three bars are required to be tested from each heat-treated lot of components. Where practical, samples shall be taken from the finished part after all heat and mechanical treatments. The samples shall be taken prior to galvanizing.

Components manufactured from structural steel are to be tested to the requirements of G40.20/G40.21. For forged steel components, including bolts, the testing is to be done in accordance with the requirements of ASTM A370 and ASTM E23. The impact tests shall be performed on specimens from sample forgings or castings, where possible. If test samples are made from the basic forging material, then they shall have the identical heat treatment processing as used for the finished component.

Impact properties will not be required for nuts and washers. The Contractor shall clearly identify in its bid submission each item that does not meet the impact requirements indicated above. Failure to do so may result in rejection of the entire bid.

Certified test reports to confirm the impact properties of any hardware item which the Contractor claims to be in compliance with the above requirements shall be submitted. Failure to provide the reports may result in rejection of the Contractor's bid, in whole or in part.

f) Torque Strength

Threaded portions of hardware which can reasonably be reused, such as clamping devices, shall have minimum reusability and failure torque values as shown in CAN/CSA C83, unless otherwise specified in the CAN/CSA C83 item standards, or in this Specification. Fasteners shall have a "finger free" fit after being tightened and backed off four times using the re-usability torques specified.

### 4.1.5 Unit Conversions and Equivalents

a) Imperial Bolts

In the absence of metric size bolts, Imperial size bolts specified in Table 1 will be accepted as equivalent unless specifically noted otherwise on the Drawings. Individual assemblies shall not mix metric and imperial sizes.

**Table 1: Imperial Equivalents for Metric Bolts**

| Metric | | Imperial | |
|---|---|---|---|
| Nominal Diameter (mm) | Hole Size (mm) | Nominal Diameter (in) | Hole Size (in) |
| 6 | 8 | 1/4 | 5/16 |
| 12 | 14 | 1/2 | 9/16 |
| 16 | 18 | 5/8 | 11/16 |
| 20 | 22 | 3/4 | 13/16 |
| 24 | 26 | 1 | 1-1/16 |

b) Steel Plate Thickness

For steel plate, the conversions shown in Table 2 will be accepted as equivalent when substituting Imperial sizes for metric-specified dimensions, unless specifically noted otherwise on the Drawings.

**Table 2: Imperial Equivalents for Metric Plate**

| Metric | | Imperial | |
|---|---|---|---|
| Plate Thickness (mm) | Clevis Spread (mm) | Plate Thickness (in) | Clevis Spread (in) |
| 12 | 14 | 1/2 | 9/16 |
| 16 | 18 | 5/8 | 11/16 |
| 20 | 22 | 3/4 | 13/16 |
| 25 | 28 | 1 | 1-1/16 |

c) Conversions of Other Dimensions

For other dimensions, the conversions shown in Table 3 are generally acceptable.

**Table 3: Commonly Accepted Metric/Imperial Dimension Conversions**

| Metric (mm) | Imperial (in) | Metric (mm) | Imperial (in) |
|---|---|---|---|
| 25 | 1 | 75 | 3 |
| 32 | 1-1/4 | 80 | 3-1/4 |
| 38 | 1-1/2 | 90 | 3-1/2 |
| 45 | 1-3/4 | 95 | 3-3/4 |
| 50 | 2 | 100 | 4 |
| 60 | 2-1/4 | 110 | 4-1/4 |
| 65 | 2-1/2 | 115 | 4-1/2 |
| 70 | 2-3/4 | 120 | 4-3/4 |
| 75 | 3 | 130 | 5 |

d) Strength Conversions

For strength requirements, the conversions shown in Table 4 may be used when substituting Imperial rated product for metric strengths unless specifically noted otherwise on the Drawings.

**Table 4: Commonly Accepted Metric – Imperial Strength Conversions**

| Metric Strength (kN) | Soft Conversion (kN) | Imperial (Kips) |
|---|---|---|
| 45 | 44 | 10 |
| 70 | 67 | 15 |
| 90 | 90 | 20 |
| 120 | 111 | 25 |
| 140 | 135 | 30 |
| 150 | 147 | 33 |
| 160 | 160 | 36 |
| 220 | 222 | 50 |

## 4.2 Manufacture

### 4.2.1 General

In general, the requirements of CAN/CSA C83 apply to the manufacture of transmission line hardware.

### 4.2.2 Bending

a) Hot Bending

Forming and bending shall be performed hot unless otherwise approved by the Owner.

b) Cold Forming

Where cold forming and bending has been approved by the Owner, the component shall be normalized after the product has assumed its final shape. Normalizing shall be performed prior to galvanizing.

c) Warm Bending

Warm bending at temperatures between 150 °C (302 °F) and 375 °C (707 °F) shall not be permitted.

### 4.2.3 Ductility

Embrittlement or loss of ductility caused by stress concentration, strain hardening, or quenching shall be avoided.

Hardware produced from steel bar shall be sufficiently ductile that the unthreaded parts may be bent cold 180° about a mandrel of three times the bar diameter without fracture.

### 4.2.4 Galvanizing

All ferrous material shall be galvanized in accordance with ASTM Standards A153/A153M or CAN/CSA G164. All sharp edges, forging or welding flashes and burrs shall be removed prior to galvanizing. All hardware shall be in its final shape before galvanizing.

#### 4.2.5 Welding

Welding shall be in accordance with CSA Standard CAN/CSA W59.

### 4.3 Item- Specific Requirements

#### 4.3.1 Shackles

a) Shackles intended to be used in conjunction with ball-eye units shall have, at the pin eye, dimensions that will accommodate an oval eye opening of 24 mm by 45 mm.

b) For Y-clevises, the entire depth shall be accessible to a pin having a diameter 2 mm less than the specified spread. The pin, when located in the Y-clevis crotch, shall be at right angles to the shackle pin.

#### 4.3.2 Live Line Hardware

Where applicable, hardware intended for live line maintenance operation shall have collars or lugs with the same strength rating as that of the product itself, suitable for “hot line” tools. Unless otherwise specified on the Drawings, the hardware shall be fabricated for use with A.B. Chance hot line tools.

#### 4.3.3 Guy Wire

All zinc coated steel strand guy wire shall conform to CSA Standard CAN/CSA G12-14.

### 4.4 Drawings

#### 4.4.1 Dimensions

a) The dimensions shown on Drawings are the general requirement and are typical values commonly adopted by manufacturers. Some dimensions may vary subject to the prior written approval of the Owner. Where no dimension or “not applicable” (N/A) are shown, or there are no Drawings for a given item, there is no specific dimensional requirement.

b) Dimensions not specified are to be proposed by the Contractor and are subject to the Owner written approval.

c) Bending radius will vary in accordance with the manufacturing process. Dimensions provided are for general reference only, unless indicated otherwise.

#### 4.4.2 Dimensional Tolerances

a) Tolerances for Fasteners

Unless otherwise specified by the Owner, no tolerance other than standard industrial practice is permissible for the following:

- Pin or Bolt Sizes
- Bar or Rod Sizes

The tolerances for hole diameters for fasteners and pins shall be as per Table 1 in CAN/CSA C83.

b) Units covered by CAN/CSA C83 item standards shall have the dimensional tolerances in accordance with the item standard.

c) For units not covered by CAN/CSA C83 item standards, the following dimensional tolerances shall apply:

i) Tolerances for Minimum Requirement
Unless otherwise indicated, the Item Drawings specify dimensions for the following items as the minimum requirement. The respective maximum tolerances are as follows (by product type):

| | |
|---|---|
| Spread of Clevis | Maximum tolerance is +3 mm |
| Depth of Clevis | Maximum tolerance is subject to the Owner approval |
| Length of Item | Maximum tolerance is subject to the Owner approval |

ii) Tolerances for Maximum Requirement
Unless otherwise indicated, the Item Drawings specify dimensions for the following items as the maximum requirement. The respective minimum tolerances are as follows:

| | |
|---|---|
| Plate thickness | Minimum tolerance is - 1 mm |
| Tongue thickness | Minimum tolerance is - 2 mm |

#### 4.4.3 Strength Ratings

Strength ratings specified are the minimum requirement unless otherwise indicated on the Drawings.

### 4.5 Inspection and Testing

#### 4.5.1 Inspection and Testing Reports

All material supplied shall be accompanied by test or inspection reports, signed by a qualified party recognised in North America, as specified in this Section.

a) Mill test certificate or other documents detailing the origin and nature of the material used for the manufacture of the hardware shall be provided upon request.

b) Test reports of the yield and ultimate strength, based on a valid test arrangement, shall be provided upon request.

c) Results of Charpy 'V' notch impact tests based on CAN/CSA G40.20/G40.21 for structural steel and ASTM Standard A370; and E23 for forged steel components shall be provided upon request.

d) For forged steel components and bent bars, inspection reports for magnetic particle tests based on ASTM Standard A275/A275M shall be provided upon request.

e) For welding, reports for magnetic particle inspection based on ASTM Standard E709 or liquid penetrant methods based on ASTM Standard E165/E165M shall be provided upon request.

f) Test reports for socket hardware in accordance with CSA Standards CAN/CSA C83.120 and CAN/CSA C83.121 shall be provided upon request.

g) The Contractor shall furnish to the Owner the test reports indicated in the approved Test and Inspection Plan submitted with their bid. All testing shall utilize sampling procedures in accordance with Appendix A of CAN/CSA C83.120 and satisfy the requirements of this Specification.

### 4.5.2 Other Tests

The Owner shall have the option to request other reasonable tests not described in this Specification at no additional cost, where such tests are required to confirm that the material being supplied conforms fully to the requirements of this Specification.

### 4.5.3 Inspection

The Owner reserves the right to inspect all aspects of the production facilities and to retain a qualified inspector for this purpose. Inspection performed by the Owner and its agents shall in no way relieve the Contractor's product from conforming to the appropriate Standards and this Specification.

### 4.5.4 Quality Control

a) Responsibility for Quality Control
Quality control is the responsibility of the Contractor.

b) Submission of Quality Control Procedures
The Contractor shall provide and maintain an independently audited quality verification program in accordance with CAN/CSA ISO 9001. Within thirty (30) days of the Effective Date of Contract the Contractor shall furnish to the Owner two (2) copies of their complete Quality Control and Procedures Manual, and description of the organization to be used on this contract.

c) Submission of Test and Inspection Plan
The Contractor shall submit a test and inspection plan in accordance with CAN/CSA-ISO 9001 for approval by the Owner. This Test and Inspection Plan shall be submitted with the tender documents. Proposed sampling procedures shall be in accordance with Appendix A of CAN/CSA C83.

d) Monitoring and Verification
Throughout the period of the contract, the Owner or other authorized representatives of the Owner may monitor the Contractor's methods, procedures, and processes in all phases of the work for compliance with the Quality Control and Procedures Manual and the Test and Inspection Plan submitted by the Contractor.

e) Single Point of Contact
Before beginning the work, the Contractor shall designate to the Owner, in writing, one employee or member of their organization who shall have authority to act in all matters relative to the quality control provisions of the contract.

f) Conformance to Quality Control Procedures and Inspection Plan
Failure by the Contractor to maintain the quality control procedures committed in their Quality Control and Procedures Manual and Test and Inspection Plan will be considered a failure of the work to conform to this Specification.

## 4.6 Shipping

### 4.6.1 Shipping Containers

Hardware shall be supplied in weatherproof shipping containers or other durable packaging constructed to ensure acceptance and safe delivery by common or other carrier to the destination specified in the purchasing documents.

### 4.6.2 Container Marking

Each shipping container (if used) shall bear a weather-resistant marking or a weather-resistant tag clearly showing, at a minimum, the following information:

- Manufacturer's name or trademark
- Name of the item
- Quantity in container
- Purchase order number
- Work order number (if applicable)
- Destination
- Gross weight of the container and hardware

All markings shall be made of waterproof paint or stamped metal tag securely attached to the container. All identification marks shall appear on the side and on the top of each container.

### 4.6.3 Hardware Packaging

Hardware shall be packaged in weather-resistant, crush resistant containers. The packaging used shall be approved by the Owner. Cardboard boxes are not acceptable.

All hardware crates and/or pallets shall be wrapped to prevent contamination due to dust, dirt, road salt, or brine collected on hardware during shipping and storage.

### 4.6.4 Hardware Marking

The product identification mark shall include the Contractor’s marking, strength rating, and range of conductor sizes (where applicable).

For hardware including balls and/or sockets, the type of coupling based on CSA Standard CAN/CSA C411.1 shall be included in the product identification mark.

The ASTM Standard F 568M markings shall be provided for all bolts, in accordance with their grades.

All product identification marks shall be permanent and easily readable on the finished products.

# 5 INFORMATION TO BE PROVIDED BY THE CONTRACTOR

## 5.1 Information to be Provided with the Tender Submittal

In addition to requirements specified elsewhere in the Contract Documents, the following technical submissions are required with the Contractor's tender submittal:

- CAN/CSA ISO 9001 certificate
- Test and Inspection Plan as per Clause 4.5.4 of this Specification
- Item Drawings detailing the dimensions and mechanical properties of the hardware to be supplied and other information required by this Specification
- Schedule reflecting critical dates, milestones, and deliveries
- Details of all manufacturing plant locations to be used in production of the order, including a list of orders supplied in the past three years to major Canadian electrical utilities from each plant

The Owner reserves the right, at its sole discretion, to limit supply to manufacturing plants of its choice, should they feel an individual manufacturing plant does not meet acceptable quality standards.

## 5.2 Supply of Schedule

The Contractor shall provide to the Owner, within twenty (20) days of the Effective Date of Contract, a detailed Schedule for the work.

The Schedule shall indicate the commencement and completion dates for the principal activities of the work, including but not limited to:

- Submittal of Quality Control and Procedures Manual
- Design Submittal for review (the Owner shall complete this review within 15 business days)
- Placement of orders for material
- Receipt of material
- Manufacture, testing, and shipment of hardware
- Test results (if required) submittal to the Owner
- Manufacture of production
- First shipment and arrival at destination
- Last shipment and arrival at destination

### 5.2.1 Conformance with Schedule

All activities required for completion of the work shall be carried out in accordance with the sequence and times shown on the Schedule or subsequent revisions as approved by the Owner.

### 5.2.2 Changes to Schedule

If the Contractor believes it necessary or advantageous to change the sequence of events shown on the Schedule, the Contractor shall submit a proposed revision to the Owner for approval. No change shall be made in the order in which the work activities are being performed until the Owner's approval for the revised Schedule has been obtained.

### 5.3 Units of Measure

All drawings and information shall be in the SI dimensional system only and the English Language. Information on acceptable unit conversions and equivalents is given in Clause 4.1.5 of this Specification.

**END OF SECTION**

Clean Energy
CONSULTING INC.

FORBES BROS

**AS-BUILT**

CHANGES REQUIRED YES ☐ NO ☐

Name (Print) _____

Signature _____

Date _____

**DETAILED DESIGN**
**EAGLE GOLD 69 KV TRANSMISSION LINE**

# CONDUCTOR AND SHIELD WIRE SPECIFICATION

StrataGold Corporation

| | | | |
|---|---|---|---|
| Project No.: | **1407** | | |
| Document No.: | **1407-T-9015** | Client Project No.: | |
| Document Rev. No.: | **0** | Client Document No.: | |
| Prepared By: | **Philip Clark** | Client Doc. Rev. No.: | |
| CEC Contact: | **Philip Clark** | Client Contact: | |

**Project Description:**
The Eagle Gold 6 9kV transmission line is a new wood pole 45 km circuit connecting the Eagle Gold mine site to the proposed Yukon Energy Corporation McQuesten Substation. The Eagle Gold mine site is located approximately 85 km northeast of Mayo, Yukon Territory.

**Document Description:**
Conductor and Shield Wire Specification

**Sealed:**

PROFESSIONAL ENGINEER
YUKON TERRITORY
MATTHEW OBEE

## REVISION HISTORY

| Revision | Status | Date | Prepared By | Checked By | Approved By | Description of Revision |
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Status:

| | | | |
|---|---|---|---|
| PRE | - Preliminary | IFP | - Issued for Purchase |
| IFR | - Issued for Review and Comment | IFC | - Issued for Construction |
| IFA | - Issued for Approval | AB | - As Built |
| IFQ | - Issued for Quotation | | |

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# 1 SCOPE

This Specification covers the technical requirements for the purchase of CSA A1/S1A conductor (Aluminum Conductor Steel Reinforced - "ACSR") to be supplied for use on AC overhead transmission lines and as overhead shield wire.

# 2 DEFINITIONS

Item Drawings
Drawings showing specific dimensional and strength information for an item shall be provided by the Contractor with bid submission.

Drawings
Assembly drawings showing general dimensional and strength requirements for items shall be provided by the Owner with the bid package.

Owner
StrataGold Corporation.

Contractor
The party tendering on the requirements of this Specification.

# 3 CODES AND STANDARDS

## 3.1 Abbreviations

CSA - Canadian Standards Association
ISO - International Organization for Standards

## 3.2 Codes and Standards

Codes, standards, or other documents referred to in this Specification shall be considered as part of this Specification. Reference to the following standards shall be considered to refer to the latest editions and revisions thereto, unless otherwise indicated. The following codes and standards are referenced:

### 3.2.1 Canadian Standards Association (CSA)

| | |
|---|---|
| CAN/CSA-C60888-03 | Zinc-coated steel wires for stranded conductors |
| CAN/CSA-C60889-03 | Hard-drawn aluminum wire for overhead line conductors |
| CAN/CSA-C61089-11 | Round wire concentric lay overhead electrical stranded conductors |
| CAN/CSA-ISO 9001-16 | Quality Management Systems – Requirements |

## 3.3 Conflict Between this Specification, Drawings, and Referenced Documents

In the event of conflict between this Specification and the above referenced documents, the requirements of this Specification shall take precedence. In the case of conflict between several referenced documents, the more stringent requirement shall be followed. If a conflict exists between this Specification or the referenced documents and the attached Drawings, the attached Drawings shall be followed. If clarification is necessary, contact the Owner.

# 4 GENERAL REQUIREMENTS

## 4.1 Requirements for Aluminum and Steel Wires

### 4.1.1 Aluminum Wires

The round 1350-H19 wires shall meet all the requirements of CSA Standard CAN/CSA-C60889-03.

### 4.1.2 Zinc-Coated Steel Wires

The round, hard-drawn steel core wires used in ACSR conductor shall meet all the requirements of CSA Standard CAN/CSA-C60888-03.

### 4.1.3 Tensile Testing

When requested by the Owner, tensile tests shall be made by the Contractor on representative samples of semi- finished wires containing joints of a type selected by the Contractor to satisfy the Owner that the tensile properties shall meet with the requirements of CSA Standards CAN/CSA-C60888-03 Clause 7 and C60889-03 Clause 7.

### 4.1.4 Galvanizing

The mass of zinc coating shall be Class A in accordance with CSA Standard CAN/CSA-60888-03.

## 4.2 Requirements for Complete ACSR

### 4.2.1 General

The complete conductor shall conform to CSA Standard CAN/CSA-C61089-11. The CSA conductor and shield wire designation is 135-A1/S1A-26/7, “Partridge”, as shown in Table D.10 of CAN/CSA-C61089-11.

During stranding, the temperature of all wires shall be the same (± 10° C) and the tensions on all bobbins shall be balanced to prevent loose stranding.

The tolerance for conductor length per reel shall be minus 0 metres to plus 10 metres.

### 4.2.2 Workmanship

Conductor manufacture shall be in accordance with good commercial practice.

The surface of the conductor shall be free from burrs, sharp edges, and abrasions resulting in projections in excess of 0.05 mm, and shall be free from dirt, oil, or other foreign deposits. A very light film of residual lubricant from the drawing process shall be acceptable.

### 4.2.3 Joints

a) Joining of aluminum wires broken during the stranding operation shall conform to CSA Standard CAN/CSA-C61089-03 Clause 5.5.
b) Joints in the outer conductor layer shall be clearly indicated with a 12.7 mm (112 inch) wide stripe on each side of the weld area.

#### 4.2.4 Conductor Strength

a) Tensile strength of the complete conductor shall conform to CSA Standard CAN/CSA-C61089-11 Clause 5.7.

b) Tests for breaking strength must satisfy CSA Standard CAN/CSA-C61089-11, Clause 6.5.3. This requirement may be waived by the Owner if recent test records for the same conductor are provided, and clearly demonstrate conformance with the above CSA clauses.

## 5 TEST AND TEST METHODS

All type and sample tests of the conductor and its components shall be in accordance with CSA Standards CAN/CSA-C60888-03, CAN/CSA-C60889-03, and CAN/CSA-C61089-11.

When the conductor is cut, the unrestrained ends of any aluminum wire layers and steel cores having diameters larger than 7.62 mm (0.3 inch) shall remain in proper position or be readily replaced by hand and then remain in position.

## 6 QUALITY CONTROL

The manufacturer shall have a proven successful record in the design and manufacture of the conductor and shield wire supplied.

The manufacturer shall have a currently implemented Quality Assurance Program. The design function shall be certified by an accredited auditor to CAN/CSA-ISO 9001. The manufacturer may be asked to submit a copy of their Quality Assurance Manual, detailing the requirements of their program thirty (30) days after award of the contract.

The manufacturer shall provide access to, and when requested, copies of inspection and test results, production records, process control charts, and other records compiled during the Work.

The manufacturer shall submit an Test and Inspection Plan at least thirty (30) days prior to commencing production of the conductor and shield wire.

The Contractor shall submit three (3) certified copies of the final quality assurance reports certifying compliance of the work to this specification within 14 days of completion of final inspection and testing. The final quality assurance report shall be a bound collection of QA documents or may be in electronic form. The documents compiled during manufacturing and the documents compiled during delivery of the Work, include but are not limited to:

- Subcontractor inspection reports
- Receiving inspection reports
- Mill test certificates
- Material qualification test reports
- Component dimensional inspection data reports
- Instrument and gauge calibration certificates and records
- Component test reports
- Accepted non-conformance reports
- Certified test report in accordance with standards

- Shipping quality reports
- Inspection and test plans and test procedures

Each document within the final quality assurance report shall be referenced to the actual components of the work to which they apply.

# 7 GENERAL

Inspection shall be carried out in accordance with CAN/CSA-ISO 9001 and the requirements of this specification.

## 7.1 Location of Tests

### 7.1.1 Test Location and Accessibility

All tests and inspections shall be made at the manufacturer's plant prior to shipment unless otherwise agreed between the manufacturer and the Owner at the time of purchase and shall be conducted to avoid unnecessary interference with the manufacturer's operations. The manufacturer shall afford the Owner’s inspector all reasonable facilities without charge to satisfy him that the material is being furnished in accordance with this specification. The inspector shall have full access to all processes and data required for the performance of his duties.

### 7.1.2 Reporting Timeline

All tests shall be made within 10 days after notice has been given to the Contractor that the material is ready for testing and the material shall be accepted or rejected at the manufacturer's plant. If the Contractor does not have a representative present at the manufacturer's plant to test the material at the expiration of 10 days, the manufacturer shall perform the tests and provide the Contractor with certified copies of the results. The Contractor shall accept or reject material in accordance with the results of such tests.

## 7.2 Acceptance or Rejection

### 7.2.1 Rejection Criteria

Failure of a test specimen to comply with any of the requirements of this specification shall constitute grounds for rejection of the lot represented by the specimen.

### 7.2.2 Retesting

If a lot is rejected, the manufacturer shall have the option to test every individual coil of wire or reel of complete conductor and shield wire in the lot at their own cost. Those individual coils or reels which successfully pass the test shall be deemed to meet the requirements.

# 8 PACKAGING

## 8.1 Reel Construction, Dimensions, and Weight

a) The reels shall be metal returnable reels, in accordance with the dimensions provided in the Contractor’s tender submittal. All reel construction shall be suitable for rolling short distances on their rims. The rim of the reel shall provide adequate support to prevent the conductor and shield wire from being damaged.

b) A bore hole shall be provided at the centre of the rim.

c) Two drive pin holes shall be provided, one on each side of the centre bore hole. The centers of the three holes shall be on the same straight line.

d) The length of the conductor and shield wire shall be as specified in the Contractor's tender submittal at time of shipping.

e) The gross mass of the reel shall mean the sum of the mass of the reel, the protective cover, linings, and the conductor and shield wire on the reel.

f) The manufacturer shall provide the Owner with the following reel dimensions:
- Flange outside diameter (inside traverse)
- Overall width
- Drum outside diameter
- Bore hole diameter

g) The maximum length of the conductor and shield wire on any one reel shall not exceed that of any other reel within the same lot by more than 33 ft. (10.058 m).

h) The length of conductor and shield wire on each reel shall be as specified in clause 4.2.1.

i) The number of reels to be shipped in a lot shall be in accordance with construction requirements and shall be as indicated in the Contractor's tender submittal.

j) Unless advance written approval is obtained from the Owner, reels with conductor and shield wire length other than that specified in in the Contractor's tender submittal will not be accepted.

**8.2 Protection of Conductor and Shield Wire**

a) The outer layer of the conductor and shield wire on the reel shall be protected by wood lagging or a hardboard wrapping. Such protective cover shall not be placed less than 1 inch (25.4 mm) away from the reel rim and shall be held symmetrically in place by two steel bands.

b) The protective cover shall provide adequate protection to prevent the conductor and shield wire underneath from being damaged.

c) No absorbent material shall be used for the protective cover.

**8.3 Conductor and Shield Wire End Preparation**

a) The inner end of the conductor and shield wire on the reel shall be taped and anchored. The taping and anchoring shall be sufficient to prevent the conductor and shield wire wires from unravelling, and causing damage to the next layer.

b) At the pulling end, the conductor and shield wire shall be properly taped and secured to the inside of the reel flange by any means such that the strand ends of the conductor and shield wire are prevented from unravelling during transportation and in storage

### 8.4 Handling

When handling the conductor and shield wire during transport, all loads shall be applied to the reel. No load shall be applied to the conductor and shield wire directly.

## 9 IDENTIFICATION

### 9.1 Reel Production Number

Reel Production Numbers shall start with "1" and shall be assigned consecutively as the conductor and shield wire is being manufactured. The series shall correspond to the duration of the Purchase Order.

The Reel Production Number shall be shown twice in large figures painted on the hardboard wrapping or wood lagging, 180° apart for easier stock reference.

### 9.2 Reel Number

The Contractor's Permanent Reel Number shall be marked or fastened securely on the spokes on the outside of the reel and on the drum.

### 9.3 Tagging of Reels

The following information shall be stamped in raised or indented letters on a metal label securely attached to the side of the reel.

a) Contractor's name
b) Owner Purchase Order Number
c) Owner Work Order Number
d) Size, type, and stranding of conductor and shield wire, including conductor code word as per Table D.10 of CSA Standard CAN/CSA-C61089-11
e) Length of conductor and shield wire on reel in metres
f) Gross shipping mass of reel in kilograms
g) Reel Production Number (Clause 9.1)
h) Permanent Reel Number (Clause 9.2)
i) Date of manufacture

## 10 SHIPPING INFORMATION

### 10.1 Packing Slips

Packing lists shall be included with each and every shipment. The packing lists shall contain the following information:

a) Owner address
b) Owner Purchase Order Number
c) Owner Work Order Number
d) Type of conductor and shield wire, including conductor code word as per Table D.10 of CSA Standard CAN/CSA-C61089-11
e) Quantity of reels

f) For each reel:

- Length of conductor and shield wire in metres
- Net and gross mass of reel in kilograms
- Reel Production Number

g) Total mass of the shipment in kilograms

### 10.2 Notification of Shipment

The Contractor shall notify the Owner not less than 2 working days prior to the actual arrival of each shipment at the delivery point.

The Contractor shall, on the date of each dispatch, provide the Owner through e-mail the following information:

a) Purchase Order Number
b) Items and quantities of the shipment
c) Carrier's name
d) Bill off-loading number
e) Estimated date of arrival at the destination

## 11 RESPONSIBILITY OF CONTRACTORS

a) The Contractor shall assume full responsibility for the manufacture of the conductor specified, and for any work performed by sub-Contractors.

b) The Contractor shall correct at his own expense, any defects in material or workmanship which may appear in the final product.

c) Inspection performed by the Owner, or such other delegate appointed by the Owner, shall not relieve the Contractor of his responsibility.

d) The Contractor, as part of the bid submission, shall clearly acknowledge that the product will be in full compliance with the required CSA standards.

e) Any deviations from the Specification requirements shall be submitted at the time of bid for consideration by the Owner. Unless approval in writing is granted, the work shall be performed in accordance with the "Specification."

f) The Contractor shall provide a proposed production schedule to the Owner and a monthly progress report subsequently. These schedule and progress reports shall be in the form of a bar-chart showing the progress of:

- Material procurement
- Manufacturing
- Testing
- Shipping

# 12 INFORMATION TO BE PROVIDED BY THE CONTRACTOR

## 12.1 Information to be Provided with the Tender Submittal

In addition to requirements specified elsewhere in the Contract Documents, the following technical submissions are required with the Contractor's tender submittal:

- Test and Inspection Plan as per Section 6 of this Specification
- Item Drawings detailing the dimensions and mechanical properties of the material supplied
- The quantity of material to be supplied
- Schedule reflecting critical dates, milestones, and deliveries
- Reel dimensions, proposed length of conductor and shield wire on reels in metres, and gross shipping mass of reels in kilograms

## 12.2 Supply of Schedule

The Contractor shall provide to the Owner, within twenty (20) days of the Effective Date of Contract, a detailed Schedule for the work.

The Schedule shall indicate the commencement and completion dates for the principal activities of the work, including but not limited to:

- Submittal of Quality Control and Procedures Manual
- Design Submittal for review (the Owner shall complete this review within 15 business days)
- Placement of orders for material
- Receipt of material
- Manufacture, testing, and shipment of hardware
- Test results (if required) submittal to the Owner
- First shipment and arrival at destination
- Last shipment and arrival at destination

### 12.2.1 Conformance with Schedule

All activities required for completion of the work shall be carried out in accordance with the sequence and times shown on the Schedule or subsequent revisions as approved by the Owner.

### 12.2.2 Changes to Schedule

If the Contractor believes it necessary or advantageous to change the sequence of events shown on the Schedule, the Contractor shall submit a proposed revision to the Owner for approval. No change shall be made in the order in which the work activities are being performed until the Owner approves the revised Schedule.

**END OF SECTION**

Clean Energy
CONSULTING INC.

PERMIT TO PRACTICE
CLEAN ENERGY CONSULTING INC.
SIGNATURE
Date JUNE 29, 2018
PERMIT NUMBER PP424
Association of Professional Engineers of Yukon

# DETAILED DESIGN
# EAGLE GOLD 69 KV TRANSMISSION LINE

## CONDUCTOR AND SHIELD WIRE HARDWARE SPECIFICATION

StrataGold Corporation

| | | | |
|---|---|---|---|
| Project No.: | 1407 | | |
| Document No.: | 1407-T-9010 | Client Project No.: | |
| Document Rev. No.: | 1 | Client Document No.: | |
| Prepared By: | Philip Clark | Client Doc. Rev. No.: | |
| CEC Contact: | Philip Clark | Client Contact: | |

**Project Description:**
The Eagle Gold 69 kV transmission line is a new wood pole 45 km circuit connecting the Eagle Gold mine site to the proposed Yukon Energy Corporation McQuesten Substation. The Eagle Gold mine site is located approximately 85 km northeast of Mayo, Yukon Territory.

**Sealed:**

PROFESSIONAL ENGINEER
YUKON TERRITORY
MATTHEW OBEE
JUNE 29, 2018

**Document Description:**
Conductor and Shield Wire Hardware Specification

FORBES BROS AS-BUILT
CHANGES REQUIRED YES ☐ NO ☐
Name (Print) _____
Signature _____
Date _____

## REVISION HISTORY

| Revision | Status | Date | Prepared By | Checked By | Approved By | Description of Revision |
|---|---|---|---|---|---|---|
| A | IFR | 13-Jul-17 | PC | NJ | - | Basic Engineering |
| 0 | IFP | 09-Feb-18 | PC | MEO | MEO | Issued for Purchase |
| 1 | IFP | 28-Jun-18 | PC | MEO | MEO | Charpy level & CSA C83 version updated |
| | | | | | | |
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Status:

| | | | |
|---|---|---|---|
| PRE | - Preliminary | IFP | - Issued for Purchase |
| IFR | - Issued for Review and Comment | IFC | - Issued for Construction |
| IFA | - Issued for Approval | AB | - As Built |
| IFQ | - Issued for Quotation | | |

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## 1 SCOPE

This Specification covers the technical requirements for the design, manufacture, inspection, testing, and supply of conductor and shield wire hardware used on AC overhead transmission lines.

Conductor and shield wire hardware includes items in direct contact with the energized conductors. The conductor and shield wire will be standard CSA A1/S1A (ACSR) construction. Details of wire characteristics relative to specific bid requests will be included with the bid documents.

Typical conductor hardware items include, but are not limited to, the following:

- Suspension clamps for tangent and running angle applications
- Bolted strain clamps for dead-end applications
- Compression splices for conductor and shield wire

Galvanized pole line hardware is not included in this Specification.

## 2 DEFINITIONS

Item Drawings
Drawings showing specific dimensional and strength information for an item shall be provided by the Contractor with bid submission.

Drawings
Assembly drawings showing general dimensional and strength requirements for items shall be provided by the Owner with the bid package.

Clamping Unit
A hardware component or unit that supports the wire and provides a means to attach wire to the structure, either directly or indirectly.

Compression Unit
A hardware component or unit installed using compressive force, either by means of a hydraulic press or explosives.

Full Tension Unit
A hardware component or unit designed to withstand the maximum wire tension, or rated breaking strength, of the wire on which it is installed.

RTS
Rated Tensile Strength of the conductor or shield wire; as specified in CAN/CSA-C61089-11, and taken as the breaking strength of the wire.

Unit
The complete item, including all hardware and bolts required for installation, as delivered by the Contractor.

Component
Individual part of the Unit.

Owner
StrataGold Corporation.

Contractor
The party tendering on the requirements of this Specification.

# 3 CODES AND STANDARDS

## 3.1 Abbreviations

CSA - Canadian Standards Association
ISO - International Organization for Standards
ASTM - American Society for Testing and Materials
ASME - American Society of Mechanical Engineers
ANSI – American National Standards Institute

## 3.2 Codes and Standards

Codes, standards, or other documents referred to in this Specification shall be considered as part of this Specification. Reference to the following standards shall be considered to refer to the latest editions and revisions thereto, unless otherwise indicated. The following codes and standards are referenced:

### 3.2.1 Canadian Standards Association (CSA)

| | |
|---|---|
| CAN/CSA-C83-17 | Communications and Power Line Hardware |
| CANCSA-C57-16 | Electric Power Connectors for Use in Overhead Line Conductors |
| CAN/CSA-C411.1-16 | AC suspension insulators |
| CAN/CSA G40.20-13/G40.21-13 | General Requirements for Rolled or Welded Structural Quality Steel/Structural Quality Steel |
| CAN/CSA-G164-92(R2003) | Hot Dip Galvanizing of Irregularly Shaped Articles |
| CAN/CSA-W59-13 | Welded Steel Construction (Metal – Arc Welding) |
| CAN/CSA-C108.3.1-84 (R2014) | Limits and Measurement Methods of Electromagnetic Noise from AC Power Systems, 0.15 – 30 MHz |
| CAN/CSA ISO 9001:16 | Quality Management System - Requirements |

### 3.2.2 American Society for Testing and Materials (ASTM)

| | |
|---|---|
| A275/A275M-15 | Standard Test Method for Magnetic Particle Examination of Steel Forgings |
| A370–17 | Standard Test Methods and Definitions for Mechanical Testing of Steel Products |
| E23–16b | Notched Bar Impact Testing of Metallic Materials |
| E165/E165M-12 | Standard Practice for Liquid Penetrant Examination for General Industry |

| | |
|---|---|
| E709–15 | Standard Guide for Magnetic Particle Testing |
| F568M–07 | Standard Specification for Carbon and Alloy Steel Externally Threaded Metric Fasteners |
| G50-10 (R2015) | Standard Practice for Conducting Atmospheric Corrosion Tests on Metals |

#### 3.2.3 American Society of Mechanical Engineers (ASME)

| | |
|---|---|
| B1.1-03 (R2008) | Unified Inch Screw Threads |
| B18.2.1-12 | Square and Hex Bolts and Screws (inch series) |

#### 3.2.4 The Institute of Electrical and Electronics Engineers, Inc. (IEEE)

| | |
|---|---|
| C135.61-97 (R2006) | Standard for the Testing of Overhead Transmission and Distribution Line Hardware |
| 738-12 | Standard for Calculating the Current-Temperature Relationship of Bare Overhead Conductors |

### 3.3 Conflict Between this Specification, Drawings, and Referenced Documents

In the event of conflict between this Specification and the above referenced documents, the requirements of this Specification shall take precedence. In the case of conflict between several referenced documents, the more stringent requirement shall be followed. If a conflict exists between this Specification or the referenced documents and the attached Drawings, the attached Drawings shall be followed. If clarification is necessary, contact the Owner.

## 4 GENERAL REQUIREMENTS

### 4.1 Design and Materials

#### 4.1.1 Component Material

Unless specifically indicated otherwise, all hardware components shall be manufactured from materials that meet the requirements of CSA C83 Clause 6.

#### 4.1.2 Unacceptable Material and Components

Use of cast iron is not acceptable for conductor and shield wire hardware components. Aluminum fastening devices that can be over-torqued are not acceptable.

#### 4.1.3 Fiberglass, Plastic, Rubber, Silicone, and Other Non-Metallic Materials

Conductor and shield wire hardware components shall not contain fiberglass or plastics.

#### 4.1.4 Bolts and Washers

All steel bolts, nuts, and washers shall be provided in accordance with CSA C83-17 or ASME B1.1 and B18.2.1 Tables 1 and 4. All bolts shall be secured by means of a nut and cotter pin. Bolts or pins secured with cotter keys alone are not acceptable. The country of origin of all bolts shall be identified by the Contractor and is subject to approval by the Owner.

#### 4.1.5 Cotter Pins

Cotter pins shall conform to CSA C83.42-96, and the material is to be stainless steel.

### 4.1.6 Cotter Keys

Cotter keys in sockets to be attached to insulators shall conform to CSA C83.124-96 Style 1.

### 4.1.7 Impact Properties

The Eagle Gold 69 kV transmission line will be built in an area with medium to heavy weather conditions, including wet snow and icing combined with wind. Hardware components shall be manufactured from materials having the capability of providing good low temperature impact properties and the components shall, in general, be produced using good commercial manufacturing techniques that will ensure the required properties are created. Following from the above objectives, materials such as ductile iron and malleable iron are not acceptable.

The basic requirement for energy absorption (low temperature impact properties) for all ferrous components is Charpy Level 1.5 from CSA Standard CAN/CSA C83-17.

The specific requirement is a minimum of 27 J at -30°C for three standard Charpy V-notch bars tested in accordance with CSA Standard CAN/CSA-G40.20. Three bars are required to be tested from each heat-treated lot of components. Where practical, samples shall be taken from the finished part after all heat and mechanical treatments. The samples shall be taken prior to galvanizing.

Nuts and washers are not required to meet these impact requirements. The Contractor shall clearly identify in their bid submission each item that does not meet the impact requirements indicated above.

Certified test reports to confirm the impact properties of any hardware item which the Contractor claims to be in compliance with the above requirements shall be submitted.

### 4.1.8 Torque Strength

Threaded portions of hardware which can reasonably be reused, such as clamping devices, shall have minimum reusability and failure torque values as shown in CAN/CSA C83-17 Table 2, unless otherwise specified in the CAN/CSA C83-17 item standards or in this Specification. Fasteners shall have a “finger free” fit after being tightened and backed off four times using the re-usability torques specified.

### 4.1.9 Breaking Strength, Pullout Strength, and Clamping Strength

Units that will be used in insulator assemblies shall generally meet the design rationale as outlined in CAN/CSA C83-17, Appendix G. Units that connect directly to insulator strings shall have a minimum yield strength at least equal to the rating of the insulator couplers, as shown in Table 1, or as otherwise specified.

**Table 1: Strength Rating of Insulator Couplers**

| Ball-Socket Class | | Strength | | |
|---|---|---|---|---|
| **CSA** | **ANSI** | **C29.2** | **kN** | **Lbs** |
| CS-3 | 52-3 | Type B | 70 | 15,000 |
| CS-5 | 52-5 | Type J | 120 | 25,000 |

Units that do not connect directly to insulator strings shall have minimum breaking strength values as indicated on the Drawings or elsewhere. Where strength values are not specified by the Designer, strength values shall be specified on the Item Drawings.

Full Tension Units shall have a yield strength at least equal to the RTS of the wire for which they are designed.

Compression Units shall have a minimum pullout strength greater than 95% of the wire RTS (Class 1 Mechanical Duty) as per CSA C57-16, Clause 4.4.

Conductor and shield wire strain clamps shall have a minimum holding strength greater than 75% of the conductor/shield wire RTS.

### 4.1.10 Corona Performance and Radio Interference Voltage (RIV)

Hardware components that may be energized at the potential of the phase conductors shall be designed and tested to meet the following requirements:

a) Radio influence voltage (RIV) shall not exceed the limits specified in Table B1 of CSA C108.3.1. For phase-to-phase voltages in the range of 38 kV to 138 kV, RIV shall not exceed 44 dB above 1 µV, at 1 MHz, with voltage at 10% above maximum operating value. Testing shall be in accordance with the Appendix B of CSA C108.3.1.

b) Hardware shall not generate positive polarity corona discharges at voltage levels up to and including 130% of the specified nominal phase to phase voltage. Corona testing shall be conducted in accordance with the requirements of Appendix E of CSA C83-17.

Where testing has not been conducted at voltages equivalent to those of this Project, the Owner may require the necessary testing to be completed at no additional cost to the Project. If required, testing shall be carried out with hardware assemblies identical to those to be used on the line.

### 4.1.11 Other Electrical Performance Requirements

Compression Units for use on conductors shall be designed and tested for Electrical Duty Class A performance in accordance with CSA C57-16, Clause 4.2.

Hardware components that may be energized at the potential of the phase conductors shall be capable of operating at 115% of the specified nominal voltage.

Hardware units in direct contact with conductors shall have a thermal rating of 125°C and an Emergency Thermal Rating (two hours) of 150°C at the ampacity of the largest conductor, rated as per IEEE 738.

### 4.1.12 Environmental Performance

Units shall be designed to have an expected life of at least 50 years under the reasonably anticipated service conditions.

Units shall be rated for use in an Industrial Atmosphere as per ASTM G50 for the expected life of the units.

### 4.1.13 Requirements Specific to Suspension Clamps

Tangent suspension clamps shall be designed for wire departure angles of up to 15° and angle suspension clamps for wire departure angles up to 38°.

Suspension and angle suspension clamps for conductor will utilize armour rods. Tangent and angle suspension clamps for shield wire will not utilize armour rods.

Suspension clamps shall be designed to allow articulation between the clamp seat and socket.

### 4.1.14 Other Design Requirements

Clamping Units shall create a minimum distortion of conductor and shield wire strands when installed and after removal.

Compounds used to protect conducting surfaces and as fillers for Compression Units shall be inert to copper, aluminum, zinc, tin, cadmium steel, and neoprene rubber and shall be stable within storage and installation temperature ranges (typical -50 °C to 40 °C). Filler materials shall be suitable for operation at temperatures up to 125 °C.

Compression Units designed to be installed with hydraulic presses and dies shall be designed such that the compression tooling, including die cavities, conforms to CSA C57-16, Appendix A.

### 4.1.15 Unit Conversions and Equivalents

a) Imperial Bolts

In the absence of metric size bolts, Imperial size bolts specified in Table 2 will be accepted as equivalent unless specifically noted otherwise on the Drawings. Individual assemblies shall not mix metric and imperial sizes.

**Table 2: Imperial Equivalents for Metric Bolts**

| Metric | | Imperial | |
|---|---|---|---|
| **Nominal Diameter (mm)** | **Hole Size (mm)** | **Nominal Diameter (in)** | **Hole Size (in)** |
| 6 | 8 | 1/4 | 5/16 |
| 12 | 14 | 1/2 | 9/16 |
| 16 | 18 | 5/8 | 11/16 |
| 20 | 22 | 3/4 | 13/16 |
| 24 | 26 | 1 | 1-1/16 |

b) Conversions of Other Dimensions

**For other dimensions, the conversions shown in**

Table 3 are generally acceptable.

**Table 3: Commonly Accepted Metric/Imperial Dimension Conversions**

| Metric (mm) | Imperial (in) | Metric (mm) | Imperial (in) |
|---|---|---|---|
| 25 | 1 | 75 | 3 |
| 32 | 1-1/4 | 80 | 3-1/4 |
| 38 | 1-1/2 | 90 | 3-1/2 |
| 45 | 1-3/4 | 95 | 3-3/4 |
| 50 | 2 | 100 | 4 |
| 60 | 2-1/4 | 110 | 4-1/4 |
| 65 | 2-1/2 | 115 | 4-1/2 |
| 70 | 2-3/4 | 120 | 4-3/4 |
| 75 | 3 | 130 | 5 |

c) Strength Conversions

For strength requirements, the conversions shown in Table 4 may be used when substituting Imperial rated product for metric strengths unless specifically noted otherwise on the Drawings.

**Table 4: Commonly Accepted Metric – Imperial Strength Conversions**

| Metric Strength (kN) | Soft Conversion (kN) | Imperial (Kips) |
|---|---|---|
| 45 | 44 | 10 |
| 70 | 67 | 15 |
| 90 | 90 | 20 |
| 120 | 111 | 25 |
| 140 | 135 | 30 |
| 150 | 147 | 33 |
| 160 | 160 | 36 |
| 220 | 222 | 50 |

## 4.2 Manufacture

### 4.2.1 General

In general, the requirements of C83-17 apply to the manufacture of conductor hardware.

### 4.2.2 Ductility

Embrittlement or loss of ductility caused by stress concentration, strain hardening, or quenching shall be avoided.

Hardware produced from steel bar shall be sufficiently ductile that the unthreaded parts may be bent cold 180 ° about a mandrel of three times the bar diameter without fracture.

#### 4.2.3 Galvanizing

a) All ferrous material shall be galvanized in accordance with CAN/CSA C83-17, Clause 7.1.
b) All sharp edges, forging or welding flashes, and burrs shall be removed prior to galvanizing.
c) All hardware shall be in its final shape before galvanizing.

#### 4.2.4 Welding

Welding shall be in accordance with CAN/CSA-W59-03.

### 4.3 Item Specific Requirements

#### 4.3.1 Balls and Sockets

a) All balls and sockets shall be manufactured in accordance with CAN/CSA C411.1-16.
b) All sockets shall be provided with a cotter key in accordance with Clause 5.1.4 of this Specification.
c) All socket eye and socket clevis fittings shall meet the strength test requirements of CSA C83.120-96 and C83.121-96, respectively. The yield load in the strength test tables shall be interpreted to mean that the hardware will withstand the specified load without any permanent deformation.
d) Ball and Socket coupling shall follow the “GO” and “NO-GO” procedure as specified in CSA C411.1-16.

#### 4.3.2 Live Line Hardware

Where applicable, hardware intended for live line maintenance operation shall have collars or lugs with the same strength rating as that of the product itself, suitable for “hot line” tools. Unless otherwise specified on the Drawings, the hardware shall be fabricated for use with A.B. Chance hot line tools.

#### 4.3.3 Compression Units

Compression Units shall have the barrel end(s) plugged and prefilled with inhibitor compound (if required). Any tapers shall be coated with a strippable protective coating.

#### 4.3.4 NEMA Pad Connectors

NEMA pad connectors shall have a removable cover to seal and protect the electrical contact surfaces from oxidation and damage to the surface.

### 4.4 Drawings

#### 4.4.1 Drawing Dimensions

a) The dimensions shown on the Drawings are the general requirement and are typical values commonly adopted by the manufacturers. Some dimensions may vary subject to the prior written approval of the Owner. Where no dimension or “not applicable” (N/A) are shown, or there are no Drawings for a given item, there is no specific dimensional requirement.

b) Dimensions not specified must be proposed by the Contractor and are subject to the Owner's written approval.
c) Bending radius will vary in accordance with the manufacturing process. Dimensions provided are for general reference only, unless indicated otherwise.

#### 4.4.2 Dimensional Tolerances

a) Unless otherwise specified by the Owner, no tolerance other than standard industrial practice is permissible for the following:
   - Pin or bolt sizes
   - Bar or rod sizes

   The tolerances for hole diameters for fasteners and pins shall be as per Table 1 in CAN/CSA C83-17.

b) Units covered by CAN/CSA C83-17 item standards shall have dimensional tolerances in accordance with the item standard.

c) For units not covered by CAN/CSA C83-17 item standards, the following dimensional tolerances shall apply:

   i. Tolerances for Minimum Requirement
   Unless otherwise indicated, the Item Drawings specify dimensions for the following items as the minimum requirement. The respective maximum tolerances are as follows (by product type):

| | |
|---|---|
| Spread of Clevis: | Maximum tolerance is +3 mm |
| Depth of Clevis: | Maximum tolerance is subject to the Owner approval |
| Length of Item: | Maximum tolerance is subject to the Owner approval |

   ii. Tolerances for Maximum Requirement
   Unless otherwise indicated, the Item Drawings specify dimensions for the following items as the maximum requirement. The respective minimum tolerances are as follows:

   Tongue thickness minimum tolerance is - 2 mm.

#### 4.4.3 Strength Ratings

Strength ratings specified are the minimum requirement unless otherwise indicated on the Drawings.

### 4.5 Inspections and Testing Reports

#### 4.5.1 Inspection and Testing Reports

The Contractor shall furnish to the Owner test or inspection reports signed by a qualified party recognised in North America as specified in this Section.

a) Mill test certificate or other documents detailing the origin and nature of the material used for the manufacture of the hardware shall be provided upon material order.

b) Test reports of the yield and ultimate strength, based on a valid test arrangement, shall be provided upon material order.

c) Results of Charpy 'V' notch impact tests based on CSA G40.20-13/G40.21-13 for structural steel, and ASTM A370–17 and E23-16c for forged steel components shall be provided upon material order.

d) For forged steel components and bent bars, inspection reports for magnetic particle tests based on ASTM A275/A275M–17 shall be provided upon request.

e) For welding, reports for magnetic particle inspection based on ASTM E709–15 or liquid penetrant methods based on ASTM E165/E165M-12 shall be provided upon material order.

f) Test reports for socket hardware in accordance with CAN/CSA C83.120-96 and CAN/C83.121-96 shall be provided upon material order.

g) The Contractor shall furnish all testing and reporting in accordance with the agreed Inspect and Test Plan. Statistical evidence in accordance with Appendix A of CSA C83 shall be clearly evident such that products supplied meet the requirements of this Specification.

### 4.5.2 Other Tests

The Owner shall have the option to request other reasonable tests not described in this Specification at no additional cost to the Owner, where such tests are required to confirm that the material being supplied conforms fully to the requirements of this Specification.

### 4.5.3 Inspection

The Owner reserves the right to inspect all aspects of the production facilities and to retain a qualified inspector for this purpose. Inspection performed by the Owner and its agents shall in no way relieve the Contractor's product from conforming to the appropriate Standards and this Specification.

### 4.5.4 Quality Control

a) Responsibility for Quality Control
Quality control is the responsibility of the Contractor.

b) Submission of Quality Control Procedures
The Contractor shall provide and maintain an independently audited quality verification program in accordance with CAN/CSA ISO 9001:16. Within thirty (30) days of the Effective Date of Contract the Contractor shall furnish to the Owner two (2) copies of their complete Quality Control and Procedures Manual, and description of the organization to be used on this contract.

c) Submission of Test and Inspection Plan
The Contractor shall submit a test and inspection plan in accordance with CAN/CSA ISO 9001:16 for approval by the Owner. This Test and Inspection Plan shall be

submitted with the tender documents. Proposed sampling procedures shall be in accordance with Appendix A of CAN/CSA C83-17.

d) Monitoring and Verification
Throughout the period of the contract, the Owner or other authorized representatives of the Owner may monitor the Contractor's methods, procedures, and processes in all phases of the work for compliance with the Quality Control and Procedures Manual and the Test and Inspection Plan submitted by the Contractor.

e) Single Point of Contact
Before beginning the work, the Contractor shall designate to the Owner, in writing, one employee or member of their organization who shall have authority to act in all matters relative to the quality control provisions of the contract.

f) Conformance to Quality Control Procedures and Inspection Plan
Failure by the Contractor to maintain the quality control procedures committed in their Quality Control and Procedures Manual and Test and Inspection Plan will be considered a failure of the work to conform to this Specification.

## 4.6 Shipping

### 4.6.1 Shipping Containers

Hardware shall be supplied in weatherproof shipping containers or other durable packaging constructed to ensure acceptance and safe delivery by common or other carrier to the destination specified in the purchasing documents.

### 4.6.2 Container Marking

Each shipping container (if used) shall bear a weather-resistant marking or a weather-resistant tag clearly showing, at a minimum, the following information:

- Manufacturer's name or trademark
- Name of the item
- Quantity in container
- Purchase order number
- Work order number (if applicable)
- Destination
- Gross weight of the container and hardware

All markings shall be made of waterproof paint or stamped metal tag securely attached to the container. All identification marks shall appear on the side and on the top of each container.

### 4.6.3 Hardware Packaging

Hardware shall be packaged in weather-resistant, crush resistant containers. The packaging used shall be approved by the Owner. Cardboard boxes are not acceptable. All hardware crates and/or pallets shall be wrapped to prevent contamination due to dust, dirt, road salt, or brine collected on hardware during shipping and storage.

#### 4.6.4 Hardware Marking

The product identification mark shall include the Contractor's marking, strength rating, and range of conductor and shield wire sizes (where applicable). For hardware including balls and/or sockets, the type of coupling based on CAN/CSA C411.1-16 shall be included in the product identification mark.

The ASTM F568M–07 markings shall be provided for all bolts, in accordance with their grades.

All product identification marks shall be permanent and easily readable on the finished products.

## 5 INFORMATION TO BE PROVIDED BY THE CONTRACTOR

### 5.1 Information to be Provided with the Tender Submittal

In addition to requirements specified elsewhere in the Contract Documents, the following technical submissions are required with the Contractor's tender submittal:

- CAN/CSA ISO 9001:16 certificate
- Item Drawings showing specific dimensional and strength information for each item supplied
- Test and Inspection Plan as per Clause 4.5.4 of this Specification
- Details of the dimensions and mechanical properties of the hardware to be supplied and other information required by this Specification
- Schedule reflecting critical dates, milestones, and deliveries
- Details of all manufacturing plant locations to be used in production of the order, including a list of orders supplied in the past three years to major Canadian electrical utilities from each plant

The Owner reserves the right, at its sole discretion, to limit supply to manufacturing plants of its choice, should they feel an individual manufacturing plant does not meet acceptable quality standards.

### 5.2 Supply of Schedule

The Contractor shall provide to the Owner, within twenty (20) days of the Effective Date of Contract, a detailed Schedule for the work.

The Schedule shall indicate the commencement and completion dates for the principal activities of the work, including but not limited to:

- Submittal of Quality Control and Procedures Manual
- Design Submittal for review (the Owner shall complete this review within 15 business days)
- Placement of orders for material
- Receipt of material
- Manufacture, testing, and shipment of hardware
- Test results (if required) submittal to the Owner
- Manufacture of production
- First shipment and arrival at destination
- Last shipment and arrival at destination

#### 5.2.1 Conformance with Schedule

All activities required for completion of the work shall be carried out in accordance with the sequence and times shown on the Schedule or subsequent revisions as approved by the Owner.

### 5.2.2 Changes to Schedule

If the Contractor believes it necessary or advantageous to change the sequence of events shown on the Schedule, the Contractor shall submit a proposed revision to the Owner for approval. No change shall be made in the order in which the work activities are being performed until the Owner's approval for the revised Schedule has been obtained.

## 5.3 Units of Measure

All drawings and information shall be in the SI dimensional system only and the English Language. Information on acceptable unit conversions and equivalents is given in Section 4.1.16 of this Specification.

**END OF SECTION**

Clean Energy
CONSULTING INC.

PERMIT TO PRACTICE
CLEAN ENERGY CONSULTING INC.
SIGNATURE
Date JUNE 29, 2018
PERMIT NUMBER PP424
Association of Professional Engineers of Yukon

# DETAILED DESIGN
# EAGLE GOLD 69 KV TRANSMISSION LINE

## COMPOSITE LINE POST INSULATOR SPECIFICATION

StrataGold Corporation

| | | | |
|---|---|---|---|
| Project No.: | 1407 | | |
| Document No.: | 1407-T-9005 | Client Project No.: | |
| Document Rev. No.: | 1 | Client Document No.: | |
| Prepared By: | Philip Clark | Client Doc. Rev. No.: | |
| CEC Contact: | Philip Clark | Client Contact: | |

**Project Description:**
The Eagle Gold 69 kV transmission line is a new, 45 km-long wood pole circuit connecting the Eagle Gold mine site to the proposed Yukon Energy Corporation McQuesten Substation. The Eagle Gold mine site is located approximately 85 km northeast of Mayo, Yukon Territory.

**Sealed:**

PROFESSIONAL ENGINEER
YUKON TERRITORY
MATTHEW OBEE
JUNE 29, 2018

**Document Description:**
Composite Line Post Insulation Specification

FORBES BROS AS-BUILT
CHANGES REQUIRED YES ☐ NO ☐
Name (Print) _____
Signature _____
Date _____

## REVISION HISTORY

| Revision | Status | Date | Prepared By | Checked By | Approved By | Description of Revision |
|---|---|---|---|---|---|---|
| A | IFR | 13-Jul-17 | PC | NJ | | Basic Engineering |
| 0 | IFP | 09-Feb-18 | PC | MEO | MEO | Issued for Purchase |
| 1 | IFP | 28-Jun-18 | PC | MEO | MEO | Charpy level & CSA C83 version updated |
| | | | | | | |
| | | | | | | |
| | | | | | | |
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Status:

| | | | |
|---|---|---|---|
| PRE | - Preliminary | IFP | - Issued for Purchase |
| IFR | - Issued for Review and Comment | IFC | - Issued for Construction |
| IFA | - Issued for Approval | AB | - As Built |
| IFQ | - Issued for Quotation | | |

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# 1 SCOPE

This Specification covers the technical requirements for the design, manufacture, inspection, testing, and supply of composite line post type insulators used on AC overhead transmission lines.

# 2 DEFINITIONS

Item Drawings
Drawings showing specific dimensional and strength information for an item shall be provided by the Contractor with bid submission.

Drawings
Assembly drawings showing general dimensional and strength requirements for items shall be provided by the Owner with the bid package.

Owner
StrataGold Corporation.

Contractor
The party tendering on the requirements of this Specification.

Unless otherwise indicated, definitions of the technical terms in this Specification shall have their meaning assigned in ANSI/NEMA C29.17-2013, Composite Line Post Insulators.

# 3 CODES AND STANDARDS

## 3.1 Abbreviations

CSA - Canadian Standards Association
ISO - International Organization for Standards
ASTM - American Society for Testing and Materials
ANSI - American National Standards Institute

## 3.2 Codes and Standards

Codes, standards, or other documents referred to in this Specification shall be considered as part of this Specification. Reference to the following standards shall be considered to refer to the latest editions and revisions thereto, unless otherwise indicated. The following codes and standards are referenced:

### 3.2.1 Canadian Standards Association (CSA)

| | |
|---|---|
| CAN/CSA-C83-17 | Communications and Power Line Hardware |
| CAN/CSA-C411.6-16 | Line post composite insulators for overhead distribution lines ≤ 75 kV |
| CAN/CSA-ISO 9001:16 | Quality Management System – Requirements |
| ANSI/NEMA C29.17-2013 | For Composite Insulators – Transmission Line Post Type |

### 3.2.2 American Society for Testing and Materials (ASTM)

| | |
|---|---|
| A370-17 | Standard Test Methods and Definitions for Mechanical Testing of Steel Products |
| E23-16b | Standard Test Methods for Notched Bar Impact Testing of Metallic Materials |

#### 3.2.3 American National Standards Institute (ANSI)

| | |
|---|---|
| ANSI/NEMA C29.17-2013 | American National Standard for Composite Insulators – Transmission Line Post Type |

### 3.3 Conflict Between this Specification, Drawings, and Referenced Documents

In the event of conflict between this Specification and the above referenced documents, the requirements of this Specification shall take precedence. In the case of conflict between several referenced documents, the more stringent requirement shall be followed. If a conflict exists between this Specification or the referenced documents and the Drawings, the Drawings shall be followed. If clarification is necessary, contact the Owner.

## 4 GENERAL REQUIREMENTS

### 4.1 Design, Materials, Manufacture

#### 4.1.1 Insulator Type

Line post insulators not used for bracing purposes shall be supplied in accordance with Insulator Class "LP 69M" as per CAN/CSA-C411.6-16. The following insulators shall be supplied:

- Vertical posts (NGK-Locke part #: L2-SN181-47):
  - Trunnion fitting at the energized end
  - A ¾" stud base per NEMA/ANSI C29.18-2013 at the ground end
  - Maximum design cantilever load shall be 9.5 kN or greater
- Horizontal posts (NGK-Locke part #: L2-SN181-23):
  - Trunnion fitting at the energized end
  - Bendable curved base at the ground end suitable for mounting on a wood pole
  - Maximum design cantilever load shall be 10.9 kN or greater

#### 4.1.2 Insulator Class

An insulator is considered in the same class as a test specimen if it possesses all of the following characteristics:

- Core and weathersheds in the same materials and method of manufacture
- End fittings of the same design, materials, and methods of attachment to the core
- Same or greater housing thickness
- Same or smaller ratio of SML to the smallest core radial cross-sectional area between end fittings
- Same core diameter

#### 4.1.3 Dimensions

Physical dimensions of the line post insulators, not used for bracing, shall meet the requirements of Insulator Class LP 69M (Table 2) of CAN/CSA-C411.6-16.

#### 4.1.4 Steel Components

Prior to attachment to the insulator rod, ferrous components of insulators or insulator assemblies shall be Charpy 'V' impact tested in accordance with the requirements of ASTM A370-17 and ASTM E23-16b. The material must provide a minimum of 27 J at -30°C as

specified in the Charpy Level 1.5 requirement of CSA C83, Section 6.2.4. No failure is permitted for any heat lot of components.

## 4.2 Inspection and Testing

### 4.2.1 Prototype Tests (ANSI Units) / Design Tests (CSA Units)

ANSI Prototype / CSA Design tests verify the suitability of the manufacturer's design, materials, manufacturing process and technology. When an insulator is submitted to these tests, the results shall be considered valid for all insulators of the same design that are represented by one test.

The ANSI Prototype / CSA Design tests are performed once for each class of insulator. Each test may be performed independently on new test specimens where appropriate. The test specimens shall be taken from the production runs. Where there is a choice of valid test methods, the choice will be at the discretion of the manufacturer.

The ANSI Prototype / CSA Design test portion of the report shall include a drawing of the insulator tested, with dimensions. These dimensions shall at a minimum include those dimensions that define a class. ANSI Prototype tests and CSA Design tests for composite line post and composite suspension insulators shall be as per ANSI/NEMA C29.17-2013 (Section 7), or CAN/CSA-C411.6-16 (Clause 5).

ANSI Prototype / CSA Design tests shall be submitted as a part of Contractor tender submission.

### 4.2.2 Design Tests (ANSI Units) / Type Tests (CSA Units)

ANSI Design / CSA Type tests verify the main characteristics of the insulator, which depend mainly on its shape and size. They shall be repeated when the design, shape, or size of the insulator changes. These tests shall be as per ANSI/NEMA 29.17-2013 (Section 8), CAN/CSA-C411.5-16 (Clause 6) or CAN/CSA-C411.6-16 (Clause 6), as appropriate.

ANSI Design / CSA Type Test results shall be considered valid for all insulators of the same design. Each test shall be performed once. Each test may be performed independently on new test specimens where appropriate. The test specimens shall be taken from production runs.

ANSI Design / CSA Type tests shall be repeated if dimensions or material described on the manufacturer’s item drawings are modified, or if manufacturing processes have changed. When the change affects only certain characteristics, subject to agreement between the Owner and the Contractor, only the tests relevant to those characteristics need be repeated (as per ANSI Table 2 or CSA Table 1).

ANSI Design / CSA Type Test results shall be submitted as a part of Contractor tender submission.

### 4.2.3 Sample Tests and Routine Tests

Insulators covered by this specification shall be subjected to the Sample Tests and Routine Tests outlined in the applicable referenced ANSI and CSA standards. In addition, the Owner

may, at its sole discretion, require one or more of the ANSI Design / CSA Type Tests to be completed on insulators selected from the production quantity at any time. Failure of any test will constitute failure of the entire order.

a) Sample Tests
The Contractor shall provide Sample Test reports consisting of detailed test data verifying that all the Sampling Tests have been performed in accordance with ANSI/NEMA 29.17-2013 (Section 9), CAN/CSA-C411.5-16 (Clause 7) or CAN/CSA-C411.6-16 (Clause 7), as applicable.

The Owner reserves the right to select specific insulators for sample testing. The type of tests, the number of samples to be tested, and the acceptance criteria shall be as specified in ANSI/NEMA 29.17-2013 (Section 9), CAN/CSA-C411.5-16 (Clause 7) or CAN/CSA-C411.6-16 (Clause 7). Failure of sample-tested insulators will cause rejection of the entire batch.

b) Routine Tests
Each Insulator shall be subjected to Routine Tests to eliminate insulators with manufacturing defects. The type of Routine Tests and acceptance criteria shall be as specified in ANSI/NEMA 29.17-2013 (Section 10), CAN/CSA-C411.5-16 (Clause 8) or CAN/CSA-C411.6-16 (Clause 8).

### 4.2.4 Quality Control

a) Responsibility for Quality Control
Quality control is the responsibility of the Contractor.

b) Submission of Quality Control Procedures
The Contractor shall provide and maintain an independently audited quality verification program in accordance with ISO 9001:16. Within thirty (30) days of the Effective Date of Contract the Contractor shall furnish to the Owner two (2) copies of their complete Quality Control and Procedures Manual, and description of the organization to be used on this contract.

c) Submission of Test and Inspection Plan
The Contractor shall submit a test and inspection plan in accordance with CAN/CSA ISO 9001:16 for approval by the Owner. This Test and Inspection Plan shall be submitted with the tender documents.

d) Monitoring and Verification
Throughout the period of the contract, the Owner or other authorized representatives of the Owner may monitor the Contractor's methods, procedures, and processes in all phases of the work for compliance with the Quality Control and Procedures Manual and the Test and Inspection Plan submitted by the Contractor.

e) Single Point of Contact
Before beginning the work, the Contractor shall designate to the Owner, in writing, one employee or member of their organization who shall have authority to act in all matters relative to the quality control provisions of the contract.

f) Conformance to Quality Control Procedures and Inspection Plan
Failure by the Contractor to maintain the quality control procedures in their Quality Control and Procedures Manual and Test and Inspection Plan will be considered a failure of the work to conform to this Specification.

### 4.3 Shipping

#### 4.3.1 Shipping Containers

Insulators shall be supplied in weatherproof shipping containers constructed to ensure acceptance and safe delivery by common or other carrier to the destination specified in the purchasing documents.

#### 4.3.2 Container Marking

Each shipping container shall bear a weather-resistant marking or a weather-resistant tag clearly showing, at a minimum, the following information:

- Manufacturer's name or trademark
- Name of the item
- Purchase order number
- Work order number (if applicable)
- Destination
- Gross weight of the container and insulators
- Number of insulators in the container (by type, where the container holds more than one type)

#### 4.3.3 Insulator Packaging

Each insulator shall be packaged in a weather-resistant, crush-resistant container. The packaging used shall be approved by the Owner. All insulator crates and/or pallets shall be wrapped to prevent contamination due to dust and/or dirt collected on insulators during shipping and storage.

#### 4.3.4 Insulator Marking

Insulators shall be permanently marked on the metal fittings with the following information. Markings shall be durable and legible. CSA based units shall be marked in accordance with Clause 10 or CAN/CSA-C411.5-16 and CAN/CSA-C411.6-16. ANSI based units shall be marked in accordance with the following:

- Manufacturer's name or trademark
- Specified cantilever load (SCL)
- Date of manufacture

## 5 INFORMATION TO BE PROVIDED BY THE CONTRACTOR

### 5.1 Information to be Provided with the Tender Submittal

In addition to requirements specified elsewhere in the Contract Documents, the following technical submissions are required with the Contractor's tender submittal:

- Copy of CAN/CSA ISO-9001:16 certificate
- Test and Inspection Plan as per Clause 4.2.4 of this Specification

- Item Drawings detailing the electrical and mechanical properties of the insulators to be supplied, including dimensions, strengths, flashover, puncture voltage, and other information required by this Specification; ANSI Design/CSA Type Test reports for all insulator types included in the bid submission
- ANSI Prototype/CSA Design test reports for all insulator types included in the bid submission
- A Timing Schedule reflecting critical dates, milestones, and deliveries
- Details of all manufacturing plant locations to be used in production of the order, including a list of orders supplied in the past three years to major Canadian electrical utilities from each plant

The Owner reserves the right, at its sole discretion, to limit supply to manufacturing plants of its choice, should they feel an individual manufacturing plant does not meet acceptable quality standards.

## 5.2 Supply of Schedule

The Contractor shall provide to the Owner, within twenty (20) days of the Effective Date of Contract, a detailed Schedule for the work. The Schedule shall indicate the commencement and completion dates for the principal activities of the work, including but not limited to:

- Submittal of Quality Control and Procedures Manual
- Design Submittal for review (the Owner shall complete this review within 15 business days)
- Placement of orders for material
- Receipt of material
- ANSI Prototype/CSA Design Tests, if required (including proposed location of tests)
- Manufacture, testing, and shipment of insulators
- Sample Test and Routine Test results submittal to the Owner
- Manufacture of production
- First shipment and arrival at destination
- Last shipment and arrival at destination

### 5.2.1 Conformance with Schedule

The Schedule is expected to match and provide additional detail for the Timing Schedule submitted with the Contractor's tender. All activities required for completion of the work shall be carried out in accordance with the sequence and times shown on the Schedule or subsequent revisions as approved by the Owner.

### 5.2.2 Changes to Schedule

If the Contractor believes it necessary or advantageous to change the sequence of events shown on the Schedule, the Contractor shall submit a proposed revision to the Owner for approval. No change shall be made in the order in which the work activities are being performed until the Owner's approval for the revised Schedule has been obtained.

## 5.3 Units of Measure

All drawings and information shall be in the SI dimensional system only and the English Language.

## 5.4 Sample Test and Routine Test Results Submittal

Following completion of Sample Tests and Routine Tests the Contractor shall submit a package to the Owner containing a complete reporting of all test results and showing that the insulators have been

tested in accordance with the requirements of this Specification. These test results and certificates shall be signed by a qualified party recognized in North America. The report shall also provide detailed descriptions of the nature of any failures, including photographs and a description of the failed sample(s), and remedial actions taken to ensure future failures do not occur.

**END OF SECTION**

Clean Energy
CONSULTING INC.

PERMIT TO PRACTICE
W.N. BRAZIER ASSOCIATES INC.
SIGNATURE
Date 10/08/18
PERMIT NUMBER PP295
Association of Professional Engineers of Yukon

StrataGold Corporation

# EAGLE GOLD 69 KV TRANSMISSION LINE

## CONSTRUCTION SPECIFICATION

| | | | |
|---|---|---|---|
| Project No.: | 1407 | | |
| Document No.: | 1407-T-9001 | Client Project No.: | |
| Document Rev. No.: | 3 | Client Document No.: | |
| Prepared By: | Philip Clark | Client Doc. Rev. No.: | |
| CEC Contact: | Philip Clark | Client Contact: | |

**Project Description:**
The Eagle Gold 69 kV transmission line is a new wood pole 45 km circuit connecting the Eagle Gold mine site to the proposed Yukon Energy Corporation McQuesten Substation. The Eagle Gold mine site is located approximately 85 km northeast of Mayo, Yukon Territory.

**Document Description:**
Transmission line construction specification.

**Sealed:**

PROFESSIONAL ENGINEER
10/09/18
YUKON TERRITORY
W. NEIL BRAZIER

CHANGES REQUIRED YES ☐ NO ☐
Name (Print)
Signature
Date

FORBES BROS INFRASTRUCTURE | CONSTRUCTION
AS-BUILT

## REVISION HISTORY

| Revision | Status | Date | Prepared By | Checked By | Approved By | Description of Revision |
|---|---|---|---|---|---|---|
| A | PRE | 15-Feb-18 | PC | MEO | - | Draft for Client Review |
| 0 | IFT | 16-Apr-18 | PC | MEO | MEO | Issued for Tender |
| 1 | IFC | 18-May-18 | PC | MEO | MEO | Minor Updates. Updates are in red text for easy reference. |
| 2 | IFC | 11-July-18 | PC | MEO | MEO | Minor Updates. Updates are in red text for easy reference. |
| 3 | IFC | 10-Aug-18 | PC | NB | NB | Minor Updates. Updates are in red text for easy reference. |

Status:

| | | | |
|---|---|---|---|
| PRE | - Preliminary | IFP | - Issued for Purchase |
| IFR | - Issued for Review and Comment | IFC | - Issued for Construction |
| IFA | - Issued for Approval | IFT | - Issued for Tender |
| IFQ | - Issued for Quotation | AB | - As Built |

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# 1 GENERAL

## 1.1 Definitions

Owner
StrataGold Corporation.

Owner's Representative
The party appointed by the Owner to oversee the overall development of the Work.

Contractor
The successful bidder for this project, responsible for constructing all Work described in this package.

Work
The material, labour, services, and equipment required to complete the project.

Contract Documents
The drawings, specifications, and documents that define the project scope of work.

## 1.2 Codes and Standards

### 1.2.1 Canadian Standards Association CSA:

- CSA C22.3 No. 1-15 Overhead Systems - Canadian Electrical Code, CSA Standard C22.1
- CSA C22.3 No. 60826-10 Design Criteria of Overhead Transmission Lines
- CSA C83-17 – Communication and Power Line Hardware.
- CSA-C57 – 98 (R2006) - Electric Power Connectors for Use in Overhead Line Conductors.
- CSA C411.1-M89 (Reaffirmed 2004) - AC Suspension Insulators
- CSA C61089:03 - Round wire concentric lay overhead electrical stranded conductors
- CSA C60104:03 - Aluminum-magnesium-silicon alloy wire for overhead line conductors
- CSA C60888:03 - Zinc-coated steel wire for stranded conductors
- CSA C60889:03 - Hard-drawn aluminum wire for overhead line conductors
- CSA G12-92 (Reaffirmed 2002) - Zinc-coated Steel Wire Strand
- CSA C71-1 - Insulation Coordination-Part 1: Definitions, principles and Rules
- CSA C71-2 - Insulation Coordination-Part 2: Application Guide
- CSA G40.20-04/G40.21-04 (R2009) - General Requirements for Rolled or Welded Structural Quality Steel/ Structural Quality Steels
- CSA-W59 – 2003 - Welded Steel Construction (Metal – Arc Welding)
- CSA G164 - Hot Dip Galvanizing of Irregularly Shaped Articles
- CSA W47 - Certification of Companies for Fusion Welding of Steel

### 1.2.2 Institute of Electrical and Electronics Engineers (IEEE):

- IEEE 524 – Installation of Overhead Transmission Lines
- IEEE 977 – Guide for Foundation Installation for Transmission Lines
- IEEE 1222 - Testing and Performance for All-Dielectric Self-Supporting (ADSS) Fiber Optic Cable For Use On Electric Utility Power Lines
- IEEE 1441 - Guide for Inspection of Overhead Transmission Line Construction

### 1.2.3 Other:

- IEC 60794 - Optical Fibre Cables - Basic Optical Cable Test Procedures
- Yukon workers Compensation Health and Safety Board, Occupational Health and Safety Act and Regulations, in particular Part 9: Electrical Safety, Part 10: Construction and Building Safety and Part 14: Blasting Regulations

## 1.3 Scope of Work (the Work)

### 1.3.1 Summary

StrataGold is undertaking the installation of a new 43 km, 69 kV Eagle Gold transmission line in the Yukon Territory, which will supply power to the proposed Eagle Gold mine. The new circuit will connect to the proposed Yukon Energy Corporation (YEC) McQuesten Substation. The Eagle Gold 69 kV circuit will terminate at the new Eagle Gold 69 kV/13.8 kV substation. This new line will be numbered L251 in the YEC system but will not be owned by YEC.

The Work to be carried out under this Contract is for the construction of a new 43 km long 69 kV wood pole transmission line, including all right-of-way (ROW) clearing, access as required for construction, and wood pole line installation and commissioning. The line starts at proposed Yukon Energy Corporation (YEC) McQuesten Substation, adjacent to the intersection of Highway 11 (Silver Trail) and South McQuesten Road. The line heads north along South McQuesten Road, which then becomes Haggart Creek Road, and then terminates at the proposed Eagle Gold mine 69 kV/13.8 kV substation. The location of the route is shown on the Drawings.

The transmission line predominantly consists of single wood pole structures, with 2-pole (H-frame) structures only used selectively. The line is a 43 km, 3-phase, 69 kV line with underbuilt ADSS cable strung from structure 0/10A to Eagle Gold Substation. The ADSS will be undergrounded from within McQuesten Substation to structure 0/10A. The approximate location of the undergrounded section is shown in the Drawings.

A ground wire will be undergrounded from within McQuesten Substation out to structure 0/10A. The line will be strung with overhead shield wire from structure 0/10A to structure 1/2 and from structure 41/6 to Eagle Gold Substation. This shield wire is primarily to provide additional grounding for the two substations.

Generally, the line route follows the South McQuesten and Haggart Creek roads, with limited sections where it deviates from the road alignment. The route crosses a mixture of Crown land and mineral claims. The land parcels are identified on the Drawings. Discontinuous permafrost is expected to be encountered along the line route.

To perform the work the Contractor shall:

- Provide all labour, materials, equipment, tools and supervision to mobilize, provide access, clear, construct, pre-commission and undertake all required environmental controls as required by this Work
- Supply, maintain, and operate all mobile equipment and vehicles required for this Work
- Provide qualified management, administration and coordination staff to support the Work

- Supply all rigging & hoisting equipment required, all hand tools and power tools, all temporary support structures and safety equipment as required for the performance of the Work
- Procure, expedite, and manage materials on site to execute this Work
- Comply with the quality requirements outlined in the Drawings and Specifications

### 1.3.2 Clearing and Access

1) The Contractor will undertake all survey necessary for the clearing and access work and for demarcating and maintaining the ROW and License of Occupation (LOO) boundary for the duration of the project. Refer to Section 5 herein.
2) The Contractor will carry out all clearing in the ROW, all clearing as required for access road/track construction and the removal of all "danger" trees located inside and outside of the ROW.
3) Construction of new access roads required to access the ROW and to make safe the convenient construction of the transmission line.
4) Remediation and timber removal as required and in accordance with environmental and regulatory requirements. The Owner will be responsible for slash burning.

### 1.3.3 Transmission Line Installation

1) Procure, receive, transport, handle, and store all materials required for completion of the works as outlined in the Work. All material supplied by contractor must be accompanied by the applicable Quality Control Documentation as outlined in the project material supply specifications.
2) Provide all survey required for construction of the transmission line, including but not limited to centerline and structure staking. Refer to Section 5 herein.
3) Provide as-built survey of completed works as outlined in Section 5 herein.
4) Install 515 wood pole structures and associated guy anchors, in accordance with the project drawings. This includes all parts required for 69 kV, ADSS, and OHSW and includes supply and installation of guy anchors and pole foundations which are appropriate for the encountered ground conditions.
5) Installation of grounding at 24 structures which have overhead shield wire as specified in the Drawings. Installation of grounding at structures with steel crossarms.
6) Supply and installation of foundation GCMP liners where required, in accordance with the Drawings.
7) Installation of 3-phase single 69 kV conductor for approximately 43 km, starting from structure 0/10A to Eagle Gold Substation, including the installation of insulator and insulator hardware, conductor hardware, sagging, splicing, dead-ending, and installation of jumpers.
8) Installation of all-dielectric self-supporting (ADSS) cable for approximately 43 km, from 0/10A to Eagle Gold Substation. This includes the installation of ADSS attachment hardware, cable hardware, downleads and splice boxes, sagging, splicing, dead-ending, and testing.
9) Installation of single overhead shield wire (OHSW) for approximately 1.8 km in two sections: 1) from structure 0/10A to structure 1/2 (0.5 km), and 2) from structure 41/6 to Eagle Gold Substation (1.3 km), including one additional OHSW from structure 42/7 to Eagle Gold Substation. This work includes the installation of OHSW hardware, sagging, splicing, dead-ending, and installation of jumpers.
10) Installation of structure number signs on 515 wood pole structures.

11) Leave approximately 110 m of ADSS coiled at structure 0/10A for others to run underground in to Substation.
12) Leave approximately 110 m of OHSW coiled at structure 0/10A for others to run in to the Substation.
13) Maintenance of a robust quality control program during execution. Files and records are to be maintained in such a manner that the Owner can perform periodic audits of the contractor quality control documents throughout project execution at their discretion.
14) Measured confirmation of all road crossings.
15) Final clean-up and restoration of the Work Sites, including seeding of all disturbed areas.
16) Provide a final turnover package of all QA/QC documentation, drawing redlines, any applicable instruction manuals, data sheets, and as-built records in a digital format within 14 days of completion of the works.

### 1.3.4 Miscellaneous Components

1) Supply all working and equipment grounds required to complete the Work.
2) Setting of all survey control hubs, stakes, benchmarks, and references necessary.
3) Provide and maintain all construction compounds or laydown areas required to complete the works, including security.
4) Provide all facilities such as washrooms, lunchrooms, etc. which are required to satisfy local regulation. For further details, refer to project special conditions.
5) Providing stringing set up plans, including sequencing with road crossings dates and coordination with all invested stakeholders.
6) Provide flagging and traffic management as required by the special conditions and works permits.
7) The Owner shall obtain any works permits required for works permits on or near roads under control of the Yukon Government; however the contractor is required to communicate their needs to the Owner in a timely fashion to allow such permitting to by organized and in place without when required.
8) Installation of all temporary works required for the construction methods employed by the Contractor.
9) Supply of helicopter support as required for construction methods employed by contractor.
10) Confirm that the length shield conductor at end is properly grounded at each pole and using fall of potential method, measure the combined structure group grounds (to absolute earth), and issue certified report.

The Contractor shall furnish all supervision, labour, material, construction equipment, transportation, tools, supplies, equipment, and expendables required to accomplish the Work in accordance with the Contract Documents.

## 1.4 Work by Others

1) Installation of terminal 69 kV span from McQuesten Substation gantry to structure 0/10A, approximately 50 m.
2) Installation of underground conduit run, ADSS and ground wire from structure 0/10A in to McQuesten Substation; approximately 50 m.
3) Modification to the existing L250 69 kV transmission line near McQuesten Substation and the installation of the proposed L250 cut-in and bypass lines.

4) Owner to provide Qualified Personnel, as may be required, to undertake bird and wildlife surveys along the transmission line corridor to ensure compliance with environmental regulations and Owner management plans and to provide recommendations to the Contractor to ensure compliance with all regulations in regard to bird and wildlife protection.
5) Final As-Built Legal ROW Survey will be undertaken by the Owner following completion of the work.

### 1.5 Schedule of the Work

The Contractor shall complete the Work by the milestone dates and completion date as specified in the Part 2.2, Special Conditions, Section 6.4.2 - Contract Baseline Schedule.

### 1.6 Schedule and Coordination Constraints

Contract Key dates are included in the Contract Special Conditions and shall be adhered to by the Contractor.

### 1.7 Public Convenience and Service Systems

The locations of highways, powerlines, and other known service systems, crossed by the ROW are shown on the Drawings.

The Contractor shall:

6) Before commencing any part of the Work that may interfere with the security of or free passage on any:
   - Road or highway
   - Other service systems

   Give sufficient notice to the owner or other person having control of the service system, and not less than 5 Days, to permit measures to be taken to prevent or minimize such interference.
7) Ensure the security of all overhead lines, underground lines, and above ground and buried pipelines and the safety of all personnel and plant near and adjacent to these lines. In accordance with Yukon Workers' Compensation Health and Safety Board WCB regulations, the Contractor is responsible for locating underground facilities before excavation. The Contractor shall notify the Owner's Representative immediately of any conflict between underground facilities and proposed excavation sites.
8) Assume that all overhead lines are energized.
9) Submit a Traffic Management Plan (TMP) to the Owner's Representative for acceptance and their coordination with the Ministry of Transportation (Yukon Highways and Public Works) and any applicable local governing agency for acceptance. The TMP shall include details of any road closures.

The Contractor shall be responsible for carrying out all such measures and shall be responsible for any damage to any service system arising out of the Work.

Specific crossings of public convenience and service systems within the Work Site are, but not limited to, those shown in Table 1.

**Table 1 – Crossings**

| # | Start Str. | End Str. | Crossing Obstacle | Notes |
|---|---|---|---|---|
| ~~1~~ | ~~0/2~~ | ~~0/3~~ | ~~69 kV line~~ | ~~Eagle Gold line crosses above YEC 69 kV L250 line.~~ |
| ~~2~~ | ~~0/4~~ | ~~0/5~~ | ~~Highway~~ | ~~Silver Trail (Yukon Highway 11)~~ |
| 3 | 1/2 | 1/3 | Road | South McQuesten Road |
| 4 | 1/5 | 1/6 | Road | South McQuesten Road |
| 5 | 2/7 | 2/8 | Road | South McQuesten Road |
| 6 | 7/3 | 7/4 | Water | Haldane Creek/Youth Creek |
| 7 | 8/3 | 8/4 | Road | South McQuesten Road |
| 8 | 8/13 | 9/1 | Road | South McQuesten Road |
| 9 | 10/8 | 10/9 | Road | South McQuesten Road |
| 10 | 11/5 | 11/6 | Road | South McQuesten Road |
| 11 | 14/8 | 14/9 | Road | South McQuesten Road |
| 12 | 21/2A | 21/3 | Road | South McQuesten Road |
| 13 | 22/1 | 22/2 | Road | South McQuesten Road |
| 14 | 22/2 | 22/3 | Water | South McQuesten River |
| 15 | 28/8 | 28/9 | Water | Lynx Creek |
| 16 | 31/7A | 31/8 | Side road | Placer miner road |
| 17 | 31/8 | 31/10 | Water | Swede Creek |
| 18 | 31/11B | 32/1 | Road | Haggart Creek Road |
| 19 | 32/8 | 32/9 | Road | Haggart Creek Road |
| 20 | 35/2 | 35/3 | Road | Haggart Creek Road |
| 21 | 35/3 | 35/4 | Road | Alternative Haggart Creek Road winter route |
| 22 | 35/7 | 35/8 | Road | Haggart Creek Road |
| 23 | 40/3 | 40/4 | Road | Side road "Rex Road" |
| 24 | 40/4 | 40/5 | Road | Haggart Creek Road |
| 25 | 40/5 | 40/6 | Water | Haggart Creek |
| 26 | 42/2 | 42/4 | Road | Road within Eagle Gold mine site |

### 1.7.1 Existing Overhead Lines

The existing YEC L250 line will be modified by others to permit the installation of the McQuesten Substation. ~~These modifications are not in the scope of the Work. The L251 line will cross over the L250 69 kV, the L250 69 kV bypass line, or both (depending on construction dates) between L251 structures 0/2 and 0/3. For all other crossings, refer to Table 1.~~ The Contractor shall liaise with the L250 transmission/substation contractor when working near the L250 transmission line and McQuesten Substation construction.

## 1.8 Supply of Engineering Data

The Owner's Representative shall take all reasonable steps to provide complete engineering data to the Contractor prior to the commencement of Work. Should the delay of engineering data prevent adherence to the construction schedule in the opinion of the Owner's Representative, then an appropriate extension will be given to the Contractor.

## 1.9 Mobile Equipment

Contractors equipment supplied to site will be in excellent working order and maintained as required

to ensure safe and continuous operation. All inspections or certifications required will be made available to the Owner upon request along with any maintenance history.

For specific communication requirements, refer to the Part 2.2 Special Conditions, Section 7.

### 1.10 General Requirements and Information for Construction

Detailed information on the general requirements of construction are outlined in Part 2.2 Special Conditions and its Appendices. For reference, the Special Conditions Appendices are listed here:

- Appendix A – Health Safety and Environment
  - A.1 Project Specific Safety Plan
  - A.2 Risk Matrix
  - A.3 JDS H&S Manual
  - A.4 JDS Safe Operating Procedures
  - A.5 Contractors Guide to Environmental Compliance
- Appendix B – Labour Relations
  - B.1 FN and Local Opportunity Policy
- Appendix C – Quality Management
  - C.1 Site Quality Management Plan
- Appendix D – Confidential Information
  - D.1 Camera Policy
- Appendix E – Reporting
  - E.1 Three-Week Look Ahead Schedule
  - E.2 Daily Report Example
  - E.3 Cost and Quantity Report
  - E.4 Safety Statistics Report
  - E.5 Manpower Curve
  - E.6 Camp Forecast
  - E.7 ESI Report
- Appendix F – Contract Administration
  - F.1 Request for Information
  - F.2 LEM Summary
  - F.3 FEM Report
  - F.4 Material Request Form
  - F.5 Site Instruction
  - F.6 Contract Notice
  - F.7 Change Order Request
  - F.8 Change Directive
  - F.9 Contract Change Order
  - F.10 Progress Payment Request
  - F.11 Invoicing Instructions
- Appendix G – Services and Facilities
  - G.1 Access Road Policy
  - G.2 Site Vehicle Pass Request
  - G.3 Camp Services
  - G.4 Camp Booking Procedure

- G.5 Site Radio Frequencies
- G.6 Site Vehicle Requirements
- G.7 Contractor Logistics Information

### 1.10.1 Management, Administration, and Coordination

Part 2.2 Special Conditions outlines the management, administration, and coordination requirements of the Contract.

### 1.10.2 Health & Safety Requirements

Part of the Work will be carried out in or adjacent to energized substations and transmission lines. It is the responsibility of the Contractor to establish and use work procedures which ensure safety against hazards related to general construction, shock, improper grounding techniques, and induced currents and voltages. The Contractor shall supply appropriately sized safety grounds. All grounds shall be in good repair and tested annually with test records available for review. The test records shall show the test date, test equipment, test results, test agency, and any other relevant information.

In addition to the above, refer to Part 2.2 Special Conditions Appendix A.1, “Project Specific Safety Plan” and Part 2 Appendix A.4, “Safe Operating Procedures”.

For more information, refer to Part 2.2, Special Conditions, Section 2.1 – Health and Safety Requirements.

### 1.10.3 Coordination of Work

The Contractor shall coordinate the Work between surveyors, subcontractors, etc. so that the Work is completed properly and safely in accordance with the Contract Documents. The Contractor is also responsible to coordinate their work with all stakeholders that may be impacted by the execution of this scope of work.

### 1.10.4 Meetings

Refer to Part 2.2, Special Conditions, Section 8.8 for the major scheduled meetings related to the Contract. The following section outlines the requirements for the progress meetings.

#### 1.10.4.1 On-Site Progress Meetings

On-site progress meetings attended by the Contractor and Owner’s Representative shall be held every week during the Work. The Contractor shall provide a written report at this meeting which includes:

- Written description of Work completed in the previous week, including equipment and labour records
- Detailed description of the Contractor’s assumptions and methods for the subsequent week of Work
- Detailed description of the Contractor’s equipment and labour requirements for the subsequent week of Work
- Environmental impact assessment for the subsequent week of Work with site-specific work procedures to mitigate all identified impacts
- Safety and hazard assessment for the subsequent week of Work with site specific work procedures to mitigate all identified hazards

- List any future anticipated work which the contractor believes may constitute an 'Extra' to the contract
- List any and all claims for extra work to date and certify that no other claims exist

### 1.10.5 Mobilization

Prior to mobilization, all of the following requirements shall be met:

1) Acceptance by the Owner's Representative of the Contractor's schedule and site arrangement plans.
2) Development of a traffic management plan in accordance with the document titled "StrataGold Corporation, Eagle Gold Project, Traffic Management Plan," Version 2017-01.
3) Development of the Contractor's Access Plan, satisfactory to the Owner's Representative.
4) Submission of a site-specific safety management plan. Refer to Part 2.2, Special Conditions, Section 2.0 – Health, Safety and the Environment for all requirements.
5) Acceptance by Owner's Representative of Contractor Quality Assurance Manual and Inspection and Test Plan.
6) Compliance with all terms and conditions of the Contract.

### 1.10.6 Protection of Materials, Equipment, and the Site

In addition to the responsibilities outlined in Part 2.1 General Terms and Conditions, for care of plant and materials, the Contractor shall:

1) Throughout the execution of the Work, protect equipment and materials against theft and damage from all causes including storing equipment or materials appropriately or as directed by the Owner's Representative.
2) Protect from damage, as a result of the Contractor's operations, all Work performed by others, the facilities of others such as Work Sites and related improvements thereto, the Owner's property, and/or private property.
3) Immediately notify the Owner's Representative of damage to the Work of others, facilities of others, the Owner's property and/or private property which results from the Contractor's operations.
4) Immediately correct any condition resulting from the Contractor's Work that constitutes a hazard.

### 1.10.7 Preparation and Restoration of the Site

1) The Contractor shall undertake clearing as per Section 3 herein, as necessary and accepted by the Owner's Representative, to prepare the Site for his operations; however, note that acceptance of the work by the Owner's Representative shall in no way be interpreted to mean that the clearing is sufficient for the construction of the transmission line nor that select "danger trees" will not have to be removed following line construction.
2) The Contractor shall prepare access roads and tracks per Section 4 of this specification.
3) The Contractor shall direct any surface drainage away from any new or existing structures and guy anchors and shall ensure that existing drainage paths are maintained.

4) Prior to completion of the Work, the Contractor shall restore the Site to a presentable and stable condition which includes Work outlined in Part 2.2, Special Conditions, plus the following:
    a) Round all slopes of roads, grades, benches and related Site Work which are to be retained and were installed by the Contractor
    b) Flatten all berms along roads, grades, benches, and related Site Work which are to be retained and were installed by the Contractor
    c) Clean out and stabilize all inlets of culverts which are to be retained and were installed by the Contractor to preclude sloughing in of inlets from road fill and sedimentation
    d) Cleared and slashed material shall be prepared for removal or burning following completion of works by others following completion of works.
5) The above Work shall be completed in a manner acceptable to Owner's Representative not later than 20 Days after completion of the Work at the Site.

### 1.10.8 Access and Construction Roads

The Contractor shall create minimum interference and inconvenience to others while using any road or property. The Contractor shall plan and schedule around restrictions and limitations on project road use.

For further information, refer to the document titled "StrataGold Corporation, Eagle Gold Project, Traffic Management Plan, Version 2017-01" and Part 2.2 Special Conditions, Appendix G.1 "Access Road Policy".

#### 1.10.8.1 Mine Access Road

South McQuesten Road and Haggart Creek roads are public roads that form the Eagle Gold mine access road but also service other interests in the area. The Contractor will limit inconvenience to others using this road in execution of the Work. The Contractor will:

- Use proper signage, barricades, and flag persons as necessary.
- If road closures are required, they will only be performed after receiving approval from the Owner's Representative and regulators to do so.

The Contractor will be make road repairs for any areas where their activities have impacted the road.

The Owner will perform regular maintenance along Mine Access Road (McQuesten and Haggart Creek roads) including sanding, snow removal etc.

#### 1.10.8.2 Access from Existing Roads

Any new access from existing access roads to the transmission line ROW and/or transmission line structure locations is to be provided by the Contractor. The Contractor shall notify the Owner's Representative 21 days in advance and obtain written approval prior to construction of any new road, off-road access, or alteration to existing access.

### 1.10.9 Construction Facility Requirements

#### 1.10.9.1 First Aid Facilities

The Contractor shall provide first aid facilities suitable for the total work force, including two members of the Owner's work force, that conform to Yukon Workers' Compensation Health and Safety Board requirements.

For further information, refer to Part 2.2 Special Conditions section 2.0 – Health, Safety, & Environment and Appendix A.

### 1.11 Quality Management Plan

The Contractor is required to submit a Quality Management Plan as outlined in Part 2.2 Special Conditions, Section 4.0 Quality Assurance and Quality Control. The Contractor's Quality Management Manual and generic Quality Management Plans are a requirement for submission with the tender documents. Detailed, project-specific Quality Management Plans must be submitted to the Owner's Representative and agreed to prior to mobilization to site. The Quality Management Plan must as a minimum include the following items:

- Inspection Test Plan (ITP)
- Special fabrication, installation, construction, or test procedures, if any
- Subcontractor inspection reports
- Material acceptance and procurement records
- Material receiving and inspection records
- Field survey records
- Mill test certificates, if any
- Tradesmen's TQ certificates, licenses, or permits
- Welding quality assurance program, if any
- Welding completion record, if any
- Civil work execution and completion records
- Overhead conductor QA and acceptance test records
- Pole hardware installation and completion records
- Conductor and ADSS Sag and Tension Installation and completion records
- Foundation installation and completion records
- Anchor Grouting and Pull Testing Records
- Fibre optic cable splice and OTDR completion and testing check
- Instrument and gauge calibration certificates and records
- Non-conformance reports
- Paint inspection records, if required
- Site QA reports covering all aspects of the work
- Warranty certificate

Where relevant, each document within the Contractors completion QA report shall be referenced to the actual components of the Work to which they apply.

## 2 MATERIALS

### 2.1 General

The Contractor is solely responsible for supplying, receiving, checking, sorting, and handling of all materials. The Contractor shall be responsible for the loading, transportation, care, and custody of all material from the time it leaves the laydown yard until project completion.

As a part of the Contractor's quality management plan, quality control documentation indicating the conformance of all materials used on site to the project specifications shall be provided to the Owner's Representative for review upon material receipt. Any construction undertaken using material without proper quality documentation will be deemed a non-conformance and replaced at the sole cost of the Contractor.

### 2.2 Schedule of Availability

The Contractor shall provide a material schedule of availability to the Owner's Representative for review prior to commencing material delivery.

### 2.3 Supply Points

Supply points are the responsibility of the Contractor, however; the Contractor shall advise the Owner's Representative of selected locations.

### 2.4 Material Lists and Quantities

Material lists may be issued to the Contractor for reference. However, any quantities shown on such material lists are approximate and do not account for extras, overages, or spares. Determining final material quantities is the responsibility of the Contractor.

### 2.5 Material Specifications

Refer to the following documents for material specifications:

- 1407-T-9005 - Eagle Gold Composite Line Post Insulator Specification
- 1407-T-9010 - Eagle Gold Conductor and Shield Wire Hardware Specification
- 1407-T-9015 - Eagle Gold Conductor and Shield Wire Specification
- 1407-T-9020 - Eagle Gold Hardware Specification
- 1407-T-9025 - Eagle Gold Glass Suspension Insulator Specification
- 1407-T-9035 - Eagle Gold ADSS Fibre Optic Cable Specification

### 2.6 Packaging

All material shall be packaged as per the project material specifications.

### 2.7 Wood Poles

Poles shall be in conformance with CSA O15-15. Wood poles used for this project will meet the minimum Coastal Douglas Fir (D.Fir) pole dimensions as published in standard CAN/CSA-O15-15. All wood poles will be treated with pentachlorophenol (penta) in accordance with CSA O80.4 and ground line drilled in accordance with project wood pole specifications. Material type, class, and length of poles are specified in the Contract Documents.

### 2.8 Receipt of Materials

Purchasing and receipt of materials shall be the responsibility of the Contractor. However, the Contractor shall keep the Owner's Representative apprised of the location and quantities of all materials and provide quality control documentation to the Owner's Representative for all materials as part of the Contractor's quality management plan.

### 2.9 Handling and Damage

All materials shall be handled carefully at all times. Damage shall be reported to the Owner's Representative, where such damage may impact schedule. Damaged materials shall not be incorporated into the works.

### 2.10 Fabrication Errors

Fabrication errors in material supplied by the Contractor shall be reported to the Owner's Representative who will determine whether the parts may be corrected in the field or replaced.

### 2.11 Return of Materials

All materials not incorporated into the Work and not damaged shall be offered to the Owner as spares at the contract rates. If the Owner refuses acceptance of spares, the Contractor shall remove them from site at no cost to the Owner.

All damaged material shall be recorded and removed from the site by the Contractor at no cost to the Owner. Empty reels and lagging shall be removed from the site unless otherwise approved by the Owner's Representative.

## 3 ECOLOGICAL AND ENVIRONMENTAL REQUIREMENTS

### 3.1 General

Specific project requirements will be provided to the Contractor by the Owner. For further information refer to Part 2.2 Special Conditions, Appendix A.5, "Contractors Guide to Enviro Compliance".

The Contractor shall avoid unnecessary disturbance or damage to the land and correct any damage or disturbance to the satisfaction of the Owner's Representative.

The Contractor shall not block any road, ditch, or watercourse except where necessary for a short period to correct a hazardous situation or in an emergency. Blocking roads, ditches, or watercourses through normal activities is not permitted unless approved by the Owner's Representative.

Prior to commencing construction, the Contractor shall prepare a work plan describing how construction activities will meet the environmental requirements of the Owner.

Hunting, fishing, trapping, harvesting, or harassment of wildlife is strictly forbidden.

Putrescible waste and other waste that will attract wildlife will be stored or disposed of in such a way to minimize wildlife encounters and at the direction of the Owner's Representative.

Any piled snow or cleared vegetation will be stockpiled in such a way that wildlife movement is not impeded at the direction of the Owner's Representative.

The contractor shall comply with the Land Use Permit (LUP).

### 3.2 Vehicle and Equipment Use

The Contractor shall:

1) Service or refuel vehicles and equipment a minimum of 30 m from any water body, watercourse or wetland and in such a way that contaminants do not enter any water body, watercourse, or wetland.
2) Inspect all vehicles and equipment daily for leaks, immediately remove any leaking equipment, and repair leaking equipment before further use.
3) Power wash any equipment expected to be working in water or a temporarily dewatered area, and examine the equipment for fluid leaks prior to commencing work. All scheduled equipment maintenance, and when possible emergency maintenance, shall be carried out within accepted locations at least 30 m from any natural water body, ditch, or drain.
4) Report, contain, and clean any spills and immediately report all spills of hazardous fluids to the Owner's Representative.
5) Refer to "StrataGold, Eagle Gold Project, Spill Response Plan", Version 2017-02.

### 3.3 Heritage Resources

The Contractor shall cease work and immediately inform the Owner's Representative upon discovery of potential heritage resources that are encountered. Any heritage resources found in Yukon are protected under the "Historic Resources Act" and Yukon Archaeological Site Regulations. No artifact can be removed from historic or archaeological sites without a permit. It is also important to note that "Artifacts" are defined as an object of historical or archaeological interest that is older than 45 years and has been abandoned. Thus, a large range of objects are covered.

The definition of heritage resources is sites or objects that are the evidence of past human presence in the area. These include, according to Yukon Government publications:

- Historical sites generally date to the time of written history (the past 100 to 150 years in Yukon) and typically contain examples of built heritage.
- Archaeological sites and objects that are historic in age or may date to before European contact. These resources most often consist of the remains of ancient camps, hearths, stone tools, and debris.
- Palaeontological resources are also protected as heritage resources under Yukon legislation. These are fossil and other remains of extinct or prehistoric plants and animals, including tusks of woolly mammoths, bones of ancient horse, bison and other ice age fauna, as well as fossil remains and traces of plants, vertebrate, and invertebrate animals.

The Contractor shall also take any action directed by the Owner's Representative to protect, preserve, or dispose of any historic remains or artifacts and take all reasonable precautions to prevent their damage or unauthorized removal by the Contractor's employees or other persons.

For identified historical sites, refer to the report titled "Archaeological and Historic Sites Impact Assessment, Dublin Gulch Mine Property, Final Report", Hallam Knight Piesold, October 1995. Prior to the commencement of the Work, the Owner's Representative will inform the Contractor of the location of known historical sites in the general area of the transmission line.

For further information, refer to the document titled "StrataGold, Eagle Gold Project, Heritage Resource Protection Plan", Version 2017-01.

### 3.4 Landscape Preservation and Restoration

The Contractor shall preserve the natural landscape where clearing is required and permitted by the Owner's Representative in writing, and conduct operations and equipment so that the destruction, scarring, or defacing of trees and natural surroundings is kept to a minimum.

In the event that the Contractor's operations result in the destruction, scarring, damage, or defacing of trees, shrubbery, or landscape outside the limits of the Contractor's working areas, the Contractor shall remove all affected trees or shrubbery and restore and re-seed the landscape with the natural vegetation as soon as possible to the satisfaction of the Owner's Representative.

To the greatest extent practical, the Contractor shall avoid any wildlife habitat features (e.g., mineral licks, dens, nest trees, snags, rocky outcrops, small ponds/seepages) encountered during the Work.

### 3.5 Dust Abatement

The Contractor shall furnish all labour, equipment, and materials required to reduce dust nuisance and prevent dust from becoming a nuisance in any work areas. The Contractor is not permitted to use oil or calcium chloride for such purposes.

### 3.6 Soil Disturbance and Erosion Prevention

The Contractor shall:

1) Avoid disturbance of topsoil wherever practical
2) Avoid disturbance to the permafrost soil layer wherever practical
3) Minimize grading, benching, and scarification
4) Take reasonable care to avoid damage to graded and/or seeded areas
5) Use vehicles and equipment in a manner which, in the opinion of the Owner's Representative, will not cause unnecessary damage or increase the possibility of erosion
6) Restore, to the equivalent of its original condition, soil or ground which has eroded or become unstable as a result of work activities to the satisfaction of the Owner's Representative

### 3.7 Wildlife Records Program

The Contractor shall report all wildlife observations and wildlife incidents to the Owner's Representative.

## 4 CLEARING AND ACCESS

**These specifications are modified in accordance with the RFIs as issued to the contractor.**

### 4.1 Clearing and Access Work Summary

#### 4.1.1 General

The work specified herein includes all ROW clearing and access track construction as required for the construction of the Eagle Gold transmission line. It is the Contractor's responsibility to ascertain and carry out all such work as part of the overall contract.

The ROW is 60 m wide and is approximately 43 km long. The ROW includes the 30 m wide clearing area, referred to herein as the 30 m clearing zone, and has an area of approximately 130 ha.

The Contractor is responsible for carrying out:

1) All survey associated with clearing and access work; refer to Section 5 herein
2) All clearing in the ROW as specified herein and as required to complete his transmission construction work.
3) All clearing as required for access road/track construction; refer to the Drawings
4) All clearing as required for structure installation; refer to the drawings for number and location of structures (poles)
5) Removal of all "danger" trees located outside of the 30 m clearing zone

The Contractor is responsible for providing, as part of the work, all access roads and tracks additional to those existing, as required for the transmission line construction.

#### 4.1.1.1 Site Survey

The Contractor will provide site surveying for setting out the clearing and access construction Work in accordance with the scope of work and all specifications and drawings.

Refer to Section 5 herein.

#### 4.1.1.2 Local and First Nations Involvement

Every opportunity shall be taken to employ First Nations labour in the clearing activities. Details of such work shall be included in the Tenderer's proposal and the participation of First Nations Citizens will be a factor in Tender evaluation. Tenderers shall refer to the following documents: JDS Appendix B.1, "FN and Local Opportunities Policy" and JDS EPCM Agreement, Schedule 1, Attachment A5, "Local and Aboriginal Opportunities and Involvement."

#### 4.1.1.3 Breeding Bird Window

It is required that, as far as practical, the ROW clearing will take place in winter, before the breeding bird window which is approximately May 1 to July 31, 2018. If this is not possible due to scheduling issues, the Owner will put appropriate protocols in place – refer to Section 1.1. The Owner must give permission for clearing during the breeding bird window. Where it is not practical to conduct ROW clearing outside of the breeding bird window, the Contractor will consult with the Owner's Representative prior to any ROW clearing taking place.

These requirements and protocols shall apply to not only to nesting of birds in trees but also birds nesting on, and near, ground level.

The contractor is to expect and allow for some disruption in the work due to bird nesting.

#### 4.1.1.4 Seasonal Guidance

All work must be performed to minimize environmental impact. All work in wetland areas must be performed in the winter season.

Should the Work require roads or tracks across any water course, it will only be performed after approval from and as directed by the Owner. Generally, it is expected

that only existing road crossings (bridges/culverts etc.) will be utilized by the Contractor to execute the Work.

Any structures located in “wetlands” must be installed when the ground is frozen. Structure 22/2 is in a known wetland and is likely to be subject to this criteria.

#### 4.1.1.5 Heritage Resource Protection

Contractor will be familiar with the Heritage Resource Protection Plan. Refer to Clause 3.3 herein. The Contractor shall:

- Report to the Owner any Heritage Resource encountered during execution of the Work.
- Protect the heritage site immediately by safely stopping all work and establishing an marking a 30 m buffer zone around the heritage site.

The locations of existing known heritage sites are referenced in Section 3.3, herein.

### 4.1.2 Clearing Work Included

#### 4.1.2.1 Clearing of ROW

Clearing shall be carried out as required for the contractor to:

- Safely and conveniently construct the transmission line.
- Ensure safe clearances between line conductors and vegetation without any additional clearing for at least 5 years and as otherwise specified herein.
- As required to construct access tracks and to ensure safe use of said access tracks during construction.
- Provide clear structure sites including grounding (trees and shrubs are to be removed around structure locations to facilitate safe and convenient construction, and safe line operation and maintenance).
- Refer to the LUP for additional requirements

The contractor shall carry out all clearing as required to construct the transmission line, as specified elsewhere in this document and as may be shown on the drawings.

#### 4.1.2.2 Access Road (Track) Clearing

Clearing shall be included as required for access track/road construction and safe use thereof.

#### 4.1.2.3 Danger Trees

These “danger trees” are those that, in falling, would either strike the conductor or pass within the minimum conductor clearances as shown on the Drawings. Clear danger trees as required and as specified elsewhere herein and/or as shown on the drawings. Refer specifically to drawings 1407-T-5010 and 5015.

### 4.1.3 Clearing Work Not Included

The clearing work does not include clearing of the:

- Substation sites
- Slash burning

#### 4.1.4 Access Track Work Included

It shall be the Contractor's responsibility to determine and allow for all access roads and tracks. The transmission line will be generally constructed adjacent to the existing road from near the McQuesten switching station to the Eagle Gold main mine site substation. The line is, generally, adjacent to the South McQuesten Road and the Haggart Creek Road. However, as shown on the drawings, the transmission line route deviates from the road route in several locations including at the beginning, centre, and end of the line. The access road/track construction work includes the following:

- Access to individual structure sites from the main access road, as required.
- Construction of a ROW access centre line road/track where the line deviates significantly from being immediately parallel to the existing roads, and access to each structure site along these tracks.
- Provision of all access roads and tracks as necessary for the transmission line construction as required in addition to the access proved by the existing roads. It shall be the Contractor's responsibility to determine and allow for access requirements. For permitting purposes, the Construction drawings included a general indication of the tracks to be constructed, but this is not to be interpreted as complete and all inclusive.
- The subject access tracks shall be suitable for traffic by pneumatic tired conventional two-wheel drive vehicles and articulated vehicles, etc. as used in construction.
- At structure positions, the access track shall divide to allow vehicles to drive each side of the structure to allow for construction and maintenance activities.
- Provide matting (rig mats or similar) at any locations as may be necessary for crossing soft or wet ground to avoid environmental damage.
- All access work as may be specified elsewhere in this document and/or as may be shown on the drawings.

#### 4.1.5 Access Work Not Included

Maintenance of the main South McQuesten and the Haggart Creek roads is undertaken by others, unless required due to the actions of this Contractor.

### 4.2 Area to Be Cleared

The actual route to be cleared is shown on the Construction Drawings. It is the Contractor's responsibility to accurately survey and mark the extent of the clearing in the field. Over-clearing will not be paid for and may contravene government permits and regulations the results of which will be the responsibility of the Contractor with any associated costs including fines to the Contractor's account. Refer to the Drawings for ROW details.

The 30 m clearing zone is 30 m wide by 42,800 m long which represents an area of 128.4 ha. An additional vegetation management zone of 15 m on each side of the 30 m clearing zone, representing a total width of 60 m, shall be cleared of "danger" trees. On uphill slopes, it is possible there may be danger trees that must be removed by this Contractor that are outside the vegetation management zone.

Additional clearing around anchors is required. A 10 m cleared radius from location of anchor head at ground level is required for construction and maintenance.

### 4.2.1 Clearing Permits

Permits for clearing have been obtained by the Owner as part of the ROW application / land use permit.

### 4.2.2 Clearing Classes

This document designates clearing as Class 1, Class 2, and Class 3.

#### 4.2.2.1 Class 1 Clearing: Complete

This is complete clearing as typically seen under many transmission lines. This type of clearing is required for access roads, the immediate area around the actual transmission line structures and other selected areas, such as the occasional hilltop and/or in the centre of spans where clearance to the transmission line conductors may be critical.

#### 4.2.2.2 Class 2 Clearing: Selective

This is selective clearing limited to taking out tall trees that would in the near-term approach too close to conductors or would hinder line construction. It allows low-growing trees to remain in addition to small high-growing species, following the principle that these would take many years to grow to a hazardous height and this can be handled by ongoing line ROW maintenance. Outside the conductor path, low growing trees and shrubs several metres in height, depending on the location, would remain. Even in the conductor path certain species of low-growing vegetation not exceeding 2 or 3 metres in height are allowed to remain. This method of clearing minimizes soil disturbance.

#### 4.2.2.3 Class 3 Clearing: Danger Trees

This applies along the boundaries of the 30 m clearing zone and would only involve selective removal of tall “danger” trees. By limiting the level of clearing, the ground disturbance is consequently limited. There may also be areas of no clearing such as at the bottoms of steep ravines.

### 4.2.3 Clearing Concepts

Clearing shall employ selective vegetation removal and maximize retention of existing vegetation. These measures will minimize soil disturbance, limit future erosion, limit visual impact, and continue to provide wildlife habitant.

In general, as specified herein, low-growing species that do not reach significant heights (e.g. willows) and that are not in the way of construction and maintenance activities do not need to be removed. However, all trees and brush shall be removed from access roads, work locations, or near structures, as required and/or described under Class 2 clearing.

The Contractor shall confine their construction activities to the ROW, designated access roads/tracks, and any designated ancillary sites, thus additional areas are not to be cleared.

In summary, clearing shall be limited within the ROW to that required for access and to maintain safe line clearances. A “clear-it-all” approach shall not be used. This limited clearing concept will limit soil disturbance. Limiting clearing will require more ongoing vegetation management during the life of the project, but reduces unneeded vegetation removal.

### 4.2.4 Clearing Requirements and Methods

#### 4.2.4.1 General

- Clearing can be of two types:
    1) Mechanical clearing: use mechanical equipment when access and land allow it.
    2) Manual clearing: conventional method that uses manual equipment. This reduces environmental impact.
- Mechanical clearing using machinery that minimizes soil disturbance such as slashers, mega-mulchers, tree-grabs, and groomers is encouraged. The use of one or more bulldozers fitted with a tree pushing attachment, hydraulically operated stick rake interchangeable with a standard front mounted blade where permitted, and rippers may be warranted in some situations. The type of equipment to be used for clearing should be appropriate for the conditions of the site and shall be approved in writing by the Owner's Representative before commencement of work.
- Areas containing suitable stands of salvageable timber (>150 mm diameter at breast height) will be identified and flagged prior to clearing. Clearing of these areas will be conducted in a manner that is conducive to consumption and at the direction of the Owner's Representative.
- Hand falling must be used in riparian areas unless otherwise agreed to by the Owner's Representative.
- Clearing shall employ selective vegetation removal and maximize retention of existing vegetation.
- The overriding principle is to reduce the extent of bare earth and topsoil disturbance and to encourage low growing vegetation that does not impact on line clearances and access areas. Clearing by chain saw or other means that minimize soil disturbance are preferred.
- Stumps are to be removed where specified, but in no case, shall stumps be removed from:
    - Near the banks of watercourses
    - On terrain which is too steep or inaccessible for Machine Clearing
    - In areas subject to erosion or where danger of erosion exists
- Where practical, all large loose stones, rocks, or boulders shall be moved to the edge of the cleared area, or to specific positions within the cleared area as directed by the Owner's Representative.

#### 4.2.4.2 30 m Clearing Zone

- In the 30 m clearing zone, the work consists of felling all trees and shrubs higher than three (3) metres. Trees and shrubs are to be cut, where cutting is required, at approximately a height of 150 mm (6 inches), measured from the highest soil level. If stumps are to be removed, the trees may be cut higher.
- No sub-surface ground-disturbing equipment or stump-removal equipment will be used by construction forces except on access roads or at the actual structure sites, where only foundation excavation locations and controlled run-off diversions shall be created that disturb the soil. All other areas of ground cover

or in-place stumps and roots shall remain in place to the maximum extent possible.

- The Contractor shall exercise care to, as far as possible, preserve the natural landscape outside the immediate construction area.
- Directional falling away from watercourses shall be employed. Falling next to water courses shall be limited to tall trees that would have unsafe approach distances to the line conductors.

#### 4.2.4.3 Structure Sites

- In general, complete clearing is required at structure sites and anchor locations, as required for construction.
- Where leveling is necessary at structure sites, it will be implemented by means that provide for continuous gentle, controlled, overland flow, or percolation of water.
- Fill all large holes and other damage to the ground surface created by the clearing activities with soil from the adjacent disturbed area and leave the surface generally in such condition as to present no hazard to livestock, wildlife, vehicles, or horsemen.
- Machine clearing shall not be undertaken within a zone of 10 m from the banks of any watercourse. Within such zones, hand-clearing procedures shall be adopted and trees felled at stump height. All fallen timber is to be snigged or winched above the flood zone. Pushing or falling of trees and debris into a watercourse is prohibited.
- Clear only the minimum amount of vegetation required below the banks of any watercourse. Only vegetation that has the potential to breach safe electrical clearances shall be removed, as direct by the Owner's Representative.
- Areas subject to erosion or inaccessible for machine clearing, including a 10 m perimeter, shall be cleared by hand clearing procedures and trees felled at stump height. Every endeavour shall be made to fell all timber into a position that will not concentrate the flow of runoff. The Owner's Representative shall direct the extent of any additional erosion prevention measures or techniques required.
- Vegetation cleared by hand is to be cut as close as possible to the ground (<150 mm). Higher stumps may be retained if required by the landholder. Felling of trees at stump height shall be by axe or saw, without sharp protrusions being left on stumps.
- Where land slopes steeply across the route of the line (greater than 15 degrees) and no instruction is given on the plans, the Owner's Representative may direct that the clearing width be displaced towards the higher side of the centreline and the Contractor shall then clear the full displaced width; or the clearing width is displaced towards the higher side of the centreline and selective clearing be employed on the lower side of the centreline.
- In areas such as deep gullies and valleys where the line conductors will be high above the tops of mature trees, only a portion of the gully may require clearing or no clearing may be required.

#### 4.2.4.4 Danger Trees

Danger Trees are those trees outside the 30 m clearing zone that, in falling, would either strike the conductor or pass within the minimum conductor clearance safe distance (as shown on the Drawings). Therefore, to ensure line safety and reliability, vegetation management operations must selectively extend to trees located outside the 30 m clearing zone. Thus, additional tall trees, located outside of the initially cleared areas may need to be selectively removed or pruned to maintain the required safe clearances

Generally, it is expected that these trees would be cleared using manual methods to the maximum extent possible. Removal of danger trees shall meet the approval, given in writing, of the Owner's Representative.

Refer to drawings 1407-T-5010 and 5015 for a general indication of what represents a danger tree and thus for what is to be removed.

After the line stringing is complete, the Contractor shall carry out a final Danger Tree review and remove any remaining danger trees, as part of the Contract Work.

### 4.2.5 Environmental Impact

The Contractor will be specifically required to plan and control all clearing activities to prevent environmental degradation caused by:

- soil or water contamination
- soil erosion and landscape instability
- blockage of drainage or impoundment of water

The Contractor shall employ appropriate mitigation measures when required.

The contractor shall implement all necessary measures to minimize the environmental effects of line clearing. Measures shall include:

- Use low-impact tree clearing means and methods to remove forested vegetation. Low-impact tree clearing incorporates a variety of approaches, techniques, and equipment to minimize site disturbance and to protect wetlands, watercourses, soils, threatened and endangered species and their habitats, and cultural resources. These measures shall include:
    - Consider soil and weather conditions when scheduling vegetation removal activities.
    - Fell trees directionally (parallel to and within the ROW) to minimize impacts to residual vegetation, where practical.
    - Use a variety of tree clearing equipment, as appropriate to minimize impacts to the extent practicable.
    - Cut trees close to the ground, leaving root systems and stumps where permitted and where practical, to provide additional soil stability.

#### 4.2.5.1 Soil Protection

The Contractor shall make every effort to protect ground cover and soils.

The following guidelines for soil protection and ROW restoration will be enforced:

- Exercise care to preserve the condition of cleared soils by avoiding as much compacting and deep scarring as possible.
- On steep slopes and other areas where sensitive soils have been identified, these areas shall receive special attention. Use shall be made of erosion mats, silt fences, etc. as required. Equipment movement will be limited to slash disposal and hand work or work with small equipment will be utilized.
- Avoid over-stripping of topsoil during clearing.
- Where applicable, electively salvage and store all topsoil for future replacement and separate spoil materials from stored topsoil.
- Proper drainage control and associated erosion protection will be enforced which will, in turn, limit soil damage.
- The Contractor shall not unnecessarily remove stumps, unless a stump is where a structure or new access track is to be located or will interfere with stringing activities, etc. This will help to preserve the soil conditions and minimize ground disturbance.
- Prevent erosion and ensure seepage management. Exposed soils shall not be left for extended periods (after snow melt) un-seeded or un-armoured.
- If possible, soils should be re-spread within 2 to 3 months of the first disturbance for foundation construction. In many cases, this would logically occur after structure erection.

## 4.3 Handling of Cleared and Waste Material

### 4.3.1 Trees to Be Provided for Local Use

StrataGold is required to offer larger timber to the First Nations and local communities. This includes any trees larger than 15 cm at a 1.2 m height. All such timber shall be cut, limbed, and neatly piled adjacent to the road for their pick up if requested.

The project is located within the McQuesten Timber Harvest Plan area. The Yukon Forest Management Branch (FMB) encourages salvage of timber harvested incidentally to mining uses on crown land, as it is a valuable resource and should not be wasted. The Contractor shall follow these general requirements.

The timber to be salvaged for local use shall include all logs defined by the FMB. Their definition is a merchantable log is as a minimum of 2.5 m in length, a minimum of 12.5 cm diameter at breast height (dbh), 8 cm in diameter at the top, and contains 50% sound wood.

In order to facilitate transport and use by local citizens, the Contractor must cut the salvaged logs, in no longer than 8 ft. lengths to facilitate easy salvage. The logs shall be made available for public use by stacking adjacent to the road, in designated and mutually agreed locations.

### 4.3.2 Small Timber, Slash, and Brush Disposal

The Contractor shall dispose of all cleared material in accordance with the statutory regulation and as specified herein. For timber and brush, in addition to the timber to be provided for local use as covered in the above clause, the following disposal requirements shall apply:

#### 4.3.2.1 General Procedures

The procedure and equipment used should minimize disturbance to both the ROW soil cover and to the vegetation that is to remain on the ROW, specifically:

- Where mechanical clearing is used, wheeled or tracked vehicles shall be equipped with brush rakes or forks with teeth protruding at least 8" below any bar or cutting edge. The use of bulldozer blades to handle slash or timber shall not be permitted.
- Tracked vehicles shall be equipped with grouser pads and operable winches with at least 50' of cable.
- All vehicles shall be equipped with cabs, to protect the operator from falling limbs and trees and to ensure the vehicle can withstand rolling accidents.
- All felled trees, logs, slash, brush, and chips shall be removed beyond any designated flood areas with minimal disturbance to the soil and remaining tree roots. Chips, where brush and small trees are chipped, should be evenly spread. Every effort should be made to see that marketable wood is salvaged, and at least moved beyond normal flood areas. (See clause above titled “Trees to Be Provided for Local Use.”)
- All disposal operations shall closely follow clearing operations to keep work confined to one area and to prevent unsightly and unsafe conditions.

#### 4.3.2.2 Piling

- All timber shall be placed in neat piles along the edge ROW. Refer to the clause covering timber to be saved for local use.
- Locate heaped material clear of power lines and at least 10 m clear of all drains and watercourses or their flood banks, to prevent obstruction to water flow.
- Pile away from areas of preserved compatible vegetation.
- Small trees (i.e. slash not saved for local use) shall be stacked in tree length piles unless otherwise specified, in piles not greater in length than the longest tree length. A separation of at least 3 m shall be provided on either side of each pile.
- Small tree/slash piles shall be dressed of excessively protruding limbs and compacted to keep visual obstruction to a minimum. Generally, they should not exceed 2 m in height, except where site conditions are such that higher piles are acceptable (e.g., depressions, rough terrain in remote areas). Compaction of piles may be facilitated by use of equipment employed in the associated clearing operation.
- All access roads, trails, and streams (including their banks) shall be kept clear.

#### 4.3.2.3 Burning

As a minimum, the following shall apply:

- Only burn when / as directed by the Owner’s Representative.
- Only burn when safe to do so and when permitted by the Government of the Yukon and obtain all necessary permits and provide all necessary notifications. If burning conditions deteriorate, burning operations shall cease.
- Notify the Owner’s Representative in writing a minimum of 5 days prior to any planned burning.
- The Contractor is responsible for any and all damage or injury resulting from burning operations

- Provide adequate fire-fighting equipment and water at the site of any burning activity.
- Provide continuous patrolling (day and night) if the fire danger is high and hot embers exist in any of the burn piles.
- When a fire is reduced to charcoal and ash, it shall be raked open to prevent hot embers from remaining in the ash piles. This shall only be done when fire danger is low.
- Immediately report to the Owner's Representative and Yukon Government Departments as may be required, any fire which burns beyond the ROW limits.

#### 4.3.2.4 Chipping

Use may be made of mechanical chippers, but chipping is not specifically required herein. Where chipping is employed, the Owner's Representative should be consulted on disposal of chips.

#### 4.3.2.5 Vegetation Disposal and Cleanup

- Haul chips (if applicable) to acceptable disposal sites as specified by the Owner's Representative where they are not to be spread.
- Clean up and reinstatement as necessary to the satisfaction of the Owner's representative.
- Refer to RFP addendum #4 the LUP for any additional requirements

### 4.4 Access Roads / Tracks

The following requirements apply:

- The contractor shall be responsible for the design, construction, and maintenance of all access tracks as required for the transmission line construction work.
- The contractor shall be responsible for the decommissioning of access tracks/roads where this is required by Yukon Government regulations.
- Only construct/use access tracks as marked on the approved ROW mapping, unless approval in writing is obtained from the Owner's representative. Thus, excessive clearing and soil impact will be avoided. The contractor shall provide surfacing as appropriate and required.
- Take the necessary safety precautions to prevent injury to human life or damage to property and shall carry on his operations with a minimum of interference to traffic or inconvenience to the public.
- Comply with all pertinent provisions of the Owner's transmission line ROW, Land Use Permit, Right to Work within a road ROW permit, and all other applicable Yukon Government Regulations.
- Access tracks/roads along the ROW, were required separate from the existing road, shall stay as close to the centerline as possible to minimize construction footprint.
- Access tracks/roads shall attempt to avoid springs, seeps, or other bodies of water found along the ROW.
- Access tracks not shown on the right-of-way drawings as submitted with this Tender and for the LUP, will require permitting (by the Owner). Refer to Addendum #4. When scheduling his work the contractor shall allow appropriate time for permitting and shall provide all required assistance to the Owner, in order to obtain the permits.

### 4.4.1 Road Safety and Traffic

Much of the line, as can be seen from the drawings, follows the South McQuesten Road and the Haggart Creek roads. These are public roads, used by many others in addition to the Eagle Gold project traffic.

The contractor shall:

- Limit to an absolute minimum any inconvenience to others caused by his work. The use of signage, barricades, flag persons, and similar shall be employed to ensure the safety of all during clearing activities.
- Follow the requirements outlined in the document titled "StrataGold Corp., Eagle Gold Project, Traffic management Plan, Version 2017-01."
- Comply with all applicable Yukon Government regulations.

### 4.4.2 Access Across Water Courses

It is believed that this contractor is not required to build roads or tracks across water courses as the existing roads and bridges are available. However, if any water course must be crossed, not using the existing roads and bridges, this shall be as directed by the Owner's representative. All directives as presented by said representative must be followed.

## 4.5 General Safety Requirements

Clearing and Access activities shall be in compliance with the general Eagle Gold project safety requirements and, of course, all applicable Yukon Workers' Compensation Health and Safety Board Regulations and requirements.

Refer to and follow the below listed Contract Documents for detailed requirements and expectations of Contractors safety program.

- Part 2.2 Special Conditions Appendix A.1, "Project Specific Safety Plan"
- Part 2.2 Special Conditions Appendix A.2, "Risk Matrix"
- Part 2.2 Special Conditions Appendix A.3, "JDS Health and Safety Manual"
- Part 2.2 Special Conditions Appendix A.4, "Safe Operating Procedures"

## 4.6 General Environmental Requirements

All of the work specified herein shall, in addition to the environmental requirements specified elsewhere and other Yukon Government regulations, the Contractor shall:

- Avoid all spills of fuel, oil, hydraulic fluid, antifreeze, and similar.
- Follow all Yukon Government laws and regulations including spill reporting and spill mitigation measures.
- Follow the requirements of the document titled "StrataGold Corp., Eagle Gold Project, Spill Response Plan, Version 2017-02.
- Follow the requirements of the document titled "StrataGold Corp., Eagle Gold Project, Environmental Monitoring, Surveillance and Adaptive Management Plan, Version 2017-01."
- Follow the requirements of the document titled "StrataGold Corp., Eagle Gold Project, Construction and Operations water Management Plan, Version 2017-01.

A basic concept of this transmission line project focusses on reducing clearing impacts. The contractor shall limit the impact of clearing and access track construction to soil, shrub, and other ground cover resulting from this work. The primary work to be monitored in this regard are:

- Access road and track construction
- Clearing and leveling sites for structures
- General ROW clearing activities

To limit impacts, particularly in wetland areas, winter clearing of transmission line ROW is preferred.

It is generally believed that little clearing is required in wetland areas. Nonetheless, if any vegetation removal is required in wetland areas then this must be done in winter.

#### 4.6.1 Birds and Other Wildlife

It is essential that bird nesting not be interfered with. The nesting season starts on May 1 and the concept is to complete clearing as far as possible, before this date. If clearing schedules overlap with bird breeding the Owner's Representative will provide direction to the Contractor on how to proceed. Refer to Section 1.1 above.

The Contractor shall follow all Yukon Government laws and regulations, and follow the requirements of the document titled "StrataGold Corp., Eagle Gold Project, Wildlife Protection Plan, Version 2017-01."

Refer also to the requirements in the above section "Ecological and Environmental Requirements".

#### 4.6.2 Heritage Resources

As per the Yukon Government, if a heritage site is discovered during clearing activities, all operations at that location must cease and the area must not be disturbed. A buffer of 30 m is required to protect the site. Refer to Section 3.3, for more information.

The Contractor shall follow all Yukon Government laws and regulations, and follow the requirements of the document titled "StrataGold Corp., Eagle Gold Project, Heritage Resources Protection Plan, Version 2017-01."

### 4.7 Permission

The Owner's Representative will provide permission to access sites for the Work. The Contractor shall notify the Owner's Representative 7 days prior to planned operations at any site. The Contractor shall not construct any new road or off-road access or alter existing access without notifying the Owner's Representative 21 days in advance and obtaining written approval from the Owner's Representative.

## 5 SURVEY

The Contractor is responsible to undertake all survey required to complete the survey as outlined below.

The contractor is responsible to establish and maintain survey control as required for their work for the duration of transmission line construction.

The project coordinate system is UTM NAD83 Zone 8N.

Survey equipment selection shall be at the discretion of the Contractor, provided that a minimum level of accuracy of ±10 cm in any direction is guaranteed, unless noted below.

### 5.1 Clearing and Access Survey

The Contractor shall undertake all survey required for the clearing of the ROW and for the layout and construction of the access roads.

This includes, but is not limited to all flagging of License of Occupation (LOO) boundaries, riparian setbacks, clearing boundaries, and danger tree identification as required to execute the work.

Survey equipment selection for clearing and access shall be at the discretion of the Contractor, provided that a minimum level of accuracy of ±1 m in any direction is guaranteed.

### 5.2 Structure Staking

The Contractor shall survey and stake the transmission line centerline, structure hubs, structure, and anchor setting out as required to facilitate construction works.

### 5.3 As-Built Survey

The Contractor shall undertake as-built survey of the completed transmission line, and shall undertake any additional survey as directed by the Owner's Representative. As-built survey shall include as a minimum:

- Pole base coordinates
- Anchor coordinates
- Pole top coordinates
- Conductor survey points over roadways
    - Conductor survey shall include ambient air temperature, windspeed and direction, and date and time that the survey was captured. Survey must be captured when winds are below 10 km/hr.

### 5.4 Legal Survey

Legal survey of the final ROW will be undertaken by the Owner following completion of construction and is not a requirement of the Contractor.

## 6 WOOD POLE STRUCTURES AND ASSOCIATED GUY ANCHORS

### 6.1 General

Structures, guy assemblies, anchor assemblies, and structure number sign installation details are shown in the Contract Documents.

### 6.2 Pole Types and Quantities

Table 2 outlines the structure types and quantities along the line. For more information, refer to the Drawings.

**Table 2 - Structure Types and Quantities**

| Structure Type | Structure Code | Qty. |
|---|---|---|
| Post Tangent Structure (0° - 3°) | PT | 285 |
| Post Tangent Guyed Structure (3° - 15°) | PTG | 65 |
| Post Tangent Roll Structure (0° - 3°) | PTR | 70 |
| Vertical Medium Angle Structure (15° - 30°) | VMA | 29 |
| Double Arm Flat Dead-end Structure (0° - 45°) | FDE | 7 |
| Vertical Deadend Heavy Angle Structure (45° - 90°) | VDEHA | 8 |
| Vertical Deadend Medium Angle Structure (25° - 45°) | VDEMA | 12 |
| Vertical Deadend Heavy Angle with OHSW Structure (45° - 90°) | VDEHAO | 2 |
| Vertical Deadend Medium Angle with OHSW Structure (25° - 45°) | VDEMAO | 2 |
| Single steel arm H-frame Structure (0° - 3°) | SAH | 15 |
| Post vertical with OHSW Structure (0° - 3°) | PVO | 15 |
| Single steel arm H-frame Structure with OHSW (0° - 3°) | SAHO | 3 |
| Double steel arm H-frame Deadend with OHSW Structure (0° - 3°) | DAHDEO | 2 |
| | **Total:** | **515** |

### 6.3 Structures in Permafrost

Preliminary studies estimate that approximately 19% of structures are located in areas of potential permafrost. This equates to approximately 101 structures, 75 of which are tangents. All tangent structures in permafrost require installation of transverse guying and anchors to improve stability against seasonal ground movements. For more information, refer to the Drawings.

### 6.4 Excavated Material

Excavated material is defined as follows:

**Rock**: is solid or ledge rock which, in the opinion of the Owner's Representative, cannot be removed until loosened by blasting and includes all detached pieces of solid rock more than 0.5 $m^3$ in volume.

**Earth**: is material other than rock as defined above, including, but nor restricted to earth, sand, gravel, hardpan, and soft or disintegrated rock.

**Overburden:** is earth which is removed from above a rock hole for a pole or anchor foundation.

**Permafrost/Ice-Rich Material:** is perennially frozen ground which, upon thawing, will experience significant thaw settlement and suffer loss of strength to a value significantly lower than that for similar material in an unfrozen condition.

### 6.5 Excavation

All excavation, drilling, blasting, slashing, shoring, and dewatering at each structure site shall be performed as required for proper installation of poles and guy anchors.

Excavations in unstable soils such as clay or silty material shall not be left open unless protected from weather, water, and sloughing.

Open excavations shall not be left unattended without suitable covers, fences, or barricades around the perimeter.

Where suitable material at the base of an excavation has deteriorated to an unsatisfactory condition, it shall be removed and replaced with suitable material.

Excavation materials shall not be allowed to enter any watercourse.

All practical efforts shall be made to minimize disturbance to permafrost.

Pole holes shall be excavated with mechanical auger, by hand digging methods, or by blasting. In free-draining predominantly gravel soils which can be compacted adequately when backfilling, a backhoe or similar equipment may be used to excavate trenches provided:

1) The trench is parallel to the longitudinal axis of the transmission line.
2) The walls of the trenches are nearly vertical.
3) Trenches for any one structure are dug from the same side of that structure and have a near vertical end.
4) If the backhoe method is used at adjacent structures, the trenches are dug from the opposite side of the two structures.
5) Rock anchors are installed in accordance with the detailed drawings.
6) Anchor log and steel plate anchor trenches shall be dug perpendicular to the guy.

Galvanized Corrugated Metal Pipe (GCMP) may be used to prevent pole holes from caving. Unless specified on the Drawings, or required for structural stability, the use of GCMP liners is at the discretion of the Contractor and any material costs are the responsibility of the contractor. The GCMP liners shall have a diameter at least 200 mm greater than the diameter of the butt of the pole to provide sufficient space for backfill compaction.

To the extent possible, care shall be taken to protect the integrity of permafrost ground elements outside of the local footprint of construction.

Refer to 6.12 Backfill.

### 6.6 Dewatering

Excavations shall be free of water when setting poles, installing guy anchors, or placing and compacting backfill. The water level in excavations and drill holes shall be kept below the foundation underside during the placement of liners, barrels, culverts, wood poles, guy anchors, backfill, concrete, or grout.

If effective dewatering cannot be accomplished by pumping from within the excavation, then well-points should be used to maintain the water level below the bottom of the excavation at least until placement of compacted material has been completed. If de-watering is not practical, acceptance by the Owner's Representative for an alternative procedure shall be obtained.

### 6.7 Blasting

Prior to commencing any blasting Work, the Contractor shall:

1) Obtain permits from the appropriate authorities
2) Provide the Owner's Representative with copies of any such permits

3) Follow all general Eagle Gold Project blasting procedures

Detailed blast plans shall be submitted to the Owner's Representative at least 3 days prior to the scheduled start of blasting. Blasting shall not commence until receipt of written approval by the Owner's Representative. Blasting shall be carefully controlled to preserve the soundness of the rock beyond the required excavation. All blasting shall be completed by a certified blasting technician in accordance with the Owner's accepted blasting plan. The technician must have a Yukon Blasting Certificate. Credentials shall be supplied to the Owner's Representative prior to blasting.

### 6.8 Poles, Timbers, and Anchor Logs

The Contractor shall install a date nail 1.3 m above ground for all installed poles. All poles are butt-gained. Cutting off the tops of a treated pole will not be permitted. Douglas Fir anchor logs shall be drilled and treated with Pentachlorophenol (Penta).

### 6.9 Crossarms and Braces

Any steel crossarms which require field drilling shall be coated with an approved zinc paint after drilling to protect against corrosion.

### 6.10 Handling and Damage

Material shall be handled and installed carefully to avoid damage. Poles, timbers, and anchor logs shall be handled such that the treated wood is fully protected at all times. Wire slings shall not be used on poles, timbers, or anchor logs.

Butt sections of any pole shall not be trimmed to facilitate setting in a pole hole, steel liner, or any other reason. Poles shall not be dragged along the ground unless approved protection is provided. Poles, crossarms, crossbraces, or timbers, shall not be dropped during any process of handling or erection.

Poles and timbers which have been damaged or cut after leaving the treatment plant shall have the damaged or cut surface coated with Contractor-supplied preservative.

Field bored holes in the poles shall be saturated with preservative immediately after drilling. All unused holes shall be filled with preservative and both ends closed off with treated Contractor-supplied plugs.

Where minor damage to galvanizing occurs, the exposed bare steel shall be painted by the Contractor with two coats of Contractor supplied zinc-rich paint.

### 6.11 Setting

All poles shall be set within competent material. If other conditions are encountered, the Owner's Representative shall be notified for further direction.

An active layer and a frost penetration depth of 2.0 m is assumed across the site. All foundations must extend to a depth of greater than 2.0 m.

Poles set in bedrock must be embedded to a depth of 10%H + 2' unless precision blasting techniques are employed to provide straight and neat bearing surfaces and a maximum 200 mm space around pole butt. Excavations in rock will be either drilled or blasted, with over-blasting limited as much as

possible. Blast rock is not acceptable as fill material. All backfill for rock set poles shall be non-frost susceptible 20 mm minus gravel per the project specifications.

Poles erected in augered or drilled holes or set in GCMP liners shall be set at the center to allow material compaction around the pole. Poles erected in trenches excavated by a backhoe or similar equipment shall be set with their butts in firm contact with the vertical wall at the end of the trench.

Poles and guy anchor rods shall be set within the following tolerances:

1) **Structure Position**: structure centreline shall be within 150 mm of the centreline hub, unless otherwise specified by the Owner's Representative.
2) **Structure Rotation**: pole centres at ground-line elevation shall not deviate from the bisector of the line angle by more than 75 mm.
3) **Pole Spacing**: the horizontal distance at ground-line elevation between adjacent poles in a multi-pole structure shall be within 75 mm of the specified distances.
4) **Pole Plumb**: a pole is plumb when the centres of the pole at ground-line elevation and at pole top are in the same vertical plane.
    a) All poles shall be within 75 mm of longitudinal plumb measured from the top to ground-line. At multi-pole structures, the 75 mm tolerance applies only in the same direction.
    a) All tangent and small line angle poles and structures shall be within 75 mm of transverse plumb. Poles of medium and heavy line angle structures shall be raked up to 300 mm +/-75 mm towards the outside of the line angle as directed by the Owner's Representative.
5) **Pole Setting Depths:** poles shall be set within 75 mm of the depths shown in the Contract Documents. Where pole excavation depth exceeds the specified pole setting depth, the over-excavated portion shall be refilled and compacted prior to installing the pole at the expense of the Contractor.
6) **Guy Anchors**: guy anchor assemblies shall be within 75 mm of the specified location and shall be set within the tolerances shown in the Contract Documents.

### 6.12 Backfill

a) **Backfill Material**

All backfill material shall be non-frost susceptible unless specifically stated otherwise on design drawings.

The Owner will be able to provide suitable material to use as backfill from stockpiles of waste placer mining tailings located at the mine site. Material testing is required to verify conformance to specifications prior to use.

**Clean Sand:** sand free of deleterious material such as clay, topsoil, peat, or ice, all of which passes through a 9.5 mm sieve, and not more than 8% of which passes through a 75 µm sieve.

**Structural Backfill**: use non-frost-susceptible gravel fills as per Table 3 or approved equivalent.

**Native Backfill:** material from the foundation excavation or available within a 25 m radius of the excavation.

**Local Backfill:** material available outside a 25 m radius but within a 150 m radius of the excavation.

**Non-Frost-Susceptible Gravel Fills:** Table 3 outlines the typical gradations for non-frost susceptible gravel fills as per the Whitehorse Service Standards Manual.

**Table 3 - Non-Frost Susceptible Gravel Fills**

| 80 mm Pit Run | | 20 mm Crushed Gravel | |
|---|---|---|---|
| **Particle Size (mm)** | **% Passing (by weight)** | **Particle Size (mm)** | **% Passing (by weight)** |
| 80 | 100 | - | - |
| 25 | 55 – 100 | 20 | 100 |
| 12.5 | 42 – 84 | 12.5 | 64 – 100 |
| 5.0 | 26 – 65 | 5.0 | 36 – 72 |
| 1.25 | 11 – 47 | 1.25 | 12 – 42 |
| 0.315 | 3 – 30 | 0.315 | 4 – 22 |
| 0.080 | 0 – 8 | 0.080 | 3 – 6 |

Native material must not be used to backfill anchor and pole excavations unless a Qualified Person is on site at the time of excavation and determines that it is suitable for the application.

Wet clay which cannot be compacted to satisfy the requirements of sub-clause (c) shall not be used as backfill.

**a) Backfill Selection**

In general, non-frost susceptible 20 mm crushed gravel is to be used as structural backfill at all pole and anchor foundations.

When approved by a Qualified Person, native and local fill may be substituted.

Placer tailings stockpiles located at the mine site may be suitable and available for use as backfill. Testing of available to material to confirm suitability shall be undertaken prior to mobilization to site.

**b) Placing Typical Backfill**

The following precautions shall be followed during backfill placement:

1) Excavations shall be kept free of water.
2) Poles and anchor assemblies shall not be damaged.
3) The location of guys and anchors shall be maintained within tolerance.
4) Backfill shall be mounded 300 mm above the general ground level over the full extent of the excavation with the exception of anchor rods, which shall project 150 mm above the backfill. The mounded backfill shall not contain particles larger than 75 mm. A drainage outlet shall be provided to prevent pooling of water.

5) Backfill shall not be placed over frozen soil. Frozen material shall not be used for backfill.

**c) Compacting Backfill**

Backfill shall be compacted using mechanical tampers except where hand-operated equipment is approved by the Owner's Representative.

Backfill material shall contain sufficient moisture for effective compaction. Water shall be added when necessary to increase moisture content. Backfill shall be compacted in horizontal layers not exceeding 300 mm in thickness in the loose un-compacted condition. Each layer shall be compacted with at least three passes of an approved vibratory tamper to achieve the following degree of compaction:

1) Non-cohesive soils, i.e. sand, gravel, and cobbles shall be compacted to a "dense" condition. This "dense" condition is reached if it is not possible for a man of average weight to push a wooden picket more than 40 mm into the soil. This picket shall be 50 mm x 50 mm with the penetration end beveled at 45$^{o}$ on all four sides.

After initial backfilling, additional native backfill material shall be placed and compacted to form a mound 0.3 m above surrounding grade to redirect surface drainage away from poles or anchors.

## 6.13 Waste Material

Imported waste or debris material shall be removed from site. Excavated waste material shall be spread or removed.

## 6.14 Structure Framing

All wood poles are butt gained. Cutting off the top of a treated pole in order to equalize the height of the poles above the crossarm is not permitted.

The teeth of timber gains shall be fully embedded into the wood by an approved hydraulic press. Wood poles shall be properly aligned to ensure appropriate alignment of climbing lugs, ground lugs and crossarm and brace connections.

Steel crossarms are drilled and galvanized.

Crossarms, crossbraces, and all hardware assemblies shall be installed within 25 mm of the specified location.

Splices are not permitted in guy strand. Guy grips may only be taken off and re-installed a maximum of one time. Guy grips removed and re-installed more than one time shall be replaced. Replaced guy grips shall be destroyed to prevent re-use.

Guys shall be tensioned to 2 to 5 percent of the guy strand rated tensile strength.

## 6.15 Structure Number Signs

Structure number signs shall be installed on each structure as shown on the structure drawings or as specified by the Owner's Representative.

### 6.16 Guys

Guys shall be installed as shown on the drawings. Guy guards shall be installed with all new guys. All new guys shall be either Size 10 Grade 1300 or Size 12 Grade 1300, as specified on the drawings.

### 6.17 Anchors

A mix of earth anchors and grouted rock anchors are anticipated.

All earth anchors shall extend beyond the frost penetration depth of 2.0 m. General anchor arrangements, material specifications, layout, and design loads are included in the design package. Anchor rod extensions shall be installed as shown on the drawings.

If the Contractor wishes to propose an alternate means of anchoring, such as helical piles, this will be considered by the Owner's Representative provided the Contractor provides design calculations, drawings and details certified by a Qualified Professional in the Yukon verifying the proposed alternative is sufficient for the intended application.

The type of anchor utilized, whether earth or rock, should be confirmed by the Contractor and accepted by the Owner's Representative after inspection of anchor locations by the Contractor to determine ground conditions.

Anchors shall provide sufficient capacity to resist the loads indicated on the drawings. Prior to installation, the anchor installation procedure, and test plan shall be submitted to the Owner for approval. Anchor installation records shall be included in the Contractor's QC and as-built documentation.

A minimum 10% of all rock anchors across a minimum of 25% of all structures with rock anchors, shall be pull tested in both rock and soil. Test locations may be requested by the Owner's Representative based on field conditions. A pull testing plan and procedure shall be submitted to the Owner's Representative and the engineer prior to installation.

Pull testing shall be in conformance with the Post Tensioning Institute's guidelines for grouted anchor testing.

### 6.18 Drilling and Grouting

Holes for guy anchors in rock shall be drilled to provide the minimum embedment of grouted guy anchor rod in sound rock as shown on the drawings.

All holes drilled in rock shall be cleaned out by air jetting immediately prior to placing bolts and anchor rods. The embedded anchor rod length shall be grouted in place using a premixed non-shrink grout product in accordance with the manufacturer's recommendations. Examples of accepted products include based on the substrate temperature:

- Substrate temperature is between -10°C and +4°C:
  - Sikagrout "Arctic 100"
  - Multicrete "Sub Zero"
- Substrate temperature is between +4°C and 29°C:
  - Sikagrout "212"

Alternatives grouts shall be approved by the Owner prior to use. Grout cube samples shall be taken at the time of installation as required in the installation QA/QC record and shall provide a minimum compressive strength of 25 MPa at 28 days.

Grout shall be placed into the bottom of the hole either by pumping or gravity flow. At the start of placing, the lower end of the grouting hose shall be within 150 mm of the bottom of the hole. As placement proceeds, the hose may be withdrawn so that the end of the hose is at least 600 mm below the level of the grout until the required amount of grout has been placed. Metallic grouting pipes may be left in place provided they are completely filled with grout and acceptance has been obtained from the Owner's Representative. The quantity of grout placed in each hole shall be recorded and the record given to the Owner's Representative.

The Contractor shall provide the Owner's Representative with 24 hours notice prior to placing grout. Specialist grouting procedures and materials for low rock and soil temperatures shall be employed and discussed with Owner's Representative as a part of the quality management plan. When the air temperature is above or is expected to rise above 27°C, precautions shall be taken so that the grout does not set too quickly or become so stiff that it cannot be properly placed. Grouted anchor rods shall remain undisturbed for at least 2 days.

### 6.19 Tools and Bolting

Tools, bolting, and tightening specifications are shown in the Contract Documents. Nuts on all connection bolts shall be installed in accordance with the manufacturer's recommendations. As a minimum, all nuts shall be installed snug tight. "Snug tight" is defined as the tightness attained by a few impacts of an impact wrench or the full effort of a worker using an ordinary spud wrench. Some bolted connections will require additional tightening of the nuts. All bolts in an assembly shall be inserted before any nut in such assembly is fully tightened.

When joining assemblies or components, previously tightened bolts shall be loosened as necessary to allow joining and to obtain proper alignment.

On all steel-to-steel connections, a helical spring washer shall be installed on the inside of every nut. On all steel-to-wood connections, a pal nut shall be installed on the outside of every nut.

### 6.20 Structure Bonding

Structure bonding shall be installed in accordance with the Drawings. Specifically, refer to the General Construction Notes, 1407-T-1300 and the Structure Drawings. Where there is shield wire grounding present on the structure, the bonding shall be connected to the ground wire.

### 6.21 Structure Grounding

Structure grounding shall be installed in accordance with the Drawings. Structure grounding must be installed at all 24 structures that have overhead shield wires. There are two different types of grounding to be employed at structures:

- Groundwells – 9 structure locations
- Driven ground rods – 15 structure locations

In addition to structures where overhead shield wire is used, all structures with steel crossarms and/or crossbraces should be grounded to achieve a minimum resistance of 25 ohms.

Refer specifically to the General Construction Notes (1407-T-1300), grounding details drawing (1407-T-4450) and the structure data sheet (1407-T-1400) for structure locations.

# 7 CONDUCTOR INSTALLATION

## 7.1 General

All conductors shall be strung using sighted sag stringing methods. Unless otherwise specified, conductor stringing shall be conducted in accordance with IEEE Standard 524 - Guide to the Installation of Overhead Transmission Line Conductor.

Cable suppliers shall be consulted prior to installation for any additional care, handling, or stringing requirements not outlined in this specification.

## 7.2 Conductor Data and Applications

The cables used on this project are listed below. The sag and tension drawings shall be referenced for specific sag and tension values.

- Conductor: 266.8 Partridge ACSR
- ADSS: 24-fibre ZTT OFC-24 G.652D-FASA-S1 (200m span)
- OHSW: 266.8 Partridge ACSR

## 7.3 Construction Equipment

All operations shall be performed using equipment and tools which will not damage the conductor, hardware, or other materials.

**a) Stringing Sheaves**

The minimum root diameter (MRD) of stringing sheaves shall be calculated as follows:

- For conductor angle changes up to 25° => MRD = 15 x Conductor Diameter
- For conductor angle changes over 25° => MRD = 20 x Conductor Diameter (one sheave) OR 15 x Conductor Diameter (two sheaves)

Conductor angles are the combination of horizontal line angle and vertical conductor dip.

All sheave wheels shall be marked with the manufacturer's safe working loads. All sheaves shall have elastomer lined grooved and be carefully cleaned and lubricated so that they remain free running. If any sheaves are not free running or are not suitable for any reason, they shall be removed from the site. Installation sheaves shall not be relied on to ground the conductor or pulling ropes.

**b) Torque Wrenches**

Calibrated torque wrenches shall be used to tighten bolts on the insulator and conductor hardware.

**c) Pullers, Tensioners, and Reel Trailers**

Stringing equipment shall have the capacity to provide the tensions listed in the stringing data. All tensioner grooves, conductor guides, and fairleads shall be coated with a neoprene, urethane, elastomer, or equivalent protective covering which shall be maintained in good condition during the work.

Tensioner frames and carriers as well as reel trailers shall be provided with protection to prevent damage to conductor during threading or during periods when the conductor may become slack.

**d) Grips and Swivels**

Grips and swivels shall be used for the specific types and sizes of conductor and maintained in a clean, undamaged condition.

**e) Compressing Equipment**

Compression splicing of conductor shall be completed by hydraulic press or implosive sleeves. Implosion sleeves are the preferred method of compression splicing. Presses shall be maintained in good working order and capable of operating steadily at the required pressure. The presses shall be compatible with the dies and shall close fully so that the matching die faces bear uniformly on one another during the extrusion process. Dies shall be in good condition, in matched sets, and properly labeled.

**f) Rigging**

All construction lines, slings, shackles, and similar equipment shall satisfy applicable safety standards.

**g) Thermometers**

All sagging thermometers shall be accurately calibrated for the full range of sagging temperatures.

**h) Insulator Lifters**

Lifters specifically designed and built for the type of insulators being installed shall be used for handling insulator strings up to the structures. During the handling process, the top insulator shall be secured to the lifeline to prevent excessive movement.

## 7.4 Cable Care

Prior to pulling conductor, the inside edge of conductor reels shall be inspected for surface irregularities. Rough edges shall be smoothed out to prevent conductor damage. The conductor shall not contact the ground or abrasive surfaces. The conductor shall be suitably protected adjacent to snubbing clamps and rigging cables. Free ends behind the snubbing clamps shall be neatly coiled and placed on protective matting. Particular care should be exercised at all times to ensure that the conductor does not become kinked, twisted, abraded, or damaged in any way. Jumper conductors, especially when coiled, shall not contact the ground or other abrasive surfaces.

## 7.5 Conductor Damage and Repair

Any damage to the conductor shall be reported immediately to the Owner's Representative who will decide whether the conductor shall be repaired or replaced. All repairs or replacement of damaged conductor shall be made as follows:

1) **Minor Damage**: Any minor scratches, marks, and indentation in outer strands. Correction: light hand smoothing with a polishing agent approved by the Owner's Representative.

2) **Moderate Damage**: Any damage which is more than 3 m from any conductor fitting and which is too severe or occurs over too great a length to be repaired by hand finishing, or which reduces the strength of the outer layer of conductor by an amount equivalent to not more than

three broken strands. Any strand which has lost more than 50 percent of its cross-sectional area is considered equivalent to a broken strand. Conductor fittings include but are not restricted to strain clamps, suspension clamps, and compression sleeves for splices, hold-down weights, armour rods, and patch rods. Correction: hand-smooth the damage area to remove projections and apply preformed patch rods.

3) **Severe Damage**: Damage to inner layers, more than the equivalent of three damaged or broken outer strands, or damage within 3 m of conductor fittings or other repairs. Correction: cut out damaged portion and replace with new conductor and compression splice sleeves.

Conductor, compression joints, and patch rods to repair or replace damaged conductor shall be supplied by the Contractor.

### 7.6 Insulators, Insulator Hardware, and Conductor Hardware

Insulators shall not be uncrated until they are ready to be installed at each structure site. Insulators shall be thoroughly cleaned immediately prior to installation. Mud, grime, oily films, and other foreign material shall be completely removed from all surfaces.

The type of insulator assembly and the number and position of hold-down weights at each structure is shown in Contract Documents.

Insulators with any of the following defects shall be rejected.

1) Glass Insulators: chips in the insulator skirts, cracks, or top surface chips with sharp edges.
2) All Insulators: damage to metal caps or loose or damaged grout.
3) Composite Insulators: rips, tears, and punctures of the sheds, exposed rod, any breakdown of the weather protective system, rough handling, choking during lifting, bending, and over stressing.

### 7.7 Dampers

1) Vibration Dampers are not required on conductors or OHSW.
2) ADSS shall have spiral vibration dampers (SVD) installed according to the Drawings and the manufacturer's installation specifications.
    a) ZTT (SVD) part number: FLP-1310

### 7.8 Compression Joints and Splices

Compression joints shall be installed in accordance with the Contract Documents. Conductor joints shall be of the compression or implosion type. The Contractor shall provide the proposed method for installation and quality control for both compression and implosive joints. The number of joints shall be kept to a minimum. Joints shall be located at least 10 m from suspension clamps or dead-end fittings.

The pressing of compression fittings shall only be completed in the presence of the Owner's Representative. Unsatisfactory joints shall be cut out and replaced. During the pressing of compression joints, the conductor shall be protected from damage by the use of suitable ground sheets, preformed plastic line guards, or both.

The Contractor shall provide and use a "go-no go" gauge for each size of dies to check at least one press on each compression joint.

Compression joints shall be made to maintain a straight alignment. Joints may be pulled though sheaves, but a joint will be rejected if it deviates from a straight line by more than the diameter of the conductor. No straightening of compression joints is permitted. Subsequent operations which may cause bending are not permitted except as approved by the Owner's Representative.

Implosive joints shall be installed in accordance with the manufacturer's specific installation procedure supplied for each type of implosive connector. After an implosion operation, any joint with visible damage will be deemed unacceptable. Marks made during conductor end preparation shall be at the conductor end within 10 mm.

Explosive operations are subject to all relevant federal, provincial, and municipal regulations respecting the transportation, storage, handling, and use of explosives. Further, the Owner's Representative shall be advised of the intention to use explosives/implosives at least 5 working days before such work is commenced.

The use of "Automatic" splices is strictly prohibited.

## 7.9 Stringing

The Owner's Representative shall provide sag and tension data which includes span lengths, sags, and tensions in five-degree increments.

The Contractor shall provide the Owner's Representative with the location of any temporary stringing dead-ends. The location of temporary dead-ends is subject to the acceptance of the Owner's Representative.

During stringing, the sag of the conductor in any span shall not be less than the sighted sag in sheaves specified in the sag data for the span and the tension shall not exceed the tension specified in the tension data.

Stringing operations shall be performed during daylight hours only unless otherwise approved by the Owner's Representative.

If stringing is stopped for an extended period, the snubbed-off conductors and ADSS will be permitted at permanent dead-end structures only, unless otherwise accepted by the Owner's Representative. All temporary snub points shall be at least 75 m away from the structure and at no time may the slope at the structure of the snubbing guy form an angle with the horizontal greater than 20° at transmission structures and 10° at station terminal structures. Temporary guys and anchors shall be removed after use and disposed of by the Contractor.

When reeving the bullwheels of a tensioner with the conductor entering and leaving the wheel from the top and facing in the direction of pull, the conductor shall enter from the left and leave from the right for right-hand lay (standard for ASC, ACSR, and AACSR).

As a minimum precaution, the conductor shall have running grounds at the first and last sheave of a pull. The Contractor's safety management program shall address these preparations in detail. In addition, the Contractor shall have safety watcher(s) assigned during the stringing operation to maintain line of sight.

## 7.10 Sagging

### a) General

Sagging shall be completed only after the entire length of conductor has been pulled through a section. Sagging shall be done progressively from one end of the section towards the opposite end to work the conductor slack back to one end and recover as much conductor as possible. Therefore, each span shall be sagged and hardware applied before the Contractor may sag the adjacent span. The Contractor should note the following:

1) Sag data will be supplied to the Contractor within 14 days after the receipt of his written request. Sag data sheets will contain the following information: structure number and type, span length, mid span sag, and conductor stringing tension. The sag data will be supplied for stringing temperatures in increments of 5 $^{o}$C unless otherwise agreed to by the Owner's Representative. Each request shall include a tabulation of the proposed stringing sections, sag sections, the location of snub points, temporary dead-ends, and temperatures.
2) The sags provided on the sag data sheets are based on sagging the entire section between dead-end structures in one operation.
3) The conductor shall be sagged in accordance with the values shown on the sag data sheets if the sagging operation is done within 5 hours of the completion of stringing. If the conductor shall be left in sheaves for more than 5 hours, a creep correction shall be made.
4) Sag data is based on structure centreline span lengths. Where there are large line angles which result in longer or shorter span lengths for the outer conductors, the sag of the outer conductors shall be calculated as follows:

$$\text{Outer conductor sags} = \left(\frac{\text{Outer conductor span length}}{\text{Centreline span length}}\right)^2 \text{x Centre phase sag}$$

Under special circumstances, the Owner's Representative may issue sag data for all three phases, and where standard sagging methods cannot be applied, special sag data will be supplied.

1) The length of conductor sagged in one operation shall be limited to the length that the Owner's Representative agrees can be sagged satisfactorily.
2) Sagging shall not be performed when, in the opinion of the Owner's Representative, the weather may prevent satisfactory results.
3) Dead-end structures will deflect when conductors are attached only to one side. Because of this, the Contractor shall, prior to making cuts or attaching dead-ends, correct the sags in spans adjacent to dead-end structures after the conductors have been temporarily attached to both sides.

**b) Sag Control Spans**

The control spans shall be as close as possible to the average span as per IEEE-524. The selection of control spans for sag measurements shall be approved by the Owner's Representative. The minimum number of control spans is:

| Length of Sag Section | Minimum Control Spans |
|---|---|
| 1 to 3 spans | 1 |
| 4 to 6 spans | 2 |
| 7 to 14 spans | 3 |
| 15 to 26 spans | 4 |

**c) Sag Tolerances**

Unless otherwise approved by the Owner's Representative, the difference between the specified sag and the actual sag shall not exceed plus or minus 100 mm.

**d) Sag Report Forms**

On completion of sagging of a section, the Contractor shall submit the measured sags of each control span to the Owner's Representative. These forms shall be submitted within 72 hours of completing the sag operations.

**e) Marking**

Immediately after sagging a section within tolerance, the Contractor shall clearly mark all conductors to show their intersection with a plumb plane through the transverse centreline of the structure.

### 7.11 Clipping-In

1) 14 days prior to the commencement of clipping-in, the Contractor shall submit details of the proposed methods and equipment to the Owner's Representative for approval.
2) After clipping-in, insulator strings shall be within 150 mm of plumb measured at the conductor level under the centreline of the suspension clamp. The plumb plane is through the transverse centreline of the structure or crossarm, whichever is applicable.
3) Where the conductor is temporarily snubbed-off, conductor tensions between successive sagging operations shall be equalized by the use of back snubs so that insulator suspension assemblies will assume a vertical position when the entire section is clipped-in.
4) Conductors shall not be clipped-in at structures where the conductor is temporarily snubbed-off.
5) The insulators shall be protected from contact with metal including metal ladders. Ladders used for clipping-in shall hang free of the insulators. Alternatively, non-metallic protective devices may be used to prevent direct contact.
6) After clipping-in, hold-down weights may be required at specific structures as specified on the structure data sheet (1407-T-1400). Hold-down weights are in 45 kg units and shall be installed in 90 kg total units (two weights) equalizing the load on either side of the suspension clamp to a maximum of 270 kg total units (six weights).
7) Approval by the Owner's Representative of a section will not be given until a section has been clipped-in and determined to be within the specified sag tolerances. A section of line is between two dead-end structures.

### 7.12 Jumpers

Details of the jumper requirements are shown on the Drawings. To limit induced voltages and for safety at ground snub locations, jumpers shall not be connected until all conductors have been installed and authorization to close jumpers is provided in writing by the Owner's Representative.

### 7.13 Phasing

Phasing shall follow the phasing drawings. The Contractor shall confirm the phasing of existing circuits before connecting to them.

## 8 ADSS INSTALLATION

### 8.1 Scope

Fibre optic cable will run on the 69 kV transmission line from the Northwestel equipment in the McQuesten Substation to the Northwestel equipment mounted in the Eagle Gold Substation. This contractor will supply and install the fibre optic cable, as specified herein, on the Eagle Gold 69 kV transmission line between the McQuesten Substation to the Eagle Gold Substation.

- This contractor shall terminate the fibre optic cable inside the Eagle Gold Substation E-House in a terminating panel supplied by this contractor. Northwestel will make the final connection to their equipment.
- To facilitate running the fibre into the Eagle Gold mine site substation E-House, the Eagle Gold Substation contractor will run 2 inch PVC conduit underground, with pull boxes as appropriate, from the E-House to the wood pole terminal structure ahead of the substation main incoming circuit breaker (circuit switcher). This Contractor shall install a terminal box on this structure and pull the fibre from this point into the E-House. Whereas a loop of extra cable is to be left on the structure it is believed there is no need to have splices at this point, if sufficient cable is left to pull into the E-House.
- At the McQuesten Substation, the fibre will be installed and tested from the local Northwestel microwave tower up to the point where it connects to the Eagle Gold fibre on the first pole of the outgoing 69 kV transmission line by others. The McQuesten Substation contractor will run fibre in PVC conduit from the substation control building to the splice box on the first transmission line structure, 0/10A (outside the substation yard) as referenced above. This contractor will splice the cable at that point. The fibre optic cable coming out of the McQuesten Substation will be 24 fibre, single mode ZTT ADSS type "OFC–24 G.652D–FASA–S1".
- For arrangement of equipment at the McQuesten Substation, refer to ATCO Electric drawing No. S258-D-E400 – 1 "S258 McQuesten Substation, Electrical Equipment and drawing No. S258-D-E402 – 1 "S258 McQuesten Substation, Control Building, Equipment Layout. (These drawings will be supplied upon request.)
- As detailed under testing, this contractor shall not only test the cable from the Eagle Gold Substation up to the terminal box on the first transmission line structure outside the McQuesten Substation, but shall also test the entire run from the terminating panel in the Eagle Gold mine site substation E-House to the end of the run in the source McQuesten Substation E-House fibre panel.
- Unless otherwise specifically specified otherwise herein, the Contractor shall provide all necessary equipment, labour, material, and testing services as required to provide a complete and operable fibre optic cable system in accordance with these specifications.

- An experienced subcontractor shall be employed for all fibre splicing and testing. This subcontractor shall be named in the Tender and shall meet the approval of the Owner's Representative.

## 8.2 Methods and Materials

### 8.2.1 Fittings and Hardware

- Fittings and hardware shall be provided as shown on the drawings and specified herein.
- Terminal and suspension clamps shall be designed to prevent damage to the cable under the most expected severe loading. Suspension clamps shall allow a limited amount of slip if there is a significant amount of differential loading.
- ADSS dampers shall be provided to counteract aeolian vibration as / where shown on the drawings.

### 8.2.2 Installation Methods

- Two basic installation methods are allowed being:
    1) Moving Drum Method where the cable is pulled directly from the cable drum mounted on a moving vehicle as it drives along the pole line. The cable drum must be mounted on a proper support to allow easy cable pay off.
    2) Stationary Drum Method where the cable is pulled along the cable route through temporary support hardware installed for this purpose.
- In either method, the proper measuring of tension is critical for a safe, damage free, installation of the aerial cable.
- For installation work, temporary support hardware must be selected and placed so as to maintain the cable's minimum bend radius throughout the route and to prevent the cable's entanglement on obstructions in the ROW, etc.
- Note, when long lengths of cable need to be unreeled, there is a danger that the weight of the coils may damage the cable at the bottom. This can be prevented by spreading the cable out into several figure-eight coils.
- The minimum bend radii for both tensioned and un-tensioned conditions shall be as per the cable manufacturer's specification sheet. However, note as a general rule, the minimum bend radius for a cable is as follows (bend radii shall be as per the cable vendor but in no case less than):
    - Cable under load - 20 times the nominal outside diameter of the cable
    - Cable under no load -10 times the nominal outside diameter of the cable

### 8.2.3 Splices

- Splices shall be made in splice boxes.
- Splice locations shall be placed to allow for the longest possible continuous cable spans and a minimum number of splices. On the other hand, the splice locations should be reasonably accessible. The Contractor shall mark the proposed splice locations on the transmission line drawings and obtain approval from the Owner's Representative before proceeding.
- Splice boxes conforming to IP 55 shall be mounted into the poles approximately 5 m above the ground. The cable shall be suitably fastened to the poles. In each splicing location at least 10 m of free cable must be included for future splicing.

- Splice boxes shall be fitted with suitable cable clamping glands at its base for cable strain relief. Cable entries shall be located on the underside of the splice box and shall be easily removable to ground level. All cable entries used or unused, shall be weather proof and sealed but still accessible for future use and weatherproof sealing. The box shall be suitably dimensioned to accommodate the excess loops of optical fibre associated with each splice.
- All fibre splices shall be of the fusion type. Fusion splicing shall be carried by trained personnel using automatic fusion splicing equipment designed for the fibre type. The accurate alignment of fibre cores, prior to splicing, shall be verified using a technique that monitors the optical power transmitted across the splice interface.
- Fibre splicing shall cause a minimum increase in attenuation. The fibre splicing shall be carried out using arc fusion welding techniques. Each splice shall be inspected and tested, after installation, within the splice housing but before the housing is closed and sealed. Fusion splice optical losses shall average not more than 0.1 dB per splices. No single splice loss shall exceed 0.15 dB.
- Each optical fibre for identification shall be colour coded corresponding to sequential numbering which shall be recorded on as built drawings.
- Fibre length between splices shall be not less than 5 km, so as to avoid undue splice losses.

### 8.3 Testing

ADSS cable shall be tested in accordance with IEEE Standard 1222:2011 “Testing And Performance For All-Dielectric Self-Supporting (ADSS) Fiber Optic Cable For Use On Electric Utility Power Lines”. Refer to section 6 “Tests and Requirements”. All 24 fibres shall be tested.

Refer also to IEC Standard 60794 (or latest edition) “Basic Optical Cable Test Procedure”.

#### 8.3.1 Field Tests

Field tests shall include:

- Visual inspection of all splices
- Clean and microscope inspection of all connectors
- Measure the optical power (db) loss in each fibre of the cable using a laser source
- Field (acceptance) tests shall be carried out in accordance with the referenced standards
- Field acceptance tests shall also be in accordance with RUS Bulletin 1753-601a “Acceptance Testing” starting on page 38 (bulletin available upon request)

Complete, signed, tests reports shall be provided to the Owner prior to the testing subcontractor leaving site. Electronic and hard copies of the reports shall be provided.

### 8.4 ADSS Commissioning

The fibre optic cable must be terminated and tested by a specialist company, approved by the Owner.

## 9 COMMISSIONING

Prior to energization of the transmission line, the Contractor must submit to the Owner’s Representative their commissioning plans for the transmission line.

## 9.1 Pre-Commissioning

The pre-commissioning work includes all necessary testing and inspection necessary to confirm the line is complete and ready for energization.

The contractor shall:

- Provide final certified copies of all QA / QC documentation including test results.
- Confirm that the length shield conductor at end is properly grounded at each pole and using fall of potential method, measure the combined structure group grounds (to absolute earth) and issue certified report.
- Provide accurate measurements of all as built highway and road crossing clearances, with temperature when each measurement was made.
- Confirm conformance with the requirements of IEEE 1441 *Guide for Inspection of overhead Transmission Line Construction*.
- Patrol line and confirm it is ready and safe for energization and that all phase conductor grounds have been removed.
- With open disconnects at each end of the line, megger (a) each phase of the line phase to ground and (b) between all three phases, with a minimum 5 kV megger and issue report. Certify no grounds on the line and confirm that that the three measurements phase to ground are similar and the three measurements phase to phase are similar.
- Carry out all necessary work as required to ensure the safe energization and operation of the 69 kV line.

The Owner's Representative, shall have the right and opportunity to be present and observe the pre-commissioning Inspections and Tests. Provide adequate notice.

The Contractor shall correct all deficiencies at his cost.

## 9.2 Commissioning

The line commissioning covers the actual energization of the 69 kV line.

The contractor shall include an allowance in his tender for 2 qualified and certified (in the Yukon) linemen for a total of 40 person hours (20 hours each) to assist the Owner in commissioning. Quote optional per diem rates if additional time required and also quote optional per diem rates for travel time and expenses to the Eagle Gold site, applicable in the event the final commissioning work is to be carried out after substantial completion of the line.

The Contractor's personnel shall:

- Review draft line commissioning switching procedures provided by the Owner's Representative and agree on final procedures. All personnel involved in commissioning to sign off.
- Participate in review of YEC operating orders for the Eagle Gold 69 kV line.
- Agree on lockout procedures for commissioning.
- Agree on communication procedures for commissioning.
- Participate in Job Hazard Analysis (JHA).
- Review and confirm that the McQuesten supply substation and the Eagle Gold receiving substation have both been signed off as complete for ready for line the transmission line commissioning.

### 9.3 Substantial Completion

Substantial completion occurs when:

- The Project is mechanically, electrically, and structurally constructed in accordance with the drawings and the applicable codes and standards.
- The Project is functionally complete to the extent necessary for initial operation, adjustment, and testing.
- Contractor has provided to Owner all Contractor Deliverables including any and all specified spare materials.
- Clearing is complete and all “danger tress” have been removed.
- The Owner’s Representative has confirmed that any outstanding deficiencies are minor in nature and may be safely completed after “substantial completion” with the line energized.
- Pre-commissioning work is complete.

Although not preferred, Substantial Completion of the fibre optic system may be separated from that of the transmission line and occur at a later date due to coordination and scheduling of connection at station ends and testing with other stakeholders. Contractors should allow for this in their tender pricing.

**END OF SECTION**

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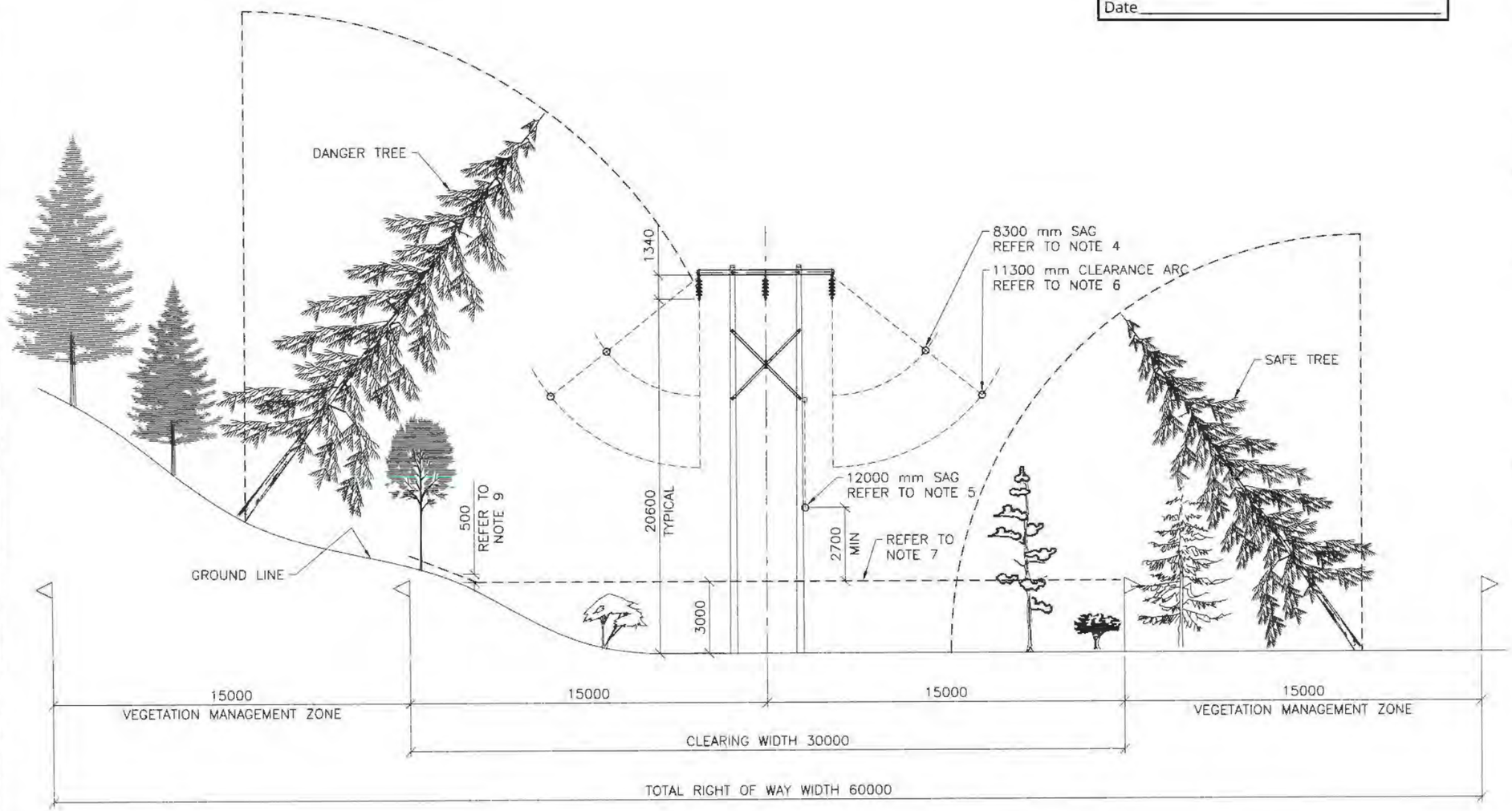
**FORBES BROS** **AS-BUILT**

CHANGES REQUIRED YES ☐ NO ☐

Name (Print) _____

Signature _____

Date _____




TYPICAL 69 KV VEGETATION CLEARING CROSS SECTION

NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETRES (mm) UNLESS OTHERWISE NOTED.
2. REFER TO DRAWINGS 1407-T-5000 AND 1407-T-5005 FOR RIGHT-OF-WAY DIMENSIONS.
3. REFER TO THE CONTRACT SPECIFICATIONS FOR DETAILED CLEARING REQUIREMENTS.
4. CONDUCTOR MAX SWING IS BASED ON 266.8 KCMIL PARTRIDGE ACSR AT 400 Pa WIND CONDITION. BLOW OUT ANGLE IS 51° AND MAX SAG IS 8300 mm.
5. ADSS SAG IS CALCULATED UNDER WET SNOW CONDITION. 51 mm RADIAL WET SNOW. MAX SAG IS 12000 mm.
6. THE DANGER TREE CLEARANCE ARC IS THE SUM OF MAXIMUM CONDUCTOR SAG FOR THE GIVEN WEATHER CONDITION PLUS 3000 mm CLEARANCE. ALL TREES WHICH MAY ENCROACH THIS ARC SHALL BE REMOVED BY THE CONTRACTOR.
7. WITHIN THE 30 m WIDE CLEARED ZONE, THE CONTRACTOR MAY LEAVE VEGETATION THAT IS LESS THAN 3000 mm IN HEIGHT AND THAT IS NOT LIKELY TO GROW SUCH THAT IT INTERFERES WITH CONDUCTOR OR COMMUNICATION CABLE. AREAS AROUND STRUCTURE SITES AND WHERE REQUIRED TO FACILITATE CONSTRUCTION ACTIVITIES MUST BE COMPLETELY CLEARED AND GRUBBED.
8. REFER TO THE CLEARING SPECIFICATIONS FOR RESTRICTIONS ON CLEARING NEAR WATERWAYS AND WETLANDS.
9. THE MAXIMUM HEIGHT OF STUMPS AND VEGETATION ON STEEP SIDE HILLS WITHIN THE 30 m CLEAR ZONE IS 500 mm.
10. STRUCTURE HEIGHT AND CONFIGURATION SHOWN ARE TYPICAL.
11. THE CONTRACTOR SHALL CARRY OUT ALL CLEARING AS REQUIRED TO CONSTRUCT THE TRANSMISSION LINE, INCLUSIVE OF ACCESS ROAD AND TRACKS.

ISSUED FOR CONSTRUCTION

PERMIT TO PRACTICE
CLEAN ENERGY CONSULTING INC.
SIGNATURE _____
Date May 11, 2018
PERMIT NUMBER: PP424
Association of Professional Engineers of Yukon

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Clean Energy CONSULTING INC. www.cleanenergyconsulting.ca

WN BRAZIER ASSOCIATES INC

SEAL: PROFESSIONAL ENGINEER YUKON TERRITORY MATTHEW OBEE May 11, 2018

EAGLE GOLD PROJECT

69 kV TRANSMISSION LINE

VEGETATION CLEARING CROSS SECTION – H-FRAME

| PROJECT No. | DRAWING No. | REV. |
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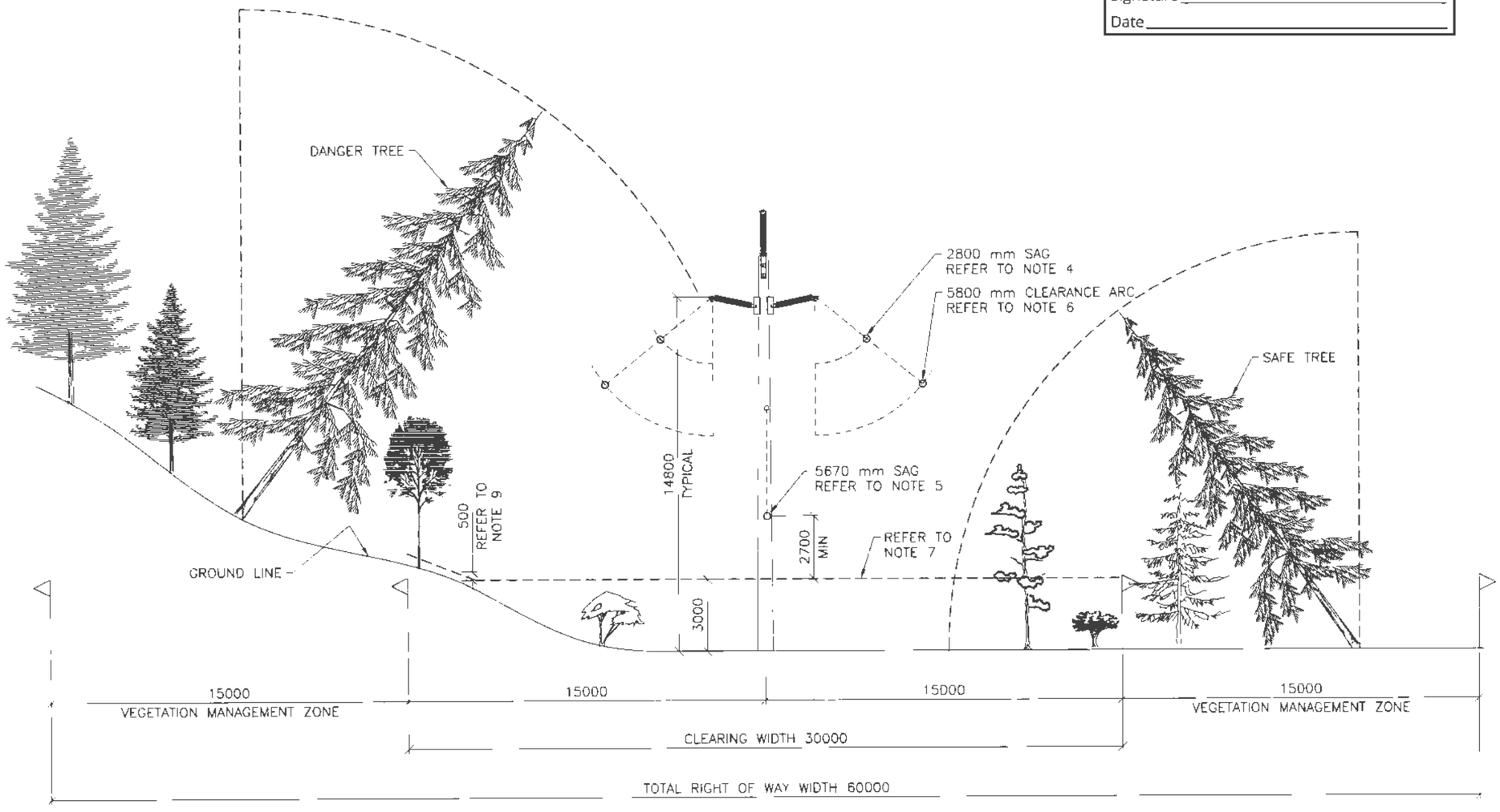
**FORBES BROS** **AS-BUILT**

CHANGES REQUIRED YES ☐ NO ☐

Name (Print) _____

Signature _____

Date _____




TYPICAL 69 KV VEGETATION CLEARING CROSS SECTION

NOTES:

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5. ADSS SAG IS CALCULATED UNDER WET SNOW CONDITION, 51 mm RADIAL WET SNOW. MAX SAG IS 5670 mm.
6. THE DANGER TREE CLEARANCE ARC IS THE SUM OF MAXIMUM CONDUCTOR SAG FOR THE GIVEN WEATHER CONDITION PLUS 3000 mm CLEARANCE. ALL TREES WHICH MAY ENCROACH THIS ARC SHALL BE REMOVED BY THE CONTRACTOR.
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ISSUED FOR CONSTRUCTION

PERMIT TO PRACTICE
CLEAN ENERGY CONSULTING INC.
SIGNATURE _____
Date May 11, 2018
PERMIT NUMBER: PP424
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CLIENT StrataGold Corporation

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| CHECKED | MEO |
| APPROVED | MEO |

Clean Energy CONSULTING INC.
www.cleanenergyconsulting.ca
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SEAL PROFESSIONAL ENGINEER YUKON MATTHEW OBEE TERRITORY May 11, 2018

EAGLE GOLD PROJECT
69 kV TRANSMISSION LINE
VEGETATION CLEARING CROSS SECTION – PT STRUCTURE

| PROJECT No. | DRAWING No. | REV. |
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| 1407 | 1407-T-5010 | 0 |

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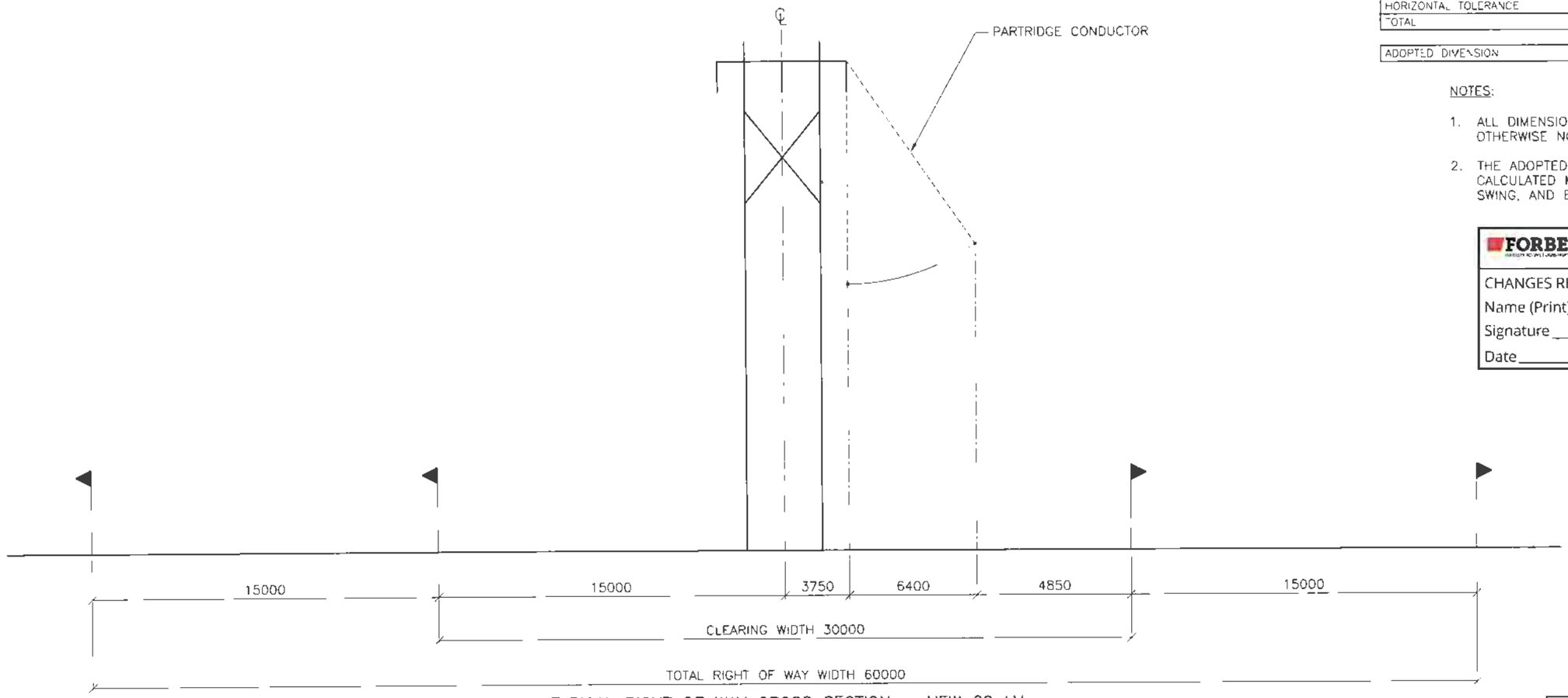


TYPICAL RIGHT OF WAY CROSS SECTION – NEW 69 kV
FOR H-FRAME STRUCTURES WITH SPANS UP TO 170 m

| | |
|---|---|
| CIRCUIT NAME | EAGLE GOLD 69 kV LINE |
| CONDUCTOR | 266.8 KCMIL PARTRIDGE ACSR |
| 90TH PERCENTILE SPAN LENGTH | 170 m |
| TENSION @ 400 Pa WIND AND 40°C | 4900 N |
| INSULATOR LENGTH | 1340 mm |
| SAG @ 400 Pa WIND AND 40°C | 8900 mm |
| CONDUCTOR SWING ANGLE | 51° |
| HORIZONTAL DISPLACEMENT | 6400 mm |

| EDGE DISTANCE | |
|---|---|
| CENTER TO OUTSIDE PHASE | 3750 mm |
| HORIZONTAL CONDUCTOR DISPLACEMENT | 6400 mm |
| REQUIRED ELECTRICAL CLEARANCE | 3820 mm |
| HORIZONTAL TOLERANCE | 300 mm |
| TOTAL | 14270 mm |

| | |
|---|---|
| ADOPTED DIMENSION | 15000 mm |

NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETRES (mm) UNLESS OTHERWISE NOTED.
2. THE ADOPTED RIGHT OF WAY WIDTH EXCEEDS THE CALCULATED MAXIMUM PHASE SPACING, CONDUCTOR SWING, AND ELECTRICAL CLEARANCE VALUES.

FORBES BROS AS-BUILT

CHANGES REQUIRED YES ☐ NO ☐

Name (Print) _____

Signature _____

Date _____

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CLIENT StrataGold Corporation

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| DRAWN | DV |
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WN BRAZIER ASSOCIATES INC

SEAL: PROFESSIONAL ENGINEER YUKON TERRITORY MATTHEW OBEE May 11, 2018

# EAGLE GOLD PROJECT

69 kV TRANSMISSION LINE

RIGHT OF WAY CROSS SECTION – NEW 69 kV H-FRAME 170 m SPAN

| PROJECT No | DRAWING No. | REV. |
|---|---|---|
| 1407 | 1407-T-5005 | 0 |

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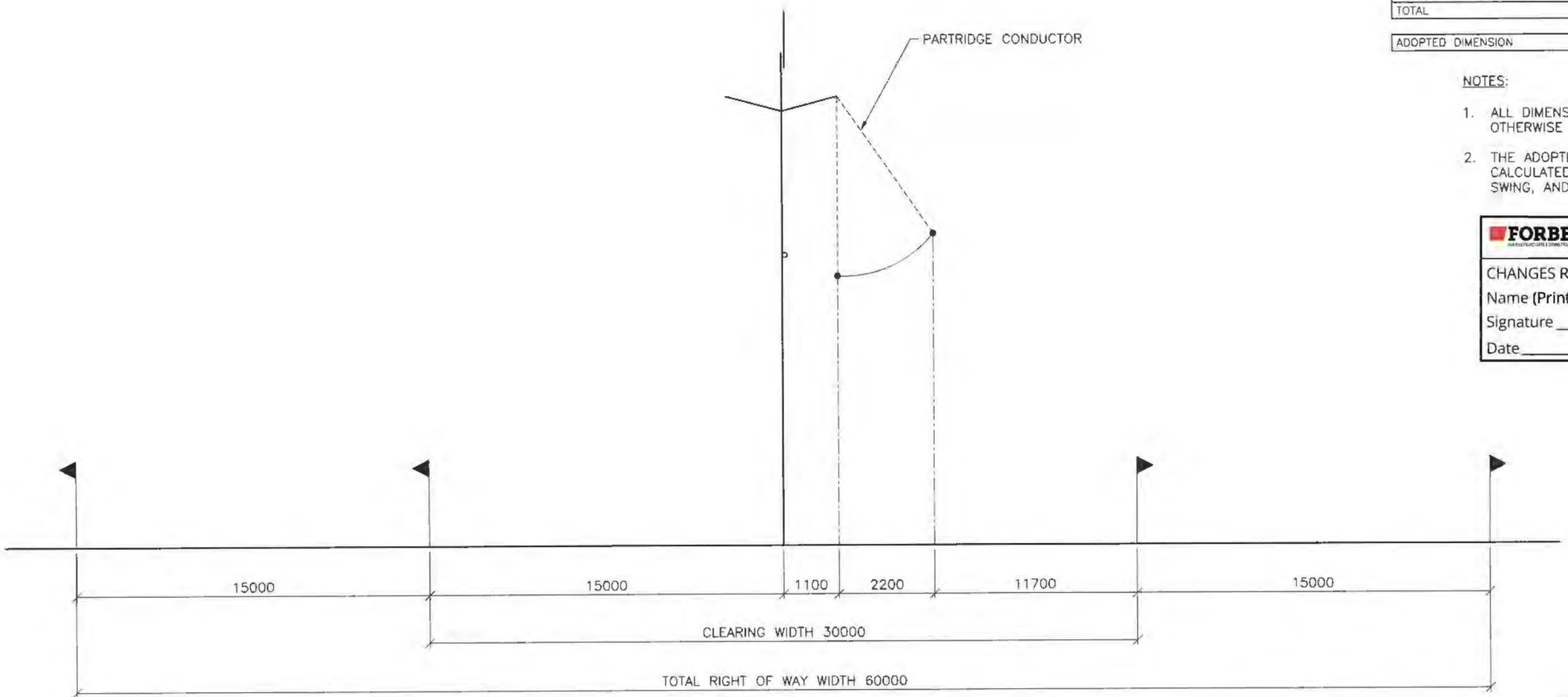
| | |
|---|---|
| CIRCUIT NAME | EAGLE GOLD 69 kV LINE |
| CONDUCTOR | 266.8 KCMIL PARTRIDGE ACSR |
| 90TH PERCENTILE SPAN LENGTH | 105 m |
| TENSION @ 400 Pa WIND AND 40°C | 4400 N |
| INSULATOR LENGTH | 0 mm (POST INSULATOR) |
| SAG @ 400 Pa WIND AND 40°C | 2800 mm |
| CONDUCTOR SWING ANGLE | 51° |
| HORIZONTAL DISPLACEMENT | 2200 mm |

| EDGE DISTANCE | |
|---|---|
| CENTER TO OUTSIDE PHASE | 1100 mm |
| HORIZONTAL CONDUCTOR DISPLACEMENT | 2200 mm |
| REQUIRED ELECTRICAL CLEARANCE | 3820 mm |
| HORIZONTAL TOLERANCE | 300 mm |
| TOTAL | 7420 mm |

| | |
|---|---|
| ADOPTED DIMENSION | 15000 mm |




TYPICAL RIGHT OF WAY CROSS SECTION – NEW 69 kV
FOR POST TANGENT STRUCTURES WITH SPANS UP TO 100 m

NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETRES (mm) UNLESS OTHERWISE NOTED.
2. THE ADOPTED RIGHT OF WAY WIDTH EXCEEDS THE CALCULATED MAXIMUM PHASE SPACING, CONDUCTOR SWING, AND ELECTRICAL CLEARANCE VALUES.

FORBES BROS AS-BUILT

CHANGES REQUIRED YES ☐ NO ☐

Name (Print) _____

Signature _____

Date _____

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CLEAN ENERGY CONSULTING INC.
SIGNATURE
Date May 11, 2018
PERMIT NUMBER: PP424
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CLIENT StrataGold Corporation

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|---|---|
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SEAL: PROFESSIONAL ENGINEER YUKON TERRITORY MATTHEW OBEE May 11, 2018

EAGLE GOLD PROJECT

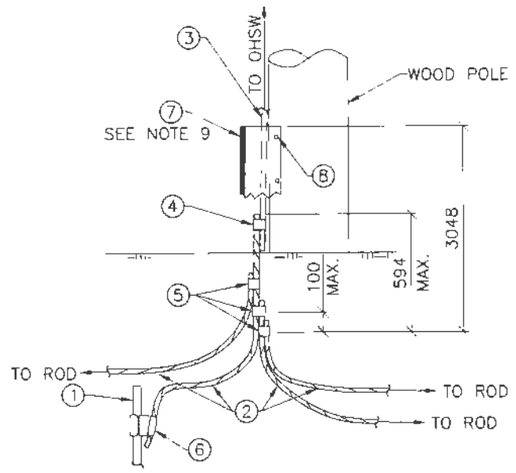
69 kV TRANSMISSION LINE

RIGHT OF WAY CROSS SECTION – NEW 69 kV PT STRUCTURE TYPICAL

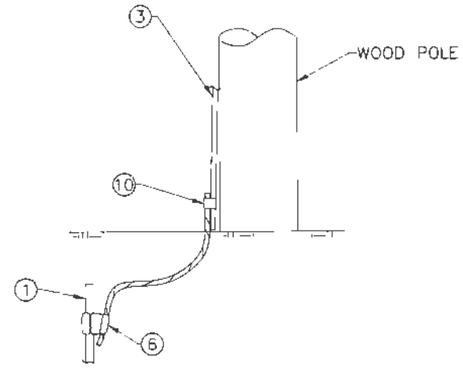
| PROJECT No. | DRAWING No. | REV. |
|---|---|---|
| 1407 | 1407-T-5000 | 0 |

NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETRES (mm) UNLESS OTHERWISE NOTED.
2. IN HIGHLY CORROSIVE SOILS, ALTERNATIVE GROUNDING SHALL BE SPECIFIED.
3. GROUND WIRE (ITEM 2) SHOULD BE BURIED A MINIMUM OF 300 mm.
4. AFTER THE INSTALLATION OF THE SPECIFIED GROUNDING, THE CONTRACTOR WILL MEASURE THE RESISTANCE-TO-GROUND (THE GROUNDING MUST BE DISCONNECTED FROM THE OVERHEAD SHIELD WIRE). THE GROUNDING ARRANGEMENT AT EACH STRUCTURE SHOULD HAVE A MEASURED SUMMER RESISTANCE OF LESS THAN 35Ω PRIOR TO CONNECTION TO THE OVERHEAD SHIELD WIRE. IF THIS CANNOT BE ACHIEVED, ADDITIONAL COUNTERPOISE OR RODS MAY BE REQUIRED, REFER TO THE ENGINEER Tower footing resistance at McQuesten substation shall be 13 ohms. All 4 ground rods with groundwells are required at each structure at the McQuesten end of the line (RFI-037 rev01)
5. BLASTING IS NOT PERMITTED FOR THE INSTALLATION OF GROUNDING.
6. ALL GROUNDING INSTALLATIONS SHALL BE WITHIN THE BOUNDARY OF THE RIGHT-OF-WAY AND NOT LESS THAN 22 m FROM THE GROUNDING FACILITIES OF THE OTHER CIRCUITS. ANY EXCEPTION REQUIRES PRIOR AUTHORIZATION FROM THE ENGINEER.
7. DO NOT DISTURB SPECIAL STRUCTURE DRAINAGE SYSTEMS IF THEY EXIST.
8. FOR GROUTING GROUND RODS USE SAE CONDUCRETE, ERICO GEM OR EQUIVALENT MIXED IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.
9. AFTER GROUNDING IS COMPLETED, INSTALL ITEM 7 WITH LOWER EDGE AT GROUND SURFACE. PROVIDE 10 ft (3048 mm) OF CABLE COVER OVER GROUND WIRE.
10. GROUNDWELLS ARE ONLY TO BE INSTALLED AS REQUIRED. REFER TO THE STRUCTURE DATA SHEET FOR GROUNDING TYPE. IF GROUNDWELLS ARE NOT REQUIRED:
    - THE GROUND RODS SHALL BE DRIVEN INTO EARTH SO THAT TOP OF ROD IS AT LEAST 300 mm BELOW GROUND LEVEL, OR,
    - WHERE ROCK IS ENCOUNTERED, REFER TO DETAIL 4.
11. GROUNDWELL INSTALLATION:
    - OPTIONAL 4" (100 mm) DIAMETER STEEL CASING PIPE MAY BE USED TO AUGER OUT THE INTERIOR SOIL/ROCKS, PREVENT CAVE-IN AND PUMP OUT THE UNDERGROUND WATER.
    - ENSURE THE REQUIRED DEPTH IS REACHED. PUMP OUT ANY UNDERGROUND WATER BEFORE INSTALLATION AND BACKFILLING.
    - INSERT THE GROUND ROD CONNECTED WITH THE GROUND WIRE TO THE BOTTOM OF THE HOLE.
    - ONCE THE ROD WITH THE CONNECTED GROUND WIRE IS AT THE REQUIRED DEPTH, POUR IN THE PRE-MIXED SAE CONDUCRETE, ERICO GEM OR SIMILAR (WITH LESS THAN 0.1Ω-m RESISTIVITY) AS PER THE MANUFACTURER'S INSTALLATION INSTRUCTIONS.
12. SINGLE GROUND ROD (SGR) INSTALLATION TO BE INSTALLED AT H-FRAME STRUCTURES WITH STEEL CROSSARMS AND CROSSBRACES WHICH DO NOT HAVE OVERHEAD SHIELD WIRE.




DETAIL 1
MULTIPLE GROUND ROD (MGR)




DETAIL 2
SINGLE GROUND ROD (SGR)
SEE NOTE 12

FORBES BROS **AS-BUILT**

CHANGES REQUIRED YES ☐ NO ☐
Name (Print) _____
Signature _____
Date _____

ISSUED FOR CONSTRUCTION

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SIGNATURE
Date May 11, 2018
PERMIT NUMBER: PP424
Association of Professional Engineers of Yukon

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| APPROVED | MEO |

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WN BRAZIER ASSOCIATES INC

SEAL: PROFESSIONAL ENGINEER YUKON TERRITORY MATTHEW OBEE May 11, 2018

EAGLE GOLD PROJECT
69 kV TRANSMISSION LINE
STANDARD GROUNDING DETAILS (SHEET 1 OF 2)

| PROJECT No. | DRAWING No. | REV. |
|---|---|---|
| 1407 | 1407-T-4450-1 | 0 |

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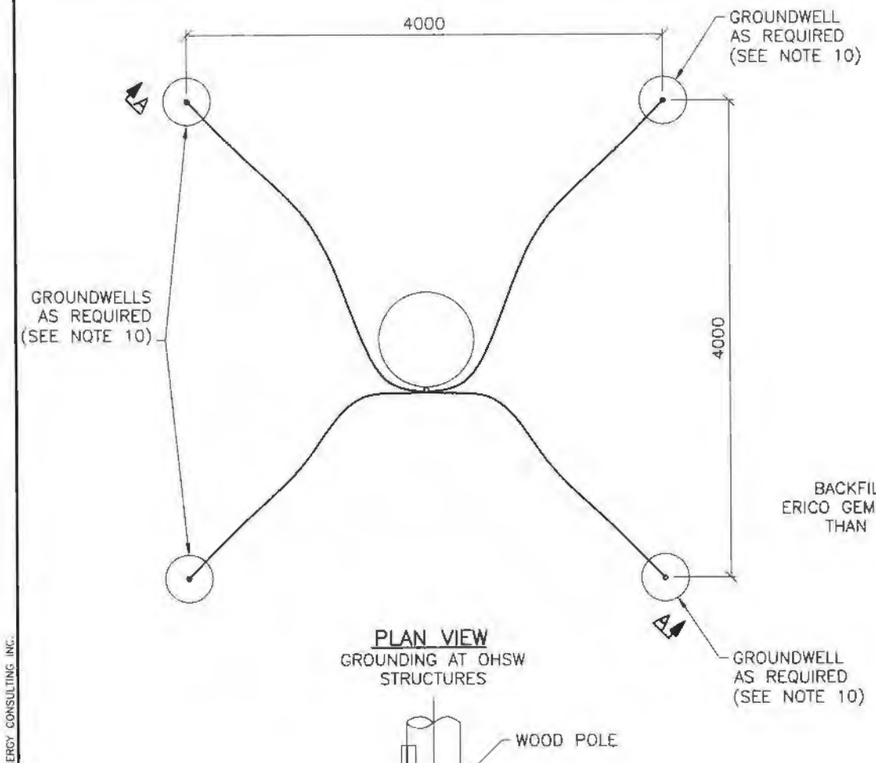
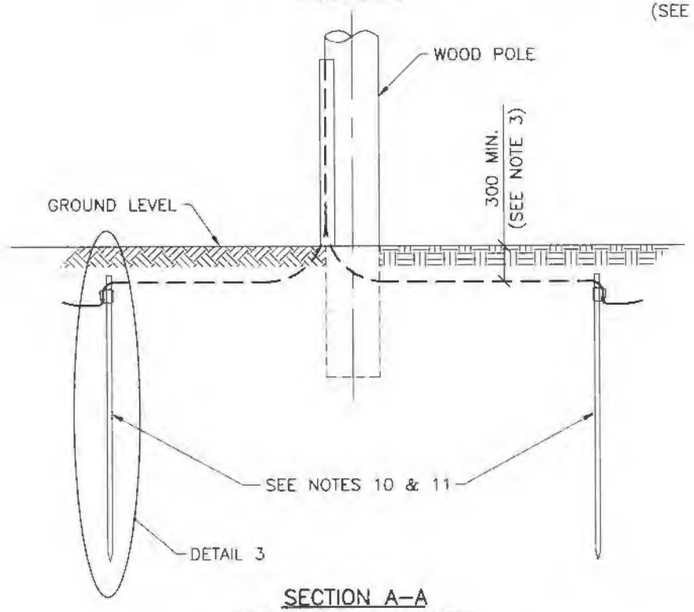
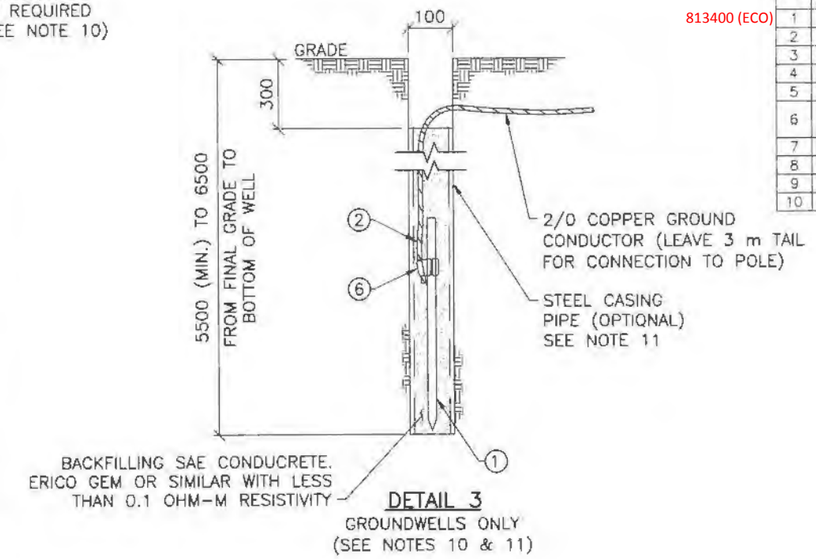


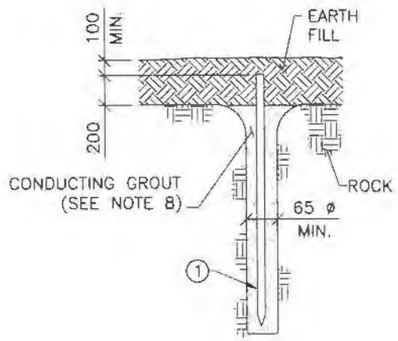

PLAN VIEW
GROUNDING AT OHSW STRUCTURES




SECTION A–A
GROUNDING SCHEME WHERE OHSW USED




DETAIL 3
GROUNDWELLS ONLY
(SEE NOTES 10 & 11)




DETAIL 4
GROUND RODS IN ROCK

BILL OF MATERIAL FOR ONE ASSEMBLY

| ITEM | QTY SGR | QTY MGR | HU | STOCK NO. | DESCRIPTION |
|---|---|---|---|---|---|
| 1 | 1 | 4 | EA | ~~9340S (SLCN)~~ | ROD, GROUND, 3/4" Ø, 3000 LG |
| 2 | A.R. | A.R. | m | – (CWS) | WIRE, BARE, 2/0 COPPER GROUND WIRE |
| 3 | A.R. | A.R. | m | – (ZTT) | WIRE, BARE, 266 MCM ACSR, PARTRIDGE |
| 4 | 1 | 1 | EA | YPC33R28R (BDY) | CONNECTOR, COMPRESSION, 2/0 Cu TO 266 MCM ACSR, PARTRIDGE |
| 5 | – | 3 | EA | YGHC26C26 (BDY) | CONNECTOR, COMPRESSION, 2/0 Cu TO 2/0 Cu |
| 6 | 1 | 4 | EA | YGHC34C26TN (BDY) | CONNECTOR, COMPRESSION, C-TAP, .88 IN L, TIN PLATED, 2/0 CU WIRE TO 3/4" Ø GROUND ROD |
| 7 | 1 | 1 | EA | PGU210 (MSI) | COVER, CABLE PROTECTION, 10 FT LG, 2" WIDE |
| 8 | – | A.R. | EA | – (CWS) | SCREWS, LAG, TO MOUNT COVER TO POLE. |
| 9 | – | A.R. | m | – | WIRE, BARE, SOLID, COPPER #6 AWG |
| 10 | 1 | – | EA | – 54750 (T&B) | CONNECTOR, COMPRESSION, 2/0 Cu TO COPPER #6 AWG |

813400 (ECO)

FORBES BROS AS-BUILT

CHANGES REQUIRED YES ☐ NO ☐
Name (Print) _____
Signature _____
Date _____

ISSUED FOR CONSTRUCTION

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Date May 11, 2018
PERMIT NUMBER: PP424
Association of Professional Engineers of Yukon

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CLIENT StrataGold Corporation
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DESIGN MP
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SEAL PROFESSIONAL YUKON MATTHEW OBEE TERRITORY May 11, 2018 ENGINEER

EAGLE GOLD PROJECT
69 kV TRANSMISSION LINE
STANDARD GROUNDING DETAILS (SHEET 2 OF 2)

PROJECT No. 1407
DRAWING No. 1407-T-4450-2
REV. 0

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NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETRES (mm) UNLESS OTHERWISE NOTED.
2. IN HIGHLY CORROSIVE SOILS, ALTERNATIVE GROUNDING SHALL BE SPECIFIED.
3. GROUND WIRE (ITEM 2) SHOULD BE BURIED A MINIMUM OF 300 mm.
4. AFTER THE INSTALLATION OF THE SPECIFIED GROUNDING, THE CONTRACTOR WILL MEASURE THE RESISTANCE-TO-GROUND (THE GROUNDING MUST BE DISCONNECTED FROM THE OVERHEAD SHIELD WIRE). THE GROUNDING ARRANGEMENT AT EACH STRUCTURE SHOULD HAVE A MEASURED SUMMER RESISTANCE OF LESS THAN 35Ω PRIOR TO CONNECTION TO THE OVERHEAD SHIELD WIRE. IF THIS CANNOT BE ACHIEVED, ADDITIONAL COUNTERPOISE OR RODS MAY BE REQUIRED, REFER TO THE ENGINEER Tower footing resistance at McQuesten substation shall be 13 ohms. All 4 ground rods with groundwells are required at each structure at the McQuesten end of the line (RFI-037 rev01)
5. BLASTING IS NOT PERMITTED FOR THE INSTALLATION OF GROUNDING.
6. ALL GROUNDING INSTALLATIONS SHALL BE WITHIN THE BOUNDARY OF THE RIGHT-OF-WAY AND NOT LESS THAN 22 m FROM THE GROUNDING FACILITIES OF THE OTHER CIRCUITS. ANY EXCEPTION REQUIRES PRIOR AUTHORIZATION FROM THE ENGINEER.
7. DO NOT DISTURB SPECIAL STRUCTURE DRAINAGE SYSTEMS IF THEY EXIST.
8. FOR GROUTING GROUND RODS USE SAE CONDUCRETE, ERICO GEM OR EQUIVALENT MIXED IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.
9. AFTER GROUNDING IS COMPLETED, INSTALL ITEM 7 WITH LOWER EDGE AT GROUND SURFACE. PROVIDE 10 ft (3048 mm) OF CABLE COVER OVER GROUND WIRE.
10. GROUNDWELLS ARE ONLY TO BE INSTALLED AS REQUIRED. REFER TO THE STRUCTURE DATA SHEET FOR GROUNDING TYPE. IF GROUNDWELLS ARE NOT REQUIRED:
    - THE GROUND RODS SHALL BE DRIVEN INTO EARTH SO THAT TOP OF ROD IS AT LEAST 300 mm BELOW GROUND LEVEL, OR,
    - WHERE ROCK IS ENCOUNTERED, REFER TO DETAIL 4.
11. GROUNDWELL INSTALLATION:
    - OPTIONAL 4" (100 mm) DIAMETER STEEL CASING PIPE MAY BE USED TO AUGER OUT THE INTERIOR SOIL/ROCKS, PREVENT CAVE-IN AND PUMP OUT THE UNDERGROUND WATER.
    - ENSURE THE REQUIRED DEPTH IS REACHED. PUMP OUT ANY UNDERGROUND WATER BEFORE INSTALLATION AND BACKFILLING.
    - INSERT THE GROUND ROD CONNECTED WITH THE GROUND WIRE TO THE BOTTOM OF THE HOLE.
    - ONCE THE ROD WITH THE CONNECTED GROUND WIRE IS AT THE REQUIRED DEPTH, POUR IN THE PRE-MIXED SAE CONDUCRETE, ERICO GEM OR SIMILAR (WITH LESS THAN 0.1Ω-m RESISTIVITY) AS PER THE MANUFACTURER'S INSTALLATION INSTRUCTIONS.
12. SINGLE GROUND ROD (SGR) INSTALLATION TO BE INSTALLED AT H-FRAME STRUCTURES WITH STEEL CROSSARMS AND CROSSBRACES WHICH DO NOT HAVE OVERHEAD SHIELD WIRE.

Forbes Bros

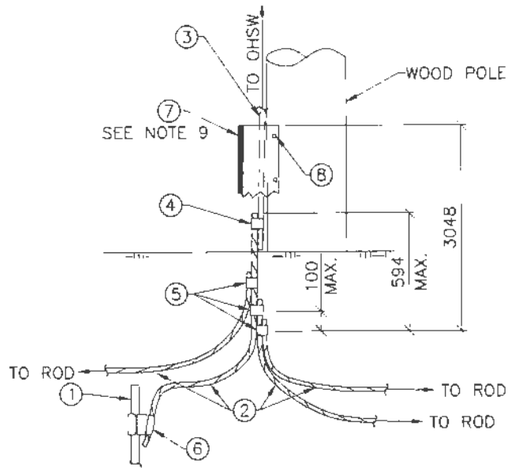
**AS-BUILT**

CHANGES REQUIRED YES ☐ NO ☐

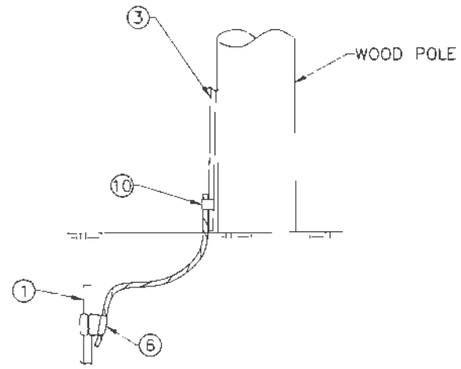
Name (Print) _____

Signature _____

Date _____




DETAIL 1
MULTIPLE GROUND ROD (MGR)




DETAIL 2
SINGLE GROUND ROD (SGR)
SEE NOTE 12

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| DRAWN | DV |
| CHECKED | PC |
| APPROVED | MEO |

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SEAL: PROFESSIONAL ENGINEER YUKON TERRITORY MATTHEW OBEE May 11, 2018

EAGLE GOLD PROJECT
69 kV TRANSMISSION LINE
STANDARD GROUNDING DETAILS (SHEET 1 OF 2)

| PROJECT No. | DRAWING No. | REV. |
|---|---|---|
| 1407 | 1407-T-4450-1 | 0 |

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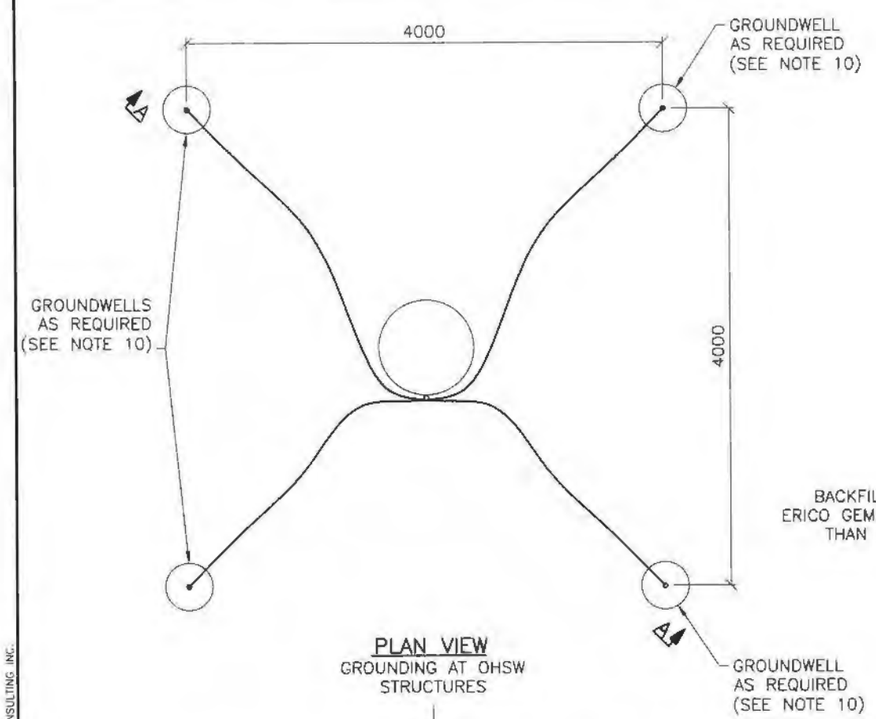
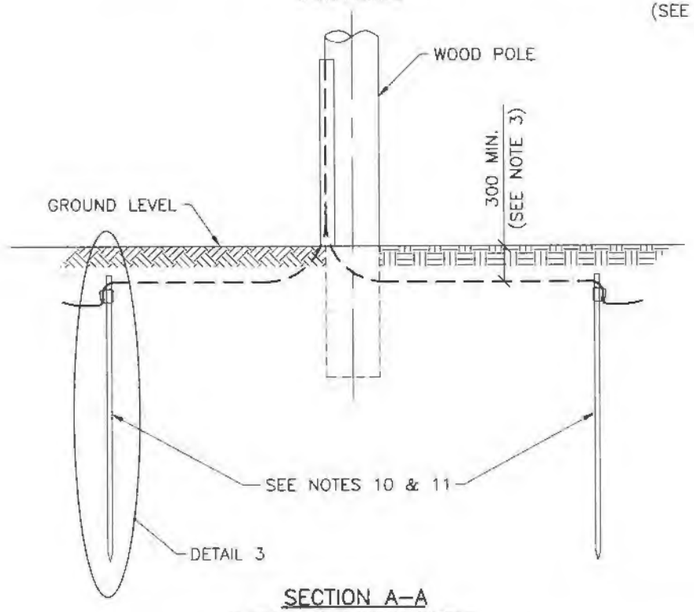
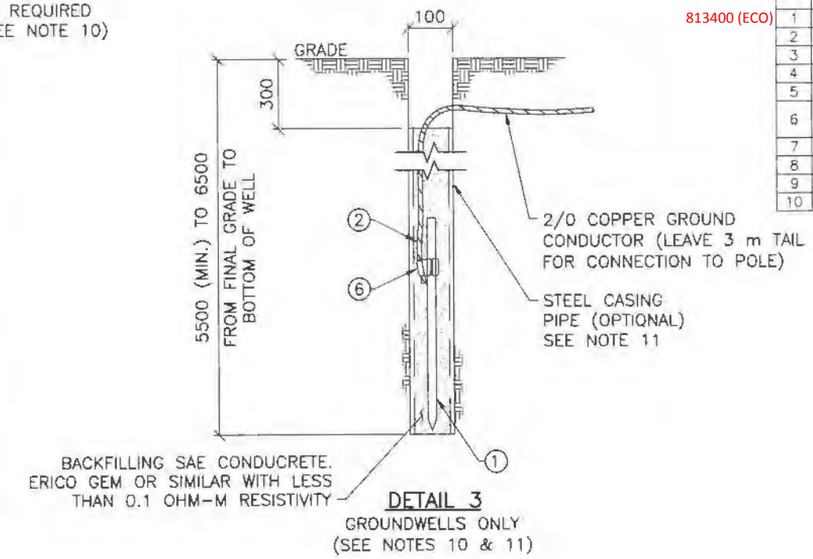


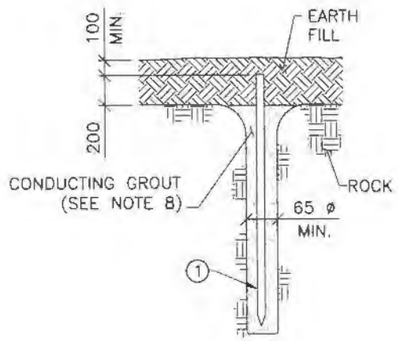

PLAN VIEW
GROUNDING AT OHSW STRUCTURES




SECTION A–A
GROUNDING SCHEME WHERE OHSW USED




DETAIL 3
GROUNDWELLS ONLY
(SEE NOTES 10 & 11)




DETAIL 4
GROUND RODS IN ROCK

BILL OF MATERIAL FOR ONE ASSEMBLY

| ITEM | QTY SGR | QTY MGR | HU | STOCK NO. | DESCRIPTION |
|---|---|---|---|---|---|
| 1 | 1 | 4 | EA | ~~9340S (SLCN)~~ | ROD, GROUND, 3/4" Ø, 3000 LG |
| 2 | A.R. | A.R. | m | – (CWS) | WIRE, BARE, 2/0 COPPER GROUND WIRE |
| 3 | A.R. | A.R. | m | – (ZTT) | WIRE, BARE, 266 MCM ACSR, PARTRIDGE |
| 4 | 1 | 1 | EA | YPC33R28R (BDY) | CONNECTOR, COMPRESSION, 2/0 Cu TO 266 MCM ACSR, PARTRIDGE |
| 5 | – | 3 | EA | YGHC26C26 (BDY) | CONNECTOR, COMPRESSION, 2/0 Cu TO 2/0 Cu |
| 6 | 1 | 4 | EA | YGHC34C26TN (BDY) | CONNECTOR, COMPRESSION, C-TAP, .88 IN L, TIN PLATED, 2/0 CU WIRE TO 3/4" Ø GROUND ROD |
| 7 | 1 | 1 | EA | PGU210 (MSI) | COVER, CABLE PROTECTION, 10 FT LG, 2" WIDE |
| 8 | – | A.R. | EA | – (CWS) | SCREWS, LAG, TO MOUNT COVER TO POLE. |
| 9 | – | A.R. | m | – | WIRE, BARE, SOLID, COPPER #6 AWG |
| 10 | 1 | – | EA | – 54750 (T&B) | CONNECTOR, COMPRESSION, 2/0 Cu TO COPPER #6 AWG |

813400 (ECO)

Forbes Bros Powerline Constructors **AS-BUILT**

CHANGES REQUIRED YES ☐ NO ☐
Name (Print) _____
Signature _____
Date _____

ISSUED FOR CONSTRUCTION

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Date May 11, 2018
PERMIT NUMBER: PP424
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CLIENT StrataGold Corporation

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| CHECKED | PC |
| APPROVED | MEO |

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WN BRAZIER ASSOCIATES INC

SEAL PROFESSIONAL ENGINEER YUKON TERRITORY MATTHEW OBEE May 11, 2018

EAGLE GOLD PROJECT
69 kV TRANSMISSION LINE
STANDARD GROUNDING DETAILS (SHEET 2 OF 2)

| PROJECT No. | DRAWING No. | REV. |
|---|---|---|
| 1407 | 1407-T-4450-2 | 0 |

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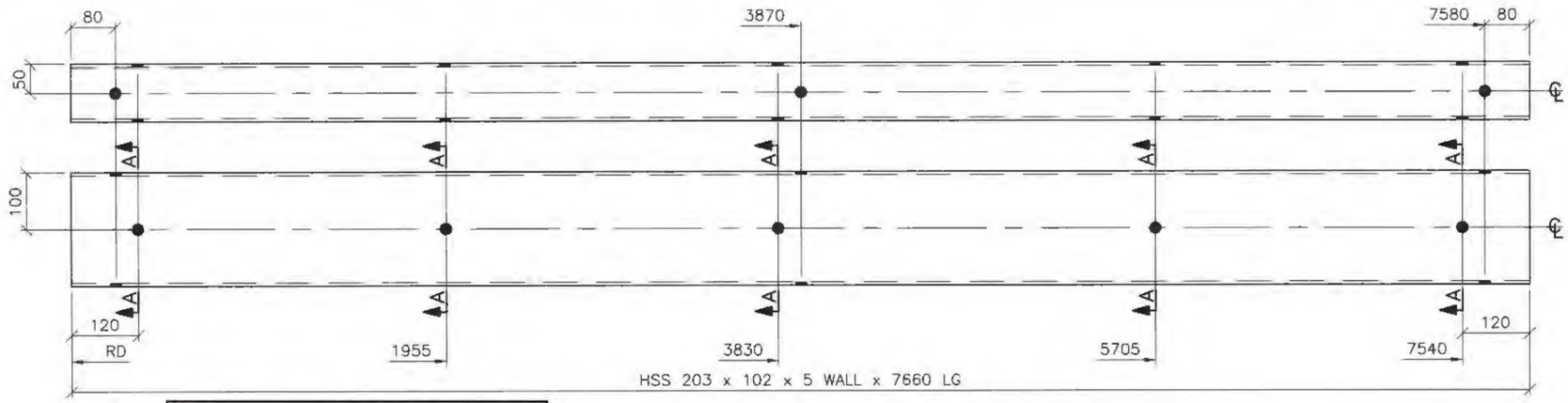



H-FRAME CROSS-ARM 'HF1' (DEADEND)
2 REQUIRED PER STRUCTURE

FORBES BROS

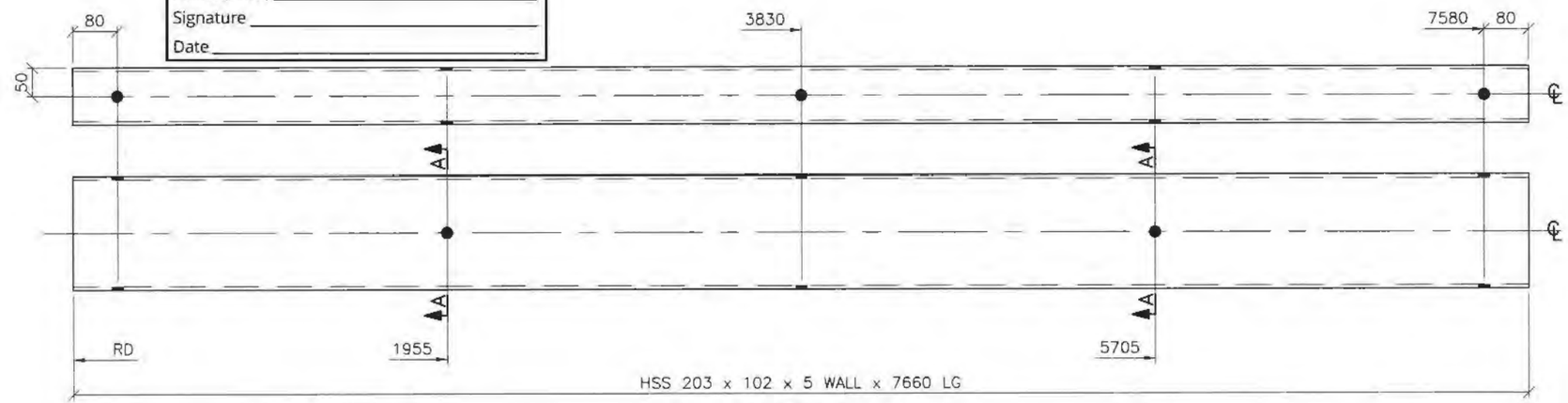
**AS-BUILT**

CHANGES REQUIRED YES ☐ NO ☐

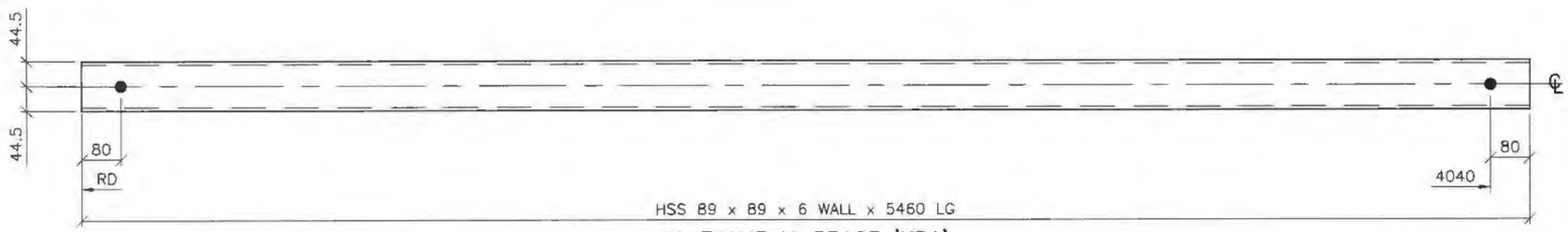
Name (Print) _____

Signature _____

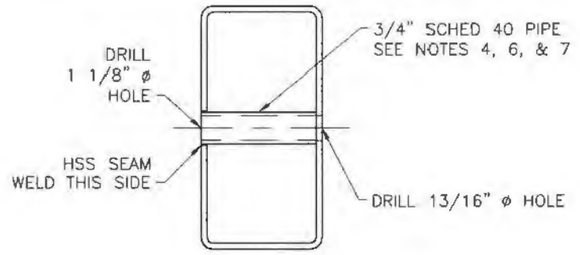
Date _____



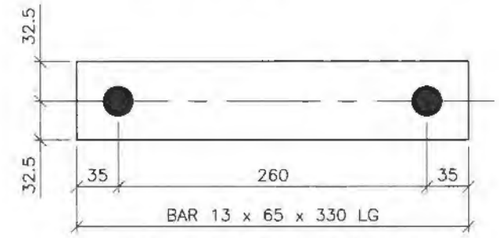

H-FRAME CROSS-ARM 'HF2' (SUSPENSION)




H-FRAME X-BRACE 'XB1'
2 REQUIRED PER STRUCTURE




SECTION A-A




BRACE STRAP DETAILS 'PL1'
4 REQUIRED PER STRUCTURE

NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETRES (mm) ±2 mm TOLERANCE, UNLESS NOTED OTHERWISE.
2. ALL HOLES TO BE DRILLED 13/16" ø UNLESS NOTED OTHERWISE.
3. MATERIAL SHALL BE STEEL TO CSA STANDARD G40.21-04, GR 350 WT. CATEGORY 4.
4. WELDS TO BE CSA W59-M.
5. HOT DIP GALVANIZE AFTER FABRICATION TO ASTM A123.
6. STEEL PIPE TO ASTM A53. GR B.
7. ALIGN HOLES TO ALLOW 3/4" ø BOLT TO PASS THROUGH. TACK WELD PIPE IN PLACE AND GRIND WELD FLUSH.
8. HSS TO BE CSA CAN3-G40.20-04.

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CLEAN ENERGY CONSULTING INC.
SIGNATURE _____
Date May 11, 2018
PERMIT NUMBER: PP424
Association of Professional Engineers of Yukon

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WN BRAZIER ASSOCIATES INC

SEAL: PROFESSIONAL ENGINEER YUKON TERRITORY MATTHEW OBEE May 11, 2018

EAGLE GOLD PROJECT

69 kV TRANSMISSION LINE

H-FRAME STEEL CROSSARM AND X-BRACE DETAILS

| PROJECT No. | DRAWING No. | REV. |
|---|---|---|
| 1407 | 1407-T-4405 | 0 |

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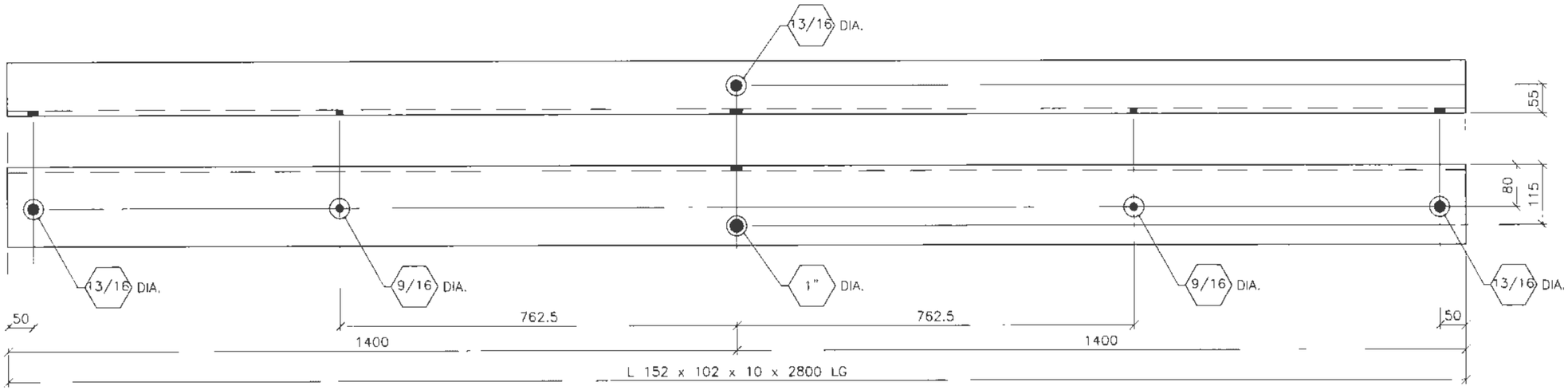
NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETRES (mm) UNLESS NOTED OTHERWISE.
2. HOLE SIZES ARE IN INCHES.
3. MATERIAL SHALL BE STEEL CSA STANDARD G40.21-04. GR ~~300~~ 350 WT. CATEGORY 4. (as per RFI-011)
4. ALL SHARP EDGES TO BE REMOVED BEFORE GALVANIZING.
5. HOT DIP GALVANIZE AFTER FABRICATION TO ASTM A123.




FDE – DEADEND CROSS-ARM

**AS-BUILT**

CHANGES REQUIRED YES ☐ NO ☐

Name (Print) _____

Signature _____

Date _____

ISSUED FOR CONSTRUCTION

PERMIT TO PRACTICE
CLEAN ENERGY CONSULTING INC.
SIGNATURE _____
Date May 11, 2018
PERMIT NUMBER: PP424
Association of Professional Engineers of Yukon

| NO. | DATE | REVISION | DES | DWN | CHK | APR |
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CLIENT: StrataGold Corporation

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| DESIGN | MP |
| DRAWN | DV |
| CHECKED | PC |
| APPROVED | MEO |

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WN BRAZIER ASSOCIATES INC

SEAL: PROFESSIONAL ENGINEER YUKON TERRITORY MATTHEW OBEE May 11, 2018

EAGLE GOLD PROJECT
69 kV TRANSMISSION LINE
FDE DEADEND STRUCTURE STEEL CROSSARM

| PROJECT No | DRAWING No. | REV. |
|---|---|---|
| 1407 | 1407-T-4400 | 0 |

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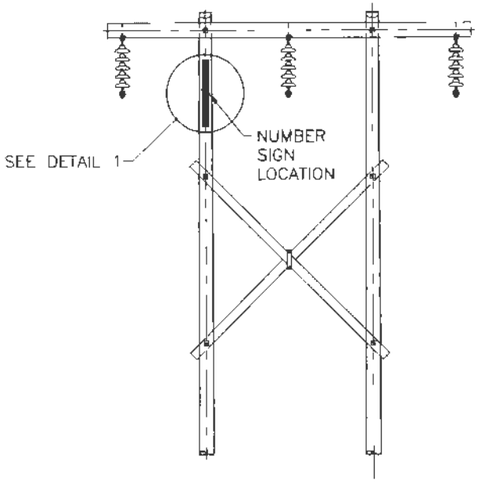
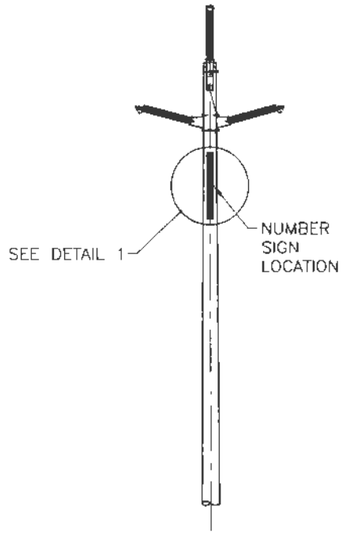
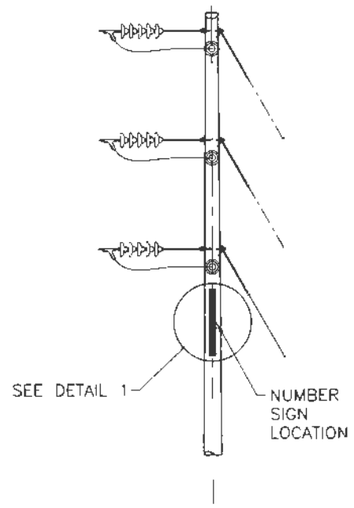



H-FRAME STRUCTURE




SINGLE POLE TANGENT STRUCTURE




SINGLE POLE DEADEND STRUCTURE

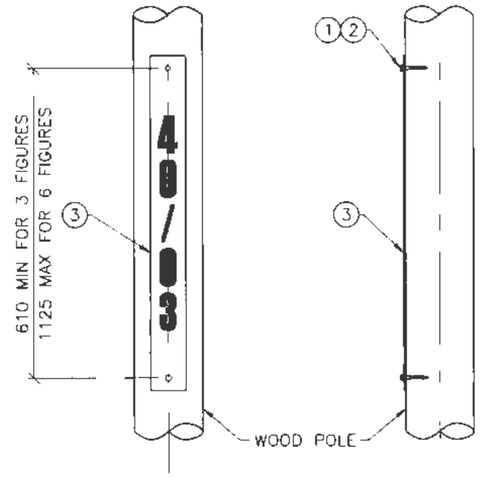
BILL OF MATERIAL FOR ONE ASSEMBLY

| ITEM | QTY | U/I | STOCK NO | DESCRIPTION |
|---|---|---|---|---|
| 1 | 2 | EA | ~~B854-500 (PLN)~~ LHDG38.3 (INFASCO) | SCREW, LAG, 3/8" ø x 3", GALVANIZED |
| 2 | 2 | EA | ~~856-318 (PLN)~~ 514-2108 (INFASCO) | WASHER, FLAT, ROUND, FOR 3/8" ø, LAG SCREW |
| 3 | 1 | EA | - (CWS) | PLATE, NUMBER SIGN |

NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETRES (mm) UNLESS NOTED OTHERWISE.
2. FOR GENERAL CONSTRUCTION NOTES SEE DWG. NO. 1407-T-1300.
3. Signs to be installed 2-3m from ground level.
4. Structure number to be installed on pole closest to road, on the back of of the structure (facing back span) looking from McQuesten substation in order of increasing structure number.
5. Structure numbers to be installed on every 5th structure and on both structures when it is a road or waterway crossing.

Note #3, #4 and #5 as per RFI-038 rev0




DETAIL 1: POLE MOUNTED

FORBES BROS **AS-BUILT**

CHANGES REQUIRED YES ☐ NO ☐

Name (Print) _____

Signature _____

Date _____

ISSUED FOR CONSTRUCTION

PERMIT TO PRACTICE
CLEAN ENERGY CONSULTING INC.
SIGNATURE _____
Date May 11, 2018
PERMIT NUMBER: PP424
Association of Professional Engineers of Yukon

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CLIENT StrataGold Corporation

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| APPROVED | MEO |

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SEAL: PROFESSIONAL ENGINEER YUKON TERRITORY MATTHEW OBEE May 11, 2018

EAGLE GOLD PROJECT
69 kV TRANSMISSION LINE
NUMBER SIGN INSTALLATION ON WOOD POLE STRUCTURES

| PROJECT No. | DRAWING No. | REV. |
|---|---|---|
| 1407 | 1407-T-4200 | 0 |

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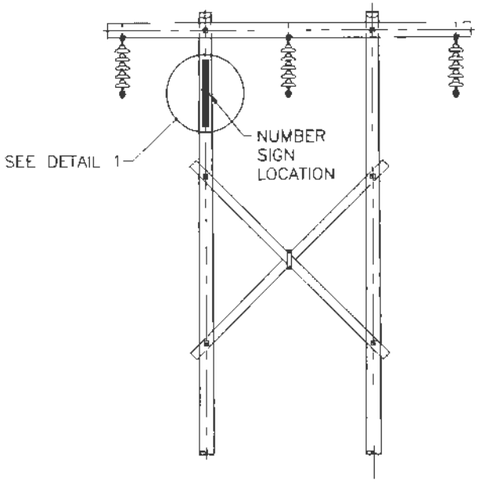
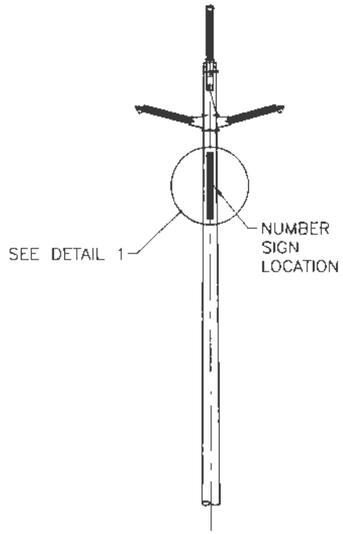
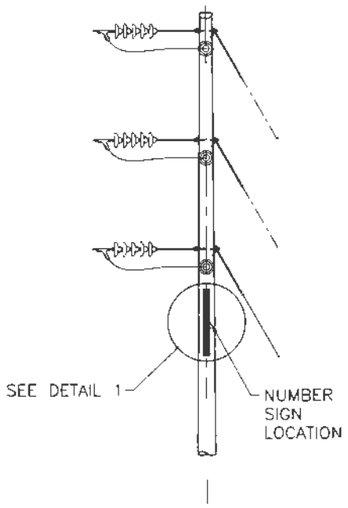



H-FRAME STRUCTURE




SINGLE POLE TANGENT STRUCTURE




SINGLE POLE DEADEND STRUCTURE

BILL OF MATERIAL FOR ONE ASSEMBLY

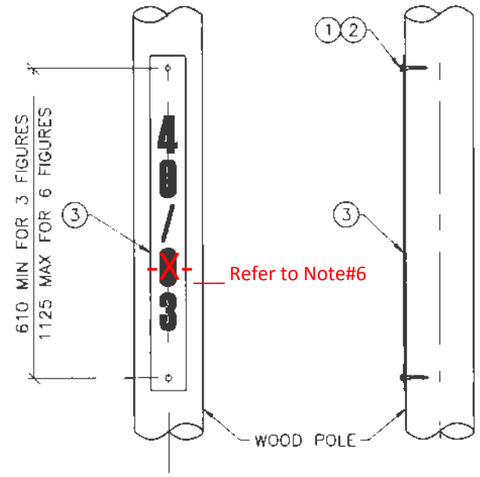
| ITEM | QTY | U.I. | STOCK NO | DESCRIPTION |
|---|---|---|---|---|
| 1 | 2 | EA | ~~B854-500 (PLN)~~ LHDG38.3 (INFASCO) | SCREW, LAG, 3/8" ø x 3", GALVANIZED |
| 2 | 2 | EA | ~~856-318 (PLN)~~ 514-2108 (INFASCO) | WASHER, FLAT, ROUND, FOR 3/8" ø, LAG SCREW |
| 3 | 1 | EA | - (CWS) | PLATE, NUMBER SIGN |

NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETRES (mm) UNLESS NOTED OTHERWISE.
2. FOR GENERAL CONSTRUCTION NOTES SEE DWG. NO. 1407-T-1300.
3. Signs to be installed 2-3m from ground level.
4. Structure number to be installed on pole closest to road, on the back of of the structure (facing back span) looking from McQuesten substation in order of increasing structure number.
5. Structure numbers to be installed on every 5th structure and on both structures when it is a road or waterway crossing.
6. Single digit numbers to be installed without a "0" in front of the number.

Note #3, #4 and #5 as per RFI-038 rev0

Note #6 as per RFI-038 rev2




DETAIL 1: POLE MOUNTED

FORBES BROS AS-BUILT

CHANGES REQUIRED YES ☐ NO ☐

Name (Print) _____

Signature _____

Date _____

ISSUED FOR CONSTRUCTION

PERMIT TO PRACTICE
CLEAN ENERGY CONSULTING INC.
SIGNATURE _____
Date May 11, 2018
PERMIT NUMBER: PP424
Association of Professional Engineers of Yukon

| NO. | DATE | REVISION | DES | DWN | CHK | APR |
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CLIENT StrataGold Corporation

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| DATE | MAY 11/18 |
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| APPROVED | MEO |

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WN BRAZIER ASSOCIATES INC

SEAL: PROFESSIONAL ENGINEER YUKON TERRITORY MATTHEW OBEE May 11, 2018

EAGLE GOLD PROJECT

69 kV TRANSMISSION LINE

NUMBER SIGN INSTALLATION ON WOOD POLE STRUCTURES

| PROJECT No. | DRAWING No. | REV. |
|---|---|---|
| 1407 | 1407-T-4200 | 0 |

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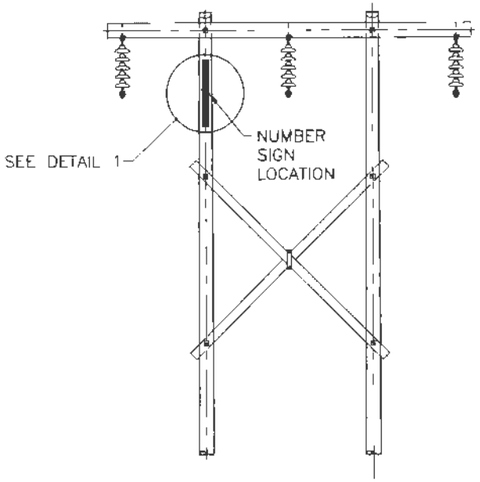
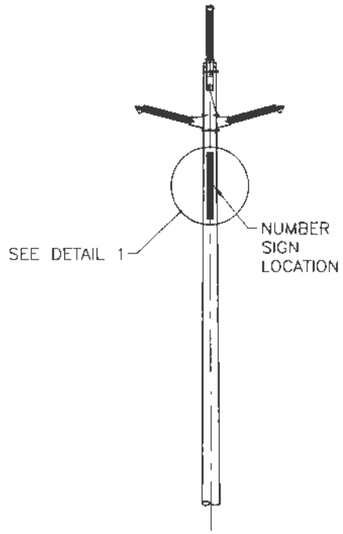
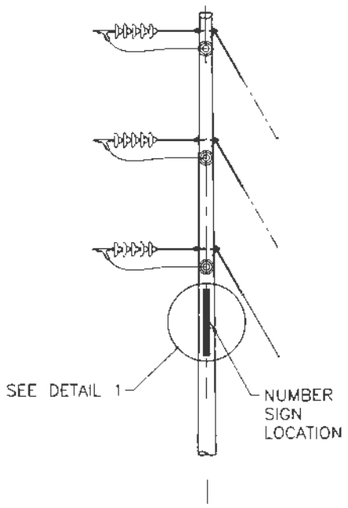



H-FRAME STRUCTURE




SINGLE POLE TANGENT STRUCTURE




SINGLE POLE DEADEND STRUCTURE

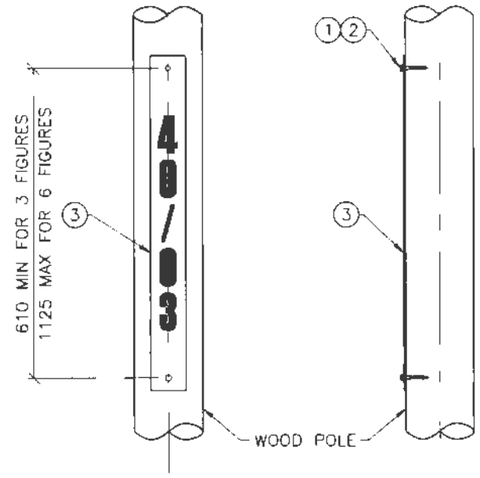
BILL OF MATERIAL FOR ONE ASSEMBLY

| ITEM | QTY | U/I | STOCK NO | DESCRIPTION |
|---|---|---|---|---|
| 1 | 2 | EA | ~~B854-500 (PLN)~~ LHDG38.3 (INFASCO) | SCREW, LAG, 3/8" ø x 3", GALVANIZED |
| 2 | 2 | EA | ~~856-318 (PLN)~~ 514-2108 (INFASCO) | WASHER, FLAT, ROUND, FOR 3/8" ø, LAG SCREW |
| 3 | 1 | EA | (CWS) | PLATE, NUMBER SIGN |

NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETRES (mm) UNLESS NOTED OTHERWISE.
2. FOR GENERAL CONSTRUCTION NOTES SEE DWG. NO. 1407-T-1300.
3. Signs to be installed 2-3m from ground level.
4. Structure number to be installed on pole closest to road, on the back of of the structure (facing back span) looking from McQuesten substation in order of increasing structure number.
5. Structure numbers to be installed on every 5th structure and on both structures when it is a road or waterway crossing.

Note #3, #4 and #5 as per RFI-038 rev0




DETAIL 1: POLE MOUNTED

Forbes Bros

AS-BUILT

CHANGES REQUIRED YES ☐ NO ☐

Name (Print) _____

Signature _____

Date _____

ISSUED FOR CONSTRUCTION

PERMIT TO PRACTICE
CLEAN ENERGY CONSULTING INC.
SIGNATURE _____
Date May 11, 2018
PERMIT NUMBER: PP424
Association of Professional Engineers of Yukon

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| APPROVED | MEO |

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WN BRAZIER ASSOCIATES INC

SEAL: PROFESSIONAL ENGINEER YUKON TERRITORY MATTHEW OBEE May 11, 2018

EAGLE GOLD PROJECT

69 kV TRANSMISSION LINE

NUMBER SIGN INSTALLATION ON WOOD POLE STRUCTURES

| PROJECT No. | DRAWING No. | REV. |
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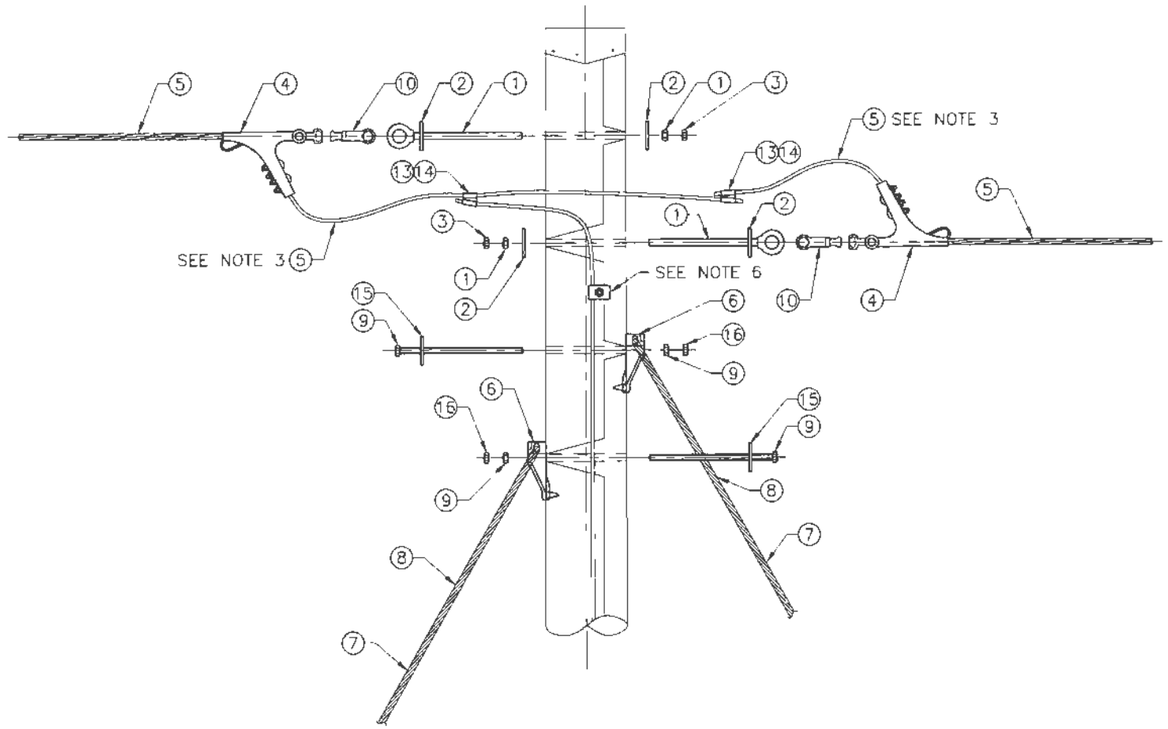


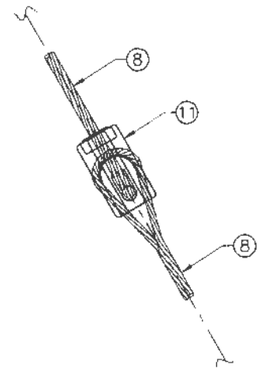

ELEVATION VIEW

| BILL OF MATERIAL FOR ONE ASSEMBLY | | | | |
|---|---|---|---|---|
| ITEM | QTY | MU | STOCK NO | DESCRIPTION |
| 1 | 2 | EA | 627545Q (SLCN) | BOLT, SHOULDER EYE, 3/4" x 14", MIN THREAD 6". c/w NUT |
| 2 | 6 | EA | 102-4317-TR (TDR) | WASHER, CURVED, 4" x 5", FOR 3/4"Ø BOLT |
| 3 | 4 | EA | PL-70 (HB) | NUT, PAL, FOR 3/4" Ø BOLT |
| 4 | 2 | EA | ADE24-S-BC (MPS) | CLAMP, STRAIN ASSEMBLY, c/w SOCKET EYE |
| 5 | A.R. | m | - | WIRE, BARE, 266 MCM ACSR, PARTRIDGE |
| 6 | 2 | EA | P138 (MPS) | HOOK, GUY (H.D. THIMBLE TYPE) (120 kN) |
| 7 | A.R. | m | - | WIRE, GUY, ~~SIZE 10, GRADE 1300~~ SIZE 7/16", GRADE 220 (RFI-009) |
| 8 | 12 | EA | 7716-38-GN (PYR) | GRIP, GUY, SIZE 10 |
| 9 | 2 | EA | 7686LT (SLCN) | BOLT, MACHINE, 7/8" x 14" MIN THREAD 6". c/w NUT |
| 10 | 2 | EA | YCB-65A-BCH (MPS) | CLEVIS, BALL, Y-TYPE, 90 LG, FOR 3/4" BOLT |
| 11 | 4 | EA | 008506-70 (GAM) | INSULATOR, GUY STRAIN, GREY |
| 12 | 2 | EA | RMYGG-MA-74 (R&M) | GUARD, GUY, POLYETHYLENE TUBING |
| 13 | 1 | EA | 602046-9 (TYC) | CONNECTOR, WEDGE, 266.8 ACSR 266.8 ACSR, RUN TAP 1, POWER ACTUATED |
| 14 | 2 | EA | ~~69385-1~~ (TYC) | CARTRIDGE, AMPACT, BLUE |
| 15 | 2 | EA | 102-4319-TR (TDR) | WASHER, CURVED, 5" x 5" FOR 7/8" ø BOLT |
| 16 | 2 | EA | PL-80 (HB) | NUT, PAL, FOR 7/8" ø BOLT |

69338-1

NOTES:

1. ALL DIMENSIONS IN MILLIMETRES (mm) UNLESS OTHERWISE NOTED.
2. FOR GENERAL CONSTRUCTION NOTES SEE DWG. NO. 1407-T-1300.
3. SEE DRAWING 1407-T-4450 FOR GROUNDING DETAILS.
4. CONTRACTOR TO CONFIRM BOLT LENGTHS PRIOR TO PROCUREMENT AND CONSTRUCTION. BOLT LENGTHS SHOWN ARE FOR CLASS 1 POLES. FOR CLASS H1 AND H2 POLES ADD 2".
5. REFER TO STRUCTURE DRAWINGS FOR CONNECTOR DETAILS.
6. ALL FERROUS METAL COMPONENTS SHALL SATISFY CHARPY LEVEL 2 REQUIREMENTS PER CSA C96.3.



GUY STRAIN INSULATOR DETAIL

FORBES BROS **AS-BUILT**

CHANGES REQUIRED YES ☐ NO ☐

Name (Print) _____

Signature _____

Date _____

ISSUED FOR CONSTRUCTION

PERMIT TO PRACTICE
CLEAN ENERGY CONSULTING INC.
SIGNATURE
Date May 11, 2018
PERMIT NUMBER: PP424
Association of Professional Engineers of Yukon

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CLIENT StrataGold Corporation

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| APPROVED | MEO |

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WN BRAZIER ASSOCIATES INC

SEAL PROFESSIONAL YUKON MATTHEW OBEE TERRITORY May 11, 2018 ENGINEER

EAGLE GOLD PROJECT

69 kV TRANSMISSION LINE

OHSW DOUBLE DEADEND HARDWARE FOR H-FRAME DEADEND ASSEMBLY

| PROJECT No. | DRAWING No | REV |
|---|---|---|
| 1407 | 1407-T-4165 | 0 |

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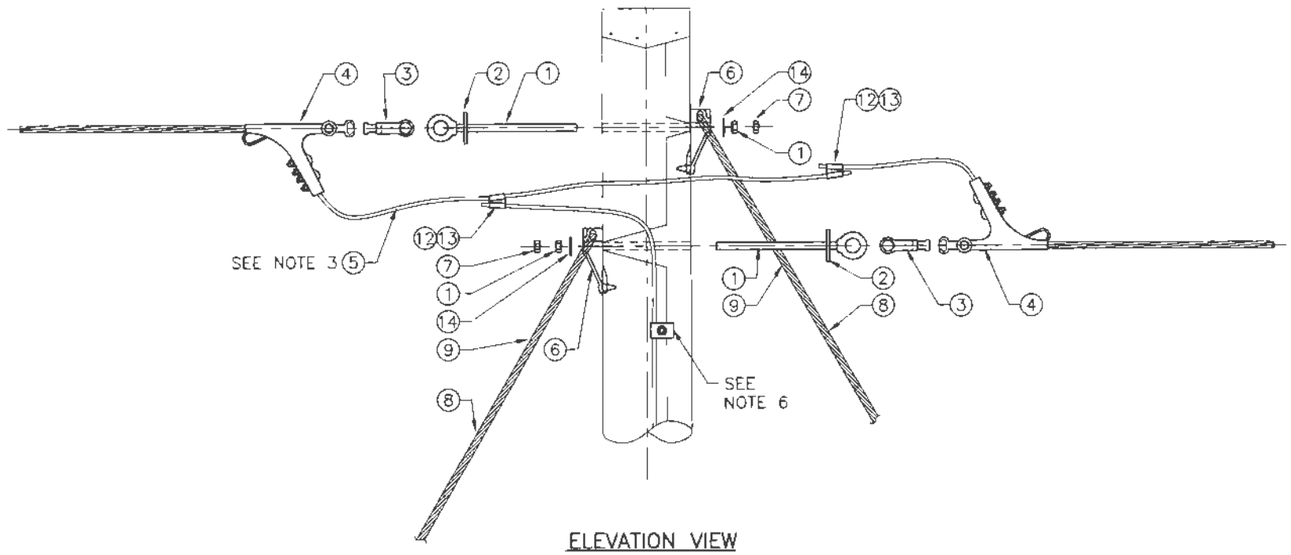
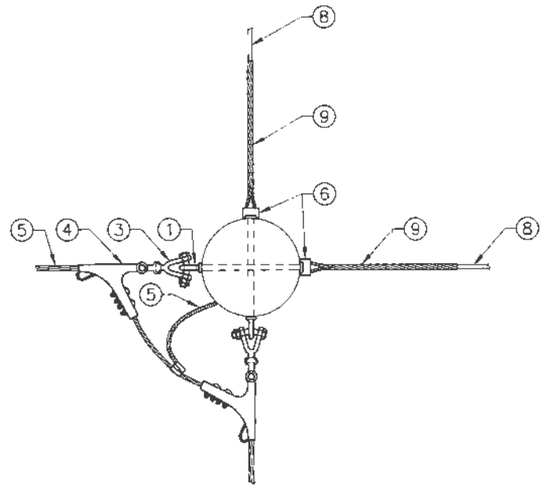
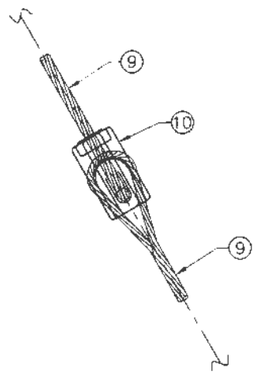



ELEVATION VIEW



PLAN VIEW



GUY STRAIN INSULATOR DETAIL

BILL OF MATERIAL FOR ONE ASSEMBLY

| ITEM | QTY | UNIT | STOCK NO | DESCRIPTION |
|---|---|---|---|---|
| 1 | 2 | EA | 62754SQ (SLCN) | BOLT, SHOULDER EYE, 3/4" x 14", MIN THREAD 6", c/w NUT |
| 2 | 2 | EA | 102-4311-TR (TDR) | WASHER, CURVED, 4" x 5", FOR 3/4"Ø BOLT |
| 3 | 2 | EA | YCB-65A-BCH (MPS) | CLEVIS, BALL, Y-TYPE, 90 LG, FOR 3/4"Ø BOLT (150kN) |
| 4 | 2 | EA | ~~ADE24-S-BC (MPS)~~ | CLAMP, STRAIN ASSEMBLY, c/w SOCKET EYE (120kN) |
| 5 | A.R. | m | – | WIRE, BARE, 266 MCM ACSR, PARTRIDGE |
| 6 | 2 | EA | P138 (VPS) | HOOK, GUY (H.D THIMBLE TYPE) 230 kN |
| 7 | 2 | EA | PL 70 (HB) | NUT, PAL, FOR 3/4" Ø BOLT |
| 8 | A.R. | m | – | WIRE, GUY, ~~SIZE 10, GRADE 1300~~ SIZE 7/16", GRADE 220 (RFI-009) |
| 9 | 12 | EA | 7/16-38-GN (PYR) | GRIP, GUY, SIZE 10 |
| 10 | 4 | EA | 008506-70 (GAM) | INSULATOR, GUY STRAIN, GREY |
| 11 | 2 | EA | RMYGG-MA-74 (R&M) | GUARD, GUY POLYETHYLENE TUBING |
| 12 | 2 | EA | 602046-9 (TYC) | CONNECTOR, WEDGE, 266.8 ACSR – 266.8 ACSR, RUN TAP 1, POWER ACTUATED |
| 13 | 2 | EA | ~~69388-1~~ (TYC) | CARTRIDGE, AMPACT, BLUE (69338-1) |
| 14 | 2 | EA | ~~J1076 (VPS)~~ | WASHER, 2" OD FLAT, FOR 3/4"Ø BOLT (7086 (SLCN)) |

NOTES:

1. ALL DIMENSIONS IN MILLIMETRES (mm) UNLESS OTHERWISE NOTED.
2. FOR GENERAL CONSTRUCTION NOTES SEE DWG. NO. 1407-T-1300.
3. SEE DRAWING 1407-T-4450 FOR GROUNDING DETAILS.
4. CONTRACTOR TO CONFIRM BOLT LENGTHS PRIOR TO PROCUREMENT AND CONSTRUCTION. BOLT LENGTHS SHOWN ARE FOR CLASS 1 POLES. FOR CLASS H1 AND H2 POLES ADD 2".
5. REFER TO STRUCTURE DRAWINGS FOR CONNECTOR DETAILS.
6. ALL FERROUS METAL COMPONENTS SHALL SATISFY CHARPY LEVEL 2 REQUIREMENTS PER CSA C96.3.

FORBES BROS **AS-BUILT**

CHANGES REQUIRED YES ☐ NO ☐

Name (Print) _____

Signature _____

Date _____

ISSUED FOR CONSTRUCTION

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SIGNATURE _____
Date May 11, 2018
PERMIT NUMBER: PP424
Association of Professional Engineers of Yukon

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CLIENT StrataGold Corporation

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SEAL PROFESSIONAL ENGINEER YUKON TERRITORY MATTHEW C May 11, 2018

EAGLE GOLD PROJECT
69 kV TRANSMISSION LINE
OHSW DOUBLE DEADEND HARDWARE ASSEMBLY

| PROJECT No. | DRAWING No. | REV. |
|---|---|---|
| 1407 | 1407-T-4160 | 0 |

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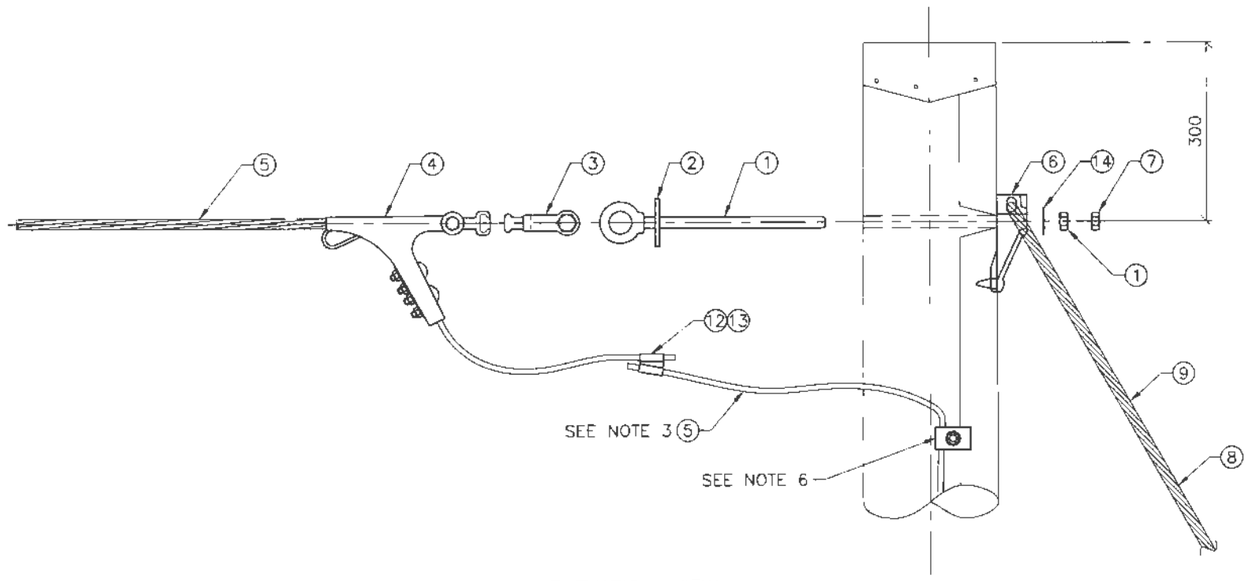
BILL OF MATERIAL FOR ONE ASSEMBLY

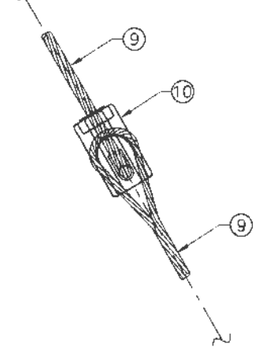
| ITEM | QTY | UNIT | STOCK NO. | DESCRIPTION |
|---|---|---|---|---|
| 1 | 1 | EA | 62754SQ (SLCN) | BOLT, SHOULDER EYE, 3/4" x 14", MIN THREAD 6", c/w NUT |
| 2 | 1 | EA | 102-4311-TR (TDR) | WASHER, CURVED, 4" x 5", FOR 3/4"Ø BOLT |
| 3 | 1 | EA | YCB-65A-BCH (MPS) | CLEVIS, BALL, Y-TYPE, 90 LG, FOR 3/4"ø BOLT (150kN) |
| 4 | 1 | EA | ~~ADE24-S-BC (MPS)~~ SD70S-BNK (HBL) | CLAMP, STRAIN ASSEMBLY, c/w SOCKET EYE (120kN) |
| 5 | A.R. | m | – | WIRE, BARE, 266.8 kcm, ACSR, 26/7 STRAND, PARTRIDGE |
| 6 | 1 | EA | P138 (MPS) | HOOK, GUY (H.D. THIMBLE TYPE) (120 kN) |
| 7 | 1 | EA | PL-7C (HB) | NUT, PAL, FOR 3/4" Ø BOLT |
| 8 | 1 | m | – | WIRE, GUY, ~~SIZE 10, GRADE 1300~~ SIZE 7/16", GRADE 220 (RFI-009) |
| 9 | A.R. | EA | 7/16-38-GN (PYR) | GRIP, GUY, SIZE 10 |
| 10 | 6 | EA | 008506-70 (GAM) | INSULATOR, GUY STRAIN, GREY |
| 11 | 2 | EA | RMYGG-MA-74 (R&M) | GUARD, GUY, POLYETHYLENE TUBING |
| 12 | 1 | EA | 602046-9 (TYC) | CONNECTOR, WEDGE, 266.8 ACSR – 266.8 ACSR, RUN TAP 1, POWER ACTUATED |
| 13 | 1 | EA | ~~69388-1~~ 69338-1 (TYC) | CARTRIDGE, AMPACT, BLUE |
| 14 | 1 | EA | ~~J1076 (MPS)~~ 7086 (SLCN) | WASHER, 2" OD FLAT, FOR 3/4"ø BOLT |




ELEVATION VIEW

NOTES:

1. ALL DIMENSIONS IN MILLIMETRES (mm) UNLESS OTHERWISE NOTED.
2. FOR GENERAL CONSTRUCTION NOTES SEE DWG. NO. 1407-T-1300.
3. SEE DRAWING 1407-T-4450 FOR GROUNDING DETAILS.
4. CONTRACTOR TO CONFIRM BOLT LENGTHS PRIOR TO PROCUREMENT AND CONSTRUCTION. BOLT LENGTHS SHOWN ARE FOR CLASS 1 POLES. FOR CLASS H1 AND H2 POLES ADD 2".
5. REFER TO STRUCTURE DRAWINGS FOR CONNECTOR DETAILS.
6. ALL FERROUS METAL COMPONENTS SHALL SATISFY CHARPY LEVEL 2 REQUIREMENTS PER CSA C96.3.



GUY STRAIN INSULATOR DETAIL

FORBES BROS AS-BUILT

CHANGES REQUIRED YES ☐ NO ☐

Name (Print) _____

Signature _____

Date _____

ISSUED FOR CONSTRUCTION

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Date May 11, 2018
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Association of Professional Engineers of Yukon

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CLIENT StrataGold Corporation

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| DATE | MAY 11/18 |
| DESIGN | MP |
| DRAWN | SE |
| CHECKED | PC |
| APPROVED | MEO |

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WN BRAZIER ASSOCIATES INC

SEAL PROFESSIONAL ENGINEER YUKON MATTHEW OBEE TERRITORY May 11, 2018

EAGLE GOLD PROJECT

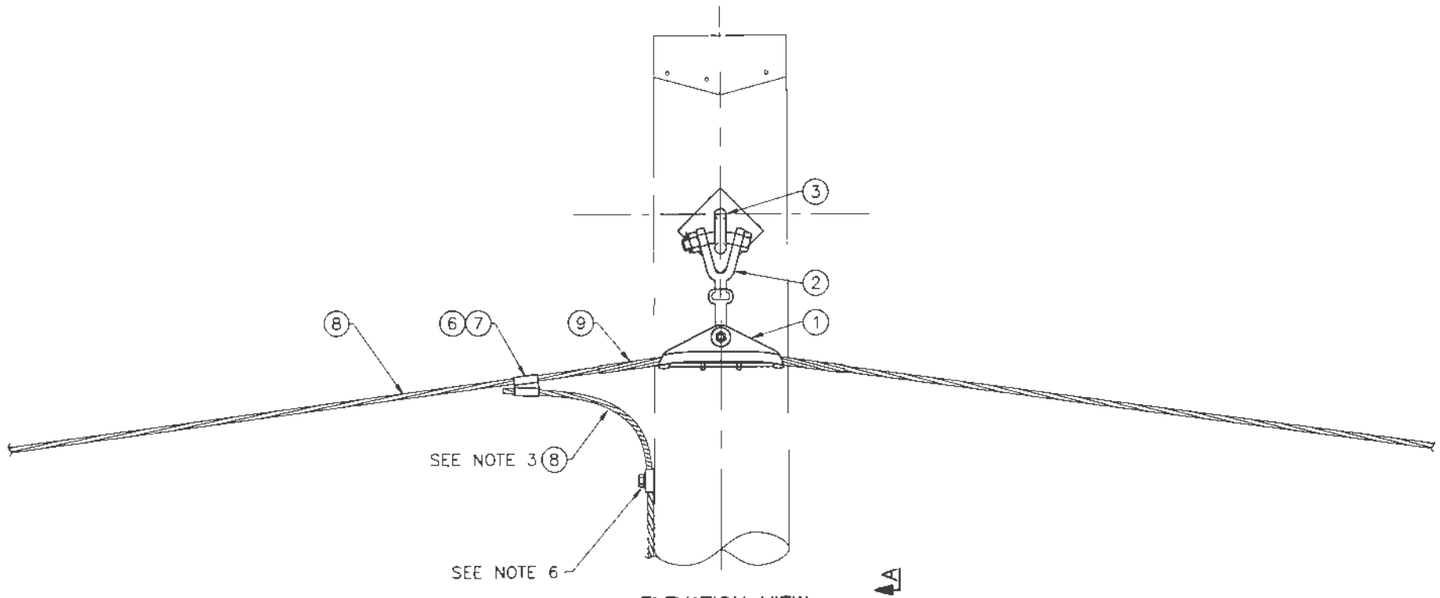
69 kV TRANSMISSION LINE

OHSW DEADEND HARDWARE ASSEMBLY

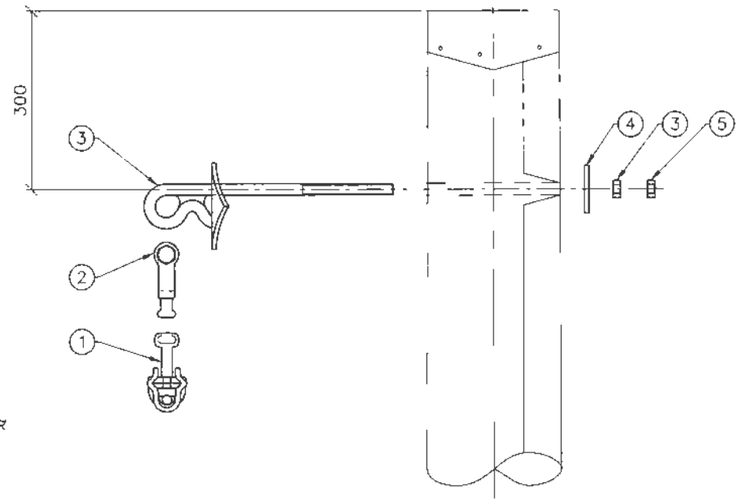
| PROJECT No. | DRAWING No. | REV. |
|---|---|---|
| 1407 | 1407-T-4155 | 0 |

## BILL OF MATERIAL FOR ONE ASSEMBLY

| | ITEM | QTY | UNIT | STOCK NO | DESCRIPTION |
|---|---|---|---|---|---|
| | 1 | 1 | EA | HAS104S (HBL) | CLAMP, SUSPENSION ASSEMBLY, c/w SOCKET EYE |
| | 2 | 1 | EA | YCB-65A-BCH (MPS) | CLEVIS, BALL, Y-TYPE, 90 LG, FOR 3/4"ø BOLT |
| | 3 | 1 | EA | 2812.6-12 (HB) | BRACKET, SHIELD WIRE SUPPORT, 3/4"ø x 12", MIN. THREAD 6", w/ NUT |
| | 4 | 2 | EA | 102-43'1-TR (TDR) | WASHER, CURVED, 4" x 5", FOR 3/4"ø BOLT |
| | 5 | 1 | EA | PL-70 (HB) | NUT, PAL, FOR 3/4"ø BOLT |
| | 6 | 1 | EA | 602046-9 (TYC) | CONNECTOR, WEDGE, 266.8 ACSR – 266.8 ACSR, RUN TAP 1, POWER ACTUATED |
| 69338-1 | 7 | 1 | EA | ~~69388-1~~ (TYC) | CARTRIDGE, AMPACT, BLUE |
| | 8 | A.R. | m | – | WIRE, BARE, 266 MCM ACSR, PARTRIDGE |
| AR-0127 (PLP) | 9 | 1 | EA | ~~PARTRIDGE 64A (PYR)~~ | ROD, ARMOUR, PREFORMED |




ELEVATION VIEW




SECTION A–A

**AS-BUILT**

CHANGES REQUIRED YES ☐ NO ☐

Name (Print) _____

Signature _____

Date _____

NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETRES (mm) UNLESS NOTED OTHERWISE.
2. FOR GENERAL CONSTRUCTION NOTES SEE DWG. NO. 1407-T-1300.
3. SEE DRAWING 1407-T-4450 FOR GROUNDING DETAILS.
4. CONTRACTOR TO CONFIRM BOLT LENGTHS PRIOR TO PROCUREMENT AND CONSTRUCTION. BOLT LENGTHS SHOWN ARE FOR CLASS 1 POLES. FOR CLASS H1 AND H2 POLES ADD 2".
5. REFER TO STRUCTURE DRAWINGS FOR CONNECTOR DETAILS.
6. ALL FERROUS METAL COMPONENTS SHALL SATISFY CHARPY LEVEL 2 REQUIREMENTS PER CSA C96.3.

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SEAL: PROFESSIONAL ENGINEER YUKON MATTHEW OBEE TERRITORY May 11, 2018

EAGLE GOLD PROJECT
69 kV TRANSMISSION LINE
SUSPENSION OHSW HARDWARE ASSEMBLY

| PROJECT No. | DRAWING No. | REV. |
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| 1407 | 1407-T-4150 | 0 |

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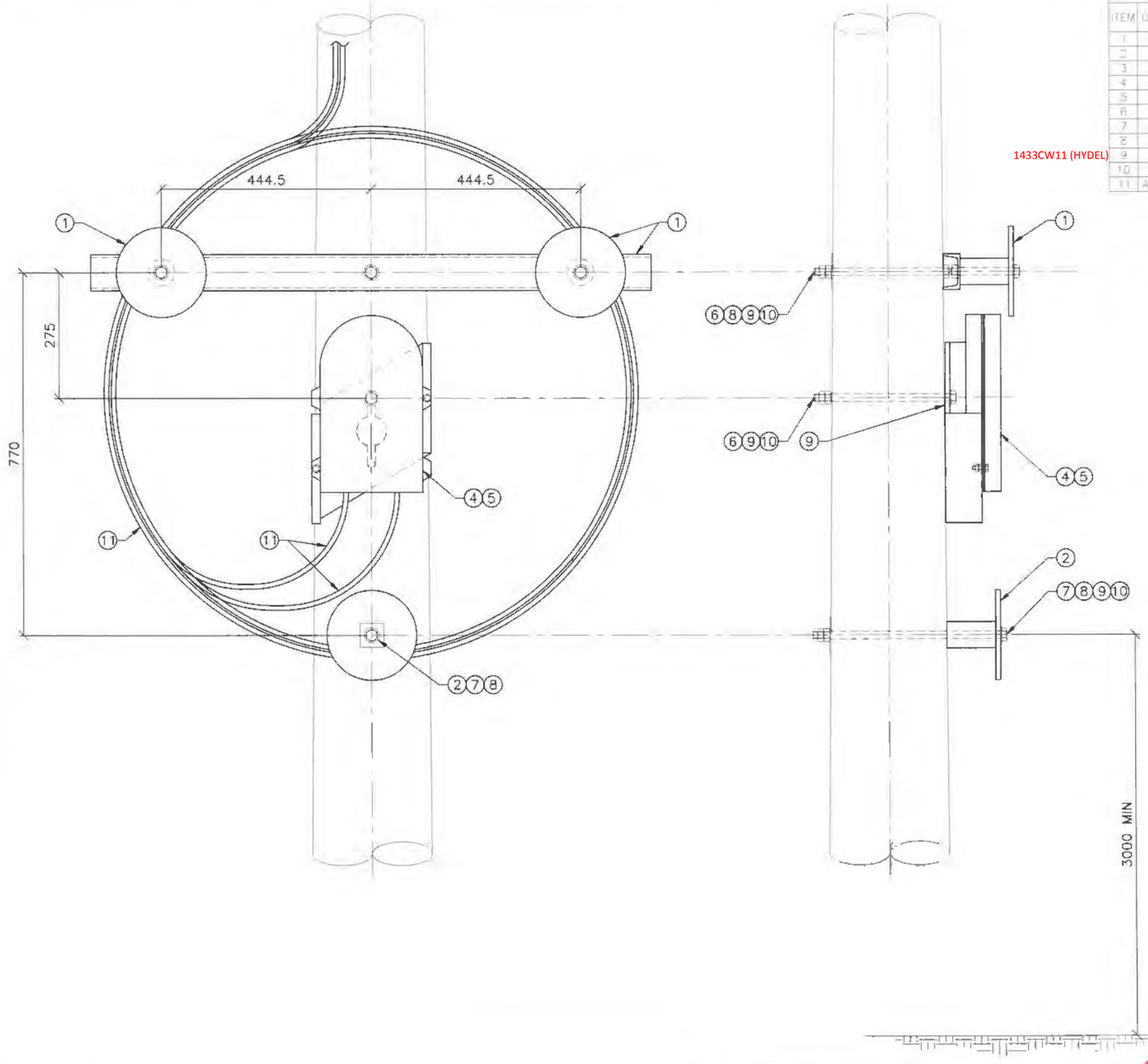


BILL OF MATERIAL FOR ONE STRUCTURE

| ITEM | QTY | UU | STOCK NO. | DESCRIPTION |
|---|---|---|---|---|
| 1 | 1 | EA | 8003493 (PLP) | CABLE STORAGE ASSEMBLY, 1 BAR & 2 SPOOLS, 5FT LOOP DIAMETER |
| 2 | 1 | EA | 8003503 (PLP) | CABLE STORAGE SINGLE SPOOL, 5/8" BOLT |
| 3 | 1 | EA | 8003571 (PLP) | BRACKET, POLE, UNIVERSAL WALL/POLE MOUNT |
| 4 | 1 | EA | 8006671 (PLP) | COYOTE RUNT STANDARD CLOSURE 375 L x 216 W x 76 H |
| 5 | 3 | EA | 80807701 (PLP) | SPLICE TRAY, 12-COUNT, LOW PROFILE, 36-SPLICE CAPACITY |
| 6 | 2 | EA | 9816LT (SLCN) | BOLT, MACHINE, 5/8"ø x 16", MIN THREAD 8", w/ NUT |
| 7 | 1 | EA | 9820LT (SLCN) | BOLT, MACHINE, 5/8"ø x 20", MIN THREAD 8", w/ NUT |
| 8 | 1 | EA | J1074 (MPS) | WASHER, FLAT, 2" x 2", FOR 5/8"ø BOLT |
| 9 | 2 | EA | ~~J113 (MPS)~~ | WASHER, CURVED, 3" x 3", FOR 5/8"ø BOLT |
| 10 | 2 | EA | PL-60 (HB) | NUT, PAL, FOR 5/8"ø BOLT |
| 11 | A.R. | m | OFC-24 G.652D-FASA-31 (ZTT) | ADSS FIBRE, 24-FIBRE, MAX 200 m SPANS, OD 131 mm |

1433CW11 (HYDEL)

NOTES:

1. ALL DIMENSIONS IN MILLIMETRES (mm) UNLESS OTHERWISE NOTED.
2. REMAINING LENGTH OF ADSS CABLE OUTSIDE SPLICE ENCLOSURE WILL BE LONG ENOUGH IN ORDER TO BE ABLE TO LOWER THE SPECIFIC ENCLOSURE TO GROUND LEVEL FOR SPLICE AND MAINTENANCE.
3. ADSS CABLE MINIMUM INSTALLATION BENDING RADIUS IS 131mm OD AS PER MANUFACTURER'S SPECIFICATIONS.

FORBES BROS AS-BUILT

CHANGES REQUIRED YES ☐ NO ☐

Name (Print) _____

Signature _____

Date _____

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Association of Professional Engineers of Yukon

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SEAL: PROFESSIONAL ENGINEER YUKON TERRITORY MATTHEW OBEE JULY 5, 2019

EAGLE GOLD PROJECT
69 kV TRANSMISSION LINE
ADSS SPLICE BOX ASSEMBLY

| PROJECT No. | DRAWING No. | REV. |
|---|---|---|
| 1407 | 1407-T-4145 | 0 |

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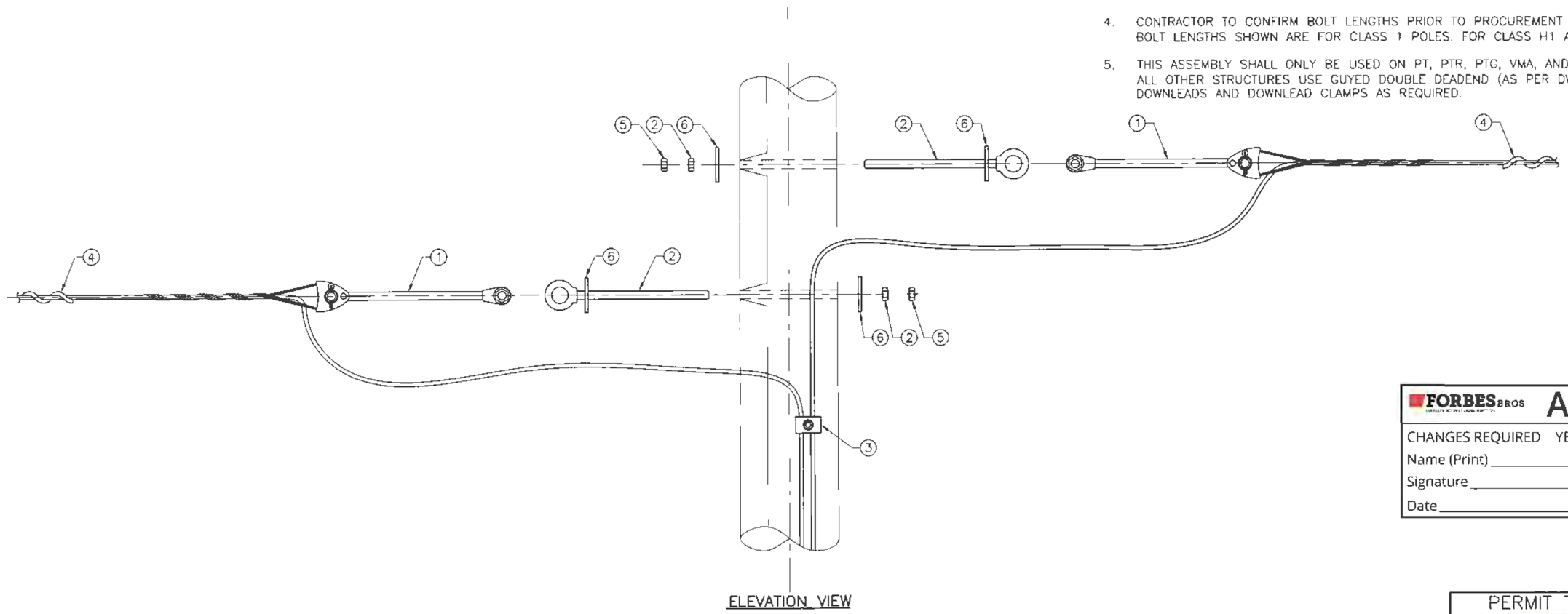
| BILL OF MATERIAL FOR ONE ASSEMBLY | | | | |
|---|---|---|---|---|
| ITEM | QTY | PU | STOCK NO. | DESCRIPTION |
| 1 | 2 | EA | AN-020-1310 (ZTT) | FORMED HIGH TENSION DEADEND ASSEMBLY w/ Y CLEVIS |
| 2 | 2 | EA | 62758H (SLCN) | BOLT, SHOULDER EYE, 3/4" x 18", MIN THREAD 6", c/w NUT |
| 3 | 2 | EA | AYG (ZTT) | DOWNLEAD CLAMP w/ LAG BOLT |
| 4 | 2 | EA | FLP-1310 (ZTT) | SPIRAL VIBRATION DAMPER, FOR FIBRE OPTICS (NOTE 3) |
| 5 | 2 | EA | PL-70 (HB) | NUT, PAL, GALV. FOR 3/4" Ø BOLT |
| 6 | 4 | EA | 102-4311-TR (TDR) | WASHER, CURVED, 4" x 5", FOR 3/4" Ø BOLT |

NOTES:

1. ALL DIMENSIONS IN MILLIMETRES (mm) UNLESS OTHERWISE NOTED.
2. ALL FERROUS METAL COMPONENTS SHALL SATISFY CHARPY LEVEL 2 REQUIREMENTS PER CSA C96.3.
3. SPIRAL VIBRATION DAMPERS TO BE INSTALLED AS PER MANUFACTURER'S SPECIFICATIONS. FOR SPIRAL VIBRATION DAMPER QUANTITIES REFER TO DAMPER SCHEDULE.
4. CONTRACTOR TO CONFIRM BOLT LENGTHS PRIOR TO PROCUREMENT AND CONSTRUCTION. BOLT LENGTHS SHOWN ARE FOR CLASS 1 POLES. FOR CLASS H1 AND H2 POLES ADD 2".
5. THIS ASSEMBLY SHALL ONLY BE USED ON PT, PTR, PTG, VMA, AND PVO STRUCTURES. FOR ALL OTHER STRUCTURES USE GUYED DOUBLE DEADEND (AS PER DWG 1407-T-4135) WITH DOWNLEADS AND DOWNLEAD CLAMPS AS REQUIRED.




ELEVATION VIEW

FORBES BROS **AS-BUILT**

CHANGES REQUIRED YES ☐ NO ☐

Name (Print) _____

Signature _____

Date _____

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CLIENT: StrataGold Corporation

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|---|---|
| DATE | MAY 11/18 |
| DESIGN | MP |
| DRAWN | DV |
| CHECKED | PC |
| APPROVED | MEO |

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WN BRAZIER ASSOCIATES INC

SEAL: PROFESSIONAL ENGINEER — YUKON — MATTHEW OBEE — TERRITORY — May 11, 2018

EAGLE GOLD PROJECT

69 kV TRANSMISSION LINE

ADSS DOUBLE DEADEND DOWNLEAD FOR SPLICE LOCATIONS ASSEMBLY

| PROJECT No. | DRAWING No. | REV. |
|---|---|---|
| 1407 | 1407-T-4140 | 0 |

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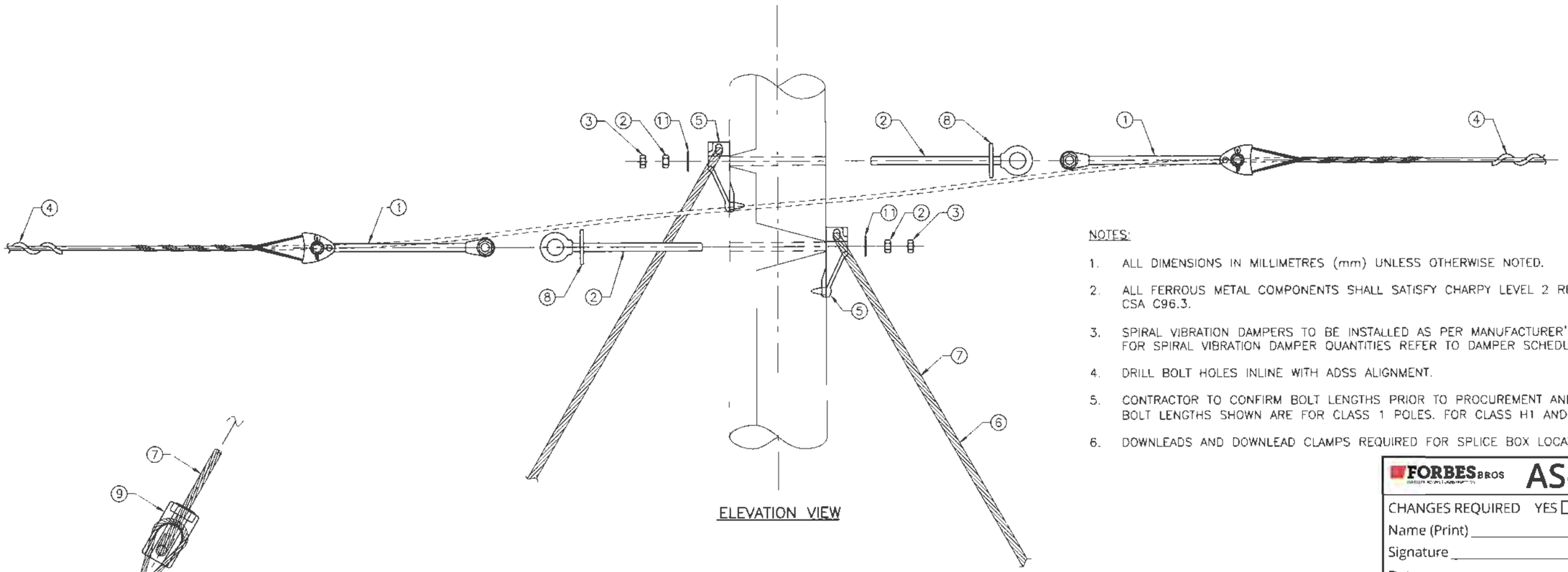
BILL OF MATERIAL FOR ONE ASSEMBLY

| ITEM | QTY | UNIT | STOCK NO | DESCRIPTION |
|---|---|---|---|---|
| 1 | 2 | EA | AN-020-1310 (ZTT) | FORMED HIGH TENSION DEADEND ASSEMBLY w/ Y-CLEVIS |
| 2 | 2 | EA | 62758H (SLCN) | BOLT, SHOULDER EYE, 3/4" x 18", MIN THREAD 6", c/w NUT |
| 3 | 2 | EA | PL-70 (HB) | NUT, PAL, GALV, FOR 3/4" Ø BOLT |
| 4 | A.R. | EA | FLP-1310 (ZTT) | SPIRAL VIBRATION DAMPER, FOR FIBRE OPTICS (NOTE 3) |
| 5 | 2 | EA | P138 (MPS) | HOOK, GUY (H.D. THIMBLE TYPE) (120kN) |
| 6 | A.R. | m | - | WIRE, GUY, ~~SIZE 10, GRADE 1300~~ SIZE 7/16", GRADE 220 (RFI-009) |
| 7 | 12 | EA | 7/16-38-GN (PYR) | GRIP, GUY, SIZE 10 |
| 8 | 2 | EA | 102-4311-TR (TOR) | WASHER, CURVED, 4" x 5", FOR 3/4" Ø BOLT |
| 9 | 4 | EA | 008506-70 (GAM) | INSULATOR, GUY STRAIN, GREY |
| 10 | 2 | EA | RMYGC-MA-74 (R&M) | GUARD, GUY, POLYETHYLENE TUBING |
| 7086 (SLCN) 11 | 2 | EA | ~~J1076 (MPS)~~ | WASHER, 2" OD FLAT, FOR 3/4"ø BOLT |




ELEVATION VIEW




GUY STRAIN INSULATOR DETAIL

NOTES:

1. ALL DIMENSIONS IN MILLIMETRES (mm) UNLESS OTHERWISE NOTED.
2. ALL FERROUS METAL COMPONENTS SHALL SATISFY CHARPY LEVEL 2 REQUIREMENTS PER CSA C96.3.
3. SPIRAL VIBRATION DAMPERS TO BE INSTALLED AS PER MANUFACTURER'S SPECIFICATIONS. FOR SPIRAL VIBRATION DAMPER QUANTITIES REFER TO DAMPER SCHEDULE.
4. DRILL BOLT HOLES INLINE WITH ADSS ALIGNMENT.
5. CONTRACTOR TO CONFIRM BOLT LENGTHS PRIOR TO PROCUREMENT AND CONSTRUCTION. BOLT LENGTHS SHOWN ARE FOR CLASS 1 POLES. FOR CLASS H1 AND H2 POLES ADD 2".
6. DOWNLEADS AND DOWNLEAD CLAMPS REQUIRED FOR SPLICE BOX LOCATIONS.

FORBES BROS **AS-BUILT**

CHANGES REQUIRED YES ☐ NO ☐

Name (Print) _____

Signature _____

Date _____

ISSUED FOR CONSTRUCTION

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CLEAN ENERGY CONSULTING INC.
SIGNATURE _____
Date May 11, 2018
PERMIT NUMBER: PP424
Association of Professional Engineers of Yukon

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WN BRAZIER ASSOCIATES INC

SEAL: PROFESSIONAL ENGINEER YUKON MATTHEW OBEE TERRITORY May 11, 2018

EAGLE GOLD PROJECT
69 kV TRANSMISSION LINE
ADSS DOUBLE DEADEND ASSEMBLY

| PROJECT No. | DRAWING No. | REV |
|---|---|---|
| 1407 | 1407-T-4135 | 0 |

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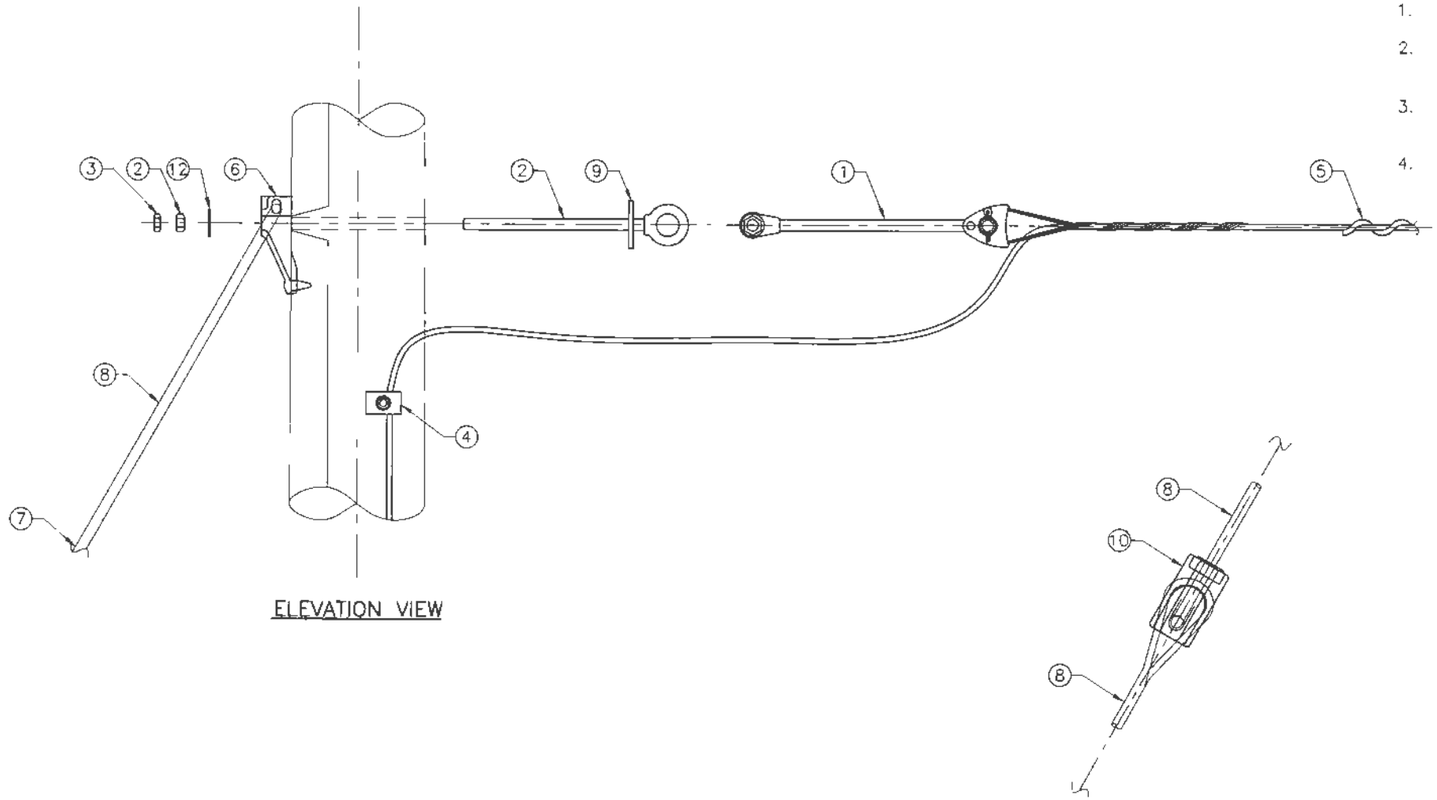


ELEVATION VIEW




GUY STRAIN INSULATOR DETAIL

BILL OF MATERIAL FOR ONE ASSEMBLY

| ITEM | QTY | PU | STOCK NO. | DESCRIPTION |
|---|---|---|---|---|
| 1 | 1 | EA | AR-020-1310 (ZTT) | FORMED HIGH TENSION DEADEND w/ Y-CLEVIS |
| 2 | 1 | EA | 62758H (SLCN) | BOLT, SHOULDER EYE, 3/4" x 18", MIN THREAD 6", c/w NUT |
| 3 | 1 | EA | PL-70 (HB) | NUT, PAL, GALV, FOR 3/4" Ø BOLT |
| 4 | 1 | EA | AYG (ZTT) | DOWNLEAD CLAMP w/ LAG BOLT |
| 5 | A.R. | EA | FLP-1310 (ZTT) | SPIRAL VIBRATION DAMPER, FOR FIBRE OPTICS |
| 6 | 1 | EA | P138 (MPS) | HOOK, GUY (H.D. THIMBLE TYPE) |
| 7 | A.R. | m | - | WIRE, GUY, ~~SIZE 10, GRADE 1300~~ SIZE 7/16", GRADE 220 (RFI-009) |
| 8 | 6 | EA | 7/16-3B-GN (PYR | GRIP, GUY, SIZE 10 |
| 9 | 1 | EA | 102-4311-TR (TDR) | WASHER, CURVED, 4" x 5", FOR 3/4" Ø BOLT |
| 10 | 2 | EA | 008506-70 (GAM) | INSULATOR, GUY STRAIN, GREY |
| 11 | 1 | EA | RMYGG-MA-74 (R&M) | GUARD, GUY, POLYETHYLENE TUBING |
| 12 | 1 | EA | ~~J1076 (MPS)~~ 7086 (SLCN) | WASHER, 2" OD, FLAT, FOR 3/4"ø BOLT |

NOTES:

1. ALL DIMENSIONS IN MILLIMETRES (mm) UNLESS OTHERWISE NOTED.
2. ALL FERROUS METAL COMPONENTS SHALL SATISFY CHARPY LEVEL 2 REQUIREMENTS PER CSA C96.3.
3. SPIRAL VIBRATION DAMPERS TO BE INSTALLED AS PER MANUFACTURER'S SPECIFICATIONS. FOR SPIRAL VIBRATION DAMPER QUANTITIES REFER TO DAMPER SCHEDULE.
4. CONTRACTOR TO CONFIRM BOLT LENGTHS PRIOR TO PROCUREMENT AND CONSTRUCTION. BOLT LENGTHS SHOWN ARE FOR CLASS 1 POLES. FOR CLASS H1 AND H2 POLES ADD 2".

FORBES BROS **AS-BUILT**

CHANGES REQUIRED YES ☐ NO ☐

Name (Print) _____

Signature _____

Date _____

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SEAL PROFESSIONAL ENGINEER YUKON MATTHEW OBEE TERRITORY May 10, 2018

EAGLE GOLD PROJECT

69 kV TRANSMISSION LINE

ADSS DEADEND DOWNLEAD ASSEMBLY

| PROJECT No. | DRAWING No. | REV. |
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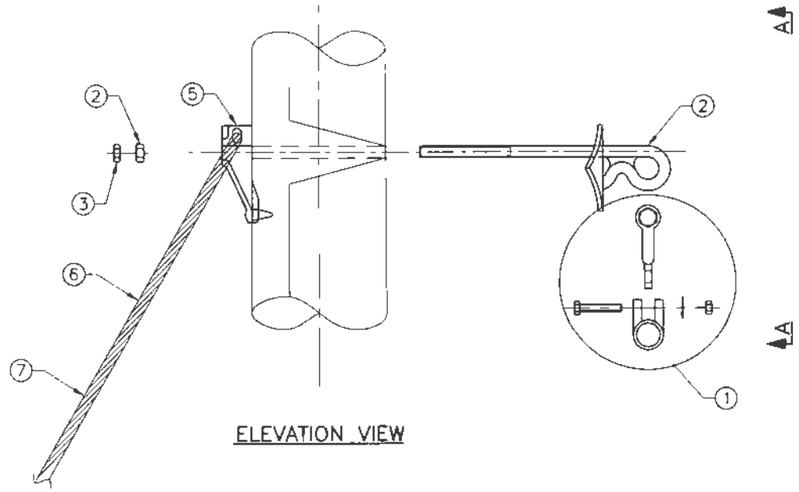
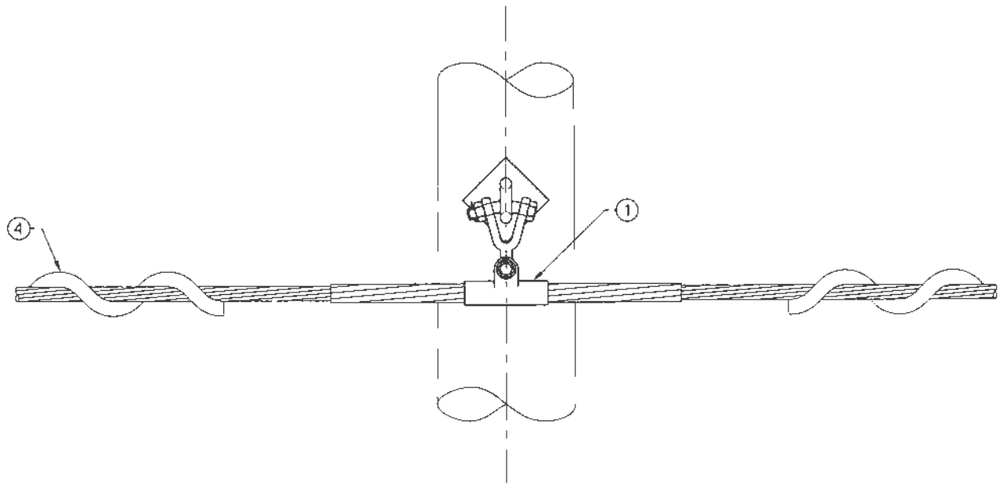
| 1407 | 1407-T-4130 | 0 |




ELEVATION VIEW

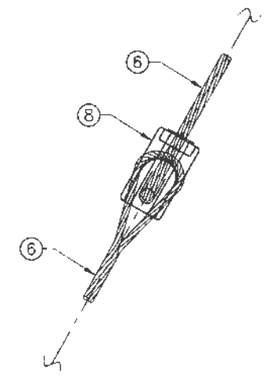



SECTION A–A

| BILL OF MATERIAL FOR ONE ASSEMBLY | | | | |
|---|---|---|---|---|
| ITEM | QTY | HU | STOCK NO | DESCRIPTION |
| 1 | 1 | EA | AC-0200-1310 (ZTT) | FORMED WIRE SUSPENSION ASSEMBLY |
| 2 | 1 | EA | 2812.6-16 (HB) | BRACKET, SHIELD WIRE SUPPORT FOR ADSS, 3/4" x 16", MIN. THREAD 8", c/w NUT |
| 3 | 1 | EA | PL-70 (HB) | NUT, PAL, FOR 3/4" Ø BOLT |
| 4 | A.R. | EA | FLP-1310 (ZTT) | SPIRAL VIBRATION DAMPER, FOR FIBRE OPTICS |
| 5 | 1 | EA | P138 (MPS) | HOOK, GUY (HD) THIMBLE TYPE (120kN) |
| 6 | 6 | EA | 7/16-38-GN (PYR) | GRIP, GUY, SIZE 10 |
| 7 | A.R. | EA | - | WIRE, GUY, ~~SIZE 10, GRADE 1300~~ SIZE 7/16", GRADE 220 (RFI-009) |
| 8 | 2 | EA | 008506-70 (GAM) | INSULATOR, GUY STRAIN, GREY |
| 9 | 1 | EA | RMYGG-MA-74 (R&M) | GUARD, GUY, POLYETHYLENE TUBING |

NOTES:

1. ALL DIMENSIONS IN MILLIMETRES (mm) UNLESS OTHERWISE NOTED.
2. ALL FERROUS METAL COMPONENTS SHALL SATISFY CHARPY LEVEL 2 REQUIREMENTS PER CSA C96.3.
3. SPIRAL VIBRATION DAMPERS TO BE INSTALLED AS PER MANUFACTURER'S SPECIFICATIONS. FOR SPIRAL VIBRATION DAMPER QUANTITIES REFER TO DAMPER SCHEDULE.
4. CONTRACTOR TO CONFIRM BOLT LENGTHS PRIOR TO PROCUREMENT AND CONSTRUCTION. BOLT LENGTHS SHOWN ARE FOR CLASS 1 POLES. FOR CLASS H1 AND H2 POLES ADD 2".




GUY STRAIN INSULATOR DETAIL

FORBES BROS **AS-BUILT**

CHANGES REQUIRED YES ☐ NO ☐

Name (Print) _____

Signature _____

Date _____

ISSUED FOR CONSTRUCTION

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SEAL: PROFESSIONAL ENGINEER YUKON TERRITORY MATTHEW OBEE May 11, 2018

EAGLE GOLD PROJECT
69 kV TRANSMISSION LINE
ADSS SUSPENSION GUYED ASSEMBLY

| PROJECT No. | DRAWING No. | REV. |
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| 1407 | 1407-T-4125 | 0 |

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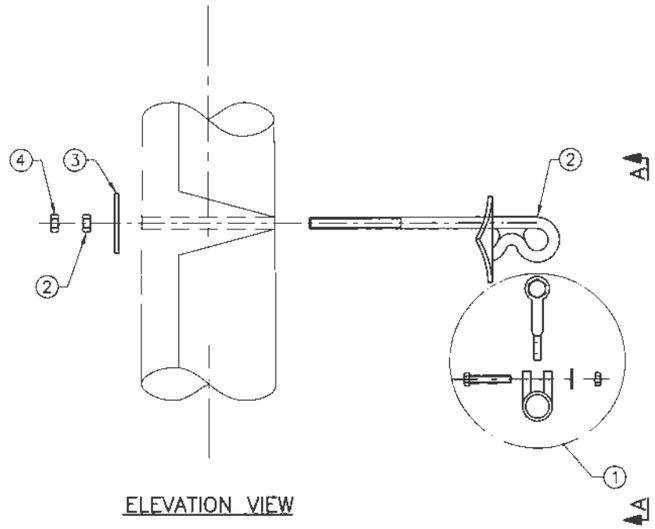
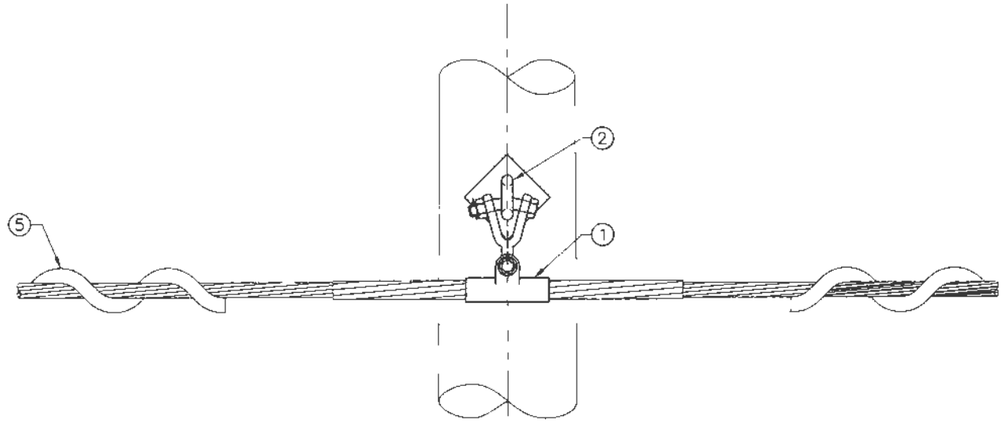



ELEVATION VIEW




SECTION A–A

| BILL OF MATERIAL FOR ONE ASSEMBLY | | | | |
|---|---|---|---|---|
| ITEM | QTY | HU | STOCK NO. | DESCRIPTION |
| 1 | 1 | EA | AC-0200-1310 (ZTT) | FORMED WIRE SUSPENSION ASSEMBLY |
| 2 | 1 | EA | 2812.6-16 (HB) | BRACKET, SHIELD WIRE SUPPORT FOR ADSS, 3/4" x 16", MIN. THREAD 8", c/w NUT |
| 3 | 2 | EA | 102-431-TR (TDR) | WASHER, CURVED, 4" x 5", FOR 3/4" Ø BOLT |
| 4 | 1 | EA | PL-70 (HB) | NUT, PAL, FOR 3/4" Ø BOLT |
| 5 | A.R. | EA | FLP-1310 (ZTT) | SPIRAL VIBRATION DAMPER, FOR FIBRE OPTICS |

NOTES:

1. ALL DIMENSIONS IN MILLIMETRES (mm) UNLESS OTHERWISE NOTED.
2. ALL FERROUS METAL COMPONENTS SHALL SATISFY CHARPY LEVEL 2 REQUIREMENTS PER CSA C96.3.
3. SPIRAL VIBRATION DAMPERS TO BE INSTALLED AS PER MANUFACTURER'S SPECIFICATIONS. FOR SPIRAL VIBRATION DAMPER QUANTITIES REFER TO DAMPER SCHEDULE.
4. CONTRACTOR TO CONFIRM BOLT LENGTHS PRIOR TO PROCUREMENT AND CONSTRUCTION. BOLT LENGTHS SHOWN ARE FOR CLASS 1 POLES. FOR CLASS H1 AND H2 POLES ADD 2".

FORBES BROS **AS-BUILT**

CHANGES REQUIRED YES ☐ NO ☐

Name (Print) _____

Signature _____

Date _____

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Date May 11, 2018
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SEAL PROFESSIONAL ENGINEER YUKON TERRITORY MATTHEW OBEE May 11, 2018

EAGLE GOLD PROJECT
69 kV TRANSMISSION LINE
ADSS SUSPENSION ASSEMBLY

| PROJECT No. | DRAWING No. | REV. |
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NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETRES (mm) UNLESS NOTED OTHERWISE.
2. NUMBER OF HOLD DOWN WEIGHTS (45 kg EACH) TO BE SPECIFIED ON STRUCTURE DATA SHEETS.
3. HOLD DOWN WEIGHTS TO BE PLACED IN PAIRS SYMMETRICALLY ABOUT CENTRE LINE OF INSULATOR STRING.
4. BOLTS TIGHTENED TO 90 N.m TORQUE.
5. Hold down weights 45kg.
   Part# 413-6502 (CANADA METAL)

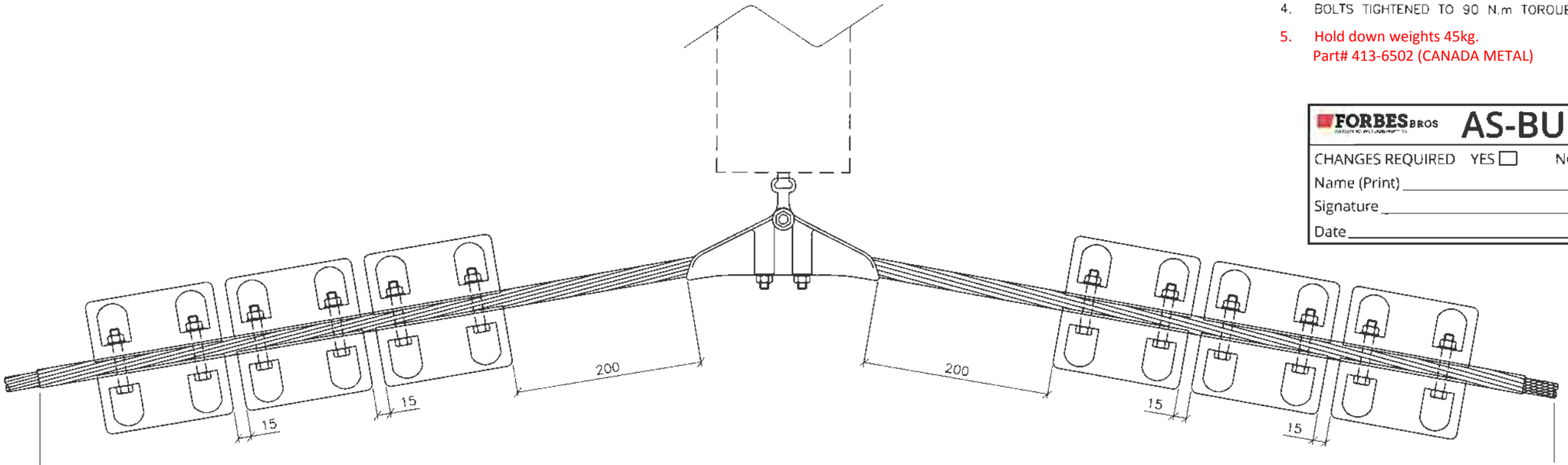
FORBES BROS **AS-BUILT**

CHANGES REQUIRED YES ☐ NO ☐

Name (Print) _____

Signature _____

Date _____

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SEAL: PROFESSIONAL ENGINEER — YUKON TERRITORY — MATTHEW OBEE — May 18, 2018

EAGLE GOLD PROJECT

69 kV TRANSMISSION LINE

HOLD DOWN WEIGHT ASSEMBLY

| PROJECT No. | DRAWING No. | REV. |
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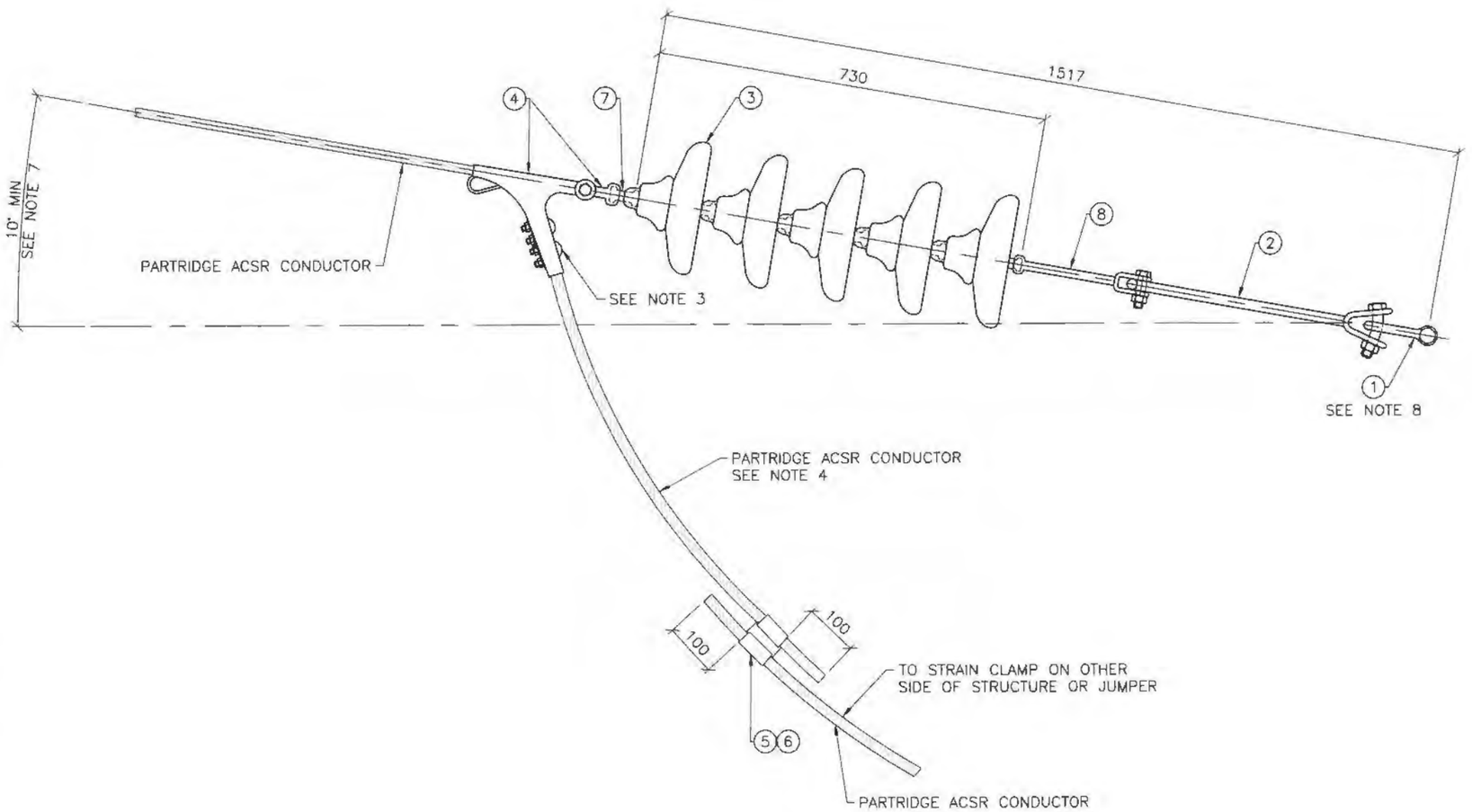
| BILL OF MATERIAL FOR ONE ASSEMBLY | | | | | |
|---|---|---|---|---|---|
| | ITEM | QTY | HU | STOCK NO. | DESCRIPTION |
| | 1 | A.R. | EA | 63186-E6 (SLCN) | SHACKLE, ANCHOR, 19 ø, 27 OPEN, 102 LG, 3/4" ø BOLT, 160 kN |
| 60962-E6 | 2 | 1 | EA | ~~60969-E~~ (SLCN) | CLEVIS, EYE, Y-TYPE, 3/4" ø BOLT, 120 kN |
| | 3 | 5 | EA | N70/146 (SVR) | INSULATOR, SUSPENSION, 146 x 254, 70 kN |
| SD70S-BNK (HBL) | 4 | 1 | EA | ~~ADE24-S-BC (MPS)~~ | CLAMP, STRAIN ASSEMBLY, c/w SOCKET EYE, 120 kN |
| | 5 | 1 | EA | 602046-9 (TYC) | SPLICE, AMPACT |
| 69338-1 | 6 | 1 | EA | ~~69388-1~~ (TYC) | CARTRIDGE, AMPACT, BLUE |
| | 7 | 1 | EA | 3009-LPS (SLCN) | BALL, DOUBLE ADAPTER, 65 mm LG, 120 kN |
| 60969-E | 8 | 1 | EA | ~~60962-E6~~ (SLCN) | CLEVIS, SOCKET, 5/8" ø BOLT, 460 LG, 160 kN |




NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETRES (mm) UNLESS NOTED OTHERWISE.
2. FOR GENERAL CONSTRUCTION NOTES SEE DWG. NO. 1407-T-1300.
3. STRAIN CLAMP U-BOLT TO BE TIGHTENED TO THE FOLLOWING TORQUES UNLESS OTHERWISE STATED BY THE MANUFACTURER:

   1/2" ø = 50 N.m
   5/8" ø = 100 N.m
4. TAIL MUST BE ORIENTED TOWARDS THE JUMPER CLAMP OR THE NEXT CLAMP.
5. APPROXIMATE ASSEMBLY MASS = 28 kg.
6. THIS ASSEMBLY TO BE USED ONLY WHEN DIP ANGLE EXCEEDS -10°.
7. ANCHOR SHACKLE (ITEM 1) IS ONLY REQUIRED FOR FDE STRUCTURES.
8. ALL FERROUS METAL COMPONENTS SHALL SATISFY CHARPY LEVEL 2 REQUIREMENTS PER CSA C96.3.

FORBES BROS AS-BUILT

CHANGES REQUIRED YES ☐ NO ☐

Name (Print) _____

Signature _____

Date _____

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SEAL: PROFESSIONAL ENGINEER YUKON TERRITORY MATTHEW OBEE May 11, 2018

EAGLE GOLD PROJECT

69 kV TRANSMISSION LINE

REVERSED INSULATOR DEADEND ASSEMBLY HARDWARE – 70 kN

| PROJECT No. | DRAWING No. | REV. |
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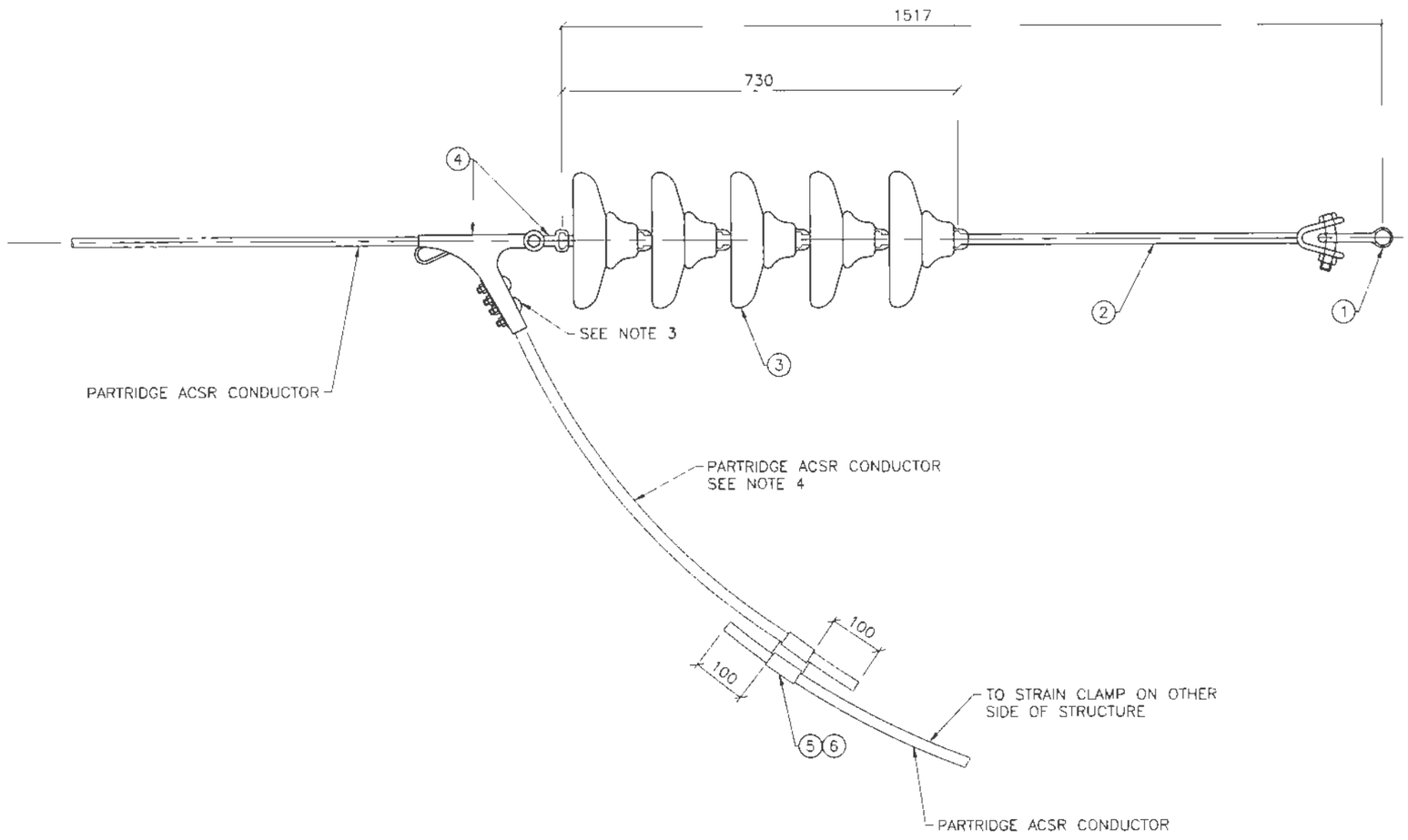
| 14D7 | 1407-T-4106 | 0 |

BILL OF MATERIAL FOR ONE ASSEMBLY

| | ITEM | QTY | UNIT | STOCK NO | DESCRIPTION |
|---|---|---|---|---|---|
| | 1 | 1 | EA | 63186-E6 (SLCN) | SHACKLE, ANCHOR, 19 ø, 27 OPEN, 89 LG, 3/4" ø BOLT 160 kN |
| 63868-E6 | 2 | 1 | EA | ~~63868-E6~~ (SLCN) | CLEVIS, BALL, Y-TYPE, 685 LG, 3/4" ø BOLT, 120 kN |
| | 3 | 5 | EA | N70/146 (SVR) | INSULATOR, SUSPENSION, GLASS, 146 x 254, 70 kN (ANSI-52-3) |
| SD70S-BNK (HBL) | 4 | 1 | EA | ~~ASL24-5-BC (MPS)~~ | CLAMP, STRAIN ASSEMBLY, c/w SOCKET EYE, 120 kN |
| | 5 | 1 | EA | 602046-9 (TYC) | SPLICE, AMPACT |
| 69338-1 | 6 | 1 | EA | ~~69338-1~~ (TYC) | CARTRIDGE, AMPACT, BLUE |




NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETRES (mm) UNLESS NOTED OTHERWISE.
2. FOR GENERAL CONSTRUCTION NOTES SEE DWG. NO. 1407-T-1300.
3. STRAIN CLAMP U-BOLT TO BE TIGHTENED TO THE FOLLOWING TORQUES UNLESS OTHERWISE STATED BY THE MANUFACTURER:

   1/2" ø = 50 N.m
   5/8" ø = 100 N.m
4. TAIL MUST BE ORIENTED TOWARDS THE JUMPER CLAMP OR THE NEXT CLAMP.
5. APPROXIMATE ASSEMBLY MASS = 28 kg.
6. ALL FERROUS METAL COMPONENTS SHALL SATISFY CHARPY LEVEL 2 REQUIREMENTS PER CSA C96.3.

FORBES BROS **AS-BUILT**

CHANGES REQUIRED YES ☐ NO ☐
Name (Print) _____
Signature _____
Date _____

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SEAL: PROFESSIONAL ENGINEER YUKON TERRITORY MATTHEW OBEE May 11, 2018

EAGLE GOLD PROJECT
69 kV TRANSMISSION L'NE
DEADEND ASSEMBLY HARDWARE – 70 kN

| PROJECT No. | DRAWING No. | REV. |
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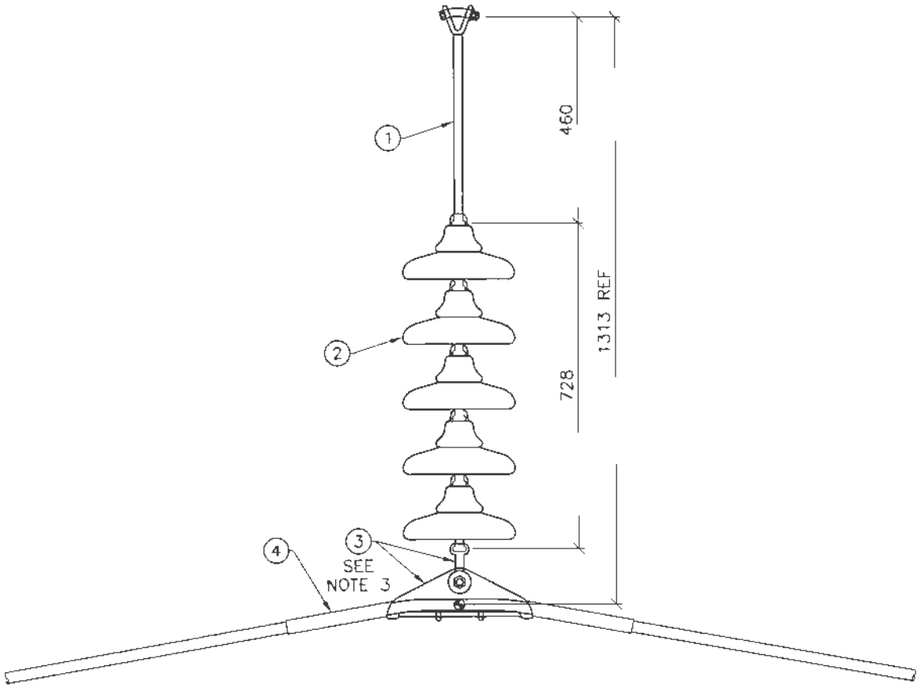
| BILL OF MATERIAL FOR ONE ASSEMBLY | | | | |
|---|---|---|---|---|
| ITEM | QTY | MU | STOCK NO | DESCRIPTION |
| 1 | 1 | EA | 60968-E6 (SLCN) | CLEVIS, BALL, Y-TYPE, 460 LG, 3/4" ø BOLT, 120 kN |
| 2 | 5 | EA | N70/146 (SVR) | INSULATOR, SUSPENSION, GLASS, 146 x 254, 70 kN (ANSI 52-3) |
| 3 | 1 | EA | HAS104S (HBL) | CLAMP, SUSPENSION ASSEMBLY, c/w SOCKET EYE, 120 kN |
| 4 | 1 | EA | ~~PARTRIDGE 64A (PYR)~~ | ROD, ARMOUR, PREFORMED |

AR-0127 (PLP)




SUSPENSION INSULATORS

NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETRES (mm) UNLESS NOTED OTHERWISE.
2. FOR GENERAL CONSTRUCTION NOTES SEE DWG. NO. 1407-T-1300.
3. THE COTTER PIN IN THE BOLT JOINING THE SUSPENSION CLAMP AND SOCKET EYE SHALL BE LOCATED ON THE SIDE OF THE SUSPENSION CLAMP FACING THE NEAREST POLE.
4. SUSPENSION CLAMP U-BOLT TO BE TIGHTENED TO THE FOLLOWING TORQUES UNLESS OTHERWISE STATED BY THE MANUFACTURER:

   1/2" ø = 50 N.m

   5/8" ø = 100 N.m
5. APPROXIMATE ASSEMBLY MASS = 26 kg.
6. ALL FERROUS METAL COMPONENTS SHALL SATISFY CHARPY LEVEL 2 REQUIREMENTS PER CSA C96.3.
7. WHEN THIS INSULATOR ASSEMBLY IS USED TO SUPPORT A JUMPER, CUT ARMOUR ROD IN HALF. FILE CUT ENDS SMOOTH.

FORBES BROS **AS-BUILT**

CHANGES REQUIRED YES ☐ NO ☐

Name (Print) _____

Signature _____

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SIGNATURE _____
Date May 11, 2018
PERMIT NUMBER: PP424
Association of Professional Engineers of Yukon

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WN BRAZIER ASSOCIATES INC

SEAL: PROFESSIONAL ENGINEER YUKON TERRITORY MATTHEW OBEE May 11, 2018

EAGLE GOLD PROJECT

69 kV TRANSMISSION LINE

SINGLE 70 kN INSULATOR STRING SUSPENSION HARDWARE ASSEMBLY

| PROJECT No | DRAWING No. | REV. |
|---|---|---|
| 1407 | 1407-T-4101 | 0 |

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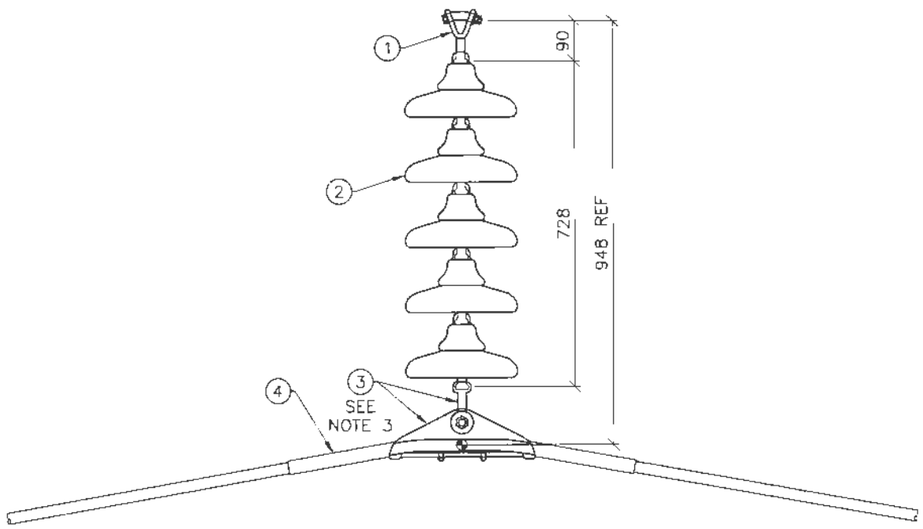
BILL OF MATERIAL FOR ONE ASSEMBLY

| ITEM | QTY | UNIT | STOCK NO | DESCRIPTION |
|---|---|---|---|---|
| 1 | 1 | EA | YCB-65A BCH (MPS) | CLEVIS, BALL, Y-TYPE, 90 LG, 3/4" ø BOLT, 120 kN |
| 2 | 5 | EA | N70/146 (SVR) | INSULATOR, SUSPENSION, GLASS, 146 x 254, 70 kN (ANSI 52-3) |
| 3 | 1 | EA | HAS104S (HBL) | CLAMP, SUSPENSION ASSEMBLY, c/w SOCKET EYE, 120 kN |
| 4 | 1 | EA | ~~PARTRIDGE 64A (PYR)~~ | ROD, ARMOUR, PREFORMED |

AR-0127 (PLP)




JUMPER SUSPENSION INSULATORS

NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETRES (mm) UNLESS NOTED OTHERWISE.
2. FOR GENERAL CONSTRUCTION NOTES SEE DWG. NO. 1407-T-1300.
3. THE COTTER PIN IN THE BOLT JOINING THE SUSPENSION CLAMP AND SOCKET EYE SHALL BE LOCATED ON THE SIDE OF THE SUSPENSION CLAMP FACING THE NEAREST POLE.
4. SUSPENSION CLAMP U-BOLT TO BE TIGHTENED TO THE FOLLOWING TORQUES UNLESS OTHERWISE STATED BY THE MANUFACTURER:

   1/2" ø = 50 N.m

   5/8" ø = 100 N.m
5. APPROXIMATE ASSEMBLY MASS = 25 kg.
6. ALL FERROUS METAL COMPONENTS SHALL SATISFY CHARPY LEVEL 2 REQUIREMENTS PER CSA C96.3.
7. WHEN THIS INSULATOR ASSEMBLY IS USED TO SUPPORT A JUMPER, CUT ARMOUR ROD IN HALF. FILE CUT ENDS SMOOTH.

FORBES BROS **AS-BUILT**

CHANGES REQUIRED YES ☐ NO ☐

Name (Print) _____

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SEAL: PROFESSIONAL ENGINEER YUKON MATTHEW OBEE TERRITORY May 11, 2018

EAGLE GOLD PROJECT

69 kV TRANSMISSION LINE

SINGLE 70 kN JUMPER SUSPENSION HARDWARE ASSEMBLY

| PROJECT No. | DRAWING No. | REV. |
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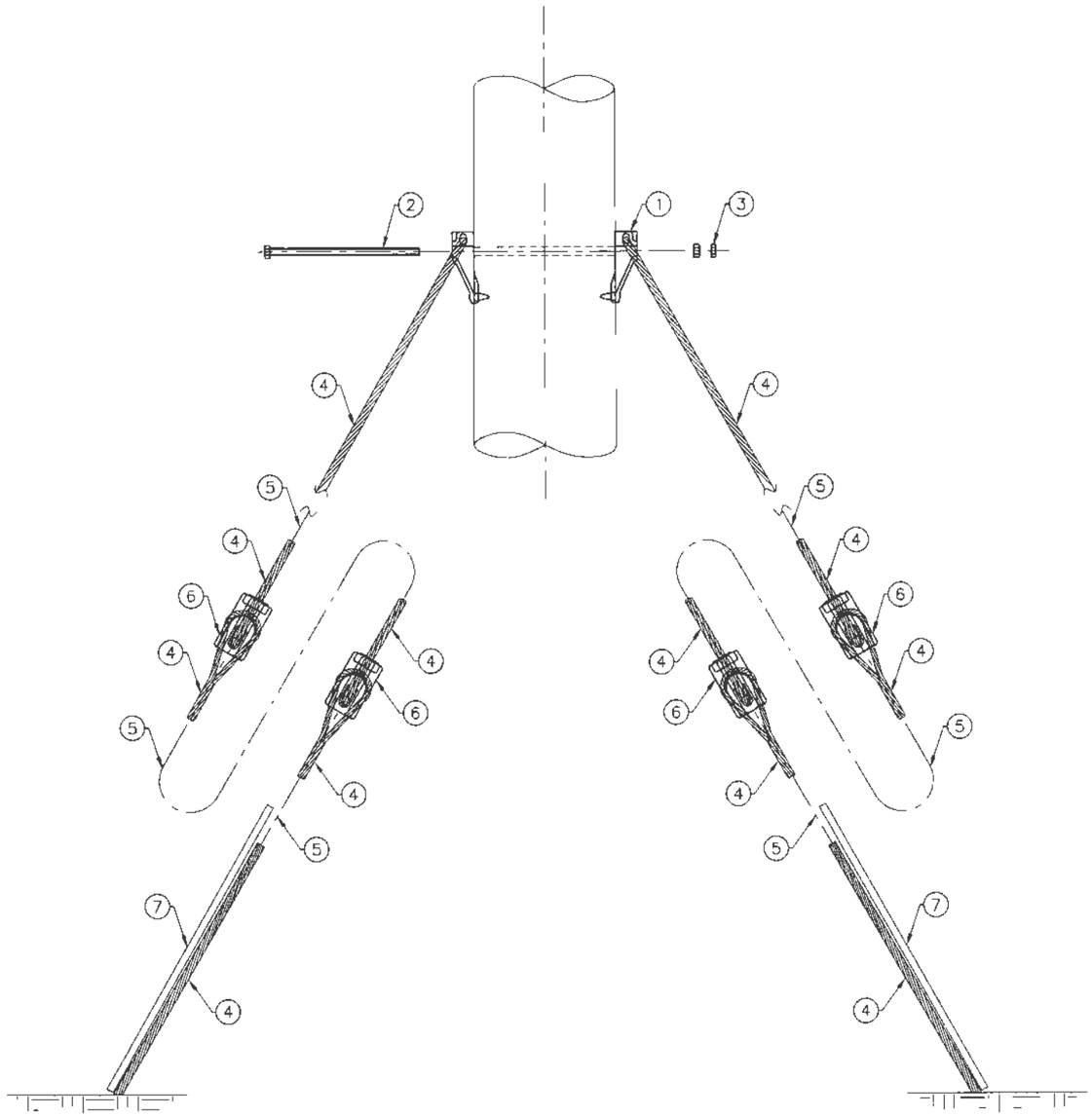
| 1407 | 1407-T-4100 | 0 |




BILL OF MATERIAL FOR ONE ASSEMBLY

| ITEM | QTY | U/C | STOCK NO | DESCRIPTION |
|---|---|---|---|---|
| 1 | 2 | EA | P138 (MPS) | HOOK, GUY, (HD THIMBLE TYPE) (120 kN) |
| 2 | 1 | EA | ~~7689.T (SLCN)~~ | BOLT, MACHINE, 7/8"ø x 18", MIN. THREAD 6" w/ NUT (B087-180SQG (Pac Bolt)) |
| 3 | 1 | EA | PL-80 (HB) | NUT, PAL, FOR 7/8"ø BOLT |
| 4 | 12 | EA | 7/16-38-GN (PYR) | GRIP, GUY, SIZE 10 |
| 5 | A.R. | m | - | WIRE, GUY, ~~SIZE 10, GRADE 1300~~ SIZE 7/16", GRADE 220 (RFI-009) |
| 6 | 4 | EA | C08506-70 (~~CAN~~) | INSULATOR, GUY STRAIN, GREY (LAPP) |
| 7 | 2 | EA | RMYGG-MA-74 (R&M) | GUARD, GUY, POLYETHELENE TUBING |

NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETRES (mm) UNLESS NOTED OTHERWISE.
2. CONTRACTOR TO CONFIRM BOLT LENGTHS PRIOR TO PROCUREMENT AND CONSTRUCTION. BOLT LENGTHS SHOWN ARE FOR CLASS 1 POLES. FOR CLASS H1 AND H2 POLES ADD 2".

FORBES BROS **AS-BUILT**

CHANGES REQUIRED YES ☐ NO ☐

Name (Print) _____

Signature _____

Date _____

ISSUED FOR CONSTRUCTION

PERMIT TO PRACTICE
CLEAN ENERGY CONSULTING INC.
SIGNATURE Matthew Obee
Date May 11, 2018
PERMIT NUMBER: PP424
Association of Professional Engineers of Yukon

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SEAL: PROFESSIONAL ENGINEER — YUKON TERRITORY — MATTHEW OBEE — May 11, 2018

EAGLE GOLD PROJECT
69 kV TRANSMISSION LINE
DOUBLE GUY ASSEMBLY

| PROJECT No. | DRAWING No. | REV. |
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| 1407 | 1407-T-4055 | 0 |

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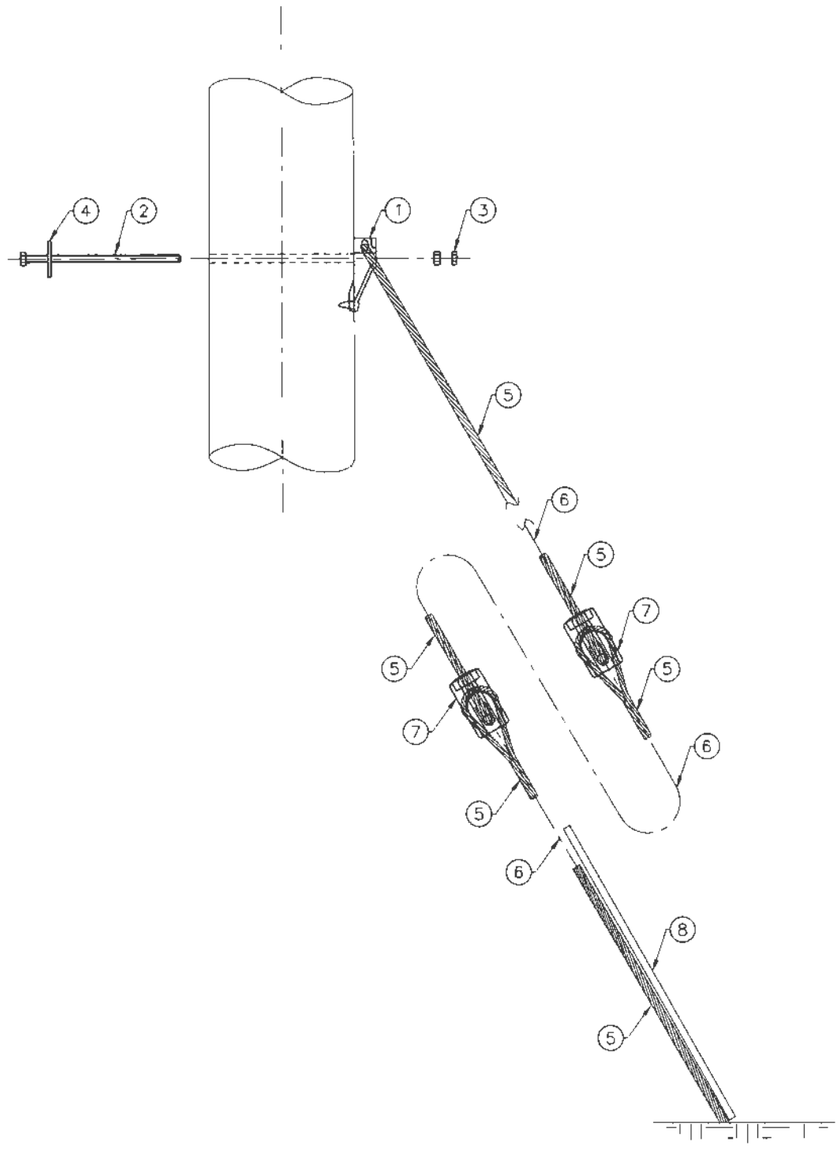


BILL OF MATERIAL FOR ONE ASSEMBLY

| ITEM | QTY | U/M | STOCK NO. | DESCRIPTION |
|---|---|---|---|---|
| 1 | 1 | EA | P138 (VPS) | HOOK, GUY, (HD THIMBLE TYPE) (120 kN) |
| 2 | 1 | EA | ~~7688L (SLCN)~~ B087-160SQG (Pac Bolt) | BOLT, MACHINE, 7/8"ø x 16", MIN. THREAD 6" w/ NUT |
| 3 | 1 | EA | PL-80 (HB) | NUT, PAL, FOR 7/8"ø BOLT |
| 4 | 1 | EA | 102-4319-TR (TDR) | WASHER, CURVED, 5" x 5", FOR 7/8"ø BOLT |
| 5 | 6 | EA | 7/16-38-GN (PYR) | GRIP, GUY, SIZE 10 |
| 6 | A.R. | m | – | WIRE, GUY, ~~SIZE 16, GRADE 1300~~ SIZE 7/16", GRADE 220 (RFI-009) |
| 7 | 2 | EA | 008506-70 ~~(GAM)~~ (LAPP) | INSULATOR, GUY STRAIN, GREY (88 kN) |
| 8 | 1 | EA | RM-GG-MA-74 (R&M) | GUARD, GUY, POLYETHELENE TUBING |

NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETRES (mm) UNLESS NOTED OTHERWISE.
2. CONTRACTOR TO CONFIRM BOLT LENGTHS PRIOR TO PROCUREMENT AND CONSTRUCTION. BOLT LENGTHS SHOWN ARE FOR CLASS 1 POLES. FOR CLASS H1 AND H2 POLES ADD 2".

FORBES BROS **AS-BUILT**

CHANGES REQUIRED YES ☐ NO ☐

Name (Print) _____

Signature _____

Date _____

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Date May 11, 2018
PERMIT NUMBER: PP424
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CLIENT StrataGold Corporation

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SEAL: PROFESSIONAL ENGINEER YUKON MATTHEW OBEE TERRITORY May 11, 2018

EAGLE GOLD PROJECT
69 kV TRANSMISSION LINE
SINGLE GUY ASSEMBLY

| PROJECT No | DRAWING No | REV. |
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| 1407 | 1407-T-4050 | 0 |

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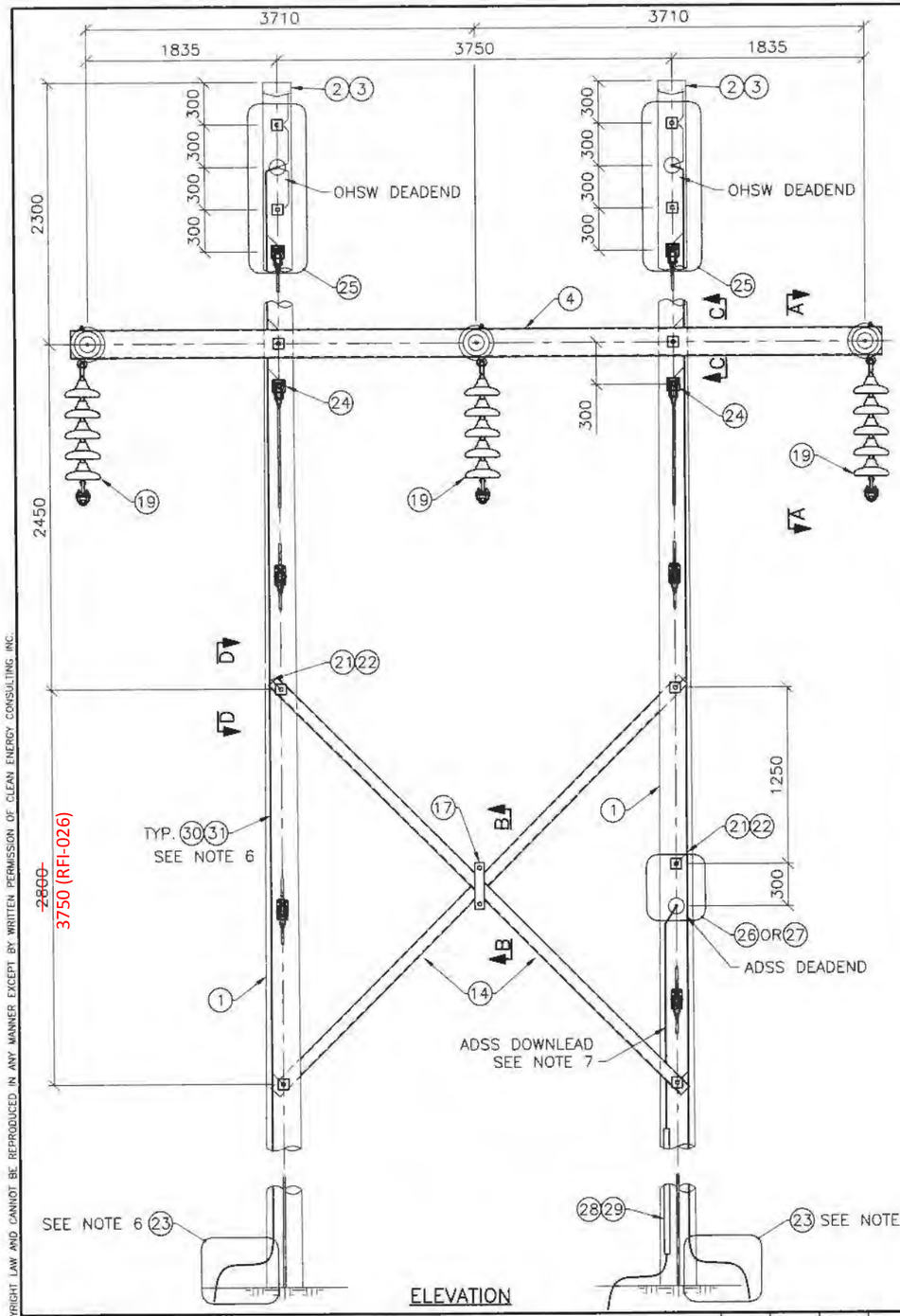


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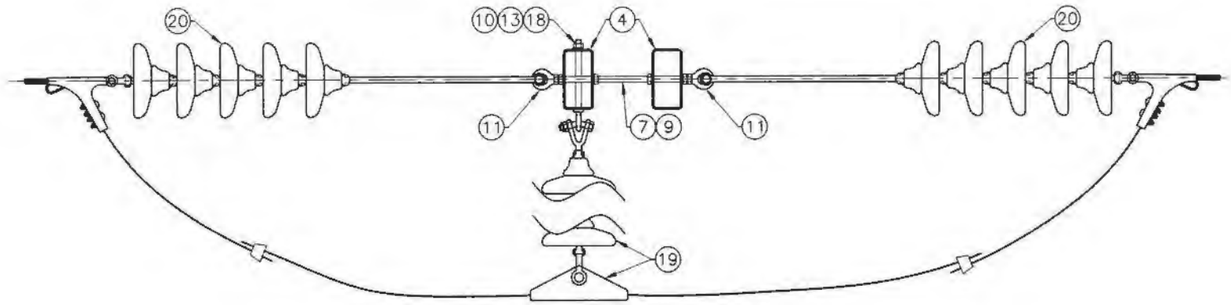
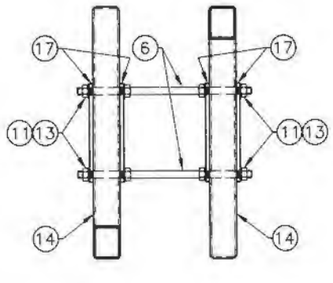


SECTION A–A



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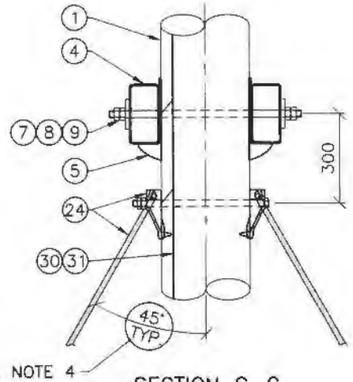


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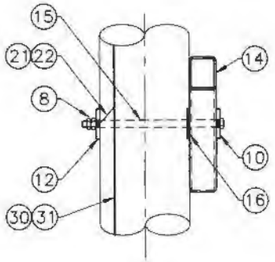

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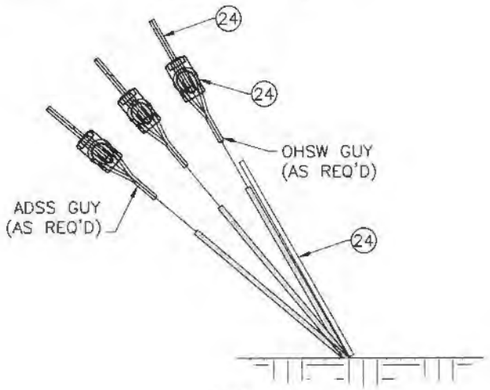


TYPICAL ANCHOR CONNECTION DETAILS
SEE NOTES 3 & 4

**FORBES BROS** **AS-BUILT**

CHANGES REQUIRED YES ☐ NO ☐

Name (Print) _____

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SEAL: PROFESSIONAL ENGINEER YUKON TERRITORY MATTHEW OBEE May 11, 2018

EAGLE GOLD PROJECT

69 kV TRANSMISSION LINE

DOUBLE ARM H–FRAME DEADEND WITH OHSW STRUCTURE (SHEET 1 OF 2)

| PROJECT No. | DRAWING No. | REV. |
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| 1407 | 1407–T–3060–1 | 0 |

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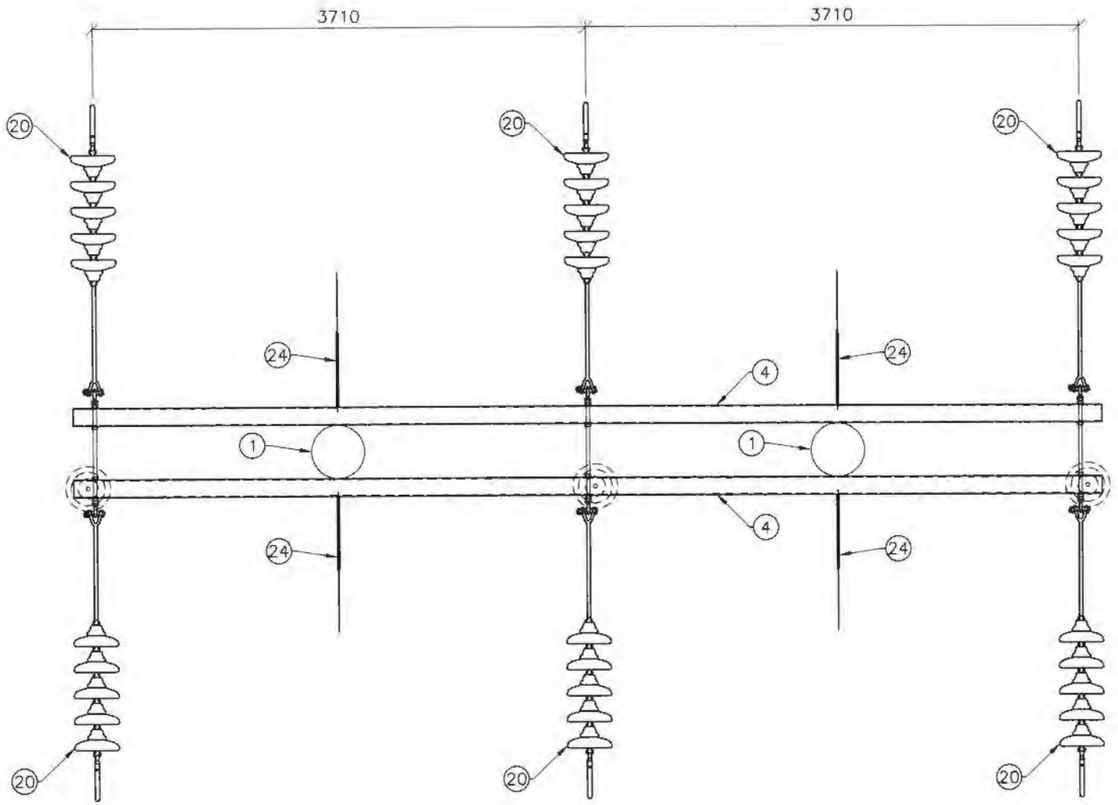


PLAN VIEW AT CROSSARM

OHSW NOT SHOWN FOR CLARITY

BILL OF MATERIAL FOR ONE STRUCTURE

| ITEM | QTY | HU | STOCK NO | DESCRIPTION |
|---|---|---|---|---|
| 1 | 2 | EA | – | POLE, WOOD, FULL TREATED (SEE GENERAL CONSTRUCTION NOTES) |
| 2 | 2 | EA | 700–5778 (TDR) | CAP, RAIN PROTECTIVE ALUMINUM |
| 3 | 16 | EA | – | NAIL, COMMON, WIRE, GALV, 3" LONG |
| 4 | 2 | EA | – | CROSSARM, STEEL, GALV, 203 x 102 x 5 x 7660 HSS (DWG. 1407–T–4405:HF1) |
| 5 | 4 | EA | PX249SG (MPS) | GAIN, CROSSARM SHELF, 4" x 13", 1 1/16"ø HOLE, SPIKED CURVED SIDE |
| 6 | 4 | EA | 102–4370–TR (TDR) | WASHER, FLAT, 4" x 5" FOR 3/4"ø BOLT |
| 7 | 4 | EA | 62656LT (SLCN) | BOLT, DBL ARMING, 5/8"ø, 26" LG, THREADED FULL LENGTH, GALV |
| 8 | 4 | EA | PL–70 (HB) | NUT, PAL, 3/4", GALV STEEL |
| 9 | 3 | EA | 62658LT (SLCN) | BOLT, DOUBLE ARMING, 3/4"ø X 28", c/w 6 NUTS |
| 10 | 19 | EA | J1079 (MPS) | WASHER, FLAT, 3" x 3", FOR 3/4" ø BOLT |
| 11 | 6 | EA | J1093 (MPS) | NUT, EYE, GALV, FOR 3/4" ø BOLT |
| 12 | 4 | EA | 102–4311–TR (TDR) | WASHER, CURVED, 4" x 5", FOR 3/4" ø BOLT |
| 13 | 7 | EA | ~~8856–526 (PLN)~~ J140 (MPS) | WASHER, HELICAL SPRING, FOR 3/4" ø BOLT |
| 14 | 2 | EA | – | CROSSBRACE, STEEL, GALV, 89 x 89 x 6 x 5460 HSS (DWG. 1407–T–4405:XB1) |
| 15 | 4 | EA | 9920LT (SLCN) | BOLT, MACHINE, 3/4"ø x 20", MIN. THREAD 6", c/w NUT |
| 16 | 4 | EA | GGSF–5340–6 (MPS) | GAIN, GRID, 4" x 6" FOR 3/4"ø BOLT, SPIKED CURVED SIDE |
| 17 | 2 | SETS | – | STRAP SET, CROSSBRACE, 330 x 65, FOR 3/4"ø BOLT (DWG.1407–T–4405:PL1) |
| 18 | 3 | EA | 62504SQ (SLCN) | BOLT, SHOULDER EYE, 3/4" ø x 12", c/w NUT |
| 19 | 3 | EA | – | SUSPENSION INSULATOR ASSEMBLY (DWG: 1407–T–4100) |
| 20 | 6 | EA | – | DEADEND INSULATOR ASSEMBLY (DWG: 1407–T–4105) |
| 21 | A.R. | m | – | WIRE, BARE, SOLID, COPPER #6 AWG |
| 22 | A.R. | PKG | 102-0234 –(ECL) | STAPLES, GALV, 38mm x 9.5mm (50 per PKG) |
| 23 | A.R. | EA | – | GROUNDING DETAILS (DWG: 1407–T–4450) |
| 24 | A.R. | EA | – | DOUBLE GUY ASSEMBLY (DWG: 1407–T–4055) |
| 25 | A.R. | EA | – | OHSW DOUBLE DEADEND HARDWARE FOR H–FRAME DEADEND ASSEMBLY (DWG. 1407–T–4165) |
| 26 | A.R. | EA | – | ADSS DEADEND ASSEMBLY (DWG: 1407–T–4130) |
| 27 | A.R. | EA | – | ADSS DOUBLE DEADEND ASSEMBLY (DWG: 1407–T–4135) |
| 28 | A.R. | EA | PGU210 (MSI) | ADSS CABLE COVER (3048 mm LONG) |
| 29 | A.R. | EA | J26486.1 (MPS) | SCREW, LAG, HEX HEAD WITH NEOPRENE BACKED WASHER |
| 30 | A.R. | EA | – | WIRE, BARE, 266 MCM ACSR, PARTRIDGE |
| 31 | A.R. | EA | 25005 –(Allied Bolt) | STAPLES, GALV, TO MOUNT PARTRIDGE GROUND WIRE |

NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETRES (mm) UNLESS NOTED OTHERWISE.
2. FOR GENERAL CONSTRUCTION NOTES SEE DWG. NO. 1407–T–1300.
3. GUYS INSTALLED AT 45° UNLESS NOTED OTHERWISE ON THE STRUCTURE DATA SHEET.
4. FOR SITE–SPECIFIC ADSS SPACING SEE STRUCTURE DATA SHEET.
5. GROUND WIRE (ITEM 30) TO BE INSTALLED ON ALL POLES WHERE OVERHEAD SHIELD WIRE IS ATTACHED. STAPLES (ITEM 31) SHALL BE USED TO ATTACH WIRE TO POLE. GROUND WIRE CABLE COVER TO BE INSTALLED AS PER DWG. 1407–T–4450. BONDING SHALL BE INSTALLED AS PER DWG. 1407–T–1300.
6. ADSS AND OHSW TO BE UNDERGROUNDED AT ~~STR. 0/1. REFER TO DWG. 1407–T–1900. ADSS CABLE COVER TO BE INSTALLED~~ Str. 0/10A as per 1407-T-1400_r3.
7. STRUCTURE TYPE DESIGNATION CODES:

   DAHDEO – DOUBLE ARM H–FRAME DEADEND WITH OHSW

FORBES BROS **AS-BUILT**

CHANGES REQUIRED YES ☐ NO ☐

Name (Print) _____

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SEAL: PROFESSIONAL ENGINEER YUKON TERRITORY MATTHEW OBEE May 14, 2018

EAGLE GOLD PROJECT

69 kV TRANSMISSION LINE

DOUBLE ARM H–FRAME DEADEND WITH OHSW STRUCTURE (SHEET 2 OF 2)

| PROJECT No. | DRAWING No. | REV. |
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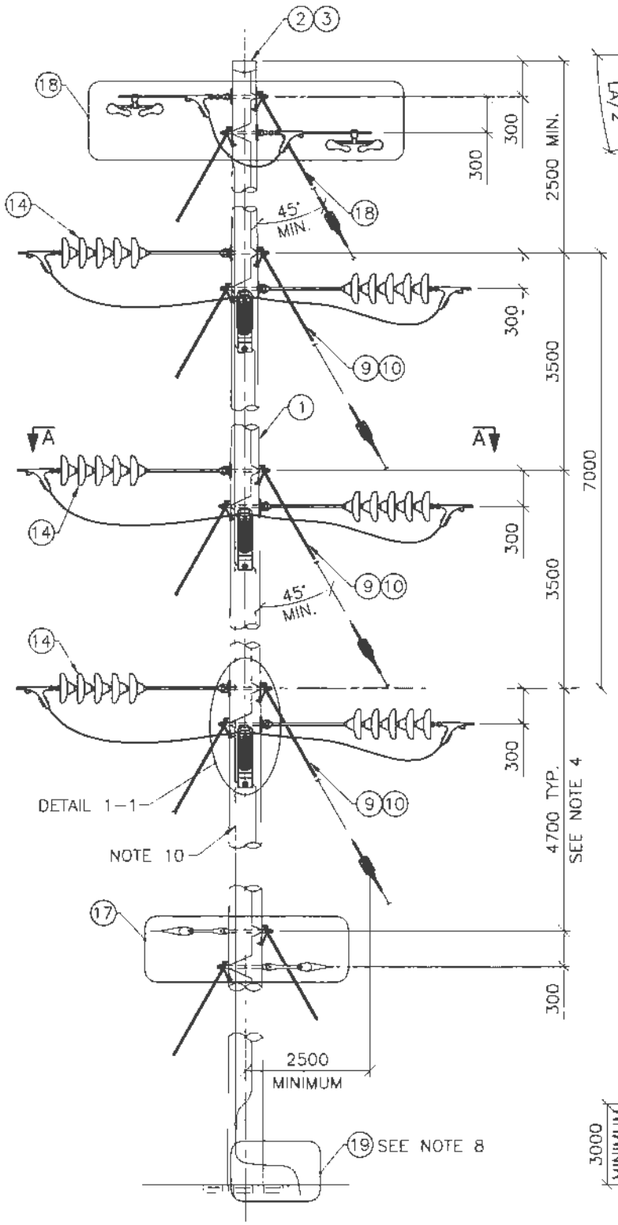


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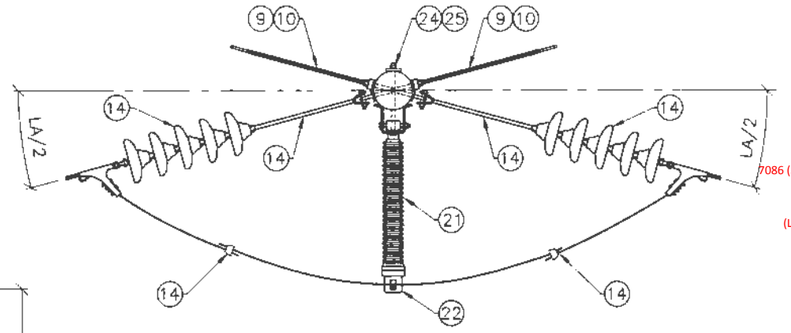
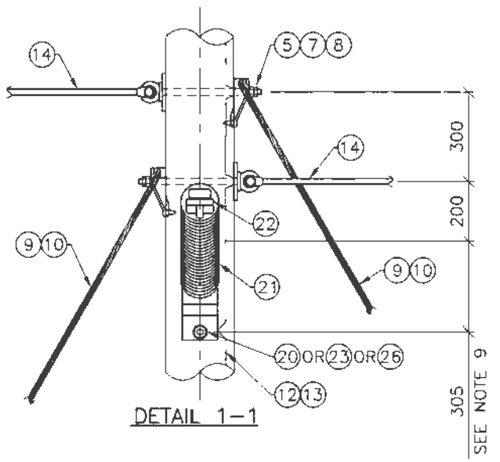
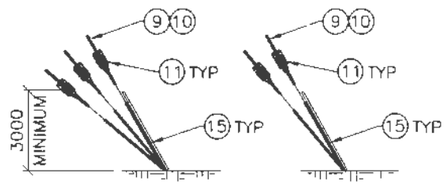



SECTION A–A




DETAIL 1–1




TYPICAL ANCHOR CONNECTION DETAIL
SEE NOTE 3

BILL OF MATERIAL FOR ONE STRUCTURE

| | ITEM | QTY | UNIT | STOCK NO | DESCRIPTION |
|---|---|---|---|---|---|
| | 1 | 1 | EA | – | POLE, WOOD, FULL TREATED (SEE GENERAL CONSTRUCTION NOTES) |
| | 2 | 1 | EA | 700-5778 (TDR) | CAP, RAIN PROTECTIVE ALUMINUM |
| | 3 | 8 | EA | - | NAIL, COMMON, WIRE, GALV, 3" LONG |
| | 4 | 4 | EA | 62756H (SLCN) | BOLT, SHOULDER EYE, 3/4"ø X 16", W/ NUT |
| | 5 | 2 | EA | 62758H (SLCN) | BOLT, SHOULDER EYE, 3/4"ø X 18", W/ NUT |
| | 6 | 6 | EA | PL-70 (HB) | NUT, PAL, FOR 3/4"ø BOLT |
| | 7 | 6 | EA | P138 (MPS) | HOOK, GUY (HD) THIMBLE TYPE 230 kN |
| 7086 (SLCN) | 8 | 6 | EA | ~~J1076 (MPS)~~ | WASHER, 2" OD, FLAT, FOR 3/4"ø BOLT |
| | 9 | 36 | EA | 7/16-38/GN (PYR) | GRIP, GUY, SIZE 10 |
| | 10 | A.R. | m | - | WIRE, GUY, ~~SIZE 10, GRADE 1300~~ SIZE 7/16", GRADE 220 (RFI-009) |
| (LAPP) | 11 | 12 | EA | 008506-70 ~~(GAM)~~ | INSULATOR, GUY STRAIN, GREY |
| | 12 | A.R. | m | – | WIRE, BARE, SOLID, COPPER #6 AWG |
| | 13 | 2 | PKG | 102-0234 – (ECL) | STAPLES, GALVANIZED, 38 mm X 9.5 mm (50 PER PKG) |
| | 14 | 6 | EA | – | DEADEND INSULATOR ASSEMBLY, (DWG. 1407-T-4105) |
| | 15 | 6 | EA | RMYGG-MA-74 (R&M) | GUARD, GUY, POLYETHELENE TUBING |
| | 16 | 6 | EA | 102-4311-TR (TDR) | WASHER, CURVED 4" x 5", FOR 3/4"ø BOLT |
| | 17 | 1 | EA | – | ADSS DOUBLE DEADEND ASSEMBLY (DWG. 1407-T-4135) |
| | 18 | 2 | EA | – | OVERHEAD SHIELD WIRE DOUBLE DEADEND ASSEMBLY (DWG. 1407-T-4160) |
| | 19 | 1 | EA | – | GROUNDING DETAILS (DWG. 1407-T-4450) |
| B087-180SQG (Pac Bolt) | 20 | 2 | EA | ~~7689LT (SLCN)~~ | BOLT, MACHINE, 7/8"ø x 18", MIN. THREAD 6" w/ NUT |
| CL203822075A (LAPP) | 21 | 3 | FA | ~~L2-SN181-23 (NGK)~~ | INSULATOR, LINE POST, HORIZ, COMPOSITE, w/ BASE, NUTS & BOLTS, 69 kV, 972 LG |
| | 22 | 3 | EA | TSC106 (HBL) | CLAMP, TRUNNION |
| 100-7404 (Pac Bolt) | 23 | 2 | EA | ~~7690LT (SLCN)~~ | BOLT, MACHINE, 7/8"ø x 20", MIN. THREAD 6" w/ NUT |
| | 24 | 6 | EA | PL-80 (HB) | NUT, PAL FOR 7/8"ø BOLT |
| | 25 | 6 | EA | 102-4319-TR (TDR) | WASHER, CURVED, 5" x 5" FOR 7/8"ø BOLT |
| B087-MB24 (Pac Bolt) | 26 | 2 | EA | ~~7692LT (SLCN)~~ | BOLT, MACHINE, 7/8"ø x 22", MIN. THREAD 6" w/ NUT |

NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETRES (mm) UNLESS NOTED OTHERWISE.
2. FOR GENERAL CONSTRUCTION NOTES SEE DWG. NO. 1407-T-1300.
3. FOR GUY AND ANCHOR QUANTITIES AND CONFIGURATION SEE STRUCTURE DATA SHEET.
4. FOR SITE-SPECIFIC ADSS SPACING SEE STRUCTURE DATA SHEET.
5. FOR STRUCTURES WITH LINE ANGLES GREATER THAN 45°, NO LINE POST JUMPERS ARE REQUIRED (DWG. 1407-T-3055).
6. STRUCTURE TYPE DESIGNATION CODES:

   VDEMAO – VERTICAL DEADEND MEDIUM ANGLE WITH OHSW, 25°-45°
7. CONTRACTOR TO CONFIRM BOLT LENGTHS PRIOR TO PROCUREMENT AND CONSTRUCTION. BOLT LENGTHS SHOWN ARE FOR CLASS 1 POLES. FOR H1 AND H2 POLES ADD 2".
8. CABLE COVER TO BE INSTALLED ON POLE AS PER DWG. 1407-T-4450.
9. CONTRACTOR TO CONFIRM BRACKET MEASUREMENT PRIOR TO HOLE BEING DRILLED.
10. PARTRIDGE ACSR GROUND WIRE TO BE INSTALLED DOWN TO BASE OF POLE WITH STAPLES.

FORBES BROS **AS-BUILT**

CHANGES REQUIRED YES ☐ NO ☐

Name (Print) _____

Signature _____

Date _____

ISSUED FOR CONSTRUCTION

PERMIT TO PRACTICE
CLEAN ENERGY CONSULTING INC.
SIGNATURE _____
Date May 11, 2018
PERMIT NUMBER: PP424
Association of Professional Engineers of Yukon

| NO. | DATE | REVISION | DES | DWN | CHK | APR |
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CLIENT StrataGold Corporation

| | |
|---|---|
| DATE | MAY 11/18 |
| DESIGN | MP |
| DRAWN | SE |
| CHECKED | PC |
| APPROVED | MEO |

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SEAL: PROFESSIONAL ENGINEER YUKON TERRITORY MATTHEW OBEE May 11, 2018

EAGLE GOLD PROJECT
69 kV TRANSMISSION LINE
VERTICAL DEADEND MEDIUM ANGLE WITH OHSW STRUCTURE, 25° – 45°

| PROJECT No. | DRAWING No. | REV. |
|---|---|---|
| 1407 | 1407-T-3056 | 0 |

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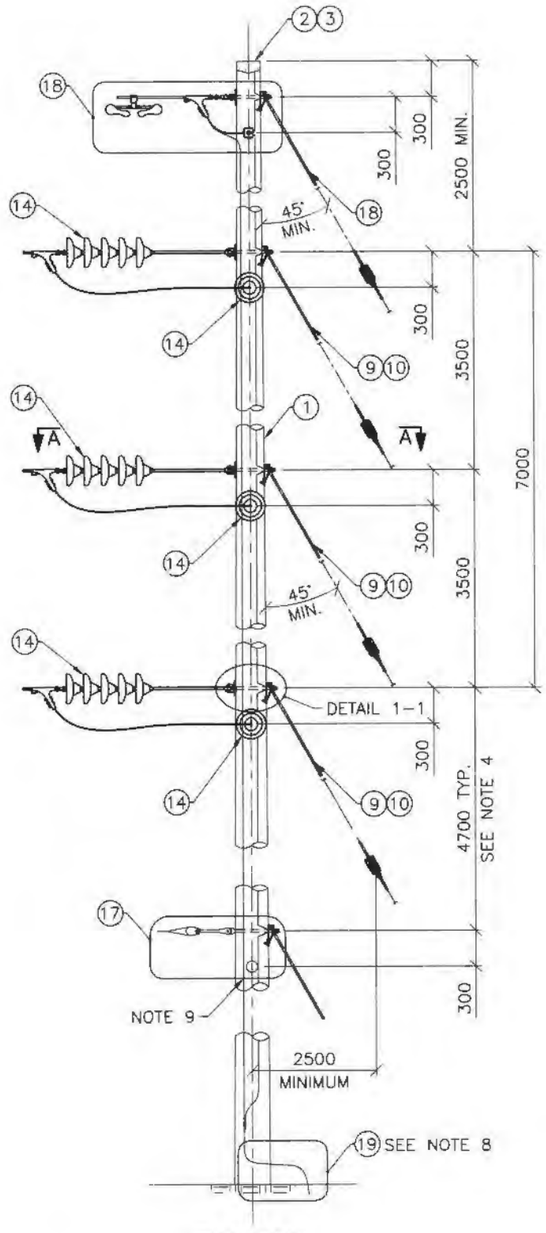
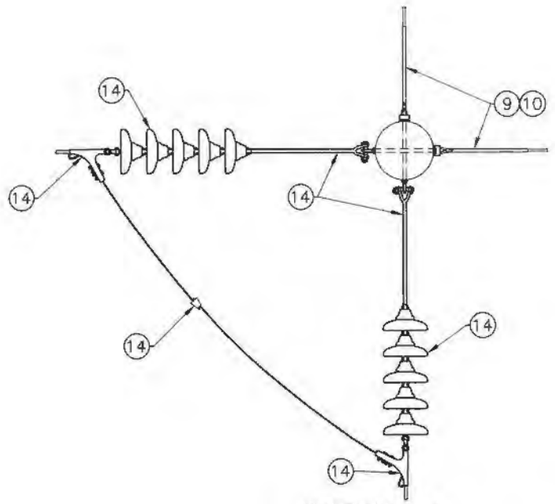
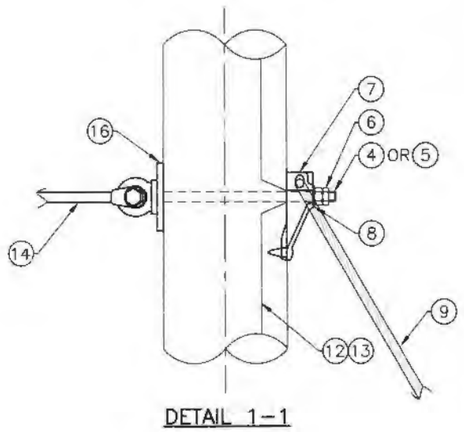


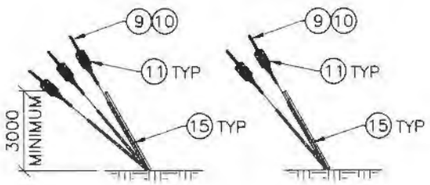

ELEVATION




SECTION A–A




DETAIL 1–1




TYPICAL ANCHOR CONNECTION DETAIL
SEE NOTE 3

BILL OF MATERIAL FOR ONE STRUCTURE

| ITEM | QTY | HU | STOCK NO. | DESCRIPTION |
|---|---|---|---|---|
| 1 | 1 | EA | – | POLE, WOOD, FULL TREATED (SEE GENERAL CONSTRUCTION NOTES) |
| 2 | 1 | EA | 700–5778 (TDR) | CAP, RAIN PROTECTIVE ALUMINUM |
| 3 | 8 | EA | – | NAIL, COMMON, WIRE, GALV, 3" LONG |
| 4 | 2 | EA | 62756H (SLCN) | BOLT, SHOULDER EYE, 3/4"ø X 16". W/ NUT |
| 5 | 4 | EA | 62758H (SLCN) | BOLT, SHOULDER EYE, 3/4"ø X 18". W/ NUT |
| 6 | 6 | EA | PL–70 (HB) | NUT, PAL, FOR 3/4"ø BOLT |
| 7 | 6 | EA | P138 (MPS) | HOOK, GUY (HD) THIMBLE TYPE 120 kN |
| 7086 (SLCN) 8 | 6 | EA | ~~J1076 (MPS)~~ | WASHER, 2" OD, FLAT, FOR 3/4"ø BOLT |
| 9 | 36 | EA | 7/16–38–GN (PYR) | GRIP, GUY, SIZE 10 |
| 10 | A.R. | m | – | WIRE, GUY, ~~SIZE 10, GRADE 1300~~ SIZE 7/16", GRADE 220 (RFI-009) |
| (LAPP) 11 | 12 | EA | 008506–70 ~~(GAM)~~ | INSULATOR, GUY STRAIN, GREY |
| 12 | A.R. | m | – | WIRE, BARE, SOLID, COPPER #6 AWG |
| 13 | 2 | PKG | 102-0234 – (ECL) | STAPLES, GALVANIZED, 38 mm X 9.5 mm (50 PER PKG) |
| 14 | 6 | EA | – | DEADEND INSULATOR ASSEMBLY, (DWG. 1407–T–4105) |
| 15 | 6 | EA | RMYGG–MA–74 (R&M) | GUARD, GUY, POLYETHELENE TUBING |
| 16 | 6 | EA | 102–4311–TR (TDR) | WASHER, CURVED 4" x 5", FOR 3/4"ø BOLT |
| 17 | 1 | EA | – | ADSS DOUBLE DEADEND ASSEMBLY (DWG. 1407–T–4135) |
| 18 | 1 | EA | – | OVERHEAD SHIELD WIRE DOUBLE DEADEND ASSEMBLY (DWG. 1407–T–4160) |
| 19 | 1 | EA | – | GROUNDING DETAILS (DWG. 1407–T–4450) |

NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETRES (mm) UNLESS NOTED OTHERWISE.
2. FOR GENERAL CONSTRUCTION NOTES SEE DWG. NO. 1407–T–1300.
3. FOR GUY AND ANCHOR QUANTITIES AND CONFIGURATION SEE STRUCTURE DATA SHEET.
4. FOR SITE–SPECIFIC ADSS SPACING SEE STRUCTURE DATA SHEET.
5. FOR STRUCTURES WITH LINE ANGLES LESS THAN 45°, USE VDEMAO POST INSULATOR ARRANGEMENT (DWG. 1407–T–3056).
6. STRUCTURE TYPE DESIGNATION CODES:

   VDEHAO – VERTICAL DEADEND HEAVY ANGLE WITH OHSW, 45°–90°
7. CONTRACTOR TO CONFIRM BOLT LENGTHS PRIOR TO PROCUREMENT AND CONSTRUCTION. BOLT LENGTHS SHOWN ARE FOR CLASS 1 POLES. FOR H1 AND H2 POLES ADD 2".
8. CABLE COVER TO BE INSTALLED ON POLE AS PER DWG. 1407–T–4450.
9. PARTRIDGE ACSR GROUND WIRE TO BE INSTALLED DOWN TO BASE OF POLE WITH STAPLES.

FORBES BROS AS-BUILT

CHANGES REQUIRED YES ☐ NO ☐

Name (Print) _____

Signature _____

Date _____

ISSUED FOR CONSTRUCTION

PERMIT TO PRACTICE
CLEAN ENERGY CONSULTING INC.
SIGNATURE _____
Date May 14, 2018
PERMIT NUMBER: PP424
Association of Professional Engineers of Yukon

| NO. | DATE | REVISION | DES | DWN | CHK | APR |
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CLIENT StrataGold Corporation

| | |
|---|---|
| DATE | MAY 11/18 |
| DESIGN | MP |
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| APPROVED | MEO |

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WN BRAZIER ASSOCIATES INC

SEAL: PROFESSIONAL ENGINEER YUKON MATTHEW OBEE TERRITORY May 14, 2018

EAGLE GOLD PROJECT

69 kV TRANSMISSION LINE

VERTICAL DEADEND HEAVY ANGLE WITH OHSW STRUCTURE, 45° – 90°

| PROJECT No. | DRAWING No. | REV. |
|---|---|---|
| 1407 | 1407–T–3055 | 0 |

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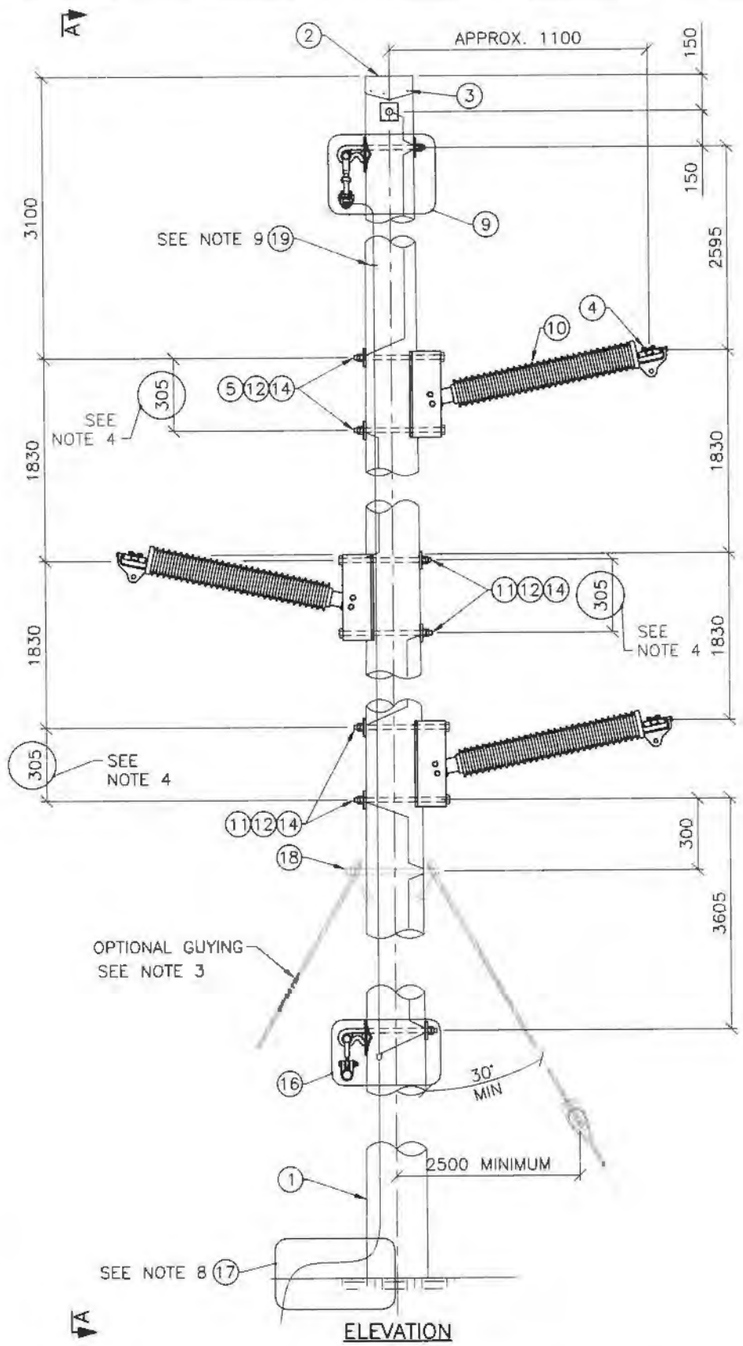


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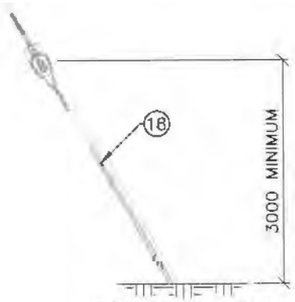
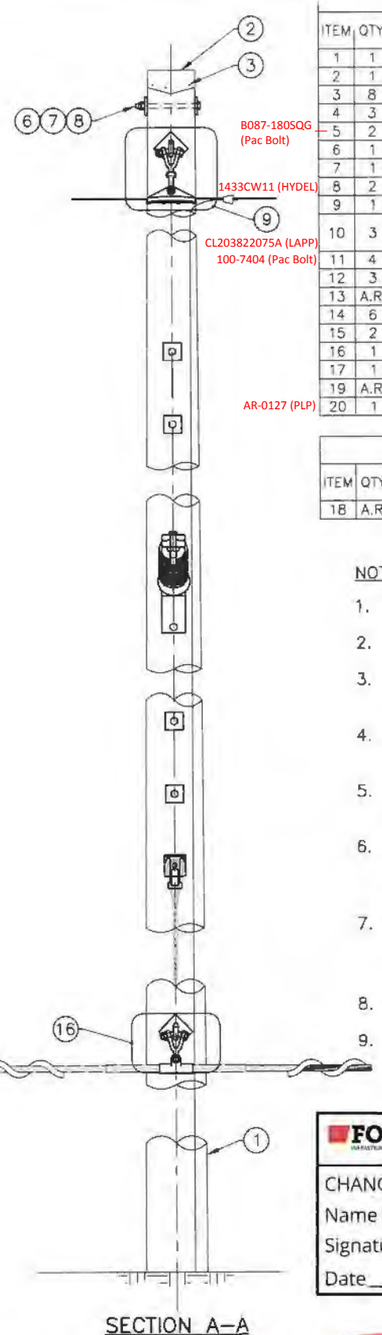



TYPICAL ANCHOR CONNECTION DETAIL
SEE NOTE 5




SECTION A–A

BILL OF MATERIAL FOR ONE STRUCTURE

| ITEM | QTY | HU | STOCK NO. | DESCRIPTION |
|---|---|---|---|---|
| 1 | 1 | EA | – | POLE, WOOD, FULL TREATED (SEE GENERAL CONSTRUCTION NOTES) |
| 2 | 1 | EA | 700–5778 (TDR) | CAP, RAIN PROTECTIVE ALUMINUM |
| 3 | 8 | EA | – | NAIL, COMMON, WIRE, GALV, 3" LONG |
| 4 | 3 | EA | TSC106 (HBL) | CLAMP, TRUNNION, FOR PARTRIDGE ACSR |
| 5 | 2 | EA | ~~7689LT (SLCN)~~ B087-180SQG (Pac Bolt) | BOLT, MACHINE, 7/8"ø x 18", MIN. THREAD 6", w/ NUT |
| 6 | 1 | EA | 9812LT (SLCN) | BOLT, MACHINE, 5/8"ø x 12", MIN. THREAD 6", w/ NUT |
| 7 | 1 | EA | PL–60 (HB) | NUT, PAL, FOR 5/8"ø BOLT |
| 8 | 2 | EA | ~~J113 (MPS)~~ 1433CW11 (HYDEL) | WASHER, CURVED, 3" x 3", FOR 5/8"ø BOLT |
| 9 | 1 | EA | – | OHSW SUSPENSION ASSEMBLY (DWG. 1407–T–4150) |
| 10 | 3 | EA | ~~L2–SN181–23 (NGK)~~ CL203822075A (LAPP) | INSULATOR, LINE POST, HORIZ, COMPOSITE, w/ BASE, NUTS & BOLTS, 69 kV, 972 LG |
| 11 | 4 | EA | ~~7690LT (SLCN)~~ 100-7404 (Pac Bolt) | BOLT, MACHINE, 7/8"ø x 20", MIN THREAD 6", w/ NUT |
| 12 | 3 | EA | PL–80 (HB) | NUT, PAL, FOR 7/8"ø BOLT |
| 13 | A.R. | m | – | WIRE, BARE, SOLID, COPPER #6 AWG |
| 14 | 6 | EA | 102–4319–TR (TDR) | WASHER, CURVED, 5" x 5", FOR 7/8"ø BOLT |
| 15 | 2 | PKG | 102-0234 – (ECL) | STAPLES, GALVANIZED, 38 mm X 9.5 mm (50 PER PKG) |
| 16 | 1 | EA | – | ADSS SUSPENSION ASSEMBLY (DWG. 1407–T–4120) |
| 17 | 1 | EA | – | GROUNDING DETAILS (DWG. 1407–T–4450) |
| 19 | A.R. | EA | 25005 – (Allied Bolt) | STAPLES, GALVANIZED, TO SUIT PARTRIDGE ACSR GROUND WIRE |
| 20 | 1 | EA | ~~PARTRIDGE 64A (PYR)~~ AR-0127 (PLP) | ROD, ARMOUR, PREFORMED |

OPTIONAL COMPONENTS FOR GUY ASSEMBLIES (SEE NOTE 3)

| ITEM | QTY | HU | STOCK NO. | DESCRIPTION |
|---|---|---|---|---|
| 18 | A.R. | EA | – | DOUBLE GUY ASSEMBLY (DWG. 1407–T–4055) |

NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETRES (mm) UNLESS NOTED OTHERWISE.
2. FOR GENERAL CONSTRUCTION NOTES SEE DWG. NO. 1407–T–1300.
3. TRANSVERSE GUYS REQUIRED FOR STRUCTURES IN PERMAFROST OR AS SPECIFIED ON THE STRUCTURE DATA SHEET.
4. CONTRACTOR TO CONFIRM BRACKET MEASUREMENT PRIOR TO POLE BEING DRILLED.
5. FOR GUY AND ANCHOR QUANTITIES AND CONFIGURATION SEE STRUCTURE DATA SHEET.
6. CONTRACTOR TO CONFIRM BOLT LENGTHS PRIOR TO PROCUREMENT AND CONSTRUCTION. BOLT LENGTHS SHOWN ARE FOR CLASS 1 POLES. FOR H1 AND H2 POLES ADD 2".
7. STRUCTURE TYPE DESIGNATION CODES:

   PVO – POST VERTICAL WITH OHSW, 0°–3° TANGENT
8. CABLE COVER TO BE INSTALLED ON POLE AS PER DWG 1407–T–4450.
9. PARTRIDGE ACSR GROUND WIRE TO BE INSTALLED DOWN TO BASE OF POLE WITH STAPLES (ITEM 19).

FORBES BROS AS-BUILT

CHANGES REQUIRED YES ☐ NO ☐

Name (Print) _____

Signature _____

Date _____

ISSUED FOR CONSTRUCTION

PERMIT TO PRACTICE
CLEAN ENERGY CONSULTING INC.
SIGNATURE _____
Date May 4, 2018
PERMIT NUMBER: PP424
Association of Professional Engineers of Yukon

| NO. | DATE | REVISION | DES | DWN | CHK | APR |
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CLIENT: StrataGold Corporation

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|---|---|
| DATE | MAY 11/18 |
| DESIGN | PC |
| DRAWN | DV |
| CHECKED | NJ |
| APPROVED | MEO |

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SEAL: PROFESSIONAL ENGINEER YUKON MATTHEW OBEE TERRITORY May 11, 2018

EAGLE GOLD PROJECT
69 kV TRANSMISSION LINE
POST VERTICAL WITH OHSW STRUCTURE, 0° – 3°

| PROJECT No. | DRAWING No. | REV. |
|---|---|---|
| 1407 | 1407–T–3050 | 0 |

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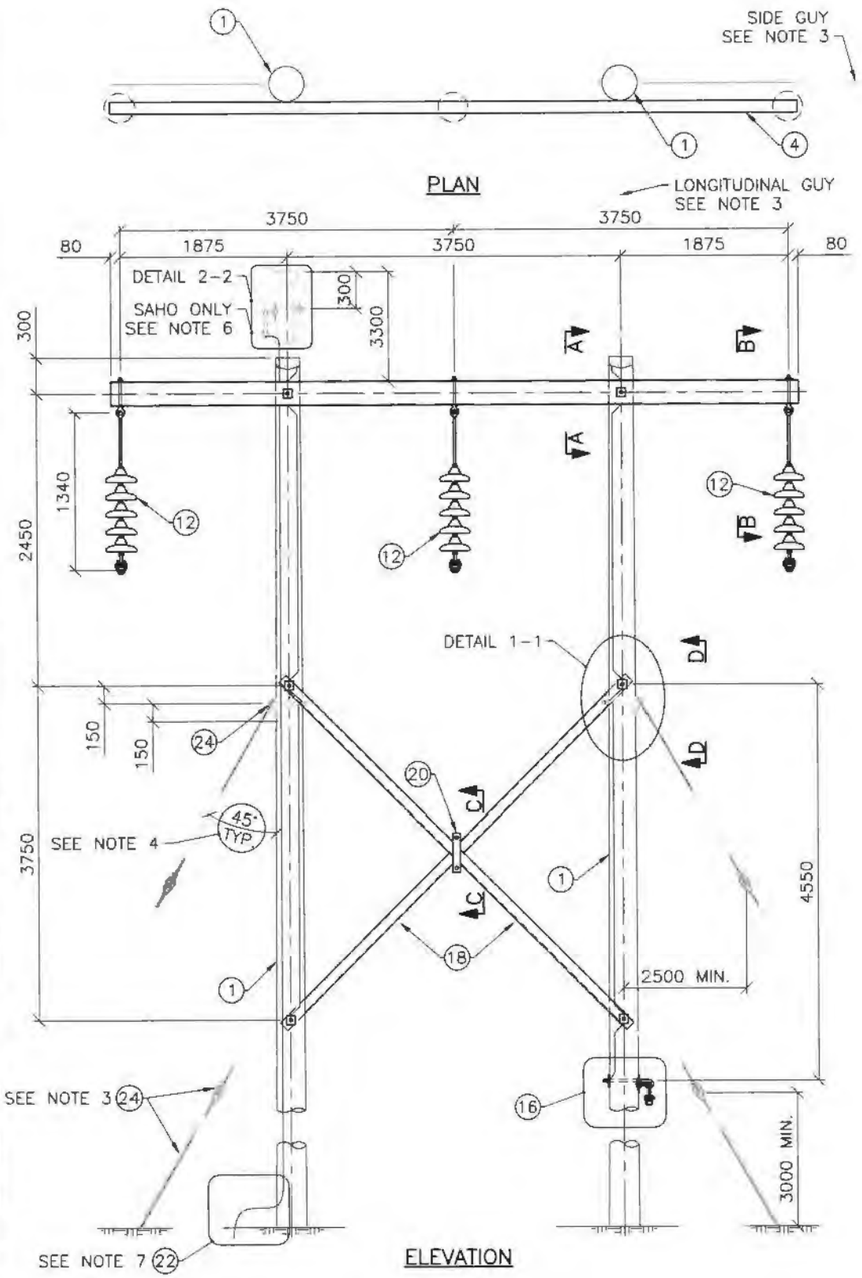


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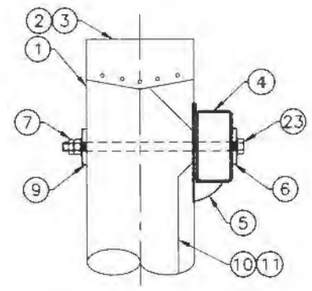
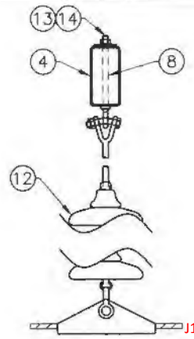
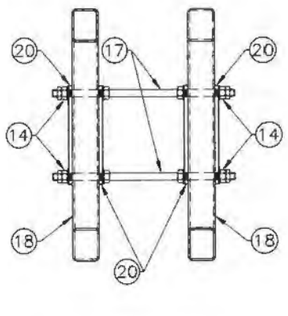


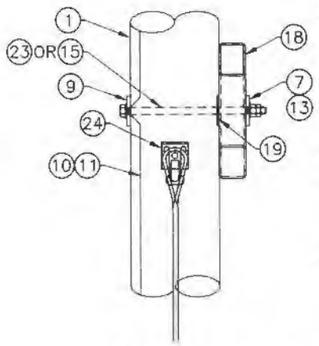
SECTION A–A



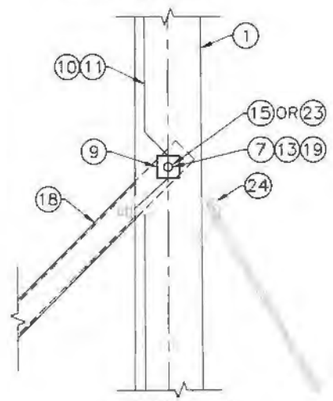
SECTION B–B



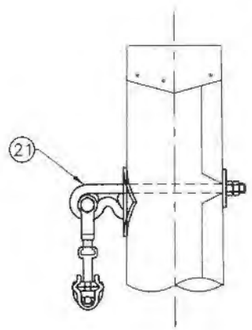
SECTION C–C



SECTION D–D



DETAIL 1–1



DETAIL 2–2
OPTIONAL OHSW ATTACHMENT

BILL OF MATERIAL FOR ONE STRUCTURE

| ITEM | QTY | HU | STOCK NO. | DESCRIPTION |
|---|---|---|---|---|
| 1 | 2 | EA | – | POLE, WOOD, FULL TREATED (SEE GENERAL CONSTRUCTION NOTES) |
| 2 | 2 | EA | 700-5778 (TDR) | CAP, RAIN PROTECTIVE ALUMINUM |
| 3 | 16 | EA | – | NAIL, COMMON, WIRE, GALV, 3" LONG |
| 4 | 1 | EA | – | CROSSARM, STEEL, GALV, 203 x 102 x 5 x 7660 HSS (DWG.1407-T-4405:HF2) |
| 5 | 2 | EA | PX249SG (MPS) | GAIN, CROSSARM SHELF, 4" x 13", 1 1/16"ø, SPIKED CURVED SIDE |
| 6 | 2 | EA | 102-4370-TR (TDR) | WASHER, FLAT, 4" x 5" FOR 3/4"ø BOLT |
| 7 | 10 | EA | PL-70 (HB) | NUT, PAL, FOR 3/4"ø BOLT |
| 8 | 3 | EA | 62752H (SLCN) | BOLT, SHOULDER EYE, 3/4"ø x 12", c/w NUT |
| 9 | 6 | EA | 102-4311-TR (TDR) | WASHER, CURVED, 4" x 5", FOR 3/4"ø BOLT |
| 10 | A.R. | m | – | WIRE, BARE, SOLID, COPPER #6 AWG |
| 11 | 1 | PKG | 102-0234 –(ECL) | STAPLES, GALVANIZED, 38 mm X 9.5 mm (50 PER PKG) |
| 12 | 3 | EA | – | SUSPENSION INSULATOR ASSEMBLY (DWG. 1407-T-4101) |
| 13 | 7 | EA | J1079 (MPS) | WASHER, FLAT, 3" x 3" FOR 3/4"ø BOLT |
| 14 | 7 | EA | ~~B856-526 (PLN)~~ J140 (MPS) | WASHER, HELICAL SPRING, FOR 3/4"ø BOLT |
| 15 | 6 | EA | 9920LT (SLCN) | BOLT, MACHINE, 3/4"ø x 20", MIN. THREAD 6", c/w NUT |
| 16 | 1 | EA | – | ADSS SUSPENSION ASSEMBLY (DWG. 1407-T-4120) |
| 17 | 2 | EA | 62658LT (SLCN) | BOLT, DOUBLE ARMING, 3/4"ø x 28", C/W 4 NUTS, 98 kN |
| 18 | 2 | EA | – | CROSSBRACE, STEEL, GALV, 89 x 89 x 6 x 5460 HSS (DWG.1407-T-4405:XB1) |
| 19 | 4 | EA | GGSF-5340-6(MPS) | GAIN, GRID, 4" x 6" FOR 3/4"ø BOLT, SPIKED CURVED SIDE |
| 20 | 2 | SETS | – | STRAP SET, CROSSBRACE, 330 x 65, FOR 3/4"ø BOLT (DWG.1407-T-4405:PL1) |
| 21 | A.R. | EA | – | OHSW SUSPENSION ASSEMBLY (DWG. 1407-T-4150) |
| 22 | A.R. | EA | – | GROUNDING DETAILS (DWG 1407-T-4450) |
| 23 | 4 | EA | 9918LT (SLCN) | BOLT, MACHINE, 3/4"ø x 18", MIN THREAD 6", w/ NUT |

OPTIONAL COMPONENTS FOR GUY ASSEMBLIES (SEE NOTE 3)

| ITEM | QTY SIDE | QTY LONG | HU | STOCK NO. | DESCRIPTION |
|---|---|---|---|---|---|
| 24 | 2 | – | EA | – | SINGLE GUY ASSEMBLY (DWG. 1407-T-4050) |

NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETRES (mm) UNLESS NOTED OTHERWISE.
2. FOR GENERAL CONSTRUCTION NOTES SEE DWG. NO. 1407-T-1300.
3. TRANSVERSE GUYS ARE REQUIRED FOR STRUCTURES IN PERMAFROST OR AS SPECIFIED ON THE STRUCTURE DATA SHEET.
4. GUYS INSTALLED AT 45° UNLESS NOTED OTHERWISE ON THE STRUCTURE DATA SHEET.
5. CONTRACTOR TO CONFIRM BOLT LENGTHS PRIOR TO PROCUREMENT AND CONSTRUCTION. BOLT LENGTHS SHOWN ARE FOR CLASS 1 AND 2 POLES. FOR H1 AND H2 POLES ADD 2".
6. STRUCTURE TYPE DESIGNATION CODES:

   SAH – SINGLE ARM H-FRAME
   SAHO – SINGLE ARM H-FRAME WITH OHSW

7. GROUNDING INSTALLATION INSTRUCTIONS:

   SAH – COPPER BONDING WIRE (ITEM 10) TO BE INSTALLED DOWN TO BASE OF POLE AND CONNECTED TO SINGLE GROUND ROD.
   SAHO – PARTRIDGE ACSR GROUND WIRE TO BE INSTALLED DOWN TO BASE OF POLE WITH STAPLES AND CONNECTED TO GROUNDING AS SHOWN ON DWG. 1407-T-4450.

ISSUED FOR CONSTRUCTION

FORBES BROS AS-BUILT
CHANGES REQUIRED YES ☐ NO ☐
Name (Print) _____
Signature _____
Date _____

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CLEAN ENERGY CONSULTING INC.
SIGNATURE _____
Date May 14, 2018
PERMIT NUMBER: PP424
Association of Professional Engineers of Yukon

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CLIENT StrataGold Corporation

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| DATE | MAY 11/18 |
| DESIGN | MP |
| DRAWN | SE |
| CHECKED | PC |
| APPROVED | MEO |

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WN BRAZIER ASSOCIATES INC

SEAL: PROFESSIONAL ENGINEER YUKON MATTHEW OBEE TERRITORY May 14, 2018

EAGLE GOLD PROJECT
69 kV TRANSMISSION LINE
SINGLE STEEL ARM H-FRAME STRUCTURE, 0° – 3°

| PROJECT No. | DRAWING No. | REV. |
|---|---|---|
| 1407 | 1407-T-3040 | 0 |

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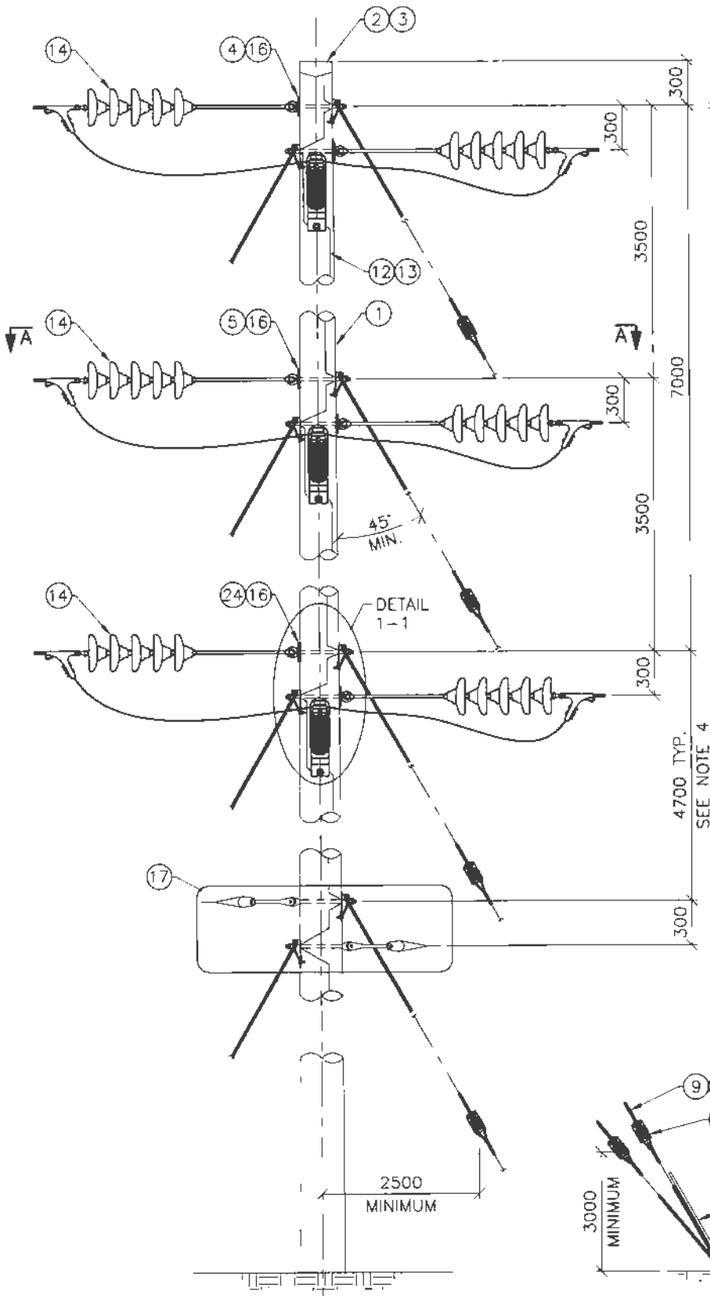
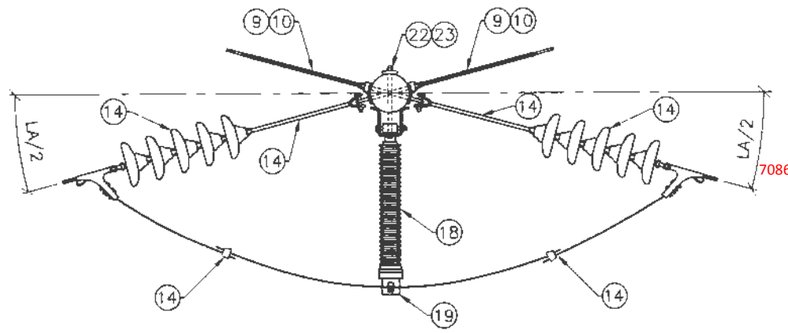
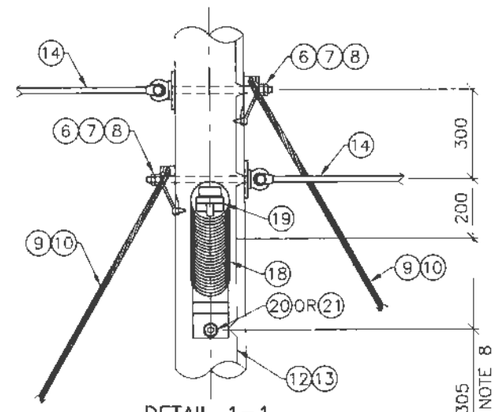


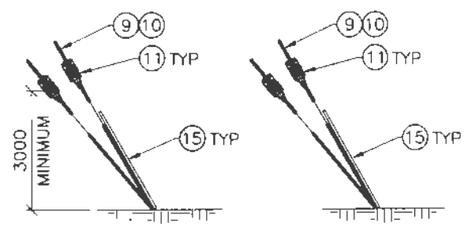

ELEVATION




SECTION A-A




DETAIL 1-1




TYPICAL ANCHOR CONNECTION DETAIL
SEE NOTE 3

BILL OF MATERIAL FOR ONE STRUCTURE

| ITEM | QTY | UNIT | STOCK NO. | DESCRIPTION |
|---|---|---|---|---|
| 1 | 1 | EA | - | POLE, WOOD, FULL TREATED (SEE GENERAL CONSTRUCTION NOTES) |
| 2 | 1 | EA | 700-5778 (TDR) | CAP, RAIN PROTECTIVE ALUMINUM |
| 3 | 8 | EA | - | NAIL, COMMON, WIRE, GALV, 3" LONG |
| 4 | 2 | EA | 62754H (SLCN) | BOLT, SHOULDER EYE, 3/4"ø X 14" W/ NUT |
| 5 | 2 | EA | 62756H (SLCN) | BOLT, SHOULDER EYE, 3/4"ø X 16" W/ NUT |
| 6 | 6 | EA | PL-70 (HB) | NUT, PAL, FOR 3/4"ø BOLT |
| 7 | 6 | EA | P138 (MPS) | HOOK, GUY (HD) THIMBLE TYPE 120 kN |
| 8 | 6 | EA | ~~J1076 (MPS)~~ 7086 (SLCN) | WASHER, 2" DD, FLAT, FOR 3/4"ø BOLT |
| 9 | 36 | EA | 7/16-38-GN (PYR) | GRIP, GUY, SIZE 10 |
| 10 | A.R. | m | - | WIRE, GUY, ~~SIZE 10, GRADE 1300~~ SIZE 7/16", GRADE 220 (RFI-009) |
| 11 | 12 | EA | 008506-70 ~~(GAM)~~ (LAPP) | INSULATOR, GUY STRAIN, GREY |
| 12 | A.R. | m | - | WIRE, BARE, SOLID, COPPER #6 AWG |
| 13 | 1 | PKG | 102-0234 (ECL) | STAPLES, GALVANIZED, 38 mm X 9.5 mm (50 PER PKG) |
| 14 | 6 | EA | - | DEADEND INSULATOR ASSEMBLY, 70 kN (DWG. 1407-T-4105) |
| 15 | 6 | EA | RMYGG-MA-74 (R&M) | GUARD, GUY, POLYETHELENE TUBING |
| 16 | 6 | EA | 102-4311-TR (TDR) | WASHER, CURVED 4" x 5", FOR 3/4"ø BOLT |
| 17 | 1 | EA | - | ADSS DOUBLE DEADEND ASSEMBLY (DWG. 1407-T-4135) |
| 18 | 3 | EA | ~~L2-SN181-23 (NGK)~~ CL203822075A (LAPP) | INSULATOR, LINE POST, HORIZ, COMPOSITE, w/ BASE, NUTS & BOLTS, 69 kV, 972 LG |
| 19 | 3 | EA | TSC106 (HBL) | CLAMP, TRUNNION |
| 20 | 4 | EA | ~~7689LT (SLCN)~~ B087-180SQG (Pac Bolt) | BOLT, MACHINE, 7/8"ø x 18", MIN. THREAD 6" w/ NUT |
| 21 | 2 | EA | ~~7690LT (SLCN)~~ 100-7404 (Pac Bolt) | BOLT, MACHINE, 7/8"ø x 20", MIN. THREAD 6" w/ NUT |
| 22 | 6 | EA | PL-80 (HB) | NUT, PAL, FOR 7/8"ø BOLT |
| 23 | 6 | EA | 102-4319-TR (TDR) | WASHER, CURVED, 5" x 5", FOR 7/8"ø BOLT |
| 24 | 2 | EA | 62758H (SLCN) | BOLT, SHOULDER EYE, 3/4"ø x 18" w/ NUT |

NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETRES (mm) UNLESS NOTED OTHERWISE
2. FOR GENERAL CONSTRUCTION NOTES SEE DWG. NO. 1407-T-1300.
3. FOR GUY AND ANCHOR QUANTITIES AND CONFIGURATION SEE STRUCTURE DATA SHEET.
4. FOR SITE-SPECIFIC ADSS SPACING SEE STRUCTURE DATA SHEET.
5. FOR STRUCTURES WITH LINE ANGLES GREATER THAN 45° BUT LESS THAN 90° USE VDEHA STRUCTURE (DWG. 1407-T-3035)
6. STRUCTURE TYPE DESIGNATION CODES:

   VDEMA - VERTICAL DEADEND MEDIUM ANGLE, 25°-45°
7. CONTRACTOR TO CONFIRM BOLT LENGTHS PRIOR TO PROCUREMENT AND CONSTRUCTION. BOLT LENGTHS SHOWN ARE FOR CLASS 1 POLES. FOR H1 AND H2 POLES ADD 2".
8. CONTRACTOR TO CONFIRM BRACKET MEASUREMENT PRIOR TO HOLE BEING DRILLED.

FORBES BROS **AS-BUILT**

CHANGES REQUIRED YES ☐ NO ☐

Name (Print) _____

Signature _____

Date _____

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CLEAN ENERGY CONSULTING INC.
SIGNATURE _____
Date May 14, 2018
PERMIT NUMBER: PP424
Association of Professional Engineers of Yukon

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| APPROVED | MEO |

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SEAL: PROFESSIONAL ENGINEER YUKON TERRITORY MATTHEW OBEE May 11, 2018

EAGLE GOLD PROJECT
69 kV TRANSMISSION LINE
VERTICAL DEADEND MEDIUM ANGLE STRUCTURE, 25° - 45°

| PROJECT No. | DRAWING No. | REV. |
|---|---|---|
| 1407 | 1407-T-3036 | 0 |

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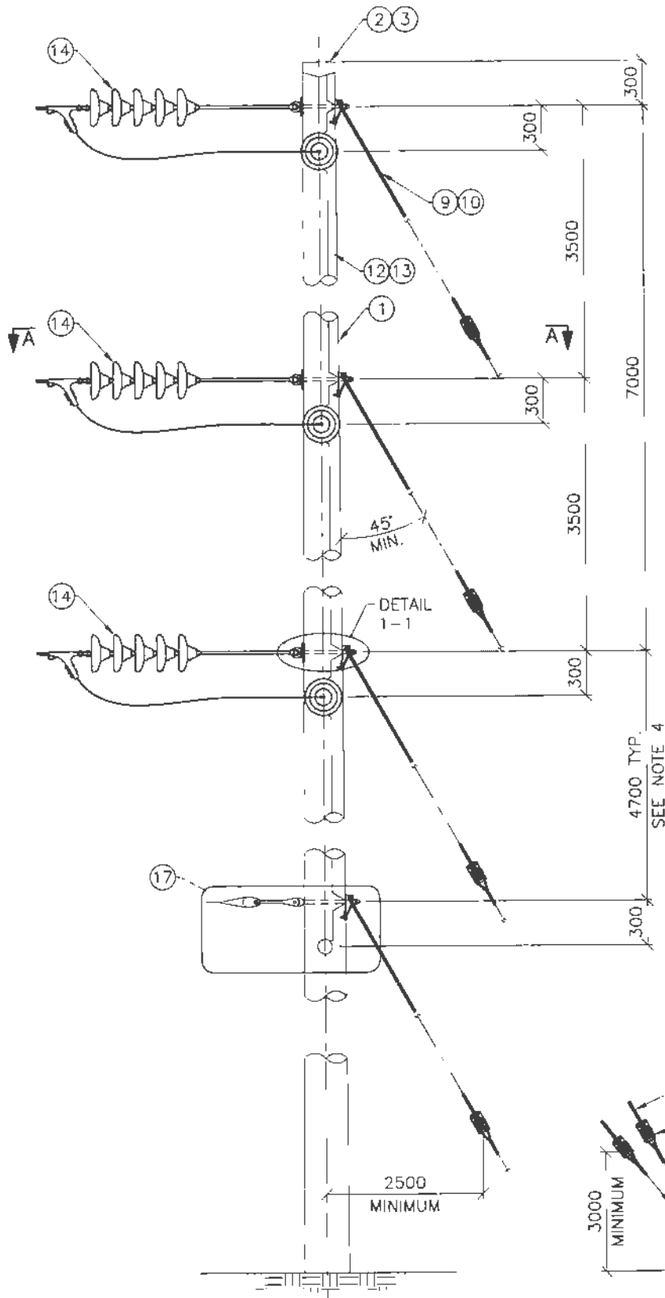


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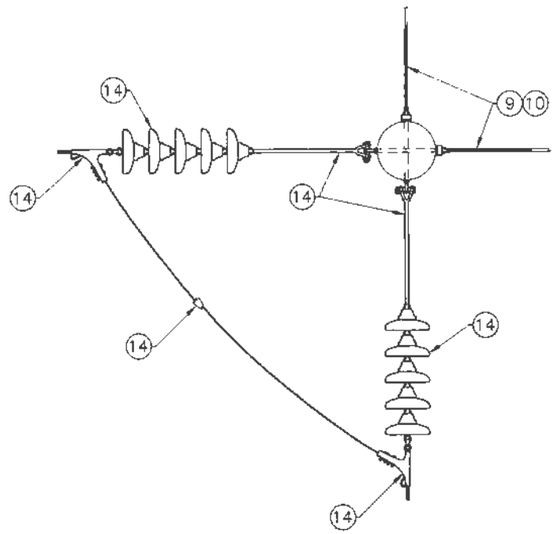
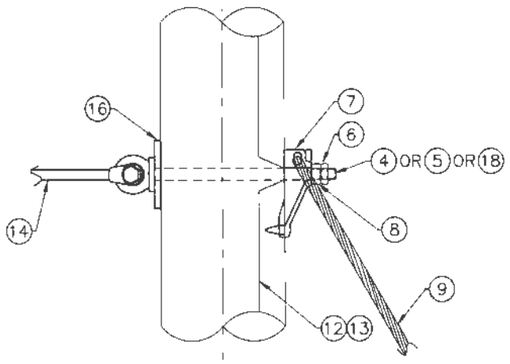
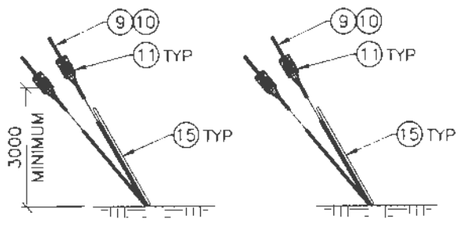



SECTION A-A




DETAIL 1-1




TYPICAL ANCHOR CONNECTION DETAIL
SEE NOTE 3

BILL OF MATERIAL FOR ONE STRUCTURE

| ITEM | QTY | UU | STOCK NO | DESCRIPTION |
|---|---|---|---|---|
| 1 | 1 | EA | – | POLE, WOOD, FULL TREATED (SEE GENERAL CONSTRUCTION NOTES) |
| 2 | 1 | EA | 700-5778 (TDR) | CAP, RAIN PROTECTIVE ALUMINUM |
| 3 | 8 | EA | – | NAIL, COMMON, WIRE, GALV. 3" LONG |
| 4 | 2 | EA | 62754H (SLCN) | BOLT, SHOULDER EYE, 3/4"ø X 14", W/ NUT |
| 5 | 2 | EA | 62756H (SLCN) | BOLT, SHOULDER EYE, 3/4"ø X 16", W/ NUT |
| 6 | 6 | EA | PL-20 (HB) | NUT, PAL, FOR 3/4"ø BOLT |
| 7 | 6 | EA | P138 (MPS) | HOOK, GUY (HD) THIMBLE TYPE 120 kN |
| 8 | 6 | EA | ~~J1076 (MPS)~~ 7086 (SLCN) | WASHER, 2" OD, FLAT, FOR 3/4"ø BOLT |
| 9 | A.R. | EA | 7/16-38-GN (PYR) | GRIP, GUY, SIZE 10 |
| 10 | A.R | m | – | WIRE, GUY, ~~SIZE 10, GRADE 1300~~ SIZE 7/16", GRADE 220 (RFI-009) |
| 11 | 12 | EA | 008506-70 ~~(GAM)~~ (LAPP) | INSULATOR, GUY STRAIN, GREY |
| 12 | A.R. | m | – | WIRE, BARE, SOLID, COPPER #6 AWG |
| 13 | 1 | PKG | 102-0234 – (ECL) | STAPLES, GALVANIZED, 38 mm X 9.5 mm (50 PER PKG) |
| 14 | 6 | EA | – | DEADEND INSULATOR ASSEMBLY, (DWG. 1407-T-4105) |
| 15 | 6 | EA | RMYGG-MA-74 (R&M) | GUARD, GUY, POLYETHELENE TUBING |
| 16 | 6 | EA | 102-4311-TR (TDR) | WASHER, CURVED 4" x 5", FOR 3/4"ø BOLT |
| 17 | 1 | EA | – | ADSS DOUBLE DEADEND ASSEMBLY (DWG. 1407-T-4135) |
| 18 | 2 | EA | 62758H (SLCN) | BOLT, SHOULDER EYE, 3/4"ø x 18", w/ NUT |

NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETRES (mm) UNLESS NOTED OTHERWISE.
2. FOR GENERAL CONSTRUCTION NOTES SEE DWG. NO. 1407-T-1300.
3. FOR GUY AND ANCHOR QUANTITIES AND CONFIGURATION SEE STRUCTURE DATA SHEET.
4. FOR SITE-SPECIFIC ADSS SPACING SEE STRUCTURE DATA SHEET.
5. FOR STRUCTURES WITH LINE ANGLES LESS THAN 45° USE VDEMA STRUCTURE (DWG. 1407-T-3036).
6. STRUCTURE TYPE DESIGNATION CODES:

   VDEHA – VERTICAL DEADEND HEAVY ANGLE, 45°-90°

7. CONTRACTOR TO CONFIRM BOLT LENGTHS PRIOR TO PROCUREMENT AND CONSTRUCTION. BOLT LENGTHS SHOWN ARE FOR CLASS 1 POLES. FOR H1 AND H2 POLES ADD 2".

FORBES BROS **AS-BUILT**

CHANGES REQUIRED YES ☐ NO ☐

Name (Print) _____

Signature _____

Date _____

ISSUED FOR CONSTRUCTION

PERMIT TO PRACTICE
CLEAN ENERGY CONSULTING INC.
SIGNATURE _____
Date May 11, 2018
PERMIT NUMBER: PP424
Association of Professional Engineers of Yukon

| NO. | DATE | REVISION | DES | DWN | CHK | APR |
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| CHECKED | PC |
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SEAL: PROFESSIONAL ENGINEER YUKON TERRITORY MATTHEW OBEE May 11, 2018

EAGLE GOLD PROJECT

69 kV TRANSMISSION LINE

VERTICAL DEADEND HEAVY ANGLE STRUCTURE, 45° – 90°

| PROJECT No | DRAWING No. | REV. |
|---|---|---|
| 1407 | 1407-T-3035 | 0 |

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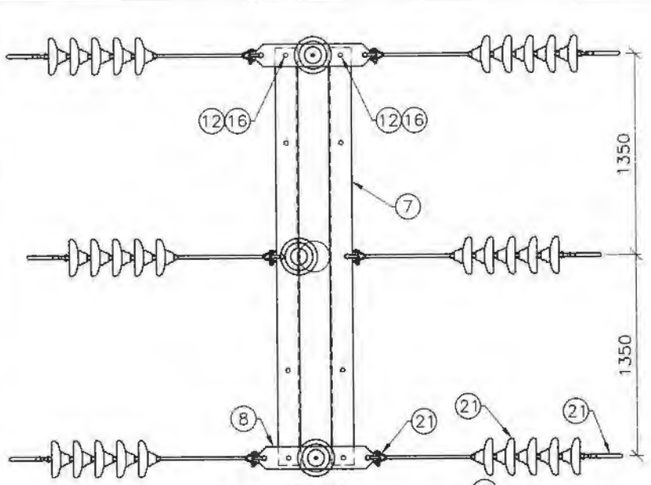
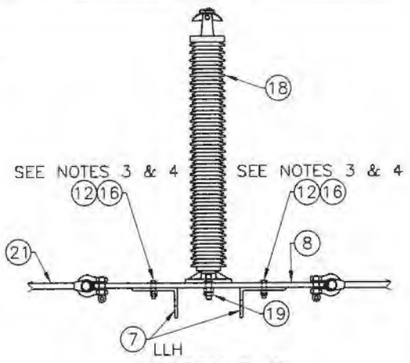
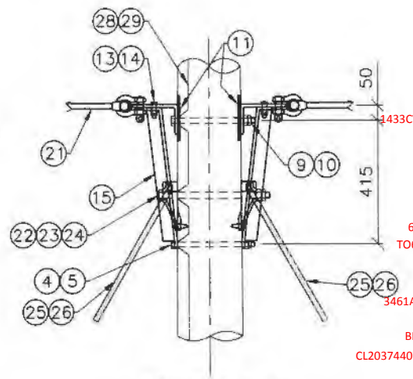


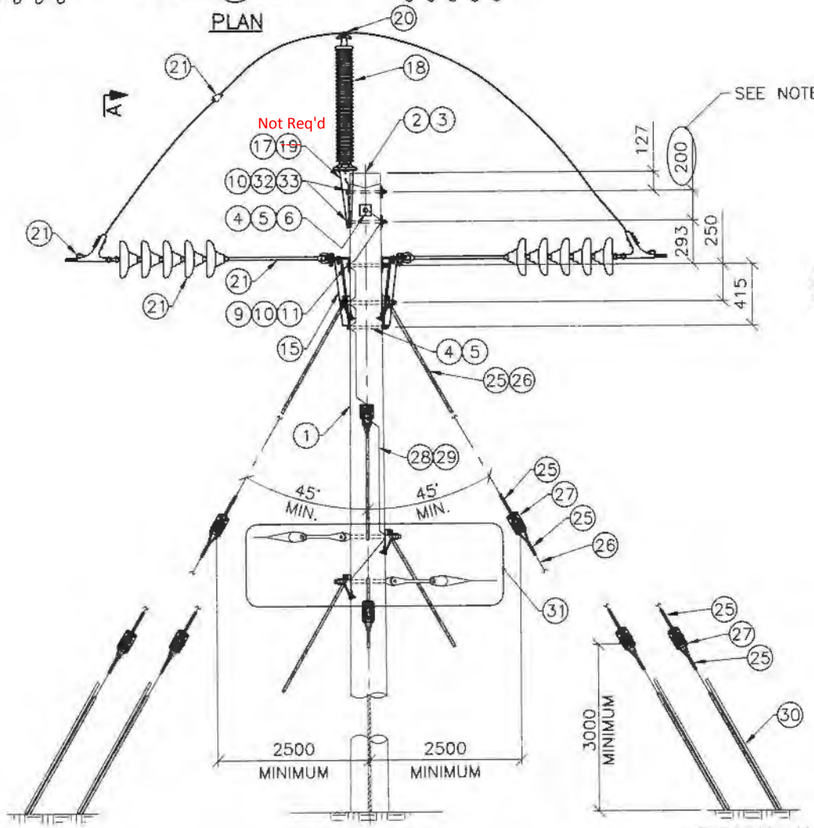

PLAN




SECTION B–B



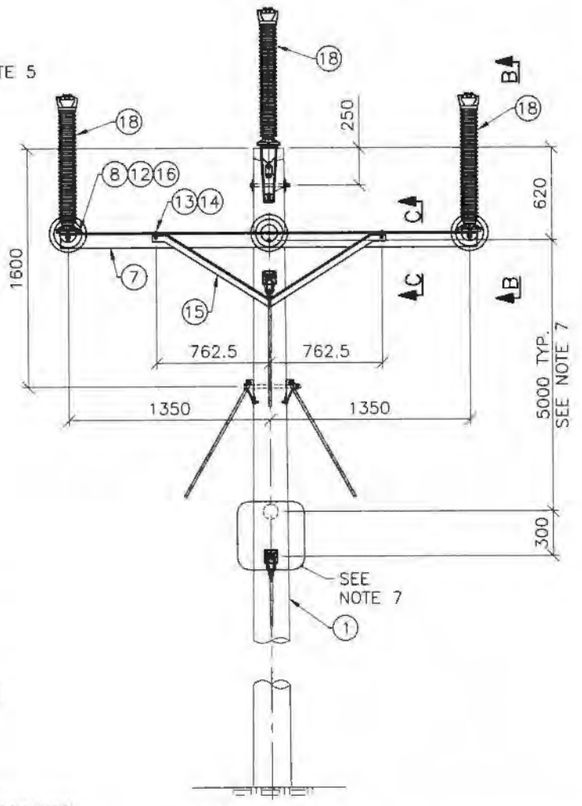

SECTION C–C




ELEVATION




TYPICAL ANCHOR CONNECTION DETAIL
SEE NOTE 6




SECTION A–A

## BILL OF MATERIAL FOR ONE STRUCTURE

| ITEM | QTY | HU | STOCK NO. | DESCRIPTION |
|---|---|---|---|---|
| 1 | 1 | EA | – | POLE, WOOD, FULL TREATED (SEE GENERAL CONSTRUCTION NOTES) |
| 2 | 1 | EA | 700–5778 (TDR) | CAP, RAIN PROTECTIVE ALUMINUM |
| 3 | 8 | EA | – | NAIL, COMMON, WIRE, GALV, 3" LONG |
| 4 | 2 | EA | 9B14LT (SLCN) | BOLT, MACHINE, 5/8"ø x 14", MIN. THREAD 6" w/ NUT |
| 5 | 2 | EA | PL–60 (HB) | NUT, PAL, FOR 5/8"ø BOLT |
| 6 | 2 | EA | ~~J113 (MPS)~~ 1433CW11 (HYDEL) | WASHER, CURVED, 3" x 3", FOR 5/8"ø BOLT |
| 7 | 2 | EA | – | CROSSARM, ANGLE, STEEL L 152 x 102 x 10 x 2800 LG (DWG. 1407–T–4400) |
| 8 | 2 | EA | 420–1041 (TDR) | PLATE, STRAIN, PL 16 x 150 x 770 LG |
| 9 | 1 | EA | 9916LT (SLCN) | BOLT, MACHINE, 3/4"ø x 16", MIN. THREAD 6" w/ NUT |
| 10 | 1 | EA | PL–70 (HB) | NUT, PAL, FOR 3/4"ø BOLT |
| 11 | 2 | EA | ~~TY–1474 (TDR)~~ 60191 (SLCN) | GAIN, CROSSARM 4" x 5–1/4", FOR 3/4"ø BOLT, SPIKED CURVED SIDE |
| 12 | 4 | EA | ~~069–719 (PLN)~~ TO69-719 (PLN) | BOLT, MACHINE, 3/4"ø x 2 1/2" w/ NUT |
| 13 | 4 | EA | B850–583 (PLN) | BOLT, MACHINE, 1/2"ø x 1 1/2" w/ NUT |
| 14 | 4 | EA | B856–522 (PLN) | WASHER, HELICAL SPRING, FOR 1/2"ø BOLT |
| 15 | 2 | EA | ~~7953 (SLCN)~~ 3461AVB (HYDEL) | BRACE, CROSSARM, COMPRESSION ANGLE, 1525 SPACING |
| 16 | 4 | EA | ~~B856–526 (PLN)~~ J140 (MPS) | WASHER, HELICAL SPRING, FOR 3/4"ø BOLT |
| 17 | 1 | EA | ~~PTB–66XHA (MPS)~~ BPT-88 (MPS) | BRACKET, POLE TOP, FOR 7/8"ø STUD, 69 kV (OR EQUIV) |
| 18 | 3 | EA | ~~L2–SN181–47 (NGK)~~ CL203744075A1 (LAPP) | INSULATOR, LINE POST, VERT, COMPOSITE, (LESS STUD) 944 LG, 69 kV |
| ~~19~~ | ~~3~~ | ~~EA~~ | ~~J25251.1 (MPS)~~ | ~~STUD, SHORT, 7/8"ø, FOR POST INSULATORS~~ |
| 20 | 3 | EA | TSC106 (HBL) | CLAMP, TRUNNION |
| 21 | 6 | EA | ~ | DEADEND INSULATOR ASSEMBLY (DWG. 1407–T–4105) |
| 22 | 4 | EA | P138 (MPS) | HOOK, GUY, 120 kN (HD THIMBLE TYPE) |
| 23 | 2 | EA | ~~76B9LT (SLCN)~~ B087-180SQG (Pac Bolt) | BOLT, MACHINE, 7/8"ø x 18", MIN. THREAD 6" w/ NUT |
| 24 | 2 | EA | PL–80 (HB) | NUT, PAL, FOR 7/8"ø BOLT |
| 25 | 24 | EA | 1/2–45–GNB (PYR) | GRIP, GUY, SIZE 12 |
| 26 | A.R | m | – | WIRE, GUY, ~~SIZE 12, GRADE 1300~~ SIZE 1/2", GRADE 180 (RFI-009) |
| 27 | 8 | EA | 008506–70 ~~(GAM)~~ (LAPP) | INSULATOR, GUY STRAIN, GREY |
| 28 | A.R. | m | – | WIRE, BARE, SOLID, COPPER #6 AWG |
| 29 | 2 | PKG | 102-0234 – (ECL) | STAPLES, GALVANIZED, 38 mm X 9.5 mm (50 PER PKG) |
| 30 | 6 | EA | RMYGG–MA–74 (R&M) | GUARD, GUY, POLYETHELENE TUBING |
| 31 | 1 | EA | ~ | ADSS DOUBLE DEADEND ASSEMBLY (DWG. 1407–T–4135) |
| 32 | 2 | EA | 9914LT (SLCN) | BOLT, MACHINE, 3/4"ø x 14", MIN THREAD 6" w/ NUT |
| 33 | 2 | EA | 102–4311–TR (TDR) | WASHER, CURVED, 4" x 5", FOR 3/4"ø BOLT |

NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETRES (mm) UNLESS NOTED OTHERWISE
2. FOR GENERAL CONSTRUCTION NOTES SEE DWG. NO. 1407–T–1300.
3. FIELD DRILL 13/16"ø HOLES IN ITEM 8 TO SUIT POLE DIAMETER.
4. SPRAY TWO COATS OF COLD GALVANIZING ON ALL EXPOSED STEEL AFTER FIELD DRILLING.
5. CONTRACTOR TO CONFIRM BRACKET MEASUREMENT PRIOR TO POLE BEING DRILLED.
6. FOR GUY AND ANCHOR QUANTITIES AND CONFIGURATION SEE STRUCTURE DATA SHEET.
7. FOR SITE–SPECIFIC ADSS SPACING SEE STRUCTURE DATA SHEET.
8. CONTRACTOR TO CONFIRM BOLT LENGTHS PRIOR TO PROCUREMENT AND CONSTRUCTION. BOLT LENGTHS SHOWN ARE FOR CLASS H2 POLES.
9. STRUCTURE TYPE DESIGNATION CODES:

   FDE – DOUBLE ARM FLAT DEADEND, 0°–45°

FORBES BROS **AS-BUILT**

CHANGES REQUIRED YES ☐ NO ☐

Name (Print) _____

Signature _____

Date _____

ISSUED FOR CONSTRUCTION

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SIGNATURE _____
Date May 11, 2018
PERMIT NUMBER: PP424
Association of Professional Engineers of Yukon

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WN BRAZIER ASSOCIATES INC

SEAL: PROFESSIONAL ENGINEER YUKON TERRITORY MATTHEW OBEE May 11/2018

EAGLE GOLD PROJECT

69 kV TRANSMISSION LINE

DEADEND STRUCTURE – DOUBLE ARM FLAT, 0° – 45°

| PROJECT No. | DRAWING No. | REV. |
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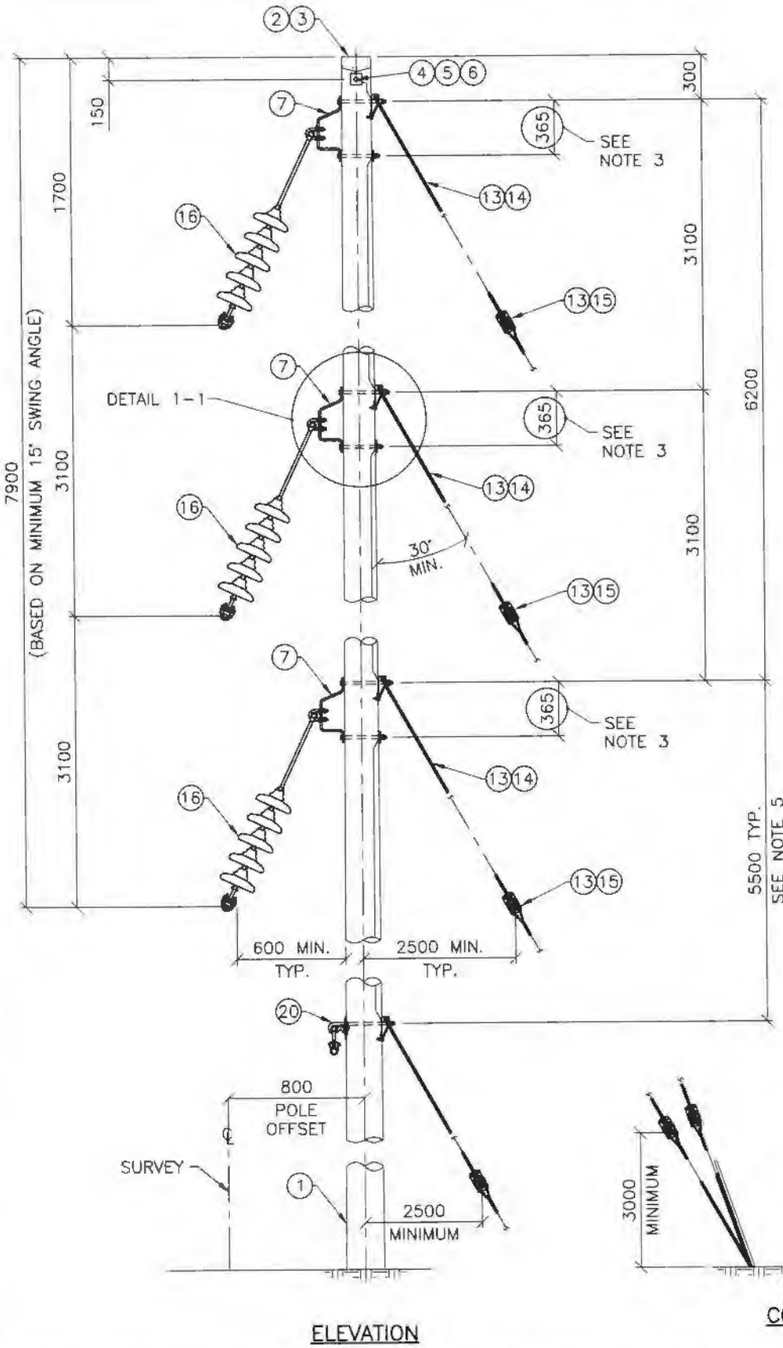


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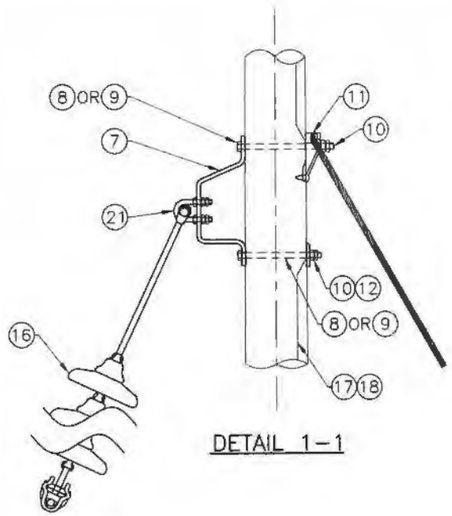
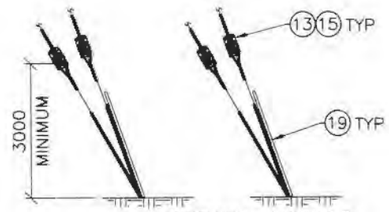



DETAIL 1-1




TYPICAL ANCHOR CONNECTION DETAIL
SEE NOTE 4

BILL OF MATERIAL FOR ONE STRUCTURE

| ITEM | QTY | HU | STOCK NO. | DESCRIPTION |
|---|---|---|---|---|
| 1 | 1 | EA | – | POLE, WOOD, FULL TREATED (SEE GENERAL CONSTRUCTION NOTES) |
| 2 | 1 | EA | 700-5778 (TDR) | CAP, RAIN PROTECTIVE ALUMINUM |
| 3 | 8 | EA | – | NAIL, COMMON, WIRE, GALV, 3" LONG |
| 4 | 1 | EA | 9812LT (SLCN) | BOLT, MACHINE, 5/8"ø x 12", MIN. THREAD 6", c/w NUT |
| 5 | 1 | EA | PL-60 (HB) | NUT, PAL. FOR 5/8"ø BOLT |
| 6 | 2 | EA | ~~J113 (MPS)~~ | WASHER, CURVED, 3" x 3", FOR 5/8"ø BOLT (1433CW11 (HYDEL)) |
| 7 | 3 | EA | 421-0220 (AXR) | BRACKET, CORNER, ASSEMBLY, FOR 7/8" BOLTS |
| 8 | 3 | EA | ~~7686LT (SLCN)~~ | BOLT, MACHINE, 7/8"ø x 14", MIN. THREAD 6", c/w NUT (100-7401 (Pac Bolt)) |
| 9 | 3 | EA | ~~7688LT (SLCN)~~ | BOLT, MACHINE, 7/8"ø x 16", MIN. THREAD 6", c/w NUT (B087-160SQG (Pac Bolt)) |
| 10 | 6 | EA | PL-80 (HB) | NUT, PAL. FOR 7/8"ø BOLT |
| 11 | 3 | EA | P138 (MPS) | HOOK, GUY (HD) THIMBLE TYPE 120 kN |
| 12 | 3 | EA | 102-4319-TR (TDR) | WASHER, CURVED, 5" x 5", FOR 7/8"ø BOLT |
| 13 | 18 | EA | 7/16-38-GN (PYR) | GRIP, GUY, SIZE 10 |
| 14 | A.R. | m | – | WIRE, GUY, ~~SIZE 10, GRADE 1300~~ SIZE 7/16", GRADE 220 (RFI-009) |
| 15 | 6 | EA | 008506-70 ~~(CAM)~~ | INSULATOR, GUY STRAIN, GREY (LAPP) |
| 16 | 3 | EA | – | MEDIUM ANGLE SUSPENSION ASSEMBLY (DWG. 1407-T-4101) |
| 17 | A.R. | m | – | WIRE, BARE, SOLID, COPPER #6 AWG |
| 18 | 2 | PKG | 102-0234 – (ECL) | STAPLES, GALVANIZED, 38 mm X 9.5 mm (50 PER PKG) |
| 19 | 4 | EA | RMYGG-MA-74 (R&M) | GUARD, GUY, POLYETHELENE TUBING |
| 20 | 1 | EA | – | ADSS SUSPENSION GUYED ASSEMBLY (DWG. 1407-T-4125) |
| 21 | 3 | EA | 81922 (SLN) | U-BOLT, 5/8"ø w/ 6 NUTS, 2 FLAT WASHERS |

NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETRES (mm) UNLESS NOTED OTHERWISE.
2. FOR GENERAL CONSTRUCTION NOTES SEE DWG. NO. 1407-T-1300.
3. CONTRACTOR TO CONFIRM BRACKET MEASUREMENT PRIOR TO POLE BEING DRILLED.
4. FOR GUY AND ANCHOR QUANTITIES AND CONFIGURATION SEE STRUCTURE DATA SHEET.
5. FOR SITE-SPECIFIC ADSS SPACING SEE STRUCTURE DATA SHEET.
6. CONTRACTOR TO CONFIRM BOLT LENGTHS PRIOR TO PROCUREMENT AND CONSTRUCTION. BOLT LENGTHS SHOWN ARE FOR CLASS 1 POLES. FOR H1 AND H2 POLES ADD 2".
7. STRUCTURE TYPE DESIGNATION CODE:

   VMA – VERTICAL MEDIUM ANGLE, 15°-30°

FORBES BROS **AS-BUILT**

CHANGES REQUIRED YES ☐ NO ☐

Name (Print) _____

Signature _____

Date _____

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SIGNATURE _____
Date May 11, 2018
PERMIT NUMBER: PP424
Association of Professional Engineers of Yukon

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| DATE | MAY 11/18 |
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WN BRAZIER ASSOCIATES INC

SEAL: PROFESSIONAL ENGINEER YUKON TERRITORY MATTHEW OBEE May 11, 2018

EAGLE GOLD PROJECT
69 kV TRANSMISSION LINE
VERTICAL MEDIUM ANGLE STRUCTURE, 15° – 30°

| PROJECT No. | DRAWING No. | REV. |
|---|---|---|
| 1407 | 1407-T-3010 | 0 |

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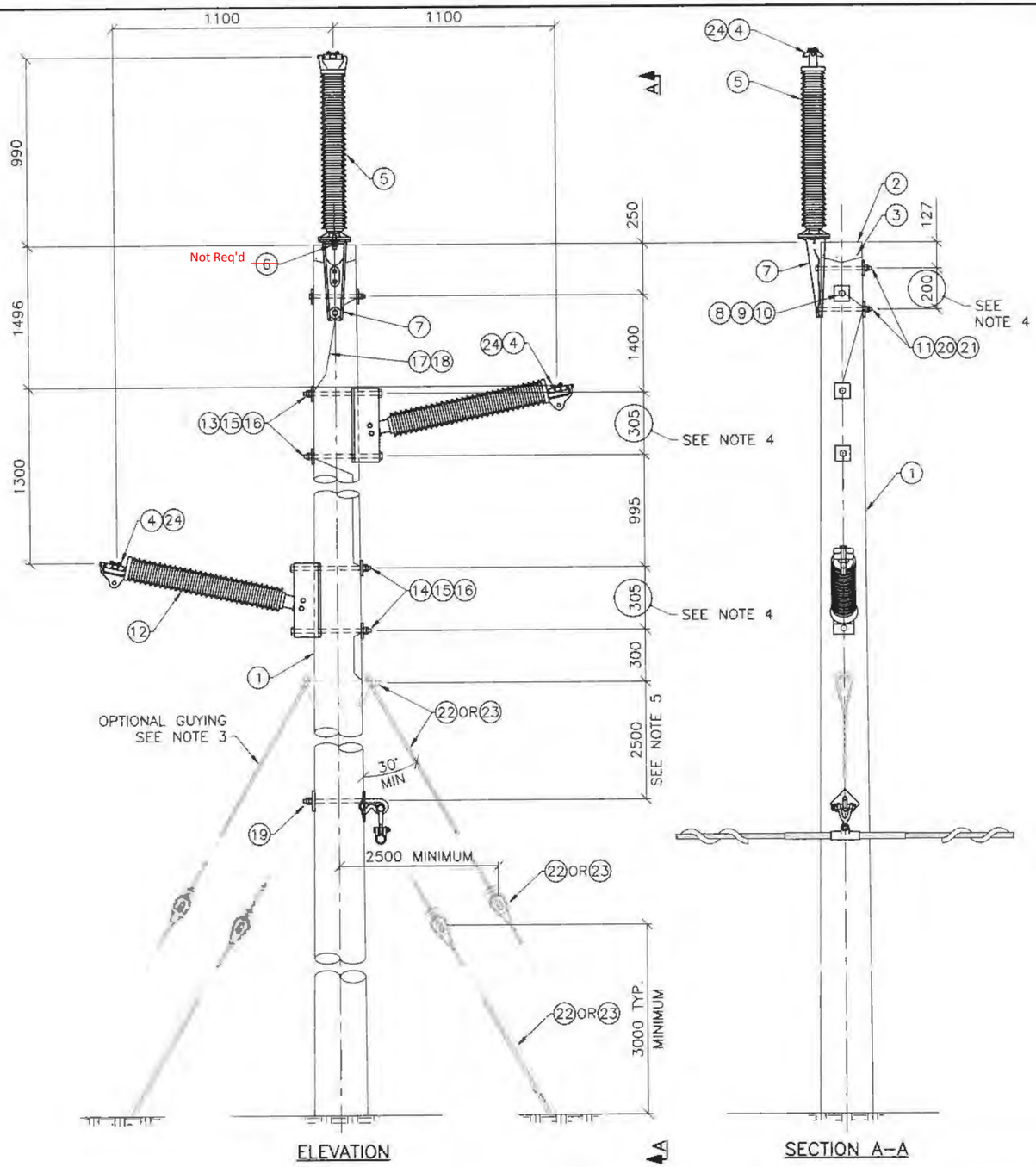


BILL OF MATERIAL FOR ONE STRUCTURE

| ITEM | QTY | HU | STOCK NO. | DESCRIPTION |
|---|---|---|---|---|
| 1 | 1 | EA | – | POLE, WOOD, FULL TREATED (SEE GENERAL CONSTRUCTION NOTES) |
| 2 | 1 | EA | 700-5778 (TDR) | CAP, RAIN PROTECTIVE ALUMINUM |
| 3 | 8 | EA | – | NAIL, COMMON, WIRE, GALV, 3" LONG |
| 4 | 3 | EA | TSC106 (HBL) | CLAMP, TRUNNION |
| 5 | 1 | EA | ~~L2-SN181-47 (NGK)~~ | INSULATOR, LINE POST, VERT, COMPOSITE, (LESS STUD) 944 LG, 69 kV (CL203744075A1 (LAPP)) |
| 6 | 1 | EA | ~~J25251.1 (MPS)~~ | ~~STUD, SHORT, 7/8"ø, FOR POST INSULATORS~~ |
| 7 | 1 | EA | ~~PTB-66XHA (MPS)~~ | BRACKET, POLE TOP, FOR 7/8"ø STUD, 69 kV (OR EQUIV) (BPT-88 (MPS)) |
| 8 | 1 | EA | 9812LT (SLCN) | BOLT, MACHINE, 5/8"ø x 12", MIN. THREAD 6", w/ NUT |
| 9 | 1 | EA | PL-60 (HB) | NUT, PAL, FOR 5/8"ø BOLT |
| 10 | 2 | EA | ~~J113 (MPS)~~ | WASHER, CURVED, 3" x 3", FOR 5/8"ø BOLT (1433CW11 (HYDEL)) |
| 11 | 2 | EA | 9914LT (SLCN) | BOLT, MACHINE, 3/4"ø x 14", MIN. THREAD 6", w/ NUT |
| 12 | 2 | EA | ~~L2-SN181-23 (NGK)~~ | INSULATOR, LINE POST, HORIZ, COMPOSITE, w/ BASE, NUTS & BOLTS, 69 kV, 972 LG (CL203822075A (LAPP)) |
| 13 | 2 | EA | ~~7689LT (SLCN)~~ | BOLT, MACHINE, 7/8"ø x 18", MIN. THREAD 6", w/ NUT (B087-180SQG (Pac Bolt)) |
| 14 | 2 | EA | ~~7690LT (SLCN)~~ | BOLT, MACHINE, 7/8"ø x 20", MIN. THREAD 6", w/ NUT (100-7404 (Pac Bolt)) |
| 15 | 4 | EA | 102-4319-TR (TDR) | WASHER, CURVED, 5" x 5", FOR 7/8"ø BOLT |
| 16 | 4 | EA | PL-80 (HB) | NUT, PAL, FOR 7/8"ø BOLT |
| 17 | A.R. | m | – | WIRE, BARE, SOLID, COPPER #6 AWG |
| 18 | 1 | PKG | 102-0234 – (ECL) | STAPLES, GALVANIZED, 38 mm X 9.5 mm (50 PER PKG) |
| 19 | 1 | EA | – | ADSS SUSPENSION ASSEMBLY (DWG. 1407-T-4120) |
| 20 | 2 | EA | PL-70 (HB) | NUT, PAL, FOR 3/4"ø BOLT |
| 21 | 2 | EA | 102-4311-TR (TDR) | WASHER, CURVED, 4" x 5", FOR 3/4"ø BOLT |
| 24 | 3 | EA | ~~PARTRIDGE 64A (PYR)~~ | ROD, ARMOUR, PREFORMED (AR-0127 (PLP)) |

OPTIONAL COMPONENTS FOR GUY ASSEMBLIES (SEE NOTE 3)

| ITEM | QTY | HU | STOCK NO. | DESCRIPTION |
|---|---|---|---|---|
| 22 | A.R. | EA | – | SINGLE GUY ASSEMBLY (DWG. 1407-T-4050) |
| 23 | A.R. | EA | – | DOUBLE GUY ASSEMBLY (DWG. 1407-T-4055) |

NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETRES (mm) UNLESS NOTED OTHERWISE.
2. FOR GENERAL CONSTRUCTION NOTES SEE DWG. NO. 1407-T-1300.
3. TRANSVERSE GUYS REQUIRED FOR STRUCTURES IN PERMAFROST OR AS SPECIFIED ON THE STRUCTURE DATA SHEET.
4. CONTRACTOR TO CONFIRM BRACKET MEASUREMENT PRIOR TO POLE BEING DRILLED.
5. FOR SITE-SPECIFIC ADSS SPACING SEE STRUCTURE DATA SHEET.
6. CONTRACTOR TO CONFIRM BOLT LENGTHS PRIOR TO PROCUREMENT AND CONSTRUCTION. BOLT LENGTHS SHOWN ARE FOR CLASS 1 POLES. FOR H1 AND H2 POLES ADD 2".
7. STRUCTURE TYPE DESIGNATION CODES:

   PTR – POST TANGENT ROLL, 0°-3°

FORBES BROS AS-BUILT

CHANGES REQUIRED YES ☐ NO ☐

Name (Print) _____

Signature _____

Date _____

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CLEAN ENERGY CONSULTING INC.
SIGNATURE _____
Date May 11, 2018
PERMIT NUMBER: PP424
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SEAL: PROFESSIONAL ENGINEER YUKON TERRITORY MATTHEW OBEE May 11, 2018

EAGLE GOLD PROJECT

69 kV TRANSMISSION LINE

POST TANGENT ROLL STRUCTURE, 0° – 3°

| PROJECT No. | DRAWING No. | REV. |
|---|---|---|
| 1407 | 1407-T-3007 | 0 |

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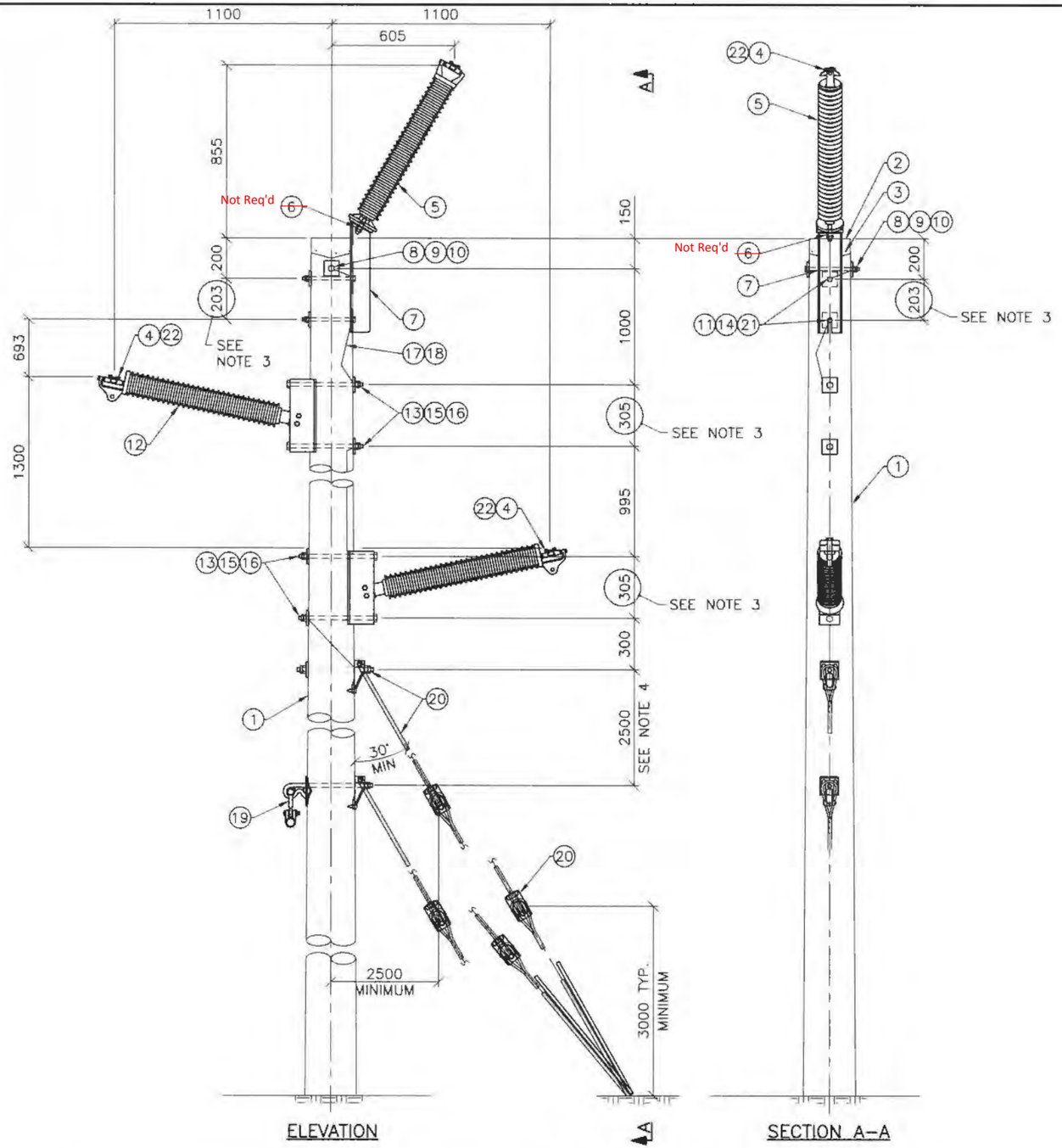


BILL OF MATERIAL FOR ONE STRUCTURE

| | ITEM | QTY | HU | STOCK NO. | DESCRIPTION |
|---|---|---|---|---|---|
| | 1 | 1 | EA | – | POLE, WOOD, FULL TREATED (SEE GENERAL CONSTRUCTION NOTES) |
| | 2 | 1 | EA | 700-5778 (TDR) | CAP, RAIN PROTECTIVE ALUMINUM |
| | 3 | 8 | EA | – | NAIL, COMMON, WIRE, GALV, 3" LONG |
| | 4 | 3 | EA | TSC106 (HBL) | CLAMP, TRUNNION |
| CL203744075A1 (LAPP) | 5 | 1 | EA | ~~L2-SN181-47 (NGK)~~ | INSULATOR, LINE POST, VERT, COMPOSITE, (LESS STUD) 944 LG, 69 kV |
| | 6 | 1 | EA | ~~J25251.1 (MPS)~~ | ~~STUD, SHORT, 3/4"ø, FOR POST INSULATORS~~ |
| | 7 | 1 | EA | 6-119-0526A (TDR) | BRACKET, POLE TOP 30°, FOR 7/8"ø STUD, 6" x 6" TOP PLATE, 69 kV |
| | 8 | 1 | EA | 9812LT (SLCN) | BOLT, MACHINE, 5/8"ø x 12", MIN. THREAD 6", w/ NUT |
| | 9 | 1 | EA | PL-60 (HB) | NUT, PAL, FOR 5/8"ø BOLT |
| 1433CW11 (HYDEL) | 10 | 2 | EA | ~~J113 (MPS)~~ | WASHER, CURVED, 3" x 3", FOR 5/8"ø BOLT |
| | 11 | 2 | EA | 9914LT (SLCN) | BOLT, MACHINE, 3/4"ø x 14", MIN. THREAD 6", w/ NUT |
| CL203822075A (LAPP) | 12 | 2 | EA | ~~L2-SN181-23 (NGK)~~ | INSULATOR, LINE POST, HORIZ, COMPOSITE, w/ BASE, NUTS & BOLTS, 69 kV, 972 LG |
| B087-180SQG (Pac Bolt) | 13 | 2 | EA | ~~7689LT (SLCN)~~ | BOLT, MACHINE, 7/8"ø x 18", MIN. THREAD 6", w/ NUT |
| | 14 | 2 | EA | PL-70 (HB) | NUT, PAL, FOR 3/4"ø BOLT |
| | 15 | 4 | EA | 102-4319-TR (TDR) | WASHER, CURVED, 5" x 5", FOR 7/8"ø BOLT |
| | 16 | 4 | EA | PL-80 (HB) | NUT, PAL, FOR 7/8"ø BOLT |
| | 17 | A.R. | m | – | WIRE, BARE, SOLID, COPPER #6 AWG |
| | 18 | 1 | PKG | 102-0234 –(ECL) | STAPLES, GALVANIZED, 38 mm X 9.5 mm (50 PER PKG) |
| | 19 | 1 | EA | – | ADSS SUSPENSION GUYED ASSEMBLY (DWG. 1407-T-4125) |
| | 20 | 1 | EA | – | SINGLE GUY ASSEMBLY (DWG. 1407-T-4050) |
| | 21 | 2 | EA | 102-4311-TR (TDR) | WASHER, CURVED 4" x 5", FOR 3/4"ø BOLT |
| AR-0127 (PLP) | 22 | 3 | EA | ~~PARTRIDGE 64A (PYR)~~ | ROD, ARMOUR, PREFORMED |

NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETRES (mm) UNLESS NOTED OTHERWISE.
2. FOR GENERAL CONSTRUCTION NOTES SEE DWG. NO. 1407-T-1300.
3. CONTRACTOR TO CONFIRM BRACKET MEASUREMENT PRIOR TO POLE BEING DRILLED.
4. FOR SITE-SPECIFIC ADSS SPACING SEE STRUCTURE DATA SHEET.
5. CONTRACTOR TO CONFIRM BOLT LENGTHS PRIOR TO PROCUREMENT AND CONSTRUCTION. BOLT LENGTHS SHOWN ARE FOR CLASS 1 POLES. FOR H1 AND H2 POLES ADD 2".
6. STRUCTURE TYPE DESIGNATION CODES:

   PTG – POST TANGENT W/ GUYS, 3°-15° LIGHT ANGLE

FORBES BROS **AS-BUILT**

CHANGES REQUIRED YES ☐ NO ☐

Name (Print) _____

Signature _____

Date _____

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SIGNATURE _____
Date May 14, 2018
PERMIT NUMBER: PP424
Association of Professional Engineers of Yukon

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SEAL: PROFESSIONAL ENGINEER YUKON TERRITORY MATTHEW OBEE May 14, 2018

EAGLE GOLD PROJECT

69 kV TRANSMISSION LINE

POST TANGENT GUYED STRUCTURE, 3° – 15°

| PROJECT No. | DRAWING No. | REV. |
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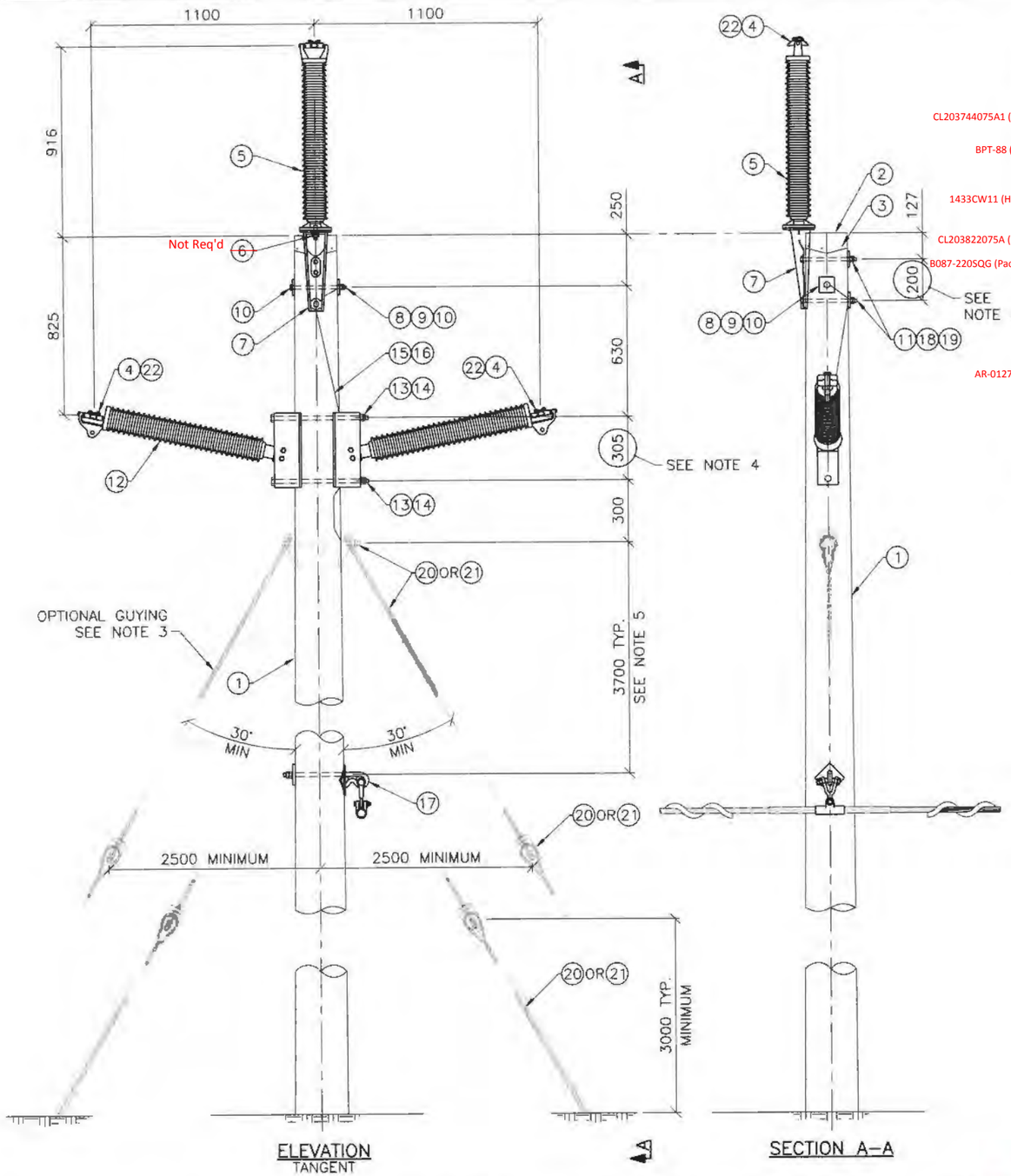
| 1407 | 1407-T-3006 | 0 |




ELEVATION
TANGENT

SECTION A–A

## BILL OF MATERIAL FOR ONE STRUCTURE

| ITEM | QTY | HU | STOCK NO. | DESCRIPTION |
|---|---|---|---|---|
| 1 | 1 | EA | – | POLE, WOOD, FULL TREATED (SEE GENERAL CONSTRUCTION NOTES) |
| 2 | 1 | EA | 700-5778 (TDR) | CAP, RAIN PROTECTIVE ALUMINUM |
| 3 | 8 | EA | – | NAIL, COMMON, WIRE, GALV, 3" LONG |
| 4 | 3 | EA | TSC106 (HBL) | CLAMP, TRUNNION |
| 5 | 1 | EA | ~~L2-SN181-47 (NGK)~~ CL203744075A1 (LAPP) | INSULATOR, LINE POST, VERT, COMPOSITE, (LESS STUD) 944 LG, 69 kV |
| 6 | 1 | EA | ~~J25251.1 (MPS)~~ | ~~STUD, SHORT, 7/8"ø, FOR POST INSULATORS~~ |
| 7 | 1 | EA | ~~PTB-66XHA (MPS)~~ BPT-88 (MPS) | BRACKET, POLE TOP, FOR 7/8"ø STUD, 69 kV (OR EQUIV) |
| 8 | 1 | EA | 9812LT (SLCN) | BOLT, MACHINE, 5/8"ø x 12", MIN. THREAD 6", w/ NUT |
| 9 | 1 | EA | PL-60 (HB) | NUT, PAL, FOR 5/8"ø BOLT |
| 10 | 2 | EA | ~~J113 (MPS)~~ 1433CW11 (HYDEL) | WASHER, CURVED, 3" x 3", FOR 5/8"ø BOLT |
| 11 | 2 | EA | 9914LT (SLCN) | BOLT, MACHINE, 3/4"ø x 14", MIN. THREAD 6", w/ NUT |
| 12 | 2 | EA | ~~L2-SN181-23 (NGK)~~ CL203822075A (LAPP) | INSULATOR, LINE POST, HORIZ, COMPOSITE, w/ BASE, NUTS & BOLTS, 69 kV, 972 LG |
| 13 | 2 | EA | ~~7691LT (SLCN)~~ B087-220SQG (Pac Bolt) | BOLT, MACHINE, 7/8"ø x 22", MIN. THREAD 6", w/ NUT |
| 14 | 2 | EA | PL-80 (HB) | NUT, PAL, FOR 7/8"ø BOLT |
| 15 | A.R. | m | – | WIRE, BARE, SOLID, COPPER #6 AWG |
| 16 | 1 | PKG | – 102-0234 (ECL) | STAPLES, GALVANIZED, 38 mm X 9.5 mm (50 PER PKG) |
| 17 | 1 | EA | – | ADSS SUSPENSION ASSEMBLY (DWG. 1407-T-4120) |
| 18 | 2 | EA | PL-70 (HB) | NUT, PAL, FOR 3/4"ø BOLT |
| 19 | 2 | EA | 102-4311-TR (TDR) | WASHER, CURVED, 4" x 5", FOR 3/4"ø BOLT |
| 22 | 3 | EA | ~~PARTRIDGE 64A (PYR)~~ AR-0127 (PLP) | ROD, ARMOUR, PREFORMED |

## OPTIONAL COMPONENTS FOR GUY ASSEMBLIES (SEE NOTE 3)

| ITEM | QTY | HU | STOCK NO. | DESCRIPTION |
|---|---|---|---|---|
| 20 | A.R. | EA | – | SINGLE GUY ASSEMBLY (DWG. 1407-T-4050) |
| 21 | A.R. | EA | – | DOUBLE GUY ASSEMBLY (DWG. 1407-T-4055) |

NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETRES (mm) UNLESS NOTED OTHERWISE.
2. FOR GENERAL CONSTRUCTION NOTES SEE DWG. NO. 1407-T-1300.
3. TRANSVERSE GUYS REQUIRED FOR STRUCTURES IN PERMAFROST OR AS SPECIFIED ON THE STRUCTURE DATA SHEET.
4. CONTRACTOR TO CONFIRM BRACKET MEASUREMENT PRIOR TO POLE BEING DRILLED.
5. FOR SITE-SPECIFIC ADSS SPACING SEE STRUCTURE DATA SHEET.
6. CONTRACTOR TO CONFIRM BOLT LENGTHS PRIOR TO PROCUREMENT AND CONSTRUCTION. BOLT LENGTHS SHOWN ARE FOR CLASS 1 POLES. FOR H1 AND H2 POLES ADD 2".
7. STRUCTURE TYPE DESIGNATION CODES:

   PT – POST TANGENT, 0°–3°

FORBES BROS **AS-BUILT**

CHANGES REQUIRED YES ☐ NO ☐

Name (Print) _____

Signature _____

Date _____

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Date May 11, 2018
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| DESIGN | MP |
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SEAL: PROFESSIONAL ENGINEER YUKON TERRITORY MATTHEW OBEE May 11, 2018

EAGLE GOLD PROJECT
69 kV TRANSMISSION LINE
POST TANGENT STRUCTURE, 0° – 3°

| PROJECT No. | DRAWING No. | REV. |
|---|---|---|
| 1407 | 1407-T-3005 | 0 |

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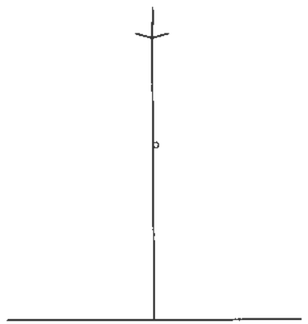
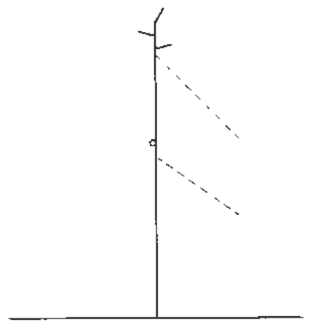
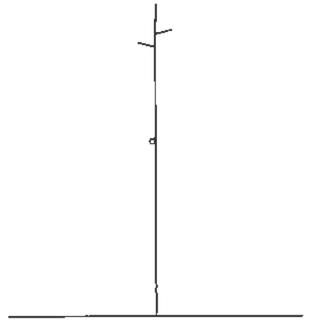


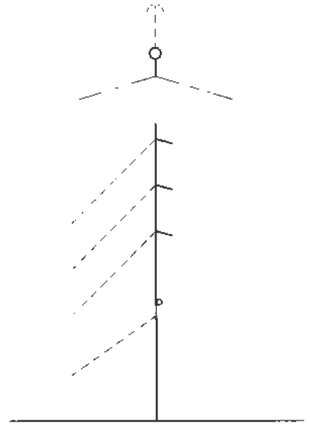
SINGLE POLE (0°–3°)
1407–T–3005
STRUCTURE DESIGNATION CODES
PT – POST TANGENT



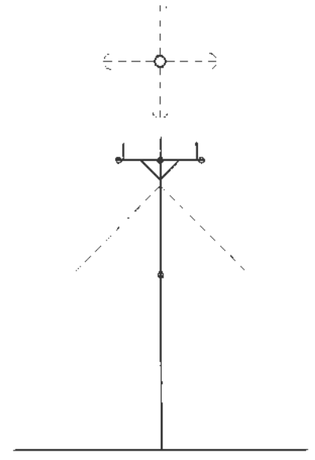
SINGLE POLE (3°–15°)
1407–T–3006
STRUCTURE DESIGNATION CODES
PTG – POST TANGENT–GUYED



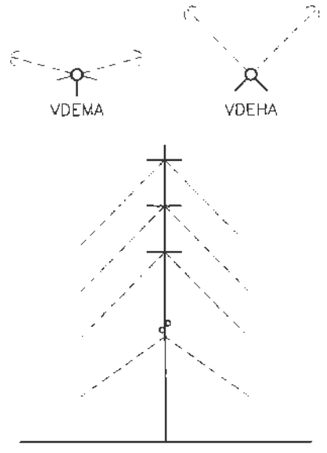
SINGLE POLE (0°–3°)
1407–T–3007
STRUCTURE DESIGNATION CODES
PTR – POST TANGENT ROLL
RFI-040 rev0
Flipped post Insulator



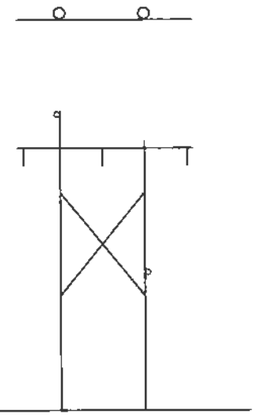
SINGLE POLE (15°–30°)
1407–T–3010
STRUCTURE DESIGNATION CODE
VMA – VERTICAL MEDIUM ANGLE



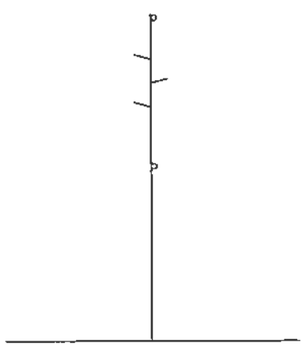
SINGLE POLE (0°–45°)
1407–T–3020
STRUCTURE DESIGNATION CODE
FDE – DOUBLE ARM FLAT DEADEND



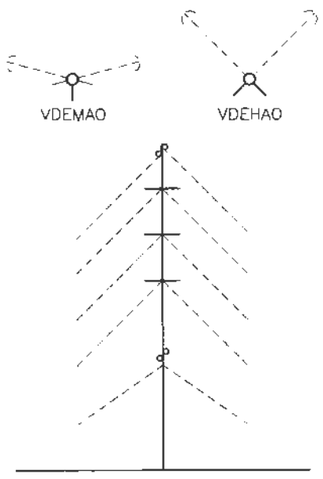

SINGLE POLE DEADEND (25°–90°)
1407–T–3035 AND 1407–T–3036
STRUCTURE DESIGNATION CODE
VDEMA – VERTICAL DEADEND MEDIUM ANGLE, 25°–45° (3036)
VDEHA – VERTICAL DEADEND HEAVY ANGLE, 45°–90° (3035)



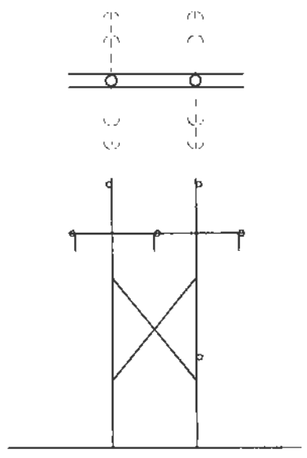
H–FRAME TANGENT (0°–3°)
1407–T–3040
STRUCTURE DESIGNATION CODES
SAH – SINGLE ARM H–FRAME
SAHO – SINGLE ARM H–FRAME w/ OHSW



SINGLE POLE w/ OHSW (0°–3°)
1407–T–3050
STRUCTURE DESIGNATION CODES
PVO – POST VERTICAL w/ OHSW (0°–3°) TANGENT




SINGLE POLE DEADEND w/ OHSW (25°–90°)
1407–T–3055 AND 1407–T–3056
STRUCTURE DESIGNATION CODE
VDEMAO – VERTICAL DEADEND MEDIUM ANGLE w/ OHSW, 25°–45° (3056)
VDEHAO – VERTICAL DEADEND HEAVY ANGLE w/ OHSW, 45°–90° (3055)



H–FRAME DEADEND w/ OHSW (0°–3°)
1407–T–3060
STRUCTURE DESIGNATION CODES
DAHDEO – DOUBLE ARM H–FRAME DEADEND w/ OHSW

**FORBES BROS** **AS-BUILT**

CHANGES REQUIRED YES ☐ NO ☐
Name (Print) _____
Signature _____
Date _____

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| APPROVED | MEO |

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SEAL
PROFESSIONAL ENGINEER
YUKON TERRITORY
MATTHEW OBEE
May 11, 2018

EAGLE GOLD PROJECT
69 kV TRANSMISSION LINE
WOOD POLE STRUCTURE FAMILY

| PROJECT No. | DRAWING No. | REV |
|---|---|---|
| 1407 | 1407–T–3000 | 0 |

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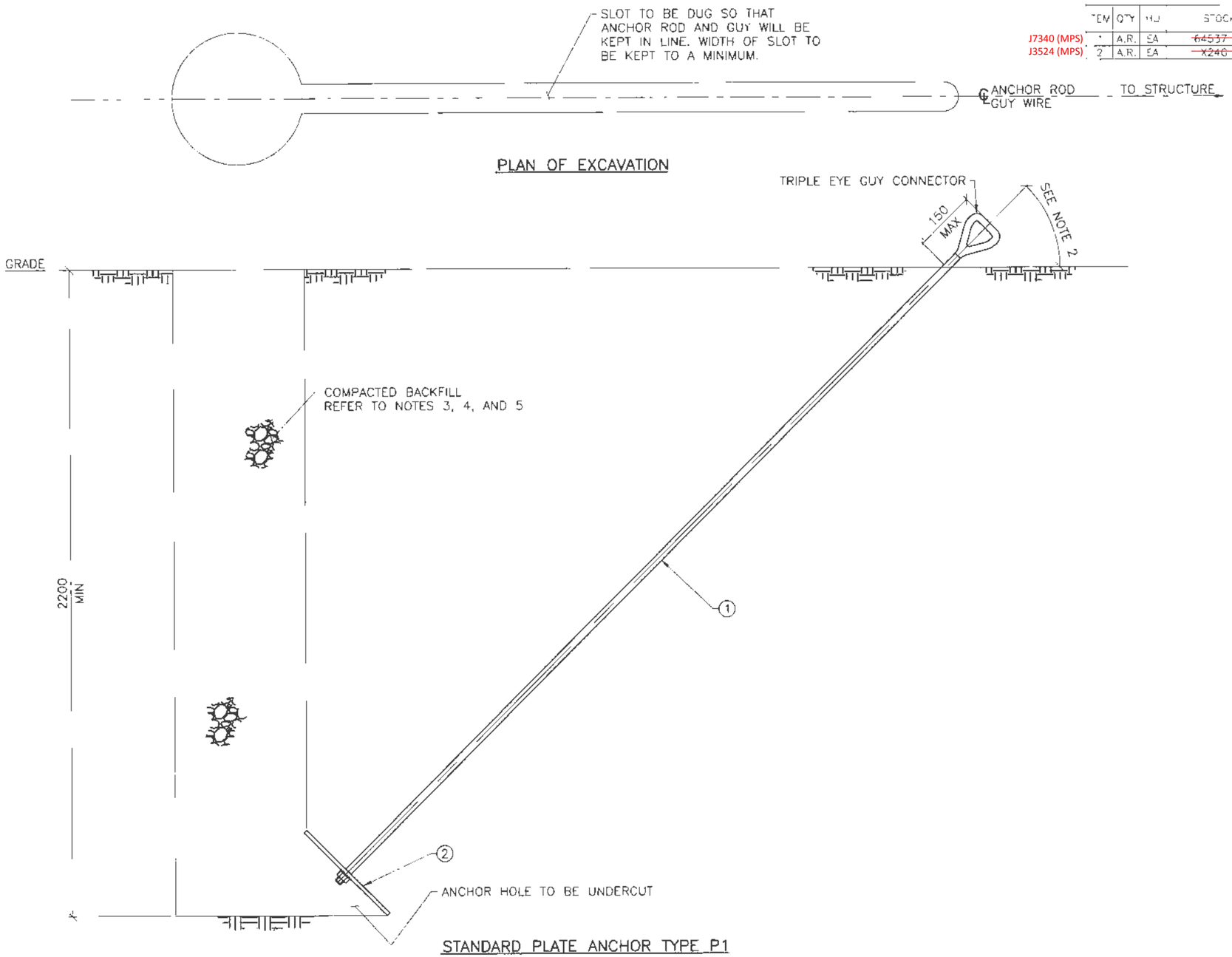
BILL OF MATERIAL FOR ONE ASSEMBLY

| | ITEM | QTY | HU | STOCK NO | DESCRIPTION |
|---|---|---|---|---|---|
| J7340 (MPS) | 1 | A.R. | EA | ~~64537 (SLCN)~~ | ROD, ANCHOR, TRIPLE EYE, 1" Ø x 3050 LG w/ SQUARE NUT (160 kN) |
| J3524 (MPS) | 2 | A.R. | EA | ~~X240 (HBL)~~ | PLATE ANCHOR |




PLAN OF EXCAVATION



STANDARD PLATE ANCHOR TYPE P1

FORBES BROS **AS-BUILT**

CHANGES REQUIRED YES ☐ NO ☐

Name (Print) _____

Signature _____

Date _____

NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETRES (mm) UNLESS OTHERWISE NOTED.
2. ANCHOR ROD MUST BE ALIGNED WITH GUY (TOLERANCE ±3°) AND SHALL BE PLACED IN MINIMUM WIDTH SLOTTED TRENCH.
3. ALL BACKFILL MATERIAL TO BE NON-FROST SUSCEPTIBLE 20 mm CRUSHED GRAVEL PER CONSTRUCTION SPECIFICATIONS UNLESS QUALIFIED PERSON ON SITE DICTATES NATIVE BACKFILL.
4. BACKFILL TO BE PLACED IN MAXIMUM 300 mm LIFTS AND COMPACTED BY MECHANICAL MEANS.
5. FILL SHALL BE COMPACTED TO A "DENSE" CONDITION. THIS "DENSE" CONDITION IS REACHED IF IT IS NOT POSSIBLE FOR A MAN OF AVERAGE WEIGHT TO PUSH A WOODEN PICKET MORE THAN 40 MM IN TO THE SOIL. THE PICKET SHALL BE 50 MM x 50 MM WITH THE PENETRATION END BEVELED AT 45° ON ALL FOUR SIDES.
6. BACKFILL GRADATION AND INSTALLATION RECORDS MUST BE MAINTAINED AND PROVIDED BY THE INSTALLATION CONTRACTOR AS A PART OF QUALITY CONTROL DOCUMENTATION.

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CLIENT: StrataGold Corporation

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| APPROVED | MEO |

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WN BRAZIER ASSOCIATES INC

SEAL: PROFESSIONAL ENGINEER YUKON MATTHEW OBEE TERRITORY May 11, 2018

EAGLE GOLD PROJECT
69 kV TRANSMISSION LINE
STANDARD PLATE ANCHOR SYSTEM FOR WOOD POLE STRUCTURES

| PROJECT No. | DRAWING No. | REV |
|---|---|---|
| 1407 | 1407-T-2060 | 0 |

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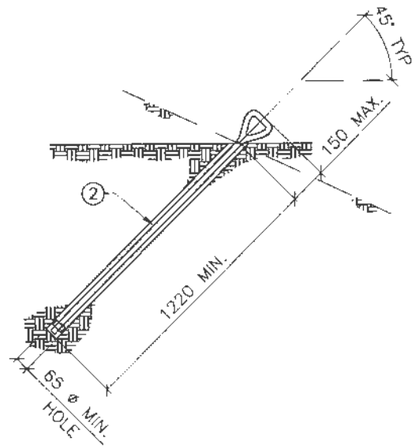
BILL OF MATERIAL FOR ONE ASSEMBLY

| ITEM | QTY | UNIT | STOCK NO | DESCRIPTION |
|---|---|---|---|---|
| 1 | A.R. | EA | ~~64536 (SLCA)~~ J7340 (MPS) | ROD, ANCHOR, TRIPLE EYE, 1" Ø x 2750 LG w/ NUT (160 kN) |
| 2 | A.R. | EA | 990417GR94R (TDR) | ROD, ANCHOR, TRIPLE EYE, 1" Ø x 1370 LG w/ NUT (160 kN) |

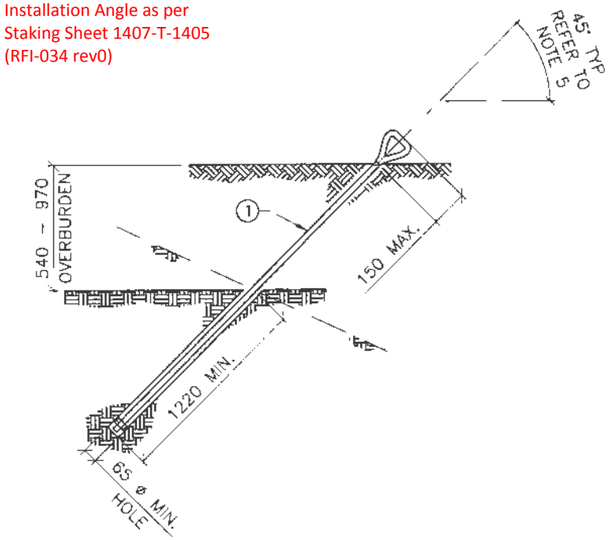
NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETRES (mm) UNLESS OTHERWISE NOTED.
2. ALL ROCK ANCHORS SHALL BE GROUTED USING AN APPROVED NON-SHRINK GROUT MIXED, PLACED, AND CURED IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS AND SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 25 MPa AT 28 DAYS.
3. COLD WEATHER GROUTING PROCEDURES SHALL BE SUBMITTED FOR ENGINEERS APPROVAL PRIOR TO APPLICATION.
4. ROCK ANCHOR TYPE R1 AND R2 ARE SUITABLE FOR A SAFE WORKING LOAD OF 56 kN (12,500 lbs) AT 45°. ROCK ANCHOR TYPE R3 IS SUITABLE FOR A SAFE WORKING LOAD OF 80 kN (18,000 lbs) AT 45°.
5. MAXIMUM GROUND SLOPE FOR ONE EXTENSION IS 21°, AND 30° FOR TWO EXTENSIONS.
6. ROCK ANCHOR EMBEDMENT LENGTH TO BE INCREASED WHERE REQUIRED SO ANCHOR ROD PROJECTION IS NO MORE THAN 150 mm FROM THE SOIL SURFACE AFTER BACKFILL.
7. ALL MULTI-GUY ANCHORS TO BE TYPE R3.




ROCK ANCHOR TYPE R1
ROCK ANCHOR – LEVEL ROCK OR SLOPED AS SHOWN.

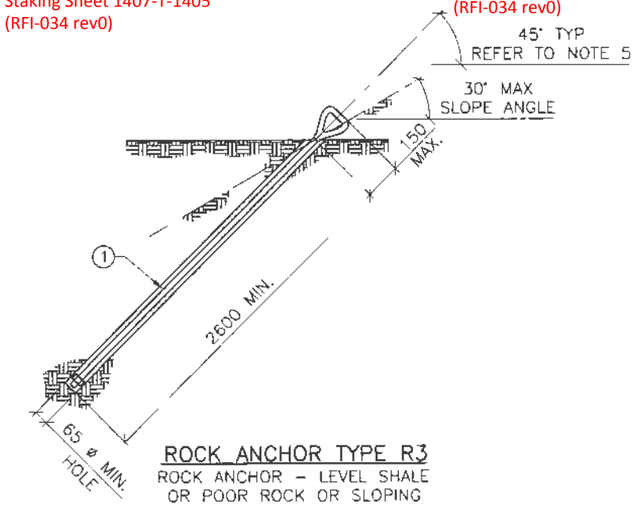
Installation Angle as per Staking Sheet 1407-T-1405 (RFI-034 rev0)




ROCK ANCHOR TYPE R2
ROCK ANCHOR WITH OVERBURDEN
LEVEL ROCK OR SLOPED AS SHOWN.

Installation Angle as per Staking Sheet 1407-T-1405 (RFI-034 rev0)

Installation Angle as per Staking Sheet 1407-T-1405 (RFI-034 rev0)




ROCK ANCHOR TYPE R3
ROCK ANCHOR – LEVEL SHALE OR POOR ROCK OR SLOPING SOUND ROCK.

FORBES BROS **AS-BUILT**

CHANGES REQUIRED YES ☐ NO ☐
Name (Print) _____
Signature _____
Date _____

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SIGNATURE _____
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PERMIT NUMBER: PP424
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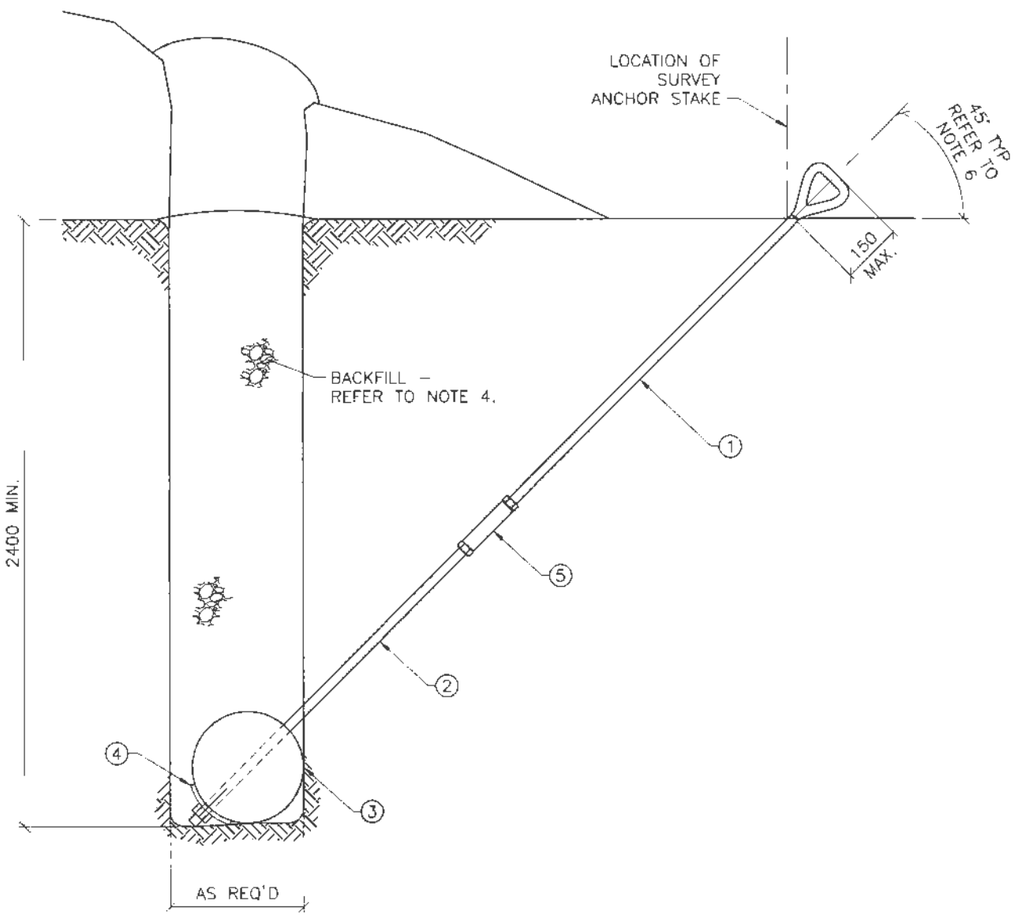
SEAL: PROFESSIONAL ENGINEER YUKON MATTHEW OBEE TERRITORY May 11, 2018

EAGLE GOLD PROJECT
69 kV TRANSMISSION LINE
STANDARD ROCK ANCHOR SYSTEM FOR WOOD POLE STRUCTURES

| PROJECT No. | DRAWING No. | REV. |
|---|---|---|
| 1407 | 1407-T-2051 | 0 |

BILL OF MATERIAL FOR ONE ASSEMBLY

| ITEM | QTY | UNIT | STOCK NO. | DESCRIPTION |
|---|---|---|---|---|
| J7340 (MPS) | 1 | A.R. | ~~64536 (SLCN)~~ | ROD, ANCHOR, TRIPLE EYE, 1" ø x 2750 LG w/ NUT (160 kN) |
| | 2 | A.R. | 99041798947 (TDR) | ROD, GUY ANCHOR EXTENSION ASSEMBLY, 24 ¢ x 1610 LG |
| (SCS) | 3 | A.R. | ~~423-4702 (ANX)~~ | LOG, ANCHOR, 300 ø x 2500 LG MIN |
| 3866CW18 (HBL) | 4 | A.R. | ~~63826 (SLCN)~~ | WASHER, CURVED, 6" x 6", FOR 1" ø BOLT |
| | 5 | A.R. | 2247P (HBL) | COUPLER, ANCHOR ROD, 1" ø (160 kN) |




STANDARD LOG ANCHOR
TYPE E1

Installation Angle as per Staking Sheet 1407-T-1405 (RFI-034 rev0)

NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETRES (mm) UNLESS OTHERWISE NOTED.
2. ANCHOR LOGS SHALL BE SET HORIZONTALLY WITH THEIR AXIS PERPENDICULAR TO THE GUY DIRECTION.
3. ANCHOR ROD SHALL BE ALIGNED WITH GUY (TOLERANCE ±3°) AND, FOR EARTH ANCHOR, SHALL BE PLACED IN MINIMUM WIDTH SLOTTED TRENCH.
4. ALL BACKFILL MATERIAL TO BE NON-FROST SUSCEPTIBLE 20 mm CRUSHED GRAVEL PER CONSTRUCTION SPECIFICATIONS UNLESS QUALIFIED PERSON ON SITE DICTATES NATIVE BACKFILL IS ACCEPTABLE.
5. BACKFILL SHALL BE PLACED IN 300 mm LIFTS AND SHALL BE COMPACTED BETWEEN LIFTS WITH A MINIMUM OF 2 PASSES WITH A MECHANICAL TAMPER.
6. LOG ANCHORS ARE SUITABLE FOR A WORKING LOAD OF 80 kN (18,000 LBS.) AT 45°.
7. FOR A GUY ANGLE OF LESS THAN 45°, THE EARTH ANCHOR IS TO BE BURIED DEEPER SO THAT THE ANCHOR ROD PROTRUDES NO MORE THAN 150 mm FROM THE SOIL SURFACE.
8. FILL SHALL BE COMPACTED TO A "DENSE" CONDITION. THIS "DENSE" CONDITION IS REACHED IF IT IS NOT POSSIBLE FOR A MAN OF AVERAGE WEIGHT TO PUSH A WOODEN PICKET MORE THAN 40 MM IN TO THE SOIL. THE PICKET SHALL BE 50 MM x 50 MM WITH THE PENETRATION END BEVELED AT 45° ON ALL FOUR SIDES.

FORBES BROS **AS-BUILT**

CHANGES REQUIRED YES ☐ NO ☐

Name (Print) _____

Signature _____

Date _____

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| APPROVED | MEO |

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WN BRAZIER ASSOCIATES INC

SEAL: PROFESSIONAL ENGINEER YUKON TERRITORY MATTHEW OBEE May 11, 2018

EAGLE GOLD PROJECT

69 kV TRANSMISSION LINE

STANDARD LOG ANCHOR SYSTEM FOR WOOD POLE STRUCTURES

| PROJECT No. | DRAWING No. | REV. |
|---|---|---|
| 1407 | 1407-T-2050 | 0 |

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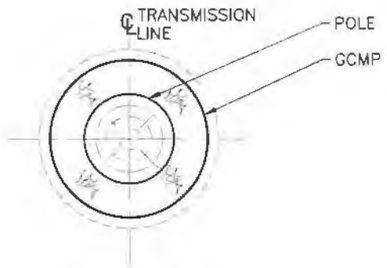
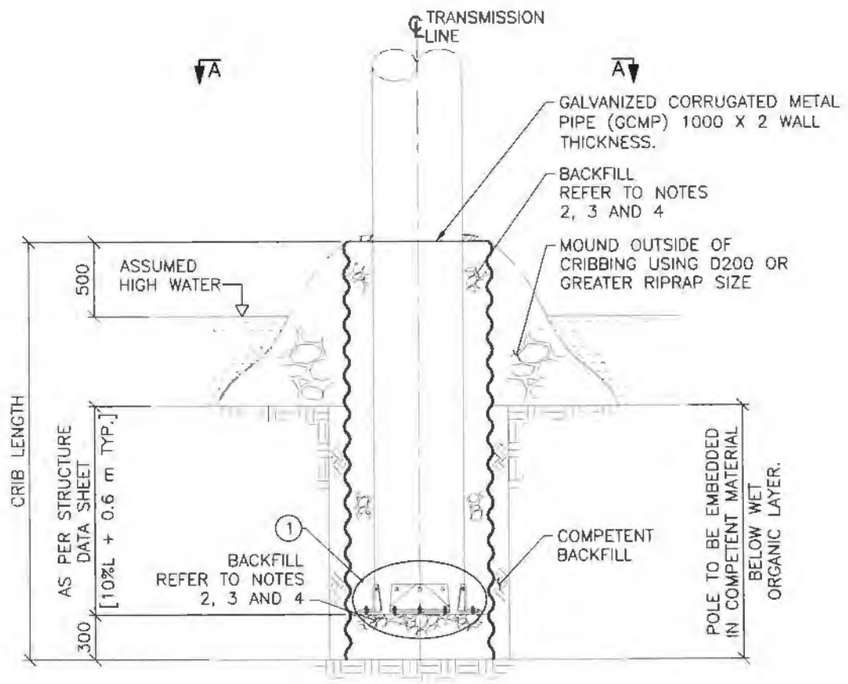
| BILL OF MATERIAL FOR ONE STRUCTURE | | | | |
|---|---|---|---|---|
| ITEM | QTY | HU | STOCK NO. | DESCRIPTION |
| 1 | A/R | EA | A1895-1 (HB) | POLE BEARING PLATE ASSEMBLY |




SECTION A–A




POLE SETTING DETAIL FOR STRUCTURES IN SWAMP AND WETLAND

NTS

NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETRES (mm) UNLESS OTHERWISE NOTED.
2. GCMP BACKFILL MATERIAL TO BE NON-FROST SUSCEPTABLE 20 mm CRUSHED GRAVEL MATERIAL AS PER PROJECT CONSTRUCTION SPECIFICATIONS. ALTERNATE MATERIALS ARE SUBJECT TO ENGINEERS APPROVAL.
3. BACKFILL TO BE PLACED IN MAXIMUM 300 mm LIFTS AND COMPACTED BY MECHANICAL MEANS.
4. FILL SHALL BE COMPACTED TO A "DENSE" CONDITION. THIS "DENSE" CONDITION IS REACHED IF IT IS NOT POSSIBLE FOR A MAN OF AVERAGE WEIGHT TO PUSH A WOODEN PICKET MORE THAN 40 MM IN TO THE SOIL. THE PICKET SHALL BE 50 MM x 50 MM WITH THE PENETRATION END BEVELED AT 45° ON ALL FOUR SIDES.
5. BACKFILL GRADATION AND INSTALLATION RECORDS MUST BE MAINTAINED AND PROVIDED BY THE INSTALLATION CONTRACTOR AS A PART OF QUALITY CONTROL DOCUMENTATION.
6. ALL STRUCTURES SET IN PERMAFROST SHOULD BE INSPECTED ANNUALLY AS A MINIMUM. STRUCTURES MAY REQUIRE STRAIGHTENING AND/OR ANCHOR TENSIONS ADJUSTED AS A RESULT OF SEASONAL GROUND MOVEMENTS.
7. PRIOR TO USING THIS DETAIL, CONTRACTOR MUST RECEIVE APPROVAL FROM DESIGN ENGINEER AT EACH LOCATION.
8. STRUCTURES IN SWAMPY OR WETLAND AREAS MUST BE INSTALLED WHEN GROUND IS FROZEN.
9. OWNER'S REPRESENTATIVE TO BE PRESENT DURING GCMP INSTALLATION. FINAL SETTING DEPTH TO BE REVIEWED PRIOR TO PROCEEDING WITH POLE INSTALLATION TO ENSURE THAT MINIMUM GROUND CLEARANCES ARE ACHIEVED.

FORBES BROS AS-BUILT

CHANGES REQUIRED YES ☐ NO ☐

Name (Print) _____

Signature _____

Date _____

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| DRAWN | SE |
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SEAL: PROFESSIONAL ENGINEER — YUKON TERRITORY — MATTHEW OBEE — JULY 11, 2018

EAGLE GOLD PROJECT
69 kV TRANSMISSION LINE
POLE SETTING DETAIL FOR STRUCTURES IN SWAMP AND WETLAND

| PROJECT No. | DRAWING No. | REV. |
|---|---|---|
| 1407 | 1407-T-2017 | 0 |

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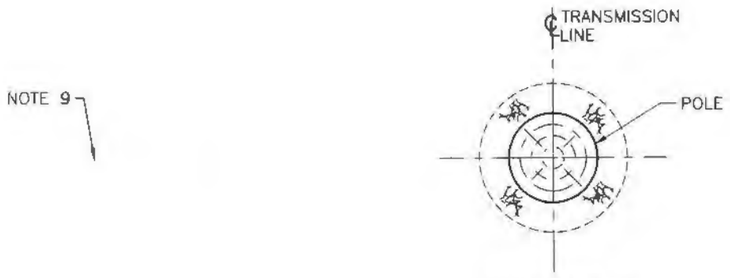
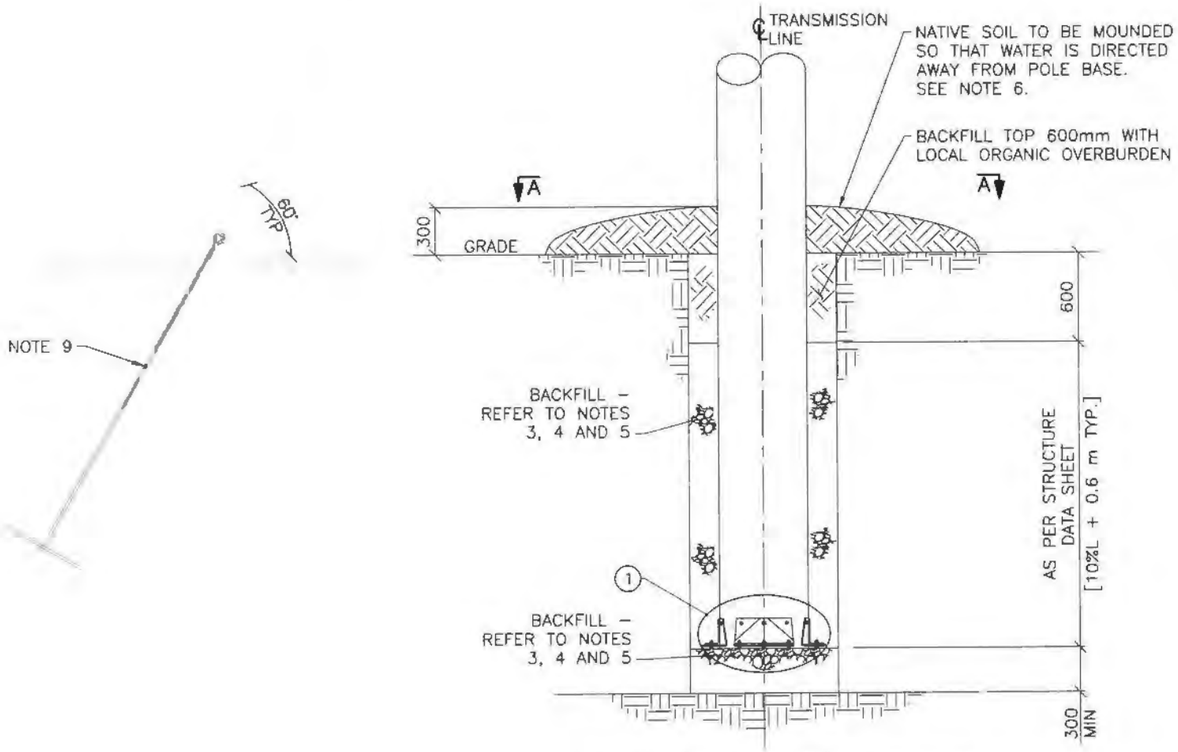
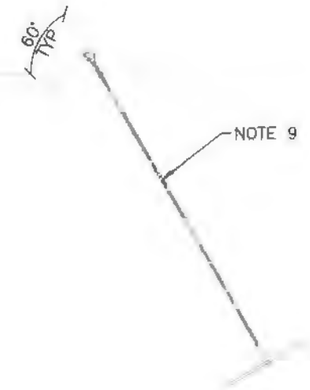
| BILL OF MATERIAL FOR ONE STRUCTURE | | | | |
|---|---|---|---|---|
| ITEM | QTY | HU | STOCK NO. | DESCRIPTION |
| 1 | A.R. | EA | A1895-3 (HB) | POLE BEARING PLATE ASSEMBLY |




SECTION A-A




AUGERED POLE SETTING DETAIL FOR STRUCTURES IN PERMAFROST
NTS




NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETRES (mm) UNLESS OTHERWISE NOTED.
2. POLES MUST BE SET AT THE EMBEDMENT DEPTHS INDICATED ON THE STRUCTURE DATA SHEETS.
3. ALL BACKFILL MATERIAL TO BE NON-FROST SUSCEPTIBLE 20 mm CRUSHED GRAVEL PER CONSTRUCTION SPECIFICATIONS UNLESS QUALIFIED PERSON ON SITE DICTATES NATIVE BACKFILL IS ACCEPTABLE.
4. BACKFILL TO BE PLACED IN MAXIMUM 300 mm LIFTS AND COMPACTED BY MECHANICAL MEANS.
5. FILL SHALL BE COMPACTED TO A "DENSE" CONDITION. THIS "DENSE" CONDITION IS REACHED IF IT IS NOT POSSIBLE FOR A MAN OF AVERAGE WEIGHT TO PUSH A WOODEN PICKET MORE THAN 40 mm IN TO THE SOIL. THE PICKET SHALL BE 50 mm x 50 mm WITH THE PENETRATION END BEVELED AT 45° ON ALL FOUR SIDES.
6. PROVIDE 300 mm THICK CAPPING OF NATIVE MATERIAL SLOPED SUCH THAT SURFACE RUNOFF IS DIRECTED AWAY FROM POLE.
7. BACKFILL GRADATION AND INSTALLATION RECORDS MUST BE MAINTAINED AND PROVIDED BY THE INSTALLATION CONTRACTOR AS A PART OF QUALITY CONTROL DOCUMENTATION.
8. MINIMUM SPACING OF 2" IS REQUIRED BETWEEN THROUGH BOLTS FOR POLE BEARING PLATE ASSEMBLY (ITEM 1).
9. TRANSVERSE ANCHORS ONLY REQUIRED FOR TANGENT STRUCTURES IN PERMAFROST.
10. ALL STRUCTURES SET IN PERMAFROST SHOULD BE INSPECTED ANNUALLY AS A MINIMUM. STRUCTURES MAY REQUIRE STRAIGHTENING AND/OR ANCHOR TENSIONS ADJUSTED AS A RESULT OF SEASONAL GROUND MOVEMENTS.

FORBES BROS **AS-BUILT**

CHANGES REQUIRED YES ☐ NO ☐

Name (Print) _____

Signature _____

Date _____

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Date JULY 11, 2018
PERMIT NUMBER: PP424
Association of Professional Engineers of Yukon

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CLIENT StrataGold Corporation

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| APPROVED | MEO |

Clean Energy CONSULTING INC.
www.cleanenergyconsulting.ca
WN BRAZIER ASSOCIATES INC

SEAL: PROFESSIONAL ENGINEER YUKON TERRITORY MATTHEW OBEE July 11, 2018

EAGLE GOLD PROJECT
69 kV TRANSMISSION LINE
AUGERED POLE SETTING DETAIL FOR STRUCTURES IN PERMAFROST

| PROJECT No. | DRAWING No. | REV. |
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| 1407 | 1407-T-2016 | 0 |

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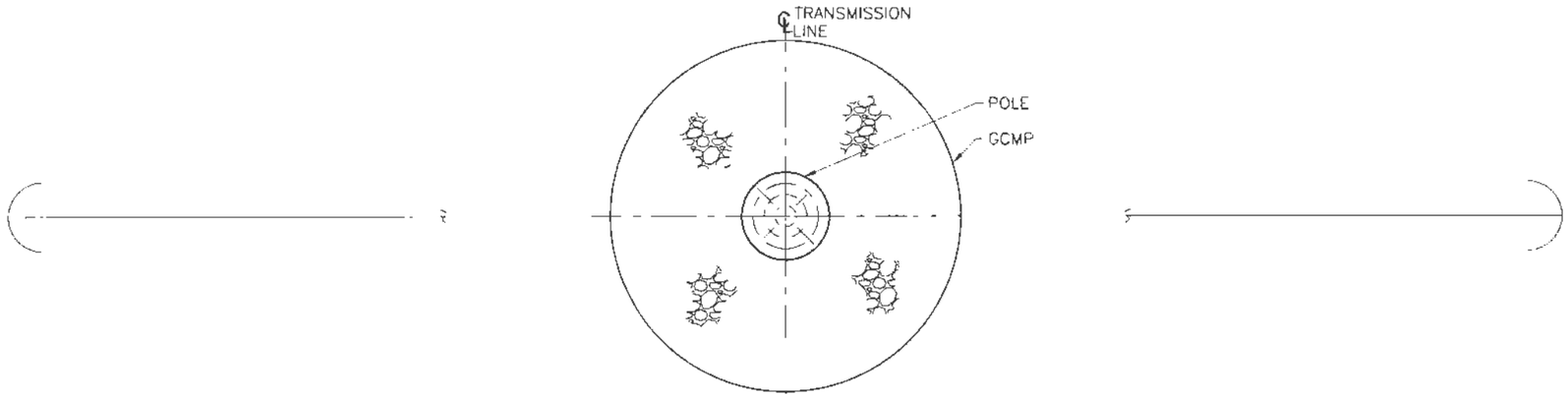
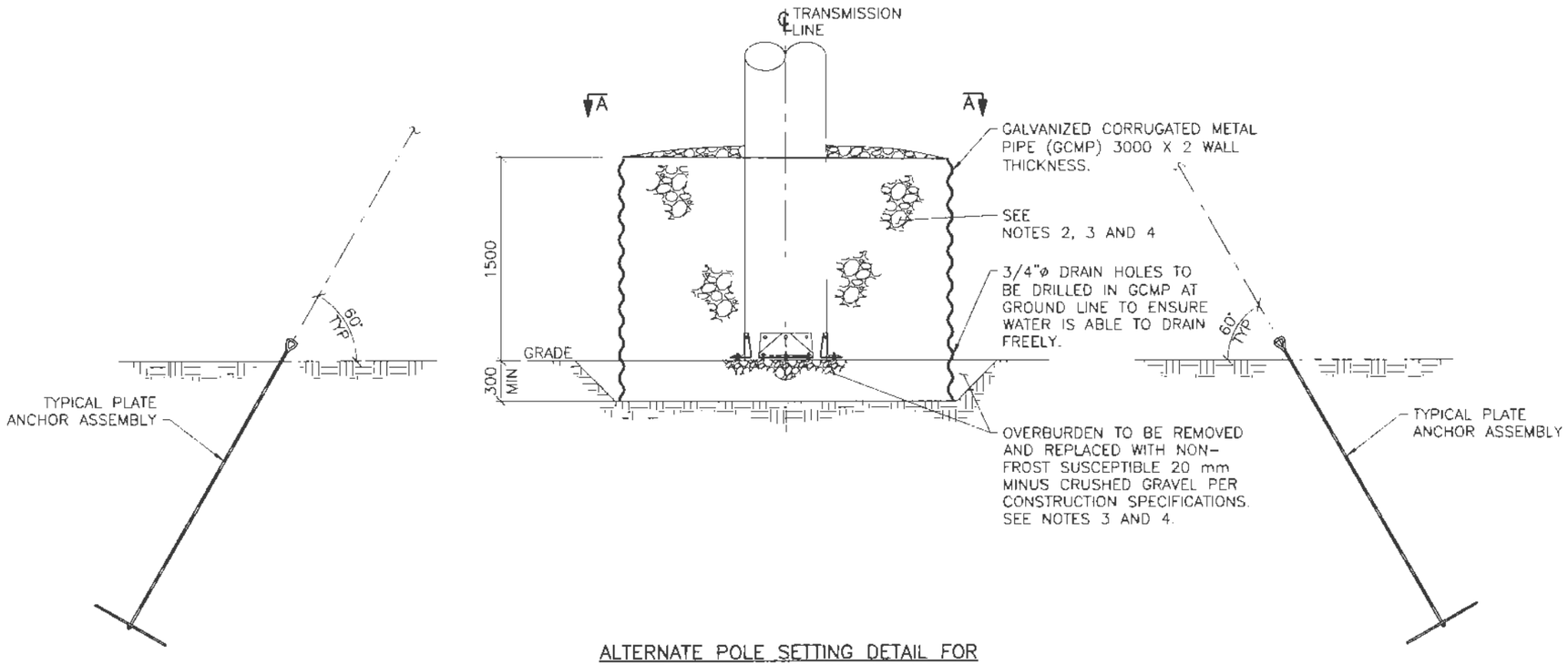



SECTION A–A




ALTERNATE POLE SETTING DETAIL FOR TANGENT STRUCTURES ON PERMAFROST
NTS

NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETRES (mm) UNLESS OTHERWISE NOTED.
2. GCMP BACKFILL MATERIAL TO BE NON-FROST SUSCEPTABLE 80 mm PIT RUN MATERIAL AS PER PROJECT CONSTRUCTION SPECIFICATIONS. ALTERNATE MATERIALS ARE SUBJECT TO ENGINEERS APPROVAL.
3. BACKFILL TO BE PLACED IN MAXIMUM 300 mm LIFTS AND COMPACTED BY MECHANICAL MEANS.
4. FILL SHALL BE COMPACTED TO A "DENSE" CONDITION. THIS "DENSE" CONDITION IS REACHED IF IT IS NOT POSSIBLE FOR A MAN OF AVERAGE WEIGHT TO PUSH A WOODEN PICKET MORE THAN 40 MM IN TO THE SOIL. THE PICKET SHALL BE 50 MM x 50 MM WITH THE PENETRATION END BEVELED AT 45° ON ALL FOUR SIDES.
5. BACKFILL GRADATION AND INSTALLATION RECORDS MUST BE MAINTAINED AND PROVIDED BY THE INSTALLATION CONTRACTOR AS A PART OF QUALITY CONTROL DOCUMENTATION.
6. FOR TYPICAL PLATE ANCHOR DETAILS SEE DWG. 1407-T-2060.
7. ALL STRUCTURES SET IN PERMAFROST SHOULD BE INSPECTED ANNUALLY AS A MINIMUM. STRUCTURES MAY REQUIRE STRAIGHTENING AND/OR ANCHOR TENSIONS ADJUSTED AS A RESULT OF SEASONAL GROUND MOVEMENTS.
8. PRIOR TO USING THIS DETAIL, CONTRACTOR MUST RECEIVE APPROVAL FROM DESIGN ENGINEER AT EACH LOCATION.

FORBES BROS **AS-BUILT**

CHANGES REQUIRED YES ☐ NO ☐

Name (Print) _____

Signature _____

Date _____

ISSUED FOR CONSTRUCTION

PERMIT TO PRACTICE
CLEAN ENERGY CONSULTING INC.
SIGNATURE _____
Date May 11, 2018
PERMIT NUMBER: PP424
Association of Professional Engineers of Yukon

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SEAL: PROFESSIONAL ENGINEER — YUKON TERRITORY — MATTHEW OBEE — May 11, 2018

EAGLE GOLD PROJECT
69 kV TRANSMISSION LINE
ALTERNATE POLE SETTING DETAIL FOR TANGENTS IN PERMAFROST

| PROJECT No. | DRAWING No. | REV. |
|---|---|---|
| 1407 | 1407-T-2015 | 0 |

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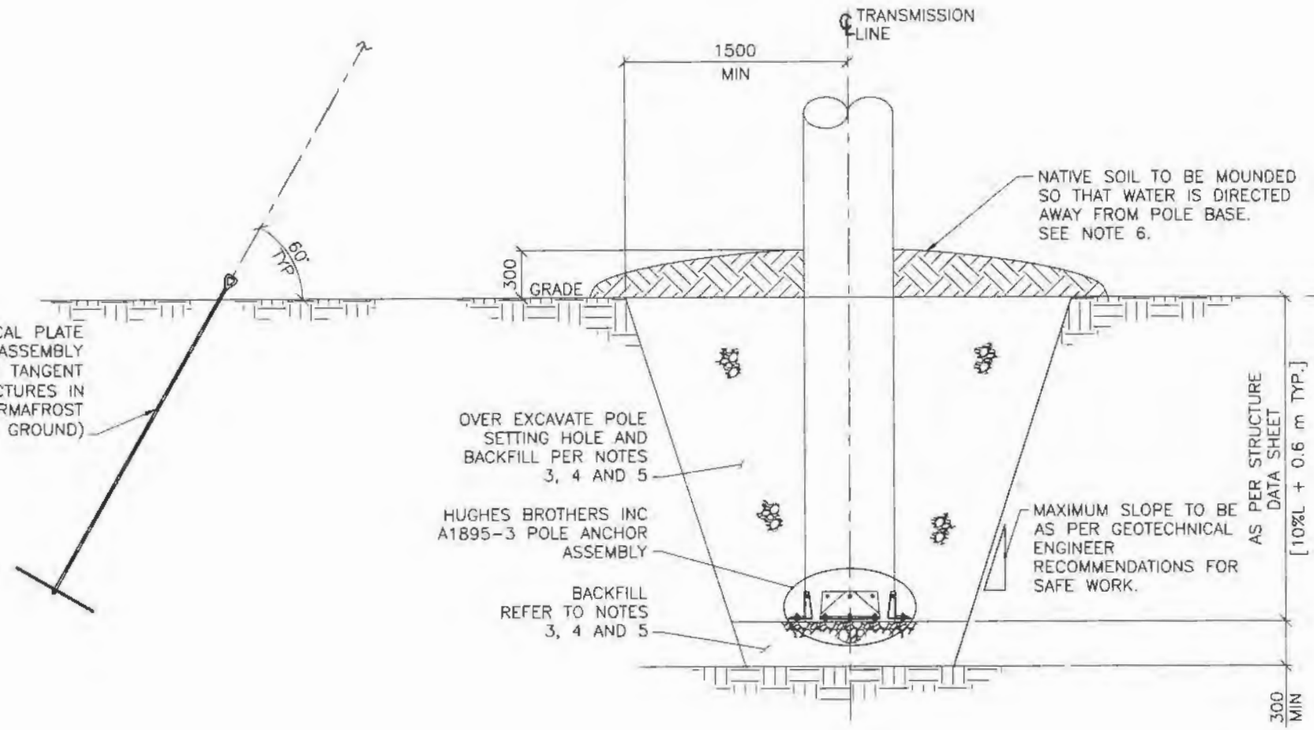


TYPICAL POLE SETTING DETAIL IN PERMAFROST
NTS

NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETRES (mm) UNLESS OTHERWISE NOTED.
2. POLES MUST BE SET AT THE EMBEDMENT DEPTHS INDICATED ON THE STRUCTURE DATA SHEETS.
3. ALL BACKFILL MATERIAL TO BE NON-FROST SUSCEPTIBLE 20 mm CRUSHED GRAVEL PER CONSTRUCTION SPECIFICATIONS UNLESS QUALIFIED PERSON ON SITE DICTATES NATIVE BACKFILL IS ACCEPTABLE.
4. BACKFILL TO BE PLACED IN MAXIMUM 300 mm LIFTS AND COMPACTED BY MECHANICAL MEANS.
5. FILL SHALL BE COMPACTED TO A "DENSE" CONDITION. THIS "DENSE" CONDITION IS REACHED IF IT IS NOT POSSIBLE FOR A MAN OF AVERAGE WEIGHT TO PUSH A WOODEN PICKET MORE THAN 40 mm IN TO THE SOIL. THE PICKET SHALL BE 50 mm x 50 mm WITH THE PENETRATION END BEVELED AT 45° ON ALL FOUR SIDES.
6. PROVIDE 300 mm THICK CAPPING OF NATIVE MATERIAL SLOPED SUCH THAT SURFACE RUNOFF IS DIRECTED AWAY FROM POLE.
7. FOR TYPICAL PLATE ANCHOR DETAILS SEE DWG. 1407-T-2060.
8. BACKFILL GRADATION AND INSTALLATION RECORDS MUST BE MAINTAINED AND PROVIDED BY THE INSTALLATION CONTRACTOR AS A PART OF QUALITY CONTROL DOCUMENTATION.
9. ALL STRUCTURES SET IN PERMAFROST SHOULD BE INSPECTED ANNUALLY AS A MINIMUM. STRUCTURES MAY REQUIRE STRAIGHTENING AND/OR ANCHOR TENSION ADJUSTMENT AS A RESULT OF SEASONAL GROUND MOVEMENT.

FORBES BROS **AS-BUILT**

CHANGES REQUIRED YES ☐ NO ☐

Name (Print) _____

Signature _____

Date _____

ISSUED FOR CONSTRUCTION

PERMIT TO PRACTICE
CLEAN ENERGY CONSULTING INC.
SIGNATURE _____
Date May 14, 2018
PERMIT NUMBER: PP424
Association of Professional Engineers of Yukon

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CLIENT: StrataGold Corporation

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WN BRAZIER ASSOCIATES INC

SEAL: PROFESSIONAL ENGINEER YUKON TERRITORY MATTHEW OBEE May 14, 2018

EAGLE GOLD PROJECT
69 kV TRANSMISSION LINE
PERMAFROST POLE SETTING DETAILS

| PROJECT No. | DRAWING No. | REV. |
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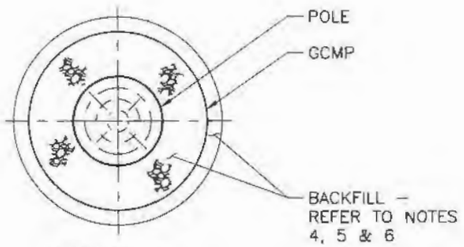
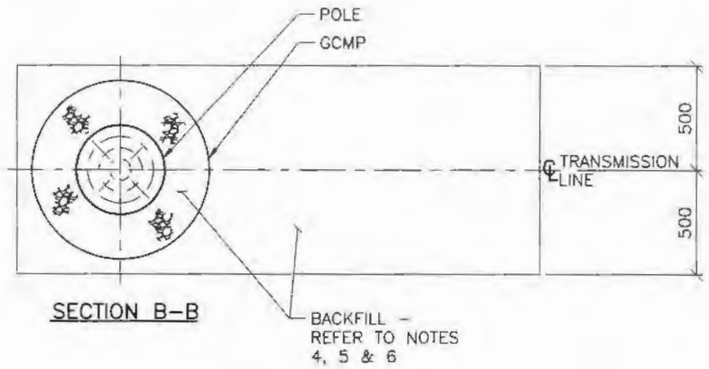


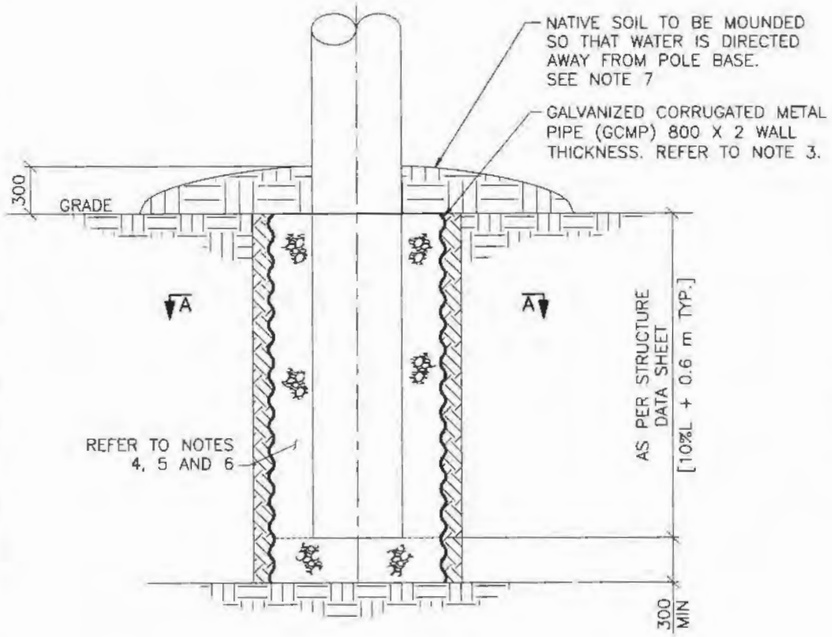

SECTION A–A



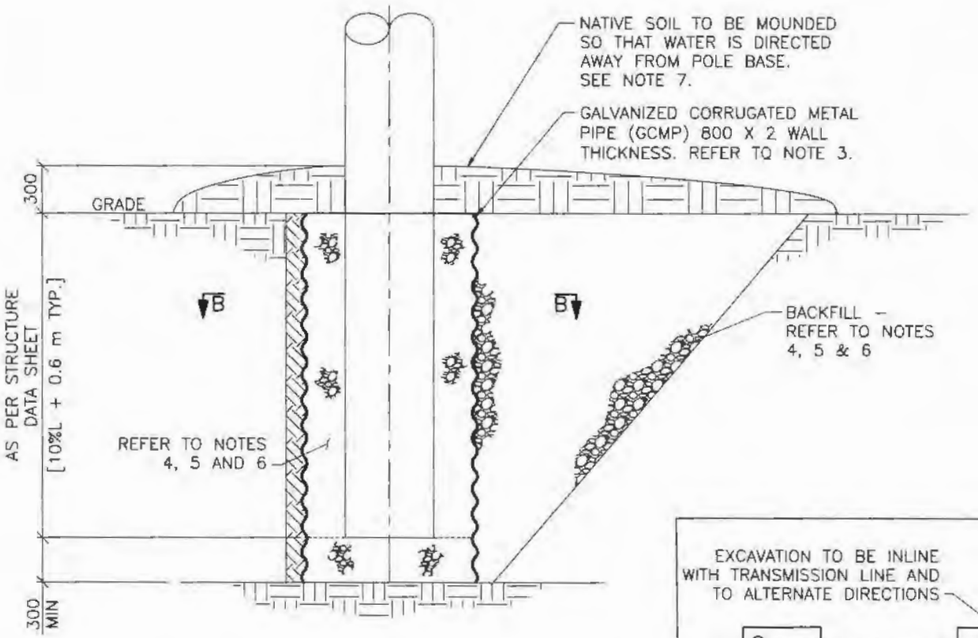

SECTION B–B

NOTES:

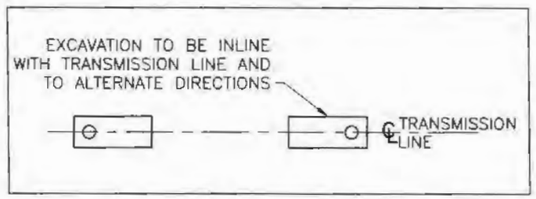
1. ALL DIMENSIONS ARE IN MILLIMETRES (mm) UNLESS OTHERWISE NOTED.
2. POLES MUST BE SET AT THE EMBEDMENT DEPTHS INDICATED ON THE STRUCTURE DATA SHEETS.
3. LARGER DIAMETER POLES MAY REQUIRE A LARGER DIAMETER GCMP LINER THAN INDICATED. A MINIMUM ANNULUS WIDTH OF 200 mm SHOULD BE MAINTAINED BETWEEN THE POLE AND GCMP TO ALLOW SUFFICIENT SPACE FOR BACKFILL COMPACTION.
4. ALL BACKFILL MATERIAL TO BE NON–FROST SUSCEPTIBLE 20 mm CRUSHED GRAVEL PER CONSTRUCTION SPECIFICATIONS UNLESS QUALIFIED PERSON ON SITE DICTATES NATIVE BACKFILL IS ACCEPTABLE.
5. BACKFILL TO BE PLACED IN MAXIMUM 300 mm LIFTS AND COMPACTED BY MECHANICAL MEANS.
6. FILL SHALL BE COMPACTED TO A "DENSE" CONDITION. THIS "DENSE" CONDITION IS REACHED IF IT IS NOT POSSIBLE FOR A MAN OF AVERAGE WEIGHT TO PUSH A WOODEN PICKET MORE THAN 40 MM IN TO THE SOIL. THE PICKET SHALL BE 50 MM x 50 MM WITH THE PENETRATION END BEVELED AT 45° ON ALL FOUR SIDES.
7. PROVIDE 300 mm THICK CAPPING OF NATIVE MATERIAL SLOPED SUCH THAT SURFACE RUNOFF IS DIRECTED AWAY FROM POLE.
8. BACKFILL GRADATION AND INSTALLATION RECORDS MUST BE MAINTAINED AND PROVIDED BY THE INSTALLATION CONTRACTOR AS A PART OF QUALITY CONTROL DOCUMENTATION.




AUGERED EXCAVATION POLE SETTING DETAIL
NTS




BACK–HOE EXCAVATION POLE SETTING DETAIL
NTS




TYPICAL EXCAVATION ORIENTATION

ISSUED FOR CONSTRUCTION

FORBES BROS **AS-BUILT**

CHANGES REQUIRED YES ☐ NO ☐

Name (Print) _____

Signature _____

Date _____

PERMIT TO PRACTICE
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Date May 14, 2018
PERMIT NUMBER: PP424
Association of Professional Engineers of Yukon

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CLIENT: StrataGold Corporation

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Clean Energy CONSULTING INC.
www.cleanenergyconsulting.ca
WN BRAZIER ASSOCIATES INC

SEAL: PROFESSIONAL ENGINEER – YUKON TERRITORY – MATTHEW OBEE – May 14, 2018

EAGLE GOLD PROJECT
69 kV TRANSMISSION LINE
GCMP POLE SETTING DETAILS FOR WEAK SOILS

| PROJECT No. | DRAWING No. | REV. |
|---|---|---|
| 1407 | 1407–T–2005 | 0 |

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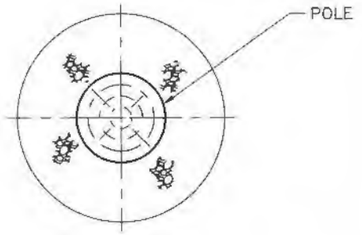
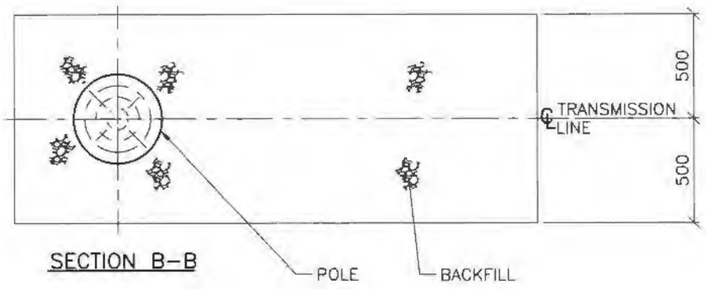
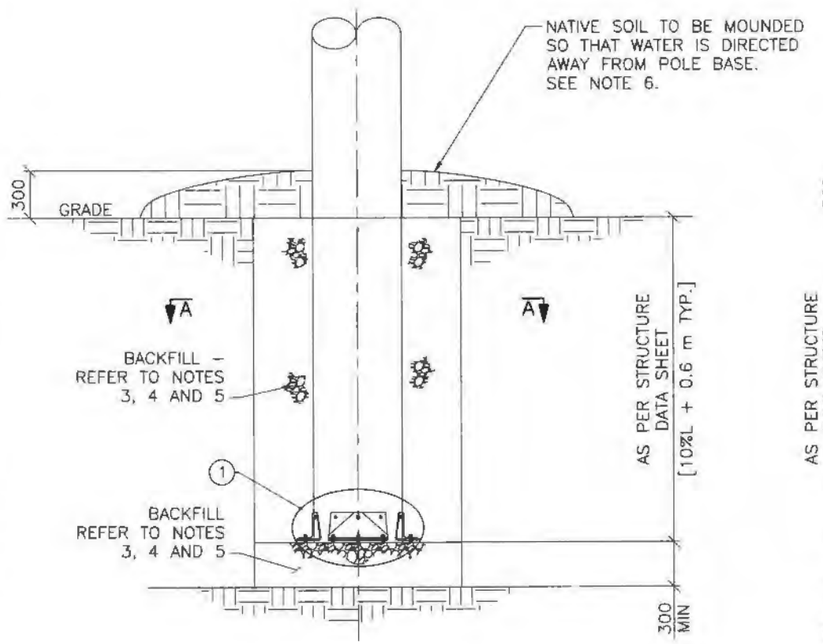
| BILL OF MATERIAL FOR ONE STRUCTURE | | | | |
|---|---|---|---|---|
| ITEM | QTY | HU | STOCK NO. | DESCRIPTION |
| 1 | A.R. | EA | A1895-3 (HB) | POLE BEARING PLATE ASSEMBLY |



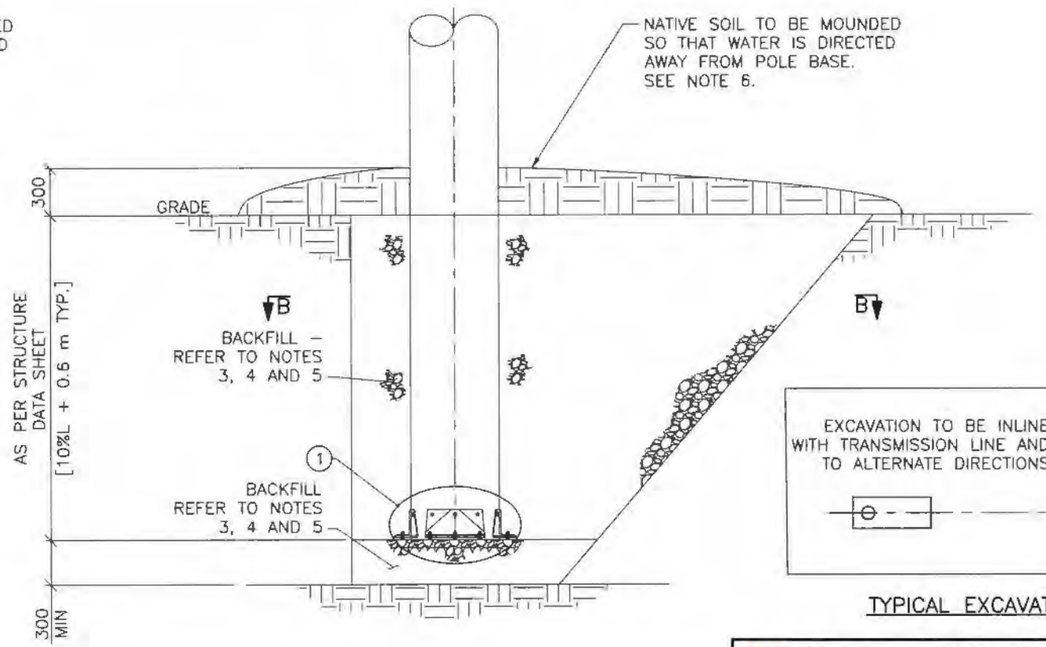

SECTION A–A




SECTION B–B




AUGERED EXCAVATION POLE SETTING DETAIL
NTS




BACK–HOE EXCAVATION POLE SETTING DETAIL
NTS

NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETRES (mm) UNLESS OTHERWISE NOTED.
2. POLES MUST BE SET AT THE EMBEDMENT DEPTHS INDICATED ON THE STRUCTURE DATA SHEETS.
3. ALL BACKFILL MATERIAL TO BE NON–FROST SUSCEPTIBLE 20 mm CRUSHED GRAVEL PER CONSTRUCTION SPECIFICATIONS UNLESS QUALIFIED PERSON ON SITE DICTATES NATIVE BACKFILL IS ACCEPTABLE.
4. BACKFILL TO BE PLACED IN MAXIMUM 300 mm LIFTS AND COMPACTED BY MECHANICAL MEANS.
5. FILL SHALL BE COMPACTED TO A "DENSE" CONDITION. THIS "DENSE" CONDITION IS REACHED IF IT IS NOT POSSIBLE FOR A MAN OF AVERAGE WEIGHT TO PUSH A WOODEN PICKET MORE THAN 40 mm IN TO THE SOIL. THE PICKET SHALL BE 50 mm x 50 mm WITH THE PENETRATION END BEVELED AT 45° ON ALL FOUR SIDES.
6. PROVIDE 300 mm THICK CAPPING OF NATIVE MATERIAL SLOPED SUCH THAT SURFACE RUNOFF IS DIRECTED AWAY FROM POLE.
7. BACKFILL GRADATION AND INSTALLATION RECORDS MUST BE MAINTAINED AND PROVIDED BY THE INSTALLATION CONTRACTOR AS A PART OF QUALITY CONTROL DOCUMENTATION.
8. MINIMUM SPACING OF 2" IS REQUIRED BETWEEN THROUGH BOLTS FOR POLE BEARING PLATE ASSEMBLY (ITEM 1).




TYPICAL EXCAVATION ORIENTATION

ISSUED FOR CONSTRUCTION

FORBES BROS **AS-BUILT**

CHANGES REQUIRED YES ☐ NO ☐

Name (Print) _____

Signature _____

Date _____

PERMIT TO PRACTICE
CLEAN ENERGY CONSULTING INC.
SIGNATURE _____
Date May 11, 2018
PERMIT NUMBER: PP424
Association of Professional Engineers of Yukon

| NO. | DATE | REVISION | DES | DWN | CHK | APR |
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CLIENT: StrataGold Corporation

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| DATE | MAY 11/18 |
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| CHECKED | PC |
| APPROVED | MEO |

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WN BRAZIER ASSOCIATES INC

SEAL: PROFESSIONAL ENGINEER YUKON TERRITORY MATTHEW OBEE May 11, 2018

EAGLE GOLD PROJECT
69 kV TRANSMISSION LINE
TYPICAL POLE SETTING DETAILS

| PROJECT No. | DRAWING No. | REV. |
|---|---|---|
| 1407 | 1407–T–2004 | 0 |

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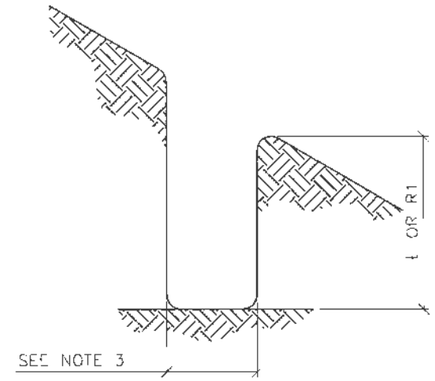
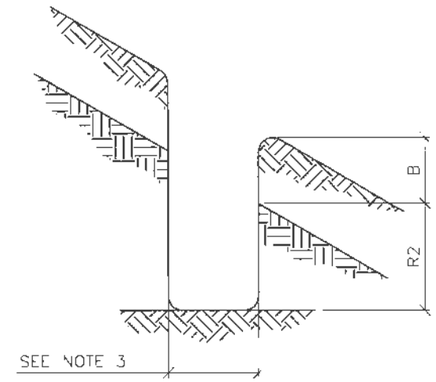
| POLE HEIGHT | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FEET | 20 | 25 | 30 | 35 | 40 | 45 | 50 | 55 | 60 | 65 | 70 | 75 | 80 | 85 | 90 | 95 | 100 | 105 | 110 | 115 | 120 |
| METRES | 6.1 | 7.6 | 9.1 | 10.7 | 12.2 | 13.7 | 15.2 | 16.8 | 18.3 | 19.8 | 21.3 | 22.9 | 24.4 | 25.9 | 27.4 | 29.0 | 30.5 | 32.0 | 33.5 | 35.1 | 36.6 |
| POLE HOLE IN EARTH ONLY | | | | | | | | | | | | | | | | | | | | | |
| SETTING DEPTH (E) | 1.4 | 1.5 | 1.7 | 1.8 | 1.8 | 2.0 | 2.1 | 2.3 | 2.4 | 2.6 | 2.7 | 2.9 | 3.0 | 3.2 | 3.4 | 3.5 | 3.7 | 3.7 | 3.7 | 3.7 | 3.7 |
| POLE HOLE IN ROCK ONLY | | | | | | | | | | | | | | | | | | | | | |
| SETTING DEPTH (R1) | 1.2 | 1.2 | 1.3 | 1.4 | 1.5 | 1.5 | 1.6 | 1.7 | 1.7 | 1.8 | 1.9 | 2.0 | 2.0 | 2.1 | 2.2 | 2.3 | 2.3 | 2.4 | 2.4 | 2.5 | 2.6 |
| POLE HOLE IN ROCK WITH OVERBURDEN | | | | | | | | | | | | | | | | | | | | | |
| OVERBURDEN (B) | ROCK (R2) | | | | | | | | | | | | | | | | | | | | |
| 0.3 | 1.2 | 1.2 | 1.2 | 1.3 | 1.4 | 1.4 | 1.5 | 1.6 | 1.6 | 1.7 | 1.8 | 1.9 | 1.9 | 2.0 | 2.1 | 2.2 | 2.2 | 2.3 | 2.3 | 2.4 | 2.5 |
| 0.6 | 0.9 | 0.9 | 1.0 | 0.9 | 1.0 | 1.1 | 1.2 | 1.3 | 1.4 | 1.5 | 1.7 | 1.8 | 1.8 | 1.9 | 2.0 | 2.1 | 2.1 | 2.1 | 2.1 | 2.2 | 2.3 |
| 0.9 | 0.6 | 0.6 | 0.6 | 0.6 | 0.8 | 0.8 | 0.9 | 1.1 | 1.2 | 1.3 | 1.4 | 1.5 | 1.7 | 1.8 | 1.8 | 2.0 | 2.1 | 2.0 | 2.0 | 2.1 | 2.2 |
| 1.2 | 0.2 | 0.3 | 0.5 | 0.4 | 0.6 | 0.6 | 0.8 | 0.8 | 1.1 | 1.2 | 1.2 | 1.4 | 1.5 | 1.5 | 1.7 | 1.7 | 1.8 | 1.9 | 1.9 | 2.0 | 2.0 |
| 1.5 | 0.0 | 0.0 | 0.2 | 0.3 | 0.3 | 0.4 | 0.5 | 0.6 | 0.8 | 0.9 | 1.0 | 1.2 | 1.2 | 1.4 | 1.4 | 1.5 | 1.6 | 1.7 | 1.7 | 1.9 | 1.9 |
| 1.8 | | | 0.0 | 0.0 | 0.0 | 0.2 | 0.3 | 0.4 | 0.5 | 0.6 | 0.8 | 0.9 | 1.0 | 1.1 | 1.2 | 1.3 | 1.4 | 1.5 | 1.5 | 1.6 | 1.6 |
| 2.1 | | | | | | 0.0 | 0.0 | 0.2 | 0.3 | 0.4 | 0.5 | 0.6 | 0.8 | 0.9 | 1.0 | 1.1 | 1.2 | 1.3 | 1.3 | 1.4 | 1.4 |
| 2.4 | | | | | | | | 0.0 | 0.0 | 0.2 | 0.3 | 0.4 | 0.5 | 0.7 | 0.8 | 0.9 | 1.0 | 1.1 | 1.1 | 1.2 | 1.2 |
| 2.7 | | | | | | | | | | 0.0 | 0.0 | 0.2 | 0.3 | 0.4 | 0.5 | 0.6 | 0.7 | 0.8 | 0.8 | 0.9 | 0.9 |
| 3.0 | | | | | | | | | | | | 0.0 | 0.0 | 0.2 | 0.3 | 0.4 | 0.4 | 0.5 | 0.5 | 0.6 | 0.6 |
| 3.3 | | | | | | | | | | | | | | 0.0 | 0.0 | 0.2 | 0.3 | 0.3 | 0.3 | 0.4 | 0.4 |
| 3.6 | | | | | | | | | | | | | | | | 0.0 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 |

NOTES:

1. ALL DIMENSIONS ARE IN METRES (m) UNLESS OTHERWISE NOTED.
2. FOR ROCK HOLE WITH OVERBURDEN ADD DEPTH OF OVERBURDEN (B) TO ROCK (R2) FOR TOTAL SETTING DEPTH.
3. IN ROCK THE MINIMUM DIAMETER OF THE HOLE IS POLE BUTT DIAMETER + 200 mm AND THE MAXIMUM IS POLE BUTT DIAMETER x 2. IF THE HOLE DIAMETER IS MORE THAN THE MAXIMUM, USE THE EARTH SETTING DEPTH.
4. DEPTH OF HOLE IN SLOPING GROUND SHALL BE MEASURED FROM LOWER SIDE OF HOLE.
5. ANY DEVIATIONS TO SPECIFIC STRUCTURE POLE SETTING DEPTHS WILL BE INDICATED ON PROJECT STRUCTURE DATA SHEETS.




POLE SET IN EARTH (E) OR ROCK (R1)




POLE SET IN ROCK (R2) WITH OVERBURDEN (B)

FORBES BROS **AS-BUILT**

CHANGES REQUIRED YES ☐ NO ☐

Name (Print) _____

Signature _____

Date _____

ISSUED FOR CONSTRUCTION

PERMIT TO PRACTICE
CLEAN ENERGY CONSULTING INC.
SIGNATURE _____
Date May 11, 2018
PERMIT NUMBER: PP424
Association of Professional Engineers of Yukon

| NO. | DATE | REVISION | DES | DWN | CHK | APR |
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CLIENT StrataGold Corporation

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| DATE | MAY 11/18 |
| DESIGN | MEO |
| DRAWN | DV |
| CHECKED | PC |
| APPROVED | MEO |

Clean Energy CONSULTING INC.
www.cleanenergyconsulting.ca

WN BRAZIER ASSOCIATES INC

SEAL: PROFESSIONAL ENGINEER YUKON TERRITORY MATTHEW OBEE May 11, 2018

EAGLE GOLD PROJECT

69 kV TRANSMISSION LINE

STANDARD POLE SETTING DEPTHS FOR WOOD POLE STRUCTURES

| PROJECT No. | DRAWING No. | REV |
|---|---|---|
| 1407 | 1407-T-2000 | 0 |

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FORBES BROS

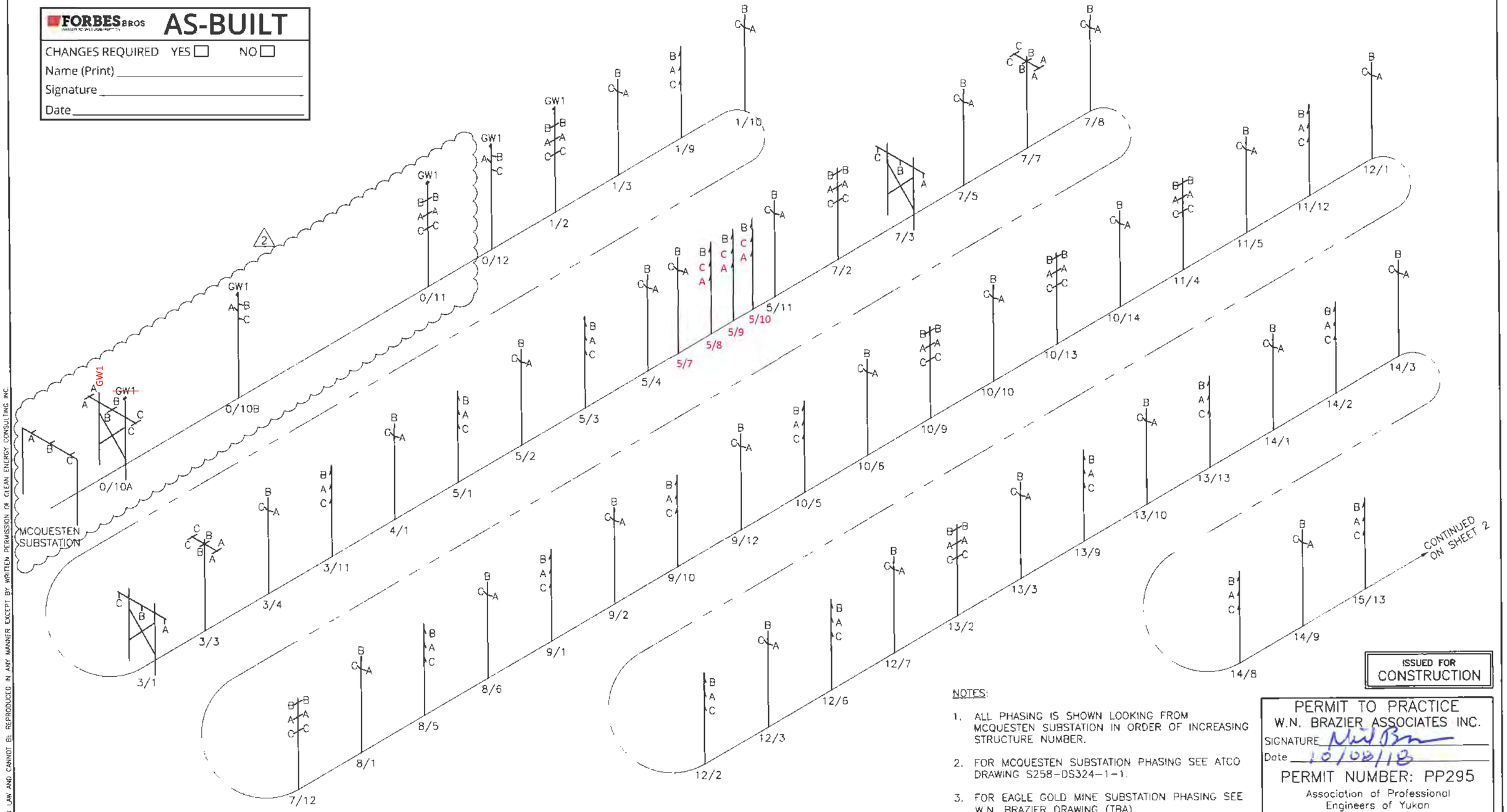
# AS-BUILT

CHANGES REQUIRED YES ☐ NO ☐

Name (Print) _____

Signature _____

Date _____




NOTES:

1. ALL PHASING IS SHOWN LOOKING FROM MCQUESTEN SUBSTATION IN ORDER OF INCREASING STRUCTURE NUMBER.
2. FOR MCQUESTEN SUBSTATION PHASING SEE ATCO DRAWING S258-DS324-1-1.
3. FOR EAGLE GOLD MINE SUBSTATION PHASING SEE W.N. BRAZIER DRAWING (TBA).

ISSUED FOR CONSTRUCTION

PERMIT TO PRACTICE
W.N. BRAZIER ASSOCIATES INC.
SIGNATURE _____
Date 10/05/18
PERMIT NUMBER: PP295
Association of Professional Engineers of Yukon

| NO. | DATE | REVISION | DES | DWN | CHK | APR |
|---|---|---|---|---|---|---|
| – | | | | | | |
| – | | | | | | |
| – | | | | | | |
| 2 | AUG 10/18 | ALIGNMENT REVISED | MP | SE | PC | NB |
| 1 | JUL 6/18 | BORROW PIT ALIGNMENT MODIFICATIONS | MP | SE | PC | MEO |
| 0 | MAY 11/18 | ISSUED FOR CONSTRUCTION | MP | SE | PC | MEO |

CLIENT: Strata Gold Corporation

DATE: MAY 11/18
DESIGN: MP
DRAWN: SE
CHECKED: PC
APPROVED: MEO

Clean Energy CONSULTING INC.
www.cleanenergyconsulting.ca

WN BRAZIER ASSOCIATES INC

SEAL: PROFESSIONAL ENGINEER YUKON W. NEIL BRAZIER TERRITORY

EAGLE GOLD PROJECT

69 kV TRANSMISSION LINE

PHASING DIAGRAM (SHEET 1 OF 2)

PROJECT No: 1407
DRAWING No.: 1407-T-1500-1
REV: 2

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FORBES BROS INFRASTRUCTURE | CONSTRUCTION

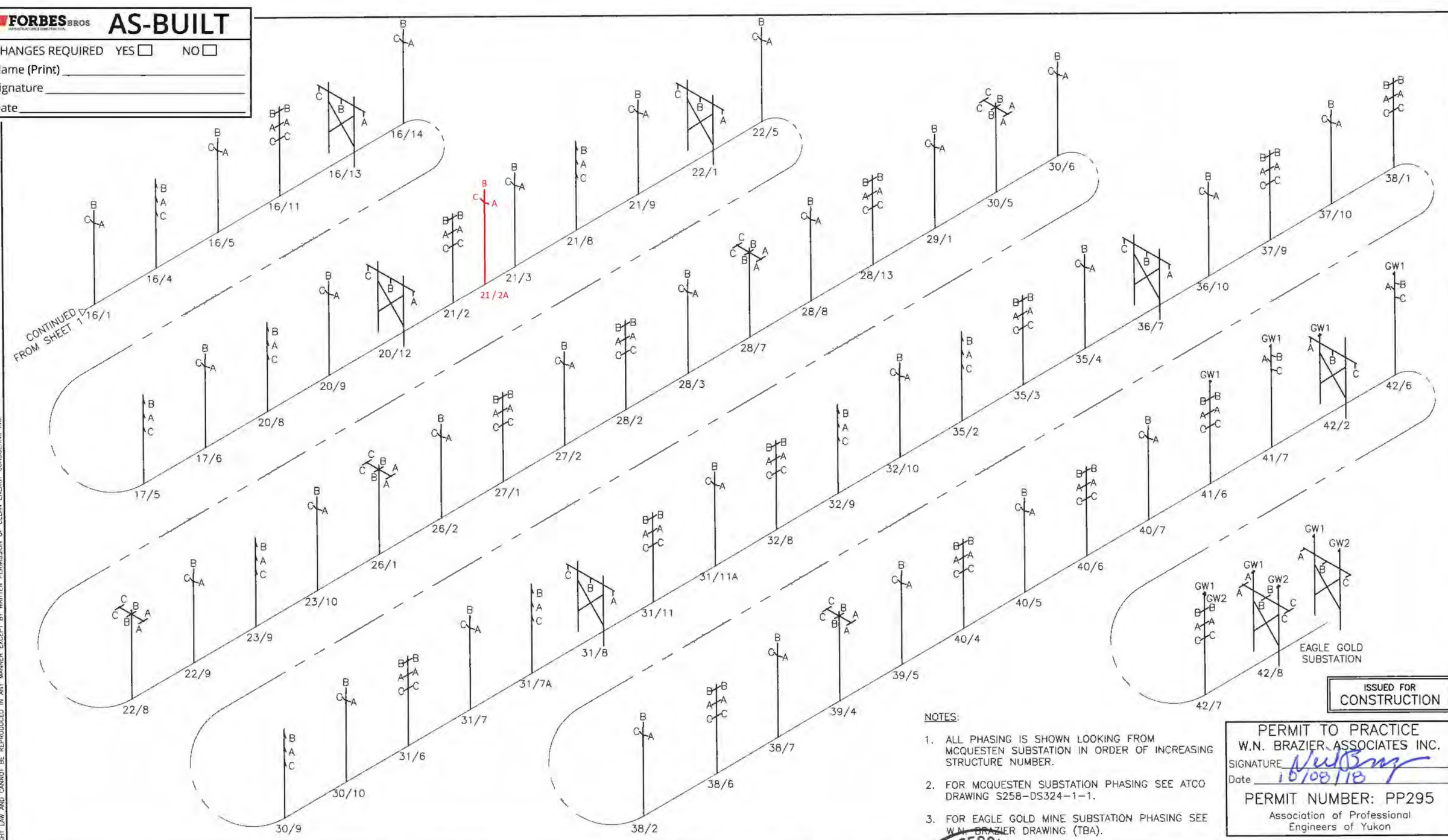
# AS-BUILT

CHANGES REQUIRED YES ☐ NO ☐

Name (Print) _____

Signature _____

Date _____




NOTES:

1. ALL PHASING IS SHOWN LOOKING FROM MCQUESTEN SUBSTATION IN ORDER OF INCREASING STRUCTURE NUMBER.
2. FOR MCQUESTEN SUBSTATION PHASING SEE ATCO DRAWING S258-DS324-1-1.
3. FOR EAGLE GOLD MINE SUBSTATION PHASING SEE W.N. BRAZIER DRAWING (TBA).

ISSUED FOR CONSTRUCTION

PERMIT TO PRACTICE
W.N. BRAZIER ASSOCIATES INC.
SIGNATURE _____
Date 10/08/18
PERMIT NUMBER: PP295
Association of Professional Engineers of Yukon

| NO. | DATE | REVISION | DES | DWN | CHK | APR |
|---|---|---|---|---|---|---|
| – | | | | | | |
| – | | | | | | |
| – | | | | | | |
| 2 | AUG 10/18 | ALIGNMENT REVISED | MP | SE | PC | NB |
| 1 | JUL 6/18 | BORROW PIT ALIGNMENT MODIFICATIONS | MP | SE | PC | MEO |
| 0 | MAY 11/18 | ISSUED FOR CONSTRUCTION | MP | SE | PC | MEO |

CLIENT: StrataGold Corporation

| | |
|---|---|
| DATE | MAY 11/18 |
| DESIGN | MP |
| DRAWN | SE |
| CHECKED | PC |
| APPROVED | MEO |

Clean Energy CONSULTING INC.
www.cleanenergyconsulting.ca

WN BRAZIER ASSOCIATES INC

SEAL: PROFESSIONAL ENGINEER YUKON W. NEIL BRAZIER TERRITORY

EAGLE GOLD PROJECT

69 kV TRANSMISSION LINE

PHASING DIAGRAM (SHEET 2 OF 2)

| PROJECT No. | DRAWING No. | REV. |
|---|---|---|
| 1407 | 1407-T-1500-2 | 2 |

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FORBES BROS

# AS-BUILT

CHANGES REQUIRED YES ☐ NO ☐

Name (Print) _____

Signature _____

Date _____

PERMIT TO PRACTICE
CLEAN ENERGY CONSULTING INC.
SIGNATURE
DATE 22-Nov-2018
PERMIT NUMBER (if required)
Association of Professional Engineers of Yukon

| SAG AND TENSION | |
|---|---|
| CIRCUIT | VICTORIA GOLD 69kV |
| DOCUMENT | 1407-T-1450 |
| DATE | 22-Nov-18 |
| REVISION | 1 |
| ISSUED FOR | CONSTRUCTION |
| PREPARED BY | MP |
| CHECKED BY | PC |
| APPROVED BY | PC |

ENGINEER'S SEAL

PROFESSIONAL ENGINEER — TERRITORY OF YUKON — A. P.N. CLARK — 22-Nov-2018

**NOTES**

1. All spans must be installed to the sag values provided. Tension values are provided as a reference only.
2. Sag and tension values shown are for new conductor under initial conditions based on the ruling span method.
3. For conductors left hanging in sheaves for longer than 3 hours between initial stringing and final sag, a creep correction factor must be applied.
4. All span lengths and sag values are provided in metres unless otherwise noted.
5. Conductors and cables:
   - Overhead Shieldwire (OHSW): Partridge ACSR
   - 69kV Transmission Line: Partridge ACSR
   - ADSS: OFC-24G.652D-FASA-S1
6. The minimum ambient temperature for pulling ADSS cable is -30°C. ADSS cable shall not be pulled at temperatures below this minimum temperature.

Clean Energy CONSULTING INC

## SECTION DATA

| SECTION | CABLE NAME | FROM STR | TO STR | RULING SPAN (m) | MIN SPAN (m) | MAX SPAN (m) | EST. CABLE LENGTH (m) | MEAN ANNUAL SAG TEMP (deg C) | CATENARY CONSTANT (m) | HORIZONTAL TENSION (N) |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | PARTRIDGE ACSR (OHSW) | 0/10A | 0/11 | 57 | 57 | 58 | 173 | 15 | 540 | 2892 |
| 2 | PARTRIDGE ACSR | 0/10A | 0/11 | 57 | 57 | 58 | 508 | 15 | 579 | 3104 |
| 3 | OFC-24G.652D-FASA-S1 | 0/10A | 0/11 | 57 | 57 | 58 | 172 | 15 | 1902 | 2500 |
| 4 | PARTRIDGE ACSR (OHSW) | 0/11 | 1/2 | 66 | 62 | 73 | 337 | 15 | 652 | 3495 |
| 5 | PARTRIDGE ACSR | 0/11 | 1/2 | 66 | 62 | 73 | 1004 | 15 | 652 | 3495 |
| 6 | OFC-24G.652D-FASA-S1 | 0/11 | 1/2 | 66 | 62 | 73 | 338 | 15 | 2047 | 2690 |
| 7 | PARTRIDGE ACSR | 1/2 | 3/3 | 100 | 67 | 174 | 6718 | 15 | 622 | 3334 |
| 8 | OFC-24G.652D-FASA-S1 | 1/2 | 3/3 | 100 | 66 | 174 | 2250 | 15 | 313 | 411 |
| 9 | PARTRIDGE ACSR | 3/3 | 7/2 | 84 | 64 | 96 | 11384 | 15 | 631 | 3382 |
| 10 | OFC-24G.652D-FASA-S1 | 3/3 | 7/2 | 84 | 64 | 96 | 3799 | 15 | 1006 | 1322 |
| 11 | PARTRIDGE ACSR | 7/2 | 7/7 | 109 | 64 | 153 | 1369 | 15 | 638 | 3420 |
| 12 | OFC-24G.652D-FASA-S1 | 7/2 | 7/7 | 109 | 64 | 153 | 461 | 15 | 337 | 442 |
| 13 | PARTRIDGE ACSR | 7/7 | 7/12 | 79 | 61 | 91 | 1140 | 15 | 626 | 3355 |
| 14 | OFC-24G.652D-FASA-S1 | 7/7 | 7/12 | 79 | 61 | 91 | 383 | 15 | 1388 | 1825 |
| 15 | PARTRIDGE ACSR | 7/12 | 10/9 | 81 | 63 | 94 | 8055 | 15 | 614 | 3292 |
| 16 | OFC-24G.652D-FASA-S1 | 7/12 | 10/9 | 81 | 63 | 94 | 2689 | 15 | 1141 | 1500 |
| 17 | PARTRIDGE ACSR | 10/9 | 10/13 | 65 | 60 | 68 | 768 | 15 | 591 | 3166 |
| 18 | OFC-24G.652D-FASA-S1 | 10/9 | 10/13 | 65 | 60 | 68 | 259 | 15 | 4747 | 6240 |
| 19 | PARTRIDGE ACSR | 10/13 | 11/4 | 80 | 70 | 92 | 1176 | 15 | 656 | 3518 |
| 20 | OFC-24G.652D-FASA-S1 | 10/13 | 11/4 | 80 | 70 | 92 | 395 | 15 | 1368 | 1798 |
| 21 | PARTRIDGE ACSR | 11/4 | 13/2 | 80 | 55 | 93 | 5355 | 15 | 562 | 3013 |
| 22 | OFC-24G.65ZD-FASA-S1 | 11/4 | 13/2 | 80 | 55 | 93 | 1789 | 15 | 1179 | 1550 |
| 23 | PARTRIDGE ACSR | 13/2 | 16/11 | 78 | 54 | 95 | 10935 | 15 | 590 | 3162 |
| 24 | OFC-24G.652D-FASA-S1 | 13/2 | 16/11 | 78 | 54 | 95 | 3649 | 15 | 995 | 1308 |
| 25 | PARTRIDGE ACSR | 16/11 | 21/2 | 87 | 48 | 137 | 13163 | 15 | 581 | 3113 |
| 26 | OFC-24G.652D-FASA-S1 | 16/11 | 21/2 | 87 | 48 | 137 | 4399 | 15 | 337 | 443 |
| 27 | PARTRIDGE ACSR | 21/2 | 22/8 | 100 | 67 | 148 | 5559 | 15 | 671 | 3595 |
| 28 | OFC-24G.652D-FASA-S1 SLACK | 21/2 | 22/8 | 100 | 67 | 148 | 1859 | 15 | 404 | 531 |
| 29 | PARTRIDGE ACSR | 22/8 | 26/1 | 87 | 63 | 102 | 9636 | 15 | 604 | 3237 |
| 30 | OFC-24G.652D-FASA-S1 | 22/8 | 26/1 | 87 | 63 | 102 | 3215 | 15 | 681 | 895 |
| 31 | PARTRIDGE ACSR | 26/1 | 27/1 | 87 | 66 | 92 | 2875 | 15 | 643 | 3445 |
| 32 | OFC-24G.652D-FASA-S1 | 26/1 | 27/1 | 87 | 66 | 92 | 960 | 15 | 1102 | 1449 |
| 33 | PARTRIDGE ACSR | 27/1 | 28/2 | 86 | 71 | 93 | 3329 | 15 | 667 | 3577 |
| 34 | OFC-24G.652D-FASA-S1 | 27/1 | 28/2 | 86 | 70 | 93 | 1112 | 15 | 1227 | 1613 |
| 35 | PARTRIDGE ACSR | 28/2 | 28/7 | 77 | 72 | 85 | 1208 | 15 | 652 | 3493 |
| 36 | OFC-24G.652D-FASA-S1 | 28/2 | 28/7 | 77 | 72 | 85 | 405 | 15 | 1608 | 2114 |
| 37 | PARTRIDGE ACSR | 28/7 | 28/13 | 79 | 60 | 92 | 1391 | 15 | 619 | 3318 |
| 38 | OFC-24G.652D-FASA-S1 | 28/7 | 28/13 | 79 | 60 | 92 | 466 | 15 | 1284 | 1687 |
| 39 | PARTRIDGE ACSR | 28/13 | 30/5 | 82 | 68 | 93 | 4148 | 15 | 630 | 3377 |
| 40 | OFC-24G.652D-FASA-S1 | 28/13 | 30/5 | 82 | 68 | 93 | 1385 | 15 | 1090 | 1433 |
| 41 | PARTRIDGE ACSR | 30/5 | 31/6 | 91 | 64 | 98 | 3501 | 15 | 643 | 3447 |
| 42 | OFC-24G.652D-FASA-S1 | 30/5 | 31/6 | 91 | 64 | 98 | 1171 | 15 | 670 | 881 |
| 43 | PARTRIDGE ACSR | 31/6 | 31/11 | 100 | 45 | 134 | 1275 | 15 | 749 | 4013 |
| 44 | OFC-24G.652D-FASA-S1 | 31/6 | 31/11 | 100 | 45 | 134 | 430 | 15 | 378 | 497 |
| 45 | PARTRIDGE ACSR | 31/11 | 32/8 | 76 | 59 | 83 | 2240 | 15 | 580 | 3108 |
| 46 | OFC-24G.652D-FASA-S1 | 31/11 | 32/8 | 76 | 59 | 83 | 749 | 15 | 2493 | 3276 |
| 47 | PARTRIDGE ACSR | 32/8 | 35/3 | 86 | 52 | 92 | 7816 | 15 | 585 | 3135 |
| 48 | OFC-24G.652D-FASA-S1 | 32/8 | 35/3 | 86 | 52 | 92 | 2608 | 15 | 1281 | 1684 |
| 49 | PARTRIDGE ACSR | 35/3 | 37/9 | 90 | 65 | 150 | 7400 | 15 | 615 | 3297 |
| 50 | OFC-24G.652D-FASA-S1 | 35/3 | 37/9 | 90 | 65 | 150 | 2474 | 15 | 344 | 452 |
| 51 | PARTRIDGE ACSR | 37/9 | 38/1 | 64 | 52 | 69 | 951 | 15 | 541 | 2900 |
| 52 | OFC-24G.652D-FASA-S1 | 37/9 | 38/1 | 64 | 52 | 69 | 320 | 15 | 4181 | 5496 |
| 53 | PARTRIDGE ACSR | 38/1 | 38/6 | 71 | 61 | 82 | 1042 | 15 | 625 | 3349 |
| 54 | OFC-24G.652D-FASA-S1 | 38/1 | 38/6 | 71 | 61 | 82 | 350 | 15 | 2774 | 3646 |
| 55 | PARTRIDGE ACSR | 38/6 | 39/4 | 83 | 72 | 91 | 2702 | 15 | 652 | 3494 |
| 56 | OFC-24G.652D-FASA-S1 | 38/6 | 39/4 | 83 | 72 | 91 | 903 | 15 | 1419 | 1865 |
| 57 | PARTRIDGE ACSR | 39/4 | 40/4 | 82 | 70 | 91 | 3170 | 15 | 648 | 3474 |
| 58 | OFC-24G.652D-FASA-S1 | 39/4 | 40/4 | 82 | 70 | 91 | 1059 | 15 | 1520 | 1998 |
| 59 | PARTRIDGE ACSR | 40/4 | 40/6 | 80 | 78 | 81 | 471 | 15 | 699 | 3749 |
| 60 | OFC-24G.652D-FASA-S1 | 40/4 | 40/6 | 80 | 78 | 81 | 160 | 15 | 2608 | 3428 |
| 61 | PARTRIDGE ACSR | 40/6 | 41/6 | 78 | 42 | 87 | 2755 | 15 | 528 | 2829 |
| 62 | OFC-24G.652D-FASA-S1 | 40/6 | 41/6 | 78 | 42 | 87 | 921 | 15 | 1477 | 1942 |
| 63 | PARTRIDGE ACSR (OHSW) | 41/6 | 42/7 | 113 | 66 | 169 | 1250 | 15 | 622 | 3334 |
| 64 | PARTRIDGE ACSR | 41/6 | 42/7 | 113 | 66 | 169 | 3741 | 15 | 647 | 3466 |
| 65 | OFC-24G.652D-FASA-S1 | 41/6 | 42/7 | 113 | 66 | 169 | 1254 | 15 | 350 | 460 |
| 66 | PARTRIDGE ACSR SLACK (OHSW) | 42/7 | 42/8 | 35 | 35 | 35 | 35 | 15 | 120 | 642 |
| 67 | PARTRIDGE ACSR SLACK (OHSW) | 42/7 | 42/8 | 35 | 35 | 35 | 35 | 15 | 120 | 643 |
| 68 | PARTRIDGE ACSR SLACK | 42/7 | 42/8 | 35 | 35 | 35 | 96 | 15 | 124 | 665 |
| 69 | OFC-24G.652D-FASA-S1 SLACK | 42/7 | 42/8 | 34 | 35 | 35 | 36 | 15 | 118 | 155 |

## SAG-TENSION CHART

| SEC | CABLE | FROM STR | TO STR | SPAN AHEAD (m) | SPAN VERT. PROJ. (m) | MID SPAN SAG (m) | | | | | | | | | | | | | HORIZONTAL TENSION (N) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | -50 | -45 | -40 | -35 | -30 | -25 | -20 | -15 | -10 | -5 | 0 | 5 | 10 | -50 | -45 | -40 | -35 | -30 | -25 | -20 | -15 | -10 | -5 | 0 | 5 | 10 |
| 1 | PARTRIDGE ACSR (OHSW) | 0/10A | 0/10B | 56.8 | 8.15 | 0.22 | 0.24 | 0.26 | 0.28 | 0.31 | 0.35 | 0.38 | 0.43 | 0.48 | 0.53 | 0.58 | 0.64 | 0.70 | 9821 | 9116 | 8397 | 7692 | 7003 | 6331 | 5692 | 5117 | 4596 | 4136 | 3740 | 3410 | 3131 |
| 1 | PARTRIDGE ACSR (OHSW) | 0/10B | 0/10C | 58.3 | -2.50 | 0.23 | 0.25 | 0.27 | 0.30 | 0.33 | 0.36 | 0.40 | 0.45 | 0.50 | 0.55 | 0.61 | 0.67 | 0.73 | 9821 | 9116 | 8397 | 7692 | 7003 | 6331 | 5692 | 5117 | 4596 | 4136 | 3740 | 3410 | 3131 |
| 1 | PARTRIDGE ACSR (OHSW) | 0/10C | 0/11 | 56.8 | 2.14 | 0.22 | 0.24 | 0.26 | 0.28 | 0.31 | 0.34 | 0.38 | 0.42 | 0.47 | 0.52 | 0.58 | 0.63 | 0.69 | 9821 | 9116 | 8397 | 7692 | 7003 | 6331 | 5692 | 5117 | 4596 | 4136 | 3740 | 3410 | 3131 |
| 2 | PARTRIDGE ACSR | 0/10A | 0/10B | 56.7 | 5.57 | 0.21 | 0.22 | 0.24 | 0.26 | 0.28 | 0.31 | 0.35 | 0.38 | 0.43 | 0.48 | 0.53 | 0.59 | 0.64 | 10480 | 9772 | 9049 | 8325 | 7616 | 6923 | 6261 | 5633 | 5056 | 4539 | 4092 | 3701 | 3377 |
| 2 | PARTRIDGE ACSR | 0/10B | 0/10C | 58.3 | -2.50 | 0.22 | 0.23 | 0.25 | 0.27 | 0.30 | 0.33 | 0.36 | 0.40 | 0.45 | 0.50 | 0.56 | 0.62 | 0.68 | 10480 | 9772 | 9049 | 8325 | 7616 | 6923 | 6261 | 5633 | 5056 | 4539 | 4092 | 3701 | 3377 |
| 2 | PARTRIDGE ACSR | 0/10C | 0/11 | 56.8 | 0.87 | 0.21 | 0.22 | 0.24 | 0.26 | 0.28 | 0.31 | 0.34 | 0.38 | 0.43 | 0.48 | 0.53 | 0.58 | 0.64 | 10480 | 9772 | 9049 | 8325 | 7616 | 6923 | 6261 | 5633 | 5056 | 4539 | 4092 | 3701 | 3377 |
| 3 | OFC-24G.652D-FASA-S1 | 0/10A | 0/10B | 56.8 | 3.93 | 0.20 | 0.21 | 0.21 | 0.21 | 0.21 | 0.21 | 0.21 | 0.21 | 0.21 | 0.21 | 0.21 | 0.21 | 0.21 | 2598 | 2590 | 2582 | 2574 | 2566 | 2562 | 2554 | 2546 | 2538 | 2530 | 2522 | 2514 | 2506 |
| 3 | OFC-24G.652D-FASA-S1 | 0/10B | 0/10C | 58.3 | -2.50 | 0.22 | 0.22 | 0.22 | 0.22 | 0.22 | 0.22 | 0.22 | 0.22 | 0.22 | 0.22 | 0.22 | 0.22 | 0.22 | 2598 | 2590 | 2582 | 2574 | 2566 | 2562 | 2554 | 2546 | 2538 | 2530 | 2522 | 2514 | 2506 |
| 3 | OFC-24G.652D-FASA-S1 | 0/10C | 0/11 | 56.8 | -1.69 | 0.20 | 0.20 | 0.21 | 0.21 | 0.21 | 0.21 | 0.21 | 0.21 | 0.21 | 0.21 | 0.21 | 0.21 | 0.21 | 2598 | 2590 | 2582 | 2574 | 2566 | 2562 | 2554 | 2546 | 2538 | 2530 | 2522 | 2514 | 2506 |
| 4 | PARTRIDGE ACSR (OHSW) | 0/11 | 0/12 | 64.7 | -1.56 | 0.26 | 0.28 | 0.30 | 0.33 | 0.36 | 0.39 | 0.43 | 0.47 | 0.52 | 0.57 | 0.62 | 0.68 | 0.74 | 10698 | 9993 | 9302 | 8596 | 7906 | 7246 | 6604 | 5995 | 5437 | 4939 | 4496 | 4108 | 3779 |
| 4 | PARTRIDGE ACSR (OHSW) | 0/12 | 0/13 | 68.3 | -4.17 | 0.29 | 0.31 | 0.34 | 0.36 | 0.40 | 0.43 | 0.47 | 0.52 | 0.58 | 0.63 | 0.70 | 0.76 | 0.83 | 10698 | 9993 | 9302 | 8596 | 7906 | 7246 | 6604 | 5995 | 5437 | 4939 | 4496 | 4108 | 3779 |
| 4 | PARTRIDGE ACSR (OHSW) | 0/13 | 0/14 | 72.6 | -8.55 | 0.33 | 0.36 | 0.38 | 0.41 | 0.45 | 0.49 | 0.54 | 0.59 | 0.65 | 0.72 | 0.79 | 0.87 | 0.94 | 10698 | 9993 | 9302 | 8596 | 7906 | 7246 | 6604 | 5995 | 5437 | 4939 | 4496 | 4108 | 3779 |
| 4 | PARTRIDGE ACSR (OHSW) | 0/14 | 1/1 | 62.3 | -16.03 | 0.25 | 0.27 | 0.29 | 0.31 | 0.34 | 0.37 | 0.41 | 0.45 | 0.49 | 0.54 | 0.60 | 0.65 | 0.71 | 10698 | 9993 | 9302 | 8596 | 7906 | 7246 | 6604 | 5995 | 5437 | 4939 | 4496 | 4108 | 3779 |
| 4 | PARTRIDGE ACSR (OHSW) | 1/1 | 1/2 | 65.7 | -11.17 | 0.27 | 0.29 | 0.32 | 0.34 | 0.37 | 0.41 | 0.44 | 0.49 | 0.54 | 0.59 | 0.65 | 0.71 | 0.78 | 10698 | 9993 | 9302 | 8596 | 7906 | 7246 | 6604 | 5995 | 5437 | 4939 | 4496 | 4108 | 3779 |
| 5 | PARTRIDGE ACSR | 0/11 | 0/12 | 64.7 | -0.13 | 0.26 | 0.28 | 0.30 | 0.33 | 0.35 | 0.39 | 0.42 | 0.47 | 0.52 | 0.57 | 0.62 | 0.68 | 0.74 | 10698 | 10007 | 9302 | 8611 | 7920 | 7246 | 6604 | 5995 | 5445 | 4939 | 4496 | 4108 | 3779 |
| 5 | PARTRIDGE ACSR | 0/12 | 0/13 | 68.3 | -4.17 | 0.29 | 0.31 | 0.34 | 0.36 | 0.40 | 0.43 | 0.47 | 0.52 | 0.58 | 0.63 | 0.70 | 0.76 | 0.83 | 10698 | 10007 | 9302 | 8611 | 7920 | 7246 | 6604 | 5995 | 5445 | 4939 | 4496 | 4108 | 3779 |
| 5 | PARTRIDGE ACSR | 0/13 | 0/14 | 72.6 | -8.55 | 0.33 | 0.36 | 0.38 | 0.41 | 0.45 | 0.49 | 0.54 | 0.59 | 0.65 | 0.72 | 0.79 | 0.87 | 0.94 | 10698 | 10007 | 9302 | 8611 | 7920 | 7246 | 6604 | 5995 | 5445 | 4939 | 4496 | 4108 | 3779 |
| 5 | PARTRIDGE ACSR | 0/14 | 1/1 | 62.3 | -16.03 | 0.25 | 0.27 | 0.29 | 0.31 | 0.34 | 0.37 | 0.41 | 0.45 | 0.49 | 0.54 | 0.60 | 0.65 | 0.71 | 10698 | 10007 | 9302 | 8611 | 7920 | 7246 | 6604 | 5995 | 5445 | 4939 | 4496 | 4108 | 3779 |
| 5 | PARTRIDGE ACSR | 1/1 | 1/2 | 65.7 | -12.45 | 0.28 | 0.29 | 0.32 | 0.34 | 0.37 | 0.41 | 0.45 | 0.49 | 0.54 | 0.60 | 0.66 | 0.72 | 0.78 | 10698 | 10007 | 9302 | 8611 | 7920 | 7246 | 6604 | 5995 | 5445 | 4939 | 4496 | 4108 | 3779 |
| 6 | OFC-24G.652D-FASA-S1 | 0/11 | 0/12 | 64.7 | 2.43 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.26 | 2787 | 2779 | 2771 | 2763 | 2755 | 2747 | 2739 | 2731 | 2727 | 2719 | 2711 | 2703 | 2695 |
| 6 | OFC-24G.652D-FASA-S1 | 0/12 | 0/13 | 68.3 | -4.17 | 0.28 | 0.28 | 0.28 | 0.28 | 0.28 | 0.28 | 0.28 | 0.28 | 0.28 | 0.28 | 0.28 | 0.28 | 0.29 | 2787 | 2779 | 2771 | 2763 | 2755 | 2747 | 2739 | 2731 | 2727 | 2719 | 2711 | 2703 | 2695 |
| 6 | OFC-24G.652D-FASA-S1 | 0/13 | 0/14 | 72.6 | -8.55 | 0.31 | 0.31 | 0.32 | 0.32 | 0.32 | 0.32 | 0.32 | 0.32 | 0.32 | 0.32 | 0.32 | 0.32 | 0.32 | 2787 | 2779 | 2771 | 2763 | 2755 | 2747 | 2739 | 2731 | 2727 | 2719 | 2711 | 2703 | 2695 |
| 6 | OFC-24G.652D-FASA-S1 | 0/14 | 1/1 | 62.3 | -16.03 | 0.24 | 0.24 | 0.24 | 0.24 | 0.24 | 0.24 | 0.24 | 0.24 | 0.24 | 0.24 | 0.24 | 0.24 | 0.24 | 2787 | 2779 | 2771 | 2763 | 2755 | 2747 | 2739 | 2731 | 2727 | 2719 | 2711 | 2703 | 2695 |
| 6 | OFC-24G.652D-FASA-S1 | 1/1 | 1/2 | 65.7 | -15.01 | 0.26 | 0.26 | 0.26 | 0.26 | 0.26 | 0.26 | 0.27 | 0.27 | 0.27 | 0.27 | 0.27 | 0.27 | 0.27 | 2787 | 2779 | 2771 | 2763 | 2755 | 2747 | 2739 | 2731 | 2727 | 2719 | 2711 | 2703 | 2695 |
| 7 | PARTRIDGE ACSR | 1/2 | 1/3 | 80.7 | 0.24 | 0.65 | 0.70 | 0.74 | 0.79 | 0.85 | 0.90 | 0.95 | 1.01 | 1.06 | 1.11 | 1.16 | 1.21 | 1.26 | 6726 | 6276 | 5864 | 5490 | 5148 | 4847 | 4577 | 4337 | 4122 | 3930 | 3756 | 3603 | 3460 |
| 7 | PARTRIDGE ACSR | 1/3 | 1/4 | 82.4 | -6.69 | 0.68 | 0.73 | 0.78 | 0.83 | 0.89 | 0.94 | 1.00 | 1.05 | 1.11 | 1.16 | 1.22 | 1.27 | 1.32 | 6726 | 6276 | 5864 | 5490 | 5148 | 4847 | 4577 | 4337 | 4122 | 3930 | 3756 | 3603 | 3460 |
| 7 | PARTRIDGE ACSR | 1/4 | 1/5 | 89.1 | -6.84 | 0.79 | 0.85 | 0.91 | 0.97 | 1.04 | 1.10 | 1.17 | 1.23 | 1.29 | 1.36 | 1.42 | 1.48 | 1.54 | 6726 | 6276 | 5864 | 5490 | 5148 | 4847 | 4577 | 4337 | 4122 | 3930 | 3756 | 3603 | 3460 |
| 7 | PARTRIDGE ACSR | 1/5 | 1/6 | 90.9 | -4.34 | 0.82 | 0.88 | 0.95 | 1.01 | 1.08 | 1.14 | 1.21 | 1.28 | 1.35 | 1.41 | 1.48 | 1.54 | 1.60 | 6726 | 6276 | 5864 | 5490 | 5148 | 4847 | 4577 | 4337 | 4122 | 3930 | 3756 | 3603 | 3460 |
| 7 | PARTRIDGE ACSR | 1/6 | 1/7 | 66.5 | -4.77 | 0.44 | 0.47 | 0.51 | 0.54 | 0.58 | 0.61 | 0.65 | 0.68 | 0.72 | 0.76 | 0.79 | 0.82 | 0.86 | 6726 | 6276 | 5864 | 5490 | 5148 | 4847 | 4577 | 4337 | 4122 | 3930 | 3756 | 3603 | 3460 |
| 7 | PARTRIDGE ACSR | 1/7 | 1/8 | 110.6 | -4.59 | 1.22 | 1.31 | 1.40 | 1.50 | 1.59 | 1.69 | 1.79 | 1.89 | 1.99 | 2.09 | 2.19 | 2.28 | 2.37 | 6726 | 6276 | 5864 | 5490 | 5148 | 4847 | 4577 | 4337 | 4122 | 3930 | 3756 | 3603 | 3460 |
| 7 | PARTRIDGE ACSR | 1/8 | 1/9 | 79.6 | -5.68 | 0.63 | 0.68 | 0.73 | 0.77 | 0.83 | 0.88 | 0.93 | 0.98 | 1.03 | 1.08 | 1.13 | 1.18 | 1.23 | 6726 | 6276 | 5864 | 5490 | 5148 | 4847 | 4577 | 4337 | 4122 | 3930 | 3756 | 3603 | 3460 |
| 7 | PARTRIDGE ACSR | 1/9 | 1/10 | 81.5 | -4.33 | 0.66 | 0.71 | 0.76 | 0.81 | 0.87 | 0.92 | 0.97 | 1.03 | 1.08 | 1.13 | 1.19 | 1.24 | 1.29 | 6726 | 6276 | 5864 | 5490 | 5148 | 4847 | 4577 | 4337 | 4122 | 3930 | 3756 | 3603 | 3460 |
| 7 | PARTRIDGE ACSR | 1/10 | 1/11 | 94.4 | -1.53 | 0.89 | 0.95 | 1.02 | 1.09 | 1.16 | 1.23 | 1.30 | 1.38 | 1.45 | 1.52 | 1.59 | 1.66 | 1.73 | 6726 | 6276 | 5864 | 5490 | 5148 | 4847 | 4577 | 4337 | 4122 | 3930 | 3756 | 3603 | 3460 |
| 7 | PARTRIDGE ACSR | 1/11 | 1/12 | 90.4 | -4.12 | 0.82 | 0.87 | 0.94 | 1.00 | 1.07 | 1.13 | 1.20 | 1.26 | 1.33 | 1.40 | 1.46 | 1.52 | 1.59 | 6726 | 6276 | 5864 | 5490 | 5148 | 4847 | 4577 | 4337 | 4122 | 3930 | 3756 | 3603 | 3460 |
| 7 | PARTRIDGE ACSR | 1/12 | 2/1 | 90.4 | -2.36 | 0.81 | 0.87 | 0.93 | 1.00 | 1.06 | 1.13 | 1.20 | 1.26 | 1.33 | 1.39 | 1.46 | 1.52 | 1.58 | 6726 | 6276 | 5864 | 5490 | 5148 | 4847 | 4577 | 4337 | 4122 | 3930 | 3756 | 3603 | 3460 |
| 7 | PARTRIDGE ACSR | 2/1 | 2/2 | 93.8 | -3.03 | 0.88 | 0.94 | 1.01 | 1.07 | 1.15 | 1.22 | 1.29 | 1.36 | 1.43 | 1.50 | 1.57 | 1.64 | 1.70 | 6726 | 6276 | 5864 | 5490 | 5148 | 4847 | 4577 | 4337 | 4122 | 3930 | 3756 | 3603 | 3460 |
| 7 | PARTRIDGE ACSR | 2/2 | 2/3 | 88.5 | -1.30 | 0.78 | 0.84 | 0.89 | 0.96 | 1.02 | 1.08 | 1.15 | 1.21 | 1.27 | 1.33 | 1.40 | 1.46 | 1.52 | 6726 | 6276 | 5864 | 5490 | 5148 | 4847 | 4577 | 4337 | 4122 | 3930 | 3756 | 3603 | 3460 |
| 7 | PARTRIDGE ACSR | 2/3 | 2/4 | 90.1 | -1.57 | 0.81 | 0.87 | 0.93 | 0.99 | 1.06 | 1.12 | 1.19 | 1.25 | 1.32 | 1.38 | 1.45 | 1.51 | 1.57 | 6726 | 6276 | 5864 | 5490 | 5148 | 4847 | 4577 | 4337 | 4122 | 3930 | 3756 | 3603 | 3460 |
| 7 | PARTRIDGE ACSR | 2/4 | 2/5 | 90.2 | -3.76 | 0.81 | 0.87 | 0.93 | 0.99 | 1.06 | 1.12 | 1.19 | 1.26 | 1.32 | 1.39 | 1.45 | 1.51 | 1.58 | 6726 | 6276 | 5864 | 5490 | 5148 | 4847 | 4577 | 4337 | 4122 | 3930 | 3756 | 3603 | 3460 |
| 7 | PARTRIDGE ACSR | 2/5 | 2/6 | 103.0 | -3.26 | 1.06 | 1.13 | 1.21 | 1.30 | 1.38 | 1.47 | 1.55 | 1.64 | 1.73 | 1.81 | 1.89 | 1.98 | 2.06 | 6726 | 6276 | 5864 | 5490 | 5148 | 4847 | 4577 | 4337 | 4122 | 3930 | 3756 | 3603 | 3460 |
| 7 | PARTRIDGE ACSR | 2/6 | 2/7 | 101.6 | 0.11 | 1.03 | 1.10 | 1.18 | 1.26 | 1.34 | 1.43 | 1.51 | 1.60 | 1.68 | 1.76 | 1.84 | 1.92 | 2.00 | 6726 | 6276 | 5864 | 5490 | 5148 | 4847 | 4577 | 4337 | 4122 | 3930 | 3756 | 3603 | 3460 |
| 7 | PARTRIDGE ACSR | 2/7 | 2/8 | 97.5 | -1.16 | 0.95 | 1.01 | 1.09 | 1.16 | 1.24 | 1.31 | 1.39 | 1.47 | 1.55 | 1.62 | 1.70 | 1.77 | 1.84 | 6726 | 6276 | 5864 | 5490 | 5148 | 4847 | 4577 | 4337 | 4122 | 3930 | 3756 | 3603 | 3460 |
| 7 | PARTRIDGE ACSR | 2/8 | 2/9 | 89.3 | -4.12 | 0.80 | 0.85 | 0.91 | 0.97 | 1.04 | 1.10 | 1.17 | 1.23 | 1.30 | 1.36 | 1.42 | 1.48 | 1.55 | 6726 | 6276 | 5864 | 5490 | 5148 | 4847 | 4577 | 4337 | 4122 | 3930 | 3756 | 3603 | 3460 |
| 7 | PARTRIDGE ACSR | 2/9 | 2/10 | 92.4 | -1.91 | 0.85 | 0.91 | 0.98 | 1.04 | 1.11 | 1.18 | 1.25 | 1.32 | 1.39 | 1.46 | 1.52 | 1.59 | 1.66 | 6726 | 6276 | 5864 | 5490 | 5148 | 4847 | 4577 | 4337 | 4122 | 3930 | 3756 | 3603 | 3460 |
| 7 | PARTRIDGE ACSR | 2/10 | 2/11 | 86.4 | 1.14 | 0.74 | 0.80 | 0.85 | 0.91 | 0.97 | 1.03 | 1.09 | 1.15 | 1.21 | 1.27 | 1.33 | 1.39 | 1.44 | 6726 | 6276 | 5864 | 5490 | 5148 | 4847 | 4577 | 4337 | 4122 | 3930 | 3756 | 3603 | 3460 |
| 7 | PARTRIDGE ACSR | 2/11 | 3/1 | 89.4 | 2.93 | 0.80 | 0.85 | 0.91 | 0.98 | 1.04 | 1.10 | 1.17 | 1.23 | 1.30 | 1.36 | 1.43 | 1.49 | 1.55 | 6726 | 6276 | 5864 | 5490 | 5148 | 4847 | 4577 | 4337 | 4122 | 3930 | 3756 | 3603 | 3460 |
| 7 | PARTRIDGE ACSR | 3/1 | 3/2 | 174.0 | 0.63 | 3.02 | 3.23 | 3.46 | 3.70 | 3.94 | 4.19 | 4.44 | 4.68 | 4.93 | 5.17 | 5.41 | 5.64 | 5.87 | 6726 | 6276 | 5864 | 5490 | 5148 | 4847 | 4577 | 4337 | 4122 | 3930 | 3756 | 3603 | 3460 |
| 7 | PARTRIDGE ACSR | 3/2 | 3/3 | 86.0 | -2.98 | 0.74 | 0.79 | 0.85 | 0.90 | 0.96 | 1.02 | 1.08 | 1.14 | 1.20 | 1.26 | 1.32 | 1.38 | 1.43 | 6726 | 6276 | 5864 | 5490 | 5148 | 4847 | 4577 | 4337 | 4122 | 3930 | 3756 | 3603 | 3460 |
| 8 | OFC-24G.652D-FASA-S1 | 1/2 | 1/3 | 80.6 | 3.35 | 2.59 | 2.59 | 2.59 | 2.59 | 2.59 | 2.59 | 2.60 | 2.60 | 2.60 | 2.60 | 2.60 | 2.60 | 2.60 | 413 | 413 | 413 | 413 | 413 | 413 | 413 | 412 | 412 | 412 | 412 | 412 | 412 |
| 8 | OFC-24G.652D-FASA-S1 | 1/3 | 1/4 | 82.4 | -6.28 | 2.71 | 2.71 | 2.71 | 2.71 | 2.71 | 2.71 | 2.72 | 2.72 | 2.72 | 2.72 | 2.72 | 2.72 | 2.72 | 413 | 413 | 413 | 413 | 413 | 413 | 413 | 412 | 412 | 412 | 412 | 412 | 412 |
| 8 | OFC-24G.652D-FASA-S1 | 1/4 | 1/5 | 89.0 | -7.13 | 3.17 | 3.17 | 3.17 | 3.17 | 3.17 | 3.17 | 3.17 | 3.17 | 3.18 | 3.18 | 3.18 | 3.18 | 3.18 | 413 | 413 | 413 | 413 | 413 | 413 | 413 | 412 | 412 | 412 | 412 | 412 | 412 |
| 8 | OFC-24G.652D-FASA-S1 | 1/5 | 1/6 | 90.9 | -4.05 | 3.29 | 3.29 | 3.29 | 3.30 | 3.30 | 3.30 | 3.30 | 3.30 | 3.30 | 3.30 | 3.31 | 3.31 | 3.31 | 413 | 413 | 413 | 413 | 413 | 413 | 413 | 412 | 412 | 412 | 412 | 412 | 412 |
| 8 | OFC-24G.652D-FASA-S1 | 1/6 | 1/7 | 66.4 | -4.77 | 1.76 | 1.76 | 1.76 | 1.76 | 1.76 | 1.76 | 1.76 | 1.76 | 1.77 | 1.77 | 1.77 | 1.77 | 1.77 | 413 | 413 | 413 | 413 | 413 | 413 | 413 | 412 | 412 | 412 | 412 | 412 | 412 |
| 8 | OFC-24G.652D-FASA-S1 | 1/7 | 1/8 | 110.6 | -4.78 | 4.88 | 4.88 | 4.88 | 4.88 | 4.89 | 4.89 | 4.89 | 4.89 | 4.89 | 4.90 | 4.90 | 4.90 | 4.90 | 413 | 413 | 413 | 413 | 413 | 413 | 413 | 412 | 412 | 412 | 412 | 412 | 412 |
| 8 | OFC-24G.652D-FASA-S1 | 1/8 | 1/9 | 79.6 | -8.05 | 2.53 | 2.53 | 2.54 | 2.54 | 2.54 | 2.54 | 2.54 | 2.54 | 2.54 | 2.54 | 2.54 | 2.54 | 2.54 | 413 | 413 | 413 | 413 | 413 | 413 | 413 | 412 | 412 | 412 | 412 | 412 | 412 |
| 8 | OFC-24G.652D-FASA-S1 | 1/9 | 1/10 | 81.5 | -1.96 | 2.65 | 2.65 | 2.65 | 2.65 | 2.65 | 2.65 | 2.65 | 2.65 | 2.65 | 2.65 | 2.66 | 2.66 | 2.66 | 413 | 413 | 413 | 413 | 413 | 413 | 413 | 412 | 412 | 412 | 412 | 412 | 412 |
| 8 | OFC-24G.652D-FASA-S1 | 1/10 | 1/11 | 94.4 |

FORBES BROS

# AS-BUILT

CHANGES REQUIRED YES ☐ NO ☐

Name (Print) _____

Signature _____

Date _____

PERMIT TO PRACTICE
CLEAN ENERGY CONSULTING INC.
SIGNATURE _____
DATE 22-Nov-2018
PERMIT NUMBER: P-1224
Association of Professional Engineers of Yukon

## SAG AND TENSION

| | |
|---|---|
| CIRCUIT | VICTORIA GOLD 69kV |
| DOCUMENT | 1407-T-1450 |
| DATE | 22-Nov-18 |
| REVISION | 1 |
| ISSUED FOR | CONSTRUCTION |
| PREPARED BY | MP |
| CHECKED BY | PC |
| APPROVED BY | PC |

ENGINEER'S SEAL
PROFESSIONAL ENGINEER YUKON A. P. N. CLARK TERRITORY 22-Nov-2018

NOTES
1. All spans must be installed to the sag values provided. Tension values are provided as a reference only.
2. Sag and tension values shown are for new conductor under initial conditions based on the ruling span method.
3. For conductors left hanging in sheaves for longer than 3 hours between initial stringing and final sag, a creep correction factor must be applied.
4. All span lengths and sag values are provided in metres unless otherwise noted.
5. Conductors and cables:
   - Overhead Shieldwire (OHSW): Partridge ACSR
   - 69kV Transmission Line: Partridge ACSR
   - ADSS: OFC-24G.652D-FASA-S1
6. The minimum ambient temperature for pulling ADSS cable is -30°C. ADSS cable shall not be pulled at temperatures below this minimum temperature.

Clean Energy CONSULTING INC

| SEC | CABLE | FROM STR | TO STR | SPAN AHEAD (m) | SPAN VERT. PROJ. (m) | MID SPAN SAG (m) | | | | | | | | | | | | HORIZONTAL TENSION (N) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | -50 | -45 | -40 | -35 | -30 | -25 | -20 | -15 | -10 | -5 | 0 | 5 | 10 | -50 | -45 | -40 | -35 | -30 | -25 | -20 | -15 | -10 | -5 | 0 | 5 | 10 |
| 8 | OFC-24G.652D-FASA-S1 | 1/12 | 2/1 | 90.4 | -2.36 | 3.26 | 3.26 | 3.26 | 3.26 | 3.26 | 3.26 | 3.26 | 3.26 | 3.26 | 3.27 | 3.27 | 3.27 | 3.27 | 413 | 413 | 413 | 413 | 413 | 413 | 413 | 412 | 412 | 412 | 412 | 412 | 412 |
| 8 | OFC-24G.652D-FASA-S1 | 2/1 | 2/2 | 93.8 | -3.03 | 3.50 | 3.50 | 3.51 | 3.51 | 3.51 | 3.51 | 3.51 | 3.51 | 3.51 | 3.52 | 3.52 | 3.52 | 3.52 | 413 | 413 | 413 | 413 | 413 | 413 | 413 | 412 | 412 | 412 | 412 | 412 | 412 |
| 8 | OFC-24G.652D-FASA-S1 | 2/2 | 2/3 | 88.5 | -1.30 | 3.12 | 3.12 | 3.12 | 3.12 | 3.12 | 3.12 | 3.12 | 3.12 | 3.12 | 3.13 | 3.13 | 3.13 | 3.13 | 413 | 413 | 413 | 413 | 413 | 413 | 413 | 412 | 412 | 412 | 412 | 412 | 412 |
| 8 | OFC-24G.652D-FASA-S1 | 2/3 | 2/4 | 90.1 | -1.28 | 3.23 | 3.23 | 3.23 | 3.23 | 3.24 | 3.24 | 3.24 | 3.24 | 3.24 | 3.24 | 3.24 | 3.24 | 3.25 | 413 | 413 | 413 | 413 | 413 | 413 | 413 | 412 | 412 | 412 | 412 | 412 | 412 |
| 8 | OFC-24G.652D-FASA-S1 | 2/4 | 2/5 | 90.2 | -4.05 | 3.24 | 3.24 | 3.24 | 3.24 | 3.24 | 3.24 | 3.25 | 3.25 | 3.25 | 3.25 | 3.25 | 3.25 | 3.25 | 413 | 413 | 413 | 413 | 413 | 413 | 413 | 412 | 412 | 412 | 412 | 412 | 412 |
| 8 | OFC-24G.652D-FASA-S1 | 2/5 | 2/6 | 103.0 | -3.26 | 4.23 | 4.23 | 4.23 | 4.23 | 4.24 | 4.24 | 4.24 | 4.24 | 4.24 | 4.24 | 4.25 | 4.25 | 4.25 | 413 | 413 | 413 | 413 | 413 | 413 | 413 | 412 | 412 | 412 | 412 | 412 | 412 |
| 8 | OFC-24G.652D-FASA-S1 | 2/6 | 2/7 | 101.6 | 0.11 | 4.12 | 4.12 | 4.12 | 4.12 | 4.12 | 4.12 | 4.12 | 4.12 | 4.13 | 4.13 | 4.13 | 4.13 | 4.13 | 413 | 413 | 413 | 413 | 413 | 413 | 413 | 412 | 412 | 412 | 412 | 412 | 412 |
| 8 | OFC-24G.652D-FASA-S1 | 2/7 | 2/8 | 97.5 | -1.16 | 3.78 | 3.79 | 3.79 | 3.79 | 3.79 | 3.79 | 3.79 | 3.79 | 3.79 | 3.80 | 3.80 | 3.80 | 3.80 | 413 | 413 | 413 | 413 | 413 | 413 | 413 | 412 | 412 | 412 | 412 | 412 | 412 |
| 8 | OFC-24G.652D-FASA-S1 | 2/8 | 2/9 | 89.3 | -4.12 | 3.18 | 3.18 | 3.18 | 3.18 | 3.18 | 3.18 | 3.18 | 3.18 | 3.19 | 3.19 | 3.19 | 3.19 | 3.19 | 413 | 413 | 413 | 413 | 413 | 413 | 413 | 412 | 412 | 412 | 412 | 412 | 412 |
| 8 | OFC-24G.652D-FASA-S1 | 2/9 | 2/10 | 92.4 | -1.91 | 3.40 | 3.40 | 3.40 | 3.41 | 3.41 | 3.41 | 3.41 | 3.41 | 3.41 | 3.41 | 3.42 | 3.42 | 3.42 | 413 | 413 | 413 | 413 | 413 | 413 | 413 | 412 | 412 | 412 | 412 | 412 | 412 |
| 8 | OFC-24G.652D-FASA-S1 | 2/10 | 2/11 | 86.4 | 1.14 | 2.97 | 2.97 | 2.97 | 2.97 | 2.97 | 2.97 | 2.97 | 2.98 | 2.98 | 2.98 | 2.98 | 2.98 | 2.98 | 413 | 413 | 413 | 413 | 413 | 413 | 413 | 412 | 412 | 412 | 412 | 412 | 412 |
| 8 | OFC-24G.652D-FASA-S1 | 2/11 | 3/1 | 89.5 | 4.03 | 3.19 | 3.20 | 3.20 | 3.20 | 3.20 | 3.20 | 3.20 | 3.20 | 3.20 | 3.21 | 3.21 | 3.21 | 3.21 | 413 | 413 | 413 | 413 | 413 | 413 | 413 | 412 | 412 | 412 | 412 | 412 | 412 |
| 8 | OFC-24G.652D-FASA-S1 | 3/1 | 3/2 | 174.0 | 0.63 | 12.12 | 12.12 | 12.12 | 12.13 | 12.13 | 12.14 | 12.14 | 12.14 | 12.15 | 12.16 | 12.16 | 12.17 | 12.17 | 413 | 413 | 413 | 413 | 413 | 413 | 413 | 412 | 412 | 412 | 412 | 412 | 412 |
| 8 | OFC-24G.652D-FASA-S1 | 3/2 | 3/3 | 85.8 | -4.12 | 2.94 | 2.94 | 2.94 | 2.94 | 2.94 | 2.94 | 2.94 | 2.94 | 2.94 | 2.95 | 2.95 | 2.95 | 2.95 | 413 | 413 | 413 | 413 | 413 | 413 | 413 | 412 | 412 | 412 | 412 | 412 | 412 |
| 9 | PARTRIDGE ACSR | 3/3 | 3/4 | 79.1 | 3.73 | 0.49 | 0.53 | 0.57 | 0.62 | 0.67 | 0.73 | 0.79 | 0.85 | 0.92 | 0.98 | 1.05 | 1.11 | 1.18 | 8534 | 7910 | 7303 | 6744 | 6220 | 5732 | 5298 | 4910 | 4563 | 4266 | 4000 | 3766 | 3565 |
| 9 | PARTRIDGE ACSR | 3/4 | 3/5 | 81.2 | 1.93 | 0.52 | 0.56 | 0.60 | 0.66 | 0.71 | 0.77 | 0.83 | 0.90 | 0.97 | 1.04 | 1.10 | 1.17 | 1.24 | 8534 | 7910 | 7303 | 6744 | 6220 | 5732 | 5298 | 4910 | 4563 | 4266 | 4000 | 3766 | 3565 |
| 9 | PARTRIDGE ACSR | 3/5 | 3/6 | 81.2 | 0.40 | 0.52 | 0.56 | 0.60 | 0.66 | 0.71 | 0.77 | 0.83 | 0.90 | 0.97 | 1.04 | 1.10 | 1.17 | 1.24 | 8534 | 7910 | 7303 | 6744 | 6220 | 5732 | 5298 | 4910 | 4563 | 4266 | 4000 | 3766 | 3565 |
| 9 | PARTRIDGE ACSR | 3/6 | 3/7 | 79.2 | 2.91 | 0.49 | 0.53 | 0.58 | 0.62 | 0.68 | 0.73 | 0.79 | 0.86 | 0.92 | 0.99 | 1.05 | 1.12 | 1.18 | 8534 | 7910 | 7303 | 6744 | 6220 | 5732 | 5298 | 4910 | 4563 | 4266 | 4000 | 3766 | 3565 |
| 9 | PARTRIDGE ACSR | 3/7 | 3/8 | 89.2 | 2.78 | 0.61 | 0.66 | 0.71 | 0.77 | 0.84 | 0.91 | 0.99 | 1.06 | 1.14 | 1.22 | 1.30 | 1.39 | 1.46 | 8534 | 7910 | 7303 | 6744 | 6220 | 5732 | 5298 | 4910 | 4563 | 4266 | 4000 | 3766 | 3565 |
| 9 | PARTRIDGE ACSR | 3/8 | 3/9 | 91.6 | 4.60 | 0.66 | 0.71 | 0.77 | 0.83 | 0.91 | 0.98 | 1.06 | 1.15 | 1.23 | 1.32 | 1.41 | 1.50 | 1.58 | 8534 | 7910 | 7303 | 6744 | 6220 | 5732 | 5298 | 4910 | 4563 | 4266 | 4000 | 3766 | 3565 |
| 9 | PARTRIDGE ACSR | 3/9 | 3/10 | 92.8 | -1.15 | 0.66 | 0.73 | 0.79 | 0.86 | 0.93 | 1.01 | 1.09 | 1.17 | 1.26 | 1.35 | 1.44 | 1.53 | 1.62 | 8534 | 7910 | 7303 | 6744 | 6220 | 5732 | 5298 | 4910 | 4563 | 4266 | 4000 | 3766 | 3565 |
| 9 | PARTRIDGE ACSR | 3/10 | 3/11 | 73.3 | -5.19 | 0.42 | 0.46 | 0.49 | 0.53 | 0.58 | 0.63 | 0.68 | 0.73 | 0.79 | 0.85 | 0.90 | 0.96 | 1.01 | 8534 | 7910 | 7303 | 6744 | 6220 | 5732 | 5298 | 4910 | 4563 | 4266 | 4000 | 3766 | 3565 |
| 9 | PARTRIDGE ACSR | 3/11 | 4/1 | 70.1 | -3.74 | 0.39 | 0.42 | 0.45 | 0.49 | 0.53 | 0.57 | 0.62 | 0.67 | 0.72 | 0.77 | 0.82 | 0.87 | 0.92 | 8534 | 7910 | 7303 | 6744 | 6220 | 5732 | 5298 | 4910 | 4563 | 4266 | 4000 | 3766 | 3565 |
| 9 | PARTRIDGE ACSR | 4/1 | 4/2 | 77.2 | -1.40 | 0.47 | 0.51 | 0.55 | 0.59 | 0.64 | 0.70 | 0.75 | 0.81 | 0.88 | 0.94 | 1.00 | 1.06 | 1.12 | 8534 | 7910 | 7303 | 6744 | 6220 | 5732 | 5298 | 4910 | 4563 | 4266 | 4000 | 3766 | 3565 |
| 9 | PARTRIDGE ACSR | 4/2 | 4/3 | 83.0 | -2.05 | 0.54 | 0.58 | 0.63 | 0.68 | 0.74 | 0.80 | 0.87 | 0.94 | 1.01 | 1.08 | 1.15 | 1.23 | 1.29 | 8534 | 7910 | 7303 | 6744 | 6220 | 5732 | 5298 | 4910 | 4563 | 4266 | 4000 | 3766 | 3565 |
| 9 | PARTRIDGE ACSR | 4/3 | 4/4 | 79.3 | 0.22 | 0.49 | 0.53 | 0.58 | 0.62 | 0.68 | 0.73 | 0.79 | 0.86 | 0.92 | 0.99 | 1.05 | 1.12 | 1.18 | 8534 | 7910 | 7303 | 6744 | 6220 | 5732 | 5298 | 4910 | 4563 | 4266 | 4000 | 3766 | 3565 |
| 9 | PARTRIDGE ACSR | 4/4 | 4/5 | 68.1 | 0.80 | 0.36 | 0.39 | 0.43 | 0.46 | 0.50 | 0.54 | 0.58 | 0.63 | 0.68 | 0.73 | 0.78 | 0.83 | 0.87 | 8534 | 7910 | 7303 | 6744 | 6220 | 5732 | 5298 | 4910 | 4563 | 4266 | 4000 | 3766 | 3565 |
| 9 | PARTRIDGE ACSR | 4/5 | 4/6 | 82.0 | -3.74 | 0.53 | 0.57 | 0.62 | 0.67 | 0.73 | 0.79 | 0.85 | 0.92 | 0.99 | 1.06 | 1.13 | 1.20 | 1.27 | 8534 | 7910 | 7303 | 6744 | 6220 | 5732 | 5298 | 4910 | 4563 | 4266 | 4000 | 3766 | 3565 |
| 9 | PARTRIDGE ACSR | 4/6 | 4/7 | 88.2 | -5.54 | 0.61 | 0.66 | 0.71 | 0.77 | 0.84 | 0.91 | 0.99 | 1.06 | 1.14 | 1.22 | 1.31 | 1.39 | 1.47 | 8534 | 7910 | 7303 | 6744 | 6220 | 5732 | 5298 | 4910 | 4563 | 4266 | 4000 | 3766 | 3565 |
| 9 | PARTRIDGE ACSR | 4/7 | 4/8 | 87.1 | -4.93 | 0.60 | 0.64 | 0.70 | 0.75 | 0.82 | 0.89 | 0.96 | 1.04 | 1.11 | 1.19 | 1.27 | 1.35 | 1.43 | 8534 | 7910 | 7303 | 6744 | 6220 | 5732 | 5298 | 4910 | 4563 | 4266 | 4000 | 3766 | 3565 |
| 9 | PARTRIDGE ACSR | 4/8 | 4/9 | 85.1 | -2.18 | 0.57 | 0.61 | 0.67 | 0.72 | 0.78 | 0.85 | 0.92 | 0.99 | 1.07 | 1.14 | 1.22 | 1.29 | 1.36 | 8534 | 7910 | 7303 | 6744 | 6220 | 5732 | 5298 | 4910 | 4563 | 4266 | 4000 | 3766 | 3565 |
| 9 | PARTRIDGE ACSR | 4/9 | 4/10 | 82.2 | -4.09 | 0.53 | 0.57 | 0.62 | 0.67 | 0.73 | 0.79 | 0.86 | 0.92 | 0.99 | 1.06 | 1.13 | 1.20 | 1.27 | 8534 | 7910 | 7303 | 6744 | 6220 | 5732 | 5298 | 4910 | 4563 | 4266 | 4000 | 3766 | 3565 |
| 9 | PARTRIDGE ACSR | 4/10 | 4/11 | 84.4 | -2.36 | 0.56 | 0.60 | 0.65 | 0.71 | 0.77 | 0.83 | 0.90 | 0.97 | 1.05 | 1.12 | 1.19 | 1.27 | 1.34 | 8534 | 7910 | 7303 | 6744 | 6220 | 5732 | 5298 | 4910 | 4563 | 4266 | 4000 | 3766 | 3565 |
| 9 | PARTRIDGE ACSR | 4/11 | 4/12 | 89.6 | -3.60 | 0.63 | 0.68 | 0.74 | 0.80 | 0.87 | 0.94 | 1.02 | 1.10 | 1.18 | 1.26 | 1.35 | 1.43 | 1.51 | 8534 | 7910 | 7303 | 6744 | 6220 | 5732 | 5298 | 4910 | 4563 | 4266 | 4000 | 3766 | 3565 |
| 9 | PARTRIDGE ACSR | 4/12 | 5/1 | 63.5 | -1.13 | 0.32 | 0.34 | 0.37 | 0.40 | 0.43 | 0.47 | 0.51 | 0.55 | 0.59 | 0.63 | 0.68 | 0.72 | 0.76 | 8534 | 7910 | 7303 | 6744 | 6220 | 5732 | 5298 | 4910 | 4563 | 4266 | 4000 | 3766 | 3565 |
| 9 | PARTRIDGE ACSR | 5/1 | 5/2 | 70.5 | -3.08 | 0.39 | 0.42 | 0.46 | 0.49 | 0.54 | 0.58 | 0.63 | 0.68 | 0.73 | 0.78 | 0.83 | 0.88 | 0.93 | 8534 | 7910 | 7303 | 6744 | 6220 | 5732 | 5298 | 4910 | 4563 | 4266 | 4000 | 3766 | 3565 |
| 9 | PARTRIDGE ACSR | 5/2 | 5/3 | 70.3 | -5.34 | 0.39 | 0.42 | 0.45 | 0.49 | 0.53 | 0.58 | 0.63 | 0.68 | 0.73 | 0.78 | 0.83 | 0.88 | 0.93 | 8534 | 7910 | 7303 | 6744 | 6220 | 5732 | 5298 | 4910 | 4563 | 4266 | 4000 | 3766 | 3565 |
| 9 | PARTRIDGE ACSR | 5/3 | 5/4 | 69.0 | -4.32 | 0.36 | 0.39 | 0.42 | 0.46 | 0.50 | 0.54 | 0.59 | 0.63 | 0.68 | 0.73 | 0.78 | 0.82 | 0.87 | 8534 | 7910 | 7303 | 6744 | 6220 | 5732 | 5298 | 4910 | 4563 | 4266 | 4000 | 3766 | 3565 |
| 9 | PARTRIDGE ACSR | 5/4 | 5/5 | 72.7 | -4.88 | 0.42 | 0.45 | 0.49 | 0.53 | 0.57 | 0.62 | 0.67 | 0.72 | 0.78 | 0.83 | 0.89 | 0.94 | 1.00 | 8534 | 7910 | 7303 | 6744 | 6220 | 5732 | 5298 | 4910 | 4563 | 4266 | 4000 | 3766 | 3565 |
| 9 | PARTRIDGE ACSR | 5/5 | 5/6 | 73.9 | -2.00 | 0.43 | 0.46 | 0.50 | 0.54 | 0.59 | 0.64 | 0.69 | 0.75 | 0.80 | 0.86 | 0.91 | 0.97 | 1.03 | 8534 | 7910 | 7303 | 6744 | 6220 | 5732 | 5298 | 4910 | 4563 | 4266 | 4000 | 3766 | 3565 |
| 9 | PARTRIDGE ACSR | 5/6 | 5/7 | 74.7 | 0.41 | 0.44 | 0.47 | 0.51 | 0.55 | 0.60 | 0.65 | 0.70 | 0.76 | 0.82 | 0.88 | 0.93 | 0.99 | 1.05 | 8534 | 7910 | 7303 | 6744 | 6220 | 5732 | 5298 | 4910 | 4563 | 4266 | 4000 | 3766 | 3565 |
| 9 | PARTRIDGE ACSR | 5/7 | 5/8 | 70.3 | 2.11 | 0.39 | 0.42 | 0.45 | 0.49 | 0.53 | 0.58 | 0.63 | 0.68 | 0.73 | 0.78 | 0.83 | 0.88 | 0.93 | 8534 | 7910 | 7303 | 6744 | 6220 | 5732 | 5298 | 4910 | 4563 | 4266 | 4000 | 3766 | 3565 |
| 9 | PARTRIDGE ACSR | 5/8 | 5/9 | 86.2 | 0.64 | 0.58 | 0.63 | 0.68 | 0.74 | 0.80 | 0.87 | 0.94 | 1.01 | 1.09 | 1.17 | 1.24 | 1.32 | 1.40 | 8534 | 7910 | 7303 | 6744 | 6220 | 5732 | 5298 | 4910 | 4563 | 4266 | 4000 | 3766 | 3565 |
| 9 | PARTRIDGE ACSR | 5/9 | 5/10 | 83.2 | -0.30 | 0.54 | 0.59 | 0.64 | 0.69 | 0.75 | 0.81 | 0.88 | 0.94 | 1.02 | 1.09 | 1.16 | 1.23 | 1.30 | 8534 | 7910 | 7303 | 6744 | 6220 | 5732 | 5298 | 4910 | 4563 | 4266 | 4000 | 3766 | 3565 |
| 9 | PARTRIDGE ACSR | 5/10 | 5/11 | 73.1 | -2.16 | 0.42 | 0.45 | 0.49 | 0.53 | 0.58 | 0.63 | 0.68 | 0.73 | 0.79 | 0.84 | 0.90 | 0.95 | 1.01 | 8534 | 7910 | 7303 | 6744 | 6220 | 5732 | 5298 | 4910 | 4563 | 4266 | 4000 | 3766 | 3565 |
| 9 | PARTRIDGE ACSR | 5/11 | 5/12 | 88.9 | 0.58 | 0.62 | 0.67 | 0.72 | 0.79 | 0.85 | 0.92 | 1.00 | 1.08 | 1.16 | 1.24 | 1.32 | 1.41 | 1.49 | 8534 | 7910 | 7303 | 6744 | 6220 | 5732 | 5298 | 4910 | 4563 | 4266 | 4000 | 3766 | 3565 |
| 9 | PARTRIDGE ACSR | 5/12 | 5/13 | 87.0 | -0.38 | 0.59 | 0.64 | 0.69 | 0.75 | 0.82 | 0.89 | 0.96 | 1.03 | 1.11 | 1.19 | 1.27 | 1.35 | 1.42 | 8534 | 7910 | 7303 | 6744 | 6220 | 5732 | 5298 | 4910 | 4563 | 4266 | 4000 | 3766 | 3565 |
| 9 | PARTRIDGE ACSR | 5/13 | 6/1 | 83.6 | -1.15 | 0.55 | 0.59 | 0.64 | 0.70 | 0.75 | 0.82 | 0.88 | 0.95 | 1.03 | 1.10 | 1.17 | 1.24 | 1.32 | 8534 | 7910 | 7303 | 6744 | 6220 | 5732 | 5298 | 4910 | 4563 | 4266 | 4000 | 3766 | 3565 |
| 9 | PARTRIDGE ACSR | 6/1 | 6/2 | 84.4 | 0.38 | 0.56 | 0.60 | 0.65 | 0.71 | 0.77 | 0.83 | 0.90 | 0.97 | 1.05 | 1.12 | 1.19 | 1.27 | 1.34 | 8534 | 7910 | 7303 | 6744 | 6220 | 5732 | 5298 | 4910 | 4563 | 4266 | 4000 | 3766 | 3565 |
| 9 | PARTRIDGE ACSR | 6/2 | 6/3 | 88.1 | 0.21 | 0.61 | 0.66 | 0.71 | 0.77 | 0.84 | 0.91 | 0.98 | 1.06 | 1.14 | 1.22 | 1.30 | 1.38 | 1.46 | 8534 | 7910 | 7303 | 6744 | 6220 | 5732 | 5298 | 4910 | 4563 | 4266 | 4000 | 3766 | 3565 |
| 9 | PARTRIDGE ACSR | 6/3 | 6/4 | 86.9 | -0.67 | 0.59 | 0.64 | 0.69 | 0.75 | 0.81 | 0.88 | 0.96 | 1.03 | 1.11 | 1.19 | 1.27 | 1.35 | 1.42 | 8534 | 7910 | 7303 | 6744 | 6220 | 5732 | 5298 | 4910 | 4563 | 4266 | 4000 | 3766 | 3565 |
| 9 | PARTRIDGE ACSR | 6/4 | 6/5 | 92.2 | 2.70 | 0.67 | 0.72 | 0.78 | 0.84 | 0.92 | 0.99 | 1.08 | 1.16 | 1.25 | 1.34 | 1.42 | 1.51 | 1.60 | 8534 | 7910 | 7303 | 6744 | 6220 | 5732 | 5298 | 4910 | 4563 | 4266 | 4000 | 3766 | 3565 |
| 9 | PARTRIDGE ACSR | 6/5 | 6/6 | 94.4 | -2.48 | 0.70 | 0.76 | 0.82 | 0.89 | 0.96 | 1.04 | 1.13 | 1.22 | 1.31 | 1.40 | 1.49 | 1.59 | 1.68 | 8534 | 7910 | 7303 | 6744 | 6220 | 5732 | 5298 | 4910 | 4563 | 4266 | 4000 | 3766 | 3565 |
| 9 | PARTRIDGE ACSR | 6/6 | 6/7 | 93.7 | -0.16 | 0.69 | 0.74 | 0.81 | 0.87 | 0.95 | 1.03 | 1.11 | 1.20 | 1.29 | 1.38 | 1.47 | 1.56 | 1.65 | 8534 | 7910 | 7303 | 6744 | 6220 | 5732 | 5298 | 4910 | 4563 | 4266 | 4000 | 3766 | 3565 |
| 9 | PARTRIDGE ACSR | 6/7 | 6/8 | 95.5 | -0.27 | 0.72 | 0.77 | 0.84 | 0.91 | 0.98 | 1.07 | 1.15 | 1.24 | 1.34 | 1.43 | 1.53 | 1.62 | 1.71 | 8534 | 7910 | 7303 | 6744 | 6220 | 5732 | 5298 | 4910 | 4563 | 4266 | 4000 | 3766 | 3565 |
| 9 | PARTRIDGE ACSR | 6/8 | 6/9 | 94.5 | -1.78 | 0.70 | 0.76 | 0.82 | 0.89 | 0.96 | 1.04 | 1.13 | 1.22 | 1.31 | 1.40 | 1.50 | 1.59 | 1.68 | 8534 | 7910 | 7303 | 6744 | 6220 | 5732 | 5298 | 4910 | 4563 | 4266 | 4000 | 3766 | 3565 |
| 9 | PARTRIDGE ACSR | 6/9 | 6/10 | 95.2 | -0.46 | 0.71 | 0.77 | 0.83 | 0.90 | 0.98 | 1.06 | 1.15 | 1.24 | 1.33 | 1.42 | 1.52 | 1.61 | 1.70 | 8534 | 7910 | 7303 | 6744 | 6220 | 5732 | 5298 | 4910 | 4563 | 4266 | 4000 | 3766 | 3565 |
| 9 | PARTRIDGE ACSR | 6/10 | 6/11 | 92.0 | -0.70 | 0.67 | 0.72 | 0.78 | 0.84 | 0.91 | 0.99 | 1.07 | 1.16 | 1.24 | 1.33 | 1.42 | 1.51 | 1.59 | 8534 | 7910 | 7303 | 6744 | 6220 | 5732 | 5298 | 4910 | 4563 | 4266 | 4000 | 3766 | 3565 |
| 9 | PARTRIDGE ACSR | 6/11 | 7/1 | 95.4 | 1.09 | 0.71 | 0.77 | 0.83 | 0.90 | 0.98 | 1.06 | 1.15 | 1.24 | 1.34 | 1.43 | 1.52 | 1.62 | 1.71 | 8534 | 7910 | 7303 | 6744 | 6220 | 5732 | 5298 | 4910 | 4563 | 4266 | 4000 | 3766 | 3565 |
| 9 | PARTRIDGE ACSR | 7/1 | 7/2 | 74.8 | 2.09 | 0.44 | 0.47 | 0.51 | 0.56 | 0.60 | 0.65 | 0.71 | 0.76 | 0.82 | 0.88 | 0.94 | 1.00 | 1.05 | 8534 | 7910 | 7303 | 6744 | 6220 | 5732 | 5298 | 4910 | 4563 | 4266 | 4000 | 3766 | 3565 |
| 10 | OFC-24G.652D-FASA-S1 | 3/3 | 3/4 | 79.1 | 4.06 | 0.75 | 0.75 | 0.75 | 0.75 | 0.76 | 0.76 | 0.76 | 0.76 | 0.77 | 0.77 | 0.77 | 0.77 | 0.78 | 1374 | 1370 | 1367 | 1363 | 1359 | 1354 | 1350 | 1348 | 1343 | 1339 | 1335 | 1330 | 1326 |
| 10 | OFC-24G.652D-FASA-S1 | 3/4 | 3/5 | 81.2 | 1.93 | 0.79 | 0.79 | 0.79 | 0.79 | 0.80 | 0.80 | 0.80 | 0.80 | 0.81 | 0.81 | 0.81 | 0.81 | 0.82 | 1374 | 1370 | 1367 | 1363 | 1359 | 1354 | 1350 | 1348 | 1343 | 1339 | 1335 | 1330 | 1326 |
| 10 | OFC-24G.652D-FASA-S1 | 3/5 | 3/6 | 81.2 | 0.40 | 0.79 | 0.79 | 0.79 | 0.79 | 0.80 | 0.80 | 0.80 | 0.80 | 0.81 | 0.81 | 0.81 | 0.81 | 0.82 | 1374 | 1370 | 1367 | 1363 | 1359 | 1354 | 1350 | 1348 | 1343 | 1339 | 1335 | 1330 | 1326 |
| 10 | OFC-24G.652D-FASA-S1 | 3/6 | 3/7 | 79.2 | 2.91 | 0.75 | 0.75 | 0.76 | 0.76 | 0.76 | 0.76 | 0.76 | 0.77 | 0.77 | 0.77 | 0.77 | 0.78 | 0.78 | 1374 | 1370 | 1367 | 1363 | 1359 | 1354 | 1350 | 1348 | 1343 | 1339 | 1335 | 1330 | 1326 |
| 10 | OFC-24G.652D-FASA-S1 | 3/7 | 3/8 | 88.2 | 2.76 | 0.93 | 0.93 | 0.94 | 0.94 | 0.94 | 0.94 | 0.95 | 0.95 | 0.95 | 0.96 | 0.96 | 0.96 | 0.97 | 1374 | 1370 | 1367 | 1363 | 1359 | 1354 | 1350 | 1348 | 1343 | 1339 | 1335 | 1330 | 1326 |
| 10 | OFC-24G.652D-FASA-S1 | 3/8 | 3/9 | 91.6 | 4.60 | 1.00 | 1.01 | 1.01 | 1.01 | 1.02 | 1.02 | 1.02 | 1.02 | 1.03 | 1.03 | 1.03 | 1.04 | 1.04 | 1374 | 1370 | 1367 | 1363 | 1359 | 1354 | 1350 | 1348 | 1343 | 1339 | 1335 | 1330 | 1326 |
| 10 | OFC-24G.652D-FASA-S1 | 3/9 | 3/10 | 92.8 | -1.05 | 1.03 | 1.03 | 1.03 | 1.04 | 1.04 | 1.04 | 1.05 | 1.05 | 1.05 | 1.06 | 1.06 | 1.06 | 1.07 | 1374 | 1370 | 1367 | 1363 | 1359 | 1354 | 1350 | 1348 | 1343 | 1339 | 1335 | 1330 | 1326 |
| 10 | OFC-24G.652D-FASA-S1 | 3/10 | 3/11 | 73.3 | -7.56 | 0.65 | 0.65 | 0.65 | 0.65 | 0.65 | 0.66 | 0.66 | 0.66 | 0.66 | 0.66 | 0.66 | 0.67 | 0.67 | 1374 | 1370 | 1367 | 1363 | 1359 | 1354 | 1350 | 1348 | 1343 | 1339 | 1335 | 1330 | 1326 |
| 10 | OFC-24G.652D-FASA-S1 | 3/11 | 4/1 | 70.1 | -1.38 | 0.59 | 0.59 | 0.59 | 0.59 | 0.59 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.61 | 0.61 | 1374 | 1370 | 1367 | 1363 | 1359 | 1354 | 1350 | 1348 | 1343 | 1339 | 1335 | 1330 | 1326 |
| 10 | OFC-24G.652D-FASA-S1 | 4/1 | 4/2 | 77.2 | -1.50 | 0.71 | 0.72 | 0.72 | 0.72 | 0.72 | 0.72 | 0.73 | 0.73 | 0.73 | 0.73 | 0.73 | 0.74 | 0.74 | 1374 | 1370 | 1367 | 1363 | 1359 | 1354 | 1350 | 1348 | 1343 | 1339 | 1335 | 1330 | 1326 |
| 10 | OFC-24G.652D-FASA-S1 | 4/2 | 4/3 | 83.0 | -2.05 | 0.82 | 0.83 | 0.83 | 0.83 | 0.83 | 0.84 | 0.84 | 0.84 | 0.84 | 0.85 | 0.85 | 0.85 | 0.85 | 1374 | 1370 | 1367 | 1363 | 1359 | 1354 | 1350 | 1348 | 1343 | 1339 | 1335 | 1330 | 1326 |
| 10 | OFC-24G.652D-FASA-S1 | 4/3 | 4/4 | 79.3 | 0.22 | 0.75 | 0.75 | 0.75 | 0.76 | 0.76 | 0.76 | 0.76 | 0.77 | 0.77 | 0.77 | 0.77 | 0.78 | 0.78 | 1374 | 1370 | 1367 | 1363 | 1359 | 1354 | 1350 | 1348 | 1343 | 1339 | 1335 | 1330 | 1326 |
| 10 | OFC-24G.652D-FASA-S1 | 4/4 | 4/5 | 68.1 | 1.09 | 0.55 | 0.56 | 0.56 | 0.56 | 0.56 | 0.56 | 0.56 | 0.57 | 0.57 | 0.57 | 0.57 | 0.57 | 0.57 | 1374 | 1370 | 1367 | 1363 | 1359 | 1354 | 1350 | 1348 | 1343 | 1339 | 1335 | 1330 | 1326 |
| 10 | OFC-24G.652D-FASA-S1 | 4/5 | 4/6 | 82.0 | -4.03 | 0.80 | 0.81 | 0.81 | 0.81 | 0.81 | 0.82 | 0.82 | 0.82 | 0.82 | 0.83 | 0.83 | 0.83 | 0.83 | 1374 | 1370 | 1367 | 1363 | 1359 | 1354 | 1350 | 1348 | 1343 | 1339 | 1335 | 1330 | 1326 |
| 10 | OFC-24G.652D-FASA-S1 | 4/6 | 4/7 | 88.2 | -5.54 | 0.93 | 0.93 | 0.94 | 0.94 | 0.94 | 0.95 | 0.95 | 0.95 | 0.96 | 0.96 | 0.96 | 0.97 | 0.97 | 1374 | 1370 | 1367 | 1363 | 1359 | 1354 | 1350 | 1348 | 1343 | 1339 | 1335 | 1330 | 1326 |
| 10 | OFC-24G.652D-FASA-S1 | 4/7 | 4/8 | 87.1 | -4.93 | 0.91 | 0.91 | 0.91 | 0.92 | 0.92 | 0.92 | 0.92 | 0.93 | 0.93 | 0.93 | 0.93 | 0.94 | 0.94 | 1374 | 1370 | 1367 | 1363 | 1359 | 1354 | 1350 | 1348 | 1343 | 1339 | 1335 | 1330 | 1326 |
| 10 | OFC-24G.652D-FASA-S1 | 4/8 | 4/9 | 85.2 | -2.18 | 0.87 | 0.87 | 0.87 | 0.87 | 0.88 | 0.88 | 0.88 | 0.88 | 0.89 | 0.89 | 0.89 | 0.90 | 0.90 | 1374 | 1370 | 1367 | 1363 | 1359 | 1354 | 1350 | 1348 | 1343 | 1339 | 1335 | 1330 | 1326 |
| 10 | OFC-24G.652D-FASA-S1 | 4/9 | 4/10 | 82.2 | -4.09 | 0.81 | 0.81 | 0.81 | 0.82 | 0.82 | 0.82 | 0.82 | 0.83 | 0.83 | 0.83 | 0.83 | 0.84 | 0.84 | 1374 | 1370 | 1367 | 1363 | 1359 | 1354 | 1350 | 1348 | 1343 | 1339 | 1335 | 1330 | 1326 |
| 10 | OFC-24G.652D-FASA-S1 | 4/10 | 4/11 | 84.4 | -2.36 | 0.85 | 0.86 | 0.86 | 0.86 | 0.86 | 0.87 | 0.87 | 0.87 | 0.87 | 0.88 | 0.88 | 0.88 | 0.88 | 1374 | 1370 | 1367 | 1363 | 1359 | 1354 | 1350 | 1348 | 1343 | 1339 | 1335 | 1330 | 1326 |
| 10 | OFC-24G.652D-FASA-S1 | 4/11 | 4/12 | 89.6 | -3.49 | 0.96 | 0.96 | 0.97 | 0.97 | 0.97 | 0.97 | 0.98 | 0.98 | 0.98 | 0.99 | 0.99 | 0.99 | 1.00 | 1374 | 1370 | 1367 | 1363 | 1359 | 1354 | 1350 | 1348 | 1343 | 1339 | 1335 | 1330 | 1326 |
| 10 | OFC-24G.652D-FASA-S1 | 4/12 | 5/1 | 63.5 | -3.50 | 0.48 | 0.48 | 0.49 | 0.49 | 0.49 | 0.49 | 0.49 | 0.49 | 0.49 | 0.50 | 0.50 | 0.50 | 0.50 | 1374 | 1370 | 1367 | 1363 | 1359 | 1354 | 1350 | 1348 | 1343 | 1339 | 1335 | 1330 | 1326 |
| 10 |

**FORBES BROS** AS-BUILT

CHANGES REQUIRED YES ☐ NO ☐

Name (Print) _____

Signature _____

Date _____

PERMIT TO PRACTICE
CLEAN ENERGY CONSULTING INC.
SIGNATURE _____
DATE 22-Nov-2018
PERMIT NUMBER P8424
Association of Professional Engineers of Yukon

## SAG AND TENSION

| | |
|---|---|
| CIRCUIT | VICTORIA GOLD 69kV |
| DOCUMENT | 1407-T-1450 |
| DATE | 22-Nov-18 |
| REVISION | 1 |
| ISSUED FOR | CONSTRUCTION |
| PREPARED BY | MP |
| CHECKED BY | PC |
| APPROVED BY | PC |

ENGINEER'S SEAL

PROFESSIONAL ENGINEER YUKON A. P. N. CLARK TERRITORIAL

22-Nov-2018

**NOTES**

1. All spans must be installed to the sag values provided. Tension values are provided as a reference only.
2. Sag and tension values shown are for new conductor under initial conditions based on the ruling span method.
3. For conductors left hanging in sheaves for longer than 3 hours between initial stringing and final sag, a creep correction factor must be applied.
4. All span lengths and sag values are provided in metres unless otherwise noted.
5. Conductors and cables:
   - Overhead Shieldwire (OHSW): Partridge ACSR
   - 69kV Transmission Line: Partridge ACSR
   - ADSS: OFC-24G.652D-FASA-S1
6. The minimum ambient temperature for pulling ADSS cable is -30°C. ADSS cable shall not be pulled at temperatures below this minimum temperature.

Clean Energy CONSULTING INC

| SEC | CABLE | FROM STR | TO STR | SPAN AHEAD (m) | SPAN VERT. PROJ. (m) | MID SPAN SAG (m) | | | | | | | | | | | | HORIZONTAL TENSION (N) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | -50 | -45 | -40 | -35 | -30 | -25 | -20 | -15 | -10 | -5 | 0 | 5 | 10 | -50 | -45 | -40 | -35 | -30 | -25 | -20 | -15 | -10 | -5 | 0 | 5 | 10 |
| 14 | OFC-24G.652D-FASA-S1 | 7/10 | 7/11 | 85.4 | 1.47 | 0.63 | 0.63 | 0.63 | 0.64 | 0.64 | 0.64 | 0.64 | 0.64 | 0.65 | 0.65 | 0.65 | 0.65 | 0.65 | 1901 | 1897 | 1892 | 1884 | 1880 | 1872 | 1868 | 1860 | 1855 | 1847 | 1843 | 1835 | 1831 |
| 14 | OFC-24G.652D-FASA-S1 | 7/11 | 7/12 | 74.0 | -0.02 | 0.47 | 0.47 | 0.48 | 0.48 | 0.48 | 0.48 | 0.48 | 0.48 | 0.48 | 0.49 | 0.49 | 0.49 | 0.49 | 1901 | 1897 | 1892 | 1884 | 1880 | 1872 | 1868 | 1860 | 1855 | 1847 | 1843 | 1835 | 1831 |
| 15 | PARTRIDGE ACSR | 7/12 | 8/1 | 75.9 | -4.27 | 0.45 | 0.49 | 0.53 | 0.58 | 0.63 | 0.68 | 0.74 | 0.80 | 0.86 | 0.93 | 0.99 | 1.05 | 1.12 | 8520 | 7888 | 7274 | 6700 | 6160 | 5672 | 5230 | 4834 | 4483 | 4177 | 3911 | 3676 | 3470 |
| 15 | PARTRIDGE ACSR | 8/1 | 8/2 | 93.2 | -0.70 | 0.68 | 0.74 | 0.80 | 0.87 | 0.94 | 1.03 | 1.11 | 1.20 | 1.30 | 1.39 | 1.49 | 1.58 | 1.68 | 8520 | 7888 | 7274 | 6700 | 6160 | 5672 | 5230 | 4834 | 4483 | 4177 | 3911 | 3676 | 3470 |
| 15 | PARTRIDGE ACSR | 8/2 | 8/3 | 93.7 | 0.71 | 0.69 | 0.75 | 0.81 | 0.88 | 0.95 | 1.04 | 1.12 | 1.22 | 1.31 | 1.41 | 1.50 | 1.60 | 1.70 | 8520 | 7888 | 7274 | 6700 | 6160 | 5672 | 5230 | 4834 | 4483 | 4177 | 3911 | 3676 | 3470 |
| 15 | PARTRIDGE ACSR | 8/3 | 8/4 | 93.1 | -3.82 | 0.68 | 0.74 | 0.80 | 0.87 | 0.94 | 1.03 | 1.11 | 1.20 | 1.30 | 1.39 | 1.49 | 1.58 | 1.68 | 8520 | 7888 | 7274 | 6700 | 6160 | 5672 | 5230 | 4834 | 4483 | 4177 | 3911 | 3676 | 3470 |
| 15 | PARTRIDGE ACSR | 8/4 | 8/5 | 68.8 | -1.23 | 0.37 | 0.40 | 0.44 | 0.47 | 0.51 | 0.56 | 0.61 | 0.66 | 0.71 | 0.76 | 0.81 | 0.86 | 0.91 | 8520 | 7888 | 7274 | 6700 | 6160 | 5672 | 5230 | 4834 | 4483 | 4177 | 3911 | 3676 | 3470 |
| 15 | PARTRIDGE ACSR | 8/5 | 8/6 | 84.8 | -7.42 | 0.33 | 0.36 | 0.39 | 0.42 | 0.46 | 0.50 | 0.54 | 0.59 | 0.63 | 0.68 | 0.72 | 0.77 | 0.82 | 8520 | 7888 | 7274 | 6700 | 6160 | 5672 | 5230 | 4834 | 4483 | 4177 | 3911 | 3676 | 3470 |
| 15 | PARTRIDGE ACSR | 8/6 | 8/7 | 75.3 | -4.87 | 0.45 | 0.48 | 0.52 | 0.57 | 0.62 | 0.67 | 0.73 | 0.79 | 0.85 | 0.91 | 0.97 | 1.04 | 1.10 | 8520 | 7888 | 7274 | 6700 | 6160 | 5672 | 5230 | 4834 | 4483 | 4177 | 3911 | 3676 | 3470 |
| 15 | PARTRIDGE ACSR | 8/7 | 8/8 | 82.9 | -4.05 | 0.54 | 0.58 | 0.63 | 0.69 | 0.75 | 0.81 | 0.88 | 0.95 | 1.03 | 1.11 | 1.18 | 1.26 | 1.33 | 8520 | 7888 | 7274 | 6700 | 6160 | 5672 | 5230 | 4834 | 4483 | 4177 | 3911 | 3676 | 3470 |
| 15 | PARTRIDGE ACSR | 8/8 | 8/9 | 72.4 | -1.90 | 0.41 | 0.44 | 0.48 | 0.52 | 0.57 | 0.62 | 0.67 | 0.73 | 0.78 | 0.84 | 0.90 | 0.95 | 1.01 | 8520 | 7888 | 7274 | 6700 | 6160 | 5672 | 5230 | 4834 | 4483 | 4177 | 3911 | 3676 | 3470 |
| 15 | PARTRIDGE ACSR | 8/9 | 8/10 | 64.9 | -1.66 | 0.33 | 0.36 | 0.39 | 0.42 | 0.46 | 0.50 | 0.54 | 0.58 | 0.63 | 0.68 | 0.72 | 0.77 | 0.81 | 8520 | 7888 | 7274 | 6700 | 6160 | 5672 | 5230 | 4834 | 4483 | 4177 | 3911 | 3676 | 3470 |
| 15 | PARTRIDGE ACSR | 8/10 | 8/11 | 92.3 | 0.82 | 0.67 | 0.72 | 0.79 | 0.85 | 0.93 | 1.01 | 1.09 | 1.18 | 1.27 | 1.37 | 1.46 | 1.55 | 1.65 | 8520 | 7888 | 7274 | 6700 | 6160 | 5672 | 5230 | 4834 | 4483 | 4177 | 3911 | 3676 | 3470 |
| 15 | PARTRIDGE ACSR | 8/11 | 8/12 | 93.7 | 0.25 | 0.69 | 0.75 | 0.81 | 0.88 | 0.95 | 1.04 | 1.12 | 1.22 | 1.31 | 1.41 | 1.50 | 1.60 | 1.70 | 8520 | 7888 | 7274 | 6700 | 6160 | 5672 | 5230 | 4834 | 4483 | 4177 | 3911 | 3676 | 3470 |
| 15 | PARTRIDGE ACSR | 8/12 | 8/13 | 93.6 | 1.24 | 0.69 | 0.74 | 0.81 | 0.88 | 0.95 | 1.04 | 1.12 | 1.21 | 1.31 | 1.41 | 1.50 | 1.60 | 1.69 | 8520 | 7888 | 7274 | 6700 | 6160 | 5672 | 5230 | 4834 | 4483 | 4177 | 3911 | 3676 | 3470 |
| 15 | PARTRIDGE ACSR | 8/13 | 9/1 | 85.0 | -1.92 | 0.57 | 0.61 | 0.67 | 0.72 | 0.79 | 0.85 | 0.93 | 1.00 | 1.08 | 1.16 | 1.24 | 1.32 | 1.40 | 8520 | 7888 | 7274 | 6700 | 6160 | 5672 | 5230 | 4834 | 4483 | 4177 | 3911 | 3676 | 3470 |
| 15 | PARTRIDGE ACSR | 9/1 | 9/2 | 76.6 | -0.78 | 0.46 | 0.50 | 0.54 | 0.59 | 0.64 | 0.69 | 0.75 | 0.81 | 0.88 | 0.94 | 1.01 | 1.07 | 1.13 | 8520 | 7888 | 7274 | 6700 | 6160 | 5672 | 5230 | 4834 | 4483 | 4177 | 3911 | 3676 | 3470 |
| 15 | PARTRIDGE ACSR | 9/2 | 9/3 | 69.0 | -0.44 | 0.37 | 0.40 | 0.44 | 0.48 | 0.52 | 0.56 | 0.61 | 0.66 | 0.71 | 0.76 | 0.82 | 0.87 | 0.92 | 8520 | 7888 | 7274 | 6700 | 6160 | 5672 | 5230 | 4834 | 4483 | 4177 | 3911 | 3676 | 3470 |
| 15 | PARTRIDGE ACSR | 9/3 | 9/4 | 70.4 | -1.28 | 0.39 | 0.42 | 0.46 | 0.50 | 0.54 | 0.59 | 0.64 | 0.69 | 0.74 | 0.80 | 0.85 | 0.90 | 0.96 | 8520 | 7888 | 7274 | 6700 | 6160 | 5672 | 5230 | 4834 | 4483 | 4177 | 3911 | 3676 | 3470 |
| 15 | PARTRIDGE ACSR | 9/4 | 9/5 | 75.5 | -1.29 | 0.45 | 0.48 | 0.53 | 0.57 | 0.62 | 0.67 | 0.73 | 0.79 | 0.85 | 0.91 | 0.98 | 1.04 | 1.10 | 8520 | 7888 | 7274 | 6700 | 6160 | 5672 | 5230 | 4834 | 4483 | 4177 | 3911 | 3676 | 3470 |
| 15 | PARTRIDGE ACSR | 9/5 | 9/6 | 90.9 | -0.47 | 0.65 | 0.70 | 0.76 | 0.83 | 0.90 | 0.98 | 1.06 | 1.14 | 1.23 | 1.32 | 1.41 | 1.50 | 1.59 | 8520 | 7888 | 7274 | 6700 | 6160 | 5672 | 5230 | 4834 | 4483 | 4177 | 3911 | 3676 | 3470 |
| 15 | PARTRIDGE ACSR | 9/6 | 9/7 | 80.8 | 0.75 | 0.51 | 0.55 | 0.60 | 0.65 | 0.71 | 0.77 | 0.84 | 0.90 | 0.98 | 1.05 | 1.12 | 1.19 | 1.26 | 8520 | 7888 | 7274 | 6700 | 6160 | 5672 | 5230 | 4834 | 4483 | 4177 | 3911 | 3676 | 3470 |
| 15 | PARTRIDGE ACSR | 9/7 | 9/8 | 85.3 | 0.13 | 0.57 | 0.62 | 0.67 | 0.73 | 0.79 | 0.86 | 0.93 | 1.01 | 1.09 | 1.17 | 1.25 | 1.33 | 1.40 | 8520 | 7888 | 7274 | 6700 | 6160 | 5672 | 5230 | 4834 | 4483 | 4177 | 3911 | 3676 | 3470 |
| 15 | PARTRIDGE ACSR | 9/8 | 9/9 | 82.7 | 0.49 | 0.54 | 0.58 | 0.63 | 0.68 | 0.74 | 0.81 | 0.88 | 0.95 | 1.02 | 1.10 | 1.17 | 1.25 | 1.32 | 8520 | 7888 | 7274 | 6700 | 6160 | 5672 | 5230 | 4834 | 4483 | 4177 | 3911 | 3676 | 3470 |
| 15 | PARTRIDGE ACSR | 9/9 | 9/10 | 80.1 | 0.71 | 0.51 | 0.55 | 0.59 | 0.64 | 0.70 | 0.76 | 0.82 | 0.89 | 0.96 | 1.03 | 1.10 | 1.17 | 1.24 | 8520 | 7888 | 7274 | 6700 | 6160 | 5672 | 5230 | 4834 | 4483 | 4177 | 3911 | 3676 | 3470 |
| 15 | PARTRIDGE ACSR | 9/10 | 9/11 | 77.1 | -0.39 | 0.47 | 0.51 | 0.55 | 0.59 | 0.65 | 0.70 | 0.76 | 0.82 | 0.89 | 0.95 | 1.02 | 1.08 | 1.15 | 8520 | 7888 | 7274 | 6700 | 6160 | 5672 | 5230 | 4834 | 4483 | 4177 | 3911 | 3676 | 3470 |
| 15 | PARTRIDGE ACSR | 9/11 | 9/12 | 81.3 | -0.57 | 0.52 | 0.56 | 0.61 | 0.66 | 0.72 | 0.78 | 0.85 | 0.92 | 0.99 | 1.06 | 1.13 | 1.20 | 1.28 | 8520 | 7888 | 7274 | 6700 | 6160 | 5672 | 5230 | 4834 | 4483 | 4177 | 3911 | 3676 | 3470 |
| 15 | PARTRIDGE ACSR | 9/12 | 10/1 | 90.8 | 0.75 | 0.65 | 0.70 | 0.76 | 0.82 | 0.90 | 0.97 | 1.06 | 1.14 | 1.23 | 1.32 | 1.41 | 1.50 | 1.59 | 8520 | 7888 | 7274 | 6700 | 6160 | 5672 | 5230 | 4834 | 4483 | 4177 | 3911 | 3676 | 3470 |
| 15 | PARTRIDGE ACSR | 10/1 | 10/2 | 78.5 | -0.31 | 0.48 | 0.52 | 0.57 | 0.62 | 0.67 | 0.73 | 0.79 | 0.85 | 0.92 | 0.99 | 1.05 | 1.12 | 1.19 | 8520 | 7888 | 7274 | 6700 | 6160 | 5672 | 5230 | 4834 | 4483 | 4177 | 3911 | 3676 | 3470 |
| 15 | PARTRIDGE ACSR | 10/2 | 10/3 | 74.2 | -2.40 | 0.43 | 0.47 | 0.51 | 0.55 | 0.60 | 0.65 | 0.71 | 0.76 | 0.82 | 0.88 | 0.94 | 1.00 | 1.06 | 8520 | 7888 | 7274 | 6700 | 6160 | 5672 | 5230 | 4834 | 4483 | 4177 | 3911 | 3676 | 3470 |
| 15 | PARTRIDGE ACSR | 10/3 | 10/4 | 67.5 | -0.34 | 0.36 | 0.39 | 0.42 | 0.46 | 0.50 | 0.54 | 0.58 | 0.63 | 0.68 | 0.73 | 0.78 | 0.83 | 0.88 | 8520 | 7888 | 7274 | 6700 | 6160 | 5672 | 5230 | 4834 | 4483 | 4177 | 3911 | 3676 | 3470 |
| 15 | PARTRIDGE ACSR | 10/4 | 10/5 | 76.4 | 0.04 | 0.46 | 0.50 | 0.54 | 0.58 | 0.63 | 0.69 | 0.75 | 0.81 | 0.87 | 0.94 | 1.00 | 1.06 | 1.13 | 8520 | 7888 | 7274 | 6700 | 6160 | 5672 | 5230 | 4834 | 4483 | 4177 | 3911 | 3676 | 3470 |
| 15 | PARTRIDGE ACSR | 10/5 | 10/6 | 72.4 | 3.70 | 0.41 | 0.45 | 0.48 | 0.52 | 0.57 | 0.62 | 0.67 | 0.73 | 0.78 | 0.84 | 0.90 | 0.96 | 1.01 | 8520 | 7888 | 7274 | 6700 | 6160 | 5672 | 5230 | 4834 | 4483 | 4177 | 3911 | 3676 | 3470 |
| 15 | PARTRIDGE ACSR | 10/6 | 10/7 | 68.4 | 4.96 | 0.37 | 0.40 | 0.43 | 0.47 | 0.51 | 0.55 | 0.60 | 0.65 | 0.70 | 0.75 | 0.80 | 0.86 | 0.91 | 8520 | 7888 | 7274 | 6700 | 6160 | 5672 | 5230 | 4834 | 4483 | 4177 | 3911 | 3676 | 3470 |
| 15 | PARTRIDGE ACSR | 10/7 | 10/8 | 76.1 | 5.86 | 0.46 | 0.49 | 0.54 | 0.58 | 0.63 | 0.69 | 0.74 | 0.81 | 0.87 | 0.93 | 1.00 | 1.06 | 1.12 | 8520 | 7888 | 7274 | 6700 | 6160 | 5672 | 5230 | 4834 | 4483 | 4177 | 3911 | 3676 | 3470 |
| 15 | PARTRIDGE ACSR | 10/8 | 10/9 | 63.4 | 1.12 | 0.32 | 0.34 | 0.37 | 0.40 | 0.44 | 0.47 | 0.52 | 0.56 | 0.60 | 0.64 | 0.69 | 0.73 | 0.78 | 8520 | 7888 | 7274 | 6700 | 6160 | 5672 | 5230 | 4834 | 4483 | 4177 | 3911 | 3676 | 3470 |
| 16 | OFC-24G.652D-FASA-S1 | 7/12 | 8/1 | 75.9 | -0.93 | 0.61 | 0.61 | 0.61 | 0.61 | 0.61 | 0.62 | 0.62 | 0.62 | 0.62 | 0.62 | 0.63 | 0.63 | 0.63 | 1563 | 1557 | 1551 | 1547 | 1542 | 1538 | 1534 | 1528 | 1521 | 1517 | 1513 | 1509 | 1504 |
| 16 | OFC-24G.652D-FASA-S1 | 8/1 | 8/2 | 93.2 | -0.80 | 0.91 | 0.92 | 0.92 | 0.92 | 0.92 | 0.93 | 0.93 | 0.93 | 0.94 | 0.94 | 0.94 | 0.95 | 0.95 | 1563 | 1557 | 1551 | 1547 | 1542 | 1538 | 1534 | 1528 | 1521 | 1517 | 1513 | 1509 | 1504 |
| 16 | OFC-24G.652D-FASA-S1 | 8/2 | 8/3 | 93.7 | 0.71 | 0.92 | 0.93 | 0.93 | 0.93 | 0.93 | 0.94 | 0.94 | 0.94 | 0.95 | 0.95 | 0.95 | 0.96 | 0.96 | 1563 | 1557 | 1551 | 1547 | 1542 | 1538 | 1534 | 1528 | 1521 | 1517 | 1513 | 1509 | 1504 |
| 16 | OFC-24G.652D-FASA-S1 | 8/3 | 8/4 | 93.1 | -3.72 | 0.91 | 0.92 | 0.92 | 0.92 | 0.92 | 0.93 | 0.93 | 0.93 | 0.94 | 0.94 | 0.94 | 0.95 | 0.95 | 1563 | 1557 | 1551 | 1547 | 1542 | 1538 | 1534 | 1528 | 1521 | 1517 | 1513 | 1509 | 1504 |
| 16 | OFC-24G.652D-FASA-S1 | 8/4 | 8/5 | 68.8 | -3.60 | 0.50 | 0.50 | 0.50 | 0.50 | 0.51 | 0.51 | 0.51 | 0.51 | 0.51 | 0.51 | 0.51 | 0.52 | 0.52 | 1563 | 1557 | 1551 | 1547 | 1542 | 1538 | 1534 | 1528 | 1521 | 1517 | 1513 | 1509 | 1504 |
| 16 | OFC-24G.652D-FASA-S1 | 8/5 | 8/6 | 84.8 | -4.86 | 0.44 | 0.44 | 0.45 | 0.45 | 0.45 | 0.45 | 0.45 | 0.45 | 0.45 | 0.46 | 0.46 | 0.46 | 0.46 | 1563 | 1557 | 1551 | 1547 | 1542 | 1538 | 1534 | 1528 | 1521 | 1517 | 1513 | 1509 | 1504 |
| 16 | OFC-24G.652D-FASA-S1 | 8/6 | 8/7 | 75.3 | -5.16 | 0.60 | 0.60 | 0.60 | 0.60 | 0.61 | 0.61 | 0.61 | 0.61 | 0.61 | 0.62 | 0.62 | 0.62 | 0.62 | 1563 | 1557 | 1551 | 1547 | 1542 | 1538 | 1534 | 1528 | 1521 | 1517 | 1513 | 1509 | 1504 |
| 16 | OFC-24G.652D-FASA-S1 | 8/7 | 8/8 | 82.9 | -4.05 | 0.72 | 0.73 | 0.73 | 0.73 | 0.73 | 0.74 | 0.74 | 0.74 | 0.74 | 0.75 | 0.75 | 0.75 | 0.75 | 1563 | 1557 | 1551 | 1547 | 1542 | 1538 | 1534 | 1528 | 1521 | 1517 | 1513 | 1509 | 1504 |
| 16 | OFC-24G.652D-FASA-S1 | 8/8 | 8/9 | 72.4 | -1.90 | 0.55 | 0.55 | 0.55 | 0.56 | 0.56 | 0.56 | 0.56 | 0.56 | 0.56 | 0.57 | 0.57 | 0.57 | 0.57 | 1563 | 1557 | 1551 | 1547 | 1542 | 1538 | 1534 | 1528 | 1521 | 1517 | 1513 | 1509 | 1504 |
| 16 | OFC-24G.652D-FASA-S1 | 8/9 | 8/10 | 64.8 | -1.37 | 0.44 | 0.44 | 0.45 | 0.45 | 0.45 | 0.45 | 0.45 | 0.45 | 0.46 | 0.46 | 0.46 | 0.46 | 0.46 | 1563 | 1557 | 1551 | 1547 | 1542 | 1538 | 1534 | 1528 | 1521 | 1517 | 1513 | 1509 | 1504 |
| 16 | OFC-24G.652D-FASA-S1 | 8/10 | 8/11 | 92.3 | 0.53 | 0.90 | 0.90 | 0.90 | 0.91 | 0.91 | 0.91 | 0.91 | 0.92 | 0.92 | 0.92 | 0.93 | 0.93 | 0.93 | 1563 | 1557 | 1551 | 1547 | 1542 | 1538 | 1534 | 1528 | 1521 | 1517 | 1513 | 1509 | 1504 |
| 16 | OFC-24G.652D-FASA-S1 | 8/11 | 8/12 | 93.7 | 0.25 | 0.92 | 0.93 | 0.93 | 0.93 | 0.94 | 0.94 | 0.94 | 0.94 | 0.95 | 0.95 | 0.95 | 0.96 | 0.96 | 1563 | 1557 | 1551 | 1547 | 1542 | 1538 | 1534 | 1528 | 1521 | 1517 | 1513 | 1509 | 1504 |
| 16 | OFC-24G.652D-FASA-S1 | 8/12 | 8/13 | 93.6 | 1.35 | 0.92 | 0.92 | 0.93 | 0.93 | 0.93 | 0.94 | 0.94 | 0.94 | 0.95 | 0.95 | 0.95 | 0.95 | 0.96 | 1563 | 1557 | 1551 | 1547 | 1542 | 1538 | 1534 | 1528 | 1521 | 1517 | 1513 | 1509 | 1504 |
| 16 | OFC-24G.652D-FASA-S1 | 8/13 | 9/1 | 85.0 | -4.28 | 0.76 | 0.76 | 0.77 | 0.77 | 0.77 | 0.77 | 0.78 | 0.78 | 0.78 | 0.78 | 0.79 | 0.79 | 0.79 | 1563 | 1557 | 1551 | 1547 | 1542 | 1538 | 1534 | 1528 | 1521 | 1517 | 1513 | 1509 | 1504 |
| 16 | OFC-24G.652D-FASA-S1 | 9/1 | 9/2 | 75.6 | 1.58 | 0.62 | 0.62 | 0.62 | 0.62 | 0.63 | 0.63 | 0.63 | 0.63 | 0.63 | 0.64 | 0.64 | 0.64 | 0.64 | 1563 | 1557 | 1551 | 1547 | 1542 | 1538 | 1534 | 1528 | 1521 | 1517 | 1513 | 1509 | 1504 |
| 16 | OFC-24G.652D-FASA-S1 | 9/2 | 9/3 | 69.0 | -0.55 | 0.50 | 0.50 | 0.50 | 0.51 | 0.51 | 0.51 | 0.51 | 0.51 | 0.51 | 0.52 | 0.52 | 0.52 | 0.52 | 1563 | 1557 | 1551 | 1547 | 1542 | 1538 | 1534 | 1528 | 1521 | 1517 | 1513 | 1509 | 1504 |
| 16 | OFC-24G.652D-FASA-S1 | 9/3 | 9/4 | 70.4 | -0.99 | 0.52 | 0.52 | 0.52 | 0.53 | 0.53 | 0.53 | 0.53 | 0.53 | 0.53 | 0.54 | 0.54 | 0.54 | 0.54 | 1563 | 1557 | 1551 | 1547 | 1542 | 1538 | 1534 | 1528 | 1521 | 1517 | 1513 | 1509 | 1504 |
| 16 | OFC-24G.652D-FASA-S1 | 9/4 | 9/5 | 75.5 | -1.29 | 0.60 | 0.60 | 0.60 | 0.61 | 0.61 | 0.61 | 0.61 | 0.61 | 0.62 | 0.62 | 0.62 | 0.62 | 0.62 | 1563 | 1557 | 1551 | 1547 | 1542 | 1538 | 1534 | 1528 | 1521 | 1517 | 1513 | 1509 | 1504 |
| 16 | OFC-24G.652D-FASA-S1 | 9/5 | 9/6 | 90.8 | -0.76 | 0.87 | 0.87 | 0.87 | 0.88 | 0.88 | 0.88 | 0.88 | 0.89 | 0.89 | 0.89 | 0.90 | 0.90 | 0.90 | 1563 | 1557 | 1551 | 1547 | 1542 | 1538 | 1534 | 1528 | 1521 | 1517 | 1513 | 1509 | 1504 |
| 16 | OFC-24G.652D-FASA-S1 | 9/6 | 9/7 | 80.8 | 0.75 | 0.69 | 0.69 | 0.69 | 0.69 | 0.70 | 0.70 | 0.70 | 0.70 | 0.70 | 0.71 | 0.71 | 0.71 | 0.71 | 1563 | 1557 | 1551 | 1547 | 1542 | 1538 | 1534 | 1528 | 1521 | 1517 | 1513 | 1509 | 1504 |
| 16 | OFC-24G.652D-FASA-S1 | 9/7 | 9/8 | 85.3 | 0.13 | 0.76 | 0.77 | 0.77 | 0.77 | 0.77 | 0.78 | 0.78 | 0.78 | 0.78 | 0.79 | 0.79 | 0.79 | 0.79 | 1563 | 1557 | 1551 | 1547 | 1542 | 1538 | 1534 | 1528 | 1521 | 1517 | 1513 | 1509 | 1504 |
| 16 | OFC-24G.652D-FASA-S1 | 9/8 | 9/9 | 82.7 | 0.59 | 0.72 | 0.72 | 0.72 | 0.73 | 0.73 | 0.73 | 0.73 | 0.74 | 0.74 | 0.74 | 0.74 | 0.75 | 0.75 | 1563 | 1557 | 1551 | 1547 | 1542 | 1538 | 1534 | 1528 | 1521 | 1517 | 1513 | 1509 | 1504 |
| 16 | OFC-24G.652D-FASA-S1 | 9/9 | 9/10 | 80.2 | -1.86 | 0.68 | 0.68 | 0.68 | 0.68 | 0.68 | 0.69 | 0.69 | 0.69 | 0.69 | 0.70 | 0.70 | 0.70 | 0.70 | 1563 | 1557 | 1551 | 1547 | 1542 | 1538 | 1534 | 1528 | 1521 | 1517 | 1513 | 1509 | 1504 |
| 16 | OFC-24G.652D-FASA-S1 | 9/10 | 9/11 | 77.2 | -0.39 | 0.63 | 0.63 | 0.63 | 0.63 | 0.63 | 0.64 | 0.64 | 0.64 | 0.64 | 0.65 | 0.65 | 0.65 | 0.65 | 1563 | 1557 | 1551 | 1547 | 1542 | 1538 | 1534 | 1528 | 1521 | 1517 | 1513 | 1509 | 1504 |
| 16 | OFC-24G.652D-FASA-S1 | 9/11 | 9/12 | 81.3 | 1.90 | 0.70 | 0.70 | 0.70 | 0.70 | 0.70 | 0.71 | 0.71 | 0.71 | 0.71 | 0.72 | 0.72 | 0.72 | 0.72 | 1563 | 1557 | 1551 | 1547 | 1542 | 1538 | 1534 | 1528 | 1521 | 1517 | 1513 | 1509 | 1504 |
| 16 | OFC-24G.652D-FASA-S1 | 9/12 | 10/1 | 90.8 | 0.94 | 0.87 | 0.87 | 0.87 | 0.88 | 0.88 | 0.88 | 0.88 | 0.89 | 0.89 | 0.89 | 0.89 | 0.90 | 0.90 | 1563 | 1557 | 1551 | 1547 | 1542 | 1538 | 1534 | 1528 | 1521 | 1517 | 1513 | 1509 | 1504 |
| 16 | OFC-24G.652D-FASA-S1 | 10/1 | 10/2 | 78.4 | -0.60 | 0.65 | 0.65 | 0.65 | 0.65 | 0.66 | 0.66 | 0.66 | 0.66 | 0.66 | 0.67 | 0.67 | 0.67 | 0.67 | 1563 | 1557 | 1551 | 1547 | 1542 | 1538 | 1534 | 1528 | 1521 | 1517 | 1513 | 1509 | 1504 |
| 16 | OFC-24G.652D-FASA-S1 | 10/2 | 10/3 | 74.2 | -2.40 | 0.58 | 0.58 | 0.58 | 0.59 | 0.59 | 0.58 | 0.59 | 0.59 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 1563 | 1557 | 1551 | 1547 | 1542 | 1538 | 1534 | 1528 | 1521 | 1517 | 1513 | 1509 | 1504 |
| 16 | OFC-24G.652D-FASA-S1 | 10/3 | 10/4 | 67.5 | -0.24 | 0.48 | 0.48 | 0.48 | 0.48 | 0.49 | 0.49 | 0.49 | 0.49 | 0.49 | 0.49 | 0.49 | 0.50 | 0.50 | 1563 | 1557 | 1551 | 1547 | 1542 | 1538 | 1534 | 1528 | 1521 | 1517 | 1513 | 1509 | 1504 |
| 16 | OFC-24G.652D-FASA-S1 | 10/4 | 10/5 | 76.4 | -2.33 | 0.61 | 0.62 | 0.62 | 0.62 | 0.62 | 0.62 | 0.63 | 0.63 | 0.63 | 0.63 | 0.63 | 0.64 | 0.64 | 1563 | 1557 | 1551 | 1547 | 1542 | 1538 | 1534 | 1528 | 1521 | 1517 | 1513 | 1509 | 1504 |
| 16 | OFC-24G.652D-FASA-S1 | 10/5 | 10/6 | 72.4 | 6.07 | 0.55 | 0.55 | 0.56 | 0.56 | 0.56 | 0.56 | 0.56 | 0.57 | 0.57 | 0.57 | 0.57 | 0.57 | 0.57 | 1563 | 1557 | 1551 | 1547 | 1542 | 1538 | 1534 | 1528 | 1521 | 1517 | 1513 | 1509 | 1504 |
| 16 | OFC-24G.652D-FASA-S1 | 10/6 | 10/7 | 68.4 | 4.86 | 0.49 | 0.49 | 0.50 | 0.50 | 0.50 | 0.50 | 0.50 | 0.50 | 0.51 | 0.51 | 0.51 | 0.51 | 0.51 | 1563 | 1557 | 1551 | 1547 | 1542 | 1538 | 1534 | 1528 | 1521 | 1517 | 1513 | 1509 | 1504 |
| 16 | OFC-24G.652D-FASA-S1 | 10/7 | 10/8 | 76.1 | 5.96 | 0.61 | 0.61 | 0.62 | 0.62 | 0.62 | 0.62 | 0.62 | 0.63 | 0.63 | 0.63 | 0.63 | 0.63 | 0.63 | 1563 | 1557 | 1551 | 1547 | 1542 | 1538 | 1534 | 1528 | 1521 | 1517 | 1513 | 1509 | 1504 |
| 16 | OFC-24G.652D-FASA-S1 | 10/8 | 10/9 | 63.4 | -2.22 | 0.42 | 0.42 | 0.43 | 0.43 | 0.43 | 0.43 | 0.43 | 0.43 | 0.43 | 0.43 | 0.44 | 0.44 | 0.44 | 1563 | 1557 | 1551 | 1547 | 1542 | 1538 | 1534 | 1528 | 1521 | 1517 | 1513 | 1509 | 1504 |
| 17 | PARTRIDGE ACSR | 10/9 | 10/10 | 64.3 | 1.41 | 0.28 | 0.30 | 0.33 | 0.36 | 0.39 | 0.43 | 0.47 | 0.52 | 0.58 | 0.63 | 0.69 | 0.75 | 0.82 | 9848 | 9144 | 8439 | 7764 | 7091 | 6449 | 5857 | 5307 | 4811 | 4376 | 3998 | 3677 | 3400 |
| 17 | PARTRIDGE ACSR | 10/10 | 10/11 | 65.7 | 2.88 | 0.29 | 0.32 | 0.34 | 0.37 | 0.41 | 0.45 | 0.49 | 0.55 | 0.60 | 0.66 | 0.72 | 0.79 | 0.85 | 9848 | 9144 | 8439 | 7764 | 7091 | 6449 | 5857 | 5307 | 4811 | 4376 | 3998 | 3677 | 3400 |
| 17 | PARTRIDGE ACSR | 10/11 | 10/12 | 60.4 | 0.00 | 0.25 | 0.27 | 0.29 | 0.31 | 0.34 | 0.38 | 0.42 | 0.46 | 0.51 | 0.56 | 0.61 | 0.66 | 0.72 | 9848 | 9144 | 8439 | 7764 | 7091 | 6449 | 5857 | 5307 | 4811 | 4376 | 3998 | 3677 | 3400 |
| 17 | PARTRIDGE ACSR | 10/12 | 10/13 | 68.3 | 0.59 | 0.32 | 0.34 | 0.37 | 0.40 | 0.44 | 0.48 | 0.53 | 0.59 | 0.65 | 0.71 | 0.78 | 0.85 | 0.92 | 9848 | 9144 | 8439 | 7764 | 7091 | 6449 | 5857 | 5307 | 4811 | 4376 | 3998 | 3677 | 3400 |
| 18 | OFC-24G.652D-FASA-S1 | 10/9 | 10/10 | 64.3 | 4.75 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 6343 | 6335 | 6327 | 6319 | 6311 | 6303 | 6295 | 6287 | 6279 | 6271 | 6263 | 6255 | 6247 |
| 18 | OFC-24G.652D-FASA-S1 | 10/10 | 10/11 | 65.7 | 2.78 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 6343 | 6335 | 6327 | 6319 | 6311 | 6303 | 6295 | 6287 | 6279 | 6271 | 6263 | 6255 | 6247 |
| 18 | OFC-24G.652D-FASA-S1 | 10/11 | 10/12 | 60.4 | 0.10 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 6343 | 6335 | 6327 | 6319 | 6311 | 6303 | 6295 | 6287 | 6279 | 6271 | 6263 | 6255 | 6247 |
| 18 | OFC-24G.652D-FASA-S1 | 10/12 | 10/13 | 68.2 | -2.75 | 0.12 | 0.12 | 0.12 | 0.12 | 0.12 | 0.12 | 0.12 | 0.12 | 0.12 | 0.12 | 0.12 | 0.12 | 0.12 | 6343 | 6335 | 6327 | 6319 | 6311 | 6303 | 6295 | 6287 | 6279 | 6271 | 6263 | 6255 | 6247 |
| 19 | PARTRIDGE ACSR | 10/13 | 10/14 | 69.8 | -1.57 | 0.35 | 0.37 | 0.40 | 0.44 | 0.47 | 0.52 | 0.56 | 0.61 | 0.66 | 0.71 | 0.77 | 0.82 | 0.88 | 9404 | 8749 | 8096 | 7474 | 6885 | 6330 | 5818 | 5352 | 4940 | 4576 | 4254 | 3974 | 3731 |
| 19 | PARTRIDGE ACSR | 10/14 | 11/1 | 85.5 | 2.66 | 0.52 | 0.56 | 0.61 | 0.66 | 0.71 | 0.77 | 0.84 | 0.92 | 0.99 | 1.07 | 1.15 | 1.23 | 1.31 | 9404 | 8749 | 8096 | 7474 | 6885 | 6330 | 5818 | 5352 | 4940 | 4576

FORBES BROS

# AS-BUILT

CHANGES REQUIRED YES ☐ NO ☐

Name (Print) _____

Signature _____

Date _____

PERMIT TO PRACTICE
CLEAN ENERGY CONSULTING INC.
SIGNATURE _____
Date 22-Nov-2018
PERMIT NUMBER PP424
Association of Professional Engineers of Yukon

| SAG AND TENSION | |
|---|---|
| CIRCUIT | VICTORIA GOLD 69kV |
| DOCUMENT | 1407-T-1450 |
| DATE | 22-Nov-18 |
| REVISION | 1 |
| ISSUED FOR | CONSTRUCTION |
| PREPARED BY | MP |
| CHECKED BY | PC |
| APPROVED BY | PC |

ENGINEER'S SEAL

PROFESSIONAL ENGINEER — P. N. CLARK — TERRITORY OF YUKON — 22-Nov-2018

NOTES

1. All spans must be installed to the sag values provided. Tension values are provided as a reference only.
2. Sag and tension values shown are for new conductor under initial conditions based on the ruling span method.
3. For conductors left hanging in sheaves for longer than 3 hours between initial stringing and final sag, a creep correction factor must be applied
4. All span lengths and sag values are provided in metres unless otherwise noted.
5. Conductors and cables:
   - Overhead Shieldwire (OHSW): Partridge ACSR
   - 69kV Transmission Line: Partridge ACSR
   - ADSS: OFC-24G.652D-FASA-S1
6. The minimum ambient temperature for pulling ADSS cable is -30°C. ADSS cable shall not be pulled at temperatures below this minimum temperature.

Clean Energy CONSULTING INC

| SEC | CABLE | FROM STR | TO STR | SPAN AHEAD (m) | SPAN VERT. PROJ. (m) | MID SPAN SAG (m) | | | | | | | | | | | | | HORIZONTAL TENSION (N) | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | -50 | -45 | -40 | -35 | -30 | -25 | -20 | -15 | -10 | -5 | 0 | 5 | 10 | -50 | -45 | -40 | -35 | -30 | -25 | -20 | -15 | -10 | -5 | 0 | 5 | 10 |
| 22 | OFC-24G.652D-FASA-S1 | 12/5 | 12/6 | 69.4 | -1.32 | 0.49 | 0.49 | 0.49 | 0.49 | 0.50 | 0.50 | 0.50 | 0.50 | 0.50 | 0.50 | 0.51 | 0.51 | 0.51 | 1617 | 1611 | 1607 | 1602 | 1596 | 1590 | 1586 | 1581 | 1577 | 1569 | 1565 | 1561 | 1556 |
| 22 | OFC-24G.652D-FASA-S1 | 12/6 | 12/7 | 71.2 | 4.55 | 0.52 | 0.52 | 0.52 | 0.52 | 0.52 | 0.53 | 0.53 | 0.53 | 0.53 | 0.53 | 0.53 | 0.54 | 0.54 | 1617 | 1611 | 1607 | 1602 | 1596 | 1590 | 1586 | 1581 | 1577 | 1569 | 1565 | 1561 | 1556 |
| 22 | OFC-24G.652D-FASA-S1 | 12/7 | 12/8 | 63.3 | -1.81 | 0.41 | 0.41 | 0.41 | 0.41 | 0.41 | 0.41 | 0.41 | 0.42 | 0.42 | 0.42 | 0.42 | 0.42 | 0.42 | 1617 | 1611 | 1607 | 1602 | 1596 | 1590 | 1586 | 1581 | 1577 | 1569 | 1565 | 1561 | 1556 |
| 22 | OFC-24G.652D-FASA-S1 | 12/8 | 12/9 | 55.4 | 0.30 | 0.31 | 0.31 | 0.31 | 0.31 | 0.32 | 0.32 | 0.32 | 0.32 | 0.32 | 0.32 | 0.32 | 0.32 | 0.32 | 1617 | 1611 | 1607 | 1602 | 1596 | 1590 | 1586 | 1581 | 1577 | 1569 | 1565 | 1561 | 1556 |
| 22 | OFC-24G.652D-FASA-S1 | 12/9 | 12/10 | 77.9 | -0.47 | 0.62 | 0.62 | 0.62 | 0.62 | 0.63 | 0.63 | 0.63 | 0.63 | 0.63 | 0.64 | 0.64 | 0.64 | 0.64 | 1617 | 1611 | 1607 | 1602 | 1596 | 1590 | 1586 | 1581 | 1577 | 1569 | 1565 | 1561 | 1556 |
| 22 | OFC-24G.652D-FASA-S1 | 12/10 | 12/11 | 61.0 | -0.59 | 0.67 | 0.67 | 0.67 | 0.67 | 0.67 | 0.68 | 0.68 | 0.68 | 0.68 | 0.69 | 0.69 | 0.69 | 0.69 | 1617 | 1611 | 1607 | 1602 | 1596 | 1590 | 1586 | 1581 | 1577 | 1569 | 1565 | 1561 | 1556 |
| 22 | OFC-24G.652D-FASA-S1 | 12/11 | 12/12 | 82.4 | -1.06 | 0.69 | 0.69 | 0.69 | 0.70 | 0.70 | 0.70 | 0.70 | 0.71 | 0.71 | 0.71 | 0.71 | 0.71 | 0.72 | 1617 | 1611 | 1607 | 1602 | 1596 | 1590 | 1586 | 1581 | 1577 | 1569 | 1565 | 1561 | 1556 |
| 22 | OFC-24G.652D-FASA-S1 | 12/12 | 12/13 | 82.1 | -0.48 | 0.68 | 0.69 | 0.69 | 0.69 | 0.69 | 0.70 | 0.70 | 0.70 | 0.70 | 0.71 | 0.71 | 0.71 | 0.71 | 1617 | 1611 | 1607 | 1602 | 1596 | 1590 | 1586 | 1581 | 1577 | 1569 | 1565 | 1561 | 1556 |
| 22 | OFC-24G.652D-FASA-S1 | 12/13 | 13/1 | 80.4 | 0.32 | 0.66 | 0.66 | 0.66 | 0.66 | 0.67 | 0.67 | 0.67 | 0.67 | 0.67 | 0.68 | 0.68 | 0.68 | 0.68 | 1617 | 1611 | 1607 | 1602 | 1596 | 1590 | 1586 | 1581 | 1577 | 1569 | 1565 | 1561 | 1556 |
| 22 | OFC-24G.652D-FASA-S1 | 13/1 | 13/2 | 66.0 | -0.54 | 0.44 | 0.44 | 0.45 | 0.45 | 0.45 | 0.45 | 0.45 | 0.45 | 0.45 | 0.46 | 0.46 | 0.46 | 0.46 | 1617 | 1611 | 1607 | 1602 | 1596 | 1590 | 1586 | 1581 | 1577 | 1569 | 1565 | 1561 | 1556 |
| 23 | PARTRIDGE ACSR | 13/2 | 13/3 | 71.5 | 1.67 | 0.41 | 0.45 | 0.49 | 0.53 | 0.58 | 0.63 | 0.68 | 0.74 | 0.80 | 0.85 | 0.91 | 0.97 | 1.03 | 8265 | 7637 | 7034 | 6464 | 5937 | 5454 | 5017 | 4635 | 4301 | 4010 | 3750 | 3526 | 3332 |
| 23 | PARTRIDGE ACSR | 13/3 | 13/4 | 94.9 | -1.16 | 0.73 | 0.78 | 0.86 | 0.93 | 1.02 | 1.11 | 1.20 | 1.30 | 1.40 | 1.51 | 1.61 | 1.71 | 1.81 | 8265 | 7637 | 7034 | 6464 | 5937 | 5454 | 5017 | 4635 | 4301 | 4010 | 3750 | 3526 | 3332 |
| 23 | PARTRIDGE ACSR | 13/4 | 13/5 | 95.4 | -2.24 | 0.74 | 0.80 | 0.87 | 0.94 | 1.03 | 1.12 | 1.22 | 1.32 | 1.42 | 1.52 | 1.63 | 1.73 | 1.83 | 8265 | 7637 | 7034 | 6464 | 5937 | 5454 | 5017 | 4635 | 4301 | 4010 | 3750 | 3526 | 3332 |
| 23 | PARTRIDGE ACSR | 13/5 | 13/6 | 92.8 | -1.83 | 0.70 | 0.76 | 0.82 | 0.89 | 0.97 | 1.06 | 1.15 | 1.24 | 1.34 | 1.44 | 1.54 | 1.64 | 1.73 | 8265 | 7637 | 7034 | 6464 | 5937 | 5454 | 5017 | 4635 | 4301 | 4010 | 3750 | 3526 | 3332 |
| 23 | PARTRIDGE ACSR | 13/6 | 13/7 | 75.7 | 0.83 | 0.46 | 0.50 | 0.55 | 0.59 | 0.65 | 0.70 | 0.76 | 0.83 | 0.89 | 0.96 | 1.02 | 1.09 | 1.15 | 8265 | 7637 | 7034 | 6464 | 5937 | 5454 | 5017 | 4635 | 4301 | 4010 | 3750 | 3526 | 3332 |
| 23 | PARTRIDGE ACSR | 13/7 | 13/8 | 89.4 | -0.96 | 0.65 | 0.70 | 0.76 | 0.83 | 0.90 | 0.98 | 1.07 | 1.16 | 1.25 | 1.34 | 1.43 | 1.52 | 1.61 | 8265 | 7637 | 7034 | 6464 | 5937 | 5454 | 5017 | 4635 | 4301 | 4010 | 3750 | 3526 | 3332 |
| 23 | PARTRIDGE ACSR | 13/8 | 13/9 | 67.9 | -8.12 | 0.38 | 0.41 | 0.44 | 0.48 | 0.52 | 0.57 | 0.62 | 0.67 | 0.72 | 0.78 | 0.83 | 0.88 | 0.93 | 8265 | 7637 | 7034 | 6464 | 5937 | 5454 | 5017 | 4635 | 4301 | 4010 | 3750 | 3526 | 3332 |
| 23 | PARTRIDGE ACSR | 13/9 | 13/10 | 63.6 | -0.34 | 0.33 | 0.36 | 0.39 | 0.42 | 0.46 | 0.50 | 0.54 | 0.59 | 0.63 | 0.68 | 0.72 | 0.77 | 0.81 | 8265 | 7637 | 7034 | 6464 | 5937 | 5454 | 5017 | 4635 | 4301 | 4010 | 3750 | 3526 | 3332 |
| 23 | PARTRIDGE ACSR | 13/10 | 13/11 | 76.1 | 0.45 | 0.47 | 0.51 | 0.55 | 0.60 | 0.65 | 0.71 | 0.77 | 0.84 | 0.90 | 0.97 | 1.04 | 1.10 | 1.17 | 8265 | 7637 | 7034 | 6464 | 5937 | 5454 | 5017 | 4635 | 4301 | 4010 | 3750 | 3526 | 3332 |
| 23 | PARTRIDGE ACSR | 13/11 | 13/12 | 66.9 | -0.48 | 0.36 | 0.39 | 0.43 | 0.46 | 0.50 | 0.55 | 0.60 | 0.65 | 0.70 | 0.75 | 0.80 | 0.85 | 0.90 | 8265 | 7637 | 7034 | 6464 | 5937 | 5454 | 5017 | 4635 | 4301 | 4010 | 3750 | 3526 | 3332 |
| 23 | PARTRIDGE ACSR | 13/12 | 13/13 | 76.9 | 3.10 | 0.48 | 0.52 | 0.56 | 0.61 | 0.67 | 0.73 | 0.79 | 0.85 | 0.92 | 0.99 | 1.06 | 1.12 | 1.19 | 8265 | 7637 | 7034 | 6464 | 5937 | 5454 | 5017 | 4635 | 4301 | 4010 | 3750 | 3526 | 3332 |
| 23 | PARTRIDGE ACSR | 13/13 | 14/1 | 80.8 | 1.12 | 0.53 | 0.57 | 0.62 | 0.68 | 0.74 | 0.80 | 0.87 | 0.94 | 1.02 | 1.08 | 1.17 | 1.24 | 1.31 | 8265 | 7637 | 7034 | 6464 | 5937 | 5454 | 5017 | 4635 | 4301 | 4010 | 3750 | 3526 | 3332 |
| 23 | PARTRIDGE ACSR | 14/1 | 14/2 | 81.2 | 2.98 | 0.53 | 0.58 | 0.63 | 0.68 | 0.74 | 0.81 | 0.88 | 0.95 | 1.03 | 1.10 | 1.18 | 1.25 | 1.33 | 8265 | 7637 | 7034 | 6464 | 5937 | 5454 | 5017 | 4635 | 4301 | 4010 | 3750 | 3526 | 3332 |
| 23 | PARTRIDGE ACSR | 14/2 | 14/3 | 57.4 | -0.68 | 0.27 | 0.29 | 0.31 | 0.34 | 0.37 | 0.40 | 0.44 | 0.48 | 0.51 | 0.55 | 0.59 | 0.63 | 0.66 | 8265 | 7637 | 7034 | 6464 | 5937 | 5454 | 5017 | 4635 | 4301 | 4010 | 3750 | 3526 | 3332 |
| 23 | PARTRIDGE ACSR | 14/3 | 14/4 | 79.1 | -0.70 | 0.51 | 0.55 | 0.60 | 0.65 | 0.71 | 0.77 | 0.83 | 0.90 | 0.97 | 1.04 | 1.12 | 1.19 | 1.26 | 8265 | 7637 | 7034 | 6464 | 5937 | 5454 | 5017 | 4635 | 4301 | 4010 | 3750 | 3526 | 3332 |
| 23 | PARTRIDGE ACSR | 14/4 | 14/5 | 62.3 | 0.07 | 0.31 | 0.34 | 0.37 | 0.40 | 0.44 | 0.48 | 0.52 | 0.56 | 0.61 | 0.65 | 0.69 | 0.74 | 0.78 | 8265 | 7637 | 7034 | 6464 | 5937 | 5454 | 5017 | 4635 | 4301 | 4010 | 3750 | 3526 | 3332 |
| 23 | PARTRIDGE ACSR | 14/5 | 14/6 | 93.9 | -0.50 | 0.71 | 0.77 | 0.84 | 0.91 | 0.99 | 1.08 | 1.18 | 1.27 | 1.37 | 1.47 | 1.58 | 1.68 | 1.77 | 8265 | 7637 | 7034 | 6464 | 5937 | 5454 | 5017 | 4635 | 4301 | 4010 | 3750 | 3526 | 3332 |
| 23 | PARTRIDGE ACSR | 14/6 | 14/7 | 87.3 | 3.91 | 0.62 | 0.67 | 0.73 | 0.79 | 0.86 | 0.94 | 1.02 | 1.10 | 1.19 | 1.28 | 1.36 | 1.45 | 1.54 | 8265 | 7637 | 7034 | 6464 | 5937 | 5454 | 5017 | 4635 | 4301 | 4010 | 3750 | 3526 | 3332 |
| 23 | PARTRIDGE ACSR | 14/7 | 14/8 | 86.5 | 1.41 | 0.61 | 0.66 | 0.71 | 0.78 | 0.84 | 0.92 | 1.00 | 1.08 | 1.17 | 1.25 | 1.34 | 1.42 | 1.50 | 8265 | 7637 | 7034 | 6464 | 5937 | 5454 | 5017 | 4635 | 4301 | 4010 | 3750 | 3526 | 3332 |
| 23 | PARTRIDGE ACSR | 14/8 | 14/9 | 80.6 | -1.95 | 0.53 | 0.57 | 0.62 | 0.67 | 0.73 | 0.80 | 0.87 | 0.94 | 1.01 | 1.09 | 1.16 | 1.24 | 1.31 | 8265 | 7637 | 7034 | 6464 | 5937 | 5454 | 5017 | 4635 | 4301 | 4010 | 3750 | 3526 | 3332 |
| 23 | PARTRIDGE ACSR | 14/9 | 14/10 | 78.5 | -1.65 | 0.50 | 0.54 | 0.59 | 0.64 | 0.70 | 0.76 | 0.82 | 0.89 | 0.96 | 1.03 | 1.10 | 1.17 | 1.24 | 8265 | 7637 | 7034 | 6464 | 5937 | 5454 | 5017 | 4635 | 4301 | 4010 | 3750 | 3526 | 3332 |
| 23 | PARTRIDGE ACSR | 14/10 | 14/11 | 73.8 | -2.58 | 0.44 | 0.48 | 0.52 | 0.56 | 0.62 | 0.67 | 0.73 | 0.79 | 0.85 | 0.91 | 0.97 | 1.04 | 1.10 | 8265 | 7637 | 7034 | 6464 | 5937 | 5454 | 5017 | 4635 | 4301 | 4010 | 3750 | 3526 | 3332 |
| 23 | PARTRIDGE ACSR | 14/11 | 14/12 | 83.8 | -3.25 | 0.57 | 0.62 | 0.67 | 0.73 | 0.79 | 0.86 | 0.94 | 1.02 | 1.10 | 1.18 | 1.26 | 1.34 | 1.42 | 8265 | 7637 | 7034 | 6464 | 5937 | 5454 | 5017 | 4635 | 4301 | 4010 | 3750 | 3526 | 3332 |
| 23 | PARTRIDGE ACSR | 14/12 | 14/13 | 62.9 | -3.83 | 0.32 | 0.35 | 0.38 | 0.41 | 0.45 | 0.49 | 0.53 | 0.57 | 0.62 | 0.66 | 0.71 | 0.75 | 0.80 | 8265 | 7637 | 7034 | 6464 | 5937 | 5454 | 5017 | 4635 | 4301 | 4010 | 3750 | 3526 | 3332 |
| 23 | PARTRIDGE ACSR | 14/13 | 15/1 | 67.1 | -6.10 | 0.37 | 0.40 | 0.43 | 0.47 | 0.51 | 0.55 | 0.60 | 0.65 | 0.70 | 0.75 | 0.81 | 0.86 | 0.91 | 8265 | 7637 | 7034 | 6464 | 5937 | 5454 | 5017 | 4635 | 4301 | 4010 | 3750 | 3526 | 3332 |
| 23 | PARTRIDGE ACSR | 15/1 | 15/2 | 75.8 | -7.34 | 0.47 | 0.51 | 0.55 | 0.60 | 0.65 | 0.71 | 0.77 | 0.84 | 0.90 | 0.97 | 1.03 | 1.10 | 1.16 | 8265 | 7637 | 7034 | 6464 | 5937 | 5454 | 5017 | 4635 | 4301 | 4010 | 3750 | 3526 | 3332 |
| 23 | PARTRIDGE ACSR | 15/2 | 15/3 | 90.4 | -5.02 | 0.66 | 0.72 | 0.78 | 0.85 | 0.92 | 1.00 | 1.09 | 1.18 | 1.27 | 1.37 | 1.46 | 1.56 | 1.65 | 8265 | 7637 | 7034 | 6464 | 5937 | 5454 | 5017 | 4635 | 4301 | 4010 | 3750 | 3526 | 3332 |
| 23 | PARTRIDGE ACSR | 15/3 | 15/4 | 60.3 | -0.63 | 0.29 | 0.32 | 0.35 | 0.38 | 0.41 | 0.45 | 0.49 | 0.53 | 0.57 | 0.61 | 0.65 | 0.69 | 0.73 | 8265 | 7637 | 7034 | 6464 | 5937 | 5454 | 5017 | 4635 | 4301 | 4010 | 3750 | 3526 | 3332 |
| 23 | PARTRIDGE ACSR | 15/4 | 15/5 | 70.7 | 0.67 | 0.41 | 0.44 | 0.48 | 0.52 | 0.56 | 0.61 | 0.67 | 0.72 | 0.78 | 0.84 | 0.89 | 0.95 | 1.01 | 8265 | 7637 | 7034 | 6464 | 5937 | 5454 | 5017 | 4635 | 4301 | 4010 | 3750 | 3526 | 3332 |
| 23 | PARTRIDGE ACSR | 15/5 | 15/6 | 82.0 | 4.09 | 0.55 | 0.59 | 0.64 | 0.70 | 0.76 | 0.83 | 0.90 | 0.97 | 1.05 | 1.13 | 1.20 | 1.28 | 1.35 | 8265 | 7637 | 7034 | 6464 | 5937 | 5454 | 5017 | 4635 | 4301 | 4010 | 3750 | 3526 | 3332 |
| 23 | PARTRIDGE ACSR | 15/6 | 15/7 | 80.6 | 6.49 | 0.53 | 0.57 | 0.62 | 0.68 | 0.74 | 0.80 | 0.87 | 0.94 | 1.02 | 1.09 | 1.17 | 1.24 | 1.31 | 8265 | 7637 | 7034 | 6464 | 5937 | 5454 | 5017 | 4635 | 4301 | 4010 | 3750 | 3526 | 3332 |
| 23 | PARTRIDGE ACSR | 15/7 | 15/8 | 83.0 | 0.03 | 0.56 | 0.60 | 0.66 | 0.71 | 0.78 | 0.85 | 0.92 | 0.99 | 1.07 | 1.15 | 1.23 | 1.31 | 1.38 | 8265 | 7637 | 7034 | 6464 | 5937 | 5454 | 5017 | 4635 | 4301 | 4010 | 3750 | 3526 | 3332 |
| 23 | PARTRIDGE ACSR | 15/8 | 15/9 | 91.5 | -1.57 | 0.68 | 0.74 | 0.80 | 0.87 | 0.95 | 1.03 | 1.12 | 1.21 | 1.31 | 1.40 | 1.50 | 1.59 | 1.69 | 8265 | 7637 | 7034 | 6464 | 5937 | 5454 | 5017 | 4635 | 4301 | 4010 | 3750 | 3526 | 3332 |
| 23 | PARTRIDGE ACSR | 15/9 | 15/10 | 86.8 | -2.00 | 0.61 | 0.66 | 0.72 | 0.78 | 0.85 | 0.93 | 1.01 | 1.09 | 1.17 | 1.26 | 1.35 | 1.43 | 1.52 | 8265 | 7637 | 7034 | 6464 | 5937 | 5454 | 5017 | 4635 | 4301 | 4010 | 3750 | 3526 | 3332 |
| 23 | PARTRIDGE ACSR | 15/10 | 15/11 | 67.3 | 0.09 | 0.37 | 0.40 | 0.43 | 0.47 | 0.51 | 0.56 | 0.60 | 0.65 | 0.71 | 0.76 | 0.81 | 0.86 | 0.91 | 8265 | 7637 | 7034 | 6464 | 5937 | 5454 | 5017 | 4635 | 4301 | 4010 | 3750 | 3526 | 3332 |
| 23 | PARTRIDGE ACSR | 15/11 | 15/12 | 63.4 | -0.38 | 0.33 | 0.35 | 0.38 | 0.42 | 0.45 | 0.49 | 0.54 | 0.58 | 0.63 | 0.67 | 0.72 | 0.76 | 0.81 | 8265 | 7637 | 7034 | 6464 | 5937 | 5454 | 5017 | 4635 | 4301 | 4010 | 3750 | 3526 | 3332 |
| 23 | PARTRIDGE ACSR | 15/12 | 15/13 | 53.5 | -0.24 | 0.23 | 0.25 | 0.27 | 0.30 | 0.32 | 0.35 | 0.38 | 0.41 | 0.45 | 0.48 | 0.51 | 0.54 | 0.58 | 8265 | 7637 | 7034 | 6464 | 5937 | 5454 | 5017 | 4635 | 4301 | 4010 | 3750 | 3526 | 3332 |
| 23 | PARTRIDGE ACSR | 15/13 | 16/1 | 68.9 | -0.32 | 0.38 | 0.42 | 0.45 | 0.49 | 0.54 | 0.58 | 0.63 | 0.69 | 0.74 | 0.79 | 0.85 | 0.90 | 0.95 | 8265 | 7637 | 7034 | 6464 | 5937 | 5454 | 5017 | 4635 | 4301 | 4010 | 3750 | 3526 | 3332 |
| 23 | PARTRIDGE ACSR | 16/1 | 16/2 | 73.4 | 1.17 | 0.44 | 0.47 | 0.51 | 0.56 | 0.61 | 0.66 | 0.72 | 0.78 | 0.84 | 0.90 | 0.96 | 1.02 | 1.08 | 8265 | 7637 | 7034 | 6464 | 5937 | 5454 | 5017 | 4635 | 4301 | 4010 | 3750 | 3526 | 3332 |
| 23 | PARTRIDGE ACSR | 16/2 | 16/3 | 79.6 | 1.07 | 0.51 | 0.56 | 0.60 | 0.66 | 0.71 | 0.78 | 0.85 | 0.92 | 0.99 | 1.06 | 1.13 | 1.20 | 1.27 | 8265 | 7637 | 7034 | 6464 | 5937 | 5454 | 5017 | 4635 | 4301 | 4010 | 3750 | 3526 | 3332 |
| 23 | PARTRIDGE ACSR | 16/3 | 16/4 | 53.6 | 1.06 | 0.23 | 0.25 | 0.27 | 0.30 | 0.32 | 0.35 | 0.38 | 0.42 | 0.45 | 0.48 | 0.51 | 0.55 | 0.58 | 8265 | 7637 | 7034 | 6464 | 5937 | 5454 | 5017 | 4635 | 4301 | 4010 | 3750 | 3526 | 3332 |
| 23 | PARTRIDGE ACSR | 16/4 | 16/5 | 57.0 | -1.66 | 0.26 | 0.29 | 0.31 | 0.34 | 0.37 | 0.40 | 0.43 | 0.47 | 0.51 | 0.54 | 0.58 | 0.62 | 0.65 | 8265 | 7637 | 7034 | 6464 | 5937 | 5454 | 5017 | 4635 | 4301 | 4010 | 3750 | 3526 | 3332 |
| 23 | PARTRIDGE ACSR | 16/5 | 16/6 | 81.1 | 0.12 | 0.53 | 0.58 | 0.63 | 0.68 | 0.74 | 0.81 | 0.88 | 0.95 | 1.02 | 1.10 | 1.18 | 1.25 | 1.32 | 8265 | 7637 | 7034 | 6464 | 5937 | 5454 | 5017 | 4635 | 4301 | 4010 | 3750 | 3526 | 3332 |
| 23 | PARTRIDGE ACSR | 16/6 | 16/7 | 81.5 | 0.87 | 0.54 | 0.58 | 0.63 | 0.69 | 0.75 | 0.82 | 0.89 | 0.96 | 1.04 | 1.11 | 1.19 | 1.26 | 1.34 | 8265 | 7637 | 7034 | 6464 | 5937 | 5454 | 5017 | 4635 | 4301 | 4010 | 3750 | 3526 | 3332 |
| 23 | PARTRIDGE ACSR | 16/7 | 16/8 | 81.5 | -3.23 | 0.54 | 0.58 | 0.63 | 0.69 | 0.75 | 0.82 | 0.89 | 0.96 | 1.04 | 1.11 | 1.19 | 1.26 | 1.34 | 8265 | 7637 | 7034 | 6464 | 5937 | 5454 | 5017 | 4635 | 4301 | 4010 | 3750 | 3526 | 3332 |
| 23 | PARTRIDGE ACSR | 16/8 | 16/9 | 82.6 | -0.26 | 0.55 | 0.60 | 0.65 | 0.71 | 0.77 | 0.84 | 0.91 | 0.99 | 1.06 | 1.14 | 1.22 | 1.30 | 1.37 | 8265 | 7637 | 7034 | 6464 | 5937 | 5454 | 5017 | 4635 | 4301 | 4010 | 3750 | 3526 | 3332 |
| 23 | PARTRIDGE ACSR | 16/9 | 16/10 | 66.7 | 1.38 | 0.36 | 0.39 | 0.42 | 0.46 | 0.50 | 0.55 | 0.59 | 0.64 | 0.69 | 0.74 | 0.79 | 0.84 | 0.89 | 8265 | 7637 | 7034 | 6464 | 5937 | 5454 | 5017 | 4635 | 4301 | 4010 | 3750 | 3526 | 3332 |
| 23 | PARTRIDGE ACSR | 16/10 | 16/11 | 68.0 | 1.78 | 0.37 | 0.41 | 0.44 | 0.48 | 0.52 | 0.57 | 0.62 | 0.67 | 0.72 | 0.77 | 0.83 | 0.88 | 0.93 | 8265 | 7637 | 7034 | 6464 | 5937 | 5454 | 5017 | 4635 | 4301 | 4010 | 3750 | 3526 | 3332 |
| 24 | OFC-24G.652D-FASA-S1 | 13/2 | 13/3 | 71.4 | 5.01 | 0.62 | 0.62 | 0.62 | 0.62 | 0.62 | 0.63 | 0.63 | 0.63 | 0.63 | 0.63 | 0.64 | 0.64 | 0.64 | 1363 | 1359 | 1354 | 1350 | 1346 | 1342 | 1337 | 1333 | 1329 | 1324 | 1320 | 1316 | 1311 |
| 24 | OFC-24G.652D-FASA-S1 | 13/3 | 13/4 | 94.9 | -1.26 | 1.09 | 1.09 | 1.09 | 1.10 | 1.10 | 1.10 | 1.11 | 1.11 | 1.11 | 1.12 | 1.12 | 1.13 | 1.13 | 1363 | 1359 | 1354 | 1350 | 1346 | 1342 | 1337 | 1333 | 1329 | 1324 | 1320 | 1316 | 1311 |
| 24 | OFC-24G.652D-FASA-S1 | 13/4 | 13/5 | 95.4 | -2.24 | 1.10 | 1.10 | 1.10 | 1.11 | 1.11 | 1.12 | 1.12 | 1.12 | 1.13 | 1.13 | 1.14 | 1.14 | 1.14 | 1363 | 1359 | 1354 | 1350 | 1346 | 1342 | 1337 | 1333 | 1329 | 1324 | 1320 | 1316 | 1311 |
| 24 | OFC-24G.652D-FASA-S1 | 13/5 | 13/6 | 92.8 | -1.83 | 1.04 | 1.04 | 1.04 | 1.05 | 1.05 | 1.05 | 1.06 | 1.06 | 1.06 | 1.07 | 1.07 | 1.07 | 1.08 | 1363 | 1359 | 1354 | 1350 | 1346 | 1342 | 1337 | 1333 | 1329 | 1324 | 1320 | 1316 | 1311 |
| 24 | OFC-24G.652D-FASA-S1 | 13/6 | 13/7 | 75.7 | 0.83 | 0.69 | 0.69 | 0.69 | 0.70 | 0.70 | 0.70 | 0.70 | 0.71 | 0.71 | 0.71 | 0.71 | 0.72 | 0.72 | 1363 | 1359 | 1354 | 1350 | 1346 | 1342 | 1337 | 1333 | 1329 | 1324 | 1320 | 1316 | 1311 |
| 24 | OFC-24G.652D-FASA-S1 | 13/7 | 13/8 | 89.4 | -0.86 | 0.96 | 0.97 | 0.97 | 0.97 | 0.98 | 0.98 | 0.98 | 0.99 | 0.99 | 0.99 | 1.00 | 1.00 | 1.00 | 1363 | 1359 | 1354 | 1350 | 1346 | 1342 | 1337 | 1333 | 1329 | 1324 | 1320 | 1316 | 1311 |
| 24 | OFC-24G.652D-FASA-S1 | 13/8 | 13/9 | 67.9 | -10.49 | 0.56 | 0.56 | 0.57 | 0.57 | 0.57 | 0.57 | 0.57 | 0.58 | 0.58 | 0.58 | 0.58 | 0.58 | 0.58 | 1363 | 1359 | 1354 | 1350 | 1346 | 1342 | 1337 | 1333 | 1329 | 1324 | 1320 | 1316 | 1311 |
| 24 | OFC-24G.652D-FASA-S1 | 13/9 | 13/10 | 63.6 | 2.03 | 0.49 | 0.49 | 0.49 | 0.49 | 0.49 | 0.50 | 0.50 | 0.50 | 0.50 | 0.50 | 0.50 | 0.51 | 0.51 | 1363 | 1359 | 1354 | 1350 | 1346 | 1342 | 1337 | 1333 | 1329 | 1324 | 1320 | 1316 | 1311 |
| 24 | OFC-24G.652D-FASA-S1 | 13/10 | 13/11 | 76.1 | 0.34 | 0.70 | 0.70 | 0.70 | 0.71 | 0.71 | 0.71 | 0.71 | 0.71 | 0.72 | 0.72 | 0.72 | 0.72 | 0.73 | 1363 | 1359 | 1354 | 1350 | 1346 | 1342 | 1337 | 1333 | 1329 | 1324 | 1320 | 1316 | 1311 |
| 24 | OFC-24G.652D-FASA-S1 | 13/11 | 13/12 | 66.9 | -0.38 | 0.54 | 0.54 | 0.54 | 0.54 | 0.55 | 0.55 | 0.55 | 0.55 | 0.56 | 0.56 | 0.56 | 0.56 | 0.56 | 1363 | 1359 | 1354 | 1350 | 1346 | 1342 | 1337 | 1333 | 1329 | 1324 | 1320 | 1316 | 1311 |
| 24 | OFC-24G.652D-FASA-S1 | 13/12 | 13/13 | 76.9 | 0.74 | 0.71 | 0.71 | 0.72 | 0.72 | 0.72 | 0.72 | 0.73 | 0.73 | 0.73 | 0.73 | 0.74 | 0.74 | 0.74 | 1363 | 1359 | 1354 | 1350 | 1346 | 1342 | 1337 | 1333 | 1329 | 1324 | 1320 | 1316 | 1311 |
| 24 | OFC-24G.652D-FASA-S1 | 13/13 | 14/1 | 80.8 | 3.49 | 0.79 | 0.79 | 0.79 | 0.79 | 0.80 | 0.80 | 0.80 | 0.81 | 0.81 | 0.81 | 0.81 | 0.82 | 0.82 | 1363 | 1359 | 1354 | 1350 | 1346 | 1342 | 1337 | 1333 | 1329 | 1324 | 1320 | 1316 | 1311 |
| 24 | OFC-24G.652D-FASA-S1 | 14/1 | 14/2 | 81.2 | 0.62 | 0.79 | 0.80 | 0.80 | 0.80 | 0.80 | 0.81 | 0.81 | 0.81 | 0.82 | 0.82 | 0.82 | 0.82 | 0.83 | 1363 | 1359 | 1354 | 1350 | 1346 | 1342 | 1337 | 1333 | 1329 | 1324 | 1320 | 1316 | 1311 |
| 24 | OFC-24G.652D-FASA-S1 | 14/2 | 14/3 | 57.4 | 1.68 | 0.40 | 0.40 | 0.40 | 0.40 | 0.40 | 0.40 | 0.41 | 0.41 | 0.41 | 0.41 | 0.41 | 0.41 | 0.41 | 1363 | 1359 | 1354 | 1350 | 1346 | 1342 | 1337 | 1333 | 1329 | 1324 | 1320 | 1316 | 1311 |
| 24 | OFC-24G.652D-FASA-S1 | 14/3 | 14/4 | 79.1 | -0.81 | 0.75 | 0.76 | 0.76 | 0.76 | 0.76 | 0.77 | 0.77 | 0.77 | 0.77 | 0.78 | 0.78 | 0.78 | 0.78 | 1363 | 1359 | 1354 | 1350 | 1346 | 1342 | 1337 | 1333 | 1329 | 1324 | 1320 | 1316 | 1311 |
| 24 | OFC-24G.652D-FASA-S1 | 14/4 | 14/5 | 62.3 | 0.36 | 0.47 | 0.47 | 0.47 | 0.47 | 0.47 | 0.48 | 0.48 | 0.48 | 0.48 | 0.48 | 0.48 | 0.48 | 0.49 | 1363 | 1359 | 1354 | 1350 | 1346 | 1342 | 1337 | 1333 | 1329 | 1324 | 1320 | 1316 | 1311 |
| 24 | OFC-24G.652D-FASA-S1 | 14/5 | 14/6 | 93.9 | -0.79 | 1.06 | 1.07 | 1.07 | 1.07 | 1.08 | 1.08 | 1.08 | 1.09 | 1.09 | 1.09 | 1.10 | 1.10 | 1.10 | 1363 | 1359 | 1354 | 1350 | 1346 | 1342 | 1337 | 1333 | 1329 | 1324 | 1320 | 1316 | 1311 |
| 24 | OFC-24G.652D-FASA-S1 | 14/6 | 14/7 | 87.3 | 4.01 | 0.92 | 0.92 | 0.93 | 0.93 | 0.93 | 0.94 | 0.94 | 0.94 | 0.94 | 0.95 | 0.95 | 0.95 | 0.96 | 1363 | 1359 | 1354 | 1350 | 1346 | 1342 | 1337 | 1333 | 1329 | 1324 | 1320 | 1316 | 1311 |
| 24 | OFC-24G.652D-FASA-S1 | 14/7 | 14/8 | 86.5 | -0.96 | 0.90 | 0.90 | 0.91 | 0.91 | 0.91 | 0.92 | 0.92 | 0.92 | 0.93 | 0.93 | 0.93 | 0.93 | 0.94 | 1363 | 1359 | 1354 | 1350 | 1346 | 1342 | 1337 | 1333 | 1329 | 1324 | 1320 | 1316 | 1311 |
| 24 | OFC-24G.652D-FASA-S1 | 14/8 | 14/9 | 80.6 | 0.41 | 0.78 | 0.79 | 0.79 | 0.79 | 0.79 | 0.80 | 0.80 | 0.80 | 0.80 | 0.81 | 0.81 | 0.81 | 0.81 | 1363 | 1359 | 1354 | 1350 | 1346 | 1342 | 1337 | 1333 | 1329 | 1324 | 1320 | 1316 | 1311 |
| 24 | OFC-24G.652D-FASA-S1 | 14/9 | 14/10 | 78.5 | -1.76 | 0.74 | 0.74 | 0.75 | 0.75 | 0.75 | 0.75 | 0.76 | 0.76 | 0.76 | 0.76 | 0.77 | 0.77 | 0.77 | 1363 | 1359 | 1354 | 1350 | 1346 | 1342 | 1337 | 1333 | 1329 | 1324 | 1320 | 1316 | 1311 |
| 24 | OFC-24G.652D-FASA-S1 | 14/10 | 14/11 | 73.8 | -2.58 | 0.66 | 0.66 | 0.66 | 0.66 | 0.67 | 0.67 | 0.67 | 0.67 | 0.68 | 0.68 | 0.68 | 0.68 | 0.68 | 1363 | 1359 | 1354 | 1350 | 1346 | 1342 | 1337 | 1333 | 1329 | 1324 | 1320 | 1316 | 1311 |
| 24 | OFC-24G.652D-FASA-S1 |

FORBES BROS

# AS-BUILT

CHANGES REQUIRED YES ☐ NO ☐

Name (Print) _____

Signature _____

Date _____

PERMIT TO PRACTICE
CLEAN ENERGY CONSULTING INC.
SIGNATURE _____
Date 22-Nov-2018
PERMIT NUMBER PP424
Association of Professional Engineers of Yukon

## SAG AND TENSION

| | |
|---|---|
| CIRCUIT | VICTORIA GOLD 69kV |
| DOCUMENT | 1407-T-1450 |
| DATE | 22-Nov-18 |
| REVISION | 1 |
| ISSUED FOR | CONSTRUCTION |
| PREPARED BY | MP |
| CHECKED BY | PC |
| APPROVED BY | PC |

ENGINEER'S SEAL
PROFESSIONAL ENGINEER YUKON A. P. N. CLARK TERRITORY
22-Nov-2018

NOTES
1. All spans must be installed to the sag values provided. Tension values are provided as a reference only.
2. Sag and tension values shown are for new conductor under initial conditions based on the ruling span method.
3. For conductors left hanging in sheaves for longer than 3 hours between initial stringing and final sag, a creep correction factor must be applied.
4. All span lengths and sag values are provided in metres unless otherwise noted.
5. Conductors and cables:
   - Overhead Shieldwire (OHSW): Partridge ACSR
   - 69kV Transmission Line: Partridge ACSR
   - ADSS: OFC-24G.652D-FASA-S1
6. The minimum ambient temperature for pulling ADSS cable is -30°C. ADSS cable shall not be pulled at temperatures below this minimum temperature.

Clean Energy CONSULTING INC.

| SEC | CABLE | FROM STR | TO STR | SPAN AHEAD (m) | SPAN VERT. PROJ. (m) | MID SPAN SAG (m) | | | | | | | | | | | | | HORIZONTAL TENSION (N) | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | -50 | -45 | -40 | -35 | -30 | -25 | -20 | -15 | -10 | -5 | 0 | 5 | 10 | -50 | -45 | -40 | -35 | -30 | -25 | -20 | -15 | -10 | -5 | 0 | 5 | 10 |
| 25 | PARTRIDGE ACSR | 18/4 | 18/5 | 93.9 | -0.52 | 0.83 | 0.90 | 0.97 | 1.05 | 1.13 | 1.22 | 1.31 | 1.39 | 1.48 | 1.57 | 1.65 | 1.73 | 1.82 | 7104 | 6570 | 6072 | 5618 | 5217 | 4848 | 4528 | 4242 | 3995 | 3775 | 3581 | 3407 | 3251 |
| 25 | PARTRIDGE ACSR | 18/5 | 18/6 | 68.5 | 3.10 | 0.44 | 0.48 | 0.52 | 0.56 | 0.60 | 0.65 | 0.70 | 0.74 | 0.79 | 0.83 | 0.88 | 0.92 | 0.97 | 7104 | 6570 | 6072 | 5618 | 5217 | 4848 | 4528 | 4242 | 3995 | 3775 | 3581 | 3407 | 3251 |
| 25 | PARTRIDGE ACSR | 18/6 | 18/7 | 67.3 | 3.79 | 0.43 | 0.46 | 0.50 | 0.54 | 0.58 | 0.63 | 0.67 | 0.72 | 0.76 | 0.80 | 0.85 | 0.89 | 0.93 | 7104 | 6570 | 6072 | 5618 | 5217 | 4848 | 4528 | 4242 | 3995 | 3775 | 3581 | 3407 | 3251 |
| 25 | PARTRIDGE ACSR | 18/7 | 18/8 | 69.7 | 6.22 | 0.46 | 0.50 | 0.54 | 0.58 | 0.63 | 0.67 | 0.72 | 0.77 | 0.82 | 0.87 | 0.91 | 0.96 | 1.00 | 7104 | 6570 | 6072 | 5618 | 5217 | 4848 | 4528 | 4242 | 3995 | 3775 | 3581 | 3407 | 3251 |
| 25 | PARTRIDGE ACSR | 18/8 | 18/9 | 60.9 | -2.22 | 0.35 | 0.38 | 0.41 | 0.44 | 0.48 | 0.51 | 0.55 | 0.59 | 0.62 | 0.66 | 0.69 | 0.73 | 0.76 | 7104 | 6570 | 6072 | 5618 | 5217 | 4848 | 4528 | 4242 | 3995 | 3775 | 3581 | 3407 | 3251 |
| 25 | PARTRIDGE ACSR | 18/9 | 18/10 | 58.6 | -1.31 | 0.32 | 0.35 | 0.38 | 0.41 | 0.44 | 0.48 | 0.51 | 0.54 | 0.58 | 0.61 | 0.64 | 0.68 | 0.71 | 7104 | 6570 | 6072 | 5618 | 5217 | 4848 | 4528 | 4242 | 3995 | 3775 | 3581 | 3407 | 3251 |
| 25 | PARTRIDGE ACSR | 18/10 | 18/11 | 94.4 | -0.90 | 0.84 | 0.91 | 0.98 | 1.06 | 1.15 | 1.23 | 1.32 | 1.41 | 1.50 | 1.58 | 1.67 | 1.75 | 1.84 | 7104 | 6570 | 6072 | 5618 | 5217 | 4848 | 4528 | 4242 | 3995 | 3775 | 3581 | 3407 | 3251 |
| 25 | PARTRIDGE ACSR | 18/11 | 18/12 | 83.7 | 1.80 | 0.66 | 0.71 | 0.77 | 0.84 | 0.90 | 0.97 | 1.04 | 1.11 | 1.18 | 1.24 | 1.31 | 1.38 | 1.45 | 7104 | 6570 | 6072 | 5618 | 5217 | 4848 | 4528 | 4242 | 3995 | 3775 | 3581 | 3407 | 3251 |
| 25 | PARTRIDGE ACSR | 18/12 | 18/13 | 82.3 | -1.25 | 0.64 | 0.69 | 0.75 | 0.81 | 0.87 | 0.94 | 1.00 | 1.07 | 1.14 | 1.20 | 1.27 | 1.33 | 1.40 | 7104 | 6570 | 6072 | 5618 | 5217 | 4848 | 4528 | 4242 | 3995 | 3775 | 3581 | 3407 | 3251 |
| 25 | PARTRIDGE ACSR | 18/13 | 19/1 | 82.3 | 1.51 | 0.64 | 0.69 | 0.75 | 0.81 | 0.87 | 0.94 | 1.00 | 1.07 | 1.14 | 1.20 | 1.27 | 1.33 | 1.40 | 7104 | 6570 | 6072 | 5618 | 5217 | 4848 | 4528 | 4242 | 3995 | 3775 | 3581 | 3407 | 3251 |
| 25 | PARTRIDGE ACSR | 19/1 | 19/2 | 84.9 | 0.90 | 0.68 | 0.74 | 0.80 | 0.86 | 0.93 | 1.00 | 1.07 | 1.14 | 1.21 | 1.28 | 1.35 | 1.42 | 1.49 | 7104 | 6570 | 6072 | 5618 | 5217 | 4848 | 4528 | 4242 | 3995 | 3775 | 3581 | 3407 | 3251 |
| 25 | PARTRIDGE ACSR | 19/2 | 19/3 | 84.0 | -0.15 | 0.67 | 0.72 | 0.78 | 0.84 | 0.91 | 0.97 | 1.04 | 1.11 | 1.18 | 1.25 | 1.32 | 1.39 | 1.45 | 7104 | 6570 | 6072 | 5618 | 5217 | 4848 | 4528 | 4242 | 3995 | 3775 | 3581 | 3407 | 3251 |
| 25 | PARTRIDGE ACSR | 19/3 | 19/4 | 83.6 | -0.52 | 0.66 | 0.71 | 0.77 | 0.83 | 0.90 | 0.97 | 1.04 | 1.11 | 1.17 | 1.24 | 1.31 | 1.38 | 1.44 | 7104 | 6570 | 6072 | 5618 | 5217 | 4848 | 4528 | 4242 | 3995 | 3775 | 3581 | 3407 | 3251 |
| 25 | PARTRIDGE ACSR | 19/4 | 19/5 | 83.7 | 1.24 | 0.66 | 0.71 | 0.77 | 0.84 | 0.90 | 0.97 | 1.04 | 1.11 | 1.17 | 1.24 | 1.31 | 1.38 | 1.44 | 7104 | 6570 | 6072 | 5618 | 5217 | 4848 | 4528 | 4242 | 3995 | 3775 | 3581 | 3407 | 3251 |
| 25 | PARTRIDGE ACSR | 19/5 | 19/6 | 84.0 | 0.75 | 0.67 | 0.72 | 0.78 | 0.84 | 0.91 | 0.97 | 1.04 | 1.11 | 1.18 | 1.25 | 1.32 | 1.39 | 1.45 | 7104 | 6570 | 6072 | 5618 | 5217 | 4848 | 4528 | 4242 | 3995 | 3775 | 3581 | 3407 | 3251 |
| 25 | PARTRIDGE ACSR | 19/6 | 19/7 | 84.2 | -3.53 | 0.67 | 0.72 | 0.78 | 0.85 | 0.91 | 0.98 | 1.05 | 1.12 | 1.19 | 1.26 | 1.33 | 1.40 | 1.46 | 7104 | 6570 | 6072 | 5618 | 5217 | 4848 | 4528 | 4242 | 3995 | 3775 | 3581 | 3407 | 3251 |
| 25 | PARTRIDGE ACSR | 19/7 | 19/8 | 86.0 | -1.36 | 0.70 | 0.75 | 0.82 | 0.88 | 0.95 | 1.02 | 1.09 | 1.17 | 1.24 | 1.31 | 1.38 | 1.46 | 1.53 | 7104 | 6570 | 6072 | 5618 | 5217 | 4848 | 4528 | 4242 | 3995 | 3775 | 3581 | 3407 | 3251 |
| 25 | PARTRIDGE ACSR | 19/8 | 19/9 | 83.9 | -0.33 | 0.66 | 0.72 | 0.78 | 0.84 | 0.90 | 0.97 | 1.04 | 1.11 | 1.18 | 1.25 | 1.32 | 1.39 | 1.45 | 7104 | 6570 | 6072 | 5618 | 5217 | 4848 | 4528 | 4242 | 3995 | 3775 | 3581 | 3407 | 3251 |
| 25 | PARTRIDGE ACSR | 19/9 | 19/10 | 84.1 | -1.17 | 0.67 | 0.72 | 0.78 | 0.84 | 0.91 | 0.98 | 1.05 | 1.12 | 1.19 | 1.26 | 1.32 | 1.39 | 1.46 | 7104 | 6570 | 6072 | 5618 | 5217 | 4848 | 4528 | 4242 | 3995 | 3775 | 3581 | 3407 | 3251 |
| 25 | PARTRIDGE ACSR | 19/10 | 19/11 | 84.1 | -0.35 | 0.67 | 0.72 | 0.78 | 0.84 | 0.91 | 0.98 | 1.05 | 1.12 | 1.19 | 1.26 | 1.33 | 1.39 | 1.46 | 7104 | 6570 | 6072 | 5618 | 5217 | 4848 | 4528 | 4242 | 3995 | 3775 | 3581 | 3407 | 3251 |
| 25 | PARTRIDGE ACSR | 19/11 | 19/12 | 84.3 | 0.95 | 0.67 | 0.72 | 0.78 | 0.85 | 0.91 | 0.98 | 1.05 | 1.12 | 1.19 | 1.26 | 1.33 | 1.40 | 1.47 | 7104 | 6570 | 6072 | 5618 | 5217 | 4848 | 4528 | 4242 | 3995 | 3775 | 3581 | 3407 | 3251 |
| 25 | PARTRIDGE ACSR | 19/12 | 20/1 | 84.2 | -0.39 | 0.67 | 0.72 | 0.78 | 0.85 | 0.91 | 0.98 | 1.05 | 1.12 | 1.19 | 1.26 | 1.33 | 1.39 | 1.46 | 7104 | 6570 | 6072 | 5618 | 5217 | 4848 | 4528 | 4242 | 3995 | 3775 | 3581 | 3407 | 3251 |
| 25 | PARTRIDGE ACSR | 20/1 | 20/2 | 84.7 | -0.67 | 0.68 | 0.73 | 0.79 | 0.86 | 0.92 | 0.99 | 1.06 | 1.13 | 1.20 | 1.27 | 1.34 | 1.41 | 1.48 | 7104 | 6570 | 6072 | 5618 | 5217 | 4848 | 4528 | 4242 | 3995 | 3775 | 3581 | 3407 | 3251 |
| 25 | PARTRIDGE ACSR | 20/2 | 20/3 | 88.6 | -0.57 | 0.74 | 0.80 | 0.87 | 0.94 | 1.01 | 1.09 | 1.16 | 1.24 | 1.32 | 1.39 | 1.47 | 1.55 | 1.62 | 7104 | 6570 | 6072 | 5618 | 5217 | 4848 | 4528 | 4242 | 3995 | 3775 | 3581 | 3407 | 3251 |
| 25 | PARTRIDGE ACSR | 20/3 | 20/4 | 88.8 | 0.05 | 0.74 | 0.80 | 0.87 | 0.94 | 1.01 | 1.09 | 1.17 | 1.25 | 1.32 | 1.40 | 1.48 | 1.55 | 1.63 | 7104 | 6570 | 6072 | 5618 | 5217 | 4848 | 4528 | 4242 | 3995 | 3775 | 3581 | 3407 | 3251 |
| 25 | PARTRIDGE ACSR | 20/4 | 20/5 | 87.8 | -0.78 | 0.73 | 0.79 | 0.85 | 0.92 | 0.99 | 1.07 | 1.14 | 1.22 | 1.29 | 1.37 | 1.44 | 1.52 | 1.59 | 7104 | 6570 | 6072 | 5618 | 5217 | 4848 | 4528 | 4242 | 3995 | 3775 | 3581 | 3407 | 3251 |
| 25 | PARTRIDGE ACSR | 20/5 | 20/6 | 90.2 | -0.54 | 0.77 | 0.83 | 0.90 | 0.97 | 1.05 | 1.13 | 1.21 | 1.29 | 1.37 | 1.45 | 1.52 | 1.60 | 1.68 | 7104 | 6570 | 6072 | 5618 | 5217 | 4848 | 4528 | 4242 | 3995 | 3775 | 3581 | 3407 | 3251 |
| 25 | PARTRIDGE ACSR | 20/6 | 20/7 | 79.5 | 0.53 | 0.60 | 0.64 | 0.70 | 0.75 | 0.81 | 0.87 | 0.93 | 1.00 | 1.06 | 1.12 | 1.18 | 1.24 | 1.30 | 7104 | 6570 | 6072 | 5618 | 5217 | 4848 | 4528 | 4242 | 3995 | 3775 | 3581 | 3407 | 3251 |
| 25 | PARTRIDGE ACSR | 20/7 | 20/8 | 88.5 | 1.10 | 0.74 | 0.80 | 0.87 | 0.94 | 1.01 | 1.08 | 1.16 | 1.24 | 1.32 | 1.39 | 1.47 | 1.54 | 1.62 | 7104 | 6570 | 6072 | 5618 | 5217 | 4848 | 4528 | 4242 | 3995 | 3775 | 3581 | 3407 | 3251 |
| 25 | PARTRIDGE ACSR | 20/8 | 20/9 | 64.3 | -2.89 | 0.39 | 0.42 | 0.46 | 0.49 | 0.53 | 0.57 | 0.61 | 0.65 | 0.69 | 0.73 | 0.77 | 0.81 | 0.85 | 7104 | 6570 | 6072 | 5618 | 5217 | 4848 | 4528 | 4242 | 3995 | 3775 | 3581 | 3407 | 3251 |
| 25 | PARTRIDGE ACSR | 20/9 | 20/10 | 78.4 | 0.07 | 0.58 | 0.63 | 0.68 | 0.73 | 0.79 | 0.85 | 0.91 | 0.97 | 1.03 | 1.09 | 1.15 | 1.21 | 1.27 | 7104 | 6570 | 6072 | 5618 | 5217 | 4848 | 4528 | 4242 | 3995 | 3775 | 3581 | 3407 | 3251 |
| 25 | PARTRIDGE ACSR | 20/10 | 20/11 | 66.4 | 1.05 | 0.42 | 0.45 | 0.49 | 0.53 | 0.57 | 0.61 | 0.65 | 0.70 | 0.74 | 0.78 | 0.83 | 0.87 | 0.91 | 7104 | 6570 | 6072 | 5618 | 5217 | 4848 | 4528 | 4242 | 3995 | 3775 | 3581 | 3407 | 3251 |
| 25 | PARTRIDGE ACSR | 20/11 | 20/12 | 48.9 | 0.89 | 0.23 | 0.24 | 0.26 | 0.29 | 0.31 | 0.33 | 0.35 | 0.38 | 0.40 | 0.43 | 0.45 | 0.47 | 0.49 | 7104 | 6570 | 6072 | 5618 | 5217 | 4848 | 4528 | 4242 | 3995 | 3775 | 3581 | 3407 | 3251 |
| 25 | PARTRIDGE ACSR | 20/12 | 21/1 | 136.6 | 1.77 | 1.76 | 1.90 | 2.06 | 2.23 | 2.40 | 2.58 | 2.76 | 2.95 | 3.13 | 3.32 | 3.50 | 3.67 | 3.85 | 7104 | 6570 | 6072 | 5618 | 5217 | 4848 | 4528 | 4242 | 3995 | 3775 | 3581 | 3407 | 3251 |
| 25 | PARTRIDGE ACSR | 21/1 | 21/2 | 48.2 | -2.85 | 0.22 | 0.24 | 0.26 | 0.28 | 0.30 | 0.32 | 0.34 | 0.37 | 0.39 | 0.41 | 0.44 | 0.46 | 0.48 | 7104 | 6570 | 6072 | 5618 | 5217 | 4848 | 4528 | 4242 | 3995 | 3775 | 3581 | 3407 | 3251 |
| 26 | OFC-24G.652D-FASA-S1 | 16/11 | 16/13 | 132.0 | 29.02 | 6.58 | 6.59 | 6.59 | 6.59 | 6.59 | 6.60 | 6.61 | 6.61 | 6.61 | 6.62 | 6.62 | 6.62 | 6.63 | 447 | 446 | 446 | 446 | 446 | 445 | 445 | 445 | 445 | 444 | 444 | 444 | 443 |
| 26 | OFC-24G.652D-FASA-S1 | 16/13 | 16/14 | 85.4 | -2.66 | 2.69 | 2.69 | 2.69 | 2.70 | 2.70 | 2.70 | 2.70 | 2.70 | 2.70 | 2.70 | 2.71 | 2.71 | 2.71 | 447 | 446 | 446 | 446 | 446 | 445 | 445 | 445 | 445 | 444 | 444 | 444 | 443 |
| 26 | OFC-24G.652D-FASA-S1 | 16/14 | 17/1 | 86.6 | -0.79 | 2.76 | 2.76 | 2.77 | 2.77 | 2.77 | 2.77 | 2.77 | 2.77 | 2.77 | 2.78 | 2.78 | 2.78 | 2.78 | 447 | 446 | 446 | 446 | 446 | 445 | 445 | 445 | 445 | 444 | 444 | 444 | 443 |
| 26 | OFC-24G.652D-FASA-S1 | 17/1 | 17/2 | 90.2 | 0.51 | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 | 3.01 | 3.01 | 3.01 | 3.01 | 3.01 | 3.01 | 3.02 | 447 | 446 | 446 | 446 | 446 | 445 | 445 | 445 | 445 | 444 | 444 | 444 | 443 |
| 26 | OFC-24G.652D-FASA-S1 | 17/2 | 17/3 | 88.6 | -1.67 | 2.89 | 2.90 | 2.90 | 2.90 | 2.90 | 2.90 | 2.90 | 2.90 | 2.91 | 2.91 | 2.91 | 2.91 | 2.91 | 447 | 446 | 446 | 446 | 446 | 445 | 445 | 445 | 445 | 444 | 444 | 444 | 443 |
| 26 | OFC-24G.652D-FASA-S1 | 17/3 | 17/4 | 86.5 | -14.70 | 2.79 | 2.80 | 2.80 | 2.80 | 2.80 | 2.80 | 2.81 | 2.81 | 2.81 | 2.81 | 2.81 | 2.82 | 2.82 | 447 | 446 | 446 | 446 | 446 | 445 | 445 | 445 | 445 | 444 | 444 | 444 | 443 |
| 26 | OFC-24G.652D-FASA-S1 | 17/4 | 17/5 | 65.0 | -9.16 | 1.57 | 1.57 | 1.57 | 1.58 | 1.58 | 1.58 | 1.58 | 1.58 | 1.58 | 1.58 | 1.58 | 1.58 | 1.58 | 447 | 446 | 446 | 446 | 446 | 445 | 445 | 445 | 445 | 444 | 444 | 444 | 443 |
| 26 | OFC-24G.652D-FASA-S1 | 17/5 | 17/6 | 59.9 | 2.22 | 1.32 | 1.32 | 1.32 | 1.32 | 1.33 | 1.33 | 1.33 | 1.33 | 1.33 | 1.33 | 1.33 | 1.33 | 1.33 | 447 | 446 | 446 | 446 | 446 | 445 | 445 | 445 | 445 | 444 | 444 | 444 | 443 |
| 26 | OFC-24G.652D-FASA-S1 | 17/6 | 17/7 | 85.7 | 0.29 | 2.71 | 2.71 | 2.71 | 2.71 | 2.71 | 2.71 | 2.72 | 2.72 | 2.72 | 2.72 | 2.72 | 2.72 | 2.73 | 447 | 446 | 446 | 446 | 446 | 445 | 445 | 445 | 445 | 444 | 444 | 444 | 443 |
| 26 | OFC-24G.652D-FASA-S1 | 17/7 | 17/8 | 85.5 | -2.48 | 2.69 | 2.70 | 2.70 | 2.70 | 2.70 | 2.70 | 2.70 | 2.70 | 2.71 | 2.71 | 2.71 | 2.71 | 2.71 | 447 | 446 | 446 | 446 | 446 | 445 | 445 | 445 | 445 | 444 | 444 | 444 | 443 |
| 26 | OFC-24G.652D-FASA-S1 | 17/8 | 17/9 | 89.5 | 0.16 | 2.95 | 2.95 | 2.95 | 2.95 | 2.95 | 2.96 | 2.96 | 2.96 | 2.96 | 2.96 | 2.97 | 2.97 | 2.97 | 447 | 446 | 446 | 446 | 446 | 445 | 445 | 445 | 445 | 444 | 444 | 444 | 443 |
| 26 | OFC-24G.652D-FASA-S1 | 17/9 | 17/10 | 86.8 | 0.87 | 2.78 | 2.78 | 2.78 | 2.78 | 2.78 | 2.78 | 2.79 | 2.79 | 2.79 | 2.79 | 2.79 | 2.79 | 2.80 | 447 | 446 | 446 | 446 | 446 | 445 | 445 | 445 | 445 | 444 | 444 | 444 | 443 |
| 26 | OFC-24G.652D-FASA-S1 | 17/10 | 17/11 | 88.1 | 1.10 | 2.86 | 2.86 | 2.86 | 2.87 | 2.87 | 2.87 | 2.87 | 2.87 | 2.87 | 2.88 | 2.88 | 2.88 | 2.88 | 447 | 446 | 446 | 446 | 446 | 445 | 445 | 445 | 445 | 444 | 444 | 444 | 443 |
| 26 | OFC-24G.652D-FASA-S1 | 17/11 | 17/12 | 81.1 | -2.40 | 2.42 | 2.42 | 2.42 | 2.43 | 2.43 | 2.43 | 2.43 | 2.43 | 2.43 | 2.43 | 2.44 | 2.44 | 2.44 | 447 | 446 | 446 | 446 | 446 | 445 | 445 | 445 | 445 | 444 | 444 | 444 | 443 |
| 26 | OFC-24G.652D-FASA-S1 | 17/12 | 18/1 | 88.5 | 0.30 | 2.88 | 2.89 | 2.89 | 2.89 | 2.89 | 2.90 | 2.90 | 2.90 | 2.90 | 2.90 | 2.90 | 2.91 | 2.91 | 447 | 446 | 446 | 446 | 446 | 445 | 445 | 445 | 445 | 444 | 444 | 444 | 443 |
| 26 | OFC-24G.652D-FASA-S1 | 18/1 | 18/2 | 78.1 | 4.01 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.26 | 2.26 | 2.26 | 2.26 | 2.26 | 2.26 | 2.26 | 2.27 | 447 | 446 | 446 | 446 | 446 | 445 | 445 | 445 | 445 | 444 | 444 | 444 | 443 |
| 26 | OFC-24G.652D-FASA-S1 | 18/2 | 18/3 | 97.6 | -4.85 | 3.51 | 3.52 | 3.52 | 3.52 | 3.52 | 3.52 | 3.53 | 3.53 | 3.53 | 3.53 | 3.53 | 3.54 | 3.54 | 447 | 446 | 446 | 446 | 446 | 445 | 445 | 445 | 445 | 444 | 444 | 444 | 443 |
| 26 | OFC-24G.652D-FASA-S1 | 18/3 | 18/4 | 82.4 | 0.00 | 2.50 | 2.50 | 2.51 | 2.51 | 2.51 | 2.51 | 2.51 | 2.51 | 2.51 | 2.52 | 2.52 | 2.52 | 2.52 | 447 | 446 | 446 | 446 | 446 | 445 | 445 | 445 | 445 | 444 | 444 | 444 | 443 |
| 26 | OFC-24G.652D-FASA-S1 | 18/4 | 18/5 | 93.9 | -0.52 | 3.25 | 3.25 | 3.25 | 3.26 | 3.26 | 3.26 | 3.26 | 3.26 | 3.26 | 3.27 | 3.27 | 3.27 | 3.27 | 447 | 446 | 446 | 446 | 446 | 445 | 445 | 445 | 445 | 444 | 444 | 444 | 443 |
| 26 | OFC-24G.652D-FASA-S1 | 18/5 | 18/6 | 68.5 | 3.10 | 1.73 | 1.73 | 1.73 | 1.73 | 1.73 | 1.74 | 1.74 | 1.74 | 1.74 | 1.74 | 1.74 | 1.74 | 1.74 | 447 | 446 | 446 | 446 | 446 | 445 | 445 | 445 | 445 | 444 | 444 | 444 | 443 |
| 26 | OFC-24G.652D-FASA-S1 | 18/6 | 18/7 | 67.3 | 4.08 | 1.67 | 1.67 | 1.67 | 1.67 | 1.67 | 1.67 | 1.68 | 1.68 | 1.68 | 1.68 | 1.68 | 1.68 | 1.68 | 447 | 446 | 446 | 446 | 446 | 445 | 445 | 445 | 445 | 444 | 444 | 444 | 443 |
| 26 | OFC-24G.652D-FASA-S1 | 18/7 | 18/8 | 69.7 | 6.22 | 1.79 | 1.79 | 1.80 | 1.80 | 1.80 | 1.80 | 1.80 | 1.80 | 1.80 | 1.80 | 1.80 | 1.81 | 1.81 | 447 | 446 | 446 | 446 | 446 | 445 | 445 | 445 | 445 | 444 | 444 | 444 | 443 |
| 26 | OFC-24G.652D-FASA-S1 | 18/8 | 18/9 | 60.9 | -2.51 | 1.37 | 1.37 | 1.37 | 1.37 | 1.37 | 1.37 | 1.37 | 1.37 | 1.37 | 1.37 | 1.37 | 1.37 | 1.38 | 447 | 446 | 446 | 446 | 446 | 445 | 445 | 445 | 445 | 444 | 444 | 444 | 443 |
| 26 | OFC-24G.652D-FASA-S1 | 18/9 | 18/10 | 58.6 | -1.31 | 1.27 | 1.27 | 1.27 | 1.27 | 1.27 | 1.27 | 1.27 | 1.27 | 1.27 | 1.27 | 1.27 | 1.27 | 1.27 | 447 | 446 | 446 | 446 | 446 | 445 | 445 | 445 | 445 | 444 | 444 | 444 | 443 |
| 26 | OFC-24G.652D-FASA-S1 | 18/10 | 18/11 | 94.4 | -0.61 | 3.28 | 3.29 | 3.29 | 3.29 | 3.29 | 3.29 | 3.30 | 3.30 | 3.30 | 3.30 | 3.30 | 3.31 | 3.31 | 447 | 446 | 446 | 446 | 446 | 445 | 445 | 445 | 445 | 444 | 444 | 444 | 443 |
| 26 | OFC-24G.652D-FASA-S1 | 18/11 | 18/12 | 83.7 | 1.51 | 2.58 | 2.58 | 2.59 | 2.59 | 2.59 | 2.59 | 2.59 | 2.59 | 2.59 | 2.59 | 2.60 | 2.60 | 2.60 | 447 | 446 | 446 | 446 | 446 | 445 | 445 | 445 | 445 | 444 | 444 | 444 | 443 |
| 26 | OFC-24G.652D-FASA-S1 | 18/12 | 18/13 | 82.3 | -0.96 | 2.49 | 2.50 | 2.50 | 2.50 | 2.50 | 2.50 | 2.50 | 2.51 | 2.51 | 2.51 | 2.51 | 2.51 | 2.51 | 447 | 446 | 446 | 446 | 446 | 445 | 445 | 445 | 445 | 444 | 444 | 444 | 443 |
| 26 | OFC-24G.652D-FASA-S1 | 18/13 | 19/1 | 82.3 | 1.22 | 2.49 | 2.49 | 2.50 | 2.50 | 2.50 | 2.50 | 2.50 | 2.50 | 2.50 | 2.51 | 2.51 | 2.51 | 2.51 | 447 | 446 | 446 | 446 | 446 | 445 | 445 | 445 | 445 | 444 | 444 | 444 | 443 |
| 26 | OFC-24G.652D-FASA-S1 | 19/1 | 19/2 | 84.9 | 0.90 | 2.66 | 2.66 | 2.66 | 2.66 | 2.66 | 2.66 | 2.67 | 2.67 | 2.67 | 2.67 | 2.67 | 2.67 | 2.68 | 447 | 446 | 446 | 446 | 446 | 445 | 445 | 445 | 445 | 444 | 444 | 444 | 443 |
| 26 | OFC-24G.652D-FASA-S1 | 19/2 | 19/3 | 84.0 | -0.15 | 2.60 | 2.60 | 2.60 | 2.60 | 2.60 | 2.61 | 2.61 | 2.61 | 2.61 | 2.61 | 2.61 | 2.61 | 2.62 | 447 | 446 | 446 | 446 | 446 | 445 | 445 | 445 | 445 | 444 | 444 | 444 | 443 |
| 26 | OFC-24G.652D-FASA-S1 | 19/3 | 19/4 | 83.6 | -0.52 | 2.58 | 2.58 | 2.58 | 2.58 | 2.58 | 2.58 | 2.59 | 2.59 | 2.59 | 2.59 | 2.59 | 2.59 | 2.60 | 447 | 446 | 446 | 446 | 446 | 445 | 445 | 445 | 445 | 444 | 444 | 444 | 443 |
| 26 | OFC-24G.652D-FASA-S1 | 19/4 | 19/5 | 83.7 | 1.24 | 2.58 | 2.58 | 2.58 | 2.58 | 2.58 | 2.59 | 2.59 | 2.59 | 2.59 | 2.59 | 2.60 | 2.60 | 2.60 | 447 | 446 | 446 | 446 | 446 | 445 | 445 | 445 | 445 | 444 | 444 | 444 | 443 |
| 26 | OFC-24G.652D-FASA-S1 | 19/5 | 19/6 | 84.0 | 0.75 | 2.60 | 2.60 | 2.60 | 2.60 | 2.60 | 2.61 | 2.61 | 2.61 | 2.61 | 2.61 | 2.62 | 2.62 | 2.62 | 447 | 446 | 446 | 446 | 446 | 445 | 445 | 445 | 445 | 444 | 444 | 444 | 443 |
| 26 | OFC-24G.652D-FASA-S1 | 19/6 | 19/7 | 84.2 | -3.53 | 2.62 | 2.62 | 2.62 | 2.62 | 2.62 | 2.62 | 2.63 | 2.63 | 2.63 | 2.63 | 2.63 | 2.63 | 2.63 | 447 | 446 | 446 | 446 | 446 | 445 | 445 | 445 | 445 | 444 | 444 | 444 | 443 |
| 26 | OFC-24G.652D-FASA-S1 | 19/7 | 19/8 | 86.0 | -1.07 | 2.72 | 2.73 | 2.73 | 2.73 | 2.73 | 2.73 | 2.73 | 2.74 | 2.74 | 2.74 | 2.74 | 2.74 | 2.74 | 447 | 446 | 446 | 446 | 446 | 445 | 445 | 445 | 445 | 444 | 444 | 444 | 443 |
| 26 | OFC-24G.652D-FASA-S1 | 19/8 | 19/9 | 83.9 | -0.62 | 2.59 | 2.60 | 2.60 | 2.60 | 2.60 | 2.60 | 2.60 | 2.60 | 2.60 | 2.61 | 2.61 | 2.61 | 2.61 | 447 | 446 | 446 | 446 | 446 | 445 | 445 | 445 | 445 | 444 | 444 | 444 | 443 |
| 26 | OFC-24G.652D-FASA-S1 | 19/9 | 19/10 | 84.1 | -1.17 | 2.61 | 2.61 | 2.61 | 2.61 | 2.61 | 2.62 | 2.62 | 2.62 | 2.62 | 2.62 | 2.62 | 2.63 | 2.63 | 447 | 446 | 446 | 446 | 446 | 445 | 445 | 445 | 445 | 444 | 444 | 444 | 443 |
| 26 | OFC-24G.652D-FASA-S1 | 19/10 | 19/11 | 84.1 | -0.35 | 2.61 | 2.61 | 2.61 | 2.61 | 2.61 | 2.62 | 2.62 | 2.62 | 2.62 | 2.62 | 2.62 | 2.63 | 2.63 | 447 | 446 | 446 | 446 | 446 | 445 | 445 | 445 | 445 | 444 | 444 | 444 | 443 |
| 26 | OFC-24G.652D-FASA-S1 | 19/11 | 19/12 | 84.3 | 0.95 | 2.62 | 2.62 | 2.62 | 2.62 | 2.62 | 2.63 | 2.63 | 2.63 | 2.63 | 2.63 | 2.63 | 2.63 | 2.64 | 447 | 446 | 446 | 446 | 446 | 445 | 445 | 445 | 445 | 444 | 444 | 444 | 443 |
| 26 | OFC-24G.652D-FASA-S1 | 19/12 | 20/1 | 84.2 | -0.39 | 2.61 | 2.61 | 2.61 | 2.62 | 2.62 | 2.62 | 2.62 | 2.62 | 2.62 | 2.62 | 2.63 | 2.63 | 2.63 | 447 | 446 | 446 | 446 | 446 | 445 | 445 | 445 | 445 | 444 | 444 | 444 | 443 |
| 26 | OFC-24G.652D-FASA-S1 | 20/1 | 20/2 | 84.7 | -0.67 | 2.64 | 2.65 | 2.65 | 2.65 | 2.65 | 2.65 | 2.65 | 2.65 | 2.66 | 2.66 | 2.66 | 2.66 | 2.66 | 447 | 446 | 446 | 446 | 446 | 445 | 445 | 445 | 445 | 444 | 444 | 444 | 443 |
| 26 | OFC-24G.652D-FASA-S1 | 20/2 | 20/3 | 88.6 | -0.57 | 2.89 | 2.90 | 2.90 | 2.90 | 2.90 | 2.90 | 2.91 | 2.91 | 2.91 | 2.91 | 2.91 | 2.91 | 2.92 | 447 | 446 | 446 | 446 | 446 | 445 | 445 | 445 | 445 | 444 | 444 | 444 | 443 |
| 26 | OFC-24G.652D-FASA-S1 | 20/3 | 20/4 | 88.8 | 0.05 | 2.90 | 2.91 | 2.91 | 2.91 | 2.91 | 2.91 | 2.92 | 2.92 | 2.92 | 2.92 | 2.92 | 2.92 | 2.93 | 447 | 446 | 446 | 446 | 446 | 445 | 445 | 445 | 445 | 444 | 444 | 444 | 443 |
| 26 | OFC-24G.652D-FASA-S1 | 20/4 | 20/5 | 87.8 | -0.78 | 2.84 | 2.84 | 2.85 | 2.85 | 2.85 | 2.85 | 2.85 | 2.85 | 2.85 | 2.86 | 2.86 | 2.85 | 2.86 | 447 | 446 | 446 | 446 | 446 | 445 | 445 | 445 | 445 | 444 | 444 | 444 | 443 |
| 26 | OFC-24G.652D-FASA-S1 | 20/5 | 20/6 | 90.2 | -0.54 | 3.00 | 3.00 | 3.01 | 3.01 | 3.01 | 3.01 | 3.01 | 3.01 | 3.01 | 3.02 | 3.02 | 3.02 | 3.02 | 447 | 446 | 446 | 446 | 446 | 445 | 445 | 445 | 445 | 444 | 444 | 444 | 443 |
| 26 | OFC-24G.652D-FASA-S1 | 20/6 | 20/7 | 79.4 | 0.82 | 2.32 | 2.33 | 2.33 | 2.33 | 2.33 | 2.33 | 2.33 | 2.33 | 2.33 | 2.34 | 2.34 | 2.34 | 2.34 | 447 | 446 | 446 | 446 | 446 | 445 | 445 | 445 | 445 | 444 | 444 | 444 | 443 |
| 26 | OFC-24G.652D-FASA-S1 | 20/7 | 20/8 | 88.5 | -0.95 | 2.89 | 2.89 | 2.89 | 2.89 | 2.89 | 2.90 | 2.90 | 2.90 | 2.90 | 2.90 | 2.91 | 2.91 | 2.91 | 447 | 446 | 446 | 446 | 446 | 445 | 445 | 445 | 445 | 444 | 444 | 444 | 443 |
| 26 | OFC-24G.652D-FASA-S1 | 20/8 | 20/9 | 64.3 | -1.13 | 1.52 | 1.52 | 1.53 | 1.53 | 1.53 | 1.53 | 1.53 | 1.53 | 1.53 | 1.53 | 1.53 | 1.53 | 1.53 | 447 | 446 | 446 | 446 | 446 | 445 | 445 | 445 | 445 | 444 | 444 | 444 | 443 |
| 26 | OFC

FORBES BROS

# AS-BUILT

CHANGES REQUIRED YES ☐ NO ☐

Name (Print) _____

Signature _____

Date _____

PERMIT TO PRACTICE
CLEAN ENERGY CONSULTING INC.
SIGNATURE
Date 22-Nov-2018
PERMIT NUMBER PP424
Association of Professional Engineers of Yukon

## SAG AND TENSION

| | |
|---|---|
| CIRCUIT | VICTORIA GOLD 69kV |
| DOCUMENT | 1407-T-1450 |
| DATE | 22-Nov-18 |
| REVISION | 1 |
| ISSUED FOR | CONSTRUCTION |
| PREPARED BY | MP |
| CHECKED BY | PC |
| APPROVED BY | PC |

ENGINEER'S SEAL

PROFESSIONAL ENGINEER YUKON A. P. N. CLARK TERRITORY 22-Nov-2018

NOTES
1. All spans must be installed to the sag values provided. Tension values are provided as a reference only.
2. Sag and tension values shown are for new conductor under initial conditions based on the ruling span method.
3. For conductors left hanging in sheaves for longer than 3 hours between initial stringing and final sag, a creep correction factor must be applied.
4. All span lengths and sag values are provided in metres unless otherwise noted.
5. Conductors and cables:
   - Overhead Shieldwire (OHSW): Partridge ACSR
   - 69kV Transmission Line: Partridge ACSR
   - ADSS: OFC-24G.652D-FASA-S1
6. The minimum ambient temperature for pulling ADSS cable is -30°C. ADSS cable shall not be pulled at temperatures below this minimum temperature.

Clean Energy CONSULTING INC

| SEC | CABLE | FROM STR | TO STR | SPAN AHEAD (m) | SPAN VERT. PROJ. (m) | MID SPAN SAG (m) | | | | | | | | | | | | | HORIZONTAL TENSION (N) | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | -50 | -45 | -40 | -35 | -30 | -25 | -20 | -15 | -10 | -5 | 0 | 5 | 10 | -50 | -45 | -40 | -35 | -30 | -25 | -20 | -15 | -10 | -5 | 0 | 5 | 10 |
| 28 | OFC-24G.652D-FASA-S1 | 22/6 | 22/7 | 91.9 | -0.57 | 2.59 | 2.60 | 2.60 | 2.60 | 2.60 | 2.60 | 2.60 | 2.61 | 2.61 | 2.61 | 2.61 | 2.61 | 2.61 | 536 | 535 | 535 | 535 | 534 | 534 | 533 | 533 | 533 | 533 | 532 | 532 | 531 |
| 28 | OFC-24G.652D-FASA-S1 | 22/7 | 22/8 | 89.6 | 1.32 | 2.46 | 2.47 | 2.47 | 2.47 | 2.47 | 2.47 | 2.48 | 2.48 | 2.48 | 2.48 | 2.48 | 2.48 | 2.48 | 536 | 535 | 535 | 535 | 534 | 534 | 533 | 533 | 533 | 533 | 532 | 532 | 531 |
| 29 | PARTRIDGE ACSR | 22/8 | 22/9 | 84.6 | -0.85 | 0.64 | 0.69 | 0.74 | 0.80 | 0.87 | 0.93 | 1.00 | 1.07 | 1.14 | 1.21 | 1.28 | 1.35 | 1.42 | 7551 | 6986 | 6463 | 5975 | 5533 | 5144 | 4788 | 4477 | 4200 | 3959 | 3746 | 3557 | 3390 |
| 29 | PARTRIDGE ACSR | 22/9 | 23/1 | 84.8 | 0.77 | 0.64 | 0.69 | 0.75 | 0.81 | 0.87 | 0.94 | 1.01 | 1.08 | 1.15 | 1.22 | 1.29 | 1.35 | 1.42 | 7551 | 6986 | 6463 | 5975 | 5533 | 5144 | 4788 | 4477 | 4200 | 3959 | 3746 | 3557 | 3390 |
| 29 | PARTRIDGE ACSR | 23/1 | 23/2 | 84.8 | 0.29 | 0.64 | 0.69 | 0.75 | 0.81 | 0.87 | 0.94 | 1.01 | 1.08 | 1.15 | 1.22 | 1.29 | 1.35 | 1.42 | 7551 | 6986 | 6463 | 5975 | 5533 | 5144 | 4788 | 4477 | 4200 | 3959 | 3746 | 3557 | 3390 |
| 29 | PARTRIDGE ACSR | 23/2 | 23/3 | 84.8 | 0.47 | 0.64 | 0.69 | 0.75 | 0.81 | 0.87 | 0.94 | 1.01 | 1.08 | 1.15 | 1.22 | 1.29 | 1.35 | 1.42 | 7551 | 6986 | 6463 | 5975 | 5533 | 5144 | 4788 | 4477 | 4200 | 3959 | 3746 | 3557 | 3390 |
| 29 | PARTRIDGE ACSR | 23/3 | 23/4 | 84.6 | -0.25 | 0.64 | 0.69 | 0.74 | 0.80 | 0.87 | 0.93 | 1.00 | 1.07 | 1.14 | 1.21 | 1.28 | 1.35 | 1.41 | 7551 | 6986 | 6463 | 5975 | 5533 | 5144 | 4788 | 4477 | 4200 | 3959 | 3746 | 3557 | 3390 |
| 29 | PARTRIDGE ACSR | 23/4 | 23/5 | 84.3 | -0.40 | 0.63 | 0.68 | 0.74 | 0.80 | 0.86 | 0.93 | 0.99 | 1.06 | 1.13 | 1.20 | 1.27 | 1.34 | 1.41 | 7551 | 6986 | 6463 | 5975 | 5533 | 5144 | 4788 | 4477 | 4200 | 3959 | 3746 | 3557 | 3390 |
| 29 | PARTRIDGE ACSR | 23/5 | 23/6 | 84.6 | 1.00 | 0.63 | 0.69 | 0.74 | 0.80 | 0.87 | 0.93 | 1.00 | 1.07 | 1.14 | 1.21 | 1.28 | 1.35 | 1.41 | 7551 | 6986 | 6463 | 5975 | 5533 | 5144 | 4788 | 4477 | 4200 | 3959 | 3746 | 3557 | 3390 |
| 29 | PARTRIDGE ACSR | 23/6 | 23/7 | 62.9 | 1.35 | 0.35 | 0.38 | 0.41 | 0.44 | 0.48 | 0.52 | 0.55 | 0.59 | 0.63 | 0.67 | 0.71 | 0.75 | 0.78 | 7551 | 6986 | 6463 | 5975 | 5533 | 5144 | 4788 | 4477 | 4200 | 3959 | 3746 | 3557 | 3390 |
| 29 | PARTRIDGE ACSR | 23/7 | 23/8 | 75.6 | -0.34 | 0.51 | 0.55 | 0.59 | 0.64 | 0.69 | 0.74 | 0.80 | 0.86 | 0.91 | 0.97 | 1.02 | 1.08 | 1.13 | 7551 | 6986 | 6463 | 5975 | 5533 | 5144 | 4788 | 4477 | 4200 | 3959 | 3746 | 3557 | 3390 |
| 29 | PARTRIDGE ACSR | 23/8 | 23/9 | 90.9 | 3.36 | 0.73 | 0.79 | 0.86 | 0.93 | 1.00 | 1.08 | 1.16 | 1.24 | 1.32 | 1.40 | 1.48 | 1.56 | 1.64 | 7551 | 6986 | 6463 | 5975 | 5533 | 5144 | 4788 | 4477 | 4200 | 3959 | 3746 | 3557 | 3390 |
| 29 | PARTRIDGE ACSR | 23/9 | 23/10 | 93.7 | 0.58 | 0.78 | 0.84 | 0.91 | 0.99 | 1.06 | 1.14 | 1.23 | 1.32 | 1.40 | 1.49 | 1.57 | 1.66 | 1.74 | 7551 | 6986 | 6463 | 5975 | 5533 | 5144 | 4788 | 4477 | 4200 | 3959 | 3746 | 3557 | 3390 |
| 29 | PARTRIDGE ACSR | 23/10 | 23/11 | 102.5 | 0.24 | 0.93 | 1.01 | 1.09 | 1.18 | 1.27 | 1.37 | 1.47 | 1.57 | 1.67 | 1.78 | 1.88 | 1.98 | 2.08 | 7551 | 6986 | 6463 | 5975 | 5533 | 5144 | 4788 | 4477 | 4200 | 3959 | 3746 | 3557 | 3390 |
| 29 | PARTRIDGE ACSR | 23/11 | 23/12 | 94.9 | -0.26 | 0.80 | 0.86 | 0.93 | 1.01 | 1.09 | 1.17 | 1.26 | 1.35 | 1.44 | 1.53 | 1.61 | 1.70 | 1.78 | 7551 | 6986 | 6463 | 5975 | 5533 | 5144 | 4788 | 4477 | 4200 | 3959 | 3746 | 3557 | 3390 |
| 29 | PARTRIDGE ACSR | 23/12 | 24/1 | 94.5 | 0.33 | 0.79 | 0.86 | 0.93 | 1.00 | 1.08 | 1.16 | 1.25 | 1.34 | 1.42 | 1.51 | 1.60 | 1.68 | 1.76 | 7551 | 6986 | 6463 | 5975 | 5533 | 5144 | 4788 | 4477 | 4200 | 3959 | 3746 | 3557 | 3390 |
| 29 | PARTRIDGE ACSR | 24/1 | 24/2 | 92.8 | 0.21 | 0.76 | 0.83 | 0.89 | 0.96 | 1.04 | 1.12 | 1.20 | 1.29 | 1.37 | 1.46 | 1.54 | 1.62 | 1.70 | 7551 | 6986 | 6463 | 5975 | 5533 | 5144 | 4788 | 4477 | 4200 | 3959 | 3746 | 3557 | 3390 |
| 29 | PARTRIDGE ACSR | 24/2 | 24/3 | 91.8 | 2.42 | 0.75 | 0.81 | 0.87 | 0.94 | 1.02 | 1.10 | 1.18 | 1.26 | 1.34 | 1.43 | 1.51 | 1.59 | 1.66 | 7551 | 6986 | 6463 | 5975 | 5533 | 5144 | 4788 | 4477 | 4200 | 3959 | 3746 | 3557 | 3390 |
| 29 | PARTRIDGE ACSR | 24/3 | 24/4 | 91.0 | -0.19 | 0.73 | 0.79 | 0.86 | 0.93 | 1.00 | 1.08 | 1.16 | 1.24 | 1.32 | 1.40 | 1.48 | 1.56 | 1.64 | 7551 | 6986 | 6463 | 5975 | 5533 | 5144 | 4788 | 4477 | 4200 | 3959 | 3746 | 3557 | 3390 |
| 29 | PARTRIDGE ACSR | 24/4 | 24/5 | 94.1 | -1.09 | 0.79 | 0.85 | 0.92 | 0.99 | 1.07 | 1.15 | 1.24 | 1.33 | 1.41 | 1.50 | 1.58 | 1.67 | 1.75 | 7551 | 6986 | 6463 | 5975 | 5533 | 5144 | 4788 | 4477 | 4200 | 3959 | 3746 | 3557 | 3390 |
| 29 | PARTRIDGE ACSR | 24/5 | 24/6 | 92.2 | 0.68 | 0.75 | 0.82 | 0.88 | 0.95 | 1.03 | 1.11 | 1.19 | 1.27 | 1.36 | 1.44 | 1.52 | 1.60 | 1.68 | 7551 | 6986 | 6463 | 5975 | 5533 | 5144 | 4788 | 4477 | 4200 | 3959 | 3746 | 3557 | 3390 |
| 29 | PARTRIDGE ACSR | 24/6 | 24/7 | 93.7 | 0.22 | 0.78 | 0.84 | 0.91 | 0.99 | 1.06 | 1.14 | 1.23 | 1.32 | 1.40 | 1.49 | 1.57 | 1.66 | 1.74 | 7551 | 6986 | 6463 | 5975 | 5533 | 5144 | 4788 | 4477 | 4200 | 3959 | 3746 | 3557 | 3390 |
| 29 | PARTRIDGE ACSR | 24/7 | 24/8 | 83.5 | 0.30 | 0.62 | 0.67 | 0.72 | 0.78 | 0.84 | 0.91 | 0.98 | 1.04 | 1.11 | 1.18 | 1.25 | 1.31 | 1.38 | 7551 | 6986 | 6463 | 5975 | 5533 | 5144 | 4788 | 4477 | 4200 | 3959 | 3746 | 3557 | 3390 |
| 29 | PARTRIDGE ACSR | 24/8 | 24/9 | 85.3 | 4.34 | 0.65 | 0.70 | 0.76 | 0.82 | 0.88 | 0.95 | 1.02 | 1.09 | 1.16 | 1.23 | 1.30 | 1.37 | 1.44 | 7551 | 6986 | 6463 | 5975 | 5533 | 5144 | 4788 | 4477 | 4200 | 3959 | 3746 | 3557 | 3390 |
| 29 | PARTRIDGE ACSR | 24/9 | 24/10 | 80.6 | 6.49 | 0.58 | 0.62 | 0.68 | 0.73 | 0.79 | 0.85 | 0.91 | 0.97 | 1.04 | 1.10 | 1.17 | 1.23 | 1.29 | 7551 | 6986 | 6463 | 5975 | 5533 | 5144 | 4788 | 4477 | 4200 | 3959 | 3746 | 3557 | 3390 |
| 29 | PARTRIDGE ACSR | 24/10 | 24/11 | 87.2 | 5.50 | 0.68 | 0.73 | 0.79 | 0.85 | 0.92 | 0.99 | 1.07 | 1.14 | 1.22 | 1.29 | 1.36 | 1.44 | 1.51 | 7551 | 6986 | 6463 | 5975 | 5533 | 5144 | 4788 | 4477 | 4200 | 3959 | 3746 | 3557 | 3390 |
| 29 | PARTRIDGE ACSR | 24/11 | 25/1 | 86.0 | -2.02 | 0.69 | 0.74 | 0.80 | 0.87 | 0.94 | 1.01 | 1.08 | 1.16 | 1.24 | 1.31 | 1.39 | 1.46 | 1.53 | 7551 | 6986 | 6463 | 5975 | 5533 | 5144 | 4788 | 4477 | 4200 | 3959 | 3746 | 3557 | 3390 |
| 29 | PARTRIDGE ACSR | 25/1 | 25/2 | 90.1 | 1.16 | 0.72 | 0.78 | 0.84 | 0.91 | 0.98 | 1.06 | 1.14 | 1.22 | 1.30 | 1.38 | 1.45 | 1.53 | 1.61 | 7551 | 6986 | 6463 | 5975 | 5533 | 5144 | 4788 | 4477 | 4200 | 3959 | 3746 | 3557 | 3390 |
| 29 | PARTRIDGE ACSR | 25/2 | 25/3 | 86.6 | 4.68 | 0.67 | 0.72 | 0.78 | 0.84 | 0.91 | 0.98 | 1.05 | 1.12 | 1.20 | 1.27 | 1.34 | 1.41 | 1.48 | 7551 | 6986 | 6463 | 5975 | 5533 | 5144 | 4788 | 4477 | 4200 | 3959 | 3746 | 3557 | 3390 |
| 29 | PARTRIDGE ACSR | 25/3 | 25/4 | 85.6 | 4.21 | 0.65 | 0.70 | 0.76 | 0.82 | 0.89 | 0.96 | 1.03 | 1.10 | 1.17 | 1.24 | 1.31 | 1.38 | 1.45 | 7551 | 6986 | 6463 | 5975 | 5533 | 5144 | 4788 | 4477 | 4200 | 3959 | 3746 | 3557 | 3390 |
| 29 | PARTRIDGE ACSR | 25/4 | 25/5 | 83.3 | 3.13 | 0.62 | 0.67 | 0.72 | 0.78 | 0.84 | 0.90 | 0.97 | 1.04 | 1.11 | 1.17 | 1.24 | 1.31 | 1.37 | 7551 | 6986 | 6463 | 5975 | 5533 | 5144 | 4788 | 4477 | 4200 | 3959 | 3746 | 3557 | 3390 |
| 29 | PARTRIDGE ACSR | 25/5 | 25/6 | 85.5 | 4.49 | 0.65 | 0.70 | 0.76 | 0.82 | 0.89 | 0.95 | 1.02 | 1.10 | 1.17 | 1.24 | 1.31 | 1.38 | 1.45 | 7551 | 6986 | 6463 | 5975 | 5533 | 5144 | 4788 | 4477 | 4200 | 3959 | 3746 | 3557 | 3390 |
| 29 | PARTRIDGE ACSR | 25/6 | 25/7 | 88.1 | 5.93 | 0.69 | 0.75 | 0.81 | 0.87 | 0.94 | 1.01 | 1.09 | 1.16 | 1.24 | 1.32 | 1.39 | 1.46 | 1.54 | 7551 | 6986 | 6463 | 5975 | 5533 | 5144 | 4788 | 4477 | 4200 | 3959 | 3746 | 3557 | 3390 |
| 29 | PARTRIDGE ACSR | 25/7 | 25/8 | 93.7 | 4.62 | 0.78 | 0.84 | 0.91 | 0.99 | 1.06 | 1.14 | 1.23 | 1.32 | 1.40 | 1.49 | 1.57 | 1.66 | 1.74 | 7551 | 6986 | 6463 | 5975 | 5533 | 5144 | 4788 | 4477 | 4200 | 3959 | 3746 | 3557 | 3390 |
| 29 | PARTRIDGE ACSR | 25/8 | 25/9 | 83.5 | 6.80 | 0.62 | 0.67 | 0.73 | 0.79 | 0.85 | 0.91 | 0.98 | 1.05 | 1.12 | 1.19 | 1.25 | 1.32 | 1.38 | 7551 | 6986 | 6463 | 5975 | 5533 | 5144 | 4788 | 4477 | 4200 | 3959 | 3746 | 3557 | 3390 |
| 29 | PARTRIDGE ACSR | 25/9 | 25/10 | 80.0 | 4.43 | 0.57 | 0.61 | 0.66 | 0.72 | 0.78 | 0.83 | 0.90 | 0.96 | 1.02 | 1.08 | 1.15 | 1.21 | 1.27 | 7551 | 6986 | 6463 | 5975 | 5533 | 5144 | 4788 | 4477 | 4200 | 3959 | 3746 | 3557 | 3390 |
| 29 | PARTRIDGE ACSR | 25/10 | 25/11 | 82.4 | 3.45 | 0.60 | 0.65 | 0.70 | 0.76 | 0.82 | 0.89 | 0.95 | 1.02 | 1.08 | 1.15 | 1.22 | 1.28 | 1.34 | 7551 | 6986 | 6463 | 5975 | 5533 | 5144 | 4788 | 4477 | 4200 | 3959 | 3746 | 3557 | 3390 |
| 29 | PARTRIDGE ACSR | 25/11 | 25/12 | 82.0 | 5.08 | 0.60 | 0.65 | 0.70 | 0.76 | 0.82 | 0.88 | 0.94 | 1.01 | 1.08 | 1.14 | 1.21 | 1.27 | 1.33 | 7551 | 6986 | 6463 | 5975 | 5533 | 5144 | 4788 | 4477 | 4200 | 3959 | 3746 | 3557 | 3390 |
| 29 | PARTRIDGE ACSR | 25/12 | 26/1 | 82.2 | 5.48 | 0.60 | 0.65 | 0.70 | 0.76 | 0.82 | 0.88 | 0.95 | 1.01 | 1.08 | 1.15 | 1.21 | 1.28 | 1.34 | 7551 | 6986 | 6463 | 5975 | 5533 | 5144 | 4788 | 4477 | 4200 | 3959 | 3746 | 3557 | 3390 |
| 30 | OFC-24G.652D-FASA-S1 | 22/8 | 22/9 | 84.6 | -0.52 | 1.28 | 1.29 | 1.29 | 1.29 | 1.29 | 1.30 | 1.30 | 1.30 | 1.30 | 1.31 | 1.31 | 1.31 | 1.31 | 918 | 915 | 914 | 912 | 910 | 908 | 907 | 905 | 904 | 901 | 900 | 898 | 897 |
| 30 | OFC-24G.652D-FASA-S1 | 22/9 | 23/1 | 84.8 | 0.77 | 1.29 | 1.29 | 1.29 | 1.30 | 1.30 | 1.30 | 1.30 | 1.31 | 1.31 | 1.31 | 1.31 | 1.32 | 1.32 | 918 | 915 | 914 | 912 | 910 | 908 | 907 | 905 | 904 | 901 | 900 | 898 | 897 |
| 30 | OFC-24G.652D-FASA-S1 | 23/1 | 23/2 | 84.8 | 0.29 | 1.29 | 1.29 | 1.29 | 1.30 | 1.30 | 1.30 | 1.30 | 1.31 | 1.31 | 1.31 | 1.31 | 1.32 | 1.32 | 918 | 915 | 914 | 912 | 910 | 908 | 907 | 905 | 904 | 901 | 900 | 898 | 897 |
| 30 | OFC-24G.652D-FASA-S1 | 23/2 | 23/3 | 84.8 | 0.47 | 1.29 | 1.29 | 1.29 | 1.30 | 1.30 | 1.30 | 1.30 | 1.31 | 1.31 | 1.31 | 1.31 | 1.32 | 1.32 | 918 | 915 | 914 | 912 | 910 | 908 | 907 | 905 | 904 | 901 | 900 | 898 | 897 |
| 30 | OFC-24G.652D-FASA-S1 | 23/3 | 23/4 | 84.6 | -0.25 | 1.28 | 1.29 | 1.29 | 1.29 | 1.29 | 1.30 | 1.30 | 1.30 | 1.30 | 1.31 | 1.31 | 1.31 | 1.31 | 918 | 915 | 914 | 912 | 910 | 908 | 907 | 905 | 904 | 901 | 900 | 898 | 897 |
| 30 | OFC-24G.652D-FASA-S1 | 23/4 | 23/5 | 84.3 | -0.40 | 1.27 | 1.28 | 1.28 | 1.28 | 1.28 | 1.29 | 1.29 | 1.29 | 1.29 | 1.30 | 1.30 | 1.30 | 1.30 | 918 | 915 | 914 | 912 | 910 | 908 | 907 | 905 | 904 | 901 | 900 | 898 | 897 |
| 30 | OFC-24G.652D-FASA-S1 | 23/5 | 23/6 | 84.6 | 1.29 | 1.28 | 1.28 | 1.29 | 1.29 | 1.29 | 1.29 | 1.30 | 1.30 | 1.30 | 1.30 | 1.31 | 1.31 | 1.31 | 918 | 915 | 914 | 912 | 910 | 908 | 907 | 905 | 904 | 901 | 900 | 898 | 897 |
| 30 | OFC-24G.652D-FASA-S1 | 23/6 | 23/7 | 62.9 | 1.06 | 0.71 | 0.71 | 0.71 | 0.71 | 0.71 | 0.72 | 0.72 | 0.72 | 0.72 | 0.72 | 0.72 | 0.72 | 0.72 | 918 | 915 | 914 | 912 | 910 | 908 | 907 | 905 | 904 | 901 | 900 | 898 | 897 |
| 30 | OFC-24G.652D-FASA-S1 | 23/7 | 23/8 | 75.6 | -0.05 | 1.02 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.04 | 1.04 | 1.04 | 1.04 | 1.04 | 1.04 | 1.05 | 918 | 915 | 914 | 912 | 910 | 908 | 907 | 905 | 904 | 901 | 900 | 898 | 897 |
| 30 | OFC-24G.652D-FASA-S1 | 23/8 | 23/9 | 90.9 | 0.01 | 1.48 | 1.48 | 1.49 | 1.49 | 1.49 | 1.50 | 1.50 | 1.50 | 1.50 | 1.51 | 1.51 | 1.51 | 1.51 | 918 | 915 | 914 | 912 | 910 | 908 | 907 | 905 | 904 | 901 | 900 | 898 | 897 |
| 30 | OFC-24G.652D-FASA-S1 | 23/9 | 23/10 | 93.8 | 3.74 | 1.58 | 1.58 | 1.58 | 1.59 | 1.59 | 1.59 | 1.59 | 1.60 | 1.60 | 1.61 | 1.61 | 1.61 | 1.61 | 918 | 915 | 914 | 912 | 910 | 908 | 907 | 905 | 904 | 901 | 900 | 898 | 897 |
| 30 | OFC-24G.652D-FASA-S1 | 23/10 | 23/11 | 102.4 | 0.43 | 1.88 | 1.88 | 1.89 | 1.89 | 1.90 | 1.90 | 1.90 | 1.90 | 1.91 | 1.91 | 1.92 | 1.92 | 1.92 | 918 | 915 | 914 | 912 | 910 | 908 | 907 | 905 | 904 | 901 | 900 | 898 | 897 |
| 30 | OFC-24G.652D-FASA-S1 | 23/11 | 23/12 | 94.9 | -0.26 | 1.61 | 1.62 | 1.62 | 1.62 | 1.63 | 1.63 | 1.63 | 1.63 | 1.64 | 1.64 | 1.64 | 1.65 | 1.65 | 918 | 915 | 914 | 912 | 910 | 908 | 907 | 905 | 904 | 901 | 900 | 898 | 897 |
| 30 | OFC-24G.652D-FASA-S1 | 23/12 | 24/1 | 94.4 | 0.33 | 1.60 | 1.60 | 1.60 | 1.61 | 1.61 | 1.61 | 1.62 | 1.62 | 1.62 | 1.63 | 1.63 | 1.63 | 1.64 | 918 | 915 | 914 | 912 | 910 | 908 | 907 | 905 | 904 | 901 | 900 | 898 | 897 |
| 30 | OFC-24G.652D-FASA-S1 | 24/1 | 24/2 | 92.7 | 0.21 | 1.54 | 1.54 | 1.55 | 1.55 | 1.55 | 1.56 | 1.56 | 1.56 | 1.56 | 1.57 | 1.57 | 1.57 | 1.58 | 918 | 915 | 914 | 912 | 910 | 908 | 907 | 905 | 904 | 901 | 900 | 898 | 897 |
| 30 | OFC-24G.652D-FASA-S1 | 24/2 | 24/3 | 91.7 | 2.13 | 1.51 | 1.51 | 1.51 | 1.52 | 1.52 | 1.52 | 1.53 | 1.53 | 1.53 | 1.54 | 1.54 | 1.54 | 1.54 | 918 | 915 | 914 | 912 | 910 | 908 | 907 | 905 | 904 | 901 | 900 | 898 | 897 |
| 30 | OFC-24G.652D-FASA-S1 | 24/3 | 24/4 | 91.0 | -0.19 | 1.48 | 1.49 | 1.49 | 1.49 | 1.50 | 1.50 | 1.50 | 1.50 | 1.51 | 1.51 | 1.51 | 1.52 | 1.52 | 918 | 915 | 914 | 912 | 910 | 908 | 907 | 905 | 904 | 901 | 900 | 898 | 897 |
| 30 | OFC-24G.652D-FASA-S1 | 24/4 | 24/5 | 94.1 | -1.09 | 1.59 | 1.59 | 1.59 | 1.60 | 1.60 | 1.60 | 1.61 | 1.61 | 1.61 | 1.62 | 1.62 | 1.62 | 1.62 | 918 | 915 | 914 | 912 | 910 | 908 | 907 | 905 | 904 | 901 | 900 | 898 | 897 |
| 30 | OFC-24G.652D-FASA-S1 | 24/5 | 24/6 | 92.2 | 0.68 | 1.52 | 1.53 | 1.53 | 1.53 | 1.54 | 1.54 | 1.54 | 1.54 | 1.55 | 1.55 | 1.55 | 1.56 | 1.56 | 918 | 915 | 914 | 912 | 910 | 908 | 907 | 905 | 904 | 901 | 900 | 898 | 897 |
| 30 | OFC-24G.652D-FASA-S1 | 24/6 | 24/7 | 93.7 | 0.22 | 1.57 | 1.58 | 1.58 | 1.58 | 1.59 | 1.59 | 1.59 | 1.60 | 1.60 | 1.60 | 1.61 | 1.61 | 1.61 | 918 | 915 | 914 | 912 | 910 | 908 | 907 | 905 | 904 | 901 | 900 | 898 | 897 |
| 30 | OFC-24G.652D-FASA-S1 | 24/7 | 24/8 | 83.5 | 0.30 | 1.25 | 1.25 | 1.25 | 1.26 | 1.26 | 1.26 | 1.26 | 1.27 | 1.27 | 1.27 | 1.27 | 1.28 | 1.28 | 918 | 915 | 914 | 912 | 910 | 908 | 907 | 905 | 904 | 901 | 900 | 898 | 897 |
| 30 | OFC-24G.652D-FASA-S1 | 24/8 | 24/9 | 85.3 | 4.63 | 1.30 | 1.31 | 1.31 | 1.31 | 1.32 | 1.32 | 1.32 | 1.32 | 1.33 | 1.33 | 1.33 | 1.33 | 1.33 | 918 | 915 | 914 | 912 | 910 | 908 | 907 | 905 | 904 | 901 | 900 | 898 | 897 |
| 30 | OFC-24G.652D-FASA-S1 | 24/9 | 24/10 | 80.5 | 6.20 | 1.17 | 1.17 | 1.17 | 1.17 | 1.18 | 1.18 | 1.18 | 1.18 | 1.18 | 1.19 | 1.19 | 1.19 | 1.19 | 918 | 915 | 914 | 912 | 910 | 908 | 907 | 905 | 904 | 901 | 900 | 898 | 897 |
| 30 | OFC-24G.652D-FASA-S1 | 24/10 | 24/11 | 87.2 | 5.50 | 1.37 | 1.37 | 1.37 | 1.37 | 1.38 | 1.38 | 1.38 | 1.38 | 1.39 | 1.39 | 1.39 | 1.39 | 1.40 | 918 | 915 | 914 | 912 | 910 | 908 | 907 | 905 | 904 | 901 | 900 | 898 | 897 |
| 30 | OFC-24G.652D-FASA-S1 | 24/11 | 25/1 | 88.0 | -2.02 | 1.39 | 1.39 | 1.39 | 1.40 | 1.40 | 1.40 | 1.40 | 1.41 | 1.41 | 1.41 | 1.42 | 1.42 | 1.42 | 918 | 915 | 914 | 912 | 910 | 908 | 907 | 905 | 904 | 901 | 900 | 898 | 897 |
| 30 | OFC-24G.652D-FASA-S1 | 25/1 | 25/2 | 90.1 | 1.16 | 1.45 | 1.46 | 1.46 | 1.46 | 1.47 | 1.47 | 1.47 | 1.48 | 1.48 | 1.48 | 1.49 | 1.49 | 1.49 | 918 | 915 | 914 | 912 | 910 | 908 | 907 | 905 | 904 | 901 | 900 | 898 | 897 |
| 30 | OFC-24G.652D-FASA-S1 | 25/2 | 25/3 | 86.6 | 4.68 | 1.34 | 1.35 | 1.35 | 1.35 | 1.36 | 1.36 | 1.36 | 1.36 | 1.37 | 1.37 | 1.37 | 1.37 | 1.38 | 918 | 915 | 914 | 912 | 910 | 908 | 907 | 905 | 904 | 901 | 900 | 898 | 897 |
| 30 | OFC-24G.652D-FASA-S1 | 25/3 | 25/4 | 85.6 | 4.21 | 1.31 | 1.32 | 1.32 | 1.32 | 1.32 | 1.33 | 1.33 | 1.33 | 1.33 | 1.34 | 1.34 | 1.34 | 1.34 | 918 | 915 | 914 | 912 | 910 | 908 | 907 | 905 | 904 | 901 | 900 | 898 | 897 |
| 30 | OFC-24G.652D-FASA-S1 | 25/4 | 25/5 | 83.2 | 3.42 | 1.24 | 1.25 | 1.25 | 1.25 | 1.25 | 1.26 | 1.26 | 1.26 | 1.26 | 1.26 | 1.27 | 1.27 | 1.27 | 918 | 915 | 914 | 912 | 910 | 908 | 907 | 905 | 904 | 901 | 900 | 898 | 897 |
| 30 | OFC-24G.652D-FASA-S1 | 25/5 | 25/6 | 85.5 | 4.20 | 1.31 | 1.31 | 1.32 | 1.32 | 1.32 | 1.32 | 1.33 | 1.33 | 1.33 | 1.33 | 1.34 | 1.34 | 1.34 | 918 | 915 | 914 | 912 | 910 | 908 | 907 | 905 | 904 | 901 | 900 | 898 | 897 |
| 30 | OFC-24G.652D-FASA-S1 | 25/6 | 25/7 | 88.0 | 6.22 | 1.39 | 1.39 | 1.40 | 1.40 | 1.40 | 1.41 | 1.41 | 1.41 | 1.41 | 1.42 | 1.42 | 1.42 | 1.42 | 918 | 915 | 914 | 912 | 910 | 908 | 907 | 905 | 904 | 901 | 900 | 898 | 897 |
| 30 | OFC-24G.652D-FASA-S1 | 25/7 | 25/8 | 93.6 | 4.62 | 1.57 | 1.58 | 1.58 | 1.58 | 1.59 | 1.59 | 1.59 | 1.59 | 1.60 | 1.60 | 1.60 | 1.61 | 1.61 | 918 | 915 | 914 | 912 | 910 | 908 | 907 | 905 | 904 | 901 | 900 | 898 | 897 |
| 30 | OFC-24G.652D-FASA-S1 | 25/8 | 25/9 | 83.5 | 6.51 | 1.25 | 1.26 | 1.26 | 1.26 | 1.26 | 1.27 | 1.27 | 1.27 | 1.27 | 1.28 | 1.28 | 1.28 | 1.28 | 918 | 915 | 914 | 912 | 910 | 908 | 907 | 905 | 904 | 901 | 900 | 898 | 897 |
| 30 | OFC-24G.652D-FASA-S1 | 25/9 | 25/10 | 80.0 | 4.43 | 1.15 | 1.15 | 1.15 | 1.15 | 1.16 | 1.16 | 1.16 | 1.16 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 918 | 915 | 914 | 912 | 910 | 908 | 907 | 905 | 904 | 901 | 900 | 898 | 897 |
| 30 | OFC-24G.652D-FASA-S1 | 25/10 | 25/11 | 82.4 | 3.74 | 1.22 | 1.22 | 1.22 | 1.22 | 1.23 | 1.23 | 1.23 | 1.23 | 1.24 | 1.24 | 1.24 | 1.24 | 1.25 | 918 | 915 | 914 | 912 | 910 | 908 | 907 | 905 | 904 | 901 | 900 | 898 | 897 |
| 30 | OFC-24G.652D-FASA-S1 | 25/12 | 25/12 | 82.0 | 4.79 | 1.21 | 1.21 | 1.21 | 1.21 | 1.22 | 1.22 | 1.22 | 1.22 | 1.22 | 1.23 | 1.23 | 1.23 | 1.23 | 916 | 915 | 914 | 912 | 910 | 908 | 907 | 905 | 904 | 901 | 900 | 898 | 897 |
| 30 | OFC-24G.652D-FASA-S1 | 25/12 | 26/1 | 82.2 | 5.45 | 1.21 | 1.22 | 1.22 | 1.22 | 1.22 | 1.23 | 1.23 | 1.23 | 1.23 | 1.24 | 1.24 | 1.24 | 1.24 | 918 | 915 | 914 | 912 | 910 | 908 | 907 | 905 | 904 | 901 | 900 | 898 | 897 |
| 31 | PARTRIDGE ACSR | 26/1 | 26/2 | 73.0 | 23.16 | 0.44 | 0.48 | 0.52 | 0.56 | 0.60 | 0.65 | 0.71 | 0.76 | 0.81 | 0.87 | 0.93 | 0.98 | 1.03 | 8449 | 7838 | 7259 | 6714 | 6197 | 5732 | 5313 | 4933 | 4602 | 4309 | 4051 | 3825 | 3624 |
| 31 | PARTRIDGE ACSR | 26/2 | 26/3 | 86.2 | 4.86 | 0.59 | 0.64 | 0.69 | 0.74 | 0.80 | 0.87 | 0.94 | 1.01 | 1.08 | 1.16 | 1.23 | 1.30 | 1.38 | 8449 | 7838 | 7259 | 6714 | 6197 | 5732 | 5313 | 4933 | 4602 | 4309 | 4051 | 3825 | 3624 |
| 31 | PARTRIDGE ACSR | 26/3 | 26/4 | 89.7 | 8.15 | 0.64 | 0.69 | 0.75 | 0.81 | 0.87 | 0.94 | 1.02 | 1.10 | 1.18 | 1.26 | 1.34 | 1.41 | 1.49 | 8449 | 7838 | 7259 | 6714 | 6197 | 5732 | 5313 | 4933 | 4602 | 4309 | 4051 | 3825 | 3624 |
| 31 | PARTRIDGE ACSR | 26/4 | 26/5 | 91.4 | 7.68 | 0.66 | 0.72 | 0.77 | 0.84 | 0.91 | 0.98 | 1.06 | 1.14 | 1.22 | 1.30 | 1.39 | 1.47 | 1.55 | 8449 | 7838 | 7259 | 6714 | 6197 | 5732 | 5313 | 4933 | 4602 | 4309 | 4051 | 3825 | 3624 |
| 31 | PARTRIDGE ACSR | 26/5 | 26/6 | 90.8 | 8.16 | 0.66 | 0.71 | 0.76 | 0.83 | 0.90 | 0.97 | 1.04 | 1.13 | 1.21 | 1.29 | 1.37 | 1.45 | 1.53 | 8449 | 7838 | 7259 | 6714 | 6197 | 5732 | 5313 | 4933 | 4602 | 4309 | 4051 | 3825 | 3624 |
| 31 | PARTRIDGE ACSR | 26/6 | 26/7 | 90.2 | 7.50 | 0.65 | 0.70 | 0.75 | 0.81 | 0.88 | 0.95 | 1.03 | 1.11 | 1.19 | 1.27 | 1.35 | 1.43 | 1.51 | 8449 | 7838 | 7259 | 6714 | 6197 | 5732 | 5313 | 4933 | 4602 | 4309 | 4051 | 3825 | 3624 |
| 31 | PARTRIDGE ACSR | 26/7 | 26/8 | 91.5 | 11.38 | 0.67 | 0.72 | 0.78 | 0.84 | 0.91 | 0.99 | 1.06 | 1.15 | 1.23 | 1.31 | 1.40 | 1.48 | 1.56 | 8449 |

FORBES BROS

# AS-BUILT

CHANGES REQUIRED YES ☐ NO ☐

Name (Print) _____

Signature _____

Date _____

PERMIT TO PRACTICE
CLEAN ENERGY CONSULTING INC.
SIGNATURE _____
Date 22-Nov-2018
PERMIT NUMBER P0424
Association of Professional Engineers of Yukon

## SAG AND TENSION

| | |
|---|---|
| CIRCUIT | VICTORIA GOLD 69kV |
| DOCUMENT | 1407-T-1450 |
| DATE | 22-Nov-18 |
| REVISION | 1 |
| ISSUED FOR | CONSTRUCTION |
| PREPARED BY | MP |
| CHECKED BY | PC |
| APPROVED BY | PC |

ENGINEER'S SEAL

PROFESSIONAL ENGINEER
YUKON
A. P. N. CLARK
TERRITORY
22-Nov-2018

NOTES
1. All spans must be installed to the sag values provided. Tension values are provided as a reference only.
2. Sag and tension values shown are for new conductor under initial conditions based on the ruling span method.
3. For conductors left hanging in sheaves for longer than 3 hours between initial stringing and final sag, a creep correction factor must be applied.
4. All span lengths and sag values are provided in metres unless otherwise noted.
5. Conductors and cables:
   - Overhead Shieldwire (OHSW): Partridge ACSR
   - 69kV Transmission Line: Partridge ACSR
   - ADSS: OFC-24G.6S2D-FASA-S1
6. The minimum ambient temperature for pulling ADSS cable is -30°C. ADSS cable shall not be pulled at temperatures below this minimum temperature.

Clean Energy CONSULTING INC.

| SEC | CABLE | FROM STR | TO STR | SPAN AHEAD (m) | SPAN VERT. PROJ. (m) | MID SPAN SAG (m) | | | | | | | | | | | | | HORIZONTAL TENSION (N) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | -50 | -45 | -40 | -35 | -30 | -25 | -20 | -15 | -10 | -5 | 0 | 5 | 10 | -50 | -45 | -40 | -35 | -30 | -25 | -20 | -15 | -10 | -5 | 0 | 5 | 10 |
| 35 | PARTRIDGE ACSR | 28/3 | 28/4 | 84.6 | -19.54 | 0.51 | 0.55 | 0.59 | 0.64 | 0.70 | 0.76 | 0.83 | 0.90 | 0.98 | 1.07 | 1.15 | 1.24 | 1.32 | 9640 | 8975 | 8311 | 7677 | 7061 | 6479 | 5931 | 5443 | 5002 | 4615 | 4274 | 3975 | 3719 |
| 35 | PARTRIDGE ACSR | 28/4 | 28/5 | 73.7 | -21.47 | 0.39 | 0.42 | 0.46 | 0.49 | 0.54 | 0.58 | 0.64 | 0.70 | 0.76 | 0.82 | 0.89 | 0.95 | 1.02 | 9640 | 8975 | 8311 | 7677 | 7061 | 6479 | 5931 | 5443 | 5002 | 4615 | 4274 | 3975 | 3719 |
| 35 | PARTRIDGE ACSR | 28/5 | 28/6 | 82.1 | -21.81 | 0.48 | 0.52 | 0.56 | 0.61 | 0.66 | 0.72 | 0.79 | 0.86 | 0.93 | 1.01 | 1.09 | 1.18 | 1.26 | 9640 | 8975 | 8311 | 7677 | 7061 | 6479 | 5931 | 5443 | 5002 | 4615 | 4274 | 3975 | 3719 |
| 35 | PARTRIDGE ACSR | 28/6 | 28/7 | 81.9 | -17.04 | 0.48 | 0.51 | 0.55 | 0.60 | 0.65 | 0.71 | 0.77 | 0.84 | 0.92 | 0.99 | 1.07 | 1.15 | 1.23 | 9640 | 8975 | 8311 | 7677 | 7061 | 6479 | 5931 | 5443 | 5002 | 4615 | 4274 | 3975 | 3719 |
| 36 | OFC-24G.652D-FASA-S1 | 28/2 | 28/3 | 71.7 | -11.48 | 0.39 | 0.39 | 0.39 | 0.39 | 0.39 | 0.39 | 0.40 | 0.40 | 0.40 | 0.40 | 0.40 | 0.40 | 0.40 | 2201 | 2193 | 2185 | 2181 | 2173 | 2169 | 2161 | 2153 | 2148 | 2140 | 2132 | 2128 | 2120 |
| 36 | OFC-24G.652D-FASA-S1 | 28/3 | 28/4 | 84.6 | -19.65 | 0.55 | 0.55 | 0.55 | 0.55 | 0.56 | 0.56 | 0.56 | 0.56 | 0.56 | 0.56 | 0.57 | 0.57 | 0.57 | 2201 | 2193 | 2185 | 2181 | 2173 | 2169 | 2161 | 2153 | 2148 | 2140 | 2132 | 2128 | 2120 |
| 36 | OFC-24G.652D-FASA-S1 | 28/4 | 28/5 | 73.7 | -21.47 | 0.42 | 0.42 | 0.42 | 0.43 | 0.43 | 0.43 | 0.43 | 0.43 | 0.43 | 0.43 | 0.44 | 0.44 | 0.44 | 2201 | 2193 | 2185 | 2181 | 2173 | 2169 | 2161 | 2153 | 2148 | 2140 | 2132 | 2128 | 2120 |
| 36 | OFC-24G.652D-FASA-S1 | 28/5 | 28/6 | 82.1 | -21.81 | 0.52 | 0.52 | 0.52 | 0.53 | 0.53 | 0.53 | 0.53 | 0.53 | 0.53 | 0.54 | 0.54 | 0.54 | 0.54 | 2201 | 2193 | 2185 | 2181 | 2173 | 2169 | 2161 | 2153 | 2148 | 2140 | 2132 | 2128 | 2120 |
| 36 | OFC-24G.652D-FASA-S1 | 28/6 | 28/7 | 81.9 | -17.07 | 0.51 | 0.51 | 0.51 | 0.52 | 0.52 | 0.52 | 0.52 | 0.52 | 0.52 | 0.53 | 0.53 | 0.53 | 0.53 | 2201 | 2193 | 2185 | 2181 | 2173 | 2169 | 2161 | 2153 | 2148 | 2140 | 2132 | 2128 | 2120 |
| 37 | PARTRIDGE ACSR | 28/7 | 28/8 | 76.3 | -2.17 | 0.45 | 0.48 | 0.52 | 0.57 | 0.62 | 0.67 | 0.73 | 0.79 | 0.85 | 0.92 | 0.98 | 1.05 | 1.11 | 8760 | 8124 | 7491 | 6905 | 6339 | 5830 | 5358 | 4941 | 4571 | 4251 | 3969 | 3723 | 3510 |
| 37 | PARTRIDGE ACSR | 28/8 | 28/9 | 92.0 | -0.28 | 0.65 | 0.70 | 0.76 | 0.82 | 0.90 | 0.97 | 1.06 | 1.15 | 1.24 | 1.33 | 1.43 | 1.52 | 1.62 | 8760 | 8124 | 7491 | 6905 | 6339 | 5830 | 5358 | 4941 | 4571 | 4251 | 3969 | 3723 | 3510 |
| 37 | PARTRIDGE ACSR | 28/9 | 28/10 | 78.8 | 3.30 | 0.48 | 0.51 | 0.56 | 0.60 | 0.66 | 0.71 | 0.78 | 0.84 | 0.91 | 0.98 | 1.05 | 1.12 | 1.19 | 8760 | 8124 | 7491 | 6905 | 6339 | 5830 | 5358 | 4941 | 4571 | 4251 | 3969 | 3723 | 3510 |
| 37 | PARTRIDGE ACSR | 28/10 | 28/11 | 86.3 | 7.46 | 0.57 | 0.62 | 0.67 | 0.72 | 0.79 | 0.86 | 0.93 | 1.01 | 1.09 | 1.18 | 1.26 | 1.34 | 1.43 | 8760 | 8124 | 7491 | 6905 | 6339 | 5830 | 5358 | 4941 | 4571 | 4251 | 3969 | 3723 | 3510 |
| 37 | PARTRIDGE ACSR | 28/11 | 28/12 | 72.1 | 6.21 | 0.40 | 0.43 | 0.47 | 0.51 | 0.55 | 0.60 | 0.65 | 0.71 | 0.76 | 0.82 | 0.88 | 0.94 | 1.00 | 8760 | 8124 | 7491 | 6905 | 6339 | 5830 | 5358 | 4941 | 4571 | 4251 | 3969 | 3723 | 3510 |
| 37 | PARTRIDGE ACSR | 28/12 | 28/13 | 60.0 | 4.75 | 0.28 | 0.30 | 0.32 | 0.35 | 0.38 | 0.41 | 0.45 | 0.49 | 0.53 | 0.57 | 0.61 | 0.65 | 0.69 | 8760 | 8124 | 7491 | 6905 | 6339 | 5830 | 5358 | 4941 | 4571 | 4251 | 3969 | 3723 | 3510 |
| 38 | OFC-24G.652D-FASA-S1 | 28/7 | 28/8 | 76.3 | -1.84 | 0.54 | 0.54 | 0.55 | 0.55 | 0.55 | 0.55 | 0.55 | 0.56 | 0.56 | 0.56 | 0.56 | 0.56 | 0.56 | 1760 | 1756 | 1748 | 1743 | 1739 | 1731 | 1727 | 1722 | 1714 | 1710 | 1704 | 1698 | 1693 |
| 38 | OFC-24G.652D-FASA-S1 | 28/8 | 28/9 | 92.0 | -0.28 | 0.79 | 0.79 | 0.80 | 0.80 | 0.80 | 0.80 | 0.81 | 0.81 | 0.81 | 0.81 | 0.82 | 0.82 | 0.82 | 1760 | 1756 | 1748 | 1743 | 1739 | 1731 | 1727 | 1722 | 1714 | 1710 | 1704 | 1698 | 1693 |
| 38 | OFC-24G.652D-FASA-S1 | 28/9 | 28/10 | 78.8 | 3.30 | 0.58 | 0.58 | 0.58 | 0.59 | 0.59 | 0.59 | 0.59 | 0.59 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 1760 | 1756 | 1748 | 1743 | 1739 | 1731 | 1727 | 1722 | 1714 | 1710 | 1704 | 1698 | 1693 |
| 38 | OFC-24G.652D-FASA-S1 | 28/10 | 28/11 | 86.3 | 7.46 | 0.70 | 0.70 | 0.70 | 0.70 | 0.71 | 0.71 | 0.71 | 0.71 | 0.72 | 0.72 | 0.72 | 0.72 | 0.72 | 1760 | 1756 | 1748 | 1743 | 1739 | 1731 | 1727 | 1722 | 1714 | 1710 | 1704 | 1698 | 1693 |
| 38 | OFC-24G.652D-FASA-S1 | 28/11 | 28/12 | 72.1 | 6.31 | 0.49 | 0.49 | 0.49 | 0.49 | 0.49 | 0.49 | 0.50 | 0.50 | 0.50 | 0.50 | 0.50 | 0.50 | 0.51 | 1760 | 1756 | 1748 | 1743 | 1739 | 1731 | 1727 | 1722 | 1714 | 1710 | 1704 | 1698 | 1693 |
| 38 | OFC-24G.652D-FASA-S1 | 28/12 | 28/13 | 60.0 | 1.42 | 0.34 | 0.34 | 0.34 | 0.34 | 0.34 | 0.34 | 0.34 | 0.34 | 0.34 | 0.35 | 0.35 | 0.35 | 0.35 | 1760 | 1756 | 1748 | 1743 | 1739 | 1731 | 1727 | 1722 | 1714 | 1710 | 1704 | 1698 | 1693 |
| 39 | PARTRIDGE ACSR | 28/13 | 29/1 | 76.8 | 6.15 | 0.46 | 0.49 | 0.53 | 0.58 | 0.63 | 0.68 | 0.74 | 0.80 | 0.86 | 0.92 | 0.99 | 1.05 | 1.11 | 8689 | 8053 | 7448 | 6861 | 6324 | 5822 | 5373 | 4964 | 4610 | 4290 | 4020 | 3778 | 3565 |
| 39 | PARTRIDGE ACSR | 29/1 | 29/2 | 75.8 | 2.76 | 0.44 | 0.48 | 0.52 | 0.56 | 0.61 | 0.66 | 0.72 | 0.78 | 0.84 | 0.90 | 0.96 | 1.02 | 1.08 | 8689 | 8053 | 7448 | 6861 | 6324 | 5822 | 5373 | 4964 | 4610 | 4290 | 4020 | 3778 | 3565 |
| 39 | PARTRIDGE ACSR | 29/2 | 29/3 | 77.2 | -1.74 | 0.46 | 0.50 | 0.54 | 0.58 | 0.63 | 0.69 | 0.74 | 0.80 | 0.87 | 0.93 | 0.99 | 1.06 | 1.12 | 8689 | 8053 | 7448 | 6861 | 6324 | 5822 | 5373 | 4964 | 4610 | 4290 | 4020 | 3778 | 3565 |
| 39 | PARTRIDGE ACSR | 29/3 | 29/4 | 77.2 | 2.05 | 0.46 | 0.50 | 0.54 | 0.58 | 0.63 | 0.69 | 0.74 | 0.80 | 0.87 | 0.93 | 0.99 | 1.06 | 1.12 | 8689 | 8053 | 7448 | 6861 | 6324 | 5822 | 5373 | 4964 | 4610 | 4290 | 4020 | 3778 | 3565 |
| 39 | PARTRIDGE ACSR | 29/4 | 29/5 | 76.6 | 5.07 | 0.45 | 0.49 | 0.53 | 0.57 | 0.62 | 0.68 | 0.73 | 0.79 | 0.85 | 0.92 | 0.98 | 1.04 | 1.11 | 8689 | 8053 | 7448 | 6861 | 6324 | 5822 | 5373 | 4964 | 4610 | 4290 | 4020 | 3778 | 3565 |
| 39 | PARTRIDGE ACSR | 29/5 | 29/6 | 68.0 | 5.59 | 0.36 | 0.39 | 0.42 | 0.45 | 0.49 | 0.53 | 0.58 | 0.63 | 0.68 | 0.73 | 0.77 | 0.82 | 0.87 | 8689 | 8053 | 7448 | 6861 | 6324 | 5822 | 5373 | 4964 | 4610 | 4290 | 4020 | 3778 | 3565 |
| 39 | PARTRIDGE ACSR | 29/6 | 29/7 | 72.7 | 8.31 | 0.41 | 0.44 | 0.48 | 0.52 | 0.56 | 0.61 | 0.66 | 0.72 | 0.77 | 0.83 | 0.89 | 0.94 | 1.00 | 8689 | 8053 | 7448 | 6861 | 6324 | 5822 | 5373 | 4964 | 4610 | 4290 | 4020 | 3778 | 3565 |
| 39 | PARTRIDGE ACSR | 29/7 | 29/8 | 89.6 | 11.08 | 0.62 | 0.67 | 0.73 | 0.79 | 0.86 | 0.93 | 1.01 | 1.09 | 1.18 | 1.26 | 1.35 | 1.43 | 1.52 | 8689 | 8053 | 7448 | 6861 | 6324 | 5822 | 5373 | 4964 | 4610 | 4290 | 4020 | 3778 | 3565 |
| 39 | PARTRIDGE ACSR | 29/8 | 29/9 | 86.9 | 9.75 | 0.59 | 0.63 | 0.68 | 0.74 | 0.80 | 0.87 | 0.95 | 1.03 | 1.10 | 1.19 | 1.27 | 1.35 | 1.43 | 8689 | 8053 | 7448 | 6861 | 6324 | 5822 | 5373 | 4964 | 4610 | 4290 | 4020 | 3778 | 3565 |
| 39 | PARTRIDGE ACSR | 29/9 | 29/10 | 92.3 | 2.80 | 0.66 | 0.71 | 0.77 | 0.83 | 0.90 | 0.98 | 1.06 | 1.15 | 1.24 | 1.33 | 1.42 | 1.51 | 1.60 | 8689 | 8053 | 7448 | 6861 | 6324 | 5822 | 5373 | 4964 | 4610 | 4290 | 4020 | 3778 | 3565 |
| 39 | PARTRIDGE ACSR | 29/10 | 29/11 | 92.3 | 0.07 | 0.66 | 0.71 | 0.77 | 0.83 | 0.90 | 0.98 | 1.06 | 1.15 | 1.24 | 1.33 | 1.42 | 1.51 | 1.60 | 8689 | 8053 | 7448 | 6861 | 6324 | 5822 | 5373 | 4964 | 4610 | 4290 | 4020 | 3778 | 3565 |
| 39 | PARTRIDGE ACSR | 29/11 | 29/12 | 92.8 | -4.75 | 0.56 | 0.72 | 0.78 | 0.84 | 0.91 | 0.99 | 1.08 | 1.16 | 1.25 | 1.35 | 1.44 | 1.53 | 1.62 | 8689 | 8053 | 7448 | 6861 | 6324 | 5822 | 5373 | 4964 | 4610 | 4290 | 4020 | 3778 | 3565 |
| 39 | PARTRIOGE ACSR | 29/12 | 30/1 | 91.6 | -10.84 | 0.65 | 0.70 | 0.76 | 0.83 | 0.90 | 0.97 | 1.05 | 1.14 | 1.23 | 1.32 | 1.41 | 1.50 | 1.59 | 8689 | 8053 | 7448 | 6861 | 6324 | 5822 | 5373 | 4964 | 4610 | 4290 | 4020 | 3778 | 3565 |
| 39 | PARTRIDGE ACSR | 30/1 | 30/2 | 86.2 | -7.12 | 0.58 | 0.62 | 0.67 | 0.73 | 0.79 | 0.86 | 0.93 | 1.01 | 1.09 | 1.17 | 1.24 | 1.32 | 1.40 | 8689 | 8053 | 7448 | 6861 | 6324 | 5822 | 5373 | 4964 | 4610 | 4290 | 4020 | 3778 | 3565 |
| 39 | PARTRIDGE ACSR | 30/2 | 30/3 | 70.8 | -9.14 | 0.39 | 0.42 | 0.46 | 0.49 | 0.54 | 0.58 | 0.63 | 0.68 | 0.74 | 0.79 | 0.84 | 0.90 | 0.95 | 8689 | 8053 | 7448 | 6861 | 6324 | 5822 | 5373 | 4964 | 4610 | 4290 | 4020 | 3778 | 3565 |
| 39 | PARTRIDGE ACSR | 30/3 | 30/4 | 75.2 | -6.73 | 0.44 | 0.47 | 0.51 | 0.55 | 0.60 | 0.65 | 0.71 | 0.77 | 0.82 | 0.89 | 0.95 | 1.01 | 1.07 | 8689 | 8053 | 7448 | 6861 | 6324 | 5822 | 5373 | 4964 | 4610 | 4290 | 4020 | 3778 | 3565 |
| 39 | PARTRIDGE ACSR | 30/4 | 30/5 | 78.2 | -4.78 | 0.47 | 0.51 | 0.55 | 0.60 | 0.65 | 0.70 | 0.76 | 0.83 | 0.89 | 0.96 | 1.02 | 1.09 | 1.15 | 8689 | 8053 | 7448 | 6861 | 6324 | 5822 | 5373 | 4964 | 4610 | 4290 | 4020 | 3778 | 3565 |
| 40 | OFC-24G.652D-FASA-S1 | 28/13 | 29/1 | 76.7 | 9.50 | 0.65 | 0.66 | 0.66 | 0.66 | 0.66 | 0.66 | 0.66 | 0.67 | 0.67 | 0.67 | 0.67 | 0.68 | 0.68 | 1493 | 1489 | 1484 | 1480 | 1476 | 1471 | 1467 | 1463 | 1458 | 1452 | 1448 | 1444 | 1439 |
| 40 | OFC-24G.652D-FASA-S1 | 29/1 | 29/2 | 75.8 | 2.86 | 0.63 | 0.64 | 0.64 | 0.64 | 0.64 | 0.64 | 0.64 | 0.65 | 0.65 | 0.65 | 0.65 | 0.65 | 0.66 | 1493 | 1489 | 1484 | 1480 | 1476 | 1471 | 1467 | 1463 | 1458 | 1452 | 1448 | 1444 | 1439 |
| 40 | OFC-24G.652D-FASA-S1 | 29/2 | 29/3 | 77.2 | -1.74 | 0.66 | 0.66 | 0.66 | 0.66 | 0.66 | 0.66 | 0.67 | 0.67 | 0.67 | 0.67 | 0.67 | 0.68 | 0.68 | 1493 | 1489 | 1484 | 1480 | 1476 | 1471 | 1467 | 1463 | 1458 | 1452 | 1448 | 1444 | 1439 |
| 40 | OFC-24G.652D-FASA-S1 | 29/3 | 29/4 | 77.2 | 2.05 | 0.65 | 0.66 | 0.66 | 0.66 | 0.66 | 0.66 | 0.67 | 0.67 | 0.67 | 0.67 | 0.67 | 0.68 | 0.68 | 1493 | 1489 | 1484 | 1480 | 1476 | 1471 | 1467 | 1463 | 1458 | 1452 | 1448 | 1444 | 1439 |
| 40 | OFC-24G.652D-FASA-S1 | 29/4 | 29/5 | 76.7 | 5.07 | 0.65 | 0.65 | 0.65 | 0.65 | 0.66 | 0.66 | 0.66 | 0.66 | 0.66 | 0.67 | 0.67 | 0.67 | 0.67 | 1493 | 1489 | 1484 | 1480 | 1476 | 1471 | 1467 | 1463 | 1458 | 1452 | 1448 | 1444 | 1439 |
| 40 | OFC-24G.652D-FASA-S1 | 29/5 | 29/6 | 68.0 | 5.89 | 0.51 | 0.51 | 0.51 | 0.52 | 0.52 | 0.52 | 0.52 | 0.52 | 0.52 | 0.53 | 0.53 | 0.53 | 0.53 | 1493 | 1489 | 1484 | 1480 | 1476 | 1471 | 1467 | 1463 | 1458 | 1452 | 1448 | 1444 | 1439 |
| 40 | OFC-24G.652D-FASA-S1 | 29/6 | 29/7 | 72.7 | 8.31 | 0.59 | 0.59 | 0.59 | 0.59 | 0.59 | 0.59 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.61 | 0.61 | 1493 | 1489 | 1484 | 1480 | 1476 | 1471 | 1467 | 1463 | 1458 | 1452 | 1448 | 1444 | 1439 |
| 40 | OFC-24G.652D-FASA-S1 | 29/7 | 29/8 | 89.6 | 10.79 | 0.89 | 0.89 | 0.89 | 0.90 | 0.90 | 0.90 | 0.91 | 0.91 | 0.91 | 0.91 | 0.92 | 0.92 | 0.92 | 1493 | 1489 | 1484 | 1480 | 1476 | 1471 | 1467 | 1463 | 1458 | 1452 | 1448 | 1444 | 1439 |
| 40 | OFC-24G.652D-FASA-S1 | 29/8 | 29/9 | 86.9 | 9.75 | 0.84 | 0.84 | 0.84 | 0.84 | 0.85 | 0.85 | 0.85 | 0.85 | 0.86 | 0.86 | 0.86 | 0.86 | 0.87 | 1493 | 1489 | 1484 | 1480 | 1476 | 1471 | 1467 | 1463 | 1458 | 1452 | 1448 | 1444 | 1439 |
| 40 | OFC-24G.652D-FASA-S1 | 29/9 | 29/10 | 92.3 | 2.80 | 0.94 | 0.94 | 0.94 | 0.95 | 0.95 | 0.95 | 0.96 | 0.96 | 0.96 | 0.97 | 0.97 | 0.97 | 0.97 | 1493 | 1489 | 1484 | 1480 | 1476 | 1471 | 1467 | 1463 | 1458 | 1452 | 1448 | 1444 | 1439 |
| 40 | OFC-24G.652D-FASA-S1 | 29/10 | 29/11 | 92.3 | 0.07 | 0.94 | 0.94 | 0.94 | 0.95 | 0.95 | 0.95 | 0.95 | 0.96 | 0.96 | 0.96 | 0.97 | 0.97 | 0.97 | 1493 | 1489 | 1484 | 1480 | 1476 | 1471 | 1467 | 1463 | 1458 | 1452 | 1448 | 1444 | 1439 |
| 40 | OFC-24G.652D-FASA-S1 | 29/11 | 29/12 | 92.8 | -4.75 | 0.95 | 0.95 | 0.95 | 0.96 | 0.96 | 0.96 | 0.97 | 0.97 | 0.97 | 0.98 | 0.98 | 0.98 | 0.98 | 1493 | 1489 | 1484 | 1480 | 1476 | 1471 | 1467 | 1463 | 1458 | 1452 | 1448 | 1444 | 1439 |
| 40 | OFC-24G.652D-FASA-S1 | 29/12 | 30/1 | 91.6 | -10.55 | 0.93 | 0.93 | 0.93 | 0.94 | 0.94 | 0.94 | 0.95 | 0.95 | 0.95 | 0.96 | 0.96 | 0.96 | 0.96 | 1493 | 1489 | 1484 | 1480 | 1476 | 1471 | 1467 | 1463 | 1458 | 1452 | 1448 | 1444 | 1439 |
| 40 | OFC-24G.652D-FASA-S1 | 30/1 | 30/2 | 86.2 | -7.12 | 0.82 | 0.82 | 0.83 | 0.83 | 0.83 | 0.83 | 0.83 | 0.84 | 0.84 | 0.84 | 0.85 | 0.85 | 0.85 | 1493 | 1489 | 1484 | 1480 | 1476 | 1471 | 1467 | 1463 | 1458 | 1452 | 1448 | 1444 | 1439 |
| 40 | OFC-24G.652D-FASA-S1 | 30/2 | 30/3 | 70.8 | -9.43 | 0.56 | 0.56 | 0.56 | 0.56 | 0.56 | 0.56 | 0.57 | 0.57 | 0.57 | 0.57 | 0.57 | 0.58 | 0.58 | 1493 | 1489 | 1484 | 1480 | 1476 | 1471 | 1467 | 1463 | 1458 | 1452 | 1448 | 1444 | 1439 |
| 40 | OFC-24G.652D-FASA-S1 | 30/3 | 30/4 | 75.2 | -6.73 | 0.62 | 0.63 | 0.63 | 0.63 | 0.63 | 0.63 | 0.64 | 0.64 | 0.64 | 0.64 | 0.64 | 0.65 | 0.65 | 1493 | 1489 | 1484 | 1480 | 1476 | 1471 | 1467 | 1463 | 1458 | 1452 | 1448 | 1444 | 1439 |
| 40 | OFC-24G.652D-FASA-S1 | 30/4 | 30/5 | 78.1 | -4.82 | 0.67 | 0.68 | 0.68 | 0.68 | 0.68 | 0.68 | 0.69 | 0.69 | 0.69 | 0.69 | 0.69 | 0.70 | 0.70 | 1493 | 1489 | 1484 | 1480 | 1476 | 1471 | 1467 | 1463 | 1458 | 1452 | 1448 | 1444 | 1439 |
| 41 | PARTRIDGE ACSR | 30/5 | 30/6 | 96.5 | 3.54 | 0.78 | 0.84 | 0.91 | 0.98 | 1.05 | 1.13 | 1.22 | 1.30 | 1.39 | 1.48 | 1.56 | 1.65 | 1.73 | 8023 | 7442 | 6895 | 6390 | 5929 | 5506 | 5130 | 4795 | 4494 | 4235 | 4000 | 3793 | 3607 |
| 41 | PARTRIDGE ACSR | 30/6 | 30/7 | 92.1 | 9.35 | 0.71 | 0.77 | 0.83 | 0.89 | 0.96 | 1.04 | 1.11 | 1.19 | 1.27 | 1.35 | 1.43 | 1.51 | 1.58 | 8023 | 7442 | 6895 | 6390 | 5929 | 5506 | 5130 | 4795 | 4494 | 4235 | 4000 | 3793 | 3607 |
| 41 | PARTRIDGE ACSR | 30/7 | 30/8 | 91.3 | 9.40 | 0.70 | 0.75 | 0.81 | 0.88 | 0.95 | 1.02 | 1.09 | 1.17 | 1.25 | 1.33 | 1.40 | 1.48 | 1.56 | 8023 | 7442 | 6895 | 6390 | 5929 | 5506 | 5130 | 4795 | 4494 | 4235 | 4000 | 3793 | 3607 |
| 41 | PARTRIDGE ACSR | 30/8 | 30/9 | 66.2 | 3.09 | 0.37 | 0.40 | 0.43 | 0.46 | 0.50 | 0.53 | 0.57 | 0.61 | 0.66 | 0.70 | 0.74 | 0.78 | 0.82 | 8023 | 7442 | 6895 | 6390 | 5929 | 5506 | 5130 | 4795 | 4494 | 4235 | 4000 | 3793 | 3607 |
| 41 | PARTRIDGE ACSR | 30/9 | 30/10 | 63.5 | -8.10 | 0.34 | 0.37 | 0.40 | 0.43 | 0.46 | 0.50 | 0.53 | 0.57 | 0.61 | 0.64 | 0.68 | 0.72 | 0.76 | 8023 | 7442 | 6895 | 6390 | 5929 | 5506 | 5130 | 4795 | 4494 | 4235 | 4000 | 3793 | 3607 |
| 41 | PARTRIDGE ACSR | 30/10 | 30/11 | 90.6 | -8.05 | 0.69 | 0.74 | 0.80 | 0.86 | 0.93 | 1.00 | 1.08 | 1.15 | 1.23 | 1.30 | 1.38 | 1.46 | 1.53 | 8023 | 7442 | 6895 | 6390 | 5929 | 5506 | 5130 | 4795 | 4494 | 4235 | 4000 | 3793 | 3607 |
| 41 | PARTRIDGE ACSR | 30/11 | 30/12 | 91.8 | -6.06 | 0.70 | 0.76 | 0.82 | 0.88 | 0.95 | 1.03 | 1.10 | 1.18 | 1.26 | 1.34 | 1.41 | 1.49 | 1.57 | 8023 | 7442 | 6895 | 6390 | 5929 | 5506 | 5130 | 4795 | 4494 | 4235 | 4000 | 3793 | 3607 |
| 41 | PARTRIDGE ACSR | 30/12 | 31/1 | 95.4 | -2.97 | 0.76 | 0.82 | 0.88 | 0.95 | 1.03 | 1.11 | 1.19 | 1.27 | 1.36 | 1.44 | 1.52 | 1.61 | 1.69 | 8023 | 7442 | 6895 | 6390 | 5929 | 5506 | 5130 | 4795 | 4494 | 4235 | 4000 | 3793 | 3607 |
| 41 | PARTRIDGE ACSR | 31/1 | 31/2 | 97.5 | -5.05 | 0.79 | 0.86 | 0.93 | 1.00 | 1.08 | 1.16 | 1.24 | 1.33 | 1.42 | 1.51 | 1.60 | 1.68 | 1.77 | 8023 | 7442 | 6895 | 6390 | 5929 | 5506 | 5130 | 4795 | 4494 | 4235 | 4000 | 3793 | 3607 |
| 41 | PARTRIDGE ACSR | 31/2 | 31/3 | 95.9 | -2.64 | 0.77 | 0.83 | 0.89 | 0.96 | 1.04 | 1.12 | 1.20 | 1.29 | 1.37 | 1.46 | 1.54 | 1.62 | 1.71 | 8023 | 7442 | 6895 | 6390 | 5929 | 5506 | 5130 | 4795 | 4494 | 4235 | 4000 | 3793 | 3607 |
| 41 | PARTRIDGE ACSR | 31/3 | 31/4 | 94.2 | 3.05 | 0.74 | 0.80 | 0.86 | 0.93 | 1.00 | 1.08 | 1.16 | 1.24 | 1.32 | 1.41 | 1.49 | 1.57 | 1.65 | 8023 | 7442 | 6895 | 6390 | 5929 | 5506 | 5130 | 4795 | 4494 | 4235 | 4000 | 3793 | 3607 |
| 41 | PARTRIDGE ACSR | 31/4 | 31/5 | 94.2 | -3.86 | 0.74 | 0.80 | 0.86 | 0.93 | 1.00 | 1.08 | 1.16 | 1.24 | 1.32 | 1.41 | 1.49 | 1.57 | 1.65 | 8023 | 7442 | 6895 | 6390 | 5929 | 5506 | 5130 | 4795 | 4494 | 4235 | 4000 | 3793 | 3607 |
| 41 | PARTRIDGE ACSR | 31/5 | 31/6 | 95.9 | -17.97 | 0.78 | 0.84 | 0.91 | 0.98 | 1.06 | 1.14 | 1.22 | 1.31 | 1.40 | 1.48 | 1.57 | 1.65 | 1.74 | 8023 | 7442 | 6895 | 6390 | 5929 | 5506 | 5130 | 4795 | 4494 | 4235 | 4000 | 3793 | 3607 |
| 42 | OFC-24G.652D-FASA-S1 | 30/5 | 30/6 | 96.5 | 3.87 | 1.70 | 1.70 | 1.71 | 1.71 | 1.71 | 1.71 | 1.72 | 1.72 | 1.72 | 1.73 | 1.73 | 1.73 | 1.74 | 901 | 899 | 898 | 896 | 895 | 893 | 892 | 890 | 889 | 887 | 886 | 884 | 883 |
| 42 | OFC-24G.652D-FASA-S1 | 30/6 | 30/7 | 92.1 | 9.35 | 1.56 | 1.56 | 1.56 | 1.56 | 1.57 | 1.57 | 1.57 | 1.57 | 1.58 | 1.58 | 1.58 | 1.59 | 1.59 | 901 | 899 | 898 | 896 | 895 | 893 | 892 | 890 | 889 | 887 | 886 | 884 | 883 |
| 42 | OFC-24G.652D-FASA-S1 | 30/7 | 30/8 | 91.3 | 9.50 | 1.53 | 1.53 | 1.53 | 1.54 | 1.54 | 1.54 | 1.54 | 1.55 | 1.55 | 1.55 | 1.55 | 1.56 | 1.56 | 901 | 899 | 898 | 896 | 895 | 893 | 892 | 890 | 889 | 887 | 886 | 884 | 883 |
| 42 | OFC-24G.652D-FASA-S1 | 30/8 | 30/9 | 66.3 | 0.72 | 0.80 | 0.80 | 0.80 | 0.81 | 0.81 | 0.81 | 0.81 | 0.81 | 0.81 | 0.81 | 0.81 | 0.82 | 0.82 | 901 | 899 | 898 | 896 | 895 | 893 | 892 | 890 | 889 | 887 | 886 | 884 | 883 |
| 42 | OFC-24G.652D-FASA-S1 | 30/9 | 30/10 | 63.6 | -5.73 | 0.74 | 0.74 | 0.74 | 0.74 | 0.74 | 0.75 | 0.75 | 0.75 | 0.75 | 0.75 | 0.75 | 0.75 | 0.76 | 901 | 899 | 898 | 896 | 895 | 893 | 892 | 890 | 889 | 887 | 886 | 884 | 883 |
| 42 | OFC-24G.652D-FASA-S1 | 30/10 | 30/11 | 90.6 | -8.15 | 1.50 | 1.51 | 1.51 | 1.51 | 1.51 | 1.52 | 1.52 | 1.52 | 1.52 | 1.53 | 1.53 | 1.53 | 1.53 | 901 | 899 | 898 | 896 | 895 | 893 | 892 | 890 | 889 | 887 | 886 | 884 | 883 |
| 42 | OFC-24G.652D-FASA-S1 | 30/11 | 30/12 | 91.8 | -6.06 | 1.54 | 1.54 | 1.54 | 1.55 | 1.55 | 1.55 | 1.56 | 1.56 | 1.56 | 1.56 | 1.57 | 1.57 | 1.57 | 901 | 899 | 898 | 896 | 895 | 893 | 892 | 890 | 889 | 887 | 886 | 884 | 883 |
| 42 | OFC-24G.652D-FASA-S1 | 30/12 | 31/1 | 95.4 | -2.97 | 1.66 | 1.66 | 1.67 | 1.67 | 1.67 | 1.67 | 1.68 | 1.68 | 1.68 | 1.69 | 1.69 | 1.69 | 1.69 | 901 | 899 | 898 | 896 | 895 | 893 | 892 | 890 | 889 | 887 | 886 | 884 | 883 |
| 42 | OFC-24G.652D-FASA-S1 | 31/1 | 31/2 | 97.5 | -5.05 | 1.74 | 1.74 | 1.74 | 1.75 | 1.75 | 1.75 | 1.75 | 1.76 | 1.76 | 1.76 | 1.77 | 1.77 | 1.77 | 901 | 899 | 898 | 896 | 895 | 893 | 892 | 890 | 889 | 887 | 886 | 884 | 883 |
| 42 | OFC-24G.652D-FASA-S1 | 31/2 | 31/3 | 95.9 | -2.64 | 1.68 | 1.68 | 1.68 | 1.69 | 1.69 | 1.69 | 1.69 | 1.70 | 1.70 | 1.70 | 1.71 | 1.71 | 1.71 | 901 | 899 | 898 | 896 | 895 | 893 | 892 | 890 | 889 | 887 | 886 | 884 | 883 |
| 42 | OFC-24G.652D-FASA-S1 | 31/3 | 31/4 | 94.2 | 3.05 | 1.62 | 1.62 | 1.63 | 1.63 | 1.63 | 1.63 | 1.64 | 1.64 | 1.64 | 1.64 | 1.65 | 1.65 | 1.65 | 901 | 899 | 898 | 896 | 895 | 893 | 892 | 890 | 889 | 887 | 886 | 884 | 883 |
| 42 | OFC-24G.652D-FASA-S1 | 31/4 | 31/5 | 94.2 | -3.76 | 1.62 | 1.62 | 1.63 | 1.63 | 1.63 | 1.63 | 1.64 | 1.64 | 1.64 | 1.64 | 1.65 | 1.65 | 1.65 | 901 | 899 | 898 | 896 | 895 | 893 | 892 | 890 | 889 | 887 | 886 | 884 | 883 |
| 42 | OFC-24G.652D-FASA-S1 | 31/5 | 31/6 | 95.9 | -21.31 | 1.72 | 1.72 | 1.72 | 1.73 | 1.73 | 1.73 | 1.74 | 1.74 | 1.74 | 1.74 | 1.75 | 1.75 | 1.75 | 901 | 899 | 898 

FORBES BROS AS-BUILT

CHANGES REQUIRED YES ☐ NO ☐

Name (Print) _____

Signature _____

Date _____

PERMIT TO PRACTICE
CLEAN ENERGY CONSULTING INC.
SIGNATURE _____
Date 22-Nov-2018
PERMIT NUMBER PP434
Association of Professional Engineers of Yukon

## SAG AND TENSION

| | |
|---|---|
| CIRCUIT | VICTORIA GOLD 69kV |
| DOCUMENT | 1407-T-1450 |
| DATE | 22-Nov-18 |
| REVISION | 1 |
| ISSUED FOR | CONSTRUCTION |
| PREPARED BY | MP |
| CHECKED BY | PC |
| APPROVED BY | PC |

ENGINEER'S SEAL
PROFESSIONAL ENGINEER
YUKON
A. P. N. CLARK
TERRITORY
22-Nov-2018

NOTES
1. All spans must be installed to the sag values provided. Tension values are provided as a reference only.
2. Sag and tension values shown are for new conductor under initial conditions based on the ruling span method.
3. For conductors left hanging in sheaves for longer than 3 hours between initial stringing and final sag, a creep correction factor must be applied.
4. All span lengths and sag values are provided in metres unless otherwise noted.
5. Conductors and cables:
   - Overhead Shieldwire (OHSW): Partridge ACSR
   - 69kV Transmission Line: Partridge ACSR
   - ADSS: OFC-24G.652D-FASA-S1
6. The minimum ambient temperature for pulling ADSS cable is -30°C. ADSS cable shall not be pulled at temperatures below this minimum temperature.

Clean Energy CONSULTING INC.

| SEC | CABLE | FROM STR | TO STR | SPAN AHEAD (m) | SPAN VERT. PROJ. (m) | MID SPAN SAG (m) -50 | -45 | -40 | -35 | -30 | -25 | -20 | -15 | -10 | -5 | 0 | 5 | 10 | HORIZONTAL TENSION (N) -50 | -45 | -40 | -35 | -30 | -25 | -20 | -15 | -10 | -5 | 0 | 5 | 10 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 47 | PARTRIDGE ACSR | 33/8 | 33/9 | 90.7 | -2.14 | 0.75 | 0.82 | 0.88 | 0.95 | 1.03 | 1.11 | 1.19 | 1.28 | 1.36 | 1.44 | 1.52 | 1.61 | 1.68 | 7335 | 6768 | 6257 | 5782 | 5352 | 4962 | 4624 | 4323 | 4061 | 3826 | 3620 | 3439 | 3279 |
| 47 | PARTRIDGE ACSR | 33/9 | 33/10 | 89.4 | 0.97 | 0.73 | 0.79 | 0.86 | 0.93 | 1.00 | 1.08 | 1.16 | 1.24 | 1.32 | 1.40 | 1.48 | 1.56 | 1.63 | 7335 | 6768 | 6257 | 5782 | 5352 | 4962 | 4624 | 4323 | 4061 | 3826 | 3620 | 3439 | 3279 |
| 47 | PARTRIDGE ACSR | 33/10 | 33/11 | 92.0 | 3.58 | 0.77 | 0.84 | 0.91 | 0.98 | 1.06 | 1.14 | 1.23 | 1.31 | 1.40 | 1.48 | 1.57 | 1.65 | 1.73 | 7335 | 6768 | 6257 | 5782 | 5352 | 4962 | 4624 | 4323 | 4061 | 3826 | 3620 | 3439 | 3279 |
| 47 | PARTRIDGE ACSR | 33/11 | 34/1 | 90.4 | 4.78 | 0.75 | 0.81 | 0.88 | 0.95 | 1.02 | 1.10 | 1.19 | 1.27 | 1.35 | 1.43 | 1.51 | 1.59 | 1.67 | 7335 | 6768 | 6257 | 5782 | 5352 | 4962 | 4624 | 4323 | 4061 | 3826 | 3620 | 3439 | 3279 |
| 47 | PARTRIDGE ACSR | 34/1 | 34/2 | 87.1 | -2.13 | 0.69 | 0.75 | 0.81 | 0.88 | 0.95 | 1.02 | 1.10 | 1.18 | 1.25 | 1.33 | 1.40 | 1.48 | 1.55 | 7335 | 6768 | 6257 | 5782 | 5352 | 4962 | 4624 | 4323 | 4061 | 3826 | 3620 | 3439 | 3279 |
| 47 | PARTRIDGE ACSR | 34/2 | 34/3 | 85.8 | -7.95 | 0.68 | 0.73 | 0.79 | 0.86 | 0.93 | 1.00 | 1.07 | 1.15 | 1.22 | 1.30 | 1.37 | 1.44 | 1.51 | 7335 | 6768 | 6257 | 5782 | 5352 | 4962 | 4624 | 4323 | 4061 | 3826 | 3620 | 3439 | 3279 |
| 47 | PARTRIDGE ACSR | 34/3 | 34/4 | 89.9 | -5.91 | 0.74 | 0.80 | 0.87 | 0.94 | 1.01 | 1.09 | 1.17 | 1.26 | 1.34 | 1.42 | 1.50 | 1.58 | 1.66 | 7335 | 6768 | 6257 | 5782 | 5352 | 4962 | 4624 | 4323 | 4061 | 3826 | 3620 | 3439 | 3279 |
| 47 | PARTRIDGE ACSR | 34/4 | 34/5 | 91.5 | -1.26 | 0.76 | 0.83 | 0.90 | 0.97 | 1.05 | 1.13 | 1.21 | 1.30 | 1.38 | 1.47 | 1.55 | 1.63 | 1.71 | 7335 | 6768 | 6257 | 5782 | 5352 | 4962 | 4624 | 4323 | 4061 | 3826 | 3620 | 3439 | 3279 |
| 47 | PARTRIDGE ACSR | 34/5 | 34/6 | 90.8 | -0.34 | 0.75 | 0.82 | 0.88 | 0.96 | 1.03 | 1.11 | 1.19 | 1.28 | 1.36 | 1.44 | 1.53 | 1.61 | 1.68 | 7335 | 6768 | 6257 | 5782 | 5352 | 4962 | 4624 | 4323 | 4061 | 3826 | 3620 | 3439 | 3279 |
| 47 | PARTRIDGE ACSR | 34/6 | 34/7 | 84.7 | 1.85 | 0.65 | 0.71 | 0.77 | 0.83 | 0.90 | 0.97 | 1.04 | 1.11 | 1.18 | 1.26 | 1.33 | 1.40 | 1.47 | 7335 | 6768 | 6257 | 5782 | 5352 | 4962 | 4624 | 4323 | 4061 | 3826 | 3620 | 3439 | 3279 |
| 47 | PARTRIDGE ACSR | 34/7 | 34/8 | 88.0 | 1.61 | 0.71 | 0.77 | 0.83 | 0.90 | 0.97 | 1.05 | 1.12 | 1.20 | 1.28 | 1.36 | 1.44 | 1.51 | 1.58 | 7335 | 6768 | 6257 | 5782 | 5352 | 4962 | 4624 | 4323 | 4061 | 3826 | 3620 | 3439 | 3279 |
| 47 | PARTRIDGE ACSR | 34/8 | 34/9 | 87.3 | 0.51 | 0.70 | 0.76 | 0.82 | 0.88 | 0.95 | 1.03 | 1.11 | 1.18 | 1.26 | 1.34 | 1.41 | 1.49 | 1.56 | 7335 | 6768 | 6257 | 5782 | 5352 | 4962 | 4624 | 4323 | 4061 | 3826 | 3620 | 3439 | 3279 |
| 47 | PARTRIDGE ACSR | 34/9 | 34/10 | 89.8 | 6.97 | 0.74 | 0.80 | 0.87 | 0.94 | 1.01 | 1.09 | 1.17 | 1.26 | 1.34 | 1.42 | 1.50 | 1.58 | 1.65 | 7335 | 6768 | 6257 | 5782 | 5352 | 4962 | 4624 | 4323 | 4061 | 3826 | 3620 | 3439 | 3279 |
| 47 | PARTRIDGE ACSR | 34/10 | 34/11 | 92.0 | 0.10 | 0.77 | 0.84 | 0.91 | 0.98 | 1.06 | 1.14 | 1.23 | 1.31 | 1.40 | 1.48 | 1.57 | 1.65 | 1.73 | 7335 | 6768 | 6257 | 5782 | 5352 | 4962 | 4624 | 4323 | 4061 | 3826 | 3620 | 3439 | 3279 |
| 47 | PARTRIDGE ACSR | 34/11 | 34/12 | 91.4 | -2.44 | 0.76 | 0.83 | 0.89 | 0.97 | 1.05 | 1.13 | 1.21 | 1.29 | 1.38 | 1.46 | 1.55 | 1.63 | 1.71 | 7335 | 6768 | 6257 | 5782 | 5352 | 4962 | 4624 | 4323 | 4061 | 3826 | 3620 | 3439 | 3279 |
| 47 | PARTRIDGE ACSR | 34/12 | 35/1 | 90.5 | 1.38 | 0.75 | 0.81 | 0.88 | 0.95 | 1.03 | 1.11 | 1.19 | 1.27 | 1.35 | 1.44 | 1.52 | 1.60 | 1.67 | 7335 | 6768 | 6257 | 5782 | 5352 | 4962 | 4624 | 4323 | 4061 | 3826 | 3620 | 3439 | 3279 |
| 47 | PARTRIDGE ACSR | 35/1 | 35/2 | 62.3 | 0.24 | 0.35 | 0.38 | 0.42 | 0.45 | 0.49 | 0.52 | 0.56 | 0.60 | 0.64 | 0.68 | 0.72 | 0.76 | 0.79 | 7335 | 6768 | 6257 | 5782 | 5352 | 4962 | 4624 | 4323 | 4061 | 3826 | 3620 | 3439 | 3279 |
| 47 | PARTRIDGE ACSR | 35/2 | 35/3 | 85.6 | -8.44 | 0.67 | 0.73 | 0.79 | 0.85 | 0.92 | 0.99 | 1.07 | 1.14 | 1.21 | 1.29 | 1.36 | 1.43 | 1.50 | 7335 | 6768 | 6257 | 5782 | 5352 | 4962 | 4624 | 4323 | 4061 | 3826 | 3620 | 3439 | 3279 |
| 48 | OFC-24G.652D-FASA-S1 | 32/8 | 32/9 | 71.4 | 4.54 | 0.48 | 0.48 | 0.48 | 0.48 | 0.48 | 0.48 | 0.49 | 0.49 | 0.49 | 0.49 | 0.49 | 0.50 | 0.50 | 1752 | 1748 | 1744 | 1736 | 1732 | 1727 | 1719 | 1715 | 1711 | 1706 | 1698 | 1694 | 1690 |
| 48 | OFC-24G.652D-FASA-S1 | 32/9 | 32/10 | 52.1 | 2.93 | 0.25 | 0.26 | 0.26 | 0.26 | 0.26 | 0.26 | 0.26 | 0.26 | 0.26 | 0.26 | 0.26 | 0.26 | 0.26 | 1752 | 1748 | 1744 | 1736 | 1732 | 1727 | 1719 | 1715 | 1711 | 1706 | 1698 | 1694 | 1690 |
| 48 | OFC-24G.652D-FASA-S1 | 32/10 | 32/11 | 80.8 | 2.54 | 0.61 | 0.61 | 0.62 | 0.62 | 0.62 | 0.62 | 0.62 | 0.63 | 0.63 | 0.63 | 0.63 | 0.63 | 0.63 | 1752 | 1748 | 1744 | 1736 | 1732 | 1727 | 1719 | 1715 | 1711 | 1706 | 1698 | 1694 | 1690 |
| 48 | OFC-24G.652D-FASA-S1 | 32/11 | 32/12 | 86.7 | 0.48 | 0.71 | 0.71 | 0.71 | 0.71 | 0.71 | 0.72 | 0.72 | 0.72 | 0.72 | 0.72 | 0.73 | 0.73 | 0.73 | 1752 | 1748 | 1744 | 1736 | 1732 | 1727 | 1719 | 1715 | 1711 | 1706 | 1698 | 1694 | 1690 |
| 48 | OFC-24G.652D-FASA-S1 | 32/12 | 32/13 | 85.9 | 4.14 | 0.69 | 0.69 | 0.70 | 0.70 | 0.70 | 0.70 | 0.71 | 0.71 | 0.71 | 0.71 | 0.71 | 0.72 | 0.72 | 1752 | 1748 | 1744 | 1736 | 1732 | 1727 | 1719 | 1715 | 1711 | 1706 | 1698 | 1694 | 1690 |
| 48 | OFC-24G.652D-FASA-S1 | 32/13 | 33/1 | 81.5 | 6.91 | 0.63 | 0.63 | 0.63 | 0.63 | 0.63 | 0.63 | 0.64 | 0.64 | 0.64 | 0.64 | 0.65 | 0.65 | 0.65 | 1752 | 1748 | 1744 | 1736 | 1732 | 1727 | 1719 | 1715 | 1711 | 1706 | 1698 | 1694 | 1690 |
| 48 | OFC-24G.652D-FASA-S1 | 33/1 | 33/2 | 83.3 | 8.09 | 0.65 | 0.66 | 0.66 | 0.66 | 0.66 | 0.66 | 0.67 | 0.67 | 0.67 | 0.67 | 0.67 | 0.68 | 0.68 | 1752 | 1748 | 1744 | 1736 | 1732 | 1727 | 1719 | 1715 | 1711 | 1706 | 1698 | 1694 | 1690 |
| 48 | OFC-24G.652D-FASA-S1 | 33/2 | 33/3 | 74.4 | 7.14 | 0.52 | 0.52 | 0.52 | 0.53 | 0.53 | 0.53 | 0.53 | 0.53 | 0.53 | 0.54 | 0.54 | 0.54 | 0.54 | 1752 | 1748 | 1744 | 1736 | 1732 | 1727 | 1719 | 1715 | 1711 | 1706 | 1698 | 1694 | 1690 |
| 48 | OFC-24G.652D-FASA-S1 | 33/3 | 33/4 | 59.4 | 3.07 | 0.33 | 0.33 | 0.33 | 0.33 | 0.34 | 0.34 | 0.34 | 0.34 | 0.34 | 0.34 | 0.34 | 0.34 | 0.34 | 1752 | 1748 | 1744 | 1736 | 1732 | 1727 | 1719 | 1715 | 1711 | 1706 | 1698 | 1694 | 1690 |
| 48 | OFC-24G.652D-FASA-S1 | 33/4 | 33/5 | 81.7 | -6.44 | 0.63 | 0.63 | 0.63 | 0.63 | 0.64 | 0.64 | 0.64 | 0.64 | 0.64 | 0.65 | 0.65 | 0.65 | 0.65 | 1752 | 1748 | 1744 | 1736 | 1732 | 1727 | 1719 | 1715 | 1711 | 1706 | 1698 | 1694 | 1690 |
| 48 | OFC-24G.652D-FASA-S1 | 33/5 | 33/6 | 88.3 | -5.69 | 0.73 | 0.73 | 0.74 | 0.74 | 0.74 | 0.74 | 0.75 | 0.75 | 0.75 | 0.75 | 0.76 | 0.76 | 0.76 | 1752 | 1748 | 1744 | 1736 | 1732 | 1727 | 1719 | 1715 | 1711 | 1706 | 1698 | 1694 | 1690 |
| 48 | OFC-24G.652D-FASA-S1 | 33/6 | 33/7 | 91.4 | -3.07 | 0.78 | 0.79 | 0.79 | 0.79 | 0.79 | 0.80 | 0.80 | 0.80 | 0.80 | 0.81 | 0.81 | 0.81 | 0.81 | 1752 | 1748 | 1744 | 1736 | 1732 | 1727 | 1719 | 1715 | 1711 | 1706 | 1698 | 1694 | 1690 |
| 48 | OFC-24G.652D-FASA-S1 | 33/7 | 33/8 | 87.5 | 1.25 | 0.72 | 0.72 | 0.72 | 0.73 | 0.73 | 0.73 | 0.73 | 0.73 | 0.74 | 0.74 | 0.74 | 0.74 | 0.75 | 1752 | 1748 | 1744 | 1736 | 1732 | 1727 | 1719 | 1715 | 1711 | 1706 | 1698 | 1694 | 1690 |
| 48 | OFC-24G.652D-FASA-S1 | 33/8 | 33/9 | 90.7 | -2.43 | 0.77 | 0.77 | 0.78 | 0.78 | 0.78 | 0.78 | 0.79 | 0.79 | 0.79 | 0.79 | 0.80 | 0.80 | 0.80 | 1752 | 1748 | 1744 | 1736 | 1732 | 1727 | 1719 | 1715 | 1711 | 1706 | 1698 | 1694 | 1690 |
| 48 | OFC-24G.652D-FASA-S1 | 33/9 | 33/10 | 89.4 | 0.97 | 0.75 | 0.75 | 0.75 | 0.76 | 0.76 | 0.76 | 0.76 | 0.77 | 0.77 | 0.77 | 0.77 | 0.78 | 0.78 | 1752 | 1748 | 1744 | 1736 | 1732 | 1727 | 1719 | 1715 | 1711 | 1706 | 1698 | 1694 | 1690 |
| 48 | OFC-24G.652D-FASA-S1 | 33/10 | 33/11 | 92.0 | 3.58 | 0.79 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.81 | 0.81 | 0.81 | 0.81 | 0.82 | 0.82 | 0.82 | 1752 | 1748 | 1744 | 1736 | 1732 | 1727 | 1719 | 1715 | 1711 | 1706 | 1698 | 1694 | 1690 |
| 48 | OFC-24G.652D-FASA-S1 | 33/11 | 34/1 | 90.4 | 4.78 | 0.77 | 0.77 | 0.77 | 0.77 | 0.78 | 0.78 | 0.78 | 0.78 | 0.79 | 0.79 | 0.79 | 0.79 | 0.80 | 1752 | 1748 | 1744 | 1736 | 1732 | 1727 | 1719 | 1715 | 1711 | 1706 | 1698 | 1694 | 1690 |
| 48 | OFC-24G.652D-FASA-S1 | 34/1 | 34/2 | 87.1 | -1.84 | 0.71 | 0.71 | 0.71 | 0.72 | 0.72 | 0.72 | 0.72 | 0.73 | 0.73 | 0.73 | 0.74 | 0.74 | 0.74 | 1752 | 1748 | 1744 | 1736 | 1732 | 1727 | 1719 | 1715 | 1711 | 1706 | 1698 | 1694 | 1690 |
| 48 | OFC-24G.652D-FASA-S1 | 34/2 | 34/3 | 85.8 | -8.24 | 0.69 | 0.70 | 0.70 | 0.70 | 0.70 | 0.70 | 0.71 | 0.71 | 0.71 | 0.71 | 0.72 | 0.72 | 0.72 | 1752 | 1748 | 1744 | 1736 | 1732 | 1727 | 1719 | 1715 | 1711 | 1706 | 1698 | 1694 | 1690 |
| 48 | OFC-24G.652D-FASA-S1 | 34/3 | 34/4 | 89.9 | -5.91 | 0.76 | 0.76 | 0.76 | 0.77 | 0.77 | 0.77 | 0.77 | 0.78 | 0.78 | 0.78 | 0.78 | 0.79 | 0.79 | 1752 | 1748 | 1744 | 1736 | 1732 | 1727 | 1719 | 1715 | 1711 | 1706 | 1698 | 1694 | 1690 |
| 48 | OFC-24G.652D-FASA-S1 | 34/4 | 34/5 | 91.5 | -1.26 | 0.79 | 0.79 | 0.79 | 0.79 | 0.79 | 0.80 | 0.80 | 0.80 | 0.80 | 0.81 | 0.81 | 0.81 | 0.81 | 1752 | 1748 | 1744 | 1736 | 1732 | 1727 | 1719 | 1715 | 1711 | 1706 | 1698 | 1694 | 1690 |
| 48 | OFC-24G.652D-FASA-S1 | 34/5 | 34/6 | 90.8 | -0.34 | 0.77 | 0.77 | 0.78 | 0.78 | 0.78 | 0.78 | 0.79 | 0.79 | 0.79 | 0.79 | 0.80 | 0.80 | 0.80 | 1752 | 1748 | 1744 | 1736 | 1732 | 1727 | 1719 | 1715 | 1711 | 1706 | 1698 | 1694 | 1690 |
| 48 | OFC-24G.652D-FASA-S1 | 34/6 | 34/7 | 84.6 | 2.14 | 0.67 | 0.67 | 0.68 | 0.68 | 0.68 | 0.68 | 0.69 | 0.69 | 0.69 | 0.69 | 0.69 | 0.70 | 0.70 | 1752 | 1748 | 1744 | 1736 | 1732 | 1727 | 1719 | 1715 | 1711 | 1706 | 1698 | 1694 | 1690 |
| 48 | OFC-24G.652D-FASA-S1 | 34/7 | 34/8 | 88.0 | 1.32 | 0.73 | 0.73 | 0.73 | 0.73 | 0.74 | 0.74 | 0.74 | 0.74 | 0.74 | 0.75 | 0.75 | 0.75 | 0.75 | 1752 | 1748 | 1744 | 1736 | 1732 | 1727 | 1719 | 1715 | 1711 | 1706 | 1698 | 1694 | 1690 |
| 48 | OFC-24G.652D-FASA-S1 | 34/8 | 34/9 | 87.3 | 0.51 | 0.72 | 0.72 | 0.72 | 0.72 | 0.72 | 0.73 | 0.73 | 0.73 | 0.73 | 0.73 | 0.74 | 0.74 | 0.74 | 1752 | 1748 | 1744 | 1736 | 1732 | 1727 | 1719 | 1715 | 1711 | 1706 | 1698 | 1694 | 1690 |
| 48 | OFC-24G.652D-FASA-S1 | 34/9 | 34/10 | 89.8 | 6.97 | 0.76 | 0.76 | 0.76 | 0.77 | 0.77 | 0.77 | 0.77 | 0.78 | 0.78 | 0.78 | 0.78 | 0.79 | 0.79 | 1752 | 1748 | 1744 | 1736 | 1732 | 1727 | 1719 | 1715 | 1711 | 1706 | 1698 | 1694 | 1690 |
| 48 | OFC-24G.652D-FASA-S1 | 34/10 | 34/11 | 92.0 | 0.10 | 0.79 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.81 | 0.81 | 0.81 | 0.81 | 0.82 | 0.82 | 0.82 | 1752 | 1748 | 1744 | 1736 | 1732 | 1727 | 1719 | 1715 | 1711 | 1706 | 1698 | 1694 | 1690 |
| 48 | OFC-24G.652D-FASA-S1 | 34/11 | 34/12 | 91.4 | -2.44 | 0.78 | 0.78 | 0.79 | 0.79 | 0.79 | 0.79 | 0.80 | 0.80 | 0.80 | 0.80 | 0.81 | 0.81 | 0.81 | 1752 | 1748 | 1744 | 1736 | 1732 | 1727 | 1719 | 1715 | 1711 | 1706 | 1698 | 1694 | 1690 |
| 48 | OFC-24G.652D-FASA-S1 | 34/12 | 35/1 | 90.5 | 1.48 | 0.77 | 0.77 | 0.77 | 0.78 | 0.78 | 0.78 | 0.78 | 0.79 | 0.79 | 0.79 | 0.79 | 0.79 | 0.80 | 1752 | 1748 | 1744 | 1736 | 1732 | 1727 | 1719 | 1715 | 1711 | 1706 | 1698 | 1694 | 1690 |
| 48 | OFC-24G.652D-FASA-S1 | 35/1 | 35/2 | 62.3 | -2.13 | 0.36 | 0.36 | 0.37 | 0.37 | 0.37 | 0.37 | 0.37 | 0.37 | 0.37 | 0.37 | 0.38 | 0.38 | 0.38 | 1752 | 1748 | 1744 | 1736 | 1732 | 1727 | 1719 | 1715 | 1711 | 1706 | 1698 | 1694 | 1690 |
| 48 | OFC-24G.652D-FASA-S1 | 35/2 | 35/3 | 85.6 | -9.41 | 0.69 | 0.69 | 0.69 | 0.70 | 0.70 | 0.70 | 0.70 | 0.71 | 0.71 | 0.71 | 0.71 | 0.71 | 0.72 | 1752 | 1748 | 1744 | 1736 | 1732 | 1727 | 1719 | 1715 | 1711 | 1706 | 1698 | 1694 | 1690 |
| 49 | PARTRIDGE ACSR | 35/3 | 35/4 | 70.4 | 3.46 | 0.44 | 0.47 | 0.51 | 0.55 | 0.60 | 0.64 | 0.69 | 0.73 | 0.78 | 0.83 | 0.87 | 0.92 | 0.96 | 7580 | 7022 | 6499 | 6020 | 5585 | 5197 | 4841 | 4534 | 4262 | 4021 | 3808 | 3616 | 3449 |
| 49 | PARTRIDGE ACSR | 35/4 | 35/5 | 65.0 | 2.02 | 0.37 | 0.40 | 0.44 | 0.47 | 0.51 | 0.54 | 0.58 | 0.62 | 0.66 | 0.70 | 0.74 | 0.78 | 0.82 | 7580 | 7022 | 6499 | 6020 | 5585 | 5197 | 4841 | 4534 | 4262 | 4021 | 3808 | 3616 | 3449 |
| 49 | PARTRIDGE ACSR | 35/5 | 35/6 | 84.2 | -4.12 | 0.63 | 0.68 | 0.73 | 0.79 | 0.85 | 0.91 | 0.98 | 1.05 | 1.12 | 1.18 | 1.25 | 1.31 | 1.38 | 7580 | 7022 | 6499 | 6020 | 5585 | 5197 | 4841 | 4534 | 4262 | 4021 | 3808 | 3616 | 3449 |
| 49 | PARTRIDGE ACSR | 35/6 | 35/7 | 91.5 | 0.77 | 0.74 | 0.80 | 0.86 | 0.93 | 1.00 | 1.08 | 1.16 | 1.24 | 1.32 | 1.40 | 1.47 | 1.55 | 1.63 | 7580 | 7022 | 6499 | 6020 | 5585 | 5197 | 4841 | 4534 | 4262 | 4021 | 3808 | 3616 | 3449 |
| 49 | PARTRIDGE ACSR | 35/7 | 35/8 | 69.6 | 1.52 | 0.43 | 0.46 | 0.50 | 0.54 | 0.58 | 0.63 | 0.67 | 0.72 | 0.76 | 0.81 | 0.85 | 0.90 | 0.94 | 7580 | 7022 | 6499 | 6020 | 5585 | 5197 | 4841 | 4534 | 4262 | 4021 | 3808 | 3616 | 3449 |
| 49 | PARTRIDGE ACSR | 35/8 | 35/9 | 79.2 | -1.41 | 0.56 | 0.60 | 0.65 | 0.70 | 0.75 | 0.81 | 0.87 | 0.93 | 0.99 | 1.05 | 1.10 | 1.16 | 1.22 | 7580 | 7022 | 6499 | 6020 | 5585 | 5197 | 4841 | 4534 | 4262 | 4021 | 3808 | 3616 | 3449 |
| 49 | PARTRIDGE ACSR | 35/9 | 35/10 | 88.2 | -2.24 | 0.69 | 0.74 | 0.80 | 0.87 | 0.93 | 1.00 | 1.08 | 1.15 | 1.22 | 1.30 | 1.37 | 1.44 | 1.51 | 7580 | 7022 | 6499 | 6020 | 5585 | 5197 | 4841 | 4534 | 4262 | 4021 | 3808 | 3616 | 3449 |
| 49 | PARTRIDGE ACSR | 35/10 | 35/11 | 90.4 | 1.33 | 0.72 | 0.78 | 0.84 | 0.91 | 0.98 | 1.05 | 1.13 | 1.21 | 1.28 | 1.36 | 1.44 | 1.51 | 1.59 | 7580 | 7022 | 6499 | 6020 | 5585 | 5197 | 4841 | 4534 | 4262 | 4021 | 3808 | 3616 | 3449 |
| 49 | PARTRIDGE ACSR | 35/11 | 35/12 | 79.8 | 3.72 | 0.56 | 0.61 | 0.66 | 0.71 | 0.76 | 0.82 | 0.88 | 0.94 | 1.00 | 1.06 | 1.12 | 1.18 | 1.24 | 7580 | 7022 | 6499 | 6020 | 5585 | 5197 | 4841 | 4534 | 4262 | 4021 | 3808 | 3616 | 3449 |
| 49 | PARTRIDGE ACSR | 35/12 | 36/1 | 65.1 | 2.76 | 0.38 | 0.40 | 0.44 | 0.47 | 0.51 | 0.55 | 0.59 | 0.63 | 0.67 | 0.71 | 0.75 | 0.79 | 0.82 | 7580 | 7022 | 6499 | 6020 | 5585 | 5197 | 4841 | 4534 | 4262 | 4021 | 3808 | 3616 | 3449 |
| 49 | PARTRIDGE ACSR | 36/1 | 36/2 | 77.5 | 1.40 | 0.53 | 0.57 | 0.62 | 0.67 | 0.72 | 0.77 | 0.83 | 0.89 | 0.94 | 1.00 | 1.06 | 1.11 | 1.17 | 7580 | 7022 | 6499 | 6020 | 5585 | 5197 | 4841 | 4534 | 4262 | 4021 | 3808 | 3616 | 3449 |
| 49 | PARTRIDGE ACSR | 36/2 | 36/3 | 75.1 | -2.70 | 0.50 | 0.54 | 0.58 | 0.63 | 0.68 | 0.73 | 0.78 | 0.83 | 0.89 | 0.94 | 0.99 | 1.04 | 1.10 | 7580 | 7022 | 6499 | 6020 | 5585 | 5197 | 4841 | 4534 | 4262 | 4021 | 3808 | 3616 | 3449 |
| 49 | PARTRIDGE ACSR | 36/3 | 36/4 | 89.1 | 0.49 | 0.70 | 0.76 | 0.82 | 0.88 | 0.95 | 1.02 | 1.10 | 1.17 | 1.25 | 1.32 | 1.40 | 1.47 | 1.54 | 7580 | 7022 | 6499 | 6020 | 5585 | 5197 | 4841 | 4534 | 4262 | 4021 | 3808 | 3616 | 3449 |
| 49 | PARTRIDGE ACSR | 36/4 | 36/5 | 87.2 | 1.02 | 0.67 | 0.73 | 0.78 | 0.85 | 0.91 | 0.98 | 1.05 | 1.12 | 1.20 | 1.27 | 1.34 | 1.41 | 1.48 | 7580 | 7022 | 6499 | 6020 | 5585 | 5197 | 4841 | 4534 | 4262 | 4021 | 3808 | 3616 | 3449 |
| 49 | PARTRIDGE ACSR | 36/5 | 36/6 | 91.4 | -0.44 | 0.74 | 0.80 | 0.86 | 0.93 | 1.00 | 1.08 | 1.16 | 1.23 | 1.31 | 1.39 | 1.47 | 1.55 | 1.62 | 7580 | 7022 | 6499 | 6020 | 5585 | 5197 | 4841 | 4534 | 4262 | 4021 | 3808 | 3616 | 3449 |
| 49 | PARTRIDGE ACSR | 36/6 | 36/7 | 100.6 | 3.81 | 0.89 | 0.97 | 1.04 | 1.13 | 1.21 | 1.31 | 1.40 | 1.50 | 1.59 | 1.69 | 1.78 | 1.88 | 1.97 | 7580 | 7022 | 6499 | 6020 | 5585 | 5197 | 4841 | 4534 | 4262 | 4021 | 3808 | 3616 | 3449 |
| 49 | PARTRIDGE ACSR | 36/7 | 36/8 | 149.9 | 2.99 | 1.99 | 2.14 | 2.32 | 2.50 | 2.70 | 2.90 | 3.11 | 3.32 | 3.53 | 3.75 | 3.96 | 4.17 | 4.37 | 7580 | 7022 | 6499 | 6020 | 5585 | 5197 | 4841 | 4534 | 4262 | 4021 | 3808 | 3616 | 3449 |
| 49 | PARTRIDGE ACSR | 36/8 | 36/10 | 96.9 | -3.74 | 0.83 | 0.90 | 0.97 | 1.05 | 1.13 | 1.21 | 1.30 | 1.39 | 1.48 | 1.56 | 1.65 | 1.74 | 1.82 | 7580 | 7022 | 6499 | 6020 | 5585 | 5197 | 4841 | 4534 | 4262 | 4021 | 3808 | 3616 | 3449 |
| 49 | PARTRIDGE ACSR | 36/10 | 36/11 | 89.6 | 1.13 | 0.71 | 0.77 | 0.83 | 0.89 | 0.96 | 1.04 | 1.11 | 1.19 | 1.26 | 1.34 | 1.41 | 1.49 | 1.56 | 7580 | 7022 | 6499 | 6020 | 5585 | 5197 | 4841 | 4534 | 4262 | 4021 | 3808 | 3616 | 3449 |
| 49 | PARTRIDGE ACSR | 36/11 | 36/12 | 88.0 | 0.49 | 0.68 | 0.74 | 0.80 | 0.86 | 0.93 | 1.00 | 1.07 | 1.14 | 1.22 | 1.29 | 1.36 | 1.43 | 1.50 | 7580 | 7022 | 6499 | 6020 | 5585 | 5197 | 4841 | 4534 | 4262 | 4021 | 3808 | 3616 | 3449 |
| 49 | PARTRIDGE ACSR | 36/12 | 37/1 | 76.2 | 1.57 | 0.51 | 0.55 | 0.60 | 0.65 | 0.70 | 0.75 | 0.80 | 0.86 | 0.91 | 0.97 | 1.02 | 1.08 | 1.13 | 7580 | 7022 | 6499 | 6020 | 5585 | 5197 | 4841 | 4534 | 4262 | 4021 | 3808 | 3616 | 3449 |
| 49 | PARTRIDGE ACSR | 37/1 | 37/2 | 76.3 | 0.84 | 0.52 | 0.56 | 0.60 | 0.65 | 0.70 | 0.75 | 0.81 | 0.86 | 0.92 | 0.97 | 1.03 | 1.08 | 1.13 | 7580 | 7022 | 6499 | 6020 | 5585 | 5197 | 4841 | 4534 | 4262 | 4021 | 3808 | 3616 | 3449 |
| 49 | PARTRIDGE ACSR | 37/2 | 37/3 | 76.8 | 3.53 | 0.52 | 0.56 | 0.61 | 0.66 | 0.71 | 0.76 | 0.82 | 0.87 | 0.93 | 0.98 | 1.04 | 1.09 | 1.15 | 7580 | 7022 | 6499 | 6020 | 5585 | 5197 | 4841 | 4534 | 4262 | 4021 | 3808 | 3616 | 3449 |
| 49 | PARTRIDGE ACSR | 37/3 | 37/4 | 74.9 | 2.91 | 0.50 | 0.54 | 0.58 | 0.63 | 0.67 | 0.72 | 0.78 | 0.83 | 0.88 | 0.94 | 0.99 | 1.04 | 1.09 | 7580 | 7022 | 6499 | 6020 | 5585 | 5197 | 4841 | 4534 | 4262 | 4021 | 3808 | 3616 | 3449 |
| 49 | PARTRIDGE ACSR | 37/4 | 37/5 | 87.0 | -3.42 | 0.67 | 0.72 | 0.78 | 0.84 | 0.91 | 0.98 | 1.05 | 1.12 | 1.19 | 1.26 | 1.33 | 1.40 | 1.47 | 7580 | 7022 | 6499 | 6020 | 5585 | 5197 | 4841 | 4534 | 4262 | 4021 | 3808 | 3616 | 3449 |
| 49 | PARTRIDGE ACSR | 37/5 | 37/6 | 91.7 | -0.92 | 0.74 | 0.80 | 0.87 | 0.94 | 1.01 | 1.08 | 1.16 | 1.24 | 1.32 | 1.40 | 1.48 | 1.56 | 1.63 | 7580 | 7022 | 6499 | 6020 | 5585 | 5197 | 4841 | 4534 | 4262 | 4021 | 3808 | 3616 | 3449 |
| 49 | PARTRIDGE ACSR | 37/6 | 37/7 | 93.2 | 2.37 | 0.77 | 0.83 | 0.90 | 0.97 | 1.04 | 1.12 | 1.20 | 1.28 | 1.37 | 1.45 | 1.53 | 1.61 | 1.69 | 7580 | 7022 | 6499 | 6020 | 5585 | 5197 | 4841 | 4534 | 4262 | 4021 | 3808 | 3616 | 3449 |
| 49 | PARTRIDGE ACSR | 37/7 | 37/8 | 83.2 | -0.26 | 0.61 | 0.66 | 0.71 | 0.77 | 0.83 | 0.89 | 0.96 | 1.02 | 1.09 | 1.15 | 1.22 | 1.28 | 1.34 | 7580 | 7022 | 6499 | 6020 | 5585 | 5197 | 4841 | 4534 | 4262 | 4021 | 3808 | 3616 | 3449 |
| 49 | PARTRIDGE ACSR | 37/8 | 37/9 | 78.8 | 0.89 | 0.55 | 0.59 | 0.64 | 0.69 | 0.75 | 0.80 | 0.86 | 0.92 | 0.98 | 1.04 | 1.09 | 1.15 | 1.21 | 7580 | 7022 | 6499 | 6020 | 5585 | 5197 | 4841 | 4534 | 4262 | 4021 | 3808 | 3616 | 3449 |
| 50 | OFC-24G.652D-FASA-S1 | 35/3 | 35/4 | 70.3 | 6.98 | 1.79 | 1.80 | 1.80 | 1.80 | 1.80 | 1.80 | 1.80 | 1.80 | 1.80 | 1.80 | 1.80 | 1.81 | 1.81 | 456 | 455 | 455 | 455 | 455 | 454 | 454 | 454 | 454 | 453 | 453 | 453 | 453 |
| 50 | OFC-24G.652D-FASA-S1 | 35/4 | 35/5 | 65.0 | 1.73 | 1.52 | 1.52 | 1.53 | 1.53 | 1.53 | 1.53 | 1.53 | 1.53 | 1.53 | 1.53 | 1.53 | 1.53 | 1.53 | 456 | 455 | 455 | 455 | 455 | 454 | 454 | 454 | 454 | 453 | 453 | 453 | 453 |
| 50 | OFC-24G.652D-FASA-S1 | 35/5 | 35/6 | 84.2 | -4.12 | 2.56 | 2.56 | 2.56 | 2.57 | 2.

FORBES BROS

# AS-BUILT

CHANGES REQUIRED YES ☐ NO ☐

Name (Print) _____

Signature _____

Date _____

PERMIT TO PRACTICE
CLEAN ENERGY CONSULTING INC.
SIGNATURE _____
Date 22-Nov-2018
PERMIT NUMBER P8124
Association of Professional Engineers of Yukon

PROFESSIONAL ENGINEER YUKON A. P. N. CLARK TERRITORIES 22-Nov-2018

## SAG AND TENSION

| | |
|---|---|
| CIRCUIT | VICTORIA GOLD 69kV |
| DOCUMENT | 1407-T-1450 |
| DATE | 22-Nov-18 |
| REVISION | 1 |
| ISSUED FOR | CONSTRUCTION |
| PREPARED BY | MP |
| CHECKED BY | PC |
| APPROVED BY | PC |

ENGINEER'S SEAL

NOTES
1. All spans must be installed to the sag values provided. Tension values are provided as a reference only.
2. Sag and tension values shown are for new conductor under initial conditions based on the ruling span method.
3. For conductors left hanging in sheaves for longer than 3 hours between initial stringing and final sag, a creep correction factor must be applied.
4. All span lengths and sag values are provided in metres unless otherwise noted.
5. Conductors and cables:
   - Overhead Shieldwire (OHSW): Partridge ACSR
   - 69kV Transmission Line: Partridge ACSR
   - ADSS: OFC-24G.652D-FASA-S1
6. The minimum ambient temperature for pulling ADSS cable is -30°C. ADSS cable shall not be pulled at temperatures below this minimum temperature.

Clean Energy CONSULTING INC.

| SEC | CABLE | FROM STR | TO STR | SPAN AHEAD (m) | SPAN VERT. PROJ. (m) | MID SPAN SAG (m) | | | | | | | | | | | | | HORIZONTAL TENSION (N) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | -50 | -45 | -40 | -35 | -30 | -25 | -20 | -15 | -10 | -5 | 0 | 5 | 10 | -50 | -45 | -40 | -35 | -30 | -25 | -20 | -15 | -10 | -5 | 0 | 5 | 10 |
| 54 | OFC-24G.652D-FASA-S1 | 38/3 | 38/4 | 67.2 | -0.54 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 3744 | 3736 | 3728 | 3724 | 3716 | 3708 | 3700 | 3692 | 3684 | 3676 | 3667 | 3659 | 3651 |
| 54 | OFC-24G.652D-FASA-S1 | 38/4 | 38/5 | 68.6 | 0.53 | 0.21 | 0.21 | 0.21 | 0.21 | 0.21 | 0.21 | 0.21 | 0.21 | 0.21 | 0.21 | 0.21 | 0.21 | 0.21 | 3744 | 3736 | 3728 | 3724 | 3716 | 3708 | 3700 | 3692 | 3684 | 3676 | 3667 | 3659 | 3651 |
| 54 | OFC-24G.652D-FASA-S1 | 38/5 | 38/6 | 61.0 | -2.88 | 0.16 | 0.16 | 0.16 | 0.16 | 0.16 | 0.16 | 0.17 | 0.17 | 0.17 | 0.17 | 0.17 | 0.17 | 0.17 | 3744 | 3736 | 3728 | 3724 | 3716 | 3708 | 3700 | 3692 | 3684 | 3676 | 3667 | 3659 | 3651 |
| 55 | PARTRIDGE ACSR | 38/6 | 38/7 | 78.1 | -3.44 | 0.45 | 0.48 | 0.52 | 0.57 | 0.61 | 0.67 | 0.72 | 0.78 | 0.85 | 0.91 | 0.98 | 1.04 | 1.11 | 9083 | 8437 | 7809 | 7212 | 6649 | 6121 | 5638 | 5208 | 4817 | 4483 | 4184 | 3923 | 3695 |
| 55 | PARTRIDGE ACSR | 38/7 | 38/8 | 82.5 | -0.75 | 0.50 | 0.54 | 0.58 | 0.63 | 0.69 | 0.75 | 0.81 | 0.88 | 0.95 | 1.02 | 1.09 | 1.16 | 1.24 | 9083 | 8437 | 7809 | 7212 | 6649 | 6121 | 5638 | 5208 | 4817 | 4483 | 4184 | 3923 | 3695 |
| 55 | PARTRIDGE ACSR | 38/8 | 38/9 | 83.3 | 1.39 | 0.51 | 0.55 | 0.60 | 0.64 | 0.70 | 0.76 | 0.83 | 0.89 | 0.97 | 1.04 | 1.11 | 1.19 | 1.26 | 9083 | 8437 | 7809 | 7212 | 6649 | 6121 | 5638 | 5208 | 4817 | 4483 | 4184 | 3923 | 3695 |
| 55 | PARTRIDGE ACSR | 38/9 | 38/10 | 80.4 | -0.81 | 0.48 | 0.51 | 0.55 | 0.60 | 0.65 | 0.71 | 0.77 | 0.83 | 0.90 | 0.97 | 1.04 | 1.10 | 1.17 | 9083 | 8437 | 7809 | 7212 | 6649 | 6121 | 5638 | 5208 | 4817 | 4483 | 4184 | 3923 | 3695 |
| 55 | PARTRIDGE ACSR | 38/10 | 38/11 | 84.5 | -0.65 | 0.53 | 0.57 | 0.61 | 0.66 | 0.72 | 0.78 | 0.85 | 0.92 | 0.99 | 1.07 | 1.14 | 1.22 | 1.30 | 9083 | 8437 | 7809 | 7212 | 6649 | 6121 | 5638 | 5208 | 4817 | 4483 | 4184 | 3923 | 3695 |
| 55 | PARTRIDGE ACSR | 38/11 | 38/12 | 89.2 | -1.38 | 0.59 | 0.63 | 0.68 | 0.74 | 0.80 | 0.87 | 0.95 | 1.02 | 1.11 | 1.19 | 1.28 | 1.36 | 1.44 | 9083 | 8437 | 7809 | 7212 | 6649 | 6121 | 5638 | 5208 | 4817 | 4483 | 4184 | 3923 | 3695 |
| 55 | PARTRIDGE ACSR | 38/12 | 38/13 | 72.2 | -0.17 | 0.38 | 0.41 | 0.45 | 0.48 | 0.53 | 0.57 | 0.62 | 0.67 | 0.73 | 0.78 | 0.83 | 0.89 | 0.95 | 9083 | 8437 | 7809 | 7212 | 6649 | 6121 | 5638 | 5208 | 4817 | 4483 | 4184 | 3923 | 3695 |
| 55 | PARTRIDGE ACSR | 38/13 | 39/1 | 91.2 | 1.44 | 0.61 | 0.66 | 0.71 | 0.77 | 0.84 | 0.91 | 0.99 | 1.07 | 1.16 | 1.24 | 1.33 | 1.42 | 1.51 | 9083 | 8437 | 7809 | 7212 | 6649 | 6121 | 5638 | 5208 | 4817 | 4483 | 4184 | 3923 | 3695 |
| 55 | PARTRIDGE ACSR | 39/1 | 39/2 | 76.9 | 3.54 | 0.44 | 0.47 | 0.51 | 0.55 | 0.60 | 0.65 | 0.70 | 0.76 | 0.82 | 0.88 | 0.95 | 1.01 | 1.07 | 9083 | 8437 | 7809 | 7212 | 6649 | 6121 | 5638 | 5208 | 4817 | 4483 | 4184 | 3923 | 3695 |
| 55 | PARTRIDGE ACSR | 39/2 | 39/3 | 82.3 | 3.52 | 0.50 | 0.54 | 0.58 | 0.63 | 0.68 | 0.74 | 0.81 | 0.87 | 0.94 | 1.01 | 1.09 | 1.16 | 1.23 | 9083 | 8437 | 7809 | 7212 | 6649 | 6121 | 5638 | 5208 | 4817 | 4483 | 4184 | 3923 | 3695 |
| 55 | PARTRIDGE ACSR | 39/3 | 39/4 | 82.0 | 7.09 | 0.50 | 0.54 | 0.58 | 0.63 | 0.68 | 0.74 | 0.80 | 0.87 | 0.94 | 1.01 | 1.08 | 1.15 | 1.22 | 9083 | 8437 | 7809 | 7212 | 6649 | 6121 | 5638 | 5208 | 4817 | 4483 | 4184 | 3923 | 3695 |
| 56 | OFC-24G.652D-FASA-S1 | 38/6 | 38/7 | 78.0 | 0.40 | 0.52 | 0.52 | 0.52 | 0.52 | 0.52 | 0.52 | 0.52 | 0.53 | 0.53 | 0.53 | 0.53 | 0.53 | 0.53 | 1942 | 1937 | 1929 | 1925 | 1917 | 1913 | 1908 | 1900 | 1896 | 1888 | 1884 | 1876 | 1871 |
| 56 | OFC-24G.652D-FASA-S1 | 38/7 | 38/8 | 82.5 | -0.86 | 0.58 | 0.58 | 0.58 | 0.58 | 0.58 | 0.59 | 0.59 | 0.59 | 0.59 | 0.59 | 0.59 | 0.60 | 0.60 | 1942 | 1937 | 1929 | 1925 | 1917 | 1913 | 1908 | 1900 | 1896 | 1888 | 1884 | 1876 | 1871 |
| 56 | OFC-24G.652D-FASA-S1 | 38/8 | 38/9 | 83.3 | 1.39 | 0.59 | 0.59 | 0.59 | 0.59 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.61 | 0.61 | 0.61 | 1942 | 1937 | 1929 | 1925 | 1917 | 1913 | 1908 | 1900 | 1896 | 1888 | 1884 | 1876 | 1871 |
| 56 | OFC-24G.652D-FASA-S1 | 38/9 | 38/10 | 80.4 | -0.81 | 0.55 | 0.55 | 0.55 | 0.55 | 0.55 | 0.56 | 0.56 | 0.56 | 0.56 | 0.56 | 0.56 | 0.57 | 0.57 | 1942 | 1937 | 1929 | 1925 | 1917 | 1913 | 1908 | 1900 | 1896 | 1888 | 1884 | 1876 | 1871 |
| 56 | OFC-24G.652D-FASA-S1 | 38/10 | 38/11 | 84.5 | -0.65 | 0.60 | 0.61 | 0.61 | 0.61 | 0.61 | 0.61 | 0.62 | 0.62 | 0.62 | 0.62 | 0.62 | 0.63 | 0.63 | 1942 | 1937 | 1929 | 1925 | 1917 | 1913 | 1908 | 1900 | 1896 | 1888 | 1884 | 1876 | 1871 |
| 56 | OFC-24G.652D-FASA-S1 | 38/11 | 38/12 | 89.2 | -1.38 | 0.67 | 0.68 | 0.68 | 0.68 | 0.68 | 0.68 | 0.69 | 0.69 | 0.69 | 0.69 | 0.69 | 0.70 | 0.70 | 1942 | 1937 | 1929 | 1925 | 1917 | 1913 | 1908 | 1900 | 1896 | 1888 | 1884 | 1876 | 1871 |
| 56 | OFC-24G.652D-FASA-S1 | 38/12 | 38/13 | 72.2 | -0.17 | 0.44 | 0.44 | 0.44 | 0.44 | 0.45 | 0.45 | 0.45 | 0.45 | 0.45 | 0.45 | 0.45 | 0.46 | 0.46 | 1942 | 1937 | 1929 | 1925 | 1917 | 1913 | 1908 | 1900 | 1896 | 1888 | 1884 | 1876 | 1871 |
| 56 | OFC-24G.652D-FASA-S1 | 38/13 | 39/1 | 91.2 | 1.44 | 0.70 | 0.71 | 0.71 | 0.71 | 0.71 | 0.71 | 0.72 | 0.72 | 0.72 | 0.72 | 0.73 | 0.73 | 0.73 | 1942 | 1937 | 1929 | 1925 | 1917 | 1913 | 1908 | 1900 | 1896 | 1888 | 1884 | 1876 | 1871 |
| 56 | OFC-24G.652D-FASA-S1 | 39/1 | 39/2 | 76.9 | 3.54 | 0.50 | 0.50 | 0.50 | 0.51 | 0.51 | 0.51 | 0.51 | 0.51 | 0.51 | 0.52 | 0.52 | 0.52 | 0.52 | 1942 | 1937 | 1929 | 1925 | 1917 | 1913 | 1908 | 1900 | 1896 | 1888 | 1884 | 1876 | 1871 |
| 56 | OFC-24G.652D-FASA-S1 | 39/2 | 39/3 | 82.3 | 3.52 | 0.57 | 0.57 | 0.58 | 0.58 | 0.58 | 0.58 | 0.58 | 0.59 | 0.59 | 0.59 | 0.59 | 0.59 | 0.60 | 1942 | 1937 | 1929 | 1925 | 1917 | 1913 | 1908 | 1900 | 1896 | 1888 | 1884 | 1876 | 1871 |
| 56 | OFC-24G.652D-FASA-S1 | 39/3 | 39/4 | 82.0 | 7.06 | 0.57 | 0.57 | 0.57 | 0.58 | 0.58 | 0.58 | 0.58 | 0.58 | 0.58 | 0.59 | 0.59 | 0.59 | 0.59 | 1942 | 1937 | 1929 | 1925 | 1917 | 1913 | 1908 | 1900 | 1896 | 1888 | 1884 | 1876 | 1871 |
| 57 | PARTRIDGE ACSR | 39/4 | 39/5 | 89.7 | 0.55 | 0.60 | 0.64 | 0.69 | 0.75 | 0.82 | 0.89 | 0.96 | 1.04 | 1.13 | 1.21 | 1.30 | 1.38 | 1.47 | 9041 | 8395 | 7765 | 7168 | 6605 | 6076 | 5600 | 5170 | 4787 | 4452 | 4156 | 3900 | 3671 |
| 57 | PARTRIDGE ACSR | 39/5 | 39/6 | 89.3 | 0.23 | 0.59 | 0.64 | 0.69 | 0.75 | 0.81 | 0.88 | 0.96 | 1.03 | 1.12 | 1.20 | 1.29 | 1.37 | 1.46 | 9041 | 8395 | 7765 | 7168 | 6605 | 6076 | 5600 | 5170 | 4787 | 4452 | 4156 | 3900 | 3671 |
| 57 | PARTRIDGE ACSR | 39/6 | 39/7 | 82.2 | 0.85 | 0.50 | 0.54 | 0.58 | 0.63 | 0.69 | 0.75 | 0.81 | 0.88 | 0.95 | 1.02 | 1.09 | 1.16 | 1.23 | 9041 | 8395 | 7765 | 7168 | 6605 | 6076 | 5600 | 5170 | 4787 | 4452 | 4156 | 3900 | 3671 |
| 57 | PARTRIDGE ACSR | 39/7 | 39/8 | 82.7 | 0.87 | 0.51 | 0.55 | 0.59 | 0.64 | 0.69 | 0.75 | 0.82 | 0.89 | 0.96 | 1.03 | 1.10 | 1.18 | 1.25 | 9041 | 8395 | 7765 | 7168 | 6605 | 6076 | 5600 | 5170 | 4787 | 4452 | 4156 | 3900 | 3671 |
| 57 | PARTRIDGE ACSR | 39/8 | 39/9 | 84.5 | 0.44 | 0.53 | 0.57 | 0.62 | 0.67 | 0.72 | 0.79 | 0.86 | 0.93 | 1.00 | 1.08 | 1.15 | 1.23 | 1.30 | 9041 | 8395 | 7765 | 7168 | 6605 | 6076 | 5600 | 5170 | 4787 | 4452 | 4156 | 3900 | 3671 |
| 57 | PARTRIDGE ACSR | 39/9 | 39/10 | 76.5 | 0.46 | 0.43 | 0.47 | 0.50 | 0.55 | 0.59 | 0.65 | 0.70 | 0.76 | 0.82 | 0.88 | 0.94 | 1.01 | 1.07 | 9041 | 8395 | 7765 | 7168 | 6605 | 6076 | 5600 | 5170 | 4787 | 4452 | 4156 | 3900 | 3671 |
| 57 | PARTRIDGE ACSR | 39/10 | 39/11 | 73.6 | 2.43 | 0.40 | 0.43 | 0.47 | 0.51 | 0.55 | 0.60 | 0.65 | 0.70 | 0.76 | 0.82 | 0.87 | 0.93 | 0.99 | 9041 | 8395 | 7765 | 7168 | 6605 | 6076 | 5600 | 5170 | 4787 | 4452 | 4156 | 3900 | 3671 |
| 57 | PARTRIDGE ACSR | 39/11 | 39/12 | 71.6 | -1.23 | 0.38 | 0.41 | 0.44 | 0.48 | 0.52 | 0.56 | 0.61 | 0.66 | 0.72 | 0.77 | 0.83 | 0.88 | 0.93 | 9041 | 8395 | 7765 | 7168 | 6605 | 6076 | 5600 | 5170 | 4787 | 4452 | 4156 | 3900 | 3671 |
| 57 | PARTRIDGE ACSR | 39/12 | 39/13 | 80.3 | 2.02 | 0.48 | 0.52 | 0.56 | 0.60 | 0.66 | 0.71 | 0.77 | 0.84 | 0.90 | 0.97 | 1.04 | 1.11 | 1.18 | 9041 | 8395 | 7765 | 7168 | 6605 | 6076 | 5600 | 5170 | 4787 | 4452 | 4156 | 3900 | 3671 |
| 57 | PARTRIDGE ACSR | 39/13 | 40/1 | 83.6 | 2.55 | 0.52 | 0.56 | 0.60 | 0.65 | 0.71 | 0.77 | 0.84 | 0.91 | 0.98 | 1.05 | 1.13 | 1.20 | 1.28 | 9041 | 8395 | 7765 | 7168 | 6605 | 6076 | 5600 | 5170 | 4787 | 4452 | 4156 | 3900 | 3671 |
| 57 | PARTRIDGE ACSR | 40/1 | 40/2 | 84.5 | -0.20 | 0.53 | 0.57 | 0.62 | 0.67 | 0.72 | 0.79 | 0.85 | 0.93 | 1.00 | 1.08 | 1.15 | 1.23 | 1.30 | 9041 | 8395 | 7765 | 7168 | 6605 | 6076 | 5600 | 5170 | 4787 | 4452 | 4156 | 3900 | 3671 |
| 57 | PARTRIDGE ACSR | 40/2 | 40/3 | 90.6 | 0.15 | 0.61 | 0.66 | 0.71 | 0.77 | 0.83 | 0.91 | 0.98 | 1.07 | 1.15 | 1.24 | 1.32 | 1.41 | 1.50 | 9041 | 8395 | 7765 | 7168 | 6605 | 6076 | 5600 | 5170 | 4787 | 4452 | 4156 | 3900 | 3671 |
| 57 | PARTRIDGE ACSR | 40/3 | 40/4 | 69.7 | -1.01 | 0.36 | 0.39 | 0.42 | 0.45 | 0.49 | 0.54 | 0.58 | 0.63 | 0.68 | 0.73 | 0.78 | 0.83 | 0.89 | 9041 | 8395 | 7765 | 7168 | 6605 | 6076 | 5600 | 5170 | 4787 | 4452 | 4156 | 3900 | 3671 |
| 58 | OFC-24G.652D-FASA-S1 | 39/4 | 39/5 | 89.7 | 0.89 | 0.64 | 0.64 | 0.64 | 0.64 | 0.64 | 0.64 | 0.65 | 0.65 | 0.65 | 0.65 | 0.66 | 0.66 | 0.66 | 2079 | 2075 | 2067 | 2062 | 2054 | 2050 | 2042 | 2038 | 2030 | 2025 | 2017 | 2013 | 2005 |
| 58 | OFC-24G.652D-FASA-S1 | 39/5 | 39/6 | 89.3 | 0.52 | 0.63 | 0.63 | 0.63 | 0.63 | 0.64 | 0.64 | 0.64 | 0.64 | 0.65 | 0.65 | 0.65 | 0.65 | 0.65 | 2079 | 2075 | 2067 | 2062 | 2054 | 2050 | 2042 | 2038 | 2030 | 2025 | 2017 | 2013 | 2005 |
| 58 | OFC-24G.652D-FASA-S1 | 39/6 | 39/7 | 82.2 | 0.56 | 0.53 | 0.54 | 0.54 | 0.54 | 0.54 | 0.54 | 0.54 | 0.55 | 0.55 | 0.55 | 0.55 | 0.55 | 0.55 | 2079 | 2075 | 2067 | 2062 | 2054 | 2050 | 2042 | 2038 | 2030 | 2025 | 2017 | 2013 | 2005 |
| 58 | OFC-24G.652D-FASA-S1 | 39/7 | 39/8 | 82.7 | 0.97 | 0.54 | 0.54 | 0.54 | 0.55 | 0.55 | 0.55 | 0.55 | 0.55 | 0.56 | 0.56 | 0.56 | 0.56 | 0.56 | 2079 | 2075 | 2067 | 2062 | 2054 | 2050 | 2042 | 2038 | 2030 | 2025 | 2017 | 2013 | 2005 |
| 58 | OFC-24G.652D-FASA-S1 | 39/8 | 39/9 | 84.5 | 0.44 | 0.56 | 0.57 | 0.57 | 0.57 | 0.57 | 0.57 | 0.58 | 0.58 | 0.58 | 0.58 | 0.58 | 0.58 | 0.59 | 2079 | 2075 | 2067 | 2062 | 2054 | 2050 | 2042 | 2038 | 2030 | 2025 | 2017 | 2013 | 2005 |
| 58 | OFC-24G.652D-FASA-S1 | 39/9 | 39/10 | 76.5 | 0.75 | 0.46 | 0.46 | 0.46 | 0.47 | 0.47 | 0.47 | 0.47 | 0.47 | 0.47 | 0.47 | 0.48 | 0.48 | 0.48 | 2079 | 2075 | 2067 | 2062 | 2054 | 2050 | 2042 | 2038 | 2030 | 2025 | 2017 | 2013 | 2005 |
| 58 | OFC-24G.652D-FASA-S1 | 39/10 | 39/11 | 73.6 | 2.43 | 0.43 | 0.43 | 0.43 | 0.43 | 0.43 | 0.43 | 0.44 | 0.44 | 0.44 | 0.44 | 0.44 | 0.44 | 0.44 | 2079 | 2075 | 2067 | 2062 | 2054 | 2050 | 2042 | 2038 | 2030 | 2025 | 2017 | 2013 | 2005 |
| 58 | OFC-24G.652D-FASA-S1 | 39/11 | 39/12 | 71.5 | -1.52 | 0.40 | 0.41 | 0.41 | 0.41 | 0.41 | 0.41 | 0.41 | 0.41 | 0.41 | 0.42 | 0.42 | 0.42 | 0.42 | 2079 | 2075 | 2067 | 2062 | 2054 | 2050 | 2042 | 2038 | 2030 | 2025 | 2017 | 2013 | 2005 |
| 58 | OFC-24G.652D-FASA-S1 | 39/12 | 39/13 | 80.3 | 2.02 | 0.51 | 0.51 | 0.51 | 0.51 | 0.52 | 0.52 | 0.52 | 0.52 | 0.52 | 0.52 | 0.53 | 0.53 | 0.53 | 2079 | 2075 | 2067 | 2062 | 2054 | 2050 | 2042 | 2038 | 2030 | 2025 | 2017 | 2013 | 2005 |
| 58 | OFC-24G.652D-FASA-S1 | 39/13 | 40/1 | 83.6 | 2.55 | 0.55 | 0.55 | 0.56 | 0.56 | 0.56 | 0.56 | 0.56 | 0.56 | 0.57 | 0.57 | 0.57 | 0.57 | 0.57 | 2079 | 2075 | 2067 | 2062 | 2054 | 2050 | 2042 | 2038 | 2030 | 2025 | 2017 | 2013 | 2005 |
| 58 | OFC-24G.652D-FASA-S1 | 40/1 | 40/2 | 84.5 | -0.20 | 0.56 | 0.57 | 0.57 | 0.57 | 0.57 | 0.57 | 0.57 | 0.58 | 0.58 | 0.58 | 0.58 | 0.59 | 0.59 | 2079 | 2075 | 2067 | 2062 | 2054 | 2050 | 2042 | 2038 | 2030 | 2025 | 2017 | 2013 | 2005 |
| 58 | OFC-24G.652D-FASA-S1 | 40/2 | 40/3 | 90.6 | 0.26 | 0.65 | 0.65 | 0.65 | 0.65 | 0.66 | 0.66 | 0.66 | 0.66 | 0.67 | 0.67 | 0.67 | 0.67 | 0.67 | 2079 | 2075 | 2067 | 2062 | 2054 | 2050 | 2042 | 2038 | 2030 | 2025 | 2017 | 2013 | 2005 |
| 58 | OFC-24G.652D-FASA-S1 | 40/3 | 40/4 | 69.6 | -4.85 | 0.38 | 0.39 | 0.39 | 0.39 | 0.39 | 0.39 | 0.39 | 0.39 | 0.39 | 0.39 | 0.40 | 0.40 | 0.40 | 2079 | 2075 | 2067 | 2062 | 2054 | 2050 | 2042 | 2038 | 2030 | 2025 | 2017 | 2013 | 2005 |
| 59 | PARTRIDGE ACSR | 40/4 | 40/5 | 78.3 | -5.38 | 0.40 | 0.43 | 0.47 | 0.50 | 0.54 | 0.59 | 0.64 | 0.70 | 0.76 | 0.83 | 0.89 | 0.96 | 1.03 | 10192 | 9521 | 8850 | 8195 | 7572 | 6966 | 6402 | 5882 | 5406 | 4984 | 4611 | 4283 | 3998 |
| 59 | PARTRIDGE ACSR | 40/5 | 40/6 | 81.6 | -4.21 | 0.44 | 0.47 | 0.50 | 0.54 | 0.59 | 0.64 | 0.69 | 0.76 | 0.82 | 0.89 | 0.96 | 1.04 | 1.11 | 10192 | 9521 | 8850 | 8195 | 7572 | 6966 | 6402 | 5882 | 5406 | 4984 | 4611 | 4283 | 3998 |
| 60 | OFC-24G.652D-FASA-S1 | 40/4 | 40/5 | 78.2 | -1.77 | 0.29 | 0.29 | 0.29 | 0.29 | 0.29 | 0.29 | 0.29 | 0.29 | 0.29 | 0.29 | 0.29 | 0.29 | 0.29 | 3525 | 3517 | 3513 | 3505 | 3497 | 3489 | 3481 | 3473 | 3465 | 3457 | 3449 | 3441 | 3433 |
| 60 | OFC-24G.652D-FASA-S1 | 40/5 | 40/6 | 81.4 | -7.82 | 0.31 | 0.31 | 0.31 | 0.31 | 0.31 | 0.31 | 0.31 | 0.31 | 0.32 | 0.32 | 0.32 | 0.32 | 0.32 | 3525 | 3517 | 3513 | 3505 | 3497 | 3489 | 3481 | 3473 | 3465 | 3457 | 3449 | 3441 | 3433 |
| 61 | PARTRIDGE ACSR | 40/6 | 40/7 | 69.8 | 14.67 | 0.49 | 0.53 | 0.58 | 0.63 | 0.68 | 0.74 | 0.80 | 0.85 | 0.91 | 0.96 | 1.02 | 1.07 | 1.13 | 6815 | 6255 | 5746 | 5289 | 4877 | 4513 | 4190 | 3910 | 3668 | 3455 | 3266 | 3103 | 2958 |
| 61 | PARTRIDGE ACSR | 40/7 | 40/8 | 78.7 | 18.67 | 0.63 | 0.68 | 0.74 | 0.81 | 0.87 | 0.94 | 1.02 | 1.09 | 1.16 | 1.23 | 1.31 | 1.37 | 1.44 | 6815 | 6255 | 5746 | 5289 | 4877 | 4513 | 4190 | 3910 | 3668 | 3455 | 3266 | 3103 | 2958 |
| 61 | PARTRIDGE ACSR | 40/8 | 40/9 | 77.2 | 15.32 | 0.60 | 0.65 | 0.71 | 0.77 | 0.83 | 0.90 | 0.97 | 1.04 | 1.11 | 1.18 | 1.25 | 1.31 | 1.38 | 6815 | 6255 | 5746 | 5289 | 4877 | 4513 | 4190 | 3910 | 3668 | 3455 | 3266 | 3103 | 2958 |
| 61 | PARTRIDGE ACSR | 40/9 | 40/10 | 82.9 | 10.63 | 0.68 | 0.74 | 0.81 | 0.88 | 0.95 | 1.03 | 1.11 | 1.19 | 1.27 | 1.34 | 1.42 | 1.50 | 1.57 | 6815 | 6255 | 5746 | 5289 | 4877 | 4513 | 4190 | 3910 | 3668 | 3455 | 3266 | 3103 | 2958 |
| 61 | PARTRIDGE ACSR | 40/10 | 40/11 | 83.1 | 11.53 | 0.69 | 0.75 | 0.81 | 0.88 | 0.96 | 1.04 | 1.12 | 1.20 | 1.27 | 1.35 | 1.43 | 1.51 | 1.58 | 6815 | 6255 | 5746 | 5289 | 4877 | 4513 | 4190 | 3910 | 3668 | 3455 | 3266 | 3103 | 2958 |
| 61 | PARTRIDGE ACSR | 40/11 | 40/12 | 87.2 | 13.39 | 0.76 | 0.82 | 0.90 | 0.98 | 1.06 | 1.14 | 1.23 | 1.32 | 1.41 | 1.49 | 1.58 | 1.66 | 1.74 | 6815 | 6255 | 5746 | 5289 | 4877 | 4513 | 4190 | 3910 | 3668 | 3455 | 3266 | 3103 | 2958 |
| 61 | PARTRIDGE ACSR | 40/12 | 41/1 | 86.1 | 9.47 | 0.73 | 0.80 | 0.87 | 0.95 | 1.03 | 1.11 | 1.19 | 1.28 | 1.36 | 1.45 | 1.53 | 1.61 | 1.69 | 6815 | 6255 | 5746 | 5289 | 4877 | 4513 | 4190 | 3910 | 3668 | 3455 | 3266 | 3103 | 2958 |
| 61 | PARTRIDGE ACSR | 41/1 | 41/2 | 87.2 | 5.85 | 0.75 | 0.82 | 0.89 | 0.97 | 1.05 | 1.13 | 1.22 | 1.31 | 1.39 | 1.48 | 1.57 | 1.65 | 1.73 | 6815 | 6255 | 5746 | 5289 | 4877 | 4513 | 4190 | 3910 | 3668 | 3455 | 3266 | 3103 | 2958 |
| 61 | PARTRIDGE ACSR | 41/2 | 41/3 | 86.4 | 15.32 | 0.75 | 0.81 | 0.88 | 0.96 | 1.04 | 1.13 | 1.21 | 1.30 | 1.38 | 1.47 | 1.55 | 1.64 | 1.72 | 6815 | 6255 | 5746 | 5289 | 4877 | 4513 | 4190 | 3910 | 3668 | 3455 | 3266 | 3103 | 2958 |
| 61 | PARTRIDGE ACSR | 41/3 | 41/4 | 75.8 | 18.25 | 0.58 | 0.63 | 0.69 | 0.75 | 0.81 | 0.88 | 0.94 | 1.01 | 1.08 | 1.15 | 1.21 | 1.27 | 1.34 | 6815 | 6255 | 5746 | 5289 | 4877 | 4513 | 4190 | 3910 | 3668 | 3455 | 3266 | 3103 | 2958 |
| 61 | PARTRIDGE ACSR | 41/4 | 41/5 | 50.2 | 12.02 | 0.25 | 0.28 | 0.30 | 0.33 | 0.36 | 0.38 | 0.41 | 0.44 | 0.47 | 0.50 | 0.53 | 0.56 | 0.59 | 6815 | 6255 | 5746 | 5289 | 4877 | 4513 | 4190 | 3910 | 3668 | 3455 | 3266 | 3103 | 2958 |
| 61 | PARTRIDGE ACSR | 41/5 | 41/6 | 41.8 | 7.47 | 0.17 | 0.19 | 0.21 | 0.22 | 0.24 | 0.26 | 0.28 | 0.30 | 0.32 | 0.34 | 0.36 | 0.38 | 0.40 | 6815 | 6255 | 5746 | 5289 | 4877 | 4513 | 4190 | 3910 | 3668 | 3455 | 3266 | 3103 | 2958 |
| 62 | OFC-24G.652D-FASA-S1 | 40/6 | 40/7 | 89.7 | 18.51 | 0.41 | 0.41 | 0.41 | 0.41 | 0.41 | 0.41 | 0.42 | 0.42 | 0.42 | 0.42 | 0.42 | 0.42 | 0.42 | 2023 | 2019 | 2011 | 2007 | 1999 | 1994 | 1986 | 1982 | 1974 | 1970 | 1962 | 1957 | 1949 |
| 62 | OFC-24G.652D-FASA-S1 | 40/7 | 40/8 | 78.7 | 18.56 | 0.52 | 0.52 | 0.52 | 0.52 | 0.52 | 0.52 | 0.53 | 0.53 | 0.53 | 0.53 | 0.53 | 0.53 | 0.54 | 2023 | 2019 | 2011 | 2007 | 1999 | 1994 | 1986 | 1982 | 1974 | 1970 | 1962 | 1957 | 1949 |
| 62 | OFC-24G.652D-FASA-S1 | 40/8 | 40/9 | 77.2 | 15.32 | 0.49 | 0.49 | 0.50 | 0.50 | 0.50 | 0.50 | 0.50 | 0.50 | 0.51 | 0.51 | 0.51 | 0.51 | 0.51 | 2023 | 2019 | 2011 | 2007 | 1999 | 1994 | 1986 | 1982 | 1974 | 1970 | 1962 | 1957 | 1949 |
| 62 | OFC-24G.652D-FASA-S1 | 40/9 | 40/10 | 82.9 | 10.63 | 0.56 | 0.56 | 0.57 | 0.57 | 0.57 | 0.57 | 0.57 | 0.57 | 0.58 | 0.58 | 0.58 | 0.58 | 0.58 | 2023 | 2019 | 2011 | 2007 | 1999 | 1994 | 1986 | 1982 | 1974 | 1970 | 1962 | 1957 | 1949 |
| 62 | OFC-24G.652D-FASA-S1 | 40/10 | 40/11 | 83.1 | 11.53 | 0.57 | 0.57 | 0.57 | 0.57 | 0.57 | 0.57 | 0.58 | 0.58 | 0.58 | 0.58 | 0.58 | 0.59 | 0.59 | 2023 | 2019 | 2011 | 2007 | 1999 | 1994 | 1986 | 1982 | 1974 | 1970 | 1962 | 1957 | 1949 |
| 62 | OFC-24G.652D-FASA-S1 | 40/11 | 40/12 | 87.2 | 13.39 | 0.63 | 0.63 | 0.63 | 0.63 | 0.63 | 0.63 | 0.64 | 0.64 | 0.64 | 0.64 | 0.64 | 0.65 | 0.65 | 2023 | 2019 | 2011 | 2007 | 1999 | 1994 | 1986 | 1982 | 1974 | 1970 | 1962 | 1957 | 1949 |
| 62 | OFC-24G.652D-FASA-S1 | 40/12 | 41/1 | 86.1 | 9.47 | 0.61 | 0.61 | 0.61 | 0.61 | 0.61 | 0.62 | 0.62 | 0.62 | 0.62 | 0.62 | 0.63 | 0.63 | 0.63 | 2023 | 2019 | 2011 | 2007 | 1999 | 1994 | 1986 | 1982 | 1974 | 1970 | 1962 | 1957 | 1949 |
| 62 | OFC-24G.652D-FASA-S1 | 41/1 | 41/2 | 87.2 | 5.85 | 0.62 | 0.62 | 0.62 | 0.62 | 0.63 | 0.63 | 0.63 | 0.63 | 0.63 | 0.64 | 0.64 | 0.64 | 0.64 | 2023 | 2019 | 2011 | 2007 | 1999 | 1994 | 1986 | 1982 | 1974 | 1970 | 1962 | 1957 | 1949 |
| 62 | OFC-24G.652D-FASA-S1 | 41/2 | 41/3 | 85.4 | 15.12 | 0.62 | 0.62 | 0.62 | 0.62 | 0.62 | 0.62 | 0.63 | 0.63 | 0.63 | 0.63 | 0.63 | 0.64 | 0.64 | 2023 | 2019 | 2011 | 2007 | 1999 | 1994 | 1986 | 1982 | 1974 | 1970 | 1962 | 1957 | 1949 |
| 62 | OFC-24G.652D-FASA-S1 | 41/3 | 41/4 | 75.8 | 18.25 | 0.48 | 0.48 | 0.48 | 0.48 | 0.49 | 0.49 | 0.49 | 0.49 | 0.49 | 0.49 | 0.49 | 0.50 | 0.50 | 2023 | 2019 | 2011 | 2007 | 1999 | 1994 | 1986 | 1982 | 1974 | 1970 | 1962 | 1957 | 1949 |
| 62 | OFC-24G.652D-FASA-S1 | 41/4 | 41/5 | 50.2 | 12.13 | 0.21 | 0.21 | 0.21 | 0.21 | 0.21 | 0.21 | 0.21 | 0.21 | 0.22 | 0.22 | 0.22 | 0.22 | 0.22 | 2023 | 2019 | 2011 | 2007 | 1999 | 1994 | 1986 | 1982 | 1974 | 1970 | 1962 | 1957 | 1949 |
| 62 | OFC-24G.652D-FASA-S1 | 41/5 | 41/6 | 41.7 | 4.13 | 0.14 | 0.14 | 0.14 | 0.14 | 0.14 | 0.14 | 0.14 | 0.15 | 0.15 | 0.15 | 0.15 | 0.15 | 0.15 | 2023 | 2019 | 2011 | 2007 | 1999 | 1994 | 1986 | 1982 | 1974 | 1970 | 1962 | 1957 | 1949 |
| 63 | PARTRIDGE ACSR (OHSW) | 41/6 | 41/7 | 66.2 | 0.53 | 0.51 | 0.56 | 0.57 | 0.60 | 0.63 | 0.66 | 0.69 | 0.72 | 0.75 | 0.77 | 0.80 | 0.83 | 0.86 | 5773 | 5454 | 5165 | 4906 | 4673 | 4461 | 4272 | 4100 

Forbes Aero

# AS-BUILT

CHANGES REQUIRED YES ☐ NO ☐

Name (Print) _____

Signature _____

Date _____

| SAG AND TENSION | |
|---|---|
| CIRCUIT | VICTORIA GOLD 69kV |
| DOCUMENT | 1407-T-1A50 |
| DATE | 23-Oct-18 |
| REVISION | 0 |
| ISSUED FOR | CONSTRUCTION |
| PREPARED BY | MP |
| CHECKED BY | PC |
| APPROVED BY | PC |

ENGINEER'S SEAL

NOTES

1. All spans must be installed to the sag values provided. Tension values are provided as a reference only.
2. Sag and tension values shown are for new conductor under initial conditions.
3. For conductors left hanging in sheaves for longer than 3 hours between initial stringing and final sag, a creep correction factor must be applied.
4. All span lengths and sag values are provided in metres unless otherwise noted.
5. Conductors and cables:
   - Overhead Shieldwire (OHSW): Partridge ACSR
   - 69kV Transmission Line: Partridge ACSR
   - ADSS: OFC-24G-652D-FASA-S1

Clean Energy

## SECTION DATA

| SECTION | CABLE NAME | FROM STR. | TO STR. | RULING SPAN (m) | MIN SPAN (m) | MAX SPAN (m) | EST. CABLE LENGTH (m) | MEAN ANNUAL SAG TEMP (deg C) | CATENARY CONSTANT (m) | HORIZONTAL TENSION (N) |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | PARTRIDGE ACSR (OHSW) | 0/10A | 0/11 | 57 | 57 | 58 | 173 | 15 | 540 | 2892 |
| 2 | PARTRIDGE ACSR | 0/10A | 0/11 | 57 | 57 | 58 | 306 | 15 | 570 | 3204 |
| 3 | OFC-24G-652D-FASA-S1 | 0/10A | 0/11 | 57 | 57 | 58 | 172 | 15 | 1907 | 2500 |
| 4 | PARTRIDGE ACSR (OHSW) | 0/11 | 1/2 | 66 | 62 | 73 | 337 | 15 | 652 | 3495 |
| 5 | PARTRIDGE ACSR | 0/11 | 1/2 | 66 | 62 | 73 | 1004 | 15 | 652 | 3495 |
| 6 | OFC-24G-652D-FASA-S1 | 0/11 | 1/2 | 66 | 62 | 73 | 338 | 15 | 2037 | 2660 |
| 7 | PARTRIDGE ACSR | 1/2 | 3/3 | 100 | 87 | 174 | 6718 | 15 | 622 | 3334 |
| 8 | OFC-24G-652D-FASA-S1 | 1/2 | 3/3 | 100 | 86 | 178 | 2250 | 15 | 313 | 411 |
| 9 | PARTRIDGE ACSR | 3/3 | 7/2 | 84 | 64 | 96 | 11584 | 15 | 631 | 3382 |
| 10 | OFC-24G-652D-FASA-S1 | 3/3 | 7/2 | 84 | 64 | 96 | 3799 | 15 | 1006 | 3322 |
| 11 | PARTRIDGE ACSR | 7/2 | 7/7 | 109 | 64 | 153 | 1369 | 15 | 638 | 3420 |
| 12 | OFC-24G-652D-FASA-S1 | 7/2 | 7/7 | 108 | 64 | 153 | 461 | 15 | 337 | 442 |
| 13 | PARTRIDGE ACSR | 7/7 | 7/12 | 79 | 61 | 91 | 1140 | 15 | 626 | 3355 |
| 14 | OFC-24G-652D-FASA-S1 | 7/7 | 7/12 | 79 | 61 | 91 | 383 | 15 | 1386 | 3825 |
| 15 | PARTRIDGE ACSR | 7/12 | 10/9 | 81 | 63 | 94 | 8055 | 15 | 616 | 3292 |
| 16 | OFC-24G-652D-FASA-S1 | 7/12 | 10/9 | 81 | 63 | 94 | 2683 | 15 | 1141 | 1500 |
| 17 | PARTRIDGE ACSR | 10/9 | 10/13 | 65 | 60 | 68 | 768 | 15 | 591 | 3166 |
| 18 | OFC-24G-652D-FASA-S1 | 10/9 | 10/13 | 65 | 60 | 68 | 259 | 15 | 4747 | 6240 |
| 19 | PARTRIDGE ACSR | 10/13 | 11/4 | 90 | 78 | 92 | 1376 | 15 | 656 | 3518 |
| 20 | OFC-24G-652D-FASA-S1 | 10/13 | 11/4 | 90 | 76 | 92 | 395 | 15 | 1368 | 1798 |
| 21 | PARTRIDGE ACSR | 11/4 | 13/2 | 90 | 55 | 93 | 5485 | 15 | 562 | 3013 |
| 22 | OFC-24G-652D-FASA-S1 | 11/4 | 13/2 | 90 | 55 | 93 | 1789 | 15 | 1179 | 1550 |
| 23 | PARTRIDGE ACSR | 13/2 | 16/11 | 78 | 50 | 95 | 10935 | 15 | 580 | 3162 |
| 24 | OFC-24G-652D-FASA-S1 | 13/2 | 16/11 | 78 | 54 | 95 | 3649 | 15 | 995 | 1308 |
| 25 | PARTRIDGE ACSR | 16/11 | 21/2 | 87 | 46 | 137 | 13163 | 15 | 581 | 3133 |
| 26 | OFC-24G-652D-FASA-S1 | 16/11 | 21/2 | 87 | 46 | 137 | 4398 | 15 | 337 | 443 |
| 27 | PARTRIDGE ACSR | 21/2 | 22/8 | 100 | 67 | 148 | 5559 | 15 | 671 | 3595 |
| 28 | OFC-24G-652D-FASA-S1 | 21/2 | 22/8 | 100 | 67 | 148 | 2859 | 15 | 404 | 581 |
| 29 | PARTRIDGE ACSR | 22/8 | 26/1 | 87 | 63 | 102 | 9636 | 15 | 604 | 3237 |
| 30 | OFC-24G-652D-FASA-S1 | 22/8 | 26/1 | 87 | 63 | 102 | 3215 | 15 | 681 | 895 |
| 31 | PARTRIDGE ACSR | 26/1 | 27/1 | 87 | 66 | 92 | 2875 | 15 | 643 | 3445 |
| 32 | OFC-24G-652D-FASA-S1 | 26/1 | 27/1 | 87 | 66 | 92 | 980 | 15 | 1102 | 1449 |
| 33 | PARTRIDGE ACSR | 27/1 | 28/2 | 86 | 71 | 93 | 3329 | 15 | 667 | 3577 |
| 34 | OFC-24G-652D-FASA-S1 | 27/1 | 28/2 | 86 | 70 | 93 | 1112 | 15 | 1227 | 1613 |
| 35 | PARTRIDGE ACSR | 28/2 | 28/7 | 77 | 72 | 85 | 1208 | 15 | 652 | 3493 |
| 36 | OFC-24G-652D-FASA-S1 | 28/2 | 28/7 | 77 | 72 | 85 | 405 | 15 | 1608 | 2114 |
| 37 | PARTRIDGE ACSR | 28/7 | 28/13 | 79 | 60 | 92 | 1301 | 15 | 639 | 3317 |
| 38 | OFC-24G-652D-FASA-S1 | 28/7 | 28/13 | 79 | 60 | 92 | 466 | 15 | 1284 | 1687 |
| 39 | PARTRIDGE ACSR | 28/13 | 30/5 | 62 | 58 | 93 | 6148 | 15 | 630 | 3377 |
| 40 | OFC-24G-652D-FASA-S1 | 28/13 | 30/5 | 62 | 58 | 93 | 1485 | 15 | 1090 | 1433 |
| 41 | PARTRIDGE ACSR | 30/5 | 31/6 | 91 | 84 | 98 | 9501 | 15 | 643 | 3447 |
| 42 | OFC-24G-652D-FASA-S1 | 30/5 | 31/6 | 91 | 84 | 98 | 1171 | 15 | 670 | 891 |
| 43 | PARTRIDGE ACSR | 31/6 | 31/11 | 100 | 45 | 134 | 1275 | 15 | 748 | 4013 |
| 44 | OFC-24G-652D-FASA-S1 | 31/6 | 31/11 | 100 | 45 | 134 | 430 | 15 | 376 | 497 |
| 45 | PARTRIDGE ACSR | 31/11 | 32/8 | 76 | 59 | 83 | 7240 | 15 | 580 | 3108 |
| 46 | OFC-24G-652D-FASA-S1 | 31/11 | 32/8 | 76 | 59 | 83 | 749 | 15 | 2492 | 3275 |
| 47 | PARTRIDGE ACSR | 32/8 | 35/3 | 85 | 52 | 92 | 7799 | 15 | 585 | 3135 |
| 48 | OFC-24G-652D-FASA-S1 | 32/8 | 35/3 | 85 | 52 | 92 | 2602 | 15 | 1281 | 1584 |
| 49 | PARTRIDGE ACSR | 35/3 | 37/9 | 90 | 65 | 150 | 7411 | 15 | 615 | 3297 |
| 50 | OFC-24G-652D-FASA-S1 | 35/3 | 37/9 | 90 | 65 | 150 | 2479 | 15 | 348 | 452 |
| 51 | PARTRIDGE ACSR | 37/9 | 38/1 | 64 | 52 | 69 | 951 | 15 | 541 | 2900 |
| 52 | OFC-24G-652D-FASA-S1 | 37/9 | 38/1 | 64 | 52 | 69 | 320 | 15 | 4181 | 5499 |
| 53 | PARTRIDGE ACSR | 38/1 | 38/6 | 71 | 61 | 82 | 1042 | 15 | 635 | 3349 |
| 54 | OFC-24G-652D-FASA-S1 | 38/1 | 38/6 | 71 | 61 | 82 | 350 | 15 | 2774 | 3646 |
| 55 | PARTRIDGE ACSR | 38/6 | 39/4 | 83 | 72 | 91 | 2702 | 15 | 652 | 3494 |
| 56 | OFC-24G-652D-FASA-S1 | 38/6 | 39/4 | 83 | 72 | 91 | 901 | 15 | 1419 | 1865 |
| 57 | PARTRIDGE ACSR | 39/4 | 40/4 | 82 | 70 | 91 | 3570 | 15 | 648 | 1474 |
| 58 | OFC-24G-652D-FASA-S1 | 39/4 | 40/4 | 82 | 70 | 91 | 1059 | 15 | 1520 | 1998 |
| 59 | PARTRIDGE ACSR | 40/4 | 40/6 | 80 | 78 | 81 | 471 | 15 | 699 | 3749 |
| 60 | OFC-24G-652D-FASA-S1 | 40/4 | 40/6 | 80 | 78 | 81 | 160 | 15 | 2698 | 3478 |
| 61 | PARTRIDGE ACSR | 40/6 | 41/6 | 78 | 42 | 87 | 1755 | 15 | 528 | 2829 |
| 62 | OFC-24G-652D-FASA-S1 | 40/6 | 41/6 | 78 | 42 | 87 | 971 | 15 | 1477 | 1942 |
| 63 | PARTRIDGE ACSR (OHSW) | 41/6 | 42/7 | 113 | 66 | 169 | 1259 | 15 | 622 | 3334 |
| 64 | PARTRIDGE ACSR | 41/6 | 42/7 | 113 | 66 | 169 | 3741 | 15 | 647 | 3466 |
| 65 | OFC-24G-652D-FASA-S1 | 41/6 | 42/7 | 113 | 66 | 169 | 1254 | 15 | 350 | 460 |
| 66 | PARTRIDGE ACSR SLACK (OHSW) | 42/7 | 42/8 | 35 | 35 | 35 | 35 | 15 | 120 | 642 |
| 67 | PARTRIDGE ACSR SLACK (OHSW) | 42/7 | 42/8 | 35 | 35 | 35 | 35 | 15 | 120 | 643 |
| 68 | PARTRIDGE ACSR SLACK | 42/7 | 42/8 | 35 | 35 | 35 | 36 | 15 | 124 | 665 |
| 69 | OFC-24G-652D-FASA-S1 SLACK | 42/7 | 42/8 | 34 | 35 | 35 | 36 | 15 | 118 | 633 |

## SAG-TENSION CHART

| SEC | CABLE | FROM STR. | TO STR. | SPAN AHEAD (m) | SPAN VERT. PROJ. (m) | MID SPAN SAG (m) | | | | | | | | | | HORIZONTAL TENSION (N) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | -20 | -15 | -10 | -5 | 0 | 5 | 10 | 15 | 20 | 25 | -20 | -15 | -10 | -5 | 0 | 5 | 10 | 15 | 20 | 25 |
| 1 | PARTRIDGE ACSR (OHSW) | 0/10A | 0/10B | 56.8 | 0.15 | 0.38 | 0.42 | 0.48 | 0.53 | 0.58 | 0.64 | 0.70 | 0.76 | 0.83 | 0.88 | 5692 | 5117 | 4596 | 4136 | 3740 | 3410 | 3131 | 2892 | 2695 | 2527 |
| 1 | PARTRIDGE ACSR (OHSW) | 0/10B | 0/10C | 58.3 | -2.50 | 0.40 | 0.45 | 0.50 | 0.55 | 0.61 | 0.67 | 0.73 | 0.79 | 0.85 | 0.90 | 5693 | 5117 | 4596 | 4136 | 3740 | 3410 | 3131 | 2892 | 2695 | 2527 |
| 1 | PARTRIDGE ACSR (OHSW) | 0/10C | 0/11 | 56.8 | 2.34 | 0.38 | 0.42 | 0.47 | 0.52 | 0.58 | 0.63 | 0.69 | 0.75 | 0.80 | 0.86 | 5692 | 5117 | 4596 | 4136 | 3740 | 3410 | 3131 | 2892 | 2695 | 2527 |
| 2 | PARTRIDGE ACSR | 0/10A | 0/10B | 56.7 | 5.57 | 0.35 | 0.38 | 0.43 | 0.48 | 0.53 | 0.59 | 0.64 | 0.70 | 0.75 | 0.81 | 6261 | 5631 | 5056 | 4539 | 4092 | 3701 | 3377 | 3100 | 2872 | 2677 |
| 2 | PARTRIDGE ACSR | 0/10B | 0/10C | 58.3 | -2.50 | 0.36 | 0.40 | 0.45 | 0.50 | 0.56 | 0.62 | 0.68 | 0.74 | 0.79 | 0.85 | 6261 | 5631 | 5056 | 4539 | 4092 | 3701 | 3377 | 3100 | 2872 | 2677 |
| 2 | PARTRIDGE ACSR | 0/10C | 0/11 | 56.8 | 0.87 | 0.34 | 0.38 | 0.43 | 0.48 | 0.53 | 0.58 | 0.64 | 0.70 | 0.75 | 0.81 | 6261 | 5631 | 5056 | 4539 | 4092 | 3701 | 3377 | 3100 | 2872 | 2677 |
| 3 | OFC-24G-652D-FASA-S1 | 0/10A | 0/10B | 56.8 | 3.93 | 0.21 | 0.21 | 0.21 | 0.21 | 0.21 | 0.21 | 0.21 | 0.21 | 0.21 | 0.21 | 2554 | 2546 | 2538 | 2530 | 2522 | 2514 | 2506 | 2498 | 2493 | 2485 |
| 3 | OFC-24G-652D-FASA-S1 | 0/10B | 0/10C | 58.3 | -2.50 | 0.22 | 0.22 | 0.22 | 0.22 | 0.23 | 0.23 | 0.22 | 0.22 | 0.22 | 0.23 | 2554 | 2546 | 2538 | 2530 | 2522 | 2514 | 2506 | 2498 | 2493 | 2485 |
| 3 | OFC-24G-652D-FASA-S1 | 0/10C | 0/11 | 56.8 | 1.69 | 0.21 | 0.21 | 0.21 | 0.21 | 0.21 | 0.21 | 0.21 | 0.21 | 0.21 | 0.21 | 2554 | 2546 | 2538 | 2530 | 2522 | 2514 | 2506 | 2498 | 2493 | 2485 |
| 4 | PARTRIDGE ACSR (OHSW) | 0/11 | 0/12 | 64.7 | -1.56 | 0.43 | 0.47 | 0.52 | 0.57 | 0.62 | 0.68 | 0.74 | 0.80 | 0.86 | 0.92 | 6604 | 5995 | 5437 | 4939 | 4496 | 4108 | 3779 | 3497 | 3251 | 3046 |
| 4 | PARTRIDGE ACSR (OHSW) | 0/12 | 0/13 | 68.3 | -4.17 | 0.47 | 0.52 | 0.58 | 0.63 | 0.70 | 0.76 | 0.83 | 0.90 | 0.96 | 1.03 | 6604 | 5995 | 5437 | 4939 | 4496 | 4108 | 3779 | 3497 | 3251 | 3046 |
| 4 | PARTRIDGE ACSR (OHSW) | 0/13 | 0/14 | 72.6 | -8.55 | 0.54 | 0.59 | 0.65 | 0.72 | 0.79 | 0.87 | 0.94 | 1.02 | 1.10 | 1.17 | 6604 | 5995 | 5437 | 4939 | 4496 | 4108 | 3779 | 3497 | 3251 | 3046 |
| 4 | PARTRIDGE ACSR (OHSW) | 0/14 | 1/1 | 62.3 | -16.03 | 0.41 | 0.45 | 0.49 | 0.54 | 0.60 | 0.65 | 0.71 | 0.77 | 0.83 | 0.88 | 6604 | 5995 | 5437 | 4939 | 4496 | 4108 | 3779 | 3497 | 3251 | 3046 |
| 4 | PARTRIDGE ACSR (OHSW) | 1/1 | 1/2 | 65.7 | -11.17 | 0.44 | 0.49 | 0.54 | 0.59 | 0.65 | 0.71 | 0.78 | 0.84 | 0.90 | 0.96 | 6604 | 5995 | 5437 | 4939 | 4496 | 4108 | 3779 | 3497 | 3251 | 3046 |
| 5 | PARTRIDGE ACSR | 0/11 | 0/12 | 64.7 | -0.13 | 0.42 | 0.47 | 0.52 | 0.57 | 0.62 | 0.68 | 0.74 | 0.80 | 0.86 | 0.92 | 6604 | 5995 | 5445 | 4939 | 4496 | 4108 | 3779 | 3493 | 3251 | 3046 |
| 5 | PARTRIDGE ACSR | 0/12 | 0/13 | 68.3 | -4.17 | 0.47 | 0.52 | 0.58 | 0.63 | 0.70 | 0.76 | 0.83 | 0.90 | 0.96 | 1.03 | 6604 | 5995 | 5445 | 4939 | 4496 | 4108 | 3779 | 3493 | 3251 | 3046 |
| 5 | PARTRIDGE ACSR | 0/13 | 0/14 | 72.6 | -8.55 | 0.54 | 0.59 | 0.65 | 0.72 | 0.79 | 0.87 | 0.94 | 1.02 | 1.10 | 1.17 | 6604 | 5995 | 5445 | 4939 | 4496 | 4108 | 3779 | 3493 | 3251 | 3046 |
| 5 | PARTRIDGE ACSR | 0/14 | 1/1 | 62.3 | -16.02 | 0.41 | 0.45 | 0.49 | 0.54 | 0.60 | 0.65 | 0.71 | 0.77 | 0.83 | 0.88 | 6604 | 5995 | 5445 | 4939 | 4496 | 4108 | 3779 | 3493 | 3251 | 3046 |
| 5 | PARTRIDGE ACSR | 1/1 | 1/2 | 65.7 | -12.45 | 0.45 | 0.49 | 0.54 | 0.60 | 0.66 | 0.72 | 0.78 | 0.84 | 0.91 | 0.97 | 6604 | 5995 | 5445 | 4939 | 4496 | 4108 | 3779 | 3493 | 3251 | 3046 |
| 6 | OFC-24G-652D-FASA-S1 | 0/11 | 0/12 | 64.7 | 2.43 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.26 | 0.26 | 0.26 | 0.26 | 2739 | 2731 | 2727 | 2719 | 2711 | 2703 | 2695 | 2690 | 2682 | 2674 |
| 6 | OFC-24G-652D-FASA-S1 | 0/12 | 0/13 | 68.3 | -4.17 | 0.28 | 0.28 | 0.28 | 0.28 | 0.28 | 0.28 | 0.29 | 0.29 | 0.29 | 0.29 | 2739 | 2731 | 2727 | 2719 | 2711 | 2703 | 2695 | 2690 | 2682 | 2674 |
| 6 | OFC-24G-652D-FASA-S1 | 0/13 | 0/14 | 72.6 | -8.55 | 0.32 | 0.32 | 0.32 | 0.32 | 0.32 | 0.32 | 0.32 | 0.32 | 0.33 | 0.33 | 2739 | 2731 | 2727 | 2719 | 2711 | 2703 | 2695 | 2690 | 2682 | 2674 |
| 6 | OFC-24G-652D-FASA-S1 | 0/14 | 1/1 | 62.3 | -16.03 | 0.24 | 0.24 | 0.24 | 0.24 | 0.24 | 0.24 | 0.24 | 0.24 | 0.25 | 0.25 | 2739 | 2731 | 2727 | 2719 | 2711 | 2703 | 2695 | 2690 | 2682 | 2674 |
| 6 | OFC-24G-652D-FASA-S1 | 1/1 | 1/2 | 65.7 | -15.01 | 0.27 | 0.27 | 0.27 | 0.27 | 0.27 | 0.27 | 0.27 | 0.27 | 0.27 | 0.27 | 2739 | 2731 | 2727 | 2719 | 2711 | 2703 | 2695 | 2690 | 2682 | 2674 |
| 7 | PARTRIDGE ACSR | 1/2 | 1/3 | 80.7 | 0.24 | 0.95 | 1.01 | 1.06 | 1.11 | 1.16 | 1.21 | 1.26 | 1.31 | 1.36 | 1.40 | 4577 | 4337 | 4122 | 3930 | 3756 | 3603 | 3460 | 3335 | 3218 | 3111 |
| 7 | PARTRIDGE ACSR | 1/3 | 1/4 | 82.4 | -6.98 | 1.00 | 1.05 | 1.11 | 1.16 | 1.22 | 1.27 | 1.32 | 1.37 | 1.42 | 1.47 | 4577 | 4337 | 4122 | 3930 | 3756 | 3603 | 3460 | 3335 | 3218 | 3111 |
| 7 | PARTRIDGE ACSR | 1/4 | 1/5 | 89.1 | -6.84 | 1.17 | 1.23 | 1.29 | 1.35 | 1.42 | 1.48 | 1.54 | 1.60 | 1.66 | 1.71 | 4577 | 4337 | 4122 | 3930 | 3756 | 3603 | 3460 | 3335 | 3218 | 3111 |
| 7 | PARTRIDGE ACSR | 1/5 | 1/6 | 90.9 | -4.34 | 1.21 | 1.28 | 1.35 | 1.41 | 1.48 | 1.54 | 1.60 | 1.66 | 1.72 | 1.78 | 4577 | 4337 | 4122 | 3930 | 3756 | 3603 | 3460 | 3335 | 3218 | 3111 |
| 7 | PARTRIDGE ACSR | 1/6 | 1/7 | 66.5 | -4.77 | 0.65 | 0.68 | 0.72 | 0.76 | 0.79 | 0.82 | 0.86 | 0.89 | 0.92 | 0.95 | 4577 | 4337 | 4122 | 3930 | 3756 | 3603 | 3460 | 3335 | 3218 | 3111 |
| 7 | PARTRIDGE ACSR | 1/7 | 1/8 | 110.6 | -4.59 | 1.79 | 1.89 | 1.99 | 2.09 | 2.19 | 2.28 | 2.37 | 2.46 | 2.55 | 2.64 | 4577 | 4337 | 4122 | 3930 | 3756 | 3603 | 3460 | 3335 | 3218 | 3111 |
| 7 | PARTRIDGE ACSR | 1/8 | 1/9 | 79.6 | -5.68 | 0.93 | 0.98 | 1.03 | 1.08 | 1.13 | 1.18 | 1.23 | 1.28 | 1.32 | 1.37 | 4577 | 4337 | 4122 | 3930 | 3756 | 3603 | 3460 | 3335 | 3218 | 3111 |
| 7 | PARTRIDGE ACSR | 1/9 | 1/10 | 81.5 | -4.33 | 0.97 | 1.03 | 1.08 | 1.13 | 1.19 | 1.24 | 1.29 | 1.34 | 1.39 | 1.43 | 4577 | 4337 | 4122 | 3930 | 3756 | 3603 | 3460 | 3335 | 3218 | 3111 |
| 7 | PARTRIDGE ACSR | 1/10 | 1/11 | 94.4 | -1.53 | 1.30 | 1.38 | 1.45 | 1.52 | 1.59 | 1.66 | 1.73 | 1.79 | 1.86 | 1.92 | 4577 | 4337 | 4122 | 3930 | 3756 | 3603 | 3460 | 3335 | 3218 | 3111 |
| 7 | PARTRIDGE ACSR | 1/11 | 1/12 | 90.4 | -4.12 | 1.20 | 1.26 | 1.33 | 1.40 | 1.46 | 1.52 | 1.59 | 1.64 | 1.70 | 1.76 | 4577 | 4337 | 4122 | 3930 | 3756 | 3603 | 3460 | 3335 | 3218 | 3111 |
| 7 | PARTRIDGE ACSR | 1/12 | 2/1 | 90.4 | -2.36 | 1.20 | 1.26 | 1.33 | 1.39 | 1.46 | 1.52 | 1.58 | 1.64 | 1.70 | 1.76 | 4577 | 4337 | 4122 | 3930 | 3756 | 3603 | 3460 | 3335 | 3218 | 3111 |
| 7 | PARTRIDGE ACSR | 2/1 | 2/2 | 93.8 | -3.03 | 1.29 | 1.36 | 1.43 | 1.50 | 1.57 | 1.64 | 1.70 | 1.77 | 1.83 | 1.90 | 4577 | 4337 | 4122 | 3930 | 3756 | 3603 | 3460 | 3335 | 3218 | 3111 |
| 7 | PARTRIDGE ACSR | 2/2 | 2/3 | 88.5 | -1.20 | 1.15 | 1.21 | 1.27 | 1.33 | 1.40 | 1.46 | 1.52 | 1.57 | 1.63 | 1.69 | 4577 | 4337 | 4122 | 3930 | 3756 | 3603 | 3460 | 3335 | 3218 | 3111 |
| 7 | PARTRIDGE ACSR | 2/3 | 2/4 | 90.1 | -1.57 | 1.19 | 1.25 | 1.32 | 1.38 | 1.45 | 1.51 | 1.57 | 1.63 | 1.69 | 1.75 | 4577 | 4337 | 4122 | 3930 | 3756 | 3603 | 3460 | 3335 | 3218 | 3111 |

Fortis Bros

# AS-BUILT

CHANGES REQUIRED YES ☐ NO ☐

Name (Print) _____

Signature _____

Date _____

PERMIT TO PRACTICE
YUKON ENERGY CORPORATION PPC
Signature JRM
Date 23-OCT-2018
YUKON ASSOCIATION OF ENGINEERS

| SAG AND TENSION | |
|---|---|
| CIRCUIT | VICTORIA GOLD 69kV |
| DOCUMENT | 1407-T-SASU |
| DATE | 23-Oct-18 |
| REVISION | 0 |
| ISSUED FOR | CONSTRUCTION |
| PREPARED BY | MP |
| CHECKED BY | PC |
| APPROVED BY | PC |

ENGINEER'S SEAL

YUKON ASSOCIATION OF ENGINEERS
23-OCT-2018

NOTES
1. All spans must be installed to the sag values provided. Tension values are provided as a reference only.
2. Sag and tension values shown are for new conductor under initial conditions.
3. For conductors left stringing in sheaves for longer than 3 hours between initial stringing and final sag, a creep correction factor must be applied.
4. All span lengths and sag values are provided in metres unless otherwise noted.
5. Conductors and cables:
   - Overhead Shieldwire (OHSW): Partridge ACSR
   - 69kV Transmission Line: Partridge ACSR
   - ADSS: OFC-24G-652D-FASA-S1

Clean Energy

| SEC | CABLE | FROM STR | TO STR | SPAN AHEAD (m) | SPAN VERT. PROJ. (m) | MID SPAN SAG (m) -20 | -15 | -10 | -5 | 0 | 5 | 10 | 15 | 20 | 25 | HORIZONTAL TENSION (N) -20 | -15 | -10 | -5 | 0 | 5 | 10 | 15 | 20 | 25 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7 | PARTRIDGE ACSR | 2/4 | 2/5 | 90.2 | -3.76 | 1.19 | 1.26 | 1.32 | 1.39 | 1.45 | 1.51 | 1.58 | 1.64 | 1.69 | 1.75 | 4577 | 4337 | 4122 | 3930 | 3756 | 3603 | 3460 | 3335 | 3218 | 3111 |
| 7 | PARTRIDGE ACSR | 2/5 | 2/6 | 103.0 | -3.26 | 1.55 | 1.64 | 1.73 | 1.81 | 1.89 | 1.98 | 2.06 | 2.13 | 2.21 | 2.29 | 4577 | 4337 | 4122 | 3930 | 3756 | 3603 | 3460 | 3335 | 3218 | 3111 |
| 7 | PARTRIDGE ACSR | 2/6 | 2/7 | 101.6 | 0.11 | 1.51 | 1.60 | 1.68 | 1.76 | 1.84 | 1.92 | 2.00 | 2.08 | 2.15 | 2.23 | 4577 | 4337 | 4122 | 3930 | 3756 | 3603 | 3460 | 3335 | 3218 | 3111 |
| 7 | PARTRIDGE ACSR | 2/7 | 2/8 | 97.5 | -1.16 | 1.39 | 1.47 | 1.55 | 1.62 | 1.70 | 1.77 | 1.84 | 1.91 | 1.98 | 2.05 | 4577 | 4337 | 4122 | 3930 | 3756 | 3603 | 3460 | 3335 | 3218 | 3111 |
| 7 | PARTRIDGE ACSR | 2/8 | 2/9 | 89.3 | -4.12 | 1.17 | 1.23 | 1.30 | 1.36 | 1.42 | 1.48 | 1.55 | 1.60 | 1.66 | 1.72 | 4577 | 4337 | 4122 | 3930 | 3756 | 3603 | 3460 | 3335 | 3218 | 3111 |
| 7 | PARTRIDGE ACSR | 2/9 | 2/10 | 92.4 | -1.91 | 1.25 | 1.32 | 1.39 | 1.46 | 1.52 | 1.59 | 1.66 | 1.72 | 1.78 | 1.84 | 4577 | 4337 | 4122 | 3930 | 3756 | 3603 | 3460 | 3335 | 3218 | 3111 |
| 7 | PARTRIDGE ACSR | 2/10 | 2/11 | 86.4 | 1.14 | 1.09 | 1.15 | 1.21 | 1.27 | 1.33 | 1.39 | 1.44 | 1.50 | 1.55 | 1.61 | 4577 | 4337 | 4122 | 3930 | 3756 | 3603 | 3460 | 3335 | 3218 | 3111 |
| 7 | PARTRIDGE ACSR | 2/11 | 3/1 | 88.4 | 2.93 | 1.17 | 1.23 | 1.30 | 1.36 | 1.43 | 1.49 | 1.55 | 1.61 | 1.66 | 1.72 | 4577 | 4337 | 4122 | 3930 | 3756 | 3603 | 3460 | 3335 | 3218 | 3111 |
| 7 | PARTRIDGE ACSR | 3/1 | 3/2 | 174.0 | 0.63 | 4.88 | 4.66 | 4.94 | 5.27 | 5.61 | 5.64 | 5.87 | 6.09 | 6.32 | 6.53 | 4577 | 4337 | 4122 | 3930 | 3756 | 3603 | 3460 | 3335 | 3218 | 3111 |
| 7 | PARTRIDGE ACSR | 3/2 | 3/3 | 86.8 | -2.93 | 1.08 | 1.14 | 1.20 | 1.26 | 1.33 | 1.38 | 1.43 | 1.49 | 1.54 | 1.59 | 4577 | 4337 | 4122 | 3930 | 3756 | 3603 | 3460 | 3335 | 3218 | 3111 |
| 8 | OFC-24G-652D-FASA-S1 | 1/2 | 1/3 | 80.6 | 3.35 | 2.60 | 2.60 | 2.60 | 2.60 | 2.60 | 2.60 | 2.60 | 2.60 | 2.61 | 2.61 | 413 | 412 | 412 | 412 | 412 | 412 | 412 | 411 | 411 | 411 |
| 8 | OFC-24G-652D-FASA-S1 | 1/3 | 1/4 | 87.4 | -6.28 | 2.72 | 2.72 | 2.72 | 2.72 | 2.72 | 2.72 | 2.72 | 2.72 | 2.73 | 2.73 | 413 | 412 | 412 | 412 | 412 | 412 | 412 | 411 | 411 | 411 |
| 8 | OFC-24G-652D-FASA-S1 | 1/4 | 1/5 | 89.0 | -7.13 | 3.17 | 3.17 | 3.18 | 3.18 | 3.18 | 3.18 | 3.18 | 3.18 | 3.19 | 3.19 | 413 | 412 | 412 | 412 | 412 | 412 | 412 | 411 | 411 | 411 |
| 8 | OFC-24G-652D-FASA-S1 | 1/5 | 1/6 | 90.9 | -4.05 | 3.30 | 3.30 | 3.30 | 3.30 | 3.31 | 3.31 | 3.31 | 3.31 | 3.31 | 3.31 | 413 | 412 | 412 | 412 | 412 | 412 | 412 | 411 | 411 | 411 |
| 8 | OFC-24G-652D-FASA-S1 | 1/6 | 1/7 | 66.4 | -4.77 | 1.76 | 1.76 | 1.77 | 1.77 | 1.77 | 1.77 | 1.77 | 1.77 | 1.77 | 1.77 | 413 | 412 | 412 | 412 | 412 | 412 | 412 | 411 | 411 | 411 |
| 8 | OFC-24G-652D-FASA-S1 | 1/7 | 1/8 | 110.9 | -4.78 | 4.89 | 4.89 | 4.89 | 4.90 | 4.90 | 4.90 | 4.90 | 4.91 | 4.91 | 4.91 | 413 | 412 | 412 | 412 | 412 | 412 | 412 | 411 | 411 | 411 |
| 8 | OFC-24G-652D-FASA-S1 | 1/8 | 1/9 | 79.0 | -6.05 | 2.54 | 2.54 | 2.54 | 2.54 | 2.54 | 2.54 | 2.54 | 2.55 | 2.55 | 2.55 | 413 | 412 | 412 | 412 | 412 | 412 | 412 | 411 | 411 | 411 |
| 8 | OFC-24G-652D-FASA-S1 | 1/9 | 1/10 | 81.1 | -3.96 | 2.65 | 2.65 | 2.65 | 2.65 | 2.66 | 2.66 | 2.66 | 2.66 | 2.66 | 2.66 | 413 | 412 | 412 | 412 | 412 | 412 | 412 | 411 | 411 | 411 |
| 8 | OFC-24G-652D-FASA-S1 | 1/10 | 1/11 | 94.8 | -3.03 | 3.55 | 3.55 | 3.56 | 3.56 | 3.56 | 3.56 | 3.56 | 3.57 | 3.57 | 3.57 | 413 | 412 | 412 | 412 | 412 | 412 | 412 | 411 | 411 | 411 |
| 8 | OFC-24G-652D-FASA-S1 | 1/11 | 1/12 | 90.4 | -4.12 | 3.26 | 3.27 | 3.27 | 3.27 | 3.27 | 3.27 | 3.27 | 3.28 | 3.28 | 3.28 | 413 | 412 | 412 | 412 | 412 | 412 | 412 | 411 | 411 | 411 |
| 8 | OFC-24G-652D-FASA-S1 | 1/12 | 2/1 | 90.4 | -2.36 | 3.26 | 3.26 | 3.26 | 3.27 | 3.27 | 3.27 | 3.27 | 3.27 | 3.28 | 3.28 | 413 | 412 | 412 | 412 | 412 | 412 | 412 | 411 | 411 | 411 |
| 8 | OFC-24G-652D-FASA-S1 | 2/1 | 2/2 | 91.8 | -3.03 | 3.51 | 3.51 | 3.51 | 3.52 | 3.52 | 3.52 | 3.52 | 3.52 | 3.52 | 3.52 | 413 | 412 | 412 | 412 | 412 | 412 | 412 | 411 | 411 | 411 |
| 8 | OFC-24G-652D-FASA-S1 | 2/2 | 2/3 | 88.5 | -1.30 | 3.12 | 3.12 | 3.12 | 3.13 | 3.13 | 3.13 | 3.13 | 3.13 | 3.13 | 3.13 | 413 | 412 | 412 | 412 | 412 | 412 | 412 | 411 | 411 | 411 |
| 8 | OFC-24G-652D-FASA-S1 | 2/3 | 2/4 | 90.1 | 1.28 | 3.24 | 3.24 | 3.24 | 3.24 | 3.24 | 3.24 | 3.25 | 3.25 | 3.25 | 3.25 | 413 | 412 | 412 | 412 | 412 | 412 | 412 | 411 | 411 | 411 |
| 8 | OFC-24G-652D-FASA-S1 | 2/4 | 2/5 | 90.2 | -4.05 | 3.25 | 3.25 | 3.25 | 3.25 | 3.25 | 3.25 | 3.25 | 3.26 | 3.26 | 3.26 | 413 | 412 | 412 | 412 | 412 | 412 | 412 | 411 | 411 | 411 |
| 8 | OFC-24G-652D-FASA-S1 | 2/5 | 2/6 | 103.0 | -3.26 | 4.24 | 4.24 | 4.24 | 4.24 | 4.25 | 4.25 | 4.25 | 4.25 | 4.25 | 4.26 | 413 | 412 | 412 | 412 | 412 | 412 | 412 | 411 | 411 | 411 |
| 8 | OFC-24G-652D-FASA-S1 | 2/6 | 2/7 | 101.6 | 0.11 | 4.12 | 4.12 | 4.13 | 4.13 | 4.13 | 4.13 | 4.13 | 4.14 | 4.14 | 4.14 | 413 | 412 | 412 | 412 | 412 | 412 | 412 | 411 | 411 | 411 |
| 8 | OFC-24G-652D-FASA-S1 | 2/7 | 2/8 | 97.5 | -1.16 | 3.79 | 3.79 | 3.79 | 3.80 | 3.80 | 3.80 | 3.80 | 3.80 | 3.81 | 3.81 | 413 | 412 | 412 | 412 | 412 | 412 | 412 | 411 | 411 | 411 |
| 8 | OFC-24G-652D-FASA-S1 | 2/8 | 2/9 | 89.3 | -4.12 | 3.18 | 3.18 | 3.19 | 3.19 | 3.19 | 3.19 | 3.19 | 3.19 | 3.20 | 3.20 | 413 | 412 | 412 | 412 | 412 | 412 | 412 | 411 | 411 | 411 |
| 8 | OFC-24G-652D-FASA-S1 | 2/9 | 2/10 | 92.4 | -1.91 | 3.41 | 3.41 | 3.41 | 3.42 | 3.42 | 3.42 | 3.42 | 3.42 | 3.42 | 3.42 | 413 | 412 | 412 | 412 | 412 | 412 | 412 | 411 | 411 | 411 |
| 8 | OFC-24G-652D-FASA-S1 | 2/10 | 2/11 | 86.4 | 1.14 | 2.97 | 2.98 | 2.98 | 2.98 | 2.98 | 2.98 | 2.99 | 2.99 | 2.99 | 2.99 | 413 | 412 | 412 | 412 | 412 | 412 | 412 | 411 | 411 | 411 |
| 8 | OFC-24G-652D-FASA-S1 | 2/11 | 3/1 | 89.5 | -4.03 | 3.20 | 3.20 | 3.20 | 3.21 | 3.21 | 3.21 | 3.21 | 3.21 | 3.21 | 3.21 | 413 | 412 | 412 | 412 | 412 | 412 | 412 | 411 | 411 | 411 |
| 8 | OFC-24G-652D-FASA-S1 | 3/1 | 3/2 | 174.0 | 0.63 | 12.14 | 12.14 | 12.15 | 12.16 | 12.16 | 12.17 | 12.17 | 12.18 | 12.19 | 12.19 | 414 | 412 | 412 | 412 | 412 | 412 | 412 | 411 | 411 | 411 |
| 8 | OFC-24G-652D-FASA-S1 | 3/2 | 3/3 | 65.8 | -4.12 | 2.94 | 2.94 | 2.94 | 2.95 | 2.95 | 2.95 | 2.95 | 2.95 | 2.95 | 2.95 | 413 | 412 | 412 | 412 | 412 | 412 | 412 | 411 | 411 | 411 |
| 9 | PARTRIDGE ACSR | 3/3 | 3/4 | 79.1 | 3.73 | 0.79 | 0.85 | 0.92 | 0.98 | 1.05 | 1.11 | 1.18 | 1.24 | 1.30 | 1.36 | 5298 | 4910 | 4563 | 4266 | 4000 | 3766 | 3565 | 3384 | 3222 | 3081 |
| 9 | PARTRIDGE ACSR | 3/4 | 3/5 | 81.2 | 1.93 | 0.83 | 0.90 | 0.97 | 1.04 | 1.10 | 1.17 | 1.24 | 1.31 | 1.37 | 1.43 | 5298 | 4910 | 4563 | 4266 | 4000 | 3766 | 3565 | 3384 | 3222 | 3081 |
| 9 | PARTRIDGE ACSR | 3/5 | 3/6 | 81.2 | 0.40 | 0.83 | 0.90 | 0.97 | 1.04 | 1.10 | 1.17 | 1.24 | 1.31 | 1.37 | 1.43 | 5298 | 4910 | 4563 | 4266 | 4000 | 3766 | 3565 | 3384 | 3222 | 3081 |
| 9 | PARTRIDGE ACSR | 3/6 | 3/7 | 79.2 | 2.91 | 0.79 | 0.86 | 0.92 | 0.99 | 1.05 | 1.12 | 1.18 | 1.24 | 1.31 | 1.37 | 5298 | 4910 | 4563 | 4266 | 4000 | 3766 | 3565 | 3384 | 3222 | 3081 |
| 9 | PARTRIDGE ACSR | 3/7 | 3/8 | 88.2 | 2.78 | 0.99 | 1.06 | 1.14 | 1.22 | 1.30 | 1.38 | 1.46 | 1.54 | 1.62 | 1.69 | 5298 | 4910 | 4563 | 4266 | 4000 | 3766 | 3565 | 3384 | 3222 | 3081 |
| 9 | PARTRIDGE ACSR | 3/8 | 3/9 | 93.6 | 4.60 | 1.06 | 1.15 | 1.23 | 1.32 | 1.41 | 1.50 | 1.58 | 1.66 | 1.75 | 1.83 | 5298 | 4910 | 4563 | 4266 | 4000 | 3766 | 3565 | 3384 | 3222 | 3081 |
| 9 | PARTRIDGE ACSR | 3/9 | 3/10 | 92.8 | -1.15 | 1.09 | 1.17 | 1.26 | 1.35 | 1.44 | 1.53 | 1.62 | 1.70 | 1.79 | 1.87 | 5298 | 4910 | 4563 | 4266 | 4000 | 3766 | 3565 | 3384 | 3222 | 3081 |
| 9 | PARTRIDGE ACSR | 3/10 | 3/11 | 73.3 | -5.19 | 0.68 | 0.74 | 0.79 | 0.85 | 0.90 | 0.96 | 1.01 | 1.07 | 1.12 | 1.17 | 5298 | 4910 | 4563 | 4266 | 4000 | 3766 | 3565 | 3384 | 3222 | 3081 |
| 9 | PARTRIDGE ACSR | 3/11 | 4/1 | 70.1 | -3.74 | 0.62 | 0.67 | 0.72 | 0.77 | 0.82 | 0.87 | 0.92 | 0.97 | 1.02 | 1.07 | 5298 | 4910 | 4563 | 4266 | 4000 | 3766 | 3565 | 3384 | 3222 | 3081 |
| 9 | PARTRIDGE ACSR | 4/1 | 4/2 | 77.2 | -1.80 | 0.75 | 0.81 | 0.86 | 0.94 | 1.00 | 1.06 | 1.12 | 1.18 | 1.24 | 1.30 | 5298 | 4910 | 4563 | 4266 | 4000 | 3766 | 3565 | 3384 | 3222 | 3081 |
| 9 | PARTRIDGE ACSR | 4/2 | 4/3 | 83.0 | -2.06 | 0.87 | 0.94 | 1.01 | 1.08 | 1.15 | 1.21 | 1.29 | 1.36 | 1.43 | 1.50 | 5298 | 4910 | 4563 | 4266 | 4000 | 3766 | 3565 | 3384 | 3222 | 3081 |
| 9 | PARTRIDGE ACSR | 4/3 | 4/4 | 79.3 | 0.22 | 0.79 | 0.86 | 0.92 | 0.99 | 1.05 | 1.12 | 1.18 | 1.24 | 1.31 | 1.37 | 5298 | 4910 | 4563 | 4266 | 4000 | 3766 | 3565 | 3384 | 3222 | 3081 |
| 9 | PARTRIDGE ACSR | 4/4 | 4/5 | 68.1 | 0.80 | 0.58 | 0.63 | 0.68 | 0.73 | 0.78 | 0.83 | 0.87 | 0.92 | 0.97 | 1.01 | 5298 | 4910 | 4563 | 4266 | 4000 | 3766 | 3565 | 3384 | 3222 | 3081 |
| 9 | PARTRIDGE ACSR | 4/5 | 4/6 | 82.0 | -3.74 | 0.85 | 0.92 | 0.99 | 1.06 | 1.13 | 1.20 | 1.27 | 1.33 | 1.40 | 1.46 | 5298 | 4910 | 4563 | 4266 | 4000 | 3766 | 3565 | 3384 | 3222 | 3081 |
| 9 | PARTRIDGE ACSR | 4/6 | 4/7 | 88.2 | -5.54 | 0.99 | 1.06 | 1.14 | 1.22 | 1.31 | 1.39 | 1.47 | 1.54 | 1.62 | 1.70 | 5298 | 4910 | 4563 | 4266 | 4000 | 3766 | 3565 | 3384 | 3222 | 3081 |
| 9 | PARTRIDGE ACSR | 4/7 | 4/8 | 87.1 | -4.93 | 0.96 | 1.04 | 1.11 | 1.19 | 1.27 | 1.35 | 1.43 | 1.50 | 1.58 | 1.65 | 5298 | 4910 | 4563 | 4266 | 4000 | 3766 | 3565 | 3384 | 3222 | 3081 |
| 9 | PARTRIDGE ACSR | 4/8 | 4/9 | 85.2 | -2.38 | 0.92 | 0.99 | 1.07 | 1.14 | 1.22 | 1.29 | 1.36 | 1.44 | 1.51 | 1.58 | 5298 | 4910 | 4563 | 4266 | 4000 | 3766 | 3565 | 3384 | 3222 | 3081 |
| 9 | PARTRIDGE ACSR | 4/9 | 4/10 | 82.2 | -4.09 | 0.86 | 0.93 | 0.99 | 1.06 | 1.13 | 1.20 | 1.27 | 1.34 | 1.41 | 1.47 | 5298 | 4910 | 4563 | 4266 | 4000 | 3766 | 3565 | 3384 | 3222 | 3081 |
| 9 | PARTRIDGE ACSR | 4/10 | 4/11 | 84.4 | -2.36 | 0.90 | 0.97 | 1.05 | 1.12 | 1.19 | 1.27 | 1.34 | 1.41 | 1.48 | 1.55 | 5298 | 4910 | 4563 | 4266 | 4000 | 3766 | 3565 | 3384 | 3222 | 3081 |
| 9 | PARTRIDGE ACSR | 4/11 | 4/12 | 89.6 | -3.60 | 1.02 | 1.10 | 1.18 | 1.26 | 1.35 | 1.43 | 1.51 | 1.59 | 1.67 | 1.75 | 5298 | 4910 | 4563 | 4266 | 4000 | 3766 | 3565 | 3384 | 3222 | 3081 |
| 9 | PARTRIDGE ACSR | 4/12 | 5/1 | 63.5 | -1.13 | 0.51 | 0.55 | 0.59 | 0.63 | 0.68 | 0.72 | 0.76 | 0.80 | 0.84 | 0.88 | 5298 | 4910 | 4563 | 4266 | 4000 | 3766 | 3565 | 3384 | 3222 | 3081 |
| 9 | PARTRIDGE ACSR | 5/1 | 5/2 | 70.5 | -3.08 | 0.63 | 0.68 | 0.73 | 0.78 | 0.83 | 0.88 | 0.93 | 0.98 | 1.03 | 1.08 | 5298 | 4910 | 4563 | 4266 | 4000 | 3766 | 3565 | 3384 | 3222 | 3081 |
| 9 | PARTRIDGE ACSR | 5/2 | 5/3 | 70.3 | -5.14 | 0.63 | 0.68 | 0.73 | 0.78 | 0.83 | 0.88 | 0.93 | 0.98 | 1.03 | 1.08 | 5298 | 4910 | 4563 | 4266 | 4000 | 3766 | 3565 | 3384 | 3222 | 3081 |
| 9 | PARTRIDGE ACSR | 5/3 | 5/4 | 68.0 | -4.32 | 0.59 | 0.63 | 0.68 | 0.73 | 0.78 | 0.82 | 0.87 | 0.92 | 0.96 | 1.01 | 5298 | 4910 | 4563 | 4266 | 4000 | 3766 | 3565 | 3384 | 3222 | 3081 |
| 9 | PARTRIDGE ACSR | 5/4 | 5/5 | 72.7 | -4.88 | 0.67 | 0.72 | 0.78 | 0.83 | 0.89 | 0.94 | 1.00 | 1.05 | 1.10 | 1.15 | 5298 | 4910 | 4563 | 4266 | 4000 | 3766 | 3565 | 3384 | 3222 | 3081 |
| 9 | PARTRIDGE ACSR | 5/5 | 5/6 | 73.9 | 1.00 | 0.69 | 0.75 | 0.80 | 0.86 | 0.91 | 0.97 | 1.03 | 1.08 | 1.14 | 1.19 | 5298 | 4910 | 4563 | 4266 | 4000 | 3766 | 3565 | 3384 | 3222 | 3081 |
| 9 | PARTRIDGE ACSR | 5/6 | 5/7 | 74.7 | 0.41 | 0.70 | 0.76 | 0.82 | 0.88 | 0.93 | 0.99 | 1.05 | 1.10 | 1.16 | 1.21 | 5298 | 4910 | 4563 | 4266 | 4000 | 3766 | 3565 | 3384 | 3222 | 3081 |
| 9 | PARTRIDGE ACSR | 5/7 | 5/8 | 70.3 | 2.83 | 0.63 | 0.68 | 0.73 | 0.78 | 0.83 | 0.88 | 0.93 | 0.98 | 1.03 | 1.08 | 5298 | 4910 | 4563 | 4266 | 4000 | 3766 | 3565 | 3384 | 3222 | 3081 |
| 9 | PARTRIDGE ACSR | 5/8 | 5/9 | 86.2 | 0.64 | 0.94 | 1.01 | 1.09 | 1.17 | 1.24 | 1.32 | 1.40 | 1.47 | 1.55 | 1.62 | 5298 | 4910 | 4563 | 4266 | 4000 | 3766 | 3565 | 3384 | 3222 | 3081 |
| 9 | PARTRIDGE ACSR | 5/9 | 5/10 | 84.2 | -0.20 | 0.88 | 0.94 | 1.02 | 1.09 | 1.16 | 1.23 | 1.30 | 1.37 | 1.44 | 1.51 | 5298 | 4910 | 4563 | 4266 | 4000 | 3766 | 3565 | 3384 | 3222 | 3081 |
| 9 | PARTRIDGE ACSR | 5/10 | 5/11 | 74.1 | -2.16 | 0.68 | 0.73 | 0.79 | 0.84 | 0.90 | 0.95 | 1.01 | 1.06 | 1.11 | 1.16 | 5298 | 4910 | 4563 | 4266 | 4000 | 3766 | 3565 | 3384 | 3222 | 3081 |
| 9 | PARTRIDGE ACSR | 5/11 | 5/12 | 88.9 | 0.58 | 1.00 | 1.08 | 1.16 | 1.24 | 1.32 | 1.41 | 1.49 | 1.56 | 1.64 | 1.72 | 5298 | 4910 | 4563 | 4266 | 4000 | 3766 | 3565 | 3384 | 3222 | 3081 |
| 9 | PARTRIDGE ACSR | 5/12 | 5/13 | 87.0 | -0.38 | 0.96 | 1.03 | 1.11 | 1.19 | 1.27 | 1.35 | 1.42 | 1.50 | 1.58 | 1.65 | 5298 | 4910 | 4563 | 4266 | 4000 | 3766 | 3565 | 3384 | 3222 | 3081 |
| 9 | PARTRIDGE ACSR | 5/13 | 6/1 | 83.6 | -1.15 | 0.88 | 0.95 | 1.03 | 1.10 | 1.17 | 1.24 | 1.32 | 1.39 | 1.46 | 1.52 | 5298 | 4910 | 4563 | 4266 | 4000 | 3766 | 3565 | 3384 | 3222 | 3081 |
| 9 | PARTRIDGE ACSR | 6/1 | 6/2 | 84.4 | 0.88 | 0.90 | 0.97 | 1.05 | 1.12 | 1.19 | 1.27 | 1.34 | 1.41 | 1.48 | 1.55 | 5298 | 4910 | 4563 | 4266 | 4000 | 3766 | 3565 | 3384 | 3222 | 3081 |
| 9 | PARTRIDGE ACSR | 6/2 | 6/3 | 88.1 | 0.21 | 0.98 | 1.05 | 1.14 | 1.22 | 1.30 | 1.38 | 1.46 | 1.54 | 1.62 | 1.69 | 5298 | 4910 | 4563 | 4266 | 4000 | 3766 | 3565 | 3384 | 3222 | 3081 |
| 9 | PARTRIDGE ACSR | 6/3 | 6/4 | 86.9 | -0.67 | 0.96 | 1.03 | 1.11 | 1.19 | 1.27 | 1.35 | 1.43 | 1.50 | 1.57 | 1.64 | 5298 | 4910 | 4563 | 4266 | 4000 | 3766 | 3565 | 3384 | 3222 | 3081 |
| 9 | PARTRIDGE ACSR | 6/4 | 6/5 | 92.2 | 2.79 | 1.08 | 1.16 | 1.25 | 1.34 | 1.42 | 1.51 | 1.60 | 1.68 | 1.77 | 1.85 | 5298 | 4910 | 4563 | 4266 | 4000 | 3766 | 3565 | 3384 | 3222 | 3081 |
| 9 | PARTRIDGE ACSR | 6/5 | 6/6 | 94.4 | -2.48 | 1.13 | 1.22 | 1.31 | 1.40 | 1.49 | 1.59 | 1.68 | 1.77 | 1.86 | 1.94 | 5298 | 4910 | 4563 | 4266 | 4000 | 3766 | 3565 | 3384 | 3222 | 3081 |
| 9 | PARTRIDGE ACSR | 6/6 | 6/7 | 93.7 | -0.16 | 1.13 | 1.20 | 1.29 | 1.38 | 1.47 | 1.56 | 1.65 | 1.74 | 1.83 | 1.91 | 5298 | 4910 | 4563 | 4266 | 4000 | 3766 | 3565 | 3384 | 3222 | 3081 |
| 9 | PARTRIDGE ACSR | 6/7 | 6/8 | 95.5 | -0.27 | 1.15 | 1.24 | 1.34 | 1.43 | 1.53 | 1.62 | 1.71 | 1.81 | 1.90 | 1.98 | 5298 | 4910 | 4563 | 4266 | 4000 | 3766 | 3565 | 3384 | 3222 | 3081 |
| 9 | PARTRIDGE ACSR | 6/8 | 6/9 | 94.5 | -1.78 | 1.13 | 1.22 | 1.31 | 1.40 | 1.50 | 1.59 | 1.68 | 1.77 | 1.86 | 1.94 | 5298 | 4910 | 4563 | 4266 | 4000 | 3766 | 3565 | 3384 | 3222 | 3081 |
| 9 | PARTRIDGE ACSR | 6/9 | 6/10 | 95.2 | -0.46 | 1.15 | 1.24 | 1.33 | 1.42 | 1.52 | 1.61 | 1.70 | 1.80 | 1.89 | 1.97 | 5298 | 4910 | 4563 | 4266 | 4000 | 3766 | 3565 | 3384 | 3222 | 3081 |
| 9 | PARTRIDGE ACSR | 6/10 | 6/11 | 92.0 | -0.70 | 1.07 | 1.16 | 1.24 | 1.33 | 1.42 | 1.51 | 1.59 | 1.68 | 1.76 | 1.84 | 5298 | 4910 | 4563 | 4266 | 4000 | 3766 | 3565 | 3384 | 3222 | 3081 |
| 9 | PARTRIDGE ACSR | 6/11 | 7/1 | 95.4 | 1.09 | 1.15 | 1.24 | 1.34 | 1.43 | 1.52 | 1.62 | 1.71 | 1.80 | 1.89 | 1.98 | 5298 | 4910 | 4563 | 4266 | 4000 | 3766 | 3565 | 3384 | 3222 | 3081 |
| 9 | PARTRIDGE ACSR | 7/1 | 7/2 | 74.8 | 1.09 | 0.71 | 0.76 | 0.82 | 0.88 | 0.94 | 1.00 | 1.05 | 1.11 | 1.17 | 1.22 | 5298 | 4910 | 4563 | 4266 | 4000 | 3766 | 3565 | 3384 | 3222 | 3081 |
| 10 | OFC-24G-652D-FASA-S1 | 3/3 | 3/4 | 70.1 | 4.06 | 0.76 | 0.76 | 0.77 | 0.77 | 0.77 | 0.77 | 0.78 | 0.78 | 0.78 | 0.78 | 1350 | 1348 | 1343 | 1339 | 1335 | 1330 | 1326 | 1322 | 1319 | 1315 |
| 10 | OFC-24G-652D-FASA-S1 | 3/4 | 3/5 | 81.2 | 1.93 | 0.80 | 0.80 | 0.81 | 0.81 | 0.81 | 0.81 | 0.82 | 0.82 | 0.82 | 0.82 | 1350 | 1348 | 1343 | 1339 | 1335 | 1330 | 1326 | 1322 | 1319 | 1315 |
| 10 | OFC-24G-652D-FASA-S1 | 3/5 | 3/6 | 81.2 | 0.40 | 0.80 | 0.80 | 0.81 | 0.81 | 0.81 | 0.81 | 0.82 | 0.82 | 0.82 | 0.82 | 1350 | 1348 | 1343 | 1339 | 1335 | 1330 | 1326 | 1322 | 1319 | 1315 |
| 10 | OFC-24G-652D-FASA-S1 | 3/6 | 3/7 | 79.2 | 2.91 | 0.76 | 0.77 | 0.77 | 0.77 | 0.77 | 0.78 | 0.78 | 0.78 | 0.78 | 0.79 | 1350 | 1348 | 1343 | 1339 | 1335 | 1330 | 1326 | 1322 | 1319 | 1315 |
| 10 | OFC-24G-652D-FASA-S1 | 3/7 | 3/8 | 88.2 | 2.78 | 0.95 | 0.95 | 0.95 | 0.96 | 0.96 | 0.96 | 0.97 | 0.97 | 0.97 | 0.97 | 1350 | 1348 | 1343 | 1339 | 1335 | 1330 | 1326 | 1322 | 1319 | 1315 |
| 10 | OFC-24G-652D-FASA-S1 | 3/8 | 3/9 | 93.6 | 4.60 | 1.02 | 1.02 | 1.03 | 1.03 | 1.03 | 1.04 | 1.04 | 1.04 | 1.05 | 1.05 | 1350 | 1348 | 1343 | 1339 | 1335 | 1330 | 1326 | 1322 | 1319 | 1315 |
| 10 | OFC-24G-652D-FASA-S1 | 3/9 | 3/10 | 92.8 | -1.05 | 1.05 | 1.05 | 1.05 | 1.06 | 1.06 | 1.06 | 1.07 | 1.07 | 1.07 | 1.08 | 1350 | 1348 | 1343 | 1339 | 1335 | 1330 | 1326 | 1322 | 1319 | 1315 |
| 10 | OFC-24G-652D-FASA-S1 | 3/10 | 3/11 | 73.3 | -7.56 | 0.66 | 0.66 | 0.66 | 0.66 | 0.66 | 0.67 | 0.67 | 0.67 | 0.67 | 0.67 | 1350 | 1348 | 1343 | 1339 | 1335 | 1330 | 1326 | 1322 | 1319 | 1315 |
| 10 | OFC-24G-652D-FASA-S1 | 3/11 | 4/1 | 70.1 | -1.38 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.61 | 0.61 | 0.61 | 0.61 | 0.61 | 1350 | 1348 | 1343 | 1339 | 1335 | 1330 | 1326 | 1322 | 1319 | 1315 |
| 10 | OFC-24G-652D-FASA-S1 | 4/1 | 4/2 | 77.2 | -1.50 | 0.73 | 0.73 | 0.73 | 0.73 | 0.73 | 0.74 | 0.74 | 0.74 | 0.74 | 0.75 | 1350 | 1348 | 1343 | 1339 | 1335 | 1330 | 1326 | 1322 | 1319 | 1315 |
| 10 | OFC-24G-652D-FASA-S1 | 4/2 | 4/3 | 83.0 | -2.05 | 0.84 | 0.84 | 0.84 | 0.85 | 0.85 | 0.85 | 0.85 | 0.86 | 0.86 | 0.86 | 1350 | 1348 | 1343 | 1339 | 1335 | 1330 | 1326 | 1322 | 1319 | 1315 |
| 10 | OFC-24G-652D-FASA-S1 | 4/3 | 4/4 | 78.3 | 0.22 | 0.76 | 0.77 | 0.77 | 0.77 | 0.77 | 0.78 | 0.78 | 0.78 | 0.78 | 0.78 | 1350 | 1348 | 1343 | 1339 | 1335 | 1330 | 1326 | 1322 | 1319 | 1315 |
| 10 | OFC-24G-652D-FASA-S1 | 4/4 | 4/5 | 68.1 | 1.00 | 0.56 | 0.57 | 0.57 | 0.57 | 0.57 | 0.57 | 0.57 | 0.58 | 0.58 | 0.58 | 1350 | 1348 | 1343 | 1339 | 1335 | 1330 | 1326 | 1322 | 1319 | 1315 |
| 10 | OFC-24G-652D-FASA-S1 | 4/5 | 4/6 | 82.0 | -4.03 | 0.82 | 0.82 | 0.82 | 0.83 | 0.83 | 0.83 | 0.83 | 0.84 | 0.84 | 0.84 | 1350 | 1348 | 1343 | 1339 | 1335 | 1330 | 1326 | 1322 | 1319 | 1315 |
| 10 | OFC-24G-652D-FASA-S1 | 4/6 | 4/7 | 88.2 | -5.54 | 0.95 | 0.95 | 0.95 | 0.96 | 0.96 | 0.96 | 0.97 | 0.97 | 0.97 | 0.97 | 1350 | 1348 | 1343 | 1339 | 1335 | 1330 | 1326 | 1322 | 1319 | 1315 |
| 10 | OFC-24G-652D-FASA-S1 | 4/7 | 4/8 | 87.1 | -4.93 | 0.92 | 0.93 | 0.93 | 0.93 | 0.93 | 0.94 | 0.94 | 0.94 | 0.95 | 0.95 | 1350 | 1348 | 1343 | 1339 | 1335 | 1330 | 1326 | 1322 | 1319 | 1315 |
| 10 | OFC-24G-652D-FASA-S1 | 4/8 | 4/9 | 85.2 | -2.38 | 0.88 | 0.88 | 0.89 | 0.89 | 0.89 | 0.90 | 0.90 | 0.90 | 0.90 | 0.91 | 1350 | 1348 | 1343 | 1339 | 1335 | 1330 | 1326 | 1322 | 1319 | 1315 |
| 10 | OFC-24G-652D-FASA-S1 | 4/9 | 4/10 | 82.2 | -4.09 | 0.82 | 0.82 | 0.83 | 0.83 | 0.83 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 1350 | 1348 | 1343 | 1339 | 1335 | 1330 | 1326 | 1322 | 1319 | 1315 |
| 10 | OFC-24G-652D-FASA-S1 | 4/10 | 4/11 | 84.4 | -2.36 | 0.87 | 0.87 | 0.87 | 0.88 | 0.88 | 0.88 | 0.88 | 0.89 | 0.89 | 0.89 | 1350 | 1348 | 1343 | 1339 | 1335 | 1330 | 1326 | 1322 | 1319 | 1315 |
| 10 | OFC-24G-652D-FASA-S1 | 4/11 | 4/12 | 89.6 | -3.60 | 0.98 | 0.98 | 0.98 | 0.99 | 0.99 | 0.99 | 1.00 | 1.00 | 1.00 | 1.00 | 1

AS-BUILT

CHANGES REQUIRED YES ☐ NO ☐

Name (Print) _____

Signature _____

Date _____

PERMIT TO PRACTICE
CLEAN ENERGY CONSULTING INC.
SIGNATURE _____
23-OCT-2018
PERMIT NUMBER: P 011

| SAG AND TENSION | |
|---|---|
| CIRCUIT | VICTORIA GOLD 69kV |
| DOCUMENT | 1497-T-1451I |
| DATE | 23-Oct-18 |
| REVISION | 0 |
| ISSUED FOR | CONSTRUCTION |
| PREPARED BY | MP |
| CHECKED BY | PC |
| APPROVED BY | PC |

ENGINEER'S STAMP
ASSOCIATION OF PROFESSIONAL ENGINEERS AND GEOSCIENTISTS NORTHWEST TERRITORIES
23-OCT-2018
ENGINEER

NOTES
1. All spans must be installed to the sag values provided. Tension values are provided as a reference only.
2. Sag and tension values shown are for new conductor under initial conditions.
3. For conductors left hanging in dressers for longer than 3 hours between initial stringing and final sag, a creep correction factor must be applied.
4. All span lengths and sag values are provided in metres unless otherwise noted.
5. Conductors and cables:
   - Overhead Shieldwire (OHSW): Partridge ACSR
   - 69kV Transmission Line: Partridge ACSR
   - ADSS: OFC-24G 6520-FASA-S1

Clean Energy

| SEC | CABLE | FROM STR | TO STR | SPAN AHEAD (m) | SPAN VERT. PROJ. (m) | MID SPAN SAG (m) -20 | -15 | -10 | -5 | 0 | 5 | 10 | 15 | 20 | 25 | HORIZONTAL TENSION (N) -20 | -15 | -10 | -5 | 0 | 5 | 10 | 15 | 20 | 25 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 10 | OFC-24G,6520-FASA-S1 | 5/5 | 5/6 | 73.9 | -2.00 | 0.66 | 0.67 | 0.67 | 0.67 | 0.67 | 0.67 | 0.68 | 0.68 | 0.68 | 0.68 | 1350 | 1348 | 1343 | 1339 | 1335 | 1330 | 1326 | 1322 | 1319 | 1315 |
| 10 | OFC-24G 6520 FASA-S1 | 5/6 | 5/7 | 74.7 | 0.51 | 0.68 | 0.68 | 0.68 | 0.68 | 0.69 | 0.69 | 0.69 | 0.69 | 0.69 | 0.70 | 1350 | 1348 | 1343 | 1339 | 1335 | 1330 | 1326 | 1322 | 1319 | 1315 |
| 10 | OFC-24G,6520-FASA-S1 | 5/7 | 5/8 | 78.4 | -0.25 | 0.60 | 0.60 | 0.61 | 0.61 | 0.61 | 0.61 | 0.61 | 0.62 | 0.62 | 0.62 | 1350 | 1348 | 1343 | 1339 | 1335 | 1330 | 1326 | 1322 | 1319 | 1315 |
| 10 | OFC-24G,6520-FASA-S1 | 5/8 | 5/9 | 86.3 | 0.64 | 0.91 | 0.91 | 0.91 | 0.91 | 0.92 | 0.92 | 0.92 | 0.92 | 0.93 | 0.93 | 1350 | 1348 | 1343 | 1339 | 1335 | 1330 | 1326 | 1322 | 1319 | 1315 |
| 10 | OFC-24G,6520-FASA-S1 | 5/9 | 5/10 | 83.3 | -0.30 | 0.84 | 0.85 | 0.85 | 0.85 | 0.85 | 0.86 | 0.86 | 0.86 | 0.86 | 0.87 | 1350 | 1348 | 1343 | 1339 | 1335 | 1330 | 1326 | 1322 | 1319 | 1315 |
| 10 | OFC-24G,6520-FASA-S1 | 5/10 | 5/11 | 73.3 | 0.21 | 0.65 | 0.65 | 0.65 | 0.66 | 0.66 | 0.66 | 0.66 | 0.66 | 0.67 | 0.67 | 1350 | 1348 | 1343 | 1339 | 1335 | 1330 | 1326 | 1322 | 1319 | 1315 |
| 10 | OFC-24G,6520-FASA-S1 | 5/11 | 5/12 | 88.9 | 0.48 | 0.96 | 0.96 | 0.97 | 0.97 | 0.97 | 0.98 | 0.98 | 0.98 | 0.98 | 0.99 | 1350 | 1348 | 1343 | 1339 | 1335 | 1330 | 1326 | 1322 | 1319 | 1315 |
| 10 | OFC-24G,6520-FASA-S1 | 5/12 | 5/13 | 87.0 | -0.38 | 0.92 | 0.92 | 0.93 | 0.93 | 0.93 | 0.94 | 0.94 | 0.94 | 0.94 | 0.95 | 1350 | 1348 | 1343 | 1339 | 1335 | 1330 | 1326 | 1322 | 1319 | 1315 |
| 10 | OFC-24G,6520-FASA-S1 | 5/13 | 6/1 | 83.6 | -1.35 | 0.85 | 0.85 | 0.86 | 0.86 | 0.86 | 0.86 | 0.87 | 0.87 | 0.87 | 0.87 | 1350 | 1348 | 1343 | 1339 | 1335 | 1330 | 1326 | 1322 | 1319 | 1315 |
| 10 | OFC-24G,6520-FASA-S1 | 6/1 | 6/2 | 84.4 | 0.46 | 0.87 | 0.87 | 0.87 | 0.87 | 0.88 | 0.88 | 0.88 | 0.89 | 0.89 | 0.89 | 1350 | 1348 | 1343 | 1339 | 1335 | 1330 | 1326 | 1322 | 1319 | 1315 |
| 10 | OFC-24G,6520-FASA-S1 | 6/2 | 6/3 | 88.1 | 0.23 | 0.95 | 0.95 | 0.95 | 0.95 | 0.96 | 0.96 | 0.96 | 0.97 | 0.97 | 0.97 | 1350 | 1348 | 1343 | 1339 | 1335 | 1330 | 1326 | 1322 | 1319 | 1315 |
| 10 | OFC-24G,6520-FASA-S1 | 6/3 | 6/4 | 86.9 | -0.38 | 0.92 | 0.92 | 0.92 | 0.93 | 0.93 | 0.93 | 0.94 | 0.94 | 0.94 | 0.94 | 1350 | 1348 | 1343 | 1339 | 1335 | 1330 | 1326 | 1322 | 1319 | 1315 |
| 10 | OFC-24G,6520-FASA-S1 | 6/4 | 6/5 | 92.2 | 1.41 | 1.03 | 1.04 | 1.04 | 1.04 | 1.05 | 1.05 | 1.05 | 1.06 | 1.06 | 1.06 | 1350 | 1348 | 1343 | 1339 | 1335 | 1330 | 1326 | 1322 | 1319 | 1315 |
| 10 | OFC-24G,6520-FASA-S1 | 6/5 | 6/6 | 94.4 | 2.48 | 1.09 | 1.09 | 1.09 | 1.09 | 1.10 | 1.10 | 1.11 | 1.11 | 1.11 | 1.11 | 1350 | 1348 | 1343 | 1339 | 1335 | 1330 | 1326 | 1322 | 1319 | 1315 |
| 10 | OFC-24G,6520-FASA-S1 | 6/6 | 6/7 | 93.7 | 0.16 | 1.07 | 1.07 | 1.07 | 1.08 | 1.08 | 1.08 | 1.09 | 1.09 | 1.09 | 1.10 | 1350 | 1348 | 1343 | 1339 | 1335 | 1330 | 1326 | 1322 | 1319 | 1315 |
| 10 | OFC-24G,6520-FASA-S1 | 6/7 | 6/8 | 85.5 | -0.77 | 1.11 | 1.11 | 1.12 | 1.12 | 1.12 | 1.13 | 1.13 | 1.13 | 1.14 | 1.14 | 1350 | 1348 | 1343 | 1339 | 1335 | 1330 | 1326 | 1322 | 1319 | 1315 |
| 10 | OFC-24G,6520-FASA-S1 | 6/8 | 6/9 | 94.5 | 1.78 | 1.09 | 1.09 | 1.09 | 1.10 | 1.10 | 1.10 | 1.11 | 1.11 | 1.11 | 1.12 | 1350 | 1348 | 1343 | 1339 | 1335 | 1330 | 1326 | 1322 | 1319 | 1315 |
| 10 | OFC-24G,6520-FASA-S1 | 6/9 | 6/10 | 95.2 | -0.46 | 1.10 | 1.11 | 1.12 | 1.11 | 1.12 | 1.12 | 1.12 | 1.13 | 1.13 | 1.13 | 1350 | 1348 | 1343 | 1339 | 1335 | 1330 | 1326 | 1322 | 1319 | 1315 |
| 10 | OFC-24G,6520-FASA-S1 | 6/10 | 6/11 | 92.0 | -0.43 | 1.03 | 1.03 | 1.04 | 1.04 | 1.04 | 1.05 | 1.05 | 1.05 | 1.06 | 1.06 | 1350 | 1348 | 1343 | 1339 | 1335 | 1330 | 1326 | 1322 | 1319 | 1315 |
| 10 | OFC-24G,6520-FASA-S1 | 6/11 | 7/1 | 95.4 | 0.90 | 1.11 | 1.11 | 1.11 | 1.12 | 1.12 | 1.12 | 1.13 | 1.13 | 1.13 | 1.14 | 1350 | 1348 | 1343 | 1339 | 1335 | 1330 | 1326 | 1322 | 1319 | 1315 |
| 10 | OFC-24G,6520-FASA-S1 | 7/1 | 7/2 | 74.8 | -1.25 | 0.68 | 0.68 | 0.68 | 0.69 | 0.69 | 0.69 | 0.69 | 0.70 | 0.70 | 0.70 | 1350 | 1348 | 1343 | 1339 | 1335 | 1330 | 1326 | 1322 | 1319 | 1315 |
| 11 | PARTRIDGE ACSR | 7/2 | 7/3 | 93.6 | 1.76 | 1.30 | 1.35 | 1.41 | 1.48 | 1.54 | 1.60 | 1.66 | 1.72 | 1.77 | 1.83 | 4516 | 4313 | 4125 | 3957 | 3802 | 3665 | 3536 | 3420 | 3313 | 3214 |
| 11 | PARTRIDGE ACSR | 7/3 | 7/4 | 152.7 | -4.07 | 3.46 | 3.63 | 3.79 | 3.95 | 4.11 | 4.27 | 4.42 | 4.58 | 4.72 | 4.87 | 4516 | 4313 | 4125 | 3957 | 3802 | 3665 | 3536 | 3420 | 3313 | 3214 |
| 11 | PARTRIDGE ACSR | 7/4 | 7/5 | 72.9 | -4.12 | 0.79 | 0.83 | 0.86 | 0.90 | 0.94 | 0.99 | 1.01 | 1.04 | 1.08 | 1.11 | 4516 | 4313 | 4125 | 3957 | 3802 | 3665 | 3536 | 3420 | 3313 | 3214 |
| 11 | PARTRIDGE ACSR | 7/5 | 7/6 | 75.6 | -0.70 | 0.85 | 0.89 | 0.93 | 0.97 | 1.01 | 1.04 | 1.08 | 1.12 | 1.16 | 1.19 | 4516 | 4313 | 4125 | 3957 | 3802 | 3665 | 3536 | 3420 | 3313 | 3214 |
| 11 | PARTRIDGE ACSR | 7/6 | 7/7 | 69.8 | 1.08 | 0.60 | 0.63 | 0.66 | 0.69 | 0.72 | 0.75 | 0.77 | 0.80 | 0.82 | 0.85 | 4516 | 4313 | 4125 | 3957 | 3802 | 3665 | 3536 | 3420 | 3313 | 3214 |
| 12 | OFC-24G,6520-FASA-S1 | 7/2 | 7/3 | 93.7 | 6.30 | 3.27 | 3.27 | 3.27 | 3.27 | 3.27 | 3.27 | 3.27 | 3.27 | 3.28 | 3.28 | 443 | 443 | 443 | 443 | 443 | 443 | 443 | 442 | 442 | 442 |
| 12 | OFC-24G,6520-FASA-S1 | 7/3 | 7/4 | 152.7 | -4.07 | 8.68 | 8.68 | 8.69 | 8.69 | 8.69 | 8.69 | 8.70 | 8.70 | 8.71 | 8.71 | 443 | 443 | 443 | 443 | 443 | 443 | 443 | 442 | 442 | 442 |
| 12 | OFC-24G,6520-FASA-S1 | 7/4 | 7/5 | 72.7 | -3.43 | 1.96 | 1.97 | 1.97 | 1.97 | 1.97 | 1.97 | 1.97 | 1.97 | 1.97 | 1.97 | 443 | 443 | 443 | 443 | 443 | 443 | 443 | 442 | 442 | 442 |
| 12 | OFC-24G,6520-FASA-S1 | 7/5 | 7/6 | 75.6 | 0.70 | 2.12 | 2.12 | 2.12 | 2.12 | 2.12 | 2.12 | 2.12 | 2.12 | 2.13 | 2.13 | 443 | 443 | 443 | 443 | 443 | 443 | 443 | 442 | 442 | 442 |
| 12 | OFC-24G,6520-FASA-S1 | 7/6 | 7/7 | 69.8 | 1.08 | 1.51 | 1.51 | 1.51 | 1.51 | 1.51 | 1.51 | 1.51 | 1.51 | 1.52 | 1.52 | 443 | 443 | 443 | 443 | 443 | 443 | 443 | 442 | 442 | 442 |
| 13 | PARTRIDGE ACSR | 7/7 | 7/8 | 60.6 | 0.68 | 0.45 | 0.49 | 0.53 | 0.57 | 0.61 | 0.66 | 0.70 | 0.74 | 0.78 | 0.82 | 5495 | 5055 | 4671 | 4333 | 4036 | 3778 | 3553 | 3357 | 3182 | 3029 |
| 13 | PARTRIDGE ACSR | 7/8 | 7/9 | 70.6 | 6.00 | 0.61 | 0.66 | 0.72 | 0.77 | 0.83 | 0.89 | 0.94 | 1.00 | 1.05 | 1.11 | 5495 | 5055 | 4671 | 4333 | 4036 | 3778 | 3553 | 3357 | 3182 | 3029 |
| 13 | PARTRIDGE ACSR | 7/9 | 7/10 | 91.4 | 1.98 | 1.02 | 1.13 | 1.20 | 1.29 | 1.39 | 1.48 | 1.58 | 1.67 | 1.76 | 1.85 | 5495 | 5055 | 4671 | 4333 | 4036 | 3778 | 3553 | 3357 | 3182 | 3029 |
| 13 | PARTRIDGE ACSR | 7/10 | 7/11 | 85.4 | 1.52 | 0.89 | 0.97 | 1.05 | 1.13 | 1.21 | 1.29 | 1.38 | 1.46 | 1.54 | 1.61 | 5495 | 5055 | 4671 | 4333 | 4036 | 3778 | 3553 | 3357 | 3182 | 3029 |
| 13 | PARTRIDGE ACSR | 7/11 | 7/12 | 74.0 | 3.32 | 0.67 | 0.73 | 0.79 | 0.85 | 0.91 | 0.97 | 1.03 | 1.09 | 1.15 | 1.21 | 5495 | 5055 | 4671 | 4333 | 4036 | 3778 | 3553 | 3357 | 3182 | 3029 |
| 14 | OFC-24G,6520-FASA-S1 | 7/7 | 7/8 | 60.6 | 7.01 | 0.33 | 0.33 | 0.33 | 0.33 | 0.33 | 0.33 | 0.33 | 0.33 | 0.33 | 0.33 | 1868 | 1860 | 1855 | 1847 | 1843 | 1835 | 1831 | 1825 | 1818 | 1814 |
| 14 | OFC-24G,6520-FASA-S1 | 7/8 | 7/9 | 70.6 | 8.02 | 0.44 | 0.44 | 0.44 | 0.45 | 0.45 | 0.45 | 0.45 | 0.45 | 0.45 | 0.45 | 1868 | 1860 | 1855 | 1847 | 1843 | 1835 | 1831 | 1825 | 1818 | 1814 |
| 14 | OFC-24G,6520-FASA-S1 | 7/9 | 7/10 | 91.4 | 1.98 | 0.74 | 0.74 | 0.74 | 0.74 | 0.75 | 0.75 | 0.75 | 0.75 | 0.76 | 0.76 | 1868 | 1860 | 1855 | 1847 | 1843 | 1835 | 1831 | 1825 | 1818 | 1814 |
| 14 | OFC-24G,6520-FASA-S1 | 7/10 | 7/11 | 85.4 | 1.47 | 0.64 | 0.64 | 0.65 | 0.65 | 0.65 | 0.65 | 0.65 | 0.66 | 0.66 | 0.66 | 1868 | 1860 | 1855 | 1847 | 1843 | 1835 | 1831 | 1825 | 1818 | 1814 |
| 14 | OFC-24G,6520-FASA-S1 | 7/11 | 7/12 | 74.0 | -0.02 | 0.48 | 0.48 | 0.48 | 0.49 | 0.49 | 0.49 | 0.49 | 0.49 | 0.49 | 0.50 | 1868 | 1860 | 1855 | 1847 | 1843 | 1835 | 1831 | 1825 | 1818 | 1814 |
| 15 | PARTRIDGE ACSR | 7/12 | 8/1 | 75.9 | -4.27 | 0.74 | 0.80 | 0.86 | 0.93 | 0.99 | 1.05 | 1.12 | 1.18 | 1.24 | 1.29 | 5230 | 4834 | 4483 | 4177 | 3911 | 3676 | 3470 | 3291 | 3132 | 2991 |
| 15 | PARTRIDGE ACSR | 8/1 | 8/2 | 93.2 | -0.70 | 1.11 | 1.20 | 1.30 | 1.39 | 1.49 | 1.58 | 1.68 | 1.77 | 1.86 | 1.95 | 5230 | 4834 | 4483 | 4177 | 3911 | 3676 | 3470 | 3291 | 3132 | 2991 |
| 15 | PARTRIDGE ACSR | 8/2 | 8/3 | 93.7 | 0.71 | 1.12 | 1.22 | 1.31 | 1.41 | 1.50 | 1.60 | 1.70 | 1.79 | 1.88 | 1.97 | 5230 | 4834 | 4483 | 4177 | 3911 | 3676 | 3470 | 3291 | 3132 | 2991 |
| 15 | PARTRIDGE ACSR | 8/3 | 8/4 | 95.1 | -3.82 | 1.11 | 1.20 | 1.30 | 1.39 | 1.49 | 1.58 | 1.68 | 1.77 | 1.86 | 1.95 | 5230 | 4834 | 4483 | 4177 | 3911 | 3676 | 3470 | 3291 | 3132 | 2991 |
| 15 | PARTRIDGE ACSR | 8/4 | 8/5 | 68.8 | -1.23 | 0.61 | 0.66 | 0.71 | 0.76 | 0.81 | 0.86 | 0.91 | 0.96 | 1.01 | 1.06 | 5230 | 4834 | 4483 | 4177 | 3911 | 3676 | 3470 | 3291 | 3132 | 2991 |
| 15 | PARTRIDGE ACSR | 8/5 | 8/6 | 64.8 | -7.42 | 0.54 | 0.59 | 0.64 | 0.68 | 0.72 | 0.77 | 0.82 | 0.86 | 0.90 | 0.95 | 5230 | 4834 | 4483 | 4177 | 3911 | 3676 | 3470 | 3291 | 3132 | 2991 |
| 15 | PARTRIDGE ACSR | 8/6 | 8/7 | 75.3 | -4.87 | 0.73 | 0.79 | 0.85 | 0.91 | 0.97 | 1.04 | 1.10 | 1.16 | 1.22 | 1.27 | 5230 | 4834 | 4483 | 4177 | 3911 | 3676 | 3470 | 3291 | 3132 | 2991 |
| 15 | PARTRIDGE ACSR | 8/7 | 8/8 | 82.9 | -4.05 | 0.88 | 0.95 | 1.03 | 1.11 | 1.18 | 1.26 | 1.33 | 1.40 | 1.47 | 1.54 | 5230 | 4834 | 4483 | 4177 | 3911 | 3676 | 3470 | 3291 | 3132 | 2991 |
| 15 | PARTRIDGE ACSR | 8/8 | 8/9 | 72.4 | -1.90 | 0.67 | 0.73 | 0.78 | 0.84 | 0.90 | 0.95 | 1.01 | 1.07 | 1.12 | 1.17 | 5230 | 4834 | 4483 | 4177 | 3911 | 3676 | 3470 | 3291 | 3132 | 2991 |
| 15 | PARTRIDGE ACSR | 8/9 | 8/10 | 64.5 | -1.66 | 0.54 | 0.59 | 0.63 | 0.68 | 0.72 | 0.77 | 0.81 | 0.86 | 0.90 | 0.94 | 5230 | 4834 | 4483 | 4177 | 3911 | 3676 | 3470 | 3291 | 3132 | 2991 |
| 15 | PARTRIDGE ACSR | 8/10 | 8/11 | 92.3 | 0.82 | 1.09 | 1.18 | 1.27 | 1.37 | 1.46 | 1.55 | 1.65 | 1.74 | 1.82 | 1.91 | 5230 | 4834 | 4483 | 4177 | 3911 | 3676 | 3470 | 3291 | 3132 | 2991 |
| 15 | PARTRIDGE ACSR | 8/11 | 8/12 | 93.7 | 0.25 | 1.12 | 1.22 | 1.31 | 1.41 | 1.50 | 1.60 | 1.70 | 1.79 | 1.88 | 1.97 | 5230 | 4834 | 4483 | 4177 | 3911 | 3676 | 3470 | 3291 | 3132 | 2991 |
| 15 | PARTRIDGE ACSR | 8/12 | 8/13 | 93.6 | 1.24 | 1.12 | 1.21 | 1.31 | 1.41 | 1.50 | 1.60 | 1.69 | 1.78 | 1.88 | 1.96 | 5230 | 4834 | 4483 | 4177 | 3911 | 3676 | 3470 | 3291 | 3132 | 2991 |
| 15 | PARTRIDGE ACSR | 8/13 | 9/1 | 85.0 | -1.92 | 0.98 | 1.00 | 1.08 | 1.16 | 1.24 | 1.32 | 1.40 | 1.47 | 1.55 | 1.62 | 5230 | 4834 | 4483 | 4177 | 3911 | 3676 | 3470 | 3291 | 3132 | 2991 |
| 15 | PARTRIDGE ACSR | 9/1 | 9/2 | 76.6 | -0.78 | 0.75 | 0.81 | 0.88 | 0.94 | 1.01 | 1.07 | 1.13 | 1.19 | 1.26 | 1.31 | 5230 | 4834 | 4483 | 4177 | 3911 | 3676 | 3470 | 3291 | 3132 | 2991 |
| 15 | PARTRIDGE ACSR | 9/2 | 9/3 | 69.0 | 0.44 | 0.61 | 0.66 | 0.71 | 0.76 | 0.82 | 0.87 | 0.92 | 0.97 | 1.02 | 1.07 | 5230 | 4834 | 4483 | 4177 | 3911 | 3676 | 3470 | 3291 | 3132 | 2991 |
| 15 | PARTRIDGE ACSR | 9/3 | 9/4 | 70.4 | 1.28 | 0.64 | 0.69 | 0.74 | 0.80 | 0.85 | 0.90 | 0.96 | 1.01 | 1.06 | 1.11 | 5230 | 4834 | 4483 | 4177 | 3911 | 3676 | 3470 | 3291 | 3132 | 2991 |
| 15 | PARTRIDGE ACSR | 9/4 | 9/5 | 75.5 | -1.29 | 0.75 | 0.79 | 0.85 | 0.91 | 0.98 | 1.04 | 1.10 | 1.16 | 1.22 | 1.28 | 5230 | 4834 | 4483 | 4177 | 3911 | 3676 | 3470 | 3291 | 3132 | 2991 |
| 15 | PARTRIDGE ACSR | 9/5 | 9/6 | 90.0 | 0.47 | 1.06 | 1.14 | 1.23 | 1.32 | 1.41 | 1.50 | 1.59 | 1.68 | 1.77 | 1.85 | 5230 | 4834 | 4483 | 4177 | 3911 | 3676 | 3470 | 3291 | 3132 | 2991 |
| 15 | PARTRIDGE ACSR | 9/6 | 9/7 | 80.6 | 0.75 | 0.84 | 0.90 | 0.98 | 1.05 | 1.12 | 1.19 | 1.26 | 1.33 | 1.40 | 1.46 | 5230 | 4834 | 4483 | 4177 | 3911 | 3676 | 3470 | 3291 | 3132 | 2991 |
| 15 | PARTRIDGE ACSR | 9/7 | 9/8 | 85.1 | 0.13 | 0.93 | 1.01 | 1.09 | 1.17 | 1.25 | 1.33 | 1.40 | 1.48 | 1.56 | 1.63 | 5230 | 4834 | 4483 | 4177 | 3911 | 3676 | 3470 | 3291 | 3132 | 2991 |
| 15 | PARTRIDGE ACSR | 9/8 | 9/9 | 82.7 | 0.49 | 0.88 | 0.95 | 1.02 | 1.10 | 1.17 | 1.25 | 1.32 | 1.39 | 1.45 | 1.53 | 5230 | 4834 | 4483 | 4177 | 3911 | 3676 | 3470 | 3291 | 3132 | 2991 |
| 15 | PARTRIDGE ACSR | 9/9 | 9/10 | 80.1 | 0.71 | 0.82 | 0.89 | 0.96 | 1.03 | 1.10 | 1.17 | 1.24 | 1.31 | 1.37 | 1.44 | 5230 | 4834 | 4483 | 4177 | 3911 | 3676 | 3470 | 3291 | 3132 | 2991 |
| 15 | PARTRIDGE ACSR | 9/10 | 9/11 | 77.1 | -0.39 | 0.76 | 0.82 | 0.89 | 0.95 | 1.02 | 1.08 | 1.15 | 1.21 | 1.27 | 1.33 | 5230 | 4834 | 4483 | 4177 | 3911 | 3676 | 3470 | 3291 | 3132 | 2991 |
| 15 | PARTRIDGE ACSR | 9/11 | 9/12 | 81.3 | 0.57 | 0.95 | 0.92 | 0.99 | 1.06 | 1.13 | 1.20 | 1.28 | 1.35 | 1.41 | 1.48 | 5230 | 4834 | 4483 | 4177 | 3911 | 3676 | 3470 | 3291 | 3132 | 2991 |
| 15 | PARTRIDGE ACSR | 9/12 | 10/1 | 90.8 | 0.75 | 1.06 | 1.14 | 1.23 | 1.32 | 1.41 | 1.50 | 1.59 | 1.68 | 1.76 | 1.85 | 5230 | 4834 | 4483 | 4177 | 3911 | 3676 | 3470 | 3291 | 3132 | 2991 |
| 15 | PARTRIDGE ACSR | 10/1 | 10/2 | 78.6 | 0.31 | 0.79 | 0.85 | 0.92 | 0.99 | 1.05 | 1.12 | 1.19 | 1.25 | 1.32 | 1.38 | 5230 | 4834 | 4483 | 4177 | 3911 | 3676 | 3470 | 3291 | 3132 | 2991 |
| 15 | PARTRIDGE ACSR | 10/2 | 10/3 | 74.2 | -2.48 | 0.71 | 0.76 | 0.82 | 0.88 | 0.94 | 1.00 | 1.06 | 1.12 | 1.18 | 1.24 | 5230 | 4834 | 4483 | 4177 | 3911 | 3676 | 3470 | 3291 | 3132 | 2991 |
| 15 | PARTRIDGE ACSR | 10/3 | 10/4 | 67.5 | 0.34 | 0.59 | 0.63 | 0.68 | 0.73 | 0.78 | 0.83 | 0.88 | 0.93 | 0.97 | 1.02 | 5230 | 4834 | 4483 | 4177 | 3911 | 3676 | 3470 | 3291 | 3132 | 2991 |
| 15 | PARTRIDGE ACSR | 10/4 | 10/5 | 76.4 | 0.04 | 0.75 | 0.81 | 0.87 | 0.94 | 1.00 | 1.06 | 1.13 | 1.19 | 1.25 | 1.31 | 5230 | 4834 | 4483 | 4177 | 3911 | 3676 | 3470 | 3291 | 3132 | 2991 |
| 15 | PARTRIDGE ACSR | 10/5 | 10/6 | 72.4 | 3.70 | 0.67 | 0.73 | 0.78 | 0.84 | 0.90 | 0.96 | 1.01 | 1.07 | 1.12 | 1.18 | 5230 | 4834 | 4483 | 4177 | 3911 | 3676 | 3470 | 3291 | 3132 | 2991 |
| 15 | PARTRIDGE ACSR | 10/6 | 10/7 | 68.4 | 4.96 | 0.60 | 0.65 | 0.70 | 0.75 | 0.80 | 0.86 | 0.91 | 0.96 | 1.00 | 1.05 | 5230 | 4834 | 4483 | 4177 | 3911 | 3676 | 3470 | 3291 | 3132 | 2991 |
| 15 | PARTRIDGE ACSR | 10/7 | 10/8 | 76.1 | 5.86 | 0.74 | 0.81 | 0.87 | 0.93 | 1.00 | 1.06 | 1.12 | 1.18 | 1.24 | 1.30 | 5230 | 4834 | 4483 | 4177 | 3911 | 3676 | 3470 | 3291 | 3132 | 2991 |
| 15 | PARTRIDGE ACSR | 10/8 | 10/9 | 61.4 | 1.12 | 0.52 | 0.56 | 0.60 | 0.64 | 0.69 | 0.73 | 0.78 | 0.82 | 0.86 | 0.90 | 5230 | 4834 | 4483 | 4177 | 3911 | 3676 | 3470 | 3291 | 3132 | 2991 |
| 16 | OFC-24G,6520-FASA-S1 | 7/12 | 8/1 | 75.9 | -0.53 | 0.62 | 0.62 | 0.62 | 0.62 | 0.63 | 0.63 | 0.63 | 0.63 | 0.63 | 0.64 | 1534 | 1528 | 1521 | 1517 | 1513 | 1509 | 1504 | 1500 | 1494 | 1488 |
| 16 | OFC-24G,6520-FASA-S1 | 8/1 | 8/2 | 93.2 | -0.80 | 0.93 | 0.93 | 0.94 | 0.94 | 0.94 | 0.95 | 0.95 | 0.95 | 0.95 | 0.96 | 1534 | 1528 | 1521 | 1517 | 1513 | 1509 | 1504 | 1500 | 1494 | 1488 |
| 16 | OFC-24G,6520-FASA-S1 | 8/2 | 8/3 | 93.7 | 0.71 | 0.94 | 0.94 | 0.95 | 0.95 | 0.95 | 0.96 | 0.96 | 0.96 | 0.97 | 0.97 | 1534 | 1528 | 1521 | 1517 | 1513 | 1509 | 1504 | 1500 | 1494 | 1488 |
| 16 | OFC-24G,6520-FASA-S1 | 8/3 | 8/4 | 93.1 | -3.72 | 0.93 | 0.93 | 0.94 | 0.94 | 0.94 | 0.95 | 0.95 | 0.95 | 0.95 | 0.96 | 1534 | 1528 | 1521 | 1517 | 1513 | 1509 | 1504 | 1500 | 1494 | 1488 |
| 16 | OFC-24G,6520-FASA-S1 | 8/4 | 8/5 | 68.8 | -3.62 | 0.51 | 0.51 | 0.51 | 0.51 | 0.51 | 0.52 | 0.52 | 0.52 | 0.52 | 0.52 | 1534 | 1528 | 1521 | 1517 | 1513 | 1509 | 1504 | 1500 | 1494 | 1488 |
| 16 | OFC-24G,6520-FASA-S1 | 8/5 | 8/6 | 64.8 | -4.46 | 0.45 | 0.45 | 0.45 | 0.46 | 0.46 | 0.46 | 0.46 | 0.46 | 0.46 | 0.46 | 1534 | 1528 | 1521 | 1517 | 1513 | 1509 | 1504 | 1500 | 1494 | 1488 |
| 16 | OFC-24G,6520-FASA-S1 | 8/6 | 8/7 | 75.3 | -5.16 | 0.61 | 0.61 | 0.61 | 0.62 | 0.62 | 0.62 | 0.62 | 0.62 | 0.63 | 0.63 | 1534 | 1528 | 1521 | 1517 | 1513 | 1509 | 1504 | 1500 | 1494 | 1488 |
| 16 | OFC-24G,6520-FASA-S1 | 8/7 | 8/8 | 82.9 | -4.05 | 0.74 | 0.74 | 0.74 | 0.75 | 0.75 | 0.75 | 0.75 | 0.75 | 0.76 | 0.76 | 1534 | 1528 | 1521 | 1517 | 1513 | 1509 | 1504 | 1500 | 1494 | 1488 |
| 16 | OFC-24G,6520-FASA-S1 | 8/8 | 8/9 | 72.4 | -1.90 | 0.56 | 0.56 | 0.57 | 0.57 | 0.57 | 0.57 | 0.57 | 0.57 | 0.58 | 0.58 | 1534 | 1528 | 1521 | 1517 | 1513 | 1509 | 1504 | 1500 | 1494 | 1488 |
| 16 | OFC-24G,6520-FASA-S1 | 8/9 | 8/10 | 64.5 | -1.77 | 0.45 | 0.45 | 0.45 | 0.46 | 0.46 | 0.46 | 0.46 | 0.46 | 0.46 | 0.46 | 1534 | 1528 | 1521 | 1517 | 1513 | 1509 | 1504 | 1500 | 1494 | 1488 |
| 16 | OFC-24G,6520-FASA-S1 | 8/10 | 8/11 | 92.3 | 0.53 | 0.93 | 0.92 | 0.92 | 0.92 | 0.93 | 0.93 | 0.93 | 0.93 | 0.94 | 0.94 | 1534 | 1528 | 1521 | 1517 | 1513 | 1509 | 1504 | 1500 | 1494 | 1488 |
| 16 | OFC-24G,6520-FASA-S1 | 8/11 | 8/12 | 93.7 | 0.25 | 0.94 | 0.94 | 0.95 | 0.95 | 0.95 | 0.96 | 0.96 | 0.96 | 0.97 | 0.97 | 1534 | 1528 | 1521 | 1517 | 1513 | 1509 | 1504 | 1500 | 1494 | 1488 |
| 16 | OFC-24G,6520-FASA-S1 | 8/12 | 8/13 | 93.6 | 1.35 | 0.94 | 0.94 | 0.95 | 0.95 | 0.95 | 0.95 | 0.96 | 0.96 | 0.96 | 0.97 | 1534 | 1528 | 1521 | 1517 | 1513 | 1509 | 1504 | 1500 | 1494 | 1488 |
| 16 | OFC-24G,6520-FASA-S1 | 8/13 | 9/1 | 85.0 | -4.28 | 0.78 | 0.78 | 0.78 | 0.78 | 0.79 | 0.79 | 0.79 | 0.79 | 0.80 | 0.80 | 1534 | 1528 | 1521 | 1517 | 1513 | 1509 | 1504 | 1500 | 1494 | 1488 |
| 16 | OFC-24G,6520-FASA-S1 | 9/1 | 9/2 | 76.6 | 1.58 | 0.63 | 0.63 | 0.63 | 0.64 | 0.64 | 0.64 | 0.64 | 0.64 | 0.65 | 0.65 | 1534 | 1528 | 1521 | 1517 | 1513 | 1509 | 1504 | 1500 | 1494 | 1488 |
| 16 | OFC-24G,6520-FASA-S1 | 9/2 | 9/3 | 69.0 | -0.55 | 0.51 | 0.51 | 0.51 | 0.52 | 0.52 | 0.52 | 0.52 | 0.52 | 0.53 | 0.53 | 1534 | 1528 | 1521 | 1517 | 1513 | 1509 | 1504 | 1500 | 1494 | 1488 |
| 16 | OFC-24G,6520-FASA-S1 | 9/3 | 9/4 | 70.4 | 0.99 | 0.53 | 0.53 | 0.53 | 0.54 | 0.54 | 0.54 | 0.54 | 0.54 | 0.54 | 0.55 | 1534 | 1528 | 1521 | 1517 | 1513 | 1509 | 1504 | 1500 | 1494 | 1488 |
| 16 | OFC-24G,6520-FASA-S1 | 9/4 | 9/5 | 75.5 | -1.29 | 0.61 | 0.61 | 0.62 | 0.62 | 0.62 | 0.62 | 0.62 | 0.62 | 0.63 | 0.63 | 1534 | 1528 | 1521 | 1517 | 1513 | 1509 | 1504 | 1500 | 1494 | 1488 |
| 16 | OFC-24G,6520-FASA-S1 | 9/5 | 9/6 | 90.8 | -0.78 | 0.88 | 0.89 | 0.89 | 0.89 | 0.90 | 0.90 | 0.90 | 0.90 | 0.91 | 0.91 | 1534 | 1528 | 1521 | 1517 | 1513 | 1509 | 1504 | 1500 | 1494 | 1488 |
| 16 | OFC-24G,6520-FASA-S1 | 9/6 | 9/7 | 80.8 | 0.75 | 0.70 | 0.70 | 0.70 | 0.71 | 0.71 | 0.71 | 0.71 | 0.71 | 0.72 | 0.72 | 1534 | 1528 | 1521 | 1517 | 1513 | 1509 | 1504 | 1500 | 1494 | 1488 |
| 16 | OFC-24G,6520-FASA-S1 | 9/7 | 9/8 | 85.3 | 0.13 | 0.78 | 0.78 | 0.78 | 0.79 | 0.79 | 0.79 | 0.79 | 0.80 | 0.80 | 0.80 | 1534 | 1528 | 1521 | 1517 | 1513 | 1509 | 1504 | 1500 | 1494 | 1488 |
| 16 | OFC-24G,6520-FASA-S1 | 9/8 | 9/9 | 82.7 | 0.59 | 0.73 | 0.74 | 0.74 | 0.74 | 0.74 | 0.75 | 0.75 | 0.75 | 0.75 | 0.76 | 1534 | 1528 | 1521 | 1517 | 1513 | 1509 | 1504 | 1500 | 1494 | 1488 |
| 16 | OFC-24G,6520-FASA-S1 | 9/9 | 9/10 | 80.1 | -1.66 | 0.69 | 0.69 | 0.69 | 0.70 | 0.70 | 0.70 | 0.70 | 0.70 | 0.71 | 0.71 | 1534 | 1528 | 1521 | 1517 | 1513 | 1509 | 1504 | 1500 | 1494 |

Parker Bros

# AS-BUILT

CHANGES REQUIRED YES ☐ NO ☐

Name (Print) _____

Signature _____

Date _____

PERMIT TO PRACTICE
CLEAN ENERGY CONSULTING INC.
Yes!
22-OCT-2018

## SAG AND TENSION

| | |
|---|---|
| CIRCUIT | VICTORIA GOLD 69kV |
| DOCUMENT | 1407-T-1A50 |
| DATE | 23-Oct-18 |
| REVISION | 0 |
| ISSUED FOR | CONSTRUCTION |
| PREPARED BY | MP |
| CHECKED BY | PC |
| APPROVED BY | PC |

ENGINEER'S SEAL
PROFESSIONAL ENGINEER
YUKON
TERRITORY
23-OCT-2018

NOTES
1. All spans must be installed to the sag values provided. Tension values are provided as a reference only.
2. Sag and tension values shown are for new conductor under initial conditions.
3. For conductors left hanging in sheaves for longer than 3 hours between initial stringing and final sag, a creep correction factor must be applied.
4. All span lengths and sag values are provided in metres unless otherwise noted.
5. Conductors and cables:
- Overhead Shieldwire (OHSW): Partridge ACSR
- 69kV Transmission Line: Partridge ACSR
- ADSS: OFC-24G 652D-FASA-SS

Clean Energy

| SEC | CABLE | FROM STR | TO STR | SPAN AHEAD (m) | SPAN VERT PROJ. (m) | MID SPAN SAG (m) | | | | | | | | | | HORIZONTAL TENSION (N) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | -20 | -15 | -10 | -5 | 0 | 5 | 10 | 15 | 20 | 25 | -20 | -15 | -10 | -5 | 0 | 5 | 10 | 15 | 20 | 25 |
| 16 | OFC-24G 652D-FASA-S1 | 10/5 | 10/6 | 72.4 | 6.07 | 0.56 | 0.57 | 0.57 | 0.57 | 0.57 | 0.57 | 0.57 | 0.58 | 0.58 | 0.58 | 1534 | 1528 | 1521 | 1517 | 1513 | 1509 | 1504 | 1500 | 1494 | 1488 |
| 16 | OFC-24G 652D-FASA-S1 | 10/6 | 10/7 | 68.8 | 4.86 | 0.50 | 0.50 | 0.51 | 0.51 | 0.51 | 0.51 | 0.51 | 0.51 | 0.52 | 0.52 | 1534 | 1528 | 1521 | 1517 | 1513 | 1509 | 1504 | 1500 | 1494 | 1488 |
| 16 | OFC-24G 652D-FASA-S1 | 10/7 | 10/8 | 76.1 | 5.96 | 0.62 | 0.63 | 0.63 | 0.63 | 0.63 | 0.64 | 0.63 | 0.64 | 0.64 | 0.64 | 1534 | 1528 | 1521 | 1517 | 1513 | 1509 | 1504 | 1500 | 1494 | 1488 |
| 16 | OFC-24G 652D-FASA-S1 | 10/8 | 10/9 | 63.4 | -7.22 | 0.43 | 0.43 | 0.43 | 0.43 | 0.44 | 0.44 | 0.44 | 0.44 | 0.44 | 0.44 | 1534 | 1528 | 1521 | 1517 | 1513 | 1509 | 1504 | 1500 | 1494 | 1488 |
| 17 | PARTRIDGE ACSR | 10/9 | 10/10 | 58.3 | 1.41 | 0.47 | 0.52 | 0.58 | 0.63 | 0.69 | 0.75 | 0.82 | 0.89 | 0.94 | 1.00 | 5897 | 5307 | 4811 | 4376 | 3998 | 3677 | 3400 | 3163 | 2963 | 2789 |
| 17 | PARTRIDGE ACSR | 10/10 | 10/11 | 55.7 | 2.38 | 0.49 | 0.55 | 0.60 | 0.66 | 0.72 | 0.79 | 0.85 | 0.91 | 0.98 | 1.04 | 5897 | 5307 | 4811 | 4376 | 3998 | 3677 | 3400 | 3163 | 2963 | 2789 |
| 17 | PARTRIDGE ACSR | 10/11 | 10/12 | 60.4 | 0.00 | 0.47 | 0.46 | 0.51 | 0.56 | 0.61 | 0.66 | 0.72 | 0.77 | 0.82 | 0.88 | 5897 | 5307 | 4811 | 4376 | 3998 | 3677 | 3400 | 3163 | 2963 | 2789 |
| 17 | PARTRIDGE ACSR | 10/12 | 10/13 | 58.3 | 0.59 | 0.53 | 0.59 | 0.65 | 0.71 | 0.78 | 0.85 | 0.92 | 0.99 | 1.05 | 1.12 | 5897 | 5307 | 4811 | 4376 | 3998 | 3677 | 3400 | 3163 | 2963 | 2789 |
| 18 | OFC-24G 652D-FASA-S1 | 10/9 | 10/10 | 64.8 | 4.75 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 6295 | 6287 | 6279 | 6271 | 6263 | 6255 | 6247 | 6243 | 6235 | 6227 |
| 18 | OFC-24G 652D-FASA-S1 | 10/10 | 10/11 | 65.7 | 2.78 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 6295 | 6287 | 6279 | 6271 | 6263 | 6255 | 6247 | 6243 | 6235 | 6227 |
| 18 | OFC-24G 652D-FASA-S1 | 10/11 | 10/12 | 60.4 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 6295 | 6287 | 6279 | 6271 | 6263 | 6255 | 6247 | 6243 | 6235 | 6227 |
| 18 | OFC-24G 652D-FASA-S1 | 10/12 | 10/13 | 68.2 | 2.75 | 0.12 | 0.12 | 0.12 | 0.12 | 0.12 | 0.12 | 0.12 | 0.12 | 0.12 | 0.12 | 6295 | 6287 | 6279 | 6271 | 6263 | 6255 | 6247 | 6243 | 6235 | 6227 |
| 19 | PARTRIDGE ACSR | 10/13 | 10/14 | 69.8 | 1.57 | 0.58 | 0.61 | 0.66 | 0.71 | 0.77 | 0.82 | 0.88 | 0.93 | 0.98 | 1.03 | 5818 | 5352 | 4940 | 4576 | 4254 | 3974 | 3731 | 3520 | 3330 | 3165 |
| 19 | PARTRIDGE ACSR | 10/14 | 11/1 | 85.5 | 2.66 | 0.84 | 0.92 | 0.99 | 1.07 | 1.15 | 1.23 | 1.31 | 1.39 | 1.47 | 1.55 | 5818 | 5352 | 4940 | 4576 | 4254 | 3974 | 3731 | 3520 | 3330 | 3165 |
| 19 | PARTRIDGE ACSR | 11/1 | 11/2 | 73.2 | 2.58 | 0.62 | 0.69 | 0.78 | 0.78 | 0.84 | 0.90 | 0.96 | 1.02 | 1.08 | 1.13 | 5818 | 5352 | 4940 | 4576 | 4254 | 3974 | 3731 | 3520 | 3330 | 3165 |
| 19 | PARTRIDGE ACSR | 11/2 | 11/3 | 91.6 | 1.03 | 0.97 | 1.05 | 1.14 | 1.23 | 1.32 | 1.42 | 1.51 | 1.60 | 1.69 | 1.78 | 5818 | 5352 | 4940 | 4576 | 4254 | 3974 | 3731 | 3520 | 3330 | 3165 |
| 19 | PARTRIDGE ACSR | 11/3 | 11/4 | 74.6 | 1.39 | 0.64 | 0.70 | 0.75 | 0.81 | 0.88 | 0.94 | 1.00 | 1.06 | 1.12 | 1.18 | 5818 | 5352 | 4940 | 4576 | 4254 | 3974 | 3731 | 3520 | 3330 | 3165 |
| 20 | OFC-24G 652D-FASA-S1 | 10/13 | 10/14 | 69.7 | 1.77 | 0.43 | 0.44 | 0.44 | 0.44 | 0.44 | 0.44 | 0.44 | 0.45 | 0.45 | 0.45 | 1838 | 1834 | 1827 | 1823 | 1817 | 1809 | 1805 | 1797 | 1792 | 1788 |
| 20 | OFC-24G 652D-FASA-S1 | 10/14 | 11/1 | 85.5 | 2.56 | 0.65 | 0.66 | 0.66 | 0.66 | 0.65 | 0.66 | 0.67 | 0.67 | 0.67 | 0.67 | 1838 | 1834 | 1827 | 1823 | 1817 | 1809 | 1805 | 1797 | 1792 | 1788 |
| 20 | OFC-24G 652D-FASA-S1 | 11/1 | 11/2 | 73.2 | 2.58 | 0.48 | 0.48 | 0.48 | 0.48 | 0.48 | 0.48 | 0.48 | 0.49 | 0.49 | 0.49 | 1838 | 1834 | 1827 | 1823 | 1817 | 1809 | 1805 | 1797 | 1792 | 1788 |
| 20 | OFC-24G 652D-FASA-S1 | 11/2 | 11/3 | 91.6 | 0.93 | 0.75 | 0.75 | 0.75 | 0.76 | 0.76 | 0.76 | 0.76 | 0.77 | 0.77 | 0.77 | 1838 | 1834 | 1827 | 1823 | 1817 | 1809 | 1805 | 1797 | 1792 | 1788 |
| 20 | OFC-24G 652D-FASA-S1 | 11/3 | 11/4 | 74.6 | 2.45 | 0.50 | 0.50 | 0.50 | 0.50 | 0.50 | 0.51 | 0.51 | 0.51 | 0.51 | 0.51 | 1838 | 1834 | 1827 | 1823 | 1817 | 1809 | 1805 | 1797 | 1792 | 1788 |
| 21 | PARTRIDGE ACSR | 11/4 | 11/5 | 73.9 | 1.22 | 0.80 | 0.86 | 0.92 | 0.98 | 1.04 | 1.10 | 1.16 | 1.22 | 1.27 | 1.32 | 4567 | 4242 | 3968 | 3721 | 3511 | 3325 | 3159 | 3012 | 2882 | 2765 |
| 21 | PARTRIDGE ACSR | 11/5 | 11/6 | 87.6 | 3.17 | 1.13 | 1.21 | 1.30 | 1.38 | 1.46 | 1.55 | 1.63 | 1.71 | 1.78 | 1.86 | 4567 | 4242 | 3968 | 3721 | 3511 | 3325 | 3159 | 3012 | 2882 | 2765 |
| 21 | PARTRIDGE ACSR | 11/6 | 11/7 | 89.2 | -0.02 | 1.17 | 1.26 | 1.35 | 1.43 | 1.52 | 1.61 | 1.69 | 1.77 | 1.85 | 1.93 | 4567 | 4242 | 3968 | 3721 | 3511 | 3325 | 3159 | 3012 | 2882 | 2765 |
| 21 | PARTRIDGE ACSR | 11/7 | 11/8 | 87.4 | -1.86 | 1.12 | 1.21 | 1.29 | 1.38 | 1.46 | 1.54 | 1.62 | 1.70 | 1.78 | 1.85 | 4567 | 4242 | 3968 | 3721 | 3511 | 3325 | 3159 | 3012 | 2882 | 2765 |
| 21 | PARTRIDGE ACSR | 11/8 | 11/9 | 97.0 | 1.02 | 1.11 | 1.19 | 1.28 | 1.36 | 1.44 | 1.52 | 1.61 | 1.68 | 1.76 | 1.83 | 4567 | 4242 | 3968 | 3721 | 3511 | 3325 | 3159 | 3012 | 2882 | 2765 |
| 21 | PARTRIDGE ACSR | 11/9 | 11/10 | 91.5 | -4.47 | 1.23 | 1.33 | 1.42 | 1.51 | 1.60 | 1.69 | 1.78 | 1.87 | 1.95 | 2.03 | 4567 | 4242 | 3968 | 3721 | 3511 | 3325 | 3159 | 3012 | 2882 | 2765 |
| 21 | PARTRIDGE ACSR | 11/10 | 11/11 | 93.1 | 7.18 | 1.27 | 1.37 | 1.46 | 1.56 | 1.65 | 1.75 | 1.84 | 1.93 | 2.02 | 2.10 | 4567 | 4242 | 3968 | 3721 | 3511 | 3325 | 3159 | 3012 | 2882 | 2765 |
| 21 | PARTRIDGE ACSR | 11/11 | 11/12 | 61.9 | -2.06 | 0.56 | 0.61 | 0.65 | 0.69 | 0.73 | 0.77 | 0.81 | 0.85 | 0.89 | 0.93 | 4567 | 4242 | 3968 | 3721 | 3511 | 3325 | 3159 | 3012 | 2882 | 2765 |
| 21 | PARTRIDGE ACSR | 11/12 | 12/1 | 77.6 | 1.78 | 0.88 | 0.95 | 1.02 | 1.08 | 1.15 | 1.22 | 1.28 | 1.34 | 1.40 | 1.46 | 4567 | 4242 | 3968 | 3721 | 3511 | 3325 | 3159 | 3012 | 2882 | 2765 |
| 21 | PARTRIDGE ACSR | 12/1 | 12/2 | 66.5 | -0.28 | 0.65 | 0.70 | 0.75 | 0.80 | 0.84 | 0.89 | 0.94 | 0.98 | 1.03 | 1.07 | 4567 | 4242 | 3968 | 3721 | 3511 | 3325 | 3159 | 3012 | 2882 | 2765 |
| 21 | PARTRIDGE ACSR | 12/2 | 12/3 | 65.0 | 1.22 | 0.67 | 0.67 | 0.71 | 0.76 | 0.81 | 0.85 | 0.90 | 0.94 | 0.98 | 1.02 | 4567 | 4242 | 3968 | 3721 | 3511 | 3325 | 3159 | 3012 | 2882 | 2765 |
| 21 | PARTRIDGE ACSR | 12/3 | 12/4 | 90.9 | 0.62 | 1.21 | 1.30 | 1.39 | 1.49 | 1.58 | 1.66 | 1.75 | 1.84 | 1.93 | 2.00 | 4567 | 4242 | 3968 | 3721 | 3511 | 3325 | 3159 | 3012 | 2882 | 2765 |
| 21 | PARTRIDGE ACSR | 12/4 | 12/5 | 87.0 | -1.12 | 1.11 | 1.20 | 1.28 | 1.36 | 1.45 | 1.53 | 1.61 | 1.69 | 1.76 | 1.84 | 4567 | 4242 | 3968 | 3721 | 3511 | 3325 | 3159 | 3012 | 2882 | 2765 |
| 21 | PARTRIDGE ACSR | 12/5 | 12/6 | 69.3 | 1.05 | 0.71 | 0.76 | 0.81 | 0.87 | 0.92 | 0.97 | 1.02 | 1.07 | 1.12 | 1.17 | 4567 | 4242 | 3968 | 3721 | 3511 | 3325 | 3159 | 3012 | 2882 | 2765 |
| 21 | PARTRIDGE ACSR | 12/6 | 12/7 | 73.2 | 1.88 | 0.76 | 0.80 | 0.86 | 0.91 | 0.97 | 1.02 | 1.08 | 1.13 | 1.18 | 1.23 | 4567 | 4242 | 3968 | 3721 | 3511 | 3325 | 3159 | 3012 | 2882 | 2765 |
| 21 | PARTRIDGE ACSR | 12/7 | 12/8 | 63.5 | -1.03 | 0.59 | 0.63 | 0.68 | 0.72 | 0.76 | 0.81 | 0.85 | 0.89 | 0.93 | 0.97 | 4567 | 4242 | 3968 | 3721 | 3511 | 3325 | 3159 | 3012 | 2882 | 2765 |
| 21 | PARTRIDGE ACSR | 12/8 | 12/9 | 55.4 | 0.30 | 0.45 | 0.48 | 0.52 | 0.55 | 0.58 | 0.62 | 0.65 | 0.68 | 0.71 | 0.74 | 4567 | 4242 | 3968 | 3721 | 3511 | 3325 | 3159 | 3012 | 2882 | 2765 |
| 21 | PARTRIDGE ACSR | 12/9 | 12/10 | 77.9 | -0.47 | 0.89 | 0.96 | 1.03 | 1.09 | 1.16 | 1.22 | 1.29 | 1.35 | 1.41 | 1.47 | 4567 | 4242 | 3968 | 3721 | 3511 | 3325 | 3159 | 3012 | 2882 | 2765 |
| 21 | PARTRIDGE ACSR | 12/10 | 12/11 | 81.0 | -0.69 | 0.96 | 1.04 | 1.11 | 1.18 | 1.25 | 1.32 | 1.39 | 1.46 | 1.52 | 1.59 | 4567 | 4242 | 3968 | 3721 | 3511 | 3325 | 3159 | 3012 | 2882 | 2765 |
| 21 | PARTRIDGE ACSR | 12/11 | 12/12 | 82.4 | -1.06 | 1.00 | 1.07 | 1.15 | 1.22 | 1.30 | 1.37 | 1.44 | 1.51 | 1.58 | 1.65 | 4567 | 4242 | 3968 | 3721 | 3511 | 3325 | 3159 | 3012 | 2882 | 2765 |
| 21 | PARTRIDGE ACSR | 12/12 | 12/13 | 82.1 | -0.48 | 0.99 | 1.06 | 1.14 | 1.21 | 1.29 | 1.36 | 1.43 | 1.50 | 1.57 | 1.63 | 4567 | 4242 | 3968 | 3721 | 3511 | 3325 | 3159 | 3012 | 2882 | 2765 |
| 21 | PARTRIDGE ACSR | 12/13 | 13/1 | 80.4 | 0.87 | 0.95 | 1.02 | 1.09 | 1.16 | 1.23 | 1.30 | 1.37 | 1.44 | 1.50 | 1.57 | 4567 | 4242 | 3968 | 3721 | 3511 | 3325 | 3159 | 3012 | 2882 | 2765 |
| 21 | PARTRIDGE ACSR | 13/1 | 13/2 | 66.0 | 2.80 | 0.64 | 0.69 | 0.74 | 0.79 | 0.83 | 0.88 | 0.93 | 0.97 | 1.01 | 1.06 | 4567 | 4242 | 3968 | 3721 | 3511 | 3325 | 3159 | 3012 | 2882 | 2765 |
| 22 | OFC-24G 652D-FASA-S1 | 11/4 | 11/5 | 73.9 | 3.07 | 0.57 | 0.57 | 0.57 | 0.57 | 0.57 | 0.58 | 0.58 | 0.58 | 0.58 | 0.58 | 1586 | 1581 | 1577 | 1569 | 1565 | 1561 | 1556 | 1550 | 1544 | 1540 |
| 22 | OFC-24G 652D-FASA-S1 | 11/5 | 11/6 | 87.6 | 2.75 | 0.79 | 0.80 | 0.80 | 0.80 | 0.81 | 0.81 | 0.81 | 0.81 | 0.82 | 0.82 | 1586 | 1581 | 1577 | 1569 | 1565 | 1561 | 1556 | 1550 | 1544 | 1540 |
| 22 | OFC-24G 652D-FASA-S1 | 11/6 | 11/7 | 89.2 | -0.32 | 0.83 | 0.83 | 0.83 | 0.83 | 0.84 | 0.84 | 0.84 | 0.84 | 0.85 | 0.85 | 1586 | 1581 | 1577 | 1569 | 1565 | 1561 | 1556 | 1550 | 1544 | 1540 |
| 22 | OFC-24G 652D-FASA-S1 | 11/7 | 11/8 | 87.4 | -1.65 | 0.79 | 0.79 | 0.80 | 0.80 | 0.80 | 0.80 | 0.81 | 0.81 | 0.82 | 0.82 | 1586 | 1581 | 1577 | 1569 | 1565 | 1561 | 1556 | 1550 | 1544 | 1540 |
| 22 | OFC-24G 652D-FASA-S1 | 11/8 | 11/9 | 97.0 | 1.31 | 0.78 | 0.78 | 0.79 | 0.79 | 0.79 | 0.80 | 0.80 | 0.80 | 0.80 | 0.81 | 1586 | 1581 | 1577 | 1569 | 1565 | 1561 | 1556 | 1550 | 1544 | 1540 |
| 22 | OFC-24G 652D-FASA-S1 | 11/9 | 11/10 | 91.5 | 4.47 | 0.87 | 0.87 | 0.87 | 0.88 | 0.88 | 0.88 | 0.89 | 0.89 | 0.89 | 0.89 | 1586 | 1581 | 1577 | 1569 | 1565 | 1561 | 1556 | 1550 | 1544 | 1540 |
| 22 | OFC-24G 652D-FASA-S1 | 11/10 | 11/11 | 93.0 | 7.18 | 0.90 | 0.90 | 0.90 | 0.91 | 0.91 | 0.91 | 0.91 | 0.92 | 0.92 | 0.92 | 1586 | 1581 | 1577 | 1569 | 1565 | 1561 | 1556 | 1550 | 1544 | 1540 |
| 22 | OFC-24G 652D-FASA-S1 | 11/11 | 11/12 | 61.9 | -4.61 | 0.40 | 0.40 | 0.40 | 0.40 | 0.40 | 0.40 | 0.41 | 0.41 | 0.41 | 0.41 | 1586 | 1581 | 1577 | 1569 | 1565 | 1561 | 1556 | 1550 | 1544 | 1540 |
| 22 | OFC-24G 652D-FASA-S1 | 11/12 | 12/1 | 77.6 | 7.15 | 0.63 | 0.63 | 0.63 | 0.63 | 0.64 | 0.64 | 0.64 | 0.64 | 0.64 | 0.65 | 1586 | 1581 | 1577 | 1569 | 1565 | 1561 | 1556 | 1550 | 1544 | 1540 |
| 22 | OFC-24G 652D-FASA-S1 | 12/1 | 12/2 | 66.5 | -2.84 | 0.46 | 0.46 | 0.46 | 0.46 | 0.46 | 0.47 | 0.47 | 0.47 | 0.47 | 0.47 | 1586 | 1581 | 1577 | 1569 | 1565 | 1561 | 1556 | 1550 | 1544 | 1540 |
| 22 | OFC-24G 652D-FASA-S1 | 12/2 | 12/3 | 65.0 | 3.59 | 0.44 | 0.44 | 0.44 | 0.44 | 0.44 | 0.45 | 0.45 | 0.45 | 0.45 | 0.45 | 1586 | 1581 | 1577 | 1569 | 1565 | 1561 | 1556 | 1550 | 1544 | 1540 |
| 22 | OFC-24G 652D-FASA-S1 | 12/3 | 12/4 | 90.9 | 0.62 | 0.86 | 0.86 | 0.86 | 0.86 | 0.87 | 0.87 | 0.87 | 0.88 | 0.88 | 0.88 | 1586 | 1581 | 1577 | 1569 | 1565 | 1561 | 1556 | 1550 | 1544 | 1540 |
| 22 | OFC-24G 652D-FASA-S1 | 12/4 | 12/5 | 87.0 | 1.02 | 0.79 | 0.79 | 0.79 | 0.79 | 0.80 | 0.80 | 0.80 | 0.80 | 0.81 | 0.81 | 1586 | 1581 | 1577 | 1569 | 1565 | 1561 | 1556 | 1550 | 1544 | 1540 |
| 22 | OFC-24G 652D-FASA-S1 | 12/5 | 12/6 | 69.4 | -1.32 | 0.50 | 0.50 | 0.50 | 0.50 | 0.51 | 0.51 | 0.51 | 0.51 | 0.51 | 0.51 | 1586 | 1581 | 1577 | 1569 | 1565 | 1561 | 1556 | 1550 | 1544 | 1540 |
| 22 | OFC-24G 652D-FASA-S1 | 12/6 | 12/7 | 71.2 | 4.55 | 0.53 | 0.53 | 0.53 | 0.53 | 0.53 | 0.54 | 0.54 | 0.54 | 0.54 | 0.54 | 1586 | 1581 | 1577 | 1569 | 1565 | 1561 | 1556 | 1550 | 1544 | 1540 |
| 22 | OFC-24G 652D-FASA-S1 | 12/7 | 12/8 | 69.3 | 3.81 | 0.41 | 0.42 | 0.42 | 0.42 | 0.42 | 0.43 | 0.43 | 0.43 | 0.43 | 0.43 | 1586 | 1581 | 1577 | 1569 | 1565 | 1561 | 1556 | 1550 | 1544 | 1540 |
| 22 | OFC-24G 652D-FASA-S1 | 12/8 | 12/9 | 55.4 | 0.30 | 0.32 | 0.32 | 0.32 | 0.33 | 0.32 | 0.32 | 0.32 | 0.32 | 0.33 | 0.33 | 1586 | 1581 | 1577 | 1569 | 1565 | 1561 | 1556 | 1550 | 1544 | 1540 |
| 22 | OFC-24G 652D-FASA-S1 | 12/9 | 12/10 | 77.9 | -0.47 | 0.63 | 0.63 | 0.63 | 0.64 | 0.64 | 0.64 | 0.64 | 0.64 | 0.65 | 0.65 | 1586 | 1581 | 1577 | 1569 | 1565 | 1561 | 1556 | 1550 | 1544 | 1540 |
| 22 | OFC-24G 652D-FASA-S1 | 12/10 | 12/11 | 81.0 | -0.69 | 0.68 | 0.68 | 0.68 | 0.69 | 0.69 | 0.69 | 0.69 | 0.69 | 0.70 | 0.70 | 1586 | 1581 | 1577 | 1569 | 1565 | 1561 | 1556 | 1550 | 1544 | 1540 |
| 22 | OFC-24G 652D-FASA-S1 | 12/11 | 12/12 | 82.4 | -1.06 | 0.70 | 0.71 | 0.71 | 0.71 | 0.71 | 0.71 | 0.72 | 0.72 | 0.72 | 0.72 | 1586 | 1581 | 1577 | 1569 | 1565 | 1561 | 1556 | 1550 | 1544 | 1540 |
| 22 | OFC-24G 652D-FASA-S1 | 12/12 | 12/13 | 82.1 | -0.48 | 0.70 | 0.70 | 0.70 | 0.71 | 0.71 | 0.71 | 0.71 | 0.71 | 0.72 | 0.72 | 1586 | 1581 | 1577 | 1569 | 1565 | 1561 | 1556 | 1550 | 1544 | 1540 |
| 22 | OFC-24G 652D-FASA-S1 | 12/13 | 13/1 | 80.4 | 0.87 | 0.67 | 0.67 | 0.67 | 0.68 | 0.68 | 0.68 | 0.68 | 0.69 | 0.69 | 0.69 | 1586 | 1581 | 1577 | 1569 | 1565 | 1561 | 1556 | 1550 | 1544 | 1540 |
| 22 | OFC-24G 652D-FASA-S1 | 13/1 | 13/2 | 66.0 | -0.54 | 0.45 | 0.45 | 0.45 | 0.46 | 0.46 | 0.46 | 0.46 | 0.46 | 0.46 | 0.46 | 1586 | 1581 | 1577 | 1569 | 1565 | 1561 | 1556 | 1550 | 1544 | 1540 |
| 23 | PARTRIDGE ACSR | 13/2 | 13/3 | 71.5 | 1.67 | 0.68 | 0.74 | 0.80 | 0.85 | 0.91 | 0.97 | 1.03 | 1.08 | 1.14 | 1.19 | 5017 | 4635 | 4301 | 4010 | 3750 | 3526 | 3332 | 3162 | 3010 | 2876 |
| 23 | PARTRIDGE ACSR | 13/3 | 13/4 | 94.9 | 1.16 | 1.29 | 1.30 | 1.40 | 1.51 | 1.61 | 1.71 | 1.81 | 1.91 | 2.01 | 2.10 | 5017 | 4635 | 4301 | 4010 | 3750 | 3526 | 3332 | 3162 | 3010 | 2876 |
| 23 | PARTRIDGE ACSR | 13/4 | 13/5 | 95.4 | -2.24 | 1.22 | 1.32 | 1.42 | 1.52 | 1.53 | 1.73 | 1.83 | 1.93 | 2.03 | 2.12 | 5017 | 4635 | 4301 | 4010 | 3750 | 3526 | 3332 | 3162 | 3010 | 2876 |
| 23 | PARTRIDGE ACSR | 13/5 | 13/6 | 92.8 | -1.85 | 1.15 | 1.24 | 1.34 | 1.44 | 1.54 | 1.64 | 1.73 | 1.82 | 1.92 | 2.01 | 5017 | 4635 | 4301 | 4010 | 3750 | 3526 | 3332 | 3162 | 3010 | 2876 |
| 23 | PARTRIDGE ACSR | 13/6 | 13/7 | 75.7 | 0.83 | 0.76 | 0.83 | 0.89 | 0.96 | 1.02 | 1.09 | 1.15 | 1.21 | 1.27 | 1.33 | 5017 | 4635 | 4301 | 4010 | 3750 | 3526 | 3332 | 3162 | 3010 | 2876 |
| 23 | PARTRIDGE ACSR | 13/7 | 13/8 | 89.8 | -0.96 | 1.07 | 1.16 | 1.25 | 1.34 | 1.43 | 1.52 | 1.61 | 1.70 | 1.78 | 1.86 | 5017 | 4635 | 4301 | 4010 | 3750 | 3526 | 3332 | 3162 | 3010 | 2876 |
| 23 | PARTRIDGE ACSR | 13/8 | 13/9 | 97.9 | -4.12 | 0.62 | 0.67 | 0.72 | 0.78 | 0.83 | 0.88 | 0.93 | 0.98 | 1.03 | 1.08 | 5017 | 4635 | 4301 | 4010 | 3750 | 3526 | 3332 | 3162 | 3010 | 2876 |
| 23 | PARTRIDGE ACSR | 13/9 | 13/10 | 93.6 | -0.34 | 0.54 | 0.59 | 0.63 | 0.68 | 0.72 | 0.77 | 0.81 | 0.86 | 0.90 | 0.94 | 5017 | 4635 | 4301 | 4010 | 3750 | 3526 | 3332 | 3162 | 3010 | 2876 |
| 23 | PARTRIDGE ACSR | 13/10 | 13/11 | 78.1 | 0.45 | 0.77 | 0.84 | 0.90 | 0.97 | 1.04 | 1.10 | 1.17 | 1.23 | 1.29 | 1.35 | 5017 | 4635 | 4301 | 4010 | 3750 | 3526 | 3332 | 3162 | 3010 | 2876 |
| 23 | PARTRIDGE ACSR | 13/11 | 13/12 | 88.9 | -0.48 | 0.60 | 0.65 | 0.70 | 0.75 | 0.80 | 0.85 | 0.90 | 0.95 | 1.00 | 1.04 | 5017 | 4635 | 4301 | 4010 | 3750 | 3526 | 3332 | 3162 | 3010 | 2876 |
| 23 | PARTRIDGE ACSR | 13/12 | 13/13 | 76.9 | 3.10 | 0.79 | 0.85 | 0.92 | 0.99 | 1.06 | 1.12 | 1.19 | 1.25 | 1.32 | 1.38 | 5017 | 4635 | 4301 | 4010 | 3750 | 3526 | 3332 | 3162 | 3010 | 2876 |
| 23 | PARTRIDGE ACSR | 13/13 | 14/1 | 80.8 | 1.12 | 0.87 | 0.94 | 1.02 | 1.09 | 1.17 | 1.24 | 1.31 | 1.38 | 1.45 | 1.52 | 5017 | 4635 | 4301 | 4010 | 3750 | 3526 | 3332 | 3162 | 3010 | 2876 |
| 23 | PARTRIDGE ACSR | 14/1 | 14/2 | 81.2 | 2.66 | 0.68 | 0.95 | 1.03 | 1.10 | 1.18 | 1.25 | 1.33 | 1.40 | 1.47 | 1.54 | 5017 | 4635 | 4301 | 4010 | 3750 | 3526 | 3332 | 3162 | 3010 | 2876 |
| 23 | PARTRIDGE ACSR | 14/3 | 14/4 | 57.4 | 0.68 | 0.44 | 0.48 | 0.51 | 0.55 | 0.59 | 0.63 | 0.66 | 0.70 | 0.73 | 0.77 | 5017 | 4635 | 4301 | 4010 | 3750 | 3526 | 3332 | 3162 | 3010 | 2876 |
| 23 | PARTRIDGE ACSR | 14/4 | 14/5 | 78.1 | 0.70 | 0.83 | 0.90 | 0.97 | 1.04 | 1.12 | 1.19 | 1.26 | 1.32 | 1.39 | 1.46 | 5017 | 4635 | 4301 | 4010 | 3750 | 3526 | 3332 | 3162 | 3010 | 2876 |
| 23 | PARTRIDGE ACSR | 14/5 | 14/6 | 82.3 | 0.07 | 0.52 | 0.56 | 0.61 | 0.65 | 0.69 | 0.74 | 0.78 | 0.82 | 0.87 | 0.91 | 5017 | 4635 | 4301 | 4010 | 3750 | 3526 | 3332 | 3162 | 3010 | 2876 |
| 23 | PARTRIDGE ACSR | 14/6 | 14/7 | 93.9 | 0.50 | 1.18 | 1.27 | 1.37 | 1.47 | 1.56 | 1.66 | 1.77 | 1.87 | 1.96 | 2.05 | 5017 | 4635 | 4301 | 4010 | 3750 | 3526 | 3332 | 3162 | 3010 | 2876 |
| 23 | PARTRIDGE ACSR | 14/7 | 14/8 | 87.3 | 3.91 | 1.02 | 1.10 | 1.19 | 1.28 | 1.36 | 1.45 | 1.54 | 1.62 | 1.70 | 1.78 | 5017 | 4635 | 4301 | 4010 | 3750 | 3526 | 3332 | 3162 | 3010 | 2876 |
| 23 | PARTRIDGE ACSR | 14/8 | 14/9 | 86.5 | 1.41 | 1.00 | 1.08 | 1.17 | 1.25 | 1.34 | 1.42 | 1.50 | 1.59 | 1.67 | 1.74 | 5017 | 4635 | 4301 | 4010 | 3750 | 3526 | 3332 | 3162 | 3010 | 2876 |
| 23 | PARTRIDGE ACSR | 14/9 | 14/10 | 80.6 | -1.95 | 0.87 | 0.94 | 1.01 | 1.09 | 1.16 | 1.24 | 1.33 | 1.38 | 1.45 | 1.51 | 5017 | 4635 | 4301 | 4010 | 3750 | 3526 | 3332 | 3162 | 3010 | 2876 |
| 23 | PARTRIDGE ACSR | 14/10 | 14/11 | 78.5 | -1.65 | 0.82 | 0.89 | 0.96 | 1.03 | 1.10 | 1.17 | 1.24 | 1.31 | 1.37 | 1.44 | 5017 | 4635 | 4301 | 4010 | 3750 | 3526 | 3332 | 3162 | 3010 | 2876 |
| 23 | PARTRIDGE ACSR | 14/11 | 14/12 | 83.8 | -3.75 | 0.94 | 1.02 | 1.10 | 1.18 | 1.26 | 1.34 | 1.42 | 1.49 | 1.57 | 1.64 | 5017 | 4635 | 4301 | 4010 | 3750 | 3526 | 3332 | 3162 | 3010 | 2876 |
| 23 | PARTRIDGE ACSR | 14/12 | 14/13 | 62.9 | -3.83 | 0.55 | 0.57 | 0.62 | 0.66 | 0.71 | 0.75 | 0.80 | 0.84 | 0.88 | 0.92 | 5017 | 4635 | 4301 | 4010 | 3750 | 3526 | 3332 | 3162 | 3010 | 2876 |
| 23 | PARTRIDGE ACSR | 14/13 | 15/1 | 67.1 | -6.10 | 0.60 | 0.65 | 0.70 | 0.75 | 0.81 | 0.86 | 0.91 | 0.96 | 1.01 | 1.05 | 5017 | 4635 | 4301 | 4010 | 3750 | 3526 | 3332 | 3162 | 3010 | 2876 |
| 23 | PARTRIDGE ACSR | 15/1 | 15/2 | 75.8 | -7.34 | 0.77 | 0.84 | 0.90 | 0.97 | 1.03 | 1.10 | 1.16 | 1.23 | 1.29 | 1.35 | 5017 | 4635 | 4301 | 4010 | 3750 | 3526 | 3332 | 3162 | 3010 | 2876 |
| 23 | PARTRIDGE ACSR | 15/2 | 15/3 | 90.4 | -5.03 | 1.09 | 1.18 | 1.27 | 1.37 | 1.46 | 1.55 | 1.65 | 1.73 | 1.82 | 1.91 | 5017 | 4635 | 4301 | 4010 | 3750 | 3526 | 3332 | 3162 | 3010 | 2876 |
| 23 | PARTRIDGE ACSR | 15/3 | 15/4 | 60.3 | -0.03 | 0.49 | 0.53 | 0.57 | 0.61 | 0.65 | 0.69 | 0.73 | 0.77 | 0.81 | 0.85 | 5017 | 4635 | 4301 | 4010 | 3750 | 3526 | 3332 | 3162 | 3010 | 2876 |
| 23 | PARTRIDGE ACSR | 15/4 | 15/5 | 70.7 | 0.67 | 0.67 | 0.72 | 0.78 | 0.84 | 0.89 | 0.95 | 1.01 | 1.06 | 1.11 | 1.17 | 5017 | 4635 | 4301 | 4010 | 3750 | 3526 | 3332 | 3162 | 3010 | 2876 |
| 23 | PARTRIDGE ACSR | 15/5 | 15/6 | 82.0 | 4.09 | 0.90 | 0.97 | 1.05 | 1.13 | 1.20 | 1.28 | 1.35 | 1.43 | 1.50 | 1.57 | 5017 | 4635 | 4301 | 4010 | 3750 | 3526 | 3332 | 3162 | 3010 | 2876 |
| 23 | PARTRIDGE ACSR | 15/6 | 15/7 | 80.6 | 0.49 | 0.87 | 0.94 | 1.01 | 1.09 | 1.17 | 1.24 | 1.31 | 1.38 | 1.45 | 1.52 | 5017 | 4635 | 4301 | 4010 | 3750 | 3526 | 3332 | 3162 | 3010 | 2876 |
| 23 | PARTRIDGE ACSR | 15/7 | 15/8 | 83.0 | 0.03 | 0.92 | 0.

Fortis Inc.

# AS-BUILT

CHANGES REQUIRED YES ☐ NO ☐

Name (Print) _____

Signature _____

Date _____

PERMIT TO PRACTICE
CLEAN ENERGY CONSTRUCTION INC.
PERMIT NUMBER: P-NSA
27-OCT-2018

ENGINEER'S SEAL
YUKON
TERRITORY
23-OCT-2018
ENGINEER

| SAG AND TENSION | |
|---|---|
| CIRCUIT | VICTORIA GOLD 69kV |
| DOCUMENT | 1407-T-1450 |
| DATE | 23-Oct-18 |
| REVISION | 0 |
| ISSUED FOR | CONSTRUCTION |
| PREPARED BY | MP |
| CHECKED BY | PC |
| APPROVED BY | PC |

NOTES
1. All spans must be installed to the sag values provided. Tension values are provided as a reference only.
2. Sag and tension values shown are for new conductor under initial conditions.
3. For conductors left hanging in sheaves for longer than 3 hours between initial stringing and final sag, a creep correction factor must be applied.
4. All span lengths and sag values are provided in metres unless otherwise noted.
5. Conductors and cables:
   - Overhead Shieldwire (OHSW): Partridge ACSR
   - 69kV Transmission Line: Partridge ACSR
   - ADSS: OFC-24G 6520-FASA-51

Clean Energy

| SEC | CABLE | FROM STR | TO STR | SPAN AHEAD (m) | SPAN VERT PROJ. (m) | MID SPAN SAG (m) -20 | -15 | -10 | -5 | 0 | 5 | 10 | 15 | 20 | 25 | HORIZONTAL TENSION (N) -20 | -15 | -10 | -5 | 0 | 5 | 10 | 15 | 20 | 25 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 23 | PARTRIDGE ACSR | 15/15 | 16/1 | 68.9 | -0.92 | 0.63 | 0.69 | 0.74 | 0.79 | 0.85 | 0.90 | 0.95 | 1.01 | 1.06 | 1.11 | 5017 | 4635 | 4301 | 4010 | 3750 | 3526 | 3332 | 3162 | 3010 | 2876 |
| 23 | PARTRIDGE ACSR | 16/1 | 16/2 | 73.4 | 1.17 | 0.72 | 0.78 | 0.84 | 0.90 | 0.96 | 1.02 | 1.08 | 1.14 | 1.20 | 1.25 | 5017 | 4635 | 4301 | 4010 | 3750 | 3526 | 3332 | 3162 | 3010 | 2876 |
| 23 | PARTRIDGE ACSR | 16/2 | 16/3 | 39.6 | 1.07 | 0.85 | 0.92 | 0.99 | 1.06 | 1.13 | 1.20 | 1.27 | 1.34 | 1.41 | 1.48 | 5017 | 4635 | 4301 | 4010 | 3750 | 3526 | 3332 | 3162 | 3010 | 2876 |
| 23 | PARTRIDGE ACSR | 16/3 | 16/4 | 53.6 | 1.05 | 0.38 | 0.42 | 0.45 | 0.48 | 0.51 | 0.55 | 0.58 | 0.61 | 0.64 | 0.67 | 5017 | 4635 | 4301 | 4010 | 3750 | 3526 | 3332 | 3162 | 3010 | 2876 |
| 23 | PARTRIDGE ACSR | 16/4 | 16/5 | 52.0 | 1.06 | 0.43 | 0.47 | 0.51 | 0.54 | 0.58 | 0.62 | 0.65 | 0.69 | 0.72 | 0.76 | 5017 | 4635 | 4301 | 4010 | 3750 | 3526 | 3332 | 3162 | 3010 | 2876 |
| 23 | PARTRIDGE ACSR | 16/5 | 16/6 | 81.1 | 0.12 | 0.88 | 0.95 | 1.01 | 1.10 | 1.16 | 1.25 | 1.32 | 1.39 | 1.46 | 1.53 | 5017 | 4635 | 4301 | 4010 | 3750 | 3526 | 3332 | 3162 | 3010 | 2876 |
| 23 | PARTRIDGE ACSR | 16/6 | 16/7 | 81.5 | 0.87 | 0.89 | 0.96 | 1.04 | 1.11 | 1.19 | 1.26 | 1.34 | 1.41 | 1.48 | 1.55 | 5017 | 4635 | 4301 | 4010 | 3750 | 3526 | 3332 | 3162 | 3010 | 2876 |
| 23 | PARTRIDGE ACSR | 16/7 | 16/8 | 81.5 | 3.23 | 0.89 | 0.96 | 1.04 | 1.11 | 1.19 | 1.26 | 1.34 | 1.41 | 1.48 | 1.55 | 5017 | 4635 | 4301 | 4010 | 3750 | 3526 | 3332 | 3162 | 3010 | 2876 |
| 23 | PARTRIDGE ACSR | 16/8 | 16/9 | 82.6 | -0.26 | 0.93 | 0.99 | 1.06 | 1.14 | 1.22 | 1.30 | 1.37 | 1.45 | 1.53 | 1.59 | 5017 | 4635 | 4301 | 4010 | 3750 | 3526 | 3332 | 3162 | 3010 | 2876 |
| 23 | PARTRIDGE ACSR | 16/9 | 16/10 | 96.7 | 1.38 | 0.59 | 0.64 | 0.69 | 0.74 | 0.79 | 0.84 | 0.89 | 0.94 | 0.99 | 1.04 | 5017 | 4635 | 4301 | 4010 | 3750 | 3526 | 3332 | 3162 | 3010 | 2876 |
| 23 | PARTRIDGE ACSR | 16/10 | 16/11 | 98.0 | 1.78 | 0.67 | 0.67 | 0.72 | 0.77 | 0.83 | 0.88 | 0.93 | 0.98 | 1.03 | 1.08 | 5017 | 4635 | 4301 | 4010 | 3750 | 3526 | 3332 | 3162 | 3010 | 2876 |
| 24 | OFC-24G 6520-FASA-51 | 13/2 | 13/3 | 71.4 | 5.01 | 0.63 | 0.63 | 0.63 | 0.63 | 0.64 | 0.64 | 0.64 | 0.64 | 0.64 | 0.65 | 1337 | 1333 | 1329 | 1324 | 1320 | 1316 | 1311 | 1309 | 1305 | 1300 |
| 24 | OFC-24G 6520-FASA-51 | 13/3 | 13/4 | 94.9 | 1.26 | 1.11 | 1.11 | 1.11 | 1.12 | 1.12 | 1.13 | 1.13 | 1.13 | 1.13 | 1.14 | 1337 | 1333 | 1329 | 1324 | 1320 | 1316 | 1311 | 1309 | 1305 | 1300 |
| 24 | OFC-24G 6520-FASA-51 | 13/4 | 13/5 | 95.4 | 2.24 | 1.12 | 1.12 | 1.13 | 1.13 | 1.13 | 1.14 | 1.14 | 1.14 | 1.15 | 1.15 | 1337 | 1333 | 1329 | 1324 | 1320 | 1316 | 1311 | 1309 | 1305 | 1300 |
| 24 | OFC-24G 6520-FASA-51 | 13/5 | 13/6 | 92.5 | 1.55 | 1.06 | 1.06 | 1.06 | 1.07 | 1.07 | 1.07 | 1.08 | 1.08 | 1.08 | 1.09 | 1337 | 1333 | 1329 | 1324 | 1320 | 1316 | 1311 | 1309 | 1305 | 1300 |
| 24 | OFC-24G 6520-FASA-51 | 13/6 | 13/7 | 75.7 | 0.83 | 0.70 | 0.71 | 0.71 | 0.71 | 0.71 | 0.72 | 0.72 | 0.72 | 0.72 | 0.72 | 1337 | 1333 | 1329 | 1324 | 1320 | 1316 | 1311 | 1309 | 1305 | 1300 |
| 24 | OFC-24G 6520-FASA-51 | 13/7 | 13/8 | 89.8 | 0.96 | 0.98 | 0.99 | 0.99 | 0.99 | 1.00 | 1.00 | 1.00 | 1.00 | 1.01 | 1.01 | 1337 | 1333 | 1329 | 1324 | 1320 | 1316 | 1311 | 1309 | 1305 | 1300 |
| 24 | OFC-24G 6520-FASA-51 | 13/8 | 13/9 | 67.9 | 10.49 | 0.57 | 0.58 | 0.58 | 0.58 | 0.58 | 0.58 | 0.58 | 0.59 | 0.59 | 0.59 | 1337 | 1333 | 1329 | 1324 | 1320 | 1316 | 1311 | 1309 | 1305 | 1300 |
| 24 | OFC-24G 6520-FASA-51 | 13/9 | 13/10 | 63.6 | 2.03 | 0.50 | 0.50 | 0.50 | 0.50 | 0.50 | 0.51 | 0.51 | 0.51 | 0.51 | 0.51 | 1337 | 1333 | 1329 | 1324 | 1320 | 1316 | 1311 | 1309 | 1305 | 1300 |
| 24 | OFC-24G 6520-FASA-51 | 13/10 | 13/11 | 76.1 | 0.34 | 0.71 | 0.71 | 0.72 | 0.72 | 0.72 | 0.72 | 0.73 | 0.73 | 0.73 | 0.73 | 1337 | 1333 | 1329 | 1324 | 1320 | 1316 | 1311 | 1309 | 1305 | 1300 |
| 24 | OFC-24G 6520-FASA-51 | 13/11 | 13/12 | 66.9 | 0.38 | 0.55 | 0.55 | 0.55 | 0.56 | 0.56 | 0.56 | 0.56 | 0.56 | 0.56 | 0.57 | 1337 | 1333 | 1329 | 1324 | 1320 | 1316 | 1311 | 1309 | 1305 | 1300 |
| 24 | OFC-24G 6520-FASA-51 | 13/12 | 13/13 | 76.9 | 0.74 | 0.73 | 0.73 | 0.73 | 0.73 | 0.74 | 0.74 | 0.74 | 0.74 | 0.74 | 0.75 | 1337 | 1333 | 1329 | 1324 | 1320 | 1316 | 1311 | 1309 | 1305 | 1300 |
| 24 | OFC-24G 6520-FASA-51 | 13/13 | 14/1 | 80.8 | 3.49 | 0.80 | 0.81 | 0.81 | 0.81 | 0.81 | 0.82 | 0.82 | 0.82 | 0.82 | 0.83 | 1337 | 1333 | 1329 | 1324 | 1320 | 1316 | 1311 | 1309 | 1305 | 1300 |
| 24 | OFC-24G 6520-FASA-51 | 14/1 | 14/2 | 81.2 | 0.62 | 0.81 | 0.81 | 0.82 | 0.82 | 0.82 | 0.82 | 0.83 | 0.83 | 0.84 | 0.83 | 1337 | 1333 | 1329 | 1324 | 1320 | 1316 | 1311 | 1309 | 1305 | 1300 |
| 24 | OFC-24G 6520-FASA-51 | 14/2 | 14/3 | 57.4 | 4.68 | 0.41 | 0.41 | 0.41 | 0.41 | 0.41 | 0.41 | 0.41 | 0.41 | 0.42 | 0.42 | 1337 | 1333 | 1329 | 1324 | 1320 | 1316 | 1311 | 1309 | 1305 | 1300 |
| 24 | OFC-24G 6520-FASA-51 | 14/3 | 14/4 | 79.1 | 0.61 | 0.77 | 0.77 | 0.77 | 0.78 | 0.78 | 0.78 | 0.78 | 0.78 | 0.79 | 0.79 | 1337 | 1333 | 1329 | 1324 | 1320 | 1316 | 1311 | 1309 | 1305 | 1300 |
| 24 | OFC-24G 6520-FASA-51 | 14/4 | 14/5 | 52.3 | 0.38 | 0.46 | 0.48 | 0.48 | 0.48 | 0.48 | 0.49 | 0.49 | 0.49 | 0.49 | 0.49 | 1337 | 1333 | 1329 | 1324 | 1320 | 1316 | 1311 | 1309 | 1305 | 1300 |
| 24 | OFC-24G 6520-FASA-51 | 14/5 | 14/6 | 93.9 | 0.79 | 1.08 | 1.09 | 1.09 | 1.09 | 1.10 | 1.10 | 1.10 | 1.11 | 1.11 | 1.11 | 1337 | 1333 | 1329 | 1324 | 1320 | 1316 | 1311 | 1309 | 1305 | 1300 |
| 24 | OFC-24G 6520-FASA-51 | 14/6 | 14/7 | 87.3 | 4.01 | 0.94 | 0.94 | 0.94 | 0.95 | 0.95 | 0.95 | 0.96 | 0.96 | 0.96 | 0.96 | 1337 | 1333 | 1329 | 1324 | 1320 | 1316 | 1311 | 1309 | 1305 | 1300 |
| 24 | OFC-24G 6520-FASA-51 | 14/7 | 14/8 | 90.5 | 0.86 | 0.92 | 0.92 | 0.93 | 0.93 | 0.93 | 0.93 | 0.94 | 0.94 | 0.94 | 0.95 | 1337 | 1333 | 1329 | 1324 | 1320 | 1316 | 1311 | 1309 | 1305 | 1300 |
| 24 | OFC-24G 6520-FASA-51 | 14/8 | 14/9 | 80.6 | 0.41 | 0.80 | 0.80 | 0.80 | 0.81 | 0.81 | 0.81 | 0.81 | 0.82 | 0.82 | 0.82 | 1337 | 1333 | 1329 | 1324 | 1320 | 1316 | 1311 | 1309 | 1305 | 1300 |
| 24 | OFC-24G 6520-FASA-51 | 14/9 | 14/10 | 78.5 | 1.76 | 0.76 | 0.76 | 0.76 | 0.76 | 0.77 | 0.77 | 0.77 | 0.77 | 0.78 | 0.78 | 1337 | 1333 | 1329 | 1324 | 1320 | 1316 | 1311 | 1309 | 1305 | 1300 |
| 24 | OFC-24G 6520-FASA-51 | 14/10 | 14/11 | 73.8 | -1.58 | 0.67 | 0.67 | 0.67 | 0.68 | 0.68 | 0.68 | 0.68 | 0.68 | 0.69 | 0.69 | 1337 | 1333 | 1329 | 1324 | 1320 | 1316 | 1311 | 1309 | 1305 | 1300 |
| 24 | OFC-24G 6520-FASA-51 | 14/11 | 14/12 | 83.8 | -2.99 | 0.86 | 0.87 | 0.87 | 0.87 | 0.88 | 0.88 | 0.88 | 0.88 | 0.89 | 0.89 | 1337 | 1333 | 1329 | 1324 | 1320 | 1316 | 1311 | 1309 | 1305 | 1300 |
| 24 | OFC-24G 6520-FASA-51 | 14/12 | 14/13 | 62.9 | 4.12 | 0.49 | 0.49 | 0.49 | 0.49 | 0.49 | 0.50 | 0.50 | 0.50 | 0.50 | 0.50 | 1337 | 1333 | 1329 | 1324 | 1320 | 1316 | 1311 | 1309 | 1305 | 1300 |
| 24 | OFC-24G 6520-FASA-51 | 14/13 | 15/1 | 67.1 | 4.10 | 0.56 | 0.56 | 0.56 | 0.56 | 0.56 | 0.56 | 0.57 | 0.57 | 0.57 | 0.57 | 1337 | 1333 | 1329 | 1324 | 1320 | 1316 | 1311 | 1309 | 1305 | 1300 |
| 24 | OFC-24G 6520-FASA-51 | 15/1 | 15/2 | 75.9 | -7.56 | 0.71 | 0.71 | 0.71 | 0.72 | 0.72 | 0.72 | 0.72 | 0.73 | 0.73 | 0.73 | 1337 | 1333 | 1329 | 1324 | 1320 | 1316 | 1311 | 1309 | 1305 | 1300 |
| 24 | OFC-24G 6520-FASA-51 | 15/2 | 15/3 | 90.3 | 4.73 | 1.00 | 1.01 | 1.01 | 1.01 | 1.02 | 1.02 | 1.02 | 1.03 | 1.03 | 1.03 | 1337 | 1333 | 1329 | 1324 | 1320 | 1316 | 1311 | 1309 | 1305 | 1300 |
| 24 | OFC-24G 6520-FASA-51 | 15/3 | 15/4 | 60.2 | -0.92 | 0.45 | 0.45 | 0.45 | 0.45 | 0.45 | 0.45 | 0.46 | 0.46 | 0.46 | 0.46 | 1337 | 1333 | 1329 | 1324 | 1320 | 1316 | 1311 | 1309 | 1305 | 1300 |
| 24 | OFC-24G 6520-FASA-51 | 15/4 | 15/5 | 70.7 | 0.67 | 0.61 | 0.62 | 0.62 | 0.62 | 0.62 | 0.62 | 0.63 | 0.63 | 0.63 | 0.63 | 1337 | 1333 | 1329 | 1324 | 1320 | 1316 | 1311 | 1309 | 1305 | 1300 |
| 24 | OFC-24G 6520-FASA-51 | 15/5 | 15/6 | 82.0 | 4.09 | 0.83 | 0.83 | 0.83 | 0.84 | 0.84 | 0.84 | 0.84 | 0.85 | 0.85 | 0.85 | 1337 | 1333 | 1329 | 1324 | 1320 | 1316 | 1311 | 1309 | 1305 | 1300 |
| 24 | OFC-24G 6520-FASA-51 | 15/6 | 15/7 | 80.6 | 6.78 | 0.80 | 0.80 | 0.81 | 0.81 | 0.81 | 0.81 | 0.82 | 0.82 | 0.82 | 0.82 | 1337 | 1333 | 1329 | 1324 | 1320 | 1316 | 1311 | 1309 | 1305 | 1300 |
| 24 | OFC-24G 6520-FASA-51 | 15/7 | 15/8 | 82.9 | -0.26 | 0.85 | 0.85 | 0.85 | 0.85 | 0.86 | 0.86 | 0.86 | 0.86 | 0.87 | 0.87 | 1337 | 1333 | 1329 | 1324 | 1320 | 1316 | 1311 | 1309 | 1305 | 1300 |
| 24 | OFC-24G 6520-FASA-51 | 15/8 | 15/9 | 91.5 | -1.57 | 1.03 | 1.03 | 1.04 | 1.04 | 1.04 | 1.05 | 1.05 | 1.05 | 1.06 | 1.06 | 1337 | 1333 | 1329 | 1324 | 1320 | 1316 | 1311 | 1309 | 1305 | 1300 |
| 24 | OFC-24G 6520-FASA-51 | 15/9 | 15/10 | 86.8 | -2.00 | 0.93 | 0.93 | 0.93 | 0.93 | 0.94 | 0.94 | 0.94 | 0.95 | 0.95 | 0.95 | 1337 | 1333 | 1329 | 1324 | 1320 | 1316 | 1311 | 1309 | 1305 | 1300 |
| 24 | OFC-24G 6520-FASA-51 | 15/10 | 15/11 | 67.3 | 0.09 | 0.56 | 0.56 | 0.56 | 0.56 | 0.56 | 0.57 | 0.57 | 0.57 | 0.57 | 0.57 | 1337 | 1333 | 1329 | 1324 | 1320 | 1316 | 1311 | 1309 | 1305 | 1300 |
| 24 | OFC-24G 6520-FASA-51 | 15/11 | 15/12 | 63.4 | -0.27 | 0.49 | 0.50 | 0.50 | 0.50 | 0.50 | 0.50 | 0.50 | 0.50 | 0.51 | 0.51 | 1337 | 1333 | 1329 | 1324 | 1320 | 1316 | 1311 | 1309 | 1305 | 1300 |
| 24 | OFC-24G 6520-FASA-51 | 15/12 | 15/13 | 53.5 | -2.61 | 0.35 | 0.35 | 0.35 | 0.36 | 0.36 | 0.36 | 0.36 | 0.36 | 0.36 | 0.36 | 1337 | 1333 | 1329 | 1324 | 1320 | 1316 | 1311 | 1309 | 1305 | 1300 |
| 24 | OFC-24G 6520-FASA-51 | 15/13 | 16/1 | 68.9 | 3.05 | 0.58 | 0.59 | 0.59 | 0.59 | 0.59 | 0.59 | 0.60 | 0.60 | 0.60 | 0.60 | 1337 | 1333 | 1329 | 1324 | 1320 | 1316 | 1311 | 1309 | 1305 | 1300 |
| 24 | OFC-24G 6520-FASA-51 | 16/1 | 16/2 | 73.4 | 3.07 | 0.66 | 0.66 | 0.67 | 0.67 | 0.67 | 0.67 | 0.67 | 0.68 | 0.68 | 0.68 | 1337 | 1333 | 1329 | 1324 | 1320 | 1316 | 1311 | 1309 | 1305 | 1300 |
| 24 | OFC-24G 6520-FASA-51 | 16/2 | 16/3 | 79.6 | 1.18 | 0.78 | 0.78 | 0.78 | 0.79 | 0.79 | 0.79 | 0.79 | 0.79 | 0.80 | 0.80 | 1337 | 1333 | 1329 | 1324 | 1320 | 1316 | 1311 | 1309 | 1305 | 1300 |
| 24 | OFC-24G 6520-FASA-51 | 16/3 | 16/4 | 53.6 | -1.30 | 0.35 | 0.35 | 0.36 | 0.36 | 0.36 | 0.36 | 0.36 | 0.36 | 0.36 | 0.36 | 1337 | 1333 | 1329 | 1324 | 1320 | 1316 | 1311 | 1309 | 1305 | 1300 |
| 24 | OFC-24G 6520-FASA-51 | 16/4 | 16/5 | 57.0 | 0.71 | 0.40 | 0.40 | 0.40 | 0.40 | 0.40 | 0.41 | 0.41 | 0.41 | 0.41 | 0.41 | 1337 | 1333 | 1329 | 1324 | 1320 | 1316 | 1311 | 1309 | 1305 | 1300 |
| 24 | OFC-24G 6520-FASA-51 | 16/5 | 16/6 | 81.1 | 0.07 | 0.81 | 0.81 | 0.81 | 0.82 | 0.82 | 0.82 | 0.82 | 0.83 | 0.83 | 0.83 | 1337 | 1333 | 1329 | 1324 | 1320 | 1316 | 1311 | 1309 | 1305 | 1300 |
| 24 | OFC-24G 6520-FASA-51 | 16/6 | 16/7 | 81.5 | 0.87 | 0.82 | 0.82 | 0.82 | 0.82 | 0.83 | 0.83 | 0.83 | 0.83 | 0.84 | 0.84 | 1337 | 1333 | 1329 | 1324 | 1320 | 1316 | 1311 | 1309 | 1305 | 1300 |
| 24 | OFC-24G 6520-FASA-51 | 16/7 | 16/8 | 81.5 | 3.23 | 0.82 | 0.82 | 0.82 | 0.82 | 0.83 | 0.83 | 0.83 | 0.83 | 0.84 | 0.84 | 1337 | 1333 | 1329 | 1324 | 1320 | 1316 | 1311 | 1309 | 1305 | 1300 |
| 24 | OFC-24G 6520-FASA-51 | 16/8 | 16/9 | 82.6 | -0.26 | 0.84 | 0.84 | 0.84 | 0.85 | 0.85 | 0.85 | 0.86 | 0.86 | 0.86 | 0.86 | 1337 | 1333 | 1329 | 1324 | 1320 | 1316 | 1311 | 1309 | 1305 | 1300 |
| 24 | OFC-24G 6520-FASA-51 | 16/9 | 16/10 | 66.7 | 1.48 | 0.55 | 0.56 | 0.56 | 0.55 | 0.55 | 0.56 | 0.56 | 0.56 | 0.56 | 0.56 | 1337 | 1333 | 1329 | 1324 | 1320 | 1316 | 1311 | 1309 | 1305 | 1300 |
| 24 | OFC-24G 6520-FASA-51 | 16/10 | 16/11 | 68.0 | -1.56 | 0.57 | 0.57 | 0.57 | 0.57 | 0.57 | 0.58 | 0.58 | 0.58 | 0.58 | 0.58 | 1337 | 1333 | 1329 | 1324 | 1320 | 1316 | 1311 | 1309 | 1305 | 1300 |
| 25 | PARTRIDGE ACSR | 16/11 | 16/13 | 131.8 | 26.48 | 2.62 | 2.80 | 2.98 | 3.15 | 3.33 | 3.49 | 3.66 | 3.82 | 3.98 | 4.13 | 4528 | 4242 | 3995 | 3775 | 3581 | 3407 | 3251 | 3113 | 2991 | 2879 |
| 25 | PARTRIDGE ACSR | 16/13 | 16/14 | 85.6 | 3.36 | 1.08 | 1.16 | 1.23 | 1.30 | 1.37 | 1.44 | 1.51 | 1.58 | 1.64 | 1.71 | 4528 | 4242 | 3995 | 3775 | 3581 | 3407 | 3251 | 3113 | 2991 | 2879 |
| 25 | PARTRIDGE ACSR | 16/14 | 17/1 | 86.6 | -0.79 | 1.11 | 1.18 | 1.26 | 1.33 | 1.40 | 1.47 | 1.55 | 1.61 | 1.68 | 1.75 | 4528 | 4242 | 3995 | 3775 | 3581 | 3407 | 3251 | 3113 | 2991 | 2879 |
| 25 | PARTRIDGE ACSR | 17/1 | 17/2 | 90.2 | 0.52 | 1.20 | 1.28 | 1.36 | 1.44 | 1.52 | 1.60 | 1.68 | 1.75 | 1.82 | 1.89 | 4528 | 4242 | 3995 | 3775 | 3581 | 3407 | 3251 | 3113 | 2991 | 2879 |
| 25 | PARTRIDGE ACSR | 17/2 | 17/3 | 88.6 | -1.67 | 1.16 | 1.24 | 1.32 | 1.39 | 1.47 | 1.54 | 1.62 | 1.69 | 1.76 | 1.83 | 4528 | 4242 | 3995 | 3775 | 3581 | 3407 | 3251 | 3113 | 2991 | 2879 |
| 25 | PARTRIDGE ACSR | 17/3 | 17/4 | 86.5 | -14.60 | 1.12 | 1.20 | 1.27 | 1.35 | 1.42 | 1.49 | 1.56 | 1.63 | 1.70 | 1.77 | 4528 | 4242 | 3995 | 3775 | 3581 | 3407 | 3251 | 3113 | 2991 | 2879 |
| 25 | PARTRIDGE ACSR | 17/4 | 17/5 | 65.0 | 6.60 | 0.63 | 0.67 | 0.71 | 0.75 | 0.80 | 0.84 | 0.88 | 0.91 | 0.95 | 0.99 | 4528 | 4242 | 3995 | 3775 | 3581 | 3407 | 3251 | 3113 | 2991 | 2879 |
| 25 | PARTRIDGE ACSR | 17/5 | 17/6 | 59.9 | -0.15 | 0.53 | 0.57 | 0.60 | 0.64 | 0.67 | 0.71 | 0.74 | 0.77 | 0.80 | 0.84 | 4528 | 4242 | 3995 | 3775 | 3581 | 3407 | 3251 | 3113 | 2991 | 2879 |
| 25 | PARTRIDGE ACSR | 17/6 | 17/7 | 85.7 | 0.39 | 1.09 | 1.16 | 1.23 | 1.30 | 1.37 | 1.44 | 1.51 | 1.58 | 1.65 | 1.71 | 4528 | 4242 | 3995 | 3775 | 3581 | 3407 | 3251 | 3113 | 2991 | 2879 |
| 25 | PARTRIDGE ACSR | 17/7 | 17/8 | 85.5 | 2.48 | 1.08 | 1.16 | 1.23 | 1.30 | 1.37 | 1.44 | 1.51 | 1.57 | 1.64 | 1.70 | 4528 | 4242 | 3995 | 3775 | 3581 | 3407 | 3251 | 3113 | 2991 | 2879 |
| 25 | PARTRIDGE ACSR | 17/8 | 17/9 | 89.5 | 0.16 | 1.18 | 1.26 | 1.34 | 1.42 | 1.50 | 1.57 | 1.65 | 1.72 | 1.79 | 1.86 | 4528 | 4242 | 3995 | 3775 | 3581 | 3407 | 3251 | 3113 | 2991 | 2879 |
| 25 | PARTRIDGE ACSR | 17/9 | 17/10 | 86.9 | 0.67 | 1.13 | 1.19 | 1.26 | 1.34 | 1.41 | 1.48 | 1.55 | 1.62 | 1.69 | 1.75 | 4528 | 4242 | 3995 | 3775 | 3581 | 3407 | 3251 | 3113 | 2991 | 2879 |
| 25 | PARTRIDGE ACSR | 17/10 | 17/11 | 85.1 | 0.81 | 1.15 | 1.23 | 1.30 | 1.38 | 1.45 | 1.53 | 1.60 | 1.67 | 1.74 | 1.81 | 4528 | 4242 | 3995 | 3775 | 3581 | 3407 | 3251 | 3113 | 2991 | 2879 |
| 25 | PARTRIDGE ACSR | 17/11 | 17/12 | 81.1 | 2.40 | 0.97 | 1.04 | 1.10 | 1.17 | 1.23 | 1.30 | 1.36 | 1.42 | 1.48 | 1.53 | 4528 | 4242 | 3995 | 3775 | 3581 | 3407 | 3251 | 3113 | 2991 | 2879 |
| 25 | PARTRIDGE ACSR | 17/12 | 18/1 | 88.6 | 0.30 | 1.18 | 1.24 | 1.32 | 1.39 | 1.47 | 1.54 | 1.62 | 1.69 | 1.76 | 1.83 | 4528 | 4242 | 3995 | 3775 | 3581 | 3407 | 3251 | 3113 | 2991 | 2879 |
| 25 | PARTRIDGE ACSR | 18/1 | 18/2 | 78.2 | 4.01 | 0.91 | 0.97 | 1.03 | 1.09 | 1.15 | 1.20 | 1.26 | 1.32 | 1.37 | 1.42 | 4528 | 4242 | 3995 | 3775 | 3581 | 3407 | 3251 | 3113 | 2991 | 2879 |
| 25 | PARTRIDGE ACSR | 18/2 | 18/3 | 97.6 | -4.85 | 1.41 | 1.51 | 1.60 | 1.68 | 1.79 | 1.88 | 1.97 | 2.05 | 2.14 | 2.22 | 4528 | 4242 | 3995 | 3775 | 3581 | 3407 | 3251 | 3113 | 2991 | 2879 |
| 25 | PARTRIDGE ACSR | 18/3 | 18/4 | 82.4 | 0.29 | 1.01 | 1.07 | 1.14 | 1.21 | 1.27 | 1.34 | 1.40 | 1.46 | 1.52 | 1.58 | 4528 | 4242 | 3995 | 3775 | 3581 | 3407 | 3251 | 3113 | 2991 | 2879 |
| 25 | PARTRIDGE ACSR | 18/4 | 18/5 | 93.9 | -0.52 | 1.31 | 1.39 | 1.48 | 1.57 | 1.65 | 1.73 | 1.82 | 1.90 | 1.98 | 2.06 | 4528 | 4242 | 3995 | 3775 | 3581 | 3407 | 3251 | 3113 | 2991 | 2879 |
| 25 | PARTRIDGE ACSR | 18/5 | 18/6 | 68.5 | 3.10 | 0.70 | 0.74 | 0.79 | 0.83 | 0.88 | 0.92 | 0.97 | 1.01 | 1.05 | 1.09 | 4528 | 4242 | 3995 | 3775 | 3581 | 3407 | 3251 | 3113 | 2991 | 2879 |
| 25 | PARTRIDGE ACSR | 18/6 | 18/7 | 67.3 | 3.79 | 0.67 | 0.72 | 0.76 | 0.80 | 0.85 | 0.89 | 0.93 | 0.98 | 1.02 | 1.06 | 4528 | 4242 | 3995 | 3775 | 3581 | 3407 | 3251 | 3113 | 2991 | 2879 |
| 25 | PARTRIDGE ACSR | 18/7 | 18/8 | 69.7 | 6.22 | 0.72 | 0.77 | 0.82 | 0.87 | 0.91 | 0.96 | 1.00 | 1.05 | 1.09 | 1.13 | 4528 | 4242 | 3995 | 3775 | 3581 | 3407 | 3251 | 3113 | 2991 | 2879 |
| 25 | PARTRIDGE ACSR | 18/8 | 18/9 | 50.9 | 2.22 | 0.55 | 0.59 | 0.62 | 0.66 | 0.69 | 0.73 | 0.76 | 0.80 | 0.83 | 0.86 | 4528 | 4242 | 3995 | 3775 | 3581 | 3407 | 3251 | 3113 | 2991 | 2879 |
| 25 | PARTRIDGE ACSR | 18/9 | 18/10 | 58.6 | -1.31 | 0.53 | 0.54 | 0.58 | 0.61 | 0.64 | 0.68 | 0.71 | 0.74 | 0.77 | 0.80 | 4528 | 4242 | 3995 | 3775 | 3581 | 3407 | 3251 | 3113 | 2991 | 2879 |
| 25 | PARTRIDGE ACSR | 18/10 | 18/11 | 98.4 | -0.98 | 1.32 | 1.41 | 1.50 | 1.58 | 1.67 | 1.75 | 1.84 | 1.92 | 2.00 | 2.08 | 4528 | 4242 | 3995 | 3775 | 3581 | 3407 | 3251 | 3113 | 2991 | 2879 |
| 25 | PARTRIDGE ACSR | 18/11 | 18/12 | 88.7 | 1.80 | 1.04 | 1.11 | 1.18 | 1.24 | 1.31 | 1.38 | 1.45 | 1.51 | 1.57 | 1.63 | 4528 | 4242 | 3995 | 3775 | 3581 | 3407 | 3251 | 3113 | 2991 | 2879 |
| 25 | PARTRIDGE ACSR | 18/12 | 18/13 | 82.3 | -1.75 | 1.03 | 1.07 | 1.14 | 1.20 | 1.27 | 1.33 | 1.40 | 1.46 | 1.52 | 1.58 | 4528 | 4242 | 3995 | 3775 | 3581 | 3407 | 3251 | 3113 | 2991 | 2879 |
| 25 | PARTRIDGE ACSR | 18/13 | 19/1 | 82.3 | 1.51 | 1.00 | 1.07 | 1.14 | 1.20 | 1.27 | 1.33 | 1.40 | 1.46 | 1.52 | 1.58 | 4528 | 4242 | 3995 | 3775 | 3581 | 3407 | 3251 | 3113 | 2991 | 2879 |
| 25 | PARTRIDGE ACSR | 19/1 | 19/2 | 84.9 | 0.90 | 1.07 | 1.14 | 1.21 | 1.28 | 1.35 | 1.42 | 1.49 | 1.55 | 1.62 | 1.68 | 4528 | 4242 | 3995 | 3775 | 3581 | 3407 | 3251 | 3113 | 2991 | 2879 |
| 25 | PARTRIDGE ACSR | 19/2 | 19/3 | 84.0 | -0.15 | 1.04 | 1.11 | 1.18 | 1.25 | 1.32 | 1.39 | 1.45 | 1.52 | 1.58 | 1.64 | 4528 | 4242 | 3995 | 3775 | 3581 | 3407 | 3251 | 3113 | 2991 | 2879 |
| 25 | PARTRIDGE ACSR | 19/3 | 19/4 | 83.6 | -0.52 | 1.04 | 1.11 | 1.17 | 1.24 | 1.31 | 1.38 | 1.44 | 1.51 | 1.57 | 1.63 | 4528 | 4242 | 3995 | 3775 | 3581 | 3407 | 3251 | 3113 | 2991 | 2879 |
| 25 | PARTRIDGE ACSR | 19/4 | 19/5 | 83.7 | 1.24 | 1.04 | 1.11 | 1.17 | 1.24 | 1.31 | 1.38 | 1.44 | 1.51 | 1.57 | 1.63 | 4528 | 4242 | 3995 | 3775 | 3581 | 3407 | 3251 | 3113 | 2991 | 2879 |
| 25 | PARTRIDGE ACSR | 19/5 | 19/6 | 84.0 | 0.75 | 1.04 | 1.11 | 1.18 | 1.25 | 1.32 | 1.39 | 1.45 | 1.52 | 1.58 | 1.64 | 4528 | 4242 | 3995 | 3775 | 3581 | 3407 | 3251 | 3113 | 2991 | 2879 |
| 25 | PARTRIDGE ACSR | 19/6 | 19/7 | 84.2 | -1.55 | 1.05 | 1.12 | 1.19 | 1.26 | 1.33 | 1.40 | 1.46 | 1.53 | 1.59 | 1.65 | 4528 | 4242 | 3995 | 3775 | 3581 | 3407 | 3251 | 3113 | 2991 | 2879 |
| 25 | PARTRIDGE ACSR | 19/7 | 19/8 | 86.0 | -1.36 | 1.09 | 1.17 | 1.24 | 1.31 | 1.38 | 1.46 | 1.53 | 1.59 | 1.66 | 1.72 | 4528 | 4242 | 3995 | 3775 | 3581 | 3407 | 3251 | 3113 | 2991 | 2879 |
| 25 | PARTRIDGE ACSR | 19/8 | 19/9 | 83.9 | -0.33 | 1.04 | 1.11 | 1.18 | 1.25 | 1.32 | 1.39 | 1.45 | 1.52 | 1.58 | 1.64 | 4528 | 4242 | 3995 | 3775 | 3581 | 3407 | 3251 | 3113 | 2991 | 2879 |
| 25 | PARTRIDGE ACSR | 19/9 | 19/10 | 84.1 | -1.17 | 1.05 | 1.12 | 1.19 | 1.26 | 1.32 | 1.39 | 1.46 | 1.52 | 1.59 | 1.65 | 4528 | 4242 | 3995 | 3775 | 3581 | 3407 | 3251 | 3113 | 2991 | 2879 |
| 25 | PARTRIDGE ACSR | 19/10 | 19/11 | 84.3 | -0.95 | 1.05 | 1.12 | 1.19 | 1.26 | 1.33 | 1.39 | 1.46 | 1.52 | 1.59 | 1.65 | 4528 | 4242 | 3995 | 3775 | 3581 | 3407 | 3251 | 3113 | 2991 | 2879 |
| 25 | PARTRIDGE ACSR | 19/11 | 19/12 | 84.3 | 0.55 | 1.05 | 1.12 | 1.19 | 1.26 | 1.33 | 1.40 | 1.47 | 1.53 | 1.59 | 1.65 | 4528 | 4242 | 3995 | 3775 | 3581 | 3407 | 3251 | 3113 | 2991 | 2879 |
| 25 | PARTRIDGE ACSR | 19/12 | 20/1 | 84.2 | -0.39 | 1.05 | 1.12 | 1.19 |

# AS-BUILT

CHANGES REQUIRED YES ☐ NO ☐

Name (Print) _____

Signature _____

Date _____

PERMIT TO PRACTICE
ELEARENERGY CONSULTING INC.
23-OCT-2018
PERMIT NUMBER P1065

| SAG AND TENSION | |
|---|---|
| CIRCUIT | VICTORIA GOLD 69kV |
| DOCUMENT | 1407-T-(45)1 |
| DATE | 23-Oct-18 |
| REVISION | 0 |
| ISSUED FOR | CONSTRUCTION |
| PREPARED BY | MP |
| CHECKED BY | PC |
| APPROVED BY | PC |

ENGINEER'S SEAL

PROFESSIONAL ENGINEER
YUKON
TERRITORY
23-Oct-2018

NOTES:
1. All spans must be installed to the sag values provided. Tension values are provided as a reference only.
2. Sag and tension values shown are for new conductor under initial conditions.
3. For conductors left hanging in sheaves for longer than 3 hours between initial stringing and final sag, a creep correction factor must be applied.
4. All span lengths and sag values are provided in metres unless otherwise noted.
5. Conductors and cables:
   Overhead Shieldwire (OHSW): Partridge ACSR
   69kV Transmission Line: Partridge ACSR
   - ADSS: OFC-24G-6520-FASA-51

Clean Energy

| SEC | CABLE | FROM STR | TO STR | SPAN AHEAD (m) | SPAN VERT PROJ. (m) | MID SPAN SAG (m) | | | | | | | | | | HORIZONTAL TENSION (N) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | -20 | -15 | -10 | -5 | 0 | 5 | 10 | 15 | 20 | 25 | -20 | -15 | -10 | -5 | 0 | 5 | 10 | 15 | 20 | 25 |
| 25 | PARTRIDGE ACSR | 20/7 | 20/8 | 88.5 | 1.10 | 1.10 | 1.24 | 1.32 | 1.39 | 1.47 | 1.54 | 1.62 | 1.69 | 1.76 | 1.83 | 4528 | 4242 | 3995 | 3775 | 3581 | 3407 | 3251 | 3113 | 2991 | 2879 |
| 25 | PARTRIDGE ACSR | 20/8 | 20/9 | 68.7 | -2.99 | 0.61 | 0.65 | 0.69 | 0.73 | 0.77 | 0.81 | 0.85 | 0.89 | 0.93 | 0.96 | 4528 | 4242 | 3995 | 3775 | 3581 | 3407 | 3251 | 3113 | 2991 | 2879 |
| 25 | PARTRIDGE ACSR | 20/9 | 20/10 | 78.8 | 0.97 | 0.91 | 0.97 | 1.03 | 1.09 | 1.15 | 1.21 | 1.27 | 1.32 | 1.38 | 1.43 | 4528 | 4242 | 3995 | 3775 | 3581 | 3407 | 3251 | 3113 | 2991 | 2879 |
| 25 | PARTRIDGE ACSR | 20/10 | 20/11 | 66.4 | 1.05 | 0.65 | 0.70 | 0.74 | 0.78 | 0.83 | 0.87 | 0.91 | 0.95 | 0.99 | 1.03 | 4528 | 4242 | 3995 | 3775 | 3581 | 3407 | 3251 | 3113 | 2991 | 2879 |
| 25 | PARTRIDGE ACSR | 20/11 | 20/12 | 68.9 | 0.89 | 0.35 | 0.38 | 0.40 | 0.43 | 0.45 | 0.47 | 0.49 | 0.52 | 0.54 | 0.56 | 4528 | 4242 | 3995 | 3775 | 3581 | 3407 | 3251 | 3113 | 2991 | 2879 |
| 25 | PARTRIDGE ACSR | 20/12 | 21/1 | 136.6 | 1.77 | 2.76 | 2.95 | 3.13 | 3.32 | 3.50 | 3.67 | 3.85 | 4.02 | 4.19 | 4.35 | 4528 | 4242 | 3995 | 3775 | 3581 | 3407 | 3251 | 3113 | 2991 | 2879 |
| 25 | PARTRIDGE ACSR | 21/1 | 21/2 | 46.2 | 2.85 | 0.34 | 0.37 | 0.39 | 0.41 | 0.44 | 0.46 | 0.48 | 0.50 | 0.52 | 0.54 | 4528 | 4242 | 3995 | 3775 | 3581 | 3407 | 3251 | 3113 | 2991 | 2879 |
| 26 | OFC-24G-652D-FASA-51 | 16/11 | 16/13 | 132.0 | 29.02 | 6.61 | 6.61 | 6.61 | 6.62 | 6.62 | 6.62 | 6.63 | 6.63 | 6.64 | 6.64 | 445 | 445 | 445 | 444 | 444 | 444 | 443 | 443 | 443 | 443 |
| 26 | OFC-24G-652D-FASA-51 | 16/13 | 16/14 | 85.4 | -2.66 | 2.70 | 2.70 | 2.70 | 2.70 | 2.71 | 2.71 | 2.71 | 2.71 | 2.71 | 2.71 | 445 | 445 | 445 | 444 | 444 | 444 | 443 | 443 | 443 | 443 |
| 26 | OFC-24G-652D-FASA-51 | 16/14 | 17/1 | 86.6 | -0.79 | 2.77 | 2.77 | 2.77 | 2.78 | 2.78 | 2.78 | 2.78 | 2.78 | 2.79 | 2.79 | 445 | 445 | 445 | 444 | 444 | 444 | 443 | 443 | 443 | 443 |
| 26 | OFC-24G-652D-FASA-51 | 17/1 | 17/2 | 90.2 | 0.51 | 3.01 | 3.01 | 3.01 | 3.01 | 3.01 | 3.01 | 3.02 | 3.02 | 3.02 | 3.02 | 445 | 445 | 445 | 444 | 444 | 444 | 443 | 443 | 443 | 443 |
| 26 | OFC-24G-652D-FASA-51 | 17/2 | 17/3 | 88.6 | 2.67 | 2.90 | 2.90 | 2.91 | 2.91 | 2.91 | 2.91 | 2.91 | 2.91 | 2.92 | 2.92 | 445 | 445 | 445 | 444 | 444 | 444 | 443 | 443 | 443 | 443 |
| 26 | OFC-24G-652D-FASA-51 | 17/3 | 17/4 | 86.3 | 14.70 | 2.81 | 2.83 | 2.81 | 2.81 | 2.81 | 2.81 | 2.81 | 2.82 | 2.82 | 2.82 | 445 | 445 | 445 | 444 | 444 | 444 | 443 | 443 | 443 | 443 |
| 26 | OFC-24G-652D-FASA-51 | 17/4 | 17/5 | 65.0 | 9.16 | 1.58 | 1.58 | 1.58 | 1.58 | 1.58 | 1.58 | 1.58 | 1.58 | 1.59 | 1.59 | 445 | 445 | 445 | 444 | 444 | 444 | 443 | 443 | 443 | 443 |
| 26 | OFC-24G-652D-FASA-51 | 17/5 | 17/6 | 59.9 | 2.22 | 1.33 | 1.33 | 1.33 | 1.33 | 1.33 | 1.33 | 1.33 | 1.33 | 1.33 | 1.33 | 445 | 445 | 445 | 444 | 444 | 444 | 443 | 443 | 443 | 443 |
| 26 | OFC-24G-652D-FASA-51 | 17/6 | 17/7 | 85.7 | 0.29 | 2.72 | 2.72 | 2.72 | 2.72 | 2.72 | 2.72 | 2.73 | 2.73 | 2.73 | 2.73 | 445 | 445 | 445 | 444 | 444 | 444 | 443 | 443 | 443 | 443 |
| 26 | OFC-24G-652D-FASA-51 | 17/7 | 17/8 | 85.5 | -2.48 | 2.70 | 2.70 | 2.71 | 2.71 | 2.71 | 2.71 | 2.71 | 2.71 | 2.72 | 2.72 | 445 | 445 | 445 | 444 | 444 | 444 | 443 | 443 | 443 | 443 |
| 26 | OFC-24G-652D-FASA-51 | 17/8 | 17/9 | 89.5 | 0.16 | 2.96 | 2.96 | 2.96 | 2.96 | 2.97 | 2.97 | 2.97 | 2.97 | 2.97 | 2.97 | 445 | 445 | 445 | 444 | 444 | 444 | 443 | 443 | 443 | 443 |
| 26 | OFC-24G-652D-FASA-51 | 17/9 | 17/10 | 86.8 | 0.87 | 2.79 | 2.79 | 2.79 | 2.79 | 2.79 | 2.79 | 2.80 | 2.80 | 2.80 | 2.80 | 445 | 445 | 445 | 444 | 444 | 444 | 443 | 443 | 443 | 443 |
| 26 | OFC-24G-652D-FASA-51 | 17/10 | 17/11 | 88.1 | 1.10 | 2.87 | 2.87 | 2.87 | 2.88 | 2.88 | 2.88 | 2.88 | 2.88 | 2.88 | 2.88 | 445 | 445 | 445 | 444 | 444 | 444 | 443 | 443 | 443 | 443 |
| 26 | OFC-24G-652D-FASA-51 | 17/11 | 17/12 | 81.1 | -2.40 | 2.44 | 2.43 | 2.43 | 2.43 | 2.44 | 2.44 | 2.44 | 2.44 | 2.44 | 2.44 | 445 | 445 | 445 | 444 | 444 | 444 | 443 | 443 | 443 | 443 |
| 26 | OFC-24G-652D-FASA-51 | 17/12 | 18/1 | 88.5 | 0.30 | 2.90 | 2.90 | 2.90 | 2.90 | 2.91 | 2.91 | 2.91 | 2.91 | 2.91 | 2.91 | 445 | 445 | 445 | 444 | 444 | 444 | 443 | 443 | 443 | 443 |
| 26 | OFC-24G-652D-FASA-51 | 18/1 | 18/2 | 78.1 | 4.01 | 2.26 | 2.26 | 2.26 | 2.26 | 2.26 | 2.26 | 2.27 | 2.27 | 2.27 | 2.27 | 445 | 445 | 445 | 444 | 444 | 444 | 443 | 443 | 443 | 443 |
| 26 | OFC-24G-652D-FASA-51 | 18/2 | 18/3 | 97.6 | -4.85 | 3.53 | 3.53 | 3.53 | 3.53 | 3.53 | 3.54 | 3.54 | 3.54 | 3.54 | 3.54 | 445 | 445 | 445 | 444 | 444 | 444 | 443 | 443 | 443 | 443 |
| 26 | OFC-24G-652D-FASA-51 | 18/3 | 18/4 | 52.4 | 0.00 | 2.51 | 2.51 | 2.51 | 2.52 | 2.52 | 2.52 | 2.52 | 2.52 | 2.52 | 2.52 | 445 | 445 | 445 | 444 | 444 | 444 | 443 | 443 | 443 | 443 |
| 26 | OFC-24G-652D-FASA-51 | 18/4 | 18/5 | 93.0 | -0.52 | 3.26 | 3.26 | 3.26 | 3.27 | 3.27 | 3.27 | 3.27 | 3.27 | 3.28 | 3.28 | 445 | 445 | 445 | 444 | 444 | 444 | 443 | 443 | 443 | 443 |
| 26 | OFC-24G-652D-FASA-51 | 18/5 | 18/6 | 58.5 | 5.10 | 1.74 | 1.74 | 1.74 | 1.74 | 1.74 | 1.74 | 1.74 | 1.74 | 1.75 | 1.75 | 445 | 445 | 445 | 444 | 444 | 444 | 443 | 443 | 443 | 443 |
| 26 | OFC-24G-652D-FASA-51 | 18/6 | 18/7 | 67.3 | 4.09 | 1.66 | 1.68 | 1.68 | 1.68 | 1.68 | 1.68 | 1.68 | 1.68 | 1.68 | 1.68 | 445 | 445 | 445 | 444 | 444 | 444 | 443 | 443 | 443 | 443 |
| 26 | OFC-24G-652D-FASA-51 | 18/7 | 18/8 | 69.7 | 6.22 | 1.80 | 1.80 | 1.80 | 1.80 | 1.80 | 1.81 | 1.81 | 1.81 | 1.81 | 1.81 | 445 | 445 | 445 | 444 | 444 | 444 | 443 | 443 | 443 | 443 |
| 26 | OFC-24G-652D-FASA-51 | 18/8 | 18/9 | 60.8 | -3.51 | 1.37 | 1.37 | 1.37 | 1.37 | 1.37 | 1.37 | 1.38 | 1.38 | 1.38 | 1.38 | 445 | 445 | 445 | 444 | 444 | 444 | 443 | 443 | 443 | 443 |
| 26 | OFC-24G-652D-FASA-51 | 18/9 | 18/10 | 58.6 | -1.31 | 1.27 | 1.27 | 1.27 | 1.27 | 1.27 | 1.27 | 1.27 | 1.27 | 1.28 | 1.28 | 445 | 445 | 445 | 444 | 444 | 444 | 443 | 443 | 443 | 443 |
| 26 | OFC-24G-652D-FASA-51 | 18/10 | 18/11 | 94.4 | -0.61 | 3.30 | 3.30 | 3.30 | 3.30 | 3.30 | 3.31 | 3.31 | 3.31 | 3.31 | 3.31 | 445 | 445 | 445 | 444 | 444 | 444 | 443 | 443 | 443 | 443 |
| 26 | OFC-24G-652D-FASA-51 | 18/11 | 18/12 | 83.7 | 1.51 | 2.59 | 2.59 | 2.59 | 2.59 | 2.60 | 2.60 | 2.60 | 2.60 | 2.60 | 2.60 | 445 | 445 | 445 | 444 | 444 | 444 | 443 | 443 | 443 | 443 |
| 26 | OFC-24G-652D-FASA-51 | 18/12 | 18/13 | 92.3 | -0.96 | 2.50 | 2.51 | 2.51 | 2.51 | 2.51 | 2.51 | 2.51 | 2.51 | 2.52 | 2.52 | 445 | 445 | 445 | 444 | 444 | 444 | 443 | 443 | 443 | 443 |
| 26 | OFC-24G-652D-FASA-51 | 18/13 | 19/1 | 82.3 | 1.22 | 2.50 | 2.50 | 2.50 | 2.51 | 2.51 | 2.51 | 2.51 | 2.51 | 2.51 | 2.51 | 445 | 445 | 445 | 444 | 444 | 444 | 443 | 443 | 443 | 443 |
| 26 | OFC-24G-652D-FASA-51 | 19/1 | 19/2 | 84.9 | 0.90 | 2.67 | 2.67 | 2.67 | 2.67 | 2.67 | 2.67 | 2.68 | 2.68 | 2.68 | 2.68 | 445 | 445 | 445 | 444 | 444 | 444 | 443 | 443 | 443 | 443 |
| 26 | OFC-24G-652D-FASA-51 | 19/2 | 19/3 | 84.0 | -0.15 | 2.61 | 2.61 | 2.61 | 2.61 | 2.61 | 2.62 | 2.62 | 2.62 | 2.62 | 2.62 | 445 | 445 | 445 | 444 | 444 | 444 | 443 | 443 | 443 | 443 |
| 26 | OFC-24G-652D-FASA-51 | 19/3 | 19/4 | 83.6 | -0.52 | 2.59 | 2.59 | 2.59 | 2.59 | 2.59 | 2.59 | 2.60 | 2.60 | 2.60 | 2.60 | 445 | 445 | 445 | 444 | 444 | 444 | 443 | 443 | 443 | 443 |
| 26 | OFC-24G-652D-FASA-51 | 19/4 | 19/5 | 83.7 | 1.24 | 2.59 | 2.59 | 2.59 | 2.59 | 2.60 | 2.60 | 2.60 | 2.60 | 2.60 | 2.60 | 445 | 445 | 445 | 444 | 444 | 444 | 443 | 443 | 443 | 443 |
| 26 | OFC-24G-652D-FASA-51 | 19/5 | 19/6 | 84.0 | 0.75 | 2.61 | 2.61 | 2.61 | 2.61 | 2.61 | 2.62 | 2.62 | 2.62 | 2.62 | 2.62 | 445 | 445 | 445 | 444 | 444 | 444 | 443 | 443 | 443 | 443 |
| 26 | OFC-24G-652D-FASA-51 | 19/6 | 19/7 | 84.2 | -3.53 | 2.63 | 2.63 | 2.63 | 2.63 | 2.63 | 2.63 | 2.63 | 2.63 | 2.64 | 2.64 | 445 | 445 | 445 | 444 | 444 | 444 | 443 | 443 | 443 | 443 |
| 26 | OFC-24G-652D-FASA-51 | 19/7 | 19/8 | 86.0 | -1.07 | 2.73 | 2.74 | 2.74 | 2.74 | 2.74 | 2.74 | 2.74 | 2.74 | 2.75 | 2.75 | 445 | 445 | 445 | 444 | 444 | 444 | 443 | 443 | 443 | 443 |
| 26 | OFC-24G-652D-FASA-51 | 19/8 | 19/9 | 83.9 | -0.62 | 2.60 | 2.60 | 2.60 | 2.61 | 2.61 | 2.61 | 2.61 | 2.61 | 2.62 | 2.62 | 445 | 445 | 445 | 444 | 444 | 444 | 443 | 443 | 443 | 443 |
| 26 | OFC-24G-652D-FASA-51 | 19/9 | 19/10 | 84.1 | 1.37 | 2.62 | 2.62 | 2.62 | 2.62 | 2.62 | 2.62 | 2.63 | 2.63 | 2.63 | 2.63 | 445 | 445 | 445 | 444 | 444 | 444 | 443 | 443 | 443 | 443 |
| 26 | OFC-24G-652D-FASA-51 | 19/10 | 19/11 | 84.1 | -0.35 | 2.62 | 2.62 | 2.62 | 2.62 | 2.62 | 2.63 | 2.63 | 2.63 | 2.63 | 2.63 | 445 | 445 | 445 | 444 | 444 | 444 | 443 | 443 | 443 | 443 |
| 26 | OFC-24G-652D-FASA-51 | 19/11 | 19/12 | 84.3 | 0.95 | 2.63 | 2.63 | 2.63 | 2.63 | 2.63 | 2.63 | 2.64 | 2.64 | 2.64 | 2.64 | 445 | 445 | 445 | 444 | 444 | 444 | 443 | 443 | 443 | 443 |
| 26 | OFC-24G-652D-FASA-51 | 19/12 | 20/1 | 84.2 | -0.39 | 2.62 | 2.62 | 2.62 | 2.62 | 2.63 | 2.63 | 2.63 | 2.63 | 2.63 | 2.63 | 445 | 445 | 445 | 444 | 444 | 444 | 443 | 443 | 443 | 443 |
| 26 | OFC-24G-652D-FASA-51 | 20/1 | 20/2 | 84.7 | 0.67 | 2.65 | 2.65 | 2.65 | 2.66 | 2.66 | 2.66 | 2.66 | 2.66 | 2.67 | 2.67 | 445 | 445 | 445 | 444 | 444 | 444 | 443 | 443 | 443 | 443 |
| 26 | OFC-24G-652D-FASA-51 | 20/2 | 20/3 | 88.6 | 0.57 | 2.91 | 2.91 | 2.91 | 2.91 | 2.91 | 2.91 | 2.92 | 2.92 | 2.92 | 2.92 | 445 | 445 | 445 | 444 | 444 | 444 | 443 | 443 | 443 | 443 |
| 26 | OFC-24G-652D-FASA-51 | 20/3 | 20/4 | 88.8 | 0.05 | 2.92 | 2.92 | 2.92 | 2.92 | 2.92 | 2.92 | 2.93 | 2.93 | 2.93 | 2.93 | 445 | 445 | 445 | 444 | 444 | 444 | 443 | 443 | 443 | 443 |
| 26 | OFC-24G-652D-FASA-51 | 20/4 | 20/5 | 87.8 | -0.78 | 2.85 | 2.85 | 2.86 | 2.86 | 2.86 | 2.86 | 2.86 | 2.86 | 2.87 | 2.87 | 445 | 445 | 445 | 444 | 444 | 444 | 443 | 443 | 443 | 443 |
| 26 | OFC-24G-652D-FASA-51 | 20/5 | 20/6 | 90.3 | -0.54 | 3.01 | 3.01 | 3.01 | 3.02 | 3.02 | 3.02 | 3.03 | 3.03 | 3.03 | 3.03 | 445 | 445 | 445 | 444 | 444 | 444 | 443 | 443 | 443 | 443 |
| 26 | OFC-24G-652D-FASA-51 | 20/6 | 20/7 | 79.4 | 0.82 | 2.33 | 2.33 | 2.33 | 2.34 | 2.34 | 2.34 | 2.34 | 2.34 | 2.34 | 2.34 | 445 | 445 | 445 | 444 | 444 | 444 | 443 | 443 | 443 | 443 |
| 26 | OFC-24G-652D-FASA-51 | 20/7 | 20/8 | 88.5 | -0.95 | 2.90 | 2.90 | 2.90 | 2.90 | 2.91 | 2.91 | 2.91 | 2.91 | 2.91 | 2.91 | 445 | 445 | 445 | 444 | 444 | 444 | 443 | 443 | 443 | 443 |
| 26 | OFC-24G-652D-FASA-51 | 20/8 | 20/9 | 64.3 | 1.13 | 1.53 | 1.53 | 1.53 | 1.53 | 1.53 | 1.53 | 1.53 | 1.53 | 1.54 | 1.54 | 445 | 445 | 445 | 444 | 444 | 444 | 443 | 443 | 443 | 443 |
| 26 | OFC-24G-652D-FASA-51 | 20/9 | 20/10 | 78.4 | 0.07 | 2.27 | 2.27 | 2.27 | 2.27 | 2.28 | 2.28 | 2.28 | 2.28 | 2.28 | 2.28 | 445 | 445 | 445 | 444 | 444 | 444 | 443 | 443 | 443 | 443 |
| 26 | OFC-24G-652D-FASA-51 | 20/10 | 20/11 | 88.4 | 1.34 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.64 | 1.64 | 445 | 445 | 445 | 444 | 444 | 444 | 443 | 443 | 443 | 443 |
| 26 | OFC-24G-652D-FASA-51 | 20/11 | 20/12 | 49.1 | 0.09 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.90 | 0.90 | 445 | 445 | 445 | 444 | 444 | 444 | 443 | 443 | 443 | 443 |
| 26 | OFC-24G-652D-FASA-51 | 20/12 | 21/1 | 136.6 | 1.77 | 6.92 | 6.92 | 6.93 | 6.93 | 6.94 | 6.94 | 6.94 | 6.95 | 6.95 | 6.95 | 445 | 445 | 445 | 444 | 444 | 444 | 443 | 443 | 443 | 443 |
| 26 | OFC-24G-652D-FASA-51 | 21/1 | 21/2 | 46.0 | 5.89 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 445 | 445 | 445 | 444 | 444 | 444 | 443 | 443 | 443 | 443 |
| 27 | PARTRIDGE ACSR | 21/2 | 21/2A | 84.2 | 5.37 | 0.95 | 0.98 | 1.04 | 1.10 | 1.16 | 1.21 | 1.27 | 1.32 | 1.38 | 1.43 | 5145 | 4840 | 4570 | 4331 | 4116 | 3922 | 3753 | 3597 | 3455 | 3327 |
| 27 | PARTRIDGE ACSR | 21/2A | 21/3 | 87.8 | -0.99 | 1.00 | 1.07 | 1.13 | 1.19 | 1.25 | 1.32 | 1.38 | 1.44 | 1.50 | 1.55 | 5145 | 4840 | 4570 | 4331 | 4116 | 3922 | 3753 | 3597 | 3455 | 3327 |
| 27 | PARTRIDGE ACSR | 21/3 | 21/4 | 76.2 | 2.38 | 0.78 | 0.83 | 0.85 | 0.90 | 0.95 | 0.99 | 1.04 | 1.08 | 1.13 | 1.17 | 5145 | 4840 | 4570 | 4331 | 4116 | 3922 | 3753 | 3597 | 3455 | 3327 |
| 27 | PARTRIDGE ACSR | 21/4 | 21/5 | 86.5 | -0.75 | 0.97 | 1.04 | 1.10 | 1.16 | 1.22 | 1.28 | 1.34 | 1.39 | 1.45 | 1.51 | 5145 | 4840 | 4570 | 4331 | 4116 | 3922 | 3753 | 3597 | 3455 | 3327 |
| 27 | PARTRIDGE ACSR | 21/5 | 21/6 | 88.5 | -1.22 | 1.02 | 1.09 | 1.15 | 1.21 | 1.28 | 1.34 | 1.40 | 1.46 | 1.52 | 1.58 | 5145 | 4840 | 4570 | 4331 | 4116 | 3922 | 3753 | 3597 | 3455 | 3327 |
| 27 | PARTRIDGE ACSR | 21/6 | 21/7 | 82.9 | 3.77 | 0.90 | 0.95 | 1.01 | 1.06 | 1.12 | 1.18 | 1.23 | 1.28 | 1.33 | 1.38 | 5145 | 4840 | 4570 | 4331 | 4116 | 3922 | 3753 | 3597 | 3455 | 3327 |
| 27 | PARTRIDGE ACSR | 21/7 | 21/8 | 68.6 | 0.88 | 0.61 | 0.65 | 0.68 | 0.73 | 0.77 | 0.80 | 0.84 | 0.88 | 0.91 | 0.95 | 5145 | 4840 | 4570 | 4331 | 4116 | 3922 | 3753 | 3597 | 3455 | 3327 |
| 27 | PARTRIDGE ACSR | 21/8 | 21/9 | 66.6 | -2.75 | 0.59 | 0.62 | 0.65 | 0.69 | 0.72 | 0.76 | 0.79 | 0.83 | 0.86 | 0.90 | 5145 | 4840 | 4570 | 4331 | 4116 | 3922 | 3753 | 3597 | 3455 | 3327 |
| 27 | PARTRIDGE ACSR | 21/9 | 21/10 | 90.4 | 0.89 | 1.06 | 1.13 | 1.20 | 1.26 | 1.33 | 1.40 | 1.46 | 1.52 | 1.58 | 1.65 | 5145 | 4840 | 4570 | 4331 | 4116 | 3922 | 3753 | 3597 | 3455 | 3327 |
| 27 | PARTRIDGE ACSR | 21/10 | 21/11 | 89.8 | -2.96 | 1.05 | 1.12 | 1.18 | 1.25 | 1.31 | 1.38 | 1.44 | 1.50 | 1.56 | 1.62 | 5145 | 4840 | 4570 | 4331 | 4116 | 3922 | 3753 | 3597 | 3455 | 3327 |
| 27 | PARTRIDGE ACSR | 21/11 | 21/12 | 84.5 | -0.08 | 0.91 | 0.96 | 1.02 | 1.08 | 1.13 | 1.19 | 1.24 | 1.30 | 1.35 | 1.40 | 5145 | 4840 | 4570 | 4331 | 4116 | 3922 | 3753 | 3597 | 3455 | 3327 |
| 27 | PARTRIDGE ACSR | 21/12 | 21/13 | 87.8 | 1.89 | 0.89 | 0.95 | 1.00 | 1.06 | 1.12 | 1.17 | 1.22 | 1.28 | 1.33 | 1.38 | 5145 | 4840 | 4570 | 4331 | 4116 | 3922 | 3753 | 3597 | 3455 | 3327 |
| 27 | PARTRIDGE ACSR | 21/13 | 22/1 | 91.7 | 3.47 | 1.10 | 1.16 | 1.23 | 1.30 | 1.37 | 1.44 | 1.50 | 1.57 | 1.63 | 1.70 | 5145 | 4840 | 4570 | 4331 | 4116 | 3922 | 3753 | 3597 | 3455 | 3327 |
| 27 | PARTRIDGE ACSR | 22/1 | 22/2 | 147.9 | 2.60 | 2.85 | 3.03 | 3.21 | 3.39 | 3.56 | 3.74 | 3.91 | 4.08 | 4.25 | 4.41 | 5145 | 4840 | 4570 | 4331 | 4116 | 3922 | 3753 | 3597 | 3455 | 3327 |
| 27 | PARTRIDGE ACSR | 22/2 | 22/3 | 146.9 | 0.66 | 2.83 | 2.99 | 3.17 | 3.34 | 3.52 | 3.69 | 3.86 | 4.02 | 4.19 | 4.35 | 5145 | 4840 | 4570 | 4331 | 4116 | 3922 | 3753 | 3597 | 3455 | 3327 |
| 27 | PARTRIDGE ACSR | 22/3 | 22/4 | 103.5 | -4.73 | 1.40 | 1.49 | 1.57 | 1.66 | 1.75 | 1.83 | 1.92 | 2.00 | 2.08 | 2.16 | 5145 | 4840 | 4570 | 4331 | 4116 | 3922 | 3753 | 3597 | 3455 | 3327 |
| 27 | PARTRIDGE ACSR | 22/4 | 22/5 | 101.2 | -2.21 | 1.33 | 1.42 | 1.50 | 1.59 | 1.67 | 1.75 | 1.83 | 1.91 | 1.99 | 2.06 | 5145 | 4840 | 4570 | 4331 | 4116 | 3922 | 3753 | 3597 | 3455 | 3327 |
| 27 | PARTRIDGE ACSR | 22/5 | 22/6 | 93.4 | -1.17 | 1.14 | 1.21 | 1.28 | 1.35 | 1.42 | 1.49 | 1.56 | 1.62 | 1.69 | 1.76 | 5145 | 4840 | 4570 | 4331 | 4116 | 3922 | 3753 | 3597 | 3455 | 3327 |
| 27 | PARTRIDGE ACSR | 22/6 | 22/7 | 91.9 | -0.57 | 1.10 | 1.17 | 1.24 | 1.31 | 1.38 | 1.44 | 1.51 | 1.57 | 1.64 | 1.70 | 5145 | 4840 | 4570 | 4331 | 4116 | 3922 | 3753 | 3597 | 3455 | 3327 |
| 27 | PARTRIDGE ACSR | 22/7 | 22/8 | 89.6 | 1.36 | 1.05 | 1.13 | 1.18 | 1.24 | 1.31 | 1.37 | 1.43 | 1.50 | 1.56 | 1.62 | 5145 | 4840 | 4570 | 4331 | 4116 | 3922 | 3753 | 3597 | 3455 | 3327 |
| 28 | OFC-24G-652D-FASA-51 | 21/2 | 21/2A | 84.2 | -1.54 | 2.18 | 2.19 | 2.19 | 2.19 | 2.19 | 2.19 | 2.19 | 2.19 | 2.19 | 2.20 | 531 | 533 | 533 | 533 | 532 | 532 | 531 | 531 | 531 | 531 |
| 28 | OFC-24G-652D-FASA-51 | 21/2A | 21/3 | 87.6 | 1.09 | 2.38 | 2.38 | 2.38 | 2.38 | 2.38 | 2.39 | 2.39 | 2.39 | 2.39 | 2.39 | 531 | 533 | 533 | 533 | 532 | 532 | 531 | 531 | 531 | 531 |
| 28 | OFC-24G-652D-FASA-51 | 21/3 | 21/4 | 76.2 | -2.96 | 1.79 | 1.79 | 1.79 | 1.80 | 1.80 | 1.80 | 1.80 | 1.80 | 1.80 | 1.80 | 531 | 533 | 533 | 533 | 532 | 532 | 531 | 531 | 531 | 531 |
| 28 | OFC-24G-652D-FASA-51 | 21/4 | 21/5 | 86.5 | -0.75 | 2.31 | 2.31 | 2.31 | 2.31 | 2.31 | 2.31 | 2.32 | 2.32 | 2.32 | 2.32 | 531 | 533 | 533 | 533 | 532 | 532 | 531 | 531 | 531 | 531 |
| 28 | OFC-24G-652D-FASA-51 | 21/5 | 21/6 | 88.5 | -1.22 | 2.42 | 2.42 | 2.42 | 2.42 | 2.42 | 2.42 | 2.43 | 2.43 | 2.43 | 2.43 | 531 | 533 | 533 | 533 | 532 | 532 | 531 | 531 | 531 | 531 |
| 28 | OFC-24G-652D-FASA-51 | 21/6 | 21/7 | 82.9 | 3.48 | 2.12 | 2.12 | 2.12 | 2.12 | 2.12 | 2.13 | 2.13 | 2.13 | 2.13 | 2.13 | 531 | 533 | 533 | 533 | 532 | 532 | 531 | 531 | 531 | 531 |
| 28 | OFC-24G-652D-FASA-51 | 21/7 | 21/8 | 68.6 | -1.07 | 1.45 | 1.45 | 1.45 | 1.45 | 1.45 | 1.45 | 1.45 | 1.46 | 1.46 | 1.46 | 531 | 533 | 533 | 533 | 532 | 532 | 531 | 531 | 531 | 531 |
| 28 | OFC-24G-652D-FASA-51 | 21/8 | 21/9 | 66.7 | -0.58 | 1.37 | 1.37 | 1.37 | 1.37 | 1.37 | 1.37 | 1.37 | 1.38 | 1.38 | 1.38 | 531 | 533 | 533 | 533 | 532 | 532 | 531 | 531 | 531 | 531 |
| 28 | OFC-24G-652D-FASA-51 | 21/9 | 21/10 | 90.4 | 0.78 | 2.52 | 2.52 | 2.52 | 2.52 | 2.52 | 2.53 | 2.53 | 2.53 | 2.53 | 2.53 | 531 | 533 | 533 | 533 | 532 | 532 | 531 | 531 | 531 | 531 |
| 28 | OFC-24G-652D-FASA-51 | 21/10 | 21/11 | 89.8 | -2.96 | 2.49 | 2.49 | 2.49 | 2.49 | 2.49 | 2.49 | 2.49 | 2.50 | 2.50 | 2.50 | 531 | 533 | 533 | 533 | 532 | 532 | 531 | 531 | 531 | 531 |
| 28 | OFC-24G-652D-FASA-51 | 21/11 | 21/12 | 83.4 | -0.40 | 2.15 | 2.15 | 2.15 | 2.15 | 2.15 | 2.15 | 2.16 | 2.16 | 2.16 | 2.16 | 531 | 533 | 533 | 533 | 532 | 532 | 531 | 531 | 531 | 531 |
| 28 | OFC-24G-652D-FASA-51 | 21/12 | 21/13 | 82.7 | 1.30 | 2.11 | 2.11 | 2.11 | 2.11 | 2.12 | 2.12 | 2.12 | 2.12 | 2.12 | 2.12 | 531 | 533 | 533 | 533 | 532 | 532 | 531 | 531 | 531 | 531 |
| 28 | OFC-24G-652D-FASA-51 | 21/13 | 22/1 | 91.9 | 2.78 | 2.60 | 2.61 | 2.61 | 2.61 | 2.61 | 2.61 | 2.61 | 2.62 | 2.62 | 2.62 | 531 | 533 | 533 | 533 | 532 | 532 | 531 | 531 | 531 | 531 |
| 28 | OFC-24G-652D-FASA-51 | 22/1 | 22/2 | 147.9 | 2.60 | 6.76 | 6.76 | 6.76 | 6.77 | 6.77 | 6.78 | 6.78 | 6.79 | 6.79 | 6.79 | 531 | 533 | 533 | 533 | 532 | 532 | 531 | 531 | 531 | 531 |
| 28 | OFC-24G-652D-FASA-51 | 22/2 | 22/3 | 146.9 | 0.66 | 6.67 | 6.67 | 6.67 | 6.68 | 6.68 | 6.69 | 6.69 | 6.70 | 6.70 | 6.70 | 531 | 533 | 533 | 533 | 532 | 532 | 531 | 531 | 531 | 531 |
| 28 | OFC-24G-652D-FASA-51 | 22/3 | 22/4 | 103.5 | -4.73 | 3.31 | 3.31 | 3.31 | 3.32 | 3.32 | 3.32 | 3.32 | 3.33 | 3.33 | 3.33 | 531 | 533 | 533 | 533 | 532 | 532 | 531 | 531 | 531 | 531 |
| 28 | OFC-24G-652D-FASA-51 | 22/4 | 22/5 | 101.1 | -1.51 | 3.15 | 3.15 | 3.15 | 3.16 | 3.16 | 3.16 | 3.16 | 3.17 | 3.17 | 3.17 | 531 | 533 | 533 | 533 | 532 | 532 | 531 | 531 | 531 | 531 |
| 28 | OFC-24G-652D-FASA-51 | 22/5 | 22/6 | 93.4 | -1.17 | 2.69 | 2.69 | 2.69 | 2.69 | 2.69 | 2.70 | 2.70 | 2.70 | 2.70 | 2.70 | 531 | 533 | 533 | 533 | 532 | 532 | 531 | 531 | 531 | 531 |
| 28 | OFC-24G-652D-FASA-51 | 22/6 | 22/7 | 91.9 | -0.57 | 2.60 | 2.61 | 2.61 | 2.61 | 2.61 | 2.61 | 2.61 | 2.62 | 2.62 | 2.62 | 531 | 533 | 533 | 533 | 532 | 532 | 531 | 531 | 531 | 531 |
| 28 | OFC-24G-652D-FASA-51 | 22/7 | 22/8 | 89.6 | 1.32 | 2.48 | 2.48 | 2.48 | 2.48 | 2.48 | 2.48 | 2.48 | 2.49 | 2.49 | 2.49 | 531 | 533 | 533 | 533 | 532 | 532 | 531 | 531 | 531 | 531 |
| 29 | PARTRIDGE ACSR | 22/8 | 22/9 | 84.6 | -0.85 | 1.00 | 1.07 | 1.14 | 1.21 | 1.28 | 1.35 | 1.42 | 1.48 | 1.55 | 1.62 | 4788 | 4477 | 4200 | 3959 | 3746 | 3557 | 3390 | 3239 | 3103 | 2982 |
| 29 | PARTRIDGE ACSR | 22/9 | 23/1 | 84.8 | 0.77 | 1.01 | 1.08 | 1.15 | 1.22 | 1.29 | 1.35 | 1.42 | 1.49 | 1.55 | 1.62 | 4788 | 4477 | 4200 | 3959 | 3746 | 3557 | 3390 | 3239 | 3103 | 2982 |
| 29 | PARTRIDGE ACSR | 23/1 | 23/2 | 84.8 | 0.29 | 1.01 | 1.08 | 1.15

# AS-BUILT

CHANGES REQUIRED: YES ☐ NO ☐

Name (Print): _____

Signature: _____

Date: _____

PERMIT TO PRACTICE
CLEAN ENERGY TECHNOLOGY INC.
PERMIT NUMBER: P-11[illegible]
23-OCT-2018

| SAG AND TENSION | |
|---|---|
| CIRCUIT | VICTORIA GOLD 69kV |
| DOCUMENT | 1A07-T-1345I |
| DATE | 23-Oct-18 |
| REVISION | 0 |
| ISSUED FOR | CONSTRUCTION |
| PREPARED BY | MP |
| CHECKED BY | PC |
| APPROVED BY | PC |

ENGINEER'S SEAL

PROFESSIONAL ENGINEER
YUKON
APPLICABLE
TERRITORY
23-OCT-2018

NOTES
1. All spans must be installed to the sag values provided. Tension values are provided as a reference only.
2. Sag and tension values shown are for new conductor under initial conditions.
3. For conductors left hanging in sheaves for longer than 3 hours between initial stringing and final sag, a creep correction factor must be applied.
4. All span lengths and sag values are provided in metres unless otherwise noted.
5. Conductors and cables:
   - Overhead Shieldwire (OHSW): Partridge ACSR
   - 69kV Transmission Line: Partridge ACSR
   - ADSS: OFC-24G 652D-FASA-S1

Clean Energy

| SEC | CABLE | FROM STR | TO STR | SPAN AHEAD (m) | SPAN VERT. PROJ. (m) | MID SPAN SAG (m) -20 | -15 | -10 | -5 | 0 | 5 | 10 | 15 | 20 | 25 | HORIZONTAL TENSION (N) -20 | -15 | -10 | -5 | 0 | 5 | 10 | 15 | 20 | 25 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 29 | PARTRIDGE ACSR | 23/6 | 23/7 | 62.9 | 1.35 | 0.55 | 0.59 | 0.63 | 0.67 | 0.71 | 0.75 | 0.78 | 0.82 | 0.85 | 0.89 | 4788 | 4477 | 4200 | 3959 | 3746 | 3557 | 3390 | 3239 | 3103 | 2982 |
| 29 | PARTRIDGE ACSR | 23/7 | 23/8 | 75.6 | 0.34 | 0.80 | 0.86 | 0.91 | 0.97 | 1.02 | 1.08 | 1.13 | 1.18 | 1.23 | 1.28 | 4788 | 4477 | 4200 | 3959 | 3746 | 3557 | 3390 | 3239 | 3103 | 2982 |
| 29 | PARTRIDGE ACSR | 23/8 | 23/9 | 90.9 | 3.36 | 1.16 | 1.24 | 1.32 | 1.40 | 1.48 | 1.56 | 1.64 | 1.71 | 1.79 | 1.86 | 4788 | 4477 | 4200 | 3959 | 3746 | 3557 | 3390 | 3239 | 3103 | 2982 |
| 29 | PARTRIDGE ACSR | 23/9 | 23/10 | 93.7 | 0.58 | 1.23 | 1.32 | 1.40 | 1.49 | 1.57 | 1.66 | 1.74 | 1.82 | 1.90 | 1.98 | 4788 | 4477 | 4200 | 3959 | 3746 | 3557 | 3390 | 3239 | 3103 | 2982 |
| 29 | PARTRIDGE ACSR | 23/10 | 23/11 | 107.5 | 0.24 | 1.47 | 1.57 | 1.67 | 1.78 | 1.88 | 1.98 | 2.08 | 2.17 | 2.27 | 2.36 | 4788 | 4477 | 4200 | 3959 | 3746 | 3557 | 3390 | 3239 | 3103 | 2982 |
| 29 | PARTRIDGE ACSR | 23/11 | 23/12 | 94.9 | -0.26 | 1.26 | 1.35 | 1.44 | 1.53 | 1.61 | 1.70 | 1.78 | 1.87 | 1.95 | 2.03 | 4788 | 4477 | 4200 | 3959 | 3746 | 3557 | 3390 | 3239 | 3103 | 2982 |
| 29 | PARTRIDGE ACSR | 23/12 | 24/1 | 94.5 | 0.33 | 1.25 | 1.34 | 1.42 | 1.51 | 1.60 | 1.68 | 1.76 | 1.85 | 1.93 | 2.01 | 4788 | 4477 | 4200 | 3959 | 3746 | 3557 | 3390 | 3239 | 3103 | 2982 |
| 29 | PARTRIDGE ACSR | 24/1 | 24/2 | 92.8 | 0.21 | 1.20 | 1.29 | 1.37 | 1.46 | 1.54 | 1.62 | 1.70 | 1.78 | 1.86 | 1.93 | 4788 | 4477 | 4200 | 3959 | 3746 | 3557 | 3390 | 3239 | 3103 | 2982 |
| 29 | PARTRIDGE ACSR | 24/2 | 24/3 | 91.8 | 2.42 | 1.18 | 1.26 | 1.34 | 1.43 | 1.51 | 1.59 | 1.66 | 1.74 | 1.82 | 1.89 | 4788 | 4477 | 4200 | 3959 | 3746 | 3557 | 3390 | 3239 | 3103 | 2982 |
| 29 | PARTRIDGE ACSR | 24/3 | 24/4 | 91.0 | -0.19 | 1.16 | 1.24 | 1.32 | 1.40 | 1.48 | 1.56 | 1.64 | 1.71 | 1.79 | 1.86 | 4788 | 4477 | 4200 | 3959 | 3746 | 3557 | 3390 | 3239 | 3103 | 2982 |
| 29 | PARTRIDGE ACSR | 24/4 | 24/5 | 94.1 | -1.00 | 1.24 | 1.33 | 1.41 | 1.50 | 1.58 | 1.67 | 1.75 | 1.83 | 1.91 | 1.99 | 4788 | 4477 | 4200 | 3959 | 3746 | 3557 | 3390 | 3239 | 3103 | 2982 |
| 29 | PARTRIDGE ACSR | 24/5 | 24/6 | 92.2 | 0.68 | 1.19 | 1.27 | 1.36 | 1.44 | 1.52 | 1.60 | 1.68 | 1.76 | 1.84 | 1.91 | 4788 | 4477 | 4200 | 3959 | 3746 | 3557 | 3390 | 3239 | 3103 | 2982 |
| 29 | PARTRIDGE ACSR | 24/6 | 24/7 | 93.7 | 0.22 | 1.23 | 1.32 | 1.40 | 1.49 | 1.57 | 1.66 | 1.74 | 1.82 | 1.90 | 1.98 | 4788 | 4477 | 4200 | 3959 | 3746 | 3557 | 3390 | 3239 | 3103 | 2982 |
| 29 | PARTRIDGE ACSR | 24/7 | 24/8 | 83.5 | 0.30 | 0.98 | 1.04 | 1.11 | 1.18 | 1.25 | 1.31 | 1.38 | 1.44 | 1.51 | 1.57 | 4788 | 4477 | 4200 | 3959 | 3746 | 3557 | 3390 | 3239 | 3103 | 2982 |
| 29 | PARTRIDGE ACSR | 24/8 | 24/9 | 85.3 | 4.34 | 1.02 | 1.09 | 1.16 | 1.23 | 1.30 | 1.37 | 1.44 | 1.51 | 1.57 | 1.64 | 4788 | 4477 | 4200 | 3959 | 3746 | 3557 | 3390 | 3239 | 3103 | 2982 |
| 29 | PARTRIDGE ACSR | 24/9 | 24/10 | 80.6 | 6.49 | 0.93 | 0.97 | 1.04 | 1.10 | 1.17 | 1.23 | 1.29 | 1.35 | 1.41 | 1.46 | 4788 | 4477 | 4200 | 3959 | 3746 | 3557 | 3390 | 3239 | 3103 | 2982 |
| 29 | PARTRIDGE ACSR | 24/10 | 24/11 | 87.2 | 5.50 | 1.01 | 1.14 | 1.22 | 1.29 | 1.36 | 1.44 | 1.51 | 1.58 | 1.65 | 1.71 | 4788 | 4477 | 4200 | 3959 | 3746 | 3557 | 3390 | 3239 | 3103 | 2982 |
| 29 | PARTRIDGE ACSR | 24/11 | 25/1 | 88.9 | -2.02 | 1.08 | 1.16 | 1.24 | 1.31 | 1.39 | 1.46 | 1.53 | 1.60 | 1.67 | 1.74 | 4788 | 4477 | 4200 | 3959 | 3746 | 3557 | 3390 | 3239 | 3103 | 2982 |
| 29 | PARTRIDGE ACSR | 25/1 | 25/2 | 90.1 | 1.16 | 1.14 | 1.22 | 1.30 | 1.38 | 1.45 | 1.53 | 1.61 | 1.68 | 1.75 | 1.83 | 4788 | 4477 | 4200 | 3959 | 3746 | 3557 | 3390 | 3239 | 3103 | 2982 |
| 29 | PARTRIDGE ACSR | 25/2 | 25/3 | 86.6 | 4.68 | 1.05 | 1.12 | 1.20 | 1.27 | 1.34 | 1.41 | 1.48 | 1.55 | 1.62 | 1.69 | 4788 | 4477 | 4200 | 3959 | 3746 | 3557 | 3390 | 3239 | 3103 | 2982 |
| 29 | PARTRIDGE ACSR | 25/3 | 25/4 | 85.6 | 4.21 | 1.03 | 1.10 | 1.17 | 1.24 | 1.31 | 1.38 | 1.45 | 1.52 | 1.58 | 1.65 | 4788 | 4477 | 4200 | 3959 | 3746 | 3557 | 3390 | 3239 | 3103 | 2982 |
| 29 | PARTRIDGE ACSR | 25/4 | 25/5 | 83.1 | 3.13 | 0.97 | 1.04 | 1.11 | 1.17 | 1.24 | 1.31 | 1.37 | 1.44 | 1.50 | 1.56 | 4788 | 4477 | 4200 | 3959 | 3746 | 3557 | 3390 | 3239 | 3103 | 2982 |
| 29 | PARTRIDGE ACSR | 25/5 | 25/6 | 85.5 | 4.89 | 1.02 | 1.10 | 1.17 | 1.24 | 1.31 | 1.38 | 1.45 | 1.51 | 1.58 | 1.65 | 4788 | 4477 | 4200 | 3959 | 3746 | 3557 | 3390 | 3239 | 3103 | 2982 |
| 29 | PARTRIDGE ACSR | 25/6 | 25/7 | 98.1 | 5.93 | 1.09 | 1.16 | 1.24 | 1.32 | 1.39 | 1.46 | 1.54 | 1.61 | 1.68 | 1.75 | 4788 | 4477 | 4200 | 3959 | 3746 | 3557 | 3390 | 3239 | 3103 | 2982 |
| 29 | PARTRIDGE ACSR | 25/7 | 25/8 | 93.7 | 4.62 | 1.23 | 1.32 | 1.40 | 1.49 | 1.57 | 1.66 | 1.74 | 1.82 | 1.90 | 1.98 | 4788 | 4477 | 4200 | 3959 | 3746 | 3557 | 3390 | 3239 | 3103 | 2982 |
| 29 | PARTRIDGE ACSR | 25/8 | 25/9 | 83.5 | 6.80 | 0.98 | 1.05 | 1.12 | 1.19 | 1.25 | 1.32 | 1.38 | 1.45 | 1.51 | 1.57 | 4788 | 4477 | 4200 | 3959 | 3746 | 3557 | 3390 | 3239 | 3103 | 2982 |
| 29 | PARTRIDGE ACSR | 25/9 | 25/10 | 80.0 | 4.43 | 0.90 | 0.96 | 1.02 | 1.08 | 1.15 | 1.21 | 1.27 | 1.33 | 1.38 | 1.44 | 4788 | 4477 | 4200 | 3959 | 3746 | 3557 | 3390 | 3239 | 3103 | 2982 |
| 29 | PARTRIDGE ACSR | 25/10 | 25/11 | 82.4 | 3.45 | 0.95 | 1.02 | 1.08 | 1.15 | 1.22 | 1.28 | 1.34 | 1.41 | 1.47 | 1.53 | 4788 | 4477 | 4200 | 3959 | 3746 | 3557 | 3390 | 3239 | 3103 | 2982 |
| 29 | PARTRIDGE ACSR | 25/11 | 25/12 | 82.0 | 5.88 | 0.94 | 1.01 | 1.08 | 1.14 | 1.21 | 1.27 | 1.33 | 1.39 | 1.46 | 1.52 | 4788 | 4477 | 4200 | 3959 | 3746 | 3557 | 3390 | 3239 | 3103 | 2982 |
| 29 | PARTRIDGE ACSR | 25/12 | 26/1 | 82.2 | 5.88 | 0.95 | 1.01 | 1.08 | 1.15 | 1.21 | 1.28 | 1.34 | 1.40 | 1.46 | 1.52 | 4788 | 4477 | 4200 | 3959 | 3746 | 3557 | 3390 | 3239 | 3103 | 2982 |
| 30 | OFC-24G 652D-FASA-S1 | 22/8 | 22/9 | 84.6 | -0.52 | 1.30 | 1.30 | 1.30 | 1.31 | 1.31 | 1.31 | 1.31 | 1.32 | 1.32 | 1.32 | 907 | 905 | 904 | 901 | 900 | 898 | 897 | 894 | 893 | 891 |
| 30 | OFC-24G 652D-FASA-S1 | 22/9 | 23/1 | 94.8 | 3.77 | 1.30 | 1.31 | 1.31 | 1.31 | 1.31 | 1.32 | 1.32 | 1.32 | 1.32 | 1.33 | 907 | 905 | 904 | 901 | 900 | 898 | 897 | 894 | 893 | 891 |
| 30 | OFC-24G 652D-FASA-S1 | 23/1 | 23/2 | 84.8 | 0.29 | 1.30 | 1.31 | 1.31 | 1.31 | 1.31 | 1.32 | 1.32 | 1.32 | 1.32 | 1.33 | 907 | 905 | 904 | 901 | 900 | 898 | 897 | 894 | 893 | 891 |
| 30 | OFC-24G 652D-FASA-S1 | 23/2 | 23/3 | 84.8 | 0.47 | 1.30 | 1.31 | 1.31 | 1.31 | 1.31 | 1.32 | 1.32 | 1.32 | 1.32 | 1.33 | 907 | 905 | 904 | 901 | 900 | 898 | 897 | 894 | 893 | 891 |
| 30 | OFC-24G 652D-FASA-S1 | 23/3 | 23/4 | 84.6 | -0.25 | 1.30 | 1.30 | 1.30 | 1.31 | 1.31 | 1.31 | 1.31 | 1.32 | 1.32 | 1.32 | 907 | 905 | 904 | 901 | 900 | 898 | 897 | 894 | 893 | 891 |
| 30 | OFC-24G 652D-FASA-S1 | 23/4 | 23/5 | 84.5 | -0.40 | 1.29 | 1.29 | 1.29 | 1.30 | 1.30 | 1.30 | 1.30 | 1.31 | 1.31 | 1.31 | 907 | 905 | 904 | 901 | 900 | 898 | 897 | 894 | 893 | 891 |
| 30 | OFC-24G 652D-FASA-S1 | 23/5 | 23/6 | 84.6 | 1.29 | 1.30 | 1.30 | 1.30 | 1.30 | 1.31 | 1.31 | 1.31 | 1.31 | 1.32 | 1.32 | 907 | 905 | 904 | 901 | 900 | 898 | 897 | 894 | 893 | 891 |
| 30 | OFC-24G 652D-FASA-S1 | 23/6 | 23/7 | 62.9 | 1.06 | 0.72 | 0.72 | 0.72 | 0.72 | 0.72 | 0.72 | 0.72 | 0.72 | 0.73 | 0.73 | 907 | 905 | 904 | 901 | 900 | 898 | 897 | 894 | 893 | 891 |
| 30 | OFC-24G 652D-FASA-S1 | 23/7 | 23/8 | 75.6 | -0.05 | 1.04 | 1.04 | 1.04 | 1.04 | 1.04 | 1.04 | 1.05 | 1.05 | 1.05 | 1.05 | 907 | 905 | 904 | 901 | 900 | 898 | 897 | 894 | 893 | 891 |
| 30 | OFC-24G 652D-FASA-S1 | 23/8 | 23/9 | 86.9 | 0.01 | 1.50 | 1.50 | 1.50 | 1.51 | 1.51 | 1.51 | 1.51 | 1.52 | 1.52 | 1.52 | 907 | 905 | 904 | 901 | 900 | 898 | 897 | 894 | 893 | 891 |
| 30 | OFC-24G 652D-FASA-S1 | 23/9 | 23/10 | 88.8 | 3.74 | 1.58 | 1.60 | 1.60 | 1.60 | 1.61 | 1.61 | 1.61 | 1.62 | 1.62 | 1.62 | 907 | 905 | 904 | 901 | 900 | 898 | 897 | 894 | 893 | 891 |
| 30 | OFC-24G 652D-FASA-S1 | 23/10 | 23/11 | 102.4 | 0.43 | 1.90 | 1.90 | 1.91 | 1.91 | 1.92 | 1.92 | 1.92 | 1.93 | 1.93 | 1.94 | 907 | 905 | 904 | 901 | 900 | 898 | 897 | 894 | 893 | 891 |
| 30 | OFC-24G 652D-FASA-S1 | 23/11 | 23/12 | 94.9 | -0.26 | 1.63 | 1.63 | 1.64 | 1.64 | 1.64 | 1.65 | 1.65 | 1.65 | 1.66 | 1.66 | 907 | 905 | 904 | 901 | 900 | 898 | 897 | 894 | 893 | 891 |
| 30 | OFC-24G 652D-FASA-S1 | 23/12 | 24/1 | 94.4 | 0.35 | 1.62 | 1.62 | 1.63 | 1.63 | 1.63 | 1.63 | 1.64 | 1.64 | 1.64 | 1.65 | 907 | 905 | 904 | 901 | 900 | 898 | 897 | 894 | 893 | 891 |
| 30 | OFC-24G 652D-FASA-S1 | 24/1 | 24/2 | 92.7 | 0.21 | 1.56 | 1.56 | 1.56 | 1.57 | 1.57 | 1.57 | 1.58 | 1.58 | 1.58 | 1.59 | 907 | 905 | 904 | 901 | 900 | 898 | 897 | 894 | 893 | 891 |
| 30 | OFC-24G 652D-FASA-S1 | 24/2 | 24/3 | 91.7 | 2.13 | 1.53 | 1.53 | 1.53 | 1.54 | 1.54 | 1.54 | 1.54 | 1.55 | 1.55 | 1.55 | 907 | 905 | 904 | 901 | 900 | 898 | 897 | 894 | 893 | 891 |
| 30 | OFC-24G 652D-FASA-S1 | 24/3 | 24/4 | 91.0 | -0.19 | 1.50 | 1.50 | 1.51 | 1.51 | 1.51 | 1.52 | 1.52 | 1.52 | 1.53 | 1.53 | 907 | 905 | 904 | 901 | 900 | 898 | 897 | 894 | 893 | 891 |
| 30 | OFC-24G 652D-FASA-S1 | 24/4 | 24/5 | 94.1 | -1.00 | 1.61 | 1.61 | 1.61 | 1.62 | 1.62 | 1.62 | 1.62 | 1.63 | 1.63 | 1.63 | 907 | 905 | 904 | 901 | 900 | 898 | 897 | 894 | 893 | 891 |
| 30 | OFC-24G 652D-FASA-S1 | 24/5 | 24/6 | 92.3 | 0.68 | 1.54 | 1.54 | 1.55 | 1.55 | 1.55 | 1.56 | 1.56 | 1.56 | 1.57 | 1.57 | 907 | 905 | 904 | 901 | 900 | 898 | 897 | 894 | 893 | 891 |
| 30 | OFC-24G 652D-FASA-S1 | 24/6 | 24/7 | 93.7 | 0.22 | 1.59 | 1.60 | 1.60 | 1.60 | 1.61 | 1.61 | 1.61 | 1.62 | 1.62 | 1.62 | 907 | 905 | 904 | 901 | 900 | 898 | 897 | 894 | 893 | 891 |
| 30 | OFC-24G 652D-FASA-S1 | 24/7 | 24/8 | 83.5 | 0.30 | 1.26 | 1.27 | 1.27 | 1.27 | 1.27 | 1.28 | 1.28 | 1.28 | 1.28 | 1.29 | 907 | 905 | 904 | 901 | 900 | 898 | 897 | 894 | 893 | 891 |
| 30 | OFC-24G 652D-FASA-S1 | 24/8 | 24/9 | 85.3 | 4.63 | 1.32 | 1.32 | 1.32 | 1.33 | 1.33 | 1.33 | 1.34 | 1.34 | 1.34 | 1.34 | 907 | 905 | 904 | 901 | 900 | 898 | 897 | 894 | 893 | 891 |
| 30 | OFC-24G 652D-FASA-S1 | 24/9 | 24/10 | 80.5 | 6.20 | 1.18 | 1.18 | 1.18 | 1.19 | 1.19 | 1.19 | 1.19 | 1.20 | 1.20 | 1.20 | 907 | 905 | 904 | 901 | 900 | 898 | 897 | 894 | 893 | 891 |
| 30 | OFC-24G 652D-FASA-S1 | 24/10 | 24/11 | 87.2 | 5.50 | 1.38 | 1.38 | 1.39 | 1.39 | 1.39 | 1.39 | 1.40 | 1.40 | 1.40 | 1.41 | 907 | 905 | 904 | 901 | 900 | 898 | 897 | 894 | 893 | 891 |
| 30 | OFC-24G 652D-FASA-S1 | 24/11 | 25/1 | 88.9 | -2.02 | 1.40 | 1.41 | 1.41 | 1.41 | 1.42 | 1.42 | 1.42 | 1.42 | 1.43 | 1.43 | 907 | 905 | 904 | 901 | 900 | 898 | 897 | 894 | 893 | 891 |
| 30 | OFC-24G 652D-FASA-S1 | 25/1 | 25/2 | 90.1 | 1.16 | 1.47 | 1.48 | 1.48 | 1.48 | 1.48 | 1.49 | 1.49 | 1.49 | 1.50 | 1.50 | 907 | 905 | 904 | 901 | 900 | 898 | 897 | 894 | 893 | 891 |
| 30 | OFC-24G 652D-FASA-S1 | 25/2 | 25/3 | 86.6 | 4.68 | 1.36 | 1.36 | 1.37 | 1.37 | 1.37 | 1.37 | 1.38 | 1.38 | 1.38 | 1.38 | 907 | 905 | 904 | 901 | 900 | 898 | 897 | 894 | 893 | 891 |
| 30 | OFC-24G 652D-FASA-S1 | 25/3 | 25/4 | 85.6 | 4.21 | 1.33 | 1.33 | 1.33 | 1.34 | 1.34 | 1.34 | 1.34 | 1.35 | 1.35 | 1.35 | 907 | 905 | 904 | 901 | 900 | 898 | 897 | 894 | 893 | 891 |
| 30 | OFC-24G 652D-FASA-S1 | 25/4 | 25/5 | 83.1 | 3.42 | 1.26 | 1.26 | 1.26 | 1.26 | 1.27 | 1.27 | 1.27 | 1.27 | 1.28 | 1.28 | 907 | 905 | 904 | 901 | 900 | 898 | 897 | 894 | 893 | 891 |
| 30 | OFC-24G 652D-FASA-S1 | 25/5 | 25/6 | 85.5 | 4.20 | 1.33 | 1.33 | 1.33 | 1.33 | 1.34 | 1.34 | 1.34 | 1.34 | 1.35 | 1.35 | 907 | 905 | 904 | 901 | 900 | 898 | 897 | 894 | 893 | 891 |
| 30 | OFC-24G 652D-FASA-S1 | 25/6 | 25/7 | 98.0 | 6.22 | 1.41 | 1.41 | 1.41 | 1.42 | 1.42 | 1.42 | 1.43 | 1.43 | 1.43 | 1.43 | 907 | 905 | 904 | 901 | 900 | 898 | 897 | 894 | 893 | 891 |
| 30 | OFC-24G 652D-FASA-S1 | 25/7 | 25/8 | 93.6 | 4.67 | 1.59 | 1.59 | 1.60 | 1.60 | 1.60 | 1.61 | 1.61 | 1.61 | 1.62 | 1.62 | 907 | 905 | 904 | 901 | 900 | 898 | 897 | 894 | 893 | 891 |
| 30 | OFC-24G 652D-FASA-S1 | 25/8 | 25/9 | 84.5 | 6.51 | 1.27 | 1.27 | 1.27 | 1.28 | 1.28 | 1.28 | 1.28 | 1.29 | 1.29 | 1.29 | 907 | 905 | 904 | 901 | 900 | 898 | 897 | 894 | 893 | 891 |
| 30 | OFC-24G 652D-FASA-S1 | 25/9 | 25/10 | 80.0 | 4.43 | 1.16 | 1.16 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.18 | 1.18 | 1.18 | 907 | 905 | 904 | 901 | 900 | 898 | 897 | 894 | 893 | 891 |
| 30 | OFC-24G 652D-FASA-S1 | 25/10 | 25/11 | 82.4 | 3.76 | 1.23 | 1.23 | 1.24 | 1.24 | 1.24 | 1.24 | 1.25 | 1.25 | 1.25 | 1.25 | 907 | 905 | 904 | 901 | 900 | 898 | 897 | 894 | 893 | 891 |
| 30 | OFC-24G 652D-FASA-S1 | 25/11 | 25/12 | 82.0 | 4.29 | 1.22 | 1.22 | 1.22 | 1.23 | 1.23 | 1.23 | 1.23 | 1.24 | 1.24 | 1.24 | 907 | 905 | 904 | 901 | 900 | 898 | 897 | 894 | 893 | 891 |
| 30 | OFC-24G 652D-FASA-S1 | 25/12 | 26/1 | 82.2 | 5.45 | 1.23 | 1.23 | 1.23 | 1.24 | 1.24 | 1.24 | 1.24 | 1.25 | 1.25 | 1.25 | 907 | 905 | 904 | 901 | 900 | 898 | 897 | 894 | 893 | 891 |
| 31 | PARTRIDGE ACSR | 26/1 | 26/2 | 74.0 | 23.16 | 0.71 | 0.76 | 0.81 | 0.87 | 0.93 | 0.98 | 1.03 | 1.09 | 1.14 | 1.19 | 5313 | 4933 | 4602 | 4309 | 4051 | 3825 | 3624 | 3446 | 3287 | 3145 |
| 31 | PARTRIDGE ACSR | 26/2 | 26/3 | 86.2 | 4.86 | 0.94 | 1.01 | 1.08 | 1.16 | 1.23 | 1.30 | 1.38 | 1.45 | 1.52 | 1.59 | 5313 | 4933 | 4602 | 4309 | 4051 | 3825 | 3624 | 3446 | 3287 | 3145 |
| 31 | PARTRIDGE ACSR | 26/3 | 26/4 | 89.7 | 5.15 | 1.02 | 1.10 | 1.18 | 1.26 | 1.34 | 1.41 | 1.49 | 1.57 | 1.65 | 1.72 | 5313 | 4933 | 4602 | 4309 | 4051 | 3825 | 3624 | 3446 | 3287 | 3145 |
| 31 | PARTRIDGE ACSR | 26/4 | 26/5 | 91.4 | 7.66 | 1.06 | 1.14 | 1.22 | 1.30 | 1.39 | 1.47 | 1.55 | 1.63 | 1.71 | 1.79 | 5313 | 4933 | 4602 | 4309 | 4051 | 3825 | 3624 | 3446 | 3287 | 3145 |
| 31 | PARTRIDGE ACSR | 26/5 | 26/6 | 90.8 | 8.16 | 1.04 | 1.13 | 1.21 | 1.29 | 1.37 | 1.45 | 1.53 | 1.61 | 1.69 | 1.77 | 5313 | 4933 | 4602 | 4309 | 4051 | 3825 | 3624 | 3446 | 3287 | 3145 |
| 31 | PARTRIDGE ACSR | 26/6 | 26/7 | 90.2 | 7.50 | 1.03 | 1.11 | 1.19 | 1.27 | 1.35 | 1.43 | 1.51 | 1.59 | 1.66 | 1.74 | 5313 | 4933 | 4602 | 4309 | 4051 | 3825 | 3624 | 3446 | 3287 | 3145 |
| 31 | PARTRIDGE ACSR | 26/7 | 26/8 | 91.5 | 11.38 | 1.08 | 1.15 | 1.23 | 1.31 | 1.40 | 1.48 | 1.56 | 1.64 | 1.72 | 1.80 | 5313 | 4933 | 4602 | 4309 | 4051 | 3825 | 3624 | 3446 | 3287 | 3145 |
| 31 | PARTRIDGE ACSR | 26/8 | 26/9 | 91.3 | 9.12 | 1.06 | 1.14 | 1.22 | 1.30 | 1.39 | 1.47 | 1.55 | 1.63 | 1.71 | 1.79 | 5313 | 4933 | 4602 | 4309 | 4051 | 3825 | 3624 | 3446 | 3287 | 3145 |
| 31 | PARTRIDGE ACSR | 26/9 | 26/10 | 91.8 | 9.50 | 1.07 | 1.15 | 1.23 | 1.32 | 1.40 | 1.49 | 1.57 | 1.65 | 1.73 | 1.81 | 5313 | 4933 | 4602 | 4309 | 4051 | 3825 | 3624 | 3446 | 3287 | 3145 |
| 31 | PARTRIDGE ACSR | 26/10 | 26/11 | 89.0 | 14.32 | 1.01 | 1.09 | 1.17 | 1.25 | 1.33 | 1.41 | 1.48 | 1.56 | 1.64 | 1.71 | 5313 | 4933 | 4602 | 4309 | 4051 | 3825 | 3624 | 3446 | 3287 | 3145 |
| 31 | PARTRIDGE ACSR | 26/11 | 27/1 | 88.4 | 13.88 | 0.57 | 0.62 | 0.65 | 0.70 | 0.74 | 0.79 | 0.83 | 0.87 | 0.92 | 0.96 | 5313 | 4933 | 4602 | 4309 | 4051 | 3825 | 3624 | 3446 | 3287 | 3145 |
| 32 | OFC-24G 652D-FASA-S1 | 26/1 | 26/2 | 73.0 | 23.49 | 0.62 | 0.62 | 0.63 | 0.63 | 0.63 | 0.63 | 0.63 | 0.64 | 0.64 | 0.64 | 1480 | 1476 | 1471 | 1467 | 1463 | 1458 | 1452 | 1448 | 1446 | 1441 |
| 32 | OFC-24G 652D-FASA-S1 | 26/2 | 26/3 | 86.2 | 4.86 | 0.83 | 0.83 | 0.83 | 0.83 | 0.84 | 0.84 | 0.84 | 0.84 | 0.85 | 0.85 | 1480 | 1476 | 1471 | 1467 | 1463 | 1458 | 1452 | 1448 | 1446 | 1441 |
| 32 | OFC-24G 652D-FASA-S1 | 26/3 | 26/4 | 89.7 | 5.15 | 0.90 | 0.90 | 0.90 | 0.90 | 0.91 | 0.91 | 0.91 | 0.92 | 0.92 | 0.92 | 1480 | 1476 | 1471 | 1467 | 1463 | 1458 | 1452 | 1448 | 1446 | 1441 |
| 32 | OFC-24G 652D-FASA-S1 | 26/4 | 26/5 | 91.4 | 7.66 | 0.93 | 0.93 | 0.94 | 0.94 | 0.94 | 0.94 | 0.95 | 0.95 | 0.95 | 0.96 | 1480 | 1476 | 1471 | 1467 | 1463 | 1458 | 1452 | 1448 | 1446 | 1441 |
| 32 | OFC-24G 652D-FASA-S1 | 26/5 | 26/6 | 90.8 | 8.16 | 0.92 | 0.92 | 0.92 | 0.93 | 0.93 | 0.93 | 0.94 | 0.94 | 0.94 | 0.94 | 1480 | 1476 | 1471 | 1467 | 1463 | 1458 | 1452 | 1448 | 1446 | 1441 |
| 32 | OFC-24G 652D-FASA-S1 | 26/6 | 26/7 | 90.2 | 7.50 | 0.91 | 0.91 | 0.91 | 0.91 | 0.92 | 0.92 | 0.92 | 0.93 | 0.93 | 0.93 | 1480 | 1476 | 1471 | 1467 | 1463 | 1458 | 1452 | 1448 | 1446 | 1441 |
| 32 | OFC-24G 652D-FASA-S1 | 26/7 | 26/8 | 91.5 | 11.38 | 0.94 | 0.94 | 0.94 | 0.94 | 0.95 | 0.95 | 0.95 | 0.96 | 0.96 | 0.96 | 1480 | 1476 | 1471 | 1467 | 1463 | 1458 | 1452 | 1448 | 1446 | 1441 |
| 32 | OFC-24G 652D-FASA-S1 | 26/8 | 26/9 | 91.3 | 9.12 | 0.93 | 0.93 | 0.94 | 0.94 | 0.94 | 0.95 | 0.95 | 0.95 | 0.95 | 0.96 | 1480 | 1476 | 1471 | 1467 | 1463 | 1458 | 1452 | 1448 | 1446 | 1441 |
| 32 | OFC-24G 652D-FASA-S1 | 26/9 | 26/10 | 91.8 | 9.50 | 0.94 | 0.94 | 0.95 | 0.95 | 0.95 | 0.95 | 0.96 | 0.96 | 0.96 | 0.97 | 1480 | 1476 | 1471 | 1467 | 1463 | 1458 | 1452 | 1448 | 1446 | 1441 |
| 32 | OFC-24G 652D-FASA-S1 | 26/10 | 26/11 | 89.0 | 14.43 | 0.89 | 0.89 | 0.90 | 0.90 | 0.90 | 0.90 | 0.91 | 0.91 | 0.91 | 0.91 | 1480 | 1476 | 1471 | 1467 | 1463 | 1458 | 1452 | 1448 | 1446 | 1441 |
| 32 | OFC-24G 652D-FASA-S1 | 26/11 | 27/1 | 66.3 | 10.55 | 0.49 | 0.50 | 0.50 | 0.50 | 0.50 | 0.50 | 0.50 | 0.51 | 0.51 | 0.51 | 1480 | 1476 | 1471 | 1467 | 1463 | 1458 | 1452 | 1448 | 1446 | 1441 |
| 33 | PARTRIDGE ACSR | 27/1 | 27/2 | 73.7 | 1.37 | 0.64 | 0.70 | 0.75 | 0.80 | 0.86 | 0.91 | 0.97 | 1.02 | 1.07 | 1.12 | 5663 | 5238 | 4863 | 4537 | 4250 | 3998 | 3774 | 3579 | 3401 | 3247 |
| 33 | PARTRIDGE ACSR | 27/2 | 27/3 | 93.3 | 0.85 | 1.01 | 1.11 | 1.20 | 1.28 | 1.37 | 1.46 | 1.54 | 1.63 | 1.71 | 1.80 | 5663 | 5238 | 4863 | 4537 | 4250 | 3998 | 3774 | 3579 | 3401 | 3247 |
| 33 | PARTRIDGE ACSR | 27/3 | 27/4 | 92.5 | -3.48 | 1.02 | 1.10 | 1.18 | 1.27 | 1.35 | 1.44 | 1.52 | 1.61 | 1.69 | 1.77 | 5663 | 5238 | 4863 | 4537 | 4250 | 3998 | 3774 | 3579 | 3401 | 3247 |
| 33 | PARTRIDGE ACSR | 27/4 | 27/5 | 93.8 | 0.10 | 1.00 | 1.08 | 1.16 | 1.24 | 1.33 | 1.41 | 1.50 | 1.58 | 1.66 | 1.74 | 5663 | 5238 | 4863 | 4537 | 4250 | 3998 | 3774 | 3579 | 3401 | 3247 |
| 33 | PARTRIDGE ACSR | 27/5 | 27/6 | 89.9 | 1.73 | 0.96 | 1.03 | 1.11 | 1.19 | 1.27 | 1.35 | 1.44 | 1.51 | 1.59 | 1.67 | 5663 | 5238 | 4863 | 4537 | 4250 | 3998 | 3774 | 3579 | 3401 | 3247 |
| 33 | PARTRIDGE ACSR | 27/6 | 27/7 | 88.7 | 0.33 | 0.93 | 1.01 | 1.08 | 1.16 | 1.24 | 1.32 | 1.40 | 1.47 | 1.55 | 1.62 | 5663 | 5238 | 4863 | 4537 | 4250 | 3998 | 3774 | 3579 | 3401 | 3247 |
| 33 | PARTRIDGE ACSR | 27/7 | 27/8 | 89.4 | -4.26 | 0.95 | 1.02 | 1.10 | 1.18 | 1.26 | 1.34 | 1.42 | 1.50 | 1.58 | 1.65 | 5663 | 5238 | 4863 | 4537 | 4250 | 3998 | 3774 | 3579 | 3401 | 3247 |
| 33 | PARTRIDGE ACSR | 27/8 | 27/9 | 88.9 | -6.15 | 0.94 | 1.01 | 1.09 | 1.17 | 1.25 | 1.33 | 1.41 | 1.48 | 1.56 | 1.64 | 5663 | 5238 | 4863 | 4537 | 4250 | 3998 | 3774 | 3579 | 3401 | 3247 |
| 33 | PARTRIDGE ACSR | 27/9 | 27/10 | 87.5 | -3.63 | 0.91 | 0.98 | 1.06 | 1.13 | 1.21 | 1.29 | 1.36 | 1.44 | 1.51 | 1.58 | 5663 | 5238 | 4863 | 4537 | 4250 | 3998 | 3774 | 3579 | 3401 | 3247 |
| 33 | PARTRIDGE ACSR | 27/10 | 27/11 | 84.7 | 5.37 | 0.98 | 0.97 | 0.99 | 1.06 | 1.13 | 1.21 | 1.28 | 1.35 | 1.42 | 1.48 | 5663 | 5238 | 4863 | 4537 | 4250 | 3998 | 3774 | 3579 | 3401 | 3247 |
| 33 | PARTRIDGE ACSR | 27/11 | 27/12 | 78.7 | -2.02 | 0.73 | 0.79 | 0.85 | 0.92 | 0.98 | 1.04 | 1.10 | 1.16 | 1.22 | 1.28 | 5663 | 5238 | 4863 | 4537 | 4250 | 3998 | 3774 | 3579 | 3401 | 3247 |
| 33 | PARTRIDGE ACSR | 27/12 | 28/1 | 81.6 | 7.31 | 0.79 | 0.85 | 0.92 

AS-BUILT

CHANGES REQUIRED YES ☐ NO ☐

Name (Print) _____

Signature _____

Date _____

PERMIT TO PRACTICE
CLEAN ENERGY CONSULTING INC.
SIGNATURE _____
23-Oct-2018
PERMIT NUMBER: P 7524

| SAG AND TENSION | |
|---|---|
| CIRCUIT | VICTORIA GOLD 69kV |
| DOCUMENT | 1407-T-1450 |
| DATE | 23-Oct-18 |
| REVISION | 0 |
| ISSUED FOR | CONSTRUCTION |
| PREPARED BY | MP |
| CHECKED BY | PC |
| APPROVED BY | PC |

ENGINEER'S SEAL
ASSOCIATION OF PROFESSIONAL ENGINEERS YUKON TERRITORY
24-Oct-2018

NOTES
1. All spans must be installed to the sag values provided. Tension values are provided as a reference only.
2. Sag and tension values shown are for new conductor under "final" conditions.
3. For conductors left hanging in sheaves for longer than 3 hours between aerial stringing and final sag a creep correction factor must be applied.
4. All span lengths and sag values are provided in metres unless otherwise noted.
5. Conductors and cables:
   Overhead Shieldwire (OHSW): Partridge ACSR
   69kV Transmission Line: Partridge ACSR
   ADSS: OFC-24G/652D-FASA-S1

Clean Energy

| SEC | CABLE | FROM STR | TO STR | SPAN AHEAD (m) | SPAN VERT PROJ. (m) | MID SPAN SAG (m) -20 | -15 | -10 | -5 | 0 | 5 | 10 | 15 | 20 | 25 | HORIZONTAL TENSION (N) -20 | -15 | -10 | -5 | 0 | 5 | 10 | 15 | 20 | 25 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 34 | OFC-24G/652D-FASA-S1 | 27/4 | 27/5 | 91.8 | 0.16 | 0.84 | 0.84 | 0.85 | 0.85 | 0.85 | 0.85 | 0.86 | 0.86 | 0.86 | 0.86 | 1649 | 1643 | 1636 | 1632 | 1628 | 1623 | 1617 | 1611 | 1607 | 1603 |
| 34 | OFC-24G/652D-FASA-S1 | 27/5 | 27/6 | 89.9 | -1.73 | 0.81 | 0.81 | 0.81 | 0.81 | 0.82 | 0.82 | 0.82 | 0.82 | 0.83 | 0.83 | 1649 | 1643 | 1636 | 1632 | 1628 | 1623 | 1617 | 1611 | 1607 | 1603 |
| 34 | OFC-24G/652D-FASA-S1 | 27/6 | 27/7 | 88.7 | 0.32 | 0.78 | 0.79 | 0.79 | 0.79 | 0.79 | 0.80 | 0.80 | 0.80 | 0.80 | 0.81 | 1649 | 1643 | 1636 | 1632 | 1628 | 1623 | 1617 | 1611 | 1607 | 1603 |
| 34 | OFC-24G/652D-FASA-S1 | 27/7 | 27/8 | 89.4 | 4.20 | 0.80 | 0.80 | 0.80 | 0.80 | 0.81 | 0.81 | 0.81 | 0.82 | 0.82 | 0.82 | 1649 | 1643 | 1636 | 1632 | 1628 | 1623 | 1617 | 1611 | 1607 | 1603 |
| 34 | OFC-24G/652D-FASA-S1 | 27/8 | 27/9 | 88.9 | 6.15 | 0.79 | 0.79 | 0.80 | 0.80 | 0.80 | 0.80 | 0.81 | 0.81 | 0.81 | 0.81 | 1649 | 1643 | 1636 | 1632 | 1628 | 1623 | 1617 | 1611 | 1607 | 1603 |
| 34 | OFC-24G/652D-FASA-S1 | 27/9 | 27/10 | 87.5 | -3.63 | 0.78 | 0.77 | 0.77 | 0.77 | 0.77 | 0.78 | 0.78 | 0.78 | 0.78 | 0.79 | 1649 | 1643 | 1636 | 1632 | 1628 | 1623 | 1617 | 1611 | 1607 | 1603 |
| 34 | OFC-24G/652D-FASA-S1 | 27/10 | 27/11 | 84.7 | -5.37 | 0.72 | 0.72 | 0.72 | 0.72 | 0.73 | 0.73 | 0.73 | 0.73 | 0.74 | 0.74 | 1649 | 1643 | 1636 | 1632 | 1628 | 1623 | 1617 | 1611 | 1607 | 1603 |
| 34 | OFC-24G/652D-FASA-S1 | 27/11 | 27/12 | 78.7 | -7.07 | 0.62 | 0.62 | 0.62 | 0.62 | 0.63 | 0.63 | 0.63 | 0.63 | 0.63 | 0.64 | 1649 | 1643 | 1636 | 1632 | 1628 | 1623 | 1617 | 1611 | 1607 | 1603 |
| 34 | OFC-24G/652D-FASA-S1 | 27/12 | 28/1 | 81.6 | -8.21 | 0.66 | 0.67 | 0.67 | 0.67 | 0.67 | 0.67 | 0.68 | 0.68 | 0.68 | 0.68 | 1649 | 1643 | 1636 | 1632 | 1628 | 1623 | 1617 | 1611 | 1607 | 1603 |
| 34 | OFC-24G/652D-FASA-S1 | 28/1 | 28/2 | 70.4 | -5.65 | 0.50 | 0.50 | 0.50 | 0.50 | 0.50 | 0.50 | 0.51 | 0.51 | 0.51 | 0.51 | 1649 | 1643 | 1636 | 1632 | 1628 | 1623 | 1617 | 1611 | 1607 | 1603 |
| 35 | PARTRIDGE ACSR | 28/2 | 28/3 | 71.7 | -14.82 | 0.69 | 0.65 | 0.70 | 0.76 | 0.82 | 0.89 | 0.95 | 1.01 | 1.07 | 1.13 | 5933 | 5443 | 5002 | 4615 | 4274 | 3975 | 3719 | 3496 | 3298 | 3125 |
| 35 | PARTRIDGE ACSR | 28/3 | 28/4 | 84.6 | -19.54 | 0.83 | 0.90 | 0.98 | 1.07 | 1.15 | 1.24 | 1.32 | 1.41 | 1.49 | 1.57 | 5933 | 5443 | 5002 | 4615 | 4274 | 3975 | 3719 | 3496 | 3298 | 3125 |
| 35 | PARTRIDGE ACSR | 28/4 | 28/5 | 93.7 | -21.47 | 0.64 | 0.70 | 0.76 | 0.82 | 0.89 | 0.95 | 1.03 | 1.08 | 1.15 | 1.21 | 5933 | 5443 | 5002 | 4615 | 4274 | 3975 | 3719 | 3496 | 3298 | 3125 |
| 35 | PARTRIDGE ACSR | 28/5 | 28/6 | 82.1 | -21.81 | 0.79 | 0.86 | 0.93 | 1.01 | 1.09 | 1.18 | 1.26 | 1.34 | 1.42 | 1.50 | 5933 | 5443 | 5002 | 4615 | 4274 | 3975 | 3719 | 3496 | 3298 | 3125 |
| 35 | PARTRIDGE ACSR | 28/6 | 28/7 | 81.9 | -17.04 | 0.72 | 0.84 | 0.92 | 0.99 | 1.07 | 1.15 | 1.23 | 1.31 | 1.39 | 1.47 | 5933 | 5443 | 5002 | 4615 | 4274 | 3975 | 3719 | 3496 | 3298 | 3125 |
| 36 | OFC-24G/652D-FASA-S1 | 28/1 | 28/3 | 71.7 | -11.48 | 0.40 | 0.40 | 0.40 | 0.40 | 0.40 | 0.40 | 0.40 | 0.40 | 0.41 | 0.41 | 2162 | 2153 | 2148 | 2140 | 2132 | 2126 | 2120 | 2116 | 2108 | 2100 |
| 36 | OFC-24G/652D-FASA-S1 | 28/3 | 28/4 | 84.6 | -19.65 | 0.56 | 0.56 | 0.56 | 0.56 | 0.57 | 0.57 | 0.57 | 0.57 | 0.57 | 0.57 | 2161 | 2153 | 2148 | 2140 | 2132 | 2126 | 2120 | 2116 | 2108 | 2100 |
| 36 | OFC-24G/652D-FASA-S1 | 28/4 | 28/5 | 73.7 | -21.47 | 0.43 | 0.43 | 0.43 | 0.43 | 0.44 | 0.44 | 0.44 | 0.44 | 0.44 | 0.44 | 2161 | 2153 | 2148 | 2140 | 2132 | 2126 | 2120 | 2116 | 2108 | 2100 |
| 36 | OFC-24G/652D-FASA-S1 | 28/5 | 28/6 | 82.1 | -21.81 | 0.53 | 0.53 | 0.53 | 0.54 | 0.54 | 0.54 | 0.54 | 0.54 | 0.54 | 0.55 | 2161 | 2153 | 2148 | 2140 | 2132 | 2126 | 2120 | 2116 | 2108 | 2100 |
| 36 | OFC-24G/652D-FASA-S1 | 28/6 | 28/7 | 81.9 | -17.07 | 0.52 | 0.52 | 0.52 | 0.53 | 0.53 | 0.53 | 0.53 | 0.53 | 0.53 | 0.54 | 2161 | 2153 | 2148 | 2140 | 2132 | 2126 | 2120 | 2116 | 2108 | 2100 |
| 37 | PARTRIDGE ACSR | 28/7 | 28/8 | 76.3 | -2.17 | 0.73 | 0.79 | 0.85 | 0.92 | 0.98 | 1.05 | 1.11 | 1.18 | 1.24 | 1.30 | 5351 | 4933 | 4571 | 4243 | 3965 | 3719 | 3502 | 3315 | 3150 | 3001 |
| 37 | PARTRIDGE ACSR | 28/8 | 28/9 | 92.0 | -0.76 | 1.06 | 1.15 | 1.24 | 1.34 | 1.43 | 1.53 | 1.63 | 1.71 | 1.80 | 1.89 | 5351 | 4933 | 4571 | 4243 | 3965 | 3719 | 3502 | 3315 | 3150 | 3001 |
| 37 | PARTRIDGE ACSR | 28/9 | 28/10 | 78.8 | 3.30 | 0.78 | 0.84 | 0.91 | 0.98 | 1.05 | 1.12 | 1.19 | 1.26 | 1.32 | 1.39 | 5351 | 4933 | 4571 | 4243 | 3965 | 3719 | 3507 | 3315 | 3150 | 3001 |
| 37 | PARTRIDGE ACSR | 28/10 | 28/11 | 96.3 | 7.46 | 0.94 | 1.01 | 1.09 | 1.18 | 1.26 | 1.35 | 1.43 | 1.51 | 1.59 | 1.67 | 5351 | 4933 | 4571 | 4243 | 3965 | 3719 | 3507 | 3315 | 3150 | 3001 |
| 37 | PARTRIDGE ACSR | 28/11 | 28/12 | 72.1 | 6.21 | 0.65 | 0.71 | 0.76 | 0.82 | 0.88 | 0.94 | 1.00 | 1.05 | 1.11 | 1.16 | 5351 | 4933 | 4571 | 4243 | 3965 | 3719 | 3507 | 3315 | 3150 | 3001 |
| 37 | PARTRIDGE ACSR | 28/12 | 28/13 | 60.0 | 6.13 | 0.45 | 0.49 | 0.53 | 0.57 | 0.61 | 0.65 | 0.69 | 0.73 | 0.77 | 0.81 | 5351 | 4933 | 4571 | 4243 | 3965 | 3719 | 3507 | 3315 | 3150 | 3001 |
| 38 | OFC-24G/652D-FASA-S1 | 28/7 | 28/8 | 76.3 | 1.84 | 0.55 | 0.56 | 0.56 | 0.56 | 0.56 | 0.56 | 0.56 | 0.57 | 0.57 | 0.57 | 1727 | 1722 | 1714 | 1710 | 1704 | 1698 | 1693 | 1689 | 1681 | 1677 |
| 38 | OFC-24G/652D-FASA-S1 | 28/8 | 28/9 | 92.0 | 0.25 | 0.81 | 0.81 | 0.81 | 0.81 | 0.82 | 0.82 | 0.82 | 0.82 | 0.83 | 0.83 | 1727 | 1722 | 1714 | 1710 | 1704 | 1698 | 1693 | 1689 | 1681 | 1677 |
| 38 | OFC-24G/652D-FASA-S1 | 28/9 | 28/10 | 78.8 | 3.30 | 0.59 | 0.59 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.61 | 0.61 | 1727 | 1722 | 1714 | 1710 | 1704 | 1698 | 1693 | 1689 | 1681 | 1677 |
| 38 | OFC-24G/652D-FASA-S1 | 28/10 | 28/11 | 86.3 | 7.46 | 0.71 | 0.71 | 0.72 | 0.72 | 0.72 | 0.72 | 0.72 | 0.73 | 0.73 | 0.73 | 1727 | 1722 | 1714 | 1710 | 1704 | 1698 | 1693 | 1689 | 1681 | 1677 |
| 38 | OFC-24G/652D-FASA-S1 | 28/11 | 28/12 | 72.1 | 6.21 | 0.50 | 0.50 | 0.50 | 0.50 | 0.50 | 0.50 | 0.51 | 0.51 | 0.51 | 0.51 | 1727 | 1722 | 1714 | 1710 | 1704 | 1698 | 1693 | 1689 | 1681 | 1677 |
| 38 | OFC-24G/652D-FASA-S1 | 28/12 | 28/13 | 60.0 | 2.78 | 0.34 | 0.34 | 0.34 | 0.35 | 0.35 | 0.35 | 0.35 | 0.35 | 0.35 | 0.35 | 1727 | 1722 | 1714 | 1710 | 1704 | 1698 | 1693 | 1689 | 1681 | 1677 |
| 39 | PARTRIDGE ACSR | 28/13 | 29/1 | 76.8 | 4.78 | 0.74 | 0.80 | 0.86 | 0.92 | 0.98 | 1.05 | 1.11 | 1.17 | 1.23 | 1.29 | 5373 | 4964 | 4610 | 4290 | 4020 | 3778 | 3565 | 3378 | 3214 | 3069 |
| 39 | PARTRIDGE ACSR | 29/1 | 29/2 | 79.8 | 2.76 | 0.72 | 0.78 | 0.84 | 0.90 | 0.96 | 1.02 | 1.08 | 1.14 | 1.20 | 1.26 | 5373 | 4964 | 4610 | 4290 | 4020 | 3778 | 3565 | 3378 | 3214 | 3069 |
| 39 | PARTRIDGE ACSR | 29/2 | 29/3 | 77.2 | -1.74 | 0.74 | 0.80 | 0.87 | 0.93 | 0.99 | 1.06 | 1.12 | 1.18 | 1.24 | 1.30 | 5373 | 4964 | 4610 | 4290 | 4020 | 3778 | 3565 | 3378 | 3214 | 3069 |
| 39 | PARTRIDGE ACSR | 29/3 | 29/4 | 77.2 | 2.05 | 0.74 | 0.80 | 0.87 | 0.93 | 0.99 | 1.06 | 1.12 | 1.18 | 1.24 | 1.30 | 5373 | 4964 | 4610 | 4290 | 4020 | 3778 | 3565 | 3378 | 3214 | 3069 |
| 39 | PARTRIDGE ACSR | 29/4 | 29/5 | 76.6 | 5.07 | 0.73 | 0.79 | 0.86 | 0.92 | 0.98 | 1.04 | 1.11 | 1.17 | 1.23 | 1.29 | 5373 | 4964 | 4610 | 4290 | 4020 | 3778 | 3565 | 3378 | 3214 | 3069 |
| 39 | PARTRIDGE ACSR | 29/5 | 29/6 | 68.0 | 5.59 | 0.59 | 0.63 | 0.68 | 0.73 | 0.77 | 0.82 | 0.87 | 0.92 | 0.97 | 1.01 | 5373 | 4964 | 4610 | 4290 | 4020 | 3778 | 3565 | 3378 | 3214 | 3069 |
| 39 | PARTRIDGE ACSR | 29/6 | 29/7 | 72.7 | 8.31 | 0.66 | 0.72 | 0.77 | 0.83 | 0.89 | 0.94 | 1.00 | 1.06 | 1.11 | 1.16 | 5373 | 4964 | 4610 | 4290 | 4020 | 3778 | 3565 | 3378 | 3214 | 3069 |
| 39 | PARTRIDGE ACSR | 29/7 | 29/8 | 89.6 | 11.09 | 1.01 | 1.09 | 1.18 | 1.26 | 1.35 | 1.43 | 1.52 | 1.60 | 1.69 | 1.77 | 5373 | 4964 | 4610 | 4290 | 4020 | 3778 | 3565 | 3378 | 3214 | 3069 |
| 39 | PARTRIDGE ACSR | 29/8 | 29/9 | 86.9 | 9.75 | 0.95 | 1.03 | 1.10 | 1.19 | 1.27 | 1.35 | 1.43 | 1.51 | 1.58 | 1.66 | 5373 | 4964 | 4610 | 4290 | 4020 | 3778 | 3565 | 3378 | 3214 | 3069 |
| 39 | PARTRIDGE ACSR | 29/9 | 29/10 | 92.3 | 2.80 | 1.06 | 1.15 | 1.24 | 1.33 | 1.42 | 1.51 | 1.60 | 1.69 | 1.78 | 1.86 | 5373 | 4964 | 4610 | 4290 | 4020 | 3778 | 3565 | 3378 | 3214 | 3069 |
| 39 | PARTRIDGE ACSR | 29/10 | 29/11 | 92.3 | 0.07 | 1.06 | 1.15 | 1.24 | 1.33 | 1.42 | 1.51 | 1.60 | 1.69 | 1.78 | 1.86 | 5373 | 4964 | 4610 | 4290 | 4020 | 3778 | 3565 | 3378 | 3214 | 3069 |
| 39 | PARTRIDGE ACSR | 29/11 | 29/12 | 92.8 | -4.75 | 1.08 | 1.16 | 1.25 | 1.35 | 1.44 | 1.53 | 1.62 | 1.71 | 1.80 | 1.88 | 5373 | 4964 | 4610 | 4290 | 4020 | 3778 | 3565 | 3378 | 3214 | 3069 |
| 39 | PARTRIDGE ACSR | 29/12 | 30/1 | 91.6 | -10.84 | 1.05 | 1.14 | 1.23 | 1.32 | 1.41 | 1.50 | 1.59 | 1.68 | 1.76 | 1.85 | 5373 | 4964 | 4610 | 4290 | 4020 | 3778 | 3565 | 3378 | 3214 | 3069 |
| 39 | PARTRIDGE ACSR | 30/1 | 30/2 | 86.2 | -7.17 | 0.93 | 1.01 | 1.09 | 1.17 | 1.24 | 1.32 | 1.40 | 1.48 | 1.56 | 1.63 | 5373 | 4964 | 4610 | 4290 | 4020 | 3778 | 3565 | 3378 | 3214 | 3069 |
| 39 | PARTRIDGE ACSR | 30/2 | 30/3 | 70.6 | -9.14 | 0.63 | 0.68 | 0.74 | 0.79 | 0.84 | 0.90 | 0.95 | 1.00 | 1.05 | 1.10 | 5373 | 4964 | 4610 | 4290 | 4020 | 3778 | 3565 | 3378 | 3214 | 3069 |
| 39 | PARTRIDGE ACSR | 30/3 | 30/4 | 75.2 | -6.73 | 0.71 | 0.77 | 0.82 | 0.89 | 0.95 | 1.01 | 1.07 | 1.13 | 1.18 | 1.24 | 5373 | 4964 | 4610 | 4290 | 4020 | 3778 | 3565 | 3378 | 3214 | 3069 |
| 39 | PARTRIDGE ACSR | 30/4 | 30/5 | 78.2 | -4.78 | 0.76 | 0.83 | 0.89 | 0.96 | 1.02 | 1.09 | 1.15 | 1.21 | 1.28 | 1.34 | 5373 | 4964 | 4610 | 4290 | 4020 | 3778 | 3565 | 3378 | 3214 | 3069 |
| 40 | OFC-24G/652D-FASA-S1 | 28/13 | 29/1 | 76.7 | 8.33 | 0.67 | 0.67 | 0.67 | 0.67 | 0.67 | 0.68 | 0.68 | 0.68 | 0.68 | 0.68 | 1463 | 1459 | 1455 | 1450 | 1446 | 1442 | 1437 | 1433 | 1427 | 1423 |
| 40 | OFC-24G/652D-FASA-S1 | 29/1 | 29/2 | 75.8 | 2.66 | 0.65 | 0.65 | 0.65 | 0.65 | 0.65 | 0.66 | 0.66 | 0.66 | 0.66 | 0.66 | 1463 | 1459 | 1455 | 1450 | 1446 | 1442 | 1437 | 1433 | 1427 | 1423 |
| 40 | OFC-24G/652D-FASA-S1 | 29/2 | 29/3 | 77.2 | -1.78 | 0.67 | 0.67 | 0.67 | 0.68 | 0.68 | 0.68 | 0.68 | 0.68 | 0.69 | 0.69 | 1463 | 1459 | 1455 | 1450 | 1446 | 1442 | 1437 | 1433 | 1427 | 1423 |
| 40 | OFC-24G/652D-FASA-S1 | 29/3 | 29/4 | 77.2 | 2.05 | 0.67 | 0.67 | 0.67 | 0.68 | 0.68 | 0.68 | 0.68 | 0.68 | 0.69 | 0.69 | 1463 | 1459 | 1455 | 1450 | 1446 | 1442 | 1437 | 1433 | 1427 | 1423 |
| 40 | OFC-24G/652D-FASA-S1 | 29/4 | 29/5 | 76.7 | 5.07 | 0.66 | 0.66 | 0.67 | 0.67 | 0.67 | 0.67 | 0.67 | 0.68 | 0.68 | 0.68 | 1463 | 1459 | 1455 | 1450 | 1446 | 1442 | 1437 | 1433 | 1427 | 1423 |
| 40 | OFC-24G/652D-FASA-S1 | 29/5 | 29/6 | 68.0 | 5.89 | 0.52 | 0.57 | 0.57 | 0.53 | 0.53 | 0.53 | 0.53 | 0.53 | 0.53 | 0.54 | 1463 | 1459 | 1455 | 1450 | 1446 | 1442 | 1437 | 1433 | 1427 | 1423 |
| 40 | OFC-24G/652D-FASA-S1 | 29/6 | 29/7 | 72.7 | 8.31 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.61 | 0.61 | 0.61 | 0.61 | 0.61 | 1463 | 1459 | 1455 | 1450 | 1446 | 1442 | 1437 | 1433 | 1427 | 1423 |
| 40 | OFC-24G/652D-FASA-S1 | 29/7 | 29/8 | 89.6 | 10.79 | 0.91 | 0.91 | 0.91 | 0.92 | 0.92 | 0.92 | 0.91 | 0.91 | 0.93 | 0.93 | 1463 | 1459 | 1455 | 1450 | 1446 | 1442 | 1437 | 1433 | 1427 | 1423 |
| 40 | OFC-24G/652D-FASA-S1 | 29/8 | 29/9 | 86.9 | 9.75 | 0.85 | 0.86 | 0.86 | 0.86 | 0.86 | 0.87 | 0.87 | 0.87 | 0.87 | 0.88 | 1463 | 1459 | 1455 | 1450 | 1446 | 1442 | 1437 | 1433 | 1427 | 1423 |
| 40 | OFC-24G/652D-FASA-S1 | 29/9 | 29/10 | 92.3 | 2.80 | 0.96 | 0.96 | 0.96 | 0.97 | 0.97 | 0.97 | 0.98 | 0.98 | 0.98 | 0.99 | 1463 | 1459 | 1455 | 1450 | 1446 | 1442 | 1437 | 1433 | 1427 | 1423 |
| 40 | OFC-24G/652D-FASA-S1 | 29/10 | 29/11 | 92.3 | 0.07 | 0.96 | 0.96 | 0.96 | 0.97 | 0.97 | 0.97 | 0.97 | 0.98 | 0.98 | 0.99 | 1463 | 1459 | 1455 | 1450 | 1446 | 1442 | 1437 | 1433 | 1427 | 1423 |
| 40 | OFC-24G/652D-FASA-S1 | 29/11 | 29/12 | 92.8 | -4.75 | 0.97 | 0.97 | 0.97 | 0.98 | 0.98 | 0.98 | 0.98 | 0.99 | 0.99 | 1.00 | 1463 | 1459 | 1455 | 1450 | 1446 | 1442 | 1437 | 1433 | 1427 | 1423 |
| 40 | OFC-24G/652D-FASA-S1 | 29/12 | 30/1 | 91.6 | -10.55 | 0.95 | 0.95 | 0.95 | 0.96 | 0.96 | 0.96 | 0.97 | 0.97 | 0.97 | 0.98 | 1463 | 1459 | 1455 | 1450 | 1446 | 1442 | 1437 | 1433 | 1427 | 1423 |
| 40 | OFC-24G/652D-FASA-S1 | 30/1 | 30/2 | 86.2 | -7.17 | 0.84 | 0.84 | 0.84 | 0.84 | 0.85 | 0.85 | 0.85 | 0.85 | 0.86 | 0.86 | 1463 | 1459 | 1455 | 1450 | 1446 | 1442 | 1437 | 1433 | 1427 | 1423 |
| 40 | OFC-24G/652D-FASA-S1 | 30/2 | 30/3 | 70.6 | -9.43 | 0.57 | 0.57 | 0.57 | 0.57 | 0.57 | 0.58 | 0.58 | 0.58 | 0.58 | 0.58 | 1463 | 1459 | 1455 | 1450 | 1446 | 1442 | 1437 | 1433 | 1427 | 1423 |
| 40 | OFC-24G/652D-FASA-S1 | 30/3 | 30/4 | 75.2 | -6.73 | 0.64 | 0.64 | 0.64 | 0.64 | 0.64 | 0.65 | 0.65 | 0.65 | 0.65 | 0.66 | 1463 | 1459 | 1455 | 1450 | 1446 | 1442 | 1437 | 1433 | 1427 | 1423 |
| 40 | OFC-24G/652D-FASA-S1 | 30/4 | 30/5 | 78.1 | -4.82 | 0.69 | 0.69 | 0.69 | 0.69 | 0.70 | 0.70 | 0.70 | 0.70 | 0.70 | 0.71 | 1463 | 1459 | 1455 | 1450 | 1446 | 1442 | 1437 | 1433 | 1427 | 1423 |
| 41 | PARTRIDGE ACSR | 30/5 | 30/6 | 96.5 | 9.54 | 1.22 | 1.30 | 1.39 | 1.48 | 1.56 | 1.65 | 1.73 | 1.81 | 1.89 | 1.97 | 5130 | 4795 | 4494 | 4235 | 4000 | 3793 | 3607 | 3445 | 3299 | 3166 |
| 41 | PARTRIDGE ACSR | 30/6 | 30/7 | 92.1 | 9.35 | 1.11 | 1.19 | 1.27 | 1.35 | 1.43 | 1.51 | 1.58 | 1.66 | 1.73 | 1.81 | 5130 | 4795 | 4494 | 4235 | 4000 | 3793 | 3607 | 3445 | 3299 | 3166 |
| 41 | PARTRIDGE ACSR | 30/7 | 30/8 | 91.3 | 9.80 | 1.09 | 1.17 | 1.25 | 1.33 | 1.40 | 1.48 | 1.56 | 1.63 | 1.70 | 1.77 | 5130 | 4795 | 4494 | 4235 | 4000 | 3793 | 3607 | 3445 | 3299 | 3166 |
| 41 | PARTRIDGE ACSR | 30/8 | 30/9 | 66.2 | 3.09 | 0.57 | 0.61 | 0.66 | 0.70 | 0.74 | 0.78 | 0.82 | 0.85 | 0.89 | 0.93 | 5130 | 4795 | 4494 | 4235 | 4000 | 3793 | 3607 | 3445 | 3299 | 3166 |
| 41 | PARTRIDGE ACSR | 30/9 | 30/10 | 63.5 | -9.10 | 0.53 | 0.57 | 0.61 | 0.64 | 0.68 | 0.72 | 0.76 | 0.79 | 0.83 | 0.86 | 5130 | 4795 | 4494 | 4235 | 4000 | 3793 | 3607 | 3445 | 3299 | 3166 |
| 41 | PARTRIDGE ACSR | 30/10 | 30/11 | 90.6 | -8.06 | 1.08 | 1.16 | 1.25 | 1.34 | 1.42 | 1.51 | 1.60 | 1.68 | 1.77 | 1.85 | 5130 | 4795 | 4494 | 4235 | 4000 | 3793 | 3607 | 3445 | 3299 | 3166 |
| 41 | PARTRIDGE ACSR | 30/11 | 30/12 | 91.8 | -6.06 | 1.10 | 1.18 | 1.26 | 1.34 | 1.43 | 1.52 | 1.61 | 1.69 | 1.77 | 1.85 | 5130 | 4795 | 4494 | 4235 | 4000 | 3793 | 3607 | 3445 | 3299 | 3166 |
| 41 | PARTRIDGE ACSR | 30/12 | 31/1 | 99.3 | -2.97 | 1.19 | 1.27 | 1.36 | 1.44 | 1.52 | 1.61 | 1.69 | 1.77 | 1.85 | 1.93 | 5130 | 4795 | 4494 | 4235 | 4000 | 3793 | 3607 | 3445 | 3299 | 3166 |
| 41 | PARTRIDGE ACSR | 31/1 | 31/2 | 97.5 | -5.05 | 1.24 | 1.33 | 1.42 | 1.51 | 1.60 | 1.68 | 1.77 | 1.85 | 1.93 | 2.02 | 5130 | 4795 | 4494 | 4235 | 4000 | 3793 | 3607 | 3445 | 3299 | 3166 |
| 41 | PARTRIDGE ACSR | 31/2 | 31/3 | 95.9 | -2.64 | 1.20 | 1.29 | 1.37 | 1.46 | 1.54 | 1.62 | 1.71 | 1.79 | 1.87 | 1.95 | 5130 | 4795 | 4494 | 4235 | 4000 | 3793 | 3607 | 3445 | 3299 | 3166 |
| 41 | PARTRIDGE ACSR | 31/3 | 31/4 | 94.2 | 3.05 | 1.16 | 1.24 | 1.32 | 1.41 | 1.49 | 1.57 | 1.65 | 1.73 | 1.80 | 1.88 | 5130 | 4795 | 4494 | 4235 | 4000 | 3793 | 3607 | 3445 | 3299 | 3166 |
| 41 | PARTRIDGE ACSR | 31/4 | 31/5 | 94.2 | -3.86 | 1.16 | 1.24 | 1.32 | 1.41 | 1.49 | 1.57 | 1.65 | 1.73 | 1.80 | 1.88 | 5130 | 4795 | 4494 | 4235 | 4000 | 3793 | 3607 | 3445 | 3299 | 3166 |
| 41 | PARTRIDGE ACSR | 31/5 | 31/6 | 95.9 | -17.97 | 1.22 | 1.31 | 1.40 | 1.48 | 1.57 | 1.65 | 1.74 | 1.82 | 1.90 | 1.98 | 5130 | 4795 | 4494 | 4235 | 4000 | 3793 | 3607 | 3445 | 3299 | 3166 |
| 41 | OFC-24G/652D-FASA-S1 | 30/5 | 30/6 | 96.5 | 3.87 | 1.72 | 1.72 | 1.72 | 1.73 | 1.73 | 1.73 | 1.74 | 1.74 | 1.74 | 1.75 | 892 | 890 | 889 | 887 | 886 | 884 | 883 | 880 | 879 | 878 |
| 41 | OFC-24G/652D-FASA-S1 | 30/6 | 30/7 | 92.1 | 0.35 | 1.57 | 1.57 | 1.58 | 1.58 | 1.58 | 1.59 | 1.59 | 1.59 | 1.59 | 1.60 | 892 | 890 | 889 | 887 | 886 | 884 | 883 | 880 | 879 | 878 |
| 42 | OFC-24G/652D-FASA-S1 | 30/7 | 30/8 | 91.3 | 0.50 | 1.54 | 1.55 | 1.55 | 1.55 | 1.55 | 1.56 | 1.56 | 1.56 | 1.57 | 1.57 | 892 | 890 | 889 | 887 | 886 | 884 | 883 | 880 | 879 | 878 |
| 42 | OFC-24G/652D-FASA-S1 | 30/8 | 30/9 | 66.3 | 0.72 | 0.81 | 0.81 | 0.81 | 0.81 | 0.81 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 892 | 890 | 889 | 887 | 886 | 884 | 883 | 880 | 879 | 878 |
| 42 | OFC-24G/652D-FASA-S1 | 30/9 | 30/10 | 63.6 | -5.79 | 0.75 | 0.75 | 0.75 | 0.75 | 0.75 | 0.75 | 0.76 | 0.76 | 0.76 | 0.76 | 892 | 890 | 889 | 887 | 886 | 884 | 883 | 880 | 879 | 878 |
| 42 | OFC-24G/652D-FASA-S1 | 30/10 | 30/11 | 90.6 | -8.15 | 1.52 | 1.52 | 1.52 | 1.53 | 1.53 | 1.53 | 1.53 | 1.54 | 1.54 | 1.54 | 892 | 890 | 889 | 887 | 886 | 884 | 883 | 880 | 879 | 878 |
| 42 | OFC-24G/652D-FASA-S1 | 30/11 | 30/12 | 91.8 | -6.06 | 1.56 | 1.56 | 1.56 | 1.56 | 1.57 | 1.57 | 1.57 | 1.58 | 1.58 | 1.58 | 892 | 890 | 889 | 887 | 886 | 884 | 883 | 880 | 879 | 878 |
| 42 | OFC-24G/652D-FASA-S1 | 30/12 | 31/1 | 95.4 | -2.97 | 1.68 | 1.68 | 1.68 | 1.69 | 1.69 | 1.69 | 1.69 | 1.70 | 1.70 | 1.70 | 892 | 890 | 889 | 887 | 886 | 884 | 883 | 880 | 879 | 878 |
| 42 | OFC-24G/652D-FASA-S1 | 31/1 | 31/2 | 97.5 | -5.05 | 1.75 | 1.76 | 1.76 | 1.76 | 1.77 | 1.77 | 1.77 | 1.78 | 1.78 | 1.78 | 892 | 890 | 889 | 887 | 886 | 884 | 883 | 880 | 879 | 878 |
| 42 | OFC-24G/652D-FASA-S1 | 31/2 | 31/3 | 95.9 | -2.64 | 1.69 | 1.70 | 1.70 | 1.70 | 1.71 | 1.71 | 1.71 | 1.72 | 1.72 | 1.72 | 892 | 890 | 889 | 887 | 886 | 884 | 883 | 880 | 879 | 878 |
| 42 | OFC-24G/652D-FASA-S1 | 31/3 | 31/4 | 94.2 | 3.05 | 1.64 | 1.64 | 1.64 | 1.64 | 1.65 | 1.65 | 1.65 | 1.66 | 1.66 | 1.66 | 892 | 890 | 889 | 887 | 886 | 884 | 883 | 880 | 879 | 878 |
| 42 | OFC-24G/652D-FASA-S1 | 31/4 | 31/5 | 94.2 | -3.76 | 1.64 | 1.64 | 1.64 | 1.64 | 1.65 | 1.65 | 1.65 | 1.66 | 1.66 | 1.66 | 892 | 890 | 889 | 887 | 886 | 884 | 883 | 880 | 879 | 878 |
| 42 | OFC-24G/652D-FASA-S1 | 31/5 | 31/6 | 95.9 | -21.31 | 1.74 | 1.74 | 1.74 | 1.74 | 1.75 | 1.75 | 1.75 | 1.76 | 1.76 | 1.76 | 892 | 890 | 889 | 887 | 886 | 884 | 883 | 880 | 879 | 878 |
| 43 | PARTRIDGE ACSR | 31/6 | 31/7 | 90.0 | 7.50 | 0.93 | 0.98 | 1.04 | 1.11 | 1.18 | 1.25 | 1.32 | 1.39 | 1.45 | 1.52 | 6080 | 5677 | 5321 | 4991 | 4703 | 4449 | 4217 | 4012 | 3833 | 3667 |
| 43 | PARTRIDGE ACSR | 31/7 | 31/7A | 87.1 | -5.05 | 0.84 | 0.90 | 0.96 | 1.02 | 1.08 | 1.14 | 1.21 | 1.27 | 1.33 | 1.39 | 6080 | 5677 | 5321 | 4991 | 4703 | 4449 | 4217 | 4012 | 3833 | 3667 |
| 43 | PARTRIDGE ACSR | 31/7A | 31/8 | 70.3 | -1.50 | 0.54 | 0.58 | 0.62 | 0.66 | 0.70 | 0.74 | 0.79 | 0.83 | 0.86 | 0.90 | 6080 | 5677 | 5321 | 4991 | 4703 | 4449 | 4217 | 4012 | 3833 | 3667 |
| 43 | PARTRIDGE ACSR | 31/8 | 31/10 | 133.9 | -2.90 | 1.98 | 2.12 | 2.26 | 2.41 | 2.56 | 2.70 | 2.85 | 3.00 | 3.14 | 3.28 | 6080 | 5677 | 5321 | 4991 | 4703 | 4449 | 4217 | 4012 | 3833 | 3667 |
| 43 | PARTRIDGE ACSR | 31/10 | 31/11 | 45.3 | -2.12 | 0.23 | 0.24 | 0.26 | 0.28 | 0.29 | 0.31 | 0.33 | 0.34 | 0.36 | 0.38 | 6080 | 5677 | 5321 | 4991 | 4703 | 4449 | 4217 | 4012 | 3833 | 3667 |
| 44 | OFC-24G/652D-FASA-S1 | 31/6 | 31/7 | 90.4 | 9.82 | 2.74 | 2.74 | 2.74 | 2.74 | 2.75 | 2.75 | 2.75 | 2.75 | 2.75 | 2.75 | 499 | 499 | 499 | 498 | 498 | 498 | 497 | 497 | 497 | 497 |
| 44 | OFC-24G/652D-FASA-S1 | 31/7 | 31/7A | 87.1 | -6.39 | 2.51 | 2.51 | 2.51 | 2.51 | 2.51 | 2.51 | 2.52 | 2.52 | 2.52 | 2.52 | 499 | 499 | 499 | 

Tetra Tech

# AS-BUILT

CHANGES REQUIRED YES ☐ NO ☐

Name (Print) _____

Signature _____

Date _____

PERMIT TO PRACTICE
CLEAN ENERGY CONSULTING INC.
SIGNATURE _____
DATE 23-OCT-2018
PERMIT NUMBER P-1614

| SAG AND TENSION | |
|---|---|
| CIRCUIT | VICTORIA GOLD 69kV |
| DOCUMENT | 1467-T-1450 |
| DATE | 23-Oct-18 |
| REVISION | 0 |
| ISSUED FOR | CONSTRUCTION |
| PREPARED BY | MF |
| CHECKED BY | PC |
| APPROVED BY | PC |

ENGINEER'S SEAL
PROFESSIONAL ENGINEER
YUKON
A. P. CLARK
TERRITORY
23-OCT-2018

NOTES
1. All spans must be installed to the sag values provided. Tension values are provided as a reference only.
2. Sag and tension values shown are for new conductor under initial conditions.
3. For conductors left hanging on sheaves for longer than 3 hours between initial stringing and final sag, a creep correction factor must be applied.
4. All span lengths and sag values are provided in metres unless otherwise noted.
5. Conductors and cables:
   Overhead Shieldwire (OHSW): Partridge ACSR
   69kV Transmission Line: Partridge ACSR
   ADSS: OFC-24G 652D-FASA-S1

Clean Energy

| SEC | CABLE | FROM STR | TO STR | SPAN AHEAD (m) | SPAN VERT PROF. (m) | MID SPAN SAG (m) -20 | -15 | -10 | -5 | 0 | 5 | 10 | 15 | 20 | 25 | HORIZONTAL TENSION (N) -20 | -15 | -10 | -5 | 0 | 5 | 10 | 15 | 20 | 25 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 45 | PARTRIDGE ACSR | 32/1 | 32/2 | 78.8 | -4.20 | 0.82 | 0.89 | 0.96 | 1.03 | 1.10 | 1.18 | 1.25 | 1.31 | 1.38 | 1.45 | 4987 | 4597 | 4255 | 3960 | 3699 | 3475 | 3280 | 3106 | 2956 | 2822 |
| 45 | PARTRIDGE ACSR | 32/2 | 32/3 | 78.1 | -3.10 | 0.82 | 0.89 | 0.96 | 1.03 | 1.11 | 1.18 | 1.25 | 1.32 | 1.38 | 1.45 | 4987 | 4597 | 4255 | 3960 | 3699 | 3475 | 3280 | 3106 | 2956 | 2822 |
| 45 | PARTRIDGE ACSR | 32/3 | 32/4 | 82.6 | 0.11 | 0.92 | 0.99 | 1.07 | 1.15 | 1.24 | 1.32 | 1.39 | 1.47 | 1.55 | 1.62 | 4987 | 4597 | 4255 | 3960 | 3699 | 3475 | 3280 | 3106 | 2956 | 2822 |
| 45 | PARTRIDGE ACSR | 32/4 | 32/5 | 83.4 | 2.50 | 0.94 | 1.02 | 1.10 | 1.18 | 1.26 | 1.34 | 1.42 | 1.50 | 1.58 | 1.66 | 4987 | 4597 | 4255 | 3960 | 3699 | 3475 | 3280 | 3106 | 2956 | 2822 |
| 45 | PARTRIDGE ACSR | 32/5 | 32/6 | 83.3 | 1.10 | 0.93 | 1.01 | 1.09 | 1.17 | 1.26 | 1.34 | 1.42 | 1.50 | 1.57 | 1.65 | 4987 | 4597 | 4255 | 3960 | 3699 | 3475 | 3280 | 3106 | 2956 | 2822 |
| 45 | PARTRIDGE ACSR | 32/6 | 32/7 | 79.4 | 1.48 | 0.85 | 0.92 | 0.99 | 1.07 | 1.14 | 1.22 | 1.29 | 1.36 | 1.43 | 1.50 | 4987 | 4597 | 4255 | 3960 | 3699 | 3475 | 3280 | 3106 | 2956 | 2822 |
| 45 | PARTRIDGE ACSR | 32/7 | 32/8 | 76.8 | 0.26 | 0.79 | 0.86 | 0.93 | 1.00 | 1.07 | 1.14 | 1.21 | 1.28 | 1.34 | 1.40 | 4987 | 4597 | 4255 | 3960 | 3699 | 3475 | 3280 | 3106 | 2956 | 2822 |
| 46 | OFC-24G.652D-FASA-S1 | 31/11 | 31/11A | 59.2 | 7.73 | 0.17 | 0.17 | 0.18 | 0.18 | 0.18 | 0.18 | 0.18 | 0.18 | 0.18 | 0.18 | 3325 | 3321 | 3313 | 3305 | 3297 | 3289 | 3281 | 3276 | 3268 | 3260 |
| 46 | OFC-24G.652D-FASA-S1 | 31/11A | 31/11B | 58.6 | 1.84 | 0.17 | 0.17 | 0.17 | 0.17 | 0.17 | 0.17 | 0.17 | 0.17 | 0.17 | 0.17 | 3325 | 3321 | 3313 | 3305 | 3297 | 3289 | 3281 | 3276 | 3268 | 3260 |
| 46 | OFC-24G.652D-FASA-S1 | 31/11B | 32/1 | 65.7 | -8.66 | 0.23 | 0.23 | 0.24 | 0.24 | 0.24 | 0.24 | 0.24 | 0.24 | 0.24 | 0.24 | 3325 | 3321 | 3313 | 3305 | 3297 | 3289 | 3281 | 3276 | 3268 | 3260 |
| 46 | OFC-24G.652D-FASA-S1 | 32/1 | 32/2 | 78.0 | 4.49 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.31 | 0.31 | 0.31 | 0.31 | 3325 | 3321 | 3313 | 3305 | 3297 | 3289 | 3281 | 3276 | 3268 | 3260 |
| 46 | OFC-24G.652D-FASA-S1 | 32/2 | 32/3 | 78.1 | -1.10 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.31 | 0.31 | 0.31 | 0.31 | 3325 | 3321 | 3313 | 3305 | 3297 | 3289 | 3281 | 3276 | 3268 | 3260 |
| 46 | OFC-24G.652D-FASA-S1 | 32/3 | 32/4 | 82.6 | 0.11 | 0.34 | 0.34 | 0.34 | 0.34 | 0.34 | 0.34 | 0.34 | 0.34 | 0.34 | 0.34 | 3325 | 3321 | 3313 | 3305 | 3297 | 3289 | 3281 | 3276 | 3268 | 3260 |
| 46 | OFC-24G.652D-FASA-S1 | 32/4 | 32/5 | 83.4 | 2.50 | 0.34 | 0.34 | 0.35 | 0.35 | 0.35 | 0.35 | 0.35 | 0.35 | 0.35 | 0.35 | 3325 | 3321 | 3313 | 3305 | 3297 | 3289 | 3281 | 3276 | 3268 | 3260 |
| 46 | OFC-24G.652D-FASA-S1 | 32/5 | 32/6 | 83.3 | 1.10 | 0.34 | 0.34 | 0.34 | 0.34 | 0.35 | 0.35 | 0.35 | 0.35 | 0.35 | 0.35 | 3325 | 3321 | 3313 | 3305 | 3297 | 3289 | 3281 | 3276 | 3268 | 3260 |
| 46 | OFC-24G.652D-FASA-S1 | 32/6 | 32/7 | 79.4 | 1.48 | 0.31 | 0.31 | 0.31 | 0.31 | 0.31 | 0.31 | 0.32 | 0.32 | 0.32 | 0.32 | 3325 | 3321 | 3313 | 3305 | 3297 | 3289 | 3281 | 3276 | 3268 | 3260 |
| 46 | OFC-24G.652D-FASA-S1 | 32/7 | 32/8 | 76.8 | 2.94 | 0.29 | 0.29 | 0.29 | 0.29 | 0.29 | 0.29 | 0.30 | 0.30 | 0.30 | 0.30 | 3325 | 3321 | 3313 | 3305 | 3297 | 3289 | 3281 | 3276 | 3268 | 3260 |
| 47 | PARTRIDGE ACSR | 32/8 | 32/9 | 71.4 | 3.57 | 0.74 | 0.79 | 0.84 | 0.89 | 0.94 | 0.99 | 1.04 | 1.09 | 1.14 | 1.18 | 4627 | 4327 | 4061 | 3830 | 3624 | 3439 | 3279 | 3133 | 3005 | 2890 |
| 47 | PARTRIDGE ACSR | 32/9 | 32/10 | 52.1 | 0.56 | 0.39 | 0.42 | 0.45 | 0.47 | 0.50 | 0.53 | 0.55 | 0.58 | 0.60 | 0.63 | 4627 | 4327 | 4061 | 3830 | 3624 | 3439 | 3279 | 3133 | 3005 | 2890 |
| 47 | PARTRIDGE ACSR | 32/10 | 32/11 | 80.6 | 2.64 | 0.95 | 1.01 | 1.08 | 1.14 | 1.21 | 1.27 | 1.33 | 1.40 | 1.46 | 1.51 | 4627 | 4327 | 4061 | 3830 | 3624 | 3439 | 3279 | 3133 | 3005 | 2890 |
| 47 | PARTRIDGE ACSR | 32/11 | 32/12 | 86.7 | 0.48 | 1.09 | 1.16 | 1.24 | 1.32 | 1.39 | 1.47 | 1.54 | 1.61 | 1.68 | 1.74 | 4627 | 4327 | 4061 | 3830 | 3624 | 3439 | 3279 | 3133 | 3005 | 2890 |
| 47 | PARTRIDGE ACSR | 32/12 | 32/13 | 85.9 | 4.14 | 1.07 | 1.14 | 1.22 | 1.29 | 1.37 | 1.44 | 1.51 | 1.58 | 1.65 | 1.71 | 4627 | 4327 | 4061 | 3830 | 3624 | 3439 | 3279 | 3133 | 3005 | 2890 |
| 47 | PARTRIDGE ACSR | 32/13 | 33/1 | 81.5 | 6.91 | 0.97 | 1.03 | 1.10 | 1.17 | 1.23 | 1.30 | 1.36 | 1.43 | 1.49 | 1.55 | 4627 | 4327 | 4061 | 3830 | 3624 | 3439 | 3279 | 3133 | 3005 | 2890 |
| 47 | PARTRIDGE ACSR | 33/1 | 33/2 | 83.9 | 8.09 | 1.01 | 1.08 | 1.15 | 1.22 | 1.29 | 1.36 | 1.43 | 1.49 | 1.56 | 1.62 | 4627 | 4327 | 4061 | 3830 | 3624 | 3439 | 3279 | 3133 | 3005 | 2890 |
| 47 | PARTRIDGE ACSR | 33/2 | 33/3 | 74.4 | 7.14 | 0.81 | 0.86 | 0.92 | 0.97 | 1.03 | 1.08 | 1.14 | 1.19 | 1.24 | 1.29 | 4627 | 4327 | 4061 | 3830 | 3624 | 3439 | 3279 | 3133 | 3005 | 2890 |
| 47 | PARTRIDGE ACSR | 33/3 | 33/4 | 59.4 | 3.07 | 0.51 | 0.55 | 0.58 | 0.62 | 0.66 | 0.69 | 0.72 | 0.76 | 0.79 | 0.82 | 4627 | 4327 | 4061 | 3830 | 3624 | 3439 | 3279 | 3133 | 3005 | 2890 |
| 47 | PARTRIDGE ACSR | 33/4 | 33/5 | 81.7 | -6.44 | 0.97 | 1.04 | 1.11 | 1.17 | 1.24 | 1.31 | 1.37 | 1.44 | 1.49 | 1.55 | 4627 | 4327 | 4061 | 3830 | 3624 | 3439 | 3279 | 3133 | 3005 | 2890 |
| 47 | PARTRIDGE ACSR | 33/5 | 33/6 | 88.3 | -5.69 | 1.11 | 1.21 | 1.29 | 1.37 | 1.45 | 1.52 | 1.60 | 1.67 | 1.74 | 1.81 | 4627 | 4327 | 4061 | 3830 | 3624 | 3439 | 3279 | 3133 | 3005 | 2890 |
| 47 | PARTRIDGE ACSR | 33/6 | 33/7 | 91.2 | -3.07 | 1.21 | 1.30 | 1.38 | 1.46 | 1.55 | 1.63 | 1.71 | 1.79 | 1.87 | 1.94 | 4627 | 4327 | 4061 | 3830 | 3624 | 3439 | 3279 | 3133 | 3005 | 2890 |
| 47 | PARTRIDGE ACSR | 33/7 | 33/8 | 87.5 | 0.06 | 1.11 | 1.19 | 1.26 | 1.34 | 1.42 | 1.49 | 1.57 | 1.64 | 1.71 | 1.78 | 4627 | 4327 | 4061 | 3830 | 3624 | 3439 | 3279 | 3133 | 3005 | 2890 |
| 47 | PARTRIDGE ACSR | 33/8 | 33/9 | 90.7 | -2.14 | 1.19 | 1.28 | 1.36 | 1.44 | 1.52 | 1.61 | 1.68 | 1.76 | 1.84 | 1.91 | 4627 | 4327 | 4061 | 3830 | 3624 | 3439 | 3279 | 3133 | 3005 | 2890 |
| 47 | PARTRIDGE ACSR | 33/9 | 33/10 | 89.4 | 0.07 | 1.16 | 1.24 | 1.32 | 1.40 | 1.48 | 1.56 | 1.63 | 1.71 | 1.78 | 1.85 | 4627 | 4327 | 4061 | 3830 | 3624 | 3439 | 3279 | 3133 | 3005 | 2890 |
| 47 | PARTRIDGE ACSR | 33/10 | 33/11 | 90.0 | 3.58 | 1.23 | 1.31 | 1.40 | 1.48 | 1.56 | 1.65 | 1.73 | 1.81 | 1.89 | 1.96 | 4627 | 4327 | 4061 | 3830 | 3624 | 3439 | 3279 | 3133 | 3005 | 2890 |
| 47 | PARTRIDGE ACSR | 33/11 | 34/1 | 90.4 | 6.78 | 1.18 | 1.27 | 1.35 | 1.43 | 1.51 | 1.59 | 1.67 | 1.75 | 1.82 | 1.90 | 4627 | 4327 | 4061 | 3830 | 3624 | 3439 | 3279 | 3133 | 3005 | 2890 |
| 47 | PARTRIDGE ACSR | 34/1 | 34/2 | 87.1 | -2.13 | 1.10 | 1.18 | 1.25 | 1.33 | 1.40 | 1.48 | 1.55 | 1.62 | 1.69 | 1.76 | 4627 | 4327 | 4061 | 3830 | 3624 | 3439 | 3279 | 3133 | 3005 | 2890 |
| 47 | PARTRIDGE ACSR | 34/2 | 34/3 | 85.8 | -3.95 | 1.07 | 1.15 | 1.22 | 1.29 | 1.37 | 1.44 | 1.51 | 1.58 | 1.65 | 1.72 | 4627 | 4327 | 4061 | 3830 | 3624 | 3439 | 3279 | 3133 | 3005 | 2890 |
| 47 | PARTRIDGE ACSR | 34/3 | 34/4 | 89.9 | -5.91 | 1.17 | 1.25 | 1.34 | 1.42 | 1.50 | 1.58 | 1.66 | 1.73 | 1.81 | 1.88 | 4627 | 4327 | 4061 | 3830 | 3624 | 3439 | 3279 | 3133 | 3005 | 2890 |
| 47 | PARTRIDGE ACSR | 34/4 | 34/5 | 91.5 | -1.76 | 1.21 | 1.30 | 1.38 | 1.47 | 1.55 | 1.63 | 1.71 | 1.79 | 1.87 | 1.94 | 4627 | 4327 | 4061 | 3830 | 3624 | 3439 | 3279 | 3133 | 3005 | 2890 |
| 47 | PARTRIDGE ACSR | 34/5 | 34/6 | 90.8 | -0.34 | 1.19 | 1.28 | 1.36 | 1.44 | 1.53 | 1.61 | 1.69 | 1.76 | 1.84 | 1.91 | 4627 | 4327 | 4061 | 3830 | 3624 | 3439 | 3279 | 3133 | 3005 | 2890 |
| 47 | PARTRIDGE ACSR | 34/6 | 34/7 | 84.7 | 1.85 | 1.04 | 1.11 | 1.18 | 1.25 | 1.33 | 1.40 | 1.47 | 1.53 | 1.60 | 1.66 | 4627 | 4327 | 4061 | 3830 | 3624 | 3439 | 3279 | 3133 | 3005 | 2890 |
| 47 | PARTRIDGE ACSR | 34/7 | 34/8 | 88.0 | 1.61 | 1.12 | 1.20 | 1.28 | 1.36 | 1.43 | 1.51 | 1.58 | 1.65 | 1.73 | 1.80 | 4627 | 4327 | 4061 | 3830 | 3624 | 3439 | 3279 | 3133 | 3005 | 2890 |
| 47 | PARTRIDGE ACSR | 34/8 | 34/9 | 87.3 | 0.51 | 1.10 | 1.18 | 1.26 | 1.33 | 1.41 | 1.49 | 1.56 | 1.63 | 1.70 | 1.77 | 4627 | 4327 | 4061 | 3830 | 3624 | 3439 | 3279 | 3133 | 3005 | 2890 |
| 47 | PARTRIDGE ACSR | 34/9 | 34/10 | 90.8 | 6.97 | 1.17 | 1.25 | 1.34 | 1.42 | 1.50 | 1.58 | 1.65 | 1.73 | 1.81 | 1.88 | 4627 | 4327 | 4061 | 3830 | 3624 | 3439 | 3279 | 3133 | 3005 | 2890 |
| 47 | PARTRIDGE ACSR | 34/10 | 34/11 | 92.0 | 0.10 | 1.22 | 1.31 | 1.40 | 1.48 | 1.56 | 1.65 | 1.73 | 1.81 | 1.89 | 1.96 | 4627 | 4327 | 4061 | 3830 | 3624 | 3439 | 3279 | 3133 | 3005 | 2890 |
| 47 | PARTRIDGE ACSR | 34/11 | 34/12 | 91.4 | -2.44 | 1.21 | 1.29 | 1.38 | 1.46 | 1.54 | 1.63 | 1.71 | 1.79 | 1.86 | 1.94 | 4627 | 4327 | 4061 | 3830 | 3624 | 3439 | 3279 | 3133 | 3005 | 2890 |
| 47 | PARTRIDGE ACSR | 34/12 | 35/1 | 90.5 | 1.38 | 1.19 | 1.27 | 1.35 | 1.43 | 1.52 | 1.60 | 1.67 | 1.75 | 1.83 | 1.90 | 4627 | 4327 | 4061 | 3830 | 3624 | 3439 | 3279 | 3133 | 3005 | 2890 |
| 47 | PARTRIDGE ACSR | 35/1 | 35/2 | 62.3 | 0.24 | 0.56 | 0.60 | 0.64 | 0.68 | 0.72 | 0.76 | 0.79 | 0.83 | 0.86 | 0.90 | 4627 | 4327 | 4061 | 3830 | 3624 | 3439 | 3279 | 3133 | 3005 | 2890 |
| 47 | PARTRIDGE ACSR | 35/2 | 35/3 | 70.9 | 8.93 | 0.93 | 1.00 | 1.06 | 1.13 | 1.19 | 1.25 | 1.31 | 1.38 | 1.43 | 1.49 | 4627 | 4327 | 4061 | 3830 | 3624 | 3439 | 3279 | 3133 | 3005 | 2890 |
| 48 | OFC-24G.652D-FASA-S1 | 32/8 | 32/9 | 71.4 | 4.54 | 0.49 | 0.49 | 0.49 | 0.49 | 0.49 | 0.50 | 0.50 | 0.50 | 0.50 | 0.50 | 1719 | 1715 | 1711 | 1706 | 1698 | 1694 | 1690 | 1684 | 1677 | 1673 |
| 48 | OFC-24G.652D-FASA-S1 | 32/9 | 32/10 | 52.1 | 2.93 | 0.26 | 0.26 | 0.26 | 0.26 | 0.26 | 0.26 | 0.26 | 0.27 | 0.27 | 0.27 | 1719 | 1715 | 1711 | 1706 | 1698 | 1694 | 1690 | 1684 | 1677 | 1673 |
| 48 | OFC-24G.652D-FASA-S1 | 32/10 | 32/11 | 80.6 | 2.54 | 0.62 | 0.63 | 0.63 | 0.63 | 0.63 | 0.63 | 0.63 | 0.64 | 0.64 | 0.64 | 1719 | 1715 | 1711 | 1706 | 1698 | 1694 | 1690 | 1684 | 1677 | 1673 |
| 48 | OFC-24G.652D-FASA-S1 | 32/11 | 32/12 | 86.7 | 0.48 | 0.72 | 0.72 | 0.73 | 0.73 | 0.73 | 0.73 | 0.73 | 0.73 | 0.74 | 0.74 | 1719 | 1715 | 1711 | 1706 | 1698 | 1694 | 1690 | 1684 | 1677 | 1673 |
| 48 | OFC-24G.652D-FASA-S1 | 32/12 | 32/13 | 85.9 | 4.14 | 0.71 | 0.71 | 0.71 | 0.71 | 0.71 | 0.72 | 0.72 | 0.72 | 0.72 | 0.73 | 1719 | 1715 | 1711 | 1706 | 1698 | 1694 | 1690 | 1684 | 1677 | 1673 |
| 48 | OFC-24G.652D-FASA-S1 | 32/13 | 33/1 | 81.5 | 6.91 | 0.64 | 0.64 | 0.64 | 0.64 | 0.65 | 0.65 | 0.65 | 0.65 | 0.65 | 0.66 | 1719 | 1715 | 1711 | 1706 | 1698 | 1694 | 1690 | 1684 | 1677 | 1673 |
| 48 | OFC-24G.652D-FASA-S1 | 33/1 | 33/2 | 83.9 | 8.09 | 0.67 | 0.67 | 0.67 | 0.67 | 0.67 | 0.68 | 0.68 | 0.68 | 0.68 | 0.68 | 1719 | 1715 | 1711 | 1706 | 1698 | 1694 | 1690 | 1684 | 1677 | 1673 |
| 48 | OFC-24G.652D-FASA-S1 | 33/2 | 33/3 | 74.4 | 7.14 | 0.53 | 0.53 | 0.53 | 0.54 | 0.54 | 0.54 | 0.54 | 0.54 | 0.54 | 0.55 | 1719 | 1715 | 1711 | 1706 | 1698 | 1694 | 1690 | 1684 | 1677 | 1673 |
| 48 | OFC-24G.652D-FASA-S1 | 33/3 | 33/4 | 59.4 | 3.07 | 0.34 | 0.34 | 0.34 | 0.34 | 0.34 | 0.34 | 0.34 | 0.34 | 0.35 | 0.35 | 1719 | 1715 | 1711 | 1706 | 1698 | 1694 | 1690 | 1684 | 1677 | 1673 |
| 48 | OFC-24G.652D-FASA-S1 | 33/4 | 33/5 | 81.7 | -6.44 | 0.64 | 0.64 | 0.64 | 0.65 | 0.65 | 0.65 | 0.65 | 0.65 | 0.66 | 0.66 | 1719 | 1715 | 1711 | 1706 | 1698 | 1694 | 1690 | 1684 | 1677 | 1673 |
| 48 | OFC-24G.652D-FASA-S1 | 33/5 | 33/6 | 88.3 | -5.69 | 0.75 | 0.75 | 0.75 | 0.75 | 0.76 | 0.76 | 0.76 | 0.76 | 0.77 | 0.77 | 1719 | 1715 | 1711 | 1706 | 1698 | 1694 | 1690 | 1684 | 1677 | 1673 |
| 48 | OFC-24G.652D-FASA-S1 | 33/6 | 33/7 | 91.2 | -3.07 | 0.80 | 0.80 | 0.80 | 0.81 | 0.81 | 0.81 | 0.81 | 0.82 | 0.82 | 0.82 | 1719 | 1715 | 1711 | 1706 | 1698 | 1694 | 1690 | 1684 | 1677 | 1673 |
| 48 | OFC-24G.652D-FASA-S1 | 33/7 | 33/8 | 87.5 | 0.06 | 0.73 | 0.73 | 0.74 | 0.74 | 0.74 | 0.75 | 0.75 | 0.75 | 0.75 | 0.75 | 1719 | 1715 | 1711 | 1706 | 1698 | 1694 | 1690 | 1684 | 1677 | 1673 |
| 48 | OFC-24G.652D-FASA-S1 | 33/8 | 33/9 | 90.7 | -2.14 | 0.79 | 0.79 | 0.79 | 0.79 | 0.80 | 0.80 | 0.80 | 0.80 | 0.81 | 0.81 | 1719 | 1715 | 1711 | 1706 | 1698 | 1694 | 1690 | 1684 | 1677 | 1673 |
| 48 | OFC-24G.652D-FASA-S1 | 33/9 | 33/10 | 89.4 | 0.07 | 0.76 | 0.77 | 0.77 | 0.77 | 0.78 | 0.78 | 0.78 | 0.78 | 0.78 | 0.78 | 1719 | 1715 | 1711 | 1706 | 1698 | 1694 | 1690 | 1684 | 1677 | 1673 |
| 48 | OFC-24G.652D-FASA-S1 | 33/10 | 33/11 | 90.0 | 3.58 | 0.81 | 0.81 | 0.81 | 0.82 | 0.82 | 0.82 | 0.82 | 0.83 | 0.83 | 0.83 | 1719 | 1715 | 1711 | 1706 | 1698 | 1694 | 1690 | 1684 | 1677 | 1673 |
| 48 | OFC-24G.652D-FASA-S1 | 33/11 | 34/1 | 90.4 | 6.78 | 0.76 | 0.78 | 0.79 | 0.79 | 0.79 | 0.79 | 0.80 | 0.80 | 0.80 | 0.80 | 1719 | 1715 | 1711 | 1706 | 1698 | 1694 | 1690 | 1684 | 1677 | 1673 |
| 48 | OFC-24G.652D-FASA-S1 | 34/1 | 34/2 | 87.1 | -2.13 | 0.72 | 0.73 | 0.73 | 0.73 | 0.73 | 0.74 | 0.74 | 0.74 | 0.74 | 0.74 | 1719 | 1715 | 1711 | 1706 | 1698 | 1694 | 1690 | 1684 | 1677 | 1673 |
| 48 | OFC-24G.652D-FASA-S1 | 34/2 | 34/3 | 85.8 | -3.95 | 0.71 | 0.71 | 0.71 | 0.71 | 0.72 | 0.72 | 0.72 | 0.72 | 0.72 | 0.73 | 1719 | 1715 | 1711 | 1706 | 1698 | 1694 | 1690 | 1684 | 1677 | 1673 |
| 48 | OFC-24G.652D-FASA-S1 | 34/3 | 34/4 | 89.9 | -5.91 | 0.77 | 0.78 | 0.78 | 0.79 | 0.78 | 0.79 | 0.79 | 0.79 | 0.79 | 0.80 | 1719 | 1715 | 1711 | 1706 | 1698 | 1694 | 1690 | 1684 | 1677 | 1673 |
| 48 | OFC-24G.652D-FASA-S1 | 34/4 | 34/5 | 91.5 | -1.76 | 0.80 | 0.80 | 0.80 | 0.81 | 0.81 | 0.81 | 0.81 | 0.82 | 0.82 | 0.82 | 1719 | 1715 | 1711 | 1706 | 1698 | 1694 | 1690 | 1684 | 1677 | 1673 |
| 48 | OFC-24G.652D-FASA-S1 | 34/5 | 34/6 | 90.8 | -0.34 | 0.79 | 0.79 | 0.79 | 0.79 | 0.80 | 0.80 | 0.80 | 0.80 | 0.81 | 0.81 | 1719 | 1715 | 1711 | 1706 | 1698 | 1694 | 1690 | 1684 | 1677 | 1673 |
| 48 | OFC-24G.652D-FASA-S1 | 34/6 | 34/7 | 84.6 | 2.16 | 0.68 | 0.69 | 0.69 | 0.69 | 0.69 | 0.70 | 0.70 | 0.70 | 0.70 | 0.70 | 1719 | 1715 | 1711 | 1706 | 1698 | 1694 | 1690 | 1684 | 1677 | 1673 |
| 48 | OFC-24G.652D-FASA-S1 | 34/7 | 34/8 | 88.0 | 1.32 | 0.74 | 0.74 | 0.74 | 0.75 | 0.75 | 0.75 | 0.75 | 0.76 | 0.76 | 0.76 | 1719 | 1715 | 1711 | 1706 | 1698 | 1694 | 1690 | 1684 | 1677 | 1673 |
| 48 | OFC-24G.652D-FASA-S1 | 34/8 | 34/9 | 87.3 | 0.51 | 0.73 | 0.73 | 0.73 | 0.73 | 0.74 | 0.74 | 0.74 | 0.74 | 0.75 | 0.75 | 1719 | 1715 | 1711 | 1706 | 1698 | 1694 | 1690 | 1684 | 1677 | 1673 |
| 48 | OFC-24G.652D-FASA-S1 | 34/9 | 34/10 | 88.8 | 6.97 | 0.77 | 0.78 | 0.78 | 0.78 | 0.78 | 0.79 | 0.79 | 0.79 | 0.79 | 0.80 | 1719 | 1715 | 1711 | 1706 | 1698 | 1694 | 1690 | 1684 | 1677 | 1673 |
| 48 | OFC-24G.652D-FASA-S1 | 34/10 | 34/11 | 92.0 | 0.10 | 0.81 | 0.81 | 0.81 | 0.81 | 0.82 | 0.82 | 0.82 | 0.83 | 0.83 | 0.83 | 1719 | 1715 | 1711 | 1706 | 1698 | 1694 | 1690 | 1684 | 1677 | 1673 |
| 48 | OFC-24G.652D-FASA-S1 | 34/11 | 34/12 | 91.4 | -2.44 | 0.80 | 0.80 | 0.80 | 0.80 | 0.81 | 0.81 | 0.81 | 0.81 | 0.82 | 0.82 | 1719 | 1715 | 1711 | 1706 | 1698 | 1694 | 1690 | 1684 | 1677 | 1673 |
| 48 | OFC-24G.652D-FASA-S1 | 34/12 | 35/1 | 90.5 | 1.38 | 0.79 | 0.79 | 0.79 | 0.79 | 0.79 | 0.79 | 0.80 | 0.80 | 0.80 | 0.80 | 1719 | 1715 | 1711 | 1706 | 1698 | 1694 | 1690 | 1684 | 1677 | 1673 |
| 48 | OFC-24G.652D-FASA-S1 | 35/1 | 35/2 | 62.3 | -2.13 | 0.37 | 0.37 | 0.37 | 0.37 | 0.38 | 0.38 | 0.38 | 0.38 | 0.38 | 0.38 | 1719 | 1715 | 1711 | 1706 | 1698 | 1694 | 1690 | 1684 | 1677 | 1673 |
| 48 | OFC-24G.652D-FASA-S1 | 35/2 | 35/3 | 79.9 | -9.80 | 0.62 | 0.62 | 0.62 | 0.62 | 0.62 | 0.62 | 0.63 | 0.63 | 0.63 | 0.63 | 1719 | 1715 | 1711 | 1706 | 1698 | 1694 | 1690 | 1684 | 1677 | 1673 |
| 49 | PARTRIDGE ACSR | 35/3 | 35/4 | 74.7 | 3.72 | 0.77 | 0.82 | 0.86 | 0.93 | 0.98 | 1.03 | 1.08 | 1.13 | 1.18 | 1.23 | 4841 | 4534 | 4262 | 4017 | 3804 | 3616 | 3449 | 3298 | 3163 | 3040 |
| 49 | PARTRIDGE ACSR | 35/4 | 35/5 | 65.0 | 2.24 | 0.58 | 0.62 | 0.66 | 0.70 | 0.74 | 0.78 | 0.82 | 0.86 | 0.89 | 0.93 | 4841 | 4534 | 4262 | 4017 | 3804 | 3616 | 3449 | 3298 | 3163 | 3040 |
| 49 | PARTRIDGE ACSR | 35/5 | 35/6 | 84.2 | 4.12 | 0.98 | 1.05 | 1.12 | 1.19 | 1.25 | 1.31 | 1.38 | 1.44 | 1.50 | 1.56 | 4841 | 4534 | 4262 | 4017 | 3804 | 3616 | 3449 | 3298 | 3163 | 3040 |
| 49 | PARTRIDGE ACSR | 35/6 | 35/7 | 91.5 | 0.77 | 1.16 | 1.24 | 1.32 | 1.40 | 1.48 | 1.55 | 1.63 | 1.70 | 1.77 | 1.85 | 4841 | 4534 | 4262 | 4017 | 3804 | 3616 | 3449 | 3298 | 3163 | 3040 |
| 49 | PARTRIDGE ACSR | 35/7 | 35/8 | 89.6 | 1.52 | 0.87 | 0.93 | 0.98 | 1.03 | 1.09 | 1.15 | 1.20 | 1.26 | 1.31 | 1.37 | 4841 | 4534 | 4262 | 4017 | 3804 | 3616 | 3449 | 3298 | 3163 | 3040 |
| 49 | PARTRIDGE ACSR | 35/8 | 35/9 | 79.2 | 1.41 | 0.87 | 0.93 | 0.99 | 1.05 | 1.11 | 1.16 | 1.22 | 1.28 | 1.33 | 1.38 | 4841 | 4534 | 4262 | 4017 | 3804 | 3616 | 3449 | 3298 | 3163 | 3040 |
| 49 | PARTRIDGE ACSR | 35/9 | 35/10 | 88.2 | -2.24 | 1.09 | 1.15 | 1.23 | 1.30 | 1.37 | 1.44 | 1.51 | 1.58 | 1.65 | 1.72 | 4841 | 4534 | 4262 | 4017 | 3804 | 3616 | 3449 | 3298 | 3163 | 3040 |
| 49 | PARTRIDGE ACSR | 35/10 | 35/11 | 90.4 | 1.33 | 1.13 | 1.21 | 1.28 | 1.36 | 1.44 | 1.51 | 1.59 | 1.66 | 1.73 | 1.80 | 4841 | 4534 | 4262 | 4017 | 3804 | 3616 | 3449 | 3298 | 3163 | 3040 |
| 49 | PARTRIDGE ACSR | 35/11 | 35/12 | 79.8 | 3.72 | 0.88 | 0.94 | 1.00 | 1.06 | 1.13 | 1.18 | 1.24 | 1.30 | 1.35 | 1.41 | 4841 | 4534 | 4262 | 4017 | 3804 | 3616 | 3449 | 3298 | 3163 | 3040 |
| 49 | PARTRIDGE ACSR | 35/12 | 36/1 | 65.1 | 2.76 | 0.59 | 0.63 | 0.67 | 0.71 | 0.75 | 0.79 | 0.82 | 0.86 | 0.90 | 0.94 | 4841 | 4534 | 4262 | 4017 | 3804 | 3616 | 3449 | 3298 | 3163 | 3040 |
| 49 | PARTRIDGE ACSR | 36/1 | 36/2 | 72.5 | 1.49 | 0.63 | 0.89 | 0.94 | 1.00 | 1.06 | 1.11 | 1.17 | 1.22 | 1.27 | 1.32 | 4841 | 4534 | 4262 | 4017 | 3804 | 3616 | 3449 | 3298 | 3163 | 3040 |
| 49 | PARTRIDGE ACSR | 36/2 | 36/3 | 75.1 | 2.20 | 0.78 | 0.83 | 0.89 | 0.94 | 0.99 | 1.04 | 1.10 | 1.15 | 1.19 | 1.24 | 4841 | 4534 | 4262 | 4017 | 3804 | 3616 | 3449 | 3298 | 3163 | 3040 |
| 49 | PARTRIDGE ACSR | 36/3 | 36/4 | 89.1 | 0.48 | 1.10 | 1.17 | 1.25 | 1.32 | 1.40 | 1.47 | 1.54 | 1.61 | 1.68 | 1.75 | 4841 | 4534 | 4262 | 4017 | 3804 | 3616 | 3449 | 3298 | 3163 | 3040 |
| 49 | PARTRIDGE ACSR | 36/4 | 36/5 | 97.0 | 1.02 | 1.05 | 1.12 | 1.20 | 1.27 | 1.34 | 1.41 | 1.48 | 1.55 | 1.61 | 1.68 | 4841 | 4534 | 4262 | 4017 | 3804 | 3616 | 3449 | 3298 | 3163 | 3040 |
| 49 | PARTRIDGE ACSR | 36/5 | 36/6 | 91.4 | -0.44 | 1.16 | 1.23 | 1.31 | 1.39 | 1.47 | 1.55 | 1.62 | 1.70 | 1.77 | 1.84 | 4841 | 4534 | 4262 | 4017 | 3804 | 3616 | 3449 | 3298 | 3163 | 3040 |
| 49 | PARTRIDGE ACSR | 36/6 | 36/7 | 100.6 | 3.81 | 1.40 | 1.50 | 1.59 | 1.69 | 1.78 | 1.88 | 1.97 | 2.06 | 2.15 | 2.25 | 4841 | 4534 | 4262 | 4017 | 3804 | 3616 | 3449 | 3298 | 3163 | 3040 |
| 49 | PARTRIDGE ACSR | 36/7 | 36/9 | 149.9 | 7.39 | 3.11 | 3.32 | 3.53 | 3.75 | 3.96 | 4.17 | 4.37 | 4.57 | 4.76 | 4.96 | 4841 | 4534 | 4262 | 4017 | 3804 | 3616 | 3449 | 3298 | 3163 | 3040 |
| 49 | PARTRIDGE ACSR | 36/9 | 36/10 | 96.9 | 3.74 | 1.30 | 1.39 | 1.48 | 1.57 | 1.65 | 1.74 | 1.82 | 1.91 | 1.99 | 2.07 | 4841 | 4534 | 4262 | 4017 | 3804 | 3616 | 3449 | 3298 | 3163 | 3040 |
| 49 | PARTRIDGE ACSR | 36/10 | 36/11 | 89.6 | 1.13 | 1.11 | 1.19 | 1.26 | 1.34 | 1.42 | 1.49 | 1.56 | 1.63 | 1.70 | 1.77 | 4841 | 4534 | 4262 | 4017 | 3804 | 3616 | 3449 | 3298 | 3163 | 3040 |
| 49 | PARTRIDGE ACSR | 36/11 | 

# AS-BUILT

CHANGES REQUIRED YES ☐ NO ☐

Name (Print) _____

Signature _____

Date _____

PERMIT TO PRACTICE
CLEAN ENERGY CONSTRUCTION INC.
Signature _____
Date 23-OCT-2018
PERMIT NUMBER: P [illegible]

| SAG AND TENSION | |
|---|---|
| CIRCUIT | VICTORIA GOLD 69kV |
| DOCUMENT | 140/7-T-1450 |
| DATE | 23-Oct-18 |
| REVISION | 0 |
| ISSUED FOR | CONSTRUCTION |
| PREPARED BY | MP |
| CHECKED BY | PC |
| APPROVED BY | PC |

ENGINEER'S SEAL

PROFESSIONAL ENGINEERS
YUKON
TERRITORY
23-OCT-2018

NOTES
1. All spans must be installed to the sag values provided. Tension values are provided as a reference only.
2. Sag and tension values shown are for new conductor under initial conditions
3. For conductors left hanging in sheaves for longer than 3 hours between initial stringing and finishing a creep correction factor must be applied
4. All span lengths and sag values are provided in metres unless otherwise noted.
5. Conductors and cables:
   Overhead Shieldwire (OHSW): Partridge ACSR
   69kV Transmission Line: Partridge ACSR
   ADSS: OFC-24G-652D-FASA-S1

Clean Energy

| SEC | CABLE | FROM STR | TO STR | SPAN AHEAD (m) | SPAN VERT. PROJ. (m) | MID SPAN SAG (m) | | | | | | | | | | HORIZONTAL TENSION (N) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | -20 | -15 | -10 | -5 | 0 | 5 | 10 | 15 | 20 | 25 | -20 | -15 | -10 | -5 | 0 | 5 | 10 | 15 | 20 | 25 |
| 49 | PARTRIDGE ACSR | 37/6 | 37/7 | 93.2 | 2.37 | 1.30 | 1.28 | 1.37 | 1.45 | 1.53 | 1.61 | 1.69 | 1.76 | 1.84 | 1.91 | 4841 | 4534 | 4262 | 4017 | 3804 | 3616 | 3449 | 3298 | 3163 | 3040 |
| 49 | PARTRIDGE ACSR | 37/7 | 37/8 | 93.2 | -0.26 | 0.96 | 1.02 | 1.09 | 1.15 | 1.21 | 1.28 | 1.34 | 1.41 | 1.47 | 1.53 | 4841 | 4534 | 4262 | 4017 | 3804 | 3616 | 3449 | 3298 | 3163 | 3040 |
| 49 | PARTRIDGE ACSR | 37/8 | 37/9 | 78.8 | 0.89 | 0.88 | 0.93 | 0.98 | 1.04 | 1.09 | 1.15 | 1.21 | 1.26 | 1.32 | 1.37 | 4841 | 4534 | 4262 | 4017 | 3804 | 3616 | 3449 | 3298 | 3163 | 3040 |
| 50 | OFC-24G-652D-FASA-S1 | 35/3 | 35/4 | 74.6 | 7.67 | 2.03 | 2.03 | 2.03 | 2.03 | 2.03 | 2.03 | 2.03 | 2.04 | 2.04 | 2.04 | 454 | 454 | 454 | 453 | 453 | 453 | 453 | 452 | 452 | 452 |
| 50 | OFC-24G-652D-FASA-S1 | 35/4 | 35/5 | 65.9 | 1.53 | 1.53 | 1.53 | 1.53 | 1.53 | 1.53 | 1.53 | 1.53 | 1.53 | 1.54 | 1.54 | 454 | 454 | 454 | 453 | 453 | 453 | 453 | 452 | 452 | 452 |
| 50 | OFC-24G-652D-FASA-S1 | 35/5 | 35/6 | 84.2 | -4.12 | 2.57 | 2.57 | 2.57 | 2.57 | 2.58 | 2.58 | 2.58 | 2.58 | 2.58 | 2.58 | 454 | 454 | 454 | 453 | 453 | 453 | 453 | 452 | 452 | 452 |
| 50 | OFC-24G-652D-FASA-S1 | 35/6 | 35/7 | 91.5 | 0.77 | 3.03 | 3.04 | 3.04 | 3.04 | 3.04 | 3.04 | 3.04 | 3.05 | 3.05 | 3.05 | 454 | 454 | 454 | 453 | 453 | 453 | 453 | 452 | 452 | 452 |
| 50 | OFC-24G-652D-FASA-S1 | 35/7 | 35/8 | 89.6 | 1.81 | 1.76 | 1.76 | 1.76 | 1.76 | 1.76 | 1.76 | 1.76 | 1.76 | 1.76 | 1.76 | 454 | 454 | 454 | 453 | 453 | 453 | 453 | 452 | 452 | 452 |
| 50 | OFC-24G-652D-FASA-S1 | 35/8 | 35/9 | 79.2 | -1.70 | 2.27 | 2.27 | 2.28 | 2.28 | 2.28 | 2.28 | 2.28 | 2.28 | 2.28 | 2.28 | 454 | 454 | 454 | 453 | 453 | 453 | 453 | 452 | 452 | 452 |
| 50 | OFC-24G-652D-FASA-S1 | 35/9 | 35/10 | 88.2 | -2.24 | 2.82 | 2.82 | 2.83 | 2.83 | 2.83 | 2.83 | 2.83 | 2.83 | 2.83 | 2.83 | 454 | 454 | 454 | 453 | 453 | 453 | 453 | 452 | 452 | 452 |
| 50 | OFC-24G-652D-FASA-S1 | 35/10 | 35/11 | 90.4 | 1.33 | 2.96 | 2.96 | 2.96 | 2.96 | 2.97 | 2.97 | 2.97 | 2.97 | 2.97 | 2.97 | 454 | 454 | 454 | 453 | 453 | 453 | 453 | 452 | 452 | 452 |
| 50 | OFC-24G-652D-FASA-S1 | 35/11 | 35/12 | 78.8 | 3.72 | 2.31 | 2.31 | 2.31 | 2.31 | 2.31 | 2.31 | 2.32 | 2.32 | 2.32 | 2.32 | 454 | 454 | 454 | 453 | 453 | 453 | 453 | 452 | 452 | 452 |
| 50 | OFC-24G-652D-FASA-S1 | 35/12 | 36/1 | 65.8 | 2.76 | 1.54 | 1.54 | 1.54 | 1.54 | 1.54 | 1.54 | 1.54 | 1.54 | 1.54 | 1.54 | 454 | 454 | 454 | 453 | 453 | 453 | 453 | 452 | 452 | 452 |
| 50 | OFC-24G-652D-FASA-S1 | 36/1 | 36/2 | 77.5 | 1.40 | 2.17 | 2.17 | 2.18 | 2.18 | 2.18 | 2.18 | 2.18 | 2.18 | 2.18 | 2.18 | 454 | 454 | 454 | 453 | 453 | 453 | 453 | 452 | 452 | 452 |
| 50 | OFC-24G-652D-FASA-S1 | 36/2 | 36/3 | 75.0 | -2.41 | 2.04 | 2.04 | 2.04 | 2.04 | 2.05 | 2.05 | 2.05 | 2.05 | 2.05 | 2.05 | 454 | 454 | 454 | 453 | 453 | 453 | 453 | 452 | 452 | 452 |
| 50 | OFC-24G-652D-FASA-S1 | 36/3 | 36/4 | 89.1 | 0.49 | 2.87 | 2.88 | 2.88 | 2.88 | 2.88 | 2.88 | 2.88 | 2.89 | 2.89 | 2.89 | 454 | 454 | 454 | 453 | 453 | 453 | 453 | 452 | 452 | 452 |
| 50 | OFC-24G-652D-FASA-S1 | 36/4 | 36/5 | 87.3 | 0.73 | 2.75 | 2.75 | 2.76 | 2.76 | 2.76 | 2.76 | 2.76 | 2.76 | 2.77 | 2.77 | 454 | 454 | 454 | 453 | 453 | 453 | 453 | 452 | 452 | 452 |
| 50 | OFC-24G-652D-FASA-S1 | 36/5 | 36/6 | 91.4 | -0.44 | 3.02 | 3.03 | 3.03 | 3.03 | 3.03 | 3.03 | 3.03 | 3.04 | 3.04 | 3.04 | 454 | 454 | 454 | 453 | 453 | 453 | 453 | 452 | 452 | 452 |
| 50 | OFC-24G-652D-FASA-S1 | 36/6 | 36/7 | 100.7 | 3.12 | 3.68 | 3.68 | 3.68 | 3.69 | 3.69 | 3.69 | 3.69 | 3.70 | 3.70 | 3.70 | 454 | 454 | 454 | 453 | 453 | 453 | 453 | 452 | 452 | 452 |
| 50 | OFC-24G-652D-FASA-S1 | 36/7 | 36/8 | 149.9 | 7.39 | 8.16 | 8.16 | 8.17 | 8.17 | 8.18 | 8.18 | 8.18 | 8.19 | 8.19 | 8.20 | 454 | 454 | 454 | 453 | 453 | 453 | 453 | 452 | 452 | 452 |
| 50 | OFC-24G-652D-FASA-S1 | 36/8 | 36/10 | 96.7 | -3.04 | 3.39 | 3.39 | 3.40 | 3.40 | 3.40 | 3.40 | 3.40 | 3.41 | 3.41 | 3.41 | 454 | 454 | 454 | 453 | 453 | 453 | 453 | 452 | 452 | 452 |
| 50 | OFC-24G-652D-FASA-S1 | 36/10 | 36/11 | 89.6 | 1.47 | 2.91 | 2.91 | 2.90 | 2.91 | 2.92 | 2.92 | 2.92 | 2.92 | 2.92 | 2.92 | 454 | 454 | 454 | 453 | 453 | 453 | 453 | 452 | 452 | 452 |
| 50 | OFC-24G-652D-FASA-S1 | 36/11 | 36/12 | 87.9 | 0.49 | 2.80 | 2.80 | 2.81 | 2.81 | 2.81 | 2.81 | 2.81 | 2.81 | 2.81 | 2.82 | 454 | 454 | 454 | 453 | 453 | 453 | 453 | 452 | 452 | 452 |
| 50 | OFC-24G-652D-FASA-S1 | 36/12 | 37/1 | 76.2 | 1.28 | 2.10 | 2.10 | 2.10 | 2.10 | 2.11 | 2.11 | 2.11 | 2.11 | 2.11 | 2.11 | 454 | 454 | 454 | 453 | 453 | 453 | 453 | 452 | 452 | 452 |
| 50 | OFC-24G-652D-FASA-S1 | 37/1 | 37/2 | 76.3 | 0.84 | 2.11 | 2.11 | 2.11 | 2.11 | 2.12 | 2.12 | 2.12 | 2.12 | 2.12 | 2.12 | 454 | 454 | 454 | 453 | 453 | 453 | 453 | 452 | 452 | 452 |
| 50 | OFC-24G-652D-FASA-S1 | 37/2 | 37/3 | 76.8 | 3.53 | 2.14 | 2.14 | 2.14 | 2.14 | 2.14 | 2.14 | 2.14 | 2.15 | 2.15 | 2.15 | 454 | 454 | 454 | 453 | 453 | 453 | 453 | 452 | 452 | 452 |
| 50 | OFC-24G-652D-FASA-S1 | 37/3 | 37/4 | 76.8 | 3.20 | 2.03 | 2.03 | 2.03 | 2.04 | 2.04 | 2.04 | 2.04 | 2.04 | 2.04 | 2.04 | 454 | 454 | 454 | 453 | 453 | 453 | 453 | 452 | 452 | 452 |
| 50 | OFC-24G-652D-FASA-S1 | 37/4 | 37/5 | 86.9 | -3.71 | 2.74 | 2.74 | 2.74 | 2.74 | 2.75 | 2.75 | 2.75 | 2.75 | 2.75 | 2.75 | 454 | 454 | 454 | 453 | 453 | 453 | 453 | 452 | 452 | 452 |
| 50 | OFC-24G-652D-FASA-S1 | 37/5 | 37/6 | 91.7 | -0.92 | 3.05 | 3.05 | 3.05 | 3.05 | 3.05 | 3.05 | 3.06 | 3.06 | 3.06 | 3.06 | 454 | 454 | 454 | 453 | 453 | 453 | 453 | 452 | 452 | 452 |
| 50 | OFC-24G-652D-FASA-S1 | 37/6 | 37/7 | 93.2 | 2.37 | 3.15 | 3.15 | 3.15 | 3.15 | 3.15 | 3.15 | 3.16 | 3.16 | 3.16 | 3.16 | 454 | 454 | 454 | 453 | 453 | 453 | 453 | 452 | 452 | 452 |
| 50 | OFC-24G-652D-FASA-S1 | 37/7 | 37/8 | 93.2 | -0.16 | 2.51 | 2.51 | 2.51 | 2.51 | 2.51 | 2.51 | 2.52 | 2.52 | 2.52 | 2.52 | 454 | 454 | 454 | 453 | 453 | 453 | 453 | 452 | 452 | 452 |
| 50 | OFC-24G-652D-FASA-S1 | 37/8 | 37/9 | 78.8 | -2.45 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.26 | 2.26 | 2.26 | 2.26 | 454 | 454 | 454 | 453 | 453 | 453 | 453 | 452 | 452 | 452 |
| 51 | PARTRIDGE ACSR | 37/9 | 37/10 | 68.7 | 11.87 | 0.62 | 0.69 | 0.75 | 0.82 | 0.89 | 0.97 | 1.04 | 1.11 | 1.17 | 1.24 | 5162 | 4682 | 4256 | 3894 | 3586 | 3322 | 3094 | 2900 | 2734 | 2587 |
| 51 | PARTRIDGE ACSR | 37/10 | 37/11 | 64.2 | 1.43 | 0.54 | 0.59 | 0.65 | 0.71 | 0.77 | 0.83 | 0.89 | 0.95 | 1.01 | 1.07 | 5162 | 4682 | 4256 | 3894 | 3586 | 3322 | 3094 | 2900 | 2734 | 2587 |
| 51 | PARTRIDGE ACSR | 37/11 | 37/12 | 68.5 | -1.04 | 0.61 | 0.67 | 0.74 | 0.81 | 0.88 | 0.95 | 1.02 | 1.08 | 1.15 | 1.22 | 5162 | 4682 | 4256 | 3894 | 3586 | 3322 | 3094 | 2900 | 2734 | 2587 |
| 51 | PARTRIDGE ACSR | 37/12 | 37/13 | 51.9 | 1.81 | 0.35 | 0.39 | 0.42 | 0.46 | 0.50 | 0.54 | 0.58 | 0.62 | 0.66 | 0.70 | 5162 | 4682 | 4256 | 3894 | 3586 | 3322 | 3094 | 2900 | 2734 | 2587 |
| 51 | PARTRIDGE ACSR | 37/13 | 38/1 | 66.3 | 2.77 | 0.55 | 0.61 | 0.67 | 0.73 | 0.80 | 0.86 | 0.92 | 0.99 | 1.05 | 1.11 | 5162 | 4682 | 4256 | 3894 | 3586 | 3322 | 3094 | 2900 | 2734 | 2587 |
| 52 | OFC-24G-652D-FASA-S1 | 37/9 | 37/10 | 68.7 | 15.16 | 0.14 | 0.14 | 0.14 | 0.14 | 0.14 | 0.14 | 0.14 | 0.14 | 0.14 | 0.14 | 5550 | 5542 | 5534 | 5526 | 5518 | 5510 | 5502 | 5497 | 5489 | 5481 |
| 52 | OFC-24G-652D-FASA-S1 | 37/10 | 37/11 | 64.2 | 1.32 | 0.12 | 0.12 | 0.12 | 0.12 | 0.12 | 0.12 | 0.12 | 0.12 | 0.12 | 0.12 | 5550 | 5542 | 5534 | 5526 | 5518 | 5510 | 5502 | 5497 | 5489 | 5481 |
| 52 | OFC-24G-652D-FASA-S1 | 37/11 | 37/12 | 68.5 | -1.04 | 0.14 | 0.14 | 0.14 | 0.14 | 0.14 | 0.14 | 0.14 | 0.14 | 0.14 | 0.14 | 5550 | 5542 | 5534 | 5526 | 5518 | 5510 | 5502 | 5497 | 5489 | 5481 |
| 52 | OFC-24G-652D-FASA-S1 | 37/12 | 37/13 | 51.9 | 2.10 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 5550 | 5542 | 5534 | 5526 | 5518 | 5510 | 5502 | 5497 | 5489 | 5481 |
| 52 | OFC-24G-652D-FASA-S1 | 37/13 | 38/1 | 66.2 | -0.70 | 0.13 | 0.13 | 0.13 | 0.13 | 0.13 | 0.13 | 0.13 | 0.13 | 0.13 | 0.13 | 5550 | 5542 | 5534 | 5526 | 5518 | 5510 | 5502 | 5497 | 5489 | 5481 |
| 53 | PARTRIDGE ACSR | 38/1 | 38/2 | 70.8 | 1.14 | 0.57 | 0.62 | 0.68 | 0.74 | 0.81 | 0.87 | 0.94 | 1.00 | 1.07 | 1.13 | 5917 | 5198 | 4933 | 4515 | 4161 | 3850 | 3577 | 3350 | 3147 | 2973 |
| 53 | PARTRIDGE ACSR | 38/2 | 38/3 | 82.5 | 0.10 | 0.77 | 0.84 | 0.91 | 1.01 | 1.09 | 1.18 | 1.27 | 1.35 | 1.45 | 1.53 | 5917 | 5198 | 4933 | 4515 | 4161 | 3850 | 3577 | 3350 | 3147 | 2973 |
| 53 | PARTRIDGE ACSR | 38/3 | 38/4 | 57.2 | -0.54 | 0.51 | 0.56 | 0.61 | 0.67 | 0.73 | 0.79 | 0.85 | 0.90 | 0.96 | 1.02 | 5917 | 5198 | 4933 | 4515 | 4161 | 3850 | 3577 | 3350 | 3147 | 2973 |
| 53 | PARTRIDGE ACSR | 38/4 | 38/5 | 58.6 | 0.43 | 0.53 | 0.58 | 0.64 | 0.70 | 0.76 | 0.82 | 0.88 | 0.94 | 1.00 | 1.06 | 5917 | 5198 | 4933 | 4515 | 4161 | 3850 | 3577 | 3350 | 3147 | 2973 |
| 53 | PARTRIDGE ACSR | 38/5 | 38/6 | 51.0 | 1.86 | 0.42 | 0.46 | 0.51 | 0.55 | 0.60 | 0.65 | 0.70 | 0.74 | 0.79 | 0.84 | 5917 | 5198 | 4933 | 4515 | 4161 | 3850 | 3577 | 3350 | 3147 | 2973 |
| 54 | OFC-24G-652D-FASA-S1 | 38/1 | 38/2 | 70.7 | 4.46 | 0.22 | 0.22 | 0.22 | 0.22 | 0.22 | 0.23 | 0.23 | 0.23 | 0.23 | 0.23 | 3700 | 3692 | 3684 | 3676 | 3667 | 3659 | 3651 | 3643 | 3639 | 3631 |
| 54 | OFC-24G-652D-FASA-S1 | 38/2 | 38/3 | 82.5 | 0.09 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.31 | 0.31 | 0.31 | 0.31 | 0.31 | 3700 | 3692 | 3684 | 3676 | 3667 | 3659 | 3651 | 3643 | 3639 | 3631 |
| 54 | OFC-24G-652D-FASA-S1 | 38/3 | 38/4 | 57.2 | 0.54 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 3700 | 3692 | 3684 | 3676 | 3667 | 3659 | 3651 | 3643 | 3639 | 3631 |
| 54 | OFC-24G-652D-FASA-S1 | 38/4 | 38/5 | 58.6 | 0.53 | 0.21 | 0.21 | 0.21 | 0.21 | 0.21 | 0.21 | 0.21 | 0.21 | 0.21 | 0.21 | 3700 | 3692 | 3684 | 3676 | 3667 | 3659 | 3651 | 3643 | 3639 | 3631 |
| 54 | OFC-24G-652D-FASA-S1 | 38/5 | 38/6 | 51.0 | -1.88 | 0.17 | 0.17 | 0.17 | 0.17 | 0.17 | 0.17 | 0.17 | 0.17 | 0.17 | 0.17 | 3700 | 3692 | 3684 | 3676 | 3667 | 3659 | 3651 | 3643 | 3639 | 3631 |
| 55 | PARTRIDGE ACSR | 38/6 | 38/7 | 78.1 | -1.44 | 0.72 | 0.78 | 0.85 | 0.91 | 0.98 | 1.04 | 1.11 | 1.17 | 1.23 | 1.29 | 5638 | 5208 | 4817 | 4483 | 4184 | 3923 | 3695 | 3496 | 3317 | 3161 |
| 55 | PARTRIDGE ACSR | 38/7 | 38/8 | 82.5 | 0.75 | 0.81 | 0.88 | 0.95 | 1.02 | 1.09 | 1.16 | 1.24 | 1.31 | 1.38 | 1.44 | 5638 | 5208 | 4817 | 4483 | 4184 | 3923 | 3695 | 3496 | 3317 | 3161 |
| 55 | PARTRIDGE ACSR | 38/8 | 38/9 | 87.1 | 1.39 | 0.83 | 0.89 | 0.97 | 1.04 | 1.12 | 1.19 | 1.26 | 1.33 | 1.40 | 1.47 | 5638 | 5208 | 4817 | 4483 | 4184 | 3923 | 3695 | 3496 | 3317 | 3161 |
| 55 | PARTRIDGE ACSR | 38/9 | 38/10 | 80.4 | -0.81 | 0.77 | 0.83 | 0.90 | 0.97 | 1.04 | 1.10 | 1.17 | 1.24 | 1.31 | 1.37 | 5638 | 5208 | 4817 | 4483 | 4184 | 3923 | 3695 | 3496 | 3317 | 3161 |
| 55 | PARTRIDGE ACSR | 38/10 | 38/11 | 84.5 | 0.65 | 0.85 | 0.92 | 0.99 | 1.07 | 1.14 | 1.22 | 1.30 | 1.37 | 1.44 | 1.52 | 5638 | 5208 | 4817 | 4483 | 4184 | 3923 | 3695 | 3496 | 3317 | 3161 |
| 55 | PARTRIDGE ACSR | 38/11 | 38/12 | 89.2 | 1.38 | 0.95 | 1.02 | 1.11 | 1.19 | 1.28 | 1.36 | 1.44 | 1.53 | 1.61 | 1.69 | 5638 | 5208 | 4817 | 4483 | 4184 | 3923 | 3695 | 3496 | 3317 | 3161 |
| 55 | PARTRIDGE ACSR | 38/12 | 38/13 | 72.2 | -0.17 | 0.67 | 0.67 | 0.72 | 0.78 | 0.83 | 0.89 | 0.95 | 1.00 | 1.05 | 1.11 | 5638 | 5208 | 4817 | 4483 | 4184 | 3923 | 3695 | 3496 | 3317 | 3161 |
| 56 | PARTRIDGE ACSR | 38/13 | 39/1 | 91.2 | 1.44 | 0.99 | 1.07 | 1.16 | 1.24 | 1.33 | 1.42 | 1.51 | 1.59 | 1.68 | 1.76 | 5638 | 5208 | 4817 | 4483 | 4184 | 3923 | 3695 | 3496 | 3317 | 3161 |
| 56 | PARTRIDGE ACSR | 39/1 | 39/2 | 76.9 | 3.58 | 0.70 | 0.76 | 0.82 | 0.88 | 0.95 | 1.01 | 1.07 | 1.13 | 1.20 | 1.25 | 5638 | 5208 | 4817 | 4483 | 4184 | 3923 | 3695 | 3496 | 3317 | 3161 |
| 56 | PARTRIDGE ACSR | 39/2 | 39/3 | 82.3 | 3.57 | 0.81 | 0.87 | 0.94 | 1.01 | 1.09 | 1.16 | 1.23 | 1.30 | 1.37 | 1.44 | 5638 | 5208 | 4817 | 4483 | 4184 | 3923 | 3695 | 3496 | 3317 | 3161 |
| 56 | PARTRIDGE ACSR | 39/3 | 39/4 | 82.0 | 7.09 | 0.80 | 0.87 | 0.94 | 1.01 | 1.08 | 1.15 | 1.22 | 1.29 | 1.36 | 1.43 | 5638 | 5208 | 4817 | 4483 | 4184 | 3923 | 3695 | 3496 | 3317 | 3161 |
| 56 | OFC-24G-652D-FASA-S1 | 38/6 | 38/7 | 78.0 | 0.40 | 0.52 | 0.53 | 0.53 | 0.53 | 0.53 | 0.53 | 0.53 | 0.54 | 0.54 | 0.54 | 1908 | 1900 | 1896 | 1888 | 1884 | 1876 | 1871 | 1865 | 1859 | 1855 |
| 56 | OFC-24G-652D-FASA-S1 | 38/7 | 38/8 | 82.5 | -0.86 | 0.59 | 0.59 | 0.59 | 0.59 | 0.59 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 1908 | 1900 | 1896 | 1888 | 1884 | 1876 | 1871 | 1865 | 1859 | 1855 |
| 56 | OFC-24G-652D-FASA-S1 | 38/8 | 38/9 | 89.3 | 1.35 | 0.60 | 0.60 | 0.60 | 0.60 | 0.61 | 0.61 | 0.61 | 0.61 | 0.61 | 0.61 | 1908 | 1900 | 1896 | 1888 | 1884 | 1876 | 1871 | 1865 | 1859 | 1855 |
| 56 | OFC-24G-652D-FASA-S1 | 38/9 | 38/10 | 80.4 | -0.81 | 0.56 | 0.56 | 0.56 | 0.56 | 0.56 | 0.57 | 0.57 | 0.57 | 0.57 | 0.57 | 1908 | 1900 | 1896 | 1888 | 1884 | 1876 | 1871 | 1865 | 1859 | 1855 |
| 56 | OFC-24G-652D-FASA-S1 | 38/10 | 38/11 | 84.5 | -0.65 | 0.62 | 0.62 | 0.62 | 0.62 | 0.62 | 0.63 | 0.63 | 0.63 | 0.63 | 0.63 | 1908 | 1900 | 1896 | 1888 | 1884 | 1876 | 1871 | 1865 | 1859 | 1855 |
| 56 | OFC-24G-652D-FASA-S1 | 38/11 | 38/12 | 89.2 | 1.38 | 0.69 | 0.69 | 0.69 | 0.69 | 0.69 | 0.70 | 0.70 | 0.70 | 0.70 | 0.71 | 1908 | 1900 | 1896 | 1888 | 1884 | 1876 | 1871 | 1865 | 1859 | 1855 |
| 56 | OFC-24G-652D-FASA-S1 | 38/12 | 38/13 | 72.2 | -0.17 | 0.45 | 0.45 | 0.45 | 0.45 | 0.45 | 0.46 | 0.46 | 0.46 | 0.46 | 0.46 | 1908 | 1900 | 1896 | 1888 | 1884 | 1876 | 1871 | 1865 | 1859 | 1855 |
| 56 | OFC-24G-652D-FASA-S1 | 38/13 | 39/1 | 91.2 | 1.44 | 0.72 | 0.72 | 0.72 | 0.73 | 0.73 | 0.73 | 0.73 | 0.73 | 0.74 | 0.74 | 1908 | 1900 | 1896 | 1888 | 1884 | 1876 | 1871 | 1865 | 1859 | 1855 |
| 56 | OFC-24G-652D-FASA-S1 | 39/1 | 39/2 | 76.9 | 3.58 | 0.51 | 0.51 | 0.51 | 0.52 | 0.52 | 0.52 | 0.52 | 0.52 | 0.52 | 0.52 | 1908 | 1900 | 1896 | 1888 | 1884 | 1876 | 1871 | 1865 | 1859 | 1855 |
| 56 | OFC-24G-652D-FASA-S1 | 39/2 | 39/3 | 82.3 | 3.57 | 0.58 | 0.59 | 0.59 | 0.59 | 0.59 | 0.59 | 0.60 | 0.60 | 0.60 | 0.60 | 1908 | 1900 | 1896 | 1888 | 1884 | 1876 | 1871 | 1865 | 1859 | 1855 |
| 56 | OFC-24G-652D-FASA-S1 | 39/3 | 39/4 | 82.0 | 7.09 | 0.56 | 0.58 | 0.58 | 0.59 | 0.59 | 0.59 | 0.59 | 0.59 | 0.60 | 0.60 | 1908 | 1900 | 1896 | 1888 | 1884 | 1876 | 1871 | 1865 | 1859 | 1855 |
| 57 | PARTRIDGE ACSR | 39/4 | 39/5 | 89.7 | 0.55 | 0.96 | 1.04 | 1.13 | 1.23 | 1.30 | 1.39 | 1.47 | 1.55 | 1.64 | 1.72 | 5600 | 5170 | 4787 | 4452 | 4156 | 3900 | 3671 | 3476 | 3298 | 3143 |
| 57 | PARTRIDGE ACSR | 39/5 | 39/6 | 59.3 | 0.23 | 0.95 | 1.03 | 1.12 | 1.20 | 1.29 | 1.37 | 1.46 | 1.54 | 1.62 | 1.70 | 5600 | 5170 | 4787 | 4452 | 4156 | 3900 | 3671 | 3476 | 3298 | 3143 |
| 57 | PARTRIDGE ACSR | 39/6 | 39/7 | 82.2 | 0.85 | 0.81 | 0.88 | 0.95 | 1.02 | 1.09 | 1.16 | 1.23 | 1.30 | 1.37 | 1.44 | 5600 | 5170 | 4787 | 4452 | 4156 | 3900 | 3671 | 3476 | 3298 | 3143 |
| 57 | PARTRIDGE ACSR | 39/7 | 39/8 | 82.7 | 0.97 | 0.82 | 0.89 | 0.96 | 1.03 | 1.10 | 1.18 | 1.25 | 1.32 | 1.39 | 1.46 | 5600 | 5170 | 4787 | 4452 | 4156 | 3900 | 3671 | 3476 | 3298 | 3143 |
| 57 | PARTRIDGE ACSR | 39/8 | 39/9 | 84.5 | 0.44 | 0.86 | 0.93 | 1.00 | 1.08 | 1.15 | 1.23 | 1.30 | 1.38 | 1.45 | 1.52 | 5600 | 5170 | 4787 | 4452 | 4156 | 3900 | 3671 | 3476 | 3298 | 3143 |
| 57 | PARTRIDGE ACSR | 39/9 | 39/10 | 76.5 | 3.46 | 0.70 | 0.76 | 0.82 | 0.88 | 0.94 | 1.01 | 1.07 | 1.13 | 1.19 | 1.25 | 5600 | 5170 | 4787 | 4452 | 4156 | 3900 | 3671 | 3476 | 3298 | 3143 |
| 57 | PARTRIDGE ACSR | 39/10 | 39/11 | 73.6 | 2.43 | 0.65 | 0.70 | 0.76 | 0.82 | 0.87 | 0.93 | 0.99 | 1.04 | 1.10 | 1.16 | 5600 | 5170 | 4787 | 4452 | 4156 | 3900 | 3671 | 3476 | 3298 | 3143 |
| 57 | PARTRIDGE ACSR | 39/11 | 39/12 | 71.6 | -1.13 | 0.61 | 0.66 | 0.72 | 0.77 | 0.83 | 0.88 | 0.93 | 0.99 | 1.04 | 1.09 | 5600 | 5170 | 4787 | 4452 | 4156 | 3900 | 3671 | 3476 | 3298 | 3143 |
| 57 | PARTRIDGE ACSR | 39/12 | 39/13 | 80.3 | 2.02 | 0.77 | 0.84 | 0.90 | 0.97 | 1.04 | 1.11 | 1.18 | 1.24 | 1.31 | 1.38 | 5600 | 5170 | 4787 | 4452 | 4156 | 3900 | 3671 | 3476 | 3298 | 3143 |
| 57 | PARTRIDGE ACSR | 39/13 | 40/1 | 83.6 | 2.65 | 0.84 | 0.91 | 0.98 | 1.05 | 1.13 | 1.20 | 1.28 | 1.35 | 1.42 | 1.49 | 5600 | 5170 | 4787 | 4452 | 4156 | 3900 | 3671 | 3476 | 3298 | 3143 |
| 57 | PARTRIDGE ACSR | 40/1 | 40/2 | 84.5 | -0.20 | 0.85 | 0.93 | 1.00 | 1.08 | 1.15 | 1.23 | 1.30 | 1.38 | 1.45 | 1.52 | 5600 | 5170 | 4787 | 4452 | 4156 | 3900 | 3671 | 3476 | 3298 | 3143 |
| 57 | PARTRIDGE ACSR | 40/2 | 40/3 | 90.6 | 0.15 | 0.98 | 1.07 | 1.15 | 1.24 | 1.32 | 1.41 | 1.50 | 1.58 | 1.67 | 1.75 | 5600 | 5170 | 4787 | 4452 | 4156 | 3900 | 3671 | 3476 | 3298 | 3143 |
| 57 | PARTRIDGE ACSR | 40/3 | 40/4 | 69.7 | -1.01 | 0.58 | 0.61 | 0.68 | 0.73 | 0.78 | 0.83 | 0.89 | 0.94 | 0.99 | 1.04 | 5600 | 5170 | 4787 | 4452 | 4156 | 3900 | 3671 | 3476 | 3298 | 3143 |
| 58 | OFC-24G-652D-FASA-S1 | 39/4 | 39/5 | 89.7 | 0.89 | 0.65 | 0.65 | 0.65 | 0.65 | 0.66 | 0.66 | 0.66 | 0.66 | 0.66 | 0.67 | 2047 | 2038 | 2030 | 2025 | 2017 | 2013 | 2005 | 2001 | 1993 | 1989 |
| 58 | OFC-24G-652D-FASA-S1 | 39/5 | 39/6 | 89.3 | 0.52 | 0.64 | 0.64 | 0.65 | 0.65 | 0.65 | 0.65 | 0.65 | 0.66 | 0.66 | 0.66 | 2047 | 2038 | 2030 | 2025 | 2017 | 2013 | 2005 | 2001 | 1993 | 1989 |
| 58 | OFC-24G-652D-FASA-S1 | 39/6 | 39/7 | 82.2 | 0.56 | 0.54 | 0.55 | 0.55 | 0.55 | 0.56 | 0.56 | 0.56 | 0.56 | 0.56 | 0.56 | 2047 | 2038 | 2030 | 2025 | 2017 | 2013 | 2005 | 2001 | 1993 | 1989 |
| 58 | OFC-24G-652D-FASA-S1 | 39/7 | 39/8 | 82.7 | 0.97 | 0.55 | 0.55 | 0.55 | 0.56 | 0.56 | 0.56 | 0.56 | 0.56 | 0.56 | 0.57 | 2047 | 2038 | 2030 | 2025 | 2017 | 2013 | 2005 | 2001 | 1993 | 1989 |
| 58 | OFC-24G-652D-FASA-S1 | 39/8 | 39/9 | 84.5 | 0.44 | 0.58 | 0.58 | 0.58 | 0.58 | 0.58 | 0.58 | 0.59 | 0.59 | 0.59 | 0.59 | 2047 | 2038 | 2030 | 2025 | 2017 | 2013 | 2005 | 2001 | 1993 | 1989 |
| 58 | OFC-24G-652D-FASA-S1 | 39/9 | 39/10 | 76.5 | 0.75 | 0.47 | 0.47 | 0.47 | 0.47 | 0.48 | 0.48 | 0.48 | 0.48 | 0.48 | 0.48 | 2047 | 2038 | 2030 | 2025 | 2017 | 2013 | 2005 | 2001 | 1993 | 1989 |
| 58 | OFC-24G-652D-FASA-S1 | 39/10 | 39/11 | 73.5 | 1.43 | 0.44 | 0.44 | 0.44 | 0.44 | 0.44 | 0.44 | 0.44 | 0.44 | 0.45 | 0.45 | 2047 | 2038 | 2030 | 2025 | 2017 | 2013 | 2005 | 2001 | 1993 | 1989 |
| 58 | OFC-24G-652D-FASA-S1 | 39/11 | 39/12 | 71.5 | -1.13 | 0.41 | 0.41 | 0.41 | 0.42 | 0.42 | 0.42 | 0.42 | 0.42 | 0.42 | 0.42 | 2047 | 2038 | 2030 | 2025 | 2017 | 2013 | 2005 | 2001 | 1993 | 1989 |
| 58 | OFC-24G-652D-FASA-S1 | 39/12 | 39/13 | 80.3 | 2.02 | 0.52 | 0.52 | 0.52 | 0.52 | 0.53 | 0.53 | 0.53 | 0.53 | 0.53 | 0.53 | 2047 | 2038 | 2030 | 2025 | 2017 | 2013 | 2005 | 2001 | 1993 | 1989 |
| 58 | OFC-24G-652D-FASA-S1 | 39/13 | 40/1 | 83.6 | 2.55 | 0.56 | 0.56 | 0.57 | 0.57 | 0.57 | 0.57 | 0.57 | 0.57 | 0.58 | 0.58 | 2047 | 2038 | 2030 | 2025 | 2017 | 2013 | 2005 | 2001 | 1993 | 1989 |
| 58 | OFC-24G-652D-FASA-S1 | 40/1 | 40/2 | 84.5 | -0.20 | 0.57 | 0.58 | 0.58 | 0.58 | 0.58 | 0.58 | 0.59 | 0.59 | 0.59 | 0.59 | 2047 | 2038 | 2030 | 2025 | 2017 | 2013 | 2005 | 2001 | 1993 | 1989 |
| 58 | OFC-24G-652D-FASA-S1 | 40/2 | 40/3 | 90.6 | 0.26 | 0.66 | 0.66 | 0.67 | 0.67 | 0.67 | 0.67 | 0.67 | 0.67 | 0.68 | 0.68 | 2047 | 2038 | 2030 | 2025 | 2017 | 2013 | 2005 | 2001 | 1993 | 1989 |
| 58 | OFC-24G-652D-FASA-S1 | 40/3 | 40/4 | 69.6 | -4.

| Forbes Bros | **AS-BUILT** |
|---|---|
| CHANGES REQUIRED YES ☐ NO ☐ | |
| Name (Print) | |
| Signature | |
| Date | |

PERMIT TO PRACTICE
CLEAN ENERGY CONSULTING INC
Signature: [signature]
Date: 23-OCT-2018
PERMIT NUMBER PP324

## SAG AND TENSION

| | |
|---|---|
| CIRCUIT | VICTORIA GOLD 69kV |
| DOCUMENT | 1407-T-1450 |
| DATE | 23-Oct-18 |
| REVISION | 0 |
| ISSUED FOR | CONSTRUCTION |
| PREPARED BY | MP |
| CHECKED BY | PC |
| APPROVED BY | PC |

ENGINEER'S SEAL: PROFESSIONAL ENGINEER, YUKON TERRITORY, 23-OCT-2018 [signature]

NOTES
1. All spans must be installed to the sag values provided. Tension values are provided as a reference only.
2. Sag and tension values shown are for new conductor under initial conditions.
3. For conductors left hanging in sheaves for longer than 3 hours between initial stringing and final sag, a creep correction factor must be applied.
4. All span lengths and sag values are provided in metres unless otherwise noted.
5. Conductors and cables:
   Overhead Shieldwire (OHSW): Partridge ACSR
   - 69kV Transmission Line: Partridge ACSR
   ADSS: OFC-24G.652D-FASA-S1

Clean Energy

| SEC | CABLE | FROM STR | TO STR | SPAN AHEAD (m) | SPAN VERT. PROJ. (m) | MID SPAN SAG (m) -20 | -15 | -10 | -5 | 0 | 5 | 10 | 15 | 20 | 25 | HORIZONTAL TENSION (N) -20 | -15 | -10 | -5 | 0 | 5 | 10 | 15 | 20 | 25 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 61 | PARTRIDGE ACSR | 40/7 | 40/8 | 78.7 | 18.67 | 1.02 | 1.09 | 1.16 | 1.23 | 1.31 | 1.37 | 1.44 | 1.51 | 1.57 | 1.63 | 4190 | 3910 | 3668 | 3455 | 3266 | 3103 | 2958 | 2828 | 2713 | 2608 |
| 61 | PARTRIDGE ACSR | 40/8 | 40/9 | 77.2 | 15.32 | 0.97 | 1.04 | 1.11 | 1.19 | 1.25 | 1.31 | 1.38 | 1.44 | 1.50 | 1.56 | 4190 | 3910 | 3668 | 3455 | 3266 | 3103 | 2958 | 2828 | 2713 | 2608 |
| 61 | PARTRIDGE ACSR | 40/9 | 40/10 | 82.9 | 10.63 | 1.11 | 1.19 | 1.27 | 1.34 | 1.47 | 1.50 | 1.57 | 1.64 | 1.71 | 1.78 | 4190 | 3910 | 3668 | 3455 | 3266 | 3103 | 2958 | 2828 | 2713 | 2608 |
| 61 | PARTRIDGE ACSR | 40/10 | 40/11 | 83.1 | 11.53 | 1.12 | 1.20 | 1.27 | 1.35 | 1.43 | 1.51 | 1.58 | 1.65 | 1.72 | 1.79 | 4190 | 3910 | 3668 | 3455 | 3266 | 3103 | 2958 | 2828 | 2713 | 2608 |
| 61 | PARTRIDGE ACSR | 40/11 | 40/12 | 87.2 | 13.39 | 1.23 | 1.32 | 1.41 | 1.49 | 1.58 | 1.66 | 1.74 | 1.82 | 1.90 | 1.98 | 4190 | 3910 | 3668 | 3455 | 3266 | 3103 | 2958 | 2828 | 2713 | 2608 |
| 61 | PARTRIDGE ACSR | 40/12 | 41/1 | 86.1 | 9.47 | 1.19 | 1.28 | 1.36 | 1.45 | 1.53 | 1.61 | 1.69 | 1.77 | 1.84 | 1.92 | 4190 | 3910 | 3668 | 3455 | 3266 | 3103 | 2958 | 2828 | 2713 | 2608 |
| 61 | PARTRIDGE ACSR | 41/1 | 41/2 | 87.2 | 6.85 | 1.22 | 1.31 | 1.39 | 1.48 | 1.57 | 1.65 | 1.73 | 1.81 | 1.88 | 1.96 | 4190 | 3910 | 3668 | 3455 | 3266 | 3103 | 2958 | 2828 | 2713 | 2608 |
| 61 | PARTRIDGE ACSR | 41/2 | 41/3 | 86.4 | 15.12 | 1.21 | 1.30 | 1.38 | 1.47 | 1.55 | 1.64 | 1.72 | 1.80 | 1.87 | 1.95 | 4190 | 3910 | 3668 | 3455 | 3266 | 3103 | 2958 | 2828 | 2713 | 2608 |
| 61 | PARTRIDGE ACSR | 41/3 | 41/4 | 75.8 | 18.25 | 0.94 | 1.01 | 1.08 | 1.15 | 1.21 | 1.27 | 1.34 | 1.40 | 1.46 | 1.52 | 4190 | 3910 | 3668 | 3455 | 3266 | 3103 | 2958 | 2828 | 2713 | 2608 |
| 61 | PARTRIDGE ACSR | 41/4 | 41/5 | 50.1 | 12.02 | 0.41 | 0.44 | 0.47 | 0.50 | 0.53 | 0.56 | 0.59 | 0.61 | 0.64 | 0.66 | 4190 | 3910 | 3668 | 3455 | 3266 | 3103 | 2958 | 2828 | 2713 | 2608 |
| 61 | PARTRIDGE ACSR | 41/5 | 41/6 | 41.8 | 7.47 | 0.28 | 0.30 | 0.32 | 0.34 | 0.36 | 0.38 | 0.40 | 0.42 | 0.44 | 0.46 | 4190 | 3910 | 3668 | 3455 | 3266 | 3103 | 2958 | 2828 | 2713 | 2608 |
| 62 | OFC-24G.652D-FASA-S1 | 40/6 | 40/7 | 69.7 | 18.51 | 0.42 | 0.42 | 0.42 | 0.42 | 0.42 | 0.42 | 0.42 | 0.43 | 0.43 | 0.43 | 1986 | 1982 | 1974 | 1970 | 1962 | 1957 | 1949 | 1941 | 1937 | 1929 |
| 62 | OFC-24G.652D-FASA-S1 | 40/7 | 40/8 | 78.7 | 18.56 | 0.53 | 0.53 | 0.53 | 0.53 | 0.53 | 0.53 | 0.54 | 0.54 | 0.54 | 0.54 | 1986 | 1982 | 1974 | 1970 | 1962 | 1957 | 1949 | 1941 | 1937 | 1929 |
| 62 | OFC-24G.652D-FASA-S1 | 40/8 | 40/9 | 77.2 | 15.32 | 0.50 | 0.50 | 0.51 | 0.51 | 0.51 | 0.51 | 0.51 | 0.51 | 0.52 | 0.52 | 1986 | 1982 | 1974 | 1970 | 1962 | 1957 | 1949 | 1941 | 1937 | 1929 |
| 62 | OFC-24G.652D-FASA-S1 | 40/9 | 40/10 | 82.9 | 10.63 | 0.57 | 0.57 | 0.58 | 0.58 | 0.58 | 0.58 | 0.58 | 0.59 | 0.59 | 0.59 | 1986 | 1982 | 1974 | 1970 | 1962 | 1957 | 1949 | 1941 | 1937 | 1929 |
| 62 | OFC-24G.652D-FASA-S1 | 40/10 | 40/11 | 83.1 | 11.53 | 0.58 | 0.58 | 0.58 | 0.58 | 0.58 | 0.59 | 0.59 | 0.59 | 0.59 | 0.59 | 1986 | 1982 | 1974 | 1970 | 1962 | 1957 | 1949 | 1941 | 1937 | 1929 |
| 62 | OFC-24G.652D-FASA-S1 | 40/11 | 40/12 | 87.2 | 13.39 | 0.64 | 0.64 | 0.64 | 0.64 | 0.64 | 0.65 | 0.65 | 0.65 | 0.65 | 0.66 | 1986 | 1982 | 1974 | 1970 | 1962 | 1957 | 1949 | 1941 | 1937 | 1929 |
| 62 | OFC-24G.652D-FASA-S1 | 40/12 | 41/1 | 86.1 | 9.47 | 0.62 | 0.62 | 0.62 | 0.63 | 0.63 | 0.63 | 0.63 | 0.63 | 0.63 | 0.64 | 1986 | 1982 | 1974 | 1970 | 1962 | 1957 | 1949 | 1941 | 1937 | 1929 |
| 62 | OFC-24G.652D-FASA-S1 | 41/1 | 41/2 | 87.2 | 6.86 | 0.63 | 0.63 | 0.63 | 0.64 | 0.64 | 0.64 | 0.64 | 0.65 | 0.65 | 0.65 | 1986 | 1982 | 1974 | 1970 | 1962 | 1957 | 1949 | 1941 | 1937 | 1929 |
| 62 | OFC-24G.652D-FASA-S1 | 41/2 | 41/3 | 86.4 | 15.12 | 0.63 | 0.63 | 0.63 | 0.63 | 0.63 | 0.64 | 0.64 | 0.64 | 0.64 | 0.65 | 1986 | 1982 | 1974 | 1970 | 1962 | 1957 | 1949 | 1941 | 1937 | 1929 |
| 62 | OFC-24G.652D-FASA-S1 | 41/3 | 41/4 | 75.8 | 18.25 | 0.49 | 0.49 | 0.49 | 0.49 | 0.49 | 0.50 | 0.50 | 0.50 | 0.50 | 0.50 | 1986 | 1982 | 1974 | 1970 | 1962 | 1957 | 1949 | 1941 | 1937 | 1929 |
| 62 | OFC-24G.652D-FASA-S1 | 41/4 | 41/5 | 50.7 | 12.13 | 0.21 | 0.21 | 0.22 | 0.22 | 0.22 | 0.22 | 0.22 | 0.22 | 0.22 | 0.22 | 1986 | 1982 | 1974 | 1970 | 1962 | 1957 | 1949 | 1941 | 1937 | 1929 |
| 62 | OFC-24G.652D-FASA-S1 | 41/5 | 41/6 | 41.7 | 4.13 | 0.14 | 0.15 | 0.15 | 0.15 | 0.15 | 0.15 | 0.15 | 0.15 | 0.15 | 0.15 | 1986 | 1982 | 1974 | 1970 | 1962 | 1957 | 1949 | 1941 | 1937 | 1929 |
| 63 | PARTRIDGE ACSR (OHSW) | 41/6 | 41/7 | 66.2 | -0.53 | 0.69 | 0.72 | 0.75 | 0.77 | 0.80 | 0.83 | 0.86 | 0.88 | 0.91 | 0.93 | 4272 | 4100 | 3942 | 3798 | 3669 | 3547 | 3437 | 3336 | 3240 | 3152 |
| 63 | PARTRIDGE ACSR (OHSW) | 41/7 | 41/8 | 91.0 | -0.06 | 1.30 | 1.35 | 1.41 | 1.46 | 1.51 | 1.56 | 1.61 | 1.66 | 1.71 | 1.76 | 4272 | 4100 | 3942 | 3798 | 3669 | 3547 | 3437 | 3336 | 3240 | 3152 |
| 63 | PARTRIDGE ACSR (OHSW) | 41/8 | 41/9 | 83.1 | -3.77 | 1.08 | 1.13 | 1.18 | 1.22 | 1.26 | 1.31 | 1.35 | 1.39 | 1.43 | 1.47 | 4272 | 4100 | 3942 | 3798 | 3669 | 3547 | 3437 | 3336 | 3240 | 3152 |
| 63 | PARTRIDGE ACSR (OHSW) | 41/9 | 41/10 | 86.1 | -1.32 | 1.16 | 1.21 | 1.26 | 1.31 | 1.35 | 1.40 | 1.44 | 1.49 | 1.53 | 1.58 | 4272 | 4100 | 3942 | 3798 | 3669 | 3547 | 3437 | 3336 | 3240 | 3152 |
| 63 | PARTRIDGE ACSR (OHSW) | 41/10 | 41/11 | 71.2 | -5.77 | 0.80 | 0.83 | 0.87 | 0.90 | 0.93 | 0.96 | 0.99 | 1.02 | 1.05 | 1.08 | 4272 | 4100 | 3942 | 3798 | 3669 | 3547 | 3437 | 3336 | 3240 | 3152 |
| 63 | PARTRIDGE ACSR (OHSW) | 41/11 | 41/12 | 72.5 | -8.43 | 0.83 | 0.86 | 0.90 | 0.93 | 0.97 | 1.00 | 1.03 | 1.06 | 1.09 | 1.13 | 4272 | 4100 | 3942 | 3798 | 3669 | 3547 | 3437 | 3336 | 3240 | 3152 |
| 63 | PARTRIDGE ACSR (OHSW) | 41/12 | 41/13 | 94.3 | -8.87 | 1.40 | 1.46 | 1.52 | 1.58 | 1.63 | 1.69 | 1.74 | 1.80 | 1.85 | 1.90 | 4272 | 4100 | 3942 | 3798 | 3669 | 3547 | 3437 | 3336 | 3240 | 3152 |
| 63 | PARTRIDGE ACSR (OHSW) | 41/13 | 42/1 | 100.2 | -7.25 | 1.58 | 1.64 | 1.71 | 1.77 | 1.84 | 1.90 | 1.96 | 2.02 | 2.08 | 2.14 | 4272 | 4100 | 3942 | 3798 | 3669 | 3547 | 3437 | 3336 | 3240 | 3152 |
| 63 | PARTRIDGE ACSR (OHSW) | 42/1 | 42/2 | 101.4 | -7.08 | 1.62 | 1.69 | 1.76 | 1.82 | 1.89 | 1.95 | 2.01 | 2.08 | 2.14 | 2.20 | 4272 | 4100 | 3942 | 3798 | 3669 | 3547 | 3437 | 3336 | 3240 | 3152 |
| 63 | PARTRIDGE ACSR (OHSW) | 42/2 | 42/4 | 168.6 | -9.64 | 4.47 | 4.66 | 4.84 | 5.03 | 5.21 | 5.39 | 5.56 | 5.73 | 5.90 | 6.06 | 4272 | 4100 | 3942 | 3798 | 3669 | 3547 | 3437 | 3336 | 3240 | 3152 |
| 63 | PARTRIDGE ACSR (OHSW) | 42/4 | 42/5 | 165.0 | -2.61 | 4.27 | 4.45 | 4.63 | 4.81 | 4.98 | 5.15 | 5.31 | 5.47 | 5.64 | 5.80 | 4272 | 4100 | 3942 | 3798 | 3669 | 3547 | 3437 | 3336 | 3240 | 3152 |
| 63 | PARTRIDGE ACSR (OHSW) | 42/5 | 42/6 | 70.9 | 5.69 | 0.79 | 0.82 | 0.86 | 0.89 | 0.92 | 0.95 | 0.98 | 1.01 | 1.04 | 1.07 | 4272 | 4100 | 3942 | 3798 | 3669 | 3547 | 3437 | 3336 | 3240 | 3152 |
| 63 | PARTRIDGE ACSR (OHSW) | 42/6 | 42/7 | 75.4 | 8.51 | 0.90 | 0.93 | 0.97 | 1.01 | 1.04 | 1.08 | 1.11 | 1.15 | 1.18 | 1.22 | 4272 | 4100 | 3942 | 3798 | 3669 | 3547 | 3437 | 3336 | 3240 | 3152 |
| 64 | PARTRIDGE ACSR | 41/6 | 41/7 | 66.2 | 1.95 | 0.65 | 0.68 | 0.71 | 0.74 | 0.77 | 0.79 | 0.82 | 0.85 | 0.87 | 0.90 | 4522 | 4324 | 4147 | 3984 | 3837 | 3702 | 3580 | 3465 | 3362 | 3264 |
| 64 | PARTRIDGE ACSR | 41/7 | 41/8 | 91.0 | -0.06 | 1.23 | 1.28 | 1.34 | 1.39 | 1.44 | 1.50 | 1.55 | 1.60 | 1.65 | 1.70 | 4522 | 4324 | 4147 | 3984 | 3837 | 3702 | 3580 | 3465 | 3362 | 3264 |
| 64 | PARTRIDGE ACSR | 41/8 | 41/9 | 83.1 | -3.77 | 1.02 | 1.07 | 1.12 | 1.16 | 1.21 | 1.25 | 1.29 | 1.34 | 1.38 | 1.42 | 4522 | 4324 | 4147 | 3984 | 3837 | 3702 | 3580 | 3465 | 3362 | 3264 |
| 64 | PARTRIDGE ACSR | 41/9 | 41/10 | 86.1 | -1.32 | 1.10 | 1.15 | 1.20 | 1.25 | 1.29 | 1.34 | 1.39 | 1.43 | 1.48 | 1.52 | 4522 | 4324 | 4147 | 3984 | 3837 | 3702 | 3580 | 3465 | 3362 | 3264 |
| 64 | PARTRIDGE ACSR | 41/10 | 41/11 | 71.2 | -5.27 | 0.75 | 0.79 | 0.82 | 0.86 | 0.89 | 0.92 | 0.95 | 0.98 | 1.01 | 1.04 | 4522 | 4324 | 4147 | 3984 | 3837 | 3702 | 3580 | 3465 | 3362 | 3264 |
| 64 | PARTRIDGE ACSR | 41/11 | 41/12 | 72.5 | -8.43 | 0.78 | 0.82 | 0.85 | 0.89 | 0.92 | 0.96 | 0.99 | 1.02 | 1.05 | 1.09 | 4522 | 4324 | 4147 | 3984 | 3837 | 3702 | 3580 | 3465 | 3362 | 3264 |
| 64 | PARTRIDGE ACSR | 41/12 | 41/13 | 94.3 | -8.82 | 1.32 | 1.39 | 1.44 | 1.50 | 1.56 | 1.62 | 1.67 | 1.73 | 1.78 | 1.84 | 4522 | 4324 | 4147 | 3984 | 3837 | 3702 | 3580 | 3465 | 3362 | 3264 |
| 64 | PARTRIDGE ACSR | 41/13 | 42/1 | 100.2 | -7.25 | 1.49 | 1.56 | 1.63 | 1.69 | 1.76 | 1.82 | 1.88 | 1.95 | 2.01 | 2.07 | 4522 | 4324 | 4147 | 3984 | 3837 | 3702 | 3580 | 3465 | 3362 | 3264 |
| 64 | PARTRIDGE ACSR | 42/1 | 42/2 | 101.3 | -7.99 | 1.52 | 1.59 | 1.66 | 1.73 | 1.80 | 1.86 | 1.93 | 1.99 | 2.06 | 2.11 | 4522 | 4324 | 4147 | 3984 | 3837 | 3702 | 3580 | 3465 | 3362 | 3264 |
| 64 | PARTRIDGE ACSR | 42/2 | 42/4 | 168.6 | -9.64 | 4.22 | 4.42 | 4.60 | 4.79 | 4.98 | 5.16 | 5.34 | 5.51 | 5.68 | 5.85 | 4522 | 4324 | 4147 | 3984 | 3837 | 3702 | 3580 | 3465 | 3362 | 3264 |
| 64 | PARTRIDGE ACSR | 42/4 | 42/5 | 165.0 | -2.61 | 4.04 | 4.22 | 4.40 | 4.58 | 4.76 | 4.93 | 5.10 | 5.27 | 5.43 | 5.60 | 4522 | 4324 | 4147 | 3984 | 3837 | 3702 | 3580 | 3465 | 3362 | 3264 |
| 64 | PARTRIDGE ACSR | 42/5 | 42/6 | 71.0 | 4.61 | 0.75 | 0.78 | 0.82 | 0.85 | 0.89 | 0.91 | 0.95 | 0.98 | 1.01 | 1.04 | 4522 | 4324 | 4147 | 3984 | 3837 | 3702 | 3580 | 3465 | 3362 | 3264 |
| 64 | PARTRIDGE ACSR | 42/6 | 42/7 | 75.4 | 7.24 | 0.85 | 0.88 | 0.92 | 0.96 | 1.00 | 1.03 | 1.07 | 1.10 | 1.14 | 1.17 | 4522 | 4324 | 4147 | 3984 | 3837 | 3702 | 3580 | 3465 | 3362 | 3264 |
| 65 | OFC-24G.652D-FASA-S1 | 41/6 | 41/7 | 66.2 | 4.51 | 1.57 | 1.57 | 1.57 | 1.57 | 1.57 | 1.57 | 1.57 | 1.57 | 1.57 | 1.57 | 461 | 461 | 461 | 461 | 461 | 460 | 460 | 460 | 460 | 460 |
| 65 | OFC-24G.652D-FASA-S1 | 41/7 | 41/8 | 91.0 | -0.06 | 2.95 | 2.95 | 2.95 | 2.95 | 2.95 | 2.96 | 2.96 | 2.96 | 2.96 | 2.96 | 461 | 461 | 461 | 461 | 461 | 460 | 460 | 460 | 460 | 460 |
| 65 | OFC-24G.652D-FASA-S1 | 41/8 | 41/9 | 83.1 | -3.77 | 2.46 | 2.47 | 2.47 | 2.47 | 2.47 | 2.47 | 2.47 | 2.47 | 2.47 | 2.47 | 461 | 461 | 461 | 461 | 461 | 460 | 460 | 460 | 460 | 460 |
| 65 | OFC-24G.652D-FASA-S1 | 41/9 | 41/10 | 86.1 | -1.32 | 2.64 | 2.64 | 2.64 | 2.64 | 2.65 | 2.65 | 2.65 | 2.65 | 2.65 | 2.65 | 461 | 461 | 461 | 461 | 461 | 460 | 460 | 460 | 460 | 460 |
| 65 | OFC-24G.652D-FASA-S1 | 41/10 | 41/11 | 71.2 | -5.27 | 1.81 | 1.81 | 1.82 | 1.82 | 1.82 | 1.82 | 1.82 | 1.82 | 1.82 | 1.82 | 461 | 461 | 461 | 461 | 461 | 460 | 460 | 460 | 460 | 460 |
| 65 | OFC-24G.652D-FASA-S1 | 41/11 | 41/12 | 72.5 | -8.43 | 1.89 | 1.89 | 1.89 | 1.88 | 1.89 | 1.89 | 1.89 | 1.89 | 1.89 | 1.89 | 461 | 461 | 461 | 461 | 461 | 460 | 460 | 460 | 460 | 460 |
| 65 | OFC-24G.652D-FASA-S1 | 41/12 | 41/13 | 94.3 | -8.82 | 3.19 | 3.19 | 3.19 | 3.19 | 3.19 | 3.19 | 3.20 | 3.20 | 3.20 | 3.20 | 461 | 461 | 461 | 461 | 461 | 460 | 460 | 460 | 460 | 460 |
| 65 | OFC-24G.652D-FASA-S1 | 41/13 | 42/1 | 100.2 | -6.85 | 3.59 | 3.59 | 3.59 | 3.59 | 3.59 | 3.59 | 3.59 | 3.60 | 3.60 | 3.60 | 461 | 461 | 461 | 461 | 461 | 460 | 460 | 460 | 460 | 460 |
| 65 | OFC-24G.652D-FASA-S1 | 42/1 | 42/2 | 101.4 | -7.91 | 3.68 | 3.68 | 3.68 | 3.68 | 3.69 | 3.69 | 3.69 | 3.69 | 3.69 | 3.70 | 461 | 461 | 461 | 461 | 461 | 460 | 460 | 460 | 460 | 460 |
| 65 | OFC-24G.652D-FASA-S1 | 42/2 | 42/4 | 168.0 | -9.84 | 10.19 | 10.19 | 10.19 | 10.20 | 10.20 | 10.21 | 10.21 | 10.22 | 10.22 | 10.23 | 461 | 461 | 461 | 461 | 461 | 460 | 460 | 460 | 460 | 460 |
| 65 | OFC-24G.652D-FASA-S1 | 42/4 | 42/5 | 165.0 | -2.91 | 9.74 | 9.74 | 9.74 | 9.75 | 9.75 | 9.76 | 9.76 | 9.77 | 9.77 | 9.77 | 461 | 461 | 461 | 461 | 461 | 460 | 460 | 460 | 460 | 460 |
| 65 | OFC-24G.652D-FASA-S1 | 42/5 | 42/6 | 70.9 | 4.62 | 1.79 | 1.80 | 1.80 | 1.80 | 1.80 | 1.80 | 1.80 | 1.80 | 1.80 | 1.80 | 461 | 461 | 461 | 461 | 461 | 460 | 460 | 460 | 460 | 460 |
| 65 | OFC-24G.652D-FASA-S1 | 42/6 | 42/7 | 75.3 | 4.68 | 2.03 | 2.03 | 2.03 | 2.03 | 2.03 | 2.03 | 2.03 | 2.03 | 2.03 | 2.03 | 461 | 461 | 461 | 461 | 461 | 460 | 460 | 460 | 460 | 460 |
| 66 | PARTRIDGE ACSR SLACK (OHSW) | 42/7 | 42/8 | 34.7 | -1.95 | 1.12 | 1.15 | 1.17 | 1.18 | 1.21 | 1.23 | 1.25 | 1.26 | 1.28 | 1.29 | 721 | 706 | 694 | 681 | 668 | 659 | 650 | 642 | 634 | 626 |
| 67 | PARTRIDGE ACSR SLACK (OHSW) | 42/7 | 42/8 | 34.7 | -1.65 | 1.12 | 1.14 | 1.16 | 1.19 | 1.21 | 1.22 | 1.24 | 1.26 | 1.27 | 1.29 | 724 | 709 | 696 | 683 | 671 | 661 | 652 | 642 | 636 | 628 |
| 68 | PARTRIDGE ACSR SLACK | 42/7 | 42/8 | 34.6 | 1.90 | 1.06 | 1.09 | 1.11 | 1.13 | 1.15 | 1.17 | 1.19 | 1.21 | 1.23 | 1.24 | 757 | 741 | 725 | 711 | 697 | 686 | 675 | 665 | 656 | 648 |
| 68 | OFC-24G.652D-FASA-S1 SLACK | 42/7 | 42/8 | 34.6 | 7.40 | 1.30 | 1.30 | 1.30 | 1.30 | 1.30 | 1.30 | 1.30 | 1.30 | 1.30 | 1.30 | 156 | 156 | 155 | 155 | 155 | 155 | 155 | 155 | 155 | 155 |

A. POLES

1. LENGTH AND CLASS OF POLES ARE SPECIFIED ON STRUCTURE DATA SHEETS OR CONSTRUCTION DRAWINGS.

2. FOR POLE TOP CAP, NAIL ALUMINUM SHEET AT EACH CORNER. FLATTEN PROTRUDING EDGE OF THE CAP AGAINST THE SURFACE OF THE POLE. NAILS MUST NOT BE DRIVEN THROUGH THE TOP SURFACE OF THE POLE. ALTERNATIVE CAPPING IS ACCEPTABLE IF APPROVED BY ENGINEER.

3. SETTING POLES:
   a) TANGENT LINES – SET ADJACENT POLES TO HAVE GAINS FACING IN OPPOSITE DIRECTIONS.
   b) ANGLE AND DEADENDS – SET ADJACENT POLES TO HAVE GAINS FACE THE ANGLE OR DEADEND STRUCTURE
   c) GRADES – SET POLES TO HAVE GAINS FACE UP THE GRADE.
   d) CROSSING – SET ADJACENT POLES TO HAVE GAINS FACING THE CROSSING STRUCTURES.
   e) LONG SPANS – SET ADJACENT POLES TO HAVE GAINS FACE AWAY FROM THE LONG SPAN.

4 ALL NEW POLES TO BE INTERIOR DOUGLAS FIR, THROUGH BORED AT GROUNDLINE, PENTACHLOROPHENOL (PENTA) TREATED, AND FURNISHED WITH BUTT GAINS AT 3650 MM (12'–0") FROM POLE BASE.

5. ALL POLES TO HAVE AN ALUMINUM DATE TAG INSTALLED INDICATING POLE HEIGHT, CLASS, AND DATE OF INSTALLATION

6. WHEN SETTING POLES IN SOIL THE TOP 300mm (1') OF IN–SITU OVERBURDEN SHALL BE DISREGARDED IN DETERMINING THE REQUIRED POLE SETTING DEPTH.

B. GUYS

1. INSTALL GUYS ONLY WHEN SPECIFIED ON STRUCTURE DATA SHEETS OR CONSTRUCTION DRAWINGS.

2. PROCEED WITH THE INSTALLATION OF SIDE AND LONGITUDINAL GUYS ONLY WHEN GUY HOOK(S) AND BOLT ASSEMBLY HAVE BEEN PERMANENTLY INSTALLED ON THE POLE.

3. ALL GUYS WILL BE PRETENSIONED TO A MAXIMUM LOAD OF 2.5 kN (500 LB).

4. GUY INSULATORS TO BE USED ON ALL 69 kV STRUCTURE GUYS. TOP GUY INSULATOR TO BE LOCATED A MINIMUM OF 2500 mm HORIZONTALLY FROM THE POLE. BOTTOM GUY INSULATOR TO BE LOCATED AT A MINIMUM DIMENSION OF 3000 mm ABOVE GROUND.

5. GUY GUARDS SHALL BE USED ON ALL GUYS.

6. FOR DEADEND TYPE STRUCTURES WITH LINE ANGLES 5° – 30° INCLUSIVE, GUY ANCHOR LOCATIONS TO BE LA/2 + 2'.

7. POLES AT ANGLE OR TERMINAL STRUCTURES SHOULD HAVE GUYS AND ANCHORS INSTALLED BEFORE ANY CONDUCTORS ARE ATTACHED TO THE POLE. BEFORE BACKFILLING AND TAMPING ARE COMPLETE, THE POLE MUST BE RAKED TOWARDS THE GUY BY APPROXIMATELY 300 mm TO COMPENSATE FOR MOVEMENT FROM THE CONDUCTOR TENSIONING AND ANCHOR SETTLING. IT IS IMPORTANT THAT THE POLE NOT BE SET PLUMB AND THEN PULLED BACK WITH THE GUY BECAUSE THIS PRE–STRESSES THE GUY AND POLE AND CAN SIGNIFICANTLY REDUCE THE STRUCTURE'S CAPACITY.

C. HARDWARE

1. WHERE THE END OF A BOLT PROTRUDES MORE THAN 50 mm BEYOND PAL NUT, IT SHALL BE CUT OFF APPROXIMATELY 15 mm FROM NUT AND THE SHARP END OF THE BOLT FILED SMOOTH, THEN LIBERALLY COATED WITH ZINC–RICH PAINT. ALTERNATIVELY, INSTALL SHORTER BOLTS.

2. THE TEETH OF ALL GRID–GAINS SHALL BE COMPLETELY EMBEDDED INTO THE WOOD WITH THE AID OF A HYDRAULIC PRESS.

3. FIELD–DRILLED HOLES IN WOOD COMPONENTS TO BE TREATED WITH AN APPROVED WOOD PRESERVATIVE. FIELD–DRILLED HOLES IN STEEL SHALL BE PAINTED WITH ZINC–RICH PAINT.

4. PAL NUTS ARE TO BE USED ON ALL BOLTS THAT CONNECT COMPONENTS TOGETHER WITH WOOD BETWEEN THEM. HELICAL SPRING WASHERS ARE TO BE USED WHEN THERE IS ONLY METAL.

5. BOND ALL GROUPS OF HARDWARE AS SHOWN ON DRAWING. WIRE SHALL BE WRAPPED ONE COMPLETE TURN AROUND EACH BOLT BETWEEN HARDWARE AND POLE. USE STAPLES WHERE REQUIRED. WHEN GROUNDING IS REQUIRED, SPACE THE STAPLES ON THE WIRE DOWN THE WOOD POLE AT ABOUT 0.5 m SPACING. CARE SHALL BE TAKEN TO ENSURE BONDING WIRE IS NOT NICKED BY ANY SHARP EDGES OF HARDWARE.

6. STRAIN, SUSPENSION, AND TRUNNION CLAMP BOLTS TO BE TORQUED TO MANUFACTURER'S SPECIFICATIONS. IF NO MANUFACTURER'S SPECIFICATIONS ARE PROVIDED THEN USE THE FOLLOWING TORQUING:
   ½" ø BOLTS 50 N.m
   ⅝" ø BOLTS 100 N.m

D. INSULATORS

1. 69 kV LINE POST INSULATORS:

| MANUFACTURER | STOCK NO. | DESCRIPTION |
|---|---|---|
| ~~NGK~~ (LAPP) CL203822075A | ~~L2–SN181–23~~ | HORIZONTAL CLAMP TOP WITH BENDABLE CURVED BASE |
| ~~NGK~~ (LAPP) CL203744075A1 | ~~L2–SN181–47~~ | VERTICAL CLAMP TOP WITH STUD BASE |

2. 69 kV GLASS SUSPENSION, ANGLE, AND DEADEND INSULATORS:

| MANUFACTURER | STOCK NO. | DESCRIPTION |
|---|---|---|
| SEDIVER | N70/146 | GLASS INSULATORS, 146 mm x 254mm, 70 kN |

E. CROSSARMS AND CROSSBRACES

1 INSTALL DOUBLE CROSSARMS AND CROSSBRACES ONLY WHEN SPECIFIED ON STRUCTURE DATA SHEET OR CONSTRUCTION DRAWINGS.

2. STEEL CROSSARM AND CROSSBRACES MUST BE BONDED AND GROUNDED.

F. CONDUCTOR CLEARANCES

1. THE MINIMUM CONDUCTOR CLEARANCE TO POLES AND GUY WIRES MUST NOT BE LESS THAN 500 mm.

2. TO OBTAIN THE MAXIMUM CONDUCTOR TO IN–LINE GUY CLEARANCE, POSITION THE HIGHER DEADEND POLE ATTACHMENT ON THE SIDE FACING THE SPAN TO AN ADJACENT STRUCTURE LOCATED AT A LOWER ELEVATION.

FORBES BROS **AS-BUILT**

CHANGES REQUIRED YES ☐ NO ☐

Name (Print) _____

Signature _____

Date _____

ISSUED FOR CONSTRUCTION

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CLEAN ENERGY CONSULTING INC.
SIGNATURE _____
Date May 11, 2018
PERMIT NUMBER: PP424
Association of Professional Engineers of Yukon

| NO. | DATE | REVISION | DES | DWN | CHK | APR |
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WN BRAZIER ASSOCIATES INC

SEAL: PROFESSIONAL ENGINEER YUKON TERRITORY MATTHEW OBEE May 11, 2018

EAGLE GOLD PROJECT

69 kV TRANSMISSION LINE

WOODPOLE STRUCTURE, GENERAL CONSTRUCTION NOTES (SHEET 1 OF 2)

| PROJECT No. | DRAWING No. | REV. |
|---|---|---|
| 1407 | 1407–T–1300–1 | 0 |

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G. ADSS UNDERBUILD

1. ADSS COMMUNICATION CABLE UNDERBUILD TO BE INSTALLED AS PER THE CONSTRUCTION DRAWINGS AND STRUCTURE DATA SHEETS.

2. CONTRACTOR TO LOCATE SPLICES DEPENDING ON REEL LENGTHS PROCURED AND STRINGING SEQUENCE. THE NUMBER OF SPLICES ARE TO BE KEPT TO A MINIMUM AND MUST BE DONE BY SUITABLE PROFESSIONAL.

H. OVERHEAD SHIELD WIRE

1. OVERHEAD SHIELD WIRE TO BE INSTALLED AS PER THE CONSTRUCTION DRAWINGS AND STRUCTURE DATA SHEETS.

I. GROUNDING

1. GROUNDING TO BE INSTALLED IN ACCORDANCE WITH DRAWING 1407-T-4450 AS SPECIFIED ON PROJECT DATA SHEETS.

2. WHERE OVERHEAD SHIELD WIRE IS USED MULTI GROUND ARRANGEMENT REQUIRED. FOR OTHER LOCATIONS USE SINGLE GROUND ROD ARRANGEMENT.

J. SUPPLIER/MANUFACTURER LIST

1. TABLE 1 OUTLINES THE MATERIAL SUPPLIERS/MANUFACTURERS AND THEIR ABBREVIATIONS. THESE ABBREVIATIONS ARE USED ON THE STRUCTURE, FOUNDATION, AND ASSEMBLY DRAWINGS.

   - EXAMPLE: PL-80 (HB) IS A PART MANUFACTURED BY HUGHES BROTHERS.

| SUPPLIER/MANUFACTURER NAMES | |
|---|---|
| COMPANY NAME | ABBREVIATION |
| ANIXTER | AXR |
| BURNDY CANADA INC | BDY |
| PAULIN & CO. | PLN |
| GAMMA | GAM |
| HUBBELL | HBL |
| HUGHES BROTHERS | HB |
| MACLEAN POWER SYSTEMS | MPS |
| NGK | NGK |
| PAYER INDUSTRIES | PYR |
| R&M PLASTIC PRODUCTS LTD. | R&M |
| SEDIVER | SVR |
| SLACAN INDUSTRIES | SLCN |
| STELLA JONES | SJ |
| TRYDOR INDUSTRIES | TDR |
| TYCO | TYC |
| ZTT | ZTT |

K. STRUCTURE DESIGNATION LIST

1. TABLE 2 OUTLINES THE STRUCTURE DESIGNATIONS. THESE DESIGNATIONS ARE USED ON THE STRUCTURE DATA SHEETS AND PLAN AND PROFILE DRAWINGS.

| STRUCTURE DESIGNATION | |
|---|---|
| PT | POST TANGENT |
| PTG | POST TANGENT GUYED |
| PTR | POST TANGENT ROLL |
| VMA | VERTICAL MEDIUM ANGLE |
| FDE | DOUBLE ARM FLAT DEADEND |
| VDEMA | VERTICAL DEADEND MEDIUM ANGLE |
| VDEHA | VERTICAL DEADEND HEAVY ANGLE |
| SAH | SINGLE ARM H-FRAME |
| SAHO | SINGLE ARM H-FRAME w/ OHSW |
| PVO | POST VERTICAL w/ OHSW |
| VDEMAO | VERTICAL DEADEND MEDIUM ANGLE w/ OHSW |
| VDEHAO | VERTICAL DEADEND HEAVY ANGLE w/ OHSW |
| DAHDEO | DOUBLE ARM H-FRAME DEADEND w/ OHSW |

FORBES BROS AS-BUILT

CHANGES REQUIRED YES ☐ NO ☐

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Signature _____

Date _____

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| APPROVED | MEO |

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WN BRAZIER ASSOCIATES INC

SEAL PROFESSIONAL ENGINEER YUKON MATTHEW OBEE TERRITORY May 11, 2018

EAGLE GOLD PROJECT

69 kV TRANSMISSION LINE

WOODPOLE STRUCTURE, GENERAL CONSTRUCTION NOTES (SHEET 2 OF 2)

| PROJECT No. | DRAWING No. | REV. |
|---|---|---|
| 1407 | 1407-T-1300-2 | 0 |

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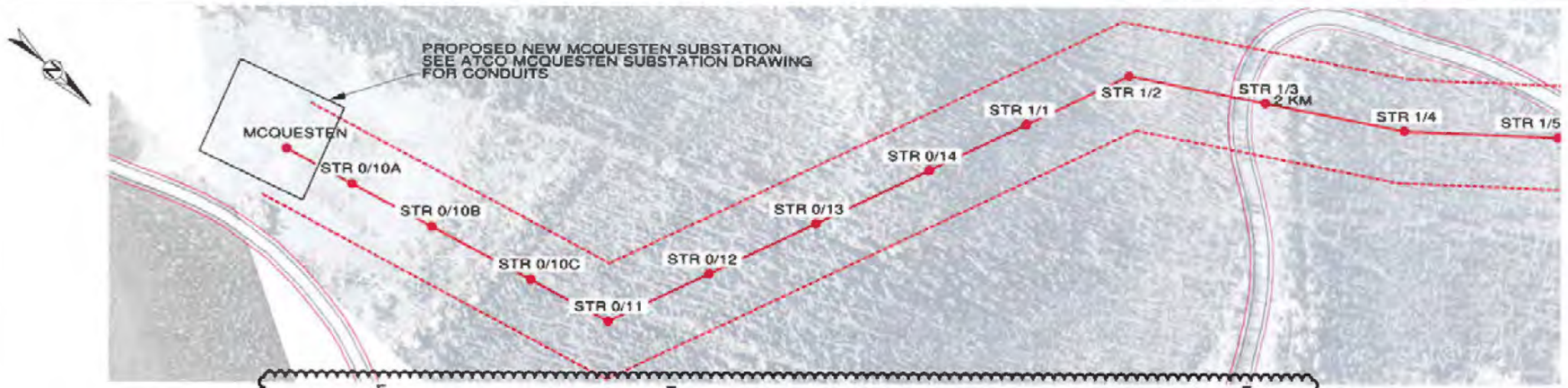


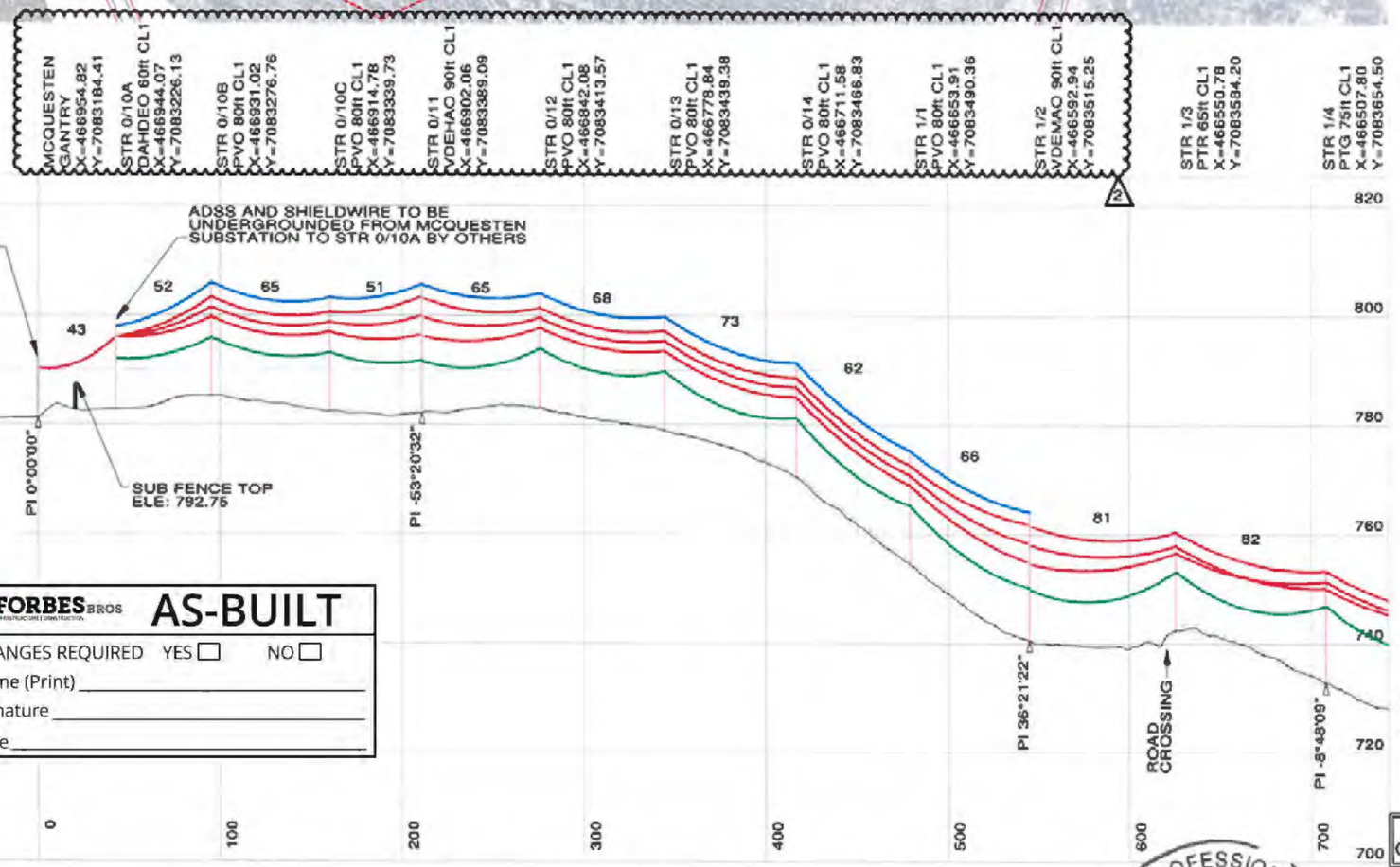


FORBES BROS

**AS-BUILT**

CHANGES REQUIRED YES ☐ NO ☐

Name (Print) _____

Signature _____

Date _____

## NOTES

1. ALL DIMENSIONS IN METRES (m) UNLESS NOTED OTHERWISE.
2. COORDINATES ARE IN UTM NAD83 ZONE 8N.
3. ELEVATIONS ARE IN METRES (m) ABOVE MEAN SEA LEVEL (AMSL).
4. 69 kV CONDUCTOR, ADSS CABLE AND OVERHEAD SHIELD WIRE "OHSW" DISPLAYED AT "WET SNOW" (-10° C, 51mm RADIAL SNOW).
5. LINE ANGLE DEFLECTION LOOKING TOWARD EAGLE GOLD PROJECT SITE INDICATED AS FOLLOWS:
   + RIGHT ANGLE DEFLECTION
   - LEFT ANGLE DEFLECTION
6. THIS LINE WILL BE NUMBERED L251 IN THE YUKON ENERGY CORPORATION (YEC) SYSTEM.
7. LEFT (DASH) AND RIGHT (DOT) PROFILE OFFSETS SHOWN AT 5 m CENTERLINE OFFSET.
8. DESIGN TENSIONS SHOWN IN TABLE 1.

TABLE 1

| CABLE TYPE | MEAN ANNUAL TEMP (-4° C) FULL TENSION SPANS (N) | MEAN ANNUAL TEMP (-4° C) TERMINAL SPANS (N) (SLACK) | WET SNOW (-10° C, 51mm RADIAL SNOW) FULL TENSION SPANS (N) | WET SNOW (-10° C, 51mm RADIAL SNOW) TERMINAL SPANS (N) (SLACK) |
|---|---|---|---|---|
| PARTRIDGE ACSR | 3,750 | 550 | 23,300 | 3,300 |
| ADSS | 7,900 | 150 | 13,900 | 3,300 |
| OHSW | 3,500 | 400 | 23,600 | 3,200 |

## LEGEND

- 69 kV - 266.8 kcmil 26/7 "PARTRIDGE" ACSR
- ADSS - OFC-24 G.652D-FASA-S1 (ZTT)
- OHSW - 266.8 kcmil 26/7 "PARTRIDGE" ACSR
- ROAD EDGE
- 2.5m ROAD BUFFER
- 30m CLEARING BOUNDARY
- YEC L250 69 KV LINE (EXISTING)
- 60m WIDE RIGHT OF WAY BOUNDARY
- X KM APPROXIMATE ROAD KM MARKER

## REFERENCES

| | |
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| 1407-T-1400 | STRUCTURE DATA SHEET |
| 1407-T-1900 | SOUTH MCQUESTEN TRANSMISSION LINE CONNECTION - PLAN |
| 1407-T-3000 | STRUCTURE FAMILY |
| 1407-T-6000 | HWY 11 (SILVER TRAIL)-OVERHEAD LINE CROSSING-STR 0/4 TO STR 0/5 |

30.0 m Horiz. Scale
10.0 m Vert. Scale

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SIGNATURE _____
Date 10/08/18
PERMIT NUMBER: PP295
Association of Professional Engineers of Yukon

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|---|---|---|---|---|---|---|
| 2 | AUG 10/18 | MCQUESTEN SUBSTATION & KM18 MODIFICATIONS | MP | MP | PC | NB |
| 1 | JUL 11/18 | BORROW PIT & ROAD PROXIMITY ALIGNMENT CHANGES | MP | MP | PC | MEO |
| 0 | MAY 11/18 | ISSUED FOR CONSTRUCTION | MP | MP | PC | MEO |

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| CHECKED | PC |
| APPROVED | MEO |

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EAGLE GOLD PROJECT
L251 - 69 kV TRANSMISSION LINE
PLAN AND PROFILE (SHEET 1 OF 54)

| PROJECT No. | DRAWING No. | REV. |
|---|---|---|
| 1407 | 1407-T-1200-1 | 2 |

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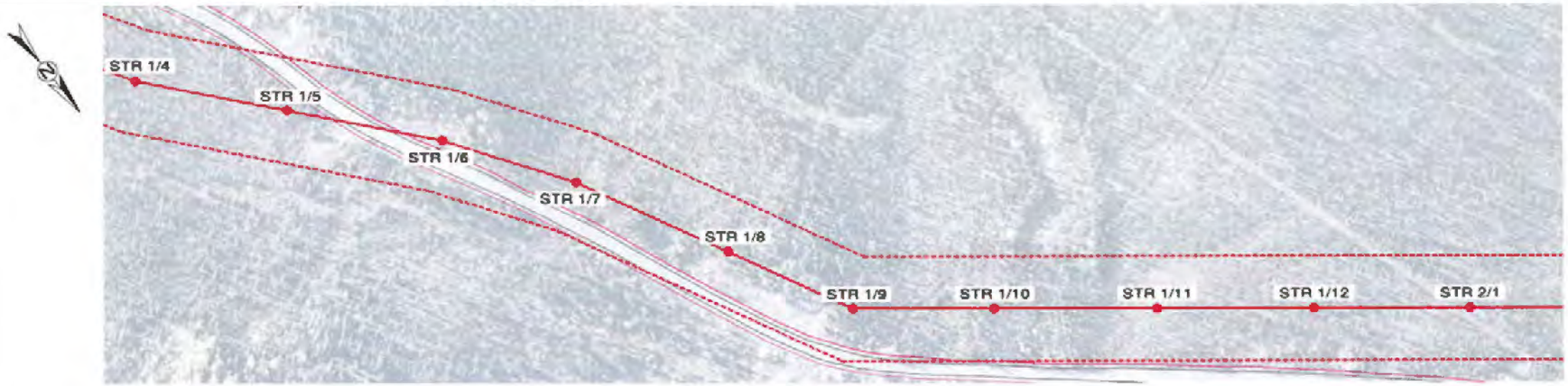


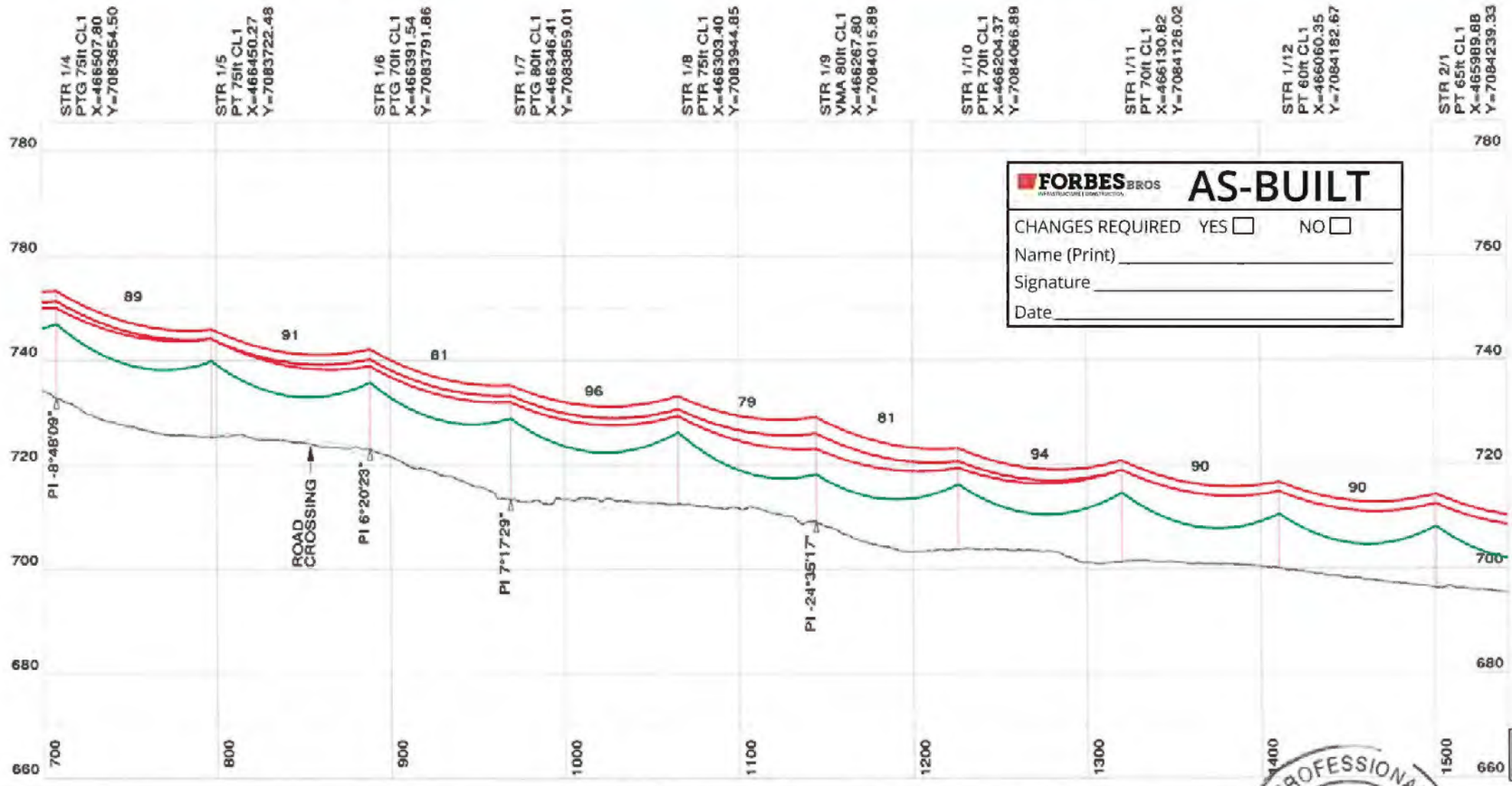


**FORBES BROS** AS-BUILT

CHANGES REQUIRED YES ☐ NO ☐

Name (Print) _____

Signature _____

Date _____

NOTES

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3. ELEVATIONS ARE IN METRES (m) ABOVE MEAN SEA LEVEL (AMSL).
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   + RIGHT ANGLE DEFLECTION
   - LEFT ANGLE DEFLECTION
6. THIS LINE WILL BE NUMBERED L251 IN THE YUKON ENERGY CORPORATION (YEC) SYSTEM.
7. LEFT (DASH) AND RIGHT (DOT) PROFILE OFFSETS SHOWN AT 5 m CENTERLINE OFFSET.
8. DESIGN TENSIONS SHOWN IN TABLE 1.

TABLE 1

| CABLE TYPE | MEAN ANNUAL TEMP (-4° C) | | WET SNOW (-10° C, 51mm RADIAL SNOW) | |
|---|---|---|---|---|
| | FULL TENSION SPANS (N) | TERMINAL SPANS (N) (SLACK) | FULL TENSION SPANS (N) | TERMINAL SPANS (N) (SLACK) |
| PARTRIDGE ACSR | 3,750 | 550 | 23,300 | 3,300 |
| ADSS | 7,500 | 150 | 13,900 | 3,300 |
| OHSW | 3,600 | 400 | 23,600 | 3,200 |

LEGEND

- 69 kV - 266.8 kcmil 26/7 "PARTRIDGE" ACSR
- ADSS - OFC-24 G.652D-FASA-S1 (ZTT)
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- 2.5m ROAD BUFFER
- 30m CLEARING BOUNDARY
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| 1407-T-6000 | HWY 11 (SILVER TRAIL)-OVERHEAD LINE CROSSING-STR 0/4 TO STR 0/5 |

30.0 m Horiz. Scale
10.0 m Vert. Scale

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Date 10/05/18
PERMIT NUMBER: PP295
Association of Professional Engineers of Yukon

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| 1 | JUL 11/18 | BORROW PIT & ROAD PROXIMITY ALIGNMENT CHANGES | MP | MP | PC | MEO |
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| DATE | MAY 11/18 |
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| DRAWN | MP |
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SEAL: PROFESSIONAL ENGINEER YUKON W. NEIL BRAZIER TERRITORY

EAGLE GOLD PROJECT
L251 - 69 kV TRANSMISSION LINE
PLAN AND PROFILE (SHEET 2 OF 54)

| PROJECT No. | DRAWING No. | REV. |
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| 1407 | 1407-T-1200-2 | 2 |

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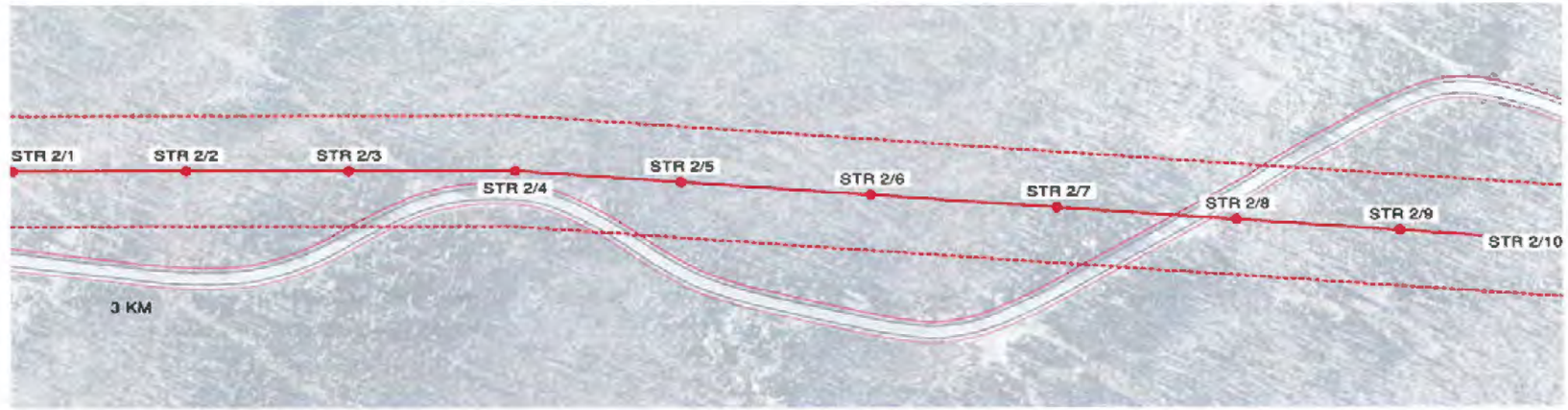


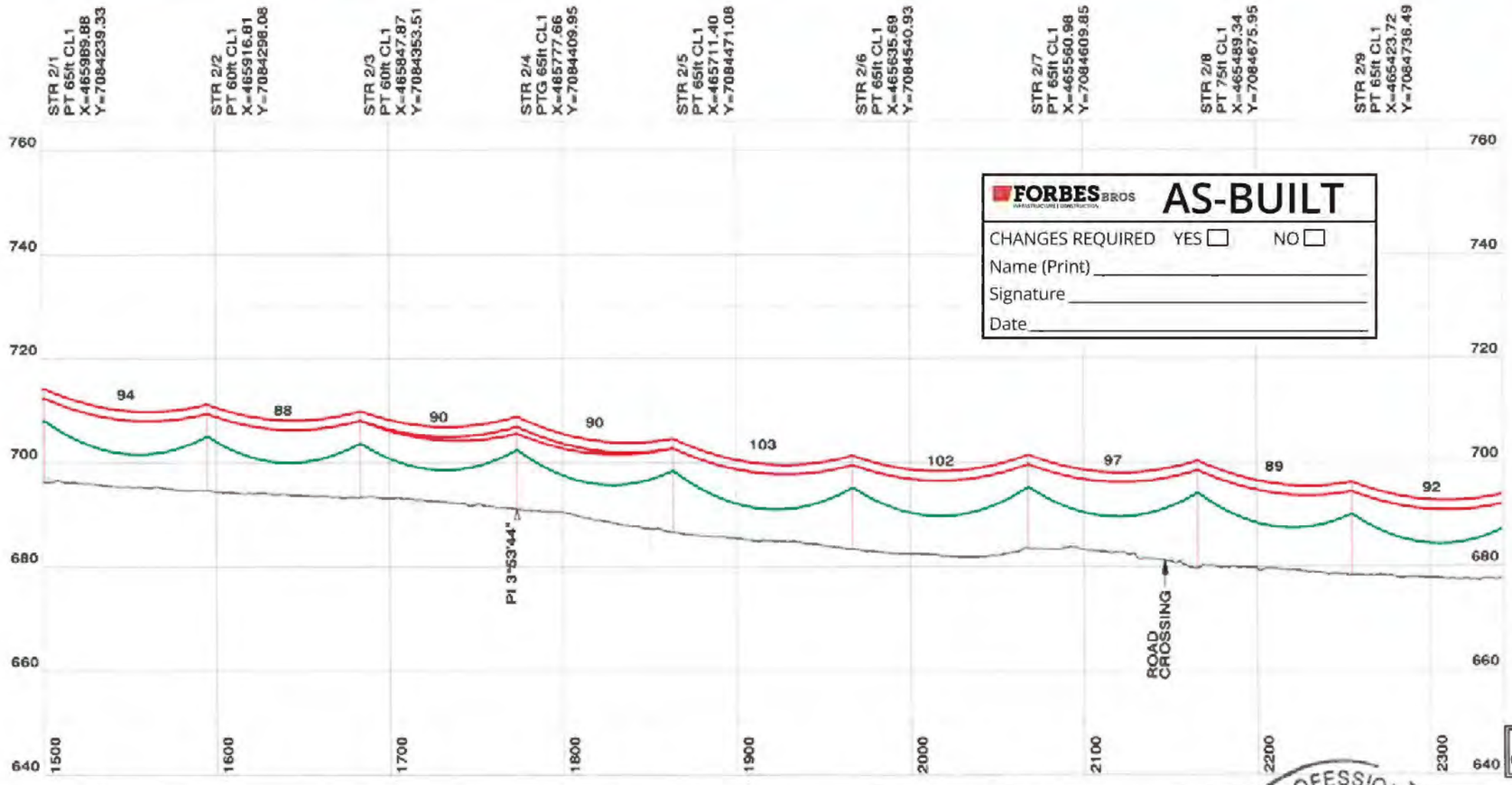


FORBES BROS

# AS-BUILT

CHANGES REQUIRED YES ☐ NO ☐

Name (Print) _____

Signature _____

Date _____

## NOTES

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3. ELEVATIONS ARE IN METRES (m) ABOVE MEAN SEA LEVEL (AMSL).
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   - LEFT ANGLE DEFLECTION
6. THIS LINE WILL BE NUMBERED L251 IN THE YUKON ENERGY CORPORATION (YEC) SYSTEM.
7. LEFT (DASH) AND RIGHT (DOT) PROFILE OFFSETS SHOWN AT 5 m CENTERLINE OFFSET.
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LEGEND

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30.0 m Horiz. Scale
10.0 m Vert. Scale

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PROFESSIONAL ENGINEER YUKON W. NEIL BRAZIER TERRITORY

EAGLE GOLD PROJECT
L251 - 69 kV TRANSMISSION LINE
PLAN AND PROFILE (SHEET 3 OF 54)

| PROJECT No. | DRAWING No. | REV. |
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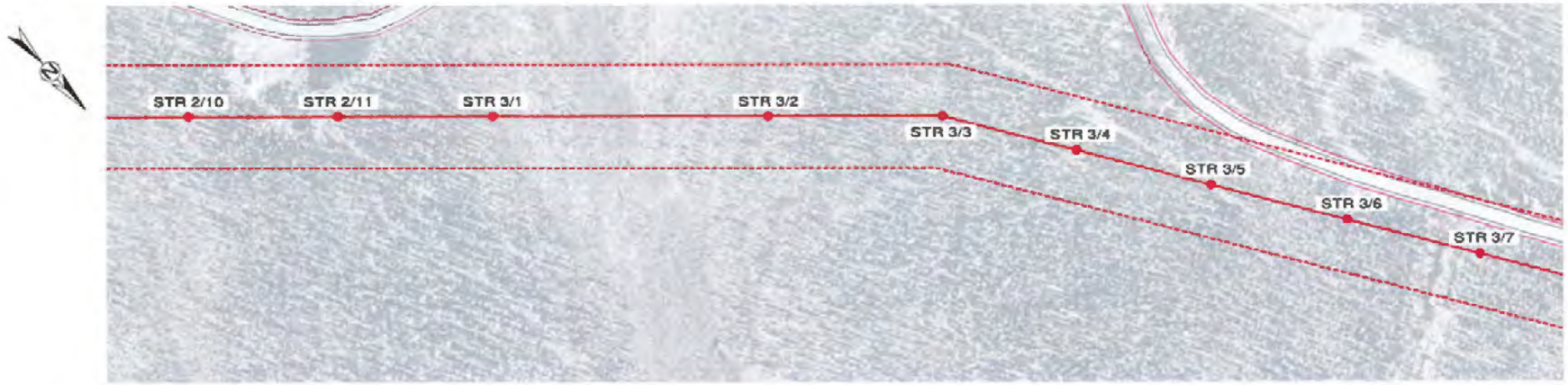


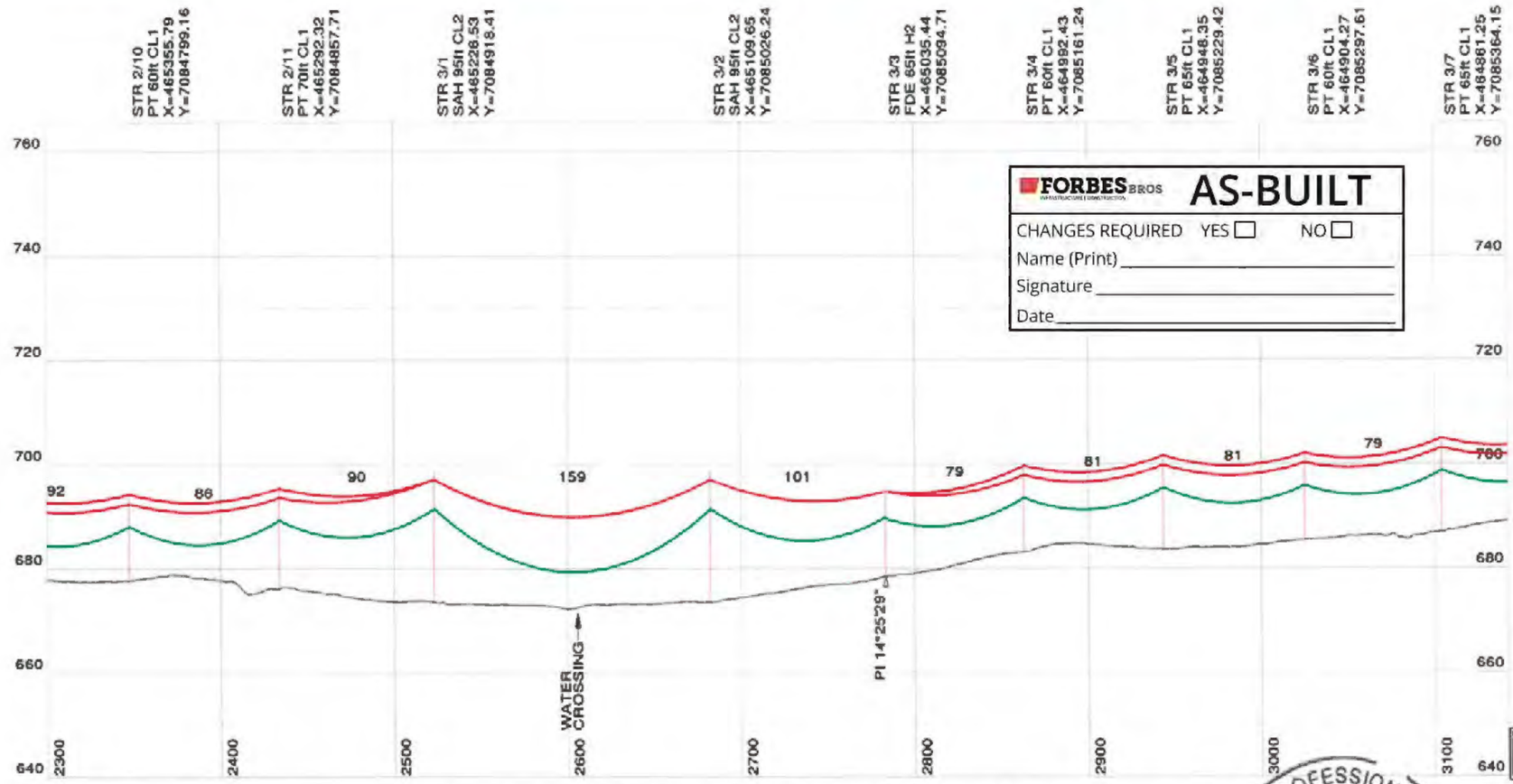


**FORBES BROS** AS-BUILT

CHANGES REQUIRED YES ☐ NO ☐

Name (Print) _____

Signature _____

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NOTES

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| 1407-T-1900 | SOUTH MCQUESTEN TRANSMISSION LINE CONNECTION - PLAN |
| 1407-T-3000 | STRUCTURE FAMILY |
| 1407-T-6000 | HWY 11 (SILVER TRAIL)-OVERHEAD LINE CROSSING-STR 0/4 TO STR 0/5 |

30.0 m Horiz. Scale
10.0 m Vert. Scale

ISSUED FOR CONSTRUCTION

PERMIT TO PRACTICE
W.N. BRAIZER ASSOCIATES INC.
SIGNATURE _____
Date 10/05/18
PERMIT NUMBER: PP295
Association of Professional Engineers of Yukon

| NO. | DATE | REVISION | DES | DWN | CHK | APR |
|---|---|---|---|---|---|---|
| | | | | | | |
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| | | | | | | |
| 2 | AUG 10/18 | MCQUESTEN SUBSTATION & KM18 MODIFICATIONS | MP | MP | PC | NB |
| 1 | JUL 11/18 | BORROW PIT & ROAD PROXIMITY ALIGNMENT CHANGES | MP | MP | PC | MEO |
| 0 | MAY 11/18 | ISSUED FOR CONSTRUCTION | MP | MP | PC | MEO |

CLIENT: StrataGold Corporation

| | |
|---|---|
| DATE | MAY 11/18 |
| DESIGN | MP |
| DRAWN | MP |
| CHECKED | PC |
| APPROVED | MEO |

Clean Energy CONSULTING INC. www.cleanenergyconsulting.ca

WN BRAZIER ASSOCIATES INC

SEAL: PROFESSIONAL ENGINEER YUKON W. NEIL BRAZIER TERRITORY

EAGLE GOLD PROJECT
L251 - 69 kV TRANSMISSION LINE
PLAN AND PROFILE (SHEET 4 OF 54)

| PROJECT No. | DRAWING No. | REV. |
|---|---|---|
| 1407 | 1407-T-1200-4 | 2 |

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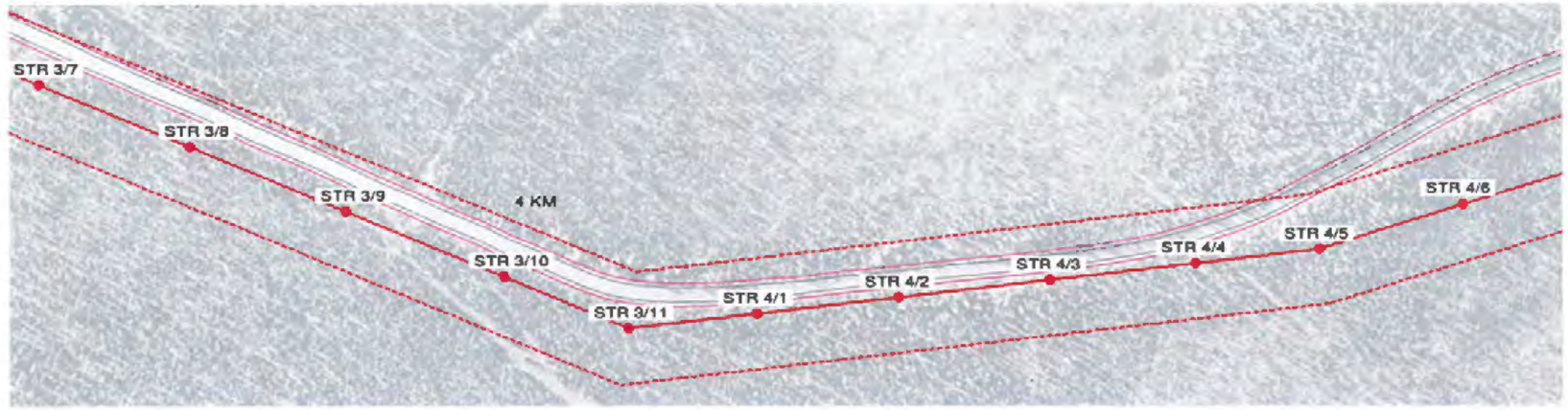





**FORBES BROS** AS-BUILT

CHANGES REQUIRED YES ☐ NO ☐

Name (Print) _____

Signature _____

Date _____

NOTES

1. ALL DIMENSIONS IN METRES (m) UNLESS NOTED OTHERWISE.
2. COORDINATES ARE IN UTM NAD83 ZONE 8N.
3. ELEVATIONS ARE IN METRES (m) ABOVE MEAN SEA LEVEL (AMSL).
4. 69 kV CONDUCTOR, ADSS CABLE AND OVERHEAD SHIELD WIRE "OHSW" DISPLAYED AT "WET SNOW" (-10° C, 51mm RADIAL SNOW).
5. LINE ANGLE DEFLECTION LOOKING TOWARD EAGLE GOLD PROJECT SITE INDICATED AS FOLLOWS:
   + RIGHT ANGLE DEFLECTION
   - LEFT ANGLE DEFLECTION
6. THIS LINE WILL BE NUMBERED L251 IN THE YUKON ENERGY CORPORATION (YEC) SYSTEM.
7. LEFT (DASH) AND RIGHT (DOT) PROFILE OFFSETS SHOWN AT 5 m CENTERLINE OFFSET.
8. DESIGN TENSIONS SHOWN IN TABLE 1.

| TABLE 1 | MEAN ANNUAL TEMP (-4° C) | | WET SNOW (-10° C, 51mm RADIAL SNOW) | |
|---|---|---|---|---|
| CABLE TYPE | FULL TENSION SPANS (N) | TERMINAL SPANS (N) (SLACK) | FULL TENSION SPANS (N) | TERMINAL SPANS (N) (SLACK) |
| PARTRIDGE ACSR | 3,750 | 550 | 23,300 | 3,300 |
| ADSS | 7,500 | 150 | 13,900 | 3,300 |
| OHSW | 3,500 | 400 | 23,600 | 3,200 |

LEGEND

- 69 kV - 266.8 kcmil 26/7 "PARTRIDGE" ACSR
- ADSS - OFC-24 G.652D-FASA-S1 (ZTT)
- OHSW - 266.8 kcmil 26/7 "PARTRIDGE" ACSR
- ROAD EDGE
- 2.5m ROAD BUFFER
- 30m CLEARING BOUNDARY
- YEC L250 69 KV LINE (EXISTING)
- 60m WIDE RIGHT OF WAY BOUNDARY
- X KM APPROXIMATE ROAD KM MARKER

REFERENCES

| | |
|---|---|
| 1407-T-1000 | DRAWING LIST |
| 1407-T-1100 | ROUTE MAP |
| 1407-T-1400 | STRUCTURE DATA SHEET |
| 1407-T-1900 | SOUTH MCQUESTEN TRANSMISSION LINE CONNECTION - PLAN |
| 1407-T-3000 | STRUCTURE FAMILY |
| 1407-T-6000 | HWY 11 (SILVER TRAIL)-OVERHEAD LINE CROSSING-STR 0/4 TO STR 0/5 |

30.0 m Horiz. Scale
10.0 m Vert. Scale

ISSUED FOR CONSTRUCTION

PERMIT TO PRACTICE
W.N. BRAZIER ASSOCIATES INC.
SIGNATURE Neil Brazier
Date 10/08/18
PERMIT NUMBER: PP295
Association of Professional Engineers of Yukon

| NO. | DATE | REVISION | DES | DWN | CHK | APR |
|---|---|---|---|---|---|---|
| 2 | AUG 10/18 | MCQUESTEN SUBSTATION & KM18 MODIFICATIONS | MP | MP | PC | NB |
| 1 | JUL 11/18 | BORROW PIT & ROAD PROXIMITY ALIGNMENT CHANGES | MP | MP | PC | MEO |
| 0 | MAY 11/18 | ISSUED FOR CONSTRUCTION | MP | MP | PC | MEO |

CLIENT StrataGold Corporation

| | |
|---|---|
| DATE | MAY 11/18 |
| DESIGN | MP |
| DRAWN | MP |
| CHECKED | PC |
| APPROVED | MEO |

Clean Energy CONSULTING INC.
www.cleanenergyconsulting.ca

WN BRAZIER ASSOCIATES INC

SEAL: PROFESSIONAL ENGINEER YUKON W. NEIL BRAZIER TERRITORY

EAGLE GOLD PROJECT
L251 - 69 kV TRANSMISSION LINE
PLAN AND PROFILE (SHEET 5 OF 54)

| PROJECT No. | DRAWING No. | REV. |
|---|---|---|
| 1407 | 1407-T-1200-5 | 2 |

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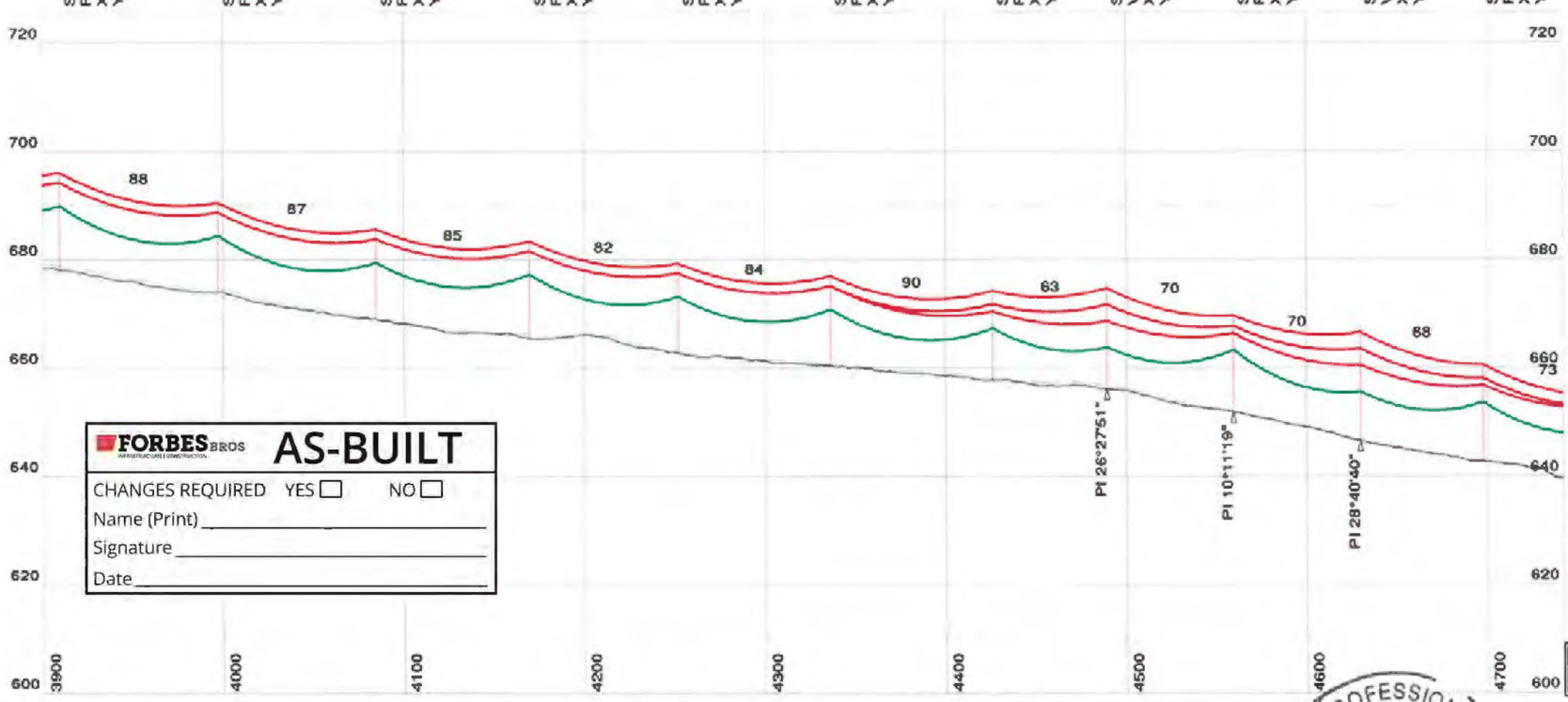


FORBES BROS

**AS-BUILT**

CHANGES REQUIRED YES ☐ NO ☐

Name (Print) _____

Signature _____

Date _____

## NOTES

1. ALL DIMENSIONS IN METRES (m) UNLESS NOTED OTHERWISE.
2. COORDINATES ARE IN UTM NAD83 ZONE 8N.
3. ELEVATIONS ARE IN METRES (m) ABOVE MEAN SEA LEVEL (AMSL).
4. 69 kV CONDUCTOR, ADSS CABLE AND OVERHEAD SHIELD WIRE "OHSW" DISPLAYED AT "WET SNOW" (-10° C, 51mm RADIAL SNOW).
5. LINE ANGLE DEFLECTION LOOKING TOWARD EAGLE GOLD PROJECT SITE INDICATED AS FOLLOWS:

   \+ RIGHT ANGLE DEFLECTION
   \- LEFT ANGLE DEFLECTION
6. THIS LINE WILL BE NUMBERED L251 IN THE YUKON ENERGY CORPORATION (YEC) SYSTEM.
7. LEFT (DASH) AND RIGHT (DOT) PROFILE OFFSETS SHOWN AT 5 m CENTERLINE OFFSET.
8. DESIGN TENSIONS SHOWN IN TABLE 1.

| TABLE 1 | MEAN ANNUAL TEMP (-4° C) | | WET SNOW (-10° C, 51mm RADIAL SNOW) | |
|---|---|---|---|---|
| CABLE TYPE | FULL TENSION SPANS (N) | TERMINAL SPANS (N) (SLACK) | FULL TENSION SPANS (N) | TERMINAL SPANS (N) (SLACK) |
| PARTRIDGE ACSR | 3,750 | 550 | 23,300 | 3,300 |
| ADSS | 7,500 | 150 | 13,900 | 3,300 |
| OHSW | 3,500 | 400 | 23,600 | 3,200 |

## LEGEND

- 69 kV - 266.8 kcmil 26/7 "PARTRIDGE" ACSR
- ADSS - OFC-24 G.652D-FASA-S1 (ZTT)
- OHSW - 266.8 kcmil 26/7 "PARTRIDGE" ACSR
- ROAD EDGE
- 2.5m ROAD BUFFER
- 30m CLEARING BOUNDARY
- YEC L250 69 KV LINE (EXISTING)
- 60m WIDE RIGHT OF WAY BOUNDARY
- X KM APPROXIMATE ROAD KM MARKER

## REFERENCES

| | |
|---|---|
| 1407-T-1000 | DRAWING LIST |
| 1407-T-1100 | ROUTE MAP |
| 1407-T-1400 | STRUCTURE DATA SHEET |
| 1407-T-1900 | SOUTH MCQUESTEN TRANSMISSION LINE CONNECTION - PLAN |
| 1407-T-3000 | STRUCTURE FAMILY |
| 1407-T-6000 | HWY 11 (SILVER TRAIL)-OVERHEAD LINE CROSSING-STR 0/4 TO STR 0/5 |

30.0 m Horiz. Scale
10.0 m Vert. Scale

ISSUED FOR CONSTRUCTION

PERMIT TO PRACTICE
W.N. BRAIZER ASSOCIATES INC.
SIGNATURE _____
Date 10/08/18
PERMIT NUMBER: PP295
Association of Professional Engineers of Yukon

| NO. | DATE | REVISION | DES | DWN | CHK | APR |
|---|---|---|---|---|---|---|
| | | | | | | |
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| | | | | | | |
| 2 | AUG 10/18 | MCQUESTEN SUBSTATION & KM18 MODIFICATIONS | MP | MP | PC | NB |
| 1 | JUL 11/18 | BORROW PIT & ROAD PROXIMITY ALIGNMENT CHANGES | MP | MP | PC | MEO |
| 0 | MAY 11/18 | ISSUED FOR CONSTRUCTION | MP | MP | PC | MEO |

CLIENT: StrataGold Corporation

| | |
|---|---|
| DATE | MAY 11/18 |
| DESIGN | MP |
| DRAWN | MP |
| CHECKED | PC |
| APPROVED | MEO |

Clean Energy CONSULTING INC.
www.cleanenergyconsulting.ca
WN BRAZIER ASSOCIATES INC

SEAL: PROFESSIONAL ENGINEER — YUKON — W. NEIL BRAZIER — TERRITORY

# EAGLE GOLD PROJECT
## L251 - 69 kV TRANSMISSION LINE
## PLAN AND PROFILE (SHEET 6 OF 54)

| PROJECT No. | DRAWING No. | REV. |
|---|---|---|
| 1407 | 1407-T-1200-6 | 2 |

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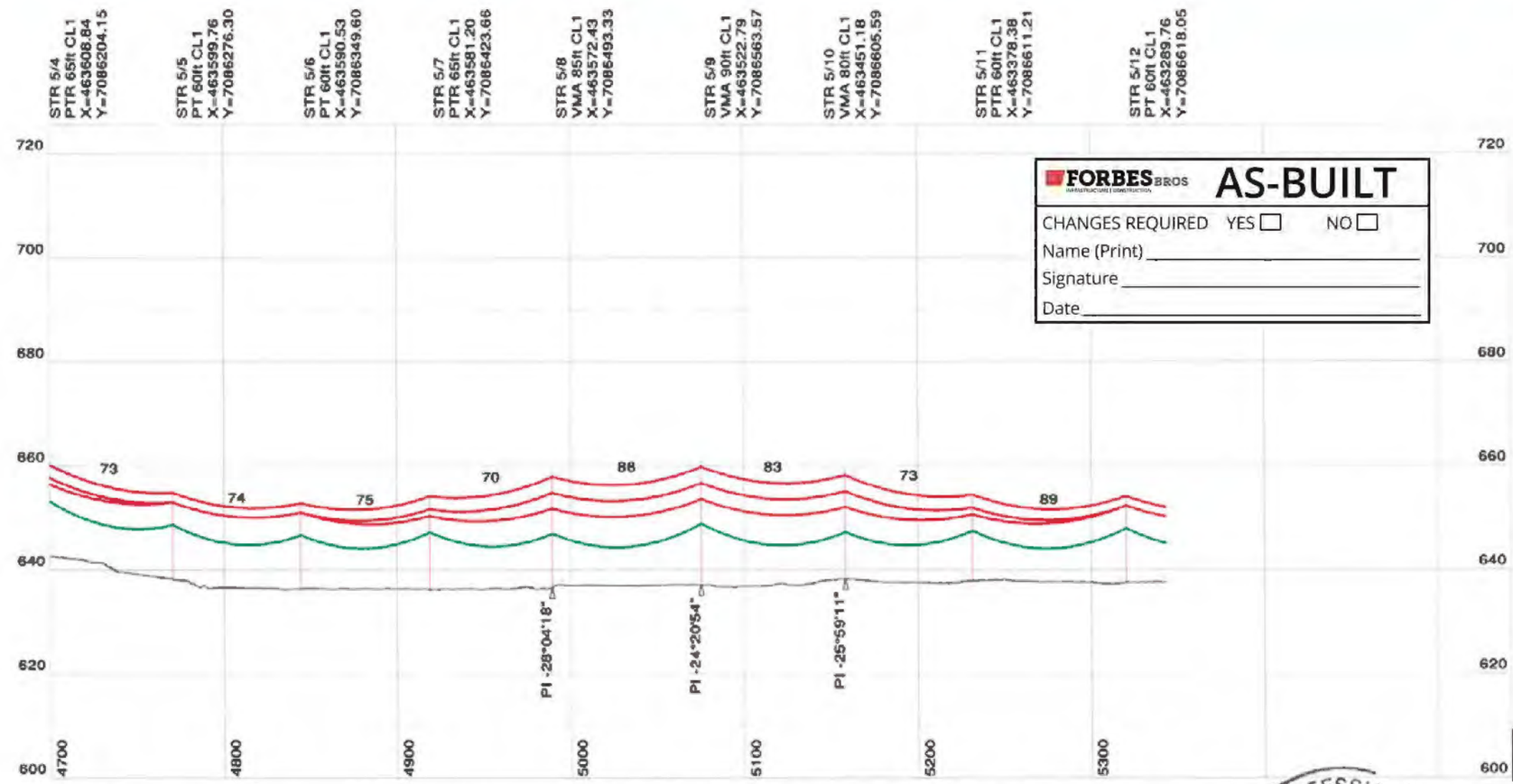


FORBES BROS

# AS-BUILT

CHANGES REQUIRED YES ☐ NO ☐

Name (Print) _____

Signature _____

Date _____

## NOTES

1. ALL DIMENSIONS IN METRES (m) UNLESS NOTED OTHERWISE.
2. COORDINATES ARE IN UTM NAD83 ZONE 8N.
3. ELEVATIONS ARE IN METRES (m) ABOVE MEAN SEA LEVEL (AMSL).
4. 69 kV CONDUCTOR, ADSS CABLE AND OVERHEAD SHIELD WIRE "OHSW" DISPLAYED AT "WET SNOW" (-10° C, 51mm RADIAL SNOW).
5. LINE ANGLE DEFLECTION LOOKING TOWARD EAGLE GOLD PROJECT SITE INDICATED AS FOLLOWS:
   + RIGHT ANGLE DEFLECTION
   - LEFT ANGLE DEFLECTION
6. THIS LINE WILL BE NUMBERED L251 IN THE YUKON ENERGY CORPORATION (YEC) SYSTEM.
7. LEFT (DASH) AND RIGHT (DOT) PROFILE OFFSETS SHOWN AT 5 m CENTERLINE OFFSET.
8. DESIGN TENSIONS SHOWN IN TABLE 1.

TABLE 1

| CABLE TYPE | MEAN ANNUAL TEMP (-4° C) | | WET SNOW (-10° C, 51mm RADIAL SNOW) | |
|---|---|---|---|---|
| | FULL TENSION SPANS (N) | TERMINAL SPANS (N) (SLACK) | FULL TENSION SPANS (N) | TERMINAL SPANS (N) (SLACK) |
| PARTRIDGE ACSR | 3,750 | 550 | 23,300 | 3,300 |
| ADSS | 7,500 | 150 | 13,900 | 3,300 |
| OHSW | 3,500 | 400 | 23,600 | 3,200 |

## LEGEND

- 69 kV - 266.8 kcmil 26/7 "PARTRIDGE" ACSR
- ADSS - OFC-24 G.652D-FASA-S1 (ZTT)
- OHSW - 266.8 kcmil 26/7 "PARTRIDGE" ACSR
- ROAD EDGE
- 2.5m ROAD BUFFER
- 30m CLEARING BOUNDARY
- YEC L250 69 KV LINE (EXISTING)
- 60m WIDE RIGHT OF WAY BOUNDARY
- X KM APPROXIMATE ROAD KM MARKER

## REFERENCES

| | |
|---|---|
| 1407-T-1000 | DRAWING LIST |
| 1407-T-1100 | ROUTE MAP |
| 1407-T-1400 | STRUCTURE DATA SHEET |
| 1407-T-1900 | SOUTH MCQUESTEN TRANSMISSION LINE CONNECTION - PLAN |
| 1407-T-3000 | STRUCTURE FAMILY |
| 1407-T-6000 | HWY 11 (SILVER TRAIL)-OVERHEAD LINE CROSSING-STR 0/4 TO STR 0/5 |

30.0 m Horiz. Scale
10.0 m Vert. Scale

ISSUED FOR CONSTRUCTION

PERMIT TO PRACTICE
W.N. BRAIZER ASSOCIATES INC.
SIGNATURE _____
Date 15/09/18
PERMIT NUMBER: PP295
Association of Professional Engineers of Yukon

| NO. | DATE | REVISION | DES | DWN | CHK | APR |
|---|---|---|---|---|---|---|
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| 2 | AUG 10/18 | MCQUESTEN SUBSTATION & KM18 MODIFICATIONS | MP | MP | PC | NB |
| 1 | JUL 11/18 | BORROW PIT & ROAD PROXIMITY ALIGNMENT CHANGES | MP | MP | PC | MEO |
| 0 | MAY 11/18 | ISSUED FOR CONSTRUCTION | MP | MP | PC | MEO |

CLIENT: StrataGold Corporation

| | |
|---|---|
| DATE | MAY 11/18 |
| DESIGN | MP |
| DRAWN | MP |
| CHECKED | PC |
| APPROVED | MEO |

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www.cleanenergyconsulting.ca
WN BRAIZER ASSOCIATES INC

SEAL: PROFESSIONAL ENGINEER YUKON W. NEIL BRAIZER TERRITORY

EAGLE GOLD PROJECT
L251 - 69 kV TRANSMISSION LINE
PLAN AND PROFILE (SHEET 7 OF 54)

| PROJECT No. | DRAWING No. | REV. |
|---|---|---|
| 1407 | 1407-T-1200-7 | 2 |

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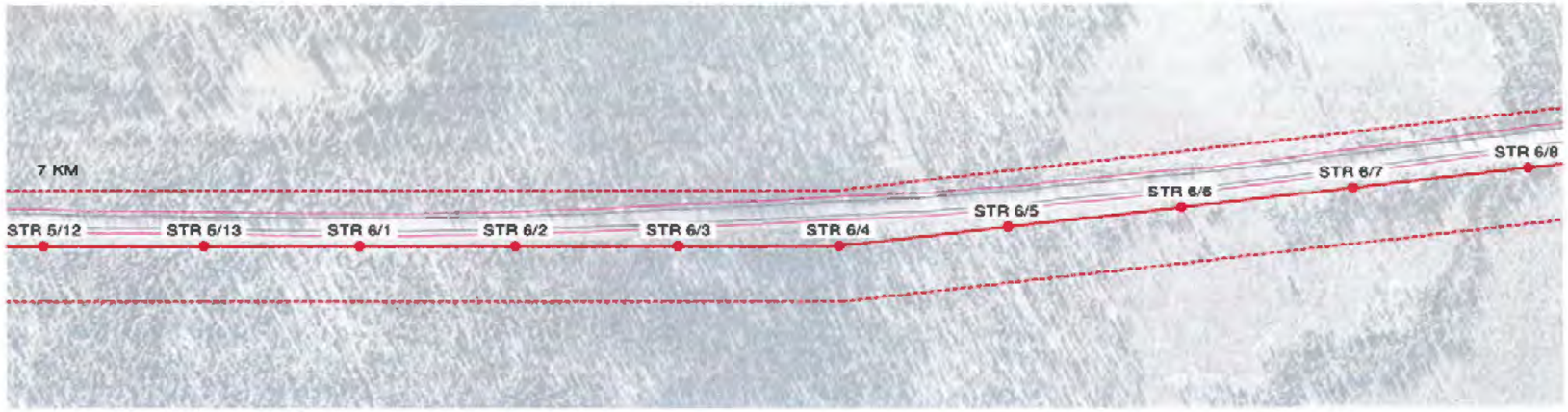


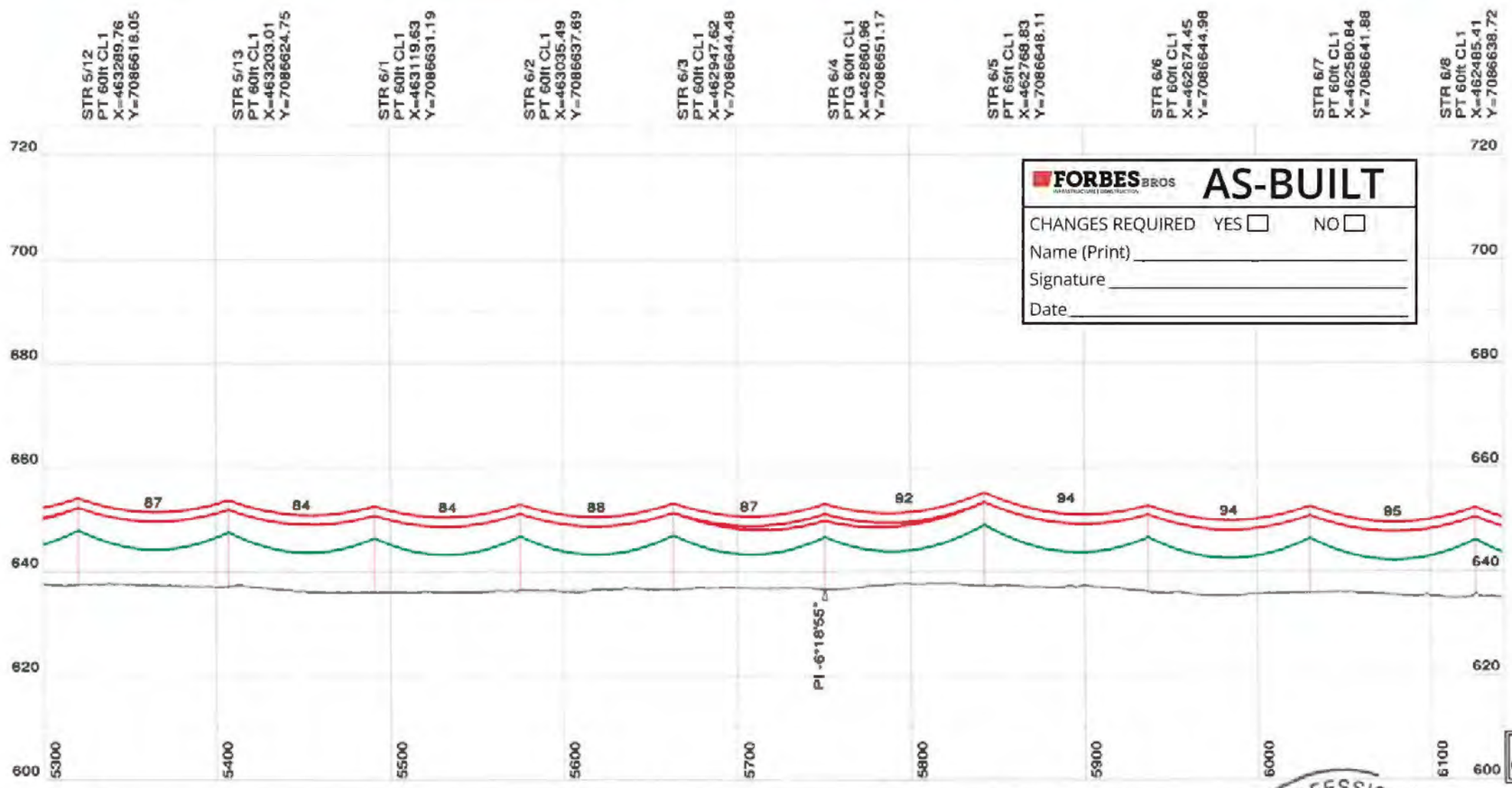


FORBES BROS

# AS-BUILT

CHANGES REQUIRED YES ☐ NO ☐

Name (Print) _____

Signature _____

Date _____

## NOTES

1. ALL DIMENSIONS IN METRES (m) UNLESS NOTED OTHERWISE.
2. COORDINATES ARE IN UTM NAD83 ZONE 8N.
3. ELEVATIONS ARE IN METRES (m) ABOVE MEAN SEA LEVEL (AMSL).
4. 69 kV CONDUCTOR, ADSS CABLE AND OVERHEAD SHIELD WIRE "OHSW" DISPLAYED AT "WET SNOW" (-10° C, 51mm RADIAL SNOW).
5. LINE ANGLE DEFLECTION LOOKING TOWARD EAGLE GOLD PROJECT SITE INDICATED AS FOLLOWS:
   + RIGHT ANGLE DEFLECTION
   - LEFT ANGLE DEFLECTION
6. THIS LINE WILL BE NUMBERED L251 IN THE YUKON ENERGY CORPORATION (YEC) SYSTEM.
7. LEFT (DASH) AND RIGHT (DOT) PROFILE OFFSETS SHOWN AT 5 m CENTERLINE OFFSET.
8. DESIGN TENSIONS SHOWN IN TABLE 1.

TABLE 1

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|---|---|---|---|---|
| | FULL TENSION SPANS (N) | TERMINAL SPANS (N) (SLACK) | FULL TENSION SPANS (N) | TERMINAL SPANS (N) (SLACK) |
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| ADSS | 7,500 | 150 | 13,900 | 3,300 |
| OHSW | 3,500 | 400 | 23,600 | 3,200 |

## LEGEND

- 69 kV - 266.8 kcmil 26/7 "PARTRIDGE" ACSR
- ADSS - OFC-24 G.652D-FASA-S1 (ZTT)
- OHSW - 266.8 kcmil 26/7 "PARTRIDGE" ACSR
- ROAD EDGE
- 2.5m ROAD BUFFER
- 30m CLEARING BOUNDARY
- YEC L250 69 KV LINE (EXISTING)
- 60m WIDE RIGHT OF WAY BOUNDARY
- X KM APPROXIMATE ROAD KM MARKER

## REFERENCES

| | |
|---|---|
| 1407-T-1000 | DRAWING LIST |
| 1407-T-1100 | ROUTE MAP |
| 1407-T-1400 | STRUCTURE DATA SHEET |
| 1407-T-1900 | SOUTH MCQUESTEN TRANSMISSION LINE CONNECTION - PLAN |
| 1407-T-3000 | STRUCTURE FAMILY |
| 1407-T-6000 | HWY 11 (SILVER TRAIL)-OVERHEAD LINE CROSSING-STR 0/4 TO STR 0/5 |

30.0 m Horiz. Scale
10.0 m Vert. Scale

ISSUED FOR CONSTRUCTION

PERMIT TO PRACTICE
W.N. BRAIZER ASSOCIATES INC.
SIGNATURE _____
Date 10/03/18
PERMIT NUMBER: PP295
Association of Professional Engineers of Yukon

| NO. | DATE | REVISION | DES | DWN | CHK | APR |
|---|---|---|---|---|---|---|
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| 2 | AUG 10/18 | MCQUESTEN SUBSTATION & KM18 MODIFICATIONS | MP | MP | PC | NB |
| 1 | JUL 11/18 | BORROW PIT & ROAD PROXIMITY ALIGNMENT CHANGES | MP | MP | PC | MEO |
| 0 | MAY 11/18 | ISSUED FOR CONSTRUCTION | MP | MP | PC | MEO |

CLIENT: StrataGold Corporation

| | |
|---|---|
| DATE | MAY 11/18 |
| DESIGN | MP |
| DRAWN | MP |
| CHECKED | PC |
| APPROVED | MEO |

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www.cleanenergyconsulting.ca
WN BRAZIER ASSOCIATES INC

SEAL: PROFESSIONAL ENGINEER YUKON TERRITORY W. NEIL BRAZIER

EAGLE GOLD PROJECT
L251 - 69 kV TRANSMISSION LINE
PLAN AND PROFILE (SHEET 8 OF 54)

| PROJECT No. | DRAWING No. | REV. |
|---|---|---|
| 1407 | 1407-T-1200-8 | 2 |

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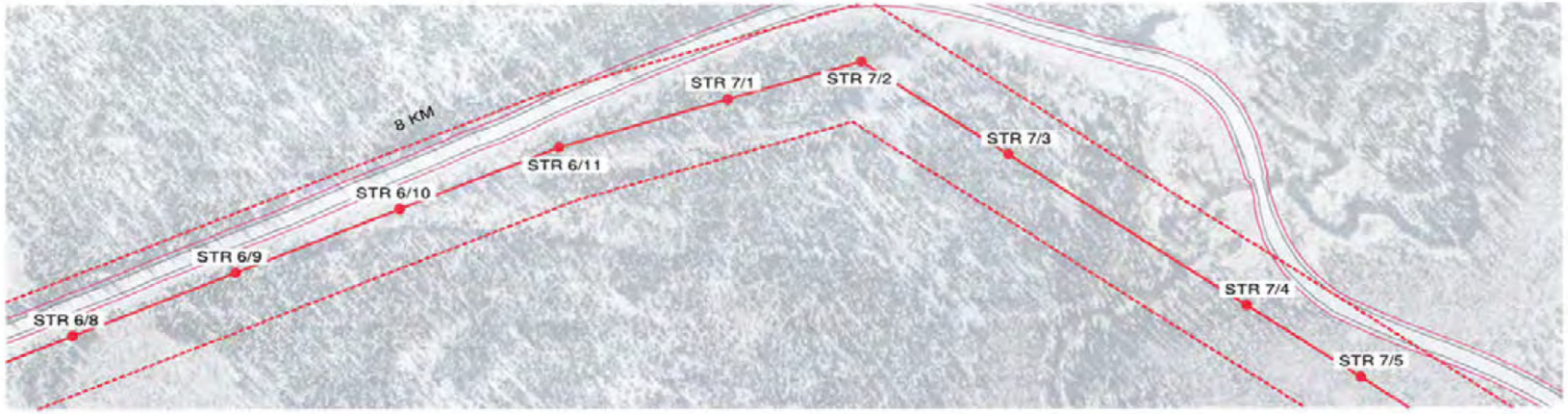



STR 6/8
PT 60ft CL1
X=462485.41
Y=7086638.72

STR 6/9
PT 60ft CL1
X=462390.94
Y=7086635.58

STR 6/10
PT 65ft CL1
X=462295.78
Y=7086632.43

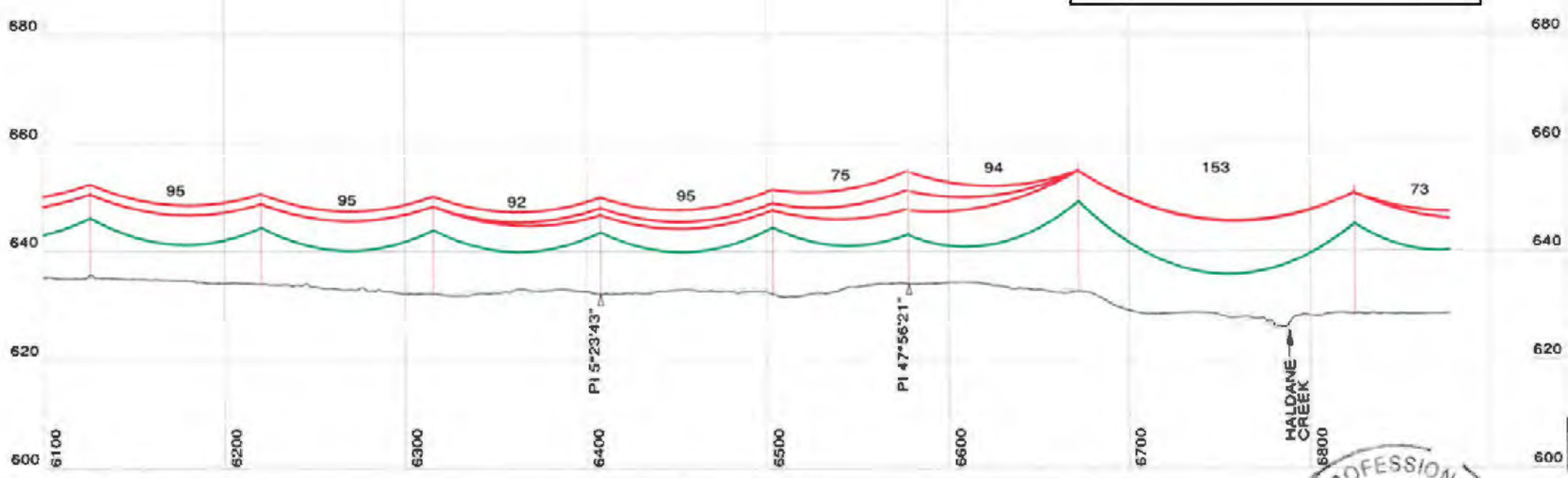
STR 6/11
PTG 65ft CL1
X=462203.79
Y=7086629.38

STR 7/1
PTR 70ft CL1
X=462108.60
Y=7086635.19

STR 7/2
VDEHA 80ft CL1
X=462033.79
Y=7086639.76

STR 7/3
SAH 80ft CL2
X=461975.29
Y=7086713.14

STR 7/4
SAH 90ft CL2
X=461880.11
Y=7086832.52




**FORBES BROS** AS-BUILT

CHANGES REQUIRED YES ☐ NO ☐

Name (Print) _____

Signature _____

Date _____

NOTES

1. ALL DIMENSIONS IN METRES (m) UNLESS NOTED OTHERWISE.
2. COORDINATES ARE IN UTM NAD83 ZONE 8N.
3. ELEVATIONS ARE IN METRES (m) ABOVE MEAN SEA LEVEL (AMSL).
4. 69 kV CONDUCTOR, ADSS CABLE AND OVERHEAD SHIELD WIRE "OHSW" DISPLAYED AT "WET SNOW" (-10° C, 51mm RADIAL SNOW).
5. LINE ANGLE DEFLECTION LOOKING TOWARD EAGLE GOLD PROJECT SITE INDICATED AS FOLLOWS:
   + RIGHT ANGLE DEFLECTION
   - LEFT ANGLE DEFLECTION
6. THIS LINE WILL BE NUMBERED L251 IN THE YUKON ENERGY CORPORATION (YEC) SYSTEM.
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8. DESIGN TENSIONS SHOWN IN TABLE 1.

TABLE 1

| CABLE TYPE | MEAN ANNUAL TEMP (-4° C) FULL TENSION SPANS (N) | MEAN ANNUAL TEMP (-4° C) TERMINAL SPANS (N) (SLACK) | WET SNOW (-10° C, 51mm RADIAL SNOW) FULL TENSION SPANS (N) | WET SNOW (-10° C, 51mm RADIAL SNOW) TERMINAL SPANS (N) (SLACK) |
|---|---|---|---|---|
| PARTRIDGE ACSR | 3,750 | 550 | 23,300 | 3,300 |
| ADSS | 7,500 | 150 | 13,900 | 3,300 |
| OHSW | 3,800 | 400 | 23,600 | 3,200 |

LEGEND

- 69 kV - 266.8 kcmil 26/7 "PARTRIDGE" ACSR
- ADSS - OFC-24 G.652D-FASA-S1 (ZTT)
- OHSW - 266.8 kcmil 26/7 "PARTRIDGE" ACSR
- ROAD EDGE
- 2.5m ROAD BUFFER
- 30m CLEARING BOUNDARY
- YEC L250 69 KV LINE (EXISTING)
- 60m WIDE RIGHT OF WAY BOUNDARY
- X KM APPROXIMATE ROAD KM MARKER

REFERENCES

| | |
|---|---|
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| 1407-T-1100 | ROUTE MAP |
| 1407-T-1400 | STRUCTURE DATA SHEET |
| 1407-T-1900 | SOUTH MCQUESTEN TRANSMISSION LINE CONNECTION - PLAN |
| 1407-T-3000 | STRUCTURE FAMILY |
| 1407-T-6000 | HWY 11 (SILVER TRAIL)-OVERHEAD LINE CROSSING-STR 0/4 TO STR 0/5 |

30.0 m Horiz. Scale
10.0 m Vert. Scale

ISSUED FOR CONSTRUCTION

PERMIT TO PRACTICE
W.N. BRAIZER ASSOCIATES INC.
SIGNATURE _____
Date 10/29/18
PERMIT NUMBER: PP295
Association of Professional Engineers of Yukon

| NO. | DATE | REVISION | DES | DWN | CHK | APR |
|---|---|---|---|---|---|---|
| 2 | AUG 10/18 | MCQUESTEN SUBSTATION & KM18 MODIFICATIONS | MP | MP | PC | NB |
| 1 | JUL 11/18 | BORROW PIT & ROAD PROXIMITY ALIGNMENT CHANGES | MP | MP | PC | MEO |
| 0 | MAY 11/18 | ISSUED FOR CONSTRUCTION | MP | MP | PC | MEO |

CLIENT: StrataGold Corporation

| | |
|---|---|
| DATE | MAY 11/18 |
| DESIGN | MP |
| DRAWN | MP |
| CHECKED | PC |
| APPROVED | MEO |

Clean Energy CONSULTING INC. www.cleanenergyconsulting.ca

WN BRAZIER ASSOCIATES INC

SEAL: PROFESSIONAL ENGINEER YUKON W. NEIL BRAZIER TERRITORY

EAGLE GOLD PROJECT
L251 - 69 kV TRANSMISSION LINE
PLAN AND PROFILE (SHEET 9 OF 54)

| PROJECT No. | DRAWING No. | REV. |
|---|---|---|
| 1407 | 1407-T-1200-9 | 2 |

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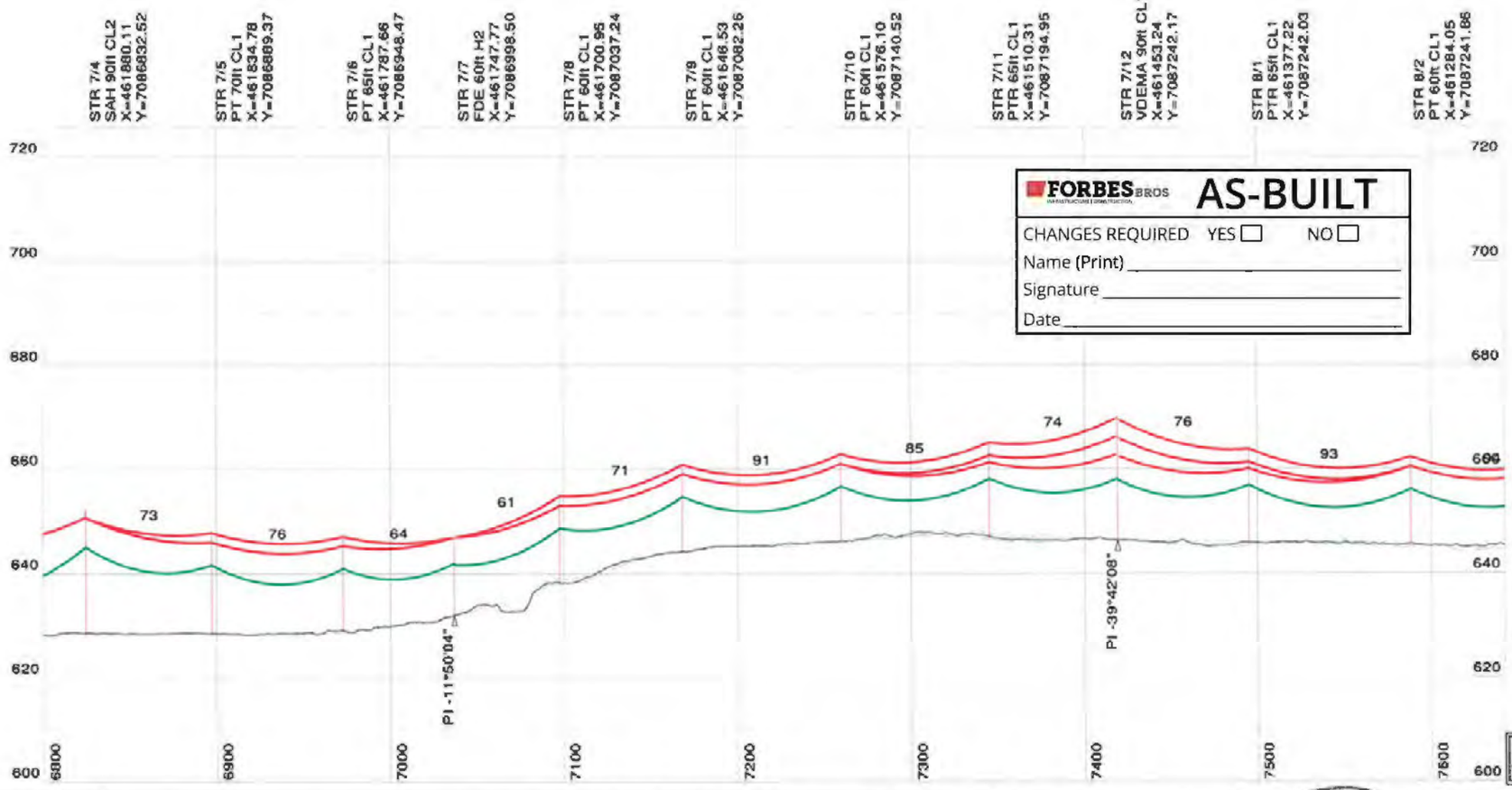


FORBES BROS

AS-BUILT

CHANGES REQUIRED YES ☐ NO ☐

Name (Print) _____

Signature _____

Date _____

NOTES

1. ALL DIMENSIONS IN METRES (m) UNLESS NOTED OTHERWISE.
2. COORDINATES ARE IN UTM NAD83 ZONE 8N.
3. ELEVATIONS ARE IN METRES (m) ABOVE MEAN SEA LEVEL (AMSL).
4. 69 kV CONDUCTOR, ADSS CABLE AND OVERHEAD SHIELD WIRE "OHSW" DISPLAYED AT "WET SNOW" (-10° C, 51mm RADIAL SNOW).
5. LINE ANGLE DEFLECTION LOOKING TOWARD EAGLE GOLD PROJECT SITE INDICATED AS FOLLOWS:
   + RIGHT ANGLE DEFLECTION
   - LEFT ANGLE DEFLECTION
6. THIS LINE WILL BE NUMBERED L251 IN THE YUKON ENERGY CORPORATION (YEC) SYSTEM.
7. LEFT (DASH) AND RIGHT (DOT) PROFILE OFFSETS SHOWN AT 5 m CENTERLINE OFFSET.
8. DESIGN TENSIONS SHOWN IN TABLE 1.

TABLE 1

| CABLE TYPE | MEAN ANNUAL TEMP (-4° C) | | WET SNOW (-10° C, 51mm RADIAL SNOW) | |
|---|---|---|---|---|
| | FULL TENSION SPANS (N) | TERMINAL SPANS (N) (SLACK) | FULL TENSION SPANS (N) | TERMINAL SPANS (N) (SLACK) |
| PARTRIDGE ACSR | 3,750 | 550 | 23,300 | 3,300 |
| ADSS | 7,500 | 150 | 13,900 | 3,300 |
| OHSW | 3,500 | 400 | 23,600 | 3,200 |

LEGEND

- 69 kV - 266.8 kcmil 26/7 "PARTRIDGE" ACSR
- ADSS - OFC-24 G.652D-FASA-S1 (ZTT)
- OHSW - 266.8 kcmil 26/7 "PARTRIDGE" ACSR
- ROAD EDGE
- 2.5m ROAD BUFFER
- 30m CLEARING BOUNDARY
- YEC L250 69 KV LINE (EXISTING)
- 60m WIDE RIGHT OF WAY BOUNDARY
- X KM APPROXIMATE ROAD KM MARKER

REFERENCES

| | |
|---|---|
| 1407-T-1000 | DRAWING LIST |
| 1407-T-1100 | ROUTE MAP |
| 1407-T-1400 | STRUCTURE DATA SHEET |
| 1407-T-1900 | SOUTH MCQUESTEN TRANSMISSION LINE CONNECTION - PLAN |
| 1407-T-3000 | STRUCTURE FAMILY |
| 1407-T-6000 | HWY 11 (SILVER TRAIL)-OVERHEAD LINE CROSSING-STR 0/4 TO STR 0/5 |

30.0 m Horiz. Scale
10.0 m Vert. Scale

ISSUED FOR CONSTRUCTION

PERMIT TO PRACTICE
W.N. BRAIZER ASSOCIATES INC.
SIGNATURE _____
Date 10/09/18
PERMIT NUMBER: PP295
Association of Professional Engineers of Yukon

| NO. | DATE | REVISION | DES | DWN | CHK | APR |
|---|---|---|---|---|---|---|
| | | | | | | |
| | | | | | | |
| | | | | | | |
| 2 | AUG 10/18 | MCQUESTEN SUBSTATION & KM18 MODIFICATIONS | MP | MP | PC | NB |
| 1 | JUL 11/18 | BORROW PIT & ROAD PROXIMITY ALIGNMENT CHANGES | MP | MP | PC | MEO |
| 0 | MAY 11/18 | ISSUED FOR CONSTRUCTION | MP | MP | PC | MEO |

CLIENT: StrataGold Corporation

| | |
|---|---|
| DATE | MAY 11/18 |
| DESIGN | MP |
| DRAWN | MP |
| CHECKED | PC |
| APPROVED | MEO |

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WN BRAZIER ASSOCIATES INC

SEAL: PROFESSIONAL ENGINEER YUKON W. NEIL BRAZIER TERRITORY

EAGLE GOLD PROJECT

L251 - 69 kV TRANSMISSION LINE

PLAN AND PROFILE (SHEET 10 OF 54)

| PROJECT No. | DRAWING No. | REV. |
|---|---|---|
| 1407 | 1407-T-1200-10 | 2 |

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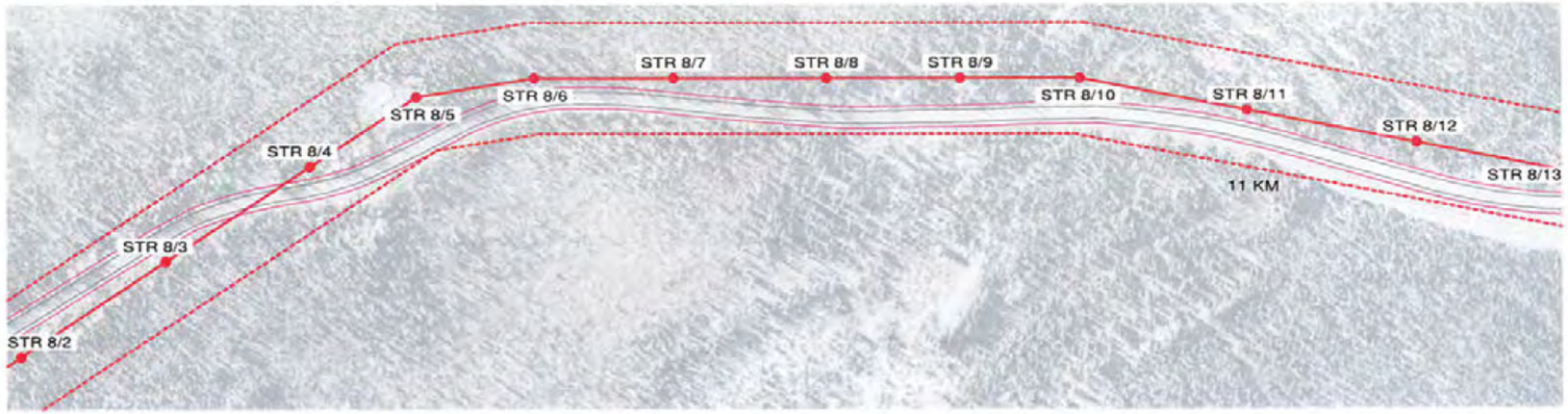


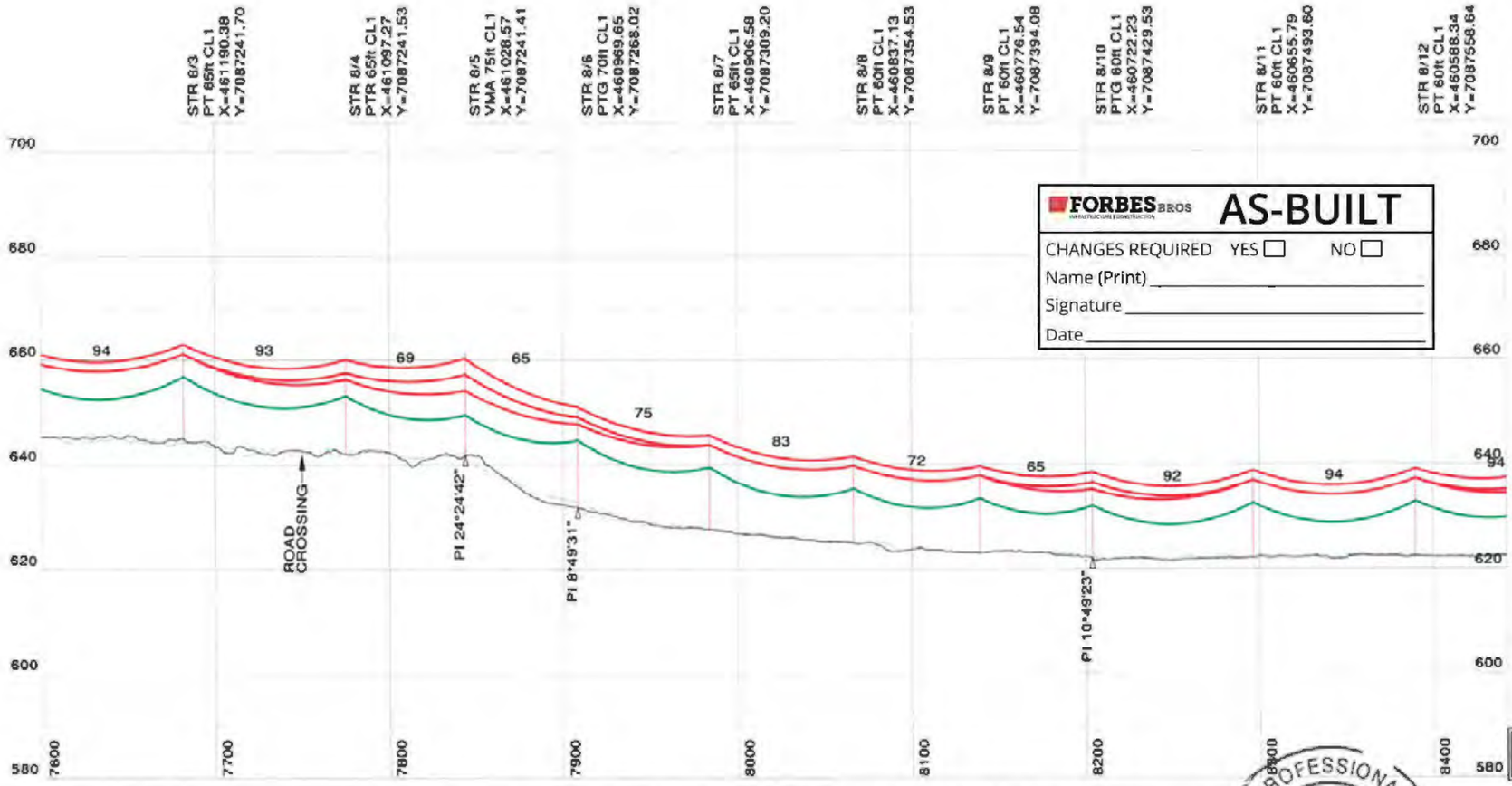


**NOTES**

1. ALL DIMENSIONS IN METRES (m) UNLESS NOTED OTHERWISE.
2. COORDINATES ARE IN UTM NAD83 ZONE 8N.
3. ELEVATIONS ARE IN METRES (m) ABOVE MEAN SEA LEVEL (AMSL).
4. 69 kV CONDUCTOR, ADSS CABLE AND OVERHEAD SHIELD WIRE "OHSW" DISPLAYED AT "WET SNOW" (-10° C, 51mm RADIAL SNOW).
5. LINE ANGLE DEFLECTION LOOKING TOWARD EAGLE GOLD PROJECT SITE INDICATED AS FOLLOWS:
   + RIGHT ANGLE DEFLECTION
   - LEFT ANGLE DEFLECTION
6. THIS LINE WILL BE NUMBERED L251 IN THE YUKON ENERGY CORPORATION (YEC) SYSTEM.
7. LEFT (DASH) AND RIGHT (DOT) PROFILE OFFSETS SHOWN AT 5 m CENTERLINE OFFSET.
8. DESIGN TENSIONS SHOWN IN TABLE 1.

**TABLE 1**

| CABLE TYPE | MEAN ANNUAL TEMP (-4° C) | | WET SNOW (-10° C, 51mm RADIAL SNOW) | |
|---|---|---|---|---|
| | FULL TENSION SPANS (N) | TERMINAL SPANS (N) (SLACK) | FULL TENSION SPANS (N) | TERMINAL SPANS (N) (SLACK) |
| PARTRIDGE ACSR | 3,750 | 550 | 23,300 | 3,300 |
| ADSS | 7,500 | 150 | 13,900 | 3,300 |
| OHSW | 3,500 | 400 | 23,600 | 3,200 |

**LEGEND**

- 69 kV - 266.8 kcmil 26/7 "PARTRIDGE" ACSR
- ADSS - OFC-24 G.652D-FASA-S1 (ZTT)
- OHSW - 266.8 kcmil 26/7 "PARTRIDGE" ACSR
- ROAD EDGE
- 2.5m ROAD BUFFER
- 30m CLEARING BOUNDARY
- YEC L250 69 KV LINE (EXISTING)
- 60m WIDE RIGHT OF WAY BOUNDARY
- X KM APPROXIMATE ROAD KM MARKER

**REFERENCES**

| | |
|---|---|
| 1407-T-1000 | DRAWING LIST |
| 1407-T-1100 | ROUTE MAP |
| 1407-T-1400 | STRUCTURE DATA SHEET |
| 1407-T-1900 | SOUTH MCQUESTEN TRANSMISSION LINE CONNECTION - PLAN |
| 1407-T-3000 | STRUCTURE FAMILY |
| 1407-T-6000 | HWY 11 (SILVER TRAIL)-OVERHEAD LINE CROSSING-STR 0/4 TO STR 0/5 |

30.0 m Horiz. Scale
10.0 m Vert. Scale

ISSUED FOR CONSTRUCTION

FORBES BROS — AS-BUILT

CHANGES REQUIRED YES ☐ NO ☐
Name (Print) _____
Signature _____
Date _____

PERMIT TO PRACTICE
W.N. BRAIZER ASSOCIATES INC.
SIGNATURE
Date 16/09/18
PERMIT NUMBER: PP295
Association of Professional Engineers of Yukon

| NO. | DATE | REVISION | DES | DWN | CHK | APR |
|---|---|---|---|---|---|---|
| 2 | AUG 10/18 | MCQUESTEN SUBSTATION & KM18 MODIFICATIONS | MP | MP | PC | NB |
| 1 | JUL 11/18 | BORROW PIT & ROAD PROXIMITY ALIGNMENT CHANGES | MP | MP | PC | MEO |
| 0 | MAY 11/18 | ISSUED FOR CONSTRUCTION | MP | MP | PC | MEO |

CLIENT: StrataGold Corporation

| | |
|---|---|
| DATE | MAY 11/18 |
| DESIGN | MP |
| DRAWN | MP |
| CHECKED | PC |
| APPROVED | MEO |

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WN BRAZIER ASSOCIATES INC

SEAL: PROFESSIONAL ENGINEER — YUKON — W. NEIL BRAZIER — TERRITORY

EAGLE GOLD PROJECT
L251 - 69 kV TRANSMISSION LINE
PLAN AND PROFILE (SHEET 11 OF 54)

| PROJECT No. | DRAWING No. | REV. |
|---|---|---|
| 1407 | 1407-T-1200-11 | 2 |

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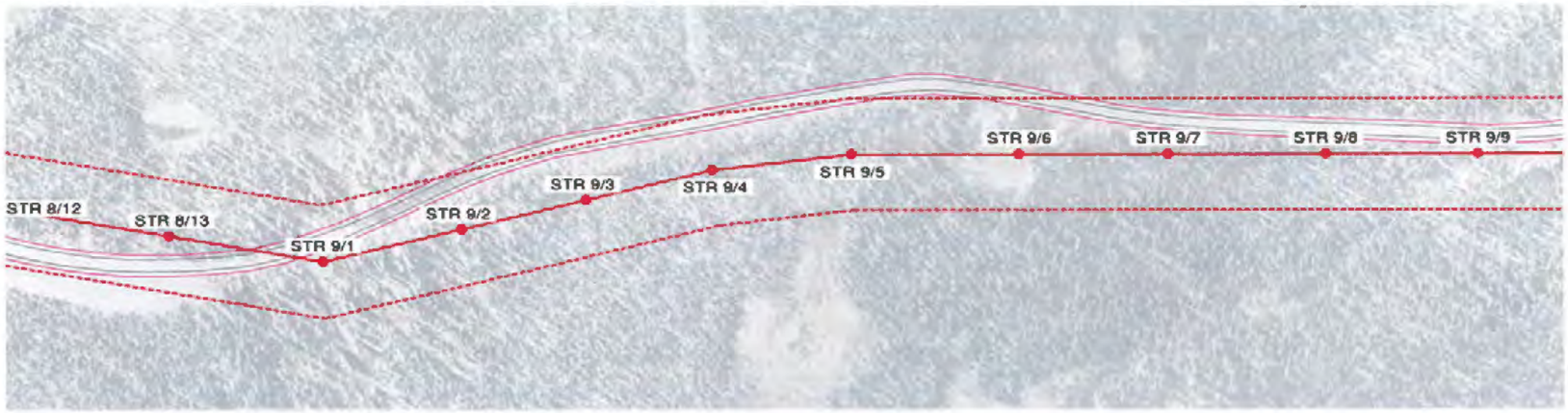


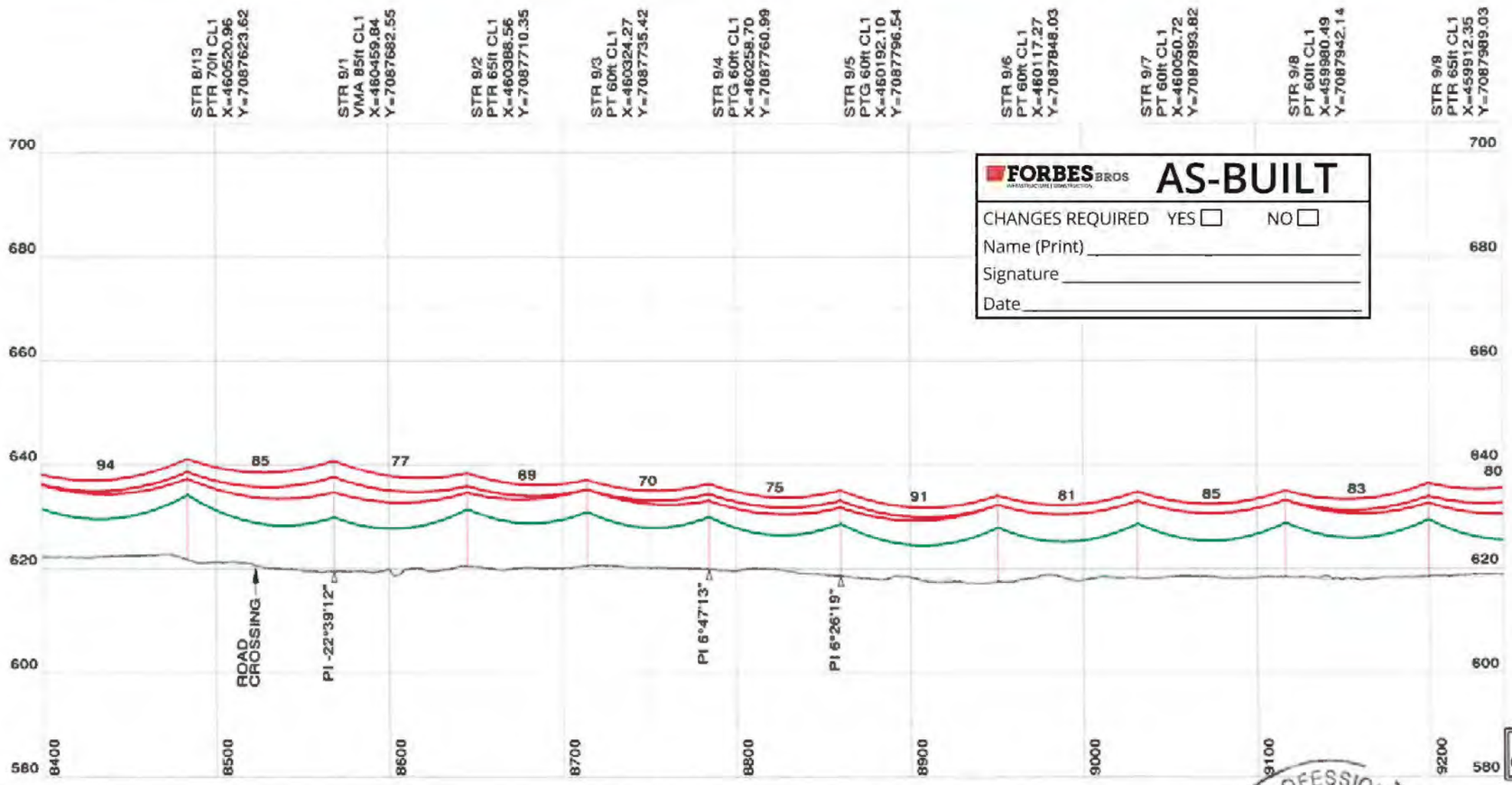


FORBES BROS

# AS-BUILT

CHANGES REQUIRED YES ☐ NO ☐

Name (Print) _____

Signature _____

Date _____

## NOTES

1. ALL DIMENSIONS IN METRES (m) UNLESS NOTED OTHERWISE.
2. COORDINATES ARE IN UTM NAD83 ZONE 8N.
3. ELEVATIONS ARE IN METRES (m) ABOVE MEAN SEA LEVEL (AMSL).
4. 69 kV CONDUCTOR, ADSS CABLE AND OVERHEAD SHIELD WIRE "OHSW" DISPLAYED AT "WET SNOW" (-10° C, 51mm RADIAL SNOW).
5. LINE ANGLE DEFLECTION LOOKING TOWARD EAGLE GOLD PROJECT SITE INDICATED AS FOLLOWS:
   + RIGHT ANGLE DEFLECTION
   - LEFT ANGLE DEFLECTION
6. THIS LINE WILL BE NUMBERED L251 IN THE YUKON ENERGY CORPORATION (YEC) SYSTEM.
7. LEFT (DASH) AND RIGHT (DOT) PROFILE OFFSETS SHOWN AT 5 m CENTERLINE OFFSET.
8. DESIGN TENSIONS SHOWN IN TABLE 1.

| TABLE 1 | MEAN ANNUAL TEMP (-4° C) | | WET SNOW (-10° C, 51mm RADIAL SNOW) | |
|---|---|---|---|---|
| CABLE TYPE | FULL TENSION SPANS (N) | TERMINAL SPANS (N) (5LACK) | FULL TENSION SPANS (N) | TERMINAL SPANS (N) (5LACK) |
| PARTRIDGE ACSR | 3,750 | 550 | 23,300 | 3,300 |
| ADSS | 7,500 | 150 | 13,900 | 3,300 |
| OHSW | 3,500 | 400 | 22,600 | 3,200 |

## LEGEND

- 69 kV - 266.8 kcmil 26/7 "PARTRIDGE" ACSR
- ADSS - OFC-24 G.652D-FASA-S1 (ZTT)
- OHSW - 266.8 kcmil 26/7 "PARTRIDGE" ACSR
- ROAD EDGE
- 2.5m ROAD BUFFER
- 30m CLEARING BOUNDARY
- YEC L250 69 KV LINE (EXISTING)
- 60m WIDE RIGHT OF WAY BOUNDARY
- X KM APPROXIMATE ROAD KM MARKER

## REFERENCES

| | |
|---|---|
| 1407-T-1000 | DRAWING LIST |
| 1407-T-1100 | ROUTE MAP |
| 1407-T-1400 | STRUCTURE DATA SHEET |
| 1407-T-1900 | SOUTH MCQUESTEN TRANSMISSION LINE CONNECTION - PLAN |
| 1407-T-3000 | STRUCTURE FAMILY |
| 1407-T-6000 | HWY 11 (SILVER TRAIL)-OVERHEAD LINE CROSSING-STR 0/4 TO STR 0/5 |

30.0 m Horiz. Scale
10.0 m Vert. Scale

ISSUED FOR CONSTRUCTION

PERMIT TO PRACTICE
W.N. BRAIZER ASSOCIATES INC.
SIGNATURE Neil Brazier
Date 10/31/18
PERMIT NUMBER: PP295
Association of Professional Engineers of Yukon

| NO. | DATE | REVISION | DES | DWN | CHK | APR |
|---|---|---|---|---|---|---|
| 2 | AUG 10/18 | MCQUESTEN SUBSTATION & KM18 MODIFICATIONS | MP | MP | PC | NB |
| 1 | JUL 11/18 | BORROW PIT & ROAD PROXIMITY ALIGNMENT CHANGES | MP | MP | PC | MEO |
| 0 | MAY 11/18 | ISSUED FOR CONSTRUCTION | MP | MP | PC | MEO |

CLIENT StrataGold Corporation

| | |
|---|---|
| DATE | MAY 11/18 |
| DESIGN | MP |
| DRAWN | MP |
| CHECKED | PC |
| APPROVED | MEO |

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WN BRAZIER ASSOCIATES INC

SEAL: PROFESSIONAL ENGINEER YUKON TERRITORY W. NEIL BRAZIER

EAGLE GOLD PROJECT
L251 - 69 kV TRANSMISSION LINE
PLAN AND PROFILE (SHEET 12 OF 54)

| PROJECT No. | DRAWING No. | REV. |
|---|---|---|
| 1407 | 1407-T-1200-12 | 2 |

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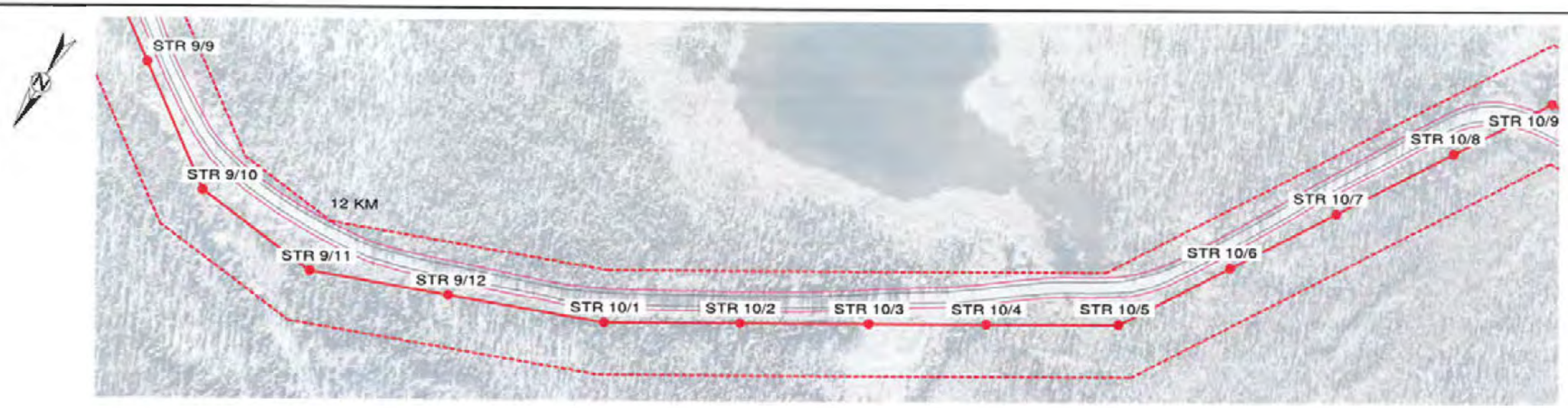


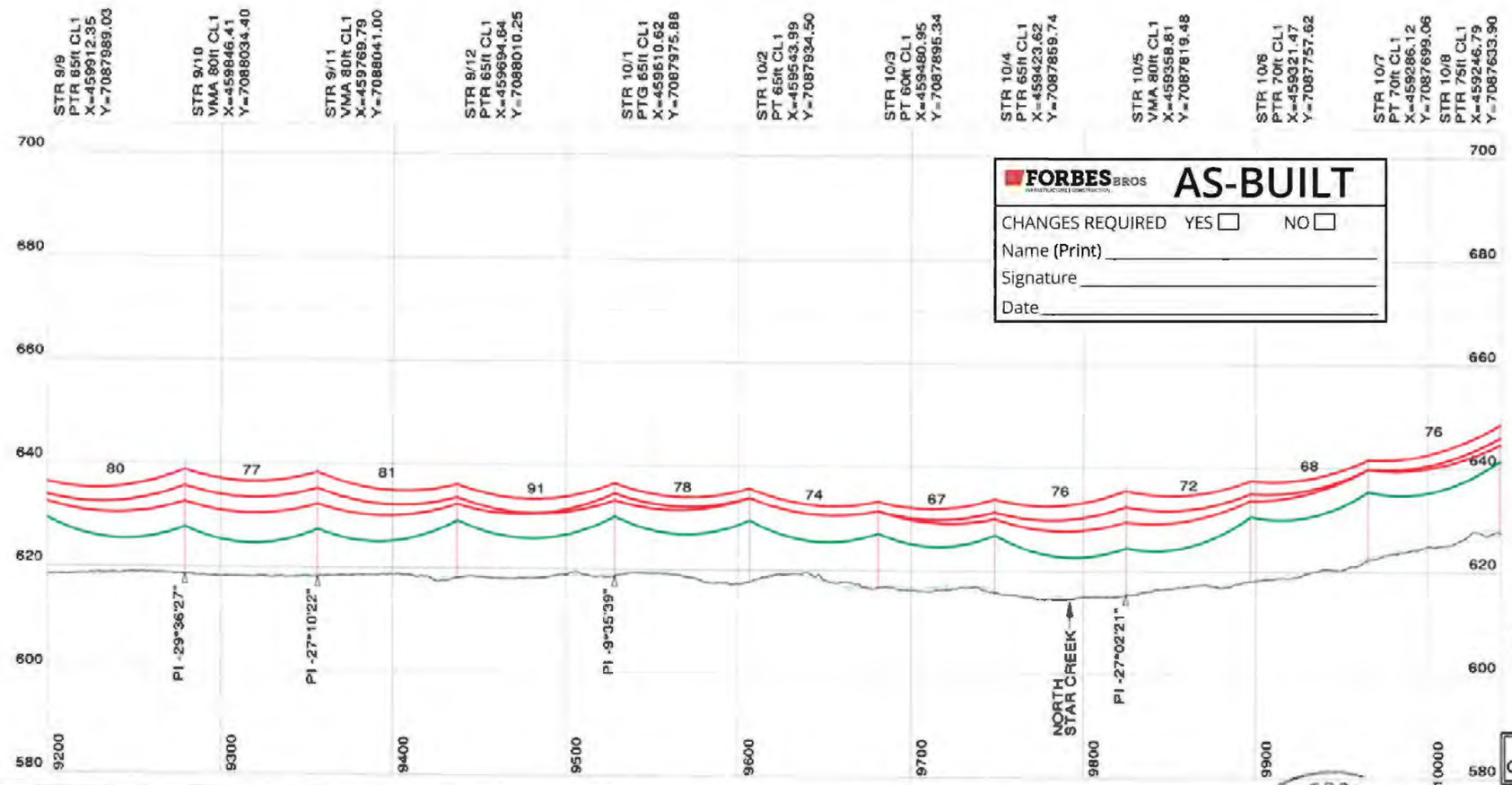


**FORBES BROS** AS-BUILT

CHANGES REQUIRED YES ☐ NO ☐

Name (Print) _____

Signature _____

Date _____

## NOTES

1. ALL DIMENSIONS IN METRES (m) UNLESS NOTED OTHERWISE.
2. COORDINATES ARE IN UTM NAD83 ZONE 8N.
3. ELEVATIONS ARE IN METRES (m) ABOVE MEAN SEA LEVEL (AMSL).
4. 69 kV CONDUCTOR, ADSS CABLE AND OVERHEAD SHIELD WIRE "OHSW" DISPLAYED AT "WET SNOW" (-10° C, 51mm RADIAL SNOW).
5. LINE ANGLE DEFLECTION LOOKING TOWARD EAGLE GOLD PROJECT SITE INDICATED AS FOLLOWS:
   + RIGHT ANGLE DEFLECTION
   - LEFT ANGLE DEFLECTION
6. THIS LINE WILL BE NUMBERED L251 IN THE YUKON ENERGY CORPORATION (YEC) SYSTEM.
7. LEFT (DASH) AND RIGHT (DOT) PROFILE OFFSETS SHOWN AT 5 m CENTERLINE OFFSET.
8. DESIGN TENSIONS SHOWN IN TABLE 1.

**TABLE 1**

| CABLE TYPE | MEAN ANNUAL TEMP (-4° C) | | WET SNOW (-10° C, 51mm RADIAL SNOW) | |
|---|---|---|---|---|
| | FULL TENSION SPANS (N) | TERMINAL SPANS (N) (BLACK) | FULL TENSION SPANS (N) | TERMINAL SPANS (N) (BLACK) |
| PARTRIDGE ACSR | 3,750 | 850 | 23,300 | 3,300 |
| ADSS | 7,500 | 150 | 13,500 | 3,300 |
| OHSW | 3,500 | 400 | 23,600 | 3,200 |

## LEGEND

- 69 kV - 266.8 kcmil 26/7 "PARTRIDGE" ACSR
- ADSS - OFC-24 G.652D-FASA-S1 (ZTT)
- OHSW - 266.8 kcmil 26/7 "PARTRIDGE" ACSR
- ROAD EDGE
- 2.5m ROAD BUFFER
- 30m CLEARING BOUNDARY
- YEC L250 69 KV LINE (EXISTING)
- 60m WIDE RIGHT OF WAY BOUNDARY
- X KM APPROXIMATE ROAD KM MARKER

## REFERENCES

| | |
|---|---|
| 1407-T-1000 | DRAWING LIST |
| 1407-T-1100 | ROUTE MAP |
| 1407-T-1400 | STRUCTURE DATA SHEET |
| 1407-T-1900 | SOUTH MCQUESTEN TRANSMISSION LINE CONNECTION - PLAN |
| 1407-T-3000 | STRUCTURE FAMILY |
| 1407-T-6000 | HWY 11 (SILVER TRAIL)-OVERHEAD LINE CROSSING-STR 0/4 TO STR 0/5 |

30.0 m Horiz. Scale
10.0 m Vert. Scale

ISSUED FOR CONSTRUCTION

PERMIT TO PRACTICE
W.N. BRAIZER ASSOCIATES INC.
SIGNATURE _____
Date 10/05/18
PERMIT NUMBER: PP295
Association of Professional Engineers of Yukon

| NO. | DATE | REVISION | DES | DWN | CHK | APR |
|---|---|---|---|---|---|---|
| 2 | AUG 10/18 | MCQUESTEN SUBSTATION & KM18 MODIFICATIONS | MP | MP | PC | NB |
| 1 | JUL 11/18 | BORROW PIT & ROAD PROXIMITY ALIGNMENT CHANGES | MP | MP | PC | MEO |
| 0 | MAY 11/18 | ISSUED FOR CONSTRUCTION | MP | MP | PC | MEO |

CLIENT: StrataGold Corporation

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|---|---|
| DATE | MAY 11/18 |
| DESIGN | MP |
| DRAWN | MP |
| CHECKED | PC |
| APPROVED | MEO |

Clean Energy CONSULTING INC.
www.cleanenergyconsulting.ca
WN BRAZIER ASSOCIATES INC

SEAL: PROFESSIONAL ENGINEER YUKON W. NEIL BRAZIER TERRITORY

# EAGLE GOLD PROJECT
## L251 - 69 kV TRANSMISSION LINE
## PLAN AND PROFILE (SHEET 13 OF 54)

| PROJECT No. | DRAWING No. | REV. |
|---|---|---|
| 1407 | 1407-T-1200-13 | 2 |

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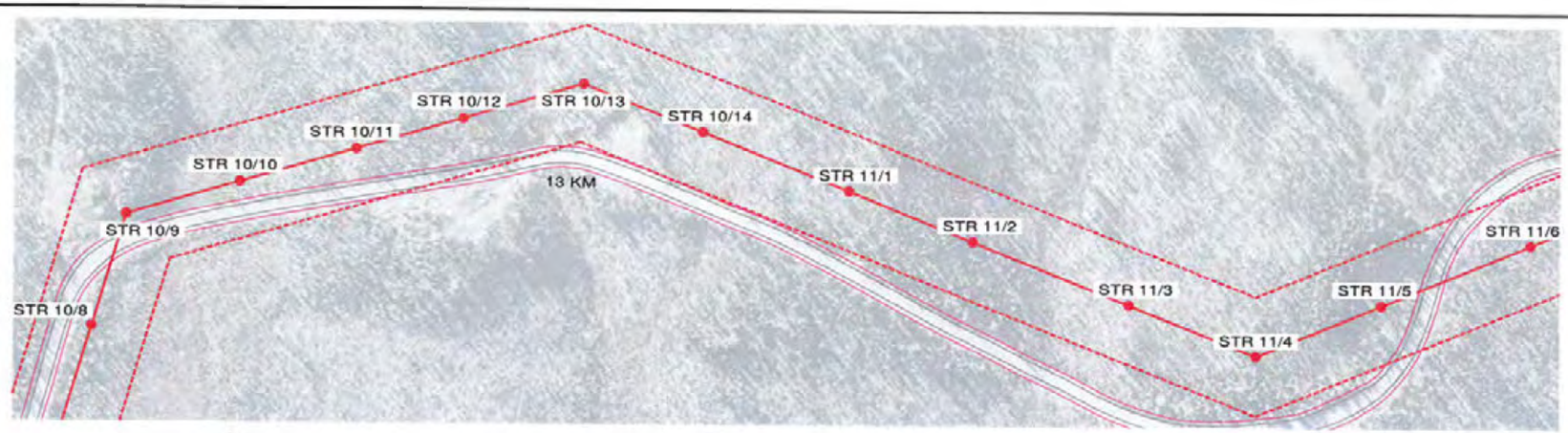


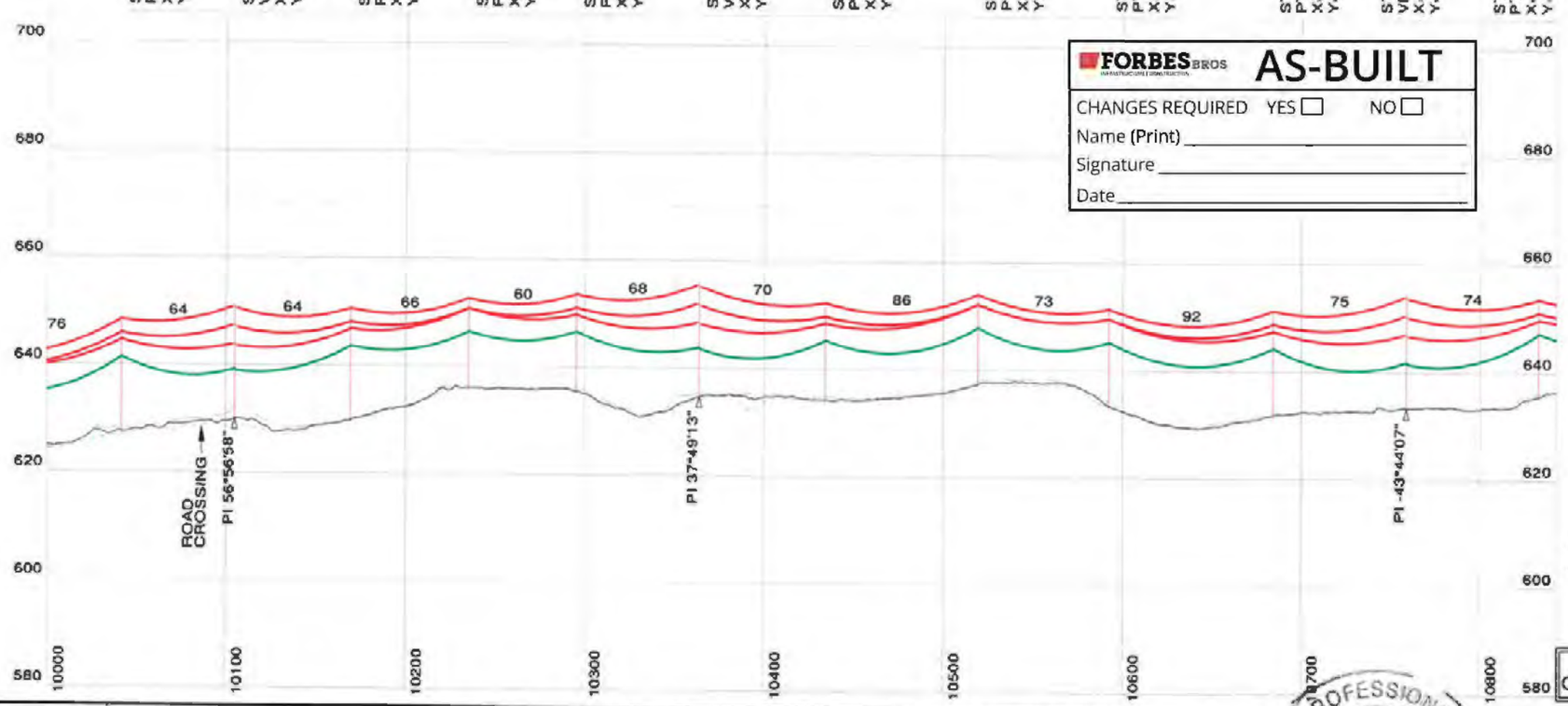


FORBES BROS

# AS-BUILT

CHANGES REQUIRED YES ☐ NO ☐

Name (Print) _____

Signature _____

Date _____

## NOTES

1. ALL DIMENSIONS IN METRES (m) UNLESS NOTED OTHERWISE.
2. COORDINATES ARE IN UTM NAD83 ZONE 8N.
3. ELEVATIONS ARE IN METRES (m) ABOVE MEAN SEA LEVEL (AMSL).
4. 69 kV CONDUCTOR, ADSS CABLE AND OVERHEAD SHIELD WIRE "OHSW" DISPLAYED AT "WET SNOW" (-10° C, 51mm RADIAL SNOW).
5. LINE ANGLE DEFLECTION LOOKING TOWARD EAGLE GOLD PROJECT SITE INDICATED AS FOLLOWS:
   + RIGHT ANGLE DEFLECTION
   - LEFT ANGLE DEFLECTION
6. THIS LINE WILL BE NUMBERED L251 IN THE YUKON ENERGY CORPORATION (YEC) SYSTEM.
7. LEFT (DASH) AND RIGHT (DOT) PROFILE OFFSETS SHOWN AT 5 m CENTERLINE OFFSET.
8. DESIGN TENSIONS SHOWN IN TABLE 1.

| TABLE 1 | MEAN ANNUAL TEMP (-4° C) | | WET SNOW (-10° C, 51mm RADIAL SNOW) | |
|---|---|---|---|---|
| CABLE TYPE | FULL TENSION SPANS (N) | TERMINAL SPANS (N) (SLACK) | FULL TENSION SPANS (N) | TERMINAL SPANS (N) (SLACK) |
| PARTRIDGE ACSR | 3,750 | 550 | 23,300 | 3,300 |
| ADSS | 7,500 | 150 | 13,900 | 3,300 |
| OHSW | 3,800 | 400 | 23,600 | 3,200 |

## LEGEND

- 69 kV - 266.8 kcmil 26/7 "PARTRIDGE" ACSR
- ADSS - OFC-24 G.652D-FASA-S1 (ZTT)
- OHSW - 266.8 kcmil 26/7 "PARTRIDGE" ACSR
- ROAD EDGE
- 2.5m ROAD BUFFER
- 30m CLEARING BOUNDARY
- YEC L250 69 KV LINE (EXISTING)
- 60m WIDE RIGHT OF WAY BOUNDARY
- X KM APPROXIMATE ROAD KM MARKER

## REFERENCES

| | |
|---|---|
| 1407-T-1000 | DRAWING LIST |
| 1407-T-1100 | ROUTE MAP |
| 1407-T-1400 | STRUCTURE DATA SHEET |
| 1407-T-1900 | SOUTH MCQUESTEN TRANSMISSION LINE CONNECTION - PLAN |
| 1407-T-3000 | STRUCTURE FAMILY |
| 1407-T-6000 | HWY 11 (SILVER TRAIL)-OVERHEAD LINE CROSSING-STR 0/4 TO STR 0/5 |

30.0 m Horiz. Scale
10.0 m Vert. Scale

ISSUED FOR CONSTRUCTION

PERMIT TO PRACTICE
W.N. BRAIZER ASSOCIATES INC.
SIGNATURE _____
Date 10/03/18
PERMIT NUMBER: PP295
Association of Professional Engineers of Yukon

| NO. | DATE | REVISION | DES | DWN | CHK | APR |
|---|---|---|---|---|---|---|
| 2 | AUG 10/18 | MCQUESTEN SUBSTATION & KM18 MODIFICATIONS | MP | MP | PC | NB |
| 1 | JUL 11/18 | BORROW PIT & ROAD PROXIMITY ALIGNMENT CHANGES | MP | MP | PC | MEO |
| 0 | MAY 11/18 | ISSUED FOR CONSTRUCTION | MP | MP | PC | MEO |

CLIENT: StrataGold Corporation

| | |
|---|---|
| DATE | MAY 11/18 |
| DESIGN | MP |
| DRAWN | MP |
| CHECKED | PC |
| APPROVED | MEO |

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WN BRAZIER ASSOCIATES INC

APEGY YUKON PROFESSIONAL ENGINEER W. NEIL BRAZIER TERRITORY

EAGLE GOLD PROJECT
L251 - 69 kV TRANSMISSION LINE
PLAN AND PROFILE (SHEET 14 OF 54)

| PROJECT No. | DRAWING No. | REV. |
|---|---|---|
| 1407 | 1407-T-1200-14 | 2 |

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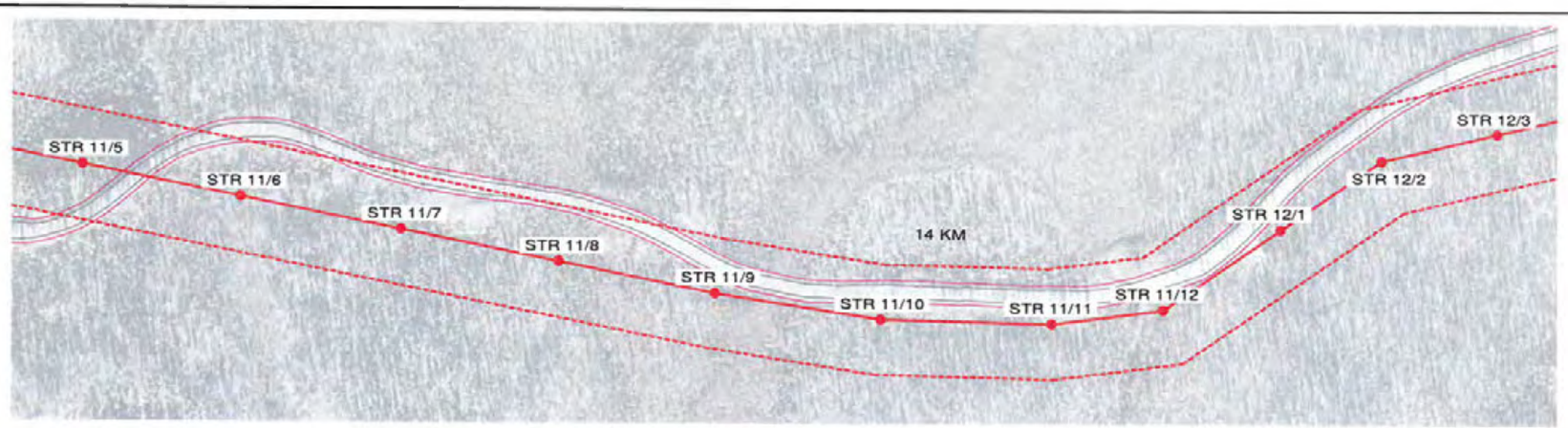


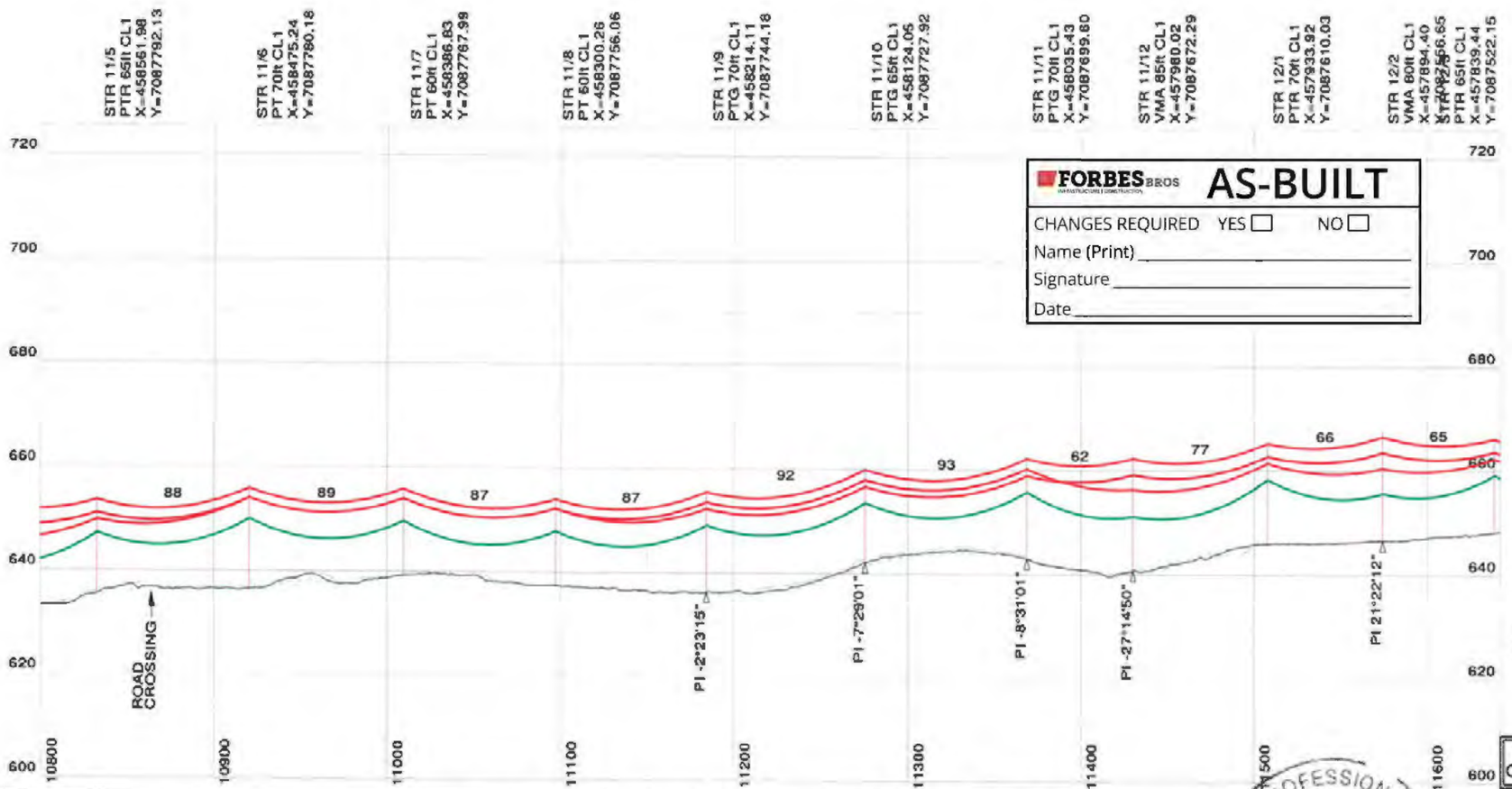


**AS-BUILT**

CHANGES REQUIRED YES ☐ NO ☐

Name (Print) _____

Signature _____

Date _____

## NOTES

1. ALL DIMENSIONS IN METRES (m) UNLESS NOTED OTHERWISE.
2. COORDINATES ARE IN UTM NAD83 ZONE 8N.
3. ELEVATIONS ARE IN METRES (m) ABOVE MEAN SEA LEVEL (AMSL).
4. 69 kV CONDUCTOR, ADSS CABLE AND OVERHEAD SHIELD WIRE "OHSW" DISPLAYED AT "WET SNOW" (-10° C, 51mm RADIAL SNOW).
5. LINE ANGLE DEFLECTION LOOKING TOWARD EAGLE GOLD PROJECT SITE INDICATED AS FOLLOWS:
   + RIGHT ANGLE DEFLECTION
   - LEFT ANGLE DEFLECTION
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7. LEFT (DASH) AND RIGHT (DOT) PROFILE OFFSETS SHOWN AT 5 m CENTERLINE OFFSET.
8. DESIGN TENSIONS SHOWN IN TABLE 1.

**TABLE 1**

| | MEAN ANNUAL TEMP (-4° C) | | WET SNOW (-10° C, 51mm RADIAL SNOW) | |
|---|---|---|---|---|
| CABLE TYPE | FULL TENSION SPANS (N) | TERMINAL SPANS (N) (SLACK) | FULL TENSION SPANS (N) | TERMINAL SPANS (N) (SLACK) |
| PARTRIDGE ACSR | 3,750 | 550 | 23,300 | 3,300 |
| ADSS | 7,500 | 150 | 13,500 | 3,300 |
| OHSW | 3,600 | 400 | 23,600 | 3,200 |

## LEGEND

- 69 kV - 266.8 kcmil 26/7 "PARTRIDGE" ACSR
- ADSS - OFC-24 G.652D-FASA-S1 (ZTT)
- OHSW - 266.8 kcmil 26/7 "PARTRIDGE" ACSR
- ROAD EDGE
- 2.5m ROAD BUFFER
- 30m CLEARING BOUNDARY
- YEC L250 69 KV LINE (EXISTING)
- 60m WIDE RIGHT OF WAY BOUNDARY
- X KM APPROXIMATE ROAD KM MARKER

## REFERENCES

| | |
|---|---|
| 1407-T-1000 | DRAWING LIST |
| 1407-T-1100 | ROUTE MAP |
| 1407-T-1400 | STRUCTURE DATA SHEET |
| 1407-T-1900 | SOUTH MCQUESTEN TRANSMISSION LINE CONNECTION - PLAN |
| 1407-T-3000 | STRUCTURE FAMILY |
| 1407-T-6000 | HWY 11 (SILVER TRAIL)-OVERHEAD LINE CROSSING-STR 0/4 TO STR 0/5 |

30.0 m Horiz. Scale
10.0 m Vert. Scale

ISSUED FOR CONSTRUCTION

PERMIT TO PRACTICE
W.N. BRAIZER ASSOCIATES INC.
SIGNATURE _____
Date 10/08/18
PERMIT NUMBER: PP295
Association of Professional Engineers of Yukon

| NO. | DATE | REVISION | DES | DWN | CHK | APR |
|---|---|---|---|---|---|---|
| 2 | AUG 10/18 | MCQUESTEN SUBSTATION & KM18 MODIFICATIONS | MP | MP | PC | NB |
| 1 | JUL 11/18 | BORROW PIT & ROAD PROXIMITY ALIGNMENT CHANGES | MP | MP | PC | MEO |
| 0 | MAY 11/18 | ISSUED FOR CONSTRUCTION | MP | MP | PC | MEO |

CLIENT: StrataGold Corporation

| | |
|---|---|
| DATE | MAY 11/18 |
| DESIGN | MP |
| DRAWN | MP |
| CHECKED | PC |
| APPROVED | MEO |

Clean Energy CONSULTING INC. www.cleanenergyconsulting.ca

WN BRAZIER ASSOCIATES INC

SEAL: PROFESSIONAL ENGINEER YUKON W. NEIL BRAZIER TERRITORY

EAGLE GOLD PROJECT
L251 - 69 kV TRANSMISSION LINE
PLAN AND PROFILE (SHEET 15 OF 54)

| PROJECT No. | DRAWING No. | REV. |
|---|---|---|
| 1407 | 1407-T-1200-15 | 2 |

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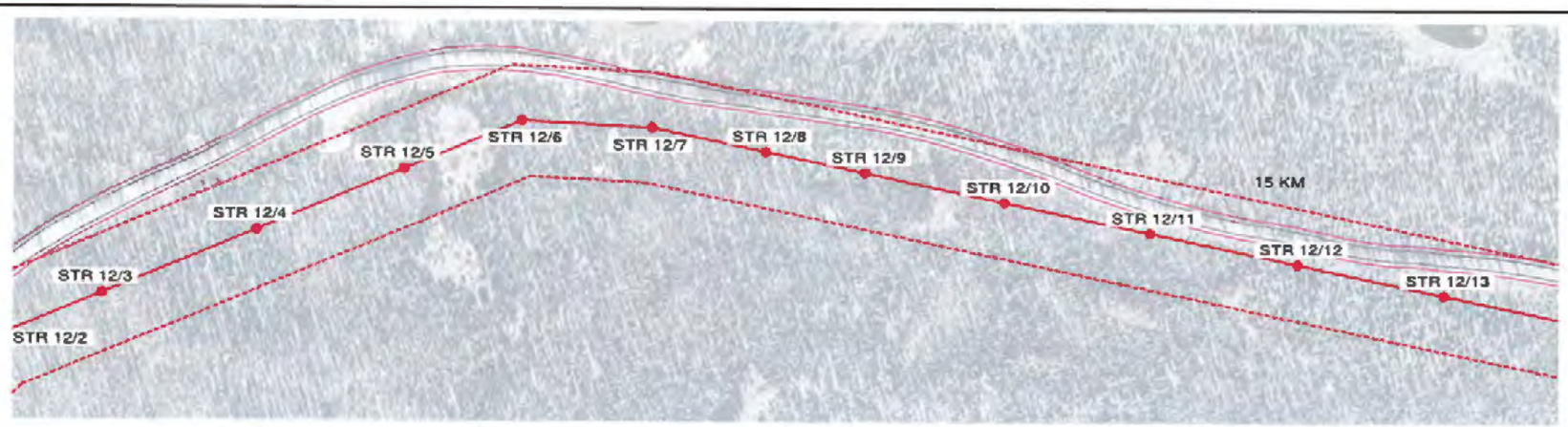





**FORBES BROS** AS-BUILT

CHANGES REQUIRED YES ☐ NO ☐

Name (Print) _____

Signature _____

Date _____

## NOTES

1. ALL DIMENSIONS IN METRES (m) UNLESS NOTED OTHERWISE.
2. COORDINATES ARE IN UTM NAD83 ZONE 8N.
3. ELEVATIONS ARE IN METRES (m) ABOVE MEAN SEA LEVEL (AMSL).
4. 69 kV CONDUCTOR, ADSS CABLE AND OVERHEAD SHIELD WIRE "OHSW" DISPLAYED AT "WET SNOW" (-10° C, 51mm RADIAL SNOW).
5. LINE ANGLE DEFLECTION LOOKING TOWARD EAGLE GOLD PROJECT SITE INDICATED AS FOLLOWS:
   + RIGHT ANGLE DEFLECTION
   - LEFT ANGLE DEFLECTION
6. THIS LINE WILL BE NUMBERED L251 IN THE YUKON ENERGY CORPORATION (YEC) SYSTEM.
7. LEFT (DASH) AND RIGHT (DOT) PROFILE OFFSETS SHOWN AT 5 m CENTERLINE OFFSET.
8. DESIGN TENSIONS SHOWN IN TABLE 1.

| TABLE 1 | MEAN ANNUAL TEMP (-4° C) | | WET SNOW (-10° C, 51mm RADIAL SNOW) | |
|---|---|---|---|---|
| CABLE TYPE | FULL TENSION SPANS (N) | TERMINAL SPANS (N) (SLACK) | FULL TENSION SPANS (N) | TERMINAL SPANS (N) (SLACK) |
| PARTRIDGE ACSR | 3,750 | 550 | 23,300 | 3,300 |
| ADSS | 7,500 | 150 | 13,900 | 3,300 |
| OHSW | 3,800 | 400 | 23,600 | 3,200 |

## LEGEND

- 69 kV - 266.8 kcmil 26/7 "PARTRIDGE" ACSR
- ADSS - OFC-24 G.652D-FASA-S1 (ZTT)
- OHSW - 266.8 kcmil 26/7 "PARTRIDGE" ACSR
- ROAD EDGE
- 2.5m ROAD BUFFER
- 30m CLEARING BOUNDARY
- YEC L250 69 KV LINE (EXISTING)
- 60m WIDE RIGHT OF WAY BOUNDARY
- X KM APPROXIMATE ROAD KM MARKER

## REFERENCES

| | |
|---|---|
| 1407-T-1000 | DRAWING LIST |
| 1407-T-1100 | ROUTE MAP |
| 1407-T-1400 | STRUCTURE DATA SHEET |
| 1407-T-1900 | SOUTH MCQUESTEN TRANSMISSION LINE CONNECTION - PLAN |
| 1407-T-3000 | STRUCTURE FAMILY |
| 1407-T-6000 | HWY 11 (SILVER TRAIL)-OVERHEAD LINE CROSSING-STR 0/4 TO STR 0/5 |

30.0 m Horiz. Scale
10.0 m Vert. Scale

ISSUED FOR CONSTRUCTION

PERMIT TO PRACTICE
W.N. BRAIZER ASSOCIATES INC.
SIGNATURE _____
Date 12/28/18
PERMIT NUMBER: PP295
Association of Professional Engineers of Yukon

| NO. | DATE | REVISION | DES | DWN | CHK | APR |
|---|---|---|---|---|---|---|
| 2 | AUG 10/18 | MCQUESTEN SUBSTATION & KM18 MODIFICATIONS | MP | MP | PC | NB |
| 1 | JUL 11/18 | BORROW PIT & ROAD PROXIMITY ALIGNMENT CHANGES | MP | MP | PC | MEO |
| 0 | MAY 11/18 | ISSUED FOR CONSTRUCTION | MP | MP | PC | MEO |

CLIENT: StrataGold Corporation

| | |
|---|---|
| DATE | MAY 11/18 |
| DESIGN | MP |
| DRAWN | MP |
| CHECKED | PC |
| APPROVED | MEO |

Clean Energy CONSULTING INC. www.cleanenergyconsulting.ca

WN BRAIZER ASSOCIATES INC

SEAL: PROFESSIONAL ENGINEER YUKON W. NEIL BRAIZER TERRITORY

EAGLE GOLD PROJECT
L251 - 69 kV TRANSMISSION LINE
PLAN AND PROFILE (SHEET 16 OF 54)

| PROJECT No. | DRAWING No. | REV. |
|---|---|---|
| 1407 | 1407-T-1200-16 | 2 |

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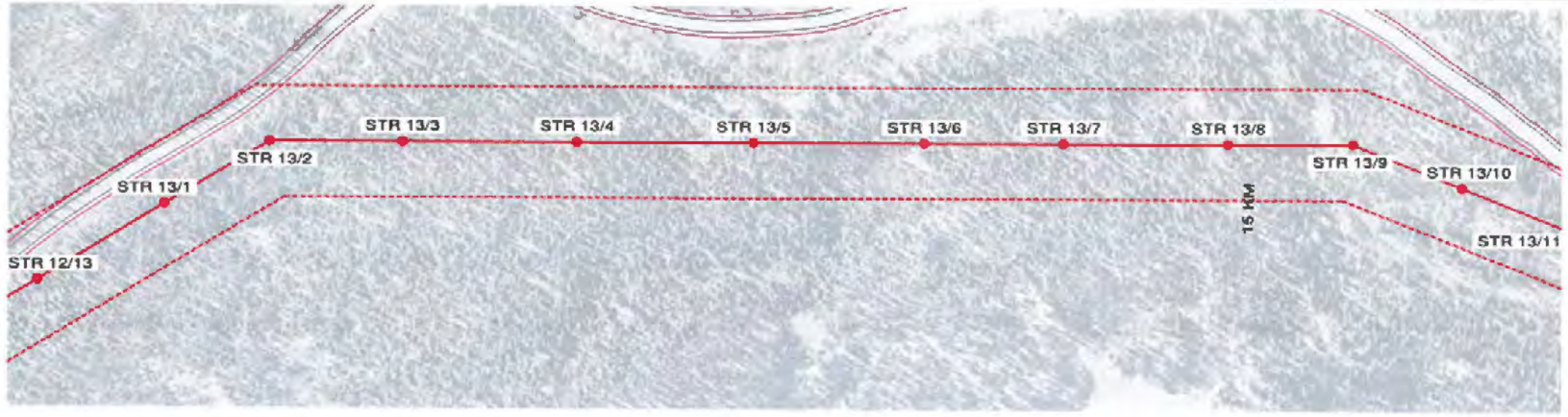



STR 12/13
PT 60ft CL1
X=457117.80
Y=7087399.46

STR 13/1
PTR 70ft CL1
X=457037.45
Y=7087402.51

STR 13/2
VDEMA 85ft CL1
X=456971.36
Y=7087405.03

STR 13/3
PTR 65ft CL1
X=456911.49
Y=7087444.24

STR 13/4
PT 60ft CL1
X=456832.09
Y=7087496.24

STR 13/5
PT 60ft CL1
X=456752.28
Y=7087548.51

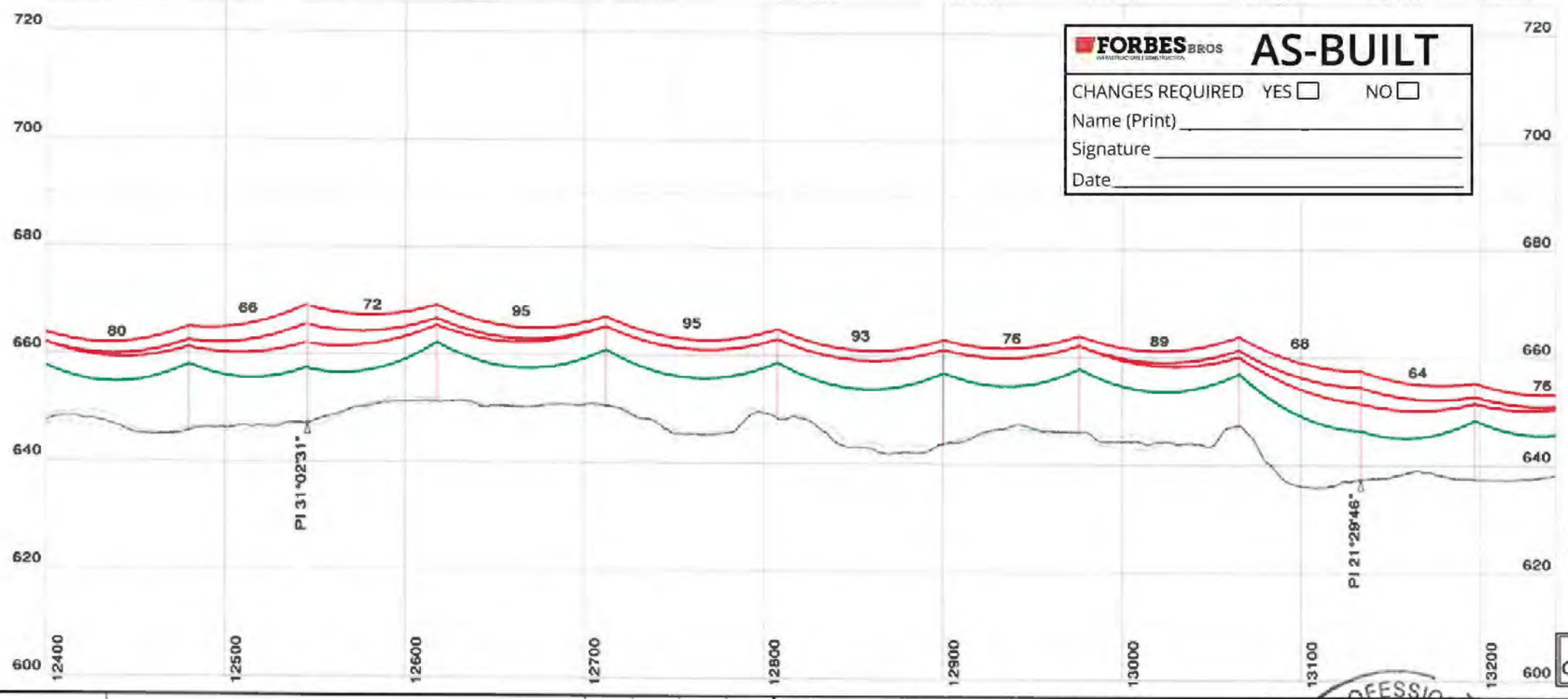
STR 13/6
PT 70ft CL1
X=456674.69
Y=7087599.33

STR 13/7
PT 65ft CL1
X=456611.39
Y=7087640.79

STR 13/8
PTR 60ft CL1
X=456536.58
Y=7087689.78

STR 13/9
VMA 80ft CL1
X=456479.85
Y=7087726.93

STR 13/10
PTR 65ft CL1
X=456443.15
Y=7087778.80




**FORBES BROS** AS-BUILT

CHANGES REQUIRED YES ☐ NO ☐

Name (Print) _____

Signature _____

Date _____

## NOTES

1. ALL DIMENSIONS IN METRES (m) UNLESS NOTED OTHERWISE.
2. COORDINATES ARE IN UTM NAD83 ZONE 8N.
3. ELEVATIONS ARE IN METRES (m) ABOVE MEAN SEA LEVEL (AMSL).
4. 69 kV CONDUCTOR, ADSS CABLE AND OVERHEAD SHIELD WIRE "OHSW" DISPLAYED AT "WET SNOW" (-10° C, 51mm RADIAL SNOW).
5. LINE ANGLE DEFLECTION LOOKING TOWARD EAGLE GOLD PROJECT SITE INDICATED AS FOLLOWS:
   + RIGHT ANGLE DEFLECTION
   - LEFT ANGLE DEFLECTION
6. THIS LINE WILL BE NUMBERED L251 IN THE YUKON ENERGY CORPORATION (YEC) SYSTEM.
7. LEFT (DASH) AND RIGHT (DOT) PROFILE OFFSETS SHOWN AT 5 m CENTERLINE OFFSET.
8. DESIGN TENSIONS SHOWN IN TABLE 1.

TABLE 1

| CABLE TYPE | MEAN ANNUAL TEMP (-4° C) | | WET SNOW (-10° C, 51mm RADIAL SNOW) | |
|---|---|---|---|---|
| | FULL TENSION SPANS (N) | TERMINAL SPANS (N) (SLACK) | FULL TENSION SPANS (N) | TERMINAL SPANS (N) (SLACK) |
| PARTRIDGE ACSR | 3,750 | 550 | 23,300 | 3,300 |
| ADSS | 7,500 | 150 | 13,900 | 3,300 |
| OHSW | 3,500 | 400 | 23,600 | 3,200 |

## LEGEND

- 69 kV - 266.8 kcmil 26/7 "PARTRIDGE" ACSR
- ADSS - OFC-24 G.652D-FASA-S1 (ZTT)
- OHSW - 266.8 kcmil 26/7 "PARTRIDGE" ACSR
- ROAD EDGE
- 2.5m ROAD BUFFER
- 30m CLEARING BOUNDARY
- YEC L250 69 KV LINE (EXISTING)
- 60m WIDE RIGHT OF WAY BOUNDARY
- X KM APPROXIMATE ROAD KM MARKER

## REFERENCES

| | |
|---|---|
| 1407-T-1000 | DRAWING LIST |
| 1407-T-1100 | ROUTE MAP |
| 1407-T-1400 | STRUCTURE DATA SHEET |
| 1407-T-1800 | SOUTH MCQUESTEN TRANSMISSION LINE CONNECTION - PLAN |
| 1407-T-3000 | STRUCTURE FAMILY |
| 1407-T-6000 | HWY 11 (SILVER TRAIL)-OVERHEAD LINE CROSSING-STR 0/4 TO STR 0/5 |

30.0 m Horiz. Scale
10.0 m Vert. Scale

ISSUED FOR CONSTRUCTION

PERMIT TO PRACTICE
W.N. BRAIZER ASSOCIATES INC.
SIGNATURE _____
Date 10/23/18
PERMIT NUMBER: PP295
Association of Professional Engineers of Yukon

| NO. | DATE | REVISION | DES | DWN | CHK | APR |
|---|---|---|---|---|---|---|
| 2 | AUG 10/18 | MCQUESTEN SUBSTATION & KM18 MODIFICATIONS | MP | MP | PC | NB |
| 1 | JUL 11/18 | BORROW PIT & ROAD PROXIMITY ALIGNMENT CHANGES | MP | MP | PC | MEO |
| 0 | MAY 11/18 | ISSUED FOR CONSTRUCTION | MP | MP | PC | MEO |

CLIENT: StrataGold Corporation

| | |
|---|---|
| DATE | MAY 11/18 |
| DESIGN | MP |
| DRAWN | MP |
| CHECKED | PC |
| APPROVED | MEO |

Clean Energy CONSULTING INC.
www.cleanenergyconsulting.ca

WN BRAZIER ASSOCIATES INC

SEAL: PROFESSIONAL ENGINEER YUKON W. NEIL BRAZIER TERRITORY

# EAGLE GOLD PROJECT
## L251 - 69 kV TRANSMISSION LINE
## PLAN AND PROFILE (SHEET 17 OF 54)

| PROJECT No. | DRAWING No. | REV. |
|---|---|---|
| 1407 | 1407-T-1200-17 | 2 |

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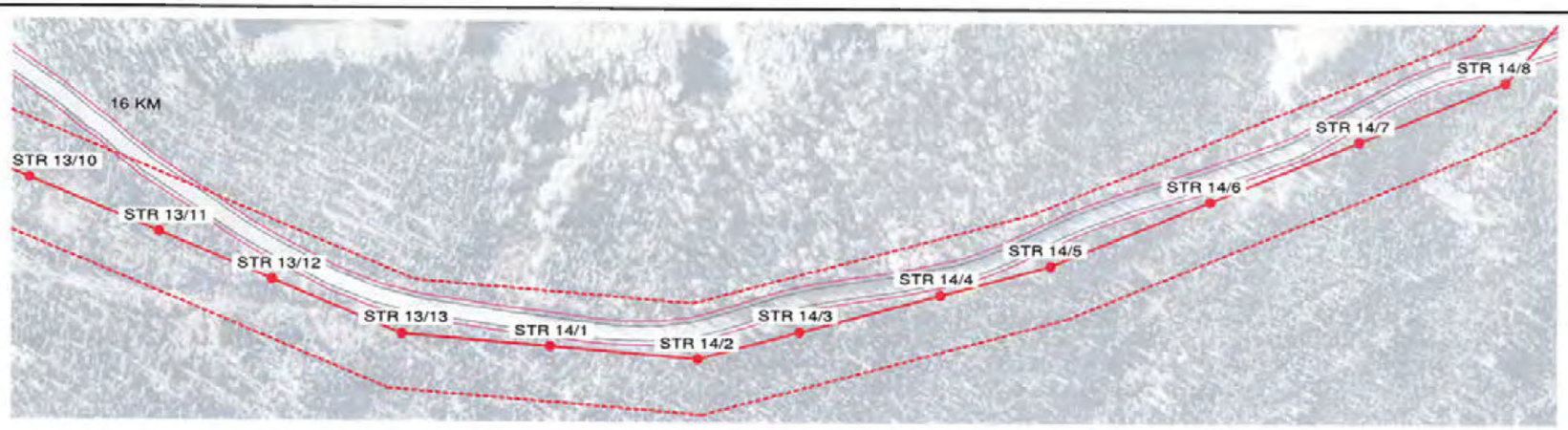


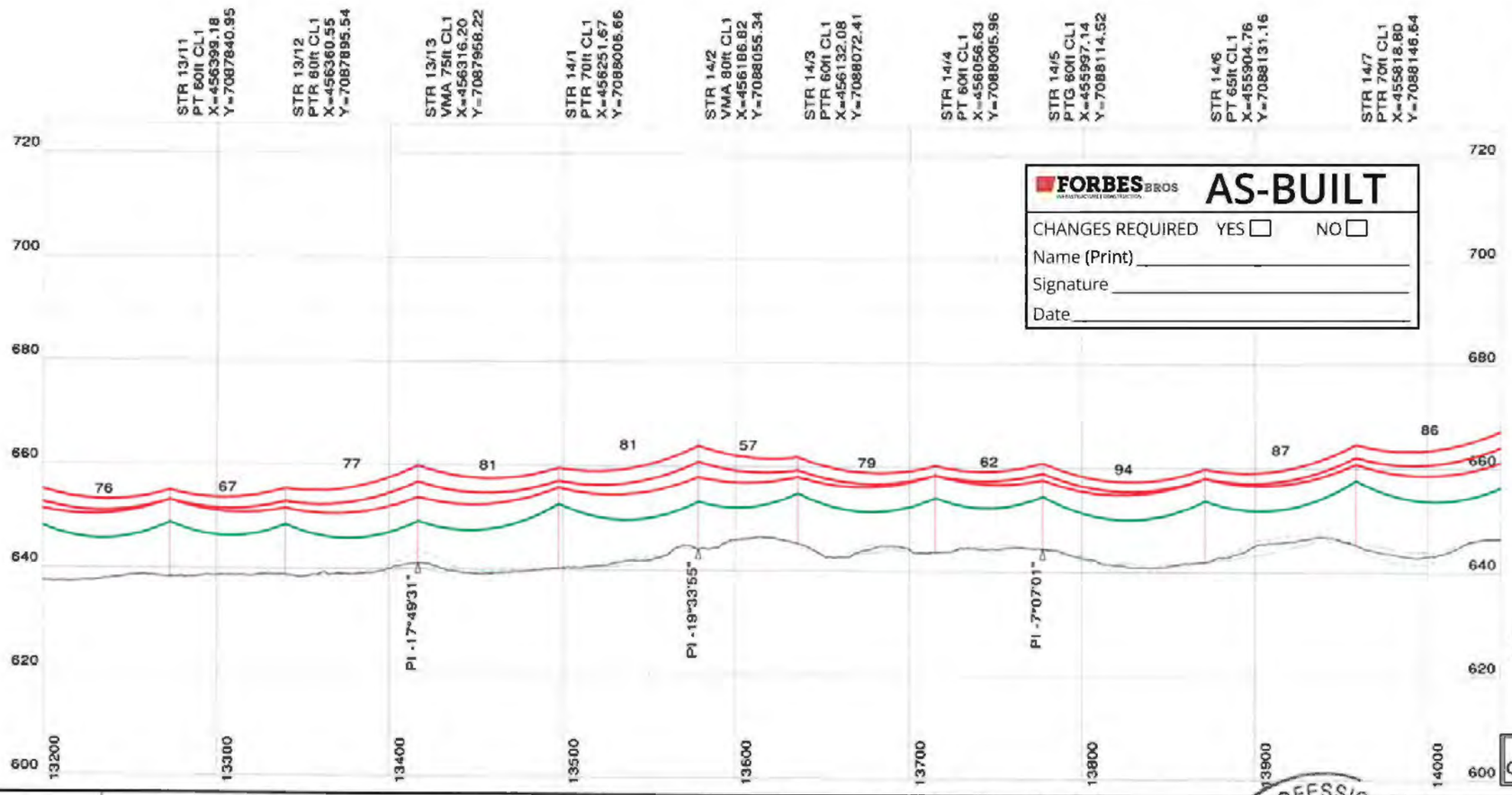


**FORBES BROS** AS-BUILT

CHANGES REQUIRED YES ☐ NO ☐

Name (Print) _____

Signature _____

Date _____

## NOTES

1. ALL DIMENSIONS IN METRES (m) UNLESS NOTED OTHERWISE.
2. COORDINATES ARE IN UTM NAD83 ZONE 8N.
3. ELEVATIONS ARE IN METRES (m) ABOVE MEAN SEA LEVEL (AMSL).
4. 69 kV CONDUCTOR, ADSS CABLE AND OVERHEAD SHIELD WIRE "OHSW" DISPLAYED AT "WET SNOW" (-10° C, 51mm RADIAL SNOW).
5. LINE ANGLE DEFLECTION LOOKING TOWARD EAGLE GOLD PROJECT SITE INDICATED AS FOLLOWS:
   + RIGHT ANGLE DEFLECTION
   - LEFT ANGLE DEFLECTION
6. THIS LINE WILL BE NUMBERED L251 IN THE YUKON ENERGY CORPORATION (YEC) SYSTEM.
7. LEFT (DASH) AND RIGHT (DOT) PROFILE OFFSETS SHOWN AT 5 m CENTERLINE OFFSET.
8. DESIGN TENSIONS SHOWN IN TABLE 1.

TABLE 1

| CABLE TYPE | MEAN ANNUAL TEMP (-4° C) FULL TENSION SPANS (N) | MEAN ANNUAL TEMP (-4° C) TERMINAL SPANS (N) (SLACK) | WET SNOW (-10° C, 51mm RADIAL SNOW) FULL TENSION SPANS (N) | WET SNOW (-10° C, 51mm RADIAL SNOW) TERMINAL SPANS (N) (SLACK) |
|---|---|---|---|---|
| PARTRIDGE ACSR | 3,750 | 550 | 23,300 | 3,300 |
| ADSS | 7,500 | 150 | 13,800 | 3,300 |
| OHSW | 3,500 | 400 | 23,500 | 3,200 |

## LEGEND

- 69 kV - 266.8 kcmil 26/7 "PARTRIDGE" ACSR
- ADSS - OFC-24 G.652D-FASA-S1 (ZTT)
- OHSW - 266.8 kcmil 26/7 "PARTRIDGE" ACSR
- ROAD EDGE
- 2.5m ROAD BUFFER
- 30m CLEARING BOUNDARY
- YEC L250 69 KV LINE (EXISTING)
- 60m WIDE RIGHT OF WAY BOUNDARY
- X KM APPROXIMATE ROAD KM MARKER

## REFERENCES

| | |
|---|---|
| 1407-T-1000 | DRAWING LIST |
| 1407-T-1100 | ROUTE MAP |
| 1407-T-1400 | STRUCTURE DATA SHEET |
| 1407-T-1900 | SOUTH MCQUESTEN TRANSMISSION LINE CONNECTION - PLAN |
| 1407-T-3000 | STRUCTURE FAMILY |
| 1407-T-6000 | HWY 11 (SILVER TRAIL)-OVERHEAD LINE CROSSING-STR 0/4 TO STR 0/5 |

30.0 m Horiz. Scale
10.0 m Vert. Scale

ISSUED FOR CONSTRUCTION

PERMIT TO PRACTICE
W.N. BRAIZER ASSOCIATES INC.
SIGNATURE _____
Date 10/03/14
PERMIT NUMBER: PP295
Association of Professional Engineers of Yukon

| NO. | DATE | REVISION | DES | DWN | CHK | APR |
|---|---|---|---|---|---|---|
| | | | | | | |
| | | | | | | |
| | | | | | | |
| 2 | AUG 10/18 | MCQUESTEN SUBSTATION & KM18 MODIFICATIONS | MP | MP | PC | NB |
| 1 | JUL 11/18 | BORROW PIT & ROAD PROXIMITY ALIGNMENT CHANGES | MP | MP | PC | MEO |
| 0 | MAY 11/18 | ISSUED FOR CONSTRUCTION | MP | MP | PC | MEO |

CLIENT: StrataGold Corporation

| | |
|---|---|
| DATE | MAY 11/18 |
| DESIGN | MP |
| DRAWN | MP |
| CHECKED | PC |
| APPROVED | MEO |

Clean Energy CONSULTING INC. www.cleanenergyconsulting.ca

WN BRAIZER ASSOCIATES INC

SEAL: PROFESSIONAL ENGINEER YUKON W. NEIL BRAZIER TERRITORY

# EAGLE GOLD PROJECT
## L251 - 69 kV TRANSMISSION LINE
## PLAN AND PROFILE (SHEET 18 OF 54)

| PROJECT No. | DRAWING No. | REV. |
|---|---|---|
| 1407 | 1407-T-1200-18 | 2 |

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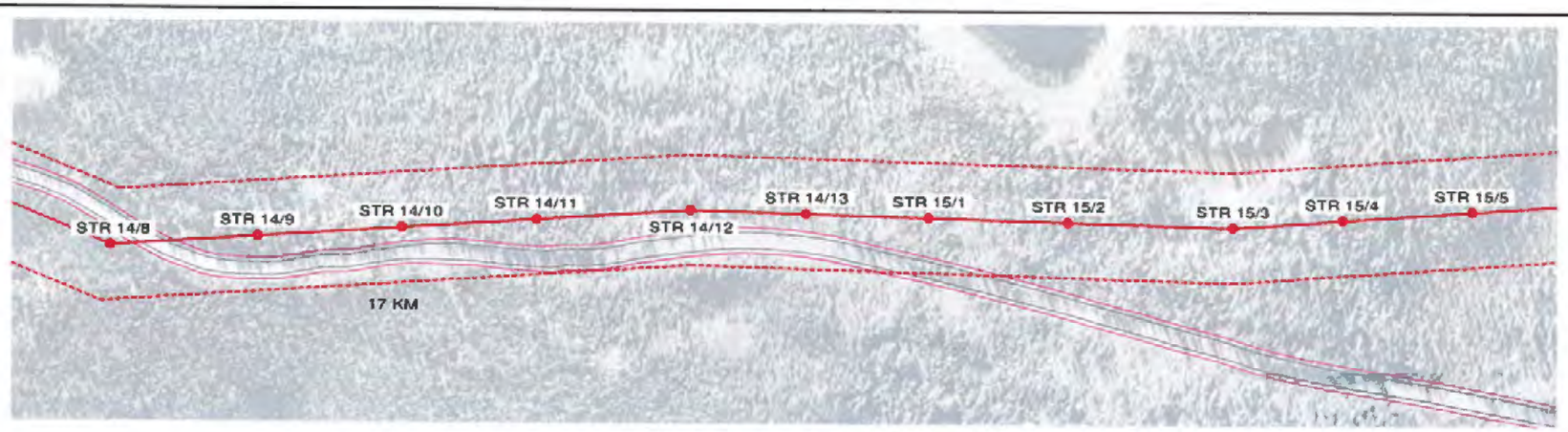


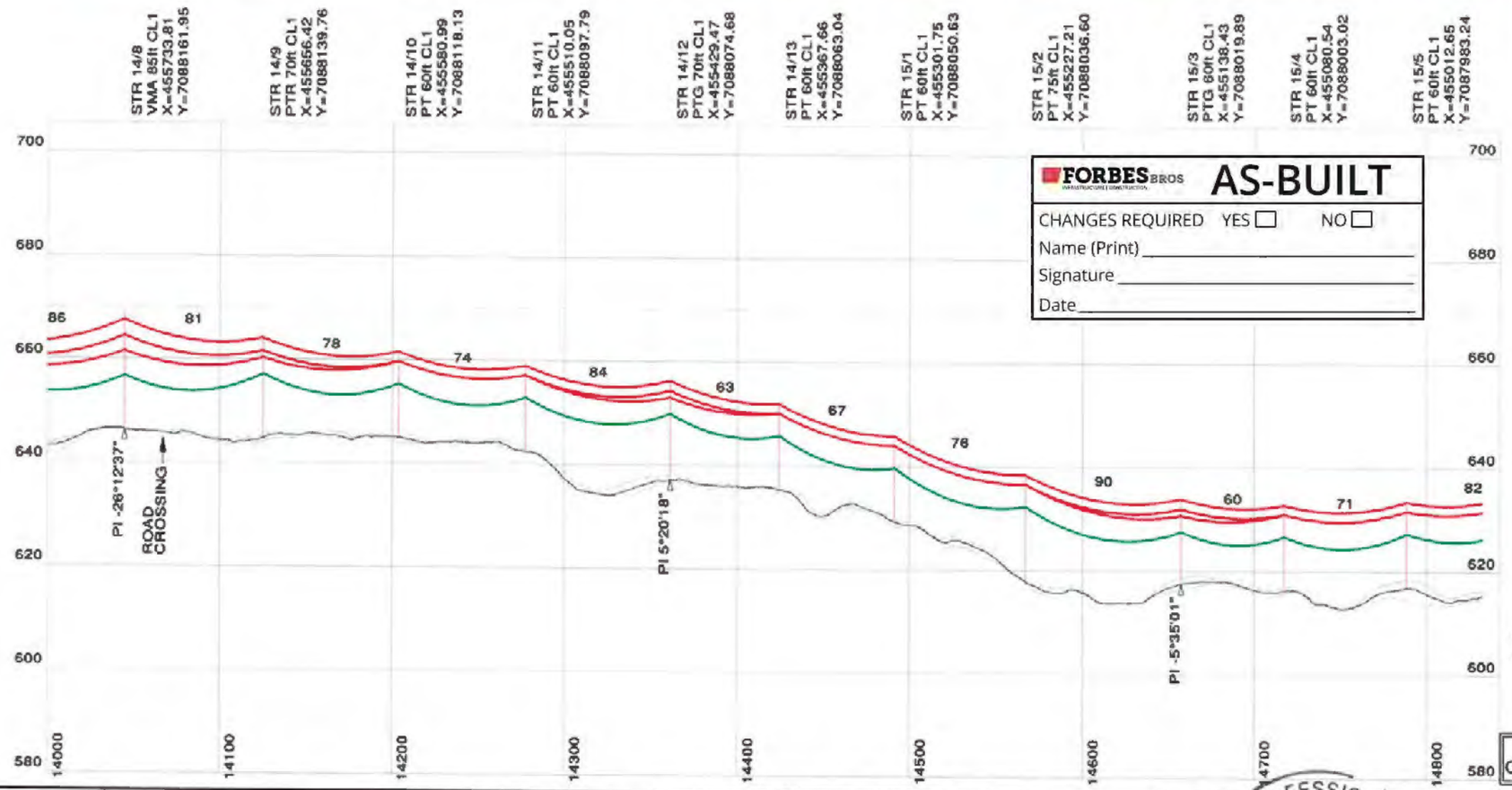


**FORBES BROS** AS-BUILT

CHANGES REQUIRED YES ☐ NO ☐

Name (Print) _____

Signature _____

Date _____

NOTES

1. ALL DIMENSIONS IN METRES (m) UNLESS NOTED OTHERWISE.
2. COORDINATES ARE IN UTM NAD83 ZONE 8N.
3. ELEVATIONS ARE IN METRES (m) ABOVE MEAN SEA LEVEL (AMSL).
4. 69 kV CONDUCTOR, ADSS CABLE AND OVERHEAD SHIELD WIRE "OHSW" DISPLAYED AT "WET SNOW" (-10° C, 51mm RADIAL SNOW).
5. LINE ANGLE DEFLECTION LOOKING TOWARD EAGLE GOLD PROJECT SITE INDICATED AS FOLLOWS:
   + RIGHT ANGLE DEFLECTION
   - LEFT ANGLE DEFLECTION
6. THIS LINE WILL BE NUMBERED L251 IN THE YUKON ENERGY CORPORATION (YEC) SYSTEM.
7. LEFT (DASH) AND RIGHT (DOT) PROFILE OFFSETS SHOWN AT 5 m CENTERLINE OFFSET.
8. DESIGN TENSIONS SHOWN IN TABLE 1.

TABLE 1

| CABLE TYPE | MEAN ANNUAL TEMP (-4° C) | | WET SNOW (-10° C, 51mm RADIAL SNOW) | |
|---|---|---|---|---|
| | FULL TENSION SPANS (N) | TERMINAL SPANS (N) (SLACK) | FULL TENSION SPANS (N) | TERMINAL SPANS (N) (SLACK) |
| PARTRIDGE ACSR | 3,750 | 550 | 23,300 | 3,300 |
| ADSS | 7,500 | 150 | 13,900 | 3,300 |
| OHSW | 3,500 | 400 | 23,600 | 3,200 |

LEGEND

- 69 kV - 266.8 kcmil 26/7 "PARTRIDGE" ACSR
- ADSS - OFC-24 G.652D-FASA-S1 (ZTT)
- OHSW - 266.8 kcmil 26/7 "PARTRIDGE" ACSR
- ROAD EDGE
- 2.5m ROAD BUFFER
- 30m CLEARING BOUNDARY
- YEC L250 69 KV LINE (EXISTING)
- 60m WIDE RIGHT OF WAY BOUNDARY
- X KM APPROXIMATE ROAD KM MARKER

REFERENCES

| | |
|---|---|
| 1407-T-1000 | DRAWING LIST |
| 1407-T-1100 | ROUTE MAP |
| 1407-T-1400 | STRUCTURE DATA SHEET |
| 1407-T-1900 | SOUTH MCQUESTEN TRANSMISSION LINE CONNECTION - PLAN |
| 1407-T-3000 | STRUCTURE FAMILY |
| 1407-T-6000 | HWY 11 (SILVER TRAIL)-OVERHEAD LINE CROSSING-STR 0/4 TO STR 0/5 |

30.0 m Horiz. Scale
10.0 m Vert. Scale

ISSUED FOR CONSTRUCTION

PERMIT TO PRACTICE
W.N. BRAIZER ASSOCIATES INC.
SIGNATURE _____
Date 10/05/18
PERMIT NUMBER: PP295
Association of Professional Engineers of Yukon

| NO. | DATE | REVISION | DES | DWN | CHK | APR |
|---|---|---|---|---|---|---|
| | | | | | | |
| | | | | | | |
| | | | | | | |
| 2 | AUG 10/18 | MCQUESTEN SUBSTATION & KM18 MODIFICATIONS | MP | MP | PC | NB |
| 1 | JUL 11/18 | BORROW PIT & ROAD PROXIMITY ALIGNMENT CHANGES | MP | MP | PC | MEO |
| 0 | MAY 11/18 | ISSUED FOR CONSTRUCTION | MP | MP | PC | MEO |

CLIENT StrataGold Corporation

| | |
|---|---|
| DATE | MAY 11/18 |
| DESIGN | MP |
| DRAWN | MP |
| CHECKED | PC |
| APPROVED | MEO |

Clean Energy CONSULTING INC. www.cleanenergyconsulting.ca

WN BRAIZER ASSOCIATES INC

PROFESSIONAL ENGINEER YUKON W. NEIL BRAZIER TERRITORY

# EAGLE GOLD PROJECT
## L251 - 69 kV TRANSMISSION LINE
## PLAN AND PROFILE (SHEET 19 OF 54)

PROJECT No. 1407 | DRAWING No. 1407-T-1200-19 | REV. 2

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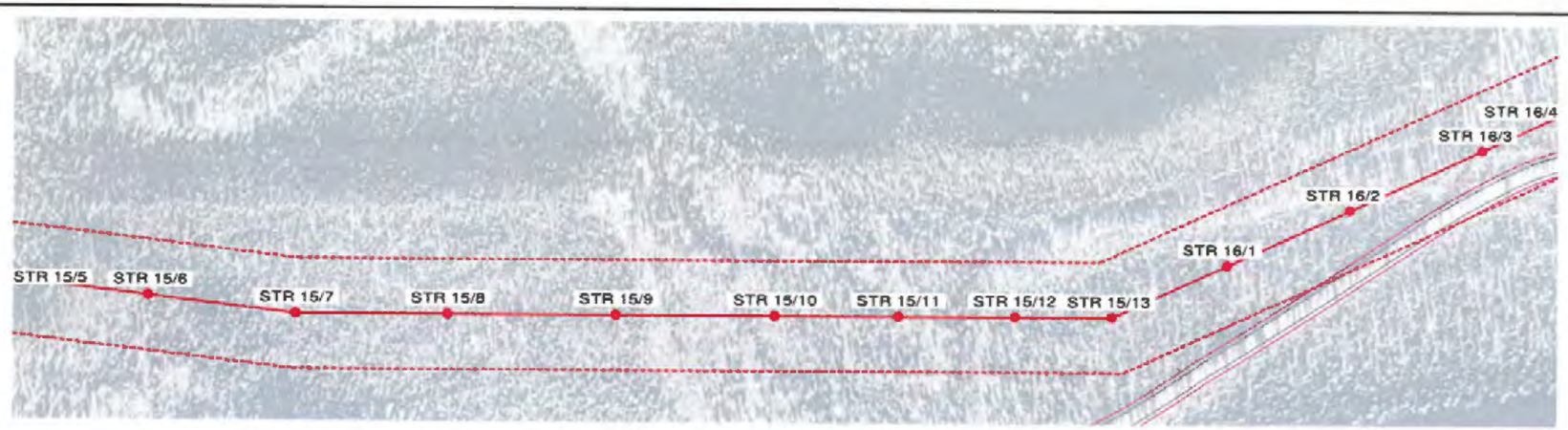


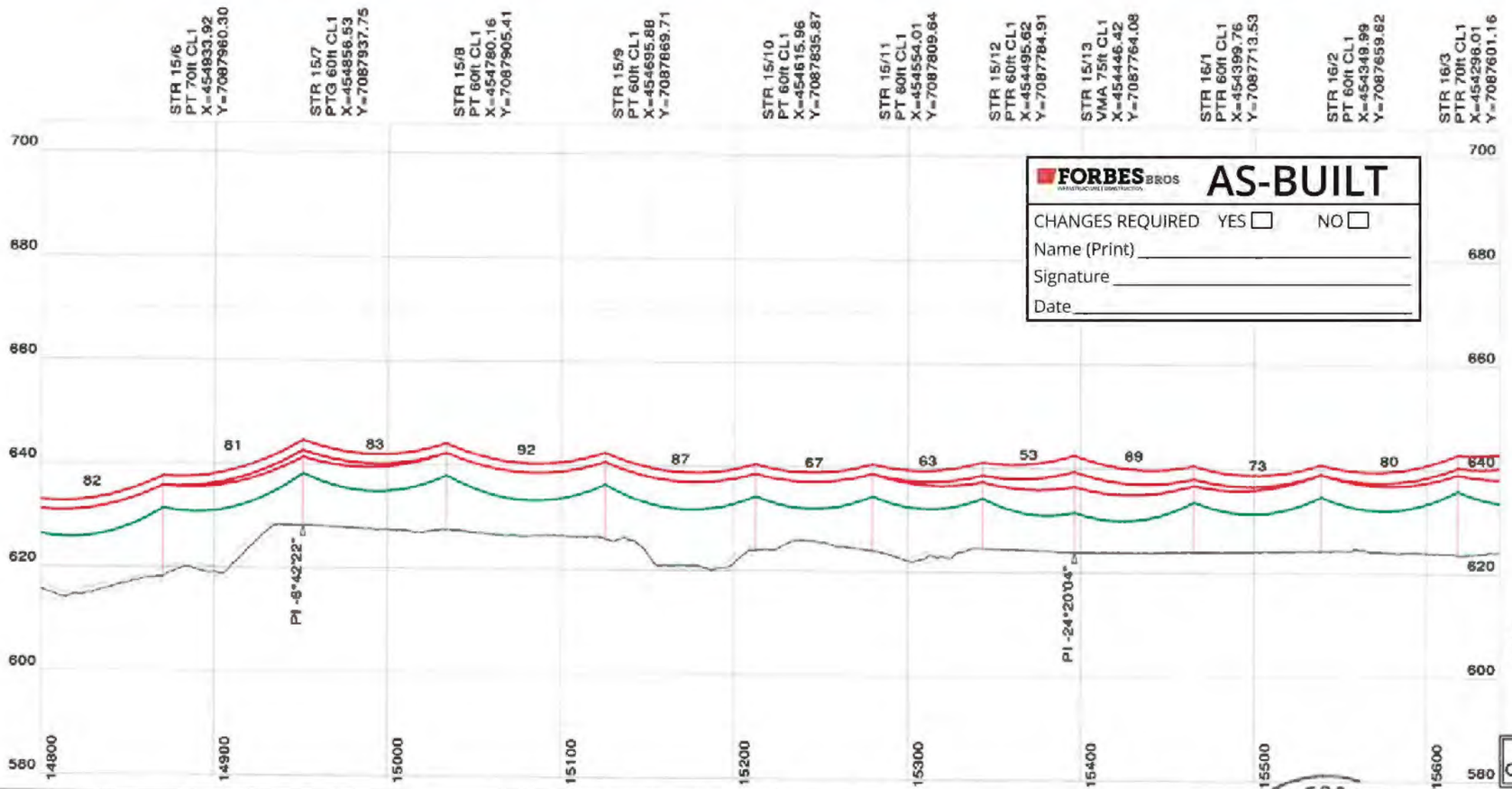


**FORBES BROS** AS-BUILT

CHANGES REQUIRED YES ☐ NO ☐

Name (Print) _____

Signature _____

Date _____

## NOTES

1. ALL DIMENSIONS IN METRES (m) UNLESS NOTED OTHERWISE.
2. COORDINATES ARE IN UTM NAD83 ZONE 8N.
3. ELEVATIONS ARE IN METRES (m) ABOVE MEAN SEA LEVEL (AMSL).
4. 69 kV CONDUCTOR, ADSS CABLE AND OVERHEAD SHIELD WIRE "OHSW" DISPLAYED AT "WET SNOW" (-10° C, 51mm RADIAL SNOW).
5. LINE ANGLE DEFLECTION LOOKING TOWARD EAGLE GOLD PROJECT SITE INDICATED AS FOLLOWS:
   + RIGHT ANGLE DEFLECTION
   - LEFT ANGLE DEFLECTION
6. THIS LINE WILL BE NUMBERED L251 IN THE YUKON ENERGY CORPORATION (YEC) SYSTEM.
7. LEFT (DASH) AND RIGHT (DOT) PROFILE OFFSETS SHOWN AT 5 m CENTERLINE OFFSET.
8. DESIGN TENSIONS SHOWN IN TABLE 1.

TABLE 1

| CABLE TYPE | MEAN ANNUAL TEMP (-4° C) | | WET SNOW (-10° C, 51mm RADIAL SNOW) | |
|---|---|---|---|---|
| | FULL TENSION SPANS (N) | TERMINAL SPANS (N) (SLACK) | FULL TENSION SPANS (N) | TERMINAL SPANS (N) (SLACK) |
| PARTRIDGE ACSR | 3,750 | 550 | 23,300 | 3,300 |
| ADSS | 7,500 | 150 | 13,900 | 3,300 |
| OHSW | 3,500 | 400 | 23,600 | 3,200 |

## LEGEND

- 69 kV - 266.8 kcmil 26/7 "PARTRIDGE" ACSR
- ADSS - OFC-24 G.652D-FASA-51 (ZTT)
- OHSW - 266.8 kcmil 26/7 "PARTRIDGE" ACSR
- ROAD EDGE
- 2.5m ROAD BUFFER
- 30m CLEARING BOUNDARY
- YEC L250 69 KV LINE (EXISTING)
- 60m WIDE RIGHT OF WAY BOUNDARY
- X KM APPROXIMATE ROAD KM MARKER

## REFERENCES

| | |
|---|---|
| 1407-T-1000 | DRAWING LIST |
| 1407-T-1100 | ROUTE MAP |
| 1407-T-1400 | STRUCTURE DATA SHEET |
| 1407-T-1900 | SOUTH MCQUESTEN TRANSMISSION LINE CONNECTION - PLAN |
| 1407-T-3000 | STRUCTURE FAMILY |
| 1407-T-6000 | HWY 11 (SILVER TRAIL)-OVERHEAD LINE CROSSING-STR 0/4 TO STR 0/5 |

30.0 m Horiz. Scale
10.0 m Vert. Scale

ISSUED FOR CONSTRUCTION

PERMIT TO PRACTICE
W.N. BRAZIER ASSOCIATES INC.
SIGNATURE _____
Date 10/08/18
PERMIT NUMBER: PP295
Association of Professional Engineers of Yukon

| NO. | DATE | REVISION | DES | DWN | CHK | APR |
|---|---|---|---|---|---|---|
| 2 | AUG 10/18 | MCQUESTEN SUBSTATION & KM18 MODIFICATIONS | MP | MP | PC | NB |
| 1 | JUL 11/18 | BORROW PIT & ROAD PROXIMITY ALIGNMENT CHANGES | MP | MP | PC | MEO |
| 0 | MAY 11/18 | ISSUED FOR CONSTRUCTION | MP | MP | PC | MEO |

CLIENT: StrataGold Corporation

| | |
|---|---|
| DATE | MAY 11/18 |
| DESIGN | MP |
| DRAWN | MP |
| CHECKED | PC |
| APPROVED | MEO |

Clean Energy CONSULTING INC
www.cleanenergyconsulting.ca
WN BRAZIER ASSOCIATES INC

PROFESSIONAL ENGINEER YUKON W. NEIL BRAZIER TERRITORY

EAGLE GOLD PROJECT
L251 - 69 kV TRANSMISSION LINE
PLAN AND PROFILE (SHEET 20 OF 54)

| PROJECT No. | DRAWING No. | REV. |
|---|---|---|
| 1407 | 1407-T-1200-20 | 2 |

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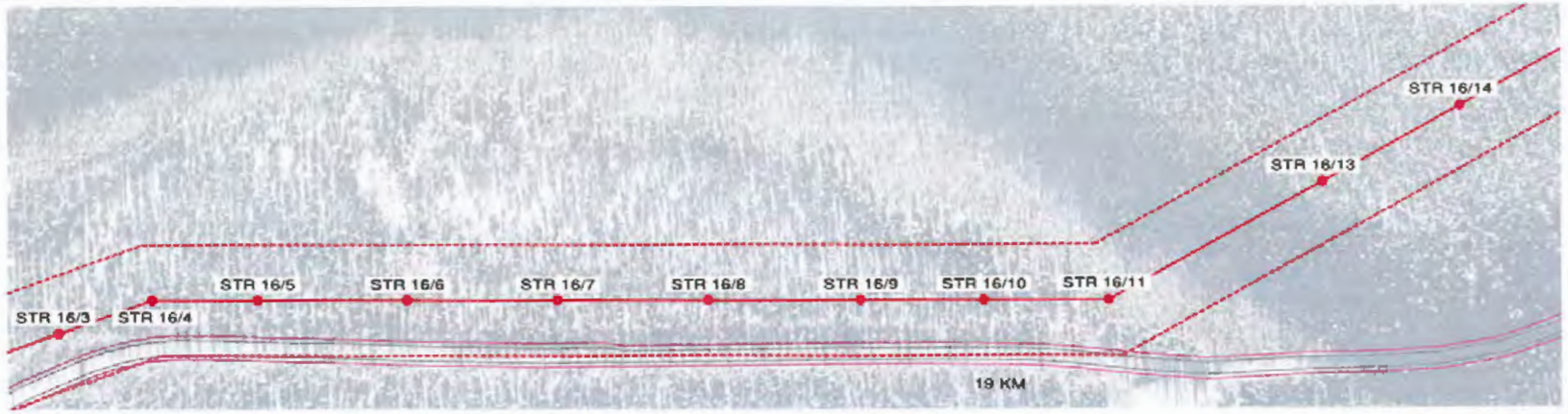


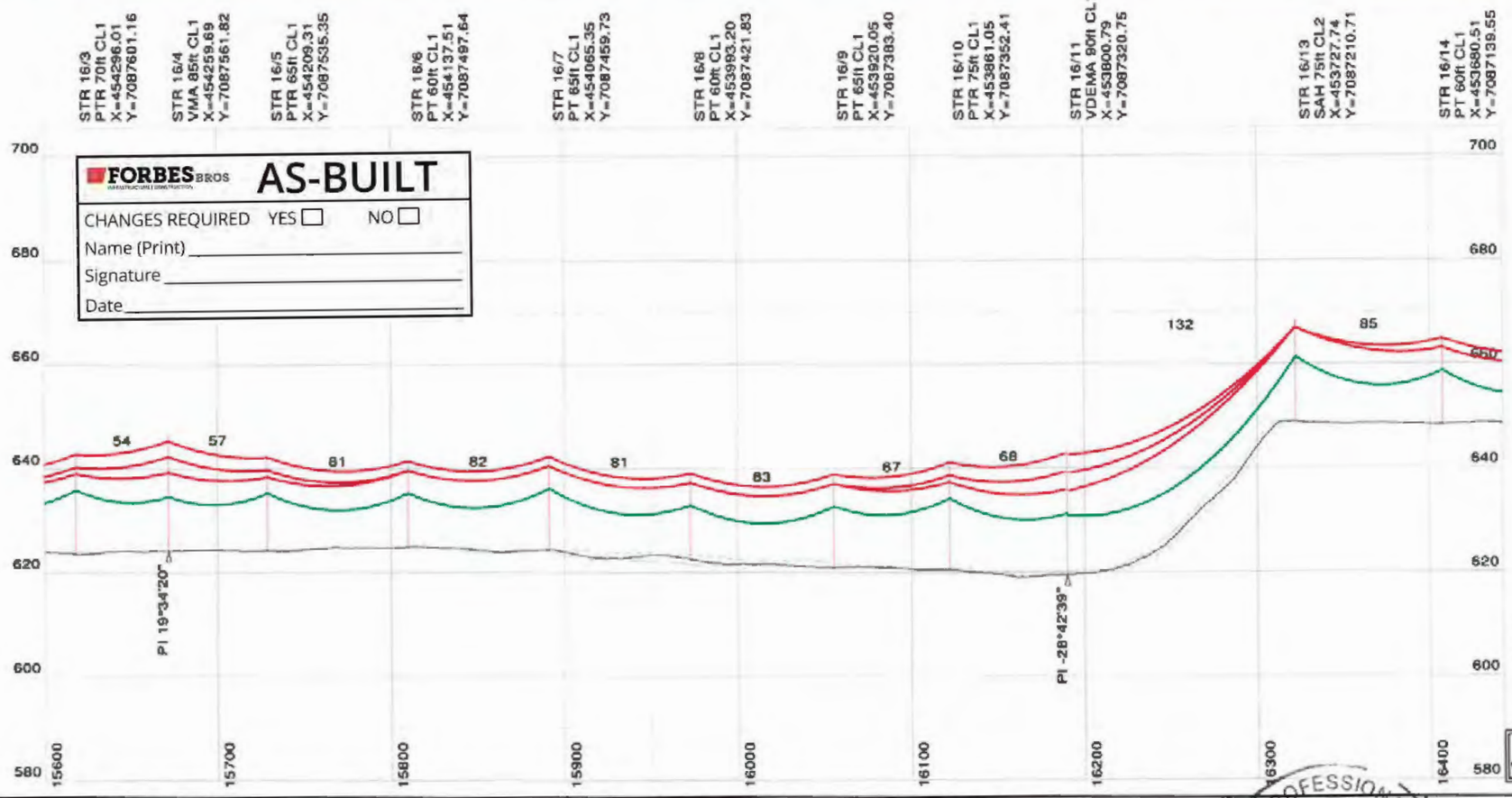


**FORBES BROS** CONSTRUCTION | CONSTRUCTION

# AS-BUILT

CHANGES REQUIRED YES ☐ NO ☐

Name (Print) _____

Signature _____

Date _____

## NOTES

1. ALL DIMENSIONS IN METRES (m) UNLESS NOTED OTHERWISE.
2. COORDINATES ARE IN UTM NAD83 ZONE 8N.
3. ELEVATIONS ARE IN METRES (m) ABOVE MEAN SEA LEVEL (AMSL).
4. 69 kV CONDUCTOR, ADSS CABLE AND OVERHEAD SHIELD WIRE "OHSW" DISPLAYED AT "WET SNOW" (-10° C, 51mm RADIAL SNOW).
5. LINE ANGLE DEFLECTION LOOKING TOWARD EAGLE GOLD PROJECT SITE INDICATED AS FOLLOWS:
   + RIGHT ANGLE DEFLECTION
   - LEFT ANGLE DEFLECTION
6. THIS LINE WILL BE NUMBERED L251 IN THE YUKON ENERGY CORPORATION (YEC) SYSTEM.
7. LEFT (DASH) AND RIGHT (DOT) PROFILE OFFSETS SHOWN AT 5 m CENTERLINE OFFSET.
8. DESIGN TENSIONS SHOWN IN TABLE 1.

TABLE 1

| CABLE TYPE | MEAN ANNUAL TEMP (-4° C) | | WET SNOW (-10° C, 51mm RADIAL SNOW) | |
|---|---|---|---|---|
| | FULL TENSION SPANS (N) | TERMINAL SPANS (N) (SLACK) | FULL TENSION SPANS (N) | TERMINAL SPANS (N) (SLACK) |
| PARTRIDGE ACSR | 3,750 | 550 | 23,300 | 3,300 |
| ADSS | 7,500 | 150 | 12,900 | 3,300 |
| OHSW | 3,500 | 400 | 23,600 | 3,200 |

## LEGEND

- 69 kV - 266.8 kcmil 26/7 "PARTRIDGE" ACSR
- ADSS - OFC-24 G.652D-FASA-S1 (ZTT)
- OHSW - 266.8 kcmil 26/7 "PARTRIDGE" ACSR
- ROAD EDGE
- 2.5m ROAD BUFFER
- 30m CLEARING BOUNDARY
- YEC L250 69 KV LINE (EXISTING)
- 60m WIDE RIGHT OF WAY BOUNDARY
- X KM APPROXIMATE ROAD KM MARKER

## REFERENCES

| | |
|---|---|
| 1407-T-1000 | DRAWING LIST |
| 1407-T-1100 | ROUTE MAP |
| 1407-T-1400 | STRUCTURE DATA SHEET |
| 1407-T-1900 | SOUTH MCQUESTEN TRANSMISSION LINE CONNECTION - PLAN |
| 1407-T-3000 | STRUCTURE FAMILY |
| 1407-T-6000 | HWY 11 (SILVER TRAIL)-OVERHEAD LINE CROSSING-STR 0/4 TO STR 0/5 |

30.0 m Horiz. Scale
10.0 m Vert. Scale

ISSUED FOR CONSTRUCTION

PERMIT TO PRACTICE
W.N. BRAZIER ASSOCIATES INC.
SIGNATURE
Date 15/08/18
PERMIT NUMBER: PP295
Association of Professional Engineers of Yukon

| NO. | DATE | REVISION | DES | DWN | CHK | APR |
|---|---|---|---|---|---|---|
| | | | | | | |
| | | | | | | |
| | | | | | | |
| 2 | AUG 10/18 | MCQUESTEN SUBSTATION & KM18 MODIFICATIONS | MP | MP | PC | NB |
| 1 | JUL 11/18 | BORROW PIT & ROAD PROXIMITY ALIGNMENT CHANGES | MP | MP | PC | MEO |
| 0 | MAY 11/18 | ISSUED FOR CONSTRUCTION | MP | MP | PC | MEO |

CLIENT StrataGold Corporation

| | |
|---|---|
| DATE | MAY 11/18 |
| DESIGN | MP |
| DRAWN | MP |
| CHECKED | PC |
| APPROVED | MEO |

Clean Energy CONSULTING INC. www.cleanenergyconsulting.ca

WN BRAZIER ASSOCIATES INC

SEAL: PROFESSIONAL ENGINEER YUKON W. NEIL BRAZIER TERRITORY

# EAGLE GOLD PROJECT

## L251 - 69 kV TRANSMISSION LINE

## PLAN AND PROFILE (SHEET 21 OF 54)

| PROJECT No. | DRAWING No. | REV. |
|---|---|---|
| 1407 | 1407-T-1200-21 | 2 |

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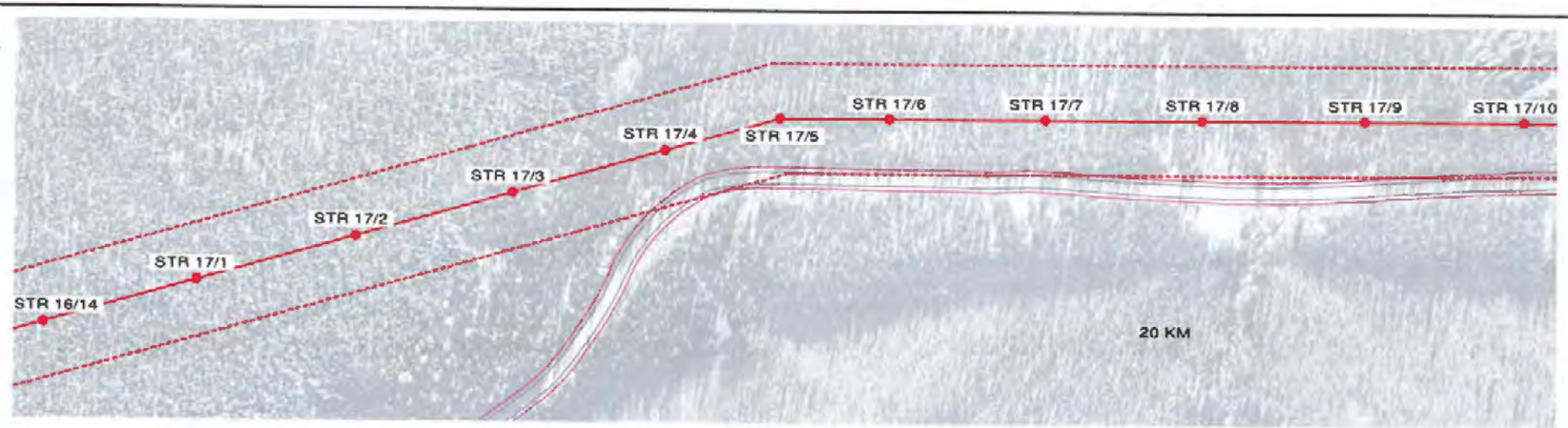


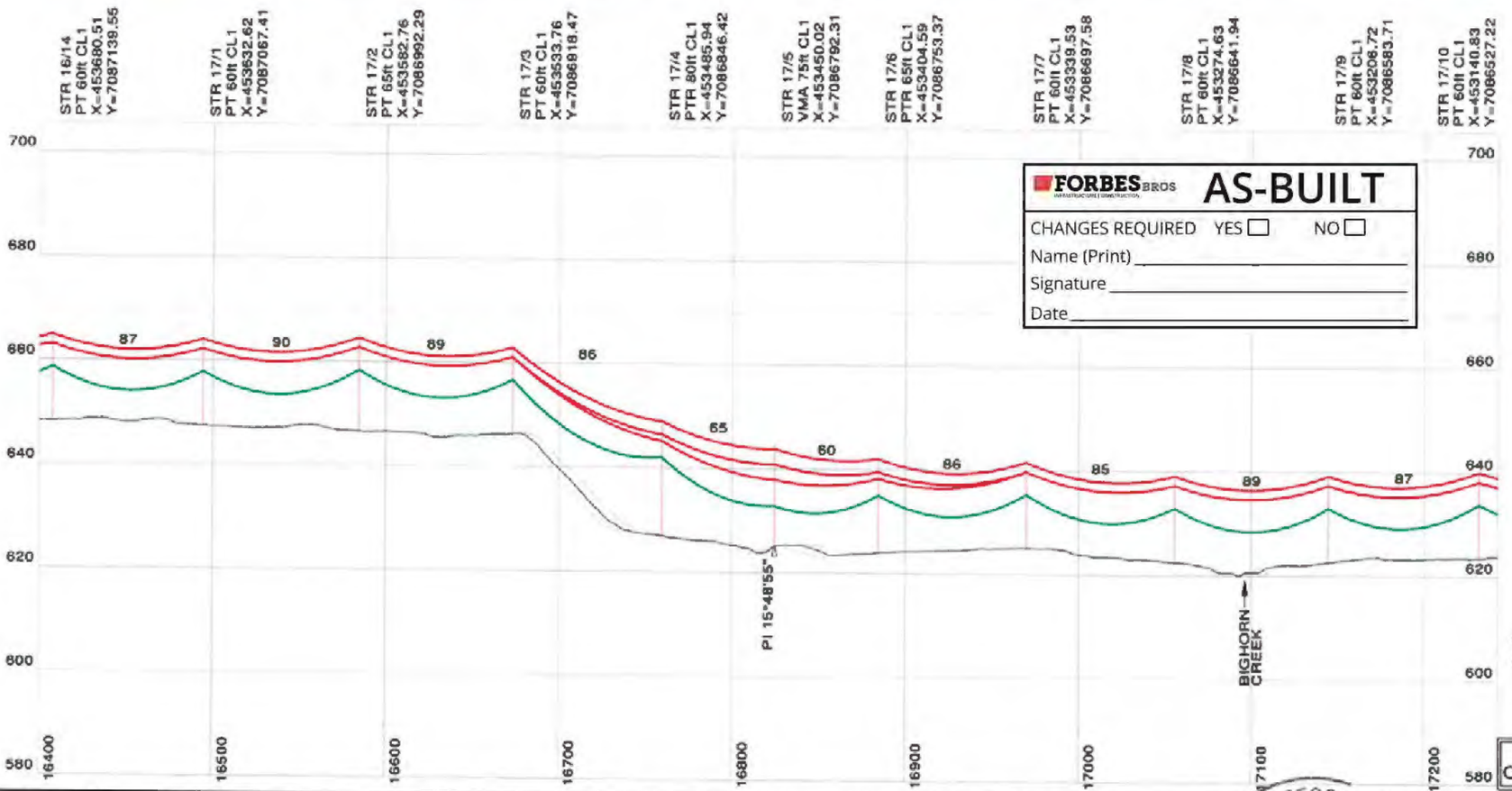


**FORBES BROS** AS-BUILT

CHANGES REQUIRED YES ☐ NO ☐

Name (Print) _____

Signature _____

Date _____

NOTES

1. ALL DIMENSIONS IN METRES (m) UNLESS NOTED OTHERWISE.
2. COORDINATES ARE IN UTM NAD83 ZONE 8N.
3. ELEVATIONS ARE IN METRES (m) ABOVE MEAN SEA LEVEL (AMSL).
4. 69 kV CONDUCTOR, ADSS CABLE AND OVERHEAD SHIELD WIRE "OHSW" DISPLAYED AT "WET SNOW" (-10° C, 51mm RADIAL SNOW).
5. LINE ANGLE DEFLECTION LOOKING TOWARD EAGLE GOLD PROJECT SITE INDICATED AS FOLLOWS:
   + RIGHT ANGLE DEFLECTION
   - LEFT ANGLE DEFLECTION
6. THIS LINE WILL BE NUMBERED L251 IN THE YUKON ENERGY CORPORATION (YEC) SYSTEM.
7. LEFT (DASH) AND RIGHT (DOT) PROFILE OFFSETS SHOWN AT 5 m CENTERLINE OFFSET.
8. DESIGN TENSIONS SHOWN IN TABLE 1.

TABLE 1

| CABLE TYPE | MEAN ANNUAL TEMP (-4° C) | | WET SNOW (-10° C, 51mm RADIAL SNOW) | |
|---|---|---|---|---|
| | FULL TENSION SPANS (N) | TERMINAL SPANS (N) (SLACK) | FULL TENSION SPANS (N) | TERMINAL SPANS (N) (SLACK) |
| PARTRIDGE ACSR | 3,750 | 550 | 23,200 | 3,300 |
| ADSS | 7,500 | 150 | 13,900 | 3,300 |
| OHSW | 3,500 | 400 | 23,600 | 3,200 |

LEGEND

- 69 kV - 266.8 kcmil 26/7 "PARTRIDGE" ACSR
- ADSS - OFC-24 G.652D-FASA-S1 (ZTT)
- OHSW - 266.8 kcmil 26/7 "PARTRIDGE" ACSR
- ROAD EDGE
- 2.5m ROAD BUFFER
- 30m CLEARING BOUNDARY
- YEC L250 69 KV LINE (EXISTING)
- 60m WIDE RIGHT OF WAY BOUNDARY
- X KM APPROXIMATE ROAD KM MARKER

REFERENCES

| | |
|---|---|
| 1407-T-1000 | DRAWING LIST |
| 1407-T-1100 | ROUTE MAP |
| 1407-T-1400 | STRUCTURE DATA SHEET |
| 1407-T-1900 | SOUTH MCQUESTEN TRANSMISSION LINE CONNECTION - PLAN |
| 1407-T-3000 | STRUCTURE FAMILY |
| 1407-T-6000 | HWY 11 (SILVER TRAIL)-OVERHEAD LINE CROSSING-STR 0/4 TO STR 0/5 |

30.0 m Horiz. Scale
10.0 m Vert. Scale

ISSUED FOR CONSTRUCTION

PERMIT TO PRACTICE
W.N. BRAIZER ASSOCIATES INC.
SIGNATURE Neil Braizer
Date 10 Oct 18
PERMIT NUMBER: PP295
Association of Professional Engineers of Yukon

| NO. | DATE | REVISION | DES | DWN | CHK | APR |
|---|---|---|---|---|---|---|
| | | | | | | |
| | | | | | | |
| | | | | | | |
| 2 | AUG 10/18 | MCQUESTEN SUBSTATION & KM18 MODIFICATIONS | MP | MP | PC | NB |
| 1 | JUL 11/18 | BORROW PIT & ROAD PROXIMITY ALIGNMENT CHANGES | MP | MP | PC | MEO |
| 0 | MAY 11/18 | ISSUED FOR CONSTRUCTION | MP | MP | PC | MEO |

CLIENT StrataGold Corporation

| | |
|---|---|
| DATE | MAY 11/18 |
| DESIGN | MP |
| DRAWN | MP |
| CHECKED | PC |
| APPROVED | MEO |

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SEAL: PROFESSIONAL ENGINEER YUKON W. NEIL BRAZIER TERRITORY

EAGLE GOLD PROJECT
L251 - 69 kV TRANSMISSION LINE
PLAN AND PROFILE (SHEET 22 OF 54)

| PROJECT No. | DRAWING No. | REV. |
|---|---|---|
| 1407 | 1407-T-1200-22 | 2 |

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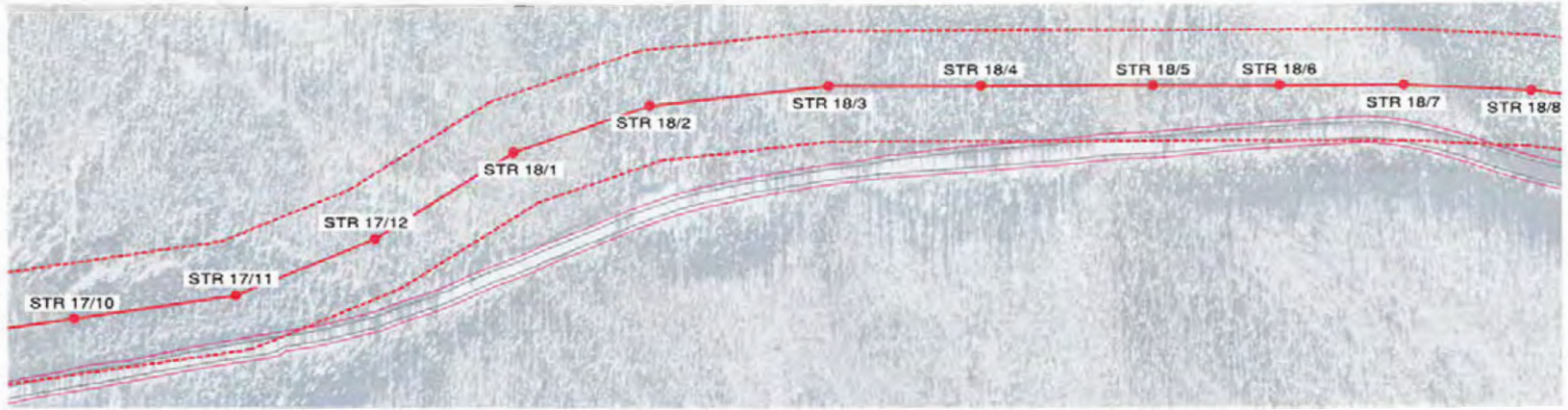


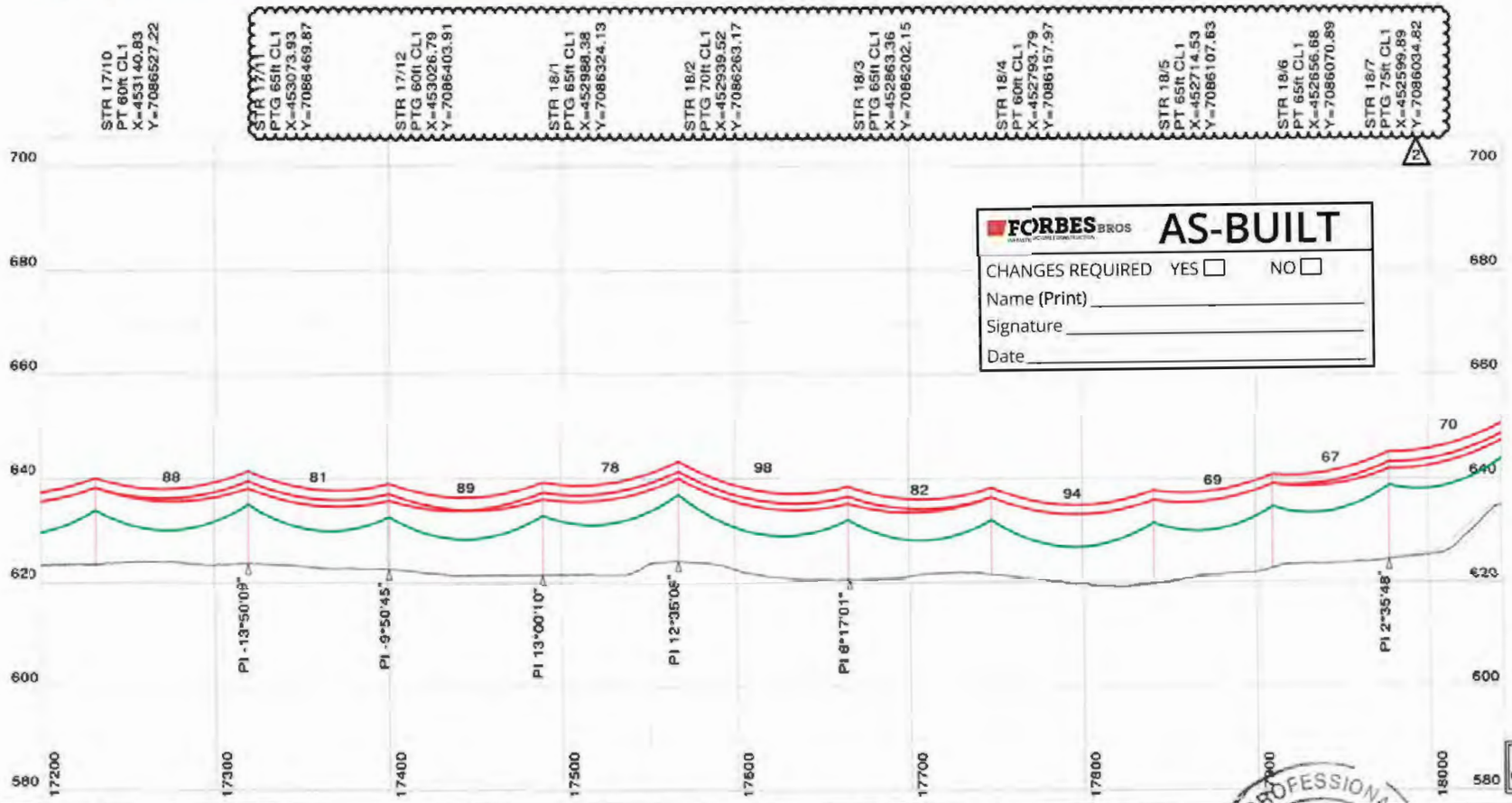


FORBES BROS

**AS-BUILT**

CHANGES REQUIRED YES ☐ NO ☐

Name (Print) _____

Signature _____

Date _____

NOTES

1. ALL DIMENSIONS IN METRES (m) UNLESS NOTED OTHERWISE.
2. COORDINATES ARE IN UTM NAD83 ZONE 8N.
3. ELEVATIONS ARE IN METRES (m) ABOVE MEAN SEA LEVEL (AMSL).
4. 69 kV CONDUCTOR, ADSS CABLE AND OVERHEAD SHIELD WIRE "OHSW" DISPLAYED AT "WET SNOW" (-10° C, 51mm RADIAL SNOW).
5. LINE ANGLE DEFLECTION LOOKING TOWARD EAGLE GOLD PROJECT SITE INDICATED AS FOLLOWS:
   + RIGHT ANGLE DEFLECTION
   - LEFT ANGLE DEFLECTION
6. THIS LINE WILL BE NUMBERED L251 IN THE YUKON ENERGY CORPORATION (YEC) SYSTEM.
7. LEFT (DASH) AND RIGHT (DOT) PROFILE OFFSETS SHOWN AT 5 m CENTERLINE OFFSET.
8. DESIGN TENSIONS SHOWN IN TABLE 1.

TABLE 1

| CABLE TYPE | MEAN ANNUAL TEMP (-4° C) | | WET SNOW (-10° C, 51mm RADIAL SNOW) | |
|---|---|---|---|---|
| | FULL TENSION SPANS (N) | TERMINAL SPANS (N) (SLACK) | FULL TENSION SPANS (N) | TERMINAL SPANS (N) (SLACK) |
| PARTRIDGE ACSR | 3,750 | 550 | 23,300 | 3,300 |
| ADSS | 7,500 | 150 | 13,900 | 3,300 |
| OHSW | 3,800 | 400 | 23,500 | 3,200 |

LEGEND

- 69 kV - 266.8 kcmil 26/7 "PARTRIDGE" ACSR
- ADSS - OFC-24 G.652D-FASA-S1 (ZTT)
- OHSW - 266.8 kcmil 26/7 "PARTRIDGE" ACSR
- ROAD EDGE
- 2.5m ROAD BUFFER
- 30m CLEARING BOUNDARY
- YEC L250 69 KV LINE (EXISTING)
- 60m WIDE RIGHT OF WAY BOUNDARY
- X KM APPROXIMATE ROAD KM MARKER

REFERENCES

| | |
|---|---|
| 1407-T-1000 | DRAWING LIST |
| 1407-T-1100 | ROUTE MAP |
| 1407-T-1400 | STRUCTURE DATA SHEET |
| 1407-T-1900 | SOUTH MCQUESTEN TRANSMISSION LINE CONNECTION - PLAN |
| 1407-T-3000 | STRUCTURE FAMILY |
| 1407-T-6000 | HWY 11 (SILVER TRAIL)-OVERHEAD LINE CROSSING-STR 0/4 TO STR 0/5 |

30.0 m Horiz. Scale
10.0 m Vert. Scale

ISSUED FOR CONSTRUCTION

PERMIT TO PRACTICE
W.N. BRAIZER ASSOCIATES INC.
SIGNATURE _____
Date 12/18/18
PERMIT NUMBER: PP295
Association of Professional Engineers of Yukon

| NO. | DATE | REVISION | DES | DWN | CHK | APR |
|---|---|---|---|---|---|---|
| 2 | AUG 10/18 | MCQUESTEN SUBSTATION & KM18 MODIFICATIONS | MP | MP | PC | NB |
| 1 | JUL 11/18 | BORROW PIT & ROAD PROXIMITY ALIGNMENT CHANGES | MP | MP | PC | MEO |
| 0 | MAY 11/18 | ISSUED FOR CONSTRUCTION | MP | MP | PC | MEO |

CLIENT: StrataGold Corporation

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| DATE | MAY 11/18 |
| DESIGN | MP |
| DRAWN | MP |
| CHECKED | PC |
| APPROVED | MEO |

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WN BRAZIER ASSOCIATES INC

SEAL: PROFESSIONAL ENGINEER YUKON W. NEIL BRAZIER TERRITORY

EAGLE GOLD PROJECT

L251 - 69 kV TRANSMISSION LINE

PLAN AND PROFILE (SHEET 23 OF 54)

| PROJECT No. | DRAWING No. | REV. |
|---|---|---|
| 1407 | 1407-T-1200-23 | 2 |

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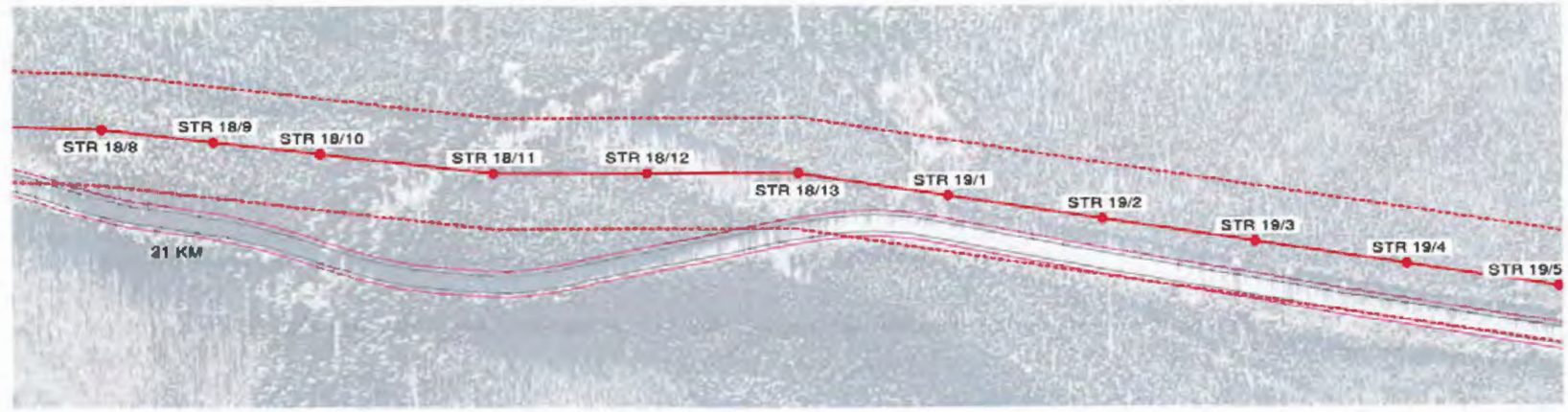


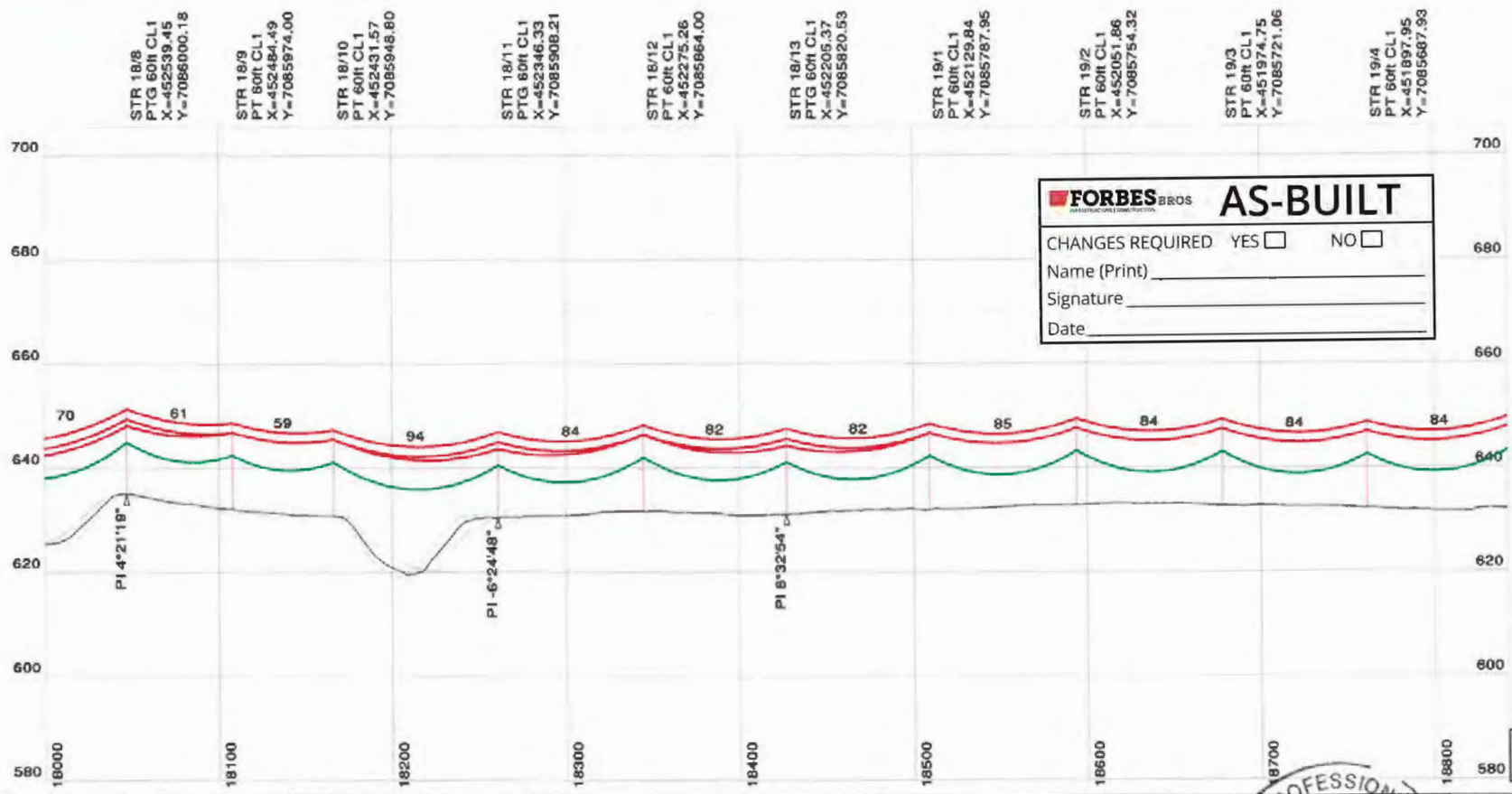


FORBES BROS

# AS-BUILT

CHANGES REQUIRED YES ☐ NO ☐

Name (Print) _____

Signature _____

Date _____

## NOTES

1. ALL DIMENSIONS IN METRES (m) UNLESS NOTED OTHERWISE.
2. COORDINATES ARE IN UTM NAD83 ZONE 8N.
3. ELEVATIONS ARE IN METRES (m) ABOVE MEAN SEA LEVEL (AMSL).
4. 69 kV CONDUCTOR, ADSS CABLE AND OVERHEAD SHIELD WIRE "OHSW" DISPLAYED AT "WET SNOW" (-10° C, 51mm RADIAL SNOW).
5. LINE ANGLE DEFLECTION LOOKING TOWARD EAGLE GOLD PROJECT SITE INDICATED AS FOLLOWS:
   + RIGHT ANGLE DEFLECTION
   - LEFT ANGLE DEFLECTION
6. THIS LINE WILL BE NUMBERED L251 IN THE YUKON ENERGY CORPORATION (YEC) SYSTEM.
7. LEFT (DASH) AND RIGHT (DOT) PROFILE OFFSETS SHOWN AT 5 m CENTERLINE OFFSET.
8. DESIGN TENSIONS SHOWN IN TABLE 1.

TABLE 1

| CABLE TYPE | MEAN ANNUAL TEMP (-4° C) | | WET SNOW (-10° C, 51mm RADIAL SNOW) | |
|---|---|---|---|---|
| | FULL TENSION SPANS (N) | TERMINAL SPANS (N) (SLACK) | FULL TENSION SPANS (N) | TERMINAL SPANS (N) (SLACK) |
| PARTRIDGE ACSR | 3,750 | 550 | 23,300 | 3,300 |
| ADSS | 7,500 | 150 | 13,900 | 3,300 |
| OHSW | 3,500 | 400 | 23,600 | 3,200 |

## LEGEND

- 69 kV - 266.8 kcmil 26/7 "PARTRIDGE" ACSR
- ADSS - OFC-24 G.652D-FASA-S1 (ZTT)
- OHSW - 266.8 kcmil 26/7 "PARTRIDGE" ACSR
- ROAD EDGE
- 2.5m ROAD BUFFER
- 30m CLEARING BOUNDARY
- YEC L250 69 KV LINE (EXISTING)
- 60m WIDE RIGHT OF WAY BOUNDARY
- X KM APPROXIMATE ROAD KM MARKER

## REFERENCES

| | |
|---|---|
| 1407-T-1000 | DRAWING LIST |
| 1407-T-1100 | ROUTE MAP |
| 1407-T-1400 | STRUCTURE DATA SHEET |
| 1407-T-1900 | SOUTH MCQUESTEN TRANSMISSION LINE CONNECTION - PLAN |
| 1407-T-3000 | STRUCTURE FAMILY |
| 1407-T-6000 | HWY 11 (SILVER TRAIL)-OVERHEAD LINE CROSSING-STR 0/4 TO STR 0/5 |

30.0 m Horiz. Scale
10.0 m Vert. Scale

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W.N. BRAZIER ASSOCIATES INC.
SIGNATURE _____
Date 10/05/18
PERMIT NUMBER: PP295
Association of Professional Engineers of Yukon

| NO. | DATE | REVISION | DES | DWN | CHK | APR |
|---|---|---|---|---|---|---|
| 2 | AUG 10/18 | MCQUESTEN SUBSTATION & KM18 MODIFICATIONS | MP | MP | PC | NB |
| 1 | JUL 11/18 | BORROW PIT & ROAD PROXIMITY ALIGNMENT CHANGES | MP | MP | PC | MEO |
| 0 | MAY 11/18 | ISSUED FOR CONSTRUCTION | MP | MP | PC | MEO |

CLIENT StrataGold Corporation

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|---|---|
| DATE | MAY 11/18 |
| DESIGN | MP |
| DRAWN | MP |
| CHECKED | PC |
| APPROVED | MEO |

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SEAL: PROFESSIONAL ENGINEER YUKON W. NEIL BRAZIER TERRITORY

EAGLE GOLD PROJECT
L251 - 69 kV TRANSMISSION LINE
PLAN AND PROFILE (SHEET 24 OF 54)

| PROJECT No. | DRAWING No. | REV. |
|---|---|---|
| 1407 | 1407-T-1200-24 | 2 |

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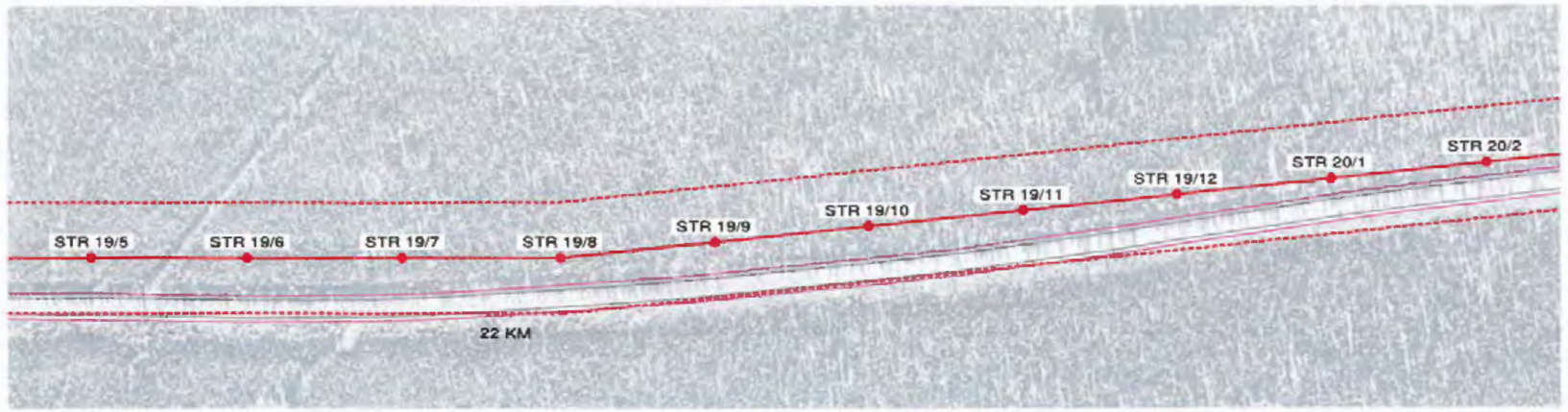


NOTES

1. ALL DIMENSIONS IN METRES (m) UNLESS NOTED OTHERWISE.
2. COORDINATES ARE IN UTM NAD83 ZONE 8N.
3. ELEVATIONS ARE IN METRES (m) ABOVE MEAN SEA LEVEL (AMSL).
4. 69 kV CONDUCTOR, ADSS CABLE AND OVERHEAD SHIELD WIRE "OHSW" DISPLAYED AT "WET SNOW" (-10° C, 51mm RADIAL SNOW).
5. LINE ANGLE DEFLECTION LOOKING TOWARD EAGLE GOLD PROJECT SITE INDICATED AS FOLLOWS:
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6. THIS LINE WILL BE NUMBERED L251 IN THE YUKON ENERGY CORPORATION (YEC) SYSTEM.
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| TABLE 1 | MEAN ANNUAL TEMP (-4° C) | | WET SNOW (-10° C, 51mm RADIAL SNOW) | |
|---|---|---|---|---|
| CABLE TYPE | FULL TENSION SPANS (N) | TERMINAL SPANS (N) (SLACK) | FULL TENSION SPANS (N) | TERMINAL SPANS (N) (SLACK) |
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| ADSS | 7,500 | 150 | 13,900 | 3,300 |
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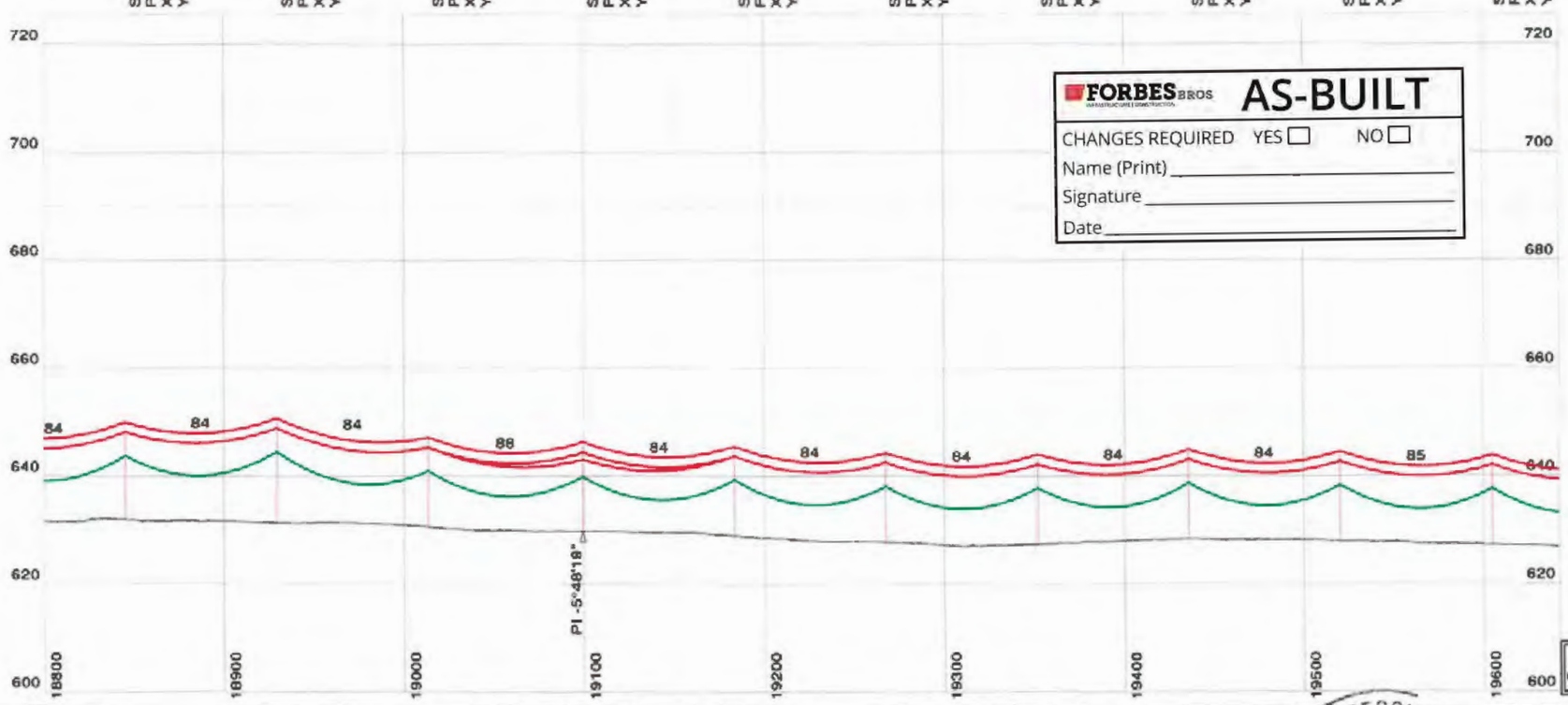


FORBES BROS AS-BUILT

CHANGES REQUIRED YES ☐ NO ☐

Name (Print) _____

Signature _____

Date _____

LEGEND

- 69 kV - 266.8 kcmil 26/7 "PARTRIDGE" ACSR
- ADSS - OFC-24 G.652D-FASA-S1 (ZTT)
- OHSW - 266.8 kcmil 26/7 "PARTRIDGE" ACSR
- ROAD EDGE
- 2.5m ROAD BUFFER
- 30m CLEARING BOUNDARY
- YEC L250 69 KV LINE (EXISTING)
- 60m WIDE RIGHT OF WAY BOUNDARY
- X KM APPROXIMATE ROAD KM MARKER

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| 1407-T-1900 | SOUTH MCQUESTEN TRANSMISSION LINE CONNECTION - PLAN |
| 1407-T-3000 | STRUCTURE FAMILY |
| 1407-T-6000 | HWY 11 (SILVER TRAIL)-OVERHEAD LINE CROSSING-STR 0/4 TO STR 0/5 |

30.0 m Horiz. Scale
10.0 m Vert. Scale

ISSUED FOR CONSTRUCTION

PERMIT TO PRACTICE
W.N. BRAIZER ASSOCIATES INC.
SIGNATURE _____
Date 10/09/18
PERMIT NUMBER: PP295
Association of Professional Engineers of Yukon

| NO. | DATE | REVISION | DES | DWN | CHK | APR |
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| 2 | AUG 10/18 | MCQUESTEN SUBSTATION & KM18 MODIFICATIONS | MP | MP | PC | NB |
| 1 | JUL 11/18 | BORROW PIT & ROAD PROXIMITY ALIGNMENT CHANGES | MP | MP | PC | MEO |
| 0 | MAY 11/18 | ISSUED FOR CONSTRUCTION | MP | MP | PC | MEO |

CLIENT: StrataGold Corporation

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| DATE | MAY 11/18 |
| DESIGN | MP |
| DRAWN | MP |
| CHECKED | PC |
| APPROVED | MEO |

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WN BRAZIER ASSOCIATES INC

SEAL: PROFESSIONAL ENGINEER YUKON W. NEIL BRAZIER TERRITORY

EAGLE GOLD PROJECT
L251 - 69 kV TRANSMISSION LINE
PLAN AND PROFILE (SHEET 25 OF 54)

| PROJECT No. | DRAWING No. | REV. |
|---|---|---|
| 1407 | 1407-T-1200-25 | 2 |

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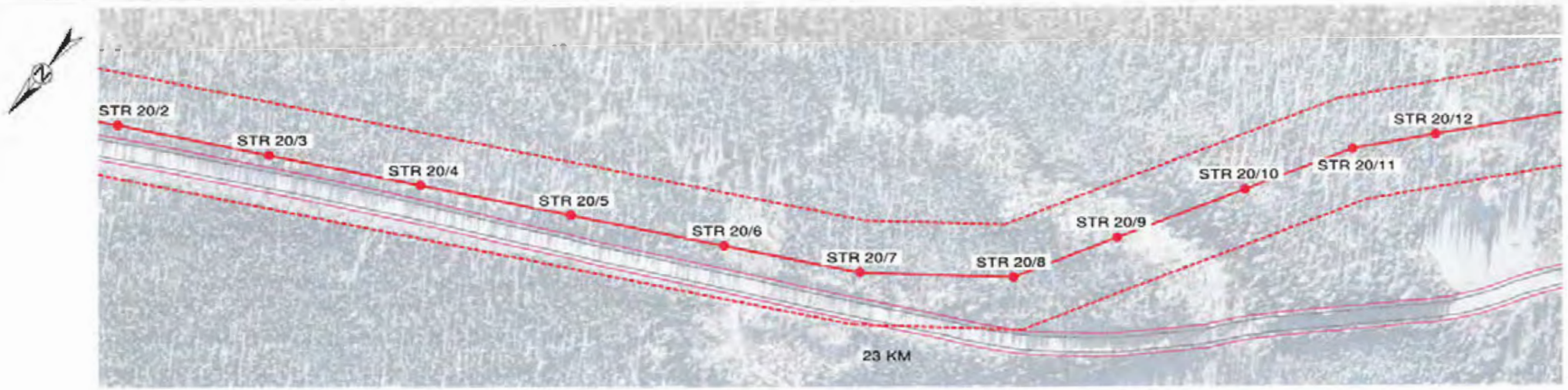


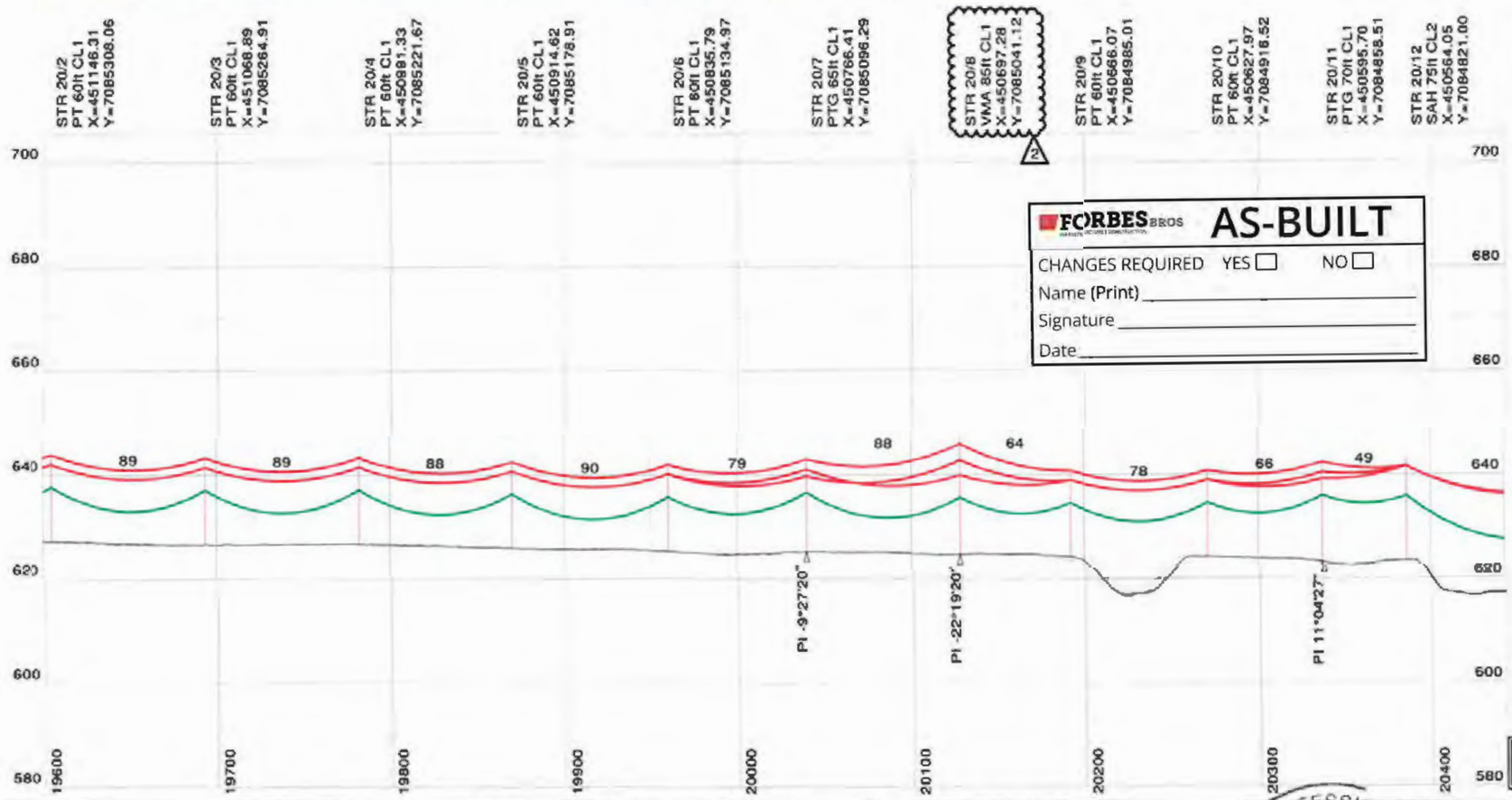


FORBES BROS

# AS-BUILT

CHANGES REQUIRED YES ☐ NO ☐

Name (Print) _____

Signature _____

Date _____

## NOTES

1. ALL DIMENSIONS IN METRES (m) UNLESS NOTED OTHERWISE.
2. COORDINATES ARE IN UTM NAD83 ZONE 8N.
3. ELEVATIONS ARE IN METRES (m) ABOVE MEAN SEA LEVEL (AMSL).
4. 69 kV CONDUCTOR, ADSS CABLE AND OVERHEAD SHIELD WIRE "OHSW" DISPLAYED AT "WET SNOW" (-10° C, 51mm RADIAL SNOW).
5. LINE ANGLE DEFLECTION LOOKING TOWARD EAGLE GOLD PROJECT SITE INDICATED AS FOLLOWS:
   + RIGHT ANGLE DEFLECTION
   - LEFT ANGLE DEFLECTION
6. THIS LINE WILL BE NUMBERED L251 IN THE YUKON ENERGY CORPORATION (YEC) SYSTEM.
7. LEFT (DASH) AND RIGHT (DOT) PROFILE OFFSETS SHOWN AT 5 m CENTERLINE OFFSET.
8. DESIGN TENSIONS SHOWN IN TABLE 1.

| TABLE 1 | MEAN ANNUAL TEMP (-4° C) | | WET SNOW (-10° C, 51mm RADIAL SNOW) | |
|---|---|---|---|---|
| CABLE TYPE | FULL TENSION SPANS (N) | TERMINAL SPANS (N) (SLACK) | FULL TENSION SPANS (N) | TERMINAL SPANS (N) (SLACK) |
| PARTRIDGE ACSR | 3,750 | 550 | 23,300 | 3,300 |
| ADSS | 7,500 | 150 | 13,900 | 3,300 |
| OHSW | 3,500 | 400 | 23,600 | 3,200 |

## LEGEND

- 69 kV - 266.8 kcmil 26/7 "PARTRIDGE" ACSR
- ADSS - OFC-24 G.652D-FASA-S1 (ZTT)
- OHSW - 266.8 kcmil 26/7 "PARTRIDGE" ACSR
- ROAD EDGE
- 2.5m ROAD BUFFER
- 30m CLEARING BOUNDARY
- YEC L250 69 KV LINE (EXISTING)
- 60m WIDE RIGHT OF WAY BOUNDARY
- X KM APPROXIMATE ROAD KM MARKER

## REFERENCES

| | |
|---|---|
| 1407-T-1000 | DRAWING LIST |
| 1407-T-1100 | ROUTE MAP |
| 1407-T-1400 | STRUCTURE DATA SHEET |
| 1407-T-1900 | SOUTH MCQUESTEN TRANSMISSION LINE CONNECTION - PLAN |
| 1407-T-3000 | STRUCTURE FAMILY |
| 1407-T-6000 | HWY 11 (SILVER TRAIL)-OVERHEAD LINE CROSSING-STR 0/4 TO STR 0/5 |

30.0 m Horiz. Scale
10.0 m Vert. Scale

ISSUED FOR CONSTRUCTION

PERMIT TO PRACTICE
W.N. BRAIZER ASSOCIATES INC.
SIGNATURE _____
Date 10/09/18
PERMIT NUMBER: PP295
Association of Professional Engineers of Yukon

| NO. | DATE | REVISION | DES | DWN | CHK | APR |
|---|---|---|---|---|---|---|
| 2 | AUG 10/18 | MCQUESTEN SUBSTATION & KM18 MODIFICATIONS | MP | MP | PC | NB |
| 1 | JUL 11/18 | BORROW PIT & ROAD PROXIMITY ALIGNMENT CHANGES | MP | MP | PC | MEO |
| 0 | MAY 11/18 | ISSUED FOR CONSTRUCTION | MP | MP | PC | MEO |

CLIENT: StrataGold Corporation

| | |
|---|---|
| DATE | MAY 11/18 |
| DESIGN | MP |
| DRAWN | MP |
| CHECKED | PC |
| APPROVED | MEO |

Clean Energy CONSULTING INC
www.cleanenergyconsulting.ca

WN BRAZIER ASSOCIATES INC

SEAL: PROFESSIONAL ENGINEER YUKON W. NEIL BRAZIER TERRITORY

EAGLE GOLD PROJECT
L251 - 69 kV TRANSMISSION LINE
PLAN AND PROFILE (SHEET 26 OF 54)

| PROJECT No. | DRAWING No. | REV. |
|---|---|---|
| 1407 | 1407-T-1200-26 | 2 |

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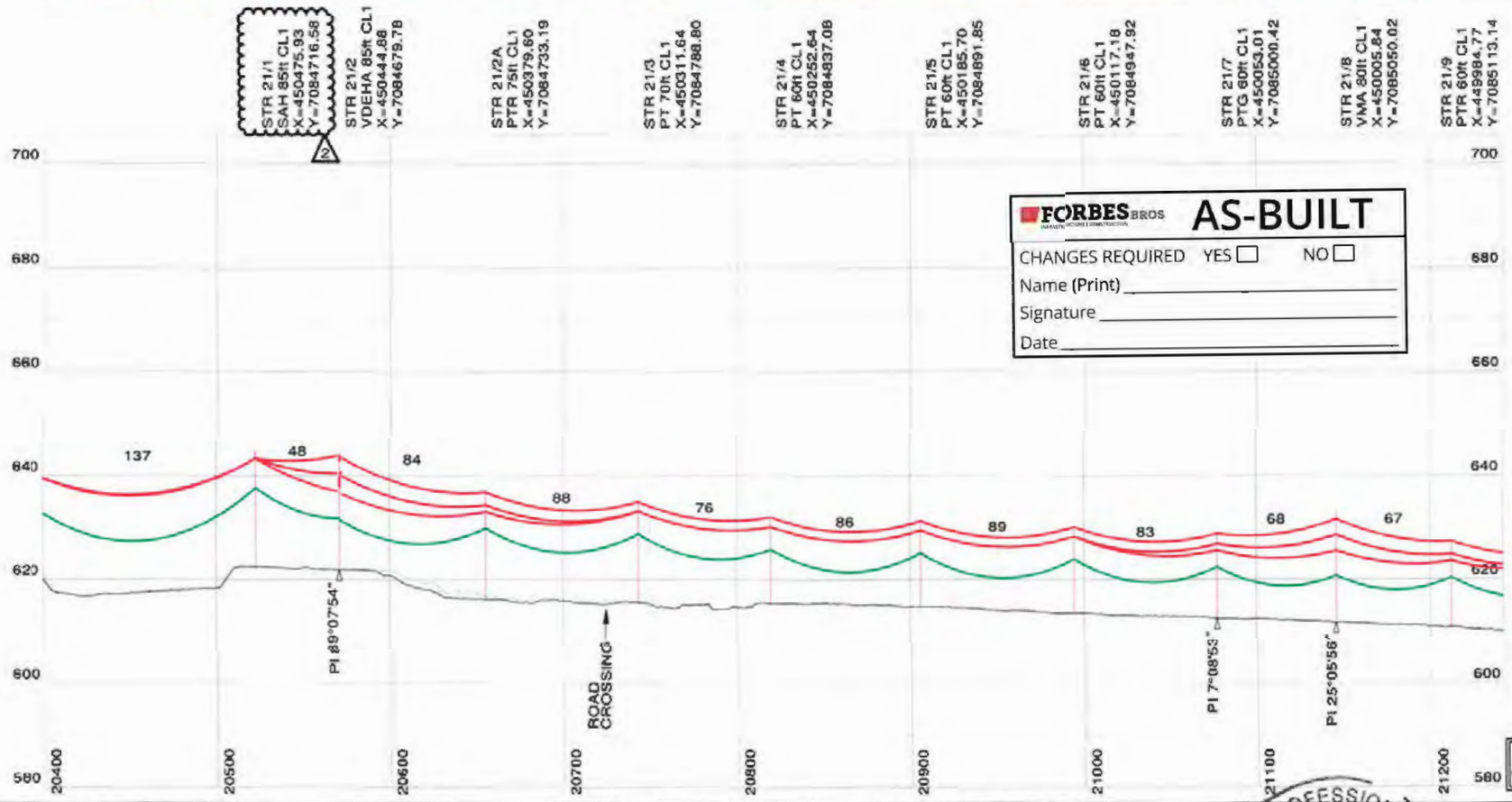


FORBES BROS AS-BUILT

CHANGES REQUIRED YES ☐ NO ☐

Name (Print) _____

Signature _____

Date _____

## NOTES

1. ALL DIMENSIONS IN METRES (m) UNLESS NOTED OTHERWISE.
2. COORDINATES ARE IN UTM NAD83 ZONE 8N.
3. ELEVATIONS ARE IN METRES (m) ABOVE MEAN SEA LEVEL (AMSL).
4. 69 kV CONDUCTOR, ADSS CABLE AND OVERHEAD SHIELD WIRE "OHSW" DISPLAYED AT "WET SNOW" (-10° C, 51mm RADIAL SNOW).
5. LINE ANGLE DEFLECTION LOOKING TOWARD EAGLE GOLD PROJECT SITE INDICATED AS FOLLOWS:
   + RIGHT ANGLE DEFLECTION
   - LEFT ANGLE DEFLECTION
6. THIS LINE WILL BE NUMBERED L251 IN THE YUKON ENERGY CORPORATION (YEC) SYSTEM.
7. LEFT (DASH) AND RIGHT (DOT) PROFILE OFFSETS SHOWN AT 5 m CENTERLINE OFFSET.
8. DESIGN TENSIONS SHOWN IN TABLE 1.

TABLE 1

| | MEAN ANNUAL TEMP (-4° C) | | WET SNOW (-10° C, 51mm RADIAL SNOW) | |
|---|---|---|---|---|
| CABLE TYPE | FULL TENSION SPANS (N) | TERMINAL SPANS (N) (SLACK) | FULL TENSION SPANS (N) | TERMINAL SPANS (N) (SLACK) |
| PARTRIDGE ACSR | 3,750 | 550 | 23,300 | 3,300 |
| ADSS | 7,500 | 150 | 13,900 | 3,200 |
| OHSW | 3,500 | 400 | 23,600 | 3,200 |

## LEGEND

- 69 kV - 266.8 kcmil 26/7 "PARTRIDGE" ACSR
- ADSS - OFC-24 G.652D-FASA-S1 (ZTT)
- OHSW - 266.8 kcmil 26/7 "PARTRIDGE" ACSR
- ROAD EDGE
- 2.5m ROAD BUFFER
- 30m CLEARING BOUNDARY
- YEC L250 69 KV LINE (EXISTING)
- 60m WIDE RIGHT OF WAY BOUNDARY
- X KM APPROXIMATE ROAD KM MARKER

## REFERENCES

| | |
|---|---|
| 1407-T-1000 | DRAWING LIST |
| 1407-T-1100 | ROUTE MAP |
| 1407-T-1400 | STRUCTURE DATA SHEET |
| 1407-T-1900 | SOUTH MCQUESTEN TRANSMISSION LINE CONNECTION - PLAN |
| 1407-T-3000 | STRUCTURE FAMILY |
| 1407-T-6000 | HWY 11 (SILVER TRAIL)-OVERHEAD LINE CROSSING-STR 0/4 TO STR 0/5 |

30.0 m Horiz. Scale
10.0 m Vert. Scale

ISSUED FOR CONSTRUCTION

PERMIT TO PRACTICE
W.N. BRAIZER ASSOCIATES INC.
SIGNATURE _____
Date 10/08/18
PERMIT NUMBER: PP295
Association of Professional Engineers of Yukon

| NO. | DATE | REVISION | DES | DWN | CHK | APR |
|---|---|---|---|---|---|---|
| 2 | AUG 10/18 | MCQUESTEN SUBSTATION & KM18 MODIFICATIONS | MP | MP | PC | NB |
| 1 | JUL 11/18 | BORROW PIT & ROAD PROXIMITY ALIGNMENT CHANGES | MP | MP | PC | MEO |
| 0 | MAY 11/18 | ISSUED FOR CONSTRUCTION | MP | MP | PC | MEO |

CLIENT: StrataGold Corporation

| | |
|---|---|
| DATE | MAY 11/18 |
| DESIGN | MP |
| DRAWN | MP |
| CHECKED | PC |
| APPROVED | MEO |

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WN BRAIZER ASSOCIATES INC

SEAL: PROFESSIONAL ENGINEER YUKON TERRITORY W. NEIL BRAZIER

# EAGLE GOLD PROJECT
## L251 - 69 kV TRANSMISSION LINE
## PLAN AND PROFILE (SHEET 27 OF 54)

| PROJECT No. | DRAWING No. | REV. |
|---|---|---|
| 1407 | 1407-T-1200-27 | 2 |

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STR 21/9
PTR 60ft CL1
X=449984.77
Y=7085113.14

STR 21/10
PT 65ft CL1
X=449956.15
Y=7085198.87

STR 21/11
PT 60ft CL1
X=449927.72
Y=7085284.00

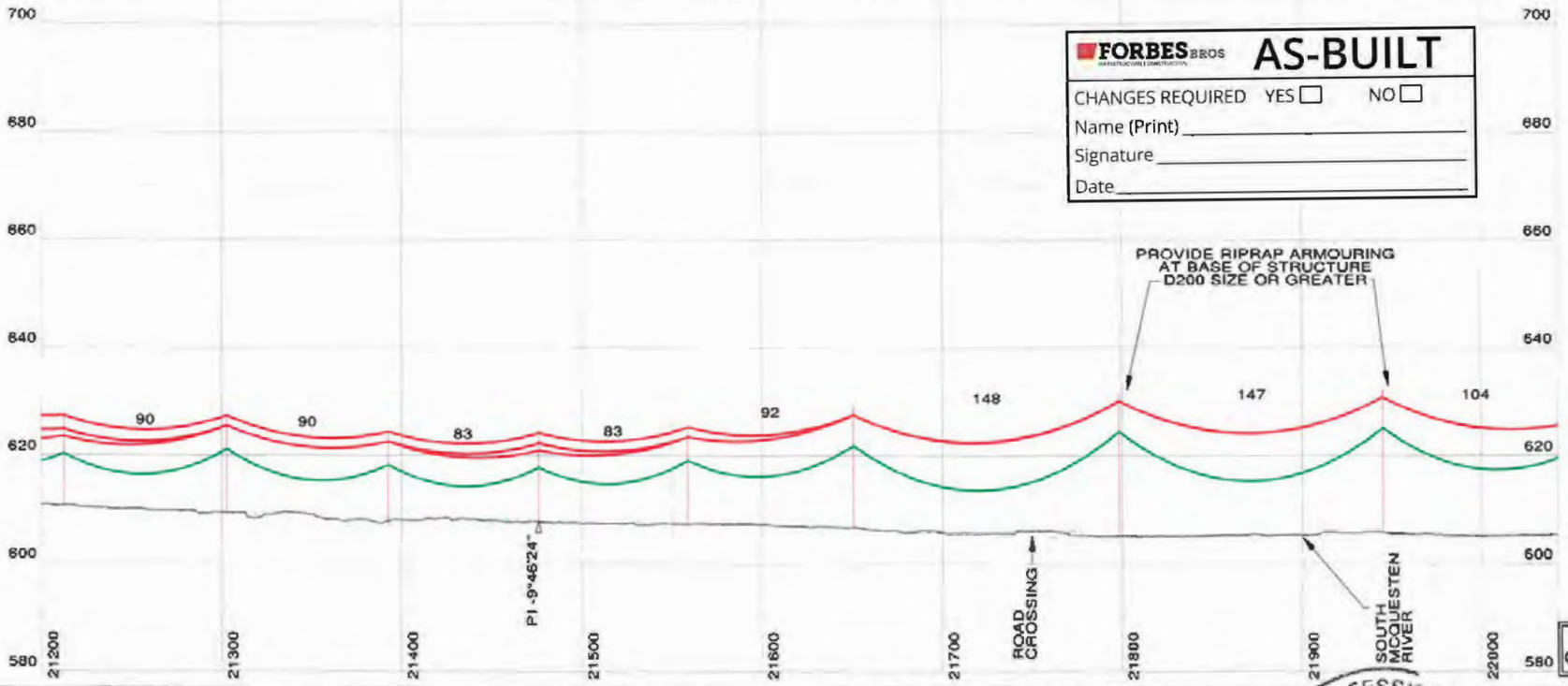
STR 21/12
PTG 60ft CL1
X=449901.30
Y=7085363.14

STR 21/13
PT 65ft CL1
X=449862.16
Y=7085436.03

STR 22/1
SAH 65ft CL2
X=449818.71
Y=7085516.95

STR 22/2
SAH 100ft CL2
X=449748.75
Y=7085647.24

STR 22/3
SAH 100ft CL2
X=449679.25
Y=7085776.66




**FORBES BROS** AS-BUILT

CHANGES REQUIRED YES ☐ NO ☐

Name (Print) _____

Signature _____

Date _____

## NOTES

1. ALL DIMENSIONS IN METRES (m) UNLESS NOTED OTHERWISE.
2. COORDINATES ARE IN UTM NAD83 ZONE 8N.
3. ELEVATIONS ARE IN METRES (m) ABOVE MEAN SEA LEVEL (AMSL).
4. 69 kV CONDUCTOR, ADSS CABLE AND OVERHEAD SHIELD WIRE "OHSW" DISPLAYED AT "WET SNOW" (-10° C, 51mm RADIAL SNOW).
5. LINE ANGLE DEFLECTION LOOKING TOWARD EAGLE GOLD PROJECT SITE INDICATED AS FOLLOWS:
   + RIGHT ANGLE DEFLECTION
   - LEFT ANGLE DEFLECTION
6. THIS LINE WILL BE NUMBERED L251 IN THE YUKON ENERGY CORPORATION (YEC) SYSTEM.
7. LEFT (DASH) AND RIGHT (DOT) PROFILE OFFSETS SHOWN AT 5 m CENTERLINE OFFSET.
8. DESIGN TENSIONS SHOWN IN TABLE 1.

| TABLE 1 | MEAN ANNUAL TEMP (-4° C) | | WET SNOW (-10° C, 51mm RADIAL SNOW) | |
|---|---|---|---|---|
| CABLE TYPE | FULL TENSION SPANS (N) | TERMINAL SPANS (N) (51.4CA) | FULL TENSION SPANS (N) | TERMINAL SPANS (N) (SLACK) |
| PARTRIDGE ACSR | 3,750 | 550 | 23,300 | 3,300 |
| ADSS | 7,500 | 150 | 13,900 | 3,300 |
| OHSW | 3,500 | 400 | 23,500 | 3,200 |

## LEGEND

- 69 kV - 266.8 kcmil 26/7 "PARTRIDGE" ACSR
- ADSS - OFC-24 G.652D-FASA-S1 (ZTT)
- OHSW - 266.8 kcmil 26/7 "PARTRIDGE" ACSR
- ROAD EDGE
- 2.5m ROAD BUFFER
- 30m CLEARING BOUNDARY
- YEC L250 69 KV LINE (EXISTING)
- 60m WIDE RIGHT OF WAY BOUNDARY
- X KM APPROXIMATE ROAD KM MARKER

## REFERENCES

| | |
|---|---|
| 1407-T-1000 | DRAWING LIST |
| 1407-T-1100 | ROUTE MAP |
| 1407-T-1400 | STRUCTURE DATA SHEET |
| 1407-T-1900 | SOUTH MCQUESTEN TRANSMISSION LINE CONNECTION - PLAN |
| 1407-T-3000 | STRUCTURE FAMILY |
| 1407-T-6000 | HWY 11 (SILVER TRAIL)-OVERHEAD LINE CROSSING-STR 0/4 TO STR 0/5 |

30.0 m Horiz. Scale
10.0 m Vert. Scale

ISSUED FOR CONSTRUCTION

PERMIT TO PRACTICE
W.N. BRAIZER ASSOCIATES INC.
SIGNATURE _____
Date 10/08/18
PERMIT NUMBER: PP295
Association of Professional Engineers of Yukon

| NO. | DATE | REVISION | DES | DWN | CHK | APR |
|---|---|---|---|---|---|---|
| | | | | | | |
| | | | | | | |
| | | | | | | |
| 2 | AUG 10/18 | MCQUESTEN SUBSTATION & KM18 MODIFICATIONS | MP | MP | PC | NB |
| 1 | JUL 11/18 | BORROW PIT & ROAD PROXIMITY ALIGNMENT CHANGES | MP | MP | PC | MEO |
| 0 | MAY 11/18 | ISSUED FOR CONSTRUCTION | MP | MP | PC | MEO |

CLIENT: StrataGold Corporation

| | |
|---|---|
| DATE | MAY 11/18 |
| DESIGN | MP |
| DRAWN | MP |
| CHECKED | PC |
| APPROVED | MEO |

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WN BRAZIER ASSOCIATES INC

SEAL: PROFESSIONAL ENGINEER YUKON W. NEIL BRAZIER TERRITORY

# EAGLE GOLD PROJECT
## L251 - 69 kV TRANSMISSION LINE
## PLAN AND PROFILE (SHEET 28 OF 54)

| PROJECT No. | DRAWING No. | REV. |
|---|---|---|
| 1407 | 1407-T-1200-28 | 2 |

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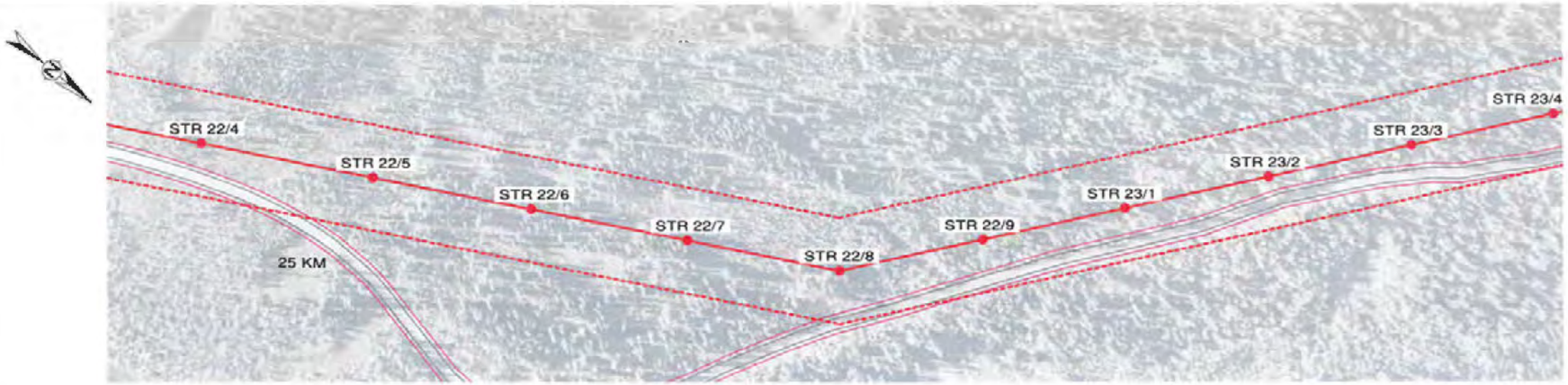


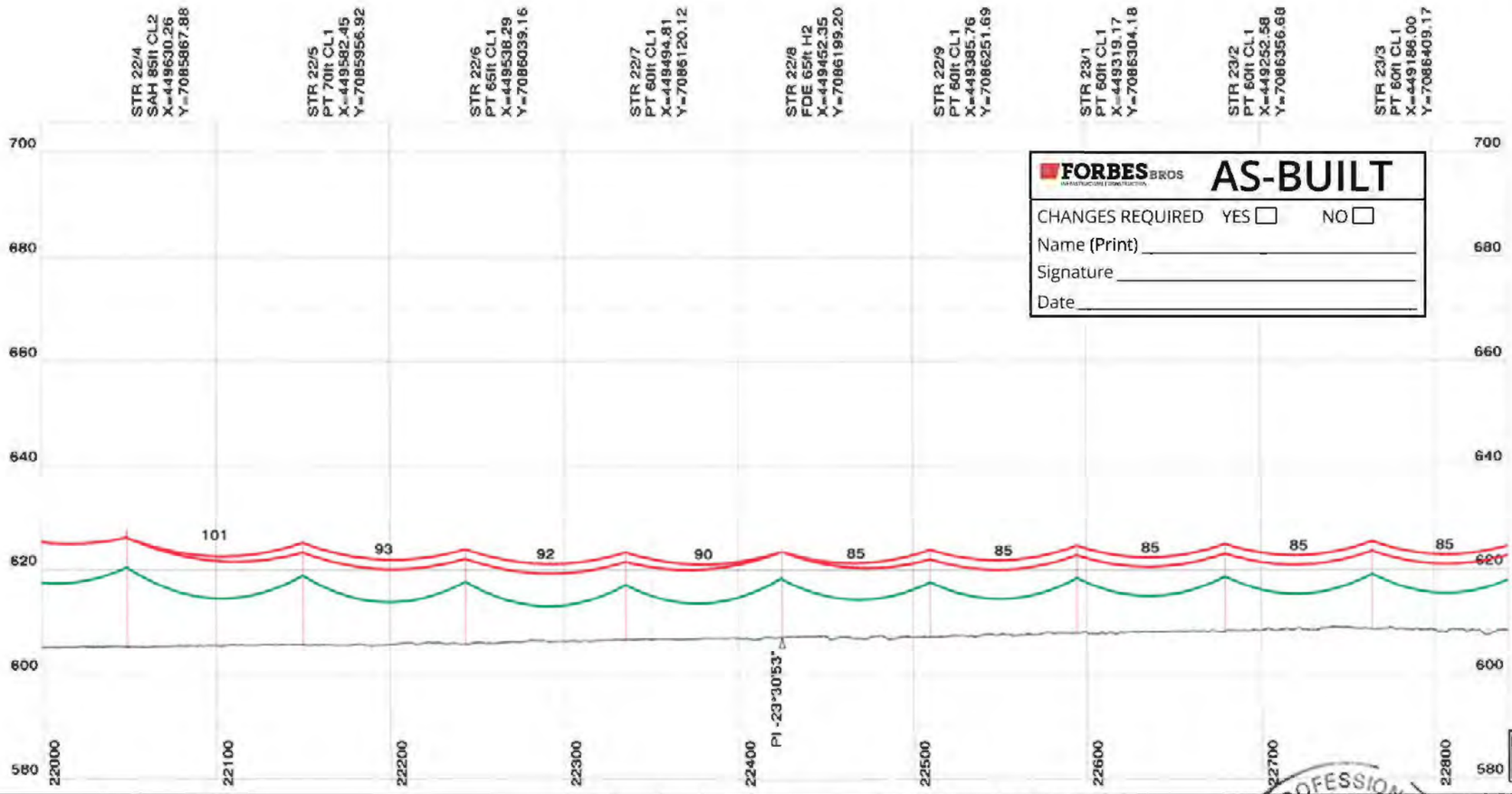


FORBES BROS

# AS-BUILT

CHANGES REQUIRED YES ☐ NO ☐

Name (Print) _____

Signature _____

Date _____

## NOTES

1. ALL DIMENSIONS IN METRES (m) UNLESS NOTED OTHERWISE.
2. COORDINATES ARE IN UTM NAD83 ZONE 8N.
3. ELEVATIONS ARE IN METRES (m) ABOVE MEAN SEA LEVEL (AMSL).
4. 69 kV CONDUCTOR, ADSS CABLE AND OVERHEAD SHIELD WIRE "OHSW" DISPLAYED AT "WET SNOW" (-10° C, 51mm RADIAL SNOW).
5. LINE ANGLE DEFLECTION LOOKING TOWARD EAGLE GOLD PROJECT SITE INDICATED AS FOLLOWS:
   + RIGHT ANGLE DEFLECTION
   - LEFT ANGLE DEFLECTION
6. THIS LINE WILL BE NUMBERED L251 IN THE YUKON ENERGY CORPORATION (YEC) SYSTEM.
7. LEFT (DASH) AND RIGHT (DOT) PROFILE OFFSETS SHOWN AT 5 m CENTERLINE OFFSET.
8. DESIGN TENSIONS SHOWN IN TABLE 1.

| TABLE 1 | MEAN ANNUAL TEMP (-4° C) | | WET SNOW (-10° C, 51mm RADIAL SNOW) | |
|---|---|---|---|---|
| CABLE TYPE | FULL TENSION SPANS (N) | TERMINAL SPANS (N) (SLACK) | FULL TENSION SPANS (N) | TERMINAL SPANS (N) (SLACK) |
| PARTRIDGE ACSR | 3,750 | 550 | 23,300 | 3,300 |
| ADSS | 7,500 | 150 | 13,900 | 3,300 |
| OHSW | 3,500 | 400 | 23,600 | 3,200 |

## LEGEND

- 69 kV - 266.8 kcmil 26/7 "PARTRIDGE" ACSR
- ADSS - OFC-24 G.652D-FASA-S1 (ZTT)
- OHSW - 266.8 kcmil 26/7 "PARTRIDGE" ACSR
- ROAD EDGE
- 2.5m ROAD BUFFER
- 30m CLEARING BOUNDARY
- YEC L250 69 KV LINE (EXISTING)
- 60m WIDE RIGHT OF WAY BOUNDARY
- X KM APPROXIMATE ROAD KM MARKER

## REFERENCES

| | |
|---|---|
| 1407-T-1000 | DRAWING LIST |
| 1407-T-1100 | ROUTE MAP |
| 1407-T-1400 | STRUCTURE DATA SHEET |
| 1407-T-1900 | SOUTH MCQUESTEN TRANSMISSION LINE CONNECTION - PLAN |
| 1407-T-3000 | STRUCTURE FAMILY |
| 1407-T-6000 | HWY 11 (SILVER TRAIL)-OVERHEAD LINE CROSSING-STR 0/4 TO STR 0/5 |

30.0 m Horiz. Scale
10.0 m Vert. Scale

ISSUED FOR CONSTRUCTION

PERMIT TO PRACTICE
W.N. BRAIZER ASSOCIATES INC.
SIGNATURE Neil Brazier
Date 10/03/18
PERMIT NUMBER: PP295
Association of Professional Engineers of Yukon

| NO. | DATE | REVISION | DES | DWN | CHK | APR |
|---|---|---|---|---|---|---|
| 2 | AUG 10/18 | MCQUESTEN SUBSTATION & KM18 MODIFICATIONS | MP | MP | PC | NB |
| 1 | JUL 11/18 | BORROW PIT & ROAD PROXIMITY ALIGNMENT CHANGES | MP | MP | PC | MEO |
| 0 | MAY 11/18 | ISSUED FOR CONSTRUCTION | MP | MP | PC | MEO |

CLIENT: StrataGold Corporation

| | |
|---|---|
| DATE | MAY 11/18 |
| DESIGN | MP |
| DRAWN | MP |
| CHECKED | PC |
| APPROVED | MEO |

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www.cleanenergyconsulting.ca
WN BRAZIER ASSOCIATES INC

SEAL: PROFESSIONAL ENGINEER YUKON W. NEIL BRAZIER TERRITORY

EAGLE GOLD PROJECT
L251 - 69 kV TRANSMISSION LINE
PLAN AND PROFILE (SHEET 29 OF 54)

| PROJECT No. | DRAWING No. | REV. |
|---|---|---|
| 1407 | 1407-T-1200-29 | 2 |

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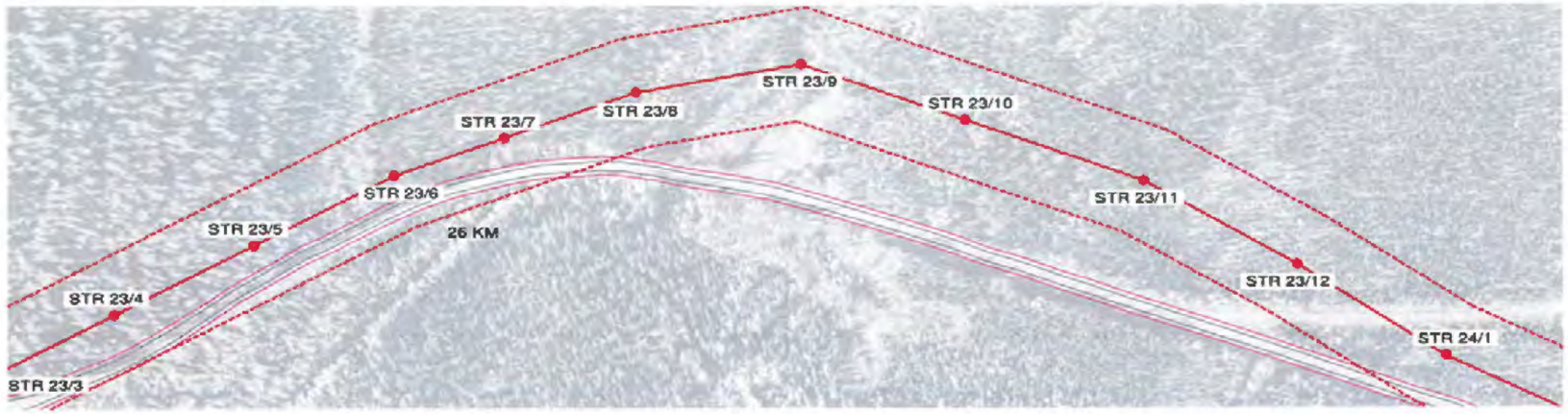
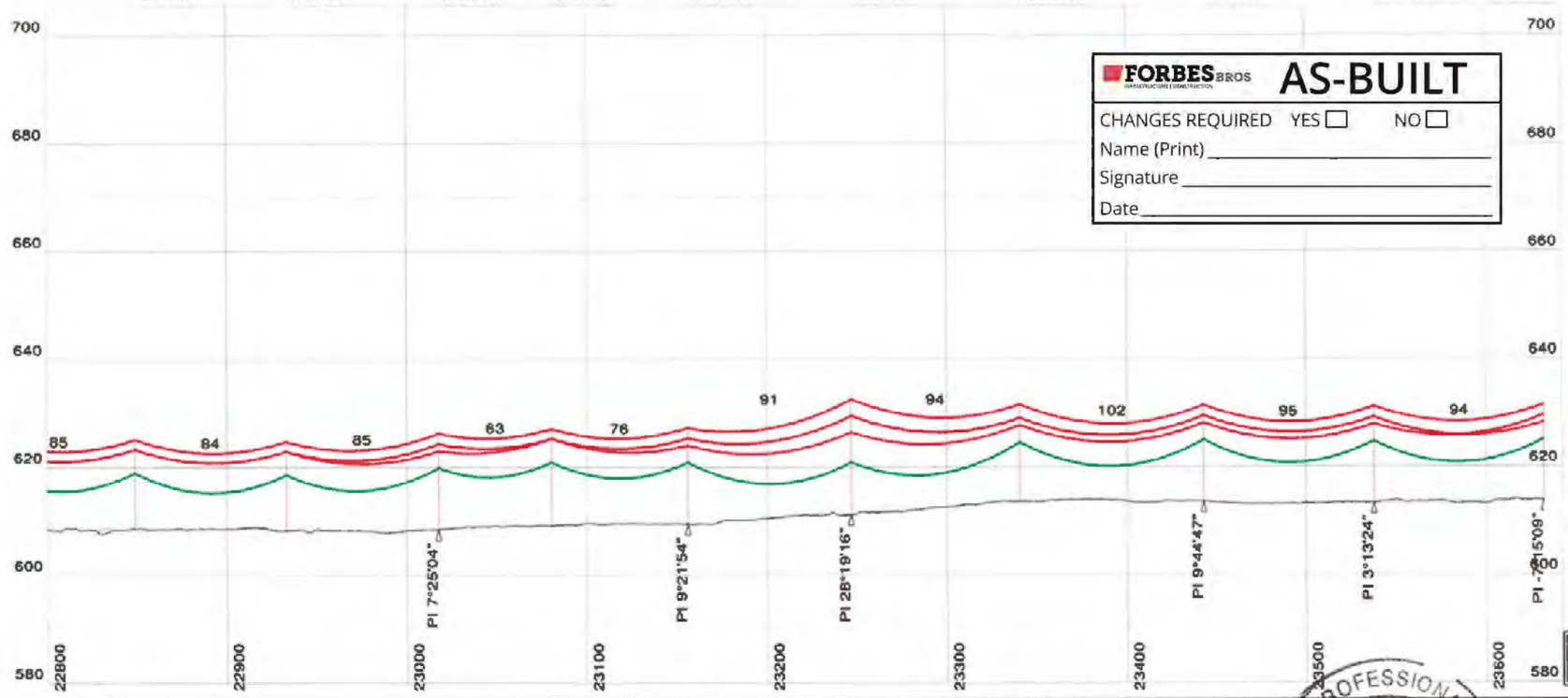



STR 23/4 PT 60ft CL1 X=449119.56 Y=7086461.55
STR 23/5 PT 60ft CL1 X=449053.35 Y=7086513.74
STR 23/6 PTG 65ft CL1 X=448986.94 Y=7086566.10
STR 23/7 PT 65ft CL1 X=448943.00 Y=7086611.07
STR 23/8 PTG 65ft CL1 X=448890.19 Y=7086665.13
STR 23/9 VMA 85ft CL1 X=448838.16 Y=7086739.53
STR 23/10 PTR 65ft CL1 X=448827.32 Y=7086832.53
STR 23/11 PTG 65ft CL1 X=448815.47 Y=7086934.27
STR 23/12 PTG 65ft CL1 X=448820.60 Y=7087029.03
STR 24/1 PTG 65ft CL1 X=448831.00 Y=7087122.91




**AS-BUILT**

FORBES BROS

CHANGES REQUIRED YES ☐ NO ☐

Name (Print) _____

Signature _____

Date _____

## NOTES

1. ALL DIMENSIONS IN METRES (m) UNLESS NOTED OTHERWISE.
2. COORDINATES ARE IN UTM NAD83 ZONE 8N.
3. ELEVATIONS ARE IN METRES (m) ABOVE MEAN SEA LEVEL (AMSL).
4. 69 kV CONDUCTOR, ADSS CABLE AND OVERHEAD SHIELD WIRE "OHSW" DISPLAYED AT "WET SNOW" (-10° C, 51mm RADIAL SNOW).
5. LINE ANGLE DEFLECTION LOOKING TOWARD EAGLE GOLD PROJECT SITE INDICATED AS FOLLOWS:
   + RIGHT ANGLE DEFLECTION
   - LEFT ANGLE DEFLECTION
6. THIS LINE WILL BE NUMBERED L251 IN THE YUKON ENERGY CORPORATION (YEC) SYSTEM.
7. LEFT (DASH) AND RIGHT (DOT) PROFILE OFFSETS SHOWN AT 5 m CENTERLINE OFFSET.
8. DESIGN TENSIONS SHOWN IN TABLE 1.

TABLE 1

| CABLE TYPE | MEAN ANNUAL TEMP (-4° C) | | WET SNOW (-10° C, 51mm RADIAL SNOW) | |
|---|---|---|---|---|
| | FULL TENSION SPANS (N) | TERMINAL SPANS (N) (SLACK) | FULL TENSION SPANS (N) | TERMINAL SPANS (N) (SLACK) |
| PARTRIDGE ACSR | 3,750 | 550 | 23,300 | 3,300 |
| ADSS | 7,500 | 150 | 13,900 | 3,300 |
| OHSW | 3,600 | 400 | 23,600 | 3,200 |

LEGEND

- 69 kV - 266.8 kcmil 26/7 "PARTRIDGE" ACSR
- ADSS - OFC-24 G.652D-FASA-S1 (ZTT)
- OHSW - 266.8 kcmil 26/7 "PARTRIDGE" ACSR
- ROAD EDGE
- 2.5m ROAD BUFFER
- 30m CLEARING BOUNDARY
- YEC L250 69 KV LINE (EXISTING)
- 60m WIDE RIGHT OF WAY BOUNDARY
- X KM APPROXIMATE ROAD KM MARKER

REFERENCES

| | |
|---|---|
| 1407-T-1000 | DRAWING LIST |
| 1407-T-1100 | ROUTE MAP |
| 1407-T-1400 | STRUCTURE DATA SHEET |
| 1407-T-1900 | SOUTH MCQUESTEN TRANSMISSION LINE CONNECTION - PLAN |
| 1407-T-3000 | STRUCTURE FAMILY |
| 1407-T-6000 | HWY 11 (SILVER TRAIL)-OVERHEAD LINE CROSSING-STR 0/4 TO STR 0/5 |

30.0 m Horiz. Scale
10.0 m Vert. Scale

ISSUED FOR CONSTRUCTION

PERMIT TO PRACTICE
W.N. BRAIZER ASSOCIATES INC.
SIGNATURE _____
Date 10/05/18
PERMIT NUMBER: PP295
Association of Professional Engineers of Yukon

| NO. | DATE | REVISION | DES | DWN | CHK | APR |
|---|---|---|---|---|---|---|
| 2 | AUG 10/18 | MCQUESTEN SUBSTATION & KM18 MODIFICATIONS | MP | MP | PC | NB |
| 1 | JUL 11/18 | BORROW PIT & ROAD PROXIMITY ALIGNMENT CHANGES | MP | MP | PC | MEO |
| 0 | MAY 11/18 | ISSUED FOR CONSTRUCTION | MP | MP | PC | MEO |

CLIENT: StrataGold Corporation

| | |
|---|---|
| DATE | MAY 11/18 |
| DESIGN | MP |
| DRAWN | MP |
| CHECKED | PC |
| APPROVED | MEO |

Clean Energy CONSULTING INC. www.cleanenergyconsulting.ca

WN BRAZIER ASSOCIATES INC

SEAL: PROFESSIONAL ENGINEER YUKON W. NEIL BRAZIER TERRITORY

EAGLE GOLD PROJECT

L251 - 69 kV TRANSMISSION LINE

PLAN AND PROFILE (SHEET 30 OF 54)

| PROJECT No. | DRAWING No. | REV. |
|---|---|---|
| 1407 | 1407-T-1200-30 | 2 |

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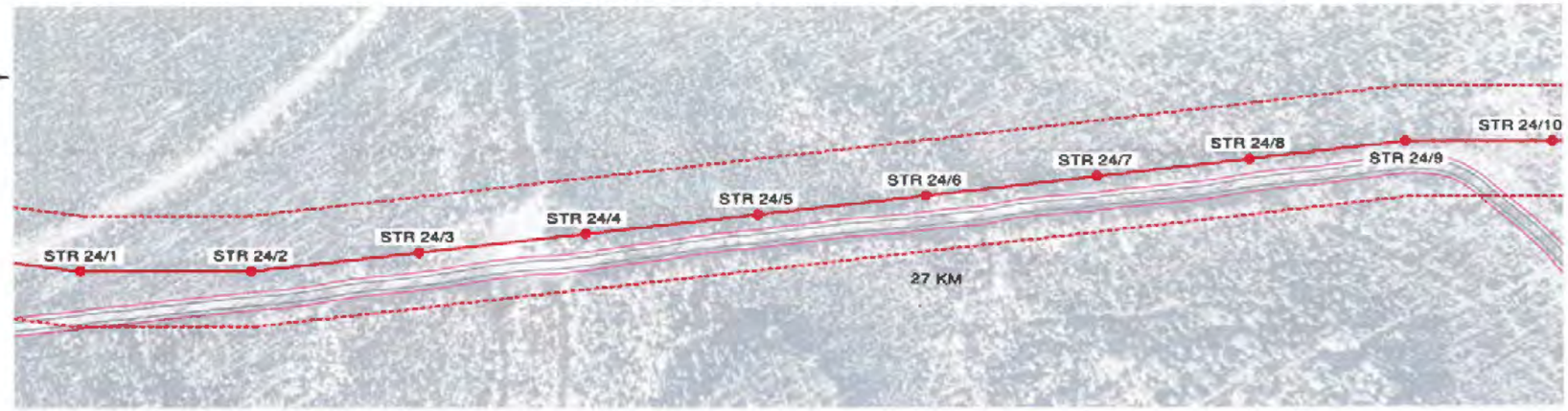


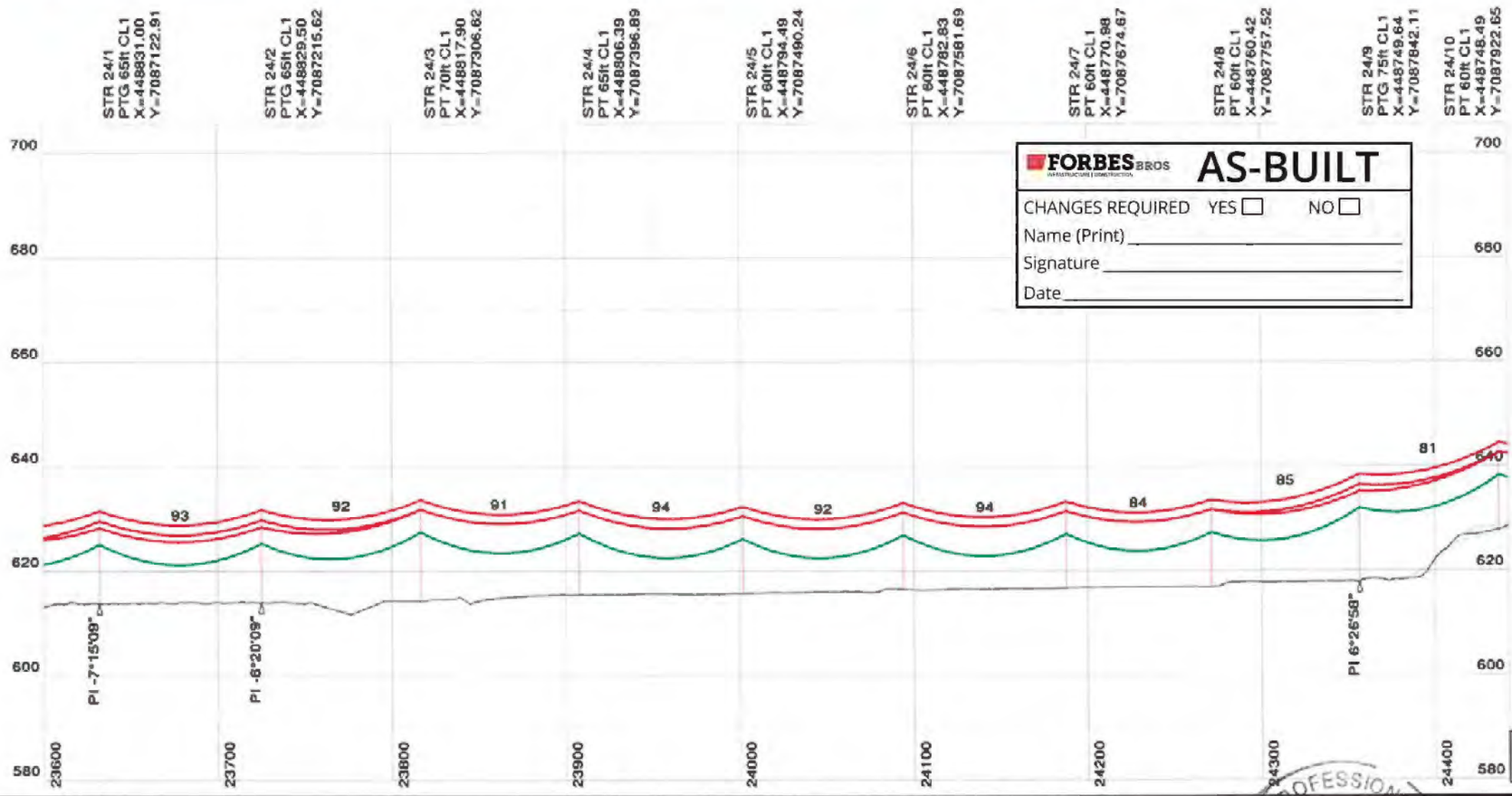


**FORBES BROS** AS-BUILT

CHANGES REQUIRED YES ☐ NO ☐

Name (Print) _____

Signature _____

Date _____

NOTES

1. ALL DIMENSIONS IN METRES (m) UNLESS NOTED OTHERWISE.
2. COORDINATES ARE IN UTM NAD83 ZONE 8N.
3. ELEVATIONS ARE IN METRES (m) ABOVE MEAN SEA LEVEL (AMSL).
4. 69 kV CONDUCTOR, ADSS CABLE AND OVERHEAD SHIELD WIRE "OHSW" DISPLAYED AT "WET SNOW" (-10° C, 51mm RADIAL SNOW).
5. LINE ANGLE DEFLECTION LOOKING TOWARD EAGLE GOLD PROJECT SITE INDICATED AS FOLLOWS:
   + RIGHT ANGLE DEFLECTION
   - LEFT ANGLE DEFLECTION
6. THIS LINE WILL BE NUMBERED L251 IN THE YUKON ENERGY CORPORATION (YEC) SYSTEM.
7. LEFT (DASH) AND RIGHT (DOT) PROFILE OFFSETS SHOWN AT 5 m CENTERLINE OFFSET.
8. DESIGN TENSIONS SHOWN IN TABLE 1.

TABLE 1

| CABLE TYPE | MEAN ANNUAL TEMP (-4° C) FULL TENSION SPANS (N) | MEAN ANNUAL TEMP (-4° C) TERMINAL SPANS (N) (SLACK) | WET SNOW (-10° C, 51mm RADIAL SNOW) FULL TENSION SPANS (N) | WET SNOW (-10° C, 51mm RADIAL SNOW) TERMINAL SPANS (N) (SLACK) |
|---|---|---|---|---|
| PARTRIDGE ACSR | 3,750 | 550 | 23,300 | 3,300 |
| ADSS | 7,500 | 150 | 13,900 | 3,300 |
| OHSW | 3,800 | 400 | 23,600 | 3,200 |

LEGEND

- 69 kV - 266.8 kcmil 26/7 "PARTRIDGE" ACSR
- ADSS - OFC-24 G.652D-FASA-S1 (ZTT)
- OHSW - 266.8 kcmil 26/7 "PARTRIDGE" ACSR
- ROAD EDGE
- 2.5m ROAD BUFFER
- 30m CLEARING BOUNDARY
- YEC L250 69 KV LINE (EXISTING)
- 60m WIDE RIGHT OF WAY BOUNDARY
- X KM APPROXIMATE ROAD KM MARKER

REFERENCES

| | |
|---|---|
| 1407-T-1000 | DRAWING LIST |
| 1407-T-1100 | ROUTE MAP |
| 1407-T-1400 | STRUCTURE DATA SHEET |
| 1407-T-1900 | SOUTH MCQUESTEN TRANSMISSION LINE CONNECTION - PLAN |
| 1407-T-3000 | STRUCTURE FAMILY |
| 1407-T-6000 | HWY 11 (SILVER TRAIL)-OVERHEAD LINE CROSSING-STR 0/4 TO STR 0/5 |

30.0 m Horiz. Scale
10.0 m Vert. Scale

ISSUED FOR CONSTRUCTION

PERMIT TO PRACTICE
W.N. BRAIZER ASSOCIATES INC.
SIGNATURE Neil Braizer
Date 12/05/18
PERMIT NUMBER: PP295
Association of Professional Engineers of Yukon

| NO. | DATE | REVISION | DES | DWN | CHK | APR |
|---|---|---|---|---|---|---|
| 2 | AUG 10/18 | MCQUESTEN SUBSTATION & KM18 MODIFICATIONS | MP | MP | PC | NB |
| 1 | JUL 11/18 | BORROW PIT & ROAD PROXIMITY ALIGNMENT CHANGES | MP | MP | PC | MEO |
| 0 | MAY 11/18 | ISSUED FOR CONSTRUCTION | MP | MP | PC | MEO |

CLIENT StrataGold Corporation

| | |
|---|---|
| DATE | MAY 11/18 |
| DESIGN | MP |
| DRAWN | MP |
| CHECKED | PC |
| APPROVED | MEO |

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WN BRAZIER ASSOCIATES INC

SEAL: PROFESSIONAL ENGINEER YUKON W. NEIL BRAZIER TERRITORY

EAGLE GOLD PROJECT
L251 - 69 kV TRANSMISSION LINE
PLAN AND PROFILE (SHEET 31 OF 54)

| PROJECT No. | DRAWING No. | REV. |
|---|---|---|
| 1407 | 1407-T-1200-31 | 2 |

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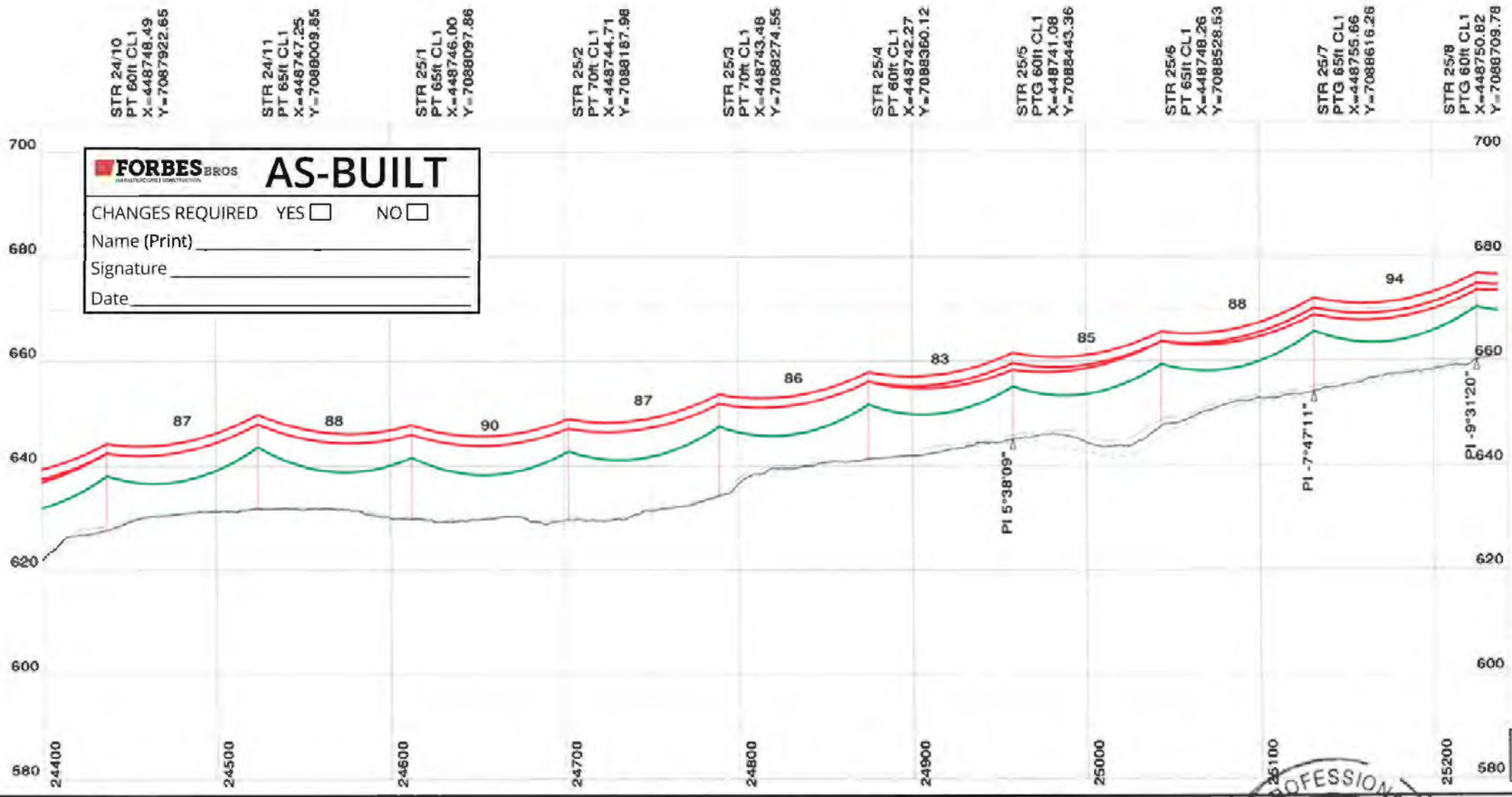


**FORBES BROS** AS-BUILT

CHANGES REQUIRED YES ☐ NO ☐

Name (Print) _____

Signature _____

Date _____

NOTES

1. ALL DIMENSIONS IN METRES (m) UNLESS NOTED OTHERWISE.
2. COORDINATES ARE IN UTM NAD83 ZONE 8N.
3. ELEVATIONS ARE IN METRES (m) ABOVE MEAN SEA LEVEL (AMSL).
4. 69 kV CONDUCTOR, ADSS CABLE AND OVERHEAD SHIELD WIRE "OHSW" DISPLAYED AT "WET SNOW" (-10° C, 51mm RADIAL SNOW).
5. LINE ANGLE DEFLECTION LOOKING TOWARD EAGLE GOLD PROJECT SITE INDICATED AS FOLLOWS:
   + RIGHT ANGLE DEFLECTION
   - LEFT ANGLE DEFLECTION
6. THIS LINE WILL BE NUMBERED L251 IN THE YUKON ENERGY CORPORATION (YEC) SYSTEM.
7. LEFT (DASH) AND RIGHT (DOT) PROFILE OFFSETS SHOWN AT 5 m CENTERLINE OFFSET.
8. DESIGN TENSIONS SHOWN IN TABLE 1.

TABLE 1

| CABLE TYPE | MEAN ANNUAL TEMP (-4° C) FULL TENSION SPANS (N) | MEAN ANNUAL TEMP (-4° C) TERMINAL SPANS (N) (SLACK) | WET SNOW (-10° C, 51mm RADIAL SNOW) FULL TENSION SPANS (N) | WET SNOW (-10° C, 51mm RADIAL SNOW) TERMINAL SPANS (N) (SLACK) |
|---|---|---|---|---|
| PARTRIDGE ACSR | 3,750 | 550 | 23,300 | 3,300 |
| ADSS | 7,500 | 150 | 13,900 | 3,300 |
| OHSW | 3,500 | 400 | 23,600 | 3,200 |

LEGEND

- 69 kV - 266.8 kcmil 26/7 "PARTRIDGE" ACSR
- ADSS - OFC-24 G.652D-FASA-S1 (ZTT)
- OHSW - 266.8 kcmil 26/7 "PARTRIDGE" ACSR
- ROAD EDGE
- 2.6m ROAD BUFFER
- 30m CLEARING BOUNDARY
- YEC L250 69 KV LINE (EXISTING)
- 60m WIDE RIGHT OF WAY BOUNDARY
- X KM APPROXIMATE ROAD KM MARKER

REFERENCES

| | |
|---|---|
| 1407-T-1000 | DRAWING LIST |
| 1407-T-1100 | ROUTE MAP |
| 1407-T-1400 | STRUCTURE DATA SHEET |
| 1407-T-1900 | SOUTH MCQUESTEN TRANSMISSION LINE CONNECTION - PLAN |
| 1407-T-3000 | STRUCTURE FAMILY |
| 1407-T-6000 | HWY 11 (SILVER TRAIL)-OVERHEAD LINE CROSSING-STR 0/4 TO STR 0/5 |

30.0 m Horiz. Scale
10.0 m Vert. Scale

ISSUED FOR CONSTRUCTION

PERMIT TO PRACTICE
W.N. BRAIZER ASSOCIATES INC.
SIGNATURE _____
Date 12/08/18
PERMIT NUMBER: PP295
Association of Professional Engineers of Yukon

| NO. | DATE | REVISION | DES | DWN | CHK | APR |
|---|---|---|---|---|---|---|
| 2 | AUG 10/18 | MCQUESTEN SUBSTATION & KM18 MODIFICATIONS | MP | MP | PC | NB |
| 1 | JUL 11/18 | BORROW PIT & ROAD PROXIMITY ALIGNMENT CHANGES | MP | MP | PC | MEO |
| 0 | MAY 11/18 | ISSUED FOR CONSTRUCTION | MP | MP | PC | MEO |

CLIENT StrataGold Corporation

DATE MAY 11/18
DESIGN MP
DRAWN MP
CHECKED PC
APPROVED MEO

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WN BRAZIER ASSOCIATES INC

PROFESSIONAL ENGINEER YUKON W. NEIL BRAZIER TERRITORY

EAGLE GOLD PROJECT
L251 - 69 kV TRANSMISSION LINE
PLAN AND PROFILE (SHEET 32 OF 54)

PROJECT No. 1407
DRAWING No. 1407-T-1200-32
REV. 2

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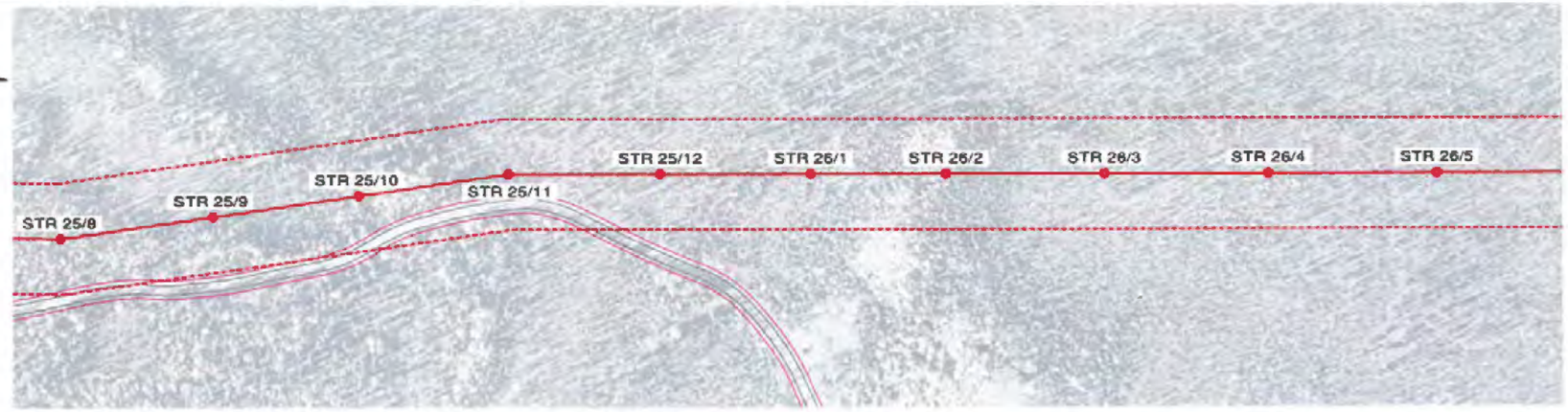


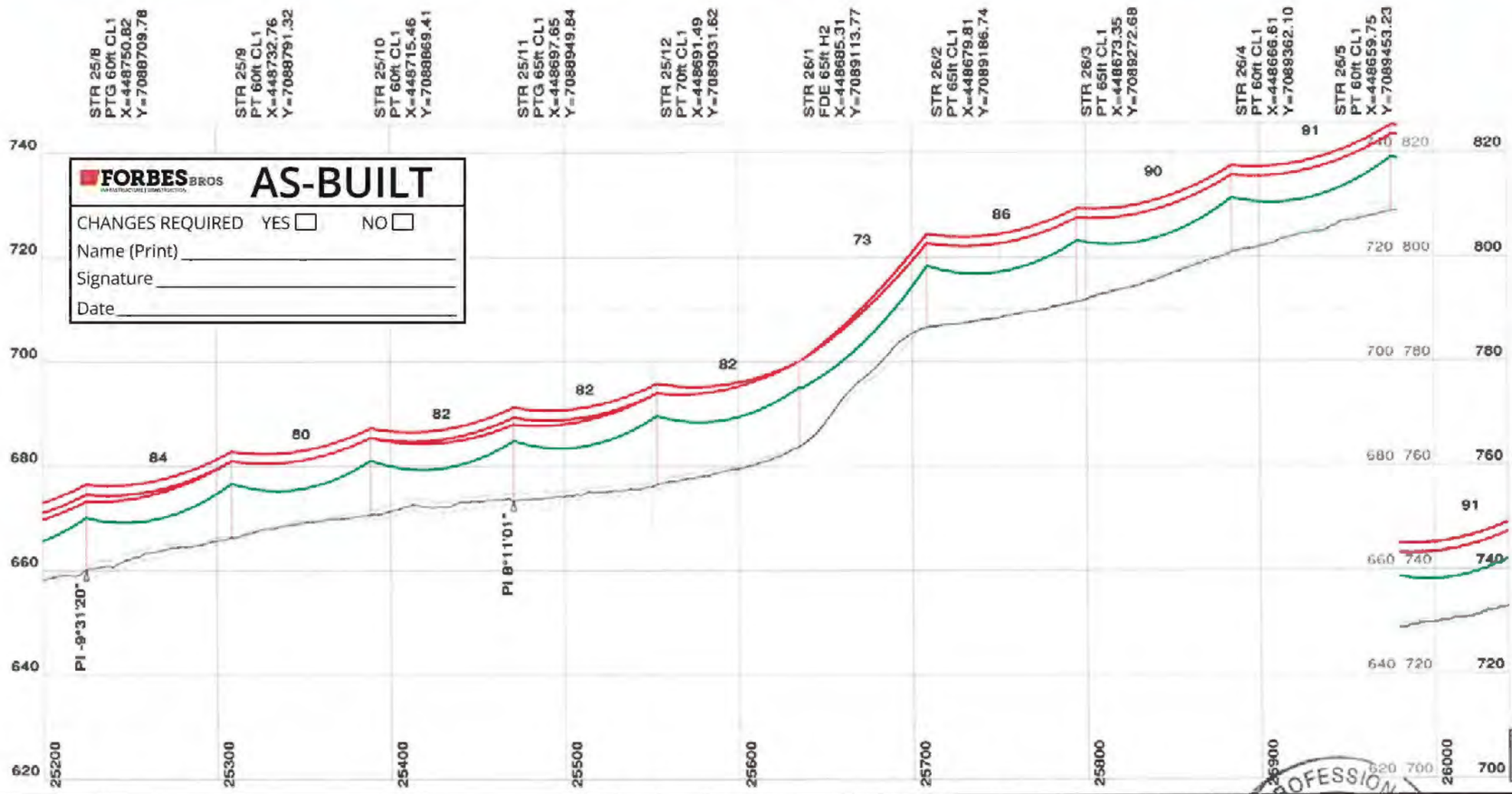


**FORBES BROS** AS-BUILT

CHANGES REQUIRED YES ☐ NO ☐

Name (Print) _____

Signature _____

Date _____

NOTES

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2. COORDINATES ARE IN UTM NAD83 ZONE 8N.
3. ELEVATIONS ARE IN METRES (m) ABOVE MEAN SEA LEVEL (AMSL).
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5. LINE ANGLE DEFLECTION LOOKING TOWARD EAGLE GOLD PROJECT SITE INDICATED AS FOLLOWS:
   + RIGHT ANGLE DEFLECTION
   - LEFT ANGLE DEFLECTION
6. THIS LINE WILL BE NUMBERED L251 IN THE YUKON ENERGY CORPORATION (YEC) SYSTEM.
7. LEFT (DASH) AND RIGHT (DOT) PROFILE OFFSETS SHOWN AT 5 m CENTERLINE OFFSET.
8. DESIGN TENSIONS SHOWN IN TABLE 1.

TABLE 1

| | MEAN ANNUAL TEMP (-4° C) | | WET SNOW (-10° C, 51mm RADIAL SNOW) | |
|---|---|---|---|---|
| CABLE TYPE | FULL TENSION SPANS (N) | TERMINAL SPANS (N) (SLACK) | FULL TENSION SPANS (N) | TERMINAL SPANS (N) (SLACK) |
| PARTRIDGE ACSR | 3,750 | 550 | 23,300 | 3,300 |
| ADSS | 7,500 | 150 | 13,900 | 3,300 |
| OHSW | 3,800 | 400 | 23,800 | 3,200 |

LEGEND

- 69 kV - 266.8 kcmil 26/7 "PARTRIDGE" ACSR
- ADSS - OFC-24 G.652D-FASA-S1 (ZTT)
- OHSW - 266.8 kcmil 26/7 "PARTRIDGE" ACSR
- ROAD EDGE
- 2.5m ROAD BUFFER
- 30m CLEARING BOUNDARY
- YEC L250 69 KV LINE (EXISTING)
- 60m WIDE RIGHT OF WAY BOUNDARY
- X KM APPROXIMATE ROAD KM MARKER

REFERENCES

| | |
|---|---|
| 1407-T-1000 | DRAWING LIST |
| 1407-T-1100 | ROUTE MAP |
| 1407-T-1400 | STRUCTURE DATA SHEET |
| 1407-T-1900 | SOUTH MCQUESTEN TRANSMISSION LINE CONNECTION - PLAN |
| 1407-T-3000 | STRUCTURE FAMILY |
| 1407-T-6000 | HWY 11 (SILVER TRAIL)-OVERHEAD LINE CROSSING-STR 0/4 TO STR 0/5 |

30.0 m Horiz. Scale
10.0 m Vert. Scale

ISSUED FOR CONSTRUCTION

PERMIT TO PRACTICE
W.N. BRAIZER ASSOCIATES INC.
SIGNATURE _____
Date 10/09/18
PERMIT NUMBER: PP295
Association of Professional Engineers of Yukon

| NO. | DATE | REVISION | DES | DWN | CHK | APR |
|---|---|---|---|---|---|---|
| 2 | AUG 10/18 | MCQUESTEN SUBSTATION & KM18 MODIFICATIONS | MP | MP | PC | NB |
| 1 | JUL 11/18 | BORROW PIT & ROAD PROXIMITY ALIGNMENT CHANGES | MP | MP | PC | MEO |
| 0 | MAY 11/18 | ISSUED FOR CONSTRUCTION | MP | MP | PC | MEO |

CLIENT StrataGold Corporation

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|---|---|
| DATE | MAY 11/18 |
| DESIGN | MP |
| DRAWN | MP |
| CHECKED | PC |
| APPROVED | MEO |

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WN BRAZIER ASSOCIATES INC

SEAL: PROFESSIONAL ENGINEER YUKON W. NEIL BRAZIER TERRITORY

EAGLE GOLD PROJECT
L251 - 69 kV TRANSMISSION LINE
PLAN AND PROFILE (SHEET 33 OF 54)

| PROJECT No. | DRAWING No. | REV. |
|---|---|---|
| 1407 | 1407-T-1200-33 | 2 |

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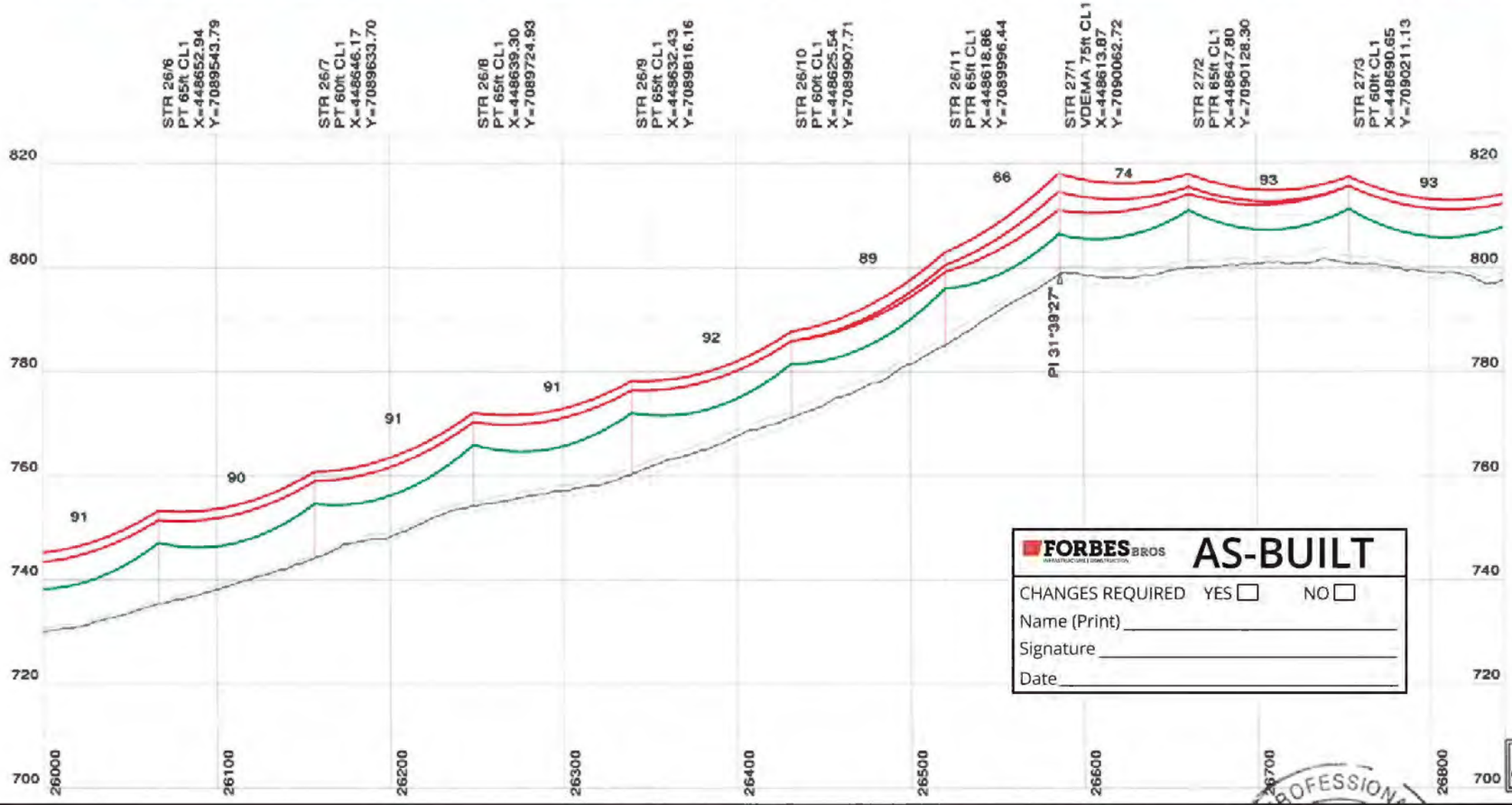


NOTES

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   - LEFT ANGLE DEFLECTION
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7. LEFT (DASH) AND RIGHT (DOT) PROFILE OFFSETS SHOWN AT 5 m CENTERLINE OFFSET.
8. DESIGN TENSIONS SHOWN IN TABLE 1.

| TABLE 1 | MEAN ANNUAL TEMP (-4° C) | | WET SNOW (-10° C, 51mm RADIAL SNOW) | |
|---|---|---|---|---|
| CABLE TYPE | FULL TENSION SPANS (N) | TERMINAL SPANS (N) (SLACK) | FULL TENSION SPANS (N) | TERMINAL SPANS (N) (SLACK) |
| PARTRIDGE ACSR | 3,750 | 550 | 23,300 | 3,300 |
| ADSS | 7,500 | 150 | 13,900 | 3,300 |
| OHSW | 3,500 | 400 | 23,600 | 3,200 |

LEGEND

- 69 kV - 266.8 kcmil 26/7 "PARTRIDGE" ACSR
- ADSS - OFC-24 G.652D-FASA-S1 (ZTT)
- OHSW - 266.8 kcmil 26/7 "PARTRIDGE" ACSR
- ROAD EDGE
- 2.5m ROAD BUFFER
- 30m CLEARING BOUNDARY
- YEC L250 69 KV LINE (EXISTING)
- 60m WIDE RIGHT OF WAY BOUNDARY
- X KM APPROXIMATE ROAD KM MARKER

REFERENCES

| | |
|---|---|
| 1407-T-1000 | DRAWING LIST |
| 1407-T-1100 | ROUTE MAP |
| 1407-T-1400 | STRUCTURE DATA SHEET |
| 1407-T-1900 | SOUTH MCQUESTEN TRANSMISSION LINE CONNECTION - PLAN |
| 1407-T-3000 | STRUCTURE FAMILY |
| 1407-T-6000 | HWY 11 (SILVER TRAIL)-OVERHEAD LINE CROSSING-STR 0/4 TO STR 0/5 |

30.0 m Horiz. Scale
10.0 m Vert. Scale

FORBES BROS AS-BUILT
CHANGES REQUIRED YES ☐ NO ☐
Name (Print) _____
Signature _____
Date _____

PERMIT TO PRACTICE
W.N. BRAIZER ASSOCIATES INC.
SIGNATURE _____
Date 10/03/18
PERMIT NUMBER: PP295
Association of Professional Engineers of Yukon

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| NO. | DATE | REVISION | DES | DWN | CHK | APR |
|---|---|---|---|---|---|---|
| | | | | | | |
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| 2 | AUG 10/18 | MCQUESTEN SUBSTATION & KM18 MODIFICATIONS | MP | MP | PC | NB |
| 1 | JUL 11/18 | BORROW PIT & ROAD PROXIMITY ALIGNMENT CHANGES | MP | MP | PC | MEO |
| 0 | MAY 11/18 | ISSUED FOR CONSTRUCTION | MP | MP | PC | MEO |

CLIENT: StrataGold Corporation

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|---|---|
| DATE | MAY 11/18 |
| DESIGN | MP |
| DRAWN | MP |
| CHECKED | PC |
| APPROVED | MEO |

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www.cleanenergyconsulting.ca
WN BRAZIER ASSOCIATES INC

SEAL: PROFESSIONAL ENGINEER YUKON W. NEIL BRAZIER TERRITORY

EAGLE GOLD PROJECT
L251 - 69 kV TRANSMISSION LINE
PLAN AND PROFILE (SHEET 34 OF 54)

| PROJECT No. | DRAWING No. | REV. |
|---|---|---|
| 1407 | 1407-T-1200-34 | 2 |

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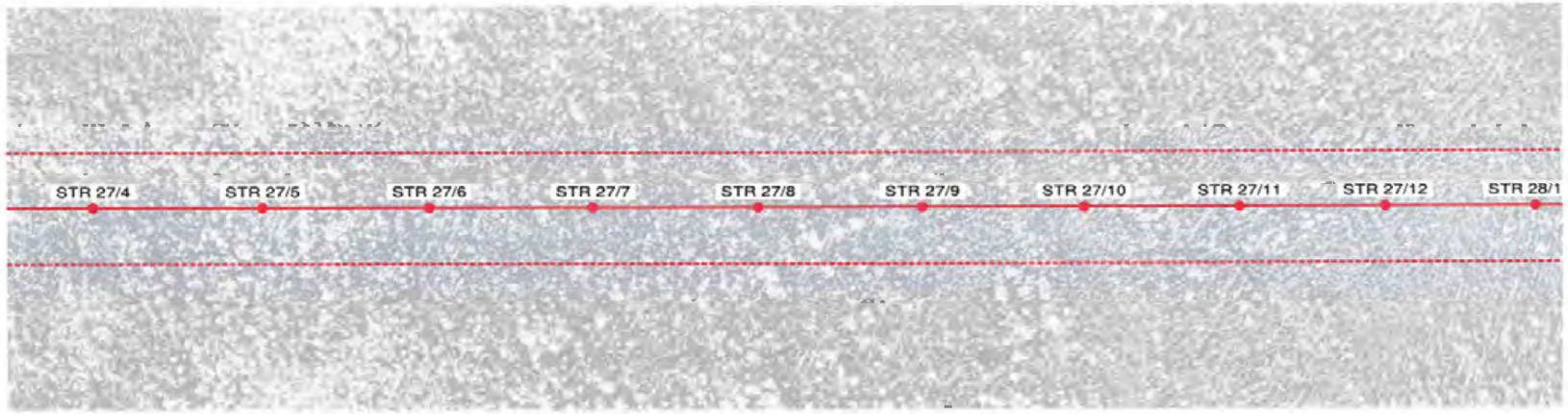


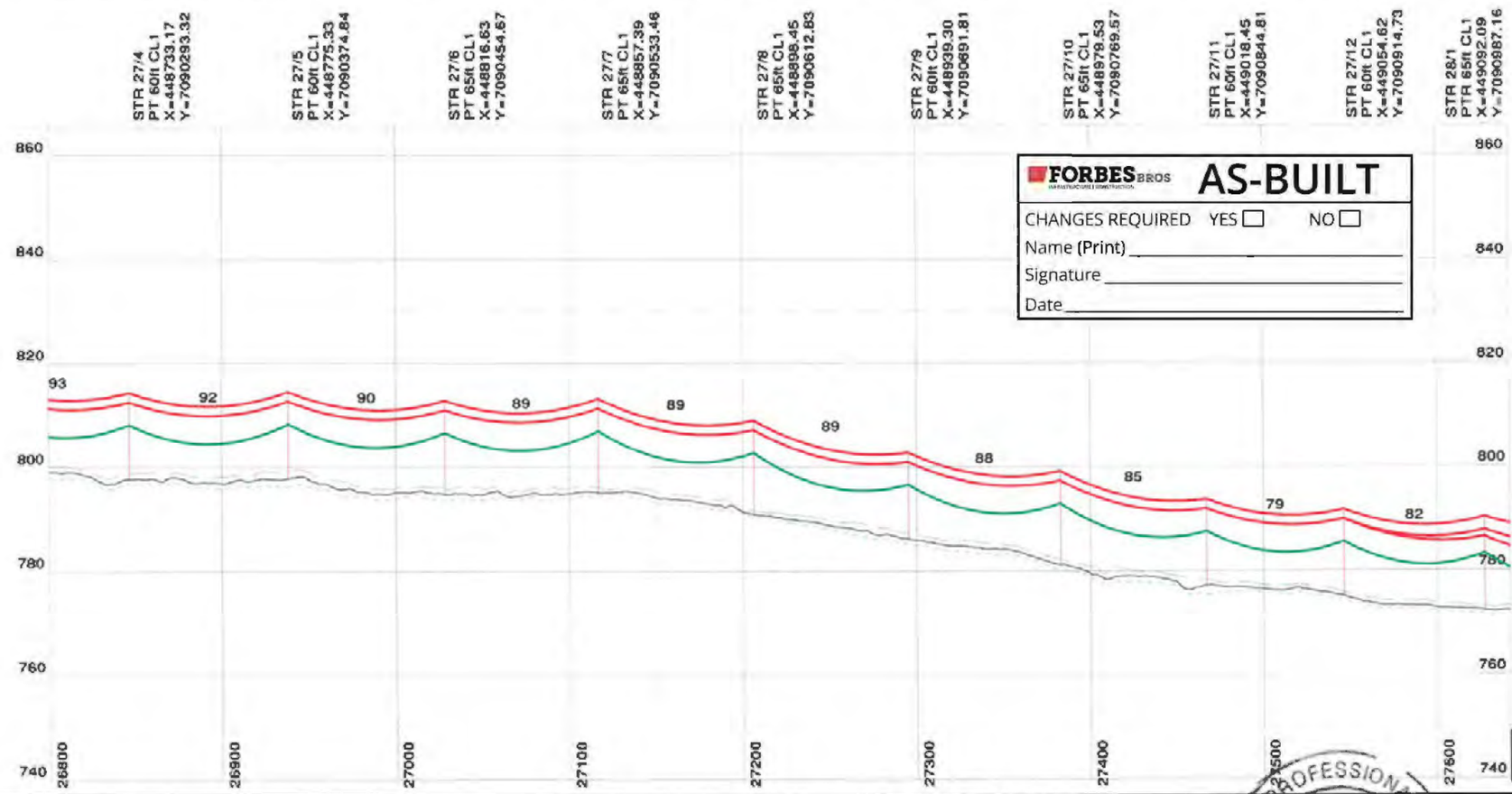


**FORBES BROS** AS-BUILT

CHANGES REQUIRED YES ☐ NO ☐

Name (Print) _____

Signature _____

Date _____

NOTES

1. ALL DIMENSIONS IN METRES (m) UNLESS NOTED OTHERWISE.
2. COORDINATES ARE IN UTM NAD83 ZONE 8N.
3. ELEVATIONS ARE IN METRES (m) ABOVE MEAN SEA LEVEL (AMSL).
4. 69 kV CONDUCTOR, ADSS CABLE AND OVERHEAD SHIELD WIRE "OHSW" DISPLAYED AT "WET SNOW" (-10° C, 51mm RADIAL SNOW).
5. LINE ANGLE DEFLECTION LOOKING TOWARD EAGLE GOLD PROJECT SITE INDICATED AS FOLLOWS:
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   - LEFT ANGLE DEFLECTION
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7. LEFT (DASH) AND RIGHT (DOT) PROFILE OFFSETS SHOWN AT 5 m CENTERLINE OFFSET.
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TABLE 1

| | MEAN ANNUAL TEMP (-4° C) | | WET SNOW (-10° C, 51mm RADIAL SNOW) | |
|---|---|---|---|---|
| CABLE TYPE | FULL TENSION SPANS (N) | TERMINAL SPANS (N) (SLACK) | FULL TENSION SPANS (N) | TERMINAL SPANS (N) (SLACK) |
| PARTRIDGE ACSR | 3,750 | 550 | 23,300 | 3,300 |
| ADSS | 7,500 | 150 | 13,900 | 3,300 |
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LEGEND

- 69 kV - 266.8 kcmil 26/7 "PARTRIDGE" ACSR
- ADSS - OFC-24 G.652D-FASA-S1 (ZTT)
- OHSW - 266.8 kcmil 26/7 "PARTRIDGE" ACSR
- ROAD EDGE
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REFERENCES

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|---|---|
| 1407-T-1000 | DRAWING LIST |
| 1407-T-1100 | ROUTE MAP |
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30.0 m Horiz. Scale
10.0 m Vert. Scale

ISSUED FOR CONSTRUCTION

PERMIT TO PRACTICE
W.N. BRAZIER ASSOCIATES INC.
SIGNATURE
Date 10/08/18
PERMIT NUMBER: PP295
Association of Professional Engineers of Yukon

| NO. | DATE | REVISION | DES | DWN | CHK | APR |
|---|---|---|---|---|---|---|
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| 2 | AUG 10/18 | MCQUESTEN SUBSTATION & KM18 MODIFICATIONS | MP | MP | PC | NB |
| 1 | JUL 11/18 | BORROW PIT & ROAD PROXIMITY ALIGNMENT CHANGES | MP | MP | PC | MEO |
| 0 | MAY 11/18 | ISSUED FOR CONSTRUCTION | MP | MP | PC | MEO |

CLIENT StrataGold Corporation

| | |
|---|---|
| DATE | MAY 11/18 |
| DESIGN | MP |
| DRAWN | MP |
| CHECKED | PC |
| APPROVED | MEO |

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WN BRAZIER ASSOCIATES INC

SEAL: PROFESSIONAL ENGINEER YUKON TERRITORY W. NEIL BRAZIER

EAGLE GOLD PROJECT

L251 - 69 kV TRANSMISSION LINE

PLAN AND PROFILE (SHEET 35 OF 54)

| PROJECT No. | DRAWING No. | REV. |
|---|---|---|
| 1407 | 1407-T-1200-35 | 2 |

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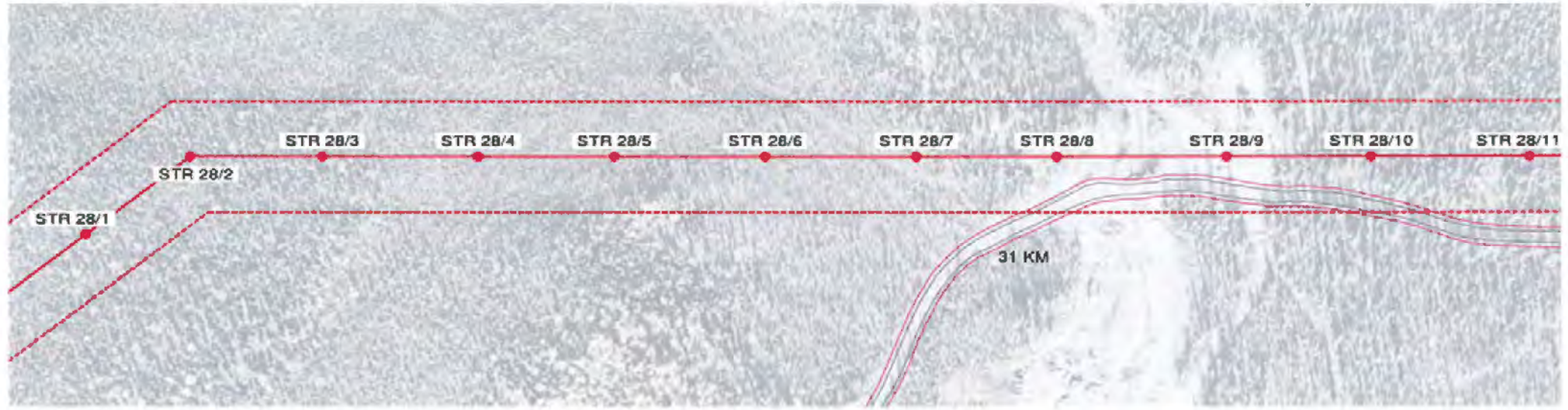


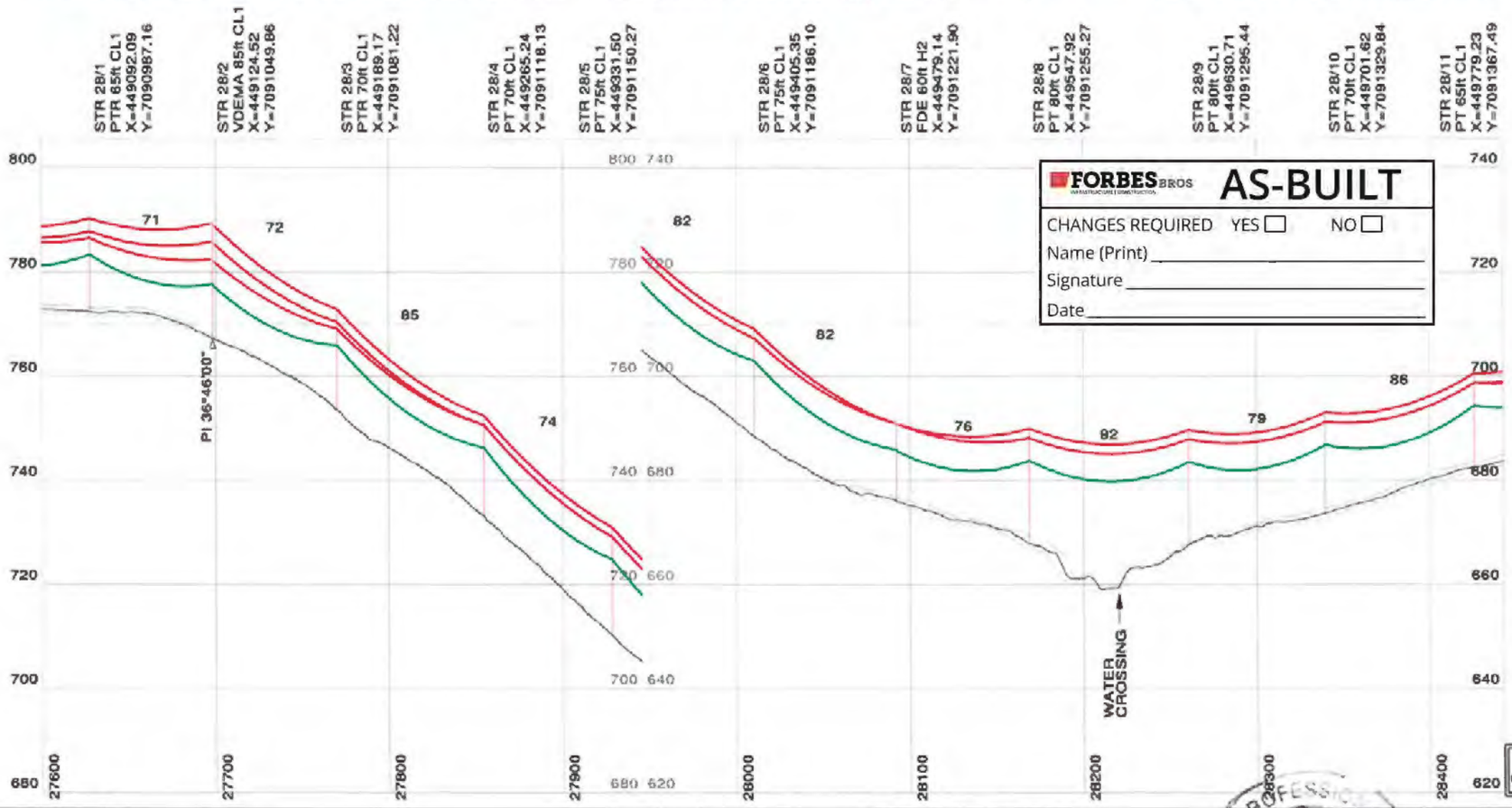


**FORBES BROS** AS-BUILT

CHANGES REQUIRED YES ☐ NO ☐

Name (Print) _____

Signature _____

Date _____

## NOTES

1. ALL DIMENSIONS IN METRES (m) UNLESS NOTED OTHERWISE.
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3. ELEVATIONS ARE IN METRES (m) ABOVE MEAN SEA LEVEL (AMSL).
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| ADSS | 7,500 | 150 | 13,900 | 3,300 |
| OHSW | 3,500 | 400 | 23,600 | 3,200 |

## LEGEND

- 69 kV - 266.8 kcmil 26/7 "PARTRIDGE" ACSR
- ADSS - OFC-24 G.652D-FASA-S1 (ZTT)
- OHSW - 266.8 kcmil 26/7 "PARTRIDGE" ACSR
- ROAD EDGE
- 2.5m ROAD BUFFER
- 30m CLEARING BOUNDARY
- YEC L250 69 KV LINE (EXISTING)
- 60m WIDE RIGHT OF WAY BOUNDARY
- X KM APPROXIMATE ROAD KM MARKER

## REFERENCES

| | |
|---|---|
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| 1407-T-6000 | HWY 11 (SILVER TRAIL)-OVERHEAD LINE CROSSING-STR 0/4 TO STR 0/5 |

30.0 m Horiz. Scale
10.0 m Vert. Scale

ISSUED FOR CONSTRUCTION

PERMIT TO PRACTICE
W.N. BRAIZER ASSOCIATES INC.
SIGNATURE _____
Date 10/09/18
PERMIT NUMBER: PP295
Association of Professional Engineers of Yukon

| NO. | DATE | REVISION | DES | DWN | CHK | APR |
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| 2 | AUG 10/18 | MCQUESTEN SUBSTATION & KM18 MODIFICATIONS | MP | MP | PC | NB |
| 1 | JUL 11/18 | BORROW PIT & ROAD PROXIMITY ALIGNMENT CHANGES | MP | MP | PC | MEO |
| 0 | MAY 11/18 | ISSUED FOR CONSTRUCTION | MP | MP | PC | MEO |

CLIENT: StrataGold Corporation

| | |
|---|---|
| DATE | MAY 11/18 |
| DESIGN | MP |
| DRAWN | MP |
| CHECKED | PC |
| APPROVED | MEO |

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WN BRAZIER ASSOCIATES INC

SEAL: PROFESSIONAL ENGINEER YUKON TERRITORY W. NEIL BRAZIER

EAGLE GOLD PROJECT
L251 - 69 kV TRANSMISSION LINE
PLAN AND PROFILE (SHEET 36 OF 54)

| PROJECT No. | DRAWING No. | REV. |
|---|---|---|
| 1407 | 1407-T-1200-36 | 2 |

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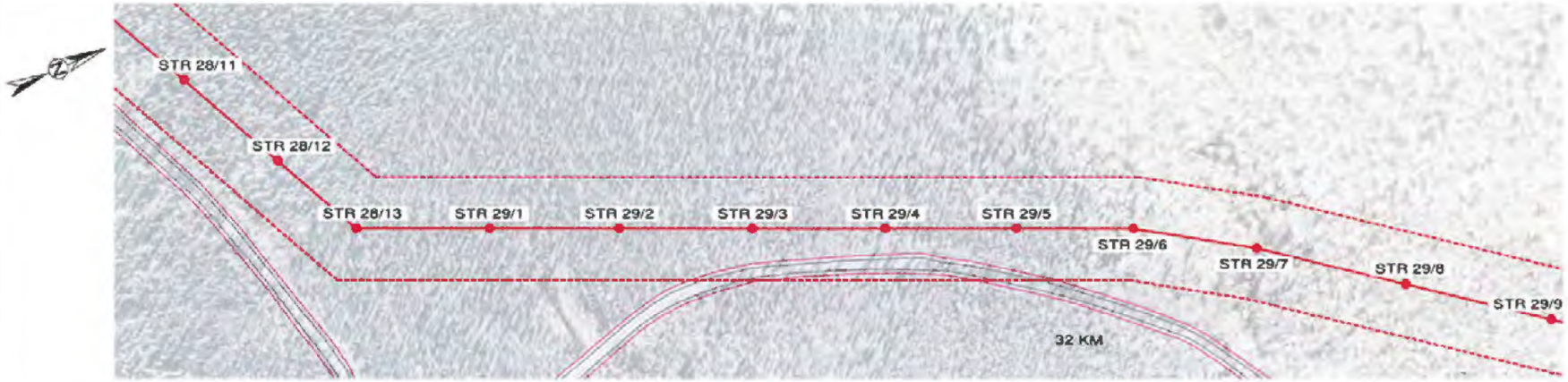



STR 28/11
PT 65ft CL1
X=449779.23
Y=7091367.49

STR 28/12
PTR 75ft CL1
X=449844.07
Y=7091398.95

STR 28/13
VDEMA ~~90ft CL1~~ 85ft CL1 (RFI022r1)
X=449998.10
Y=7091425.16

STR 29/1
PTR 60ft CL1
X=449928.67
Y=7091495.68

STR 29/2
PT 60ft CL1
X=449958.82
Y=7091565.25

STR 29/3
PT 60ft CL1
X=449989.51
Y=7091636.07

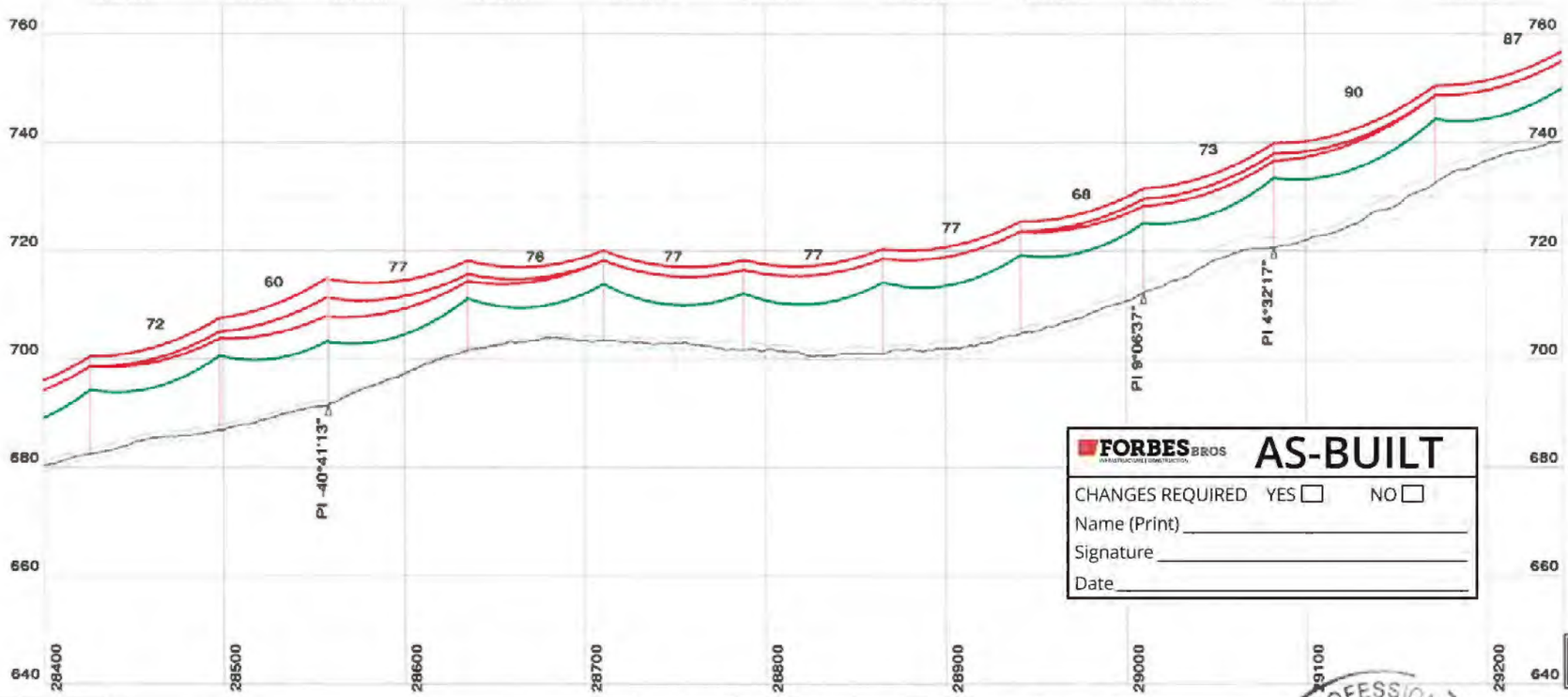
STR 29/4
PT 70ft CL1
X=450020.21
Y=7091706.89

STR 29/5
PT 75ft CL1
X=450050.68
Y=7091777.21

STR 29/6
PTG 70ft CL1
X=450077.73
Y=7091839.62

STR 29/7
PTG 70ft CL1
X=450116.83
Y=7091900.89

STR 29/8
PT 65ft CL1
X=450170.84
Y=7091972.35




## NOTES

1. ALL DIMENSIONS IN METRES (m) UNLESS NOTED OTHERWISE.
2. COORDINATES ARE IN UTM NAD83 ZONE 8N.
3. ELEVATIONS ARE IN METRES (m) ABOVE MEAN SEA LEVEL (AMSL).
4. 69 kV CONDUCTOR, ADSS CABLE AND OVERHEAD SHIELD WIRE "OHSW" DISPLAYED AT "WET SNOW" (-10° C, 51mm RADIAL SNOW).
5. LINE ANGLE DEFLECTION LOOKING TOWARD EAGLE GOLD PROJECT SITE INDICATED AS FOLLOWS:
   + RIGHT ANGLE DEFLECTION
   - LEFT ANGLE DEFLECTION
6. THIS LINE WILL BE NUMBERED L251 IN THE YUKON ENERGY CORPORATION (YEC) SYSTEM.
7. LEFT (DASH) AND RIGHT (DOT) PROFILE OFFSETS SHOWN AT 5 m CENTERLINE OFFSET.
8. DESIGN TENSIONS SHOWN IN TABLE 1.

TABLE 1

| | MEAN ANNUAL TEMP (+4° C) | | WET SNOW (-10° C, 51mm RADIAL SNOW) | |
|---|---|---|---|---|
| CABLE TYPE | FULL TENSION SPANS (N) | TERMINAL SPANS (N) (SLACK) | FULL TENSION SPANS (N) | TERMINAL SPANS (N) (SLACK) |
| PARTRIDGE ACSR | 3,750 | 550 | 23,300 | 3,300 |
| ADSS | 7,500 | 150 | 13,900 | 3,300 |
| OHSW | 3,500 | 400 | 23,600 | 3,200 |

LEGEND

- 69 kV - 266.8 kcmil 26/7 "PARTRIDGE" ACSR
- ADSS - OFC-24 G.652D-FASA-S1 (ZTT)
- OHSW - 266.8 kcmil 26/7 "PARTRIDGE" ACSR
- ROAD EDGE
- 2.5m ROAD BUFFER
- 30m CLEARING BOUNDARY
- YEC L250 69 KV LINE (EXISTING)
- 60m WIDE RIGHT OF WAY BOUNDARY
- X KM APPROXIMATE ROAD KM MARKER

REFERENCES

| | |
|---|---|
| 1407-T-1000 | DRAWING LIST |
| 1407-T-1100 | ROUTE MAP |
| 1407-T-1400 | STRUCTURE DATA SHEET |
| 1407-T-1900 | SOUTH MCQUESTEN TRANSMISSION LINE CONNECTION - PLAN |
| 1407-T-3000 | STRUCTURE FAMILY |
| 1407-T-6000 | HWY 11 (SILVER TRAIL)-OVERHEAD LINE CROSSING-STR 0/4 TO STR 0/5 |

FORBES BROS

AS-BUILT

CHANGES REQUIRED YES ☐ NO ☐

Name (Print) _____

Signature _____

Date _____

30.0 m Horiz. Scale
10.0 m Vert. Scale

ISSUED FOR CONSTRUCTION

PERMIT TO PRACTICE
W.N. BRAIZER ASSOCIATES INC.
SIGNATURE _____
Date 10/10/18
PERMIT NUMBER: PP295
Association of Professional Engineers of Yukon

| NO. | DATE | REVISION | DES | DWN | CHK | APR |
|---|---|---|---|---|---|---|
| 2 | AUG 10/18 | MCQUESTEN SUBSTATION & KM18 MODIFICATIONS | MP | MP | PC | NB |
| 1 | JUL 11/18 | BORROW PIT & ROAD PROXIMITY ALIGNMENT CHANGES | MP | MP | PC | MEO |
| 0 | MAY 11/18 | ISSUED FOR CONSTRUCTION | MP | MP | PC | MEO |

CLIENT: StrataGold Corporation

| | |
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| DATE | MAY 11/18 |
| DESIGN | MP |
| DRAWN | MP |
| CHECKED | PC |
| APPROVED | MEO |

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PROFESSIONAL ENGINEER — YUKON TERRITORY — W. NEIL BRAZIER

EAGLE GOLD PROJECT
L251 - 69 kV TRANSMISSION LINE
PLAN AND PROFILE (SHEET 37 OF 54)

| PROJECT No. | DRAWING No. | REV. |
|---|---|---|
| 1407 | 1407-T-1200-37 | 2 |

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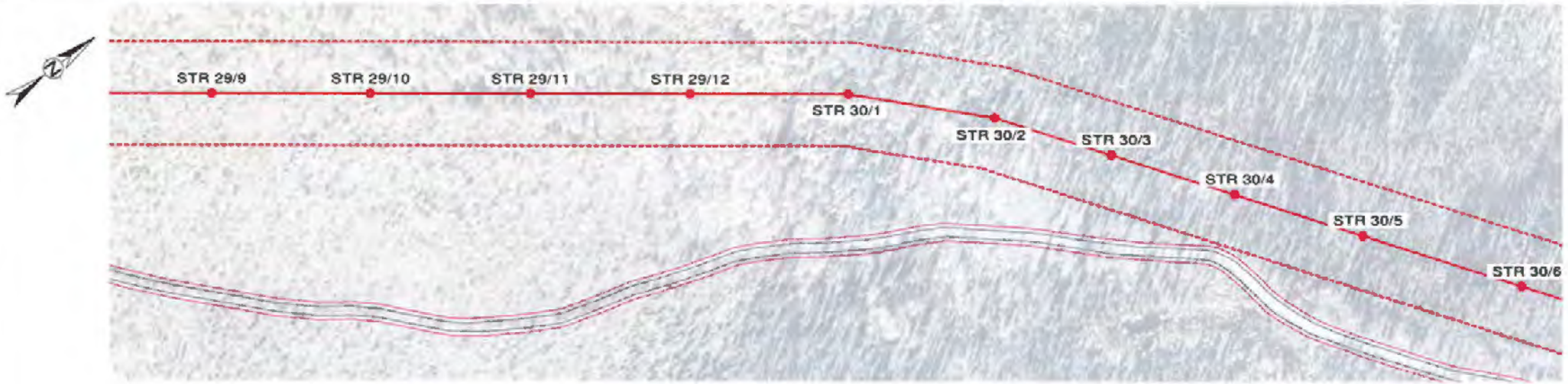


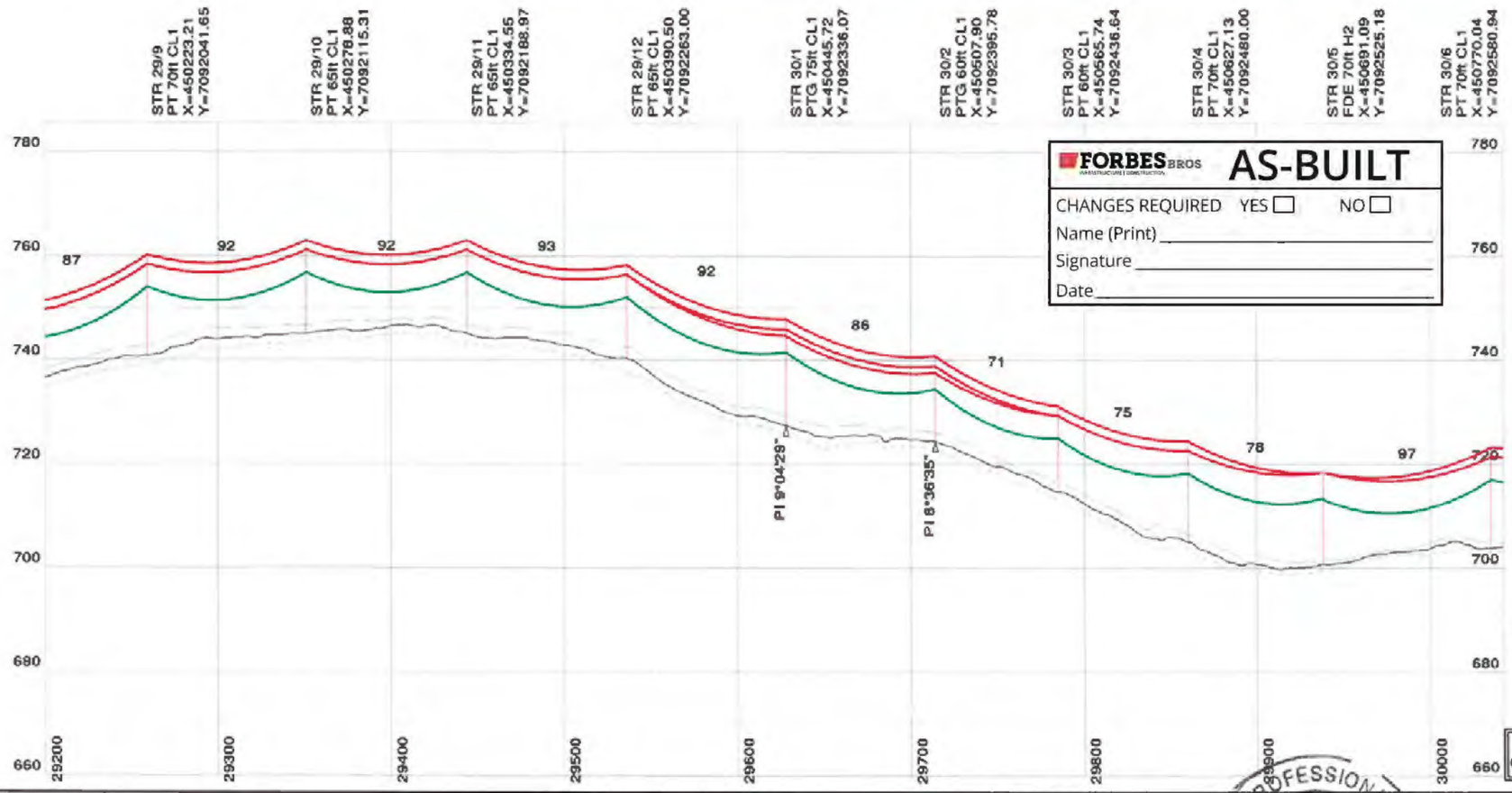


FORBES BROS

# AS-BUILT

CHANGES REQUIRED YES ☐ NO ☐

Name (Print) _____

Signature _____

Date _____

## NOTES

1. ALL DIMENSIONS IN METRES (m) UNLESS NOTED OTHERWISE.
2. COORDINATES ARE IN UTM NAD83 ZONE 8N.
3. ELEVATIONS ARE IN METRES (m) ABOVE MEAN SEA LEVEL (AMSL).
4. 69 kV CONDUCTOR, ADSS CABLE AND OVERHEAD SHIELD WIRE "OHSW" DISPLAYED AT "WET SNOW" (-10° C, 51mm RADIAL SNOW).
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   + RIGHT ANGLE DEFLECTION
   - LEFT ANGLE DEFLECTION
6. THIS LINE WILL BE NUMBERED L251 IN THE YUKON ENERGY CORPORATION (YEC) SYSTEM.
7. LEFT (DASH) AND RIGHT (DOT) PROFILE OFFSETS SHOWN AT 5 m CENTERLINE OFFSET.
8. DESIGN TENSIONS SHOWN IN TABLE 1.

TABLE 1

| CABLE TYPE | MEAN ANNUAL TEMP (-4° C) FULL TENSION SPANS (N) | MEAN ANNUAL TEMP (-4° C) TERMINAL SPANS (N) (SLACK) | WET SNOW (-10° C, 51mm RADIAL SNOW) FULL TENSION SPANS (N) | WET SNOW (-10° C, 51mm RADIAL SNOW) TERMINAL SPANS (N) (SLACK) |
|---|---|---|---|---|
| PARTRIDGE ACSR | 3,750 | 550 | 23,300 | 3,300 |
| ADSS | 7,500 | 150 | 13,900 | 3,300 |
| OHSW | 3,500 | 400 | 23,600 | 3,200 |

## LEGEND

- 69 kV - 266.8 kcmil 26/7 "PARTRIDGE" ACSR
- ADSS - OFC-24 G.652D-FASA-S1 (ZTT)
- OHSW - 266.8 kcmil 26/7 "PARTRIDGE" ACSR
- ROAD EDGE
- 2.5m ROAD BUFFER
- 30m CLEARING BOUNDARY
- YEC L250 69 KV LINE (EXISTING)
- 60m WIDE RIGHT OF WAY BOUNDARY
- X KM APPROXIMATE ROAD KM MARKER

## REFERENCES

| | |
|---|---|
| 1407-T-1000 | DRAWING LIST |
| 1407-T-1100 | ROUTE MAP |
| 1407-T-1400 | STRUCTURE DATA SHEET |
| 1407-T-1900 | SOUTH MCQUESTEN TRANSMISSION LINE CONNECTION - PLAN |
| 1407-T-3000 | STRUCTURE FAMILY |
| 1407-T-6000 | HWY 11 (SILVER TRAIL)-OVERHEAD LINE CROSSING-STR 0/4 TO STR 0/5 |

30.0 m Horiz. Scale
10.0 m Vert. Scale

ISSUED FOR CONSTRUCTION

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SIGNATURE N.W.Braizer
Date 10/08/18
PERMIT NUMBER: PP295
Association of Professional Engineers of Yukon

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|---|---|---|---|---|---|---|
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| | | | | | | |
| 2 | AUG 10/18 | MCQUESTEN SUBSTATION & KM18 MODIFICATIONS | MP | MP | PC | NB |
| 1 | JUL 11/18 | BORROW PIT & ROAD PROXIMITY ALIGNMENT CHANGES | MP | MP | PC | MEO |
| 0 | MAY 11/18 | ISSUED FOR CONSTRUCTION | MP | MP | PC | MEO |

CLIENT StrataGold Corporation

| | |
|---|---|
| DATE | MAY 11/18 |
| DESIGN | MP |
| DRAWN | MP |
| CHECKED | PC |
| APPROVED | MEO |

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SEAL: PROFESSIONAL ENGINEER YUKON W. NEIL BRAZIER TERRITORY

EAGLE GOLD PROJECT
L251 - 69 kV TRANSMISSION LINE
PLAN AND PROFILE (SHEET 38 OF 54)

| PROJECT No. | DRAWING No. | REV. |
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| 1407 | 1407-T-1200-38 | 2 |

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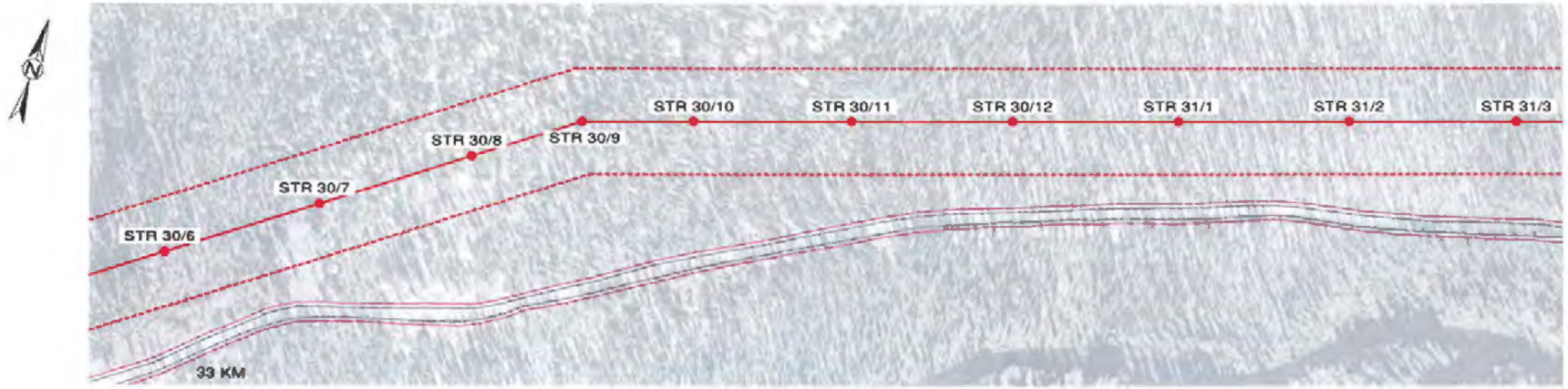


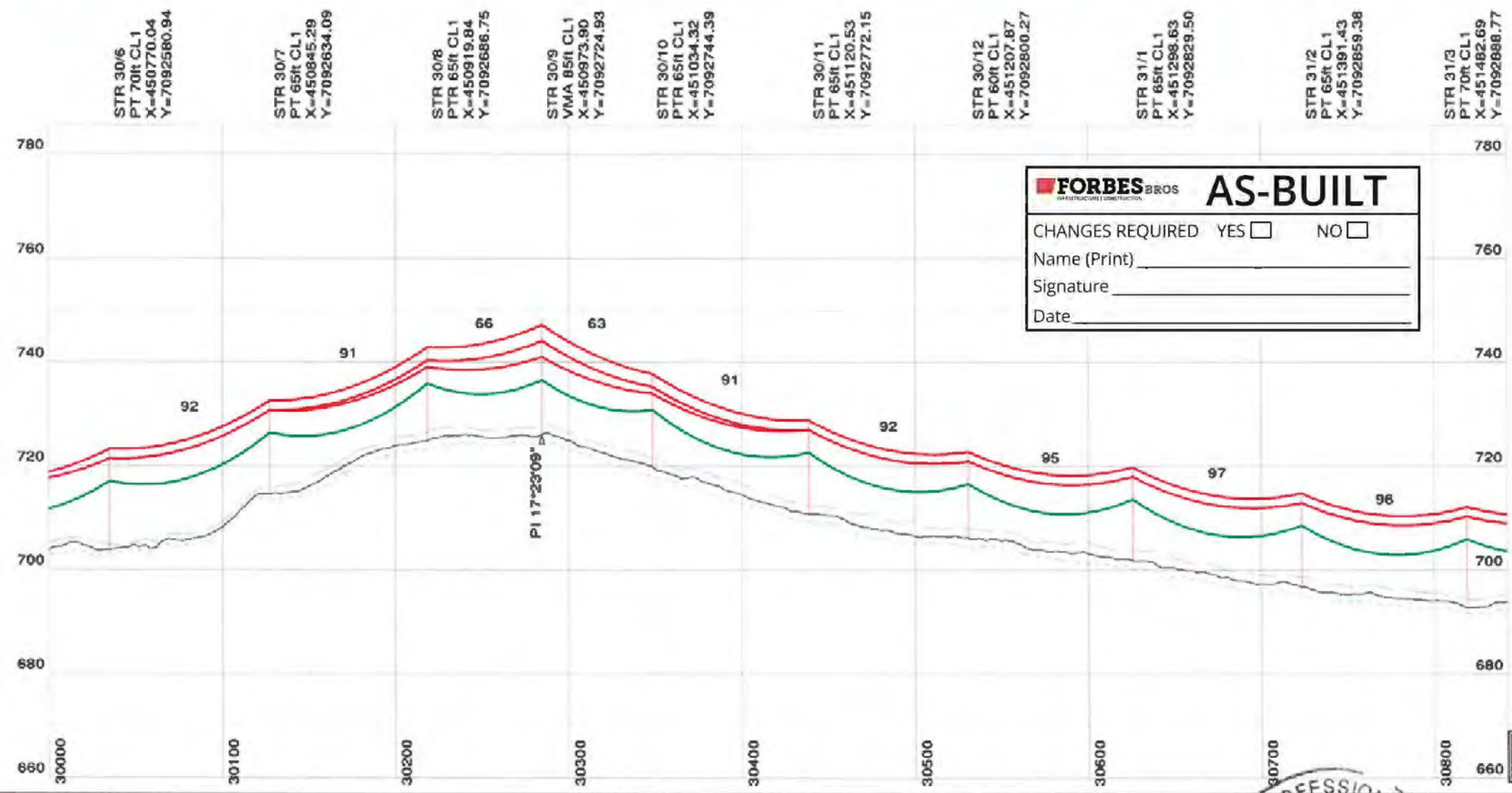


**FORBES BROS** AS-BUILT

CHANGES REQUIRED YES ☐ NO ☐

Name (Print) _____

Signature _____

Date _____

## NOTES

1. ALL DIMENSIONS IN METRES (m) UNLESS NOTED OTHERWISE.
2. COORDINATES ARE IN UTM NAD83 ZONE 8N.
3. ELEVATIONS ARE IN METRES (m) ABOVE MEAN SEA LEVEL (AMSL).
4. 69 kV CONDUCTOR, ADSS CABLE AND OVERHEAD SHIELD WIRE "OHSW" DISPLAYED AT "WET SNOW" (-10° C, 51mm RADIAL SNOW).
5. LINE ANGLE DEFLECTION LOOKING TOWARD EAGLE GOLD PROJECT SITE INDICATED AS FOLLOWS:
   + RIGHT ANGLE DEFLECTION
   - LEFT ANGLE DEFLECTION
6. THIS LINE WILL BE NUMBERED L251 IN THE YUKON ENERGY CORPORATION (YEC) SYSTEM.
7. LEFT (DASH) AND RIGHT (DOT) PROFILE OFFSETS SHOWN AT 5 m CENTERLINE OFFSET.
8. DESIGN TENSIONS SHOWN IN TABLE 1.

TABLE 1

| CABLE TYPE | MEAN ANNUAL TEMP (-4° C) | | WET SNOW (-10° C, 51mm RADIAL SNOW) | |
|---|---|---|---|---|
| | FULL TENSION SPANS (N) | TERMINAL SPANS (N) (SLACK) | FULL TENSION SPANS (N) | TERMINAL SPANS (N) (SLACK) |
| PARTRIDGE ACSR | 3,750 | 550 | 23,300 | 3,300 |
| ADSS | 7,500 | 150 | 13,900 | 3,300 |
| OHSW | 3,500 | 400 | 23,600 | 3,200 |

LEGEND

- 69 kV - 266.8 kcmil 26/7 "PARTRIDGE" ACSR
- ADSS - OFC-24 G.652D-FASA-S1 (ZTT)
- OHSW - 266.8 kcmil 26/7 "PARTRIDGE" ACSR
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- 2.5m ROAD BUFFER
- 30m CLEARING BOUNDARY
- YEC L250 69 KV LINE (EXISTING)
- 60m WIDE RIGHT OF WAY BOUNDARY
- X KM APPROXIMATE ROAD KM MARKER

REFERENCES

| | |
|---|---|
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| 1407-T-1100 | ROUTE MAP |
| 1407-T-1400 | STRUCTURE DATA SHEET |
| 1407-T-1900 | SOUTH MCQUESTEN TRANSMISSION LINE CONNECTION - PLAN |
| 1407-T-3000 | STRUCTURE FAMILY |
| 1407-T-6000 | HWY 11 (SILVER TRAIL)-OVERHEAD LINE CROSSING-STR 0/4 TO STR 0/5 |

30.0 m Horiz. Scale
10.0 m Vert. Scale

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W.N. BRAIZER ASSOCIATES INC.
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Date 10/03/18
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Association of Professional Engineers of Yukon

| NO. | DATE | REVISION | DES | DWN | CHK | APR |
|---|---|---|---|---|---|---|
| 2 | AUG 10/18 | MCQUESTEN SUBSTATION & KM18 MODIFICATIONS | MP | MP | PC | NB |
| 1 | JUL 11/18 | BORROW PIT & ROAD PROXIMITY ALIGNMENT CHANGES | MP | MP | PC | MEO |
| 0 | MAY 11/18 | ISSUED FOR CONSTRUCTION | MP | MP | PC | MEO |

CLIENT StrataGold Corporation

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| DATE | MAY 11/18 |
| DESIGN | MP |
| DRAWN | MP |
| CHECKED | PC |
| APPROVED | MEO |

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SEAL: PROFESSIONAL ENGINEER YUKON W. NEIL BRAZIER TERRITORY

EAGLE GOLD PROJECT
L251 - 69 kV TRANSMISSION LINE
PLAN AND PROFILE (SHEET 39 OF 54)

| PROJECT No. | DRAWING No. | REV. |
|---|---|---|
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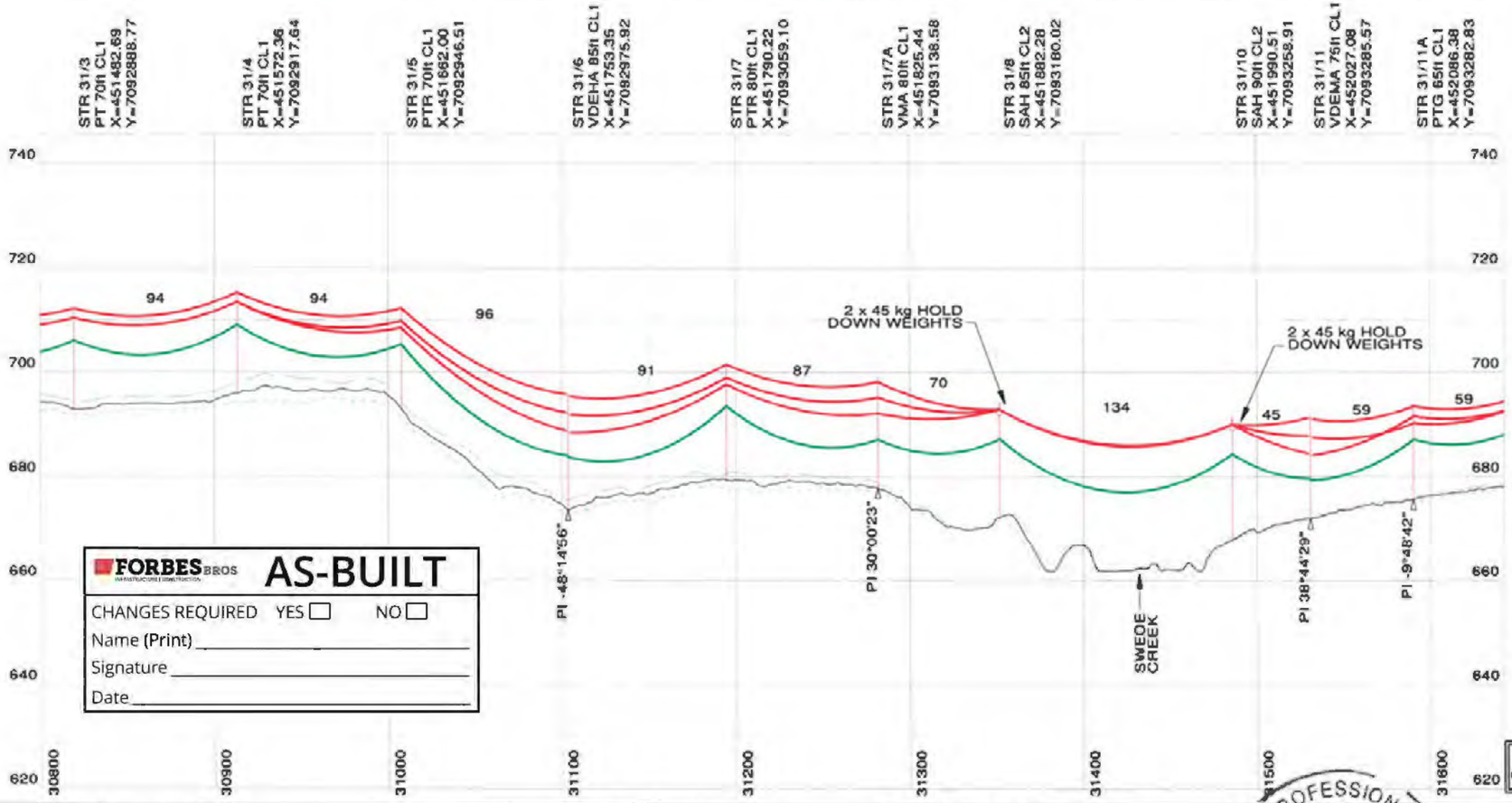


**NOTES**

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4. 69 kV CONDUCTOR, ADSS CABLE AND OVERHEAD SHIELD WIRE "OHSW" DISPLAYED AT "WET SNOW" (-10° C, 51mm RADIAL SNOW).
5. LINE ANGLE DEFLECTION LOOKING TOWARD EAGLE GOLD PROJECT SITE INDICATED AS FOLLOWS:
   + RIGHT ANGLE DEFLECTION
   - LEFT ANGLE DEFLECTION
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7. LEFT (DASH) AND RIGHT (DOT) PROFILE OFFSETS SHOWN AT 5 m CENTERLINE OFFSET.
8. DESIGN TENSIONS SHOWN IN TABLE 1.

| TABLE 1 | MEAN ANNUAL TEMP (-4° C) | | WET SNOW (-10° C, 51mm RADIAL SNOW) | |
|---|---|---|---|---|
| CABLE TYPE | FULL TENSION SPANS (N) | TERMINAL SPANS (N) (SLACK) | FULL TENSION SPANS (N) | TERMINAL SPANS (N) (SLACK) |
| PARTRIDGE ACSR | 3,750 | 550 | 23,300 | 3,300 |
| ADSS | 7,500 | 150 | 13,900 | 3,300 |
| OHSW | 3,500 | 400 | 23,600 | 3,200 |

**LEGEND**

- 69 kV - 266.8 kcmil 26/7 "PARTRIDGE" ACSR
- ADSS - OFC-24 G.652D-FASA-S1 (ZTT)
- OHSW - 266.8 kcmil 26/7 "PARTRIDGE" ACSR
- ROAD EDGE
- 2.5m ROAD BUFFER
- 30m CLEARING BOUNDARY
- YEC L250 69 KV LINE (EXISTING)
- 60m WIDE RIGHT OF WAY BOUNDARY
- X KM APPROXIMATE ROAD KM MARKER

**REFERENCES**

| | |
|---|---|
| 1407-T-1000 | DRAWING LIST |
| 1407-T-1100 | ROUTE MAP |
| 1407-T-1400 | STRUCTURE DATA SHEET |
| 1407-T-1900 | SOUTH MCQUESTEN TRANSMISSION LINE CONNECTION - PLAN |
| 1407-T-3000 | STRUCTURE FAMILY |
| 1407-T-6000 | HWY 11 (SILVER TRAIL)-OVERHEAD LINE CROSSING-STR 0/4 TO STR 0/5 |

30.0 m Horiz. Scale
10.0 m Vert. Scale

FORBES BROS AS-BUILT
CHANGES REQUIRED YES ☐ NO ☐
Name (Print) _____
Signature _____
Date _____

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W.N. BRAIZER ASSOCIATES INC.
SIGNATURE _____
Date 10/03/18
PERMIT NUMBER: PP295
Association of Professional Engineers of Yukon

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| NO. | DATE | REVISION | DES | DWN | CHK | APR |
|---|---|---|---|---|---|---|
| 2 | AUG 10/18 | MCQUESTEN SUBSTATION & KM18 MODIFICATIONS | MP | MP | PC | NB |
| 1 | JUL 11/18 | BORROW PIT & ROAD PROXIMITY ALIGNMENT CHANGES | MP | MP | PC | MEO |
| 0 | MAY 11/18 | ISSUED FOR CONSTRUCTION | MP | MP | PC | MEO |

CLIENT: StrataGold Corporation

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| DATE | MAY 11/18 |
| DESIGN | MP |
| DRAWN | MP |
| CHECKED | PC |
| APPROVED | MEO |

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EAGLE GOLD PROJECT
L251 - 69 kV TRANSMISSION LINE
PLAN AND PROFILE (SHEET 40 OF 54)

| PROJECT No. | DRAWING No. | REV. |
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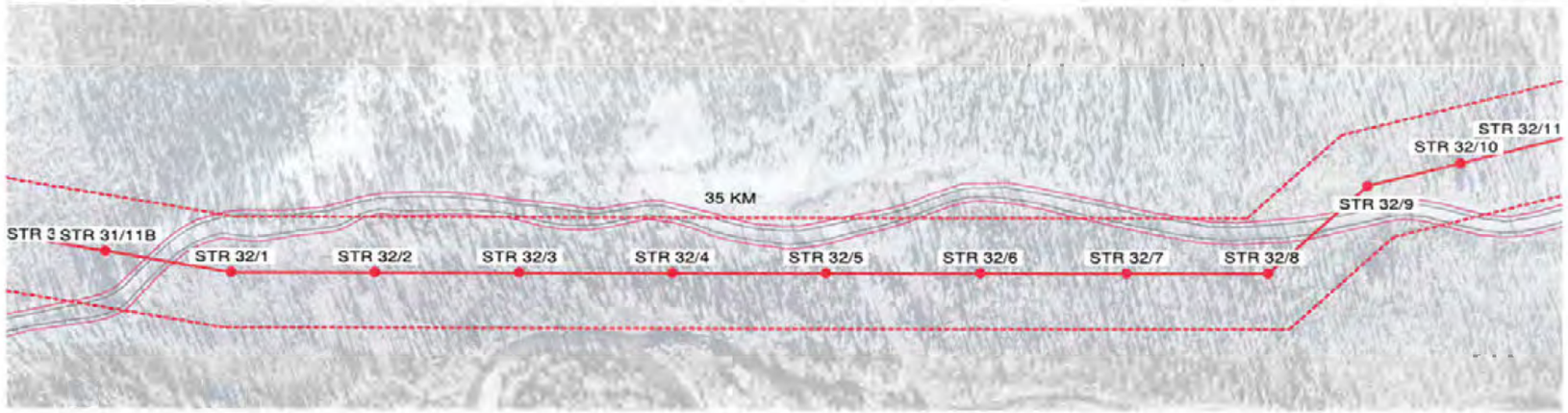


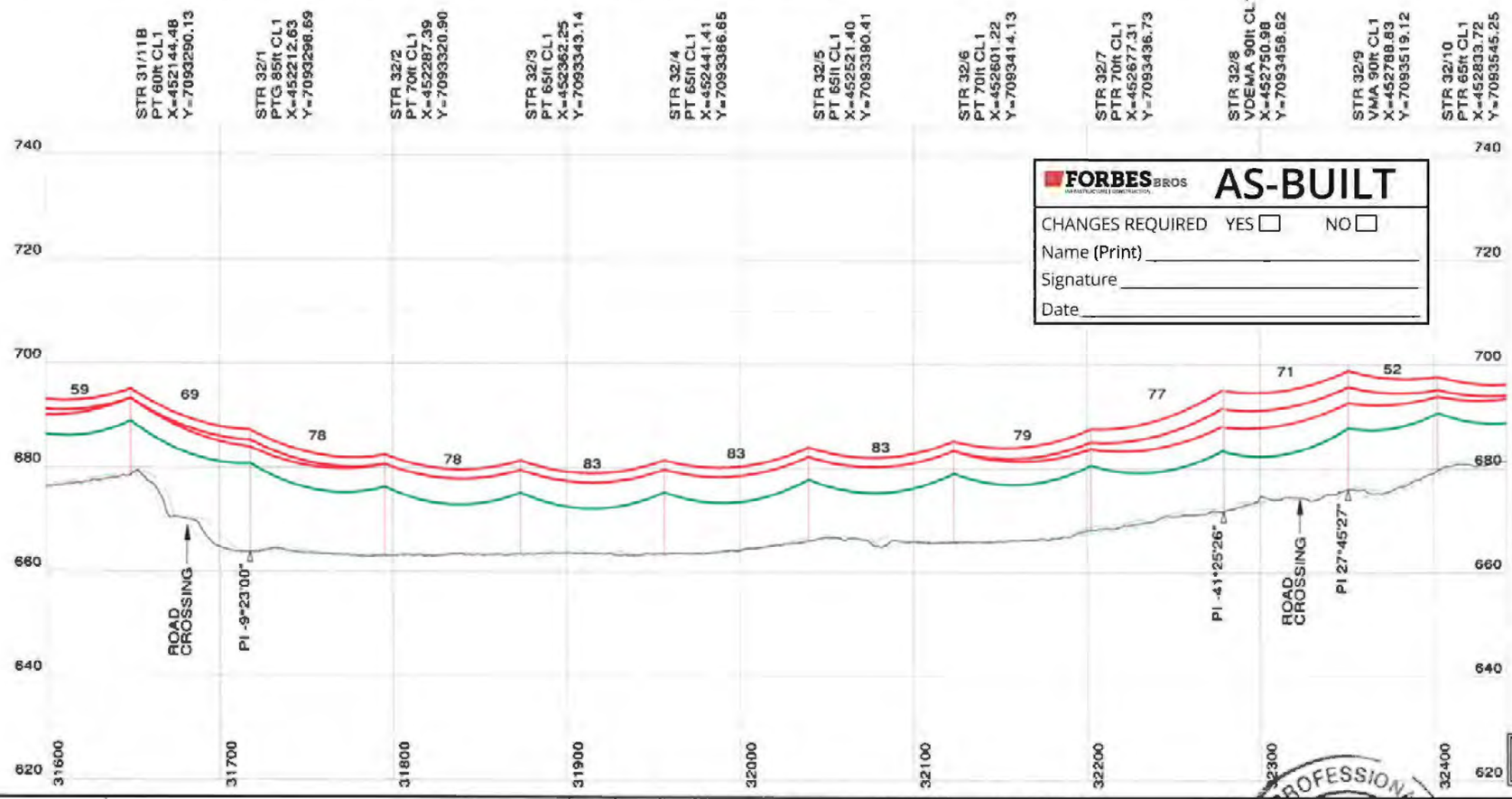


**FORBES BROS** AS-BUILT

CHANGES REQUIRED YES ☐ NO ☐

Name (Print) _____

Signature _____

Date _____

## NOTES

1. ALL DIMENSIONS IN METRES (m) UNLESS NOTED OTHERWISE.
2. COORDINATES ARE IN UTM NAD83 ZONE 8N.
3. ELEVATIONS ARE IN METRES (m) ABOVE MEAN SEA LEVEL (AMSL).
4. 69 kV CONDUCTOR, ADSS CABLE AND OVERHEAD SHIELD WIRE "OHSW" DISPLAYED AT "WET SNOW" (-10° C, 51mm RADIAL SNOW).
5. LINE ANGLE DEFLECTION LOOKING TOWARD EAGLE GOLD PROJECT SITE INDICATED AS FOLLOWS:
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TABLE 1

| CABLE TYPE | MEAN ANNUAL TEMP (-4° C) FULL TENSION SPANS (N) | MEAN ANNUAL TEMP (-4° C) TERMINAL SPANS (N) (SLACK) | WET SNOW (-10° C, 51mm RADIAL SNOW) FULL TENSION SPANS (N) | WET SNOW (-10° C, 51mm RADIAL SNOW) TERMINAL SPANS (N) (SLACK) |
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| ADSS | 7,500 | 150 | 13,900 | 3,300 |
| OHSW | 3,500 | 400 | 23,600 | 3,200 |

## LEGEND

- 69 kV - 266.8 kcmil 26/7 "PARTRIDGE" ACSR
- ADSS - OFC-24 G.652D-FASA-S1 (ZTT)
- OHSW - 266.8 kcmil 26/7 "PARTRIDGE" ACSR
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- 2.5m ROAD BUFFER
- 30m CLEARING BOUNDARY
- YEC L250 69 KV LINE (EXISTING)
- 60m WIDE RIGHT OF WAY BOUNDARY
- X KM APPROXIMATE ROAD KM MARKER

## REFERENCES

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| 1407-T-1100 | ROUTE MAP |
| 1407-T-1400 | STRUCTURE DATA SHEET |
| 1407-T-1900 | SOUTH MCQUESTEN TRANSMISSION LINE CONNECTION - PLAN |
| 1407-T-3000 | STRUCTURE FAMILY |
| 1407-T-6000 | HWY 11 (SILVER TRAIL)-OVERHEAD LINE CROSSING-STR 0/4 TO STR 0/5 |

30.0 m Horiz. Scale
10.0 m Vert. Scale

ISSUED FOR CONSTRUCTION

PERMIT TO PRACTICE
W.N. BRAIZER ASSOCIATES INC.
SIGNATURE _____
Date 15/08/18
PERMIT NUMBER: PP295
Association of Professional Engineers of Yukon

| NO. | DATE | REVISION | DES | DWN | CHK | APR |
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CLIENT StrataGold Corporation

| | |
|---|---|
| DATE | MAY 11/18 |
| DESIGN | MP |
| DRAWN | MP |
| CHECKED | PC |
| APPROVED | MEO |

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WN BRAIZER ASSOCIATES INC

SEAL: PROFESSIONAL ENGINEER YUKON W. NEIL BRAZIER TERRITORY

# EAGLE GOLD PROJECT
## L251 - 69 kV TRANSMISSION LINE
## PLAN AND PROFILE (SHEET 41 OF 54)

| PROJECT No. | DRAWING No. | REV. |
|---|---|---|
| 1407 | 1407-T-1200-41 | 2 |

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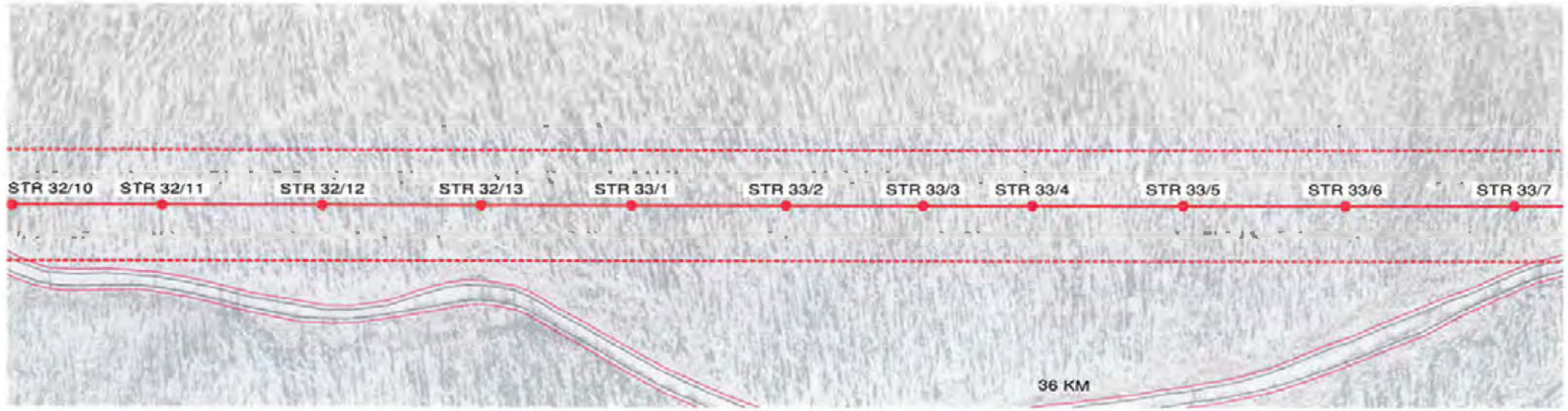



STR 32/10 PTR 65ft CL1 X=452833.72 Y=7093545.25

STR 32/11 PT 65ft CL1 X=452903.52 Y=7093585.90

STR 32/12 PT 60ft CL1 X=452978.46 Y=7093629.53

STR 32/13 PT 65ft CL1 X=453052.70 Y=7093672.76

STR 33/1 PT 60ft CL1 X=453123.17 Y=7093713.79

STR 33/2 PT 60ft CL1 X=453195.16 Y=7093755.71

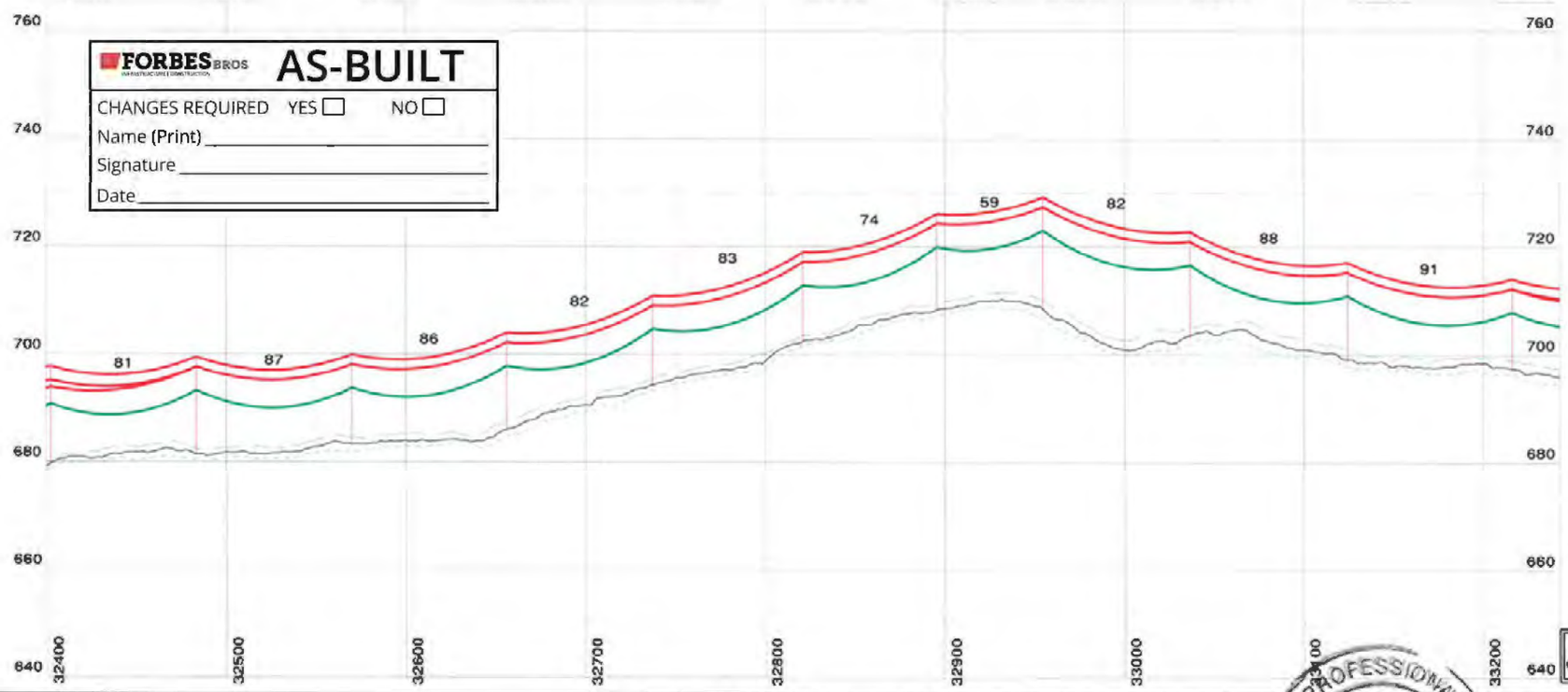
STR 33/3 PT 65ft CL1 X=453259.47 Y=7093793.16

STR 33/4 PT 75ft CL1 X=453310.78 Y=7093823.03

STR 33/5 PT 70ft CL1 X=453381.40 Y=7093864.16

STR 33/6 PT 65ft CL1 X=453457.74 Y=7093908.60

STR 33/7 PT 60ft CL1 X=453536.73 Y=7093954.60




**AS-BUILT**

CHANGES REQUIRED YES ☐ NO ☐

Name (Print) _____

Signature _____

Date _____

NOTES

1. ALL DIMENSIONS IN METRES (m) UNLESS NOTED OTHERWISE.
2. COORDINATES ARE IN UTM NAD83 ZONE 8N.
3. ELEVATIONS ARE IN METRES (m) ABOVE MEAN SEA LEVEL (AMSL).
4. 69 kV CONDUCTOR, ADSS CABLE AND OVERHEAD SHIELD WIRE "OHSW" DISPLAYED AT "WET SNOW" (-10° C, 51mm RADIAL SNOW).
5. LINE ANGLE DEFLECTION LOOKING TOWARD EAGLE GOLD PROJECT SITE INDICATED AS FOLLOWS:
   + RIGHT ANGLE DEFLECTION
   - LEFT ANGLE DEFLECTION
6. THIS LINE WILL BE NUMBERED L251 IN THE YUKON ENERGY CORPORATION (YEC) SYSTEM.
7. LEFT (DASH) AND RIGHT (DOT) PROFILE OFFSETS SHOWN AT 5 m CENTERLINE OFFSET.
8. DESIGN TENSIONS SHOWN IN TABLE 1.

TABLE 1

| CABLE TYPE | MEAN ANNUAL TEMP (+4° C) | | WET SNOW (-10° C, 51mm RADIAL SNOW) | |
|---|---|---|---|---|
| | FULL TENSION SPANS (N) | TERMINAL SPANS (N) (SLACK) | FULL TENSION SPANS (N) | TERMINAL SPANS (N) (SLACK) |
| PARTRIDGE ACSR | 3,750 | 550 | 23,300 | 3,300 |
| ADSS | 7,500 | 150 | 13,900 | 3,300 |
| OHSW | 3,500 | 400 | 23,600 | 3,200 |

LEGEND

- 69 kV - 266.8 kcmil 26/7 "PARTRIDGE" ACSR
- ADSS - OFC-24 G.652D-FASA-S1 (ZTT)
- OHSW - 266.8 kcmil 26/7 "PARTRIDGE" ACSR
- ROAD EDGE
- 2.5m ROAD BUFFER
- 30m CLEARING BOUNDARY
- YEC L250 69 KV LINE (EXISTING)
- 60m WIDE RIGHT OF WAY BOUNDARY
- X KM APPROXIMATE ROAD KM MARKER

REFERENCES

| | |
|---|---|
| 1407-T-1000 | DRAWING LIST |
| 1407-T-1100 | ROUTE MAP |
| 1407-T-1400 | STRUCTURE DATA SHEET |
| 1407-T-1900 | SOUTH MCQUESTEN TRANSMISSION LINE CONNECTION - PLAN |
| 1407-T-3000 | STRUCTURE FAMILY |
| 1407-T-6000 | HWY 11 (SILVER TRAIL)-OVERHEAD LINE CROSSING-STR 0/4 TO STR 0/5 |

30.0 m Horiz. Scale
10.0 m Vert. Scale

ISSUED FOR CONSTRUCTION

PERMIT TO PRACTICE
W.N. BRAIZER ASSOCIATES INC.
SIGNATURE _____
Date 10/09/18
PERMIT NUMBER: PP295
Association of Professional Engineers of Yukon

| NO. | DATE | REVISION | DES | DWN | CHK | APR |
|---|---|---|---|---|---|---|
| 2 | AUG 10/18 | MCQUESTEN SUBSTATION & KM18 MODIFICATIONS | MP | MP | PC | NB |
| 1 | JUL 11/18 | BORROW PIT & ROAD PROXIMITY ALIGNMENT CHANGES | MP | MP | PC | MEO |
| 0 | MAY 11/18 | ISSUED FOR CONSTRUCTION | MP | MP | PC | MEO |

CLIENT: StrataGold Corporation

| | |
|---|---|
| DATE | MAY 11/18 |
| DESIGN | MP |
| DRAWN | MP |
| CHECKED | PC |
| APPROVED | MEO |

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WN BRAZIER ASSOCIATES INC

SEAL: PROFESSIONAL ENGINEER YUKON TERRITORY W. NEIL BRAZIER

EAGLE GOLD PROJECT
L251 - 69 kV TRANSMISSION LINE
PLAN AND PROFILE (SHEET 42 OF 54)

| PROJECT No. | DRAWING No. | REV. |
|---|---|---|
| 1407 | 1407-T-1200-42 | 2 |

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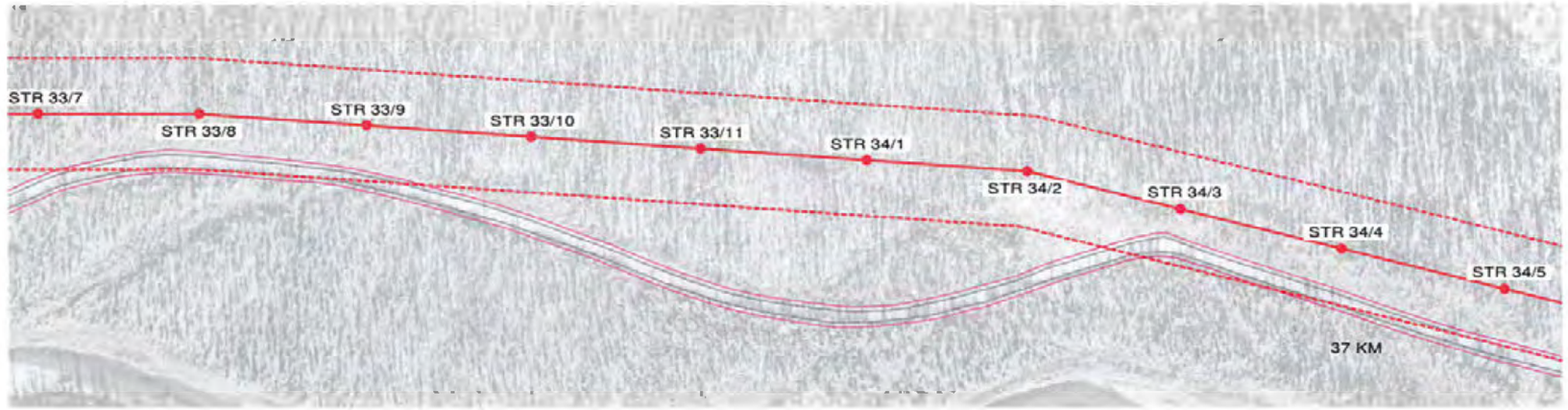


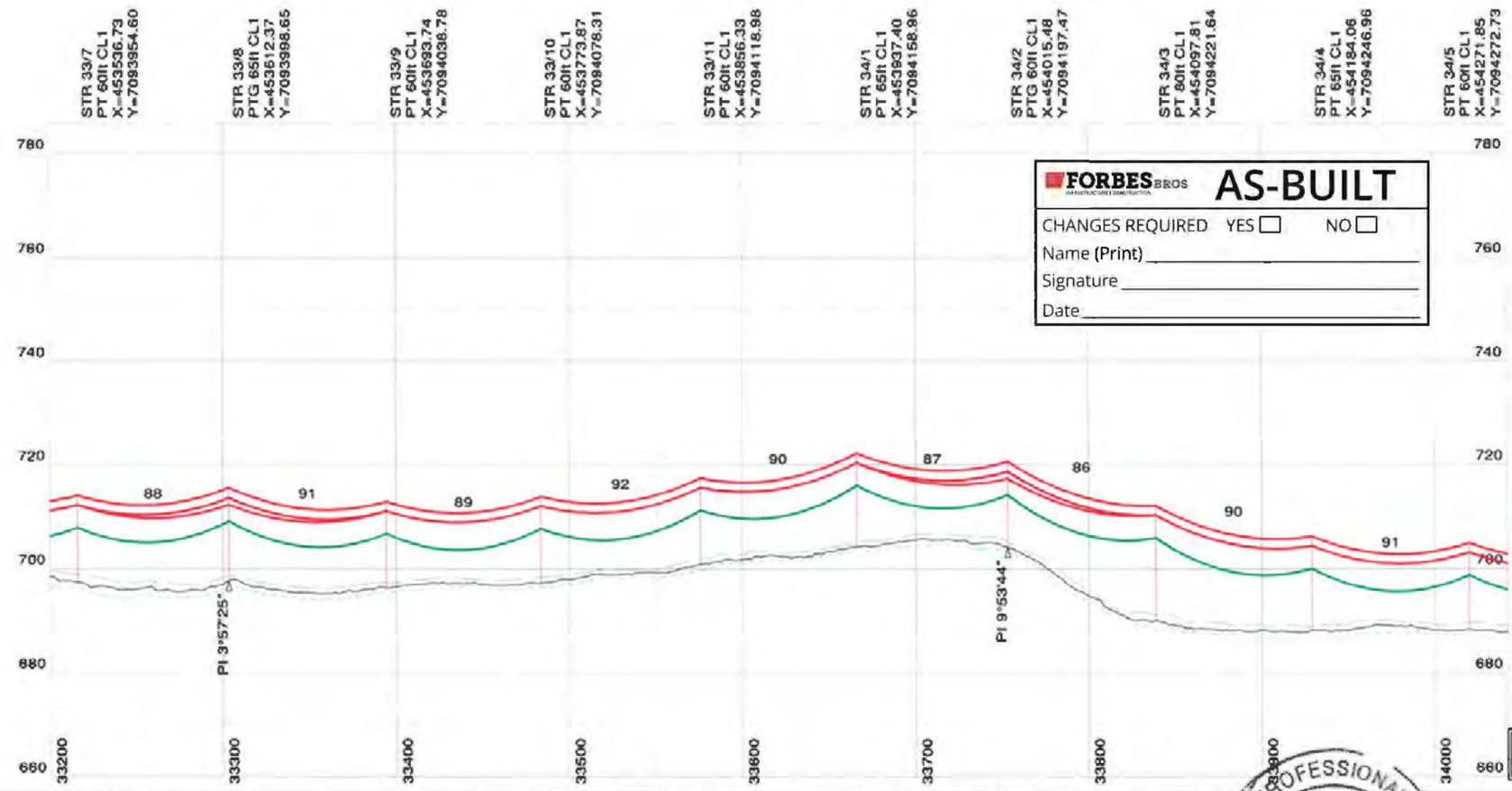


**NOTES**

1. ALL DIMENSIONS IN METRES (m) UNLESS NOTED OTHERWISE.
2. COORDINATES ARE IN UTM NAD83 ZONE 8N.
3. ELEVATIONS ARE IN METRES (m) ABOVE MEAN SEA LEVEL (AMSL).
4. 69 kV CONDUCTOR, ADSS CABLE AND OVERHEAD SHIELD WIRE "OHSW" DISPLAYED AT "WET SNOW" (-10° C, 51mm RADIAL SNOW).
5. LINE ANGLE DEFLECTION LOOKING TOWARD EAGLE GOLD PROJECT SITE INDICATED AS FOLLOWS:
   + RIGHT ANGLE DEFLECTION
   - LEFT ANGLE DEFLECTION
6. THIS LINE WILL BE NUMBERED L251 IN THE YUKON ENERGY CORPORATION (YEC) SYSTEM.
7. LEFT (DASH) AND RIGHT (DOT) PROFILE OFFSETS SHOWN AT 5 m CENTERLINE OFFSET.
8. DESIGN TENSIONS SHOWN IN TABLE 1.

| TABLE 1 | MEAN ANNUAL TEMP (-4° C) | | WET SNOW (-10° C, 51mm RADIAL SNOW) | |
|---|---|---|---|---|
| CABLE TYPE | FULL TENSION SPANS (N) | TERMINAL SPANS (N) (51.AGA) | FULL TENSION SPANS (N) | TERMINAL SPANS (N) (51.AGA) |
| PARTRIDGE ACSR | 3,750 | 550 | 23,300 | 3,300 |
| ADSS | 7,500 | 150 | 13,900 | 3,300 |
| OHSW | 3,500 | 400 | 22,600 | 3,200 |

**LEGEND**

- 69 kV - 266.8 kcmil 26/7 "PARTRIDGE" ACSR
- ADSS - OFC-24 G.652D-FASA-S1 (ZTT)
- OHSW - 266.8 kcmil 26/7 "PARTRIDGE" ACSR
- ROAD EDGE
- 2.5m ROAD BUFFER
- 30m CLEARING BOUNDARY
- YEC L250 69 KV LINE (EXISTING)
- 60m WIDE RIGHT OF WAY BOUNDARY
- X KM APPROXIMATE ROAD KM MARKER

**REFERENCES**

| | |
|---|---|
| 1407-T-1000 | DRAWING LIST |
| 1407-T-1100 | ROUTE MAP |
| 1407-T-1400 | STRUCTURE DATA SHEET |
| 1407-T-1900 | SOUTH MCQUESTEN TRANSMISSION LINE CONNECTION - PLAN |
| 1407-T-3000 | STRUCTURE FAMILY |
| 1407-T-5000 | HWY 11 (SILVER TRAIL)-OVERHEAD LINE CROSSING-STR 0/4 TO STR 0/5 |

30.0 m Horiz. Scale
10.0 m Vert. Scale

FORBES BROS

**AS-BUILT**

CHANGES REQUIRED YES ☐ NO ☐
Name (Print) _____
Signature _____
Date _____

PERMIT TO PRACTICE
W.N. BRAIZER ASSOCIATES INC.
SIGNATURE
Date 10/03/18
PERMIT NUMBER: PP295
Association of Professional Engineers of Yukon

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| NO. | DATE | REVISION | DES | DWN | CHK | APR |
|---|---|---|---|---|---|---|
| | | | | | | |
| | | | | | | |
| | | | | | | |
| 2 | AUG 10/18 | MCQUESTEN SUBSTATION & KM18 MODIFICATIONS | MP | MP | PC | NB |
| 1 | JUL 11/18 | BORROW PIT & ROAD PROXIMITY ALIGNMENT CHANGES | MP | MP | PC | MEO |
| 0 | MAY 11/18 | ISSUED FOR CONSTRUCTION | MP | MP | PC | MEO |

CLIENT: StrataGold Corporation

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|---|---|
| DATE | MAY 11/18 |
| DESIGN | MP |
| DRAWN | MP |
| CHECKED | PC |
| APPROVED | MEO |

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WN BRAZIER ASSOCIATES INC

PROFESSIONAL ENGINEER YUKON TERRITORY W. NEIL BRAZIER

# EAGLE GOLD PROJECT
## L251 - 69 kV TRANSMISSION LINE
## PLAN AND PROFILE (SHEET 43 OF 54)

| PROJECT No. | DRAWING No. | REV. |
|---|---|---|
| 1407 | 1407-T-1200-43 | 2 |

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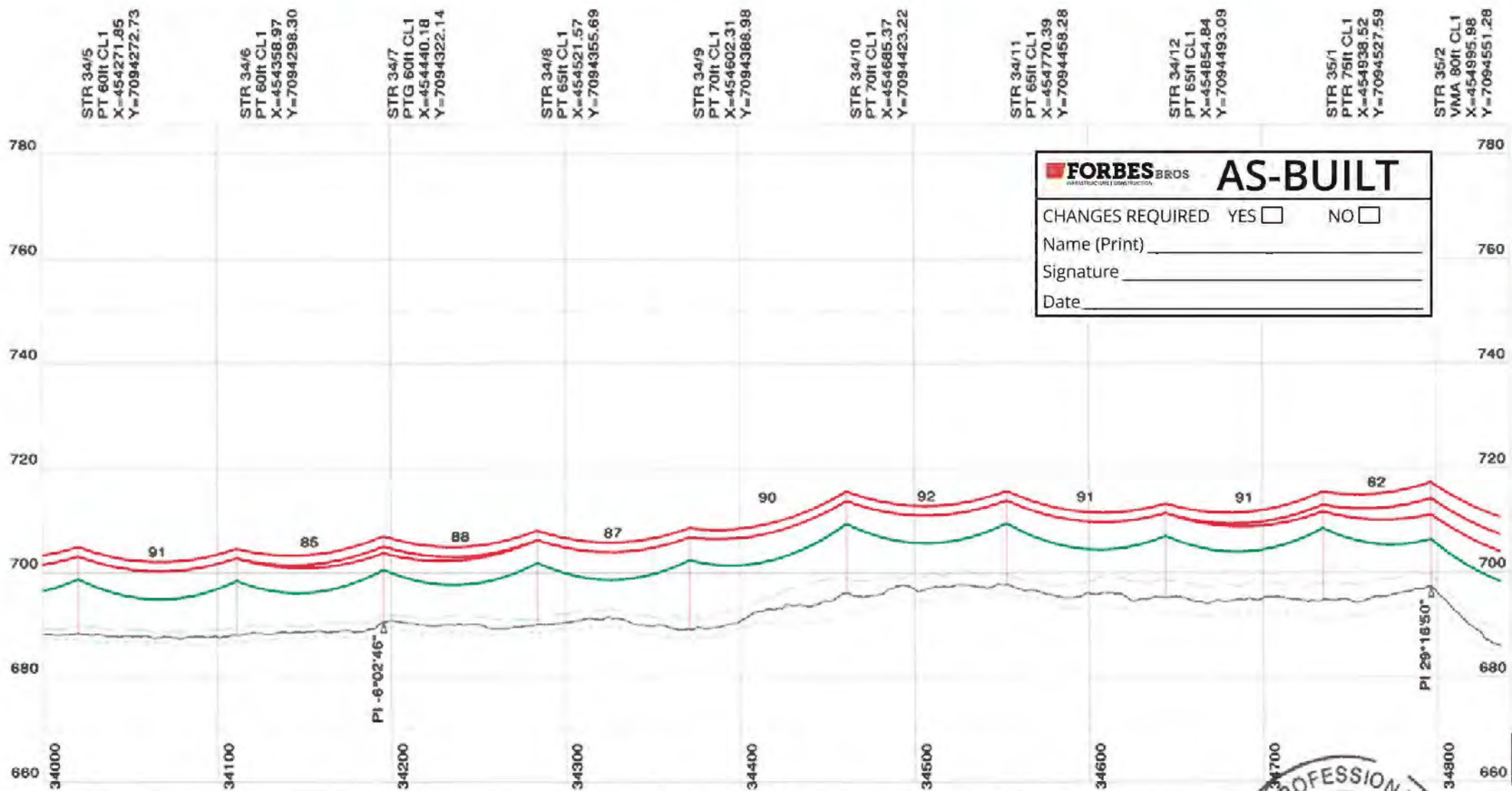


FORBES BROS

# AS-BUILT

CHANGES REQUIRED YES ☐ NO ☐

Name (Print) _____

Signature _____

Date _____

## NOTES

1. ALL DIMENSIONS IN METRES (m) UNLESS NOTED OTHERWISE.
2. COORDINATES ARE IN UTM NAD83 ZONE 8N.
3. ELEVATIONS ARE IN METRES (m) ABOVE MEAN SEA LEVEL (AMSL).
4. 69 kV CONDUCTOR, ADSS CABLE AND OVERHEAD SHIELD WIRE "OHSW" DISPLAYED AT "WET SNOW" (-10° C, 51mm RADIAL SNOW).
5. LINE ANGLE DEFLECTION LOOKING TOWARD EAGLE GOLD PROJECT SITE INDICATED AS FOLLOWS:
   + RIGHT ANGLE DEFLECTION
   - LEFT ANGLE DEFLECTION
6. THIS LINE WILL BE NUMBERED L251 IN THE YUKON ENERGY CORPORATION (YEC) SYSTEM.
7. LEFT (DASH) AND RIGHT (DOT) PROFILE OFFSETS SHOWN AT 5 m CENTERLINE OFFSET.
8. DESIGN TENSIONS SHOWN IN TABLE 1.

TABLE 1

| CABLE TYPE | MEAN ANNUAL TEMP (-4° C) FULL TENSION SPANS (N) | MEAN ANNUAL TEMP (-4° C) TERMINAL SPANS (N) (SLACK) | WET SNOW (-10° C, 51mm RADIAL SNOW) FULL TENSION SPANS (N) | WET SNOW (-10° C, 51mm RADIAL SNOW) TERMINAL SPANS (N) (SLACK) |
|---|---|---|---|---|
| PARTRIDGE ACSR | 3,750 | 550 | 23,300 | 3,300 |
| ADSS | 7,500 | 150 | 13,900 | 3,300 |
| OHSW | 3,500 | 400 | 23,600 | 3,200 |

LEGEND

- 69 kV - 266.8 kcmil 26/7 "PARTRIDGE" ACSR
- ADSS - OFC-24 G.652D-FASA-S1 (ZTT)
- OHSW - 266.8 kcmil 26/7 "PARTRIDGE" ACSR
- ROAD EDGE
- 2.5m ROAD BUFFER
- 30m CLEARING BOUNDARY
- YEC L250 69 KV LINE (EXISTING)
- 60m WIDE RIGHT OF WAY BOUNDARY
- X KM APPROXIMATE ROAD KM MARKER

REFERENCES

| | |
|---|---|
| 1407-T-1000 | DRAWING LIST |
| 1407-T-1100 | ROUTE MAP |
| 1407-T-1400 | STRUCTURE DATA SHEET |
| 1407-T-1900 | SOUTH MCQUESTEN TRANSMISSION LINE CONNECTION - PLAN |
| 1407-T-3000 | STRUCTURE FAMILY |
| 1407-T-6000 | HWY 11 (SILVER TRAIL)-OVERHEAD LINE CROSSING-STR 0/4 TO STR 0/5 |

30.0 m Horiz. Scale
10.0 m Vert. Scale

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W.N. BRAZIER ASSOCIATES INC.
SIGNATURE _____
Date 10/09/18
PERMIT NUMBER: PP295
Association of Professional Engineers of Yukon

| NO. | DATE | REVISION | DES | DWN | CHK | APR |
|---|---|---|---|---|---|---|
| 2 | AUG 10/18 | MCQUESTEN SUBSTATION & KM18 MODIFICATIONS | MP | MP | PC | NB |
| 1 | JUL 11/18 | BORROW PIT & ROAD PROXIMITY ALIGNMENT CHANGES | MP | MP | PC | MEO |
| 0 | MAY 11/18 | ISSUED FOR CONSTRUCTION | MP | MP | PC | MEO |

CLIENT: StrataGold Corporation

DATE: MAY 11/18
DESIGN: MP
DRAWN: MP
CHECKED: PC
APPROVED: MEO

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WN BRAZIER ASSOCIATES INC

SEAL: APPROVED PROFESSIONAL ENGINEER YUKON TERRITORY W. NEIL BRAZIER

EAGLE GOLD PROJECT
L251 - 69 kV TRANSMISSION LINE
PLAN AND PROFILE (SHEET 44 OF 54)

PROJECT No. 1407
DRAWING No. 1407-T-1200-44
REV. 2

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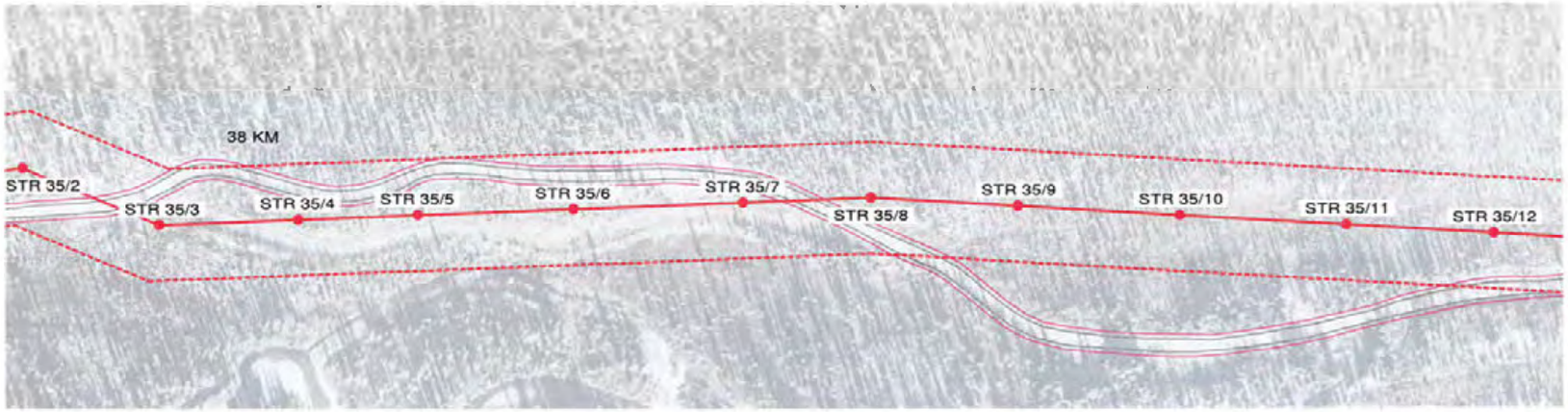


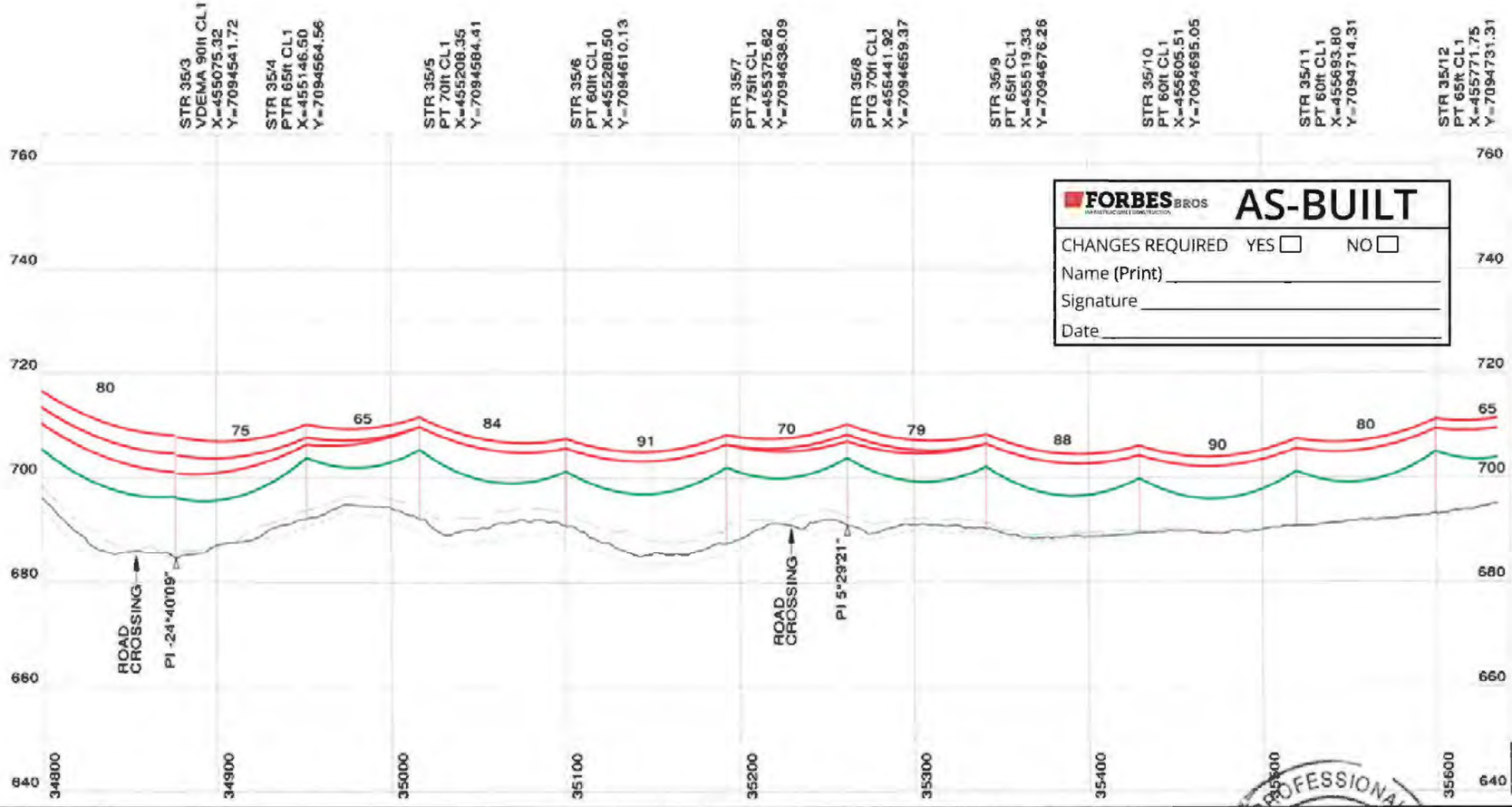


**FORBES BROS** AS-BUILT

CHANGES REQUIRED YES ☐ NO ☐

Name (Print) _____

Signature _____

Date _____

NOTES

1. ALL DIMENSIONS IN METRES (m) UNLESS NOTED OTHERWISE.
2. COORDINATES ARE IN UTM NAD83 ZONE 8N.
3. ELEVATIONS ARE IN METRES (m) ABOVE MEAN SEA LEVEL (AMSL).
4. 69 kV CONDUCTOR, ADSS CABLE AND OVERHEAD SHIELD WIRE "OHSW" DISPLAYED AT "WET SNOW" (-10° C, 51mm RADIAL SNOW).
5. LINE ANGLE DEFLECTION LOOKING TOWARD EAGLE GOLD PROJECT SITE INDICATED AS FOLLOWS:
   + RIGHT ANGLE DEFLECTION
   - LEFT ANGLE DEFLECTION
6. THIS LINE WILL BE NUMBERED L251 IN THE YUKON ENERGY CORPORATION (YEC) SYSTEM.
7. LEFT (DASH) AND RIGHT (DOT) PROFILE OFFSETS SHOWN AT 5 m CENTERLINE OFFSET.
8. DESIGN TENSIONS SHOWN IN TABLE 1.

TABLE 1

| CABLE TYPE | MEAN ANNUAL TEMP (-4° C) FULL TENSION SPANS (N) | MEAN ANNUAL TEMP (-4° C) TERMINAL SPANS (N) (SLACK) | WET SNOW (-10° C, 51mm RADIAL SNOW) FULL TENSION SPANS (N) | WET SNOW (-10° C, 51mm RADIAL SNOW) TERMINAL SPANS (N) (SLACK) |
|---|---|---|---|---|
| PARTRIDGE ACSR | 3,750 | 550 | 23,300 | 3,300 |
| ADSS | 7,500 | 150 | 13,900 | 3,300 |
| OHSW | 3,800 | 400 | 23,600 | 3,200 |

LEGEND

- 69 kV - 266.8 kcmil 26/7 "PARTRIDGE" ACSR
- ADSS - OFC-24 G.652D-FASA-S1 (ZTT)
- OHSW - 266.8 kcmil 26/7 "PARTRIDGE" ACSR
- ROAD EDGE
- 2.5m ROAD BUFFER
- 30m CLEARING BOUNDARY
- YEC L250 69 KV LINE (EXISTING)
- 60m WIDE RIGHT OF WAY BOUNDARY
- X KM APPROXIMATE ROAD KM MARKER

REFERENCES

| | |
|---|---|
| 1407-T-1000 | DRAWING LIST |
| 1407-T-1100 | ROUTE MAP |
| 1407-T-1400 | STRUCTURE DATA SHEET |
| 1407-T-1900 | SOUTH MCQUESTEN TRANSMISSION LINE CONNECTION - PLAN |
| 1407-T-3000 | STRUCTURE FAMILY |
| 1407-T-6000 | HWY 11 (SILVER TRAIL)-OVERHEAD LINE CROSSING-STR 0/4 TO STR 0/5 |

30.0 m Horiz. Scale
10.0 m Vert. Scale

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| NO. | DATE | REVISION | DES | DWN | CHK | APR |
|---|---|---|---|---|---|---|
| 2 | AUG 10/18 | MCQUESTEN SUBSTATION & KM18 MODIFICATIONS | MP | MP | PC | NB |
| 1 | JUL 11/18 | BORROW PIT & ROAD PROXIMITY ALIGNMENT CHANGES | MP | MP | PC | MEO |
| 0 | MAY 11/18 | ISSUED FOR CONSTRUCTION | MP | MP | PC | MEO |

CLIENT StrataGold Corporation

DATE MAY 11/18
DESIGN MP
DRAWN MP
CHECKED PC
APPROVED MEO

Clean Energy CONSULTING INC. www.cleanenergyconsulting.ca

WN BRAZIER ASSOCIATES INC

SEAL: PROFESSIONAL ENGINEER YUKON W. NEIL BRAZIER TERRITORY

EAGLE GOLD PROJECT
L251 - 69 kV TRANSMISSION LINE
PLAN AND PROFILE (SHEET 45 OF 54)

PROJECT No. 1407
DRAWING No. 1407-T-1200-45
REV. 2

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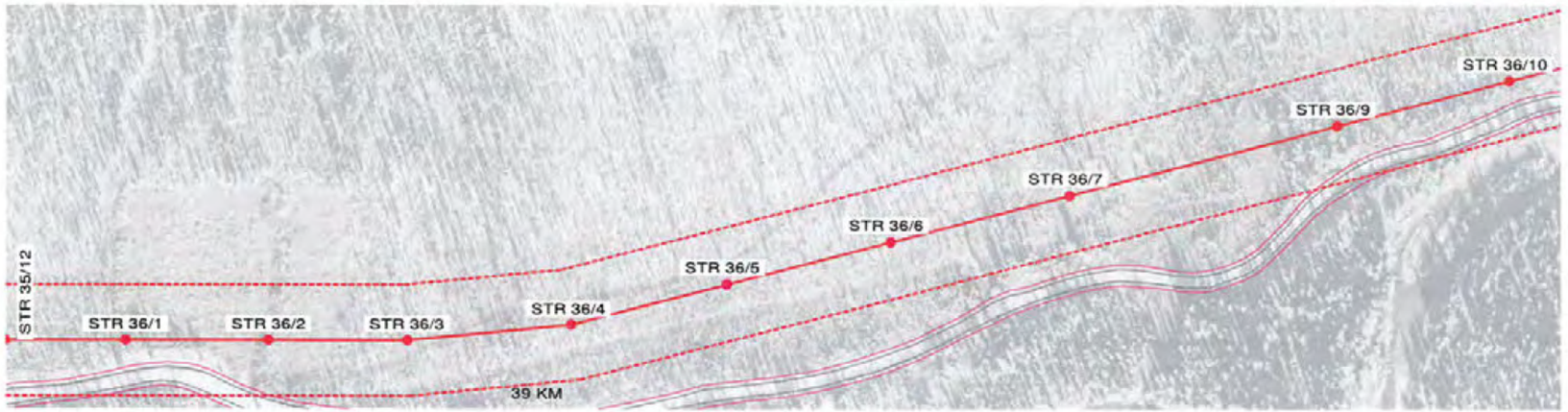


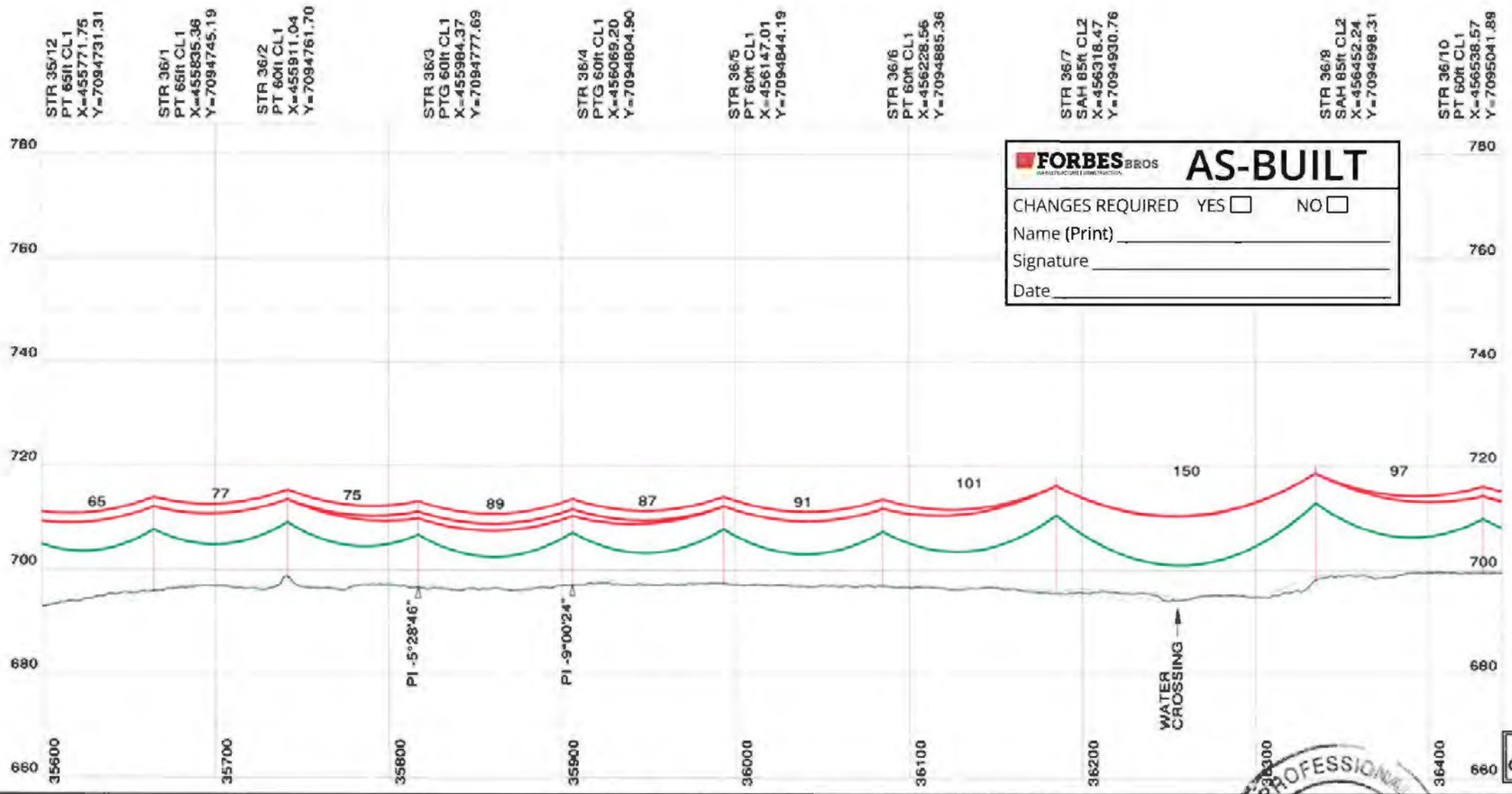


FORBES BROS

AS-BUILT

CHANGES REQUIRED YES ☐ NO ☐

Name (Print) _____

Signature _____

Date _____

NOTES

1. ALL DIMENSIONS IN METRES (m) UNLESS NOTED OTHERWISE.
2. COORDINATES ARE IN UTM NAD83 ZONE 8N.
3. ELEVATIONS ARE IN METRES (m) ABOVE MEAN SEA LEVEL (AMSL).
4. 69 kV CONDUCTOR, ADSS CABLE AND OVERHEAD SHIELD WIRE "OHSW" DISPLAYED AT "WET SNOW" (-10° C, 51mm RADIAL SNOW).
5. LINE ANGLE DEFLECTION LOOKING TOWARD EAGLE GOLD PROJECT SITE INDICATED AS FOLLOWS:
   + RIGHT ANGLE DEFLECTION
   - LEFT ANGLE DEFLECTION
6. THIS LINE WILL BE NUMBERED L251 IN THE YUKON ENERGY CORPORATION (YEC) SYSTEM.
7. LEFT (DASH) AND RIGHT (DOT) PROFILE OFFSETS SHOWN AT 5 m CENTERLINE OFFSET.
8. DESIGN TENSIONS SHOWN IN TABLE 1.

TABLE 1

| CABLE TYPE | MEAN ANNUAL TEMP (-4° C) FULL TENSION SPANS (N) | MEAN ANNUAL TEMP (-4° C) TERMINAL SPANS (N) (SLACK) | WET SNOW (-10° C, 51mm RADIAL SNOW) FULL TENSION SPANS (N) | WET SNOW (-10° C, 51mm RADIAL SNOW) TERMINAL SPANS (N) (SLACK) |
|---|---|---|---|---|
| PARTRIDGE ACSR | 3,750 | 550 | 23,300 | 3,300 |
| ADSS | 7,500 | 150 | 13,900 | 3,300 |
| OHSW | 3,800 | 400 | 23,600 | 3,200 |

LEGEND

- 69 kV - 266.8 kcmil 26/7 "PARTRIDGE" ACSR
- ADSS - OFC-24 G.652D-FASA-S1 (ZTT)
- OHSW - 266.8 kcmil 26/7 "PARTRIDGE" ACSR
- ROAD EDGE
- 2.5m ROAD BUFFER
- 30m CLEARING BOUNDARY
- YEC L250 69 KV LINE (EXISTING)
- 60m WIDE RIGHT OF WAY BOUNDARY
- X KM APPROXIMATE ROAD KM MARKER

REFERENCES

| | |
|---|---|
| 1407-T-1000 | DRAWING LIST |
| 1407-T-1100 | ROUTE MAP |
| 1407-T-1400 | STRUCTURE DATA SHEET |
| 1407-T-1900 | SOUTH MCQUESTEN TRANSMISSION LINE CONNECTION - PLAN |
| 1407-T-3000 | STRUCTURE FAMILY |
| 1407-T-6000 | HWY 11 (SILVER TRAIL)-OVERHEAD LINE CROSSING-STR 0/4 TO STR 0/5 |

30.0 m Horiz. Scale
10.0 m Vert. Scale

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W.N. BRAIZER ASSOCIATES INC.
SIGNATURE _____
Date 10/08/18
PERMIT NUMBER: PP295
Association of Professional Engineers of Yukon

| NO. | DATE | REVISION | DES | DWN | CHK | APR |
|---|---|---|---|---|---|---|
| | | | | | | |
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| | | | | | | |
| 2 | AUG 10/18 | MCQUESTEN SUBSTATION & KM18 MODIFICATIONS | MP | MP | PC | NB |
| 1 | JUL 11/18 | BORROW PIT & ROAD PROXIMITY ALIGNMENT CHANGES | MP | MP | PC | MEO |
| 0 | MAY 11/18 | ISSUED FOR CONSTRUCTION | MP | MP | PC | MEO |

CLIENT: StrataGold Corporation

| | |
|---|---|
| DATE | MAY 11/18 |
| DESIGN | MP |
| DRAWN | MP |
| CHECKED | PC |
| APPROVED | MEO |

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WN BRAZIER ASSOCIATES INC

APEGY PROFESSIONAL ENGINEER YUKON W. NEIL BRAZIER TERRITORY

EAGLE GOLD PROJECT
L251 - 69 kV TRANSMISSION LINE
PLAN AND PROFILE (SHEET 46 OF 54)

| PROJECT No. | DRAWING No. | REV. |
|---|---|---|
| 1407 | 1407-T-1200-46 | 2 |

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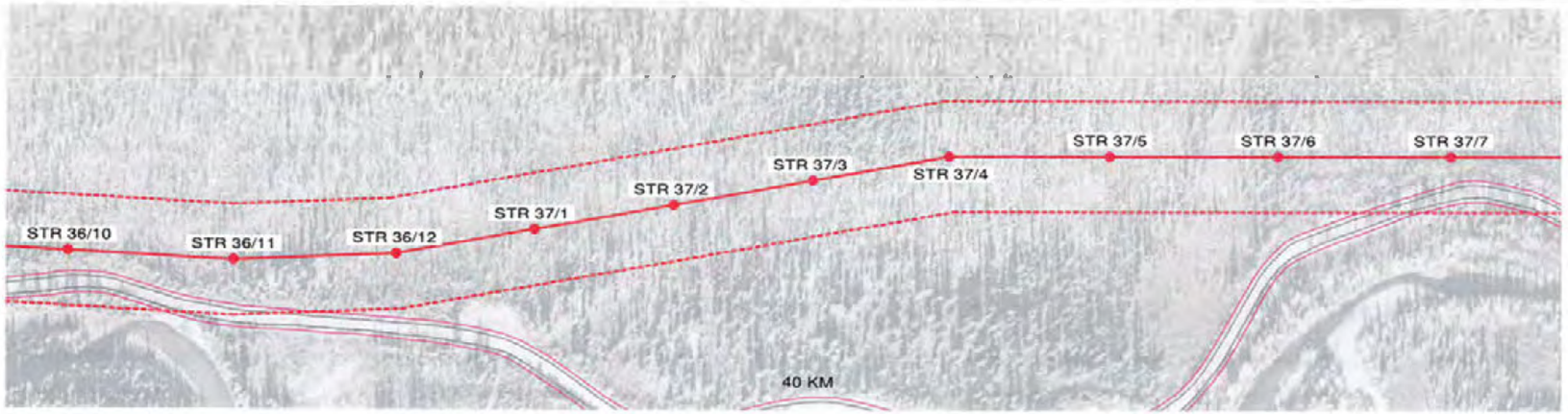



STR 36/10 PT 60ft CL1 X=456538.57 Y=7095041.89

STR 36/11 PTG 65ft CL1 X=456618.57 Y=7095082.29

STR 36/12 PTG 60ft CL1 X=456693.01 Y=7095128.13

STR 37/1 PT 60ft CL1 X=456751.45 Y=7095178.00

STR 37/2 PT 60ft CL1 X=456810.01 Y=7095226.96

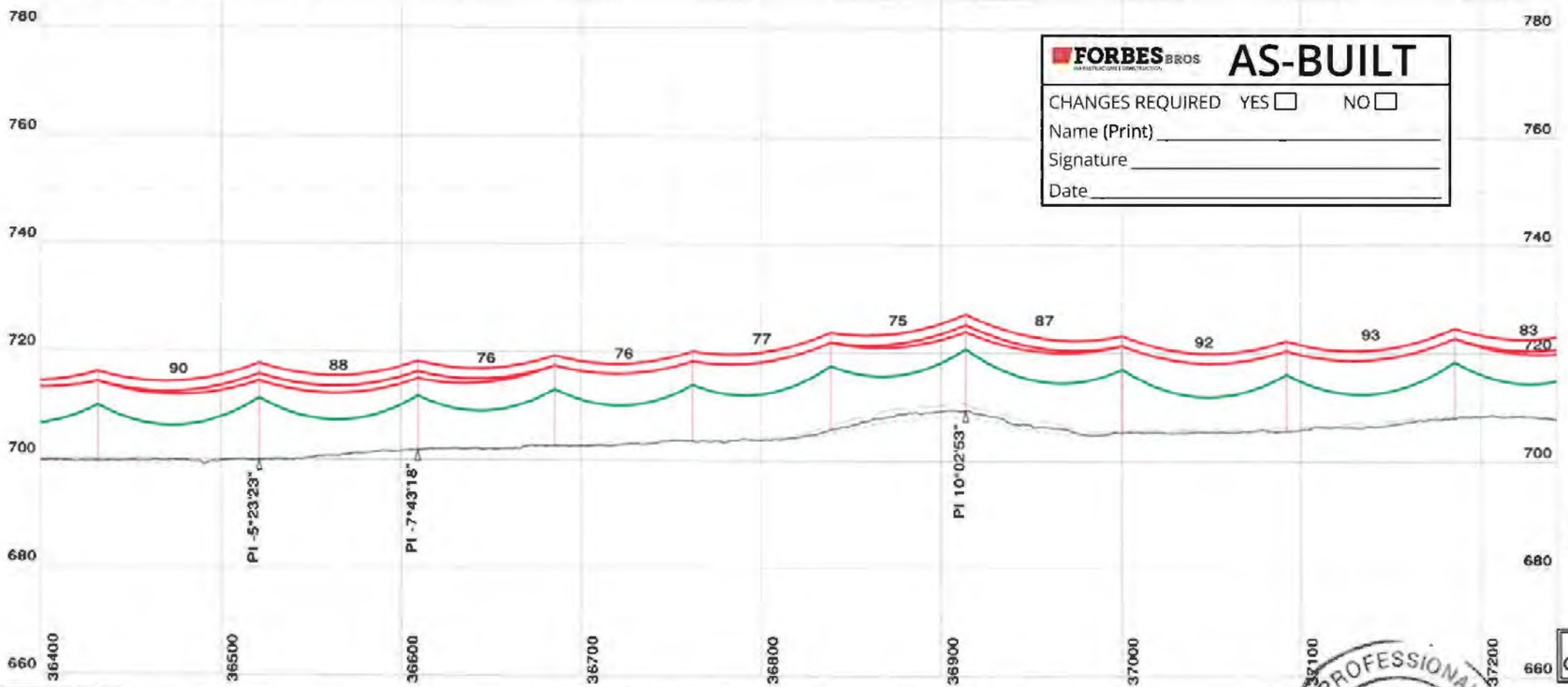
STR 37/3 PT 65ft CL1 X=456868.89 Y=7095276.21

STR 37/4 PTG 65ft CL1 X=456926.34 Y=7095324.24

STR 37/5 PT 65ft CL1 X=457001.74 Y=7095367.52

STR 37/6 PT 60ft CL1 X=457081.26 Y=7095413.16

STR 37/7 PT 60ft CL1 X=457162.06 Y=7095459.54




FORBES BROS

# AS-BUILT

CHANGES REQUIRED YES ☐ NO ☐

Name (Print) _____

Signature _____

Date _____

## NOTES

1. ALL DIMENSIONS IN METRES (m) UNLESS NOTED OTHERWISE.
2. COORDINATES ARE IN UTM NAD83 ZONE 8N.
3. ELEVATIONS ARE IN METRES (m) ABOVE MEAN SEA LEVEL (AMSL).
4. 69 kV CONDUCTOR, ADSS CABLE AND OVERHEAD SHIELD WIRE "OHSW" DISPLAYED AT "WET SNOW" (-10° C, 51mm RADIAL SNOW).
5. LINE ANGLE DEFLECTION LOOKING TOWARD EAGLE GOLD PROJECT SITE INDICATED AS FOLLOWS:
   + RIGHT ANGLE DEFLECTION
   - LEFT ANGLE DEFLECTION
6. THIS LINE WILL BE NUMBERED L251 IN THE YUKON ENERGY CORPORATION (YEC) SYSTEM.
7. LEFT (DASH) AND RIGHT (DOT) PROFILE OFFSETS SHOWN AT 5 m CENTERLINE OFFSET.
8. DESIGN TENSIONS SHOWN IN TABLE 1.

TABLE 1

| CABLE TYPE | MEAN ANNUAL TEMP (-4° C) FULL TENSION SPANS (N) | MEAN ANNUAL TEMP (-4° C) TERMINAL SPANS (N) (SLACK) | WET SNOW (-10° C, 51mm RADIAL SNOW) FULL TENSION SPANS (N) | WET SNOW (-10° C, 51mm RADIAL SNOW) TERMINAL SPANS (N) (SLACK) |
|---|---|---|---|---|
| PARTRIDGE ACSR | 3,750 | 550 | 23,300 | 3,300 |
| ADSS | 7,500 | 150 | 13,900 | 3,300 |
| OHSW | 3,500 | 400 | 23,600 | 3,200 |

## LEGEND

- 69 kV - 266.8 kcmil 26/7 "PARTRIDGE" ACSR
- ADSS - OFC-24 G.652D-FASA-S1 (ZTT)
- OHSW - 266.8 kcmil 26/7 "PARTRIDGE" ACSR
- ROAD EDGE
- 2.5m ROAD BUFFER
- 30m CLEARING BOUNDARY
- YEC L250 69 KV LINE (EXISTING)
- 60m WIDE RIGHT OF WAY BOUNDARY
- X KM APPROXIMATE ROAD KM MARKER

## REFERENCES

| | |
|---|---|
| 1407-T-1000 | DRAWING LIST |
| 1407-T-1100 | ROUTE MAP |
| 1407-T-1400 | STRUCTURE DATA SHEET |
| 1407-T-1900 | SOUTH MCQUESTEN TRANSMISSION LINE CONNECTION - PLAN |
| 1407-T-3000 | STRUCTURE FAMILY |
| 1407-T-6000 | HWY 11 (SILVER TRAIL)-OVERHEAD LINE CROSSING-STR 0/4 TO STR 0/5 |

30.0 m Horiz. Scale
10.0 m Vert. Scale

ISSUED FOR CONSTRUCTION

PERMIT TO PRACTICE
W.N. BRAIZER ASSOCIATES INC.
SIGNATURE _____
Date 12/08/18
PERMIT NUMBER: PP295
Association of Professional Engineers of Yukon

| NO. | DATE | REVISION | DES | DWN | CHK | APR |
|---|---|---|---|---|---|---|
| | | | | | | |
| | | | | | | |
| | | | | | | |
| 2 | AUG 10/18 | MCQUESTEN SUBSTATION & KM18 MODIFICATIONS | MP | MP | PC | NB |
| 1 | JUL 11/18 | BORROW PIT & ROAD PROXIMITY ALIGNMENT CHANGES | MP | MP | PC | MEO |
| 0 | MAY 11/18 | ISSUED FOR CONSTRUCTION | MP | MP | PC | MEO |

CLIENT: StrataGold Corporation

| | |
|---|---|
| DATE | MAY 11/18 |
| DESIGN | MP |
| DRAWN | MP |
| CHECKED | PC |
| APPROVED | MEO |

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WN BRAZIER ASSOCIATES INC

SEAL: PROFESSIONAL ENGINEER YUKON W. NEIL BRAZIER TERRITORY

EAGLE GOLD PROJECT

L251 - 69 kV TRANSMISSION LINE

PLAN AND PROFILE (SHEET 47 OF 54)

| PROJECT No. | DRAWING No. | REV. |
|---|---|---|
| 1407 | 1407-T-1200-47 | 2 |

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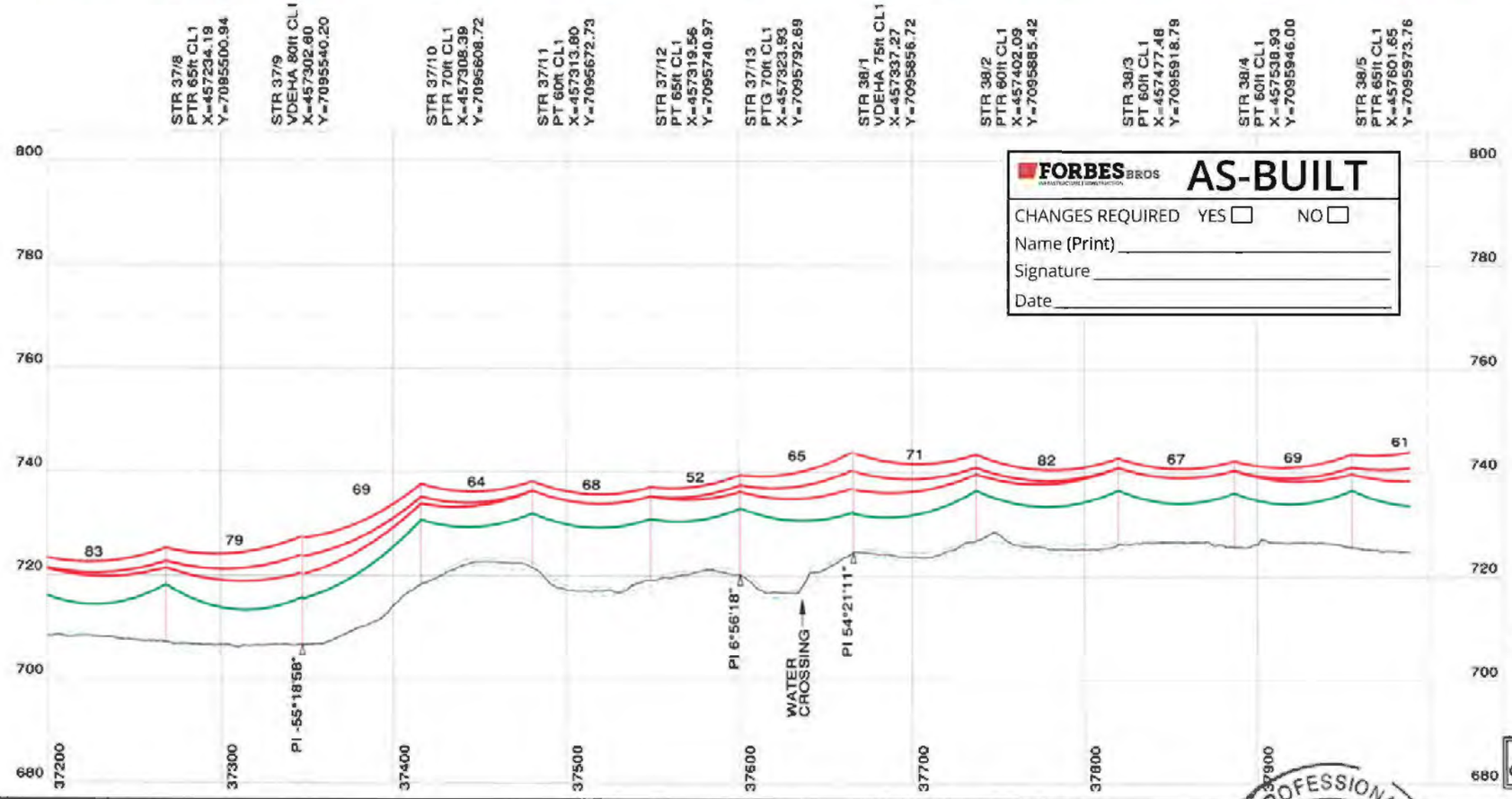


**FORBES BROS** AS-BUILT

CHANGES REQUIRED YES ☐ NO ☐

Name (Print) _____

Signature _____

Date _____

NOTES

1. ALL DIMENSIONS IN METRES (m) UNLESS NOTED OTHERWISE.
2. COORDINATES ARE IN UTM NAD83 ZONE 8N.
3. ELEVATIONS ARE IN METRES (m) ABOVE MEAN SEA LEVEL (AMSL).
4. 69 kV CONDUCTOR, ADSS CABLE AND OVERHEAD SHIELD WIRE "OHSW" DISPLAYED AT "WET SNOW" (-10° C, 51mm RADIAL SNOW).
5. LINE ANGLE DEFLECTION LOOKING TOWARD EAGLE GOLD PROJECT SITE INDICATED AS FOLLOWS:
   + RIGHT ANGLE DEFLECTION
   - LEFT ANGLE DEFLECTION
6. THIS LINE WILL BE NUMBERED L251 IN THE YUKON ENERGY CORPORATION (YEC) SYSTEM.
7. LEFT (DASH) AND RIGHT (DOT) PROFILE OFFSETS SHOWN AT 5 m CENTERLINE OFFSET.
8. DESIGN TENSIONS SHOWN IN TABLE 1.

TABLE 1

| CABLE TYPE | MEAN ANNUAL TEMP (-4° C) | | WET SNOW (-10° C, 51mm RADIAL SNOW) | |
|---|---|---|---|---|
| | FULL TENSION SPANS (N) | TERMINAL SPANS (N) (SLACK) | FULL TENSION SPANS (N) | TERMINAL SPANS (N) (SLACK) |
| PARTRIDGE ACSR | 3,750 | 550 | 23,300 | 3,300 |
| ADSS | 7,500 | 150 | 13,900 | 3,300 |
| OHSW | 3,500 | 400 | 23,600 | 3,200 |

LEGEND

- 69 kV - 266.8 kcmil 26/7 "PARTRIDGE" ACSR
- ADSS - OFC-24 G.652D-FASA-S1 (ZTT)
- OHSW - 266.8 kcmil 26/7 "PARTRIDGE" ACSR
- ROAD EDGE
- 2.5m ROAD BUFFER
- 30m CLEARING BOUNDARY
- YEC L250 69 KV LINE (EXISTING)
- 60m WIDE RIGHT OF WAY BOUNDARY
- X KM APPROXIMATE ROAD KM MARKER

REFERENCES

| | |
|---|---|
| 1407-T-1000 | DRAWING LIST |
| 1407-T-1100 | ROUTE MAP |
| 1407-T-1400 | STRUCTURE DATA SHEET |
| 1407-T-1900 | SOUTH MCQUESTEN TRANSMISSION LINE CONNECTION - PLAN |
| 1407-T-3000 | STRUCTURE FAMILY |
| 1407-T-6000 | HWY 11 (SILVER TRAIL)-OVERHEAD LINE CROSSING-STR 0/4 TO STR 0/5 |

30.0 m Horiz. Scale
10.0 m Vert. Scale

ISSUED FOR CONSTRUCTION

PERMIT TO PRACTICE
W.N. BRAIZER ASSOCIATES INC.
SIGNATURE _____
Date 10/08/18
PERMIT NUMBER: PP295
Association of Professional Engineers of Yukon

| NO. | DATE | REVISION | DES | DWN | CHK | APR |
|---|---|---|---|---|---|---|
| | | | | | | |
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| | | | | | | |
| 2 | AUG 10/18 | MCQUESTEN SUBSTATION & KM18 MODIFICATIONS | MP | MP | PC | NB |
| 1 | JUL 11/18 | BORROW PIT & ROAD PROXIMITY ALIGNMENT CHANGES | MP | MP | PC | MEO |
| 0 | MAY 11/18 | ISSUED FOR CONSTRUCTION | MP | MP | PC | MEO |

CLIENT StrataGold Corporation

| | |
|---|---|
| DATE | MAY 11/18 |
| DESIGN | MP |
| DRAWN | MP |
| CHECKED | PC |
| APPROVED | MEO |

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WN BRAIZER ASSOCIATES INC

PROFESSIONAL ENGINEER YUKON W. NEIL BRAIZER TERRITORY

EAGLE GOLD PROJECT

L251 - 69 kV TRANSMISSION LINE

PLAN AND PROFILE (SHEET 48 OF 54)

| PROJECT No. | DRAWING No. | REV. |
|---|---|---|
| 1407 | 1407-T-1200-48 | 2 |

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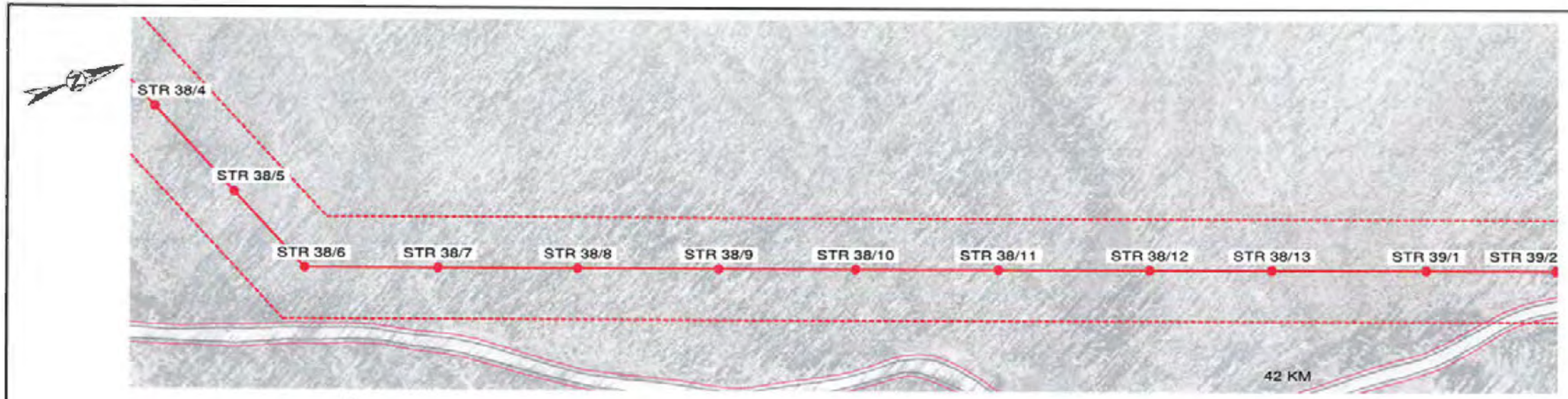


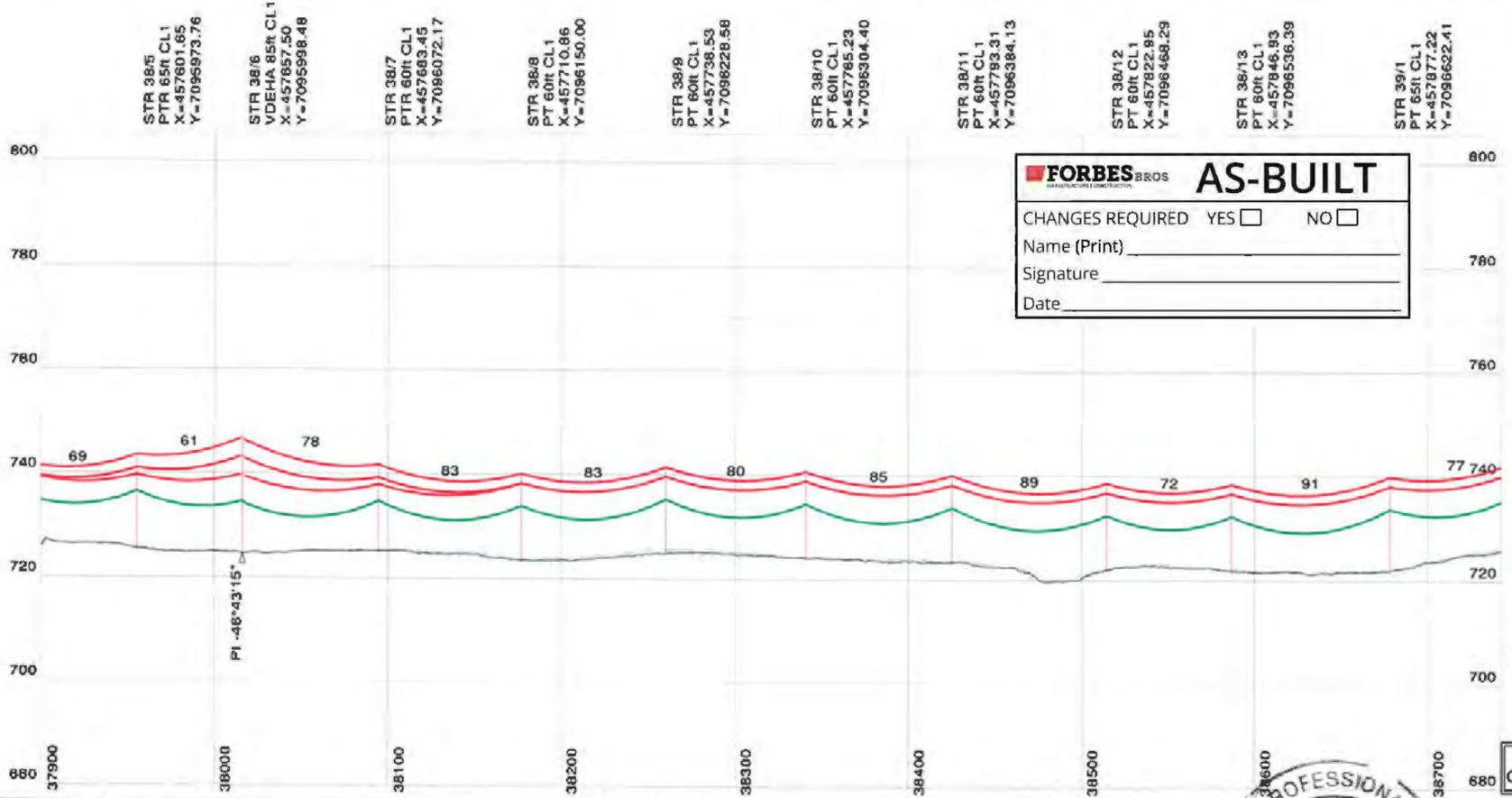


**FORBES BROS** AS-BUILT

CHANGES REQUIRED YES ☐ NO ☐

Name (Print) _____

Signature _____

Date _____

## NOTES

1. ALL DIMENSIONS IN METRES (m) UNLESS NOTED OTHERWISE.
2. COORDINATES ARE IN UTM NAD83 ZONE 8N.
3. ELEVATIONS ARE IN METRES (m) ABOVE MEAN SEA LEVEL (AMSL).
4. 69 kV CONDUCTOR, ADSS CABLE AND OVERHEAD SHIELD WIRE "OHSW" DISPLAYED AT "WET SNOW" (-10° C, 51mm RADIAL SNOW).
5. LINE ANGLE DEFLECTION LOOKING TOWARD EAGLE GOLD PROJECT SITE INDICATED AS FOLLOWS:
   + RIGHT ANGLE DEFLECTION
   - LEFT ANGLE DEFLECTION
6. THIS LINE WILL BE NUMBERED L251 IN THE YUKON ENERGY CORPORATION (YEC) SYSTEM.
7. LEFT (DASH) AND RIGHT (DOT) PROFILE OFFSETS SHOWN AT 5 m CENTERLINE OFFSET.
8. DESIGN TENSIONS SHOWN IN TABLE 1.

**TABLE 1**

| CABLE TYPE | MEAN ANNUAL TEMP (-4° C) FULL TENSION SPANS (N) | MEAN ANNUAL TEMP (-4° C) TERMINAL SPANS (N) (SLACK) | WET SNOW (-10° C, 51mm RADIAL SNOW) FULL TENSION SPANS (N) | WET SNOW (-10° C, 51mm RADIAL SNOW) TERMINAL SPANS (N) (SLACK) |
|---|---|---|---|---|
| PARTRIDGE ACSR | 3,750 | 550 | 23,300 | 3,300 |
| ADSS | 7,500 | 150 | 13,900 | 3,300 |
| OHSW | 3,500 | 400 | 23,600 | 3,200 |

## LEGEND

- 69 kV - 266.8 kcmil 26/7 "PARTRIDGE" ACSR
- ADSS - OFC-24 G.652D-FASA-S1 (ZTT)
- OHSW - 266.8 kcmil 26/7 "PARTRIDGE" ACSR
- ROAD EDGE
- 2.5m ROAD BUFFER
- 30m CLEARING BOUNDARY
- YEC L250 69 KV LINE (EXISTING)
- 60m WIDE RIGHT OF WAY BOUNDARY
- X KM APPROXIMATE ROAD KM MARKER

## REFERENCES

| | |
|---|---|
| 1407-T-1000 | DRAWING LIST |
| 1407-T-1100 | ROUTE MAP |
| 1407-T-1400 | STRUCTURE DATA SHEET |
| 1407-T-1900 | SOUTH MCQUESTEN TRANSMISSION LINE CONNECTION - PLAN |
| 1407-T-3000 | STRUCTURE FAMILY |
| 1407-T-6000 | HWY 11 (SILVER TRAIL)-OVERHEAD LINE CROSSING-STR 0/4 TO STR 0/5 |

30.0 m Horiz. Scale
10.0 m Vert. Scale

ISSUED FOR CONSTRUCTION

PERMIT TO PRACTICE
W.N. BRAIZER ASSOCIATES INC.
SIGNATURE _____
Date 10/08/18
PERMIT NUMBER: PP295
Association of Professional Engineers of Yukon

| NO. | DATE | REVISION | DES | DWN | CHK | APR |
|---|---|---|---|---|---|---|
| 2 | AUG 10/18 | MCQUESTEN SUBSTATION & KM18 MODIFICATIONS | MP | MP | PC | NB |
| 1 | JUL 11/18 | BORROW PIT & ROAD PROXIMITY ALIGNMENT CHANGES | MP | MP | PC | MEO |
| 0 | MAY 11/18 | ISSUED FOR CONSTRUCTION | MP | MP | PC | MEO |

CLIENT: StrataGold Corporation

| | |
|---|---|
| DATE | MAY 11/18 |
| DESIGN | MP |
| DRAWN | MP |
| CHECKED | PC |
| APPROVED | MEO |

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WN BRAZIER ASSOCIATES INC

SEAL: PROFESSIONAL ENGINEER YUKON W. NEIL BRAZIER TERRITORY

# EAGLE GOLD PROJECT
## L251 - 69 kV TRANSMISSION LINE
## PLAN AND PROFILE (SHEET 49 OF 54)

| PROJECT No. | DRAWING No. | REV. |
|---|---|---|
| 1407 | 1407-T-1200-49 | 2 |

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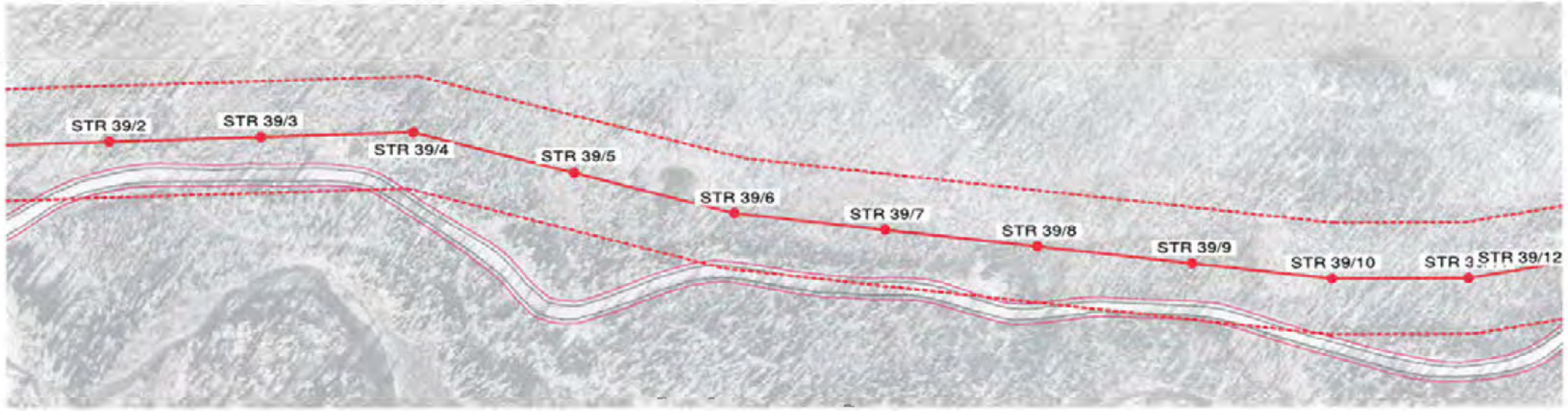


FORBES BROS

# AS-BUILT

CHANGES REQUIRED YES ☐ NO ☐

Name (Print) _____

Signature _____

Date _____

## NOTES

1. ALL DIMENSIONS IN METRES (m) UNLESS NOTED OTHERWISE.
2. COORDINATES ARE IN UTM NAD83 ZONE 8N.
3. ELEVATIONS ARE IN METRES (m) ABOVE MEAN SEA LEVEL (AMSL).
4. 69 kV CONDUCTOR, ADSS CABLE AND OVERHEAD SHIELD WIRE "OHSW" DISPLAYED AT "WET SNOW" (-10° C, 51mm RADIAL SNOW).
5. LINE ANGLE DEFLECTION LOOKING TOWARD EAGLE GOLD PROJECT SITE INDICATED AS FOLLOWS:
   + RIGHT ANGLE DEFLECTION
   - LEFT ANGLE DEFLECTION
6. THIS LINE WILL BE NUMBERED L251 IN THE YUKON ENERGY CORPORATION (YEC) SYSTEM.
7. LEFT (DASH) AND RIGHT (DOT) PROFILE OFFSETS SHOWN AT 5 m CENTERLINE OFFSET.
8. DESIGN TENSIONS SHOWN IN TABLE 1.

TABLE 1

| CABLE TYPE | MEAN ANNUAL TEMP (-4° C) | | WET SNOW (-10° C, 51mm RADIAL SNOW) | |
|---|---|---|---|---|
| | FULL TENSION SPANS (N) | TERMINAL SPANS (N) (SLACK) | FULL TENSION SPANS (N) | TERMINAL SPANS (N) (SLACK) |
| PARTRIDGE ACSR | 3,700 | 550 | 23,300 | 3,300 |
| ADSS | 7,500 | 150 | 13,900 | 3,300 |
| OHSW | 3,500 | 400 | 23,600 | 3,200 |

LEGEND

- 69 kV - 266.8 kcmil 26/7 "PARTRIDGE" ACSR
- ADSS - OFC-24 G.652D-FASA-S1 (ZTT)
- OHSW - 266.8 kcmil 26/7 "PARTRIDGE" ACSR
- ROAD EDGE
- 2.5m ROAD BUFFER
- 30m CLEARING BOUNDARY
- YEC L250 69 KV LINE (EXISTING)
- 60m WIDE RIGHT OF WAY BOUNDARY
- X KM APPROXIMATE ROAD KM MARKER

REFERENCES

| | |
|---|---|
| 1407-T-1000 | DRAWING LIST |
| 1407-T-1100 | ROUTE MAP |
| 1407-T-1400 | STRUCTURE DATA SHEET |
| 1407-T-1900 | SOUTH MCQUESTEN TRANSMISSION LINE CONNECTION - PLAN |
| 1407-T-3000 | STRUCTURE FAMILY |
| 1407-T-8000 | HWY 11 (SILVER TRAIL)-OVERHEAD LINE CROSSING-STR 0/4 TO STR 0/5 |

30.0 m Horiz. Scale
10.0 m Vert. Scale

ISSUED FOR CONSTRUCTION

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W.N. BRAIZER ASSOCIATES INC.
SIGNATURE _____
Date 10/09/18
PERMIT NUMBER: PP295
Association of Professional Engineers of Yukon

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|---|---|---|---|---|---|---|
| 2 | AUG 10/18 | MCQUESTEN SUBSTATION & KM18 MODIFICATIONS | MP | MP | PC | NB |
| 1 | JUL 11/18 | BORROW PIT & ROAD PROXIMITY ALIGNMENT CHANGES | MP | MP | PC | MEO |
| 0 | MAY 11/18 | ISSUED FOR CONSTRUCTION | MP | MP | PC | MEO |

CLIENT: StrataGold Corporation

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|---|---|
| DATE | MAY 11/18 |
| DESIGN | MP |
| DRAWN | MP |
| CHECKED | PC |
| APPROVED | MEO |

Clean Energy CONSULTING INC.
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WN BRAZIER ASSOCIATES INC

SEAL: PROFESSIONAL ENGINEER — YUKON — W. NEIL BRAZIER — TERRITORY

EAGLE GOLD PROJECT
L251 - 69 kV TRANSMISSION LINE
PLAN AND PROFILE (SHEET 50 OF 54)

| PROJECT No. | DRAWING No. | REV. |
|---|---|---|
| 1407 | 1407-T-1200-50 | 2 |

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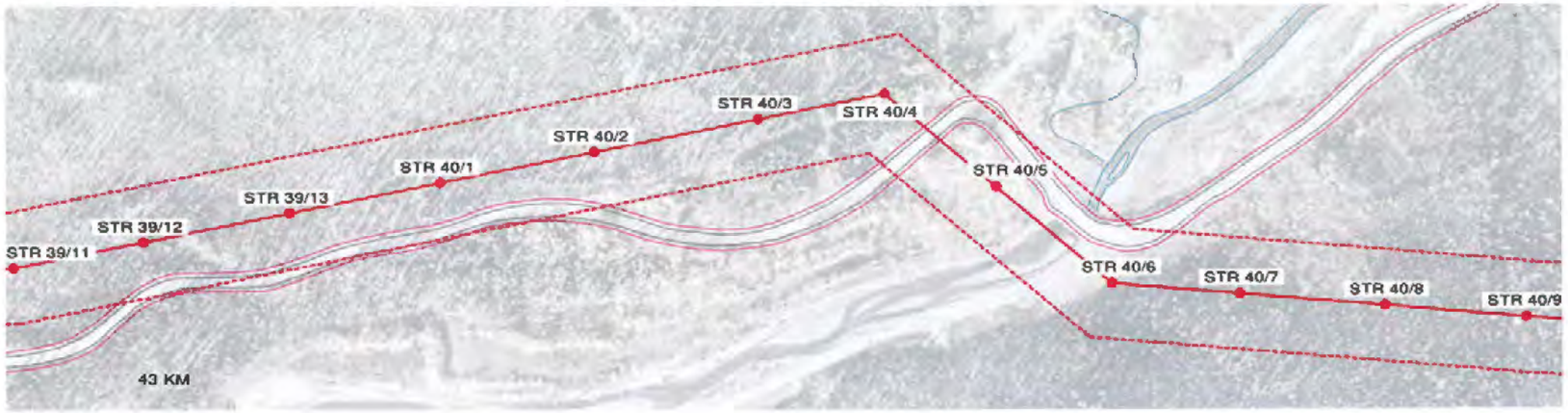
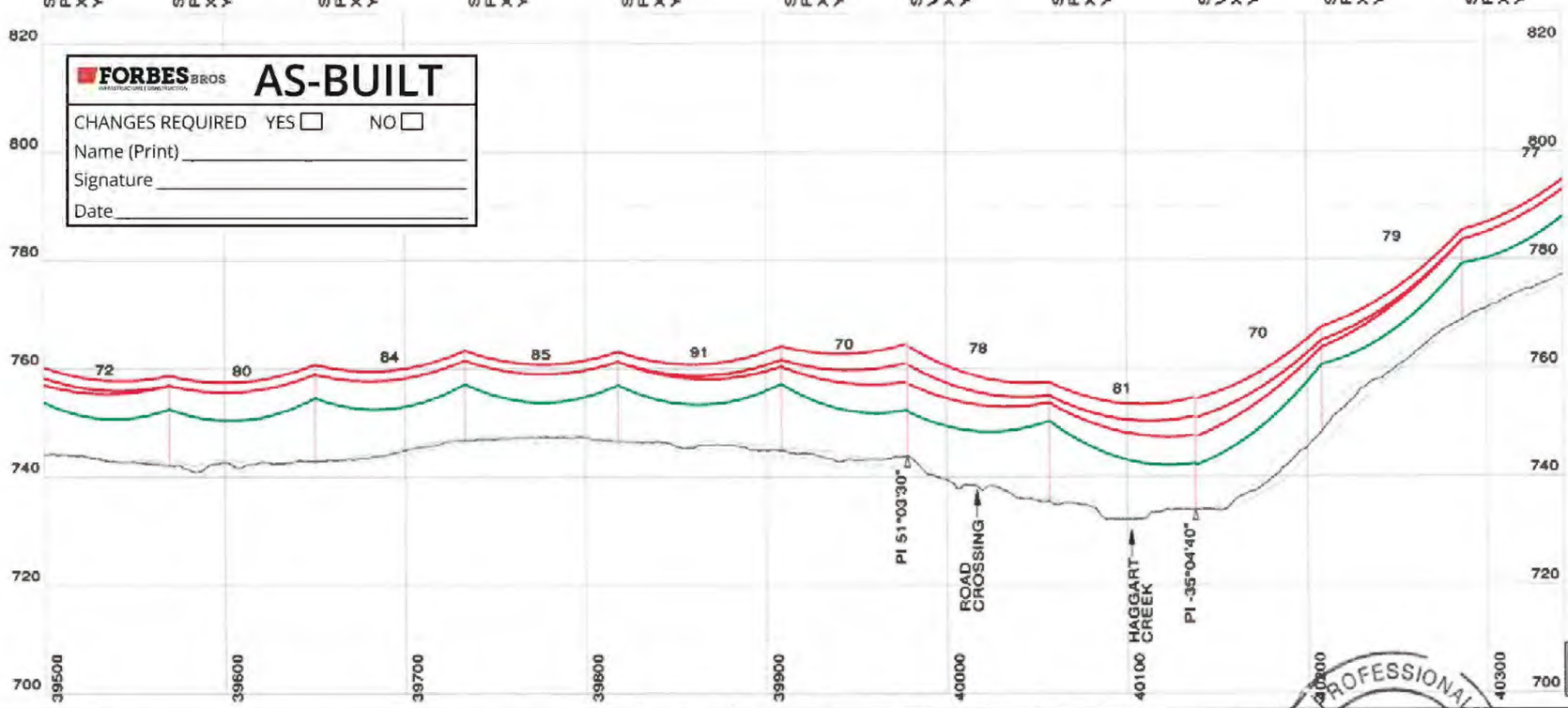



NOTES

1. ALL DIMENSIONS IN METRES (m) UNLESS NOTED OTHERWISE.
2. COORDINATES ARE IN UTM NAD83 ZONE 8N.
3. ELEVATIONS ARE IN METRES (m) ABOVE MEAN SEA LEVEL (AMSL).
4. 69 kV CONDUCTOR, ADSS CABLE AND OVERHEAD SHIELD WIRE "OHSW" DISPLAYED AT "WET SNOW" (-10° C, 51mm RADIAL SNOW).
5. LINE ANGLE DEFLECTION LOOKING TOWARD EAGLE GOLD PROJECT SITE INDICATED AS FOLLOWS:
   + RIGHT ANGLE DEFLECTION
   - LEFT ANGLE DEFLECTION
6. THIS LINE WILL BE NUMBERED L251 IN THE YUKON ENERGY CORPORATION (YEC) SYSTEM.
7. LEFT (DASH) AND RIGHT (DOT) PROFILE OFFSETS SHOWN AT 5 m CENTERLINE OFFSET.
8. DESIGN TENSIONS SHOWN IN TABLE 1.

TABLE 1

| CABLE TYPE | MEAN ANNUAL TEMP (-4° C) FULL TENSION SPANS (N) | MEAN ANNUAL TEMP (-4° C) TERMINAL SPANS (N) (SLACK) | WET SNOW (-10° C, 51mm RADIAL SNOW) FULL TENSION SPANS (N) | WET SNOW (-10° C, 51mm RADIAL SNOW) TERMINAL SPANS (N) (SLACK) |
|---|---|---|---|---|
| PARTRIDGE ACSR | 3,750 | 550 | 23,300 | 3,300 |
| ADSS | 7,500 | 150 | 13,900 | 3,300 |
| OHSW | 3,800 | 400 | 23,600 | 3,200 |




LEGEND

- 69 kV - 266.8 kcmil 26/7 "PARTRIDGE" ACSR
- ADSS - OFC-24 G.652D-FASA-S1 (ZTT)
- OHSW - 266.8 kcmil 26/7 "PARTRIDGE" ACSR
- ROAD EDGE
- 2.5m ROAD BUFFER
- 30m CLEARING BOUNDARY
- YEC L250 69 KV LINE (EXISTING)
- 60m WIDE RIGHT OF WAY BOUNDARY
- X KM APPROXIMATE ROAD KM MARKER

REFERENCES

| | |
|---|---|
| 1407-T-1000 | DRAWING LIST |
| 1407-T-1100 | ROUTE MAP |
| 1407-T-1400 | STRUCTURE DATA SHEET |
| 1407-T-1900 | SOUTH MCQUESTEN TRANSMISSION LINE CONNECTION - PLAN |
| 1407-T-3000 | STRUCTURE FAMILY |
| 1407-T-6000 | HWY 11 (SILVER TRAIL)-OVERHEAD LINE CROSSING-STR 0/4 TO STR 0/5 |

30.0 m Horiz. Scale
10.0 m Vert. Scale

ISSUED FOR CONSTRUCTION

PERMIT TO PRACTICE
W.N. BRAIZER ASSOCIATES INC.
SIGNATURE
Date 10/08/18
PERMIT NUMBER: PP295
Association of Professional Engineers of Yukon

FORBES BROS AS-BUILT
CHANGES REQUIRED YES ☐ NO ☐
Name (Print) _____
Signature _____
Date _____

| NO. | DATE | REVISION | DES | DWN | CHK | APR |
|---|---|---|---|---|---|---|
| 2 | AUG 10/18 | MCQUESTEN SUBSTATION & KM18 MODIFICATIONS | MP | MP | PC | NB |
| 1 | JUL 11/18 | BORROW PIT & ROAD PROXIMITY ALIGNMENT CHANGES | MP | MP | PC | MEO |
| 0 | MAY 11/18 | ISSUED FOR CONSTRUCTION | MP | MP | PC | MEO |

CLIENT: StrataGold Corporation

| | |
|---|---|
| DATE | MAY 11/18 |
| DESIGN | MP |
| DRAWN | MP |
| CHECKED | PC |
| APPROVED | MEO |

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WN BRAZIER ASSOCIATES INC

SEAL: PROFESSIONAL ENGINEER YUKON W. NEIL BRAZIER TERRITORY

EAGLE GOLD PROJECT
L251 - 69 kV TRANSMISSION LINE
PLAN AND PROFILE (SHEET 51 OF 54)

| PROJECT No. | DRAWING No. | REV. |
|---|---|---|
| 1407 | 1407-T-1200-51 | 2 |

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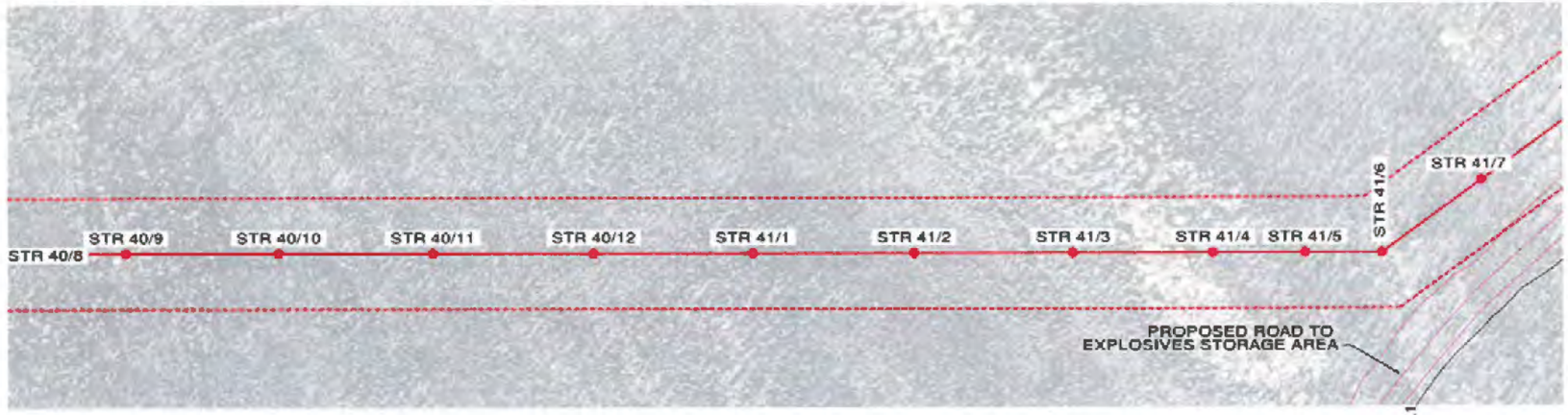


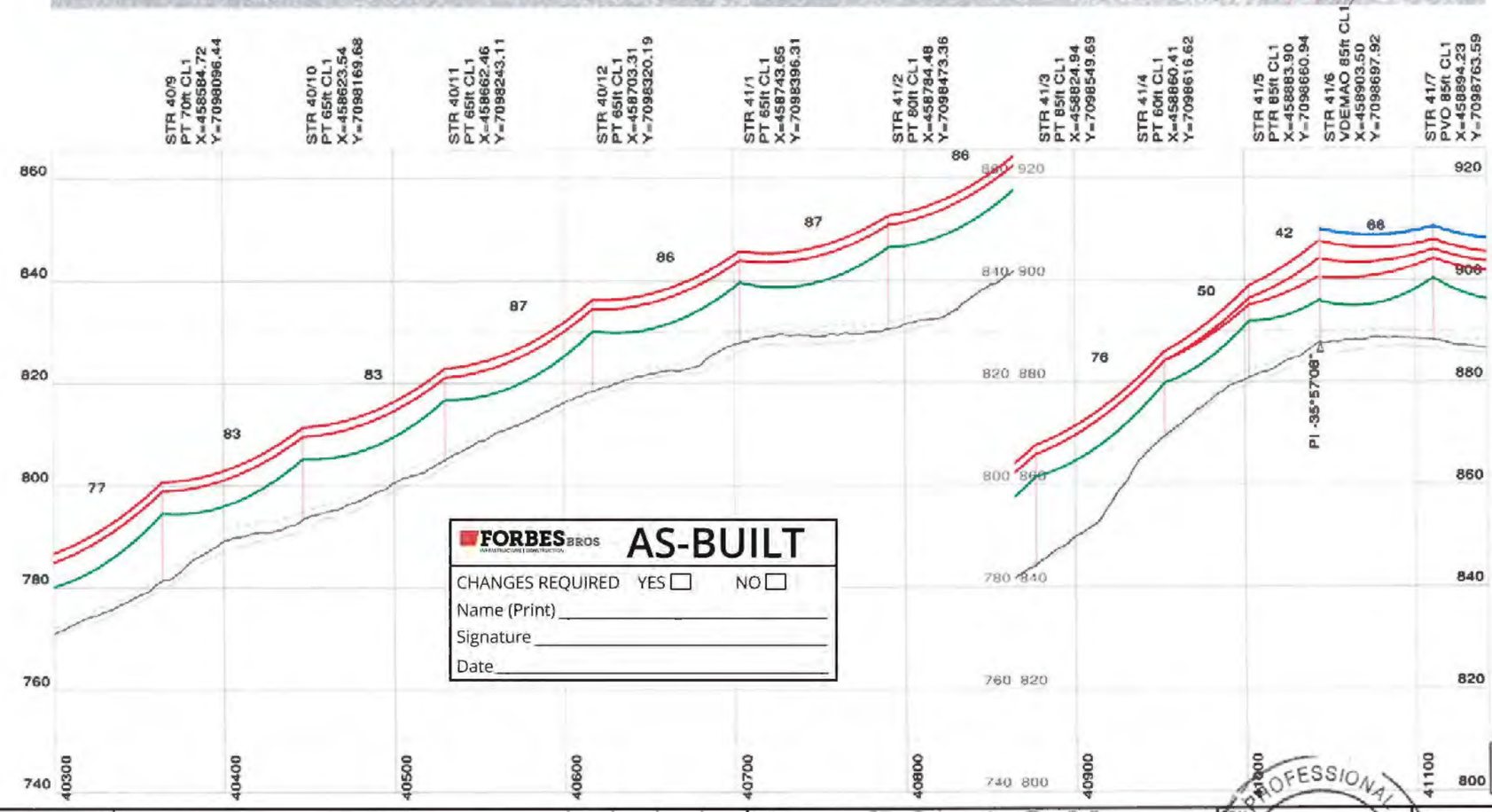


**AS-BUILT**

FORBES BROS

CHANGES REQUIRED YES ☐ NO ☐

Name (Print) _____

Signature _____

Date _____

## NOTES

1. ALL DIMENSIONS IN METRES (m) UNLESS NOTED OTHERWISE.
2. COORDINATES ARE IN UTM NAD83 ZONE 8N.
3. ELEVATIONS ARE IN METRES (m) ABOVE MEAN SEA LEVEL (AMSL).
4. 69 kV CONDUCTOR, ADSS CABLE AND OVERHEAD SHIELD WIRE "OHSW" DISPLAYED AT "WET SNOW" (-10° C, 51mm RADIAL SNOW).
5. LINE ANGLE DEFLECTION LOOKING TOWARD EAGLE GOLD PROJECT SITE INDICATED AS FOLLOWS:
   + RIGHT ANGLE DEFLECTION
   - LEFT ANGLE DEFLECTION
6. THIS LINE WILL BE NUMBERED L251 IN THE YUKON ENERGY CORPORATION (YEC) SYSTEM.
7. LEFT (DASH) AND RIGHT (DOT) PROFILE OFFSETS SHOWN AT 5 m CENTERLINE OFFSET.
8. DESIGN TENSIONS SHOWN IN TABLE 1.

**TABLE 1**

| CABLE TYPE | MEAN ANNUAL TEMP (-4° C) | | WET SNOW (-10° C, 51mm RADIAL SNOW) | |
|---|---|---|---|---|
| | FULL TENSION SPANS (N) | TERMINAL SPANS (N) (SLACK) | FULL TENSION SPANS (N) | TERMINAL SPANS (N) (SLACK) |
| PARTRIDGE ACSR | 3,750 | 550 | 23,300 | 3,300 |
| ADSS | 7,500 | 150 | 13,900 | 3,300 |
| OHSW | 3,500 | 400 | 23,600 | 3,200 |

## LEGEND

- 69 kV - 266.8 kcmil 26/7 "PARTRIDGE" ACSR
- ADSS - OFC-24 G.652D-FASA-S1 (ZTT)
- OHSW - 266.8 kcmil 26/7 "PARTRIDGE" ACSR
- ROAD EDGE
- 2.5m ROAD BUFFER
- 30m CLEARING BOUNDARY
- YEC L250 69 KV LINE (EXISTING)
- 60m WIDE RIGHT OF WAY BOUNDARY
- X KM APPROXIMATE ROAD KM MARKER

## REFERENCES

| | |
|---|---|
| 1407-T-1000 | DRAWING LIST |
| 1407-T-1100 | ROUTE MAP |
| 1407-T-1400 | STRUCTURE DATA SHEET |
| 1407-T-1900 | SOUTH MCQUESTEN TRANSMISSION LINE CONNECTION - PLAN |
| 1407-T-3000 | STRUCTURE FAMILY |
| 1407-T-6000 | HWY 11 (SILVER TRAIL)-OVERHEAD LINE CROSSING-STR 0/4 TO STR 0/5 |

30.0 m Horiz. Scale
10.0 m Vert. Scale

ISSUED FOR CONSTRUCTION

PERMIT TO PRACTICE
W.N. BRAIZER ASSOCIATES INC.
SIGNATURE _____
Date 16/08/18
PERMIT NUMBER: PP295
Association of Professional Engineers of Yukon

| NO. | DATE | REVISION | DES | DWN | CHK | APR |
|---|---|---|---|---|---|---|
| 2 | AUG 10/18 | MCQUESTEN SUBSTATION & KM18 MODIFICATIONS | MP | MP | PC | NB |
| 1 | JUL 11/18 | BORROW PIT & ROAD PROXIMITY ALIGNMENT CHANGES | MP | MP | PC | MEO |
| 0 | MAY 11/18 | ISSUED FOR CONSTRUCTION | MP | MP | PC | MEO |

CLIENT: StrataGold Corporation

| | |
|---|---|
| DATE | MAY 11/18 |
| DESIGN | MP |
| DRAWN | MP |
| CHECKED | PC |
| APPROVED | MEO |

Clean Energy CONSULTING INC
www.cleanenergyconsulting.ca
WN BRAZIER ASSOCIATES INC

SEAL: PROFESSIONAL ENGINEER — YUKON — W. NEIL BRAZIER — TERRITORY

EAGLE GOLD PROJECT
L251 - 69 kV TRANSMISSION LINE
PLAN AND PROFILE (SHEET 52 OF 54)

| PROJECT No. | DRAWING No. | REV. |
|---|---|---|
| 1407 | 1407-T-1200-52 | 2 |

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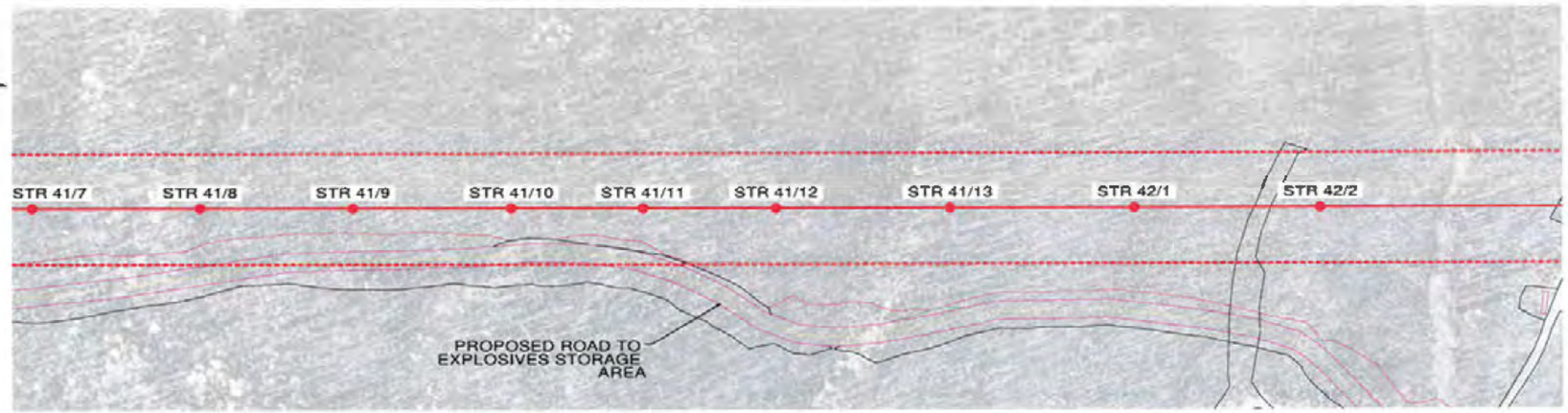


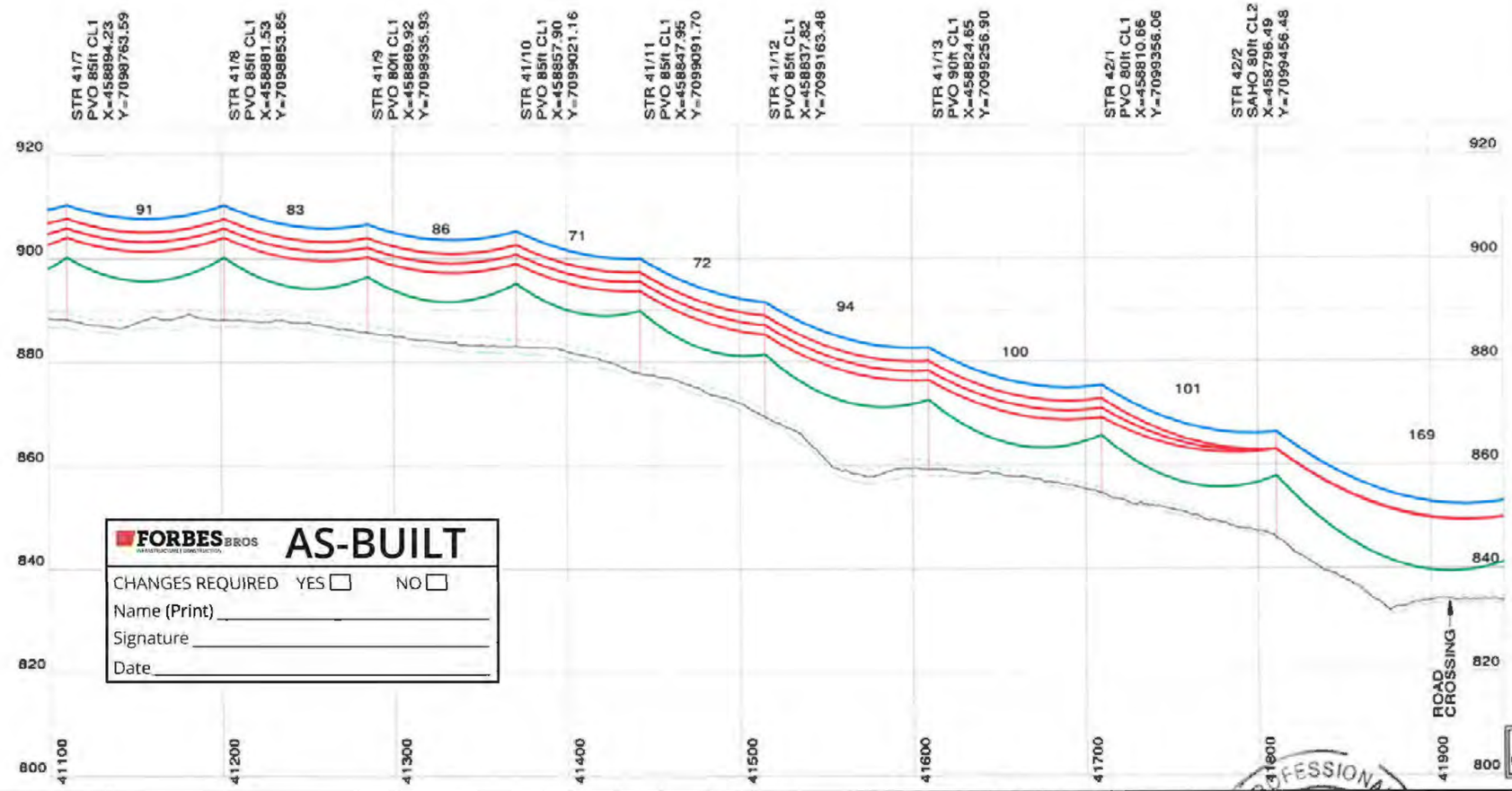


**FORBES BROS** AS-BUILT

CHANGES REQUIRED YES ☐ NO ☐

Name (Print) _____

Signature _____

Date _____

## NOTES

1. ALL DIMENSIONS IN METRES (m) UNLESS NOTED OTHERWISE.
2. COORDINATES ARE IN UTM NAD83 ZONE 8N.
3. ELEVATIONS ARE IN METRES (m) ABOVE MEAN SEA LEVEL (AMSL).
4. 69 kV CONDUCTOR, ADSS CABLE AND OVERHEAD SHIELD WIRE "OHSW" DISPLAYED AT "WET SNOW" (-10° C, 51mm RADIAL SNOW).
5. LINE ANGLE DEFLECTION LOOKING TOWARD EAGLE GOLD PROJECT SITE INDICATED AS FOLLOWS:
   + RIGHT ANGLE DEFLECTION
   - LEFT ANGLE DEFLECTION
6. THIS LINE WILL BE NUMBERED L251 IN THE YUKON ENERGY CORPORATION (YEC) SYSTEM.
7. LEFT (DASH) AND RIGHT (DOT) PROFILE OFFSETS SHOWN AT 5 m CENTERLINE OFFSET.
8. DESIGN TENSIONS SHOWN IN TABLE 1.

**TABLE 1**

| CABLE TYPE | MEAN ANNUAL TEMP (-4° C) | | WET SNOW (-10° C, 51mm RADIAL SNOW) | |
|---|---|---|---|---|
| | FULL TENSION SPANS (N) | TERMINAL SPANS (N) (BLACK) | FULL TENSION SPANS (N) | TERMINAL SPANS (N) (BLACK) |
| PARTRIDGE ACSR | 3,750 | 550 | 23,300 | 3,300 |
| ADSS | 7,600 | 150 | 13,800 | 3,300 |
| OHSW | 3,500 | 400 | 23,500 | 3,200 |

## LEGEND

- 69 kV - 266.8 kcmil 26/7 "PARTRIDGE" ACSR
- ADSS - OFC-24 G.652D-FASA-S1 (ZTT)
- OHSW - 266.8 kcmil 26/7 "PARTRIDGE" ACSR
- ROAD EDGE
- 2.5m ROAD BUFFER
- 30m CLEARING BOUNDARY
- YEC L250 69 KV LINE (EXISTING)
- 60m WIDE RIGHT OF WAY BOUNDARY
- X KM APPROXIMATE ROAD KM MARKER

## REFERENCES

| | |
|---|---|
| 1407-T-1000 | DRAWING LIST |
| 1407-T-1100 | ROUTE MAP |
| 1407-T-1400 | STRUCTURE DATA SHEET |
| 1407-T-1900 | SOUTH MCQUESTEN TRANSMISSION LINE CONNECTION - PLAN |
| 1407-T-3000 | STRUCTURE FAMILY |
| 1407-T-6000 | HWY 11 (SILVER TRAIL)-OVERHEAD LINE CROSSING-STR 0/4 TO STR 0/5 |

30.0 m Horiz. Scale
10.0 m Vert. Scale

ISSUED FOR CONSTRUCTION

PERMIT TO PRACTICE
W.N. BRAZIER ASSOCIATES INC.
SIGNATURE
Date 10/08/18
PERMIT NUMBER: PP295
Association of Professional Engineers of Yukon

| NO. | DATE | REVISION | DES | DWN | CHK | APR |
|---|---|---|---|---|---|---|
| 2 | AUG 10/18 | MCQUESTEN SUBSTATION & KM18 MODIFICATIONS | MP | MP | PC | NB |
| 1 | JUL 11/18 | BORROW PIT & ROAD PROXIMITY ALIGNMENT CHANGES | MP | MP | PC | MEO |
| 0 | MAY 11/18 | ISSUED FOR CONSTRUCTION | MP | MP | PC | MEO |

CLIENT: StrataGold Corporation

| | |
|---|---|
| DATE | MAY 11/18 |
| DESIGN | MP |
| DRAWN | MP |
| CHECKED | PC |
| APPROVED | MEO |

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WN BRAZIER ASSOCIATES INC

SEAL: PROFESSIONAL ENGINEER YUKON W. NEIL BRAZIER TERRITORY

# EAGLE GOLD PROJECT

## L251 - 69 kV TRANSMISSION LINE

## PLAN AND PROFILE (SHEET 53 OF 54)

| PROJECT No. | DRAWING No. | REV. |
|---|---|---|
| 1407 | 1407-T-1200-53 | 2 |

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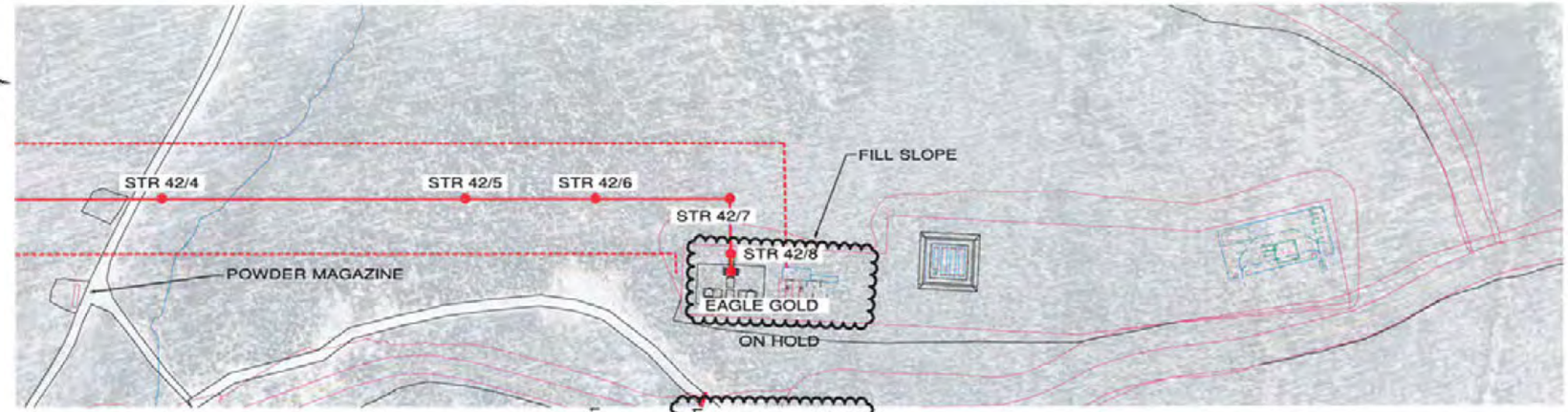


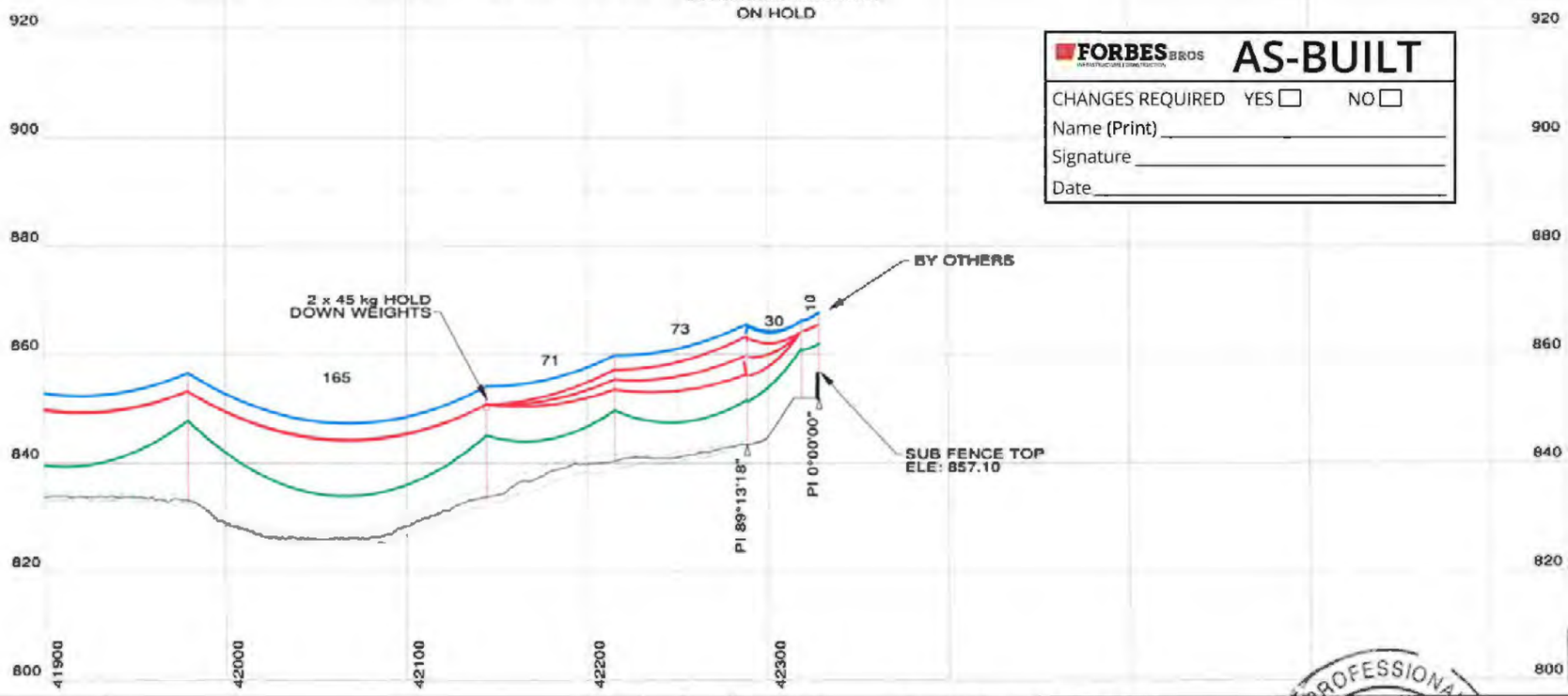


FORBES BROS

# AS-BUILT

CHANGES REQUIRED YES ☐ NO ☐

Name (Print) _____

Signature _____

Date _____

## NOTES

1. ALL DIMENSIONS IN METRES (m) UNLESS NOTED OTHERWISE.
2. COORDINATES ARE IN UTM NAD83 ZONE 8N.
3. ELEVATIONS ARE IN METRES (m) ABOVE MEAN SEA LEVEL (AMSL).
4. 69 kV CONDUCTOR, ADSS CABLE AND OVERHEAD SHIELD WIRE "OHSW" DISPLAYED AT "WET SNOW" (-10° C, 51mm RADIAL SNOW).
5. LINE ANGLE DEFLECTION LOOKING TOWARD EAGLE GOLD PROJECT SITE INDICATED AS FOLLOWS:
   + RIGHT ANGLE DEFLECTION
   - LEFT ANGLE DEFLECTION
6. THIS LINE WILL BE NUMBERED L251 IN THE YUKON ENERGY CORPORATION (YEC) SYSTEM.
7. LEFT (DASH) AND RIGHT (DOT) PROFILE OFFSETS SHOWN AT 5 m CENTERLINE OFFSET.
8. DESIGN TENSIONS SHOWN IN TABLE 1.

| TABLE 1 | MEAN ANNUAL TEMP (-4° C) | | WET SNOW (-10° C, 51mm RADIAL SNOW) | |
|---|---|---|---|---|
| CABLE TYPE | FULL TENSION SPANS (N) | TERMINAL SPANS (N) (SLACK) | FULL TENSION SPANS (N) | TERMINAL SPANS (N) (SLACK) |
| PARTRIDGE ACSR | 3,750 | 550 | 23,300 | 3,300 |
| ADSS | 7,500 | 150 | 12,900 | 3,300 |
| OHSW | 3,500 | 400 | 23,600 | 3,200 |

## LEGEND

- 69 kV - 266.8 kcmil 26/7 "PARTRIDGE" ACSR
- ADSS - OFC-24 G.652D-FASA-S1 (ZTT)
- OHSW - 266.8 kcmil 26/7 "PARTRIDGE" ACSR
- ROAD EDGE
- 2.5m ROAD BUFFER
- 30m CLEARING BOUNDARY
- YEC L250 69 KV LINE (EXISTING)
- 60m WIDE RIGHT OF WAY BOUNDARY
- X KM APPROXIMATE ROAD KM MARKER

## REFERENCES

| | |
|---|---|
| 1407-T-1000 | DRAWING LIST |
| 1407-T-1100 | ROUTE MAP |
| 1407-T-1400 | STRUCTURE DATA SHEET |
| 1407-T-1900 | SOUTH MCQUESTEN TRANSMISSION LINE CONNECTION - PLAN |
| 1407-T-3000 | STRUCTURE FAMILY |
| 1407-T-6000 | HWY 11 (SILVER TRAIL)-OVERHEAD LINE CROSSING-STR 0/4 TO STR 0/5 |

30.0 m Horiz. Scale
10.0 m Vert. Scale

ISSUED FOR CONSTRUCTION

PERMIT TO PRACTICE
W.N. BRAIZER ASSOCIATES INC.
SIGNATURE _____
Date 10/03/18
PERMIT NUMBER: PP295
Association of Professional Engineers of Yukon

| NO. | DATE | REVISION | DES | DWN | CHK | APR |
|---|---|---|---|---|---|---|
| 2 | AUG 10/18 | MCQUESTEN SUBSTATION & KM18 MODIFICATIONS | MP | MP | PC | NB |
| 1 | JUL 11/18 | BORROW PIT & ROAD PROXIMITY ALIGNMENT CHANGES | MP | MP | PC | MEO |
| 0 | MAY 11/18 | ISSUED FOR CONSTRUCTION | MP | MP | PC | MEO |

CLIENT: StrataGold Corporation

DATE: MAY 11/18

| | |
|---|---|
| DESIGN | MP |
| DRAWN | MP |
| CHECKED | PC |
| APPROVED | MEO |

Clean Energy CONSULTING INC. www.cleanenergyconsulting.ca

WN BRAZIER ASSOCIATES INC

LEAD: YUKON W. NEIL BRAZIER TERRITORY PROFESSIONAL ENGINEER

EAGLE GOLD PROJECT
L251 - 69 kV TRANSMISSION LINE
PLAN AND PROFILE (SHEET 54 OF 54)

| PROJECT No. | DRAWING No. | REV. |
|---|---|---|
| 1407 | 1407-T-1200-54 | 2 |

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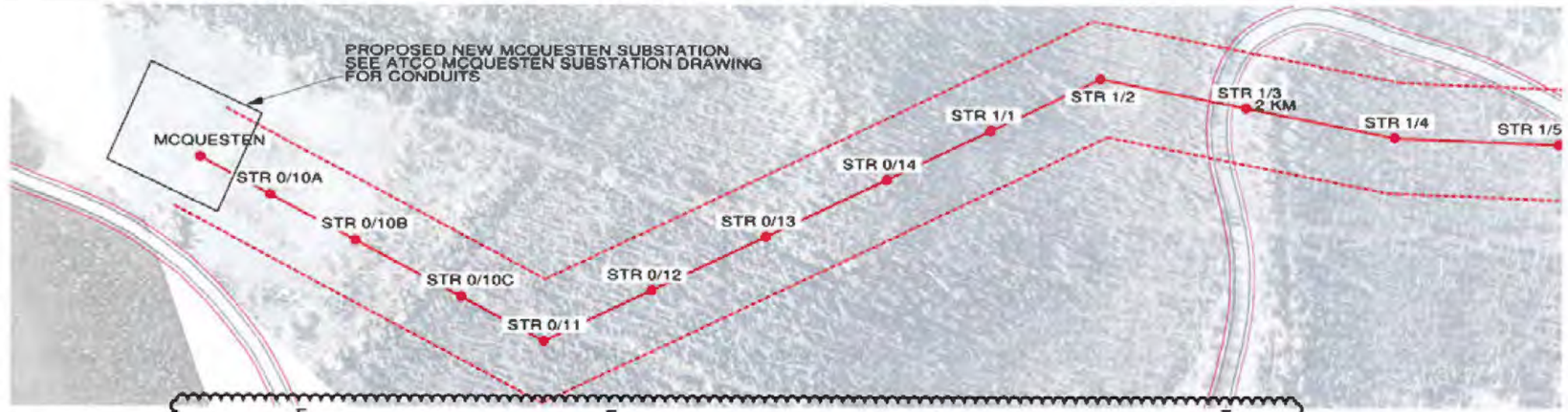


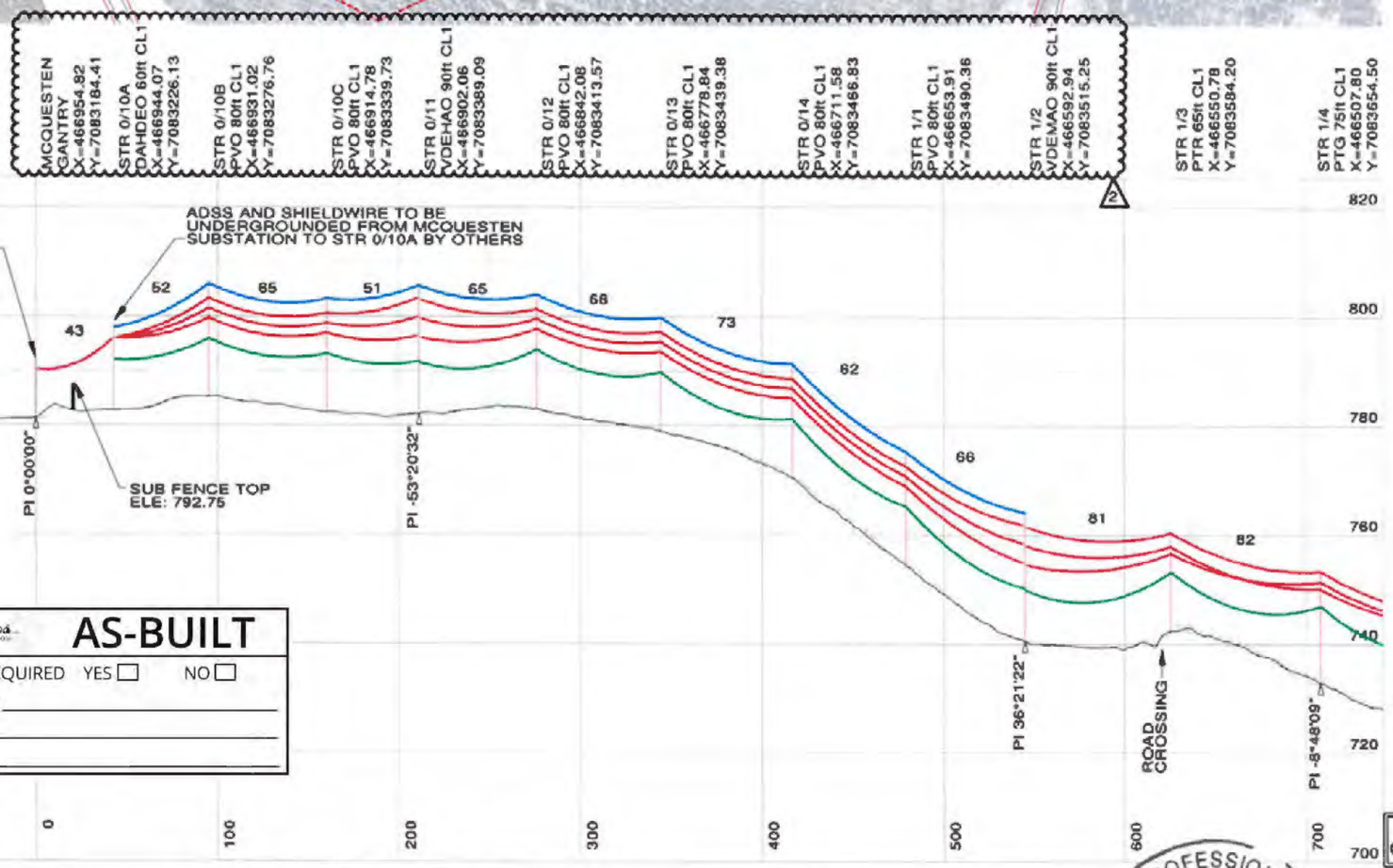


Forbes Bros. Paving & Construction

**AS-BUILT**

CHANGES REQUIRED YES ☐ NO ☐

Name (Print) _____

Signature _____

Date _____

## NOTES

1. ALL DIMENSIONS IN METRES (m) UNLESS NOTED OTHERWISE.
2. COORDINATES ARE IN UTM NAD83 ZONE 8N.
3. ELEVATIONS ARE IN METRES (m) ABOVE MEAN SEA LEVEL (AMSL).
4. 69 kV CONDUCTOR, ADSS CABLE AND OVERHEAD SHIELD WIRE "OHSW" DISPLAYED AT "WET SNOW" (-10° C, 51mm RADIAL SNOW).
5. LINE ANGLE DEFLECTION LOOKING TOWARD EAGLE GOLD PROJECT SITE INDICATED AS FOLLOWS:
   + RIGHT ANGLE DEFLECTION
   - LEFT ANGLE DEFLECTION
6. THIS LINE WILL BE NUMBERED L251 IN THE YUKON ENERGY CORPORATION (YEC) SYSTEM.
7. LEFT (DASH) AND RIGHT (DOT) PROFILE OFFSETS SHOWN AT 5 m CENTERLINE OFFSET.
8. DESIGN TENSIONS SHOWN IN TABLE 1.

TABLE 1

| CABLE TYPE | MEAN ANNUAL TEMP (-4° C) | | WET SNOW (-10° C 51mm RADIAL SNOW) | |
|---|---|---|---|---|
| | FULL TENSION SPANS (N) | TERMINAL SPANS (N) (SLACK) | FULL TENSION SPANS (N) | TERMINAL SPANS (N) (SLACK) |
| PARTRIDGE ACSR | 3,750 | 550 | 23,300 | 3,300 |
| ADSS | 7,500 | 150 | 13,900 | 3,300 |
| OHSW | 3,500 | 400 | 23,600 | 3,200 |

## LEGEND

- 69 kV - 266.8 kcmil 26/7 "PARTRIDGE" ACSR
- ADSS - OFC-24 G.652D-FASA-S1 (ZTT)
- OHSW - 266.8 kcmil 26/7 "PARTRIDGE" ACSR
- ROAD EDGE
- 2.5m ROAD BUFFER
- 30m CLEARING BOUNDARY
- YEC L250 69 KV LINE (EXISTING)
- 60m WIDE RIGHT OF WAY BOUNDARY
- X KM APPROXIMATE ROAD KM MARKER

## REFERENCES

| | |
|---|---|
| 1407-T-1000 | DRAWING LIST |
| 1407-T-1100 | ROUTE MAP |
| 1407-T-1400 | STRUCTURE DATA SHEET |
| 1407-T-1900 | SOUTH MCQUESTEN TRANSMISSION LINE CONNECTION - PLAN |
| 1407-T-3000 | STRUCTURE FAMILY |
| 1407-T-6000 | HWY 11 (SILVER TRAIL)-OVERHEAD LINE CROSSING-STR 0/4 TO STR 0/5 |

30.0 m Horiz. Scale
10.0 m Vert. Scale

ISSUED FOR CONSTRUCTION

PERMIT TO PRACTICE
W.N. BRAIZER ASSOCIATES INC.
SIGNATURE _____
Date 10/08/18
PERMIT NUMBER: PP295
Association of Professional Engineers of Yukon

| NO. | DATE | REVISION | DES | DWN | CHK | APR |
|---|---|---|---|---|---|---|
| 2 | AUG 10/18 | MCQUESTEN SUBSTATION & KM18 MODIFICATIONS | MP | MP | PC | NB |
| 1 | JUL 11/18 | BORROW PIT & ROAD PROXIMITY ALIGNMENT CHANGES | MP | MP | PC | MEO |
| 0 | MAY 11/18 | ISSUED FOR CONSTRUCTION | MP | MP | PC | MEO |

CLIENT: StrataGold Corporation

DATE: MAY 11/18
DESIGN: MP
DRAWN: MP
CHECKED: PC
APPROVED: MEO

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WN BRAIZER ASSOCIATES INC

SEAL: PROFESSIONAL ENGINEER YUKON TERRITORY W. NEIL BRAZIER

# EAGLE GOLD PROJECT
## L251 - 69 kV TRANSMISSION LINE
## PLAN AND PROFILE (SHEET 1 OF 54)

PROJECT No. 1407
DRAWING No. 1407-T-1200-1
REV. 2

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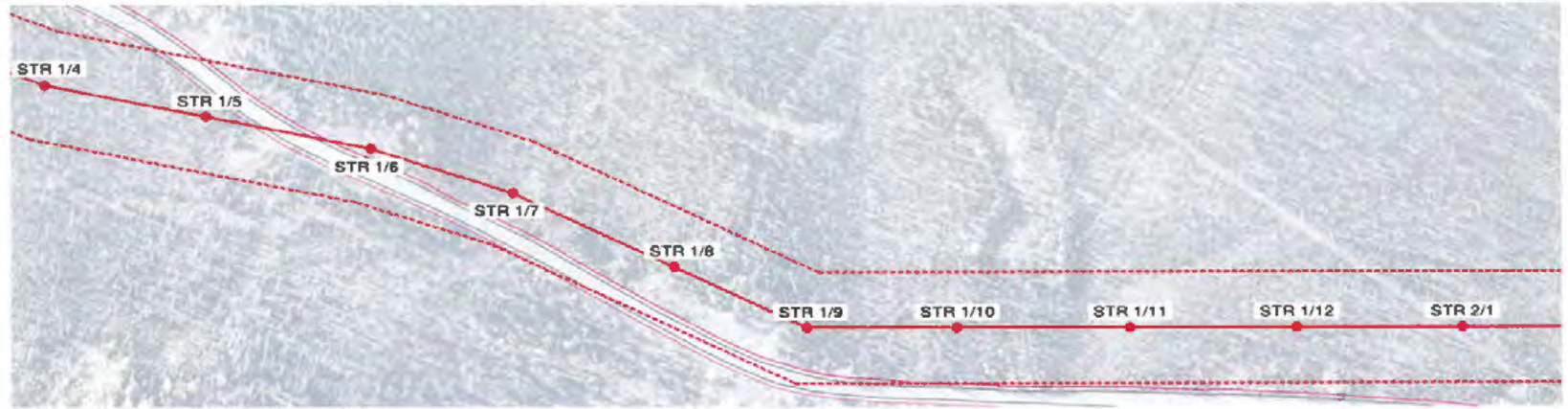


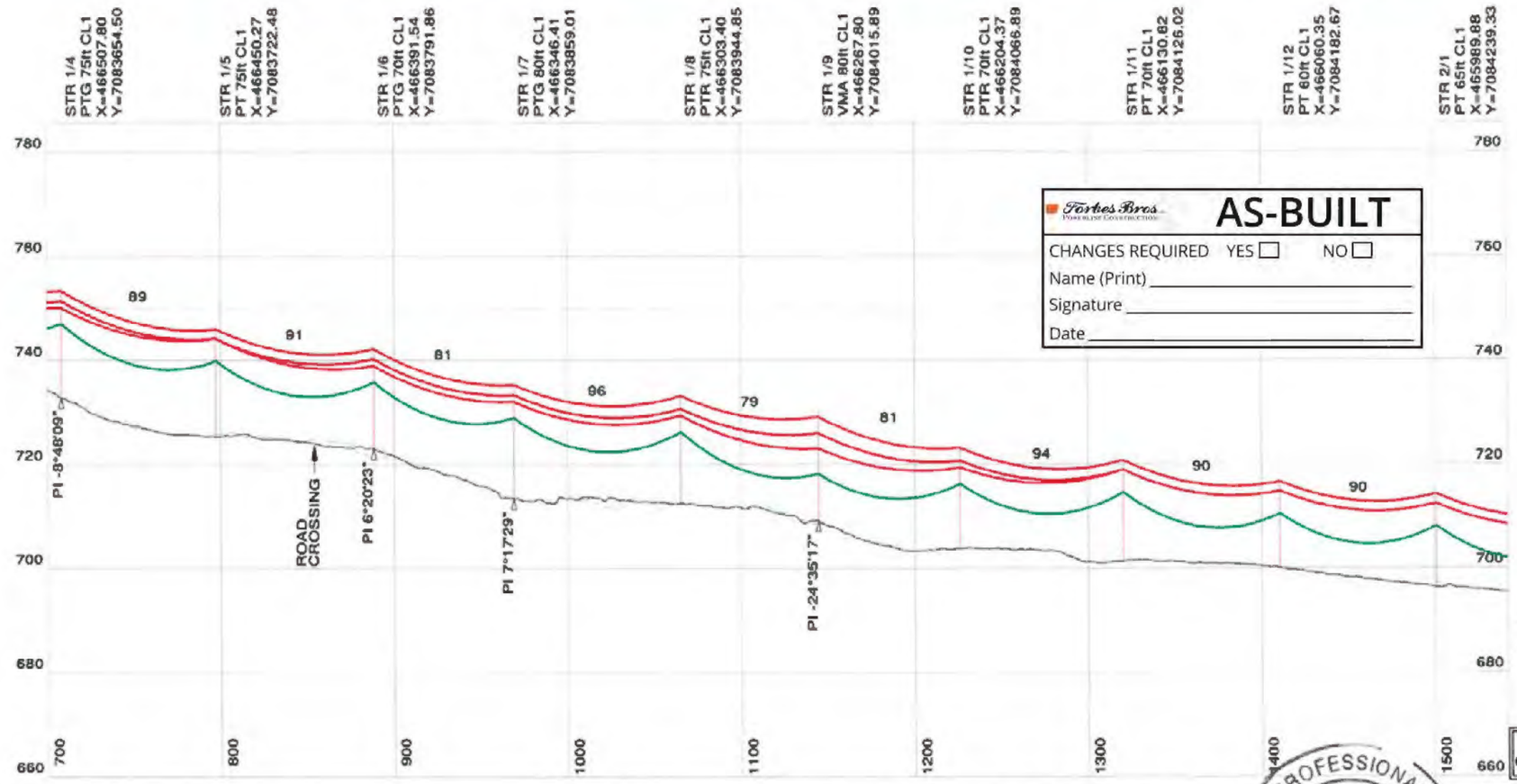


Forbes Bros. Pipeline Construction

# AS-BUILT

CHANGES REQUIRED YES ☐ NO ☐

Name (Print) _____

Signature _____

Date _____

## NOTES

1. ALL DIMENSIONS IN METRES (m) UNLESS NOTED OTHERWISE.
2. COORDINATES ARE IN UTM NAD83 ZONE 8N.
3. ELEVATIONS ARE IN METRES (m) ABOVE MEAN SEA LEVEL (AMSL).
4. 69 kV CONDUCTOR, ADSS CABLE AND OVERHEAD SHIELD WIRE "OHSW" DISPLAYED AT "WET SNOW" (-10° C, 51mm RADIAL SNOW).
5. LINE ANGLE DEFLECTION LOOKING TOWARD EAGLE GOLD PROJECT SITE INDICATED AS FOLLOWS:
   + RIGHT ANGLE DEFLECTION
   - LEFT ANGLE DEFLECTION
6. THIS LINE WILL BE NUMBERED L251 IN THE YUKON ENERGY CORPORATION (YEC) SYSTEM.
7. LEFT (DASH) AND RIGHT (DOT) PROFILE OFFSETS SHOWN AT 5 m CENTERLINE OFFSET.
8. DESIGN TENSIONS SHOWN IN TABLE 1.

TABLE 1

| | MEAN ANNUAL TEMP (-4° C) | | WET SNOW (-10° C, 51mm RADIAL SNOW) | |
|---|---|---|---|---|
| CABLE TYPE | FULL TENSION SPANS (N) | TERMINAL SPANS (N) (SLACK) | FULL TENSION SPANS (N) | TERMINAL SPANS (N) (SLACK) |
| PARTRIDGE ACSR | 3,750 | 550 | 23,300 | 3,300 |
| ADSS | 7,500 | 150 | 13,900 | 3,300 |
| OHSW | 3,800 | 400 | 23,600 | 3,200 |

## LEGEND

- 69 kV - 266.8 kcmil 26/7 "PARTRIDGE" ACSR
- ADSS - OFC-24 G.652D-FASA-S1 (ZTT)
- OHSW - 266.8 kcmil 26/7 "PARTRIDGE" ACSR
- ROAD EDGE
- 2.5m ROAD BUFFER
- 30m CLEARING BOUNDARY
- YEC L250 69 KV LINE (EXISTING)
- 60m WIDE RIGHT OF WAY BOUNDARY
- X KM APPROXIMATE ROAD KM MARKER

## REFERENCES

| | |
|---|---|
| 1407-T-1000 | DRAWING LIST |
| 1407-T-1100 | ROUTE MAP |
| 1407-T-1400 | STRUCTURE DATA SHEET |
| 1407-T-1900 | SOUTH MCQUESTEN TRANSMISSION LINE CONNECTION - PLAN |
| 1407-T-3000 | STRUCTURE FAMILY |
| 1407-T-6000 | HWY 11 (SILVER TRAIL)-OVERHEAD LINE CROSSING-STR 0/4 TO STR 0/5 |

30.0 m Horiz. Scale
10.0 m Vert. Scale

ISSUED FOR CONSTRUCTION

PERMIT TO PRACTICE
W.N. BRAIZER ASSOCIATES INC.
SIGNATURE NW Braizer
Date 10/05/18
PERMIT NUMBER: PP295
Association of Professional Engineers of Yukon

| NO. | DATE | REVISION | DES | DWN | CHK | APR |
|---|---|---|---|---|---|---|
| 2 | AUG 10/18 | MCQUESTEN SUBSTATION & KM18 MODIFICATIONS | MP | MP | PC | NB |
| 1 | JUL 11/18 | BORROW PIT & ROAD PROXIMITY ALIGNMENT CHANGES | MP | MP | PC | MEO |
| 0 | MAY 11/18 | ISSUED FOR CONSTRUCTION | MP | MP | PC | MEO |

CLIENT: StrataGold Corporation

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| DATE | MAY 11/18 |
| DESIGN | MP |
| DRAWN | MP |
| CHECKED | PC |
| APPROVED | MEO |

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WN BRAIZER ASSOCIATES INC

SEAL: PROFESSIONAL ENGINEER — YUKON — W. NEIL BRAZIER — TERRITORY

EAGLE GOLD PROJECT
L251 - 69 kV TRANSMISSION LINE
PLAN AND PROFILE (SHEET 2 OF 54)

| PROJECT No. | DRAWING No. | REV. |
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| 1407 | 1407-T-1200-2 | 2 |

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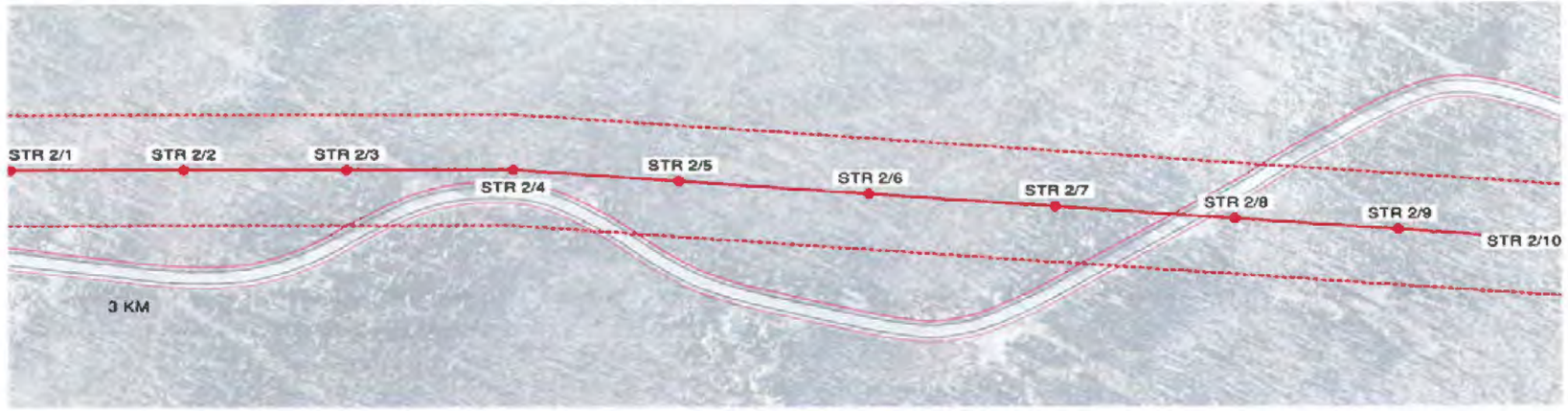


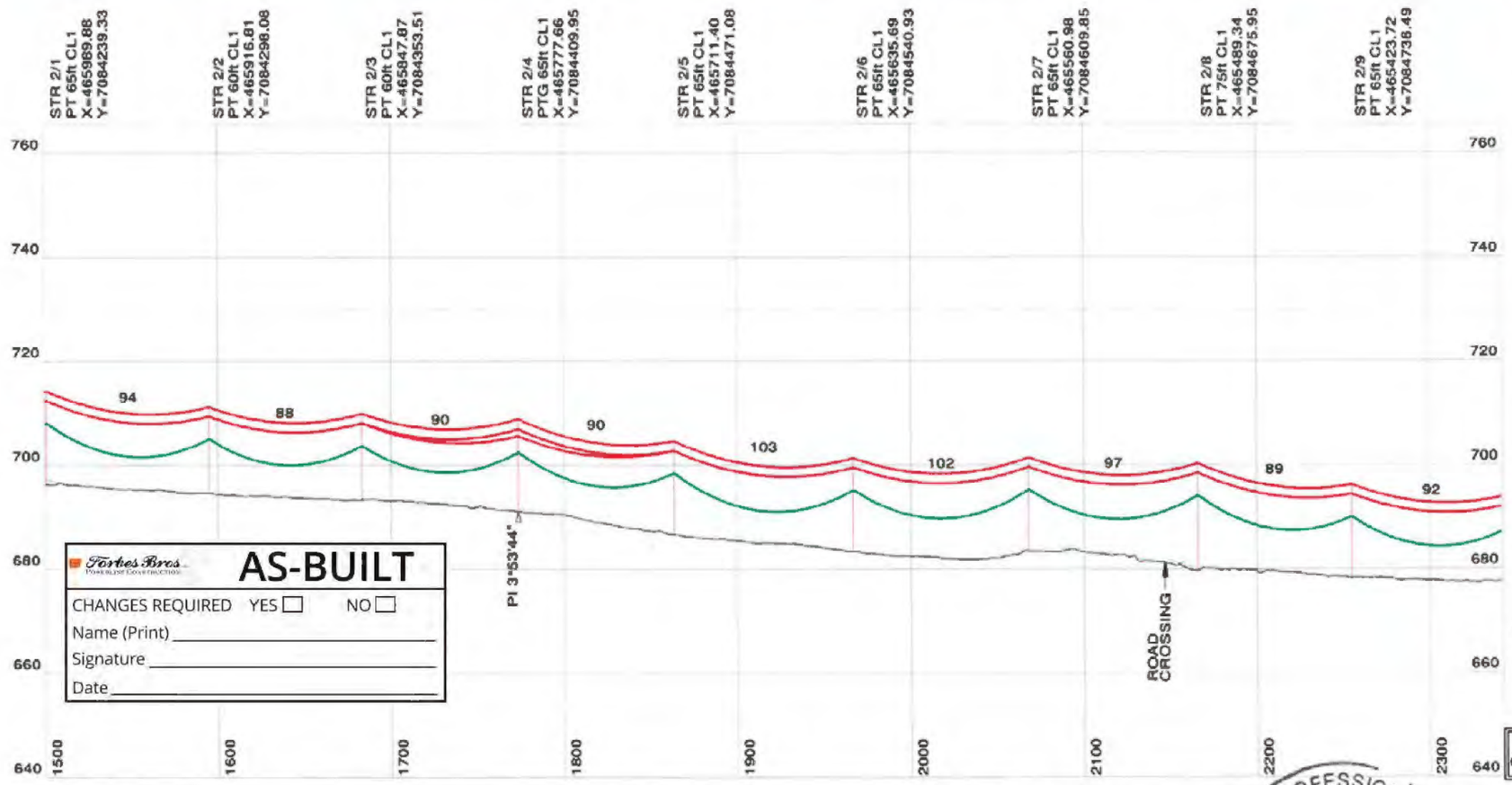


AS-BUILT

CHANGES REQUIRED YES ☐ NO ☐

Name (Print) _____

Signature _____

Date _____

NOTES

1. ALL DIMENSIONS IN METRES (m) UNLESS NOTED OTHERWISE.
2. COORDINATES ARE IN UTM NAD83 ZONE 8N.
3. ELEVATIONS ARE IN METRES (m) ABOVE MEAN SEA LEVEL (AMSL).
4. 69 kV CONDUCTOR, ADSS CABLE AND OVERHEAD SHIELD WIRE "OHSW" DISPLAYED AT "WET SNOW" (-10° C, 51mm RADIAL SNOW).
5. LINE ANGLE DEFLECTION LOOKING TOWARD EAGLE GOLD PROJECT SITE INDICATED AS FOLLOWS:
   + RIGHT ANGLE DEFLECTION
   - LEFT ANGLE DEFLECTION
6. THIS LINE WILL BE NUMBERED L251 IN THE YUKON ENERGY CORPORATION (YEC) SYSTEM.
7. LEFT (DASH) AND RIGHT (DOT) PROFILE OFFSETS SHOWN AT 5 m CENTERLINE OFFSET.
8. DESIGN TENSIONS SHOWN IN TABLE 1.

TABLE 1

| CABLE TYPE | MEAN ANNUAL TEMP (-4° C) | | WET SNOW (-10° C, 51mm RADIAL SNOW) | |
|---|---|---|---|---|
| | FULL TENSION SPANS (N) | TERMINAL SPANS (N) (SLACK) | FULL TENSION SPANS (N) | TERMINAL SPANS (N) (SLACK) |
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| ADSS | 7,500 | 150 | 13,900 | 3,300 |
| OHSW | 3,500 | 400 | 23,600 | 3,200 |

LEGEND

- 69 kV - 266.8 kcmil 26/7 "PARTRIDGE" ACSR
- ADSS - OFC-24 G.652D-FASA-S1 (ZTT)
- OHSW - 266.8 kcmil 26/7 "PARTRIDGE" ACSR
- ROAD EDGE
- 2.5m ROAD BUFFER
- 30m CLEARING BOUNDARY
- YEC L250 69 KV LINE (EXISTING)
- 60m WIDE RIGHT OF WAY BOUNDARY
- X KM APPROXIMATE ROAD KM MARKER

REFERENCES

| | |
|---|---|
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| 1407-T-1100 | ROUTE MAP |
| 1407-T-1400 | STRUCTURE DATA SHEET |
| 1407-T-1900 | SOUTH MCQUESTEN TRANSMISSION LINE CONNECTION - PLAN |
| 1407-T-3000 | STRUCTURE FAMILY |
| 1407-T-6000 | HWY 11 (SILVER TRAIL)-OVERHEAD LINE CROSSING-STR 0/4 TO STR 0/5 |

30.0 m Horiz. Scale
10.0 m Vert. Scale

ISSUED FOR CONSTRUCTION

PERMIT TO PRACTICE
W.N. BRAIZER ASSOCIATES INC.
SIGNATURE _____
Date 10/05/18
PERMIT NUMBER: PP295
Association of Professional Engineers of Yukon

| NO. | DATE | REVISION | DES | DWN | CHK | APR |
|---|---|---|---|---|---|---|
| 2 | AUG 10/18 | MCQUESTEN SUBSTATION & KM18 MODIFICATIONS | MP | MP | PC | NB |
| 1 | JUL 11/18 | BORROW PIT & ROAD PROXIMITY ALIGNMENT CHANGES | MP | MP | PC | MEO |
| 0 | MAY 11/18 | ISSUED FOR CONSTRUCTION | MP | MP | PC | MEO |

CLIENT: StrataGold Corporation

| | |
|---|---|
| DATE | MAY 11/18 |
| DESIGN | MP |
| DRAWN | MP |
| CHECKED | PC |
| APPROVED | MEO |

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www.cleanenergyconsulting.ca
WN BRAIZER ASSOCIATES INC

SEAL: PROFESSIONAL ENGINEER YUKON W. NEIL BRAZIER TERRITORY

EAGLE GOLD PROJECT
L251 - 69 kV TRANSMISSION LINE
PLAN AND PROFILE (SHEET 3 OF 54)

| PROJECT No. | DRAWING No. | REV. |
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| 1407 | 1407-T-1200-3 | 2 |

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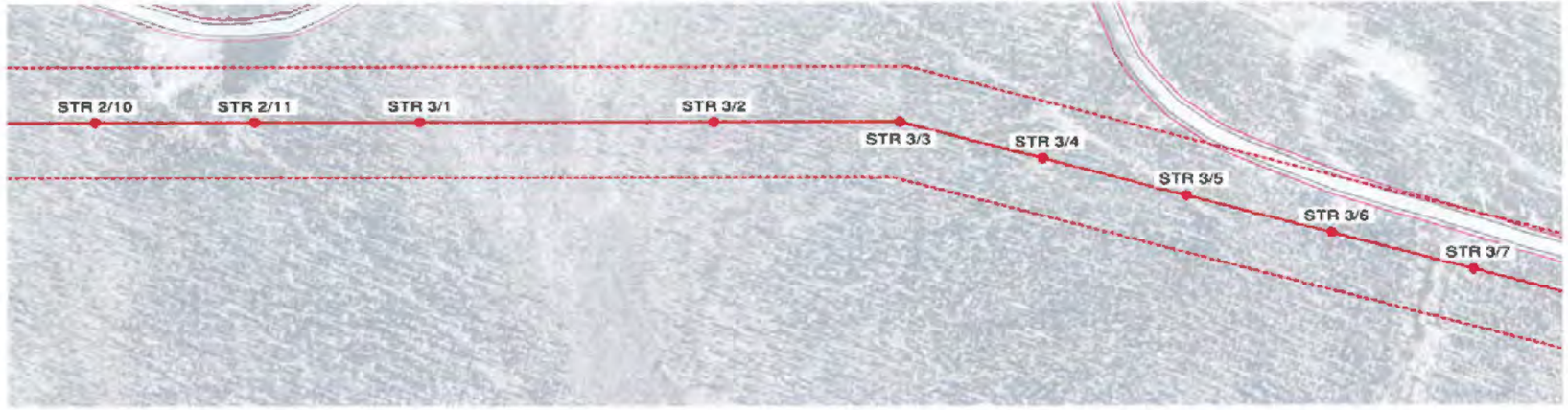


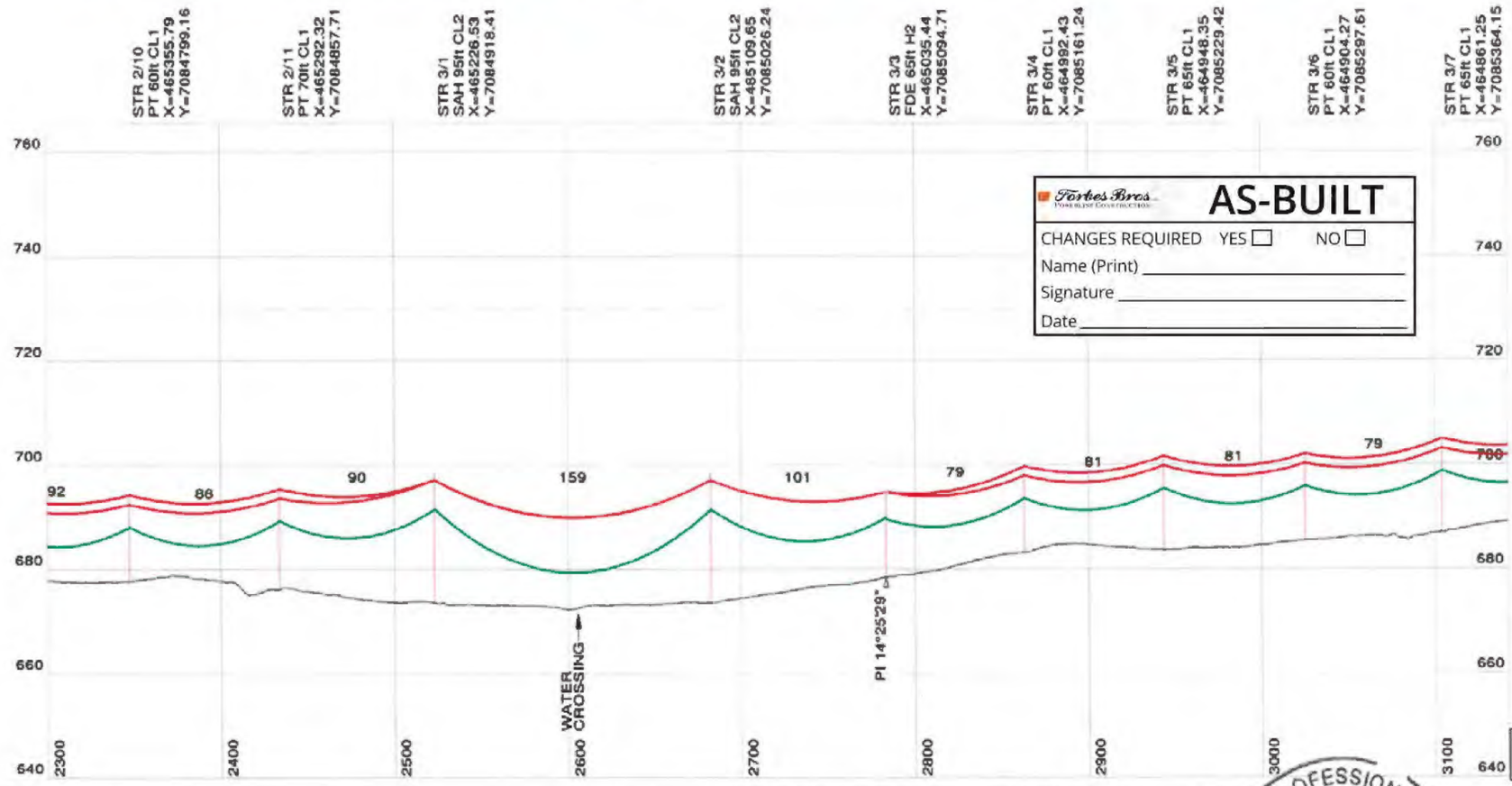


**AS-BUILT**

Forbes Bros. Pioneering Construction

CHANGES REQUIRED YES ☐ NO ☐

Name (Print) _____

Signature _____

Date _____

## NOTES

1. ALL DIMENSIONS IN METRES (m) UNLESS NOTED OTHERWISE.
2. COORDINATES ARE IN UTM NAD83 ZONE 8N.
3. ELEVATIONS ARE IN METRES (m) ABOVE MEAN SEA LEVEL (AMSL).
4. 69 kV CONDUCTOR, ADSS CABLE AND OVERHEAD SHIELD WIRE "OHSW" DISPLAYED AT "WET SNOW" (-10° C, 51mm RADIAL SNOW).
5. LINE ANGLE DEFLECTION LOOKING TOWARD EAGLE GOLD PROJECT SITE INDICATED AS FOLLOWS:
   + RIGHT ANGLE DEFLECTION
   - LEFT ANGLE DEFLECTION
6. THIS LINE WILL BE NUMBERED L251 IN THE YUKON ENERGY CORPORATION (YEC) SYSTEM.
7. LEFT (DASH) AND RIGHT (DOT) PROFILE OFFSETS SHOWN AT 5 m CENTERLINE OFFSET.
8. DESIGN TENSIONS SHOWN IN TABLE 1.

TABLE 1

| CABLE TYPE | MEAN ANNUAL TEMP (-4° C) FULL TENSION SPANS (N) | MEAN ANNUAL TEMP (-4° C) TERMINAL SPANS (N) (SLACK) | WET SNOW (-10° C, 51mm RADIAL SNOW) FULL TENSION SPANS (N) | WET SNOW (-10° C, 51mm RADIAL SNOW) TERMINAL SPANS (N) (SLACK) |
|---|---|---|---|---|
| PARTRIDGE ACSR | 3,750 | 550 | 23,300 | 3,300 |
| ADSS | 7,500 | 150 | 13,900 | 3,300 |
| OHSW | 3,500 | 400 | 23,600 | 3,200 |

## LEGEND

- 69 kV - 266.8 kcmil 26/7 "PARTRIDGE" ACSR
- ADSS - OFC-24 G.652D-FASA-S1 (ZTT)
- OHSW - 266.8 kcmil 26/7 "PARTRIDGE" ACSR
- ROAD EDGE
- 2.5m ROAD BUFFER
- 30m CLEARING BOUNDARY
- YEC L250 69 KV LINE (EXISTING)
- 60m WIDE RIGHT OF WAY BOUNDARY
- X KM APPROXIMATE ROAD KM MARKER

## REFERENCES

| | |
|---|---|
| 1407-T-1000 | DRAWING LIST |
| 1407-T-1100 | ROUTE MAP |
| 1407-T-1400 | STRUCTURE DATA SHEET |
| 1407-T-1900 | SOUTH MCQUESTEN TRANSMISSION LINE CONNECTION - PLAN |
| 1407-T-3000 | STRUCTURE FAMILY |
| 1407-T-6000 | HWY 11 (SILVER TRAIL)-OVERHEAD LINE CROSSING-STR 0/4 TO STR 0/5 |

30.0 m Horiz. Scale
10.0 m Vert. Scale

ISSUED FOR CONSTRUCTION

PERMIT TO PRACTICE
W.N. BRAIZER ASSOCIATES INC.
SIGNATURE _____
Date 18/05/11
PERMIT NUMBER: PP295
Association of Professional Engineers of Yukon

| NO. | DATE | REVISION | DES | DWN | CHK | APR |
|---|---|---|---|---|---|---|
| 2 | AUG 10/18 | MCQUESTEN SUBSTATION & KM18 MODIFICATIONS | MP | MP | PC | NB |
| 1 | JUL 11/18 | BORROW PIT & ROAD PROXIMITY ALIGNMENT CHANGES | MP | MP | PC | MEO |
| 0 | MAY 11/18 | ISSUED FOR CONSTRUCTION | MP | MP | PC | MEO |

CLIENT: StrataGold Corporation

| | |
|---|---|
| DATE | MAY 11/18 |
| DESIGN | MP |
| DRAWN | MP |
| CHECKED | PC |
| APPROVED | MEO |

Clean Energy CONSULTING INC. www.cleanenergyconsulting.ca

WN BRAZIER ASSOCIATES INC

SEAL: PROFESSIONAL ENGINEER YUKON W. NEIL BRAZIER TERRITORY

EAGLE GOLD PROJECT
L251 - 69 kV TRANSMISSION LINE
PLAN AND PROFILE (SHEET 4 OF 54)

| PROJECT No. | DRAWING No. | REV. |
|---|---|---|
| 1407 | 1407-T-1200-4 | 2 |

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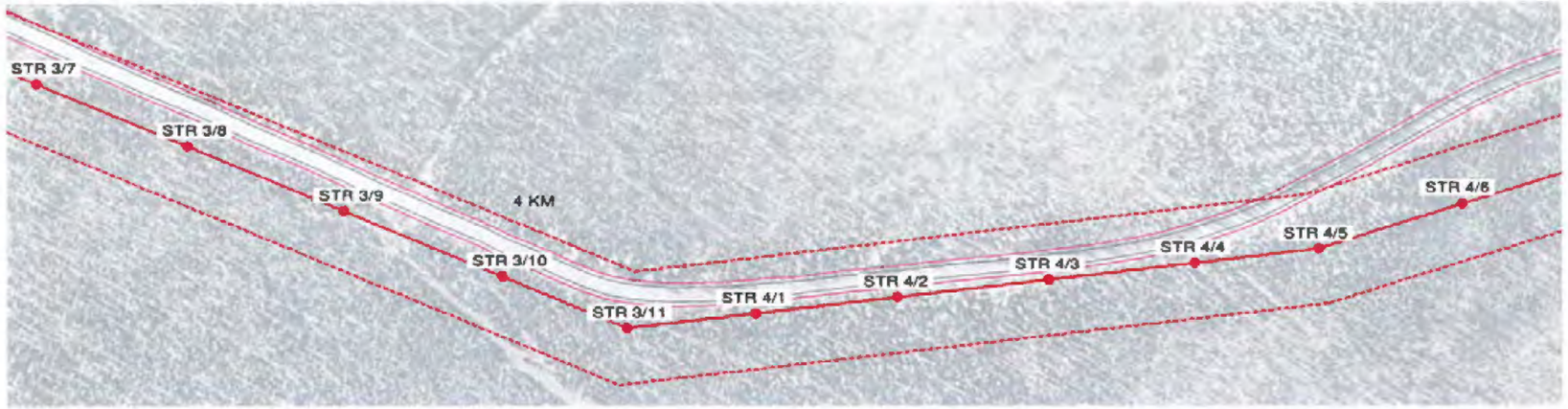


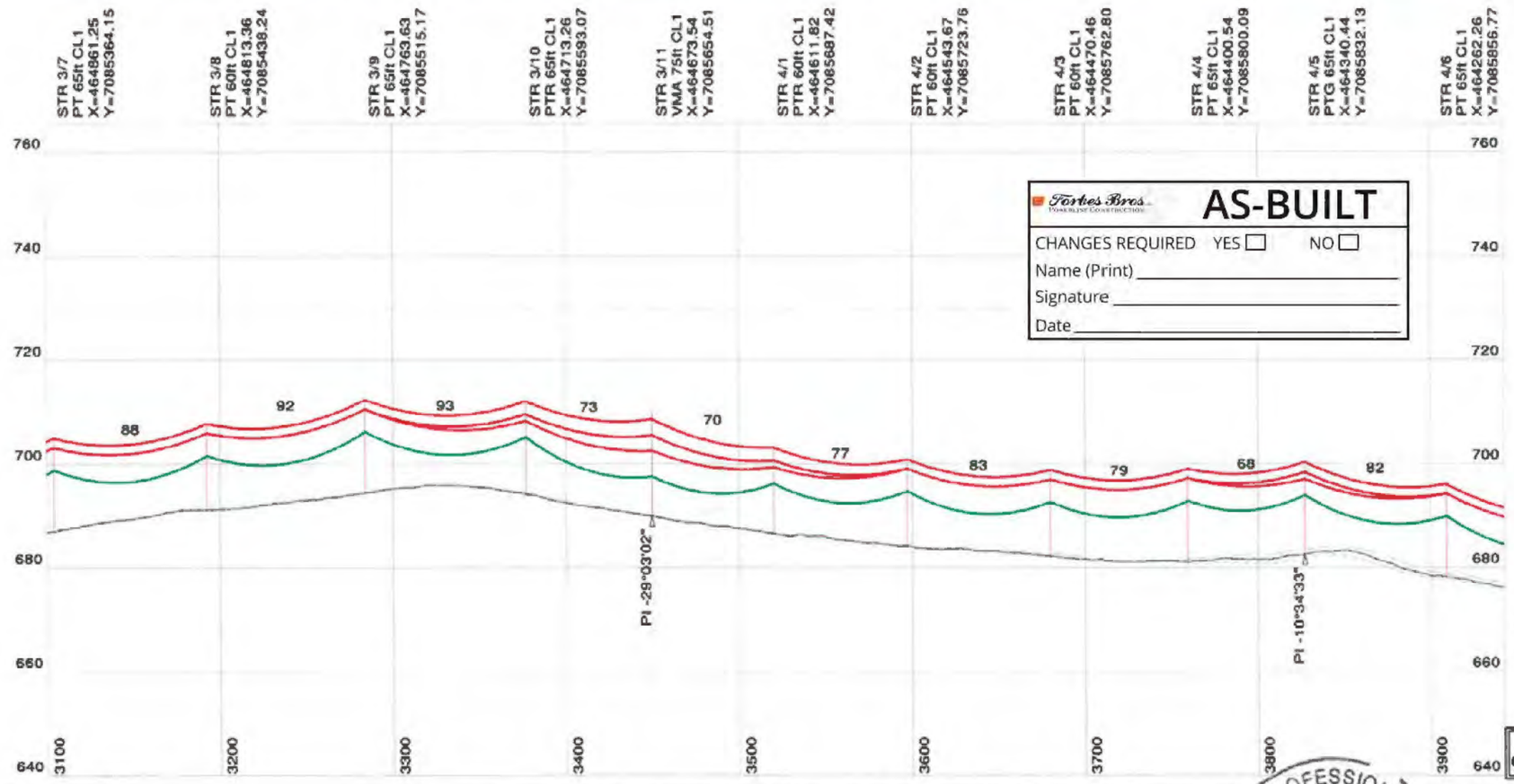


Forbes Bros. Powerline Construction

**AS-BUILT**

CHANGES REQUIRED YES ☐ NO ☐

Name (Print) _____

Signature _____

Date _____

## NOTES

1. ALL DIMENSIONS IN METRES (m) UNLESS NOTED OTHERWISE.
2. COORDINATES ARE IN UTM NAD83 ZONE 8N.
3. ELEVATIONS ARE IN METRES (m) ABOVE MEAN SEA LEVEL (AMSL).
4. 69 kV CONDUCTOR, ADSS CABLE AND OVERHEAD SHIELD WIRE "OHSW" DISPLAYED AT "WET SNOW" (-10° C, 51mm RADIAL SNOW).
5. LINE ANGLE DEFLECTION LOOKING TOWARD EAGLE GOLD PROJECT SITE INDICATED AS FOLLOWS:
   + RIGHT ANGLE DEFLECTION
   - LEFT ANGLE DEFLECTION
6. THIS LINE WILL BE NUMBERED L251 IN THE YUKON ENERGY CORPORATION (YEC) SYSTEM.
7. LEFT (DASH) AND RIGHT (DOT) PROFILE OFFSETS SHOWN AT 5 m CENTERLINE OFFSET.
8. DESIGN TENSIONS SHOWN IN TABLE 1.

| TABLE 1 | MEAN ANNUAL TEMP (-4° C) | | WET SNOW (-10° C, 51mm RADIAL SNOW) | |
|---|---|---|---|---|
| CABLE TYPE | FULL TENSION SPANS (N) | TERMINAL SPANS (N) (SLACK) | FULL TENSION SPANS (N) | TERMINAL SPANS (N) (SLACK) |
| PARTRIDGE ACSR | 3,750 | 550 | 23,300 | 3,300 |
| ADSS | 7,500 | 150 | 13,900 | 3,300 |
| OHSW | 3,500 | 400 | 23,600 | 3,200 |

## LEGEND

- 69 kV - 266.8 kcmil 26/7 "PARTRIDGE" ACSR
- ADSS - OFC-24 G.652D-FASA-S1 (ZTT)
- OHSW - 266.8 kcmil 26/7 "PARTRIDGE" ACSR
- ROAD EDGE
- 2.5m ROAD BUFFER
- 30m CLEARING BOUNDARY
- YEC L250 69 KV LINE (EXISTING)
- 60m WIDE RIGHT OF WAY BOUNDARY
- X KM APPROXIMATE ROAD KM MARKER

## REFERENCES

| | |
|---|---|
| 1407-T-1000 | DRAWING LIST |
| 1407-T-1100 | ROUTE MAP |
| 1407-T-1400 | STRUCTURE DATA SHEET |
| 1407-T-1900 | SOUTH MCQUESTEN TRANSMISSION LINE CONNECTION - PLAN |
| 1407-T-3000 | STRUCTURE FAMILY |
| 1407-T-6000 | HWY 11 (SILVER TRAIL)-OVERHEAD LINE CROSSING-STR 0/4 TO STR 0/5 |

30.0 m Horiz. Scale
10.0 m Vert. Scale

ISSUED FOR CONSTRUCTION

PERMIT TO PRACTICE
W.N. BRAIZER ASSOCIATES INC.
SIGNATURE _____
Date 10/08/18
PERMIT NUMBER: PP295
Association of Professional Engineers of Yukon

| NO. | DATE | REVISION | DES | DWN | CHK | APR |
|---|---|---|---|---|---|---|
| | | | | | | |
| | | | | | | |
| | | | | | | |
| 2 | AUG 10/18 | MCQUESTEN SUBSTATION & KM18 MODIFICATIONS | MP | MP | PC | NB |
| 1 | JUL 11/18 | BORROW PIT & ROAD PROXIMITY ALIGNMENT CHANGES | MP | MP | PC | MEO |
| 0 | MAY 11/18 | ISSUED FOR CONSTRUCTION | MP | MP | PC | MEO |

CLIENT: StrataGold Corporation

| | |
|---|---|
| DATE | MAY 11/18 |
| DESIGN | MP |
| DRAWN | MP |
| CHECKED | PC |
| APPROVED | MEO |

Clean Energy CONSULTING INC. www.cleanenergyconsulting.ca

WN BRAZIER ASSOCIATES INC

SEAL: PROFESSIONAL ENGINEER YUKON W. NEIL BRAZIER TERRITORY

# EAGLE GOLD PROJECT
## L251 - 69 kV TRANSMISSION LINE
## PLAN AND PROFILE (SHEET 5 OF 54)

| PROJECT No. | DRAWING No. | REV. |
|---|---|---|
| 1407 | 1407-T-1200-5 | 2 |

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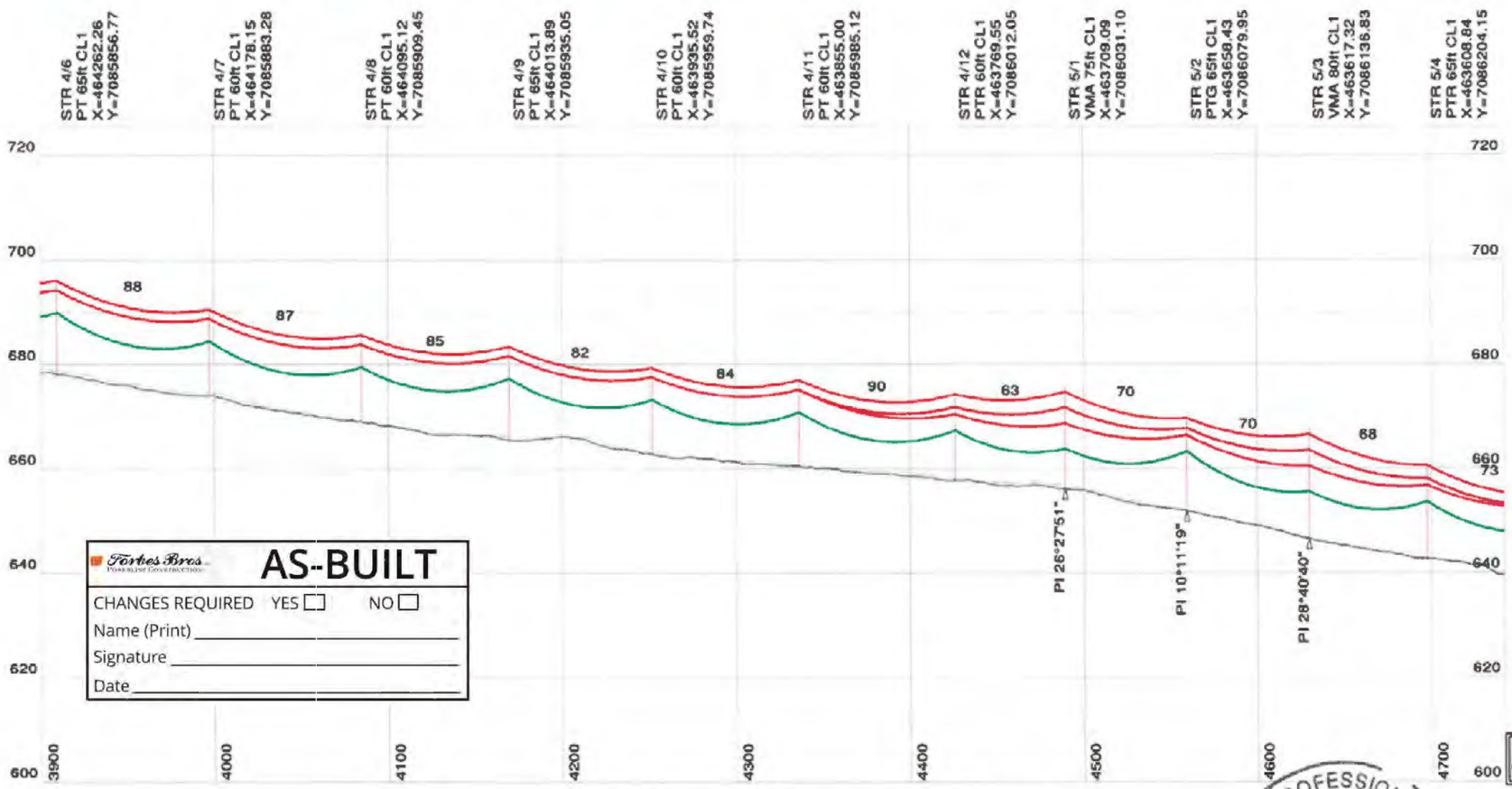


Forbes Bros. Powerline Constructors

**AS-BUILT**

CHANGES REQUIRED YES ☐ NO ☐

Name (Print) _____

Signature _____

Date _____

## NOTES

1. ALL DIMENSIONS IN METRES (m) UNLESS NOTED OTHERWISE.
2. COORDINATES ARE IN UTM NAD83 ZONE 8N.
3. ELEVATIONS ARE IN METRES (m) ABOVE MEAN SEA LEVEL (AMSL).
4. 69 kV CONDUCTOR, ADSS CABLE AND OVERHEAD SHIELD WIRE "OHSW" DISPLAYED AT "WET SNOW" (-10° C, 51mm RADIAL SNOW).
5. LINE ANGLE DEFLECTION LOOKING TOWARD EAGLE GOLD PROJECT SITE INDICATED AS FOLLOWS:
   + RIGHT ANGLE DEFLECTION
   - LEFT ANGLE DEFLECTION
6. THIS LINE WILL BE NUMBERED L251 IN THE YUKON ENERGY CORPORATION (YEC) SYSTEM.
7. LEFT (DASH) AND RIGHT (DOT) PROFILE OFFSETS SHOWN AT 5 m CENTERLINE OFFSET.
8. DESIGN TENSIONS SHOWN IN TABLE 1.

| TABLE 1 | MEAN ANNUAL TEMP (-4° C) | | WET SNOW (-10° C, 51mm RADIAL SNOW) | |
|---|---|---|---|---|
| CABLE TYPE | FULL TENSION SPANS (N) | TERMINAL SPANS (N) (SLACK) | FULL TENSION SPANS (N) | TERMINAL SPANS (N) (SLACK) |
| PARTRIDGE ACSR | 3,750 | 550 | 23,300 | 3,300 |
| ADSS | 7,500 | 150 | 13,900 | 3,300 |
| OHSW | 3,500 | 400 | 23,600 | 3,200 |

## LEGEND

- 69 kV - 266.8 kcmil 26/7 "PARTRIDGE" ACSR
- ADSS - OFC-24 G.652D-FASA-S1 (ZTT)
- OHSW - 266.8 kcmil 26/7 "PARTRIDGE" ACSR
- ROAD EDGE
- 2.5m ROAD BUFFER
- 30m CLEARING BOUNDARY
- YEC L250 69 KV LINE (EXISTING)
- 60m WIDE RIGHT OF WAY BOUNDARY
- X KM APPROXIMATE ROAD KM MARKER

## REFERENCES

| | |
|---|---|
| 1407-T-1000 | DRAWING LIST |
| 1407-T-1100 | ROUTE MAP |
| 1407-T-1400 | STRUCTURE DATA SHEET |
| 1407-T-1900 | SOUTH MCQUESTEN TRANSMISSION LINE CONNECTION - PLAN |
| 1407-T-3000 | STRUCTURE FAMILY |
| 1407-T-6000 | HWY 11 (SILVER TRAIL)-OVERHEAD LINE CROSSING-STR 0/4 TO STR 0/5 |

30.0 m Horiz. Scale
10.0 m Vert. Scale

ISSUED FOR CONSTRUCTION

PERMIT TO PRACTICE
W.N. BRAIZER ASSOCIATES INC.
SIGNATURE _____
Date 10/08/18
PERMIT NUMBER: PP295
Association of Professional Engineers of Yukon

| NO. | DATE | REVISION | DES | DWN | CHK | APR |
|---|---|---|---|---|---|---|
| 2 | AUG 10/18 | MCQUESTEN SUBSTATION & KM18 MODIFICATIONS | MP | MP | PC | NB |
| 1 | JUL 11/18 | BORROW PIT & ROAD PROXIMITY ALIGNMENT CHANGES | MP | MP | PC | MEO |
| 0 | MAY 11/18 | ISSUED FOR CONSTRUCTION | MP | MP | PC | MEO |

CLIENT: StrataGold Corporation

| | |
|---|---|
| DATE | MAY 11/18 |
| DESIGN | MP |
| DRAWN | MP |
| CHECKED | PC |
| APPROVED | MEO |

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WN BRAZIER ASSOCIATES INC

SEAL: PROFESSIONAL ENGINEER YUKON W. NEIL BRAZIER TERRITORY

# EAGLE GOLD PROJECT
## L251 - 69 kV TRANSMISSION LINE
## PLAN AND PROFILE (SHEET 6 OF 54)

| PROJECT No. | DRAWING No. | REV. |
|---|---|---|
| 1407 | 1407-T-1200-6 | 2 |

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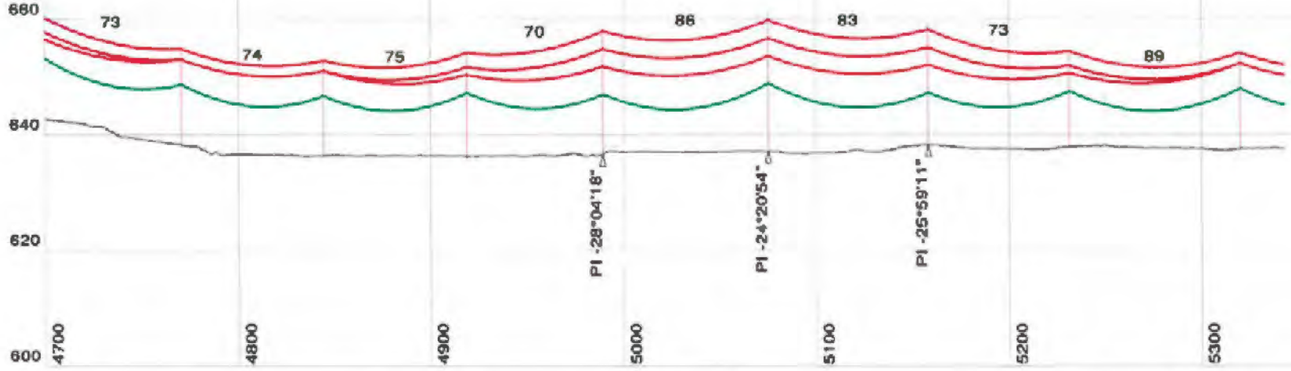
85ft CL1 (RFI022)

| STR 5/4 | STR 5/5 | STR 5/6 | STR 5/7 | STR 5/8 | STR 5/9 | STR 5/10 | STR 5/11 | STR 5/12 |
|---|---|---|---|---|---|---|---|---|
| PTR 65ft CL1 | PT 60ft CL1 | PT 60ft CL1 | PTR 65ft CL1 | VMA 85ft CL1 | VMA 90ft CL1 | VMA 80ft CL1 | PTR 60ft CL1 | PT 60ft CL1 |
| X=463608.84 | X=463599.76 | X=463590.53 | X=463581.20 | X=463572.43 | X=463522.79 | X=463451.18 | X=463378.38 | X=463289.76 |
| Y=7086204.15 | Y=7086276.30 | Y=7086349.60 | Y=7086423.66 | Y=7086493.33 | Y=7086563.57 | Y=7086605.59 | Y=7086611.21 | Y=7086618.05 |




## NOTES

1. ALL DIMENSIONS IN METRES (m) UNLESS NOTED OTHERWISE.
2. COORDINATES ARE IN UTM NAD83 ZONE 8N.
3. ELEVATIONS ARE IN METRES (m) ABOVE MEAN SEA LEVEL (AMSL).
4. 69 kV CONDUCTOR, ADSS CABLE AND OVERHEAD SHIELD WIRE "OHSW" DISPLAYED AT "WET SNOW" (-10° C, 51mm RADIAL SNOW).
5. LINE ANGLE DEFLECTION LOOKING TOWARD EAGLE GOLD PROJECT SITE INDICATED AS FOLLOWS:
   + RIGHT ANGLE DEFLECTION
   - LEFT ANGLE DEFLECTION
6. THIS LINE WILL BE NUMBERED L251 IN THE YUKON ENERGY CORPORATION (YEC) SYSTEM.
7. LEFT (DASH) AND RIGHT (DOT) PROFILE OFFSETS SHOWN AT 5 m CENTERLINE OFFSET.
8. DESIGN TENSIONS SHOWN IN TABLE 1.

| TABLE 1 | MEAN ANNUAL TEMP (-4° C) | | WET SNOW (-10° C, 51mm RADIAL SNOW) | |
|---|---|---|---|---|
| CABLE TYPE | FULL TENSION SPANS (N) | TERMINAL SPANS (N) (SLACK) | FULL TENSION SPANS (N) | TERMINAL SPANS (N) (SLACK) |
| PARTRIDGE ACSR | 3,750 | 550 | 23,300 | 3,300 |
| ADSS | 7,500 | 150 | 13,900 | 3,300 |
| OHSW | 3,500 | 400 | 23,600 | 3,200 |

## LEGEND

- 69 kV - 266.8 kcmil 26/7 "PARTRIDGE" ACSR
- ADSS - OFC-24 G.652D-FASA-S1 (ZTT)
- OHSW - 266.8 kcmil 26/7 "PARTRIDGE" ACSR
- ROAD EDGE
- 2.5m ROAD BUFFER
- 30m CLEARING BOUNDARY
- YEC L250 69 KV LINE (EXISTING)
- 60m WIDE RIGHT OF WAY BOUNDARY
- X KM APPROXIMATE ROAD KM MARKER

## REFERENCES

| | |
|---|---|
| 1407-T-1000 | DRAWING LIST |
| 1407-T-1100 | ROUTE MAP |
| 1407-T-1400 | STRUCTURE DATA SHEET |
| 1407-T-1900 | SOUTH MCQUESTEN TRANSMISSION LINE CONNECTION - PLAN |
| 1407-T-3000 | STRUCTURE FAMILY |
| 1407-T-6000 | HWY 11 (SILVER TRAIL)-OVERHEAD LINE CROSSING-STR 0/4 TO STR 0/5 |

30.0 m Horiz. Scale
10.0 m Vert. Scale

**AS-BUILT**

Forbes Bros. Pipeline Construction

CHANGES REQUIRED YES ☐ NO ☐
Name (Print) _____
Signature _____
Date _____

ISSUED FOR CONSTRUCTION

PERMIT TO PRACTICE
W.N. BRAIZER ASSOCIATES INC.
SIGNATURE
Date 10/09/18
PERMIT NUMBER: PP295
Association of Professional Engineers of Yukon

| NO. | DATE | REVISION | DES | DWN | CHK | APR |
|---|---|---|---|---|---|---|
| 2 | AUG 10/18 | MCQUESTEN SUBSTATION & KM18 MODIFICATIONS | MP | MP | PC | NB |
| 1 | JUL 11/18 | BORROW PIT & ROAD PROXIMITY ALIGNMENT CHANGES | MP | MP | PC | MEO |
| 0 | MAY 11/18 | ISSUED FOR CONSTRUCTION | MP | MP | PC | MEO |

CLIENT: StrataGold Corporation

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|---|---|
| DATE | MAY 11/18 |
| DESIGN | MP |
| DRAWN | MP |
| CHECKED | PC |
| APPROVED | MEO |

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WN BRAIZER ASSOCIATES INC

SEAL: PROFESSIONAL ENGINEER YUKON W. NEIL BRAIZER TERRITORY

EAGLE GOLD PROJECT
L251 - 69 kV TRANSMISSION LINE
PLAN AND PROFILE (SHEET 7 OF 54)

| PROJECT No. | DRAWING No. | REV. |
|---|---|---|
| 1407 | 1407-T-1200-7 | 2 |

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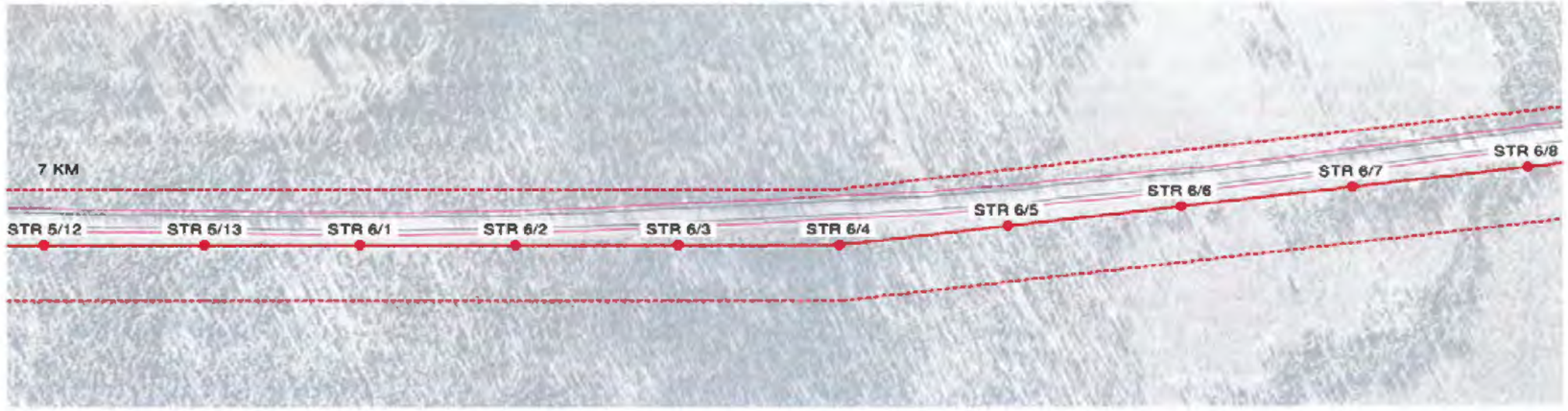


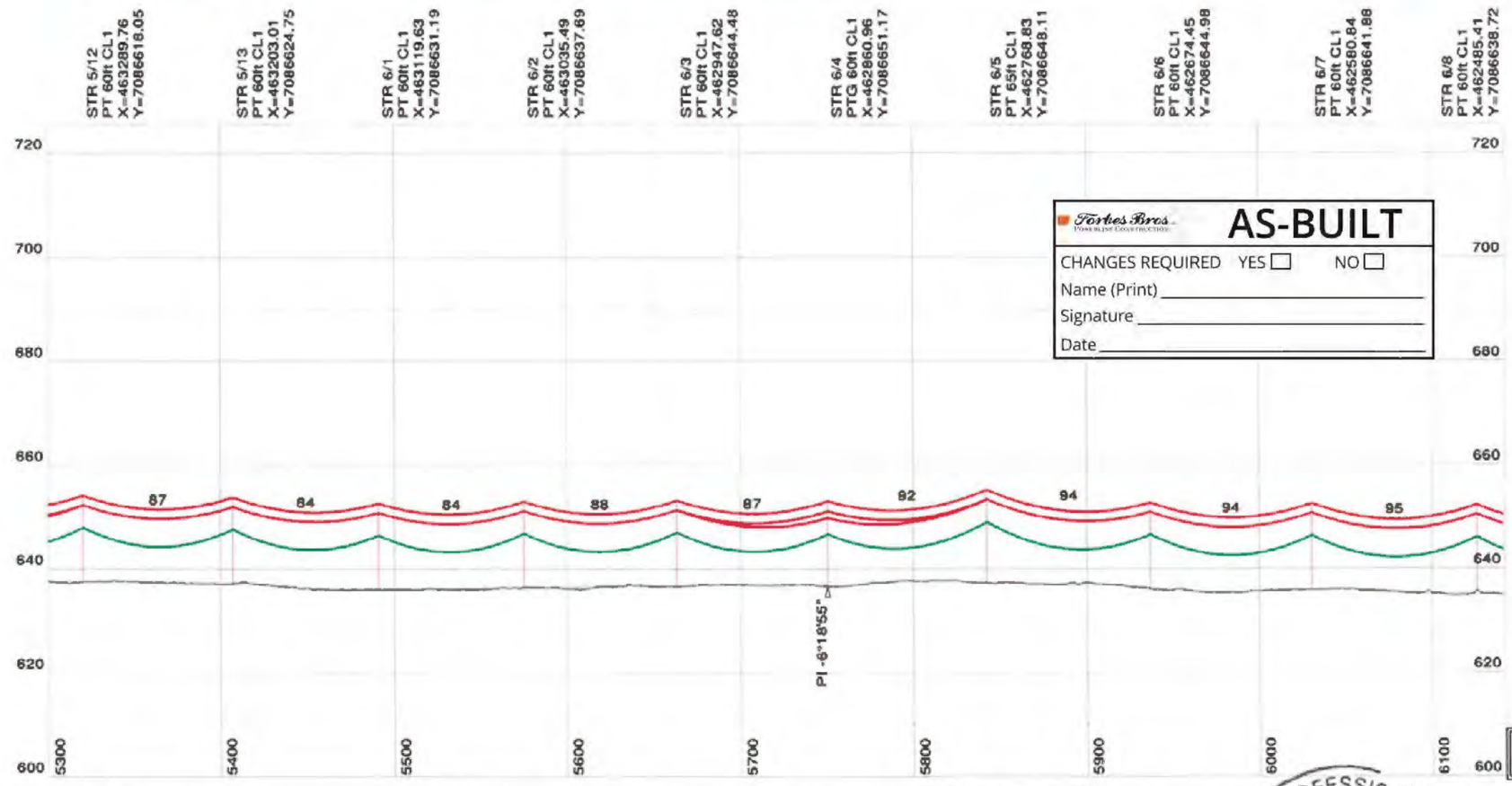


Forbes Bros. Powerline Construction

**AS-BUILT**

CHANGES REQUIRED YES ☐ NO ☐

Name (Print) _____

Signature _____

Date _____

NOTES

1. ALL DIMENSIONS IN METRES (m) UNLESS NOTED OTHERWISE.
2. COORDINATES ARE IN UTM NAD83 ZONE 8N.
3. ELEVATIONS ARE IN METRES (m) ABOVE MEAN SEA LEVEL (AMSL).
4. 69 kV CONDUCTOR, ADSS CABLE AND OVERHEAD SHIELD WIRE "OHSW" DISPLAYED AT "WET SNOW" (-10° C, 51mm RADIAL SNOW).
5. LINE ANGLE DEFLECTION LOOKING TOWARD EAGLE GOLD PROJECT SITE INDICATED AS FOLLOWS:
   + RIGHT ANGLE DEFLECTION
   - LEFT ANGLE DEFLECTION
6. THIS LINE WILL BE NUMBERED L251 IN THE YUKON ENERGY CORPORATION (YEC) SYSTEM.
7. LEFT (DASH) AND RIGHT (DOT) PROFILE OFFSETS SHOWN AT 5 m CENTERLINE OFFSET.
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TABLE 1

| CABLE TYPE | MEAN ANNUAL TEMP (-4° C) FULL TENSION SPANS (N) | MEAN ANNUAL TEMP (-4° C) TERMINAL SPANS (N) (SLACK) | WET SNOW (-10° C, 51mm RADIAL SNOW) FULL TENSION SPANS (N) | WET SNOW (-10° C, 51mm RADIAL SNOW) TERMINAL SPANS (N) (SLACK) |
|---|---|---|---|---|
| PARTRIDGE ACSR | 3,750 | 550 | 23,300 | 3,300 |
| ADSS | 7,500 | 150 | 13,900 | 3,300 |
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LEGEND

- 69 kV - 266.8 kcmil 26/7 "PARTRIDGE" ACSR
- ADSS - OFC-24 G.652D-FASA-S1 (ZTT)
- OHSW - 266.8 kcmil 26/7 "PARTRIDGE" ACSR
- ROAD EDGE
- 2.5m ROAD BUFFER
- 30m CLEARING BOUNDARY
- YEC L250 69 KV LINE (EXISTING)
- 60m WIDE RIGHT OF WAY BOUNDARY
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REFERENCES

| | |
|---|---|
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| 1407-T-1400 | STRUCTURE DATA SHEET |
| 1407-T-1900 | SOUTH MCQUESTEN TRANSMISSION LINE CONNECTION - PLAN |
| 1407-T-3000 | STRUCTURE FAMILY |
| 1407-T-6000 | HWY 11 (SILVER TRAIL)-OVERHEAD LINE CROSSING-STR 0/4 TO STR 0/5 |

30.0 m Horiz. Scale
10.0 m Vert. Scale

ISSUED FOR CONSTRUCTION

PERMIT TO PRACTICE
W.N. BRAIZER ASSOCIATES INC.
SIGNATURE _____
Date 10/Oct/18
PERMIT NUMBER: PP295
Association of Professional Engineers of Yukon

| NO. | DATE | REVISION | DES | DWN | CHK | APR |
|---|---|---|---|---|---|---|
| 2 | AUG 10/18 | MCQUESTEN SUBSTATION & KM18 MODIFICATIONS | MP | MP | PC | NB |
| 1 | JUL 11/18 | BORROW PIT & ROAD PROXIMITY ALIGNMENT CHANGES | MP | MP | PC | MEO |
| 0 | MAY 11/18 | ISSUED FOR CONSTRUCTION | MP | MP | PC | MEO |

CLIENT: StrataGold Corporation

| | |
|---|---|
| DATE | MAY 11/18 |
| DESIGN | MP |
| DRAWN | MP |
| CHECKED | PC |
| APPROVED | MEO |

Clean Energy CONSULTING INC
www.cleanenergyconsulting.ca
WN BRAZIER ASSOCIATES INC

SEAL: PROFESSIONAL ENGINEER YUKON W. NEIL BRAZIER TERRITORY

# EAGLE GOLD PROJECT
## L251 - 69 kV TRANSMISSION LINE
## PLAN AND PROFILE (SHEET 8 OF 54)

| PROJECT No. | DRAWING No. | REV. |
|---|---|---|
| 1407 | 1407-T-1200-8 | 2 |

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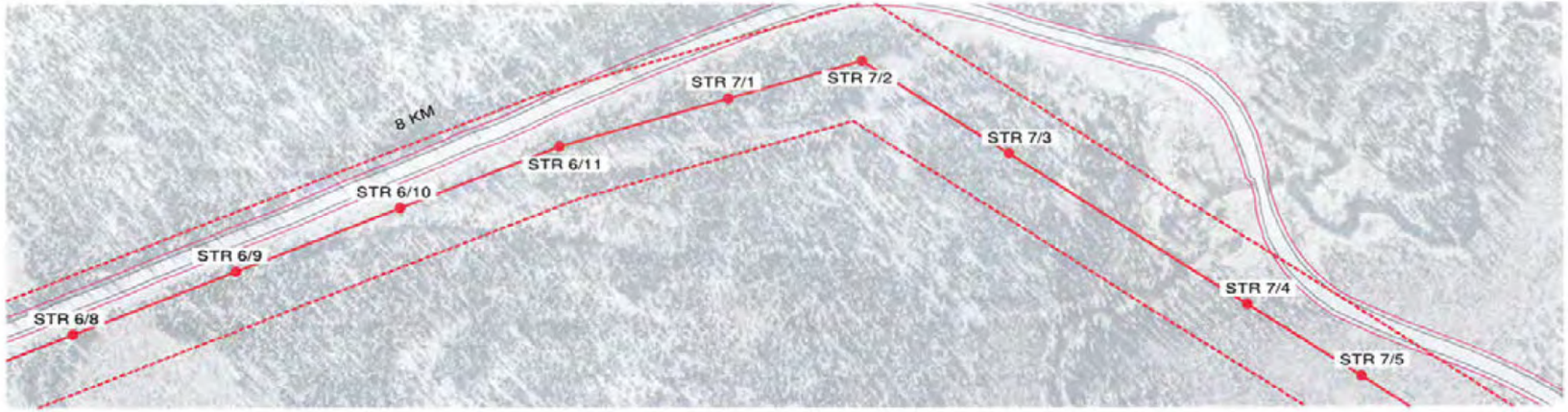


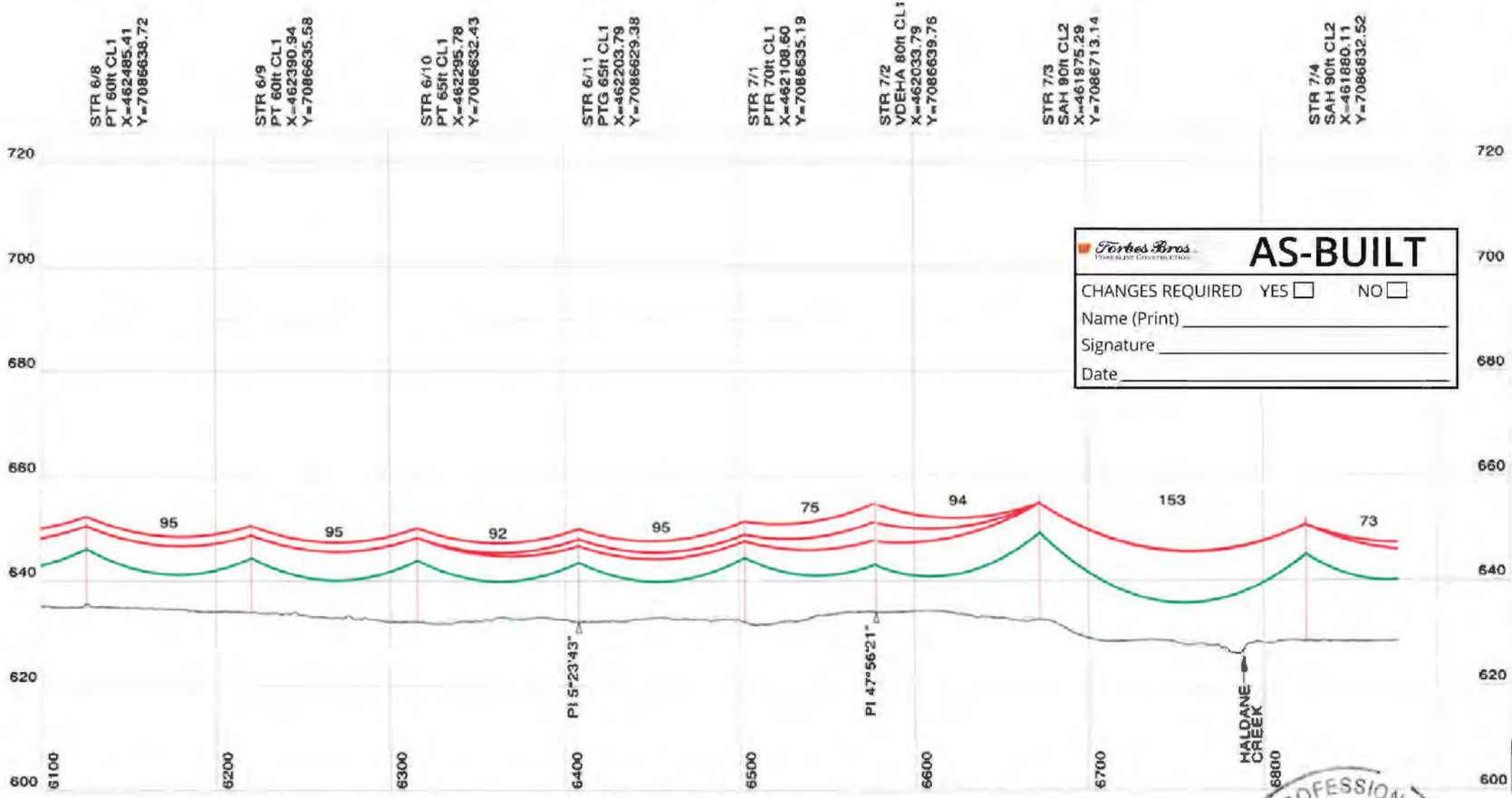


## NOTES

1. ALL DIMENSIONS IN METRES (m) UNLESS NOTED OTHERWISE.
2. COORDINATES ARE IN UTM NAD83 ZONE 8N.
3. ELEVATIONS ARE IN METRES (m) ABOVE MEAN SEA LEVEL (AMSL).
4. 69 kV CONDUCTOR, ADSS CABLE AND OVERHEAD SHIELD WIRE "OHSW" DISPLAYED AT "WET SNOW" (-10° C, 51mm RADIAL SNOW).
5. LINE ANGLE DEFLECTION LOOKING TOWARD EAGLE GOLD PROJECT SITE INDICATED AS FOLLOWS:
   + RIGHT ANGLE DEFLECTION
   - LEFT ANGLE DEFLECTION
6. THIS LINE WILL BE NUMBERED L251 IN THE YUKON ENERGY CORPORATION (YEC) SYSTEM.
7. LEFT (DASH) AND RIGHT (DOT) PROFILE OFFSETS SHOWN AT 5 m CENTERLINE OFFSET.
8. DESIGN TENSIONS SHOWN IN TABLE 1.

| TABLE 1 | MEAN ANNUAL TEMP (-4° C) | | WET SNOW (-10° C, 51mm RADIAL SNOW) | |
|---|---|---|---|---|
| CABLE TYPE | FULL TENSION SPANS (N) | TERMINAL SPANS (N) (SLACK) | FULL TENSION SPANS (N) | TERMINAL SPANS (N) (SLACK) |
| PARTRIDGE ACSR | 3,750 | 550 | 23,300 | 3,300 |
| ADSS | 7,500 | 150 | 13,900 | 3,300 |
| OHSW | 3,800 | 400 | 23,600 | 3,200 |

## LEGEND

- 69 kV - 266.8 kcmil 26/7 "PARTRIDGE" ACSR
- ADSS - OFC-24 G.652D-FASA-S1 (ZTT)
- OHSW - 266.8 kcmil 26/7 "PARTRIDGE" ACSR
- ROAD EDGE
- 2.5m ROAD BUFFER
- 30m CLEARING BOUNDARY
- YEC L250 69 KV LINE (EXISTING)
- 60m WIDE RIGHT OF WAY BOUNDARY
- X KM APPROXIMATE ROAD KM MARKER

## REFERENCES

| | |
|---|---|
| 1407-T-1000 | DRAWING LIST |
| 1407-T-1100 | ROUTE MAP |
| 1407-T-1400 | STRUCTURE DATA SHEET |
| 1407-T-1900 | SOUTH MCQUESTEN TRANSMISSION LINE CONNECTION - PLAN |
| 1407-T-3000 | STRUCTURE FAMILY |
| 1407-T-6000 | HWY 11 (SILVER TRAIL)-OVERHEAD LINE CROSSING-STR 0/4 TO STR 0/5 |

Forbes Bros. AS-BUILT

CHANGES REQUIRED YES ☐ NO ☐

Name (Print) _____

Signature _____

Date _____

30.0 m Horiz. Scale
10.0 m Vert. Scale

ISSUED FOR CONSTRUCTION

PERMIT TO PRACTICE
W.N. BRAIZER ASSOCIATES INC.
SIGNATURE
Date 10/30/18
PERMIT NUMBER: PP295
Association of Professional Engineers of Yukon

| NO. | DATE | REVISION | DES | DWN | CHK | APR |
|---|---|---|---|---|---|---|
| 2 | AUG 10/18 | MCQUESTEN SUBSTATION & KM18 MODIFICATIONS | MP | MP | PC | NB |
| 1 | JUL 11/18 | BORROW PIT & ROAD PROXIMITY ALIGNMENT CHANGES | MP | MP | PC | MEO |
| 0 | MAY 11/18 | ISSUED FOR CONSTRUCTION | MP | MP | PC | MEO |

CLIENT: StrataGold Corporation

| | |
|---|---|
| DATE | MAY 11/18 |
| DESIGN | MP |
| DRAWN | MP |
| CHECKED | PC |
| APPROVED | MEO |

Clean Energy CONSULTING INC. www.cleanenergyconsulting.ca

WN BRAZIER ASSOCIATES INC

SEAL: PROFESSIONAL ENGINEER YUKON W. NEIL BRAZIER TERRITORY

# EAGLE GOLD PROJECT
## L251 - 69 kV TRANSMISSION LINE
## PLAN AND PROFILE (SHEET 9 OF 54)

| PROJECT No. | DRAWING No. | REV. |
|---|---|---|
| 1407 | 1407-T-1200-9 | 2 |

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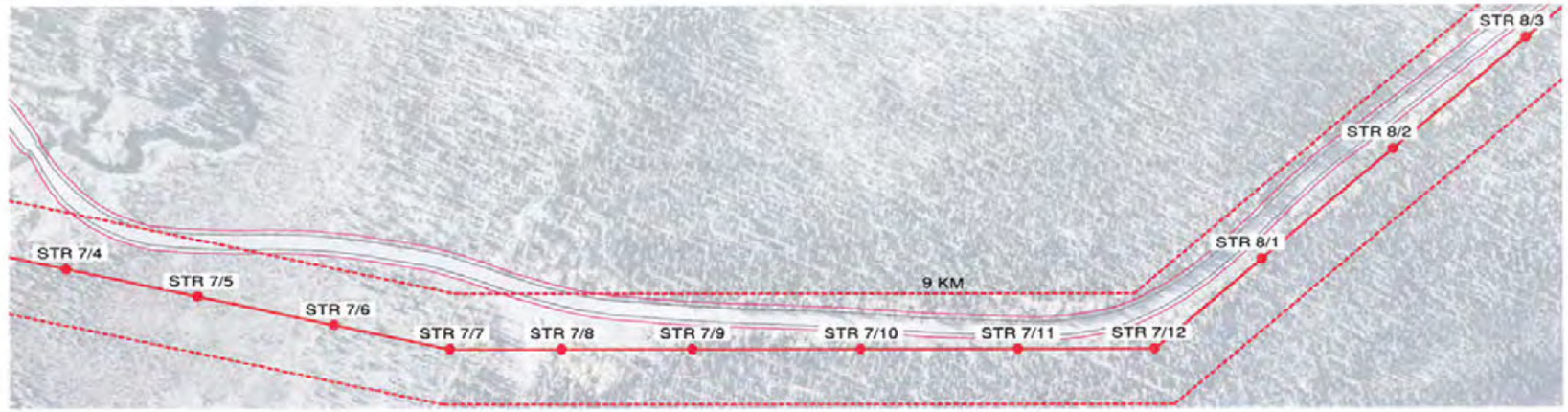



STR 7/4 SAH 90ft CL2 X=461880.11 Y=7086832.52

STR 7/5 PT 70ft CL1 X=461834.78 Y=7086889.37

STR 7/6 PT 65ft CL1 X=461787.66 Y=7086948.47

STR 7/7 FDE 60ft H2 X=461747.77 Y=7086998.50

STR 7/8 PT 60ft CL1 X=461700.95 Y=7087037.24

STR 7/9 PT 60ft CL1 X=461646.53 Y=7087082.26

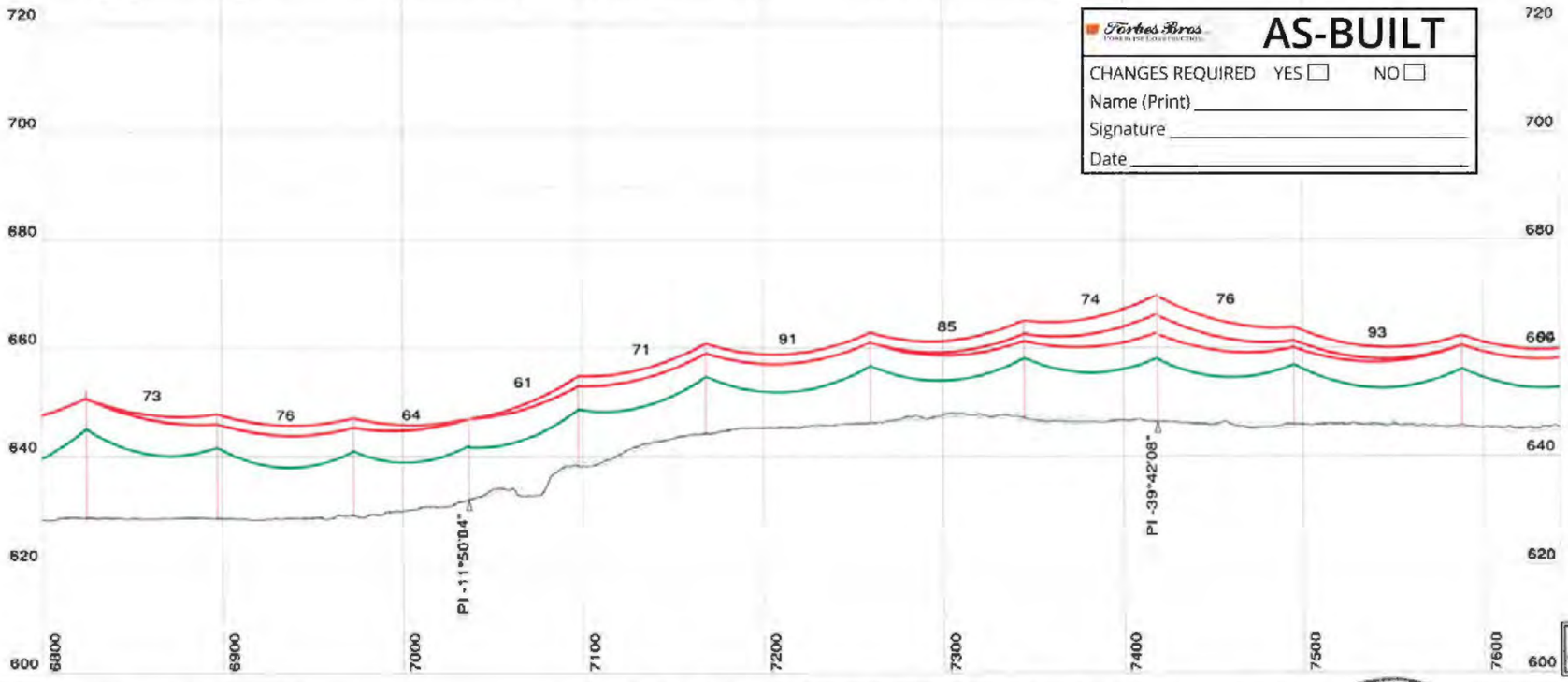
STR 7/10 PT 60ft CL1 X=461578.10 Y=7087140.52

STR 7/11 PTR 65ft CL1 X=461510.31 Y=7087194.95

STR 7/12 VDEMA 90ft CL1 X=461453.24 Y=7087242.17

STR 8/1 PTR 65ft CL1 X=461377.22 Y=7087242.03

STR 8/2 PT 60ft CL1 X=461284.05 Y=7087241.86




Forbes Bros. TOWERS FOR CONSTRUCTION

**AS-BUILT**

CHANGES REQUIRED YES ☐ NO ☐

Name (Print) _____

Signature _____

Date _____

## NOTES

1. ALL DIMENSIONS IN METRES (m) UNLESS NOTED OTHERWISE.
2. COORDINATES ARE IN UTM NAD83 ZONE 8N.
3. ELEVATIONS ARE IN METRES (m) ABOVE MEAN SEA LEVEL (AMSL).
4. 69 kV CONDUCTOR, ADSS CABLE AND OVERHEAD SHIELD WIRE "OHSW" DISPLAYED AT "WET SNOW" (-10° C, 51mm RADIAL SNOW).
5. LINE ANGLE DEFLECTION LOOKING TOWARD EAGLE GOLD PROJECT SITE INDICATED AS FOLLOWS:
   + RIGHT ANGLE DEFLECTION
   - LEFT ANGLE DEFLECTION
6. THIS LINE WILL BE NUMBERED L251 IN THE YUKON ENERGY CORPORATION (YEC) SYSTEM.
7. LEFT (DASH) AND RIGHT (DOT) PROFILE OFFSETS SHOWN AT 5 m CENTERLINE OFFSET.
8. DESIGN TENSIONS SHOWN IN TABLE 1.

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| ADSS | 7,500 | 150 | 13,900 | 3,300 |
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## LEGEND

- 69 kV - 266.8 kcmil 26/7 "PARTRIDGE" ACSR
- ADSS - OFC-24 G.652D-FASA-S1 (ZTT)
- OHSW - 266.8 kcmil 26/7 "PARTRIDGE" ACSR
- ROAD EDGE
- 2.5m ROAD BUFFER
- 30m CLEARING BOUNDARY
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- X KM APPROXIMATE ROAD KM MARKER

## REFERENCES

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| 1407-T-1100 | ROUTE MAP |
| 1407-T-1400 | STRUCTURE DATA SHEET |
| 1407-T-1900 | SOUTH MCQUESTEN TRANSMISSION LINE CONNECTION - PLAN |
| 1407-T-3000 | STRUCTURE FAMILY |
| 1407-T-6000 | HWY 11 (SILVER TRAIL)-OVERHEAD LINE CROSSING-STR 0/4 TO STR 0/5 |

30.0 m Horiz. Scale
10.0 m Vert. Scale

ISSUED FOR CONSTRUCTION

PERMIT TO PRACTICE
W.N. BRAIZER ASSOCIATES INC.
SIGNATURE _____
Date 10/05/18
PERMIT NUMBER: PP295
Association of Professional Engineers of Yukon

| NO. | DATE | REVISION | DES | DWN | CHK | APR |
|---|---|---|---|---|---|---|
| 2 | AUG 10/18 | MCQUESTEN SUBSTATION & KM18 MODIFICATIONS | MP | MP | PC | NB |
| 1 | JUL 11/18 | BORROW PIT & ROAD PROXIMITY ALIGNMENT CHANGES | MP | MP | PC | MEO |
| 0 | MAY 11/18 | ISSUED FOR CONSTRUCTION | MP | MP | PC | MEO |

CLIENT: StrataGold Corporation

| | |
|---|---|
| DATE | MAY 11/18 |
| DESIGN | MP |
| DRAWN | MP |
| CHECKED | PC |
| APPROVED | MEO |

Clean Energy CONSULTING INC. www.cleanenergyconsulting.ca

WN BRAZIER ASSOCIATES INC

SEAL: PROFESSIONAL ENGINEER YUKON TERRITORY W. NEIL BRAZIER

# EAGLE GOLD PROJECT

## L251 - 69 kV TRANSMISSION LINE

## PLAN AND PROFILE (SHEET 10 OF 54)

| PROJECT No. | DRAWING No. | REV. |
|---|---|---|
| 1407 | 1407-T-1200-10 | 2 |

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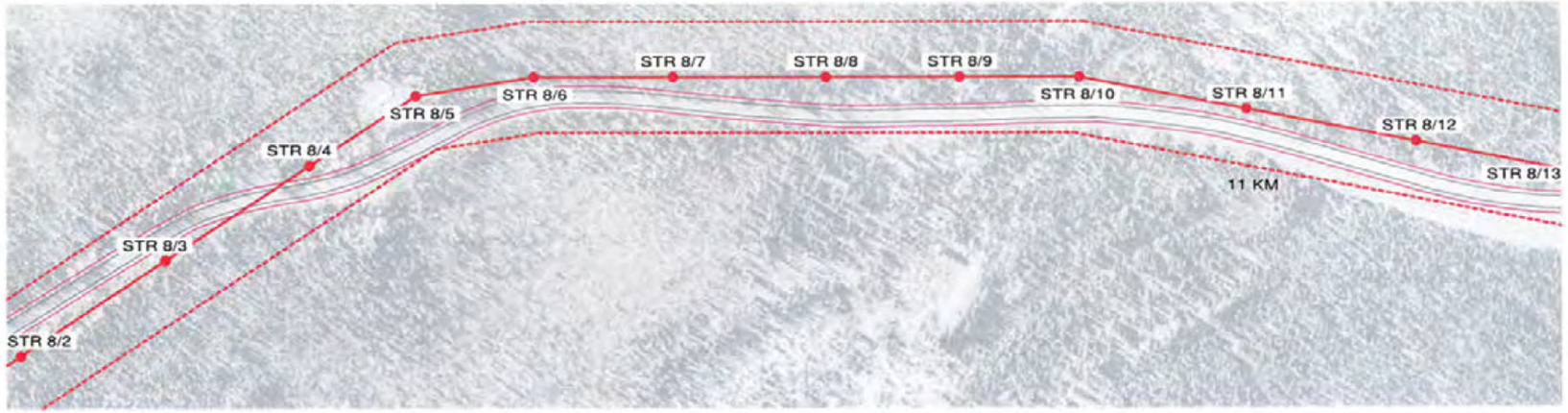


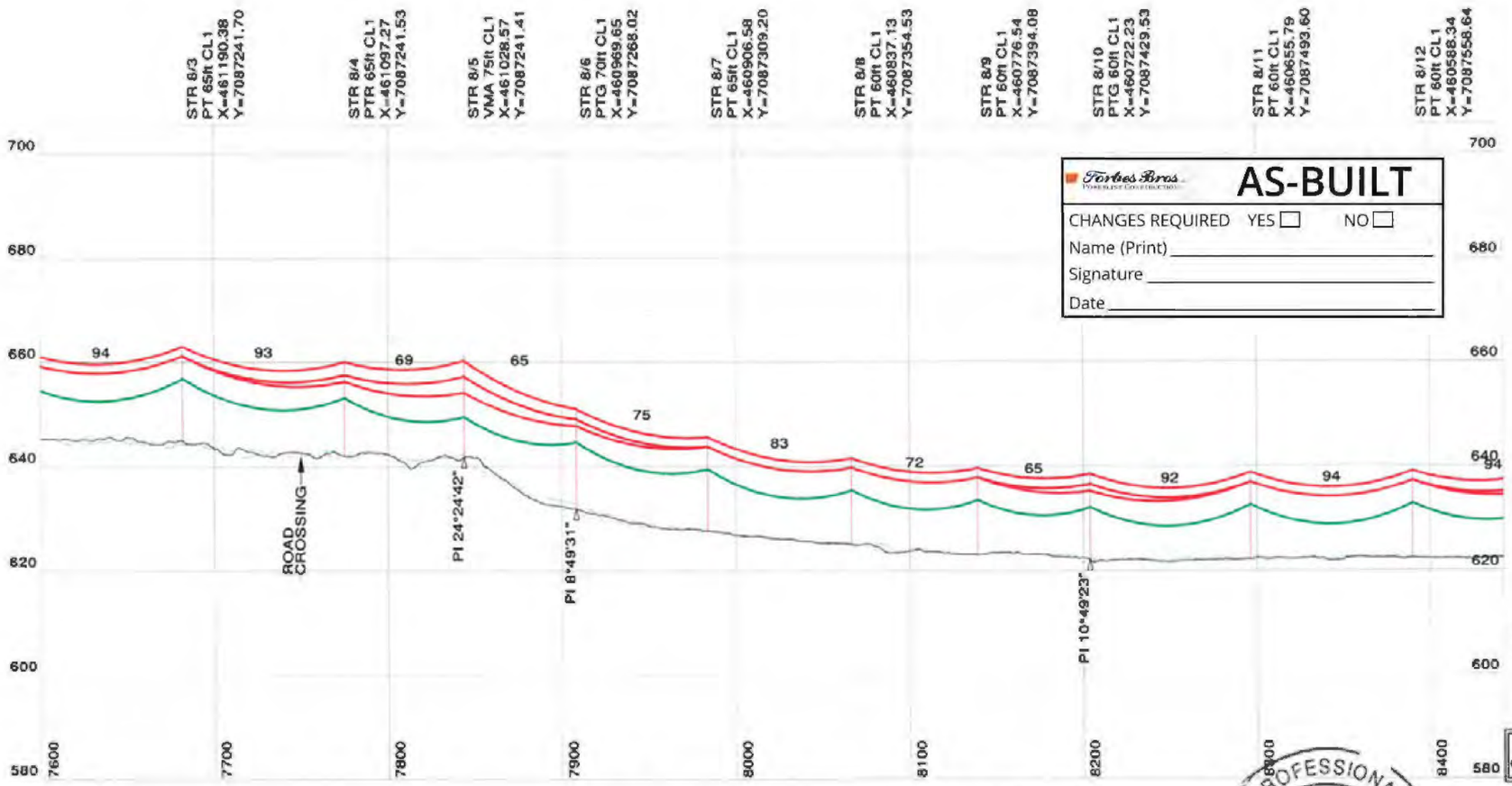


AS-BUILT

CHANGES REQUIRED YES ☐ NO ☐

Name (Print) _____

Signature _____

Date _____

## NOTES

1. ALL DIMENSIONS IN METRES (m) UNLESS NOTED OTHERWISE.
2. COORDINATES ARE IN UTM NAD83 ZONE 8N.
3. ELEVATIONS ARE IN METRES (m) ABOVE MEAN SEA LEVEL (AMSL).
4. 69 kV CONDUCTOR, ADSS CABLE AND OVERHEAD SHIELD WIRE "OHSW" DISPLAYED AT "WET SNOW" (-10° C, 51mm RADIAL SNOW).
5. LINE ANGLE DEFLECTION LOOKING TOWARD EAGLE GOLD PROJECT SITE INDICATED AS FOLLOWS:
   + RIGHT ANGLE DEFLECTION
   - LEFT ANGLE DEFLECTION
6. THIS LINE WILL BE NUMBERED L251 IN THE YUKON ENERGY CORPORATION (YEC) SYSTEM.
7. LEFT (DASH) AND RIGHT (DOT) PROFILE OFFSETS SHOWN AT 5 m CENTERLINE OFFSET.
8. DESIGN TENSIONS SHOWN IN TABLE 1.

TABLE 1

| CABLE TYPE | MEAN ANNUAL TEMP (-4° C) | | WET SNOW (-10° C, 51mm RADIAL SNOW) | |
|---|---|---|---|---|
| | FULL TENSION SPANS (N) | TERMINAL SPANS (N) (SLACK) | FULL TENSION SPANS (N) | TERMINAL SPANS (N) (SLACK) |
| PARTRIDGE ACSR | 3,750 | 550 | 23,300 | 3,300 |
| ADSS | 7,500 | 150 | 13,900 | 3,300 |
| OHSW | 3,800 | 400 | 23,600 | 3,200 |

## LEGEND

- 69 kV - 266.8 kcmil 26/7 "PARTRIDGE" ACSR
- ADSS - OFC-24 G.652D-FASA-S1 (ZTT)
- OHSW - 266.8 kcmil 26/7 "PARTRIDGE" ACSR
- ROAD EDGE
- 2.5m ROAD BUFFER
- 30m CLEARING BOUNDARY
- YEC L250 69 KV LINE (EXISTING)
- 60m WIDE RIGHT OF WAY BOUNDARY
- X KM APPROXIMATE ROAD KM MARKER

## REFERENCES

| | |
|---|---|
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| 1407-T-1100 | ROUTE MAP |
| 1407-T-1400 | STRUCTURE DATA SHEET |
| 1407-T-1900 | SOUTH MCQUESTEN TRANSMISSION LINE CONNECTION - PLAN |
| 1407-T-3000 | STRUCTURE FAMILY |
| 1407-T-6000 | HWY 11 (SILVER TRAIL)-OVERHEAD LINE CROSSING-STR 0/4 TO STR 0/5 |

30.0 m Horiz. Scale
10.0 m Vert. Scale

ISSUED FOR CONSTRUCTION

PERMIT TO PRACTICE
W.N. BRAZIER ASSOCIATES INC.
SIGNATURE _____
Date 10/05/18
PERMIT NUMBER: PP295
Association of Professional Engineers of Yukon

| NO. | DATE | REVISION | DES | DWN | CHK | APR |
|---|---|---|---|---|---|---|
| 2 | AUG 10/18 | MCQUESTEN SUBSTATION & KM18 MODIFICATIONS | MP | MP | PC | NB |
| 1 | JUL 11/18 | BORROW PIT & ROAD PROXIMITY ALIGNMENT CHANGES | MP | MP | PC | MEO |
| 0 | MAY 11/18 | ISSUED FOR CONSTRUCTION | MP | MP | PC | MEO |

CLIENT: StrataGold Corporation

| | |
|---|---|
| DATE | MAY 11/18 |
| DESIGN | MP |
| DRAWN | MP |
| CHECKED | PC |
| APPROVED | MEO |

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WN BRAZIER ASSOCIATES INC

SEAL: PROFESSIONAL ENGINEER YUKON W. NEIL BRAZIER TERRITORY

EAGLE GOLD PROJECT
L251 - 69 kV TRANSMISSION LINE
PLAN AND PROFILE (SHEET 11 OF 54)

| PROJECT No. | DRAWING No. | REV. |
|---|---|---|
| 1407 | 1407-T-1200-11 | 2 |

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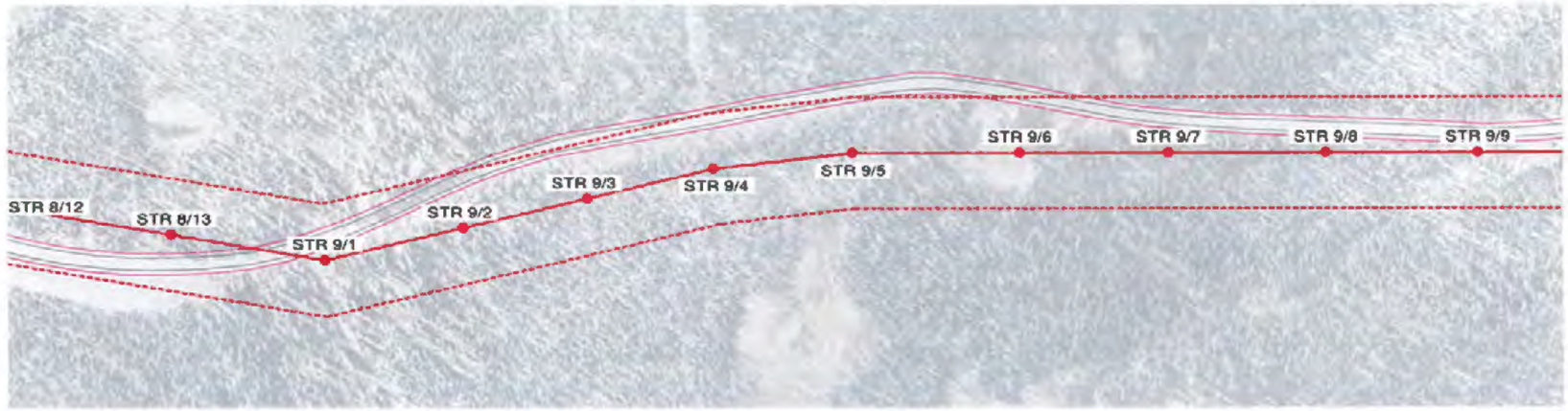


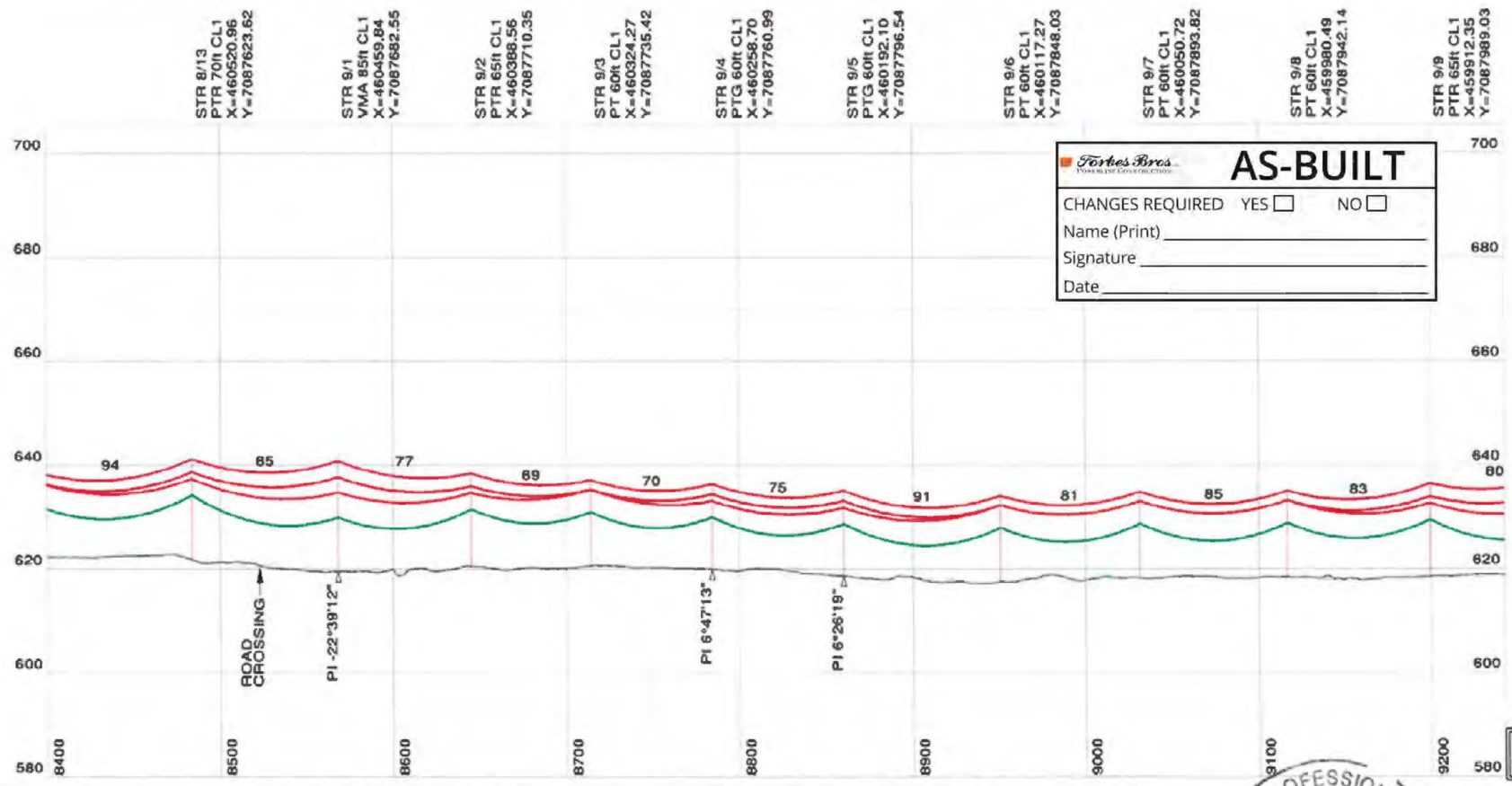


Forbes Bros. POWERLINE CONSTRUCTION

**AS-BUILT**

CHANGES REQUIRED YES ☐ NO ☐

Name (Print) _____

Signature _____

Date _____

## NOTES

1. ALL DIMENSIONS IN METRES (m) UNLESS NOTED OTHERWISE.
2. COORDINATES ARE IN UTM NAD83 ZONE 8N.
3. ELEVATIONS ARE IN METRES (m) ABOVE MEAN SEA LEVEL (AMSL).
4. 69 kV CONDUCTOR, ADSS CABLE AND OVERHEAD SHIELD WIRE "OHSW" DISPLAYED AT "WET SNOW" (-10° C, 51mm RADIAL SNOW).
5. LINE ANGLE DEFLECTION LOOKING TOWARD EAGLE GOLD PROJECT SITE INDICATED AS FOLLOWS:
   + RIGHT ANGLE DEFLECTION
   - LEFT ANGLE DEFLECTION
6. THIS LINE WILL BE NUMBERED L251 IN THE YUKON ENERGY CORPORATION (YEC) SYSTEM.
7. LEFT (DASH) AND RIGHT (DOT) PROFILE OFFSETS SHOWN AT 5 m CENTERLINE OFFSET.
8. DESIGN TENSIONS SHOWN IN TABLE 1.

| TABLE 1 | MEAN ANNUAL TEMP (-4° C) | | WET SNOW (-10° C, 51mm RADIAL SNOW) | |
|---|---|---|---|---|
| CABLE TYPE | FULL TENSION SPANS (N) | TERMINAL SPANS (N) (SLACK) | FULL TENSION SPANS (N) | TERMINAL SPANS (N) (SLACK) |
| PARTRIDGE ACSR | 3,750 | 550 | 23,300 | 3,300 |
| ADSS | 7,500 | 150 | 13,900 | 3,300 |
| OHSW | 3,500 | 400 | 23,600 | 3,200 |

## LEGEND

- 69 kV - 266.8 kcmil 26/7 "PARTRIDGE" ACSR
- ADSS - OFC-24 G.652D-FASA-S1 (ZTT)
- OHSW - 266.8 kcmil 26/7 "PARTRIDGE" ACSR
- ROAD EDGE
- 2.5m ROAD BUFFER
- 30m CLEARING BOUNDARY
- YEC L250 69 KV LINE (EXISTING)
- 60m WIDE RIGHT OF WAY BOUNDARY
- X KM APPROXIMATE ROAD KM MARKER

## REFERENCES

| | |
|---|---|
| 1407-T-1000 | DRAWING LIST |
| 1407-T-1100 | ROUTE MAP |
| 1407-T-1400 | STRUCTURE DATA SHEET |
| 1407-T-1900 | SOUTH MCQUESTEN TRANSMISSION LINE CONNECTION - PLAN |
| 1407-T-3000 | STRUCTURE FAMILY |
| 1407-T-6000 | HWY 11 (SILVER TRAIL)-OVERHEAD LINE CROSSING-STR 0/4 TO STR 0/5 |

30.0 m Horiz. Scale
10.0 m Vert. Scale

ISSUED FOR CONSTRUCTION

PERMIT TO PRACTICE
W.N. BRAIZER ASSOCIATES INC.
SIGNATURE _____
Date 10/05/18
PERMIT NUMBER: PP295
Association of Professional Engineers of Yukon

| NO. | DATE | REVISION | DES | DWN | CHK | APR |
|---|---|---|---|---|---|---|
| 2 | AUG 10/18 | MCQUESTEN SUBSTATION & KM18 MODIFICATIONS | MP | MP | PC | NB |
| 1 | JUL 11/18 | BORROW PIT & ROAD PROXIMITY ALIGNMENT CHANGES | MP | MP | PC | MEO |
| 0 | MAY 11/18 | ISSUED FOR CONSTRUCTION | MP | MP | PC | MEO |

CLIENT: StrataGold Corporation

| | |
|---|---|
| DATE | MAY 11/18 |
| DESIGN | MP |
| DRAWN | MP |
| CHECKED | PC |
| APPROVED | MEO |

Clean Energy CONSULTING INC.
www.cleanenergyconsulting.ca
WN BRAZIER ASSOCIATES INC

SEAL: PROFESSIONAL ENGINEER YUKON TERRITORY W. NEIL BRAZIER

EAGLE GOLD PROJECT
L251 - 69 kV TRANSMISSION LINE
PLAN AND PROFILE (SHEET 12 OF 54)

| PROJECT No. | DRAWING No. | REV. |
|---|---|---|
| 1407 | 1407-T-1200-12 | 2 |

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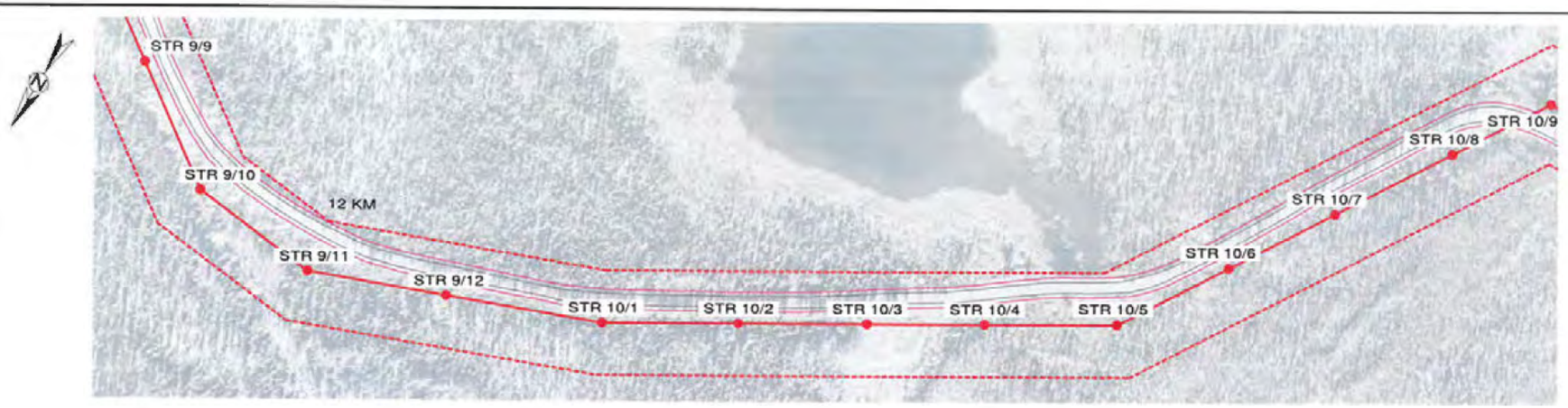


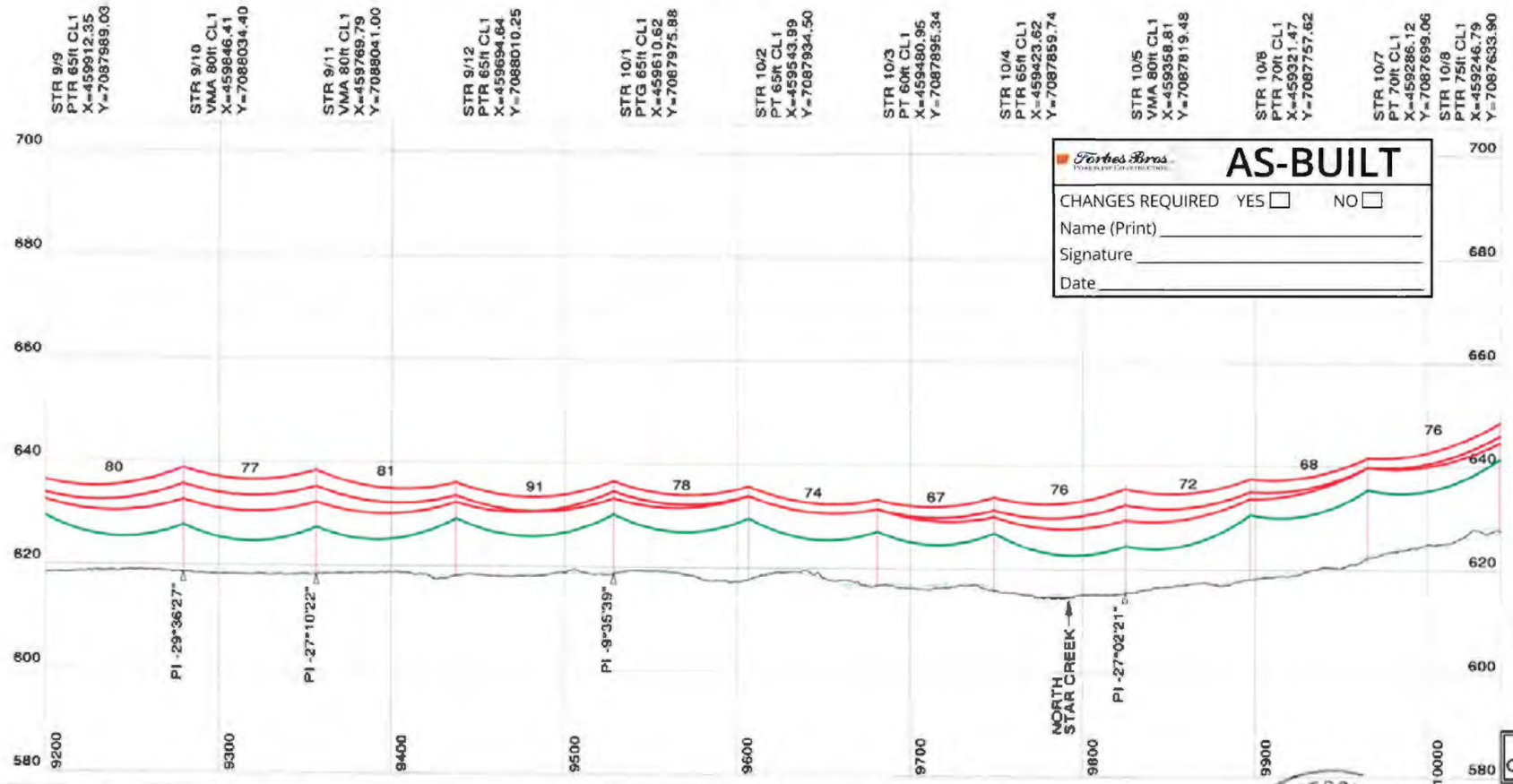


Forbes Bros

# AS-BUILT

CHANGES REQUIRED YES ☐ NO ☐

Name (Print) _____

Signature _____

Date _____

## NOTES

1. ALL DIMENSIONS IN METRES (m) UNLESS NOTED OTHERWISE.
2. COORDINATES ARE IN UTM NAD83 ZONE 8N.
3. ELEVATIONS ARE IN METRES (m) ABOVE MEAN SEA LEVEL (AMSL).
4. 69 kV CONDUCTOR, ADSS CABLE AND OVERHEAD SHIELD WIRE "OHSW" DISPLAYED AT "WET SNOW" (-10° C, 51mm RADIAL SNOW).
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   + RIGHT ANGLE DEFLECTION
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6. THIS LINE WILL BE NUMBERED L251 IN THE YUKON ENERGY CORPORATION (YEC) SYSTEM.
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TABLE 1

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|---|---|---|---|---|
| CABLE TYPE | FULL TENSION SPANS (N) | TERMINAL SPANS (N) (SLACK) | FULL TENSION SPANS (N) | TERMINAL SPANS (N) (SLACK) |
| PARTRIDGE ACSR | 3,750 | 880 | 23,300 | 3,300 |
| ADSS | 7,500 | 150 | 13,900 | 3,300 |
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## LEGEND

- 69 kV - 266.8 kcmil 26/7 "PARTRIDGE" ACSR
- ADSS - OFC-24 G.652D-FASA-S1 (ZTT)
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| 1407-T-6000 | HWY 11 (SILVER TRAIL)-OVERHEAD LINE CROSSING-STR 0/4 TO STR 0/5 |

30.0 m Horiz. Scale
10.0 m Vert. Scale

ISSUED FOR CONSTRUCTION

PERMIT TO PRACTICE
W.N. BRAIZER ASSOCIATES INC.
SIGNATURE _____
Date 10/SEP/18
PERMIT NUMBER: PP295
Association of Professional Engineers of Yukon

| NO. | DATE | REVISION | DES | DWN | CHK | APR |
|---|---|---|---|---|---|---|
| | | | | | | |
| | | | | | | |
| | | | | | | |
| 2 | AUG 10/18 | MCQUESTEN SUBSTATION & KM18 MODIFICATIONS | MP | MP | PC | NB |
| 1 | JUL 11/18 | BORROW PIT & ROAD PROXIMITY ALIGNMENT CHANGES | MP | MP | PC | MEO |
| 0 | MAY 11/18 | ISSUED FOR CONSTRUCTION | MP | MP | PC | MEO |

CLIENT: StrataGold Corporation

| | |
|---|---|
| DATE | MAY 11/18 |
| DESIGN | MP |
| DRAWN | MP |
| CHECKED | PC |
| APPROVED | MEO |

Clean Energy CONSULTING INC.
www.cleanenergyconsulting.ca
WN BRAZIER ASSOCIATES INC

SEAL: PROFESSIONAL ENGINEER YUKON TERRITORY W. NEIL BRAZIER

# EAGLE GOLD PROJECT
## L251 - 69 kV TRANSMISSION LINE
## PLAN AND PROFILE (SHEET 13 OF 54)

| PROJECT No. | DRAWING No. | REV. |
|---|---|---|
| 1407 | 1407-T-1200-13 | 2 |

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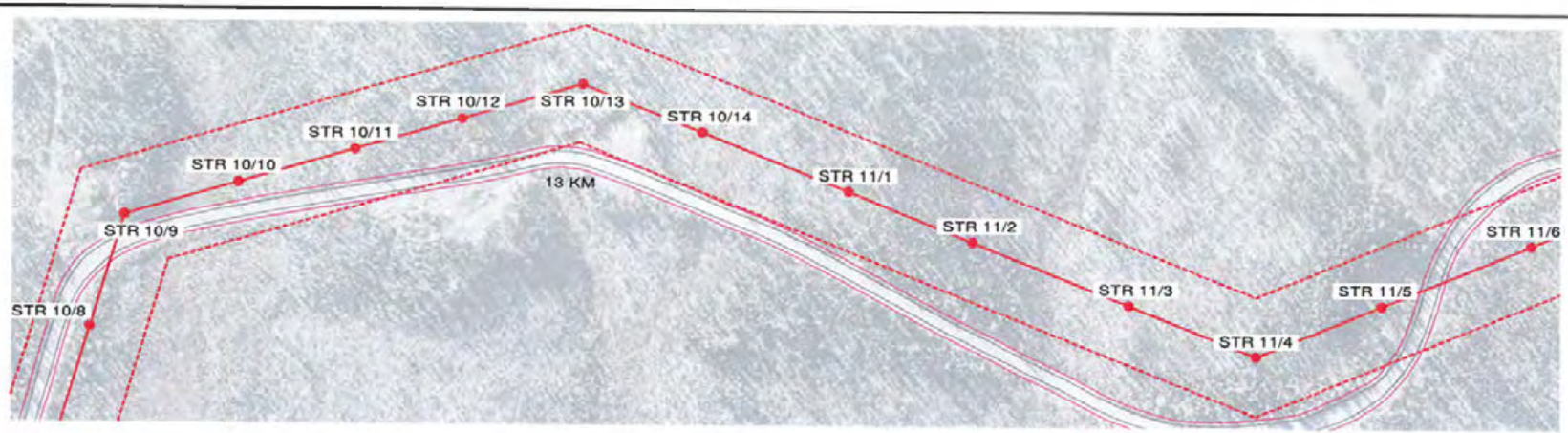


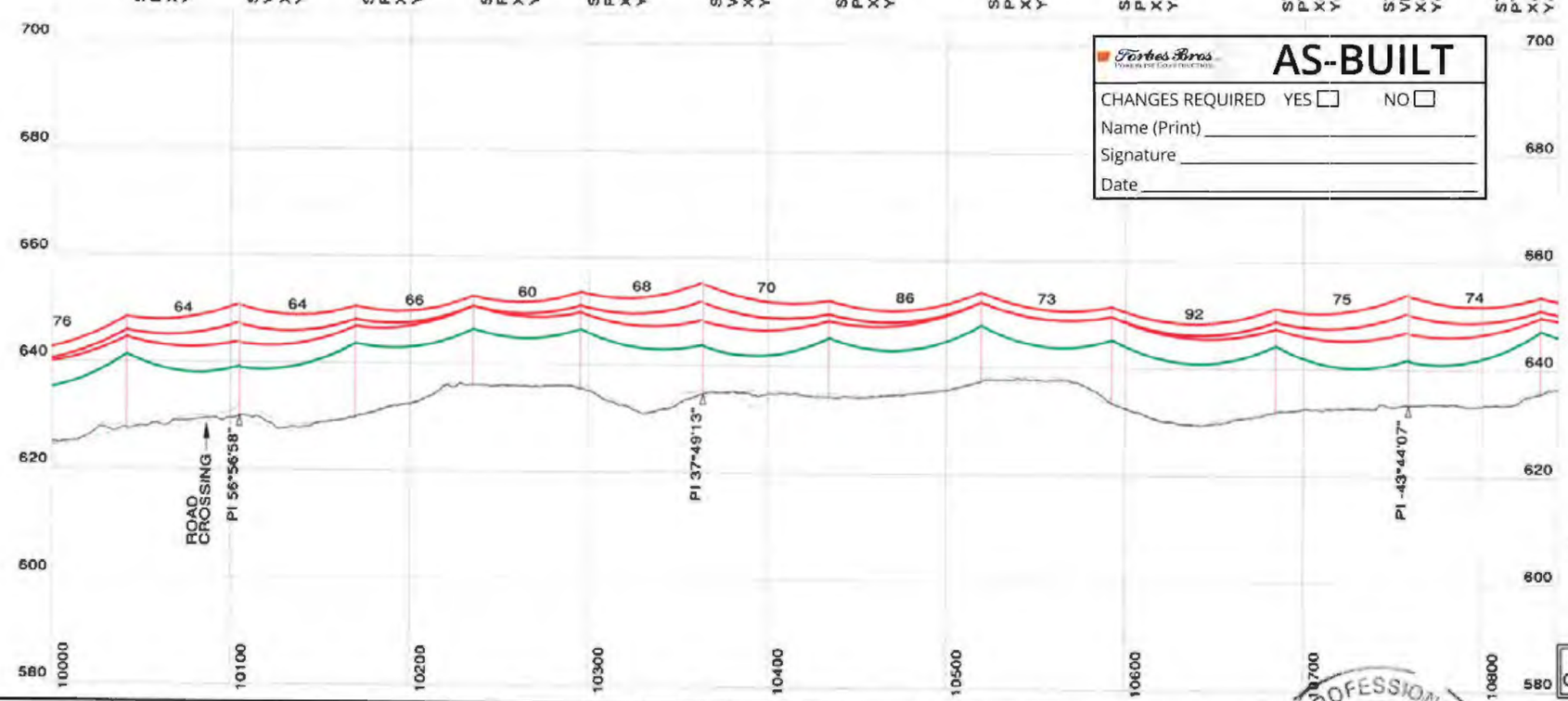


Forbes Bros POWER LINE CONSTRUCTION

**AS-BUILT**

CHANGES REQUIRED YES ☐ NO ☐

Name (Print) _____

Signature _____

Date _____

**NOTES**

1. ALL DIMENSIONS IN METRES (m) UNLESS NOTED OTHERWISE.
2. COORDINATES ARE IN UTM NAD83 ZONE 8N.
3. ELEVATIONS ARE IN METRES (m) ABOVE MEAN SEA LEVEL (AMSL).
4. 69 kV CONDUCTOR, ADSS CABLE AND OVERHEAD SHIELD WIRE "OHSW" DISPLAYED AT "WET SNOW" (-10° C, 51mm RADIAL SNOW).
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   + RIGHT ANGLE DEFLECTION
   - LEFT ANGLE DEFLECTION
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| ADSS | 7,500 | 150 | 13,900 | 3,300 |
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**LEGEND**

- 69 kV - 266.8 kcmil 26/7 "PARTRIDGE" ACSR
- ADSS - OFC-24 G.652D-FASA-S1 (ZTT)
- OHSW - 266.8 kcmil 26/7 "PARTRIDGE" ACSR
- ROAD EDGE
- 2.5m ROAD BUFFER
- 30m CLEARING BOUNDARY
- YEC L250 69 KV LINE (EXISTING)
- 60m WIDE RIGHT OF WAY BOUNDARY
- X KM APPROXIMATE ROAD KM MARKER

**REFERENCES**

| | |
|---|---|
| 1407-T-1000 | DRAWING LIST |
| 1407-T-1100 | ROUTE MAP |
| 1407-T-1400 | STRUCTURE DATA SHEET |
| 1407-T-1900 | SOUTH MCQUESTEN TRANSMISSION LINE CONNECTION - PLAN |
| 1407-T-3000 | STRUCTURE FAMILY |
| 1407-T-6000 | HWY 11 (SILVER TRAIL)-OVERHEAD LINE CROSSING-STR 0/4 TO STR 0/5 |

30.0 m Horiz. Scale
10.0 m Vert. Scale

ISSUED FOR CONSTRUCTION

PERMIT TO PRACTICE
W.N. BRAIZER ASSOCIATES INC.
SIGNATURE _____
Date 10/03/18
PERMIT NUMBER: PP295
Association of Professional Engineers of Yukon

| NO. | DATE | REVISION | DES | DWN | CHK | APR |
|---|---|---|---|---|---|---|
| 2 | AUG 10/18 | MCQUESTEN SUBSTATION & KM18 MODIFICATIONS | MP | MP | PC | NB |
| 1 | JUL 11/18 | BORROW PIT & ROAD PROXIMITY ALIGNMENT CHANGES | MP | MP | PC | MEO |
| 0 | MAY 11/18 | ISSUED FOR CONSTRUCTION | MP | MP | PC | MEO |

CLIENT: StrataGold Corporation

| | |
|---|---|
| DATE | MAY 11/18 |
| DESIGN | MP |
| DRAWN | MP |
| CHECKED | PC |
| APPROVED | MEO |

Clean Energy CONSULTING INC. www.cleanenergyconsulting.ca

WN BRAZIER ASSOCIATES INC

SEAL: PROFESSIONAL ENGINEER YUKON W. NEIL BRAZIER TERRITORY

EAGLE GOLD PROJECT
L251 - 69 kV TRANSMISSION LINE
PLAN AND PROFILE (SHEET 14 OF 54)

PROJECT No. 1407 | DRAWING No. 1407-T-1200-14 | REV. 2

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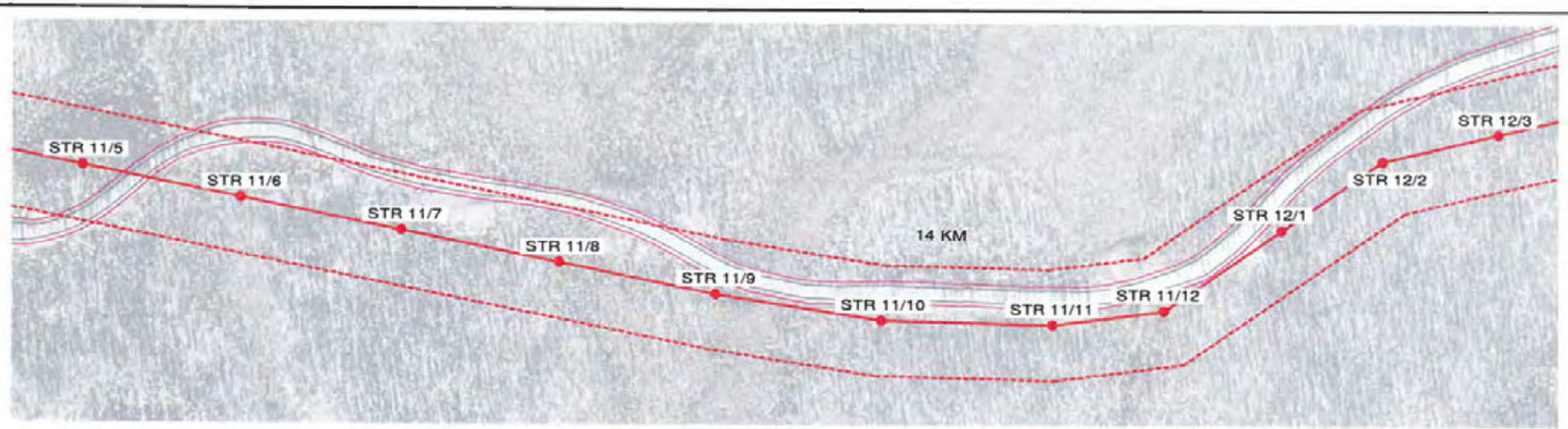


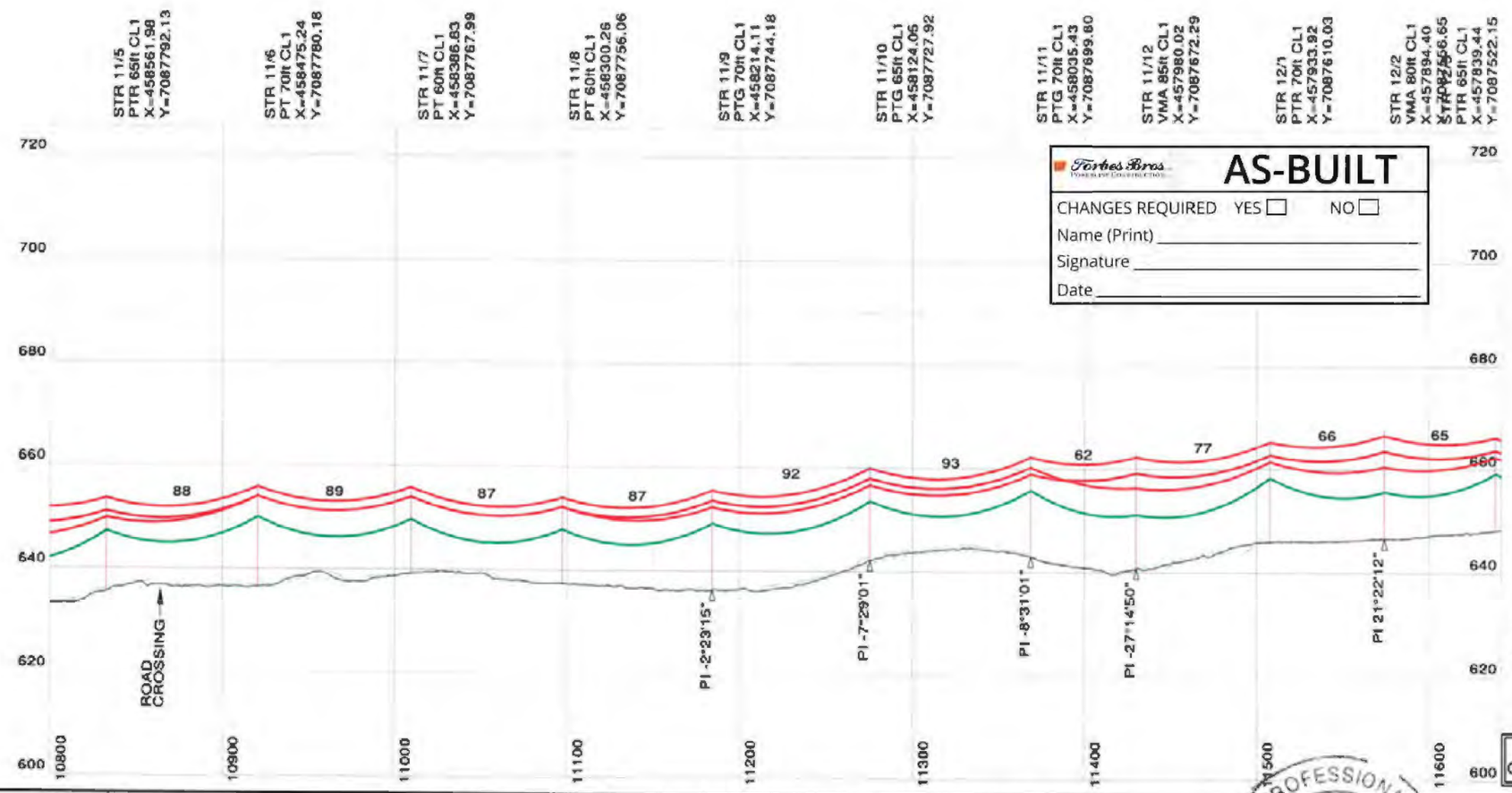


## NOTES

1. ALL DIMENSIONS IN METRES (m) UNLESS NOTED OTHERWISE.
2. COORDINATES ARE IN UTM NAD83 ZONE 8N.
3. ELEVATIONS ARE IN METRES (m) ABOVE MEAN SEA LEVEL (AMSL).
4. 69 kV CONDUCTOR, ADSS CABLE AND OVERHEAD SHIELD WIRE "OHSW" DISPLAYED AT "WET SNOW" (-10° C, 51mm RADIAL SNOW).
5. LINE ANGLE DEFLECTION LOOKING TOWARD EAGLE GOLD PROJECT SITE INDICATED AS FOLLOWS:
   + RIGHT ANGLE DEFLECTION
   - LEFT ANGLE DEFLECTION
6. THIS LINE WILL BE NUMBERED L251 IN THE YUKON ENERGY CORPORATION (YEC) SYSTEM.
7. LEFT (DASH) AND RIGHT (DOT) PROFILE OFFSETS SHOWN AT 5 m CENTERLINE OFFSET.
8. DESIGN TENSIONS SHOWN IN TABLE 1.

**TABLE 1**

| CABLE TYPE | MEAN ANNUAL TEMP (-4° C) | | WET SNOW (-10° C, 51mm RADIAL SNOW) | |
|---|---|---|---|---|
| | FULL TENSION SPANS (N) | TERMINAL SPANS (N) (SLACK) | FULL TENSION SPANS (N) | TERMINAL SPANS (N) (SLACK) |
| PARTRIDGE ACSR | 3,750 | 550 | 23,300 | 3,300 |
| ADSS | 7,500 | 150 | 13,900 | 3,300 |
| OHSW | 3,500 | 400 | 23,600 | 3,200 |

## LEGEND

- 69 kV - 266.8 kcmil 26/7 "PARTRIDGE" ACSR
- ADSS - OFC-24 G.652D-FASA-S1 (ZTT)
- OHSW - 266.8 kcmil 26/7 "PARTRIDGE" ACSR
- ROAD EDGE
- 2.5m ROAD BUFFER
- 30m CLEARING BOUNDARY
- YEC L250 69 KV LINE (EXISTING)
- 60m WIDE RIGHT OF WAY BOUNDARY
- X KM APPROXIMATE ROAD KM MARKER

## REFERENCES

| | |
|---|---|
| 1407-T-1000 | DRAWING LIST |
| 1407-T-1100 | ROUTE MAP |
| 1407-T-1400 | STRUCTURE DATA SHEET |
| 1407-T-1900 | SOUTH MCQUESTEN TRANSMISSION LINE CONNECTION - PLAN |
| 1407-T-3000 | STRUCTURE FAMILY |
| 1407-T-6000 | HWY 11 (SILVER TRAIL)-OVERHEAD LINE CROSSING-STR 0/4 TO STR 0/5 |

30.0 m Horiz. Scale
10.0 m Vert. Scale

Forbes Bros. AS-BUILT

CHANGES REQUIRED YES ☐ NO ☐
Name (Print) _____
Signature _____
Date _____

ISSUED FOR CONSTRUCTION

PERMIT TO PRACTICE
W.N. BRAIZER ASSOCIATES INC.
SIGNATURE _____
Date 10/02/18
PERMIT NUMBER: PP295
Association of Professional Engineers of Yukon

| NO. | DATE | REVISION | DES | DWN | CHK | APR |
|---|---|---|---|---|---|---|
| 2 | AUG 10/18 | MCQUESTEN SUBSTATION & KM18 MODIFICATIONS | MP | MP | PC | NB |
| 1 | JUL 11/18 | BORROW PIT & ROAD PROXIMITY ALIGNMENT CHANGES | MP | MP | PC | MEO |
| 0 | MAY 11/18 | ISSUED FOR CONSTRUCTION | MP | MP | PC | MEO |

CLIENT: StrataGold Corporation

| | |
|---|---|
| DATE | MAY 11/18 |
| DESIGN | MP |
| DRAWN | MP |
| CHECKED | PC |
| APPROVED | MEO |

Clean Energy CONSULTING INC. www.cleanenergyconsulting.ca
WN BRAZIER ASSOCIATES INC

SEAL: PROFESSIONAL ENGINEER YUKON W. NEIL BRAZIER TERRITORY

# EAGLE GOLD PROJECT
## L251 - 69 kV TRANSMISSION LINE
## PLAN AND PROFILE (SHEET 15 OF 54)

| PROJECT No. | DRAWING No. | REV. |
|---|---|---|
| 1407 | 1407-T-1200-15 | 2 |

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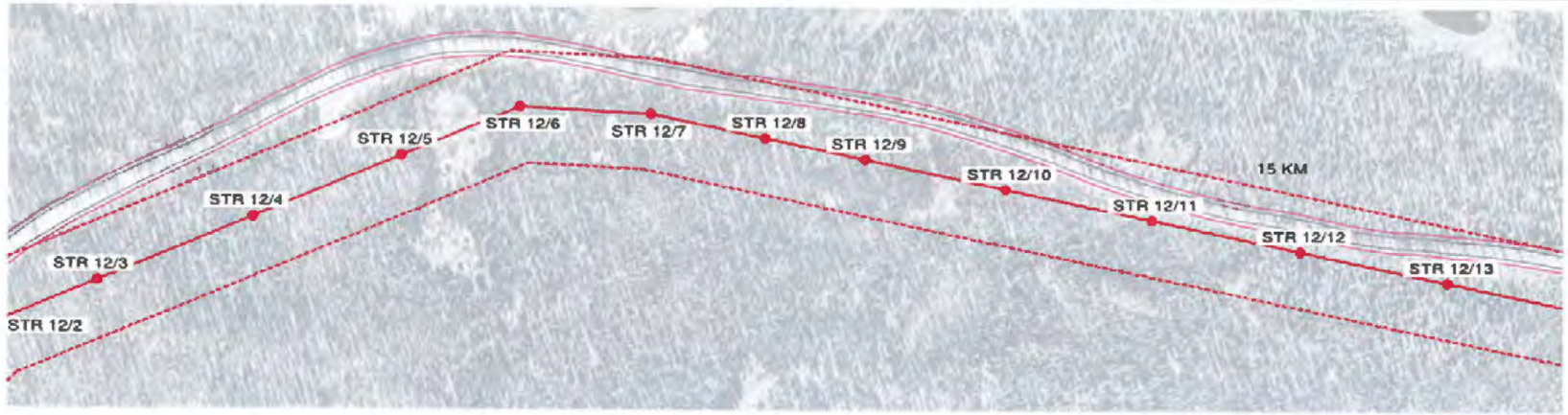


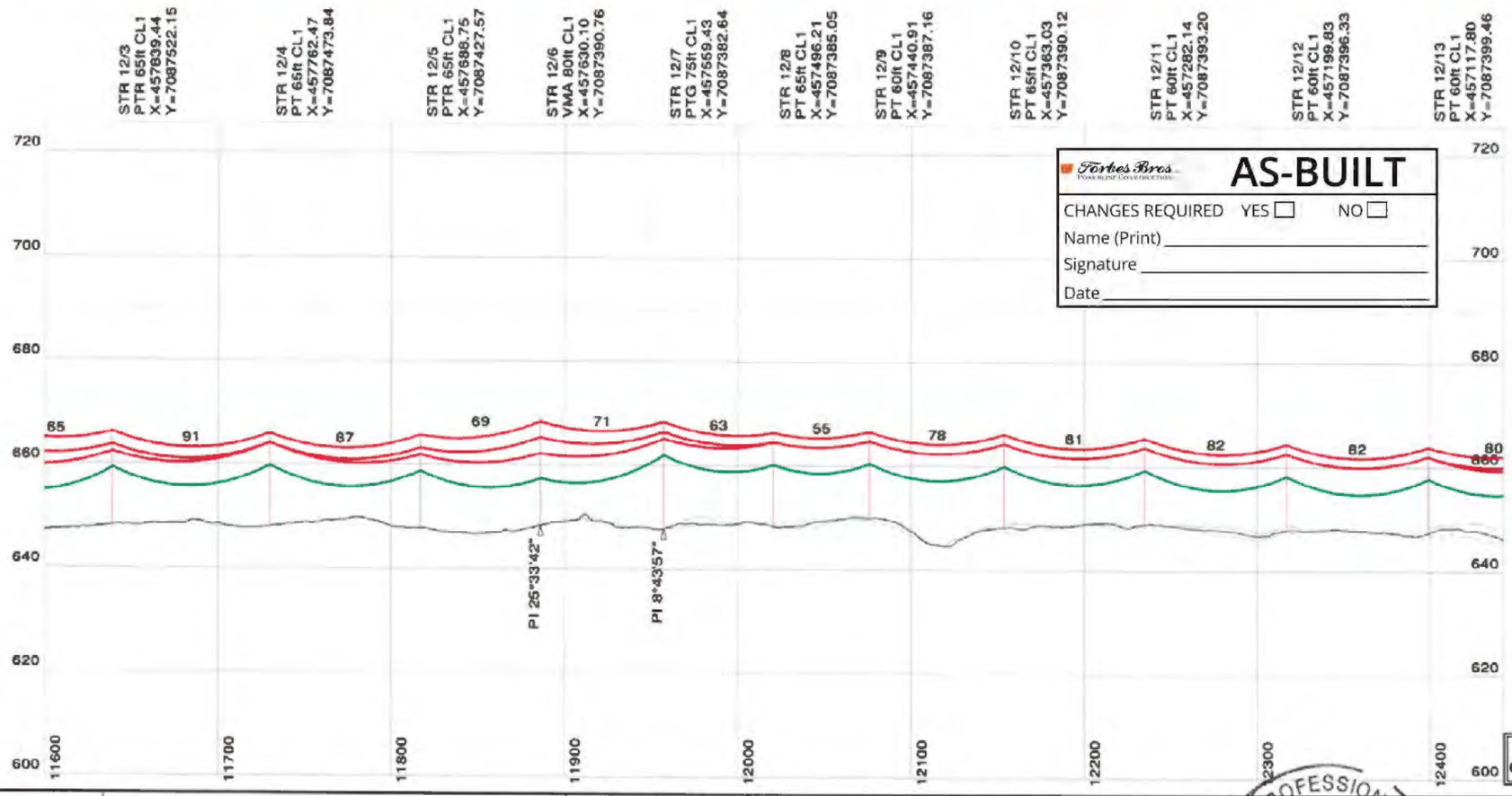


Forbes Bros. Pipeline Construction

**AS-BUILT**

CHANGES REQUIRED YES ☐ NO ☐

Name (Print) _____

Signature _____

Date _____

NOTES

1. ALL DIMENSIONS IN METRES (m) UNLESS NOTED OTHERWISE.
2. COORDINATES ARE IN UTM NAD83 ZONE 8N.
3. ELEVATIONS ARE IN METRES (m) ABOVE MEAN SEA LEVEL (AMSL).
4. 69 kV CONDUCTOR, ADSS CABLE AND OVERHEAD SHIELD WIRE "OHSW" DISPLAYED AT "WET SNOW" (-10° C, 51mm RADIAL SNOW).
5. LINE ANGLE DEFLECTION LOOKING TOWARD EAGLE GOLD PROJECT SITE INDICATED AS FOLLOWS:
   + RIGHT ANGLE DEFLECTION
   - LEFT ANGLE DEFLECTION
6. THIS LINE WILL BE NUMBERED L251 IN THE YUKON ENERGY CORPORATION (YEC) SYSTEM.
7. LEFT (DASH) AND RIGHT (DOT) PROFILE OFFSETS SHOWN AT 5 m CENTERLINE OFFSET.
8. DESIGN TENSIONS SHOWN IN TABLE 1.

| TABLE 1 | MEAN ANNUAL TEMP (-4° C) | | WET SNOW (-10° C, 51mm RADIAL SNOW) | |
|---|---|---|---|---|
| CABLE TYPE | FULL TENSION SPANS (N) | TERMINAL SPANS (N) (SLACK) | FULL TENSION SPANS (N) | TERMINAL SPANS (N) (SLACK) |
| PARTRIDGE ACSR | 3,750 | 550 | 23,300 | 3,300 |
| ADSS | 7,500 | 150 | 13,800 | 3,300 |
| OHSW | 3,800 | 400 | 23,600 | 3,200 |

LEGEND

- 69 kV - 266.8 kcmil 26/7 "PARTRIDGE" ACSR
- ADSS - OFC-24 G.652D-FASA-S1 (ZTT)
- OHSW - 266.8 kcmil 26/7 "PARTRIDGE" ACSR
- ROAD EDGE
- 2.5m ROAD BUFFER
- 30m CLEARING BOUNDARY
- YEC L250 69 KV LINE (EXISTING)
- 60m WIDE RIGHT OF WAY BOUNDARY
- X KM APPROXIMATE ROAD KM MARKER

REFERENCES

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| 1407-T-1100 | ROUTE MAP |
| 1407-T-1400 | STRUCTURE DATA SHEET |
| 1407-T-1900 | SOUTH MCQUESTEN TRANSMISSION LINE CONNECTION - PLAN |
| 1407-T-3000 | STRUCTURE FAMILY |
| 1407-T-6000 | HWY 11 (SILVER TRAIL)-OVERHEAD LINE CROSSING-STR 0/4 TO STR 0/5 |

30.0 m Horiz. Scale
10.0 m Vert. Scale

ISSUED FOR CONSTRUCTION

PERMIT TO PRACTICE
W.N. BRAIZER ASSOCIATES INC.
SIGNATURE _____
Date 10/25/18
PERMIT NUMBER: PP295
Association of Professional Engineers of Yukon

| NO. | DATE | REVISION | DES | DWN | CHK | APR |
|---|---|---|---|---|---|---|
| 2 | AUG 10/18 | MCQUESTEN SUBSTATION & KM18 MODIFICATIONS | MP | MP | PC | NB |
| 1 | JUL 11/18 | BORROW PIT & ROAD PROXIMITY ALIGNMENT CHANGES | MP | MP | PC | MEO |
| 0 | MAY 11/18 | ISSUED FOR CONSTRUCTION | MP | MP | PC | MEO |

CLIENT StrataGold Corporation

| | |
|---|---|
| DATE | MAY 11/18 |
| DESIGN | MP |
| DRAWN | MP |
| CHECKED | PC |
| APPROVED | MEO |

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www.cleanenergyconsulting.ca
WN BRAZIER ASSOCIATES INC

SEAL: PROFESSIONAL ENGINEER YUKON W. NEIL BRAZIER TERRITORY

EAGLE GOLD PROJECT
L251 - 69 kV TRANSMISSION LINE
PLAN AND PROFILE (SHEET 16 OF 54)

| PROJECT No. | DRAWING No. | REV. |
|---|---|---|
| 1407 | 1407-T-1200-16 | 2 |

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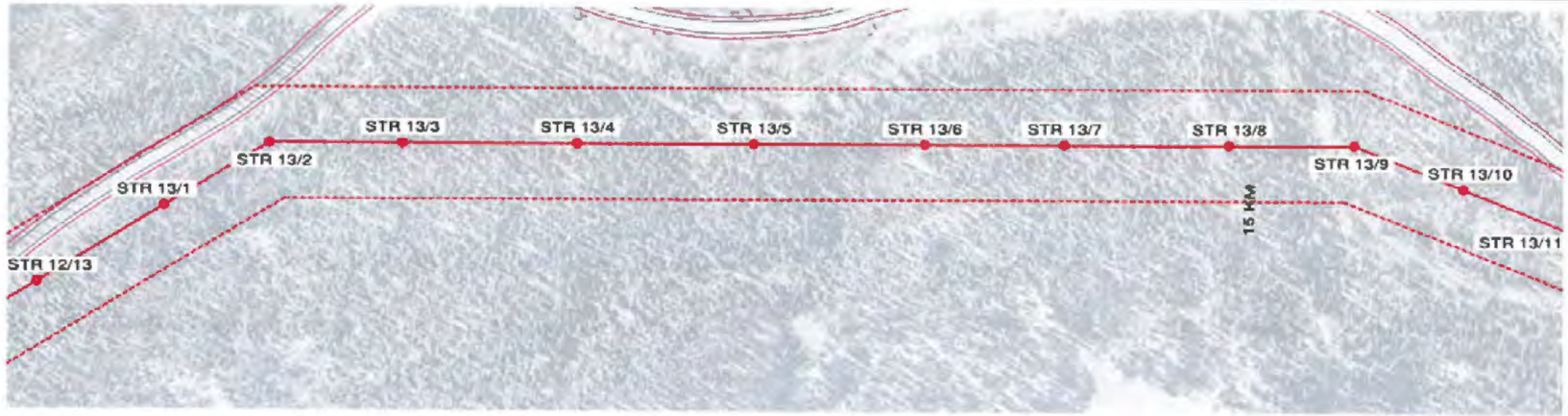



STR 12/13
PT 60ft CL1
X=457117.80
Y=7087399.46

STR 13/1
PTR 70ft CL1
X=457037.45
Y=7087402.51

STR 13/2
VDEMA 85ft CL1
X=456971.36
Y=7087405.03

STR 13/3
PTR 65ft CL1
X=456911.49
Y=7087444.24

STR 13/4
PT 60ft CL1
X=456832.09
Y=7087496.24

STR 13/5
PT 60ft CL1
X=456752.28
Y=7087548.51

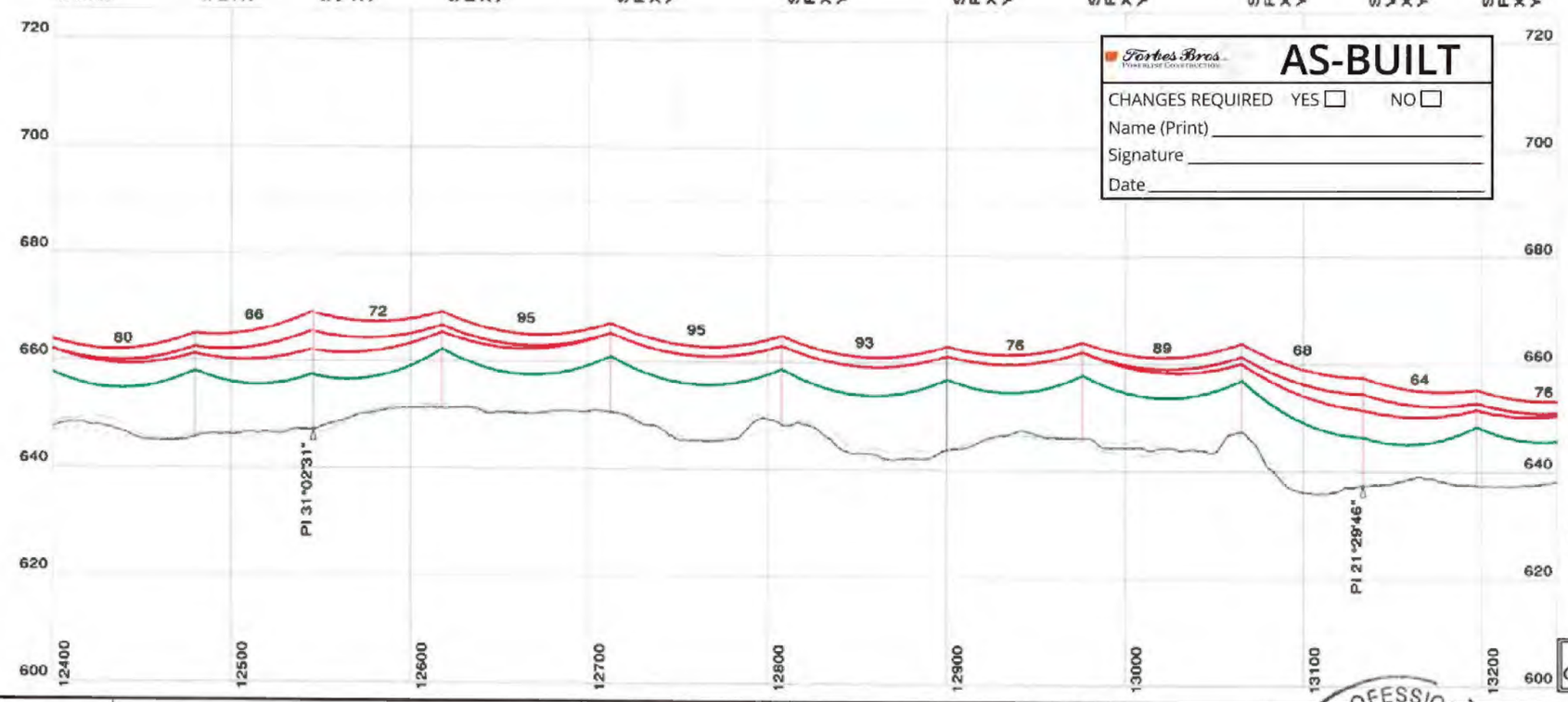
STR 13/6
PT 70ft CL1
X=456674.69
Y=7087599.33

STR 13/7
PT 65ft CL1
X=456611.39
Y=7087640.79

STR 13/8
PTR 60ft CL1
X=456536.58
Y=7087689.78

STR 13/9
VMA 80ft CL1
X=456479.85
Y=7087726.93

STR 13/10
PTR 65ft CL1
X=456443.15
Y=7087778.80




Forbes Bros. Powerline Construction

# AS-BUILT

CHANGES REQUIRED YES ☐ NO ☐

Name (Print) _____

Signature _____

Date _____

## NOTES

1. ALL DIMENSIONS IN METRES (m) UNLESS NOTED OTHERWISE.
2. COORDINATES ARE IN UTM NAD83 ZONE 8N.
3. ELEVATIONS ARE IN METRES (m) ABOVE MEAN SEA LEVEL (AMSL).
4. 69 kV CONDUCTOR, ADSS CABLE AND OVERHEAD SHIELD WIRE "OHSW" DISPLAYED AT "WET SNOW" (-10° C, 51mm RADIAL SNOW).
5. LINE ANGLE DEFLECTION LOOKING TOWARD EAGLE GOLD PROJECT SITE INDICATED AS FOLLOWS:
   + RIGHT ANGLE DEFLECTION
   - LEFT ANGLE DEFLECTION
6. THIS LINE WILL BE NUMBERED L251 IN THE YUKON ENERGY CORPORATION (YEC) SYSTEM.
7. LEFT (DASH) AND RIGHT (DOT) PROFILE OFFSETS SHOWN AT 5 m CENTERLINE OFFSET.
8. DESIGN TENSIONS SHOWN IN TABLE 1.

| TABLE 1 | MEAN ANNUAL TEMP (-4° C) | | WET SNOW (-10° C, 51mm RADIAL SNOW) | |
|---|---|---|---|---|
| CABLE TYPE | FULL TENSION SPANS (N) | TERMINAL SPANS (N) (SLACK) | FULL TENSION SPANS (N) | TERMINAL SPANS (N) (SLACK) |
| PARTRIDGE ACSR | 3,750 | 550 | 23,300 | 3,300 |
| ADSS | 7,500 | 150 | 13,900 | 3,300 |
| OHSW | 3,500 | 400 | 23,600 | 3,200 |

## LEGEND

- 69 kV - 266.8 kcmil 26/7 "PARTRIDGE" ACSR
- ADSS - OFC-24 G.652D-FASA-S1 (ZTT)
- OHSW - 266.8 kcmil 26/7 "PARTRIDGE" ACSR
- ROAD EDGE
- 2.5m ROAD BUFFER
- 30m CLEARING BOUNDARY
- YEC L250 69 KV LINE (EXISTING)
- 60m WIDE RIGHT OF WAY BOUNDARY
- X KM APPROXIMATE ROAD KM MARKER

## REFERENCES

| | |
|---|---|
| 1407-T-1000 | DRAWING LIST |
| 1407-T-1100 | ROUTE MAP |
| 1407-T-1400 | STRUCTURE DATA SHEET |
| 1407-T-1900 | SOUTH MCQUESTEN TRANSMISSION LINE CONNECTION - PLAN |
| 1407-T-3000 | STRUCTURE FAMILY |
| 1407-T-6000 | HWY 11 (SILVER TRAIL)-OVERHEAD LINE CROSSING-STR 0/4 TO STR 0/5 |

30.0 m Horiz. Scale
10.0 m Vert. Scale

ISSUED FOR CONSTRUCTION

PERMIT TO PRACTICE
W.N. BRAIZER ASSOCIATES INC.
SIGNATURE _____
Date 16/08/18
PERMIT NUMBER: PP295
Association of Professional Engineers of Yukon

| NO. | DATE | REVISION | DES | DWN | CHK | APR |
|---|---|---|---|---|---|---|
| | | | | | | |
| | | | | | | |
| | | | | | | |
| 2 | AUG 10/18 | MCQUESTEN SUBSTATION & KM18 MODIFICATIONS | MP | MP | PC | NB |
| 1 | JUL 11/18 | BORROW PIT & ROAD PROXIMITY ALIGNMENT CHANGES | MP | MP | PC | MEO |
| 0 | MAY 11/18 | ISSUED FOR CONSTRUCTION | MP | MP | PC | MEO |

CLIENT: StrataGold Corporation

| | |
|---|---|
| DATE | MAY 11/18 |
| DESIGN | MP |
| DRAWN | MP |
| CHECKED | PC |
| APPROVED | MEO |

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www.cleanenergyconsulting.ca

WN BRAZIER ASSOCIATES INC

SEAL: PROFESSIONAL ENGINEER YUKON TERRITORY W. NEIL BRAZIER

EAGLE GOLD PROJECT
L251 - 69 kV TRANSMISSION LINE
PLAN AND PROFILE (SHEET 17 OF 54)

| PROJECT No. | DRAWING No. | REV. |
|---|---|---|
| 1407 | 1407-T-1200-17 | 2 |

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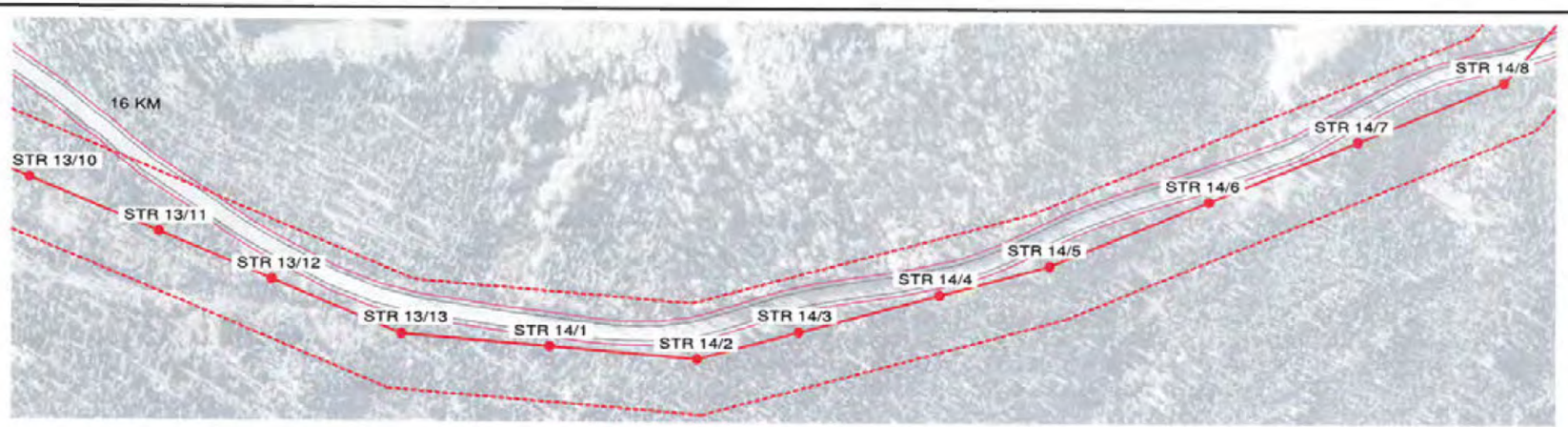


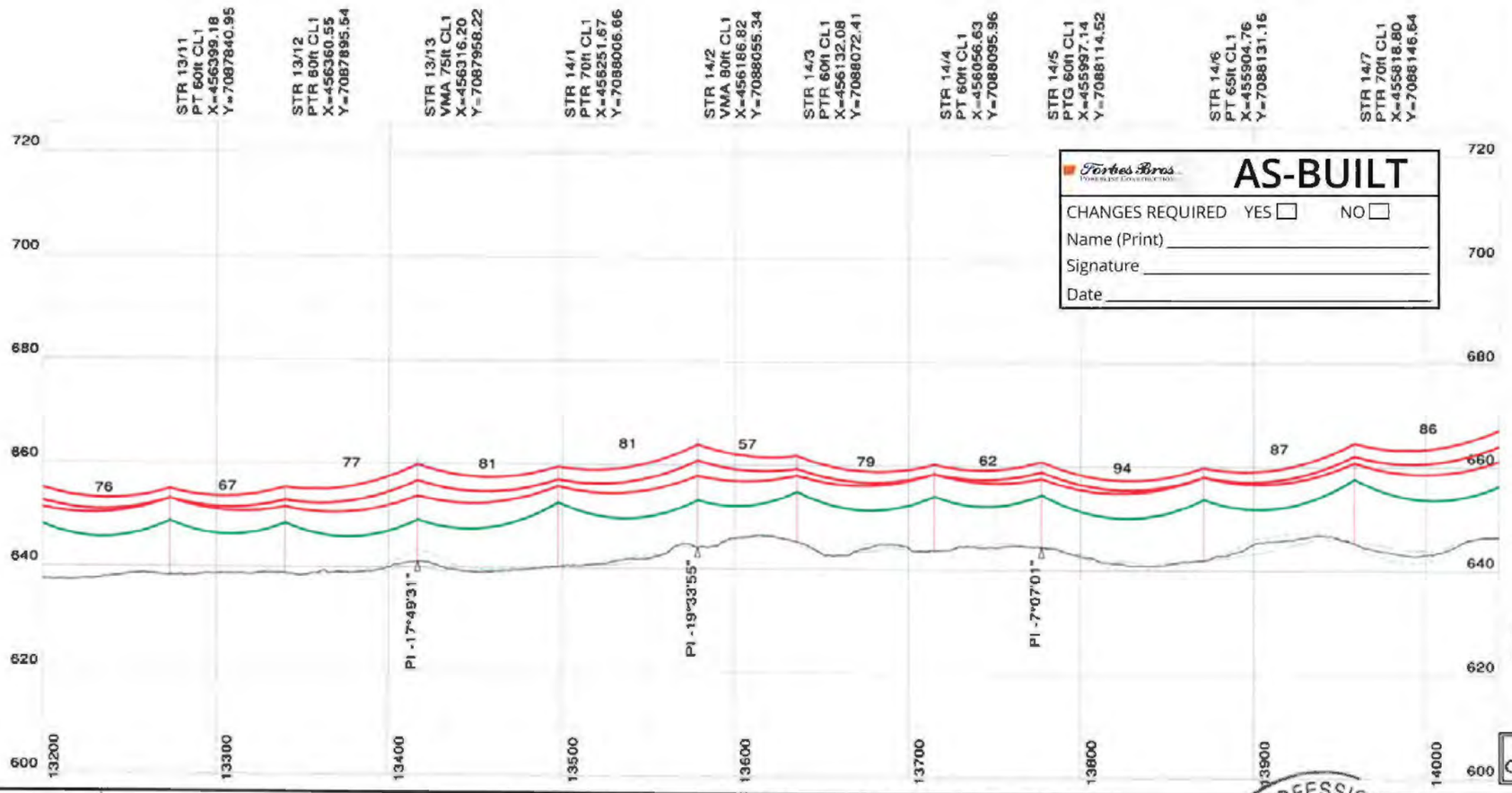


Forbes Bros. Pipeline Construction

**AS-BUILT**

CHANGES REQUIRED YES ☐ NO ☐

Name (Print) _____

Signature _____

Date _____

## NOTES

1. ALL DIMENSIONS IN METRES (m) UNLESS NOTED OTHERWISE.
2. COORDINATES ARE IN UTM NAD83 ZONE 8N.
3. ELEVATIONS ARE IN METRES (m) ABOVE MEAN SEA LEVEL (AMSL).
4. 69 kV CONDUCTOR, ADSS CABLE AND OVERHEAD SHIELD WIRE "OHSW" DISPLAYED AT "WET SNOW" (-10° C, 51mm RADIAL SNOW).
5. LINE ANGLE DEFLECTION LOOKING TOWARD EAGLE GOLD PROJECT SITE INDICATED AS FOLLOWS:
   + RIGHT ANGLE DEFLECTION
   - LEFT ANGLE DEFLECTION
6. THIS LINE WILL BE NUMBERED L251 IN THE YUKON ENERGY CORPORATION (YEC) SYSTEM.
7. LEFT (DASH) AND RIGHT (DOT) PROFILE OFFSETS SHOWN AT 5 m CENTERLINE OFFSET.
8. DESIGN TENSIONS SHOWN IN TABLE 1.

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|---|---|---|---|---|
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| PARTRIDGE ACSR | 3,750 | 550 | 23,300 | 3,300 |
| ADSS | 7,500 | 150 | 13,900 | 3,300 |
| OHSW | 3,500 | 400 | 23,600 | 3,200 |

## LEGEND

- 69 kV - 266.8 kcmil 26/7 "PARTRIDGE" ACSR
- ADSS - OFC-24 G.652D-FASA-S1 (ZTT)
- OHSW - 266.8 kcmil 26/7 "PARTRIDGE" ACSR
- ROAD EDGE
- 2.5m ROAD BUFFER
- 30m CLEARING BOUNDARY
- YEC L250 69 KV LINE (EXISTING)
- 60m WIDE RIGHT OF WAY BOUNDARY
- X KM APPROXIMATE ROAD KM MARKER

## REFERENCES

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| 1407-T-3000 | STRUCTURE FAMILY |
| 1407-T-6000 | HWY 11 (SILVER TRAIL)-OVERHEAD LINE CROSSING-STR 0/4 TO STR 0/5 |

30.0 m Horiz. Scale
10.0 m Vert. Scale

ISSUED FOR CONSTRUCTION

PERMIT TO PRACTICE
W.N. BRAZIER ASSOCIATES INC.
SIGNATURE
Date 10/03/14
PERMIT NUMBER: PP295
Association of Professional Engineers of Yukon

| NO. | DATE | REVISION | DES | DWN | CHK | APR |
|---|---|---|---|---|---|---|
| | | | | | | |
| | | | | | | |
| | | | | | | |
| 2 | AUG 10/18 | MCQUESTEN SUBSTATION & KM18 MODIFICATIONS | MP | MP | PC | NB |
| 1 | JUL 11/18 | BORROW PIT & ROAD PROXIMITY ALIGNMENT CHANGES | MP | MP | PC | MEO |
| 0 | MAY 11/18 | ISSUED FOR CONSTRUCTION | MP | MP | PC | MEO |

CLIENT: StrataGold Corporation

| | |
|---|---|
| DATE | MAY 11/18 |
| DESIGN | MP |
| DRAWN | MP |
| CHECKED | PC |
| APPROVED | MEO |

Clean Energy CONSULTING INC. www.cleanenergyconsulting.ca

WN BRAZIER ASSOCIATES INC

SEAL: PROFESSIONAL ENGINEER YUKON W. NEIL BRAZIER TERRITORY

# EAGLE GOLD PROJECT
## L251 - 69 kV TRANSMISSION LINE
## PLAN AND PROFILE (SHEET 18 OF 54)

| PROJECT No. | DRAWING No. | REV. |
|---|---|---|
| 1407 | 1407-T-1200-18 | 2 |

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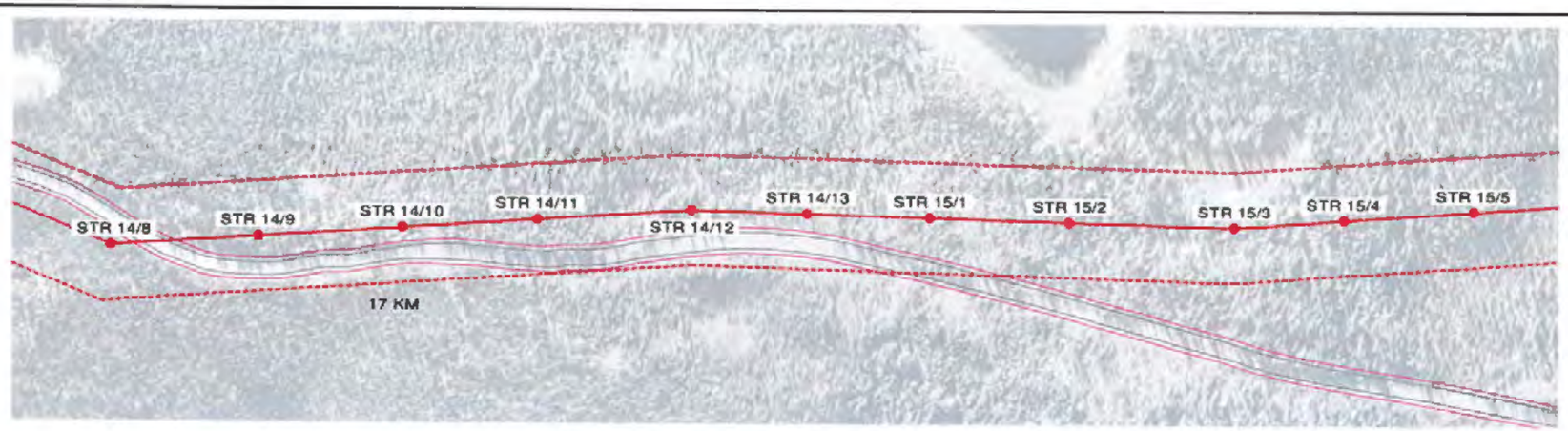


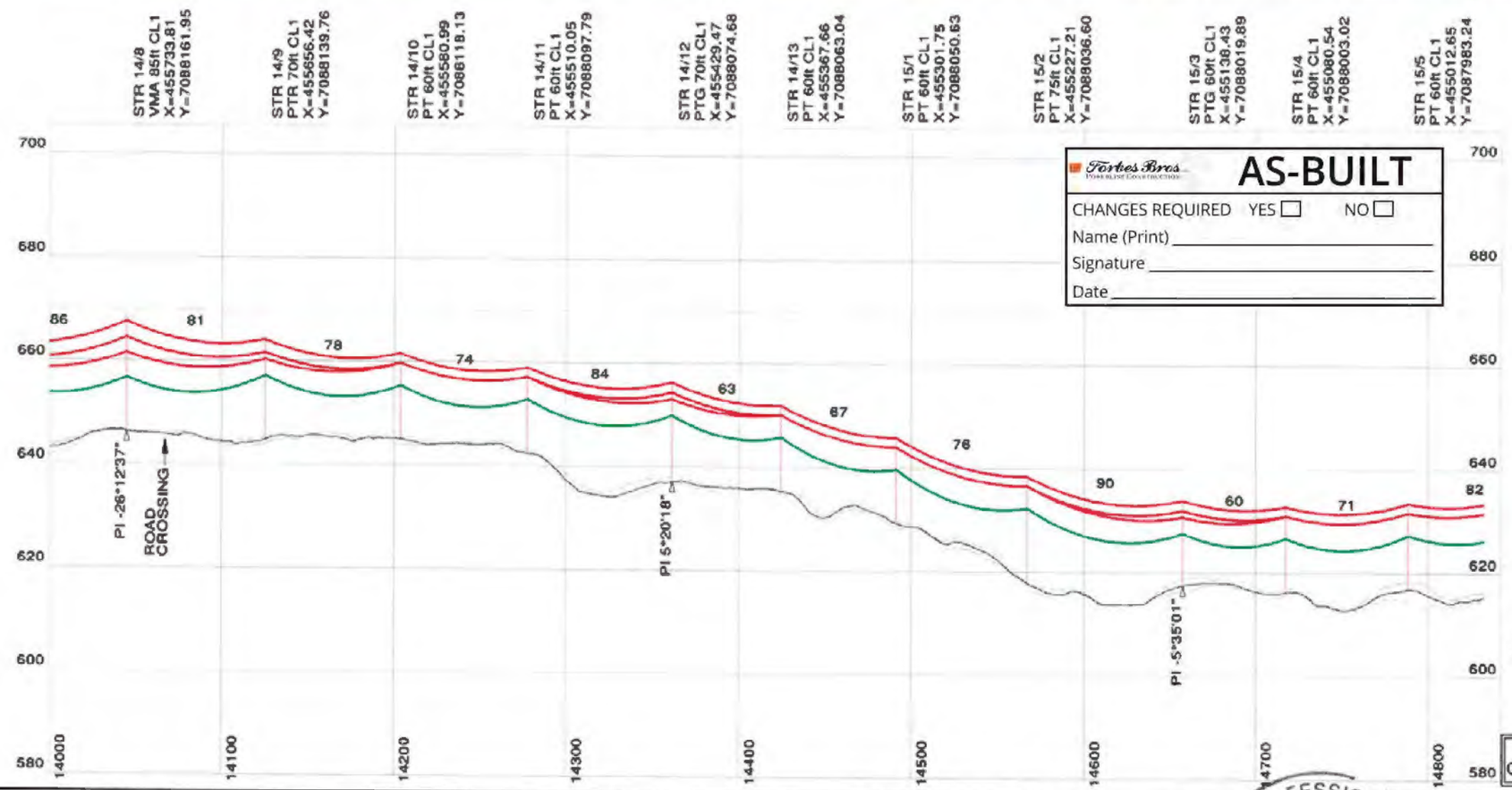


Forbes Bros Pipeline Construction

**AS-BUILT**

CHANGES REQUIRED YES ☐ NO ☐

Name (Print) _____

Signature _____

Date _____

## NOTES

1. ALL DIMENSIONS IN METRES (m) UNLESS NOTED OTHERWISE.
2. COORDINATES ARE IN UTM NAD83 ZONE 8N.
3. ELEVATIONS ARE IN METRES (m) ABOVE MEAN SEA LEVEL (AMSL).
4. 69 kV CONDUCTOR, ADSS CABLE AND OVERHEAD SHIELD WIRE "OHSW" DISPLAYED AT "WET SNOW" (-10° C, 51mm RADIAL SNOW).
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   + RIGHT ANGLE DEFLECTION
   - LEFT ANGLE DEFLECTION
6. THIS LINE WILL BE NUMBERED L251 IN THE YUKON ENERGY CORPORATION (YEC) SYSTEM.
7. LEFT (DASH) AND RIGHT (DOT) PROFILE OFFSETS SHOWN AT 5 m CENTERLINE OFFSET.
8. DESIGN TENSIONS SHOWN IN TABLE 1.

**TABLE 1**

| CABLE TYPE | MEAN ANNUAL TEMP (+4° C) | | WET SNOW (-10° C, 51mm RADIAL SNOW) | |
|---|---|---|---|---|
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| OHSW | 3,500 | 400 | 23,600 | 3,200 |

## LEGEND

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- ADSS - OFC-24 G.652D-FASA-S1 (ZTT)
- OHSW - 266.8 kcmil 26/7 "PARTRIDGE" ACSR
- ROAD EDGE
- 2.5m ROAD BUFFER
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- YEC L250 69 KV LINE (EXISTING)
- 60m WIDE RIGHT OF WAY BOUNDARY
- X KM APPROXIMATE ROAD KM MARKER

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| 1407-T-1100 | ROUTE MAP |
| 1407-T-1400 | STRUCTURE DATA SHEET |
| 1407-T-1900 | SOUTH MCQUESTEN TRANSMISSION LINE CONNECTION - PLAN |
| 1407-T-3000 | STRUCTURE FAMILY |
| 1407-T-8000 | HWY 11 (SILVER TRAIL)-OVERHEAD LINE CROSSING-STR 0/4 TO STR 0/5 |

30.0 m Horiz. Scale
10.0 m Vert. Scale

ISSUED FOR CONSTRUCTION

PERMIT TO PRACTICE
W.N. BRAIZER ASSOCIATES INC.
SIGNATURE _____
Date 10/05/18
PERMIT NUMBER: PP295
Association of Professional Engineers of Yukon

| NO. | DATE | REVISION | DES | DWN | CHK | APR |
|---|---|---|---|---|---|---|
| 2 | AUG 10/18 | MCQUESTEN SUBSTATION & KM18 MODIFICATIONS | MP | MP | PC | NB |
| 1 | JUL 11/18 | BORROW PIT & ROAD PROXIMITY ALIGNMENT CHANGES | MP | MP | PC | MEO |
| 0 | MAY 11/18 | ISSUED FOR CONSTRUCTION | MP | MP | PC | MEO |

CLIENT: StrataGold Corporation

| | |
|---|---|
| DATE | MAY 11/18 |
| DESIGN | MP |
| DRAWN | MP |
| CHECKED | PC |
| APPROVED | MEO |

Clean Energy CONSULTING INC
www.cleanenergyconsulting.ca
WN BRAZIER ASSOCIATES INC

STAMP: PROFESSIONAL ENGINEER YUKON TERRITORY W. NEIL BRAZIER

# EAGLE GOLD PROJECT
## L251 - 69 kV TRANSMISSION LINE
## PLAN AND PROFILE (SHEET 19 OF 54)

| PROJECT No. | DRAWING No. | REV. |
|---|---|---|
| 1407 | 1407-T-1200-19 | 2 |

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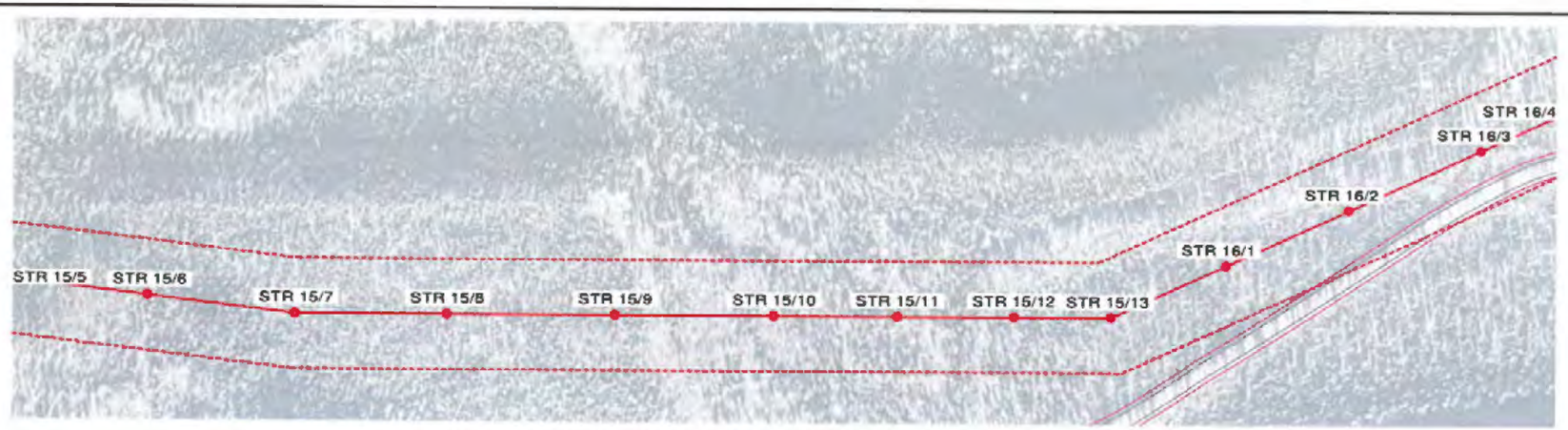


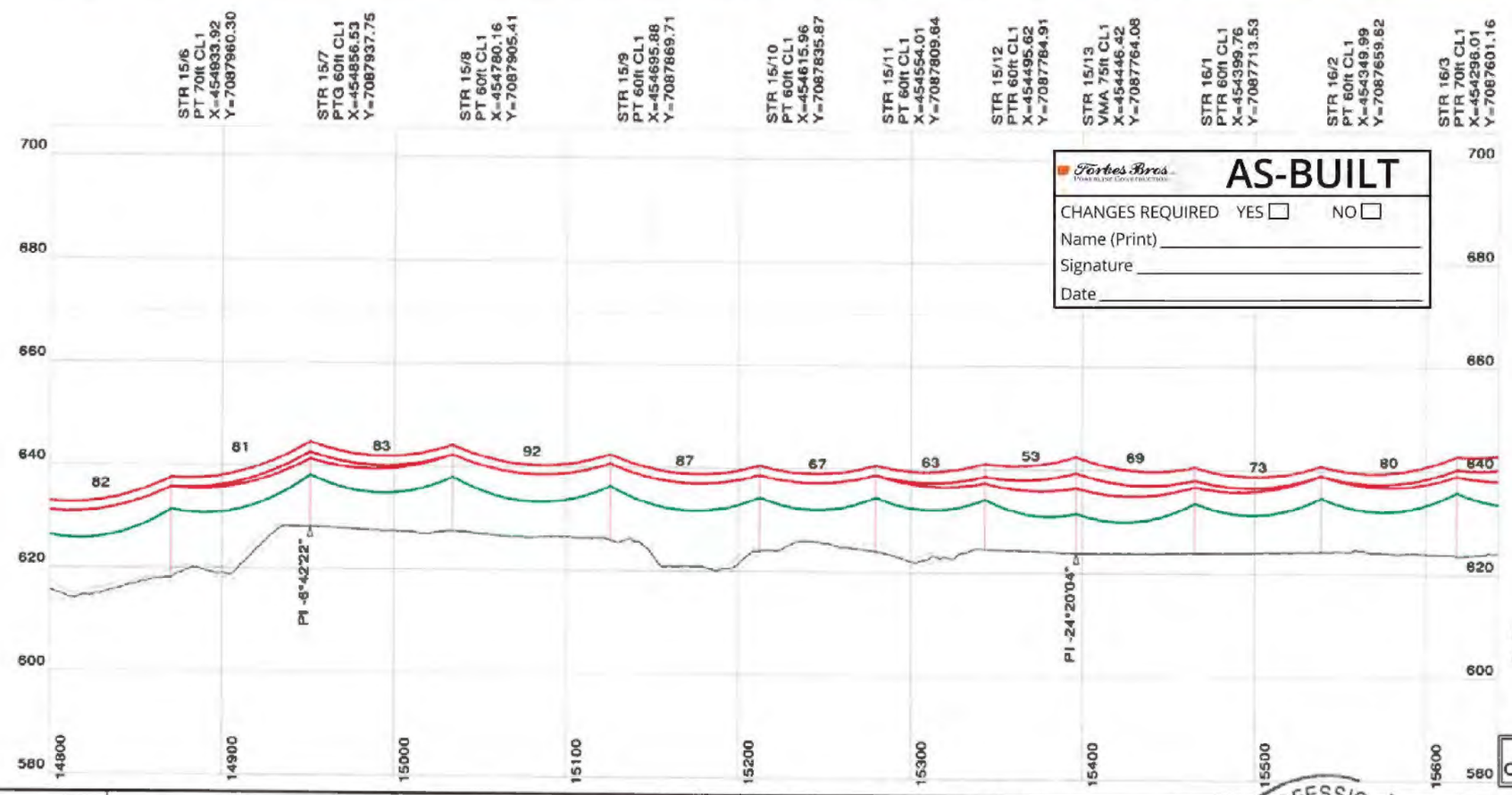


Forbes Bros. Ltd. Yukon Mine Construction

**AS-BUILT**

CHANGES REQUIRED YES ☐ NO ☐

Name (Print) _____

Signature _____

Date _____

## NOTES

1. ALL DIMENSIONS IN METRES (m) UNLESS NOTED OTHERWISE.
2. COORDINATES ARE IN UTM NAD83 ZONE 8N.
3. ELEVATIONS ARE IN METRES (m) ABOVE MEAN SEA LEVEL (AMSL).
4. 69 kV CONDUCTOR, ADSS CABLE AND OVERHEAD SHIELD WIRE "OHSW" DISPLAYED AT "WET SNOW" (-10° C, 51mm RADIAL SNOW).
5. LINE ANGLE DEFLECTION LOOKING TOWARD EAGLE GOLD PROJECT SITE INDICATED AS FOLLOWS:
   + RIGHT ANGLE DEFLECTION
   - LEFT ANGLE DEFLECTION
6. THIS LINE WILL BE NUMBERED L251 IN THE YUKON ENERGY CORPORATION (YEC) SYSTEM.
7. LEFT (DASH) AND RIGHT (DOT) PROFILE OFFSETS SHOWN AT 5 m CENTERLINE OFFSET.
8. DESIGN TENSIONS SHOWN IN TABLE 1.

| TABLE 1 | MEAN ANNUAL TEMP (-4° C) | | WET SNOW (-10° C, 51mm RADIAL SNOW) | |
|---|---|---|---|---|
| CABLE TYPE | FULL TENSION SPANS (N) | TERMINAL SPANS (N) (SLACK) | FULL TENSION SPANS (N) | TERMINAL SPANS (N) (SLACK) |
| PARTRIDGE ACSR | 3,750 | 550 | 23,300 | 3,300 |
| ADSS | 7,500 | 150 | 13,900 | 3,300 |
| OHSW | 3,500 | 400 | 23,600 | 3,200 |

## LEGEND

- 69 kV - 266.8 kcmil 26/7 "PARTRIDGE" ACSR
- ADSS - OFC-24 G.652D-FASA-S1 (ZTT)
- OHSW - 266.8 kcmil 26/7 "PARTRIDGE" ACSR
- ROAD EDGE
- 2.5m ROAD BUFFER
- 30m CLEARING BOUNDARY
- YEC L250 69 KV LINE (EXISTING)
- 60m WIDE RIGHT OF WAY BOUNDARY
- X KM APPROXIMATE ROAD KM MARKER

## REFERENCES

| | |
|---|---|
| 1407-T-1000 | DRAWING LIST |
| 1407-T-1100 | ROUTE MAP |
| 1407-T-1400 | STRUCTURE DATA SHEET |
| 1407-T-1900 | SOUTH MCQUESTEN TRANSMISSION LINE CONNECTION - PLAN |
| 1407-T-3000 | STRUCTURE FAMILY |
| 1407-T-6000 | HWY 11 (SILVER TRAIL)-OVERHEAD LINE CROSSING-STR 0/4 TO STR 0/5 |

30.0 m Horiz. Scale
10.0 m Vert. Scale

ISSUED FOR CONSTRUCTION

PERMIT TO PRACTICE
W.N. BRAIZER ASSOCIATES INC.
SIGNATURE _____
Date 10/08/18
PERMIT NUMBER: PP295
Association of Professional Engineers of Yukon

| NO. | DATE | REVISION | DES | DWN | CHK | APR |
|---|---|---|---|---|---|---|
| | | | | | | |
| | | | | | | |
| | | | | | | |
| 2 | AUG 10/18 | MCQUESTEN SUBSTATION & KM18 MODIFICATIONS | MP | MP | PC | NB |
| 1 | JUL 11/18 | BORROW PIT & ROAD PROXIMITY ALIGNMENT CHANGES | MP | MP | PC | MEO |
| 0 | MAY 11/18 | ISSUED FOR CONSTRUCTION | MP | MP | PC | MEO |

CLIENT: StrataGold Corporation

| | |
|---|---|
| DATE | MAY 11/18 |
| DESIGN | MP |
| DRAWN | MP |
| CHECKED | PC |
| APPROVED | MEO |

Clean Energy CONSULTING INC
www.cleanenergyconsulting.ca
WN BRAIZER ASSOCIATES INC

SEAL: PROFESSIONAL ENGINEER YUKON W. NEIL BRAIZER TERRITORY

# EAGLE GOLD PROJECT
## L251 - 69 kV TRANSMISSION LINE
## PLAN AND PROFILE (SHEET 20 OF 54)

| PROJECT No. | DRAWING No. | REV. |
|---|---|---|
| 1407 | 1407-T-1200-20 | 2 |

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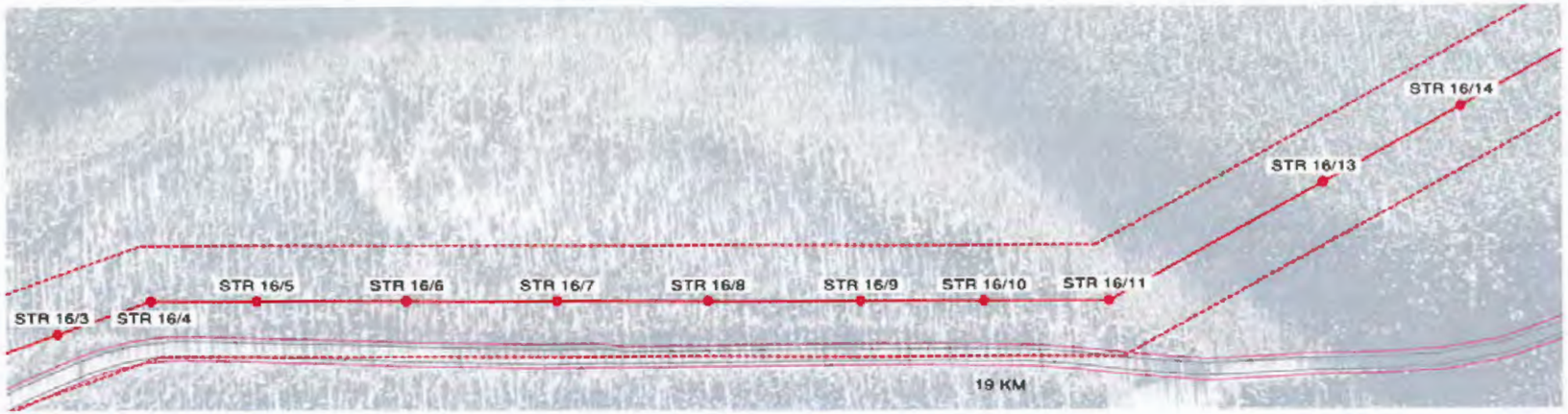



STR 16/3
PTR 70ft CL1
X=454296.01
Y=7087601.16

STR 16/4
VMA 85ft CL1
X=454259.69
Y=7087561.82

STR 16/5
PTR 65ft CL1
X=454209.31
Y=7087535.35

STR 16/6
PT 60ft CL1
X=454137.51
Y=7087497.64

STR 16/7
PT 65ft CL1
X=454065.35
Y=7087459.73

STR 16/8
PT 60ft CL1
X=453993.20
Y=7087421.83

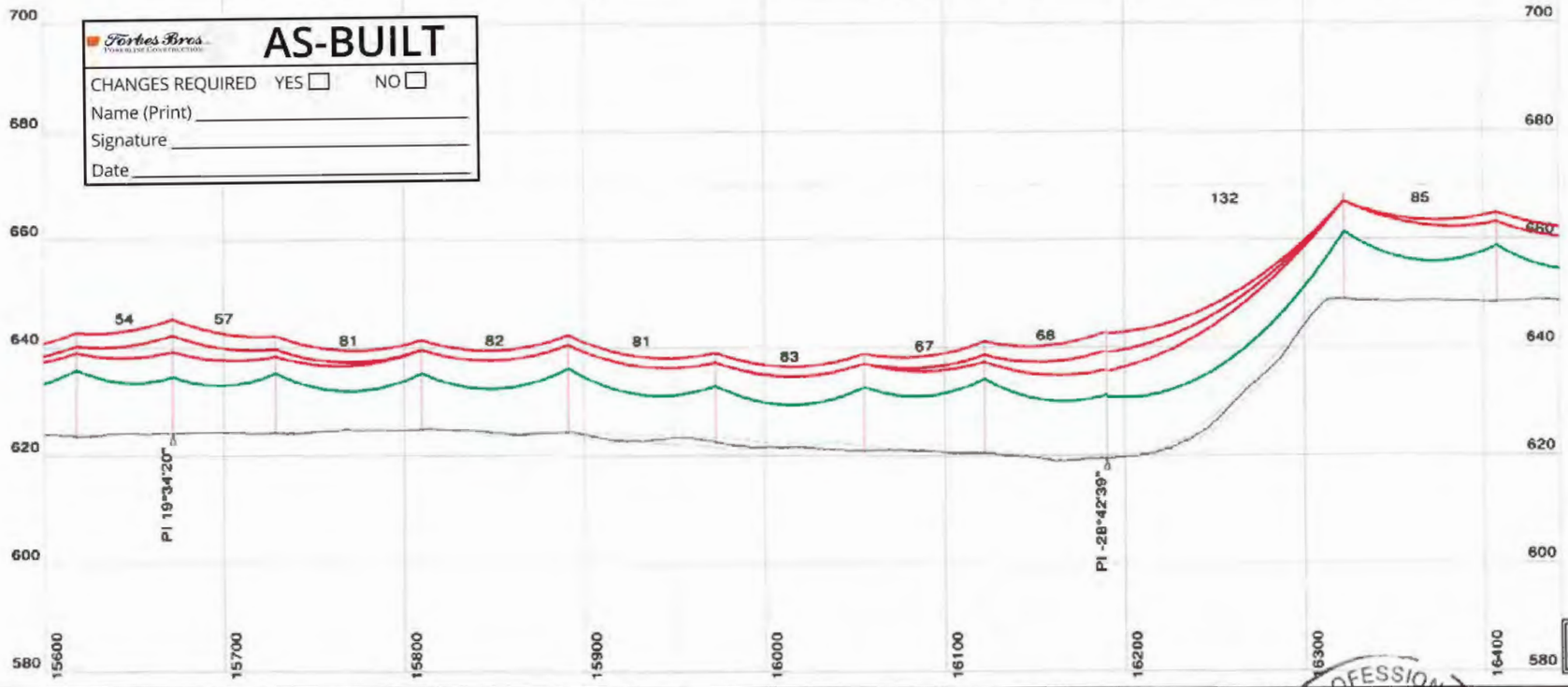
STR 16/9
PT 65ft CL1
X=453920.05
Y=7087383.40

STR 16/10
PTR 75ft CL1
X=453861.05
Y=7087352.41

STR 16/11
VDEMA 90ft CL1
X=453800.79
Y=7087320.75

STR 16/13
SAH 75ft CL2
X=453727.74
Y=7087210.71

STR 16/14
PT 60ft CL1
X=453680.51
Y=7087139.55




**AS-BUILT**

Forbes Bros. Powerline Construction

CHANGES REQUIRED YES ☐ NO ☐

Name (Print) _____

Signature _____

Date _____

NOTES

1. ALL DIMENSIONS IN METRES (m) UNLESS NOTED OTHERWISE.
2. COORDINATES ARE IN UTM NAD83 ZONE 8N.
3. ELEVATIONS ARE IN METRES (m) ABOVE MEAN SEA LEVEL (AMSL).
4. 69 kV CONDUCTOR, ADSS CABLE AND OVERHEAD SHIELD WIRE "OHSW" DISPLAYED AT "WET SNOW" (-10° C, 51mm RADIAL SNOW).
5. LINE ANGLE DEFLECTION LOOKING TOWARD EAGLE GOLD PROJECT SITE INDICATED AS FOLLOWS:
   + RIGHT ANGLE DEFLECTION
   - LEFT ANGLE DEFLECTION
6. THIS LINE WILL BE NUMBERED L251 IN THE YUKON ENERGY CORPORATION (YEC) SYSTEM.
7. LEFT (DASH) AND RIGHT (DOT) PROFILE OFFSETS SHOWN AT 5 m CENTERLINE OFFSET.
8. DESIGN TENSIONS SHOWN IN TABLE 1.

TABLE 1

| | MEAN ANNUAL TEMP (-4° C) | | WET SNOW (-10° C, 51mm RADIAL SNOW) | |
|---|---|---|---|---|
| CABLE TYPE | FULL TENSION SPANS (N) | TERMINAL SPANS (N) (SLACK) | FULL TENSION SPANS (N) | TERMINAL SPANS (N) (SLACK) |
| PARTRIDGE ACSR | 3,750 | 550 | 23,300 | 3,300 |
| ADSS | 7,500 | 150 | 13,900 | 3,300 |
| OHSW | 3,500 | 400 | 23,600 | 3,200 |

LEGEND

- 69 kV - 266.8 kcmil 26/7 "PARTRIDGE" ACSR
- ADSS - OFC-24 G.652D-FASA-S1 (ZTT)
- OHSW - 266.8 kcmil 26/7 "PARTRIDGE" ACSR
- ROAD EDGE
- 2.5m ROAD BUFFER
- 30m CLEARING BOUNDARY
- YEC L250 69 KV LINE (EXISTING)
- 60m WIDE RIGHT OF WAY BOUNDARY
- X KM APPROXIMATE ROAD KM MARKER

REFERENCES

| | |
|---|---|
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| 1407-T-1100 | ROUTE MAP |
| 1407-T-1400 | STRUCTURE DATA SHEET |
| 1407-T-1900 | SOUTH MCQUESTEN TRANSMISSION LINE CONNECTION - PLAN |
| 1407-T-3000 | STRUCTURE FAMILY |
| 1407-T-6000 | HWY 11 (SILVER TRAIL)-OVERHEAD LINE CROSSING-STR 0/4 TO STR 0/5 |

30.0 m Horiz. Scale
10.0 m Vert. Scale

ISSUED FOR CONSTRUCTION

PERMIT TO PRACTICE
W.N. BRAZIER ASSOCIATES INC.
SIGNATURE
Date 15/08/18
PERMIT NUMBER: PP295
Association of Professional Engineers of Yukon

| NO. | DATE | REVISION | DES | DWN | CHK | APR |
|---|---|---|---|---|---|---|
| 2 | AUG 10/18 | MCQUESTEN SUBSTATION & KM18 MODIFICATIONS | MP | MP | PC | NB |
| 1 | JUL 11/18 | BORROW PIT & ROAD PROXIMITY ALIGNMENT CHANGES | MP | MP | PC | MEO |
| 0 | MAY 11/18 | ISSUED FOR CONSTRUCTION | MP | MP | PC | MEO |

CLIENT: StrataGold Corporation

| | |
|---|---|
| DATE | MAY 11/18 |
| DESIGN | MP |
| DRAWN | MP |
| CHECKED | PC |
| APPROVED | MEO |

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WN BRAZIER ASSOCIATES INC

SEAL: PROFESSIONAL ENGINEER YUKON W. NEIL BRAZIER TERRITORY

EAGLE GOLD PROJECT
L251 - 69 kV TRANSMISSION LINE
PLAN AND PROFILE (SHEET 21 OF 54)

| PROJECT No. | DRAWING No. | REV. |
|---|---|---|
| 1407 | 1407-T-1200-21 | 2 |

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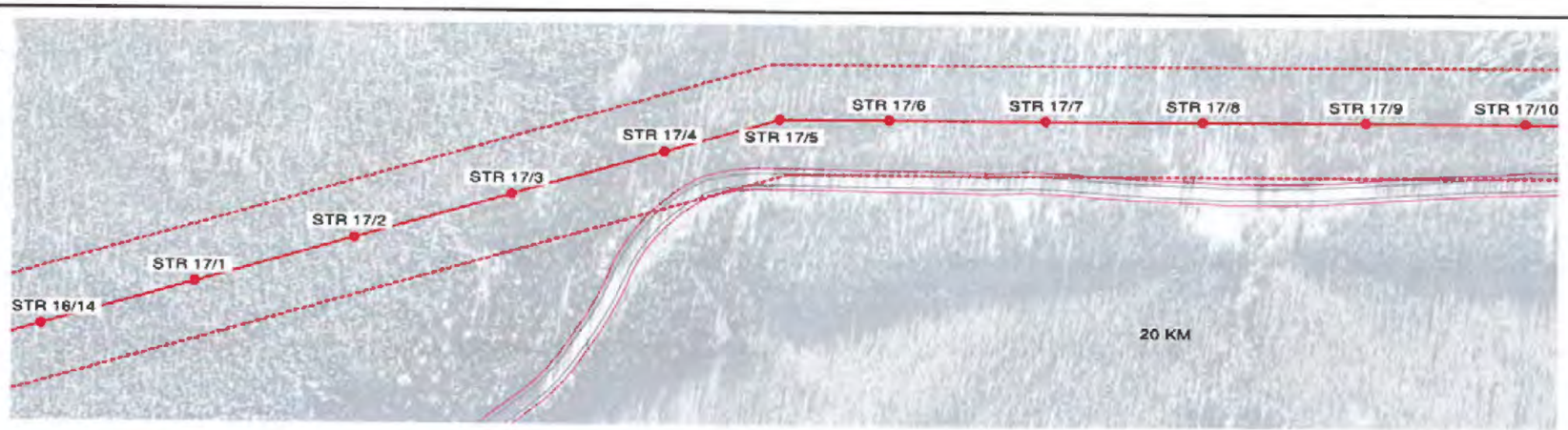


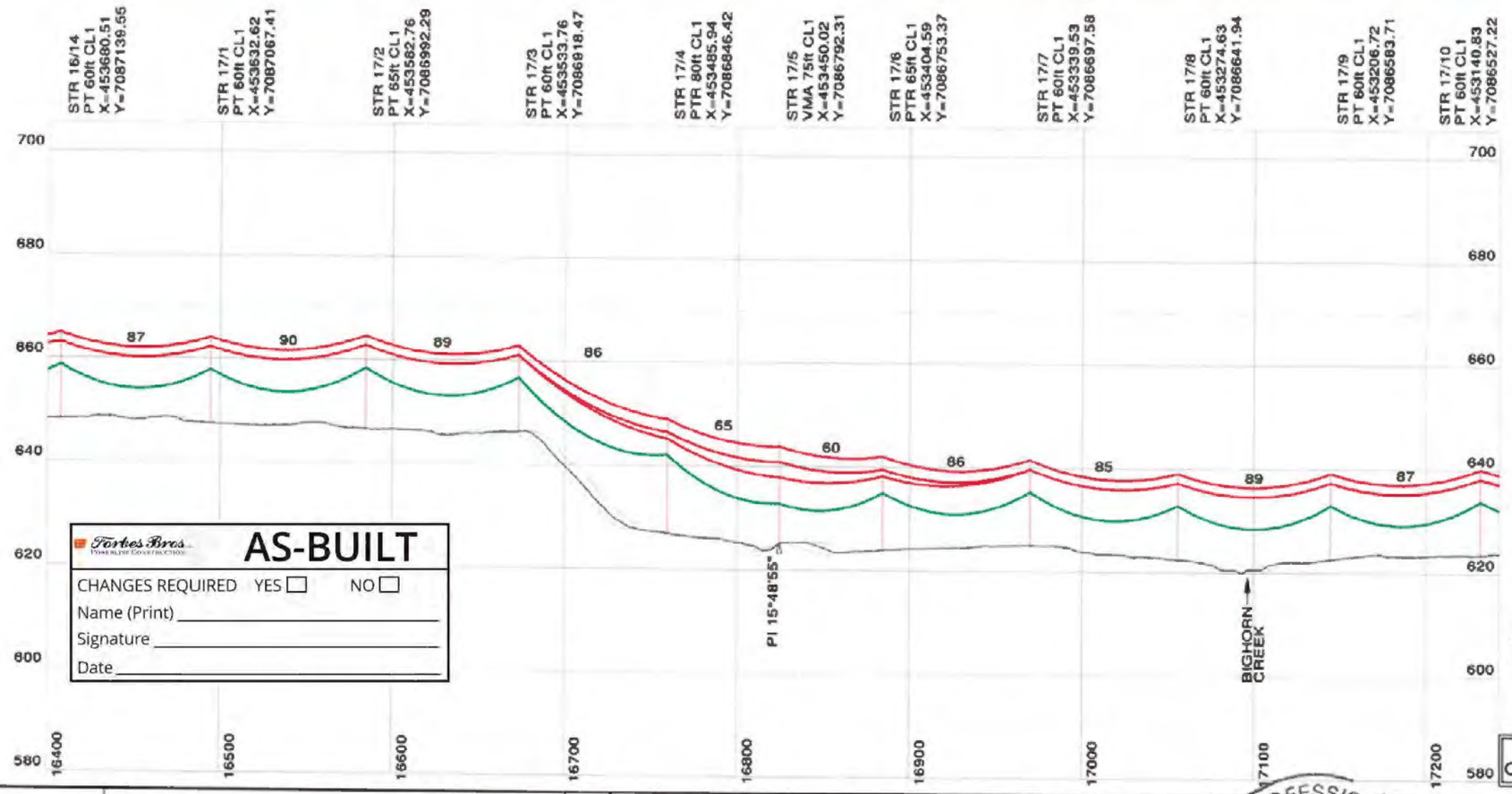


**AS-BUILT**

Forbes Bros. Powerline Construction

CHANGES REQUIRED YES ☐ NO ☐

Name (Print) _____

Signature _____

Date _____

**NOTES**

1. ALL DIMENSIONS IN METRES (m) UNLESS NOTED OTHERWISE.
2. COORDINATES ARE IN UTM NAD83 ZONE 8N.
3. ELEVATIONS ARE IN METRES (m) ABOVE MEAN SEA LEVEL (AMSL).
4. 69 kV CONDUCTOR, ADSS CABLE AND OVERHEAD SHIELD WIRE "OHSW" DISPLAYED AT "WET SNOW" (-10° C, 51mm RADIAL SNOW).
5. LINE ANGLE DEFLECTION LOOKING TOWARD EAGLE GOLD PROJECT SITE INDICATED AS FOLLOWS:
   + RIGHT ANGLE DEFLECTION
   - LEFT ANGLE DEFLECTION
6. THIS LINE WILL BE NUMBERED L251 IN THE YUKON ENERGY CORPORATION (YEC) SYSTEM.
7. LEFT (DASH) AND RIGHT (DOT) PROFILE OFFSETS SHOWN AT 5 m CENTERLINE OFFSET.
8. DESIGN TENSIONS SHOWN IN TABLE 1.

TABLE 1

| CABLE TYPE | MEAN ANNUAL TEMP (-4° C) | | WET SNOW (-10° C, 51mm RADIAL SNOW) | |
|---|---|---|---|---|
| | FULL TENSION SPANS (N) | TERMINAL SPANS (N) (SLACK) | FULL TENSION SPANS (N) | TERMINAL SPANS (N) (SLACK) |
| PARTRIDGE ACSR | 3,750 | 550 | 22,300 | 3,300 |
| ADSS | 7,500 | 150 | 13,900 | 3,300 |
| OHSW | 3,800 | 400 | 23,600 | 3,200 |

**LEGEND**

- 69 kV - 266.8 kcmil 26/7 "PARTRIDGE" ACSR
- ADSS - OFC-24 G.652D-FASA-S1 (ZTT)
- OHSW - 266.8 kcmil 26/7 "PARTRIDGE" ACSR
- ROAD EDGE
- 2.5m ROAD BUFFER
- 30m CLEARING BOUNDARY
- YEC L250 69 KV LINE (EXISTING)
- 60m WIDE RIGHT OF WAY BOUNDARY
- X KM APPROXIMATE ROAD KM MARKER

**REFERENCES**

| | |
|---|---|
| 1407-T-1000 | DRAWING LIST |
| 1407-T-1100 | ROUTE MAP |
| 1407-T-1400 | STRUCTURE DATA SHEET |
| 1407-T-1900 | SOUTH MCQUESTEN TRANSMISSION LINE CONNECTION - PLAN |
| 1407-T-3000 | STRUCTURE FAMILY |
| 1407-T-6000 | HWY 11 (SILVER TRAIL)-OVERHEAD LINE CROSSING-STR 0/4 TO STR 0/5 |

30.0 m Horiz. Scale
10.0 m Vert. Scale

ISSUED FOR CONSTRUCTION

PERMIT TO PRACTICE
W.N. BRAIZER ASSOCIATES INC.
SIGNATURE Neil Braizer
Date 10/08/18
PERMIT NUMBER: PP295
Association of Professional Engineers of Yukon

| NO. | DATE | REVISION | DES | DWN | CHK | APR |
|---|---|---|---|---|---|---|
| 2 | AUG 10/18 | MCQUESTEN SUBSTATION & KM18 MODIFICATIONS | MP | MP | PC | NB |
| 1 | JUL 11/18 | BORROW PIT & ROAD PROXIMITY ALIGNMENT CHANGES | MP | MP | PC | MEO |
| 0 | MAY 11/18 | ISSUED FOR CONSTRUCTION | MP | MP | PC | MEO |

CLIENT StrataGold Corporation

DATE MAY 11/18
DESIGN MP
DRAWN MP
CHECKED PC
APPROVED MEO

Clean Energy CONSULTING INC.
www.cleanenergyconsulting.ca
WN BRAZIER ASSOCIATES INC

PROFESSIONAL ENGINEER YUKON W. NEIL BRAZIER TERRITORY

EAGLE GOLD PROJECT
L251 - 69 kV TRANSMISSION LINE
PLAN AND PROFILE (SHEET 22 OF 54)

PROJECT No. 1407
DRAWING No. 1407-T-1200-22
REV. 2

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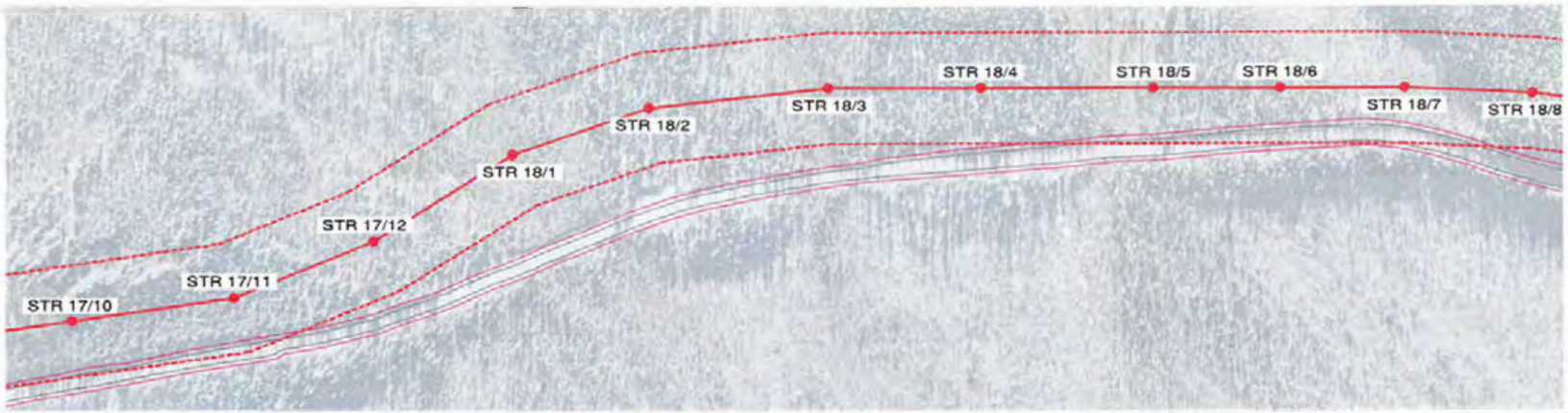


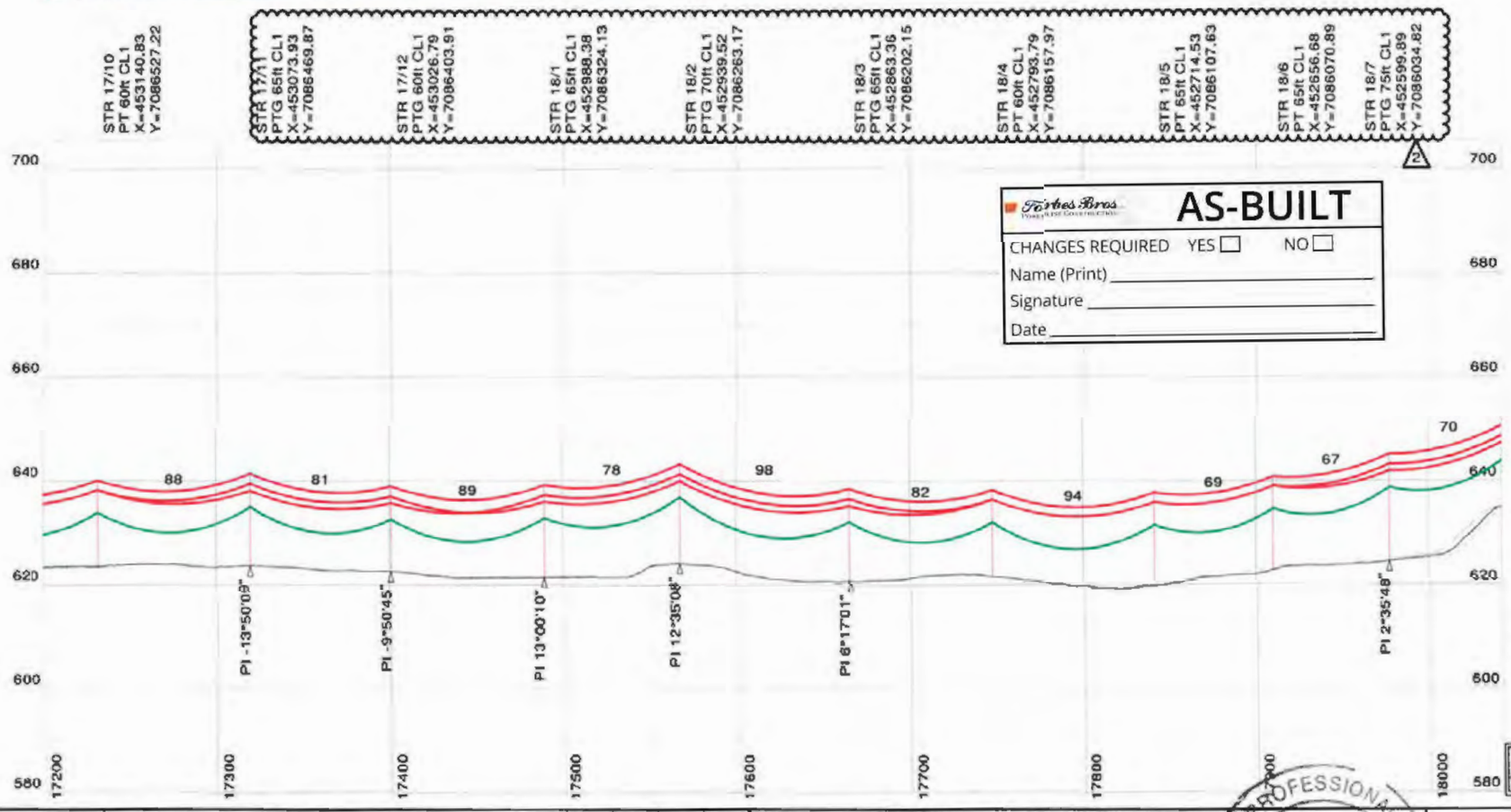


Tirthes Bros

# AS-BUILT

CHANGES REQUIRED YES ☐ NO ☐

Name (Print) _____

Signature _____

Date _____

## NOTES

1. ALL DIMENSIONS IN METRES (m) UNLESS NOTED OTHERWISE.
2. COORDINATES ARE IN UTM NAD83 ZONE 8N.
3. ELEVATIONS ARE IN METRES (m) ABOVE MEAN SEA LEVEL (AMSL).
4. 69 kV CONDUCTOR, ADSS CABLE AND OVERHEAD SHIELD WIRE "OHSW" DISPLAYED AT "WET SNOW" (-10° C, 51mm RADIAL SNOW).
5. LINE ANGLE DEFLECTION LOOKING TOWARD EAGLE GOLD PROJECT SITE INDICATED AS FOLLOWS:
   + RIGHT ANGLE DEFLECTION
   - LEFT ANGLE DEFLECTION
6. THIS LINE WILL BE NUMBERED L251 IN THE YUKON ENERGY CORPORATION (YEC) SYSTEM.
7. LEFT (DASH) AND RIGHT (DOT) PROFILE OFFSETS SHOWN AT 5 m CENTERLINE OFFSET.
8. DESIGN TENSIONS SHOWN IN TABLE 1.

**TABLE 1**

| CABLE TYPE | MEAN ANNUAL TEMP (-4° C) | | WET SNOW (-10° C, 51mm RADIAL SNOW) | |
|---|---|---|---|---|
| | FULL TENSION SPANS (N) | TERMINAL SPANS (N) (SLACK) | FULL TENSION SPANS (N) | TERMINAL SPANS (N) (SLACK) |
| PARTRIDGE ACSR | 3,750 | 950 | 23,300 | 3,300 |
| ADSS | 7,500 | 150 | 13,900 | 3,300 |
| OHSW | 3,500 | 400 | 23,600 | 3,200 |

## LEGEND

- 69 kV - 266.8 kcmil 26/7 "PARTRIDGE" ACSR
- ADSS - OFC-24 G.652D-FASA-S1 (ZTT)
- OHSW - 266.8 kcmil 26/7 "PARTRIDGE" ACSR
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- 2.5m ROAD BUFFER
- 30m CLEARING BOUNDARY
- YEC L250 69 KV LINE (EXISTING)
- 60m WIDE RIGHT OF WAY BOUNDARY
- X KM APPROXIMATE ROAD KM MARKER

## REFERENCES

| | |
|---|---|
| 1407-T-1000 | DRAWING LIST |
| 1407-T-1100 | ROUTE MAP |
| 1407-T-1400 | STRUCTURE DATA SHEET |
| 1407-T-1900 | SOUTH MCQUESTEN TRANSMISSION LINE CONNECTION - PLAN |
| 1407-T-3000 | STRUCTURE FAMILY |
| 1407-T-6000 | HWY 11 (SILVER TRAIL)-OVERHEAD LINE CROSSING-STR 0/4 TO STR 0/5 |

30.0 m Horiz. Scale
10.0 m Vert. Scale

ISSUED FOR CONSTRUCTION

PERMIT TO PRACTICE
W.N. BRAIZER ASSOCIATES INC.
SIGNATURE _____
Date 12/18/18
PERMIT NUMBER: P0206
Association of Professional Engineers of Yukon

| NO. | DATE | REVISION | DES | DWN | CHK | APR |
|---|---|---|---|---|---|---|
| 2 | AUG 10/18 | MCQUESTEN SUBSTATION & KM18 MODIFICATIONS | MP | MP | PC | NB |
| 1 | JUL 11/18 | BORROW PIT & ROAD PROXIMITY ALIGNMENT CHANGES | MP | MP | PC | MEO |
| 0 | MAY 11/18 | ISSUED FOR CONSTRUCTION | MP | MP | PC | MEO |

CLIENT: StrataGold Corporation

| | |
|---|---|
| DATE | MAY 11/18 |
| DESIGN | MP |
| DRAWN | MP |
| CHECKED | PC |
| APPROVED | MEO |

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WN BRAZIER ASSOCIATES INC

SEAL: PROFESSIONAL ENGINEER YUKON W. NEIL BRAZIER TERRITORY

EAGLE GOLD PROJECT
L251 - 69 kV TRANSMISSION LINE
PLAN AND PROFILE (SHEET 23 OF 54)

| PROJECT No. | DRAWING No. | REV. |
|---|---|---|
| 1407 | 1407-T-1200-23 | 2 |

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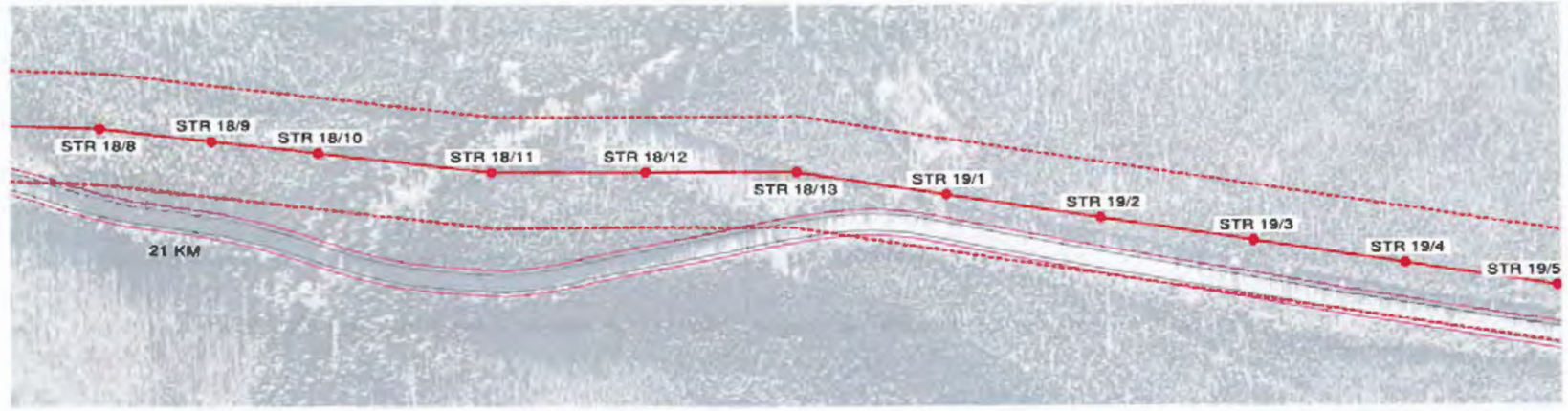


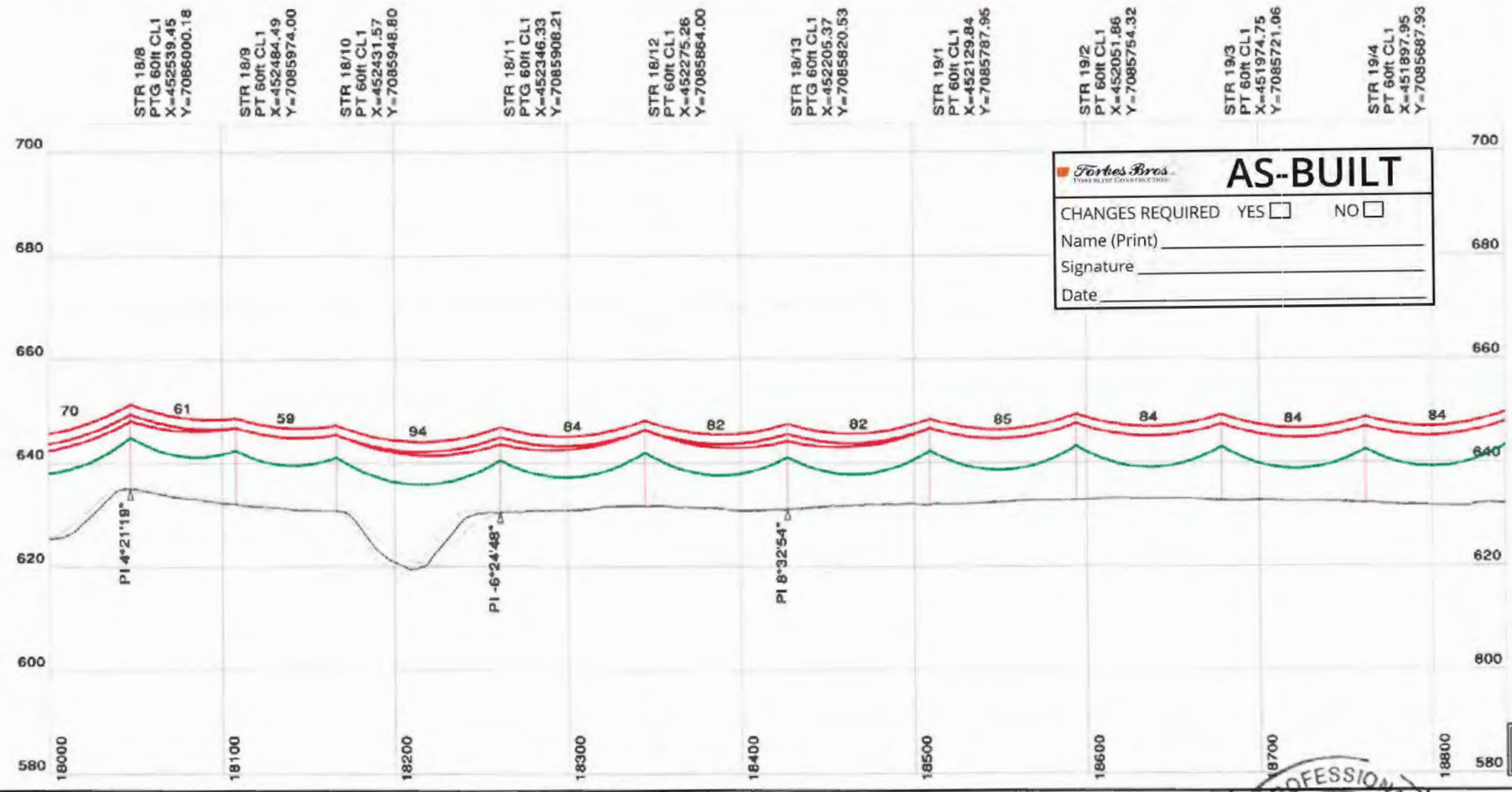


Forbes Bros. Pipeline Construction

**AS-BUILT**

CHANGES REQUIRED YES ☐ NO ☐

Name (Print) _____

Signature _____

Date _____

## NOTES

1. ALL DIMENSIONS IN METRES (m) UNLESS NOTED OTHERWISE.
2. COORDINATES ARE IN UTM NAD83 ZONE 8N.
3. ELEVATIONS ARE IN METRES (m) ABOVE MEAN SEA LEVEL (AMSL).
4. 69 kV CONDUCTOR, ADSS CABLE AND OVERHEAD SHIELD WIRE "OHSW" DISPLAYED AT "WET SNOW" (-10° C, 51mm RADIAL SNOW).
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   - LEFT ANGLE DEFLECTION
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8. DESIGN TENSIONS SHOWN IN TABLE 1.

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| ADSS | 7,500 | 150 | 12,900 | 3,300 |
| OHSW | 3,500 | 400 | 23,600 | 3,200 |

## LEGEND

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- ADSS - OFC-24 G.652D-FASA-S1 (ZTT)
- OHSW - 266.8 kcmil 26/7 "PARTRIDGE" ACSR
- ROAD EDGE
- 2.5m ROAD BUFFER
- 30m CLEARING BOUNDARY
- YEC L250 69 KV LINE (EXISTING)
- 60m WIDE RIGHT OF WAY BOUNDARY
- X KM APPROXIMATE ROAD KM MARKER

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| 1407-T-1900 | SOUTH MCQUESTEN TRANSMISSION LINE CONNECTION - PLAN |
| 1407-T-3000 | STRUCTURE FAMILY |
| 1407-T-6000 | HWY 11 (SILVER TRAIL)-OVERHEAD LINE CROSSING-STR 0/4 TO STR 0/5 |

30.0 m Horiz. Scale
10.0 m Vert. Scale

ISSUED FOR CONSTRUCTION

PERMIT TO PRACTICE
W.N. BRAZIER ASSOCIATES INC.
SIGNATURE
Date 20/05/18
PERMIT NUMBER: PP295
Association of Professional Engineers of Yukon

| NO. | DATE | REVISION | DES | DWN | CHK | APR |
|---|---|---|---|---|---|---|
| | | | | | | |
| | | | | | | |
| | | | | | | |
| 2 | AUG 10/18 | MCQUESTEN SUBSTATION & KM18 MODIFICATIONS | MP | MP | PC | NB |
| 1 | JUL 11/18 | BORROW PIT & ROAD PROXIMITY ALIGNMENT CHANGES | MP | MP | PC | MEO |
| 0 | MAY 11/18 | ISSUED FOR CONSTRUCTION | MP | MP | PC | MEO |

CLIENT: StrataGold Corporation

| | |
|---|---|
| DATE | MAY 11/18 |
| DESIGN | MP |
| DRAWN | MP |
| CHECKED | PC |
| APPROVED | MEO |

Clean Energy CONSULTING INC. www.cleanenergyconsulting.ca

WN BRAZIER ASSOCIATES INC

SEAL: PROFESSIONAL ENGINEER YUKON W. NEIL BRAZIER TERRITORY

# EAGLE GOLD PROJECT
## L251 - 69 kV TRANSMISSION LINE
## PLAN AND PROFILE (SHEET 24 OF 54)

| PROJECT No. | DRAWING No. | REV. |
|---|---|---|
| 1407 | 1407-T-1200-24 | 2 |

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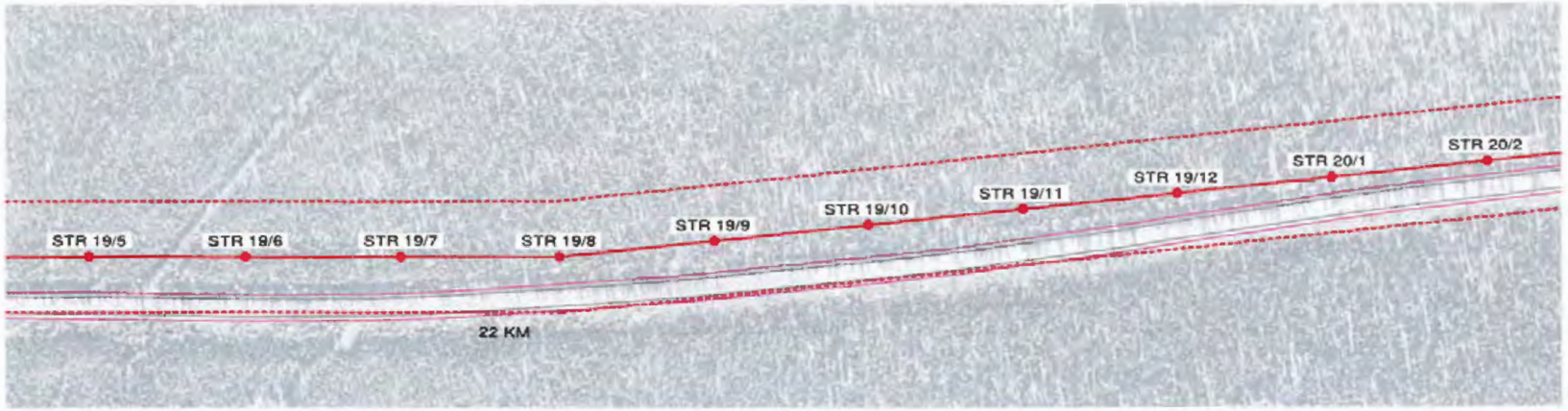


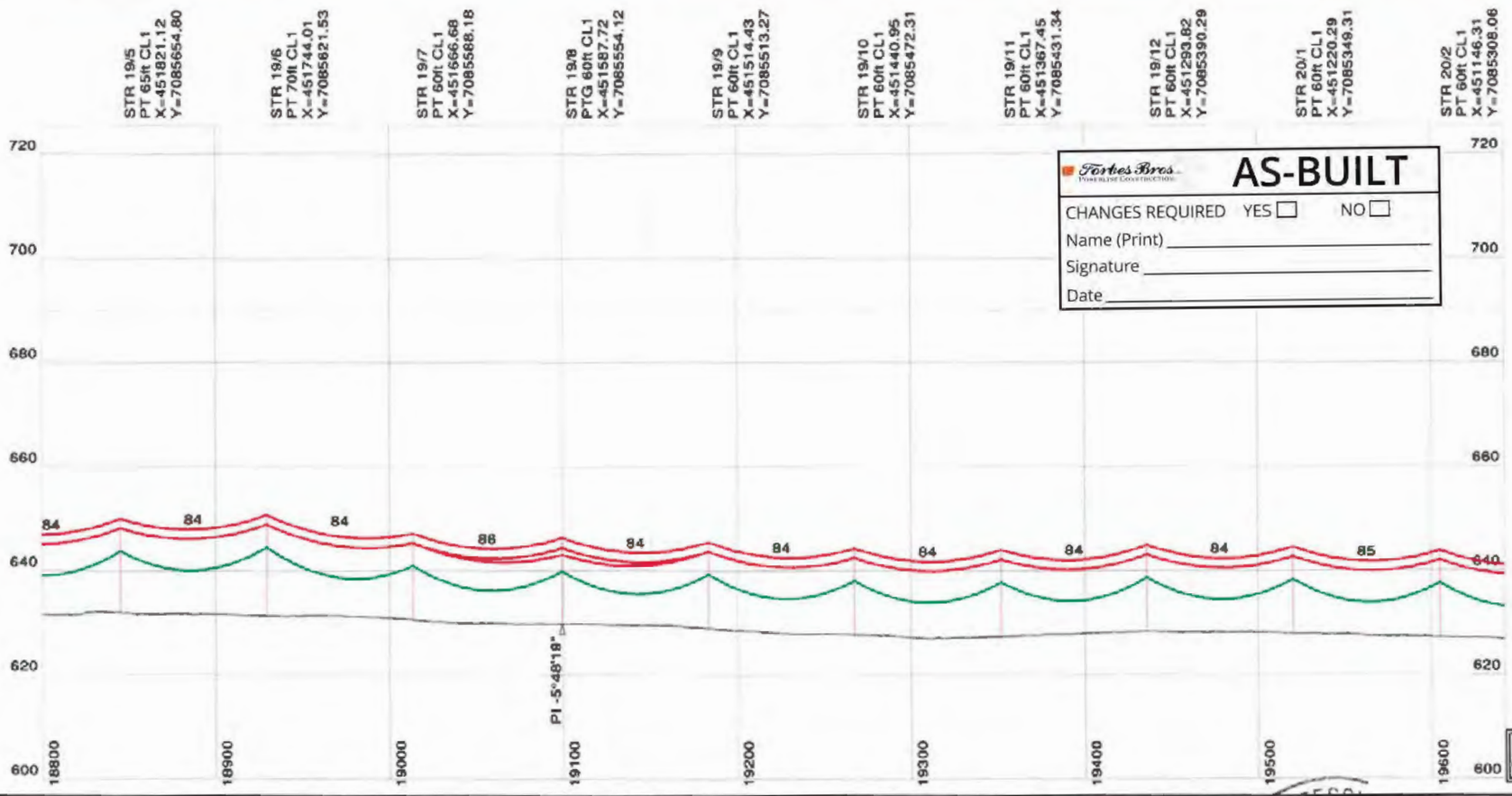


Forbes Bros. POWERLINE CONSTRUCTION

**AS-BUILT**

CHANGES REQUIRED YES ☐ NO ☐

Name (Print) _____

Signature _____

Date _____

## NOTES

1. ALL DIMENSIONS IN METRES (m) UNLESS NOTED OTHERWISE.
2. COORDINATES ARE IN UTM NAD83 ZONE 8N.
3. ELEVATIONS ARE IN METRES (m) ABOVE MEAN SEA LEVEL (AMSL).
4. 69 kV CONDUCTOR, ADSS CABLE AND OVERHEAD SHIELD WIRE "OHSW" DISPLAYED AT "WET SNOW" (-10° C, 51mm RADIAL SNOW).
5. LINE ANGLE DEFLECTION LOOKING TOWARD EAGLE GOLD PROJECT SITE INDICATED AS FOLLOWS:
   + RIGHT ANGLE DEFLECTION
   - LEFT ANGLE DEFLECTION
6. THIS LINE WILL BE NUMBERED L251 IN THE YUKON ENERGY CORPORATION (YEC) SYSTEM.
7. LEFT (DASH) AND RIGHT (DOT) PROFILE OFFSETS SHOWN AT 5 m CENTERLINE OFFSET.
8. DESIGN TENSIONS SHOWN IN TABLE 1.

TABLE 1

| CABLE TYPE | MEAN ANNUAL TEMP (-4° C) | | WET SNOW (-10° C, 51mm RADIAL SNOW) | |
|---|---|---|---|---|
| | FULL TENSION SPANS (N) | TERMINAL SPANS (N) (SLACK) | FULL TENSION SPANS (N) | TERMINAL SPANS (N) (SLACK) |
| PARTRIDGE ACSR | 3,750 | 550 | 23,300 | 3,300 |
| ADSS | 7,500 | 150 | 13,900 | 3,300 |
| OHSW | 3,500 | 400 | 23,600 | 3,200 |

## LEGEND

- 69 kV - 266.8 kcmil 26/7 "PARTRIDGE" ACSR
- ADSS - OFC-24 G.652D-FASA-S1 (ZTT)
- OHSW - 266.8 kcmil 26/7 "PARTRIDGE" ACSR
- ROAD EDGE
- 2.5m ROAD BUFFER
- 30m CLEARING BOUNDARY
- YEC L250 69 KV LINE (EXISTING)
- 60m WIDE RIGHT OF WAY BOUNDARY
- X KM APPROXIMATE ROAD KM MARKER

## REFERENCES

| | |
|---|---|
| 1407-T-1000 | DRAWING LIST |
| 1407-T-1100 | ROUTE MAP |
| 1407-T-1400 | STRUCTURE DATA SHEET |
| 1407-T-1900 | SOUTH MCQUESTEN TRANSMISSION LINE CONNECTION - PLAN |
| 1407-T-3000 | STRUCTURE FAMILY |
| 1407-T-6000 | HWY 11 (SILVER TRAIL)-OVERHEAD LINE CROSSING-STR 0/4 TO STR 0/5 |

30.0 m Horiz. Scale
10.0 m Vert. Scale

ISSUED FOR CONSTRUCTION

PERMIT TO PRACTICE
W.N. BRAIZER ASSOCIATES INC.
SIGNATURE _____
Date 10/05/18
PERMIT NUMBER: PP295
Association of Professional Engineers of Yukon

| NO. | DATE | REVISION | DES | DWN | CHK | APR |
|---|---|---|---|---|---|---|
| | | | | | | |
| | | | | | | |
| | | | | | | |
| 2 | AUG 10/18 | MCQUESTEN SUBSTATION & KM18 MODIFICATIONS | MP | MP | PC | NB |
| 1 | JUL 11/18 | BORROW PIT & ROAD PROXIMITY ALIGNMENT CHANGES | MP | MP | PC | MEO |
| 0 | MAY 11/18 | ISSUED FOR CONSTRUCTION | MP | MP | PC | MEO |

CLIENT: StrataGold Corporation

| | |
|---|---|
| DATE | MAY 11/18 |
| DESIGN | MP |
| DRAWN | MP |
| CHECKED | PC |
| APPROVED | MEO |

Clean Energy CONSULTING INC. www.cleanenergyconsulting.ca

WN BRAIZER ASSOCIATES INC

SEAL: PROFESSIONAL ENGINEER YUKON TERRITORY W. NEIL BRAZIER

EAGLE GOLD PROJECT
L251 - 69 kV TRANSMISSION LINE
PLAN AND PROFILE (SHEET 25 OF 54)

| PROJECT No. | DRAWING No. | REV. |
|---|---|---|
| 1407 | 1407-T-1200-25 | 2 |

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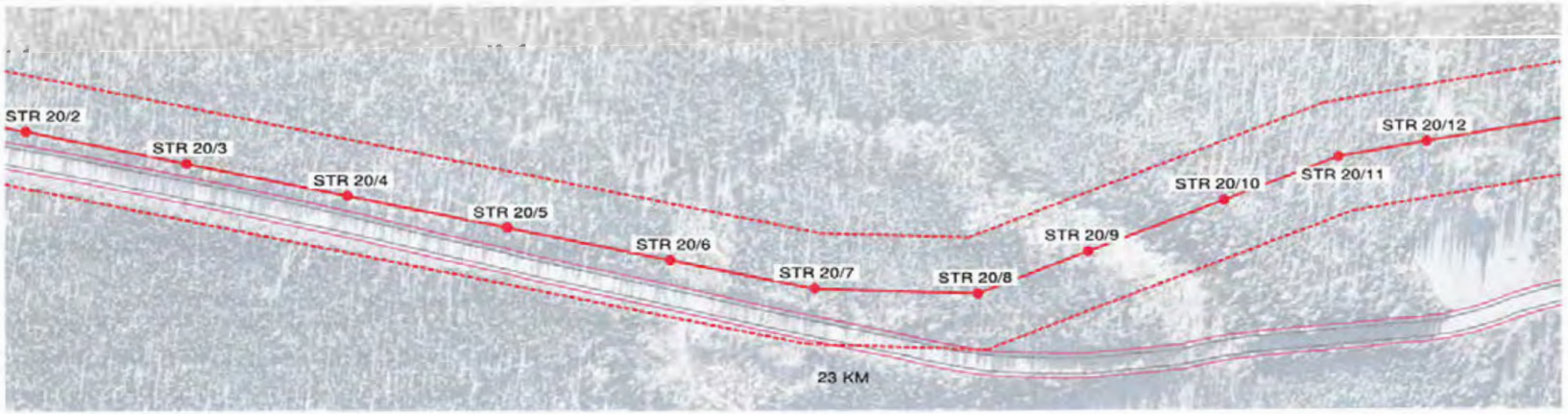


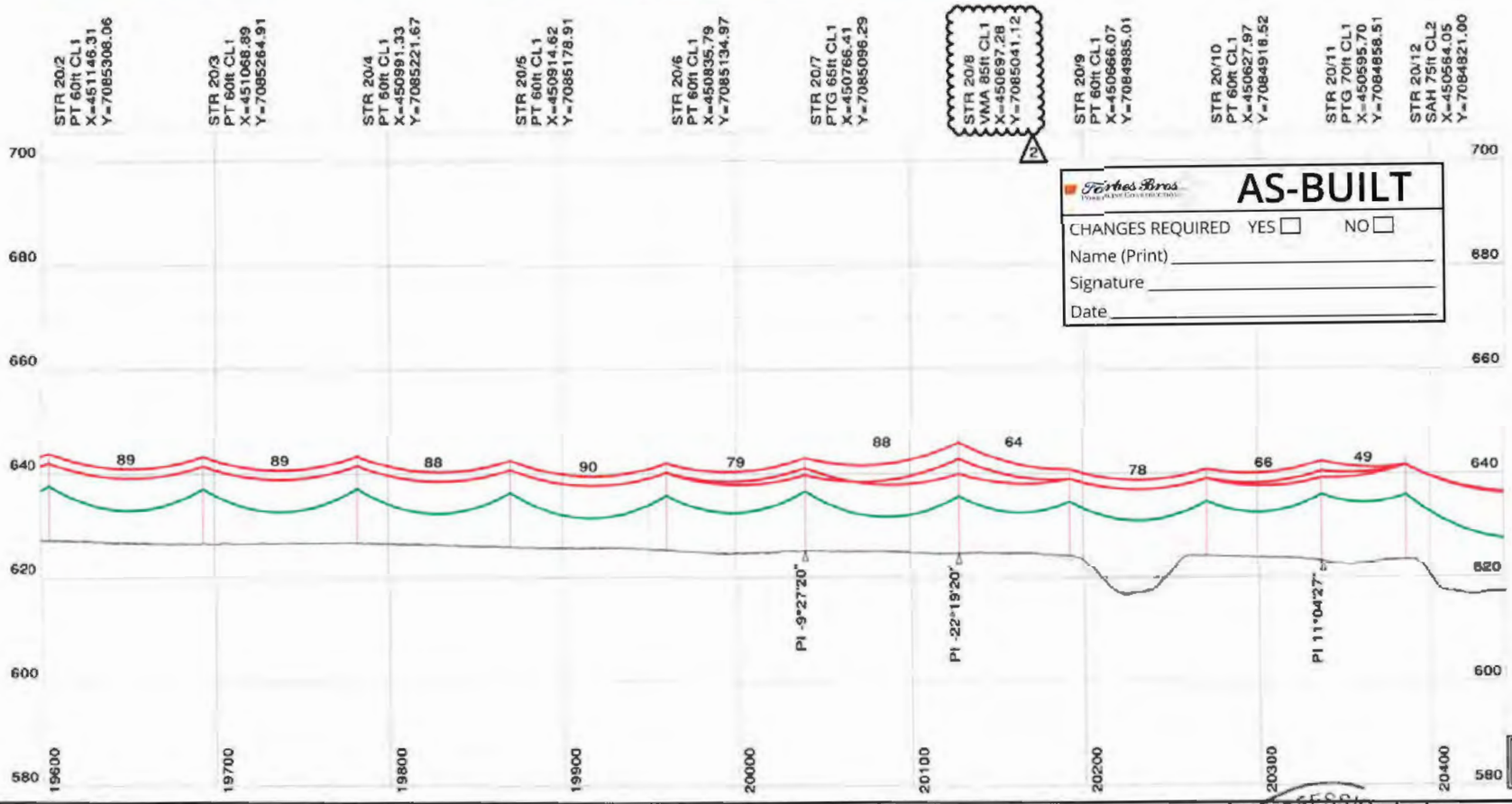


## NOTES

1. ALL DIMENSIONS IN METRES (m) UNLESS NOTED OTHERWISE.
2. COORDINATES ARE IN UTM NAD83 ZONE 8N.
3. ELEVATIONS ARE IN METRES (m) ABOVE MEAN SEA LEVEL (AMSL).
4. 69 kV CONDUCTOR, ADSS CABLE AND OVERHEAD SHIELD WIRE "OHSW" DISPLAYED AT "WET SNOW" (-10° C, 51mm RADIAL SNOW).
5. LINE ANGLE DEFLECTION LOOKING TOWARD EAGLE GOLD PROJECT SITE INDICATED AS FOLLOWS:
   + RIGHT ANGLE DEFLECTION
   - LEFT ANGLE DEFLECTION
6. THIS LINE WILL BE NUMBERED L251 IN THE YUKON ENERGY CORPORATION (YEC) SYSTEM.
7. LEFT (DASH) AND RIGHT (DOT) PROFILE OFFSETS SHOWN AT 5 m CENTERLINE OFFSET.
8. DESIGN TENSIONS SHOWN IN TABLE 1.

**TABLE 1**

| CABLE TYPE | MEAN ANNUAL TEMP (-4° C) | | WET SNOW (-10° C, 51mm RADIAL SNOW) | |
|---|---|---|---|---|
| | FULL TENSION SPANS (N) | TERMINAL SPANS (N) (SLACK) | FULL TENSION SPANS (N) | TERMINAL SPANS (N) (SLACK) |
| PARTRIDGE ACSR | 3,750 | 550 | 23,300 | 3,300 |
| ADSS | 7,500 | 150 | 13,900 | 3,300 |
| OHSW | 3,500 | 400 | 23,600 | 3,200 |

## LEGEND

- 69 kV - 266.8 kcmil 26/7 "PARTRIDGE" ACSR
- ADSS - OFC-24 G.652D-FASA-S1 (ZTT)
- OHSW - 266.8 kcmil 26/7 "PARTRIDGE" ACSR
- ROAD EDGE
- 2.5m ROAD BUFFER
- 30m CLEARING BOUNDARY
- YEC L250 69 KV LINE (EXISTING)
- 60m WIDE RIGHT OF WAY BOUNDARY
- X KM APPROXIMATE ROAD KM MARKER

## REFERENCES

| | |
|---|---|
| 1407-T-1000 | DRAWING LIST |
| 1407-T-1100 | ROUTE MAP |
| 1407-T-1400 | STRUCTURE DATA SHEET |
| 1407-T-1900 | SOUTH MCQUESTEN TRANSMISSION LINE CONNECTION - PLAN |
| 1407-T-3000 | STRUCTURE FAMILY |
| 1407-T-5000 | HWY 11 (SILVER TRAIL)-OVERHEAD LINE CROSSING-STR 0/4 TO STR 0/5 |

30.0 m Horiz. Scale
10.0 m Vert. Scale

**AS-BUILT**
Forbes Bros
CHANGES REQUIRED YES ☐ NO ☐
Name (Print) _____
Signature _____
Date _____

PERMIT TO PRACTICE
W.N. BRAZIER ASSOCIATES INC.
SIGNATURE _____
Date 10/03/18
PERMIT NUMBER: PP295
Association of Professional Engineers of Yukon

ISSUED FOR CONSTRUCTION

| NO. | DATE | REVISION | DES | DWN | CHK | APR |
|---|---|---|---|---|---|---|
| 2 | AUG 10/18 | MCQUESTEN SUBSTATION & KM18 MODIFICATIONS | MP | MP | PC | NB |
| 1 | JUL 11/18 | BORROW PIT & ROAD PROXIMITY ALIGNMENT CHANGES | MP | MP | PC | MEO |
| 0 | MAY 11/18 | ISSUED FOR CONSTRUCTION | MP | MP | PC | MEO |

CLIENT: StrataGold Corporation

| | |
|---|---|
| DATE | MAY 11/18 |
| DESIGN | MP |
| DRAWN | MP |
| CHECKED | PC |
| APPROVED | MEO |

Clean Energy CONSULTING INC
www.cleanenergyconsulting.ca
WN BRAZIER ASSOCIATES INC

SEAL: PROFESSIONAL ENGINEER YUKON TERRITORY W. NEIL BRAZIER

# EAGLE GOLD PROJECT
## L251 - 69 kV TRANSMISSION LINE
## PLAN AND PROFILE (SHEET 26 OF 54)

| PROJECT No. | DRAWING No. | REV. |
|---|---|---|
| 1407 | 1407-T-1200-26 | 2 |

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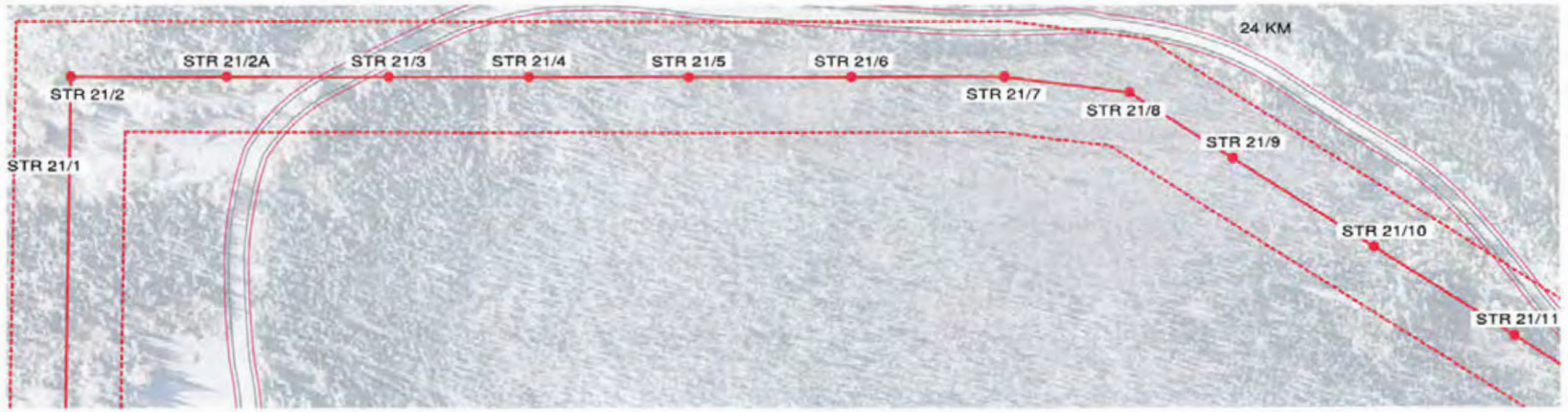



STR 21/1
SAH 85ft CL1
X=450475.93
Y=7084716.58

STR 21/2
VDEHA 85ft CL1
X=450444.88
Y=7084679.78

STR 21/2A
PTR 75ft CL1
X=450379.60
Y=7084733.19

STR 21/3
PT 70ft CL1
X=450311.64
Y=7084788.80

STR 21/4
PT 60ft CL1
X=450252.64
Y=7084837.08

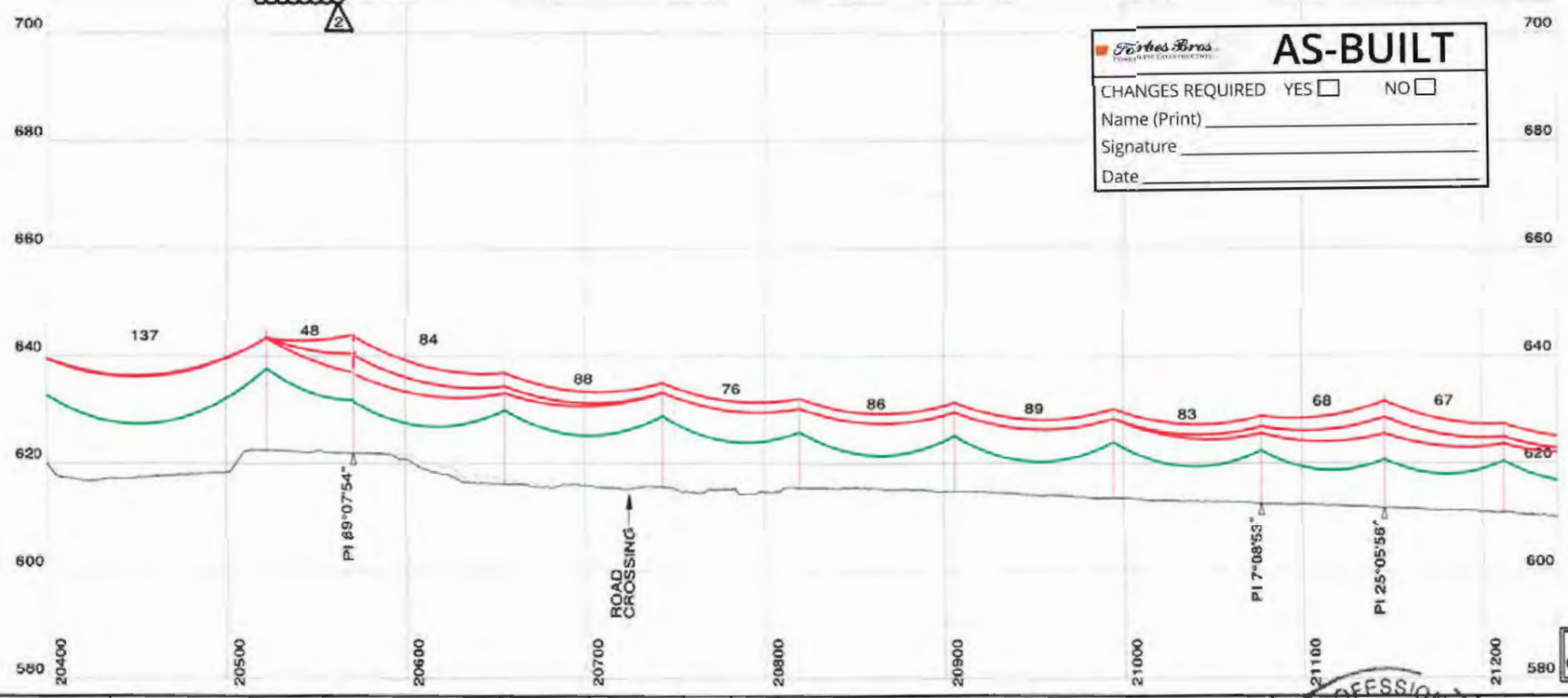
STR 21/5
PT 60ft CL1
X=450165.70
Y=7084891.85

STR 21/6
PT 60ft CL1
X=450117.18
Y=7084947.92

STR 21/7
PTG 60ft CL1
X=450053.01
Y=7085000.42

STR 21/8
VMA 80ft CL1
X=450005.84
Y=7085050.02

STR 21/9
PTR 60ft CL1
X=449984.77
Y=7085113.14




Forbes Bros Pipeline Construction

**AS-BUILT**

CHANGES REQUIRED YES ☐ NO ☐

Name (Print) _____

Signature _____

Date _____

## NOTES

1. ALL DIMENSIONS IN METRES (m) UNLESS NOTED OTHERWISE.
2. COORDINATES ARE IN UTM NAD83 ZONE 8N.
3. ELEVATIONS ARE IN METRES (m) ABOVE MEAN SEA LEVEL (AMSL).
4. 69 kV CONDUCTOR, ADSS CABLE AND OVERHEAD SHIELD WIRE "OHSW" DISPLAYED AT "WET SNOW" (-10° C, 51mm RADIAL SNOW).
5. LINE ANGLE DEFLECTION LOOKING TOWARD EAGLE GOLD PROJECT SITE INDICATED AS FOLLOWS:
   + RIGHT ANGLE DEFLECTION
   - LEFT ANGLE DEFLECTION
6. THIS LINE WILL BE NUMBERED L251 IN THE YUKON ENERGY CORPORATION (YEC) SYSTEM.
7. LEFT (DASH) AND RIGHT (DOT) PROFILE OFFSETS SHOWN AT 5 m CENTERLINE OFFSET.
8. DESIGN TENSIONS SHOWN IN TABLE 1.

| TABLE 1 | MEAN ANNUAL TEMP (-4° C) | | WET SNOW (-10° C, 51mm RADIAL SNOW) | |
|---|---|---|---|---|
| CABLE TYPE | FULL TENSION SPANS (N) | TERMINAL SPANS (N) (SLACK) | FULL TENSION SPANS (N) | TERMINAL SPANS (N) (SLACK) |
| PARTRIDGE ACSR | 3,750 | 550 | 23,300 | 3,300 |
| ADSS | 7,500 | 150 | 13,900 | 3,300 |
| OHSW | 3,500 | 400 | 23,600 | 3,200 |

## LEGEND

- 69 kV - 266.8 kcmil 26/7 "PARTRIDGE" ACSR
- ADSS - OFC-24 G.652D-FASA-S1 (ZTT)
- OHSW - 266.8 kcmil 26/7 "PARTRIDGE" ACSR
- ROAD EDGE
- 2.5m ROAD BUFFER
- 30m CLEARING BOUNDARY
- YEC L250 69 KV LINE (EXISTING)
- 60m WIDE RIGHT OF WAY BOUNDARY
- X KM APPROXIMATE ROAD KM MARKER

## REFERENCES

| | |
|---|---|
| 1407-T-1000 | DRAWING LIST |
| 1407-T-1100 | ROUTE MAP |
| 1407-T-1400 | STRUCTURE DATA SHEET |
| 1407-T-1900 | SOUTH MCQUESTEN TRANSMISSION LINE CONNECTION - PLAN |
| 1407-T-3000 | STRUCTURE FAMILY |
| 1407-T-6000 | HWY 11 (SILVER TRAIL)-OVERHEAD LINE CROSSING-STR 0/4 TO STR 0/5 |

30.0 m Horiz. Scale
10.0 m Vert. Scale

ISSUED FOR CONSTRUCTION

PERMIT TO PRACTICE
W.N. BRAIZER ASSOCIATES INC.
SIGNATURE _____
Date 10/05/18
PERMIT NUMBER: PP295
Association of Professional Engineers of Yukon

| NO. | DATE | REVISION | DES | DWN | CHK | APR |
|---|---|---|---|---|---|---|
| 2 | AUG 10/18 | MCQUESTEN SUBSTATION & KM18 MODIFICATIONS | MP | MP | PC | NB |
| 1 | JUL 11/18 | BORROW PIT & ROAD PROXIMITY ALIGNMENT CHANGES | MP | MP | PC | MEO |
| 0 | MAY 11/18 | ISSUED FOR CONSTRUCTION | MP | MP | PC | MEO |

CLIENT: StrataGold Corporation

| | |
|---|---|
| DATE | MAY 11/18 |
| DESIGN | MP |
| DRAWN | MP |
| CHECKED | PC |
| APPROVED | MEO |

Clean Energy CONSULTING INC
www.cleanenergyconsulting.ca
WN BRAZIER ASSOCIATES INC

SEAL: PROFESSIONAL ENGINEERS YUKON W. NEIL BRAZIER TERRITORY

EAGLE GOLD PROJECT
L251 - 69 kV TRANSMISSION LINE
PLAN AND PROFILE (SHEET 27 OF 54)

| PROJECT No. | DRAWING No. | REV. |
|---|---|---|
| 1407 | 1407-T-1200-27 | 2 |

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STR 21/9
PTR 60ft CL1
X=449984.77
Y=7085113.14

STR 21/10
PT 65ft CL1
X=449956.15
Y=7085198.87

STR 21/11
PT 80ft CL1
X=449927.72
Y=7085284.00

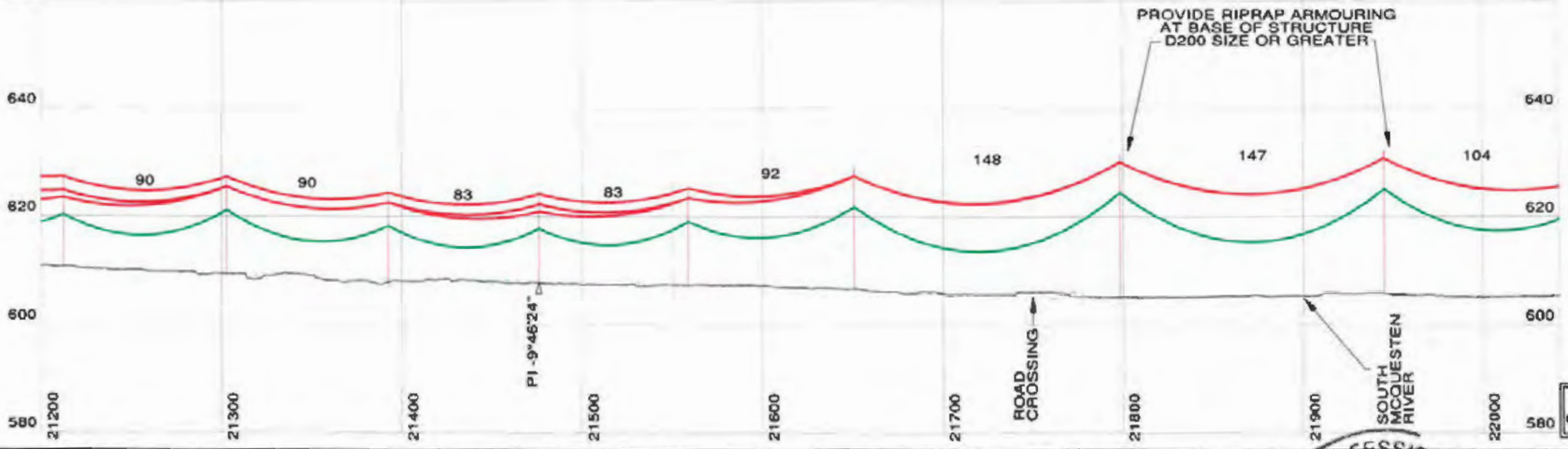
STR 21/12
PTG 60ft CL1
X=449901.30
Y=7085363.14

STR 21/13
PT 65ft CL1
X=449862.16
Y=7085436.03

STR 22/1
SAH 85ft CL2
X=449818.71
Y=7085516.95

STR 22/2
SAH 100ft CL2
X=449748.75
Y=7085647.24

STR 22/3
SAH 100ft CL2
X=449679.25
Y=7085776.66




**AS-BUILT**

Forbes Bros Pipeline Contractors

CHANGES REQUIRED YES ☐ NO ☐

Name (Print) _____

Signature _____

Date _____

## NOTES

1. ALL DIMENSIONS IN METRES (m) UNLESS NOTED OTHERWISE.
2. COORDINATES ARE IN UTM NAD83 ZONE 8N.
3. ELEVATIONS ARE IN METRES (m) ABOVE MEAN SEA LEVEL (AMSL).
4. 69 kV CONDUCTOR, ADSS CABLE AND OVERHEAD SHIELD WIRE "OHSW" DISPLAYED AT "WET SNOW" (-10° C, 51mm RADIAL SNOW).
5. LINE ANGLE DEFLECTION LOOKING TOWARD EAGLE GOLD PROJECT SITE INDICATED AS FOLLOWS:
   + RIGHT ANGLE DEFLECTION
   - LEFT ANGLE DEFLECTION
6. THIS LINE WILL BE NUMBERED L251 IN THE YUKON ENERGY CORPORATION (YEC) SYSTEM.
7. LEFT (DASH) AND RIGHT (DOT) PROFILE OFFSETS SHOWN AT 5 m CENTERLINE OFFSET.
8. DESIGN TENSIONS SHOWN IN TABLE 1.

TABLE 1

| CABLE TYPE | MEAN ANNUAL TEMP (-4° C) FULL TENSION SPANS (N) | MEAN ANNUAL TEMP (-4° C) TERMINAL SPANS (N) (SLACK) | WET SNOW (-10° C, 51mm RADIAL SNOW) FULL TENSION SPANS (N) | WET SNOW (-10° C, 51mm RADIAL SNOW) TERMINAL SPANS (N) (SLACK) |
|---|---|---|---|---|
| PARTRIDGE ACSR | 3,780 | 550 | 23,300 | 3,300 |
| ADSS | 7,500 | 150 | 13,900 | 3,300 |
| OHSW | 3,500 | 400 | 23,600 | 3,200 |

## LEGEND

- 69 kV - 266.8 kcmil 26/7 "PARTRIDGE" ACSR
- ADSS - OFC-24 G.652D-FASA-S1 (ZTT)
- OHSW - 266.8 kcmil 26/7 "PARTRIDGE" ACSR
- ROAD EDGE
- 2.5m ROAD BUFFER
- 30m CLEARING BOUNDARY
- YEC L250 69 KV LINE (EXISTING)
- 60m WIDE RIGHT OF WAY BOUNDARY
- X KM APPROXIMATE ROAD KM MARKER

## REFERENCES

| | |
|---|---|
| 1407-T-1000 | DRAWING LIST |
| 1407-T-1100 | ROUTE MAP |
| 1407-T-1400 | STRUCTURE DATA SHEET |
| 1407-T-1900 | SOUTH MCQUESTEN TRANSMISSION LINE CONNECTION - PLAN |
| 1407-T-3000 | STRUCTURE FAMILY |
| 1407-T-6000 | HWY 11 (SILVER TRAIL)-OVERHEAD LINE CROSSING-STR 0/4 TO STR 0/5 |

30.0 m Horiz. Scale
10.0 m Vert. Scale

ISSUED FOR CONSTRUCTION

PERMIT TO PRACTICE
W.N. BRAZIER ASSOCIATES INC.
SIGNATURE _____
Date 10/08/18
PERMIT NUMBER: PP295
Association of Professional Engineers of Yukon

| NO. | DATE | REVISION | DES | DWN | CHK | APR |
|---|---|---|---|---|---|---|
| 2 | AUG 10/18 | MCQUESTEN SUBSTATION & KM18 MODIFICATIONS | MP | MP | PC | NB |
| 1 | JUL 11/18 | BORROW PIT & ROAD PROXIMITY ALIGNMENT CHANGES | MP | MP | PC | MEO |
| 0 | MAY 11/18 | ISSUED FOR CONSTRUCTION | MP | MP | PC | MEO |

CLIENT: StrataGold Corporation

| | |
|---|---|
| DATE | MAY 11/18 |
| DESIGN | MP |
| DRAWN | MP |
| CHECKED | PC |
| APPROVED | MEO |

Clean Energy CONSULTING INC. www.cleanenergyconsulting.ca

WN BRAZIER ASSOCIATES INC

SEAL: PROFESSIONAL ENGINEER YUKON W. NEIL BRAZIER TERRITORY

EAGLE GOLD PROJECT
L251 - 69 kV TRANSMISSION LINE
PLAN AND PROFILE (SHEET 28 OF 54)

| PROJECT No. | DRAWING No. | REV. |
|---|---|---|
| 1407 | 1407-T-1200-28 | 2 |

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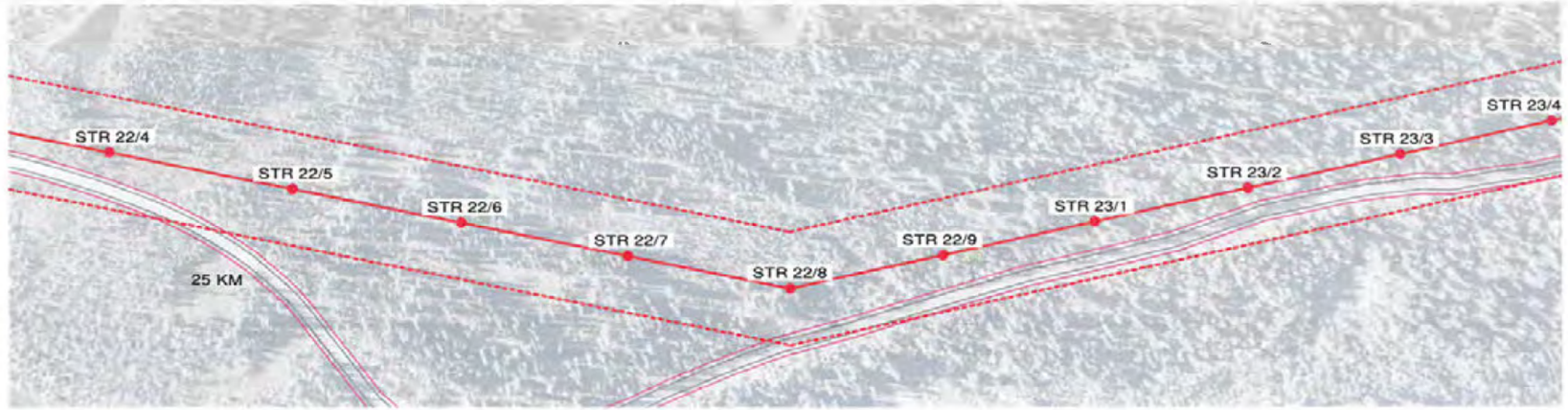


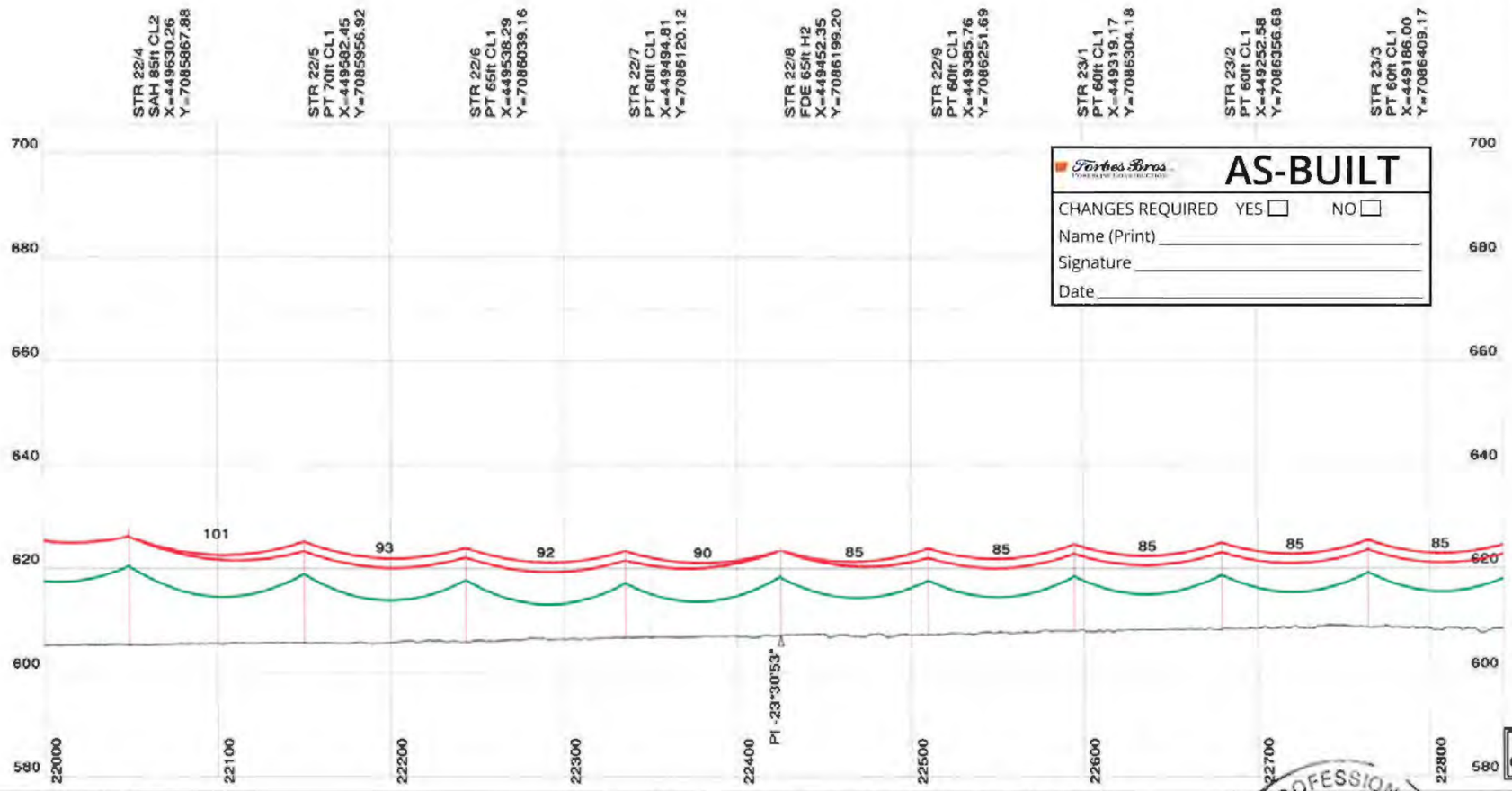


**AS-BUILT**

CHANGES REQUIRED YES ☐ NO ☐

Name (Print) _____

Signature _____

Date _____

## NOTES

1. ALL DIMENSIONS IN METRES (m) UNLESS NOTED OTHERWISE.
2. COORDINATES ARE IN UTM NAD83 ZONE 8N.
3. ELEVATIONS ARE IN METRES (m) ABOVE MEAN SEA LEVEL (AMSL).
4. 69 kV CONDUCTOR, ADSS CABLE AND OVERHEAD SHIELD WIRE "OHSW" DISPLAYED AT "WET SNOW" (-10° C, 51mm RADIAL SNOW).
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   + RIGHT ANGLE DEFLECTION
   - LEFT ANGLE DEFLECTION
6. THIS LINE WILL BE NUMBERED L251 IN THE YUKON ENERGY CORPORATION (YEC) SYSTEM.
7. LEFT (DASH) AND RIGHT (DOT) PROFILE OFFSETS SHOWN AT 5 m CENTERLINE OFFSET.
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| TABLE 1 | MEAN ANNUAL TEMP (-4° C) | | WET SNOW (-10° C, 51mm RADIAL SNOW) | |
|---|---|---|---|---|
| CABLE TYPE | FULL TENSION SPANS (N) | TERMINAL SPANS (N) (SLACK) | FULL TENSION SPANS (N) | TERMINAL SPANS (N) (SLACK) |
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| ADSS | 7,500 | 150 | 13,900 | 3,300 |
| OHSW | 3,500 | 400 | 23,600 | 3,200 |

## LEGEND

- 69 kV - 266.8 kcmil 26/7 "PARTRIDGE" ACSR
- ADSS - OFC-24 G.652D-FASA-S1 (ZTT)
- OHSW - 266.8 kcmil 26/7 "PARTRIDGE" ACSR
- ROAD EDGE
- 2.5m ROAD BUFFER
- 30m CLEARING BOUNDARY
- YEC L250 69 KV LINE (EXISTING)
- 60m WIDE RIGHT OF WAY BOUNDARY
- X KM APPROXIMATE ROAD KM MARKER

## REFERENCES

| | |
|---|---|
| 1407-T-1000 | DRAWING LIST |
| 1407-T-1100 | ROUTE MAP |
| 1407-T-1400 | STRUCTURE DATA SHEET |
| 1407-T-1900 | SOUTH MCQUESTEN TRANSMISSION LINE CONNECTION - PLAN |
| 1407-T-3000 | STRUCTURE FAMILY |
| 1407-T-6000 | HWY 11 (SILVER TRAIL)-OVERHEAD LINE CROSSING-STR 0/4 TO STR 0/5 |

30.0 m Horiz. Scale
10.0 m Vert. Scale

ISSUED FOR CONSTRUCTION

PERMIT TO PRACTICE
W.N. BRAIZER ASSOCIATES INC.
SIGNATURE
Date 10/03/18
PERMIT NUMBER: PP295
Association of Professional Engineers of Yukon

| NO. | DATE | REVISION | DES | DWN | CHK | APR |
|---|---|---|---|---|---|---|
| 2 | AUG 10/18 | MCQUESTEN SUBSTATION & KM16 MODIFICATIONS | MP | MP | PC | NB |
| 1 | JUL 11/18 | BORROW PIT & ROAD PROXIMITY ALIGNMENT CHANGES | MP | MP | PC | MEO |
| 0 | MAY 11/18 | ISSUED FOR CONSTRUCTION | MP | MP | PC | MEO |

CLIENT: StrataGold Corporation

| | |
|---|---|
| DATE | MAY 11/18 |
| DESIGN | MP |
| DRAWN | MP |
| CHECKED | PC |
| APPROVED | MEO |

Clean Energy CONSULTING INC.
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WN BRAZIER ASSOCIATES INC

SEAL: PROFESSIONAL ENGINEER YUKON W. NEIL BRAZIER TERRITORY

EAGLE GOLD PROJECT
L251 - 69 kV TRANSMISSION LINE
PLAN AND PROFILE (SHEET 29 OF 54)

| PROJECT No. | DRAWING No. | REV. |
|---|---|---|
| 1407 | 1407-T-1200-29 | 2 |

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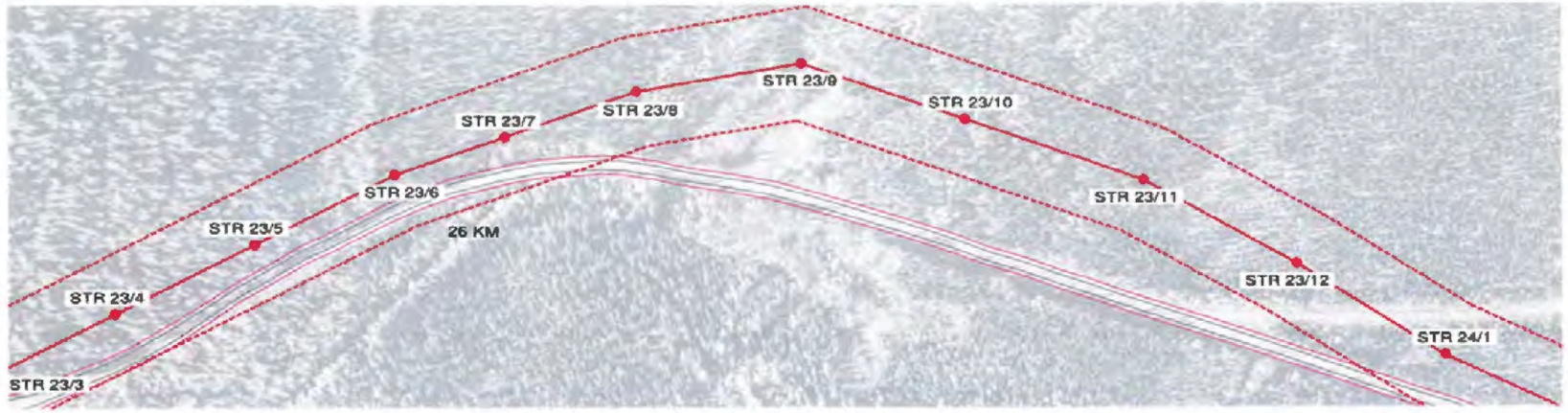



STR 23/4 PT 60ft CL1 X=449119.56 Y=7086461.55

STR 23/5 PT 60ft CL1 X=449053.35 Y=7086513.74

STR 23/6 PTG 65ft CL1 X=448986.94 Y=7086566.10

STR 23/7 PT 65ft CL1 X=448943.00 Y=7086611.07

STR 23/8 PTG 65ft CL1 X=448890.19 Y=7086665.13

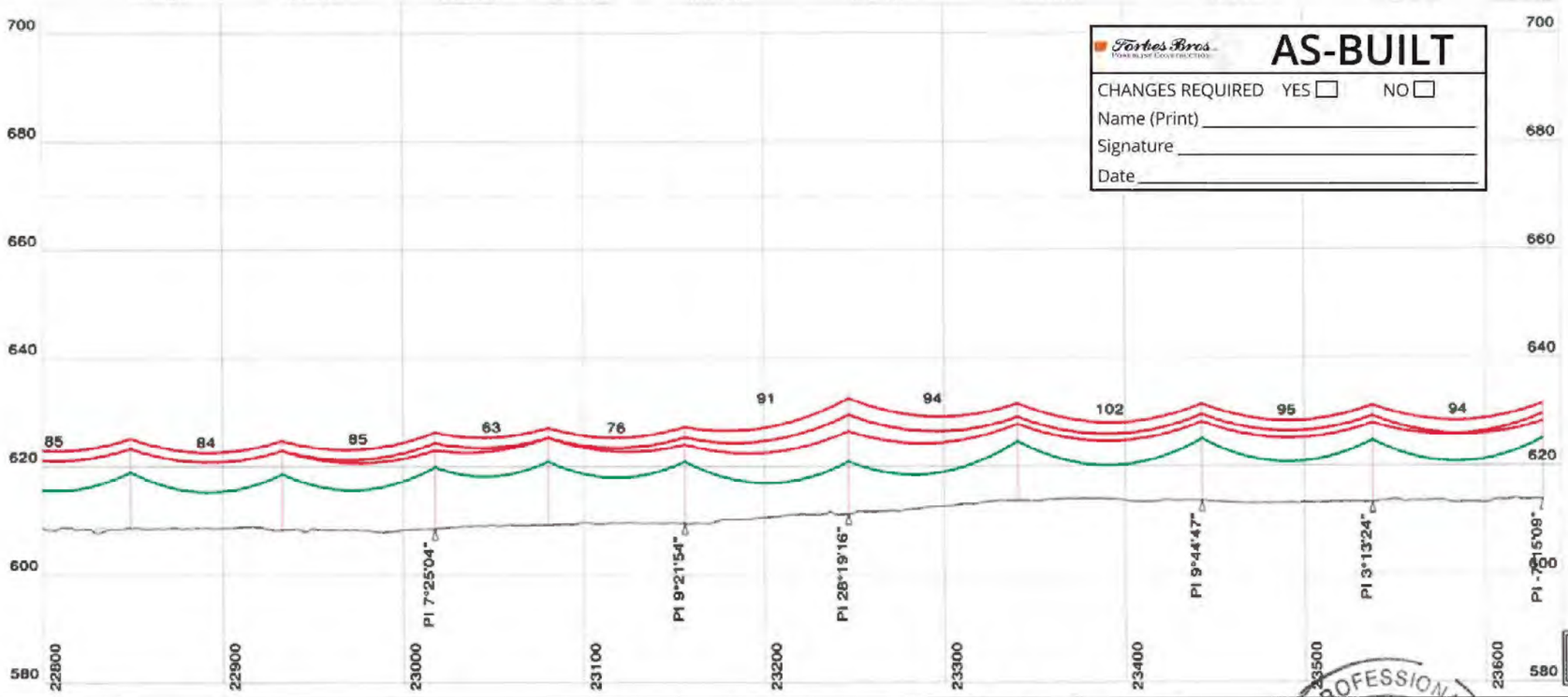
STR 23/9 VMA 85ft CL1 X=448838.16 Y=7086739.53

STR 23/10 PTR 65ft CL1 X=448827.32 Y=7086832.53

STR 23/11 PTG 65ft CL1 X=448815.47 Y=7086934.27

STR 23/12 PTG 65ft CL1 X=448820.60 Y=7087029.03

STR 24/1 PTG 65ft CL1 X=448831.00 Y=7087122.91




**AS-BUILT**

Forbes Bros. Powerline Construction

CHANGES REQUIRED YES ☐ NO ☐

Name (Print) _____

Signature _____

Date _____

## NOTES

1. ALL DIMENSIONS IN METRES (m) UNLESS NOTED OTHERWISE.
2. COORDINATES ARE IN UTM NAD83 ZONE 8N.
3. ELEVATIONS ARE IN METRES (m) ABOVE MEAN SEA LEVEL (AMSL).
4. 69 kV CONDUCTOR, ADSS CABLE AND OVERHEAD SHIELD WIRE "OHSW" DISPLAYED AT "WET SNOW" (-10° C, 51mm RADIAL SNOW).
5. LINE ANGLE DEFLECTION LOOKING TOWARD EAGLE GOLD PROJECT SITE INDICATED AS FOLLOWS:
   + RIGHT ANGLE DEFLECTION
   - LEFT ANGLE DEFLECTION
6. THIS LINE WILL BE NUMBERED L251 IN THE YUKON ENERGY CORPORATION (YEC) SYSTEM.
7. LEFT (DASH) AND RIGHT (DOT) PROFILE OFFSETS SHOWN AT 5 m CENTERLINE OFFSET.
8. DESIGN TENSIONS SHOWN IN TABLE 1.

TABLE 1

| CABLE TYPE | MEAN ANNUAL TEMP (-4° C) FULL TENSION SPANS (N) | MEAN ANNUAL TEMP (-4° C) TERMINAL SPANS (N) (SLACK) | WET SNOW (-10° C, 51mm RADIAL SNOW) FULL TENSION SPANS (N) | WET SNOW (-10° C, 51mm RADIAL SNOW) TERMINAL SPANS (N) (SLACK) |
|---|---|---|---|---|
| PARTRIDGE ACSR | 3,750 | 550 | 23,300 | 3,300 |
| ADSS | 7,500 | 150 | 13,900 | 3,300 |
| OHSW | 3,800 | 400 | 23,600 | 3,200 |

## LEGEND

- 69 kV - 266.8 kcmil 26/7 "PARTRIDGE" ACSR
- ADSS - OFC-24 G.652D-FASA-S1 (ZTT)
- OHSW - 266.8 kcmil 26/7 "PARTRIDGE" ACSR
- ROAD EDGE
- 2.5m ROAD BUFFER
- 30m CLEARING BOUNDARY
- YEC L250 69 KV LINE (EXISTING)
- 60m WIDE RIGHT OF WAY BOUNDARY
- X KM APPROXIMATE ROAD KM MARKER

## REFERENCES

| | |
|---|---|
| 1407-T-1000 | DRAWING LIST |
| 1407-T-1100 | ROUTE MAP |
| 1407-T-1400 | STRUCTURE DATA SHEET |
| 1407-T-1900 | SOUTH MCQUESTEN TRANSMISSION LINE CONNECTION - PLAN |
| 1407-T-3000 | STRUCTURE FAMILY |
| 1407-T-6000 | HWY 11 (SILVER TRAIL)-OVERHEAD LINE CROSSING-STR 0/4 TO STR 0/5 |

30.0 m Horiz. Scale
10.0 m Vert. Scale

ISSUED FOR CONSTRUCTION

PERMIT TO PRACTICE
W.N. BRAIZER ASSOCIATES INC.
SIGNATURE _____
Date 10/05/18
PERMIT NUMBER: PP295
Association of Professional Engineers of Yukon

| NO. | DATE | REVISION | DES | DWN | CHK | APR |
|---|---|---|---|---|---|---|
| | | | | | | |
| | | | | | | |
| | | | | | | |
| 2 | AUG 10/18 | MCQUESTEN SUBSTATION & KM18 MODIFICATIONS | MP | MP | PC | NB |
| 1 | JUL 11/18 | BORROW PIT & ROAD PROXIMITY ALIGNMENT CHANGES | MP | MP | PC | MEO |
| 0 | MAY 11/18 | ISSUED FOR CONSTRUCTION | MP | MP | PC | MEO |

CLIENT: StrataGold Corporation

| | |
|---|---|
| DATE | MAY 11/18 |
| DESIGN | MP |
| DRAWN | MP |
| CHECKED | PC |
| APPROVED | MEO |

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WN BRAZIER ASSOCIATES INC

SEAL: PROFESSIONAL ENGINEER YUKON W. NEIL BRAZIER TERRITORY

# EAGLE GOLD PROJECT

## L251 - 69 kV TRANSMISSION LINE

## PLAN AND PROFILE (SHEET 30 OF 54)

| PROJECT No. | DRAWING No. | REV. |
|---|---|---|
| 1407 | 1407-T-1200-30 | 2 |

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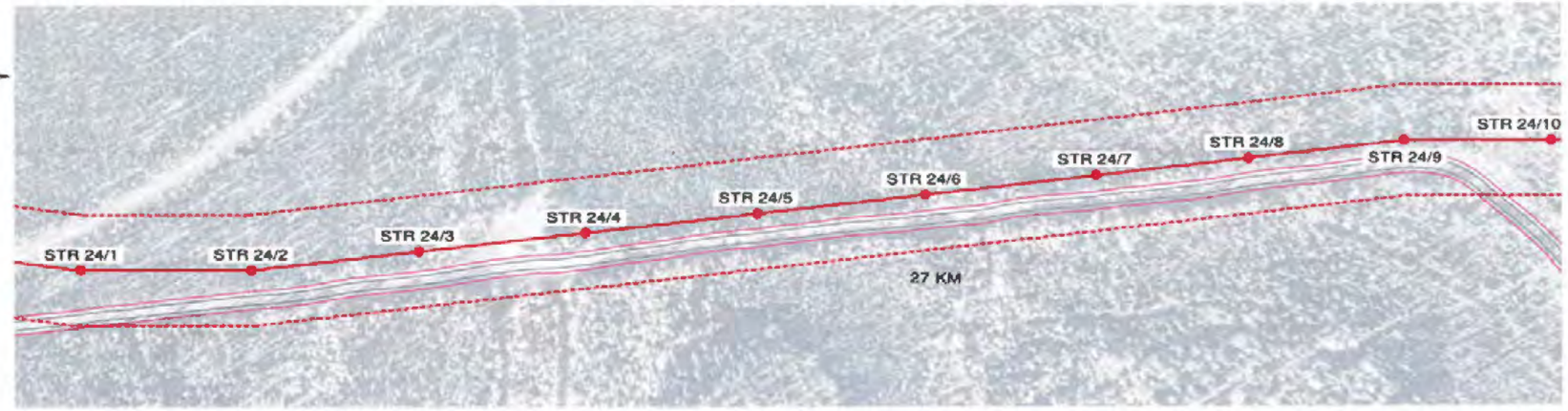


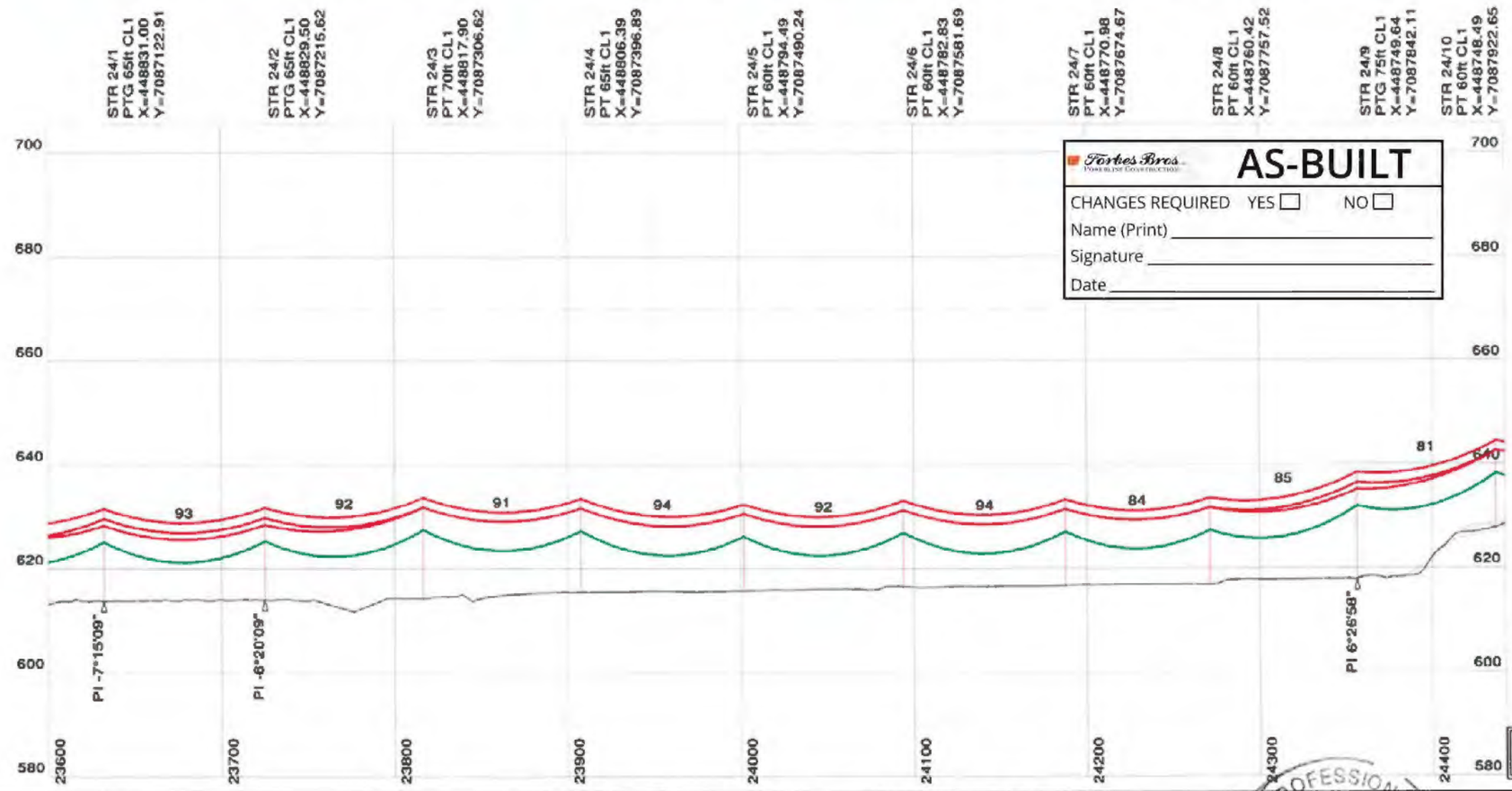


Forbes Bros. — AS-BUILT

CHANGES REQUIRED YES ☐ NO ☐

Name (Print) _____

Signature _____

Date _____

NOTES

1. ALL DIMENSIONS IN METRES (m) UNLESS NOTED OTHERWISE.
2. COORDINATES ARE IN UTM NAD83 ZONE 8N.
3. ELEVATIONS ARE IN METRES (m) ABOVE MEAN SEA LEVEL (AMSL).
4. 69 kV CONDUCTOR, ADSS CABLE AND OVERHEAD SHIELD WIRE "OHSW" DISPLAYED AT "WET SNOW" (-10° C, 51mm RADIAL SNOW).
5. LINE ANGLE DEFLECTION LOOKING TOWARD EAGLE GOLD PROJECT SITE INDICATED AS FOLLOWS:
   + RIGHT ANGLE DEFLECTION
   - LEFT ANGLE DEFLECTION
6. THIS LINE WILL BE NUMBERED L251 IN THE YUKON ENERGY CORPORATION (YEC) SYSTEM.
7. LEFT (DASH) AND RIGHT (DOT) PROFILE OFFSETS SHOWN AT 5 m CENTERLINE OFFSET.
8. DESIGN TENSIONS SHOWN IN TABLE 1.

TABLE 1

| CABLE TYPE | MEAN ANNUAL TEMP (-4° C) FULL TENSION SPANS (N) | MEAN ANNUAL TEMP (-4° C) TERMINAL SPANS (N) (SLACK) | WET SNOW (-10° C, 51mm RADIAL SNOW) FULL TENSION SPANS (N) | WET SNOW (-10° C, 51mm RADIAL SNOW) TERMINAL SPANS (N) (SLACK) |
|---|---|---|---|---|
| PARTRIDGE ACSR | 3,750 | 550 | 23,300 | 3,300 |
| ADSS | 7,500 | 150 | 13,900 | 3,300 |
| OHSW | 3,500 | 400 | 23,600 | 3,200 |

LEGEND

- 69 kV - 266.8 kcmil 26/7 "PARTRIDGE" ACSR
- ADSS - OFC-24 G.652D-FASA-S1 (ZTT)
- OHSW - 266.8 kcmil 26/7 "PARTRIDGE" ACSR
- ROAD EDGE
- 2.5m ROAD BUFFER
- 30m CLEARING BOUNDARY
- YEC L250 69 KV LINE (EXISTING)
- 60m WIDE RIGHT OF WAY BOUNDARY
- X KM APPROXIMATE ROAD KM MARKER

REFERENCES

| | |
|---|---|
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| 1407-T-1100 | ROUTE MAP |
| 1407-T-1400 | STRUCTURE DATA SHEET |
| 1407-T-1900 | SOUTH MCQUESTEN TRANSMISSION LINE CONNECTION - PLAN |
| 1407-T-3000 | STRUCTURE FAMILY |
| 1407-T-6000 | HWY 11 (SILVER TRAIL)-OVERHEAD LINE CROSSING-STR 0/4 TO STR 0/5 |

30.0 m Horiz. Scale
10.0 m Vert. Scale

ISSUED FOR CONSTRUCTION

PERMIT TO PRACTICE
W.N. BRAIZER ASSOCIATES INC.
SIGNATURE Neil Braizer
Date 15/05/18
PERMIT NUMBER: PP295
Association of Professional Engineers of Yukon

| NO. | DATE | REVISION | DES | DWN | CHK | APR |
|---|---|---|---|---|---|---|
| 2 | AUG 10/18 | MCQUESTEN SUBSTATION & KM18 MODIFICATIONS | MP | MP | PC | NB |
| 1 | JUL 11/18 | BORROW PIT & ROAD PROXIMITY ALIGNMENT CHANGES | MP | MP | PC | MEO |
| 0 | MAY 11/18 | ISSUED FOR CONSTRUCTION | MP | MP | PC | MEO |

CLIENT: StrataGold Corporation

| | |
|---|---|
| DATE | MAY 11/18 |
| DESIGN | MP |
| DRAWN | MP |
| CHECKED | PC |
| APPROVED | MEO |

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WN BRAZIER ASSOCIATES INC

SEAL: PROFESSIONAL ENGINEER YUKON TERRITORY W. NEIL BRAIZER

EAGLE GOLD PROJECT
L251 - 69 kV TRANSMISSION LINE
PLAN AND PROFILE (SHEET 31 OF 54)

| PROJECT No. | DRAWING No. | REV. |
|---|---|---|
| 1407 | 1407-T-1200-31 | 2 |

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STR 24/10 PT 60ft CL1 X=448748.49 Y=7087922.65

STR 24/11 PT 65ft CL1 X=448747.25 Y=7088009.85

STR 25/1 PT 65ft CL1 X=448746.00 Y=7088097.86

STR 25/2 PT 70ft CL1 X=448744.71 Y=7088187.98

STR 25/3 PT 70ft CL1 X=448743.48 Y=7088274.55

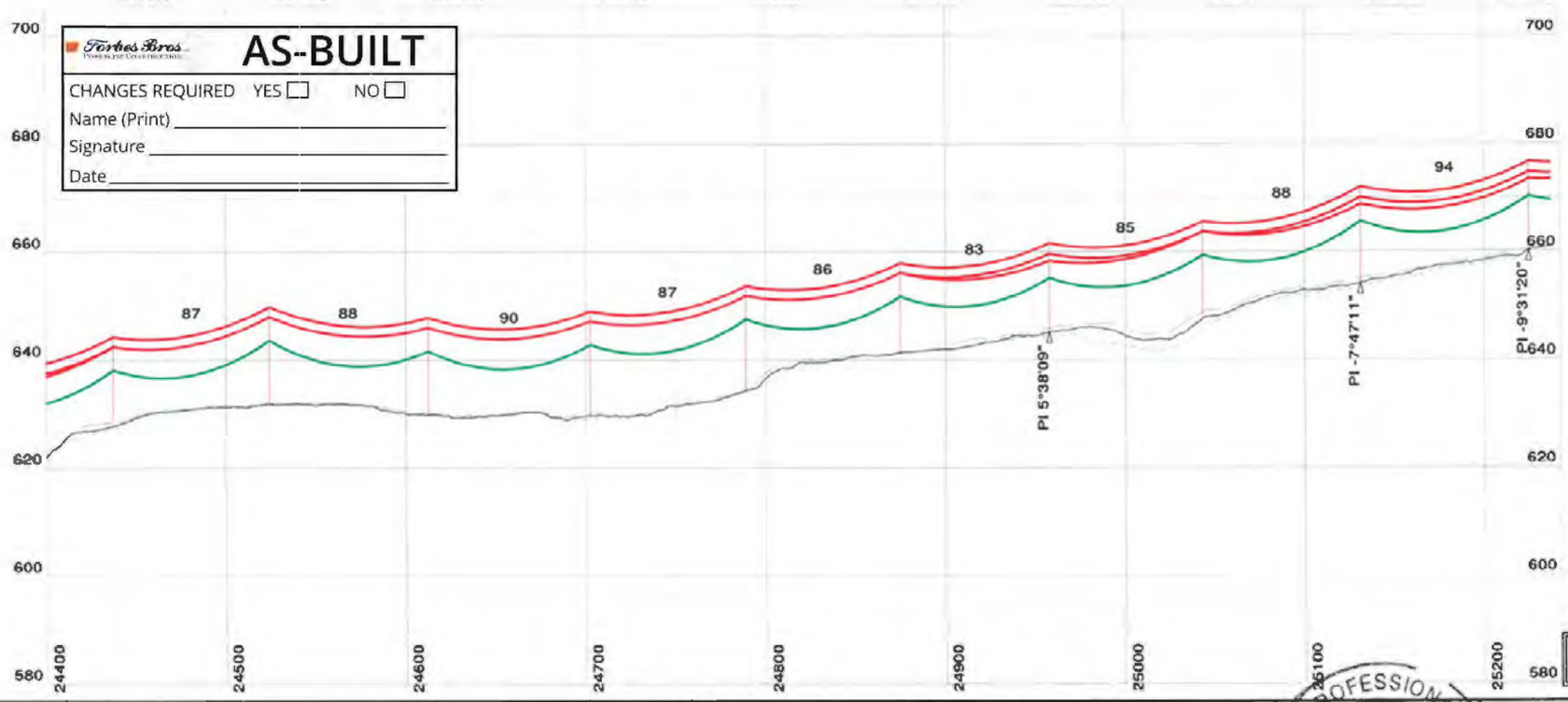
STR 25/4 PT 60ft CL1 X=448742.27 Y=7088360.12

STR 25/5 PTG 60ft CL1 X=448741.08 Y=7088443.36

STR 25/6 PT 65ft CL1 X=448748.26 Y=7088528.53

STR 25/7 PTG 65ft CL1 X=448755.66 Y=7088616.28

STR 25/8 PTG 60ft CL1 X=448750.82 Y=7088709.78




Forbes Bros. POWER LINE CONSTRUCTION

# AS-BUILT

CHANGES REQUIRED YES ☐ NO ☐

Name (Print) _____

Signature _____

Date _____

## NOTES

1. ALL DIMENSIONS IN METRES (m) UNLESS NOTED OTHERWISE.
2. COORDINATES ARE IN UTM NAD83 ZONE 8N.
3. ELEVATIONS ARE IN METRES (m) ABOVE MEAN SEA LEVEL (AMSL).
4. 69 kV CONDUCTOR, ADSS CABLE AND OVERHEAD SHIELD WIRE "OHSW" DISPLAYED AT "WET SNOW" (-10° C, 51mm RADIAL SNOW).
5. LINE ANGLE DEFLECTION LOOKING TOWARD EAGLE GOLD PROJECT SITE INDICATED AS FOLLOWS:

   \+ RIGHT ANGLE DEFLECTION
   \- LEFT ANGLE DEFLECTION
6. THIS LINE WILL BE NUMBERED L251 IN THE YUKON ENERGY CORPORATION (YEC) SYSTEM.
7. LEFT (DASH) AND RIGHT (DOT) PROFILE OFFSETS SHOWN AT 5 m CENTERLINE OFFSET.
8. DESIGN TENSIONS SHOWN IN TABLE 1.

TABLE 1

| CABLE TYPE | MEAN ANNUAL TEMP (-4° C) | | WET SNOW (-10° C, 51mm RADIAL SNOW) | |
|---|---|---|---|---|
| | FULL TENSION SPANS (N) | TERMINAL SPANS (N) (SLACK) | FULL TENSION SPANS (N) | TERMINAL SPANS (N) (SLACK) |
| PARTRIDGE ACSR | 3,750 | 550 | 23,300 | 3,300 |
| ADSS | 7,500 | 150 | 13,900 | 3,300 |
| OHSW | 3,500 | 400 | 23,600 | 3,300 |

LEGEND

- 69 kV - 266.8 kcmil 26/7 "PARTRIDGE" ACSR
- ADSS - OFC-24 G.652D-FASA-S1 (ZTT)
- OHSW - 266.8 kcmil 26/7 "PARTRIDGE" ACSR
- ROAD EDGE
- 2.5m ROAD BUFFER
- 30m CLEARING BOUNDARY
- YEC L250 69 KV LINE (EXISTING)
- 60m WIDE RIGHT OF WAY BOUNDARY
- X KM APPROXIMATE ROAD KM MARKER

REFERENCES

| | |
|---|---|
| 1407-T-1000 | DRAWING LIST |
| 1407-T-1100 | ROUTE MAP |
| 1407-T-1400 | STRUCTURE DATA SHEET |
| 1407-T-1900 | SOUTH MCQUESTEN TRANSMISSION LINE CONNECTION - PLAN |
| 1407-T-3000 | STRUCTURE FAMILY |
| 1407-T-6000 | HWY 11 (SILVER TRAIL)-OVERHEAD LINE CROSSING-STR 0/4 TO STR 0/5 |

30.0 m Horiz. Scale
10.0 m Vert. Scale

ISSUED FOR CONSTRUCTION

PERMIT TO PRACTICE
W.N. BRAIZER ASSOCIATES INC.
SIGNATURE _____
Date 12/08/18
PERMIT NUMBER: PP295
Association of Professional Engineers of Yukon

| NO. | DATE | REVISION | DES | DWN | CHK | APR |
|---|---|---|---|---|---|---|
| 2 | AUG 10/18 | MCQUESTEN SUBSTATION & KM18 MODIFICATIONS | MP | MP | PC | NB |
| 1 | JUL 11/18 | BORROW PIT & ROAD PROXIMITY ALIGNMENT CHANGES | MP | MP | PC | MEO |
| 0 | MAY 11/18 | ISSUED FOR CONSTRUCTION | MP | MP | PC | MEO |

CLIENT: StrataGold Corporation

| | |
|---|---|
| DATE | MAY 11/18 |
| DESIGN | MP |
| DRAWN | MP |
| CHECKED | PC |
| APPROVED | MEO |

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WN BRAZIER ASSOCIATES INC

SEAL: PROFESSIONAL ENGINEER YUKON W. NEIL BRAZIER TERRITORY

EAGLE GOLD PROJECT

L251 - 69 kV TRANSMISSION LINE

PLAN AND PROFILE (SHEET 32 OF 54)

| PROJECT No. | DRAWING No. | REV. |
|---|---|---|
| 1407 | 1407-T-1200-32 | 2 |

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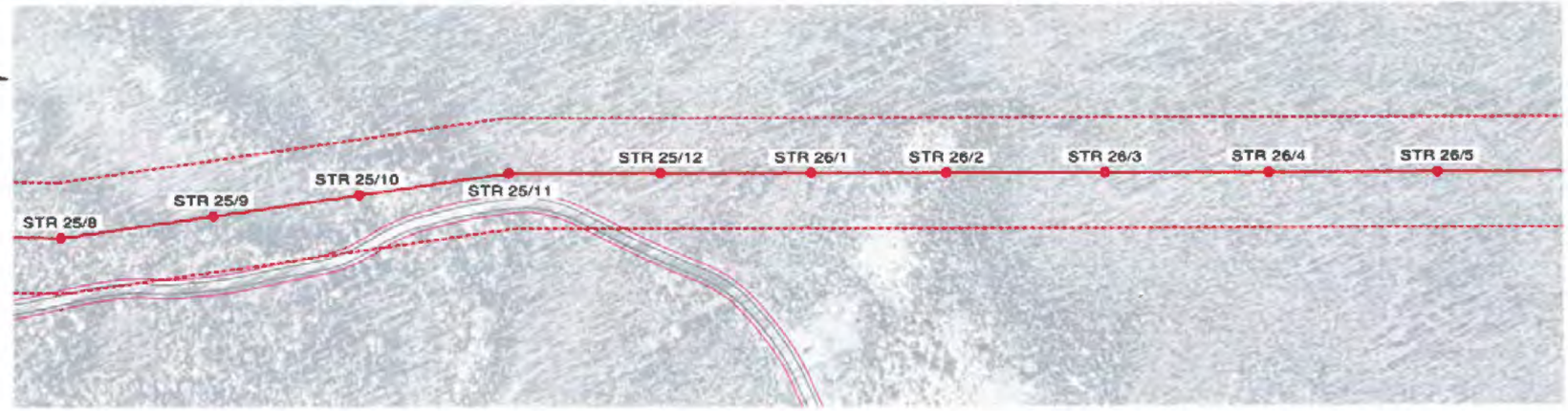


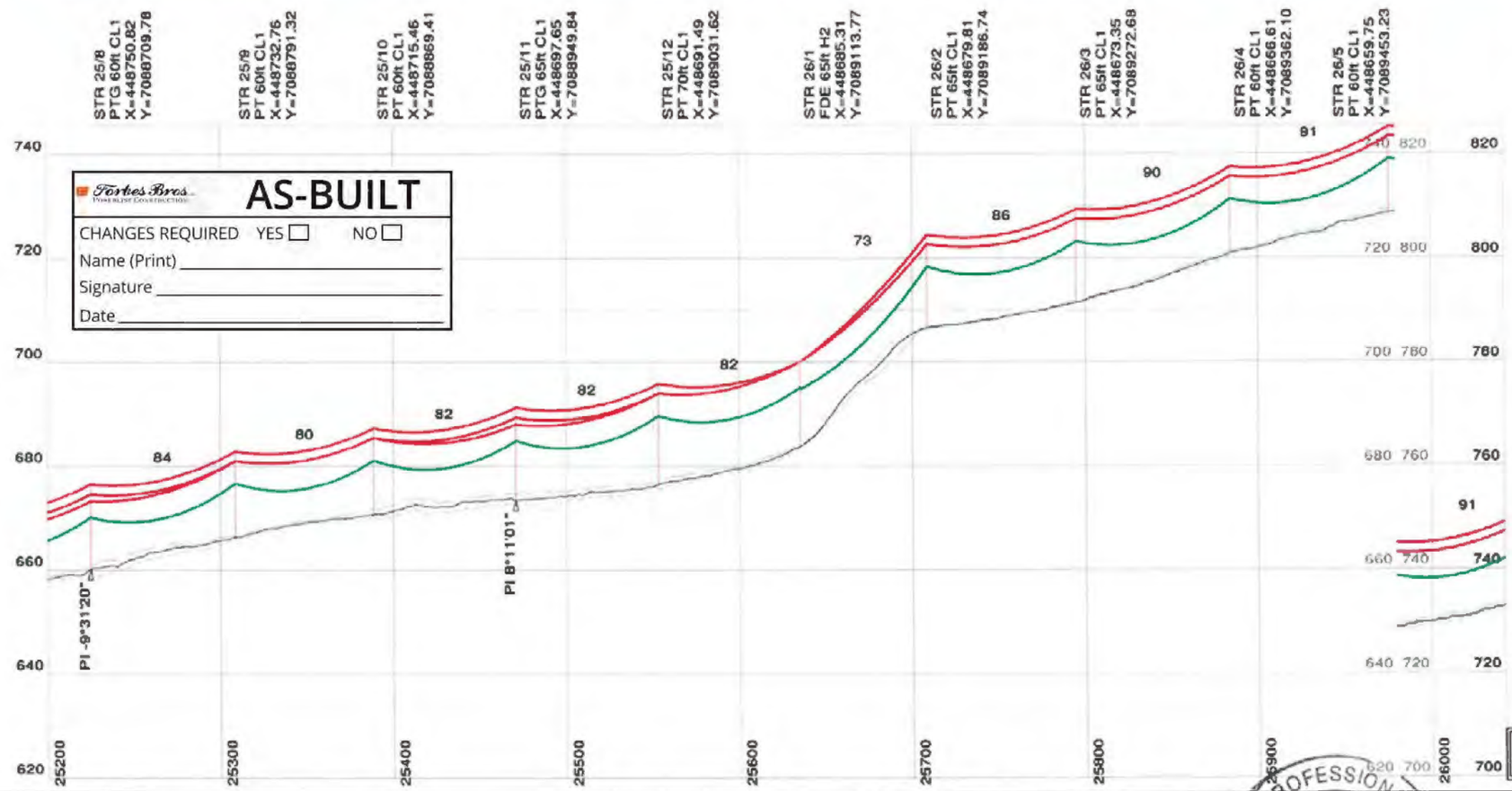


Forbes Bros. Powerline Construction

**AS-BUILT**

CHANGES REQUIRED YES ☐ NO ☐

Name (Print) _____

Signature _____

Date _____

## NOTES

1. ALL DIMENSIONS IN METRES (m) UNLESS NOTED OTHERWISE.
2. COORDINATES ARE IN UTM NAD83 ZONE 8N.
3. ELEVATIONS ARE IN METRES (m) ABOVE MEAN SEA LEVEL (AMSL).
4. 69 kV CONDUCTOR, ADSS CABLE AND OVERHEAD SHIELD WIRE "OHSW" DISPLAYED AT "WET SNOW" (-10° C, 51mm RADIAL SNOW).
5. LINE ANGLE DEFLECTION LOOKING TOWARD EAGLE GOLD PROJECT SITE INDICATED AS FOLLOWS:
   + RIGHT ANGLE DEFLECTION
   - LEFT ANGLE DEFLECTION
6. THIS LINE WILL BE NUMBERED L251 IN THE YUKON ENERGY CORPORATION (YEC) SYSTEM.
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**TABLE 1**

| CABLE TYPE | MEAN ANNUAL TEMP (-4° C) | | WET SNOW (-10° C, 51mm RADIAL SNOW) | |
|---|---|---|---|---|
| | FULL TENSION SPANS (N) | TERMINAL SPANS (N) (SLACK) | FULL TENSION SPANS (N) | TERMINAL SPANS (N) (SLACK) |
| PARTRIDGE ACSR | 3,750 | 550 | 23,300 | 3,300 |
| ADSS | 7,500 | 150 | 13,900 | 3,300 |
| OHSW | 3,800 | 400 | 23,600 | 3,200 |

## LEGEND

- 69 kV - 266.8 kcmil 26/7 "PARTRIDGE" ACSR
- ADSS - OFC-24 G.652D-FASA-S1 (ZTT)
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- ROAD EDGE
- 2.5m ROAD BUFFER
- 30m CLEARING BOUNDARY
- YEC L250 69 KV LINE (EXISTING)
- 60m WIDE RIGHT OF WAY BOUNDARY
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## REFERENCES

| | |
|---|---|
| 1407-T-1000 | DRAWING LIST |
| 1407-T-1100 | ROUTE MAP |
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| 1407-T-1900 | SOUTH MCQUESTEN TRANSMISSION LINE CONNECTION - PLAN |
| 1407-T-3000 | STRUCTURE FAMILY |
| 1407-T-6000 | HWY 11 (SILVER TRAIL)-OVERHEAD LINE CROSSING-STR 0/4 TO STR 0/5 |

30.0 m Horiz. Scale
10.0 m Vert. Scale

ISSUED FOR CONSTRUCTION

PERMIT TO PRACTICE
W.N. BRAIZER ASSOCIATES INC.
SIGNATURE _____
Date 10/03/18
PERMIT NUMBER: PP295
Association of Professional Engineers of Yukon

| NO. | DATE | REVISION | DES | DWN | CHK | APR |
|---|---|---|---|---|---|---|
| 2 | AUG 10/18 | MCQUESTEN SUBSTATION & KM18 MODIFICATIONS | MP | MP | PC | NB |
| 1 | JUL 11/18 | BORROW PIT & ROAD PROXIMITY ALIGNMENT CHANGES | MP | MP | PC | MEO |
| 0 | MAY 11/18 | ISSUED FOR CONSTRUCTION | MP | MP | PC | MEO |

CLIENT: StrataGold Corporation

| | |
|---|---|
| DATE | MAY 11/18 |
| DESIGN | MP |
| DRAWN | MP |
| CHECKED | PC |
| APPROVED | MEO |

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WN BRAZIER ASSOCIATES INC

SEAL: PROFESSIONAL ENGINEER YUKON W. NEIL BRAZIER TERRITORY

# EAGLE GOLD PROJECT
## L251 - 69 kV TRANSMISSION LINE
## PLAN AND PROFILE (SHEET 33 OF 54)

| PROJECT No. | DRAWING No. | REV. |
|---|---|---|
| 1407 | 1407-T-1200-33 | 2 |

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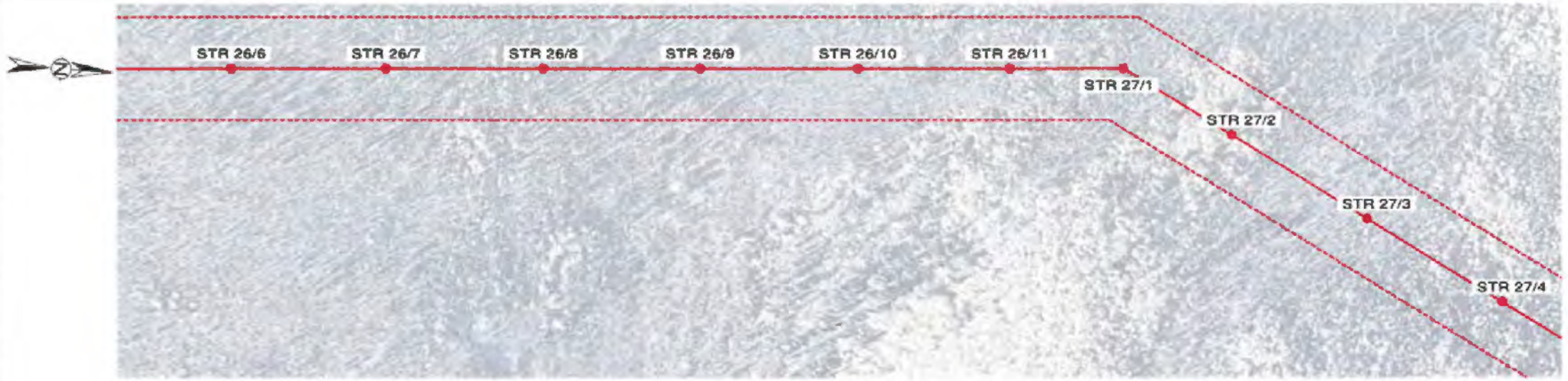


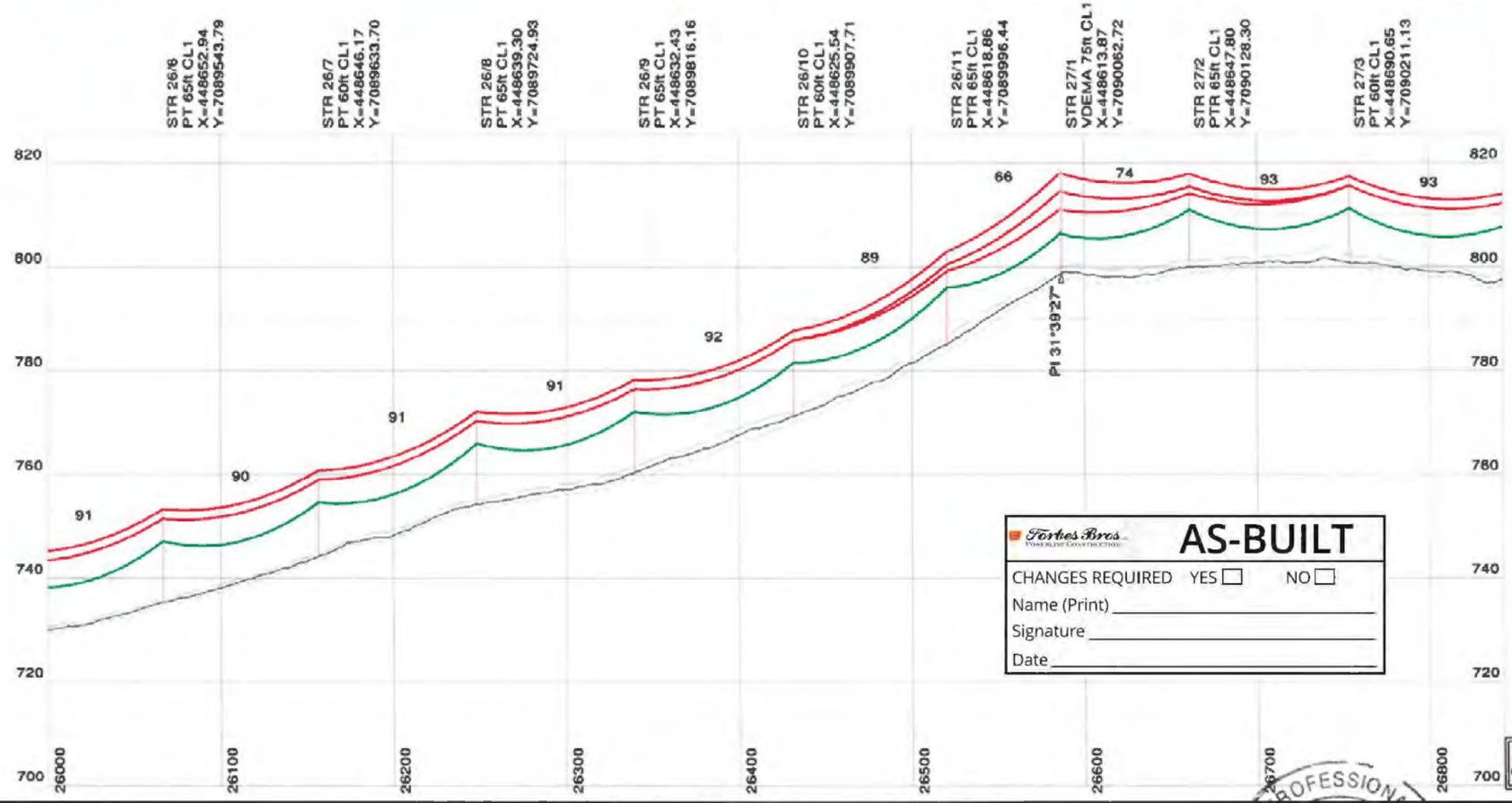


NOTES

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LEGEND

- 69 kV - 266.8 kcmil 26/7 "PARTRIDGE" ACSR
- ADSS - OFC-24 G.652D-FASA-S1 (ZTT)
- OHSW - 266.8 kcmil 26/7 "PARTRIDGE" ACSR
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- YEC L250 69 KV LINE (EXISTING)
- 60m WIDE RIGHT OF WAY BOUNDARY
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| 1407-T-3000 | STRUCTURE FAMILY |
| 1407-T-6000 | HWY 11 (SILVER TRAIL)-OVERHEAD LINE CROSSING-STR 0/4 TO STR 0/5 |

Forbes Bros. AS-BUILT

CHANGES REQUIRED YES ☐ NO ☐

Name (Print) _____

Signature _____

Date _____

30.0 m Horiz. Scale
10.0 m Vert. Scale

ISSUED FOR CONSTRUCTION

PERMIT TO PRACTICE
W.N. BRAIZER ASSOCIATES INC.
SIGNATURE
Date 10/03/18
PERMIT NUMBER: PP295
Association of Professional Engineers of Yukon

| NO. | DATE | REVISION | DES | DWN | CHK | APR |
|---|---|---|---|---|---|---|
| | | | | | | |
| | | | | | | |
| | | | | | | |
| 2 | AUG 10/18 | MCQUESTEN SUBSTATION & KM18 MODIFICATIONS | MP | MP | PC | NB |
| 1 | JUL 11/18 | BORROW PIT & ROAD PROXIMITY ALIGNMENT CHANGES | MP | MP | PC | MEO |
| 0 | MAY 11/18 | ISSUED FOR CONSTRUCTION | MP | MP | PC | MEO |

CLIENT StrataGold Corporation

| | |
|---|---|
| DATE | MAY 11/18 |
| DESIGN | MP |
| DRAWN | MP |
| CHECKED | PC |
| APPROVED | MEO |

Clean Energy CONSULTING INC
www.cleanenergyconsulting.ca
WN BRAZIER ASSOCIATES INC

SEAL: PROFESSIONAL ENGINEER YUKON W. NEIL BRAZIER TERRITORY

EAGLE GOLD PROJECT
L251 - 69 kV TRANSMISSION LINE
PLAN AND PROFILE (SHEET 34 OF 54)

| PROJECT No. | DRAWING No. | REV. |
|---|---|---|
| 1407 | 1407-T-1200-34 | 2 |

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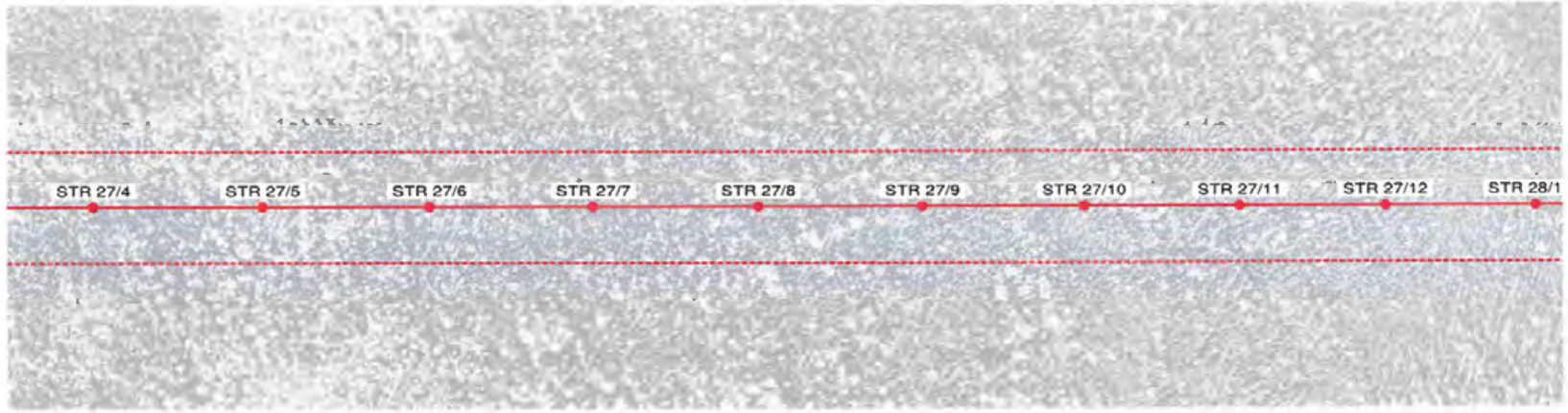


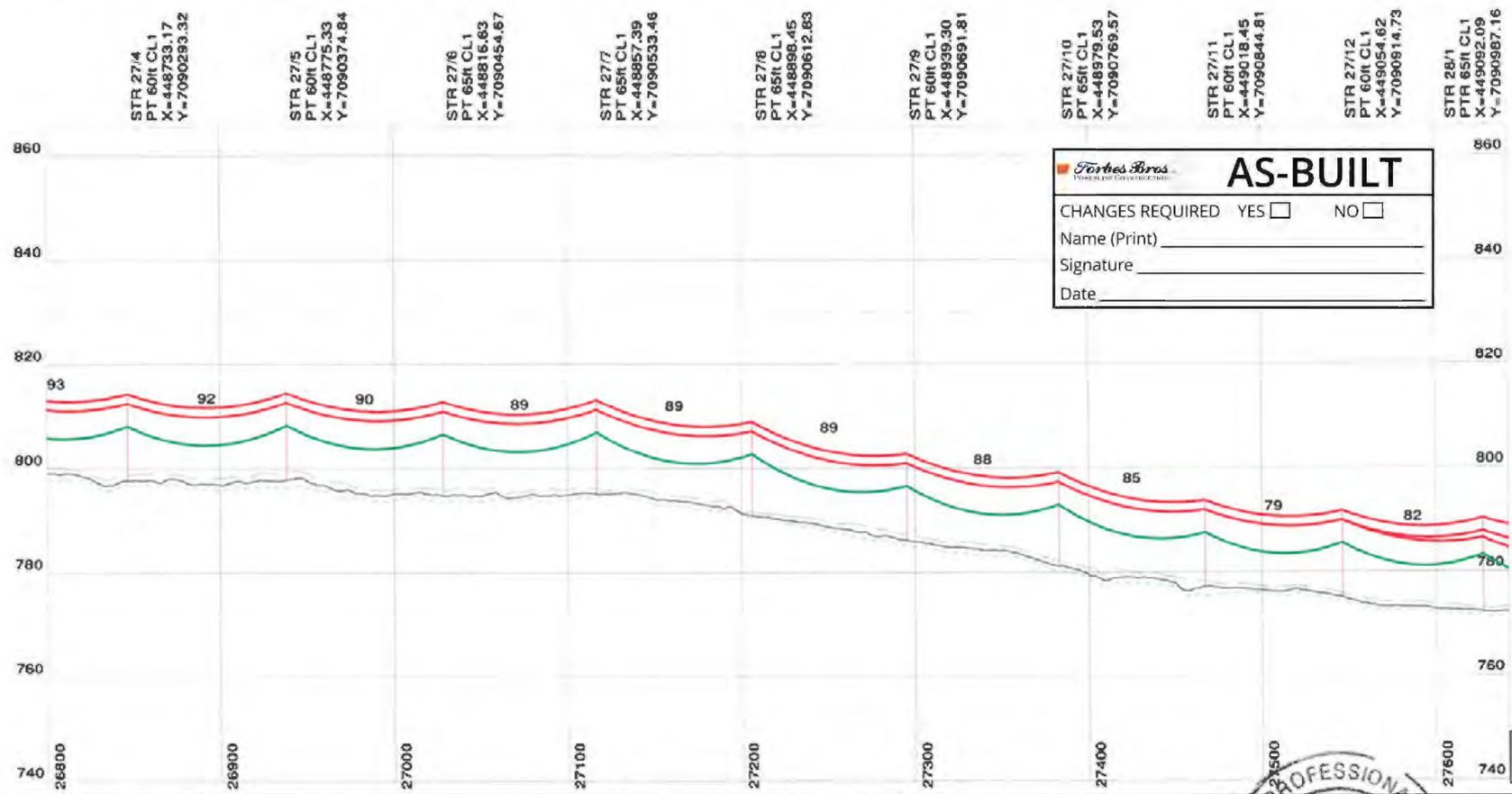


Forbes Bros

# AS-BUILT

CHANGES REQUIRED YES ☐ NO ☐

Name (Print) _____

Signature _____

Date _____

## NOTES

1. ALL DIMENSIONS IN METRES (m) UNLESS NOTED OTHERWISE.
2. COORDINATES ARE IN UTM NAD83 ZONE 8N.
3. ELEVATIONS ARE IN METRES (m) ABOVE MEAN SEA LEVEL (AMSL).
4. 69 kV CONDUCTOR, ADSS CABLE AND OVERHEAD SHIELD WIRE "OHSW" DISPLAYED AT "WET SNOW" (-10° C, 51mm RADIAL SNOW).
5. LINE ANGLE DEFLECTION LOOKING TOWARD EAGLE GOLD PROJECT SITE INDICATED AS FOLLOWS:
   + RIGHT ANGLE DEFLECTION
   - LEFT ANGLE DEFLECTION
6. THIS LINE WILL BE NUMBERED L251 IN THE YUKON ENERGY CORPORATION (YEC) SYSTEM.
7. LEFT (DASH) AND RIGHT (DOT) PROFILE OFFSETS SHOWN AT 5 m CENTERLINE OFFSET.
8. DESIGN TENSIONS SHOWN IN TABLE 1.

**TABLE 1**

| CABLE TYPE | MEAN ANNUAL TEMP (-4° C) | | WET SNOW (-10° C, 51mm RADIAL SNOW) | |
|---|---|---|---|---|
| | FULL TENSION SPANS (N) | TERMINAL SPANS (N) (SLACK) | FULL TENSION SPANS (N) | TERMINAL SPANS (N) (SLACK) |
| PARTRIDGE ACSR | 3,750 | 550 | 23,300 | 3,300 |
| ADSS | 7,500 | 150 | 13,900 | 3,300 |
| OHSW | 3,500 | 400 | 23,800 | 3,200 |

## LEGEND

- 69 kV - 266.8 kcmil 26/7 "PARTRIDGE" ACSR
- ADSS - OFC-24 G.652D-FASA-S1 (ZTT)
- OHSW - 266.8 kcmil 26/7 "PARTRIDGE" ACSR
- ROAD EDGE
- 2.5m ROAD BUFFER
- 30m CLEARING BOUNDARY
- YEC L250 69 KV LINE (EXISTING)
- 60m WIDE RIGHT OF WAY BOUNDARY
- X KM APPROXIMATE ROAD KM MARKER

## REFERENCES

| | |
|---|---|
| 1407-T-1000 | DRAWING LIST |
| 1407-T-1100 | ROUTE MAP |
| 1407-T-1400 | STRUCTURE DATA SHEET |
| 1407-T-1900 | SOUTH MCQUESTEN TRANSMISSION LINE CONNECTION - PLAN |
| 1407-T-3000 | STRUCTURE FAMILY |
| 1407-T-6000 | HWY 11 (SILVER TRAIL)-OVERHEAD LINE CROSSING-STR 0/4 TO STR 0/5 |

30.0 m Horiz. Scale
10.0 m Vert. Scale

ISSUED FOR CONSTRUCTION

PERMIT TO PRACTICE
W.N. BRAZIER ASSOCIATES INC.
SIGNATURE _____
Date 10/08/18
PERMIT NUMBER: PP295
Association of Professional Engineers of Yukon

| NO. | DATE | REVISION | DES | DWN | CHK | APR |
|---|---|---|---|---|---|---|
| | | | | | | |
| | | | | | | |
| | | | | | | |
| 2 | AUG 10/18 | MCQUESTEN SUBSTATION & KM18 MODIFICATIONS | MP | MP | PC | NB |
| 1 | JUL 11/18 | BORROW PIT & ROAD PROXIMITY ALIGNMENT CHANGES | MP | MP | PC | MEO |
| 0 | MAY 11/18 | ISSUED FOR CONSTRUCTION | MP | MP | PC | MEO |

CLIENT: StrataGold Corporation

| | |
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| DATE | MAY 11/18 |
| DESIGN | MP |
| DRAWN | MP |
| CHECKED | PC |
| APPROVED | MEO |

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WN BRAZIER ASSOCIATES INC

SEAL: PROFESSIONAL ENGINEER YUKON TERRITORY W. NEIL BRAZIER

# EAGLE GOLD PROJECT
## L251 - 69 kV TRANSMISSION LINE
## PLAN AND PROFILE (SHEET 35 OF 54)

| PROJECT No. | DRAWING No. | REV. |
|---|---|---|
| 1407 | 1407-T-1200-35 | 2 |

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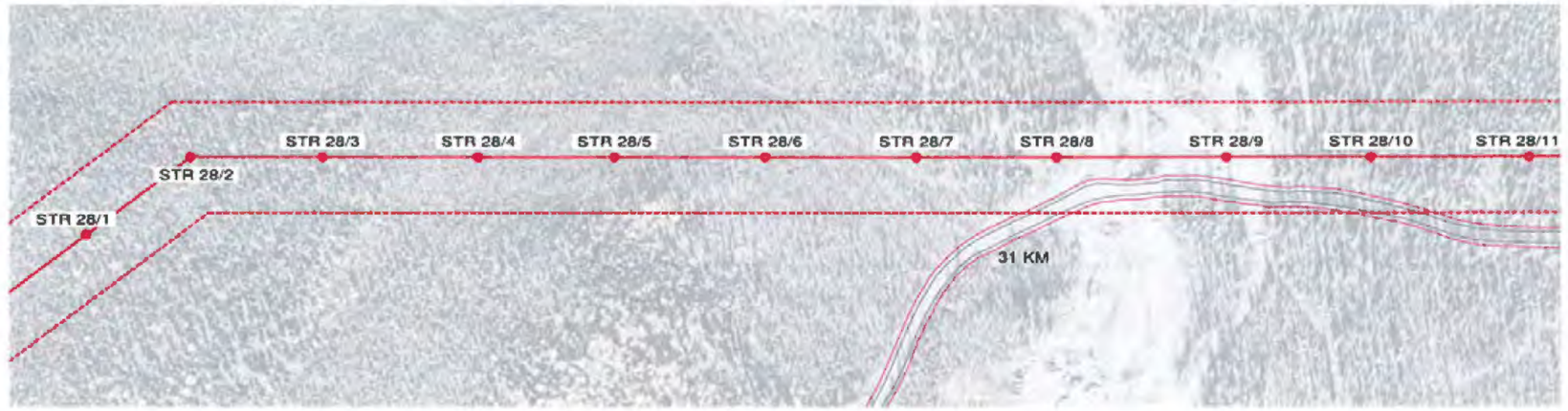


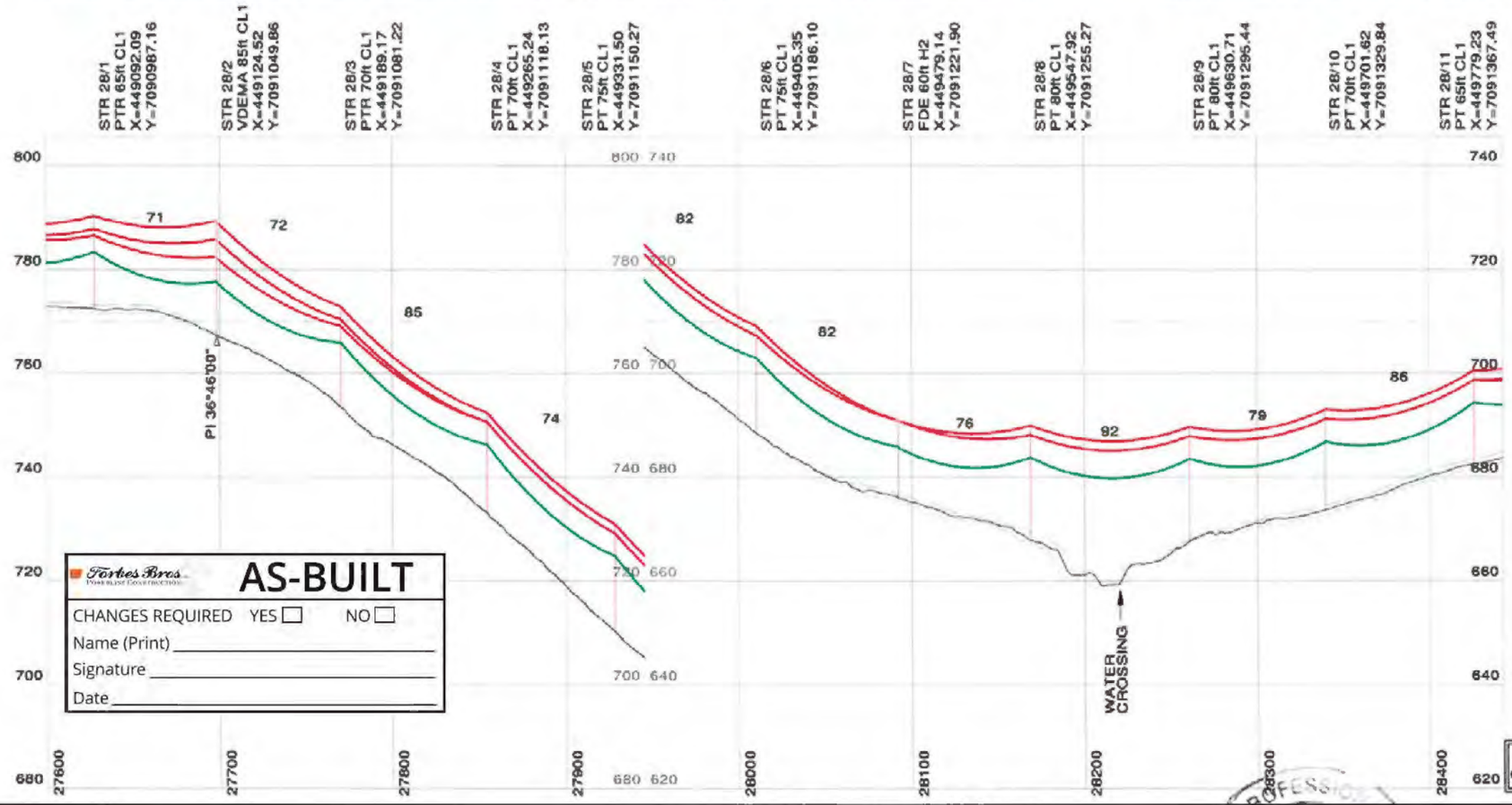


Forbes Bros Pipeline Construction

**AS-BUILT**

CHANGES REQUIRED YES ☐ NO ☐

Name (Print) _____

Signature _____

Date _____

NOTES

1. ALL DIMENSIONS IN METRES (m) UNLESS NOTED OTHERWISE.
2. COORDINATES ARE IN UTM NAD83 ZONE 8N.
3. ELEVATIONS ARE IN METRES (m) ABOVE MEAN SEA LEVEL (AMSL).
4. 69 kV CONDUCTOR, ADSS CABLE AND OVERHEAD SHIELD WIRE "OHSW" DISPLAYED AT "WET SNOW" (-10° C, 51mm RADIAL SNOW).
5. LINE ANGLE DEFLECTION LOOKING TOWARD EAGLE GOLD PROJECT SITE INDICATED AS FOLLOWS:
   + RIGHT ANGLE DEFLECTION
   - LEFT ANGLE DEFLECTION
6. THIS LINE WILL BE NUMBERED L251 IN THE YUKON ENERGY CORPORATION (YEC) SYSTEM.
7. LEFT (DASH) AND RIGHT (DOT) PROFILE OFFSETS SHOWN AT 5 m CENTERLINE OFFSET.
8. DESIGN TENSIONS SHOWN IN TABLE 1.

| TABLE 1 | MEAN ANNUAL TEMP (-4° C) | | WET SNOW (-10° C, 51mm RADIAL SNOW) | |
|---|---|---|---|---|
| CABLE TYPE | FULL TENSION SPANS (N) | TERMINAL SPANS (N) (SLACK) | FULL TENSION SPANS (N) | TERMINAL SPANS (N) (SLACK) |
| PARTRIDGE ACSR | 3,750 | 550 | 23,300 | 3,300 |
| ADSS | 7,500 | 150 | 13,900 | 3,300 |
| OHSW | 3,500 | 400 | 23,600 | 3,200 |

LEGEND

- 69 kV - 266.8 kcmil 26/7 "PARTRIDGE" ACSR
- ADSS - OFC-24 G.652D-FASA-S1 (ZTT)
- OHSW - 266.8 kcmil 26/7 "PARTRIDGE" ACSR
- ROAD EDGE
- 2.5m ROAD BUFFER
- 30m CLEARING BOUNDARY
- YEC L250 69 KV LINE (EXISTING)
- 60m WIDE RIGHT OF WAY BOUNDARY
- X KM APPROXIMATE ROAD KM MARKER

REFERENCES

| | |
|---|---|
| 1407-T-1000 | DRAWING LIST |
| 1407-T-1100 | ROUTE MAP |
| 1407-T-1400 | STRUCTURE DATA SHEET |
| 1407-T-1900 | SOUTH MCQUESTEN TRANSMISSION LINE CONNECTION - PLAN |
| 1407-T-3000 | STRUCTURE FAMILY |
| 1407-T-6000 | HWY 11 (SILVER TRAIL)-OVERHEAD LINE CROSSING-STR 0/4 TO STR 0/5 |

30.0 m Horiz. Scale
10.0 m Vert. Scale

ISSUED FOR CONSTRUCTION

PERMIT TO PRACTICE
W.N. BRAIZER ASSOCIATES INC.
SIGNATURE _____
Date 10/29/18
PERMIT NUMBER: PP295
Association of Professional Engineers of Yukon

| NO. | DATE | REVISION | DES | DWN | CHK | APR |
|---|---|---|---|---|---|---|
| 2 | AUG 10/18 | MCQUESTEN SUBSTATION & KM18 MODIFICATIONS | MP | MP | PC | NB |
| 1 | JUL 11/18 | BORROW PIT & ROAD PROXIMITY ALIGNMENT CHANGES | MP | MP | PC | MEO |
| 0 | MAY 11/18 | ISSUED FOR CONSTRUCTION | MP | MP | PC | MEO |

CLIENT StrataGold Corporation

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|---|---|
| DATE | MAY 11/18 |
| DESIGN | MP |
| DRAWN | MP |
| CHECKED | PC |
| APPROVED | MEO |

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WN BRAIZER ASSOCIATES INC

SEAL: YUKON W. NEIL BRAIZER TERRITORY ENGINEER

EAGLE GOLD PROJECT
L251 - 69 kV TRANSMISSION LINE
PLAN AND PROFILE (SHEET 36 OF 54)

| PROJECT No. | DRAWING No. | REV. |
|---|---|---|
| 1407 | 1407-T-1200-36 | 2 |

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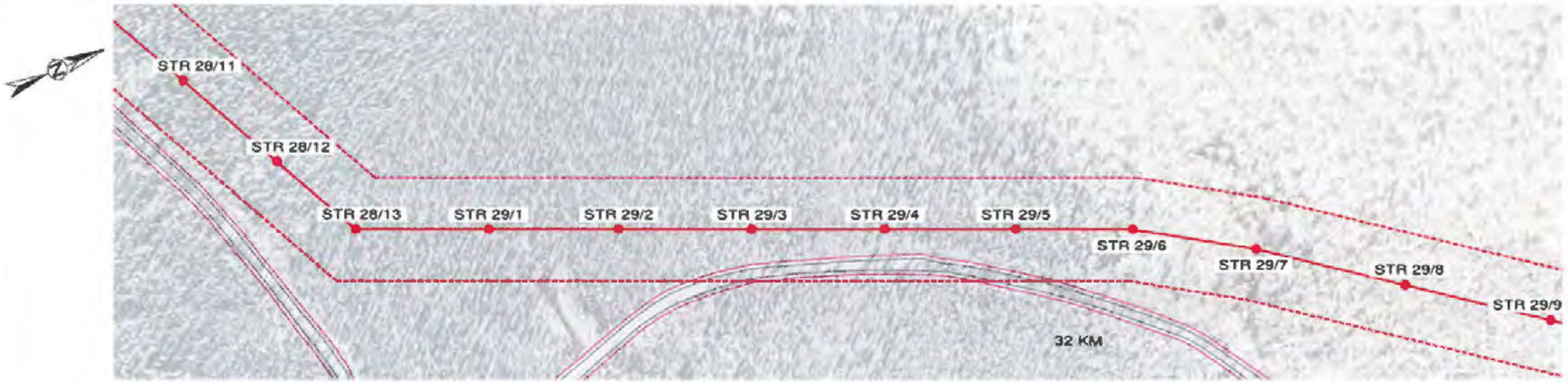


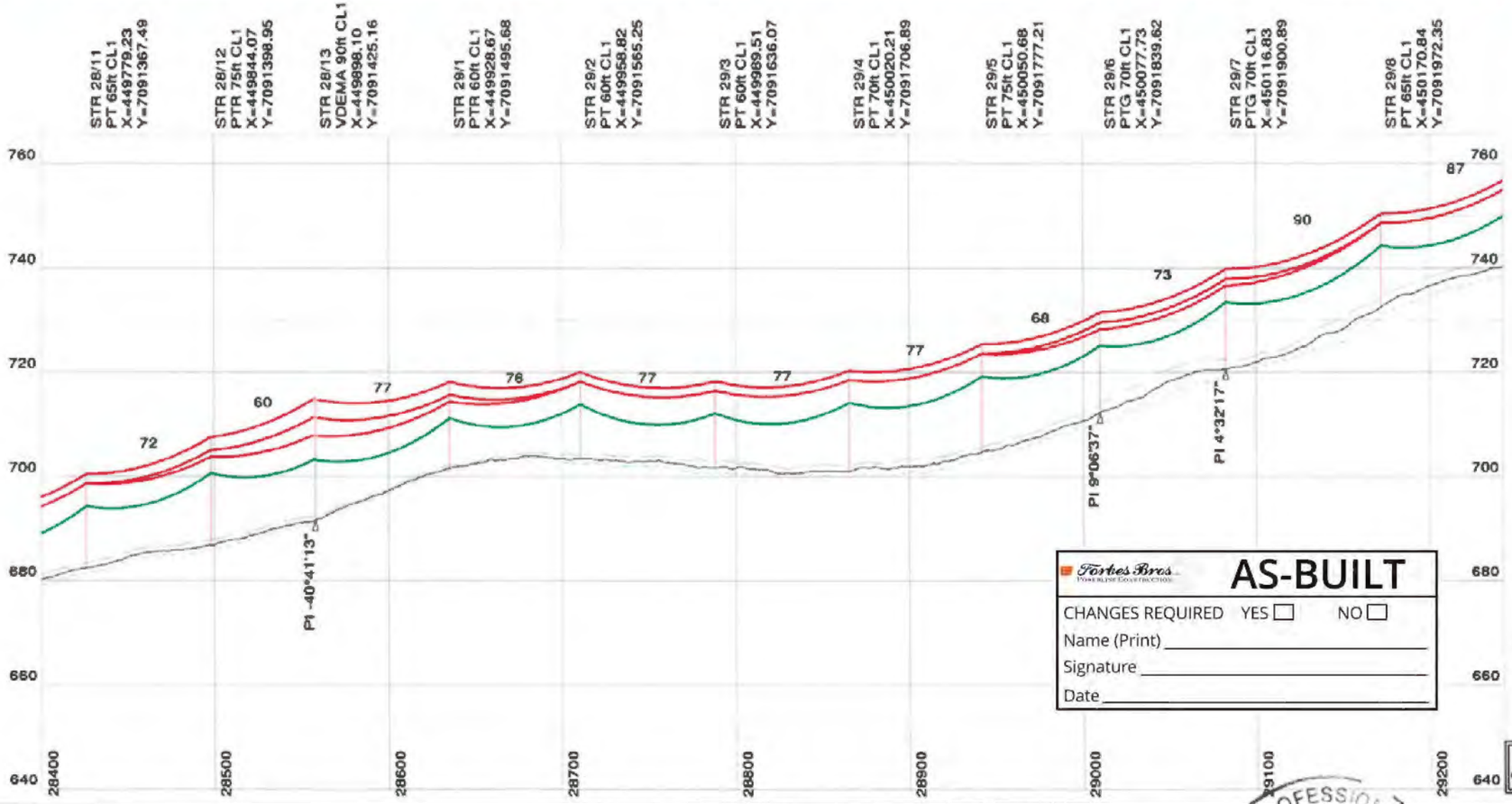


NOTES

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2. COORDINATES ARE IN UTM NAD83 ZONE 8N.
3. ELEVATIONS ARE IN METRES (m) ABOVE MEAN SEA LEVEL (AMSL).
4. 69 kV CONDUCTOR, ADSS CABLE AND OVERHEAD SHIELD WIRE "OHSW" DISPLAYED AT "WET SNOW" (-10° C, 51mm RADIAL SNOW).
5. LINE ANGLE DEFLECTION LOOKING TOWARD EAGLE GOLD PROJECT SITE INDICATED AS FOLLOWS:
   + RIGHT ANGLE DEFLECTION
   - LEFT ANGLE DEFLECTION
6. THIS LINE WILL BE NUMBERED L251 IN THE YUKON ENERGY CORPORATION (YEC) SYSTEM.
7. LEFT (DASH) AND RIGHT (DOT) PROFILE OFFSETS SHOWN AT 5 m CENTERLINE OFFSET.
8. DESIGN TENSIONS SHOWN IN TABLE 1.

| TABLE 1 | MEAN ANNUAL TEMP (-4° C) | | WET SNOW (-10° C, 51mm RADIAL SNOW) | |
|---|---|---|---|---|
| CABLE TYPE | FULL TENSION SPANS (N) | TERMINAL SPANS (N) (SLACK) | FULL TENSION SPANS (N) | TERMINAL SPANS (N) (SLACK) |
| PARTRIDGE ACSR | 3,750 | 550 | 23,300 | 3,300 |
| ADSS | 7,500 | 150 | 13,900 | 3,300 |
| OHSW | 3,500 | 400 | 23,600 | 3,200 |

LEGEND

- 69 kV - 266.8 kcmil 26/7 "PARTRIDGE" ACSR
- ADSS - OFC-24 G.652D-FASA-S1 (ZTT)
- OHSW - 266.8 kcmil 26/7 "PARTRIDGE" ACSR
- ROAD EDGE
- 2.5m ROAD BUFFER
- 30m CLEARING BOUNDARY
- YEC L250 69 KV LINE (EXISTING)
- 60m WIDE RIGHT OF WAY BOUNDARY
- X KM APPROXIMATE ROAD KM MARKER

REFERENCES

| | |
|---|---|
| 1407-T-1000 | DRAWING LIST |
| 1407-T-1100 | ROUTE MAP |
| 1407-T-1400 | STRUCTURE DATA SHEET |
| 1407-T-1900 | SOUTH MCQUESTEN TRANSMISSION LINE CONNECTION - PLAN |
| 1407-T-3000 | STRUCTURE FAMILY |
| 1407-T-6000 | HWY 11 (SILVER TRAIL)-OVERHEAD LINE CROSSING-STR 0/4 TO STR 0/5 |

Forbes Bros. AS-BUILT

CHANGES REQUIRED YES ☐ NO ☐

Name (Print) _____

Signature _____

Date _____

30.0 m Horiz. Scale
10.0 m Vert. Scale

ISSUED FOR CONSTRUCTION

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W.N. BRAIZER ASSOCIATES INC.
SIGNATURE _____
Date 10/08/18
PERMIT NUMBER: PP295
Association of Professional Engineers of Yukon

| NO. | DATE | REVISION | DES | DWN | CHK | APR |
|---|---|---|---|---|---|---|
| 2 | AUG 10/18 | MCQUESTEN SUBSTATION & KM18 MODIFICATIONS | MP | MP | PC | NB |
| 1 | JUL 11/18 | BORROW PIT & ROAD PROXIMITY ALIGNMENT CHANGES | MP | MP | PC | MEO |
| 0 | MAY 11/18 | ISSUED FOR CONSTRUCTION | MP | MP | PC | MEO |

CLIENT StrataGold Corporation

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|---|---|
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| DESIGN | MP |
| DRAWN | MP |
| CHECKED | PC |
| APPROVED | MEO |

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WN BRAZIER ASSOCIATES INC

SEAL: PROFESSIONAL ENGINEER YUKON W. NEIL BRAZIER TERRITORY

EAGLE GOLD PROJECT
L251 - 69 kV TRANSMISSION LINE
PLAN AND PROFILE (SHEET 37 OF 54)

| PROJECT No. | DRAWING No. | REV. |
|---|---|---|
| 1407 | 1407-T-1200-37 | 2 |

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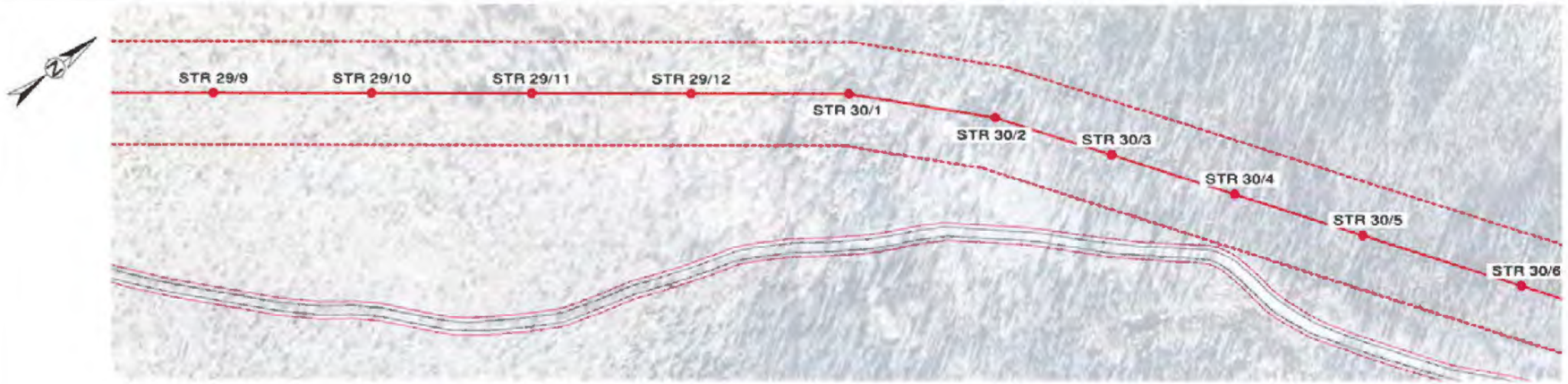


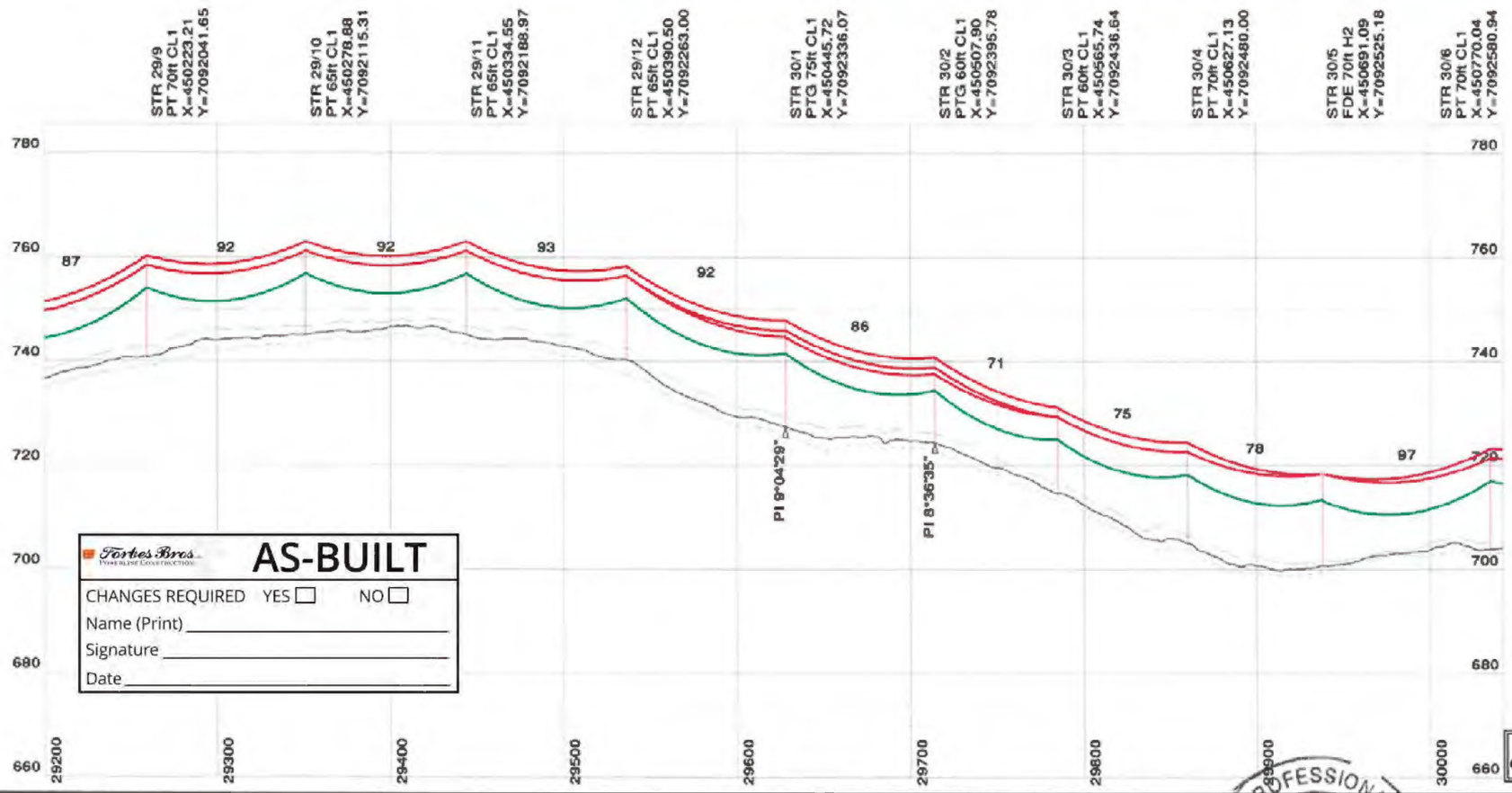


Forbes Bros. Powerline Construction

**AS-BUILT**

CHANGES REQUIRED YES ☐ NO ☐

Name (Print) _____

Signature _____

Date _____

## NOTES

1. ALL DIMENSIONS IN METRES (m) UNLESS NOTED OTHERWISE.
2. COORDINATES ARE IN UTM NAD83 ZONE 8N.
3. ELEVATIONS ARE IN METRES (m) ABOVE MEAN SEA LEVEL (AMSL).
4. 69 kV CONDUCTOR, ADSS CABLE AND OVERHEAD SHIELD WIRE "OHSW" DISPLAYED AT "WET SNOW" (-10° C, 51mm RADIAL SNOW).
5. LINE ANGLE DEFLECTION LOOKING TOWARD EAGLE GOLD PROJECT SITE INDICATED AS FOLLOWS:
   + RIGHT ANGLE DEFLECTION
   - LEFT ANGLE DEFLECTION
6. THIS LINE WILL BE NUMBERED L251 IN THE YUKON ENERGY CORPORATION (YEC) SYSTEM.
7. LEFT (DASH) AND RIGHT (DOT) PROFILE OFFSETS SHOWN AT 5 m CENTERLINE OFFSET.
8. DESIGN TENSIONS SHOWN IN TABLE 1.

| TABLE 1 | MEAN ANNUAL TEMP (-4° C) | | WET SNOW (-10° C, 51mm RADIAL SNOW) | |
|---|---|---|---|---|
| CABLE TYPE | FULL TENSION SPANS (N) | TERMINAL SPANS (N) (SLACK) | FULL TENSION SPANS (N) | TERMINAL SPANS (N) (SLACK) |
| PARTRIDGE ACSR | 3,750 | 550 | 23,300 | 3,300 |
| ADSS | 7,500 | 150 | 13,900 | 3,300 |
| OHSW | 3,500 | 400 | 23,600 | 3,200 |

## LEGEND

- 69 kV - 266.8 kcmil 26/7 "PARTRIDGE" ACSR
- ADSS - OFC-24 G.652D-FASA-S1 (ZTT)
- OHSW - 266.8 kcmil 26/7 "PARTRIDGE" ACSR
- ROAD EDGE
- 2.5m ROAD BUFFER
- 30m CLEARING BOUNDARY
- YEC L250 69 KV LINE (EXISTING)
- 60m WIDE RIGHT OF WAY BOUNDARY
- X KM APPROXIMATE ROAD KM MARKER

## REFERENCES

| | |
|---|---|
| 1407-T-1000 | DRAWING LIST |
| 1407-T-1100 | ROUTE MAP |
| 1407-T-1400 | STRUCTURE DATA SHEET |
| 1407-T-1900 | SOUTH MCQUESTEN TRANSMISSION LINE CONNECTION - PLAN |
| 1407-T-3000 | STRUCTURE FAMILY |
| 1407-T-6000 | HWY 11 (SILVER TRAIL)-OVERHEAD LINE CROSSING-STR 0/4 TO STR 0/5 |

30.0 m Horiz. Scale
10.0 m Vert. Scale

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Date 10/08/18
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Association of Professional Engineers of Yukon

| NO. | DATE | REVISION | DES | DWN | CHK | APR |
|---|---|---|---|---|---|---|
| 2 | AUG 10/18 | MCQUESTEN SUBSTATION & KM18 MODIFICATIONS | MP | MP | PC | NB |
| 1 | JUL 11/18 | BORROW PIT & ROAD PROXIMITY ALIGNMENT CHANGES | MP | MP | PC | MEO |
| 0 | MAY 11/18 | ISSUED FOR CONSTRUCTION | MP | MP | PC | MEO |

CLIENT: StrataGold Corporation

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| DESIGN | MP |
| DRAWN | MP |
| CHECKED | PC |
| APPROVED | MEO |

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WN BRAZIER ASSOCIATES INC

SEAL: PROFESSIONAL ENGINEER — YUKON — W. NEIL BRAZIER — TERRITORY

# EAGLE GOLD PROJECT
## L251 - 69 kV TRANSMISSION LINE
## PLAN AND PROFILE (SHEET 38 OF 54)

| PROJECT No. | DRAWING No. | REV. |
|---|---|---|
| 1407 | 1407-T-1200-38 | 2 |

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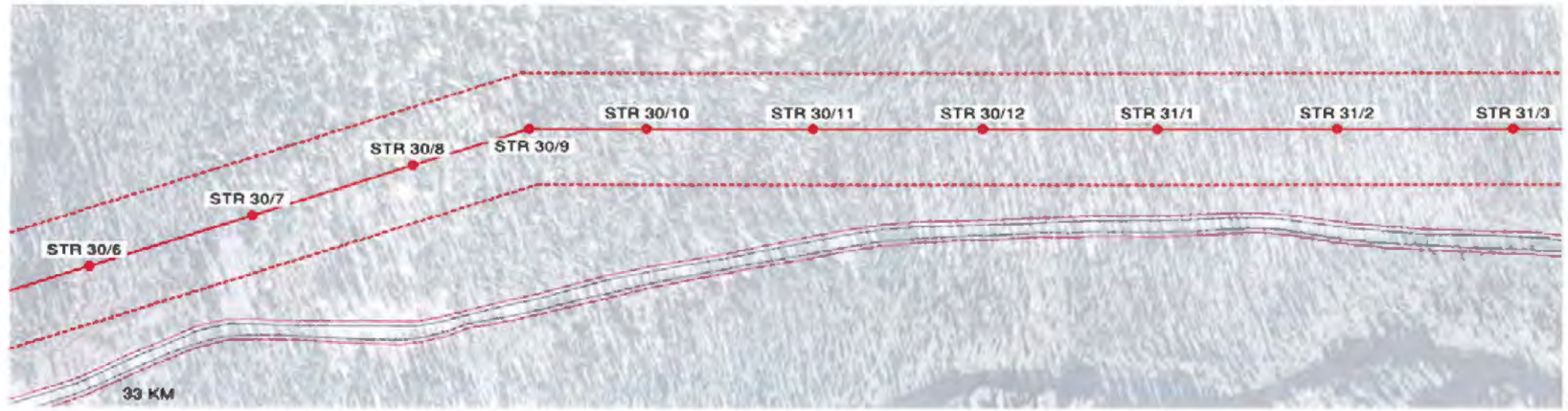


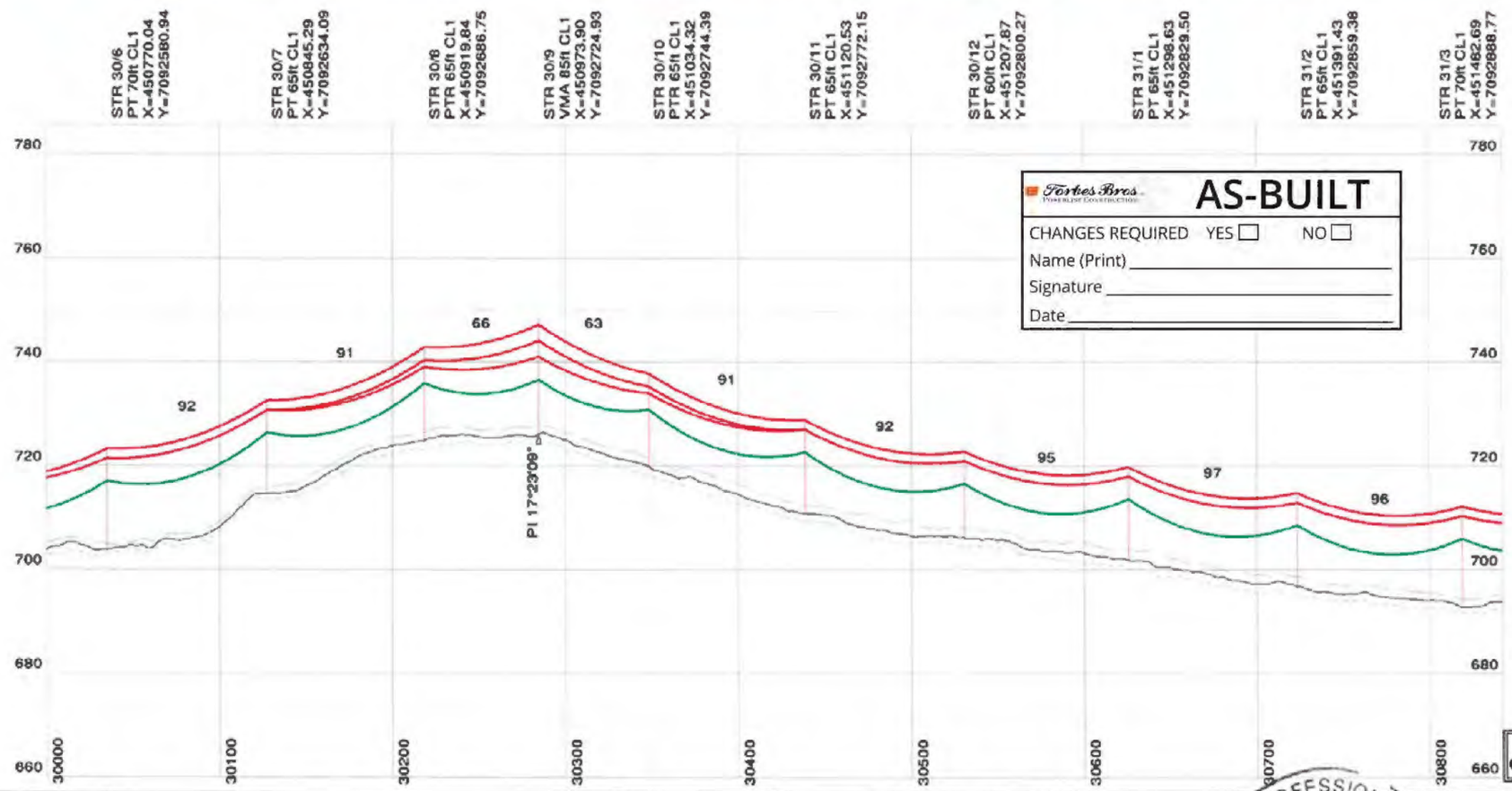


Forbes Bros. POWERLINE CONSTRUCTION

**AS-BUILT**

CHANGES REQUIRED YES ☐ NO ☐

Name (Print) _____

Signature _____

Date _____

NOTES

1. ALL DIMENSIONS IN METRES (m) UNLESS NOTED OTHERWISE.
2. COORDINATES ARE IN UTM NAD83 ZONE 8N.
3. ELEVATIONS ARE IN METRES (m) ABOVE MEAN SEA LEVEL (AMSL).
4. 69 kV CONDUCTOR, ADSS CABLE AND OVERHEAD SHIELD WIRE "OHSW" DISPLAYED AT "WET SNOW" (-10° C, 51mm RADIAL SNOW).
5. LINE ANGLE DEFLECTION LOOKING TOWARD EAGLE GOLD PROJECT SITE INDICATED AS FOLLOWS:
   + RIGHT ANGLE DEFLECTION
   - LEFT ANGLE DEFLECTION
6. THIS LINE WILL BE NUMBERED L251 IN THE YUKON ENERGY CORPORATION (YEC) SYSTEM.
7. LEFT (DASH) AND RIGHT (DOT) PROFILE OFFSETS SHOWN AT 5 m CENTERLINE OFFSET.
8. DESIGN TENSIONS SHOWN IN TABLE 1.

| TABLE 1 | MEAN ANNUAL TEMP (-4° C) | | WET SNOW (-10° C, 51mm RADIAL SNOW) | |
|---|---|---|---|---|
| CABLE TYPE | FULL TENSION SPANS (N) | TERMINAL SPANS (N) (SLACK) | FULL TENSION SPANS (N) | TERMINAL SPANS (N) (SLACK) |
| PARTRIDGE ACSR | 3,750 | 550 | 23,300 | 3,300 |
| ADSS | 7,800 | 180 | 13,900 | 3,300 |
| OHSW | 3,500 | 400 | 23,600 | 3,200 |

LEGEND

- 69 kV - 266.8 kcmil 26/7 "PARTRIDGE" ACSR
- ADSS - OFC-24 G.652D-FASA-S1 (ZTT)
- OHSW - 266.8 kcmil 26/7 "PARTRIDGE" ACSR
- ROAD EDGE
- 2.5m ROAD BUFFER
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- YEC L250 69 KV LINE (EXISTING)
- 60m WIDE RIGHT OF WAY BOUNDARY
- X KM APPROXIMATE ROAD KM MARKER

REFERENCES

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| 1407-T-1900 | SOUTH MCQUESTEN TRANSMISSION LINE CONNECTION - PLAN |
| 1407-T-3000 | STRUCTURE FAMILY |
| 1407-T-6000 | HWY 11 (SILVER TRAIL)-OVERHEAD LINE CROSSING-STR 0/4 TO STR 0/5 |

30.0 m Horiz. Scale
10.0 m Vert. Scale

ISSUED FOR CONSTRUCTION

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Date 10/03/18
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Association of Professional Engineers of Yukon

| NO. | DATE | REVISION | DES | DWN | CHK | APR |
|---|---|---|---|---|---|---|
| 2 | AUG 10/18 | MCQUESTEN SUBSTATION & KM18 MODIFICATIONS | MP | MP | PC | NB |
| 1 | JUL 11/18 | BORROW PIT & ROAD PROXIMITY ALIGNMENT CHANGES | MP | MP | PC | MEO |
| 0 | MAY 11/18 | ISSUED FOR CONSTRUCTION | MP | MP | PC | MEO |

CLIENT: StrataGold Corporation

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| DESIGN | MP |
| DRAWN | MP |
| CHECKED | PC |
| APPROVED | MEO |

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WN BRAZIER ASSOCIATES INC

SEAL: PROFESSIONAL ENGINEER YUKON W. NEIL BRAZIER TERRITORY

EAGLE GOLD PROJECT
L251 - 69 kV TRANSMISSION LINE
PLAN AND PROFILE (SHEET 39 OF 54)

| PROJECT No. | DRAWING No. | REV. |
|---|---|---|
| 1407 | 1407-T-1200-39 | 2 |

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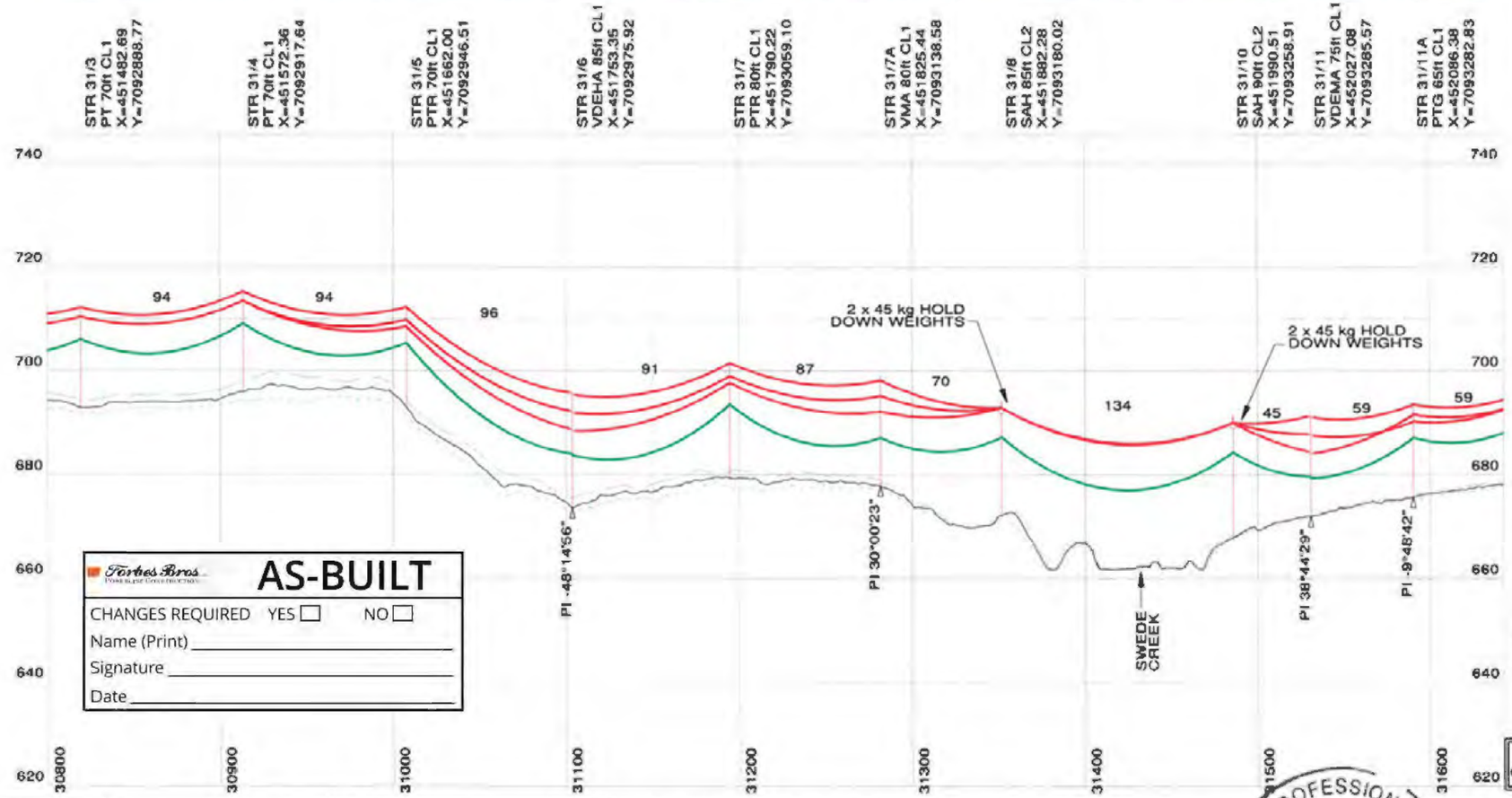


Forbes Bros. AS-BUILT

CHANGES REQUIRED YES ☐ NO ☐

Name (Print) _____

Signature _____

Date _____

## NOTES

1. ALL DIMENSIONS IN METRES (m) UNLESS NOTED OTHERWISE.
2. COORDINATES ARE IN UTM NAD83 ZONE 8N.
3. ELEVATIONS ARE IN METRES (m) ABOVE MEAN SEA LEVEL (AMSL).
4. 69 kV CONDUCTOR, ADSS CABLE AND OVERHEAD SHIELD WIRE "OHSW" DISPLAYED AT "WET SNOW" (-10° C, 51mm RADIAL SNOW).
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   + RIGHT ANGLE DEFLECTION
   - LEFT ANGLE DEFLECTION
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7. LEFT (DASH) AND RIGHT (DOT) PROFILE OFFSETS SHOWN AT 5 m CENTERLINE OFFSET.
8. DESIGN TENSIONS SHOWN IN TABLE 1.

TABLE 1

| CABLE TYPE | MEAN ANNUAL TEMP (-4° C) FULL TENSION SPANS (N) | MEAN ANNUAL TEMP (-4° C) TERMINAL SPANS (N) (SLACK) | WET SNOW (-10° C, 51mm RADIAL SNOW) FULL TENSION SPANS (N) | WET SNOW (-10° C, 51mm RADIAL SNOW) TERMINAL SPANS (N) (SLACK) |
|---|---|---|---|---|
| PARTRIDGE ACSR | 3,750 | 550 | 23,300 | 3,300 |
| ADSS | 7,500 | 150 | 13,900 | 3,300 |
| OHSW | 3,500 | 400 | 23,600 | 3,200 |

## LEGEND

- 69 kV - 266.8 kcmil 26/7 "PARTRIDGE" ACSR
- ADSS - OFC-24 G.652D-FASA-51 (ZTT)
- OHSW - 266.8 kcmil 26/7 "PARTRIDGE" ACSR
- ROAD EDGE
- 2.5m ROAD BUFFER
- 30m CLEARING BOUNDARY
- YEC L250 69 KV LINE (EXISTING)
- 60m WIDE RIGHT OF WAY BOUNDARY
- X KM APPROXIMATE ROAD KM MARKER

## REFERENCES

| | |
|---|---|
| 1407-T-1000 | DRAWING LIST |
| 1407-T-1100 | ROUTE MAP |
| 1407-T-1400 | STRUCTURE DATA SHEET |
| 1407-T-1900 | SOUTH MCQUESTEN TRANSMISSION LINE CONNECTION - PLAN |
| 1407-T-3000 | STRUCTURE FAMILY |
| 1407-T-6000 | HWY 11 (SILVER TRAIL)-OVERHEAD LINE CROSSING-STR 0/4 TO STR 0/5 |

30.0 m Horiz. Scale
10.0 m Vert. Scale

ISSUED FOR CONSTRUCTION

PERMIT TO PRACTICE
W.N. BRAIZER ASSOCIATES INC.
SIGNATURE _____
Date 10/03/18
PERMIT NUMBER: PP295
Association of Professional Engineers of Yukon

| NO. | DATE | REVISION | DES | DWN | CHK | APR |
|---|---|---|---|---|---|---|
| 2 | AUG 10/18 | MCQUESTEN SUBSTATION & KM18 MODIFICATIONS | MP | MP | PC | NB |
| 1 | JUL 11/18 | BORROW PIT & ROAD PROXIMITY ALIGNMENT CHANGES | MP | MP | PC | MEO |
| 0 | MAY 11/18 | ISSUED FOR CONSTRUCTION | MP | MP | PC | MEO |

CLIENT: StrataGold Corporation

| | |
|---|---|
| DATE | MAY 11/18 |
| DESIGN | MP |
| DRAWN | MP |
| CHECKED | PC |
| APPROVED | MEO |

Clean Energy CONSULTING INC. www.cleanenergyconsulting.ca

WN BRAZIER ASSOCIATES INC

SEAL: PROFESSIONAL ENGINEER YUKON TERRITORY W. NEIL BRAZIER

# EAGLE GOLD PROJECT
## L251 - 69 kV TRANSMISSION LINE
## PLAN AND PROFILE (SHEET 40 OF 54)

| PROJECT No. | DRAWING No. | REV. |
|---|---|---|
| 1407 | 1407-T-1200-40 | 2 |

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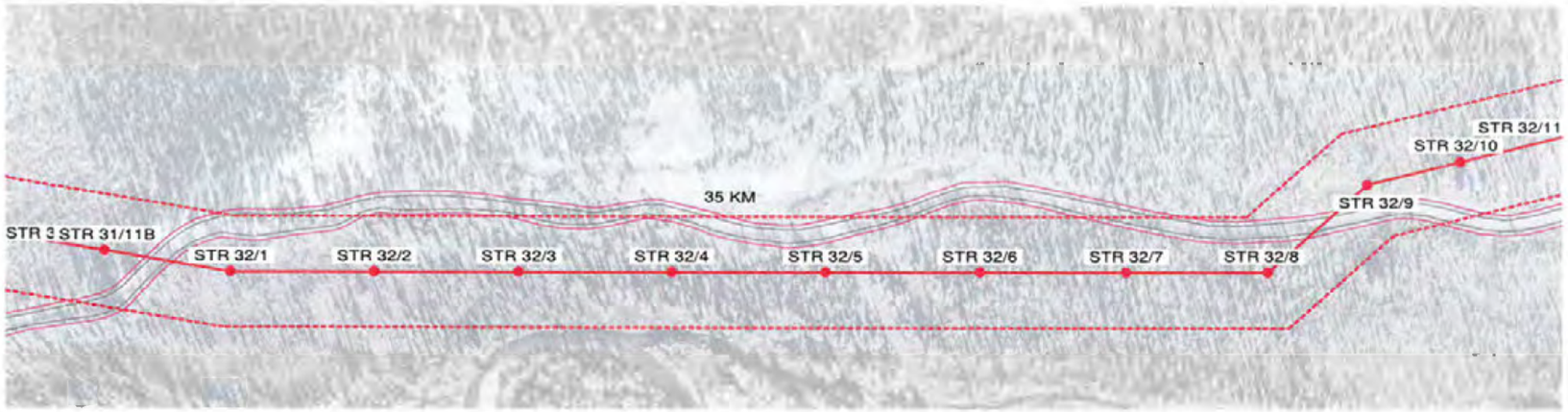


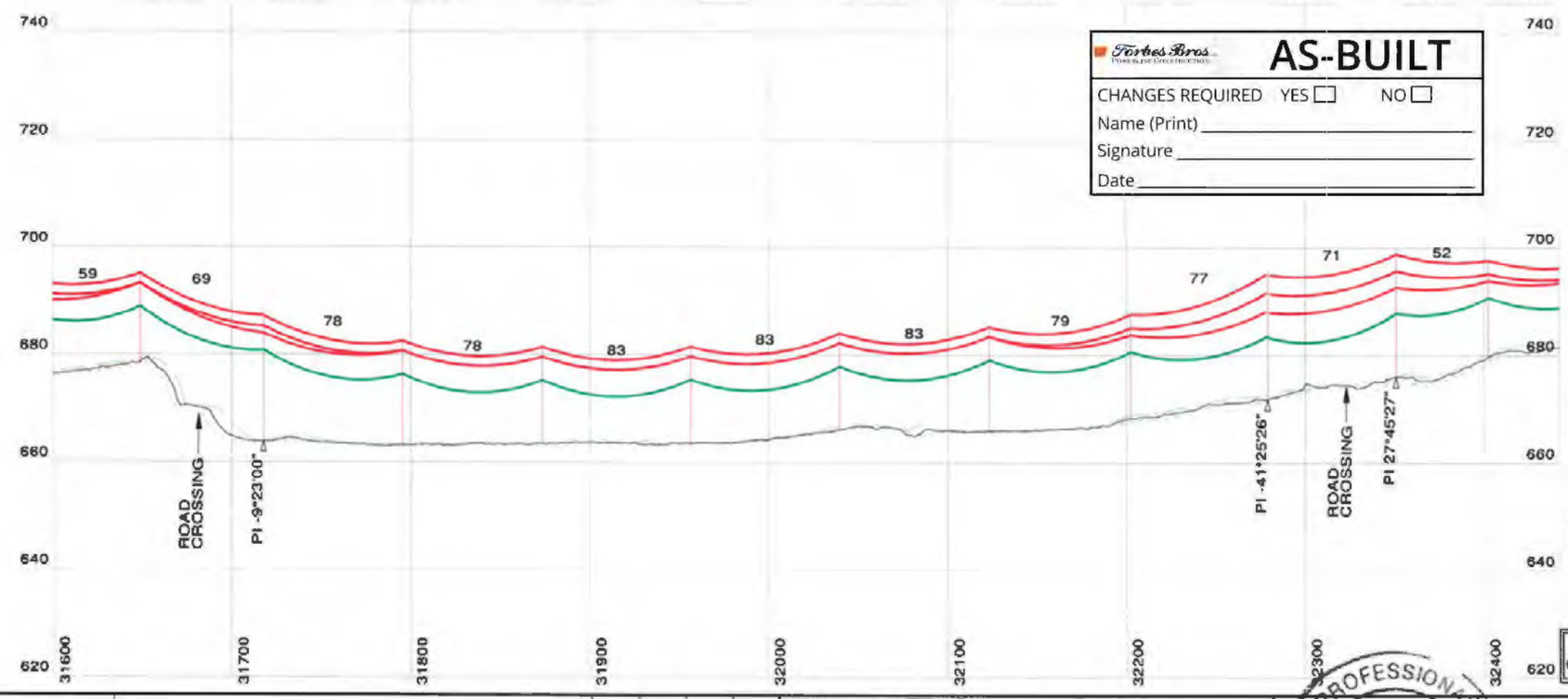


Forbes Bros. Transmission Line Contractors

**AS-BUILT**

CHANGES REQUIRED YES ☐ NO ☐

Name (Print) _____

Signature _____

Date _____

## NOTES

1. ALL DIMENSIONS IN METRES (m) UNLESS NOTED OTHERWISE.
2. COORDINATES ARE IN UTM NAD83 ZONE 8N.
3. ELEVATIONS ARE IN METRES (m) ABOVE MEAN SEA LEVEL (AMSL).
4. 69 kV CONDUCTOR, ADSS CABLE AND OVERHEAD SHIELD WIRE "OHSW" DISPLAYED AT "WET SNOW" (-10° C, 51mm RADIAL SNOW).
5. LINE ANGLE DEFLECTION LOOKING TOWARD EAGLE GOLD PROJECT SITE INDICATED AS FOLLOWS:
   + RIGHT ANGLE DEFLECTION
   - LEFT ANGLE DEFLECTION
6. THIS LINE WILL BE NUMBERED L251 IN THE YUKON ENERGY CORPORATION (YEC) SYSTEM.
7. LEFT (DASH) AND RIGHT (DOT) PROFILE OFFSETS SHOWN AT 5 m CENTERLINE OFFSET.
8. DESIGN TENSIONS SHOWN IN TABLE 1.

TABLE 1

| CABLE TYPE | MEAN ANNUAL TEMP (-4° C) | | WET SNOW (-10° C, 51mm RADIAL SNOW) | |
|---|---|---|---|---|
| | FULL TENSION SPANS (N) | TERMINAL SPANS (N) (SLACK) | FULL TENSION SPANS (N) | TERMINAL SPANS (N) (SLACK) |
| PARTRIDGE ACSR | 3,750 | 550 | 23,300 | 3,300 |
| ADSS | 7,500 | 150 | 13,900 | 3,300 |
| OHSW | 3,500 | 400 | 23,600 | 3,200 |

## LEGEND

- 69 kV - 266.8 kcmil 26/7 "PARTRIDGE" ACSR
- ADSS - OFC-24 G.652D-FASA-S1 (ZTT)
- OHSW - 266.8 kcmil 26/7 "PARTRIDGE" ACSR
- ROAD EDGE
- 2.5m ROAD BUFFER
- 30m CLEARING BOUNDARY
- YEC L250 69 KV LINE (EXISTING)
- 60m WIDE RIGHT OF WAY BOUNDARY
- X KM APPROXIMATE ROAD KM MARKER

## REFERENCES

| | |
|---|---|
| 1407-T-1000 | DRAWING LIST |
| 1407-T-1100 | ROUTE MAP |
| 1407-T-1400 | STRUCTURE DATA SHEET |
| 1407-T-1900 | SOUTH MCQUESTEN TRANSMISSION LINE CONNECTION - PLAN |
| 1407-T-3000 | STRUCTURE FAMILY |
| 1407-T-6000 | HWY 11 (SILVER TRAIL)-OVERHEAD LINE CROSSING-STR 0/4 TO STR 0/5 |

30.0 m Horiz. Scale
10.0 m Vert. Scale

ISSUED FOR CONSTRUCTION

PERMIT TO PRACTICE
W.N. BRAIZER ASSOCIATES INC.
SIGNATURE _____
Date 10/09/18
PERMIT NUMBER: PP295
Association of Professional Engineers of Yukon

| NO. | DATE | REVISION | DES | DWN | CHK | APR |
|---|---|---|---|---|---|---|
| 2 | AUG 10/18 | MCQUESTEN SUBSTATION & KM18 MODIFICATIONS | MP | MP | PC | NB |
| 1 | JUL 11/18 | BORROW PIT & ROAD PROXIMITY ALIGNMENT CHANGES | MP | MP | PC | MEO |
| 0 | MAY 11/18 | ISSUED FOR CONSTRUCTION | MP | MP | PC | MEO |

CLIENT: StrataGold Corporation

| | |
|---|---|
| DATE | MAY 11/18 |
| DESIGN | MP |
| DRAWN | MP |
| CHECKED | PC |
| APPROVED | MEO |

Clean Energy CONSULTING INC. www.cleanenergyconsulting.ca

WN BRAIZER ASSOCIATES INC

SEAL: PROFESSIONAL ENGINEER YUKON TERRITORY W. NEIL BRAIZER

EAGLE GOLD PROJECT
L251 - 69 kV TRANSMISSION LINE
PLAN AND PROFILE (SHEET 41 OF 54)

| PROJECT No. | DRAWING No. | REV. |
|---|---|---|
| 1407 | 1407-T-1200-41 | 2 |

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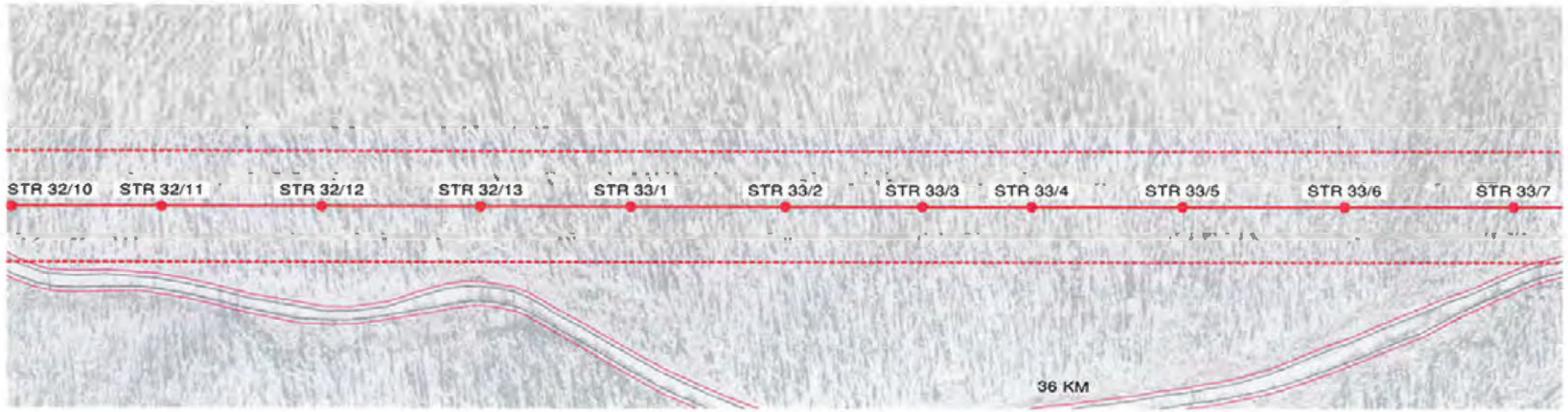



STR 32/10 PTR 65ft CL1 X=452833.72 Y=7093545.25

STR 32/11 PT 65ft CL1 X=452903.52 Y=7093585.90

STR 32/12 PT 60ft CL1 X=452978.46 Y=7093629.53

STR 32/13 PT 65ft CL1 X=453052.70 Y=7093672.76

STR 33/1 PT 60ft CL1 X=453123.17 Y=7093713.79

STR 33/2 PT 60ft CL1 X=453195.16 Y=7093755.71

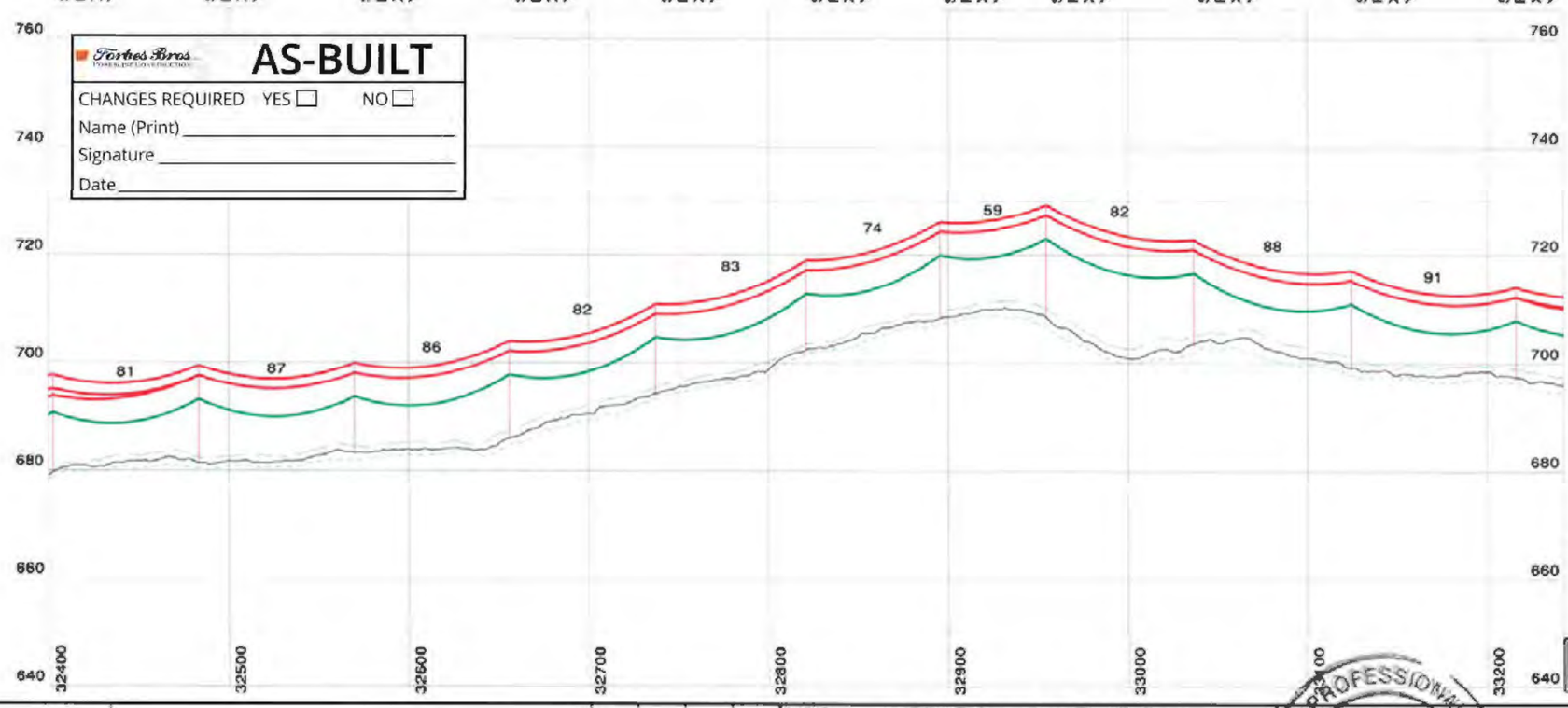
STR 33/3 PT 65ft CL1 X=453259.47 Y=7093793.16

STR 33/4 PT 75ft CL1 X=453310.78 Y=7093823.03

STR 33/5 PT 70ft CL1 X=453381.40 Y=7093864.16

STR 33/6 PT 65ft CL1 X=453457.74 Y=7093908.60

STR 33/7 PT 60ft CL1 X=453536.73 Y=7093954.60




Forbes Bros Ltd. Forces for Construction

**AS-BUILT**

CHANGES REQUIRED YES ☐ NO ☐

Name (Print) _____

Signature _____

Date _____

NOTES

1. ALL DIMENSIONS IN METRES (m) UNLESS NOTED OTHERWISE.
2. COORDINATES ARE IN UTM NAD83 ZONE 8N.
3. ELEVATIONS ARE IN METRES (m) ABOVE MEAN SEA LEVEL (AMSL).
4. 69 kV CONDUCTOR, ADSS CABLE AND OVERHEAD SHIELD WIRE "OHSW" DISPLAYED AT "WET SNOW" (-10° C, 51mm RADIAL SNOW).
5. LINE ANGLE DEFLECTION LOOKING TOWARD EAGLE GOLD PROJECT SITE INDICATED AS FOLLOWS:
   + RIGHT ANGLE DEFLECTION
   - LEFT ANGLE DEFLECTION
6. THIS LINE WILL BE NUMBERED L251 IN THE YUKON ENERGY CORPORATION (YEC) SYSTEM.
7. LEFT (DASH) AND RIGHT (DOT) PROFILE OFFSETS SHOWN AT 5 m CENTERLINE OFFSET.
8. DESIGN TENSIONS SHOWN IN TABLE 1.

TABLE 1

| CABLE TYPE | MEAN ANNUAL TEMP (-4° C) | | WET SNOW (-10° C, 51mm RADIAL SNOW) | |
|---|---|---|---|---|
| | FULL TENSION SPANS (N) | TERMINAL SPANS (N) (SLACK) | FULL TENSION SPANS (N) | TERMINAL SPANS (N) (SLACK) |
| PARTRIDGE ACSR | 3,750 | 550 | 23,300 | 3,300 |
| ADSS | 7,500 | 150 | 13,900 | 3,300 |
| OHSW | 3,500 | 400 | 23,600 | 3,200 |

LEGEND

- 69 kV - 266.8 kcmil 26/7 "PARTRIDGE" ACSR
- ADSS - OFC-24 G.652D-FASA-S1 (ZTT)
- OHSW - 266.8 kcmil 26/7 "PARTRIDGE" ACSR
- ROAD EDGE
- 2.5m ROAD BUFFER
- 30m CLEARING BOUNDARY
- YEC L250 69 KV LINE (EXISTING)
- 60m WIDE RIGHT OF WAY BOUNDARY
- X KM APPROXIMATE ROAD KM MARKER

REFERENCES

| | |
|---|---|
| 1407-T-1000 | DRAWING LIST |
| 1407-T-1100 | ROUTE MAP |
| 1407-T-1400 | STRUCTURE DATA SHEET |
| 1407-T-1900 | SOUTH MCQUESTEN TRANSMISSION LINE CONNECTION - PLAN |
| 1407-T-3000 | STRUCTURE FAMILY |
| 1407-T-6000 | HWY 11 (SILVER TRAIL)-OVERHEAD LINE CROSSING-STR 0/4 TO STR 0/5 |

30.0 m Horiz. Scale
10.0 m Vert. Scale

PERMIT TO PRACTICE
W.N. BRAIZER ASSOCIATES INC.
SIGNATURE
Date 10/08/18
PERMIT NUMBER: PP295
Association of Professional Engineers of Yukon

ISSUED FOR CONSTRUCTION

| NO. | DATE | REVISION | DES | DWN | CHK | APR |
|---|---|---|---|---|---|---|
| | | | | | | |
| | | | | | | |
| | | | | | | |
| 2 | AUG 10/18 | MCQUESTEN SUBSTATION & KM18 MODIFICATIONS | MP | MP | PC | NB |
| 1 | JUL 11/18 | BORROW PIT & ROAD PROXIMITY ALIGNMENT CHANGES | MP | MP | PC | MEO |
| 0 | MAY 11/18 | ISSUED FOR CONSTRUCTION | MP | MP | PC | MEO |

CLIENT: StrataGold Corporation

| | |
|---|---|
| DATE | MAY 11/18 |
| DESIGN | MP |
| DRAWN | MP |
| CHECKED | PC |
| APPROVED | MEO |

Clean Energy CONSULTING INC. www.cleanenergyconsulting.ca

WN BRAZIER ASSOCIATES INC

SEAL: PROFESSIONAL ENGINEER YUKON TERRITORY W. NEIL BRAZIER

EAGLE GOLD PROJECT

L251 - 69 kV TRANSMISSION LINE

PLAN AND PROFILE (SHEET 42 OF 54)

| PROJECT No. | DRAWING No. | REV. |
|---|---|---|
| 1407 | 1407-T-1200-42 | 2 |

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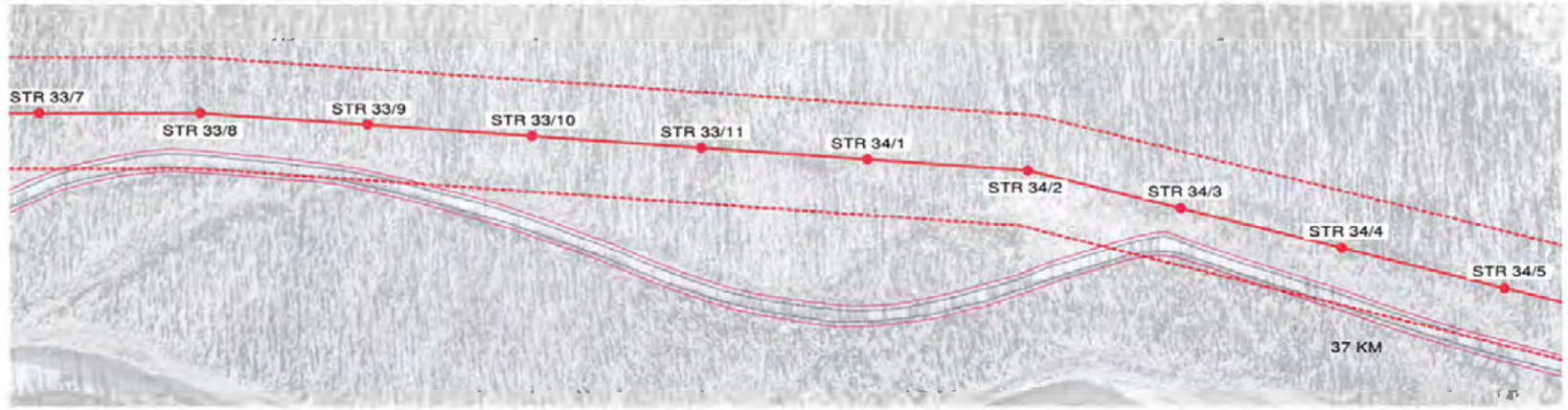


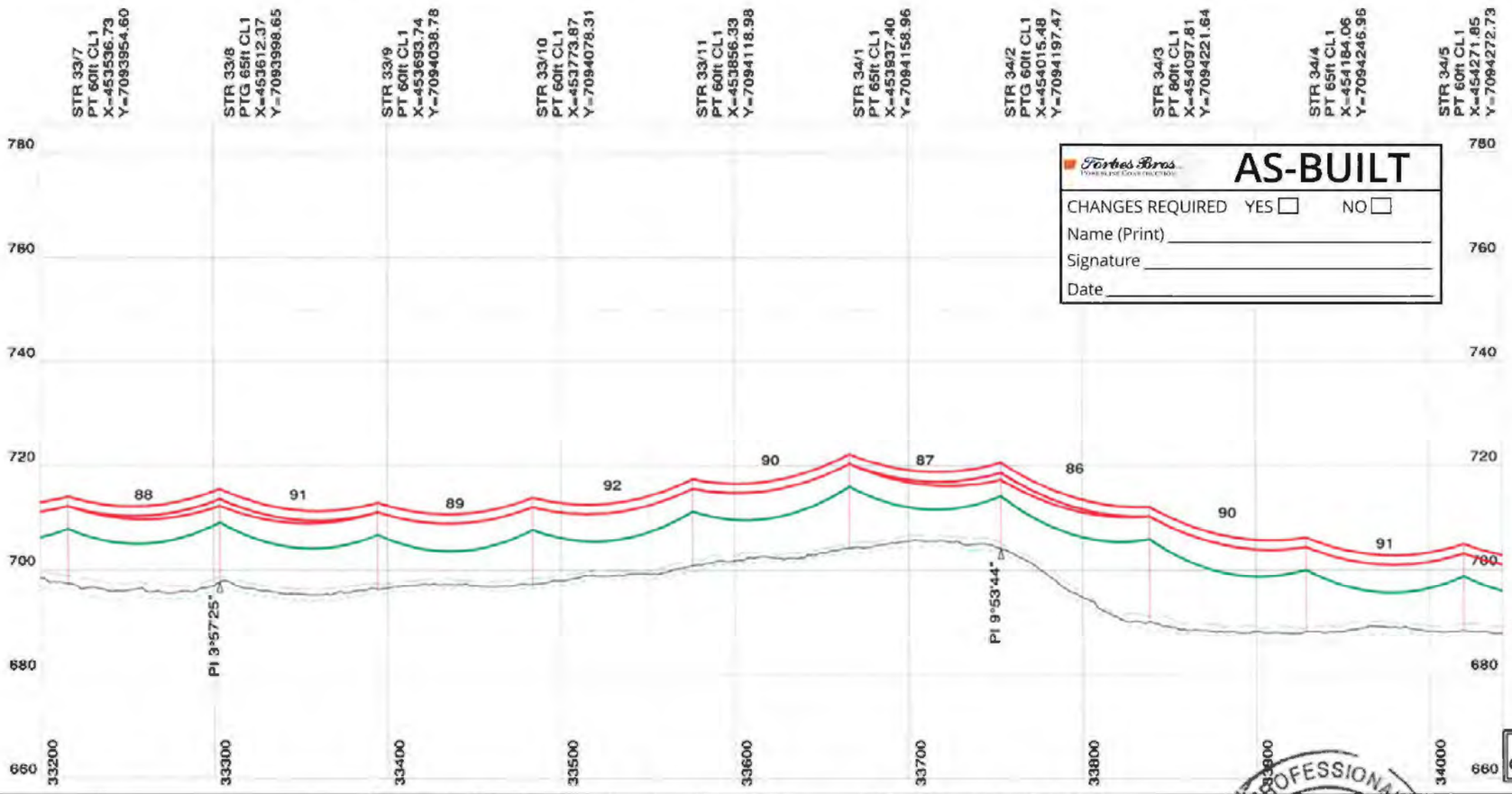


Forbes Bros. Pipeline Construction

# AS-BUILT

CHANGES REQUIRED YES ☐ NO ☐

Name (Print) _____

Signature _____

Date _____

## NOTES

1. ALL DIMENSIONS IN METRES (m) UNLESS NOTED OTHERWISE.
2. COORDINATES ARE IN UTM NAD83 ZONE 8N.
3. ELEVATIONS ARE IN METRES (m) ABOVE MEAN SEA LEVEL (AMSL).
4. 69 kV CONDUCTOR, ADSS CABLE AND OVERHEAD SHIELD WIRE "OHSW" DISPLAYED AT "WET SNOW" (-10° C, 51mm RADIAL SNOW).
5. LINE ANGLE DEFLECTION LOOKING TOWARD EAGLE GOLD PROJECT SITE INDICATED AS FOLLOWS:
   + RIGHT ANGLE DEFLECTION
   - LEFT ANGLE DEFLECTION
6. THIS LINE WILL BE NUMBERED L251 IN THE YUKON ENERGY CORPORATION (YEC) SYSTEM.
7. LEFT (DASH) AND RIGHT (DOT) PROFILE OFFSETS SHOWN AT 5 m CENTERLINE OFFSET.
8. DESIGN TENSIONS SHOWN IN TABLE 1.

**TABLE 1**

| CABLE TYPE | MEAN ANNUAL TEMP (-4° C) | | WET SNOW (-10° C, 51mm RADIAL SNOW) | |
|---|---|---|---|---|
| | FULL TENSION SPANS (N) | TERMINAL SPANS (N) (SLACK) | FULL TENSION SPANS (N) | TERMINAL SPANS (N) (SLACK) |
| PARTRIDGE ACSR | 3,750 | 550 | 23,300 | 3,300 |
| ADSS | 7,500 | 150 | 13,900 | 3,300 |
| OHSW | 3,500 | 400 | 23,600 | 3,200 |

## LEGEND

- 69 kV - 266.8 kcmil 26/7 "PARTRIDGE" ACSR
- ADSS - OFC-24 G.652D-FASA-S1 (ZTT)
- OHSW - 266.8 kcmil 26/7 "PARTRIDGE" ACSR
- ROAD EDGE
- 2.5m ROAD BUFFER
- 30m CLEARING BOUNDARY
- YEC L250 69 KV LINE (EXISTING)
- 60m WIDE RIGHT OF WAY BOUNDARY
- X KM APPROXIMATE ROAD KM MARKER

## REFERENCES

| | |
|---|---|
| 1407-T-1000 | DRAWING LIST |
| 1407-T-1100 | ROUTE MAP |
| 1407-T-1400 | STRUCTURE DATA SHEET |
| 1407-T-1900 | SOUTH MCQUESTEN TRANSMISSION LINE CONNECTION - PLAN |
| 1407-T-3000 | STRUCTURE FAMILY |
| 1407-T-6000 | HWY 11 (SILVER TRAIL)-OVERHEAD LINE CROSSING-STR 0/4 TO STR 0/5 |

30.0 m Horiz. Scale
10.0 m Vert. Scale

ISSUED FOR CONSTRUCTION

PERMIT TO PRACTICE
W.N. BRAIZER ASSOCIATES INC.
SIGNATURE _____
Date 10/03/18
PERMIT NUMBER: PP295
Association of Professional Engineers of Yukon

| NO. | DATE | REVISION | DES | DWN | CHK | APR |
|---|---|---|---|---|---|---|
| 2 | AUG 10/18 | MCQUESTEN SUBSTATION & KM18 MODIFICATIONS | MP | MP | PC | NB |
| 1 | JUL 11/18 | BORROW PIT & ROAD PROXIMITY ALIGNMENT CHANGES | MP | MP | PC | MEO |
| 0 | MAY 11/18 | ISSUED FOR CONSTRUCTION | MP | MP | PC | MEO |

CLIENT: StrataGold Corporation

DATE: MAY 11/18
DESIGN: MP
DRAWN: MP
CHECKED: PC
APPROVED: MEO

Clean Energy CONSULTING INC.
www.cleanenergyconsulting.ca

WN BRAZIER ASSOCIATES INC

PROFESSIONAL ENGINEER — YUKON — W. NEIL BRAZIER — TERRITORY

# EAGLE GOLD PROJECT

## L251 - 69 kV TRANSMISSION LINE

## PLAN AND PROFILE (SHEET 43 OF 54)

PROJECT No. 1407
DRAWING No. 1407-T-1200-43
REV. 2

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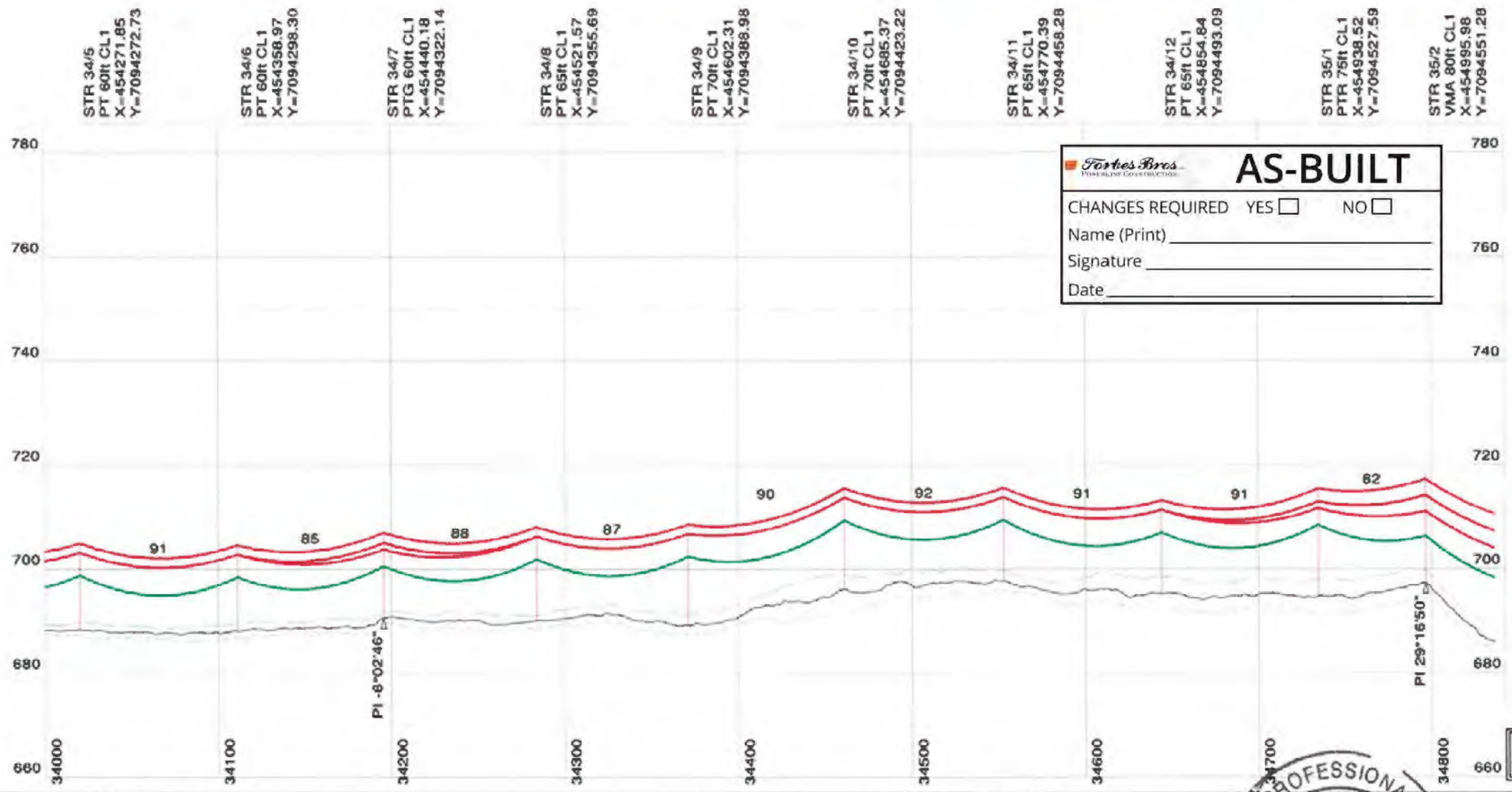


Forbes Bros. Powerline Construction

**AS-BUILT**

CHANGES REQUIRED YES ☐ NO ☐

Name (Print) _____

Signature _____

Date _____

## NOTES

1. ALL DIMENSIONS IN METRES (m) UNLESS NOTED OTHERWISE.
2. COORDINATES ARE IN UTM NAD83 ZONE 8N.
3. ELEVATIONS ARE IN METRES (m) ABOVE MEAN SEA LEVEL (AMSL).
4. 69 kV CONDUCTOR, ADSS CABLE AND OVERHEAD SHIELD WIRE "OHSW" DISPLAYED AT "WET SNOW" (-10° C, 51mm RADIAL SNOW).
5. LINE ANGLE DEFLECTION LOOKING TOWARD EAGLE GOLD PROJECT SITE INDICATED AS FOLLOWS:
   + RIGHT ANGLE DEFLECTION
   - LEFT ANGLE DEFLECTION
6. THIS LINE WILL BE NUMBERED L251 IN THE YUKON ENERGY CORPORATION (YEC) SYSTEM.
7. LEFT (DASH) AND RIGHT (DOT) PROFILE OFFSETS SHOWN AT 5 m CENTERLINE OFFSET.
8. DESIGN TENSIONS SHOWN IN TABLE 1.

| TABLE 1 | MEAN ANNUAL TEMP (-4° C) | | WET SNOW (-10° C, 51mm RADIAL SNOW) | |
|---|---|---|---|---|
| CABLE TYPE | FULL TENSION SPANS (N) | TERMINAL SPANS (N) (SLACK) | FULL TENSION SPANS (N) | TERMINAL SPANS (N) (SLACK) |
| PARTRIDGE ACSR | 3,750 | 550 | 23,300 | 3,300 |
| ADSS | 7,500 | 150 | 13,900 | 3,300 |
| OHSW | 3,500 | 400 | 23,600 | 3,200 |

## LEGEND

- 69 kV - 266.8 kcmil 26/7 "PARTRIDGE" ACSR
- ADSS - OFC-24 G.652D-FASA-S1 (ZTT)
- OHSW - 266.8 kcmil 26/7 "PARTRIDGE" ACSR
- ROAD EDGE
- 2.5m ROAD BUFFER
- 30m CLEARING BOUNDARY
- YEC L250 69 KV LINE (EXISTING)
- 60m WIDE RIGHT OF WAY BOUNDARY
- X KM APPROXIMATE ROAD KM MARKER

## REFERENCES

| | |
|---|---|
| 1407-T-1000 | DRAWING LIST |
| 1407-T-1100 | ROUTE MAP |
| 1407-T-1400 | STRUCTURE DATA SHEET |
| 1407-T-1900 | SOUTH MCQUESTEN TRANSMISSION LINE CONNECTION - PLAN |
| 1407-T-3000 | STRUCTURE FAMILY |
| 1407-T-6000 | HWY 11 (SILVER TRAIL)-OVERHEAD LINE CROSSING-STR 0/4 TO STR 0/5 |

30.0 m Horiz. Scale
10.0 m Vert. Scale

PERMIT TO PRACTICE
W.N. BRAIZER ASSOCIATES INC.
SIGNATURE _____
Date 10/02/18
PERMIT NUMBER: PP295
Association of Professional Engineers of Yukon

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| NO. | DATE | REVISION | DES | DWN | CHK | APR |
|---|---|---|---|---|---|---|
| 2 | AUG 10/18 | MCQUESTEN SUBSTATION & KM18 MODIFICATIONS | MP | MP | PC | NB |
| 1 | JUL 11/18 | BORROW PIT & ROAD PROXIMITY ALIGNMENT CHANGES | MP | MP | PC | MEO |
| 0 | MAY 11/18 | ISSUED FOR CONSTRUCTION | MP | MP | PC | MEO |

CLIENT: StrataGold Corporation

| | |
|---|---|
| DATE | MAY 11/18 |
| DESIGN | MP |
| DRAWN | MP |
| CHECKED | PC |
| APPROVED | MEO |

Clean Energy CONSULTING INC.
www.cleanenergyconsulting.ca
WN BRAZIER ASSOCIATES INC

SEAL: PROFESSIONAL ENGINEER — YUKON — W. NEIL BRAZIER — TERRITORY

# EAGLE GOLD PROJECT
## L251 - 69 kV TRANSMISSION LINE
## PLAN AND PROFILE (SHEET 44 OF 54)

| PROJECT No. | DRAWING No. | REV. |
|---|---|---|
| 1407 | 1407-T-1200-44 | 2 |

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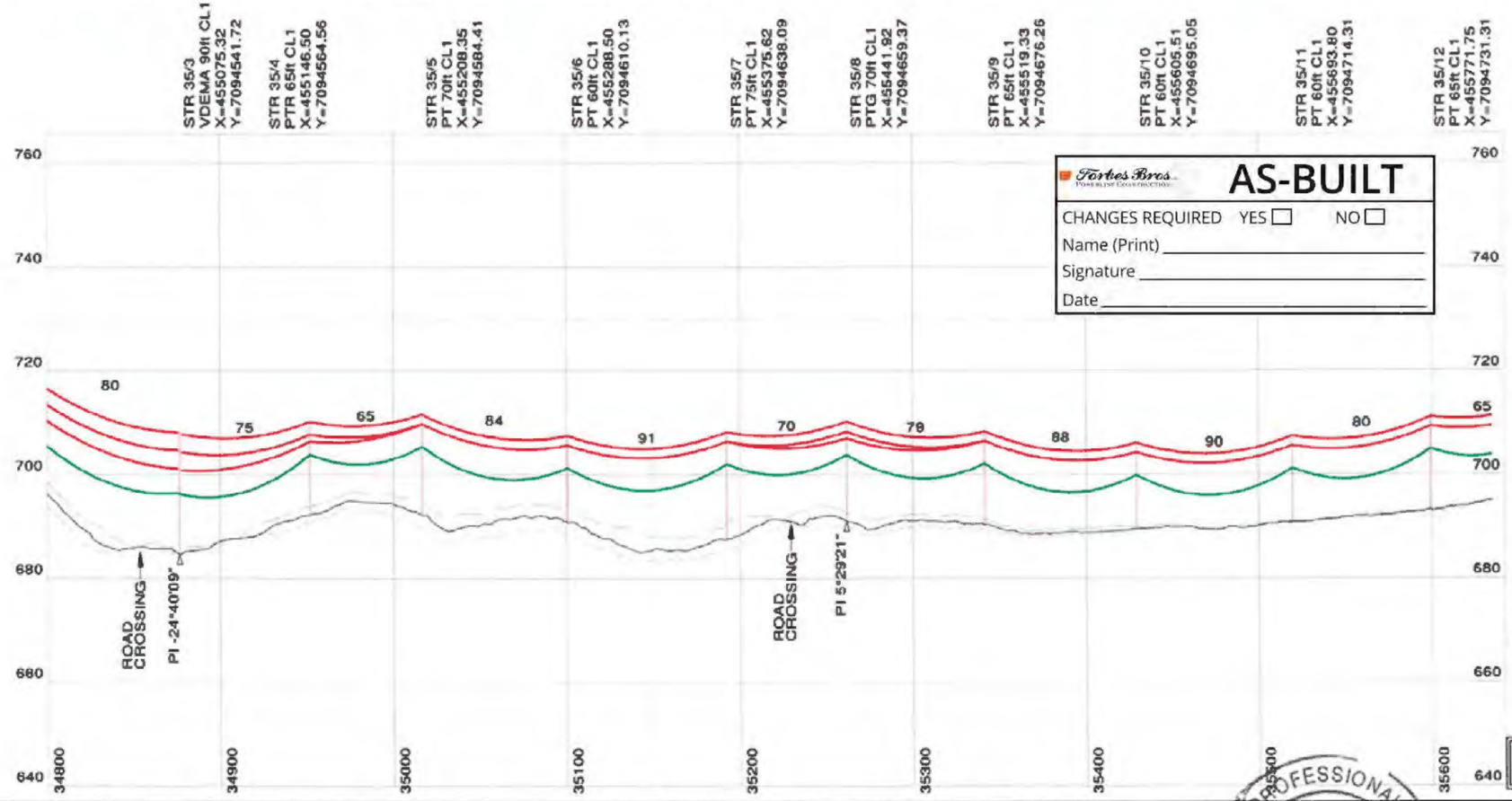


Forbes Bros. POWERLINE CONSTRUCTION

# AS-BUILT

CHANGES REQUIRED YES ☐ NO ☐

Name (Print) _____

Signature _____

Date _____

## NOTES

1. ALL DIMENSIONS IN METRES (m) UNLESS NOTED OTHERWISE.
2. COORDINATES ARE IN UTM NAD83 ZONE 8N.
3. ELEVATIONS ARE IN METRES (m) ABOVE MEAN SEA LEVEL (AMSL).
4. 69 kV CONDUCTOR, ADSS CABLE AND OVERHEAD SHIELD WIRE "OHSW" DISPLAYED AT "WET SNOW" (-10° C, 51mm RADIAL SNOW).
5. LINE ANGLE DEFLECTION LOOKING TOWARD EAGLE GOLD PROJECT SITE INDICATED AS FOLLOWS:
   + RIGHT ANGLE DEFLECTION
   - LEFT ANGLE DEFLECTION
6. THIS LINE WILL BE NUMBERED L251 IN THE YUKON ENERGY CORPORATION (YEC) SYSTEM.
7. LEFT (DASH) AND RIGHT (DOT) PROFILE OFFSETS SHOWN AT 5 m CENTERLINE OFFSET.
8. DESIGN TENSIONS SHOWN IN TABLE 1.

| TABLE 1 | MEAN ANNUAL TEMP (-4° C) | | WET SNOW (-10° C, 51mm RADIAL SNOW) | |
|---|---|---|---|---|
| CABLE TYPE | FULL TENSION SPANS (N) | TERMINAL SPANS (N) (SLACK) | FULL TENSION SPANS (N) | TERMINAL SPANS (N) (SLACK) |
| PARTRIDGE ACSR | 3,750 | 550 | 23,300 | 3,300 |
| ADSS | 7,500 | 150 | 13,900 | 3,300 |
| OHSW | 3,500 | 400 | 23,600 | 3,200 |

## LEGEND

- 69 kV - 266.8 kcmil 26/7 "PARTRIDGE" ACSR
- ADSS - OFC-24 G.652D-FASA-S1 (ZTT)
- OHSW - 266.8 kcmil 26/7 "PARTRIDGE" ACSR
- ROAD EDGE
- 2.5m ROAD BUFFER
- 30m CLEARING BOUNDARY
- YEC L250 69 KV LINE (EXISTING)
- 60m WIDE RIGHT OF WAY BOUNDARY
- X KM APPROXIMATE ROAD KM MARKER

## REFERENCES

| | |
|---|---|
| 1407-T-1000 | DRAWING LIST |
| 1407-T-1100 | ROUTE MAP |
| 1407-T-1400 | STRUCTURE DATA SHEET |
| 1407-T-1900 | SOUTH MCQUESTEN TRANSMISSION LINE CONNECTION - PLAN |
| 1407-T-3000 | STRUCTURE FAMILY |
| 1407-T-6000 | HWY 11 (SILVER TRAIL)-OVERHEAD LINE CROSSING-STR 0/4 TO STR 0/5 |

30.0 m Horiz. Scale
10.0 m Vert. Scale

ISSUED FOR CONSTRUCTION

PERMIT TO PRACTICE
W.N. BRAIZER ASSOCIATES INC.
SIGNATURE _____
Date 10/03/18
PERMIT NUMBER: PP295
Association of Professional Engineers of Yukon

| NO. | DATE | REVISION | DES | DWN | CHK | APR |
|---|---|---|---|---|---|---|
| 2 | AUG 10/18 | MCQUESTEN SUBSTATION & KM18 MODIFICATIONS | MP | MP | PC | NB |
| 1 | JUL 11/18 | BORROW PIT & ROAD PROXIMITY ALIGNMENT CHANGES | MP | MP | PC | MEO |
| 0 | MAY 11/18 | ISSUED FOR CONSTRUCTION | MP | MP | PC | MEO |

CLIENT StrataGold Corporation

| | |
|---|---|
| DATE | MAY 11/18 |
| DESIGN | MP |
| DRAWN | MP |
| CHECKED | PC |
| APPROVED | MEO |

Clean Energy CONSULTING INC. www.cleanenergyconsulting.ca

WN BRAZIER ASSOCIATES INC

SEAL: PROFESSIONAL ENGINEER YUKON TERRITORY W. NEIL BRAZIER

# EAGLE GOLD PROJECT

## L251 - 69 kV TRANSMISSION LINE

## PLAN AND PROFILE (SHEET 45 OF 54)

| PROJECT No. | DRAWING No. | REV. |
|---|---|---|
| 1407 | 1407-T-1200-45 | 2 |

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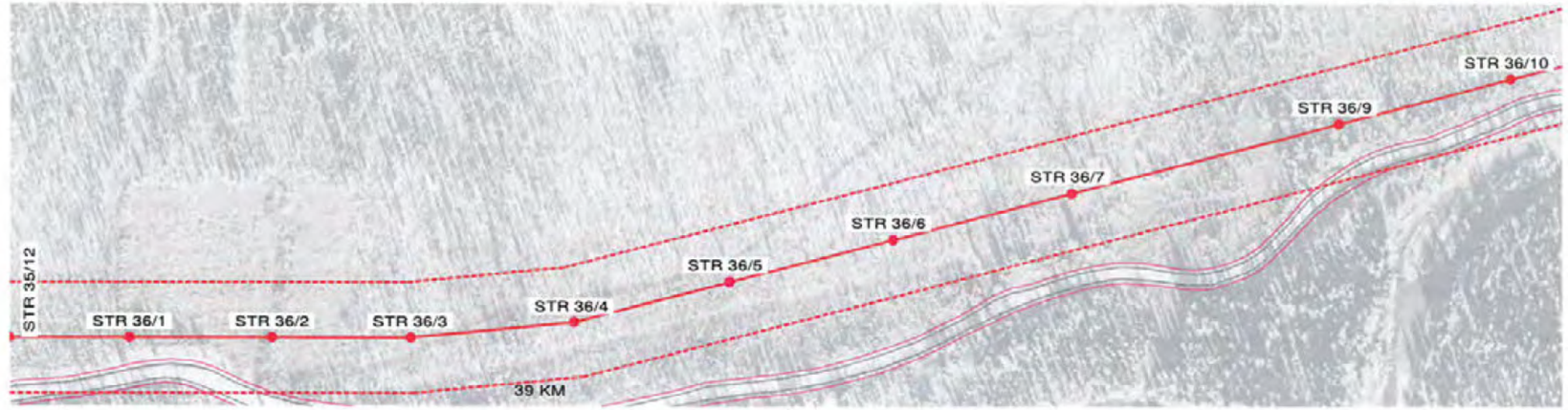


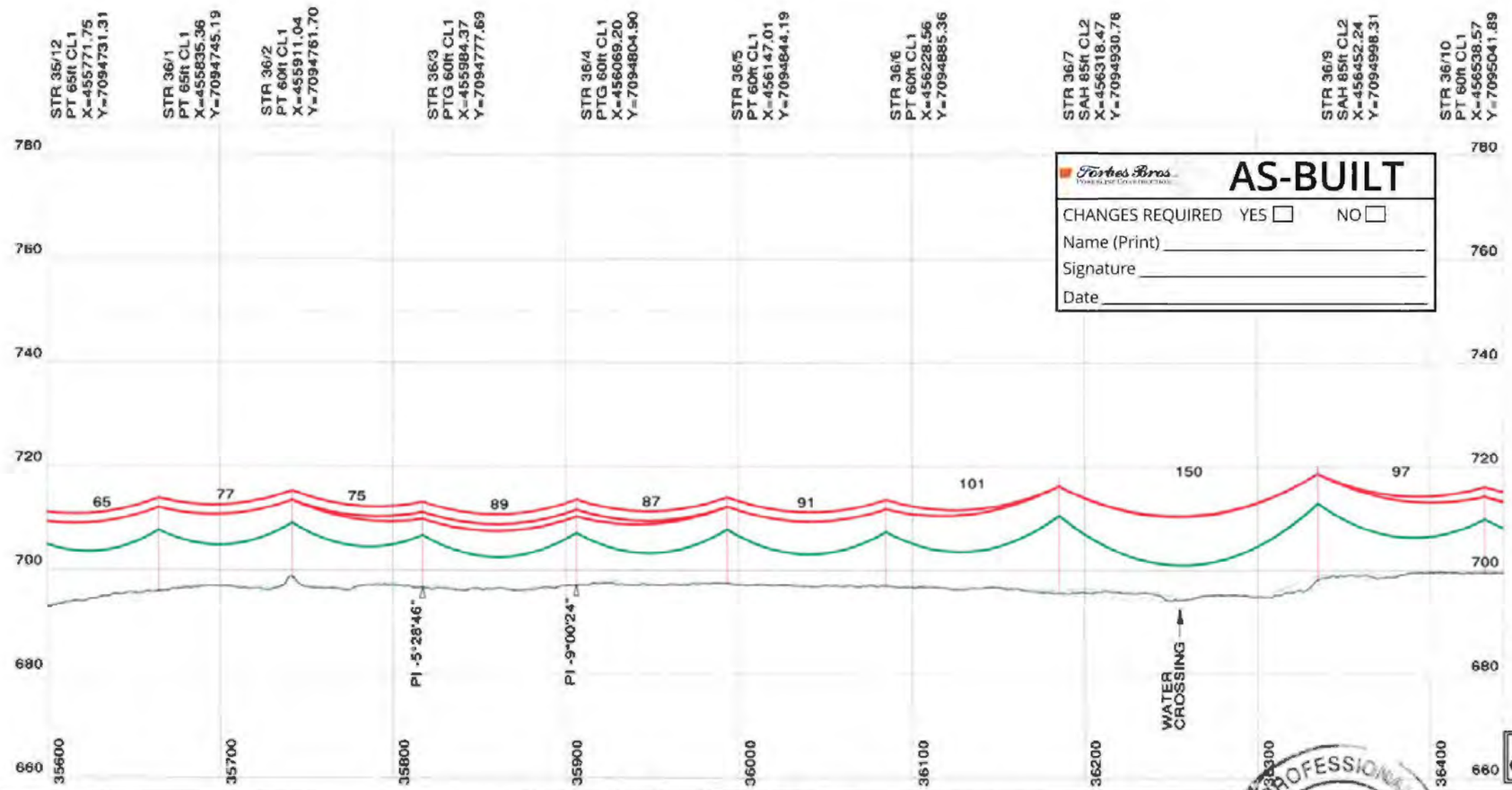


Forbes Bros. Mining & Civil Construction

# AS-BUILT

CHANGES REQUIRED YES ☐ NO ☐

Name (Print) _____

Signature _____

Date _____

## NOTES

1. ALL DIMENSIONS IN METRES (m) UNLESS NOTED OTHERWISE.
2. COORDINATES ARE IN UTM NAD83 ZONE 8N.
3. ELEVATIONS ARE IN METRES (m) ABOVE MEAN SEA LEVEL (AMSL).
4. 69 kV CONDUCTOR, ADSS CABLE AND OVERHEAD SHIELD WIRE "OHSW" DISPLAYED AT "WET SNOW" (-10° C, 51mm RADIAL SNOW).
5. LINE ANGLE DEFLECTION LOOKING TOWARD EAGLE GOLD PROJECT SITE INDICATED AS FOLLOWS:
   + RIGHT ANGLE DEFLECTION
   - LEFT ANGLE DEFLECTION
6. THIS LINE WILL BE NUMBERED L251 IN THE YUKON ENERGY CORPORATION (YEC) SYSTEM.
7. LEFT (DASH) AND RIGHT (DOT) PROFILE OFFSETS SHOWN AT 5 m CENTERLINE OFFSET.
8. DESIGN TENSIONS SHOWN IN TABLE 1.

| TABLE 1 | MEAN ANNUAL TEMP (-4° C) | | WET SNOW (-10° C, 51mm RADIAL SNOW) | |
|---|---|---|---|---|
| CABLE TYPE | FULL TENSION SPANS (N) | TERMINAL SPANS (N) (SLACK) | FULL TENSION SPANS (N) | TERMINAL SPANS (N) (SLACK) |
| PARTRIDGE ACSR | 3,750 | 550 | 23,300 | 3,300 |
| ADSS | 7,500 | 150 | 13,900 | 3,300 |
| OHSW | 3,800 | 400 | 23,600 | 3,200 |

## LEGEND

- 69 kV - 266.8 kcmil 26/7 "PARTRIDGE" ACSR
- ADSS - OFC-24 G.652D-FASA-S1 (ZTT)
- OHSW - 266.8 kcmil 26/7 "PARTRIDGE" ACSR
- ROAD EDGE
- 2.5m ROAD BUFFER
- 30m CLEARING BOUNDARY
- YEC L250 69 KV LINE (EXISTING)
- 60m WIDE RIGHT OF WAY BOUNDARY
- X KM APPROXIMATE ROAD KM MARKER

## REFERENCES

| | |
|---|---|
| 1407-T-1000 | DRAWING LIST |
| 1407-T-1100 | ROUTE MAP |
| 1407-T-1400 | STRUCTURE DATA SHEET |
| 1407-T-1900 | SOUTH MCQUESTEN TRANSMISSION LINE CONNECTION - PLAN |
| 1407-T-3000 | STRUCTURE FAMILY |
| 1407-T-6000 | HWY 11 (SILVER TRAIL)-OVERHEAD LINE CROSSING-STR 0/4 TO STR 0/5 |

30.0 m Horiz. Scale
10.0 m Vert. Scale

ISSUED FOR CONSTRUCTION

PERMIT TO PRACTICE
W.N. BRAIZER ASSOCIATES INC.
SIGNATURE _____
Date 10/08/18
PERMIT NUMBER: PP295
Association of Professional Engineers of Yukon

| NO. | DATE | REVISION | DES | DWN | CHK | APR |
|---|---|---|---|---|---|---|
| 2 | AUG 10/18 | MCQUESTEN SUBSTATION & KM18 MODIFICATIONS | MP | MP | PC | NB |
| 1 | JUL 11/18 | BORROW PIT & ROAD PROXIMITY ALIGNMENT CHANGES | MP | MP | PC | MEO |
| 0 | MAY 11/18 | ISSUED FOR CONSTRUCTION | MP | MP | PC | MEO |

CLIENT: StrataGold Corporation

| | |
|---|---|
| DATE | MAY 11/18 |
| DESIGN | MP |
| DRAWN | MP |
| CHECKED | PC |
| APPROVED | MEO |

Clean Energy CONSULTING INC. www.cleanenergyconsulting.ca

WN BRAIZER ASSOCIATES INC

PROFESSIONAL ENGINEER YUKON W. NEIL BRAIZER TERRITORY

EAGLE GOLD PROJECT
L251 - 69 kV TRANSMISSION LINE
PLAN AND PROFILE (SHEET 46 OF 54)

| PROJECT No. | DRAWING No. | REV. |
|---|---|---|
| 1407 | 1407-T-1200-46 | 2 |

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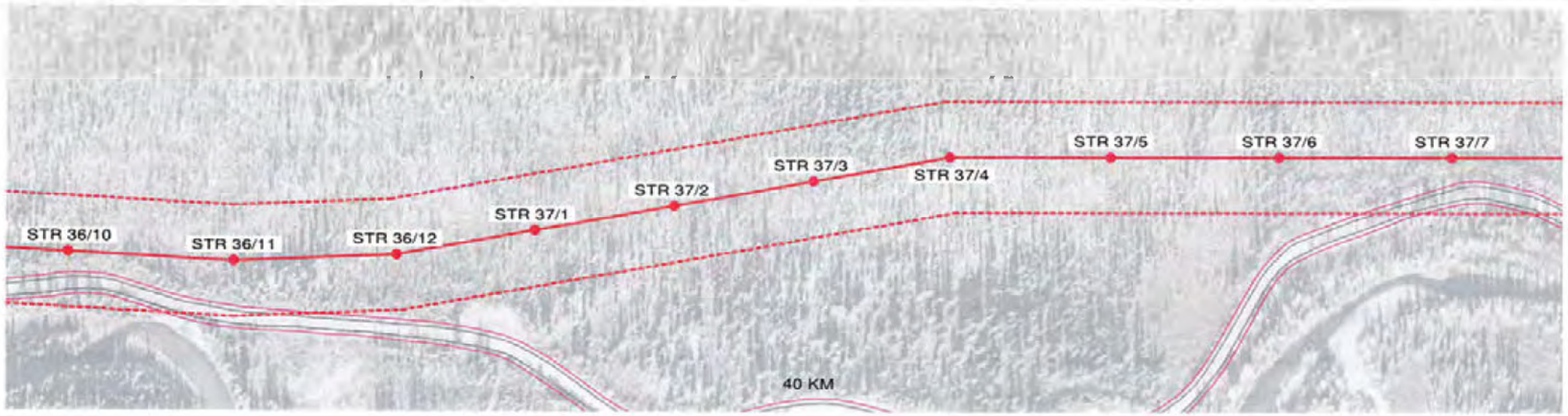


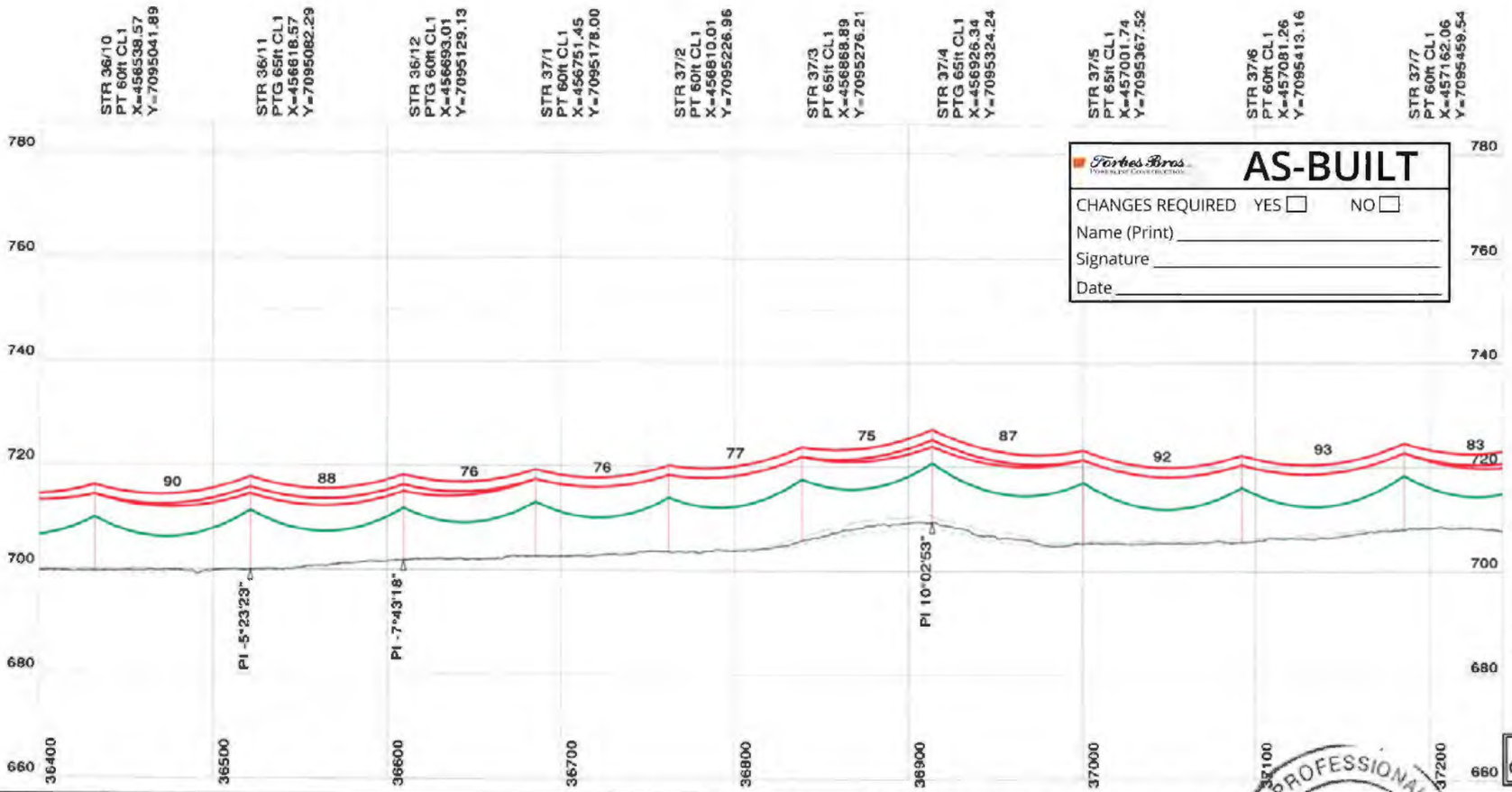


Forbes Bros. Pipeline Construction

**AS-BUILT**

CHANGES REQUIRED YES ☐ NO ☐

Name (Print) _____

Signature _____

Date _____

## NOTES

1. ALL DIMENSIONS IN METRES (m) UNLESS NOTED OTHERWISE.
2. COORDINATES ARE IN UTM NAD83 ZONE 8N.
3. ELEVATIONS ARE IN METRES (m) ABOVE MEAN SEA LEVEL (AMSL).
4. 69 kV CONDUCTOR, ADSS CABLE AND OVERHEAD SHIELD WIRE "OHSW" DISPLAYED AT "WET SNOW" (-10° C, 51mm RADIAL SNOW).
5. LINE ANGLE DEFLECTION LOOKING TOWARD EAGLE GOLD PROJECT SITE INDICATED AS FOLLOWS:
   + RIGHT ANGLE DEFLECTION
   - LEFT ANGLE DEFLECTION
6. THIS LINE WILL BE NUMBERED L251 IN THE YUKON ENERGY CORPORATION (YEC) SYSTEM.
7. LEFT (DASH) AND RIGHT (DOT) PROFILE OFFSETS SHOWN AT 5 m CENTERLINE OFFSET.
8. DESIGN TENSIONS SHOWN IN TABLE 1.

| TABLE 1 | MEAN ANNUAL TEMP (-4° C) | | WET SNOW (-10° C, 51mm RADIAL SNOW) | |
|---|---|---|---|---|
| CABLE TYPE | FULL TENSION SPANS (N) | TERMINAL SPANS (N) (SLACK) | FULL TENSION SPANS (N) | TERMINAL SPANS (N) (SLACK) |
| PARTRIDGE ACSR | 3,750 | 550 | 23,300 | 3,300 |
| ADSS | 7,500 | 150 | 13,900 | 3,300 |
| OHSW | 3,500 | 400 | 23,600 | 3,200 |

## LEGEND

- 69 kV - 266.8 kcmil 26/7 "PARTRIDGE" ACSR
- ADSS - OFC-24 G.652D-FASA-S1 (ZTT)
- OHSW - 266.8 kcmil 26/7 "PARTRIDGE" ACSR
- ROAD EDGE
- 2.5m ROAD BUFFER
- 30m CLEARING BOUNDARY
- YEC L250 69 KV LINE (EXISTING)
- 60m WIDE RIGHT OF WAY BOUNDARY
- X KM APPROXIMATE ROAD KM MARKER

## REFERENCES

| | |
|---|---|
| 1407-T-1000 | DRAWING LIST |
| 1407-T-1100 | ROUTE MAP |
| 1407-T-1400 | STRUCTURE DATA SHEET |
| 1407-T-1900 | SOUTH MCQUESTEN TRANSMISSION LINE CONNECTION - PLAN |
| 1407-T-3000 | STRUCTURE FAMILY |
| 1407-T-6000 | HWY 11 (SILVER TRAIL)-OVERHEAD LINE CROSSING-STR 0/4 TO STR 0/5 |

30.0 m Horiz. Scale
10.0 m Vert. Scale

ISSUED FOR CONSTRUCTION

PERMIT TO PRACTICE
W.N. BRAIZER ASSOCIATES INC.
SIGNATURE _____
Date 10/08/18
PERMIT NUMBER: PP295
Association of Professional Engineers of Yukon

| NO. | DATE | REVISION | DES | DWN | CHK | APR |
|---|---|---|---|---|---|---|
| 2 | AUG 10/18 | MCQUESTEN SUBSTATION & KM18 MODIFICATIONS | MP | MP | PC | NB |
| 1 | JUL 11/18 | BORROW PIT & ROAD PROXIMITY ALIGNMENT CHANGES | MP | MP | PC | MEO |
| 0 | MAY 11/18 | ISSUED FOR CONSTRUCTION | MP | MP | PC | MEO |

CLIENT: StrataGold Corporation

| | |
|---|---|
| DATE | MAY 11/18 |
| DESIGN | MP |
| DRAWN | MP |
| CHECKED | PC |
| APPROVED | MEO |

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www.cleanenergyconsulting.ca
WN BRAZIER ASSOCIATES INC

SEAL: PROFESSIONAL ENGINEER — YUKON — W. NEIL BRAZIER — TERRITORY

EAGLE GOLD PROJECT
L251 - 69 kV TRANSMISSION LINE
PLAN AND PROFILE (SHEET 47 OF 54)

| PROJECT No. | DRAWING No. | REV. |
|---|---|---|
| 1407 | 1407-T-1200-47 | 2 |

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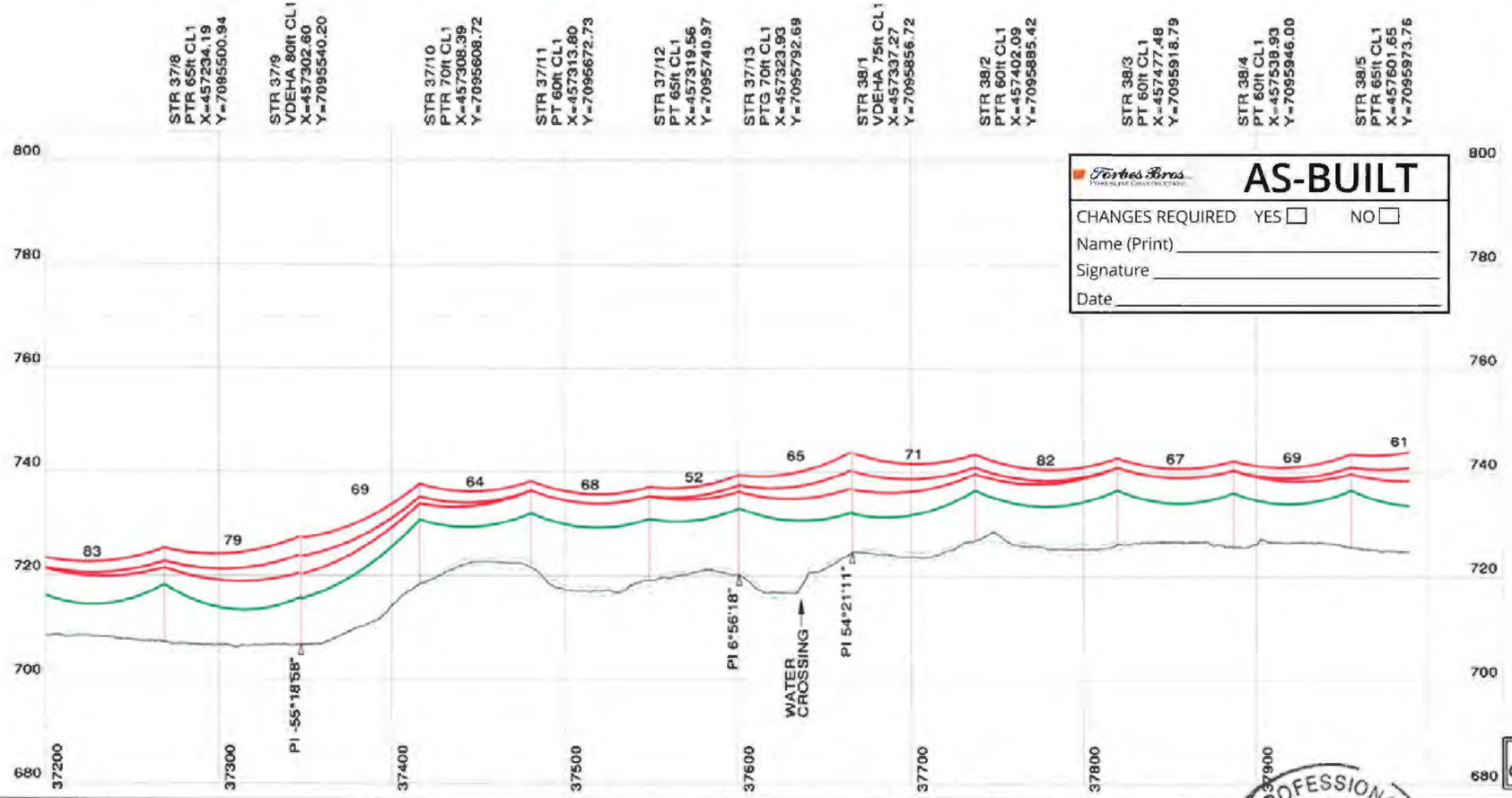


Forbes Bros Forestry Construction

# AS-BUILT

CHANGES REQUIRED YES ☐ NO ☐

Name (Print) _____

Signature _____

Date _____

## NOTES

1. ALL DIMENSIONS IN METRES (m) UNLESS NOTED OTHERWISE.
2. COORDINATES ARE IN UTM NAD83 ZONE 8N.
3. ELEVATIONS ARE IN METRES (m) ABOVE MEAN SEA LEVEL (AMSL).
4. 69 kV CONDUCTOR, ADSS CABLE AND OVERHEAD SHIELD WIRE "OHSW" DISPLAYED AT "WET SNOW" (-10° C, 51mm RADIAL SNOW).
5. LINE ANGLE DEFLECTION LOOKING TOWARD EAGLE GOLD PROJECT SITE INDICATED AS FOLLOWS:
   + RIGHT ANGLE DEFLECTION
   - LEFT ANGLE DEFLECTION
6. THIS LINE WILL BE NUMBERED L251 IN THE YUKON ENERGY CORPORATION (YEC) SYSTEM.
7. LEFT (DASH) AND RIGHT (DOT) PROFILE OFFSETS SHOWN AT 5 m CENTERLINE OFFSET.
8. DESIGN TENSIONS SHOWN IN TABLE 1.

TABLE 1

| CABLE TYPE | MEAN ANNUAL TEMP (-4° C) | | WET SNOW (-10° C, 51mm RADIAL SNOW) | |
|---|---|---|---|---|
| | FULL TENSION SPANS (N) | TERMINAL SPANS (N) (SLACK) | FULL TENSION SPANS (N) | TERMINAL SPANS (N) (SLACK) |
| PARTRIDGE ACSR | 3,750 | 550 | 20,300 | 3,300 |
| ADSS | 7,500 | 150 | 13,900 | 3,300 |
| OHSW | 3,500 | 400 | 23,600 | 3,200 |

## LEGEND

- 69 kV - 266.8 kcmil 26/7 "PARTRIDGE" ACSR
- ADSS - OFC-24 G.652D-FASA-S1 (ZTT)
- OHSW - 266.8 kcmil 26/7 "PARTRIDGE" ACSR
- ROAD EDGE
- 2.5m ROAD BUFFER
- 30m CLEARING BOUNDARY
- YEC L250 69 KV LINE (EXISTING)
- 60m WIDE RIGHT OF WAY BOUNDARY
- X KM APPROXIMATE ROAD KM MARKER

## REFERENCES

| | |
|---|---|
| 1407-T-1000 | DRAWING LIST |
| 1407-T-1100 | ROUTE MAP |
| 1407-T-1400 | STRUCTURE DATA SHEET |
| 1407-T-1900 | SOUTH MCQUESTEN TRANSMISSION LINE CONNECTION - PLAN |
| 1407-T-3000 | STRUCTURE FAMILY |
| 1407-T-6000 | HWY 11 (SILVER TRAIL)-OVERHEAD LINE CROSSING-STR 0/4 TO STR 0/5 |

30.0 m Horiz. Scale
10.0 m Vert. Scale

ISSUED FOR CONSTRUCTION

PERMIT TO PRACTICE
W.N. BRAZIER ASSOCIATES INC.
SIGNATURE _____
Date 10/05/18
PERMIT NUMBER: PP295
Association of Professional Engineers of Yukon

| NO. | DATE | REVISION | DES | DWN | CHK | APR |
|---|---|---|---|---|---|---|
| 2 | AUG 10/18 | MCQUESTEN SUBSTATION & KM18 MODIFICATIONS | MP | MP | PC | NB |
| 1 | JUL 11/18 | BORROW PIT & ROAD PROXIMITY ALIGNMENT CHANGES | MP | MP | PC | MEO |
| 0 | MAY 11/18 | ISSUED FOR CONSTRUCTION | MP | MP | PC | MEO |

CLIENT: StrataGold Corporation

| | |
|---|---|
| DATE | MAY 11/18 |
| DESIGN | MP |
| DRAWN | MP |
| CHECKED | PC |
| APPROVED | MEO |

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WN BRAZIER ASSOCIATES INC

PROFESSIONAL ENGINEER YUKON W. NEIL BRAZIER TERRITORY

EAGLE GOLD PROJECT

L251 - 69 kV TRANSMISSION LINE

PLAN AND PROFILE (SHEET 48 OF 54)

| PROJECT No. | DRAWING No. | REV. |
|---|---|---|
| 1407 | 1407-T-1200-48 | 2 |

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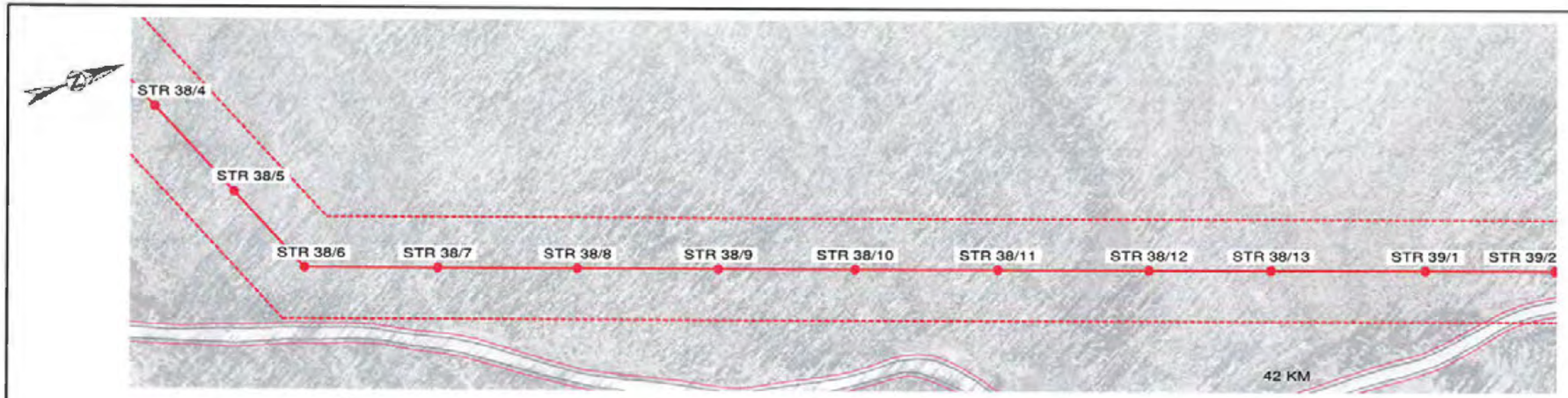


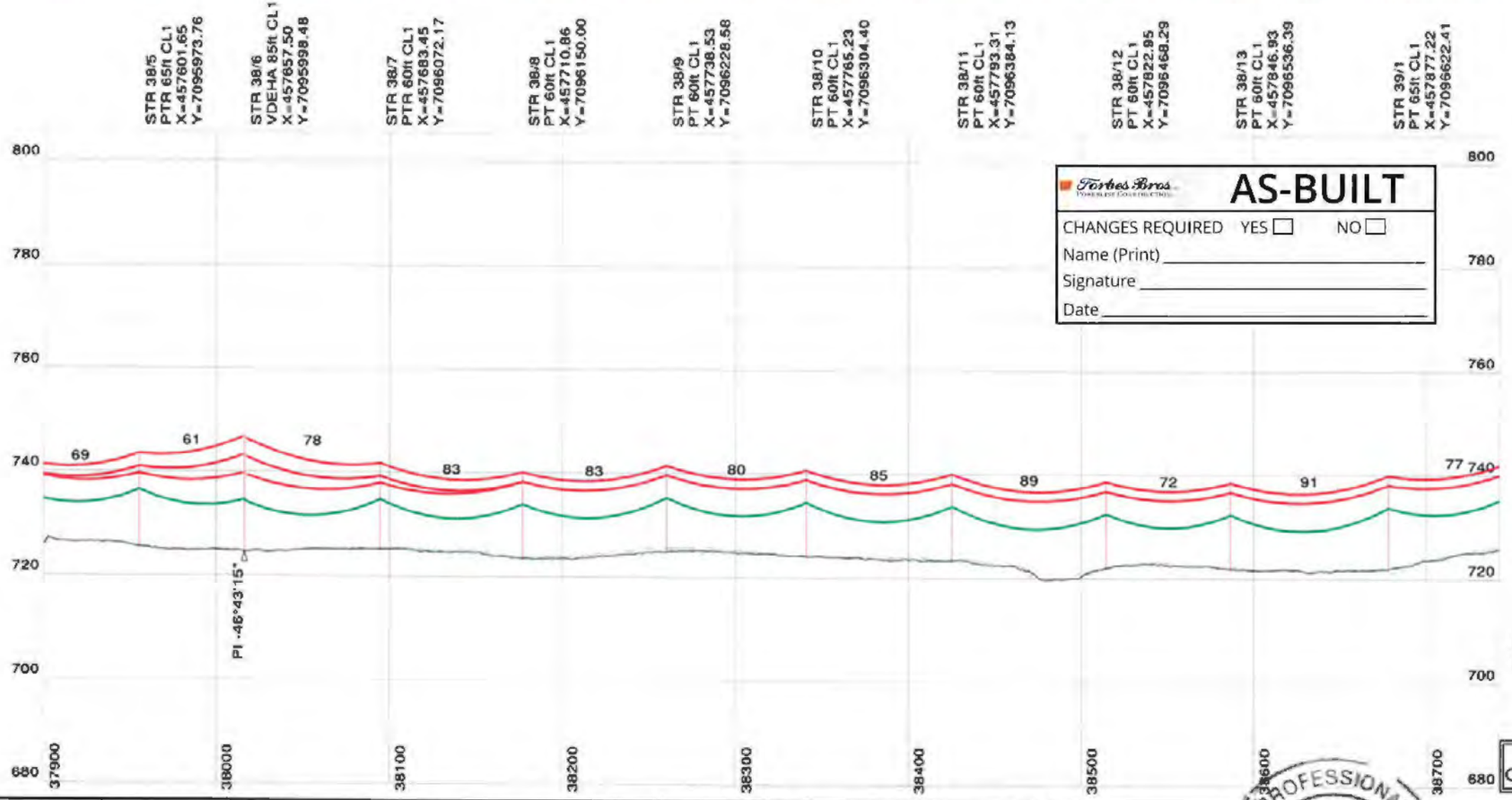


**AS-BUILT**

Forbes Bros. Powerline Construction

CHANGES REQUIRED YES ☐ NO ☐

Name (Print) _____

Signature _____

Date _____

## NOTES

1. ALL DIMENSIONS IN METRES (m) UNLESS NOTED OTHERWISE.
2. COORDINATES ARE IN UTM NAD83 ZONE 8N.
3. ELEVATIONS ARE IN METRES (m) ABOVE MEAN SEA LEVEL (AMSL).
4. 69 kV CONDUCTOR, ADSS CABLE AND OVERHEAD SHIELD WIRE "OHSW" DISPLAYED AT "WET SNOW" (-10° C, 51mm RADIAL SNOW).
5. LINE ANGLE DEFLECTION LOOKING TOWARD EAGLE GOLD PROJECT SITE INDICATED AS FOLLOWS:
   + RIGHT ANGLE DEFLECTION
   - LEFT ANGLE DEFLECTION
6. THIS LINE WILL BE NUMBERED L251 IN THE YUKON ENERGY CORPORATION (YEC) SYSTEM.
7. LEFT (DASH) AND RIGHT (DOT) PROFILE OFFSETS SHOWN AT 5 m CENTERLINE OFFSET.
8. DESIGN TENSIONS SHOWN IN TABLE 1.

| TABLE 1 | MEAN ANNUAL TEMP (-4° C) | | WET SNOW (-10° C, 51mm RADIAL SNOW) | |
|---|---|---|---|---|
| CABLE TYPE | FULL TENSION SPANS (N) | TERMINAL SPANS (N) (SLACK) | FULL TENSION SPANS (N) | TERMINAL SPANS (N) (SLACK) |
| PARTRIDGE ACSR | 3,750 | 550 | 23,300 | 3,300 |
| ADSS | 7,500 | 150 | 13,900 | 3,300 |
| OHSW | 3,500 | 400 | 23,600 | 3,200 |

## LEGEND

- 69 kV - 266.8 kcmil 26/7 "PARTRIDGE" ACSR
- ADSS - OFC-24 G.652D-FASA-S1 (ZTT)
- OHSW - 266.8 kcmil 26/7 "PARTRIDGE" ACSR
- ROAD EDGE
- 2.5m ROAD BUFFER
- 30m CLEARING BOUNDARY
- YEC L250 69 KV LINE (EXISTING)
- 60m WIDE RIGHT OF WAY BOUNDARY
- X KM APPROXIMATE ROAD KM MARKER

## REFERENCES

| | |
|---|---|
| 1407-T-1000 | DRAWING LIST |
| 1407-T-1100 | ROUTE MAP |
| 1407-T-1400 | STRUCTURE DATA SHEET |
| 1407-T-1900 | SOUTH MCQUESTEN TRANSMISSION LINE CONNECTION - PLAN |
| 1407-T-3000 | STRUCTURE FAMILY |
| 1407-T-6000 | HWY 11 (SILVER TRAIL)-OVERHEAD LINE CROSSING-STR 0/4 TO STR 0/5 |

30.0 m Horiz. Scale
10.0 m Vert. Scale

ISSUED FOR CONSTRUCTION

PERMIT TO PRACTICE
W.N. BRAIZER ASSOCIATES INC.
SIGNATURE _____
Date 10/08/18
PERMIT NUMBER: PP295
Association of Professional Engineers of Yukon

| NO | DATE | REVISION | DES | DWN | CHK | APR |
|---|---|---|---|---|---|---|
| 2 | AUG 10/18 | MCQUESTEN SUBSTATION & KM18 MODIFICATIONS | MP | MP | PC | NB |
| 1 | JUL 11/18 | BORROW PIT & ROAD PROXIMITY ALIGNMENT CHANGES | MP | MP | PC | MEO |
| 0 | MAY 11/18 | ISSUED FOR CONSTRUCTION | MP | MP | PC | MEO |

CLIENT: StrataGold Corporation

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|---|---|
| DATE | MAY 11/18 |
| DESIGN | MP |
| DRAWN | MP |
| CHECKED | PC |
| APPROVED | MEO |

Clean Energy CONSULTING INC. www.cleanenergyconsulting.ca

WN BRAIZER ASSOCIATES INC

SEAL: PROFESSIONAL ENGINEER — YUKON — W. NEIL BRAIZER — TERRITORY

# EAGLE GOLD PROJECT
## L251 - 69 kV TRANSMISSION LINE
## PLAN AND PROFILE (SHEET 49 OF 54)

| PROJECT No. | DRAWING No. | REV. |
|---|---|---|
| 1407 | 1407-T-1200-49 | 2 |

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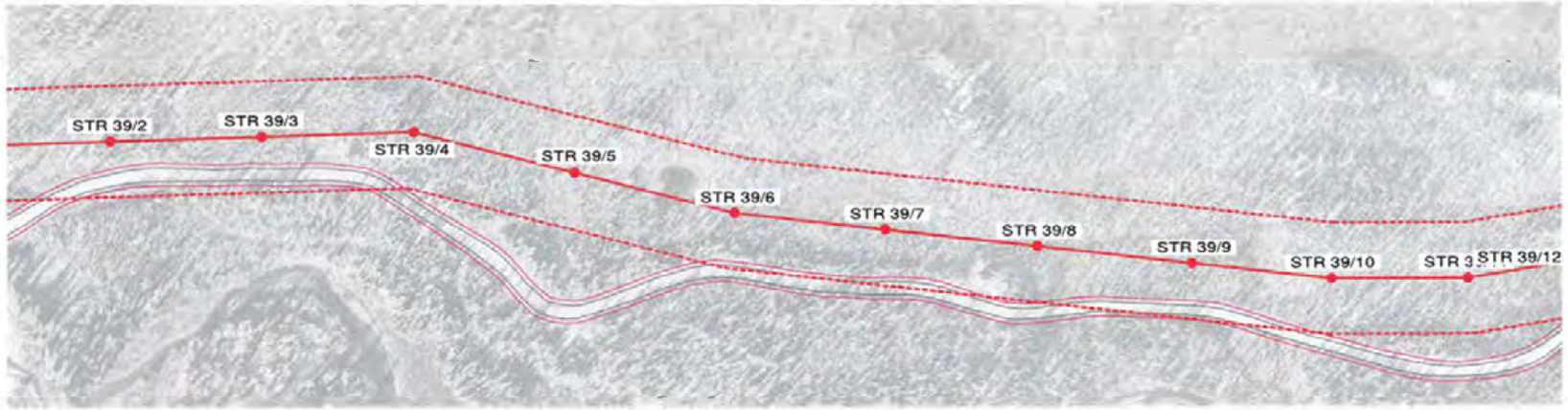


Forbes Bros

# AS-BUILT

CHANGES REQUIRED YES ☐ NO ☐

Name (Print) _____

Signature _____

Date _____

NOTES

1. ALL DIMENSIONS IN METRES (m) UNLESS NOTED OTHERWISE.
2. COORDINATES ARE IN UTM NAD83 ZONE 8N.
3. ELEVATIONS ARE IN METRES (m) ABOVE MEAN SEA LEVEL (AMSL).
4. 69 kV CONDUCTOR, ADSS CABLE AND OVERHEAD SHIELD WIRE "OHSW" DISPLAYED AT "WET SNOW" (-10° C, 51mm RADIAL SNOW).
5. LINE ANGLE DEFLECTION LOOKING TOWARD EAGLE GOLD PROJECT SITE INDICATED AS FOLLOWS:
   + RIGHT ANGLE DEFLECTION
   - LEFT ANGLE DEFLECTION
6. THIS LINE WILL BE NUMBERED L251 IN THE YUKON ENERGY CORPORATION (YEC) SYSTEM.
7. LEFT (DASH) AND RIGHT (DOT) PROFILE OFFSETS SHOWN AT 5 m CENTERLINE OFFSET.
8. DESIGN TENSIONS SHOWN IN TABLE 1.

TABLE 1

| CABLE TYPE | MEAN ANNUAL TEMP (-4° C) FULL TENSION SPANS (N) | MEAN ANNUAL TEMP (-4° C) TERMINAL SPANS (N) (SLACK) | WET SNOW (-10° C, 51mm RADIAL SNOW) FULL TENSION SPANS (N) | WET SNOW (-10° C, 51mm RADIAL SNOW) TERMINAL SPANS (N) (SLACK) |
|---|---|---|---|---|
| PARTRIDGE ACSR | 3,780 | 550 | 23,300 | 3,300 |
| ADSS | 7,600 | 150 | 13,900 | 3,300 |
| OHSW | 3,500 | 400 | 23,600 | 3,200 |

LEGEND

- 69 kV - 266.8 kcmil 26/7 "PARTRIDGE" ACSR
- ADSS - OFC-24 G.652D-FASA-S1 (ZTT)
- OHSW - 266.8 kcmil 26/7 "PARTRIDGE" ACSR
- ROAD EDGE
- 2.5m ROAD BUFFER
- 30m CLEARING BOUNDARY
- YEC L250 69 KV LINE (EXISTING)
- 60m WIDE RIGHT OF WAY BOUNDARY
- X KM APPROXIMATE ROAD KM MARKER

REFERENCES

| | |
|---|---|
| 1407-T-1000 | DRAWING LIST |
| 1407-T-1100 | ROUTE MAP |
| 1407-T-1400 | STRUCTURE DATA SHEET |
| 1407-T-1900 | SOUTH MCQUESTEN TRANSMISSION LINE CONNECTION - PLAN |
| 1407-T-3000 | STRUCTURE FAMILY |
| 1407-T-8000 | HWY 11 (SILVER TRAIL)-OVERHEAD LINE CROSSING-STR 0/4 TO STR 0/5 |

30.0 m Horiz. Scale
10.0 m Vert. Scale

ISSUED FOR CONSTRUCTION

PERMIT TO PRACTICE
W.N. BRAIZER ASSOCIATES INC.
SIGNATURE _____
Date 10/09/18
PERMIT NUMBER: PP295
Association of Professional Engineers of Yukon

| NO. | DATE | REVISION | DES | DWN | CHK | APR |
|---|---|---|---|---|---|---|
| 2 | AUG 10/18 | MCQUESTEN SUBSTATION & KM18 MODIFICATIONS | MP | MP | PC | NB |
| 1 | JUL 11/18 | BORROW PIT & ROAD PROXIMITY ALIGNMENT CHANGES | MP | MP | PC | MEO |
| 0 | MAY 11/18 | ISSUED FOR CONSTRUCTION | MP | MP | PC | MEO |

CLIENT: StrataGold Corporation

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|---|---|
| DATE | MAY 11/18 |
| DESIGN | MP |
| DRAWN | MP |
| CHECKED | PC |
| APPROVED | MEO |

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www.cleanenergyconsulting.ca
WN BRAZIER ASSOCIATES INC

SEAL: PROFESSIONAL ENGINEER YUKON W. NEIL BRAZIER TERRITORY

EAGLE GOLD PROJECT
L251 - 69 kV TRANSMISSION LINE
PLAN AND PROFILE (SHEET 50 OF 54)

| PROJECT No. | DRAWING No. | REV. |
|---|---|---|
| 1407 | 1407-T-1200-50 | 2 |

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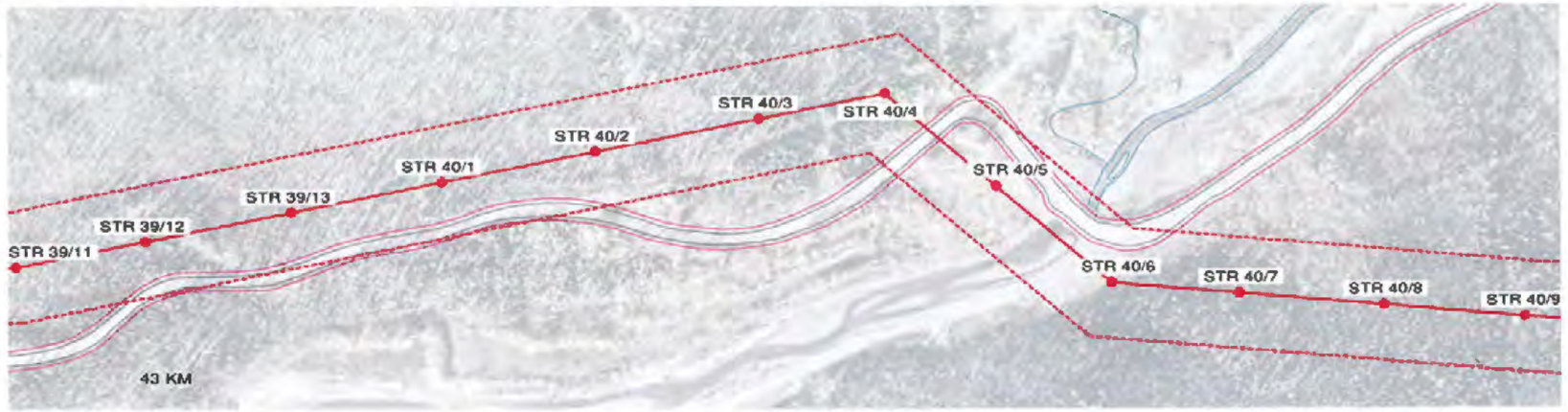
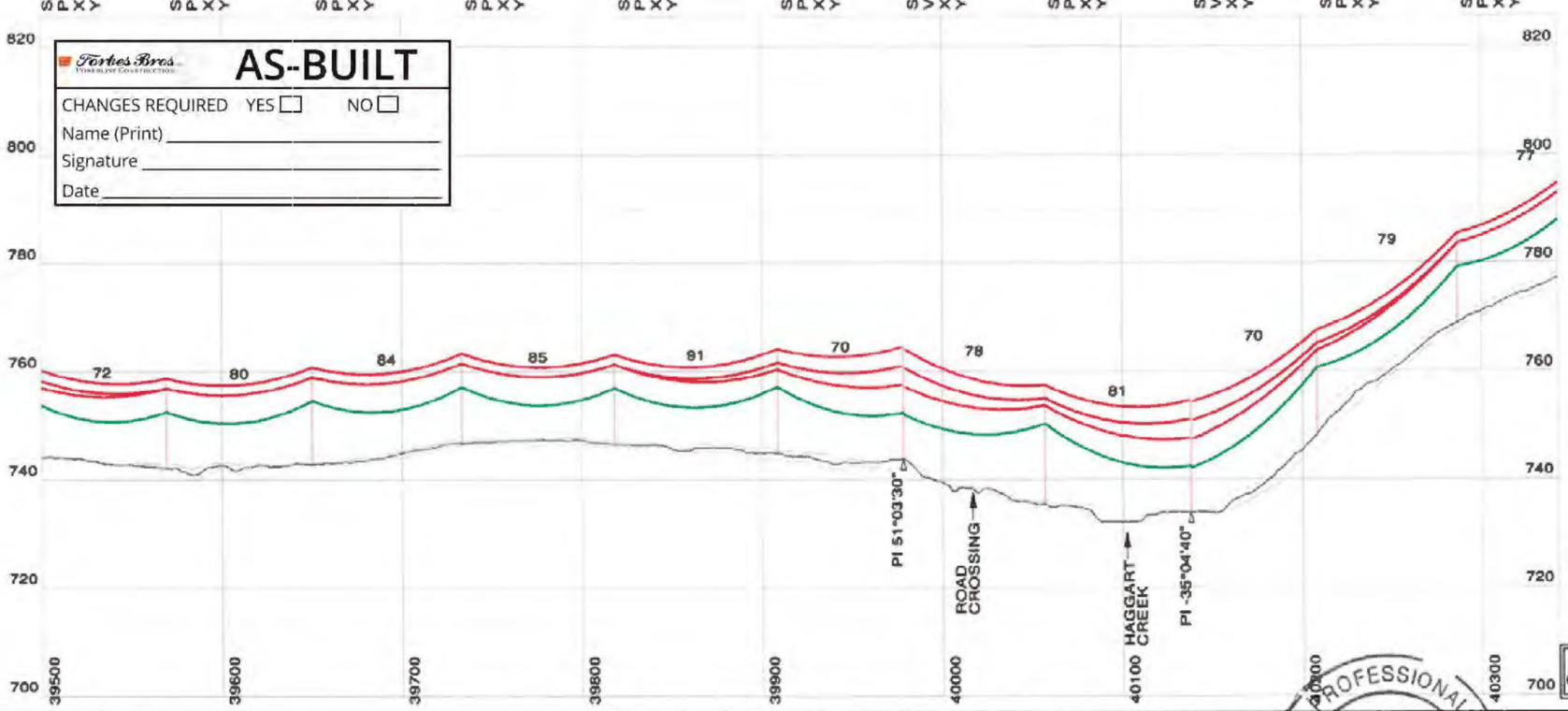



## NOTES

1. ALL DIMENSIONS IN METRES (m) UNLESS NOTED OTHERWISE.
2. COORDINATES ARE IN UTM NAD83 ZONE 8N.
3. ELEVATIONS ARE IN METRES (m) ABOVE MEAN SEA LEVEL (AMSL).
4. 69 kV CONDUCTOR, ADSS CABLE AND OVERHEAD SHIELD WIRE "OHSW" DISPLAYED AT "WET SNOW" (-10° C, 51mm RADIAL SNOW).
5. LINE ANGLE DEFLECTION LOOKING TOWARD EAGLE GOLD PROJECT SITE INDICATED AS FOLLOWS:
   + RIGHT ANGLE DEFLECTION
   - LEFT ANGLE DEFLECTION
6. THIS LINE WILL BE NUMBERED L251 IN THE YUKON ENERGY CORPORATION (YEC) SYSTEM.
7. LEFT (DASH) AND RIGHT (DOT) PROFILE OFFSETS SHOWN AT 5 m CENTERLINE OFFSET.
8. DESIGN TENSIONS SHOWN IN TABLE 1.

| TABLE 1 | MEAN ANNUAL TEMP (-4° C) | | WET SNOW (-10° C, 51mm RADIAL SNOW) | |
|---|---|---|---|---|
| CABLE TYPE | FULL TENSION SPANS (N) | TERMINAL SPANS (N) (SLACK) | FULL TENSION SPANS (N) | TERMINAL SPANS (N) (SLACK) |
| PARTRIDGE ACSR | 3,750 | 550 | 23,300 | 3,300 |
| ADSS | 7,500 | 150 | 13,900 | 3,300 |
| OHSW | 3,800 | 400 | 23,600 | 3,200 |




## LEGEND

- 69 kV - 266.8 kcmil 26/7 "PARTRIDGE" ACSR
- ADSS - OFC-24 G.652D-FASA-S1 (ZTT)
- OHSW - 266.8 kcmil 26/7 "PARTRIDGE" ACSR
- ROAD EDGE
- 2.5m ROAD BUFFER
- 30m CLEARING BOUNDARY
- YEC L250 69 KV LINE (EXISTING)
- 60m WIDE RIGHT OF WAY BOUNDARY
- X KM APPROXIMATE ROAD KM MARKER

## REFERENCES

| | |
|---|---|
| 1407-T-1000 | DRAWING LIST |
| 1407-T-1100 | ROUTE MAP |
| 1407-T-1400 | STRUCTURE DATA SHEET |
| 1407-T-1900 | SOUTH MCQUESTEN TRANSMISSION LINE CONNECTION - PLAN |
| 1407-T-3000 | STRUCTURE FAMILY |
| 1407-T-6000 | HWY 11 (SILVER TRAIL)-OVERHEAD LINE CROSSING-STR 0/4 TO STR 0/5 |

30.0 m Horiz. Scale
10.0 m Vert. Scale

ISSUED FOR CONSTRUCTION

PERMIT TO PRACTICE
W.N. BRAZIER ASSOCIATES INC.
SIGNATURE
Date 10/05/16
PERMIT NUMBER: PP295
Association of Professional Engineers of Yukon

Forbes Bros. Powerline Construction

**AS-BUILT**

CHANGES REQUIRED YES ☐ NO ☐
Name (Print) _____
Signature _____
Date _____

| NO. | DATE | REVISION | DES | DWN | CHK | APR |
|---|---|---|---|---|---|---|
| 2 | AUG 10/18 | MCQUESTEN SUBSTATION & KM18 MODIFICATIONS | MP | MP | PC | NB |
| 1 | JUL 11/18 | BORROW PIT & ROAD PROXIMITY ALIGNMENT CHANGES | MP | MP | PC | MEO |
| 0 | MAY 11/18 | ISSUED FOR CONSTRUCTION | MP | MP | PC | MEO |

CLIENT: StrataGold Corporation

| | |
|---|---|
| DATE | MAY 11/18 |
| DESIGN | MP |
| DRAWN | MP |
| CHECKED | PC |
| APPROVED | MEO |

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www.cleanenergyconsulting.ca
WN BRAZIER ASSOCIATES INC

SEAL: PROFESSIONAL ENGINEER — YUKON — W. NEIL BRAZIER — TERRITORY

# EAGLE GOLD PROJECT
## L251 - 69 kV TRANSMISSION LINE
## PLAN AND PROFILE (SHEET 51 OF 54)

| PROJECT No. | DRAWING No. | REV. |
|---|---|---|
| 1407 | 1407-T-1200-51 | 2 |

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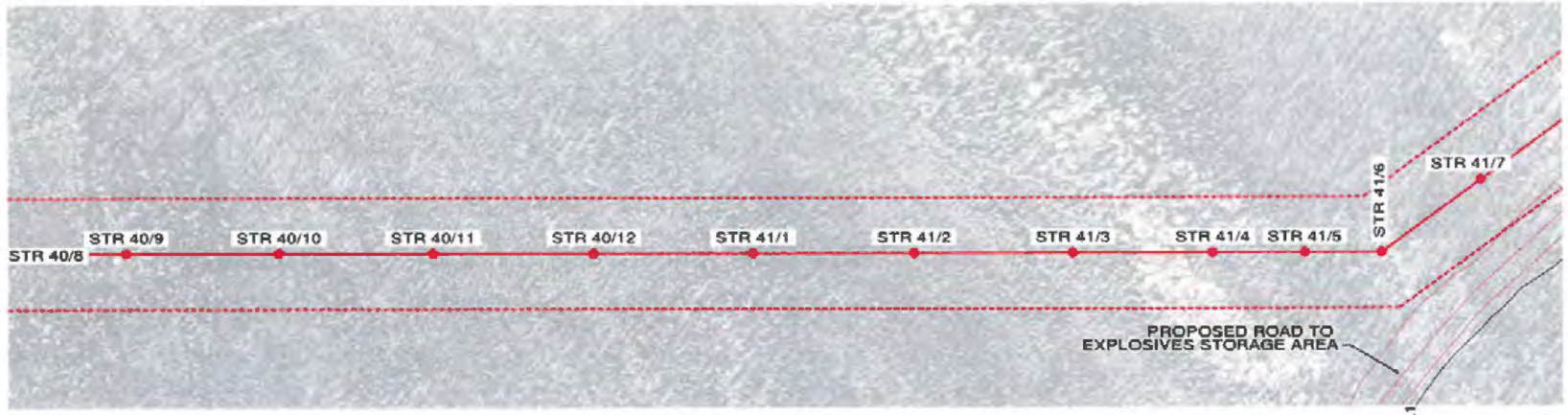


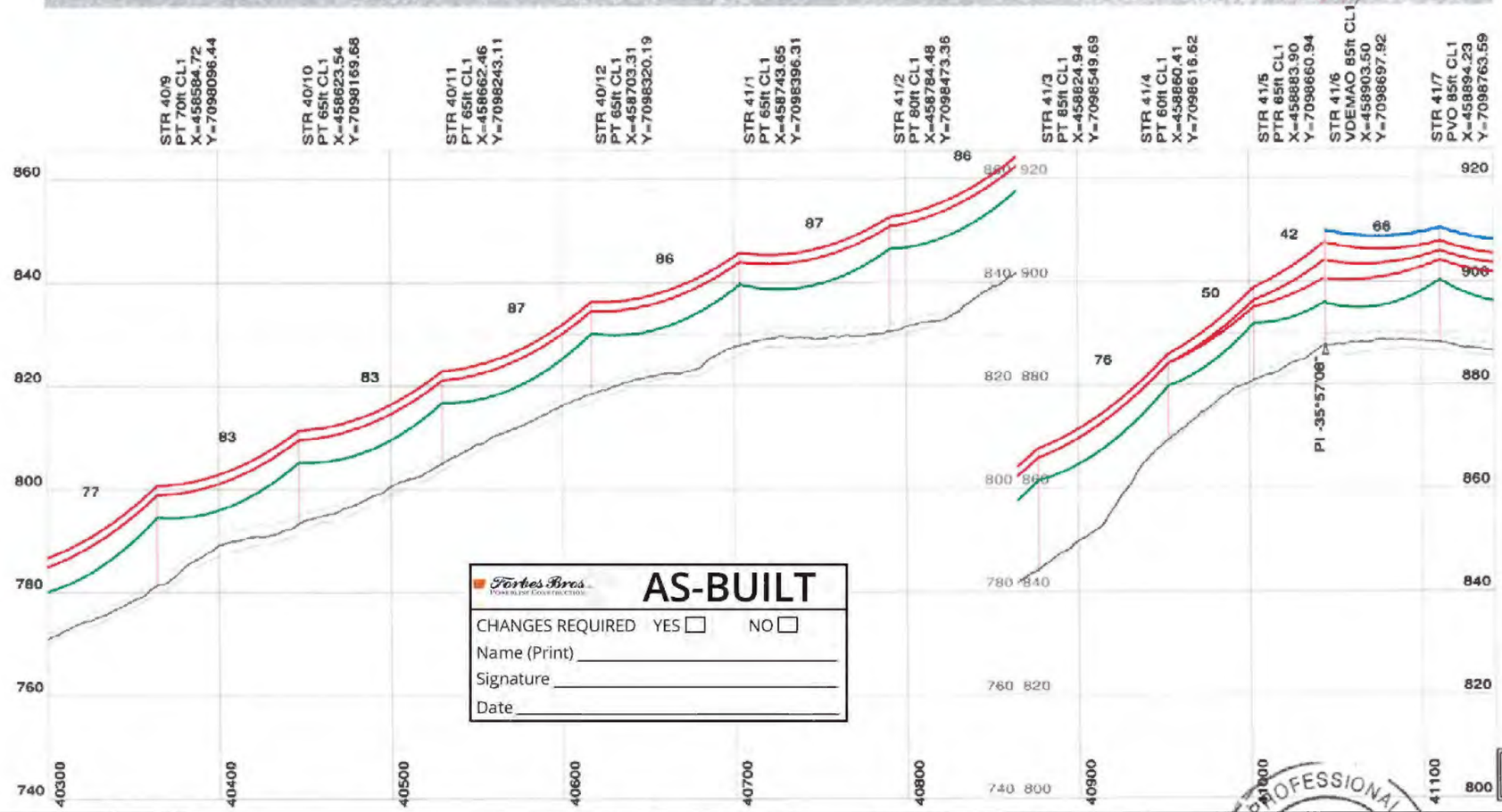


AS-BUILT

Forbes Bros. Power of Construction

CHANGES REQUIRED YES ☐ NO ☐

Name (Print) _____

Signature _____

Date _____

## NOTES

1. ALL DIMENSIONS IN METRES (m) UNLESS NOTED OTHERWISE.
2. COORDINATES ARE IN UTM NAD83 ZONE 8N.
3. ELEVATIONS ARE IN METRES (m) ABOVE MEAN SEA LEVEL (AMSL).
4. 69 kV CONDUCTOR, ADSS CABLE AND OVERHEAD SHIELD WIRE "OHSW" DISPLAYED AT "WET SNOW" (-10° C, 51mm RADIAL SNOW).
5. LINE ANGLE DEFLECTION LOOKING TOWARD EAGLE GOLD PROJECT SITE INDICATED AS FOLLOWS:
   + RIGHT ANGLE DEFLECTION
   - LEFT ANGLE DEFLECTION
6. THIS LINE WILL BE NUMBERED L251 IN THE YUKON ENERGY CORPORATION (YEC) SYSTEM.
7. LEFT (DASH) AND RIGHT (DOT) PROFILE OFFSETS SHOWN AT 5 m CENTERLINE OFFSET.
8. DESIGN TENSIONS SHOWN IN TABLE 1.

TABLE 1

| CABLE TYPE | MEAN ANNUAL TEMP (-4° C) FULL TENSION SPANS (N) | MEAN ANNUAL TEMP (-4° C) TERMINAL SPANS (N) (SLACK) | WET SNOW (-10° C, 51mm RADIAL SNOW) FULL TENSION SPANS (N) | WET SNOW (-10° C, 51mm RADIAL SNOW) TERMINAL SPANS (N) (SLACK) |
|---|---|---|---|---|
| PARTRIDGE ACSR | 3,750 | 550 | 23,300 | 3,300 |
| ADSS | 7,500 | 150 | 13,900 | 3,300 |
| OHSW | 3,500 | 400 | 23,600 | 3,200 |

## LEGEND

- 69 kV - 266.8 kcmil 26/7 "PARTRIDGE" ACSR
- ADSS - OFC-24 G.652D-FASA-S1 (ZTT)
- OHSW - 266.8 kcmil 26/7 "PARTRIDGE" ACSR
- ROAD EDGE
- 2.5m ROAD BUFFER
- 30m CLEARING BOUNDARY
- YEC L250 69 KV LINE (EXISTING)
- 60m WIDE RIGHT OF WAY BOUNDARY
- X KM APPROXIMATE ROAD KM MARKER

## REFERENCES

| | |
|---|---|
| 1407-T-1000 | DRAWING LIST |
| 1407-T-1100 | ROUTE MAP |
| 1407-T-1400 | STRUCTURE DATA SHEET |
| 1407-T-1900 | SOUTH MCQUESTEN TRANSMISSION LINE CONNECTION - PLAN |
| 1407-T-3000 | STRUCTURE FAMILY |
| 1407-T-6000 | HWY 11 (SILVER TRAIL)-OVERHEAD LINE CROSSING-STR 0/4 TO STR 0/5 |

30.0 m Horiz. Scale
10.0 m Vert. Scale

PERMIT TO PRACTICE
W.N. BRAIZER ASSOCIATES INC.
SIGNATURE
Date 16/08/18
PERMIT NUMBER: PP295
Association of Professional Engineers of Yukon

ISSUED FOR CONSTRUCTION

| NO. | DATE | REVISION | DES | DWN | CHK | APR |
|---|---|---|---|---|---|---|
| 2 | AUG 10/18 | MCQUESTEN SUBSTATION & KM18 MODIFICATIONS | MP | MP | PC | NB |
| 1 | JUL 11/18 | BORROW PIT & ROAD PROXIMITY ALIGNMENT CHANGES | MP | MP | PC | MEO |
| 0 | MAY 11/18 | ISSUED FOR CONSTRUCTION | MP | MP | PC | MEO |

CLIENT: StrataGold Corporation

| | |
|---|---|
| DATE | MAY 11/18 |
| DESIGN | MP |
| DRAWN | MP |
| CHECKED | PC |
| APPROVED | MEO |

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www.cleanenergyconsulting.ca
WN BRAZIER ASSOCIATES INC

SEAL: PROFESSIONAL ENGINEER YUKON TERRITORY W. NEIL BRAZIER

EAGLE GOLD PROJECT
L251 - 69 kV TRANSMISSION LINE
PLAN AND PROFILE (SHEET 52 OF 54)

| PROJECT No. | DRAWING No. | REV. |
|---|---|---|
| 1407 | 1407-T-1200-52 | 2 |

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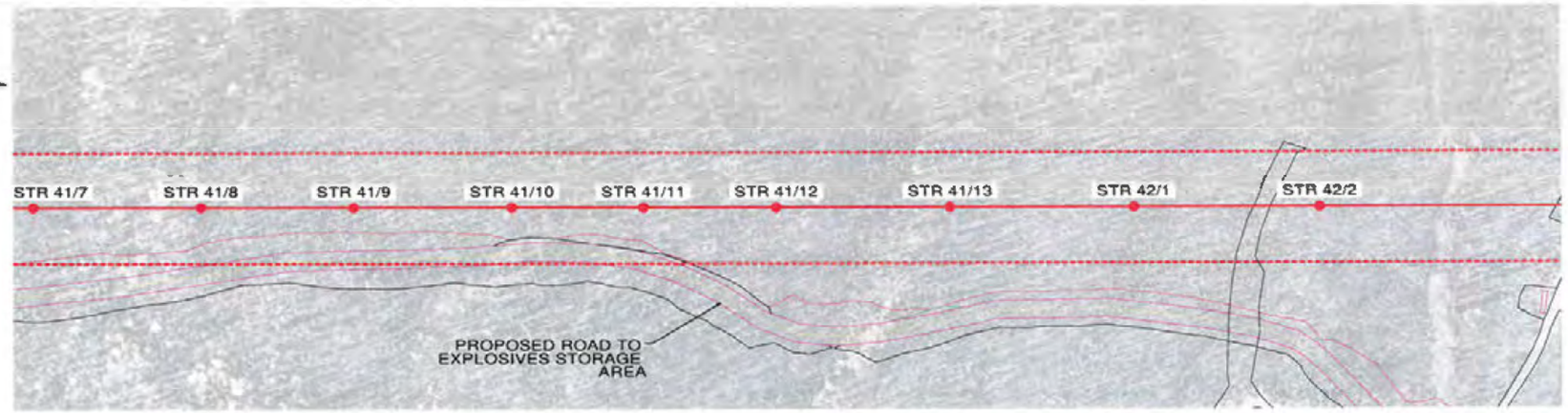


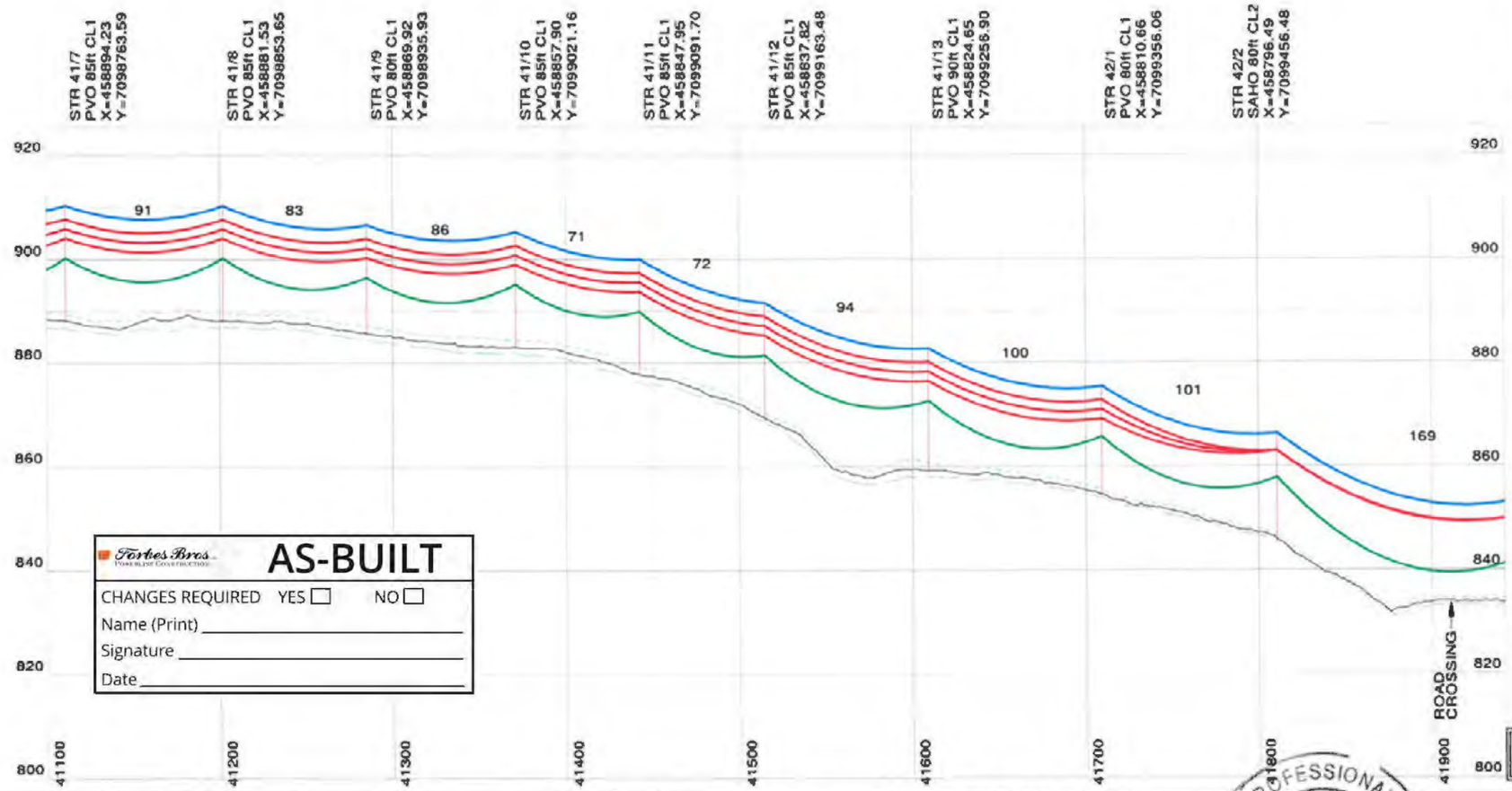


**NOTES**

1. ALL DIMENSIONS IN METRES (m) UNLESS NOTED OTHERWISE.
2. COORDINATES ARE IN UTM NAD83 ZONE 8N.
3. ELEVATIONS ARE IN METRES (m) ABOVE MEAN SEA LEVEL (AMSL).
4. 69 kV CONDUCTOR, ADSS CABLE AND OVERHEAD SHIELD WIRE "OHSW" DISPLAYED AT "WET SNOW" (-10° C, 51mm RADIAL SNOW).
5. LINE ANGLE DEFLECTION LOOKING TOWARD EAGLE GOLD PROJECT SITE INDICATED AS FOLLOWS:
   + RIGHT ANGLE DEFLECTION
   - LEFT ANGLE DEFLECTION
6. THIS LINE WILL BE NUMBERED L251 IN THE YUKON ENERGY CORPORATION (YEC) SYSTEM.
7. LEFT (DASH) AND RIGHT (DOT) PROFILE OFFSETS SHOWN AT 5 m CENTERLINE OFFSET.
8. DESIGN TENSIONS SHOWN IN TABLE 1.

**TABLE 1**

| CABLE TYPE | MEAN ANNUAL TEMP (-4° C) | | WET SNOW (-10° C, 51mm RADIAL SNOW) | |
|---|---|---|---|---|
| | FULL TENSION SPANS (N) | TERMINAL SPANS (N) (SLACK) | FULL TENSION SPANS (N) | TERMINAL SPANS (N) (SLACK) |
| PARTRIDGE ACSR | 3,750 | 550 | 23,300 | 3,300 |
| ADSS | 7,500 | 150 | 13,600 | 3,300 |
| OHSW | 3,500 | 400 | 23,600 | 3,200 |

**LEGEND**

- 69 kV - 266.8 kcmil 26/7 "PARTRIDGE" ACSR
- ADSS - OFC-24 G.652D-FASA-S1 (ZTT)
- OHSW - 266.8 kcmil 26/7 "PARTRIDGE" ACSR
- ROAD EDGE
- 2.5m ROAD BUFFER
- 30m CLEARING BOUNDARY
- YEC L250 69 KV LINE (EXISTING)
- 60m WIDE RIGHT OF WAY BOUNDARY
- X KM APPROXIMATE ROAD KM MARKER

**REFERENCES**

| | |
|---|---|
| 1407-T-1000 | DRAWING LIST |
| 1407-T-1100 | ROUTE MAP |
| 1407-T-1400 | STRUCTURE DATA SHEET |
| 1407-T-1900 | SOUTH MCQUESTEN TRANSMISSION LINE CONNECTION - PLAN |
| 1407-T-3000 | STRUCTURE FAMILY |
| 1407-T-6000 | HWY 11 (SILVER TRAIL)-OVERHEAD LINE CROSSING-STR 0/4 TO STR 0/5 |

30.0 m Horiz. Scale
10.0 m Vert. Scale

ISSUED FOR CONSTRUCTION

PERMIT TO PRACTICE
W.N. BRAIZER ASSOCIATES INC.
SIGNATURE
Date 10/08/18
PERMIT NUMBER: PP295
Association of Professional Engineers of Yukon

Forbes Bros. AS-BUILT
CHANGES REQUIRED YES ☐ NO ☐
Name (Print) _____
Signature _____
Date _____

| NO. | DATE | REVISION | DES | DWN | CHK | APR |
|---|---|---|---|---|---|---|
| 2 | AUG 10/18 | MCQUESTEN SUBSTATION & KM18 MODIFICATIONS | MP | MP | PC | NB |
| 1 | JUL 11/18 | BORROW PIT & ROAD PROXIMITY ALIGNMENT CHANGES | MP | MP | PC | MEO |
| 0 | MAY 11/18 | ISSUED FOR CONSTRUCTION | MP | MP | PC | MEO |

CLIENT: StrataGold Corporation
DATE: MAY 11/18
DESIGN: MP
DRAWN: MP
CHECKED: PC
APPROVED: MEO

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www.cleanenergyconsulting.ca
WN BRAZIER ASSOCIATES INC

PROFESSIONAL ENGINEER YUKON W. NEIL BRAIZER TERRITORY

# EAGLE GOLD PROJECT
## L251 - 69 kV TRANSMISSION LINE
## PLAN AND PROFILE (SHEET 53 OF 54)

PROJECT No. 1407
DRAWING No. 1407-T-1200-53
REV. 2

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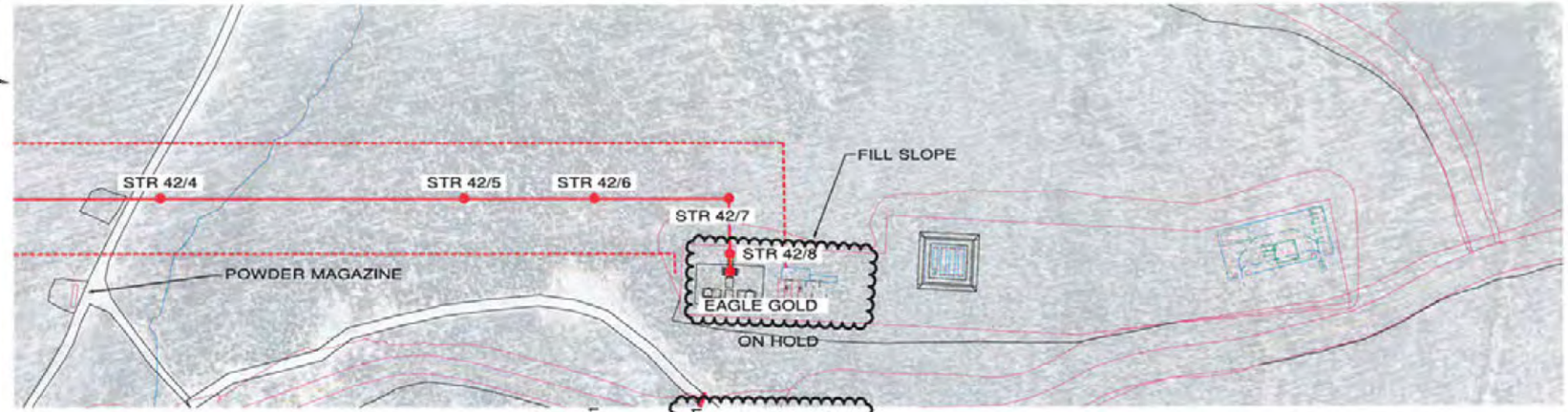


AS-BUILT

CHANGES REQUIRED YES ☐ NO ☐

Name (Print) _____

Signature _____

Date _____

NOTES

1. ALL DIMENSIONS IN METRES (m) UNLESS NOTED OTHERWISE.
2. COORDINATES ARE IN UTM NAD83 ZONE 8N.
3. ELEVATIONS ARE IN METRES (m) ABOVE MEAN SEA LEVEL (AMSL).
4. 69 kV CONDUCTOR, ADSS CABLE AND OVERHEAD SHIELD WIRE "OHSW" DISPLAYED AT "WET SNOW" (-10° C, 51mm RADIAL SNOW).
5. LINE ANGLE DEFLECTION LOOKING TOWARD EAGLE GOLD PROJECT SITE INDICATED AS FOLLOWS:
   + RIGHT ANGLE DEFLECTION
   - LEFT ANGLE DEFLECTION
6. THIS LINE WILL BE NUMBERED L251 IN THE YUKON ENERGY CORPORATION (YEC) SYSTEM.
7. LEFT (DASH) AND RIGHT (DOT) PROFILE OFFSETS SHOWN AT 5 m CENTERLINE OFFSET.
8. DESIGN TENSIONS SHOWN IN TABLE 1.

| TABLE 1 | MEAN ANNUAL TEMP (-4° C) | | WET SNOW (-10° C, 51mm RADIAL SNOW) | |
|---|---|---|---|---|
| CABLE TYPE | FULL TENSION SPANS (N) | TERMINAL SPANS (N) (SLACK) | FULL TENSION SPANS (N) | TERMINAL SPANS (N) (SLACK) |
| PARTRIDGE ACSR | 3,750 | 550 | 23,300 | 3,300 |
| ADSS | 7,500 | 150 | 13,900 | 3,300 |
| OHSW | 3,500 | 400 | 23,600 | 3,200 |

LEGEND

- 69 kV - 266.8 kcmil 26/7 "PARTRIDGE" ACSR
- ADSS - OFC-24 G.652D-FASA-S1 (ZTT)
- OHSW - 266.8 kcmil 26/7 "PARTRIDGE" ACSR
- ROAD EDGE
- 2.5m ROAD BUFFER
- 30m CLEARING BOUNDARY
- YEC L250 69 KV LINE (EXISTING)
- 60m WIDE RIGHT OF WAY BOUNDARY
- X KM APPROXIMATE ROAD KM MARKER

REFERENCES

| | |
|---|---|
| 1407-T-1000 | DRAWING LIST |
| 1407-T-1100 | ROUTE MAP |
| 1407-T-1400 | STRUCTURE DATA SHEET |
| 1407-T-1900 | SOUTH MCQUESTEN TRANSMISSION LINE CONNECTION - PLAN |
| 1407-T-3000 | STRUCTURE FAMILY |
| 1407-T-8000 | HWY 11 (SILVER TRAIL)-OVERHEAD LINE CROSSING-STR 0/4 TO STR 0/5 |

30.0 m Horiz. Scale
10.0 m Vert. Scale

ISSUED FOR CONSTRUCTION

PERMIT TO PRACTICE
W.N. BRAIZER ASSOCIATES INC.
SIGNATURE _____
Date 10/03/18
PERMIT NUMBER: PP295
Association of Professional Engineers of Yukon

| NO. | DATE | REVISION | DES | DWN | CHK | APR |
|---|---|---|---|---|---|---|
| 2 | AUG 10/18 | MCQUESTEN SUBSTATION & KM18 MODIFICATIONS | MP | MP | PC | NB |
| 1 | JUL 11/18 | BORROW PIT & ROAD PROXIMITY ALIGNMENT CHANGES | MP | MP | PC | MEO |
| 0 | MAY 11/18 | ISSUED FOR CONSTRUCTION | MP | MP | PC | MEO |

CLIENT: StrataGold Corporation

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| DATE | MAY 11/18 |
| DESIGN | MP |
| DRAWN | MP |
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| APPROVED | MEO |

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APEGY YUKON TERRITORY PROFESSIONAL ENGINEER
W. NEIL BRAZIER

EAGLE GOLD PROJECT
L251 - 69 kV TRANSMISSION LINE
PLAN AND PROFILE (SHEET 54 OF 54)

| PROJECT No. | DRAWING No. | REV. |
|---|---|---|
| 1407 | 1407-T-1200-54 | 2 |

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| AREA | DOC NAME | REV | DESCRIPTION |
|---|---|---|---|
| GENERAL | 1407-T-1000 | 2 | DRAWING LIST |
| | 1407-T-1100 | 2 | ROUTE MAPS (14 SHEETS) |
| | 1407-T-1200 | 2 | PLAN AND PROFILE (54 SHEETS) |
| | 1407-T-1300 | 0 | WOODPOLE STRUCTURE, GENERAL CONSTRUCTION NOTES (2 SHEETS) |
| | 1407-T-1400 | 2 | STRUCTURE DATA SHEET (27 SHEETS) |
| | 1407-T-1404 | 2 | CENTRELINE STAKING SHEET (3 SHEETS) |
| | 1407-T-1405 | 2 | STRUCTURE STAKING SHEET (21 SHEETS) |
| | 1407-T-1500 | 2 | PHASING (2 SHEETS) |
| | 1407-T-1700 | 2 | BILL OF MATERIALS (3 SHEETS) |
| | 1407-T-1900 | 0 | SOUTH MCQUESTEN TRANSMISSION LINE CONNECTION - PLAN - OBSOLETE |
| FOUNDATIONS | 1407-T-2000 | 0 | STANDARD POLE SETTING DEPTHS FOR WOOD POLE STRUCTURES |
| | 1407-T-2004 | 0 | TYPICAL POLE SETTING DETAILS |
| | 1407-T-2005 | 0 | GCMP POLE SETTING DETAILS FOR WEAK SOILS |
| | 1407-T-2006 | 0 | PERMAFROST POLE SETTING DETAILS |
| | 1407-T-2015 | 0 | ALTERNATE POLE SETTING DETAIL FOR TANGENTS IN PERMAFROST |
| | 1407-T-2016 | 0 | AUGERED POLE SETTING DETAIL FOR STUCTURES IN PERMAFROST |
| | 1407-T-2017 | 0 | POLE SETTING DETAIL FOR TANGENTS IN SWAMP |
| | 1407-T-2050 | 0 | STANDARD LOG ANCHOR SYSTEM FOR WOOD POLE STRUCTURES |
| | 1407-T-2051 | 0 | STANDARD ROCK ANCHOR SYSTEM FOR WOOD POLE STRUCTURES |
| | 1407-T-2060 | 0 | STANDARD PLATE ANCHOR SYSTEM FOR WOOD POLE STRUCTURES |
| STRUCTURAL | 1407-T-3000 | 0 | WOOD POLE STRUCTURE FAMILY |
| | 1407-T-3005 | 0 | POST TANGENT STRUCTURE, 0° - 3° |
| | 1407-T-3006 | 0 | POST TANGENT GUYED STRUCTURE, 3° - 15° |
| | 1407-T-3007 | 0 | POST TANGENT ROLL STRUCTURE, 0° - 3° |
| | 1407-T-3010 | 0 | VERTICAL MEDIUM ANGLE STRUCTURE, 15° - 30° |
| | 1407-T-3020 | 0 | DEADEND STRUCTURE - DOUBLE ARM FLAT, 0° - 45° |
| | 1407-T-3035 | 0 | VERTICAL DEADEND HEAVY ANGLE STRUCTURE, 45° - 90° |
| | 1407-T-3036 | 0 | VERTICAL DEADEND MEDIUM ANGLE STRUCTURE, 25° - 45° |
| | 1407-T-3040 | 0 | SINGLE STEEL ARM H-FRAME STRUCTURE, 0° - 3° |
| | 1407-T-3050 | 0 | POST VERTICAL WITH OHSW STRUCTURE, 0° - 3° |
| | 1407-T-3055 | 0 | VERTICAL DEADEND HEAVY ANGLE WITH OHSW STRUCTURE, 45° - 90° |
| | 1407-T-3056 | 0 | VERTICAL DEADEND MEDIUM ANGLE WITH OHSW STRUCTURE, 25° - 45° |
| | 1407-T-3060 | 0 | DOUBLE ARM H-FRAME DEADEND WITH OHSW STRUCTURE (2 SHEETS) |

| AREA | DOC NAME | REV | DESCRIPTION |
|---|---|---|---|
| HARDWARE | 1407-T-4050 | 0 | SINGLE GUY ASSEMBLY |
| | 1407-T-4055 | 0 | DOUBLE GUY ASSEMBLY |
| | 1407-T-4100 | 0 | SINGLE 70 kN JUMPER SUSPENSION HARDWARE ASSEMBLY |
| | 1407-T-4101 | 0 | SINGLE 70 kN INSULATOR STRING SUSPENSION HARDWARE ASSEMBLY |
| | 1407-T-4105 | 0 | DEADEND ASSEMBLY HARDWARE - 70 kN |
| | 1407-T-4106 | 0 | REVERSED INSULATOR DEADEND ASSEMBLY HARDWARE - 70 kN |
| | 1407-T-4110 | 0 | SUSPENSION INSULATOR - HOLD-DOWN WEIGHTS |
| | 1407-T-4120 | 0 | ADSS SUSPENSION ASSEMBLY |
| | 1407-T-4125 | 0 | ADSS SUSPENSION GUYED ASSEMBLY |
| | 1407-T-4130 | 0 | ADSS DEADEND DOWNLEAD ASSEMBLY |
| | 1407-T-4135 | 0 | ADSS DOUBLE DEADEND ASSEMBLY |
| | 1407-T-4140 | 0 | ADSS DOUBLE DEADEND DOWNLEAD FOR SPLICE LOCATIONS ASSEMBLY |
| | 1407-T-4145 | 0 | ADSS SPLICE BOX ASSEMBLY |
| | 1407-T-4150 | 0 | SUSPENSION OHSW HARDWARE ASSEMBLY |
| | 1407-T-4155 | 0 | OHSW DEADEND HARDWARE ASSEMBLY |
| | 1407-T-4160 | 0 | OHSW DOUBLE DEADEND HARDWARE ASSEMBLY |
| | 1407-T-4165 | 0 | OHSW DOUBLE DEADEND HARDWARE FOR H-FRAME DEADEND ASSEMBLY |
| | 1407-T-4200 | 0 | NUMBER SIGN INSTALLATION ON WOOD POLE STRUCTURES |
| | 1407-T-4400 | 0 | FDE DEADEND STRUCTURE STEEL CROSSARM |
| | 1407-T-4405 | 0 | H-FRAME STEEL CROSSARM AND X-BRACE DETAILS |
| | 1407-T-4450 | 0 | STANDARD GROUNDING DETAILS (2 SHEETS) |
| RIGHT-OF-WAY | 1407-T-5000 | 0 | RIGHT-OF-WAY CROSS SECTION - NEW 69 kV PT STRUCTURE TYPICAL |
| | 1407-T-5005 | 0 | RIGHT-OF-WAY CROSS SECTION - NEW 69 kV H-FRAME 170 M SPAN |
| | 1407-T-5010 | 0 | VEGETATION CLEARING - CROSS SECTION - PT STRUCTURES |
| | 1407-T-5015 | 0 | VEGETATION CLEARING - CROSS SECTION - H-FRAME |
| | 1407-T-5016 | 0 | VEGETATION CLEARING CROSS SECTION IN 30m ROW - PT STRUCTURE |
| CROSSING | 1407-T-6000 | 0 | HWY 11 (SILVER TRAIL)-OVERHEAD LINE CROSSING - STR 0/4 TO STR 0/5 - OBSOLETE |

FORBES BROS **AS-BUILT**

CHANGES REQUIRED YES ☐ NO ☐

Name (Print) _____

Signature _____

Date _____

ISSUED FOR CONSTRUCTION

PERMIT TO PRACTICE
W.N. BRAZIER ASSOCIATES INC.
SIGNATURE _____
Date 15/08/18
PERMIT NUMBER: PP295
Association of Professional Engineers of Yukon

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| NO. | DATE | REVISION | DES | DWN | CHK | APR |
|---|---|---|---|---|---|---|
| - | | | | | | |
| - | | | | | | |
| - | | | | | | |
| 2 | AUG 10/18 | GENERAL REVISION | MP | SE | PC | NB |
| 1 | JUL 11/18 | BORROW PIT & ROAD PROXIMITY ALIGNMENT CHANGES | MP | SE | PC | MEO |
| 0 | MAY 11/18 | ISSUED FOR CONSTRUCTION | MP | SE | PC | MEO |

CLIENT StrataGold Corporation

| | |
|---|---|
| DATE | MAY 11/18 |
| DESIGN | MP |
| DRAWN | SE |
| CHECKED | PC |
| APPROVED | MEO |

Clean Energy CONSULTING INC.
www.cleanenergyconsulting.co

WN BRAZIER ASSOCIATES INC

SEAL: PROFESSIONAL ENGINEER — YUKON — W. NEIL BRAZIER — TERRITORY

EAGLE GOLD PROJECT

69 kV TRANSMISSION LINE

DRAWING LIST

| PROJECT No. | DRAWING No. | REV. |
|---|---|---|
| 1407 | 1407-T-1000 | 2 |

# ATTACHMENT B

## Request for Information Forms

# RFI #40

Clark Builders
4703 - 52 Avenue
Edmonton, Alberta T6B 3R6
Phone: (780) 395-3300
Fax: (780) 395-3545

**Project:** 18502 - CB201-JDS - Stratagold Eagle Gold
Yukon Territory

## Grounding Plates substitute for grounding rods

| | | | |
|---|---|---|---|
| **TO:** | Calvin Goldschmidt **(JDS Energy and Mining)** | **FROM::** | Ryan de Milliano **(Clark Builders - Edmonton)** Edmonton, Alberta |
| **DATE INITIATED:** | 19/08/2018 | **STATUS:** | Open |
| **LOCATION:** | 0000 Site Wide | **DUE DATE:** | 24/08/2018 |
| **SUB JOB:** | | **COST CODE:** | |
| **COST IMPACT:** | No | **SCHEDULE IMPACT:** | No |
| **DRAWING NUMBER:** | | **SPEC SECTION:** | |
| **LINKED DRAWINGS:** | | **REFERENCE:** | |
| **RECEIVED FROM:** | Ed Rees **(Tarpon Energy)** | | |

**COPIES TO:**
Chris Copley **(JDS Energy and Mining)**, Matt Coverdale **(JDS Energy and Mining)**, Garry Dahl **(Clark Builders - Edmonton)**, Calvin Goldschmidt **(JDS Energy and Mining)**, Ed Rees **(Tarpon Energy)**, Jackson Wenger **(Clark Builders - Edmonton)**, Ryan de Milliano **(Clark Builders - Edmonton)**

### Question from Ryan de Milliano (Clark Builders - Edmonton) at 10:58 AM on 19/08/2018

Clark is requesting permission to replace specified grounding rods with grounding plates for site.

Awaiting an Official Response

**All Replies:**

**BY** **DATE** **COPIES TO**

**From:** Calvin Goldschmidt
**To:** Dahl, Garry
**Cc:** Tietz, Marc; Don Carter; Sven Archimowitz; Matt Coverdale; de Milliano, Ryan; Wenger, Jackson; D"Arcy Comerford
**Subject:** VG_CB201 - ADR Grounding Plates
**Date:** Sunday, August 19, 2018 9:46:57 AM
**Importance:** High

---

Garry,

After this morning's meeting I checked on the status of RFIs related to grounding. The only one I can find was related to ground grid depth (RFI-024). This was responded to on the 13th.

I don't have an rfi specific to replacement of ground rods with plates or sizing of plates. However I know these have been discussed.

So please proceed with the following related to the grounding at the ADR:
1: Ground rods specified on the drawings can be replaced with ground plates
2: Size of grounding plates can be 300mm x 300mm or similar in size.

To formalize this, please ensure an RFI is sent ASAP and we will attach this email as the response.

Thanks.

Calvin Goldschmidt
Project Manager
Cell (604) 377-4522
email calving@jdsmining.ca
web jdsmining.ca

KELOWNA | VANCOUVER | WHITEHORSE | YELLOWKNIFE | TUCSON | HERMOSILLO

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# RFI #92

Clark Builders
4703 - 52 Avenue
Edmonton, Alberta T6B 3R6
Phone: (780) 395-3300
Fax: (780) 395-3545

**Project:** 18502 - CB201-JDS - Stratagold Eagle Gold
Yukon Territory

## 6320 Substation Sump Form

| | | | |
|---|---|---|---|
| **TO:** | Tawnya Thornton **(JDS Energy and Mining)** | **FROM:** | Jackson Wenger **(Clark Builders - Edmonton)** |
| **DATE INITIATED:** | 10/10/2018 | **STATUS:** | Open |
| **LOCATION:** | 6320 | **DUE DATE:** | 13/10/2018 |
| **PROJECT STAGE:** | | **COST CODE:** | |
| **SUB JOB:** | | **SCHEDULE IMPACT:** | |
| **COST IMPACT:** | | **SPEC SECTION:** | |
| **DRAWING NUMBER:** | | **REFERENCE:** | |
| **LINKED DRAWINGS:** | | | |
| **RECEIVED FROM:** | | | |

**COPIES TO:**
Matt Coverdale **(JDS Energy and Mining)**, Garry Dahl **(Clark Builders - Edmonton)**, Ishan Fechter **(JDS Energy and Mining)**, Branden Fraser **(JDS Energy and Mining)**, Calvin Goldschmidt **(JDS Energy and Mining)**, Gary Hosey **(Clark Builders - Edmonton)**, Jan Johnson **(Clark Builders - Edmonton)**, Peter Nice **(Clark Builders - Edmonton)**, Henry Rueda **(Clark Builders - Edmonton)**, Tawnya Thornton **(JDS Energy and Mining)**, Jackson Wenger **(Clark Builders - Edmonton)**, Ryan de Milliano **(Clark Builders - Edmonton)**

### Question from Jackson Wenger (Clark Builders - Edmonton) at 08:41 PM on 10/10/2018

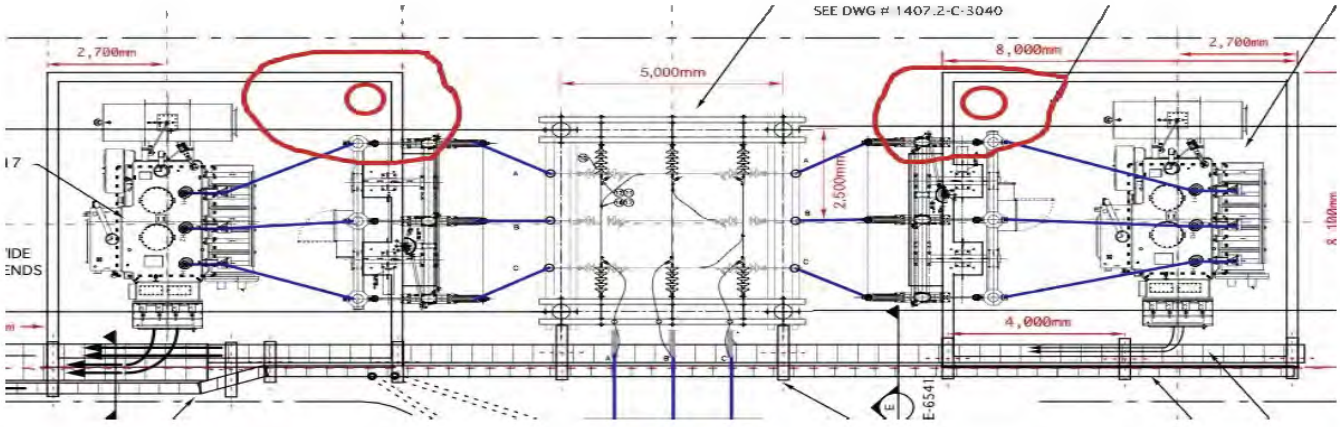
Clark Builders is requesting to use a 16” metal culvert for the substation sump block out. Please advise if acceptable.

**Attachments:**
3E52290B-518D-4385-ADBE-EBF6FD356DCA-261-000000085962243A_image.jpg

Awaiting an Official Response

### All Replies:

Galvanized culvert is fine. Drill some holes neaer the bottum to let the water in. (Touch up with Galvicon paint)
Also note, as indicated on the grounding drawing the metal pipes will have to be grounded.
Please install both on the east side. As per the drawings since T2 foundation is "turned around" the sump would have fallen on the west side and would have been inconveniently been under the cable tray.




**BY** W. Neil Brazier **DATE** Oct. 11, 2018 **COPIES TO**

# RFI #86

Clark Builders
4703 - 52 Avenue
Edmonton, Alberta T6B 3R6
Phone: (780) 395-3300
Fax: (780) 395-3545

**Project:** 18502 - CB201-JDS - Stratagold Eagle Gold
Yukon Territory

## Area 3000 Grounding Rods

| | | | |
|---|---|---|---|
| **TO:** | Calvin Goldschmidt **(JDS Energy and Mining)** | **FROM:** | Jackson Wenger **(Clark Builders - Edmonton)** |
| **DATE INITIATED:** | 07/10/2018 | **STATUS:** | Open |
| **LOCATION:** | | **DUE DATE:** | 12/10/2018 |
| **PROJECT STAGE:** | | **COST CODE:** | |
| **SUB JOB:** | | **SCHEDULE IMPACT:** | |
| **COST IMPACT:** | | **SPEC SECTION:** | |
| **DRAWING NUMBER:** | | **REFERENCE:** | |
| **LINKED DRAWINGS:** | | | |
| **RECEIVED FROM:** | Ed Rees **(Tarpon Energy)** | | |

**COPIES TO:**
Chris Copley **(JDS Energy and Mining)**, Matt Coverdale **(JDS Energy and Mining)**, Garry Dahl **(Clark Builders - Edmonton)**, Branden Fraser **(JDS Energy and Mining)**, Calvin Goldschmidt **(JDS Energy and Mining)**, Gary Hosey **(Clark Builders - Edmonton)**, Jan Johnson **(Clark Builders - Edmonton)**, Peter Nice **(Clark Builders - Edmonton)**, Henry Rueda **(Clark Builders - Edmonton)**, Tawnya Thornton **(JDS Energy and Mining)**, Jackson Wenger **(Clark Builders - Edmonton)**, Ryan de Milliano **(Clark Builders - Edmonton)**

### Question from Jackson Wenger (Clark Builders - Edmonton) at 01:22 PM on 07/10/2018

Clark Builders is requesting permission to substitute grounding plates in lieu of 3000mm deep grounding rods indicated in 3000-260 drawings (coarse, tertiary, overland, and ore prep./lime addition conveyors).

Awaiting an Official Response

### All Replies:

Substitution is not acceptable as a global response to all ground rods as shown in the drawings. Wherever possible ground rods shall be used.
Understanding that there are a few areas only where there is immediate bedrock that would otherwise prevent the installation of a ground rod, for those areas, the location of the rod can be moved a few meters outside the area (along the routing of the perimeter ground conductor , or a ground plate will need to be used if that moves it more than 10 meters. All instances of substitution shall first be approved by Sven or Don on site and marked up accordingly in the drawings.
Ground rods can also be inserted at a 45 degree angle if needed.

October 15, 2018

**BY** **DATE** **COPIES TO**

# RFI #108

Clark Builders
4703 - 52 Avenue
Edmonton, Alberta T6B 3R6
Phone: (780) 395-3300
Fax: (780) 395-3545

**Project:** 18502 - CB201-JDS - Stratagold Eagle Gold
Yukon Territory

## 6320 Module Foundations Reinforcing Substitute 15M replacing 20M

| | | | |
|---|---|---|---|
| **TO:** | Tawnya Thornton **(JDS Energy and Mining)** | **FROM:** | Ryan de Milliano **(Clark Builders - Edmonton)** Edmonton, Alberta |
| **DATE INITIATED:** | 09/11/2018 | **STATUS:** | Open |
| **LOCATION:** | 6320 | **DUE DATE:** | 12/11/2018 |
| **PROJECT STAGE:** | Course of Construction | **COST CODE:** | |
| **SUB JOB:** | | **SCHEDULE IMPACT:** | TBD |
| **COST IMPACT:** | No | **SPEC SECTION:** | |
| **DRAWING NUMBER:** | | **REFERENCE:** | |
| **LINKED DRAWINGS:** | | | |
| **RECEIVED FROM:** | Marion Fyshe **(McNish Steel)** | | |

**COPIES TO:**
Chris Copley **(JDS Energy and Mining)**, Matt Coverdale **(JDS Energy and Mining)**, Garry Dahl **(Clark Builders - Edmonton)**, Ishan Fechter **(JDS Energy and Mining)**, Gary Hosey **(Clark Builders - Edmonton)**, Jan Johnson **(Clark Builders - Edmonton)**, Peter Nice **(Clark Builders - Edmonton)**, Henry Rueda **(Clark Builders - Edmonton)**, Tawnya Thornton **(JDS Energy and Mining)**, Jackson Wenger **(Clark Builders - Edmonton)**, Ryan de Milliano **(Clark Builders - Edmonton)**

**Question from Ryan de Milliano (Clark Builders - Edmonton) at 04:46 PM on 09/11/2018**

Reinforcing steel supplier has provided 15M bars for horizontals on detailed module foundations. The design notes 16x20M for the foundations. We are requesting to use the delivered 15M bars to avoid any schedule delay. There is contingency 15M reinforcing if additional 15M reinforcing is required.

**Attachments:**
2E8FF2BA-2A44-4AD4-9B17-162E6CE9F3FB-37826-00000A86685A9185_image.jpg

Awaiting an Official Response

**All Replies:**

Our structural engineer, Jim MacKenzie reports:

"I don't need 20M on the sides but to keep things simple I used 20M instead of 15M so for the 4 on the sides we are Ok with 15M. For the top and bottom 12 bars total we need 50 percent more, (area if we use 15M) so 6 more 15M if that is what we have lying around. That would result in 9 top, 9 bottom, and 4 sides for a total of 22 bars all 15M instead of what is shown now as 16 bars all 20M. "

Consequently it is required that (a) provide 20 M for top and bottom bars or (b) use 9 (nine) 15 M on the top and 9 (nine) 15M on the bottom and (c) the 2 bars on each side can be 15M.

Please advise which solution you choose.

W.N. Brazier, P.Eng. 10 Nov. 2018

**BY** **DATE** **COPIES TO**

W N Brazier

# RFI #116

Clark Builders
4703 - 52 Avenue
Edmonton, Alberta T6B 3R6
Phone: (780) 395-3300
Fax: (780) 395-3545

**Project:** 18502 - CB201-JDS - Stratagold Eagle Gold
Yukon Territory

## 3000 - 4300 Electrical Grounding at Transformer Pad

| | | | |
|---|---|---|---|
| **TO:** | Matt Coverdale **(JDS Energy and Mining)** | **FROM:** | Ryan de Milliano **(Clark Builders - Edmonton)** Edmonton, Alberta |
| **DATE INITIATED:** | 20/11/2018 | **STATUS:** | Open |
| **LOCATION:** | 3000 Conveyor Grounding Layout | **DUE DATE:** | 23/11/2018 |
| **PROJECT STAGE:** | Course of Construction | **COST CODE:** | |
| **SUB JOB:** | | **SCHEDULE IMPACT:** | No |
| **COST IMPACT:** | No | **SPEC SECTION:** | |
| **DRAWING NUMBER:** | | **REFERENCE:** | |
| **LINKED DRAWINGS:** | | | |
| **RECEIVED FROM:** | Tom Foster **(Tarpon Energy)** | | |

**COPIES TO:**
Chris Copley **(JDS Energy and Mining)**, Matt Coverdale **(JDS Energy and Mining)**, Garry Dahl **(Clark Builders - Edmonton)**, Ishan Fechter **(JDS Energy and Mining)**, Gary Hosey **(Clark Builders - Edmonton)**, Jan Johnson **(Clark Builders - Edmonton)**, Peter Nice **(Clark Builders - Edmonton)**, Henry Rueda **(Clark Builders - Edmonton)**, Tawnya Thornton **(JDS Energy and Mining)**, Jackson Wenger **(Clark Builders - Edmonton)**, Ryan de Milliano **(Clark Builders - Edmonton)**

### Question from Ryan de Milliano (Clark Builders - Edmonton) at 08:54 AM on 20/11/2018

Please confirm the attached sketch for proposed grounding installation is acceptable since one was not provided in IFC drawing.

**Attachments:**
1542729057142.925049_tempImage.jpeg

Awaiting an Official Response

### All Replies:

See attached IFC Drawing. H354138-4100-260-272-1000-0001_0

November 23 , 2018

**BY** **DATE** **COPIES TO**

# ATTACHMENT C

## Field Review Reports

CLARK BUILDERS
ENERGY & RESOURCES

# ELECTRICAL GROUNDING SYSTEMS INSPECTION FORM

Rev 00 May 4, 2018

| | |
|---|---|
| SUBCONTRACTOR: TARPON | DATE OF INSPECTION: September 7, 2018 |
| WEATHER/ AMBIENT TEMP (°C): +14°C SUNNY | DATE INSTALLATION: September / August 2018 |
| INSPECTOR(S): Ryan Ishikawa, Tom Foster (Tarpon Instrument), Garry Dahl, Don Carte (JDS) | |
| LOCATION: 5710 ADR // Main Perimeter Grounding Loop. | |
| DRAWING REV: 00 | DRAWING NO.(S): 5000-260-272-1000-0002 SPEC SECTION(S): |

| GROUNDING SYSTEMS REQUIREMENT | PASS | FAIL | N/A | REMARKS |
|---|---|---|---|---|
| Installation matches drawings and specifications. | ☒ | ☐ | ☐ | |
| Conductor sizes and types. | ☒ | ☐ | ☐ | 4/0 – Bare Copper |
| Burial depth (record minimum in inches) | ☒ | ☐ | ☐ | 750mm from Grade |
| Ground rod and well locations. PLATES | ☒ | ☐ | ☐ | |
| Connections checked (torqueing, no cold joints, burnouts or protection) | ☒ | ☐ | ☐ | |
| System resistance to earth value (record in Ω) | ☐ | ☐ | ☒ | Done by others Later |
| Ground mats. | ☐ | ☐ | ☒ | |
| CSA Certified or equivalent. | ☒ | ☐ | ☐ | |
| | | | | |

| MANUFACTURER | DESCRIPTION | RANGE | ID. No. | CALIBRATION DUE DATE (YYYY.MM.DD) |
|---|---|---|---|---|
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| DISTANCE (m) | GROUND GRID (Ω) | REMOTE GRID (Ω) |
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| COMMENTS: | | |
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| ATTACHMENT(S): | | |
| | | |
| | | |
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**INITIAL INSPECTION**

PRINT/ SIGN: Ryan Cemillrano // [signature] TITLE Project Coordinator (QA/QC) DATE: SEPTEMBER 7/18

PRINT/ SIGN: _____ TITLE _____ DATE: _____

**RE-INSPECTION OF DEFICIENCIES (IF REQUIRED)**

PRINT/ SIGN: N/R. TITLE _____ DATE: _____

PRINT/ SIGN: _____ TITLE _____ DATE: _____

JDS

PRINT/SIGN Don Carter Don Carter 09/07/2018
DATE

TARPON

PRINT/SIGN THOMAS FOSTER [signature] 09/07/2018
DATE

CB

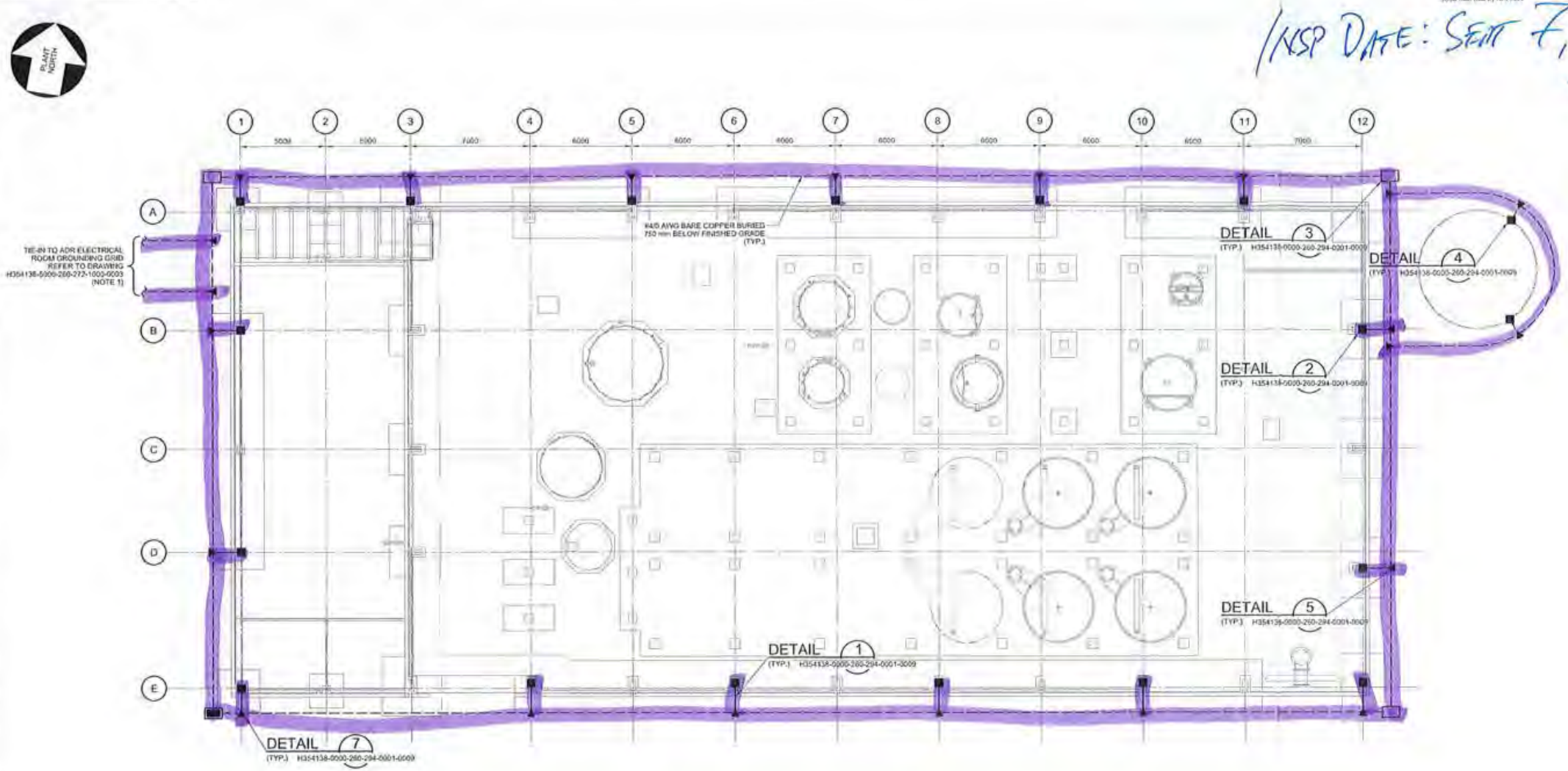
PRINT/SIGN GARRY DAHL [signature] DATE 09/07/2018

DWG. No. H354138-5000-260-272-1000-0002

NOTES

1. TIE-IN CABLES TO RUN IN SEPARATE TRENCHES SPACED 1000 mm (MIN.) APART.

INSP DATE: SEPT 7, 2018




| DRAWING No. | DRAWING TITLE |
|---|---|
| H354138-5000-260-272-1000-0001 | ADR PLANT AREA GROUNDING PERSPECTIVE LAYOUT |
| H354138-0000-260-294-0001-0002 | SITE ELECTRICAL NOTES, LEGENDS AND SYMBOLS |
| H354138-0000-260-294-0001-0001 | SITE ELECTRICAL NOTES, LEGENDS AND SYMBOLS |

REFERENCE DRAWINGS

PROFESSIONAL ENGINEER — MARC TIETZ — TERRITORY

REG. PROFESSIONAL

PERMIT TO PRACTICE HATCH — PERMIT NUMBER PP154 — Association of Professional Engineers of Yukon

| No. | DESCRIPTION | BY | CHK'D | DATE |
|---|---|---|---|---|

REVISIONS

HATCH

| ROLE | NAME | SIGNATURE & DATE |
|---|---|---|
| DRAFTSPERSON | L GIEBELHAUS | NR 2017-12-13 |
| DESIGNER | L GIEBELHAUS | NR 2017-12-13 |
| CHECKER | M TIETZ | |
| DESIGN COORD. | S PERKINS | |
| RESP. ENG. | M TIETZ | |
| LEAD DISC. ENG. | M TIETZ | |
| ENG. MANAGER | B RUSTAD | |
| PROJ. MANAGER | B RUSTAD | |

DRAWING APPROVAL STATUS: Approved for Construction

StrataGold Corporation

EAGLE GOLD PROJECT

ADR PLANT
BUILDING GROUNDING
LAYOUT

SCALE 1:125 OR AS NOTED | DWG. No. H354138-5000-260-272-1000-0002 | REV 0

SHEET SIZE: D

$FILE$ PRINTED: 22-MAY-2018 16:21

# ELECTRICAL GROUNDING SYSTEMS
# INSPECTION FORM

Rev 00 May 4, 2018

| | |
|---|---|
| SUBCONTRACTOR: Clark Builder | DATE OF INSPECTION: Sept 10/18 |
| WEATHER/ AMBIENT TEMP (°C): 10 C | DATE INSTALLATION: Sept 10/18 |
| INSPECTOR(S): Ryan deMilliano, Garry Paul, D'Arcy Comerford | |
| LOCATION: Primary Crusher Main Perimeter 0002 Grounding. | |
| DRAWING REV: 00 DRAWING NO.(S): H354138-3100-26-272 | SPEC SECTION(S): |

| GROUNDING SYSTEMS REQUIREMENT | PASS | FAIL | N/A | REMARKS |
|---|---|---|---|---|
| Installation matches drawings and specifications. | ☑ | ☐ | ☐ | |
| Conductor sizes and types. | ☑ | ☐ | ☐ | |
| Burial depth (record minimum in inches) | ☑ | ☐ | ☐ | |
| Ground rod and well locations. | ☐ | ☐ | ☑ | |
| Connections checked (torqueing, no cold joints, burnouts or protection) | ☑ | ☐ | ☐ | |
| System resistance to earth value (record in Ω) | ☐ | ☐ | ☒ | |
| Ground mats. | ☐ | ☐ | ☑ | |
| CSA Certified or equivalent. | ☒ | ☐ | ☐ | |

| MANUFACTURER | DESCRIPTION | RANGE | ID. No. | CALIBRATION DUE DATE (YYYY.MM.DD) |
|---|---|---|---|---|
| | | | | |

| DISTANCE (m) | GROUND GRID (Ω) | REMOTE GRID (Ω) |
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| NTS: | | |
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| ATTACHMENT(S): | | |
| | | |
| | | |
| | | |

CB.

**INITIAL INSPECTION**

PRINT/ SIGN: Ryan deMilhano TITLE Project Coordinator DATE: Sept 10 2018

PRINT/ SIGN: _____ TITLE Superintendent DATE: Sept 10/18

SDS

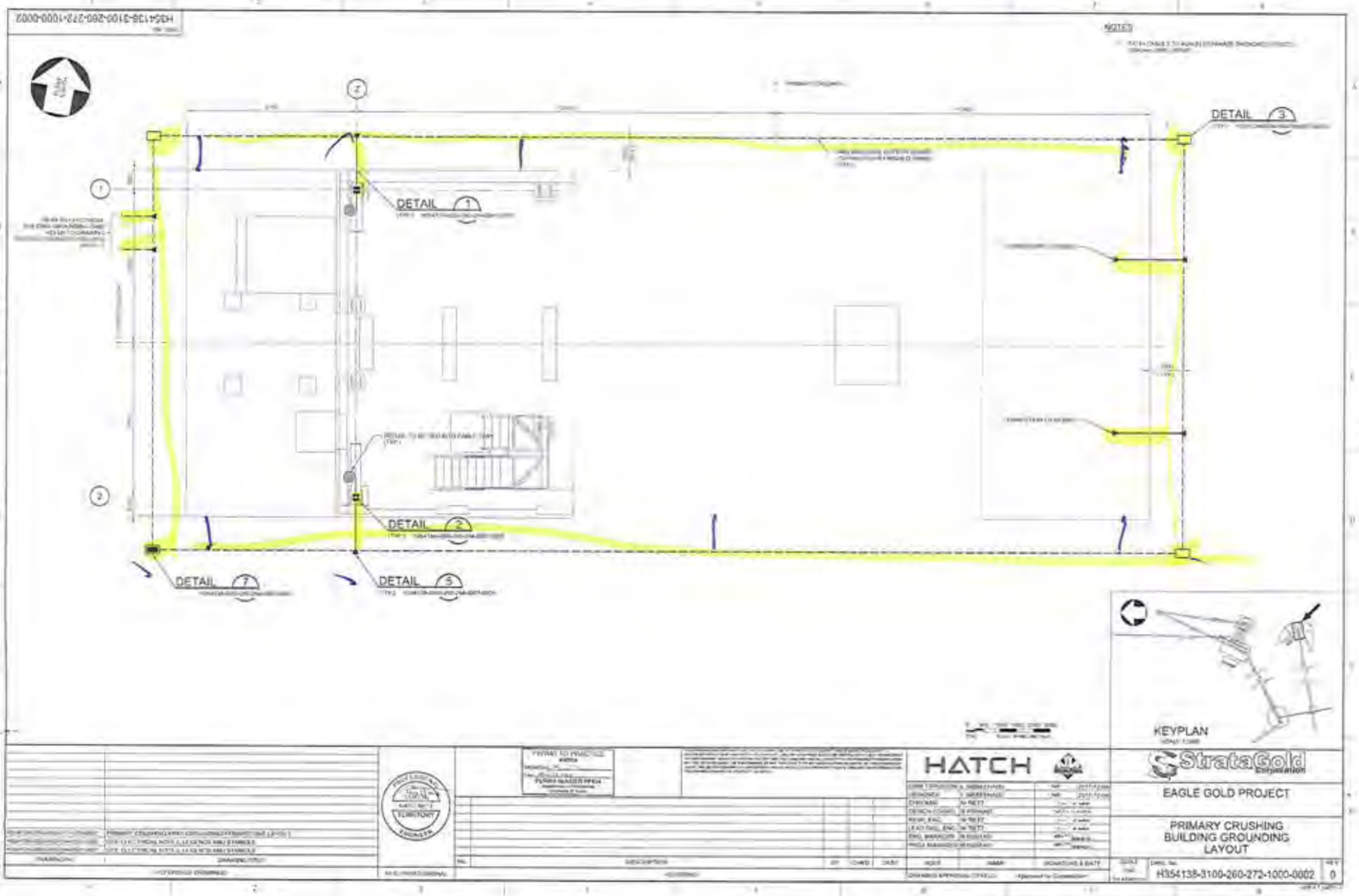
**RE-INSPECTION OF DEFICIENCIES (IF REQUIRED)**

PRINT/ SIGN: D'Arcy Comerford TITLE Field Engineer DATE: Sep 10, 2018

PRINT/ SIGN: _____ TITLE _____ DATE: _____

TARPON

PRINT/SIGN: THOMAS FOSTER TITLE TARPON FOREMAN DATE: SEPT 11/18


NOTES
DETAIL 1
DETAIL 2
DETAIL 3
DETAIL 5
DETAIL 7
KEYPLAN
HATCH
StrataGold Corporation
EAGLE GOLD PROJECT
PRIMARY CRUSHING BUILDING GROUNDING LAYOUT
H354138-3100-260-272-1000-0002
0

# ELECTRICAL GROUNDING SYSTEMS
# INSPECTION FORM

Rev 00 May 4, 2018

| | |
|---|---|
| SUBCONTRACTOR: Clark Builders | DATE OF INSPECTION: Sept 10/18 |
| WEATHER/ AMBIENT TEMP (°C): 10 C | DATE INSTALLATION: Sept 7/18 |
| INSPECTOR(S): Ryan Millwood, Garry Dahl, D'Arcy Comerford. (JDS) | |
| LOCATION: Secondary Crusher Main Perimeter Grounding | |
| DRAWING REV: | DRAWING NO.(S): | SPEC SECTION(S): |

| GROUNDING SYSTEMS REQUIREMENT | PASS | FAIL | N/A | REMARKS |
|---|---|---|---|---|
| Installation matches drawings and specifications. | X | ☐ | ☐ | |
| Conductor sizes and types. | X | ☐ | ☐ | |
| Burial depth (record minimum in inches) | X | ☐ | ☐ | |
| Ground rod and well locations. | ☐ | ☐ | X | 300x300 PLATES ONLY. |
| Connections checked (torqueing, no cold joints, burnouts or protection) | X | ☐ | ☐ | |
| System resistance to earth value (record in Ω) | X | ☐ | ☐ | |
| Ground mats. | ☐ | ☐ | X | PLATES USED |
| CSA Certified or equivalent. | X | ☐ | ☐ | |
| | | | | |

| MANUFACTURER | DESCRIPTION | RANGE | ID. No. | CALIBRATION DUE DATE (YYYY.MM.DD) |
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| DISTANCE (m) | GROUND GRID (Ω) | REMOTE GRID (Ω) |
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| OMMENTS: | | |
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| ATTACHMENT(S): | | |
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| | | |

CB.

**INITIAL INSPECTION**

PRINT/ SIGN: Ryan deMilliano TITLE Project coordinator DATE: Sept 10, 18

PRINT/ SIGN: _____ TITLE Superintendent DATE: Sept 10/18

JDS.

~~**RE-INSPECTION OF DEFICIENCIES (IF REQUIRED)**~~

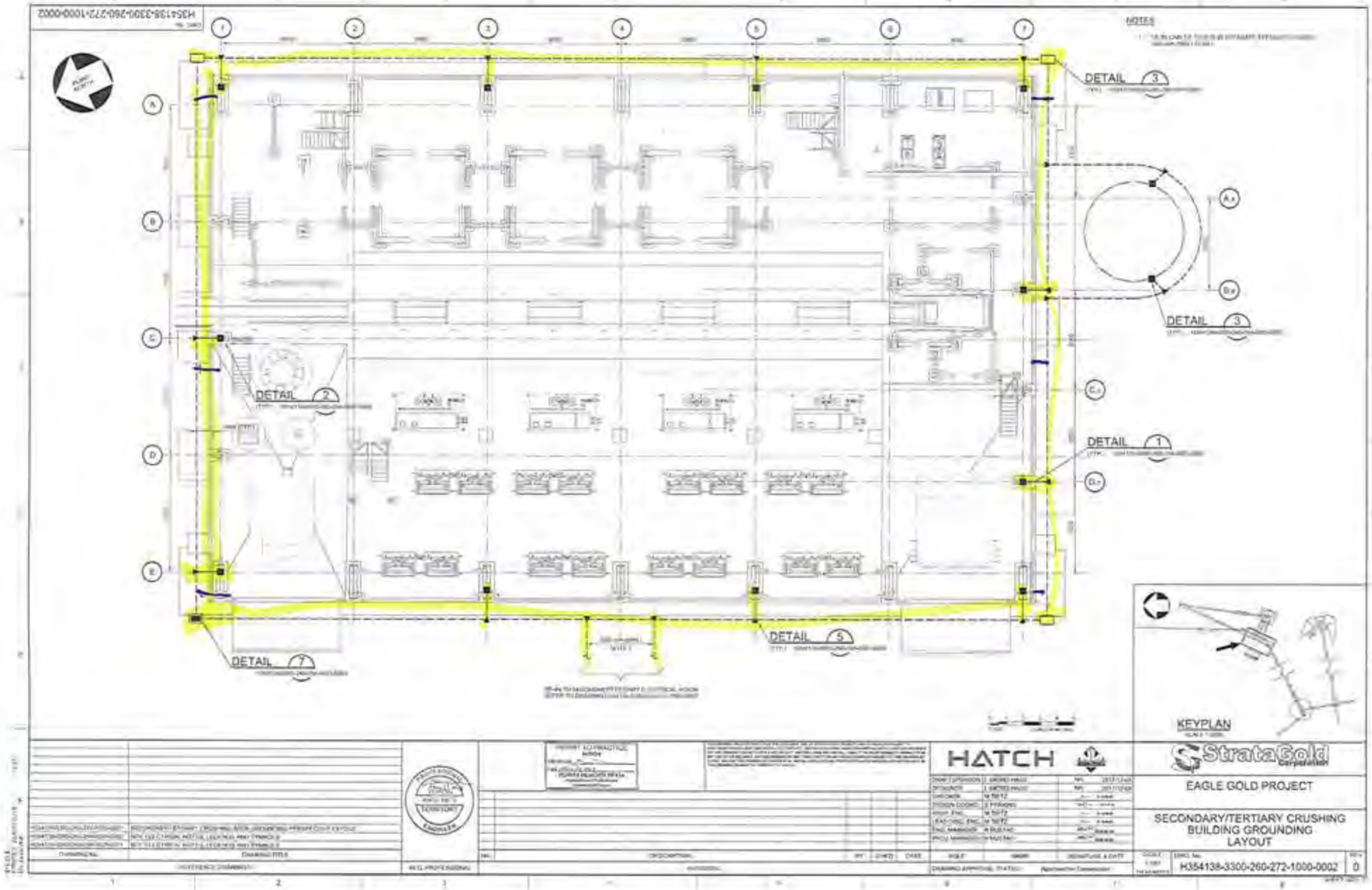
PRINT/ SIGN: DArcy Comerford TITLE Field Engineer DATE: Sept 10, 18.

PRINT/ SIGN: _____ TITLE _____ DATE: _____

TARON

PRINT/SIGN THOMAS FOSTER TITLE TARON FOREMAN 6:10 AM DATE: SEPT 11/18

Start 10/18




HATCH

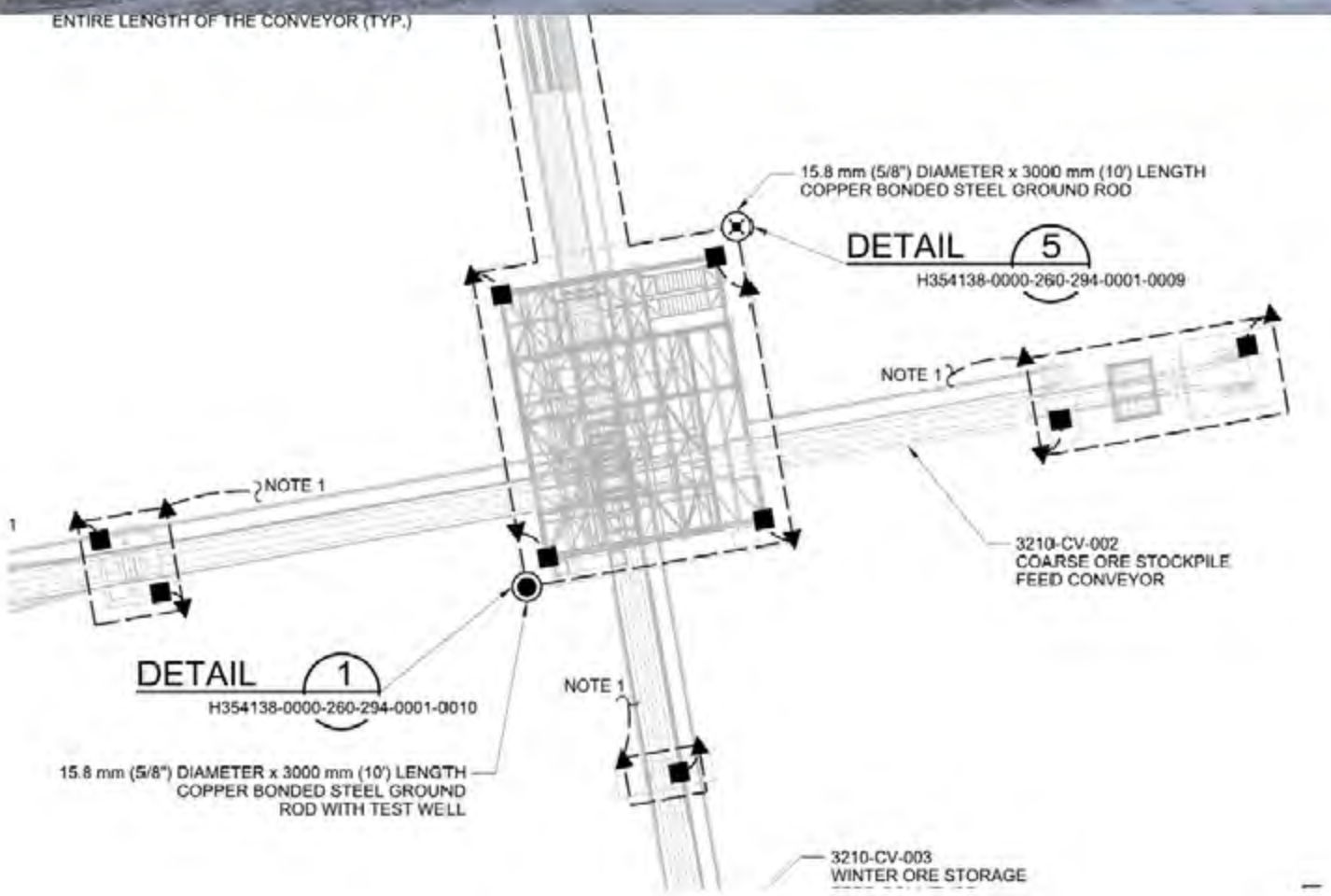
StrataGold Corporation

EAGLE GOLD PROJECT

SECONDARY/TERTIARY CRUSHING BUILDING GROUNDING LAYOUT

H354138-3300-260-272-1000-0002 | 0




ENTIRE LENGTH OF THE CONVEYOR (TYP.)
15.8 mm (5/8") DIAMETER x 3000 mm (10') LENGTH
COPPER BONDED STEEL GROUND ROD
DETAIL 5
H354138-0000-260-294-0001-0009
NOTE 1
NOTE 1
3210-CV-002
COARSE ORE STOCKPILE
FEED CONVEYOR
DETAIL 1
H354138-0000-260-294-0001-0010
NOTE 1
15.8 mm (5/8") DIAMETER x 3000 mm (10') LENGTH
COPPER BONDED STEEL GROUND
ROD WITH TEST WELL
3210-CV-003
WINTER ORE STORAGE


3210
TT 1
OCT 8, 2018
GROUNDING


OCT 8/18
TT 1


TT2
Oct 6/18
TG


TT2
Oct 7/18
TG


TTZ
GROUNDING
OCT 8 AB


TT3
GROUNDING ASBUILT PHOTO.
OCT 26/18


OCT 25, 2018
GROUNDING REVIEW

CLARK BUILDERS
ENERGY & RESOURCES

# ELECTRICAL GROUNDING SYSTEMS INSPECTION FORM

Rev 00 May 4, 2018

| | |
|---|---|
| SUBCONTRACTOR: TARPON | DATE OF INSPECTION: NOV 12, 2018 |
| INSTALLATION SUPERVISOR: THOMAS FOSTER | DATE INSTALLATION COMPLETE: NOV 09, 2018 |
| INSPECTOR(S): THOMAS FOSTER | |
| LOCATION: BELOW TT1 - BENT 1 AND HEAD PULLEY AND TRUSS SUPPORT/TAIL PULLEY, 3210 CV003 & CV002 SOUTH OF TT1 | |
| DRAWING REV: "0" | DRAWING NO.(S): H354138-3000-260-272-1000-0001 |

| GROUNDING SYSTEMS REQUIREMENT | PASS | FAIL | N/A | REMARKS |
|---|---|---|---|---|
| Installation matches drawings and specifications. | ☑ | ☐ | ☐ | |
| Conductor sizes and types installed correct. | ☑ | ☐ | ☐ | |
| Main perimeter ground loop conductors buried 750mm below grade and 1000mm from building unless noted otherwise. | ☑ | ☐ | ☐ | Depth: Reference: |
| Grounding conductors shall be installed parallel to the principal building lines and shall be without sharp bends. | ☑ | ☐ | ☐ | |
| Where any copper grounding tail shall be left for later termination, it must have sufficient length (min 3000mm) to connect directly to column or equipment. | ☑ | ☐ | ☐ | STAKED WITH REBAR TO SUPPORT GROUND TAILS |
| Conduit provided projecting minimum 150mm above and below grade. | ☐ | ☐ | ☑ | |
| Ground rod and well locations. | ☑ | ☐ | ☐ | |
| Connections checked (torqueing, no cold joints, burnouts or protection) | ☑ | ☐ | ☐ | |
| Ground mats reviewed and are correct size, dimensions and material. | ☒ | ☐ | ☑ | |

| COMMENTS: | | ATTACHMENT(S) |
|---|---|---|
| 2 POINTS TO DRIVE RE BAR TO SUPPORT TAILS BENT 1 | HEAD PULLEY | COMPLETED NOV 13, 2018 |

**CLARK BUILDERS INSPECTOR(S)**

PRINT/ SIGN: THOMAS FOSTER TITLE ELECTRICIAN DATE: NOV 12, 2018

PRINT/ SIGN: Ryan deMillecamps TITLE Project Coordinator DATE: Nov 12, 2018

**JDS INSPECTOR (S)**

PRINT/ SIGN: Don Carter TITLE E/I Supt. DATE: NOV 12/18

PRINT/ SIGN: _____ TITLE _____ DATE: _____

H354138

FOR GROUND CONFIRMATION
REFER TO DRAWING H354138-3000-000-272-H00-002

O PROVIDE A GROUND CONNECTION
TEEL AT 15 m INTERVALS ALONG THE
E LENGTH OF THE CONVEYOR (TYP.)

MAIN PERIMETER GROUND LOOP CONDUCTOR FOR CONVEYORS SHALL BE #2/0 AWG BARE STRANDED MEDIUM-HARD DRAWN OR SOFT-DRAWN COPPER. (TYP.)

CLOSE LOOP ? PROVIDE TAILS FOR CONNECTION

3210-CV-010
SECONDARY CRUSHING
FEED CONVEYOR

DETAIL 2
(TYP.) H354138-0000-200-231-0001-0003

MAGNET TAILS

TER GROUNDING LOOP CONDUCTOR SHALL BE BURIED
OW GRADE AND 1000 mm FROM CONVEYOR STRUCTURE
(TYP.)

GROUND CONNECTION TO
CSP TUNNEL (TYP. OF 2)

FOR CLARIFICATION

CONFIRM ALL 10' GROUNDING
CAN BE REPLACED BY
JD PLATES

DING SCOPE FOR
RBN IS LIMITED
IMP & REINFORCING + INSTALL
GROUND LOOP AROUND EDNS
INDICATED

RBN SCOPE DOES NOT INCLUDE
ING/GROUNDING ALONG
YOR LINE/TIMBER SLEEPERS
UPTION FOR CB GROUNDING
E HIGHLIGHTED BLUE

FOR GROUND CONNECTION TO THE PRIMARY CRUSHING BUILDING GROUND GRID
REFER TO DRAWING H354138-3100-000-272-H00-002

NOTES

1. CONTRACTOR TO PROVIDE A 1000 mm LENGTH OF GROUNDING CABLE TO BE ABLE TO TIE INTO THE GROUND CABLE LOCATED IN THE CABLE TRAY.

MAIN PERIMETER GROUND LOOP CONDUCTOR FOR CONVEYORS SHALL BE #2/0 AWG BARE STRANDED MEDIUM-HARD DRAWN OR SOFT-DRAWN COPPER. (TYP.)

DETAIL 2
(TYP.) H354138-0000-200-231-0001-0003

MAIN PERIMETER GROUNDING LOOP CONDUCTOR SHALL BE BURIED 750 mm BELOW GRADE AND 1000 mm FROM CONVEYOR STRUCTURE (TYP.)

3100-CV-001
PRIMARY CRUSHER
DISCHARGE CONVEYOR

CV1

CONTRACTOR TO PROVIDE A GROUND CONNECTION TO CONVEYOR STEEL AT 15 m INTERVALS ALONG THE ENTIRE LENGTH OF THE CONVEYOR (TYP.)

CLOSE LOOP ? PROVIDE TAILS

15.9 mm (5/8") DIAMETER x 3000 mm (10') LENGTH COPPER BONDED STEEL GROUND ROD

DETAIL 5
H354138-0000-200-231-0001-0003

NOTE 12

TYP. (2)

TRIPS-SUPPORT

3210-CV-010
COARSE ORE STORAGE
FEED CONVEYOR

CV2

GTV

NOTE 1

DETAIL 1
H354138-0000-200-231-0001-0010

BOOT 1

14.6 mm (5/8") DIAMETER x 3000 mm (10') LENGTH COPPER BONDED STEEL GROUND ROD WITH TEST WELL

NOTE 1

BOOT 1

3210-CV-009
WINTER ORE STORAGE
FEED CONVEYOR

CV3

NOTE 1

HEAD PULLEY

0 2.5 5.0 7.5 10 12.5
1:250

THIS DRAWING

KEYPLAN
SCALE 1:3000

CLARK BUILDERS
ENERGY & RESOURCES

# ELECTRICAL GROUNDING SYSTEMS INSPECTION FORM

Rev 00 May 4, 2018

| | |
|---|---|
| SUBCONTRACTOR: TARPON | DATE OF INSPECTION: NOV 12, 2018 |
| INSTALLATION SUPERVISOR: THOMAS FOSTER | DATE INSTALLATION COMPLETE: NOV 10, 2018 |
| INSPECTOR(S): THOMAS FOSTER | |
| LOCATION: GTU - CWT TOWER - BENT 3 - BENT 3330 CU019 | |
| DRAWING REV: "0" | DRAWING NO.(S): H354138-3000-260-242-1000-0003 |

| GROUNDING SYSTEMS REQUIREMENT | PASS | FAIL | N/A | REMARKS |
|---|---|---|---|---|
| Installation matches drawings and specifications. | ☑ | ☐ | ☐ | |
| Conductor sizes and types installed correct. | ☑ | ☐ | ☐ | |
| Main perimeter ground loop conductors buried 750mm below grade and 1000mm from building unless noted otherwise. | ☑ | ☐ | ☐ | Depth: Reference: |
| Grounding conductors shall be installed parallel to the principal building lines and shall be without sharp bends. | ☑ | ☐ | ☐ | |
| Where any copper grounding tail shall be left for later termination, it must have sufficient length (min 3000mm) to connect directly to column or equipment. | ☑ | ☐ | ☐ | STAKED WITH REBAR TO SUPPORT GROUND TAILS |
| Conduit provided projecting minimum 150mm above and below grade. | ☐ | ☐ | ☑ | |
| Ground rod and well locations. | ☐ | ☐ | ☑ | |
| Connections checked (torqueing, no cold joints, burnouts or protection) | ☑ | ☐ | ☐ | |
| Ground mats reviewed and are correct size, dimensions and material. | ☐ | ☐ | ☑ | |

| COMMENTS: | ATTACHMENT(S): |
|---|---|
| | |

**CLARK BUILDERS INSPECTOR(S)**

PRINT/ SIGN: THOMAS FOSTER TF TITLE ELECTRICIAN DATE: NOV 12, 2018

PRINT/ SIGN: Ryan deMilliano RD TITLE Project Coordinator DATE: Nov 12/18

**JDS INSPECTOR (S)**

PRINT/ SIGN: Don Carter Don Carter TITLE Elec Supt DATE: Nov 12/18

PRINT/ SIGN: _____ TITLE _____ DATE: _____

DWG. No. H354138-3000-260-272-1000-0003

NOTES
1. CONTRACTOR TO PROVIDE A 1000 mm LENGTH OF GROUNDING CABLE TO BE ABLE TO TIE INTO THE GROUND CABLE LOCATED IN THE CABLE TRAY.

NORTH

CLOSE LOOP & PROVIDE TAILS

BONT 1

BONT 2

BONT 3

CWT TOWER

GTU

BONT 4

15.8 mm (5/8") DIAMETER x 3000 mm (10') LENGTH COPPER BONDED STEEL GROUND ROD

DETAIL 5
H354138-0000-260-224-0001-0002

3330-CV-019
TERTIARY CRUSHING STOCKPILE FEED CONVEYOR

NOTE 1

MAIN PERIMETER GROUNDING LOOP CONDUCTOR SHALL BE BURIED 750 mm BELOW GRADE AND 1000 mm FROM CONVEYOR STRUCTURE (TYP.)

3330-CV-018
TERTIARY CRUSHING FEED CONVEYOR No. 1

CONTRACTOR TO PROVIDE A GROUND CONNECTION AT 15 m INTERVALS ALONG THE ENTIRE LENGTH OF THE CONVEYOR (TYP.)

MAIN PERIMETER GROUND LOOP CONDUCTOR FOR CONVEYORS SHALL BE #2/0 AWG BARE STRANDED MEDIUM-HARD DRAWN OR SOFT-DRAWN COPPER (TYP.)

3330-CV-022
OVERLAND CONVEYOR

DETAIL 2
(TYP.) H354138-0000-260-224-0001-0002

CONTRACTOR TO PROVIDE A GROUND CONNECTION TO CONVEYOR STEEL AT 15 m INTERVALS ALONG THE ENTIRE LENGTH OF THE CONVEYOR (TYP.)

CONCRETE PAD REBAR TO BE GROUNDED TO CABLE TRAY GROUNDING CONDUCTOR. CONTRACTOR TO ENSURE GROUND CONDUCTOR IS IN PLACE PRIOR TO CONCRETE POUR (TYP.)

FOR CONTINUATION OF GROUNDING REFER TO DRAWING H354138-3000-260-272-1000-0004

FOR CONTINUATION OF GROUNDING REFER TO DRAWING H354138-3000-260-272-1000-0002 (TYP. OF 3)

0 2.5 5.0 7.5 10 12.5
1:200 DUAL DIMENSIONS

THIS DRAWING

KEYPLAN
SCALE 1:3000

| DRAWING No. | DRAWING TITLE |
|---|---|
| H354138-0000-260-224-0001-0002 | SITE ELECTRICAL NOTES, LEGENDS AND SYMBOLS |
| H354138-0000-260-224-0001-0001 | SITE ELECTRICAL NOTES, LEGENDS AND SYMBOLS |

REFERENCE DRAWINGS

REG. PROFESSIONAL

| No. | DESCRIPTION | BY | CHKD | DATE |
|---|---|---|---|---|

REVISIONS

HATCH

| | | |
|---|---|---|
| DRAFTSPERSON | L GIESELMANN | RR 2018-09-12 |
| DESIGNER | L GIESELMANN | RR 2018-09-12 |
| CHECKER | M TIETZ | |
| DESIGN COORD. | S PERRIN | |
| REMP. ENG. | M TIETZ | |
| LEAD DISC. ENG. | M TIETZ | |
| ENG. MANAGER | B RUSTAD | |
| PROJ. MANAGER | B RUSTAD | |

| ROLE | NAME | SIGNATURE & DATE |
|---|---|---|

DRAWING APPROVAL STATUS: Approved for Construction

StrataGold Corporation

EAGLE GOLD PROJECT

ORE CRUSHING & HANDLING CONVEYOR GROUNDING LAYOUT PLAN

SCALE 1:200 (22x34 SIZED)

DWG. No. H354138-3000-260-272-1000-0003

REV 0

SHEET SIZE: D

SCALE PRINTED: 10-SEP-2018
XL_PROXIES

CLARK BUILDERS
ENERGY & RESOURCES

# ELECTRICAL GROUNDING SYSTEMS INSPECTION FORM

Rev 01 May 4, 2018

| | |
|---|---|
| SUBCONTRACTOR: TARPON | DATE OF INSPECTION: NOV 12, 2018 |
| INSTALLATION SUPERVISOR: THOMAS FOSTER | DATE INSTALLATION COMPLETE: NOV 09, 2018 |
| INSPECTOR(S): THOMAS FOSTER | |
| LOCATION: ADR TRANSFORMER PAD GROUND GRID<br>5710 fp | |
| DRAWING REV: "0" | DRAWING NO.(S): H354138-5000-260-272-1000-0003 |

| GROUNDING SYSTEMS REQUIREMENT | PASS | FAIL | N/A | REMARKS |
|---|---|---|---|---|
| Installation matches drawings and specifications. | ☑ | ☐ | ☐ | |
| Conductor sizes and types installed correct. | ☑ | ☐ | ☐ | |
| Main perimeter ground loop conductors buried 750mm below grade and 1000mm from building unless noted otherwise. | ☑ | ☐ | ☐ | Depth:<br>Reference: |
| Grounding conductors shall be installed parallel to the principal building lines and shall be without sharp bends. | ☑ | ☐ | ☐ | |
| Where any copper grounding tail shall be left for later termination, it must have sufficient length (min 3000mm) to connect directly to column or equipment. | ☐ | ☐ | ☐ | RF/ SG TAILS LEFT FOR E-HOUSE PERIMETER GROUND |
| Conduit provided projecting minimum 150mm above and below grade. | ☐ | ☐ | ☒ | |
| Ground rod and well locations. | ☑ | ☐ | ☐ | |
| Connections checked (torqueing, no cold joints, burnouts or protection) | ☑ | ☐ | ☐ | |
| Ground mats reviewed and are correct size, dimensions and material. | ☐ | ☐ | ☑ | |

| COMMENTS: | | ATTACHMENT(S) |
|---|---|---|
| | | |
| | | |

**CLARK BUILDERS INSPECTOR(S)**

PRINT/ SIGN: Thomas Foster TITLE ELECTRICIAN DATE: NOV 12/18

PRINT/ SIGN: Ryan deMilliano TITLE Project Coordinator DATE: Nov 12/18

**JDS INSPECTOR (S)**

PRINT/ SIGN: Don Carter TITLE E/I Supt DATE: Nov 12/18

PRINT/ SIGN: _____ TITLE _____ DATE: _____

DWG. No. H354138-5000-260-272-10

PLANT NORTH

## NOTES

1. TIE IN CABLES TO RUN IN SEPARATE TRENCHES SPACED 3000 mm (MIN.) APART.
2. 150 mm ELECTRICAL CONDUIT (NON-METALLIC) TO BE EMBEDDED IN CONCRETE AND EXTENDED OUT OF PAD 300 mm AT TRANSFORMER BASE TO MAINTAIN INTEGRITY OF CONTAINMENT.
3. INSULATED (GREEN) 6/0 AWG GROUND WIRE TO BE USED FOR INSULATED GROUND BUS CONNECTION TO GROUND GRID TO ENSURE NO CONTACT BETWEEN WIRE AND ELECTRICAL ROOM METAL FRAME.
4. TRANSFORMERS TO BE BONDED IN TWO LOCATIONS USING THE GROUND CABLE LOCATED IN THE CABLE TRAY.

DETAIL 7 H354138-0000-260-254-0001-0009

2/0 AWG BARE COPPER BURIED 750 mm BELOW FINISHED GRADE (TYP.)

EQUIPMENT GROUND BUS

DETAIL 5 (TYP.) H354138-0000-260-254-0001-0010

DETAIL 3 (TYP.) H354138-0000-260-254-0001-0007

ELECTRICAL ROOM GROUNDING PAD CONNECTION (TYP.)

TIE-IN TO ADR PLANT BUILDING GROUNDING GRID REFER TO DRAWING H354138-0000-200-272-1000-0002 (NOTE 1)

ISOLATED GROUND BUS

INSULATED 6/0 AWG GREEN GROUND WIRE (NOTE 3)

TRANSFORMER CONTAINMENT

NOTE 4

TRANSFORMER CONTAINMENT

NOTE 4

TIE-IN TO OVERHEAD LINE GROUND WIRE BACK TO MAIN SUBSTATION

DETAIL 2 (TYP.) H354138-0000-260-254-0001-0010

FENCE

FENCE

TIE-IN TO OVERHEAD LINE GROUND WIRE

0 1 2 3 4 5 1:100 SCALE IN METRES

PERMIT TO PRACTICE HATCH 2018-09-18 PERMIT NUMBER: P014 Association of Professional Engineers & Geoscientists of the Province

PROFESSIONAL ENGINEER YUKON TERRITORY 2018-09-18 REG. PROFESSIONAL

| No. | DESCRIPTION | BY | CHK'D | DATE |
|---|---|---|---|---|
| | REVISIONS | | | |

| | | | |
|---|---|---|---|
| DRAFTSPERSON | L GIEBELHAUS | NR | 2017-12-13 |
| DESIGNER | L GIEBELHAUS | NR | 2017-12-13 |
| CHECKER | M TIETZ | | 2018-09-18 |
| DESIGN COORD. | S PERKINS | | 2018-09-18 |
| RESP. ENG. | M TIETZ | | 2018-09-18 |
| LEAD DISC. ENG. | M TIETZ | | 2018-09-18 |
| ENG. MANAGER | B RUSTAD | | |
| PROJ. MANAGER | B RUSTAD | | |

| ROLE | NAME | SIGNATURE & DATE |
|---|---|---|
| DRAWING APPROVAL STATUS: | Approved for Construction | |

HATCH

StrataGold Corporation

EAGLE GOLD PROJECT

ADR PLANT ELECTRICAL ROOM GROUNDING LAYOUT

| DRAWING No. | DRAWING TITLE |
|---|---|
| H354138-5000-200-272-1000-0001 | ADR PLANT AREA GROUNDING PERSPECTIVE VIEW |
| REFERENCE DRAWINGS | |

SCALE 1:100 OR AS NOTED

DWG. No. H354138-5000-260-272-1000-0003

REV 0

SHEET SIZE: D

SAVED: 13-SEP-2018 13:39
PLOTTED: 18-SEP-2018
dd_plan-xsa

CLARK BUILDERS
ENERGY & RESOURCES

# ELECTRICAL GROUNDING SYSTEMS INSPECTION FORM

Rev 00 May 4, 2018

| | |
|---|---|
| SUBCONTRACTOR: TARPON | DATE OF INSPECTION: |
| INSTALLATION SUPERVISOR: THOMAS FOSTER | DATE INSTALLATION COMPLETE: NOV 17, 2018 |
| INSPECTOR(S): | |
| LOCATION: SECONDARY TRANSFORMER PAD | |
| DRAWING REV: C | DRAWING NO.(S): H384138-3300-260-27R-1000-0003 |

| GROUNDING SYSTEMS REQUIREMENT | PASS | FAIL | N/A | REMARKS |
|---|---|---|---|---|
| Installation matches drawings and specifications. | ☑ | ☐ | ☐ | |
| Conductor sizes and types installed correct. | ☑ | ☐ | ☐ | |
| Main perimeter ground loop conductors buried 750mm below grade and 1000mm from building unless noted otherwise. | ☑ | ☐ | ☐ | Depth: NOT BURIED Reference: |
| Grounding conductors shall be installed parallel to the principal building lines and shall be without sharp bends. | ☑ | ☐ | ☐ | |
| Where any copper grounding tail shall be left for later termination, it must have sufficient length (min 3000mm) to connect directly to column or equipment. | ☑ | ☐ | ☐ | |
| Conduit provided projecting minimum 150mm above and below grade. | ☐ | ☐ | ☒ | |
| Ground rod and well locations. | ☑ | ☐ | ☐ | |
| Connections checked (torqueing, no cold joints, burnouts or protection) | ☑ | ☐ | ☐ | |
| Ground mats reviewed and are correct size, dimensions and material. | ☐ | ☐ | ☒ | |

| COMMENTS: | ATTACHMENT(S) |
|---|---|
| | |

**CLARK BUILDERS INSPECTOR(S)**

PRINT/ SIGN: THOMAS FOSTER TITLE ELECTRICIAN DATE: NOV 18/18

PRINT/ SIGN: Ryan deMilliano TITLE Project Coordinator DATE: Nov 18/18

**JDS INSPECTOR (S)**

PRINT/ SIGN: Matt Cavanagh TITLE Field Eng DATE: Nov 18/18

PRINT/ SIGN: _____ TITLE _____ DATE: _____

DWG. No. H354138-3300-260-272-

PLANT NORTH

TIE-IN TO SECONDARY/TERTIARY CRUSHING BUILDING
REFER TO DRAWING H354138-3300-260-272-1000-0002
(NOTE 1)

EQUIPMENT GROUND BUS

DETAIL 5 (TYP.) H354138-0000-260-294-0001-0005

ELECTRICAL ROOM GROUNDING PAD CONNECTION (TYP.)

DETAIL 3 (TYP.) H354138-0000-260-294-0001-0009

TIE-IN TO PRIMARY CRUSHING ELECTRICAL ROOM GROUNDING GRID (IN TRENCH WITH POWER CABLE FEED) REFER TO DRAWING H354138-3100-260-272-1000-0003

INSULATED GROUND BUS

INSULATED #4/0 AWG GREEN GROUND WIRE (NOTE 3)

TRANSFORMER CONTAINMENT

NOTE 4

DETAIL 2 (TYP.) H354138-0000-260-294-0001-0019

CHAIN LINK FENCE

DETAIL 7 H354138-0000-260-294-0001-0005

TIE-IN TO OVERHEAD LINE GROUND WIRE

NOTES

1. TIE-IN CABLES TO RUN IN SEPARATE TRENCHES SPACED 3000 mm (10ft) APART.
2. 150 mm ELECTRICAL CONDUIT (NON-METALLIC) TO BE EMBEDDED IN CONCRETE AND EXTENDED OUT OF PAD 200 mm AT TRANSFORMER BASE TO MAINTAIN INTEGRITY OF CONTAINMENT.
3. INSULATED (GREEN) #4/0 AWG GROUND WIRE TO BE USED FOR ISOLATED GROUND BUS CONNECTION TO GROUNDING GRID TO ENSURE NO CONTACT BETWEEN WIRE AND ELECTRICAL ROOM METAL FRAME.
4. TRANSFORMERS TO BE BONDED IN TWO LOCATIONS USING THE GROUND CABLE LOCATED IN THE CABLE TRAY.

KEYPLAN
SCALE 1:2000

0 780 1560 2340 3000 3740
1:75 SCALE IN MILLIMETRES

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| H354138-3300-260-272-1000-0001 | SECONDARY/TERTIARY CRUSHING AREA GROUNDING PERSPECTIVE LAYOUT | | | | | | | DRAFTSPERSON | L DIEBELHAUS | | 2017-12-08 |
| DRAWING No. | DRAWING TITLE | | | | | | | DESIGNER | L DIEBELHAUS | | 2017-12-08 |
| REFERENCE DRAWINGS | | REG. PROFESSIONAL | No. | DESCRIPTION | BY | CHKD | DATE | CHECKER | M TIETZ | | |
| | | | | | | | | DESIGN COORD. | S PERKINS | | |
| | | | | | | | | RESP. ENG. | M TIETZ | | |
| | | | | | | | | LEAD DISC. ENG. | M TIETZ | | |
| | | | | | | | | ENG. MANAGER | B RUSTAD | | |
| | | | | | | | | PROJ. MANAGER | B RUSTAD | | |
| | | | REVISIONS | | | | | ROLE | NAME | SIGNATURE & DATE | |
| | | | | | | | | DRAWING APPROVAL STATUS: | Client Review | | |

HATCH

StrataGold Corporation

EAGLE GOLD PROJECT

SECONDARY& TERTIARY CRUSHIN ELECTRICAL ROOM GROUNDING LAYOUT

SCALE 1:75 @ A1 SHEET

DWG. No. H354138-3300-260-272-1000-0003

PLOTTED: 13:39
PRINTED: 18-SEP-2018
SAVED: jlaplante

| | | | | | | |
|---|---|---|---|---|---|---|
| JDS Energy & Mining Inc. | **ELECTRICAL GROUNDING CHECKLIST (UNDERGROUND)** (CONSTRUCTION) | Project No. CE202 | Subd. CCN -001 | Subject | Sequential | Rev. |
| | Client: Victoria / Strata Gold | | Date: Oct. 15/18 | | Page: 2 of 3 | |
| | Project Name & Location: Eagle Gold | | Report No. | | | |

| | |
|---|---|
| P.O. No.: | Contractor: Lakewood / Mueller |
| P.O. Title: | |
| Plant Area / Bldg. No.: | Substation Grounding |
| Specification No.: | |
| Tag / Part / System: | |
| Drawing: | 001-2700-E-6533/34 |
| Materials / Equipment Description: | Ground wire / rods / c-taps Figure 6's / Figure 8's |

DISTRIBUTION (NAME PLUS DISCIPLINE OR COMPANY)
From:
To:
Copies to:

| NO. | ITEMS TO BE INSPECTED | INSPECTED BY: CONTRACTOR | INSPECTED BY: CLIENT |
|---|---|---|---|
| 1. | Conductor's size, type and class correct; in reference to the drawing and specification | NB | SA |
| 2. | Crimped connections correct | NB | SA |
| 3. | Ground rods correct per drawing and specification | NB | SA |
| 4. | Ground well or grounding mat locations per drawing and specification | N/A | SA |
| 5. | Ground well or grounding mat connections correct | N/A | SA |
| 6. | Ground conductor burial depth and protection per specification | NB | SA |
| 7. | Location, type and size of equipment taps per drawing and protected during construction | NB | SA |
| 8. | Ground continuity checked and found correct | NB | SA |
| 9. | Resistance readings recorded on a proper field test record identified and linked to this report | N/A | SA |
| 10. | Conformance to drawing and specification | NB | SA |
| 11. | Relative deficiencies list closed-out | NB | SA |
| 12. | ☐ Other<br>Specify: | | |

Remarks:

| | TITLE | NAME | SIGNATURE | DATE |
|---|---|---|---|---|
| Prepared by: | Supervisor | Nick Bonassin | | 15/10/18 |
| Reviewed by: | SUPERINTENDENT | SVEN ARCHIMBAULT | | 15/10/18 |
| Approved by: | SUPERINTENDENT | SVEN ARCHIMBAULT | | 15/10/18 |

# ELECTRICAL GROUNDING CHECKLIST (ABOVE GROUND)
(CONSTRUCTION)

| Project No. | Subd. | Subject | Sequential | Rev. |
|---|---|---|---|---|
| CE202 | CON-001 | | | |

Client: Victoria / Strata Gold

Date: Oct. 15/18

Page: 1 of 3

Project Name & Location: Eagle Gold

Report No.:

P.O. No.: Contractor: Lakewood / Mueller

P.O. Title:

Plant Area / Bldg. No.: Substation Grounding

Specification No.:

Tag / Part / System:

Drawing: 001-2700-E-6533/34

Materials / Equipment Description: Ground wire / rods / C-TAPS Figure 65 / Figure 8's

DISTRIBUTION (NAME PLUS DISCIPLINE OR COMPANY)

From:

To:

Copies to:

| NO. | ITEMS TO BE INSPECTED | INSPECTED BY: CONTRACTOR | INSPECTED BY: CLIENT |
|---|---|---|---|
| 1. | Materials conform to specification | NB | |
| 2. | Grounding installations conform to drawing and specification | NB | |
| 3. | Terminations to equipment conform to project standard drawing | N/A | |
| 4. | Location, type, size and insulation colour as per drawing | NB | |
| 5. | Thermal connections checked (no cold joints or burn outs) | N/A | |
| 6. | Thermal connections are insulated | N/A | |
| 7. | System grounding rod resistance to ground measurements in accordance with specification - record these measurements | N/A | |
| 8. | Bonding to equipment and structural steel installed as per drawing. Measure resistance between ground conductor and tagged equipment bus bars, tagged equipment enclosures, structural steel surface in addition to all other items designed on the drawing. Record test results | N/A | |
| 9. | Continuity between ground conductor and conduit, metal junction boxes and between sections of cable tray verified and found correct | N/A | |
| 10. | High quality ground installation conform to specification | NB | |
| 11. | All revisions recorded on "As built" drawing | NB | |
| 12. | "As built" signed off, transmitted and recorded | NB | |
| 13. | Manufacturer's commissioning procedures available and followed | N/A | |
| 14. | Manufacturer's commissioning report available and recorded | N/A | |
| 15. | Relative deficiencies list closed-out | N/A | |

Remarks:

| | TITLE | NAME | SIGNATURE | DATE |
|---|---|---|---|---|
| Prepared by: | NICK BOURASSA | SUPERVISOR | | 10/15/18 |
| Reviewed by: | SVEN ABRAHAMOWITZ | SUPERINTENDENT | | 10/15/18 |
| Approved by: | SVEN ABRAHAMOWITZ | SUPERINTENDENT | | 10/15/18 |

| | ELECTRICAL CONDUIT CHECKLIST (CONSTRUCTION) | Project No. CE262 | Subd. ELN-001 | Subject | Sequential | Rev. |
|---|---|---|---|---|---|---|
| | Client: Victoria/Strata Gold | | Date: Oct. 15/18 | | Page: 3 of 3 | |
| | Project Name & Location: Eagle Gold | | Report No. | | | |

| | |
|---|---|
| P.O. No.: | Contractor: Lakewood / Maeller |
| P.O. Title: | |
| Plant Area / Bldg. No.: | Substation |
| Specification No.: | |
| Tag / Part / System: | |
| Drawing: | 001-2700-E-L533134 |
| Materials / Equipment Description: | 2" Rigid PVC Conduit<br>4" Rigid PVC Conduit |

DISTRIBUTION (NAME PLUS DISCIPLINE OR COMPANY)

From:

To:

Copies to:

| NO. | ITEMS TO BE INSPECTED | INSPECTED BY: CONTRACTOR | INSPECTED BY: CLIENT |
|---|---|---|---|
| 1. | Conduits clean, stub-ups protected, conduit seals installed on all open ends, damage during construction repaired | NB | NA |
| 2. | Field bend radius correct per specification - bend free of defect | NB | NA |
| 3. | Supports and spacing as per specification and drawing | N/A | N/A |
| 4. | Supports adjacent to terminal fittings | N/A | N/A |
| 5. | Expansion joints as shown on drawing | N/A | N/A |
| 6. | Installation neat and evenly spaced and in accordance with drawing and specification | NB | NA |
| 7. | Spacing between instrumentation conduit or cable and power cables shall be according to specification | NB | NA |
| 8. | Spacing from hot pipes and hot surfaces has been maintained according to specification | N/A | N/A |
| 9. | Proper fittings installed with threads fully engaged, proper sealing used, no wrench cuts, conduit ends have bushings and covers installed | NB | NA |
| 10. | Seals and drains installed per drawings | N/A | N/A |
| 11. | Conduit permanently and effectively earthed | NB | NA |
| 12. | Aluminum, PVC and PVC coated conduits installed as per drawing | NB | NA |
| 13. | Flexible conduit installed with proper bending radius and with standard fittings | N/A | N/A |
| 14. | Junction boxes levelled and supported as per drawing with proper hubs, locknuts and bushings installed | N/A | N/A |
| 15. | Seals checked for: • correct location • properly packed • seal compound poured | N/A | N/A |
| 16. | Installation in accordance with the specification and referenced code and standards | NB | NA |
| 17. | Relative deficiencies list closed-out | NB | NA |

Remarks:

| | TITLE | NAME | SIGNATURE | DATE |
|---|---|---|---|---|
| Prepared by: | Supervisor | Nick Bonnesse | | 15/10/18 |
| Reviewed by: | SUPERINTENDENT | SVEN ARLIMOVITZ | | 15/10/18 |
| Approved by: | SUPERINTENDENT | SVEN ARLIMOVITZ | | 15/10/18 |

## Bare Copper, Solid and Stranded



**Applications**
Solid (medium-hard or hard-drawn temper) for use in overhead, outdoor applications for distribution circuits.
Stranded (hard-, medium-hard or soft-drawn temper) for grounding.

**Specifications**
- SOLID: ASTM B-1=Hard-drawn temper; ASTM B-2=Medium-hard-drawn temper; ASTM B-3=Soft-drawn temper
- STRANDED: ASTM B-8=Concentric lay, Class B or Class C

**SOLID**
All part numbers are for soft-drawn temper. For other tempers use the suffix "H" for hard-drawn or "M" for medium-hard-drawn temper, (e.g. 1A-0801H). Diameters and weights may vary among manufacturers.

| Part No. | Conductor Size AWG | No. of Strands | Nom. O.D. (in.) | Approx. Wt. lb./1,000 ft. |
|---|---|---|---|---|
| 1A-2801 | 26 | Solid | 0.016 | 0.8 |
| 1A-2401 | 24 | Solid | 0.020 | 1.2 |
| 1A-2201 | 22 | Solid | 0.025 | 1.9 |
| 1A-2001 | 20 | Solid | 0.032 | 3.1 |
| 1A-1801 | 18 | Solid | 0.040 | 4.9 |
| 1A-1601 | 16 | Solid | 0.051 | 7.8 |
| 1A-1401 | 14 | Solid | 0.064 | 12.4 |
| 1A-1201 | 12 | Solid | 0.081 | 19.8 |
| 1A-1001 | 10 | Solid | 0.102 | 31.4 |
| 1A-0801 | 8 | Solid | 0.129 | 50.0 |
| 1A-0601 | 6 | Solid | 0.162 | 79.4 |
| 1A-0401 | 4 | Solid | 0.204 | 126.3 |
| 1A-0201 | 2 | Solid | 0.258 | 201.9 |

## CLASS B – STRANDED

| Part No. | Conductor Size AWG/kcmil | No. of Strands | Nom. O.D. (in.) | Approx. Wt. lb./1,000 ft. |
|---|---|---|---|---|
| 1B-0607 | 8 | 7 | 0.146 | 51 |
| 1B-0507 | 6 | 7 | 0.184 | 81 |
| 1B-0407 | 4 | 7 | 0.232 | 129 |
| 1B-0207 | 2 | 7 | 0.292 | 205 |
| 1B-0119 | 1 | 19 | 0.332 | 259 |
| 1B-10119 | 1/0 | 19 | 0.373 | 326 |
| 1B-20219 | 2/0 | 19 | 0.419 | 411 |
| 1B-30319 | 3/0 | 19 | 0.470 | 518 |
| 1B-40419 | 4/0 | 19 | 0.528 | 653 |
| 1B-25037 | 250 | 37 | 0.575 | 772 |
| 1B-30037 | 300 | 37 | 0.630 | 926 |
| 1B-35037 | 350 | 37 | 0.681 | 1,081 |
| 1B-40037 | 400 | 37 | 0.728 | 1,235 |
| 1B-50037 | 500 | 37 | 0.813 | 1,544 |
| 1B-60061 | 600 | 61 | 0.893 | 1,853 |
| 1B-75061 | 750 | 61 | 0.998 | 2,315 |
| 1B-100061 | 1000 | 61 | 1.152 | 3,086 |

### Belden Shielding Braid

Tinned copper shielding and bonding braid/cable

| Part No. | Approx. AWG | No. of Strands | Rec. Current (amps) | Approx. Circular Area | Nom. I.D. Tubular |
|---|---|---|---|---|---|
| 1SB-0038-B | 14.6 | | 27 | 3,600 | 0.125 |
| 1SB-0047-B | 13.3 | | 36 | 4,800 | 0.172 |
| 1SB-0076-B | 11.3 | | 46 | 7,800 | 0.203 |
| 1SB-0133-B | 8.9 | | 82 | 13,300 | 0.500 |
| 1SB-0229-B | 6.6 | | 80 | 22,900 | 0.781 |
| 1SB-0480-B | 3.4 | | 145 | 48,000 | 0.750 |

**Belden Bus Bar**
**Bare copper bus bar QQ-W-343G**

| Part No. | Approx. AWG | No. of Strands | Approx. Circular Area | Nom. O.D. (in.) |
|---|---|---|---|---|
| B8025 | 30 | | 102 | 0.010 |
| B8024 | 28 | | 164 | 0.013 |
| B8023 | 26 | | 262 | 0.016 |
| B8022 | 24 | | 424 | 0.021 |
| B8021 | 22 | | 650 | 0.026 |
| B8020 | 20 | | 1,056 | 0.033 |
| B8019 | 18 | | 1,648 | 0.041 |
| B8013 | 16 | | 2,673 | 0.052 |
| B8012 | 14 | | 4,251 | 0.065 |
| B8011 | 12 | | 6,872 | 0.083 |

# Ground Rods



## Sectional type Ground Rods

- Sectional type ground rods have the same high-quality as regular copper bonded steel ground rods and are threaded top and bottom

| Cat. No. | Trade Size in. | Trade Size ft. | Rod Size (nominal diameter x length) mm | Rod Size (nominal diameter x length) m | Plating Thickness | Thread Size | Standard Packaging | Weight per 100 lb. | Weight per 100 kg |
|---|---|---|---|---|---|---|---|---|---|
| 5008ES | 1/2 | 8 | 12.7 | 2.4 | 10 mils | 5/16–12 | 5 | 546 | 248 |
| 5010LS | | 10 | | 3.0 | | | | 682 | 309 |
| 6258S | 5/8 | 8 | 15.8 | 2.4 | 10 mils | 5/8–11 | | 670 | 308 |
| 6260S | | 10 | | 3.0 | | | | 837 | 384 |
| 7506S | 3/4 | 6 | 17.3 | 1.8 | 5 mils | 3/4–10 | | 774 | 160 |
| 7508S | | 8 | | 2.4 | 10 mils | | | 992 | 450 |
| 7510S | | 10 | | 3.0 | | | | 1040 | 562 |
| 10108 | 1 | | 25.4 | | | 8–1 | 1 | 2246 | 1020 |

CSA lists rods 1/2 in. and larger, 10 ft. and longer.

## Couplings

- Threaded couplings are made of high-strength, corrosion resistant alloy. Streamlined design reduces driving friction. Couplings are tapped for use on all standard threaded sectional rods



| Cat. No. | Rod Size Diameter (in.) | Thread Size | Standard Packaging | Weight per 100 (lb.) |
|---|---|---|---|---|
| 50LC | 1/2 | 9/16 in. – 12 UNS | 25 | 17 |
| 60C | 5/8 | 5/8 in. – 11 UNS | | 25 |
| 70C | 3/4 | 3/4 in. – 10 UNS | | 38 |
| 80C | 1 | 1 – 8 UNS | 10 | 75 |

## Driving Studs

- Driving Studs of high-strength steel
- May be used with all standard threaded couplings



| Cat. No. | Rod Size Diameter (in.) | Thread Size | Standard Packaging | Weight per 100 (lb.) |
|---|---|---|---|---|
| 50LDS* | 1/2 | 9/16 in. – 12 UNS | 10 | 16 |
| 60DS*+ | 5/8 | 5/8 in. – 11 UNS | 25 | 29 |
| 70DS* | 3/4 | 3/4 in. – 10 UNS | 5 | 35 |
| 80DS | 1 | 1 – 8 UNS | 10 | 75 |

* UL Listed
+ CSA Certified

# Ground Rods

## Galvanized Ground Rods



- Made of high-strength quality cold drawn steel (1035) hot dip galvanized
- Meets ANSI C135.30-1979 requirements
- Stainless steel rods are also available (for more detailed information, contact your T&B Regional Sales Office)

| Cat. No. | Trade Size | | Rod Size (nominal diameter x length) | | Plating Thickness | Standard Packaging | Weight per 100 | |
|---|---|---|---|---|---|---|---|---|
| | in. | ft. | mm | m | | | lb. | kg |
| GR5006 | 1/2 | 6 | 12.7 | 1.8 | | 10 | 410 | 186 |
| GR6256 | | | | 1.8 | | | 600 | 272 |
| GR6258 (0.620 – 0.630) | | 8 | | 2.4 | | | 800 | 363 |
| GR6250 (0.555 – 0.565) | 5/8 | | 15.9 | | | | | |
| GR6260 (0.620 – 0.630) | | 10 | | 3.0 | 4 mils | 5 | 1000 | 454 |
| GR6250B* (0.555 – 0.565) | | | | | | | | |
| GR7506 | 3/4 | 6 | 19.1 | 1.8 | | | 700 | 318 |
| GR7508 (0.745 – 0.755) | | 8 | | 2.4 | | | 1200 | 545 |
| GR7510 (0.745 – 0.755) | | 10 | | 3.0 | | | 1500 | 681 |

* B suffix denotes black iron bare steel ground rod (CSA not applicable).
CSA lists rods 1/2 in. and larger, 10 ft. and longer.

## Copper Bonded Steel Ground Rods



- All EZGroundGround™ ground rods have a heavy uniform covering of electrolytic copper bonded to a rigid steel core
- Copper ions are forced electrically to join with the steel core establishing a corrosion-resistant bond between the copper and the steel

| Cat. No. | Trade Size | | Rod Size (nominal diameter x length) | | Plating Thickness | Standard Packaging | Weight per 100 | |
|---|---|---|---|---|---|---|---|---|
| | in. | ft. | mm | m | | | lb. | kg |
| 5005 | 1/2 | 5 | 12.7 | 1.5 | 10 mils | 10 | 305 | 138 |
| 5006 | | 6 | | 1.8 | | | 370 | 168 |
| 5008 | | 8 | | 2.4 | | | 545 | 247 |
| 5010 | | 10 | | 3.0 | | | 611 | 277 |
| 6256 | 5/8 | 6 | 15.8 | 1.8 | | 5 | 508 | 230 |
| 6258* | | 8 | | 2.4 | | | 678 | 308 |
| 6260* | | 10 | | 3.0 | | | 847 | 384 |
| 7508* | 3/4 | 8 | 19.3 | 2.4 | | | 992 | 450 |
| 7510* | | 10 | | 3.0 | | | 1240 | 462 |
| 1010* | 1 | | 25.4 | | | 1 | 2248 | 1020 |

* Ground rods are UL Listed (4256), except for regular rods shorter than 8 ft. or less than 1/2 in.
CSA lists rods 1/2 in. and larger, 10 ft. and longer.

## Knurling Die for 14- & 15-Ton Tools

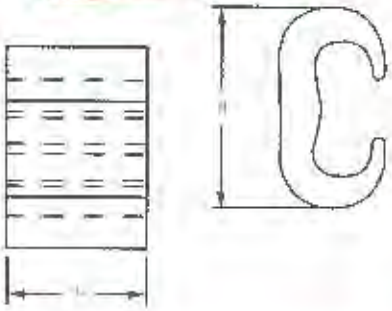
| Cat. No. | Description |
|---|---|
| 1550SS | For 5/8 in. and 3/4 in. ground rods |

Used to knurl ground rods in order to increase the pullout value of the compression connection by as much as 20%. Use hand knurling tool Cat. No. 240-31565-94 for all ground rods.



# C-Taps



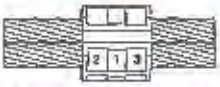


DB IEEE

| Cat. No. | Main | Tap | Dimensions in. (mm) H | L | Dies for TBM14A, 13100A or TBM15A* | Crimps |
|---|---|---|---|---|---|---|
| CTP22 | #6 sol.–#2 str. | #6 sol.–#2 str.** | 1.16 (29.5) | 0.75 (19.1) | HBKC | 1 |
| CTP202 | #1 str.–2/0 str. | | 1.41 (35.8) | | 15501A | |
| CTP2020 | #1 str.–2/0 str. | #1 str.–2/0 str. | 1.54 (39.1) | | | |
| CTP25020 | 3/0 str.–250 kcmil | #6 sol.–2/0 AWG** | 1.97 (50.0) | | 15G86A | |
| CTP250250 | | 3/0 str.–250 kcmil | 2.06 (52.3) | | | |
| CTP50020 | 300–500 kcmil | #6 sol.–2/0 AWG** | 2.42 (61.5) | 0.88 (22.4) | 15G121A | 2 |
| CTP500250 | | 3/0 str.–250 kcmil | 2.67 (67.8) | | | |
| CTP500500† | | 300–500 kcmil | 2.93 (73.9) | 1.10 (27.9) | | 3 |

* Cat. No. 15500 adaptor required if using TBM15 and 15XXX series Dies.
** #6 AWG branch must be doubled.
† Must use TBM15A tool.
Material: High-Conductivity Copper.





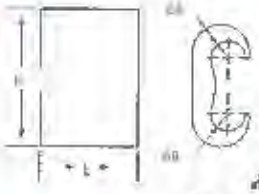



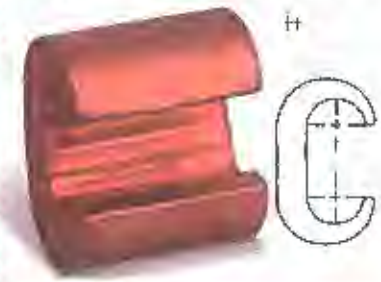
Figure 1 – Requires 3 crimps

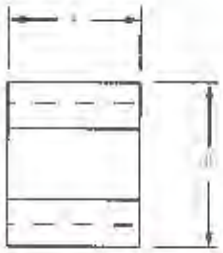
IEEE

| Cat. No. | D A Cable | D B Cable | H (in.) | L (in.) | Crimps | Dies for Tools |
|---|---|---|---|---|---|---|
| CTP250250N | 3/0 str. - 250 kcmil | 3/0 str - 250 kcmil | 2-1/16 | 1-1/2 | 3 | 15506SS |
| CTP25020N | 3/0 str. - 250 kcmil | #1 str. - 2/0 str. | 1-31/32 | 1-1/2 | 3 | 15506SS |
| CTP2020N | #1 str. - 2/0 str. | #1 str. - 2/0 str. | 1-9/16 | 1-1/2 | 3 | 15517SS |
| CTP202N | #1 str. - 2/0 str. | #6 sol. - #2 str. | 1-13/32 | 1-1/2 | 3 | 15517SS |
| CTP22N | #6 sol. #2 str. | #6 sol. - #2 str. | 1-5/32 | 1-1/2 | 3 | 15514SS |

All parts ending by the letter N are IEEE 837-2014 compliant.
Use hydraulic tool 13100A, TBM14M TBM14CR-LI, TBM15CR-LI, TBM15 or TBM15I with die indicated in chart.
Must use TBM15, TBM15CR-LI or TBM15I tool only. (See Figure 1)

## Copper C-Crimps Wire Combinations**



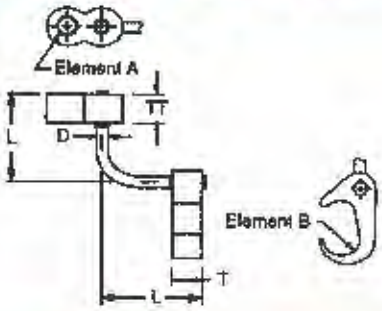


| Cat. No. | Run | Tap | Die Index | Manual Tool (IO Series | Installing Die 14- and 15-Ton Tools | Dimensions in. (mm) L | H |
|---|---|---|---|---|---|---|---|
| BC48 | 6 sol.–4 str. | 8 sol.–8 str. | BG or 5/8 | BY31 | B58CS | 0.64 (16.3) | 0.56 (14.2) |
| BC46-88 | | 6 sol.–6 str. | | | | | 0.75 (19.1) |
| BC44 | | 4 sol.–4 str. | | | | | 0.80 (20.3) |
| BC24 | 2 sol.–2 str. | 8 sol.–4 str. | C | BY33 | HBKC | 0.75 (19.1) | 0.98 (24.8) |
| BC22 | | 2 sol.–2 str. | | | | | 1.05 (26.7) |
| BC202 | 1/0 sol.–2/0 str. | 8 sol.–2 str. | E or G | – | HD | 0.94 (23.9) | 1.31 (33.3) |
| BC2020-88 | | 1/0 str.–2/0 str. | | | | | 1.36 (34.6) |
| BC402 | 3/0 str.–4/0 str. | 6 sol.–2 str. | F or BG | – | HD | 1.05 (26.9) | 1.63 (41.4) |
| BC4020 | | 1/0 sol.–2/0 str. | | | | | |
| BC4040 | | 3/0 sol.–4/0 str. | | | | | |

**Do not meet IEEE 837

## Figure 6 to 8 Compression Ground Rod to Grid Connectors





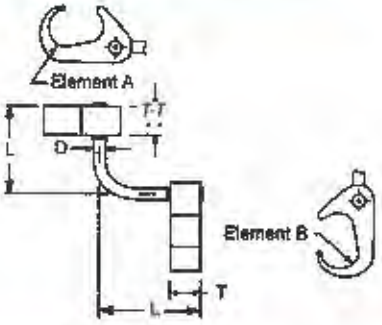

MEETS IEEE 837 REQUIREMENTS

| CAT. NO. | A GROUND ROD | B CABLE RANGE | DIMENSIONS (IN.) | | DIES FOR TBM14M, 13100A OR TBM15I | |
|---|---|---|---|---|---|---|
| | | | D | L | ELEMENT A | ELEMENT B |
| 54856LR12* | ½" | 2 AWG–250 kcmil | ¾" | 2½" | 15G86R | 15G121R |
| 54885LR12* | ½" | 250 kcmil–500 kcmil | ¾" | 2¼" | 15G126R | 15G121R |
| 54856LR58* | ⅝" | 2 AWG–250 kcmil | ⅝" | 2½" | 15G86R | 15G121R |
| 54885LR58* | ⅝" | 250 kcmil–500 kcmil | ⅝" | 2½" | 15G126R | 15G121R |
| 54875LR34* | ¾" | 2 AWG–250 kcmil | ⅞" | 2¾" | 15G86R | 15G121R |
| 54900LR34* | ¾" | 250 kcmil–500 kcmil | ⅞" | 2¾" | 15G121R | 15G121R |
| 54910LR100 | 1" | 2 AWG–250 kcmil | ⅞" | 2¾" | 15G86R | 15G121R |
| 54920LR100 | 1" | 250 kcmil–500 kcmil | ⅞" | 2¾" | 15G126R | 15G121R |

*Tin-plated version available of galvanized ground rods. Add suffix: -TP.

## Figure 6 to 6 Compression Ground Grid Connectors






MEETS IEEE 837 REQUIREMENTS

| CAT. NO. | ELEMENT A CABLE TO CABLE | ELEMENT B CABLE TO CABLE | ELEMENT B TO GROUND ROD | ELEMENT B TO REBAR | DIMENSIONS (IN.) | | | DIE SELECTION FOR TBM14M, 13100A OR TBM15I | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | D | T | T-T | A | B |
| 54856L | #6 Sol.–#2 Str. | #6 Sol.–#2 Str. | — | — | ¾" | ⅝" | ⅜" | 15501A | 15501A |
| 54866L | #1 Str.–250 kcmil | #6 Sol.–#2 Str. | ½"–⅝" | ¾"–⅞" #3–#4 Rebar | ¾" | ⅞" | ½" | 15G86R | 15501A |
| 54875L | #2 Str.–250 kcmil | #2 Str.–250 kcmil | ½"–⅝" | ¾"–⅞" #3–#4 Rebar | ¾" | ⅞" | ½" | 15G86R | 15G86R |
| 54885L | 250 kcmil–500 kcmil | #6 Sol.–#2 Str. | ½"–⅝" | ¾"–⅞" #5–#6 Rebar | ¾" | ⅞" | ½" | 15G126R | 15501A |
| 54895L | 250 kcmil–500 kcmil | #2 Str.–250 kcmil | ½"–⅝" | ¾"–⅞" #5–#6 Rebar | ¾" | ⅞" | ½" | 15G126R | 15G86R |
| 54900L | 250 kcmil–500 kcmil | 250 kcmil–500 kcmil | ½"–⅝" | ¾"–⅞" #5–#6 Rebar | ¾" | 1⅛" | 1⅛" | 15G121R15 | G121R |

Tooling: p. 874–890
Die Selector Chart: p. 891–893



Thomas&Betts
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800.816.7809
Fax: 901.252.1354
Technical Services
Tel: 888.862.3289

# CONTRACTOR/INTERDISCIPLINE RELEASE FORM

| | | | |
|---|---|---|---|
| **Project:** | Eagle Gold Project | **Revision No.** | 0 |
| **Contractor:** | Ewing | **Contract No:** | CC201 |
| **Area:** | 6320 – Sub-Station | | |

| | | | |
|---|---|---|---|
| **Date** *(mm/dd/yy)*: | 10/24/2018 | **Drawing No:** | 6320 |
| **Discipline:** | Civil/Subgrade | | |

**The following:** **Area** ☒ **Equipment** ☐ **System** ☐ **Other** ☐

**(Provide complete description of area item, equipment system and Tag Numbers where applicable):**

**Subgrade preparation to U/S of concrete**

**Released to:** Clark Builders – CB201

**Release Basis:**

| | | | |
|---|---|---|---|
| ☒ | Civil | ☐ | Paintings/Coatings |
| ☐ | Structural | ☐ | Electrical |
| ☐ | Mechanical | ☐ | Tracing |
| ☐ | Piping | ☐ | Insulation |
| ☐ | NDE | ☐ | Fireproofing |
| ☐ | PHWT | ☐ | Walkdown/Punchout |
| ☐ | Pressure Test | ☐ | Other |

**Comments:**

Sub-grade prepared to U/S of concrete elevation

| | | | |
|---|---|---|---|
| Dirk Ewing | Owner | | Oct 24/2018 |
| Requested By *(Print)* | Title | Signature | Date *(mm/dd/yy)* |
| Ishan Fechter | Superintendent | | Oct. 24/2018 |
| Release Authorized By *(Print)* | Title | Signature | Date *(mm/dd/yy)* |
| GARRY DAHL | Supt | | Oct 26/18 |
| Release Received/Accepted By *(Print)* | Title | Signature | Date *(mm/dd/yy)* |

VICEAG05E

CLARK BUILDERS
ENERGY & RESOURCES



# AREA CONCRETE TURNOVER

Rev 00 September 18, 2018

| | |
|---|---|
| OWNER REPRESENTATIVE(S): Jerry Chraszcz | DATE OF TURNOVER: DECEMBER 7, 2018 |
| CLARK BUILDERS REPRESENTIVE(S): Ryan deMilliano | AREA/ LOCATION: 6320 SUBSTATION |

| | |
|---|---|
| TURNOVER TYPE: | ☒ COMPLETE AREA ☐ PARTIAL AREA ☐ EQUIPMENT ☐ SYSTEM ☐ OTHER |
| COMPLETE DESCRIPTION OF AREA TO BE TURNED OVER: | 6320 SUBSTATION CONCRETE INSTALLATION. |
| SCOPES INCLUDED: | ☐ CIVIL/EARTHWORK ☒ CONCRETE ☒ ANCHOR BOLTS/EMBEDS ☒ GROUNDING ☐ GROUT |
| RELEASED FROM (Company): | CLARK BUILDERS |
| RELEASED TO (Company): | JDS |

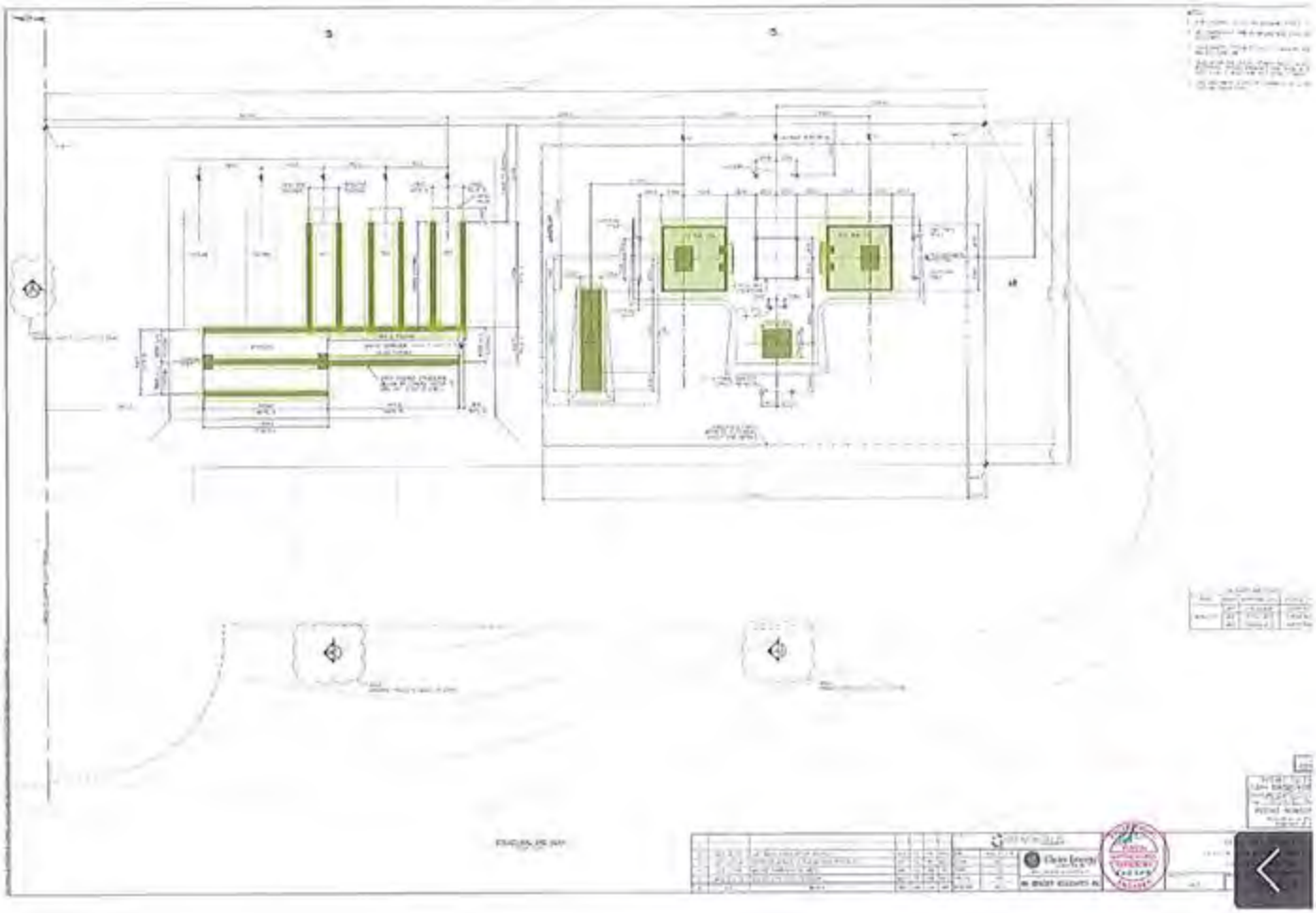
ATTACHMENT(S): ① MARKED UP DRAWING OF SUBSTATION HIGHLIGHTING AREA CONCRETE INSTALLED
② RFI 92 / RFI 108

| ITEM | ITEMS TO BE CHECKED | ACCEPT | ACCEPT W/NOTES | DECLINE | N/A | NOTES |
|---|---|---|---|---|---|---|
| 1.0 | Concrete structure dimensions and locations are within acceptable tolerances and is acceptable to the owner. | ☒ | ☐ | ☐ | ☐ | |
| 2.0 | Tolerances for anchor bolts and embedded items have been review and are acceptable. This includes projection and location of embedded items. | ☒ | ☐ | ☐ | ☐ | |
| 3.0 | Safe access to the work area has been prepared by the contractor | ☒ | ☐ | ☐ | ☐ | |
| 4.0 | All hardware required has been provided to the receiving company from Clark builders. This includes all plates, washers, nuts, etc. | ☒ | ☐ | ☐ | ☐ | |
| 5.0 | As built survey completed on area | ☒ | ☐ | ☐ | ☐ | |
| 6.0 | Bearing surface adequately prepared for grout. | ☒ | ☐ | ☐ | ☐ | |
| 7.0 | Work area access has been adequately prepared | ☒ | ☐ | ☐ | ☐ | |
| 8.0 | Outstanding RFI's for the area have been addressed prior to the area being turned over. (List any related RFI's in the comments) | ☒ | ☐ | ☐ | ☐ | RFI 092 / RFI 108 |
| 9.0 | Outstanding deficiencies for the area have been addressed prior to the area being turned over. | ☒ | ☐ | ☐ | ☐ | |
| | | | | | | |

COMMENTS:

OWNER REPRESENTATIVE:
INSPECTOR: Jerry C [signature] TITLE Const. Sup. DATE: Dec 7/18

CLARK BUILDERS REPRESENTATIVE:
INSPECTOR: Ryan deMilliano [signature] TITLE PROJECT COORDINATOR DATE: DECEMBER 7, 2018



,320 SUBSTATION – FINAL WALKDOWN. DECEMBER 7, 2018

ATTENDEES: JERRY C. (JDS)
TAWNYA THORTON
RYAN DEMILLIANO



ITEM 1
WASHERS MISSING FROM ANCHOR BOLTS.
CLARK BUILDERS RESUPPLY.



ITEM 2
PLYWOOD RECESS TO BE
REMOVED/STOPPED

CLARK BUILDERS

# RFI #92

Clark Builders
4703 - 52 Avenue
Edmonton, Alberta T6B 3R6
Phone: (780) 395-3300
Fax: (780) 395-3545

**Project:** 16502 - CB201-JDS - Stratagold Eagle Gold
Yukon Territory

## 6320 Substation Sump Form

| | | | |
|---|---|---|---|
| **TO:** | Tawnya Thornton **(JDS Energy and Mining)** | **FROM:** | Jackson Wenger **(Clark Builders - Edmonton)** |
| **DATE INITIATED:** | 10/10/2018 | **STATUS:** | Closed |
| **LOCATION:** | 6320 | **DUE DATE:** | 13/10/2018 |
| **PROJECT STAGE:** | | **COST CODE:** | |
| **SUB JOB:** | | **SCHEDULE IMPACT:** | |
| **COST IMPACT:** | | **SPEC SECTION:** | |
| **DRAWING NUMBER:** | | **REFERENCE:** | |
| **LINKED DRAWINGS:** | | | |
| **RECEIVED FROM:** | | | |

**COPIES TO:**
Matt Coverdale **(JDS Energy and Mining)**, Garry Dahl **(Clark Builders - Edmonton)**, Ryan de Milliano **(Clark Builders - Edmonton)**, Ishan Fechter **(JDS Energy and Mining)**, Braiden Fraser **(JDS Energy and Mining)**, Calvin Goldschmidt **(JDS Energy and Mining)**, Gary Hosey **(Clark Builders - Edmonton)**, Jan Johnson **(Clark Builders - Edmonton)**, Peter Nice **(Clark Builders - Edmonton)**, Henry Rueda **(Clark Builders - Edmonton)**, Tawnya Thornton **(JDS Energy and Mining)**, Jackson Wenger **(Clark Builders - Edmonton)**

### Question from Jackson Wenger (Clark Builders - Edmonton) at 08:41 PM on 10/10/2018

Clark Builders is requesting to use a 16" metal culvert for the substation sump block out. Please advise if acceptable.

**Attachments:**
3E52290B-518D-4385-ADBE-EBF6FD356DCA-261-000000085962243A_image.jpg

**Official Response:** **Ryan de Milliano (Clark Builders - Edmonton)** *responded on Friday, October 19th, 2018 at 6:26PM MDT*
Engineer Response:

Galvanized culvert is fine. Drill some holes near the bottom to let the water in. (Touch up with Galvicon paint)
Also note, as indicated on the grounding drawing the metal pipes will have to be grounded.
Please install both on the east side. As per the drawings since T2 foundation is "turned around" the sump would have fallen on the west side and would have been inconveniently been under the cable tray.

W. Neil Brazier Oct 11, 2018

**Attachments:**
CB201-RFI-092 response.pdf

**All Replies:**

CLARK BUILDERS

# RFI #108

Clark Builders
4703 - 52 Avenue
Edmonton, Alberta T6B 3R6
Phone: (780) 395-3300
Fax: (780) 395-3545

**Project:** 18502 - CB201-JDS - Stratagold Eagle Gold
Yukon Territory

## 6320 Module Foundations Reinforcing Substitute 15M replacing 20M

| | | | |
|---|---|---|---|
| **TO:** | Tawnya Thornton **(JDS Energy and Mining)** | **FROM:** | Ryan de Milliano **(Clark Builders - Edmonton)** Edmonton, Alberta |
| **DATE INITIATED:** | 09/11/2018 | **STATUS:** | Closed |
| **LOCATION:** | 6320 | **DUE DATE:** | 12/11/2018 |
| **PROJECT STAGE:** | Course of Construction | **COST CODE:** | |
| **SUB JOB:** | | **SCHEDULE IMPACT:** | TBD |
| **COST IMPACT:** | No | **SPEC SECTION:** | |
| **DRAWING NUMBER:** | | **REFERENCE:** | |
| **LINKED DRAWINGS:** | 001-2700-C-0002 | | |
| **RECEIVED FROM:** | Marion Fyshe **(McNish Steel)** | | |

**COPIES TO:**
Chris Copley **(JDS Energy and Mining)**, Matt Coverdale **(JDS Energy and Mining)**, Gerry Dahl **(Clark Builders - Edmonton)**, Ryan de Milliano **(Clark Builders - Edmonton)**, Ishan Fechter **(JDS Energy and Mining)**, Gary Hosey **(Clark Builders - Edmonton)**, Jan Johnson **(Clark Builders - Edmonton)**, Peter Nice **(Clark Builders - Edmonton)**, Henry Rueda **(Clark Builders - Edmonton)**, Tawnya Thornton **(JDS Energy and Mining)**, Jackson Wenger **(Clark Builders - Edmonton)**

### Question from Ryan de Milliano (Clark Builders - Edmonton) at 04:46 PM on 09/11/2018

Reinforcing steel supplier has provided 15M bars for horizontals on detailed module foundations. The design notes 16x20M for the foundations. We are requesting to use the delivered 15M bars to avoid any schedule delay. There is contingency 15M reinforcing if additional 15M reinforcing is required.

**Attachments:**
2E8FF2BA-2A44-4AD4-9B17-162E6CE9F3FB-37826-00000A86685A9185_image.jpg

**Official Response:** **Ryan de Milliano (Clark Builders - Edmonton)** *responded on Sunday, November 11th, 2018 at 6:16PM MST*

Our structural engineer, Jim MacKenzie reports:
"I don't need 20M on the sides but to keep things simple I used 20M instead of 15M so for the 4 on the sides we are Ok with 15M. For the top and bottom 12 bars total we need 50 percent more, (area if we use 15M) so 6 more 15M if that is what we have lying around. That would result in 9 top, 9 bottom, and 4 sides for a total of 22 bars all 15M instead of what is shown now as 16 bars all 20M."
Consequently it is required that (a) provide 20 M for top and bottom bars or (b) use 9 (nine) 15 M on the top and 9 (nine) 15M on the bottom and (c) the 2 bars on each side can be 15M.
Please advise which solution you choose.
W.N. Brazier, P.Eng. 10 Nov, 2018

**Attachments:**
CB201-RFI-108 response.pdf

**All Replies:**

CANCELLED, CLARK BUILDERS ORDERED THE PROPER 20M BAR.

Forbes Bros
Physicians Contractors

| | | | | | |
|---|---|---|---|---|---|
| Project Name | Eagle Gold AWO | Facility | [illegible] | ITP Number | RMD-1 |
| Contract Number | [illegible] | Contractor | [illegible] | ITP Revision | 3 |

Definitions - inspection points:

1. Hold Point: A hold point is a mandatory stop at a point beyond which work may not proceed without the concurrence of the witnessing authority per written query.
2. Witness point: A "witness" point allows another party to verify the inspection or test when it is in progress, at their option.
3. Review Point: A "review" point is a point at which the Forbes Bros representative, the work verifies the quality of the work to perform and submits a statement of compliant including that the work meets the quality requirements and specifications.
4. Other types of inspection and test points may be specified in project and Defined.

| Types of Test | Performed by Assignment Legend |
|---|---|
| 1 | Owner |
| 2 | Manufacturer |
| 3 | Engineer |
| 4 | Consultant |
| 5 | Local Inspection Authority |
| 6 | Subcontractor Foreman (e.g. drawings, RFIs, etc.) |
| 7 | Electrical |
| 8 | Mechanical (e.g. HVAC) |
| 9 | Other |

Other Remarks for the ITP:

Other remarks for the ITP may be used by Forbes or Contractor, but must be a minimum, include the following information if given:

Quality criteria for the project, e.g. which levels the contractor assessor corresponds to which type of Work, reference, Work number limits

Final assignments of responsibilities

Quality record to be produced and additional personnel level allocated Assessment for Witnessed Audit Work

Project Quality Documents include:

1. Test / Inspection requirements, forms, etc. from Client
2. Work and detailed T&C generated ITP's
3. Detail, modified, approved and terminated Variable ITP's
4. Inspection and Inspection results, conformance or exceptions against 3 using detailed, approving and witnessed Conformance ITPs
5. Hold/witnessing, inspection and test records, work completed, and signed ITPs
6. Commissioning, pre-commissioning, Final inspection, audit Records records, Deficiency Work etc.

Legend

| | | | | | |
|---|---|---|---|---|---|
| CLI | Client | QM | Quality Management Engineer | CHS | Coordinator |
| PM | Project Manager | PE | Principal Consultant Engineer | CM | Construction Manager |
| PQE | Project Quality Coordinator | QLTY | Plant Quality | SUPT | Assistant Manager |
| CE | Plant/QA Engineering | LAQA | Contract Administrator | DC | Document Control |
| CM | Construction Manager | QCM | Operator | QA | Inspector |
| SUB | Subcontractor | TPI | Third Party Inspector | | |

| Item | Activity | Reference Document | Acceptance Criteria | Lead Responsible | Witness Responsibility | Hold | Witness | Review | Hold | Witness | Review |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | General Requirements | | | | | | | | | | |
| 1.2 | Latest revision of approved Construction Drawings and Specifications | • Ex-01-0002 Construction Specification, section 1 | a) Ensure that personnel have updated, reviewed issued for Construction Drawings and specifications | Foreman / Superintendent/Lead | PC Drawings & Specs in | | | PM SUP | TA | FEB16 | SA | FEB16 |
| 1.3 | Quality Management Plan | • 5407-7-0002 Construction Specification, section 1.12 | a) Ensure Quality Plan is reviewed and accepted by client.<br>b) Ensure all Quality Inspection have been reviewed and accepted by client<br>c) Ensure all tools and instruments used are properly calibrated and all certificates available and valid | Foreman / Superintendent/Lead | Calibration Certificates | | | PM QM | TA? | | SA | FEB16 |
| 2 | Submittals | | | | | | | | | | |
| 2.1 | Reviewing & Approval Processing and Procurement | | | | | | | | | | |
| 2.1.1 | Review and sign off packages from Forbes Supervisor to confirm all material has been ITP to sign off Physical Samples | • 5407-7-0002 Construction Specification, section 2<br>• Bill of Material (BoM)<br>• Order Approval Agreement<br>• Finishes Plan | a) Adhering to Specifications and construction Drawings | Foreman / Superintendent/Lead | Shop Report<br>Mock Material<br>Processing Log | | | PM MOC | TA | | SA | FEB16 |
| 2.1.2 | Supplement non-conformance records of Performance Plans | • 5407-7-0002 Construction Specification, section 2<br>• 5407-7-0007 - Eagle Gold Mine Construction Execution Specification | a) Receive inspection<br>b) Details varying<br>c) "Change" request and verification handled by prioritized workflows and Field Supervisor | Manager / Superintendent/Lead | 5407 report<br>Non-Material Comment list | | | PM MOC | TA | | SA | FEB16 |
| 2.1.3 | Shield Wire | • 5407-7-0002 Construction Specification, section 2.7<br>• 208-0101-11<br>• 104-0101-1 | Permission and Presentation of Shield Plate Certificate to manufacturer certification | Manager / Superintendent/Lead | Shop Report<br>Non-Material Discrepancy Log | | | PM MOC | TA | | SA | FEB16 |
| 2.1.4 | Conductor and Shield Wire | • 5407-7-0002 Construction Specification, section 2<br>• 5407-07-0015 - Eagle Gold Conductor and Shield Wire Specification | Procurement of Conductor wire Conformance to standard specifications | Foreman / Superintendent/Lead | CSD Report<br>Non-Material Discrepancy log | | | PM MOC | TA | | SA | FEB16 |
| 2.1.5 | ADSS cable | • 2501-7-0002 Construction Specification, section 2<br>• 5407-7-0015 - Eagle Gold ADSS Fiber Optic Cable Specification | Procurement of ADSS cable, Conformity to manufacturer specifications | Electrical / Superintendent/Lead | CSD Report<br>Non-Material Discrepancy log | | | PM MOC | TA | | SA | FEB16 |
| 2.1.6 | Conductor and Shield Wire Hardware | • 5407-7-0002 Construction Specification, section 2<br>• 5407-7-0008 - Eagle Gold Conductor and Shield Wire Hardware Specification<br>• 5407-7-0020 - Eagle Gold Conductor and Shield Wire Hardware Specification | Inspect U-pins and A & Shield Plate Parts Conformity to client specifications | Electrical / Superintendent/Lead | CSD Report<br>Non-Material Discrepancy log | | | PM MOC | TA | | SA | FEB16 |

Forbes Bros.

| | | | | | |
|---|---|---|---|---|---|
| Project Name: | Eagle Gold Mine | Facility: | LFG | ITP number: | FBE-1 |
| Contract Number: | CCPL Pipeline Installation | Contractor: | FORBES BROS LTD | ITP Revision: | 1 |

Definitions - Inspection points:

1. Hold Point: A 'hold' point is a mandatory stop at a point beyond which work may not proceed without the expressed or implied consent of the witnessing party.
2. Witness point: A 'witness' point advises another party to verify the inspection or test which is to be progressed at their option.
3. Review point: A 'review' point is a point at which the person / organization doing the work verifies the details as the work is performed, and records a statement or checklist verifying that the work meets the specific requirements specified.
4. Other types of inspection and hold points may be specified in contract documents.

| Types of Work | Responsibility during construction |
|---|---|
| 1 Prime | QC Supervisor, Foreman for in-house staff personnel |
| 2 Geotechnical | QC & Construction Representative for Piling, Geotechnical and Instrumentation Installation |
| 3 Electrical | QC Supervisor, Foreman, Electrical Contractor, Electrical Consultant |
| 4 Instrumental | QC Rep, Instrument Technician & Site Representative |
| 5 Construction Manager | Site Representative - Responsible and supervise all activities on the Project Site |
| 6 Mechanical - Pipelines (e.g. Structural, Steel, etc.) | |
| 7 Contractor | |
| 8 Manufacturer (e.g. Fabricator) | |
| 9 Other | |

Other Remarks for the ITP:

Other Records for the ITP may be kept by Vendors or Contractors, but need, in a minimum, to hold the following information for Verify:

- Quality reference for a spec, drawing, site specific Matrix for acceptable material descriptions, project type ITP/QCP, attached, Shell, warning signs
- Clear suggestion of recommendations
- Quality Hold is to be pointed out and referenced, approval time allowed Management approvers end dates

Project Quality Frequently Include:

1. Task / Inspection Incrementally Above, etc. Is not Final
2. Notes and comments regarding specific ITP's
3. Specific deviations, equipment and personnel inspection ITP's
4. Testing Use and Acceptance results, credible data as cumulative records of Verify, materials, equipment and personnel Qualifications
5. Hold reviewing, witnessed and any results, check completed and signed off's
6. Commissioning, post commissioning, final inspections, and Manager records, Performance data, etc.

Legend:

| | | | |
|---|---|---|---|
| C | Client | PE | Pipeline Engineer |
| PM | Project Manager | PPE | Personal Protective Equipment |
| PCS | Project Controls Specialist | QCP | Quality Control Plan |
| PE | Project Engineering | QMS | Quality Management System |
| EAC | Environmental Advisor | SWP | Supervisor |
| QCR | Quality Control | TP | Third Party Inspection |

| Item | Activity | Reference Document | Acceptance Criteria | Record Generated | Quality Control Requirements | Witness | | | Verification | | Remarks | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Supplier | Client | Qty | Supplier | Client | Date | Ref |
| 3.2 | Welding Materials<br>Materials to be supplied and delivered for construction and consumed or used which is out of specification | • ASME B 31PE Pipeline Construction Specification, section 3 | All documents, materials, QA certificates, welder qualifications, welding procedures and welding equipment are to be reviewed and approved prior to commencement of welding. | • Welder<br>• Client | ITP Approval<br>Weld Maps (s)<br>Inspection Log | | | PM<br>WM | TA | Feb 8 2019 | SA | FEB 19/19 |
| 4.3 | Material Testing | • ASME B 31PE Construction Specification, section 3 | Materials to be stored in accordance with as per manufacturer's recommendations.<br>Conformance to Construction Execution Plan. | • Welder<br>• Client | ITP Approval<br>Weld Material Inventory Log | | | QM<br>PM<br>WM | TA | | SA | |
| 3.4 | Material Repair | • ASME B 31PE Construction Specification, section 3.4.3 | Material that fails to meet spec shall be returned to the Client as per contract requirements. | • Welder<br>• Client | Weld Material Inventory Log | | | | TA | | SA | |
| 4 | Site Preparation and Access | | | | | | | | | | | |
| 4.1 | Site Access Document Check<br>Right of Way | • 2101 - 1 ASME Construction Specifications, sections 4 and 5<br>• Access maps<br>• Land owner Agreements<br>• Environmental Protocols | a) Conformance to Construction Execution Plan<br>b) Confirmation of Environmental Packages<br>c) Ensure all required permits are in place and the roads are accessible and in order.<br>d) Access areas are cleared of the ROW obstacles, and ensure permitting. Document date for completing before construction work ROW for them. | • Inspector<br>• Client | QA/QC/QC Weld Packages and Control Materials | | | PM<br>CM | TA | | SA | |
| 4.2 | Survey and stakeholder coordination Activities | • ASME B 31PE Construction Specifications, sections 5 and 6<br>• Design Drawing Specifications<br>• Work Plan<br>• Emergency Drawings | a) Prepare review of design construction and ground conditions.<br>b) All Structures, and work for locations, shall be in accordance with the design parameters.<br>c) Liaise between, engineers, officers and contractor duties between the client and the EA shall be communicated and verified.<br>d) Review and confirm the survey and be aware the environmental controls, known obstacles may be within, client's interests, etc).<br>e) Any discrepancies in the survey data to be reported to Client Rep. | • Welder<br>• Environmental Advisor | Survey records | | | WM<br>EM | TA | | SA | |
| 4.3 | As-Built Survey Data | • ASME B 31PE Construction Specifications, section 5.4<br>• Design Drawing Coordinates<br>• Structural Plan | Ensure all surveys as-built data is collected prior to removing site and stage of construction. As required including the updating of as-built drawings. | • Surveyor<br>• Environmental Inspector | Survey records | | | PM<br>QM | TA | | SA | |
| 5 | Weld Visual and Verification | | | | | | | | | | | |
| 5.1 | Inspection | • ASME B 31PE Construction Specifications, section 6.1<br>• PQC Drawings<br>• Specified WM | a) Verify all open ditches are sufficiently from Excavated Soil & clear without loose rocks.<br>b) Check for Access Inspection depth. If not in accordance the contractor may proceed backfill and continue if after.<br>c) Extent of cleaning complete. | • Welder<br>• Client | QMS QCP Weld and Material Verification<br>QMS QCP Welding Training Records<br>QMS QCP Weld Procedure Qualification Records | | | PM<br>WM | TA | | SA | |

Forbes Bros.
Powerplant Generation Services

| Inspection and Test Plan (ITP) | | | | | |
|---|---|---|---|---|---|
| Project Name: | Kruger Gold ASVP | Location: | [illegible] | ITP Number: | HAS-1 |
| Contract Number: | CC432 - Power Plant Installation | Customer: | FORBES BROS LTD | ITP Revision: | 1 |

Definitions / Interpretations:

1. "Hold Points" A "hold" point is a mandatory stop or pause beyond which work may not proceed without the inspection and being verified by another party.
2. Witness points: A "witness" point allows another party to verify the completion at that point which it is in progress, or is not applied.
3. Review Point: A "review" point is a point at which the person responsible for the work verifies that quality (or the working performance) and records a statement of conformance certifying that the work meets the quality requirements and specified.
4. Other terms: All other terms and phrases may be specified in the text and Schedule.

| Types of Tests | Responsibility Assignment (Legend) |
|---|---|
| 1. Visual | [illegible] |
| 2. Dimensional | [illegible] |
| 3. Chemical | [illegible] |
| 4. Hard Tests | [illegible] |
| 5. Inspection and Measure | [illegible] |
| 6. Performance Witness e.g. drawings, data, docs | |
| 7. Functional | |
| 8. Hold Point (Yes or No) - add reasons | |
| 9. Others | |

Other Issues for the ITP:

What formats for the ITP may be used by Vendors or Contractors, but must, at a minimum, include the following information. As many
Quality criteria in a shop drawing, etc. which meets the accreditation requirements as outlined in the Table of Hold, Witness, Audit requirements.
Clear assignment of responsibilities.
Quality records to be provided and submitted, to whom and when allowed dependent upon timing and value.

Project Quality Documents Include:

1. Test connection, inspection tests, etc. from client
2. Initial and updated QCP documents, [illegible]
3. Initial, modified, approved Accepted Vendor ITP.
4. Certified material inspection records. Certificates of conformance required to follow, and this document and included for Quality ITP's
5. Field monitoring, inspection and test results. Field completed and signed ("F").
6. Commissioning, pre-commissioning, final inspection, walk through reports, Deficiency lists, etc.

Legend:

| | | | | | |
|---|---|---|---|---|---|
| CC | Client | QCP | Supplier Documented Approach | CON | Contractor |
| PM | Project Manager | PPI | Principal Inspection Engineer | CM | Construction Manager |
| PQC | Project Quality Coordinator | QA/I | Auditor/Inspector | MM | Materials Manager |
| PE | Project Engineering | SUB | Subcontractor / Supplier | DC | Document Control |
| SM | Superintendent / Manager | VEN | Vendor | TP | Third Party |
| QCM | Quality Control | QCI | Quality Control Inspector | | |

| ITP | Activity | Reference Standard(s) | Acceptance Criteria | Hold / Witness Point | Records Generated/Required | Actual Responsibility Assignment | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Vendor | | Contractor | | | Client | |
| | | | | | | Initial | Update | No. | Initial | Date | Initial | Update |
| 4.2 | Assembly | • [illegible]<br>• GA drawings<br>• Specification | Ensure assemblies are assembled in a prepared and clean working environment. Keep the integrity of the fabrication with mill requirements and as per specifications. | Witness<br>Hold | [illegible] | | | PM<br>QM | TA | Feb 15/19 | NA | FEB 16/14 |
| 4.3 | Welding | • [illegible]<br>• WI drawings<br>• Welding List | a) Visual general welding procedure as per specifications.<br>b) Check quality as compared to acceptance welding standards.<br>c) Identify / Welding sheet prior to start of welding.<br>d) Ensure all required patterns are in place prior to commencement of welding activities. | Witness<br>Hold | [illegible] | | | PM<br>QM | TA | | NA | |
| 4.4 | Dimensional Inspection | • [illegible]<br>• 4, 5, 10 and 6, 14<br>• WI drawings<br>• Checklists QC | a) Dimensions as per GA and assembly plans.<br>b) Refer to [illegible] for dimensions.<br>c) Tightness of joints to be as recommended torque values. Tolerance & clearances.<br>d) Verify ground wire for correct size and installation.<br>e) Verify all hardware is installed as per technical requirements. | Witness<br>Hold | [illegible] | | | PM<br>QM | TA | | NA | |
| 4.5 | Dimensional Inspection | • [illegible]<br>• WI drawings<br>• Checklists QC | a) Check if material setting, amount of wear etc.<br>b) Verify dimensions used for take off records.<br>c) Visually look at materials.<br>d) Verify for wear and penetration blows on base damaged during setting, handling, or [illegible]. | Witness<br>Hold | [illegible] | | | PM<br>QM | TA | | NA | |
| 4.6 | Backfill | • [illegible]<br>• WI drawings<br>• Checklists QC | a) Verify soil backfill material is acceptable according to technical requirements.<br>b) Material testing of in-situ or locally conformance to specifications prior to use.<br>c) Backfill shall be compacted 300 lifts above the pipeline ground level on the full extent of the excavation with the exception of working bulk, which shall require 150 mm above the backfill.<br>d) A drainage system shall be provided to prevent pooling of water.<br>e) Backfill shall not be placed over frozen soil. Frozen material shall not be used for backfill.<br>f) Backfill shall be compacted in accordance with the specifications. | Witness<br>Hold | [illegible] | | | PM<br>QM | TA | | NA | |

Forbes Bros.
POWERLINE CONSTRUCTION

| | | | | | |
|---|---|---|---|---|---|
| Project Name: | [illegible] | Facility: | [illegible] | ITP number: | [illegible] |
| Contract Number: | [illegible] | Contractor: | [illegible] | ITP Version: | [illegible] |

**Definitions:** Inspection points:

1. Hold Point: A fixed point in a construction sequence beyond which work may not proceed without the consent of the nominated person.
2. Witness point: A 'normally' work should continue unless advised to the contrary by the nominated person. Work may proceed at their option.
3. Review point: A 'review' point is a point at which the previous inspection documentation is reviewed, and if found to be satisfactory, and following that Forbes Bros Ltd Quality Representative is satisfied, work may proceed.
4. Other types of inspection and test may be identified if required and defined.

| Type of test: | Responsibility Assignment Options |
|---|---|
| 1. | [illegible] |
| 2. | [illegible] |
| 3. | [illegible] |
| 4. | [illegible] |
| 5. | [illegible] |
| 6. | [illegible] |
| 7. | [illegible] |
| 8. | [illegible] |
| 9. | [illegible] |

**Other Records for the ITP:**

Other records for the ITP may be used by Contractor or Construction Contractor's at a minimum include the following information, further:

- Dust by contractor in a case... drawings, and, which Works that associated to illustrate assessment reviewed Engineer to Install ... reviews, Build, remove those
- Clear arrangement of responsibilities
- Quality records to be produced and maintained, personnel have allowed Applications or products and data.

**Record Quality Requirements include:**

1. The [illegible] requirements, Master, etc. from Client
2. Within 14A, updated T&Cs generated, QP's
3. Hold, weighting, signoffs and protection checks (SP's)
4. Confirm that and inspections made, and the ability to consolidate training & forms, duration & assessors and records of compliance with...
5. Final monitoring, inspection and test results, final completed and closed ITP's
6. Commissioning, pressure monitoring, final inspection, post testing & reports, Test forms, tick - etc.

**Legend:**

| | | | | | |
|---|---|---|---|---|---|
| [illegible] | | [illegible] | | [illegible] | |
| PM | Project Manager | QA | Quality Assurance Inspector | CM | Construction Manager |
| PCE | Project Quality Coordinator | HSE | Health and Safety Engineer | SUB | Subcontractor |
| PE | Project Engineering | CQA | Construction Quality Assurance | CP | Construction Engineer |
| CQE | Construction Engineer | VEN | Vendor | INS | Inspector |
| CPE | Construction Engineer | TP | Third Party Inspection | | |

| Item | Activity | Reference Document | Acceptance Criteria | Type of Inspection | Witness Point Representative | Witness | | Review | | | Signature | Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Action | Date | | | | | |
| [illegible] | [illegible] | • [illegible]<br>• [illegible]<br>• [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | PM<br>PE | TA | Feb 15 2019 | SA | FEB 16/19 |
| 3.2.1 | [illegible] | • [illegible]<br>• [illegible]<br>• [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | PM<br>CM | TA | | SA | |
| 3.7.2 | [illegible] | • [illegible]<br>• [illegible]<br>• [illegible]<br>• [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | PM<br>CM | TA | | SA | |
| 4.4 | [illegible] | • [illegible]<br>• [illegible]<br>• [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | PM<br>CM | TA | | SA | |
| 5. | [illegible] | | | | | | | | | | | |
| 5.1 | [illegible] | • [illegible]<br>• [illegible]<br>• [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | PM<br>CM | TA | | SA | |
| 5.2 | [illegible] | • [illegible]<br>• [illegible]<br>• [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | PM<br>CM | TA | | SA | |

Forbes Bros.
POWERLOPE CONSTRUCTION

| | | | | | |
|---|---|---|---|---|---|
| Project Name: | Maple Grove MHPC | Location: | [illegible] | ITP Number: | ITP-1 |
| Contract Number: | CORE- Powerline Installation | Customer: | FORBES BROTHERS | ITP Version: | 1 |

**Definitions / Inspection points:**

1. Hold Point: A "hold point" is a description, stage or event beyond which work may not proceed without the concurrence of and sign-off by another party.
2. Witness Point: A "witness" point allows another party to verify the requirements are met prior to the work proceeding to the next activity.
3. Review Point: A "review" point is a point at which the person / organization doing the work certifies the quality of the work to the customer or client by certifying that the work meets the quality requirements as specified.
4. Other Types: (If desired they can be given specific titles & definitions) [illegible]

| Types of Item | Responsibility Assignment (signed) |
|---|---|
| 1. Visual | [illegible] |
| 2. [illegible] | [illegible] |
| 3. Dimensional | [illegible] |
| 4. Load Tested | [illegible] |
| 5. Compression Strength | [illegible] |
| 6. Instrument Reading e.g. Megohm, Ohm's, mm | |
| 7. Electrical | |
| 8. Non-Destructive e.g. ultrasonic | |
| 9. Other | |

**Other Annexes for this ITP**

Other Annexes for this ITP may be issued by Division or Construction Manager, or Contractor, including the Performing of Inspection Activity.

Quality control test & tests drawing, etc. which details the associated inspection or subset Type of Work - witness, hold / review points.

Case assignment of responsibilities.

Quality forms # to be produced and submitted, sequence / time allowed, & appropriate signatories and dates.

**Project Quality Documents Include:**

1. Pack / Inspection requirements for Tasks, etc. (Form Ops.)
2. Weld test certificate (CO generated - ITP.)
3. Inside, anodized, pipe bend and smooth bends (ITP.)
4. Vendor QA and inspection results. / (QA Plans as annotated / noted in Forms, Drawings, approved and nominated vendors etc. ITP.)
5. Total cleaning, inspection and test results, final completed and signed (ITP.)
6. Commissioning, pre-commissioning, final inspection, walk-through report / Deficiency list, etc.

**Legend**

| | | | | | |
|---|---|---|---|---|---|
| CC | Client | CPE | Contract Coordination Engineer | CSM | Construction Manager |
| PM | Project Manager | PPE | Principal Construction Engineer | CM | Construction Manager |
| PQC | Project Quality Coordinator | SUB | Subcontractor | SM | Safety Manager |
| PE | Project Engineer (s) | QRT | Customer / Authority Rep | SC | Supervisor / Foreman |
| EM | Environmental Manager | ITP | Inspector | FI | Inspection |
| SUB | Subcontractor | TPI | Third Party Inspection | | |

| No. | Activity | Reference Documents | Acceptance Criteria | Party to Witness | Customer Hold / Witness Point | Contractor | | | Customer Witness / Review | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Signature | Date | Ref | Signature | Date | Signature | Date |
| 5.3 | Tagging of Conductor and Overhead | • Approved Work Construction Specifications, section 5.3.3<br>• IESO OHL Std.<br>• Arranging Tagging Charts | a) The overhead span must be as shown on drawing for the span to be per IESO Std.<br>b) The conductor tension of each phase to be used is:<br>Length of Ruling Span Tension of Conductor in lbs<br>2 to 6 spans 1<br>7 to 14 spans 2<br>15 to 20 spans 3<br>c) The maximum allowable sagging tolerance to be applied for each phase shall be as per IESO Std. | Contractor<br>Owner / Representative | | PM<br>CM | TA | Feb 15 2019 | NA | FEB 16/19 |
| 5.4 | Inspection and Acceptance of Construction and Commissioning | • Approved Construction Specifications, section 7.3<br>• IESO Standards | a) All tools to be used shall be available at a TA at site.<br>b) Verify all hardware is installed as per the drawing.<br>c) Verify all conductor attachments and/or connections are installed. | Contractor<br>Owner / Representative | | PM<br>CM | TA | | NA | |
| 5.5 | Guy Construction and Installation | • Approved Construction Specifications, section 7.5<br>• IESO Standards | a) Guy wire shall be placed in a way shown on the drawings.<br>b) The hardware assembly shall be installed as per the drawings.<br>c) The contractor shall provide and use a "guy pull" gauge for verification of the tension of each guy wire to the recommended value.<br>d) Temporary guy wires for blade to maintain a straight alignment with the centerline of both ends of the line. | Contractor<br>Owner / Representative | | PM<br>CM | TA | | NA | |
| 5.6 | Stringing of Conductor and Cables | • Approved Construction Specifications, section 7.6<br>• IESO Standards | a) Conductor tension shall not exceed the maximum allowable tension as per the drawings.<br>b) Conductors and cables shall be protected from damage during the stringing operation.<br>c) Conductors and cables shall be installed in such a manner as to not damage the conductor or cable. | Contractor<br>Owner / Representative | | PM<br>CM | TA | | NA | |
| 5.7 | Visual Vibration Damper (VVD) and Inverter Loop Installation | • Approved Construction Specifications, section 7.7<br>• IESO Standards | a) All conductor vibration dampers shall be installed according to the drawings and the manufacturer's installation specifications.<br>b) Inverter loop and conductor shall be installed to ensure no contact between the conductor and the loop. | Contractor<br>Owner / Representative | | PM<br>CM | TA | | NA | |
| 5.8 | Completion Deficiencies (Commissioning) | • Approved Construction Specifications, section 7.8<br>• IESO Standards<br>• Deficiency List | a) The equipment shall be inspected for deficiencies.<br>b) Deficiencies to be recorded.<br>c) Deficiencies shall be rectified. | Contractor<br>Owner / Representative | | PM<br>CM | TA | | NA | |

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| | | | | | |
|---|---|---|---|---|---|
| Project Name: | [illegible] | Facility: | CFH | ITP number: | [illegible] |
| Contract Number: | CFBH - Preventive [illegible] | Contractor: | FORBES BROS LTD | ITP Version: | 1 |

Definitions - Inspection points:

1. Hold Point - A "hold" point is a predefined stop at a point beyond which work may not proceed without the acceptance or witnessing verified by another party.
2. Witness point - An "witness" point means advance notice is given to the appropriate party when a specified activity is to be carried out, so that, if they so desire, they may be present at that point.
3. Review point - A "review" point is a point at which the relevant [illegible] is undertaking the work verifies the quality of the work's performance and records a statement or document to that effect and [illegible] that the work meets the quality requirements specified.
4. Other types of inspections and may specifically be identified if required and defined.

| Types of Test | Responsibility Assignment Legend |
|---|---|
| 1 Visual | (a) Supervisor: Responsible for ensuring work operations |
| 2 Dimensional | (b) Quality Officer: Responsible for [illegible] and management coordination |
| 3 Chemical | (c) Engineer: Provides engineering support for the Commercial Director |
| 4 Destructive | (d) [illegible]: Responsible for [illegible] |
| 5 Compression Strength | (e) Responsible: Responsible and carries out a particular task |
| 6 Mechanical Analysis e.g. UV strength, Slump, Sieve | |
| 7 Electrical | |
| 8 Non-Destructive e.g. radiography | |
| 9 Other | |

Other formats on the ITP:

Other formats for the ITP may be used by Principal or Contractor, but must, at a minimum, include the following information / features:

Quality compliance to the spec., drawing, and, where there are relevant standard construction codes / best practice / industry standards recommended.

Clear acceptance or response criteria.

Quality hold to be provided and submitted / approved prior allowed to proceed to previous work done.

Record Quality Requirements include:

1. Test / inspection reports results, Report, etc. Action taken
2. Defect and rejected Work summaries (NCR's).
3. Work completed, approved and progress claimed (IPC).
4. Update log and inspection results, modifications or corrections / work completed, approved and assessed summaries (NCR).
5. Performance, inspection and test results, final compliance and signoff (ITP's).
6. Commissioning, pre-commissioning, final inspection work through results, Deficiency sets, etc.

Legend:

| | | | | | |
|---|---|---|---|---|---|
| CLI | Client | QPI | Quality Inspection Engineer | CON | Contractor |
| PM | Project Manager | PEI | Principal Electrical Engineer | LM | Logistics Coordinator |
| PQC | Project Quality Coordinator | SUP | Supervisor | MM | Material Manager |
| PE | Project Engineer | CAD | Contract Administrator | QC | Quality Control Tech |
| CM | Commissioning Manager | CTR | Carrier | SE | Inspector |
| QP | Quality Plan | PC | Third Party Inspector | | |

| Item | Activity | Reference Document | Acceptance Criteria | Type of Check / Test | Specific Responsibility | Witness | | Client Acceptance (Signature) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Supplier | Client | By | Initials | Date | Supplier | Date |
| 4.0 | Electrical and HVAC Drawings and Models | • [illegible] Commercial specification, section 7.3<br>• IFC (if issued) | Per Client comments on Commercial Drawings together with the corrected plan issued due to [illegible]<br>a) Shear Damage: Minor cracking, cracks and subsidence in some models<br>Corrected: Light load monitoring with a monitoring report [illegible] by Engineer<br><br>b) Structural Damage: [illegible] which affect a floor load, UK 1 not any component, Living and where is necessary or recommended for load flooring, or load reduces the strength of the main load of [illegible] b) recommend replacement to load more than three to four periods. Any crack that has been more than 50% of its structure should area shall be considered replacement to a system.<br>Action: Report back preferred patch work<br><br>c) Liquid Damage: Minor water damage and local stains, such as damage to floor layers, not a that needs replacement damage or loss in room crack or damage under 5 m of area/panels or other causes.<br>Corrective: Do not demand position and running work new concrete slab.<br>Unresolved surface area panel, as required. | 3 days<br>• Logic and [illegible] issues | CAD-[illegible] and Tailoring Session 1<br>Logic sign-back of outstanding items Session 1 | PM<br>CM | TA | Feb 15 2019 | SA | FEB16/19 |
| 5.03 | Testing Point Check | • [illegible] Specification, section 7.10<br>• IEC 6 testing | a) Prior to full commission verify connections and the correct wiring<br>ENSURE [illegible] [illegible] | 5 days<br>• Completion criteria | CAD-[illegible] and Commissioning Session 1 | | | PM<br>CM | TA | | SA | |
| 5.04 | [illegible] | • [illegible] Commissioning Specifications, section 8<br>• BSI Standard [illegible] | a) test plastics work as per specification and drawings<br>b) the settlement and tank the total movement and the [illegible] should be as per the [illegible] specification limits.<br>c) open roof to check as per specification and drawings.<br>d) [illegible] shall be tested in accordance with BS Standard [illegible] Testing and [illegible] as per [illegible] with [illegible] Test Cases Cards as per the Above Chart. Report later. [illegible] | 8 days<br>• Logic and [illegible] issues | CAD-[illegible] and Commissioning Session 1 | PM<br>CM | TA | | SA | |
| 6 | Commissioning | | | | | | | | | | | |
| 6.1 | Pre-Commissioning | • [illegible] Specification, [illegible] clause 11.0 and 9.1 | Pre-commissioning work includes all necessary testing and inspections necessary to confirm the line is complete and ready for energisation. | 4 days<br>• Completion criteria | CAD-[illegible] of Outstanding Work Session 1<br>CAD-[illegible] Pre-Commissioning Check Session 1 | | | PM<br>CM | TA | | SA | |
| 6.1 | Commissioning | • [illegible] Specification, section 11.2 | Final position of line and all data<br>a) Energy consumption [illegible] Commissioning<br>b) Commissioning guidelines for commissioning<br>c) [illegible] Amount [illegible] | 5 days<br>• Completion criteria | Commissioning Certificate Issue | | | PM<br>CM | TA | | SA | |

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| Inspection Test Plan - Short | | | | | |
|---|---|---|---|---|---|
| Project Name: | Light Gold Mill | Facility: | LGM | ITP Initiated: | Add-E |
| Contract Number: | CLDV- Preventive Installations | Contractor: | United States LLC | ITP Version: | 1 |

Definitions - Inspection points:

1. Hold Point: A 'hold' point is a mandatory stop in a work sequence to verify work requirements and confirm the acceptance of the item being verified by another party.
2. Witness Point: A 'witness' point allows another party to carry out the inspection or test and if it is acceptable, allow work to proceed.
3. Review Point: A 'review' point is a point at which the primary organization doing the work verifies the quality of the work is performed, and passes it to customer or third party for the next work item or inspection requirements are met.
4. Other types of inspection and documentation may be specified if required (add further).

| | Type of Test | Responsible Person / Organization |
|---|---|---|
| 1 | Visual | QA Approval, Responsible for review and approval |
| 2 | Dimensional | QC Coordinator, Responsible for Review, Witness and sign for acceptance/rejection |
| 3 | Cleanliness | QC Support Provides support services that complement Control |
| 4 | Functional | Quality Assurance collects and stores the information |
| 5 | Control Measurements | Construction Supervisor and owner's representative |
| 6 | Reference Use Reference e.g. drawings, charts, etc. | |
| 7 | Electrical | |
| 8 | Non-Destructive e.g. Ultrasonic | |
| 9 | Other | |

Other Comments And Use ITP:

Client Comment: Use this ITP may be used by Vendors or Contractors. It is meant to be a minimum, include the following information: As-built

Drawing reference no e.g. spool drawing, etc., which shows the area/work sequence / penetration or circuit / line of test - witness, hold, review points

Mark up comments or recordings here

Quality review & sign-off to be completed and authorised & approved (Client or Client's Representative) signature and date

Project Quality Documents Include:

1. Test / inspection requirements, forms / set, Asset Cards
2. Install and capture 'as-built' photographs (QA's)
3. Install, modify & approved (and permitted Vendor (CP))
4. Vendor test and inspection results / certificates or completion records 'Active' conditions, approved and accepted / concession (if) –
5. Hold point issues, concessions and non-cons, these completed and signed (if)
6. Commissioning, pre-commissioning, Work completion, work through Agents, Delivered (QA's, etc)

Legend:

| | | | | | |
|---|---|---|---|---|---|
| CLI | Client | CE | Client Site Office Engineer | CON | Contractor |
| PM | Project Manager | PE | Principal / Lead Engineer | CM | Construction Manager |
| VDR | Vendor / Supply Distributor | QCR | Inspector | MECH | Mechanical Engineer |
| DE | Design Engineer | QAR | Quality Administrator | SC | Structural Engineer |
| EHS | Environmental Manager | QCR | Inspector | SI | Inspector |
| CON | Construction | TP | Third Party Inspector | | |

| Item | Activity | Reference Documents | Inspection Criteria | Hold / Inspection | Inspection Acceptance Requirements | Vendor | | Client | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Initials | Date | Lvl | Initials | Date | Initials | Date |
| 0.1 | Commissioning Commissioner | • SAIT-T-9001 Commissioning Specification, section 0.1 | a) The Project is manufactured, constructed, and tested / commissioned in accordance with the Drawings and the applicable Contract standards.<br>b) The Project or Components complete to the extent and scope the work / system, equipment and testing.<br>c) Cleaning is complete as per Client's requirements.<br>d) Any punchlist (e.g. Work Order) per owner, is known and may be safely completed after "Commissioning" work, the first commenced. | Hold to Commissioning Group | QA to verify c) Punchlist (after) is open 1 commissioning Completion Issued | | | PM<br>CM | | | | |
| 1 | Module Data | | | | | | | | | | | |
| 1.1 | Return from CTP (QC report/cert) | As per contract requirements | a) Verify all material documentation (packing slip) on site<br>b) All Docs are complete as you have submitted as per contractual requirements | Hold<br>Commissioning Group | Approved ITP - Commence per Signed ITP<br>QMS-CO-Form Document Process Rule v.Revision 1 | | | QM<br>PM | | | | |
| 1.2 | Module Docs | As per contract requirements | a) Review and Construction Info Pack (CIP) Drawings (as properly issued) etc.<br>b) Drawings in the work, will mark out and commence after completion of the work | Review<br>Commissioning Group | a) Print drawings<br>QMS-CO-Form Document Change Index Revision 1 | | | QM<br>PM | | | | |

| | ITP Prepared By | ITP Reviewed By | ITP Approved By |
|---|---|---|---|
| Name | | | Steven Antick |
| Signature | | | |
| Date | | | |
| Comments | | | |

| | ITP Reviewed By | ITP Approved By |
|---|---|---|
| Name | STEVEN ANTICK | SAntick |
| Signature | SAntick | |
| Date | FEB 15/19 | |
| Comments | | |

Forbes Bros
Powerline Construction

# Megger Ground Rod Report

| | | | |
|---|---|---|---|
| **Date** | Oct 29 2018 | **Line No** | L251 |
| **Project #** | 4581 | **Project Name** | Eagle Gold 69 Kv |
| **Structure Type** | | **Structure No.** | 0/10A - 1/2 |

## Checklist

| Structure # | Ground Rod Distance from Structure | Length of Ground Rods Installed | Soil Condition | Measured Resistance (ohms) | Foundation Type |
|---|---|---|---|---|---|
| 0/10A | 2.82 m | 10ft | Gravel | 75 Ω | Groundwell |
| 0/10B | 2.82 m | 10ft | Gravel | 7.8 Ω | Groundwell |
| 0/10C | 2.82 m | 10ft | Gravel | 20 Ω | Groundwell |
| 0/11 | 2.82 m | 10ft | Gravel | 22.7 Ω | Groundwell |
| 0/12 | 2.82 m | 10ft | Gravel | 17.1 Ω | Groundwell |
| 0/13 | 2.82 m | 10ft | Gravel | 15.7 Ω | Groundwell |
| 0/14 | 2.82 m | 10ft | Permafrost | 43 Ω | Groundwell |
| 1/1 | 2.82 m | 10ft | Permafrost | 120 Ω | Groundwell |
| 1/2 | 2.82 m | 10ft | Permafrost | 70 Ω | Groundwell |
| | | | | | |
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**Additional Comments:**

Used Erico GEM Grout. Ground rods set at 5.5m
4 single ground rods placed 4m apart at each structure
AS PER RFI-037 - no additional ground rods to install to meet your 13. OHMS, No steel casing used

| | Name | Signature | Date |
|---|---|---|---|
| **Foreman Name** | Mike Sweetland | | Oct 30/18 |
| **QC Inspector** | Phil McKinley | Phil McKinley | Oct 30 2018 |
| **Client Inspector** | | | |

Forbes Bros
Powerline Construction

# Megger Ground Rod Report

| | | | |
|---|---|---|---|
| **Date** | Oct 29 2018 | **Line No** | L251 |
| **Project #** | 4581 | **Project Name** | Eagle Gold 69 Kv |
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| 0/11 | 2.82 m | 10ft | Gravel | 22.7 Ω | Groundwell |
| 0/12 | 2.82 m | 10ft | Gravel | 17.1 Ω | Groundwell |
| 0/13 | 2.82 m | 10ft | Gravel | 15.7 Ω | Groundwell |
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| 1/1 | 2.82 m | 10ft | Permafrost | 120 Ω | Groundwell |
| 1/2 | 2.82 m | 10ft | Permafrost | 70 Ω | Groundwell |
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**Additional Comments:**

Used Erico GEM Grout. Ground rods set at 5.5m
4 single ground rods placed 4m apart at each structure
AS PER RFI-037 - no additional ground rods to install to meet your 13. OHMS, No steel casing used

| | Name | Signature | Date |
|---|---|---|---|
| **Foreman Name** | Mike Sweetland | | Oct 30/18 |
| **QC Inspector** | Phil McKinley | Phil McKinley | Oct 30 2018 |
| **Client Inspector** | | | |

Forbes Bros
Powerline Construction

# Stringing and Sag Data

| Project: Eagle Gold 69kv | Contr.#: | Line #: L251 | Voltage: 69 kv | Pull#: 11 | Str. 40/6 to Str. 41/6 |
|---|---|---|---|---|---|

## Conductor

Left Side (face higher numbered structure) Line #

| Phase | Temp (°C) | Time | Reel Number | |
|---|---|---|---|---|
| TOP | | | | |
| C | | | | |
| BOT | | | | |

Right Side (face higher numbered structure) Line #

| Phase | Temp (°C) | Time | Reel Number | |
|---|---|---|---|---|
| TOP | | | | |
| C | | | | |
| BOT | | | | |

String Tension:

String Tension:

**Conductor:** Type: ACSR Size: 266.8

Manufacturer:

## SAGGING:

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 40/8 to Str. 40/9 77.2 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | 01/26/1 | 10:30 | -8 | 1.138 | A |
| Center | 01/26/1 | 10:30 | -8 | 1.138 | B |
| Bottom | 01/26/1 | 10:30 | -8 | 1.138 | C |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 40/12 to Str. 41/1 66.1 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | 01/26/1 | 10:30 | -8 | 1.396 | A |
| Center | 01/26/1 | 10:30 | -8 | 1.396 | B |
| Bottom | 01/26/1 | 10:30 | -8 | 1.396 | C |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 41/3 to Str. 41/4 75.8 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | 01/26/19 | 10:30 | -8 | 1.108 | A |
| Center | 01/26/19 | 10:30 | -8 | 1.108 | B |
| Bottom | 01/26/19 | 10:30 | -8 | 1.108 | C |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | | | | | |
| Center | | | | | |
| Bottom | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | | | | | |
| Center | | | | | |
| Bottom | | | | | |

LA JAN 31/19

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Powerline Constructors

# Stringing and Sag Data

**Overhead: OHSW**

Left Side (face higher numbered structure) Line # L251

Right Side (face higher numbered structure) Line # _____

| Date | Temp (°C) | Time | Structure Span | Type | Reel# |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |

| Date | Temp (°C) | Time | Structure Span | Type | Reel# |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |

## SAGGING

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 40/8 to Str. 40/9 77.2 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Fiber | 01/27/1 | 12:15 | -17 | 0.50 | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 40/12 to Str. 41/1 86.1 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Fiber | 01/27/1 | 12:15 | -17 | 0.62 | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 41/3 to Str. 41/4 75.8 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Fiber | 01/27/1 | 12:15 | -17 | 0.49 | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

**Comments:**

Conductors sag completed at 10:30 on January 26 2019
Fiber sag completed at 12:15 on January 27 2019

| | Name | Date | Signature |
|---|---|---|---|
| QC Inspector | Phil McKinley | Jan 30 2019 | Phil McKinley |
| Client QC Inspector | S ARCHAMBAULT | JAN 31/19 | Archambault |

Forbes Bros
Powerline Construction

# Stringing and Sag Data

| Project: Eagle Gold 69kv | Contr.#: | Line #: L251 | Voltage: 69 kv | Pull#: 10 | Str. 39/4 | to Str. 40/6 |
|---|---|---|---|---|---|---|

## Conductor

Left Side (face higher numbered structure) Line #

| Phase | Temp (°C) | Time: | Reel Number | |
|---|---|---|---|---|
| TOP | | | | |
| C | | | | |
| BOT | | | | |

String Tension:

Right Side (face higher numbered structure) Line #

| Phase | Temp (°C) | Time: | Reel Number | |
|---|---|---|---|---|
| TOP | | | | |
| C | | | | |
| BOT | | | | |

String Tension:

**Conductor:** Type: ACSR Size: 266.8 Manufacturer:

## SAGGING:

Span Length Str. ____ to Str. ____ ____ m
Sagging Span: Str. 39/7 to Str. 39/8 82.7 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | 01/18/1 | 15:40 | -12 | 0.932 | A |
| Center | 01/18/1 | 15:40 | -12 | 0.932 | B |
| Bottom | 01/18/1 | 15:40 | -12 | 0.932 | C |

Span Length Str. ____ to Str. ____ ____ m
Sagging Span: Str. 39/12 to Str. 39/13 80.5 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | 01/18/1 | 15:40 | -12 | 0.876 | A |
| Center | 01/18/1 | 15:40 | -12 | 0.876 | B |
| Bottom | 01/18/1 | 15:40 | -12 | 0.876 | C |

Span Length Str. ____ to Str. ____ ____ m
Sagging Span: Str. 40/1 to Str. 40/2 84.5 m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | 01/18/19 | 15:40 | -12 | 0.972 | A |
| Center | 01/18/19 | 15:40 | -12 | 0.972 | B |
| Bottom | 01/18/19 | 15:40 | -12 | 0.972 | C |

Span Length Str. ____ to Str. ____ ____ m
Sagging Span: Str. 40/4 to Str. 40/5 76.5 m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | 01/18/1 | 15:40 | -12 | 0.736 | A |
| Center | 01/18/1 | 15:40 | -12 | 0.736 | B |
| Bottom | 01/18/1 | 15:40 | -12 | 0.736 | C |

Span Length Str. ____ to Str. ____ ____ m
Sagging Span: Str. ____ to Str. ____ ____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | | | | | |
| Center | | | | | |
| Bottom | | | | | |

Span Length Str. ____ to Str. ____ ____ m
Sagging Span: Str. ____ to Str. ____ ____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | | | | | |
| Center | | | | | |
| Bottom | | | | | |

Forbes Bros. Ltd.
Powerline Construction

# Stringing and Sag Data

**Overhead: OHSW**

Left Side (face higher numbered structure) Line # _____

| Date | Temp (°C) | Time | Structure Span | Type | Reel# |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |

Right Side (face higher numbered structure) Line # _____

| Date | Temp (°C) | Time | Structure Span | Type | Reel# |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |

**SAGGING:**

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

**Comments:**

Sag completed at 14:45 on January 16 2019

| | Name | Date | Signature |
|---|---|---|---|
| QC Inspector | Phil McKinley | Jan 18 2019 | Phil McKinley |
| Client QC Inspector | | | |

Forbes Bros Ltd.
POWERLINE CONSTRUCTION

# Stringing and Sag Data

| Project: Eagle Gold 69kv | Contr.#: | Line #: L251 Fiber | Voltage: 69 kv | Pull#: | Str. 39/4 to Str. 39/13 |
|---|---|---|---|---|---|

## Conductor

Left Side (face higher numbered structure) Line #

| Phase | Temp (°C) | Time | Reel Number | |
|---|---|---|---|---|
| TOP | | | | |
| C | | | | |
| BOT | | | | |

String Tension:

Right Side (face higher numbered structure) Line #

| Phase | Temp (°C) | Time | Reel Number | |
|---|---|---|---|---|
| TOP | | | | |
| C | | | | |
| BOT | | | | |

String Tension:

**Conductor:** Type: ACSR Size: 266.8 Manufacturer:

## SAGGING:

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | | | | | |
| Center | | | | | |
| Bottom | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | | | | | |
| Center | | | | | |
| Bottom | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | | | | | |
| Center | | | | | |
| Bottom | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | | | | | |
| Center | | | | | |
| Bottom | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | | | | | |
| Center | | | | | |
| Bottom | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | | | | | |
| Center | | | | | |
| Bottom | | | | | |

Forbes Bros Ltd.
POWERLINE CONSTRUCTION

# Stringing and Sag Data

## Overhead: OHSW

Left Side (face higher numbered structure) Line # _____

| Date | Temp (°C) | Time | Structure Span | Type | Reel# |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |

Right Side (face higher numbered structure) Line # _____

| Date | Temp (°C) | Time | Structure Span | Type | Reel# |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |

### SAGGING:

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 39/5 to Str. 39/6 89.3 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Fiber | 01/17/1 | 11:35 | -7 | 0.65 | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 39/8 to Str. 39/9 84.5 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Fiber | 01/17/1 | 11:35 | -7 | 0.58 | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 39/11 to Str. 39/12 71.5 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Fiber | 01/17/1 | 11:35 | -7 | 0.416 | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

**Comments:**
Sag completed at 11:35 on January 17 2019

| | Name | Date | Signature |
|---|---|---|---|
| QC Inspector | Phil McKinley | Jan 18 2019 | Phil McKinley |
| Client QC Inspector | | | |

Forbes Bros. Ltd.
Powerline Construction

# Stringing and Sag Data

| Project: Eagle Gold 69kv | Contr.#: | Line #: L251 | Voltage: 69 kv | Pull#: 10 | Str. 38/6 to Str. 39/4 |
|---|---|---|---|---|---|

## Conductor

Left Side (face higher numbered structure) Line #

| Phase | Temp (°C) | Time | Reel Number | |
|---|---|---|---|---|
| TOP | | | | |
| C | | | | |
| BOT | | | | |

Right Side (face higher numbered structure) Line #

| Phase | Temp (°C) | Time | Reel Number | |
|---|---|---|---|---|
| TOP | | | | |
| C | | | | |
| BOT | | | | |

String Tension:

String Tension:

**Conductor:** Type: ACSR Size: 266.8 Manufacturer:

## SAGGING:

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 38/8 to Str. 38/9 83.3 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | 01/16/1 | 14:45 | -8 | 0.998 | A |
| Center | 01/16/1 | 14:45 | -8 | 0.998 | B |
| Bottom | 01/16/1 | 14:45 | -8 | 0.998 | C |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 38/12 to Str. 38/13 72.2 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | 01/16/1 | 14:45 | -8 | 0.75 | A |
| Center | 01/16/1 | 14:45 | -8 | 0.75 | B |
| Bottom | 01/16/1 | 14:45 | -8 | 0.75 | C |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 39/2 to Str. 39/3 82.3 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | 01/16/19 | 14:45 | -8 | 0.968 | |
| Center | 01/16/19 | 14:45 | -8 | 0.968 | |
| Bottom | 01/16/19 | 14:45 | -8 | 0.968 | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | | | | | |
| Center | | | | | |
| Bottom | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | | | | | |
| Center | | | | | |
| Bottom | | | | | |

Forbes Bros Ltd.
Powerline Construction

# Stringing and Sag Data

**Overhead:** OHSW

Left Side (face higher numbered structure) Line # _____

| Date | Temp (°C) | Time | Structure Span | Type | Reel# |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |

Right Side (face higher numbered structure) Line # _____

| Date | Temp (°C) | Time | Structure Span | Type | Reel# |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |

## SAGGING:

Span Length Str. _____ to Str. _____ _____m
Sagging Span: Str. _____ to Str. _____ _____m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

Span Length Str. _____ to Str. _____ _____m
Sagging Span: Str. _____ to Str. _____ _____m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

Span Length Str. _____ to Str. _____ _____m
Sagging Span: Str. _____ to Str. _____ _____m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

Span Length Str. _____ to Str. _____ _____m
Sagging Span: Str. _____ to Str. _____ _____m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

Span Length Str. _____ to Str. _____ _____m
Sagging Span: Str. _____ to Str. _____ _____m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

Span Length Str. _____ to Str. _____ _____m
Sagging Span: Str. _____ to Str. _____ _____m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

**Comments:**

Sag completed at 15:40 on January 18 2019

;

| | Name | Date | Signature |
|---|---|---|---|
| QC Inspector | Phil McKinley | Jan 19 2019 | Phil McKinley |
| Client QC Inspector | | | |

Forbes Bros.
Powerline Construction

# Stringing and Sag Data

| Project: Eagle Gold 69kv | Contr.#: | Line #: L251 Fiber | Voltage: 69 kv | Pull#: | Str. 38/6 to Str. 39/4 |
|---|---|---|---|---|---|

## Conductor

Left Side (face higher numbered structure) Line #

| Phase | Temp (°C) | Time | Reel Number | |
|---|---|---|---|---|
| TOP | | | | |
| | | | | |
| C | | | | |
| | | | | |
| BOT | | | | |
| | | | | |

String Tension:

Right Side (face higher numbered structure) Line #

| Phase | Temp (°C) | Time | Reel Number | |
|---|---|---|---|---|
| TOP | | | | |
| | | | | |
| C | | | | |
| | | | | |
| BOT | | | | |
| | | | | |

String Tension:

**Conductor:** Type: ACSR Size: 266.8 Manufacturer:

## SAGGING

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | | | | | |
| Center | | | | | |
| Bottom | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | | | | | |
| Center | | | | | |
| Bottom | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | | | | | |
| Center | | | | | |
| Bottom | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | | | | | |
| Center | | | | | |
| Bottom | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | | | | | |
| Center | | | | | |
| Bottom | | | | | |

Forbes Bros
Powerline Construction

# Stringing and Sag Data

## Overhead: OHSW

Left Side (face higher numbered structure) Line # _____

| Date | Temp (°C) | Time | Structure Span | Type | Reel# |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |

Right Side (face higher numbered structure) Line # _____

| Date | Temp (°C) | Time | Structure Span | Type | Reel# |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |

## SAGGING

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 38/8 to Str. 38/9 83.3 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Fiber | 01/17/1 | 12:20 | -7 | 0.60 | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 38/12 to Str. 38/13 72.2 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Fiber | 01/17/1 | 12:20 | -7 | 0.45 | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 39/2 to Str. 39/3 82.3 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Fiber | 01/17/1 | 12:20 | -7 | 0.59 | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

**Comments:**
Sag completed at 12:20 on January 17 2019

| | Name | Date | Signature |
|---|---|---|---|
| QC Inspector | Phil McKinley | Jan 18 2019 | Phil McKinley |
| Client QC Inspector | | | |

Forbes Bros
POWER USE CONSTRUCTION

# Stringing and Sag Data

| Project: Eagle Gold 69kv | Contr.#: | Line #: L251 | Voltage: 69 kv | Pull#: 10 | Str. 37/9 to Str. 38/6 |
|---|---|---|---|---|---|

## Conductor

Left Side (face higher numbered structure) Line #

| Phase | Temp (°C) | Time | Reel Number | |
|---|---|---|---|---|
| TOP | | | | |
| C | | | | |
| BOT | | | | |

String Tension:

Right Side (face higher numbered structure) Line #

| Phase | Temp (°C) | Time | Reel Number | |
|---|---|---|---|---|
| TOP | | | | |
| C | | | | |
| BOT | | | | |

String Tension:

**Conductor:** Type: ACSR Size: 266.8 Manufacturer:

## SAGGING:

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 37/11 to Str. 37/12 68.5 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | 01/15/1 | 15:30 | -9 | 0.754 | A |
| Center | 01/15/1 | 15:30 | -9 | 0.754 | B |
| Bottom | 01/15/1 | 15:30 | -9 | 0.754 | C |

Span Length Str. _____ to Str. 38/4 _____ m
Sagging Span: Str. 38/3 to Str. _____ _____ m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | 01/15/1 | 15:30 | -9 | 0.622 | A |
| Center | 01/15/1 | 15:30 | -9 | 0.622 | B |
| Bottom | 01/15/1 | 15:30 | -9 | 0.622 | C |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | | | | | |
| Center | | | | | |
| Bottom | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | | | | | |
| Center | | | | | |
| Bottom | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | | | | | |
| Center | | | | | |
| Bottom | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | | | | | |
| Center | | | | | |
| Bottom | | | | | |

Forbes Bros Ltd.
Powerline Construction

# Stringing and Sag Data

## Overhead: OHSW

**Left Side (face higher numbered structure)** Line # _____

| Date | Temp (°C) | Time | Structure Span | Type | Reel# |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |

**Right Side (face higher numbered structure)** Line # _____

| Date | Temp (°C) | Time | Structure Span | Type | Reel# |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |

## SAGGING

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

**Comments:**

Sag completed at 15:30 on January 15 2019

| | Name | Date | Signature |
|---|---|---|---|
| QC Inspector | Phil McKinley | Jan 16 2019 | Phil McKinley |
| Client QC Inspector | | | |

Forbes Bros
POWERLINE CONSTRUCTION

# Stringing and Sag Data

| Project: Eagle Gold 69kv | Contr.#: | Line #: L251 Fiber | Voltage: 69 kv | Pull#: | Str. 37/9 to Str. 38/1 |
|---|---|---|---|---|---|

## Conductor

Left Side (face higher numbered structure) Line #

| Phase | Temp (°C) | Time | Reel Number | |
|---|---|---|---|---|
| TOP | | | | |
| C | | | | |
| BOT | | | | |

String Tension:

Right Side (face higher numbered structure) Line #

| Phase | Temp (°C) | Time | Reel Number | |
|---|---|---|---|---|
| TOP | | | | |
| C | | | | |
| BOT | | | | |

String Tension:

**Conductor:** Type: ACSR Size: 266.8 Manufacturer:

## SAGGING

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | | | | | |
| Center | | | | | |
| Bottom | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | | | | | |
| Center | | | | | |
| Bottom | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | | | | | |
| Center | | | | | |
| Bottom | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | | | | | |
| Center | | | | | |
| Bottom | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | | | | | |
| Center | | | | | |
| Bottom | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | | | | | |
| Center | | | | | |
| Bottom | | | | | |

Forbes Bros Ltd.
Powerline Construction

# Stringing and Sag Data

**Overhead:** OHSW

Left Side (face higher numbered structure) Line # _____

| Date | Temp (°C) | Time | Structure Span | Type | Reels |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |

Right Side (face higher numbered structure) Line # _____

| Date | Temp (°C) | Time | Structure Span | Type | Reels |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |

## SAGGING:

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 37/11 to Str. 37/12 68.5 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Fiber | 01/17/1 | 14:20 | -7 | 0.14 | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

**Comments:**
Sag completed at 14:20 on January 17 2019

| | Name | Date | Signature |
|---|---|---|---|
| QC Inspector | Phil McKinley | Jan 18 2019 | Phil McKinley |
| Client QC Inspector | | | |

Forbes Bros. Ltd.
Powerline Construction

# Stringing and Sag Data

| Project: Eagle Gold 69kv | Contr.#: | Line #: L251 Fiber | Voltage: 69 kv | Pull#: | Str. 38/1 to Str. 38/6 |
|---|---|---|---|---|---|

## Conductor

Left Side (face higher numbered structure) Line #

| Phase | Temp (°C) | Time | Reel Number | |
|---|---|---|---|---|
| TOP | | | | |
| C | | | | |
| BOT | | | | |

Right Side (face higher numbered structure) Line #

| Phase | Temp (°C) | Time | Reel Number | |
|---|---|---|---|---|
| TOP | | | | |
| C | | | | |
| BOT | | | | |

Sting Tension:

Sting Tension:

**Conductor:** Type: ACSR Size: 266.8 Manufacturer:

## SAGGING:

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | | | | | |
| Center | | | | | |
| Bottom | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | | | | | |
| Center | | | | | |
| Bottom | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | | | | | |
| Center | | | | | |
| Bottom | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | | | | | |
| Center | | | | | |
| Bottom | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | | | | | |
| Center | | | | | |
| Bottom | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | | | | | |
| Center | | | | | |
| Bottom | | | | | |

Forbes Bros. Ltd.
Powerline Construction

# Stringing and Sag Data

**Overhead:** OHSW

Left Side (face higher numbered structure) Line # _____

| Date | Temp (°C) | Time | Structure Span | Type | Reel# |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |

Right Side (face higher numbered structure) Line # _____

| Date | Temp (°C) | Time | Structure Span | Type | Reel# |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |

## SAGGING

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 38/3 to Str. 38/4 67.2 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Fiber | 01/17/1 | 13:15 | -7 | 0.20 | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

**Comments:**
Sag completed at 13:15 on January 17 2019

| | Name | Date | Signature |
|---|---|---|---|
| QC Inspector | Phil McKinley | Jan 18 2019 | Phil McKinley |
| Client QC Inspector | | | |

Forbes Bros.
POWERLINE CONSTRUCTION

# Stringing and Sag Data

| Project: Eagle Gold 69kv | Contr.#: | Line #: L251 | Voltage: 69 kv | Pull#: 9 | Str. 35/3 | to Str. 37/9 |
|---|---|---|---|---|---|---|

## Conductor

Left Side (face higher numbered structure) Line #

| Phase | Temp (°C) | Time | Reel Number | |
|---|---|---|---|---|
| TOP | | | | |
| C | | | | |
| BOT | | | | |

String Tension:

Right Side (face higher numbered structure) Line #

| Phase | Temp (°C) | Time | Reel Number | |
|---|---|---|---|---|
| TOP | | | | |
| C | | | | |
| BOT | | | | |

String Tension:

**Conductor:** Type: ACSR Size: 266.8 Manufacturer:

## SAGGING:

Span Length Str. ____ to Str. ____ ____ m
Sagging Span: Str. 35/5 to Str. 35/6 84.2 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | 01/14/1 | 12:40 | -18 | 1.008 | A |
| Center | 01/14/1 | 12:40 | -18 | 1.008 | B |
| Bottom | 01/14/1 | 12:40 | -18 | 1.008 | C |

Span Length Str. ____ to Str. ____ ____ m
Sagging Span: Str. 35/11 to Str. 35/12 75.8 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | 01/14/1 | 12:40 | -18 | 0.904 | A |
| Center | 01/14/1 | 12:40 | -18 | 0.904 | B |
| Bottom | 01/14/1 | 12:40 | -18 | 0.904 | C |

Span Length Str. ____ to Str. ____ ____ m
Sagging Span: Str. 36/7 to Str. 36/9 149.9 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | 01/14/19 | 12:40 | -18 | 3.194 | A |
| Center | 01/14/19 | 12:40 | -18 | 3.194 | B |
| Bottom | 01/14/19 | 12:40 | -18 | 3.194 | C |

Span Length Str. ____ to Str. ____ ____ m
Sagging Span: Str. 37/1 to Str. 37/2 76.5 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | 01/14/1 | 12:40 | -18 | 0.83 | A |
| Center | 01/14/1 | 12:40 | -18 | 0.83 | B |
| Bottom | 01/14/1 | 12:40 | -18 | 0.83 | C |

Span Length Str. ____ to Str. ____ ____ m
Sagging Span: Str. 37/6 to Str. 37/7 93.2 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | 01/14/1 | 12:40 | -18 | 1.232 | A |
| Center | 01/14/1 | 12:40 | -18 | 1.232 | B |
| Bottom | 01/14/1 | 12:40 | -18 | 1.232 | C |

Span Length Str. ____ to Str. ____ ____ m
Sagging Span: Str. ____ to Str. ____ ____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | | | | | |
| Center | | | | | |
| Bottom | | | | | |

Forbes Bros. Ltd.
Powerline Construction

# Stringing and Sag Data

**Overhead: OHSW**

Left Side (face higher numbered structure) Line # _____

| Date | Temp (°C) | Time | Structure Span | Type | Reel# |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |

Right Side (face higher numbered structure) Line # _____

| Date | Temp (°C) | Time | Structure Span | Type | Reel# |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |

**SAGGING:**

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

**Comments:**

Sag completed January 14 2019 at 12:40

| | Name | | Date | Signature |
|---|---|---|---|---|
| **QC Inspector** | Phil McKinley | | Jan 14 2019 | Phil McKinley |
| **Client QC Inspector** | | | | |

Forbes Bros
POWERLINE CONSTRUCTION

# Stringing and Sag Data

| Project: Eagle Gold 69kv | Contr.#: | Line #: L251 | Voltage: 69 kv | Pull#: 9 | Str. 33/8 to Str. 35/3 |
|---|---|---|---|---|---|

## Conductor

Left Side (face higher numbered structure) Line #

| Phase | Temp (°C) | Time | Reel Number | |
|---|---|---|---|---|
| TOP | | | | |
| C | | | | |
| BOT | | | | |

String Tension:

Right Side (face higher numbered structure) Line #

| Phase | Temp (°C) | Time | Reel Number | |
|---|---|---|---|---|
| TOP | | | | |
| C | | | | |
| BOT | | | | |

String Tension:

**Conductor:** Type: ACSR Size: 266.8 Manufacturer:

## SAGGING:

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 33/10 to Str. 33/11 92 m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | 01/12/1 | 15:15 | -25 | 1.14 | A |
| Center | 01/12/1 | 15:15 | -25 | 1.14 | B |
| Bottom | 01/12/1 | 15:15 | -25 | 1.14 | C |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 34/4 to Str. 34/5 91.5 m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | 01/12/1 | 15:15 | -25 | 1.13 | A |
| Center | 01/12/1 | 15:15 | -25 | 1.13 | B |
| Bottom | 01/12/1 | 15:15 | -25 | 1.13 | C |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 34/11 to Str. 34/12 91.4 m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | 01/12/19 | 15:15 | -25 | 1.13 | A |
| Center | 01/12/19 | 15:15 | -25 | 1.13 | B |
| Bottom | 01/12/19 | 15:15 | -25 | 1.13 | C |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | | | | | |
| Center | | | | | |
| Bottom | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | | | | | |
| Center | | | | | |
| Bottom | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | | | | | |
| Center | | | | | |
| Bottom | | | | | |

Forbes Bros. Ltd.
Powerline Construction

# Stringing and Sag Data

**Overhead:** OHSW

Left Side (face higher numbered structure) Line # _____

| Date | Temp (°C) | Time | Structure Span | Type | Reel# |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |

Right Side (face higher numbered structure) Line # _____

| Date | Temp (°C) | Time | Structure Span | Type | Reel# |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |

## SAGGING:

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

**Comments:**

Sag completed at 15:15 on January 12 2019

| | Name | Date | Signature |
|---|---|---|---|
| QC Inspector | Phil McKinley | January 12 2019 | Phil McKinley |
| Client QC Inspector | | | |

Forbes Bros Ltd
Powerline Construction

# Stringing and Sag Data

| Project: Eagle Gold 69kv | Contr.#: | Line #: L251 Fibre | Voltage: 69 kv | Pull#: 6 | Str. 32/8 | to Str. 34/5 |
|---|---|---|---|---|---|---|

## Conductor

Left Side (face higher numbered structure) Line #

| Phase | Temp (°C) | Time | Reel Number | |
|---|---|---|---|---|
| TOP | | | | |
| C | | | | |
| BOT | | | | |

Right Side (face higher numbered structure) Line #

| Phase | Temp (°C) | Time | Reel Number | |
|---|---|---|---|---|
| TOP | | | | |
| C | | | | |
| BOT | | | | |

String Tension:

String Tension:

**Conductor:** Type: ACSR Size: 266.8

Manufacturer:

## SAGGING:

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | | | | | |
| Center | | | | | |
| Bottom | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | | | | | |
| Center | | | | | |
| Bottom | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | | | | | |
| Center | | | | | |
| Bottom | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | | | | | |
| Center | | | | | |
| Bottom | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | | | | | |
| Center | | | | | |
| Bottom | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | | | | | |
| Center | | | | | |
| Bottom | | | | | |

Forbes Bros
Powerline Construction

# Stringing and Sag Data

**Overhead:** OHSW

Left Side (face higher numbered structure) Line # L 251 Fibre

| Date | Temp (°C) | Time | Structure Span | Type | Reel# |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |

Right Side (face higher numbered structure) Line # _____

| Date | Temp (°C) | Time | Structure Span | Type | Reel# |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |

## SAGGING:

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 32/11 to Str. 32/12 86.7 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Fibre | 01/07/1 | 12:20 | -25 | 0.72 | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 33/6 to Str. 33/7 91.4 m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Fibre | 01/07/1 | 12:20 | -25 | 0.80 | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 33/10 to Str. 33/11 92 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Fibre | 01/07/1 | 12:20 | -25 | 0.80 | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 34/3 to Str. 34/4 89.9 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Fibre | 01/07/1 | 12:20 | -25 | 0.77 | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

**Comments:**
Sag completed at 12:20 on January 7 2019

| | Name | Date | Signature |
|---|---|---|---|
| **QC Inspector** | Phil McKinley | Jan 8 2019 | Phil McKinley |
| **Client QC Inspector** | | | |

Forbes Bros Ltd.
POWERLINE CONSTRUCTION

# Stringing and Sag Data

| Project: Eagle Gold 69kv | Contr.#: | Line #: L251 | Voltage: 69 kv | Pull#: 9 | Str. 32/8 to Str. 33/8 |
|---|---|---|---|---|---|

## Conductor

Left Side (face higher numbered structure) Line #

| Phase | Temp (°C) | Time | Reel Number | |
|---|---|---|---|---|
| TOP | | | | |
| C | | | | |
| BOT | | | | |

Right Side (face higher numbered structure) Line #

| Phase | Temp (°C) | Time | Reel Number | |
|---|---|---|---|---|
| TOP | | | | |
| C | | | | |
| BOT | | | | |

String Tension:

**Conductor:** Type: ACSR Size: 266.8

String Tension:

Manufacturer:

## SAGGING:

Span Length Str. ____ to Str. ____ ____ m
Sagging Span: Str. 32/11 to Str. 32/12 86.7 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | 01/12/1 | 14:30 | -25 | 1.02 | A |
| Center | 01/12/1 | 14:30 | -25 | 1.02 | B |
| Bottom | 01/12/1 | 14:30 | -25 | 1.02 | C |

Span Length Str. ____ to Str. ____ ____ m
Sagging Span: Str. 33/1 to Str. 33/2 85.3 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | 01/12/1 | 14:30 | -25 | 0.94 | A |
| Center | 01/12/1 | 14:30 | -25 | 0.94 | B |
| Bottom | 01/12/1 | 14:30 | -25 | 0.94 | C |

Span Length Str. ____ to Str. ____ ____ m
Sagging Span: Str. 33/6 to Str. 33/7 91.4 m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | 01/12/19 | 14:30 | -25 | 1.13 | A |
| Center | 01/12/19 | 14:30 | -25 | 1.13 | B |
| Bottom | 01/12/19 | 14:30 | -25 | 1.13 | C |

Span Length Str. ____ to Str. ____ ____ m
Sagging Span: Str. ____ to Str. ____ ____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | | | | | |
| Center | | | | | |
| Bottom | | | | | |

Span Length Str. ____ to Str. ____ ____ m
Sagging Span: Str. ____ to Str. ____ ____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | | | | | |
| Center | | | | | |
| Bottom | | | | | |

Span Length Str. ____ to Str. ____ ____ m
Sagging Span: Str. ____ to Str. ____ ____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | | | | | |
| Center | | | | | |
| Bottom | | | | | |

Forbes Bros. Ltd.
Powerline Construction

# Stringing and Sag Data

**Overhead: OHSW**

Left Side (face higher numbered structure) Line # _____

| Date | Temp (°C) | Time | Structure Span | Type | Reel# |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |

Right Side (face higher numbered structure) Line # _____

| Date | Temp (°C) | Time | Structure Span | Type | Reel# |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |

**SAGGING:**

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

**Comments:**

Sag completed at 14:30 on January 12 2019

| | Name | Date | Signature |
|---|---|---|---|
| **QC Inspector** | Phil McKinley | Jan 12 2019 | Phil McKinley |
| **Client QC Inspector** | | | |

Forbes Bros Ltd
Powerline Construction

# Stringing and Sag Data

| Project: Eagle Gold 69kv | Contr.#: | Line #: L251 Fibre | Voltage: 69 kv | Pull#: | Str. 32/8 | to Str. 34/5 |
|---|---|---|---|---|---|---|

## Conductor

Left Side (face higher numbered structure) Line #

| Phase | Temp (°C) | Time | Reel Number | |
|---|---|---|---|---|
| TOP | | | | |
| C | | | | |
| BOT | | | | |

String Tension:

**Conductor:** Type: ACSR Size: 266.8

Right Side (face higher numbered structure) Line #

| Phase | Temp (°C) | Time | Reel Number | |
|---|---|---|---|---|
| TOP | | | | |
| C | | | | |
| BOT | | | | |

String Tension:

Manufacturer:

## SAGGING:

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | | | | | |
| Center | | | | | |
| Bottom | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | | | | | |
| Center | | | | | |
| Bottom | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | | | | | |
| Center | | | | | |
| Bottom | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | | | | | |
| Center | | | | | |
| Bottom | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | | | | | |
| Center | | | | | |
| Bottom | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | | | | | |
| Center | | | | | |
| Bottom | | | | | |

Forbes Bros
Powerline Construction

# Stringing and Sag Data

**Overhead:** OHSW

Left Side (face higher numbered structure) Line # L 251 Fibre

| Date | Temp (°C) | Time | Structure Span | Type | Reel# |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |

Right Side (face higher numbered structure) Line # _____

| Date | Temp (°C) | Time | Structure Span | Type | Reel# |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |

## SAGGING:

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 32/11 to Str. 32/12 86.7 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Fibre | 01/07/1 | 12:20 | -25 | 0.72 | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 33/6 to Str. 33/7 91.4 m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Fibre | 01/07/1 | 12:20 | -25 | 0.80 | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 33/10 to Str. 33/11 92 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Fibre | 01/07/1 | 12:20 | -25 | 0.80 | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 34/3 to Str. 34/4 89.9 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Fibre | 01/07/1 | 12:20 | -25 | 0.77 | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

**Comments:**
Sag completed at 12:20 on January 7 2019

| | Name | Date | Signature |
|---|---|---|---|
| **QC Inspector** | Phil McKinley | Jan 8 2019 | Phil McKinley |
| **Client QC Inspector** | | | |

Forbes Bros LTD
POWERLINE CONSTRUCTION

# Stringing and Sag Data

| Project: Eagle Gold 69kv | Contr.#: | Line #: L251 | Voltage: 69 kv | Pull#: 8 | Str. 31/11 to Str. 32/8 |
|---|---|---|---|---|---|

## Conductor

Left Side (face higher numbered structure) Line #

| Phase | Temp (°C) | Time | Reel Number | |
|---|---|---|---|---|
| TOP | | | | |
| C | | | | |
| BOT | | | | |

String Tension:

Right Side (face higher numbered structure) Line #

| Phase | Temp (°C) | Time | Reel Number | |
|---|---|---|---|---|
| TOP | | | | |
| C | | | | |
| BOT | | | | |

String Tension:

**Conductor:** Type: ACSR Size: 266.8 Manufacturer:

## SAGGING:

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 32/2 to Str. 32/3 78.1 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | 12/15/1 | 15:30 | -35 | 0.63 | A |
| Center | 12/15/1 | 15:30 | -35 | 0.63 | B |
| Bottom | 12/15/1 | 15:30 | -35 | 0.63 | C |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 32/3 to Str. 32/4 62.6 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | 12/15/1 | 15:30 | -35 | 0.71 | A |
| Center | 12/15/1 | 15:30 | -35 | 0.71 | B |
| Bottom | 12/15/1 | 15:30 | -35 | 0.71 | C |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 32/5 to Str. 32/6 83.3 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | 12/15/18 | 15:30 | -35 | 0.72 | A |
| Center | 12/15/18 | 15:30 | -35 | 0.72 | B |
| Bottom | 12/15/18 | 15:30 | -35 | 0.72 | C |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | | | | | |
| Center | | | | | |
| Bottom | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | | | | | |
| Center | | | | | |
| Bottom | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | | | | | |
| Center | | | | | |
| Bottom | | | | | |

Forbes Bros LTD
POWERLINE CONSTRUCTION

# Stringing and Sag Data

## Overhead: OHSW

**Left Side (face higher numbered structure)** Line # _____

| Date | Temp (°C) | Time | Structure Span | Type | Reel# |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |

**Right Side (face higher numbered structure)** Line # _____

| Date | Temp (°C) | Time | Structure Span | Type | Reel# |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |

## SAGGING:

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

**Comments:**

Sag completed at 15:30 on Dec 15 2018

| | Name | Date | Signature |
|---|---|---|---|
| QC Inspector | Phil McKinley | Dec 18 2018 | Phil McKinley |
| Client QC Inspector | | | |

Forbes Bros Ltd
POWERLINE CONSTRUCTION

# Stringing and Sag Data

| Project: Eagle Gold 69kv | Contr.#: | Line #: L251 | Voltage: 69 kv | Pull#: 8 | Str. 31/6 | to Str. 31/11 |
|---|---|---|---|---|---|---|

## Conductor

Left Side (face higher numbered structure) Line # _____

| Phase | Temp (°C) | Time | Reel Number | |
|---|---|---|---|---|
| TOP | | | | |
| C | | | | |
| BOT | | | | |

String Tension: _____

Right Side (face higher numbered structure) Line # _____

| Phase | Temp (°C) | Time | Reel Number | |
|---|---|---|---|---|
| TOP | | | | |
| C | | | | |
| BOT | | | | |

String Tension: _____

**Conductor:** Type: ACSR Size: 266.8 Manufacturer:

## SAGGING:

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 31/7 to Str. 31/7A 87.1 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | 12/15/1 | 14:20 | -35 | 0.68 | A |
| Center | 12/15/1 | 14:20 | -35 | 0.68 | B |
| Bottom | 12/15/1 | 14:20 | -35 | 0.68 | C |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 31/8 to Str. 31/10 155.9 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | 12/15/1 | 14:20 | -35 | 1.6 | A |
| Center | 12/15/1 | 14:20 | -35 | 1.6 | B |
| Bottom | 12/15/1 | 14:20 | -35 | 1.6 | C |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | | | | | |
| Center | | | | | |
| Bottom | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | | | | | |
| Center | | | | | |
| Bottom | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | | | | | |
| Center | | | | | |
| Bottom | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | | | | | |
| Center | | | | | |
| Bottom | | | | | |

Forbes Bros LTD
POWERLINE CONSTRUCTION

# Stringing and Sag Data

## Overhead: OHSW

**Left Side (face higher numbered structure)** Line # _____

| Date | Temp (°C) | Time | Structure Span | Type | Reel# |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |

**Right Side (face higher numbered structure)** Line # _____

| Date | Temp (°C) | Time | Structure Span | Type | Reel# |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |

### SAGGING:

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

**Comments:**

| | Name | Date | Signature |
|---|---|---|---|
| QC Inspector | Phil McKinley | Dec 18 2018 | Phil McKinley |
| Client QC Inspector | | | |

Forbes Bros LTD
POWERLINE CONSTRUCTION

# Stringing and Sag Data

| Project: Eagle Gold 69kv | Contr.#: | Line #: L251 | Voltage: 69 kv | Pull#: 8 | Str. 30/5 | to Str. 31/6 |
|---|---|---|---|---|---|---|

## Conductor

Left Side (face higher numbered structure) Line # _____

| Phase | Temp (°C) | Time | Reel Number | |
|---|---|---|---|---|
| TOP | | | | |
| C | | | | |
| BOT | | | | |

String Tension: _____

Right Side (face higher numbered structure) Line # _____

| Phase | Temp (°C) | Time | Reel Number | |
|---|---|---|---|---|
| TOP | | | | |
| C | | | | |
| BOT | | | | |

String Tension: _____

**Conductor:** Type: ACSR Size: 266.8 Manufacturer:

## SAGGING:

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 30/6 to Str. 30/7 92.1 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | 12/15/1 | 13:40 | -35 | 0.89 | A |
| Center | 12/15/1 | 13:40 | -35 | 0.89 | B |
| Bottom | 12/15/1 | 13:40 | -35 | 0.89 | C |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 30/11 to Str. 30/12 91.8 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | 12/15/1 | 13:40 | -35 | 0.88 | A |
| Center | 12/15/1 | 13:40 | -35 | 0.88 | B |
| Bottom | 12/15/1 | 13:40 | -35 | 0.88 | C |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 31/3 to Str. 31/4 94.2 m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | 12/15/18 | 13:40 | -35 | 0.93 | A |
| Center | 12/15/18 | 13:40 | -35 | 0.93 | B |
| Bottom | 12/15/18 | 13:40 | -35 | 0.93 | C |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | | | | | |
| Center | | | | | |
| Bottom | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | | | | | |
| Center | | | | | |
| Bottom | | | | | |

Forbes Bros LTD
POWERLINE CONSTRUCTION

# Stringing and Sag Data

## Overhead: OHSW

**Left Side (face higher numbered structure)** Line # _____

| Date | Temp (°C) | Time | Structure Span | Type | Reel# |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |

**Right Side (face higher numbered structure)** Line # _____

| Date | Temp (°C) | Time | Structure Span | Type | Reel# |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |

## SAGGING:

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

**Comments:**

Sag completed at 13:40 on Dec 15 2018

| | Name | Date | Signature |
|---|---|---|---|
| QC Inspector | Phil McKinley | Dec 18 2018 | Phil McKinley |
| Client QC Inspector | | | |

Forbes Bros LTD
POWERLINE CONSTRUCTION

# Stringing and Sag Data

| Project: Eagle Gold 69kv | Contr.#: | Line #: L251 | Voltage: 69 kv | Pull#: 8 | Str. 28/13 to Str. 30/5 |
|---|---|---|---|---|---|

## Conductor

Left Side (face higher numbered structure) Line # _____

| Phase | Temp (°C) | Time | Reel Number | |
|---|---|---|---|---|
| TOP | | | | |
| C | | | | |
| BOT | | | | |

String Tension: _____

Right Side (face higher numbered structure) Line # _____

| Phase | Temp (°C) | Time | Reel Number | |
|---|---|---|---|---|
| TOP | | | | |
| C | | | | |
| BOT | | | | |

String Tension: _____

**Conductor:** Type: ACSR Size: 266.8 Manufacturer:

## SAGGING:

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 29/2 to Str. 29/3 77.2 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | 12/12/1 | 10:45 | -16 | 0.788 | A |
| Center | 12/12/1 | 10:45 | -16 | 0.788 | B |
| Bottom | 12/12/1 | 10:45 | -16 | 0.788 | C |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 29/8 to Str. 29/9 66.9 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | 12/12/1 | 10:45 | -16 | 1.014 | A |
| Center | 12/12/1 | 10:45 | -16 | 1.014 | B |
| Bottom | 12/12/1 | 10:45 | -16 | 1.014 | C |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 29/11 to Str. 29/12 92.8 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | 12/12/18 | 10:45 | -16 | 1.144 | A |
| Center | 12/12/18 | 10:45 | -16 | 1.144 | B |
| Bottom | 12/12/18 | 10:45 | -16 | 1.144 | C |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 30/3 to Str. 30/4 75.2 m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | 12/12/1 | 10:45 | -16 | 0.758 | A |
| Center | 12/12/1 | 10:45 | -16 | 0.758 | B |
| Bottom | 12/12/1 | 10:45 | -16 | 0.758 | C |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | | | | | |
| Center | | | | | |
| Bottom | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | | | | | |
| Center | | | | | |
| Bottom | | | | | |

Forbes Bros LTD
POWERLINE CONSTRUCTION

# Stringing and Sag Data

## Overhead: OHSW

**Left Side (face higher numbered structure)** Line # _____

| Date | Temp (°C) | Time | Structure Span | Type | Reel# |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |

**Right Side (face higher numbered structure)** Line # _____

| Date | Temp (°C) | Time | Structure Span | Type | Reel# |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |

## SAGGING:

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

**Comments:**

Sag completed on Dec 12 2018 at 10:45

| | Name | Date | Signature |
|---|---|---|---|
| **QC Inspector** | Phil McKinley | Dec 16 2018 | Phil McKinley |
| **Client QC Inspector** | | | |

Forbes Bros LTD
POWERLINE CONSTRUCTION

# Stringing and Sag Data

| Project: Eagle Gold 69kv | Contr.#: | Line #: L251 | Voltage: 69 kv | Pull#: 7 | Str. 28/7 | to Str. 28/13 |
|---|---|---|---|---|---|---|

## Conductor

Left Side (face higher numbered structure) Line # _____

| Phase | Temp (°C) | Time | Reel Number | |
|---|---|---|---|---|
| TOP | | | | |
| C | | | | |
| BOT | | | | |

String Tension: _____

Right Side (face higher numbered structure) Line # _____

| Phase | Temp (°C) | Time | Reel Number | |
|---|---|---|---|---|
| TOP | | | | |
| C | | | | |
| BOT | | | | |

String Tension: _____

**Conductor:** Type: ACSR Size: 266.8 Manufacturer:

## SAGGING:

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 28/9 to Str. 28/10 78.8 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | 12/09/1 | 13:35 | -3 | 1.008 | A |
| Center | 12/09/1 | 13:35 | -3 | 1.008 | B |
| Bottom | 12/09/1 | 13:35 | -3 | 1.008 | C |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 28/10 to Str. 28/11 66.3 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | 12/09/1 | 13:35 | -3 | 1.212 | A |
| Center | 12/09/1 | 13:35 | -3 | 1.212 | B |
| Bottom | 12/09/1 | 13:35 | -3 | 1.212 | C |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | | | | | |
| Center | | | | | |
| Bottom | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | | | | | |
| Center | | | | | |
| Bottom | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | | | | | |
| Center | | | | | |
| Bottom | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | | | | | |
| Center | | | | | |
| Bottom | | | | | |

Forbes Bros LTD
POWERLINE CONSTRUCTION

# Stringing and Sag Data

## Overhead: OHSW

Left Side (face higher numberod structure) Line # _____

| Date | Temp (°C) | Time | Structure Span | Type | Reel# |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |

Right Side (face higher numbered structure) Line # _____

| Date | Temp (°C) | Time | Structure Span | Type | Reel# |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |

## SAGGING:

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 28/8 to Str. 28/9 92 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Fibre | 12/09/1 | 13:35 | -3 | 0.814 | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

**Comments:**
Sag completed Dec 9 2018 at 13:35

| | Name | Date | Signature |
|---|---|---|---|
| QC Inspector | Phil McKinley | Dec 12 2018 | Phil McKinley |
| Client QC Inspector | | | |

Forbes Bros LTD
POWERLINE CONSTRUCTION

# Stringing and Sag Data

| Project: Eagle Gold 69kv | Contr.#: | Line #: L251 | Voltage: 69 kv | Pull#: 7 | Str. 28/2 to Str. 28/7 |
|---|---|---|---|---|---|

## Conductor

Left Side (face higher numbered structure) Line # _____

| Phase | Temp (°C) | Time | Reel Number | |
|---|---|---|---|---|
| TOP | | | | |
| C | | | | |
| BOT | | | | |

Right Side (face higher numbered structure) Line # _____

| Phase | Temp (°C) | Time | Reel Number | |
|---|---|---|---|---|
| TOP | | | | |
| C | | | | |
| BOT | | | | |

String Tension: _____

String Tension: _____

**Conductor:** Type: ACSR Size: 266.8 Manufacturer:

## SAGGING:

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 28/4 to Str. 28/5 73.7 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | 12/09/1 | 12:15 | -3 | 0.848 | A |
| Center | 12/09/1 | 12:15 | -3 | 0.848 | B |
| Bottom | 12/09/1 | 12:15 | -3 | 0.848 | C |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 28/5 to Str. 28/6 82.1 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | 12/09/1 | 12:15 | -3 | 1.042 | A |
| Center | 12/09/1 | 12:15 | -3 | 1.042 | B |
| Bottom | 12/09/1 | 12:15 | -3 | 1.042 | C |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | | | | | |
| Center | | | | | |
| Bottom | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | | | | | |
| Center | | | | | |
| Bottom | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | | | | | |
| Center | | | | | |
| Bottom | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | | | | | |
| Center | | | | | |
| Bottom | | | | | |

Forbes Bros LTD
POWERLINE CONSTRUCTION

# Stringing and Sag Data

## Overhead: OHSW

**Left Side (face higher numbered structure)** Line # L251

| Date | Temp (°C) | Time | Structure Span | Type | Reel# |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |

**Right Side (face higher numbered structure)** Line # _____

| Date | Temp (°C) | Time | Structure Span | Type | Reel# |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |

## SAGGING:

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 28/4 to Str. 28/5 73.7 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Fibre | 12/09/1 | 12:15 | -3 | 0.432 | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

Span Length Str. 28/5 to Str. 28/6 82.1 m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Fibre | 12/09/1 | 12:15 | -3 | 0.54 | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

**Comments:**

Sag completed on Dec 9 2018 at 12:15

| | Name | Date | Signature |
|---|---|---|---|
| QC Inspector | Phil McKinley | Dec 12 2018 | Phil McKinley |
| Client QC Inspector | | | |

Forbes Bros LTD
POWERLINE CONSTRUCTION

# Stringing and Sag Data

| Project: Eagle Gold 69kv | Contr.#: | Line #: L251 | Voltage: 69 kv | Pull#: 7 | Str. 27/1 to Str. 28/2 |
|---|---|---|---|---|---|

## Conductor

Left Side (face higher numbered structure) Line # _____

| Phase | Temp (°C) | Time | Reel Number | |
|---|---|---|---|---|
| TOP | | | | |
| C | | | | |
| BOT | | | | |

String Tension: _____

Right Side (face higher numbered structure) Line # _____

| Phase | Temp (°C) | Time | Reel Number | |
|---|---|---|---|---|
| TOP | | | | |
| C | | | | |
| BOT | | | | |

String Tension: _____

**Conductor:** Type: ACSR Size: 266.8 Manufacturer:

## SAGGING:

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 27/3 to Str. 27/4 92.5 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | 12/09/1 | 11:30 | -4 | 1.286 | A |
| Center | 12/09/1 | 11:30 | -4 | 1.286 | B |
| Bottom | 12/09/1 | 11:30 | -4 | 1.286 | C |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 27/7 to Str. 27/8 69.4 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | 12/09/1 | 11:30 | -4 | 1.196 | A |
| Center | 12/09/1 | 11:30 | -4 | 1.196 | B |
| Bottom | 12/09/1 | 11:30 | -4 | 1.196 | C |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 27/11 to Str. 27/12 78.7 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | 12/09/18 | 11:30 | -4 | 0.932 | A |
| Center | 12/09/18 | 11:30 | -4 | 0.932 | B |
| Bottom | 12/09/18 | 11:30 | -4 | 0.932 | C |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | | | | | |
| Center | | | | | |
| Bottom | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | | | | | |
| Center | | | | | |
| Bottom | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | | | | | |
| Center | | | | | |
| Bottom | | | | | |

Forbes Bros LTD
POWERLINE CONSTRUCTION

# Stringing and Sag Data

## Overhead: OHSW

Left Side (face higher numbered structure) Line # L251

| Date | Temp (°C) | Time | Structure Span | Type | Reel# |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |

Right Side (face higher numbered structure) Line # _____

| Date | Temp (°C) | Time | Structure Span | Type | Reel# |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |

## SAGGING:

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 27/3 to Str. 27/4 92.5 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Fibre | 12/09/1 | 11:30 | -4 | 0.862 | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 27/7 to Str. 27/8 89.4 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Fibre | 12/09/1 | 11:30 | -4 | 0.802 | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 27/11 to Str. 27/12 78.7 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Fibre | 12/09/1 | 11:30 | -4 | 0.622 | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

**Comments:**
Sag completed at 11:30 on Dec 9 2018

| | Name | Date | Signature |
|---|---|---|---|
| QC Inspector | Phil McKinley | Dec 12 2018 | Phil McKinley |
| Client QC Inspector | | | |

Forbes Bros LTD
POWERLINE CONSTRUCTION

# Stringing and Sag Data

| Project: Eagle Gold 69kv | Contr.#: | Line #: L251 | Voltage: 69 kv | Pull#: 7 | Str. 26/1 to Str. 27/1 |
|---|---|---|---|---|---|

## Conductor

Left Side (face higher numbered structure) Line # _____

| Phase | Temp (°C) | Time | Reel Number | |
|---|---|---|---|---|
| TOP | | | | |
| C | | | | |
| BOT | | | | |

String Tension: _____

Right Side (face higher numbered structure) Line # _____

| Phase | Temp (°C) | Time | Reel Number | |
|---|---|---|---|---|
| TOP | | | | |
| C | | | | |
| BOT | | | | |

String Tension: _____

**Conductor:** Type: ACSR Size: 266.8 Manufacturer:

## SAGGING:

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 26/2 to Str. 26/3 86.2 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | 12/09/1 | 10:30 | -4 | 1.174 | A |
| Center | 12/09/1 | 10:30 | -4 | 1.174 | B |
| Bottom | 12/09/1 | 10:30 | -4 | 1.174 | C |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 26/6 to Str. 26/7 90.2 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | 12/09/1 | 10:30 | -4 | 1.286 | A |
| Center | 12/09/1 | 10:30 | -4 | 1.286 | B |
| Bottom | 12/09/1 | 10:30 | -4 | 1.286 | C |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 26/9 to Str. 26/10 91.8 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | 12/09/18 | 10:30 | -4 | 1.336 | |
| Center | 12/09/18 | 10:30 | -4 | 1.336 | |
| Bottom | 12/09/18 | 10:30 | -4 | 1.336 | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | | | | | |
| Center | | | | | |
| Bottom | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | | | | | |
| Center | | | | | |
| Bottom | | | | | |

Forbes Bros LTD
POWERLINE CONSTRUCTION

# Stringing and Sag Data

## Overhead: OHSW

**Left Side (face higher numbered structure)** Line # L251

| Date | Temp (°C) | Time | Structure Span | Type | Reel# |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |

**Right Side (face higher numbered structure)** Line #

| Date | Temp (°C) | Time | Structure Span | Type | Reel# |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |

## SAGGING:

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 26/2 to Str. 26/3 86.2 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Fibre | 12/09/1 | 10:30 | -4 | 0.832 | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 26/6 to Str. 26/7 90.2 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Fibre | 12/09/1 | 10:30 | -4 | 0.912 | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 26/9 to Str. 26/10 91.8 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Fibre | 12/09/1 | 10:30 | -4 | 0.95 | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

**Comments:**
Sag Completed at 10:30 on Dec 9 2018

| | Name | Date | Signature |
|---|---|---|---|
| QC Inspector | Phil McKinley | Dec 12 2013 | Phil McKinley |
| Client QC Inspector | | | |

Forbes Bros LTD
POWERLINE CONSTRUCTION

# Stringing and Sag Data

| Project: Eagle Gold 69kv | Contr.#: | Line #: L251 | Voltage: 69 kv | Pull#: 6 | Str. 24/6 | to Str. 26/1 |
|---|---|---|---|---|---|---|

## Conductor

Left Side (face higher numbered structure) Line # _____

| Phase | Temp (°C) | Time | Reel Number | |
|---|---|---|---|---|
| TOP | | | | |
| C | | | | |
| BOT | | | | |

String Tension: _____

Right Side (face higher numbered structure) Line # _____

| Phase | Temp (°C) | Time | Reel Number | |
|---|---|---|---|---|
| TOP | | | | |
| C | | | | |
| BOT | | | | |

String Tension: _____

**Conductor:** Type: ACSR Size: 266.8 Manufacturer:

## SAGGING:

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 24/7 to Str. 24/8 83.5 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | 12/06/1 | 15:30 | -14 | 1.054 | |
| Center | 12/06/1 | 15:30 | -14 | 1.054 | Left |
| Bottom | 12/06/1 | 15:30 | -14 | 1.054 | Right |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 24/11 to Str. 25/1 oo m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | 12/06/1 | 15:30 | -14 | 1.76 | |
| Center | 12/06/1 | 15:30 | -14 | 1.76 | Left |
| Bottom | 12/06/1 | 15:30 | -14 | 1.76 | Right |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 25/3 to Str. 25/4 85.6 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | 12/06/18 | 15:30 | -14 | 1.136 | |
| Center | 12/06/18 | 15:30 | -14 | 1.136 | Left |
| Bottom | 12/06/18 | 15:30 | -14 | 1.136 | Right |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 25/9 to Str. 25/10 oo m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | 12/06/1 | 15:30 | -14 | 0.972 | |
| Center | 12/06/1 | 15:30 | -14 | 0.972 | Left |
| Bottom | 12/06/1 | 15:30 | -14 | 0.972 | Right |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | | | | | |
| Center | | | | | |
| Bottom | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | | | | | |
| Center | | | | | |
| Bottom | | | | | |

Forbes Bros Ltd
Powerline Construction

# Stringing and Sag Data

## Overhead: OHSW

Left Side (face higher numbered structure) Line # L251

| Date | Temp (°C) | Time | Structure Span | Type | Reel# |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |

Right Side (face higher numbered structure) Line # _____

| Date | Temp (°C) | Time | Structure Span | Type | Reel# |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |

### SAGGING:

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 24/7 to Str. 24/8 83.5 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Fibre | 12/06/1 | 15:30 | -14 | 1.27 | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 24/11 to Str. 25/1 88 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Fibre | 12/06/1 | 15:30 | -14 | 1.41 | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 25/3 to Str. 25/4 85.6 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Fibre | 12/06/1 | 15:30 | -14 | 1.33 | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 25/9 to Str. 25/10 80 m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Fibre | 12/06/1 | 15:30 | -14 | 1.162 | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

**Comments:**
Sag completed at 15:30 on December 6 2018

| | Name | Date | Signature |
|---|---|---|---|
| QC Inspector | Phil McKinley | Dec 8 2018 | Phil McKinley |
| Client QC Inspector | TREVOR ANTAC | Dec 9 | |

Forbes Bros LTD
POWERLINE CONSTRUCTION

# Stringing and Sag Data

| Project: Eagle Gold 69kv | Contr.#: | Line #: L251 | Voltage: 69 kv | Pull#: 6 | Str. 22/8 to Str. 24/6 |
|---|---|---|---|---|---|

## Conductor

Left Side (face higher numbered structure) Line # _____

| Phase | Temp (°C) | Time | Reel Number | |
|---|---|---|---|---|
| TOP | | | | |
| C | | | | |
| BOT | | | | |

String Tension: _____

Right Side (face higher numbered structure) Line # _____

| Phase | Temp (°C) | Time | Reel Number | |
|---|---|---|---|---|
| TOP | | | | |
| C | | | | |
| BOT | | | | |

String Tension: _____

**Conductor:** Type: ACSR Size: 266.8 Manufacturer:

## SAGGING:

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 22/9 to Str. 23/1 84.8 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | 12/06/1 | 12:30 | -14 | 1.094 | |
| Center | 12/06/1 | 12:30 | -14 | 1.094 | Left |
| Bottom | 12/06/1 | 12:30 | -14 | 1.094 | Right |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 23/4 to Str. 23/5 84.3 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | 12/06/1 | 12:30 | -14 | 1.074 | |
| Center | 12/06/1 | 12:30 | -14 | 1.074 | Left |
| Bottom | 12/06/1 | 12:30 | -14 | 1.074 | Right |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 23/11 to Str. 23/12 94.9 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | 12/06/18 | 12:30 | -14 | 1.368 | |
| Center | 12/06/18 | 12:30 | -14 | 1.368 | Left |
| Bottom | 12/06/18 | 12:30 | -14 | 1.368 | Right |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 24/4 to Str. 24/5 84.1 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | 12/06/1 | 12:30 | -14 | 1.346 | |
| Center | 12/06/1 | 12:30 | -14 | 1.346 | Left |
| Bottom | 12/06/1 | 12:30 | -14 | 1.346 | Right |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | | | | | |
| Center | | | | | |
| Bottom | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | | | | | |
| Center | | | | | |
| Bottom | | | | | |

Forbes Bros LTD
POWERLINE CONSTRUCTION

# Stringing and Sag Data

## Overhead: OHSW

**Left Side (face higher numbered structure)** Line # _____

| Date | Temp (°C) | Time | Structure Span | Type | Reel# |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |

**Right Side (face higher numbered structure)** Line # _____

| Date | Temp (°C) | Time | Structure Span | Type | Reel# |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |

## SAGGING:

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 23/4 to Str. 23/5 84.5 m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Fibre | 12/06/1 | 12:30 | -14 | 1.29 | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 23/11 to Str. 23/12 94.9 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Fibre | 12/06/1 | 12:30 | -14 | 1.632 | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 24/4 to Str. 24/5 94.1 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Fibre | 12/06/1 | 12:30 | -14 | 1.61 | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

**Comments:**
Sag completed on December 6 2018 at 12:30

| | Name | Date | Signature |
|---|---|---|---|
| QC Inspector | Phil McKinley | Dec 8 2018 | Phil McKinley |
| Client QC Inspector | | | |

Forbes Bros LTD
POWERLINE CONSTRUCTION

# Stringing and Sag Data

| Project: Eagle Gold 69kv | Contr.#: | Line #: L251 | Voltage: 69 kv | Pull#: 6 | Str. 21/2 to Str. 22/8 |
|---|---|---|---|---|---|

## Conductor

Left Side (face higher numbered structure) Line # _____

| Phase | Temp (°C) | Time | Reel Number | |
|---|---|---|---|---|
| TOP | | | | |
| C | | | | |
| BOT | | | | |

String Tension: _____

Right Side (face higher numbered structure) Line # _____

| Phase | Temp (°C) | Time | Reel Number | |
|---|---|---|---|---|
| TOP | | | | |
| C | | | | |
| BOT | | | | |

String Tension: _____

**Conductor:** Type: ACSR Size: 266.8 Manufacturer:

## SAGGING:

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 21/3 to Str. 21/4 76.2 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | 12/06/1 | 10:00 | -14 | 0.818 | |
| Center | 12/06/1 | 10:00 | -14 | 0.818 | Left |
| Bottom | 12/06/1 | 10:00 | -14 | 0.818 | Right |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 21/10 to Str. 21/11 69.6 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | 12/06/1 | 10:00 | -14 | 1.132 | |
| Center | 12/06/1 | 10:00 | -14 | 1.132 | Left |
| Bottom | 12/06/1 | 10:00 | -14 | 1.132 | Right |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 22/2 to Str. 22/3 146.9 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | 12/06/18 | 10:00 | -14 | 3.026 | |
| Center | 12/06/18 | 10:00 | -14 | 3.026 | Left |
| Bottom | 12/06/18 | 10:00 | -14 | 3.026 | Right |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 22/6 to Str. 22/7 51.9 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | 12/06/1 | 10:00 | -14 | 1.184 | |
| Center | 12/06/1 | 10:00 | -14 | 1.184 | Left |
| Bottom | 12/06/1 | 10:00 | -14 | 1.184 | Right |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | | | | | |
| Center | | | | | |
| Bottom | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | | | | | |
| Center | | | | | |
| Bottom | | | | | |

Forbes Bros Ltd
POWERLINE CONSTRUCTION

# Stringing and Sag Data

## Overhead: OHSW

Left Side (face higher numbered structure) Line # L251

Right Side (face higher numbered structure) Line #

| Date | Temp (°C) | Time | Structure Span | Type | Reel# |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |

| Date | Temp (°C) | Time | Structure Span | Type | Reel# |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |

## SAGGING:

Span Length Str. ____ to Str. ____ ____ m
Sagging Span: Str. 21/3 to Str. 21/4 76.2 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Fibre | 12/06/1 | 10:00 | -14 | 1.79 | |

Span Length Str. ____ to Str. ____ ____ m
Sagging Span: Str. 21/10 to Str. 21/11 89.8 m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Fibre | 12/06/1 | 10:00 | -14 | 2.49 | |

Span Length Str. ____ to Str. ____ ____ m
Sagging Span: Str. 22/2 to Str. 22/3 146.9 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Fibre | 12/06/1 | 10:00 | -14 | 6.67 | |

Span Length Str. ____ to Str. ____ ____ m
Sagging Span: Str. 22/6 to Str. 22/7 91.9 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Fibre | 12/06/1 | 10:00 | -14 | 2.61 | |

Span Length Str. ____ to Str. ____ ____ m
Sagging Span: Str. 22/9 to Str. 23/1 84.8 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Fibre | 12/06/1 | 10:00 | -14 | | |

Span Length Str. ____ to Str. ____ ____ m
Sagging Span: Str. ____ to Str. ____ ____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

**Comments:**

Sag completed at 10:00 on December 6 2018
Fibre deadended at 23/2

| | Name | Date | Signature |
|---|---|---|---|
| QC Inspector | Phil McKinley | Dec 8 2018 | Phil McKinley |
| Client QC Inspector | | | |

Forbes Bros LTD
POWERLINE CONSTRUCTION

# Stringing and Sag Data

| Project: Eagle Gold 69kv | Contr.#: | Line #: L251 | Voltage: 69 kv | Pull#: 5 | Str. 18/13 to Str. 21/2 |
|---|---|---|---|---|---|

## Conductor

Left Side (face higher numbered structure) Line # L 251

| Phase | Temp (°C) | Time | Reel Number | |
|---|---|---|---|---|
| TOP | | | | |
| C | | | | |
| BOT | | | | |

Right Side (face higher numbered structure) Line # _____

| Phase | Temp (°C) | Time | Reel Number | |
|---|---|---|---|---|
| TOP | | | | |
| C | | | | |
| BOT | | | | |

String Tension: _____

**Conductor:** Type: ACSR Size: 266.8

String Tension: _____

Manufacturer:

## SAGGING:

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 19/2 to Str. 19/3 84 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | 12/03/1 | 15:30 | -23 | 0.998 | |
| Center | 12/03/1 | 15:30 | -23 | 0.998 | Left |
| Bottom | 12/03/1 | 15:30 | -23 | 0.998 | Right |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 19/9 to Str. 19/10 84.1 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | 12/03/1 | 15:30 | -23 | 1.008 | |
| Center | 12/03/1 | 15:30 | -23 | 1.008 | Left |
| Bottom | 12/03/1 | 15:30 | -23 | 1.008 | Right |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 20/5 to Str. 20/6 90.2 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | 12/03/18 | 15:30 | -23 | 1.162 | |
| Center | 12/03/18 | 15:30 | -23 | 1.162 | Left |
| Bottom | 12/03/18 | 15:30 | -23 | 1.162 | Right |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 20/12 to Str. 21/1 136.6 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | 12/03/1 | 15:30 | -23 | 2.652 | |
| Center | 12/03/1 | 15:30 | -23 | 2.652 | Left |
| Bottom | 12/03/1 | 15:30 | -23 | 2.652 | Right |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | | | | | |
| Center | | | | | |
| Bottom | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | | | | | |
| Center | | | | | |
| Bottom | | | | | |

Forbes Bros LTD
POWERLINE CONSTRUCTION

# Stringing and Sag Data

## Overhead: OHSW

Left Side (face higher numbered structure) Line # L25T

Right Side (face higher numbered structure) Line # _____

| Date | Temp (°C) | Time | Structure Span | Type | Reel# |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |

| Date | Temp (°C) | Time | Structure Span | Type | Reel# |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |

## SAGGING:

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 19/2 to Str. 19/3 84 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Fibre | 12/03/1 | 15:30 | -23 | 2.61 | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 19/9 to Str. 19/10 84.1 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Fibre | 12/03/1 | 15:30 | -23 | 2.62 | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 20/5 to Str. 20/6 90.2 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Fibre | 12/03/1 | 15:30 | -23 | 3.01 | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 20/12 to Str. 21/1 136.6 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Fibre | 12/03/1 | 15:30 | -23 | 6.914 | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

**Comments:**

Sag completed at 15:30 on December 3 2018

| | Name | Date | Signature |
|---|---|---|---|
| QC Inspector | Phil McKinley | Dec 4 2018 | Phil McKinley |
| Client QC Inspector | | | |

Forbes Bros LTD
POWERLINE CONSTRUCTION

# Stringing and Sag Data

| Project: Eagle Gold 69kv | Contr.#: | Line #: L251 | Voltage: 69 kv | Pull#: 5 | Str. 16/11 to Str. 18/13 |
|---|---|---|---|---|---|

## Conductor

Left Side (face higher numbered structure) Line # _____

| Phase | Temp (°C) | Time | Reel Number | |
|---|---|---|---|---|
| TOP | | | | |
| C | | | | |
| BOT | | | | |

String Tension: _____

Right Side (face higher numbered structure) Line # _____

| Phase | Temp (°C) | Time | Reel Number | |
|---|---|---|---|---|
| TOP | | | | |
| C | | | | |
| BOT | | | | |

String Tension: _____

**Conductor:** Type: ACSR Size: 266.8 Manufacturer:

## SAGGING:

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 17/1 to Str. 17/2 90.2 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | 12/03/1 | 10:30 | -23 | 1.152 | |
| Center | 12/03/1 | 10:30 | -23 | 1.152 | Left |
| Bottom | 12/03/1 | 10:30 | -23 | 1.152 | Right |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 17/8 to Str. 17/9 89.5 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | 12/03/1 | 10:30 | -23 | 1.138 | |
| Center | 12/03/1 | 10:30 | -23 | 1.138 | Left |
| Bottom | 12/03/1 | 10:30 | -23 | 1.138 | Right |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 18/4 to Str. 18/5 93.9 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | 12/03/18 | 10:30 | -23 | 1.256 | |
| Center | 12/03/18 | 10:30 | -23 | 1.256 | Left |
| Bottom | 12/03/18 | 10:30 | -23 | 1.256 | Right |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 18/8 to Str. 18/9 60.9 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | 12/03/1 | 10:30 | -23 | 0.526 | |
| Center | 12/03/1 | 10:30 | -23 | 0.526 | Left |
| Bottom | 12/03/1 | 10:30 | -23 | 0.526 | Right |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | | | | | |
| Center | | | | | |
| Bottom | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | | | | | |
| Center | | | | | |
| Bottom | | | | | |

Forbes Bros LTD
POWERLINE CONSTRUCTION

# Stringing and Sag Data

## Overhead: OHSW

Left Side (face higher numbered structure) Line # 1251

Right Side (face higher numbered structure) Line # _____

| Date | Temp (°C) | Time | Structure Span | Type | Reel# |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |

| Date | Temp (°C) | Time | Structure Span | Type | Reel# |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |

## SAGGING:

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 17/8 to Str. 17/9 89.5 m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Fibre | 12/03/1 | 10:30 | -23 | 2.96 | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 18/4 to Str. 18/5 93.9 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Fibre | 12/03/1 | 10:30 | -23 | 3.26 | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 18/9 to Str. 18/10 58.6 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Fibre | 12/03/1 | 10:30 | -23 | 1.27 | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

**Comments:**
Sag completed at 10:30 on December 3 2018

| | Name | Date | Signature |
|---|---|---|---|
| QC Inspector | Phil McKinley | Dec 4 2018 | Phil McKinley |
| Client QC Inspector | | | |

Forbes Bros LTD
POWERLINE CONSTRUCTION

# Stringing and Sag Data

| Project: Eagle Gold 69kv | Contr.#: | Line #: L251 | Voltage: 69 kv | Pull#: 4 | Str. 14/12 to Str. 16/11 |
|---|---|---|---|---|---|

## Conductor

Left Side (face higher numbered structure) Line # _____

| Phase | Temp (°C) | Time | Reel Number | |
|---|---|---|---|---|
| TOP | | | | |
| C | | | | |
| BOT | | | | |

String Tension: _____

Right Side (face higher numbered structure) Line # _____

| Phase | Temp (°C) | Time | Reel Number | |
|---|---|---|---|---|
| TOP | | | | |
| C | | | | |
| BOT | | | | |

String Tension: _____

**Conductor:** Type: ACSR Size: 266.8 Manufacturer:

## SAGGING:

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 15/1 to Str. 15/2 75.9 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | 11/29/1 | 14:00 | -5 | 0.97 | |
| Center | 11/29/1 | 14:00 | -5 | 0.97 | Left |
| Bottom | 11/29/1 | 14:00 | -5 | 0.97 | Right |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 15/5 to Str. 15/6 82 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | 11/29/1 | 14:00 | -5 | 1.13 | |
| Center | 11/29/1 | 14:00 | -5 | 1.13 | Left |
| Bottom | 11/29/1 | 14:00 | -5 | 1.13 | Right |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 15/10 to Str. 15/11 67.3 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | 11/29/18 | 14:00 | -5 | 0.76 | |
| Center | 11/29/18 | 14:00 | -5 | 0.76 | Left |
| Bottom | 11/29/18 | 14:00 | -5 | 0.76 | Right |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 16/8 to Str. 16/9 82.6 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | 11/29/1 | 14:00 | -5 | 1.14 | |
| Center | 11/29/1 | 14:00 | -5 | 1.14 | Left |
| Bottom | 11/29/1 | 14:00 | -5 | 1.14 | Right |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | | | | | |
| Center | | | | | |
| Bottom | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | | | | | |
| Center | | | | | |
| Bottom | | | | | |

Forbes Bros LTD
POWERLINE CONSTRUCTION

# Stringing and Sag Data

## Overhead: OHSW

**Left Side (face higher numbered structure)** Line # _____

| Date | Temp (°C) | Time | Structure Span | Type | Reel# |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |

**Right Side (face higher numbered structure)** Line # _____

| Date | Temp (°C) | Time | Structure Span | Type | Reel# |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |

## SAGGING:

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 15/1 to Str. 15/2 75.9 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Fibre | 11/29/1 | 14:00 | -5 | 0.72 | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 15/5 to Str. 15/6 82 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Fibre | 11/29/1 | 14:00 | -5 | 0.84 | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 15/10 to Str. 15/11 67.3 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Fibre | 11/29/1 | 14:00 | -5 | 0.56 | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 16/8 to Str. 16/9 82.6 m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Fibre | 11/29/1 | 14:00 | -5 | 0.85 | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 17/1 to Str. 17/2 90.2 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Fibre | 11/29/1 | 14:00 | -5 | 3.01 | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

**Comments:**

Sag completed at 14:00 on November 29 2018

| | Name | Date | Signature |
|---|---|---|---|
| **QC Inspector** | Phil McKinley | Dec 2 2018 | Phil McKinley |
| **Client QC Inspector** | | | |

Forbes Bros LTD
POWERLINE CONSTRUCTION

# Stringing and Sag Data

| Project: Eagle Gold 69kv | Contr.#: | Line #: L251 | Voltage: 69 kv | Pull#: 4 | Str. 13/2 to Str. 14/12 |
|---|---|---|---|---|---|

## Conductor

Left Side (face higher numbered structure) Line # _____

| Phase | Temp (°C) | Time | Reel Number | |
|---|---|---|---|---|
| TOP | | | | |
| C | | | | |
| BOT | | | | |

String Tension: _____

Right Side (face higher numbered structure) Line # _____

| Phase | Temp (°C) | Time | Reel Number | |
|---|---|---|---|---|
| TOP | | | | |
| C | | | | |
| BOT | | | | |

String Tension: _____

**Conductor:** Type: ACSR Size: 266.8 Manufacturer:

## SAGGING:

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 13/4 to Str. 13/5 95.4 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | 11/29/1 | 11:00 | -5 | 1.52 | |
| Center | 11/29/1 | 11:00 | -5 | 1.52 | Left |
| Bottom | 11/29/1 | 11:00 | -5 | 1.52 | Right |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 13/10 to Str. 13/11 76.1 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | 11/29/1 | 11:00 | -5 | 0.97 | |
| Center | 11/29/1 | 11:00 | -5 | 0.97 | Left |
| Bottom | 11/29/1 | 11:00 | -5 | 0.97 | Right |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 14/6 to Str. 14/7 87.3 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | 11/29/18 | 11:00 | -5 | 1.28 | |
| Center | 11/29/18 | 11:00 | -5 | 1.28 | Left |
| Bottom | 11/29/18 | 11:00 | -5 | 1.28 | Right |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 14/10 to Str. 14/11 75.8 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | 11/29/1 | 11:00 | -5 | 0.91 | |
| Center | 11/29/1 | 11:00 | -5 | 0.91 | Left |
| Bottom | 11/29/1 | 11:00 | -5 | 0.91 | Right |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | | | | | |
| Center | | | | | |
| Bottom | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | | | | | |
| Center | | | | | |
| Bottom | | | | | |

Forbes Bros LTD
POWERLINE CONSTRUCTION

# Stringing and Sag Data

## Overhead: OHSW

**Left Side (face higher numbered structure)** Line # _____

| Date | Temp (°C) | Time | Structure Span | Type | Reel# |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |

**Right Side (face higher numbered structure)** Line # _____

| Date | Temp (°C) | Time | Structure Span | Type | Reel# |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |

## SAGGING:

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 13/4 to Str. 13/5 95.4 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Fibre | 11/29/1 | 11:00 | -5 | 1.13 | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 13/10 to Str. 13/11 76.1 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Fibre | 11/29/1 | 11:00 | -5 | 0.72 | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 14/6 to Str. 14/7 87.3 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Fibre | 11/29/1 | 11:00 | -5 | 0.95 | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 14/10 to Str. 14/11 73.8 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Fibre | 11/29/1 | 11:00 | -5 | 0.68 | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

**Comments:**
Sag completed at 11:00 on November 29 2018

| | Name | Date | Signature |
|---|---|---|---|
| QC Inspector | Phil McKinley | Dec 2 2018 | Phil McKinley |
| Client QC Inspector | | | |

Forbes Bros LTD
POWERLINE CONSTRUCTION

# Stringing and Sag Data

| Project: Eagle Gold 69kv | Contr.#: | Line #: L251 | Voltage: 69 kv | Pull#: 3 | Str. 11/4 | to Str. 13/2 |
|---|---|---|---|---|---|---|

## Conductor

Left Side (face higher numbered structure) Line # _____

| Phase | Temp (°C) | Time | Reel Number | |
|---|---|---|---|---|
| TOP | | | | |
| C | | | | |
| BOT | | | | |

String Tension: _____

Right Side (face higher numbered structure) Line # _____

| Phase | Temp (°C) | Time | Reel Number | |
|---|---|---|---|---|
| TOP | | | | |
| C | | | | |
| BOT | | | | |

String Tension: _____

**Conductor:** Type: ACSR Size: 266.8 Manufacturer:

## SAGGING:

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 11/6 to Str. 11/7 89.2 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | 11/24/1 | 12:30 | -8 | 1.382 | |
| Center | 11/24/1 | 12:30 | -8 | 1.382 | Left |
| Bottom | 11/24/1 | 12:30 | -8 | 1.382 | Right |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 11/9 to Str. 11/10 91.5 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | 11/24/1 | 12:30 | -8 | 1.456 | |
| Center | 11/24/1 | 12:30 | -8 | 1.456 | Left |
| Bottom | 11/24/1 | 12:30 | -8 | 1.456 | Right |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 12/8 to Str. 12/9 55.4 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | 11/24/18 | 12:30 | -8 | 0.532 | |
| Center | 11/24/18 | 12:30 | -8 | 0.532 | Left |
| Bottom | 11/24/18 | 12:30 | -8 | 0.532 | Right |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 12/12 to Str. 12/13 82.1 m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | 11/24/1 | 12:30 | -8 | 1.168 | |
| Center | 11/24/1 | 12:30 | -8 | 1.168 | Left |
| Bottom | 11/24/1 | 12:30 | -8 | 1.168 | Right |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | | | | | |
| Center | | | | | |
| Bottom | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | | | | | |
| Center | | | | | |
| Bottom | | | | | |

Forbes Bros LTD
POWERLINE CONSTRUCTION

# Stringing and Sag Data

## Overhead: OHSW

**Left Side (face higher numbered structure)** Line # _____

| Date | Temp (°C) | Time | Structure Span | Type | Reel# |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |

**Right Side (face higher numbered structure)** Line # _____

| Date | Temp (°C) | Time | Structure Span | Type | Reel# |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |

## SAGGING:

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 11/6 to Str. 11/7 89.2 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Fibre | 11/24/1 | 12:30 | -8 | 0.83 | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 11/9 to Str. 11/10 91.5 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Fibre | 11/24/1 | 12:30 | -8 | 0.874 | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 12/8 to Str. 12/9 55.4 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Fibre | 11/24/1 | 12:30 | -8 | 0.32 | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 12/12 to Str. 12/13 82.1 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Fibre | 11/24/1 | 12:30 | -8 | 0.704 | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

**Comments:**
Sag completed at 12:30 on November 24 2018

| | Name | Date | Signature |
|---|---|---|---|
| QC Inspector | Phil McKinley | Nov 30 2018 | Phil McKinley |
| Client QC Inspector | | | |

Forbes Bros.
Powerline Construction

# Stringing and Sag Data

| Project: Eagle Gold 69kv | Contr.#: | Line #: L251 Fiber | Voltage: 69 kv | Pull#: | Str. 38/6 to Str. 39/4 |
|---|---|---|---|---|---|

## Conductor

Left Side (face higher numbered structure) Line #

| Phase | Temp (°C) | Time | Reel Number | |
|---|---|---|---|---|
| TOP | | | | |
| | | | | |
| C | | | | |
| | | | | |
| BOT | | | | |
| | | | | |

String Tension:

Right Side (face higher numbered structure) Line #

| Phase | Temp (°C) | Time | Reel Number | |
|---|---|---|---|---|
| TOP | | | | |
| | | | | |
| C | | | | |
| | | | | |
| BOT | | | | |
| | | | | |

String Tension:

**Conductor:** Type: ACSR Size: 266.8 Manufacturer:

## SAGGING

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | | | | | |
| Center | | | | | |
| Bottom | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | | | | | |
| Center | | | | | |
| Bottom | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | | | | | |
| Center | | | | | |
| Bottom | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | | | | | |
| Center | | | | | |
| Bottom | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | | | | | |
| Center | | | | | |
| Bottom | | | | | |

Forbes Bros
Powerline Construction

# Stringing and Sag Data

## Overhead: OHSW

Left Side (face higher numbered structure) Line # _____

| Date | Temp (°C) | Time | Structure Span | Type | Reel# |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |

Right Side (face higher numbered structure) Line # _____

| Date | Temp (°C) | Time | Structure Span | Type | Reel# |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |

## SAGGING

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 38/8 to Str. 38/9 83.3 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Fiber | 01/17/1 | 12:20 | -7 | 0.60 | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 38/12 to Str. 38/13 72.2 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Fiber | 01/17/1 | 12:20 | -7 | 0.45 | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 39/2 to Str. 39/3 82.3 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Fiber | 01/17/1 | 12:20 | -7 | 0.59 | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

**Comments:**
Sag completed at 12:20 on January 17 2019

| | Name | Date | Signature |
|---|---|---|---|
| QC Inspector | Phil McKinley | Jan 18 2019 | Phil McKinley |
| Client QC Inspector | | | |

Forbes Bros
POWER USE CONSTRUCTION

# Stringing and Sag Data

| Project: Eagle Gold 69kv | Contr.#: | Line #: L251 | Voltage: 69 kv | Pull#: 10 | Str. 37/9 to Str. 38/6 |
|---|---|---|---|---|---|

## Conductor

Left Side (face higher numbered structure) Line #

| Phase | Temp (°C) | Time | Reel Number | |
|---|---|---|---|---|
| TOP | | | | |
| C | | | | |
| BOT | | | | |

String Tension:

Right Side (face higher numbered structure) Line #

| Phase | Temp (°C) | Time | Reel Number | |
|---|---|---|---|---|
| TOP | | | | |
| C | | | | |
| BOT | | | | |

String Tension:

**Conductor:** Type: ACSR Size: 266.8 Manufacturer:

## SAGGING:

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 37/11 to Str. 37/12 68.5 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | 01/15/1 | 15:30 | -9 | 0.754 | A |
| Center | 01/15/1 | 15:30 | -9 | 0.754 | B |
| Bottom | 01/15/1 | 15:30 | -9 | 0.754 | C |

Span Length Str. _____ to Str. 38/4 _____ m
Sagging Span: Str. 38/3 to Str. _____ _____ m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | 01/15/1 | 15:30 | -9 | 0.622 | A |
| Center | 01/15/1 | 15:30 | -9 | 0.622 | B |
| Bottom | 01/15/1 | 15:30 | -9 | 0.622 | C |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | | | | | |
| Center | | | | | |
| Bottom | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | | | | | |
| Center | | | | | |
| Bottom | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | | | | | |
| Center | | | | | |
| Bottom | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | | | | | |
| Center | | | | | |
| Bottom | | | | | |

Forbes Bros Ltd.
Powerline Construction

# Stringing and Sag Data

## Overhead: OHSW

**Left Side (face higher numbered structure)** Line # _____

| Date | Temp (°C) | Time | Structure Span | Type | Reel# |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |

**Right Side (face higher numbered structure)** Line # _____

| Date | Temp (°C) | Time | Structure Span | Type | Reel# |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |

## SAGGING

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

**Comments:**

Sag completed at 15:30 on January 15 2019

| | Name | Date | Signature |
|---|---|---|---|
| QC Inspector | Phil McKinley | Jan 16 2019 | Phil McKinley |
| Client QC Inspector | | | |

Forbes Bros
POWERLINE CONSTRUCTION

# Stringing and Sag Data

| Project: Eagle Gold 69kv | Contr.#: | Line #: L251 Fiber | Voltage: 69 kv | Pull#: | Str. 37/9 to Str. 38/1 |
|---|---|---|---|---|---|

## Conductor

Left Side (face higher numbered structure) Line #

| Phase | Temp (°C) | Time | Reel Number | |
|---|---|---|---|---|
| TOP | | | | |
| C | | | | |
| BOT | | | | |

String Tension:

Right Side (face higher numbered structure) Line #

| Phase | Temp (°C) | Time | Reel Number | |
|---|---|---|---|---|
| TOP | | | | |
| C | | | | |
| BOT | | | | |

String Tension:

**Conductor:** Type: ACSR Size: 266.8 Manufacturer:

## SAGGING

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | | | | | |
| Center | | | | | |
| Bottom | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | | | | | |
| Center | | | | | |
| Bottom | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | | | | | |
| Center | | | | | |
| Bottom | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | | | | | |
| Center | | | | | |
| Bottom | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | | | | | |
| Center | | | | | |
| Bottom | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | | | | | |
| Center | | | | | |
| Bottom | | | | | |

Forbes Bros Ltd.
Powerline Construction

# Stringing and Sag Data

**Overhead:** OHSW

Left Side (face higher numbered structure) Line # _____

| Date | Temp (°C) | Time | Structure Span | Type | Reels |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |

Right Side (face higher numbered structure) Line # _____

| Date | Temp (°C) | Time | Structure Span | Type | Reels |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |

## SAGGING:

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 37/11 to Str. 37/12 68.5 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Fiber | 01/17/1 | 14:20 | -7 | 0.14 | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

**Comments:**
Sag completed at 14:20 on January 17 2019

| | Name | Date | Signature |
|---|---|---|---|
| QC Inspector | Phil McKinley | Jan 18 2019 | Phil McKinley |
| Client QC Inspector | | | |

Forbes Bros. Ltd.
Powerline Construction

# Stringing and Sag Data

| Project: Eagle Gold 69kv | Contr.#: | Line #: L251 Fiber | Voltage: 69 kv | Pull#: | Str. 38/1 to Str. 38/6 |
|---|---|---|---|---|---|

## Conductor

Left Side (face higher numbered structure) Line #

| Phase | Temp (°C) | Time | Reel Number | |
|---|---|---|---|---|
| TOP | | | | |
| C | | | | |
| BOT | | | | |

Right Side (face higher numbered structure) Line #

| Phase | Temp (°C) | Time | Reel Number | |
|---|---|---|---|---|
| TOP | | | | |
| C | | | | |
| BOT | | | | |

Sting Tension:

Sting Tension:

**Conductor:** Type: ACSR Size: 266.8 Manufacturer:

## SAGGING:

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | | | | | |
| Center | | | | | |
| Bottom | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | | | | | |
| Center | | | | | |
| Bottom | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | | | | | |
| Center | | | | | |
| Bottom | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | | | | | |
| Center | | | | | |
| Bottom | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | | | | | |
| Center | | | | | |
| Bottom | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | | | | | |
| Center | | | | | |
| Bottom | | | | | |

Forbes Bros. Ltd.
Powerline Construction

# Stringing and Sag Data

**Overhead:** OHSW

Left Side (face higher numbered structure) Line # _____

| Date | Temp (°C) | Time | Structure Span | Type | Reel# |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |

Right Side (face higher numbered structure) Line # _____

| Date | Temp (°C) | Time | Structure Span | Type | Reel# |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |

## SAGGING

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 38/3 to Str. 38/4 67.2 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Fiber | 01/17/1 | 13:15 | -7 | 0.20 | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

**Comments:**
Sag completed at 13:15 on January 17 2019

| | Name | Date | Signature |
|---|---|---|---|
| QC Inspector | Phil McKinley | Jan 18 2019 | Phil McKinley |
| Client QC Inspector | | | |

Forbes Bros.
POWERLINE CONSTRUCTION

# Stringing and Sag Data

| Project: Eagle Gold 69kv | Contr.#: | Line #: L251 | Voltage: 69 kv | Pull#: 9 | Str. 35/3 | to Str. 37/9 |
|---|---|---|---|---|---|---|

## Conductor

Left Side (face higher numbered structure) Line #

| Phase | Temp (°C) | Time | Reel Number | |
|---|---|---|---|---|
| TOP | | | | |
| C | | | | |
| BOT | | | | |

String Tension:

Right Side (face higher numbered structure) Line #

| Phase | Temp (°C) | Time | Reel Number | |
|---|---|---|---|---|
| TOP | | | | |
| C | | | | |
| BOT | | | | |

String Tension:

**Conductor:** Type: ACSR Size: 266.8 Manufacturer:

## SAGGING:

Span Length Str. ____ to Str. ____ ____ m
Sagging Span: Str. 35/5 to Str. 35/6 84.2 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | 01/14/1 | 12:40 | -18 | 1.008 | A |
| Center | 01/14/1 | 12:40 | -18 | 1.008 | B |
| Bottom | 01/14/1 | 12:40 | -18 | 1.008 | C |

Span Length Str. ____ to Str. ____ ____ m
Sagging Span: Str. 35/11 to Str. 35/12 75.8 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | 01/14/1 | 12:40 | -18 | 0.904 | A |
| Center | 01/14/1 | 12:40 | -18 | 0.904 | B |
| Bottom | 01/14/1 | 12:40 | -18 | 0.904 | C |

Span Length Str. ____ to Str. ____ ____ m
Sagging Span: Str. 36/7 to Str. 36/9 149.9 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | 01/14/19 | 12:40 | -18 | 3.194 | A |
| Center | 01/14/19 | 12:40 | -18 | 3.194 | B |
| Bottom | 01/14/19 | 12:40 | -18 | 3.194 | C |

Span Length Str. ____ to Str. ____ ____ m
Sagging Span: Str. 37/1 to Str. 37/2 76.5 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | 01/14/1 | 12:40 | -18 | 0.83 | A |
| Center | 01/14/1 | 12:40 | -18 | 0.83 | B |
| Bottom | 01/14/1 | 12:40 | -18 | 0.83 | C |

Span Length Str. ____ to Str. ____ ____ m
Sagging Span: Str. 37/6 to Str. 37/7 93.2 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | 01/14/1 | 12:40 | -18 | 1.232 | A |
| Center | 01/14/1 | 12:40 | -18 | 1.232 | B |
| Bottom | 01/14/1 | 12:40 | -18 | 1.232 | C |

Span Length Str. ____ to Str. ____ ____ m
Sagging Span: Str. ____ to Str. ____ ____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | | | | | |
| Center | | | | | |
| Bottom | | | | | |

Forbes Bros. Ltd.
Powerline Construction

# Stringing and Sag Data

**Overhead: OHSW**

Left Side (face higher numbered structure) Line # _____

| Date | Temp (°C) | Time | Structure Span | Type | Reel# |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |

Right Side (face higher numbered structure) Line # _____

| Date | Temp (°C) | Time | Structure Span | Type | Reel# |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |

**SAGGING:**

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

**Comments:**

Sag completed January 14 2019 at 12:40

| | Name | | Date | Signature |
|---|---|---|---|---|
| **QC Inspector** | Phil McKinley | | Jan 14 2019 | Phil McKinley |
| **Client QC Inspector** | | | | |

Forbes Bros
POWERLINE CONSTRUCTION

# Stringing and Sag Data

| Project: Eagle Gold 69kv | Contr.#: | Line #: L251 | Voltage: 69 kv | Pull#: 9 | Str. 33/8 to Str. 35/3 |
|---|---|---|---|---|---|

## Conductor

Left Side (face higher numbered structure) Line #

| Phase | Temp (°C) | Time | Reel Number | |
|---|---|---|---|---|
| TOP | | | | |
| C | | | | |
| BOT | | | | |

String Tension:

Right Side (face higher numbered structure) Line #

| Phase | Temp (°C) | Time | Reel Number | |
|---|---|---|---|---|
| TOP | | | | |
| C | | | | |
| BOT | | | | |

String Tension:

**Conductor:** Type: ACSR Size: 266.8 Manufacturer:

## SAGGING:

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 33/10 to Str. 33/11 92 m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | 01/12/1 | 15:15 | -25 | 1.14 | A |
| Center | 01/12/1 | 15:15 | -25 | 1.14 | B |
| Bottom | 01/12/1 | 15:15 | -25 | 1.14 | C |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 34/4 to Str. 34/5 91.5 m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | 01/12/1 | 15:15 | -25 | 1.13 | A |
| Center | 01/12/1 | 15:15 | -25 | 1.13 | B |
| Bottom | 01/12/1 | 15:15 | -25 | 1.13 | C |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 34/11 to Str. 34/12 91.4 m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | 01/12/19 | 15:15 | -25 | 1.13 | A |
| Center | 01/12/19 | 15:15 | -25 | 1.13 | B |
| Bottom | 01/12/19 | 15:15 | -25 | 1.13 | C |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | | | | | |
| Center | | | | | |
| Bottom | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | | | | | |
| Center | | | | | |
| Bottom | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | | | | | |
| Center | | | | | |
| Bottom | | | | | |

Forbes Bros. Ltd.
Powerline Construction

# Stringing and Sag Data

**Overhead:** OHSW

Left Side (face higher numbered structure) Line # _____

| Date | Temp (°C) | Time | Structure Span | Type | Reel# |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |

Right Side (face higher numbered structure) Line # _____

| Date | Temp (°C) | Time | Structure Span | Type | Reel# |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |

## SAGGING:

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

**Comments:**

Sag completed at 15:15 on January 12 2019

| | Name | Date | Signature |
|---|---|---|---|
| QC Inspector | Phil McKinley | January 12 2019 | Phil McKinley |
| Client QC Inspector | | | |

Forbes Bros Ltd
Powerline Construction

# Stringing and Sag Data

| Project: Eagle Gold 69kv | Contr.#: | Line #: L251 Fibre | Voltage: 69 kv | Pull#: 6 | Str. 32/8 | to Str. 34/5 |
|---|---|---|---|---|---|---|

## Conductor

Left Side (face higher numbered structure) Line #

| Phase | Temp (°C) | Time | Reel Number | |
|---|---|---|---|---|
| TOP | | | | |
| C | | | | |
| BOT | | | | |

Right Side (face higher numbered structure) Line #

| Phase | Temp (°C) | Time | Reel Number | |
|---|---|---|---|---|
| TOP | | | | |
| C | | | | |
| BOT | | | | |

String Tension:

String Tension:

**Conductor:** Type: ACSR Size: 266.8

Manufacturer:

## SAGGING:

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | | | | | |
| Center | | | | | |
| Bottom | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | | | | | |
| Center | | | | | |
| Bottom | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | | | | | |
| Center | | | | | |
| Bottom | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | | | | | |
| Center | | | | | |
| Bottom | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | | | | | |
| Center | | | | | |
| Bottom | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | | | | | |
| Center | | | | | |
| Bottom | | | | | |

Forbes Bros
Powerline Construction

# Stringing and Sag Data

**Overhead:** OHSW

Left Side (face higher numbered structure) Line # L 251 Fibre

| Date | Temp (°C) | Time | Structure Span | Type | Reel# |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |

Right Side (face higher numbered structure) Line # _____

| Date | Temp (°C) | Time | Structure Span | Type | Reel# |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |

## SAGGING:

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 32/11 to Str. 32/12 86.7 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Fibre | 01/07/1 | 12:20 | -25 | 0.72 | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 33/6 to Str. 33/7 91.4 m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Fibre | 01/07/1 | 12:20 | -25 | 0.80 | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 33/10 to Str. 33/11 92 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Fibre | 01/07/1 | 12:20 | -25 | 0.80 | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 34/3 to Str. 34/4 89.9 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Fibre | 01/07/1 | 12:20 | -25 | 0.77 | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

**Comments:**
Sag completed at 12:20 on January 7 2019

| | Name | Date | Signature |
|---|---|---|---|
| **QC Inspector** | Phil McKinley | Jan 8 2019 | Phil McKinley |
| **Client QC Inspector** | | | |

Forbes Bros Ltd.
POWERLINE CONSTRUCTION

# Stringing and Sag Data

| Project: Eagle Gold 69kv | Contr.#: | Line #: L251 | Voltage: 69 kv | Pull#: 9 | Str. 32/8 to Str. 33/8 |
|---|---|---|---|---|---|

## Conductor

Left Side (face higher numbered structure) Line #

| Phase | Temp (°C) | Time | Reel Number | |
|---|---|---|---|---|
| TOP | | | | |
| C | | | | |
| BOT | | | | |

Right Side (face higher numbered structure) Line #

| Phase | Temp (°C) | Time | Reel Number | |
|---|---|---|---|---|
| TOP | | | | |
| C | | | | |
| BOT | | | | |

String Tension:

**Conductor:** Type: ACSR Size: 266.8

String Tension:

Manufacturer:

## SAGGING:

Span Length Str. ____ to Str. ____ ____ m
Sagging Span: Str. 32/11 to Str. 32/12 86.7 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | 01/12/1 | 14:30 | -25 | 1.02 | A |
| Center | 01/12/1 | 14:30 | -25 | 1.02 | B |
| Bottom | 01/12/1 | 14:30 | -25 | 1.02 | C |

Span Length Str. ____ to Str. ____ ____ m
Sagging Span: Str. 33/1 to Str. 33/2 85.3 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | 01/12/1 | 14:30 | -25 | 0.94 | A |
| Center | 01/12/1 | 14:30 | -25 | 0.94 | B |
| Bottom | 01/12/1 | 14:30 | -25 | 0.94 | C |

Span Length Str. ____ to Str. ____ ____ m
Sagging Span: Str. 33/6 to Str. 33/7 91.4 m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | 01/12/19 | 14:30 | -25 | 1.13 | A |
| Center | 01/12/19 | 14:30 | -25 | 1.13 | B |
| Bottom | 01/12/19 | 14:30 | -25 | 1.13 | C |

Span Length Str. ____ to Str. ____ ____ m
Sagging Span: Str. ____ to Str. ____ ____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | | | | | |
| Center | | | | | |
| Bottom | | | | | |

Span Length Str. ____ to Str. ____ ____ m
Sagging Span: Str. ____ to Str. ____ ____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | | | | | |
| Center | | | | | |
| Bottom | | | | | |

Span Length Str. ____ to Str. ____ ____ m
Sagging Span: Str. ____ to Str. ____ ____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | | | | | |
| Center | | | | | |
| Bottom | | | | | |

Forbes Bros. Ltd.
Powerline Construction

# Stringing and Sag Data

**Overhead: OHSW**

Left Side (face higher numbered structure) Line # _____

| Date | Temp (°C) | Time | Structure Span | Type | Reel# |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |

Right Side (face higher numbered structure) Line # _____

| Date | Temp (°C) | Time | Structure Span | Type | Reel# |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |

**SAGGING:**

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

**Comments:**

Sag completed at 14:30 on January 12 2019

| | Name | Date | Signature |
|---|---|---|---|
| **QC Inspector** | Phil McKinley | Jan 12 2019 | Phil McKinley |
| **Client QC Inspector** | | | |

Forbes Bros Ltd
Powerline Construction

# Stringing and Sag Data

| Project: Eagle Gold 69kv | Contr.#: | Line #: L251 Fibre | Voltage: 69 kv | Pull#: | Str. 32/8 | to Str. 34/5 |
|---|---|---|---|---|---|---|

## Conductor

Left Side (face higher numbered structure) Line #

| Phase | Temp (°C) | Time | Reel Number | |
|---|---|---|---|---|
| TOP | | | | |
| C | | | | |
| BOT | | | | |

String Tension:

**Conductor:** Type: ACSR Size: 266.8

Right Side (face higher numbered structure) Line #

| Phase | Temp (°C) | Time | Reel Number | |
|---|---|---|---|---|
| TOP | | | | |
| C | | | | |
| BOT | | | | |

String Tension:

Manufacturer:

## SAGGING:

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | | | | | |
| Center | | | | | |
| Bottom | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | | | | | |
| Center | | | | | |
| Bottom | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | | | | | |
| Center | | | | | |
| Bottom | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | | | | | |
| Center | | | | | |
| Bottom | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | | | | | |
| Center | | | | | |
| Bottom | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | | | | | |
| Center | | | | | |
| Bottom | | | | | |

Forbes Bros
Powerline Construction

# Stringing and Sag Data

**Overhead:** OHSW

Left Side (face higher numbered structure) Line # L 251 Fibre

| Date | Temp (°C) | Time | Structure Span | Type | Reel# |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |

Right Side (face higher numbered structure) Line # _____

| Date | Temp (°C) | Time | Structure Span | Type | Reel# |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |

## SAGGING:

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 32/11 to Str. 32/12 86.7 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Fibre | 01/07/1 | 12:20 | -25 | 0.72 | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 33/6 to Str. 33/7 91.4 m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Fibre | 01/07/1 | 12:20 | -25 | 0.80 | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 33/10 to Str. 33/11 92 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Fibre | 01/07/1 | 12:20 | -25 | 0.80 | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 34/3 to Str. 34/4 89.9 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Fibre | 01/07/1 | 12:20 | -25 | 0.77 | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

**Comments:**
Sag completed at 12:20 on January 7 2019

| | Name | Date | Signature |
|---|---|---|---|
| **QC Inspector** | Phil McKinley | Jan 8 2019 | Phil McKinley |
| **Client QC Inspector** | | | |

Forbes Bros LTD
POWERLINE CONSTRUCTION

# Stringing and Sag Data

| Project: Eagle Gold 69kv | Contr.#: | Line #: L251 | Voltage: 69 kv | Pull#: 8 | Str. 31/11 to Str. 32/8 |
|---|---|---|---|---|---|

## Conductor

Left Side (face higher numbered structure) Line #

| Phase | Temp (°C) | Time | Reel Number | |
|---|---|---|---|---|
| TOP | | | | |
| C | | | | |
| BOT | | | | |

String Tension:

Right Side (face higher numbered structure) Line #

| Phase | Temp (°C) | Time | Reel Number | |
|---|---|---|---|---|
| TOP | | | | |
| C | | | | |
| BOT | | | | |

String Tension:

**Conductor:** Type: ACSR Size: 266.8 Manufacturer:

## SAGGING:

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 32/2 to Str. 32/3 78.1 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | 12/15/1 | 15:30 | -35 | 0.63 | A |
| Center | 12/15/1 | 15:30 | -35 | 0.63 | B |
| Bottom | 12/15/1 | 15:30 | -35 | 0.63 | C |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 32/3 to Str. 32/4 62.6 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | 12/15/1 | 15:30 | -35 | 0.71 | A |
| Center | 12/15/1 | 15:30 | -35 | 0.71 | B |
| Bottom | 12/15/1 | 15:30 | -35 | 0.71 | C |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 32/5 to Str. 32/6 83.3 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | 12/15/18 | 15:30 | -35 | 0.72 | A |
| Center | 12/15/18 | 15:30 | -35 | 0.72 | B |
| Bottom | 12/15/18 | 15:30 | -35 | 0.72 | C |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | | | | | |
| Center | | | | | |
| Bottom | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | | | | | |
| Center | | | | | |
| Bottom | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | | | | | |
| Center | | | | | |
| Bottom | | | | | |

Forbes Bros LTD
POWERLINE CONSTRUCTION

# Stringing and Sag Data

## Overhead: OHSW

**Left Side (face higher numbered structure)** Line # _____

| Date | Temp (°C) | Time | Structure Span | Type | Reel# |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |

**Right Side (face higher numbered structure)** Line # _____

| Date | Temp (°C) | Time | Structure Span | Type | Reel# |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |

## SAGGING:

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

**Comments:**

Sag completed at 15:30 on Dec 15 2018

| | Name | Date | Signature |
|---|---|---|---|
| QC Inspector | Phil McKinley | Dec 18 2018 | Phil McKinley |
| Client QC Inspector | | | |

Forbes Bros Ltd
POWERLINE CONSTRUCTION

# Stringing and Sag Data

| Project: Eagle Gold 69kv | Contr.#: | Line #: L251 | Voltage: 69 kv | Pull#: 8 | Str. 31/6 | to Str. 31/11 |
|---|---|---|---|---|---|---|

## Conductor

Left Side (face higher numbered structure) Line # _____

| Phase | Temp (°C) | Time | Reel Number | |
|---|---|---|---|---|
| TOP | | | | |
| C | | | | |
| BOT | | | | |

String Tension: _____

Right Side (face higher numbered structure) Line # _____

| Phase | Temp (°C) | Time | Reel Number | |
|---|---|---|---|---|
| TOP | | | | |
| C | | | | |
| BOT | | | | |

String Tension: _____

**Conductor:** Type: ACSR Size: 266.8 Manufacturer:

## SAGGING:

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 31/7 to Str. 31/7A 87.1 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | 12/15/1 | 14:20 | -35 | 0.68 | A |
| Center | 12/15/1 | 14:20 | -35 | 0.68 | B |
| Bottom | 12/15/1 | 14:20 | -35 | 0.68 | C |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 31/8 to Str. 31/10 155.9 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | 12/15/1 | 14:20 | -35 | 1.6 | A |
| Center | 12/15/1 | 14:20 | -35 | 1.6 | B |
| Bottom | 12/15/1 | 14:20 | -35 | 1.6 | C |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | | | | | |
| Center | | | | | |
| Bottom | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | | | | | |
| Center | | | | | |
| Bottom | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | | | | | |
| Center | | | | | |
| Bottom | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | | | | | |
| Center | | | | | |
| Bottom | | | | | |

Forbes Bros LTD
POWERLINE CONSTRUCTION

# Stringing and Sag Data

## Overhead: OHSW

**Left Side (face higher numbered structure)** Line # _____

| Date | Temp (°C) | Time | Structure Span | Type | Reel# |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |

**Right Side (face higher numbered structure)** Line # _____

| Date | Temp (°C) | Time | Structure Span | Type | Reel# |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |

### SAGGING:

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

**Comments:**

| | Name | Date | Signature |
|---|---|---|---|
| QC Inspector | Phil McKinley | Dec 18 2018 | Phil McKinley |
| Client QC Inspector | | | |

Forbes Bros LTD
POWERLINE CONSTRUCTION

# Stringing and Sag Data

| Project: Eagle Gold 69kv | Contr.#: | Line #: L251 | Voltage: 69 kv | Pull#: 8 | Str. 30/5 | to Str. 31/6 |
|---|---|---|---|---|---|---|

## Conductor

Left Side (face higher numbered structure) Line # _____

| Phase | Temp (°C) | Time | Reel Number | |
|---|---|---|---|---|
| TOP | | | | |
| C | | | | |
| BOT | | | | |

String Tension: _____

Right Side (face higher numbered structure) Line # _____

| Phase | Temp (°C) | Time | Reel Number | |
|---|---|---|---|---|
| TOP | | | | |
| C | | | | |
| BOT | | | | |

String Tension: _____

**Conductor:** Type: ACSR Size: 266.8 Manufacturer:

## SAGGING:

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 30/6 to Str. 30/7 92.1 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | 12/15/1 | 13:40 | -35 | 0.89 | A |
| Center | 12/15/1 | 13:40 | -35 | 0.89 | B |
| Bottom | 12/15/1 | 13:40 | -35 | 0.89 | C |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 30/11 to Str. 30/12 91.8 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | 12/15/1 | 13:40 | -35 | 0.88 | A |
| Center | 12/15/1 | 13:40 | -35 | 0.88 | B |
| Bottom | 12/15/1 | 13:40 | -35 | 0.88 | C |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 31/3 to Str. 31/4 94.2 m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | 12/15/18 | 13:40 | -35 | 0.93 | A |
| Center | 12/15/18 | 13:40 | -35 | 0.93 | B |
| Bottom | 12/15/18 | 13:40 | -35 | 0.93 | C |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | | | | | |
| Center | | | | | |
| Bottom | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | | | | | |
| Center | | | | | |
| Bottom | | | | | |

Forbes Bros LTD
POWERLINE CONSTRUCTION

# Stringing and Sag Data

## Overhead: OHSW

**Left Side (face higher numbered structure)** Line # _____

| Date | Temp (°C) | Time | Structure Span | Type | Reel# |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |

**Right Side (face higher numbered structure)** Line # _____

| Date | Temp (°C) | Time | Structure Span | Type | Reel# |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |

## SAGGING:

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

**Comments:**

Sag completed at 13:40 on Dec 15 2018

| | Name | Date | Signature |
|---|---|---|---|
| QC Inspector | Phil McKinley | Dec 18 2018 | Phil McKinley |
| Client QC Inspector | | | |

Forbes Bros LTD
POWERLINE CONSTRUCTION

# Stringing and Sag Data

| Project: Eagle Gold 69kv | Contr.#: | Line #: L251 | Voltage: 69 kv | Pull#: 8 | Str. 28/13 to Str. 30/5 |
|---|---|---|---|---|---|

## Conductor

Left Side (face higher numbered structure) Line # _____

| Phase | Temp (°C) | Time | Reel Number | |
|---|---|---|---|---|
| TOP | | | | |
| C | | | | |
| BOT | | | | |

String Tension: _____

Right Side (face higher numbered structure) Line # _____

| Phase | Temp (°C) | Time | Reel Number | |
|---|---|---|---|---|
| TOP | | | | |
| C | | | | |
| BOT | | | | |

String Tension: _____

**Conductor:** Type: ACSR Size: 266.8 Manufacturer:

## SAGGING:

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 29/2 to Str. 29/3 77.2 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | 12/12/1 | 10:45 | -16 | 0.788 | A |
| Center | 12/12/1 | 10:45 | -16 | 0.788 | B |
| Bottom | 12/12/1 | 10:45 | -16 | 0.788 | C |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 29/8 to Str. 29/9 66.9 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | 12/12/1 | 10:45 | -16 | 1.014 | A |
| Center | 12/12/1 | 10:45 | -16 | 1.014 | B |
| Bottom | 12/12/1 | 10:45 | -16 | 1.014 | C |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 29/11 to Str. 29/12 92.8 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | 12/12/18 | 10:45 | -16 | 1.144 | A |
| Center | 12/12/18 | 10:45 | -16 | 1.144 | B |
| Bottom | 12/12/18 | 10:45 | -16 | 1.144 | C |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 30/3 to Str. 30/4 75.2 m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | 12/12/1 | 10:45 | -16 | 0.758 | A |
| Center | 12/12/1 | 10:45 | -16 | 0.758 | B |
| Bottom | 12/12/1 | 10:45 | -16 | 0.758 | C |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | | | | | |
| Center | | | | | |
| Bottom | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | | | | | |
| Center | | | | | |
| Bottom | | | | | |

Forbes Bros LTD
POWERLINE CONSTRUCTION

# Stringing and Sag Data

## Overhead: OHSW

**Left Side (face higher numbered structure)** Line # _____

| Date | Temp (°C) | Time | Structure Span | Type | Reel# |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |

**Right Side (face higher numbered structure)** Line # _____

| Date | Temp (°C) | Time | Structure Span | Type | Reel# |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |

## SAGGING:

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

**Comments:**

Sag completed on Dec 12 2018 at 10:45

| | Name | Date | Signature |
|---|---|---|---|
| **QC Inspector** | Phil McKinley | Dec 16 2018 | Phil McKinley |
| **Client QC Inspector** | | | |

Forbes Bros LTD
POWERLINE CONSTRUCTION

# Stringing and Sag Data

| Project: Eagle Gold 69kv | Contr.#: | Line #: L251 | Voltage: 69 kv | Pull#: 7 | Str. 28/7 | to Str. 28/13 |
|---|---|---|---|---|---|---|

## Conductor

Left Side (face higher numbered structure) Line # _____

| Phase | Temp (°C) | Time | Reel Number | |
|---|---|---|---|---|
| TOP | | | | |
| C | | | | |
| BOT | | | | |

String Tension: _____

Right Side (face higher numbered structure) Line # _____

| Phase | Temp (°C) | Time | Reel Number | |
|---|---|---|---|---|
| TOP | | | | |
| C | | | | |
| BOT | | | | |

String Tension: _____

**Conductor:** Type: ACSR Size: 266.8 Manufacturer:

## SAGGING:

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 28/9 to Str. 28/10 78.8 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | 12/09/1 | 13:35 | -3 | 1.008 | A |
| Center | 12/09/1 | 13:35 | -3 | 1.008 | B |
| Bottom | 12/09/1 | 13:35 | -3 | 1.008 | C |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 28/10 to Str. 28/11 66.3 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | 12/09/1 | 13:35 | -3 | 1.212 | A |
| Center | 12/09/1 | 13:35 | -3 | 1.212 | B |
| Bottom | 12/09/1 | 13:35 | -3 | 1.212 | C |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | | | | | |
| Center | | | | | |
| Bottom | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | | | | | |
| Center | | | | | |
| Bottom | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | | | | | |
| Center | | | | | |
| Bottom | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | | | | | |
| Center | | | | | |
| Bottom | | | | | |

Forbes Bros LTD
POWERLINE CONSTRUCTION

# Stringing and Sag Data

## Overhead: OHSW

Left Side (face higher numberod structure) Line # _____

| Date | Temp (°C) | Time | Structure Span | Type | Reel# |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |

Right Side (face higher numbered structure) Line # _____

| Date | Temp (°C) | Time | Structure Span | Type | Reel# |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |

## SAGGING:

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 28/8 to Str. 28/9 92 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Fibre | 12/09/1 | 13:35 | -3 | 0.814 | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

**Comments:**
Sag completed Dec 9 2018 at 13:35

| | Name | Date | Signature |
|---|---|---|---|
| QC Inspector | Phil McKinley | Dec 12 2018 | Phil McKinley |
| Client QC Inspector | | | |

Forbes Bros LTD
POWERLINE CONSTRUCTION

# Stringing and Sag Data

| Project: Eagle Gold 69kv | Contr.#: | Line #: L251 | Voltage: 69 kv | Pull#: 7 | Str. 28/2 to Str. 28/7 |
|---|---|---|---|---|---|

## Conductor

Left Side (face higher numbered structure) Line # _____

| Phase | Temp (°C) | Time | Reel Number | |
|---|---|---|---|---|
| TOP | | | | |
| C | | | | |
| BOT | | | | |

Right Side (face higher numbered structure) Line # _____

| Phase | Temp (°C) | Time | Reel Number | |
|---|---|---|---|---|
| TOP | | | | |
| C | | | | |
| BOT | | | | |

String Tension: _____

String Tension: _____

**Conductor:** Type: ACSR Size: 266.8 Manufacturer:

## SAGGING:

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 28/4 to Str. 28/5 73.7 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | 12/09/1 | 12:15 | -3 | 0.848 | A |
| Center | 12/09/1 | 12:15 | -3 | 0.848 | B |
| Bottom | 12/09/1 | 12:15 | -3 | 0.848 | C |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 28/5 to Str. 28/6 82.1 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | 12/09/1 | 12:15 | -3 | 1.042 | A |
| Center | 12/09/1 | 12:15 | -3 | 1.042 | B |
| Bottom | 12/09/1 | 12:15 | -3 | 1.042 | C |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | | | | | |
| Center | | | | | |
| Bottom | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | | | | | |
| Center | | | | | |
| Bottom | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | | | | | |
| Center | | | | | |
| Bottom | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | | | | | |
| Center | | | | | |
| Bottom | | | | | |

Forbes Bros LTD
POWERLINE CONSTRUCTION

# Stringing and Sag Data

## Overhead: OHSW

**Left Side (face higher numbered structure)** Line # L251

| Date | Temp (°C) | Time | Structure Span | Type | Reel# |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |

**Right Side (face higher numbered structure)** Line # _____

| Date | Temp (°C) | Time | Structure Span | Type | Reel# |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |

## SAGGING:

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 28/4 to Str. 28/5 73.7 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Fibre | 12/09/1 | 12:15 | -3 | 0.432 | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

Span Length Str. 28/5 to Str. 28/6 82.1 m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Fibre | 12/09/1 | 12:15 | -3 | 0.54 | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

**Comments:**

Sag completed on Dec 9 2018 at 12:15

| | Name | Date | Signature |
|---|---|---|---|
| QC Inspector | Phil McKinley | Dec 12 2018 | Phil McKinley |
| Client QC Inspector | | | |

Forbes Bros LTD
POWERLINE CONSTRUCTION

# Stringing and Sag Data

| Project: Eagle Gold 69kv | Contr.#: | Line #: L251 | Voltage: 69 kv | Pull#: 7 | Str. 27/1 to Str. 28/2 |
|---|---|---|---|---|---|

## Conductor

Left Side (face higher numbered structure) Line # _____

| Phase | Temp (°C) | Time | Reel Number | |
|---|---|---|---|---|
| TOP | | | | |
| C | | | | |
| BOT | | | | |

String Tension: _____

Right Side (face higher numbered structure) Line # _____

| Phase | Temp (°C) | Time | Reel Number | |
|---|---|---|---|---|
| TOP | | | | |
| C | | | | |
| BOT | | | | |

String Tension: _____

**Conductor:** Type: ACSR Size: 266.8 Manufacturer:

## SAGGING:

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 27/3 to Str. 27/4 92.5 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | 12/09/1 | 11:30 | -4 | 1.286 | A |
| Center | 12/09/1 | 11:30 | -4 | 1.286 | B |
| Bottom | 12/09/1 | 11:30 | -4 | 1.286 | C |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 27/7 to Str. 27/8 69.4 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | 12/09/1 | 11:30 | -4 | 1.196 | A |
| Center | 12/09/1 | 11:30 | -4 | 1.196 | B |
| Bottom | 12/09/1 | 11:30 | -4 | 1.196 | C |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 27/11 to Str. 27/12 78.7 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | 12/09/18 | 11:30 | -4 | 0.932 | A |
| Center | 12/09/18 | 11:30 | -4 | 0.932 | B |
| Bottom | 12/09/18 | 11:30 | -4 | 0.932 | C |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | | | | | |
| Center | | | | | |
| Bottom | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | | | | | |
| Center | | | | | |
| Bottom | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | | | | | |
| Center | | | | | |
| Bottom | | | | | |

Forbes Bros LTD
POWERLINE CONSTRUCTION

# Stringing and Sag Data

## Overhead: OHSW

Left Side (face higher numbered structure) Line # L251

| Date | Temp (°C) | Time | Structure Span | Type | Reel# |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |

Right Side (face higher numbered structure) Line # _____

| Date | Temp (°C) | Time | Structure Span | Type | Reel# |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |

## SAGGING:

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 27/3 to Str. 27/4 92.5 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Fibre | 12/09/1 | 11:30 | -4 | 0.862 | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 27/7 to Str. 27/8 89.4 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Fibre | 12/09/1 | 11:30 | -4 | 0.802 | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 27/11 to Str. 27/12 78.7 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Fibre | 12/09/1 | 11:30 | -4 | 0.622 | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

**Comments:**
Sag completed at 11:30 on Dec 9 2018

| | Name | Date | Signature |
|---|---|---|---|
| QC Inspector | Phil McKinley | Dec 12 2018 | Phil McKinley |
| Client QC Inspector | | | |

Forbes Bros LTD
POWERLINE CONSTRUCTION

# Stringing and Sag Data

| Project: Eagle Gold 69kv | Contr.#: | Line #: L251 | Voltage: 69 kv | Pull#: 7 | Str. 26/1 to Str. 27/1 |
|---|---|---|---|---|---|

## Conductor

Left Side (face higher numbered structure) Line # _____

| Phase | Temp (°C) | Time | Reel Number | |
|---|---|---|---|---|
| TOP | | | | |
| C | | | | |
| BOT | | | | |

String Tension: _____

Right Side (face higher numbered structure) Line # _____

| Phase | Temp (°C) | Time | Reel Number | |
|---|---|---|---|---|
| TOP | | | | |
| C | | | | |
| BOT | | | | |

String Tension: _____

**Conductor:** Type: ACSR Size: 266.8 Manufacturer:

## SAGGING:

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 26/2 to Str. 26/3 86.2 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | 12/09/1 | 10:30 | -4 | 1.174 | A |
| Center | 12/09/1 | 10:30 | -4 | 1.174 | B |
| Bottom | 12/09/1 | 10:30 | -4 | 1.174 | C |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 26/6 to Str. 26/7 90.2 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | 12/09/1 | 10:30 | -4 | 1.286 | A |
| Center | 12/09/1 | 10:30 | -4 | 1.286 | B |
| Bottom | 12/09/1 | 10:30 | -4 | 1.286 | C |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 26/9 to Str. 26/10 91.8 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | 12/09/18 | 10:30 | -4 | 1.336 | |
| Center | 12/09/18 | 10:30 | -4 | 1.336 | |
| Bottom | 12/09/18 | 10:30 | -4 | 1.336 | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | | | | | |
| Center | | | | | |
| Bottom | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | | | | | |
| Center | | | | | |
| Bottom | | | | | |

Forbes Bros LTD
POWERLINE CONSTRUCTION

# Stringing and Sag Data

## Overhead: OHSW

**Left Side (face higher numbered structure)** Line # L251

| Date | Temp (°C) | Time | Structure Span | Type | Reel# |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |

**Right Side (face higher numbered structure)** Line #

| Date | Temp (°C) | Time | Structure Span | Type | Reel# |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |

## SAGGING:

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 26/2 to Str. 26/3 86.2 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Fibre | 12/09/1 | 10:30 | -4 | 0.832 | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 26/6 to Str. 26/7 90.2 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Fibre | 12/09/1 | 10:30 | -4 | 0.912 | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 26/9 to Str. 26/10 91.8 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Fibre | 12/09/1 | 10:30 | -4 | 0.95 | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

**Comments:**
Sag Completed at 10:30 on Dec 9 2018

| | Name | Date | Signature |
|---|---|---|---|
| QC Inspector | Phil McKinley | Dec 12 2013 | Phil McKinley |
| Client QC Inspector | | | |

Forbes Bros LTD
POWERLINE CONSTRUCTION

# Stringing and Sag Data

| Project: Eagle Gold 69kv | Contr.#: | Line #: L251 | Voltage: 69 kv | Pull#: 6 | Str. 24/6 | to Str. 26/1 |
|---|---|---|---|---|---|---|

## Conductor

Left Side (face higher numbered structure) Line # _____

| Phase | Temp (°C) | Time | Reel Number | |
|---|---|---|---|---|
| TOP | | | | |
| C | | | | |
| BOT | | | | |

String Tension: _____

Right Side (face higher numbered structure) Line # _____

| Phase | Temp (°C) | Time | Reel Number | |
|---|---|---|---|---|
| TOP | | | | |
| C | | | | |
| BOT | | | | |

String Tension: _____

**Conductor:** Type: ACSR Size: 266.8 Manufacturer:

## SAGGING:

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 24/7 to Str. 24/8 83.5 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | 12/06/1 | 15:30 | -14 | 1.054 | |
| Center | 12/06/1 | 15:30 | -14 | 1.054 | Left |
| Bottom | 12/06/1 | 15:30 | -14 | 1.054 | Right |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 24/11 to Str. 25/1 oo m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | 12/06/1 | 15:30 | -14 | 1.76 | |
| Center | 12/06/1 | 15:30 | -14 | 1.76 | Left |
| Bottom | 12/06/1 | 15:30 | -14 | 1.76 | Right |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 25/3 to Str. 25/4 85.6 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | 12/06/18 | 15:30 | -14 | 1.136 | |
| Center | 12/06/18 | 15:30 | -14 | 1.136 | Left |
| Bottom | 12/06/18 | 15:30 | -14 | 1.136 | Right |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 25/9 to Str. 25/10 oo m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | 12/06/1 | 15:30 | -14 | 0.972 | |
| Center | 12/06/1 | 15:30 | -14 | 0.972 | Left |
| Bottom | 12/06/1 | 15:30 | -14 | 0.972 | Right |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | | | | | |
| Center | | | | | |
| Bottom | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | | | | | |
| Center | | | | | |
| Bottom | | | | | |

Forbes Bros Ltd
Powerline Construction

# Stringing and Sag Data

## Overhead: OHSW

Left Side (face higher numbered structure) Line # L251

| Date | Temp (°C) | Time | Structure Span | Type | Reel# |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |

Right Side (face higher numbered structure) Line # _____

| Date | Temp (°C) | Time | Structure Span | Type | Reel# |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |

### SAGGING:

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 24/7 to Str. 24/8 83.5 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Fibre | 12/06/1 | 15:30 | -14 | 1.27 | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 24/11 to Str. 25/1 88 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Fibre | 12/06/1 | 15:30 | -14 | 1.41 | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 25/3 to Str. 25/4 85.6 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Fibre | 12/06/1 | 15:30 | -14 | 1.33 | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 25/9 to Str. 25/10 80 m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Fibre | 12/06/1 | 15:30 | -14 | 1.162 | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

**Comments:**
Sag completed at 15:30 on December 6 2018

| | Name | Date | Signature |
|---|---|---|---|
| QC Inspector | Phil McKinley | Dec 8 2018 | Phil McKinley |
| Client QC Inspector | TREVOR ANTAC | Dec 9 | |

Forbes Bros LTD
POWERLINE CONSTRUCTION

# Stringing and Sag Data

| Project: Eagle Gold 69kv | Contr.#: | Line #: L251 | Voltage: 69 kv | Pull#: 6 | Str. 22/8 to Str. 24/6 |
|---|---|---|---|---|---|

## Conductor

Left Side (face higher numbered structure) Line # _____

| Phase | Temp (°C) | Time | Reel Number | |
|---|---|---|---|---|
| TOP | | | | |
| C | | | | |
| BOT | | | | |

String Tension: _____

Right Side (face higher numbered structure) Line # _____

| Phase | Temp (°C) | Time | Reel Number | |
|---|---|---|---|---|
| TOP | | | | |
| C | | | | |
| BOT | | | | |

String Tension: _____

**Conductor:** Type: ACSR Size: 266.8 Manufacturer:

## SAGGING:

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 22/9 to Str. 23/1 84.8 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | 12/06/1 | 12:30 | -14 | 1.094 | |
| Center | 12/06/1 | 12:30 | -14 | 1.094 | Left |
| Bottom | 12/06/1 | 12:30 | -14 | 1.094 | Right |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 23/4 to Str. 23/5 84.3 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | 12/06/1 | 12:30 | -14 | 1.074 | |
| Center | 12/06/1 | 12:30 | -14 | 1.074 | Left |
| Bottom | 12/06/1 | 12:30 | -14 | 1.074 | Right |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 23/11 to Str. 23/12 94.9 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | 12/06/18 | 12:30 | -14 | 1.368 | |
| Center | 12/06/18 | 12:30 | -14 | 1.368 | Left |
| Bottom | 12/06/18 | 12:30 | -14 | 1.368 | Right |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 24/4 to Str. 24/5 84.1 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | 12/06/1 | 12:30 | -14 | 1.346 | |
| Center | 12/06/1 | 12:30 | -14 | 1.346 | Left |
| Bottom | 12/06/1 | 12:30 | -14 | 1.346 | Right |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | | | | | |
| Center | | | | | |
| Bottom | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | | | | | |
| Center | | | | | |
| Bottom | | | | | |

Forbes Bros LTD
POWERLINE CONSTRUCTION

# Stringing and Sag Data

## Overhead: OHSW

**Left Side (face higher numbered structure)** Line # _____

| Date | Temp (°C) | Time | Structure Span | Type | Reel# |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |

**Right Side (face higher numbered structure)** Line # _____

| Date | Temp (°C) | Time | Structure Span | Type | Reel# |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |

## SAGGING:

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 23/4 to Str. 23/5 84.5 m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Fibre | 12/06/1 | 12:30 | -14 | 1.29 | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 23/11 to Str. 23/12 94.9 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Fibre | 12/06/1 | 12:30 | -14 | 1.632 | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 24/4 to Str. 24/5 94.1 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Fibre | 12/06/1 | 12:30 | -14 | 1.61 | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

**Comments:**
Sag completed on December 6 2018 at 12:30

| | Name | Date | Signature |
|---|---|---|---|
| QC Inspector | Phil McKinley | Dec 8 2018 | Phil McKinley |
| Client QC Inspector | | | |

Forbes Bros LTD
POWERLINE CONSTRUCTION

# Stringing and Sag Data

| Project: Eagle Gold 69kv | Contr.#: | Line #: L251 | Voltage: 69 kv | Pull#: 6 | Str. 21/2 to Str. 22/8 |
|---|---|---|---|---|---|

## Conductor

Left Side (face higher numbered structure) Line # _____

| Phase | Temp (°C) | Time | Reel Number | |
|---|---|---|---|---|
| TOP | | | | |
| C | | | | |
| BOT | | | | |

String Tension: _____

Right Side (face higher numbered structure) Line # _____

| Phase | Temp (°C) | Time | Reel Number | |
|---|---|---|---|---|
| TOP | | | | |
| C | | | | |
| BOT | | | | |

String Tension: _____

**Conductor:** Type: ACSR Size: 266.8 Manufacturer:

## SAGGING:

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 21/3 to Str. 21/4 76.2 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | 12/06/1 | 10:00 | -14 | 0.818 | |
| Center | 12/06/1 | 10:00 | -14 | 0.818 | Left |
| Bottom | 12/06/1 | 10:00 | -14 | 0.818 | Right |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 21/10 to Str. 21/11 69.6 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | 12/06/1 | 10:00 | -14 | 1.132 | |
| Center | 12/06/1 | 10:00 | -14 | 1.132 | Left |
| Bottom | 12/06/1 | 10:00 | -14 | 1.132 | Right |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 22/2 to Str. 22/3 146.9 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | 12/06/18 | 10:00 | -14 | 3.026 | |
| Center | 12/06/18 | 10:00 | -14 | 3.026 | Left |
| Bottom | 12/06/18 | 10:00 | -14 | 3.026 | Right |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 22/6 to Str. 22/7 51.9 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | 12/06/1 | 10:00 | -14 | 1.184 | |
| Center | 12/06/1 | 10:00 | -14 | 1.184 | Left |
| Bottom | 12/06/1 | 10:00 | -14 | 1.184 | Right |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | | | | | |
| Center | | | | | |
| Bottom | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | | | | | |
| Center | | | | | |
| Bottom | | | | | |

Forbes Bros Ltd
POWERLINE CONSTRUCTION

# Stringing and Sag Data

## Overhead: OHSW

Left Side (face higher numbered structure) Line # L251

Right Side (face higher numbered structure) Line #

| Date | Temp (°C) | Time | Structure Span | Type | Reel# |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |

| Date | Temp (°C) | Time | Structure Span | Type | Reel# |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |

## SAGGING:

Span Length Str. ____ to Str. ____ ____ m
Sagging Span: Str. 21/3 to Str. 21/4 76.2 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Fibre | 12/06/1 | 10:00 | -14 | 1.79 | |

Span Length Str. ____ to Str. ____ ____ m
Sagging Span: Str. 21/10 to Str. 21/11 89.8 m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Fibre | 12/06/1 | 10:00 | -14 | 2.49 | |

Span Length Str. ____ to Str. ____ ____ m
Sagging Span: Str. 22/2 to Str. 22/3 146.9 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Fibre | 12/06/1 | 10:00 | -14 | 6.67 | |

Span Length Str. ____ to Str. ____ ____ m
Sagging Span: Str. 22/6 to Str. 22/7 91.9 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Fibre | 12/06/1 | 10:00 | -14 | 2.61 | |

Span Length Str. ____ to Str. ____ ____ m
Sagging Span: Str. 22/9 to Str. 23/1 84.8 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Fibre | 12/06/1 | 10:00 | -14 | | |

Span Length Str. ____ to Str. ____ ____ m
Sagging Span: Str. ____ to Str. ____ ____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

**Comments:**

Sag completed at 10:00 on December 6 2018
Fibre deadended at 23/2

| | Name | Date | Signature |
|---|---|---|---|
| QC Inspector | Phil McKinley | Dec 8 2018 | Phil McKinley |
| Client QC Inspector | | | |

Forbes Bros LTD
POWERLINE CONSTRUCTION

# Stringing and Sag Data

| Project: Eagle Gold 69kv | Contr.#: | Line #: L251 | Voltage: 69 kv | Pull#: 5 | Str. 18/13 to Str. 21/2 |
|---|---|---|---|---|---|

## Conductor

Left Side (face higher numbered structure) Line # L 251

| Phase | Temp (°C) | Time | Reel Number | |
|---|---|---|---|---|
| TOP | | | | |
| C | | | | |
| BOT | | | | |

Right Side (face higher numbered structure) Line # _____

| Phase | Temp (°C) | Time | Reel Number | |
|---|---|---|---|---|
| TOP | | | | |
| C | | | | |
| BOT | | | | |

String Tension: _____

**Conductor:** Type: ACSR Size: 266.8

String Tension: _____

Manufacturer:

## SAGGING:

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 19/2 to Str. 19/3 84 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | 12/03/1 | 15:30 | -23 | 0.998 | |
| Center | 12/03/1 | 15:30 | -23 | 0.998 | Left |
| Bottom | 12/03/1 | 15:30 | -23 | 0.998 | Right |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 19/9 to Str. 19/10 84.1 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | 12/03/1 | 15:30 | -23 | 1.008 | |
| Center | 12/03/1 | 15:30 | -23 | 1.008 | Left |
| Bottom | 12/03/1 | 15:30 | -23 | 1.008 | Right |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 20/5 to Str. 20/6 90.2 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | 12/03/18 | 15:30 | -23 | 1.162 | |
| Center | 12/03/18 | 15:30 | -23 | 1.162 | Left |
| Bottom | 12/03/18 | 15:30 | -23 | 1.162 | Right |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 20/12 to Str. 21/1 136.6 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | 12/03/1 | 15:30 | -23 | 2.652 | |
| Center | 12/03/1 | 15:30 | -23 | 2.652 | Left |
| Bottom | 12/03/1 | 15:30 | -23 | 2.652 | Right |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | | | | | |
| Center | | | | | |
| Bottom | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | | | | | |
| Center | | | | | |
| Bottom | | | | | |

Forbes Bros LTD
POWERLINE CONSTRUCTION

# Stringing and Sag Data

## Overhead: OHSW

Left Side (face higher numbered structure) Line # L25T

Right Side (face higher numbered structure) Line # _____

| Date | Temp (°C) | Time | Structure Span | Type | Reel# |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |

| Date | Temp (°C) | Time | Structure Span | Type | Reel# |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |

## SAGGING:

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 19/2 to Str. 19/3 84 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Fibre | 12/03/1 | 15:30 | -23 | 2.61 | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 19/9 to Str. 19/10 84.1 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Fibre | 12/03/1 | 15:30 | -23 | 2.62 | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 20/5 to Str. 20/6 90.2 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Fibre | 12/03/1 | 15:30 | -23 | 3.01 | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 20/12 to Str. 21/1 136.6 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Fibre | 12/03/1 | 15:30 | -23 | 6.914 | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

**Comments:**

Sag completed at 15:30 on December 3 2018

| | Name | Date | Signature |
|---|---|---|---|
| QC Inspector | Phil McKinley | Dec 4 2018 | Phil McKinley |
| Client QC Inspector | | | |

Forbes Bros LTD
POWERLINE CONSTRUCTION

# Stringing and Sag Data

| Project: Eagle Gold 69kv | Contr.#: | Line #: L251 | Voltage: 69 kv | Pull#: 5 | Str. 16/11 to Str. 18/13 |
|---|---|---|---|---|---|

## Conductor

Left Side (face higher numbered structure) Line # _____

| Phase | Temp (°C) | Time | Reel Number | |
|---|---|---|---|---|
| TOP | | | | |
| C | | | | |
| BOT | | | | |

String Tension: _____

Right Side (face higher numbered structure) Line # _____

| Phase | Temp (°C) | Time | Reel Number | |
|---|---|---|---|---|
| TOP | | | | |
| C | | | | |
| BOT | | | | |

String Tension: _____

**Conductor:** Type: ACSR Size: 266.8 Manufacturer:

## SAGGING:

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 17/1 to Str. 17/2 90.2 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | 12/03/1 | 10:30 | -23 | 1.152 | |
| Center | 12/03/1 | 10:30 | -23 | 1.152 | Left |
| Bottom | 12/03/1 | 10:30 | -23 | 1.152 | Right |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 17/8 to Str. 17/9 89.5 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | 12/03/1 | 10:30 | -23 | 1.138 | |
| Center | 12/03/1 | 10:30 | -23 | 1.138 | Left |
| Bottom | 12/03/1 | 10:30 | -23 | 1.138 | Right |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 18/4 to Str. 18/5 93.9 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | 12/03/18 | 10:30 | -23 | 1.256 | |
| Center | 12/03/18 | 10:30 | -23 | 1.256 | Left |
| Bottom | 12/03/18 | 10:30 | -23 | 1.256 | Right |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 18/8 to Str. 18/9 60.9 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | 12/03/1 | 10:30 | -23 | 0.526 | |
| Center | 12/03/1 | 10:30 | -23 | 0.526 | Left |
| Bottom | 12/03/1 | 10:30 | -23 | 0.526 | Right |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | | | | | |
| Center | | | | | |
| Bottom | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | | | | | |
| Center | | | | | |
| Bottom | | | | | |

Forbes Bros LTD
POWERLINE CONSTRUCTION

# Stringing and Sag Data

## Overhead: OHSW

Left Side (face higher numbered structure) Line # 1251

Right Side (face higher numbered structure) Line # _____

| Date | Temp (°C) | Time | Structure Span | Type | Reel# |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |

| Date | Temp (°C) | Time | Structure Span | Type | Reel# |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |

## SAGGING:

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 17/8 to Str. 17/9 89.5 m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Fibre | 12/03/1 | 10:30 | -23 | 2.96 | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 18/4 to Str. 18/5 93.9 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Fibre | 12/03/1 | 10:30 | -23 | 3.26 | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 18/9 to Str. 18/10 58.6 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Fibre | 12/03/1 | 10:30 | -23 | 1.27 | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

**Comments:**
Sag completed at 10:30 on December 3 2018

| | Name | Date | Signature |
|---|---|---|---|
| QC Inspector | Phil McKinley | Dec 4 2018 | Phil McKinley |
| Client QC Inspector | | | |

Forbes Bros LTD
POWERLINE CONSTRUCTION

# Stringing and Sag Data

| Project: Eagle Gold 69kv | Contr.#: | Line #: L251 | Voltage: 69 kv | Pull#: 4 | Str. 14/12 to Str. 16/11 |
|---|---|---|---|---|---|

## Conductor

Left Side (face higher numbered structure) Line # _____

| Phase | Temp (°C) | Time | Reel Number | |
|---|---|---|---|---|
| TOP | | | | |
| C | | | | |
| BOT | | | | |

String Tension: _____

Right Side (face higher numbered structure) Line # _____

| Phase | Temp (°C) | Time | Reel Number | |
|---|---|---|---|---|
| TOP | | | | |
| C | | | | |
| BOT | | | | |

String Tension: _____

**Conductor:** Type: ACSR Size: 266.8 Manufacturer:

## SAGGING:

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 15/1 to Str. 15/2 75.9 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | 11/29/1 | 14:00 | -5 | 0.97 | |
| Center | 11/29/1 | 14:00 | -5 | 0.97 | Left |
| Bottom | 11/29/1 | 14:00 | -5 | 0.97 | Right |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 15/5 to Str. 15/6 82 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | 11/29/1 | 14:00 | -5 | 1.13 | |
| Center | 11/29/1 | 14:00 | -5 | 1.13 | Left |
| Bottom | 11/29/1 | 14:00 | -5 | 1.13 | Right |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 15/10 to Str. 15/11 67.3 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | 11/29/18 | 14:00 | -5 | 0.76 | |
| Center | 11/29/18 | 14:00 | -5 | 0.76 | Left |
| Bottom | 11/29/18 | 14:00 | -5 | 0.76 | Right |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 16/8 to Str. 16/9 82.6 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | 11/29/1 | 14:00 | -5 | 1.14 | |
| Center | 11/29/1 | 14:00 | -5 | 1.14 | Left |
| Bottom | 11/29/1 | 14:00 | -5 | 1.14 | Right |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | | | | | |
| Center | | | | | |
| Bottom | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | | | | | |
| Center | | | | | |
| Bottom | | | | | |

Forbes Bros LTD
POWERLINE CONSTRUCTION

# Stringing and Sag Data

## Overhead: OHSW

**Left Side (face higher numbered structure)** Line # _____

| Date | Temp (°C) | Time | Structure Span | Type | Reel# |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |

**Right Side (face higher numbered structure)** Line # _____

| Date | Temp (°C) | Time | Structure Span | Type | Reel# |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |

## SAGGING:

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 15/1 to Str. 15/2 75.9 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Fibre | 11/29/1 | 14:00 | -5 | 0.72 | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 15/5 to Str. 15/6 82 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Fibre | 11/29/1 | 14:00 | -5 | 0.84 | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 15/10 to Str. 15/11 67.3 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Fibre | 11/29/1 | 14:00 | -5 | 0.56 | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 16/8 to Str. 16/9 82.6 m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Fibre | 11/29/1 | 14:00 | -5 | 0.85 | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 17/1 to Str. 17/2 90.2 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Fibre | 11/29/1 | 14:00 | -5 | 3.01 | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

**Comments:**

Sag completed at 14:00 on November 29 2018

| | Name | Date | Signature |
|---|---|---|---|
| **QC Inspector** | Phil McKinley | Dec 2 2018 | Phil McKinley |
| **Client QC Inspector** | | | |

Forbes Bros LTD
POWERLINE CONSTRUCTION

# Stringing and Sag Data

| Project: Eagle Gold 69kv | Contr.#: | Line #: L251 | Voltage: 69 kv | Pull#: 4 | Str. 13/2 to Str. 14/12 |
|---|---|---|---|---|---|

## Conductor

Left Side (face higher numbered structure) Line # _____

| Phase | Temp (°C) | Time | Reel Number | |
|---|---|---|---|---|
| TOP | | | | |
| C | | | | |
| BOT | | | | |

String Tension: _____

Right Side (face higher numbered structure) Line # _____

| Phase | Temp (°C) | Time | Reel Number | |
|---|---|---|---|---|
| TOP | | | | |
| C | | | | |
| BOT | | | | |

String Tension: _____

**Conductor:** Type: ACSR Size: 266.8 Manufacturer:

## SAGGING:

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 13/4 to Str. 13/5 95.4 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | 11/29/1 | 11:00 | -5 | 1.52 | |
| Center | 11/29/1 | 11:00 | -5 | 1.52 | Left |
| Bottom | 11/29/1 | 11:00 | -5 | 1.52 | Right |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 13/10 to Str. 13/11 76.1 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | 11/29/1 | 11:00 | -5 | 0.97 | |
| Center | 11/29/1 | 11:00 | -5 | 0.97 | Left |
| Bottom | 11/29/1 | 11:00 | -5 | 0.97 | Right |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 14/6 to Str. 14/7 87.3 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | 11/29/18 | 11:00 | -5 | 1.28 | |
| Center | 11/29/18 | 11:00 | -5 | 1.28 | Left |
| Bottom | 11/29/18 | 11:00 | -5 | 1.28 | Right |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 14/10 to Str. 14/11 75.8 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | 11/29/1 | 11:00 | -5 | 0.91 | |
| Center | 11/29/1 | 11:00 | -5 | 0.91 | Left |
| Bottom | 11/29/1 | 11:00 | -5 | 0.91 | Right |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | | | | | |
| Center | | | | | |
| Bottom | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | | | | | |
| Center | | | | | |
| Bottom | | | | | |

Forbes Bros LTD
POWERLINE CONSTRUCTION

# Stringing and Sag Data

## Overhead: OHSW

**Left Side (face higher numbered structure)** Line # _____

| Date | Temp (°C) | Time | Structure Span | Type | Reel# |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |

**Right Side (face higher numbered structure)** Line # _____

| Date | Temp (°C) | Time | Structure Span | Type | Reel# |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |

## SAGGING:

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 13/4 to Str. 13/5 95.4 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Fibre | 11/29/1 | 11:00 | -5 | 1.13 | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 13/10 to Str. 13/11 76.1 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Fibre | 11/29/1 | 11:00 | -5 | 0.72 | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 14/6 to Str. 14/7 87.3 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Fibre | 11/29/1 | 11:00 | -5 | 0.95 | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 14/10 to Str. 14/11 73.8 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Fibre | 11/29/1 | 11:00 | -5 | 0.68 | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

**Comments:**
Sag completed at 11:00 on November 29 2018

| | Name | Date | Signature |
|---|---|---|---|
| QC Inspector | Phil McKinley | Dec 2 2018 | Phil McKinley |
| Client QC Inspector | | | |

Forbes Bros LTD
POWERLINE CONSTRUCTION

# Stringing and Sag Data

| Project: Eagle Gold 69kv | Contr.#: | Line #: L251 | Voltage: 69 kv | Pull#: 3 | Str. 11/4 | to Str. 13/2 |
|---|---|---|---|---|---|---|

## Conductor

Left Side (face higher numbered structure) Line # _____

| Phase | Temp (°C) | Time | Reel Number | |
|---|---|---|---|---|
| TOP | | | | |
| C | | | | |
| BOT | | | | |

String Tension: _____

Right Side (face higher numbered structure) Line # _____

| Phase | Temp (°C) | Time | Reel Number | |
|---|---|---|---|---|
| TOP | | | | |
| C | | | | |
| BOT | | | | |

String Tension: _____

**Conductor:** Type: ACSR Size: 266.8 Manufacturer:

## SAGGING:

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 11/6 to Str. 11/7 89.2 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | 11/24/1 | 12:30 | -8 | 1.382 | |
| Center | 11/24/1 | 12:30 | -8 | 1.382 | Left |
| Bottom | 11/24/1 | 12:30 | -8 | 1.382 | Right |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 11/9 to Str. 11/10 91.5 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | 11/24/1 | 12:30 | -8 | 1.456 | |
| Center | 11/24/1 | 12:30 | -8 | 1.456 | Left |
| Bottom | 11/24/1 | 12:30 | -8 | 1.456 | Right |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 12/8 to Str. 12/9 55.4 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | 11/24/18 | 12:30 | -8 | 0.532 | |
| Center | 11/24/18 | 12:30 | -8 | 0.532 | Left |
| Bottom | 11/24/18 | 12:30 | -8 | 0.532 | Right |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 12/12 to Str. 12/13 82.1 m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | 11/24/1 | 12:30 | -8 | 1.168 | |
| Center | 11/24/1 | 12:30 | -8 | 1.168 | Left |
| Bottom | 11/24/1 | 12:30 | -8 | 1.168 | Right |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | | | | | |
| Center | | | | | |
| Bottom | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | | | | | |
| Center | | | | | |
| Bottom | | | | | |

Forbes Bros LTD
POWERLINE CONSTRUCTION

# Stringing and Sag Data

## Overhead: OHSW

**Left Side (face higher numbered structure)** Line # _____

| Date | Temp (°C) | Time | Structure Span | Type | Reel# |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |

**Right Side (face higher numbered structure)** Line # _____

| Date | Temp (°C) | Time | Structure Span | Type | Reel# |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |

## SAGGING:

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 11/6 to Str. 11/7 89.2 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Fibre | 11/24/1 | 12:30 | -8 | 0.83 | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 11/9 to Str. 11/10 91.5 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Fibre | 11/24/1 | 12:30 | -8 | 0.874 | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 12/8 to Str. 12/9 55.4 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Fibre | 11/24/1 | 12:30 | -8 | 0.32 | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 12/12 to Str. 12/13 82.1 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Fibre | 11/24/1 | 12:30 | -8 | 0.704 | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

**Comments:**
Sag completed at 12:30 on November 24 2018

| | Name | Date | Signature |
|---|---|---|---|
| QC Inspector | Phil McKinley | Nov 30 2018 | Phil McKinley |
| Client QC Inspector | | | |

Forbes Bros LTD
POWERLINE CONSTRUCTION

# Stringing and Sag Data

| Project: Eagle Gold 69kv | Contr.#: | Line #: L251 | Voltage: 69 kv | Pull#: 3 | Str. 10/9 to Str. 11/4 |
|---|---|---|---|---|---|

## Conductor

Left Side (face higher numbered structure) Line # _____

| Phase | Temp (°C) | Time | Reel Number | |
|---|---|---|---|---|
| TOP | | | | |
| C | | | | |
| BOT | | | | |

String Tension: _____

Right Side (face higher numbered structure) Line # _____

| Phase | Temp (°C) | Time | Reel Number | |
|---|---|---|---|---|
| TOP | | | | |
| C | | | | |
| BOT | | | | |

String Tension: _____

**Conductor:** Type: ACSR Size: 266.8 Manufacturer:

## SAGGING:

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 10/11 to Str. 10/12 60.4 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | 11/24/1 | 12:00 | -8 | 0.53 | |
| Center | 11/24/1 | 12:00 | -8 | 0.53 | Left |
| Bottom | 11/24/1 | 12:00 | -8 | 0.53 | Right |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 11/1 to Str. 11/2 75.2 m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | 11/24/1 | 12:00 | -8 | 0.75 | |
| Center | 11/24/1 | 12:00 | -8 | 0.75 | Left |
| Bottom | 11/24/1 | 12:00 | -8 | 0.75 | Right |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | | | | | |
| Center | | | | | |
| Bottom | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | | | | | |
| Center | | | | | |
| Bottom | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | | | | | |
| Center | | | | | |
| Bottom | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | | | | | |
| Center | | | | | |
| Bottom | | | | | |

Forbes Bros LTD
POWERLINE CONSTRUCTION

# Stringing and Sag Data

## Overhead: OHSW

**Left Side (face higher numbered structure)** Line # _____

| Date | Temp (°C) | Time | Structure Span | Type | Reel# |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |

**Right Side (face higher numbered structure)** Line # _____

| Date | Temp (°C) | Time | Structure Span | Type | Reel# |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |

## SAGGING:

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 10/11 to Str. 10/12 60.4 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Fibre | 11/24/1 | 12:00 | -8 | 0.10 | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 11/1 to Str. 11/2 73.2 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Fibre | 11/24/1 | 12:00 | -8 | 0.48 | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

**Comments:**
Sag completed at 12:00 on November 24 2018

| | Name | Date | Signature |
|---|---|---|---|
| QC Inspector | Phil McKinley | Nov 30 2018 | Phil McKinley |
| Client QC Inspector | | | |

Forbes Bros LTD
POWERLINE CONSTRUCTION

# Stringing and Sag Data

| Project: Eagle Gold 69kv | Contr.#: | Line #: L251 | Voltage: 69 kv | Pull#: 3 | Str. 8/13 to Str. 10/9 |
|---|---|---|---|---|---|

## Conductor

Left Side (face higher numbered structure) Line # _____

| Phase | Temp (°C) | Time | Reel Number | |
|---|---|---|---|---|
| TOP | | | | |
| C | | | | |
| BOT | | | | |

String Tension: _____

Right Side (face higher numbered structure) Line # _____

| Phase | Temp (°C) | Time | Reel Number | |
|---|---|---|---|---|
| TOP | | | | |
| C | | | | |
| BOT | | | | |

String Tension: _____

**Conductor:** Type: ACSR Size: 266.8 Manufacturer:

## SAGGING:

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 9/4 to Str. 9/5 75.5 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | 11/24/1 | 11:00 | -8 | 0.874 | |
| Center | 11/24/1 | 11:00 | -8 | 0.874 | Left |
| Bottom | 11/24/1 | 11:00 | -8 | 0.874 | Right |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 9/7 to Str. 9/8 85.3 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | 11/24/1 | 11:00 | -8 | 1.122 | |
| Center | 11/24/1 | 11:00 | -8 | 1.122 | Left |
| Bottom | 11/24/1 | 11:00 | -8 | 1.122 | Right |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 10/2 to Str. 10/3 74.2 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | 11/24/18 | 11:00 | -8 | 0.832 | |
| Center | 11/24/18 | 11:00 | -8 | 0.832 | Left |
| Bottom | 11/24/18 | 11:00 | -8 | 0.832 | Right |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 10/7 to Str. 10/8 76.1 m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | 11/24/1 | 11:00 | -8 | 0.894 | |
| Center | 11/24/1 | 11:00 | -8 | 0.894 | Left |
| Bottom | 11/24/1 | 11:00 | -8 | 0.894 | Right |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | | | | | |
| Center | | | | | |
| Bottom | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | | | | | |
| Center | | | | | |
| Bottom | | | | | |

Forbes Bros LTD
POWERLINE CONSTRUCTION

# Stringing and Sag Data

## Overhead: OHSW

**Left Side (face higher numbered structure)** Line # _____

| Date | Temp (°C) | Time | Structure Span | Type | Reel# |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |

**Right Side (face higher numbered structure)** Line # _____

| Date | Temp (°C) | Time | Structure Span | Type | Reel# |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |

## SAGGING:

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 9/4 to Str. 9/5 75.5 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Fibre | 11/24/1 | 11:00 | -8 | 0.62 | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 9/7 to Str. 9/8 85.3 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Fibre | 11/24/1 | 11:00 | -8 | 0.784 | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 10/2 to Str. 10/3 74.2 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Fibre | 11/24/1 | 11:00 | -8 | 0.60 | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 10/7 to Str. 10/8 76.1 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Fibre | 11/24/1 | 11:00 | -8 | 0.63 | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

**Comments:**
Sag completed at 11:00 on November 24 2018

| | Name | Date | Signature |
|---|---|---|---|
| QC Inspector | Phil McKinley | Nov 30 2018 | Phil McKinley |
| Client QC Inspector | | | |

Forbes Bros LTD
POWERLINE CONSTRUCTION

# Stringing and Sag Data

| Project: Eagle Gold 69kv | Contr.#: | Line #: L251 | Voltage: 69 kv | Pull#: 3 | Str. 7/12 to Str. 8/13 |
|---|---|---|---|---|---|

## Conductor

Left Side (face higher numbered structure) Line # _____

| Phase | Temp (°C) | Time | Reel Number | |
|---|---|---|---|---|
| TOP | | | | |
| C | | | | |
| BOT | | | | |

String Tension: _____

Right Side (face higher numbered structure) Line # _____

| Phase | Temp (°C) | Time | Reel Number | |
|---|---|---|---|---|
| TOP | | | | |
| C | | | | |
| BOT | | | | |

String Tension: _____

**Conductor:** Type: ACSR Size: 266.8 Manufacturer:

## SAGGING:

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 8/2 to Str. 8/3 93.7 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | 11/24/1 | 10:00 | -8 | 1.35 | |
| Center | 11/24/1 | 10:00 | -8 | 1.35 | Left |
| Bottom | 11/24/1 | 10:00 | -8 | 1.35 | Right |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 8/7 to Str. 8/8 62.3 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | 11/24/1 | 10:00 | -8 | 1.062 | |
| Center | 11/24/1 | 10:00 | -8 | 1.062 | Left |
| Bottom | 11/24/1 | 10:00 | -8 | 1.062 | Right |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 8/11 to Str. 8/12 93.7 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | 11/24/18 | 10:00 | -8 | 1.35 | |
| Center | 11/24/18 | 10:00 | -8 | 1.35 | Left |
| Bottom | 11/24/18 | 10:00 | -8 | 1.35 | Right |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | | | | | |
| Center | | | | | |
| Bottom | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | | | | | |
| Center | | | | | |
| Bottom | | | | | |

Forbes Bros LTD
POWERLINE CONSTRUCTION

# Stringing and Sag Data

## Overhead: OHSW

**Left Side (face higher numbered structure)** Line # _____

| Date | Temp (°C) | Time | Structure Span | Type | Reel# |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |

**Right Side (face higher numbered structure)** Line # _____

| Date | Temp (°C) | Time | Structure Span | Type | Reel# |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |

## SAGGING:

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 8/2 to Str. 8/3 93.7 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Fibre | 11/24/1 | 10:00 | -8 | 0.95 | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 8/7 to Str. 8/8 82.9 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Fibre | 11/24/1 | 10:00 | -8 | 0.744 | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 8/11 to Str. 8/12 93.7 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Fibre | 11/24/1 | 10:00 | -8 | 0.95 | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

**Comments:**
Sag completed at 10:00 on November 24 2018

| | Name | Date | Signature |
|---|---|---|---|
| QC Inspector | Phil McKinley | Nov 30 2018 | Phil McKinley |
| Client QC Inspector | | | |

Forbes Bros.
POWERLINE CONSTRUCTION

# Stringing and Sag Data

| Project: Eagle Gold 69kv | Contr.#: | Line #: L251 | Voltage: 69 kv | Pull#: 2 | Str. 7/2 | to Str. 7/12 |
|---|---|---|---|---|---|---|

## Conductor

Left Side (face higher numbered structure) Line #

| Phase | Temp (°C) | Time | Reel Number | |
|---|---|---|---|---|
| TOP | | | | |
| C | | | | |
| BOT | | | | |

Right Side (face higher numbered structure) Line #

| Phase | Temp (°C) | Time | Reel Number | |
|---|---|---|---|---|
| TOP | | | | |
| C | | | | |
| BOT | | | | |

String Tension:

String Tension:

**Conductor:** Type: ACSR Size: 266.8

Manufacturer:

## SAGGING:

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 7/3 to Str. 7/4 152.7 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | 11/15/1 | 10:20 | -8 | 3.854 | A |
| Center | 11/15/1 | 10:20 | -8 | 3.854 | B |
| Bottom | 11/15/1 | 10:20 | -8 | 3.854 | C |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 7/5 to Str. 7/6 73.8 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | 11/15/1 | 10:20 | -8 | 0.946 | A |
| Center | 11/15/1 | 10:20 | -8 | 0.946 | B |
| Bottom | 11/15/1 | 10:20 | -8 | 0.946 | C |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 7/8 to Str. 7/9 70.6 m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | 11/15/18 | 10:20 | -8 | 0.74 | A |
| Center | 11/15/18 | 10:20 | -8 | 0.74 | B |
| Bottom | 11/15/18 | 10:20 | -8 | 0.74 | C |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 7/9 to Str. 7/10 91.4 m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | 11/15/1 | 10:20 | -8 | 1.236 | A |
| Center | 11/15/1 | 10:20 | -8 | 1.236 | B |
| Bottom | 11/15/1 | 10:20 | -8 | 1.236 | C |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | | | | | |
| Center | | | | | |
| Bottom | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | | | | | |
| Center | | | | | |
| Bottom | | | | | |

Forbes Bros Ltd.
Powerline Construction

# Stringing and Sag Data

**Overhead:** OHSW

Left Side (face higher numbered structure) Line # L251

Right Side (face higher numbered structure) Line #

| Date | Temp (°C) | Time | Structure Span | Type | Reel# |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |

| Date | Temp (°C) | Time | Structure Span | Type | Reel# |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |

## SAGGING:

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 7/3 to Str. 7/4 152.7 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Fibre | 11/15/1 | 10:20 | -8 | 8.69 | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 7/5 to Str. 7/6 75.6 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Fibre | 11/15/1 | 10:20 | -8 | 2.12 | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 7/8 to Str. 7/9 70.6 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Fibre | 11/15/1 | 10:20 | -8 | 0.444 | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 7/9 to Str. 7/10 _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Fibre | 11/15/1 | 10:20 | -8 | 0.74 | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

**Comments:**
Sag completed on Nov 15 2018 at 10:20

| | Name | Date | Signature |
|---|---|---|---|
| QC Inspector | Phil McKinley | Nov 15 2018 | Phil McKinley |
| Client QC Inspector | | | |

Forbes Bros LTD
POWERLINE CONSTRUCTION

# Stringing and Sag Data

| Project: Eagle Gold 69kv | Contr.#: | Line #: L251 | Voltage: 69 kv | Pull#: 2 | Str. 5/7 to Str. 7/2 |
|---|---|---|---|---|---|

## Conductor

Left Side (face higher numbered structure) Line # _____

| Phase | Temp (°C) | Time | Reel Number | |
|---|---|---|---|---|
| TOP | | | | |
| C | | | | |
| BOT | | | | |

String Tension: _____

Right Side (face higher numbered structure) Line # _____

| Phase | Temp (°C) | Time | Reel Number | |
|---|---|---|---|---|
| TOP | | | | |
| C | | | | |
| BOT | | | | |

String Tension: _____

**Conductor:** Type: ACSR Size: 266.8 Manufacturer:

## SAGGING:

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 5/12 to Str. 5/13 87 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | 11/14/1 | 4:30 | -10 | 1.11 | A |
| Center | 11/14/1 | 4:30 | -10 | 1.11 | B |
| Bottom | 11/14/1 | 4:30 | -10 | 1.11 | C |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 6/2 to Str. 6/3 86.1 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | 11/14/1 | 4:30 | -10 | 1.14 | A |
| Center | 11/14/1 | 4:30 | -10 | 1.14 | B |
| Bottom | 11/14/1 | 4:30 | -10 | 1.14 | C |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 6/5 to Str. 6/6 94.4 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | 11/14/18 | 4:30 | -10 | 1.31 | A |
| Center | 11/14/18 | 4:30 | -10 | 1.31 | B |
| Bottom | 11/14/18 | 4:30 | -10 | 1.31 | C |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 6/9 to Str. 6/10 95.2 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | 11/14/1 | 4:30 | -10 | 1.33 | A |
| Center | 11/14/1 | 4:30 | -10 | 1.33 | B |
| Bottom | 11/14/1 | 4:30 | -10 | 1.33 | C |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | | | | | |
| Center | | | | | |
| Bottom | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | | | | | |
| Center | | | | | |
| Bottom | | | | | |

Forbes Bros Ltd
POWERLINE CONSTRUCTION

# Stringing and Sag Data

## Overhead: OHSW

**Left Side (face higher numbered structure)** Line # _____

| Date | Temp (°C) | Time | Structure Span | Type | Reel# |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |

**Right Side (face higher numbered structure)** Line # _____

| Date | Temp (°C) | Time | Structure Span | Type | Reel# |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |

## SAGGING:

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

**Comments:**

Sag completed at 4:30 pm on November 14 2018

| | Name | Date | Signature |
|---|---|---|---|
| QC Inspector | Phil McKinley | Nov 17 2018 | Phil McKinley |
| Client QC Inspector | | | |

Forbes Bros LTD
POWERLINE CONSTRUCTION

# Stringing and Sag Data

| Project: Eagle Gold 69kv | Contr.#: | Line #: L251 | Voltage: 69kv | Pull#: 2 | Str. 3/3 to Str. 5/7 |
|---|---|---|---|---|---|

## Conductor

Left Side (face higher numbered structure) Line # _____

| Phase | Temp (°C) | Time | Reel Number | |
|---|---|---|---|---|
| TOP | | | | |
| C | | | | |
| BOT | | | | |

Right Side (face higher numbered structure) Line # _____

| Phase | Temp (°C) | Time | Reel Number | |
|---|---|---|---|---|
| TOP | | | | |
| C | | | | |
| BOT | | | | |

String Tension: _____

String Tension: _____

**Conductor:** Type: ACSR Size: Manufacturer:

## SAGGING:

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 3/5 to Str. 3/6 81.2 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | 11/14/1 | 3:00 | -10 | 0.97 | A |
| Center | 11/14/1 | 3:00 | -10 | 0.97 | B |
| Bottom | 11/14/1 | 3:00 | -10 | 0.97 | C |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 4/2 to Str. 4/3 85 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | 11/14/1 | 3:00 | -10 | 1.01 | A |
| Center | 11/14/1 | 3:00 | -10 | 1.01 | B |
| Bottom | 11/14/1 | 3:00 | -10 | 1.01 | C |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 4/9 to Str. 4/10 82.2 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | 11/14/18 | 3:00 | -10 | .99 | A |
| Center | 11/14/18 | 3:00 | -10 | .99 | B |
| Bottom | 11/14/18 | 3:00 | -10 | .99 | C |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 5/5 to Str. 5/6 75.3 m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | 11/14/1 | 3:00 | -10 | 0.8 | A |
| Center | 11/14/1 | 3:00 | -10 | 0.8 | B |
| Bottom | 11/14/1 | 3:00 | -10 | 0.8 | C |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | | | | | |
| Center | | | | | |
| Bottom | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | | | | | |
| Center | | | | | |
| Bottom | | | | | |

Forbes Bros LTD
POWERLINE CONSTRUCTION

# Stringing and Sag Data

## Overhead: OHSW

**Left Side (face higher numbered structure)** Line # _____

| Date | Temp (°C) | Time | Structure Span | Type | Reel# |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |

**Right Side (face higher numbered structure)** Line # _____

| Date | Temp (°C) | Time | Structure Span | Type | Reel# |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |

## SAGGING:

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 3/5 to Str. 3/6 81.2 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Fibre | 11/14/1 | 3:30 | -10 | 0.81 | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 4/2 to Str. 4/3 83 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Fibre | 11/14/1 | 3:30 | -10 | 0.84 | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 4/9 to Str. 4/10 82.2 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Fibre | 11/14/1 | 3:30 | -10 | 0.83 | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 5/5 to Str. 5/6 73.9 m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Fibre | 11/14/1 | 3:30 | -10 | 0.67 | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 5/12 to Str. 5/13 87 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Fibre | 11/14/1 | 3:30 | -10 | 0.93 | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

**Comments:**

5/7 used as a clip structure
Fibre was sagged to 6/2 where it will be deadended
Sag was completed on Nov 14 2018

| | Name | Date | Signature |
|---|---|---|---|
| **QC Inspector** | Phil McKinley | Nov 17 2018 | Phil McKinley |
| **Client QC Inspector** | | | |

Forbes Bros Ltd
POWERLINE CONSTRUCTION

# Stringing and Sag Data

| Project4581 | Contr.#: | Line #: L251 | Voltage: 69kv | Pull#: 1 | Str. 1/2 | to Str. 3/3 |
|---|---|---|---|---|---|---|

## Conductor

Left Side (face higher numbered structure) Line #

| Phase | Temp (°C) | Time | Reel Number | |
|---|---|---|---|---|
| TOP | | | | |
| C | | | | |
| BOT | | | | |

String Tension:

Right Side (face higher numbered structure) Line #

| Phase | Temp (°C) | Time | Reel Number | |
|---|---|---|---|---|
| TOP | | | | |
| C | | | | |
| BOT | | | | |

String Tension:

**Conductor:** Type: Size: Manufacturer:

## SAGGING:

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 1/6 to Str. 1/7 66.459 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | 11/14/1 | 11;00 | -12 | 0.704 | A |
| Center | 11/14/1 | 11;00 | -12 | 0.704 | B |
| Bottom | 11/14/1 | 11:00 | -12 | 0.704 | C |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 2/1 to Str. 2/2 93.0 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | 11/14/1 | 11:00 | -12 | 1.402 | A |
| Center | 11/14/1 | 11:00 | -12 | 1.402 | B |
| Bottom | 11/14/1 | 11:00 | -12 | 1.402 | C |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 2/7 to Str. 2/8 97.5 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | 11/14/18 | 11:00 | -12 | 1.518 | A |
| Center | 11/14/18 | 11:00 | -12 | 1.518 | B |
| Bottom | 11/14/18 | 11:00 | -12 | 1.518 | C |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 3/1 to Str. 3/2 174 m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | 11/14/1 | 11:00 | -12 | 4.83 | A |
| Center | 11/14/1 | 11:00 | -12 | 4.83 | B |
| Bottom | 11/14/1 | 11:00 | -12 | 4.83 | C |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | | | | | |
| Center | | | | | |
| Bottom | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | | | | | |
| Center | | | | | |
| Bottom | | | | | |

Forbes Bros LTD
POWERLINE CONSTRUCTION

# Stringing and Sag Data

## Overhead: OHSW

**Left Side (face higher numbered structure)** Line # _____

| Date | Temp (°C) | Time | Structure Span | Type | Reel# |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |

**Right Side (face higher numbered structure)** Line # _____

| Date | Temp (°C) | Time | Structure Span | Type | Reel# |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |

## SAGGING:

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 1/6 to Str. 1/7 66.4 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Fibre | 11/14/1 | 12:30 | -10 | 1.77 | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 2/1 to Str. 2/2 93.8 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Fibre | 11/14/1 | 12:30 | -10 | 3.51 | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 2/7 to Str. 2/8 97.5 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Fibre | 11/14/1 | 12:30 | -10 | 3.79 | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 3/1 to Str. 3/2 174 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Fibre | 11/14/2 | 12:30 | -10 | 12.15 | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

**Comments:**
Sag completed on Nov 14 2018 at 11:00 Am

| | Name | Date | Signature |
|---|---|---|---|
| QC Inspector | Phil McKinley | Nov 16 2018 | Phil McKinley |
| Client QC Inspector | | | |

Forbes Bros
POWERLINE CONSTRUCTION

# Stringing and Sag Data

| Project: 4581 | Contr.#: | Line #: L251 | Voltage: | Pull#: 1 | Str. C/10A to Str. 1/2 |
|---|---|---|---|---|---|

## Conductor

Left Side (face higher numbered structure) Line #

| Phase | Temp (°C) | Time | Reel Number | |
|---|---|---|---|---|
| TOP | | | | |
| C | | | | |
| BOT | | | | |

String Tension:

Right Side (face higher numbered structure) Line #

| Phase | Temp (°C) | Time | Reel Number | |
|---|---|---|---|---|
| TOP | | | | |
| C | | | | |
| BOT | | | | |

String Tension:

**Conductor:** Type: ACSR Size: 266

Manufacturer:

## SAGGING:

Span Length Str. C/10B to Str. C/10C 58.3 m
Sagging Span: Str. C/10B to Str. C/10C m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | 11/12/18 | 10:00 | -8 | 0.47 m | |
| Center | 11/12/18 | 10:00 | -8 | 0.47 m | |
| Bottom | 11/12/18 | 10:00 | -8 | 0.47 m | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. C/12 to Str. C/13 68.3 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | 11/12/18 | 9:20 | -8 | 0.6 m | |
| Center | 11/12/18 | 9:20 | -8 | 0.6 m | |
| Bottom | 11/12/18 | 9:20 | -8 | 0.6 m | |

Span Length Str. C/14 to Str. 1/1 62.3 m
Sagging Span: Str. _____ to Str. _____ m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | 11/12/18 | 9:20 | -8 | 0.51 m | |
| Center | 11/12/18 | 9:20 | -8 | 0.51 m | |
| Bottom | 11/12/18 | 9:20 | -8 | 0.51 m | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | | | | | |
| Center | | | | | |
| Bottom | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | | | | | |
| Center | | | | | |
| Bottom | | | | | |

Forbes Bros LTD
POWERLINE CONSTRUCTION

# Stringing and Sag Data

## Overhead: OHSW

Left Side (face higher numbered structure) Line # OHSW

| Date | Temp (°C) | Time | Structure Span | Type | Reel# |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |

Right Side (face higher numbered structure) Line # Fibre

| Date | Temp (°C) | Time | Structure Span | Type | Reel# |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |

## SAGGING:

Span Length Str. 0/10B to Str. 0/10C 58.3 m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| OHSW | 11/12/18 | 10:00 | -8 | 0.52 m | |

Span Length Str. 0/12 to Str. 0/13 _____ m
Sagging Span: Str. 0/12 to Str. 0/13 68.3 m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Fibre | 11/12/18 | 9:20 | -8 | 0.28 m | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 0/14 to Str. 1/1 62.3 m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| OHSW | 11/12/18 | 9:20 | -8 | 0.51 m | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 0/103 to Str. 0/10C 58.3 m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Fibre | 11/12/18 | 10:00 | -8 | 0.22 m | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 0/12 to Str. 0/13 68.3 m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| OHSW | 11/12/18 | 9:20 | -8 | 0.60 m | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 0/14 to Str. 1/1 62.3 m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Fibre | 11/12/18 | 9:20 | -8 | 0.24 m | |

**Comments:**

| | Name | Date | Signature |
|---|---|---|---|
| QC Inspector | Phil McKinley | Nov 12 2018 | Phil McKinley |
| ~~Client QC~~ Inspector | TREVOR ANTAL | Nov 13/18 | |

Forbes Bros LTD
POWERLINE CONSTRUCTION

# Stringing and Sag Data

| Project: Eagle Gold 13.8 KV | Contr.#: | Line #: 2 | Voltage: 13.8 KV | Pull#: 1 | Str. 11 | to Str. 22 |
|---|---|---|---|---|---|---|

## Conductor

Left Side (face higher numbered structure) Line # _____

| Phase | Temp (°C) | Time | Reel Number | |
|---|---|---|---|---|
| TOP | | | | |
| C | | | | |
| BOT | | | | |

String Tension: _____

Right Side (face higher numbered structure) Line # _____

| Phase | Temp (°C) | Time | Reel Number | |
|---|---|---|---|---|
| TOP | | | | |
| C | | | | |
| BOT | | | | |

String Tension: _____

**Conductor:** Type: ACSR Size: 477 Manufacturer:

## SAGGING:

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 12 to Str. 13 60.6 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☑

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | 02/08/1 | 10:15 | -22 | 1.884 | A |
| Center | 02/08/1 | 10:15 | -22 | 1.884 | B |
| Bottom | 02/08/1 | 10:15 | -22 | 1.884 | C |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 13 to Str. 14 50.3 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☑

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | 02/08/1 | 10:15 | -22 | 1.774 | A |
| Center | 02/08/1 | 10:15 | -22 | 1.774 | B |
| Bottom | 02/08/1 | 10:15 | -22 | 1.774 | C |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 15 to Str. 16 54 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☑

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | 02/08/19 | 10:15 | -22 | 1.494 | A |
| Center | 02/08/19 | 10:15 | -22 | 1.494 | B |
| Bottom | 02/08/19 | 10:15 | -22 | 1.494 | C |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 18 to Str. 19 46.3 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☑

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | 02/08/1 | 13:30 | -22 | 1.246 | A |
| Center | 02/08/1 | 13:30 | -22 | 1.246 | B |
| Bottom | 02/08/1 | 13:30 | -22 | 1.246 | C |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 20 to Str. 21 46.8 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☑

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | 02/08/1 | 13:30 | -22 | 1.15 | A |
| Center | 02/08/1 | 13:30 | -22 | 1.15 | B |
| Bottom | 02/08/1 | 13:30 | -22 | 1.15 | C |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | | | | | |
| Center | | | | | |
| Bottom | | | | | |

Forbes Bros LTD
POWERLINE CONSTRUCTION

# Stringing and Sag Data

## Overhead: OHSW

**Left Side (face higher numbered structure)** Line # 2

| Date | Temp (°C) | Time | Structure Span | Type | Reel# |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |

**Right Side (face higher numbered structure)** Line #

| Date | Temp (°C) | Time | Structure Span | Type | Reel# |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |

## SAGGING:

Span Length Str. ____ to Str. ____ ____ m
Sagging Span: Str. 12 to Str. 13 60.6 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☑

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| OHSW | 02/08/1 | 10:15 | -22 | 1.478 | |

Span Length Str. ____ to Str. ____ ____ m
Sagging Span: Str. 13 to Str. 14 58.5 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☑

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| OHSW | 02/08/1 | 10:15 | -22 | 1.394 | |

Span Length Str. ____ to Str. ____ ____ m
Sagging Span: Str. 15 to Str. 16 54 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| OHSW | 02/08/1 | 10:15 | -22 | 1.178 | |

Span Length Str. ____ to Str. ____ ____ m
Sagging Span: Str. 18 to Str. 19 48.3 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| OHSW | 02/08/1 | 13:30 | -22 | 0.954 | |

Span Length Str. ____ to Str. ____ ____ m
Sagging Span: Str. 20 to Str. 21 46.8 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| OHSW | 02/08/1 | 13:30 | -22 | 0.884 | |

Span Length Str. ____ to Str. ____ ____ m
Sagging Span: Str. ____ to Str. ____ ____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

**Comments:**

OHSW No 5 Alumoweld
L2 11 - 17 Sag completed at 10:15 on February 8 2019
L2 17 - 22 Sag completed at 13:30 on February 8 2019

| | Name | Date | Signature |
|---|---|---|---|
| QC Inspector | Phil McKinley | Feb 12 2019 | Phil McKinley |
| Client QC Inspector | SVEN ARCHIMOWITZ | FEB 14/19 | SArchit |

Forbes Bros LTD
POWERLINE CONSTRUCTION

# Stringing and Sag Data

| Project: Eagle Gold 13.8 KV | Contr.#: | Line #: L2 | Voltage: 13.8 KV | Pull#: 2 | Str. 10 | to Str. Pole 1 |
|---|---|---|---|---|---|---|

## Conductor

Left Side (face higher numbered structure) Line # _____

| Phase | Temp (°C) | Time | Reel Number | |
|---|---|---|---|---|
| TOP | | | | |
| C | | | | |
| BOT | | | | |

String Tension: _____

Right Side (face higher numbered structure) Line # _____

| Phase | Temp (°C) | Time | Reel Number | |
|---|---|---|---|---|
| TOP | | | | |
| C | | | | |
| BOT | | | | |

String Tension: _____

**Conductor:** Type: ACSR Size: 477 Manufacturer:

## SAGGING:

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. Pole 6 to Str. Pole 5 49.9 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | 02/19/1 | 16:30 | -22 | 1.23 | Both Circuits |
| Center | 02/19/1 | 16:30 | -22 | 1.23 | Both Circuits |
| Bottom | 02/19/1 | 16:30 | -22 | 1.23 | Both Circuits |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. Pole 5 to Str. Pole 4 45.8 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | 02/19/1 | 16:30 | -22 | 1.034 | Both Circuits |
| Center | 02/19/1 | 16:30 | -22 | 1.034 | Both Circuits |
| Bottom | 02/19/1 | 16:30 | -22 | 1.034 | Both Circuits |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. Pole 3 to Str. Pole 2 43.8 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | 02/19/19 | 16:30 | -22 | 0.954 | Both Circuits |
| Center | 02/19/19 | 16:30 | -22 | 0.954 | Both Circuits |
| Bottom | 02/19/19 | 16:30 | -22 | 0.954 | Both Circuits |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | | | | | |
| Center | | | | | |
| Bottom | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | | | | | |
| Center | | | | | |
| Bottom | | | | | |

Forbes Bros LTD
POWERLINE CONSTRUCTION

# Stringing and Sag Data

## Overhead: OHSW

Left Side (face higher numbered structure) Line # 2

| Date | Temp (°C) | Time | Structure Span | Type | Reel# |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |

Right Side (face higher numbered structure) Line # _____

| Date | Temp (°C) | Time | Structure Span | Type | Reel# |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |

## SAGGING:

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. Pole 6 to Str. Pole 5 49.9 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| OHSW | 02/19/1 | 16:30 | -22 | 0.948 | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. Pole 5 to Str. Pole 4 45.8 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| OHSW | 02/19/1 | 16:30 | -22 | 0.798 | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. Pole 3 to Str. Pole 2 43.8 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| OHSW | 02/19/1 | 16:30 | -22 | 0.738 | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

**Comments:**

Sag completed at 16:30 on February 19 2019

| | Name | Date | Signature |
|---|---|---|---|
| QC Inspector | Phil McKinley | Feb 20 2019 | Phil McKinley |
| Client QC Inspector | Matt Caverdale | Feb 23, 2019 | MC |

Forbes Bros LTD
POWERLINE CONSTRUCTION

# Stringing and Sag Data

| Project: Eagle Gold 13.8 KV | Contr.#: | Line #: L2 | Voltage: 13.8 KV | Pull#: 2 | Str. 01 | to Str. 10 |
|---|---|---|---|---|---|---|

## Conductor

Left Side (face higher numbered structure) Line # _____

| Phase | Temp (°C) | Time | Reel Number | |
|---|---|---|---|---|
| TOP | | | | |
| C | | | | |
| BOT | | | | |

String Tension: _____

Right Side (face higher numbered structure) Line # _____

| Phase | Temp (°C) | Time | Reel Number | |
|---|---|---|---|---|
| TOP | | | | |
| C | | | | |
| BOT | | | | |

String Tension: _____

**Conductor:** Type: ACSR Size: 477 Manufacturer:

## SAGGING:

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 04 to Str. 05 59 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | 02/18/1 | 15:45 | -16 | 1.83 | Both circuits |
| Center | 02/18/1 | 15:45 | -16 | 1.83 | Both circuits |
| Bottom | 02/18/1 | 15:45 | -16 | 1.83 | Both circuits |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 06 to Str. 07 62 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | 02/18/1 | 15:45 | -16 | 2.02 | Both circuits |
| Center | 02/18/1 | 15:45 | -16 | 2.02 | Both circuits |
| Bottom | 02/18/1 | 15:45 | -16 | 2.02 | Both circuits |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 08 to Str. 09 52.5 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | 02/18/19 | 15:45 | -16 | 1.452 | Both circuits |
| Center | 02/18/19 | 15:45 | -16 | 1.452 | Both circuits |
| Bottom | 02/18/19 | 15:45 | -16 | 1.452 | Both circuits |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | | | | | |
| Center | | | | | |
| Bottom | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | | | | | |
| Center | | | | | |
| Bottom | | | | | |

Forbes Bros LTD
POWERLINE CONSTRUCTION

# Stringing and Sag Data

## Overhead: OHSW

Left Side (face higher numbered structure) Line # 2

| Date | Temp (°C) | Time | Structure Span | Type | Reel# |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |

Right Side (face higher numbered structure) Line # _____

| Date | Temp (°C) | Time | Structure Span | Type | Reel# |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |

## SAGGING:

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 04 to Str. 05 59 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| OHSW | 02/18/1 | 15:45 | -16 | 1.422 | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 06 to Str. 07 62 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| OHSW | 02/18/1 | 15:45 | -16 | 1.572 | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 08 to Str. 09 52.5 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| OHSW | 02/18/1 | 15:45 | -16 | 1.126 | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

**Comments:**

Sag completed at 15:45 on February 18 2019

| | Name | Date | Signature |
|---|---|---|---|
| QC Inspector | Phil McKinley | Feb 20 2019 | Phil McKinley |
| Client QC Inspector | Matt Courdale | Feb 23, 2019 | MC |

Forbes Bros Ltd
Powerline Construction

# Stringing and Sag Data

| Project: Eagle Gold 13.8 KV | Contr.#: | Line #: L1 | Voltage: 13.8 KV | Pull#: L1 | Str. 01 | to Str. 21 |
|---|---|---|---|---|---|---|

## Conductor

Left Side (face higher numbered structure) Line #

| Phase | Temp (°C) | Time | Reel Number | |
|---|---|---|---|---|
| TOP | | | | |
| C | | | | |
| BOT | | | | |

String Tension:

Right Side (face higher numbered structure) Line #

| Phase | Temp (°C) | Time | Reel Number | |
|---|---|---|---|---|
| TOP | | | | |
| C | | | | |
| BOT | | | | |

String Tension:

**Conductor:** Type: ACSR Size: 477 Manufacturer:

## SAGGING:

Span Length Str. ____ to Str. ____ ____ m
Sagging Span: Str. 2 to Str. 3 63.8 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | 02/06/1 | 10:30 | -28 | 1.994 | A |
| Center | 02/06/1 | 10:30 | -28 | 1.994 | B |
| Bottom | 02/06/1 | 10:30 | -28 | 1.994 | C |

Span Length Str. ____ to Str. ____ ____ m
Sagging Span: Str. 6 to Str. 7 50.5 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | 02/06/1 | 10:30 | -28 | 1.246 | A |
| Center | 02/06/1 | 10:30 | -28 | 1.246 | B |
| Bottom | 02/06/1 | 10:30 | -28 | 1.246 | C |

Span Length Str. ____ to Str. ____ ____ m
Sagging Span: Str. 7 to Str. 8 57.4 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | 02/06/19 | 10:30 | -28 | 1.616 | A |
| Center | 02/06/19 | 10:30 | -28 | 1.616 | B |
| Bottom | 02/06/19 | 10:30 | -28 | 1.616 | C |

Span Length Str. ____ to Str. ____ ____ m
Sagging Span: Str. 10 to Str. 11 45.7 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | 02/06/1 | 12:15 | -28 | 0.956 | A |
| Center | 02/06/1 | 12:15 | -28 | 0.956 | B |
| Bottom | 02/06/1 | 12:15 | -28 | 0.956 | C |

Span Length Str. ____ to Str. ____ ____ m
Sagging Span: Str. 14 to Str. 15 56.6 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | 02/06/1 | 12:15 | -28 | 1.574 | A |
| Center | 02/06/1 | 12:15 | -28 | 1.574 | B |
| Bottom | 02/06/1 | 12:15 | -28 | 1.574 | C |

Span Length Str. ____ to Str. ____ ____ m
Sagging Span: Str. 18 to Str. 19 53.3 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | 02/06/1 | 12:15 | -28 | 1.556 | A |
| Center | 02/06/1 | 12:15 | -28 | 1.556 | B |
| Bottom | 02/06/1 | 12:15 | -28 | 1.556 | C |

Forbes Bros LTD
POWERLINE CONSTRUCTION

# Stringing and Sag Data

## Overhead: OHSW

Left Side (face higher numbered structure) Line # L1

| Date | Temp (°C) | Time | Structure Span | Type | Reel# |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |

Right Side (face higher numbered structure) Line # _____

| Date | Temp (°C) | Time | Structure Span | Type | Reel# |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |

## SAGGING:

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 2 to Str. 3 63.8 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| OHSW | 02/06/1 | 10:30 | -28 | 1.56 | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 6 to Str. 7 50.5 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| OHSW | 02/06/1 | 10:30 | -28 | 0.978 | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 7 to Str. 8 57.4 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| OHSW | 02/06/1 | 10:30 | -28 | 1.262 | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 10 to Str. 11 43.7 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| OHSW | 02/06/1 | 12:15 | -28 | 0.742 | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 14 to Str. 15 56.6 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| OHSW | 02/06/1 | 12:15 | -28 | 1.226 | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 18 to Str. 19 53.3 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| OHSW | 02/06/1 | 12:15 | -28 | 1.212 | |

**Comments:**

Shield Wire is No 5 Alumoweld
L1 01 - 09 Sag completed at 10:30 on February 6 2019
L1 09 - 21 Sag completed at 12:15 on February 6 2019

| | Name | Date | Signature |
|---|---|---|---|
| QC Inspector | Phil McKinley | Feb 11 2019 | Phil McKinley |
| Client QC Inspector | SVEN ARCHIMOWITZ | FEB 14/19 | Sarchimowitz |

Forbes Bros Ltd
POWERLINE CONSTRUCTION

# Clipping Inspection

| Project No. | 4581 | Project Name | Eagle Gold 69 KV | | |
|---|---|---|---|---|---|
| Line No. | L251 | From Structure No. | 32/8 | To Structure No. | 37/9 |

## Checklist

| Items | Inspected | Comments |
|---|---|---|
| Verify if Required, any crossing Permits and agreements are in place | Y ☐ N/A ☑ | |
| Verify Conductor is sagged as specified | Y ☑ N/A ☐ | |
| Insulator strings on at least 3 suspension structures adjacent to the new sag section clipped in | Y ☑ N/A ☐ | |
| Verify all Insulators & conductor hardware is clean & free of defects | Y ☑ N/A ☐ | |
| Travelers removed and conductor clipped in as per specifications | Y ☑ N/A ☐ | |
| Verify Suspension clamp is plumb and centered on conductor point mark | Y ☑ N/A ☐ | |
| Compression joints required in sagged span and recorded | Y ☐ N/A ☑ | |
| All assemblies are made in strict accordance with the manufacture applicable specifications | Y ☑ N/A ☐ | |
| Sagged conductor is free from any Bird caging/damage and does not required any repair | Y ☑ N/A ☐ | |
| Verify no metal contact made with Insulators and no conductor damage during Clipping procedure | Y ☑ N/A ☐ | |

Additional Comments

No compression or implos used
32/8, 35/3,37/9 deadend hardware and insulators have been verified as correct as per drawing

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR DUNTAC | | Jan 19/19 |
| Quality Representative | Phil McKinley | Phil McKinley | Jan 18 2019 |
| Client Representative | | | |

# ATTACHMENT D

## Quality Control Inspection and Testing

CLARK BUILDERS
ENERGY & RESOURCES

PROJECT MANAGER: DUSTIN DOLYNCHUK, P.ENG
QA/QC COORDINATOR: RYAN DE MILLIANO, C.E.T.
SUPERINTENDENT: GARRY DAHL

# CONCRETE REINFORCEMENT PRE POUR

Rev 01 August 25, 2018

| | |
|---|---|
| SUBCONTRACTOR: Ultimate Reinforcing // McNish | INSPECTION DATE: NOV 7 2018 |
| SUBCONTRACTOR CONTACT PERSON: GARRY DAHL | PROJ. POUR DATE: NOV 9 2018 |
| INSPECTOR(S): GARRY DAHL / Clean Energy & MASS CREEK | |
| LOCATION: Substation | |
| DRAWING REV: 1 | DRAWING NO.(S): Clean Energy 1407.2-C-3015 SPEC SECTION(S): S03 20 00 – Concrete Reinforcing Steel |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Grade (400W unless otherwise noted) and type of steel delivered and installed as required by approved drawings. | ☑ | ☐ | ☐ |
| 2.0 | Inspect rebar distribution, spacing and cover per design/project requirements. | ☑ | ☐ | ☐ |
| 3.0 | Length of splices as specified | ☑ | ☐ | ☐ |
| 4.0 | Staggered splices as specified | ☑ | ☐ | ☐ |
| 5.0 | Any mechanical splices have been approved by the owner prior to install | ☑ | ☐ | ☐ |
| 6.0 | Bars cleaned and free of material that may reduce bond including loose rust, scale, oil, structural defects and that they are uncoated and unpainted. | ☑ | ☐ | ☐ |
| 7.0 | Dowels at wall ends, construction joints, and openings as specified (length, location, size, etc.) | ☑ | ☐ | ☐ |
| 8.0 | No unauthorized field bent bars including hooks installed | ☐ | ☐ | ☑ |
| 9.0 | Resolve conflicts between embedded items and reinforcement | ☐ | ☐ | ☑ |
| 10.0 | When authorized, field bends done without heat and inspected for fissures or cracks. | ☐ | ☐ | ☑ |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 11.0 | Bars tied and supported to prevent displacement | ☑ | ☐ | ☐ |
| 12.0 | Spacers, tie wire and chairs as required | ☑ | ☐ | ☐ |
| 13.0 | Conduits at design location and minimum separation from rebar as specified | ☑ | ☐ | ☐ |
| 14.0 | No contact of bars is made with dissimilar metals as per CSA A23.1 | ☑ | ☐ | ☐ |
| 15.0 | Bars, nails or tie wire not sticking out from surfaces that allow rusting/corrosion | ☑ | ☐ | ☐ |
| 16.0 | Rebar welds are inspected by qualified inspectors certified to CSA W178.2 | ☐ | ☐ | ☑ |
| 17.0 | No rebar congestion or other obstruction for deposit of concrete | ☑ | ☐ | ☐ |
| 18.0 | Adjustments required for interfering items (piping, inserts, sleeves, etc.) have been submitted and approved by owner. | ☑ | ☐ | ☐ |
| 19.0 | Rebar was stored off ground to prevent damage/corrosion | ☑ | ☐ | ☐ |
| 20.0 | Review drawings for anchors, piping, sleeves, boxes | ☑ | ☐ | ☐ |

COMMENTS:

Inspection on Transformer Base and circuit switcher
- NOT ABLE TO VERIFY CIRCUIT SWITCHER ANCHOR PLACEMENT AT TIME OF INSPECTION. TO BE VERIFIED BEFORE POUR
- CONDUIT SLIGHTLY OFF CENTRE (~150mm) DOES NOT CONFLICT WITH ANCHORS :- OKAY AS CONFIRMED W/ ELECTRICAL SUPERINTENDENT DON CARTER

ATTACHMENT(S):

DEFICIENCIES NOTES:

- 2 LONGITUDINAL BARS ADDED TO T1 PEDESTAL PAD (2700 LONG) NCR
- 4 CORNER VERTICALS ADDED TO T2 TRANSFORMER PLINTH NCR

CLARK BUILDERS:
INSPECTOR: _____ TITLE: Supt DATE: NOV 7 2018

JDS ENERGY & MINING:
INSPECTOR: _____ TITLE: ENG. DATE: NOV 7 2018

* TRANSFORMER FIRST STAGE POUR ONLY *

CLARK BUILDERS
ENERGY & RESOURCES



PROJECT MANAGER: DUSTIN DOLYNCHUK, P.ENG
QA/QC COORDINATOR: RYAN DE MILLIANO, C.E.T.
SUPERINTENDENT: GARRY DAHL

# FORMWORK & FALSEWORK PRE POUR | QA INSPECTION

Rev 01 August 25, 2018

| | |
|---|---|
| CONTRACTOR: Clark Builders | INSPECTION DATE: Nov 7 2018 |
| CONTRACTOR CONTACT PERSON: Garry Dahl | DATE OF POUR: Nov 9 2018 |
| INSPECTOR(S): Garry Dahl / JDS; Clean Energy | |
| LOCATION: Substation Transformer Base and Switcher | |
| DRAWING REV: 1 | DRAWING NO.(S): Clean Energy 1407.2-C-3015 / SPEC SECTION(S): |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Location, survey, dimension and grades as required | ☑ | ☐ | ☐ |
| 2.0 | Plumbness and Flatness verified | ☑ | ☐ | ☐ |
| 3.0 | Joints are aligned and watertight. | ☑ | ☐ | ☐ |
| 4.0 | Formwork shop drawings are Engineered and reviewed | ☑ | ☐ | ☐ |
| 5.0 | Re-used formwork reconditioned and treated | ☑ | ☐ | ☐ |
| 6.0 | Formwork and ties according to finishing requirements. Confirm no holes in the concrete surface are greater than 25mm in diameter or expose steel at less than 25mm from surface. As per spec. | ☑ | ☐ | ☐ |
| 7.0 | Installation of embeds are located and secured | ☑ | ☐ | ☐ |
| 8.0 | Chamfer requirements checked. 25mm chamfers required for all exterior corners and edges exposed to view including horizontal edges of pads. | ☐ | ☐ | ☑ |
| 9.0 | Key ways and/or other provisions according to design are provided in construction joints | ☐ | ☐ | ☑ |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 10.0 | Inspect types of form spacers, ties and bracing. | ☑ | ☐ | ☐ |
| 11.0 | Spacing of ties to be set to a pattern | ☑ | ☐ | ☐ |
| 12.0 | Expansion, construction, contraction joints as required & located as coordinated with structural Engineer | ☐ | ☐ | ☑ |
| 13.0 | Forms secured against movement during placing | ☑ | ☐ | ☐ |
| 14.0 | Forms are braced for alignment and blow out | ☑ | ☐ | ☐ |
| 15.0 | Forms are cleaned of all debris, and dry, prior to concrete placement including standing water. | ☑ | ☐ | ☐ |
| 16.0 | Openings in formwork permit inspection and cleaning, placing and compaction of concrete, and forming and processing of construction joints. | ☑ | ☐ | ☐ |
| 17.0 | Formwork has been coated with release agent prior to rebar placement. | ☑ | ☐ | ☐ |
| 18.0 | Anchor Bolts and Embeds are secured to formwork. | ☑ | ☐ | ☐ |

COMMENTS:

Inspection on Transformer Base and Circuit Switcher
- VERIFY THAT CHAMFER IS IN PLACE FOR CIRCUIT SWITCHER FOUNDATION.

ATTACHMENT(S):

DEFICIENCIES NOTES:

INITIAL INSPECTION

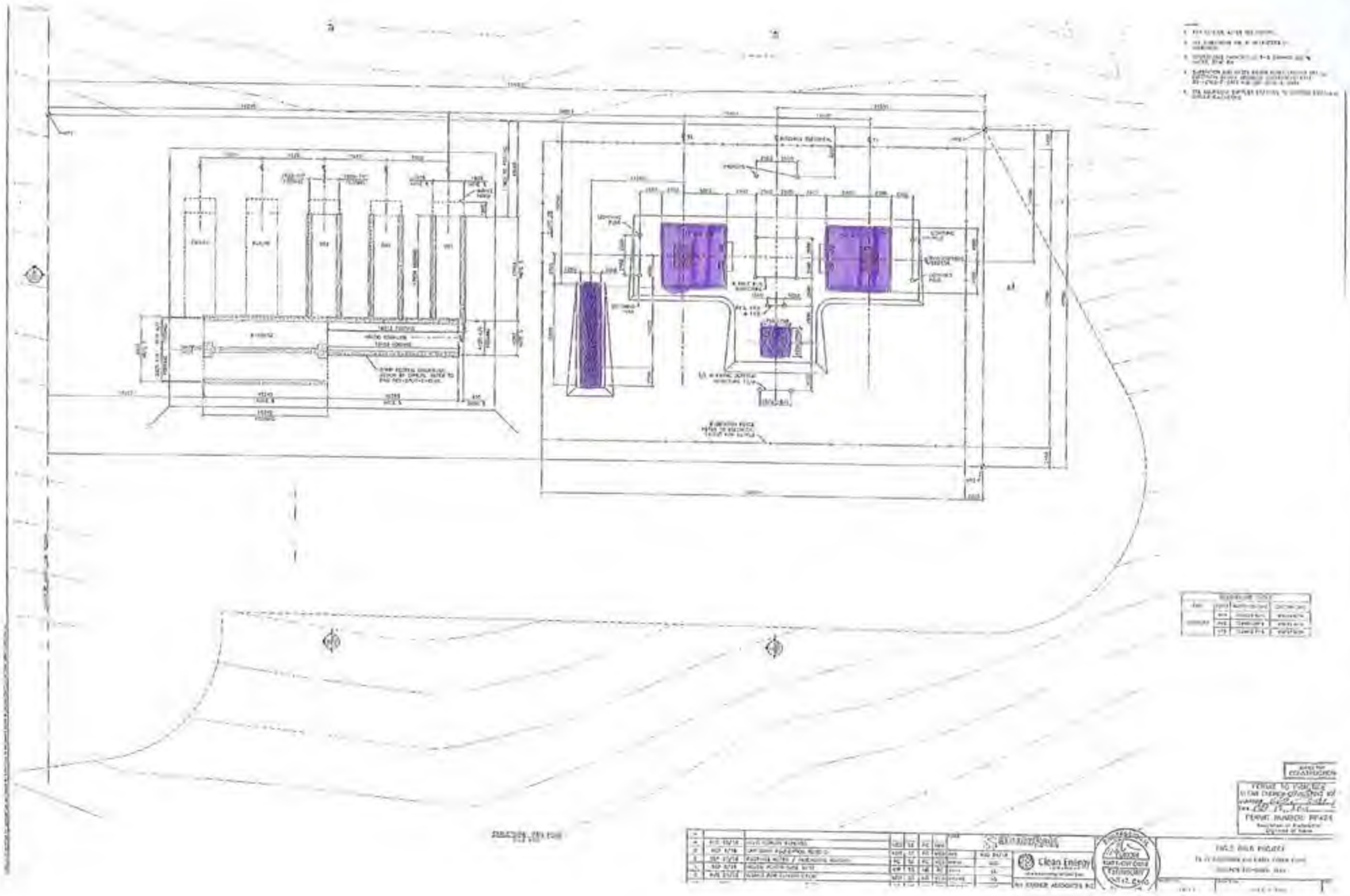
INSPECTOR: _____ TITLE _____ DATE: Nov 7 2018

RE-INSPECTION (DEFICIENCIES COMPLETED)

INSPECTOR: _____ TITLE _____ DATE: _____

Garry Dahl

* CIRCUIT SWITCHER ANCHORS TO BE INSTALLED AND VERIFIED PRIOR TO POUR *
* FIRST STAGE TRANSFORMER POUR ONLY *


Clean Energy

CLARK BUILDERS
ENERGY & RESOURCES

CB-INSPECTION FORM-DOC-002 REV.02
CONCRETE POST POUR CURINGINSPECTION FORM
JDS ENERGY & MINING INC. | STRATAGOLD EAGLE GOLD
PROJECT #: CB201 | 18502

# CONCRETE POST POUR COLD WEATHER MONITORING

Rev 02 Nov 4, 2018

| | |
|---|---|
| CONTRACTOR: Clark Builders | DATE OF POUR: Nov 8 /18 |
| AMBIENT TEMP at POUR (°C): | DATE FORMWORK STRIPPED: |
| LOCATION: Substation 3 Foundations. | SPEC SECTION(S): S03 30 00 – Cast-In-Place |

TYPE OF CURING:

| | | | | | |
|---|---|---|---|---|---|
| CURING COMPOUND | ☐ | DAMP BURLAP OR FABRIC | ☐ | INSULATION (TARPS) | ☑ |
| POLYETHYLENE SHEETS | ☐ | WATER/FOG SPRAY/ PONDING | ☐ | FORMS (COVERED BY) | ☐ |

| COLD WEATHER REQUIREMENTS (WHEN AMB. TEMP < 5°C) | PASS | FAIL | N/A | REMARKS |
|---|---|---|---|---|
| Protection in place and temperatures not lower than 20°C or until 70% of the 28-day strength has been reached. | ☑ | ☐ | ☐ | |
| Cold weather protection provided by means of heated enclosures, coverings, insulation, or a suitable approved combination of these methods during complete curing period. | ☑ | ☐ | ☐ | |
| Concrete test cylinders are kept within hoarding or in area where temperatures are ideal for curing. (No frozen Cylinders) | ☐ | ☐ | ☐ | Was Never |
| Heat is not directed onto concrete. This may result in thermal cracking. | ☑ | ☐ | ☐ | |
| During freezing weather, and standing water removed before the end of the protection period (CSA A 23.1 clause 7.4.2.4.2) | ☑ | ☐ | ☐ | |
| | | | | |

CONCRETE CURING TEMPERATURE LOG (COLD WEATHER CONCRETEING ONLY)

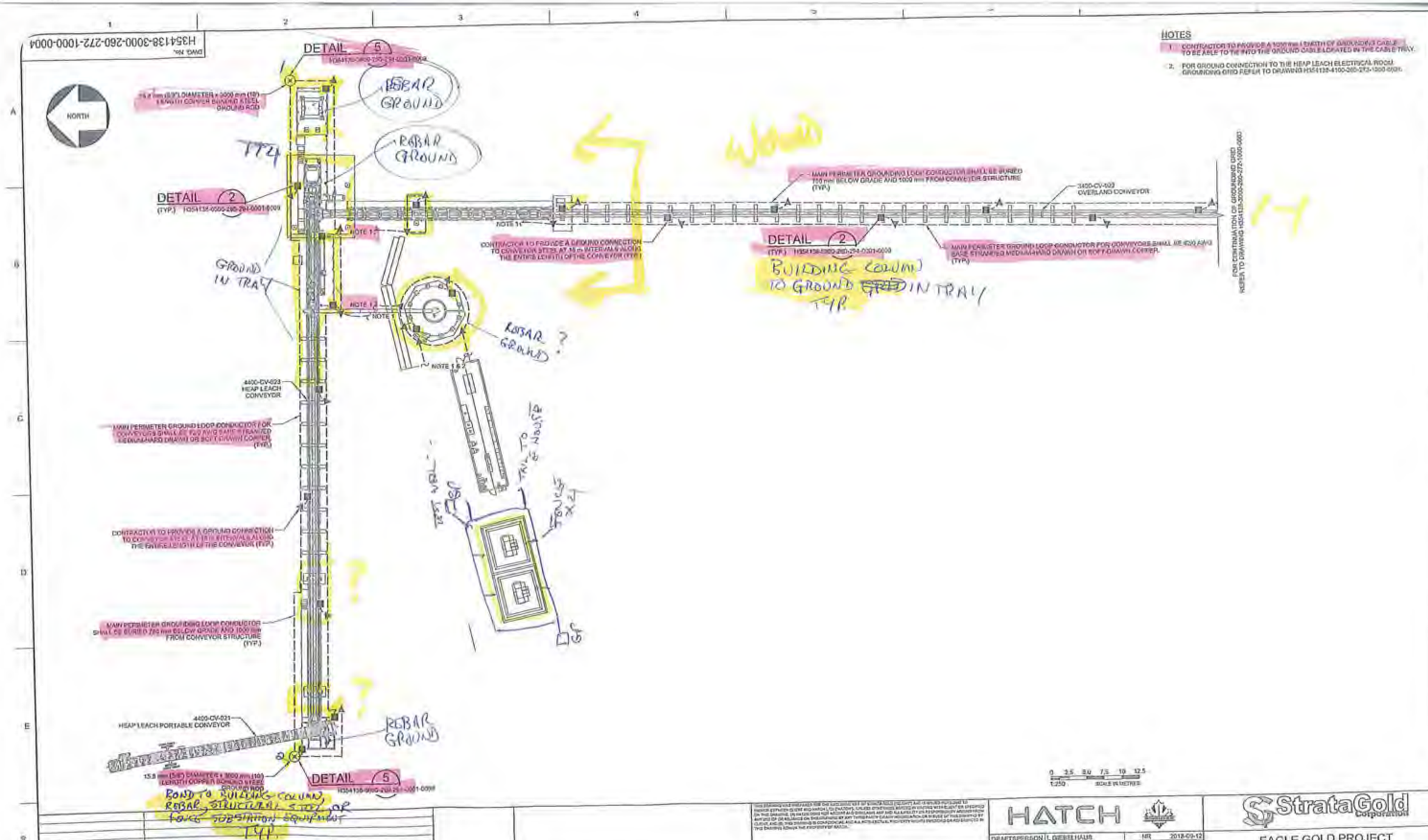
| DATE | TIME (24 HR) | OUTSIDE AIR TEMP (°C) | TEMP INSIDE HOARDING (°C) | CONCRETE SURFACE TEMP (°C) | | INITIALS OF READER |
|---|---|---|---|---|---|---|
| | | | | HIGH (°C) | LOW (°C) | |
| Nov 9 | 7:30 Am | -13 | 28 | 30 | 27 | |
| Nov 9 | 6:00 Pm | -15 | 30 | 31 | 22 | |
| Nov 10 | 7:30 Am | -18 | 30 | 34 | 26 | |
| Nov 10 | 6:00 Pm | -21 | 30 | 32 | 25 | |
| Nov 11 | 7:30 Am | -15 | 32 | 28 | 20 | |
| Nov 11 | 3:00 Pm | -9 | 16 | 14 | 10 | |
| Nov 11 | 6:00 Pm | -9 | 16 | 15 | 8 | |
| COMMENTS: | | | | | | |

CLARK BUILDERS SITE REPRESENTATIVE

PRINT/ SIGN: Craig TITLE Foreman DATE: Nov 11 /18



, 2018




## NOTES

1. CONTRACTOR TO PROVIDE A 1000 mm LENGTH OF GROUNDING CABLE TO BE ABLE TO TIE INTO THE GROUND CABLE LOCATED IN THE CABLE TRAY.
2. FOR GROUND CONNECTION TO THE HEAP LEACH ELECTRICAL ROOM GROUNDING GRID REFER TO DRAWING H354138-4100-260-272-1000-0001.

| DRAWING No. | DRAWING TITLE |
|---|---|
| H354138-0000-260-294-0001-0002 | SITE ELECTRICAL NOTES, LEGENDS AND SYMBOLS |
| H354138-0000-260-294-0001-0001 | SITE ELECTRICAL NOTES, LEGENDS AND SYMBOLS |

REFERENCE DRAWINGS

REG. PROFESSIONAL

| No. | DESCRIPTION | BY | CHK'D | DATE |
|---|---|---|---|---|

REVISIONS

HATCH

| | | | |
|---|---|---|---|
| DRAFTSPERSON | L GIEBELHAUS | NR | 2018-09-12 |
| DESIGNER | L GIEBELHAUS | NR | 201-09-12 |
| CHECKER | M TIETZ | | |
| DESIGN COORD. | S PERKINS | | |
| RESP. ENG. | M TIETZ | | |
| LEAD DISC. ENG. | M TIETZ | | |
| ENG. MANAGER | B RUSTAD | | |
| PROJ. MANAGER | B RUSTAD | | |
| ROLE | NAME | SIGNATURE & DATE | |

DRAWING APPROVAL STATUS: Approved for Construction

StrataGold Corporation

EAGLE GOLD PROJECT

ORE CRUSHING & HANDLING CONVEYOR GROUNDING LAYOUT PLAN

SCALE 1:250 OR AS NOTED | DWG. No. H354138-3000-260-272-1000-0004 | REV 0

SHEET SIZE: D

SPILELS PRINTED: 18-SEP-2018 13:40

CLARK BUILDERS
ENERGY & RESOURCES

# CONCRETE REINFORCEMENT PRE POUR

Rev 01 August 25, 2018

| | |
|---|---|
| SUBCONTRACTOR: Ultimate Reinforcing // McNish | INSPECTION DATE: NOV 13 2018 |
| SUBCONTRACTOR CONTACT PERSON: GARRY DAHL | PROJ. POUR DATE: NOV 13 2018 |
| INSPECTOR(S): GARRY DAHL / JDS* | |
| LOCATION: Transformer NORTH Walls and Pedestals (6320 Submission) | |
| DRAWING REV: | DRAWING NO (S): CLEAN ENERGY |
| SPEC SECTION(S): 503 20 00 – Concrete Reinforcing Steel | |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Grade (400W unless otherwise noted) and type of steel delivered and installed as required by approved drawings | ☑ | ☐ | ☐ |
| 2.0 | Inspect rebar distribution, spacing and cover per design/project requirements. | ☑ | ☐ | ☐ |
| 3.0 | Length of splices as specified | ☑ | ☐ | ☐ |
| 4.0 | Staggered splices as specified | ☑ | ☐ | ☐ |
| 5.0 | Any mechanical splices have been approved by the owner prior to install | ☑ | ☐ | ☐ |
| 6.0 | Bars cleaned and free of material that may reduce bond including loose rust, scale, oil, structural defects and that they are uncoated and unpainted. | ☑ | ☐ | ☐ |
| 7.0 | Dowels at wall ends, construction joints, and openings as specified (length, location, size, etc.) | ☑ | ☐ | ☐ |
| 8.0 | No unauthorized field bent bars including hooks installed | ☐ | ☐ | ☑ |
| 9.0 | Resolve conflicts between embedded items and reinforcement | ☑ | ☐ | ☐ |
| 10.0 | When authorized, field bends done without heat and inspected for fissures or cracks. | ☐ | ☐ | ☑ |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 11.0 | Bars tied and supported to prevent displacement | ☑ | ☐ | ☐ |
| 12.0 | Spacers, tie wire and chairs as required | ☑ | ☐ | ☐ |
| 13.0 | Conduits at design location and minimum separation from rebar as specified | ☑ | ☐ | ☐ |
| 14.0 | No contact of bars is made with dissimilar metals as per CSA A23.1 | ☑ | ☐ | ☐ |
| 15.0 | Bars, nails or tie wire not sticking out from surfaces that allow rusting/corrosion | ☑ | ☐ | ☐ |
| 16.0 | Rebar welds are inspected by qualified inspectors certified to CSA W178.2 | ☐ | ☐ | ☑ |
| 17.0 | No rebar congestion or other obstruction for deposit of concrete | ☑ | ☐ | ☐ |
| 18.0 | Adjustments required for interfering items (piping, inserts, sleeves, etc.) have been submitted and approved by owner | ☑ | ☐ | ☐ |
| 19.0 | Rebar was stored off ground to prevent damage/corrosion | ☑ | ☐ | ☐ |
| 20.0 | Review drawings for anchors, piping, sleeves, boxes | ☑ | ☐ | ☐ |

COMMENTS:

ATTACHMENT(S):

NOV 13/18 - Corner reinforcing had 2 loose bars. TIED / FIXED
- TEMPERATURE IN HOARDING @ +26°C PRIOR TO POUR
- GROUNDING TIE INS INSPECTED AND APPROVED

DEFICIENCIES NOTES:

CLARK BUILDERS:

INSPECTOR: GARRY DAHL / Ryan deMilliano TITLE: Supt / Project Coordinator DATE: NOV 13/18 / Nov 13/18

JDS ENERGY & MINING:

INSPECTOR: JERRY/MATT TITLE: DATE:

CLARK BUILDERS
ENERGY & RESOURCES

# FORMWORK & FALSEWORK PRE POUR | QA INSPECTION

Rev 01 August 25, 2018

| | |
|---|---|
| CONTRACTOR: Clark Builders | INSPECTION DATE: Nov 13 2018 |
| CONTRACTOR CONTACT PERSON: Garry DAHL / Greg. | DATE OF POUR: Nov 13 2018 |
| INSPECTOR(S): Garry DAHL / JDS * | |
| LOCATION: Sub Station North Transformer Walls and Pedestals | |
| DRAWING REV: | DRAWING NO.(S): Clean Energy |
| SPEC SECTION(S): | |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Location, survey, dimension and grades as required | ☑ | ☐ | ☐ |
| 2.0 | Plumbness and Flatness verified | ☑ | ☐ | ☐ |
| 3.0 | Joints are aligned and watertight. | ☑ | ☐ | ☐ |
| 4.0 | Formwork shop drawings are Engineered and reviewed | ☐ | ☐ | ☑ |
| 5.0 | Re-used formwork reconditioned and treated | ☑ | ☐ | ☐ |
| 6.0 | Formwork and ties according to finishing requirements. Confirm no holes in the concrete surface are greater than 25mm in diameter or expose steel at less than 25mm from surface. As per spec. | ☑ | ☐ | ☐ |
| 7.0 | Installation of embeds are located and secured | ☑ | ☐ | ☐ |
| 8.0 | Chamfer requirements checked. 25mm chamfers required for all exterior corners and edges exposed to view including horizontal edges of pads | ☑ | ☐ | ☐ |
| 9.0 | Key ways and/or other provisions according to design are provided in construction joints | ☑ | ☐ | ☐ |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 10.0 | Inspect types of form spacers, ties and bracing. | ☑ | ☐ | ☐ |
| 11.0 | Spacing of ties to be set to a pattern | ☑ | ☐ | ☐ |
| 12.0 | Expansion, construction, contraction joints as required & located as coordinated with structural Engineer | ☐ | ☐ | ☑ |
| 13.0 | Forms secured against movement during placing | ☑ | ☐ | ☐ |
| 14.0 | Forms are braced for alignment and blow out | ☑ | ☐ | ☐ |
| 15.0 | Forms are cleaned of all debris, and dry, prior to concrete placement including standing water. | ☑ | ☐ | ☐ |
| 16.0 | Openings in formwork permit inspection and cleaning, placing and compaction of concrete, and forming and processing of construction joints. | ☐ | ☐ | ☑ |
| 17.0 | Formwork has been coated with release agent prior to rebar placement. | ☑ | ☐ | ☐ |
| 18.0 | Anchor Bolts and Embeds are secured to formwork. | ☑ | ☐ | ☐ |

COMMENTS:

ATTACHMENT(S):

DEFICIENCIES NOTES:

INITIAL INSPECTION

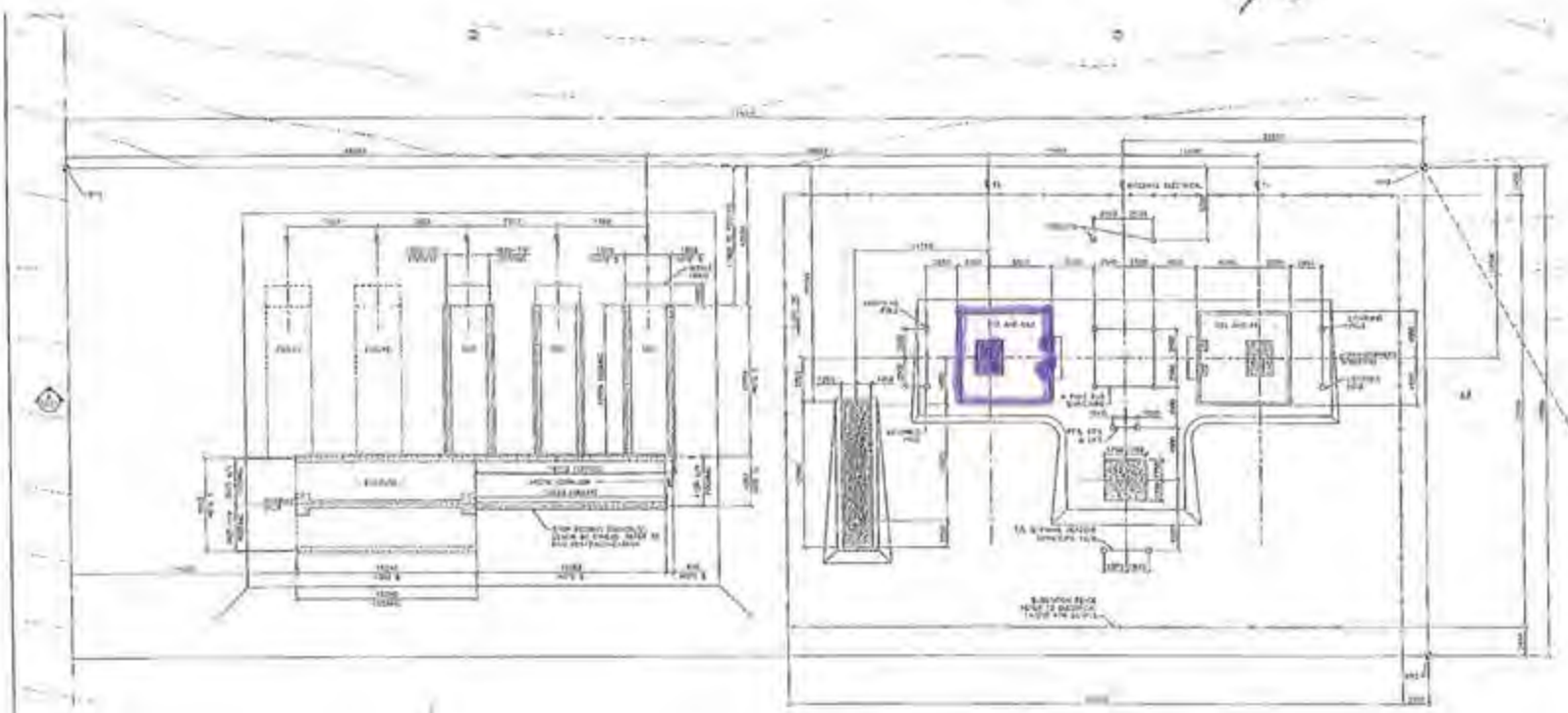
INSPECTOR: X Garry Dahl TITLE Superintendent DATE: Nov 13 2018

RE-INSPECTION (DEFICIENCIES COMPLETED)

INSPECTOR: N/A TITLE DATE:

Garry DAHL

Nov 13/18, 6









# CONCRETE POST POUR COLD WEATHER MONITORING

Rev 02 Nov 4, 2018

| | |
|---|---|
| CONTRACTOR: Clark Builders | DATE OF POUR: Nov 13/2018 |
| AMBIENT TEMP at POUR (°C): -10°C | DATE FORMWORK STRIPPED: |
| LOCATION: 6320 // CS2 T2 Walls and Pilasters (x2) and Pad (x1) | SPEC SECTION(S): 503 30 00 – Cast-In-Place |

TYPE OF CURING:

| | | | | | |
|---|---|---|---|---|---|
| CURING COMPOUND | ☐ | DAMP BURLAP OR FABRIC | ☐ | INSULATION (TARPS) | ☒ |
| POLYETHYLENE SHEETS | ☐ | WATER/FOG SPRAY/ PONDING | ☐ | FORMS (COVERED BY) | ☒ |

| COLD WEATHER REQUIREMENTS (WHEN AMB. TEMP < 5°C) | PASS | FAIL | N/A | REMARKS |
|---|---|---|---|---|
| Protection in place and temperatures not lower than 20°C or until 70% of the 28-day strength has been reached | ☑ | ☐ | ☐ | |
| Cold weather protection provided by means of heated enclosures, coverings, insulation, or a suitable approved combination of these methods during complete curing period. | ☑ | ☐ | ☐ | |
| Concrete test cylinders are kept within hoarding or in area where temperatures are ideal for curing. (No frozen Cylinders) | ☑ | ☐ | ☐ | Located on Carbonic Formation (125t) |
| Heat is not directed onto concrete. This may result in thermal cracking. | ☑ | ☐ | ☐ | |
| During freezing weather, and standing water removed before the end of the protection period (CSA A 23.1 clause 7.4.2 4.2) | ☑ | ☐ | ☐ | |

CONCRETE CURING TEMPERATURE LOG (COLD WEATHER CONCRETEING ONLY)

| DATE | TIME (24 HR) | OUTSIDE AIR TEMP (°C) | TEMP INSIDE HOARDING (°C) | CONCRETE SURFACE TEMP (°C) | | INITIALS OF READER |
|---|---|---|---|---|---|---|
| | | | | HIGH (°C) | LOW (°C) | |
| Nov 14/18 | 07:30 | -15°C | +20 | +26 | +21 | ZD |
| Nov 14/18 | 11:00 | -12°C | +21 | +27 | +22 | ZD |
| Nov 14/18 | 17:15 | -12 | +19 | +25 | +23 | ZD |
| Nov 15/18 | 09:15 | -21 | +20 | +24 | +22 | ZD |
| Nov 15/18 | 19:15 | -23 | +18 | +24 | +21 | ZD |
| Nov 16/18 | 09:30 | -22 | +12 | +15°C | +10 | ZD |
| Nov 16/18 | 15:45 | -20 | +9 | +14°C | +5°C | ZD |

Down to one heater to trigger heat.

COMMENTS:

CLARK BUILDERS SITE REPRESENTATIVE

PRINT/ SIGN: Ryan deMillione // TITLE Project Coordinator DATE: Nov 16/18

CLARK BUILDERS
ENERGY & RESOURCES

# CONCRETE REINFORCEMENT PRE POUR

Rev 01 August 25, 2018

| | |
|---|---|
| SUBCONTRACTOR: Ultimate Reinforcing // McNish | INSPECTION DATE: NOV 13 2018 |
| SUBCONTRACTOR CONTACT PERSON: GARRY DAHL | PROJ. POUR DATE: NOV 13 2018 |
| INSPECTOR(S): GARRY DAHL / JDS* | |
| LOCATION: Transformer NORTH Walls and Pedestals (6320 Substation) | |
| DRAWING REV: | DRAWING NO.(S): CLEAN ENERGY |
| SPEC SECTION(S): S03 20 00 – Concrete Reinforcing Steel | |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Grade (400W unless otherwise noted) and type of steel delivered and installed as required by approved drawings. | ☑ | ☐ | ☐ |
| 2.0 | Inspect rebar distribution, spacing and cover per design/project requirements | ☑ | ☐ | ☐ |
| 3.0 | Length of splices as specified | ☑ | ☐ | ☐ |
| 4.0 | Staggered splices as specified | ☑ | ☐ | ☐ |
| 5.0 | Any mechanical splices have been approved by the owner prior to install | ☑ | ☐ | ☐ |
| 6.0 | Bars cleaned and free of material that may reduce bond including loose rust, scale, oil, structural defects and that they are uncoated and unpainted. | ☑ | ☐ | ☐ |
| 7.0 | Dowels at wall ends, construction joints, and openings as specified (length, location, size, etc.) | ☑ | ☐ | ☐ |
| 8.0 | No unauthorized field bent bars including hooks installed | ☐ | ☐ | ☑ |
| 9.0 | Resolve conflicts between embedded items and reinforcement | ☑ | ☐ | ☐ |
| 10.0 | When authorized, field bends done without heat and inspected for fissures or cracks. | ☐ | ☐ | ☑ |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 11.0 | Bars tied and supported to prevent displacement | ☑ | ☐ | ☐ |
| 12.0 | Spacers, tie wire and chairs as required | ☑ | ☐ | ☐ |
| 13.0 | Conduits at design location and minimum separation from rebar as specified | ☑ | ☐ | ☐ |
| 14.0 | No contact of Bars is made with dissimilar metals as per CSA A23.1 | ☑ | ☐ | ☐ |
| 15.0 | Bars, nails or tie wire not sticking out from surfaces that allow rusting/corrosion | ☑ | ☐ | ☐ |
| 16.0 | Rebar welds are inspected by qualified inspectors certified to CSA W178.2 | ☐ | ☐ | ☑ |
| 17.0 | No rebar congestion or other obstruction for deposit of concrete | ☑ | ☐ | ☐ |
| 18.0 | Adjustments required for interfering items (piping, inserts, sleeves, etc.) have been submitted and approved by owner. | ☑ | ☐ | ☐ |
| 19.0 | Rebar was stored off ground to prevent damage/corrosion | ☑ | ☐ | ☐ |
| 20.0 | Review drawings for anchors, piping, sleeves, boxes | ☑ | ☐ | ☐ |

COMMENTS:

ATTACHMENT(S):

Nov 13/18 - Corner reinforcing had 2 loose bars. Tied / Fixed
- Temperature in Hoarding @ +26°C prior to pour.
- Grounding tie ins inspected and approved

DEFICIENCIES NOTES:

CLARK BUILDERS:

INSPECTOR: Garry DAHL / Ryan de Milliano TITLE: Supt / Project Coordinator DATE: Nov 13/18 / Nov 13/18

JDS ENERGY & MINING:

INSPECTOR: Jerry/Matt TITLE: DATE:

CLARK BUILDERS
ENERGY & RESOURCES



PROJECT MANAGER: DUSTIN DOLYNCHUK, P.ENG
QA/QC COORDINATOR: RYAN DE MILLIANO, C.E.T.
SUPERINTENDENT: GARRY DAHL

# FORMWORK & FALSEWORK PRE POUR | QA INSPECTION

Rev 01 August 25, 2015

| | |
|---|---|
| CONTRACTOR: Clark Builders | INSPECTION DATE: Nov 13 2018 |
| CONTRACTOR CONTACT PERSON: Garry DAHL / Greg. | DATE OF POUR: Nov 13 2018 |
| INSPECTOR(S): Garry DAHL / JDS * | |
| LOCATION: Substation North Transformer Walls and Pedestals | |
| DRAWING REV: | DRAWING NO (S): Clean Energy / SPEC SECTION(S): |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Location, survey, dimension and grades as required | ☑ | ☐ | ☐ |
| 2.0 | Plumbness and Flatness verified | ☑ | ☐ | ☐ |
| 3.0 | Joints are aligned and watertight. | ☑ | ☐ | ☐ |
| 4.0 | Formwork shop drawings are Engineered and reviewed | ☐ | ☐ | ☑ |
| 5.0 | Re-used formwork reconditioned and treated | ☑ | ☐ | ☐ |
| 6.0 | Formwork and ties according to finishing requirements. Confirm no holes in the concrete surface are greater than 25mm in diameter or expose steel at less than 25mm from surface. As per spec. | ☑ | ☐ | ☐ |
| 7.0 | Installation of embeds are located and secured | ☑ | ☐ | ☐ |
| 8.0 | Chamfer requirements checked. 25mm chamfers required for all exterior corners and edges exposed to view including horizontal edges of pads. | ☑ | ☐ | ☐ |
| 9.0 | Key ways and/or other provisions according to design are provided in construction joints | ☑ | ☐ | ☐ |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 10.0 | Inspect types of form spacers, ties and bracing. | ☑ | ☐ | ☐ |
| 11.0 | Spacing of ties to be set to a pattern | ☑ | ☐ | ☐ |
| 12.0 | Expansion, construction, contraction joints as required & located as coordinated with structural Engineer | ☐ | ☐ | ☑ |
| 13.0 | Forms secured against movement during placing | ☑ | ☐ | ☐ |
| 14.0 | Forms are braced for alignment and blow out | ☑ | ☐ | ☐ |
| 15.0 | Forms are cleaned of all debris, and dry, prior to concrete placement including standing water. | ☑ | ☐ | ☐ |
| 16.0 | Openings in formwork permit inspection and cleaning, placing and compaction of concrete, and forming and processing of construction joints. | ☐ | ☐ | ☑ |
| 17.0 | Formwork has been coated with release agent prior to rebar placement. | ☑ | ☐ | ☐ |
| 18.0 | Anchor Bolts and Embeds are secured to formwork. | ☑ | ☐ | ☐ |

COMMENTS:

ATTACHMENT(S):

DEFICIENCIES NOTES:

INITIAL INSPECTION

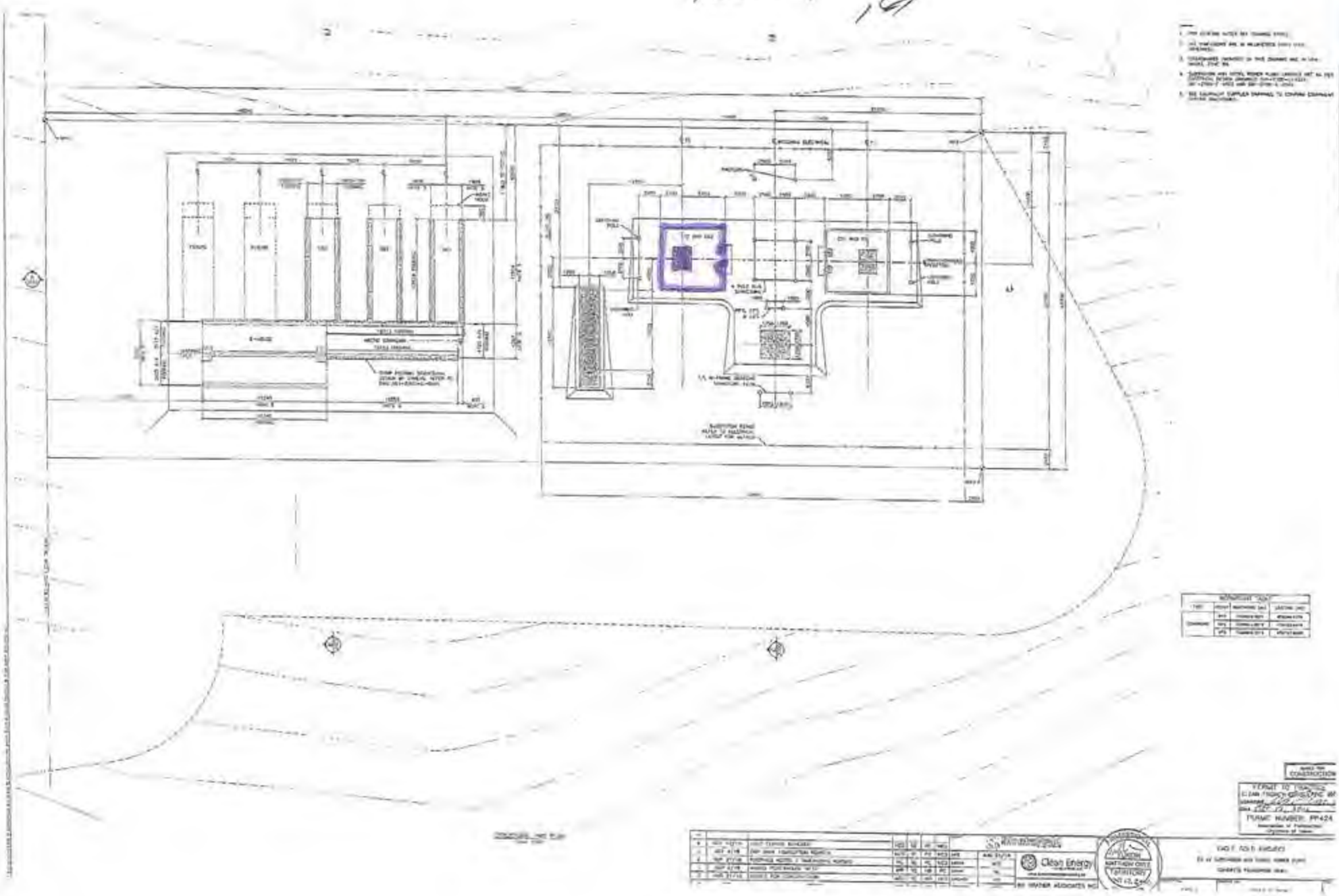
INSPECTOR: Garry DAHL TITLE SUPERINTENDENT DATE: Nov 13 2018

RE-INSPECTION (DEFICIENCIES COMPLETED)

INSPECTOR: N/A TITLE DATE:

Garry DAHL

Nov 13/18, Z



# CONCRETE POST POUR COLD WEATHER MONITORING

Rev 02 Nov 6, 2018

| | |
|---|---|
| CONTRACTOR: Clark Builders | DATE OF POUR: Nov 13/2018 |
| AMBIENT TEMP at POUR (°C): −10°C | DATE FORMWORK STRIPPED: |
| LOCATION: 6320 // CS2 T2 Walls and Pilasters (x2) and Pad (x1) | SPEC SECTION(S): 503 30 00 – Cast-In-Place |

TYPE OF CURING:

| | | | | | |
|---|---|---|---|---|---|
| CURING COMPOUND | ☐ | DAMP BURLAP OR FABRIC | ☐ | INSULATION (TARPS) | ☒ |
| POLYETHYLENE SHEETS | ☐ | WATER/FOG SPRAY/ PONDING | ☐ | FORMS (COVERED BY) | ☒ |

| COLD WEATHER REQUIREMENTS (WHEN AMB. TEMP < 5°C) | PASS | FAIL | N/A | REMARKS |
|---|---|---|---|---|
| Protection in place and temperatures not lower than 20°C or until 70% of the 28-day strength has been reached. | ☑ | ☐ | ☐ | |
| Cold weather protection provided by means of heated enclosures, coverings, insulation, or a suitable approved combination of these methods during complete curing period. | ☑ | ☐ | ☐ | |
| Concrete test cylinders are kept within hoarding or in area where temperatures are ideal for curing. (No frozen Cylinders) | ☑ | ☐ | ☐ | Located on Carbonic Foundation (+25°C) |
| Heat is not directed onto concrete. This may result in thermal cracking. | ☑ | ☐ | ☐ | |
| During freezing weather, and standing water removed before the end of the protection period (CSA A 23.1 clause 7.4.2.4.2) | ☑ | ☐ | ☐ | |

CONCRETE CURING TEMPERATURE LOG (COLD WEATHER CONCRETEING ONLY)

| DATE | TIME (24 HR) | OUTSIDE AIR TEMP (°C) | TEMP INSIDE HOARDING (°C) | CONCRETE SURFACE TEMP (°C) HIGH (°C) | CONCRETE SURFACE TEMP (°C) LOW (°C) | INITIALS OF READER |
|---|---|---|---|---|---|---|
| Nov 14/18 | 07:30 | −15°C | +20 | +26 | +21 | [illegible] |
| Nov 14/18 | 11:00 | −12°C | +21 | +27 | +22 | [illegible] |
| Nov 14/18 | 17:15 | −12 | +19 | +25 | +23 | [illegible] |
| Nov 15/18 | 09:15 | −21 | +20 | +24 | +22 | [illegible] |
| Nov 15/18 | 19:15 | −23 | +18 | +24 | +21 | [illegible] |
| Nov 16/18 | 09:30 | −22 | +12 | +15°C | +10 | [illegible] |
| Nov 16/18 | 15:45 | −20 | +9 | +14°C | +5°C | [illegible] |

Down to one heater to keep heat.

COMMENTS:

CLARK BUILDERS SITE REPRESENTATIVE

PRINT/ SIGN: Ryan deMillano // [signature] TITLE Project Coordinator DATE: Nov 16/18

CLARK BUILDERS
ENERGY & RESOURCES

# CONCRETE REINFORCEMENT PRE POUR

Rev 01 August 25, 2018

| | |
|---|---|
| SUBCONTRACTOR: Ultimate Reinforcing // McNish | INSPECTION DATE: NOV. 25 /2018 |
| SUBCONTRACTOR CONTACT PERSON: CLAYTON MCGUIRE | PROJ. POUR DATE: NOV.25/2018 |
| INSPECTOR(S): JACKSON WENGER | |
| LOCATION: C500 SUBSTATION - BASEFRAME MODULE FOOTINGS | |
| DRAWING REV: 0 / DRAWING NO.(S): 001-2700-C-0002 | SPEC SECTION(S): 503 20 00 – Concrete Reinforcing Steel |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Grade (400W unless otherwise noted) and type of steel delivered and installed as required by approved drawings. | ☑ | ☐ | ☐ |
| 2.0 | Inspect rebar distribution, spacing and cover per design/project requirements. | ☑ | ☐ | ☐ |
| 3.0 | Length of splices as specified | ☑ | ☐ | ☐ |
| 4.0 | Staggered splices as specified | ☑ | ☐ | ☐ |
| 5.0 | Any mechanical splices have been approved by the owner prior to install | ☑ | ☐ | ☐ |
| 6.0 | Bars cleaned and free of material that may reduce bond including loose rust, scale, oil, structural defects and that they are uncoated and unpainted. | ☑ | ☐ | ☐ |
| 7.0 | Dowels at wall ends, construction joints, and openings as specified (length, location, size, etc.) | ☑ | ☐ | ☐ |
| 8.0 | No unauthorized field bent bars including hooks installed | ☑ | ☐ | ☐ |
| 9.0 | Resolve conflicts between embedded items and reinforcement | ☑ | ☐ | ☐ |
| 10.0 | When authorized, field bends done without heat and inspected for fissures or cracks. | ☑ | ☐ | ☐ |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 11.0 | Bars tied and supported to prevent displacement | ☑ | ☐ | ☐ |
| 12.0 | Spacers, tie wire and chairs as required | ☑ | ☐ | ☐ |
| 13.0 | Conduits at design location and minimum separation from rebar as specified | ☑ | ☐ | ☐ |
| 14.0 | No contact of bars is made with dissimilar metals as per CSA A23.1 | ☑ | ☐ | ☐ |
| 15.0 | Bars, nails or tie wire not sticking out from surfaces that allow rusting/corrosion | ☑ | ☐ | ☐ |
| 16.0 | Rebar welds are inspected by qualified inspectors certified to CSA W178.2 | ☑ | ☐ | ☐ |
| 17.0 | No rebar congestion or other obstruction for deposit of concrete | ☑ | ☐ | ☐ |
| 18.0 | Adjustments required for interfering items (piping, inserts, sleeves, etc.) have been submitted and approved by owner. | ☑ | ☐ | ☐ |
| 19.0 | Rebar was stored off ground to prevent damage/corrosion | ☑ | ☐ | ☐ |
| 20.0 | Review drawings for anchors, piping, sleeves, boxes | ☐ | ☐ | ☐ |

COMMENTS:

EMBED INSTALLATION TO BE VERIFIED PRIOR TO POUR
TIE PERPENDICULAR LAPS @ FOOTING INTERSECTIONS

ATTACHMENT(S):

DEFICIENCIES NOTES:

- Cut horizontals touching forms (3 places)
- Clean up of wire in forms
- Tie perpendicular laps running E-W

CLARK BUILDERS:

INSPECTOR: JACKSON WENGER TITLE COORDINATOR DATE: NOV.25

JDS ENERGY & MINING:

INSPECTOR: Matt Cavedale YVR TITLE Field Eng DATE: Nov 25, 2018

CLARK BUILDERS
ENERGY & RESOURCES

# FORMWORK & FALSEWORK PRE POUR | QA INSPECTION

Rev 01 August 21, 2018

| | |
|---|---|
| CONTRACTOR: Clark Builders | INSPECTION DATE: NOV. 25/2018 |
| CONTRACTOR CONTACT PERSON: GREG WATSON | DATE OF POUR: NOV. 26/2018 |
| INSPECTOR(S): JACKSON WENGER | |
| LOCATION: 6300 SUBSTATION MODULE FOOTINGS | |
| DRAWING REV: 0 | DRAWING NO.(S): 001-2700-C-0002 |
| SPEC SECTION(S): 03 10 00 | |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Location, survey, dimension and grades as required | ☑ | ☐ | ☐ |
| 2.0 | Plumbness and Flatness verified | ☑ | ☐ | ☐ |
| 3.0 | Joints are aligned and watertight. | ☑ | ☐ | ☐ |
| 4.0 | Formwork shop drawings are Engineered and reviewed | ☐ | ☐ | ☑ |
| 5.0 | Re-used formwork reconditioned and treated | ☑ | ☐ | ☐ |
| 6.0 | Formwork and ties according to finishing requirements. Confirm no holes in the concrete surface are greater than 25mm in diameter or expose steel at less than 25mm from surface. As per spec. | ☑ | ☐ | ☐ |
| 7.0 | Installation of embeds are located and secured | ☑ | ☐ | ☐ |
| 8.0 | Chamfer requirements checked. 25mm chamfers required for all exterior corners and edges exposed to view including horizontal edges of pads. | ☑ | ☐ | ☐ |
| 9.0 | Key ways and/or other provisions according to design are provided in construction joints | ☐ | ☐ | ☑ |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 10.0 | Inspect types of form spacers, ties and bracing. | ☑ | ☐ | ☐ |
| 11.0 | Spacing of ties to be set to a pattern | ☑ | ☐ | ☐ |
| 12.0 | Expansion, construction, contraction joints as required & located as coordinated with structural Engineer | ☑ | ☐ | ☐ |
| 13.0 | Forms secured against movement during placing | ☑ | ☐ | ☐ |
| 14.0 | Forms are braced for alignment and blow out | ☑ | ☐ | ☐ |
| 15.0 | Forms are cleaned of all debris, and dry, prior to concrete placement including standing water | ☑ | ☐ | ☐ |
| 16.0 | Openings in formwork permit inspection and cleaning, placing and compaction of concrete, and forming and processing of construction joints. | ☑ | ☐ | ☐ |
| 17.0 | Formwork has been coated with release agent prior to rebar placement | ☑ | ☐ | ☐ |
| 18.0 | Anchor Bolts and Embeds are secured to formwork. | ☐ | ☐ | ☑ |

COMMENTS:

ATTACHMENT(S):

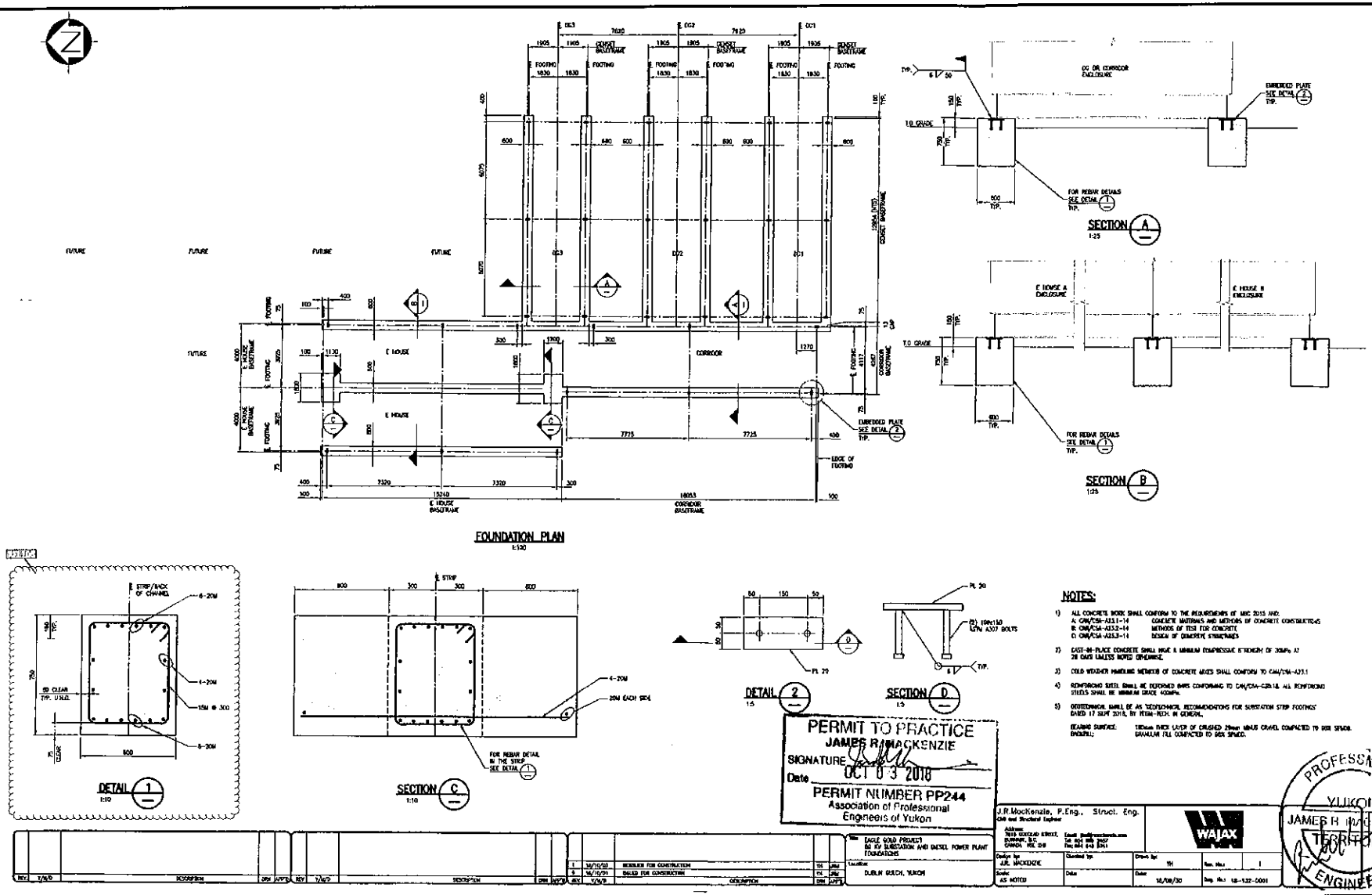
DEFICIENCIES NOTES:

INITIAL INSPECTION

INSPECTOR: JACKSON WENGER TITLE PROJECT COORDINATOR DATE: NOV. 25/2018

RE-INSPECTION (DEFICIENCIES COMPLETED)

INSPECTOR: Matt Coverdale YVE TITLE Field Eng DATE: Nov 25, 2018




| REV. | DATE | DESCRIPTION OF REVISION |
|---|---|---|
| 0 | 3/10/2018 | FOR CONSTRUCTION |

ISSUED FOR CONSTRUCTION

**STRATAGOLD CORPORATION**

**W.N. Brazier Associates Inc.**

**EAGLE GOLD PROJECT, 69 KV SUBSTATION & DIESEL POWER PLANT, MODULE FOUNDATIONS - CONCRETE**

**DRAWING NO:** 001-2700-C-0002 REV. 0

CLARK BUILDERS
ENERGY & RESOURCES

# CONCRETE REINFORCEMENT PRE POUR

Rev 01 August 25, 2018

| | |
|---|---|
| SUBCONTRACTOR: Ultimate Reinforcing // McNish | INSPECTION DATE: Nov 29 / 18 |
| SUBCONTRACTOR CONTACT PERSON: GARRY DAHL | PROJ. POUR DATE: Nov 28 / 18 |
| INSPECTOR(S): Garry DAHL / JDS | |
| LOCATION: Sub Station T1 Transformer Walls & Pads (6320) | |
| DRAWING REV: | DRAWING NO.(S): Clean Energy Pg 2 |
| SPEC SECTION(S): S03 20 00 – Concrete Reinforcing Steel | |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Grade (400W unless otherwise noted) and type of steel delivered and installed as required by approved drawings. | ☑ | ☐ | ☐ |
| 2.0 | Inspect rebar distribution, spacing and cover per design/project requirements. | ☑ | ☐ | ☐ |
| 3.0 | Length of splices as specified | ☑ | ☐ | ☐ |
| 4.0 | Staggered splices as specified | ☑ | ☐ | ☐ |
| 5.0 | Any mechanical splices have been approved by the owner prior to install | ☐ | ☐ | ☑ |
| 6.0 | Bars cleaned and free of material that may reduce bond including loose rust, scale, oil, structural defects and that they are uncoated and unpainted. | ☑ | ☐ | ☐ |
| 7.0 | Dowels at wall ends, construction joints, and openings as specified (length, location, size, etc.) | ☑ | ☐ | ☐ |
| 8.0 | No unauthorized field bent bars including hooks installed | ☐ | ☐ | ☑ |
| 9.0 | Resolve conflicts between embedded items and reinforcement | ☑ | ☐ | ☐ |
| 10.0 | When authorized, field bends done without heat and inspected for fissures or cracks. | ☐ | ☐ | ☑ |
| 11.0 | Bars tied and supported to prevent displacement | ☑ | ☐ | ☐ |
| 12.0 | Spacers, tie wire and chairs as required | ☑ | ☐ | ☐ |
| 13.0 | Conduits at design location and minimum separation from rebar as specified | ☐ | ☐ | ☑ |
| 14.0 | No contact of bars is made with dissimilar metals as per CSA A23.1 | ☑ | ☐ | ☐ |
| 15.0 | Bars, nails or tie wire not sticking out from surfaces that allow rusting/corrosion | ☑ | ☐ | ☐ |
| 16.0 | Rebar welds are inspected by qualified inspectors certified to CSA W178.2 | ☐ | ☐ | ☑ |
| 17.0 | No rebar congestion or other obstruction for deposit of concrete | ☑ | ☐ | ☐ |
| 18.0 | Adjustments required for interfering items (piping, inserts, sleeves, etc.) have been submitted and approved by owner. | ☑ | ☐ | ☐ |
| 19.0 | Rebar was stored off ground to prevent damage/corrosion | ☑ | ☐ | ☐ |
| 20.0 | Review drawings for anchors, piping, sleeves, boxes | ☑ | ☐ | ☐ |

COMMENTS:

ATTACHMENT(S):

DEFICIENCIES NOTES:

CLARK BUILDERS:
INSPECTOR: GARRY DAHL TITLE Supt DATE: 11/28/18

JDS ENERGY & MINING:
INSPECTOR: Istan Fechter TITLE Supt. DATE: 11/28/18

CLARK BUILDERS
ENERGY & RESOURCES

# FORMWORK & FALSEWORK PRE POUR | QA INSPECTION

Rev 01 August 25, 2018

| | |
|---|---|
| CONTRACTOR: Clark Builders | INSPECTION DATE: Nov 28/18 |
| CONTRACTOR CONTACT PERSON: Garry DAHL | DATE OF POUR: Nov 28/18 |
| INSPECTOR(S): Garry DAHL / JDS | |
| LOCATION: Substation T1 Transformer Walls & Pads | |
| DRAWING REV: | DRAWING NO.(S): Clean Energy Pad Transfo SPEC SECTION(S): |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Location, survey, dimension and grades as required | ☑ | ☐ | ☐ |
| 2.0 | Plumbness and Flatness verified | ☑ | ☐ | ☐ |
| 3.0 | Joints are aligned and watertight. | ☑ | ☐ | ☐ |
| 4.0 | Formwork shop drawings are Engineered and reviewed | ☑ | ☐ | ☐ |
| 5.0 | Re-used formwork reconditioned and treated | ☑ | ☐ | ☐ |
| 6.0 | Formwork and ties according to finishing requirements. Confirm no holes in the concrete surface are greater than 25mm in diameter or expose steel at less than 25mm from surface. As per spec. | ☑ | ☐ | ☐ |
| 7.0 | Installation of embeds are located and secured | ☑ | ☐ | ☐ |
| 8.0 | Chamfer requirements checked. 25mm chamfers required for all exterior corners and edges exposed to view including horizontal edges of pads. | ☑ | ☐ | ☐ |
| 9.0 | Key ways and/or other provisions according to design are provided in construction joints | ☑ | ☐ | ☐ |
| 10.0 | Inspect types of form spacers, ties and bracing. | ☑ | ☐ | ☐ |
| 11.0 | Spacing of ties to be set to a pattern | ☑ | ☐ | ☐ |
| 12.0 | Expansion, construction, contraction joints as required & located as coordinated with structural Engineer | ☐ | ☐ | ☑ |
| 13.0 | Forms secured against movement during placing | ☑ | ☐ | ☐ |
| 14.0 | Forms are braced for alignment and blow out | ☑ | ☐ | ☐ |
| 15.0 | Forms are cleaned of all debris, and dry, prior to concrete placement including standing water. | ☑ | ☐ | ☐ |
| 16.0 | Openings in formwork permit inspection and cleaning, placing and compaction of concrete, and forming and processing of construction joints. | ☑ | ☐ | ☐ |
| 17.0 | Formwork has been coated with release agent prior to rebar placement. | ☑ | ☐ | ☐ |
| 18.0 | Anchor Bolts and Embeds are secured to formwork. | ☑ | ☐ | ☐ |

COMMENTS:

ATTACHMENT(S):

DEFICIENCIES NOTES:

INITIAL INSPECTION

INSPECTOR: Ishan Fechter TITLE Supt. DATE: Nov 28/18

RE-INSPECTION (DEFICIENCIES COMPLETED)

INSPECTOR: _____ TITLE _____ DATE: _____

Garry DAHL

CB-INSPECTION FORM-DOC-002 REV.00
JDS ENERGY & MINING INC. | STRATAGOLD EAGLE GOLD
PROJECT #: CB201 | 18502

PROJECT MANAGER: DUSTIN DOLYNCHUK, P.ENG
QA/QC COORDINATOR: RYAN DE MILLIANO, C.E.T.
SUPERINTENDENT: GARRY DAHL

# FORMWORK & FALSEWORK PRE POUR | QA INSPECTION

Rev 01 August 25, 2018

| | |
|---|---|
| CONTRACTOR: Clark Builders | INSPECTION DATE: November 29/2018 |
| CONTRACTOR CONTACT PERSON: Garry Dahl/Henry Rueda | DATE OF POUR: November 30/ 2018 |
| INSPECTOR(S): Mat Coverdale | |
| LOCATION: Heap-Leach CV-23 E-House Base & Pads 1 & 2 (4300) | |
| DRAWING REV: | DRAWING NO.(S): 4300-0001/0011 SPEC SECTION(S): |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Location, survey, dimension and grades as required | ☑ | ☐ | ☐ |
| 2.0 | Plumbness and Flatness verified | ☑ | ☐ | ☐ |
| 3.0 | Joints are aligned and watertight. | ☑ | ☐ | ☐ |
| 4.0 | Formwork shop drawings are Engineered and reviewed | ☐ | ☐ | ☑ |
| 5.0 | Re-used formwork reconditioned and treated | ☑ | ☐ | ☐ |
| 6.0 | Formwork and ties according to finishing requirements. Confirm no holes in the concrete surface are greater than 25mm in diameter or expose steel at less than 25mm from surface. As per spec. | ☑ | ☐ | ☐ |
| 7.0 | Installation of embeds are located and secured | ☑ | ☐ | ☐ |
| 8.0 | Chamfer requirements checked. 25mm chamfers required for all exterior corners and edges exposed to view including horizontal edges of pads. | ☐ | ☐ | ☑ |
| 9.0 | Key ways and/or other provisions according to design are provided in construction joints | ☑ | ☐ | ☐ |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 10.0 | Inspect types of form spacers, ties and bracing. | ☑ | ☐ | ☐ |
| 11.0 | Spacing of ties to be set to a pattern | ☑ | ☐ | ☐ |
| 12.0 | Expansion, construction, contraction joints as required & located as coordinated with structural Engineer | ☐ | ☐ | ☑ |
| 13.0 | Forms secured against movement during placing | ☑ | ☐ | ☐ |
| 14.0 | Forms are braced for alignment and blow out | ☑ | ☐ | ☐ |
| 15.0 | Forms are cleaned of all debris, and dry, prior to concrete placement including standing water. | ☑ | ☐ | ☐ |
| 16.0 | Openings in formwork permit inspection and cleaning, placing and compaction of concrete, and forming and processing of construction joints. | ☐ | ☐ | ☑ |
| 17.0 | Formwork has been coated with release agent prior to rebar placement. | ☑ | ☐ | ☐ |
| 18.0 | Anchor Bolts and Embeds are secured to formwork. | ☐ | ☐ | ☑ |

COMMENTS:

Ensure cover on bottom mat

ATTACHMENT(S):

DEFICIENCIES NOTES:

INITIAL INSPECTION

INSPECTOR: Ishan Fedele TITLE Supt. DATE: Nov 29/18

RE-INSPECTION (DEFICIENCIES COMPLETED)

INSPECTOR: _____ TITLE _____ DATE: _____

GARRY DAHL Nov 29/18

Rev 00: May 4, 2018

# CONCRETE REINFORCEMENT PRE POUR

Rev 01 August 15, 2018

| | |
|---|---|
| SUBCONTRACTOR: Ultimate Reinforcing // McNish | INSPECTION DATE: November 29/2018 |
| SUBCONTRACTOR CONTACT PERSON: Garry Dahl/Henry Rueda | PROJ. POUR DATE: November 30/2018 |
| INSPECTOR(S): Mat Coverdale | |
| LOCATION: Heap-Leach CV-23 E-House Base & Bents 1 & 2 | |
| DRAWING REV: | DRAWING NO.(S): 4300-0001/0011 |
| SPEC SECTION(S): S03 20 00 – Concrete Reinforcing Steel | |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Grade (400W unless otherwise noted) and type of steel delivered and installed as required by approved drawings. | ☑ | ☐ | ☐ |
| 2.0 | Inspect rebar distribution, spacing and cover per design/project requirements. | ☑ | ☐ | ☐ |
| 3.0 | Length of splices as specified | ☑ | ☐ | ☐ |
| 4.0 | Staggered splices as specified | ☑ | ☐ | ☐ |
| 5.0 | Any mechanical splices have been approved by the owner prior to install | ☐ | ☐ | ☑ |
| 6.0 | Bars cleaned and free of material that may reduce bond including loose rust, scale, oil, structural defects and that they are uncoated and unpainted. | ☑ | ☐ | ☐ |
| 7.0 | Dowels at wall ends, construction joints, and openings as specified (length, location, size, etc.) | ☑ | ☐ | ☐ |
| 8.0 | No unauthorized field bent bars including hooks installed | ☑ | ☐ | ☐ |
| 9.0 | Resolve conflicts between embedded items and reinforcement | ☐ | ☐ | ☑ |
| 10.0 | When authorized, field bends done without heat and inspected for fissures or cracks. | ☐ | ☐ | ☑ |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 11.0 | Bars tied and supported to prevent displacement | ☑ | ☐ | ☐ |
| 12.0 | Spacers, tie wire and chairs as required | ☑ | ☐ | ☐ |
| 13.0 | Conduits at design location and minimum separation from rebar as specified | ☐ | ☐ | ☑ |
| 14.0 | No contact of bars is made with dissimilar metals as per CSA A23.1 | ☑ | ☐ | ☐ |
| 15.0 | Bars, nails or tie wire not sticking out from surfaces that allow rusting/corrosion | ☑ | ☐ | ☐ |
| 16.0 | Rebar welds are inspected by qualified inspectors certified to CSA W178.2 | ☐ | ☐ | ☑ |
| 17.0 | No rebar congestion or other obstruction for deposit of concrete | ☑ | ☐ | ☐ |
| 18.0 | Adjustments required for interfering items (piping, inserts, sleeves, etc.) have been submitted and approved by owner | ☐ | ☐ | ☑ |
| 19.0 | Rebar was stored off ground to prevent damage/corrosion | ☑ | ☐ | ☐ |
| 20.0 | Review drawings for anchors, piping, sleeves, boxes | ☑ | ☐ | ☐ |

COMMENTS:

ATTACHMENT(S):

DEFICIENCIES NOTES:

CLARK BUILDERS:
INSPECTOR: Garry DAHL TITLE Supt. DATE: Nov 29/18

IDS ENERGY & MINING:
INSPECTOR: Ishan Fechter TITLE Supt. DATE: Nov 29/18

CLARK BUILDERS
ENERGY & RESOURCES

# FORMWORK & FALSEWORK PRE POUR | QA INSPECTION

Rev 01 August 15, 2018

| | | | |
|---|---|---|---|
| CONTRACTOR: Clark Builders | | INSPECTION DATE: | November 29/2018 |
| CONTRACTOR CONTACT PERSON: | Garry Dahl/Henry Rueda | DATE OF POUR: | December 1/ 2018 |
| INSPECTOR(S): | Mat Coverdale | | |
| LOCATION: | 3330 Secondary E-house Blast Wall Pour 1 | | |
| DRAWING REV: | DRAWING NO.(S): 3300-0028/0029 | SPEC SECTION(S): | |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Location, survey, dimension and grades as required | ☑ | ☐ | ☐ |
| 2.0 | Plumbness and Flatness verified | ☑ | ☐ | ☐ |
| 3.0 | Joints are aligned and watertight. | ☑ | ☐ | ☐ |
| 4.0 | Formwork shop drawings are Engineered and reviewed | ☑ | ☐ | ☐ |
| 5.0 | Re-used formwork reconditioned and treated | ☑ | ☐ | ☐ |
| 6.0 | Formwork and ties according to finishing requirements. Confirm no holes in the concrete surface are greater than 25mm in diameter or expose steel at less than 25mm from surface. As per spec. | ☐ | ☐ | ☑ |
| 7.0 | Installation of embeds are located and secured | ☑ | ☐ | ☐ |
| 8.0 | Chamfer requirements checked. 25mm chamfers required for all exterior corners and edges exposed to view including horizontal edges of pads. | ☐ | ☐ | ☑ |
| 9.0 | Key ways and/or other provisions according to design are provided in construction joints | ☑ | ☐ | ☐ |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 10.0 | Inspect types of form spacers, ties and bracing. | ☑ | ☐ | ☐ |
| 11.0 | Spacing of ties to be set to a pattern | ☑ | ☐ | ☐ |
| 12.0 | Expansion, construction, contraction joints as required & located as coordinated with structural Engineer | ☐ | ☐ | ☑ |
| 13.0 | Forms secured against movement during placing | ☑ | ☐ | ☐ |
| 14.0 | Forms are braced for alignment and blow out | ☑ | ☐ | ☐ |
| 15.0 | Forms are cleaned of all debris, and dry, prior to concrete placement including standing water. | ☑ | ☐ | ☐ |
| 16.0 | Openings in formwork permit inspection and cleaning, placing and compaction of concrete, and forming and processing of construction joints. | ☑ | ☐ | ☐ |
| 17.0 | Formwork has been coated with release agent prior to rebar placement. | ☑ | ☐ | ☐ |
| 18.0 | Anchor Bolts and Embeds are secured to formwork. | ☑ | ☐ | ☐ |

COMMENTS:

ATTACHMENT(S):

DEFICIENCIES NOTES:

INITIAL INSPECTION

INSPECTOR: Ishan Fechter TITLE Supt. DATE: Nov 29/18

RE-INSPECTION (DEFICIENCIES COMPLETED)

INSPECTOR: _____ TITLE _____ DATE: _____

Garry DAHL

# CONCRETE REINFORCEMENT PRE POUR

Rev 01 August 25, 2018

| | |
|---|---|
| SUBCONTRACTOR: Ultimate Reinforcing // McNish | INSPECTION DATE: November 29/2018 |
| SUBCONTRACTOR CONTACT PERSON: Garry Dahl/Henry Rueda | PROJ. POUR DATE: December 1/ 2018 |
| INSPECTOR(S): Mat Coverdale | |
| LOCATION: 3330 Secondary E-house Blast Wall Pour 1 | |
| DRAWING REV: | DRAWING NO.(S): 3300-0028/0029 |
| SPEC SECTION(S): S03 20 00 – Concrete Reinforcing Steel | |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Grade (400W unless otherwise noted) and type of steel delivered and installed as required by approved drawings. | ☑ | ☐ | ☐ |
| 2.0 | Inspect rebar distribution, spacing and cover per design/project requirements. | ☑ | ☐ | ☐ |
| 3.0 | Length of splices as specified | ☑ | ☐ | ☐ |
| 4.0 | Staggered splices as specified | ☑ | ☐ | ☐ |
| 5.0 | Any mechanical splices have been approved by the owner prior to install | ☐ | ☐ | ☑ |
| 6.0 | Bars cleaned and free of material that may reduce bond including loose rust, scale, oil, structural defects and that they are uncoated and unpainted. | ☑ | ☐ | ☐ |
| 7.0 | Dowels at wall ends, construction joints, and openings as specified (length, location, size, etc.) | ☑ | ☐ | ☐ |
| 8.0 | No unauthorized field bent bars including hooks installed | ☑ | ☐ | ☐ |
| 9.0 | Resolve conflicts between embedded items and reinforcement | ☑ | ☐ | ☐ |
| 10.0 | When authorized, field bends done without heat and inspected for fissures or cracks. | ☑ | ☐ | ☐ |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 11.0 | Bars tied and supported to prevent displacement | ☑ | ☐ | ☐ |
| 12.0 | Spacers, tie wire and chairs as required | ☑ | ☐ | ☐ |
| 13.0 | Conduits at design location and minimum separation from rebar as specified | ☑ | ☐ | ☐ |
| 14.0 | No contact of bars is made with dissimilar metals as per CSA A23.1 | ☑ | ☐ | ☐ |
| 15.0 | Bars, nails or tie wire not sticking out from surfaces that allow rusting/corrosion | ☑ | ☐ | ☐ |
| 16.0 | Rebar welds are inspected by qualified inspectors certified to CSA W178.2 | ☐ | ☐ | ☑ |
| 17.0 | No rebar congestion or other obstruction for deposit of concrete | ☑ | ☐ | ☐ |
| 18.0 | Adjustments required for interfering items (piping, inserts, sleeves, etc.) have been submitted and approved by owner. | ☑ | ☐ | ☐ |
| 19.0 | Rebar was stored off ground to prevent damage/corrosion | ☑ | ☐ | ☐ |
| 20.0 | Review drawings for anchors, piping, sleeves, boxes | ☑ | ☐ | ☐ |

COMMENTS:

ATTACHMENT(S):

DEFICIENCIES NOTES:

CLARK BUILDERS:

INSPECTOR: Garry Dahl TITLE Supt DATE: Nov 29/18

JDS ENERGY & MINING:

INSPECTOR: Isham Fechyer TITLE Supt. DATE: Nov. 29/18

CLARK BUILDERS
ENERGY & RESOURCES

# CONCRETE REINFORCEMENT PRE POUR

Rev 01 August 25, 2018

| | | | |
|---|---|---|---|
| SUBCONTRACTOR: Ultimate Reinforcing // McNish | | INSPECTION DATE: | November 30/2018 |
| SUBCONTRACTOR CONTACT PERSON: | Garry Dahl/Henry Rueda | PROJ. POUR DATE: | December 1/2018 |
| INSPECTOR(S): | Ishan Fechter | | |
| LOCATION: | 6300 Substation Module Fnd 2 | | |
| DRAWING REV: | DRAWING NO.(S): 001-2700-C-0002 | SPEC SECTION(S): S03 20 00 – Concrete Reinforcing Steel | |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Grade (400W unless otherwise noted) and type of steel delivered and installed as required by approved drawings. | ☑ | ☐ | ☐ |
| 2.0 | Inspect rebar distribution, spacing and cover per design/project requirements. | ☑ | ☐ | ☐ |
| 3.0 | Length of splices as specified | ☑ | ☐ | ☐ |
| 4.0 | Staggered splices as specified | ☑ | ☐ | ☐ |
| 5.0 | Any mechanical splices have been approved by the owner prior to install | ☐ | ☐ | ☑ |
| 6.0 | Bars cleaned and free of material that may reduce bond including loose rust, scale, oil, structural defects and that they are uncoated and unpainted. | ☑ | ☐ | ☐ |
| 7.0 | Dowels at wall ends, construction joints, and openings as specified (length, location, size, etc.) | ☑ | ☐ | ☐ |
| 8.0 | No unauthorized field bent bars including hooks installed | ☑ | ☐ | ☐ |
| 9.0 | Resolve conflicts between embedded items and reinforcement | ☑ | ☐ | ☐ |
| 10.0 | When authorized, field bends done without heat and inspected for fissures or cracks. | ☐ | ☐ | ☑ |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 11.0 | Bars tied and supported to prevent displacement | ☑ | ☐ | ☐ |
| 12.0 | Spacers, tie wire and chairs as required | ☑ | ☐ | ☐ |
| 13.0 | Conduits at design location and minimum separation from rebar as specified | ☐ | ☐ | ☑ |
| 14.0 | No contact of bars is made with dissimilar metals as per CSA A23.1 | ☑ | ☐ | ☐ |
| 15.0 | Bars, nails or tie wire not sticking out from surfaces that allow rusting/corrosion | ☑ | ☐ | ☐ |
| 16.0 | Rebar welds are inspected by qualified inspectors certified to CSA W178.2 | ☐ | ☐ | ☑ |
| 17.0 | No rebar congestion or other obstruction for deposit of concrete | ☑ | ☐ | ☐ |
| 18.0 | Adjustments required for interfering items (piping, inserts, sleeves, etc.) have been submitted and approved by owner. | ☑ | ☐ | ☐ |
| 19.0 | Rebar was stored off ground to prevent damage/corrosion | ☑ | ☐ | ☐ |
| 20.0 | Review drawings for anchors, piping, sleeves, boxes | ☑ | ☐ | ☐ |

COMMENTS:

ATTACHMENT(S):

DEFICIENCIES NOTES:

CLARK BUILDERS:

INSPECTOR: Garry DAHL TITLE Supt DATE: Dec 1/18

JDS ENERGY & MINING:

INSPECTOR: Ishan Fechter TITLE Supt. DATE: Dec 1/18

CLARK BUILDERS
ENERGY & RESOURCES

CB-INSPECTION FORM-DOC-002 REV.00
JOS ENERGY & MINING INC. | STRATAGOLD EAGLE GOLD
PROJECT #: CB201 | 18502

PROJECT MANAGER: DUSTIN DOLYNCHUK, P.ENG
QA/QC COORDINATOR: RYAN DE MILLIANO, C.E.T.
SUPERINTENDENT: GARRY DAHL

# FORMWORK & FALSEWORK PRE POUR | QA INSPECTION

Rev 01 August 25, 2018

| | | | |
|---|---|---|---|
| CONTRACTOR: Clark Builders | | INSPECTION DATE: | November 30/2018 |
| CONTRACTOR CONTACT PERSON: | Garry Dahl/Henry Rueda | DATE OF POUR: | December 1/2018 |
| INSPECTOR(S): | Ishan Fechter | | |
| LOCATION: | 6300 Substation Module Fnd 2 | | |
| DRAWING REV: | DRAWING NO.(S): 001-2700-C-0002 | SPEC SECTION(S): | |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Location, survey, dimension and grades as required | ☑ | ☐ | ☐ |
| 2.0 | Plumbness and Flatness verified | ☑ | ☐ | ☐ |
| 3.0 | Joints are aligned and watertight. | ☑ | ☐ | ☐ |
| 4.0 | Formwork shop drawings are Engineered and reviewed | ☐ | ☐ | ☑ |
| 5.0 | Re-used formwork reconditioned and treated | ☑ | ☐ | ☐ |
| 6.0 | Formwork and ties according to finishing requirements. Confirm no holes in the concrete surface are greater than 25mm in diameter or expose steel at less than 25mm from surface. As per spec. | ☑ | ☐ | ☐ |
| 7.0 | Installation of embeds are located and secured | ☑ | ☐ | ☐ |
| 8.0 | Chamfer requirements checked. 25mm chamfers required for all exterior corners and edges exposed to view including horizontal edges of pads. | ☐ | ☐ | ☑ |
| 9.0 | Key ways and/or other provisions according to design are provided in construction joints | ☑ | ☐ | ☐ |
| 10.0 | Inspect types of form spacers, ties and bracing. | ☑ | ☐ | ☐ |
| 11.0 | Spacing of ties to be set to a pattern | ☑ | ☐ | ☐ |
| 12.0 | Expansion, construction, contraction joints as required & located as coordinated with structural Engineer | ☐ | ☐ | ☑ |
| 13.0 | Forms secured against movement during placing | ☑ | ☐ | ☐ |
| 14.0 | Forms are braced for alignment and blow out | ☑ | ☐ | ☐ |
| 15.0 | Forms are cleaned of all debris, and dry, prior to concrete placement including standing water. | ☑ | ☐ | ☐ |
| 16.0 | Openings in formwork permit inspection and cleaning, placing and compaction of concrete, and forming and processing of construction joints. | ☑ | ☐ | ☐ |
| 17.0 | Formwork has been coated with release agent prior to rebar placement. | ☑ | ☐ | ☐ |
| 18.0 | Anchor Bolts and Embeds are secured to formwork. | ☑ | ☐ | ☐ |

COMMENTS:

ATTACHMENT(S):

DEFICIENCIES NOTES:

INITIAL INSPECTION

INSPECTOR: Ishan Fechter TITLE Supt. DATE: Dec 1/18

RE-INSPECTION (DEFICIENCIES COMPLETED)

INSPECTOR: _____ TITLE _____ DATE: _____

Garry DAHL

# CONCRETE POST POUR COLD WEATHER MONITORING

Rev 03 Nov 13, 2018

| | |
|---|---|
| ACTOR: Clark Builders | DATE OF POUR: Dec. 1 |
| MBIENT TEMP at POUR (°C): -9 | DATE FORMWORK STRIPPED: Dec. 3 |
| CATION: E-House walls, North Half | SPEC SECTION(S): S03 30 00 – Cast-In-Place |

PE OF CURING:

| | | | | | |
|---|---|---|---|---|---|
| RING COMPOUND | ☐ | DAMP BURLAP OR FABRIC | ☐ | INSULATION (TARPS) | ☑ |
| LYETHYLENE SHEETS | ☐ | WATER/FOG SPRAY/ PONDING | ☐ | FORMS (COVERED BY) | ☑ |

| LD WEATHER REQUIREMENTS (WHEN AMB. TEMP < 5°C) | PASS | FAIL | N/A | REMARKS |
|---|---|---|---|---|
| tection in place and temperatures not lower than 20°C or until 70% of the 28-strength has been reached. | ☑ | ☐ | ☐ | |
| d weather protection provided by means of heated enclosures, coverings, ılation, or a suitable approved combination of these methods during nplete curing period. | ☑ | ☐ | ☐ | |
| ıcrete test cylinders are kept within hoarding or in area where temperatures ideal for curing. (No frozen Cylinders) | ☑ | ☐ | ☐ | |
| it is not directed onto concrete. This may result in thermal cracking | ☑ | ☐ | ☐ | |
| ing freezing weather, and standing water removed before the end of the tection period (CSA A 23.1 clause 7.4.2.4.2) | ☑ | ☐ | ☐ | |

NCRETE CURING TEMPERATURE LOG (COLD WEATHER CONCRETEING ONLY)

| DATE | | TIME (24 HR) | OUTSIDE AIR TEMP (°C) | TEMP INSIDE HOARDING (°C) | CONCRETE SURFACE TEMP (°C) | | INITIALS OF READER |
|---|---|---|---|---|---|---|---|
| | | | | | HIGH (°C) | LOW (°C) | |
| Dec. 1 | AM | 6:00 PM | -11 | 24 | 21 | 15 | D.P. |
| Dec. 2 | MID | 7:30 AM | -15 | 26 | 30 | 28 | D.P. |
| Dec. 2 | PM | 1:30 PM | -17 | 24 | 29 | 28 | D.P. |
| Dec 2 | AM | 6:30 PM | -20 | 22 | 27 | 26 | D.P. |
| Dec. 3 | MID | 7:30 AM | -16 | 21 | 25 | 24 | D.P. |
| | PM | | | | | | |
| | AM | | | | | | |
| | MID | | | | | | |
| | PM | | | | | | |

MMENTS:

RK BUILDERS SITE REPRESENTATIVE

T/ SIGN: DAN PELLETIER Dan Pellet TITLE Foreman DATE: Dec. 3

# CONCRETE POST POUR COLD WEATHER MONITORING

Rev 03 Nov 13, 2018

| | |
|---|---|
| CONTRACTOR: Clark Builders | DATE OF POUR: Dec 7/18 |
| AMBIENT TEMP at POUR (°C): | DATE FORMWORK STRIPPED: |
| LOCATION: Secondary E house | |
| | SPEC SECTION(S): S03 30 00 – Cast-In-Place |

TYPE OF CURING:

| | | | | | |
|---|---|---|---|---|---|
| CURING COMPOUND | ☐ | DAMP BURLAP OR FABRIC | ☐ | INSULATION (TARPS) | ☑ |
| POLYETHYLENE SHEETS | ☐ | WATER/FOG SPRAY/ PONDING | ☐ | FORMS (COVERED BY) | ☐ |

| COLD WEATHER REQUIREMENTS (WHEN AMB. TEMP < 5°C) | PASS | FAIL | N/A | REMARKS |
|---|---|---|---|---|
| Protection in place and temperatures not lower than 20°C or until 70% of the 28-day strength has been reached. | ☐ | ☐ | ☐ | |
| Cold weather protection provided by means of heated enclosures, coverings, insulation, or a suitable approved combination of these methods during complete curing period. | ☐ | ☐ | ☐ | |
| Concrete test cylinders are kept within hoarding or in area where temperatures are ideal for curing. (No frozen Cylinders) | ☐ | ☐ | ☐ | |
| Heat is not directed onto concrete. This may result in thermal cracking. | ☐ | ☐ | ☐ | |
| During freezing weather, and standing water removed before the end of the protection period (CSA A 23.1 clause 7.4.2.4.2) | ☐ | ☐ | ☐ | |

CONCRETE CURING TEMPERATURE LOG (COLD WEATHER CONCRETEING ONLY)

| DATE | | TIME (24 HR) | OUTSIDE AIR TEMP (°C) | TEMP INSIDE HOARDING (°C) | CONCRETE SURFACE TEMP (°C) | | INITIALS OF READER |
|---|---|---|---|---|---|---|---|
| | | | | | HIGH (°C) | LOW (°C) | |
| Dec 8/18 | AM | 7:30 AM | -1 | 29.7 | 30.2 | 26.7 | J.T |
| Dec 9/18 | MID | 8:30 | +2 | 25.6 | 28.3 | 25.8 | CN |
| Dec 10/18 | PM | 7:45 AM | -3 | 24.3 | 27.8 | 23.6 | CN |
| Dec 10/18 | AM | 3:40 PM | -2 | 25.6 | 28.1 | 24.3 | PN |
| | MID | | | | | | |
| | PM | | | | | | |
| | AM | | | | | | |
| | MID | | | | | | |
| | PM | | | | | | |

| COMMENTS: | | |
|---|---|---|
| | | |
| | | |

CLARK BUILDERS SITE REPRESENTATIVE

PRINT/ SIGN: _____ TITLE _____ DATE: _____

CLARK BUILDERS
ENERGY & RESOURCES

# CONCRETE REINFORCEMENT PRE POUR

Rev 01 August 25, 2018

| | |
|---|---|
| SUBCONTRACTOR: Ultimate Reinforcing // McNish | INSPECTION DATE: December 10, 2018 |
| SUBCONTRACTOR CONTACT PERSON: Clayton | PROJ. POUR DATE: December 12, 2018 |
| INSPECTOR(S): 4300 Transformer Walls (x2) | |
| LOCATION: Ryan deMilliano, Jerry C., Dave Delorme | |
| DRAWING REV: 00 / DRAWING NO.(S): 4300-0011 | SPEC SECTION(S): S03 20 00 – Concrete Reinforcing Steel |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Grade (400W unless otherwise noted) and type of steel delivered and installed as required by approved drawings. | ☒ | ☐ | ☐ |
| 2.0 | Inspect rebar distribution, spacing and cover per design/project requirements. | ☒ | ☐ | ☐ |
| 3.0 | Length of splices as specified | ☒ | ☐ | ☐ |
| 4.0 | Staggered splices as specified | ☒ | ☐ | ☐ |
| 5.0 | Any mechanical splices have been approved by the owner prior to install | ☐ | ☐ | ☒ |
| 6.0 | Bars cleaned and free of material that may reduce bond including loose rust, scale, oil, structural defects and that they are uncoated and unpainted. | ☒ | ☐ | ☐ |
| 7.0 | Dowels at wall ends, construction joints, and openings as specified (length, location, size, etc.) | ☒ | ☐ | ☐ |
| 8.0 | No unauthorized field bent bars including hooks installed | ☒ | ☐ | ☐ |
| 9.0 | Resolve conflicts between embedded items and reinforcement | ☒ | ☐ | ☐ |
| 10.0 | When authorized, field bends done without heat and inspected for fissures or cracks. | ☐ | ☐ | ☒ |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 11.0 | Bars tied and supported to prevent displacement | ☒ | ☐ | ☐ |
| 12.0 | Spacers, tie wire and chairs as required | ☒ | ☐ | ☐ |
| 13.0 | Conduits at design location and minimum separation from rebar as specified | ☐ | ☐ | ☒ |
| 14.0 | No contact of bars is made with dissimilar metals as per CSA A23.1 | ☒ | ☐ | ☐ |
| 15.0 | Bars, nails or tie wire not sticking out from surfaces that allow rusting/corrosion | ☒ | ☐ | ☐ |
| 16.0 | Rebar welds are inspected by qualified inspectors certified to CSA W178.2 | ☒ | ☐ | ☐ |
| 17.0 | No rebar congestion or other obstruction for deposit of concrete | ☒ | ☐ | ☐ |
| 18.0 | Adjustments required for interfering items (piping, inserts, sleeves, etc.) have been submitted and approved by owner. | ☒ | ☐ | ☐ |
| 19.0 | Rebar was stored off ground to prevent damage/corrosion | ☒ | ☐ | ☐ |
| 20.0 | Review drawings for anchors, piping, sleeves, boxes | ☒ | ☐ | ☐ |

COMMENTS:

ATTACHMENT(S): Dwg (Highlighted)

DEFICIENCIES NOTES:

CLARK BUILDERS
INSPECTOR: Ryan deMilliano TITLE: Project Coordinator DATE: Dec 10/18

JDS ENERGY & MINING:
INSPECTOR: Jerry Chrzastek TITLE: Const. Sup. DATE: Dec. 10/18

CB-INSPECTION FORM-DOC-002 REV.00
JDS ENERGY & MINING INC. | STRATAGOLD EAGLE GOLD
PROJECT #: CB201 | 18502

CLARK BUILDERS
ENERGY & RESOURCES

PROJECT MANAGER: DUSTIN DOLYNCHUK, P.ENG
QA/QC COORDINATOR: RYAN DE MILLIANO, C.E.T.
SUPERINTENDENT: GARRY DAHL

# FORMWORK & FALSEWORK PRE POUR | QA INSPECTION

Rev 01 August 25, 2018

| | |
|---|---|
| CONTRACTOR: Clark Builders | INSPECTION DATE: December 10, 2018 |
| CONTRACTOR CONTACT PERSON: Clayton | DATE OF POUR: December 12, 2018 |
| INSPECTOR(S): 4300 Transformer Walls (x2) | |
| LOCATION: Ryan deMilliano, Geo Dave Delorme, Jerry C. (JDS) | |
| DRAWING REV: 00 / DRAWING NO.(S): 4300-0011 | SPEC SECTION(S): |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Location, survey, dimension and grades as required | ☑ | ☐ | ☐ |
| 2.0 | Plumbness and Flatness verified | ☑ | ☐ | ☐ |
| 3.0 | Joints are aligned and watertight. | ☑ | ☐ | ☐ |
| 4.0 | Formwork shop drawings are Engineered and reviewed | ☐ | ☐ | ☑ |
| 5.0 | Re-used formwork reconditioned and treated | ☑ | ☐ | ☐ |
| 6.0 | Formwork and ties according to finishing requirements. Confirm no holes in the concrete surface are greater than 25mm in diameter or expose steel at less than 25mm from surface. As per spec. | ☑ | ☐ | ☐ |
| 7.0 | Installation of embeds are located and secured | ☑ | ☐ | ☐ |
| 8.0 | Chamfer requirements checked. 25mm chamfers required for all exterior corners and edges exposed to view including horizontal edges of pads. | ☑ | ☐ | ☐ |
| 9.0 | Key ways and/or other provisions according to design are provided in construction joints | ☐ | ☐ | ☑ |
| 10.0 | Inspect types of form spacers, ties and bracing. | ☑ | ☐ | ☐ |
| 11.0 | Spacing of ties to be set to a pattern | ☑ | ☐ | ☐ |
| 12.0 | Expansion, construction, contraction joints as required & located as coordinated with structural Engineer | ☑ | ☐ | ☐ |
| 13.0 | Forms secured against movement during placing | ☑ | ☐ | ☐ |
| 14.0 | Forms are braced for alignment and blow out | ☑ | ☐ | ☐ |
| 15.0 | Forms are cleaned of all debris, and dry, prior to concrete placement including standing water. | ☑ | ☐ | ☐ |
| 16.0 | Openings in formwork permit inspection and cleaning, placing and compaction of concrete, and forming and processing of construction joints. | ☑ | ☐ | ☐ |
| 17.0 | Formwork has been coated with release agent prior to rebar placement. | ☑ | ☐ | ☐ |
| 18.0 | Anchor Bolts and Embeds are secured to formwork. | ☑ | ☐ | ☐ |

COMMENTS:

ATTACHMENT(S):

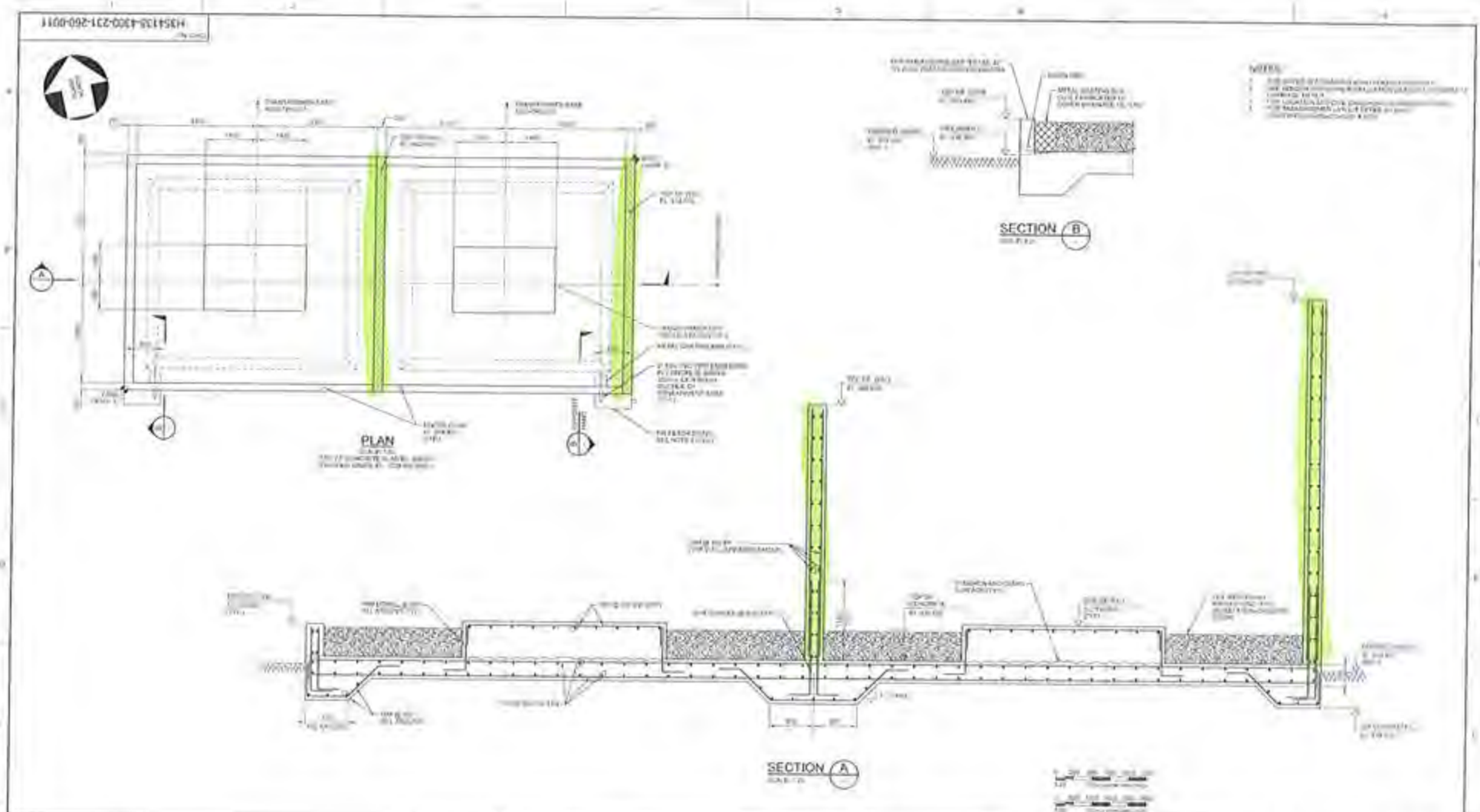
DEFICIENCIES NOTES:

INITIAL INSPECTION

INSPECTOR: Ryan deMilliano / [signature] TITLE Project Coordinator DATE: Dec 10/18

RE-INSPECTION (DEFICIENCIES COMPLETED)

INSPECTOR: _____ TITLE _____ DATE: _____




HATCH

StrataGold Corporation

EAGLE GOLD PROJECT

ORE PREPARATION (LIME AND CEMENT) TRANSFORMER FOUNDATION PLAN, SECTIONS AND DETAILS

1035413/-4300-231-260-0011

0

# CONCRETE REINFORCEMENT PRE POUR

Rev 01 August 25, 2018

| | |
|---|---|
| SUBCONTRACTOR: Ultimate Reinforcing // McNish | INSPECTION DATE: December 16, 2018 |
| SUBCONTRACTOR CONTACT PERSON: Clayton Williams | PROJ. POUR DATE: December 16, 2018 |
| INSPECTOR(S): Ryan deMilliano | |
| LOCATION: 4300 Transformer Curbs | |
| DRAWING REV: 00 / DRAWING NO.(S): 4300-0011 | SPEC SECTION(S): S03 20 00 – Concrete Reinforcing Steel |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Grade (400W unless otherwise noted) and type of steel delivered and installed as required by approved drawings. | ☑ | ☐ | ☐ |
| 2.0 | Inspect rebar distribution, spacing and cover per design/project requirements. | ☑ | ☐ | ☐ |
| 3.0 | Length of splices as specified | ☑ | ☐ | ☐ |
| 4.0 | Staggered splices as specified | ☑ | ☐ | ☐ |
| 5.0 | Any mechanical splices have been approved by the owner prior to install | ☐ | ☐ | ☑ |
| 6.0 | Bars cleaned and free of material that may reduce bond including loose rust, scale, oil, structural defects and that they are uncoated and unpainted. | ☑ | ☐ | ☐ |
| 7.0 | Dowels at wall ends, construction joints, and openings as specified (length, location, size, etc.) | ☐ | ☐ | ☑ |
| 8.0 | No unauthorized field bent bars including hooks installed | ☑ | ☐ | ☐ |
| 9.0 | Resolve conflicts between embedded items and reinforcement | ☑ | ☐ | ☐ |
| 10.0 | When authorized, field bends done without heat and inspected for fissures or cracks. | ☐ | ☐ | ☑ |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 11.0 | Bars tied and supported to prevent displacement | ☑ | ☐ | ☐ |
| 12.0 | Spacers, tie wire and chairs as required | ☑ | ☐ | ☐ |
| 13.0 | Conduits at design location and minimum separation from rebar as specified | ☐ | ☐ | ☑ |
| 14.0 | No contact of bars is made with dissimilar metals as per CSA A23.1 | ☑ | ☐ | ☐ |
| 15.0 | Bars, nails or tie wire not sticking out from surfaces that allow rusting/corrosion | ☑ | ☐ | ☐ |
| 16.0 | Rebar welds are inspected by qualified inspectors certified to CSA W178.2 | ☐ | ☐ | ☑ |
| 17.0 | No rebar congestion or other obstruction for deposit of concrete | ☑ | ☐ | ☐ |
| 18.0 | Adjustments required for interfering items (piping, inserts, sleeves, etc.) have been submitted and approved by owner. | ☑ | ☐ | ☐ |
| 19.0 | Rebar was stored off ground to prevent damage/corrosion | ☑ | ☐ | ☐ |
| 20.0 | Review drawings for anchors, piping, sleeves, boxes | ☑ | ☐ | ☐ |

COMMENTS:

Addition of single bar above PVC drainage pipe for crack control requested and installed prior to pour.

ATTACHMENT(S):

DEFICIENCIES NOTES:

CLARK BUILDERS:

INSPECTOR: Ryan deMilliano TITLE Project Coordinator DATE: December 16/18

JDS ENERGY & MINING:

INSPECTOR: Matthew Brindale, MSc TITLE Field Engr DATE: Dec. 16/18

CLARK BUILDERS
ENERGY & RESOURCES

PROJECT MANAGER: DUSTIN DOLYNCHUK, P.ENG
QA/QC COORDINATOR: RYAN DE MILLIANO, C.E.T.
SUPERINTENDENT: GARRY DAHL

# FORMWORK & FALSEWORK PRE POUR | QA INSPECTION

Rev 01 August 25, 2018

| | |
|---|---|
| CONTRACTOR: Clark Builders | INSPECTION DATE: December 16, 2018 |
| CONTRACTOR CONTACT PERSON: Dave DeLorme | DATE OF POUR: December 16, 2018 |
| INSPECTOR(S): Ryan deMilliano | |
| LOCATION: 4300 Transformer Curbs. | |
| DRAWING REV: 00 / DRAWING NO.(S): 4300-0011 | SPEC SECTION(S): 5031000 |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Location, survey, dimension and grades as required | ☑ | ☐ | ☐ |
| 2.0 | Plumbness and Flatness verified | ☑ | ☐ | ☐ |
| 3.0 | Joints are aligned and watertight. | ☑ | ☐ | ☐ |
| 4.0 | Formwork shop drawings are Engineered and reviewed | ☐ | ☐ | ☑ |
| 5.0 | Re-used formwork reconditioned and treated | ☑ | ☐ | ☐ |
| 6.0 | Formwork and ties according to finishing requirements. Confirm no holes in the concrete surface are greater than 25mm in diameter or expose steel at less than 25mm from surface. As per spec. | ☑ | ☐ | ☐ |
| 7.0 | Installation of embeds are located and secured | ☐ | ☐ | ☑ |
| 8.0 | Chamfer requirements checked. 25mm chamfers required for all exterior corners and edges exposed to view including horizontal edges of pads. | ☑ | ☐ | ☐ |
| 9.0 | Key ways and/or other provisions according to design are provided in construction joints | ☐ | ☐ | ☑ |
| 10.0 | Inspect types of form spacers, ties and bracing. | ☑ | ☐ | ☐ |
| 11.0 | Spacing of ties to be set to a pattern | ☑ | ☐ | ☐ |
| 12.0 | Expansion, construction, contraction joints as required & located as coordinated with structural Engineer | ☑ | ☐ | ☐ |
| 13.0 | Forms secured against movement during placing | ☑ | ☐ | ☐ |
| 14.0 | Forms are braced for alignment and blow out | ☑ | ☐ | ☐ |
| 15.0 | Forms are cleaned of all debris, and dry, prior to concrete placement including standing water. | ☑ | ☐ | ☐ |
| 16.0 | Openings in formwork permit inspection and cleaning, placing and compaction of concrete, and forming and processing of construction joints. | ☑ | ☐ | ☐ |
| 17.0 | Formwork has been coated with release agent prior to rebar placement. | ☑ | ☐ | ☐ |
| 18.0 | Anchor Bolts and Embeds are secured to formwork. | ☐ | ☐ | ☑ |

| COMMENTS: | ATTACHMENT(S): |
|---|---|
| | DWGS. |
| | |
| | |

DEFICIENCIES NOTES:

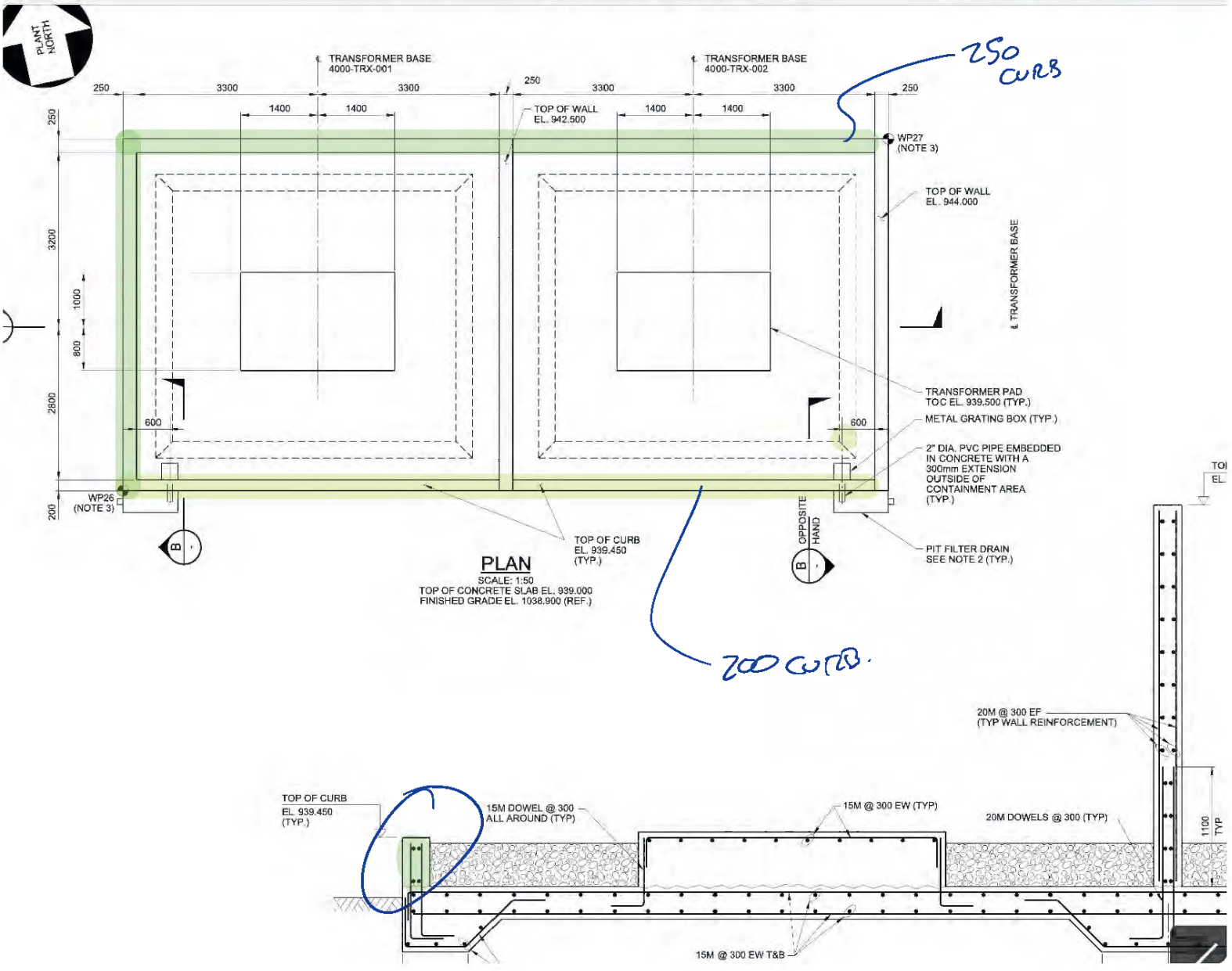
INITIAL INSPECTION

INSPECTOR: Ryan deMilliano TITLE Project Coordinator DATE: December 16, 2018

RE-INSPECTION (DEFICIENCIES COMPLETED)

INSPECTOR: [signature] TITLE Field Eng DATE: Dec 16, 2018

# H354138-4300-231-260-0011 Rev 0



CLARK BUILDERS
ENERGY & RESOURCES

# CONCRETE REINFORCEMENT PRE POUR

Rev 01 August 25, 2018

SUBCONTRACTOR: Ultimate Reinforcing // McNish
INSPECTION DATE: December 13, 2018
SUBCONTRACTOR CONTACT PERSON: Thomas
PROJ. POUR DATE: December 13, 2018
INSPECTOR(S): Ryan deMilliard
LOCATION: 3330 Secondary Transformer curbs
DRAWING REV: 01 | DRAWING NO.(S): 3330 - 0028 | SPEC SECTION(S): S03 20 00 – Concrete Reinforcing Steel

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Grade (400W unless otherwise noted) and type of steel delivered and installed as required by approved drawings. | ☒ | ☐ | ☐ |
| 2.0 | Inspect rebar distribution, spacing and cover per design/project requirements. | ☒ | ☐ | ☐ |
| 3.0 | Length of splices as specified | ☒ | ☐ | ☐ |
| 4.0 | Staggered splices as specified | ☒ | ☐ | ☐ |
| 5.0 | Any mechanical splices have been approved by the owner prior to install | ☐ | ☐ | ☒ |
| 6.0 | Bars cleaned and free of material that may reduce bond including loose rust, scale, oil, structural defects and that they are uncoated and unpainted. | ☒ | ☐ | ☐ |
| 7.0 | Dowels at wall ends, construction joints, and openings as specified (length, location, size, etc.) | ☒ | ☐ | ☐ |
| 8.0 | No unauthorized field bent bars including hooks installed | ☒ | ☐ | ☐ |
| 9.0 | Resolve conflicts between embedded items and reinforcement | ☒ | ☐ | ☐ |
| 10.0 | When authorized, field bends done without heat and inspected for fissures or cracks. | ☐ | ☐ | ☒ |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 11.0 | Bars tied and supported to prevent displacement | ☒ | ☐ | ☐ |
| 12.0 | Spacers, tie wire and chairs as required | ☒ | ☐ | ☐ |
| 13.0 | Conduits at design location and minimum separation from rebar as specified | ☒ | ☐ | ☐ |
| 14.0 | No contact of bars is made with dissimilar metals as per CSA A23.1 | ☒ | ☐ | ☐ |
| 15.0 | Bars, nails or tie wire not sticking out from surfaces that allow rusting/corrosion | ☒ | ☐ | ☐ |
| 16.0 | Rebar welds are inspected by qualified inspectors certified to CSA W178.2 | ☐ | ☐ | ☒ |
| 17.0 | No rebar congestion or other obstruction for deposit of concrete | ☒ | ☐ | ☐ |
| 18.0 | Adjustments required for interfering items (piping, inserts, sleeves, etc.) have been submitted and approved by owner. | ☒ | ☐ | ☐ |
| 19.0 | Rebar was stored off ground to prevent damage/corrosion | ☒ | ☐ | ☐ |
| 20.0 | Review drawings for anchors, piping, sleeves, boxes | ☒ | ☐ | ☐ |

COMMENTS:

- Move PVC drains to correct location 600mm from wall edge.

ATTACHMENT(S):

DEFICIENCIES NOTES:

CLARK BUILDERS:
INSPECTOR: Ryan deMilliano TITLE: Project Coordinator DATE: December 13, 2018

JDS ENERGY & MINING:
INSPECTOR: Matt Coverdale MME TITLE: Field Eng DATE: Dec 13, 2018

CLARK BUILDERS
ENERGY & RESOURCES

# FORMWORK & FALSEWORK PRE POUR | QA INSPECTION

Rev 01 August 25, 2019

| | |
|---|---|
| CONTRACTOR: Clark Builders | INSPECTION DATE: December 13, 2018 |
| CONTRACTOR CONTACT PERSON: Greg Watson | DATE OF POUR: DECEMBER 13, 2018 |
| INSPECTOR(S): Ryan deMilliano. | |
| LOCATION: 3330 Secondary Transformer Curbs. | |
| DRAWING REV: 01 / DRAWING NO.(S): 3330-0028 | SPEC SECTION(S): S03100 00 |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Location, survey, dimension and grades as required | ☑ | ☐ | ☐ |
| 2.0 | Plumbness and Flatness verified | ☑ | ☐ | ☐ |
| 3.0 | Joints are aligned and watertight. | ☑ | ☐ | ☐ |
| 4.0 | Formwork shop drawings are Engineered and reviewed | ☐ | ☐ | ☑ |
| 5.0 | Re-used formwork reconditioned and treated | ☑ | ☐ | ☐ |
| 6.0 | Formwork and ties according to finishing requirements. Confirm no holes in the concrete surface are greater than 25mm in diameter or expose steel at less than 25mm from surface. As per spec. | ☑ | ☐ | ☐ |
| 7.0 | Installation of embeds are located and secured | ☐ | ☐ | ☑ |
| 8.0 | Chamfer requirements checked. 25mm chamfers required for all exterior corners and edges exposed to view including horizontal edges of pads. | ☑ | ☐ | ☐ |
| 9.0 | Key ways and/or other provisions according to design are provided in construction joints | ☐ | ☐ | ☑ |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 10.0 | Inspect types of form spacers, ties and bracing. | ☑ | ☐ | ☐ |
| 11.0 | Spacing of ties to be set to a pattern | ☑ | ☐ | ☐ |
| 12.0 | Expansion, construction, contraction joints as required & located as coordinated with structural Engineer | ☑ | ☐ | ☐ |
| 13.0 | Forms secured against movement during placing | ☑ | ☐ | ☐ |
| 14.0 | Forms are braced for alignment and blow out | ☑ | ☐ | ☐ |
| 15.0 | Forms are cleaned of all debris, and dry, prior to concrete placement including standing water. | ☑ | ☐ | ☐ |
| 16.0 | Openings in formwork permit inspection and cleaning, placing and compaction of concrete, and forming and processing of construction joints. | ☑ | ☐ | ☐ |
| 17.0 | Formwork has been coated with release agent prior to rebar placement. | ☑ | ☐ | ☐ |
| 18.0 | Anchor Bolts and Embeds are secured to formwork. | ☐ | ☐ | ☑ |

COMMENTS:

ATTACHMENT(S):

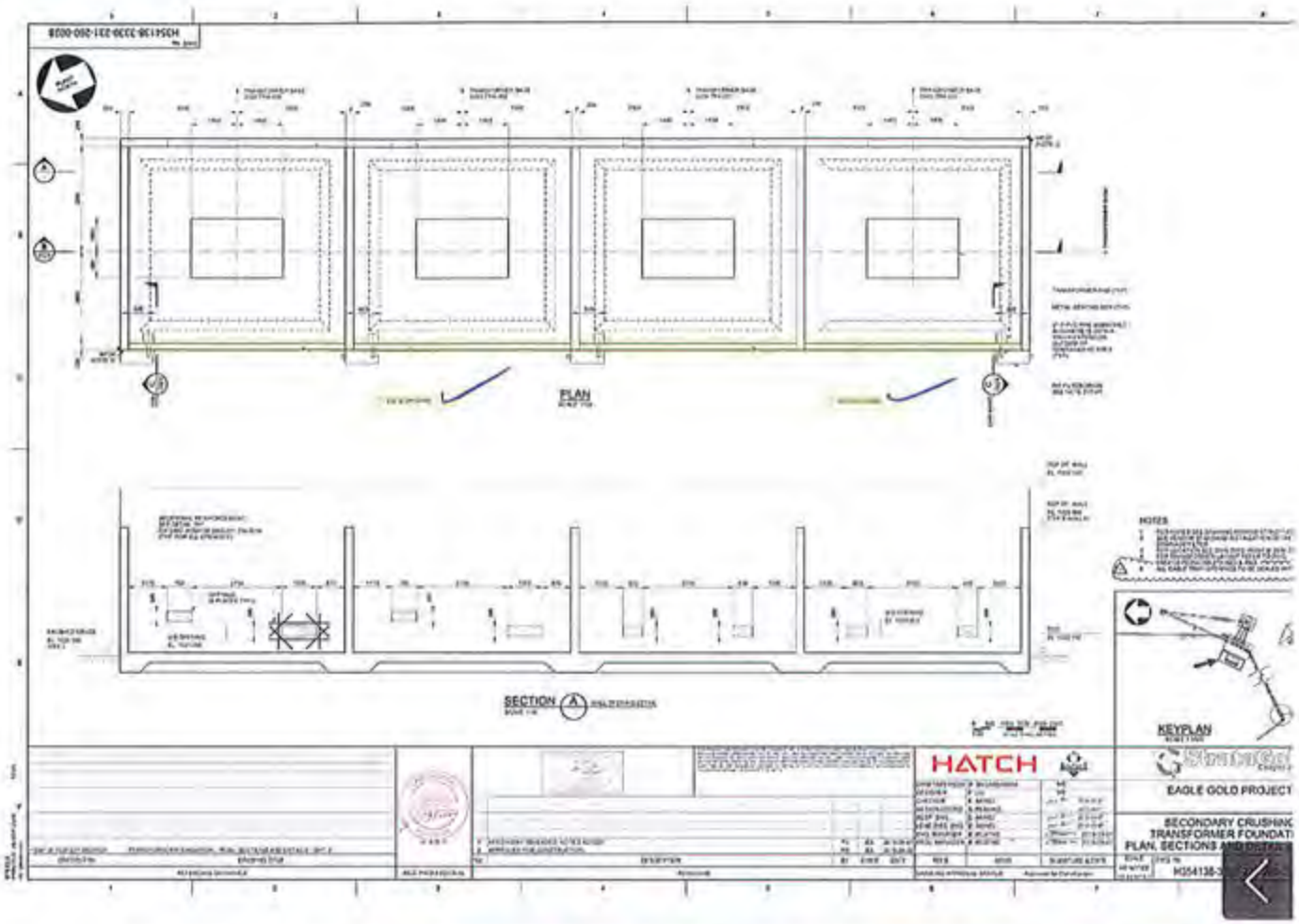
DEFICIENCIES NOTES:

INITIAL INSPECTION
INSPECTOR: Ryan deMilliano // TITLE Project Coordinator DATE: DECEMBER 13, 2018

RE-INSPECTION (DEFICIENCIES COMPLETED)
INSPECTOR: Matt Coverdale MWC TITLE Field Eng. DATE: DEC 13, 2018

Done

H354138-3330-231-260-0028 Rev 1






# CONCRETE REINFORCEMENT PRE POUR

Rev 01 August 25, 2018

| | |
|---|---|
| SUBCONTRACTOR: Ultimate Reinforcing // McNish | INSPECTION DATE: December 13, 2018 |
| SUBCONTRACTOR CONTACT PERSON: Thomas | PROJ. POUR DATE: December 13, 2018 |
| INSPECTOR(S): Ryan deMilliano | |
| LOCATION: 3330 Secondary Transformer curbs | |
| DRAWING REV: 01 / DRAWING NO.(S): 3330 - 0028 | SPEC SECTION(S): S03 20 00 – Concrete Reinforcing Steel |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Grade (400W unless otherwise noted) and type of steel delivered and installed as required by approved drawings. | ☑ | ☐ | ☐ |
| 2.0 | Inspect rebar distribution, spacing and cover per design/project requirements. | ☑ | ☐ | ☐ |
| 3.0 | Length of splices as specified | ☑ | ☐ | ☐ |
| 4.0 | Staggered splices as specified | ☑ | ☐ | ☐ |
| 5.0 | Any mechanical splices have been approved by the owner prior to install | ☐ | ☐ | ☑ |
| 6.0 | Bars cleaned and free of material that may reduce bond including loose rust, scale, oil, structural defects and that they are uncoated and unpainted. | ☑ | ☐ | ☐ |
| 7.0 | Dowels at wall ends, construction joints, and openings as specified (length, location, size, etc.) | ☑ | ☐ | ☐ |
| 8.0 | No unauthorized field bent bars including hooks installed | ☑ | ☐ | ☐ |
| 9.0 | Resolve conflicts between embedded items and reinforcement | ☑ | ☐ | ☐ |
| 10.0 | When authorized, field bends done without heat and inspected for fissures or cracks. | ☐ | ☐ | ☑ |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 11.0 | Bars tied and supported to prevent displacement | ☑ | ☐ | ☐ |
| 12.0 | Spacers, tie wire and chairs as required | ☑ | ☐ | ☐ |
| 13.0 | Conduits at design location and minimum separation from rebar as specified | ☑ | ☐ | ☐ |
| 14.0 | No contact of bars is made with dissimilar metals as per CSA A23.1 | ☑ | ☐ | ☐ |
| 15.0 | Bars, nails or tie wire not sticking out from surfaces that allow rusting/corrosion | ☑ | ☐ | ☐ |
| 16.0 | Rebar welds are inspected by qualified inspectors certified to CSA W178.2 | ☐ | ☐ | ☑ |
| 17.0 | No rebar congestion or other obstruction for deposit of concrete | ☑ | ☐ | ☐ |
| 18.0 | Adjustments required for interfering items (piping, inserts, sleeves, etc.) have been submitted and approved by owner. | ☑ | ☐ | ☐ |
| 19.0 | Rebar was stored off ground to prevent damage/corrosion | ☑ | ☐ | ☐ |
| 20.0 | Review drawings for anchors, piping, sleeves, boxes | ☑ | ☐ | ☐ |

COMMENTS:

- wave PVC drains to correct location 600mm from wall edge

Completed pour on Dec 13/18

ATTACHMENT(S):

DEFICIENCIES NOTES:

CLARK BUILDERS:

INSPECTOR: Ryan deMilliano TITLE Project Coordinator DATE: December 13, 2018

JDS ENERGY & MINING:

INSPECTOR: Matt Coverdale TITLE Field Eng DATE: Dec 13, 2018

# FORMWORK & FALSEWORK PRE POUR | QA INSPECTION

Rev 01 August 25, 2018

| | |
|---|---|
| CONTRACTOR: Clark Builders | INSPECTION DATE: December 13, 2018 |
| CONTRACTOR CONTACT PERSON: Greg Watson | DATE OF POUR: DECEMBER 13, 2018 |
| INSPECTOR(S): Ryan deMilliano. | |
| LOCATION: 3330 Secondary Transformer Curbs. | |
| DRAWING REV: 01 / DRAWING NO.(S): 3330-0028 | SPEC SECTION(S): 503100 |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Location, survey, dimension and grades as required | ☑ | ☐ | ☐ |
| 2.0 | Plumbness and Flatness verified | ☑ | ☐ | ☐ |
| 3.0 | Joints are aligned and watertight. | ☑ | ☐ | ☐ |
| 4.0 | Formwork shop drawings are Engineered and reviewed | ☐ | ☐ | ☑ |
| 5.0 | Re-used formwork reconditioned and treated | ☑ | ☐ | ☐ |
| 6.0 | Formwork and ties according to finishing requirements. Confirm no holes in the concrete surface are greater than 25mm in diameter or expose steel at less than 25mm from surface. As per spec. | ☑ | ☐ | ☐ |
| 7.0 | Installation of embeds are located and secured | ☐ | ☐ | ☑ |
| 8.0 | Chamfer requirements checked. 25mm chamfers required for all exterior corners and edges exposed to view including horizontal edges of pads. | ☑ | ☐ | ☐ |
| 9.0 | Key ways and/or other provisions according to design are provided in construction joints | ☐ | ☐ | ☑ |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 10.0 | Inspect types of form spacers, ties and bracing. | ☑ | ☐ | ☐ |
| 11.0 | Spacing of ties to be set to a pattern | ☑ | ☐ | ☐ |
| 12.0 | Expansion, construction, contraction joints as required & located as coordinated with structural Engineer | ☑ | ☐ | ☐ |
| 13.0 | Forms secured against movement during placing | ☑ | ☐ | ☐ |
| 14.0 | Forms are braced for alignment and blow out | ☑ | ☐ | ☐ |
| 15.0 | Forms are cleaned of all debris, and dry, prior to concrete placement including standing water. | ☑ | ☐ | ☐ |
| 16.0 | Openings in formwork permit inspection and cleaning, placing and compaction of concrete, and forming and processing of construction joints. | ☑ | ☐ | ☐ |
| 17.0 | Formwork has been coated with release agent prior to rebar placement. | ☑ | ☐ | ☐ |
| 18.0 | Anchor Bolts and Embeds are secured to formwork. | ☐ | ☐ | ☑ |

COMMENTS:

ATTACHMENT(S):

DEFICIENCIES NOTES:

INITIAL INSPECTION

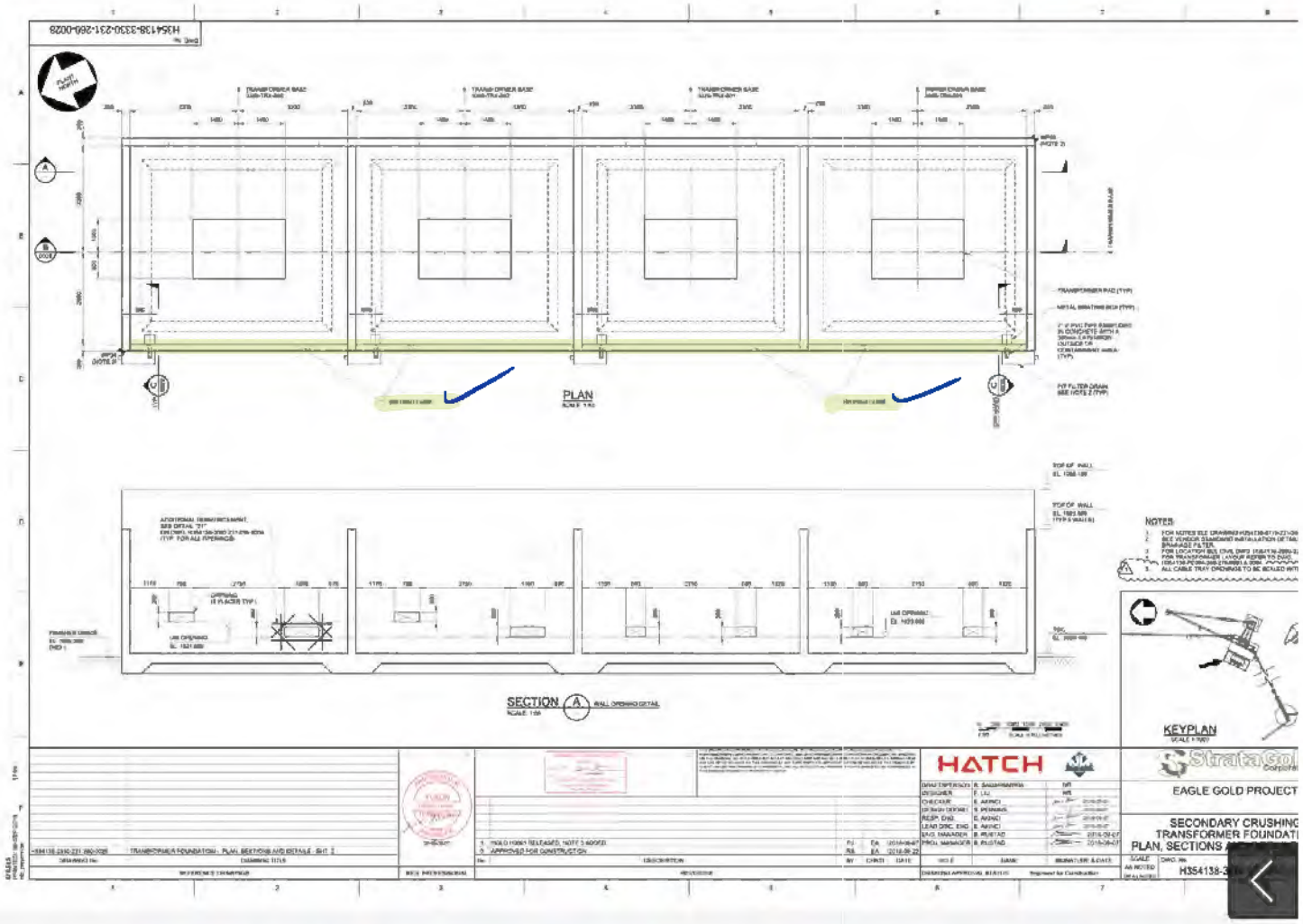
INSPECTOR: Ryan deMilliano TITLE Project Coordinator DATE: DECEMBER 13, 2018

RE-INSPECTION (DEFICIENCIES COMPLETED)

INSPECTOR: Matt Cavendale MWE TITLE Field Eng DATE: Dec 13, 2018

Done

H354138-3330-231-260-0028 Rev 1






# CONCRETE POST POUR COLD WEATHER MONITORING

Rev 03 Nov 13, 2018

| | |
|---|---|
| CONTRACTOR: Clark Builders | DATE OF POUR: Dec 13, 2018 |
| AMBIENT TEMP at POUR (°C): | DATE FORMWORK STRIPPED: |
| LOCATION: Secondary E-House Curb | SPEC SECTION(S): S03 30 00 – Cast-In-Place |

TYPE OF CURING:

| | | | | | |
|---|---|---|---|---|---|
| CURING COMPOUND | ☐ | DAMP BURLAP OR FABRIC | ☐ | INSULATION (TARPS) | ☑ |
| POLYETHYLENE SHEETS | ☐ | WATER/FOG SPRAY/ PONDING | ☐ | FORMS (COVERED BY) | ☐ |

| COLD WEATHER REQUIREMENTS (WHEN AMB. TEMP < 5°C) | PASS | FAIL | N/A | REMARKS |
|---|---|---|---|---|
| Protection in place and temperatures not lower than 20°C or until 70% of the 28-day strength has been reached. | ☐ | ☐ | ☐ | |
| Cold weather protection provided by means of heated enclosures, coverings, insulation, or a suitable approved combination of these methods during complete curing period. | ☐ | ☐ | ☐ | |
| Concrete test cylinders are kept within hoarding or in area where temperatures are ideal for curing. (No frozen Cylinders) | ☐ | ☐ | ☐ | |
| Heat is not directed onto concrete. This may result in thermal cracking. | ☐ | ☐ | ☐ | |
| During freezing weather, and standing water removed before the end of the protection period (CSA A 23.1 clause 7.4.2.4.2) | ☐ | ☐ | ☐ | |

CONCRETE CURING TEMPERATURE LOG (COLD WEATHER CONCRETEING ONLY)

| DATE | | TIME (24 HR) | OUTSIDE AIR TEMP (°C) | TEMP INSIDE HOARDING (°C) | CONCRETE SURFACE TEMP (°C) | | INITIALS OF READER |
|---|---|---|---|---|---|---|---|
| | | | | | HIGH (°C) | LOW (°C) | |
| Dec 14/18 | AM | 7:51 | -15 | 48.2 | 42.6 | 37.8 | BN |
| | MID | | | | | | |
| Dec 14/18 | PM | 4:24 | -15 | 42.3 | 46.4 | 37.2 | BN |
| Dec 15/18 | AM | 7:52 | -25 | 32.1 | 38.6 | 26.4 | BN |
| | MID | | | | | | |
| Dec 15/18 | PM | 4:46 | ~~-11~~ -25 | 34 | 31.3 | 18.6 | BN |
| Dec 16/18 | AM | 8:05 | -6 | 31 | 26.6 | 11.2 | BN |
| | MID | | | | | | |
| Dec 16/18 | PM | 5:15 | -6 | 12.4 | 14.3 | 10.9 | BN |

| COMMENTS: | |
|---|---|
| | |
| | |

CLARK BUILDERS SITE REPRESENTATIVE

PRINT/ SIGN: _____ TITLE _____ DATE: _____

# Measurement of Soil or Aggregate Resistivity using Two-Electrode Soil Box Method

ASTM G 187-12

| | | | |
|---|---|---|---|
| **Project No:** | ENG.WARC03235-03 | **Sample No.:** | 2703 |
| **Project:** | Eagle Gold Project | **Date Received:** | 24-Sep-18 |
| **Client:** | JDS Energy & Mining | **Sampled By:** | Client |
| | | **Date Tested:** | 27-Sep-18 |
| **Attention:** | R Bilobrowka **Ph:** | **Tested By:** | MA |
| **Email:** | | **Office:** | Edmonton |

| | | | |
|---|---|---|---|
| Description: | 40-20 mm Insulating Gravel | Temperature of sample; | |
| Source: | N:7098841, E:458324, Washed 38 mm Minus | As collected : | °C |
| Sample Location: | Stockpile Adjacent Finning Staging Area | As Tested : | °C |
| Model of meter: | | | |

## Resistivity of Aggregate (Wetted Condition)

**Resistivity = R x S / L**

**Box Used:** **TB 4**

**Sample Temperature:** **20.0 °C**

| | | | | |
|---|---|---|---|---|
| Where : | L = Length of sample box ( cm ) | L = | 44.8 | cm |
| | h = height of sample in box | h = | 19.8 | cm |
| | S = Cross-sectional area of sample ( $cm^2$ ) | S = | 390.06 | $cm^2$ |
| | R = Resistance ( Ohms ) | R = | 120000 | Ohms |

**Resistivity =** 120000 x 390.06 ÷ 44.8 ÷ 100

**Resistivity =** **10450** Ohm•m

**Remarks:**

Wetted with distilled water

**Reviewed By:** _____ P. Eng.

Data presented hereon is for the sole use of the stipulated client. Tetra Tech is not responsible, nor can be held liable, for use made of this report by any other party, with or without the knowledge of Tetra Tech. The testing services reported herein have been performed to recognized industry standards, unless noted. No other warranty is made. These data do not include or represent any interpretation or opinion of specification compliance or material suitability. Should engineering interpretation be required, Tetra Tech will provide it upon written request.

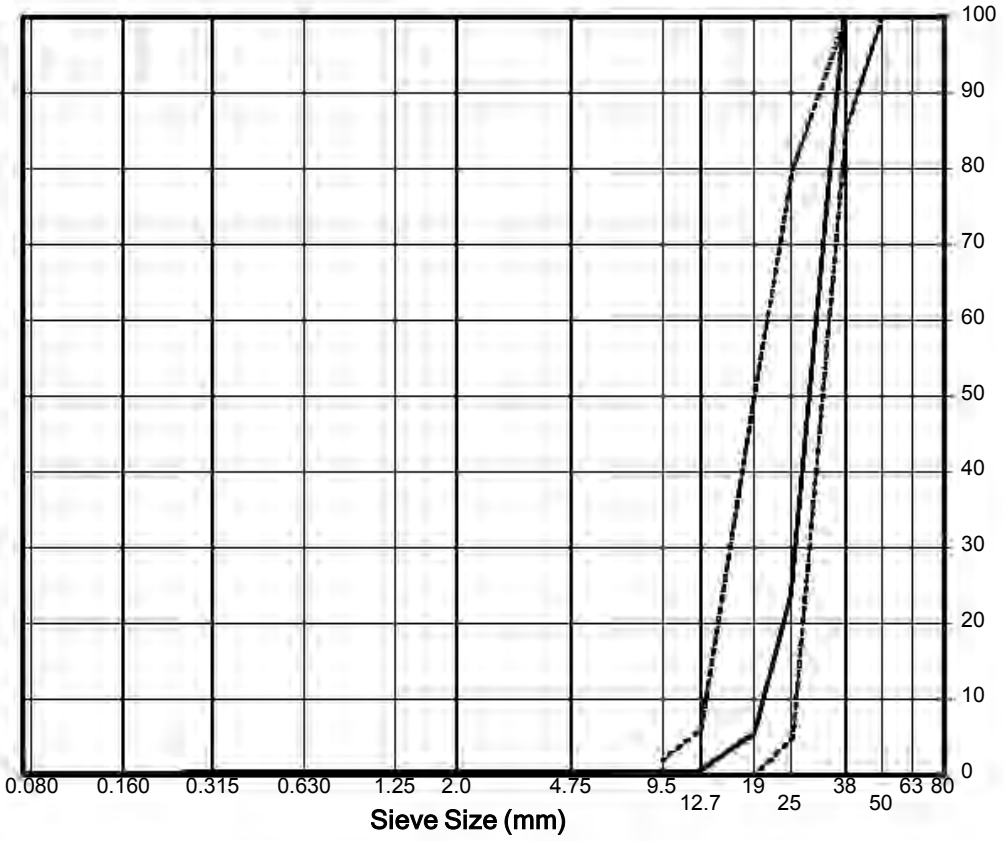
TETRA TECH

# SIEVE ANALYSIS REPORT

Washed Sieve: ASTM C136 and C117

| | | | |
|---|---|---|---|
| Project No.: | ENG.WARC03235-03 | Sample No.: | 2703 - 3 Face |
| Project: | Eagle Gold Project | Date Received: | September 24, 2018 |
| Client: | JDS Energy & Mining | Sampled by: | Client |
| Attention: | R Bilobrowka | Date Tested: | September 27, 2018 |
| Email: | | Tested by: | MA Office: Edmonton |
| Description: | 40-20 mm Insulating Gravel | Moisture Content (as received): | 1.0% |
| | | No. Crushed Faces: | Two (2) or Three (3) |
| Source: | N:7098841, E:458324, Washed 38 mm Minus | By Particle Mass: | 99% |
| Supplier: | Nuway Crushing | ASTM D5821 | |
| Sample Location: | Stockpile Adjacent Finning Staging Area | | |
| Specification: | Altalink - For Three Fractured Surfaces | | |

| Sieve Size | Percent Passing |
|---|---|
| | |
| | |
| | |
| | |
| 37.5 | 100 |
| 25 | 24 |
| 19 | 6 |
| 12.5 | 1 |
| 9.5 | 1 |
| 4.75 | 0.5 |
| 2.0 | 0.5 |
| 1.25 | 0.4 |
| 0.600 | 0.4 |
| 0.300 | 0.4 |
| 0.150 | 0.4 |
| 0.075 | 0.3 |




**Remarks:**

**Reviewed By:** P.Eng.

Data presented hereon is for the sole use of the stipulated client. Tetra Tech is not responsible, nor can be held liable, for use made of this report by any other party, with or without the knowledge of Tetra Tech. The testing services reported herein have been performed to recognized industry standards, unless noted. No other warranty is made. These data do not include or represent any interpretation or opinion of specification compliance or material suitability. Should engineering interpretation be required, Tetra Tech will provide it upon written request.

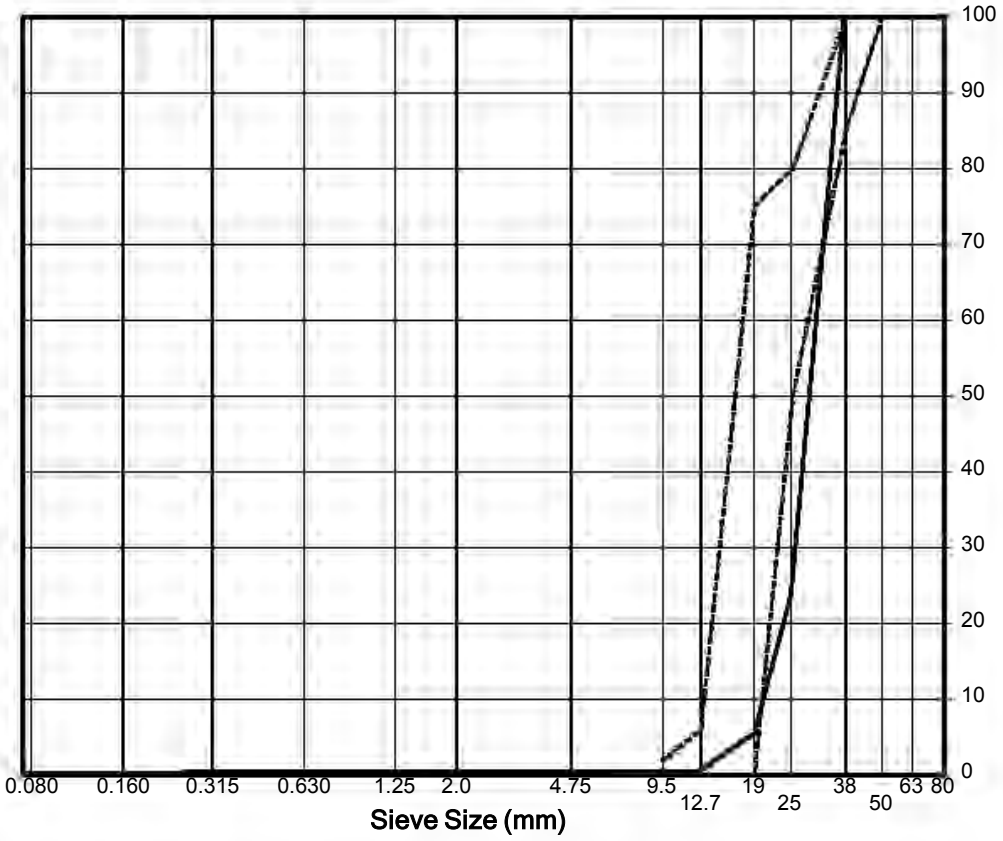
TETRA TECH

# SIEVE ANALYSIS REPORT

Washed Sieve: ASTM C136 and C117

| | | | |
|---|---|---|---|
| Project No.: | ENG.WARC03235-03 | Sample No.: | 2703 - 2 Face |
| Project: | Eagle Gold Project | Date Received: | September 24, 2018 |
| Client: | JDS Energy & Mining | Sampled by: | Client |
| Attention: | R Bilobrowka | Date Tested: | September 27, 2018 |
| Email: | | Tested by: | MA Office: Edmonton |
| Description: | 40-20 mm Insulating Gravel | Moisture Content (as received): | 1.0% |
| | | No. Crushed Faces: | Two (2) or Three (3) |
| Source: | N:7098841, E:458324, Washed 38 mm Minus | By Particle Mass: | 100% |
| Supplier: | Nuway Crushing | ASTM D5821 | |
| Sample Location: | Stockpile Adjacent Finning Staging Area | | |
| Specification: | Altalink - For Two Fractured Surfaces | | |

| Sieve Size | Percent Passing |
|---|---|
| | |
| | |
| | |
| | |
| 37.5 | 100 |
| 25 | 24 |
| 19 | 6 |
| 12.5 | 1 |
| 9.5 | 1 |
| 4.75 | 0.5 |
| 2.0 | 0.5 |
| 1.25 | 0.4 |
| 0.600 | 0.4 |
| 0.300 | 0.4 |
| 0.150 | 0.4 |
| 0.075 | 0.3 |




**Remarks:**

**Reviewed By:** P.Eng.

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TETRA TECH

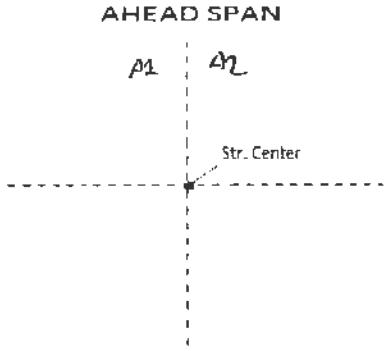
Forbes Bros LTD
POWERLINE CONSTRUCTION

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 13.8 KV | Line # | L251 |
|---|---|---|---|---|---|
| Structure # | L1 01 | Structure Type | Three Phase Riser Pole | Date | January 30 2019 |

## ANCHOR CHECKLIST

**Plan View – Anchor Locations**




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Plate | 2.4 | Gravel | 59 | 150 | | |
| 2 | Plate | 2.4 | Gravel | 61 | 150 | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

**Comments:**

Used 10 ft anchor rods

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | TREVOR ANTAC | [signature] | Feb 4/19 |
| QC inspector | Phil McKinley | Phil McKinley | Feb 3 2019 |
| Client Inspector | SVEN ARCHIMOWITZ | [signature] | FEB 5/19 |

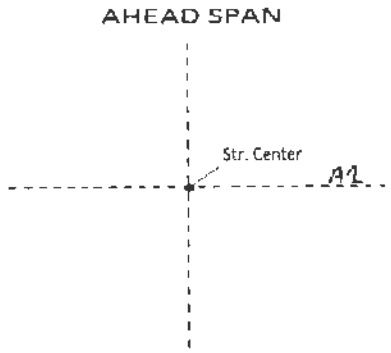
Forbes Bros LTD
POWERLINE CONSTRUCTION

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 13.8 KV | Line # | L251 |
|---|---|---|---|---|---|
| Structure # | L1 04 | Structure Type | Single Support | Date | January 30 2019 |

## ANCHOR CHECKLIST

**Plan View – Anchor Locations**




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Plate | 2.4 | Gravel | 59 | 150 | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

**Comments:**
Used 10 ft anchor rods

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | TREVOR ANDAL | | Feb 4/19 |
| QC inspector | Phil McKinley | Phil McK | Feb 3 2019 |
| Client inspector | SVEN ARCHAMBAULT | S Archa | FEB 5/19 |

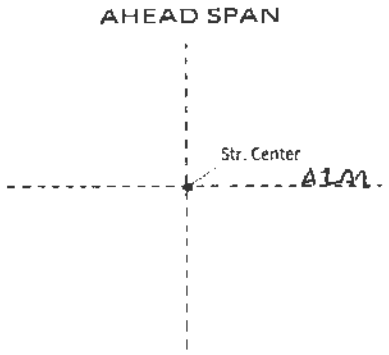
Forbes Bros LTD
POWERLINE CONSTRUCTION

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 13.8 KV | Line # | L251 |
|---|---|---|---|---|---|
| Structure # | L1 05 | Structure Type | Suspension Angle | Date | January 30 2019 |

## ANCHOR CHECKLIST

**Plan View – Anchor Locations**




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Plate | 2.4 | Gravel | 59 | 150 | | |
| 2 | Plate | 2.4 | Gravel | 61 | 150 | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

**Comments:**
Used 10 ft anchor rods

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | TREVOR ANTAL | | Feb 4/19 |
| QC inspector | Phil McKinley | Phil McKinley | Feb 3 2019 |
| Client Inspector | SVEN ARCHIMOWITZ | | FEB 5/19 |

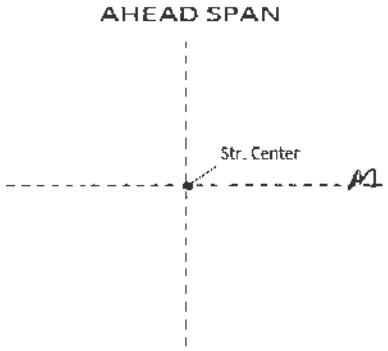
Forbes Bros LTD
POWERLINE CONSTRUCTION

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 13.8 KV | Line # | L251 |
|---|---|---|---|---|---|
| Structure # | L1 06 | Structure Type | Single Support | Date | January 31 2019 |

## ANCHOR CHECKLIST

**Plan View – Anchor Locations**




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Plate | 2.4 | Gravel | 60 | 150 | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

**Comments:**
Used 10 ft anchor rods

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | TREVOR ANYAC. | | Feb 4/19 |
| QC inspector | Phil McKinley | Phil McKinley | Feb 3 2019 |
| Client inspector | SVEN ARLITMOWITZ | | FEB 5/19 |

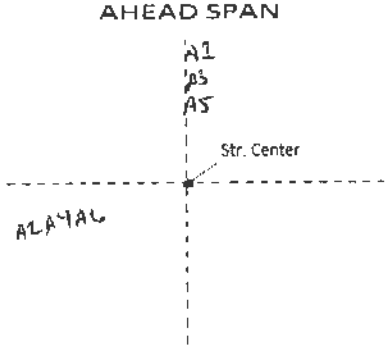
Forbes Bros LTD
POWERLINE CONSTRUCTION

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 13.8 KV | Line # | L251 |
|---|---|---|---|---|---|
| Structure # | L1 09 | Structure Type | Dead End Angle | Date | January 31 2019 |

## ANCHOR CHECKLIST

**Plan View – Anchor Locations**




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Plate | 3.2 | Gravel | 44 | 150 | | |
| 2 | Plate | 3.3 | Gravel | 46 | 150 | | |
| 3 | Plate | 3.3 | Gravel | 47 | 150 | | |
| 4 | Plate | 3.2 | Gravel | 45 | 150 | | |
| 5 | Plate | 2.4 | Gravel | 59 | 150 | | |
| 6 | Plate | 2.4 | Gravel | 60 | 150 | | |
| | | | | | | | |
| | | | | | | | |

**Comments:**

A1,A2,A3,A4 used 10 ft anchor rods plus extensions
A5,A6 used 10 ft anchor rods

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | TREVOR AWTAC | | Feb 5/19 |
| QC inspector | Phil McKinley | | Feb 4 2019 |
| Client Inspector | SVEN ARCHINOWITZ | | FEB 5/19 |

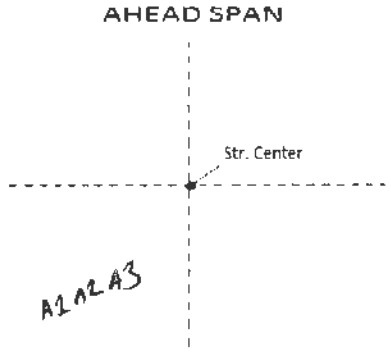
Forbes Bros Ltd
Powerline Construction

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 13.8 KV | Line # | L251 |
|---|---|---|---|---|---|
| Structure # | L1 13 | Structure Type | Suspension Angle | Date | February 1 2019 |

## ANCHOR CHECKLIST

**Plan View – Anchor Locations**




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Plate | 3.3 | Gravel | 46 | 150 | | |
| 2 | Plate | 3.3 | Gravel | 46 | 150 | | |
| 3 | Plate | 2.5 | Gravel | 62 | 150 | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

**Comments:**

A1,A2 used 10 ft anchor rods plus extensions
A3 used 10 ft anchor rods

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | TREVOR ANSTAE | | Feb 5/19 |
| QC inspector | Phil McKinley | Phil McKinley | Feb 4 2019 |
| Client Inspector | SVEN ARUTINOWITZ | | FEB 5/19 |

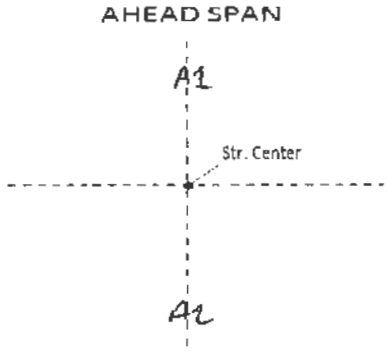
Forbes Bros LTD
POWERLINE CONSTRUCTION

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 13.8 KV | Line # | L251 |
|---|---|---|---|---|---|
| Structure # | L1 16 | Structure Type | Single Support | Date | February 1 2019 |

## ANCHOR CHECKLIST

**Plan View – Anchor Locations**




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (⁰) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Plate | 3.4 | Gravel | 48 | 150 | | |
| 2 | Plate | 3.3 | Gravel | 47 | 150 | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

**Comments:**

A1,A2 used 10 ft anchor rods plus extensions

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | TREVOR ANTAZ | [signature] | Feb 5/19 |
| QC inspector | Phil McKinley | Phil McKinley | Feb 4 2019 |
| Client Inspector | [signature] | SVEN ARCHIMOWITZ | FEB 5/19 |

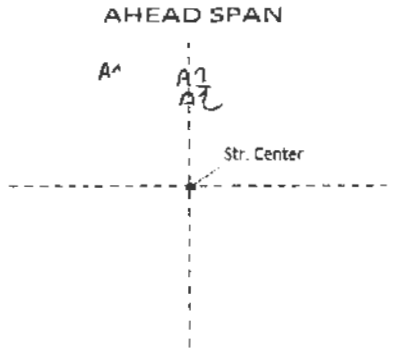
Forbes Bros. LTD
POWERLINE CONSTRUCTION

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 13.8 KV | Line # | L251 |
|---|---|---|---|---|---|
| Structure # | L1 21 | Structure Type | Three Phase Riser Pole | Date | February 1 2019 |

## ANCHOR CHECKLIST

**Plan View – Anchor Locations**




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Plate | 2.5 | Gravel | 62 | 150 | | |
| 2 | Plate | 2.4 | Gravel | 59 | 150 | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

**Comments:**

A1,A2 used 10 ft anchor rods

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | TREVOR AWITAC | | Feb 5/19 |
| QC inspector | Phil McKinley | Phil McKy | Feb 4 2019 |
| Client Inspector | SVEN ARCHIMOWITZ | | FEB 5/19 |

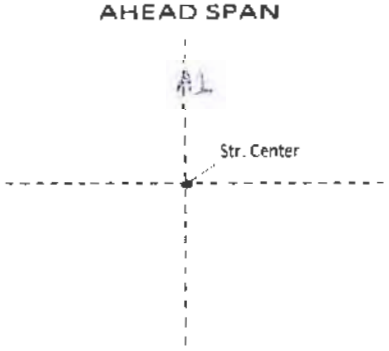
Forbes Bros LTD
POWERLINE CONSTRUCTION

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 13.8 KV | Line # | 2 |
|---|---|---|---|---|---|
| Structure # | Pole 1 P2 | Structure Type | Non Fused 3 Phase Riser Pole | Date | February 7 2019 |

## ANCHOR CHECKLIST

### Plan View – Anchor Locations




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Plate | 2.4 | Gravel | 58 | 150 | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

**Comments:**

A1 used 10 ft anchor rods

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | TREVOR ARNDT | | Feb 13/19 |
| QC inspector | Phil McKinley | Phil McKinley | Feb 12 2019 |
| Client Inspector | SVEN ARCHIMOWITZ | | FEB 14/19 |

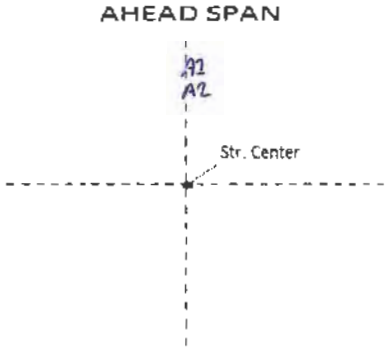
Forbes Bros. Ltd.
POWERLINE CONSTRUCTION

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 13.8 KV | Line # | 2 |
|---|---|---|---|---|---|
| Structure # | Pole 1 P1 | Structure Type | Non Fused 3 Phase Riser Pole | Date | February 7 2019 |

## ANCHOR CHECKLIST

**Plan View – Anchor Locations**




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Plate | 2.4 | Gravel | 58 | 150 | | |
| 2 | Plate | 2.6 | Gravel | 65 | 150 | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

**Comments:**
A1,A2 used 10 ft anchor rods

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | TREVOR ANTAC | | Feb 15/19 |
| QC inspector | Phil McKinley | Phil McKinley | Feb 12 2019 |
| Client Inspector | SVEN ARCHIMBWITZ | Sarchi | FEB 14/19 |

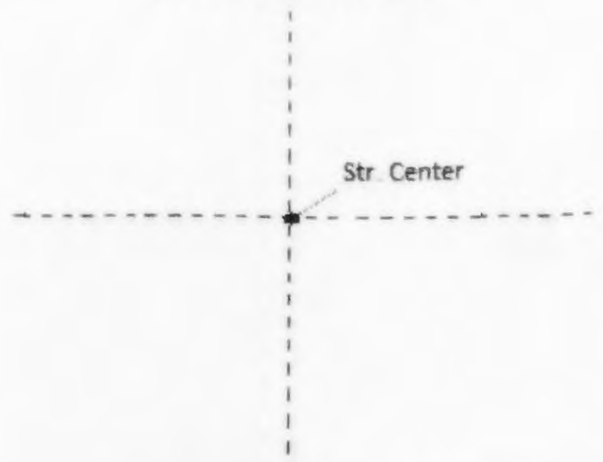
Forbes Bros LTD
POWERLINE CONSTRUCTION

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 13.8 KV | Line # | 2 |
|---|---|---|---|---|---|
| Structure # | 01B | Structure Type | Non Fused 3 Phase Riser Pole | Date | Jan 30 2019 |

## ANCHOR CHECKLIST

### Plan View – Anchor Locations




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle ($^0$) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Plate | 2.5 | Gravel | 61 | 150 | | |
| | | | | | | | |
| | | | | | | | |
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| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

**Comments:**

A1 used 10 ft anchor rods

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | TREVOR ANTAL | | FEB 2 2019 |
| QC inspector | Phil McKinley | Phil McKinley | Feb 2 2019 |
| Client Inspector | MattC | MattC | Feb 26, 19 |

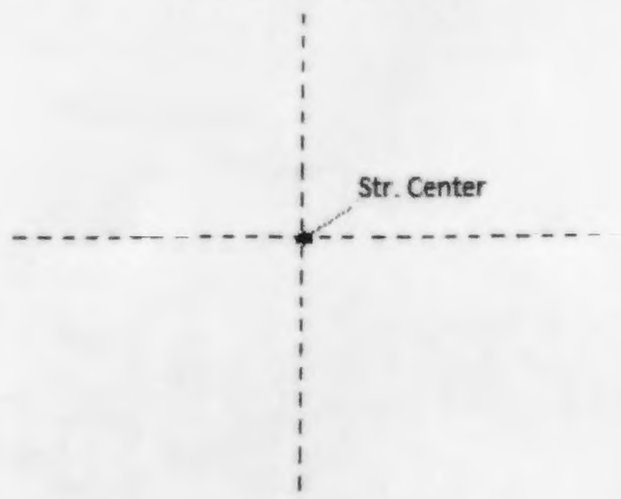
Forbes Bros LTD
POWERLINE CONSTRUCTION

# Anchor Installation

| | | | | | |
|---|---|---|---|---|---|
| **Project #** | 4581 | **Project Name** | Eagle Gold 13.8 KV | **Line #** | 2 |
| **Structure #** | 01A | **Structure Type** | Non Fused 3 Phase Riser Pole | **Date** | Jan 30 2019 |

## ANCHOR CHECKLIST

### Plan View – Anchor Locations




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle ($^0$) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Plate | 2.5 | Gravel | 62 | 150 | | |
| 2 | Plate | 2.4 | Gravel | 59 | 150 | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

**Comments:**

A1,A2 used 10 ft anchor rods

| | Print | Signature | Date |
|---|---|---|---|
| **Foreman name** | TREVOR ANTILL | | FEB 2 2019 |
| **QC inspector** | Phil McKinley | Phil McKinley | Feb 2 2019 |
| **Client Inspector** | Matt C | | Feb 26, 19 |

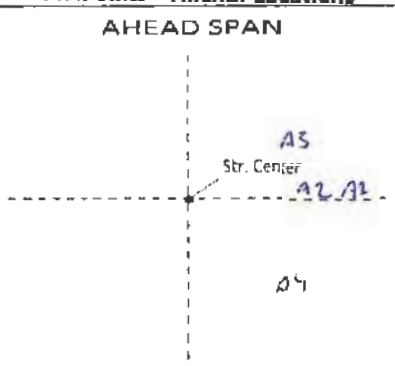
Forbes Bros LTD
POWERLINE CONSTRUCTION

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 13.8 KV | Line # | 2 |
|---|---|---|---|---|---|
| Structure # | 03 | Structure Type | Non Fused 3 Phase Riser Pole | Date | February 4 2019 |

## ANCHOR CHECKLIST

**Plan View – Anchor Locations**




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Plate | 2.5 | Gravel | 62 | 150 | | |
| 2 | Plate | 2.4 | Gravel | 59 | 150 | | |
| 3 | Plate | 2.5 | Gravel | 61 | 150 | | |
| 4 | Plate | 2.4 | Gravel | 60 | 150 | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

**Comments:**
A1,A2,A3,A4 used 10 ft anchor rods

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | TREVOR AWTAL | | Feb 8/19 |
| QC inspector | Phil McKinley | Phil McKinley | Feb 7 2019 |
| Client Inspector | SVEN ARCHIMOWITZ | S Archimowitz | FEB 9/19 |

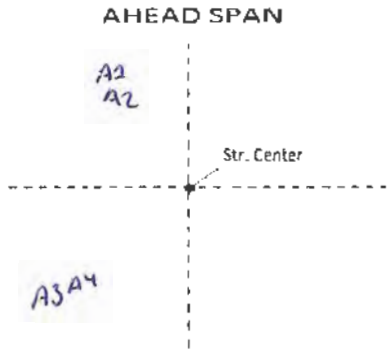
Forbes Bros. Ltd
Powerline Construction

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 13.8 KV | Line # | 2 |
|---|---|---|---|---|---|
| Structure # | 10 Pole 1 | Structure Type | Dead End Angle | Date | February 6 2019 |

## ANCHOR CHECKLIST

**Plan View – Anchor Locations**




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Plate | 3.6 | Gravel | 52 | 150 | | |
| 2 | Plate | 3.5 | Gravel | 50 | 150 | | |
| 3 | Plate | 3.6 | Gravel | 51 | 150 | | |
| 4 | Plate | 3.6 | Gravel | 51 | 150 | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

**Comments:**

A1,A2,A3,A4 used 10 ft anchor rods plus extensions

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | TREVOR ANTAL | | Feb 8/19 |
| QC inspector | Phil McKinley | Phil McKinley | Feb 7 2019 |
| Client Inspector | SVEN ARCHIMOWITZ | SArchit | FEB 9/19 |

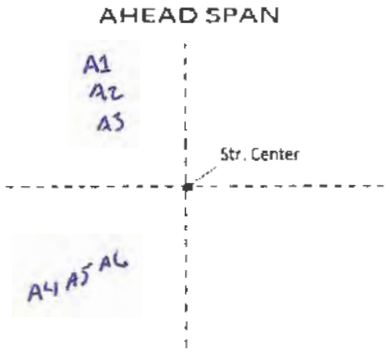
Forbes Bros LTD
Powerline Construction

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 13.8 KV | Line # | 2 |
|---|---|---|---|---|---|
| Structure # | 10 Pole 2 | Structure Type | Dead End Angle | Date | February 6 2019 |

## ANCHOR CHECKLIST

**Plan View – Anchor Locations**




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Plate | 2.5 | Gravel | 61 | 150 | | |
| 2 | Plate | 2.4 | Gravel | 59 | 150 | | |
| 3 | Plate | 2.4 | Gravel | 60 | 150 | | |
| 4 | Plate | 2.5 | Gravel | 62 | 150 | | |
| 5 | Plate | 2.4 | Gravel | 60 | 150 | | |
| 6 | Plate | 2.5 | Gravel | 61 | 150 | | |
| | | | | | | | |
| | | | | | | | |

**Comments:**

A1,A2,A3,A4,A5,A6 used 10 ft anchor rods

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | TREVOR AWITTE | | Feb 8/19 |
| QC inspector | Phil McKinley | Phil McKinley | Feb 7 2019 |
| Client Inspector | SVEN ARCHIMOWITZ | | FEB 9/19 |

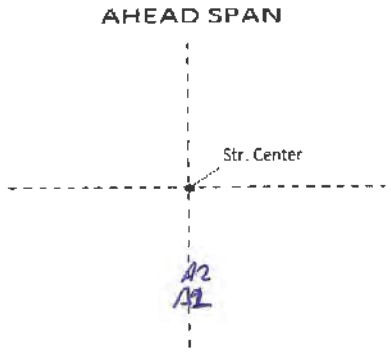
Forbes Bros LTD
POWERLINE CONSTRUCTION

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 13.8 KV | Line # | 2 |
|---|---|---|---|---|---|
| Structure # | 11 | Structure Type | Fused 3 Phase Riser Pole | Date | February 2 2019 |

## ANCHOR CHECKLIST

**Plan View – Anchor Locations**




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Plate | 2.4 | Gravel | 57 | 150 | | |
| 2 | Plate | 2.4 | Gravel | 59 | 150 | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

**Comments:**
A1 and A2 used 10 ft anchor rods

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | TREVOR ANSAC | | Jan 6/19 |
| QC inspector | Phil McKinley | Phil McKinley | Jan 5 2019 |
| Client Inspector | SARCHIMOWITZ | | FEB 7/19 |

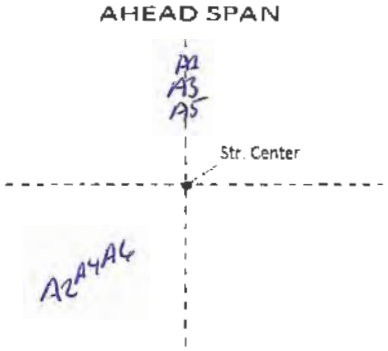
Forbes Bros LTD
POWERLINE CONSTRUCTION

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 13.8 KV | Line # | 2 |
|---|---|---|---|---|---|
| Structure # | 17 | Structure Type | Dead End Angle | Date | February 2 2019 |

## ANCHOR CHECKLIST

**Plan View – Anchor Locations**




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Plate | 3.4 | Gravel | 48 | 150 | | |
| 2 | Plate | 3.4 | Gravel | 49 | 150 | | |
| 3 | Plate | 3.3 | Gravel | 46 | 150 | | |
| 4 | Plate | 3.4 | Gravel | 48 | 150 | | |
| 5 | Plate | 2.5 | Gravel | 59 | 150 | | |
| 6 | Plate | 2.4 | Gravel | 58 | 150 | | |
| | | | | | | | |
| | | | | | | | |

**Comments:**

A1,A2,A3,A4 used 10 ft anchor rods plus extensions
A5,A6 used 10 ft anchor rods

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | TREVOR ARVIAT | | Jan 6/19 |
| QC inspector | Phil McKinley | Phil McKinley | Jan 5 2019 |
| Client Inspector | SVEN ARCHIMOWITZ | SArchi | FEB 7/19 |

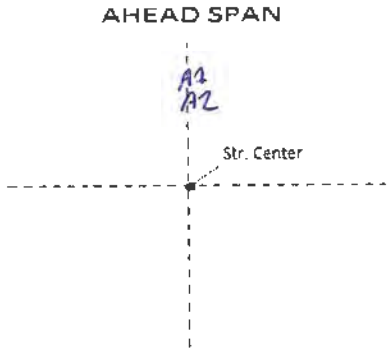
Forbes Bros LTD
POWERLINE CONSTRUCTION

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 13.8 KV | Line # | 2 |
|---|---|---|---|---|---|
| Structure # | 22 | Structure Type | Non Fused 3 Phase Riser | Date | February 2 2019 |

## ANCHOR CHECKLIST

**Plan View – Anchor Locations**




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Plate | 2.4 | Gravel | 58 | 150 | | |
| 2 | Plate | 2.4 | Gravel | 57 | 150 | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

**Comments:**
A1,A2 used 10 ft anchor rods

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | TREVOR ANTTAC | | Jan 6/19 |
| QC inspector | Phil McKinley | Phil McKinley | Jan 5 2019 |
| Client Inspector | SVEN ARLTIMWITZ | | FEB 7/19 |

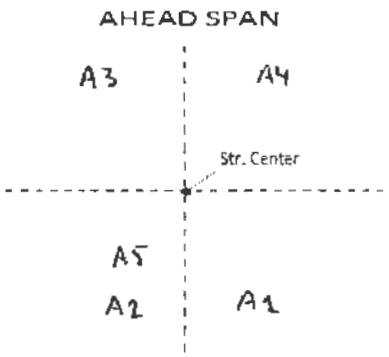
Forbes Bros LTD
POWERLINE CONSTRUCTION

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 69kV | Line # | L 251 |
|---|---|---|---|---|---|
| Structure # | 0/10A | Structure Type | DAHDEO | Date | Oct 16 2018 |

## ANCHOR CHECKLIST

### Plan View – Anchor Locations




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Log | 2.72 | Gravel | 54° | 150 | | |
| 2 | Log | 2.85 | Gravel | 52 | 150 | | |
| 3 | Log | 2.9 | Gravel | 51 | 150 | | |
| 4 | Log | 2.85 | Gravel | 52 | 150 | | |
| 5 | Log | 2.97 | Gravel | 50 | 150 | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

**Comments:**

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | TREVOR ANTAL | | OCT 17/2018 |
| QC inspector | Phil McKinley | Phil McKinley | OCT 16 2018 |
| Client Inspector | | | |

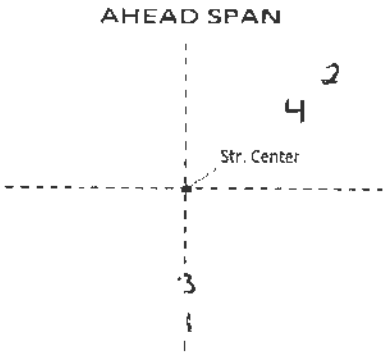
Forbes Bros LTD
POWERLINE CONSTRUCTION

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 69 kV | Line # | L 251 |
|---|---|---|---|---|---|
| Structure # | 011 | Structure Type | PT | Date | Oct 16 2018 |

## ANCHOR CHECKLIST

**Plan View – Anchor Locations**




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Log | 3.3 | Gravel | 45 | 150 | | |
| 2 | Log | 3.3 | Gravel | 45 | 150 | | |
| 3 | Log | 3.5 | Gravel | 40 | 150 | | |
| 4 | Log | 3.5 | Gravel | 40 | 150 | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

**Comments:**

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | TREVOR ANTAN | | OCT 17 2018 |
| QC inspector | Phil McKinley | Phil McKinley | Oct 16 2018 |
| Client Inspector | | | |

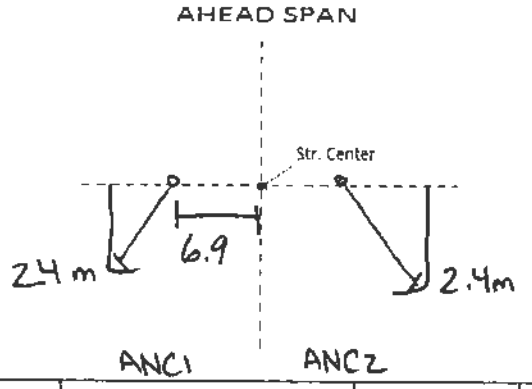
Forbes Bros LTD
POWERLINE CONSTRUCTION

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 69kv | Line # | |
|---|---|---|---|---|---|
| Structure # | 0/14 | Structure Type | PVO | Date | Sept 30 2018 |

## ANCHOR CHECKLIST

**Plan View – Anchor Locations**




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Plate | 2.4 | Gravel | 60° | 150 | | |
| 2 | Plate | 2.4 | Gravel | 60° | 150 | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

**Comments:**
150mm min stick up.
Backfill Obtained: Pit 10%

ANC 1+2 are 6.9m from str center.

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | Mike Smallhand | | Sept 30/18 |
| QC inspector | Cherell Hackett | Cherell H | Sept 30 2018 |
| Client Inspector | | | |

Forbes Bros
Powerline Construction

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Guld 69kv | Line # | L251 |
|---|---|---|---|---|---|
| Structure # | 1011 | Structure Type | PTG | Date | Nov 1 2018 |

## ANCHOR CHECKLIST

### Plan View – Anchor Locations




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Log | 2.4 | Gravel | 58 | 150 | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

**Comments:**

Used 10 Sb anchor rod

Backfilled with gravel

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | Mike Scotland | | Nov 2/18 |
| QC inspector | Phil McKinley | Phil McKinley | Nov 2 2018 |
| Client Inspector | | | |

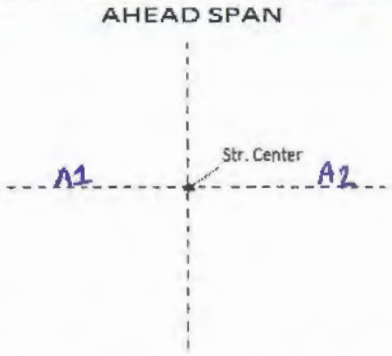
Forbes Bros LTD
POWERLINE CONSTRUCTION

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 69 KV | Line # | |
|---|---|---|---|---|---|
| Structure # | 10/10 | Structure Type | PTR | Date | Oct 2 2018 |

## ANCHOR CHECKLIST

**Plan View – Anchor Locations**




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Plate | 2.2 | Permafrost | 61 | 150mm | | |
| 2 | Plate | 2.2 | Permafrost | 59 | 150 mm | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

**Comments:**

Backfilled with gravel from 10'/12
Used 10st anchor rods

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | TREVOR ANJAC | | OCT 13 2018 |
| QC inspector | Phil McKinley | Phil McKinley | Oct 12 2018 |
| Client Inspector | | | |

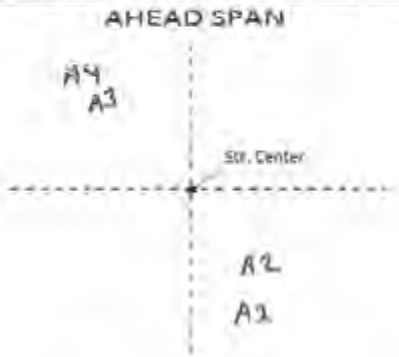
Forbes Bros
POWERLINE CONSTRUCTION

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 69 KV | Line # | L251 |
|---|---|---|---|---|---|
| Structure # | 10113 | Structure Type | VDEMA | Date | Nov 2 2018 |

## ANCHOR CHECKLIST

### Plan View – Anchor Locations




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Log | 3.3 | Permafrost | 48 | 150 | | |
| 2 | Log | 3.4 | Permafrost | 46 | 150 | | |
| 3 | Log | 3.3 | Permafrost | 46 | 150 | | |
| 4 | Log | 3.3 | Permafrost | 46 | 150 | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

**Comments:**

All anchors lost + extensions
Backfilled with gravel

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | Mike Swallard | | Nov 4/18 |
| QC inspector | Phil McKinley | | Nov 4 2018 |
| Client Inspector | | | |

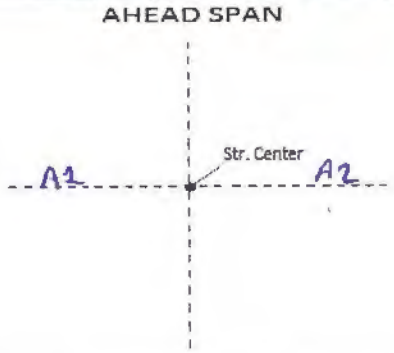
Forbes Bros LTD
POWERLINE CONSTRUCTION

# Anchor Installation

| Project # | 41581 | Project Name | Eagle Gold 69 Kv | Line # | |
|---|---|---|---|---|---|
| Structure # | 10/14 | Structure Type | PTR | Date | Oct 3 2018 |

## ANCHOR CHECKLIST

**Plan View – Anchor Locations**




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Plate | 2.2 | Permafrost | 60 | 150 mm | | |
| 2 | Plate | 2.2 | Permafrost | 61 | 150 mm | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

**Comments:**

Backfilled with gravel from 10'/2
Used lost anchor rods

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | TREVOR AWTAC | | OCT 13 2018 |
| QC inspector | Phil McKinley | Phil McKinley | Oct 12 2018 |
| Client Inspector | | | |

Forbes Bros. LTD
POWERLINE CONSTRUCTION

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 69 Kv | Line # | |
|---|---|---|---|---|---|
| Structure # | 1014 | Structure Type | PTR | Date | Oct 2 2018 |

## ANCHOR CHECKLIST

**Plan View – Anchor Locations**




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| A1 | Plate | 2.2 | PermaFrost | 57 | 150 | | |
| A2 | Plate | 2.2 | PermaFrost | 57 | 150 | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

**Comments:**

Backfilled with gravel from 10'12
Used 10ft anchor rods

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | TREVOR ANTAL | | OCT 13 2018 |
| QC inspector | Phil McKinley | Phil McKinley | Oct 12 2018 |
| Client Inspector | | | |

Forbes Bros Ltd.
POWERLINE CONSTRUCTION

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 69kV | Line # | L251 |
|---|---|---|---|---|---|
| Structure # | 1015 | Structure Type | VmA | Date | Nov 1 2018 |

## ANCHOR CHECKLIST

**Plan View – Anchor Locations**




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Log | 2.4 | PermaFrost | 60 | 150 | | |
| 2 | Log | 3.8 | PermaFrost | 55 | 150 | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

**Comments:**

A1 used 10ft anchor rods
A2 used 10ft + extensions
Backfilled with gravel

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | Mike Smeltzer | | Nov 3/18 |
| QC inspector | Phil McKinlay | Phil McKinlay | Nov 3 2018 |
| Client Inspector | | | |

Forbes Bros. Ltd.
POWERLINE CONSTRUCTION

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 69 Kv | Line # | L251 |
|---|---|---|---|---|---|
| Structure # | 1016 | Structure Type | PTR | Date | Nov 1 2018 |

## ANCHOR CHECKLIST

**Plan View – Anchor Locations**




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Plate | 2.5 | Permafrost | 63 | 150 | | |
| 2 | Plate | 2.5 | Permafrost | 60 | 150 | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

**Comments:**
A1 & A2 used 10ft anchor rods
A1 set 5m away from pole because of road
Backfilled with gravel

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | Mike Sweetland | | Nov 3/18 |
| QC inspector | Phil McKinley | | Nov 3 2018 |
| Client Inspector | | | |

Forbes Bros Ltd.
Powerline Construction

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 69Kv | Line # | L251 |
|---|---|---|---|---|---|
| Structure # | 1017 | Structure Type | PT | Date | Nov 2 2018 |

## ANCHOR CHECKLIST

### Plan View – Anchor Locations




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Plate | 24 | PermaFrost | 58 | 150 | | |
| 2 | Plate | 24 | PermaFrost | 58 | 150 | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

**Comments:**

A1 & A2 used 10ft anchor rods
A1 set 6.62m away from pole because of road
Backfilled with gravel

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | Mike Sweetland | | Nov 3/18 |
| QC inspector | Phil McKinley | Phil McKinley | Nov 3 2018 |
| Client Inspector | | | |

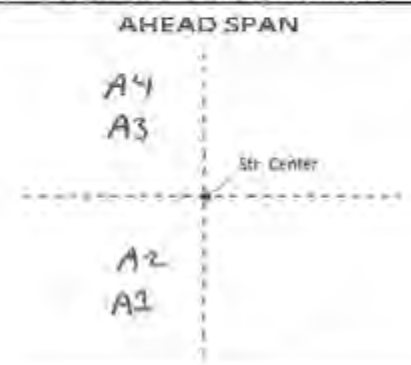
Forbes Bros.
Powerline Construction

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 64 KV | Line # | L251 |
|---|---|---|---|---|---|
| Structure # | 10/9 | Structure Type | VDEHA | Date | Nov 2 2018 |

## ANCHOR CHECKLIST

### Plan View – Anchor Locations




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Log | 3.4 | Sand | 48 | 150 | | |
| 2 | Log | 3.3 | Sand | 45 | 150 | | |
| 3 | Log | 3.2 | Sand | 44 | 150 | | |
| 4 | Log | 3.3 | Sand | 46 | 150 | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

**Comments:**

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | Mike Swetland | | Nov 5/18 |
| QC inspector | Phil McKinley | | Nov 5 2018 |
| Client Inspector | | | |

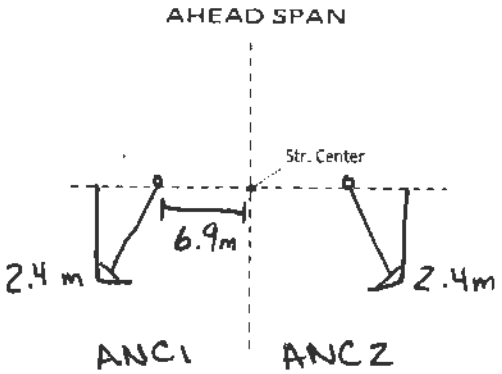
Forbes Bros Ltd
Powerline Construction

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 69 Kv | Line # | |
|---|---|---|---|---|---|
| Structure # | 1/1 | Structure Type | PVO | Date | Sept 30 2018 |

## ANCHOR CHECKLIST

**Plan View – Anchor Locations**




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Plate | 2.4 | Gravel | 60° | 150 | | |
| 2 | Plate | 2.4 | Gravel | 60° | 150 | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

**Comments:**
Ground identified as potential permafrost.
150 mm stickup
Backfill Obtained: Pit 10½
ANC 1 + 2 are 6.9m from str center.

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | Mike Southwood | Mike Southwood | Sept 30/18 |
| QC inspector | Cherell Hackett | Cherell H. | Sept 30 2018 |
| Client Inspector | | | |

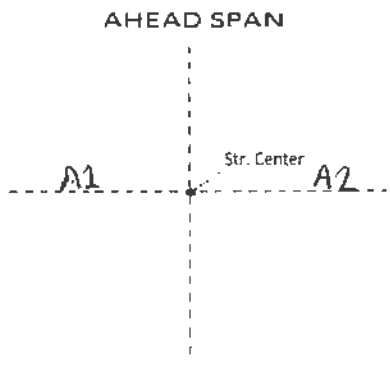
Forbes Bros Ltd
Powerline Construction

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 69kv | Line # | L 251 |
|---|---|---|---|---|---|
| Structure # | 1/11 | Structure Type | PT | Date | Sept 29 2018 |

## ANCHOR CHECKLIST

**Plan View – Anchor Locations**




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Plate | 2.4 | PermaFrost | 61 | 150 | | |
| 2 | Plate | 2.4 | PermaFrost | 54 | 150 | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

**Comments:**

Backfilled with gravel from 10'/2

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | TREVER ANTAL | | OCT 1 2018 |
| QC inspector | Phil McKinley | Phil McKinley | Sept 30 2018 |
| Client Inspector | | | |

Forbes Bros LTD
POWERLINE CONSTRUCTION

# Stringing and Sag Data

| Project: Eagle Gold 69kv | Contr.#: | Line #: L251 | Voltage: 69 kv | Pull#: 3 | Str. 10/9 to Str. 11/4 |
|---|---|---|---|---|---|

## Conductor

Left Side (face higher numbered structure) Line # _____

| Phase | Temp (°C) | Time | Reel Number | |
|---|---|---|---|---|
| TOP | | | | |
| C | | | | |
| BOT | | | | |

String Tension: _____

Right Side (face higher numbered structure) Line # _____

| Phase | Temp (°C) | Time | Reel Number | |
|---|---|---|---|---|
| TOP | | | | |
| C | | | | |
| BOT | | | | |

String Tension: _____

**Conductor:** Type: ACSR Size: 266.8 Manufacturer:

## SAGGING:

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 10/11 to Str. 10/12 60.4 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | 11/24/1 | 12:00 | -8 | 0.53 | |
| Center | 11/24/1 | 12:00 | -8 | 0.53 | Left |
| Bottom | 11/24/1 | 12:00 | -8 | 0.53 | Right |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 11/1 to Str. 11/2 75.2 m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | 11/24/1 | 12:00 | -8 | 0.75 | |
| Center | 11/24/1 | 12:00 | -8 | 0.75 | Left |
| Bottom | 11/24/1 | 12:00 | -8 | 0.75 | Right |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | | | | | |
| Center | | | | | |
| Bottom | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | | | | | |
| Center | | | | | |
| Bottom | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | | | | | |
| Center | | | | | |
| Bottom | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | | | | | |
| Center | | | | | |
| Bottom | | | | | |

Forbes Bros LTD
POWERLINE CONSTRUCTION

# Stringing and Sag Data

## Overhead: OHSW

**Left Side (face higher numbered structure)** Line # _____

| Date | Temp (°C) | Time | Structure Span | Type | Reel# |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |

**Right Side (face higher numbered structure)** Line # _____

| Date | Temp (°C) | Time | Structure Span | Type | Reel# |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |

## SAGGING:

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 10/11 to Str. 10/12 60.4 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Fibre | 11/24/1 | 12:00 | -8 | 0.10 | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 11/1 to Str. 11/2 73.2 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Fibre | 11/24/1 | 12:00 | -8 | 0.48 | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

**Comments:**
Sag completed at 12:00 on November 24 2018

| | Name | Date | Signature |
|---|---|---|---|
| QC Inspector | Phil McKinley | Nov 30 2018 | Phil McKinley |
| Client QC Inspector | | | |

Forbes Bros LTD
POWERLINE CONSTRUCTION

# Stringing and Sag Data

| Project: Eagle Gold 69kv | Contr.#: | Line #: L251 | Voltage: 69 kv | Pull#: 3 | Str. 8/13 to Str. 10/9 |
|---|---|---|---|---|---|

## Conductor

Left Side (face higher numbered structure) Line # _____

| Phase | Temp (°C) | Time | Reel Number | |
|---|---|---|---|---|
| TOP | | | | |
| C | | | | |
| BOT | | | | |

String Tension: _____

Right Side (face higher numbered structure) Line # _____

| Phase | Temp (°C) | Time | Reel Number | |
|---|---|---|---|---|
| TOP | | | | |
| C | | | | |
| BOT | | | | |

String Tension: _____

**Conductor:** Type: ACSR Size: 266.8 Manufacturer:

## SAGGING:

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 9/4 to Str. 9/5 75.5 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | 11/24/1 | 11:00 | -8 | 0.874 | |
| Center | 11/24/1 | 11:00 | -8 | 0.874 | Left |
| Bottom | 11/24/1 | 11:00 | -8 | 0.874 | Right |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 9/7 to Str. 9/8 85.3 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | 11/24/1 | 11:00 | -8 | 1.122 | |
| Center | 11/24/1 | 11:00 | -8 | 1.122 | Left |
| Bottom | 11/24/1 | 11:00 | -8 | 1.122 | Right |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 10/2 to Str. 10/3 74.2 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | 11/24/18 | 11:00 | -8 | 0.832 | |
| Center | 11/24/18 | 11:00 | -8 | 0.832 | Left |
| Bottom | 11/24/18 | 11:00 | -8 | 0.832 | Right |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 10/7 to Str. 10/8 76.1 m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | 11/24/1 | 11:00 | -8 | 0.894 | |
| Center | 11/24/1 | 11:00 | -8 | 0.894 | Left |
| Bottom | 11/24/1 | 11:00 | -8 | 0.894 | Right |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | | | | | |
| Center | | | | | |
| Bottom | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | | | | | |
| Center | | | | | |
| Bottom | | | | | |

Forbes Bros LTD
POWERLINE CONSTRUCTION

# Stringing and Sag Data

## Overhead: OHSW

**Left Side (face higher numbered structure)** Line # _____

| Date | Temp (°C) | Time | Structure Span | Type | Reel# |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |

**Right Side (face higher numbered structure)** Line # _____

| Date | Temp (°C) | Time | Structure Span | Type | Reel# |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |

## SAGGING:

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 9/4 to Str. 9/5 75.5 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Fibre | 11/24/1 | 11:00 | -8 | 0.62 | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 9/7 to Str. 9/8 85.3 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Fibre | 11/24/1 | 11:00 | -8 | 0.784 | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 10/2 to Str. 10/3 74.2 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Fibre | 11/24/1 | 11:00 | -8 | 0.60 | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 10/7 to Str. 10/8 76.1 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Fibre | 11/24/1 | 11:00 | -8 | 0.63 | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

**Comments:**
Sag completed at 11:00 on November 24 2018

| | Name | Date | Signature |
|---|---|---|---|
| QC Inspector | Phil McKinley | Nov 30 2018 | Phil McKinley |
| Client QC Inspector | | | |

Forbes Bros LTD
POWERLINE CONSTRUCTION

# Stringing and Sag Data

| Project: Eagle Gold 69kv | Contr.#: | Line #: L251 | Voltage: 69 kv | Pull#: 3 | Str. 7/12 to Str. 8/13 |
|---|---|---|---|---|---|

## Conductor

Left Side (face higher numbered structure) Line # _____

| Phase | Temp (°C) | Time | Reel Number | |
|---|---|---|---|---|
| TOP | | | | |
| C | | | | |
| BOT | | | | |

String Tension: _____

Right Side (face higher numbered structure) Line # _____

| Phase | Temp (°C) | Time | Reel Number | |
|---|---|---|---|---|
| TOP | | | | |
| C | | | | |
| BOT | | | | |

String Tension: _____

**Conductor:** Type: ACSR Size: 266.8 Manufacturer:

## SAGGING:

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 8/2 to Str. 8/3 93.7 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | 11/24/1 | 10:00 | -8 | 1.35 | |
| Center | 11/24/1 | 10:00 | -8 | 1.35 | Left |
| Bottom | 11/24/1 | 10:00 | -8 | 1.35 | Right |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 8/7 to Str. 8/8 62.3 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | 11/24/1 | 10:00 | -8 | 1.062 | |
| Center | 11/24/1 | 10:00 | -8 | 1.062 | Left |
| Bottom | 11/24/1 | 10:00 | -8 | 1.062 | Right |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 8/11 to Str. 8/12 93.7 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | 11/24/18 | 10:00 | -8 | 1.35 | |
| Center | 11/24/18 | 10:00 | -8 | 1.35 | Left |
| Bottom | 11/24/18 | 10:00 | -8 | 1.35 | Right |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | | | | | |
| Center | | | | | |
| Bottom | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | | | | | |
| Center | | | | | |
| Bottom | | | | | |

Forbes Bros LTD
POWERLINE CONSTRUCTION

# Stringing and Sag Data

## Overhead: OHSW

**Left Side (face higher numbered structure)** Line # _____

| Date | Temp (°C) | Time | Structure Span | Type | Reel# |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |

**Right Side (face higher numbered structure)** Line # _____

| Date | Temp (°C) | Time | Structure Span | Type | Reel# |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |

## SAGGING:

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 8/2 to Str. 8/3 93.7 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Fibre | 11/24/1 | 10:00 | -8 | 0.95 | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 8/7 to Str. 8/8 82.9 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Fibre | 11/24/1 | 10:00 | -8 | 0.744 | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 8/11 to Str. 8/12 93.7 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Fibre | 11/24/1 | 10:00 | -8 | 0.95 | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

**Comments:**
Sag completed at 10:00 on November 24 2018

| | Name | Date | Signature |
|---|---|---|---|
| QC Inspector | Phil McKinley | Nov 30 2018 | Phil McKinley |
| Client QC Inspector | | | |

Forbes Bros.
POWERLINE CONSTRUCTION

# Stringing and Sag Data

| Project: Eagle Gold 69kv | Contr.#: | Line #: L251 | Voltage: 69 kv | Pull#: 2 | Str. 7/2 | to Str. 7/12 |
|---|---|---|---|---|---|---|

## Conductor

Left Side (face higher numbered structure) Line #

| Phase | Temp (°C) | Time | Reel Number | |
|---|---|---|---|---|
| TOP | | | | |
| C | | | | |
| BOT | | | | |

Right Side (face higher numbered structure) Line #

| Phase | Temp (°C) | Time | Reel Number | |
|---|---|---|---|---|
| TOP | | | | |
| C | | | | |
| BOT | | | | |

String Tension:

String Tension:

**Conductor:** Type: ACSR Size: 266.8

Manufacturer:

## SAGGING:

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 7/3 to Str. 7/4 152.7 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | 11/15/1 | 10:20 | -8 | 3.854 | A |
| Center | 11/15/1 | 10:20 | -8 | 3.854 | B |
| Bottom | 11/15/1 | 10:20 | -8 | 3.854 | C |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 7/5 to Str. 7/6 73.8 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | 11/15/1 | 10:20 | -8 | 0.946 | A |
| Center | 11/15/1 | 10:20 | -8 | 0.946 | B |
| Bottom | 11/15/1 | 10:20 | -8 | 0.946 | C |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 7/8 to Str. 7/9 70.6 m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | 11/15/18 | 10:20 | -8 | 0.74 | A |
| Center | 11/15/18 | 10:20 | -8 | 0.74 | B |
| Bottom | 11/15/18 | 10:20 | -8 | 0.74 | C |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 7/9 to Str. 7/10 91.4 m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | 11/15/1 | 10:20 | -8 | 1.236 | A |
| Center | 11/15/1 | 10:20 | -8 | 1.236 | B |
| Bottom | 11/15/1 | 10:20 | -8 | 1.236 | C |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | | | | | |
| Center | | | | | |
| Bottom | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | | | | | |
| Center | | | | | |
| Bottom | | | | | |

Forbes Bros Ltd.
Powerline Construction

# Stringing and Sag Data

**Overhead:** OHSW

Left Side (face higher numbered structure) Line # L251

Right Side (face higher numbered structure) Line #

| Date | Temp (°C) | Time | Structure Span | Type | Reel# |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |

| Date | Temp (°C) | Time | Structure Span | Type | Reel# |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |

## SAGGING:

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 7/3 to Str. 7/4 152.7 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Fibre | 11/15/1 | 10:20 | -8 | 8.69 | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 7/5 to Str. 7/6 75.6 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Fibre | 11/15/1 | 10:20 | -8 | 2.12 | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 7/8 to Str. 7/9 70.6 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Fibre | 11/15/1 | 10:20 | -8 | 0.444 | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 7/9 to Str. 7/10 _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Fibre | 11/15/1 | 10:20 | -8 | 0.74 | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

**Comments:**
Sag completed on Nov 15 2018 at 10:20

| | Name | Date | Signature |
|---|---|---|---|
| QC Inspector | Phil McKinley | Nov 15 2018 | Phil McKinley |
| Client QC Inspector | | | |

Forbes Bros LTD
POWERLINE CONSTRUCTION

# Stringing and Sag Data

| Project: Eagle Gold 69kv | Contr.#: | Line #: L251 | Voltage: 69 kv | Pull#: 2 | Str. 5/7 to Str. 7/2 |
|---|---|---|---|---|---|

## Conductor

Left Side (face higher numbered structure) Line # _____

| Phase | Temp (°C) | Time | Reel Number | |
|---|---|---|---|---|
| TOP | | | | |
| C | | | | |
| BOT | | | | |

String Tension: _____

Right Side (face higher numbered structure) Line # _____

| Phase | Temp (°C) | Time | Reel Number | |
|---|---|---|---|---|
| TOP | | | | |
| C | | | | |
| BOT | | | | |

String Tension: _____

**Conductor:** Type: ACSR Size: 266.8 Manufacturer:

## SAGGING:

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 5/12 to Str. 5/13 87 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | 11/14/1 | 4:30 | -10 | 1.11 | A |
| Center | 11/14/1 | 4:30 | -10 | 1.11 | B |
| Bottom | 11/14/1 | 4:30 | -10 | 1.11 | C |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 6/2 to Str. 6/3 86.1 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | 11/14/1 | 4:30 | -10 | 1.14 | A |
| Center | 11/14/1 | 4:30 | -10 | 1.14 | B |
| Bottom | 11/14/1 | 4:30 | -10 | 1.14 | C |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 6/5 to Str. 6/6 94.4 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | 11/14/18 | 4:30 | -10 | 1.31 | A |
| Center | 11/14/18 | 4:30 | -10 | 1.31 | B |
| Bottom | 11/14/18 | 4:30 | -10 | 1.31 | C |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 6/9 to Str. 6/10 95.2 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | 11/14/1 | 4:30 | -10 | 1.33 | A |
| Center | 11/14/1 | 4:30 | -10 | 1.33 | B |
| Bottom | 11/14/1 | 4:30 | -10 | 1.33 | C |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | | | | | |
| Center | | | | | |
| Bottom | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | | | | | |
| Center | | | | | |
| Bottom | | | | | |

Forbes Bros Ltd
POWERLINE CONSTRUCTION

# Stringing and Sag Data

## Overhead: OHSW

**Left Side (face higher numbered structure)** Line # _____

| Date | Temp (°C) | Time | Structure Span | Type | Reel# |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |

**Right Side (face higher numbered structure)** Line # _____

| Date | Temp (°C) | Time | Structure Span | Type | Reel# |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |

## SAGGING:

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

**Comments:**

Sag completed at 4:30 pm on November 14 2018

| | Name | Date | Signature |
|---|---|---|---|
| QC Inspector | Phil McKinley | Nov 17 2018 | Phil McKinley |
| Client QC Inspector | | | |

Forbes Bros LTD
POWERLINE CONSTRUCTION

# Stringing and Sag Data

| Project: Eagle Gold 69kv | Contr.#: | Line #: L251 | Voltage: 69kv | Pull#: 2 | Str. 3/3 to Str. 5/7 |
|---|---|---|---|---|---|

## Conductor

Left Side (face higher numbered structure) Line # _____

| Phase | Temp (°C) | Time | Reel Number | |
|---|---|---|---|---|
| TOP | | | | |
| C | | | | |
| BOT | | | | |

Right Side (face higher numbered structure) Line # _____

| Phase | Temp (°C) | Time | Reel Number | |
|---|---|---|---|---|
| TOP | | | | |
| C | | | | |
| BOT | | | | |

String Tension: _____

String Tension: _____

**Conductor:** Type: ACSR Size: Manufacturer:

## SAGGING:

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 3/5 to Str. 3/6 81.2 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | 11/14/1 | 3:00 | -10 | 0.97 | A |
| Center | 11/14/1 | 3:00 | -10 | 0.97 | B |
| Bottom | 11/14/1 | 3:00 | -10 | 0.97 | C |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 4/2 to Str. 4/3 85 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | 11/14/1 | 3:00 | -10 | 1.01 | A |
| Center | 11/14/1 | 3:00 | -10 | 1.01 | B |
| Bottom | 11/14/1 | 3:00 | -10 | 1.01 | C |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 4/9 to Str. 4/10 82.2 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | 11/14/18 | 3:00 | -10 | .99 | A |
| Center | 11/14/18 | 3:00 | -10 | .99 | B |
| Bottom | 11/14/18 | 3:00 | -10 | .99 | C |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 5/5 to Str. 5/6 75.3 m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | 11/14/1 | 3:00 | -10 | 0.8 | A |
| Center | 11/14/1 | 3:00 | -10 | 0.8 | B |
| Bottom | 11/14/1 | 3:00 | -10 | 0.8 | C |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | | | | | |
| Center | | | | | |
| Bottom | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | | | | | |
| Center | | | | | |
| Bottom | | | | | |

Forbes Bros LTD
POWERLINE CONSTRUCTION

# Stringing and Sag Data

## Overhead: OHSW

**Left Side (face higher numbered structure)** Line # _____

| Date | Temp (°C) | Time | Structure Span | Type | Reel# |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |

**Right Side (face higher numbered structure)** Line # _____

| Date | Temp (°C) | Time | Structure Span | Type | Reel# |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |

## SAGGING:

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 3/5 to Str. 3/6 81.2 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Fibre | 11/14/1 | 3:30 | -10 | 0.81 | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 4/2 to Str. 4/3 83 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Fibre | 11/14/1 | 3:30 | -10 | 0.84 | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 4/9 to Str. 4/10 82.2 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Fibre | 11/14/1 | 3:30 | -10 | 0.83 | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 5/5 to Str. 5/6 73.9 m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Fibre | 11/14/1 | 3:30 | -10 | 0.67 | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 5/12 to Str. 5/13 87 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Fibre | 11/14/1 | 3:30 | -10 | 0.93 | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

**Comments:**

5/7 used as a clip structure
Fibre was sagged to 6/2 where it will be deadended
Sag was completed on Nov 14 2018

| | Name | Date | Signature |
|---|---|---|---|
| **QC Inspector** | Phil McKinley | Nov 17 2018 | Phil McKinley |
| **Client QC Inspector** | | | |

Forbes Bros Ltd
POWERLINE CONSTRUCTION

# Stringing and Sag Data

| Project4581 | Contr.#: | Line #: L251 | Voltage: 69kv | Pull#: 1 | Str. 1/2 | to Str. 3/3 |
|---|---|---|---|---|---|---|

## Conductor

Left Side (face higher numbered structure) Line #

| Phase | Temp (°C) | Time | Reel Number | |
|---|---|---|---|---|
| TOP | | | | |
| C | | | | |
| BOT | | | | |

String Tension:

Right Side (face higher numbered structure) Line #

| Phase | Temp (°C) | Time | Reel Number | |
|---|---|---|---|---|
| TOP | | | | |
| C | | | | |
| BOT | | | | |

String Tension:

**Conductor:** Type: Size: Manufacturer:

## SAGGING:

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 1/6 to Str. 1/7 66.459 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | 11/14/1 | 11;00 | -12 | 0.704 | A |
| Center | 11/14/1 | 11;00 | -12 | 0.704 | B |
| Bottom | 11/14/1 | 11:00 | -12 | 0.704 | C |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 2/1 to Str. 2/2 93.0 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | 11/14/1 | 11:00 | -12 | 1.402 | A |
| Center | 11/14/1 | 11:00 | -12 | 1.402 | B |
| Bottom | 11/14/1 | 11:00 | -12 | 1.402 | C |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 2/7 to Str. 2/8 97.5 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | 11/14/18 | 11:00 | -12 | 1.518 | A |
| Center | 11/14/18 | 11:00 | -12 | 1.518 | B |
| Bottom | 11/14/18 | 11:00 | -12 | 1.518 | C |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 3/1 to Str. 3/2 174 m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | 11/14/1 | 11:00 | -12 | 4.83 | A |
| Center | 11/14/1 | 11:00 | -12 | 4.83 | B |
| Bottom | 11/14/1 | 11:00 | -12 | 4.83 | C |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | | | | | |
| Center | | | | | |
| Bottom | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | | | | | |
| Center | | | | | |
| Bottom | | | | | |

Forbes Bros LTD
POWERLINE CONSTRUCTION

# Stringing and Sag Data

## Overhead: OHSW

**Left Side (face higher numbered structure)** Line # _____

| Date | Temp (°C) | Time | Structure Span | Type | Reel# |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |

**Right Side (face higher numbered structure)** Line # _____

| Date | Temp (°C) | Time | Structure Span | Type | Reel# |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |

## SAGGING:

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 1/6 to Str. 1/7 66.4 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Fibre | 11/14/1 | 12:30 | -10 | 1.77 | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 2/1 to Str. 2/2 93.8 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Fibre | 11/14/1 | 12:30 | -10 | 3.51 | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 2/7 to Str. 2/8 97.5 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Fibre | 11/14/1 | 12:30 | -10 | 3.79 | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 3/1 to Str. 3/2 174 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Fibre | 11/14/2 | 12:30 | -10 | 12.15 | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

**Comments:**
Sag completed on Nov 14 2018 at 11:00 Am

| | Name | Date | Signature |
|---|---|---|---|
| QC Inspector | Phil McKinley | Nov 16 2018 | Phil McKinley |
| Client QC Inspector | | | |

Forbes Bros
POWERLINE CONSTRUCTION

# Stringing and Sag Data

| Project: 4581 | Contr.#: | Line #: L251 | Voltage: | Pull#: 1 | Str. C/10A to Str. 1/2 |
|---|---|---|---|---|---|

## Conductor

Left Side (face higher numbered structure) Line #

| Phase | Temp (°C) | Time | Reel Number | |
|---|---|---|---|---|
| TOP | | | | |
| C | | | | |
| BOT | | | | |

String Tension:

Right Side (face higher numbered structure) Line #

| Phase | Temp (°C) | Time | Reel Number | |
|---|---|---|---|---|
| TOP | | | | |
| C | | | | |
| BOT | | | | |

String Tension:

**Conductor:** Type: ACSR Size: 266

Manufacturer:

## SAGGING:

Span Length Str. C/10B to Str. C/10C 58.3 m
Sagging Span: Str. C/10B to Str. C/10C m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | 11/12/18 | 10:00 | -8 | 0.47 m | |
| Center | 11/12/18 | 10:00 | -8 | 0.47 m | |
| Bottom | 11/12/18 | 10:00 | -8 | 0.47 m | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. C/12 to Str. C/13 68.3 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | 11/12/18 | 9:20 | -8 | 0.6 m | |
| Center | 11/12/18 | 9:20 | -8 | 0.6 m | |
| Bottom | 11/12/18 | 9:20 | -8 | 0.6 m | |

Span Length Str. C/14 to Str. 1/1 62.3 m
Sagging Span: Str. _____ to Str. _____ m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | 11/12/18 | 9:20 | -8 | 0.51 m | |
| Center | 11/12/18 | 9:20 | -8 | 0.51 m | |
| Bottom | 11/12/18 | 9:20 | -8 | 0.51 m | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | | | | | |
| Center | | | | | |
| Bottom | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | | | | | |
| Center | | | | | |
| Bottom | | | | | |

Forbes Bros LTD
POWERLINE CONSTRUCTION

# Stringing and Sag Data

## Overhead: OHSW

Left Side (face higher numbered structure) Line # OHSW

| Date | Temp (°C) | Time | Structure Span | Type | Reel# |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |

Right Side (face higher numbered structure) Line # Fibre

| Date | Temp (°C) | Time | Structure Span | Type | Reel# |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |

## SAGGING:

Span Length Str. 0/10B to Str. 0/10C 58.3 m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| OHSW | 11/12/18 | 10:00 | -8 | 0.52 m | |

Span Length Str. 0/12 to Str. 0/13 _____ m
Sagging Span: Str. 0/12 to Str. 0/13 68.3 m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Fibre | 11/12/18 | 9:20 | -8 | 0.28 m | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 0/14 to Str. 1/1 62.3 m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| OHSW | 11/12/18 | 9:20 | -8 | 0.51 m | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 0/103 to Str. 0/10C 58.3 m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Fibre | 11/12/18 | 10:00 | -8 | 0.22 m | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 0/12 to Str. 0/13 68.3 m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| OHSW | 11/12/18 | 9:20 | -8 | 0.60 m | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 0/14 to Str. 1/1 62.3 m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Fibre | 11/12/18 | 9:20 | -8 | 0.24 m | |

**Comments:**

| | Name | Date | Signature |
|---|---|---|---|
| QC Inspector | Phil McKinley | Nov 12 2018 | Phil McKinley |
| ~~Client QC~~ Inspector | TREVOR ANTAL | Nov 13/18 | |

Forbes Bros LTD
POWERLINE CONSTRUCTION

# Stringing and Sag Data

| Project: Eagle Gold 13.8 KV | Contr.#: | Line #: 2 | Voltage: 13.8 KV | Pull#: 1 | Str. 11 | to Str. 22 |
|---|---|---|---|---|---|---|

## Conductor

Left Side (face higher numbered structure) Line # _____

| Phase | Temp (°C) | Time | Reel Number | |
|---|---|---|---|---|
| TOP | | | | |
| C | | | | |
| BOT | | | | |

String Tension: _____

Right Side (face higher numbered structure) Line # _____

| Phase | Temp (°C) | Time | Reel Number | |
|---|---|---|---|---|
| TOP | | | | |
| C | | | | |
| BOT | | | | |

String Tension: _____

**Conductor:** Type: ACSR Size: 477 Manufacturer:

## SAGGING:

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 12 to Str. 13 60.6 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☑

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | 02/08/1 | 10:15 | -22 | 1.884 | A |
| Center | 02/08/1 | 10:15 | -22 | 1.884 | B |
| Bottom | 02/08/1 | 10:15 | -22 | 1.884 | C |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 13 to Str. 14 50.3 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☑

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | 02/08/1 | 10:15 | -22 | 1.774 | A |
| Center | 02/08/1 | 10:15 | -22 | 1.774 | B |
| Bottom | 02/08/1 | 10:15 | -22 | 1.774 | C |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 15 to Str. 16 54 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☑

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | 02/08/19 | 10:15 | -22 | 1.494 | A |
| Center | 02/08/19 | 10:15 | -22 | 1.494 | B |
| Bottom | 02/08/19 | 10:15 | -22 | 1.494 | C |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 18 to Str. 19 46.3 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☑

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | 02/08/1 | 13:30 | -22 | 1.246 | A |
| Center | 02/08/1 | 13:30 | -22 | 1.246 | B |
| Bottom | 02/08/1 | 13:30 | -22 | 1.246 | C |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 20 to Str. 21 46.8 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☑

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | 02/08/1 | 13:30 | -22 | 1.15 | A |
| Center | 02/08/1 | 13:30 | -22 | 1.15 | B |
| Bottom | 02/08/1 | 13:30 | -22 | 1.15 | C |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | | | | | |
| Center | | | | | |
| Bottom | | | | | |

Forbes Bros LTD
POWERLINE CONSTRUCTION

# Stringing and Sag Data

## Overhead: OHSW

**Left Side (face higher numbered structure)** Line # 2

| Date | Temp (°C) | Time | Structure Span | Type | Reel# |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |

**Right Side (face higher numbered structure)** Line #

| Date | Temp (°C) | Time | Structure Span | Type | Reel# |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |

## SAGGING:

Span Length Str. ____ to Str. ____ ____ m
Sagging Span: Str. 12 to Str. 13 60.6 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☑

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| OHSW | 02/08/1 | 10:15 | -22 | 1.478 | |

Span Length Str. ____ to Str. ____ ____ m
Sagging Span: Str. 13 to Str. 14 58.5 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☑

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| OHSW | 02/08/1 | 10:15 | -22 | 1.394 | |

Span Length Str. ____ to Str. ____ ____ m
Sagging Span: Str. 15 to Str. 16 54 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| OHSW | 02/08/1 | 10:15 | -22 | 1.178 | |

Span Length Str. ____ to Str. ____ ____ m
Sagging Span: Str. 18 to Str. 19 48.3 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| OHSW | 02/08/1 | 13:30 | -22 | 0.954 | |

Span Length Str. ____ to Str. ____ ____ m
Sagging Span: Str. 20 to Str. 21 46.8 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| OHSW | 02/08/1 | 13:30 | -22 | 0.884 | |

Span Length Str. ____ to Str. ____ ____ m
Sagging Span: Str. ____ to Str. ____ ____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

**Comments:**

OHSW No 5 Alumoweld
L2 11 - 17 Sag completed at 10:15 on February 8 2019
L2 17 - 22 Sag completed at 13:30 on February 8 2019

| | Name | Date | Signature |
|---|---|---|---|
| QC Inspector | Phil McKinley | Feb 12 2019 | Phil McKinley |
| Client QC Inspector | SVEN ARCHIMOWITZ | FEB 14/19 | SArchit |

Forbes Bros LTD
POWERLINE CONSTRUCTION

# Stringing and Sag Data

| Project: Eagle Gold 13.8 KV | Contr.#: | Line #: L2 | Voltage: 13.8 KV | Pull#: 2 | Str. 10 | to Str. Pole 1 |
|---|---|---|---|---|---|---|

## Conductor

Left Side (face higher numbered structure) Line # _____

| Phase | Temp (°C) | Time | Reel Number | |
|---|---|---|---|---|
| TOP | | | | |
| C | | | | |
| BOT | | | | |

String Tension: _____

Right Side (face higher numbered structure) Line # _____

| Phase | Temp (°C) | Time | Reel Number | |
|---|---|---|---|---|
| TOP | | | | |
| C | | | | |
| BOT | | | | |

String Tension: _____

**Conductor:** Type: ACSR Size: 477 Manufacturer:

## SAGGING:

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. Pole 6 to Str. Pole 5 49.9 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | 02/19/1 | 16:30 | -22 | 1.23 | Both Circuits |
| Center | 02/19/1 | 16:30 | -22 | 1.23 | Both Circuits |
| Bottom | 02/19/1 | 16:30 | -22 | 1.23 | Both Circuits |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. Pole 5 to Str. Pole 4 45.8 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | 02/19/1 | 16:30 | -22 | 1.034 | Both Circuits |
| Center | 02/19/1 | 16:30 | -22 | 1.034 | Both Circuits |
| Bottom | 02/19/1 | 16:30 | -22 | 1.034 | Both Circuits |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. Pole 3 to Str. Pole 2 43.8 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | 02/19/19 | 16:30 | -22 | 0.954 | Both Circuits |
| Center | 02/19/19 | 16:30 | -22 | 0.954 | Both Circuits |
| Bottom | 02/19/19 | 16:30 | -22 | 0.954 | Both Circuits |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | | | | | |
| Center | | | | | |
| Bottom | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | | | | | |
| Center | | | | | |
| Bottom | | | | | |

Forbes Bros LTD
POWERLINE CONSTRUCTION

# Stringing and Sag Data

## Overhead: OHSW

Left Side (face higher numbered structure) Line # 2

| Date | Temp (°C) | Time | Structure Span | Type | Reel# |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |

Right Side (face higher numbered structure) Line # _____

| Date | Temp (°C) | Time | Structure Span | Type | Reel# |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |

## SAGGING:

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. Pole 6 to Str. Pole 5 49.9 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| OHSW | 02/19/1 | 16:30 | -22 | 0.948 | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. Pole 5 to Str. Pole 4 45.8 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| OHSW | 02/19/1 | 16:30 | -22 | 0.798 | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. Pole 3 to Str. Pole 2 43.8 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| OHSW | 02/19/1 | 16:30 | -22 | 0.738 | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

**Comments:**

Sag completed at 16:30 on February 19 2019

| | Name | Date | Signature |
|---|---|---|---|
| QC Inspector | Phil McKinley | Feb 20 2019 | Phil McKinley |
| Client QC Inspector | Matt Caverdale | Feb 23, 2019 | MC |

Forbes Bros LTD
POWERLINE CONSTRUCTION

# Stringing and Sag Data

| Project: Eagle Gold 13.8 KV | Contr.#: | Line #: L2 | Voltage: 13.8 KV | Pull#: 2 | Str. 01 | to Str. 10 |
|---|---|---|---|---|---|---|

## Conductor

Left Side (face higher numbered structure) Line # _____

| Phase | Temp (°C) | Time | Reel Number | |
|---|---|---|---|---|
| TOP | | | | |
| C | | | | |
| BOT | | | | |

String Tension: _____

Right Side (face higher numbered structure) Line # _____

| Phase | Temp (°C) | Time | Reel Number | |
|---|---|---|---|---|
| TOP | | | | |
| C | | | | |
| BOT | | | | |

String Tension: _____

**Conductor:** Type: ACSR Size: 477 Manufacturer:

## SAGGING:

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 04 to Str. 05 59 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | 02/18/1 | 15:45 | -16 | 1.83 | Both circuits |
| Center | 02/18/1 | 15:45 | -16 | 1.83 | Both circuits |
| Bottom | 02/18/1 | 15:45 | -16 | 1.83 | Both circuits |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 06 to Str. 07 62 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | 02/18/1 | 15:45 | -16 | 2.02 | Both circuits |
| Center | 02/18/1 | 15:45 | -16 | 2.02 | Both circuits |
| Bottom | 02/18/1 | 15:45 | -16 | 2.02 | Both circuits |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 08 to Str. 09 52.5 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | 02/18/19 | 15:45 | -16 | 1.452 | Both circuits |
| Center | 02/18/19 | 15:45 | -16 | 1.452 | Both circuits |
| Bottom | 02/18/19 | 15:45 | -16 | 1.452 | Both circuits |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | | | | | |
| Center | | | | | |
| Bottom | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | | | | | |
| Center | | | | | |
| Bottom | | | | | |

Forbes Bros LTD
POWERLINE CONSTRUCTION

# Stringing and Sag Data

## Overhead: OHSW

Left Side (face higher numbered structure) Line # 2

| Date | Temp (°C) | Time | Structure Span | Type | Reel# |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |

Right Side (face higher numbered structure) Line # _____

| Date | Temp (°C) | Time | Structure Span | Type | Reel# |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |

## SAGGING:

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 04 to Str. 05 59 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| OHSW | 02/18/1 | 15:45 | -16 | 1.422 | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 06 to Str. 07 62 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| OHSW | 02/18/1 | 15:45 | -16 | 1.572 | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 08 to Str. 09 52.5 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| OHSW | 02/18/1 | 15:45 | -16 | 1.126 | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. _____ to Str. _____ _____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

**Comments:**

Sag completed at 15:45 on February 18 2019

| | Name | Date | Signature |
|---|---|---|---|
| QC Inspector | Phil McKinley | Feb 20 2019 | Phil McKinley |
| Client QC Inspector | Matt Courdale | Feb 23, 2019 | MC |

Forbes Bros Ltd
Powerline Construction

# Stringing and Sag Data

| Project: Eagle Gold 13.8 KV | Contr.#: | Line #: L1 | Voltage: 13.8 KV | Pull#: L1 | Str. 01 | to Str. 21 |
|---|---|---|---|---|---|---|

## Conductor

Left Side (face higher numbered structure) Line #

| Phase | Temp (°C) | Time | Reel Number | |
|---|---|---|---|---|
| TOP | | | | |
| C | | | | |
| BOT | | | | |

String Tension:

Right Side (face higher numbered structure) Line #

| Phase | Temp (°C) | Time | Reel Number | |
|---|---|---|---|---|
| TOP | | | | |
| C | | | | |
| BOT | | | | |

String Tension:

**Conductor:** Type: ACSR Size: 477 Manufacturer:

## SAGGING:

Span Length Str. ____ to Str. ____ ____ m
Sagging Span: Str. 2 to Str. 3 63.8 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | 02/06/1 | 10:30 | -28 | 1.994 | A |
| Center | 02/06/1 | 10:30 | -28 | 1.994 | B |
| Bottom | 02/06/1 | 10:30 | -28 | 1.994 | C |

Span Length Str. ____ to Str. ____ ____ m
Sagging Span: Str. 6 to Str. 7 50.5 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | 02/06/1 | 10:30 | -28 | 1.246 | A |
| Center | 02/06/1 | 10:30 | -28 | 1.246 | B |
| Bottom | 02/06/1 | 10:30 | -28 | 1.246 | C |

Span Length Str. ____ to Str. ____ ____ m
Sagging Span: Str. 7 to Str. 8 57.4 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | 02/06/19 | 10:30 | -28 | 1.616 | A |
| Center | 02/06/19 | 10:30 | -28 | 1.616 | B |
| Bottom | 02/06/19 | 10:30 | -28 | 1.616 | C |

Span Length Str. ____ to Str. ____ ____ m
Sagging Span: Str. 10 to Str. 11 45.7 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | 02/06/1 | 12:15 | -28 | 0.956 | A |
| Center | 02/06/1 | 12:15 | -28 | 0.956 | B |
| Bottom | 02/06/1 | 12:15 | -28 | 0.956 | C |

Span Length Str. ____ to Str. ____ ____ m
Sagging Span: Str. 14 to Str. 15 56.6 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | 02/06/1 | 12:15 | -28 | 1.574 | A |
| Center | 02/06/1 | 12:15 | -28 | 1.574 | B |
| Bottom | 02/06/1 | 12:15 | -28 | 1.574 | C |

Span Length Str. ____ to Str. ____ ____ m
Sagging Span: Str. 18 to Str. 19 53.3 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | 02/06/1 | 12:15 | -28 | 1.556 | A |
| Center | 02/06/1 | 12:15 | -28 | 1.556 | B |
| Bottom | 02/06/1 | 12:15 | -28 | 1.556 | C |

Forbes Bros LTD
POWERLINE CONSTRUCTION

# Stringing and Sag Data

## Overhead: OHSW

Left Side (face higher numbered structure) Line # L1

| Date | Temp (°C) | Time | Structure Span | Type | Reel# |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |

Right Side (face higher numbered structure) Line # _____

| Date | Temp (°C) | Time | Structure Span | Type | Reel# |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |

## SAGGING:

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 2 to Str. 3 63.8 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| OHSW | 02/06/1 | 10:30 | -28 | 1.56 | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 6 to Str. 7 50.5 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| OHSW | 02/06/1 | 10:30 | -28 | 0.978 | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 7 to Str. 8 57.4 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| OHSW | 02/06/1 | 10:30 | -28 | 1.262 | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 10 to Str. 11 43.7 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| OHSW | 02/06/1 | 12:15 | -28 | 0.742 | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 14 to Str. 15 56.6 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| OHSW | 02/06/1 | 12:15 | -28 | 1.226 | |

Span Length Str. _____ to Str. _____ _____ m
Sagging Span: Str. 18 to Str. 19 53.3 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| OHSW | 02/06/1 | 12:15 | -28 | 1.212 | |

**Comments:**

Shield Wire is No 5 Alumoweld
L1 01 - 09 Sag completed at 10:30 on February 6 2019
L1 09 - 21 Sag completed at 12:15 on February 6 2019

| | Name | Date | Signature |
|---|---|---|---|
| QC Inspector | Phil McKinley | Feb 11 2019 | Phil McKinley |
| Client QC Inspector | SVEN ARCHIMOWITZ | FEB 14/19 | Sarchimowitz |

Forbes Bros Ltd
POWERLINE CONSTRUCTION

# Clipping Inspection

| Project No. | 4581 | Project Name | Eagle Gold 69 KV | | |
|---|---|---|---|---|---|
| Line No. | L251 | From Structure No. | 32/8 | To Structure No. | 37/9 |

## Checklist

| Items | Inspected | Comments |
|---|---|---|
| Verify if Required, any crossing Permits and agreements are in place | Y ☐ N/A ☑ | |
| Verify Conductor is sagged as specified | Y ☑ N/A ☐ | |
| Insulator strings on at least 3 suspension structures adjacent to the new sag section clipped in | Y ☑ N/A ☐ | |
| Verify all Insulators & conductor hardware is clean & free of defects | Y ☑ N/A ☐ | |
| Travelers removed and conductor clipped in as per specifications | Y ☑ N/A ☐ | |
| Verify Suspension clamp is plumb and centered on conductor point mark | Y ☑ N/A ☐ | |
| Compression joints required in sagged span and recorded | Y ☐ N/A ☑ | |
| All assemblies are made in strict accordance with the manufacture applicable specifications | Y ☑ N/A ☐ | |
| Sagged conductor is free from any Bird caging/damage and does not required any repair | Y ☑ N/A ☐ | |
| Verify no metal contact made with Insulators and no conductor damage during Clipping procedure | Y ☑ N/A ☐ | |

Additional Comments

No compression or implos used
32/8, 35/3,37/9 deadend hardware and insulators have been verified as correct as per drawing

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR DUNTAC | | Jan 19/19 |
| Quality Representative | Phil McKinley | Phil McKinley | Jan 18 2019 |
| Client Representative | | | |

# ATTACHMENT D

## Quality Control Inspection and Testing

CLARK BUILDERS
ENERGY & RESOURCES

PROJECT MANAGER: DUSTIN DOLYNCHUK, P.ENG
QA/QC COORDINATOR: RYAN DE MILLIANO, C.E.T.
SUPERINTENDENT: GARRY DAHL

# CONCRETE REINFORCEMENT PRE POUR

Rev 01 August 25, 2018

| | |
|---|---|
| SUBCONTRACTOR: Ultimate Reinforcing // McNish | INSPECTION DATE: NOV 7 2018 |
| SUBCONTRACTOR CONTACT PERSON: GARRY DAHL | PROJ. POUR DATE: NOV 9 2018 |
| INSPECTOR(S): GARRY DAHL / Clean Energy & MASS CREEK | |
| LOCATION: Substation | |
| DRAWING REV: 1 | DRAWING NO.(S): Clean Energy 1407.2-C-3015 SPEC SECTION(S): S03 20 00 – Concrete Reinforcing Steel |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Grade (400W unless otherwise noted) and type of steel delivered and installed as required by approved drawings. | ☑ | ☐ | ☐ |
| 2.0 | Inspect rebar distribution, spacing and cover per design/project requirements. | ☑ | ☐ | ☐ |
| 3.0 | Length of splices as specified | ☑ | ☐ | ☐ |
| 4.0 | Staggered splices as specified | ☑ | ☐ | ☐ |
| 5.0 | Any mechanical splices have been approved by the owner prior to install | ☑ | ☐ | ☐ |
| 6.0 | Bars cleaned and free of material that may reduce bond including loose rust, scale, oil, structural defects and that they are uncoated and unpainted. | ☑ | ☐ | ☐ |
| 7.0 | Dowels at wall ends, construction joints, and openings as specified (length, location, size, etc.) | ☑ | ☐ | ☐ |
| 8.0 | No unauthorized field bent bars including hooks installed | ☐ | ☐ | ☑ |
| 9.0 | Resolve conflicts between embedded items and reinforcement | ☐ | ☐ | ☑ |
| 10.0 | When authorized, field bends done without heat and inspected for fissures or cracks. | ☐ | ☐ | ☑ |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 11.0 | Bars tied and supported to prevent displacement | ☑ | ☐ | ☐ |
| 12.0 | Spacers, tie wire and chairs as required | ☑ | ☐ | ☐ |
| 13.0 | Conduits at design location and minimum separation from rebar as specified | ☑ | ☐ | ☐ |
| 14.0 | No contact of bars is made with dissimilar metals as per CSA A23.1 | ☑ | ☐ | ☐ |
| 15.0 | Bars, nails or tie wire not sticking out from surfaces that allow rusting/corrosion | ☑ | ☐ | ☐ |
| 16.0 | Rebar welds are inspected by qualified inspectors certified to CSA W178.2 | ☐ | ☐ | ☑ |
| 17.0 | No rebar congestion or other obstruction for deposit of concrete | ☑ | ☐ | ☐ |
| 18.0 | Adjustments required for interfering items (piping, inserts, sleeves, etc.) have been submitted and approved by owner. | ☑ | ☐ | ☐ |
| 19.0 | Rebar was stored off ground to prevent damage/corrosion | ☑ | ☐ | ☐ |
| 20.0 | Review drawings for anchors, piping, sleeves, boxes | ☑ | ☐ | ☐ |

COMMENTS:

Inspection on Transformer Base and circuit switcher
- NOT ABLE TO VERIFY CIRCUIT SWITCHER ANCHOR PLACEMENT AT TIME OF INSPECTION. TO BE VERIFIED BEFORE POUR
- CONDUIT SLIGHTLY OFF CENTRE (~150mm) DOES NOT CONFLICT WITH ANCHORS :- OKAY AS CONFIRMED W/ ELECTRICAL SUPERINTENDENT DON CARTER

ATTACHMENT(S):

DEFICIENCIES NOTES:

- 2 LONGITUDINAL BARS ADDED TO T1 PEDESTAL PAD (2700 LONG) NCR
- 4 CORNER VERTICALS ADDED TO T2 TRANSFORMER PLINTH NCR

CLARK BUILDERS:
INSPECTOR: _____ TITLE: Supt DATE: NOV 7 2018

JDS ENERGY & MINING:
INSPECTOR: _____ TITLE: ENG. DATE: NOV 7 2018

* TRANSFORMER FIRST STAGE POUR ONLY *

CLARK BUILDERS
ENERGY & RESOURCES



PROJECT MANAGER: DUSTIN DOLYNCHUK, P.ENG
QA/QC COORDINATOR: RYAN DE MILLIANO, C.E.T.
SUPERINTENDENT: GARRY DAHL

# FORMWORK & FALSEWORK PRE POUR | QA INSPECTION

Rev 01 August 25, 2018

| | |
|---|---|
| CONTRACTOR: Clark Builders | INSPECTION DATE: Nov 7 2018 |
| CONTRACTOR CONTACT PERSON: Garry Dahl | DATE OF POUR: Nov 9 2018 |
| INSPECTOR(S): Garry Dahl / JDS; Clean Energy | |
| LOCATION: Substation Transformer Base and Switcher | |
| DRAWING REV: 1 | DRAWING NO.(S): Clean Energy 1407.2-C-3015 / SPEC SECTION(S): |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Location, survey, dimension and grades as required | ☑ | ☐ | ☐ |
| 2.0 | Plumbness and Flatness verified | ☑ | ☐ | ☐ |
| 3.0 | Joints are aligned and watertight. | ☑ | ☐ | ☐ |
| 4.0 | Formwork shop drawings are Engineered and reviewed | ☑ | ☐ | ☐ |
| 5.0 | Re-used formwork reconditioned and treated | ☑ | ☐ | ☐ |
| 6.0 | Formwork and ties according to finishing requirements. Confirm no holes in the concrete surface are greater than 25mm in diameter or expose steel at less than 25mm from surface. As per spec. | ☑ | ☐ | ☐ |
| 7.0 | Installation of embeds are located and secured | ☑ | ☐ | ☐ |
| 8.0 | Chamfer requirements checked. 25mm chamfers required for all exterior corners and edges exposed to view including horizontal edges of pads. | ☐ | ☐ | ☑ |
| 9.0 | Key ways and/or other provisions according to design are provided in construction joints | ☐ | ☐ | ☑ |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 10.0 | Inspect types of form spacers, ties and bracing. | ☑ | ☐ | ☐ |
| 11.0 | Spacing of ties to be set to a pattern | ☑ | ☐ | ☐ |
| 12.0 | Expansion, construction, contraction joints as required & located as coordinated with structural Engineer | ☐ | ☐ | ☑ |
| 13.0 | Forms secured against movement during placing | ☑ | ☐ | ☐ |
| 14.0 | Forms are braced for alignment and blow out | ☑ | ☐ | ☐ |
| 15.0 | Forms are cleaned of all debris, and dry, prior to concrete placement including standing water. | ☑ | ☐ | ☐ |
| 16.0 | Openings in formwork permit inspection and cleaning, placing and compaction of concrete, and forming and processing of construction joints. | ☑ | ☐ | ☐ |
| 17.0 | Formwork has been coated with release agent prior to rebar placement. | ☑ | ☐ | ☐ |
| 18.0 | Anchor Bolts and Embeds are secured to formwork. | ☑ | ☐ | ☐ |

COMMENTS:

Inspection on Transformer Base and Circuit Switcher
- VERIFY THAT CHAMFER IS IN PLACE FOR CIRCUIT SWITCHER FOUNDATION.

ATTACHMENT(S):

DEFICIENCIES NOTES:

INITIAL INSPECTION

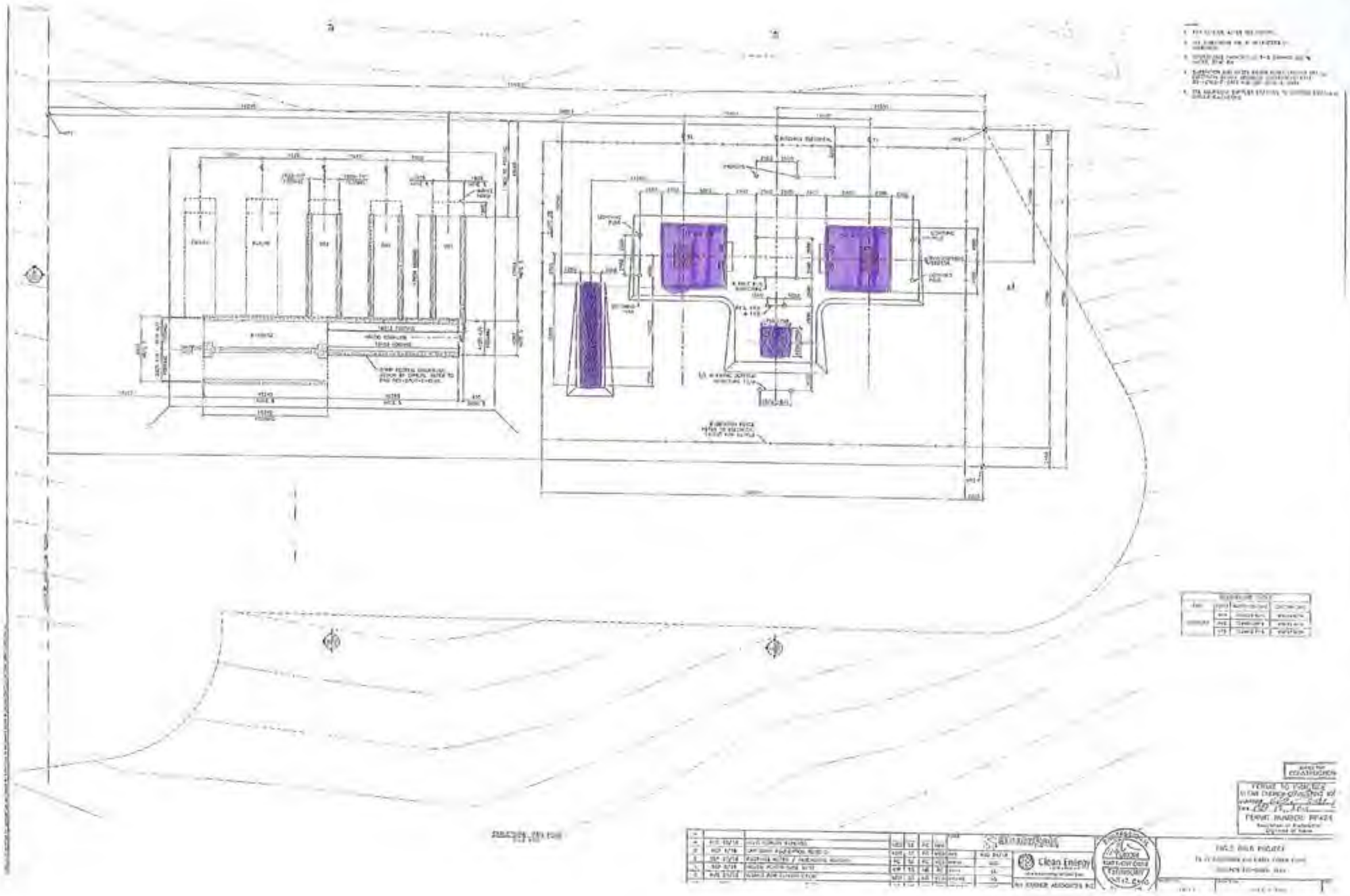
INSPECTOR: _____ TITLE _____ DATE: Nov 7 2018

RE-INSPECTION (DEFICIENCIES COMPLETED)

INSPECTOR: _____ TITLE _____ DATE: _____

Garry Dahl

* CIRCUIT SWITCHER ANCHORS TO BE INSTALLED AND VERIFIED PRIOR TO POUR *
* FIRST STAGE TRANSFORMER POUR ONLY *


Clean Energy

CLARK BUILDERS
ENERGY & RESOURCES

CB-INSPECTION FORM-DOC-002 REV.02
CONCRETE POST POUR CURINGINSPECTION FORM
JDS ENERGY & MINING INC. | STRATAGOLD EAGLE GOLD
PROJECT #: CB201 | 18502

# CONCRETE POST POUR COLD WEATHER MONITORING

Rev 02 Nov 4, 2018

| | |
|---|---|
| CONTRACTOR: Clark Builders | DATE OF POUR: Nov 8 /18 |
| AMBIENT TEMP at POUR (°C): | DATE FORMWORK STRIPPED: |
| LOCATION: Substation 3 Foundations. | SPEC SECTION(S): S03 30 00 – Cast-In-Place |

TYPE OF CURING:

| | | | | | |
|---|---|---|---|---|---|
| CURING COMPOUND | ☐ | DAMP BURLAP OR FABRIC | ☐ | INSULATION (TARPS) | ☑ |
| POLYETHYLENE SHEETS | ☐ | WATER/FOG SPRAY/ PONDING | ☐ | FORMS (COVERED BY) | ☐ |

| COLD WEATHER REQUIREMENTS (WHEN AMB. TEMP < 5°C) | PASS | FAIL | N/A | REMARKS |
|---|---|---|---|---|
| Protection in place and temperatures not lower than 20°C or until 70% of the 28-day strength has been reached. | ☑ | ☐ | ☐ | |
| Cold weather protection provided by means of heated enclosures, coverings, insulation, or a suitable approved combination of these methods during complete curing period. | ☑ | ☐ | ☐ | |
| Concrete test cylinders are kept within hoarding or in area where temperatures are ideal for curing. (No frozen Cylinders) | ☐ | ☐ | ☐ | Was Never |
| Heat is not directed onto concrete. This may result in thermal cracking. | ☑ | ☐ | ☐ | |
| During freezing weather, and standing water removed before the end of the protection period (CSA A 23.1 clause 7.4.2.4.2) | ☑ | ☐ | ☐ | |
| | | | | |

CONCRETE CURING TEMPERATURE LOG (COLD WEATHER CONCRETEING ONLY)

| DATE | TIME (24 HR) | OUTSIDE AIR TEMP (°C) | TEMP INSIDE HOARDING (°C) | CONCRETE SURFACE TEMP (°C) | | INITIALS OF READER |
|---|---|---|---|---|---|---|
| | | | | HIGH (°C) | LOW (°C) | |
| Nov 9 | 7:30 Am | -13 | 28 | 30 | 27 | |
| Nov 9 | 6:00 Pm | -15 | 30 | 31 | 22 | |
| Nov 10 | 7:30 Am | -18 | 30 | 34 | 26 | |
| Nov 10 | 6:00 Pm | -21 | 30 | 32 | 25 | |
| Nov 11 | 7:30 Am | -15 | 32 | 28 | 20 | |
| Nov 11 | 3:00 Pm | -9 | 16 | 14 | 10 | |
| Nov 11 | 6:00 Pm | -9 | 16 | 15 | 8 | |
| COMMENTS: | | | | | | |

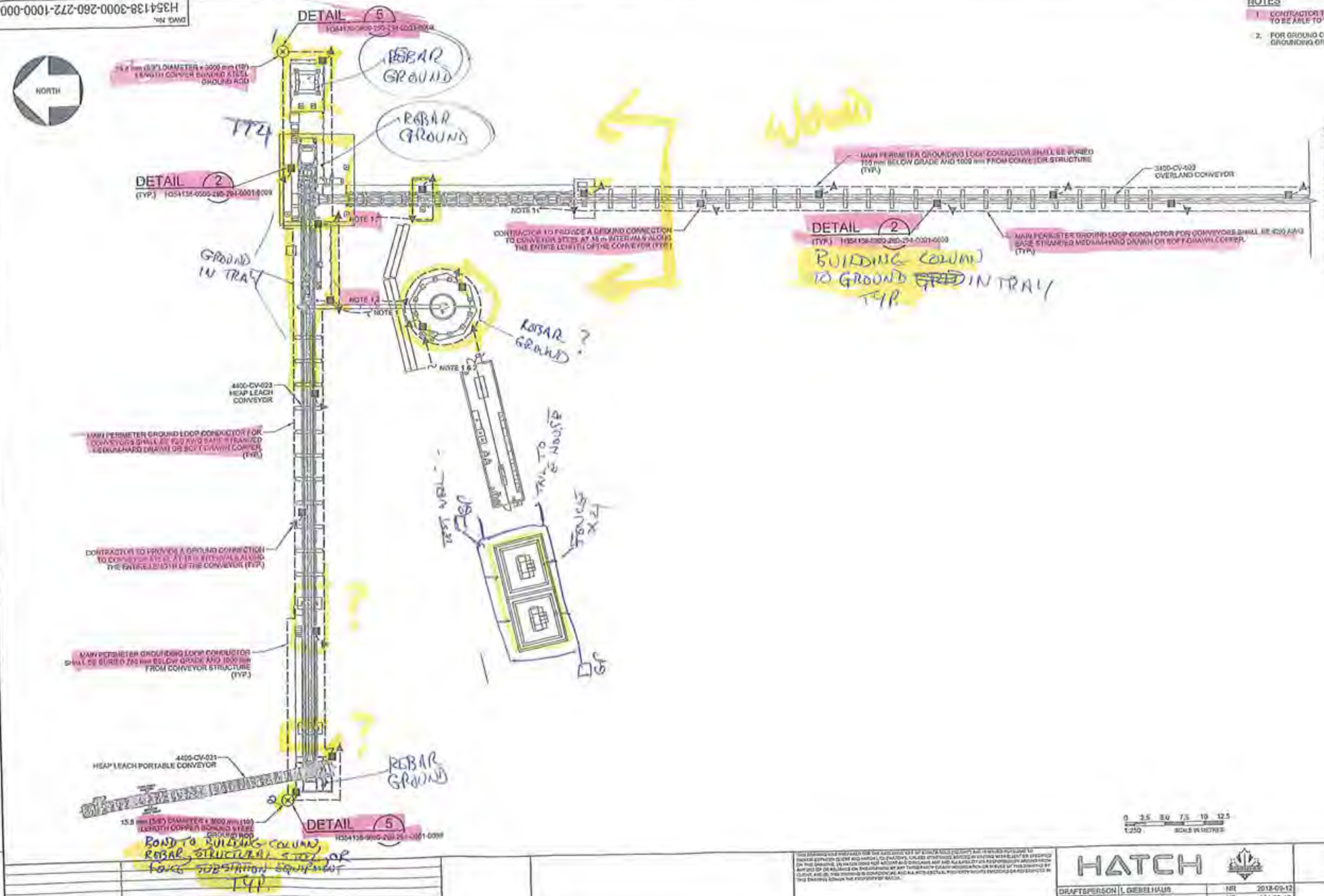
CLARK BUILDERS SITE REPRESENTATIVE

PRINT/ SIGN: Craig TITLE Foreman DATE: Nov 11 /18



, 2018

DWG. No. H354138-3000-260-272-1000-0004




## NOTES

1. CONTRACTOR TO PROVIDE A 1000 mm LENGTH OF GROUNDING CABLE TO BE ABLE TO TIE INTO THE GROUND CABLE LOCATED IN THE CABLE TRAY.
2. FOR GROUND CONNECTION TO THE HEAP LEACH ELECTRICAL ROOM GROUNDING GRID REFER TO DRAWING H354138-4100-260-272-1000-0001.

0 2.5 5.0 7.5 10 12.5
1:250 SCALE IN METRES

| DRAWING No. | DRAWING TITLE |
|---|---|
| H354138-0000-260-294-0001-0002 | SITE ELECTRICAL NOTES, LEGENDS AND SYMBOLS |
| H354138-0000-260-294-0001-0001 | SITE ELECTRICAL NOTES, LEGENDS AND SYMBOLS |

REFERENCE DRAWINGS

REG. PROFESSIONAL

| No. | DESCRIPTION | BY | CHK'D | DATE |
|---|---|---|---|---|

REVISIONS

HATCH

| ROLE | NAME | SIGNATURE & DATE |
|---|---|---|
| DRAFTSPERSON | L GIEBELHAUS | NR 2018-09-12 |
| DESIGNER | L GIEBELHAUS | NR 201-09-12 |
| CHECKER | M TIETZ | |
| DESIGN COORD. | S PERKINS | |
| RESP. ENG. | M TIETZ | |
| LEAD DISC. ENG. | M TIETZ | |
| ENG. MANAGER | B RUSTAD | |
| PROJ. MANAGER | B RUSTAD | |

DRAWING APPROVAL STATUS: Approved for Construction

StrataGold Corporation

EAGLE GOLD PROJECT

ORE CRUSHING & HANDLING CONVEYOR GROUNDING LAYOUT PLAN

SCALE 1:250 OR AS NOTED | DWG. No. H354138-3000-260-272-1000-0004 | REV 0

SHEET SIZE: D

SPILELS PRINTED: 18-SEP-2018 ldc_preservice

CLARK BUILDERS
ENERGY & RESOURCES

# CONCRETE REINFORCEMENT PRE POUR

Rev 01 August 25, 2018

| | |
|---|---|
| SUBCONTRACTOR: Ultimate Reinforcing // McNish | INSPECTION DATE: NOV 13 2018 |
| SUBCONTRACTOR CONTACT PERSON: GARRY DAHL | PROJ. POUR DATE: NOV 13 2018 |
| INSPECTOR(S): GARRY DAHL / JDS* | |
| LOCATION: Transformer NORTH Walls and Pedestals (6320 Submission) | |
| DRAWING REV: | DRAWING NO (S): CLEAN ENERGY |
| SPEC SECTION(S): 503 20 00 – Concrete Reinforcing Steel | |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Grade (400W unless otherwise noted) and type of steel delivered and installed as required by approved drawings | ☑ | ☐ | ☐ |
| 2.0 | Inspect rebar distribution, spacing and cover per design/project requirements. | ☑ | ☐ | ☐ |
| 3.0 | Length of splices as specified | ☑ | ☐ | ☐ |
| 4.0 | Staggered splices as specified | ☑ | ☐ | ☐ |
| 5.0 | Any mechanical splices have been approved by the owner prior to install | ☑ | ☐ | ☐ |
| 6.0 | Bars cleaned and free of material that may reduce bond including loose rust, scale, oil, structural defects and that they are uncoated and unpainted. | ☑ | ☐ | ☐ |
| 7.0 | Dowels at wall ends, construction joints, and openings as specified (length, location, size, etc.) | ☑ | ☐ | ☐ |
| 8.0 | No unauthorized field bent bars including hooks installed | ☐ | ☐ | ☑ |
| 9.0 | Resolve conflicts between embedded items and reinforcement | ☑ | ☐ | ☐ |
| 10.0 | When authorized, field bends done without heat and inspected for fissures or cracks. | ☐ | ☐ | ☑ |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 11.0 | Bars tied and supported to prevent displacement | ☑ | ☐ | ☐ |
| 12.0 | Spacers, tie wire and chairs as required | ☑ | ☐ | ☐ |
| 13.0 | Conduits at design location and minimum separation from rebar as specified | ☑ | ☐ | ☐ |
| 14.0 | No contact of bars is made with dissimilar metals as per CSA A23.1 | ☑ | ☐ | ☐ |
| 15.0 | Bars, nails or tie wire not sticking out from surfaces that allow rusting/corrosion | ☑ | ☐ | ☐ |
| 16.0 | Rebar welds are inspected by qualified inspectors certified to CSA W178.2 | ☐ | ☐ | ☑ |
| 17.0 | No rebar congestion or other obstruction for deposit of concrete | ☑ | ☐ | ☐ |
| 18.0 | Adjustments required for interfering items (piping, inserts, sleeves, etc.) have been submitted and approved by owner | ☑ | ☐ | ☐ |
| 19.0 | Rebar was stored off ground to prevent damage/corrosion | ☑ | ☐ | ☐ |
| 20.0 | Review drawings for anchors, piping, sleeves, boxes | ☑ | ☐ | ☐ |

COMMENTS:

ATTACHMENT(S):

NOV 13/18 - Corner reinforcing had 2 loose bars. TIED / FIXED
- TEMPERATURE IN HOARDING @ +26°C PRIOR TO POUR
- GROUNDING TIE INS INSPECTED AND APPROVED

DEFICIENCIES NOTES:

CLARK BUILDERS:

INSPECTOR: GARRY DAHL / Ryan deMilliano TITLE: Supt / Project Coordinator DATE: NOV 13/18 / Nov 13/18

JDS ENERGY & MINING:

INSPECTOR: JERRY/MATT TITLE: DATE:

CLARK BUILDERS
ENERGY & RESOURCES

# FORMWORK & FALSEWORK PRE POUR | QA INSPECTION

Rev 01 August 25, 2018

| | |
|---|---|
| CONTRACTOR: Clark Builders | INSPECTION DATE: Nov 13 2018 |
| CONTRACTOR CONTACT PERSON: Garry DAHL / Greg. | DATE OF POUR: Nov 13 2018 |
| INSPECTOR(S): Garry DAHL / JDS * | |
| LOCATION: Sub Station North Transformer Walls and Pedestals | |
| DRAWING REV: | DRAWING NO.(S): Clean Energy |
| SPEC SECTION(S): | |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Location, survey, dimension and grades as required | ☑ | ☐ | ☐ |
| 2.0 | Plumbness and Flatness verified | ☑ | ☐ | ☐ |
| 3.0 | Joints are aligned and watertight. | ☑ | ☐ | ☐ |
| 4.0 | Formwork shop drawings are Engineered and reviewed | ☐ | ☐ | ☑ |
| 5.0 | Re-used formwork reconditioned and treated | ☑ | ☐ | ☐ |
| 6.0 | Formwork and ties according to finishing requirements. Confirm no holes in the concrete surface are greater than 25mm in diameter or expose steel at less than 25mm from surface. As per spec. | ☑ | ☐ | ☐ |
| 7.0 | Installation of embeds are located and secured | ☑ | ☐ | ☐ |
| 8.0 | Chamfer requirements checked. 25mm chamfers required for all exterior corners and edges exposed to view including horizontal edges of pads | ☑ | ☐ | ☐ |
| 9.0 | Key ways and/or other provisions according to design are provided in construction joints | ☑ | ☐ | ☐ |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 10.0 | Inspect types of form spacers, ties and bracing. | ☑ | ☐ | ☐ |
| 11.0 | Spacing of ties to be set to a pattern | ☑ | ☐ | ☐ |
| 12.0 | Expansion, construction, contraction joints as required & located as coordinated with structural Engineer | ☐ | ☐ | ☑ |
| 13.0 | Forms secured against movement during placing | ☑ | ☐ | ☐ |
| 14.0 | Forms are braced for alignment and blow out | ☑ | ☐ | ☐ |
| 15.0 | Forms are cleaned of all debris, and dry, prior to concrete placement including standing water. | ☑ | ☐ | ☐ |
| 16.0 | Openings in formwork permit inspection and cleaning, placing and compaction of concrete, and forming and processing of construction joints. | ☐ | ☐ | ☑ |
| 17.0 | Formwork has been coated with release agent prior to rebar placement. | ☑ | ☐ | ☐ |
| 18.0 | Anchor Bolts and Embeds are secured to formwork. | ☑ | ☐ | ☐ |

COMMENTS:

ATTACHMENT(S):

DEFICIENCIES NOTES:

INITIAL INSPECTION

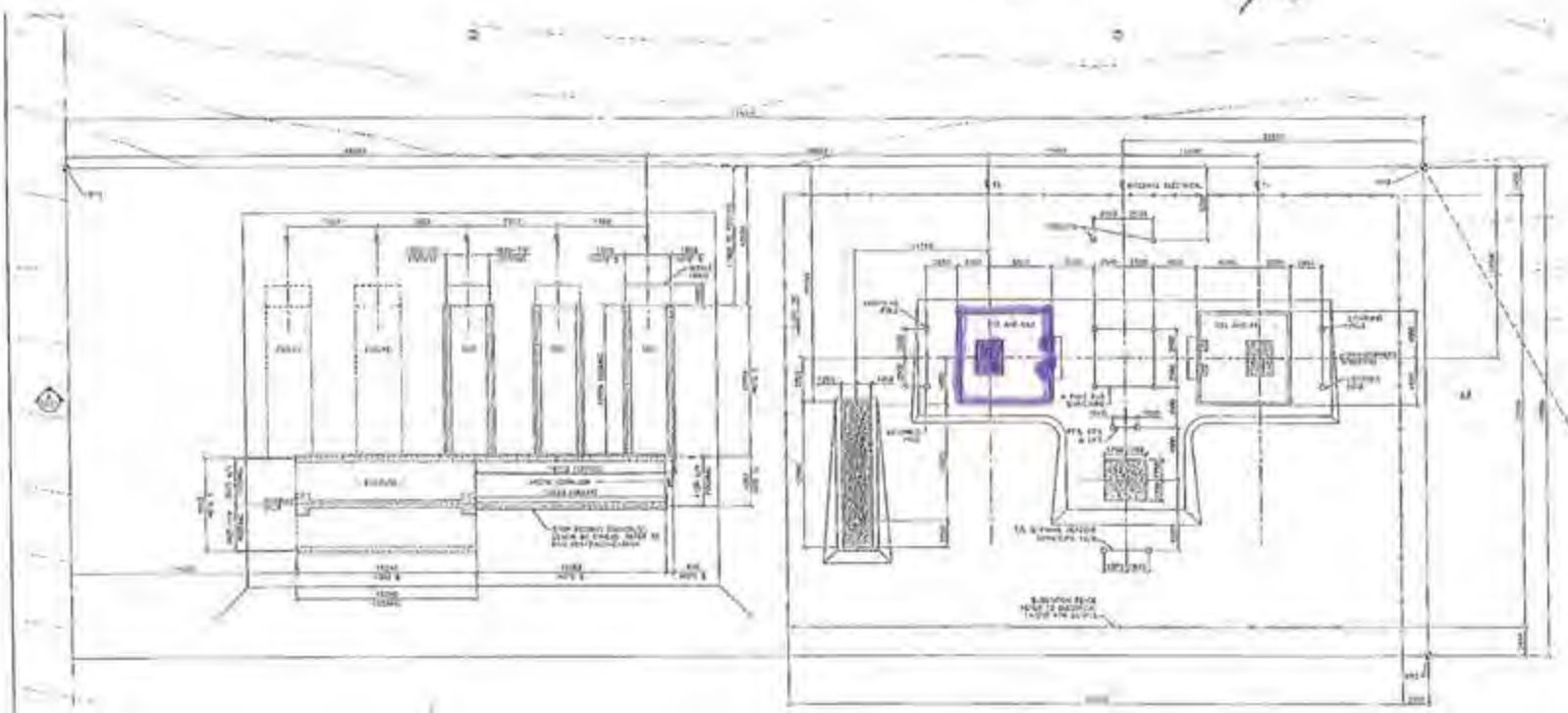
INSPECTOR: X Garry Dahl TITLE Superintendent DATE: Nov 13 2018

RE-INSPECTION (DEFICIENCIES COMPLETED)

INSPECTOR: N/A TITLE DATE:

Garry DAHL

Nov 13/18, 6









# CONCRETE POST POUR COLD WEATHER MONITORING

Rev 02 Nov 4, 2018

| | |
|---|---|
| CONTRACTOR: Clark Builders | DATE OF POUR: Nov 13/2018 |
| AMBIENT TEMP at POUR (°C): -10°C | DATE FORMWORK STRIPPED: |
| LOCATION: 6320 // CS2 T2 Walls and Pilasters (x2) and Pad (x1) | SPEC SECTION(S): 503 30 00 – Cast-In-Place |

TYPE OF CURING:

| | | | | | |
|---|---|---|---|---|---|
| CURING COMPOUND | ☐ | DAMP BURLAP OR FABRIC | ☐ | INSULATION (TARPS) | ☒ |
| POLYETHYLENE SHEETS | ☐ | WATER/FOG SPRAY/ PONDING | ☐ | FORMS (COVERED BY) | ☒ |

| COLD WEATHER REQUIREMENTS (WHEN AMB. TEMP < 5°C) | PASS | FAIL | N/A | REMARKS |
|---|---|---|---|---|
| Protection in place and temperatures not lower than 20°C or until 70% of the 28-day strength has been reached | ☑ | ☐ | ☐ | |
| Cold weather protection provided by means of heated enclosures, coverings, insulation, or a suitable approved combination of these methods during complete curing period. | ☑ | ☐ | ☐ | |
| Concrete test cylinders are kept within hoarding or in area where temperatures are ideal for curing. (No frozen Cylinders) | ☑ | ☐ | ☐ | Located on Carbonic Formation (125t) |
| Heat is not directed onto concrete. This may result in thermal cracking. | ☑ | ☐ | ☐ | |
| During freezing weather, and standing water removed before the end of the protection period (CSA A 23.1 clause 7.4.2 4.2) | ☑ | ☐ | ☐ | |

CONCRETE CURING TEMPERATURE LOG (COLD WEATHER CONCRETEING ONLY)

| DATE | TIME (24 HR) | OUTSIDE AIR TEMP (°C) | TEMP INSIDE HOARDING (°C) | CONCRETE SURFACE TEMP (°C) | | INITIALS OF READER |
|---|---|---|---|---|---|---|
| | | | | HIGH (°C) | LOW (°C) | |
| Nov 14/18 | 07:30 | -15°C | +20 | +26 | +21 | ZD |
| Nov 14/18 | 11:00 | -12°C | +21 | +27 | +22 | ZD |
| Nov 14/18 | 17:15 | -12 | +19 | +25 | +23 | ZD |
| Nov 15/18 | 09:15 | -21 | +20 | +24 | +22 | ZD |
| Nov 15/18 | 19:15 | -23 | +18 | +24 | +21 | ZD |
| Nov 16/18 | 09:30 | -22 | +12 | +15°C | +10 | ZD |
| Nov 16/18 | 15:45 | -20 | +9 | +14°C | +5°C | ZD |

Down to one heater to trigger heat.

COMMENTS:

CLARK BUILDERS SITE REPRESENTATIVE

PRINT/ SIGN: Ryan deMillione // TITLE Project Coordinator DATE: Nov 16/18

CLARK BUILDERS
ENERGY & RESOURCES

# CONCRETE REINFORCEMENT PRE POUR

Rev 01 August 25, 2018

| | |
|---|---|
| SUBCONTRACTOR: Ultimate Reinforcing // McNish | INSPECTION DATE: NOV 13 2018 |
| SUBCONTRACTOR CONTACT PERSON: GARRY DAHL | PROJ. POUR DATE: NOV 13 2018 |
| INSPECTOR(S): GARRY DAHL / JDS* | |
| LOCATION: Transformer NORTH Walls and Pedestals (6320 Substation) | |
| DRAWING REV: | DRAWING NO.(S): CLEAN ENERGY |
| SPEC SECTION(S): S03 20 00 – Concrete Reinforcing Steel | |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Grade (400W unless otherwise noted) and type of steel delivered and installed as required by approved drawings. | ☑ | ☐ | ☐ |
| 2.0 | Inspect rebar distribution, spacing and cover per design/project requirements | ☑ | ☐ | ☐ |
| 3.0 | Length of splices as specified | ☑ | ☐ | ☐ |
| 4.0 | Staggered splices as specified | ☑ | ☐ | ☐ |
| 5.0 | Any mechanical splices have been approved by the owner prior to install | ☑ | ☐ | ☐ |
| 6.0 | Bars cleaned and free of material that may reduce bond including loose rust, scale, oil, structural defects and that they are uncoated and unpainted. | ☑ | ☐ | ☐ |
| 7.0 | Dowels at wall ends, construction joints, and openings as specified (length, location, size, etc.) | ☑ | ☐ | ☐ |
| 8.0 | No unauthorized field bent bars including hooks installed | ☐ | ☐ | ☑ |
| 9.0 | Resolve conflicts between embedded items and reinforcement | ☑ | ☐ | ☐ |
| 10.0 | When authorized, field bends done without heat and inspected for fissures or cracks. | ☐ | ☐ | ☑ |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 11.0 | Bars tied and supported to prevent displacement | ☑ | ☐ | ☐ |
| 12.0 | Spacers, tie wire and chairs as required | ☑ | ☐ | ☐ |
| 13.0 | Conduits at design location and minimum separation from rebar as specified | ☑ | ☐ | ☐ |
| 14.0 | No contact of Bars is made with dissimilar metals as per CSA A23.1 | ☑ | ☐ | ☐ |
| 15.0 | Bars, nails or tie wire not sticking out from surfaces that allow rusting/corrosion | ☑ | ☐ | ☐ |
| 16.0 | Rebar welds are inspected by qualified inspectors certified to CSA W178.2 | ☐ | ☐ | ☑ |
| 17.0 | No rebar congestion or other obstruction for deposit of concrete | ☑ | ☐ | ☐ |
| 18.0 | Adjustments required for interfering items (piping, inserts, sleeves, etc.) have been submitted and approved by owner. | ☑ | ☐ | ☐ |
| 19.0 | Rebar was stored off ground to prevent damage/corrosion | ☑ | ☐ | ☐ |
| 20.0 | Review drawings for anchors, piping, sleeves, boxes | ☑ | ☐ | ☐ |

COMMENTS:

ATTACHMENT(S):

Nov 13/18 - Corner reinforcing had 2 loose bars. Tied / Fixed
- Temperature in Hoarding @ +26°C prior to pour.
- Grounding tie ins inspected and approved

DEFICIENCIES NOTES:

CLARK BUILDERS:

INSPECTOR: Garry DAHL / Ryan de Milliano TITLE: Supt / Project Coordinator DATE: Nov 13/18 / Nov 13/18

JDS ENERGY & MINING:

INSPECTOR: Jerry/Matt TITLE: DATE:

CLARK BUILDERS
ENERGY & RESOURCES



PROJECT MANAGER: DUSTIN DOLYNCHUK, P.ENG
QA/QC COORDINATOR: RYAN DE MILLIANO, C.E.T.
SUPERINTENDENT: GARRY DAHL

# FORMWORK & FALSEWORK PRE POUR | QA INSPECTION

Rev 01 August 25, 2015

| | |
|---|---|
| CONTRACTOR: Clark Builders | INSPECTION DATE: Nov 13 2018 |
| CONTRACTOR CONTACT PERSON: Garry DAHL / Greg. | DATE OF POUR: Nov 13 2018 |
| INSPECTOR(S): Garry DAHL / JDS * | |
| LOCATION: Substation North Transformer Walls and Pedestals | |
| DRAWING REV: | DRAWING NO (S): Clean Energy / SPEC SECTION(S): |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Location, survey, dimension and grades as required | ☑ | ☐ | ☐ |
| 2.0 | Plumbness and Flatness verified | ☑ | ☐ | ☐ |
| 3.0 | Joints are aligned and watertight. | ☑ | ☐ | ☐ |
| 4.0 | Formwork shop drawings are Engineered and reviewed | ☐ | ☐ | ☑ |
| 5.0 | Re-used formwork reconditioned and treated | ☑ | ☐ | ☐ |
| 6.0 | Formwork and ties according to finishing requirements. Confirm no holes in the concrete surface are greater than 25mm in diameter or expose steel at less than 25mm from surface. As per spec. | ☑ | ☐ | ☐ |
| 7.0 | Installation of embeds are located and secured | ☑ | ☐ | ☐ |
| 8.0 | Chamfer requirements checked. 25mm chamfers required for all exterior corners and edges exposed to view including horizontal edges of pads. | ☑ | ☐ | ☐ |
| 9.0 | Key ways and/or other provisions according to design are provided in construction joints | ☑ | ☐ | ☐ |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 10.0 | Inspect types of form spacers, ties and bracing. | ☑ | ☐ | ☐ |
| 11.0 | Spacing of ties to be set to a pattern | ☑ | ☐ | ☐ |
| 12.0 | Expansion, construction, contraction joints as required & located as coordinated with structural Engineer | ☐ | ☐ | ☑ |
| 13.0 | Forms secured against movement during placing | ☑ | ☐ | ☐ |
| 14.0 | Forms are braced for alignment and blow out | ☑ | ☐ | ☐ |
| 15.0 | Forms are cleaned of all debris, and dry, prior to concrete placement including standing water. | ☑ | ☐ | ☐ |
| 16.0 | Openings in formwork permit inspection and cleaning, placing and compaction of concrete, and forming and processing of construction joints. | ☐ | ☐ | ☑ |
| 17.0 | Formwork has been coated with release agent prior to rebar placement. | ☑ | ☐ | ☐ |
| 18.0 | Anchor Bolts and Embeds are secured to formwork. | ☑ | ☐ | ☐ |

COMMENTS:

ATTACHMENT(S):

DEFICIENCIES NOTES:

INITIAL INSPECTION

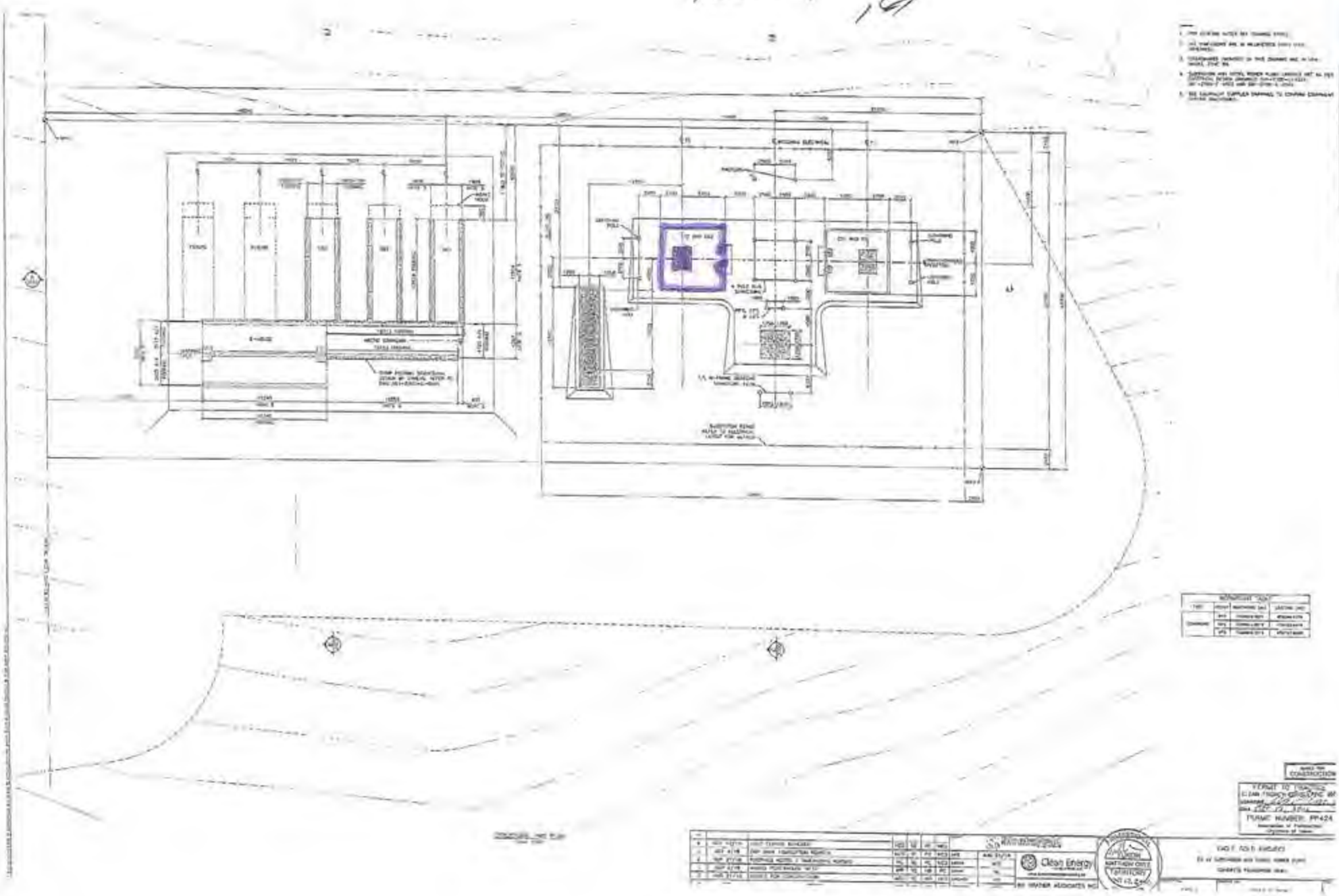
INSPECTOR: Garry DAHL TITLE SUPERINTENDENT DATE: Nov 13 2018

RE-INSPECTION (DEFICIENCIES COMPLETED)

INSPECTOR: N/A TITLE DATE:

Garry DAHL

Nov 13/18, Z



# CONCRETE POST POUR COLD WEATHER MONITORING

Rev 02 Nov 6, 2018

| | |
|---|---|
| CONTRACTOR: Clark Builders | DATE OF POUR: Nov 13/2018 |
| AMBIENT TEMP at POUR (°C): −10°C | DATE FORMWORK STRIPPED: |
| LOCATION: 6320 // CS2 T2 Walls and Pilasters (x2) and Pad (x1) | SPEC SECTION(S): 503 30 00 – Cast-In-Place |

TYPE OF CURING:

| | | | | | |
|---|---|---|---|---|---|
| CURING COMPOUND | ☐ | DAMP BURLAP OR FABRIC | ☐ | INSULATION (TARPS) | ☒ |
| POLYETHYLENE SHEETS | ☐ | WATER/FOG SPRAY/ PONDING | ☐ | FORMS (COVERED BY) | ☒ |

| COLD WEATHER REQUIREMENTS (WHEN AMB. TEMP < 5°C) | PASS | FAIL | N/A | REMARKS |
|---|---|---|---|---|
| Protection in place and temperatures not lower than 20°C or until 70% of the 28-day strength has been reached. | ☑ | ☐ | ☐ | |
| Cold weather protection provided by means of heated enclosures, coverings, insulation, or a suitable approved combination of these methods during complete curing period. | ☑ | ☐ | ☐ | |
| Concrete test cylinders are kept within hoarding or in area where temperatures are ideal for curing. (No frozen Cylinders) | ☑ | ☐ | ☐ | Located on Carbonic Foundation (+25°C) |
| Heat is not directed onto concrete. This may result in thermal cracking. | ☑ | ☐ | ☐ | |
| During freezing weather, and standing water removed before the end of the protection period (CSA A 23.1 clause 7.4.2.4.2) | ☑ | ☐ | ☐ | |

CONCRETE CURING TEMPERATURE LOG (COLD WEATHER CONCRETEING ONLY)

| DATE | TIME (24 HR) | OUTSIDE AIR TEMP (°C) | TEMP INSIDE HOARDING (°C) | CONCRETE SURFACE TEMP (°C) HIGH (°C) | CONCRETE SURFACE TEMP (°C) LOW (°C) | INITIALS OF READER |
|---|---|---|---|---|---|---|
| Nov 14/18 | 07:30 | −15°C | +20 | +26 | +21 | [illegible] |
| Nov 14/18 | 11:00 | −12°C | +21 | +27 | +22 | [illegible] |
| Nov 14/18 | 17:15 | −12 | +19 | +25 | +23 | [illegible] |
| Nov 15/18 | 09:15 | −21 | +20 | +24 | +22 | [illegible] |
| Nov 15/18 | 19:15 | −23 | +18 | +24 | +21 | [illegible] |
| Nov 16/18 | 09:30 | −22 | +12 | +15°C | +10 | [illegible] |
| Nov 16/18 | 15:45 | −20 | +9 | +14°C | +5°C | [illegible] |

Down to one heater to keep heat.

COMMENTS:

CLARK BUILDERS SITE REPRESENTATIVE

PRINT/ SIGN: Ryan deMillano // [signature] TITLE Project Coordinator DATE: Nov 16/18

CLARK BUILDERS
ENERGY & RESOURCES

# CONCRETE REINFORCEMENT PRE POUR

Rev 01 August 25, 2018

| | |
|---|---|
| SUBCONTRACTOR: Ultimate Reinforcing // McNish | INSPECTION DATE: NOV. 25 /2018 |
| SUBCONTRACTOR CONTACT PERSON: CLAYTON MCGUIRE | PROJ. POUR DATE: NOV.25/2018 |
| INSPECTOR(S): JACKSON WENGER | |
| LOCATION: C500 SUBSTATION - BASEFRAME MODULE FOOTINGS | |
| DRAWING REV: 0 / DRAWING NO.(S): 001-2700-C-0002 | SPEC SECTION(S): 503 20 00 – Concrete Reinforcing Steel |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Grade (400W unless otherwise noted) and type of steel delivered and installed as required by approved drawings. | ☑ | ☐ | ☐ |
| 2.0 | Inspect rebar distribution, spacing and cover per design/project requirements. | ☑ | ☐ | ☐ |
| 3.0 | Length of splices as specified | ☑ | ☐ | ☐ |
| 4.0 | Staggered splices as specified | ☑ | ☐ | ☐ |
| 5.0 | Any mechanical splices have been approved by the owner prior to install | ☑ | ☐ | ☐ |
| 6.0 | Bars cleaned and free of material that may reduce bond including loose rust, scale, oil, structural defects and that they are uncoated and unpainted. | ☑ | ☐ | ☐ |
| 7.0 | Dowels at wall ends, construction joints, and openings as specified (length, location, size, etc.) | ☑ | ☐ | ☐ |
| 8.0 | No unauthorized field bent bars including hooks installed | ☑ | ☐ | ☐ |
| 9.0 | Resolve conflicts between embedded items and reinforcement | ☑ | ☐ | ☐ |
| 10.0 | When authorized, field bends done without heat and inspected for fissures or cracks. | ☑ | ☐ | ☐ |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 11.0 | Bars tied and supported to prevent displacement | ☑ | ☐ | ☐ |
| 12.0 | Spacers, tie wire and chairs as required | ☑ | ☐ | ☐ |
| 13.0 | Conduits at design location and minimum separation from rebar as specified | ☑ | ☐ | ☐ |
| 14.0 | No contact of bars is made with dissimilar metals as per CSA A23.1 | ☑ | ☐ | ☐ |
| 15.0 | Bars, nails or tie wire not sticking out from surfaces that allow rusting/corrosion | ☑ | ☐ | ☐ |
| 16.0 | Rebar welds are inspected by qualified inspectors certified to CSA W178.2 | ☑ | ☐ | ☐ |
| 17.0 | No rebar congestion or other obstruction for deposit of concrete | ☑ | ☐ | ☐ |
| 18.0 | Adjustments required for interfering items (piping, inserts, sleeves, etc.) have been submitted and approved by owner. | ☑ | ☐ | ☐ |
| 19.0 | Rebar was stored off ground to prevent damage/corrosion | ☑ | ☐ | ☐ |
| 20.0 | Review drawings for anchors, piping, sleeves, boxes | ☐ | ☐ | ☐ |

COMMENTS:

EMBED INSTALLATION TO BE VERIFIED PRIOR TO POUR
TIE PERPENDICULAR LAPS @ FOOTING INTERSECTIONS

ATTACHMENT(S):

DEFICIENCIES NOTES:

- Cut horizontals touching forms (3 places)
- Clean up of wire in forms
- Tie perpendicular laps running E-W

CLARK BUILDERS:

INSPECTOR: JACKSON WENGER TITLE COORDINATOR DATE: NOV.25

JDS ENERGY & MINING:

INSPECTOR: Matt Cavedale YVR TITLE Field Eng DATE: Nov 25, 2018

CLARK BUILDERS
ENERGY & RESOURCES

# FORMWORK & FALSEWORK PRE POUR | QA INSPECTION

Rev 01 August 21, 2018

| | |
|---|---|
| CONTRACTOR: Clark Builders | INSPECTION DATE: NOV. 25/2018 |
| CONTRACTOR CONTACT PERSON: GREG WATSON | DATE OF POUR: NOV. 26/2018 |
| INSPECTOR(S): JACKSON WENGER | |
| LOCATION: 6300 SUBSTATION MODULE FOOTINGS | |
| DRAWING REV: 0 | DRAWING NO.(S): 001-2700-C-0002 |
| SPEC SECTION(S): 03 10 00 | |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Location, survey, dimension and grades as required | ☑ | ☐ | ☐ |
| 2.0 | Plumbness and Flatness verified | ☑ | ☐ | ☐ |
| 3.0 | Joints are aligned and watertight. | ☑ | ☐ | ☐ |
| 4.0 | Formwork shop drawings are Engineered and reviewed | ☐ | ☐ | ☑ |
| 5.0 | Re-used formwork reconditioned and treated | ☑ | ☐ | ☐ |
| 6.0 | Formwork and ties according to finishing requirements. Confirm no holes in the concrete surface are greater than 25mm in diameter or expose steel at less than 25mm from surface. As per spec. | ☑ | ☐ | ☐ |
| 7.0 | Installation of embeds are located and secured | ☑ | ☐ | ☐ |
| 8.0 | Chamfer requirements checked. 25mm chamfers required for all exterior corners and edges exposed to view including horizontal edges of pads. | ☑ | ☐ | ☐ |
| 9.0 | Key ways and/or other provisions according to design are provided in construction joints | ☐ | ☐ | ☑ |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 10.0 | Inspect types of form spacers, ties and bracing. | ☑ | ☐ | ☐ |
| 11.0 | Spacing of ties to be set to a pattern | ☑ | ☐ | ☐ |
| 12.0 | Expansion, construction, contraction joints as required & located as coordinated with structural Engineer | ☑ | ☐ | ☐ |
| 13.0 | Forms secured against movement during placing | ☑ | ☐ | ☐ |
| 14.0 | Forms are braced for alignment and blow out | ☑ | ☐ | ☐ |
| 15.0 | Forms are cleaned of all debris, and dry, prior to concrete placement including standing water | ☑ | ☐ | ☐ |
| 16.0 | Openings in formwork permit inspection and cleaning, placing and compaction of concrete, and forming and processing of construction joints. | ☑ | ☐ | ☐ |
| 17.0 | Formwork has been coated with release agent prior to rebar placement | ☑ | ☐ | ☐ |
| 18.0 | Anchor Bolts and Embeds are secured to formwork. | ☐ | ☐ | ☑ |

COMMENTS:

ATTACHMENT(S):

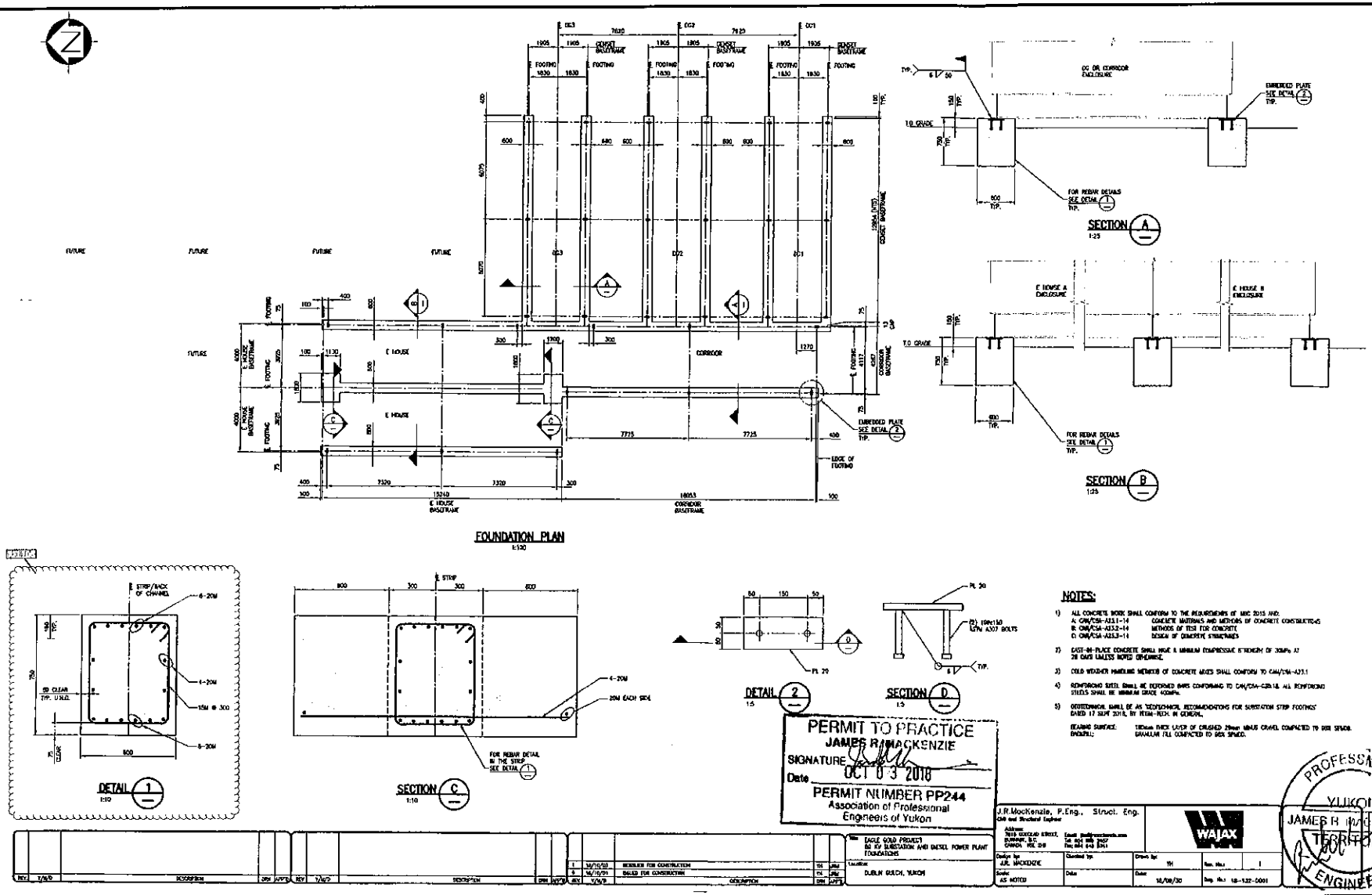
DEFICIENCIES NOTES:

INITIAL INSPECTION

INSPECTOR: JACKSON WENGER TITLE PROJECT COORDINATOR DATE: NOV. 25/2018

RE-INSPECTION (DEFICIENCIES COMPLETED)

INSPECTOR: Matt Coverdale YVE TITLE Field Eng DATE: Nov 25, 2018




| REV. | DATE | DESCRIPTION OF REVISION |
|---|---|---|
| 0 | 3/10/2018 | FOR CONSTRUCTION |

ISSUED FOR CONSTRUCTION

**STRATAGOLD CORPORATION**

**W.N. Brazier Associates Inc.**

**EAGLE GOLD PROJECT, 69 KV SUBSTATION & DIESEL POWER PLANT, MODULE FOUNDATIONS - CONCRETE**

**DRAWING NO:** 001-2700-C-0002 REV. 0

CLARK BUILDERS
ENERGY & RESOURCES

# CONCRETE REINFORCEMENT PRE POUR

Rev 01 August 25, 2018

| | |
|---|---|
| SUBCONTRACTOR: Ultimate Reinforcing // McNish | INSPECTION DATE: Nov 29 / 18 |
| SUBCONTRACTOR CONTACT PERSON: GARRY DAHL | PROJ. POUR DATE: Nov 28 / 18 |
| INSPECTOR(S): Garry DAHL / JDS | |
| LOCATION: Sub Station T1 Transformer Walls & Pads (6320) | |
| DRAWING REV: | DRAWING NO.(S): Clean Energy Pg 2 |
| SPEC SECTION(S): S03 20 00 – Concrete Reinforcing Steel | |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Grade (400W unless otherwise noted) and type of steel delivered and installed as required by approved drawings. | ☑ | ☐ | ☐ |
| 2.0 | Inspect rebar distribution, spacing and cover per design/project requirements. | ☑ | ☐ | ☐ |
| 3.0 | Length of splices as specified | ☑ | ☐ | ☐ |
| 4.0 | Staggered splices as specified | ☑ | ☐ | ☐ |
| 5.0 | Any mechanical splices have been approved by the owner prior to install | ☐ | ☐ | ☑ |
| 6.0 | Bars cleaned and free of material that may reduce bond including loose rust, scale, oil, structural defects and that they are uncoated and unpainted. | ☑ | ☐ | ☐ |
| 7.0 | Dowels at wall ends, construction joints, and openings as specified (length, location, size, etc.) | ☑ | ☐ | ☐ |
| 8.0 | No unauthorized field bent bars including hooks installed | ☐ | ☐ | ☑ |
| 9.0 | Resolve conflicts between embedded items and reinforcement | ☑ | ☐ | ☐ |
| 10.0 | When authorized, field bends done without heat and inspected for fissures or cracks. | ☐ | ☐ | ☑ |
| 11.0 | Bars tied and supported to prevent displacement | ☑ | ☐ | ☐ |
| 12.0 | Spacers, tie wire and chairs as required | ☑ | ☐ | ☐ |
| 13.0 | Conduits at design location and minimum separation from rebar as specified | ☐ | ☐ | ☑ |
| 14.0 | No contact of bars is made with dissimilar metals as per CSA A23.1 | ☑ | ☐ | ☐ |
| 15.0 | Bars, nails or tie wire not sticking out from surfaces that allow rusting/corrosion | ☑ | ☐ | ☐ |
| 16.0 | Rebar welds are inspected by qualified inspectors certified to CSA W178.2 | ☐ | ☐ | ☑ |
| 17.0 | No rebar congestion or other obstruction for deposit of concrete | ☑ | ☐ | ☐ |
| 18.0 | Adjustments required for interfering items (piping, inserts, sleeves, etc.) have been submitted and approved by owner. | ☑ | ☐ | ☐ |
| 19.0 | Rebar was stored off ground to prevent damage/corrosion | ☑ | ☐ | ☐ |
| 20.0 | Review drawings for anchors, piping, sleeves, boxes | ☑ | ☐ | ☐ |

COMMENTS:

ATTACHMENT(S):

DEFICIENCIES NOTES:

CLARK BUILDERS:
INSPECTOR: GARRY DAHL TITLE Supt DATE: 11/28/18

JDS ENERGY & MINING:
INSPECTOR: Istan Fechter TITLE Supt. DATE: 11/28/18

CLARK BUILDERS
ENERGY & RESOURCES

# FORMWORK & FALSEWORK PRE POUR | QA INSPECTION

Rev 01 August 25, 2018

| | |
|---|---|
| CONTRACTOR: Clark Builders | INSPECTION DATE: Nov 28/18 |
| CONTRACTOR CONTACT PERSON: Garry DAHL | DATE OF POUR: Nov 28/18 |
| INSPECTOR(S): Garry DAHL / JDS | |
| LOCATION: Substation T1 Transformer Walls & Pads | |
| DRAWING REV: | DRAWING NO.(S): Clean Energy Pad Transfo SPEC SECTION(S): |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Location, survey, dimension and grades as required | ☑ | ☐ | ☐ |
| 2.0 | Plumbness and Flatness verified | ☑ | ☐ | ☐ |
| 3.0 | Joints are aligned and watertight. | ☑ | ☐ | ☐ |
| 4.0 | Formwork shop drawings are Engineered and reviewed | ☑ | ☐ | ☐ |
| 5.0 | Re-used formwork reconditioned and treated | ☑ | ☐ | ☐ |
| 6.0 | Formwork and ties according to finishing requirements. Confirm no holes in the concrete surface are greater than 25mm in diameter or expose steel at less than 25mm from surface. As per spec. | ☑ | ☐ | ☐ |
| 7.0 | Installation of embeds are located and secured | ☑ | ☐ | ☐ |
| 8.0 | Chamfer requirements checked. 25mm chamfers required for all exterior corners and edges exposed to view including horizontal edges of pads. | ☑ | ☐ | ☐ |
| 9.0 | Key ways and/or other provisions according to design are provided in construction joints | ☑ | ☐ | ☐ |
| 10.0 | Inspect types of form spacers, ties and bracing. | ☑ | ☐ | ☐ |
| 11.0 | Spacing of ties to be set to a pattern | ☑ | ☐ | ☐ |
| 12.0 | Expansion, construction, contraction joints as required & located as coordinated with structural Engineer | ☐ | ☐ | ☑ |
| 13.0 | Forms secured against movement during placing | ☑ | ☐ | ☐ |
| 14.0 | Forms are braced for alignment and blow out | ☑ | ☐ | ☐ |
| 15.0 | Forms are cleaned of all debris, and dry, prior to concrete placement including standing water. | ☑ | ☐ | ☐ |
| 16.0 | Openings in formwork permit inspection and cleaning, placing and compaction of concrete, and forming and processing of construction joints. | ☑ | ☐ | ☐ |
| 17.0 | Formwork has been coated with release agent prior to rebar placement. | ☑ | ☐ | ☐ |
| 18.0 | Anchor Bolts and Embeds are secured to formwork. | ☑ | ☐ | ☐ |

COMMENTS:

ATTACHMENT(S):

DEFICIENCIES NOTES:

INITIAL INSPECTION

INSPECTOR: Ishan Fechter TITLE Supt. DATE: Nov 28/18

RE-INSPECTION (DEFICIENCIES COMPLETED)

INSPECTOR: _____ TITLE _____ DATE: _____

Garry DAHL

CB-INSPECTION FORM-DOC-002 REV.00
JDS ENERGY & MINING INC. | STRATAGOLD EAGLE GOLD
PROJECT #: CB201 | 18502

PROJECT MANAGER: DUSTIN DOLYNCHUK, P.ENG
QA/QC COORDINATOR: RYAN DE MILLIANO, C.E.T.
SUPERINTENDENT: GARRY DAHL

# FORMWORK & FALSEWORK PRE POUR | QA INSPECTION

Rev 01 August 25, 2018

| | |
|---|---|
| CONTRACTOR: Clark Builders | INSPECTION DATE: November 29/2018 |
| CONTRACTOR CONTACT PERSON: Garry Dahl/Henry Rueda | DATE OF POUR: November 30/ 2018 |
| INSPECTOR(S): Mat Coverdale | |
| LOCATION: Heap-Leach CV-23 E-House Base & Pads 1 & 2 (4300) | |
| DRAWING REV: | DRAWING NO.(S): 4300-0001/0011 SPEC SECTION(S): |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Location, survey, dimension and grades as required | ☑ | ☐ | ☐ |
| 2.0 | Plumbness and Flatness verified | ☑ | ☐ | ☐ |
| 3.0 | Joints are aligned and watertight. | ☑ | ☐ | ☐ |
| 4.0 | Formwork shop drawings are Engineered and reviewed | ☐ | ☐ | ☑ |
| 5.0 | Re-used formwork reconditioned and treated | ☑ | ☐ | ☐ |
| 6.0 | Formwork and ties according to finishing requirements. Confirm no holes in the concrete surface are greater than 25mm in diameter or expose steel at less than 25mm from surface. As per spec. | ☑ | ☐ | ☐ |
| 7.0 | Installation of embeds are located and secured | ☑ | ☐ | ☐ |
| 8.0 | Chamfer requirements checked. 25mm chamfers required for all exterior corners and edges exposed to view including horizontal edges of pads. | ☐ | ☐ | ☑ |
| 9.0 | Key ways and/or other provisions according to design are provided in construction joints | ☑ | ☐ | ☐ |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 10.0 | Inspect types of form spacers, ties and bracing. | ☑ | ☐ | ☐ |
| 11.0 | Spacing of ties to be set to a pattern | ☑ | ☐ | ☐ |
| 12.0 | Expansion, construction, contraction joints as required & located as coordinated with structural Engineer | ☐ | ☐ | ☑ |
| 13.0 | Forms secured against movement during placing | ☑ | ☐ | ☐ |
| 14.0 | Forms are braced for alignment and blow out | ☑ | ☐ | ☐ |
| 15.0 | Forms are cleaned of all debris, and dry, prior to concrete placement including standing water. | ☑ | ☐ | ☐ |
| 16.0 | Openings in formwork permit inspection and cleaning, placing and compaction of concrete, and forming and processing of construction joints. | ☐ | ☐ | ☑ |
| 17.0 | Formwork has been coated with release agent prior to rebar placement. | ☑ | ☐ | ☐ |
| 18.0 | Anchor Bolts and Embeds are secured to formwork. | ☐ | ☐ | ☑ |

COMMENTS:

Ensure cover on bottom mat

ATTACHMENT(S):

DEFICIENCIES NOTES:

INITIAL INSPECTION

INSPECTOR: Ishan Fedele TITLE Supt. DATE: Nov 29/18

RE-INSPECTION (DEFICIENCIES COMPLETED)

INSPECTOR: _____ TITLE _____ DATE: _____

GARRY DAHL Nov 29/18

Rev 00: May 4, 2018

# CONCRETE REINFORCEMENT PRE POUR

Rev 01 August 15, 2018

| | |
|---|---|
| SUBCONTRACTOR: Ultimate Reinforcing // McNish | INSPECTION DATE: November 29/2018 |
| SUBCONTRACTOR CONTACT PERSON: Garry Dahl/Henry Rueda | PROJ. POUR DATE: November 30/2018 |
| INSPECTOR(S): Mat Coverdale | |
| LOCATION: Heap-Leach CV-23 E-House Base & Bents 1 & 2 | |
| DRAWING REV: | DRAWING NO.(S): 4300-0001/0011 |
| SPEC SECTION(S): S03 20 00 – Concrete Reinforcing Steel | |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Grade (400W unless otherwise noted) and type of steel delivered and installed as required by approved drawings. | ☑ | ☐ | ☐ |
| 2.0 | Inspect rebar distribution, spacing and cover per design/project requirements. | ☑ | ☐ | ☐ |
| 3.0 | Length of splices as specified | ☑ | ☐ | ☐ |
| 4.0 | Staggered splices as specified | ☑ | ☐ | ☐ |
| 5.0 | Any mechanical splices have been approved by the owner prior to install | ☐ | ☐ | ☑ |
| 6.0 | Bars cleaned and free of material that may reduce bond including loose rust, scale, oil, structural defects and that they are uncoated and unpainted. | ☑ | ☐ | ☐ |
| 7.0 | Dowels at wall ends, construction joints, and openings as specified (length, location, size, etc.) | ☑ | ☐ | ☐ |
| 8.0 | No unauthorized field bent bars including hooks installed | ☑ | ☐ | ☐ |
| 9.0 | Resolve conflicts between embedded items and reinforcement | ☐ | ☐ | ☑ |
| 10.0 | When authorized, field bends done without heat and inspected for fissures or cracks. | ☐ | ☐ | ☑ |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 11.0 | Bars tied and supported to prevent displacement | ☑ | ☐ | ☐ |
| 12.0 | Spacers, tie wire and chairs as required | ☑ | ☐ | ☐ |
| 13.0 | Conduits at design location and minimum separation from rebar as specified | ☐ | ☐ | ☑ |
| 14.0 | No contact of bars is made with dissimilar metals as per CSA A23.1 | ☑ | ☐ | ☐ |
| 15.0 | Bars, nails or tie wire not sticking out from surfaces that allow rusting/corrosion | ☑ | ☐ | ☐ |
| 16.0 | Rebar welds are inspected by qualified inspectors certified to CSA W178.2 | ☐ | ☐ | ☑ |
| 17.0 | No rebar congestion or other obstruction for deposit of concrete | ☑ | ☐ | ☐ |
| 18.0 | Adjustments required for interfering items (piping, inserts, sleeves, etc.) have been submitted and approved by owner | ☐ | ☐ | ☑ |
| 19.0 | Rebar was stored off ground to prevent damage/corrosion | ☑ | ☐ | ☐ |
| 20.0 | Review drawings for anchors, piping, sleeves, boxes | ☑ | ☐ | ☐ |

COMMENTS:

ATTACHMENT(S):

DEFICIENCIES NOTES:

CLARK BUILDERS:
INSPECTOR: Garry DAHL TITLE Supt. DATE: Nov 29/18

IDS ENERGY & MINING:
INSPECTOR: Ishan Fechter TITLE Supt. DATE: Nov 29/18

CLARK BUILDERS
ENERGY & RESOURCES

# FORMWORK & FALSEWORK PRE POUR | QA INSPECTION

Rev 01 August 15, 2018

| | | | |
|---|---|---|---|
| CONTRACTOR: Clark Builders | | INSPECTION DATE: | November 29/2018 |
| CONTRACTOR CONTACT PERSON: | Garry Dahl/Henry Rueda | DATE OF POUR: | December 1/ 2018 |
| INSPECTOR(S): | Mat Coverdale | | |
| LOCATION: | 3330 Secondary E-house Blast Wall Pour 1 | | |
| DRAWING REV: | DRAWING NO.(S): 3300-0028/0029 | SPEC SECTION(S): | |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Location, survey, dimension and grades as required | ☑ | ☐ | ☐ |
| 2.0 | Plumbness and Flatness verified | ☑ | ☐ | ☐ |
| 3.0 | Joints are aligned and watertight. | ☑ | ☐ | ☐ |
| 4.0 | Formwork shop drawings are Engineered and reviewed | ☑ | ☐ | ☐ |
| 5.0 | Re-used formwork reconditioned and treated | ☑ | ☐ | ☐ |
| 6.0 | Formwork and ties according to finishing requirements. Confirm no holes in the concrete surface are greater than 25mm in diameter or expose steel at less than 25mm from surface. As per spec. | ☐ | ☐ | ☑ |
| 7.0 | Installation of embeds are located and secured | ☑ | ☐ | ☐ |
| 8.0 | Chamfer requirements checked. 25mm chamfers required for all exterior corners and edges exposed to view including horizontal edges of pads. | ☐ | ☐ | ☑ |
| 9.0 | Key ways and/or other provisions according to design are provided in construction joints | ☑ | ☐ | ☐ |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 10.0 | Inspect types of form spacers, ties and bracing. | ☑ | ☐ | ☐ |
| 11.0 | Spacing of ties to be set to a pattern | ☑ | ☐ | ☐ |
| 12.0 | Expansion, construction, contraction joints as required & located as coordinated with structural Engineer | ☐ | ☐ | ☑ |
| 13.0 | Forms secured against movement during placing | ☑ | ☐ | ☐ |
| 14.0 | Forms are braced for alignment and blow out | ☑ | ☐ | ☐ |
| 15.0 | Forms are cleaned of all debris, and dry, prior to concrete placement including standing water. | ☑ | ☐ | ☐ |
| 16.0 | Openings in formwork permit inspection and cleaning, placing and compaction of concrete, and forming and processing of construction joints. | ☑ | ☐ | ☐ |
| 17.0 | Formwork has been coated with release agent prior to rebar placement. | ☑ | ☐ | ☐ |
| 18.0 | Anchor Bolts and Embeds are secured to formwork. | ☑ | ☐ | ☐ |

COMMENTS:

ATTACHMENT(S):

DEFICIENCIES NOTES:

INITIAL INSPECTION

INSPECTOR: Ishan Fechter TITLE Supt. DATE: Nov 29/18

RE-INSPECTION (DEFICIENCIES COMPLETED)

INSPECTOR: _____ TITLE _____ DATE: _____

Garry DAHL

# CONCRETE REINFORCEMENT PRE POUR

Rev 01 August 25, 2018

| | |
|---|---|
| SUBCONTRACTOR: Ultimate Reinforcing // McNish | INSPECTION DATE: November 29/2018 |
| SUBCONTRACTOR CONTACT PERSON: Garry Dahl/Henry Rueda | PROJ. POUR DATE: December 1/ 2018 |
| INSPECTOR(S): Mat Coverdale | |
| LOCATION: 3330 Secondary E-house Blast Wall Pour 1 | |
| DRAWING REV: | DRAWING NO.(S): 3300-0028/0029 |
| SPEC SECTION(S): S03 20 00 – Concrete Reinforcing Steel | |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Grade (400W unless otherwise noted) and type of steel delivered and installed as required by approved drawings. | ☑ | ☐ | ☐ |
| 2.0 | Inspect rebar distribution, spacing and cover per design/project requirements. | ☑ | ☐ | ☐ |
| 3.0 | Length of splices as specified | ☑ | ☐ | ☐ |
| 4.0 | Staggered splices as specified | ☑ | ☐ | ☐ |
| 5.0 | Any mechanical splices have been approved by the owner prior to install | ☐ | ☐ | ☑ |
| 6.0 | Bars cleaned and free of material that may reduce bond including loose rust, scale, oil, structural defects and that they are uncoated and unpainted. | ☑ | ☐ | ☐ |
| 7.0 | Dowels at wall ends, construction joints, and openings as specified (length, location, size, etc.) | ☑ | ☐ | ☐ |
| 8.0 | No unauthorized field bent bars including hooks installed | ☑ | ☐ | ☐ |
| 9.0 | Resolve conflicts between embedded items and reinforcement | ☑ | ☐ | ☐ |
| 10.0 | When authorized, field bends done without heat and inspected for fissures or cracks. | ☑ | ☐ | ☐ |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 11.0 | Bars tied and supported to prevent displacement | ☑ | ☐ | ☐ |
| 12.0 | Spacers, tie wire and chairs as required | ☑ | ☐ | ☐ |
| 13.0 | Conduits at design location and minimum separation from rebar as specified | ☑ | ☐ | ☐ |
| 14.0 | No contact of bars is made with dissimilar metals as per CSA A23.1 | ☑ | ☐ | ☐ |
| 15.0 | Bars, nails or tie wire not sticking out from surfaces that allow rusting/corrosion | ☑ | ☐ | ☐ |
| 16.0 | Rebar welds are inspected by qualified inspectors certified to CSA W178.2 | ☐ | ☐ | ☑ |
| 17.0 | No rebar congestion or other obstruction for deposit of concrete | ☑ | ☐ | ☐ |
| 18.0 | Adjustments required for interfering items (piping, inserts, sleeves, etc.) have been submitted and approved by owner. | ☑ | ☐ | ☐ |
| 19.0 | Rebar was stored off ground to prevent damage/corrosion | ☑ | ☐ | ☐ |
| 20.0 | Review drawings for anchors, piping, sleeves, boxes | ☑ | ☐ | ☐ |

COMMENTS:

ATTACHMENT(S):

DEFICIENCIES NOTES:

CLARK BUILDERS:

INSPECTOR: Garry Dahl TITLE Supt DATE: Nov 29/18

JDS ENERGY & MINING:

INSPECTOR: Isham Fechyer TITLE Supt. DATE: Nov. 29/18

CLARK BUILDERS
ENERGY & RESOURCES

# CONCRETE REINFORCEMENT PRE POUR

Rev 01 August 25, 2018

| | | | |
|---|---|---|---|
| SUBCONTRACTOR: Ultimate Reinforcing // McNish | | INSPECTION DATE: | November 30/2018 |
| SUBCONTRACTOR CONTACT PERSON: | Garry Dahl/Henry Rueda | PROJ. POUR DATE: | December 1/2018 |
| INSPECTOR(S): | Ishan Fechter | | |
| LOCATION: | 6300 Substation Module Fnd 2 | | |
| DRAWING REV: | DRAWING NO.(S): 001-2700-C-0002 | SPEC SECTION(S): S03 20 00 – Concrete Reinforcing Steel | |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Grade (400W unless otherwise noted) and type of steel delivered and installed as required by approved drawings. | ☑ | ☐ | ☐ |
| 2.0 | Inspect rebar distribution, spacing and cover per design/project requirements. | ☑ | ☐ | ☐ |
| 3.0 | Length of splices as specified | ☑ | ☐ | ☐ |
| 4.0 | Staggered splices as specified | ☑ | ☐ | ☐ |
| 5.0 | Any mechanical splices have been approved by the owner prior to install | ☐ | ☐ | ☑ |
| 6.0 | Bars cleaned and free of material that may reduce bond including loose rust, scale, oil, structural defects and that they are uncoated and unpainted. | ☑ | ☐ | ☐ |
| 7.0 | Dowels at wall ends, construction joints, and openings as specified (length, location, size, etc.) | ☑ | ☐ | ☐ |
| 8.0 | No unauthorized field bent bars including hooks installed | ☑ | ☐ | ☐ |
| 9.0 | Resolve conflicts between embedded items and reinforcement | ☑ | ☐ | ☐ |
| 10.0 | When authorized, field bends done without heat and inspected for fissures or cracks. | ☐ | ☐ | ☑ |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 11.0 | Bars tied and supported to prevent displacement | ☑ | ☐ | ☐ |
| 12.0 | Spacers, tie wire and chairs as required | ☑ | ☐ | ☐ |
| 13.0 | Conduits at design location and minimum separation from rebar as specified | ☐ | ☐ | ☑ |
| 14.0 | No contact of bars is made with dissimilar metals as per CSA A23.1 | ☑ | ☐ | ☐ |
| 15.0 | Bars, nails or tie wire not sticking out from surfaces that allow rusting/corrosion | ☑ | ☐ | ☐ |
| 16.0 | Rebar welds are inspected by qualified inspectors certified to CSA W178.2 | ☐ | ☐ | ☑ |
| 17.0 | No rebar congestion or other obstruction for deposit of concrete | ☑ | ☐ | ☐ |
| 18.0 | Adjustments required for interfering items (piping, inserts, sleeves, etc.) have been submitted and approved by owner. | ☑ | ☐ | ☐ |
| 19.0 | Rebar was stored off ground to prevent damage/corrosion | ☑ | ☐ | ☐ |
| 20.0 | Review drawings for anchors, piping, sleeves, boxes | ☑ | ☐ | ☐ |

COMMENTS:

ATTACHMENT(S):

DEFICIENCIES NOTES:

CLARK BUILDERS:

INSPECTOR: Garry DAHL TITLE Supt DATE: Dec 1/18

JDS ENERGY & MINING:

INSPECTOR: Ishan Fechter TITLE Supt. DATE: Dec 1/18

CLARK BUILDERS
ENERGY & RESOURCES

CB-INSPECTION FORM-DOC-002 REV.00
JOS ENERGY & MINING INC. | STRATAGOLD EAGLE GOLD
PROJECT #: CB201 | 18502

PROJECT MANAGER: DUSTIN DOLYNCHUK, P.ENG
QA/QC COORDINATOR: RYAN DE MILLIANO, C.E.T.
SUPERINTENDENT: GARRY DAHL

# FORMWORK & FALSEWORK PRE POUR | QA INSPECTION

Rev 01 August 25, 2018

| | | | |
|---|---|---|---|
| CONTRACTOR: Clark Builders | | INSPECTION DATE: | November 30/2018 |
| CONTRACTOR CONTACT PERSON: | Garry Dahl/Henry Rueda | DATE OF POUR: | December 1/2018 |
| INSPECTOR(S): | Ishan Fechter | | |
| LOCATION: | 6300 Substation Module Fnd 2 | | |
| DRAWING REV: | DRAWING NO.(S): 001-2700-C-0002 | SPEC SECTION(S): | |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Location, survey, dimension and grades as required | ☑ | ☐ | ☐ |
| 2.0 | Plumbness and Flatness verified | ☑ | ☐ | ☐ |
| 3.0 | Joints are aligned and watertight. | ☑ | ☐ | ☐ |
| 4.0 | Formwork shop drawings are Engineered and reviewed | ☐ | ☐ | ☑ |
| 5.0 | Re-used formwork reconditioned and treated | ☑ | ☐ | ☐ |
| 6.0 | Formwork and ties according to finishing requirements. Confirm no holes in the concrete surface are greater than 25mm in diameter or expose steel at less than 25mm from surface. As per spec. | ☑ | ☐ | ☐ |
| 7.0 | Installation of embeds are located and secured | ☑ | ☐ | ☐ |
| 8.0 | Chamfer requirements checked. 25mm chamfers required for all exterior corners and edges exposed to view including horizontal edges of pads. | ☐ | ☐ | ☑ |
| 9.0 | Key ways and/or other provisions according to design are provided in construction joints | ☑ | ☐ | ☐ |
| 10.0 | Inspect types of form spacers, ties and bracing. | ☑ | ☐ | ☐ |
| 11.0 | Spacing of ties to be set to a pattern | ☑ | ☐ | ☐ |
| 12.0 | Expansion, construction, contraction joints as required & located as coordinated with structural Engineer | ☐ | ☐ | ☑ |
| 13.0 | Forms secured against movement during placing | ☑ | ☐ | ☐ |
| 14.0 | Forms are braced for alignment and blow out | ☑ | ☐ | ☐ |
| 15.0 | Forms are cleaned of all debris, and dry, prior to concrete placement including standing water. | ☑ | ☐ | ☐ |
| 16.0 | Openings in formwork permit inspection and cleaning, placing and compaction of concrete, and forming and processing of construction joints. | ☑ | ☐ | ☐ |
| 17.0 | Formwork has been coated with release agent prior to rebar placement. | ☑ | ☐ | ☐ |
| 18.0 | Anchor Bolts and Embeds are secured to formwork. | ☑ | ☐ | ☐ |

COMMENTS:

ATTACHMENT(S):

DEFICIENCIES NOTES:

INITIAL INSPECTION

INSPECTOR: Ishan Fechter TITLE Supt. DATE: Dec 1/18

RE-INSPECTION (DEFICIENCIES COMPLETED)

INSPECTOR: _____ TITLE _____ DATE: _____

Garry DAHL

# CONCRETE POST POUR COLD WEATHER MONITORING

Rev 03 Nov 13, 2018

| | |
|---|---|
| ACTOR: Clark Builders | DATE OF POUR: Dec. 1 |
| MBIENT TEMP at POUR (°C): -9 | DATE FORMWORK STRIPPED: Dec. 3 |
| CATION: E-House walls, North Half | SPEC SECTION(S): S03 30 00 – Cast-In-Place |

PE OF CURING:

| | | | | | |
|---|---|---|---|---|---|
| RING COMPOUND | ☐ | DAMP BURLAP OR FABRIC | ☐ | INSULATION (TARPS) | ☑ |
| LYETHYLENE SHEETS | ☐ | WATER/FOG SPRAY/ PONDING | ☐ | FORMS (COVERED BY) | ☑ |

| LD WEATHER REQUIREMENTS (WHEN AMB. TEMP < 5°C) | PASS | FAIL | N/A | REMARKS |
|---|---|---|---|---|
| tection in place and temperatures not lower than 20°C or until 70% of the 28-strength has been reached. | ☑ | ☐ | ☐ | |
| d weather protection provided by means of heated enclosures, coverings, ılation, or a suitable approved combination of these methods during nplete curing period. | ☑ | ☐ | ☐ | |
| ıcrete test cylinders are kept within hoarding or in area where temperatures ideal for curing. (No frozen Cylinders) | ☑ | ☐ | ☐ | |
| it is not directed onto concrete. This may result in thermal cracking | ☑ | ☐ | ☐ | |
| ing freezing weather, and standing water removed before the end of the tection period (CSA A 23.1 clause 7.4.2.4.2) | ☑ | ☐ | ☐ | |

NCRETE CURING TEMPERATURE LOG (COLD WEATHER CONCRETEING ONLY)

| DATE | | TIME (24 HR) | OUTSIDE AIR TEMP (°C) | TEMP INSIDE HOARDING (°C) | CONCRETE SURFACE TEMP (°C) | | INITIALS OF READER |
|---|---|---|---|---|---|---|---|
| | | | | | HIGH (°C) | LOW (°C) | |
| Dec. 1 | AM | 6:00 PM | -11 | 24 | 21 | 15 | D.P. |
| Dec. 2 | MID | 7:30 AM | -15 | 26 | 30 | 28 | D.P. |
| Dec. 2 | PM | 1:30 PM | -17 | 24 | 29 | 28 | D.P. |
| Dec 2 | AM | 6:30 PM | -20 | 22 | 27 | 26 | D.P. |
| Dec. 3 | MID | 7:30 AM | -16 | 21 | 25 | 24 | D.P. |
| | PM | | | | | | |
| | AM | | | | | | |
| | MID | | | | | | |
| | PM | | | | | | |

MMENTS:

RK BUILDERS SITE REPRESENTATIVE

T/ SIGN: DAN PELLETIER Dan Pellet TITLE Foreman DATE: Dec. 3

# CONCRETE POST POUR COLD WEATHER MONITORING

Rev 03 Nov 13, 2018

| | |
|---|---|
| CONTRACTOR: Clark Builders | DATE OF POUR: Dec 7/18 |
| AMBIENT TEMP at POUR (°C): | DATE FORMWORK STRIPPED: |
| LOCATION: Secondary E house | |
| | SPEC SECTION(S): S03 30 00 – Cast-In-Place |

TYPE OF CURING:

| | | | | | |
|---|---|---|---|---|---|
| CURING COMPOUND | ☐ | DAMP BURLAP OR FABRIC | ☐ | INSULATION (TARPS) | ☑ |
| POLYETHYLENE SHEETS | ☐ | WATER/FOG SPRAY/ PONDING | ☐ | FORMS (COVERED BY) | ☐ |

| COLD WEATHER REQUIREMENTS (WHEN AMB. TEMP < 5°C) | PASS | FAIL | N/A | REMARKS |
|---|---|---|---|---|
| Protection in place and temperatures not lower than 20°C or until 70% of the 28-day strength has been reached. | ☐ | ☐ | ☐ | |
| Cold weather protection provided by means of heated enclosures, coverings, insulation, or a suitable approved combination of these methods during complete curing period. | ☐ | ☐ | ☐ | |
| Concrete test cylinders are kept within hoarding or in area where temperatures are ideal for curing. (No frozen Cylinders) | ☐ | ☐ | ☐ | |
| Heat is not directed onto concrete. This may result in thermal cracking. | ☐ | ☐ | ☐ | |
| During freezing weather, and standing water removed before the end of the protection period (CSA A 23.1 clause 7.4.2.4.2) | ☐ | ☐ | ☐ | |

CONCRETE CURING TEMPERATURE LOG (COLD WEATHER CONCRETEING ONLY)

| DATE | | TIME (24 HR) | OUTSIDE AIR TEMP (°C) | TEMP INSIDE HOARDING (°C) | CONCRETE SURFACE TEMP (°C) | | INITIALS OF READER |
|---|---|---|---|---|---|---|---|
| | | | | | HIGH (°C) | LOW (°C) | |
| Dec 8/18 | AM | 7:30 AM | -1 | 29.7 | 30.2 | 26.7 | J.T |
| Dec 9/18 | MID | 8:30 | +2 | 25.6 | 28.3 | 25.8 | CN |
| Dec 10/18 | PM | 7:45 AM | -3 | 24.3 | 27.8 | 23.6 | CN |
| Dec 10/18 | AM | 3:40 PM | -2 | 25.6 | 28.1 | 24.3 | PN |
| | MID | | | | | | |
| | PM | | | | | | |
| | AM | | | | | | |
| | MID | | | | | | |
| | PM | | | | | | |

| COMMENTS: | | |
|---|---|---|
| | | |
| | | |

CLARK BUILDERS SITE REPRESENTATIVE

PRINT/ SIGN: _____ TITLE _____ DATE: _____

CLARK BUILDERS
ENERGY & RESOURCES

# CONCRETE REINFORCEMENT PRE POUR

Rev 01 August 25, 2018

| | |
|---|---|
| SUBCONTRACTOR: Ultimate Reinforcing // McNish | INSPECTION DATE: December 10, 2018 |
| SUBCONTRACTOR CONTACT PERSON: Clayton | PROJ. POUR DATE: December 12, 2018 |
| INSPECTOR(S): 4300 Transformer Walls (x2) | |
| LOCATION: Ryan deMilliano, Jerry C., Dave Delorme | |
| DRAWING REV: 00 / DRAWING NO.(S): 4300-0011 | SPEC SECTION(S): S03 20 00 – Concrete Reinforcing Steel |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Grade (400W unless otherwise noted) and type of steel delivered and installed as required by approved drawings. | ☒ | ☐ | ☐ |
| 2.0 | Inspect rebar distribution, spacing and cover per design/project requirements. | ☒ | ☐ | ☐ |
| 3.0 | Length of splices as specified | ☒ | ☐ | ☐ |
| 4.0 | Staggered splices as specified | ☒ | ☐ | ☐ |
| 5.0 | Any mechanical splices have been approved by the owner prior to install | ☐ | ☐ | ☒ |
| 6.0 | Bars cleaned and free of material that may reduce bond including loose rust, scale, oil, structural defects and that they are uncoated and unpainted. | ☒ | ☐ | ☐ |
| 7.0 | Dowels at wall ends, construction joints, and openings as specified (length, location, size, etc.) | ☒ | ☐ | ☐ |
| 8.0 | No unauthorized field bent bars including hooks installed | ☒ | ☐ | ☐ |
| 9.0 | Resolve conflicts between embedded items and reinforcement | ☒ | ☐ | ☐ |
| 10.0 | When authorized, field bends done without heat and inspected for fissures or cracks. | ☐ | ☐ | ☒ |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 11.0 | Bars tied and supported to prevent displacement | ☒ | ☐ | ☐ |
| 12.0 | Spacers, tie wire and chairs as required | ☒ | ☐ | ☐ |
| 13.0 | Conduits at design location and minimum separation from rebar as specified | ☐ | ☐ | ☒ |
| 14.0 | No contact of bars is made with dissimilar metals as per CSA A23.1 | ☒ | ☐ | ☐ |
| 15.0 | Bars, nails or tie wire not sticking out from surfaces that allow rusting/corrosion | ☒ | ☐ | ☐ |
| 16.0 | Rebar welds are inspected by qualified inspectors certified to CSA W178.2 | ☒ | ☐ | ☐ |
| 17.0 | No rebar congestion or other obstruction for deposit of concrete | ☒ | ☐ | ☐ |
| 18.0 | Adjustments required for interfering items (piping, inserts, sleeves, etc.) have been submitted and approved by owner. | ☒ | ☐ | ☐ |
| 19.0 | Rebar was stored off ground to prevent damage/corrosion | ☒ | ☐ | ☐ |
| 20.0 | Review drawings for anchors, piping, sleeves, boxes | ☒ | ☐ | ☐ |

COMMENTS:

ATTACHMENT(S): Dwg (Highlighted)

DEFICIENCIES NOTES:

CLARK BUILDERS
INSPECTOR: Ryan deMilliano TITLE: Project Coordinator DATE: Dec 10/18

JDS ENERGY & MINING:
INSPECTOR: Jerry Chrzastek TITLE: Const. Sup. DATE: Dec. 10/18

CB-INSPECTION FORM-DOC-002 REV.00
JDS ENERGY & MINING INC. | STRATAGOLD EAGLE GOLD
PROJECT #: CB201 | 18502

CLARK BUILDERS
ENERGY & RESOURCES

PROJECT MANAGER: DUSTIN DOLYNCHUK, P.ENG
QA/QC COORDINATOR: RYAN DE MILLIANO, C.E.T.
SUPERINTENDENT: GARRY DAHL

# FORMWORK & FALSEWORK PRE POUR | QA INSPECTION

Rev 01 August 25, 2018

| | |
|---|---|
| CONTRACTOR: Clark Builders | INSPECTION DATE: December 10, 2018 |
| CONTRACTOR CONTACT PERSON: Clayton | DATE OF POUR: December 12, 2018 |
| INSPECTOR(S): 4300 Transformer Walls (x2) | |
| LOCATION: Ryan deMilliano, Geo Dave Delorme, Jerry C. (JDS) | |
| DRAWING REV: 00 / DRAWING NO.(S): 4300-0011 | SPEC SECTION(S): |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Location, survey, dimension and grades as required | ☑ | ☐ | ☐ |
| 2.0 | Plumbness and Flatness verified | ☑ | ☐ | ☐ |
| 3.0 | Joints are aligned and watertight. | ☑ | ☐ | ☐ |
| 4.0 | Formwork shop drawings are Engineered and reviewed | ☐ | ☐ | ☑ |
| 5.0 | Re-used formwork reconditioned and treated | ☑ | ☐ | ☐ |
| 6.0 | Formwork and ties according to finishing requirements. Confirm no holes in the concrete surface are greater than 25mm in diameter or expose steel at less than 25mm from surface. As per spec. | ☑ | ☐ | ☐ |
| 7.0 | Installation of embeds are located and secured | ☑ | ☐ | ☐ |
| 8.0 | Chamfer requirements checked. 25mm chamfers required for all exterior corners and edges exposed to view including horizontal edges of pads. | ☑ | ☐ | ☐ |
| 9.0 | Key ways and/or other provisions according to design are provided in construction joints | ☐ | ☐ | ☑ |
| 10.0 | Inspect types of form spacers, ties and bracing. | ☑ | ☐ | ☐ |
| 11.0 | Spacing of ties to be set to a pattern | ☑ | ☐ | ☐ |
| 12.0 | Expansion, construction, contraction joints as required & located as coordinated with structural Engineer | ☑ | ☐ | ☐ |
| 13.0 | Forms secured against movement during placing | ☑ | ☐ | ☐ |
| 14.0 | Forms are braced for alignment and blow out | ☑ | ☐ | ☐ |
| 15.0 | Forms are cleaned of all debris, and dry, prior to concrete placement including standing water. | ☑ | ☐ | ☐ |
| 16.0 | Openings in formwork permit inspection and cleaning, placing and compaction of concrete, and forming and processing of construction joints. | ☑ | ☐ | ☐ |
| 17.0 | Formwork has been coated with release agent prior to rebar placement. | ☑ | ☐ | ☐ |
| 18.0 | Anchor Bolts and Embeds are secured to formwork. | ☑ | ☐ | ☐ |

COMMENTS:

ATTACHMENT(S):

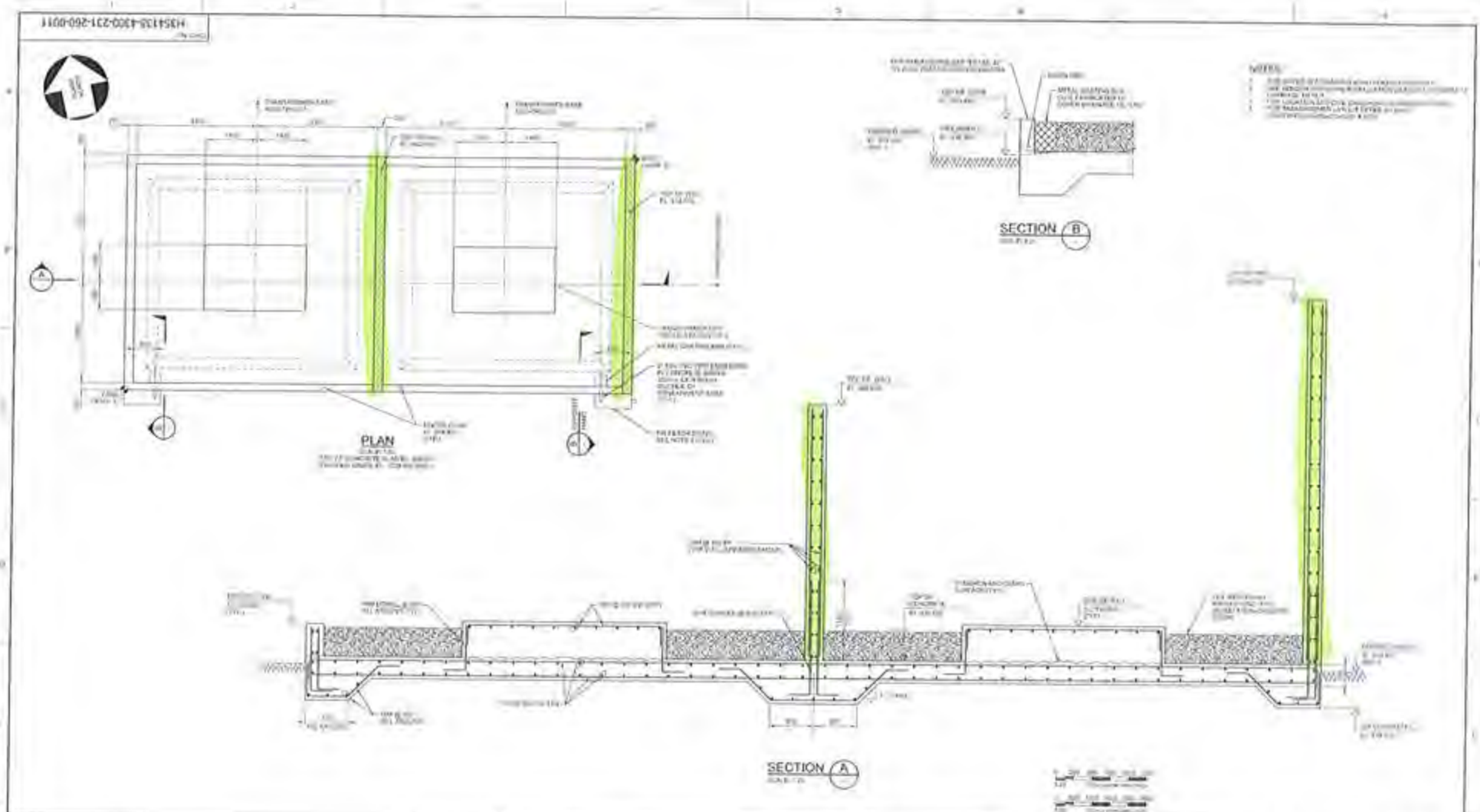
DEFICIENCIES NOTES:

INITIAL INSPECTION

INSPECTOR: Ryan deMilliano / [signature] TITLE Project Coordinator DATE: Dec 10/18

RE-INSPECTION (DEFICIENCIES COMPLETED)

INSPECTOR: _____ TITLE _____ DATE: _____




HATCH

StrataGold Corporation

EAGLE GOLD PROJECT

ORE PREPARATION (LIME AND CEMENT) TRANSFORMER FOUNDATION PLAN, SECTIONS AND DETAILS

1035413/-4300-231-260-0011

0

# CONCRETE REINFORCEMENT PRE POUR

Rev 01 August 25, 2018

| | |
|---|---|
| SUBCONTRACTOR: Ultimate Reinforcing // McNish | INSPECTION DATE: December 16, 2018 |
| SUBCONTRACTOR CONTACT PERSON: Clayton Williams | PROJ. POUR DATE: December 16, 2018 |
| INSPECTOR(S): Ryan deMilliano | |
| LOCATION: 4300 Transformer Curbs | |
| DRAWING REV: 00 / DRAWING NO.(S): 4300-0011 | SPEC SECTION(S): S03 20 00 – Concrete Reinforcing Steel |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Grade (400W unless otherwise noted) and type of steel delivered and installed as required by approved drawings. | ☑ | ☐ | ☐ |
| 2.0 | Inspect rebar distribution, spacing and cover per design/project requirements. | ☑ | ☐ | ☐ |
| 3.0 | Length of splices as specified | ☑ | ☐ | ☐ |
| 4.0 | Staggered splices as specified | ☑ | ☐ | ☐ |
| 5.0 | Any mechanical splices have been approved by the owner prior to install | ☐ | ☐ | ☑ |
| 6.0 | Bars cleaned and free of material that may reduce bond including loose rust, scale, oil, structural defects and that they are uncoated and unpainted. | ☑ | ☐ | ☐ |
| 7.0 | Dowels at wall ends, construction joints, and openings as specified (length, location, size, etc.) | ☐ | ☐ | ☑ |
| 8.0 | No unauthorized field bent bars including hooks installed | ☑ | ☐ | ☐ |
| 9.0 | Resolve conflicts between embedded items and reinforcement | ☑ | ☐ | ☐ |
| 10.0 | When authorized, field bends done without heat and inspected for fissures or cracks. | ☐ | ☐ | ☑ |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 11.0 | Bars tied and supported to prevent displacement | ☑ | ☐ | ☐ |
| 12.0 | Spacers, tie wire and chairs as required | ☑ | ☐ | ☐ |
| 13.0 | Conduits at design location and minimum separation from rebar as specified | ☐ | ☐ | ☑ |
| 14.0 | No contact of bars is made with dissimilar metals as per CSA A23.1 | ☑ | ☐ | ☐ |
| 15.0 | Bars, nails or tie wire not sticking out from surfaces that allow rusting/corrosion | ☑ | ☐ | ☐ |
| 16.0 | Rebar welds are inspected by qualified inspectors certified to CSA W178.2 | ☐ | ☐ | ☑ |
| 17.0 | No rebar congestion or other obstruction for deposit of concrete | ☑ | ☐ | ☐ |
| 18.0 | Adjustments required for interfering items (piping, inserts, sleeves, etc.) have been submitted and approved by owner. | ☑ | ☐ | ☐ |
| 19.0 | Rebar was stored off ground to prevent damage/corrosion | ☑ | ☐ | ☐ |
| 20.0 | Review drawings for anchors, piping, sleeves, boxes | ☑ | ☐ | ☐ |

COMMENTS:

Addition of single bar above PVC drainage pipe for crack control requested and installed prior to pour.

ATTACHMENT(S):

DEFICIENCIES NOTES:

CLARK BUILDERS:

INSPECTOR: Ryan deMilliano TITLE Project Coordinator DATE: December 16/18

JDS ENERGY & MINING:

INSPECTOR: Matthew Brindale, MSc TITLE Field Engr DATE: Dec. 16/18

CLARK BUILDERS
ENERGY & RESOURCES

PROJECT MANAGER: DUSTIN DOLYNCHUK, P.ENG
QA/QC COORDINATOR: RYAN DE MILLIANO, C.E.T.
SUPERINTENDENT: GARRY DAHL

# FORMWORK & FALSEWORK PRE POUR | QA INSPECTION

Rev 01 August 25, 2018

| | |
|---|---|
| CONTRACTOR: Clark Builders | INSPECTION DATE: December 16, 2018 |
| CONTRACTOR CONTACT PERSON: Dave DeLorme | DATE OF POUR: December 16, 2018 |
| INSPECTOR(S): Ryan deMilliano | |
| LOCATION: 4300 Transformer Curbs. | |
| DRAWING REV: 00 / DRAWING NO.(S): 4300-0011 | SPEC SECTION(S): 5031000 |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Location, survey, dimension and grades as required | ☑ | ☐ | ☐ |
| 2.0 | Plumbness and Flatness verified | ☑ | ☐ | ☐ |
| 3.0 | Joints are aligned and watertight. | ☑ | ☐ | ☐ |
| 4.0 | Formwork shop drawings are Engineered and reviewed | ☐ | ☐ | ☑ |
| 5.0 | Re-used formwork reconditioned and treated | ☑ | ☐ | ☐ |
| 6.0 | Formwork and ties according to finishing requirements. Confirm no holes in the concrete surface are greater than 25mm in diameter or expose steel at less than 25mm from surface. As per spec. | ☑ | ☐ | ☐ |
| 7.0 | Installation of embeds are located and secured | ☐ | ☐ | ☑ |
| 8.0 | Chamfer requirements checked. 25mm chamfers required for all exterior corners and edges exposed to view including horizontal edges of pads. | ☑ | ☐ | ☐ |
| 9.0 | Key ways and/or other provisions according to design are provided in construction joints | ☐ | ☐ | ☑ |
| 10.0 | Inspect types of form spacers, ties and bracing. | ☑ | ☐ | ☐ |
| 11.0 | Spacing of ties to be set to a pattern | ☑ | ☐ | ☐ |
| 12.0 | Expansion, construction, contraction joints as required & located as coordinated with structural Engineer | ☑ | ☐ | ☐ |
| 13.0 | Forms secured against movement during placing | ☑ | ☐ | ☐ |
| 14.0 | Forms are braced for alignment and blow out | ☑ | ☐ | ☐ |
| 15.0 | Forms are cleaned of all debris, and dry, prior to concrete placement including standing water. | ☑ | ☐ | ☐ |
| 16.0 | Openings in formwork permit inspection and cleaning, placing and compaction of concrete, and forming and processing of construction joints. | ☑ | ☐ | ☐ |
| 17.0 | Formwork has been coated with release agent prior to rebar placement. | ☑ | ☐ | ☐ |
| 18.0 | Anchor Bolts and Embeds are secured to formwork. | ☐ | ☐ | ☑ |

| COMMENTS: | ATTACHMENT(S): |
|---|---|
| | DWGS. |
| | |
| | |

DEFICIENCIES NOTES:

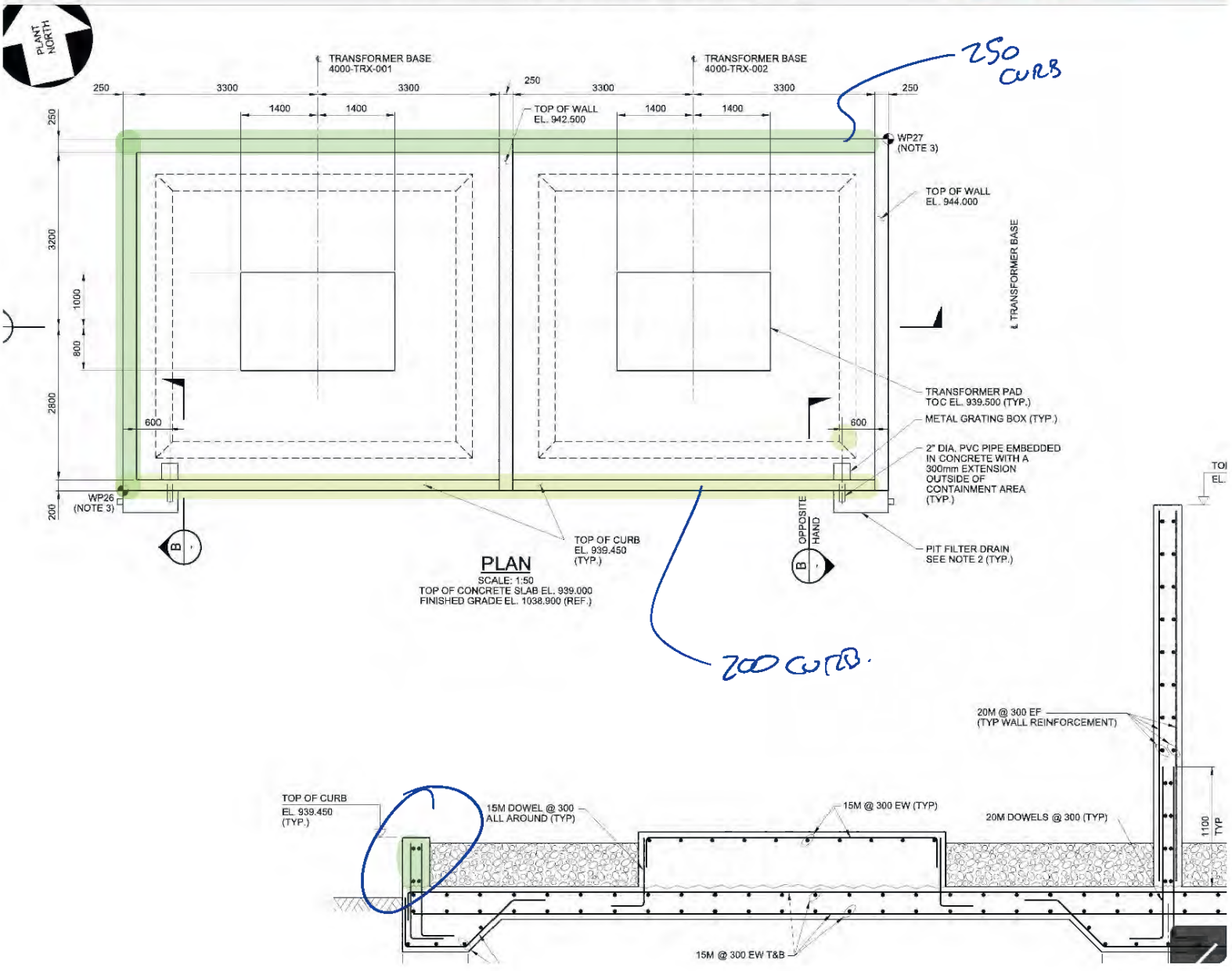
INITIAL INSPECTION

INSPECTOR: Ryan deMilliano TITLE Project Coordinator DATE: December 16, 2018

RE-INSPECTION (DEFICIENCIES COMPLETED)

INSPECTOR: [signature] TITLE Field Eng DATE: Dec 16, 2018

# H354138-4300-231-260-0011 Rev 0



CLARK BUILDERS
ENERGY & RESOURCES

# CONCRETE REINFORCEMENT PRE POUR

Rev 01 August 25, 2018

SUBCONTRACTOR: Ultimate Reinforcing // McNish
INSPECTION DATE: December 13, 2018
SUBCONTRACTOR CONTACT PERSON: Thomas
PROJ. POUR DATE: December 13, 2018
INSPECTOR(S): Ryan deMilliard
LOCATION: 3330 Secondary Transformer curbs
DRAWING REV: 01 | DRAWING NO.(S): 3330 - 0028 | SPEC SECTION(S): S03 20 00 – Concrete Reinforcing Steel

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Grade (400W unless otherwise noted) and type of steel delivered and installed as required by approved drawings. | ☒ | ☐ | ☐ |
| 2.0 | Inspect rebar distribution, spacing and cover per design/project requirements. | ☒ | ☐ | ☐ |
| 3.0 | Length of splices as specified | ☒ | ☐ | ☐ |
| 4.0 | Staggered splices as specified | ☒ | ☐ | ☐ |
| 5.0 | Any mechanical splices have been approved by the owner prior to install | ☐ | ☐ | ☒ |
| 6.0 | Bars cleaned and free of material that may reduce bond including loose rust, scale, oil, structural defects and that they are uncoated and unpainted. | ☒ | ☐ | ☐ |
| 7.0 | Dowels at wall ends, construction joints, and openings as specified (length, location, size, etc.) | ☒ | ☐ | ☐ |
| 8.0 | No unauthorized field bent bars including hooks installed | ☒ | ☐ | ☐ |
| 9.0 | Resolve conflicts between embedded items and reinforcement | ☒ | ☐ | ☐ |
| 10.0 | When authorized, field bends done without heat and inspected for fissures or cracks. | ☐ | ☐ | ☒ |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 11.0 | Bars tied and supported to prevent displacement | ☒ | ☐ | ☐ |
| 12.0 | Spacers, tie wire and chairs as required | ☒ | ☐ | ☐ |
| 13.0 | Conduits at design location and minimum separation from rebar as specified | ☒ | ☐ | ☐ |
| 14.0 | No contact of bars is made with dissimilar metals as per CSA A23.1 | ☒ | ☐ | ☐ |
| 15.0 | Bars, nails or tie wire not sticking out from surfaces that allow rusting/corrosion | ☒ | ☐ | ☐ |
| 16.0 | Rebar welds are inspected by qualified inspectors certified to CSA W178.2 | ☐ | ☐ | ☒ |
| 17.0 | No rebar congestion or other obstruction for deposit of concrete | ☒ | ☐ | ☐ |
| 18.0 | Adjustments required for interfering items (piping, inserts, sleeves, etc.) have been submitted and approved by owner. | ☒ | ☐ | ☐ |
| 19.0 | Rebar was stored off ground to prevent damage/corrosion | ☒ | ☐ | ☐ |
| 20.0 | Review drawings for anchors, piping, sleeves, boxes | ☒ | ☐ | ☐ |

COMMENTS:

- Move PVC drains to correct location 600mm from wall edge.

ATTACHMENT(S):

DEFICIENCIES NOTES:

CLARK BUILDERS:
INSPECTOR: Ryan deMilliano TITLE: Project Coordinator DATE: December 13, 2018

JDS ENERGY & MINING:
INSPECTOR: Matt Coverdale MME TITLE: Field Eng DATE: Dec 13, 2018

CLARK BUILDERS
ENERGY & RESOURCES

# FORMWORK & FALSEWORK PRE POUR | QA INSPECTION

Rev 01 August 25, 2019

| | |
|---|---|
| CONTRACTOR: Clark Builders | INSPECTION DATE: December 13, 2018 |
| CONTRACTOR CONTACT PERSON: Greg Watson | DATE OF POUR: DECEMBER 13, 2018 |
| INSPECTOR(S): Ryan deMilliano. | |
| LOCATION: 3330 Secondary Transformer Curbs. | |
| DRAWING REV: 01 / DRAWING NO.(S): 3330-0028 | SPEC SECTION(S): S03100 00 |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Location, survey, dimension and grades as required | ☑ | ☐ | ☐ |
| 2.0 | Plumbness and Flatness verified | ☑ | ☐ | ☐ |
| 3.0 | Joints are aligned and watertight. | ☑ | ☐ | ☐ |
| 4.0 | Formwork shop drawings are Engineered and reviewed | ☐ | ☐ | ☑ |
| 5.0 | Re-used formwork reconditioned and treated | ☑ | ☐ | ☐ |
| 6.0 | Formwork and ties according to finishing requirements. Confirm no holes in the concrete surface are greater than 25mm in diameter or expose steel at less than 25mm from surface. As per spec. | ☑ | ☐ | ☐ |
| 7.0 | Installation of embeds are located and secured | ☐ | ☐ | ☑ |
| 8.0 | Chamfer requirements checked. 25mm chamfers required for all exterior corners and edges exposed to view including horizontal edges of pads. | ☑ | ☐ | ☐ |
| 9.0 | Key ways and/or other provisions according to design are provided in construction joints | ☐ | ☐ | ☑ |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 10.0 | Inspect types of form spacers, ties and bracing. | ☑ | ☐ | ☐ |
| 11.0 | Spacing of ties to be set to a pattern | ☑ | ☐ | ☐ |
| 12.0 | Expansion, construction, contraction joints as required & located as coordinated with structural Engineer | ☑ | ☐ | ☐ |
| 13.0 | Forms secured against movement during placing | ☑ | ☐ | ☐ |
| 14.0 | Forms are braced for alignment and blow out | ☑ | ☐ | ☐ |
| 15.0 | Forms are cleaned of all debris, and dry, prior to concrete placement including standing water. | ☑ | ☐ | ☐ |
| 16.0 | Openings in formwork permit inspection and cleaning, placing and compaction of concrete, and forming and processing of construction joints. | ☑ | ☐ | ☐ |
| 17.0 | Formwork has been coated with release agent prior to rebar placement. | ☑ | ☐ | ☐ |
| 18.0 | Anchor Bolts and Embeds are secured to formwork. | ☐ | ☐ | ☑ |

COMMENTS:

ATTACHMENT(S):

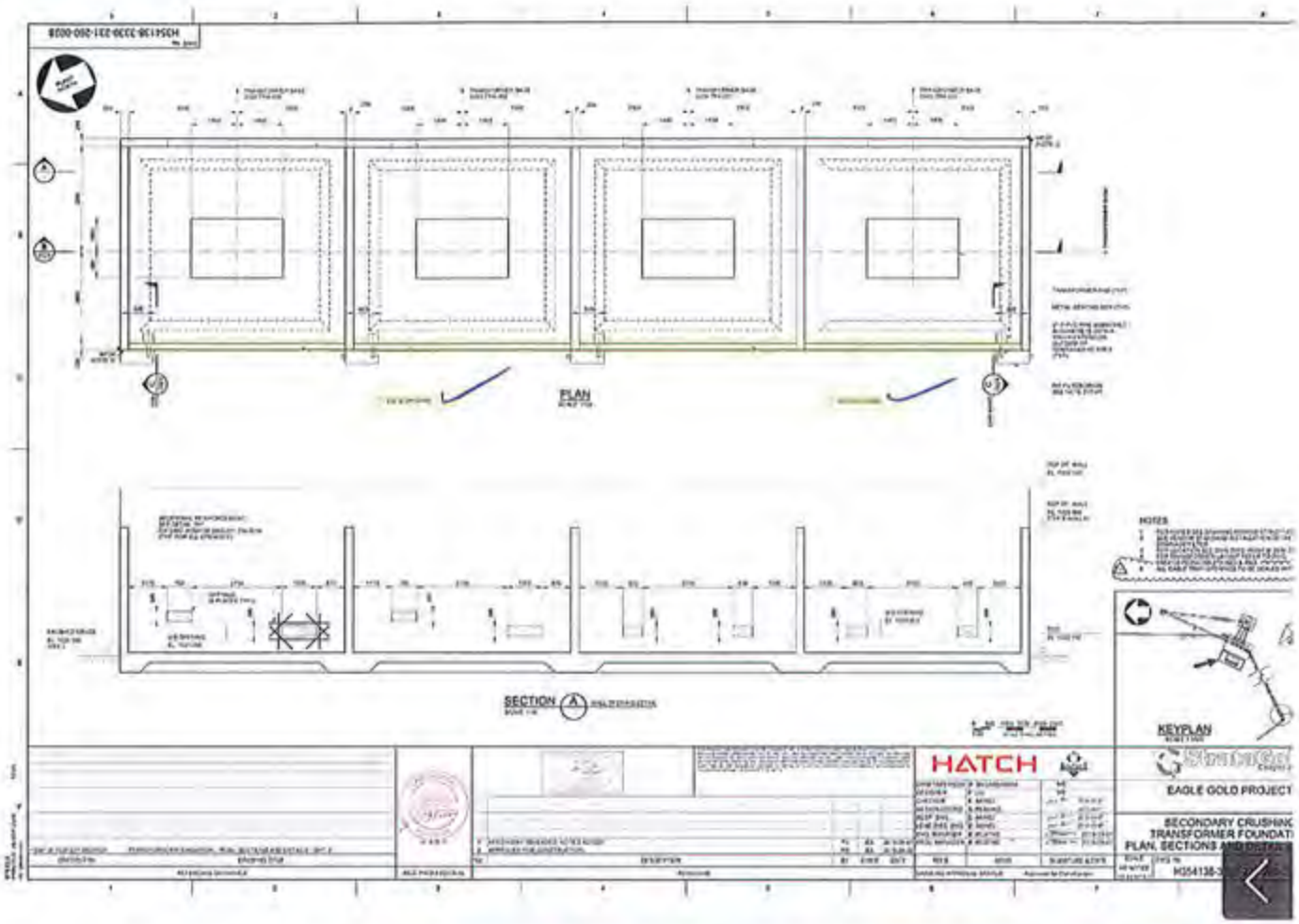
DEFICIENCIES NOTES:

INITIAL INSPECTION
INSPECTOR: Ryan deMilliano // TITLE Project Coordinator DATE: DECEMBER 13, 2018

RE-INSPECTION (DEFICIENCIES COMPLETED)
INSPECTOR: Matt Coverdale MWC TITLE Field Eng. DATE: DEC 13, 2018

Done

H354138-3330-231-260-0028 Rev 1






# CONCRETE REINFORCEMENT PRE POUR

Rev 01 August 25, 2018

| | |
|---|---|
| SUBCONTRACTOR: Ultimate Reinforcing // McNish | INSPECTION DATE: December 13, 2018 |
| SUBCONTRACTOR CONTACT PERSON: Thomas | PROJ. POUR DATE: December 13, 2018 |
| INSPECTOR(S): Ryan deMilliano | |
| LOCATION: 3330 Secondary Transformer curbs | |
| DRAWING REV: 01 / DRAWING NO.(S): 3330 - 0028 | SPEC SECTION(S): S03 20 00 – Concrete Reinforcing Steel |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Grade (400W unless otherwise noted) and type of steel delivered and installed as required by approved drawings. | ☑ | ☐ | ☐ |
| 2.0 | Inspect rebar distribution, spacing and cover per design/project requirements. | ☑ | ☐ | ☐ |
| 3.0 | Length of splices as specified | ☑ | ☐ | ☐ |
| 4.0 | Staggered splices as specified | ☑ | ☐ | ☐ |
| 5.0 | Any mechanical splices have been approved by the owner prior to install | ☐ | ☐ | ☑ |
| 6.0 | Bars cleaned and free of material that may reduce bond including loose rust, scale, oil, structural defects and that they are uncoated and unpainted. | ☑ | ☐ | ☐ |
| 7.0 | Dowels at wall ends, construction joints, and openings as specified (length, location, size, etc.) | ☑ | ☐ | ☐ |
| 8.0 | No unauthorized field bent bars including hooks installed | ☑ | ☐ | ☐ |
| 9.0 | Resolve conflicts between embedded items and reinforcement | ☑ | ☐ | ☐ |
| 10.0 | When authorized, field bends done without heat and inspected for fissures or cracks. | ☐ | ☐ | ☑ |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 11.0 | Bars tied and supported to prevent displacement | ☑ | ☐ | ☐ |
| 12.0 | Spacers, tie wire and chairs as required | ☑ | ☐ | ☐ |
| 13.0 | Conduits at design location and minimum separation from rebar as specified | ☑ | ☐ | ☐ |
| 14.0 | No contact of bars is made with dissimilar metals as per CSA A23.1 | ☑ | ☐ | ☐ |
| 15.0 | Bars, nails or tie wire not sticking out from surfaces that allow rusting/corrosion | ☑ | ☐ | ☐ |
| 16.0 | Rebar welds are inspected by qualified inspectors certified to CSA W178.2 | ☐ | ☐ | ☑ |
| 17.0 | No rebar congestion or other obstruction for deposit of concrete | ☑ | ☐ | ☐ |
| 18.0 | Adjustments required for interfering items (piping, inserts, sleeves, etc.) have been submitted and approved by owner. | ☑ | ☐ | ☐ |
| 19.0 | Rebar was stored off ground to prevent damage/corrosion | ☑ | ☐ | ☐ |
| 20.0 | Review drawings for anchors, piping, sleeves, boxes | ☑ | ☐ | ☐ |

COMMENTS:

- wave PVC drains to correct location 600mm from wall edge

Completed pour on Dec 13/18

ATTACHMENT(S):

DEFICIENCIES NOTES:

CLARK BUILDERS:

INSPECTOR: Ryan deMilliano TITLE Project Coordinator DATE: December 13, 2018

JDS ENERGY & MINING:

INSPECTOR: Matt Coverdale TITLE Field Eng DATE: Dec 13, 2018

# FORMWORK & FALSEWORK PRE POUR | QA INSPECTION

Rev 01 August 25, 2018

| | |
|---|---|
| CONTRACTOR: Clark Builders | INSPECTION DATE: December 13, 2018 |
| CONTRACTOR CONTACT PERSON: Greg Watson | DATE OF POUR: DECEMBER 13, 2018 |
| INSPECTOR(S): Ryan deMilliano. | |
| LOCATION: 3330 Secondary Transformer Curbs. | |
| DRAWING REV: 01 / DRAWING NO.(S): 3330-0028 | SPEC SECTION(S): 503100 |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 1.0 | Location, survey, dimension and grades as required | ☑ | ☐ | ☐ |
| 2.0 | Plumbness and Flatness verified | ☑ | ☐ | ☐ |
| 3.0 | Joints are aligned and watertight. | ☑ | ☐ | ☐ |
| 4.0 | Formwork shop drawings are Engineered and reviewed | ☐ | ☐ | ☑ |
| 5.0 | Re-used formwork reconditioned and treated | ☑ | ☐ | ☐ |
| 6.0 | Formwork and ties according to finishing requirements. Confirm no holes in the concrete surface are greater than 25mm in diameter or expose steel at less than 25mm from surface. As per spec. | ☑ | ☐ | ☐ |
| 7.0 | Installation of embeds are located and secured | ☐ | ☐ | ☑ |
| 8.0 | Chamfer requirements checked. 25mm chamfers required for all exterior corners and edges exposed to view including horizontal edges of pads. | ☑ | ☐ | ☐ |
| 9.0 | Key ways and/or other provisions according to design are provided in construction joints | ☐ | ☐ | ☑ |

| ITEM | ITEMS TO BE CHECKED | PASS | FAIL | N/A |
|---|---|---|---|---|
| 10.0 | Inspect types of form spacers, ties and bracing. | ☑ | ☐ | ☐ |
| 11.0 | Spacing of ties to be set to a pattern | ☑ | ☐ | ☐ |
| 12.0 | Expansion, construction, contraction joints as required & located as coordinated with structural Engineer | ☑ | ☐ | ☐ |
| 13.0 | Forms secured against movement during placing | ☑ | ☐ | ☐ |
| 14.0 | Forms are braced for alignment and blow out | ☑ | ☐ | ☐ |
| 15.0 | Forms are cleaned of all debris, and dry, prior to concrete placement including standing water. | ☑ | ☐ | ☐ |
| 16.0 | Openings in formwork permit inspection and cleaning, placing and compaction of concrete, and forming and processing of construction joints. | ☑ | ☐ | ☐ |
| 17.0 | Formwork has been coated with release agent prior to rebar placement. | ☑ | ☐ | ☐ |
| 18.0 | Anchor Bolts and Embeds are secured to formwork. | ☐ | ☐ | ☑ |

COMMENTS:

ATTACHMENT(S):

DEFICIENCIES NOTES:

INITIAL INSPECTION

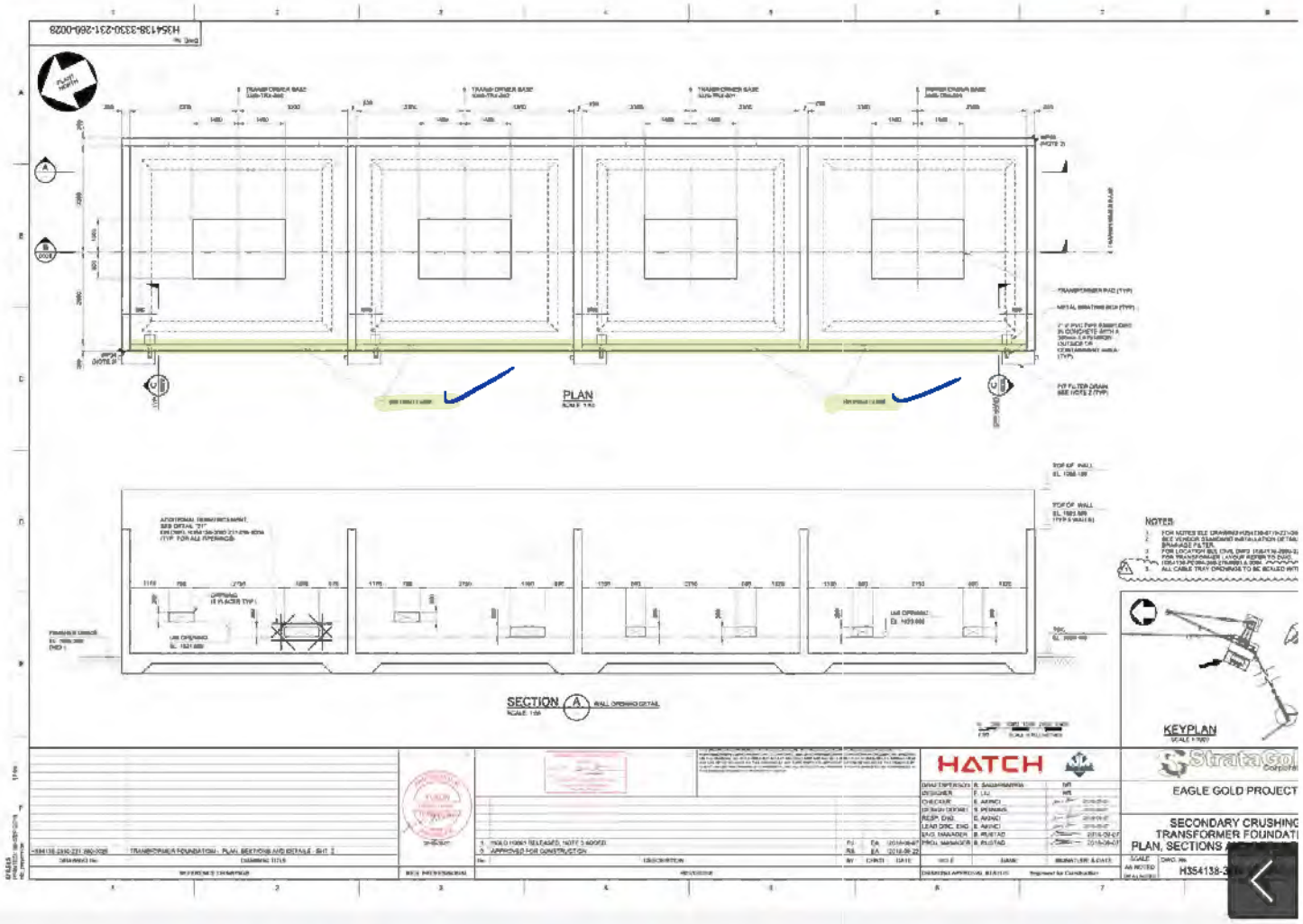
INSPECTOR: Ryan deMilliano TITLE Project Coordinator DATE: DECEMBER 13, 2018

RE-INSPECTION (DEFICIENCIES COMPLETED)

INSPECTOR: Matt Cavendale MWE TITLE Field Eng DATE: Dec 13, 2018

Done

H354138-3330-231-260-0028 Rev 1






# CONCRETE POST POUR COLD WEATHER MONITORING

Rev 03 Nov 13, 2018

| | |
|---|---|
| CONTRACTOR: Clark Builders | DATE OF POUR: Dec 13, 2018 |
| AMBIENT TEMP at POUR (°C): | DATE FORMWORK STRIPPED: |
| LOCATION: Secondary E-House Curb | SPEC SECTION(S): S03 30 00 – Cast-In-Place |

TYPE OF CURING:

| | | | | | |
|---|---|---|---|---|---|
| CURING COMPOUND | ☐ | DAMP BURLAP OR FABRIC | ☐ | INSULATION (TARPS) | ☑ |
| POLYETHYLENE SHEETS | ☐ | WATER/FOG SPRAY/ PONDING | ☐ | FORMS (COVERED BY) | ☐ |

| COLD WEATHER REQUIREMENTS (WHEN AMB. TEMP < 5°C) | PASS | FAIL | N/A | REMARKS |
|---|---|---|---|---|
| Protection in place and temperatures not lower than 20°C or until 70% of the 28-day strength has been reached. | ☐ | ☐ | ☐ | |
| Cold weather protection provided by means of heated enclosures, coverings, insulation, or a suitable approved combination of these methods during complete curing period. | ☐ | ☐ | ☐ | |
| Concrete test cylinders are kept within hoarding or in area where temperatures are ideal for curing. (No frozen Cylinders) | ☐ | ☐ | ☐ | |
| Heat is not directed onto concrete. This may result in thermal cracking. | ☐ | ☐ | ☐ | |
| During freezing weather, and standing water removed before the end of the protection period (CSA A 23.1 clause 7.4.2.4.2) | ☐ | ☐ | ☐ | |

CONCRETE CURING TEMPERATURE LOG (COLD WEATHER CONCRETEING ONLY)

| DATE | | TIME (24 HR) | OUTSIDE AIR TEMP (°C) | TEMP INSIDE HOARDING (°C) | CONCRETE SURFACE TEMP (°C) | | INITIALS OF READER |
|---|---|---|---|---|---|---|---|
| | | | | | HIGH (°C) | LOW (°C) | |
| Dec 14/18 | AM | 7:51 | -15 | 48.2 | 42.6 | 37.8 | BN |
| | MID | | | | | | |
| Dec 14/18 | PM | 4:24 | -15 | 42.3 | 46.4 | 37.2 | BN |
| Dec 15/18 | AM | 7:52 | -25 | 32.1 | 38.6 | 26.4 | BN |
| | MID | | | | | | |
| Dec 15/18 | PM | 4:46 | ~~-11~~ -25 | 34 | 31.3 | 18.6 | BN |
| Dec 16/18 | AM | 8:05 | -6 | 31 | 26.6 | 11.2 | BN |
| | MID | | | | | | |
| Dec 16/18 | PM | 5:15 | -6 | 12.4 | 14.3 | 10.9 | BN |

| COMMENTS: | |
|---|---|
| | |
| | |

CLARK BUILDERS SITE REPRESENTATIVE

PRINT/ SIGN: _____ TITLE _____ DATE: _____

# Measurement of Soil or Aggregate Resistivity using Two-Electrode Soil Box Method

ASTM G 187-12

| | | | |
|---|---|---|---|
| **Project No:** | ENG.WARC03235-03 | **Sample No.:** | 2703 |
| **Project:** | Eagle Gold Project | **Date Received:** | 24-Sep-18 |
| **Client:** | JDS Energy & Mining | **Sampled By:** | Client |
| | | **Date Tested:** | 27-Sep-18 |
| **Attention:** | R Bilobrowka **Ph:** | **Tested By:** | MA |
| **Email:** | | **Office:** | Edmonton |

| | | | |
|---|---|---|---|
| Description: | 40-20 mm Insulating Gravel | Temperature of sample; | |
| Source: | N:7098841, E:458324, Washed 38 mm Minus | As collected : | °C |
| Sample Location: | Stockpile Adjacent Finning Staging Area | As Tested : | °C |
| Model of meter: | | | |

## Resistivity of Aggregate (Wetted Condition)

**Resistivity = R x S / L**

**Box Used:** **TB 4**

**Sample Temperature:** **20.0 °C**

| | | | | |
|---|---|---|---|---|
| Where : | L = Length of sample box ( cm ) | L = | 44.8 | cm |
| | h = height of sample in box | h = | 19.8 | cm |
| | S = Cross-sectional area of sample ( $cm^2$ ) | S = | 390.06 | $cm^2$ |
| | R = Resistance ( Ohms ) | R = | 120000 | Ohms |

**Resistivity =** 120000 x 390.06 ÷ 44.8 ÷ 100

**Resistivity =** **10450** Ohm•m

**Remarks:**

Wetted with distilled water

**Reviewed By:** _____ P. Eng.

Data presented hereon is for the sole use of the stipulated client. Tetra Tech is not responsible, nor can be held liable, for use made of this report by any other party, with or without the knowledge of Tetra Tech. The testing services reported herein have been performed to recognized industry standards, unless noted. No other warranty is made. These data do not include or represent any interpretation or opinion of specification compliance or material suitability. Should engineering interpretation be required, Tetra Tech will provide it upon written request.

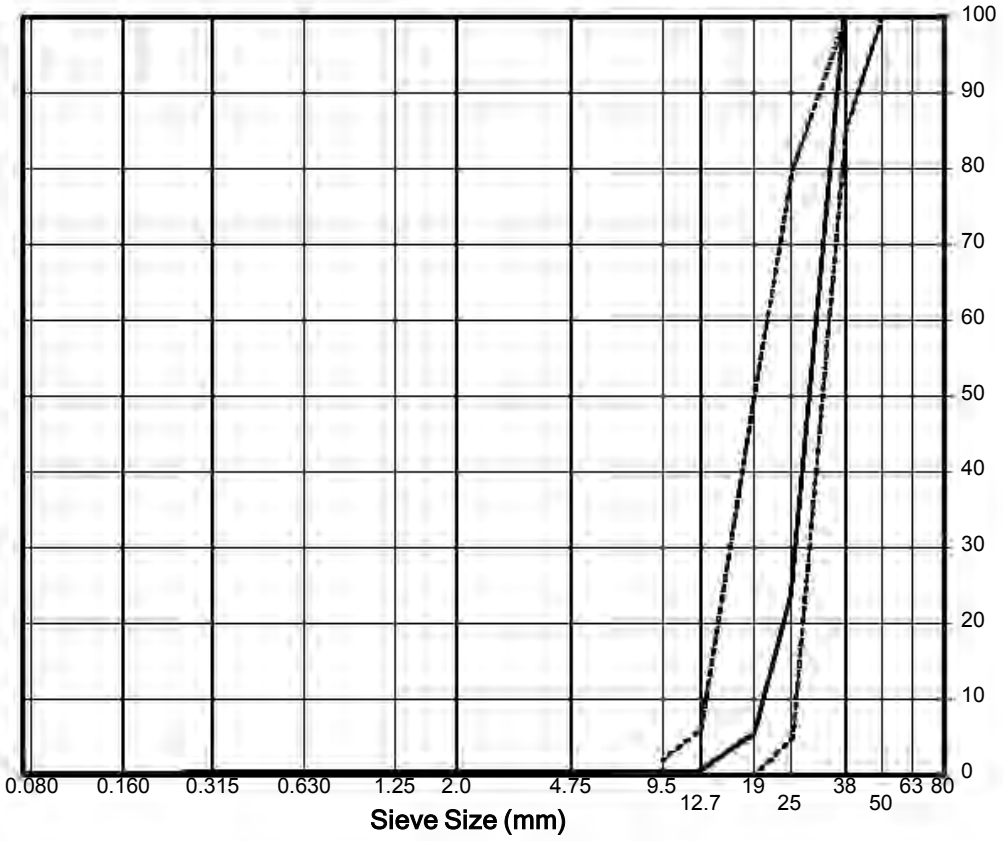
TETRA TECH

# SIEVE ANALYSIS REPORT

Washed Sieve: ASTM C136 and C117

| | | | |
|---|---|---|---|
| Project No.: | ENG.WARC03235-03 | Sample No.: | 2703 - 3 Face |
| Project: | Eagle Gold Project | Date Received: | September 24, 2018 |
| Client: | JDS Energy & Mining | Sampled by: | Client |
| Attention: | R Bilobrowka | Date Tested: | September 27, 2018 |
| Email: | | Tested by: | MA Office: Edmonton |
| Description: | 40-20 mm Insulating Gravel | Moisture Content (as received): | 1.0% |
| | | No. Crushed Faces: | Two (2) or Three (3) |
| Source: | N:7098841, E:458324, Washed 38 mm Minus | By Particle Mass: | 99% |
| Supplier: | Nuway Crushing | ASTM D5821 | |
| Sample Location: | Stockpile Adjacent Finning Staging Area | | |
| Specification: | Altalink - For Three Fractured Surfaces | | |

| Sieve Size | Percent Passing |
|---|---|
| | |
| | |
| | |
| | |
| 37.5 | 100 |
| 25 | 24 |
| 19 | 6 |
| 12.5 | 1 |
| 9.5 | 1 |
| 4.75 | 0.5 |
| 2.0 | 0.5 |
| 1.25 | 0.4 |
| 0.600 | 0.4 |
| 0.300 | 0.4 |
| 0.150 | 0.4 |
| 0.075 | 0.3 |




**Remarks:**

**Reviewed By:** P.Eng.

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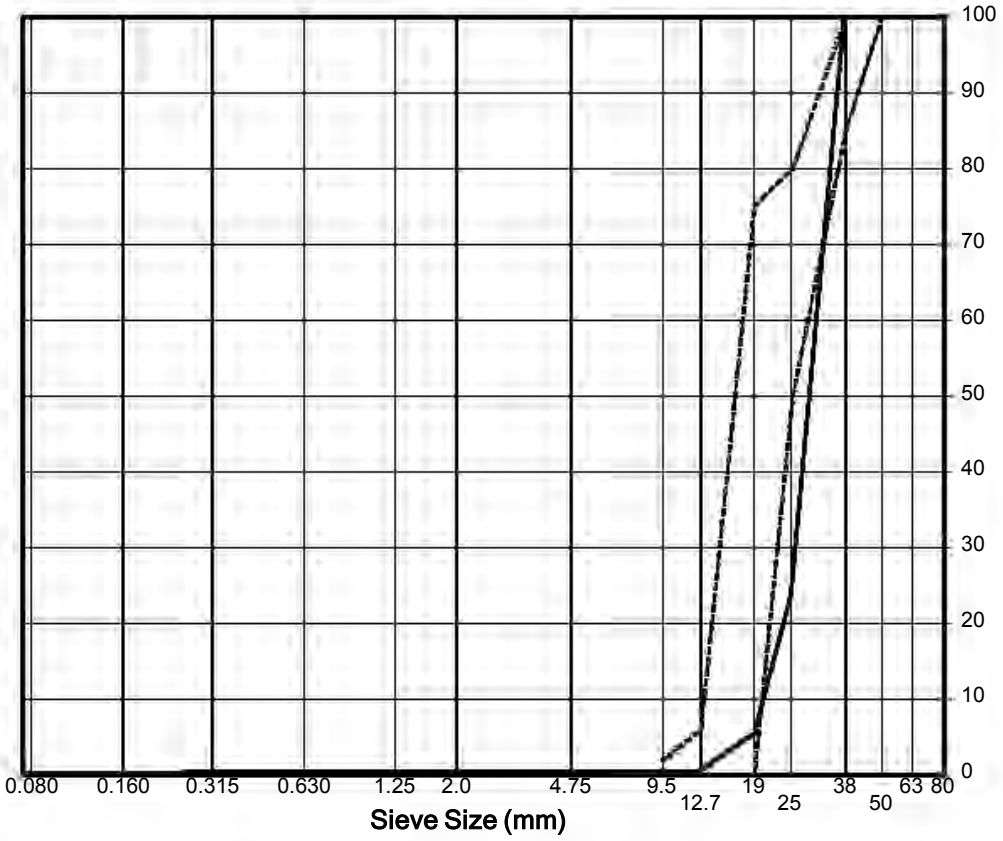
TETRA TECH

# SIEVE ANALYSIS REPORT

Washed Sieve: ASTM C136 and C117

| | | | |
|---|---|---|---|
| Project No.: | ENG.WARC03235-03 | Sample No.: | 2703 - 2 Face |
| Project: | Eagle Gold Project | Date Received: | September 24, 2018 |
| Client: | JDS Energy & Mining | Sampled by: | Client |
| Attention: | R Bilobrowka | Date Tested: | September 27, 2018 |
| Email: | | Tested by: | MA Office: Edmonton |
| Description: | 40-20 mm Insulating Gravel | Moisture Content (as received): | 1.0% |
| | | No. Crushed Faces: | Two (2) or Three (3) |
| Source: | N:7098841, E:458324, Washed 38 mm Minus | By Particle Mass: | 100% |
| Supplier: | Nuway Crushing | ASTM D5821 | |
| Sample Location: | Stockpile Adjacent Finning Staging Area | | |
| Specification: | Altalink - For Two Fractured Surfaces | | |

| Sieve Size | Percent Passing |
|---|---|
| | |
| | |
| | |
| | |
| 37.5 | 100 |
| 25 | 24 |
| 19 | 6 |
| 12.5 | 1 |
| 9.5 | 1 |
| 4.75 | 0.5 |
| 2.0 | 0.5 |
| 1.25 | 0.4 |
| 0.600 | 0.4 |
| 0.300 | 0.4 |
| 0.150 | 0.4 |
| 0.075 | 0.3 |




**Remarks:**

**Reviewed By:** P.Eng.

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TETRA TECH

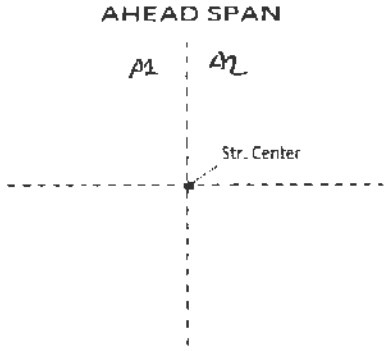
Forbes Bros LTD
POWERLINE CONSTRUCTION

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 13.8 KV | Line # | L251 |
|---|---|---|---|---|---|
| Structure # | L1 01 | Structure Type | Three Phase Riser Pole | Date | January 30 2019 |

## ANCHOR CHECKLIST

**Plan View – Anchor Locations**




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Plate | 2.4 | Gravel | 59 | 150 | | |
| 2 | Plate | 2.4 | Gravel | 61 | 150 | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

**Comments:**

Used 10 ft anchor rods

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | TREVOR ANTAC | [signature] | Feb 4/19 |
| QC inspector | Phil McKinley | Phil McKinley | Feb 3 2019 |
| Client Inspector | SVEN ARCHIMOWITZ | [signature] | FEB 5/19 |

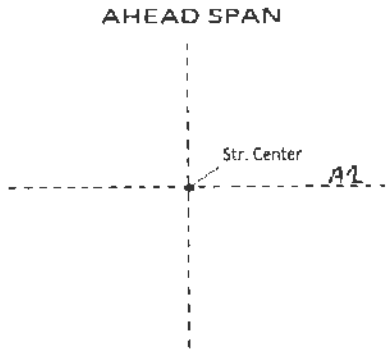
Forbes Bros LTD
POWERLINE CONSTRUCTION

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 13.8 KV | Line # | L251 |
|---|---|---|---|---|---|
| Structure # | L1 04 | Structure Type | Single Support | Date | January 30 2019 |

## ANCHOR CHECKLIST

**Plan View – Anchor Locations**




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Plate | 2.4 | Gravel | 59 | 150 | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

**Comments:**
Used 10 ft anchor rods

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | TREVOR ANDAL | | Feb 4/19 |
| QC inspector | Phil McKinley | Phil McK | Feb 3 2019 |
| Client inspector | SVEN ARCHAMBAULT | S Archa | FEB 5/19 |

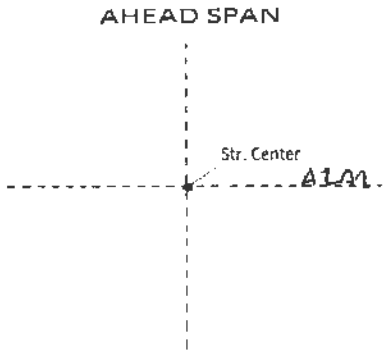
Forbes Bros LTD
POWERLINE CONSTRUCTION

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 13.8 KV | Line # | L251 |
|---|---|---|---|---|---|
| Structure # | L1 05 | Structure Type | Suspension Angle | Date | January 30 2019 |

## ANCHOR CHECKLIST

**Plan View – Anchor Locations**




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Plate | 2.4 | Gravel | 59 | 150 | | |
| 2 | Plate | 2.4 | Gravel | 61 | 150 | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

**Comments:**
Used 10 ft anchor rods

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | TREVOR ANTAL | | Feb 4/19 |
| QC inspector | Phil McKinley | Phil McKinley | Feb 3 2019 |
| Client Inspector | SVEN ARCHIMOWITZ | | FEB 5/19 |

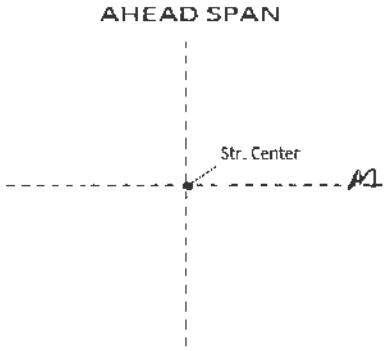
Forbes Bros LTD
POWERLINE CONSTRUCTION

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 13.8 KV | Line # | L251 |
|---|---|---|---|---|---|
| Structure # | L1 06 | Structure Type | Single Support | Date | January 31 2019 |

## ANCHOR CHECKLIST

**Plan View – Anchor Locations**




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Plate | 2.4 | Gravel | 60 | 150 | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

**Comments:**
Used 10 ft anchor rods

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | TREVOR ANYAC. | | Feb 4/19 |
| QC inspector | Phil McKinley | Phil McKinley | Feb 3 2019 |
| Client inspector | SVEN ARLITMOWITZ | | FEB 5/19 |

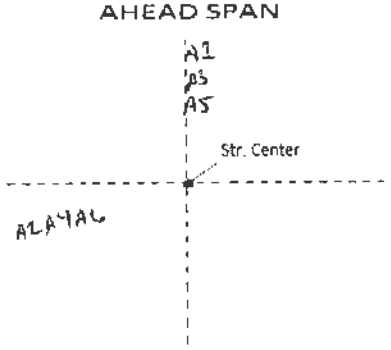
Forbes Bros LTD
POWERLINE CONSTRUCTION

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 13.8 KV | Line # | L251 |
|---|---|---|---|---|---|
| Structure # | L1 09 | Structure Type | Dead End Angle | Date | January 31 2019 |

## ANCHOR CHECKLIST

**Plan View – Anchor Locations**




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Plate | 3.2 | Gravel | 44 | 150 | | |
| 2 | Plate | 3.3 | Gravel | 46 | 150 | | |
| 3 | Plate | 3.3 | Gravel | 47 | 150 | | |
| 4 | Plate | 3.2 | Gravel | 45 | 150 | | |
| 5 | Plate | 2.4 | Gravel | 59 | 150 | | |
| 6 | Plate | 2.4 | Gravel | 60 | 150 | | |
| | | | | | | | |
| | | | | | | | |

**Comments:**

A1,A2,A3,A4 used 10 ft anchor rods plus extensions
A5,A6 used 10 ft anchor rods

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | TREVOR AWTAC | | Feb 5/19 |
| QC inspector | Phil McKinley | | Feb 4 2019 |
| Client Inspector | SVEN ARCHINOWITZ | | FEB 5/19 |

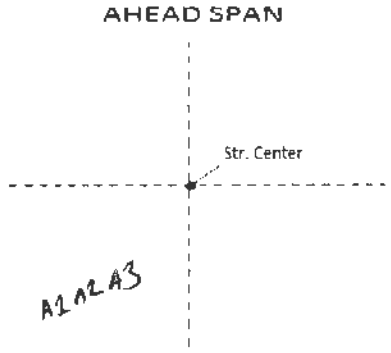
Forbes Bros Ltd
Powerline Construction

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 13.8 KV | Line # | L251 |
|---|---|---|---|---|---|
| Structure # | L1 13 | Structure Type | Suspension Angle | Date | February 1 2019 |

## ANCHOR CHECKLIST

**Plan View – Anchor Locations**




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Plate | 3.3 | Gravel | 46 | 150 | | |
| 2 | Plate | 3.3 | Gravel | 46 | 150 | | |
| 3 | Plate | 2.5 | Gravel | 62 | 150 | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

**Comments:**

A1,A2 used 10 ft anchor rods plus extensions
A3 used 10 ft anchor rods

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | TREVOR ANSTAE | | Feb 5/19 |
| QC inspector | Phil McKinley | Phil McKinley | Feb 4 2019 |
| Client Inspector | SVEN ARUTINOWITZ | | FEB 5/19 |

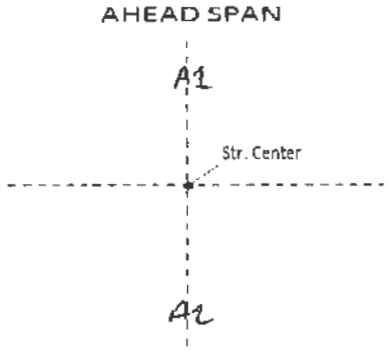
Forbes Bros LTD
POWERLINE CONSTRUCTION

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 13.8 KV | Line # | L251 |
|---|---|---|---|---|---|
| Structure # | L1 16 | Structure Type | Single Support | Date | February 1 2019 |

## ANCHOR CHECKLIST

**Plan View – Anchor Locations**




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (⁰) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Plate | 3.4 | Gravel | 48 | 150 | | |
| 2 | Plate | 3.3 | Gravel | 47 | 150 | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

**Comments:**

A1,A2 used 10 ft anchor rods plus extensions

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | TREVOR ANTAZ | [signature] | Feb 5/19 |
| QC inspector | Phil McKinley | Phil McKinley | Feb 4 2019 |
| Client Inspector | [signature] | SVEN ARCHIMOWITZ | FEB 5/19 |

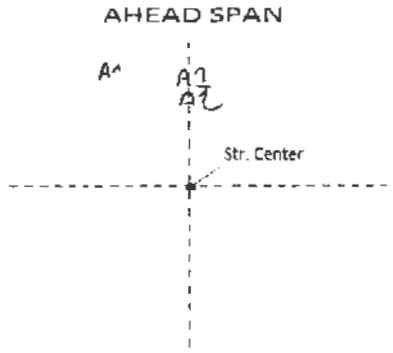
Forbes Bros. LTD
POWERLINE CONSTRUCTION

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 13.8 KV | Line # | L251 |
|---|---|---|---|---|---|
| Structure # | L1 21 | Structure Type | Three Phase Riser Pole | Date | February 1 2019 |

## ANCHOR CHECKLIST

**Plan View – Anchor Locations**




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Plate | 2.5 | Gravel | 62 | 150 | | |
| 2 | Plate | 2.4 | Gravel | 59 | 150 | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

**Comments:**

A1,A2 used 10 ft anchor rods

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | TREVOR AWITAC | | Feb 5/19 |
| QC inspector | Phil McKinley | Phil McKy | Feb 4 2019 |
| Client Inspector | SVEN ARCHIMOWITZ | | FEB 5/19 |

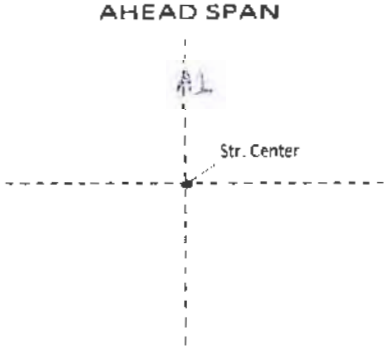
Forbes Bros LTD
POWERLINE CONSTRUCTION

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 13.8 KV | Line # | 2 |
|---|---|---|---|---|---|
| Structure # | Pole 1 P2 | Structure Type | Non Fused 3 Phase Riser Pole | Date | February 7 2019 |

## ANCHOR CHECKLIST

### Plan View – Anchor Locations




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Plate | 2.4 | Gravel | 58 | 150 | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

**Comments:**

A1 used 10 ft anchor rods

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | TREVOR ARNDT | | Feb 13/19 |
| QC inspector | Phil McKinley | Phil McKinley | Feb 12 2019 |
| Client Inspector | SVEN ARCHIMOWITZ | | FEB 14/19 |

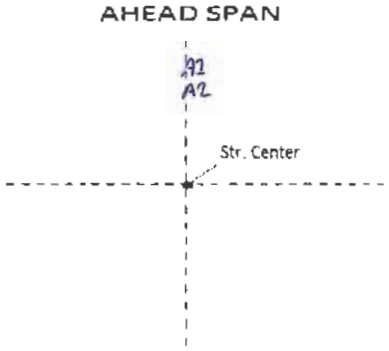
Forbes Bros. Ltd.
POWERLINE CONSTRUCTION

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 13.8 KV | Line # | 2 |
|---|---|---|---|---|---|
| Structure # | Pole 1 P1 | Structure Type | Non Fused 3 Phase Riser Pole | Date | February 7 2019 |

## ANCHOR CHECKLIST

**Plan View – Anchor Locations**




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Plate | 2.4 | Gravel | 58 | 150 | | |
| 2 | Plate | 2.6 | Gravel | 65 | 150 | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

**Comments:**
A1,A2 used 10 ft anchor rods

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | TREVOR ANTAC | | Feb 15/19 |
| QC inspector | Phil McKinley | Phil McKinley | Feb 12 2019 |
| Client Inspector | SVEN ARCHIMBWITZ | Sarchi | FEB 14/19 |

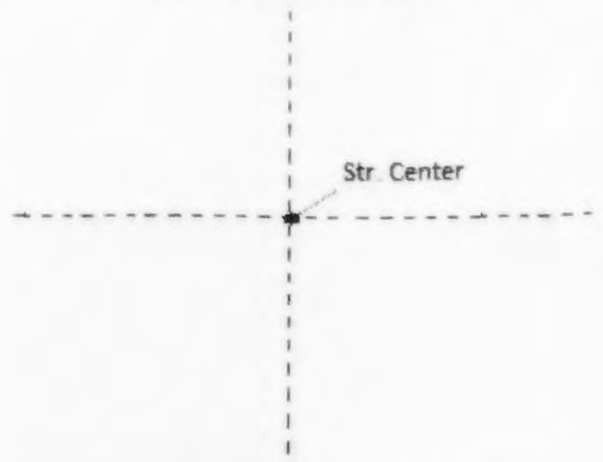
Forbes Bros LTD
POWERLINE CONSTRUCTION

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 13.8 KV | Line # | 2 |
|---|---|---|---|---|---|
| Structure # | 01B | Structure Type | Non Fused 3 Phase Riser Pole | Date | Jan 30 2019 |

## ANCHOR CHECKLIST

### Plan View – Anchor Locations




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle ($^0$) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Plate | 2.5 | Gravel | 61 | 150 | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

**Comments:**

A1 used 10 ft anchor rods

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | TREVOR ANTAL | | FEB 2 2019 |
| QC inspector | Phil McKinley | Phil McKinley | Feb 2 2019 |
| Client Inspector | MattC | MattC | Feb 26, 19 |

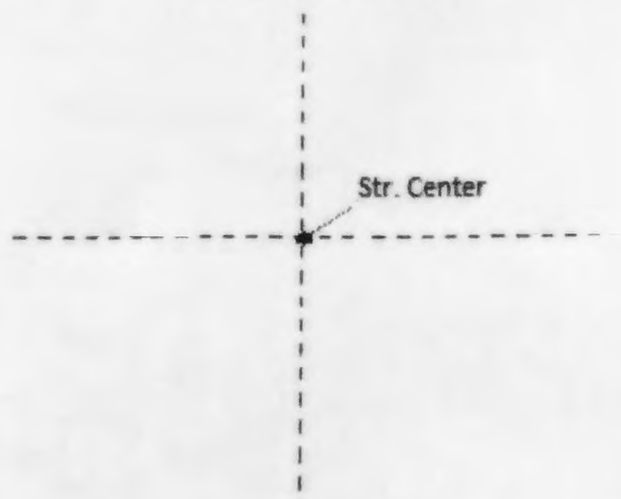
Forbes Bros LTD
POWERLINE CONSTRUCTION

# Anchor Installation

| | | | | | |
|---|---|---|---|---|---|
| **Project #** | 4581 | **Project Name** | Eagle Gold 13.8 KV | **Line #** | 2 |
| **Structure #** | 01A | **Structure Type** | Non Fused 3 Phase Riser Pole | **Date** | Jan 30 2019 |

## ANCHOR CHECKLIST

### Plan View – Anchor Locations




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle ($^0$) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Plate | 2.5 | Gravel | 62 | 150 | | |
| 2 | Plate | 2.4 | Gravel | 59 | 150 | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

**Comments:**

A1,A2 used 10 ft anchor rods

| | Print | Signature | Date |
|---|---|---|---|
| **Foreman name** | TREVOR ANTILL | | FEB 2 2019 |
| **QC inspector** | Phil McKinley | Phil McKinley | Feb 2 2019 |
| **Client Inspector** | Matt C | | Feb 26, 19 |

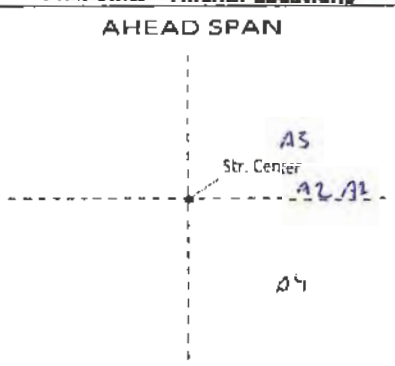
Forbes Bros LTD
POWERLINE CONSTRUCTION

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 13.8 KV | Line # | 2 |
|---|---|---|---|---|---|
| Structure # | 03 | Structure Type | Non Fused 3 Phase Riser Pole | Date | February 4 2019 |

## ANCHOR CHECKLIST

**Plan View – Anchor Locations**




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Plate | 2.5 | Gravel | 62 | 150 | | |
| 2 | Plate | 2.4 | Gravel | 59 | 150 | | |
| 3 | Plate | 2.5 | Gravel | 61 | 150 | | |
| 4 | Plate | 2.4 | Gravel | 60 | 150 | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

**Comments:**
A1,A2,A3,A4 used 10 ft anchor rods

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | TREVOR AWTAL | | Feb 8/19 |
| QC inspector | Phil McKinley | Phil McKinley | Feb 7 2019 |
| Client Inspector | SVEN ARCHIMOWITZ | S Archimowitz | FEB 9/19 |

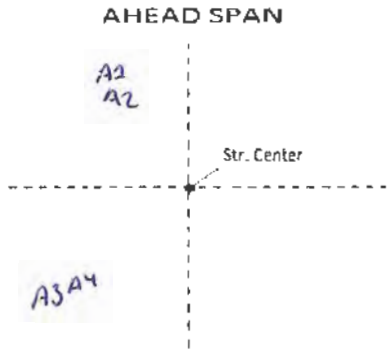
Forbes Bros. Ltd
Powerline Construction

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 13.8 KV | Line # | 2 |
|---|---|---|---|---|---|
| Structure # | 10 Pole 1 | Structure Type | Dead End Angle | Date | February 6 2019 |

## ANCHOR CHECKLIST

**Plan View – Anchor Locations**




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Plate | 3.6 | Gravel | 52 | 150 | | |
| 2 | Plate | 3.5 | Gravel | 50 | 150 | | |
| 3 | Plate | 3.6 | Gravel | 51 | 150 | | |
| 4 | Plate | 3.6 | Gravel | 51 | 150 | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

**Comments:**

A1,A2,A3,A4 used 10 ft anchor rods plus extensions

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | TREVOR ANTAL | | Feb 8/19 |
| QC inspector | Phil McKinley | Phil McKinley | Feb 7 2019 |
| Client Inspector | SVEN ARCHIMOWITZ | SArchit | FEB 9/19 |

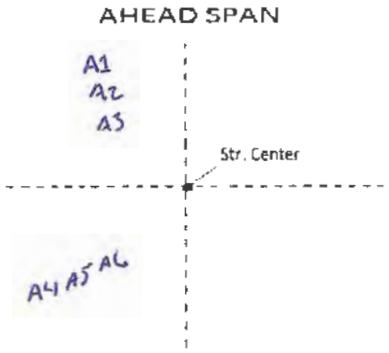
Forbes Bros LTD
Powerline Construction

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 13.8 KV | Line # | 2 |
|---|---|---|---|---|---|
| Structure # | 10 Pole 2 | Structure Type | Dead End Angle | Date | February 6 2019 |

## ANCHOR CHECKLIST

**Plan View – Anchor Locations**




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Plate | 2.5 | Gravel | 61 | 150 | | |
| 2 | Plate | 2.4 | Gravel | 59 | 150 | | |
| 3 | Plate | 2.4 | Gravel | 60 | 150 | | |
| 4 | Plate | 2.5 | Gravel | 62 | 150 | | |
| 5 | Plate | 2.4 | Gravel | 60 | 150 | | |
| 6 | Plate | 2.5 | Gravel | 61 | 150 | | |
| | | | | | | | |
| | | | | | | | |

**Comments:**

A1,A2,A3,A4,A5,A6 used 10 ft anchor rods

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | TREVOR AWITTE | | Feb 8/19 |
| QC inspector | Phil McKinley | Phil McKinley | Feb 7 2019 |
| Client Inspector | SVEN ARCHIMOWITZ | | FEB 9/19 |

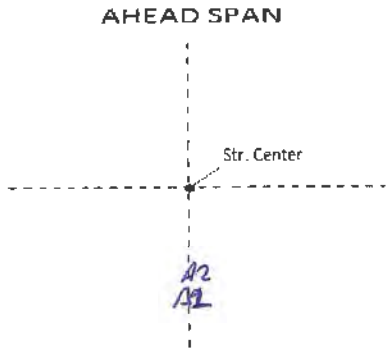
Forbes Bros LTD
POWERLINE CONSTRUCTION

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 13.8 KV | Line # | 2 |
|---|---|---|---|---|---|
| Structure # | 11 | Structure Type | Fused 3 Phase Riser Pole | Date | February 2 2019 |

## ANCHOR CHECKLIST

**Plan View – Anchor Locations**




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Plate | 2.4 | Gravel | 57 | 150 | | |
| 2 | Plate | 2.4 | Gravel | 59 | 150 | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

**Comments:**
A1 and A2 used 10 ft anchor rods

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | TREVOR ANSAC | | Jan 6/19 |
| QC inspector | Phil McKinley | Phil McKinley | Jan 5 2019 |
| Client Inspector | SARCHIMOWITZ | | FEB 7/19 |

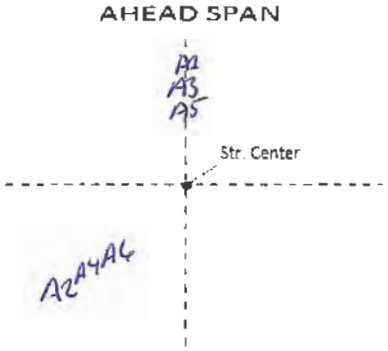
Forbes Bros LTD
POWERLINE CONSTRUCTION

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 13.8 KV | Line # | 2 |
|---|---|---|---|---|---|
| Structure # | 17 | Structure Type | Dead End Angle | Date | February 2 2019 |

## ANCHOR CHECKLIST

**Plan View – Anchor Locations**




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Plate | 3.4 | Gravel | 48 | 150 | | |
| 2 | Plate | 3.4 | Gravel | 49 | 150 | | |
| 3 | Plate | 3.3 | Gravel | 46 | 150 | | |
| 4 | Plate | 3.4 | Gravel | 48 | 150 | | |
| 5 | Plate | 2.5 | Gravel | 59 | 150 | | |
| 6 | Plate | 2.4 | Gravel | 58 | 150 | | |
| | | | | | | | |
| | | | | | | | |

**Comments:**

A1,A2,A3,A4 used 10 ft anchor rods plus extensions
A5,A6 used 10 ft anchor rods

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | TREVOR ARVIAT | | Jan 6/19 |
| QC inspector | Phil McKinley | Phil McKinley | Jan 5 2019 |
| Client Inspector | SVEN ARCHIMOWITZ | SArchi | FEB 7/19 |

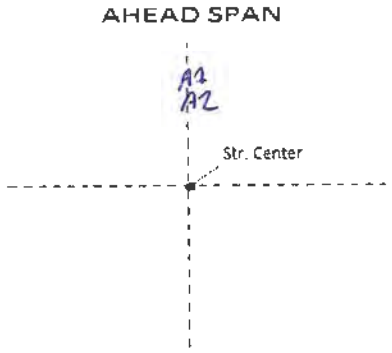
Forbes Bros LTD
POWERLINE CONSTRUCTION

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 13.8 KV | Line # | 2 |
|---|---|---|---|---|---|
| Structure # | 22 | Structure Type | Non Fused 3 Phase Riser | Date | February 2 2019 |

## ANCHOR CHECKLIST

**Plan View – Anchor Locations**




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Plate | 2.4 | Gravel | 58 | 150 | | |
| 2 | Plate | 2.4 | Gravel | 57 | 150 | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

**Comments:**
A1,A2 used 10 ft anchor rods

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | TREVOR ANTTAC | | Jan 6/19 |
| QC inspector | Phil McKinley | Phil McKinley | Jan 5 2019 |
| Client Inspector | SVEN ARLTIMWITZ | | FEB 7/19 |

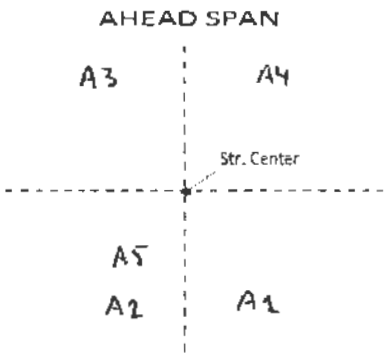
Forbes Bros LTD
POWERLINE CONSTRUCTION

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 69kV | Line # | L 251 |
|---|---|---|---|---|---|
| Structure # | 0/10A | Structure Type | DAHDEO | Date | Oct 16 2018 |

## ANCHOR CHECKLIST

### Plan View – Anchor Locations




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Log | 2.72 | Gravel | 54° | 150 | | |
| 2 | Log | 2.85 | Gravel | 52 | 150 | | |
| 3 | Log | 2.9 | Gravel | 51 | 150 | | |
| 4 | Log | 2.85 | Gravel | 52 | 150 | | |
| 5 | Log | 2.97 | Gravel | 50 | 150 | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

**Comments:**

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | TREVOR ANTAL | | OCT 17/2018 |
| QC inspector | Phil McKinley | Phil McKinley | OCT 16 2018 |
| Client Inspector | | | |

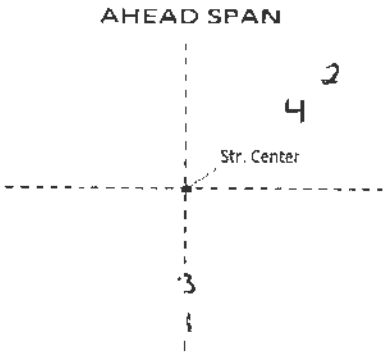
Forbes Bros LTD
POWERLINE CONSTRUCTION

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 69 kV | Line # | L 251 |
|---|---|---|---|---|---|
| Structure # | 011 | Structure Type | PT | Date | Oct 16 2018 |

## ANCHOR CHECKLIST

**Plan View – Anchor Locations**




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Log | 3.3 | Gravel | 45 | 150 | | |
| 2 | Log | 3.3 | Gravel | 45 | 150 | | |
| 3 | Log | 3.5 | Gravel | 40 | 150 | | |
| 4 | Log | 3.5 | Gravel | 40 | 150 | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

**Comments:**

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | TREVOR ANTAN | | OCT 17 2018 |
| QC inspector | Phil McKinley | Phil McKinley | Oct 16 2018 |
| Client Inspector | | | |

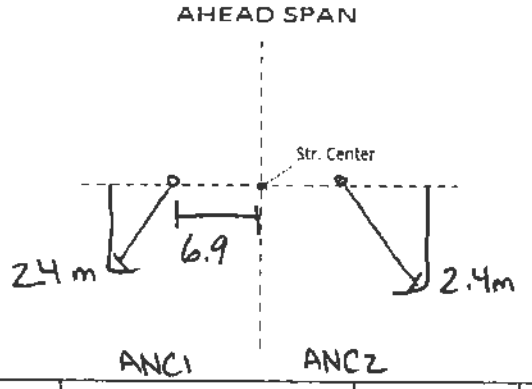
Forbes Bros LTD
POWERLINE CONSTRUCTION

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 69kv | Line # | |
|---|---|---|---|---|---|
| Structure # | 0/14 | Structure Type | PVO | Date | Sept 30 2018 |

## ANCHOR CHECKLIST

**Plan View – Anchor Locations**




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Plate | 2.4 | Gravel | 60° | 150 | | |
| 2 | Plate | 2.4 | Gravel | 60° | 150 | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

**Comments:**
150mm min stick up.
Backfill Obtained: Pit 10%

ANC 1+2 are 6.9m from str center.

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | Mike Smallhand | | Sept 30/18 |
| QC inspector | Cherell Hackett | Cherell H | Sept 30 2018 |
| Client Inspector | | | |

Forbes Bros
Powerline Construction

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Guld 69kv | Line # | L251 |
|---|---|---|---|---|---|
| Structure # | 1011 | Structure Type | PTG | Date | Nov 1 2018 |

## ANCHOR CHECKLIST

### Plan View – Anchor Locations




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Log | 2.4 | Gravel | 58 | 150 | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

**Comments:**

Used 10 Sb anchor rod

Backfilled with gravel

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | Mike Scotland | | Nov 2/18 |
| QC inspector | Phil McKinley | Phil McKinley | Nov 2 2018 |
| Client Inspector | | | |

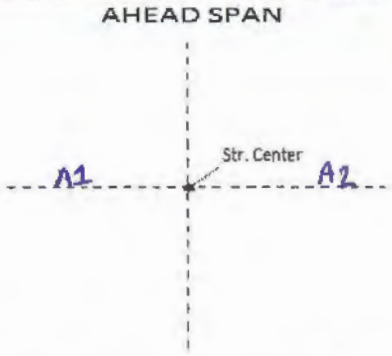
Forbes Bros LTD
POWERLINE CONSTRUCTION

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 69 KV | Line # | |
|---|---|---|---|---|---|
| Structure # | 10/10 | Structure Type | PTR | Date | Oct 2 2018 |

## ANCHOR CHECKLIST

**Plan View – Anchor Locations**




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Plate | 2.2 | Permafrost | 61 | 150mm | | |
| 2 | Plate | 2.2 | Permafrost | 59 | 150 mm | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

**Comments:**

Backfilled with gravel from 10'/12
Used 10st anchor rods

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | TREVOR ANJAC | | OCT 13 2018 |
| QC inspector | Phil McKinley | Phil McKinley | Oct 12 2018 |
| Client Inspector | | | |

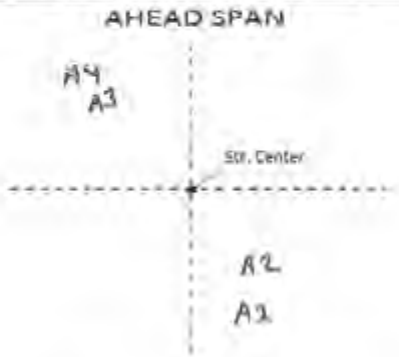
Forbes Bros
POWERLINE CONSTRUCTION

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 69 KV | Line # | L251 |
|---|---|---|---|---|---|
| Structure # | 10113 | Structure Type | VDEMA | Date | Nov 2 2018 |

## ANCHOR CHECKLIST

### Plan View – Anchor Locations




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Log | 3.3 | Permafrost | 48 | 150 | | |
| 2 | Log | 3.4 | Permafrost | 46 | 150 | | |
| 3 | Log | 3.3 | Permafrost | 46 | 150 | | |
| 4 | Log | 3.3 | Permafrost | 46 | 150 | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

**Comments:**

All anchors lost + extensions
Backfilled with gravel

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | Mike Swallard | | Nov 4/18 |
| QC inspector | Phil McKinley | | Nov 4 2018 |
| Client Inspector | | | |

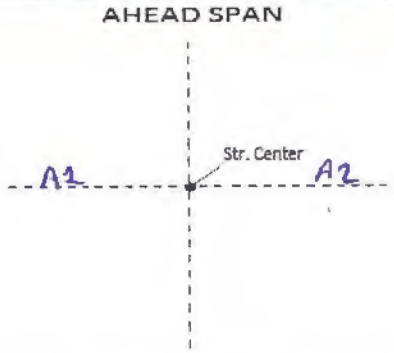
Forbes Bros LTD
POWERLINE CONSTRUCTION

# Anchor Installation

| Project # | 41581 | Project Name | Eagle Gold 69 Kv | Line # | |
|---|---|---|---|---|---|
| Structure # | 10/14 | Structure Type | PTR | Date | Oct 3 2018 |

## ANCHOR CHECKLIST

**Plan View – Anchor Locations**




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Plate | 2.2 | Permafrost | 60 | 150 mm | | |
| 2 | Plate | 2.2 | Permafrost | 61 | 150 mm | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

**Comments:**

Backfilled with gravel from 10'/2
Used lost anchor rods

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | TREVOR AWTAC | | OCT 13 2018 |
| QC inspector | Phil McKinley | Phil McKinley | Oct 12 2018 |
| Client Inspector | | | |

Forbes Bros. LTD
POWERLINE CONSTRUCTION

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 69 Kv | Line # | |
|---|---|---|---|---|---|
| Structure # | 1014 | Structure Type | PTR | Date | Oct 2 2018 |

## ANCHOR CHECKLIST

**Plan View – Anchor Locations**




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| A1 | Plate | 2.2 | PermaFrost | 57 | 150 | | |
| A2 | Plate | 2.2 | PermaFrost | 57 | 150 | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

**Comments:**

Backfilled with gravel from 10'12
Used 10ft anchor rods

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | TREVOR ANTAL | | OCT 13 2018 |
| QC inspector | Phil McKinley | Phil McKinley | Oct 12 2018 |
| Client Inspector | | | |

Forbes Bros Ltd.
POWERLINE CONSTRUCTION

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 69kV | Line # | L251 |
|---|---|---|---|---|---|
| Structure # | 1015 | Structure Type | VmA | Date | Nov 1 2018 |

## ANCHOR CHECKLIST

**Plan View – Anchor Locations**




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Log | 2.4 | PermaFrost | 60 | 150 | | |
| 2 | Log | 3.8 | PermaFrost | 55 | 150 | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

**Comments:**

A1 used 10ft anchor rods
A2 used 10ft + extensions
Backfilled with gravel

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | Mike Smeltzer | | Nov 3/18 |
| QC inspector | Phil McKinlay | Phil McKinlay | Nov 3 2018 |
| Client Inspector | | | |

Forbes Bros. Ltd.
POWERLINE CONSTRUCTION

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 69 Kv | Line # | L251 |
|---|---|---|---|---|---|
| Structure # | 1016 | Structure Type | PTR | Date | Nov 1 2018 |

## ANCHOR CHECKLIST

**Plan View – Anchor Locations**




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Plate | 2.5 | Permafrost | 63 | 150 | | |
| 2 | Plate | 2.5 | Permafrost | 60 | 150 | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

**Comments:**
A1 & A2 used 10ft anchor rods
A1 set 5m away from pole because of road
Backfilled with gravel

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | Mike Sweetland | | Nov 3/18 |
| QC inspector | Phil McKinley | | Nov 3 2018 |
| Client Inspector | | | |

Forbes Bros Ltd.
Powerline Construction

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 69Kv | Line # | L251 |
|---|---|---|---|---|---|
| Structure # | 1017 | Structure Type | PT | Date | Nov 2 2018 |

## ANCHOR CHECKLIST

### Plan View – Anchor Locations




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Plate | 24 | PermaFrost | 58 | 150 | | |
| 2 | Plate | 24 | PermaFrost | 58 | 150 | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

**Comments:**

A1 & A2 used 10ft anchor rods
A1 set 6.62m away from pole because of road
Backfilled with gravel

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | Mike Sweetland | | Nov 3/18 |
| QC inspector | Phil McKinley | Phil McKinley | Nov 3 2018 |
| Client Inspector | | | |

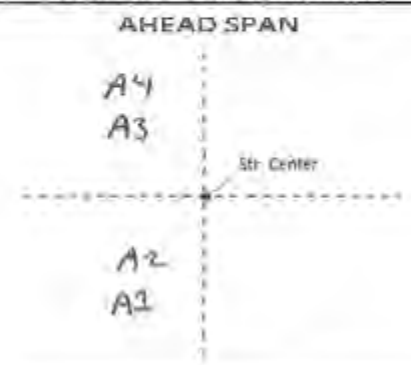
Forbes Bros.
Powerline Construction

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 64 KV | Line # | L251 |
|---|---|---|---|---|---|
| Structure # | 10/9 | Structure Type | VDEHA | Date | Nov 2 2018 |

## ANCHOR CHECKLIST

### Plan View – Anchor Locations




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Log | 3.4 | Sand | 48 | 150 | | |
| 2 | Log | 3.3 | Sand | 45 | 150 | | |
| 3 | Log | 3.2 | Sand | 44 | 150 | | |
| 4 | Log | 3.3 | Sand | 46 | 150 | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

**Comments:**

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | Mike Swetland | | Nov 5/18 |
| QC inspector | Phil McKinley | | Nov 5 2018 |
| Client Inspector | | | |

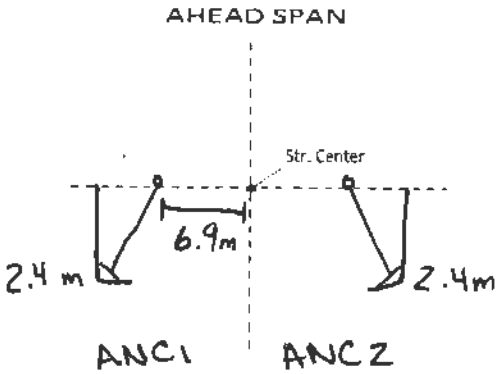
Forbes Bros Ltd
Powerline Construction

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 69 Kv | Line # | |
|---|---|---|---|---|---|
| Structure # | 1/1 | Structure Type | PVO | Date | Sept 30 2018 |

## ANCHOR CHECKLIST

**Plan View – Anchor Locations**




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Plate | 2.4 | Gravel | 60° | 150 | | |
| 2 | Plate | 2.4 | Gravel | 60° | 150 | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

**Comments:**
Ground identified as potential permafrost.
150 mm stickup
Backfill Obtained: Pit 10½
ANC 1 + 2 are 6.9m from str center.

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | Mike Southwood | Mike Southwood | Sept 30/18 |
| QC inspector | Cherell Hackett | Cherell H. | Sept 30 2018 |
| Client Inspector | | | |

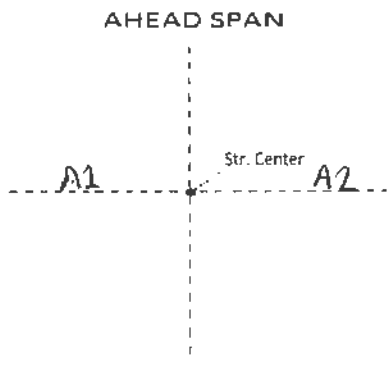
Forbes Bros Ltd
Powerline Construction

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 69kv | Line # | L 251 |
|---|---|---|---|---|---|
| Structure # | 1/11 | Structure Type | PT | Date | Sept 29 2018 |

## ANCHOR CHECKLIST

**Plan View – Anchor Locations**




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Plate | 2.4 | PermaFrost | 61 | 150 | | |
| 2 | Plate | 2.4 | PermaFrost | 54 | 150 | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

**Comments:**

Backfilled with gravel from 10'/2

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | TREVER ANTAL | | OCT 1 2018 |
| QC inspector | Phil McKinley | Phil McKinley | Sept 30 2018 |
| Client Inspector | | | |

Forbes Bros. Ltd.
Powerline Construction

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 69 kV | Line # | L251 |
|---|---|---|---|---|---|
| Structure # | 11/10 | Structure Type | PTG | Date | Nov 3 2018 |

## ANCHOR CHECKLIST

### Plan View – Anchor Locations




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Log | 2.4 | Gravel | 58 | 150 | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

**Comments:**

Used lost anchor rods

Backfilled with gravel

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | Mike Southard | | Nov 5/18 |
| QC inspector | Phil McKinley | | Nov 5 2018 |
| Client Inspector | | | |

Forbes Bros.
Powerline Construction

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Field 69 kV | Line # | L 251 |
|---|---|---|---|---|---|
| Structure # | 11/11 | Structure Type | PTG | Date | Nov 3 2018 |

## ANCHOR CHECKLIST

### Plan View – Anchor Locations




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Log | 2.4 | Gravel | 56 | 150 | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

**Comments:**

Used 10ft anchor rods
Backfilled with gravel

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | Mike Swafford | | Nov 5/18 |
| QC Inspector | Phil McKinley | | Nov 5 2018 |
| Client Inspector | | | |

Forbes Bros. Ltd.
Powerline Construction

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 69 Kv | Line # | L251 |
|---|---|---|---|---|---|
| Structure # | 11/12 | Structure Type | VMA | Date | Nov 3 2018 |

## ANCHOR CHECKLIST

**Plan View – Anchor Locations**




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Log | 2.4 | Permafrost | 57 | 150 | | |
| 2 | Log | 2.4 | Permafrost | 54 | 150 | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

**Comments:**

Used 10ft anchor rods
Backfilled with gravel

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | Mike Swetland | | Nov 5/18 |
| QC inspector | Phil McKinley | | Nov 5 2018 |
| Client Inspector | | | |

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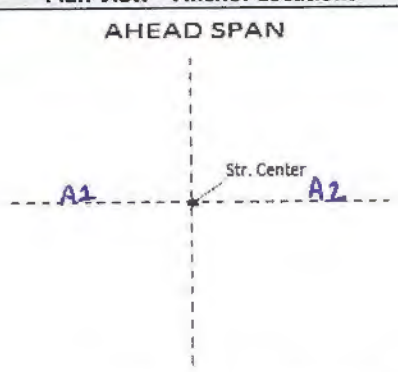
POWERLINE CONSTRUCTION

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 69kv | Line # | |
|---|---|---|---|---|---|
| Structure # | 113 | Structure Type | PTR | Date | Oct 3 2018 |

## ANCHOR CHECKLIST

### Plan View – Anchor Locations




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Plate | 2.2 | Permafrost | 57 | 150 | | |
| 2 | Plate | 2.2 | Permafrost | 58 | 150 | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

**Comments:**

Backfilled with gravel from 10'1/2
Used lost anchor rods

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | TREVOR AWITAK | | OCT 13 2018 |
| QC inspector | Phil McKinley | Phil McKinley | Oct 12 2018 |
| Client Inspector | | | |

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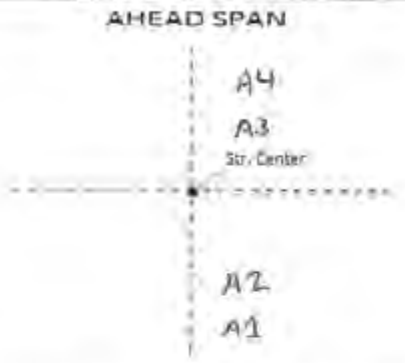
POWERLINE CONSTRUCTION

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 69 KV | Line # | L 251 |
|---|---|---|---|---|---|
| Structure # | 11/4 | Structure Type | VDEMA | Date | Nov 3 2018 |

## ANCHOR CHECKLIST

### Plan View – Anchor Locations




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Log | 3.3 | Permafrost | 46 | 150 | | |
| 2 | Log | 3.3 | Permafrost | 45 | 150 | | |
| 3 | Log | 3.2 | Permafrost | 44 | 150 | | |
| 4 | Log | 3.3 | Permafrost | 45 | 150 | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

**Comments:**

A1, A2, A3 & A4 used lost + extensions
Backfilled with gravel

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | Mike Smallwood | | Nov 5/18 |
| QC Inspector | Phil McKinley | | Nov 5 2018 |
| Client Inspector | | | |

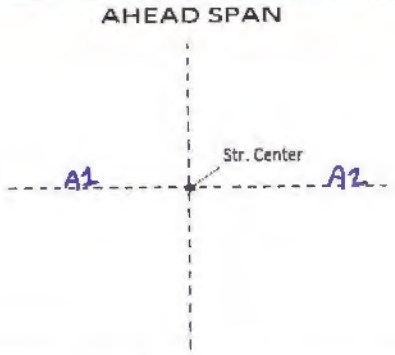
Forbes Bros LTD
POWERLINE CONSTRUCTION

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 69Kv | Line # | |
|---|---|---|---|---|---|
| Structure # | 11/6 | Structure Type | PT | Date | Oct 3 2018 |

## ANCHOR CHECKLIST

### Plan View – Anchor Locations




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Plate | 2.2 | PermaFrost | 58 | 150 | | |
| 2 | Plate | 2.2 | Permafrost | 59 | 150 | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

**Comments:**

Backfilled with gravel from 10'/2
Used 10 ft anchor rods

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | TREVOR ANTAL | | OCT 13 2018 |
| QC inspector | Phil McKinley | Phil McKinley | Oct 12 2018 |
| Client Inspector | | | |

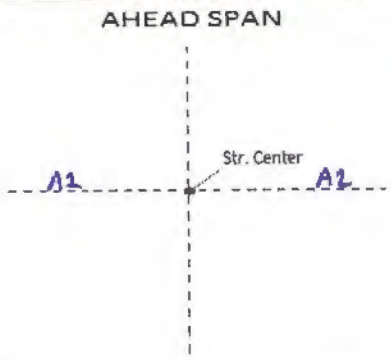
Forbes Bros LTD
POWERLINE CONSTRUCTION

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 69 Kv | Line # | |
|---|---|---|---|---|---|
| Structure # | 1117 | Structure Type | PT | Date | Oct 3 2018 |

## ANCHOR CHECKLIST

### Plan View – Anchor Locations




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Plate | 2.2 | Permafrost | 61 | 150 mm | | |
| 2 | Plate | 2.2 | Permafrost | 60 | 150 | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

**Comments:**

Backfilled with gravel from 10½

Used lost anchor rods

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | TREVOR ANTAL | | OCT 13/2018 |
| QC inspector | Phil McKinley | Phil McKinley | Oct 12 2018 |
| Client Inspector | | | |

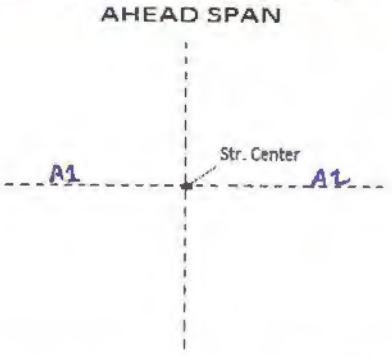
Forbes Bros LTD
POWERLINE CONSTRUCTION

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 69 kV | Line # | |
|---|---|---|---|---|---|
| Structure # | 11/8 | Structure Type | PT | Date | Oct 9 2018 |

## ANCHOR CHECKLIST

**Plan View – Anchor Locations**




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Plate | 2.2 | Permafrost | 60 | 150 | | |
| 2 | Plate | 2.2 | Permafrost | 62 | 150 | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

**Comments:**

Backfilled with gravel from 10'/n
Used 10ft anchor rods

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | TREVOR ANTAC | | OCT 13/2018 |
| QC inspector | Phil McKinley | Phil McKinley | Oct 12 2018 |
| Client Inspector | | | |

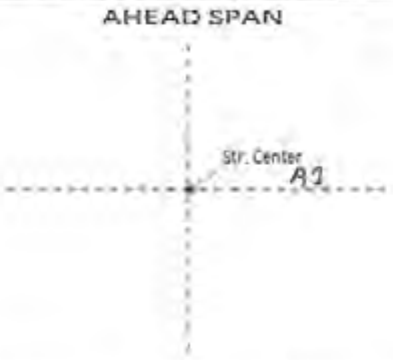
Forbes Bros.
POWERLINE CONSTRUCTION

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 69kV | Line # | L 251 |
|---|---|---|---|---|---|
| Structure # | 11/9 | Structure Type | PTG | Date | Nov 3 2018 |

## ANCHOR CHECKLIST

**Plan View – Anchor Locations**




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Log | 2.4 | Gravel | 58 | 150 | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

**Comments:**

Used 10ft anchor rod
Backfilled with gravel

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | Mike Scotland | | Nov 5/18 |
| QC inspector | Phil McKinley | | Nov 5 2018 |
| Client Inspector | | | |

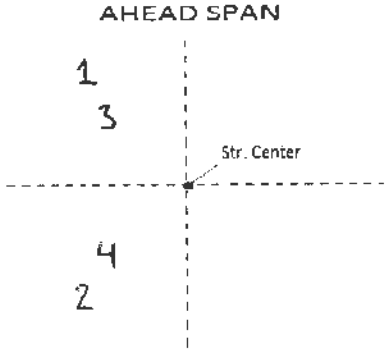
Forbes Bros LTD
POWERLINE CONSTRUCTION

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 69 KV | Line # | L 251 |
|---|---|---|---|---|---|
| Structure # | 1/2 | Structure Type | VDEMAC | Date | Oct 14 2018 |

## ANCHOR CHECKLIST

### Plan View – Anchor Locations




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Log | 3.2 | Gravel | 47 | 150 | | |
| 2 | Log | 3.2 | Gravel | 46 | 150 | | |
| 3 | Log | 3.5 | Gravel | 41 | 150 | | |
| 4 | Log | 3.4 | Gravel | 42 | 150 | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

**Comments:**

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | TREVOR ANSTEE | | OCT 17/2018 |
| QC inspector | Phil McKinley | Phil McKinley | Oct 16 2018 |
| Client Inspector | | | |

Forbes Bros.
POWERLINE CONSTRUCTION

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold KY | Line # | L 251 |
|---|---|---|---|---|---|
| Structure # | 1212 | Structure Type | VMA | Date | Nov 3 2018 |

## ANCHOR CHECKLIST

### Plan View – Anchor Locations




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Log | 2.4 | PermaFrost | 59 | 150 | | |
| 2 | Log | 3.7 | PermaFrost | 54 | 150 | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

**Comments:**

A1 lost anchor rod
A2 lost + extension
Backfilled with gravel

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | Mike Swetland | | Nov 5/18 |
| QC inspector | Phil McKinley | | Nov 5 2018 |
| Client Inspector | | | |

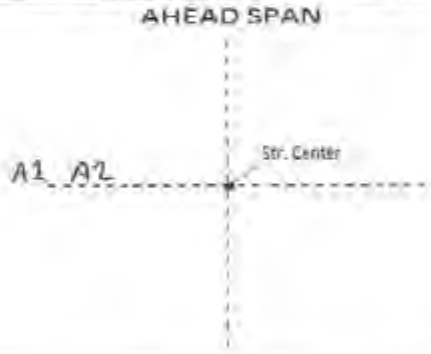
Forbes Bros Ltd.
Powerline Construction

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 69 kV | Line # | L251 |
|---|---|---|---|---|---|
| Structure # | 1216 | Structure Type | VmA | Date | Nov 3 2018 |

## ANCHOR CHECKLIST

**Plan View – Anchor Locations**




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Log | 2.4 | Gravel | 57 | 150 | | |
| 2 | Log | 3.8 | Gravel | 55 | 150 | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

**Comments:**

A1 lost anchor rod
A2 lost + extension
Backfilled with gravel

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | Mike Sweetland | | Nov 5/18 |
| QC inspector | Phil McKinlay | | Nov 5 2018 |
| Client Inspector | | | |

Forbes Bros. Ltd.
Powerline Construction

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 69kV | Line # | L 251 |
|---|---|---|---|---|---|
| Structure # | 1217 | Structure Type | PTG | Date | Nov 4 2018 |

## ANCHOR CHECKLIST

### Plan View – Anchor Locations




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Log | 2.4m | Gravel | 58 | 150 | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

**Comments:**

Used rust anchor rods
Backfilled with gravel

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | Mike Southard | | Nov 5/18 |
| QC Inspector | Phil McKinley | | Nov 5 2018 |
| Client Inspector | | | |

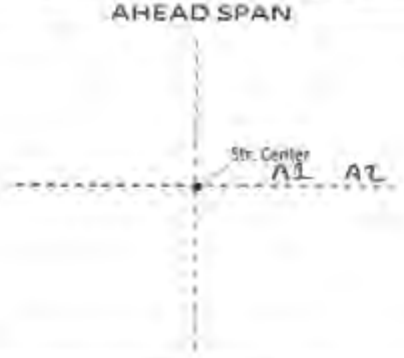
Forbes Bros Ltd.
POWERLINE CONSTRUCTION

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 67kV | Line # | L251 |
|---|---|---|---|---|---|
| Structure # | 13/13 | Structure Type | VmA | Date | Nov 4 2018 |

## ANCHOR CHECKLIST

### Plan View – Anchor Locations




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Leg | 24 | Sand | 56 | 150 | | |
| 2 | Leg | 24 | Sand | 57 | 150 | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

**Comments:**

Used 10ft anchor rods
Backfilled with gravel

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | Mike Swetland | | Nov 5/18 |
| QC inspector | Phil McKinley | | Nov 5 2018 |
| Client Inspector | | | |

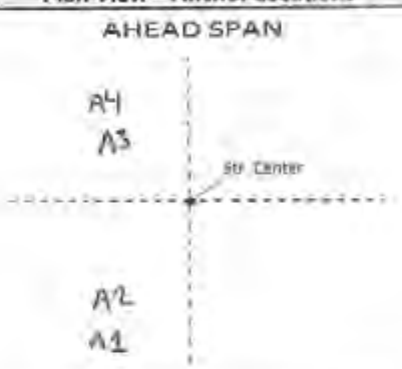
Forbes Bros Ltd.
Powerline Construction

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 61kv | Line # | L251 |
|---|---|---|---|---|---|
| Structure # | 1312 | Structure Type | VDEMA | Date | Nov 4 2018 |

## ANCHOR CHECKLIST

**Plan View – Anchor Locations**




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Log | 3.3 | Gravel | 45 | 150 | | |
| 2 | Log | 3.4 | Gravel | 44 | 150 | | |
| 3 | Log | 3.3 | Gravel | 45 | 150 | | |
| 4 | Log | 3.3 | Gravel | 48 | 150 | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

**Comments:**

A1, A2, A3 & A4 lost anchors + extensions
Backfilled with gravel

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | Mike Smallwood | | Nov 5/18 |
| QC inspector | Phil McKinley | | Nov 5 2018 |
| Client Inspector | | | |

Forbes Bros. Ltd.
Powerline Construction

# Anchor Installation

| Project # | 41581 | Project Name | Eagle Gold 69 Kv | Line # | L 251 |
|---|---|---|---|---|---|
| Structure # | 1319 | Structure Type | VmA | Date | Nov 4 2018 |

## ANCHOR CHECKLIST

**Plan View – Anchor Locations**




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Log | 3.8 | Gravel | 56 | 150 | | |
| 2 | Log | 3.7 | Gravel | 53 | 150 | | |
| | | | | | | | |
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| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

**Comments:**

Used 10ft + extensions on A1 & A2

Backfilled with gravel

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | Mike Swetland | | Nov 5/18 |
| QC inspector | Phil McKinley | | Nov 5 2018 |
| Client Inspector | | | |

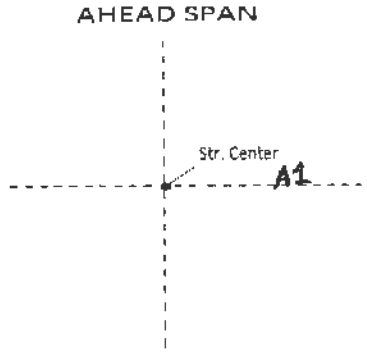
Forbes Bros. Ltd.
POWERLINE CONSTRUCTION

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 69 kV | Line # | L251 |
|---|---|---|---|---|---|
| Structure # | 114 | Structure Type | PTG | Date | Oct 15 2018 |

## ANCHOR CHECKLIST

**Plan View – Anchor Locations**




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Log | 2.4 | Permafrost | 56 | 150 | | |
| | | | | | | | |
| | | | | | | | |
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**Comments:**

Backfilled with gravel from 10 1/2

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | TREVOR ANTAC | | OCT 2018 |
| QC inspector | Phil McKinley | Phil McKinley | Oct 16 2018 |
| Client Inspector | | | |

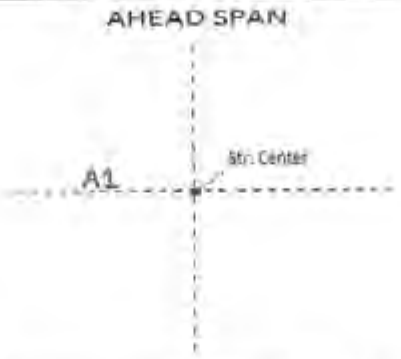
Forbes Bros.
Powerline Construction

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 69Kv | Line # | L251 |
|---|---|---|---|---|---|
| Structure # | 14/12 | Structure Type | PTG, | Date | Nov 5 2018 |

## ANCHOR CHECKLIST

### Plan View – Anchor Locations




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Log | 2.4 | Gravel | 60 | 150 | | |
| | | | | | | | |
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**Comments:**

Used a 10ft anchor rod
Backfilled with gravel

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | Mike Swatland | | Nov 5/18 |
| QC inspector | Phil McKinley | | Nov 5 2018 |
| Client Inspector | | | |

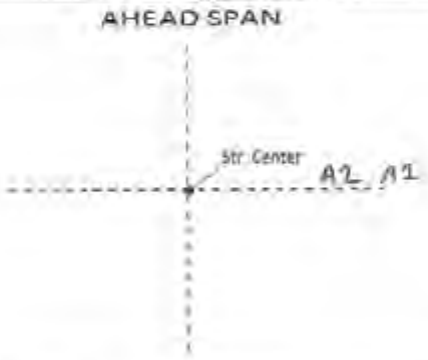
Forbes Bros. Ltd.
POWERLINE CONSTRUCTION

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 69kV | Line # | L251 |
|---|---|---|---|---|---|
| Structure # | 1412 | Structure Type | VMA | Date | Nov 5 2018 |

## ANCHOR CHECKLIST

### Plan View – Anchor Locations




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Log | 2.4 | Gravel | 57 | 150 | | |
| 2 | Log | 2.4 | Gravel | 55 | 150 | | |
| | | | | | | | |
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| | | | | | | | |
| | | | | | | | |
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| | | | | | | | |

**Comments:**

A1 & A2 used lost anchor rods
Backfilled with gravel

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | Mike Swanhad | | Nov 5/18 |
| QC Inspector | Phil McKinley | | Nov 5 2018 |
| Client Inspector | | | |

Forbes Bros
Powerline Construction

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 69kv | Line # | L251 |
|---|---|---|---|---|---|
| Structure # | 1415 | Structure Type | PTG | Date | Nov 5 2018 |

## ANCHOR CHECKLIST

### Plan View – Anchor Locations




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Log | 2.4 | Gravel | 59 | 150 | | |
| | | | | | | | |
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**Comments:**

Used a 10ft anchor rod
Backfilled with gravel

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | Mike Sweetland | | Nov 5/18 |
| QC inspector | Phil McKinley | | Nov 5 2018 |
| Client Inspector | | | |

Forbes Bros Ltd
POWERLINE CONSTRUCTION

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 64Kv | Line # | L251 |
|---|---|---|---|---|---|
| Structure # | 1418 | Structure Type | VmA | Date | Nov 5 2018 |

## ANCHOR CHECKLIST

### Plan View – Anchor Locations




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Log | 2.4 | Gravel | 56 | 150 | | |
| 2 | Log | 2.4 | Gravel | 56 | 150 | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

**Comments:**

A1 & A2 lost anchor rods
Backfilled with gravel

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | Mike Swetland | Mike Swetland | Nov 5/18 |
| QC inspector | Phil McKinley | Phil McKinley | Nov 5 2018 |
| Client Inspector | | | |

Forbes Bros. Ltd.
POWERLINE CONSTRUCTION

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 69kv | Line # | L251 |
|---|---|---|---|---|---|
| Structure # | 1513 | Structure Type | VMA | Date | Nov 12 2018 |

## ANCHOR CHECKLIST

### Plan View – Anchor Locations




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Log | 2.4 | Gravel | 54 | 150 | | |
| 2 | Log | 3.6 | Gravel | 52 | 150 | | |
| | | | | | | | |
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| | | | | | | | |

**Comments:**
A1 lost anchor rod
A2 lost anchor rod plus extension

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | TREVOR ANTTI | | NOV 14 2018 |
| QC inspector | Phil McKinley | Phil McKinley | Nov 14 2018 |
| Client Inspector | | | |

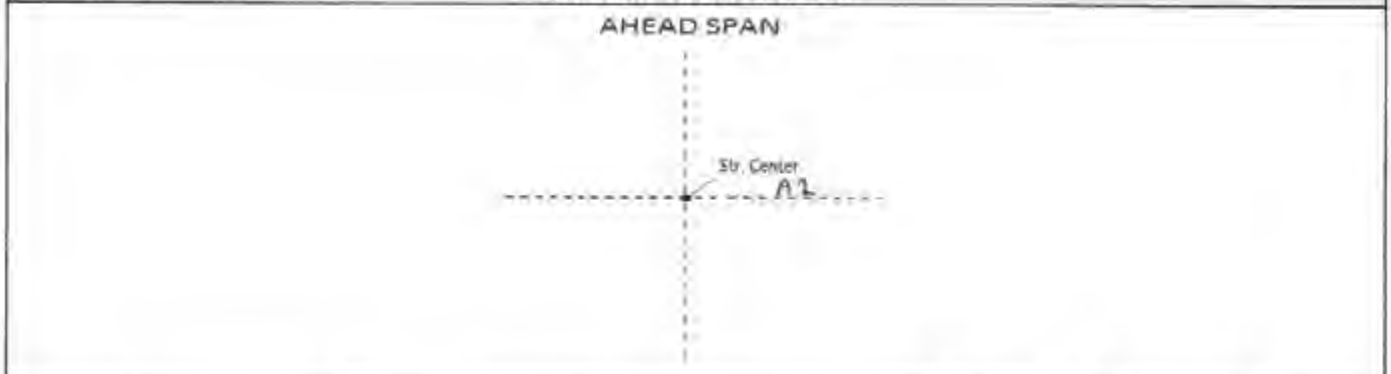
Forbes Bros. Ltd.
Powerline Construction

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold Mine | Line # | L 251 |
|---|---|---|---|---|---|
| Structure # | 1513 | Structure Type | PTG | Date | Nov 5 2018 |

## ANCHOR CHECKLIST

**Plan View – Anchor Locations**




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Log | 2.4 | Gravel | 54 | 150 | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
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| | | | | | | | |

**Comments:**

Used lost anchor rods
Back filled with gravel

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | Mike Southwood | | Nov 5/18 |
| QC inspector | Phil McKinley | | Nov 5 2018 |
| Client Inspector | | | |

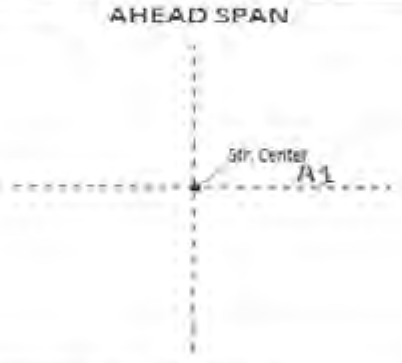
Forbes Bros. Ltd.
POWERLINE CONSTRUCTION

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 69 Kv | Line # | L251 |
|---|---|---|---|---|---|
| Structure # | 1517 | Structure Type | PTG | Date | Nov 5 2018 |

## ANCHOR CHECKLIST

### Plan View – Anchor Locations




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Log | 24 | Gravel | 58 | 150 | | |
| | | | | | | | |
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| | | | | | | | |
| | | | | | | | |

**Comments:**

Used lost anchor rods
Backfilled with gravel

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | Mike Swetland | | Nov 5/18 |
| QC inspector | Phil McKinley | | Nov 5 2018 |
| Client inspector | | | |

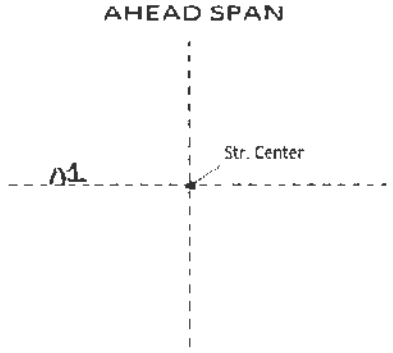
Forbes Bros LTD
POWERLINE CONSTRUCTION

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 64 kV | Line # | L 251 |
|---|---|---|---|---|---|
| Structure # | 176 | Structure Type | PTG | Date | Oct 15 2018 |

## ANCHOR CHECKLIST

**Plan View – Anchor Locations**




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Log | 2.5 | Gravel | 59 | 150 | | |
| | | | | | | | |
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| | | | | | | | |

**Comments:**

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | TREVOR ANDREW | | OCT 17 2018 |
| QC inspector | Phil McKinley | Phil McKinley | Oct 16 2018 |
| Client Inspector | | | |

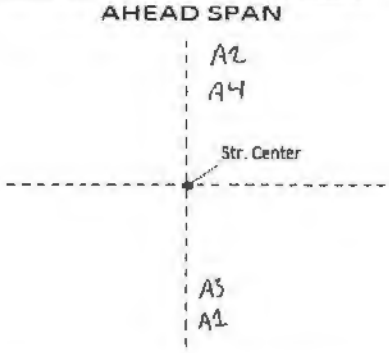
Forbes Bros LTD
POWERLINE CONSTRUCTION

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 69 KV | Line # | L251 |
|---|---|---|---|---|---|
| Structure # | 16/11 | Structure Type | VDEMA | Date | Nov 22 2018 |

## ANCHOR CHECKLIST

**Plan View – Anchor Locations**




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Log | 3.5 | Permafrost | 50 | 150 | | |
| 2 | Log | 3.5 | Permafrost | 49 | 150 | | |
| 3 | Log | 3.3 | Permafrost | 46 | 150 | | |
| 4 | Log | 3.4 | Permafrost | 47 | 150 | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

**Comments:**

A1,A2,A3 and A4 10ft anchor rods plus extensions

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | TREVOR AWTAC | | Dec 1/18 |
| QC inspector | Phil McKinley | Phil McKinley | Nov 29 2018 |
| Client Inspector | | | |

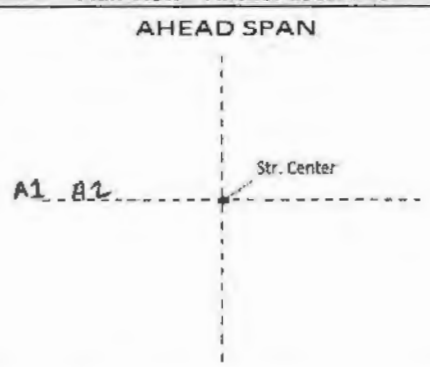
Forbes Bros LTD
POWERLINE CONSTRUCTION

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 69kv | Line # | L251 |
|---|---|---|---|---|---|
| Structure # | VMA | Structure Type | 1614 | Date | Nov 6 2018 |

## ANCHOR CHECKLIST

**Plan View – Anchor Locations**




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Log | 2.4 | Gravel | 59 | 150 | | |
| 2 | Log | 2.4 | Gravel | 57 | 150 | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

**Comments:**

A1 & A2 used lost anchor rods
Backfilled with gravel

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | TREVOR AWTAT | | Nov 8 2018 |
| QC inspector | Phil McKinley | Phil McKinley | Nov 7 2018 |
| Client Inspector | | | |

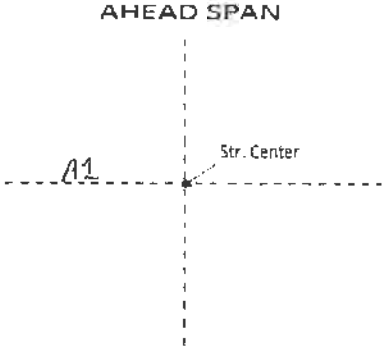
Forbes Bros. LTD
POWERLINE CONSTRUCTION

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 64kV | Line # | L251 |
|---|---|---|---|---|---|
| Structure # | 1/7 | Structure Type | PTG | Date | Oct 15 2018 |

## ANCHOR CHECKLIST

**Plan View – Anchor Locations**




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Log | 2.4 | Gravel/Clay | 58 | 150 | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
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| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

**Comments:**

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | TREVOR AWTH | | OCT 18 2018 |
| QC inspector | Phil McKinley | Phil McKinley | Oct 17 2018 |
| Client Inspector | | | |

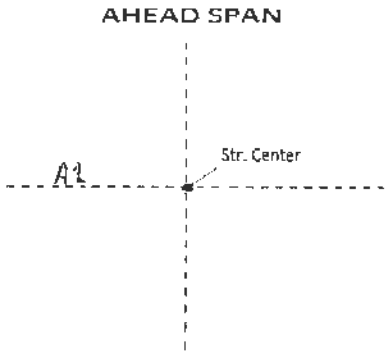
Forbes Bros LTD
POWERLINE CONSTRUCTION

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 69 KV | Line # | L251 |
|---|---|---|---|---|---|
| Structure # | 17/11 | Structure Type | PTG | Date | Nov 23 2018 |

## ANCHOR CHECKLIST

**Plan View – Anchor Locations**




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Log | 2.4 | Gravel | 59 | 150 | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

**Comments:**
Used 10 ft anchor rod

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | TREVOR ANTYPE | | Dec 1/18 |
| QC inspector | Phil McKinley | | Nov 29 2018 |
| Client Inspector | | | |

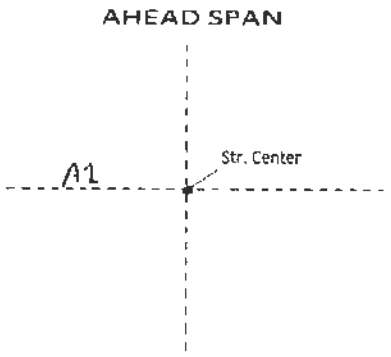
Forbes Bros LTD
POWERLINE CONSTRUCTION

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 69 KV | Line # | L251 |
|---|---|---|---|---|---|
| Structure # | 17/12 | Structure Type | PTG | Date | Nov 24 2018 |

## ANCHOR CHECKLIST

**Plan View – Anchor Locations**




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Log | 2.4 | Permafrost | 58 | 150 | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

**Comments:**
Used 10 ft anchor rod

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | TREVOR AWOKE | | Dec 1 / 18 |
| QC inspector | Phil McKinley | Phil McKinley | Nov 29 2018 |
| Client Inspector | | | |

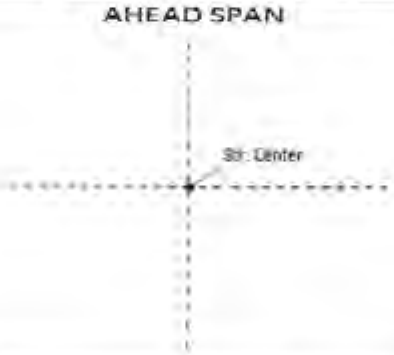
Forbes Bros Ltd
Powerline Construction

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 69 KV | Line # | L251 |
|---|---|---|---|---|---|
| Structure # | 17/5 | Structure Type | VMA | Date | Nov 15 2018 |

## ANCHOR CHECKLIST

### Plan View – Anchor Locations




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Log | 2.4 | Gravel | 60 | 150 | | |
| 2 | Log | 3.8 | Gravel | 55 | 150 | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

**Comments:**

Anchor 1 10 ft anchor rod
Anchor 2 10 ft + extension

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | TREVOR AWTAL | | Nov 19/18 |
| QC inspector | Phil McKinley | | Nov 18 2018 |
| Client Inspector | | | |

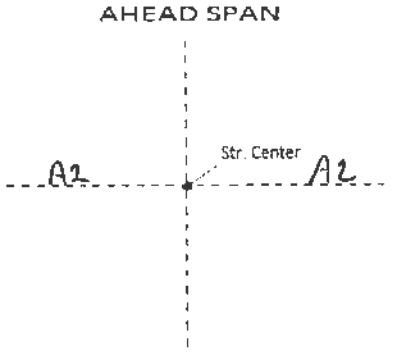
Forbes Bros LTD
POWERLINE CONSTRUCTION

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 69kv | Line # | L 251 |
|---|---|---|---|---|---|
| Structure # | 1/8 | Structure Type | PTR | Date | Sept 29 2018 |

## ANCHOR CHECKLIST

**Plan View – Anchor Locations**




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Plate | 2.4 | Permafrost | 58 | 150 | | |
| 2 | Plate | 2.4 | Permafrost | 61 | 150 | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

**Comments:**

Backfilled with gravel from 10'/2

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | TREVOR ANTAC | | Sept 31 2018 |
| QC inspector | Phil McKinley | Phil McKinley | Sept 30 2018 |
| Client Inspector | | | |

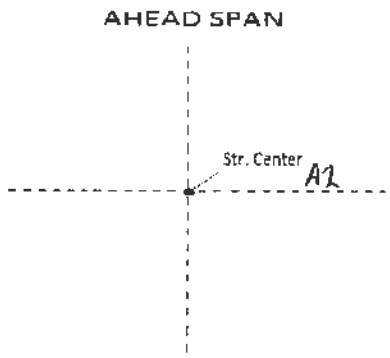
Forbes Bros LTD
POWERLINE CONSTRUCTION

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 69 KV | Line # | L251 |
|---|---|---|---|---|---|
| Structure # | 18/1 | Structure Type | PTG | Date | Nov 24 2018 |

## ANCHOR CHECKLIST

**Plan View – Anchor Locations**




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Log | 2.4 | Permafrost | 59 | 150 | | |
| | | | | | | | |
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| | | | | | | | |

**Comments:**
Used 10 ft anchor rod

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | TREVOR ANTAC | | Dec 1/18 |
| QC inspector | Phil McKinley | Phil McKinley | Nov 29 2018 |
| Client Inspector | | | |

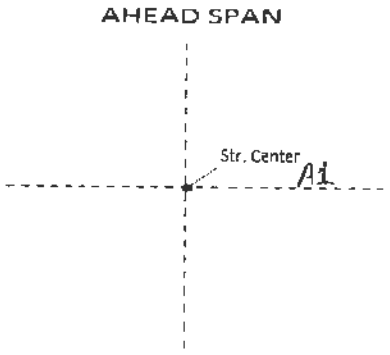
Forbes Bros LTD
POWERLINE CONSTRUCTION

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 69 KV | Line # | L251 |
|---|---|---|---|---|---|
| Structure # | 18/11 | Structure Type | PTG | Date | Nov 28 2018 |

## ANCHOR CHECKLIST

**Plan View – Anchor Locations**




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Log | 2.4 | Gravel | 57 | 150 | | |
| | | | | | | | |
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| | | | | | | | |

**Comments:**
Used 10 ft anchor rod

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | TREVOR ANTYPE | | Dec. 4/18 |
| QC inspector | Phil McKinley | Phil McKinley | Dec 3 2018 |
| Client Inspector | | | |

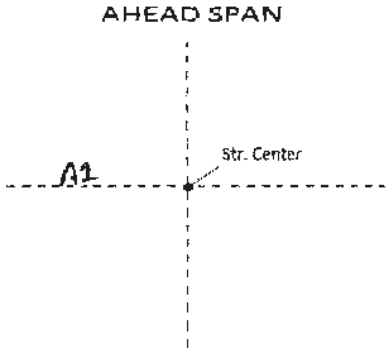
Forbes Bros LTD
POWERLINE CONSTRUCTION

# Anchor Installation

| | | | | | |
|---|---|---|---|---|---|
| **Project #** | 4581 | **Project Name** | Eagle Gold 69 KV | **Line #** | L251 |
| **Structure #** | 18/13 | **Structure Type** | PTG | **Date** | Nov 28 2018 |

## ANCHOR CHECKLIST

**Plan View – Anchor Locations**




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Log | 2.4 | Gravel | 59 | 150 | | |
| | | | | | | | |
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| | | | | | | | |

**Comments:**
Used 10 ft anchor rod

| | Print | Signature | Date |
|---|---|---|---|
| **Foreman name** | TREVOR AWTAC | | Dec 4/18 |
| **QC Inspector** | Phil McKinley | Phil McKinley | Dec 3 2018 |
| **Client Inspector** | | | |

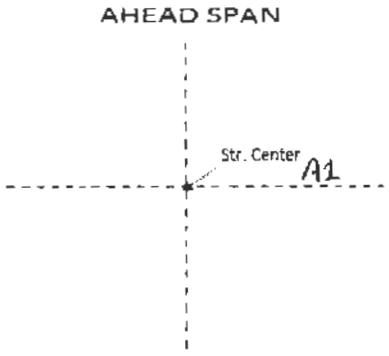
Forbes Bros LTD
POWERLINE CONSTRUCTION

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 69 KV | Line # | L251 |
|---|---|---|---|---|---|
| Structure # | 18/2 | Structure Type | PTG | Date | Nov 25 2018 |

## ANCHOR CHECKLIST

**Plan View – Anchor Locations**




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Log | 2.4 | Gravel | 57 | 150 | | |
| | | | | | | | |
| | | | | | | | |
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| | | | | | | | |
| | | | | | | | |

**Comments:**
Used 10 ft anchor rod

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | TREVOR ANTAC | | Dec 1/18 |
| QC inspector | Phil McKinley | Phil McKinley | Nov 30 2018 |
| Client Inspector | | | |

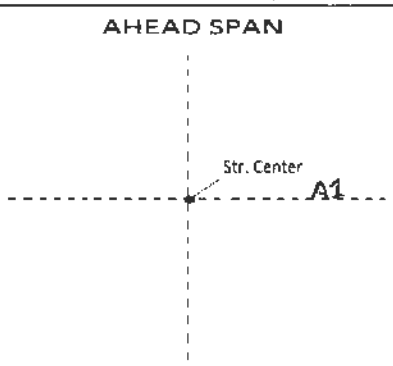
Forbes Bros LTD
POWERLINE CONSTRUCTION

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 69 KV | Line # | L251 |
|---|---|---|---|---|---|
| Structure # | 18/3 | Structure Type | PTG | Date | Nov 25 2018 |

## ANCHOR CHECKLIST

**Plan View – Anchor Locations**




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Log | 2.4 | Permafrost | 59 | 150 | | |
| | | | | | | | |
| | | | | | | | |
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| | | | | | | | |
| | | | | | | | |

**Comments:**
Used 10 ft anchor rod

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | TREVOR AWITAK | | Dec 1/18 |
| QC inspector | Phil McKinley | Phil McKinley | Nov 30 2018 |
| Client Inspector | | | |

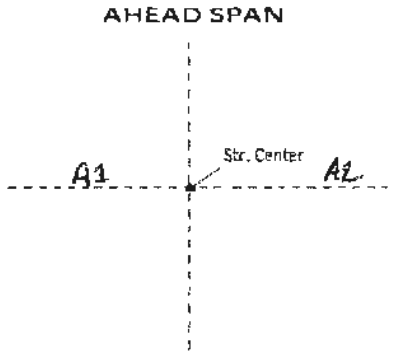
Forbes Bros Ltd
POWERLINE CONSTRUCTION

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 69 KV | Line # | L251 |
|---|---|---|---|---|---|
| Structure # | 18/5 | Structure Type | PT | Date | Nov 27 2018 |

## ANCHOR CHECKLIST

**Plan View – Anchor Locations**




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| A1 | Plate | 2.4 | Permafrost | 59 | 150 | | |
| A2 | Plate | 2.4 | Permafrost | 61 | 150 | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

**Comments:**
A1 and A2 used 10ft anchor rods

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | TREVOR ANTAC | | Dec 3/18 |
| QC inspector | Phil McKinley | PJ McKinley | Dec 2 2018 |
| Client Inspector | | | |

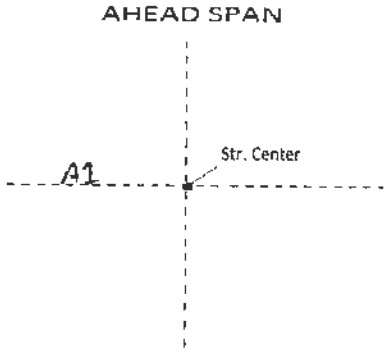
Forbes Bros Ltd
POWERLINE CONSTRUCTION

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 69 KV | Line # | L251 |
|---|---|---|---|---|---|
| Structure # | 18/7 | Structure Type | PTG | Date | Nov 28 2018 |

## ANCHOR CHECKLIST

**Plan View – Anchor Locations**




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Log | 2.4 | Permafrost | 60 | 150 | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

**Comments:**
Used 10 ft anchor rod

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | TREVOR ANTAL | | Dec 3/18 |
| QC inspector | Phil McKinley | Phil McKinley | Dec 2 2018 |
| Client Inspector | | | |

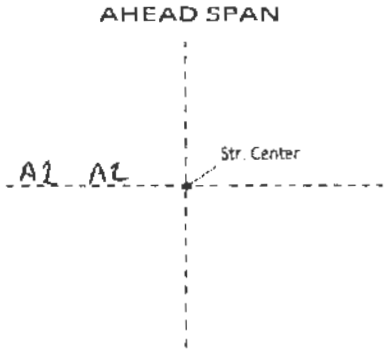
Forbes Bros Ltd
Powerline Construction

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 69Kv | Line # | L251 |
|---|---|---|---|---|---|
| Structure # | 1/9 | Structure Type | VMA | Date | Oct 15 2018 |

## ANCHOR CHECKLIST

### Plan View – Anchor Locations




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| A1 | Log | 24 | Gravel | 60 | 150 | | |
| A2 | Log | 26 | Gravel | 56 | 150 | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
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| | | | | | | | |

**Comments:**

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | TREVOR ANTAL | [signature] | OCT 26/18 |
| QC inspector | Phil McKinley | [signature] | Oct 26 2018 |
| Client Inspector | | | |

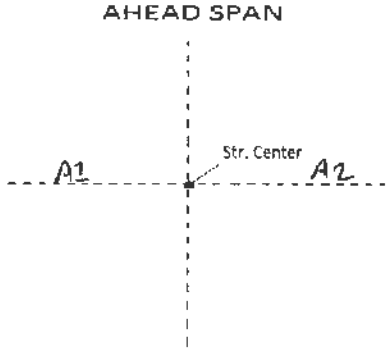
Forbes Bros LTD
POWERLINE CONSTRUCTION

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 69kV | Line # | L 251 |
|---|---|---|---|---|---|
| Structure # | 2/1 | Structure Type | PT | Date | Sept 29 2018 |

## ANCHOR CHECKLIST

**Plan View – Anchor Locations**




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Plate | 2.4 | Permafrost | 61 | 150 | | |
| 2 | Plate | 2.4 | Permafrost | 54 | 150 | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

**Comments:**

Backfilled with gravel from 10'1/2

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | TREVOR ANTAC | | OCT 1 2018 |
| QC inspector | Phil McKinley | Phil McKinley | Sept 30 2018 |
| Client Inspector | | | |

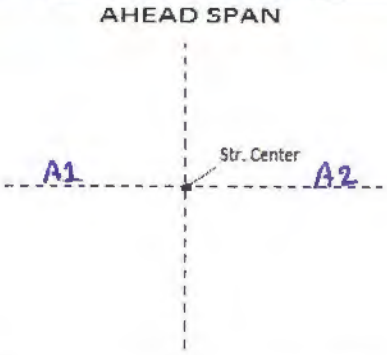
Forbes Bros LTD
POWERLINE CONSTRUCTION

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 69kv | Line # | 251 |
|---|---|---|---|---|---|
| Structure # | 2/10 | Structure Type | PT | Date | Sept 29 2018 |

## ANCHOR CHECKLIST

**Plan View – Anchor Locations**




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Plate | 2.4 | Permafrost | 58 | 150 | | |
| 2 | Plate | 2.4 | Permafrost | 60 | 150 | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

**Comments:**

Backfilled with gravel from 10'/2

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | TREVOR ANTAL | | OCT 1 2018 |
| QC inspector | Phil McKinley | Phil McKinley | Sept 30 2018 |
| Client Inspector | | | |

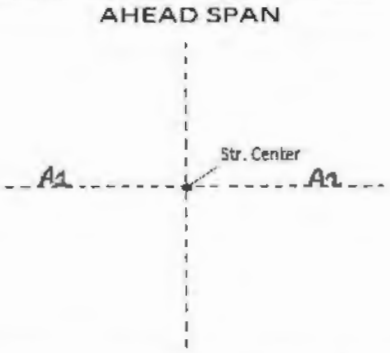
Forbes Bros LTD
POWERLINE CONSTRUCTION

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 69 KV | Line # | L251 |
|---|---|---|---|---|---|
| Structure # | 21/10 | Structure Type | PT | Date | February 21 2019 |

## ANCHOR CHECKLIST

**Plan View – Anchor Locations**




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Plate | 2.5 | Permafrost | 62 | 150 | | |
| 2 | Plate | 2.5 | Permafrost | 61 | 150 | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

**Comments:**

A1,A2 used 10 ft anchor rods
Backfilled with gravel
Not identified as potential permafrost on structure data sheet

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | TREVOR ANTHL | | FEB 23 2019 |
| QC inspector | Phil McKinley | PJ McKinley | Feb 23 2019 |
| Client Inspector | Matt C | | Feb 25, 19 |

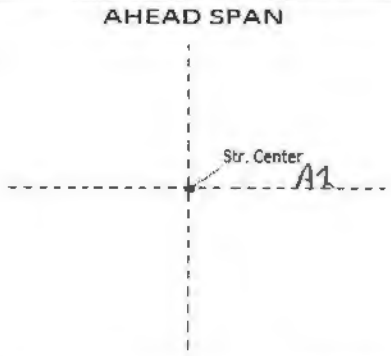
Forbes Bros LTD
POWERLINE CONSTRUCTION

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 69 KV | Line # | L251 |
|---|---|---|---|---|---|
| Structure # | 21/12 | Structure Type | PTG | Date | Nov 29 2018 |

## ANCHOR CHECKLIST

**Plan View – Anchor Locations**




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Log | 2.4 | Permafrost | 59 | 150 | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

**Comments:**
Used 10 ft anchor rod

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | TREVOR AWSAK | | Dec 6/18 |
| QC inspector | Phil McKinley | Phil McKinley | Dec 5 2018 |
| Client Inspector | | | |

Forbes Bros LTD
POWERLINE CONSTRUCTION

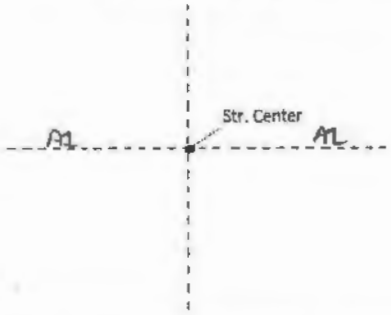
# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 69 KV | Line # | L251 |
|---|---|---|---|---|---|
| Structure # | 21/13 | Structure Type | PT | Date | February 21 2019 |

## ANCHOR CHECKLIST

**Plan View – Anchor Locations**

AHEAD SPAN




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Plate | 2.5 | Permafrost | 60 | 150 | | |
| 2 | Plate | 2.4 | Permafrost | 59 | 150 | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

**Comments:**

A1,A2 used 10 ft anchor rods
Backfilled with gravel
Not identified as potential permafrost on structure data sheet

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | TREVOR ANSTAL | | FEB 23 2019 |
| QC inspector | Phil McKinley | Phil McKinley | Feb 23 2019 |
| Client Inspector | MattC | MC | Feb 25, 19 |

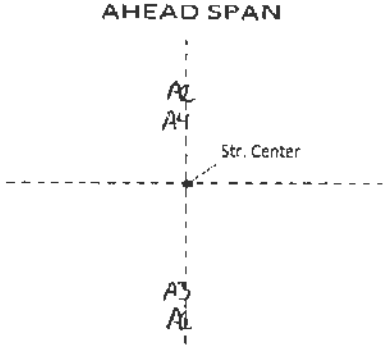
Forbes Bros Ltd
Powerline Construction

# Anchor Installation

| | | | | | |
|---|---|---|---|---|---|
| **Project #** | 4581 | **Project Name** | Eagle Gold 69 KV | **Line #** | L251 |
| **Structure #** | 21/2 | **Structure Type** | VDEHA | **Date** | Nov 29 2018 |

## ANCHOR CHECKLIST

**Plan View – Anchor Locations**




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Log | 3.4 | Gravel | 48 | 150 | | |
| 2 | Log | 3.3 | Gravel | 45 | 150 | | |
| 3 | Log | 3.2 | Gravel | 44 | 150 | | |
| 4 | Log | 3.2 | Gravel | 43 | 150 | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

**Comments:**

A1,A2,A3,A4 used 10 ft anchor rods plus extensions

| | Print | Signature | Date |
|---|---|---|---|
| **Foreman name** | TREVER [illegible] | [signature] | Dec 6/18 |
| **QC inspector** | Phil McKinley | [signature] | Dec 5 2018 |
| **Client Inspector** | | | |

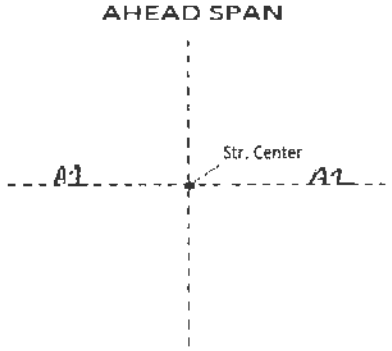
Forbes Bros LTD
POWERLINE CONSTRUCTION

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 69 KV | Line # | L251 |
|---|---|---|---|---|---|
| Structure # | 21/4 | Structure Type | PT | Date | February 23 2019 |

## ANCHOR CHECKLIST

**Plan View – Anchor Locations**




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Plate | 2.4 | Permafrost | 59 | 150 | | |
| 2 | Plate | 2.5 | Permafrost | 62 | 150 | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

**Comments:**

A1,A2 used 10 ft anchor rods
Backfilled with gravel
Not identified as potential permafrost on structure data sheet

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | TREVOR ANSTEE | | FEB 23 2019 |
| QC inspector | Phil McKinley | Phil McKinley | Feb 23 2019 |
| Client Inspector | MattC | MC | Feb 25, 19 |

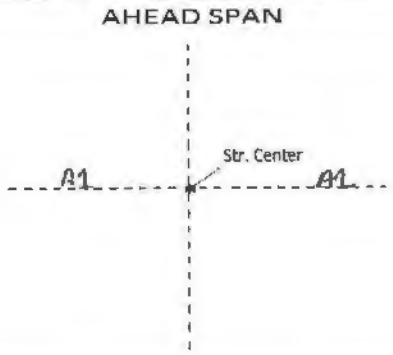
Forbes Bros LTD
POWERLINE CONSTRUCTION

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 69 KV | Line # | L251 |
|---|---|---|---|---|---|
| Structure # | 21/5 | Structure Type | PT | Date | February 22 2019 |

## ANCHOR CHECKLIST

**Plan View – Anchor Locations**




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Plate | 2.4 | Permafrost | 58 | 150 | | |
| 2 | Plate | 2.4 | Permafrost | 58 | 150 | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

**Comments:**

A1,A2 used 10 ft anchor rods
Backfilled with gravel

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | TREVOR ANTAL | | FEB 23 2019 |
| QC inspector | Phil McKinley | Paul McKinley | Feb 23 2019 |
| Client Inspector | Matt C | | Feb 25, 19 |

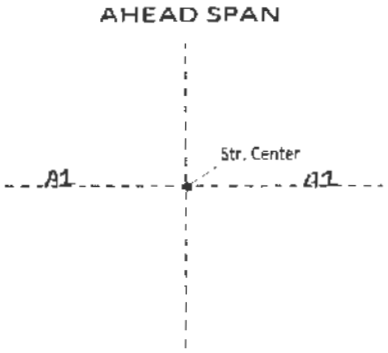
Forbes Bros Ltd
Powerline Construction

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 69 KV | Line # | L251 |
|---|---|---|---|---|---|
| Structure # | 21/6 | Structure Type | PT | Date | February 22 2019 |

## ANCHOR CHECKLIST

**Plan View – Anchor Locations**




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Plate | 2.4 | Permafrost | 59 | 150 | | |
| 2 | Plate | 2.5 | Permafrost | 62 | 150 | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

**Comments:**

A1,A2 used 10 ft anchor rods
Backfilled with gravel

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | TREVOR ANTAL | | FEB 23 2019 |
| QC inspector | Phil McKinley | | Feb 23 2019 |
| Client Inspector | Matt C | | Feb 25, 19 |

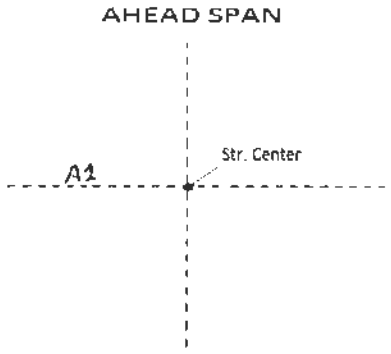
Forbes Bros LTD
POWERLINE CONSTRUCTION

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 69 KV | Line # | L251 |
|---|---|---|---|---|---|
| Structure # | 21/7 | Structure Type | PTG | Date | Nov 29 2018 |

## ANCHOR CHECKLIST

**Plan View – Anchor Locations**




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Log | 2.4 | Permafrost | 56 | 150 | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

**Comments:**
Used 10 ft anchor rod

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | TREVOR MATTHEW | | Dec 6/18 |
| QC inspector | Phil McKinley | Phil McKinley | Dec 5 2018 |
| Client Inspector | | | |

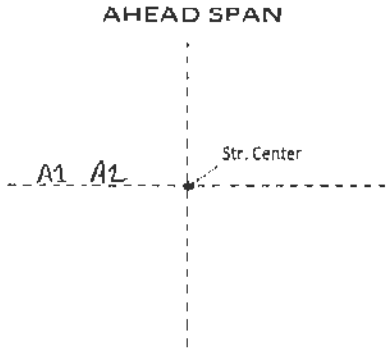
Forbes Bros Ltd
Powerline Construction

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 69 KV | Line # | L251 |
|---|---|---|---|---|---|
| Structure # | 21/8 | Structure Type | VMA | Date | Nov 29 2018 |

## ANCHOR CHECKLIST

**Plan View – Anchor Locations**




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Log | 2.6 | Permafrost | 60 | 150 | | |
| 2 | Log | 3.7 | Permafrost | 53 | 150 | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

**Comments:**

A1 used 10 ft anchor rod
A2 used 10 ft anchor rod plus extension

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | TREVOR | | Dec 6/18 |
| QC inspector | Phil McKinley | Phil McKinley | Dec 5 2018 |
| Client Inspector | | | |

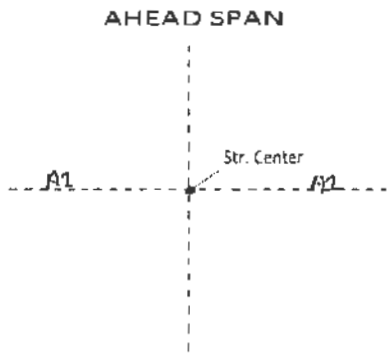
Forbes Bros. Ltd
Powerline Construction

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 69 KV | Line # | L251 |
|---|---|---|---|---|---|
| Structure # | 21/9 | Structure Type | PTR | Date | February 22 2019 |

## ANCHOR CHECKLIST

### Plan View – Anchor Locations




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Plate | 2.4 | Permafrost | 58 | 150 | | |
| 2 | Plate | 2.4 | Permafrost | 59 | 150 | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

**Comments:**

A1,A2 used 10 ft anchor rods
Backfilled with gravel

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | TREVOR ANTAL | | FEB 23 2019 |
| QC inspector | Phil McKinley | Phil McKinley | Feb 23 2019 |
| Client Inspector | Matt C | MC | Feb 25.19 |

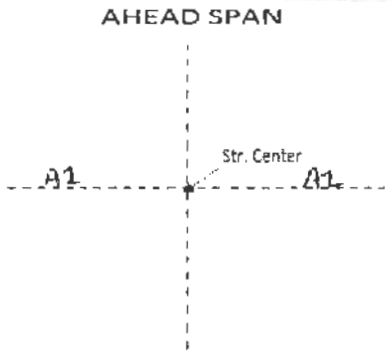
Forbes Bros LTD
POWERLINE CONSTRUCTION

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 69 KV | Line # | L251 |
|---|---|---|---|---|---|
| Structure # | 22/1 | Structure Type | SAH | Date | February 21 2019 |

## ANCHOR CHECKLIST

### Plan View – Anchor Locations




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Plate | 2.4 | Permafrost | 58 | 150 | | |
| 2 | Plate | 2.4 | Permafrost | 58 | 150 | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

**Comments:**

A1,A2 used 10 ft anchor rods
Backfilled with gravel
Not identified as potential permafrost on structure data sheet

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | TREVOR ANTAL | | FEB 23 2019 |
| QC inspector | Phil McKinley | Phil McKinley | Feb 23 2019 |
| Client Inspector | Matt C | | Feb 25, 19 |

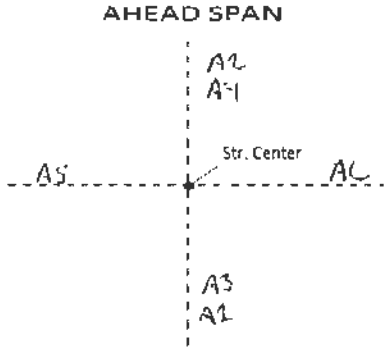
Forbes Bros LTD
POWERLINE CONSTRUCTION

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 69 KV | Line # | L251 |
|---|---|---|---|---|---|
| Structure # | 22/8 | Structure Type | FDE | Date | Dec 2 2018 |

## ANCHOR CHECKLIST

**Plan View – Anchor Locations**




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Log | 3.3 | Gravel | 46 | 150 | | |
| 2 | Log | 3.2 | Gravel | 44 | 150 | | |
| 3 | Log | 3.2 | Gravel | 44 | 150 | | |
| 4 | Log | 3.3 | Gravel | 45 | 150 | | |
| 5 | Log | 2.5 | Gravel | 61 | 150 | | |
| 6 | Log | 2.5 | Gravel | 62 | 150 | | |
| | | | | | | | |
| | | | | | | | |

**Comments:**

A1,A2,A3,A4 used 10 ft ground rods with extensions
A5 and A6 used 10 ft ground rods

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | TREVOR MATHE | | Dec 6/18 |
| QC inspector | Phil McKinley | Phil McKinley | Dec 5 1018 |
| Client Inspector | | | |

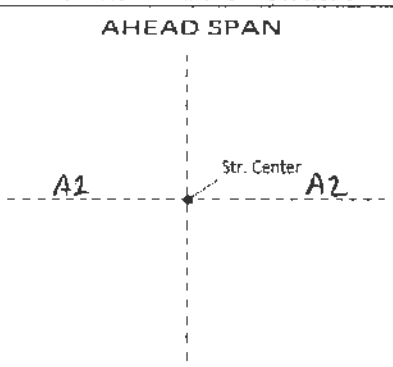
Forbes Bros. LTD
POWERLINE CONSTRUCTION

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 69 Kv | Line # | L 251 |
|---|---|---|---|---|---|
| Structure # | 213 | Structure Type | PT | Date | Sept 24 2018 |

## ANCHOR CHECKLIST

**Plan View – Anchor Locations**




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Plate | 2.4 | Permafrost | 60 | 150mm | | |
| 2 | Plate | 2.4 | Permafrost | 58 | 150 | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

**Comments:**

Backfilled with gravel from 10'1/2

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | TREVOR ANTAL | | OCT 1 2018 |
| QC inspector | Phil McKinley | Phil McKinley | Sept 30 2018 |
| Client Inspector | | | |

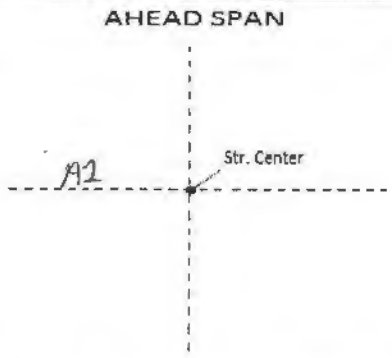
Forbes Bros LTD
POWERLINE CONSTRUCTION

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 69 KV | Line # | L251 |
|---|---|---|---|---|---|
| Structure # | 23/11 | Structure Type | PTG | Date | Dec 3 2018 |

## ANCHOR CHECKLIST

**Plan View – Anchor Locations**




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Log | 2.5 | Gravel | 59 | 150 | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

**Comments:**
Used 10 ft anchor rod

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | TREVOR ANDREW | | Dec 6 |
| QC inspector | Phil McKinley | Phil McKinley | Dec 5 2018 |
| Client Inspector | | | |

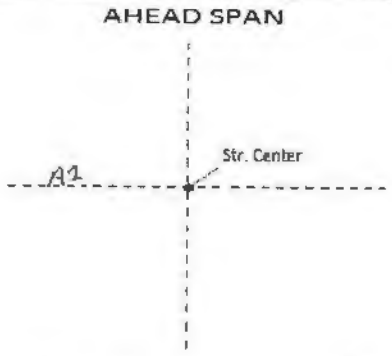
Forbes Bros LTD
POWERLINE CONSTRUCTION

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 69 KV | Line # | L251 |
|---|---|---|---|---|---|
| Structure # | 23/12 | Structure Type | PTG | Date | Dec 5 2018 |

## ANCHOR CHECKLIST

**Plan View – Anchor Locations**




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Log | 2.4 | Gravel | 56 | 150 | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

**Comments:**
Used 10 ft anchor rod

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | TREVOR ANTAC | | Dec 6/18 |
| QC inspector | Phil McKinley | Phil McKinley | Dec 5 2018 |
| Client Inspector | | | |

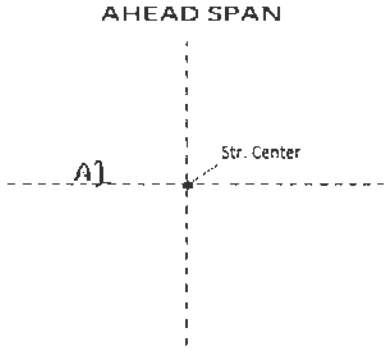
Forbes Bros LTD
POWERLINE CONSTRUCTION

# Anchor Installation

| | | | | | |
|---|---|---|---|---|---|
| **Project #** | 4581 | **Project Name** | Eagle Gold 69 KV | **Line #** | L251 |
| **Structure #** | 23/6 | **Structure Type** | PTG | **Date** | Dec 2 2018 |

## ANCHOR CHECKLIST

**Plan View – Anchor Locations**




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Log | 2.4 | Gravel | 59 | 150 | | |
| | | | | | | | |
| | | | | | | | |
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| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

**Comments:**
Used 10 ft anchor rod

| | Print | Signature | Date |
|---|---|---|---|
| **Foreman name** | TREVOR ANTYE | | DEC 6 2018 |
| **QC inspector** | Phil McKinley | | Dec 5 2018 |
| **Client Inspector** | | | |

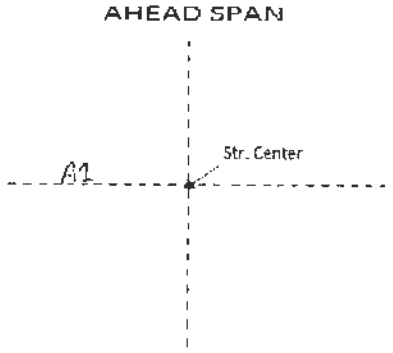
Forbes Bros LTD
POWERLINE CONSTRUCTION

# Anchor Installation

| | | | | | |
|---|---|---|---|---|---|
| **Project #** | 4581 | **Project Name** | Eagle Gold 69 KV | **Line #** | L251 |
| **Structure #** | 23/8 | **Structure Type** | PTG | **Date** | Dec 2 2018 |

## ANCHOR CHECKLIST

**Plan View – Anchor Locations**




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Log | 2.4 | Gravel | 59 | 150 | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

**Comments:**
Used 10 ft anchor rod

| | Print | Signature | Date |
|---|---|---|---|
| **Foreman name** | TREVOR ANTAL | | Dec 6/18 |
| **QC inspector** | Phil McKinley | Phil McKinley | Dec 5 2018 |
| **Client Inspector** | | | |

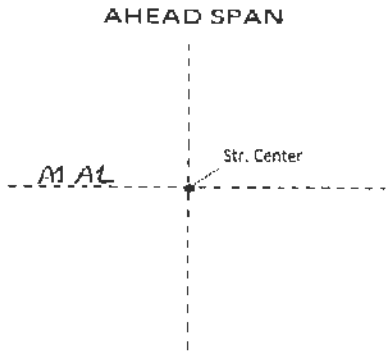
Forbes Bros. LTD
POWERLINE CONSTRUCTION

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 69 KV | Line # | L251 |
|---|---|---|---|---|---|
| Structure # | 23/9 | Structure Type | VMA | Date | Dec 2 2018 |

## ANCHOR CHECKLIST

**Plan View – Anchor Locations**




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Log | 2.4 | Gravel | 57 | 150 | | |
| 2 | Log | 3.6 | Gravel | 52 | 150 | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

**Comments:**

A1 used 10 ft anchor rod
A2 used 10 ft anchor rod plus extension

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | TREVOR ANTAL | | Dec 6/18 |
| QC inspector | Phil McKinley | Phil McKinley | Dec 5 2018 |
| Client Inspector | | | |

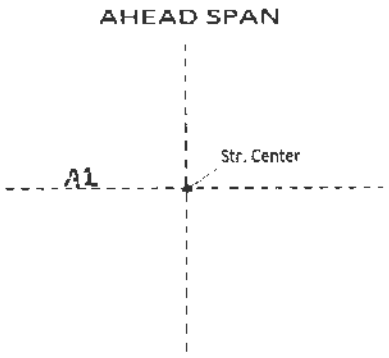
Forbes Bros LTD
POWERLINE CONSTRUCTION

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 69 kV | Line # | |
|---|---|---|---|---|---|
| Structure # | 214 | Structure Type | PTG | Date | Oct 16 2018 |

## ANCHOR CHECKLIST

**Plan View – Anchor Locations**




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Log | 2.5 | Permafrost | 56 | 150 | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

**Comments:**

Backfilled with gravel from 10'1/2

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | TREVOR ANTAL | | OCT 17/2018 |
| QC inspector | Phil McKinley | Phil McKinley | Oct 16 2018 |
| Client Inspector | | | |

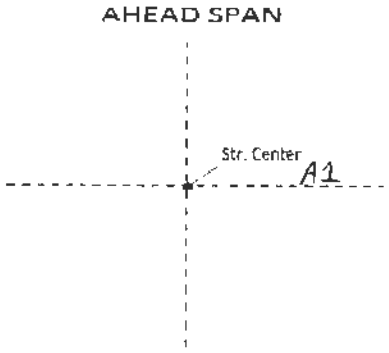
Forbes Bros LTD
POWERLINE CONSTRUCTION

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 69 KV | Line # | L251 |
|---|---|---|---|---|---|
| Structure # | 24/1 | Structure Type | PTG | Date | Dec 3 2018 |

## ANCHOR CHECKLIST

**Plan View – Anchor Locations**




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Log | 2.5 | Gravel | 59 | 150 | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

**Comments:**
Used 10 ft anchor rods

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | TREVOR ANTYPAS | | Dec 6/18 |
| QC inspector | Phil McKinley | Phil McKinley | Dec 5 2018 |
| Client Inspector | | | |

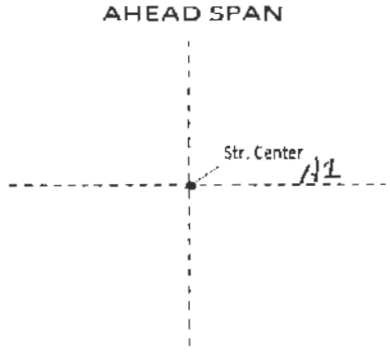
Forbes Bros Ltd
Powerline Construction

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 69 KV | Line # | L251 |
|---|---|---|---|---|---|
| Structure # | 24/2 | Structure Type | PTG | Date | Dec 3 2018 |

## ANCHOR CHECKLIST

### Plan View – Anchor Locations




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Log | 2.4 | Gravel | 56 | 150 | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

**Comments:**
Used 10 ft anchor rod

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | TREVOR ANDRE | | Dec 6/18 |
| QC inspector | Phil McKinley | Phil McKinley | Dec 5 2018 |
| Client Inspector | | | |

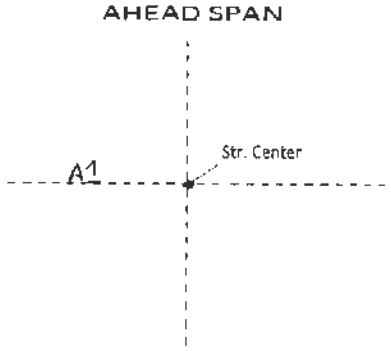
Forbes Bros LTD
POWERLINE CONSTRUCTION

# Anchor Installation

| | | | | | |
|---|---|---|---|---|---|
| **Project #** | 4581 | **Project Name** | Eagle Gold 69 KV | **Line #** | L251 |
| **Structure #** | 24/9 | **Structure Type** | PTG | **Date** | Dec 3 2018 |

## ANCHOR CHECKLIST

**Plan View – Anchor Locations**




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Log | 2.5 | Gravel | 60 | 150 | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

**Comments:**
Used 10 ft anchor rod

| | Print | Signature | Date |
|---|---|---|---|
| **Foreman name** | TREVOR AWTAC | | Dec 6/18 |
| **QC inspector** | Phil McKinley | Phil McKinley | Dec 5 2018 |
| **Client Inspector** | | | |

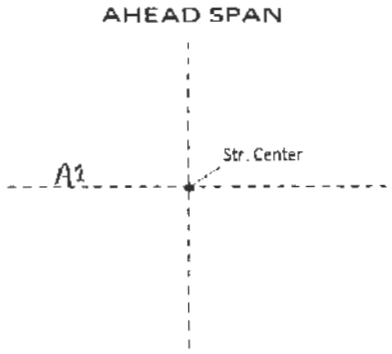
Forbes Bros LTD
POWERLINE CONSTRUCTION

# Anchor Installation

| | | | | | |
|---|---|---|---|---|---|
| **Project #** | 4581 | **Project Name** | Eagle Gold 69 KV | **Line #** | L251 |
| **Structure #** | 25/11 | **Structure Type** | PTG | **Date** | Dec 4 2018 |

## ANCHOR CHECKLIST

**Plan View – Anchor Locations**




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Log | 2.4 | Gravel | 58 | 150 | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

**Comments:**
Used 10 ft anchor rods

| | Print | Signature | Date |
|---|---|---|---|
| **Foreman name** | Trevor Antal | | Dec 6/18 |
| **QC inspector** | Phil McKinley | Phil McKinley | Dec 5 2018 |
| **Client Inspector** | | | |

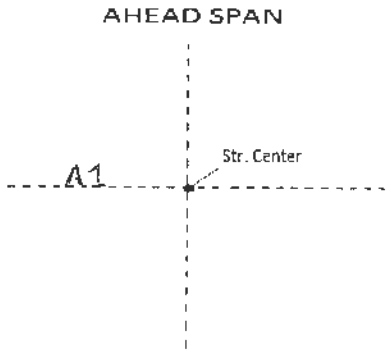
Forbes Bros LTD
POWERLINE CONSTRUCTION

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 69 KV | Line # | L251 |
|---|---|---|---|---|---|
| Structure # | 25/5 | Structure Type | PTG | Date | Dec 3 2018 |

## ANCHOR CHECKLIST

**Plan View – Anchor Locations**




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Log | 2.5 | Gravel | 60 | 150 | | |
| | | | | | | | |
| | | | | | | | |
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**Comments:**
Used 10 ft anchor rod

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | TREVOR ANTAC | | Dec 6/18 |
| QC inspector | Phil McKinley | P.J. McKinley | Dec 5 2018 |
| Client Inspector | | | |

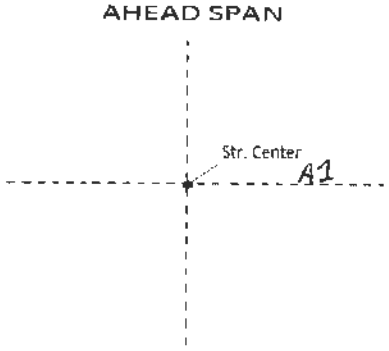
Forbes Bros LTD
POWERLINE CONSTRUCTION

# Anchor Installation

| | | | | | |
|---|---|---|---|---|---|
| **Project #** | 4581 | **Project Name** | Eagle Gold 69 KV | **Line #** | L251 |
| **Structure #** | 25/7 | **Structure Type** | PTG | **Date** | Dec 3 2018 |

## ANCHOR CHECKLIST

**Plan View – Anchor Locations**




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Log | 2.4 | Gravel | 59 | 150 | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

**Comments:**
Used 10 ft anchor rod

| | Print | Signature | Date |
|---|---|---|---|
| **Foreman name** | TREVOR AWTAL | | Dec 6/18 |
| **QC inspector** | Phil McKinley | Phil McKinley | Dec 5 2018 |
| **Client Inspector** | | | |

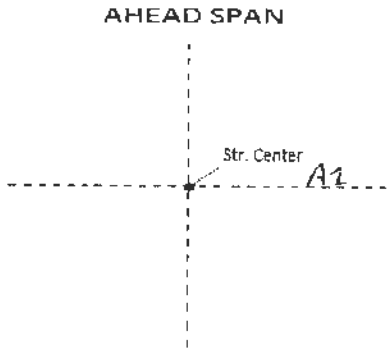
Forbes Bros Ltd
Powerline Construction

# Anchor Installation

| | | | | | |
|---|---|---|---|---|---|
| **Project #** | 4581 | **Project Name** | Eagle Gold 69 KV | **Line #** | L251 |
| **Structure #** | 25/8 | **Structure Type** | PTG | **Date** | Dec 4 2018 |

## ANCHOR CHECKLIST

**Plan View – Anchor Locations**




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Log | 2.4 | Gravel | 56 | 150 | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

**Comments:**

| | Print | Signature | Date |
|---|---|---|---|
| **Foreman name** | TREVOR ANTAL | | Dec 6/18 |
| **QC inspector** | Phil McKinley | P.J. McKinley | Dec 5 2018 |
| **Client Inspector** | | | |

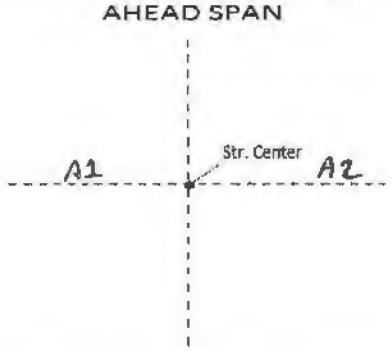
Forbes Bros LTD
POWERLINE CONSTRUCTION

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 69kV | Line # | L251 |
|---|---|---|---|---|---|
| Structure # | 216 | Structure Type | PT | Date | Nov 1 2018 |

## ANCHOR CHECKLIST

**Plan View – Anchor Locations**




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Plate | 2.4m | Permafrost | 58 | 150 | | |
| 2 | Plate | 2.4 | Permafrost | 58 | 150 | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

**Comments:**

Used lost anchor rods
Backfilled with gravel

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | Mike Swatland | | Nov 2/18 |
| QC inspector | Phil McKinley | | Nov 2 2018 |
| Client Inspector | | | |

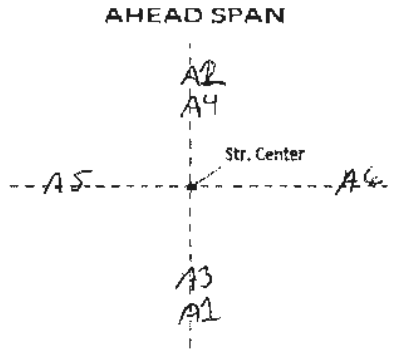
Forbes Bros. LTD
POWERLINE CONSTRUCTION

# Anchor Installation

| | | | | | |
|---|---|---|---|---|---|
| **Project #** | 4581 | **Project Name** | Eagle Gold 69 KV | **Line #** | L251 |
| **Structure #** | 26/1 | **Structure Type** | FDE | **Date** | Dec 5 2018 |

## ANCHOR CHECKLIST

**Plan View – Anchor Locations**




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Log | 3.2 | Gravel | 44 | 150 | | |
| 2 | Log | 3.4 | Gravel | 47 | 150 | | |
| 3 | Log | 3.2 | Gravel | 45 | 150 | | |
| 4 | Log | 3.3 | Gravel | 46 | 150 | | |
| 5 | Log | 2.4 | Gravel | 58 | 150 | | |
| 6 | Log | 2.4 | Gravel | 59 | 150 | | |
| | | | | | | | |
| | | | | | | | |

**Comments:**

A1,A2,A3,A4 10 ft anchor rod plus extension
A5 and A6 10 ft anchor rods used

| | Print | Signature | Date |
|---|---|---|---|
| **Foreman name** | TREVOR AUTAH | | Dec 8/18 |
| **QC inspector** | Phil McKinley | Phil McKinley | Dec 7 2018 |
| **Client Inspector** | | | |

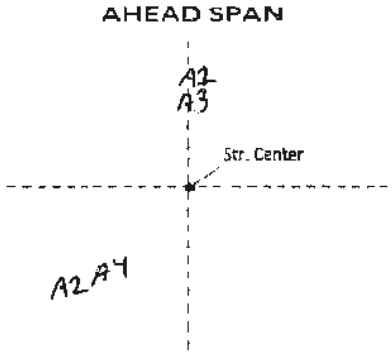
Forbes Bros LTD
POWERLINE CONSTRUCTION

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 69 KV | Line # | L251 |
|---|---|---|---|---|---|
| Structure # | 27/1 | Structure Type | VDEMA | Date | Dec 5 2018 |

## ANCHOR CHECKLIST

**Plan View – Anchor Locations**




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Log | 3.3 | Gravel | 45 | 150 | | |
| 2 | Log | 3.4 | Gravel | 47 | 150 | | |
| 3 | Log | 3.3 | Gravel | 46 | 150 | | |
| 4 | Log | 3.3 | Gravel | 46 | 150 | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

**Comments:**

A1,A2,A3,A4 used 10 ft anchor rods plus extensions

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | TREVOR ANTAL | | Dec 8/18 |
| QC inspector | Phil McKinley | Phil McKinley | Dec 7 2018 |
| Client Inspector | | | |

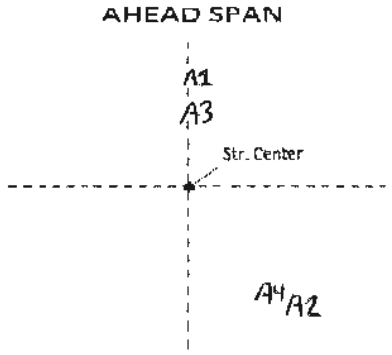
Forbes Bros. LTD
POWERLINE CONSTRUCTION

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 69 KV | Line # | L251 |
|---|---|---|---|---|---|
| Structure # | 28/13 | Structure Type | VDEMA | Date | Dec 8 2018 |

## ANCHOR CHECKLIST

**Plan View – Anchor Locations**




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Log | 3.5 | Gravel | 49 | 150 | | |
| 2 | Log | 3.5 | Gravel | 48 | 150 | | |
| 3 | Log | 3.2 | Gravel | 44 | 150 | | |
| 4 | Log | 3.3 | Gravel | 46 | 150 | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

**Comments:**
A1,A2,A3,A4 used 10 ft anchor rods plus extensions

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | TREVOR ANTAL | | Dec 12/18 |
| QC inspector | Phil McKinley | Phil McKinley | Dec 11 2018 |
| Client Inspector | | | |

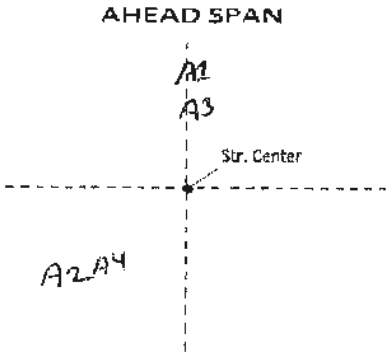
Forbes Bros Ltd
POWERLINE CONSTRUCTION

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 69 KV | Line # | L251 |
|---|---|---|---|---|---|
| Structure # | 28/2 | Structure Type | VDEMA | Date | Dec 6 2018 |

## ANCHOR CHECKLIST

**Plan View – Anchor Locations**




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Log | 3.3 | Gravel | 46 | 150 | | |
| 2 | Log | 3.3 | Gravel | 46 | 150 | | |
| 3 | Log | 3.3 | Gravel | 45 | 150 | | |
| 4 | Log | 3.3 | Gravel | 45 | 150 | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

**Comments:**

A1,A2,A3,A4 used 10 ft anchor rods plus extensions

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | TREVOR ANTAL | | Dec 9/18 |
| QC inspector | Phil McKinley | Phil McKinley | Dec 8 2018 |
| Client Inspector | | | |

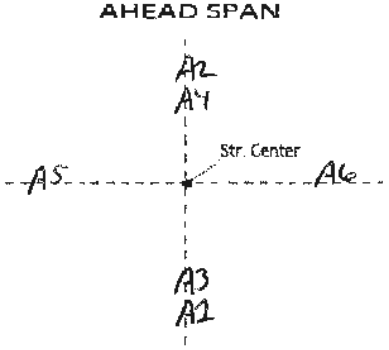
Forbes Bros LTD
POWERLINE CONSTRUCTION

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 69 KV | Line # | L251 |
|---|---|---|---|---|---|
| Structure # | 28/7 | Structure Type | FDE | Date | Dec 7 2018 |

## ANCHOR CHECKLIST

**Plan View – Anchor Locations**




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Log | 3.3 | Gravel | 44 | 150 | | |
| 2 | Log | 3.3 | Gravel | 45 | 150 | | |
| 3 | Log | 3.3 | Gravel | 44 | 150 | | |
| 4 | Log | 3.3 | Gravel | 46 | 150 | | |
| 5 | Log | 2.4 | Gravel | 58 | 150 | | |
| 6 | Log | 2.4 | Gravel | 59 | 150 | | |
| | | | | | | | |
| | | | | | | | |

**Comments:**

A1,A2,A3,A4 used 10 ft anchor rods plus extensions
A5,A6 used 10 ft anchor rods

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | TREVOR ANTYPAC | | Dec 9/18 |
| QC inspector | Phil McKinley | Phil McKinley | Dec 8 2018 |
| Client Inspector | | | |

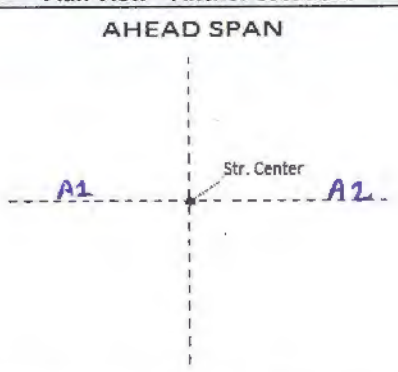
Forbes Bros LTD
POWERLINE CONSTRUCTION

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 69 KV | Line # | 251 |
|---|---|---|---|---|---|
| Structure # | 219 | Structure Type | PT | Date | Sept 29 2018 |

## ANCHOR CHECKLIST

### Plan View – Anchor Locations




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Plate | 2.4 | Permafrost | 59 | 150 | | |
| 2 | Plate | 2.4 | Permafrost | 63 | 150 | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

**Comments:**

Backfilled with gravel from 10'1/2

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | TREVOR ANTAL | | OCT 1 2018 |
| QC inspector | Phil McKinley | Phil McKinley | Sept 30 2018 |
| Client Inspector | | | |

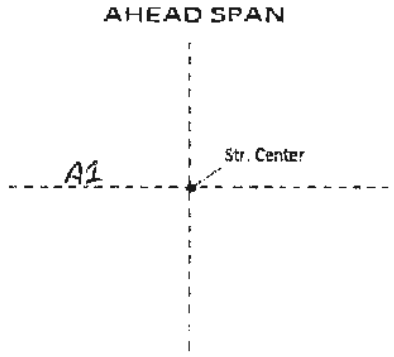
Forbes Bros Ltd
POWERLINE CONSTRUCTION

# Anchor Installation

| | | | | | |
|---|---|---|---|---|---|
| **Project #** | 4581 | **Project Name** | Eagle Gold 69 KV | **Line #** | L251 |
| **Structure #** | 29/6 | **Structure Type** | PTG | **Date** | Dec 8 2018 |

## ANCHOR CHECKLIST

**Plan View – Anchor Locations**




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Log | 2.4 | Gravel | 59 | 150 | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

**Comments:**
A1 used 10 ft anchor rod

| | Print | Signature | Date |
|---|---|---|---|
| **Foreman name** | TREVOR ANTAR | | Dec 12/18 |
| **QC inspector** | Phil McKinley | Phil McKinley | Dec 11 2018 |
| **Client Inspector** | | | |

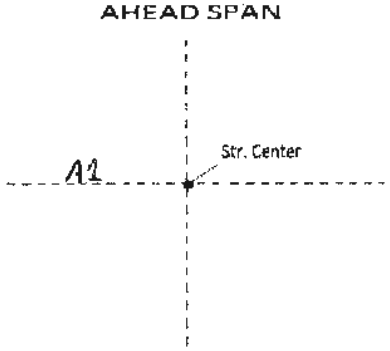
Forbes Bros LTD
POWERLINE CONSTRUCTION

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 69 KV | Line # | L251 |
|---|---|---|---|---|---|
| Structure # | 29/7 | Structure Type | PTG | Date | Dec 8 2018 |

## ANCHOR CHECKLIST

**Plan View – Anchor Locations**




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Log | 2.4 | Gravel | 57 | 150 | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

**Comments:**
A1 used 10 ft anchor rod

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | TREVOR ANTAL | | Dec 12/18 |
| QC inspector | Phil McKinley | Phil McKinley | Dec 11 2018 |
| Client Inspector | | | |

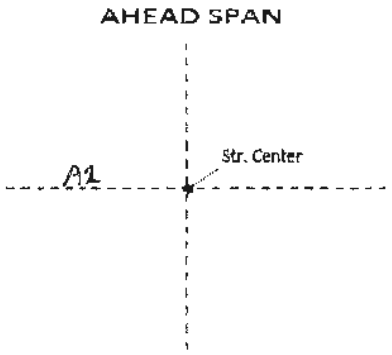
Forbes Bros LTD
POWERLINE CONSTRUCTION

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 69 KV | Line # | L251 |
|---|---|---|---|---|---|
| Structure # | 30/1 | Structure Type | PTG | Date | Dec 8 2018 |

## ANCHOR CHECKLIST

**Plan View – Anchor Locations**




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle ($^0$) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Log | 2.5 | Gravel | 60 | 150 | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

**Comments:**
A1 used 10 ft anchor rod

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | TREVOR ANTAL | | Dec 12/18 |
| QC inspector | Phil McKinley | Phil McKinley | Dec 11 2018 |
| Client Inspector | | | |

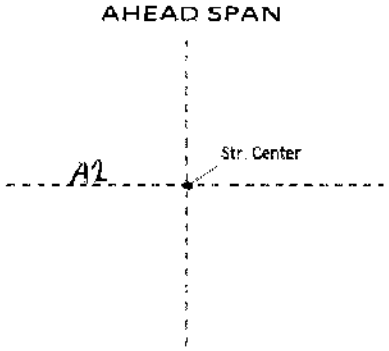
Forbes Bros LTD
POWERLINE CONSTRUCTION

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 69 KV | Line # | L251 |
|---|---|---|---|---|---|
| Structure # | 30/2 | Structure Type | PTG | Date | Dec 8 2018 |

## ANCHOR CHECKLIST

**Plan View – Anchor Locations**




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Log | 2.4 | Gravel | 57 | 150 | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

**Comments:**
A1 used 10 ft anchor rod

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | TREVOR ANTA | | Dec 12/18 |
| QC inspector | Phil McKinley | Phil McKinley | Dec 11 2018 |
| Client Inspector | | | |

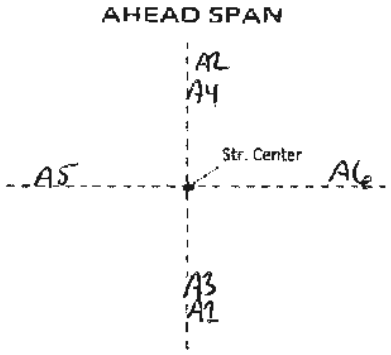
Forbes Bros LTD
POWERLINE CONSTRUCTION

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 69 KV | Line # | L251 |
|---|---|---|---|---|---|
| Structure # | 30/5 | Structure Type | FDE | Date | Dec 9 2018 |

## ANCHOR CHECKLIST

**Plan View Anchor Locations**




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Log | 3.2 | Gravel | 44 | 150 | | |
| 2 | Log | 3.2 | Gravel | 45 | 150 | | |
| 3 | Log | 3.4 | Gravel | 47 | 150 | | |
| 4 | Log | 3.3 | Gravel | 46 | 150 | | |
| 5 | Log | 2.4 | Gravel | 59 | 150 | | |
| 6 | Log | 2.5 | Gravel | 61 | 150 | | |
| | | | | | | | |
| | | | | | | | |

**Comments:**

A1,A2,A3,A4 10 ft anchor rods plus extension
A5,A6 10 ft anchor rods

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | TREVOR ANTAL | [signature] | Dec 11/18 |
| QC inspector | Phil McKinley | Phil McKinley | Dec 10 2018 |
| Client Inspector | | | |

Forbes Bros Ltd.
Powerline Construction

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 69kV | Line # | L 251 |
|---|---|---|---|---|---|
| Structure # | 311 | Structure Type | SAH | Date | Oct 31 2018 |

## ANCHOR CHECKLIST

### Plan View – Anchor Locations




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Plate | 2.4 | PermaFrost | 62 | 150 | | |
| 2 | Plate | 2.4 | PermaFrost | 59 | 150 | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

**Comments:**

Used lost anchor rods
Backfilled with gravel

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | Mike Sweetland | | Oct 31/18 |
| QC inspector | Phil McKinley | | Oct 31 2018 |
| Client Inspector | | | |

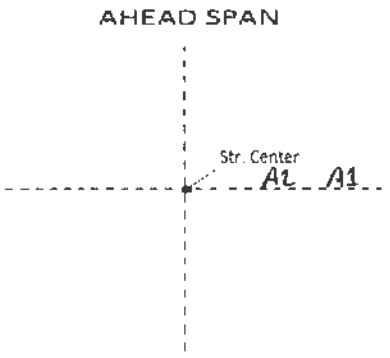
Forbes Bros LTD
POWERLINE CONSTRUCTION

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 69kV | Line # | L 251 |
|---|---|---|---|---|---|
| Structure # | 3/11 | Structure Type | VmA | Date | Oct 18 2018 |

## ANCHOR CHECKLIST

**Plan View – Anchor Locations**




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Leg | 2.5 | Gravel | 60 | 150 | | |
| 2 | Leg | 2.4 | Gravel | 55 | 150 | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

**Comments:**

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | TREVOR AWIMK | | OCT 19 2018 |
| QC inspector | Phil McKinley | Phil McKinley | Oct 18 2018 |
| Client Inspector | | | |

Forbes Bros LTD
POWERLINE CONSTRUCTION

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 69 KV | Line # | L251 |
|---|---|---|---|---|---|
| Structure # | 32/10 | Structure Type | PTR | Date | February 20 2019 |

## ANCHOR CHECKLIST

**Plan View – Anchor Locations**




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Plate | 2.4 | Permafrost | 58 | 150 | | |
| 2 | Plate | 2.5 | Permafrost | 61 | 150 | | |
| | | | | | | | |
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**Comments:**

A1,A2 used 10 ft anchor rods
Backfilled with gravel
Not identified as potential permafrost on structure data sheet

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | TREVOR ANTAL | | FEB 24 2019 |
| QC inspector | Phil McKinley | Phil McKinley | Feb 23 2019 |
| Client Inspector | MattC | MC | Feb 25, 19 |

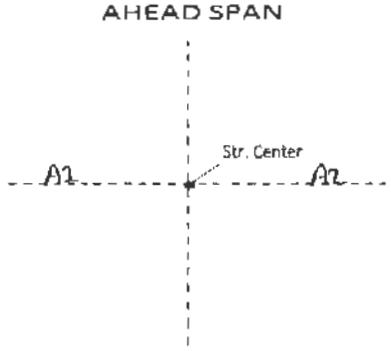
Forbes Bros. Ltd.
POWERLINE CONSTRUCTION

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 69 KV | Line # | L251 |
|---|---|---|---|---|---|
| Structure # | 32/11 | Structure Type | PT | Date | February 20 2019 |

## ANCHOR CHECKLIST

**Plan View – Anchor Locations**




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Plate | 2.5 | Permafrost | 62 | 150 | | |
| 2 | Plate | 2.5 | Permafrost | 62 | 150 | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
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| | | | | | | | |

**Comments:**

A1,A2 used 10 ft anchor rods
Backfilled with gravel
Not identified as potential permafrost on structure data sheet

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | TREVOR ANTAL | | FEB 24 2019 |
| QC inspector | Phil McKinley | Phil McKinley | Feb 23 2019 |
| Client Inspector | Matt C | | Feb 25, 19 |

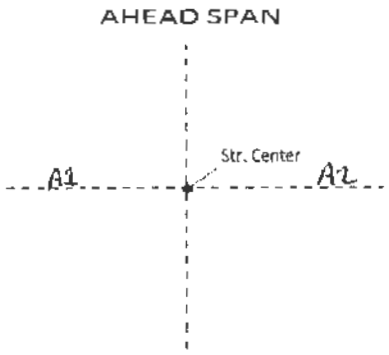
Forbes Bros. Ltd.
POWERLINE CONSTRUCTION

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 69 KV | Line # | L251 |
|---|---|---|---|---|---|
| Structure # | 32/12 | Structure Type | PT | Date | February 20 2019 |

## ANCHOR CHECKLIST

**Plan View – Anchor Locations**




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Plate | 2.4 | Permafrost | 59 | 150 | | |
| 2 | Plate | 2.4 | Permafrost | 58 | 150 | | |
| | | | | | | | |
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| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

**Comments:**

A1,A2 used 10 ft anchor rods
Backfilled with gravel
Not identified as potential permafrost on structure data sheet

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | TREVOR ANTAL | | FEB 24 2019 |
| QC inspector | Phil McKinley | Phil McKinley | Feb 23 2019 |
| Client Inspector | Matt C | MC | Feb 25 |

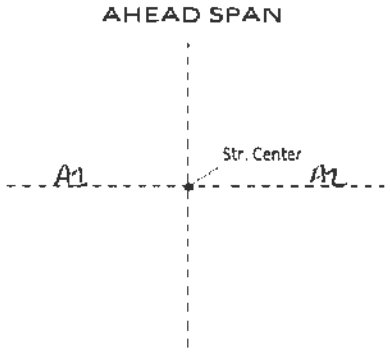
Forbes Bros LTD
POWERLINE CONSTRUCTION

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 69 KV | Line # | L251 |
|---|---|---|---|---|---|
| Structure # | 32/13 | Structure Type | PT | Date | February 20 2019 |

## ANCHOR CHECKLIST

**Plan View – Anchor Locations**




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Plate | 2.5 | Permafrost | 61 | 150 | | |
| 2 | Plate | 2.4 | Permafrost | 58 | 150 | | |
| | | | | | | | |
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| | | | | | | | |
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| | | | | | | | |
| | | | | | | | |

**Comments:**

A1,A2 used 10 ft anchor rods
Backfilled with gravel
Not identified as potential permafrost on structure data sheet

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | TREVOR ANTAL | | FEB 24 2019 |
| QC inspector | Phil McKinley | Phil McKinley | Feb 23 2019 |
| Client Inspector | Matt C | | Feb 25, 19 |

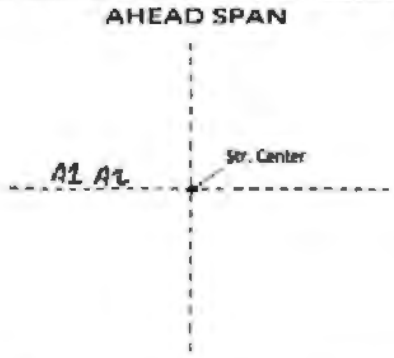
Forbes Bros Ltd
POWERLINE CONSTRUCTION

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 69 KV | Line # | L251 |
|---|---|---|---|---|---|
| Structure # | 32/9 | Structure Type | VMA | Date | Dec 16 2018 |

## ANCHOR CHECKLIST

Plan View – Anchor Locations




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Log | 2.5 | Permafrost | 60 | 150 | | |
| 2 | Log | 2.4 | Permafrost | 58 | 150 | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
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| | | | | | | | |

**Comments:**
Used 10 ft anchor rods

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | TREVOR ANTAL | | Jan 5/19 |
| QC Inspector | Phil McKinley | Phil McKinley | Jan 4 2019 |
| Client Inspector | | | |

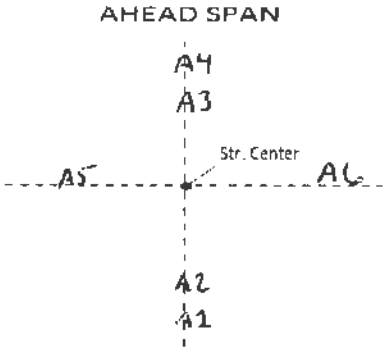
Forbes Bros LTD
POWERLINE CONSTRUCTION

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 69 Kv | Line # | L 251 |
|---|---|---|---|---|---|
| Structure # | 3/3 | Structure Type | FDE | Date | Oct 18 2018 |

## ANCHOR CHECKLIST

**Plan View – Anchor Locations**




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Log | 3 | Perma Frost | 48 | 150 | | |
| 2 | Log | 3 | Permafrost | 47 | 150 | | |
| 3 | Log | 3 | Permafrost | 47 | 150 | | |
| 4 | Log | 3 | Permafrost | 46 | 150 | | |
| 5 | Log | 2.4 | Permafrost | 58 | 150 | | |
| 6 | Log | 2.4 | Permafrost | 58 | 150 | | |
| | | | | | | | |
| | | | | | | | |

**Comments:**

Backfilled with gravel from 10½

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | TREVOR PATTEN | | Oct 19 2018 |
| QC inspector | Phil McKinley | Phil McKinley | Oct 18 2018 |
| Client Inspector | | | |

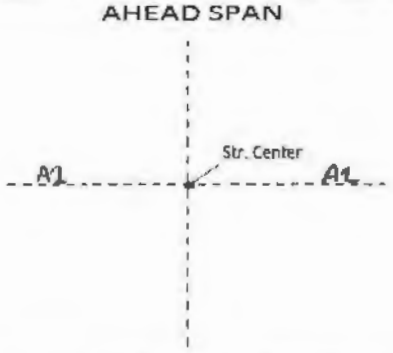
Forbes Bros LTD
POWERLINE CONSTRUCTION

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 69 KV | Line # | L251 |
|---|---|---|---|---|---|
| Structure # | 33/1 | Structure Type | PT | Date | February 20 2019 |

## ANCHOR CHECKLIST

### Plan View – Anchor Locations




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Plate | 2.4 | Permafrost | 59 | 150 | | |
| 2 | Plate | 2.5 | Permafrost | 60 | 150 | | |
| | | | | | | | |
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| | | | | | | | |

**Comments:**

A1,A2 used 10 ft anchor rods
Backfilled with gravel
Not identified as potential permafrost on structure data sheet

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | TREVOR ANTAL | | FEB 24 2019 |
| QC inspector | Phil McKinley | Phil McKinley | Feb 23 2019 |
| Client Inspector | Matt C | | Feb 25, 19 |

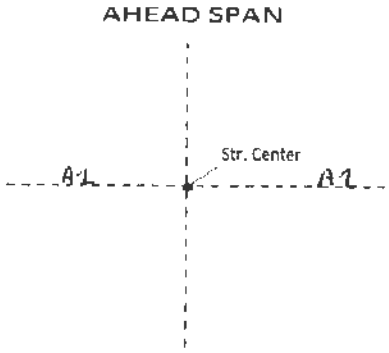
Forbes Bros LTD
POWERLINE CONSTRUCTION

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 69 KV | Line # | L251 |
|---|---|---|---|---|---|
| Structure # | 33/10 | Structure Type | PT | Date | February 18 2019 |

## ANCHOR CHECKLIST

**Plan View – Anchor Locations**




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Plate | 2.5 | Permafrost | 60 | 150 | | |
| 2 | Plate | 2.5 | Permafrost | 62 | 150 | | |
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**Comments:**

A1,A2 used 10 ft anchor rods
Backfilled with gravel
Not identified as potential permafrost on structure data sheet

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | TREVOR ANTAL | | Feb 22 2019 |
| QC inspector | Phil McKinley | Phil McKinley | Feb 21 2019 |
| Client Inspector | Matt Cacdale | MC | Feb 23, 2019 |

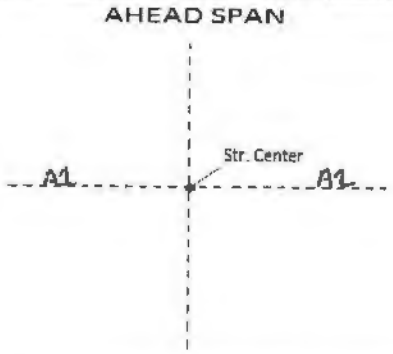
Forbes Bros LTD
POWERLINE CONSTRUCTION

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 69 KV | Line # | L251 |
|---|---|---|---|---|---|
| Structure # | 33/11 | Structure Type | PT | Date | February 18 2019 |

## ANCHOR CHECKLIST

### Plan View – Anchor Locations




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Plate | 2.5 | Permafrost | 61 | 150 | | |
| 2 | Plate | 2.4 | Permafrost | 58 | 150 | | |
| | | | | | | | |
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**Comments:**

A1,A2 used 10 ft anchor rods
Backfilled with gravel
Not identified as potential permafrost on structure data sheet

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | TREVOR ANTAL | | FEB 22 2019 |
| QC inspector | Phil McKinley | Phil McKinley | Feb 21 2019 |
| Client Inspector | Matt Caredale | | Feb 23, 2019 |

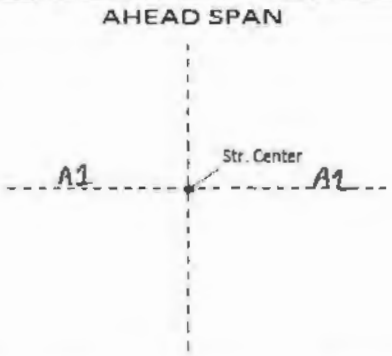
Forbes Bros LTD
POWERLINE CONSTRUCTION

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 69 KV | Line # | L251 |
|---|---|---|---|---|---|
| Structure # | 33/2 | Structure Type | PT | Date | February 19 2019 |

## ANCHOR CHECKLIST

**Plan View – Anchor Locations**




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Plate | 2.4 | Permafrost | 58 | 150 | | |
| 2 | Plate | 2.5 | Permafrost | 61 | 150 | | |
| | | | | | | | |
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| | | | | | | | |

**Comments:**

A1,A2 used 10 ft anchor rods
Backfilled with gravel
Not identified as potential permafrost on structure data sheet

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | TREVOR ANTAL | | FEB 22 2019 |
| QC inspector | Phil McKinley | Phil McKinley | Feb 21 2019 |
| Client Inspector | Matt Cavedale | | Feb 23, 2019 |

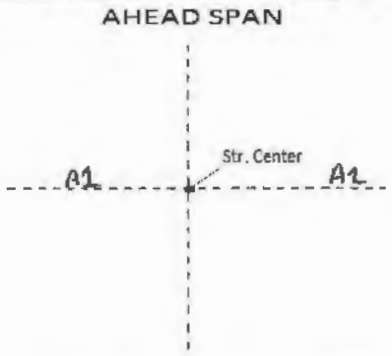
Forbes Bros LTD
POWERLINE CONSTRUCTION

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 69 KV | Line # | L251 |
|---|---|---|---|---|---|
| Structure # | 33/3 | Structure Type | PT | Date | February 19 2019 |

## ANCHOR CHECKLIST

### Plan View – Anchor Locations




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Plate | 2.5 | Permafrost | 62 | 150 | | |
| 2 | Plate | 2.5 | Permafrost | 61 | 150 | | |
| | | | | | | | |
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| | | | | | | | |

**Comments:**

A1,A2 used 10 ft anchor rods
Backfilled with gravel
Not identified as potential permafrost on structure data sheet

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | TREVOR ANTAL | | Feb 22/19 |
| QC inspector | Phil McKinley | Phil McKinley | Feb 21 2019 |
| Client Inspector | Matt Cavendale | | Feb 23, 2019 |

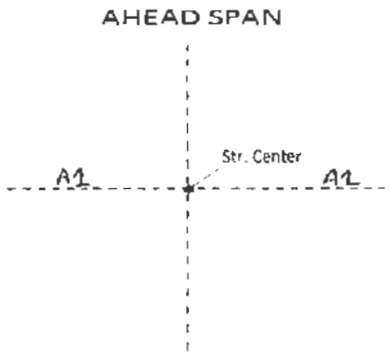
Forbes Bros LTD
POWERLINE CONSTRUCTION

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 69 KV | Line # | L251 |
|---|---|---|---|---|---|
| Structure # | 33/4 | Structure Type | PT | Date | February 19 2019 |

## ANCHOR CHECKLIST

**Plan View – Anchor Locations**




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Plate | 2.4 | Permafrost | 59 | 150 | | |
| 2 | Plate | 2.4 | Permafrost | 58 | 150 | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
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| | | | | | | | |

**Comments:**

A1,A2 used 10 ft anchor rods
Backfilled with gravel
Not identified as potential permafrost on structure data sheet

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | TREVOR ANTAL | | FEB 22 2019 |
| QC Inspector | Phil McKinley | Phil McKinley | Feb 21 2019 |
| Client Inspector | Matt Cacerdale | MC | Feb 23, 2019 |

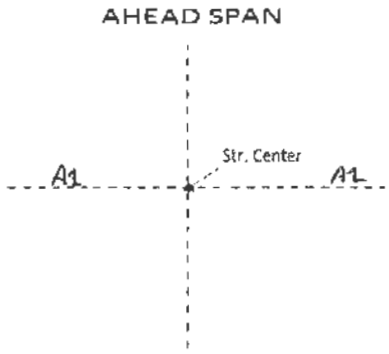
Forbes Bros LTD
POWERLINE CONSTRUCTION

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 69 KV | Line # | L251 |
|---|---|---|---|---|---|
| Structure # | 33/6 | Structure Type | PT | Date | February 19 2019 |

## ANCHOR CHECKLIST

**Plan View – Anchor Locations**




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Plate | 2.4 | Permafrost | 57 | 150 | | |
| 2 | Plate | 2.4 | Permafrost | 58 | 150 | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

**Comments:**

A1,A2 used 10 ft anchor rods
Backfilled with gravel
Not identified as potential permafrost on structure data sheet

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | TREVOR ANTHIL | | FEB 22 2019 |
| QC inspector | Phil McKinley | Phil McKinley | Feb 21 2019 |
| Client Inspector | Matt Caverdale | | Feb 23, 2019 |

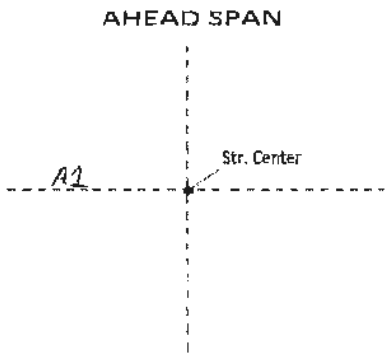
Forbes Bros. LTD
POWERLINE CONSTRUCTION

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 69 KV | Line # | L251 |
|---|---|---|---|---|---|
| Structure # | 33/8 | Structure Type | PTG | Date | Dec 16 2018 |

## ANCHOR CHECKLIST

**Plan View – Anchor Locations**




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Log | 2.5 | Permafrost | 60 | 150 | | |
| | | | | | | | |
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| | | | | | | | |
| | | | | | | | |
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| | | | | | | | |
| | | | | | | | |

**Comments:**
Used 10 ft anchor rods

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | TREVOR ANTAC | | Jan 5/19 |
| QC inspector | Phil McKinley | Phil McKinley | Jan 4 2019 |
| Client Inspector | | | |

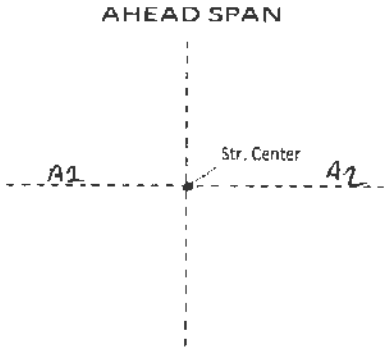
Forbes Bros Ltd
Powerline Construction

# Anchor Installation

| | | | | | |
|---|---|---|---|---|---|
| **Project #** | 4581 | **Project Name** | Eagle Gold 69 KV | **Line #** | L251 |
| **Structure #** | 33/9 | **Structure Type** | PT | **Date** | February 19 2019 |

## ANCHOR CHECKLIST

**Plan View – Anchor Locations**




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Plate | 2.4 | Permafrost | 57 | 150 | | |
| 2 | Plate | 2.5 | Permafrost | 60 | 150 | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

**Comments:**

A1,A2 used 10 ft anchor rods
Backfilled with gravel
Not identified as potential permafrost on structure data sheet

| | Print | Signature | Date |
|---|---|---|---|
| **Foreman name** | TREVOR ANTAL | | FEB 22 2019 |
| **QC inspector** | Phil McKinley | Phil McKinley | Feb 21 2019 |
| **Client Inspector** | Matt Caerdale | MC | Feb 23, 2019 |

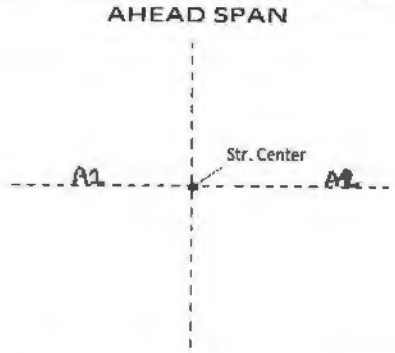
Forbes Bros LTD
POWERLINE CONSTRUCTION

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 69 KV | Line # | L251 |
|---|---|---|---|---|---|
| Structure # | 34/1 | Structure Type | PT | Date | February 18 2019 |

## ANCHOR CHECKLIST

**Plan View – Anchor Locations**




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Plate | 2.5 | Permafrost | 61 | 150 | | |
| 2 | Plate | 2.5 | Permafrost | 61 | 150 | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

**Comments:**

A1,A2 used 10 ft anchor rods
Backfilled with gravel
Not identified as potential permafrost on structure data sheet

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | TREVOR ANTAL | | FEB 22 2019 |
| QC inspector | Phil McKinley | Phil McKinley | Feb 21 2019 |
| Client Inspector | Matt Caverdale | | Feb 23, 2019 |

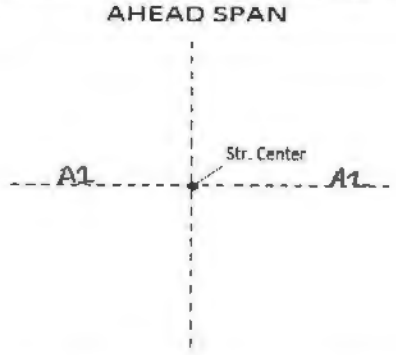
Forbes Bros LTD
POWERLINE CONSTRUCTION

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 69 KV | Line # | L251 |
|---|---|---|---|---|---|
| Structure # | 34/3 | Structure Type | PT | Date | February 18 2019 |

## ANCHOR CHECKLIST

**Plan View – Anchor Locations**




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Plate | 2.4 | Permafrost | 59 | 150 | | |
| 2 | Plate | 2.6 | Permafrost | 63 | 150 | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

**Comments:**

A1,A2 used 10 ft anchor rods
Backfilled with gravel
Not identified as potential permafrost on structure data sheet

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | TREVOR ANTAL | | FEB 22 2019 |
| QC inspector | Phil McKinley | Phil McKinley | Feb 21 2019 |
| Client Inspector | Matt Cavesdale | | Feb 23, 2019 |

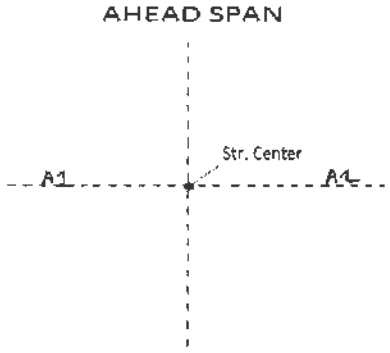
Forbes Bros. Ltd
Powerline Construction

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 69 KV | Line # | L251 |
|---|---|---|---|---|---|
| Structure # | 34/4 | Structure Type | PT | Date | February 18 2019 |

## ANCHOR CHECKLIST

**Plan View – Anchor Locations**




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Plate | 2.5 | Permafrost | 61 | 150 | | |
| 2 | Plate | 2.5 | Permafrost | 61 | 150 | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

**Comments:**

A1,A2 used 10 ft anchor rods
Backfilled with gravel
Not identified as potential permafrost on structure data sheet

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | TREVOR ANTAL | | FEB 22 2019 |
| QC inspector | Phil McKinley | Phil McKinley | Feb 21 2019 |
| Client Inspector | Matt Caverdale | | Feb 23, 2019 |

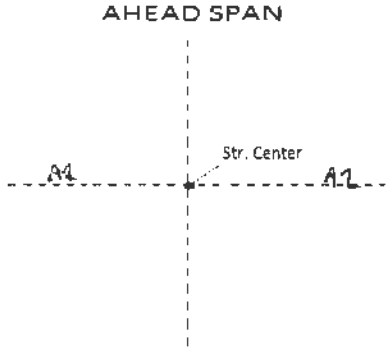
Forbes Bros Ltd
Powerline Construction

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 69 KV | Line # | L251 |
|---|---|---|---|---|---|
| Structure # | 34/5 | Structure Type | PT | Date | February 17 2019 |

## ANCHOR CHECKLIST

**Plan View – Anchor Locations**




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Plate | 2.4 | Permafrost | 57 | 150 | | |
| 2 | Plate | 2.5 | Permafrost | 61 | 150 | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

**Comments:**

A1,A2 used 10 ft anchor rods
Backfilled with gravel
Not identified as potential permafrost on structure data sheet

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | TREVOR ANTAL | | FEB 22 2019 |
| QC inspector | Phil McKinley | Phil McKinley | Feb 21 2019 |
| Client Inspector | Matt Caverdale | | Feb 23, 2019 |

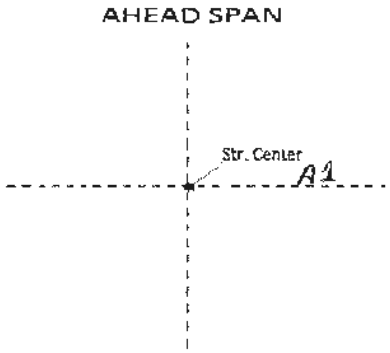
Forbes Bros Ltd
Powerline Construction

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 69 KV | Line # | L251 |
|---|---|---|---|---|---|
| Structure # | 34/7 | Structure Type | PTG | Date | Dec 15 2018 |

## ANCHOR CHECKLIST

**Plan View – Anchor Locations**




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Log | 2.4 | Gravel | 59 | 150 | | |
| | | | | | | | |
| | | | | | | | |
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| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

**Comments:**
Used 10 ft anchor rod

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | TREVOR ANTAL | | Dec 19/18 |
| QC inspector | Phil McKinley | | Dec 18 2018 |
| Client Inspector | | | |

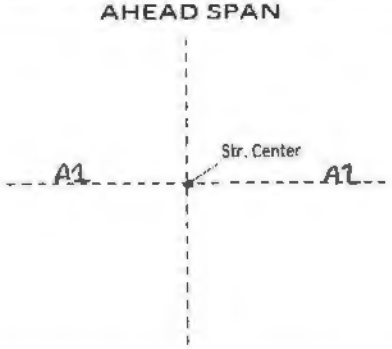
Forbes Bros LTD
POWERLINE CONSTRUCTION

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 69 KV | Line # | L251 |
|---|---|---|---|---|---|
| Structure # | 35/11 | Structure Type | PT | Date | February 17 2019 |

## ANCHOR CHECKLIST

**Plan View – Anchor Locations**




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Plate | 2.5 | Permafrost | 62 | 150 | | |
| 2 | Plate | 2.5 | Permafrost | 61 | 150 | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
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| | | | | | | | |

**Comments:**

A1,A2 used 10 ft anchor rods
Backfilled with gravel
Not identified as potential permafrost on structure data sheet

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | TREVOR ANTHL | | Feb 22 /2019 |
| QC inspector | Phil McKinley | Phil McKinley | Feb 21 2019 |
| Client Inspector | Matt Cavendale | MC | Feb 23, 2019 |

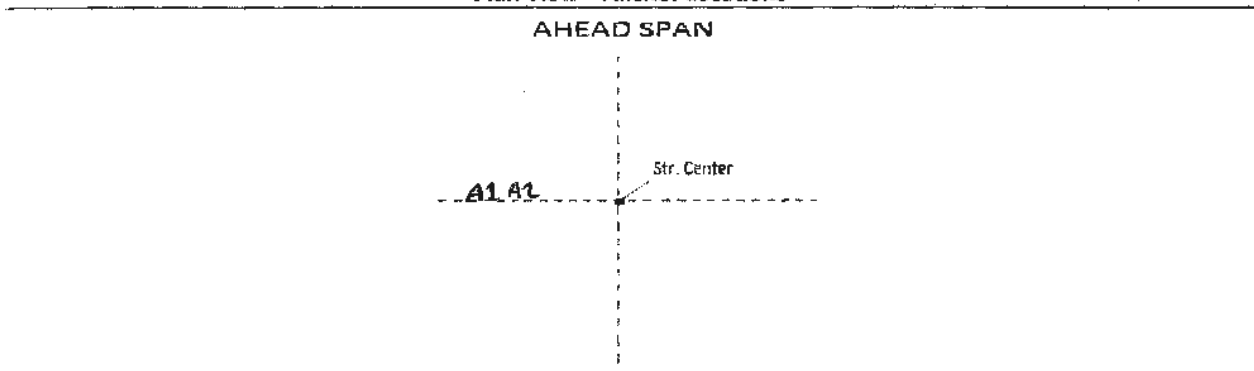
Forbes Bros Ltd
POWERLINE CONSTRUCTION

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 69 KV | Line # | L251 |
|---|---|---|---|---|---|
| Structure # | 35/2 | Structure Type | VMA | Date | Jan 6 2019 |

## ANCHOR CHECKLIST

**Plan View – Anchor Locations**




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Log | 2.5 | Gravel | 61 | 150 | | |
| 2 | Log | 2.4 | Gravel | 58 | 150 | | |
| | | | | | | | |
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| | | | | | | | |

**Comments:**

A1 and A2 used 10 ft anchor rods

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | TREVOR ANITZ | | Jan 8/19 |
| QC inspector | Phil McKinley | PJ McK | Jan 7 2019 |
| Client Inspector | | | |

Forbes Bros Ltd.
Powerline Construction

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 69 KV | Line # | L251 |
|---|---|---|---|---|---|
| Structure # | 35/3 | Structure Type | VDEMA | Date | Nov 14 2018 |

## ANCHOR CHECKLIST

**Plan View – Anchor Locations**




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Log | 3.5 | Gravel | 50 | 150 | | |
| 2 | Log | 3.3 | Gravel | 45 | 150 | | |
| 3 | Log | 3.4 | Gravel | 47 | 150 | | |
| 4 | Log | 3.3 | Gravel | 46 | 150 | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

**Comments:**

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | TREVOR ANTAL | | NOV 16/2018 |
| QC inspector | Phil McKinley | Phil McKinley | Nov 15 2018 |
| Client Inspector | | | |

Forbes Bros Ltd
Powerline Construction

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 69 KV | Line # | L251 |
|---|---|---|---|---|---|
| Structure # | 35/4 | Structure Type | PTG | Date | Nov 14 2018 |

## ANCHOR CHECKLIST

### Plan View – Anchor Locations




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Log | 2.4 | Gravel | 59 | 150 | | |
| | | | | | | | |
| | | | | | | | |
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| | | | | | | | |

**Comments:**

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | TREVOR AMIAC | | NOV 15/18 |
| QC inspector | Phil McKinley | Phil McKinley | Nov 15 2018 |
| Client Inspector | | | |

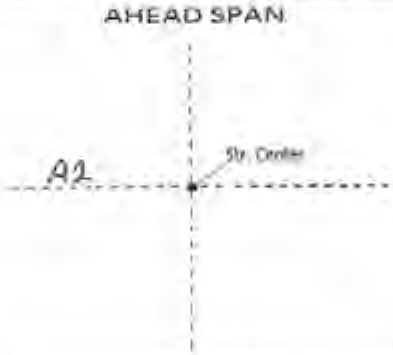
Forbes Bros. Ltd.
Powerline Construction

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 69 KV | Line # | L251 |
|---|---|---|---|---|---|
| Structure # | 35/8 | Structure Type | PTG | Date | Nov 14 2018 |

**ANCHOR CHECKLIST**

**Plan View – Anchor Locations**




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Log | 2.4 | Gravel | 60 | 150 | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

**Comments:**

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | TREVOR [illegible] | [signature] | NOV 16/18 |
| QC inspector | Phil McKinley | [signature] | Nov 15 2018 |
| Client Inspector | | | |

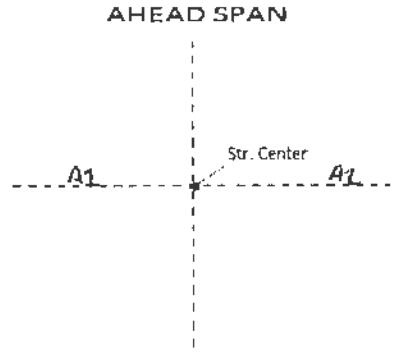
Forbes Bros LTD
POWERLINE CONSTRUCTION

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 69 KV | Line # | L251 |
|---|---|---|---|---|---|
| Structure # | 35/9 | Structure Type | PT | Date | February 17 2019 |

## ANCHOR CHECKLIST

**Plan View – Anchor Locations**




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Plate | 2.4 | Permafrost | 59 | 150 | | |
| 2 | Plate | 2.4 | Permafrost | 59 | 150 | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

**Comments:**

A1,A2 used 10 ft anchor rods
Backfilled with gravel
Not identified as potential permafrost on structure data sheet

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | TREVOR ANTAL | | FEB 22 2019 |
| QC inspector | Phil McKinley | Phil McKinley | Feb 21 2019 |
| Client Inspector | Matt Coverdale | MC | Feb 23, 2019 |

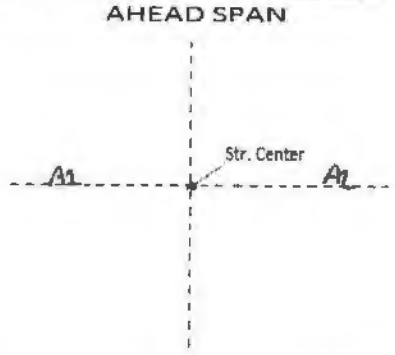
Forbes Bros LTD
POWERLINE CONSTRUCTION

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 69 KV | Line # | L251 |
|---|---|---|---|---|---|
| Structure # | 36/10 | Structure Type | PT | Date | February 17 2019 |

## ANCHOR CHECKLIST

### Plan View – Anchor Locations




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Plate | 2.4 | Permafrost | 58 | 150 | | |
| 2 | Plate | 2.4 | Permafrost | 58 | 150 | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

**Comments:**

A1,A2 used 10 ft anchor rods
Backfilled with gravel

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | TREVOR ANTAL | | FEB 22 2019 |
| QC inspector | Phil McKinley | Phil McKinley | Feb 21 2019 |
| Client Inspector | Matt Caverdale | MC | Feb 23, 2019 |

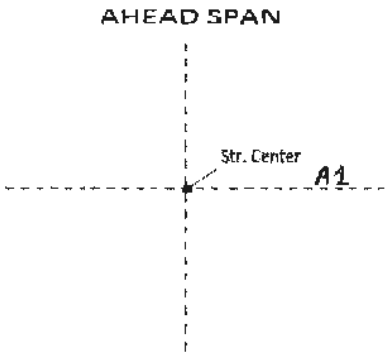
Forbes Bros. LTD
POWERLINE CONSTRUCTION

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 69 KV | Line # | L251 |
|---|---|---|---|---|---|
| Structure # | 36/11 | Structure Type | PTG | Date | Dec 18 2018 |

## ANCHOR CHECKLIST

**Plan View – Anchor Locations**




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Log | 2.4 | Gravel | 58 | 150 | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

**Comments:**

A1 used 10 ft anchor rod

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | TREVOR ANTIC | | Jan 8/19 |
| QC inspector | Phil McKinley | Phil McKinley | Jan 7 2019 |
| Client Inspector | | | |

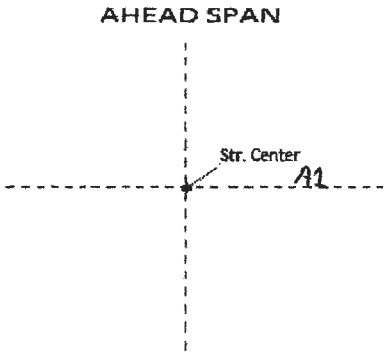
Forbes Bros LTD
POWERLINE CONSTRUCTION

# Anchor Installation

| | | | | | |
|---|---|---|---|---|---|
| **Project #** | 4581 | **Project Name** | Eagle Gold 69 KV | **Line #** | L251 |
| **Structure #** | 36/12 | **Structure Type** | PTG | **Date** | Dec 18 2018 |

## ANCHOR CHECKLIST

**Plan View – Anchor Locations**




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Log | 2.4 | Gravel | 56 | 150 | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

**Comments:**

A1 used 10 ft anchor rod

| | Print | Signature | Date |
|---|---|---|---|
| **Foreman name** | TREVOR ANTAL | | Jan 8/19 |
| **QC inspector** | Phil McKinley | Phil McKinley | Jan 7 2019 |
| **Client Inspector** | | | |

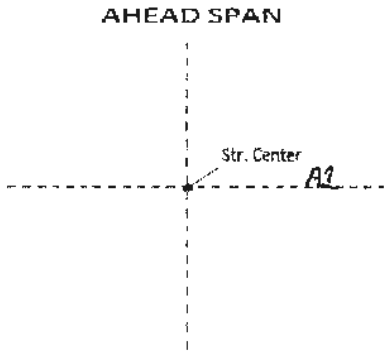
Forbes Bros LTD
POWERLINE CONSTRUCTION

# Anchor Installation

| | | | | | |
|---|---|---|---|---|---|
| **Project #** | 4581 | **Project Name** | Eagle Gold 69 KV | **Line #** | L251 |
| **Structure #** | 36/3 | **Structure Type** | PTG | **Date** | Dec 18 2018 |

## ANCHOR CHECKLIST

**Plan View – Anchor Locations**




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Log | 2.4 | Gravel | 59 | 150 | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

**Comments:**
Used 10 ft anchor rod

| | Print | Signature | Date |
|---|---|---|---|
| **Foreman name** | TREVOR ANDREW | | Jan 5/19 |
| **QC inspector** | Phil McKinley | PJM McK | Jan 4 2018 |
| **Client Inspector** | | | |

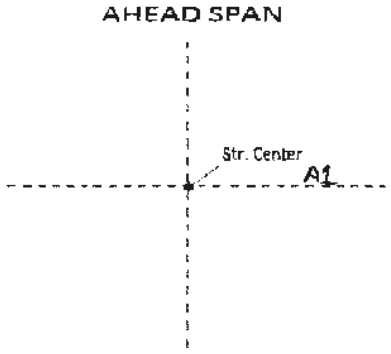
Forbes Bros Ltd
POWERLINE CONSTRUCTION

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 69 KV | Line # | L251 |
|---|---|---|---|---|---|
| Structure # | 36/4 | Structure Type | PTG | Date | Dec 18 2018 |

## ANCHOR CHECKLIST

**Plan View – Anchor Locations**




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Log | 2.4 | Gravel | 59 | 150 | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

**Comments:**
Used 10 ft anchor rod

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | TREVOR ANTTL | | Jan 6/19 |
| QC inspector | Phil McKinley | PJ McKinley | Jan 5 2019 |
| Client inspector | | | |

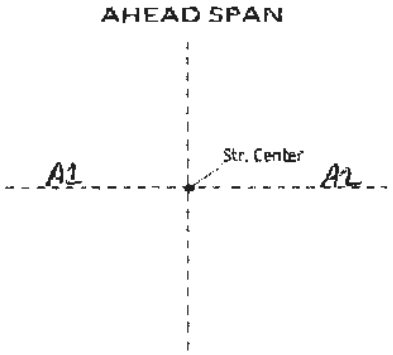
Forbes Bros LTD
POWERLINE CONSTRUCTION

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 69 KV | Line # | L251 |
|---|---|---|---|---|---|
| Structure # | 36/9 | Structure Type | SAH | Date | Jan 8 2019 |

## ANCHOR CHECKLIST

**Plan View – Anchor Locations**




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Plate | 2.5 | Permafrost | 62 | 150 | | |
| 2 | Plate | 2.5 | Permafrost | 61 | 150 | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

**Comments:**

Used 10 ft anchor rods
Backfilled with gravel

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | TREVOR AWIPAR | | Jan 11/19 |
| QC inspector | Phil McKinley | PJ McKinley | Jan 10 2019 |
| Client Inspector | | | |

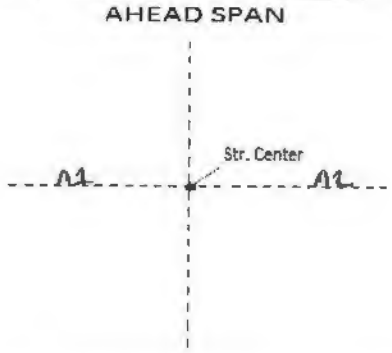
Forbes Bros LTD
POWERLINE CONSTRUCTION

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 69 KV | Line # | L251 |
|---|---|---|---|---|---|
| Structure # | 37/1 | Structure Type | PT | Date | February 17 2019 |

## ANCHOR CHECKLIST

### Plan View – Anchor Locations




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Plate | 2.4 | Permafrost | 59 | 150 | | |
| 2 | Plate | 2.5 | Permafrost | 60 | 150 | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

**Comments:**

A1,A2 used 10 ft anchor rods
Backfilled with gravel

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | TREVOR ANTAL | | FEB 22 2019 |
| QC inspector | Phil McKinley | PJ McK | Feb 21 2019 |
| Client Inspector | Matt Cavendale | MC | Feb 23, 2019 |

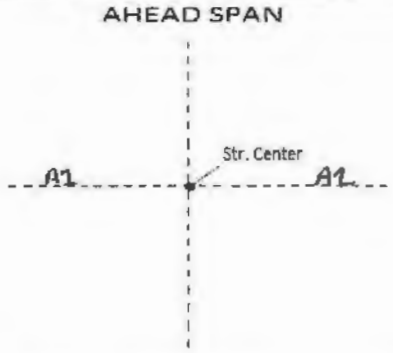
Forbes Bros LTD
POWERLINE CONSTRUCTION

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 69 KV | Line # | L251 |
|---|---|---|---|---|---|
| Structure # | 37/10 | Structure Type | PTR | Date | February 15 2019 |

## ANCHOR CHECKLIST

**Plan View – Anchor Locations**




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Plate | 2.4 | Permafrost | 59 | 150 | | |
| 2 | Plate | 2.5 | Permafrost | 61 | 150 | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

**Comments:**

A1,A2 used 10 ft anchor rods
Backfilled with gravel

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | TREVOR ADDAL | | FEB 18 2019 |
| QC inspector | Phil McKinley | Phil McKinley | Feb 17 2019 |
| Client Inspector | Matt C | MC | Feb 25, 19 |

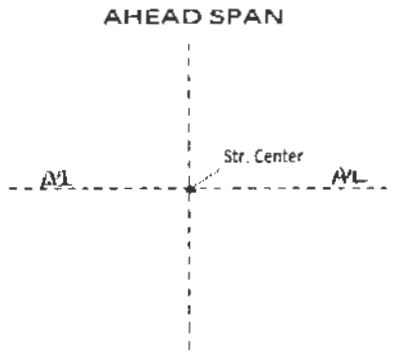
Forbes Bros LTD
POWERLINE CONSTRUCTION

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 69 KV | Line # | L251 |
|---|---|---|---|---|---|
| Structure # | 37/11 | Structure Type | PT | Date | February 15 2019 |

## ANCHOR CHECKLIST

**Plan View – Anchor Locations**




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Plate | 2.5 | Permafrost | 60 | 150 | | |
| 2 | Plate | 2.5 | Permafrost | 62 | 150 | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

**Comments:**

A1,A2 used 10 ft anchor rods
Backfilled with gravel

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | TREVOR ANTAL | | FEB 18 2019 |
| QC inspector | Phil McKinley | Phil McKinley | Feb 17 2019 |
| Client Inspector | Matt C | MC | Feb 25, 19 |

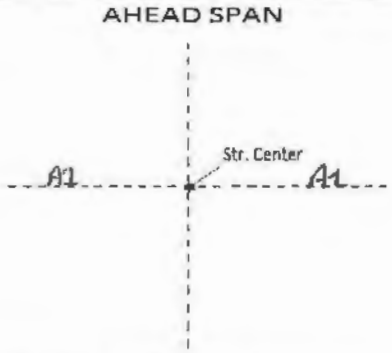
Forbes Bros LTD
POWERLINE CONSTRUCTION

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 69 KV | Line # | L251 |
|---|---|---|---|---|---|
| Structure # | 37/12 | Structure Type | PT | Date | February 15 2019 |

## ANCHOR CHECKLIST

**Plan View – Anchor Locations**




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Plate | 2.5 | Permafrost | 61 | 150 | | |
| 2 | Plate | 2.4 | Permafrost | 58 | 150 | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

**Comments:**

A1,A2 used 10 ft anchor rods
Backfilled with gravel

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | TREVOR ANTAL | | FEB 18 2019 |
| QC inspector | Phil McKinley | Phil McKinley | Feb 17 2019 |
| Client Inspector | Matt C | MC | Feb 25, 19 |

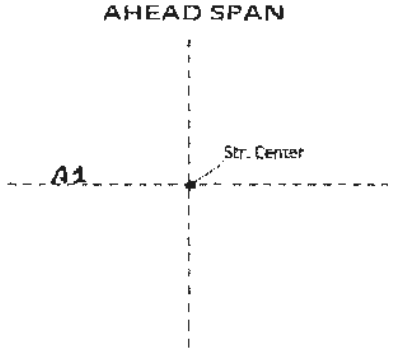
Forbes Bros LTD
POWERLINE CONSTRUCTION

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 69 KV | Line # | L251 |
|---|---|---|---|---|---|
| Structure # | 37/13 | Structure Type | PTG | Date | January 13 2019 |

## ANCHOR CHECKLIST

**Plan View – Anchor Locations**




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Log | 2.4 | Permafrost | 57 | 150 | | |
| | | | | | | | |
| | | | | | | | |
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| | | | | | | | |
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| | | | | | | | |

**Comments:**

A1 Permafrost (log anchor)
Backfilled with gravel

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | TREVOR ANTAR | | Jan 15/19 |
| QC inspector | Phil McKinley | Phil McKinley | Jan 14 2019 |
| Client Inspector | | | |

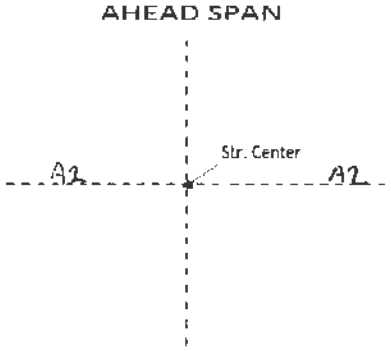
Forbes Bros Ltd
Powerline Construction

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 69 KV | Line # | L251 |
|---|---|---|---|---|---|
| Structure # | 37/2 | Structure Type | PT | Date | February 16 2019 |

## ANCHOR CHECKLIST

**Plan View – Anchor Locations**




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Plate | 2.4 | Permafrost | 59 | 150 | | |
| 2 | Plate | 2.4 | Permafrost | 58 | 150 | | |
| | | | | | | | |
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| | | | | | | | |

**Comments:**

A1,A2 used 10 ft anchor rods
Backfilled with gravel

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | TREVOR ANTHL | | FEB 22 2019 |
| QC inspector | Phil McKinley | Phil McKinley | Feb 21 2019 |
| Client Inspector | Matt Cavendale | MC | Feb 23, 2019 |

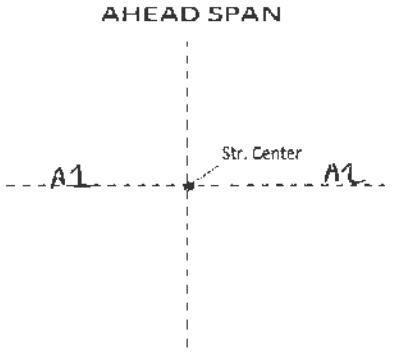
Forbes Bros LTD
POWERLINE CONSTRUCTION

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 69 KV | Line # | L251 |
|---|---|---|---|---|---|
| Structure # | 37/3 | Structure Type | PT | Date | February 16 2019 |

## ANCHOR CHECKLIST

**Plan View – Anchor Locations**




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Plate | 2.5 | Permafrost | 62 | 150 | | |
| 2 | Plate | 2.5 | Permafrost | 61 | 150 | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
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| | | | | | | | |

**Comments:**

A1,A2 used 10 ft anchor rods
Backfilled with gravel

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | TREVOR ANTAL | | FEB 22 2019 |
| QC inspector | Phil McKinley | Phil McKinley | Feb 21 2019 |
| Client Inspector | Matt Everdale | | Feb 23, 2019 |

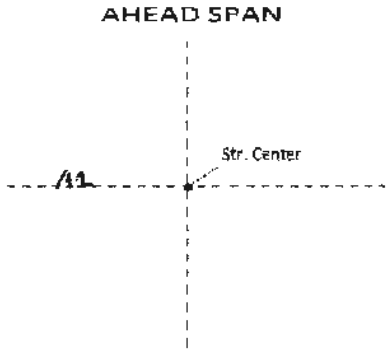
Forbes Bros. Ltd
Powerline Construction

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 69 KV | Line # | L251 |
|---|---|---|---|---|---|
| Structure # | 37/4 | Structure Type | PTG | Date | January 7 2019 |

## ANCHOR CHECKLIST

**Plan View – Anchor Locations**




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Log | 2.5 | Gravel | 60 | 150 | | |
| | | | | | | | |
| | | | | | | | |
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| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

**Comments:**
Used 10 ft anchor rod

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | TREVOR ANTAC | | Jan 10/19 |
| QC inspector | Phil McKinley | Phil McKinley | January 9 2019 |
| Client Inspector | | | |

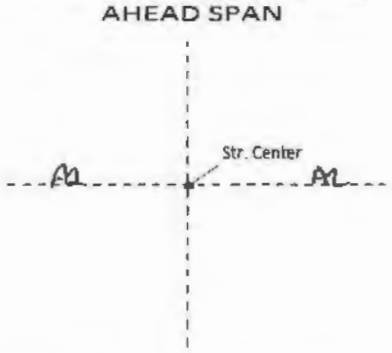
Forbes Bros LTD
POWERLINE CONSTRUCTION

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 69 KV | Line # | L251 |
|---|---|---|---|---|---|
| Structure # | 37/5 | Structure Type | PT | Date | February 16 2019 |

## ANCHOR CHECKLIST

**Plan View – Anchor Locations**




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Plate | 2.5 | Permafrost | 62 | 150 | | |
| 2 | Plate | 2.4 | Permafrost | 58 | 150 | | |
| | | | | | | | |
| | | | | | | | |
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| | | | | | | | |
| | | | | | | | |

**Comments:**

A1,A2 used 10 ft anchor rods
Backfilled with gravel

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | TREVOR ANTAL | | FEB 22 2019 |
| QC inspector | Phil McKinley | Phil McKinley | Feb 21 2019 |
| Client Inspector | Matt Beardsley | | Feb 23, 2019 |

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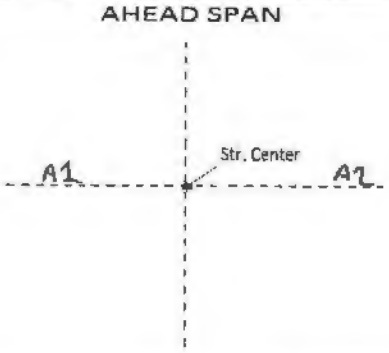
POWERLINE CONSTRUCTION

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 69 KV | Line # | L251 |
|---|---|---|---|---|---|
| Structure # | 37/6 | Structure Type | PT | Date | February 16 2019 |

## ANCHOR CHECKLIST

**Plan View – Anchor Locations**




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Plate | 2.4 | Permafrost | 59 | 150 | | |
| 2 | Plate | 2.4 | Permafrost | 59 | 150 | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
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| | | | | | | | |

**Comments:**

A1,A2 used 10 ft anchor rods
Backfilled with gravel

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | TREVOR ANTIAL | | FEB 22 2019 |
| QC inspector | Phil McKinley | Phil McKinley | Feb 21 2019 |
| Client Inspector | Matt Cavendale | | Feb 23, 2019 |

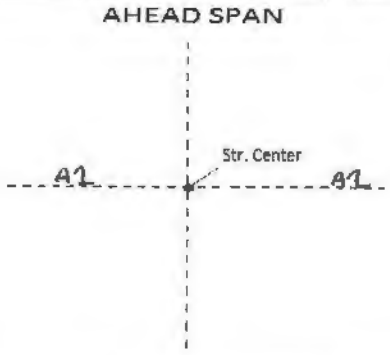
Forbes Bros LTD
POWERLINE CONSTRUCTION

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 69 KV | Line # | L251 |
|---|---|---|---|---|---|
| Structure # | 37/7 | Structure Type | PT | Date | February 16 2019 |

## ANCHOR CHECKLIST

### Plan View – Anchor Locations




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Plate | 2.5 | Permafrost | 60 | 150 | | |
| 2 | Plate | 2.4 | Permafrost | 59 | 150 | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

**Comments:**

A1,A2 used 10 ft anchor rods
Backfilled with gravel

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | TREVOR ANTAL | | FEB 22 2019 |
| QC inspector | Phil McKinley | Phil McKinley | Feb 21 2019 |
| Client Inspector | Matt Cavendale | | Feb 23, 2019 |

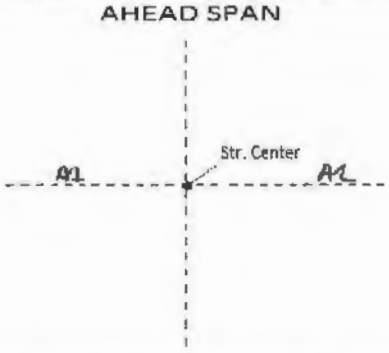
Forbes Bros LTD
POWERLINE CONSTRUCTION

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 69 KV | Line # | L251 |
|---|---|---|---|---|---|
| Structure # | 37/8 | Structure Type | PTR | Date | February 15 2019 |

## ANCHOR CHECKLIST

**Plan View – Anchor Locations**




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Plate | 2.5 | Permafrost | 62 | 150 | | |
| 2 | Plate | 2.4 | Permafrost | 59 | 150 | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

**Comments:**

A1,A2 used 10 ft anchor rods
Backfilled with gravel

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | TREVOR ANDAL | | FEB 19 2019 |
| QC inspector | Phil McKinley | Phil McKinley | Feb 17 2019 |
| Client Inspector | Matt C | MC | Feb 25, 19 |

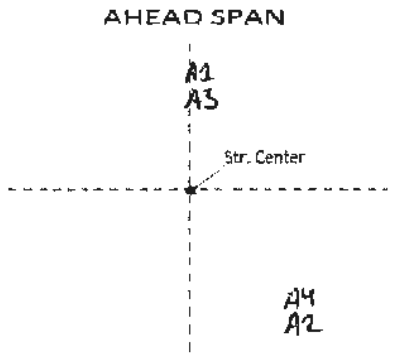
Forbes Bros LTD
POWERLINE CONSTRUCTION

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 69 KV | Line # | L251 |
|---|---|---|---|---|---|
| Structure # | 37/9 | Structure Type | VDEHA | Date | Jan 13 2019 |

## ANCHOR CHECKLIST

**Plan View – Anchor Locations**




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Log | 3.3 | Gravel | 45 | 150 | | |
| 2 | Log | 3.4 | Gravel | 48 | 150 | | |
| 3 | Log | 3.3 | Gravel | 46 | 150 | | |
| 4 | Log | 3.2 | Gravel | 44 | 150 | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

**Comments:**

A1`,A2,A3,A4 used 10ft anchor rods plus extensions

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | TREVOR ANTAL | | Jan 15/19 |
| QC inspector | Phil McKinley | PJ mckinley | Jan 14 2019 |
| Client Inspector | | | |

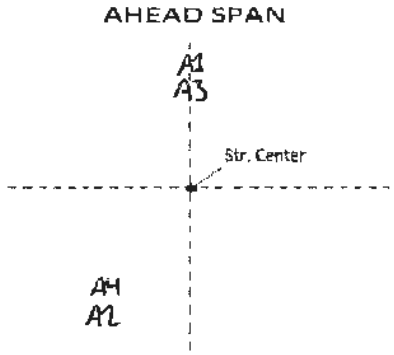
Forbes Bros LTD
POWERLINE CONSTRUCTION

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 69 KV | Line # | L251 |
|---|---|---|---|---|---|
| Structure # | 38/1 | Structure Type | VDEHA | Date | Jan 13 2019 |

## ANCHOR CHECKLIST

**Plan View – Anchor Locations**




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Log | 3.5 | Gravel | 49 | 150 | | |
| 2 | Log | 3.5 | Gravel | 49 | 150 | | |
| 3 | Log | 3.2 | Gravel | 43 | 150 | | |
| 4 | Log | 3.3 | Gravel | 46 | 150 | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

**Comments:**

A1,A2,A3,A4 Gravel ( log anchors)

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | TREVOR ANTAC | | Jan 15/19 |
| QC Inspector | Phil McKinley | Phil McKinley | Jan 14 2019 |
| Client Inspector | | | |

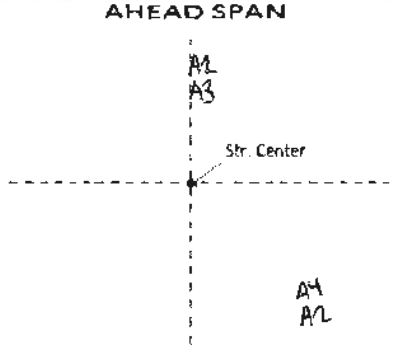
Forbes Bros. LTD
POWERLINE CONSTRUCTION

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 69 KV | Line # | L251 |
|---|---|---|---|---|---|
| Structure # | 38/6 | Structure Type | VDEHA | Date | January 14 2019 |

## ANCHOR CHECKLIST

### Plan View – Anchor Locations




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Log | 3.3 | Gravel | 46 | 150 | | |
| 2 | Log | 3.4 | Gravel | 47 | 150 | | |
| 3 | Log | 3.3 | Gravel | 45 | 150 | | |
| 4 | Log | 3.3 | Gravel | 45 | 150 | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

**Comments:**

A1,A2,A3,A4 used 10 ft anchor rods plus extensions

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | TREVOR ANDRAL | | Jan 16/19 |
| QC inspector | Phil McKinley | Phil McKinley | Jan 15 2019 |
| Client Inspector | | | |

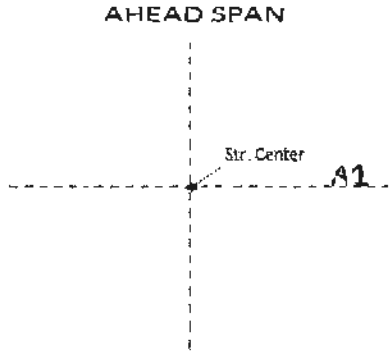
Forbes Bros LTD
POWERLINE CONSTRUCTION

# Anchor Installation

| | | | | | |
|---|---|---|---|---|---|
| **Project #** | 4581 | **Project Name** | Eagle Gold 69 KV | **Line #** | L251 |
| **Structure #** | 39/10 | **Structure Type** | PTG | **Date** | January 16 2019 |

## ANCHOR CHECKLIST

**Plan View – Anchor Locations**




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Log | 2.4 | Gravel | 58 | 150 | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

**Comments:**

Used 10 ft anchor rods

| | Print | Signature | Date |
|---|---|---|---|
| **Foreman name** | TREVOR ANTAL | | Jan 18/19 |
| **QC inspector** | Phil McKinley | Phil McKinley | Jan 17 2019 |
| **Client Inspector** | | | |

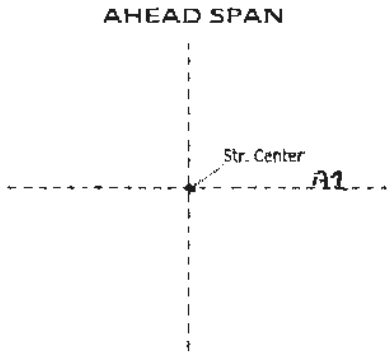
Forbes Bros LTD
POWERLINE CONSTRUCTION

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 69 KV | Line # | L251 |
|---|---|---|---|---|---|
| Structure # | 39/11 | Structure Type | PTG | Date | January 16 2019 |

## ANCHOR CHECKLIST

**Plan View – Anchor Locations**




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Log | 2.4 | Gravel | 58 | 150 | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

**Comments:**
Used 10 ft anchor rod

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | TREVOR ANTTAL | | Jan 18/19 |
| QC inspector | Phil McKinley | Phil McKinley | Jan 17 2019 |
| Client Inspector | | | |

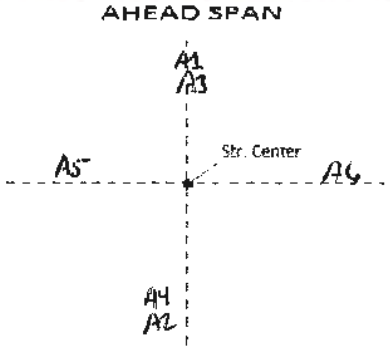
Forbes Bros. LTD
POWERLINE CONSTRUCTION

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 69 KV | Line # | L251 |
|---|---|---|---|---|---|
| Structure # | 39/4 | Structure Type | FDE | Date | January 15 2019 |

## ANCHOR CHECKLIST

### Plan View – Anchor Locations




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Log | 3.3 | Gravel | 46 | 150 | | |
| 2 | Log | 3.3 | Gravel | 45 | 150 | | |
| 3 | Log | 3.4 | Gravel | 47 | 150 | | |
| 4 | Log | 3.2 | Gravel | 44 | 150 | | |
| 5 | Log | 2.4 | Gravel | 58 | 150 | | |
| 6 | Log | 2.5 | Gravel | 61 | 150 | | |
| | | | | | | | |
| | | | | | | | |

**Comments:**

A1,A2,A3,A4 used 10 ft anchor rods plus extensions
A5,A6 used 10 ft anchor rods

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | TREVOR ANTAL | | Jan 17/19 |
| QC inspector | Phil McKinley | Phil McKinley | Jan 16 2019 |
| Client Inspector | | | |

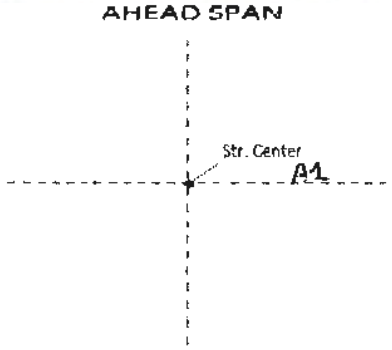
Forbes Bros. Ltd.
Powerline Construction

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 69 KV | Line # | L251 |
|---|---|---|---|---|---|
| Structure # | 39/6 | Structure Type | PTG | Date | January 15 2019 |

## ANCHOR CHECKLIST

### Plan View – Anchor Locations




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Log | 2.4 | Gravel | 58 | 150 | | |
| | | | | | | | |
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| | | | | | | | |
| | | | | | | | |

**Comments:**
Used 10 ft anchor rod

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | TREVOR ANTAC | | Jan 17/19 |
| QC inspector | Phil McKinley | Phil McKinley | Jan 16 2019 |
| Client Inspector | | | |

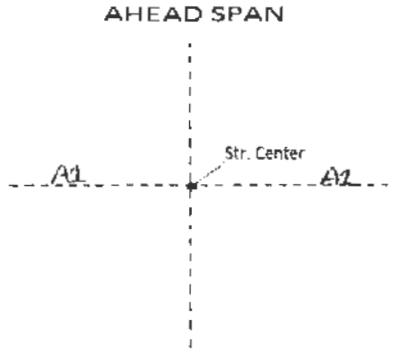
Forbes Bros LTD
POWERLINE CONSTRUCTION

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 69 KV | Line # | L251 |
|---|---|---|---|---|---|
| Structure # | 40/10 | Structure Type | PT | Date | February 14 2019 |

## ANCHOR CHECKLIST

**Plan View – Anchor Locations**




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Plate | 2.4 | Permafrost | 58 | 150 | | |
| 2 | Plate | 2.5 | Permafrost | 61 | 150 | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
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| | | | | | | | |

**Comments:**

A1,A2 used 10 ft anchor rods
Backfilled with gravel

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | TREVOR ANTAL | | FEB 18 2019 |
| QC inspector | Phil McKinley | Phil McKinley | Feb 17 2019 |
| Client Inspector | Matt C | | Feb 25, 19 |

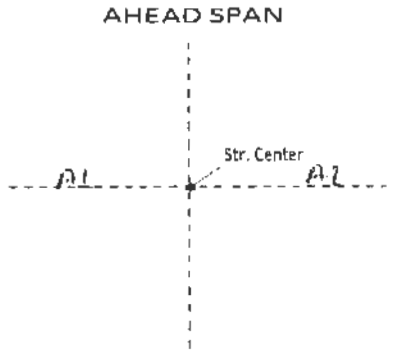
Forbes Bros. LTD
POWERLINE CONSTRUCTION

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 69 KV | Line # | L251 |
|---|---|---|---|---|---|
| Structure # | 40/11 | Structure Type | PT | Date | February 14 2019 |

## ANCHOR CHECKLIST

**Plan View – Anchor Locations**




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Plate | 2.5 | Permafrost | 61 | 150 | | |
| 2 | Plate | 2.5 | Permafrost | 61 | 150 | | |
| | | | | | | | |
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| | | | | | | | |
| | | | | | | | |
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| | | | | | | | |

**Comments:**

A1,A2 used 10 ft anchor rods
Backfilled with gravel

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | TREVOR ANTAL | | FEB 18 2019 |
| QC inspector | Phil McKinley | Phil McKinley | Feb 17 2019 |
| Client Inspector | Matt C | | Feb 25, 19 |

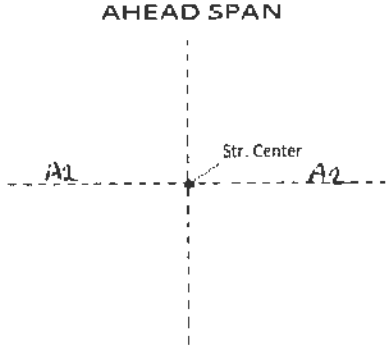
Forbes Bros Ltd.
POWERLINE CONSTRUCTION

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 69 KV | Line # | L251 |
|---|---|---|---|---|---|
| Structure # | 40/12 | Structure Type | PT | Date | February 14 2019 |

## ANCHOR CHECKLIST

**Plan View – Anchor Locations**




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Plate | 2.5 | Permafrost | 62 | 150 | | |
| 2 | Plate | 2.5 | Permafrost | 58 | 150 | | |
| | | | | | | | |
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| | | | | | | | |

**Comments:**

A1,A2 used 10 ft anchor rods
Backfilled with gravel

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | TREVOR ANTAL | | FEB 18 2019 |
| QC inspector | Phil McKinley | Phil McKinley | Feb 17 2019 |
| Client Inspector | Matt C | | Feb 25, 19 |

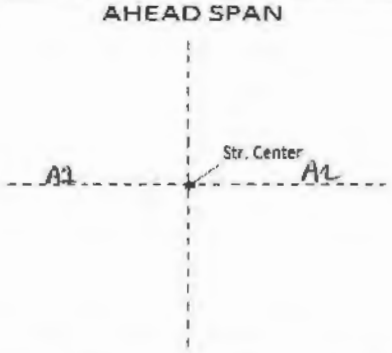
Forbes Bros LTD
POWERLINE CONSTRUCTION

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 69 KV | Line # | L251 |
|---|---|---|---|---|---|
| Structure # | 40/3 | Structure Type | PTR | Date | February 15 2019 |

## ANCHOR CHECKLIST

**Plan View – Anchor Locations**




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Plate | 2.4 | Permafrost | 58 | 150 | | |
| 2 | Plate | 2.4 | Permafrost | 59 | 150 | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

**Comments:**

A1,A2 used 10 ft anchor rods
Backfilled with gravel

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | TREVOR ANTAL | | FEB 18 2019 |
| QC inspector | Phil McKinley | Phil McKinley | Feb 17 2019 |
| Client Inspector | Matt C | | Feb 25, 19 |

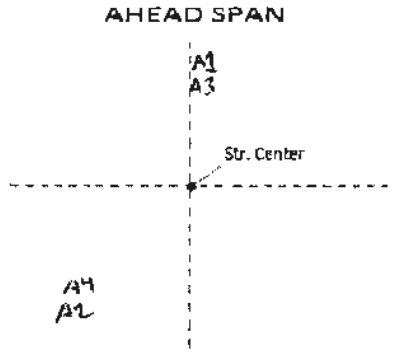
Forbes Bros. Ltd.
Powerline Construction

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 69 KV | Line # | L251 |
|---|---|---|---|---|---|
| Structure # | 40/4 | Structure Type | VDEHA | Date | January 16 2019 |

## ANCHOR CHECKLIST

**Plan View – Anchor Locations**




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Log | 3.3 | Gravel | 46 | 150 | | |
| 2 | Log | 3.2 | Gravel | 44 | 150 | | |
| 3 | Log | 3.2 | Gravel | 44 | 150 | | |
| 4 | Log | 3 | Gravel | 42 | 150 | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

**Comments:**
A1,A2,A3,A4 used 10 ft anchor rods plus extensions

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | TREVOR ANTAL | | Jan 18/19 |
| QC inspector | Phil McKinley | Phil McKinley | Jan 17 2019 |
| Client Inspector | | | |

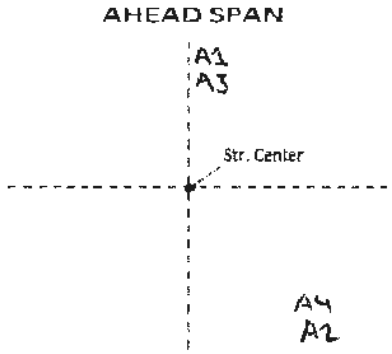
Forbes Bros. LTD
POWERLINE CONSTRUCTION

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 69 KV | Line # | L251 |
|---|---|---|---|---|---|
| Structure # | 40/6 | Structure Type | VDEMA | Date | January 17 2019 |

## ANCHOR CHECKLIST

**Plan View – Anchor Locations**




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Log | 3.3 | Gravel | 46 | 150 | | |
| 2 | Log | 3.5 | Gravel | 49 | 150 | | |
| 3 | Log | 3.2 | Gravel | 43 | 150 | | |
| 4 | Log | 3.2 | Gravel | 43 | 150 | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

**Comments:**

A1,A2,A3,A4 used 10 ft anchor rods plus extensions

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | TREVOR AWTAC | | Jan 18/19 |
| QC inspector | Phil McKinley | Phil McKinley | Jan 17 2019 |
| Client Inspector | | | |

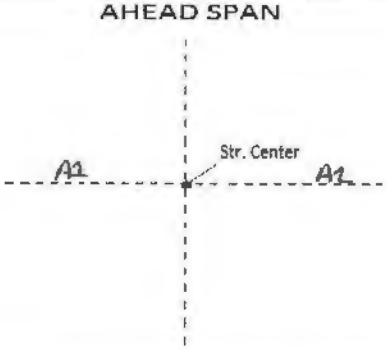
Forbes Bros LTD
POWERLINE CONSTRUCTION

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 69 KV | Line # | L251 |
|---|---|---|---|---|---|
| Structure # | 40/8 | Structure Type | PT | Date | February 14 2019 |

## ANCHOR CHECKLIST

**Plan View – Anchor Locations**




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Plate | 2.4 | Permafrost | 58 | 150 | | |
| 2 | Plate | 2.4 | Permafrost | 59 | 150 | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

**Comments:**

A1,A2 used 10 ft anchor rods
Backfilled with gravel

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | TREVOR ANGAL | | FEB 18 2019 |
| QC inspector | Phil McKinley | Phil McKinley | Feb 17 2019 |
| Client Inspector | Matt C | | Feb 25, 19 |

Forbes Bros. LTD
POWERLINE CONSTRUCTION

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 69 KV | Line # | L251 |
|---|---|---|---|---|---|
| Structure # | 40/9 | Structure Type | PT | Date | February 14 2019 |

## ANCHOR CHECKLIST

**Plan View – Anchor Locations**




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Plate | 2.5 | Permafrost | 60 | 150 | | |
| 2 | Plate | 2.4 | Permafrost | 59 | 150 | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

**Comments:**

A1,A2 used 10 ft anchor rods
Backfilled with gravel

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | TREVOR ANTIAL | | FEB 18 2019 |
| QC inspector | Phil McKinley | Phil McKinley | Feb 17 2019 |
| Client Inspector | Matt C | | Feb 25, 19 |

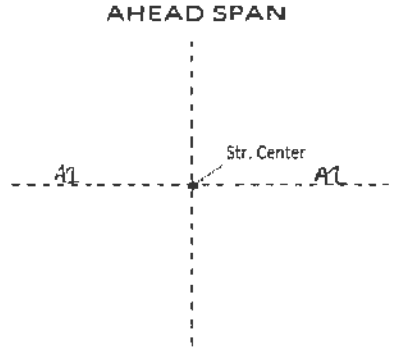
Forbes Bros Ltd
Powerline Construction

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 69 KV | Line # | L251 |
|---|---|---|---|---|---|
| Structure # | 41/1 | Structure Type | PT | Date | February 13 2019 |

## ANCHOR CHECKLIST

**Plan View – Anchor Locations**




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Plate | 2.4 | Permafrost | 59 | 150 | | |
| 2 | Plate | 2.5 | Permafrost | 61 | 150 | | |
| | | | | | | | |
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| | | | | | | | |

**Comments:**

A1,A2 used 10 ft anchor rods
Backfilled with gravel

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | TREVOR ANTAL | | FEB 20/19 |
| QC inspector | Phil McKinley | Phil McKinley | Feb 16 2019 |
| Client Inspector | SARCHIMOWITZ | | FEB 19/19 |

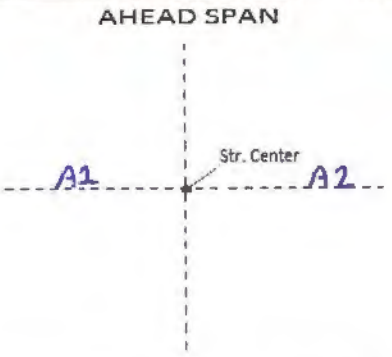
Forbes Bros LTD
POWERLINE CONSTRUCTION

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 69kV | Line # | L251 |
|---|---|---|---|---|---|
| Structure # | 4/11 | Structure Type | PT | Date | Oct 1 2018 |

## ANCHOR CHECKLIST

**Plan View – Anchor Locations**




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Plate | 2.3 | Permafrost | 61 | 150 | | |
| 2 | Plate | 2.4 | Permafrost | 58 | 150 | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

**Comments:**

Backfilled with gravel from 10½
Used lost anchor rods

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | TREVOR ANTAL | | OCT 3 2018 |
| QC inspector | Phil McKinley | Phil McKinley | Oct 2 2018 |
| Client Inspector | | | |

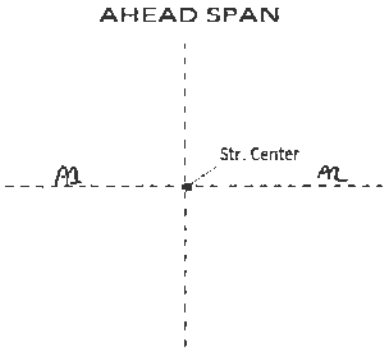
Forbes Bros LTD
POWERLINE CONSTRUCTION

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 69 KV | Line # | L251 |
|---|---|---|---|---|---|
| Structure # | 41/10 | Structure Type | PVO | Date | February 12 2019 |

## ANCHOR CHECKLIST

**Plan View – Anchor Locations**




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Plate | 2.5 | Permafrost | 60 | 150 | | |
| 2 | Plate | 2.4 | Permafrost | 58 | 150 | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

**Comments:**

A1,A2 used 10 ft anchor rods
Backfilled with gravel

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | TREVOR ANTAL | | Feb 20/19 |
| QC inspector | Phil McKinley | Phil McKinley | Feb 15 2019 |
| Client Inspector | SARCHIMOWITZ | | FEB 19/19 |

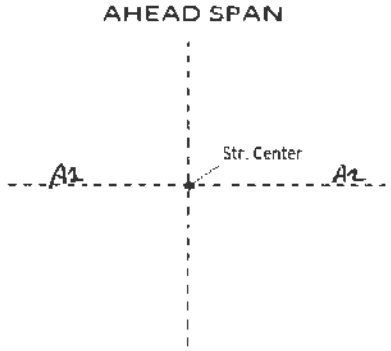
Forbes Bros LTD
POWERLINE CONSTRUCTION

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 69 KV | Line # | L251 |
|---|---|---|---|---|---|
| Structure # | 41/11 | Structure Type | PVO | Date | February 12 2019 |

## ANCHOR CHECKLIST

**Plan View – Anchor Locations**




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Plate | 2.5 | Permafrost | 62 | 150 | | |
| 2 | Plate | 2.5 | Permafrost | 62 | 150 | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

**Comments:**

A1,A2 used 10 ft anchor rods
Backfilled with gravel

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | TREVOR ANIAK | | Feb 20/19 |
| QC inspector | Phil McKinley | Phil McKinley | Feb 15 2019 |
| Client Inspector | SARCHIMOWITZ | Sarchimowitz | FEB 19/19 |

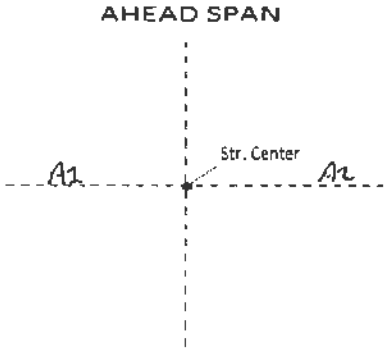
Forbes Bros LTD
POWERLINE CONSTRUCTION

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 69 KV | Line # | L251 |
|---|---|---|---|---|---|
| Structure # | 41/12 | Structure Type | PVO | Date | February 12 2019 |

## ANCHOR CHECKLIST

**Plan View – Anchor Locations**




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Plate | 2.4 | Permafrost | 58 | 150 | | |
| 2 | Plate | 2.5 | Permafrost | 60 | 150 | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

**Comments:**

A1,A2 used 10 ft anchor rods
Backfilled with gravel

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | TREVOR ANTAL | | Feb 20/19 |
| QC inspector | Phil McKinley | Phil McKinley | Feb 15 2019 |
| Client Inspector | SARCHIMOWITZ | | FEB19/19 |

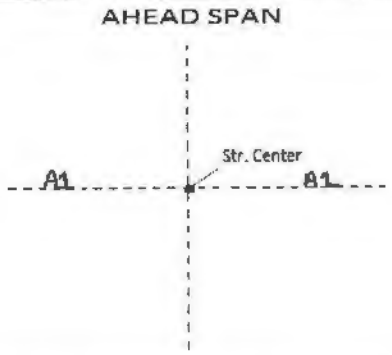
Forbes Bros LTD
POWERLINE CONSTRUCTION

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 69 KV | Line # | L251 |
|---|---|---|---|---|---|
| Structure # | 41/13 | Structure Type | PVO | Date | February 11 2019 |

## ANCHOR CHECKLIST

**Plan View – Anchor Locations**




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Plate | 2.5 | Permafrost | 61 | 150 | | |
| 2 | Plate | 2.5 | Permafrost | 62 | 150 | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

**Comments:**

A1,A2 used 10 ft anchor rods
Backfilled with gravel

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | TREVOR ANTAL | | FEB 22 2019 |
| QC inspector | Phil McKinley | Phil McKinley | Feb 15 2019 |
| Client Inspector | Matt Caerdale | MC | Feb 23, 2019 |

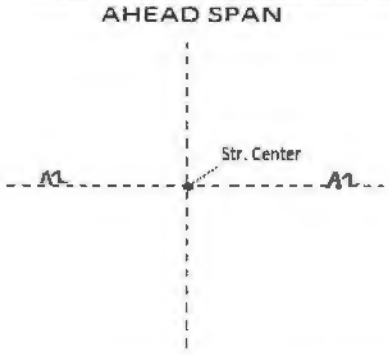
Forbes Bros LTD
POWERLINE CONSTRUCTION

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 69 KV | Line # | L251 |
|---|---|---|---|---|---|
| Structure # | 41/2 | Structure Type | PT | Date | February 13 2019 |

## ANCHOR CHECKLIST

**Plan View – Anchor Locations**




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Plate | 2.5 | Permafrost | 62 | 150 | | |
| 2 | Plate | 2.5 | Permafrost | 61 | 150 | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

**Comments:**

A1,A2 used 10 ft anchor rods
Backfilled with gravel

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | TREVOR ANZAC | | FEB 20 /19 |
| QC inspector | Phil McKinley | Phil McKinley | Feb 16 2019 |
| Client Inspector | S. ARCHIMOWITZ | Archimowitz | FEB 19/19 |

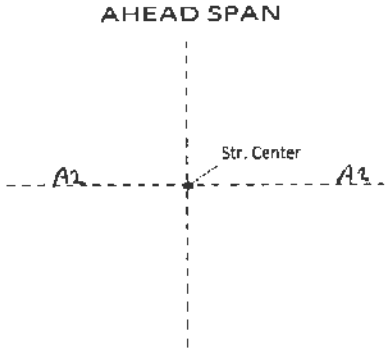
Forbes Bros LTD
POWERLINE CONSTRUCTION

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 69 KV | Line # | L251 |
|---|---|---|---|---|---|
| Structure # | 41/4 | Structure Type | PT | Date | February 13 2019 |

## ANCHOR CHECKLIST

**Plan View – Anchor Locations**




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Plate | 2.5 | Permafrost | 60 | 150 | | |
| 2 | Plate | 2.4 | Permafrost | 58 | 150 | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

**Comments:**

A1,A2 used 10 ft anchor rods
Backfilled with gravel

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | TREVOR ANTAL | | Feb 20/19 |
| QC inspector | Phil McKinley | | Feb 16 2019 |
| Client Inspector | S ARCHIMBAULT | | FEB/19/19 |

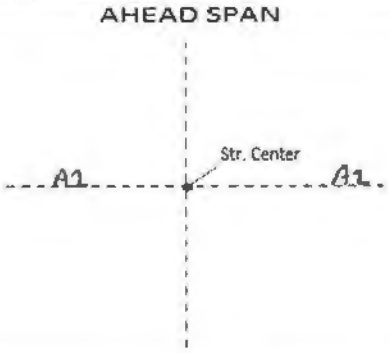
Forbes Bros LTD
POWERLINE CONSTRUCTION

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 69 KV | Line # | L251 |
|---|---|---|---|---|---|
| Structure # | 41/5 | Structure Type | PTR | Date | February 13 2019 |

## ANCHOR CHECKLIST

**Plan View – Anchor Locations**




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Plate | 2.4 | Permafrost | 57 | 150 | | |
| 2 | Plate | 2.4 | Permafrost | 59 | 150 | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

**Comments:**

A1,A2 used 10 ft anchor rods
Backfilled with gravel

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | TREVOR ANTAL | | Feb 20/19 |
| QC inspector | Phil McKinley | Phil McKinley | Feb 16 2019 |
| Client Inspector | S ARCHIMOVITZ | S Archimovitz | FEB19/19 |

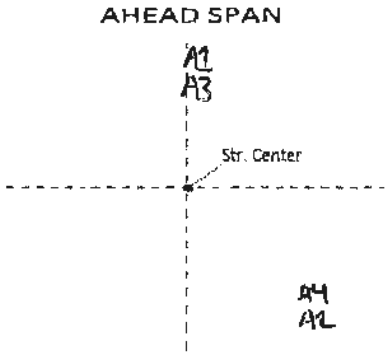
Forbes Bros Ltd
Powerline Construction

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 69 KV | Line # | L251 |
|---|---|---|---|---|---|
| Structure # | 41/6 | Structure Type | VDEMAO | Date | January 18 2019 |

## ANCHOR CHECKLIST

**Plan View – Anchor Locations**




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Log | 3.3 | Permafrost | 46 | 150 | | |
| 2 | Log | 3.3 | Permafrost | 45 | 150 | | |
| 3 | Log | 2.7 | Permafrost | 36 | 150 | | |
| 4 | Log | 3 | Permafrost | 42 | 150 | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

**Comments:**

A1,A2,A3,A4 used 10 ft anchor rods plus extensions
Backfilled with gravel

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | TREVOR ANIPAL | | Jan 19/19 |
| QC Inspector | Phil McKinley | Phil McKinley | Jan 19 2019 |
| Client Inspector | | | |

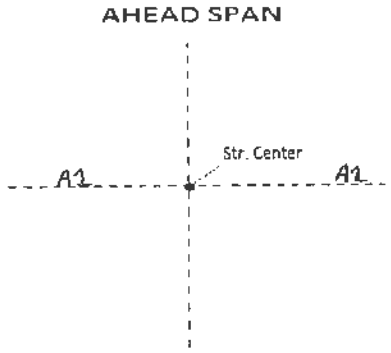
Forbes Bros ltd
POWERLINE CONSTRUCTION

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 69 KV | Line # | L251 |
|---|---|---|---|---|---|
| Structure # | 41/7 | Structure Type | PVO | Date | February 13 2019 |

## ANCHOR CHECKLIST

**Plan View – Anchor Locations**




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Plate | 2.5 | Permafrost | 60 | 150 | | |
| 2 | Plate | 2.4 | Permafrost | 58 | 150 | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

**Comments:**

A1,A2 used 10 ft anchor rods
Backfilled with gravel

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | TREVOR ANTAL | | Feb 20/19 |
| QC inspector | Phil McKinley | Phil McKinley | Feb 16 2019 |
| Client Inspector | S. ARCHIMOWITZ | S Archit | FEB 19/19 |

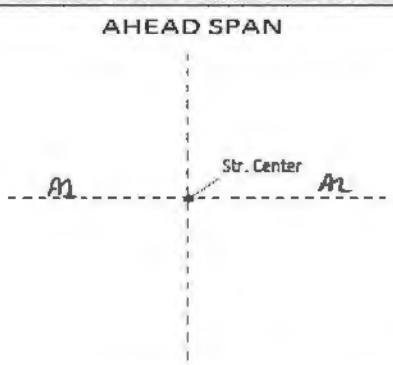
Forbes Bros LTD
POWERLINE CONSTRUCTION

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 69 KV | Line # | L251 |
|---|---|---|---|---|---|
| Structure # | 41/8 | Structure Type | PVO | Date | February 12 2019 |

## ANCHOR CHECKLIST

**Plan View – Anchor Locations**




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Plate | 2.5 | Permafrost | 60 | 150 | | |
| 2 | Plate | 2.4 | Permafrost | 58 | 150 | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

**Comments:**

A1,A2 used 10 ft anchor rods
Backfilled with gravel

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | TREVOR ANTAL | | Feb 20/19 |
| QC inspector | Phil McKinley | Phil McKinley | Feb 15 2019 |
| Client Inspector | S ARCHIMOWITZ | S Archt | FEB 19/19 |

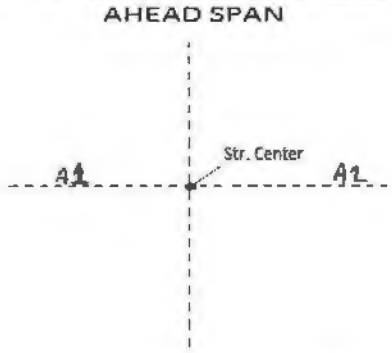
Forbes Bros LTD
POWERLINE CONSTRUCTION

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 69 KV | Line # | L251 |
|---|---|---|---|---|---|
| Structure # | 41/9 | Structure Type | PVO | Date | February 12 2019 |

## ANCHOR CHECKLIST

**Plan View – Anchor Locations**




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Plate | 2.4 | Permafrost | 59 | 150 | | |
| 2 | Plate | 2.4 | Permafrost | 57 | 150 | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

**Comments:**

A1,A2 used 10 ft anchor rods
Backfilled with gravel

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | TREVOR ANTAL | | Feb 20/19 |
| QC inspector | Phil McKinley | Phil McK | Feb 15 2019 |
| Client Inspector | SARCHINOWITZ | | FEB19/19 |

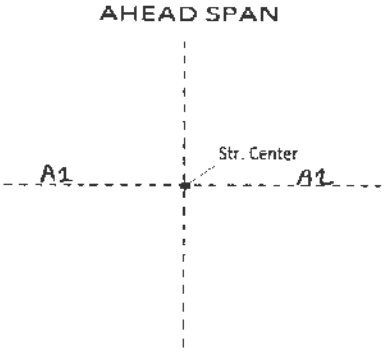
Forbes Bros LTD
POWERLINE CONSTRUCTION

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 69 KV | Line # | L251 |
|---|---|---|---|---|---|
| Structure # | 42/1 | Structure Type | PVO | Date | February 11 2019 |

## ANCHOR CHECKLIST

**Plan View – Anchor Locations**




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Plate | 2.4 | Permafrost | 59 | 150 | | |
| 2 | Plate | 2.5 | Permafrost | 60 | 150 | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

**Comments:**

A1,A2 used 10 ft anchor rods
Backfilled with gravel

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | TREVOR ANSTEE | | FEB 22 2019 |
| QC inspector | Phil McKinley | Phil McKinley | Feb 15 2019 |
| Client Inspector | Matt Cavendale | MC | Feb 23, 2019 |

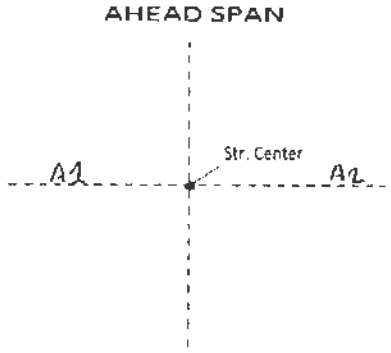
Forbes Bros Ltd
Powerline Construction

# Anchor Installation

| | | | | | |
|---|---|---|---|---|---|
| **Project #** | 4581 | **Project Name** | Eagle Gold 69 KV | **Line #** | L251 |
| **Structure #** | 42/2 | **Structure Type** | SAHO | **Date** | February 11 2019 |

## ANCHOR CHECKLIST

**Plan View – Anchor Locations**




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Plate | 2.4 | Permafrost | 58 | 150 | | |
| 2 | Plate | 2.5 | Permafrost | 61 | 150 | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

**Comments:**

A1,A2 used 10 ft anchor rods
Backfilled with gravel

| | Print | Signature | Date |
|---|---|---|---|
| **Foreman name** | TREVOR ANTAL | | FEB 22 2019 |
| **QC inspector** | Phil McKinley | Phil McKinley | Feb 15 2019 |
| **Client Inspector** | Matt Coverdale | | Feb 23, 2019 |

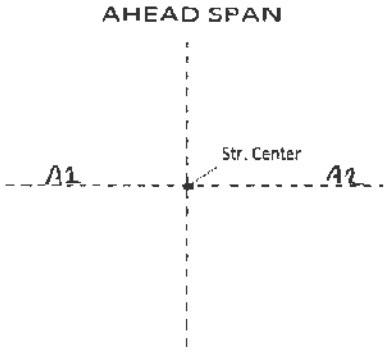
Forbes Bros LTD
Powerline Construction

# Anchor Installation

| | | | | | |
|---|---|---|---|---|---|
| **Project #** | 4581 | **Project Name** | Eagle Gold 69 KV | **Line #** | L251 |
| **Structure #** | 42/5 | **Structure Type** | SAHO | **Date** | February 11 2019 |

## ANCHOR CHECKLIST

**Plan View – Anchor Locations**




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Plate | 2.5 | Permafrost | 62 | 150 | | |
| 2 | Plate | 2.5 | Permafrost | 61 | 150 | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

**Comments:**

A1,A2 used 10 ft anchor rods
Backfilled with gravel

| | Print | Signature | Date |
|---|---|---|---|
| **Foreman name** | TREVOR ANTAL | | FEB 22 2019 |
| **QC inspector** | Phil McKinley | Phil McKinley | Feb 15 2019 |
| **Client Inspector** | Matt Caverdale | MC | Feb 23, 2019 |

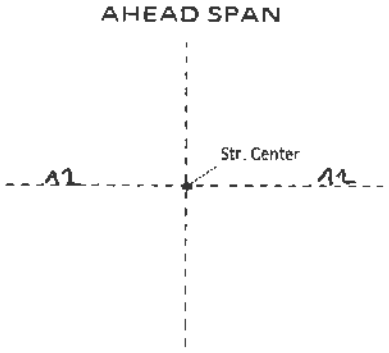
Forbes Bros. LTD
POWERLINE CONSTRUCTION

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 69 KV | Line # | L251 |
|---|---|---|---|---|---|
| Structure # | 42/6 | Structure Type | PVO | Date | February 11 2019 |

## ANCHOR CHECKLIST

**Plan View – Anchor Locations**




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Plate | 2.5 | Permafrost | 61 | 150 | | |
| 2 | Plate | 2.4 | Permafrost | 60 | 150 | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

**Comments:**

A1,A2 used 10 ft anchor rods
Backfilled with gravel

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | TREVOR ANTAL | | FEB 22 2019 |
| QC inspector | Phil McKinley | Phil McKinley | Feb 15 2019 |
| Client Inspector | Matt Caverdale | MC | Feb 23, 2019 |

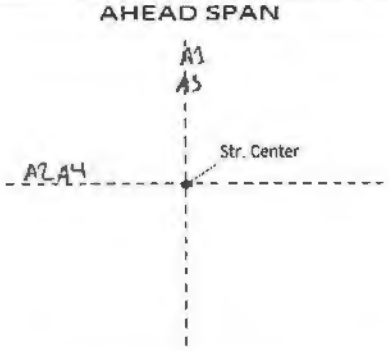
Forbes Bros LTD
POWERLINE CONSTRUCTION

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 69 KV | Line # | L251 |
|---|---|---|---|---|---|
| Structure # | 42/7 | Structure Type | VDEHAO | Date | Jan 20 2019 |

## ANCHOR CHECKLIST

### Plan View – Anchor Locations




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Log | 3.3 | Permafrost | 46 | 150 | | |
| 2 | Log | 3.4 | Permafrost | 48 | 150 | | |
| 3 | Log | 3.3 | Permafrost | 45 | 150 | | |
| 4 | Log | 3 | Permafrost | 42 | 150 | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

**Comments:**

Backfilled with gravel

A1,A2,A3,A4 used 10 ft anchor rods plus extensions

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | TREVOR ANTAC | | Jan 24/19 |
| QC inspector | Phil McKinley | Phil McKinley | Jan 23 2019 |
| Client Inspector | SARCHIMBAULT2 | SArchambault | JAN 31/19 |

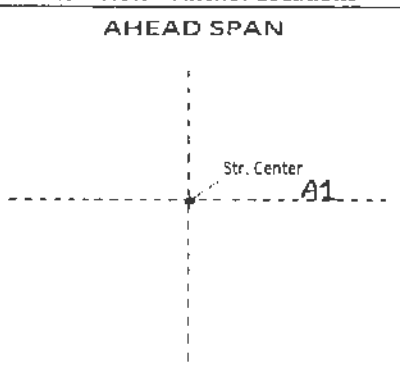
Forbes Bros LTD
POWERLINE CONSTRUCTION

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 69kV | Line # | L 251 |
|---|---|---|---|---|---|
| Structure # | 415 | Structure Type | PTG | Date | Oct 18 2018 |

## ANCHOR CHECKLIST

**Plan View – Anchor Locations**




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Log | 2.4 | Gravel | 56 | 150 | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

**Comments:**

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | TREVOR AWMACK | | OCT 19 2018 |
| QC inspector | Phil McKinley | Phil McKinley | Oct 18 2018 |
| Client Inspector | | | |

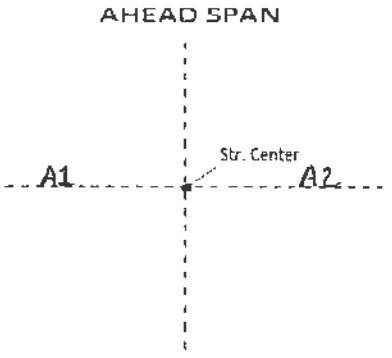
Forbes Bros Ltd
Powerline Construction

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 69 KV | Line # | L251 |
|---|---|---|---|---|---|
| Structure # | 418 | Structure Type | PT | Date | Oct 18 2018 |

## ANCHOR CHECKLIST

**Plan View -- Anchor Locations**




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Plate | 2.4 | Permafrost | 61 | 150 | | |
| 2 | Plate | 2.4 | Permafrost | 58 | 150 | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

**Comments:**

Backfilled with gravel from 10½

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | TREVOR ANTTA | | OCT 19 2018 |
| QC inspector | Phil McKinley | Phil McKinley | Oct 18 2018 |
| Client Inspector | | | |

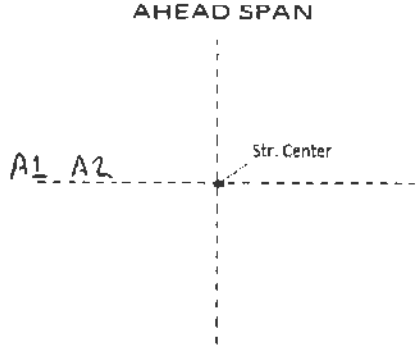
Forbes Bros. LTD
POWERLINE CONSTRUCTION

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 69 Kv | Line # | L 251 |
|---|---|---|---|---|---|
| Structure # | 5/1 | Structure Type | VmA | Date | Oct 20 2018 |

## ANCHOR CHECKLIST

**Plan View – Anchor Locations**




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Log | 2.4 | Gravel | 59 | 150 | | |
| 2 | Log | 2.7 | Gravel | 54 | 150 | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

**Comments:**

A1 lost anchor rod
A2 lost + extension

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | TREVOR ANTAL | | OCT 22 2018 |
| QC inspector | Phil McKinley | Phil McKinley | Oct 21 2018 |
| Client Inspector | | | |

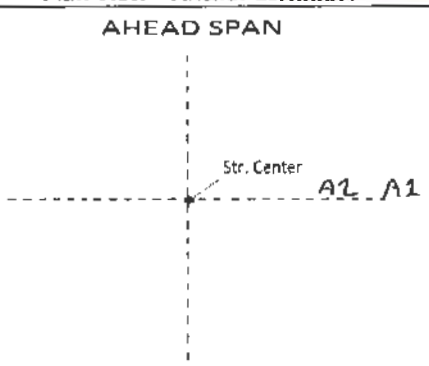
Forbes Bros LTD
POWERLINE CONSTRUCTION

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 64 kV | Line # | L 251 |
|---|---|---|---|---|---|
| Structure # | S110 | Structure Type | VmA | Date | Oct 20 2018 |

## ANCHOR CHECKLIST

**Plan View – Anchor Locations**




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Log | 2.4 | Gravel | 56 | 150 | | |
| 2 | Log | 2.7 | Gravel | 53 | 150 | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

**Comments:**

A1 lost anchor rod
A2 lost + extension

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | TREVOR ANTIQL | | OCT 22/2018 |
| QC inspector | Phil McKinley | Phil McKinley | Oct 21 2018 |
| Client Inspector | | | |

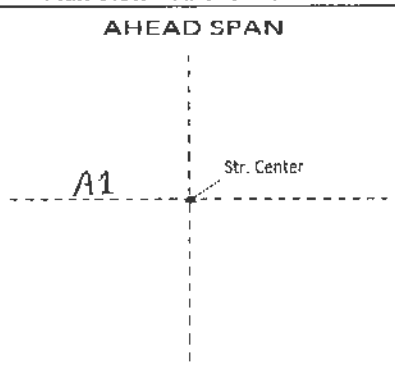
Forbes Bros LTD
POWERLINE CONSTRUCTION

# Anchor Installation

| Project # | BM 4581 | Project Name | Eagle Gold 69kV | Line # | L251 |
|---|---|---|---|---|---|
| Structure # | 512 | Structure Type | PTG | Date | Oct 20 2018 |

## ANCHOR CHECKLIST

**Plan View – Anchor Locations**




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Log | 2.4 | Gravel | 56 | 150 | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

**Comments:**

10ft anchor rod

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | TREVOR ANTAL | | OCT 22 2018 |
| QC inspector | Phil McKinley | Phil McKinley | Oct 21 2018 |
| Client Inspector | | | |

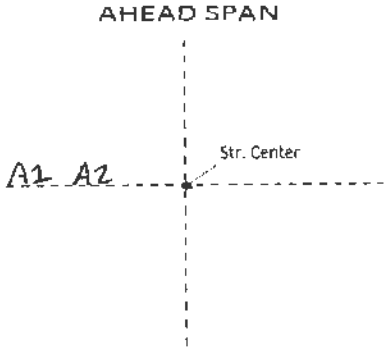
Forbes Bros LTD
POWERLINE CONSTRUCTION

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 69 KV | Line # | L 251 |
|---|---|---|---|---|---|
| Structure # | 513 | Structure Type | VMA | Date | Oct 20 2018 |

## ANCHOR CHECKLIST

**Plan View – Anchor Locations**




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Log | 24 | Gravel | 59 | 150 | | |
| 2 | Log | 27 | Gravel | 55 | 150 | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

**Comments:**

A1 lost anchor rod
A2 lost + extension

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | TREVOR ANTAL | | OCT 22/2018 |
| QC inspector | Phil McKinley | Phil McKinley | Oct 21 2018 |
| Client Inspector | | | |

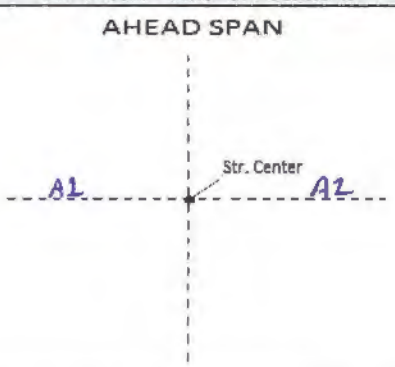
Forbes Bros LTD
POWERLINE CONSTRUCTION

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 69Kv | Line # | L251 |
|---|---|---|---|---|---|
| Structure # | 514 | Structure Type | PTR | Date | Oct 1 2018 |

## ANCHOR CHECKLIST

### Plan View – Anchor Locations




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Plate | 2.4 | Permafrost | 60 | 150 | | |
| 2 | Plate | 2.4 | Permafrost | 62 | 150 | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

**Comments:**

Backsilled with gravel from 13'1/2
Used lost anchor rods

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | TREVOR ANTTAL | | OCT 3 2018 |
| QC inspector | Phil McKinley | Phil McKinley | Oct 3 2018 |
| Client Inspector | | | |

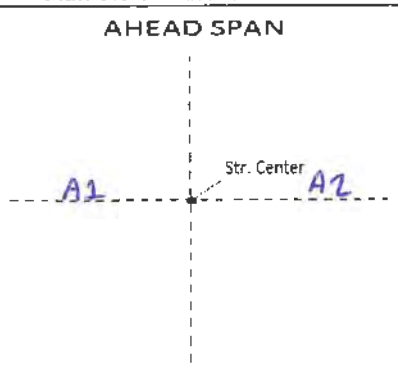
Forbes Bros. Ltd.
Powerline Construction

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 69kV | Line # | L251 |
|---|---|---|---|---|---|
| Structure # | 515 | Structure Type | PT | Date | Oct 1 2018 |

## ANCHOR CHECKLIST

**Plan View – Anchor Locations**




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Plate | 2.4 | Permafrost | 62 | 150 | | |
| 2 | Plate | 2.4 | Permafrost | 60 | 150 | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

**Comments:**

Backfilled with gravel from 13'1/2
Used 10 ft anchor rods

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | TREVOR ANTTAL | | OCT 3 2018 |
| QC inspector | Phil McKinley | Phil McKinley | Oct 2 2018 |
| Client Inspector | | | |

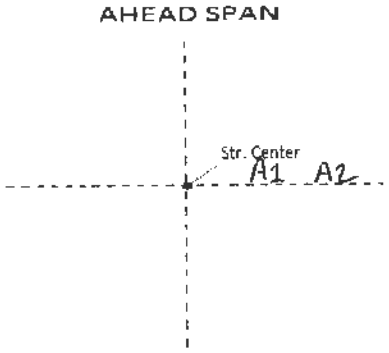
Forbes Bros LTD
POWERLINE CONSTRUCTION

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 69kV | Line # | L 251 |
|---|---|---|---|---|---|
| Structure # | 518 | Structure Type | VmA | Date | Oct 20 2018 |

## ANCHOR CHECKLIST

**Plan View – Anchor Locations**




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Log | 2.4 | Gravel | 56 | 150 | | |
| 2 | Log | 2.4 | Gravel | 56 | 150 | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

**Comments:**

A1 & A2 lost anchor rods

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | TREVOR AWTAR | | OCT 22/ 2018 |
| QC inspector | Phil McKinley | Phil McKinley | Oct 21 2018 |
| Client Inspector | | | |

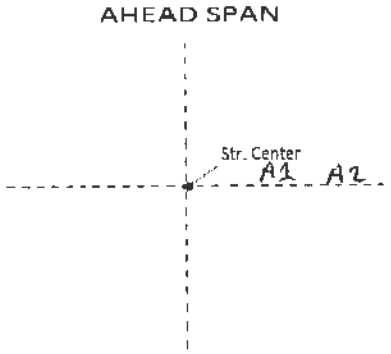
Forbes Bros LTD
POWERLINE CONSTRUCTION

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 64 Kv | Line # | L 251 |
|---|---|---|---|---|---|
| Structure # | 5/9 | Structure Type | VMA | Date | Oct 20 2018 |

## ANCHOR CHECKLIST

**Plan View – Anchor Locations**




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Log | 2.4 | Gravel | 56 | 150 | | |
| 1 | Log | 2.4 | Gravel | 56 | 150 | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

**Comments:**

A1 & A2 10ft anchor rods

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | TREVOR ANTAL | | OCT 22/2018 |
| QC inspector | Phil McKinlay | Phil McKinlay | Oct 21 2018 |
| Client Inspector | | | |

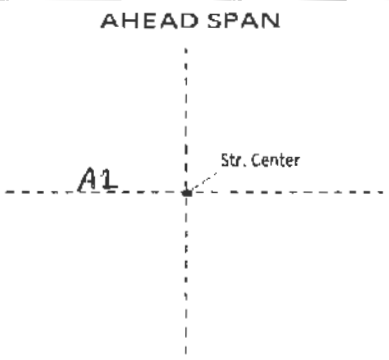
Forbes Bros. Ltd
POWERLINE CONSTRUCTION

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 69kV | Line # | L 251 |
|---|---|---|---|---|---|
| Structure # | 6/11 | Structure Type | PTG | Date | Oct 20 2018 |

## ANCHOR CHECKLIST

**Plan View – Anchor Locations**




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| A1 | Log | 2.4 | Gravel | 57 | 150 | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

**Comments:**

Used 10st anchor rod

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | TREVOR ANTAL | | OCT 22 2018 |
| QC inspector | Phil McKinley | Phil McKinley | Oct 21 2018 |
| Client Inspector | | | |

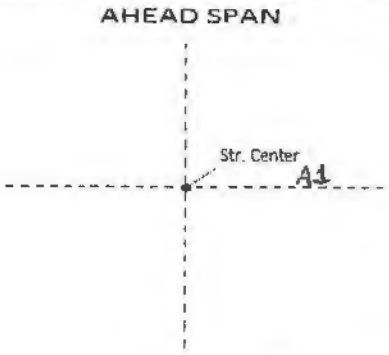
Forbes Bros LTD
POWERLINE CONSTRUCTION

# Anchor Installation

| | | | | | |
|---|---|---|---|---|---|
| **Project #** | 4581 | **Project Name** | Eagle Gold 69 KV | **Line #** | L251 |
| **Structure #** | 6/4 | **Structure Type** | PTG | **Date** | Nov 16 2018 |

## ANCHOR CHECKLIST

**Plan View – Anchor Locations**




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Log | 58 | Gravel | 58 | 150 | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

**Comments:**

Used 10 ft ground rod
Backfilled with gravel

| | Print | Signature | Date |
|---|---|---|---|
| **Foreman name** | TREVOR AWTAL | | Nov 17/18 |
| **QC inspector** | Phil McKinley | Phil McKinley | Nov 16 2018 |
| **Client Inspector** | | | |

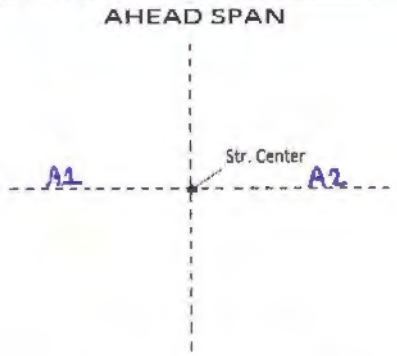
Forbes Bros LTD
POWERLINE CONSTRUCTION

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 69 Kv | Line # | L251 |
|---|---|---|---|---|---|
| Structure # | 7/10 | Structure Type | PT | Date | Oct 1 2018 |

## ANCHOR CHECKLIST

### Plan View – Anchor Locations




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Plate | 2.4 | Permafrost | 58° | 150 | | |
| 2 | Plate | 2.4 | Permafrost | 59 | 150 | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

**Comments:**

Backfilled with gravel from 13 1/2
Used 10ft anchor rods

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | TREVOR ANTAL | | OCT 3 2018 |
| QC inspector | Phil McKinley | Phil McKinley | Oct 2 2018 |
| Client Inspector | | | |

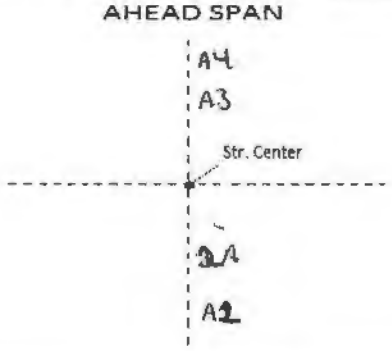
Forbes Bros LTD
POWERLINE CONSTRUCTION

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 69Kv | Line # | L251 |
|---|---|---|---|---|---|
| Structure # | 7112 | Structure Type | VDEMA | Date | Oct 30 2018 |

## ANCHOR CHECKLIST

### Plan View – Anchor Locations




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Log | 3.2 | Gravel | 416 | 150 | | |
| 2 | Log | 3.3 | Gravel | 45 | 150 | | |
| 3 | Log | 3.2 | Gravel | 414 | 150 | | |
| 4 | Log | 3.3 | Gravel | 417 | 150 | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

**Comments:**

Anchors 1, 2, 3 & 4 lost anchors plus extensions
Backfilled with gravel

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | Mike Swetland | | Nov 2/18 |
| QC inspector | Phil McKinley | Phil McKinley | Nov 2 2018 |
| Client Inspector | | | |

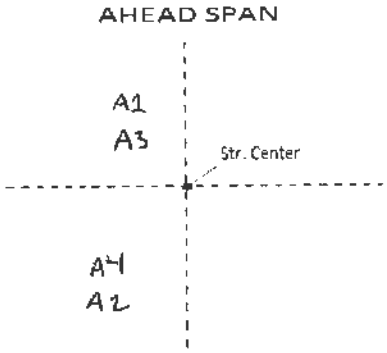
Forbes Bros Ltd
POWERLINE CONSTRUCTION

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 644kV | Line # | L 251 |
|---|---|---|---|---|---|
| Structure # | 712 | Structure Type | VDEHA | Date | Oct 20 2018 |

## ANCHOR CHECKLIST

**Plan View – Anchor Locations**




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Log | 3.3 | Sand | 46 | 150 | | |
| 2 | Log | 3.3 | Sand | 44 | 150 | | |
| 3 | Log | 3.3 | Sand | 45 | 150 | | |
| 4 | Log | 3.3 | Sand | 45 | 150 | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

**Comments:**

A1, 2, 3 & 4 Anchor rod + extensions

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | TREVOR ANTAL | | OCT 22 2018 |
| QC inspector | Phil McKinley | Phil McKinley | Oct 21 2018 |
| Client Inspector | | | |

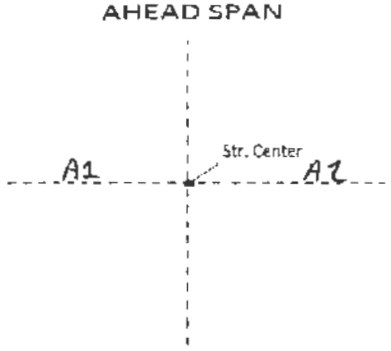
Forbes Bros Ltd
Powerline Construction

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 64Kv | Line # | L251 |
|---|---|---|---|---|---|
| Structure # | 714 | Structure Type | SAH | Date | Oct 20 2018 |

## ANCHOR CHECKLIST

**Plan View – Anchor Locations**




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Plate | 2.4 | Permafrost | 60 | 150 | | |
| 2 | Plate | 2.4 | Permafrost | 60 | 150 | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

**Comments:**

A1 & A2 10ft anchor rods

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | TREVOR AWSTAL | | OCT 22 2018 |
| QC inspector | Phil McKinley | Phil McKinley | Oct 22 2018 |
| Client Inspector | | | |

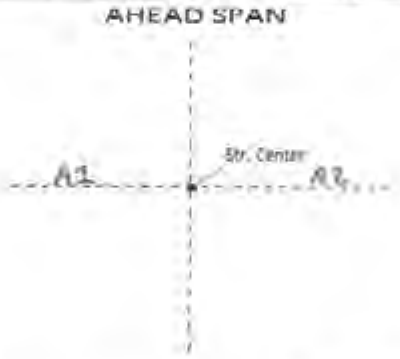
Forbes Bros. Ltd.
Powerline Construction

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 64 kV | Line # | L251 |
|---|---|---|---|---|---|
| Structure # | 715 | Structure Type | PT | Date | Oct 28 2018 |

## ANCHOR CHECKLIST

**Plan View – Anchor Locations**




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Plate | 2.4 | PermaFrost | 60 | 150 | | |
| 2 | Plate | 2.4 | PermaFrost | 59 | 150 | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

**Comments:**

10 ft anchor rods used
Backfilled with gravel

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | Mike Sweetland | Mike Sweetland | Oct 29/18 |
| QC Inspector | Phil McKinley | Phil McKinley | Oct 29 2018 |
| Client Inspector | | | |

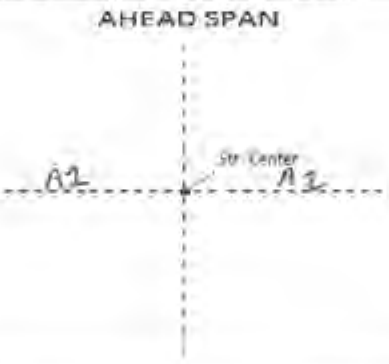
Forbes Bros Ltd
Powerline Construction

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 69 Kv | Line # | L251 |
|---|---|---|---|---|---|
| Structure # | 716 | Structure Type | PT | Date | Oct 30 2018 |

## ANCHOR CHECKLIST

### Plan View – Anchor Locations




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Plate | 2.4 | PermaFrost | 59 | 150 | | |
| 2 | Plate | 2.4 | PermaFrost | 59 | 150 | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

**Comments:**
Used lost anchor rods
Backfilled with gravel

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | Mike Sweetland | | Nov 1/18 |
| QC inspector | Phil McKinley | Phil McKinley | Nov 1 2018 |
| Client Inspector | | | |

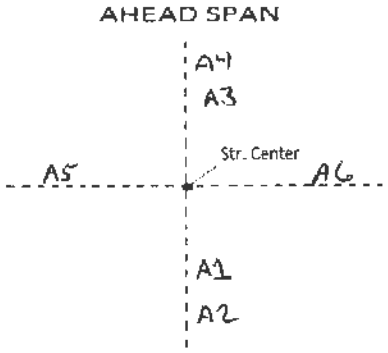
Forbes Bros LTD
POWERLINE CONSTRUCTION

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 64kV | Line # | L251 |
|---|---|---|---|---|---|
| Structure # | 7/7 | Structure Type | FDE | Date | ~~Oct~~ Nov 30 2018 |

## ANCHOR CHECKLIST

**Plan View – Anchor Locations**




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Log | 3.3 | Permafrost | 45 | 150 | | |
| 2 | Log | 3.2 | Permafrost | 47 | 150 | | |
| 3 | Log | 3.2 | Permafrost | 47 | 150 | | |
| 4 | Log | 3.2 | Permafrost | 46 | 150 | | |
| 5 | Log | 2.4 | Permafrost | 61 | 150 | | |
| 6 | Log | 2.4 | Permafrost | 58 | 150 | | |
| | | | | | | | |
| | | | | | | | |

**Comments:**

Anchors 1,2,3,4 lost anchors + extensions
5&6 - lost Anchor rods

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | Mike Southland | | Nov 2/18 |
| QC inspector | Phil McKinley | | Nov 2 2018 |
| Client Inspector | | | |

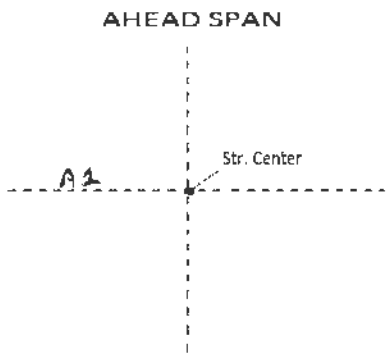
Forbes Bros LTD
POWERLINE CONSTRUCTION

# Anchor Installation

| Project # | 4561 | Project Name | Eagle Gold 69 KV | Line # | L251 |
|---|---|---|---|---|---|
| Structure # | 8/10 | Structure Type | PTG | Date | Oct 31 2018 |

## ANCHOR CHECKLIST

**Plan View – Anchor Locations**




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Log | 2.5 | Gravel | 60 | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

**Comments:**

Used lose anchor rod
Backfilled with gravel

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | Mike Swetland | | Nov 2/18 |
| QC inspector | Phil McKinley | Phil McKinley | Nov 2 2018 |
| Client Inspector | | | |

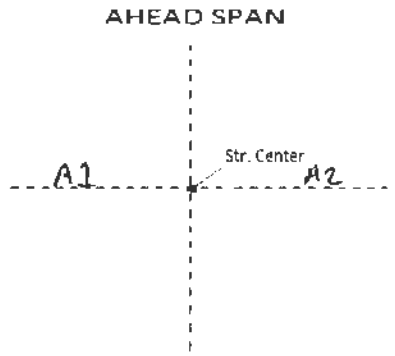
Forbes Bros Ltd
Powerline Construction

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 69kV | Line # | L 251 |
|---|---|---|---|---|---|
| Structure # | 813 | Structure Type | PT | Date | Oct 31 2018 |

## ANCHOR CHECKLIST

**Plan View – Anchor Locations**




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Plate | 2.4 | Permafrost | 60 | 150 | | |
| 2 | Plate | 24 | Permafrost | 61 | 150 | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

**Comments:**

Used lost anchor rods
Backfilled with gravel

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | Mike Swetland | Mike Swetland | Nov 2/18 |
| QC inspector | Phil McKinley | Phil McKinley | Nov 2 2018 |
| Client Inspector | | | |

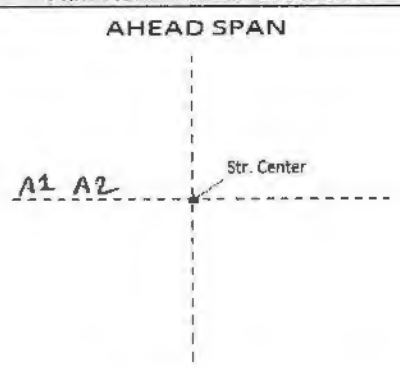
Forbes Bros LTD
POWERLINE CONSTRUCTION

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 69kV | Line # | L 251 |
|---|---|---|---|---|---|
| Structure # | 8/5 | Structure Type | VmA | Date | Oct 31 2018 |

## ANCHOR CHECKLIST

**Plan View – Anchor Locations**




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Log | 2.4 | Sand | 57 | 150 | | |
| 2 | Log | 2.7 | Sand | 54 | 150 | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

**Comments:**

A1 lost anchor rod
A2 lost anchor rod plus extension

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | Mike Sweetland | | Nov 2/18 |
| QC inspector | Phil McKinley | | Nov 2 2018 |
| Client Inspector | | | |

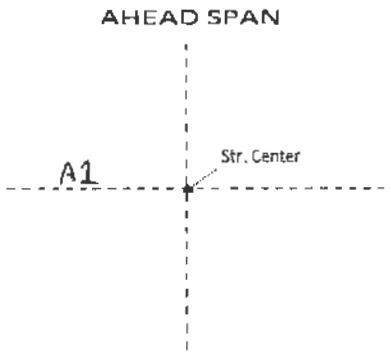
Forbes Bros LTD
POWERLINE CONSTRUCTION

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 69kV | Line # | L 251 |
|---|---|---|---|---|---|
| Structure # | 816 | Structure Type | PTG | Date | Oct 31 2018 |

## ANCHOR CHECKLIST

**Plan View – Anchor Locations**




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Log | 2.4 | Permafrost | 60 | 150 | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

**Comments:**

Used lost anchor rod

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | Mike Sweetland | | Nov 2/18 |
| QC inspector | Phil McKinley | Phil McKinley | Nov 2 2018 |
| Client Inspector | | | |

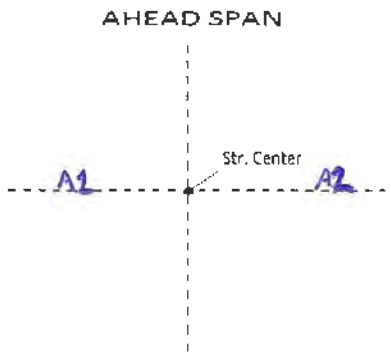
Forbes Bros LTD
POWERLINE CONSTRUCTION

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 69kv | Line # | |
|---|---|---|---|---|---|
| Structure # | 817 | Structure Type | PT | Date | Oct 2 2018 |

## ANCHOR CHECKLIST

**Plan View – Anchor Locations**




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| ~~A1~~ | Plate | 2.2 | PermaFrost | 60° | 150 mm | see page 2 | |
| A2 | Plate | 2.2 | PermaFrost | 58° | 150 | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

**Comments:**

Backfilled with gravel from 10'/2
Used 10st anchor rods

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | TREVOR AWTAC | | OCT 13/2018 |
| QC inspector | Phil McKinley | Phil McKinley | Oct 12 2018 |
| Client Inspector | | | |

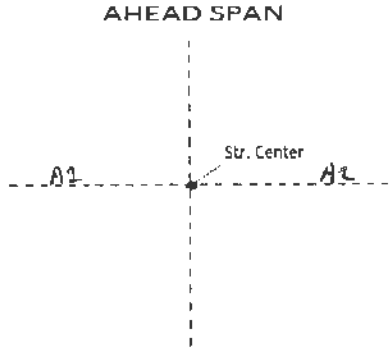
Forbes Bros LTD
POWERLINE CONSTRUCTION

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 69 KV | Line # | L251 |
|---|---|---|---|---|---|
| Structure # | 8/7 | Structure Type | PT | Date | February 25 2019 |

## ANCHOR CHECKLIST

**Plan View – Anchor Locations**




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Plate | 2.7 | Permafrost | 70 | 150 | | |
| | | | | | | | |
| | | | | | | | |
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**Comments:**

Moved roadside anchor in 1.5 m to 70 degrees as specified by Philip Clark of Clean Energy
Anchor was too close to the road for Yukon Department of Highways

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | TREVOR ANTAL | | Feb 25 2019 |
| QC inspector | Phil McKinley | Phil McKinley | Feb 25 2019 |
| Client inspector | Matt C | Me | Feb 25.19 |

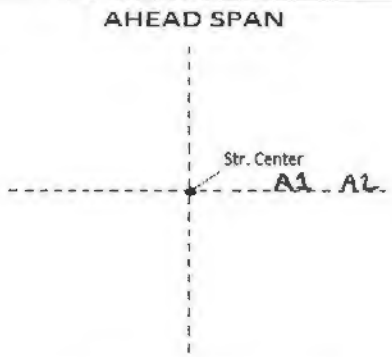
Forbes Bros LTD
POWERLINE CONSTRUCTION

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 69kV | Line # | L251 |
|---|---|---|---|---|---|
| Structure # | 911 | Structure Type | VMA | Date | Nov 1 2018 |

## ANCHOR CHECKLIST

**Plan View – Anchor Locations**




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Log | 2.4 | Gravel | 55 | 150 | | |
| 2 | Log | 2.4 | Gravel | 55 | 150 | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

**Comments:**

Used lost anchor rods
Backfilled with gravel

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | Mike Scotland | | Nov 2/18 |
| QC inspector | Phil McKinley | | Nov 2 2018 |
| Client Inspector | | | |

Forbes Bros
POWERLINE CONSTRUCTION

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 69kv | Line # | L251 |
|---|---|---|---|---|---|
| Structure # | 9/10 | Structure Type | VMA | Date | Nov 1 2018 |

## ANCHOR CHECKLIST

### Plan View – Anchor Locations




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Log | 2.4 | Gravel | 55 | 150 | | |
| 2 | Log | 3.6 | Gravel | 56 | 150 | | |
| | | | | | | | |
| | | | | | | | |
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| | | | | | | | |
| | | | | | | | |

**Comments:**

Used 10ft anchor rods for A1

A2 used 10ft + extension

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | Mike Swanton d | | Nov 3/18 |
| QC inspector | Phil McKinley | Phil McKinley | Nov 3 2018 |
| Client Inspector | | | |

Forbes Bros Ltd.
Powerline Construction

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 69 kV | Line # | L251 |
|---|---|---|---|---|---|
| Structure # | 9/11 | Structure Type | VmA | Date | Nov 1 2018 |

## ANCHOR CHECKLIST

**Plan View – Anchor Locations**




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Log | 2.4 | Gravel | 57 | 150 | | |
| 2 | Log | 3.7 | Gravel | 53 | 150 | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

**Comments:**

A1 Used lost anchor rod
A2 Used lost + extension
Backfilled with gravel

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | Mike Sweetland | Mike Sweetland | Nov 3/18 |
| QC inspector | Phil McKinlay | Phil McKinlay | Nov 3 2018 |
| Client Inspector | | | |

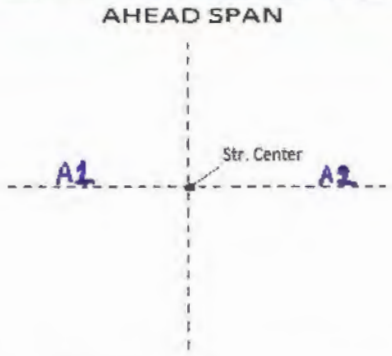
Forbes Bros LTD
POWERLINE CONSTRUCTION

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 69kV | Line # | |
|---|---|---|---|---|---|
| Structure # | 9/2 | Structure Type | PTR | Date | Oct 2 2018 |

## ANCHOR CHECKLIST

### Plan View – Anchor Locations




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| A1 | Plate | 2.2 | Permafrost | 60 | 150 | | |
| A2 | Plate | 2.2 | Permafrost | 57 | 150 | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
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| | | | | | | | |
| | | | | | | | |

**Comments:**

Backfilled with gravel from 10'/2
Used 10ft anchor rods

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | TREVOR ANTAL | | OCT 13 2018 |
| QC inspector | Phil McKinley | Phil McKinley | Oct 12 2018 |
| Client Inspector | | | |

Forbes Bros Ltd
POWERLINE CONSTRUCTION

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 69kV | Line # | L251 |
|---|---|---|---|---|---|
| Structure # | 9/4 | Structure Type | PTG | Date | Nov 1 2018 |

## ANCHOR CHECKLIST

**Plan View – Anchor Locations**




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Log | 2.4 | Gravel | 55 | 150 | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

**Comments:**

Used 10ft anchor rods

Backfilled with gravel

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | Mike Sweetland | | Nov 3/18 |
| QC inspector | Phil McKinley | | Nov 3 2018 |
| Client Inspector | | | |

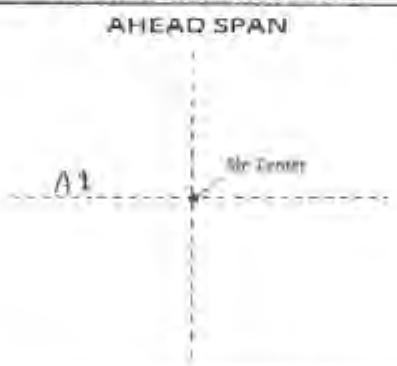
Forbes Bros Ltd
Powerline Construction

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 64 Kv | Line # | L251 |
|---|---|---|---|---|---|
| Structure # | 915 | Structure Type | PTG | Date | Nov 1 2018 |

## ANCHOR CHECKLIST

**Plan View – Anchor Locations**




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Log | 2.4 | Gravel | 55 | 150 | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

**Comments:**

Used rock anchor rods
Backfilled with gravel

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | Mike Swetland | Mike Swetland | Nov 3/18 |
| QC inspector | Phil McKinley | Phil McKinley | Nov 3 2018 |
| Client Inspector | | | |

Forbes Bros Ltd.
POWERLINE CONSTRUCTION

# Anchor Pull Test

| Project # | 4581 | Project Name | Eagle gold 69 KV | Facility# | |
|---|---|---|---|---|---|
| Structure # | 42/6 | Structure Type | PVO | | |

## Anchor Test Record

| | |
|---|---|
| Time and Date Started | Feb 11 2019 8:45 |
| Time and Date completed | Feb 11 2019 8:10 |
| Test Device | Dyna Link 2 MSI7300 |
| Operator | Excavator/Foreman |




| Anchor # | Pre-Load Benchmark | Amount of Stretch at 50% Tension | Final Reading at Full Tension | Final Reading when Tension Released | Change After Testing |
|---|---|---|---|---|---|
| 1 | 0 mm @ 0 | 0 mm @ 9240 | 1 mm @ 18190 | 1 mm @ 0 | 1 mm |
| 2 | 0 mm @ 0 | 0 mm @ 9270 | 2 mm @ 18210 | 1 mm @ 0 | 1 mm |
| | | | | | |
| | | | | | |
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| | | | | | |
| | | | | | |

**Test Procedure:**

1. Take Benchmark reading of anchor rod.
2. Pull Anchor rod at 50% load and hold for 2 minutes. Record movement.
3. Pull Anchor rod at Full tension load and hold for 2 minutes. Record movement.
4. Release tension and record rod movement.
5. For 2 anchor configuration, the single anchor will be pulled at 50% Tension. Wait 5 minutes between pulls.

**Comments**

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | | | |
| QC Representative | Phil McKinley | Phil McKinley | Feb 15 2019 |
| Client Inspector | Matt Caverdale | MC | Feb 23, 2019 |

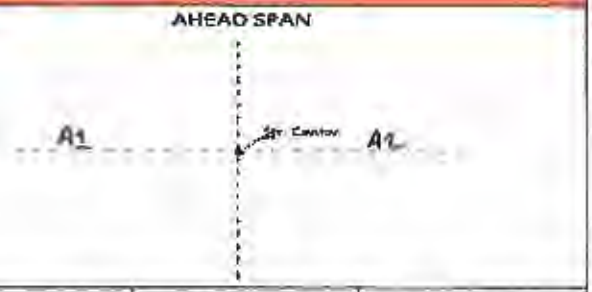
Forbes Bros Ltd.
POWERLINE CONSTRUCTION

# Anchor Pull Test

| Project # | 4581 | Project Name | Eagle gold 69 KV | Facility# | |
|---|---|---|---|---|---|
| Structure # | 42/5 | Structure Type | SAHO | | |

**Anchor Test Record**

| | |
|---|---|
| Time and Date Started | Feb 11 2019 10:30 |
| Time and Date completed | Feb 11 2019 11:00 |
| Test Device | Dyna Link 2 MSI7300 |
| Operator | Excavator/Foreman |




| Anchor # | Pre-Load Benchmark | Amount of Stretch at 50% Tension | Final Reading at Full Tension | Final Reading when Tension Released | Change After Testing |
|---|---|---|---|---|---|
| 1 | 0 mm @ 0 | 0 mm @ 9050 | 2 mm @ 18150 | 2 mm @ 0 | 2 mm |
| 2 | 0 mm @ 0 | 0 mm @ 9140 | 2 mm @ 18220 | 2 mm @ 0 | 2 mm |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |

**Test Procedure:**

1. Take Benchmark reading of anchor rod.
2. Pull Anchor rod at 50% load and hold for 2 minutes. Record movement.
3. Pull Anchor rod at Full tension load and hold for 2 minutes. Record movement.
4. Release tension and record rod movement.
5. For 2 anchor configuration, the single anchor will be pulled at 50% Tension. Wait 5 minutes between pulls.

Comments

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | | | |
| QC Representative | Phil McKinley | Phil McKinley | Feb 15 2019 |
| Client Inspector | Matt Coverdale | | Feb 23, 2019 |

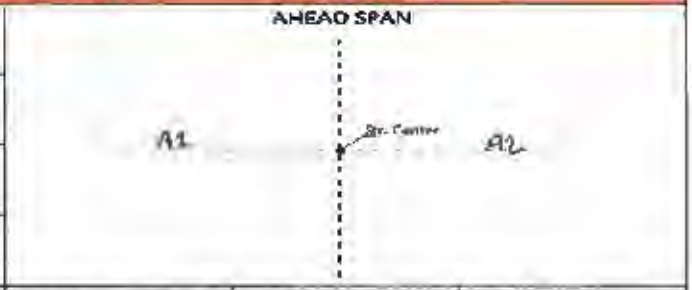
Forbes Bros.
POWERLINE CONSTRUCTION

# Anchor Pull Test

| Project # | 4581 | Project Name | Eagle gold 69 KV | Facility# | |
|---|---|---|---|---|---|
| Structure # | 42/2 | Structure Type | SAHO | | |

## Anchor Test Record

| | |
|---|---|
| Time and Date Started | Feb 11 2019 12:50 |
| Time and Date completed | Feb 11 2019 13:30 |
| Test Device | Dyna Link 2 MSI7300 |
| Operator | Excavator/Foreman |




| Anchor # | Pre-Load Benchmark | Amount of Stretch at 50% Tension | Final Reading at Full Tension | Final Reading when Tension Released | Change After Testing |
|---|---|---|---|---|---|
| 1 | 0 mm @ 0 | 0 mm @ 9230 | 1 mm @ 18160 | 1 mm @ 0 | 1 mm |
| 2 | 0 mm @ 0 | 0 mm @ 9020 | 2 mm @ 18200 | 2 mm @ 0 | 2 mm |
| | | | | | |
| | | | | | |
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| | | | | | |
| | | | | | |

**Test Procedure:**

1. Take Benchmark reading of anchor rod.
2. Pull Anchor rod at 50% load and hold for 2 minutes. Record movement.
3. Pull Anchor rod at Full tension load and hold for 2 minutes. Record movement.
4. Release tension and record rod movement.
5. For 2 anchor configuration, the single anchor will be pulled at 50% Tension. Wait 5 minutes between pulls.

**Comments:**

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | | | |
| QC Representative | Phil McKinley | Phil McKinley | Feb 15 2019 |
| Client Inspector | Matt Gwendale | MWG | Feb 23, 2019 |

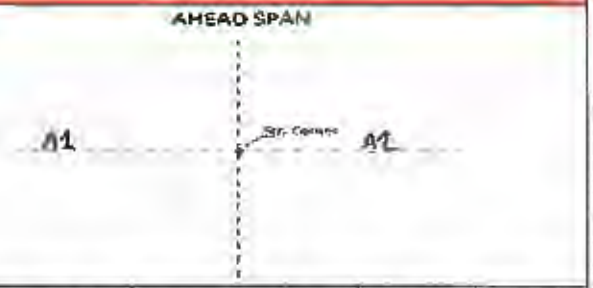
Forbes Bros Ltd.
POWERLINE CONSTRUCTION

# Anchor Pull Test

| Project # | 4581 | Project Name | Eagle gold 69 KV | Facility# | |
|---|---|---|---|---|---|
| Structure # | 42/1 | Structure Type | PVO | | |

## Anchor Test Record

| | |
|---|---|
| Time and Date Started | Feb 11 2019 14:50 |
| Time and Date completed | Feb 11 2019 15:30 |
| Test Devke | Dyna Link 2 MSI7300 |
| Operator | Excavator/Foreman |




| Anchor # | Pre-Load Benchmark | Amount of Stretch at 50% Tension | Final Reading at Full Tension | Final Reading when Tension Released | Change After Testing |
|---|---|---|---|---|---|
| 1 | 0 mm @ 0 | 0 mm @ 9280 | 3 mm @ 18140 | 2 mm @ 0 | 2 mm |
| 2 | 0 mm @ 0 | 0 mm @ 9270 | 2 mm @ 18210 | 2 mm @ 0 | 2 mm |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |

**Test Procedure:**

1. Take Benchmark reading of anchor rod.
2. Pull Anchor rod at 50% load and hold for 2 minutes. Record movement.
3. Pull Anchor rod at Full tension load and hold for 2 minutes. Record movement.
4. Release tension and record rod movement.
5. For 2 anchor configuration, the single anchor will be pulled at 50% Tension. Wait 5 minutes between pulls.

**Comments**

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | | | |
| QC Representative | Phil McKinley | Phil McKinley | Feb 15 2019 |
| Client Inspector | Matt Coverdale | MMC | Feb 23, 2019 |

Forbes Bros Ltd.
POWERLINE CONSTRUCTION

# Anchor Pull Test

| Project # | 4581 | Project Name | Eagle gold 69 KV | Facility# | |
|---|---|---|---|---|---|
| Structure # | 41/13 | Structure Type | PVO | | |

## Anchor Test Record

| | |
|---|---|
| Time and Date Started | Feb 11 2019 16:25 |
| Time and Date completed | Feb 11 2019 17:10 |
| Test Device | Dyna Link 2 MSI7300 |
| Operator | Excavator/Foreman |




| Anchor # | Pre-Load Benchmark | Amount of Stretch at 50% Tension | Final Reading at Full Tension | Final Reading when Tension Released | Change After Testing |
|---|---|---|---|---|---|
| 1 | 0 mm @ 0 | 0 mm @ 9050 | 1 mm @ 18250 | 1 mm @ 0 | 1 mm |
| 2 | 0 mm @ 0 | 0 mm @ 9270 | 3 mm @ 18260 | 3 mm @ 0 | 3 mm |
| | | | | | |
| | | | | | |
| | | | | | |
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| | | | | | |
| | | | | | |

**Test Procedure:**

1. Take Benchmark reading of anchor rod.
2. Pull Anchor rod at 50% load and hold for 2 minutes. Record movement.
3. Pull Anchor rod at Full tension load and hold for 2 minutes. Record movement.
4. Release tension and record rod movement.
5. For 2 anchor configuration, the single anchor will be pulled at 50% Tension. Wait 5 minutes between pulls.

**Comments**

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | | | |
| QC Representative | Phil McKinley | Phil McKinley | Feb 15 2019 |
| Client Inspector | Matt Coverdale | MMK | Feb 23, 2019 |

Forbes Bros LTD
POWERLINE CONSTRUCTION

# Anchor Pull Test

| Project # | 4581 | Project Name | Eagle gold 69 KV | Facility# | |
|---|---|---|---|---|---|
| Structure # | 41/12 | Structure Type | PVO | | |

**Anchor Test Record**

| | |
|---|---|
| Time and Date Started | Feb 12 2019 8:15 |
| Time and Date completed | Feb 12 2019 8:40 |
| Test Device | Dyna Link 2 MSI7300 |
| Operator | Excavator/Foreman |




| Anchor # | Pre-Load Benchmark | Amount of Stretch at 50% Tension | Final Reading at Full Tension | Final Reading when Tension Released | Change After Testing |
|---|---|---|---|---|---|
| 1 | 0 mm @ 0 | 0 mm @ 9140 | 2 mm @ 18170 | 2 mm @ 0 | 2 mm |
| 2 | 0 mm @ 0 | 0 mm @ 9210 | 2 mm @ 18080 | 2 mm @ 0 | 2 mm |
| | | | | | |
| | | | | | |
| | | | | | |
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| | | | | | |
| | | | | | |

**Test Procedure:**

1. Take Benchmark reading of anchor rod.
2. Pull Anchor rod at 50% load and hold for 2 minutes. Record movement.
3. Pull Anchor rod at Full tension load and hold for 2 minutes. Record movement.
4. Release tension and record rod movement.
5. For 2 anchor configuration, the single anchor will be pulled at 50% Tension. Wait 5 minutes between pulls.

**Comments**

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | | | |
| QC Representative | Phil McKinley | Phil McKinley | Feb 16 2019 |
| Client Inspector | Matt Caverdale | MWC | Feb 23, 2019 |

Forbes Bros Ltd
Powerline Construction

# Anchor Pull Test

| Project # | 4581 | Project Name | Eagle gold 69 KV | Facility# | |
|---|---|---|---|---|---|
| Structure # | 41/11 | Structure Type | PVO | | |

## Anchor Test Record

| | |
|---|---|
| Time and Date Started | Feb 12 2019 10:25 |
| Time and Date completed | Feb 12 2019 11:00 |
| Test Device | Dyna Link 2 MSI7300 |
| Operator | Excavator/Foreman |




| Anchor # | Pre-Load Benchmark | Amount of Stretch at 50% Tension | Final Reading at Full Tension | Final Reading when Tension Released | Change After Testing |
|---|---|---|---|---|---|
| 1 | 0 mm @ 0 | 0 mm @ 9160 | 3 mm @ 18220 | 2 mm @ 0 | 2 mm |
| 2 | 0 mm @ 0 | 0 mm @ 9200 | 2 mm @ 18130 | 2 mm @ 0 | 2 mm |
| | | | | | |
| | | | | | |
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| | | | | | |
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**Test Procedure:**

1. Take Benchmark reading of anchor rod.
2. Pull Anchor rod at 50% load and hold for 2 minutes. Record movement.
3. Pull Anchor rod at Full tension load and hold for 2 minutes. Record movement.
4. Release tension and record rod movement.
5. For 2 anchor configuration, the single anchor will be pulled at 50% Tension. Wait 5 minutes between pulls.

**Comments**

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | | | |
| QC Representative | Phil McKinley | Phil McKinley | Feb 16 2019 |
| Client Inspector | Matt Coverdale | | Feb 23, 2019 |

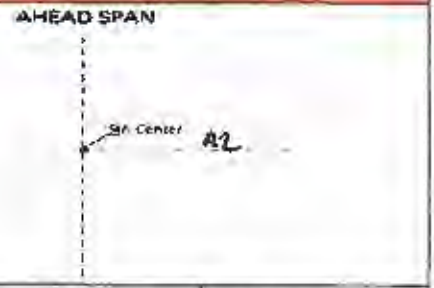
Forbes Bros Ltd
POWERLINE CONSTRUCTION

# Anchor Pull Test

| Project # | 4581 | Project Name | Eagle gold 69 KV | Facility# | |
|---|---|---|---|---|---|
| Structure # | 41/10 | Structure Type | PVO | | |

## Anchor Test Record

| | |
|---|---|
| Time and Date Started | Feb 12 2019 12:50 |
| Time and Date completed | Feb 12 2019 13:20 |
| Test Device | Dyna Link 2 MSI7300 |
| Operator | Excavator/Foreman |




| Anchor # | Pre-Load Benchmark | Amount of Stretch at 50% Tension | Final Reading at Full Tension | Final Reading when Tension Released | Change After Testing |
|---|---|---|---|---|---|
| 1 | 0 mm @ 0 | 0 mm @ 9270 | 2 mm @ 18290 | 2 mm @ 0 | 2 mm |
| 2 | 0 mm @ 0 | 0 mm @ 9140 | 1 mm @ 18160 | 1 mm @ 0 | 1 mm |
| | | | | | |
| | | | | | |
| | | | | | |
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| | | | | | |
| | | | | | |

**Test Procedure:**

1. Take Benchmark reading of anchor rod.
2. Pull Anchor rod at 50% load and hold for 2 minutes. Record movement.
3. Pull Anchor rod at Full tension load and hold for 2 minutes. Record movement.
4. Release tension and record rod movement.
5. For 2 anchor configuration, the single anchor will be pulled at 50% Tension. Wait 5 minutes between pulls.

**Comments**

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | | | |
| QC Representative | Phil McKinley | Phil McKinley | Feb 16 2019 |
| Client Inspector | Matt Caverdale | MC | Feb 23, 2019 |

Forbes Bros Ltd
POWERLINE CONSTRUCTION

# Anchor Pull Test

| Project # | 4581 | Project Name | Eagle gold 69 KV | Facility# | |
|---|---|---|---|---|---|
| Structure # | 41/09 | Structure Type | PVO | | |

## Anchor Test Record

| | |
|---|---|
| Time and Date Started | Feb 12 2019 14:50 |
| Time and Date completed | Feb 12 2019 15:45 |
| Test Device | Dyna Link 2 MSI7300 |
| Operator | Excavator/Foreman |




| Anchor # | Pre-Load Benchmark | Amount of Stretch at 50% Tension | Final Reading at Full Tension | Final Reading when Tension Released | Change After Testing |
|---|---|---|---|---|---|
| 1 | 0 mm @ 0 | 0 mm @ 9060 | 3 mm @ 18170 | 3 mm @ 0 | 3 mm |
| 2 | 0 mm @ 0 | 0 mm @ 9230 | 2 mm @ 18000 | 2 mm @ 0 | 2 mm |
| | | | | | |
| | | | | | |
| | | | | | |
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| | | | | | |
| | | | | | |

**Test Procedure:**

1. Take Benchmark reading of anchor rod.
2. Pull Anchor rod at 50% load and hold for 2 minutes. Record movement.
3. Pull Anchor rod at Full tension load and hold for 2 minutes. Record movement.
4. Release tension and record rod movement.
5. For 2 anchor configuration, the single anchor will be pulled at 50% Tension. Wait 5 minutes between pulls.

**Comments**

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | | | |
| QC Representative | Phil McKinley | Phil McKinley | Feb 16 2019 |
| Client Inspector | Matt Cavendale | MMC | Feb 23, 2019 |

Forbes Bros Ltd
POWERLINE CONSTRUCTION

# Anchor Pull Test

| Project # | 4581 | Project Name | Eagle gold 69 KV | Facility# | |
|---|---|---|---|---|---|
| Structure # | 41/08 | Structure Type | PVO | | |

## Anchor Test Record

| | |
|---|---|
| Time and Date Started | Feb 12 2019 17:20 |
| Time and Date completed | Feb 12 2019 17:50 |
| Test Device | Dyna Link 2 MSI7300 |
| Operator | Excavator/Foreman |




| Anchor # | Pre-Load Benchmark | Amount of Stretch at 50% Tension | Final Reading at Full Tension | Final Reading when Tension Released | Change After Testing |
|---|---|---|---|---|---|
| 1 | 0 mm @ 0 | 0 mm @ 9100 | 3 mm @ 18280 | 2 mm @ 0 | 2 mm |
| 2 | 0 mm @ 0 | 0 mm @ 9270 | 2 mm @ 18240 | 2 mm @ 0 | 2 mm |
| | | | | | |
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| | | | | | |
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**Test Procedure:**

1. Take Benchmark reading of anchor rod.
2. Pull Anchor rod at 50% load and hold for 2 minutes. Record movement.
3. Pull Anchor rod at Full tension load and hold for 2 minutes. Record movement.
4. Release tension and record rod movement.
5. For 2 anchor configuration, the single anchor will be pulled at 50% Tension. Wait 5 minutes between pulls.

Comments

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | | | |
| QC Representative | Phil McKinley | Phil McKinley | Feb 16 2019 |
| Client Inspector | Matt Coverdale | MMC | Feb 23, 2019 |

Forbes Bros.
POWERLINE CONSTRUCTION

# Anchor Pull Test

| Project # | 4581 | Project Name | Eagle gold 69 KV | Facility# | |
|---|---|---|---|---|---|
| Structure # | 41/7 | Structure Type | PVO | | |

## Anchor Test Record

| | |
|---|---|
| Time and Date Started | Feb 13 2019 8:40 |
| Time and Date completed | Feb 13 2019 9:20 |
| Test Device | Dyna Link 2 MSI7300 |
| Operator | Excavator/Foreman |




| Anchor # | Pre-Load Benchmark | Amount of Stretch at 50% Tension | Final Reading at Full Tension | Final Reading when Tension Released | Change After Testing |
|---|---|---|---|---|---|
| 1 | 0 mm @ 0 | 0 mm @ 9060 | 2 mm @ 18120 | 2 mm @ 0 | 2 mm |
| 2 | 0 mm @ 0 | 0 mm @ 9270 | 2 mm @ 18200 | 2 mm @ 0 | 2 mm |
| | | | | | |
| | | | | | |
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| | | | | | |
| | | | | | |

Test Procedure:

1. Take Benchmark reading of anchor rod.
2. Pull Anchor rod at 50% load and hold for 2 minutes. Record movement.
3. Pull Anchor rod at Full tension load and hold for 2 minutes. Record movement.
4. Release tension and record rod movement.
5. For 2 anchor configuration, the single anchor will be pulled at 50% Tension. Wait 5 minutes between pulls.

Comments

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | | | |
| QC Representative | Phil McKinley | Phil McKinley | Feb 16 2019 |
| Client Inspector | Matt Cavesdale | [signature] | Feb 23, 2019 |

Forbes Bros Ltd
POWERLINE CONSTRUCTION

# Anchor Pull Test

| Project # | 4581 | Project Name | Eagle gold 69 KV | Facility# | |
|---|---|---|---|---|---|
| Structure # | 41/5 | Structure Type | PTR | | |

## Anchor Test Record

| | |
|---|---|
| Time and Date Started | Feb 13 2019 10:30 |
| Time and Date completed | Feb 13 2019 11:00 |
| Test Device | Dyna Link 2 MSI7300 |
| Operator | Excavator/Foreman |




| Anchor # | Pre-Load Benchmark | Amount of Stretch at 50% Tension | Final Reading at Full Tension | Final Reading when Tension Released | Change After Testing |
|---|---|---|---|---|---|
| 1 | 0 mm @ 0 | 0 mm @ 9250 | 1 mm @ 18270 | 1 mm @ 0 | 1 mm |
| 2 | 0 mm @ 0 | 0 mm @ 9230 | 2 mm @ 18200 | 2 mm @ 0 | 2 mm |
| | | | | | |
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| | | | | | |

**Test Procedure:**

1. Take Benchmark reading of anchor rod.
2. Pull Anchor rod at 50% load and hold for 2 minutes. Record movement.
3. Pull Anchor rod at Full tension load and hold for 2 minutes. Record movement.
4. Release tension and record rod movement.
5. For 2 anchor configuration, the single anchor will be pulled at 50% Tension. Wait 5 minutes between pulls.

**Comments**

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | | | |
| QC Representative | Phil McKinley | Phil McKinley | Feb 16 2019 |
| Client Inspector | Matt Caverdale | | Feb 23, 2019 |

Forbes Bros Ltd
POWERLINE CONSTRUCTION

# Anchor Pull Test

| Project # | 4581 | Project Name | Eagle gold 69 KV | Facility# | |
|---|---|---|---|---|---|
| Structure # | 33/6 | Structure Type | PT | | |

## Anchor Test Record

| | |
|---|---|
| Time and Date Started | February 19 2019 10:30 |
| Time and Date completed | February 19 2019 11:00 |
| Test Device | Dyna Link 2 MSI7300 |
| Operator | Excavator/Foreman |




| Anchor # | Pre-Load Benchmark | Amount of Stretch at 50% Tension | Final Reading at Full Tension | Final Reading when Tension Released | Change After Testing |
|---|---|---|---|---|---|
| 1 | 0 mm @ 0 | 0 mm @ 9240 | 2 mm @ 18220 | 2 mm @ 0 | 2 mm |
| 2 | 0 mm @ 0 | 0 mm @ 9280 | 2 mm @ 18200 | 2 mm @ 0 | 2 mm |
| | | | | | |
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| | | | | | |
| | | | | | |

**Test Procedure:**

1. Take Benchmark reading of anchor rod.
2. Pull Anchor rod at 50% load and hold for 2 minutes. Record movement.
3. Pull Anchor rod at Full tension load and hold for 2 minutes. Record movement.
4. Release tension and record rod movement.
5. For 2 anchor configuration, the single anchor will be pulled at 50% Tension. Wait 5 minutes between pulls.

**Comments**

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | | | |
| QC Representative | Phil McKinley | Phil McKinley | Feb 21 2019 |
| Client Inspector | Matt Coverdale | MMC | Feb 23, 2019 |

Forbes Bros Ltd
POWERLINE CONSTRUCTION

# Anchor Pull Test

| Project # | 4581 | Project Name | Eagle gold 69 KV | Facility# | |
|---|---|---|---|---|---|
| Structure # | 33/4 | Structure Type | PT | | |

**Anchor Test Record**

| | |
|---|---|
| Time and Date Started | February 19 2019 13:20 |
| Time and Date completed | February 19 2019 13:45 |
| Test Device | Dyna Link 2 MSI7300 |
| Operator | Excavator/Foreman |




| Anchor # | Pre-Load Benchmark | Amount of Stretch at 50% Tension | Final Reading at Full Tension | Final Reading when Tension Released | Change After Testing |
|---|---|---|---|---|---|
| 1 | 0 mm @ 0 | 0 mm @ 9250 | 1 mm @ 18280 | 1 mm @ 0 | 1 mm |
| 2 | 0 mm @ 0 | 0 mm @ 9020 | 2 mm @ 18240 | 2 mm @ 0 | 2 mm |
| | | | | | |
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**Test Procedure:**

1. Take Benchmark reading of anchor rod.
2. Pull Anchor rod at 50% load and hold for 2 minutes. Record movement.
3. Pull Anchor rod at Full tension load and hold for 2 minutes. Record movement.
4. Release tension and record rod movement.
5. For 2 anchor configuration, the single anchor will be pulled at 50% Tension. Wait 5 minutes between pulls.

**Comments**

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | | | |
| QC Representative | Phil McKinley | Phil McKinley | Feb 21 2019 |
| Client Inspector | Matt Coverdale | | Feb 23, 2019 |

Forbes Bros.
POWERLINE CONSTRUCTION

# Anchor Pull Test

| Project # | 4581 | Project Name | Eagle gold 69 KV | Facility# | |
|---|---|---|---|---|---|
| Structure # | 33/3 | Structure Type | PT | | |

**Anchor Test Record**

| | |
|---|---|
| Time and Date Started | February 19 2019 15:50 |
| Time and Date completed | February 19 2019 16:10 |
| Test Device | Dyna Link 2 MSI7300 |
| Operator | Excavator/Foreman |




| Anchor # | Pre-Load Benchmark | Amount of Stretch at 50% Tension | Final Reading at Full Tension | Final Reading when Tension Released | Change After Testing |
|---|---|---|---|---|---|
| 1 | 0 mm @ 0 | 0 mm @ 9140 | 2 mm @ 18230 | 2 mm @ 0 | 2 mm |
| 2 | 0 mm @ 0 | 0 mm @ 9260 | 3 mm @ 18290 | 3 mm @ 0 | 3 mm |
| | | | | | |
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**Test Procedure:**

1. Take Benchmark reading of anchor rod.
2. Pull Anchor rod at 50% load and hold for 2 minutes. Record movement.
3. Pull Anchor rod at Full tension load and hold for 2 minutes. Record movement.
4. Release tension and record rod movement.
5. For 2 anchor configuration, the single anchor will be pulled at 50% Tension. Wait 5 minutes between pulls.

**Comments**

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | | | |
| QC Representative | Phil McKinley | Phil McKinley | Feb 21 2019 |
| Client Inspector | Matt Caverdale | MC | Feb 23, 2019 |

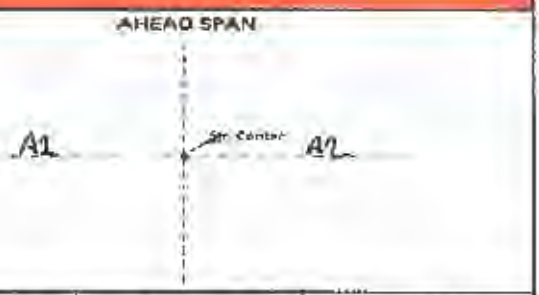
Forbes Bros Ltd.
POWERLINE CONSTRUCTION

# Anchor Pull Test

| Project # | 4581 | Project Name | Eagle gold 69 KV | Facility# | |
|---|---|---|---|---|---|
| Structure # | 33/2 | Structure Type | PT | | |

**Anchor Test Record**

| | |
|---|---|
| Time and Date Started | February 19 2019 17:40 |
| Time and Date completed | February 19 2019 18:00 |
| Test Device | Dyna Link 2 MSI7300 |
| Operator | Excavator/Foreman |




| Anchor # | Pre-Load Benchmark | Amount of Stretch at 50% Tension | Final Reading at Full Tension | Final Reading when Tension Released | Change After Testing |
|---|---|---|---|---|---|
| 1 | 0 mm @ 0 | 0 mm @ 9140 | 2 mm @ 18230 | 2 mm @ 0 | 2 mm |
| 2 | 0 mm @ 0 | 0 mm @ 9260 | 3 mm @ 18290 | 3 mm @ 0 | 3 mm |
| | | | | | |
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**Test Procedure:**

1. Take Benchmark reading of anchor rod.
2. Pull Anchor rod at 50% load and hold for 2 minutes. Record movement.
3. Pull Anchor rod at Full tension load and hold for 2 minutes. Record movement.
4. Release tension and record rod movement.
5. For 2 anchor configuration, the single anchor will be pulled at 50% Tension. Wait 5 minutes between pulls.

**Comments**

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | | | |
| QC Representative | Phil McKinley | Phil McKinley | Feb 21 2019 |
| Client Inspector | Matt Coverdale | | Feb 23, 209 |

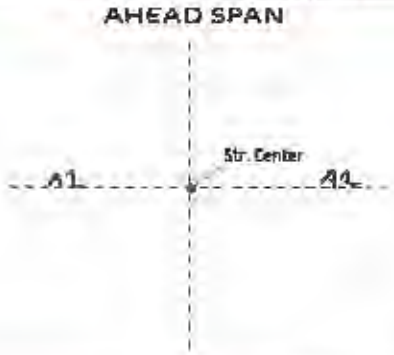
Forbes Bros LTD
POWERLINE CONSTRUCTION

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 69 KV | Line # | L251 |
|---|---|---|---|---|---|
| Structure # | 42/6 | Structure Type | PVO | Date | February 11 2019 |

## ANCHOR CHECKLIST

### Plan View – Anchor Locations




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Plate | 2.5 | Permafrost | 61 | 150 | | |
| 2 | Plate | 2.4 | Permafrost | 60 | 150 | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
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| | | | | | | | |

**Comments:**

A1,A2 used 10 ft anchor rods
Backfilled with gravel

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | | | |
| QC Inspector | Phil McKinley | Phil McKinley | Feb 15 2019 |
| Client Inspector | Matt Casebolt | MC | Feb 23, 2019 |

Forbes Bros Ltd
Powerline Construction

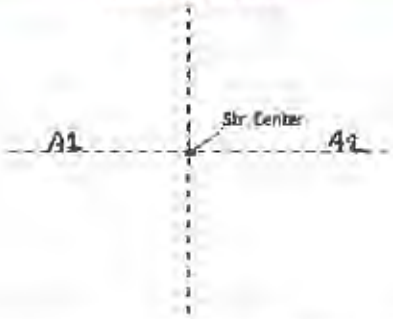
# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 69 KV | Line # | L251 |
|---|---|---|---|---|---|
| Structure # | 42/5 | Structure Type | SAHO | Date | February 11 2019 |

**ANCHOR CHECKLIST**

**Plan View – Anchor Locations**

AHEAD SPAN




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Plate | 2.5 | Permafrost | 62 | 150 | | |
| 2 | Plate | 2.5 | Permafrost | 61 | 150 | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

**Comments:**

A1,A2 used 10 ft anchor rods
Backfilled with gravel

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | | | |
| QC inspector | Phil McKinley | Phil McKinley | Feb 15 2019 |
| Client inspector | Matt Coverdale | MC | Feb 23, 2019 |

Forbes Bros Ltd
Powerline Construction

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 69 KV | Line # | L251 |
|---|---|---|---|---|---|
| Structure # | 42/2 | Structure Type | SAHO | Date | February 11 2019 |

## ANCHOR CHECKLIST

### Plan View – Anchor Locations




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Plate | 2.4 | Permafrost | 58 | 150 | | |
| 2 | Plate | 2.5 | Permafrost | 61 | 150 | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

**Comments:**

A1,A2 used 10 ft anchor rods
Backfilled with gravel

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | | | |
| QC Inspector | Phil McKinley | Phil McKinley | Feb 15 2019 |
| Client Inspector | Matt Coverdale | | Feb 23, 2019 |

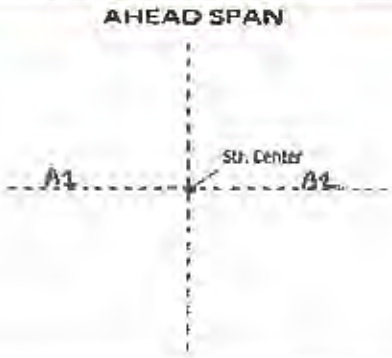
Forbes Bros Ltd
POWERLINE CONSTRUCTION

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 69 KV | Line # | L251 |
|---|---|---|---|---|---|
| Structure # | 42/1 | Structure Type | PVO | Date | February 11 2019 |

## ANCHOR CHECKLIST

### Plan View – Anchor Locations




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Plate | 2.4 | Permafrost | 59 | 150 | | |
| 2 | Plate | 2.5 | Permafrost | 60 | 150 | | |
| | | | | | | | |
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| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

**Comments:**

A1,A2 used 10 ft anchor rods
Backfilled with gravel

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | | | |
| QC Inspector | Phil McKinley | Phil McKinley | Feb 15 2019 |
| Client Inspector | Matt Coverdale | MMC | Feb 23, 2019 |

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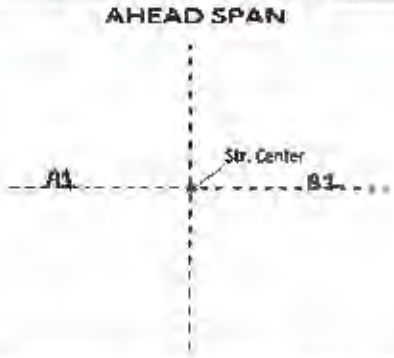
Powerline Construction

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 69 KV | Line # | L251 |
|---|---|---|---|---|---|
| Structure # | 41/13 | Structure Type | PVO | Date | February 11 2019 |

## ANCHOR CHECKLIST

### Plan View – Anchor Locations




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Plate | 2.5 | Permafrost | 61 | 150 | | |
| 2 | Plate | 2.5 | Permafrost | 62 | 150 | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
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| | | | | | | | |

**Comments:**

A1,A2 used 10 ft anchor rods
Backfilled with gravel

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | | | |
| QC inspector | Phil McKinley | Phil McKinley | Feb 15 2019 |
| Client inspector | Matt Cavendale | MC | Feb 23, 2019 |

Forbes Bros Ltd
POWERLINE CONSTRUCTION

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 69 KV | Line # | L251 |
|---|---|---|---|---|---|
| Structure # | 41/12 | Structure Type | PVO | Date | February 12 2019 |

## ANCHOR CHECKLIST

### Plan View – Anchor Locations




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Plate | 2.4 | Permafrost | 58 | 150 | | |
| 2 | Plate | 2.5 | Permafrost | 60 | 150 | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

**Comments:**

A1,A2 used 10 ft anchor rods
Backfilled with gravel

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | | | |
| QC inspector | Phil McKinley | Phil McKinley | Feb 15 2019 |
| Client Inspector | Matt Cavendale | | Feb 23, 2019 |

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Powerline Construction

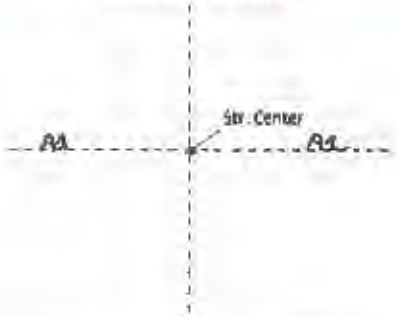
# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 69 KV | Line # | L251 |
|---|---|---|---|---|---|
| Structure # | 41/11 | Structure Type | PVO | Date | February 12 2019 |

## ANCHOR CHECKLIST

### Plan View – Anchor Locations

AHEAD SPAN




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Plate | 2.5 | Permafrost | 62 | 150 | | |
| 2 | Plate | 2.5 | Permafrost | 62 | 150 | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
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| | | | | | | | |
| | | | | | | | |

**Comments:**

A1,A2 used 10 ft anchor rods
Backfilled with gravel

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | | | |
| QC Inspector | Phil McKinley | Phil McKinley | Feb 15 2019 |
| Client Inspector | Matt Cavendale | MC | Feb 23, 2019 |

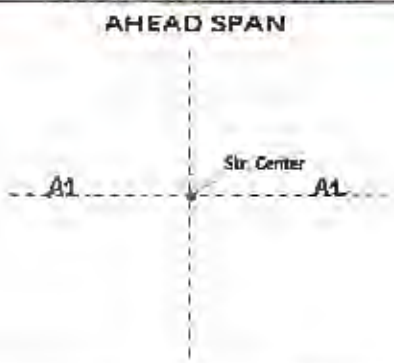
Forbes Bros Ltd.
POWERLINE CONSTRUCTION

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 69 KV | Line # | L251 |
|---|---|---|---|---|---|
| Structure # | 41/10 | Structure Type | PVO | Date | February 12 2019 |

## ANCHOR CHECKLIST

### Plan View – Anchor Locations




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (ft-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Plate | 2.5 | Permafrost | 60 | 150 | | |
| 2 | Plate | 2.4 | Permafrost | 58 | 150 | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

**Comments:**

A1,A2 used 10 ft anchor rods
Backfilled with gravel

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | | | |
| QC Inspector | Phil McKinley | Phil McKinley | Feb 15 2019 |
| Client Inspector | Matt Beardale | MM | Feb 23, 2019 |

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POWERLINE CONSTRUCTION

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 69 KV | Line # | L251 |
|---|---|---|---|---|---|
| Structure # | 41/9 | Structure Type | PVO | Date | February 12 2019 |

## ANCHOR CHECKLIST

### Plan View – Anchor Locations




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (ft-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Plate | 2.4 | Permafrost | 59 | 150 | | |
| 2 | Plate | 2.4 | Permafrost | 57 | 150 | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

**Comments:**

A1,A2 used 10 ft anchor rods
Backfilled with gravel

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | | | |
| QC Inspector | Phil McKinley | Phil McKinley | Feb 15 2019 |
| Client Inspector | Matt Cavedale | | Feb 23, 2019 |

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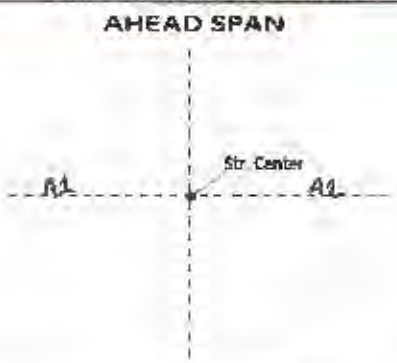
# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 69 KV | Line # | L251 |
|---|---|---|---|---|---|
| Structure # | 41/8 | Structure Type | PVO | Date | February 12 2019 |

## ANCHOR CHECKLIST

### Plan View – Anchor Locations




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Plate | 2.5 | Permafrost | 60 | 150 | | |
| 2 | Plate | 2.4 | Permafrost | 58 | 150 | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

**Comments:**

A1,A2 used 10 ft anchor rods
Backfilled with gravel

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | | | |
| QC Inspector | Phil McKinley | Phil McKinley | Feb 15 2019 |
| Client Inspector | Matt Cavedale | [signature] | Feb 23, 2019 |

Forbes Bros Ltd
Powerline Construction

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 69 KV | Line # | L251 |
|---|---|---|---|---|---|
| Structure # | 41/7 | Structure Type | PVO | Date | February 13 2019 |

## ANCHOR CHECKLIST

### Plan View – Anchor Locations

AHEAD SPAN




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Plate | 2.5 | Permafrost | 60 | 150 | | |
| 2 | Plate | 2.4 | Permafrost | 58 | 150 | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
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| | | | | | | | |

**Comments:**

A1,A2 used 10 ft anchor rods
Backfilled with gravel

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | | | |
| QC Inspector | Phil McKinley | Phil McKinley | Feb 16 2019 |
| Client Inspector | Matt Caerdale | MC | Feb 23, 2019 |

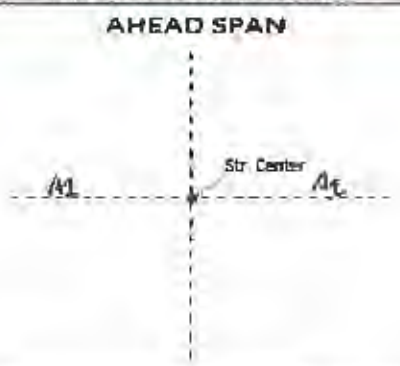
Forbes Bros LTD
POWERLINE CONSTRUCTION

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 69 KV | Line # | L251 |
|---|---|---|---|---|---|
| Structure # | 41/5 | Structure Type | PTR | Date | February 13 2019 |

## ANCHOR CHECKLIST

**Plan View – Anchor Locations**




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Plate | 2.4 | Permafrost | 57 | 150 | | |
| 2 | Plate | 2.4 | Permafrost | 59 | 150 | | |
| | | | | | | | |
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| | | | | | | | |

**Comments:**

A1,A2 used 10 ft anchor rods
Backfilled with gravel

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | | | |
| QC Inspector | Phil McKinley | Phil McKinley | Feb 16 2019 |
| Client Inspector | Matt Cavendale | | Feb 23, 2019 |

Forbes Bros. Ltd
POWERLINE CONSTRUCTION

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 69 KV | Line # | L251 |
|---|---|---|---|---|---|
| Structure # | 37/7 | Structure Type | PT | Date | February 16 2019 |

## ANCHOR CHECKLIST

### Plan View – Anchor Locations




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Plate | 2.5 | Permafrost | 60 | 150 | | |
| 2 | Plate | 2.4 | Permafrost | 59 | 150 | | |
| | | | | | | | |
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| | | | | | | | |
| | | | | | | | |

**Comments:**

A1,A2 used 10 ft anchor rods
Backfilled with gravel

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | | | |
| QC Inspector | Phil McKinley | PJ McKinley | Feb 21 2019 |
| Client Inspector | Matt Cavendale | MCavendale | Feb 23, 2019 |

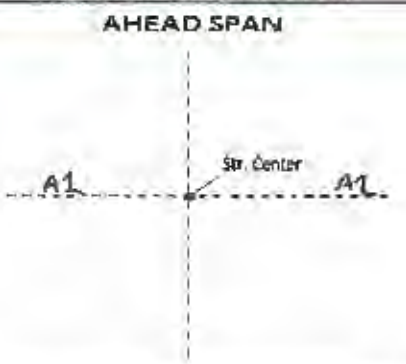
Forbes Bros LTD
POWERLINE CONSTRUCTION

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 69 KV | Line # | L251 |
|---|---|---|---|---|---|
| Structure # | 37/6 | Structure Type | PT | Date | February 16 2019 |

## ANCHOR CHECKLIST

### Plan View – Anchor Locations




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Plate | 2.4 | Permafrost | 59 | 150 | | |
| 2 | Plate | 2.4 | Permafrost | 59 | 150 | | |
| | | | | | | | |
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| | | | | | | | |

**Comments:**

A1,A2 used 10 ft anchor rods
Backfilled with gravel

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | | | |
| QC Inspector | Phil McKinley | Phil McKinley | Feb 21 2019 |
| Client Inspector | Matt Cavendale | [signature] | Feb 23, 2019 |

Forbes Bros Ltd.
POWERLINE CONSTRUCTION

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 69 KV | Line # | L251 |
|---|---|---|---|---|---|
| Structure # | 37/5 | Structure Type | PT | Date | February 16 2019 |

## ANCHOR CHECKLIST

### Plan View – Anchor Locations




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Plate | 2.5 | Permafrost | 62 | 150 | | |
| 2 | Plate | 2.4 | Permafrost | 58 | 150 | | |
| | | | | | | | |
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| | | | | | | | |

**Comments:**

A1,A2 used 10 ft anchor rods
Backfilled with gravel

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | | | |
| QC Inspector | Phil McKinley | Phil McKinley | Feb 21 2019 |
| Client Inspector | Matt Beaudoin | Matt | Feb 23, 2019 |

Forbes Bros Ltd
Powerline Construction

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 69 KV | Line # | L251 |
|---|---|---|---|---|---|
| Structure # | 37/3 | Structure Type | PT | Date | February 16 2019 |

## ANCHOR CHECKLIST

### Plan View – Anchor Locations




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Plate | 2.5 | Permafrost | 62 | 150 | | |
| 2 | Plate | 2.5 | Permafrost | 61 | 150 | | |
| | | | | | | | |
| | | | | | | | |
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| | | | | | | | |
| | | | | | | | |

**Comments:**

A1,A2 used 10 ft anchor rods
Backfilled with gravel

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | | | |
| QC Inspector | Phil McKinley | Phil McKinley | Feb 21 2019 |
| Client Inspector | Matt Coverdale | MC | Feb 21, 2019 |

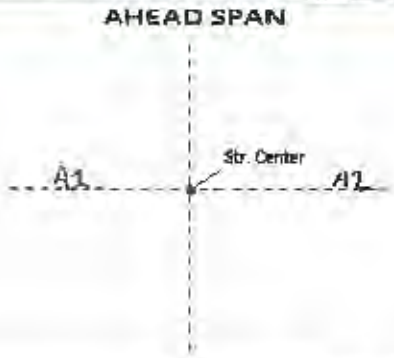
Forbes Bros Ltd.
POWERLINE CONSTRUCTION

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 69 KV | Line # | L251 |
|---|---|---|---|---|---|
| Structure # | 37/2 | Structure Type | PT | Date | February 16 2019 |

## ANCHOR CHECKLIST

### Plan View – Anchor Locations




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Plate | 2.4 | Permafrost | 59 | 150 | | |
| 2 | Plate | 2.4 | Permafrost | 58 | 150 | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

**Comments:**

A1,A2 used 10 ft anchor rods
Backfilled with gravel

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | | | |
| QC Inspector | Phil McKinley | Phil McKinley | Feb 21 2019 |
| Client Inspector | Matt Cavendale | MC | Feb 23, 2019 |

Forbes Bros Ltd
POWERLINE CONSTRUCTION

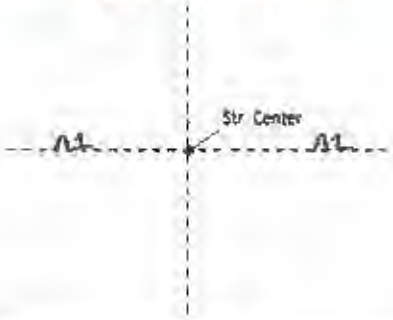
# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 69 KV | Line # | L251 |
|---|---|---|---|---|---|
| Structure # | 37/1 | Structure Type | PT | Date | February 17 2019 |

## ANCHOR CHECKLIST

### Plan View – Anchor Locations

AHEAD SPAN




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Plate | 2.4 | Permafrost | 59 | 150 | | |
| 2 | Plate | 2.5 | Permafrost | 60 | 150 | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

**Comments:**

A1,A2 used 10 ft anchor rods
Backfilled with gravel

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | | | |
| QC Inspector | Phil McKinley | Phil McKinley | Feb 21 2019 |
| Client Inspector | Matt Caredale | [signature] | Feb 23, 2019 |

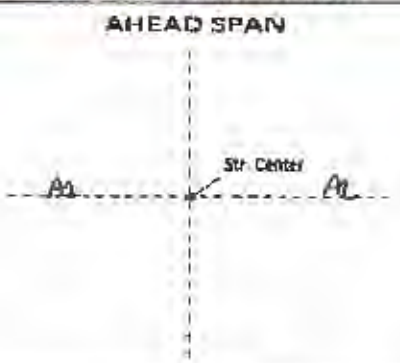
Forbes Bros
POWERLINE CONSTRUCTION

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 69 KV | Line # | L251 |
|---|---|---|---|---|---|
| Structure # | 36/10 | Structure Type | PT | Date | February 17 2019 |

## ANCHOR CHECKLIST

### Plan View – Anchor Locations




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Plate | 2.4 | Permafrost | 58 | 150 | | |
| 2 | Plate | 2.4 | Permafrost | 58 | 150 | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

**Comments:**

A1,A2 used 10 ft anchor rods
Backfilled with gravel

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | | | |
| QC Inspector | Phil McKinley | Phil McKinley | Feb 21 2019 |
| Client Inspector | Matt Beerdale | MC | Feb 23, 2019 |

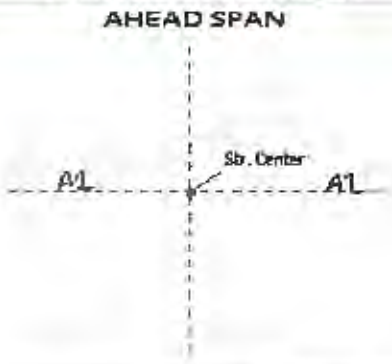
Forbes Bros Ltd
POWERLINE CONSTRUCTION

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 69 KV | Line # | L251 |
|---|---|---|---|---|---|
| Structure # | 35/11 | Structure Type | PT | Date | February 17 2019 |

## ANCHOR CHECKLIST

### Plan View – Anchor Locations




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Plate | 2.5 | Permafrost | 62 | 150 | | |
| 2 | Plate | 2.5 | Permafrost | 61 | 150 | | |
| | | | | | | | |
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| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

**Comments:**

A1,A2 used 10 ft anchor rods
Backfilled with gravel
Not identified as potential permafrost on structure data sheet

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | | | |
| QC Inspector | Phil McKinley | Phil McKinley | Feb 21 2019 |
| Client Inspector | Matt Caverhill | MC | Feb 23, 2019 |

Forbes Bros Ltd
Powerline Construction

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 69 KV | Line # | L251 |
|---|---|---|---|---|---|
| Structure # | 35/9 | Structure Type | PT | Date | February 17 2019 |

## ANCHOR CHECKLIST

### Plan View – Anchor Locations




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Plate | 2.4 | Permafrost | 59 | 150 | | |
| 2 | Plate | 2.4 | Permafrost | 59 | 150 | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
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| | | | | | | | |
| | | | | | | | |

**Comments:**

A1,A2 used 10 ft anchor rods
Backfilled with gravel
Not identified as potential permafrost on structure data sheet

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | | | |
| QC Inspector | Phil McKinley | Phil McKinley | Feb 21 2019 |
| Client Inspector | Matt Cavendale | MMC | Feb 23, 2019 |

Forbes Bros Ltd
Powerline Construction

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 69 KV | Line # | L251 |
|---|---|---|---|---|---|
| Structure # | 34/5 | Structure Type | PT | Date | February 17 2019 |

## ANCHOR CHECKLIST

### Plan View – Anchor Locations

AHEAD SPAN




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Plate | 2.4 | Permafrost | 57 | 150 | | |
| 2 | Plate | 2.5 | Permafrost | 61 | 150 | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

**Comments:**

A1,A2 used 10 ft anchor rods
Backfilled with gravel
Not identified as potential permafrost on structure data sheet

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | | | |
| QC Inspector | Phil McKinley | Phil McKinley | Feb 21 2019 |
| Client Inspector | Matt Caverhill | MC | Feb 23, 2019 |

Forbes Bros Ltd.
Powerline Construction

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 69 KV | Line # | L251 |
|---|---|---|---|---|---|
| Structure # | 34/4 | Structure Type | PT | Date | February 18 2019 |

## ANCHOR CHECKLIST

### Plan View – Anchor Locations

AHEAD SPAN




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Plate | 2.5 | Permafrost | 61 | 150 | | |
| 2 | Plate | 2.5 | Permafrost | 61 | 150 | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

**Comments:**

A1,A2 used 10 ft anchor rods
Backfilled with gravel
Not identified as potential permafrost on structure data sheet

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | | | |
| QC inspector | Phil McKinley | PJ McK | Feb 21 2019 |
| Client Inspector | Matt Coverdale | MMC | Feb 23, 2019 |

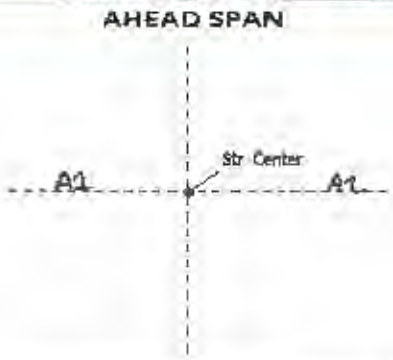
Forbes Bros LTD
POWERLINE CONSTRUCTION

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 69 KV | Line # | L251 |
|---|---|---|---|---|---|
| Structure # | 34/3 | Structure Type | PT | Date | February 18 2019 |

## ANCHOR CHECKLIST

### Plan View – Anchor Locations




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Plate | 2.4 | Permafrost | 59 | 150 | | |
| 2 | Plate | 2.6 | Permafrost | 53 | 150 | | |
| | | | | | | | |
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| | | | | | | | |
| | | | | | | | |

**Comments:**

A1,A2 used 10 ft anchor rods
Backfilled with gravel
Not identified as potential permafrost on structure data sheet

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | | | |
| QC inspector | Phil McKinley | Phil McKinley | Feb 21 2019 |
| Client Inspector | Matt Carisdale | | Feb 23, 2019 |

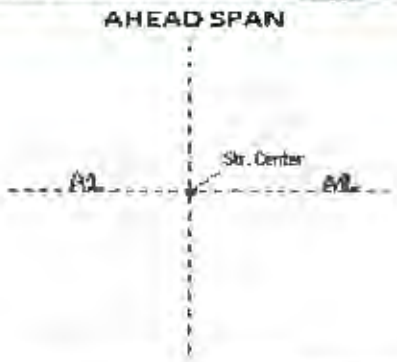
Forbes Bros Ltd.
POWERLINE CONSTRUCTION

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 69 KV | Line # | L251 |
|---|---|---|---|---|---|
| Structure # | 34/1 | Structure Type | PT | Date | February 18 2019 |

## ANCHOR CHECKLIST

### Plan View – Anchor Locations




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Plate | 2.5 | Permafrost | 61 | 150 | | |
| 2 | Plate | 2.5 | Permafrost | 61 | 150 | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
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| | | | | | | | |
| | | | | | | | |

**Comments:**

A1,A2 used 10 ft anchor rods
Backfilled with gravel
Not identified as potential permafrost on structure data sheet

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | | | |
| QC inspector | Phil McKinley | Phil McKinley | Feb 21 2019 |
| Client Inspector | Matt Geesdale | MG | Feb 23, 2019 |

Forbes Bros Ltd.
POWERLINE CONSTRUCTION

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 69 KV | Line # | L251 |
|---|---|---|---|---|---|
| Structure # | 33/11 | Structure Type | PT | Date | February 18 2019 |

## ANCHOR CHECKLIST

### Plan View – Anchor Locations




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Plate | 2.5 | Permafrost | 61 | 150 | | |
| 2 | Plate | 2.4 | Permafrost | 58 | 150 | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
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| | | | | | | | |
| | | | | | | | |

**Comments:**

A1,A2 used 10 ft anchor rods
Backfilled with gravel
Not identified as potential permafrost on structure data sheet

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | | | |
| QC inspector | Phil McKinley | Phil McKinley | Feb 21 2019 |
| Client Inspector | Matt Cavedale | | Feb 23, 2019 |

Forbes Bros Ltd.
POWERLINE CONSTRUCTION

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 69 KV | Line # | 1251 |
|---|---|---|---|---|---|
| Structure # | 33/10 | Structure Type | PT | Date | February 18 2019 |

## ANCHOR CHECKLIST

### Plan View – Anchor Locations




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Plate | 2.5 | Permafrost | 60 | 150 | | |
| 2 | Plate | 2.5 | Permafrost | 62 | 150 | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
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| | | | | | | | |
| | | | | | | | |

**Comments:**

A1,A2 used 10 ft anchor rods
Backfilled with gravel
Not identified as potential permafrost on structure data sheet

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | | | |
| QC Inspector | Phil McKinley | Phil McKinley | Feb 21 2019 |
| Client Inspector | Matt Cacdale | MC | Feb 23, 2019 |

Forbes Bros Ltd
POWERLINE CONSTRUCTION

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 69 KV | Line # | L2S1 |
|---|---|---|---|---|---|
| Structure # | 33/9 | Structure Type | PT | Date | February 19 2019 |

## ANCHOR CHECKLIST

### Plan View – Anchor Locations




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Plate | 2.4 | Permafrost | 57 | 150 | | |
| 2 | Plate | 2.5 | Permafrost | 60 | 150 | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
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| | | | | | | | |
| | | | | | | | |

**Comments:**

A1,A2 used 10 ft anchor rods
Backfilled with gravel
Not identified as potential permafrost on structure data sheet

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | | | |
| QC Inspector | Phil McKinley | Phil McKinley | Feb 21 2019 |
| Client Inspector | Matt Caesdale | MMC | Feb 23, 2019 |

Forbes Bros Ltd
Powerline Construction

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 69 KV | Line # | L251 |
|---|---|---|---|---|---|
| Structure # | 33/6 | Structure Type | PT | Date | February 19 2019 |

## ANCHOR CHECKLIST

### Plan View – Anchor Locations




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Plate | 2.4 | Permafrost | 57 | 150 | | |
| 2 | Plate | 2.4 | Permafrost | 58 | 150 | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
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| | | | | | | | |
| | | | | | | | |

**Comments:**

A1,A2 used 10 ft anchor rods
Backfilled with gravel
Not identified as potential permafrost on structure data sheet

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | | | |
| QC Inspector | Phil McKinley | Phil McKinley | Feb 21 2019 |
| Client Inspector | Matt Carefoot | MC | Feb 23, 2019 |

Forbes Bros Ltd
Powerline Construction

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 69 KV | Line # | L251 |
|---|---|---|---|---|---|
| Structure # | 33/4 | Structure Type | PT | Date | February 19 2019 |

## ANCHOR CHECKLIST

Plan View – Anchor Locations

AHEAD SPAN




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Plate | 2.4 | Permafrost | 59 | 150 | | |
| 2 | Plate | 2.4 | Permafrost | 58 | 150 | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
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| | | | | | | | |

**Comments:**

A1,A2 used 10 ft anchor rods
Backfilled with gravel
Not identified as potential permafrost on structure data sheet

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | | | |
| QC Inspector | Phil McKinley | Phil McKinley | Feb 21 2019 |
| Client Inspector | Matt Greendale | MG | Feb 23, 2019 |

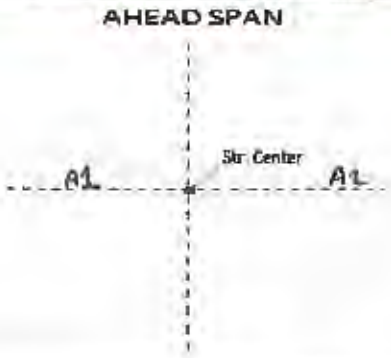
Forbes Bros. Ltd.
POWERLINE CONSTRUCTION

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 69 KV | Line # | L251 |
|---|---|---|---|---|---|
| Structure # | 33/3 | Structure Type | PT | Date | February 19 2019 |

**ANCHOR CHECKLIST**

**Plan View – Anchor Locations**




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Plate | 2.5 | Permafrost | 62 | 150 | | |
| 2 | Plate | 2.5 | Permafrost | 61 | 150 | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

**Comments:**

A1,A2 used 10 ft anchor rods
Backfilled with gravel
Not identified as potential permafrost on structure data sheet

| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | | | |
| QC inspector | Phil McKinley | Phil McKinley | Feb 21 2019 |
| Client Inspector | Matt Cavendale | | Feb 23, 2019 |

Forbes Bros Ltd
POWERLINE CONSTRUCTION

# Anchor Installation

| Project # | 4581 | Project Name | Eagle Gold 69 KV | Line # | L251 |
|---|---|---|---|---|---|
| Structure # | 33/2 | Structure Type | PT | Date | February 19 2019 |

## ANCHOR CHECKLIST

### Plan View – Anchor Locations




| Anchor# | Anchor Type | Depth (m) | Soil type | Installation Angle (°) | Stick Up (mm) | Torque (m-lbs) | Gauge (psi) |
|---|---|---|---|---|---|---|---|
| 1 | Plate | 2.4 | Permafrost | 58 | 150 | | |
| 2 | Plate | 2.5 | Permafrost | 61 | 150 | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

**Comments:**

A1,A2 used 10 ft anchor rods
Backfilled with gravel
Not identified as potential permafrost on structure data sheet

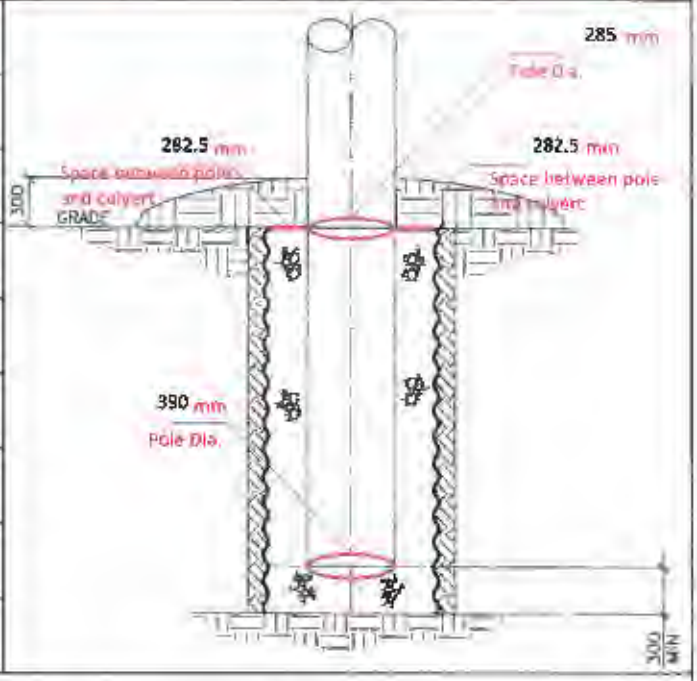
| | Print | Signature | Date |
|---|---|---|---|
| Foreman name | | | |
| QC inspector | Phil McKinley | Phil McKinley | Feb 21 2019 |
| Client inspector | Matt Cavedale | [illegible] | Feb 23, 2019 |

Forbes Bros Ltd
POWERLINE CONSTRUCTION

# Backfill and Compaction

| Project # | 4581 | Project Name | Eagle Gold 69 KV | Facility # | |
|---|---|---|---|---|---|
| Structure # | 32/4 | Structure Type | PT | Date | Dec 11 2018 |

## Backfill and Compaction

| Check List | | View |
|---|---|---|
| Ground Type: ○ Good Soil ◉ Weak Soil — Description (Wet, Rock, Permafrost etc.) | Wet |  |
| Backfill material | Gravel | |
| 3H/1V Slope from foundation footprint to existing grade | Yes ☐ | |
| 6H/1V slope from center to the 4 sides of foundation footprint | Yes ☐ N/A ☐ | |
| No ponding around piles | Yes ☐ | |
| No soil covers top of the piles and pile cap | Yes ☐ | |
| Compaction method/Equipment | Hydraulic Tamper | |
| Compact in max. 300mm LIFTS | Yes ☑ | |
| Site Clean Up Complete | Yes ☐ | |
| Culvert Used (If weak soils encountered, use >800mm dia) | Yes ☑ No ☐ | Diameter(mm): 850 Length(mm): 3000 |



| Pile Projection (mm) | Leg 1 | Leg 2 | Leg 3 | Leg 4 |
|---|---|---|---|---|
| | | | | |

Notes:

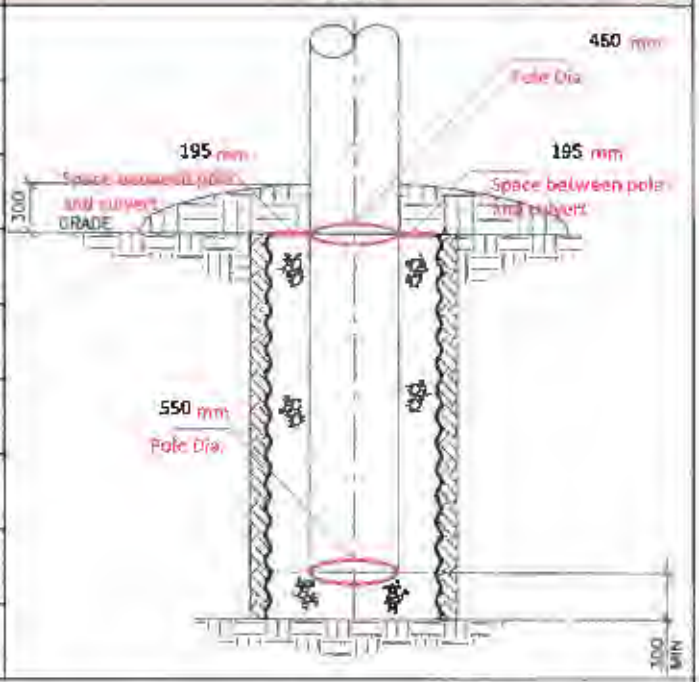
| | Name | Signature | Date |
|---|---|---|---|
| Foreman | | | |
| Quality Representative | Phil McKinley | Phil McKinley | Dec 14 2018 |
| Client Representative | Matt Coverdale | MC | Feb 23, 2019 |

Forbes Bros. LTD
POWERLINE CONSTRUCTION

# Backfill and Compaction

| Project # | 4581 | Project Name | Eagle Gold 69 KV | Facility # | |
|---|---|---|---|---|---|
| Structure # | 36/9 LP | Structure Type | SAH | Date | Dec 15 2018 |

## Backfill and Compaction

| Check List | | View |
|---|---|---|
| Ground Type (● Good Soil / ○ Weak Soil) Description (Wet, Rock, Permafrost etc.) | Permafrost |  |
| Backfill material | Gravel | |
| 3H/1V Slope from foundation footprint to existing grade | Yes ☐ | |
| 6H/1V slope from center to the 4 sides of foundation footprint | Yes ☐ N/A ☐ | |
| No ponding around piles | Yes ☐ | |
| No soil covers top of the piles and pile cap | Yes ☐ | |
| Compaction method/Equipment | Hydraulic Tamper | |
| Compact in max. 300mm LIFTS | Yes ☑ | |
| Site Clean Up Complete | Yes ☐ | |
| Culvert Used (if weak soils encountered, use >800mm dia) | Yes ☑ No ☐ Diameter(mm): 850 Length(mm): 3000 | |



| Pile Projection (mm) | Leg 1 | Leg 2 | Leg 3 | Leg 4 |
|---|---|---|---|---|
| | | | | |

Notes:

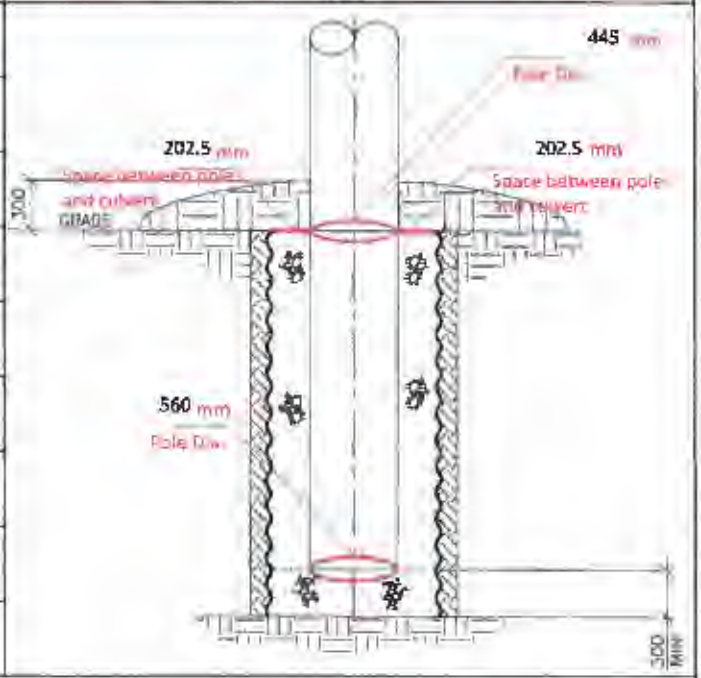
| | Name | Signature | Date |
|---|---|---|---|
| Foreman | | | |
| Quality Representative | Phil McKinley | | Dec 19 2018 |
| Client Representative | Matt Cousdale | | Feb 23, 2019 |

Forbes Bros. Ltd.
POWERLINE CONSTRUCTION

# Backfill and Compaction

| | | | | | |
|---|---|---|---|---|---|
| **Project #** | 4581 | **Project Name** | Eagle Gold 69 KV | **Facility #** | |
| **Structure #** | 36/9 RP | **Structure Type** | SAH | **Date** | Dec 15 2018 |

## Backfill and Compaction

| Check List | | View |
|---|---|---|
| **Ground Type** (◉ Good Soil / ○ Weak Soil) **Description** (Wet, Rock, Permafrost etc.) | Permafrost |  |
| **Backfill material** | Gravel | |
| **3H/1V Slope from foundation footprint to existing grade** | Yes ☐ | |
| **6H/1V slope from center to the 4 sides of foundation footprint** | Yes ☐ N/A ☐ | |
| **No ponding around piles** | Yes ☐ | |
| **No soil covers top of the piles and pile cap** | Yes ☐ | |
| **Compaction method/Equipment** | Hydraulic Tamper | |
| **Compact in max. 300mm LIFTS** | Yes ☑ | |
| **Site Clean Up Complete** | Yes ☐ | |
| **Culvert Used (If weak soils encountered, use >800mm dia)** | Yes ☑ No ☐ | Diameter(mm): 850 Length(mm): 3000 |



| Pile Projection (mm) | Leg 1 | Leg 2 | Leg 3 | Leg 4 |
|---|---|---|---|---|
| | | | | |

**Notes:**

| | Name | Signature | Date |
|---|---|---|---|
| **Foreman** | | | |
| **Quality Representative** | Phil McKinley | PW McKinley | Dec 19 2018 |
| **Client Representative** | Matt Coerdale | [signature] | Feb 23, 2019 |

Forbes Bros. Ltd.
POWERLINE CONSTRUCTION

# Clipping Inspection

| Project No. | 4581 | Project Name | Eagle Gold 69 KV | | |
|---|---|---|---|---|---|
| Line No. | L251 | From Structure No. | 40/6 | To Structure No. | 42/8 |

**Checklist**

| Items | Inspected | Comments |
|---|---|---|
| Verify if Required, any crossing Permits and agreements are in place | Y ☐ N/A ☑ | |
| Verify Conductor is sagged as specified | Y ☑ N/A ☐ | |
| Insulator strings on at least 3 suspension structures adjacent to the new sag section clipped in | Y ☑ N/A ☐ | |
| Verify all insulators & conductor hardware is clean & free of defects | Y ☑ N/A ☐ | |
| Travelers removed and conductor clipped in as per specifications | Y ☑ N/A ☐ | |
| Verify Suspension clamp is plumb and centered on conductor point mark | Y ☑ N/A ☐ | |
| Compression joints required in sagged span and recorded | Y ☐ N/A ☑ | |
| All assemblies are made in strict accordance with the manufacture applicable specifications | Y ☑ N/A ☐ | |
| Sagged conductor is free from any Bird caging/damage and does not required any repair | Y ☑ N/A ☐ | |
| Verify no metal contact made with insulators and no conductor damage during Clipping procedure | Y ☑ N/A ☐ | |

Additional Comments

40/6,41/6,42/7,42/8 Dead End assemblies are verified correct and jumpers installed properly
No Implos or compression joints used

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | | | |
| Quality Representative | Phil McKinley | Phil McKinley | Feb 3 2019 |
| Client Representative | Matt Caverdale | MC | Feb 23, 2019 |

Forbes Bros.
OWERLINE CONSTRUCTION

# Stringing and Sa

| ct: Eagle Gold 13.8 KV | Contr.#: | Line #: L2 | Voltage: 13.8 KV | Pull#: 2 | Str. 10 | to Str. |
|---|---|---|---|---|---|---|

## ductor

de (face higher numbered structure) Line #

| Temp (°C) | Time | Sag Number | |
|---|---|---|---|
| | | | |
| | | | |
| | | | |

Right Side (face higher numbered structure) Line #

| Phase | Temp (°C) | Time | Sag Number | |
|---|---|---|---|---|
| TOP | | | | |
| C | | | | |
| BOT | | | | |

Tension:

String Tension:

uctor: Type: ACSR Size: 477

Manufacturer:

## SAGGING

ength Str. to Str. m
g Span: Str. Pole 6 to Str. Pole 5 49.9 m
Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| : | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| p | 02/19/1 | 16:30 | -22 | 1.23 | Both Circuits |
| r | 02/19/1 | 16:30 | -22 | 1.23 | Both Circuits |
| n | 02/19/1 | 16:30 | -22 | 1.23 | Both Circuits |

Span Length Str. to Str. m
Sagging Span: Str. Pole 5 to Str. Pole 4 43.6 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | 02/19/1 | 16:30 | -22 | 1.034 | Both Circu |
| Center | 02/19/1 | 16:30 | -22 | 1.034 | Both Circu |
| Bottom | 02/19/1 | 16:30 | -22 | 1.034 | Both Circu |

ength Str. to Str. m
g Span: Str. Pole 3 to Str. Pole 2 43.8 m
Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| : | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| p | 02/19/19 | 16:30 | -22 | 0.954 | Both Circuits |
| r | 02/19/19 | 16:30 | -22 | 0.954 | Both Circuits |
| n | 02/19/19 | 16:30 | -22 | 0.954 | Both Circuits |

Span Length Str. to Str. m
Sagging Span: Str. to Str. m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | | | | | |
| Center | | | | | |
| Bottom | | | | | |

ength Str. to Str. m
g Span: Str. to Str. m
Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| : | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| p | | | | | |
| r | | | | | |
| n | | | | | |

Span Length Str. to Str. m
Sagging Span: Str. to Str. m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | | | | | |
| Center | | | | | |
| Bottom | | | | | |

Forbes Bros LTD
POWERLINE CONSTRUCTION

## Stringing and Sa

**rtiead: OHSW**

ide (face higher numbered structure) Line # 2

Right Side (face higher numbered structure) Line #

| | Temp (°C) | Time | Structure Span | Type | Rnd# |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |

| Date | Temp (°C) | Time | Structure Span | Type |
|---|---|---|---|---|
| | | | | |
| | | | | |

**SAGGING:**

Length Str. ____ to Str. ____ ____ m
g Span: Str. Pole 6 to Str. Pole 5 49.9 m
Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| : | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| V | 02/19/1 | 16:30 | -22 | 0.948 | |

Span Length Str. ____ to Str. ____ ____ m
Sagging Span: Str. Pole 5 to Str. Pole 4 45.8 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| OHSW | 02/19/1 | 16:30 | -22 | 0.798 | |

Length Str. ____ to Str. ____ ____ m
g Span: Str. Pole 3 to Str. Pole 2 43.8 m
Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| : | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| V | 02/19/1 | 16:30 | -22 | 0.738 | |

Span Length Str. ____ to Str. ____ ____ m
Sagging Span: Str. ____ to Str. ____ ____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

Length Str. ____ to Str. ____ ____ m
g Span: Str. ____ to Str. ____ ____ m
Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| : | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

Span Length Str. ____ to Str. ____ ____ m
Sagging Span: Str. ____ to Str. ____ ____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

**ments:**

ompleted at 16:30 on February 19 2019

| | Name | Date | Signature |
|---|---|---|---|
| QC Inspector | Phil McKinley | Feb 20 2019 | Phil McKinley |
| nt QC Inspector | Matt Coendale | Feb 23, 2019 | YMC |

Forbes Bros.
OVERLINE CONSTRUCTION

# Stringing and Sa

| ct: Eagle Gold 13.8 KV | Contr.#: | Line #: L2 | Voltage: 13.8 KV | Pull#: 2 | Str. 01 | to Str. |
|---|---|---|---|---|---|---|

## ductor

**Left Side (face higher numbered structure)** Line #

| | Temp (°C) | Time | | |
|---|---|---|---|---|
| | | | | |
| | | | | |
| | | | | |

**Right Side (face higher numbered structure)** Line #

| Phase | Temp (°C) | Time | | |
|---|---|---|---|---|
| TOP | | | | |
| C | | | | |
| BOT | | | | |

Tension:

String Tension:

uctor: Type: ACSR Size: 477

Manufacturer:

## SAGGING

ength Str. to Str. m
g Span: Str. 04 to Str. 05 59 m
Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| p | 02/18/1 | 15:45 | -16 | 1.83 | Both circuits |
| ar | 02/18/1 | 15:45 | -16 | 1.83 | Both circuits |
| m | 02/18/1 | 15:45 | -16 | 1.83 | Both circuits |

Span Length Str. to Str. m
Sagging Span: Str. 06 to Str. 07 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | 02/18/1 | 15:45 | -16 | 2.02 | Both circu |
| Center | 02/18/1 | 15:45 | -16 | 2.02 | Both circu |
| Bottom | 02/18/1 | 15:45 | -16 | 2.02 | Both circu |

ength Str. to Str. m
g Span: Str. 08 to Str. 09 52.5 m
Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| p | 02/18/19 | 15:45 | -16 | 1.452 | Both circuits |
| er | 02/18/19 | 15:45 | -16 | 1.452 | Both circuits |
| m | 02/18/19 | 15:45 | -16 | 1.452 | Both circuits |

Span Length Str. to Str. m
Sagging Span: Str. to Str. m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | | | | | |
| Center | | | | | |
| Bottom | | | | | |

ength Str. to Str. m
g Span: Str. to Str. m
Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| p | | | | | |
| er | | | | | |
| m | | | | | |

Span Length Str. to Str. m
Sagging Span: Str. to Str. m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| Top | | | | | |
| Center | | | | | |
| Bottom | | | | | |

Forbes Bros.
POWERLINE CONSTRUCTION

## Stringing and Sa

**rmead: OHSW**

ide (face higher numbered structure) Line # 2

Right Side (face higher numbered structure) Line # _____

| | Temp (°C) | Time | Structure Span | Type | Reel# |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |

| Date | Temp (°C) | Time | Structure Span | Type |
|---|---|---|---|---|
| | | | | |
| | | | | |

**SAGGING:**

Length Str. ____ to Str. ____ ____ m
g Span: Str. 04 to Str. 05 59 m
Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| e: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| V | 02/18/1 | 15:45 | -16 | 1.422 | |

Span Length Str. ____ to Str. ____ ____ m
Sagging Span: Str. 06 to Str. 07 62 m
1) Sag Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| OHSW | 02/18/1 | 15:45 | -16 | 1.572 | |

Length Str. ____ to Str. ____ ____ m
g Span: Str. 08 to Str. 09 52.5 m
Board Yes ☑ No ☐ 2)Dynamometer Yes ☐ No ☐

| e: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| V | 02/18/1 | 15:45 | -16 | 1.126 | |

Span Length Str. ____ to Str. ____ ____ m
Sagging Span: Str. ____ to Str. ____ ____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

Length Str. ____ to Str. ____ ____ m
g Span: Str. ____ to Str. ____ ____ m
Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| e: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

Span Length Str. ____ to Str. ____ ____ m
Sagging Span: Str. ____ to Str. ____ ____ m
1) Sag Board Yes ☐ No ☐ 2)Dynamometer Yes ☐ No ☐

| Phase: | Date: | Time: | Temp: | Sag:(N) (m) (lbs) | Notes: |
|---|---|---|---|---|---|
| | | | | | |

**ments:**

ompleted at 15:45 on February 18 2019

| | Name | Date | Signature |
|---|---|---|---|
| QC Inspector | Phil McKinley | Feb 20 2019 | Phil McKinley |
| ent QC Inspector | Matt Courdale | Feb 23, 2019 | [signature] |

Forbes Bros Ltd
Powerline Construction

# Clipping Inspection

| Project No. | 4581 | Project Name | Eagle Gold 13.8 KV | | |
|---|---|---|---|---|---|
| Line No. | 2 | From Structure No. | 11 | To Structure No. | 22 |

**Checklist**

| Items | Inspected | Comments |
|---|---|---|
| Verify if Required, any crossing Permits and agreements are in place | Y ☐ N/A ☑ | |
| Verify Conductor is sagged as specified | Y ☑ N/A ☐ | |
| Insulator strings on at least 3 suspension structures adjacent to the new sag section clipped in | Y ☐ N/A ☑ | |
| Verify all insulators & conductor hardware is clean & free of defects | Y ☑ N/A ☐ | |
| Travelers removed and conductor clipped in as per specifications | Y ☑ N/A ☐ | |
| Verify Suspension clamp is plumb and centered on conductor point mark | Y ☑ N/A ☐ | |
| Compression joints required in sagged span and recorded | Y ☐ N/A ☑ | |
| All assemblies are made in strict accordance with the manufacture applicable specifications | Y ☑ N/A ☐ | |
| Sagged conductor is free from any Bird caging/damage and does not required any repair | Y ☑ N/A ☐ | |
| Verify no metal contact made with insulators and no conductor damage during Clipping procedure | Y ☑ N/A ☐ | |

Additional Comments

L2 17 Dead End hardware verified correct and jumpers done correctly
L2 11 and L2 22 Riser poles connections have been verified correct

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | | | |
| Quality Representative | Phil McKinley | Phil McKinley | Feb 19 2019 |
| Client Representative | Matt Cavendale | [illegible] | Feb 23, 2019 |

Forbes Bros Ltd
POWERLINE CONSTRUCTION

# Clipping Inspection

| Project No. | 4581 | Project Name | Eagle Gold 13.8 KV | | |
|---|---|---|---|---|---|
| Line No. | 1 | From Structure No. | 01 | To Structure No. | 21 |

**Checklist**

| Items | Inspected | Comments |
|---|---|---|
| Verify if Required, any crossing Permits and agreements are in place | Y ☐ N/A ☑ | |
| Verify Conductor is sagged as specified | Y ☑ N/A ☐ | |
| Insulator strings on at least 3 suspension structures adjacent to the new sag section clipped in | Y ☐ N/A ☑ | |
| Verify all Insulators & conductor hardware is clean & free of defects | Y ☑ N/A ☐ | |
| Travelers removed and conductor clipped in as per specifications | Y ☑ N/A ☐ | |
| Verify Suspension clamp is plumb and centered on conductor point mark | Y ☑ N/A ☐ | |
| Compression joints required in sagged span and recorded | Y ☑ N/A ☐ | |
| All assemblies are made in strict accordance with the manufacture applicable specifications | Y ☑ N/A ☐ | |
| Sagged conductor is free from any Bird caging/damage and does not required any repair | Y ☑ N/A ☐ | |
| Verify no metal contact made with insulators and no conductor damage during Clipping protedure | Y ☑ N/A ☐ | |

Additional Comments

Compression Joint in between span 19 and 20 is 11 meters away from structure 19
L2 09 Deadend hardware has been verified correct and jumpers installed correctly

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | | | |
| Quality Representative | Phil McKinley | Phil McKinley | Feb 19 2019 |
| Client Representative | Matt Caerdale | MC | Feb 23.2019 |

Forbes Bros Ltd
POWERLINE CONSTRUCTION

# Structure Setting and Framing

| Project# | 4581 | Project Name | Eagle Gold 13.8 KV | Line# | LZ | Date | February 15 2019 |
|---|---|---|---|---|---|---|---|

**Patrol Checklist**

| Str.# | Pole# | Pole Length | Pole Class | Drilling Schedule as per Drawing | Soil type | Setting Depth | Casing/ Culvert used | Backfill Type | Backfill Compacted | Butt Plates Installed | Ground Wire Installed | Guy Anchor hardware installed | Pole Plumb | Framing as per Drawings |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 09 | | 55 | 2 | ✔ | Gravel | 7.5 | ✔ | Gravel | ✔ | | | | ✔ | ✔ |
| 10 | A | 60 | 2 | ✔ | Gravel | 10 | ✔ | Gravel | ✔ | | | ✔ | ✔ | ✔ |
| 10 | B | 60 | 2 | ✔ | Gravel | 10 | ✔ | Gravel | ✔ | | | ✔ | ✔ | ✔ |
| Pole 6 | | 55 | 2 | ✔ | Gravel | 7.5 | ✔ | Gravel | ✔ | | | | ✔ | ✔ |
| Pole 5 | | 55 | 2 | ✔ | Gravel | 7.5 | ✔ | Gravel | ✔ | | | | ✔ | ✔ |
| Pole 4 | | 55 | 2 | ✔ | Gravel | 7.5 | ✔ | Gravel | ✔ | | | | ✔ | ✔ |
| Pole 3 | | 55 | 2 | ✔ | Gravel | 7.5 | ✔ | Gravel | ✔ | | | | ✔ | ✔ |
| Pole 2 | | 55 | 2 | ✔ | Gravel | 7.5 | ✔ | Gravel | ✔ | | | | ✔ | ✔ |
| Pole 1 | P1 | 55 | 2 | ✔ | Gravel | 9.5 | ✔ | Gravel | ✔ | | ✔ | ✔ | ✔ | ✔ |
| Pole 1 | P2 | 55 | 2 | ✔ | Gravel | 9.5 | ✔ | Gravel | ✔ | | ✔ | ✔ | ✔ | ✔ |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |

Comments

Pole 2 was set on February 19 2019

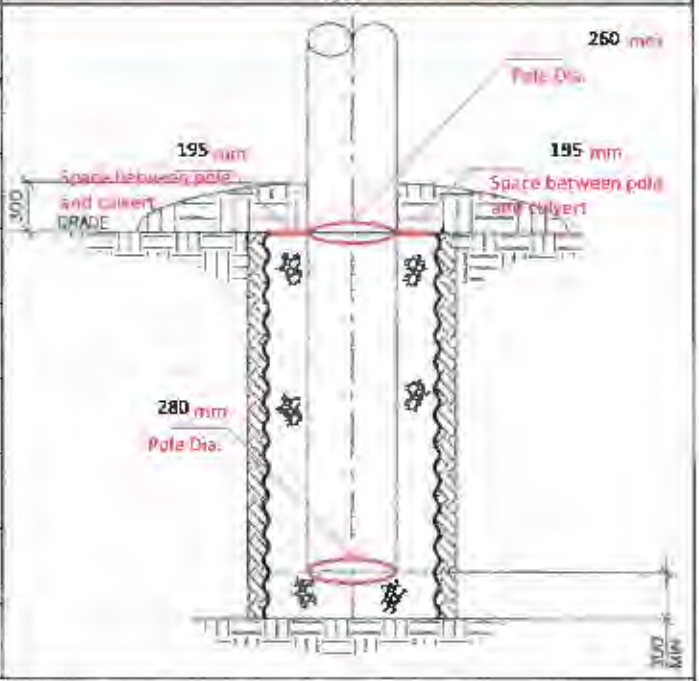
| | Name | Signature | Date |
|---|---|---|---|
| Foreman | | | |
| QC Inspector | Phil McKinley | Phil McKinley | Feb 19 2019 |
| Client Inspector | Matt Berdale | MB | Feb 23, 2019 |

Forbes Bros Ltd
Powerline Construction

# Backfill and Compaction

| Project # | 4581 | Project Name | Eagle Gold 13.8 KV | Facility # | |
|---|---|---|---|---|---|
| Structure # | Pole 2 | Structure Type | Double Support on Crossarms | Date | February 19 2019 |

## Backfill and Compaction

| Check List | | View |
|---|---|---|
| Ground Type: (●) Good Soil ( ) Weak Soil — Description (Wet, Rock, Permafrost etc.) | Frozen Clay |  |
| Backfill material | Gravel | |
| 3H/1V Slope from foundation footprint to existing grade | Yes ☐ | |
| 6H/1V slope from center to the 4 sides of foundation footprint | Yes ☐ N/A ☐ | |
| No ponding around piles | Yes ☐ | |
| No soil covers top of the piles and pile cap | Yes ☐ | |
| Compaction method/Equipment | Hydraulic Tamper | |
| Compact in max. 300mm LIFTS | Yes ☐ | |
| Site Clean Up Complete | Yes ☐ | |
| Culvert Used (if weak soils encountered, use >800mm dia) | Yes ☑ No ☐ Diameter(mm): 650 Length(mm): 3000 | |



| Pile Projection (mm) | Leg 1 | Leg 2 | Leg 3 | Leg 4 |
|---|---|---|---|---|
| | | | | |

Notes:

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | | | |
| Quality Representative | Phil McKinley | Phil McKinley | Feb 19 2019 |
| Client Representative | Matt Caerdale | MC | Feb 23, 2019 |

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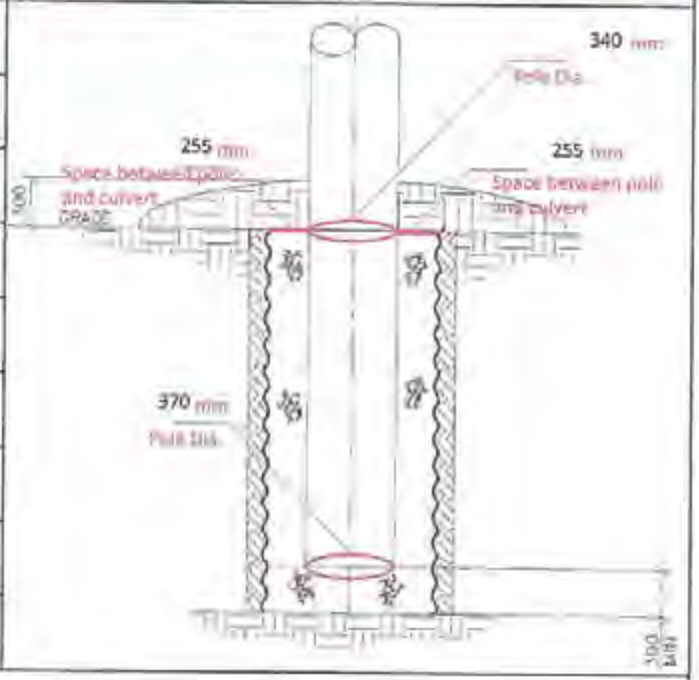
POWERLINE CONSTRUCTION

# Backfill and Compaction

| Project # | 4581 | Project Name | Eagle Gold 13.8 KV | Facility # | |
|---|---|---|---|---|---|
| Structure # | L1 01 | Structure Type | Non Fused Riser Pole | Date | January 25 2019 |

## Backfill and Compaction

| Check List | | View |
|---|---|---|
| Ground Type (●) Good Soil ( ) Weak Soil — Description (Wet, Rock, Permafrost etc.) | Gravel |  |
| Backfill material | Gravel | |
| 3H/1V Slope from foundation footprint to existing grade | Yes ☐ | |
| 6H/1V slope from center to the 4 sides of foundation footprint | Yes ☐ N/A ☐ | |
| No ponding around piles | Yes ☐ | |
| No soil covers top of the piles and pile cap | Yes ☐ | |
| Compaction method/Equipment | Hydraulic Tamper | |
| Compact in max. 300mm LIFTS | Yes ☑ | |
| Site Clean Up Complete | Yes ☐ | |
| Culvert Used (if weak soils encountered, use >800mm dia) | Yes ☑ No ☐ Diameter(mm): 850 Length(mm): 3000 | |



| Pile Projection (mm) | Leg 1 | Leg 2 | Leg 3 | Leg 4 |
|---|---|---|---|---|
| | | | | |

Notes:

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR ANTHL | | FEB 2 2019 |
| Quality Representative | Phil McKinley | | Jan 30 2019 |
| Client Representative | SARTIMEWIT2 | | FEB 2/19 |

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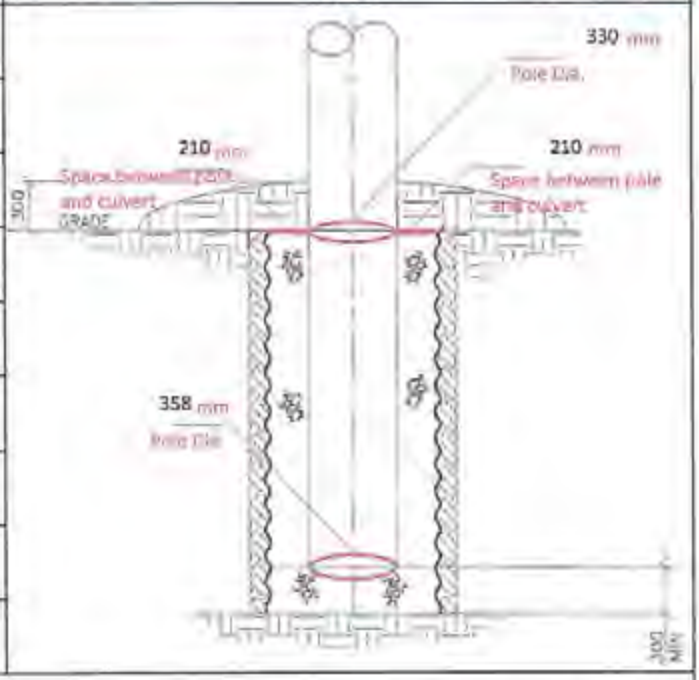
# Backfill and Compaction

| | | | | | |
|---|---|---|---|---|---|
| **Project #** | 4581 | **Project Name** | Eagle Gold 13.8 KV | **Facility #** | |
| **Structure #** | L1 02 | **Structure Type** | Single Support | **Date** | Jan 27 2019 |

## Backfill and Compaction

| Check List | | View |
|---|---|---|
| **Ground Type** (◉ Good Soil ○ Weak Soil) **Description (Wet, Rock, Permafrost etc.)** | Gravel |  |
| **Backfill material** | Gravel | |
| **3H/1V Slope from foundation footprint to existing grade** | Yes ☐ | |
| **6H/1V slope from center to the 4 sides of foundation footprint** | Yes ☐ N/A ☐ | |
| **No ponding around piles** | Yes ☐ | |
| **No soil covers top of the piles and pile cap** | Yes ☐ | |
| **Compaction method/Equipment** | Hydraulic Tamper | |
| **Compact in max. 300mm LIFTS** | Yes ☑ | |
| **Site Clean Up Complete** | Yes ☐ | |
| **Culvert Used (if weak soils encountered, use >800mm dia)** | Yes ☑ No ☐ | Diameter(mm): 750 Length(mm): 3000 |



| Pile Projection (mm) | Leg 1 | Leg 2 | Leg 3 | Leg 4 |
|---|---|---|---|---|
| | | | | |

**Notes:**

| | Name | Signature | Date |
|---|---|---|---|
| **Foreman** | TREVOR ANTAL | [signature] | FEB 2 2019 |
| **Quality Representative** | Phil McKinley | Phil McKinley | Jan 31 2019 |
| **Client Representative** | S ARCHIMOWITZ | [signature] | FEB 2/19 |

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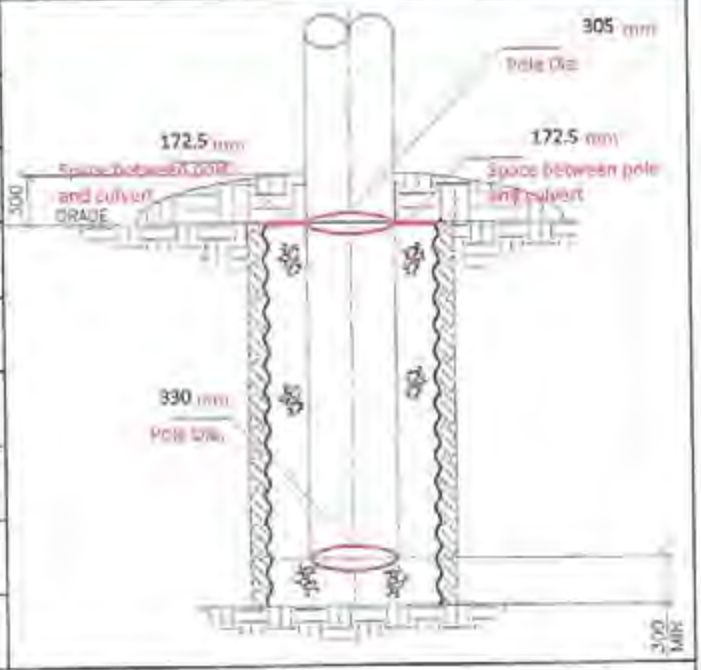
# Backfill and Compaction

| Project # | 4581 | Project Name | Eagle Gold 13.8 KV | Facility # | |
|---|---|---|---|---|---|
| Structure # | L1 03 | Structure Type | Single Support | Date | Jan 27 2019 |

## Backfill and Compaction

| Check List | | View |
|---|---|---|
| Ground Type (●) Good Soil ( ) Weak Soil — Description (Wet, Rock, Permafrost etc.) | Gravel |  |
| Backfill material | Gravel | |
| 3H/1V Slope from foundation footprint to existing grade | Yes ☐ | |
| 6H/1V slope from center to the 4 sides of foundation footprint | Yes ☐ N/A ☐ | |
| No ponding around piles | Yes ☐ | |
| No soil covers top of the piles and pile cap | Yes ☐ | |
| Compaction method/Equipment | Hydraulic Tamper | |
| Compact in max. 300mm LIFTS | Yes ☑ | |
| Site Clean Up Complete | Yes ☐ | |
| Culvert Used (if weak soils encountered, use >800mm dia) | Yes ☑ No ☐ Diameter(mm): 650 Length(mm): 3000 | |



| Pile Projection (mm) | Leg 1 | Leg 2 | Leg 3 | Leg 4 |
|---|---|---|---|---|
| | | | | |

Notes:

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR ANTAL | | FEB 2 20A |
| Quality Representative | Phil McKinley | Phil McKinley | Jan 31 2019 |
| Client Representative | SARCHIMOWITZ | SArchit | FEB 2/19 |

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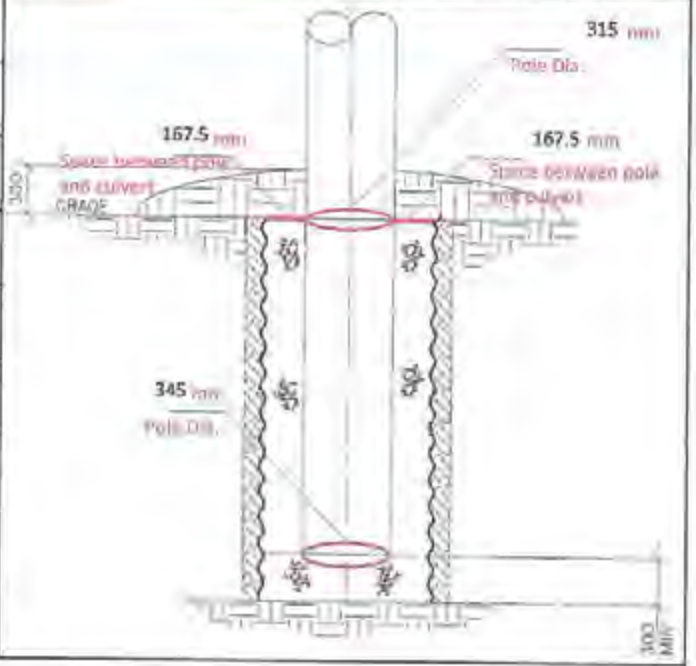
# Backfill and Compaction

| Project # | 4581 | Project Name | Eagle Gold 13.8 KV | Facility # | |
|---|---|---|---|---|---|
| Structure # | L1 04 | Structure Type | Single Support | Date | Jan 27 2019 |

## Backfill and Compaction

| Check List | | View |
|---|---|---|
| Ground Type (●) Good Soil ( ) Weak Soil — Description (Wet, Rock, Permafrost etc.) | Gravel |  |
| Backfill material | Gravel | |
| 3H/1V Slope from foundation footprint to existing grade | Yes ☐ | |
| 6H/1V slope from center to the 4 sides of foundation footprint | Yes ☐ N/A ☐ | |
| No ponding around piles | Yes ☐ | |
| No soil covers top of the piles and pile cap | Yes ☐ | |
| Compaction method/Equipment | Hydraulic Tamper | |
| Compact in max. 300mm LIFTS | Yes ☑ | |
| Site Clean Up Complete | Yes ☐ | |
| Culvert Used (if weak soils encountered, use >800mm dia) | Yes ☑ No ☐ Diameter(mm): 650 Length(mm): 3000 | |



| Pile Projection (mm) | Leg 1 | Leg 2 | Leg 3 | Leg 4 |
|---|---|---|---|---|
| | | | | |

Notes:

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR ANTAL | | FEB 2 2019 |
| Quality Representative | Phil McKinley | Phil McKinley | Jan 31 2019 |
| Client Representative | S ARCHIMOWITZ | S Archimowitz | FEB 2/19 |

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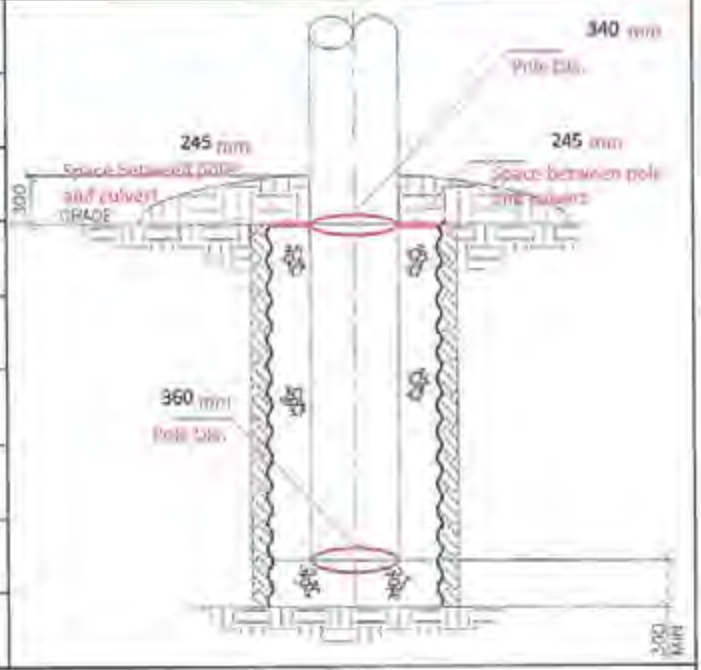
# Backfill and Compaction

| Project # | 4581 | Project Name | Eagle Gold 13.8 KV | Facility # | |
|---|---|---|---|---|---|
| Structure # | L1 05 | Structure Type | Suspension Angle | Date | Jan 27 2019 |

## Backfill and Compaction

| Check List | | View |
|---|---|---|
| Ground Type (●) Good Soil ( ) Weak Soil — Description (Wet, Rock, Permafrost etc.) | Gravel |  |
| Backfill material | Gravel | |
| 3H/1V Slope from foundation footprint to existing grade | Yes ☐ | |
| 6H/1V slope from center to the 4 sides of foundation footprint | Yes ☐ N/A ☐ | |
| No ponding around piles | Yes ☐ | |
| No soil covers top of the piles and pile cap | Yes ☐ | |
| Compaction method/Equipment | Hydraulic Tamper | |
| Compact in max. 300mm LIFTS | Yes ☑ | |
| Site Clean Up Complete | Yes ☐ | |



| | | | | |
|---|---|---|---|---|
| Culvert Used (if weak soils encountered, use >800mm dia) | Yes ☑ No ☐ | Diameter(mm): 850 | Length(mm): 3000 | |

| Pile Projection (mm) | Leg 1 | Leg 2 | Leg 3 | Leg 4 |
|---|---|---|---|---|
| | | | | |

Notes:

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR ANTAL | | FEB 2 2019 |
| Quality Representative | Phil McKinley | Phil McKinley | Jan 31 2019 |
| Client Representative | SARCHIMOWITZ | Sarchimowitz | FEB 2/19 |

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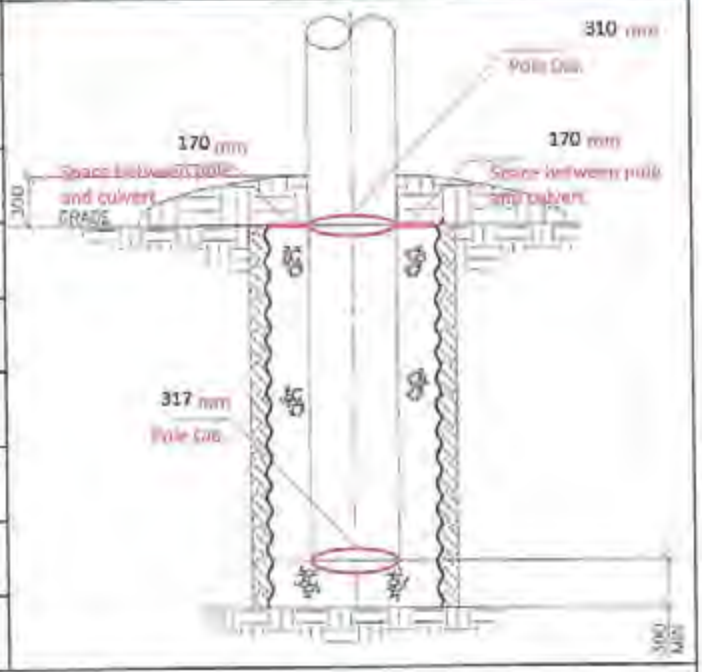
# Backfill and Compaction

| Project # | 4581 | Project Name | Eagle Gold 13.8 KV | Facility # | |
|---|---|---|---|---|---|
| Structure # | L1 06 | Structure Type | Single Support | Date | January 28 2019 |

## Backfill and Compaction

| Check List | | View |
|---|---|---|
| Ground Type (●) Good Soil ( ) Weak Soil — Description (Wet, Rock, Permafrost etc.) | Gravel |  |
| Backfill material | Gravel | |
| 3H/1V Slope from foundation footprint to existing grade | Yes ☐ | |
| 6H/1V slope from center to the 4 sides of foundation footprint | Yes ☐ N/A ☐ | |
| No ponding around piles | Yes ☐ | |
| No soil covers top of the piles and pile cap | Yes ☐ | |
| Compaction method/Equipment | Hydraulic Tamper | |
| Compact in max. 300mm LIFTS | Yes ☑ | |
| Site Clean Up Complete | Yes ☐ | |



| Culvert Used (if weak soils encountered, use >800mm dia) | Yes ☑ No ☐ | Diameter(mm): 650 | Length(mm): 3000 |
|---|---|---|---|

| Pile Projection (mm) | Leg 1 | Leg 2 | Leg 3 | Leg 4 |
|---|---|---|---|---|
| | | | | |

Notes:

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR ANTAL | | FEB 2 2019 |
| Quality Representative | Phil McKinley | Phil McKinley | Jan 31 2019 |
| Client Representative | S ARCHIMOWITZ | SArcht | FEB 2/19 |

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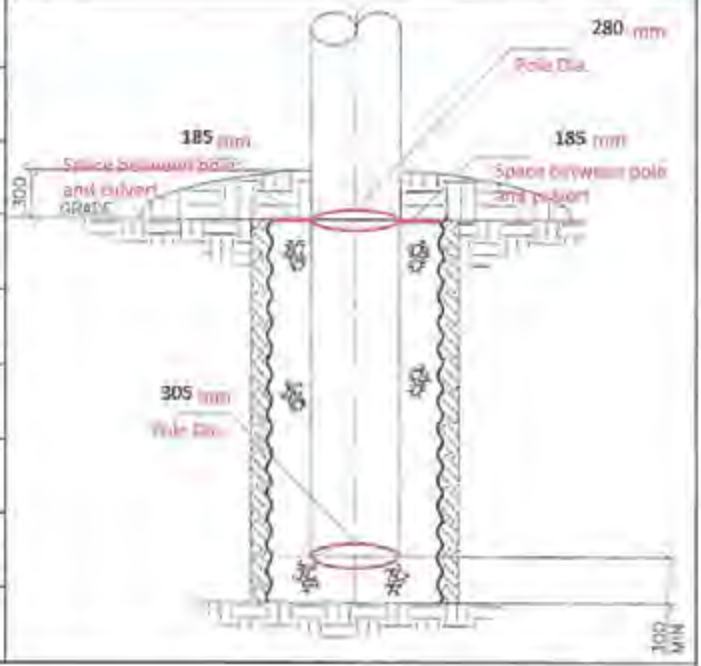
# Backfill and Compaction

| Project # | 4581 | Project Name | Eagle Gold 13.8 KV | Facility # | |
|---|---|---|---|---|---|
| Structure # | L1 07 | Structure Type | Single Support | Date | January 28 2019 |

## Backfill and Compaction

| Check List | | View |
|---|---|---|
| Ground Type (◉ Good Soil / ○ Weak Soil) Description (Wet, Rock, Permafrost etc.) | Gravel |  |
| Backfill material | Gravel | |
| 3H/1V Slope from foundation footprint to existing grade | Yes ☐ | |
| 6H/1V slope from center to the 4 sides of foundation footprint | Yes ☐ N/A ☐ | |
| No ponding around piles | Yes ☐ | |
| No soil covers top of the piles and pile cap | Yes ☐ | |
| Compaction method/Equipment | Hydraulic Tamper | |
| Compact in max. 300mm LIFTS | Yes ☐ | |
| Site Clean Up Complete | Yes ☐ | |
| Culvert Used (if weak soils encountered, use >800mm dia) | Yes ☑ No ☐ Diameter(mm): 750 Length(mm): 3000 | |



| Pile Projection (mm) | Leg 1 | Leg 2 | Leg 3 | Leg 4 |
|---|---|---|---|---|
| | | | | |

Notes:

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR AWATAL | | Feb 3/19 |
| Quality Representative | Phil McKinley | PM McKinley | Feb 2 2019 |
| Client Representative | SVEN ARCHIMOWITZ | | FEB 5/19 |

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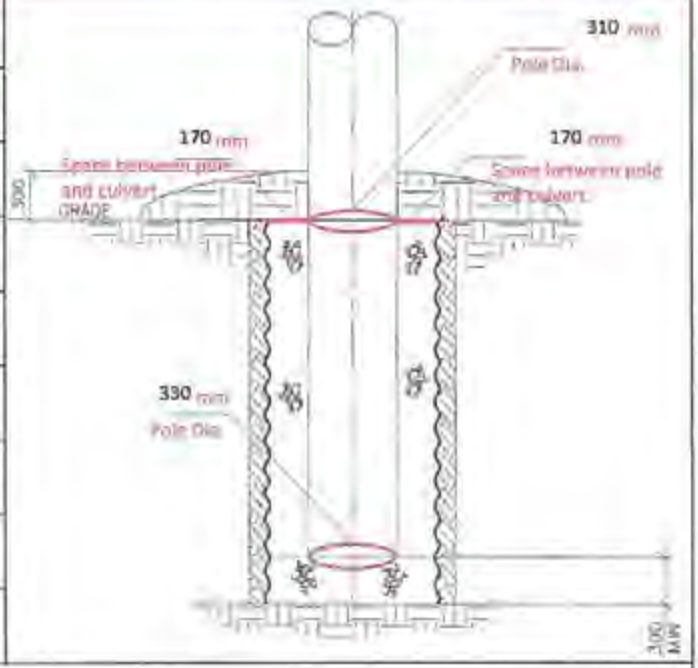
# Backfill and Compaction

| Project # | 4581 | Project Name | Eagle Gold 13.8 KV | Facility # | |
|---|---|---|---|---|---|
| Structure # | L1 08 | Structure Type | Single Support | Date | January 28 2019 |

## Backfill and Compaction

| Check List | | View |
|---|---|---|
| Ground Type (◉ Good Soil ○ Weak Soil) Description (Wet, Rock, Permafrost etc.) | Frozen Clay |  |
| Backfill material | Gravel | |
| 3H/1V Slope from foundation footprint to existing grade | Yes ☐ | |
| 6H/1V slope from center to the 4 sides of foundation footprint | Yes ☐ N/A ☐ | |
| No ponding around piles | Yes ☐ | |
| No soil covers top of the piles and pile cap | Yes ☐ | |
| Compaction method/Equipment | Hydraulic Tamper | |
| Compact in max. 300mm LIFTS | Yes ☑ | |
| Site Clean Up Complete | Yes ☐ | |
| Culvert Used (if weak soils encountered, use >800mm dia) | Yes ☑ No ☐ Diameter(mm): 650 Length(mm): 3000 | |



| Pile Projection (mm) | Leg 1 | Leg 2 | Leg 3 | Leg 4 |
|---|---|---|---|---|
| | | | | |

Notes:

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR ANTAL | | FEB 2 2019 |
| Quality Representative | Phil McKinley | | Feb 1 2019 |
| Client Representative | | ~~FEB~~ SVEN ARCHIMOWITZ | FEB 2/19 |

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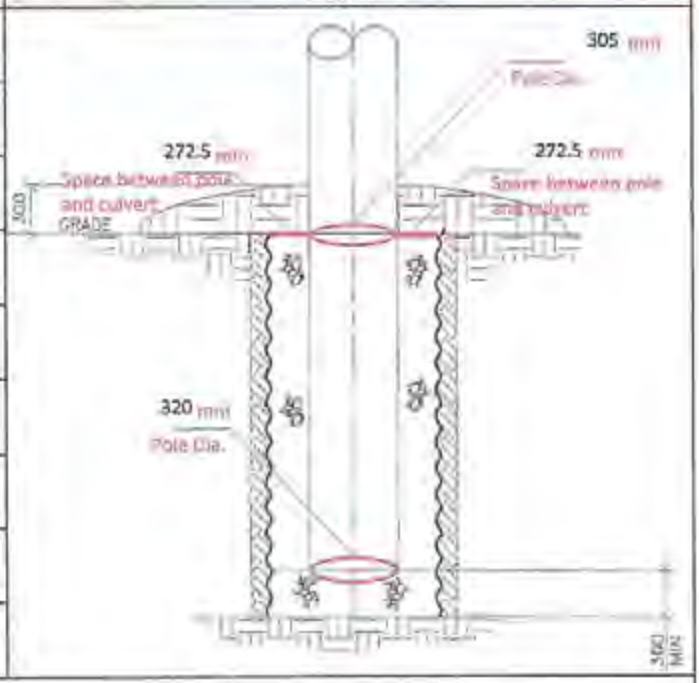
Powerline Construction

# Backfill and Compaction

| Project # | 4581 | Project Name | Eagle Gold 13.8 KV | Facility # | |
|---|---|---|---|---|---|
| Structure # | L1 09 | Structure Type | Single Support | Date | January 28 2019 |

## Backfill and Compaction

| Check List | | View |
|---|---|---|
| Ground Type (◉ Good Soil ○ Weak Soil) Description (Wet, Rock, Permafrost etc.) | Frozen Clay |  |
| Backfill material | Gravel | |
| 3H/1V Slope from foundation footprint to existing grade | Yes ☐ | |
| 6H/1V slope from center to the 4 sides of foundation footprint | Yes ☐ N/A ☐ | |
| No ponding around piles | Yes ☐ | |
| No soil covers top of the piles and pile cap | Yes ☐ | |
| Compaction method/Equipment | Hydraulic Tamper | |
| Compact in max. 300mm LIFTS | Yes ☑ | |
| Site Clean Up Complete | Yes ☐ | |



| Culvert Used (if weak soils encountered, use >800mm dia) | Yes ☑ No ☐ | Diameter(mm): 850 | Length(mm): 3000 |
|---|---|---|---|

| Pile Projection (mm) | Leg 1 | Leg 2 | Leg 3 | Leg 4 |
|---|---|---|---|---|
| | | | | |

Notes:

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR ANDAL | | FEB 2 2019 |
| Quality Representative | Phil McKinley | Phil McKinley | Feb 1 2019 |
| Client Representative | SARCHIMOWITZ | | FEB 2/19 |

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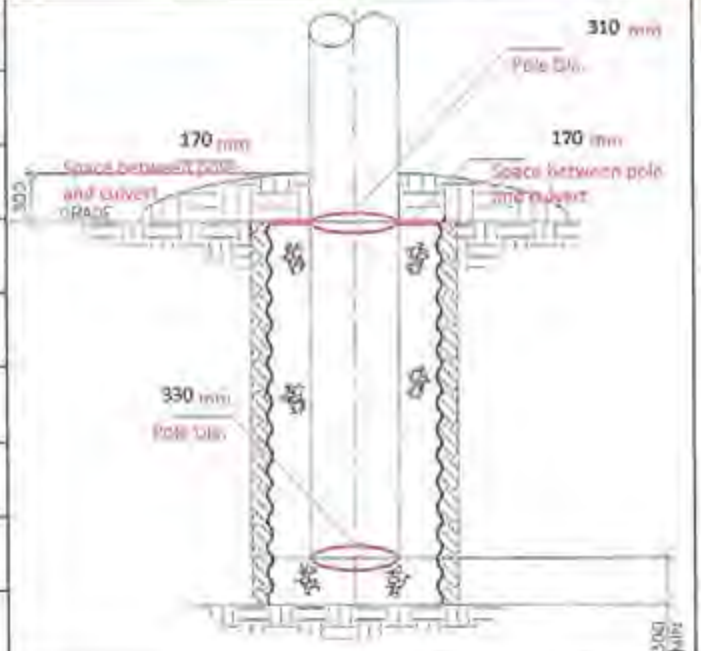
# Backfill and Compaction

| Project # | 4581 | Project Name | Eagle Gold 13.8 KV | Facility # | |
|---|---|---|---|---|---|
| Structure # | L1 10 | Structure Type | Single Support | Date | January 28 2019 |

## Backfill and Compaction

| Check List | | View |
|---|---|---|
| Ground Type (●) Good Soil ( ) Weak Soil — Description (Wet, Rock, Permafrost etc.) | Frozen Clay |  |
| Backfill material | Gravel | |
| 3H/1V Slope from foundation footprint to existing grade | Yes ☐ | |
| 6H/1V slope from center to the 4 sides of foundation footprint | Yes ☐ N/A ☐ | |
| No ponding around piles | Yes ☐ | |
| No soil covers top of the piles and pile cap | Yes ☐ | |
| Compaction method/Equipment | Hydraulic Tamper | |
| Compact in max. 300mm LIFTS | Yes ☑ | |
| Site Clean Up Complete | Yes ☐ | |
| Culvert Used (if weak soils encountered, use >800mm dia) | Yes ☑ No ☐ Diameter(mm): 650 Length(mm): 3000 | |



| Pile Projection (mm) | Leg 1 | Leg 2 | Leg 3 | Leg 4 |
|---|---|---|---|---|
| | | | | |

Notes:

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR ANDAL | | FEB 2 2019 |
| Quality Representative | Phil McKinley | Phil McKinley | Feb 1 2019 |
| Client Representative | SARCHIMOWITZ | SArchi | FEB 2/19 |

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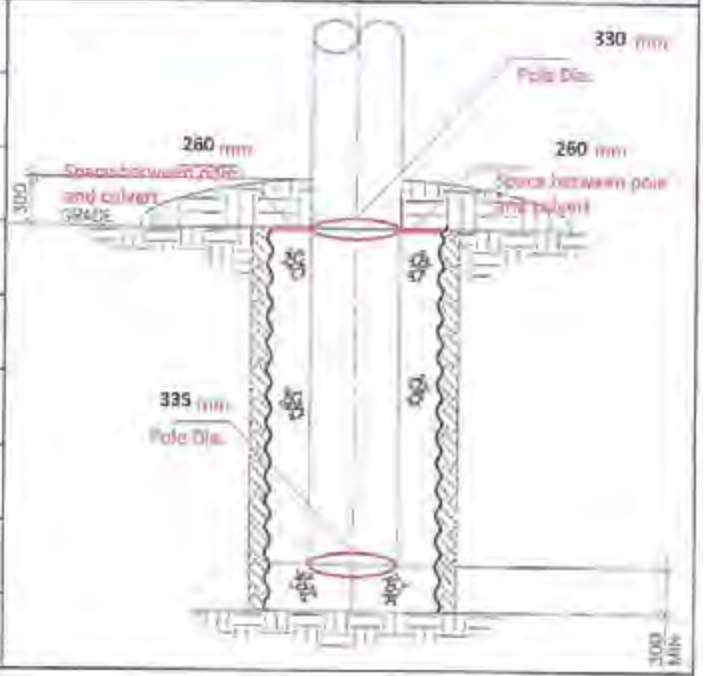
# Backfill and Compaction

| Project # | 4581 | Project Name | Eagle Gold 13.8 KV | Facility # | |
|---|---|---|---|---|---|
| Structure # | L2 Pole 1 P1 | Structure Type | Non Fused 3 Phase Riser Pole | Date | February 9 2019 |

## Backfill and Compaction

| Check List | | View |
|---|---|---|
| Ground Type (●) Good Soil ( ) Weak Soil — Description (Wet, Rock, Permafrost etc.) | Gravel |  |
| Backfill material | Gravel | |
| 3H/1V Slope from foundation footprint to existing grade | Yes ☐ | |
| 6H/1V slope from center to the 4 sides of foundation footprint | Yes ☐ N/A ☐ | |
| No ponding around piles | Yes ☐ | |
| No soil covers top of the piles and pile cap | Yes ☐ | |
| Compaction method/Equipment | Hydraulic Tamper | |
| Compact in max. 300mm LIFTS | Yes ☐ | |
| Site Clean Up Complete | Yes ☐ | |
| Culvert Used (if weak soils encountered, use >800mm dia) | Yes ☑ No ☐ Diameter(mm): 850 Length(mm): 3000 | |



| Pile Projection (mm) | Leg 1 | Leg 2 | Leg 3 | Leg 4 |
|---|---|---|---|---|
| | | | | |

Notes:

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR ARMITAGE | | Feb 15/19 |
| Quality Representative | Phil McKinley | Phil McKinley | Feb 14 2019 |
| Client Representative | S ARCHIMBAULT | | FEB 17/19 |

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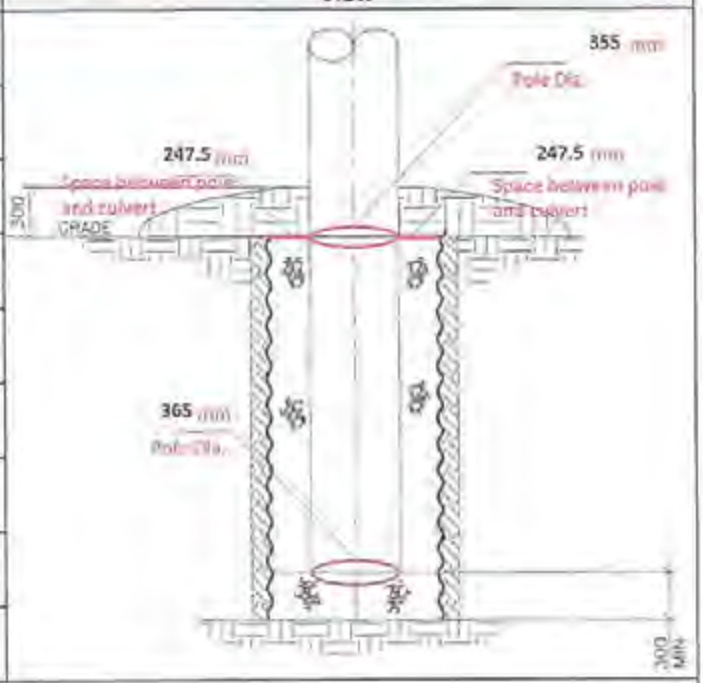
# Backfill and Compaction

| Project # | 4581 | Project Name | Eagle Gold 13.8 KV | Facility # | |
|---|---|---|---|---|---|
| Structure # | L2 Pole 1 P2 | Structure Type | Fused 3 Phase Riser Pole | Date | February 9 2019 |

## Backfill and Compaction

| Check List | | View |
|---|---|---|
| Ground Type (●) Good Soil ( ) Weak Soil — Description (Wet, Rock, Permafrost etc.) | Gravel |  |
| Backfill material | Gravel | |
| 3H/1V Slope from foundation footprint to existing grade | Yes ☐ | |
| 6H/1V slope from center to the 4 sides of foundation footprint | Yes ☐ N/A ☐ | |
| No ponding around piles | Yes ☐ | |
| No soil covers top of the piles and pile cap | Yes ☐ | |
| Compaction method/Equipment | Hydraulic Tamper | |
| Compact in max. 300mm LIFTS | Yes ☐ | |
| Site Clean Up Complete | Yes ☐ | |
| Culvert Used (if weak soils encountered, use >800mm dia) | Yes ☑ No ☐ Diameter(mm): 850 Length(mm): 3000 | |



| Pile Projection (mm) | Leg 1 | Leg 2 | Leg 3 | Leg 4 |
|---|---|---|---|---|
| | | | | |

Notes:

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR ANTYR | | Feb 15/19 |
| Quality Representative | Phil McKinley | Phil McKinley | Feb 14 2019 |
| Client Representative | SVEN ARCHIBALD | SArchibald | FEB 17/19 |

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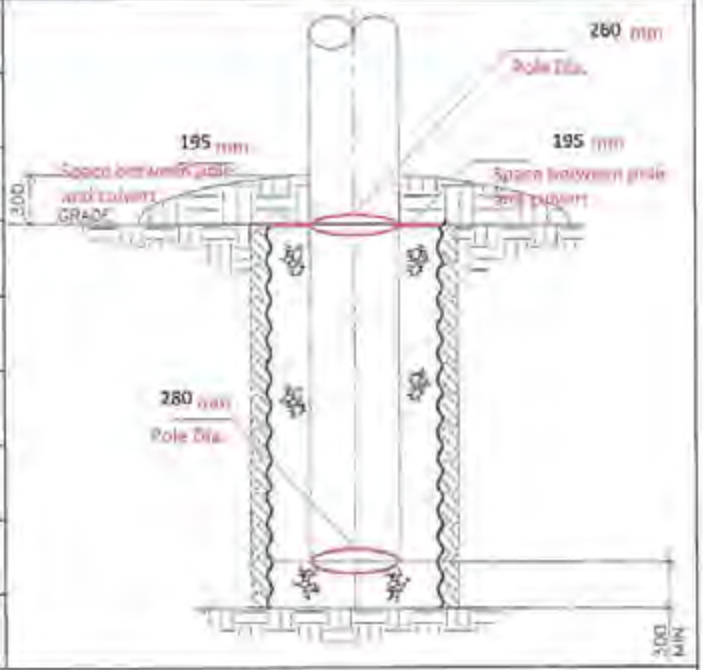
# Backfill and Compaction

| Project # | 4581 | Project Name | Eagle Gold 13.8 KV | Facility # | |
|---|---|---|---|---|---|
| Structure # | Pole 2 | Structure Type | Double Support on Crossarms | Date | February 19 2019 |

## Backfill and Compaction

| Check List | | View |
|---|---|---|
| Ground Type (●) Good Soil ( ) Weak Soil — Description (Wet, Rock, Permafrost etc.) | Frozen Clay |  |
| Backfill material | Gravel | |
| 3H/1V Slope from foundation footprint to existing grade | Yes ☐ | |
| 6H/1V slope from center to the 4 sides of foundation footprint | Yes ☐ N/A ☐ | |
| No ponding around piles | Yes ☐ | |
| No soil covers top of the piles and pile cap | Yes ☐ | |
| Compaction method/Equipment | Hydraulic Tamper | |
| Compact in max. 300mm LIFTS | Yes ☐ | |
| Site Clean Up Complete | Yes ☐ | |
| Culvert Used (if weak soils encountered, use >800mm dia) | Yes ☑ No ☐ Diameter(mm): 650 Length(mm): 3000 | |



| Pile Projection (mm) | Leg 1 | Leg 2 | Leg 3 | Leg 4 |
|---|---|---|---|---|
| | | | | |

Notes:

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR ANTAL | | FEB 22 2019 |
| Quality Representative | Phil McKinley | Phil McKinley | Feb 19 2019 |
| Client Representative | Matt Caerdale | MC | Feb 23, 2019 |

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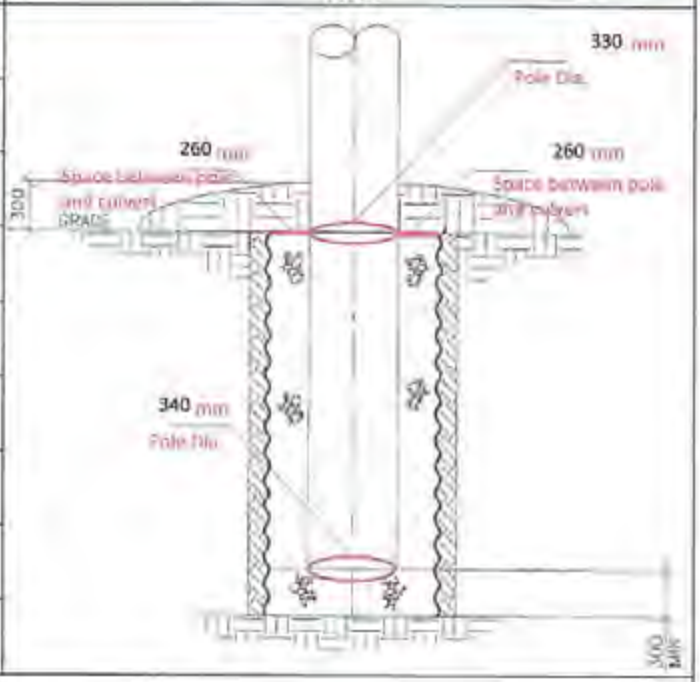
# Backfill and Compaction

| Project # | 4581 | Project Name | Eagle Gold 13.8 KV | Facility # | |
|---|---|---|---|---|---|
| Structure # | L2 P3 | Structure Type | Double Support on Crossarms | Date | February 9 2019 |

## Backfill and Compaction

| Check List | | View |
|---|---|---|
| Ground Type ◉ Good Soil ○ Weak Soil — Description (Wet, Rock, Permafrost etc.) | Gravel |  |
| Backfill material | Gravel | |
| 3H/1V Slope from foundation footprint to existing grade | Yes ☐ | |
| 6H/1V slope from center to the 4 sides of foundation footprint | Yes ☐ N/A ☐ | |
| No ponding around piles | Yes ☐ | |
| No soil covers top of the piles and pile cap | Yes ☐ | |
| Compaction method/Equipment | Hydraulic Tamper | |
| Compact in max. 300mm LIFTS | Yes ☐ | |
| Site Clean Up Complete | Yes ☐ | |
| Culvert Used (if weak soils encountered, use >800mm dia) | Yes ☑ No ☐ Diameter(mm): 850 Length(mm): 3000 | |



| Pile Projection (mm) | Leg 1 | Leg 2 | Leg 3 | Leg 4 |
|---|---|---|---|---|
| | | | | |

Notes:

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR AWMAC | | Feb 15/19 |
| Quality Representative | Phil McKinley | Phil McKinley | Feb 14 2019 |
| Client Representative | SVEN ARCHIMOWITZ | SArchit | FEB 16/19 |

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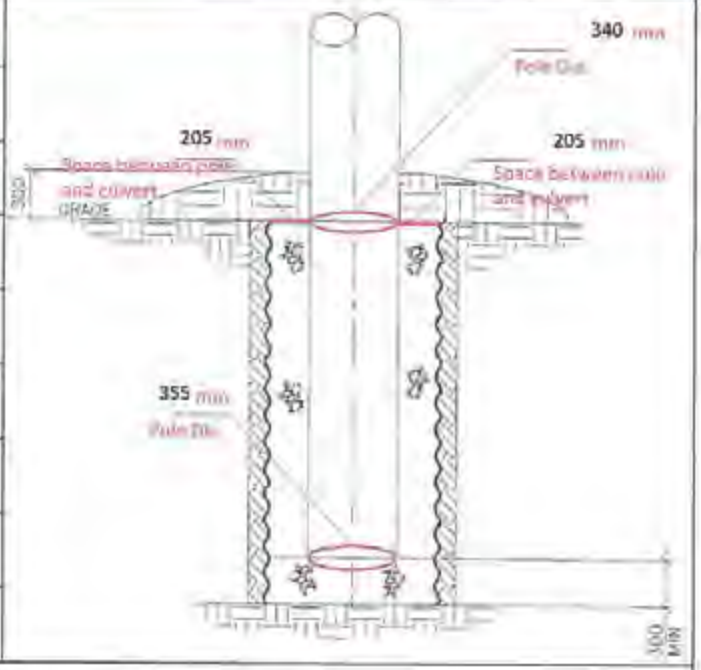
# Backfill and Compaction

| Project # | 4581 | Project Name | Eagle Gold 13.8 KV | Facility # | |
|---|---|---|---|---|---|
| Structure # | L2 P4 | Structure Type | Double Support on Crossarms | Date | February 9 2019 |

## Backfill and Compaction

| Check List | | View |
|---|---|---|
| Ground Type (●) Good Soil ( ) Weak Soil — Description (Wet, Rock, Permafrost etc.) | Gravel |  |
| Backfill material | Gravel | |
| 3H/1V Slope from foundation footprint to existing grade | Yes ☐ | |
| 6H/1V slope from center to the 4 sides of foundation footprint | Yes ☐ N/A ☐ | |
| No ponding around piles | Yes ☐ | |
| No soil covers top of the piles and pile cap | Yes ☐ | |
| Compaction method/Equipment | Hydraulic Tamper | |
| Compact in max. 300mm LIFTS | Yes ☐ | |
| Site Clean Up Complete | Yes ☐ | |



| | | | | |
|---|---|---|---|---|
| Culvert Used (if weak soils encountered, use >800mm dia) | Yes ☑ | No ☐ | Diameter(mm): 750 | Length(mm): 3000 |

| Pile Projection (mm) | Leg 1 | Leg 2 | Leg 3 | Leg 4 |
|---|---|---|---|---|
| | | | | |

Notes:

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR AWITAC | | Feb 15/19 |
| Quality Representative | Phil McKinley | Phil McKinley | Feb 14 2019 |
| Client Representative | SVEN ARCHIMOWITZ | | FEB 16/19 |

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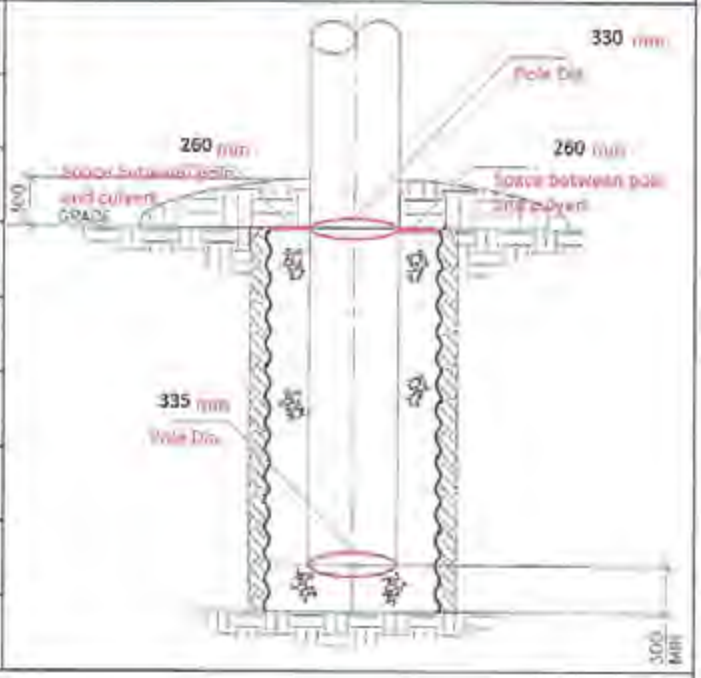
# Backfill and Compaction

| Project # | 4581 | Project Name | Eagle Gold 13.8 KV | Facility # | |
|---|---|---|---|---|---|
| Structure # | L2 P5 | Structure Type | Double Support on Crossarms | Date | February 8 2019 |

## Backfill and Compaction

| Check List | | View |
|---|---|---|
| Ground Type (●) Good Soil ( ) Weak Soil — Description (Wet, Rock, Permafrost etc.) | Gravel |  |
| Backfill material | Gravel | |
| 3H/1V Slope from foundation footprint to existing grade | Yes ☐ | |
| 6H/1V slope from center to the 4 sides of foundation footprint | Yes ☐ N/A ☐ | |
| No ponding around piles | Yes ☐ | |
| No soil covers top of the piles and pile cap | Yes ☐ | |
| Compaction method/Equipment | Hydraulic Tamper | |
| Compact in max. 300mm LIFTS | Yes ☐ | |
| Site Clean Up Complete | Yes ☐ | |
| Culvert Used (if weak soils encountered, use >800mm dia) | Yes ☑ No ☐ Diameter(mm): 850 Length(mm): 3000 | |



| Pile Projection (mm) | Leg 1 | Leg 2 | Leg 3 | Leg 4 |
|---|---|---|---|---|
| | | | | |

Notes:

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR ANTIAZ | | Feb 15/19 |
| Quality Representative | Phil McKinley | Phil McKinley | Feb 14 2019 |
| Client Representative | SARCHIMOWITZ | SArchi | FEB 17/19 |

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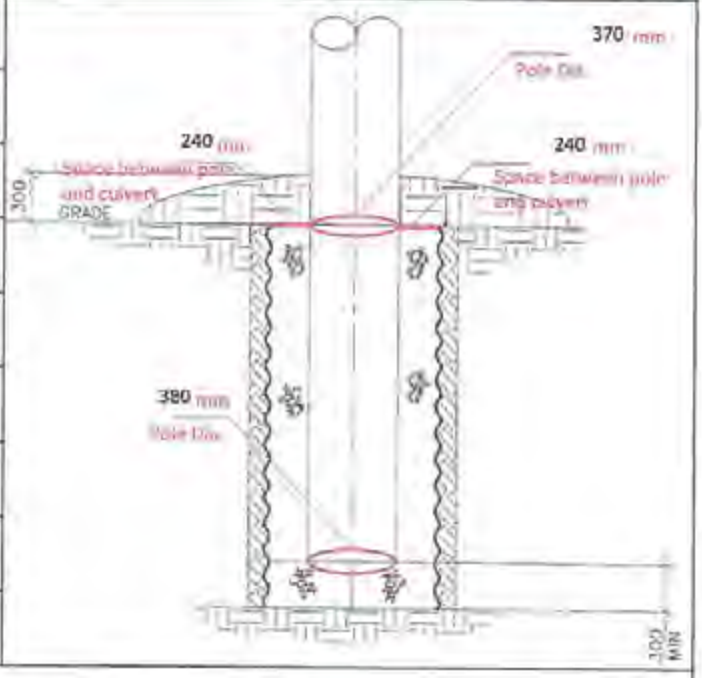
# Backfill and Compaction

| Project # | 4581 | Project Name | Eagle Gold 13.8 KV | Facility # | |
|---|---|---|---|---|---|
| Structure # | L2 P6 | Structure Type | Double Support on Crossarms | Date | February 8 2019 |

## Backfill and Compaction

| Check List | | View |
|---|---|---|
| Ground Type (●) Good Soil ( ) Weak Soil — Description (Wet, Rock, Permafrost etc.) | Gravel |  |
| Backfill material | Gravel | |
| 3H/1V Slope from foundation footprint to existing grade | Yes ☐ | |
| 6H/1V slope from center to the 4 sides of foundation footprint | Yes ☐ N/A ☐ | |
| No ponding around piles | Yes ☐ | |
| No soil covers top of the piles and pile cap | Yes ☐ | |
| Compaction method/Equipment | Hydraulic Tamper | |
| Compact in max. 300mm LIFTS | Yes ☐ | |
| Site Clean Up Complete | Yes ☐ | |
| Culvert Used (if weak soils encountered, use >800mm dia) | Yes ☑ No ☐ Diameter(mm): 850 Length(mm): 3000 | |



| Pile Projection (mm) | Leg 1 | Leg 2 | Leg 3 | Leg 4 |
|---|---|---|---|---|
| | | | | |

Notes:

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR ANSTAETT | | Feb 15/19 |
| Quality Representative | Phil McKinley | Phil McKinley | Feb 14 2019 |
| Client Representative | SARCHIMEWITZ | Sarchi | FEB 17/19 |

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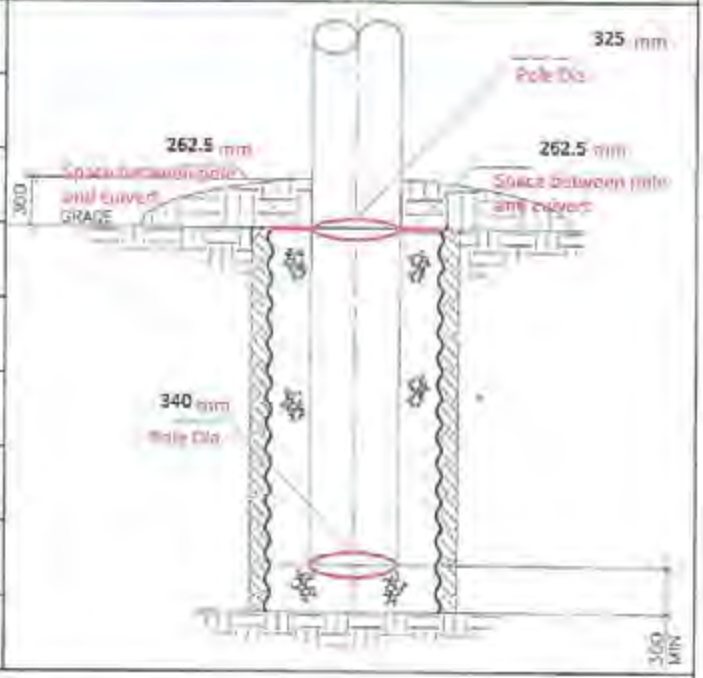
# Backfill and Compaction

| Project # | 4581 | Project Name | Eagle Gold 13.8 KV | Facility # | |
|---|---|---|---|---|---|
| Structure # | L2 01A | Structure Type | Non Fused Riser Pole | Date | January 29 2019 |

## Backfill and Compaction

| Check List | | View |
|---|---|---|
| Ground Type (●) Good Soil ( ) Weak Soil — Description (Wet, Rock, Permafrost etc.) | Frozen Clay |  |
| Backfill material | Gravel | |
| 3H/1V Slope from foundation footprint to existing grade | Yes ☐ | |
| 6H/1V slope from center to the 4 sides of foundation footprint | Yes ☐ N/A ☐ | |
| No ponding around piles | Yes ☐ | |
| No soil covers top of the piles and pile cap | Yes ☐ | |
| Compaction method/Equipment | Hydraulic Tamper | |
| Compact in max. 300mm LIFTS | Yes ☑ | |
| Site Clean Up Complete | Yes ☐ | |
| Culvert Used (if weak soils encountered, use >800mm dia) | Yes ☑ No ☐ Diameter(mm): 850 Length(mm): 3000 | |



| Pile Projection (mm) | Leg 1 | Leg 2 | Leg 3 | Leg 4 |
|---|---|---|---|---|
| | | | | |

Notes:

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR ANTAL | | FEB 1 2019 |
| Quality Representative | Phil McKinley | PMcKinley | Feb 1 2019 |
| Client Representative | Matt C | MMC | Feb 26, 19 |

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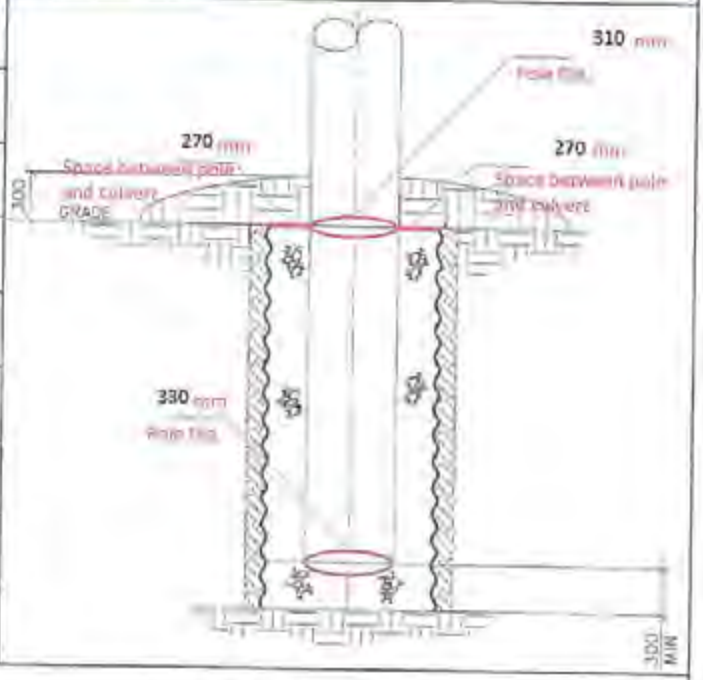
# Backfill and Compaction

| | | | | | |
|---|---|---|---|---|---|
| **Project #** | 4581 | **Project Name** | Eagle Gold 13.8 KV | **Facility #** | |
| **Structure #** | L2 01B | **Structure Type** | Non Fused Riser Pole | **Date** | January 29 2019 |

## Backfill and Compaction

| Check List | | View |
|---|---|---|
| **Ground Type** (●) Good Soil ( ) Weak Soil — **Description (Wet, Rock, Permafrost etc.)** | Frozen Clay |  |
| **Backfill material** | Gravel | |
| **3H/1V Slope from foundation footprint to existing grade** | Yes ☐ | |
| **6H/1V slope from center to the 4 sides of foundation footprint** | Yes ☐ N/A ☐ | |
| **No ponding around piles** | Yes ☐ | |
| **No soil covers top of the piles and pile cap** | Yes ☐ | |
| **Compaction method/Equipment** | Hydraulic Tamper | |
| **Compact in max. 300mm LIFTS** | Yes ☑ | |
| **Site Clean Up Complete** | Yes ☐ | |
| **Culvert Used (if weak soils encountered, use >800mm dia)** | Yes ☑ No ☐ Diameter(mm): 850 Length(mm): 3000 | |



| Pile Projection (mm) | Leg 1 | Leg 2 | Leg 3 | Leg 4 |
|---|---|---|---|---|
| | | | | |

Notes:

| | Name | Signature | Date |
|---|---|---|---|
| **Foreman** | TREVOR ANTAL | | FEB 1 2019 |
| **Quality Representative** | Phil McKinley | Phil McKinley | Feb 1 2019 |
| **Client Representative** | Matt C | | Feb 26, 19 |

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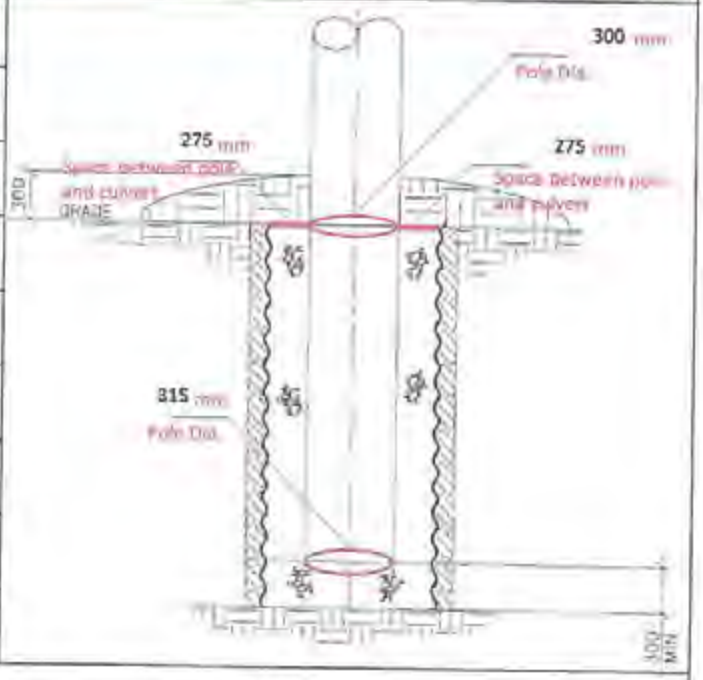
# Backfill and Compaction

| Project # | 4581 | Project Name | Eagle Gold 13.8 KV | Facility # | |
|---|---|---|---|---|---|
| Structure # | L2 02 | Structure Type | Double Support Crossarms | Date | January 30 2019 |

## Backfill and Compaction

| Check List | | View |
|---|---|---|
| Ground Type (◉ Good Soil / ○ Weak Soil) Description (Wet, Rock, Permafrost etc.) | Frozen Clay |  |
| Backfill material | Gravel | |
| 3H/1V Slope from foundation footprint to existing grade | Yes ☐ | |
| 6H/1V slope from center to the 4 sides of foundation footprint | Yes ☐ N/A ☐ | |
| No ponding around piles | Yes ☐ | |
| No soil covers top of the piles and pile cap | Yes ☐ | |
| Compaction method/Equipment | Hydraulic Tamper | |
| Compact in max. 300mm LIFTS | Yes ☑ | |
| Site Clean Up Complete | Yes ☐ | |
| Culvert Used (if weak soils encountered, use >800mm dia) | Yes ☑ No ☐ Diameter(mm): 650 Length(mm): 3000 | |



| Pile Projection (mm) | Leg 1 | Leg 2 | Leg 3 | Leg 4 |
|---|---|---|---|---|
| | | | | |

Notes:

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR ANTAL | | FEB 1 2019 |
| Quality Representative | Phil McKinley | Phil McKinley | Feb 1 2019 |
| Client Representative | Matt C | | Feb 25, 19 |

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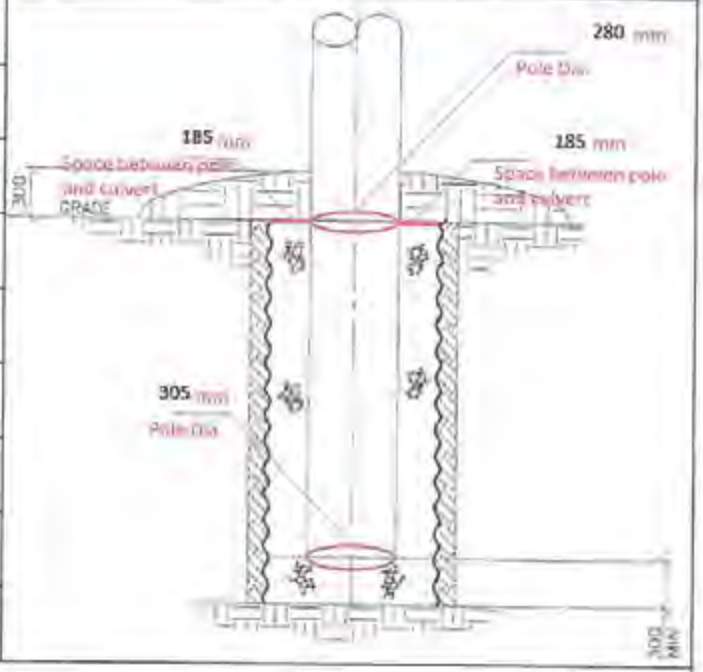
# Backfill and Compaction

| Project # | 4581 | Project Name | Eagle Gold 13.8 KV | Facility # | |
|---|---|---|---|---|---|
| Structure # | L2 03 B | Structure Type | Suspension Angle | Date | February 4 2019 |

## Backfill and Compaction

| Check List | | View |
|---|---|---|
| Ground Type (●) Good Soil ( ) Weak Soil — Description (Wet, Rock, Permafrost etc.) | Gravel |  |
| Backfill material | Gravel | |
| 3H/1V Slope from foundation footprint to existing grade | Yes ☐ | |
| 6H/1V slope from center to the 4 sides of foundation footprint | Yes ☐ N/A ☐ | |
| No ponding around piles | Yes ☐ | |
| No soil covers top of the piles and pile cap | Yes ☐ | |
| Compaction method/Equipment | Hydraulic Tamper | |
| Compact in max. 300mm LIFTS | Yes ☐ | |
| Site Clean Up Complete | Yes ☐ | |



| Culvert Used (if weak soils encountered, use >800mm dia) | Yes ☑ No ☐ | Diameter(mm): 750 | Length(mm): 3000 |
|---|---|---|---|

| Pile Projection (mm) | Leg 1 | Leg 2 | Leg 3 | Leg 4 |
|---|---|---|---|---|
| | | | | |

Notes:

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR ANSTAR | | Feb 9/19 |
| Quality Representative | Phil McKinley | Phil McKinley | Feb 8 2019 |
| Client Representative | SVEN ARCHIMOWITZ | SArchit | FEB 10/19 |

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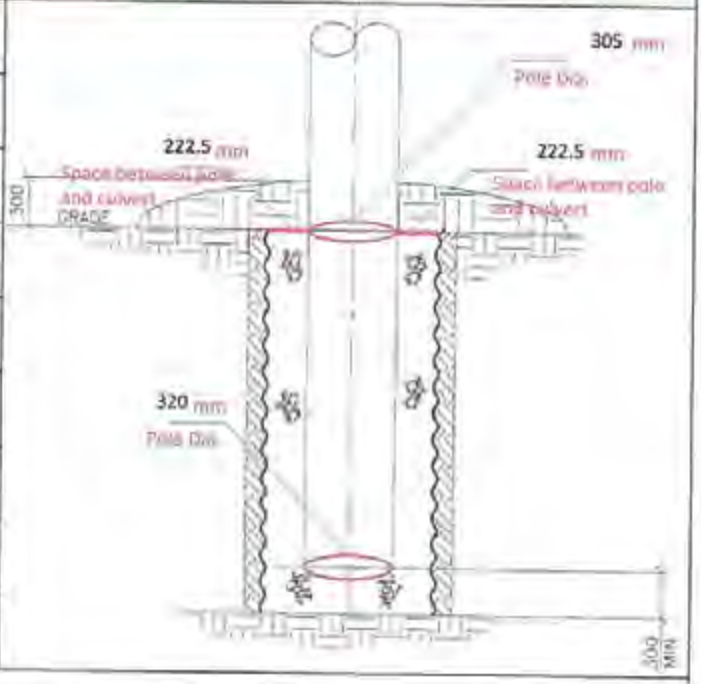
# Backfill and Compaction

| Project # | 4581 | Project Name | Eagle Gold 13.8 KV | Facility # | |
|---|---|---|---|---|---|
| Structure # | L2 04 | Structure Type | Double Support on Crossarms | Date | January 30 2019 |

## Backfill and Compaction

| Check List | | View |
|---|---|---|
| Ground Type (●) Good Soil ( ) Weak Soil — Description (Wet, Rock, Permafrost etc.) | Frozen Clay |  |
| Backfill material | Gravel | |
| 3H/1V Slope from foundation footprint to existing grade | Yes ☐ | |
| 6H/1V slope from center to the 4 sides of foundation footprint | Yes ☐ N/A ☐ | |
| No ponding around piles | Yes ☐ | |
| No soil covers top of the piles and pile cap | Yes ☐ | |
| Compaction method/Equipment | Hydraulic Tamper | |
| Compact in max. 300mm LIFTS | Yes ☑ | |
| Site Clean Up Complete | Yes ☐ | |
| Culvert Used (if weak soils encountered, use >800mm dia) | Yes ☑ No ☐ Diameter(mm): 750 Length(mm): 3000 | |



| Pile Projection (mm) | Leg 1 | Leg 2 | Leg 3 | Leg 4 |
|---|---|---|---|---|
| | | | | |

Notes:

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR ANJAK | | FEB 1 2019 |
| Quality Representative | Phil McKinley | Phil McKinley | Feb 1 2019 |
| Client Representative | Matt C | MC | Feb 26, 19 |

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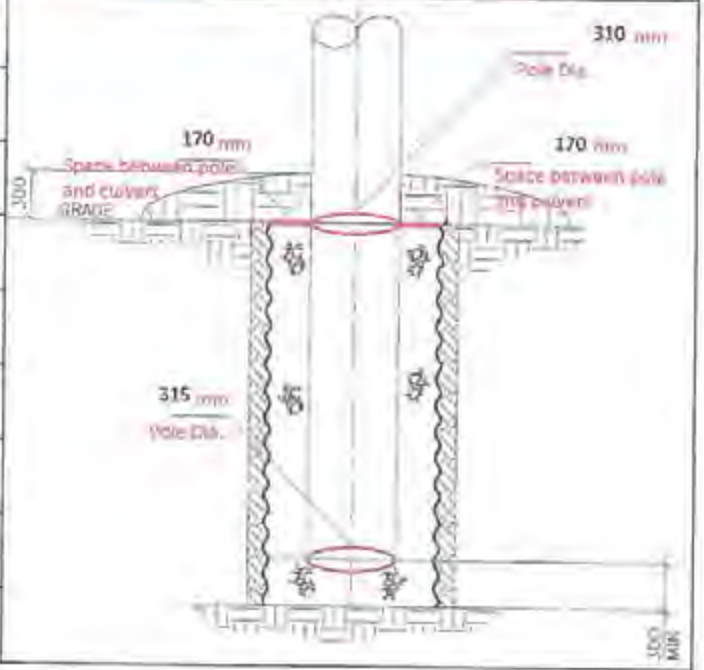
# Backfill and Compaction

| Project # | 4581 | Project Name | Eagle Gold 13.8 KV | Facility # | |
|---|---|---|---|---|---|
| Structure # | L2 05 | Structure Type | Double Support on Crossarms | Date | January 30 2019 |

## Backfill and Compaction

| Check List | | View |
|---|---|---|
| Ground Type (●) Good Soil ( ) Weak Soil — Description (Wet, Rock, Permafrost etc.) | Frozen Gravel |  |
| Backfill material | Gravel | |
| 3H/1V Slope from foundation footprint to existing grade | Yes ☐ | |
| 6H/1V slope from center to the 4 sides of foundation footprint | Yes ☐ N/A ☐ | |
| No ponding around piles | Yes ☐ | |
| No soil covers top of the piles and pile cap | Yes ☐ | |
| Compaction method/Equipment | Hydraulic Tamper | |
| Compact in max. 300mm LIFTS | Yes ☑ | |
| Site Clean Up Complete | Yes ☐ | |
| Culvert Used (if weak soils encountered, use >800mm dia) | Yes ☑ No ☐ Diameter(mm): 650 Length(mm): 3000 | |



| Pile Projection (mm) | Leg 1 | Leg 2 | Leg 3 | Leg 4 |
|---|---|---|---|---|
| | | | | |

Notes:

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR ANTAL | | FEB 1 2019 |
| Quality Representative | Phil McKinley | Phil McKinley | Feb 1 2019 |
| Client Representative | Matt C | | Feb 26, 19 |

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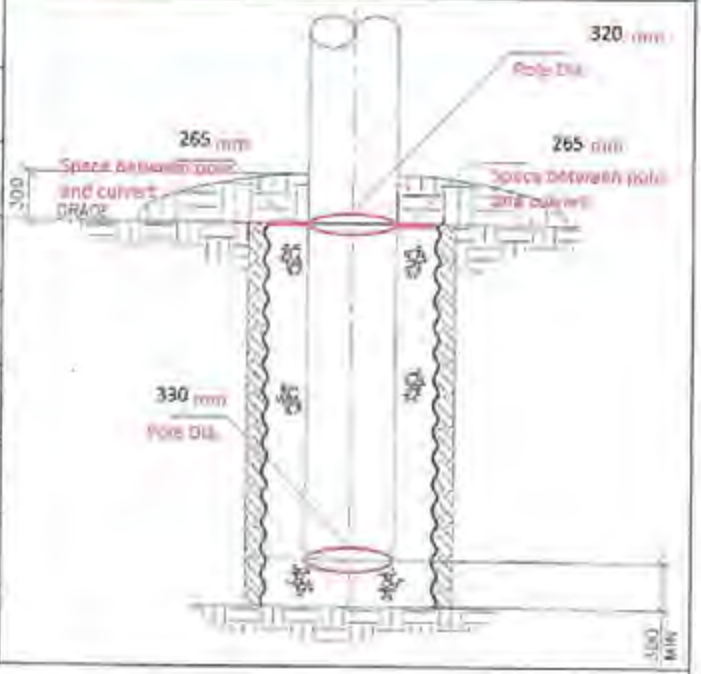
# Backfill and Compaction

| Project # | 4581 | Project Name | Eagle Gold 13.8 KV | Facility # | |
|---|---|---|---|---|---|
| Structure # | L2 06 | Structure Type | Double Support on Crossarms | Date | January 30 2019 |

## Backfill and Compaction

| Check List | | View |
|---|---|---|
| Ground Type (●) Good Soil ( ) Weak Soil — Description (Wet, Rock, Permafrost etc.) | Frozen Gravel |  |
| Backfill material | Gravel | |
| 3H/1V Slope from foundation footprint to existing grade | Yes ☐ | |
| 6H/1V slope from center to the 4 sides of foundation footprint | Yes ☐ N/A ☐ | |
| No ponding around piles | Yes ☐ | |
| No soil covers top of the piles and pile cap | Yes ☐ | |
| Compaction method/Equipment | Hydraulic Tamper | |
| Compact in max. 300mm LIFTS | Yes ☑ | |
| Site Clean Up Complete | Yes ☐ | |
| Culvert Used (if weak soils encountered, use >800mm dia) | Yes ☑ No ☐ Diameter(mm): 850 Length(mm): 3000 | |



| Pile Projection (mm) | Leg 1 | Leg 2 | Leg 3 | Leg 4 |
|---|---|---|---|---|
| | | | | |

Notes:

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR ANTAL | | FEB 1 2019 |
| Quality Representative | Phil McKinley | Phil McKinley | Feb 1 2019 |
| Client Representative | Matt C | | Feb 26, 19 |

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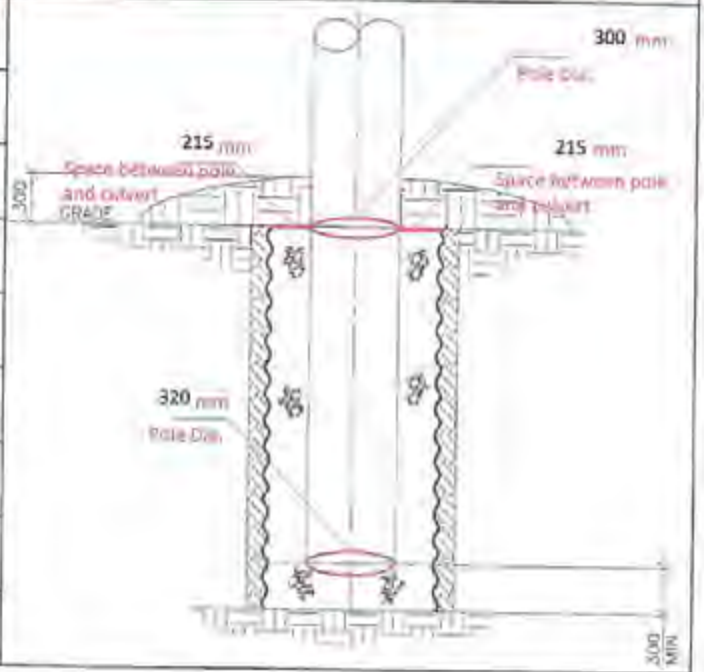
# Backfill and Compaction

| Project # | 4581 | Project Name | Eagle Gold 13.8 KV | Facility # | |
|---|---|---|---|---|---|
| Structure # | L2 07 | Structure Type | Double Support on Crossarms | Date | January 30 2019 |

## Backfill and Compaction

| Check List | | View |
|---|---|---|
| Ground Type (●) Good Soil ( ) Weak Soil — Description (Wet, Rock, Permafrost etc.) | Frozen Clay |  |
| Backfill material | Gravel | |
| 3H/1V Slope from foundation footprint to existing grade | Yes ☐ | |
| 6H/1V slope from center to the 4 sides of foundation footprint | Yes ☐ N/A ☐ | |
| No ponding around piles | Yes ☐ | |
| No soil covers top of the piles and pile cap | Yes ☐ | |
| Compaction method/Equipment | Hydraulic Tamper | |
| Compact in max. 300mm LIFTS | Yes ☑ | |
| Site Clean Up Complete | Yes ☐ | |
| Culvert Used (if weak soils encountered, use >800mm dia) | Yes ☑ No ☐ Diameter(mm): 750 Length(mm): 3000 | |



| Pile Projection (mm) | Leg 1 | Leg 2 | Leg 3 | Leg 4 |
|---|---|---|---|---|
| | | | | |

Notes:

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR ANTAL | | Feb 1 2019 |
| Quality Representative | Phil McKinley | PMcKinley | Feb 1 2019 |
| Client Representative | Matt C | MC | Feb 26, 2019 |

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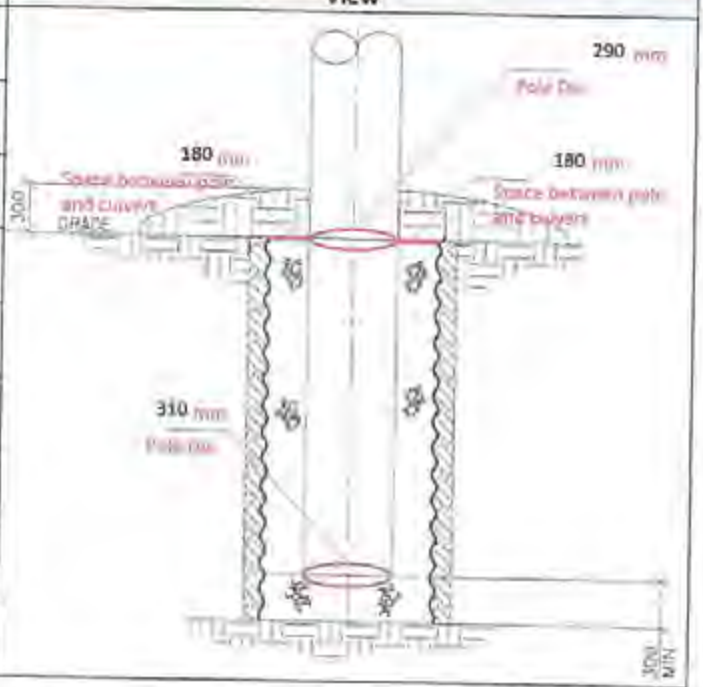
# Backfill and Compaction

| Project # | 4581 | Project Name | Eagle Gold 13.8 KV | Facility # | |
|---|---|---|---|---|---|
| Structure # | L2 08 | Structure Type | Double Support on Crossarms | Date | January 30 2019 |

## Backfill and Compaction

| Check List | | View |
|---|---|---|
| Ground Type (◉ Good Soil ○ Weak Soil) Description (Wet, Rock, Permafrost etc.) | Frozen Clay |  |
| Backfill material | Gravel | |
| 3H/1V Slope from foundation footprint to existing grade | Yes ☐ | |
| 6H/1V slope from center to the 4 sides of foundation footprint | Yes ☐ N/A ☐ | |
| No ponding around piles | Yes ☐ | |
| No soil covers top of the piles and pile cap | Yes ☐ | |
| Compaction method/Equipment | Hydraulic Tamper | |
| Compact in max. 300mm LIFTS | Yes ☑ | |
| Site Clean Up Complete | Yes ☐ | |
| Culvert Used (if weak soils encountered, use >800mm dia) | Yes ☑ No ☐ Diameter(mm): 650 Length(mm): 3000 | |



| Pile Projection (mm) | Leg 1 | Leg 2 | Leg 3 | Leg 4 |
|---|---|---|---|---|
| | | | | |

Notes:

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR ANTAL | | FEB 1 2019 |
| Quality Representative | Phil McKinley | Phil McKinley | Feb 1 2019 |
| Client Representative | Matt C | | Feb 25, 2019 |

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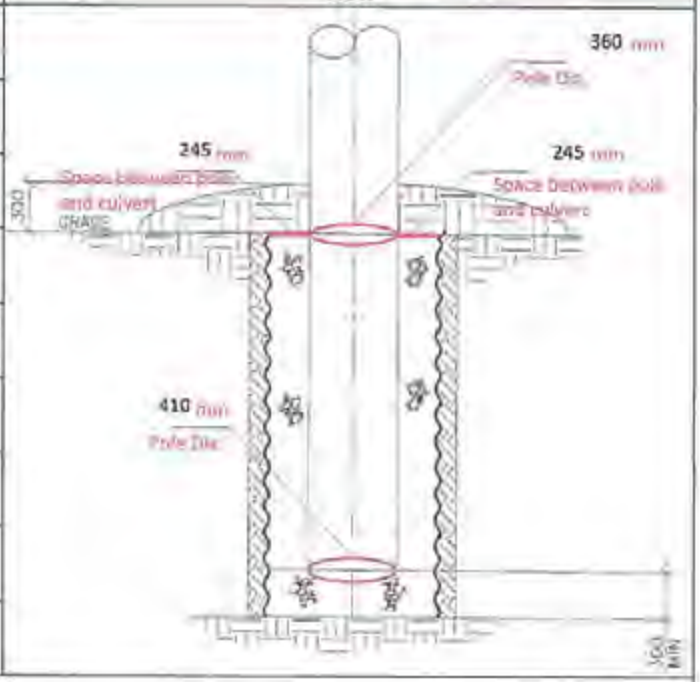
# Backfill and Compaction

| Project # | 4581 | Project Name | Eagle Gold 13.8 KV | Facility # | |
|---|---|---|---|---|---|
| Structure # | L2 09 | Structure Type | Double Support on Crossarms | Date | February 6 2019 |

## Backfill and Compaction

| Check List | | View |
|---|---|---|
| Ground Type (●) Good Soil ( ) Weak Soil — Description (Wet, Rock, Permafrost etc.) | Gravel |  |
| Backfill material | Gravel | |
| 3H/1V Slope from foundation footprint to existing grade | Yes ☐ | |
| 6H/1V slope from center to the 4 sides of foundation footprint | Yes ☐ N/A ☐ | |
| No ponding around piles | Yes ☐ | |
| No soil covers top of the piles and pile cap | Yes ☐ | |
| Compaction method/Equipment | Hydraulic Tamper | |
| Compact in max. 300mm LIFTS | Yes ☐ | |
| Site Clean Up Complete | Yes ☐ | |
| Culvert Used (if weak soils encountered, use >800mm dia) | Yes ☑ No ☐ Diameter(mm): 850 Length(mm): 3000 | |



| Pile Projection (mm) | Leg 1 | Leg 2 | Leg 3 | Leg 4 |
|---|---|---|---|---|
| | | | | |

Notes:

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR ARTHUR | | Feb 9/19 |
| Quality Representative | Phil McKinley | Phil McKinley | Feb 8 2019 |
| Client Representative | S ARCHIBOLD | S Archibold | FEB 10/19 |

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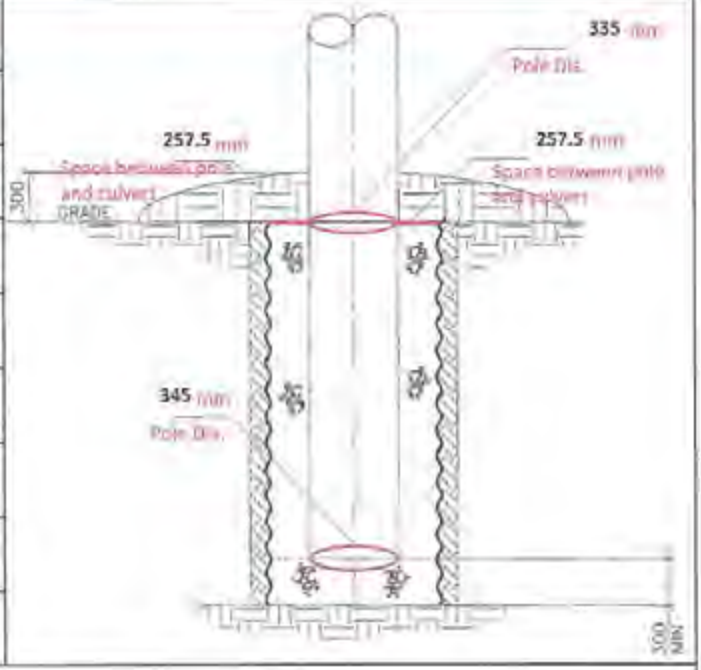
# Backfill and Compaction

| | | | | | |
|---|---|---|---|---|---|
| **Project #** | 4581 | **Project Name** | Eagle Gold 13.8 KV | **Facility #** | |
| **Structure #** | L2 10 P1 | **Structure Type** | Dead End Angle | **Date** | February 6 2019 |

## Backfill and Compaction

| Check List | | View |
|---|---|---|
| **Ground Type** ◉ Good Soil ○ Weak Soil — **Description (Wet, Rock, Permafrost etc.)** | Gravel |  |
| **Backfill material** | Gravel | |
| **3H/1V Slope from foundation footprint to existing grade** | Yes ☐ | |
| **6H/1V slope from center to the 4 sides of foundation footprint** | Yes ☐ N/A ☐ | |
| **No ponding around piles** | Yes ☐ | |
| **No soil covers top of the piles and pile cap** | Yes ☐ | |
| **Compaction method/Equipment** | Hydraulic Tamper | |
| **Compact in max. 300mm LIFTS** | Yes ☐ | |
| **Site Clean Up Complete** | Yes ☐ | |
| **Culvert Used (If weak soils encountered, use >800mm dia)** | Yes ☑ No ☐ Diameter(mm): 850 Length(mm): 3000 | |



| Pile Projection (mm) | Leg 1 | Leg 2 | Leg 3 | Leg 4 |
|---|---|---|---|---|
| | | | | |

**Notes:**

| | Name | Signature | Date |
|---|---|---|---|
| **Foreman** | TREVOR ANTAL | | Feb 8/19 |
| **Quality Representative** | Phil McKinley | Phil McKinley | Feb 8 2019 |
| **Client Representative** | SVEN ARUTIUNOVITZ | | FEB 10/19 |

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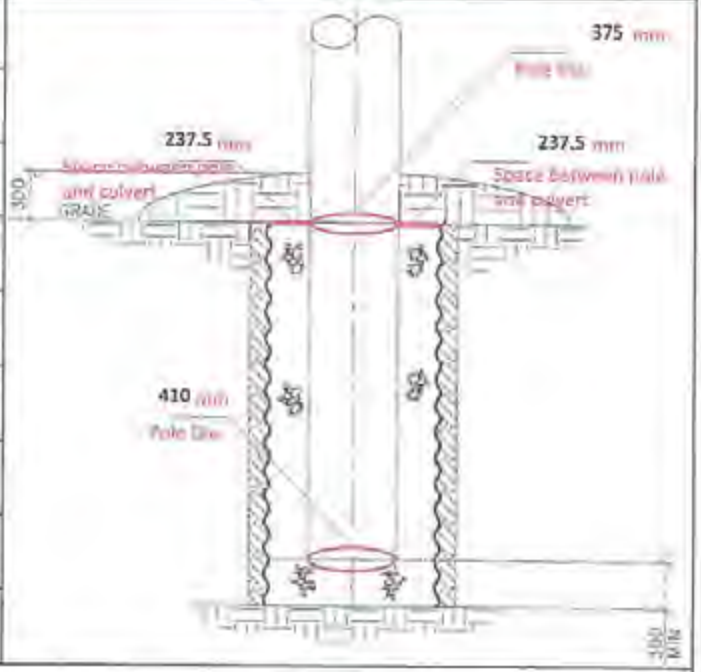
# Backfill and Compaction

| Project # | 4581 | Project Name | Eagle Gold 13.8 KV | Facility # | |
|---|---|---|---|---|---|
| Structure # | L2 10 P2 | Structure Type | Dead End Angle | Date | February 6 2019 |

## Backfill and Compaction

| Check List | | View |
|---|---|---|
| Ground Type (●) Good Soil ( ) Weak Soil — Description (Wet, Rock, Permafrost etc.) | Gravel |  |
| Backfill material | Gravel | |
| 3H/1V Slope from foundation footprint to existing grade | Yes ☐ | |
| 6H/1V slope from center to the 4 sides of foundation footprint | Yes ☐ N/A ☐ | |
| No ponding around piles | Yes ☐ | |
| No soil covers top of the piles and pile cap | Yes ☐ | |
| Compaction method/Equipment | Hydraulic Tamper | |
| Compact in max. 300mm LIFTS | Yes ☐ | |
| Site Clean Up Complete | Yes ☐ | |



| | | | | |
|---|---|---|---|---|
| Culvert Used (if weak soils encountered, use >800mm dia) | Yes ☑ No ☐ | Diameter(mm): 850 | Length(mm): 3000 | |

| Pile Projection (mm) | Leg 1 | Leg 2 | Leg 3 | Leg 4 |
|---|---|---|---|---|
| | | | | |

Notes:

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR ANTYPAC | | Feb 9/19 |
| Quality Representative | Phil McKinley | PW McKinley | Feb 8 2019 |
| Client Representative | SVEN ARCHIMOWITZ | | FEB 10/19 |

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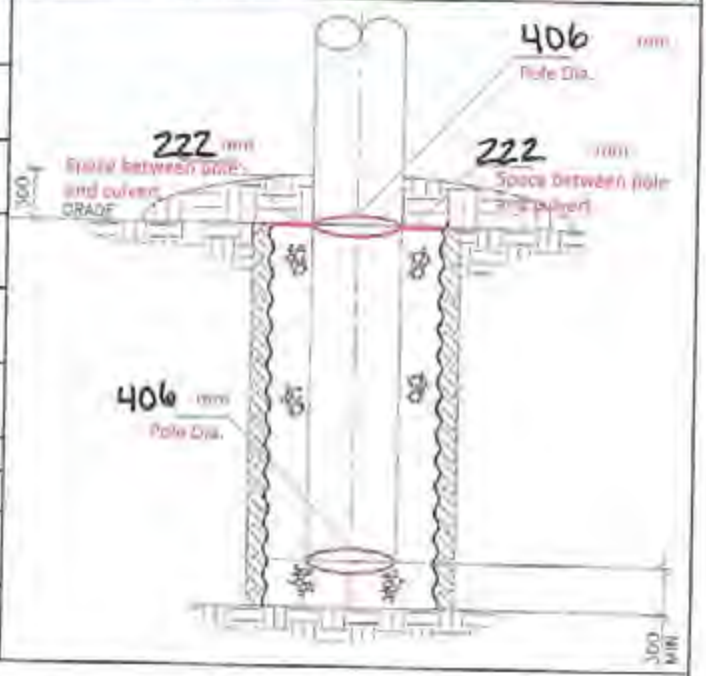
# Backfill and Compaction

| Project # | 4581 | Project Name | Eagle Gold 69Kv | Facility # | |
|---|---|---|---|---|---|
| Structure # | 0/10B | Structure Type | Culvert | Date | Sept 27 2018 |

## Backfill and Compaction

| Check List | | View |
|---|---|---|
| Ground Type | Gravel |  |
| Backfill material | Gravel | |
| 3H/1V Slope from foundation footprint to existing grade | Yes ☐ | |
| 6H/1V slope from center to the 4 sides of foundation footprint | Yes ☐ N/A ☐ | |
| No ponding around piles | Yes ☐ | |
| No soil covers top of the piles and pile cap | Yes ☐ | |
| Compaction method/Equipment | Hydraulic Tamper | |
| Compact in max. 300mm LIFTS | Yes ☑ | |
| Site Clean Up Complete | Yes ☐ | |
| Culvert Used | Yes ☑ No ☐ Diameter(mm): 850 Length(mm): 3000 | |



| Pile Projection (mm) | Leg 1 | Leg 2 | Leg 3 | Leg 4 |
|---|---|---|---|---|
| | | | | |

Notes:

Setting Depth: 3.34m
Backfill Obtained: Pit 10½
good soil

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | Mike Sweetland | Mike Sweetland | Sept 27/18 |
| Quality Representative | Cherell Hackett | Cherell H | Sept 27 2018 |
| Client Representative | | | |

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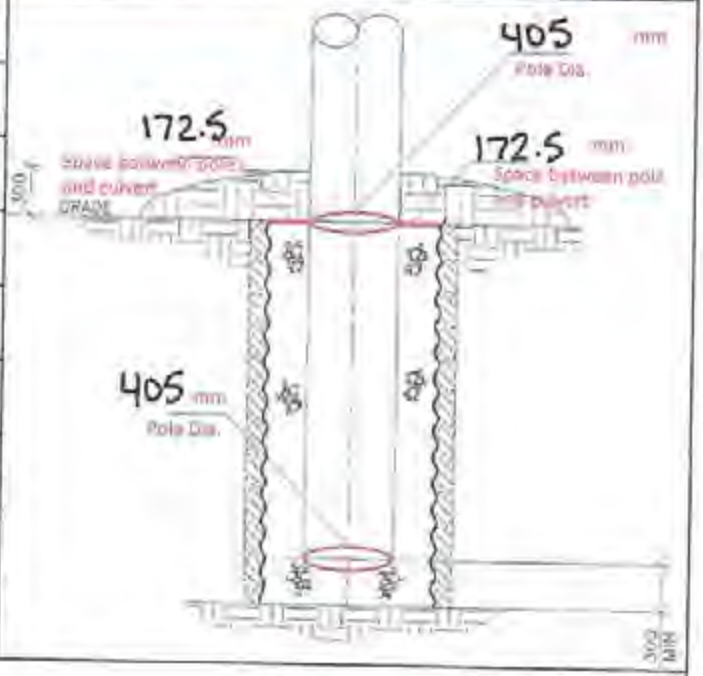
# Backfill and Compaction

| Project # | 4581 | Project Name | Eagle Gold 69kv | Facility # | |
|---|---|---|---|---|---|
| Structure # | 0/10C | Structure Type | Culvert | Date | Sept 27 2018 |

## Backfill and Compaction

| Check List | | View |
|---|---|---|
| Ground Type | Gravel |  |
| Backfill material | Gravel | |
| 3H/1V Slope from foundation footprint to existing grade | Yes ☐ | |
| 6H/1V slope from center to the 4 sides of foundation footprint | Yes ☐ N/A ☐ | |
| No ponding around piles | Yes ☐ | |
| No soil covers top of the piles and pile cap | Yes ☐ | |
| Compaction method/Equipment | Hydraulic Tamper | |
| Compact in max. 300mm LIFTS | Yes ☑ | |
| Site Clean Up Complete | Yes ☐ | |



| Culvert Used | Yes ☑ No ☐ | Diameter(mm): 750 | Length(mm): 3000 |
|---|---|---|---|

| Pile Projection (mm) | Leg 1 | Leg 2 | Leg 3 | Leg 4 |
|---|---|---|---|---|
| | | | | |

Notes:
Setting Depth: 3.35m
Backfill Obtained: Pit 10'1/2
good Soil

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | Mike Sweetland | Mike Sweetland | Sept 27/18 |
| Quality Representative | Cherell Hackett | Cherell H | Sept 27 2018 |
| Client Representative | | | |

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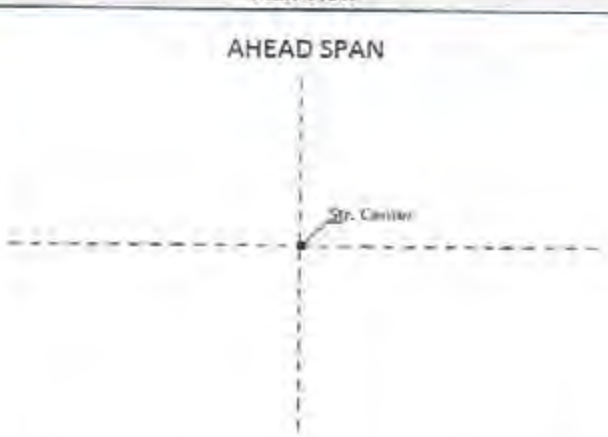
# Backfill and Compaction

| Project # | 4581 | Project Name | Eagle Gold 69kv | Section # | |
|---|---|---|---|---|---|
| Structure # | 0/11 | Tower Type | Culvert | Date | September 15, 2018 |

## Backfill and Compaction

| Check List | | Plan View |
|---|---|---|
| Backfill material | Gravel |   |
| 3H/1V Slope from foundation footprint to existing grade | Yes ☐ | |
| 6H/1V slope from center to the 4 sides of foundation footprint | Yes ☐ | |
| No ponding around piles | Yes ☐ | |
| No soil covers top of the piles and pile cap | Yes ☐ | |
| Compact in max. 300mm LIFTS | Yes ☑ | |
| Site Clean Up Complete | Yes ☐ | |

| Pile Projection (mm) | Leg 1 | Leg 2 | Leg 3 | Leg 4 |
|---|---|---|---|---|
| | | | | |

Notes: Setting depth is 3.66m
Culvert diameter is 850mm
Ground is gravel
Backfilled with gravel from B1/2
good Soil

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | Mike Sweetland | | 09/15/18 |
| QC Inspector | Phil McKinlay | Phil McKinlay | Sept 15 2018 |
| Client Inspector | | | |

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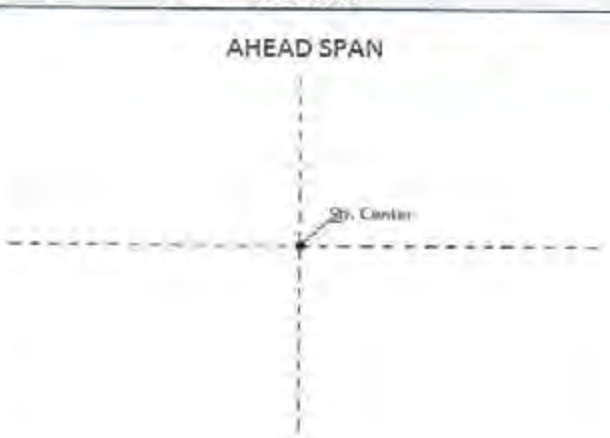
# Backfill and Compaction

| Project # | 4581 | Project Name | Eagle Gold 69kv | Section # | |
|---|---|---|---|---|---|
| Structure # | 012 | Tower Type | Culvert | Date | September 17, 2018 |

## Backfill and Compaction

| Check List | | Plan View |
|---|---|---|
| Backfill material | Gravel |   |
| 3H/1V Slope from foundation footprint to existing grade | Yes ☐ | |
| 6H/1V slope from center to the 4 sides of foundation footprint | Yes ☐ | |
| No ponding around piles | Yes ☐ | |
| No soil covers top of the piles and pile cap | Yes ☐ | |
| Compact in max. 300mm LIFTS | Yes ☑ | |
| Site Clean Up Complete | Yes ☐ | |

| Pile Projection (mm) | Leg 1 | Leg 2 | Leg 3 | Leg 4 |
|---|---|---|---|---|
| | | | | |

**Notes:** Setting depth is 3.35m
Culvert diameter is 650mm
Ground is gravel
Back filled with gravel from 13½
good soil

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR AWTAC | | Sept 18/18 |
| QC inspector | Phil McKinley | Phil McKinley | Sept 17 2018 |
| Client Inspector | | | |

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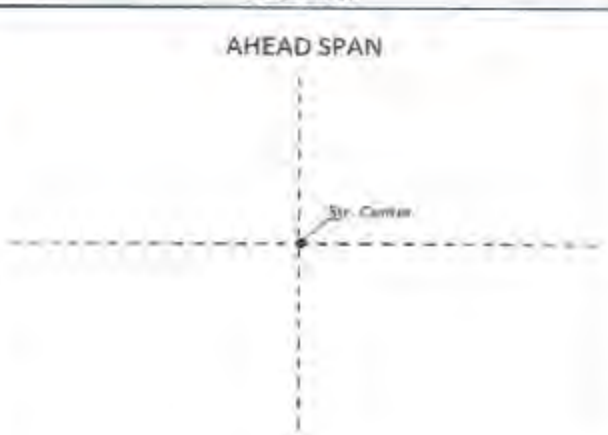
# Backfill and Compaction

| Project # | 4581 | Project Name | Eagle Gold 64 Ku | Section # | |
|---|---|---|---|---|---|
| Structure # | 0113 | Tower Type | Culvert | Date | Sept 16 2018 |

## Backfill and Compaction

| Check List | | Plan View |
|---|---|---|
| Backfill material | Gravel |   |
| 3H/1V Slope from foundation footprint to existing grade | Yes ☐ | |
| 6H/1V slope from center to the 4 sides of foundation footprint | Yes ☐ | |
| No ponding around piles | Yes ☐ | |
| No soil covers top of the piles and pile cap | Yes ☐ | |
| Compact in max. 300mm LIFTS | Yes ☑ | |
| Site Clean Up Complete | Yes ☐ | |

| Pile Projection (mm) | Leg 1 | Leg 2 | Leg 3 | Leg 4 |
|---|---|---|---|---|
| | | | | |

Notes: Setting depth is 3.35 m
Culvert diameter is 650 mm
Ground is gravel
Backfilled with gravel from 13½
good Soil

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR AWTAK | | Sept 18/18 |
| QC inspector | R.J McKinley | R.J McKinley | Sept 17 2018 |
| Client Inspector | | | |

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# Backfill and Compaction

| Project # | 4581 | Project Name | Eagle Gold 69kV | Section # | |
|---|---|---|---|---|---|
| Structure # | 0/14 | Tower Type | Culvert | Date | Sept 16 2018 |

## Backfill and Compaction

| Check List | | Plan View |
|---|---|---|
| Backfill material | Gravel | AHEAD SPAN |
| 3H/1V Slope from foundation footprint to existing grade | Yes ☐ | |
| 6H/1V slope from center to the 4 sides of foundation footprint | Yes ☐ | |
| No ponding around piles | Yes ☐ | |
| No soil covers top of the piles and pile cap | Yes ☐ | |
| Compact in max. 300mm LIFTS | Yes ☑ | |
| Site Clean Up Complete | Yes ☐ | |

| Pile Projection (mm) | Leg 1 | Leg 2 | Leg 3 | Leg 4 |
|---|---|---|---|---|
| | | | | |

Notes: Setting depth is 3.35m
Culvert diameter is 1650 mm
Ground is permafrost
- Not identified as potential permafrost on datasheet
Backfilled with gravel from 13 1/2
good stable permafrost

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR AWTAK | | Sept 17/18 |
| QC inspector | Phil Mackay | Phil Mackay | Sept 16 2018 |
| Client Inspector | | | |

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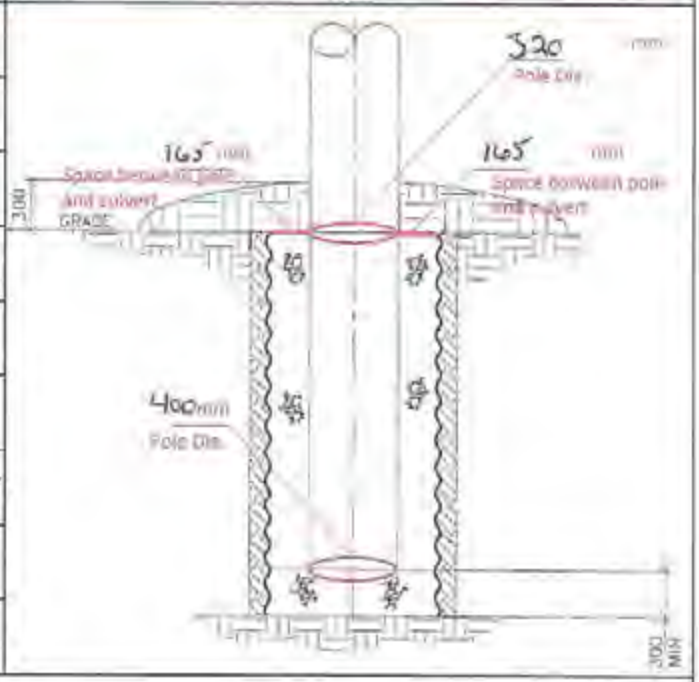
# Backfill and Compaction

| Project # | 4581 | Project Name | Eagle Gold 69kV | Facility # | |
|---|---|---|---|---|---|
| Structure # | 15/10 | Structure Type | PT | Date | Nov 6 2018 |

## Backfill and Compaction

| Check List | | View |
|---|---|---|
| Ground Type (●) Good Soil ( ) Weak Soil — Description (Wet, Rock, Permafrost etc.) | Gravel |  |
| Backfill material | Gravel | |
| 3H/1V Slope from foundation footprint to existing grade | Yes ☐ | |
| 6H/1V slope from center to the 4 sides of foundation footprint | Yes ☐ N/A ☐ | |
| No ponding around piles | Yes ☐ | |
| No soil covers top of the piles and pile cap | Yes ☐ | |
| Compaction method/Equipment | Hydraulic Tamper | |
| Compact in max. 300mm LIFTS | Yes ☐ | |
| Site Clean Up Complete | Yes ☐ | |



| | | | |
|---|---|---|---|
| Culvert Used (if weak soils encountered, use >800mm dia) | Yes ☑ No ☐ | Diameter(mm): 650 | Length(mm): 3000 |

| Pile Projection (mm) | Leg 1 | Leg 2 | Leg 3 | Leg 4 |
|---|---|---|---|---|
| | | | | |

Notes:

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR ANTAL | | Nov 9/18 |
| Quality Representative | Phil McKinley | Phil McKinley | Nov 8 2018 |
| Client Representative | | | |

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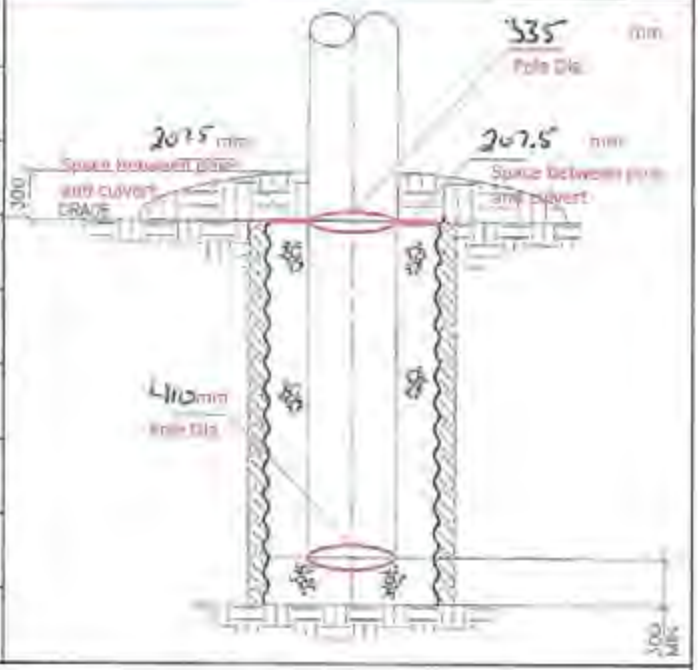
# Backfill and Compaction

| Project # | 41581 | Project Name | Eagle Gold 69kV | Facility # | |
|---|---|---|---|---|---|
| Structure # | 15/13 | Structure Type | VMA | Date | Nov 8 2016 |

## Backfill and Compaction

| Check List | | View |
|---|---|---|
| Ground Type (●) Good Soil (○) Weak Soil — Description (Wet, Rock, Permafrost etc.) | Gravel |  |
| Backfill material | Gravel | |
| 3H/1V Slope from foundation footprint to existing grade | Yes ☐ | |
| 6H/1V slope from center to the 4 sides of foundation footprint | Yes ☐ N/A ☐ | |
| No ponding around piles | Yes ☐ | |
| No soil covers top of the piles and pile cap | Yes ☐ | |
| Compaction method/Equipment | Hydraulic Tamper | |
| Compact in max. 300mm LIFTS | Yes ☑ | |
| Site Clean Up Complete | Yes ☐ | |
| Culvert Used (if weak soils encountered, use >800mm dia) | Yes ☑ No ☐ Diameter(mm): 750 Length(mm): 3000 | |



| Pile Projection (mm) | Leg 1 | Leg 2 | Leg 3 | Leg 4 |
|---|---|---|---|---|
| | | | | |

Notes:

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR ANTYPE | | Nov 9/16 |
| Quality Representative | Phil McKinley | Phil McKinley | Nov 8 2016 |
| Client Representative | | | |

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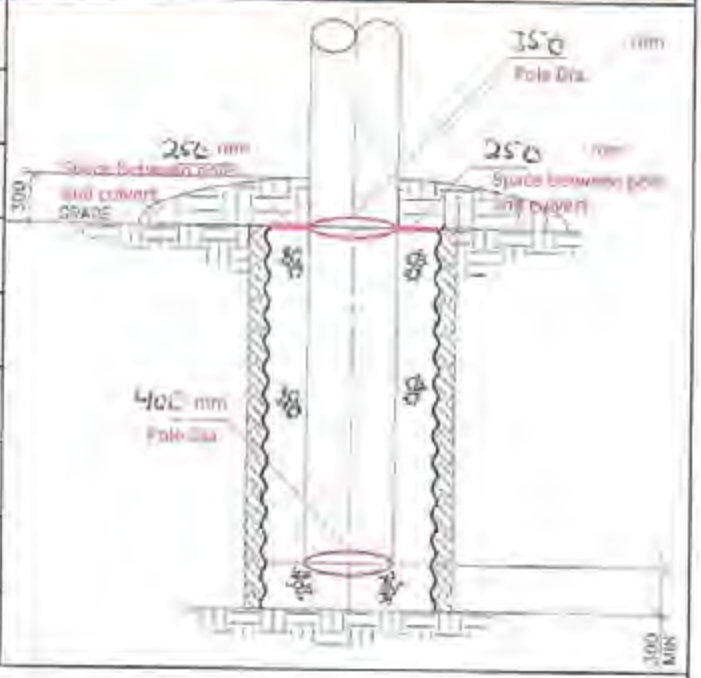
# Backfill and Compaction

| Project # | 4581 | Project Name | Eagle Gold 69kV | Facility # | |
|---|---|---|---|---|---|
| Structure # | 157 | Structure Type | PTG1 | Date | Nov 6 2018 |

## Backfill and Compaction

| Check List | | View |
|---|---|---|
| Ground Type ◯ Good Soil ◯ Weak Soil — Description (Wet, Rock, Permafrost etc.) | Gravel |  |
| Backfill material | Gravel | |
| 3H/1V Slope from foundation footprint to existing grade | Yes ☐ | |
| 6H/1V slope from center to the 4 sides of foundation footprint | Yes ☐ N/A ☐ | |
| No ponding around piles | Yes ☐ | |
| No soil covers top of the piles and pile cap | Yes ☐ | |
| Compaction method/Equipment | Hydraulic Tamper | |
| Compact in max. 300mm LIFTS | Yes ☑ | |
| Site Clean Up Complete | Yes ☐ | |
| Culvert Used (if weak soils encountered, use >800mm dia) | Yes ☑ No ☐ Diameter(mm): 850 mm Length(mm): 3000 | |



| Pile Projection (mm) | Leg 1 | Leg 2 | Leg 3 | Leg 4 |
|---|---|---|---|---|
| | | | | |

Notes:

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR ANTAL | | Nov 7/18 |
| Quality Representative | Phil Mackay | Phil Mackay | Nov 8 2018 |
| Client Representative | | | |

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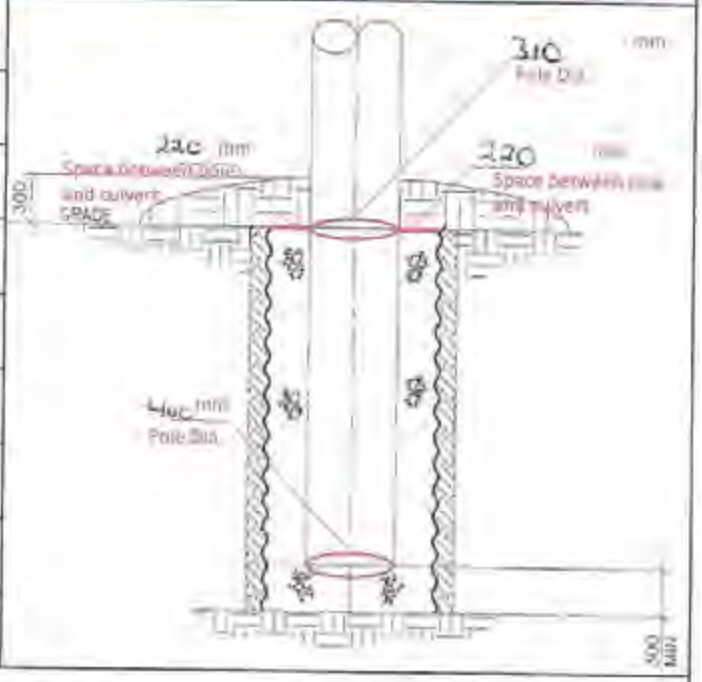
# Backfill and Compaction

| Project # | 4581 | Project Name | Eagle Gold 64kV | Facility # | |
|---|---|---|---|---|---|
| Structure # | 1518 | Structure Type | PT | Date | Nov 6 2018 |

## Backfill and Compaction

| Check List | | View |
|---|---|---|
| Ground Type ☑ Good Soil ☐ Weak Soil — Description (Wet, Rock, Permafrost etc.) | Gravel |  |
| Backfill material | Gravel | |
| 3H/1V Slope from foundation footprint to existing grade | Yes ☐ | |
| 6H/1V slope from center to the 4 sides of foundation footprint | Yes ☐ N/A ☐ | |
| No ponding around piles | Yes ☐ | |
| No soil covers top of the piles and pile cap | Yes ☐ | |
| Compaction method/Equipment | Hydraulic Tamper | |
| Compact in max. 300mm LIFTS | Yes ☐ | |
| Site Clean Up Complete | Yes ☐ | |
| Culvert Used (if weak soils encountered, use >800mm dia) | Yes ☑ No ☐ Diameter(mm): 750 Length(mm): 3000 | |



| Pile Projection (mm) | Leg 1 | Leg 2 | Leg 3 | Leg 4 |
|---|---|---|---|---|
| | | | | |

Notes:

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR ANTAL | | NOV 9/18 |
| Quality Representative | Phil McKinley | | Nov 8 2018 |
| Client Representative | | | |

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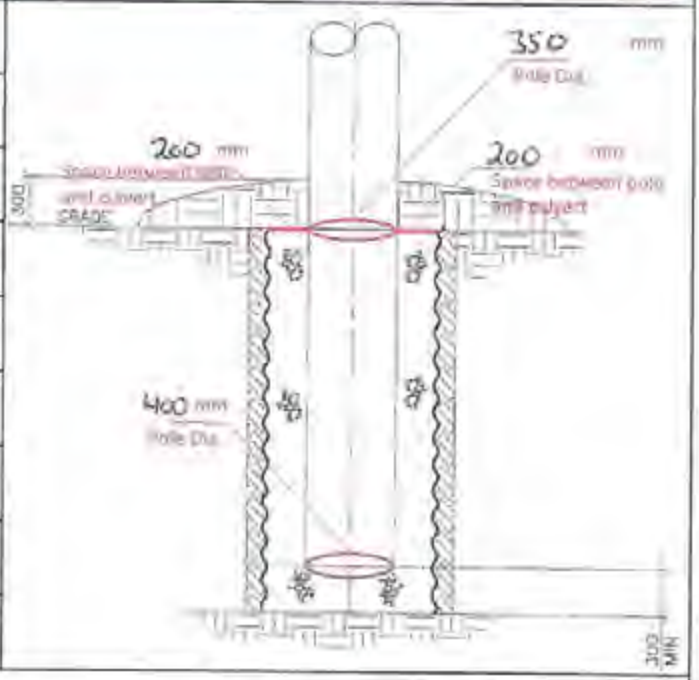
# Backfill and Compaction

| Project # | 4581 | Project Name | Eagle Gold 69kV | Facility # | |
|---|---|---|---|---|---|
| Structure # | 15/9 | Structure Type | PT | Date | Nov 6 2018 |

## Backfill and Compaction

| Check List | | View |
|---|---|---|
| Ground Type (✓) Good Soil / ( ) Weak Soil — Description (Wet, Rock, Permafrost etc.) | Gravel |  |
| Backfill material | Gravel | |
| 3H/1V Slope from foundation footprint to existing grade | Yes ☐ | |
| 6H/1V slope from center to the 4 sides of foundation footprint | Yes ☐ N/A ☐ | |
| No ponding around piles | Yes ☐ | |
| No soil covers top of the piles and pile cap | Yes ☐ | |
| Compaction method/Equipment | Hydraulic Tamper | |
| Compact in max. 300mm LIFTS | Yes ☐ | |
| Site Clean Up Complete | Yes ☐ | |
| Culvert Used (if weak soils encountered, use >800mm dia) | Yes ☑ No ☐ Diameter(mm): 750 Length(mm): 3000 | |



| Pile Projection (mm) | Leg 1 | Leg 2 | Leg 3 | Leg 4 |
|---|---|---|---|---|
| | | | | |

Notes:

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR ANTTILA | | NOV 9/18 |
| Quality Representative | Phil McKinley | Phil McKinley | Nov 8 2016 |
| Client Representative | | | |

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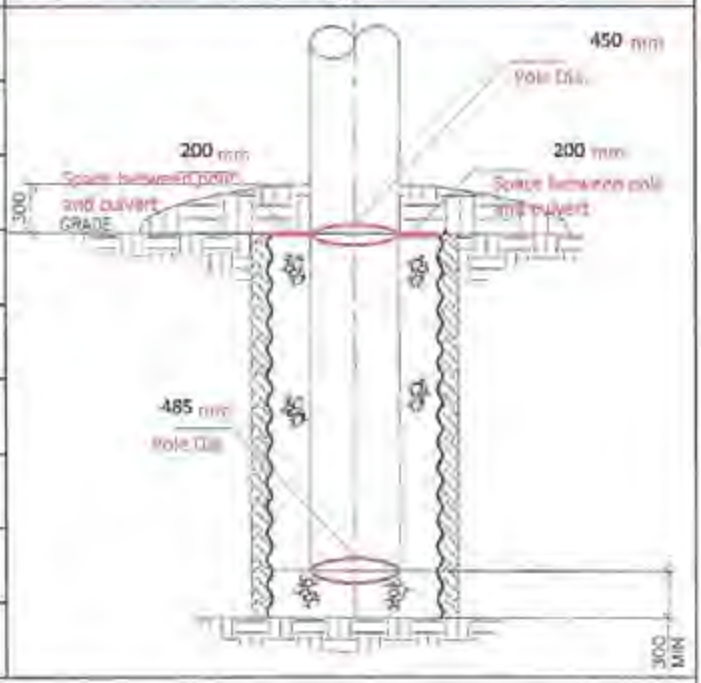
# Backfill and Compaction

| Project # | 4581 | Project Name | Eagle Gold 69 KV | Facility # | |
|---|---|---|---|---|---|
| Structure # | 16/13 LP | Structure Type | SAH | Date | Nov 11 2018 |

## Backfill and Compaction

| Check List | | View |
|---|---|---|
| Ground Type (◉ Good Soil ○ Weak Soil) Description (Wet, Rock, Permafrost etc.) | Gravel |  |
| Backfill material | Gravel | |
| 3H/1V Slope from foundation footprint to existing grade | Yes ☐ | |
| 6H/1V slope from center to the 4 sides of foundation footprint | Yes ☐ N/A ☐ | |
| No ponding around piles | Yes ☐ | |
| No soil covers top of the piles and pile cap | Yes ☐ | |
| Compaction method/Equipment | Hydraulic Tamper | |
| Compact in max. 300mm LIFTS | Yes ☐ | |
| Site Clean Up Complete | Yes ☐ | |
| Culvert Used (if weak soils encountered, use >800mm dia) | Yes ☑ No ☐ | Diameter(mm): 850 Length(mm): 3000 |



| Pile Projection (mm) | Leg 1 | Leg 2 | Leg 3 | Leg 4 |
|---|---|---|---|---|
| | | | | |

Notes:

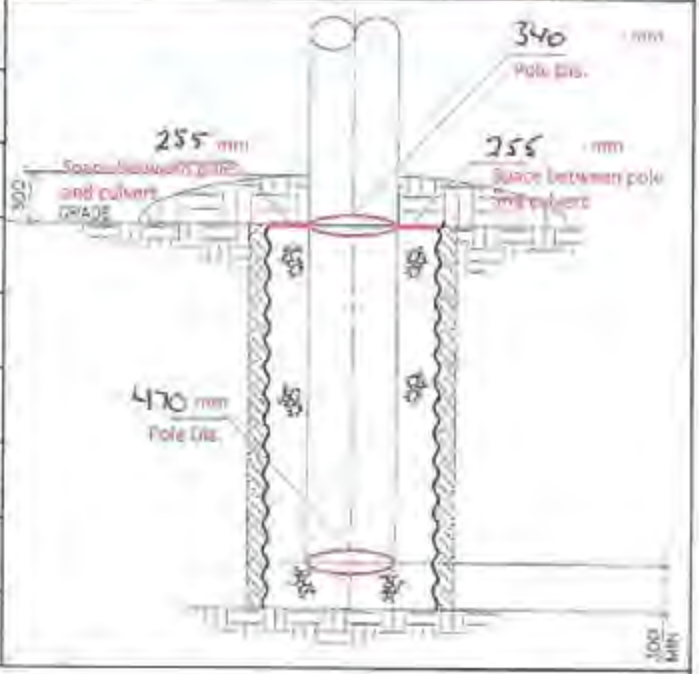
| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR ANTAL | | NOV 14/18 |
| Quality Representative | Phil McKinley | | Nov 13 2018 |
| Client Representative | | | |

Forbes Bros Ltd
Powerline Construction

# Backfill and Compaction

| Project # | 4581 | Project Name | Eagle Gold 64kV | Facility # | |
|---|---|---|---|---|---|
| Structure # | 16/4 | Structure Type | VMA | Date | Nov 6 2018 |

## Backfill and Compaction

| Check List | | View |
|---|---|---|
| Ground Type (●) Good Soil ( ) Weak Soil — Description (Wet, Rock, Permafrost etc.) | Gravel |  |
| Backfill material | Gravel | |
| 3H/1V Slope from foundation footprint to existing grade | Yes ☐ | |
| 6H/1V slope from center to the 4 sides of foundation footprint | Yes ☐ N/A ☐ | |
| No ponding around piles | Yes ☐ | |
| No soil covers top of the piles and pile cap | Yes ☐ | |
| Compaction method/Equipment | Hydraulic Tamper | |
| Compact in max. 300mm LIFTS | Yes ☐ | |
| Site Clean Up Complete | Yes ☐ | |
| Culvert Used (if weak soils encountered, use >800mm dia) | Yes ☑ No ☐ Diameter(mm): 850 Length(mm): 3000 | |



| Pile Projection (mm) | Leg 1 | Leg 2 | Leg 3 | Leg 4 |
|---|---|---|---|---|
| | | | | |

Notes:

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR ANTAL | | Nov 7/2018 |
| Quality Representative | P.J. McKinley | P.J. McKinley | Nov 8 2018 |
| Client Representative | | | |

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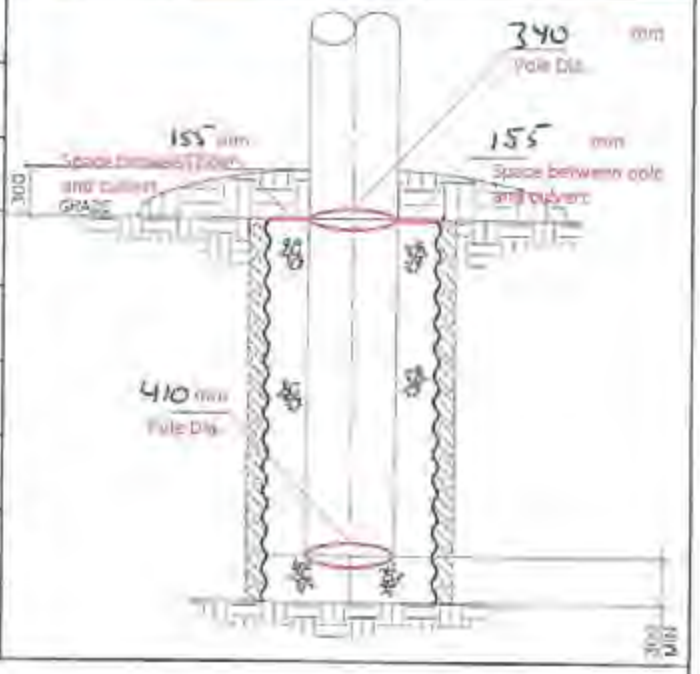
# Backfill and Compaction

| Project # | 4581 | Project Name | Eagle Gold 69kV | Facility # | |
|---|---|---|---|---|---|
| Structure # | 1615 | Structure Type | PTR | Date | Nov 6 2018 |

## Backfill and Compaction

| Check List | | View |
|---|---|---|
| Ground Type ☑ Good Soil ☐ Weak Soil — Description (Wet, Rock, Permafrost etc.) | Gravel |  |
| Backfill material | Gravel | |
| 3H/1V Slope from foundation footprint to existing grade | Yes ☐ | |
| 6H/1V slope from center to the 4 sides of foundation footprint | Yes ☐ N/A ☐ | |
| No ponding around piles | Yes ☐ | |
| No soil covers top of the piles and pile cap | Yes ☐ | |
| Compaction method/Equipment | Hydraulic Tamper | |
| Compact in max. 300mm LIFTS | Yes ☑ | |
| Site Clean Up Complete | Yes ☐ | |
| Culvert Used (if weak soils encountered, use >800mm dia) | Yes ☑ No ☐ Diameter(mm): 650 Length(mm): 3000 | |



| Pile Projection (mm) | Leg 1 | Leg 2 | Leg 3 | Leg 4 |
|---|---|---|---|---|
| | | | | |

Notes:

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR ANTAL | | Nov 9/18 |
| Quality Representative | Phil McKinley | Phil McKinley | Nov 8 2018 |
| Client Representative | | | |

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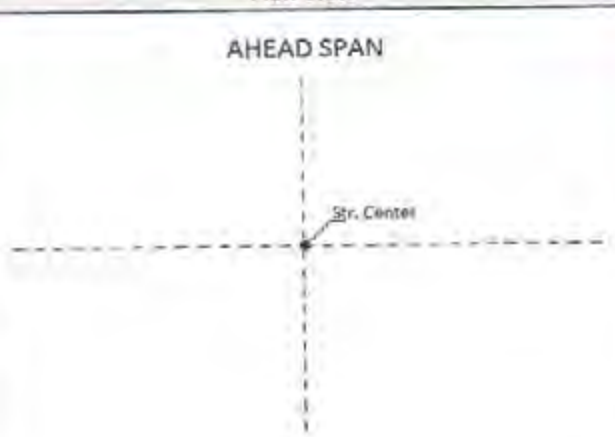
POWERLINE CONSTRUCTION

# Backfill and Compaction

| Project # | 4581 | Project Name | Eagle Gold 69 kV | Section # | |
|---|---|---|---|---|---|
| Structure # | 17/12 | Tower Type | Culvert | Date | Sept 2 2018 |

## Backfill and Compaction

| Check List | | Plan View |
|---|---|---|
| Backfill material | Gravel |   |
| 3H/1V Slope from foundation footprint to existing grade | Yes ☐ | |
| 6H/1V slope from center to the 4 sides of foundation footprint | Yes ☐ | |
| No ponding around piles | Yes ☐ | |
| No soil covers top of the piles and pile cap | Yes ☐ | |
| Compact in max. 300mm LIFTS | Yes ☑ | |
| Site Clean Up Complete | Yes ☐ | |

| Pile Projection (mm) | Leg 1 | Leg 2 | Leg 3 | Leg 4 |
|---|---|---|---|---|
| | | | | |

Notes: Setting depth is 27m
Culvert diameter is 650mm

Ground is permafrost
- Not identified as permafrost on data sheet

Backfilled with gravel from 17/12
Good stable permafrost

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR ANTTAC | | Sept 3/2018 |
| QC inspector | Phil McKinley | Phil McKinley | Sept 2 2018 |
| Client Inspector | | | |

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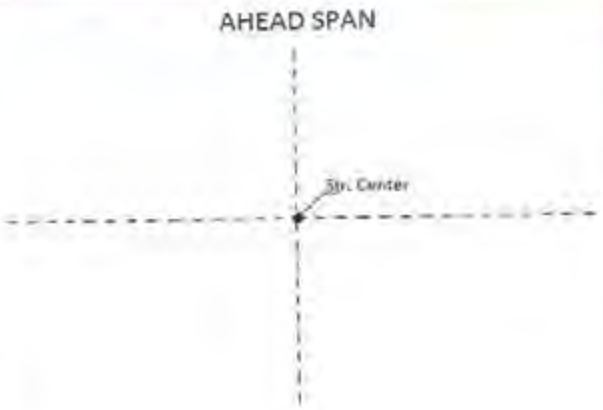
Powerline Construction

# Backfill and Compaction

| Project # | 4581 | Project Name | Eagle Gold 69 KV | Section # | |
|---|---|---|---|---|---|
| Structure # | 1811 | Tower Type | Culvert | Date | Sept 2 2018 |

## Backfill and Compaction

| Check List | | Plan View |
|---|---|---|
| Backfill material | Gravel |   |
| 3H/1V Slope from foundation footprint to existing grade | Yes ☐ | |
| 6H/1V slope from center to the 4 sides of foundation footprint | Yes ☐ | |
| No ponding around piles | Yes ☐ | |
| No soil covers top of the piles and pile cap | Yes ☐ | |
| Compact in max. 300mm LIFTS | Yes ☑ | |
| Site Clean Up Complete | Yes ☐ | |

| Pile Projection (mm) | Leg 1 | Leg 2 | Leg 3 | Leg 4 |
|---|---|---|---|---|
| | | | | |

Notes: Setting depth is 2.9m
Culvert diameter is 850 mm
Ground is permafrost
-Not identified as permafrost on data sheet

Backfilled with gravel from 17'12
Good stable permafrost

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR ANTAC | | Sep 3 / 2018 |
| QC inspector | Phil McKinley | Phil McKinley | Sept 2 2018 |
| Client Inspector | | | |

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# Backfill and Compaction

| Project # | 4581 | Project Name | Eagle Gold 69 kv | Section # | |
|---|---|---|---|---|---|
| Structure # | 18/2 | Tower Type | Culvert | Date | Sept 2 2018 |

## Backfill and Compaction

| Check List | | Plan View |
|---|---|---|
| Backfill material | Gravel |   |
| 3H/1V Slope from foundation footprint to existing grade | Yes ☐ | |
| 6H/1V slope from center to the 4 sides of foundation footprint | Yes ☐ | |
| No ponding around piles | Yes ☐ | |
| No soil covers top of the piles and pile cap | Yes ☐ | |
| Compact in max. 300mm LIFTS | Yes ☑ | |
| Site Clean Up Complete | Yes ☐ | |

| | Leg 1 | Leg 2 | Leg 3 | Leg 4 |
|---|---|---|---|---|
| Pile Projection (mm) | | | | |

**Notes:** Setting depth is 3.05 m
Culvert diameter is 750 mm
Ground is gravel

Backfilled with gravel from 17'/2
Good soil

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR AUSTAC | | Sept 3/2018 |
| QC inspector | Phil McKinley | Phil McKinley | Sept 2 2018 |
| Client Inspector | | | |

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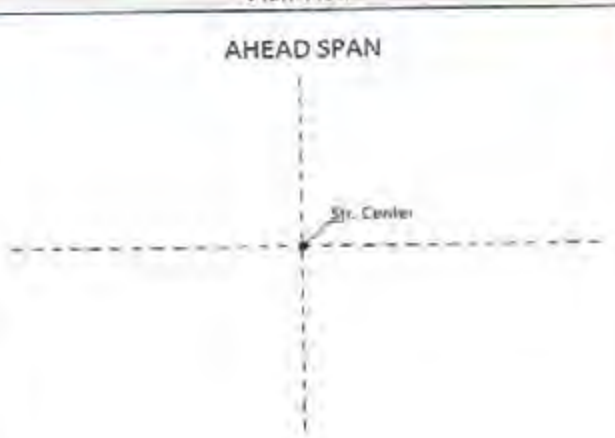
# Backfill and Compaction

| Project # | 4581 | Project Name | Eagle Gold 69kV | Section # | |
|---|---|---|---|---|---|
| Structure # | 1813 | Tower Type | Culvert | Date | Sept 2 2018 |

## Backfill and Compaction

| Check List | | Plan View |
|---|---|---|
| Backfill material | Gravel |   |
| 3H/1V Slope from foundation footprint to existing grade | Yes ☐ | |
| 6H/1V slope from center to the 4 sides of foundation footprint | Yes ☐ | |
| No ponding around piles | Yes ☐ | |
| No soil covers top of the piles and pile cap | Yes ☐ | |
| Compact in max. 300mm LIFTS | Yes ☑ | |
| Site Clean Up Complete | Yes ☐ | |

| | Leg 1 | Leg 2 | Leg 3 | Leg 4 |
|---|---|---|---|---|
| Pile Projection (mm) | | | | |

Notes: Setting depth is 2.9m
Culvert diameter is 650mm
Ground is permafrost
- Not identified as permafrost on data sheet

Backfilled with gravel from 17'12
Good stable penetrest

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR AUSTAD | | Sept 3/2018 |
| QC inspector | Phil McKinley | Phil McKinley | Sept 2 2018 |
| Client Inspector | | | |

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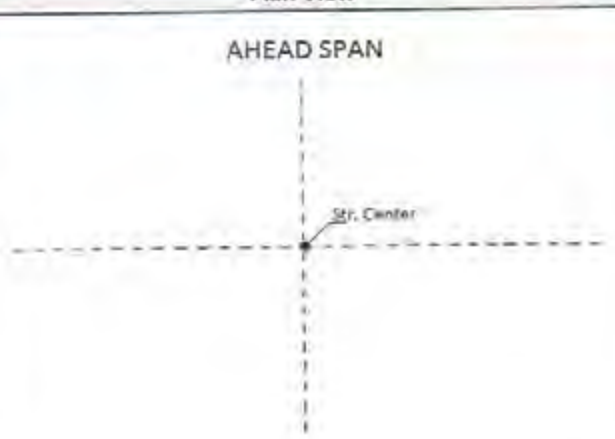
# Backfill and Compaction

| Project # | 4581 | Project Name | Eagle Gold 69kv | Section # | |
|---|---|---|---|---|---|
| Structure # | 18/4 | Tower Type | Culvert | Date | Sept 2 2018 |

## Backfill and Compaction

| Check List | | Plan View |
|---|---|---|
| Backfill material | Gravel |   |
| 3H/1V Slope from foundation footprint to existing grade | Yes ☐ | |
| 6H/1V slope from center to the 4 sides of foundation footprint | Yes ☐ | |
| No ponding around piles | Yes ☐ | |
| No soil covers top of the piles and pile cap | Yes ☐ | |
| Compact in max. 300mm LIFTS | Yes ☑ | |
| Site Clean Up Complete | Yes ☐ | |

| | Leg 1 | Leg 2 | Leg 3 | Leg 4 |
|---|---|---|---|---|
| Pile Projection (mm) | | | | |

**Notes:** Setting depth is 2.83m
Culvert diameter is 750mm
Ground is gravel

Back filled with gravel from 17'12
Good soil

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR ANTYPAS | | Sept 3/2018 |
| QC inspector | Phil McKinley | Phil McKinley | Sept 2 2018 |
| Client Inspector | | | |

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# Backfill and Compaction

| Project # | 4581 | Project Name | Eagle Gold 69 kV | Section # | |
|---|---|---|---|---|---|
| Structure # | 18/5 | Tower Type | Culvert | Date | Sept 2 2018 |

## Backfill and Compaction

| Check List | | Plan View |
|---|---|---|
| Backfill material | Gravel | AHEAD SPAN / Str. Center |
| 3H/1V Slope from foundation footprint to existing grade | Yes ☐ | |
| 6H/1V slope from center to the 4 sides of foundation footprint | Yes ☐ | |
| No ponding around piles | Yes ☐ | |
| No soil covers top of the piles and pile cap | Yes ☐ | |
| Compact in max. 300mm LIFTS | Yes ☑ | |
| Site Clean Up Complete | Yes ☐ | |

| Pile Projection (mm) | Leg 1 | Leg 2 | Leg 3 | Leg 4 |
|---|---|---|---|---|
| | | | | |

Notes: Setting depth is 2.8km
Culvert diameter is 650mm
Ground is Permafrost
- Not identified as permafrost on data sheet

Backfilled with gravel from 17'/2
Good stable permafrost

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR AWTAK | | Sept 3/2018 |
| QC inspector | Phil McKinley | Phil McKinley | Sept 2 2018 |
| Client Inspector | | | |

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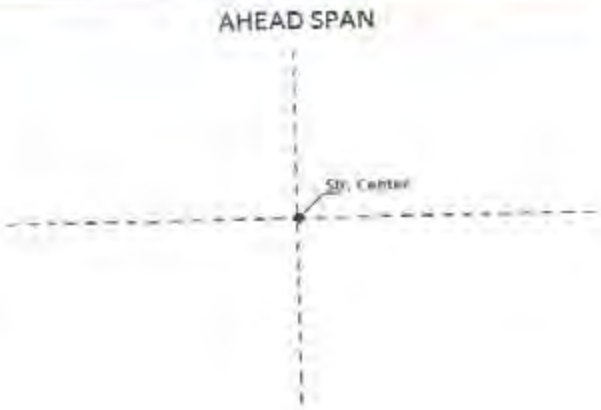
# Backfill and Compaction

| | | | | | |
|---|---|---|---|---|---|
| Project # | 4581 | Project Name | Eagle Gold 69 kV | Section # | |
| Structure # | 18/6 | Tower Type | Culvert | Date | Sept 2 2018 |

## Backfill and Compaction

| Check List | | Plan View |
|---|---|---|
| Backfill material | Gravel |   |
| 3H/1V Slope from foundation footprint to existing grade | Yes ☐ | |
| 6H/1V slope from center to the 4 sides of foundation footprint | Yes ☐ | |
| No ponding around piles | Yes ☐ | |
| No soil covers top of the piles and pile cap | Yes ☐ | |
| Compact in max. 300mm LIFTS | Yes ☑ | |
| Site Clean Up Complete | Yes ☐ | |

| | Leg 1 | Leg 2 | Leg 3 | Leg 4 |
|---|---|---|---|---|
| Pile Projection (mm) | | | | |

**Notes:** Setting depth is 2.98 m
Culvert diameter is 750 mm
Ground is gravel

Backfilled with gravel from 17 1/2
Good soil

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR ANTAL | | Sept 3/2018 |
| QC inspector | Phil McKinley | Phil McKinley | Sept 2 2018 |
| Client Inspector | | | |

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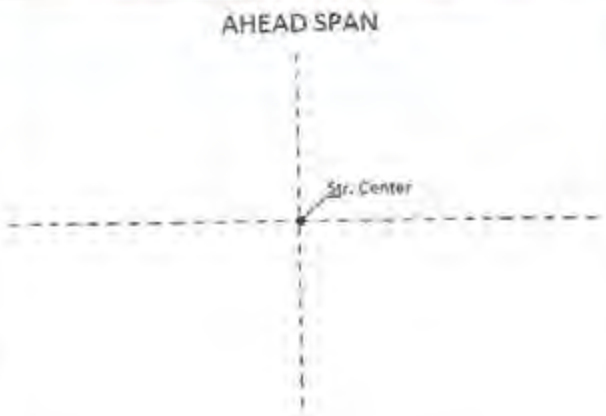
# Backfill and Compaction

| Project # | 4581 | Project Name | Eagle Gold 69 Kv | Section # | |
|---|---|---|---|---|---|
| Structure # | 187 | Tower Type | Culvert | Date | Sept 2 2018 |

## Backfill and Compaction

| Check List | | Plan View |
|---|---|---|
| Backfill material | Gravel |   |
| 3H/1V Slope from foundation footprint to existing grade | Yes ☐ | |
| 6H/1V slope from center to the 4 sides of foundation footprint | Yes ☐ | |
| No ponding around piles | Yes ☐ | |
| No soil covers top of the piles and pile cap | Yes ☐ | |
| Compact in max. 300mm LIFTS | Yes ☑ | |
| Site Clean Up Complete | Yes ☐ | |

| | Leg 1 | Leg 2 | Leg 3 | Leg 4 |
|---|---|---|---|---|
| Pile Projection (mm) | | | | |

Notes: Setting depth is 3.2m

Ground is Permafrost
- Not identified on data sheet as permafrost

Back filled with gravel from pit 17½

Culvert diameter is 850mm

Good stable permafrost

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR ANTIAL | | Sept 3/2018 |
| QC inspector | Phil McKinley | Phil McKinley | Sept 2 2018 |
| Client Inspector | | | |

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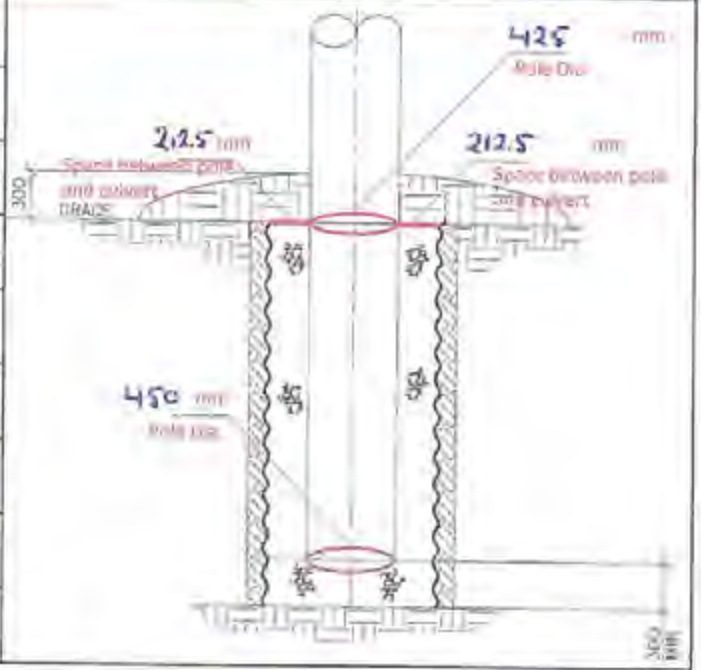
POWERLINE CONSTRUCTION

# Backfill and Compaction

| Project # | 4581 | Project Name | Eagle Gold 69 Kv | Facility # | |
|---|---|---|---|---|---|
| Structure # | 1/9 | Structure Type | VMA | Date | Oct 31 2018 |

## Backfill and Compaction

| Check List | | View |
|---|---|---|
| Ground Type (✓) Good Soil ( ) Weak Soil — Description (Wet, Rock, Permafrost etc.) | Gravel |  |
| Backfill material | Gravel | |
| 3H/1V Slope from foundation footprint to existing grade | Yes ☐ | |
| 6H/1V slope from center to the 4 sides of foundation footprint | Yes ☐ N/A ☐ | |
| No ponding around piles | Yes ☐ | |
| No soil covers top of the piles and pile cap | Yes ☐ | |
| Compaction method/Equipment | Hydraulic Tamper | |
| Compact in max. 300mm LIFTS | Yes ☑ | |
| Site Clean Up Complete | Yes ☐ | |
| Culvert Used (if weak soils encountered, use >800mm dia) | Yes ☑ No ☐ Diameter(mm): Approx 850 Length(mm): 3m | |



| Pile Projection (mm) | Leg 1 | Leg 2 | Leg 3 | Leg 4 |
|---|---|---|---|---|
| | | | | |

Notes:

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | Mike Swetland | | Nov 1/18 |
| Quality Representative | Phil McKinley | | Nov 1 2018 |
| Client Representative | | | |

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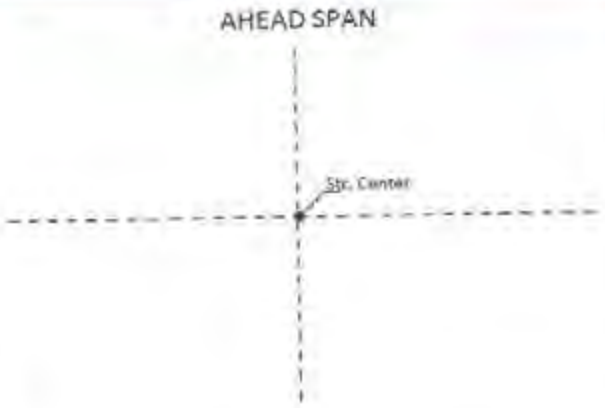
# Backfill and Compaction

| Project # | 4581 | Project Name | Eagle Gold 69 Kv | Section # | |
|---|---|---|---|---|---|
| Structure # | 21/10 | Tower Type | Culvert | Date | Aug 31 2018 |

## Backfill and Compaction

| Check List | | Plan View |
|---|---|---|
| Backfill material | Gravel |   |
| 3H/1V Slope from foundation footprint to existing grade | Yes ☐ | |
| 6H/1V slope from center to the 4 sides of foundation footprint | Yes ☐ | |
| No ponding around piles | Yes ☐ | |
| No soil covers top of the piles and pile cap | Yes ☐ | |
| Compact in max. 300mm LIFTS | Yes ☑ | |
| Site Clean Up Complete | Yes ☐ | |

| | Leg 1 | Leg 2 | Leg 3 | Leg 4 |
|---|---|---|---|---|
| Pile Projection (mm) | | | | |

Notes: Installed culvert 750mm
Ground condition was permafrost that was not identified as permafrost on data sheet

Backfilled with gravel from pit 17½
Settling depth is 2.9m
Good stable permafrost

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR ANDRE | | Aug 31 2018 |
| QC inspector | Phil McKinley | Phil McKinley | Aug 31 2018 |
| Client Inspector | | | |

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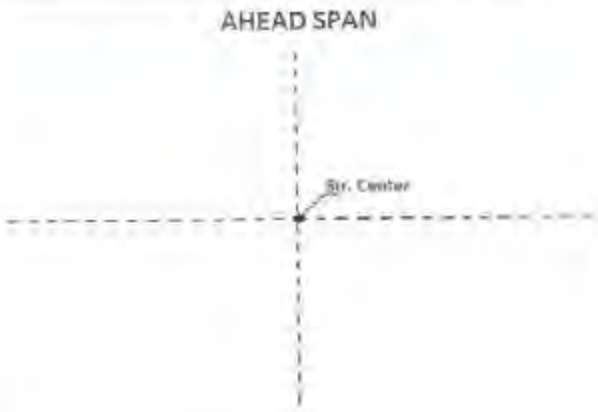
# Backfill and Compaction

| Project # | 4581 | Project Name | Eagle Gold 69kV | Section # | |
|---|---|---|---|---|---|
| Structure # | 21/11 | Tower Type | Culvert | Date | Aug 31 2018 |

## Backfill and Compaction

| Check List | | Plan View |
|---|---|---|
| Backfill material | Gravel |   |
| 3H/1V Slope from foundation footprint to existing grade | Yes ☐ | |
| 6H/1V slope from center to the 4 sides of foundation footprint | Yes ☐ | |
| No ponding around piles | Yes ☐ | |
| No soil covers top of the piles and pile cap | Yes ☐ | |
| Compact in max. 300mm LIFTS | Yes ☑ | |
| Site Clean Up Complete | Yes ☐ | |

| Pile Projection (mm) | Leg 1 | Leg 2 | Leg 3 | Leg 4 |
|---|---|---|---|---|
| | | | | |

Notes: Installed culvert 650mm

Ground conditions where gravel

Backfilled with gravel from Pit 17½

Setting depth is 2.74 m

Good soil

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR ANTAL | | Aug 31 2018 |
| QC inspector | Phil McKinley | Phil McKinley | Sept 1 2018 |
| Client Inspector | | | |

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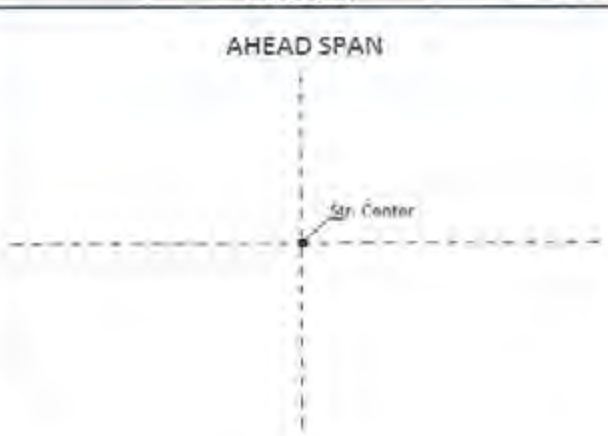
# Backfill and Compaction

| Project # | 4581 | Project Name | Eagle Gold 69 KV | Section # | |
|---|---|---|---|---|---|
| Structure # | 21/12 | Tower Type | Culvert | Date | Aug 31 2018 |

## Backfill and Compaction

| Check List | | Plan View |
|---|---|---|
| Backfill material | Gravel |  |
| 3H/1V Slope from foundation footprint to existing grade | Yes ☐ | |
| 6H/1V slope from center to the 4 sides of foundation footprint | Yes ☐ | |
| No ponding around piles | Yes ☐ | |
| No soil covers top of the piles and pile cap | Yes ☐ | |
| Compact in max. 300mm LIFTS | Yes ☐ | |
| Site Clean Up Complete | Yes ☐ | |



| Pile Projection (mm) | Leg 1 | Leg 2 | Leg 3 | Leg 4 |
|---|---|---|---|---|
| | | | | |

Notes: Installed culvert Setting depth is 2.74m
Ground condition is Permafrost
-Wasn't specified on data sheet as permafrost

Backfilled with gravel from 17½
culvert diameter 650 mm
Good stable permafrost

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR ANTAL | | Aug 31 2018 |
| QC inspector | Phil McKinley | Phil McKinley | Sept 1 2018 |
| Client Inspector | | | |

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POWERLINE CONSTRUCTION

# Backfill and Compaction

| Project # | 4581 | Project Name | Eagle Gold 69 KV | Section # | |
|---|---|---|---|---|---|
| Structure # | 21/13 | Tower Type | Culvert | Date | Aug 31 2018 |

## Backfill and Compaction

| Check List | | Plan View |
|---|---|---|
| Backfill material | Gravel | AHEAD SPAN |
| 3H/1V Slope from foundation footprint to existing grade | Yes ☐ | |
| 6H/1V slope from center to the 4 sides of foundation footprint | Yes ☐ | Str. Center |
| No ponding around piles | Yes ☐ | |
| No soil covers top of the piles and pile cap | Yes ☐ | |
| Compact in max. 300mm LIFTS | Yes ☑ | |
| Site Clean Up Complete | Yes ☐ | |

| Pile Projection (mm) | Leg 1 | Leg 2 | Leg 3 | Leg 4 |
|---|---|---|---|---|
| | | | | |

Notes: Installed culvert 650mm

Ground condition is Permafrost
- Wasn't specified on data sheet as permafrost

Backfilled with gravel from 17½

Setting depth is 2.9m

Good stable permafrost

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR ANDREA | | Aug 31 2018 |
| QC Inspector | Phil McKinley | Phil McKinley | Aug 31 2018 |
| Client Inspector | | | |

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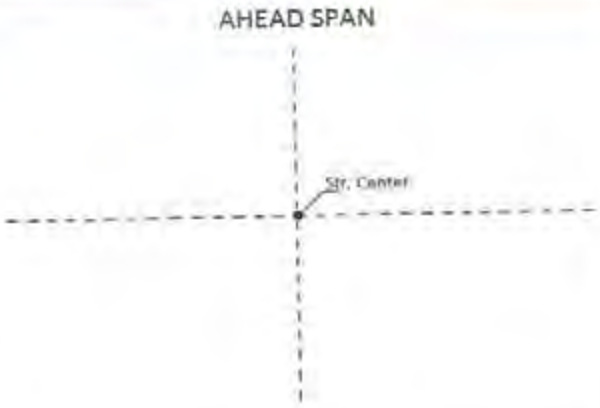
# Backfill and Compaction

| Project # | 4581 | Project Name | Eagle Gold 64 KV | Section # | |
|---|---|---|---|---|---|
| Structure # | 21/4 | Tower Type | Culvert | Date | Sept 1 2018 |

## Backfill and Compaction

| Check List | | Plan View |
|---|---|---|
| Backfill material | Gravel |   |
| 3H/1V Slope from foundation footprint to existing grade | Yes ☐ | |
| 6H/1V slope from center to the 4 sides of foundation footprint | Yes ☐ | |
| No ponding around piles | Yes ☐ | |
| No soil covers top of the piles and pile cap | Yes ☐ | |
| Compact in max. 300mm LIFTS | Yes ☐ | |
| Site Clean Up Complete | Yes ☐ | |

| | Leg 1 | Leg 2 | Leg 3 | Leg 4 |
|---|---|---|---|---|
| Pile Projection (mm) | | | | |

Notes: Setting depth is 2.74m
Ground is Permafrost
- Not specified as permafrost on data sheet
Backfilled with gravel from 17½ pit
Culvert diameter is 650 mm
Good stable permafrost

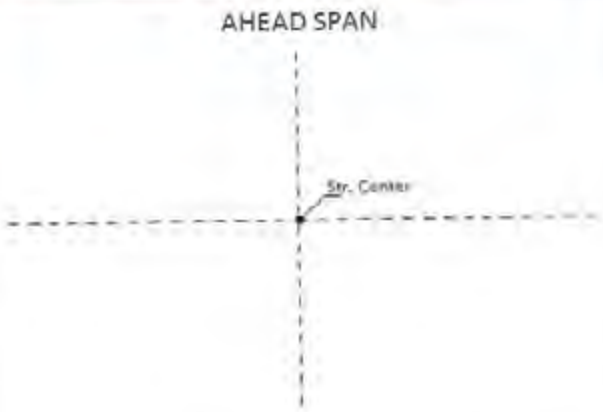
| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR ANTAL | | Sept 1 2018 |
| QC inspector | Phil McKinlay | Phil McKinlay | Sept 2 2018 |
| Client Inspector | | | |

Forbes Bros Ltd
POWERLINE CONSTRUCTION

# Backfill and Compaction

| Project # | 4581 | Project Name | Eagle Gold 69 KV | Section # | |
|---|---|---|---|---|---|
| Structure # | 21/5 | Tower Type | Culvert | Date | Sept 1 2018 |

## Backfill and Compaction

| Check List | | Plan View |
|---|---|---|
| Backfill material | Gravel |   |
| 3H/1V Slope from foundation footprint to existing grade | Yes ☐ | |
| 6H/1V slope from center to the 4 sides of foundation footprint | Yes ☐ | |
| No ponding around piles | Yes ☐ | |
| No soil covers top of the piles and pile cap | Yes ☐ | |
| Compact in max. 300mm LIFTS | Yes ☑ | |
| Site Clean Up Complete | Yes ☐ | |

| | Leg 1 | Leg 2 | Leg 3 | Leg 4 |
|---|---|---|---|---|
| Pile Projection (mm) | | | | |

Notes:

Ground is permafrost
Backfilled with gravel from 17 1/2 pit
Setting depth is 2.74 m
Culvert diameter is 850 mm
Good stable permafrost

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR ANTAL | | Sept 1 2018 |
| QC inspector | Phil McKinley | Phil McKinley | Sept 2 2018 |
| Client Inspector | | | |

Forbes Bros Ltd
POWERLINE CONSTRUCTION

# Backfill and Compaction

| Project # | 4581 | Project Name | Eagle Gold 69kV | Section # | |
|---|---|---|---|---|---|
| Structure # | 21/6 | Tower Type | Culvert | Date | Sept 1 2018 |

## Backfill and Compaction

| Check List | | Plan View |
|---|---|---|
| Backfill material | Gravel |  |
| 3H/1V Slope from foundation footprint to existing grade | Yes ☐ | |
| 6H/1V slope from center to the 4 sides of foundation footprint | Yes ☐ | |
| No ponding around piles | Yes ☐ | |
| No soil covers top of the piles and pile cap | Yes ☐ | |
| Compact in max. 300mm LIFTS | Yes ☑ | |
| Site Clean Up Complete | Yes ☐ | |



| | Leg 1 | Leg 2 | Leg 3 | Leg 4 |
|---|---|---|---|---|
| Pile Projection (mm) | | | | |

Notes: Setting depth is 2.74m
Ground is permafrost
Backfilled with gravel from 17½ pit
Culvert diameter is ~~Ø~~ 750mm
Good stable permafrost

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR ANTAL | | Sept 1 2018 |
| QC inspector | Phil McKinley | Phil McKinley | Sept 1 2018 |
| Client Inspector | | | |

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Powerline Construction

# Backfill and Compaction

| Project # | 4581 | Project Name | Eagle Gold 69 kV | Section # | |
|---|---|---|---|---|---|
| Structure # | 217 | Tower Type | Culvert | Date | Sept 1 2018 |

## Backfill and Compaction

| Check List | | Plan View |
|---|---|---|
| Backfill material | Gravel | AHEAD SPAN / Str. Center |
| 3H/1V Slope from foundation footprint to existing grade | Yes ☐ | |
| 6H/1V slope from center to the 4 sides of foundation footprint | Yes ☐ | |
| No ponding around piles | Yes ☐ | |
| No soil covers top of the piles and pile cap | Yes ☐ | |
| Compact in max. 300mm LIFTS | Yes ☑ | |
| Site Clean Up Complete | Yes ☐ | |

| | Leg 1 | Leg 2 | Leg 3 | Leg 4 |
|---|---|---|---|---|
| Pile Projection (mm) | | | | |

Notes: Setting depth is 2.74m
Ground is permafrost
Backfilled with gravel from 17½ pit
Culvert diameter is 750mm
Good stable permafrost

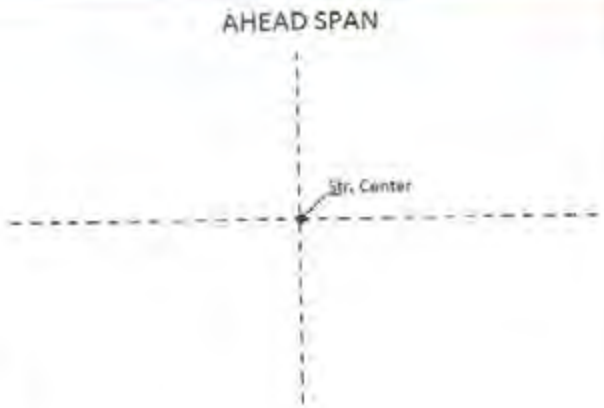
| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR ANTAL | | Sept 1 2018 |
| QC inspector | Phil McKinley | Phil McKinley | Sept 2 2018 |
| Client Inspector | | | |

Forbes Bros Ltd
POWERLINE CONSTRUCTION

# Backfill and Compaction

| Project # | 4581 | Project Name | Eagle Gold 69Kv | Section # | |
|---|---|---|---|---|---|
| Structure # | 218 | Tower Type | Culvert | Date | Sept 1 2018 |

## Backfill and Compaction

| Check List | | Plan View |
|---|---|---|
| Backfill material | Gravel |   |
| 3H/1V Slope from foundation footprint to existing grade | Yes ☐ | |
| 6H/1V slope from center to the 4 sides of foundation footprint | Yes ☐ | |
| No ponding around piles | Yes ☐ | |
| No soil covers top of the piles and pile cap | Yes ☐ | |
| Compact in max. 300mm LIFTS | Yes ☑ | |
| Site Clean Up Complete | Yes ☐ | |

| | Leg 1 | Leg 2 | Leg 3 | Leg 4 |
|---|---|---|---|---|
| Pile Projection (mm) | | | | |

Notes: Setting depth is 3.38 m
Ground is permafrost
Backfilled with gravel from 17½ pit
Culvert diameter is 850mm
Good stable permafrost

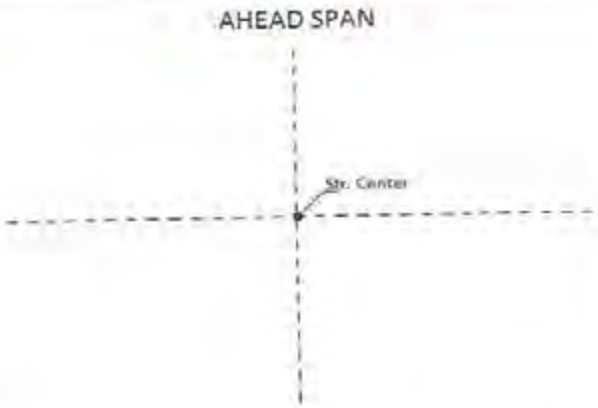
| | Name | Signature | Date |
|---|---|---|---|
| Foreman | Trevor Antal | | Sept 1 2018 |
| QC inspector | Phil McKinley | Phil McKinley | Sept 2 2018 |
| Client Inspector | | | |

Forbes Bros Ltd
POWERLINE CONSTRUCTION

# Backfill and Compaction

| Project # | 4581 | Project Name | Eagle Gold 69 KV | Section # | |
|---|---|---|---|---|---|
| Structure # | 21/9 | Tower Type | Culvert | Date | Sept 1 2018 |

## Backfill and Compaction

| Check List | | Plan View |
|---|---|---|
| Backfill material | Gravel |   |
| 3H/1V Slope from foundation footprint to existing grade | Yes ☐ | |
| 6H/1V slope from center to the 4 sides of foundation footprint | Yes ☐ | |
| No ponding around piles | Yes ☐ | |
| No soil covers top of the piles and pile cap | Yes ☐ | |
| Compact in max. 300mm LIFTS | Yes ☑ | |
| Site Clean Up Complete | Yes ☐ | |

| | Leg 1 | Leg 2 | Leg 3 | Leg 4 |
|---|---|---|---|---|
| Pile Projection (mm) | | | | |

Notes: Installed culvert 850 mm
Ground is permafrost
Backfilled with gravel from 17½ pit
Setting depth is 2.74m
Good stable permafrost

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR ANTAL | | Sept 1 2018 |
| QC inspector | Phil McKinley | Phil McKinley | Sept 1 2018 |
| Client Inspector | | | |

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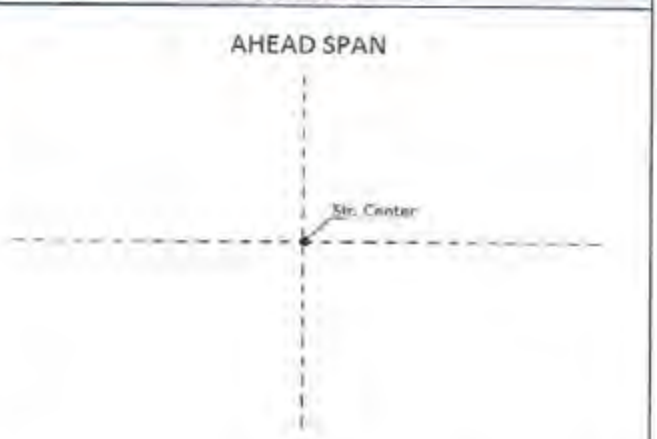
# Backfill and Compaction

| | | | | | |
|---|---|---|---|---|---|
| Project # | 4581 | Project Name | Eagle Gold 69 Kv | Section # | |
| Structure # | 22/1 (RP) | Tower Type | Culvert | Date | Sept 1 2018 |

## Backfill and Compaction

| Check List | | Plan View |
|---|---|---|
| Backfill material | Gravel |  |
| 3H/1V Slope from foundation footprint to existing grade | Yes ☐ | |
| 6H/1V slope from center to the 4 sides of foundation footprint | Yes ☐ | |
| No ponding around piles | Yes ☐ | |
| No soil covers top of the piles and pile cap | Yes ☐ | |
| Compact in max. 300mm LIFTS | Yes ☑ | |
| Site Clean Up Complete | Yes ☐ | |



| Pile Projection (mm) | Leg 1 | Leg 2 | Leg 3 | Leg 4 |
|---|---|---|---|---|
| | | | | |

Notes: Installed Culverts 750mm
Ground is permafrost for both poles
- Not specified on data sheet as permafrost
Backfilled with gravel from 17½ pit
Setting depth is 3.42m
Good stable permafrost

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR ANTAL | | Sept 1 2018 |
| QC inspector | Phil McKinley | Phil McKinley | Sept 1 2018 |
| Client Inspector | | | |

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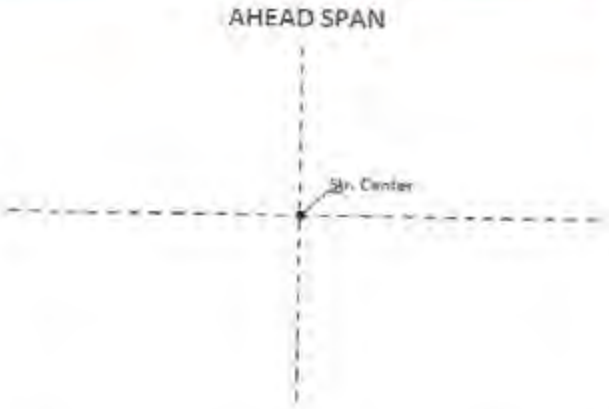
# Backfill and Compaction

| | | | | | |
|---|---|---|---|---|---|
| Project # | 4581 | Project Name | Eagle Gold 69 kV | Section # | |
| Structure # | 2011 (LP) | Tower Type | Culvert | Date | Sept 1 2018 |

## Backfill and Compaction

| Check List | | Plan View |
|---|---|---|
| Backfill material | Gravel |   |
| 3H/1V Slope from foundation footprint to existing grade | Yes ☐ | |
| 6H/1V slope from center to the 4 sides of foundation footprint | Yes ☐ | |
| No ponding around piles | Yes ☐ | |
| No soil covers top of the piles and pile cap | Yes ☐ | |
| Compact in max. 300mm LIFTS | Yes ☑ | |
| Site Clean Up Complete | Yes ☐ | |

| Pile Projection (mm) | Leg 1 | Leg 2 | Leg 3 | Leg 4 |
|---|---|---|---|---|
| | | | | |

Notes: Setting depth is 3.54m
Culvert diameter is 850mm
Ground is permafrost
- Not identified as permafrost on data sheet
Backfilled with gravel from 17½
Good Stable permafrost

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | | | |
| QC inspector | Phil McKinley | Phil McKinley | Sept 2 2018 |
| Client Inspector | | | |

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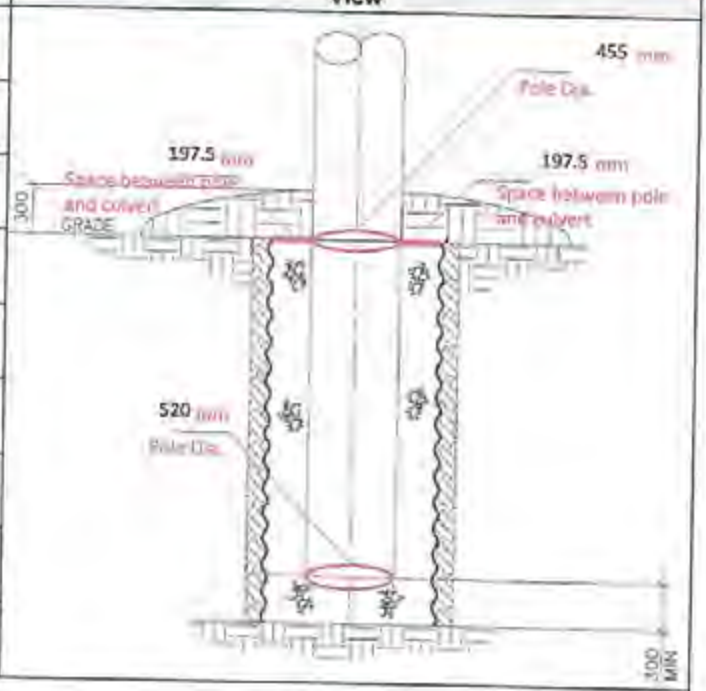
# Backfill and Compaction

| Project # | 4581 | Project Name | Eagle Gold 69 KV | Facility # | |
|---|---|---|---|---|---|
| Structure # | 22/2 RP | Structure Type | SAH | Date | Nov 24 2018 |

## Backfill and Compaction

| Check List | | View |
|---|---|---|
| Ground Type ○ Good Soil ◉ Weak Soil — Description (Wet, Rock, Permafrost etc.) | Wet |  |
| Backfill material | Gravel | |
| 3H/1V Slope from foundation footprint to existing grade | Yes ☐ | |
| 6H/1V slope from center to the 4 sides of foundation footprint | Yes ☐ N/A ☐ | |
| No ponding around piles | Yes ☐ | |
| No soil covers top of the piles and pile cap | Yes ☐ | |
| Compaction method/Equipment | Hydraulic Tamper | |
| Compact in max. 300mm LIFTS | Yes ☐ | |
| Site Clean Up Complete | Yes ☐ | |
| Culvert Used (if weak soils encountered, use >800mm dia) | Yes ☑ No ☐ Diameter(mm): 850 Length(mm): 3000 | |



| Pile Projection (mm) | Leg 1 | Leg 2 | Leg 3 | Leg 4 |
|---|---|---|---|---|
| | | | | |

Notes:

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR AWTAC | | Dec 2/18 |
| Quality Representative | Phil McKinley | Phil McKinley | Dec 1 2018 |
| Client Representative | | | |

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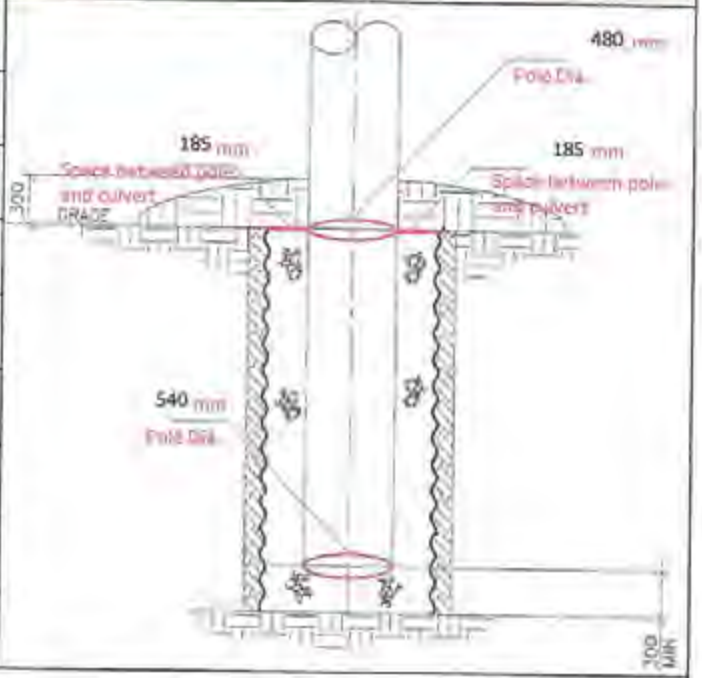
POWERLINE CONSTRUCTION

# Backfill and Compaction

| Project # | 4581 | Project Name | Eagle Gold 69 KV | Facility # | |
|---|---|---|---|---|---|
| Structure # | 22/2 LP | Structure Type | SAH | Date | Nov 24 2018 |

## Backfill and Compaction

| Check List | | View |
|---|---|---|
| Ground Type ○ Good Soil ◉ Weak Soil — Description (Wet, Rock, Permafrost etc.) | Wet |  |
| Backfill material | Gravel | |
| 3H/1V Slope from foundation footprint to existing grade | Yes ☐ | |
| 6H/1V slope from center to the 4 sides of foundation footprint | Yes ☐ N/A ☐ | |
| No ponding around piles | Yes ☐ | |
| No soil covers top of the piles and pile cap | Yes ☐ | |
| Compaction method/Equipment | Hydraulic Tamper | |
| Compact in max. 300mm LIFTS | Yes ☐ | |
| Site Clean Up Complete | Yes ☐ | |
| Culvert Used (if weak soils encountered, use >800mm dia) | Yes ☑ No ☐ Diameter(mm): 850 Length(mm): 3000 | |



| Pile Projection (mm) | Leg 1 | Leg 2 | Leg 3 | Leg 4 |
|---|---|---|---|---|
| | | | | |

Notes:

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR NUTTALL | | Dec 2/18 |
| Quality Representative | Phil McKinley | Phil McKinley | Dec 1 2018 |
| Client Representative | | | |

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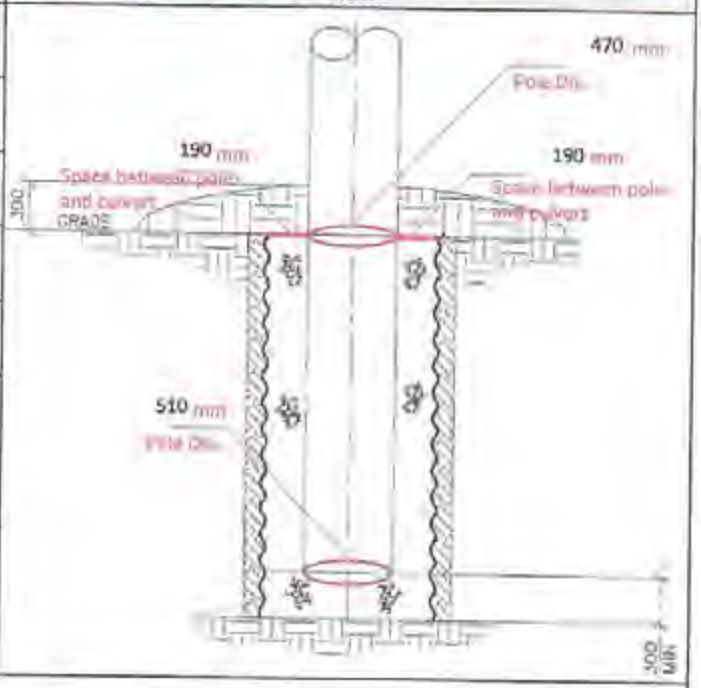
# Backfill and Compaction

| Project # | 4581 | Project Name | Eagle Gold 69 KV | Facility # | |
|---|---|---|---|---|---|
| Structure # | 22/3 RP | Structure Type | SAH | Date | Nov 24 2018 |

## Backfill and Compaction

| Check List | | View |
|---|---|---|
| Ground Type ○ Good Soil ◉ Weak Soil — Description (Wet, Rock, Permafrost etc.) | Wet |  |
| Backfill material | Gravel | |
| 3H/1V Slope from foundation footprint to existing grade | Yes ☐ | |
| 6H/1V slope from center to the 4 sides of foundation footprint | Yes ☐ N/A ☐ | |
| No ponding around piles | Yes ☐ | |
| No soil covers top of the piles and pile cap | Yes ☐ | |
| Compaction method/Equipment | Hydraulic Tamper | |
| Compact in max. 300mm LIFTS | Yes ☐ | |
| Site Clean Up Complete | Yes ☐ | |
| Culvert Used (if weak soils encountered, use >800mm dia) | Yes ☑ No ☐ Diameter(mm): 850 Length(mm): 3000 | |



| Pile Projection (mm) | Leg 1 | Leg 2 | Leg 3 | Leg 4 |
|---|---|---|---|---|
| | | | | |

Notes:

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR AWYE | | Dec 2/18 |
| Quality Representative | Phil McKinley | | Dec 1 2018 |
| Client Representative | | | |

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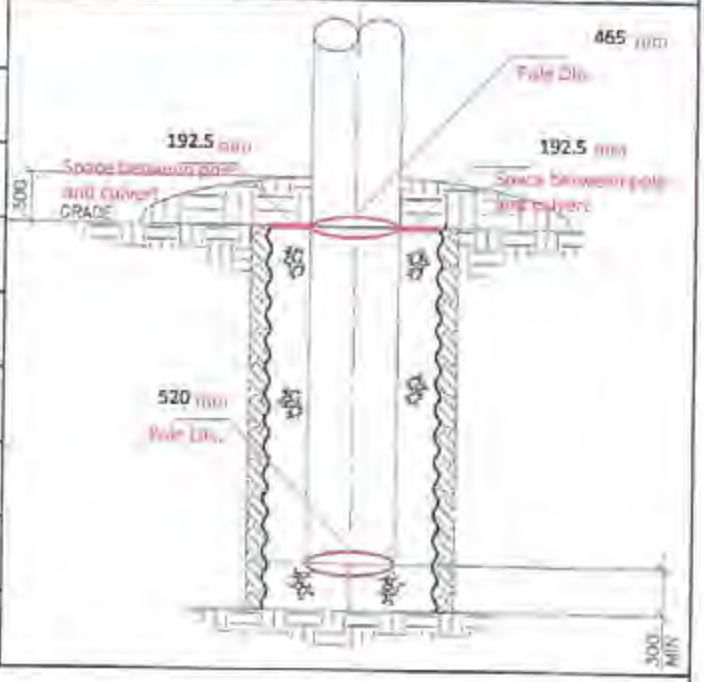
POWERLINE CONSTRUCTION

# Backfill and Compaction

| Project # | 4581 | Project Name | Eagle Gold 69 KV | Facility # | |
|---|---|---|---|---|---|
| Structure # | 22/3 LP | Structure Type | SAH | Date | Nov 24 2018 |

## Backfill and Compaction

| Check List | | View |
|---|---|---|
| Ground Type ○ Good Soil ◉ Weak Soil — Description (Wet, Rock, Permafrost etc.) | Wet |  |
| Backfill material | Gravel | |
| 3H/1V Slope from foundation footprint to existing grade | Yes ☐ | |
| 6H/1V slope from center to the 4 sides of foundation footprint | Yes ☐ N/A ☐ | |
| No ponding around piles | Yes ☐ | |
| No soil covers top of the piles and pile cap | Yes ☐ | |
| Compaction method/Equipment | Hydraulic Tamper | |
| Compact in max. 300mm LIFTS | Yes ☐ | |
| Site Clean Up Complete | Yes ☐ | |
| Culvert Used (if weak soils encountered, use >800mm dia) | Yes ☑ No ☐ Diameter(mm): 850 Length(mm): 3000 | |



| Pile Projection (mm) | Leg 1 | Leg 2 | Leg 3 | Leg 4 |
|---|---|---|---|---|
| | | | | |

Notes:

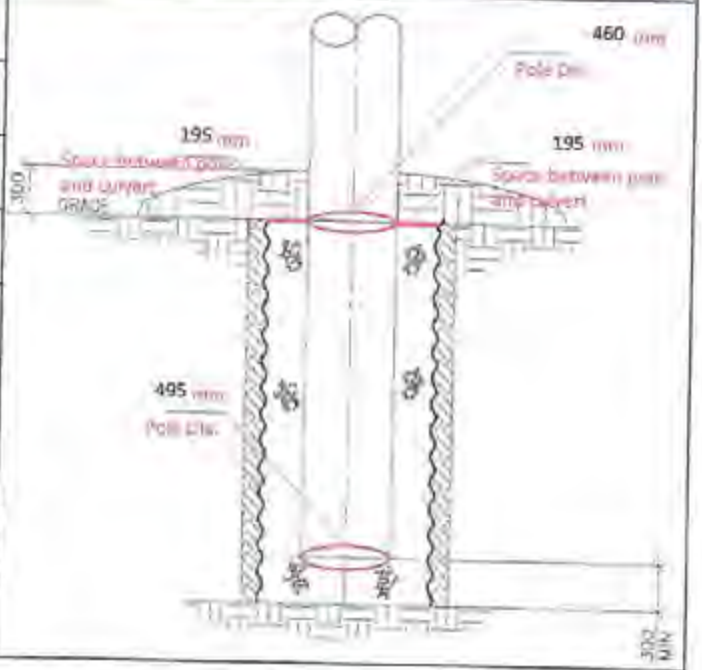
| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR AWTA | | Dec. 2/18 |
| Quality Representative | Phil McKinley | Phil McKinley | Dec 1 2018 |
| Client Representative | | | |

Forbes Bros Ltd
POWERLINE CONSTRUCTION

# Backfill and Compaction

| Project # | 4581 | Project Name | Eagle Gold 69 KV | Facility # | |
|---|---|---|---|---|---|
| Structure # | 22/4 LP | Structure Type | SAH | Date | Nov 27 2018 |

## Backfill and Compaction

| Check List | | View |
|---|---|---|
| Ground Type ○ Good Soil ◉ Weak Soil — Description (Wet, Rock, Permafrost etc.) | Wet |  |
| Backfill material | Gravel | |
| 3H/1V Slope from foundation footprint to existing grade | Yes ☐ | |
| 6H/1V slope from center to the 4 sides of foundation footprint | Yes ☐ N/A ☐ | |
| No ponding around piles | Yes ☐ | |
| No soil covers top of the piles and pile cap | Yes ☐ | |
| Compaction method/Equipment | Hydraulic Tamper | |
| Compact in max. 300mm LIFTS | Yes ☐ | |
| Site Clean Up Complete | Yes ☐ | |
| Culvert Used (if weak soils encountered, use >800mm dia) | Yes ☑ No ☐ Diameter(mm): 850 Length(mm): 3000 | |



| Pile Projection (mm) | Leg 1 | Leg 2 | Leg 3 | Leg 4 |
|---|---|---|---|---|
| | | | | |

Notes:

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR ARMITAGE | | DEC 1/2018 |
| Quality Representative | Phil McKinley | Phil McKinley | Nov 30 2018 |
| Client Representative | | | |

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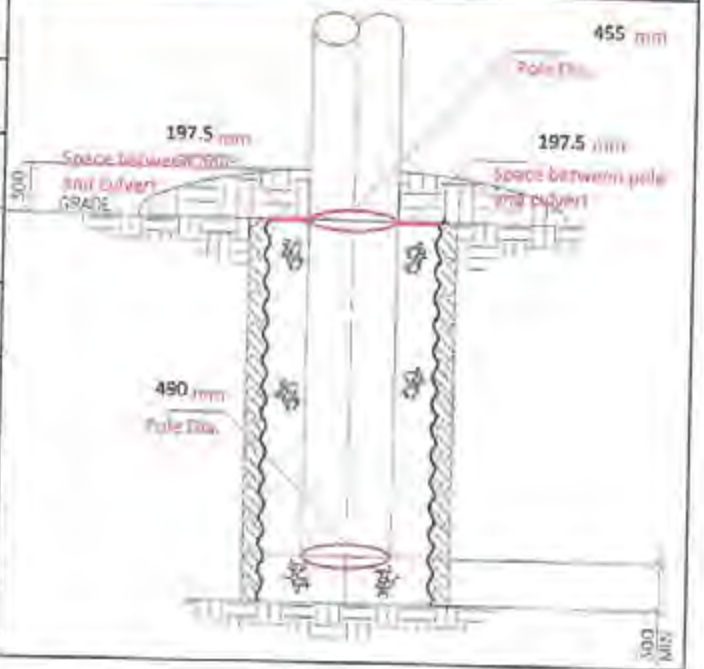
# Backfill and Compaction

| Project # | 4581 | Project Name | Eagle Gold 69 KV | Facility # | |
|---|---|---|---|---|---|
| Structure # | 22/4 RP | Structure Type | SAH | Date | Nov 27 2018 |

## Backfill and Compaction

| Check List | | View |
|---|---|---|
| Ground Type ○ Good Soil ◉ Weak Soil — Description (Wet, Rock, Permafrost etc.) | Wet |  |
| Backfill material | Gravel | |
| 3H/1V Slope from foundation footprint to existing grade | Yes ☐ | |
| 6H/1V slope from center to the 4 sides of foundation footprint | Yes ☐ N/A ☐ | |
| No ponding around piles | Yes ☐ | |
| No soil covers top of the piles and pile cap | Yes ☐ | |
| Compaction method/Equipment | Hydraulic Tamper | |
| Compact in max. 300mm LIFTS | Yes ☐ | |
| Site Clean Up Complete | Yes ☐ | |
| Culvert Used (if weak soils encountered, use >800mm dia) | Yes ☑ No ☐ Diameter(mm): 850 Length(mm): 3000 | |



| Pile Projection (mm) | Leg 1 | Leg 2 | Leg 3 | Leg 4 |
|---|---|---|---|---|
| | | | | |

Notes:

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR AWTAL | | Dec 1/18 |
| Quality Representative | Phil McKinley | | Nov 30 2018 |
| Client Representative | | | |

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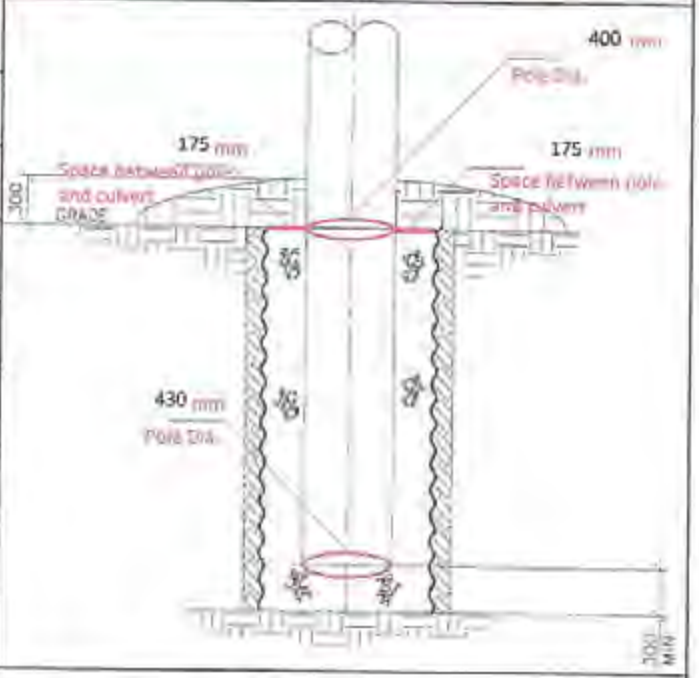
# Backfill and Compaction

| Project # | 4581 | Project Name | Eagle Gold 69 KV | Facility # | |
|---|---|---|---|---|---|
| Structure # | 22/5 | Structure Type | PT | Date | Nov 27 2018 |

## Backfill and Compaction

| Check List | | View |
|---|---|---|
| Ground Type (●) Good Soil ( ) Weak Soil — Description (Wet, Rock, Permafrost etc.) | Gravel |  |
| Backfill material | Gravel | |
| 3H/1V Slope from foundation footprint to existing grade | Yes ☐ | |
| 6H/1V slope from center to the 4 sides of foundation footprint | Yes ☐ N/A ☐ | |
| No ponding around piles | Yes ☐ | |
| No soil covers top of the piles and pile cap | Yes ☐ | |
| Compaction method/Equipment | Hydraulic Tamper | |
| Compact in max. 300mm LIFTS | Yes ☐ | |
| Site Clean Up Complete | Yes ☐ | |
| Culvert Used (if weak soils encountered, use >800mm dia) | Yes ☑ No ☐ Diameter(mm): 750 Length(mm): 3000 | |



| Pile Projection (mm) | Leg 1 | Leg 2 | Leg 3 | Leg 4 |
|---|---|---|---|---|
| | | | | |

Notes:

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR ANTTAC | | Dec 4/18 |
| Quality Representative | Phil McKinley | Phil McKinley | Dec 3 2018 |
| Client Representative | | | |

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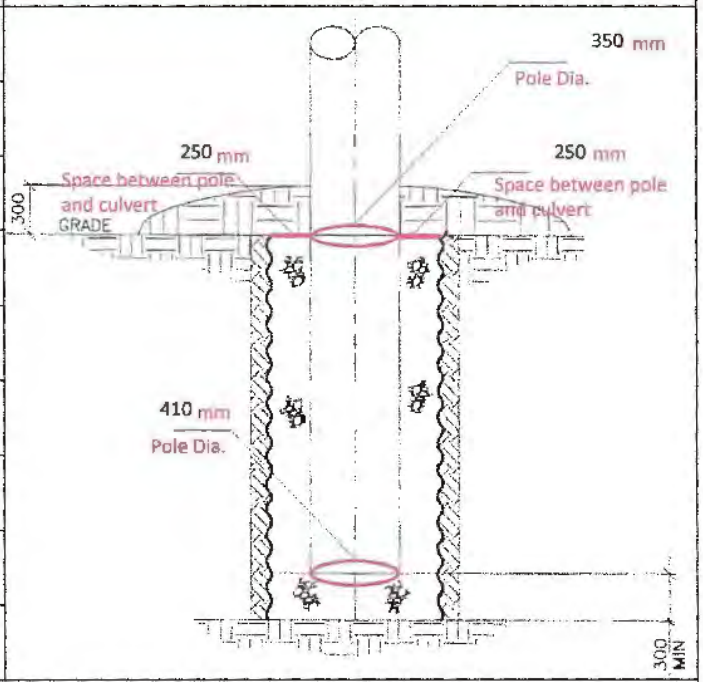
# Backfill and Compaction

| Project # | 4581 | Project Name | Eagle Gold 69 KV | Facility # | |
|---|---|---|---|---|---|
| Structure # | 22/6 | Structure Type | PT | Date | Nov 27 2018 |

## Backfill and Compaction

| Check List | | View |
|---|---|---|
| Ground Type (◉ Good Soil ○ Weak Soil) Description (Wet, Rock, Permafrost etc.) | Gravel |  |
| Backfill material | Gravel | |
| 3H/1V Slope from foundation footprint to existing grade | Yes ☐ | |
| 6H/1V slope from center to the 4 sides of foundation footprint | Yes ☐ N/A ☐ | |
| No ponding around piles | Yes ☐ | |
| No soil covers top of the piles and pile cap | Yes ☐ | |
| Compaction method/Equipment | Hydraulic Tamper | |
| Compact in max. 300mm LIFTS | Yes ☐ | |
| Site Clean Up Complete | Yes ☐ | |



| | | | |
|---|---|---|---|
| Culvert Used (if weak soils encountered, use >800mm dia) | Yes ☐ No ☐ | Diameter(mm): 850 | Length(mm): 3000 |

| Pile Projection (mm) | Leg 1 | Leg 2 | Leg 3 | Leg 4 |
|---|---|---|---|---|
| | | | | |

Notes:

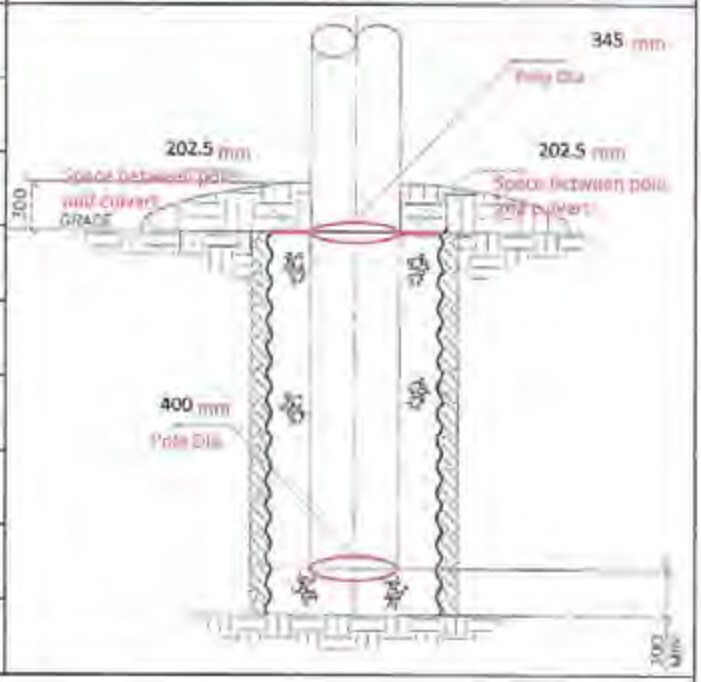
| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR ANTAC | | Dec 2/18 |
| Quality Representative | Phil McKinley | PJ McKinley | Dec 1 2018 |
| Client Representative | | | |

Forbes Bros ltd
Powerline Construction

# Backfill and Compaction

| Project # | 4581 | Project Name | Eagle Gold 69 KV | Facility # | |
|---|---|---|---|---|---|
| Structure # | 22/7 | Structure Type | PT | Date | Nov 27 2018 |

## Backfill and Compaction

| Check List | | View |
|---|---|---|
| Ground Type (●) Good Soil ( ) Weak Soil — Description (Wet, Rock, Permafrost etc.) | Gravel |  |
| Backfill material | Gravel | |
| 3H/1V Slope from foundation footprint to existing grade | Yes ☐ | |
| 6H/1V slope from center to the 4 sides of foundation footprint | Yes ☐ N/A ☐ | |
| No ponding around piles | Yes ☐ | |
| No soil covers top of the piles and pile cap | Yes ☐ | |
| Compaction method/Equipment | Hydraulic Tamper | |
| Compact in max. 300mm LIFTS | Yes ☐ | |
| Site Clean Up Complete | Yes ☐ | |



| Culvert Used (if weak soils encountered, use >800mm dia) | Yes ☑ No ☐ | Diameter(mm): 750 | Length(mm): 3000 |
|---|---|---|---|

| Pile Projection (mm) | Leg 1 | Leg 2 | Leg 3 | Leg 4 |
|---|---|---|---|---|
| | | | | |

Notes:

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR AWTAK | | Dec 1/18 |
| Quality Representative | Phil McKinley | Phil McKinley | Nov 30 2018 |
| Client Representative | | | |

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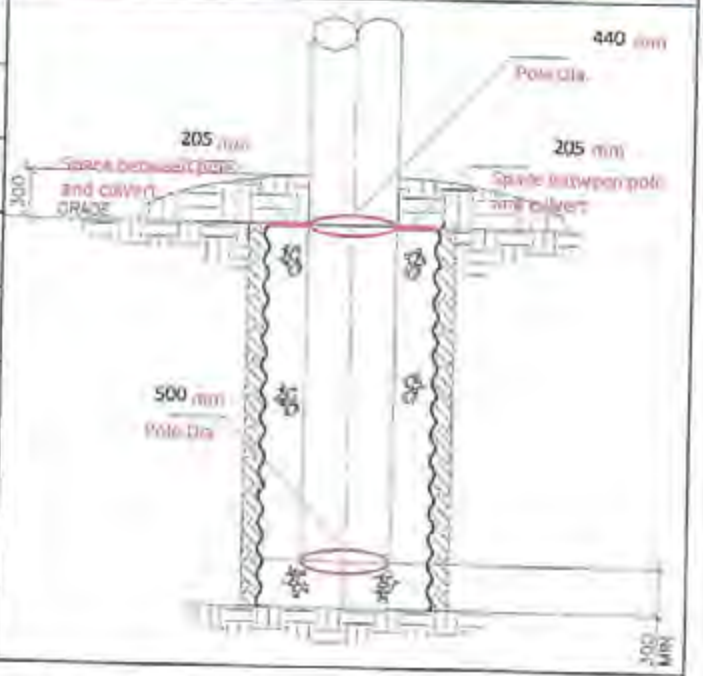
# Backfill and Compaction

| Project # | 4581 | Project Name | Eagle Gold 69 KV | Facility # | |
|---|---|---|---|---|---|
| Structure # | 22-8 | Structure Type | FDE | Date | Nov 27 2018 |

## Backfill and Compaction

| Check List | | View |
|---|---|---|
| Ground Type (◉ Good Soil ○ Weak Soil) Description (Wet, Rock, Permafrost etc.) | Gravel |  |
| Backfill material | Gravel | |
| 3H/1V Slope from foundation footprint to existing grade | Yes ☐ | |
| 6H/1V slope from center to the 4 sides of foundation footprint | Yes ☐ N/A ☐ | |
| No ponding around piles | Yes ☐ | |
| No soil covers top of the piles and pile cap | Yes ☐ | |
| Compaction method/Equipment | Hydraulic Tamper | |
| Compact in max. 300mm LIFTS | Yes ☐ | |
| Site Clean Up Complete | Yes ☐ | |
| Culvert Used (if weak soils encountered, use >800mm dia) | Yes ☑ No ☐ Diameter(mm): 850 Length(mm): 3000 | |



| Pile Projection (mm) | Leg 1 | Leg 2 | Leg 3 | Leg 4 |
|---|---|---|---|---|
| | | | | |

Notes:

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR ANTAC | | Dec 3/18 |
| Quality Representative | Phil McKinley | Phil McKinley | Dec 2 2018 |
| Client Representative | | | |

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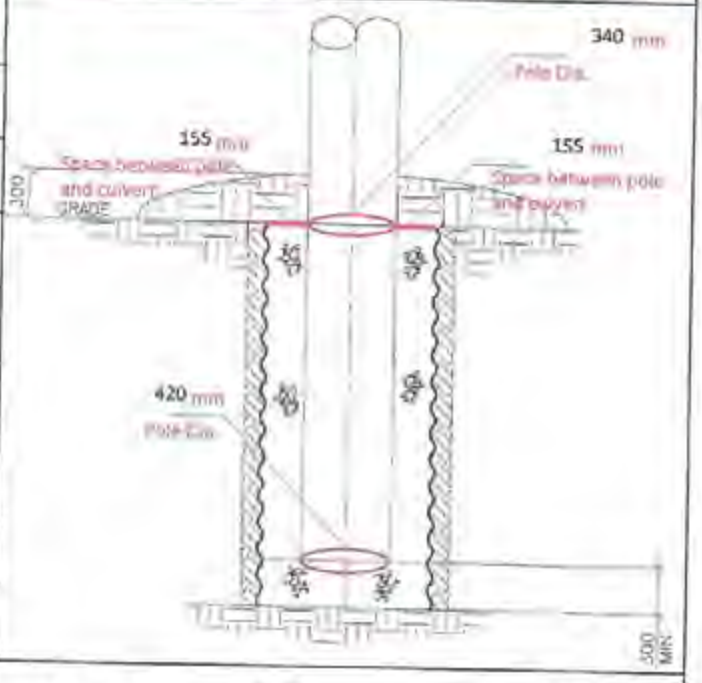
# Backfill and Compaction

| Project # | 4581 | Project Name | Eagle Gold 69 KV | Facility # | |
|---|---|---|---|---|---|
| Structure # | 22/9 | Structure Type | PT | Date | Nov 27 2018 |

## Backfill and Compaction

| Check List | | View |
|---|---|---|
| Ground Type (●) Good Soil ( ) Weak Soil — Description (Wet, Rock, Permafrost etc.) | Gravel |  |
| Backfill material | Gravel | |
| 3H/1V Slope from foundation footprint to existing grade | Yes ☐ | |
| 6H/1V slope from center to the 4 sides of foundation footprint | Yes ☐ N/A ☐ | |
| No ponding around piles | Yes ☐ | |
| No soil covers top of the piles and pile cap | Yes ☐ | |
| Compaction method/Equipment | Hydraulic Tamper | |
| Compact in max. 300mm LIFTS | Yes ☐ | |
| Site Clean Up Complete | Yes ☐ | |
| Culvert Used (if weak soils encountered, use >800mm dia) | Yes ☑ No ☐ Diameter(mm): 650 Length(mm): 3000 | |



| Pile Projection (mm) | Leg 1 | Leg 2 | Leg 3 | Leg 4 |
|---|---|---|---|---|
| | | | | |

Notes:

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR ANTOFF | | Dec 1/18 |
| Quality Representative | Phil McKinley | Phil McKinley | Dec 1 2018 |
| Client Representative | | | |

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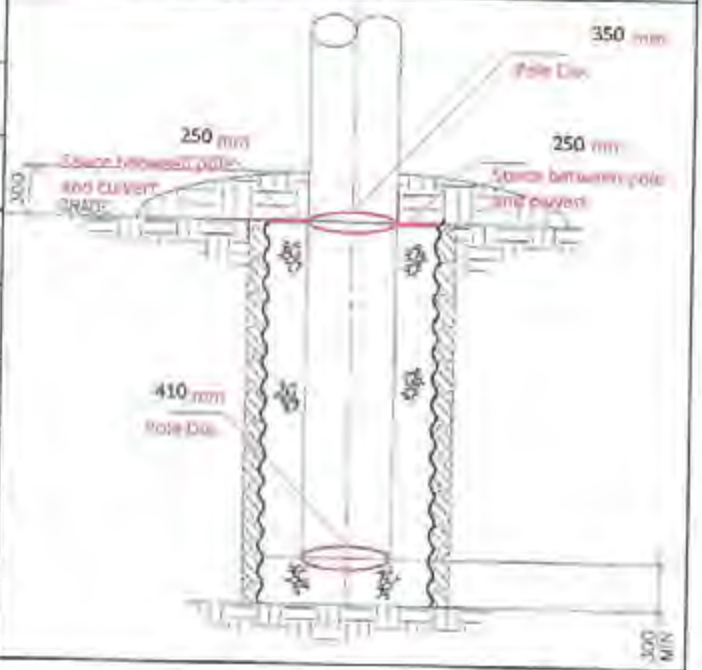
# Backfill and Compaction

| Project # | 4581 | Project Name | Eagle Gold 69 KV | Facility # | |
|---|---|---|---|---|---|
| Structure # | 23/1 | Structure Type | PT | Date | Nov 27 2018 |

## Backfill and Compaction

| Check List | | View |
|---|---|---|
| Ground Type (●) Good Soil ( ) Weak Soil — Description (Wet, Rock, Permafrost etc.) | Gravel |  |
| Backfill material | Gravel | |
| 3H/1V Slope from foundation footprint to existing grade | Yes ☐ | |
| 6H/1V slope from center to the 4 sides of foundation footprint | Yes ☐ N/A ☐ | |
| No ponding around piles | Yes ☐ | |
| No soil covers top of the piles and pile cap | Yes ☐ | |
| Compaction method/Equipment | Hydraulic Tamper | |
| Compact in max. 300mm LIFTS | Yes ☐ | |
| Site Clean Up Complete | Yes ☐ | |
| Culvert Used (if weak soils encountered, use >800mm dia) | Yes ☑ No ☐ Diameter(mm): 850 Length(mm): 3000 | |



| Pile Projection (mm) | Leg 1 | Leg 2 | Leg 3 | Leg 4 |
|---|---|---|---|---|
| | | | | |

Notes:

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR ANTAL | | Dec 2/18 |
| Quality Representative | Phil McKinley | Phil McKinley | Dec 1 2018 |
| Client Representative | | | |

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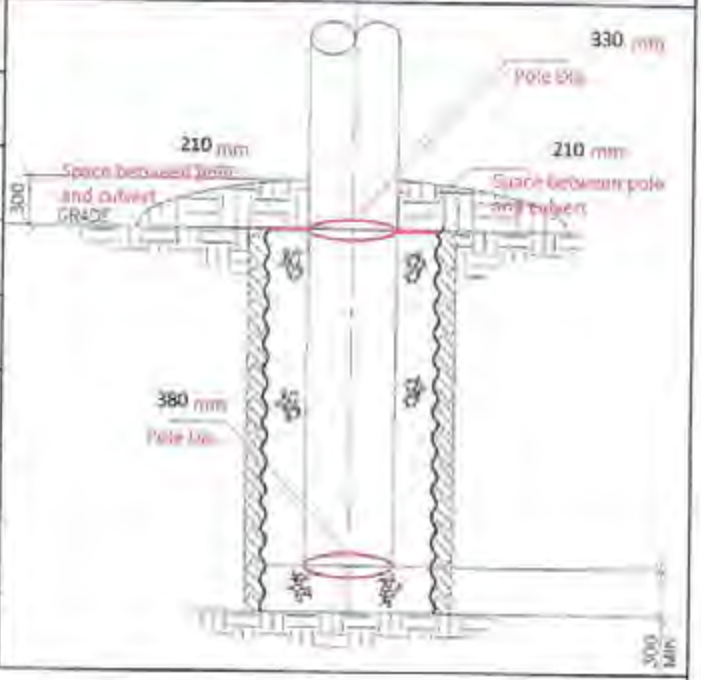
# Backfill and Compaction

| Project # | 4581 | Project Name | Eagle Gold 69 KV | Facility # | |
|---|---|---|---|---|---|
| Structure # | 23/2 | Structure Type | PT | Date | Nov 27 2018 |

## Backfill and Compaction

| Check List | | View |
|---|---|---|
| Ground Type (◉ Good Soil ○ Weak Soil) Description (Wet, Rock, Permafrost etc.) | Gravel |  |
| Backfill material | Gravel | |
| 3H/1V Slope from foundation footprint to existing grade | Yes ☐ | |
| 6H/1V slope from center to the 4 sides of foundation footprint | Yes ☐ N/A ☐ | |
| No ponding around piles | Yes ☐ | |
| No soil covers top of the piles and pile cap | Yes ☐ | |
| Compaction method/Equipment | Hydraulic Tamper | |
| Compact in max. 300mm LIFTS | Yes ☐ | |
| Site Clean Up Complete | Yes ☐ | |
| Culvert Used (if weak soils encountered, use >800mm dia) | Yes ☑ No ☐ Diameter(mm): 750 Length(mm): 3000 | |



| Pile Projection (mm) | Leg 1 | Leg 2 | Leg 3 | Leg 4 |
|---|---|---|---|---|
| | | | | |

Notes:

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TRAVIS ANTAL | | Dec 2/18 |
| Quality Representative | Phil McKinley | Phil McKinley | Dec 1 2018 |
| Client Representative | | | |

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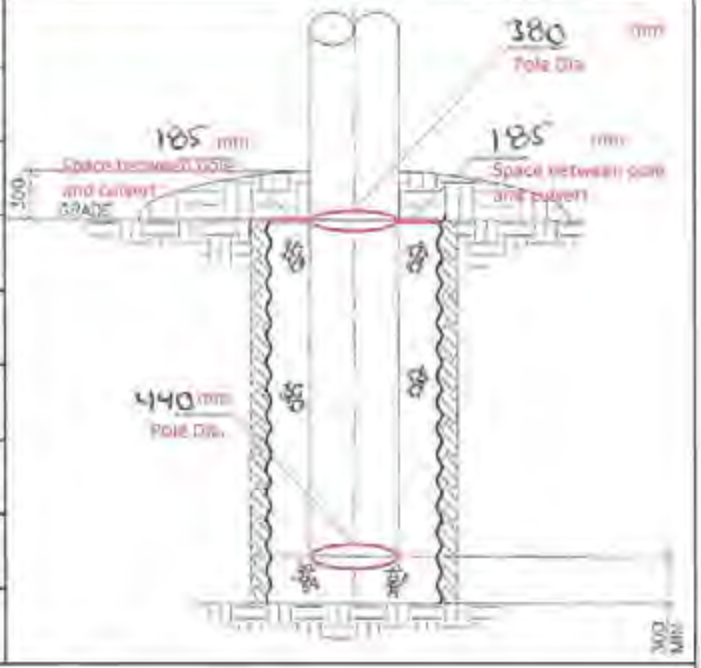
# Backfill and Compaction

| Project # | 4581 | Project Name | Eagle Gold 69kV | Facility # | |
|---|---|---|---|---|---|
| Structure # | 3/11 | Structure Type | VMA | Date | Oct 18 2018 |

## Backfill and Compaction

| Check List | | View |
|---|---|---|
| Ground Type (☑ Good Soil ☐ Weak Soil) Description (Wet, Rock, Permafrost etc.) | Gravel |  |
| Backfill material | Gravel | |
| 3H/1V Slope from foundation footprint to existing grade | Yes ☐ | |
| 6H/1V slope from center to the 4 sides of foundation footprint | Yes ☐ N/A ☐ | |
| No ponding around piles | Yes ☐ | |
| No soil covers top of the piles and pile cap | Yes ☐ | |
| Compaction method/Equipment | Hydraulic Tamper | |
| Compact in max. 300mm LIFTS | Yes ☐ | |
| Site Clean Up Complete | Yes ☐ | |
| Culvert Used (if weak soils encountered, use >800mm dia) | Yes ☑ No ☐ Diameter(mm): 750 Length(mm): 3000 | |



| Pile Projection (mm) | Leg 1 | Leg 2 | Leg 3 | Leg 4 |
|---|---|---|---|---|
| | | | | |

Notes:

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR AWIPAK | | OCT 19 2018 |
| Quality Representative | Phil McKinley | Phil McKinley | Oct 18 2018 |
| Client Representative | | | |

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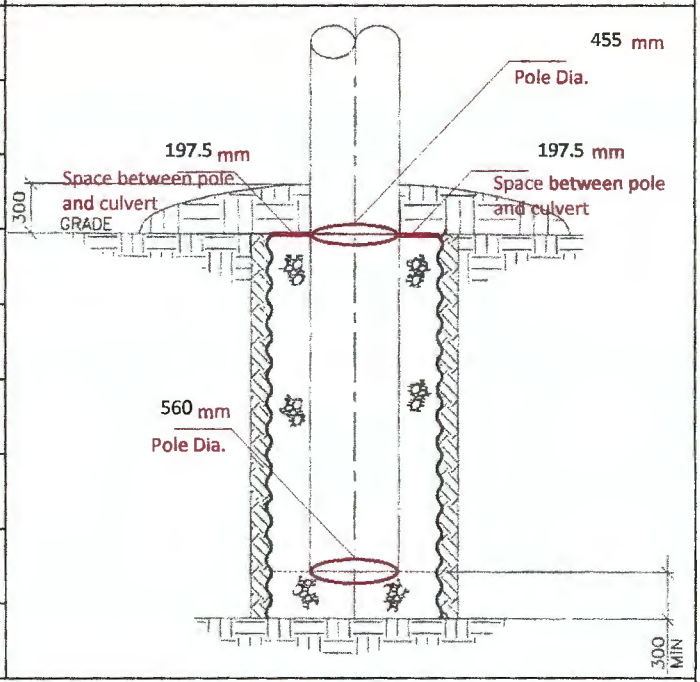
# Backfill and Compaction

| Project # | 4581 | Project Name | Eagle Gold 69 KV | Facility # | |
|---|---|---|---|---|---|
| Structure # | 31/10 LP | Structure Type | SAH | Date | Dec 13 2018 |

## Backfill and Compaction

| Check List | | View |
|---|---|---|
| Ground Type (◉ Good Soil / ○ Weak Soil) Description (Wet, Rock, Permafrost etc.) | Gravel |  |
| Backfill material | Gravel | |
| 3H/1V Slope from foundation footprint to existing grade | Yes ☐ | |
| 6H/1V slope from center to the 4 sides of foundation footprint | Yes ☐ N/A ☐ | |
| No ponding around piles | Yes ☐ | |
| No soil covers top of the piles and pile cap | Yes ☐ | |
| Compaction method/Equipment | Hydraulic Tamper | |
| Compact in max. 300mm LIFTS | Yes ☐ | |
| Site Clean Up Complete | Yes ☐ | |



| | | | |
|---|---|---|---|
| Culvert Used (if weak soils encountered, use >800mm dia) | Yes ☑ No ☐ | Diameter(mm): 850 | Length(mm): 3000 |

| Pile Projection (mm) | Leg 1 | Leg 2 | Leg 3 | Leg 4 |
|---|---|---|---|---|
| | | | | |

Notes:

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR ANTAL | | Dec 15/18 |
| Quality Representative | Phil McKinley | Phil McKinley | Dec 14 2018 |
| Client Representative | | | |

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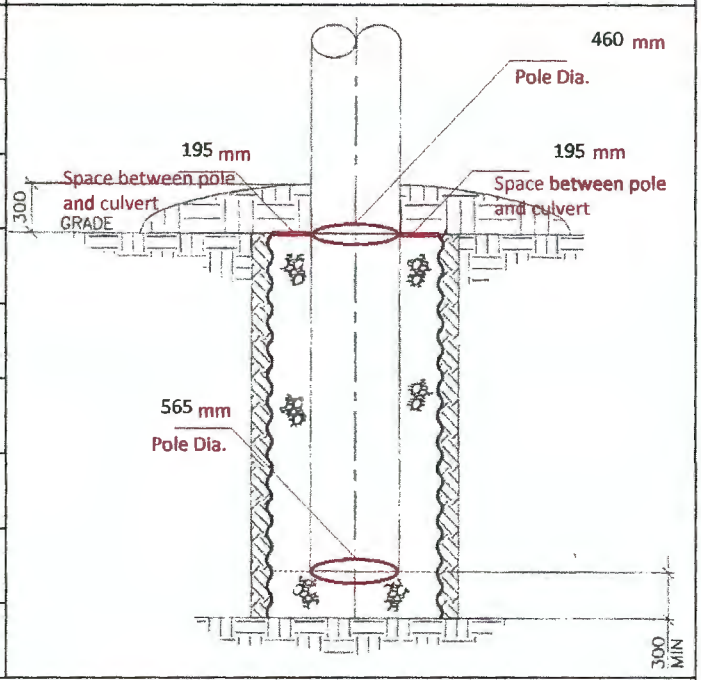
# Backfill and Compaction

| Project # | 4581 | Project Name | Eagle Gold 69 KV | Facility # | |
|---|---|---|---|---|---|
| Structure # | 31/10 RP | Structure Type | SAH | Date | Dec 13 2018 |

## Backfill and Compaction

| Check List | | View |
|---|---|---|
| Ground Type (◉ Good Soil / ○ Weak Soil) Description (Wet, Rock, Permafrost etc.) | Gravel |  |
| Backfill material | Gravel | |
| 3H/1V Slope from foundation footprint to existing grade | Yes ☐ | |
| 6H/1V slope from center to the 4 sides of foundation footprint | Yes ☐ N/A ☐ | |
| No ponding around piles | Yes ☐ | |
| No soil covers top of the piles and pile cap | Yes ☐ | |
| Compaction method/Equipment | Hydraulic Tamper | |
| Compact in max. 300mm LIFTS | Yes ☐ | |
| Site Clean Up Complete | Yes ☐ | |



| Culvert Used (if weak soils encountered, use >800mm dia) | Yes ☑ No ☐ | Diameter(mm): 850 | Length(mm): 3000 |
|---|---|---|---|

| Pile Projection (mm) | Leg 1 | Leg 2 | Leg 3 | Leg 4 |
|---|---|---|---|---|
| | | | | |

Notes:

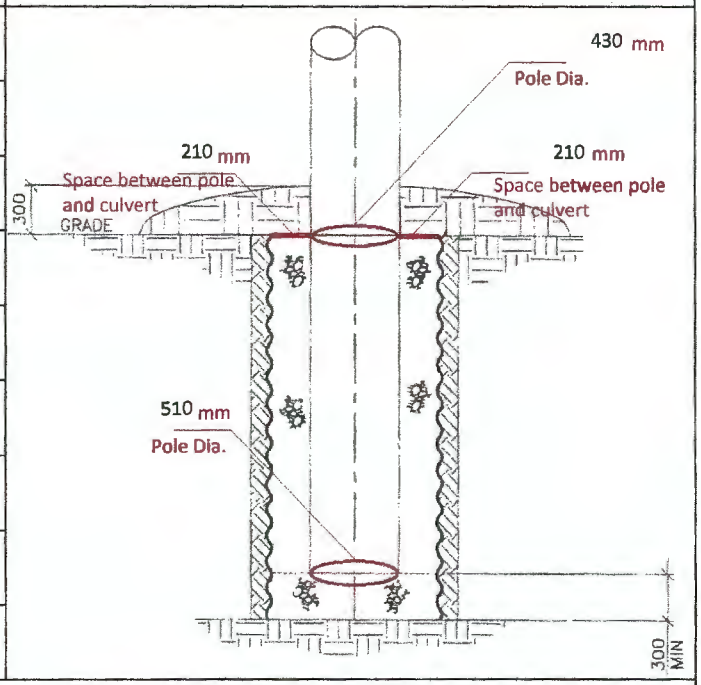
| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR ANTAC | | Dec 15/18 |
| Quality Representative | Phil McKinley | Phil McKinley | Dec 14 2018 |
| Client Representative | | | |

Forbes Bros LTD
POWERLINE CONSTRUCTION

# Backfill and Compaction

| Project # | 4581 | Project Name | Eagle Gold 69 KV | Facility # | |
|---|---|---|---|---|---|
| Structure # | 31/8 LP | Structure Type | SAH | Date | Dec 12 2018 |

## Backfill and Compaction

| Check List | | View |
|---|---|---|
| Ground Type (◉ Good Soil ○ Weak Soil) Description (Wet, Rock, Permafrost etc.) | Gravel |  |
| Backfill material | Gravel | |
| 3H/1V Slope from foundation footprint to existing grade | Yes ☐ | |
| 6H/1V slope from center to the 4 sides of foundation footprint | Yes ☐ N/A ☐ | |
| No ponding around piles | Yes ☐ | |
| No soil covers top of the piles and pile cap | Yes ☐ | |
| Compaction method/Equipment | Hydraulic Tamper | |
| Compact in max. 300mm LIFTS | Yes ☐ | |
| Site Clean Up Complete | Yes ☐ | |
| Culvert Used (if weak soils encountered, use >800mm dia) | Yes ☑ No ☐ | Diameter(mm): 850 Length(mm): 3000 |



| Pile Projection (mm) | Leg 1 | Leg 2 | Leg 3 | Leg 4 |
|---|---|---|---|---|
| | | | | |

Notes:

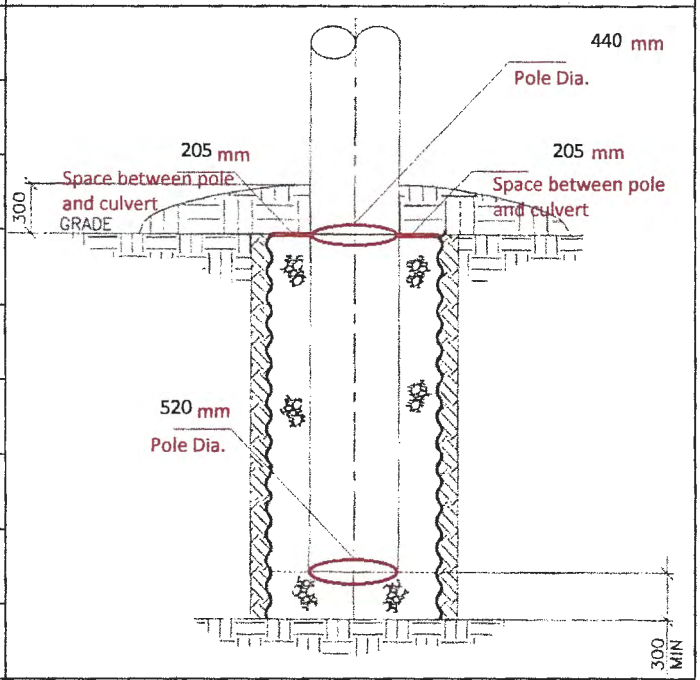
| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR ANTAL | | Dec 14/18 |
| Quality Representative | Phil McKinley | | Dec 13 2018 |
| Client Representative | | | |

Forbes Bros LTD
POWERLINE CONSTRUCTION

# Backfill and Compaction

| Project # | 4581 | Project Name | Eagle Gold 69 KV | Facility # | |
|---|---|---|---|---|---|
| Structure # | 31/8 RP | Structure Type | SAH | Date | Dec 12 2018 |

## Backfill and Compaction

| Check List | | View |
|---|---|---|
| Ground Type (◉ Good Soil ○ Weak Soil) Description (Wet, Rock, Permafrost etc.) | Gravel |  |
| Backfill material | Gravel | |
| 3H/1V Slope from foundation footprint to existing grade | Yes ☐ | |
| 6H/1V slope from center to the 4 sides of foundation footprint | Yes ☐ N/A ☐ | |
| No ponding around piles | Yes ☐ | |
| No soil covers top of the piles and pile cap | Yes ☐ | |
| Compaction method/Equipment | Hydraulic Tamper | |
| Compact in max. 300mm LIFTS | Yes ☐ | |
| Site Clean Up Complete | Yes ☐ | |
| Culvert Used (if weak soils encountered, use >800mm dia) | Yes ☑ No ☐ | Diameter(mm): 850 Length(mm): 3000 |



| Pile Projection (mm) | Leg 1 | Leg 2 | Leg 3 | Leg 4 |
|---|---|---|---|---|
| | | | | |

Notes:

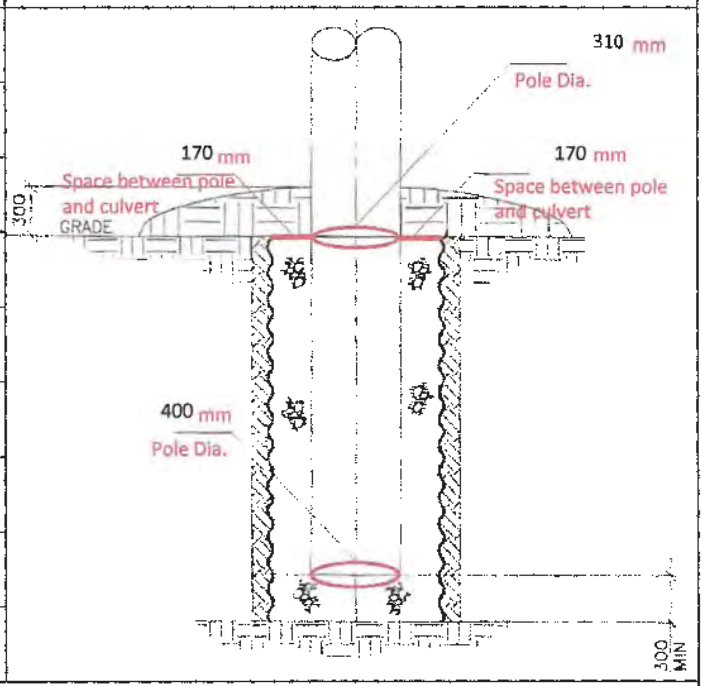
| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR ANTAC | | Dec 14/18 |
| Quality Representative | Phil McKinley | Phil McKinley | Dec 13 2018 |
| Client Representative | | | |

Forbes Bros Ltd
POWERLINE CONSTRUCTION

# Backfill and Compaction

| Project # | 4581 | Project Name | Eagle Gold 69 KV | Facility # | |
|---|---|---|---|---|---|
| Structure # | 32/3 | Structure Type | PT | Date | Dec 10 2018 |

## Backfill and Compaction

| Check List | | View |
|---|---|---|
| Ground Type (◉ Good Soil ○ Weak Soil) Description (Wet, Rock, Permafrost etc.) | Clay |  |
| Backfill material | Gravel | |
| 3H/1V Slope from foundation footprint to existing grade | Yes ☐ | |
| 6H/1V slope from center to the 4 sides of foundation footprint | Yes ☐ N/A ☐ | |
| No ponding around piles | Yes ☐ | |
| No soil covers top of the piles and pile cap | Yes ☐ | |
| Compaction method/Equipment | Hydraulic Tamper | |
| Compact in max. 300mm LIFTS | Yes ☑ | |
| Site Clean Up Complete | Yes ☐ | |
| Culvert Used (if weak soils encountered, use >800mm dia) | Yes ☑ No ☐ Diameter(mm): 650 Length(mm): 3000 | |



| Pile Projection (mm) | Leg 1 | Leg 2 | Leg 3 | Leg 4 |
|---|---|---|---|---|
| | | | | |

Notes:

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR ANTAC | | Dec 17/18 |
| Quality Representative | Phil McKinley | Phil McKinley | Dec 16 2018 |
| Client Representative | | | |

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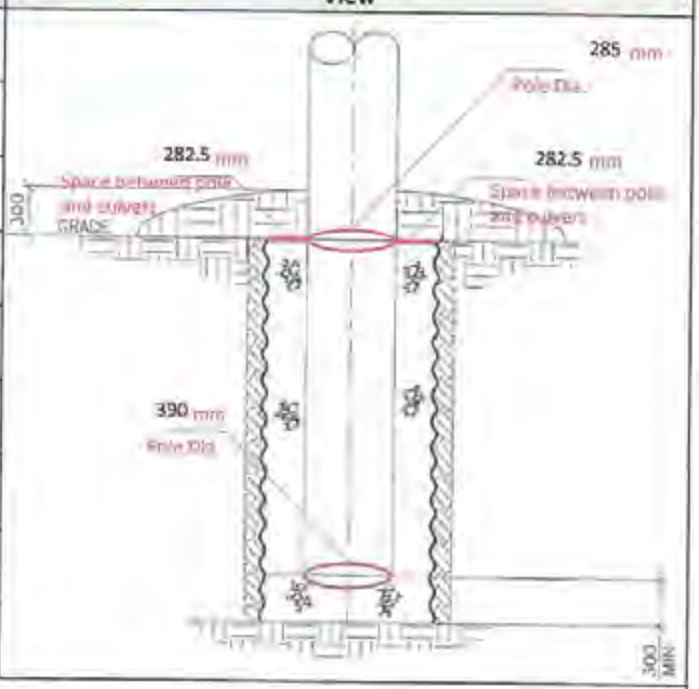
Powerline Construction

# Backfill and Compaction

| Project # | 4581 | Project Name | Eagle Gold 69 KV | Facility # | |
|---|---|---|---|---|---|
| Structure # | 32/4 | Structure Type | PT | Date | Dec 11 2018 |

## Backfill and Compaction

| Check List | | View |
|---|---|---|
| Ground Type ○ Good Soil ◉ Weak Soil — Description (Wet, Rock, Permafrost etc.) | Wet |  |
| Backfill material | Gravel | |
| 3H/1V Slope from foundation footprint to existing grade | Yes ☐ | |
| 6H/1V slope from center to the 4 sides of foundation footprint | Yes ☐ N/A ☐ | |
| No ponding around piles | Yes ☐ | |
| No soil covers top of the piles and pile cap | Yes ☐ | |
| Compaction method/Equipment | Hydraulic Tamper | |
| Compact in max. 300mm LIFTS | Yes ☑ | |
| Site Clean Up Complete | Yes ☐ | |
| Culvert Used (if weak soils encountered, use >800mm dia) | Yes ☑ No ☐ Diameter(mm): 850 Length(mm): 3000 | |



| Pile Projection (mm) | Leg 1 | Leg 2 | Leg 3 | Leg 4 |
|---|---|---|---|---|
| | | | | |

Notes:

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR ANTIAL | | Dec 15/18 |
| Quality Representative | Phil McKinley | Phil McKinley | Dec 14 2018 |
| Client Representative | Don Carter | Don Carter | Jan 22/19 |

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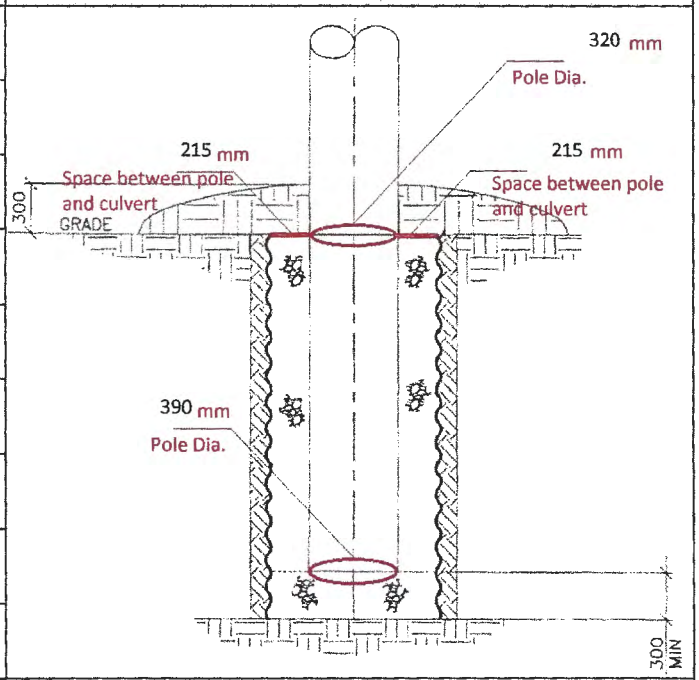
POWERLINE CONSTRUCTION

# Backfill and Compaction

| Project # | 4581 | Project Name | Eagle Gold 69 KV | Facility # | |
|---|---|---|---|---|---|
| Structure # | 32/5 | Structure Type | PT | Date | Dec 11 2018 |

## Backfill and Compaction

| Check List | | View |
|---|---|---|
| Ground Type (◉ Good Soil / ○ Weak Soil) — Description (Wet, Rock, Permafrost etc.) | Clay |  |
| Backfill material | Gravel | |
| 3H/1V Slope from foundation footprint to existing grade | Yes ☐ | |
| 6H/1V slope from center to the 4 sides of foundation footprint | Yes ☐ N/A ☐ | |
| No ponding around piles | Yes ☐ | |
| No soil covers top of the piles and pile cap | Yes ☐ | |
| Compaction method/Equipment | Hydraulic Tamper | |
| Compact in max. 300mm LIFTS | Yes ☑ | |
| Site Clean Up Complete | Yes ☐ | |



| Culvert Used (if weak soils encountered, use >800mm dia) | Yes ☑ No ☐ | Diameter(mm): 750 | Length(mm): 3000 |
|---|---|---|---|

| Pile Projection (mm) | Leg 1 | Leg 2 | Leg 3 | Leg 4 |
|---|---|---|---|---|
| | | | | |

Notes:

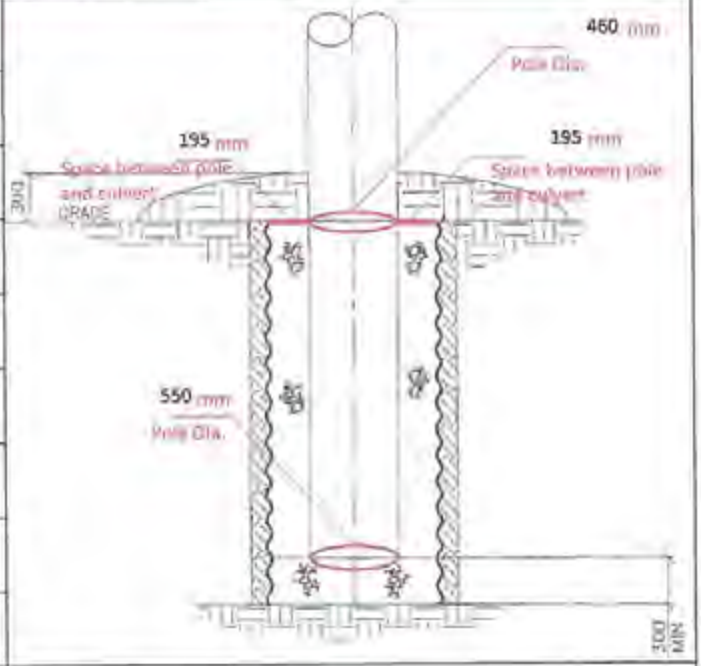
| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR ANTAL | | Dec 17/18 |
| Quality Representative | Phil McKinley | Phil McKinley | Dec 16 2018 |
| Client Representative | | | |

Forbes Bros Ltd
POWERLINE CONSTRUCTION

# Backfill and Compaction

| Project # | 4581 | Project Name | Eagle Gold 69 KV | Facility # | |
|---|---|---|---|---|---|
| Structure # | 36/9 LP | Structure Type | SAH | Date | Dec 15 2018 |

## Backfill and Compaction

| Check List | | View |
|---|---|---|
| Ground Type (●) Good Soil ( ) Weak Soil — Description (Wet, Rock, Permafrost etc.) | Permafrost |  |
| Backfill material | Gravel | |
| 3H/1V Slope from foundation footprint to existing grade | Yes ☐ | |
| 6H/1V slope from center to the 4 sides of foundation footprint | Yes ☐ N/A ☐ | |
| No ponding around piles | Yes ☐ | |
| No soil covers top of the piles and pile cap | Yes ☐ | |
| Compaction method/Equipment | Hydraulic Tamper | |
| Compact in max. 300mm LIFTS | Yes ☑ | |
| Site Clean Up Complete | Yes ☐ | |
| Culvert Used (if weak soils encountered, use >800mm dia) | Yes ☑ No ☐ Diameter(mm): 850 Length(mm): 3000 | |



| Pile Projection (mm) | Leg 1 | Leg 2 | Leg 3 | Leg 4 |
|---|---|---|---|---|
| | | | | |

Notes:

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR ANTAL | | FEB 22 2019 |
| Quality Representative | Phil McKinley | | Dec 19 2018 |
| Client Representative | Matt Cavendale | | Feb 23, 2019 |

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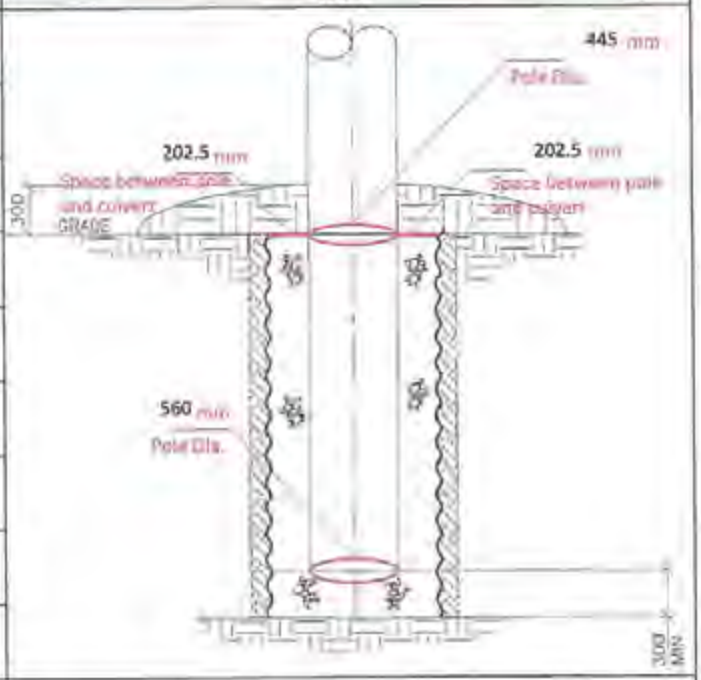
# Backfill and Compaction

| Project # | 4581 | Project Name | Eagle Gold 69 KV | Facility # | |
|---|---|---|---|---|---|
| Structure # | 36/9 RP | Structure Type | SAH | Date | Dec 15 2018 |

## Backfill and Compaction

| Check List | | View |
|---|---|---|
| Ground Type (●) Good Soil ( ) Weak Soil — Description (Wet, Rock, Permafrost etc.) | Permafrost |  |
| Backfill material | Gravel | |
| 3H/1V Slope from foundation footprint to existing grade | Yes ☐ | |
| 6H/1V slope from center to the 4 sides of foundation footprint | Yes ☐ N/A ☐ | |
| No ponding around piles | Yes ☐ | |
| No soil covers top of the piles and pile cap | Yes ☐ | |
| Compaction method/Equipment | Hydraulic Tamper | |
| Compact in max. 300mm LIFTS | Yes ☑ | |
| Site Clean Up Complete | Yes ☐ | |
| Culvert Used (if weak soils encountered, use >800mm dia) | Yes ☑ No ☐ Diameter(mm): 850 Length(mm): 3000 | |



| Pile Projection (mm) | Leg 1 | Leg 2 | Leg 3 | Leg 4 |
|---|---|---|---|---|
| | | | | |

Notes:

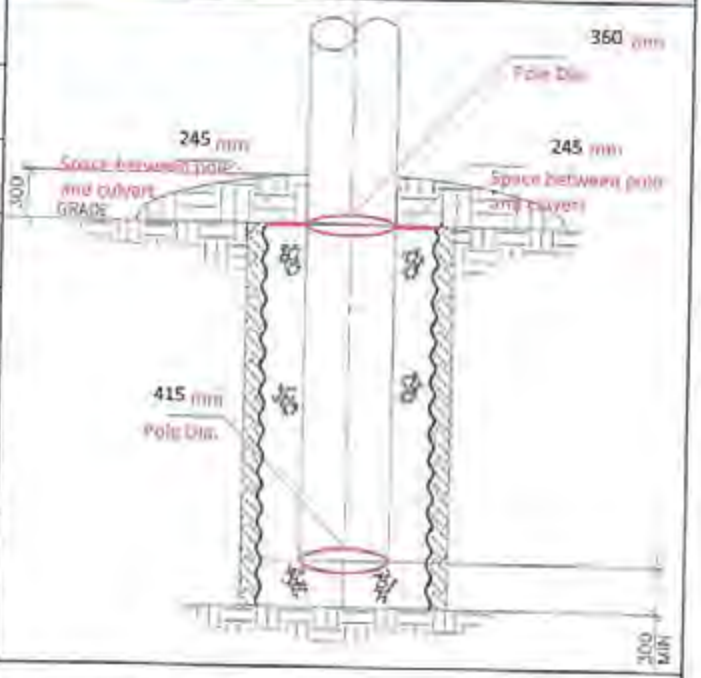
| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR ANTAL | | FEB 22/19 |
| Quality Representative | Phil McKinley | PM McKinley | Dec 19 2018 |
| Client Representative | Matt Cavedale | | Feb 23, 2019 |

Forbes Bros Ltd.
Powerline Construction

# Backfill and Compaction

| Project # | 4581 | Project Name | Eagle Gold 69 KV | Facility # | |
|---|---|---|---|---|---|
| Structure # | 40/6 | Structure Type | VDEMA | Date | January 18 2019 |

## Backfill and Compaction

| Check List | | View |
|---|---|---|
| Ground Type ○ Good Soil ◉ Weak Soil — Description (Wet, Rock, Permafrost etc.) | Wet |  |
| Backfill material | Gravel | |
| 3H/1V Slope from foundation footprint to existing grade | Yes ☐ | |
| 6H/1V slope from center to the 4 sides of foundation footprint | Yes ☐ N/A ☐ | |
| No ponding around piles | Yes ☐ | |
| No soil covers top of the piles and pile cap | Yes ☐ | |
| Compaction method/Equipment | Hydraulic Tamper | |
| Compact in max. 300mm LIFTS | Yes ☐ | |
| Site Clean Up Complete | Yes ☐ | |
| Culvert Used (if weak soils encountered, use >800mm dia) | Yes ☑ No ☐ | Diameter(mm): 850 Length(mm): 8200 |



| Pile Projection (mm) | Leg 1 | Leg 2 | Leg 3 | Leg 4 |
|---|---|---|---|---|
| | | | | |

Notes:
Used longer culvert to compensate for the wet ground

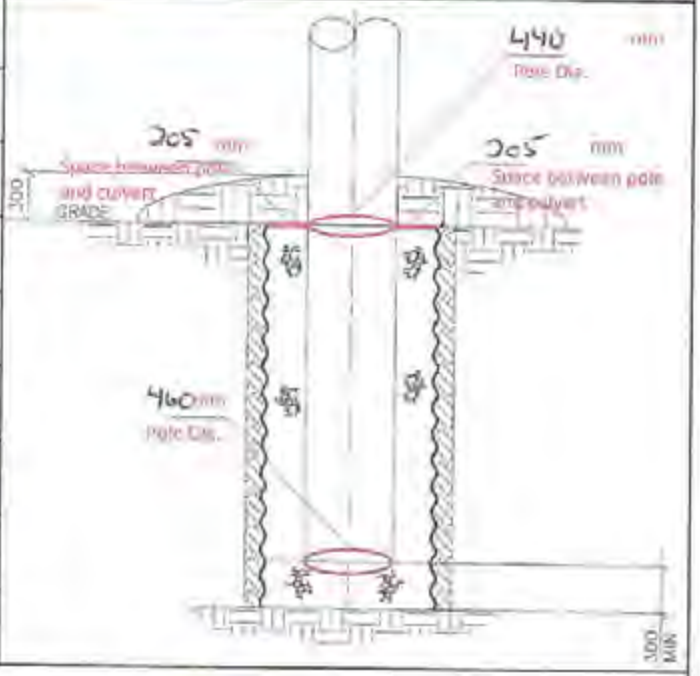
| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR ANTTILA | | JAN 20/19 |
| Quality Representative | Phil McKinley | Phil McKinley | Jan 19 2019 |
| Client Representative | Don Carter | Don Carter | Jan 20/19 |

Forbes Bros Ltd
POWERLINE CONSTRUCTION

# Backfill and Compaction

| Project # | 4581 | Project Name | Eagle Gold 69 kV | Facility # | |
|---|---|---|---|---|---|
| Structure # | 5/10 | Structure Type | Culvert | Date | Oct 20 2018 |

## Backfill and Compaction

| Check List | | View |
|---|---|---|
| Ground Type (●) Good Soil ( ) Weak Soil — Description (Wet, Rock, Permafrost etc.) | Gravel |  |
| Backfill material | Gravel | |
| 3H/1V Slope from foundation footprint to existing grade | Yes ☐ | |
| 6H/1V slope from center to the 4 sides of foundation footprint | Yes ☐ N/A ☐ | |
| No ponding around piles | Yes ☐ | |
| No soil covers top of the piles and pile cap | Yes ☐ | |
| Compaction method/Equipment | Hydraulic Tamper | |
| Compact in max. 300mm LIFTS | Yes ☑ | |
| Site Clean Up Complete | Yes ☐ | |
| Culvert Used (if weak soils encountered, use >800mm dia) | Yes ☑ No ☐ Diameter(mm): 850 Length(mm): 3000 | |



| Pile Projection (mm) | Leg 1 | Leg 2 | Leg 3 | Leg 4 |
|---|---|---|---|---|
| | | | | |

Notes:

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR ANTAL | | OCT 23 2018 |
| Quality Representative | Phil McKinley | Phil McKinley | Oct 23 2018 |
| Client Representative | | | |

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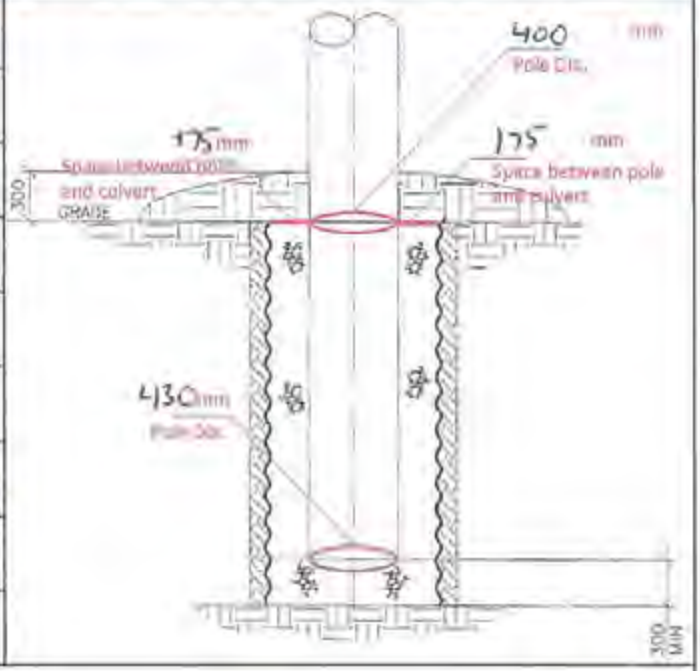
# Backfill and Compaction

| Project # | 4581 | Project Name | Eagle Gold 69kV | Facility # | |
|---|---|---|---|---|---|
| Structure # | 518 | Structure Type | Culvert | Date | Oct 20 2018 |

## Backfill and Compaction

| Check List | | View |
|---|---|---|
| Ground Type ◯ Good Soil ◯ Weak Soil — Description (Wet, Rock, Permafrost etc.) | Gravel |  |
| Backfill material | Gravel | |
| 3H/1V Slope from foundation footprint to existing grade | Yes ☐ | |
| 6H/1V slope from center to the 4 sides of foundation footprint | Yes ☐ N/A ☐ | |
| No ponding around piles | Yes ☐ | |
| No soil covers top of the piles and pile cap | Yes ☐ | |
| Compaction method/Equipment | Hydraulic Tamper | |
| Compact in max. 300mm LIFTS | Yes ☑ | |
| Site Clean Up Complete | Yes ☐ | |
| Culvert Used (if weak soils encountered, use >800mm dia) | Yes ☑ No ☐ Diameter(mm): 750 Length(mm): 3000 | |



| Pile Projection (mm) | Leg 1 | Leg 2 | Leg 3 | Leg 4 |
|---|---|---|---|---|
| | | | | |

Notes:

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR MATTIC | | OCT 23 2018 |
| Quality Representative | Phil McKinlay | Phil McKinlay | Oct 23 2018 |
| Client Representative | | | |

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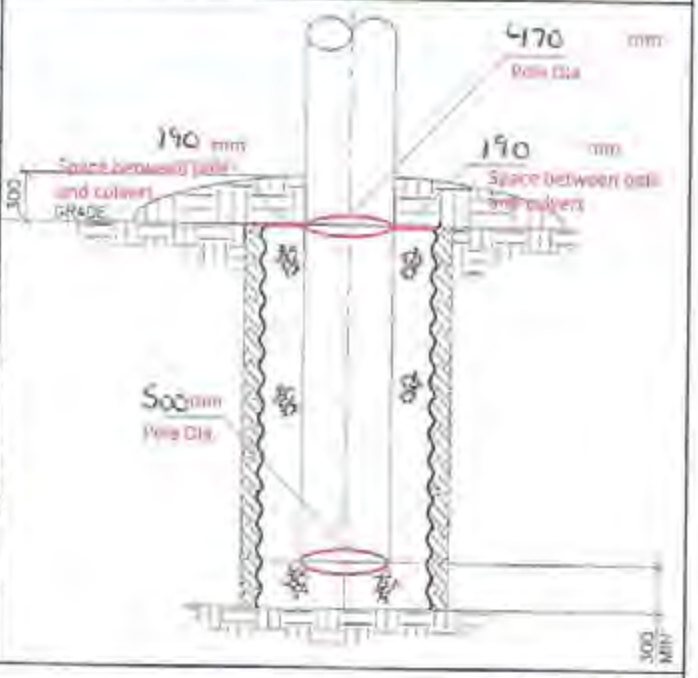
# Backfill and Compaction

| Project # | 4581 | Project Name | Eagle Gold 69 Kv | Facility # | |
|---|---|---|---|---|---|
| Structure # | 519 | Structure Type | Culvert | Date | Oct 20 2018 |

## Backfill and Compaction

| Check List | | View |
|---|---|---|
| Ground Type (●) Good Soil ( ) Weak Soil — Description (Wet, Rock, Permafrost etc.) | Gravel |  |
| Backfill material | Gravel | |
| 3H/1V Slope from foundation footprint to existing grade | Yes ☐ | |
| 6H/1V slope from center to the 4 sides of foundation footprint | Yes ☐ N/A ☐ | |
| No ponding around piles | Yes ☐ | |
| No soil covers top of the piles and pile cap | Yes ☐ | |
| Compaction method/Equipment | Hydraulic Tamper | |
| Compact in max. 300mm LIFTS | Yes ☐ | |
| Site Clean Up Complete | Yes ☐ | |
| Culvert Used (if weak soils encountered, use >800mm dia) | Yes ☑ No ☐ | Diameter(mm): 850 Length(mm): 3000 |



| Pile Projection (mm) | Leg 1 | Leg 2 | Leg 3 | Leg 4 |
|---|---|---|---|---|
| | | | | |

Notes:

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR ANTAL | | OCT 23 2018 |
| Quality Representative | Phil McKinley | Phil McKinley | Oct 23 2018 |
| Client Representative | | | |

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POWERLINE CONSTRUCTION

# Backfill and Compaction

| Project # | 4581 | Project Name | Eagle Gold 69 Kv | Section # | |
|---|---|---|---|---|---|
| Structure # | 6/4 | Tower Type | Culvert | Date | Sept 11 2018 |

## Backfill and Compaction

| Check List | | Plan View |
|---|---|---|
| Backfill material | Gravel | AHEAD SPAN |
| 3H/1V Slope from foundation footprint to existing grade | Yes ☐ | |
| 6H/1V slope from center to the 4 sides of foundation footprint | Yes ☐ | Str. Center |
| No ponding around piles | Yes ☐ | |
| No soil covers top of the piles and pile cap | Yes ☐ | |
| Compact in max. 300mm LIFTS | Yes ☑ | |
| Site Clean Up Complete | Yes ☐ | |

| | Leg 1 | Leg 2 | Leg 3 | Leg 4 |
|---|---|---|---|---|
| Pile Projection (mm) | | | | |

Notes: Setting depth is 2.74 m
Culvert diameter is 650mm
Ground is Sand/gravel
Backfilled with gravel from 13½
weak soil

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | Mike Sweetland | MS | |
| QC inspector | Phil McKinley | Phil McKinley | Sept 12 2018 |
| Client Inspector | Don Carter | Don Carter | Jan 22/19 |

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# Backfill and Compaction

| Project # | 4581 | Project Name | Eagle Gold 69 Kv | Section # | |
|---|---|---|---|---|---|
| Structure # | 6/5 | Tower Type | Culvert | Date | Sept 11 2018 |

## Backfill and Compaction

| Check List | |
|---|---|
| Backfill material | Gravel |
| 3H/1V Slope from foundation footprint to existing grade | Yes ☐ |
| 6H/1V slope from center to the 4 sides of foundation footprint | Yes ☐ |
| No ponding around piles | Yes ☐ |
| No soil covers top of the piles and pile cap | Yes ☐ |
| Compact in max. 300mm LIFTS | Yes ☑ |
| Site Clean Up Complete | Yes ☐ |

Plan View




| Pile Projection (mm) | Leg 1 | Leg 2 | Leg 3 | Leg 4 |
|---|---|---|---|---|
| | | | | |

Notes: Setting depth is 2.9m
Culvert diameter is 750mm
Ground is sand/gravel
Backfilled with gravel from 13½
Weak soil

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | Mike Sweetland | MS | 09/12/18 |
| QC inspector | Phil McKinley | Phil McKinley | Sept 12 2018 |
| Client Inspector | Don Carter | Don Carter | Jan 22/19 |

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# Backfill and Compaction

| Project # | 4581 | Project Name | Eagle Gold 69 kV | Section # | |
|---|---|---|---|---|---|
| Structure # | 6/6 | Tower Type | Culvert | Date | Sept 11 2018 |

## Backfill and Compaction

| Check List | | Plan View |
|---|---|---|
| Backfill material | Gravel | AHEAD SPAN |
| 3H/1V Slope from foundation footprint to existing grade | Yes ☐ | |
| 6H/1V slope from center to the 4 sides of foundation footprint | Yes ☐ | Str. Center |
| No ponding around piles | Yes ☐ | |
| No soil covers top of the piles and pile cap | Yes ☐ | |
| Compact in max. 300mm LIFTS | Yes ☑ | |
| Site Clean Up Complete | Yes ☐ | |

| Pile Projection (mm) | Leg 1 | Leg 2 | Leg 3 | Leg 4 |
|---|---|---|---|---|
| | | | | |

Notes: Setting depth is 2.74m
Culvert diameter is 650 mm
Ground is sand/gravel
Backfilled with gravel from 13½
Weak soil

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | Mike Swetland | MS | 09/12/18 |
| QC inspector | Phil McKinley | Phil McKinley | Sept 12 2018 |
| Client Inspector | Don Carter | Don Carter | Jan 22/19 |

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# Backfill and Compaction

| | | | | | |
|---|---|---|---|---|---|
| Project # | 4581 | Project Name | Eagle Gold 64 KV | Section # | |
| Structure # | 7/2 | Tower Type | Culvert | Date | Sept 10 2018 |

## Backfill and Compaction

| Check List | | Plan View |
|---|---|---|
| Backfill material | Gravel | AHEAD SPAN |
| 3H/1V Slope from foundation footprint to existing grade | Yes ☐ | |
| 6H/1V slope from center to the 4 sides of foundation footprint | Yes ☐ | Str. Centre |
| No ponding around piles | Yes ☐ | |
| No soil covers top of the piles and pile cap | Yes ☐ | |
| Compact in max. 300mm LIFTS | Yes ☑ | |
| Site Clean Up Complete | Yes ☐ | |

| Pile Projection (mm) | Leg 1 | Leg 2 | Leg 3 | Leg 4 |
|---|---|---|---|---|
| | | | | |

Notes: Setting depth is 3.35m
Culvert diameter is 650mm
Ground is sand
Backfilled with gravel from 13½
Weak soil

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | Mike Greetland | | 09/11/18 |
| QC Inspector | Phil McKinlay | Phil McKinlay | Sept 11 2018 |
| Client Inspector | Don Carter | Don Carter | Jan 22/19 |

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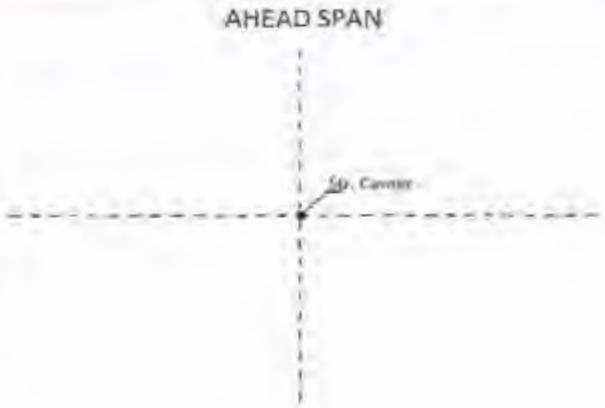
# Backfill and Compaction

| | | | | | |
|---|---|---|---|---|---|
| Project # | 4581 | Project Name | Eagle Gold 69Kv | Section # | |
| Structure # | 8/1 | Tower Type | Culvert | Date | Sept 8 2018 |

## Backfill and Compaction



| Check List | | Plan View |
|---|---|---|
| Backfill material | Gravel | AHEAD SPAN |
| 3H/1V Slope from foundation footprint to existing grade | Yes ☐ | |
| 6H/1V slope from center to the 4 sides of foundation footprint | Yes ☐ | |
| No ponding around piles | Yes ☐ | |
| No soil covers top of the piles and pile cap | Yes ☐ | |
| Compact in max. 300mm LIFTS | Yes ☑ | |
| Site Clean Up Complete | Yes ☐ | |

| Pile Projection (mm) | Leg 1 | Leg 2 | Leg 3 | Leg 4 |
|---|---|---|---|---|
| | | | | |

Notes: Setting depth is 2.9m
Culvert diameter is 650mm
Ground is sand
Backfilled with gravel from 10½
Weak soil

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR ANTAL | [signature] | Sept 10/18 |
| QC inspector | Phil McKinley | [signature] | Sept 9 2018 |
| Client Inspector | Don Carter | Don Carter | Jan 22/19 |

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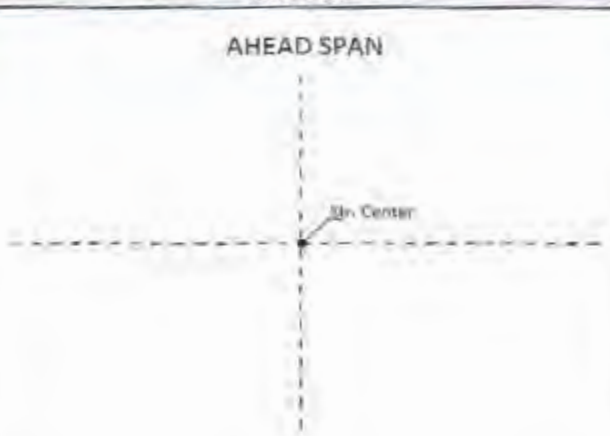
POWERLINE CONSTRUCTION

# Backfill and Compaction

| Project # | 4581 | Project Name | Eagle Gold 69Kv | Section # | |
|---|---|---|---|---|---|
| Structure # | 812 | Tower Type | Culvert | Date | Sept 8 2018 |

## Backfill and Compaction

| Check List | | Plan View |
|---|---|---|
| Backfill material | Gravel |  |
| 3H/1V Slope from foundation footprint to existing grade | Yes ☐ | |
| 6H/1V slope from center to the 4 sides of foundation footprint | Yes ☐ | |
| No ponding around piles | Yes ☐ | |
| No soil covers top of the piles and pile cap | Yes ☐ | |
| Compact in max. 300mm LIFTS | Yes ☑ | |
| Site Clean Up Complete | Yes ☐ | |



| Pile Projection (mm) | Leg 1 | Leg 2 | Leg 3 | Leg 4 |
|---|---|---|---|---|
| | | | | |

Notes: Setting depth is 2.74m
Culvert diameter is 750 mm
Ground is sand
Backfilled with gravel from 10'/2 week soil

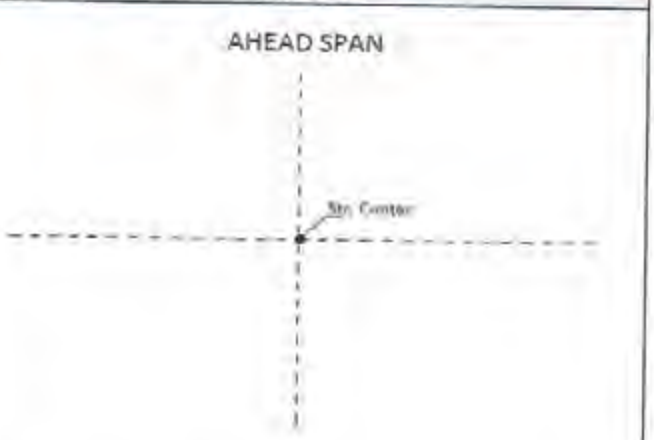
| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR ANTAE | | Sept 10/18 |
| QC inspector | Phil McKinley | Phil McKinley | Sept 9 2018 |
| Client Inspector | Don Carter | Don Carter | Jan 22/19 |

Forbes Bros Ltd
POWERLINE CONSTRUCTION

# Backfill and Compaction

| Project # | 4581 | Project Name | Eagle Gold 69Kv | Section # | |
|---|---|---|---|---|---|
| Structure # | 9/1 | Tower Type | Culvert | Date | Sept 7 2018 |

## Backfill and Compaction

| Check List | | Plan View |
|---|---|---|
| Backfill material | Gravel |  |
| 3H/1V Slope from foundation footprint to existing grade | Yes ☐ | |
| 6H/1V slope from center to the 4 sides of foundation footprint | Yes ☐ | |
| No ponding around piles | Yes ☐ | |
| No soil covers top of the piles and pile cap | Yes ☐ | |
| Compact in max. 300mm LIFTS | Yes ☑ | |
| Site Clean Up Complete | Yes ☐ | |



| Pile Projection (mm) | Leg 1 | Leg 2 | Leg 3 | Leg 4 |
|---|---|---|---|---|
| | | | | |

Notes: Set culvert @ 3.54m
Culvert size is 750mm
Ground is wet with gravel
Backfilled with gravel from 17'/2
weak soil

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR ANTAL | | Sept 8/18 |
| QC inspector | Phil McKinley | Phil McKinley | Sept 7 2018 |
| Client Inspector | Don Carter | Don Carter | Jan 22/19 |

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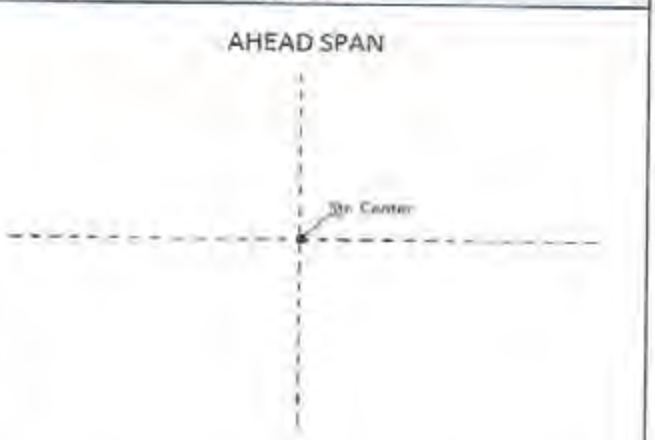
POWERLINE CONSTRUCTION

# Backfill and Compaction

| Project # | 4581 | Project Name | Eagle Gold 69kv | Section # | |
|---|---|---|---|---|---|
| Structure # | 9/5 | Tower Type | Culvert | Date | Sept 7 2018 |

## Backfill and Compaction

| Check List | | Plan View |
|---|---|---|
| Backfill material | Gravel |  |
| 3H/1V Slope from foundation footprint to existing grade | Yes ☐ | |
| 6H/1V slope from center to the 4 sides of foundation footprint | Yes ☐ | |
| No ponding around piles | Yes ☐ | |
| No soil covers top of the piles and pile cap | Yes ☐ | |
| Compact in max. 300mm LIFTS | Yes ☑ | |
| Site Clean Up Complete | Yes ☐ | |



| Pile Projection (mm) | Leg 1 | Leg 2 | Leg 3 | Leg 4 |
|---|---|---|---|---|
| | | | | |

Notes: Set culvert @ 2.74m
Ground is wet / gravel
-Identified on data sheet as permafrost
Back filled with gravel from 17 1/2
Culvert diameter is 650 mm
Weak soil

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR AWIPAL | | Sept 8/2018 |
| QC Inspector | Phil McKinley | Phil McKinley | Sept 7 2018 |
| Client Inspector | Dan Carter | Dan Carter | Jan 22/19 |

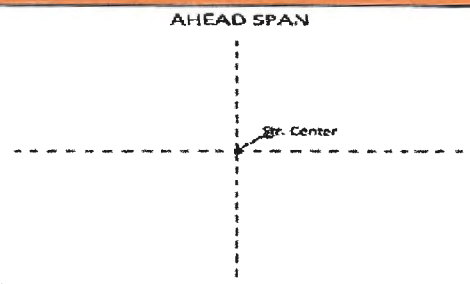
Forbes Bros LTD
POWERLINE CONSTRUCTION

# Anchor Pull Test

| Project # | 4581 | Project Name | Eagle gold 69KV | Facility# | |
|---|---|---|---|---|---|
| Structure # | 0/10A | Structure Type | DAHDEO | | |

## Anchor Test Record

| | |
|---|---|
| Time and Date Started | Oct 22 2018 8:30 |
| Time and Date completed | Oct 22 2018 10:45 |
| Test Device | Dyna Link 2 MSI7300 |
| Operator | Excavator/Foreman |




| Anchor # | Pre-Load Benchmark | Amount of Stretch at 50% Tension | Final Reading at Full Tension | Final Reading when Tension Released | Change After Testing |
|---|---|---|---|---|---|
| ~~1~~ | ~~0mm @ 0lbs~~ | ~~0mm @ 9245~~ | ~~3mm@18170~~ | ~~3mm@0lbs~~ | ~~3mm~~ See Page 2 |
| 2 | 0mm @ 0lbs | 0mm@9180 | 2mm@18250 | 1mm@0 lbs | 1mm |
| 3 | 0mm @ 0lbs | 0 mm @ 9050 | 3 mm @ 18140 | 3 mm @ 0 lbs | 3 mm |
| 4 | 0mm @ 0lbs | 0 mm @ 9270 | 3mm @ 18290 | 3 mm @ 0lbs | 3 mm |
| 5 | 0 mm @ 0 lbs | 0 mm @ 9150 | 4 mm @ 18165 | 3 mm @ 0 lbs | 3 mm |
| | | | | | |
| | | | | | |
| | | | | | |

**Test Procedure:**

1. Take Benchmark reading of anchor rod.
2. Pull Anchor rod at 50% load and hold for 2 minutes. Record movement.
3. Pull Anchor rod at Full tension load and hold for 2 minutes. Record movement.
4. Release tension and record rod movement.
5. For 2 anchor configuration, the single anchor will be pulled at 50% Tension. Wait 5 minutes between pulls.

**Comments**

A1,A2,A,3A4,A5 Gravel

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR AUSTAD | | OCT 23/18 |
| QC Representative | Phil McKinley | Phil McKinley | Oct 22 2018 |
| Client Inspector | | | |

Forbes Bros LTD
POWERLINE CONSTRUCTION

# Anchor Pull Test

| Project # | 4581 | Project Name | Eagle gold 69 KV | Facility# | |
|---|---|---|---|---|---|
| Structure # | 0/10A | Structure Type | DADEO | | |

## Anchor Test Record

| | |
|---|---|
| Time and Date Started | February 26 2019 14:10 |
| Time and Date completed | February 26 2019 14:20 |
| Test Device | Dyna Link 2 MSI7300 |
| Operator | Excavator/Foreman |




| Anchor # | Pre-Load Benchmark | Amount of Stretch at 50% Tension | Final Reading at Full Tension | Final Reading when Tension Released | Change After Testing |
|---|---|---|---|---|---|
| 1 | 0 mm @ 0 | 0 mm @ 9250 | 2 mm @ 18240 | 2 mm @ 0 | 2 mm |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |

**Test Procedure:**

1. Take Benchmark reading of anchor rod.
2. Pull Anchor rod at 50% load and hold for 2 minutes. Record movement.
3. Pull Anchor rod at Full tension load and hold for 2 minutes. Record movement.
4. Release tension and record rod movement.
5. For 2 anchor configuration, the single anchor will be pulled at 50% Tension. Wait 5 minutes between pulls.

**Comments**

Anchor was replaced because it was bent

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR ANTIAL | | FEB 26 2019 |
| QC Representative | Phil McKinley | Phil McKinley | Feb 26 2019 |
| Client Inspector | Matt C | | Feb 26, 19 |

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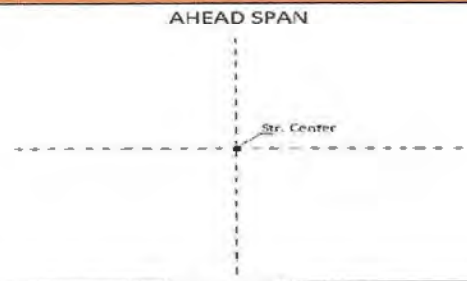
# Anchor Pull Test

| Project # | 4581 | Project Name | Eagle Gold Project | Facility# | 69kV Line |
|---|---|---|---|---|---|
| Structure # | 0/11 | Structure Type | VDEHAO | | |

## Anchor Test Record

| | |
|---|---|
| Time and Date Started | 12-Oct-2018 @ 9.40am |
| Time and Date completed | 12-Oct-2018 @ 11.40am |
| Test Device | Dyna Link 2 MSI7300 |
| Operator | Excavator/Foreman |




| Anchor # | Pre-Load Benchmark | Amount of Stretch at 50% Tension | Final Reading at Full Tension | Final Reading when Tension Released | Change After Testing |
|---|---|---|---|---|---|
| A1 | 0 mm @ 70 lbs | 0 mm @ 9370 lbs | 2mm @ 18760 lbs | 2 mm @ 0 mm | 2 mm |
| | | | | | |
| A3 | 0 mm @ 0 lbs | 0 mm @ 9580 lbs | 4 mm @ 18850 lbs | 3 mm @ 0 lbs | 3 mm |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |

**Test Procedure:**

1. Take Benchmark reading of anchor rod.
2. Pull Anchor rod at 50% load and hold for 2 minutes. Record movement.
3. Pull Anchor rod at Full tension load and hold for 2 minutes. Record movement.
4. Release tension and record rod movement.
5. For 2 anchor configuration, the single anchor will be pulled at 50% Tension. Wait 5 minutes between pulls.

**Comments**

A1 (Log Anchor) Installed in gravel
A3 (Log Anchor) installed in permafrost.

SA JAN 21/19

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | Mike Sweetland | | 12-Oct-2018 |
| QC Representative | Francisco Larez | | 12-Oct-2018 |
| Client Inspector | SVEN ARCHIMBAULT | | JAN 21/19 |

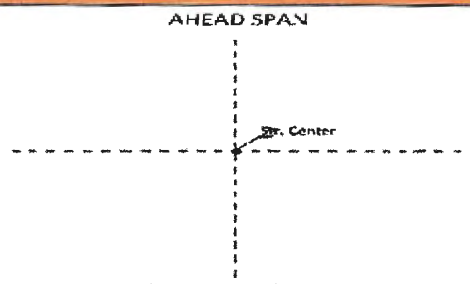
Forbes Bros. LTD
POWERLINE CONSTRUCTION

# Anchor Pull Test

| Project # | 4581 | Project Name | Eagle gold 69KV | Facility# | |
|---|---|---|---|---|---|
| Structure # | 0/14 | Structure Type | PVO | | |

## Anchor Test Record

| | |
|---|---|
| Time and Date Started | Oct 12 2018 12:30 |
| Time and Date completed | Oct 12 2018 1:15 |
| Test Device | Dyna Link 2 MSI7300 |
| Operator | Excavator/Foreman |




| Anchor # | Pre-Load Benchmark | Amount of Stretch at 50% Tension | Final Reading at Full Tension | Final Reading when Tension Released | Change After Testing |
|---|---|---|---|---|---|
| 1 | 0 mm @ 0 lbs | 0 mm @ 9310 | 2 mm @ 18260 | 2 mm @ 0 | 2 mm |
| 2 | 0 mm @ 0 lbs | 0 mm @ 9180 | 3 mm @ 18280 | 3 mm @ 0 | 3 mm |
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**Test Procedure:**

1. Take Benchmark reading of anchor rod.
2. Pull Anchor rod at 50% load and hold for 2 minutes. Record movement.
3. Pull Anchor rod at Full tension load and hold for 2 minutes. Record movement.
4. Release tension and record rod movement.
5. For 2 anchor configuration, the single anchor will be pulled at 50% Tension. Wait 5 minutes between pulls.

**Comments**

A1 and A2 permafrost ( plate anchors)

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR ANSTEE | | OCT 13/18 |
| QC Representative | Phil McKinley | Phil McKinley | Oct 12 2018 |
| Client Inspector | | | |

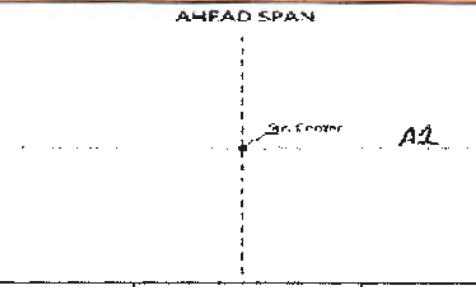
Forbes Bros LTD
POWERLINE CONSTRUCTION

# Anchor Pull Test

| Project # | 4581 | Project Name | Eagle gold 69KV | Facility# | |
|---|---|---|---|---|---|
| Structure # | 10/1 | Structure Type | PTG | | |

## Anchor Test Record

| | |
|---|---|
| Time and Date Started | Nov 6 2018 8:00 |
| Time and Date completed | Nov 6 2018 8:20 |
| Test Device | Dyna Link 2 MSI7300 |
| Operator | Excavator/Foreman |




| Anchor # | Pre-Load Benchmark | Amount of Stretch at 50% Tension | Final Reading at Full Tension | Final Reading when Tension Released | Change After Testing |
|---|---|---|---|---|---|
| 1 | 0 mm @ 0 | 0 mm @ 9180 | 1 mm @ 18240 | 1 mm @ 0 | 1 mm |
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**Test Procedure:**

1. Take Benchmark reading of anchor rod.
2. Pull Anchor rod at 50% load and hold for 2 minutes. Record movement.
3. Pull Anchor rod at Full tension load and hold for 2 minutes. Record movement.
4. Release tension and record rod movement.
5. For 2 anchor configuration, the single anchor will be pulled at 50% Tension. Wait 5 minutes between pulls.

**Comments**

A1 Gravel ( log anchor)

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR AWATAL | | Nov 8/18 |
| QC Representative | Phil McKinley | Phil McKinley | Nov 7 2018 |
| Client Inspector | | | |

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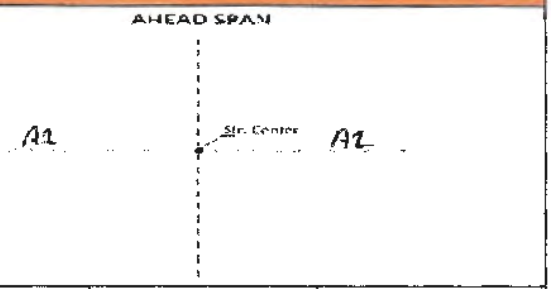
POWERLINE CONSTRUCTION

# Anchor Pull Test

| Project # | 4581 | Project Name | Eagle gold 69KV | Facility# | |
|---|---|---|---|---|---|
| Structure # | 10/10 | Structure Type | PTR | | |

## Anchor Test Record

| | |
|---|---|
| Time and Date Started | Oct 2 2018 9:20 |
| Time and Date completed | Oct 2 2018 9:45 |
| Test Device | Dyna Link 2 MSI7300 |
| Operator | Excavator/Foreman |




| Anchor # | Pre-Load Benchmark | Amount of Stretch at 50% Tension | Final Reading at Full Tension | Final Reading when Tension Released | Change After Testing |
|---|---|---|---|---|---|
| 1 | 0 mm @ 0 | 0 mm @ 9060 | 3 mm @ 18140 | 2 mm @ 0 | 2 mm |
| 2 | 0 mm @ 0 | 0 mm @ 9150 | 2 mm @ 18200 | 2 mm @ 0 | 2 mm |
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**Test Procedure:**

1. Take Benchmark reading of anchor rod.
2. Pull Anchor rod at 50% load and hold for 2 minutes. Record movement.
3. Pull Anchor rod at Full tension load and hold for 2 minutes. Record movement.
4. Release tension and record rod movement.
5. For 2 anchor configuration, the single anchor will be pulled at 50% Tension. Wait 5 minutes between pulls.

**Comments**

A1,A2 Permafrost ( plate anchors)

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR ANTAC | | OCT 5/18 |
| QC Representative | Phil McKinley | | Oct 4 2018 |
| Client Inspector | | | |

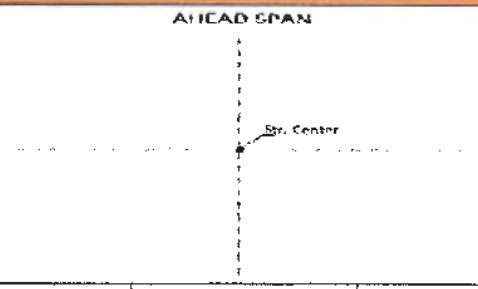
Forbes Bros LTD
POWERLINE CONSTRUCTION

# Anchor Pull Test

| Project # | 4581 | Project Name | Eagle gold 69KV | Facility# | |
|---|---|---|---|---|---|
| Structure # | 10/13 | Structure Type | VDEMA | | |

## Anchor Test Record

| | |
|---|---|
| Time and Date Started | Nov 6 2018 10:00 |
| Time and Date completed | Nov 6 2018 11:15 |
| Test Device | Dyna Link 2 MSI7300 |
| Operator | Excavator/Foreman |




| Anchor # | Pre-Load Benchmark | Amount of Stretch at 50% Tension | Final Reading at Full Tension | Final Reading when Tension Released | Change After Testing |
|---|---|---|---|---|---|
| 1 | 0 mm @ 0 | 0 mm @ 9220 | 3 mm @ 18160 | 3 mm @ 0 | 3 mm |
| 2 | 0 mm @ 0 | 0 mm @ 9170 | 2 mm @ 18180 | 2 mm @ 0 | 2 mm |
| 3 | 0mm @ 0 | 0mm @ 9140 | 3 mm @ 18250 | 3mm @ 0 | 3 mm |
| 4 | 0mm @ 0 | 0mm @ 9130 | 3 mm @ 18100 | 3mm @ 0 | 3 mm |
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**Test Procedure:**

1. Take Benchmark reading of anchor rod.
2. Pull Anchor rod at 50% load and hold for 2 minutes. Record movement.
3. Pull Anchor rod at Full tension load and hold for 2 minutes. Record movement.
4. Release tension and record rod movement.
5. For 2 anchor configuration, the single anchor will be pulled at 50% Tension. Wait 5 minutes between pulls.

**Comments**

A1,A2,A3,A4 Permafrost ( log anchors)

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR ANTAL | | Nov 8/18 |
| QC Representative | Phil McKinley | Phil McKinley | Nov 7 2018 |
| Client Inspector | | | |

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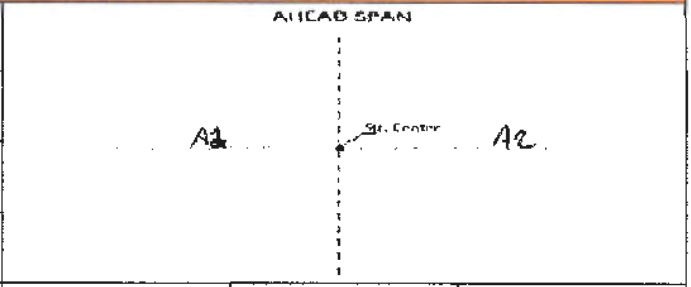
# Anchor Pull Test

| Project # | 4581 | Project Name | Eagle gold 69KV | Facility# | |
|---|---|---|---|---|---|
| Structure # | 10/14 | Structure Type | PTR | | |

## Anchor Test Record

| | |
|---|---|
| Time and Date Started | Oct 3 2018 14:20 |
| Time and Date completed | Oct 3 2018 14:45 |
| Test Device | Dyna Link 2 MSI7300 |
| Operator | Excavator/Foreman |




| Anchor # | Pre-Load Benchmark | Amount of Stretch at 50% Tension | Final Reading at Full Tension | Final Reading when Tension Released | Change After Testing |
|---|---|---|---|---|---|
| 1 | 0 mm @ 0 | 0 mm @ 9160 | 3 mm @ 18180 | 2 mm @ 0 | 2 mm |
| 2 | 0 mm @ 0 | 0 mm @ 9040 | 3 mm @ 18290 | 3 mm @ 0 | 3 mm |
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**Test Procedure:**

1. Take Benchmark reading of anchor rod.
2. Pull Anchor rod at 50% load and hold for 2 minutes. Record movement.
3. Pull Anchor rod at Full tension load and hold for 2 minutes. Record movement.
4. Release tension and record rod movement.
5. For 2 anchor configuration, the single anchor will be pulled at 50% Tension. Wait 5 minutes between pulls.

**Comments**

A1,A2 Permafrost ( plate anchors)

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR ANSTAZ | | OCT 5 / 18 |
| QC Representative | Phil McKinley | Phil McKinley | Oct 4 2018 |
| Client Inspector | | | |

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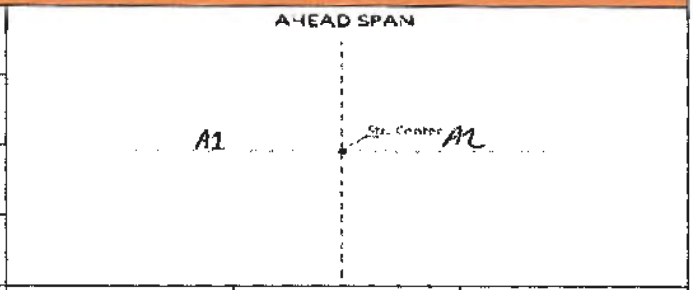
POWERLINE CONSTRUCTION

# Anchor Pull Test

| Project # | 4581 | Project Name | Eagle gold 69KV | Facility# | |
|---|---|---|---|---|---|
| Structure # | 10/4 | Structure Type | PTR | | |

## Anchor Test Record

| | |
|---|---|
| Time and Date Started | Nov 6 2018 10:00 |
| Time and Date completed | Nov 6 2018 10:40 |
| Test Device | Dyna Link 2 MSI7300 |
| Operator | Excavator/Foreman |




| Anchor # | Pre-Load Benchmark | Amount of Stretch at 50% Tension | Final Reading at Full Tension | Final Reading when Tension Released | Change After Testing |
|---|---|---|---|---|---|
| 1 | 0 mm @ 0 | 0 mm @ 9090 | 4 mm @ 18180 | 3 mm @ 0 | 3 mm |
| 2 | 0 mm @ 0 | 0 mm @ 9240 | 3 mm @ 18150 | 3 mm @ 0 | 3 mm |
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**Test Procedure:**

1. Take Benchmark reading of anchor rod.
2. Pull Anchor rod at 50% load and hold for 2 minutes. Record movement.
3. Pull Anchor rod at Full tension load and hold for 2 minutes. Record movement.
4. Release tension and record rod movement.
5. For 2 anchor configuration, the single anchor will be pulled at 50% Tension. Wait 5 minutes between pulls.

**Comments**

A1,A2 Permafrost ( plate anchors)

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR ANTTA | | Nov 7/18 |
| QC Representative | Phil McKinley | Phil McKinley | Nov 6 2018 |
| Client Inspector | | | |

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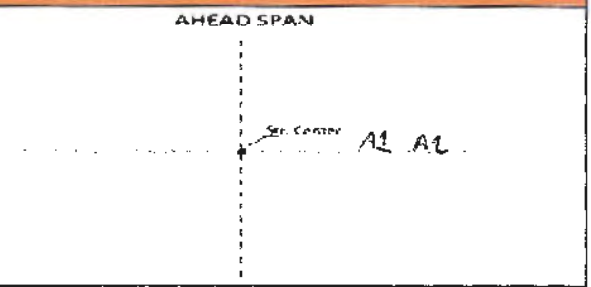
Powerline Construction

# Anchor Pull Test

| Project # | 4581 | Project Name | Eagle gold 69KV | Facility# | |
|---|---|---|---|---|---|
| Structure # | 10/5 | Structure Type | VMA | | |

## Anchor Test Record

| | |
|---|---|
| Time and Date Started | Nov 5 2018 11:10 |
| Time and Date completed | Nov 5 2018 11:45 |
| Test Device | Dyna Link 2 MSI7300 |
| Operator | Excavator/Foreman |




| Anchor # | Pre-Load Benchmark | Amount of Stretch at 50% Tension | Final Reading at Full Tension | Final Reading when Tension Released | Change After Testing |
|---|---|---|---|---|---|
| 1 | 0 mm @ 0 | 0 mm @ 9110 | 1 mm @ 18080 | 1 mm @ 0 | 1 mm |
| 2 | 0 mm @ 0 | 0 mm @ 9200 | 2 mm @ 19170 | 2 mm @ 0 | 2 mm |
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**Test Procedure:**

1. Take Benchmark reading of anchor rod.
2. Pull Anchor rod at 50% load and hold for 2 minutes. Record movement.
3. Pull Anchor rod at Full tension load and hold for 2 minutes. Record movement.
4. Release tension and record rod movement.
5. For 2 anchor configuration, the single anchor will be pulled at 50% Tension. Wait 5 minutes between pulls.

**Comments**

A1, A2 Gravel Clay (Anchors)

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR ANTAL | | Nov 7/18 |
| QC Representative | Phil McKinley | Phil McKinley | Nov 6 2018 |
| Client Inspector | | | |

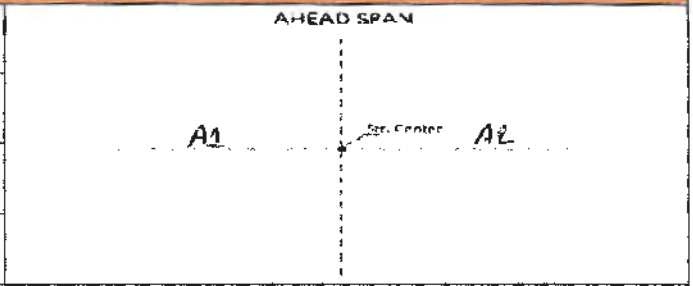
Forbes Bros Ltd.
POWERLINE CONSTRUCTION

# Anchor Pull Test

| Project # | 4581 | Project Name | Eagle gold 69KV | Facility# | |
|---|---|---|---|---|---|
| Structure # | 10/6 | Structure Type | PTR | | |

## Anchor Test Record

| | |
|---|---|
| Time and Date Started | Nov 5 2018 12:40 |
| Time and Date completed | Nov 5 2018 13:20 |
| Test Device | Dyna Link 2 MSI7300 |
| Operator | Excavator/Foreman |




| Anchor # | Pre-Load Benchmark | Amount of Stretch at 50% Tension | Final Reading at Full Tension | Final Reading when Tension Released | Change After Testing |
|---|---|---|---|---|---|
| 1 | 0 mm @ 0 | 0 mm @ 9040 | 3 mm @ 18170 | 3 mm @ 0 | 3 mm |
| 2 | 0 mm @ 0 | 0 mm @ 9180 | 3 mm @ 18030 | 3 mm @ 0 | 3 mm |
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**Test Procedure:**

1. Take Benchmark reading of anchor rod.
2. Pull Anchor rod at 50% load and hold for 2 minutes. Record movement.
3. Pull Anchor rod at Full tension load and hold for 2 minutes. Record movement.
4. Release tension and record rod movement.
5. For 2 anchor configuration, the single anchor will be pulled at 50% Tension. Wait 5 minutes between pulls.

**Comments**

A1,A2 Permafrost ( plate anchors)

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR ANTAL | | Nov 7/18 |
| QC Representative | Phil McKinley | | Nov 6 2018 |
| Client Inspector | | | |

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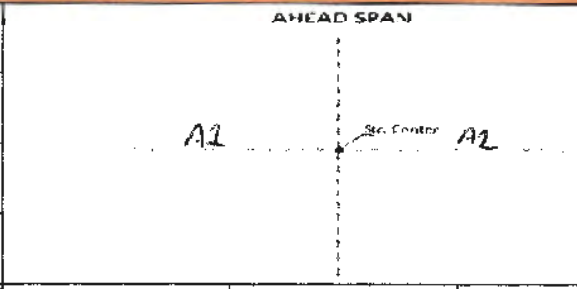
POWERLINE CONSTRUCTION

# Anchor Pull Test

| Project # | 4581 | Project Name | Eagle gold 69KV | Facility# | |
|---|---|---|---|---|---|
| Structure # | 10/7 | Structure Type | PT | | |

## Anchor Test Record

| | |
|---|---|
| Time and Date Started | Nov 5 2018 13:45 |
| Time and Date completed | Nov 5 2018 14:20 |
| Test Device | Dyna Link 2 MSI7300 |
| Operator | Excavator/Foreman |




| Anchor # | Pre-Load Benchmark | Amount of Stretch at 50% Tension | Final Reading at Full Tension | Final Reading when Tension Released | Change After Testing |
|---|---|---|---|---|---|
| 1 | 0 mm @ 0 | 0 mm @ 9030 | 2 mm @ 18140 | 2 mm @ 0 | 2 mm |
| 2 | 0 mm @ 0 | 0 mm @ 9140 | 2 mm @ 18270 | 2 mm @ 0 | 2 mm |
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**Test Procedure:**

1. Take Benchmark reading of anchor rod.
2. Pull Anchor rod at 50% load and hold for 2 minutes. Record movement.
3. Pull Anchor rod at Full tension load and hold for 2 minutes. Record movement.
4. Release tension and record rod movement.
5. For 2 anchor configuration, the single anchor will be pulled at 50% Tension. Wait 5 minutes between pulls.

**Comments**

A1,A2 Permafrost ( plate anchors)

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR AWOTAR | | Nov 7/18 |
| QC Representative | Phil McKinley | | Nov 6 2018 |
| Client Inspector | | | |

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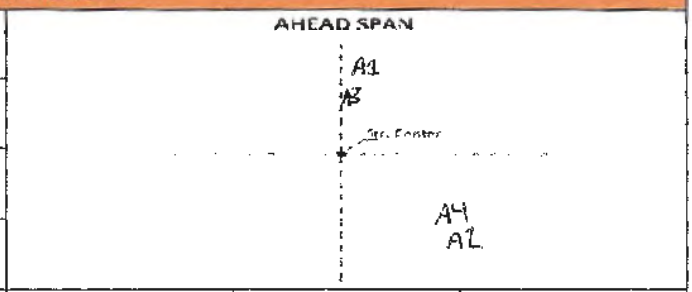
POWERLINE CONSTRUCTION

# Anchor Pull Test

| Project # | 4581 | Project Name | Eagle gold 69KV | Facility# | |
|---|---|---|---|---|---|
| Structure # | 10/9 | Structure Type | VDEHA | | |

## Anchor Test Record

| | |
|---|---|
| Time and Date Started | Nov 5 2018 14:40 |
| Time and Date completed | Nov 5 2018 15:30 |
| Test Device | Dyna Link 2 MSI7300 |
| Operator | Excavator/Foreman |




| Anchor # | Pre-Load Benchmark | Amount of Stretch at 50% Tension | Final Reading at Full Tension | Final Reading when Tension Released | Change After Testing |
|---|---|---|---|---|---|
| 1 | 0 mm @ 0 | 0 mm @ 9050 | 1 mm @ 18270 | 1 mm @ 0 | 1 mm |
| 2 | 0 mm @ 0 | 0 mm @ 9180 | 3 mm @ 18130 | 3 mm @ 0 | 3 mm |
| 3 | 0 mm @ 0 | 0 mm @ 9160 | 2 mm @ 18210 | 2 mm @ 0 | 2 mm |
| 4 | 0 mm @ 0 | 0 mm @ 9200 | 3 mm @ 18260 | 3 mm @ 0 | 3 mm |
| | | | | | |
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**Test Procedure:**

1. Take Benchmark reading of anchor rod.
2. Pull Anchor rod at 50% load and hold for 2 minutes. Record movement.
3. Pull Anchor rod at Full tension load and hold for 2 minutes. Record movement.
4. Release tension and record rod movement.
5. For 2 anchor configuration, the single anchor will be pulled at 50% Tension. Wait 5 minutes between pulls.

**Comments**

A1,A2,A3,A4 Sand ( log anchors )

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR ANTAL | | Nov 7/18 |
| QC Representative | Phil McKinley | Phil McKinley | Nov 6 2018 |
| Client Inspector | | | |

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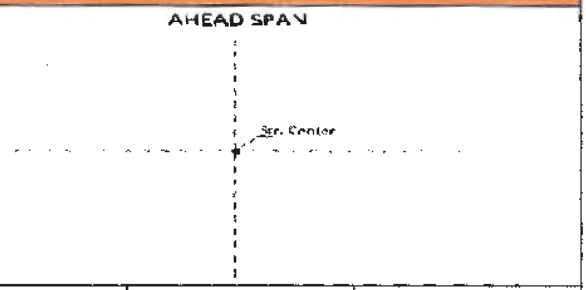
POWERLINE CONSTRUCTION

# Anchor Pull Test

| Project # | 4581 | Project Name | Eagle gold 69KV | Facility# | |
|---|---|---|---|---|---|
| Structure # | 1/1 | Structure Type | PVO | | |

## Anchor Test Record

| | |
|---|---|
| Time and Date Started | Oct 12 2018 14:00 |
| Time and Date completed | Oct 12 2018 14:45 |
| Test Device | Dyna Link 2 MSI7300 |
| Operator | Excavator/Foreman |




| Anchor # | Pre-Load Benchmark | Amount of Stretch at 50% Tension | Final Reading at Full Tension | Final Reading when Tension Released | Change After Testing |
|---|---|---|---|---|---|
| 1 | 0 mm @ 0 | 0 mm @ 9040 | 1 mm @ 18270 | 1 mm @ 0 | 1mm |
| 2 | 0 mm @ 0 | 0 mm @ 9130 | 2 mm @ 18240 | 2 mm @ 0 | 2 mm |
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**Test Procedure:**

1. Take Benchmark reading of anchor rod.
2. Pull Anchor rod at 50% load and hold for 2 minutes. Record movement.
3. Pull Anchor rod at Full tension load and hold for 2 minutes. Record movement.
4. Release tension and record rod movement.
5. For 2 anchor configuration, the single anchor will be pulled at 50% Tension. Wait 5 minutes between pulls.

**Comments**

A1,A2 permafrost (plate anchors)

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR ANTAZ | | OCT 13/18 |
| QC Representative | Phil McKinley | Phil McKinley | Oct 12 2018 |
| Client Inspector | | | |

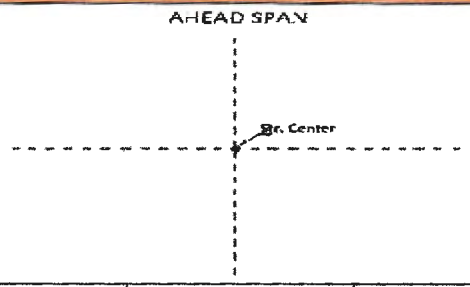
Forbes Bros LTD
POWERLINE CONSTRUCTION

# Anchor Pull Test

| Project # | 4581 | Project Name | Eagle gold 69KV | Facility# | |
|---|---|---|---|---|---|
| Structure # | 1/11 | Structure Type | PT | | |

## Anchor Test Record

| | |
|---|---|
| Time and Date Started | Oct 4 2018 13:00 |
| Time and Date completed | Oct 4 2018 13:45 |
| Test Device | Dyna Link 2 MSI7300 |
| Operator | Excavator/Foreman |




| Anchor # | Pre-Load Benchmark | Amount of Stretch at 50% Tension | Final Reading at Full Tension | Final Reading when Tension Released | Change After Testing |
|---|---|---|---|---|---|
| 1 | 0 mm @ 0 | 0 mm @ 9190 | 1 mm @ 18210 | 1 mm @ 0 | 1 mm |
| 2 | 0 mm @ 0 | 0 mm @ 9060 | 3 mm @ 18280 | 2 mm @ 0 | 2 mm |
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**Test Procedure:**

1. Take Benchmark reading of anchor rod.
2. Pull Anchor rod at 50% load and hold for 2 minutes. Record movement.
3. Pull Anchor rod at Full tension load and hold for 2 minutes. Record movement.
4. Release tension and record rod movement.
5. For 2 anchor configuration, the single anchor will be pulled at 50% Tension. Wait 5 minutes between pulls.

**Comments**

A1,A2 permafrost (plate anchors)

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR ANSTAC | | OCT 7/18 |
| QC Representative | Phil McKinley | Phil McKinley | Oct 6 2018 |
| Client Inspector | | | |

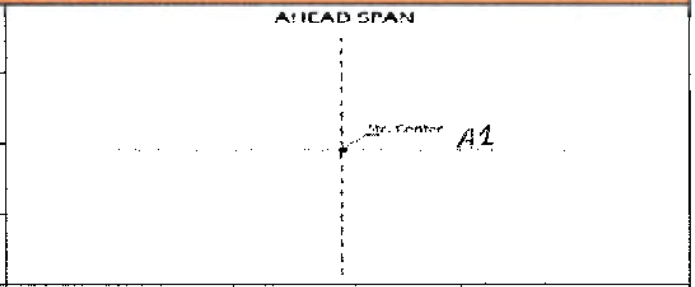
Forbes Bros Ltd
POWERLINE CONSTRUCTION

# Anchor Pull Test

| Project # | 4581 | Project Name | Eagle gold 69KV | Facility# | |
|---|---|---|---|---|---|
| Structure # | 11/10 | Structure Type | PTG | | |

## Anchor Test Record

| | |
|---|---|
| Time and Date Started | Nov 9 2018 11:20 |
| Time and Date completed | Nov 9 2018 11:40 |
| Test Device | Dyna Link 2 MSI7300 |
| Operator | Excavator/Foreman |




| Anchor # | Pre-Load Benchmark | Amount of Stretch at 50% Tension | Final Reading at Full Tension | Final Reading when Tension Released | Change After Testing |
|---|---|---|---|---|---|
| 1 | 0 mm @ 0 | 0 mm @ 9280 | 1 mm @ 18230 | 1mm @ 0 | 1 mm |
| | | | | | |
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**Test Procedure:**

1. Take Benchmark reading of anchor rod.
2. Pull Anchor rod at 50% load and hold for 2 minutes. Record movement.
3. Pull Anchor rod at Full tension load and hold for 2 minutes. Record movement.
4. Release tension and record rod movement.
5. For 2 anchor configuration, the single anchor will be pulled at 50% Tension. Wait 5 minutes between pulls.

**Comments**

A1 Gravel (log anchor)

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR AWTRE | | Nov 12/18 |
| QC Representative | Phil McKinley | Phil McKinley | Nov 11 2018 |
| Client Inspector | | | |

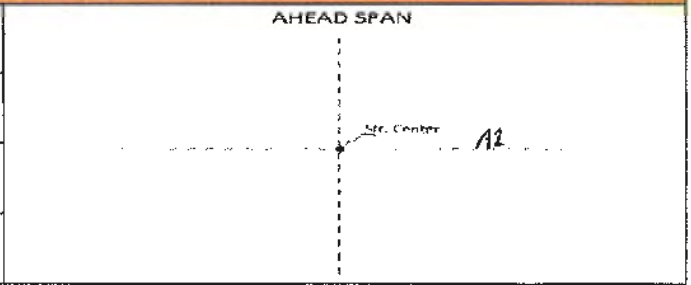
Forbes Bros LTD
POWERLINE CONSTRUCTION

# Anchor Pull Test

| Project # | 4581 | Project Name | Eagle gold 69KV | Facility# | |
|---|---|---|---|---|---|
| Structure # | 11/11 | Structure Type | PTG | | |

## Anchor Test Record

| | |
|---|---|
| Time and Date Started | Nov 9 2018 11:55 |
| Time and Date completed | Nov 9 2018 12:15 |
| Test Device | Dyna Link 2 MSI7300 |
| Operator | Excavator/Foreman |




| Anchor # | Pre-Load Benchmark | Amount of Stretch at 50% Tension | Final Reading at Full Tension | Final Reading when Tension Released | Change After Testing |
|---|---|---|---|---|---|
| 1 | 0 mm @ 0 | 0 mm @ 9020 | 2 mm @ 18140 | 2 mm @ 0 | 2 mm |
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**Test Procedure:**

1. Take Benchmark reading of anchor rod.
2. Pull Anchor rod at 50% load and hold for 2 minutes. Record movement.
3. Pull Anchor rod at Full tension load and hold for 2 minutes. Record movement.
4. Release tension and record rod movement.
5. For 2 anchor configuration, the single anchor will be pulled at 50% Tension. Wait 5 minutes between pulls.

**Comments**

A1 Gravel (log anchor)

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR ANDAC | | Nov 12/18 |
| QC Representative | Phil McKinley | Phil McKinley | Nov 11 2018 |
| Client Inspector | | | |

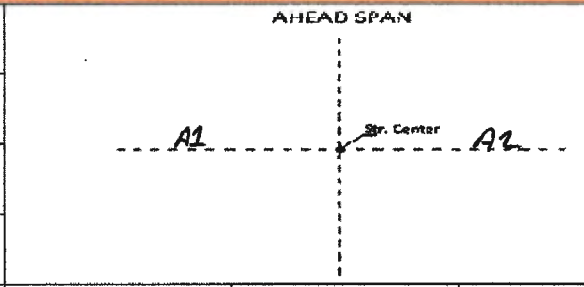
Forbes Bros. LTD
POWERLINE CONSTRUCTION

# Anchor Pull Test

| Project # | 4581 | Project Name | Eagle gold 69KV | Facility# | |
|---|---|---|---|---|---|
| Structure # | 11/12 | Structure Type | VMA | | |

## Anchor Test Record

| | |
|---|---|
| Time and Date Started | Nov 9 2018 12:50 |
| Time and Date completed | Nov 9 2018 1:30 |
| Test Device | Dyna Link 2 MSI7300 |
| Operator | Excavator/Foreman |




| Anchor # | Pre-Load Benchmark | Amount of Stretch at 50% Tension | Final Reading at Full Tension | Final Reading when Tension Released | Change After Testing |
|---|---|---|---|---|---|
| 1 | 0 mm @ 0 | 0 mm @ 9230 | 3 mm @ 18180 | 2 mm @ 0 | 2 mm |
| 2 | 0 mm @ 0 | 0 mm @ 9270 | 2 mm @ 18230 | 2 mm @ 0 | 2 mm |
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**Test Procedure:**

1. Take Benchmark reading of anchor rod.
2. Pull Anchor rod at 50% load and hold for 2 minutes. Record movement.
3. Pull Anchor rod at Full tension load and hold for 2 minutes. Record movement.
4. Release tension and record rod movement.
5. For 2 anchor configuration, the single anchor will be pulled at 50% Tension. Wait 5 minutes between pulls.

**Comments**

A1,A2 Permafrost (log anchors)

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR AWYM | | NOV 12/18 |
| QC Representative | Phil McKinley | Phil McKinley | Nov 11 2018 |
| Client Inspector | | | |

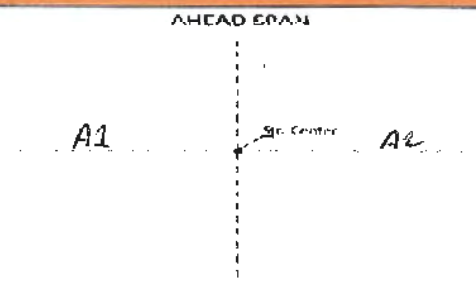
Forbes Bros LTD
POWERLINE CONSTRUCTION

# Anchor Pull Test

| Project # | 4581 | Project Name | Eagle gold 69KV | Facility# | |
|---|---|---|---|---|---|
| Structure # | 11/3 | Structure Type | PTR | | |

## Anchor Test Record

| | |
|---|---|
| Time and Date Started | Oct 9 2018 9:20 |
| Time and Date completed | Oct 9 2018 10:00 |
| Test Device | Dyna Link 2 MSI7300 |
| Operator | Excavator/Foreman |




| Anchor # | Pre-Load Benchmark | Amount of Stretch at 50% Tension | Final Reading at Full Tension | Final Reading when Tension Released | Change After Testing |
|---|---|---|---|---|---|
| 1 | 0 mm @ 0 | 0 mm @ 9140 | 2 mm @ 18120 | 2 mm @ 0 | 2 mm |
| 2 | 0 mm @ 0 | 0 mm @ 9030 | 2 mm @ 18270 | 2 mm @ 0 | 2 mm |
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**Test Procedure:**

1. Take Benchmark reading of anchor rod.
2. Pull Anchor rod at 50% load and hold for 2 minutes. Record movement.
3. Pull Anchor rod at Full tension load and hold for 2 minutes. Record movement.
4. Release tension and record rod movement.
5. For 2 anchor configuration, the single anchor will be pulled at 50% Tension. Wait 5 minutes between pulls.

**Comments**

A1,A2 Permafrost ( plate anchors)

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR ANTAR | | OCT 12/18 |
| QC Representative | Phil McKinley | Phil McKinley | Oct 10 2018 |
| Client Inspector | | | |

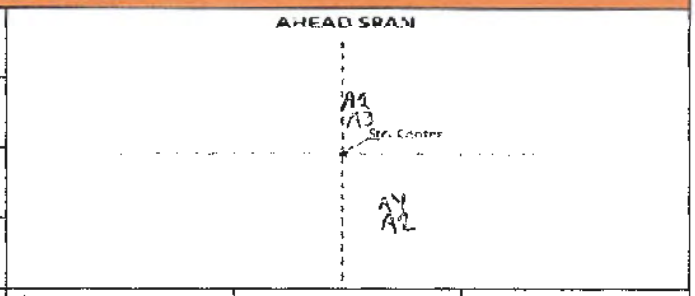
Forbes Bros. Ltd.
Powerline Construction

# Anchor Pull Test

| Project # | 4581 | Project Name | Eagle gold 69KV | Facility# | |
|---|---|---|---|---|---|
| Structure # | 11/4 | Structure Type | VDEMA | | |

## Anchor Test Record

| | |
|---|---|
| Time and Date Started | Nov 9 2018 8:30 |
| Time and Date completed | Nov 9 2018 9:30 |
| Test Device | Dyna Link 2 MSI7300 |
| Operator | Excavator/Foreman |




| Anchor # | Pre-Load Benchmark | Amount of Stretch at 50% Tension | Final Reading at Full Tension | Final Reading when Tension Released | Change After Testing |
|---|---|---|---|---|---|
| 1 | 0 mm @ 0 | 0 mm @ 9150 | 4 mm @ 18250 | 4 mm @ 0 | 4 mm |
| 2 | 0 mm @ 0 | 0 mm @ 9270 | 3 mm @ 18130 | 3 mm @ 0 | 3 mm |
| 3 | 0 mm @ 0 | 0 mm @ 9160 | 3 mm @ 18090 | 3 mm @ 0 | 3 mm |
| 4 | 0 mm @ 0 | 0 mm @ 9240 | 3 mm @ 18170 | 3 mm @ 0 | 3 mm |
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**Test Procedure:**

1. Take Benchmark reading of anchor rod.
2. Pull Anchor rod at 50% load and hold for 2 minutes. Record movement.
3. Pull Anchor rod at Full tension load and hold for 2 minutes. Record movement.
4. Release tension and record rod movement.
5. For 2 anchor configuration, the single anchor will be pulled at 50% Tension. Wait 5 minutes between pulls.

**Comments**

A1,A2,A3,A4 Permafrost ( log anchors)

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR AWTAC | | Nov 12/18 |
| QC Representative | Phil McKinley | Phil McKinley | Nov 11 2018 |
| Client Inspector | | | |

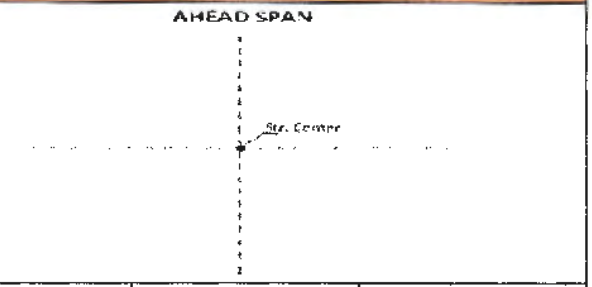
Forbes Bros LTD
POWERLINE CONSTRUCTION

# Anchor Pull Test

| Project # | 4581 | Project Name | Eagle gold 69KV | Facility# | |
|---|---|---|---|---|---|
| Structure # | 11/6 | Structure Type | PT | | |

## Anchor Test Record

| | |
|---|---|
| Time and Date Started | Oct 9 2018 10:30 |
| Time and Date completed | Oct 9 2018 11:00 |
| Test Device | Dyna Link 2 MSI7300 |
| Operator | Excavator/Foreman |




| Anchor # | Pre-Load Benchmark | Amount of Stretch at 50% Tension | Final Reading at Full Tension | Final Reading when Tension Released | Change After Testing |
|---|---|---|---|---|---|
| 1 | 0 mm @ 0 | 0 mm @ 9250 | 2 mm @ 18260 | 2 mm @ 0 | 2 mm |
| 2 | 0 mm @ 0 | 0 mm @ 9090 | 2 mm @ 18020 | 2 mm @ 0 | 2 mm |
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**Test Procedure:**

1. Take Benchmark reading of anchor rod.
2. Pull Anchor rod at 50% load and hold for 2 minutes. Record movement.
3. Pull Anchor rod at Full tension load and hold for 2 minutes. Record movement.
4. Release tension and record rod movement.
5. For 2 anchor configuration, the single anchor will be pulled at 50% Tension. Wait 5 minutes between pulls.

**Comments**

A1,A2 Permafrost ( plate anchors)

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR ANTAL | | OCT 12 / 18 |
| QC Representative | Phil McKinley | Phil McKinley | Oct 10 2018 |
| Client Inspector | | | |

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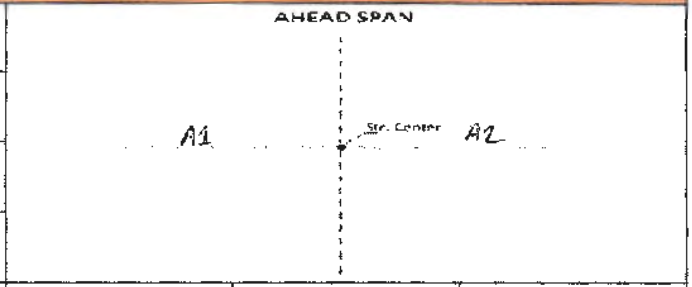
# Anchor Pull Test

| Project # | 4581 | Project Name | Eagle gold 69KV | Facility# | |
|---|---|---|---|---|---|
| Structure # | 11/7 | Structure Type | PT | | |

## Anchor Test Record

| | |
|---|---|
| Time and Date Started | Oct 9 2018 11:40 |
| Time and Date completed | Oct 9 2018 12:10 |
| Test Device | Dyna Link 2 MSI7300 |
| Operator | Excavator/Foreman |




| Anchor # | Pre-Load Benchmark | Amount of Stretch at 50% Tension | Final Reading at Full Tension | Final Reading when Tension Released | Change After Testing |
|---|---|---|---|---|---|
| 1 | 0 mm @ 0 | 0 mm @ 9170 | 3 mm @ 18240 | 3 mm @ 0 | 3 mm |
| 2 | 0 mm @ 0 | 0 mm @ 9040 | 2 mm @ 18270 | 2 mm @ 0 | 2 mm |
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**Test Procedure:**

1. Take Benchmark reading of anchor rod.
2. Pull Anchor rod at 50% load and hold for 2 minutes. Record movement.
3. Pull Anchor rod at Full tension load and hold for 2 minutes. Record movement.
4. Release tension and record rod movement.
5. For 2 anchor configuration, the single anchor will be pulled at 50% Tension. Wait 5 minutes between pulls.

**Comments**

A1,A2 Permafrost ( plate anchors)

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR ANTAR | | OCT 12/18 |
| QC Representative | Phil McKinley | Phil McKinley | Oct 10 2018 |
| Client Inspector | | | |

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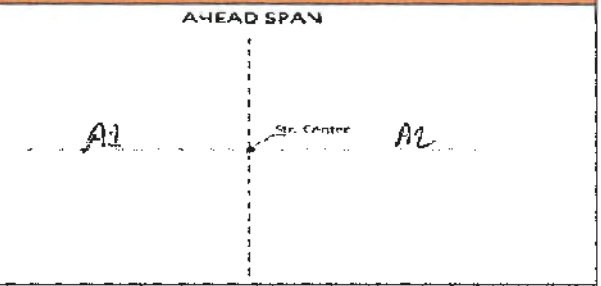
POWERLINE CONSTRUCTION

# Anchor Pull Test

| Project # | 4581 | Project Name | Eagle gold 69KV | Facility# | |
|---|---|---|---|---|---|
| Structure # | 11/8 | Structure Type | PT | | |

## Anchor Test Record

| | |
|---|---|
| Time and Date Started | Oct 9 2018 12:30 |
| Time and Date completed | Oct 9 2018 13:10 |
| Test Device | Dyna Link 2 MSI7300 |
| Operator | Excavator/Foreman |




| Anchor # | Pre-Load Benchmark | Amount of Stretch at 50% Tension | Final Reading at Full Tension | Final Reading when Tension Released | Change After Testing |
|---|---|---|---|---|---|
| 1 | 0 mm @ 0 | 0 mm @ 9270 | 2 mm @ 18150 | 2 mm @ 0 | 2 mm |
| 2 | 0 mm @ 0 | 0 mm @ 9150 | 1 mm @ 18200 | 1 mm @ 0 | 1 mm |
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**Test Procedure:**

1. Take Benchmark reading of anchor rod.
2. Pull Anchor rod at 50% load and hold for 2 minutes. Record movement.
3. Pull Anchor rod at Full tension load and hold for 2 minutes. Record movement.
4. Release tension and record rod movement.
5. For 2 anchor configuration, the single anchor will be pulled at 50% Tension. Wait 5 minutes between pulls.

**Comments**

A1,A2 Permafrost ( plate anchors)

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR PANTAR | | OCT 12/18 |
| QC Representative | Phil McKinley | Phil McKinley | Oct 10 2018 |
| Client Inspector | | | |

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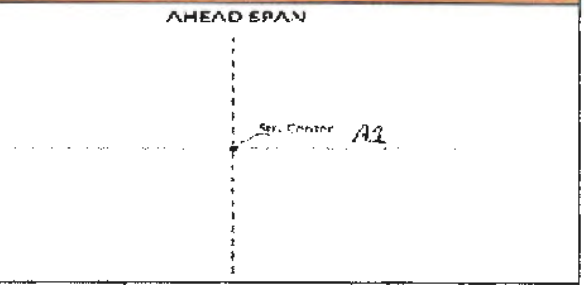
POWERLINE CONSTRUCTION

# Anchor Pull Test

| Project # | 4581 | Project Name | Eagle gold 69KV | Facility# | |
|---|---|---|---|---|---|
| Structure # | 11/9 | Structure Type | PTG | | |

## Anchor Test Record

| | |
|---|---|
| Time and Date Started | Nov 9 2018 10:45 |
| Time and Date completed | Nov 9 2018 11:00 |
| Test Device | Dyna Link 2 MSI7300 |
| Operator | Excavator/Foreman |




| Anchor # | Pre-Load Benchmark | Amount of Stretch at 50% Tension | Final Reading at Full Tension | Final Reading when Tension Released | Change After Testing |
|---|---|---|---|---|---|
| 1 | 0 mm @ 0 | 0 mm @ 9260 | 2 mm @ 18150 | 2 mm @ 0 | 2 mm |
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**Test Procedure:**

1. Take Benchmark reading of anchor rod.
2. Pull Anchor rod at 50% load and hold for 2 minutes. Record movement.
3. Pull Anchor rod at Full tension load and hold for 2 minutes. Record movement.
4. Release tension and record rod movement.
5. For 2 anchor configuration, the single anchor will be pulled at 50% Tension. Wait 5 minutes between pulls.

**Comments**

A1 Gravel (log anchor)

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR AUTHIE | | Nov 12/18 |
| QC Representative | Phil McKinley | Phil McKinley | Nov 11 2018 |
| Client Inspector | | | |

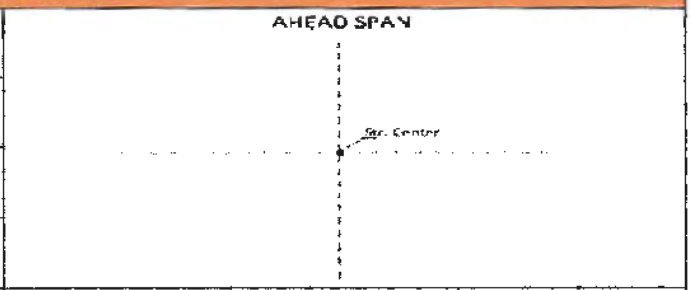
Forbes Bros LTD
POWERLINE CONSTRUCTION

# Anchor Pull Test

| Project # | 4581 | Project Name | Eagle gold 69KV | Facility# | |
|---|---|---|---|---|---|
| Structure # | 1/2 | Structure Type | VDEMAO | | |

## Anchor Test Record

| | |
|---|---|
| Time and Date Started | Oct 20 2018 8:30 |
| Time and Date completed | Oct 20 2018 10:30 |
| Test Device | Dyna Link 2 MSI7300 |
| Operator | Excavator/Foreman |




| Anchor # | Pre-Load Benchmark | Amount of Stretch at 50% Tension | Final Reading at Full Tension | Final Reading when Tension Released | Change After Testing |
|---|---|---|---|---|---|
| 1 | 0 mm @ 0 | 0 mm @ 9240 | 4 mm @ 18180 | 3 mm @ 0 | 3 mm |
| 2 | 0 mm @ 0 | 0 mm @ 9040 | 3 mm @ 18250 | 3 mm @ 0 | 3 mm |
| 3 | 0 mm @ 0 | 0 mm @ 9080 | 3 mm @ 18120 | 2 mm @ 0 | 2 mm |
| 4 | 0 mm @ 0 | 0 mm @ 9160 | 2 mm @ 18220 | 2 mm @ 0 | 2 mm |
| | | | | | |
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**Test Procedure:**

1. Take Benchmark reading of anchor rod.
2. Pull Anchor rod at 50% load and hold for 2 minutes. Record movement.
3. Pull Anchor rod at Full tension load and hold for 2 minutes. Record movement.
4. Release tension and record rod movement.
5. For 2 anchor configuration, the single anchor will be pulled at 50% Tension. Wait 5 minutes between pulls.

**Comments**

A1,A2,A3 and A4 Gravel ( log anchors)

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR ANSTAD | | OCT 22/18 |
| QC Representative | Phil McKinley | Phil McKinley | Oct 21 2018 |
| Client Inspector | | | |

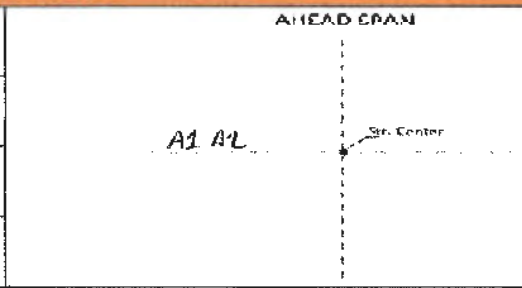
Forbes Bros. LTD
POWERLINE CONSTRUCTION

# Anchor Pull Test

| Project # | 4581 | Project Name | Eagle gold 69KV | Facility# | |
|---|---|---|---|---|---|
| Structure # | 12/2 | Structure Type | VMA | | |

## Anchor Test Record

| | |
|---|---|
| Time and Date Started | Nov 9 2018 14:10 |
| Time and Date completed | Nov 9 2018 14:45 |
| Test Device | Dyna Link 2 MSI7300 |
| Operator | Excavator/Foreman |




| Anchor # | Pre-Load Benchmark | Amount of Stretch at 50% Tension | Final Reading at Full Tension | Final Reading when Tension Released | Change After Testing |
|---|---|---|---|---|---|
| 1 | 0 mm @ 0 | 0 mm @ 9240 | 3 mm @ 18280 | 3 mm @ 0 | 3 mm |
| 2 | 0 mm @ 0 | 0 mm @ 9270 | 3 mm @ 18130 | 3 mm @ 0 | 3 mm |
| | | | | | |
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**Test Procedure:**

1. Take Benchmark reading of anchor rod.
2. Pull Anchor rod at 50% load and hold for 2 minutes. Record movement.
3. Pull Anchor rod at Full tension load and hold for 2 minutes. Record movement.
4. Release tension and record rod movement.
5. For 2 anchor configuration, the single anchor will be pulled at 50% Tension. Wait 5 minutes between pulls.

**Comments**

A1,A2 Permafrost (log anchors)

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR ANTAC | | Nov 12/18 |
| QC Representative | Phil McKinley | Phil McKinley | Nov 11 2018 |
| Client Inspector | | | |

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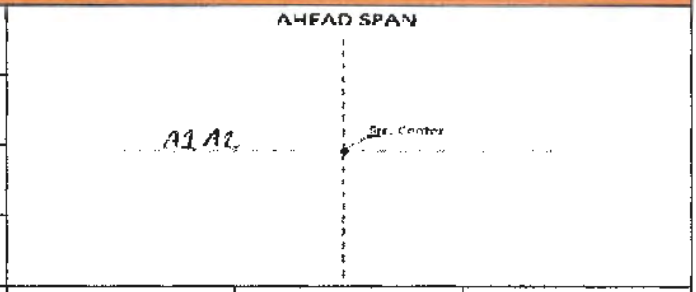
POWERLINE CONSTRUCTION

# Anchor Pull Test

| Project # | 4581 | Project Name | Eagle gold 69KV | Facility# | |
|---|---|---|---|---|---|
| Structure # | 12/6 | Structure Type | VMA | | |

## Anchor Test Record

| | |
|---|---|
| Time and Date Started | Nov 9 2018 15:40 |
| Time and Date completed | Nov 9 2018 16:20 |
| Test Device | Dyna Link 2 MSI7300 |
| Operator | Excavator/Foreman |




| Anchor # | Pre-Load Benchmark | Amount of Stretch at 50% Tension | Final Reading at Full Tension | Final Reading when Tension Released | Change After Testing |
|---|---|---|---|---|---|
| 1 | 0 mm @ 0 | 0 mm @ 9280 | 3 mm @ 18220 | 3 mm @ 0 | 3 mm |
| 2 | 0 mm @ 0 | 0 mm @ 9040 | 2 mm @ 18140 | 2 mm @ 0 | 2 mm |
| | | | | | |
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**Test Procedure:**

1. Take Benchmark reading of anchor rod.
2. Pull Anchor rod at 50% load and hold for 2 minutes. Record movement.
3. Pull Anchor rod at Full tension load and hold for 2 minutes. Record movement.
4. Release tension and record rod movement.
5. For 2 anchor configuration, the single anchor will be pulled at 50% Tension. Wait 5 minutes between pulls.

**Comments**

A1,A2 Gravel (log anchors)

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR AMTAL | | Nov 12/18 |
| QC Representative | Phil McKinley | Phil McKinley | Nov 11 2018 |
| Client Inspector | | | |

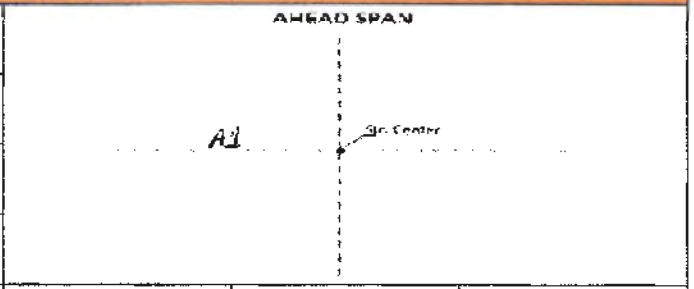
Forbes Bros LTD
POWERLINE CONSTRUCTION

# Anchor Pull Test

| Project # | 4581 | Project Name | Eagle gold 69KV | Facility# | |
|---|---|---|---|---|---|
| Structure # | 12/7 | Structure Type | PTG | | |

## Anchor Test Record

| | |
|---|---|
| Time and Date Started | Nov 9 2018 15:00 |
| Time and Date completed | Nov 9 2018 15:20 |
| Test Device | Dyna Link 2 MSI7300 |
| Operator | Excavator/Foreman |




| Anchor # | Pre-Load Benchmark | Amount of Stretch at 50% Tension | Final Reading at Full Tension | Final Reading when Tension Released | Change After Testing |
|---|---|---|---|---|---|
| 1 | 0 mm @ 0 | 0 mm @ 9030 | 2 mm @ 18150 | 1 mm @ 0 | 1 mm |
| | | | | | |
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**Test Procedure:**

1. Take Benchmark reading of anchor rod.
2. Pull Anchor rod at 50% load and hold for 2 minutes. Record movement.
3. Pull Anchor rod at Full tension load and hold for 2 minutes. Record movement.
4. Release tension and record rod movement.
5. For 2 anchor configuration, the single anchor will be pulled at 50% Tension. Wait 5 minutes between pulls.

**Comments**

A1 Gravel (log anchor)

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR AWITAK | | Nov 12/18 |
| QC Representative | Phil McKinley | Phil McKinley | Nov 11 2018 |
| Client Inspector | | | |

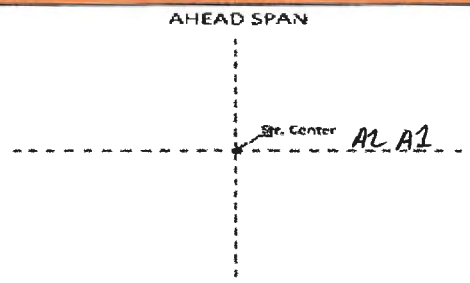
Forbes Bros LTD
POWERLINE CONSTRUCTION

# Anchor Pull Test

| Project # | 4581 | Project Name | Eagle gold 69KV | Facility# | |
|---|---|---|---|---|---|
| Structure # | 13/13 | Structure Type | VMA | | |

## Anchor Test Record

| | |
|---|---|
| Time and Date Started | Nov 10 2018 9:15 |
| Time and Date completed | Nov 10 2018 9:45 |
| Test Device | Dyna Link 2 MSI7300 |
| Operator | Excavator/Foreman |




| Anchor # | Pre-Load Benchmark | Amount of Stretch at 50% Tension | Final Reading at Full Tension | Final Reading when Tension Released | Change After Testing |
|---|---|---|---|---|---|
| 1 | 0 mm @ 0 | 0 mm @ 9150 | 1 mm @ 18270 | 1 mm @ 0 | 1 mm |
| 2 | 0 mm @ 0 | 0 mm @9180 | 2 mm @ 18240 | 1 mm @ 0 | 1 mm |
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**Test Procedure:**

1. Take Benchmark reading of anchor rod.
2. Pull Anchor rod at 50% load and hold for 2 minutes. Record movement.
3. Pull Anchor rod at Full tension load and hold for 2 minutes. Record movement.
4. Release tension and record rod movement.
5. For 2 anchor configuration, the single anchor will be pulled at 50% Tension. Wait 5 minutes between pulls.

**Comments**

A1,A2 Sand (log anchors)

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR ANTAR | | NOV 13/18 |
| QC Representative | Phil McKinley | Phil McKinley | Nov 12 2018 |
| Client Inspector | | | |

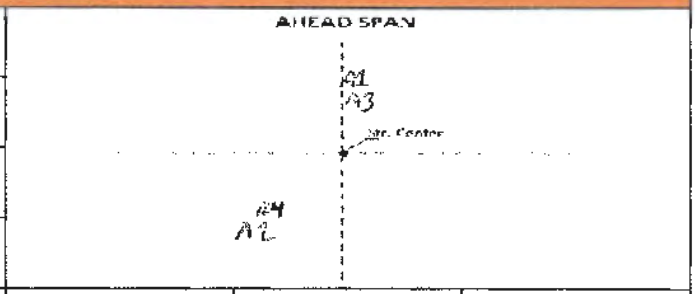
Forbes Bros Ltd
POWERLINE CONSTRUCTION

# Anchor Pull Test

| Project # | 4581 | Project Name | Eagle gold 69KV | Facility# | |
|---|---|---|---|---|---|
| Structure # | 13/2 | Structure Type | VDEMA | | |

## Anchor Test Record

| | |
|---|---|
| Time and Date Started | Nov 9 2018 16:00 |
| Time and Date completed | Nov 9 2018 17:10 |
| Test Device | Dyna Link 2 MSI7300 |
| Operator | Excavator/Foreman |




| Anchor # | Pre-Load Benchmark | Amount of Stretch at 50% Tension | Final Reading at Full Tension | Final Reading when Tension Released | Change After Testing |
|---|---|---|---|---|---|
| 1 | 0 mm @ 0 | 0 mm @ 9140 | 3 mm @ 18170 | 3 mm @ 0 | 3 mm |
| 2 | 0 mm @ 0 | 0 mm @ 9240 | 3 mm @ 18210 | 2 mm @ 0 | 2 mm |
| 3 | 0 mm @ 0 | 0 mm @ 9280 | 2 mm @ 18140 | 2 mm @ 0 | 2 mm |
| 4 | 0 mm @ 0 | 0 mm @ 9170 | 3 mm @ 18190 | 3 mm @ 0 | 3 mm |
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**Test Procedure:**

1. Take Benchmark reading of anchor rod.
2. Pull Anchor rod at 50% load and hold for 2 minutes. Record movement.
3. Pull Anchor rod at Full tension load and hold for 2 minutes. Record movement.
4. Release tension and record rod movement.
5. For 2 anchor configuration, the single anchor will be pulled at 50% Tension. Wait 5 minutes between pulls.

**Comments**

A1,A2,A3,A4 Gravel (log anchors)

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR MOTAK | | Nov 12/18 |
| QC Representative | Phil McKinley | Phil McKinley | Nov 11 2018 |
| Client Inspector | | | |

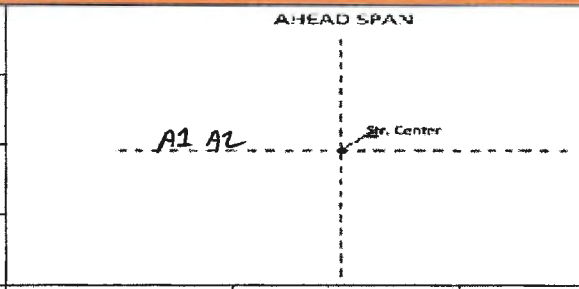
Forbes Bros LTD
POWERLINE CONSTRUCTION

# Anchor Pull Test

| Project # | 4581 | Project Name | Eagle gold 69KV | Facility# | |
|---|---|---|---|---|---|
| Structure # | 13/9 | Structure Type | VMA | | |

## Anchor Test Record

| | |
|---|---|
| Time and Date Started | Nov 10 2018 8:00 |
| Time and Date completed | Nov 10 2019 8:30 |
| Test Device | Dyna Link 2 MSI7300 |
| Operator | Excavator/Foreman |




| Anchor # | Pre-Load Benchmark | Amount of Stretch at 50% Tension | Final Reading at Full Tension | Final Reading when Tension Released | Change After Testing |
|---|---|---|---|---|---|
| 1 | 0 mm @ 0 | 0 mm @ 9160 | 4 mm @ 18220 | 4 mm @ 0 | 4 mm |
| 2 | 0 mm @ 0 | 0 mm @ 9240 | 2 mm @ 18190 | 2 mm @ 0 | 2 mm |
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**Test Procedure:**

1. Take Benchmark reading of anchor rod.
2. Pull Anchor rod at 50% load and hold for 2 minutes. Record movement.
3. Pull Anchor rod at Full tension load and hold for 2 minutes. Record movement.
4. Release tension and record rod movement.
5. For 2 anchor configuration, the single anchor will be pulled at 50% Tension. Wait 5 minutes between pulls.

**Comments**

A1,A2 Gravel ( log anchors)

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR AWTAC | | NOV/12/18 |
| QC Representative | Phil McKinley | Phil McKinley | Nov 11 2018 |
| Client Inspector | | | |

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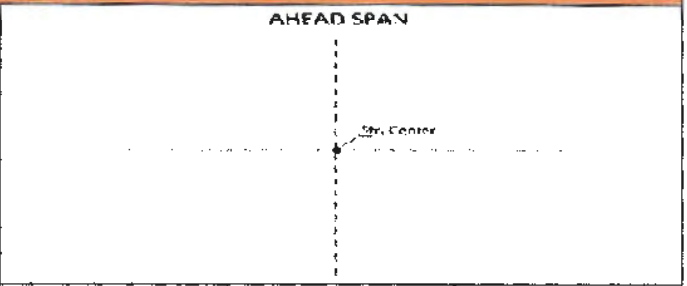
# Anchor Pull Test

| Project # | 4581 | Project Name | Eagle gold 69KV | Facility# | |
|---|---|---|---|---|---|
| Structure # | 1/4 | Structure Type | PTG | | |

## Anchor Test Record

| | |
|---|---|
| Time and Date Started | Oct 19 2018 13:15 |
| Time and Date completed | Oct 19 2018 14:00 |
| Test Device | Dyna Link 2 MSI7300 |
| Operator | Excavator/Foreman |




| Anchor # | Pre-Load Benchmark | Amount of Stretch at 50% Tension | Final Reading at Full Tension | Final Reading when Tension Released | Change After Testing |
|---|---|---|---|---|---|
| 1 | 0 mm @ 0 | 0 mm @ 9270 | 1 mm @ 18130 | 1 mm @ 0 | 1 |
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**Test Procedure:**

1. Take Benchmark reading of anchor rod.
2. Pull Anchor rod at 50% load and hold for 2 minutes. Record movement.
3. Pull Anchor rod at Full tension load and hold for 2 minutes. Record movement.
4. Release tension and record rod movement.
5. For 2 anchor configuration, the single anchor will be pulled at 50% Tension. Wait 5 minutes between pulls.

**Comments**

A1 permafrost (log anchor)

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR ANTAC | | OCT 20/18 |
| QC Representative | Phil McKinley | Phil McKinley | Oct 19 2018 |
| Client Inspector | | | |

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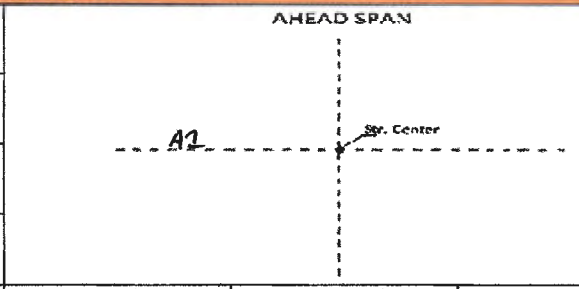
POWERLINE CONSTRUCTION

# Anchor Pull Test

| Project # | 4581 | Project Name | Eagle gold 69KV | Facility# | |
|---|---|---|---|---|---|
| Structure # | 14/12 | Structure Type | PTG | | |

## Anchor Test Record

| | |
|---|---|
| Time and Date Started | Nov 10 2018 13:30 |
| Time and Date completed | Nov 10 2018 13:45 |
| Test Device | Dyna Link 2 MSI7300 |
| Operator | Excavator/Foreman |




| Anchor # | Pre-Load Benchmark | Amount of Stretch at 50% Tension | Final Reading at Full Tension | Final Reading when Tension Released | Change After Testing |
|---|---|---|---|---|---|
| 1 | 0 mm @ 0 | 0 mm @ 9250 | 2 mm @ 18190 | 1 mm @ 0 | 1 mm |
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**Test Procedure:**

1. Take Benchmark reading of anchor rod.
2. Pull Anchor rod at 50% load and hold for 2 minutes. Record movement.
3. Pull Anchor rod at Full tension load and hold for 2 minutes. Record movement.
4. Release tension and record rod movement.
5. For 2 anchor configuration, the single anchor will be pulled at 50% Tension. Wait 5 minutes between pulls.

**Comments**

A1 Gravel (log anchor)

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR AWTAK | | Nov 13/18 |
| QC Representative | Phil McKinley | Phil McKinley | Nov 12 2018 |
| Client Inspector | | | |

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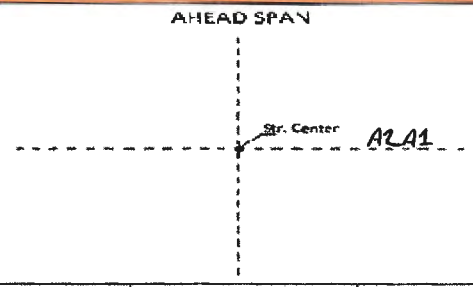
# Anchor Pull Test

| Project # | 4581 | Project Name | Eagle gold 69KV | Facility# | |
|---|---|---|---|---|---|
| Structure # | 14/2 | Structure Type | VMA | | |

## Anchor Test Record

| | |
|---|---|
| Time and Date Started | Nov 10 2018 10:20 |
| Time and Date completed | Nov 10 2018 10:45 |
| Test Device | Dyna Link 2 MSI7300 |
| Operator | Excavator/Foreman |




| Anchor # | Pre-Load Benchmark | Amount of Stretch at 50% Tension | Final Reading at Full Tension | Final Reading when Tension Released | Change After Testing |
|---|---|---|---|---|---|
| 1 | 0 mm @ 0 | 0 mm @ 9170 | 2 mm @ 18030 | 2 mm @ 0 | 2 mm |
| 2 | 0 mm @ 0 | 0 mm @ 9250 | 2 mm @ 18280 | 2mm @ 0 | 2 mm |
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**Test Procedure:**

1. Take Benchmark reading of anchor rod.
2. Pull Anchor rod at 50% load and hold for 2 minutes. Record movement.
3. Pull Anchor rod at Full tension load and hold for 2 minutes. Record movement.
4. Release tension and record rod movement.
5. For 2 anchor configuration, the single anchor will be pulled at 50% Tension. Wait 5 minutes between pulls.

**Comments**

A1,A2 Gravel (log anchors)

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR AWTAC | | NOV/13/18 |
| QC Representative | Phil McKinley | Phil McKinley | Nov 12 2018 |
| Client Inspector | | | |

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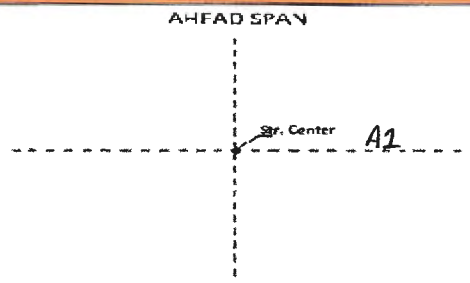
# Anchor Pull Test

| Project # | 4581 | Project Name | Eagle gold 69KV | Facility# | |
|---|---|---|---|---|---|
| Structure # | 14/5 | Structure Type | PTG | | |

## Anchor Test Record

| | |
|---|---|
| Time and Date Started | Nov 10 2018 11:30 |
| Time and Date completed | Nov 10 2018 11:40 |
| Test Device | Dyna Link 2 MSI7300 |
| Operator | Excavator/Foreman |




| Anchor # | Pre-Load Benchmark | Amount of Stretch at 50% Tension | Final Reading at Full Tension | Final Reading when Tension Released | Change After Testing |
|---|---|---|---|---|---|
| 1 | 0 mm @ 0 | 0 mm @ 9230 | 3 mm @ 18100 | 3 mm @ 0 | 3 mm |
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**Test Procedure:**

1. Take Benchmark reading of anchor rod.
2. Pull Anchor rod at 50% load and hold for 2 minutes. Record movement.
3. Pull Anchor rod at Full tension load and hold for 2 minutes. Record movement.
4. Release tension and record rod movement.
5. For 2 anchor configuration, the single anchor will be pulled at 50% Tension. Wait 5 minutes between pulls.

**Comments**

A1 Gravel (log anchor)

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR ANTAR | | NOV 13/18 |
| QC Representative | Phil McKinley | Phil McKinley | Nov 12 2018 |
| Client Inspector | | | |

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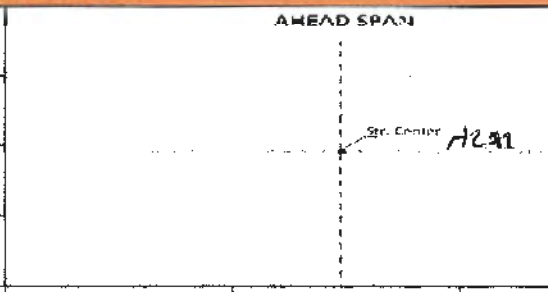
POWERLINE CONSTRUCTION

# Anchor Pull Test

| Project # | 4581 | Project Name | Eagle gold 69KV | Facility# | |
|---|---|---|---|---|---|
| Structure # | 14/8 | Structure Type | VMA | | |

## Anchor Test Record

| | |
|---|---|
| Time and Date Started | Nov 10 2018 12:30 |
| Time and Date completed | Nov 10 2018 13:10 |
| Test Device | Dyna Link 2 MSI7300 |
| Operator | Excavator/Foreman |




| Anchor # | Pre-Load Benchmark | Amount of Stretch at 50% Tension | Final Reading at Full Tension | Final Reading when Tension Released | Change After Testing |
|---|---|---|---|---|---|
| 1 | 0 mm @ 0 | 0 mm @ 9280 | 3 mm @ 18060 | 3 mm @ 0 | 3 mm |
| 2 | 0 mm @ 0 | 0 mm @ 9130 | 2 mm @ 18250 | 2 mm @ 0 | 2 mm |
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**Test Procedure:**

1. Take Benchmark reading of anchor rod.
2. Pull Anchor rod at 50% load and hold for 2 minutes. Record movement.
3. Pull Anchor rod at Full tension load and hold for 2 minutes. Record movement.
4. Release tension and record rod movement.
5. For 2 anchor configuration, the single anchor will be pulled at 50% Tension. Wait 5 minutes between pulls.

**Comments**

A1,A2 Gravel (log anchors)

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR ANTAL | | Nov 13/18 |
| QC Representative | Phil McKinley | Phil McKinley | Nov 12 2018 |
| Client Inspector | | | |

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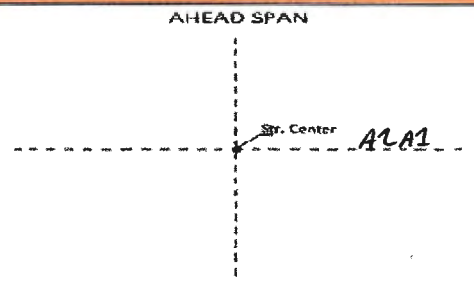
# Anchor Pull Test

| Project # | 4581 | Project Name | Eagle gold 69KV | Facility# | |
|---|---|---|---|---|---|
| Structure # | 15/13 | Structure Type | VMA | | |

## Anchor Test Record

| | |
|---|---|
| Time and Date Started | Nov 18 2018 11:20 |
| Time and Date completed | Nov 18 2018 |
| Test Device | Dyna Link 2 MSI7300 |
| Operator | Excavator/Foreman |




| Anchor # | Pre-Load Benchmark | Amount of Stretch at 50% Tension | Final Reading at Full Tension | Final Reading when Tension Released | Change After Testing |
|---|---|---|---|---|---|
| 1 | 0 mm @ 0 | 0 mm @ 9030 | 2 mm @ 18270 | 2 mm @ 0 | 2 mm |
| 2 | 0 mm @ 0 | 0 mm @ 9140 | 2 mm @ 18140 | 2 mm @ 0 | 2 mm |
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**Test Procedure:**

1. Take Benchmark reading of anchor rod.
2. Pull Anchor rod at 50% load and hold for 2 minutes. Record movement.
3. Pull Anchor rod at Full tension load and hold for 2 minutes. Record movement.
4. Release tension and record rod movement.
5. For 2 anchor configuration, the single anchor will be pulled at 50% Tension. Wait 5 minutes between pulls.

**Comments**

A1,A2 Gravel (log anchor)

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR AWTAC | | Nov 19/18 |
| QC Representative | Phil McKinley | Phil McKinley | Nov 18 2018 |
| Client Inspector | | | |

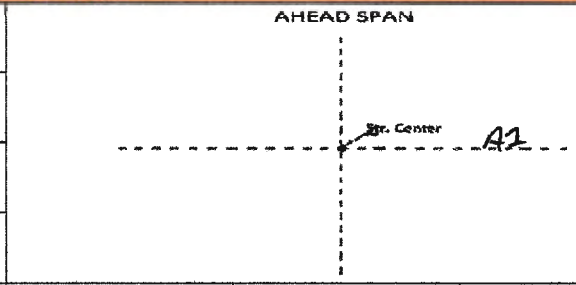
Forbes Bros LTD
POWERLINE CONSTRUCTION

# Anchor Pull Test

| Project # | 4581 | Project Name | Eagle gold 69KV | Facility# | |
|---|---|---|---|---|---|
| Structure # | 15/3 | Structure Type | PTG | | |

## Anchor Test Record

| | |
|---|---|
| Time and Date Started | Nov 10 14:20 |
| Time and Date completed | Nov 10 2018 14:30 |
| Test Device | Dyna Link 2 MSI7300 |
| Operator | Excavator/Foreman |




| Anchor # | Pre-Load Benchmark | Amount of Stretch at 50% Tension | Final Reading at Full Tension | Final Reading when Tension Released | Change After Testing |
|---|---|---|---|---|---|
| 1 | 0 mm @ 0 | 0 mm @ 9060 | 2 mm @ 18190 | 2 mm | 2 mm |
| | | | | | |
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**Test Procedure:**

1. Take Benchmark reading of anchor rod.
2. Pull Anchor rod at 50% load and hold for 2 minutes. Record movement.
3. Pull Anchor rod at Full tension load and hold for 2 minutes. Record movement.
4. Release tension and record rod movement.
5. For 2 anchor configuration, the single anchor will be pulled at 50% Tension. Wait 5 minutes between pulls.

**Comments**

A1 Gravel (log anchor)

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR ANTAR | | Nov 13/18 |
| QC Representative | Phil McKinley | Phil McKinley | Nov 12 2018 |
| Client Inspector | | | |

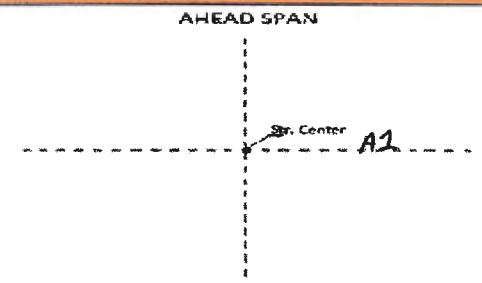
Forbes Bros LTD
POWERLINE CONSTRUCTION

# Anchor Pull Test

| Project # | 4581 | Project Name | Eagle gold 69KV | Facility# | |
|---|---|---|---|---|---|
| Structure # | 15/7 | Structure Type | PTG | | |

## Anchor Test Record

| | |
|---|---|
| Time and Date Started | Nov 10 2018 15:00 |
| Time and Date completed | Nov 10 2018 15:15 |
| Test Device | Dyna Link 2 MSI7300 |
| Operator | Excavator/Foreman |




| Anchor # | Pre-Load Benchmark | Amount of Stretch at 50% Tension | Final Reading at Full Tension | Final Reading when Tension Released | Change After Testing |
|---|---|---|---|---|---|
| 1 | 0 mm @ 0 | 0 mm @ 9240 | 3 mm @ 18270 | 2 mm @ 0 | 2 mm |
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**Test Procedure:**

1. Take Benchmark reading of anchor rod.
2. Pull Anchor rod at 50% load and hold for 2 minutes. Record movement.
3. Pull Anchor rod at Full tension load and hold for 2 minutes. Record movement.
4. Release tension and record rod movement.
5. For 2 anchor configuration, the single anchor will be pulled at 50% Tension. Wait 5 minutes between pulls.

**Comments**

A1 Gravel (log anchor)

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR ANTAC | | NOV 13/18 |
| QC Representative | Phil McKinley | Phil McKinley | Nov 12 2018 |
| Client Inspector | | | |

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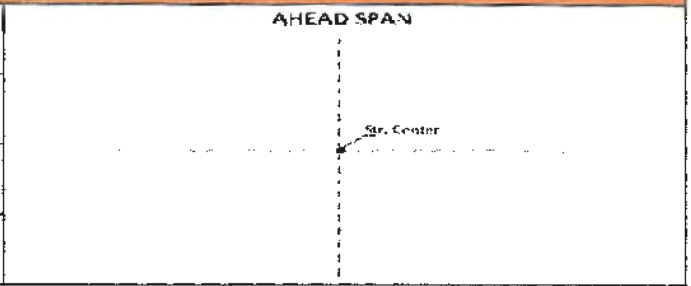
POWERLINE CONSTRUCTION

# Anchor Pull Test

| Project # | 4581 | Project Name | Eagle gold 69KV | Facility# | |
|---|---|---|---|---|---|
| Structure # | 1/6 | Structure Type | PTG | | |

## Anchor Test Record

| | |
|---|---|
| Time and Date Started | Oct 19 2018 15:30 |
| Time and Date completed | Oct 19 2018 16:45 |
| Test Device | Dyna Link 2 MSI7300 |
| Operator | Excavator/Foreman |




| Anchor # | Pre-Load Benchmark | Amount of Stretch at 50% Tension | Final Reading at Full Tension | Final Reading when Tension Released | Change After Testing |
|---|---|---|---|---|---|
| 1 | 0 mm @ 0 | 0 mm @ 9140 | 2 mm @ 18230 | 2 mm @ 0 | 2mm |
| | | | | | |
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**Test Procedure:**

1. Take Benchmark reading of anchor rod.
2. Pull Anchor rod at 50% load and hold for 2 minutes. Record movement.
3. Pull Anchor rod at Full tension load and hold for 2 minutes. Record movement.
4. Release tension and record rod movement.
5. For 2 anchor configuration, the single anchor will be pulled at 50% Tension. Wait 5 minutes between pulls.

**Comments**

A1 Gravel (log anchor)

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR ANTTILA | | OCT 20/18 |
| QC Representative | Phil McKinley | Phil McKinley | Oct 19 2018 |
| Client Inspector | | | |

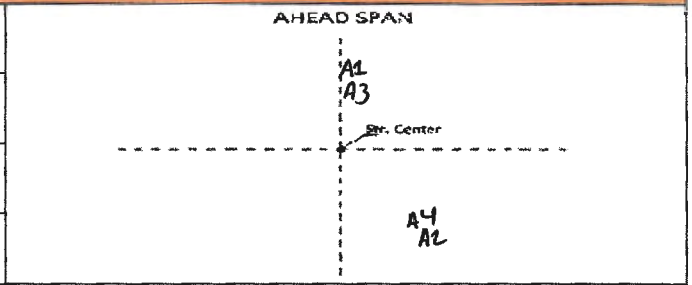
Forbes Bros. LTD
POWERLINE CONSTRUCTION

# Anchor Pull Test

| Project # | 4581 | Project Name | Eagle gold 69KV | Facility# | |
|---|---|---|---|---|---|
| Structure # | 16/11 | Structure Type | VDEMA | | |

## Anchor Test Record

| | |
|---|---|
| Time and Date Started | Nov 22 2018 15:10 |
| Time and Date completed | Nov 22 2018 16:20 |
| Test Device | Dyna Link 2 MSI7300 |
| Operator | Excavator/Foreman |




| Anchor # | Pre-Load Benchmark | Amount of Stretch at 50% Tension | Final Reading at Full Tension | Final Reading when Tension Released | Change After Testing |
|---|---|---|---|---|---|
| 1 | 0 mm @ 0 | 0 mm @ 9140 | 3 mm @ 18280 | 3 mm @ 0 | 3 mm |
| 2 | 0 mm @ 0 | 0 mm @ 9080 | 2 mm @ 18140 | 2 mm @ 0 | 2 mm |
| 3 | 0 mm @ 0 | 0 mm @ 9260 | 2 mm @ 18250 | 2 mm @ 0 | 2 mm |
| 4 | 0 mm @ 0 | 0 mm @ 9220 | 2 mm @ 18190 | 2 mm @ 0 | 2 mm |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |

**Test Procedure:**

1. Take Benchmark reading of anchor rod.
2. Pull Anchor rod at 50% load and hold for 2 minutes. Record movement.
3. Pull Anchor rod at Full tension load and hold for 2 minutes. Record movement.
4. Release tension and record rod movement.
5. For 2 anchor configuration, the single anchor will be pulled at 50% Tension. Wait 5 minutes between pulls.

**Comments**

A1,A2,A3,A4 Permafrost (log anchors)

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR ANTAC | | Nov 24/18 |
| QC Representative | Phil McKinley | Phil McKinley | Nov 23 2018 |
| Client Inspector | | | |

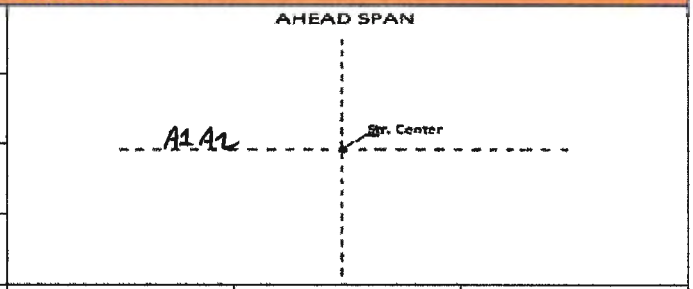
Forbes Bros. LTD
POWERLINE CONSTRUCTION

# Anchor Pull Test

| Project # | 4581 | Project Name | Eagle gold 69KV | Facility# | |
|---|---|---|---|---|---|
| Structure # | 16/4 | Structure Type | VMA | | |

## Anchor Test Record

| | |
|---|---|
| Time and Date Started | Nov 13 2018 9:30 |
| Time and Date completed | Nov 13 2018 10:00 |
| Test Device | Dyna Link 2 MSI7300 |
| Operator | Excavator/Foreman |




| Anchor # | Pre-Load Benchmark | Amount of Stretch at 50% Tension | Final Reading at Full Tension | Final Reading when Tension Released | Change After Testing |
|---|---|---|---|---|---|
| 1 | 0 mm @ 0 | 0 mm @ 9150 | 3 mm @ 18270 | 3 mm @ 0 | 3 mm |
| 2 | 0 mm @ 0 | 0 mm @ 9260 | 2 mm @ 18120 | 2 mm @ 0 | 2 mm |
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**Test Procedure:**

1. Take Benchmark reading of anchor rod.
2. Pull Anchor rod at 50% load and hold for 2 minutes. Record movement.
3. Pull Anchor rod at Full tension load and hold for 2 minutes. Record movement.
4. Release tension and record rod movement.
5. For 2 anchor configuration, the single anchor will be pulled at 50% Tension. Wait 5 minutes between pulls.

**Comments**

A1,A2 Gravel (log anchors)

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR AWTAC | | Nov 16/18 |
| QC Representative | Phil McKinley | Phil McKinley | Nov 15 2018 |
| Client Inspector | | | |

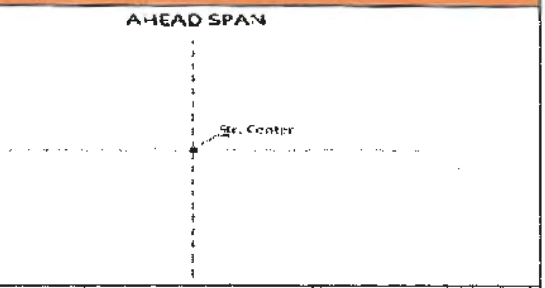
Forbes Bros. Ltd.
POWERLINE CONSTRUCTION

# Anchor Pull Test

| Project # | 4581 | Project Name | Eagle gold 69KV | Facility# | |
|---|---|---|---|---|---|
| Structure # | 1/7 | Structure Type | PTG | | |

## Anchor Test Record

| | |
|---|---|
| Time and Date Started | Oct 20 2018 8:30 |
| Time and Date completed | Oct 20 2018 9:00 |
| Test Device | Dyna Link 2 MSI7300 |
| Operator | Excavator/Foreman |




| Anchor # | Pre-Load Benchmark | Amount of Stretch at 50% Tension | Final Reading at Full Tension | Final Reading when Tension Released | Change After Testing |
|---|---|---|---|---|---|
| 1 | 0 mm @ 0 | 0 mm @ 9270 | 2 mm @ 18080 | 2 mm @ 0 | 2 mm |
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**Test Procedure:**

1. Take Benchmark reading of anchor rod.
2. Pull Anchor rod at 50% load and hold for 2 minutes. Record movement.
3. Pull Anchor rod at Full tension load and hold for 2 minutes. Record movement.
4. Release tension and record rod movement.
5. For 2 anchor configuration, the single anchor will be pulled at 50% Tension. Wait 5 minutes between pulls.

**Comments**

A1 Gravel/Clay ( log anchor)

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR ANONZ | | OCT 22/18 |
| QC Representative | Phil McKinley | Phil McKinley | Oct 21 2018 |
| Client Inspector | | | |

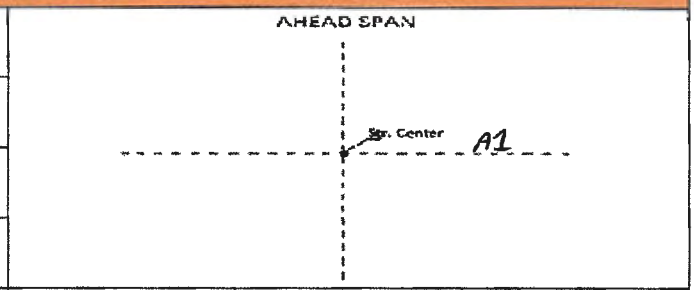
Forbes Bros LTD
POWERLINE CONSTRUCTION

# Anchor Pull Test

| Project # | 4581 | Project Name | Eagle gold 69KV | Facility# | |
|---|---|---|---|---|---|
| Structure # | 17/11 | Structure Type | PTG | | |

## Anchor Test Record

| | |
|---|---|
| Time and Date Started | Nov 28 2018 14:20 |
| Time and Date completed | Nov 28 2018 14:30 |
| Test Device | Dyna Link 2 MSI7300 |
| Operator | Excavator/Foreman |




| Anchor # | Pre-Load Benchmark | Amount of Stretch at 50% Tension | Final Reading at Full Tension | Final Reading when Tension Released | Change After Testing |
|---|---|---|---|---|---|
| 1 | 0 mm @ 0 | 0 mm @ 9200 | 3 mm @ 18120 | 3 mm @ 0 | 3 mm |
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**Test Procedure:**

1. Take Benchmark reading of anchor rod.
2. Pull Anchor rod at 50% load and hold for 2 minutes. Record movement.
3. Pull Anchor rod at Full tension load and hold for 2 minutes. Record movement.
4. Release tension and record rod movement.
5. For 2 anchor configuration, the single anchor will be pulled at 50% Tension. Wait 5 minutes between pulls.

**Comments**

A1 Gravel (log anchor)

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR ANTAC | | Dec 1/18 |
| QC Representative | Phil McKinley | Phil McKinley | Nov 29 2018 |
| Client Inspector | | | |

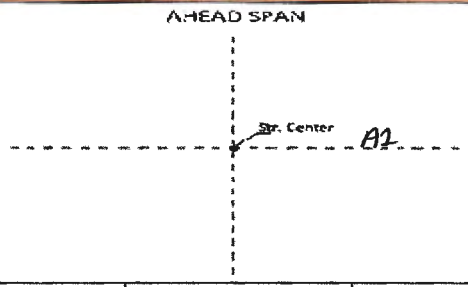
Forbes Bros LTD
POWERLINE CONSTRUCTION

# Anchor Pull Test

| Project # | 4581 | Project Name | Eagle gold 69KV | Facility# | |
|---|---|---|---|---|---|
| Structure # | 17/12 | Structure Type | PTG | | |

## Anchor Test Record

| | |
|---|---|
| Time and Date Started | Nov 28 2018 15:00 |
| Time and Date completed | Nov 28 2018 15:10 |
| Test Device | Dyna Link 2 MSI7300 |
| Operator | Excavator/Foreman |




| Anchor # | Pre-Load Benchmark | Amount of Stretch at 50% Tension | Final Reading at Full Tension | Final Reading when Tension Released | Change After Testing |
|---|---|---|---|---|---|
| 1 | 0 mm @ 0 | 0 mm @ 9140 | 2 mm @ 18250 | 2 mm @ 0 | 2 mm |
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**Test Procedure:**

1. Take Benchmark reading of anchor rod.
2. Pull Anchor rod at 50% load and hold for 2 minutes. Record movement.
3. Pull Anchor rod at Full tension load and hold for 2 minutes. Record movement.
4. Release tension and record rod movement.
5. For 2 anchor configuration, the single anchor will be pulled at 50% Tension. Wait 5 minutes between pulls.

**Comments**

A1 Permafrost (log anchor)

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR AWTAR | | Dec 1/18 |
| QC Representative | Phil McKinley | Phil McKinley | Nov 29 2018 |
| Client Inspector | | | |

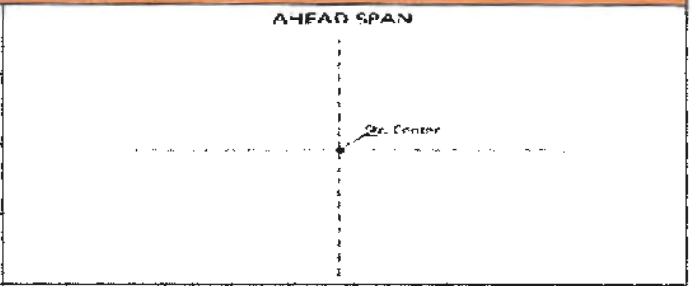
Forbes Bros LTD
POWERLINE CONSTRUCTION

# Anchor Pull Test

| Project # | 4581 | Project Name | Eagle gold 69KV | Facility# | |
|---|---|---|---|---|---|
| Structure # | 1/8 | Structure Type | PTR | | |

## Anchor Test Record

| | |
|---|---|
| Time and Date Started | Oct 20 2018 9:45 |
| Time and Date completed | Oct 20 2018 10:20 |
| Test Device | Dyna Link 2 MSI7300 |
| Operator | Excavator/Foreman |




| Anchor # | Pre-Load Benchmark | Amount of Stretch at 50% Tension | Final Reading at Full Tension | Final Reading when Tension Released | Change After Testing |
|---|---|---|---|---|---|
| 1 | 0 mm @ 0 | 0 mm @ 9210 | 3 mm @ 18150 | 2 mm @ 0 | 2 mm |
| 2 | 0 mm @ 0 | 0 mm @ 9070 | 3 mm @ 18240 | 3 mm @ 0 | 3 mm |
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**Test Procedure:**

1. Take Benchmark reading of anchor rod.
2. Pull Anchor rod at 50% load and hold for 2 minutes. Record movement.
3. Pull Anchor rod at Full tension load and hold for 2 minutes. Record movement.
4. Release tension and record rod movement.
5. For 2 anchor configuration, the single anchor will be pulled at 50% Tension. Wait 5 minutes between pulls.

**Comments**

A1,A2 Permafrost (plate anchors)

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR ANDRE | | OCT 23/18 |
| QC Representative | Phil McKinley | Phil McKinley | Oct 22 2018 |
| Client Inspector | | | |

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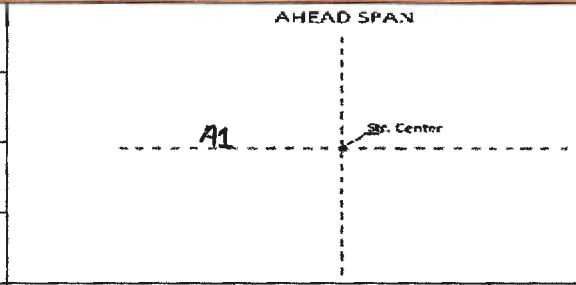
POWERLINE CONSTRUCTION

# Anchor Pull Test

| Project # | 4581 | Project Name | Eagle gold 69KV | Facility# | |
|---|---|---|---|---|---|
| Structure # | 18/1 | Structure Type | PTG | | |

## Anchor Test Record

| | |
|---|---|
| Time and Date Started | Nov 28 2018 16:05 |
| Time and Date completed | Nov 28 2018 16:15 |
| Test Device | Dyna Link 2 MSI7300 |
| Operator | Excavator/Foreman |




| Anchor # | Pre-Load Benchmark | Amount of Stretch at 50% Tension | Final Reading at Full Tension | Final Reading when Tension Released | Change After Testing |
|---|---|---|---|---|---|
| 1 | 0 mm @ 0 | 0 mm @ 9170 | 4 mm @ 18200 | 4 mm @ 0 | 4 mm |
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**Test Procedure:**

1. Take Benchmark reading of anchor rod.
2. Pull Anchor rod at 50% load and hold for 2 minutes. Record movement.
3. Pull Anchor rod at Full tension load and hold for 2 minutes. Record movement.
4. Release tension and record rod movement.
5. For 2 anchor configuration, the single anchor will be pulled at 50% Tension. Wait 5 minutes between pulls.

**Comments**

A1 Permafrost (log anchor)

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR ANTAL | | Dec 1/18 |
| QC Representative | Phil McKinley | Phil McKinley | Nov 29 2018 |
| Client Inspector | | | |

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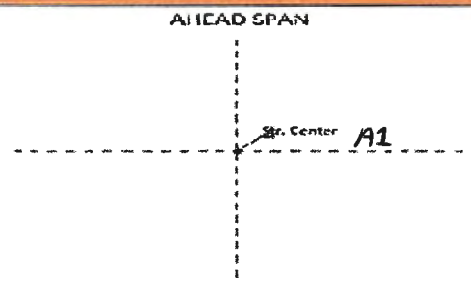
# Anchor Pull Test

| Project # | 4581 | Project Name | Eagle gold 69KV | Facility# | |
|---|---|---|---|---|---|
| Structure # | 18/11 | Structure Type | PTG | | |

## Anchor Test Record

| | |
|---|---|
| Time and Date Started | Nov 29 2018 11:20 |
| Time and Date completed | Nov 29 2018 11:30 |
| Test Device | Dyna Link 2 MSI7300 |
| Operator | Excavator/Foreman |




| Anchor # | Pre-Load Benchmark | Amount of Stretch at 50% Tension | Final Reading at Full Tension | Final Reading when Tension Released | Change After Testing |
|---|---|---|---|---|---|
| 1 | 0 mm @ 0 | 0 mm @ 9100 | 1 mm @ 18260 | 1 mm @ 0 | 1 mm |
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**Test Procedure:**

1. Take Benchmark reading of anchor rod.
2. Pull Anchor rod at 50% load and hold for 2 minutes. Record movement.
3. Pull Anchor rod at Full tension load and hold for 2 minutes. Record movement.
4. Release tension and record rod movement.
5. For 2 anchor configuration, the single anchor will be pulled at 50% Tension. Wait 5 minutes between pulls.

**Comments**

A1 Gravel (log anchor)

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR AUSTIN | | Dec 1/18 |
| QC Representative | Phil McKinley | Phil McKinley | Nov 30 2018 |
| Client Inspector | | | |

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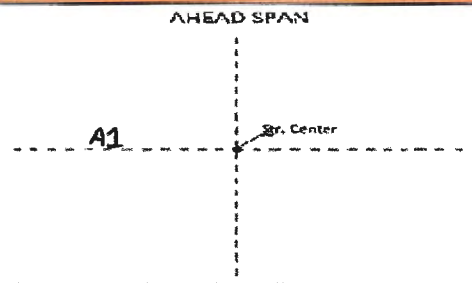
# Anchor Pull Test

| Project # | 4581 | Project Name | Eagle gold 69KV | Facility# | |
|---|---|---|---|---|---|
| Structure # | 18/13 | Structure Type | PTG | | |

## Anchor Test Record

| | |
|---|---|
| Time and Date Started | Nov 29 2018 12:15 |
| Time and Date completed | Nov 29 2018 12:30 |
| Test Device | Dyna Link 2 MSI7300 |
| Operator | Excavator/Foreman |




| Anchor # | Pre-Load Benchmark | Amount of Stretch at 50% Tension | Final Reading at Full Tension | Final Reading when Tension Released | Change After Testing |
|---|---|---|---|---|---|
| 1 | 0 mm @ 0 | 0 mm @ 9170 | 3 mm @ 18190 | 2 mm @ 0 | 2 mm |
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**Test Procedure:**

1. Take Benchmark reading of anchor rod.
2. Pull Anchor rod at 50% load and hold for 2 minutes. Record movement.
3. Pull Anchor rod at Full tension load and hold for 2 minutes. Record movement.
4. Release tension and record rod movement.
5. For 2 anchor configuration, the single anchor will be pulled at 50% Tension. Wait 5 minutes between pulls.

**Comments**

A1 Gravel (log anchor)

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR ANTAL | | Dec 1/18 |
| QC Representative | Phil McKinley | Phil McKinley | Nov 30 2018 |
| Client Inspector | | | |

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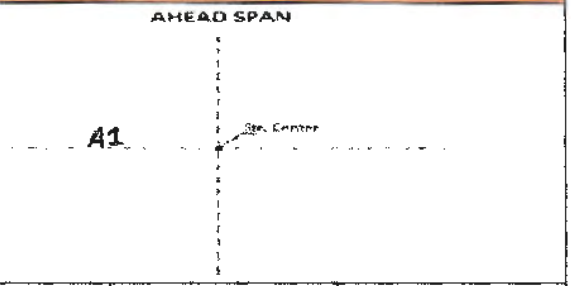
Powerline Construction

# Anchor Pull Test

| Project # | 4581 | Project Name | Eagle gold 69KV | Facility# | |
|---|---|---|---|---|---|
| Structure # | 18/2 | Structure Type | PTG | | |

## Anchor Test Record

| | |
|---|---|
| Time and Date Started | Nov 28 2018 16:30 |
| Time and Date completed | Nov 28 2018 16:40 |
| Test Device | Dyna Link 2 MSI7300 |
| Operator | Excavator/Foreman |




| Anchor # | Pre-Load Benchmark | Amount of Stretch at 50% Tension | Final Reading at Full Tension | Final Reading when Tension Released | Change After Testing |
|---|---|---|---|---|---|
| 1 | 0 mm @ 0 | 0 mm @ 9230 | 3 mm @ 18190 | 3 mm @ 0 | 3 mm |
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**Test Procedure:**

1. Take Benchmark reading of anchor rod.
2. Pull Anchor rod at 50% load and hold for 2 minutes. Record movement.
3. Pull Anchor rod at Full tension load and hold for 2 minutes. Record movement.
4. Release tension and record rod movement.
5. For 2 anchor configuration, the single anchor will be pulled at 50% Tension. Wait 5 minutes between pulls.

**Comments**

A1 Gravel (log anchor)

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR AUTAZ | | Dec 1/18 |
| QC Representative | Phil McKinley | Phil McKinley | Nov 29 2018 |
| Client Inspector | | | |

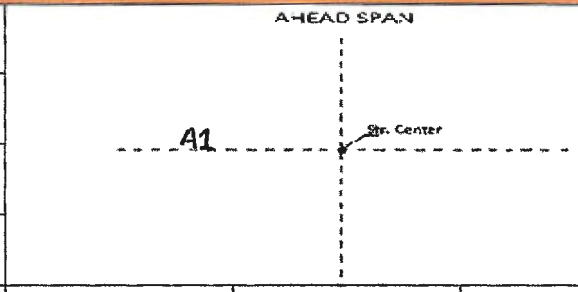
Forbes Bros LTD
POWERLINE CONSTRUCTION

# Anchor Pull Test

| Project # | 4581 | Project Name | Eagle gold 69KV | Facility# | |
|---|---|---|---|---|---|
| Structure # | 18/3 | Structure Type | PTG | | |

## Anchor Test Record

| | |
|---|---|
| Time and Date Started | Nov 28 2018 16:50 |
| Time and Date completed | Nov 28 2018 17:00 |
| Test Device | Dyna Link 2 MSI7300 |
| Operator | Excavator/Foreman |




| Anchor # | Pre-Load Benchmark | Amount of Stretch at 50% Tension | Final Reading at Full Tension | Final Reading when Tension Released | Change After Testing |
|---|---|---|---|---|---|
| 1 | 0 mm @ 0 | 0 mm @ 9200 | 1 mm @ 18130 | 1 mm @ 0 | 1 mm |
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**Test Procedure:**

1. Take Benchmark reading of anchor rod.
2. Pull Anchor rod at 50% load and hold for 2 minutes. Record movement.
3. Pull Anchor rod at Full tension load and hold for 2 minutes. Record movement.
4. Release tension and record rod movement.
5. For 2 anchor configuration, the single anchor will be pulled at 50% Tension. Wait 5 minutes between pulls.

**Comments**

A1 Permafrost (log anchor)

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR ANDRE | | Dec 1/18 |
| QC Representative | Phil McKinley | Phil McKinley | Nov 29 2018 |
| Client Inspector | | | |

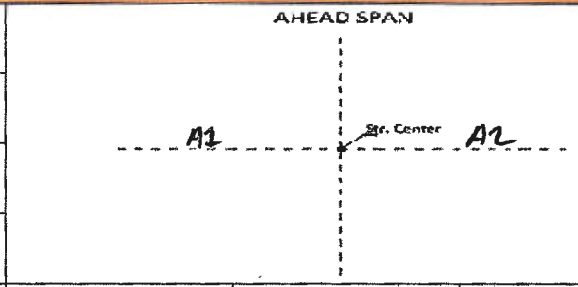
Forbes Bros LTD
POWERLINE CONSTRUCTION

# Anchor Pull Test

| Project # | 4581 | Project Name | Eagle gold 69KV | Facility# | |
|---|---|---|---|---|---|
| Structure # | 18/5 | Structure Type | PT | | |

## Anchor Test Record

| | |
|---|---|
| Time and Date Started | Nov 29 2018 7:30 |
| Time and Date completed | Nov 29 2018 9:15 |
| Test Device | Dyna Link 2 MSI7300 |
| Operator | Excavator/Foreman |




| Anchor # | Pre-Load Benchmark | Amount of Stretch at 50% Tension | Final Reading at Full Tension | Final Reading when Tension Released | Change After Testing |
|---|---|---|---|---|---|
| 1 | 0 mm @ 0 | 0 mm @ 9270 | 1 mm @ 18150 | 1 mm @ 0 | 1 mm |
| 2 | 0 mm @ 0 | 0 mm @ 9200 | 3 mm @ 18130 | 3 mm @ 0 | 3 mm |
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**Test Procedure:**

1. Take Benchmark reading of anchor rod.
2. Pull Anchor rod at 50% load and hold for 2 minutes. Record movement.
3. Pull Anchor rod at Full tension load and hold for 2 minutes. Record movement.
4. Release tension and record rod movement.
5. For 2 anchor configuration, the single anchor will be pulled at 50% Tension. Wait 5 minutes between pulls.

**Comments**

A1,A2 Permafrost (plate anchors)

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR ANTAL | | Dec 1/18 |
| QC Representative | Phil McKinley | | Nov 30 2018 |
| Client Inspector | | | |

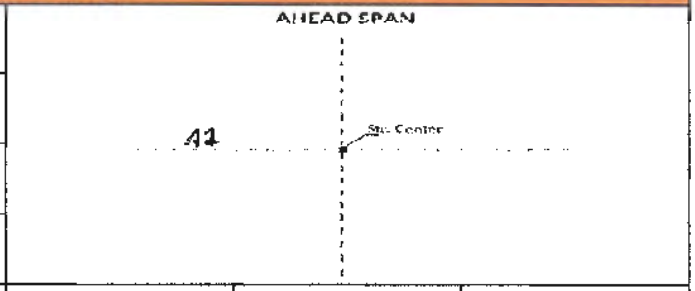
Forbes Bros Ltd
POWERLINE CONSTRUCTION

# Anchor Pull Test

| Project # | 4581 | Project Name | Eagle gold 69KV | Facility# | |
|---|---|---|---|---|---|
| Structure # | 18/7 | Structure Type | PTG | | |

## Anchor Test Record

| | |
|---|---|
| Time and Date Started | Nov 29 2018 9:40 |
| Time and Date completed | Nov 29 2018 10:15 |
| Test Device | Dyna Link 2 MSI7300 |
| Operator | Excavator/Foreman |




| Anchor # | Pre-Load Benchmark | Amount of Stretch at 50% Tension | Final Reading at Full Tension | Final Reading when Tension Released | Change After Testing |
|---|---|---|---|---|---|
| 1 | 0 mm @ 0 | 0 mm @ 9140 | 3 mm @ 18180 | 3 mm @ 0 | 3 mm |
| | | | | | |
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**Test Procedure:**

1. Take Benchmark reading of anchor rod.
2. Pull Anchor rod at 50% load and hold for 2 minutes. Record movement.
3. Pull Anchor rod at Full tension load and hold for 2 minutes. Record movement.
4. Release tension and record rod movement.
5. For 2 anchor configuration, the single anchor will be pulled at 50% Tension. Wait 5 minutes between pulls.

**Comments**

A1 Permafrost (log anchor)

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR AUSTIN | | Dec 1/18 |
| QC Representative | Phil McKinley | Phil McKinley | Nov 30 2018 |
| Client Inspector | | | |

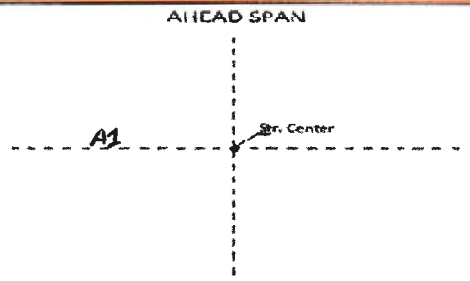
Forbes Bros LTD
POWERLINE CONSTRUCTION

# Anchor Pull Test

| Project # | 4581 | Project Name | Eagle gold 69KV | Facility# | |
|---|---|---|---|---|---|
| Structure # | 18/8 | Structure Type | PTG | | |

## Anchor Test Record

| | |
|---|---|
| Time and Date Started | Nov 29 2018 10:30 |
| Time and Date completed | Nov 29 2018 10:45 |
| Test Device | Dyna Link 2 MSI7300 |
| Operator | Excavator/Foreman |




| Anchor # | Pre-Load Benchmark | Amount of Stretch at 50% Tension | Final Reading at Full Tension | Final Reading when Tension Released | Change After Testing |
|---|---|---|---|---|---|
| 1 | 0 mm @ 0 | 0 mm @ 9060 | 2 mm @ 18050 | 2 mm @ 0 | 2 mm |
| | | | | | |
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**Test Procedure:**

1. Take Benchmark reading of anchor rod.
2. Pull Anchor rod at 50% load and hold for 2 minutes. Record movement.
3. Pull Anchor rod at Full tension load and hold for 2 minutes. Record movement.
4. Release tension and record rod movement.
5. For 2 anchor configuration, the single anchor will be pulled at 50% Tension. Wait 5 minutes between pulls.

**Comments**

A1 Gravel (log anchor)

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR MUNRO | | Dec 1/18 |
| QC Representative | Phil McKinley | PJ McKinley | Nov 30 2018 |
| Client Inspector | | | |

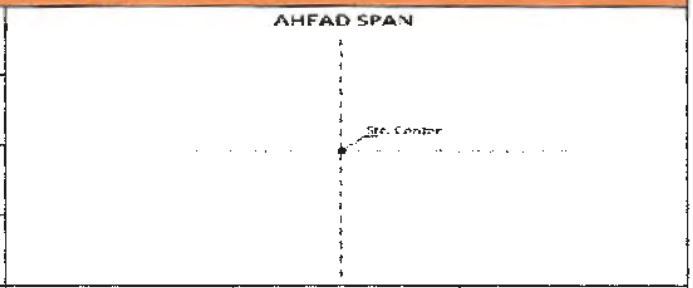
Forbes Bros. LTD
POWERLINE CONSTRUCTION

# Anchor Pull Test

| Project # | 4581 | Project Name | Eagle gold 69KV | Facility# | |
|---|---|---|---|---|---|
| Structure # | 1/9 | Structure Type | VMA | | |

## Anchor Test Record

| | |
|---|---|
| Time and Date Started | Oct 20 2018 11:00 |
| Time and Date completed | Oct 20 2018 11:45 |
| Test Device | Dyna Link 2 MSI7300 |
| Operator | Excavator/Foreman |




| Anchor # | Pre-Load Benchmark | Amount of Stretch at 50% Tension | Final Reading at Full Tension | Final Reading when Tension Released | Change After Testing |
|---|---|---|---|---|---|
| 1 | 0 mm @ 0 | 0 mm @ 9150 | 4 mm @ 18280 | 4 mm @ 0 | 4 mm |
| 2 | 0 mm @ 0 | 0 mm @ 9220 | 2 mm @ 18120 | 2 mm @ 0 | 2 m |
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**Test Procedure:**

1. Take Benchmark reading of anchor rod.
2. Pull Anchor rod at 50% load and hold for 2 minutes. Record movement.
3. Pull Anchor rod at Full tension load and hold for 2 minutes. Record movement.
4. Release tension and record rod movement.
5. For 2 anchor configuration, the single anchor will be pulled at 50% Tension. Wait 5 minutes between pulls.

**Comments**

A1 and A2 Gravel ( log anchors)

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR ANSTEY | | OCT 23/18 |
| QC Representative | Phil McKinley | Phil McKinley | Oct 22 2018 |
| Client Inspector | | | |

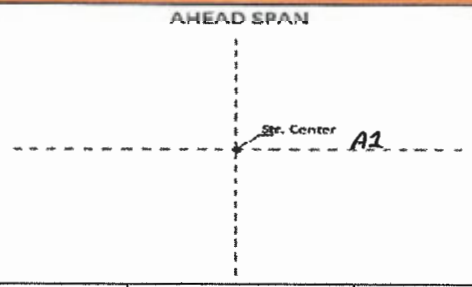
Forbes Bros LTD
POWERLINE CONSTRUCTION

# Anchor Pull Test

| Project # | 4581 | Project Name | Eagle gold 69KV | Facility# | |
|---|---|---|---|---|---|
| Structure # | 19/8 | Structure Type | PTG | | |

## Anchor Test Record

| | |
|---|---|
| Time and Date Started | Dec 5 2018 8:45 |
| Time and Date completed | Dec 5 9:00 |
| Test Device | Dyna Link 2 MSI7300 |
| Operator | Excavator/Foreman |




| Anchor # | Pre-Load Benchmark | Amount of Stretch at 50% Tension | Final Reading at Full Tension | Final Reading when Tension Released | Change After Testing |
|---|---|---|---|---|---|
| 1 | 0 mm @ 0 | 0 mm @ 9250 | 4 mm @ 18180 | 4 mm @ 0 | 4 mm |
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**Test Procedure:**

1. Take Benchmark reading of anchor rod.
2. Pull Anchor rod at 50% load and hold for 2 minutes. Record movement.
3. Pull Anchor rod at Full tension load and hold for 2 minutes. Record movement.
4. Release tension and record rod movement.
5. For 2 anchor configuration, the single anchor will be pulled at 50% Tension. Wait 5 minutes between pulls.

**Comments**

A1 Gravel (log anchor)

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR ANTAC | | Dec 8/18 |
| QC Representative | Phil McKinley | Phil McKinley | Dec 7 2018 |
| Client Inspector | | | |

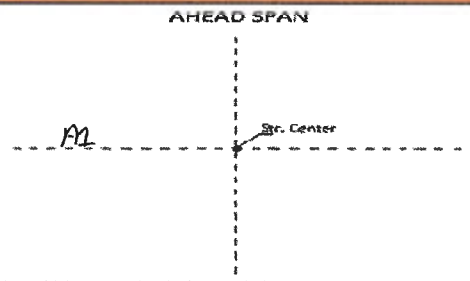
Forbes Bros LTD
POWERLINE CONSTRUCTION

# Anchor Pull Test

| Project # | 4581 | Project Name | Eagle gold 69KV | Facility# | |
|---|---|---|---|---|---|
| Structure # | 20/11 | Structure Type | PTG | | |

## Anchor Test Record

| | |
|---|---|
| Time and Date Started | Dec 5 2018 13:50 |
| Time and Date completed | Dec 5 2018 14:05 |
| Test Device | Dyna Link 2 MSI7300 |
| Operator | Excavator/Foreman |




| Anchor # | Pre-Load Benchmark | Amount of Stretch at 50% Tension | Final Reading at Full Tension | Final Reading when Tension Released | Change After Testing |
|---|---|---|---|---|---|
| 1 | 0 mm @ 0 | 0 mm @ 9240 | 2 mm @ 18180 | 2 mm @ 0 | 2 mm |
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**Test Procedure:**

1. Take Benchmark reading of anchor rod.
2. Pull Anchor rod at 50% load and hold for 2 minutes. Record movement.
3. Pull Anchor rod at Full tension load and hold for 2 minutes. Record movement.
4. Release tension and record rod movement.
5. For 2 anchor configuration, the single anchor will be pulled at 50% Tension. Wait 5 minutes between pulls.

**Comments**

A1 Gravel (log anchor)

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR ANTAL | | Dec 8/18 |
| QC Representative | Phil McKinley | Phil McKinley | Dec 7 2018 |
| Client Inspector | | | |

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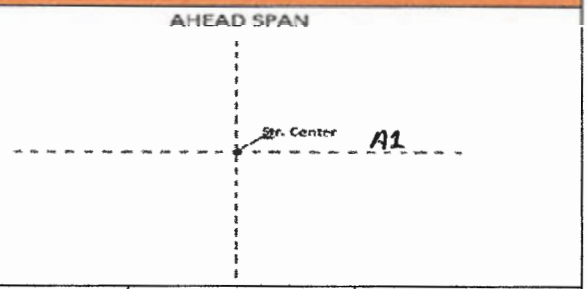
# Anchor Pull Test

| Project # | 4581 | Project Name | Eagle gold 69KV | Facility# | |
|---|---|---|---|---|---|
| Structure # | 20/7 | Structure Type | PTG | | |

## Anchor Test Record

| | |
|---|---|
| Time and Date Started | Dec 5 2018 12:10 |
| Time and Date completed | Dec 5 2018 12:25 |
| Test Device | Dyna Link 2 MSI7300 |
| Operator | Excavator/Foreman |




| Anchor # | Pre-Load Benchmark | Amount of Stretch at 50% Tension | Final Reading at Full Tension | Final Reading when Tension Released | Change After Testing |
|---|---|---|---|---|---|
| 1 | 0 mm @ 0 | 0 mm @ 9020 | 2 mm @ 18250 | 2 mm @ 0 | 2 mm |
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**Test Procedure:**

1. Take Benchmark reading of anchor rod.
2. Pull Anchor rod at 50% load and hold for 2 minutes. Record movement.
3. Pull Anchor rod at Full tension load and hold for 2 minutes. Record movement.
4. Release tension and record rod movement.
5. For 2 anchor configuration, the single anchor will be pulled at 50% Tension. Wait 5 minutes between pulls.

**Comments**

A1 Gravel (log anchor)

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR ANTAL | | Dec 7/18 |
| QC Representative | Phil McKinley | Phil McKinley | Dec 6 2018 |
| Client Inspector | | | |

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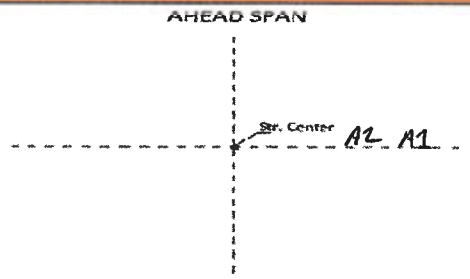
# Anchor Pull Test

| Project # | 4581 | Project Name | Eagle gold 69KV | Facility# | |
|---|---|---|---|---|---|
| Structure # | 20/8 | Structure Type | VMA | | |

## Anchor Test Record

| | |
|---|---|
| Time and Date Started | Dec 5 2018 12:40 |
| Time and Date completed | Dec 5 2018 13:10 |
| Test Device | Dyna Link 2 MSI7300 |
| Operator | Excavator/Foreman |




| Anchor # | Pre-Load Benchmark | Amount of Stretch at 50% Tension | Final Reading at Full Tension | Final Reading when Tension Released | Change After Testing |
|---|---|---|---|---|---|
| 1 | 0 mm @ 0 | 0 mm @ 9240 | 3 mm @ 18170 | 3 mm @ 0 | 3 mm |
| 2 | 0 mm @ 0 | 0 mm @ 9210 | 2 mm @ 18090 | 2 mm @ 0 | 2 mm |
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**Test Procedure:**

1. Take Benchmark reading of anchor rod.
2. Pull Anchor rod at 50% load and hold for 2 minutes. Record movement.
3. Pull Anchor rod at Full tension load and hold for 2 minutes. Record movement.
4. Release tension and record rod movement.
5. For 2 anchor configuration, the single anchor will be pulled at 50% Tension. Wait 5 minutes between pulls.

**Comments**

A1,A2 Gravel (log anchors)

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR ANDAC | | Dec 7/18 |
| QC Representative | Phil McKinley | Phil McKinley | Dec 6 2018 |
| Client Inspector | | | |

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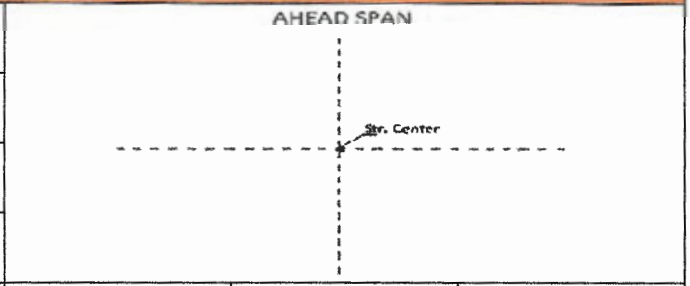
# Anchor Pull Test

| Project # | 4581 | Project Name | Eagle gold 69KV | Facility# | |
|---|---|---|---|---|---|
| Structure # | 2/1 | Structure Type | PT | | |

## Anchor Test Record

| | |
|---|---|
| Time and Date Started | Oct 4 2018 14:20 |
| Time and Date completed | Oct 4 2018 15:00 |
| Test Device | Dyna Link 2 MSI7300 |
| Operator | Excavator/Foreman |




| Anchor # | Pre-Load Benchmark | Amount of Stretch at 50% Tension | Final Reading at Full Tension | Final Reading when Tension Released | Change After Testing |
|---|---|---|---|---|---|
| 1 | 0 mm @ 0 | 0 mm @ 9250 | 1 mm @ 18040 | 1 mm @ 0 | 1 mm |
| 2 | 0 mm @ 0 | 0 mm @ 9170 | 3 mm @ 18140 | 3 mm @ 0 | 3 mm |
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**Test Procedure:**

1. Take Benchmark reading of anchor rod.
2. Pull Anchor rod at 50% load and hold for 2 minutes. Record movement.
3. Pull Anchor rod at Full tension load and hold for 2 minutes. Record movement.
4. Release tension and record rod movement.
5. For 2 anchor configuration, the single anchor will be pulled at 50% Tension. Wait 5 minutes between pulls.

**Comments**

A1,A2 Permafrost (plate anchors)

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR ANTAC | | OCT 7/18 |
| QC Representative | Phil McKinley | Phil McKinley | Oct 6 2018 |
| Client Inspector | | | |

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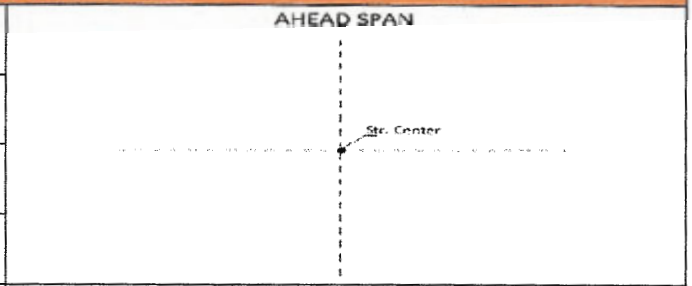
# Anchor Pull Test

| Project # | 4581 | Project Name | Eagle gold 69KV | Facility# | |
|---|---|---|---|---|---|
| Structure # | 2/10 | Structure Type | PT | | |

## Anchor Test Record

| | |
|---|---|
| Time and Date Started | Oct 4 2018 7:30 |
| Time and Date completed | Oct 4 2018 7:30 |
| Test Device | Dyna Link 2 MSI7300 |
| Operator | Excavator/Foreman |




| Anchor # | Pre-Load Benchmark | Amount of Stretch at 50% Tension | Final Reading at Full Tension | Final Reading when Tension Released | Change After Testing |
|---|---|---|---|---|---|
| 1 | 0 mm @ 0 | 0 mm @ 9180 | 1 mm @ 18260 | 1 mm @ 0 | 1 mm |
| 2 | 0 mm @ 0 | 0 mm @ 9230 | 3 mm @ 18270 | 3 mm @ 0 | 3 mm |
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**Test Procedure:**

1. Take Benchmark reading of anchor rod.
2. Pull Anchor rod at 50% load and hold for 2 minutes. Record movement.
3. Pull Anchor rod at Full tension load and hold for 2 minutes. Record movement.
4. Release tension and record rod movement.
5. For 2 anchor configuration, the single anchor will be pulled at 50% Tension. Wait 5 minutes between pulls.

**Comments**

A1,A2 Permafrost (plate anchors)

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR ANTYPAC | | OCT 6/18 |
| QC Representative | Phil McKinley | Phil McKinley | Oct 5 2018 |
| Client Inspector | | | |

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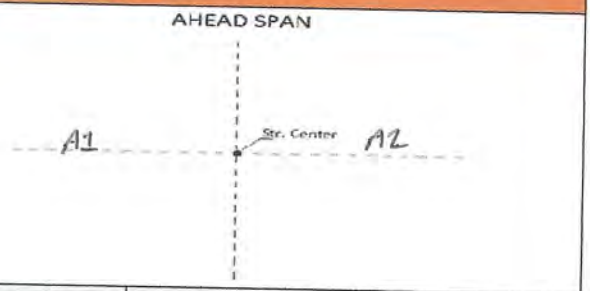
# Anchor Pull Test

| Project # | 4581 | Project Name | Eagle gold 69 KV | Facility# | |
|---|---|---|---|---|---|
| Structure # | 21/10 | Structure Type | PT | | |

## Anchor Test Record

| | |
|---|---|
| Time and Date Started | February 21 2019 13:20 |
| Time and Date completed | February 21 2019 13:50 |
| Test Device | Dyna Link 2 MSI7300 |
| Operator | Excavator/Foreman |




| Anchor # | Pre-Load Benchmark | Amount of Stretch at 50% Tension | Final Reading at Full Tension | Final Reading when Tension Released | Change After Testing |
|---|---|---|---|---|---|
| 1 | 0 mm @ 0 | 0 mm @ 9240 | 3 mm @ 18290 | 3 mm @ 0 | 3 mm |
| 2 | 0 mm @ 0 | 0 mm @ 9220 | 2 mm @ 18270 | 2 mm @ 0 | 2 mm |
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**Test Procedure:**

1. Take Benchmark reading of anchor rod.
2. Pull Anchor rod at 50% load and hold for 2 minutes. Record movement.
3. Pull Anchor rod at Full tension load and hold for 2 minutes. Record movement.
4. Release tension and record rod movement.
5. For 2 anchor configuration, the single anchor will be pulled at 50% Tension. Wait 5 minutes between pulls.

**Comments**

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR ANSTAL | | FEB 23 2019 |
| QC Representative | Phil McKinley | Phil McKinley | Feb 23 2019 |
| Client Inspector | Matt C | | Feb 25, 19 |

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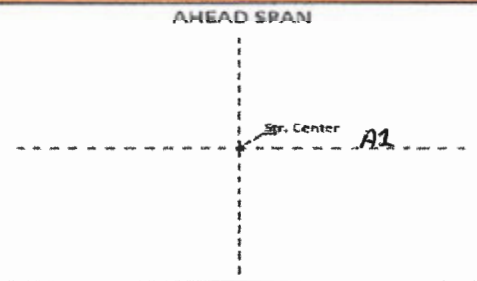
POWERLINE CONSTRUCTION

# Anchor Pull Test

| Project # | 4581 | Project Name | Eagle gold 69KV | Facility# | |
|---|---|---|---|---|---|
| Structure # | 21/12 | Structure Type | PTG | | |

## Anchor Test Record

| | |
|---|---|
| Time and Date Started | Dec 4 2018 9:10 |
| Time and Date completed | Dec 4 2018 9:20 |
| Test Device | Dyna Link 2 MSI7300 |
| Operator | Excavator/Foreman |




| Anchor # | Pre-Load Benchmark | Amount of Stretch at 50% Tension | Final Reading at Full Tension | Final Reading when Tension Released | Change After Testing |
|---|---|---|---|---|---|
| 1 | 0 mm @ 0 | 0 mm @ 9270 | 4 mm @ 18100 | 4 mm @ 0 | 4 mm |
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**Test Procedure:**

1. Take Benchmark reading of anchor rod.
2. Pull Anchor rod at 50% load and hold for 2 minutes. Record movement.
3. Pull Anchor rod at Full tension load and hold for 2 minutes. Record movement.
4. Release tension and record rod movement.
5. For 2 anchor configuration, the single anchor will be pulled at 50% Tension. Wait 5 minutes between pulls.

**Comments**

A1 Permafrost (log anchor)

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR ANTAL | | Dec 6/18 |
| QC Representative | Phil McKinley | Phil McKinley | Dec 5 2018 |
| Client Inspector | | | |

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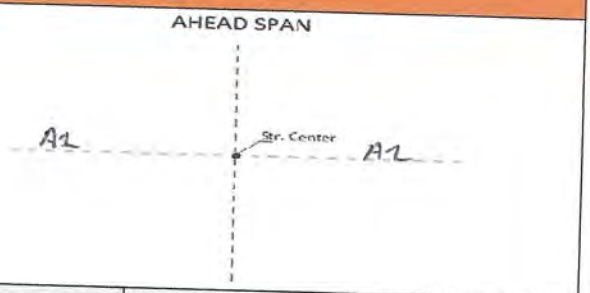
POWERLINE CONSTRUCTION

# Anchor Pull Test

| Project # | 4581 | Project Name | Eagle gold 69 KV | Facility# | |
|---|---|---|---|---|---|
| Structure # | 21/13 | Structure Type | PT | | |

## Anchor Test Record

| | |
|---|---|
| Time and Date Started | February 21 2019 11:45 |
| Time and Date completed | February 21 2019 12:20 |
| Test Device | Dyna Link 2 MSI7300 |
| Operator | Excavator/Foreman |




| Anchor # | Pre-Load Benchmark | Amount of Stretch at 50% Tension | Final Reading at Full Tension | Final Reading when Tension Released | Change After Testing |
|---|---|---|---|---|---|
| 1 | 0 mm @ 0 | 0 mm @ 9180 | 2 mm @ 18260 | 2 mm @ 0 | 2 mm |
| 2 | 0 mm @ 0 | 0 mm @ 9220 | 2 mm @ 18230 | 2 mm @ 0 | 2 mm |
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**Test Procedure:**

1. Take Benchmark reading of anchor rod.
2. Pull Anchor rod at 50% load and hold for 2 minutes. Record movement.
3. Pull Anchor rod at Full tension load and hold for 2 minutes. Record movement.
4. Release tension and record rod movement.
5. For 2 anchor configuration, the single anchor will be pulled at 50% Tension. Wait 5 minutes between pulls.

**Comments**

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR ANDREAE | | Feb 23 2019 |
| QC Representative | Phil McKinley | Phil McKinley | Feb 23 2019 |
| Client Inspector | Matt C | | Feb 25, 2019 |

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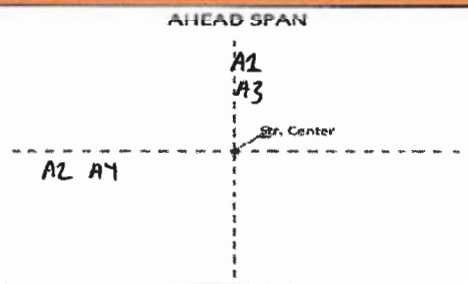
POWERLINE CONSTRUCTION

# Anchor Pull Test

| Project # | 4581 | Project Name | Eagle gold 69KV | Facility# | |
|---|---|---|---|---|---|
| Structure # | 21/2 | Structure Type | VDEHA | | |

## Anchor Test Record

| | |
|---|---|
| Time and Date Started | Dec 3 2018 15:10 |
| Time and Date completed | Dec 3 2018 16:00 |
| Test Device | Dyna Link 2 MSI7300 |
| Operator | Excavator/Foreman |




| Anchor # | Pre-Load Benchmark | Amount of Stretch at 50% Tension | Final Reading at Full Tension | Final Reading when Tension Released | Change After Testing |
|---|---|---|---|---|---|
| 1 | 0 mm @ 0 | 0 mm @ 9100 | 3 mm @ 18230 | 3 mm @ 0 | 3 mm |
| 2 | 0 mm @ 0 | 0 mm @ 9160 | 3 mm @ 18220 | 3 mm @ 0 | 3 mm |
| 3 | 0 mm @ 0 | 0 mm @ 9210 | 4 mm @ 18050 | 4 mm @ 0 | 4 mm |
| 4 | 0 mm @ 0 | 0 mm @ 9240 | 3 mm @ 18090 | 3 mm @ 0 | 3 mm |
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**Test Procedure:**

1. Take Benchmark reading of anchor rod.
2. Pull Anchor rod at 50% load and hold for 2 minutes. Record movement.
3. Pull Anchor rod at Full tension load and hold for 2 minutes. Record movement.
4. Release tension and record rod movement.
5. For 2 anchor configuration, the single anchor will be pulled at 50% Tension. Wait 5 minutes between pulls.

**Comments**

A1,A2,A3,A4 Gravel (log anchors)

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR ANTAL | | Dec 6/18 |
| QC Representative | Phil McKinley | Phil McKinley | Dec 5 2018 |
| Client Inspector | | | |

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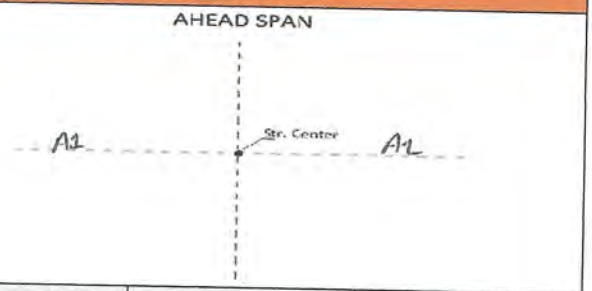
# Anchor Pull Test

| Project # | 4581 | Project Name | Eagle gold 69 KV | Facility# | |
|---|---|---|---|---|---|
| Structure # | 21/4 | Structure Type | PT | | |

## Anchor Test Record

| | |
|---|---|
| Time and Date Started | February 23 2019 9:20 |
| Time and Date completed | February 23 2019 9:50 |
| Test Device | Dyna Link 2 MSI7300 |
| Operator | Excavator/Foreman |




| Anchor # | Pre-Load Benchmark | Amount of Stretch at 50% Tension | Final Reading at Full Tension | Final Reading when Tension Released | Change After Testing |
|---|---|---|---|---|---|
| 1 | 0 mm @ 0 | 0 mm @ 9130 | 2 mm @ 18270 | 2 mm @ 0 | 2 mm |
| 2 | 0 mm @ 0 | 0 mm @ 9250 | 2 mm @ 18240 | 2 mm @ 0 | 2 mm |
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**Test Procedure:**

1. Take Benchmark reading of anchor rod.
2. Pull Anchor rod at 50% load and hold for 2 minutes. Record movement.
3. Pull Anchor rod at Full tension load and hold for 2 minutes. Record movement.
4. Release tension and record rod movement.
5. For 2 anchor configuration, the single anchor will be pulled at 50% Tension. Wait 5 minutes between pulls.

**Comments**

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR ANTAL | | FEB 23 2019 |
| QC Representative | Phil McKinley | Phil McKinley | Feb 23 2019 |
| Client Inspector | Matt C | | Feb 25, 19 |

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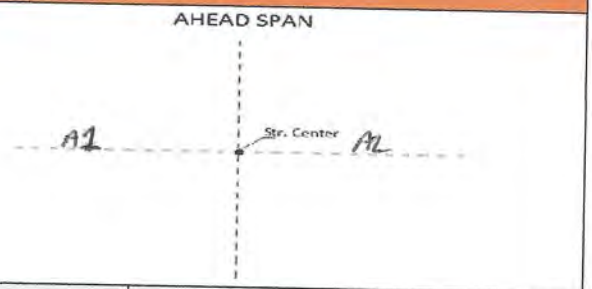
POWERLINE CONSTRUCTION

# Anchor Pull Test

| Project # | 4581 | Project Name | Eagle gold 69 KV | Facility# | |
|---|---|---|---|---|---|
| Structure # | 21/5 | Structure Type | PT | | |

## Anchor Test Record

| | |
|---|---|
| Time and Date Started | February 22 2019 16:40 |
| Time and Date completed | February 22 2019 17:05 |
| Test Device | Dyna Link 2 MSI7300 |
| Operator | Excavator/Foreman |




| Anchor # | Pre-Load Benchmark | Amount of Stretch at 50% Tension | Final Reading at Full Tension | Final Reading when Tension Released | Change After Testing |
|---|---|---|---|---|---|
| 1 | 0 mm @ 0 | 0 mm @ 9070 | 2 mm @ 18250 | 2 mm @ 0 | 2 mm |
| 2 | 0 mm @ 0 | 0 mm @ 9220 | 2 mm @ 18200 | 2 mm @ 0 | 2 mm |
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**Test Procedure:**

1. Take Benchmark reading of anchor rod.
2. Pull Anchor rod at 50% load and hold for 2 minutes. Record movement.
3. Pull Anchor rod at Full tension load and hold for 2 minutes. Record movement.
4. Release tension and record rod movement.
5. For 2 anchor configuration, the single anchor will be pulled at 50% Tension. Wait 5 minutes between pulls.

**Comments**

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR ANTAL | | FEB 23 2019 |
| QC Representative | Phil McKinley | Phil McKinley | Feb 23 2019 |
| Client Inspector | Matt C | | Feb 25, 19 |

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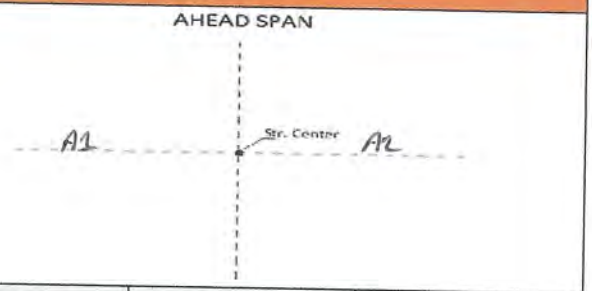
POWERLINE CONSTRUCTION

# Anchor Pull Test

| Project # | 4581 | Project Name | Eagle gold 69 KV | Facility# | |
|---|---|---|---|---|---|
| Structure # | 21/6 | Structure Type | PT | | |

## Anchor Test Record

| | |
|---|---|
| Time and Date Started | February 22 2019 13:10 |
| Time and Date completed | February 22 2019 13:40 |
| Test Device | Dyna Link 2 MSI7300 |
| Operator | Excavator/Foreman |




| Anchor # | Pre-Load Benchmark | Amount of Stretch at 50% Tension | Final Reading at Full Tension | Final Reading when Tension Released | Change After Testing |
|---|---|---|---|---|---|
| 1 | 0 mm @ 0 | 0 mm @ 9260 | 2 mm @ 18290 | 2 mm @ 0 | 2 mm |
| 2 | 0 mm @ 0 | 0 mm @ 9220 | 1 mm @ 18270 | 1 mm @ 0 | 1 mm |
| | | | | | |
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**Test Procedure:**

1. Take Benchmark reading of anchor rod.
2. Pull Anchor rod at 50% load and hold for 2 minutes. Record movement.
3. Pull Anchor rod at Full tension load and hold for 2 minutes. Record movement.
4. Release tension and record rod movement.
5. For 2 anchor configuration, the single anchor will be pulled at 50% Tension. Wait 5 minutes between pulls.

**Comments**

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR ANTAL | | Feb 23 2019 |
| QC Representative | Phil McKinley | Phil McKinley | Feb 23 2019 |
| Client Inspector | Matt C | MC | Feb 25, 2019 |

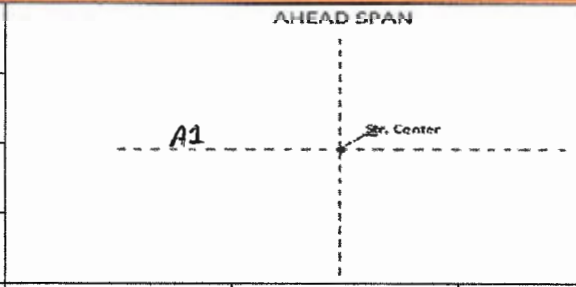
Forbes Bros LTD
POWERLINE CONSTRUCTION

# Anchor Pull Test

| Project # | 4581 | Project Name | Eagle gold 69KV | Facility# | |
|---|---|---|---|---|---|
| Structure # | 21/7 | Structure Type | PTG | | |

## Anchor Test Record

| | |
|---|---|
| Time and Date Started | Dec 3 2018 17:10 |
| Time and Date completed | Dec 3 2018 17:20 |
| Test Device | Dyna Link 2 MSI7300 |
| Operator | Excavator/Foreman |




| Anchor # | Pre-Load Benchmark | Amount of Stretch at 50% Tension | Final Reading at Full Tension | Final Reading when Tension Released | Change After Testing |
|---|---|---|---|---|---|
| 1 | 0 mm @ 0 | 0 mm @ 9240 | 3 mm @ 18160 | 3 mm @ 0 | 3 mm |
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**Test Procedure:**

1. Take Benchmark reading of anchor rod.
2. Pull Anchor rod at 50% load and hold for 2 minutes. Record movement.
3. Pull Anchor rod at Full tension load and hold for 2 minutes. Record movement.
4. Release tension and record rod movement.
5. For 2 anchor configuration, the single anchor will be pulled at 50% Tension. Wait 5 minutes between pulls.

**Comments**

A1 Permafrost (log anchor)

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR ANTAL | | Dec 6/18 |
| QC Representative | Phil McKinley | Phil McKinley | Dec 5 2018 |
| Client Inspector | | | |

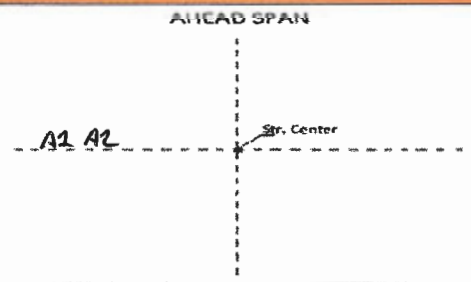
Forbes Bros LTD
POWERLINE CONSTRUCTION

# Anchor Pull Test

| Project # | 4581 | Project Name | Eagle gold 69KV | Facility# | |
|---|---|---|---|---|---|
| Structure # | 21/8 | Structure Type | VMA | | |

## Anchor Test Record

| | |
|---|---|
| Time and Date Started | Dec 4 2018 7:40 |
| Time and Date completed | Dec 4 2018 8:00 |
| Test Device | Dyna Link 2 MSI7300 |
| Operator | Excavator/Foreman |




| Anchor # | Pre-Load Benchmark | Amount of Stretch at 50% Tension | Final Reading at Full Tension | Final Reading when Tension Released | Change After Testing |
|---|---|---|---|---|---|
| 1 | 0 mm @ 0 | 0 mm @ 9190 | 2 mm @ 18030 | 2 mm @ 0 | 2 mm |
| 2 | 0 mm @ 0 | 0 mm @ 9040 | 1 mm @ 18220 | 1 mm @ 0 | 1 mm |
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**Test Procedure:**

1. Take Benchmark reading of anchor rod.
2. Pull Anchor rod at 50% load and hold for 2 minutes. Record movement.
3. Pull Anchor rod at Full tension load and hold for 2 minutes. Record movement.
4. Release tension and record rod movement.
5. For 2 anchor configuration, the single anchor will be pulled at 50% Tension. Wait 5 minutes between pulls.

**Comments**

A1,A2 Permafrost (log anchors)

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR AWTAC | | Dec 6/18 |
| QC Representative | Phil McKinley | Phil McKinley | Dec 5 2018 |
| Client Inspector | | | |

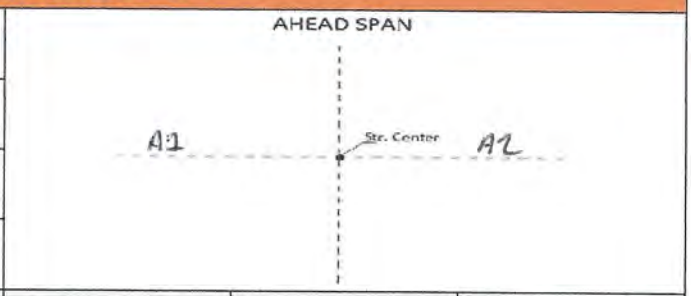
Forbes Bros LTD
POWERLINE CONSTRUCTION

# Anchor Pull Test

| Project # | 4581 | Project Name | Eagle gold 69 KV | Facility# | |
|---|---|---|---|---|---|
| Structure # | 21/9 | Structure Type | PTR | | |

## Anchor Test Record

| | |
|---|---|
| Time and Date Started | February 22 2019 10:15 |
| Time and Date completed | February 22 2019 10:45 |
| Test Device | Dyna Link 2 MSI7300 |
| Operator | Excavator/Foreman |




| Anchor # | Pre-Load Benchmark | Amount of Stretch at 50% Tension | Final Reading at Full Tension | Final Reading when Tension Released | Change After Testing |
|---|---|---|---|---|---|
| 1 | 0 mm @ 0 | 0 mm @ 9140 | 1 mm @ 18250 | 1 mm @ 0 | 1 mm |
| 2 | 0 mm @ 0 | 0 mm @ 9230 | 1 mm @ 18270 | 1 mm @ 0 | 1 mm |
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**Test Procedure:**

1. Take Benchmark reading of anchor rod.
2. Pull Anchor rod at 50% load and hold for 2 minutes. Record movement.
3. Pull Anchor rod at Full tension load and hold for 2 minutes. Record movement.
4. Release tension and record rod movement.
5. For 2 anchor configuration, the single anchor will be pulled at 50% Tension. Wait 5 minutes between pulls.

**Comments**

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR ANTAL | | Feb 23 2019 |
| QC Representative | Phil McKinley | Phil McKinley | Feb 23 2019 |
| Client Inspector | Matt C | MC | Feb 25, 19 |

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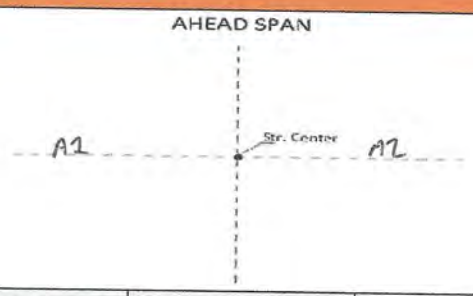
POWERLINE CONSTRUCTION

# Anchor Pull Test

| Project # | 4581 | Project Name | Eagle gold 69 KV | Facility# | |
|---|---|---|---|---|---|
| Structure # | 22/1 | Structure Type | SAH | | |

## Anchor Test Record

| | |
|---|---|
| Time and Date Started | February 21 2019 9:40 |
| Time and Date completed | February 21 2019 10:10 |
| Test Device | Dyna Link 2 MSI7300 |
| Operator | Excavator/Foreman |




| Anchor # | Pre-Load Benchmark | Amount of Stretch at 50% Tension | Final Reading at Full Tension | Final Reading when Tension Released | Change After Testing |
|---|---|---|---|---|---|
| 1 | 0 mm @ 0 | 0 mm @ 9270 | 2 mm @ 18250 | 2 mm @ 0 | 2 mm |
| 2 | 0 mm @ 0 | 0 mm @ 9140 | 2 mm @ 18090 | 2 mm @ 0 | 2 mm |
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**Test Procedure:**

1. Take Benchmark reading of anchor rod.
2. Pull Anchor rod at 50% load and hold for 2 minutes. Record movement.
3. Pull Anchor rod at Full tension load and hold for 2 minutes. Record movement.
4. Release tension and record rod movement.
5. For 2 anchor configuration, the single anchor will be pulled at 50% Tension. Wait 5 minutes between pulls.

**Comments**

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR ANTHAL | | FEB 23 2019 |
| QC Representative | Phil McKinley | Phil McKinley | Feb 23 2019 |
| Client Inspector | Matt C | MC | Feb 25, 19. |

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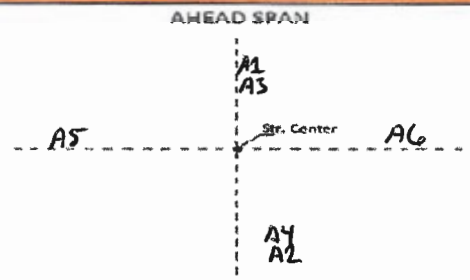
POWERLINE CONSTRUCTION

# Anchor Pull Test

| Project # | 4581 | Project Name | Eagle gold 69KV | Facility# | |
|---|---|---|---|---|---|
| Structure # | 22/8 | Structure Type | FDE | | |

## Anchor Test Record

| | |
|---|---|
| Time and Date Started | Dec 4 2018 10:40 |
| Time and Date completed | Dec 4 2018 11:45 |
| Test Device | Dyna Link 2 MSI7300 |
| Operator | Excavator/Foreman |




| Anchor # | Pre-Load Benchmark | Amount of Stretch at 50% Tension | Final Reading at Full Tension | Final Reading when Tension Released | Change After Testing |
|---|---|---|---|---|---|
| 1 | 0 mm @ 0 | 0 mm @ 9180 | 2 mm @ 18220 | 2 mm @ 0 | 2 mm |
| 2 | 0 mm @ 0 | 0 mm @ 9240 | 2 mm @ 18280 | 2 mm @ 0 | 2 mm |
| 3 | 0 mm @ 0 | 0 mm @ 9070 | 4 mm @ 18160 | 4 mm @ 0 | 4 mm |
| 4 | 0 mm @ 0 | 0 mm @ 9260 | 2 mm @ 18090 | 2 mm @ 0 | 2 mm |
| 5 | 0 mm @ 0 | 0 mm @ 9100 | 3 mm @ 18200 | 3 mm @ 0 | 3 mm |
| 6 | 0 mm @ 0 | 0 mm @ 9130 | 3 mm @ 18020 | 3 mm @ 0 | 3 mm |
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**Test Procedure:**

1. Take Benchmark reading of anchor rod.
2. Pull Anchor rod at 50% load and hold for 2 minutes. Record movement.
3. Pull Anchor rod at Full tension load and hold for 2 minutes. Record movement.
4. Release tension and record rod movement.
5. For 2 anchor configuration, the single anchor will be pulled at 50% Tension. Wait 5 minutes between pulls.

**Comments**

A1,A2,A3,A4,A5,A6 Gravel (log anchors)

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR ANTTR | | Dec 7/18 |
| QC Representative | Phil McKinley | Phil McKinley | Dec 6 2018 |
| Client Inspector | | | |

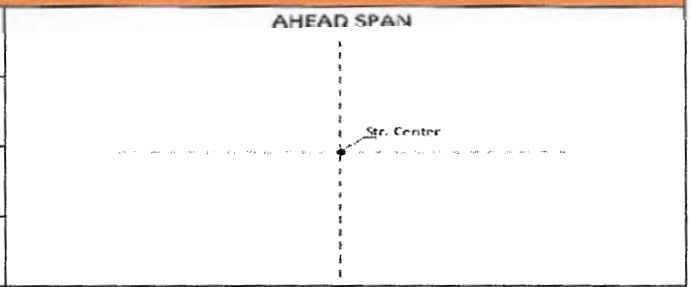
Forbes Bros LTD
POWERLINE CONSTRUCTION

# Anchor Pull Test

| Project # | 4581 | Project Name | Eagle gold 69KV | Facility# | |
|---|---|---|---|---|---|
| Structure # | 2/3 | Structure Type | PT | | |

## Anchor Test Record

| | |
|---|---|
| Time and Date Started | Oct 4 2018 15:45 |
| Time and Date completed | Oct 4 2018 16:20 |
| Test Device | Dyna Link 2 MSI7300 |
| Operator | Excavator/Foreman |




| Anchor # | Pre-Load Benchmark | Amount of Stretch at 50% Tension | Final Reading at Full Tension | Final Reading when Tension Released | Change After Testing |
|---|---|---|---|---|---|
| 1 | 0 mm @ 0 | 0 mm @ 9130 | 2 mm @ 18030 | 2 mm @ 0 | 2 mm |
| 2 | 0 mm @ 0 | 0 mm @ 9220 | 1 mm @ 18230 | 1 mm @ 0 | 1 mm |
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**Test Procedure:**

1. Take Benchmark reading of anchor rod.
2. Pull Anchor rod at 50% load and hold for 2 minutes. Record movement.
3. Pull Anchor rod at Full tension load and hold for 2 minutes. Record movement.
4. Release tension and record rod movement.
5. For 2 anchor configuration, the single anchor will be pulled at 50% Tension. Wait 5 minutes between pulls.

**Comments**

A1,A2 Permafrost (plate anchors)

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR ANTYPAC | | OCT 7/18 |
| QC Representative | Phil McKinley | Phil McKinley | Oct 6 2018 |
| Client Inspector | | | |

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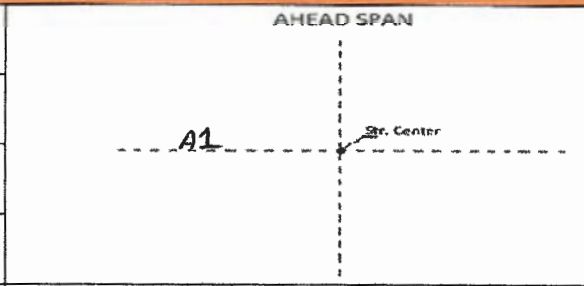
# Anchor Pull Test

| Project # | 4581 | Project Name | Eagle gold 69KV | Facility# | |
|---|---|---|---|---|---|
| Structure # | 23/11 | Structure Type | PTG | | |

## Anchor Test Record

| | |
|---|---|
| Time and Date Started | Dec 4 2018 15:10 |
| Time and Date completed | Dec 4 2018 15:20 |
| Test Device | Dyna Link 2 MSI7300 |
| Operator | Excavator/Foreman |




| Anchor # | Pre-Load Benchmark | Amount of Stretch at 50% Tension | Final Reading at Full Tension | Final Reading when Tension Released | Change After Testing |
|---|---|---|---|---|---|
| 1 | 0 mm @ 0 | 0 mm @ 9160 | 2 mm @ 18200 | 2 mm @ 0 | 2 mm |
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**Test Procedure:**

1. Take Benchmark reading of anchor rod.
2. Pull Anchor rod at 50% load and hold for 2 minutes. Record movement.
3. Pull Anchor rod at Full tension load and hold for 2 minutes. Record movement.
4. Release tension and record rod movement.
5. For 2 anchor configuration, the single anchor will be pulled at 50% Tension. Wait 5 minutes between pulls.

**Comments**

A1 Gravel (log anchor)

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR ANTAR | | Dec 7/18 |
| QC Representative | Phil McKinley | Phil McKinley | Dec 6 2018 |
| Client Inspector | | | |

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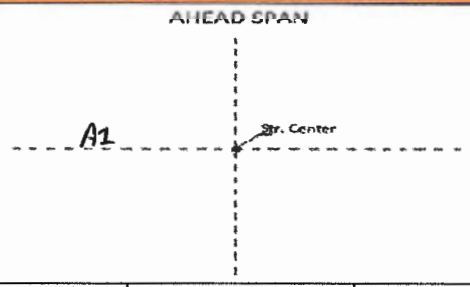
POWERLINE CONSTRUCTION

# Anchor Pull Test

| Project # | 4581 | Project Name | Eagle gold 69KV | Facility# | |
|---|---|---|---|---|---|
| Structure # | 23/12 | Structure Type | PTG | | |

## Anchor Test Record

| | |
|---|---|
| Time and Date Started | Dec 4 2018 15:35 |
| Time and Date completed | Dec 4 2018 15:45 |
| Test Device | Dyna Link 2 MSI7300 |
| Operator | Excavator/Foreman |




| Anchor # | Pre-Load Benchmark | Amount of Stretch at 50% Tension | Final Reading at Full Tension | Final Reading when Tension Released | Change After Testing |
|---|---|---|---|---|---|
| 1 | 0 mm @ 0 | 0 mm @ 9040 | 2 mm @ 18080 | 1 mm @ 0 | 1 mm |
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**Test Procedure:**

1. Take Benchmark reading of anchor rod.
2. Pull Anchor rod at 50% load and hold for 2 minutes. Record movement.
3. Pull Anchor rod at Full tension load and hold for 2 minutes. Record movement.
4. Release tension and record rod movement.
5. For 2 anchor configuration, the single anchor will be pulled at 50% Tension. Wait 5 minutes between pulls.

**Comments**

A1 Gravel (log anchor)

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR ANTAL | | Dec 7/18 |
| QC Representative | Phil McKinley | Phil McKinley | Dec 6 2018 |
| Client Inspector | | | |

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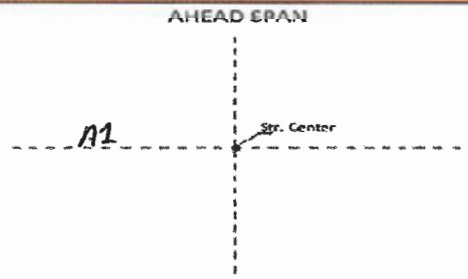
POWERLINE CONSTRUCTION

# Anchor Pull Test

| Project # | 4581 | Project Name | Eagle gold 69KV | Facility# | |
|---|---|---|---|---|---|
| Structure # | 23/6 | Structure Type | PTG | | |

## Anchor Test Record

| | |
|---|---|
| Time and Date Started | Dec 4 2018 12:50 |
| Time and Date completed | Dec 4 2018 13:00 |
| Test Device | Dyna Link 2 MSI7300 |
| Operator | Excavator/Foreman |




| Anchor # | Pre-Load Benchmark | Amount of Stretch at 50% Tension | Final Reading at Full Tension | Final Reading when Tension Released | Change After Testing |
|---|---|---|---|---|---|
| 1 | 0 mm @ 0 | 0 mm @ 9160 | 3 mm @ 18160 | 3 mm @ 0 | 3 mm |
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**Test Procedure:**

1. Take Benchmark reading of anchor rod.
2. Pull Anchor rod at 50% load and hold for 2 minutes. Record movement.
3. Pull Anchor rod at Full tension load and hold for 2 minutes. Record movement.
4. Release tension and record rod movement.
5. For 2 anchor configuration, the single anchor will be pulled at 50% Tension. Wait 5 minutes between pulls.

**Comments**

A1 Gravel (log anchor)

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR ANTAC | | Dec 7/18 |
| QC Representative | Phil McKinley | Phil McKinley | Dec 6 2018 |
| Client Inspector | | | |

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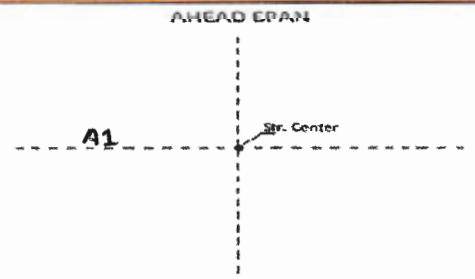
POWERLINE CONSTRUCTION

# Anchor Pull Test

| Project # | 4581 | Project Name | Eagle gold 69KV | Facility# | |
|---|---|---|---|---|---|
| Structure # | 23/8 | Structure Type | PTG | | |

## Anchor Test Record

| | |
|---|---|
| Time and Date Started | Dec 4 2018 13:40 |
| Time and Date completed | Dec 4 2018 13:50 |
| Test Device | Dyna Link 2 MSI7300 |
| Operator | Excavator/Foreman |




| Anchor # | Pre-Load Benchmark | Amount of Stretch at 50% Tension | Final Reading at Full Tension | Final Reading when Tension Released | Change After Testing |
|---|---|---|---|---|---|
| 1 | 0 mm @ 0 | 0 mm @ 9250 | 3 mm @ 18230 | 2 mm @ 0 | 2 mm |
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**Test Procedure:**

1. Take Benchmark reading of anchor rod.
2. Pull Anchor rod at 50% load and hold for 2 minutes. Record movement.
3. Pull Anchor rod at Full tension load and hold for 2 minutes. Record movement.
4. Release tension and record rod movement.
5. For 2 anchor configuration, the single anchor will be pulled at 50% Tension. Wait 5 minutes between pulls.

**Comments**

A1 Gravel (log anchor)

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR ANTIL | | Dec 7/18 |
| QC Representative | Phil McKinley | Phil McKinley | Dec 6 2018 |
| Client Inspector | | | |

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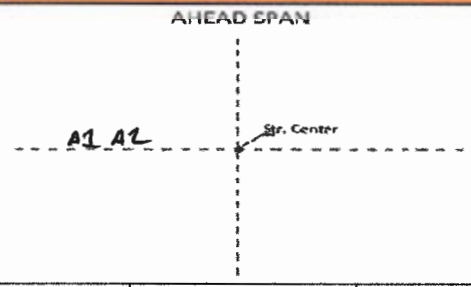
# Anchor Pull Test

| Project # | 4581 | Project Name | Eagle gold 69KV | Facility# | |
|---|---|---|---|---|---|
| Structure # | 23/9 | Structure Type | VMA | | |

## Anchor Test Record

| | |
|---|---|
| Time and Date Started | Dec 4 2018 14:20 |
| Time and Date completed | Dec 4 2018 14:35 |
| Test Device | Dyna Link 2 MSI7300 |
| Operator | Excavator/Foreman |




| Anchor # | Pre-Load Benchmark | Amount of Stretch at 50% Tension | Final Reading at Full Tension | Final Reading when Tension Released | Change After Testing |
|---|---|---|---|---|---|
| 1 | 0 mm @ 0 | 0 mm @ 9170 | 2 mm @ 18250 | 2 mm @ 0 | 2 mm |
| 2 | 0 mm @ 0 | 0 mm @ 9200 | 3 mm @ 18030 | 3 mm @ 0 | 3 mm |
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**Test Procedure:**

1. Take Benchmark reading of anchor rod.
2. Pull Anchor rod at 50% load and hold for 2 minutes. Record movement.
3. Pull Anchor rod at Full tension load and hold for 2 minutes. Record movement.
4. Release tension and record rod movement.
5. For 2 anchor configuration, the single anchor will be pulled at 50% Tension. Wait 5 minutes between pulls.

**Comments**

A1,A2 Gravel (log anchors)

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR ANTAL | | Dec 7/18 |
| QC Representative | Phil McKinley | Phil McKinley | Dec 6 2018 |
| Client Inspector | | | |

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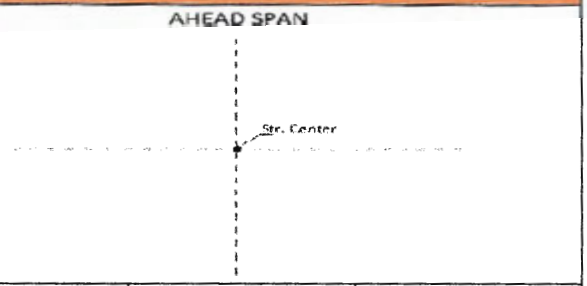
POWERLINE CONSTRUCTION

# Anchor Pull Test

| Project # | 4581 | Project Name | Eagle gold 69KV | Facility# | |
|---|---|---|---|---|---|
| Structure # | 2/4 | Structure Type | PTG | | |

## Anchor Test Record

| | |
|---|---|
| Time and Date Started | Oct 18 2018 11:30 |
| Time and Date completed | Oct 18 2018 12:00 |
| Test Device | Dyna Link 2 MSI7300 |
| Operator | Excavator/Foreman |




| Anchor # | Pre-Load Benchmark | Amount of Stretch at 50% Tension | Final Reading at Full Tension | Final Reading when Tension Released | Change After Testing |
|---|---|---|---|---|---|
| 1 | 0 mm @ 0 | 0 mm @ 9140 | 4 mm @ 18140 | 4 mm @ 0 | 4 mm |
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**Test Procedure:**

1. Take Benchmark reading of anchor rod.
2. Pull Anchor rod at 50% load and hold for 2 minutes. Record movement.
3. Pull Anchor rod at Full tension load and hold for 2 minutes. Record movement.
4. Release tension and record rod movement.
5. For 2 anchor configuration, the single anchor will be pulled at 50% Tension. Wait 5 minutes between pulls.

**Comments**

A1 Permafrost (log anchor)

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR ANSTAC | | OCT 19/18 |
| QC Representative | Phil McKinley | Phil McKinley | OCT 18/18 |
| Client Inspector | | | |

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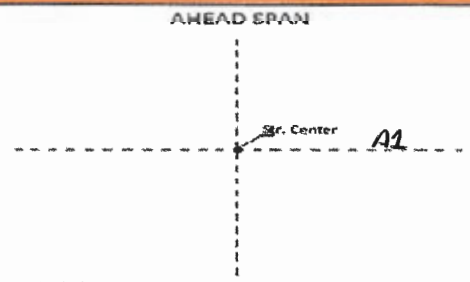
POWERLINE CONSTRUCTION

# Anchor Pull Test

| Project # | 4581 | Project Name | Eagle gold 69KV | Facility# | |
|---|---|---|---|---|---|
| Structure # | 24/1 | Structure Type | PTG | | |

## Anchor Test Record

| | |
|---|---|
| Time and Date Started | Dec 4 2018 16:10 |
| Time and Date completed | Dec 4 2018 16:20 |
| Test Device | Dyna Link 2 MSI7300 |
| Operator | Excavator/Foreman |




| Anchor # | Pre-Load Benchmark | Amount of Stretch at 50% Tension | Final Reading at Full Tension | Final Reading when Tension Released | Change After Testing |
|---|---|---|---|---|---|
| 1 | 0 mm @ 0 | 0 mm @ 9270 | 3 mm @ 18220 | 3 mm | 3 mm |
| | | | | | |
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**Test Procedure:**

1. Take Benchmark reading of anchor rod.
2. Pull Anchor rod at 50% load and hold for 2 minutes. Record movement.
3. Pull Anchor rod at Full tension load and hold for 2 minutes. Record movement.
4. Release tension and record rod movement.
5. For 2 anchor configuration, the single anchor will be pulled at 50% Tension. Wait 5 minutes between pulls.

**Comments**

A1 Gravel (log anchor)

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR ANTAL | | Dec 7/18 |
| QC Representative | Phil McKinley | Phil McKinley | Dec 6 2018 |
| Client Inspector | | | |

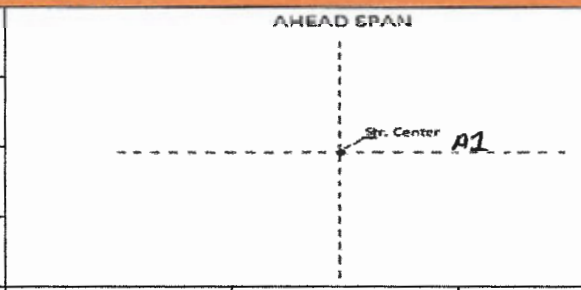
Forbes Bros LTD
POWERLINE CONSTRUCTION

# Anchor Pull Test

| Project # | 4581 | Project Name | Eagle gold 69KV | Facility# | |
|---|---|---|---|---|---|
| Structure # | 24/2 | Structure Type | PTG | | |

## Anchor Test Record

| | |
|---|---|
| Time and Date Started | Dec 4 2018 16:30 |
| Time and Date completed | Dec 4 2018 16:40 |
| Test Device | Dyna Link 2 MSI7300 |
| Operator | Excavator/Foreman |




| Anchor # | Pre-Load Benchmark | Amount of Stretch at 50% Tension | Final Reading at Full Tension | Final Reading when Tension Released | Change After Testing |
|---|---|---|---|---|---|
| 1 | 0 mm @ 0 | 0 mm @ 9240 | 4 mm @ 18270 | 4 mm @ 0 | 4 mm |
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**Test Procedure:**

1. Take Benchmark reading of anchor rod.
2. Pull Anchor rod at 50% load and hold for 2 minutes. Record movement.
3. Pull Anchor rod at Full tension load and hold for 2 minutes. Record movement.
4. Release tension and record rod movement.
5. For 2 anchor configuration, the single anchor will be pulled at 50% Tension. Wait 5 minutes between pulls.

**Comments**

A1 Gravel (log anchor)

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR ANTAL | | Dec 7/18 |
| QC Representative | Phil McKinley | PJ McKinley | Dec 6 2018 |
| Client Inspector | | | |

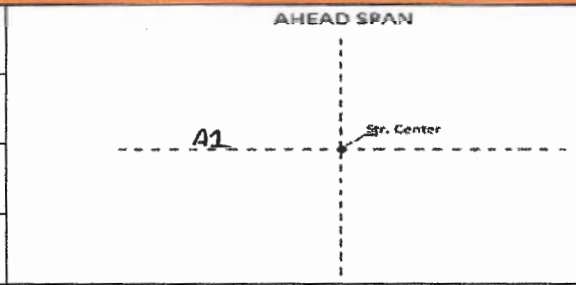
Forbes Bros LTD
POWERLINE CONSTRUCTION

# Anchor Pull Test

| Project # | 4581 | Project Name | Eagle gold 69KV | Facility# | |
|---|---|---|---|---|---|
| Structure # | 24/9 | Structure Type | PTG | | |

## Anchor Test Record

| | |
|---|---|
| Time and Date Started | Dec 5 2018 8:20 |
| Time and Date completed | Dec 5 2018 8:30 |
| Test Device | Dyna Link 2 MSI7300 |
| Operator | Excavator/Foreman |




| Anchor # | Pre-Load Benchmark | Amount of Stretch at 50% Tension | Final Reading at Full Tension | Final Reading when Tension Released | Change After Testing |
|---|---|---|---|---|---|
| 1 | 0 mm @ 0 | 0 mm @ 9070 | 3 mm @ 18170 | 3 mm @ 0 | 3 mm |
| | | | | | |
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**Test Procedure:**

1. Take Benchmark reading of anchor rod.
2. Pull Anchor rod at 50% load and hold for 2 minutes. Record movement.
3. Pull Anchor rod at Full tension load and hold for 2 minutes. Record movement.
4. Release tension and record rod movement.
5. For 2 anchor configuration, the single anchor will be pulled at 50% Tension. Wait 5 minutes between pulls.

**Comments**

A1 Gravel (log anchor)

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR ANTAC | | Dec 7/18 |
| QC Representative | Phil McKinley | Phil McKinley | Dec 6 2018 |
| Client Inspector | | | |

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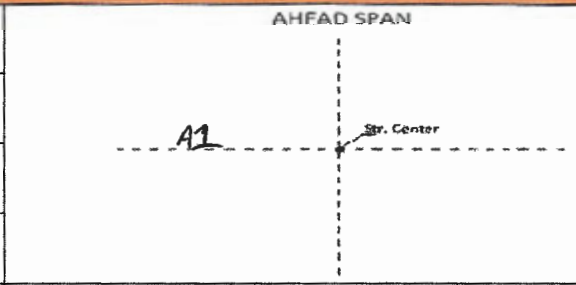
POWERLINE CONSTRUCTION

# Anchor Pull Test

| Project # | 4581 | Project Name | Eagle gold 69KV | Facility# | |
|---|---|---|---|---|---|
| Structure # | 25/11 | Structure Type | PTG | | |

## Anchor Test Record

| | |
|---|---|
| Time and Date Started | Dec 5 2018 11:50 |
| Time and Date completed | Dec 5 2018 12:05 |
| Test Device | Dyna Link 2 MSI7300 |
| Operator | Excavator/Foreman |




| Anchor # | Pre-Load Benchmark | Amount of Stretch at 50% Tension | Final Reading at Full Tension | Final Reading when Tension Released | Change After Testing |
|---|---|---|---|---|---|
| 1 | 0 mm @ 0 | 0 mm @ 9140 | 3 mm @ 18260 | 3 mm @ 0 | 3 mmm |
| | | | | | |
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**Test Procedure:**

1. Take Benchmark reading of anchor rod.
2. Pull Anchor rod at 50% load and hold for 2 minutes. Record movement.
3. Pull Anchor rod at Full tension load and hold for 2 minutes. Record movement.
4. Release tension and record rod movement.
5. For 2 anchor configuration, the single anchor will be pulled at 50% Tension. Wait 5 minutes between pulls.

**Comments**

A1 Gravel (log anchor)

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR AWIAC | | Dec 8/18 |
| QC Representative | Phil McKinley | Phil McKinley | Dec 7 2018 |
| Client Inspector | | | |

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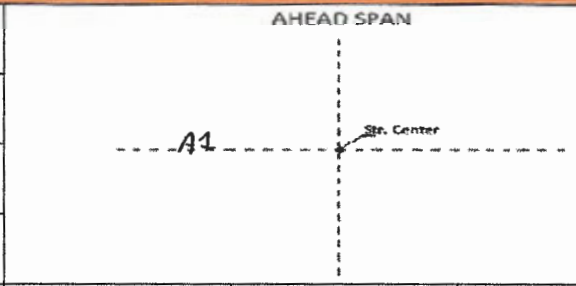
# Anchor Pull Test

| Project # | 4581 | Project Name | Eagle gold 69KV | Facility# | |
|---|---|---|---|---|---|
| Structure # | 25/5 | Structure Type | PTG | | |

## Anchor Test Record

| | |
|---|---|
| Time and Date Started | Dec 5 2018 9:35 |
| Time and Date completed | Dec 5 2018 9:45 |
| Test Device | Dyna Link 2 MSI7300 |
| Operator | Excavator/Foreman |




| Anchor # | Pre-Load Benchmark | Amount of Stretch at 50% Tension | Final Reading at Full Tension | Final Reading when Tension Released | Change After Testing |
|---|---|---|---|---|---|
| 1 | 0 mm @ 0 | 0 mm @ 9260 | 3 mm @ 18230 | 3 mm @ 0 | 3 mm |
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**Test Procedure:**

1. Take Benchmark reading of anchor rod.
2. Pull Anchor rod at 50% load and hold for 2 minutes. Record movement.
3. Pull Anchor rod at Full tension load and hold for 2 minutes. Record movement.
4. Release tension and record rod movement.
5. For 2 anchor configuration, the single anchor will be pulled at 50% Tension. Wait 5 minutes between pulls.

**Comments**

A1 Gravel (log anchor)

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR AUSTAL | | Dec 7/18 |
| QC Representative | Phil McKinley | Phil McKinley | Dec 6 2018 |
| Client Inspector | | | |

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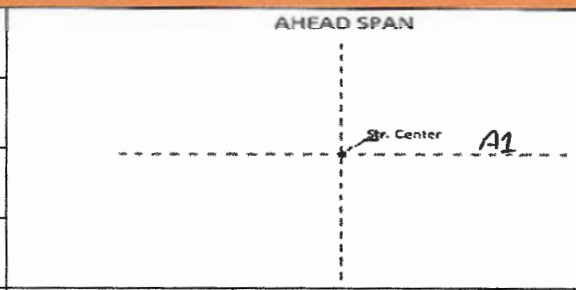
# Anchor Pull Test

| Project # | 4581 | Project Name | Eagle gold 69KV | Facility# | |
|---|---|---|---|---|---|
| Structure # | 25/7 | Structure Type | PTG | | |

## Anchor Test Record

| | |
|---|---|
| Time and Date Started | Dec 5 2018 10:30 |
| Time and Date completed | Dec 5 2018 10:40 |
| Test Device | Dyna Link 2 MSI7300 |
| Operator | Excavator/Foreman |




| Anchor # | Pre-Load Benchmark | Amount of Stretch at 50% Tension | Final Reading at Full Tension | Final Reading when Tension Released | Change After Testing |
|---|---|---|---|---|---|
| 1 | 0 mm @ 0 | 0 mm @ 9220 | 3 mm @ 18180 | 3 mm @ 0 | 3 mm |
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**Test Procedure:**

1. Take Benchmark reading of anchor rod.
2. Pull Anchor rod at 50% load and hold for 2 minutes. Record movement.
3. Pull Anchor rod at Full tension load and hold for 2 minutes. Record movement.
4. Release tension and record rod movement.
5. For 2 anchor configuration, the single anchor will be pulled at 50% Tension. Wait 5 minutes between pulls.

**Comments**

A1 Gravel (log anchor)

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR ANTAL | | Dec 7/18 |
| QC Representative | Phil McKinley | Phil McKinley | Dec 6 2018 |
| Client Inspector | | | |

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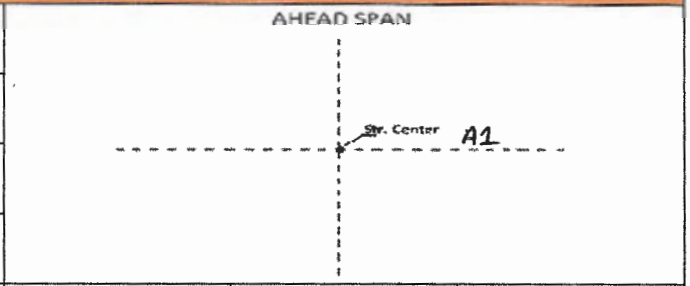
# Anchor Pull Test

| Project # | 4581 | Project Name | Eagle gold 69KV | Facility# | |
|---|---|---|---|---|---|
| Structure # | 25/8 | Structure Type | PTG | | |

## Anchor Test Record

| | |
|---|---|
| Time and Date Started | Dec 5 2018 10:55 |
| Time and Date completed | Dec 5 2018 11:10 |
| Test Device | Dyna Link 2 MSI7300 |
| Operator | Excavator/Foreman |




| Anchor # | Pre-Load Benchmark | Amount of Stretch at 50% Tension | Final Reading at Full Tension | Final Reading when Tension Released | Change After Testing |
|---|---|---|---|---|---|
| 1 | 0 mm @ 0 | 0 mm @ 9230 | 2 mm @ 18050 | 2 mm @ 0 | 2 mm |
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**Test Procedure:**

1. Take Benchmark reading of anchor rod.
2. Pull Anchor rod at 50% load and hold for 2 minutes. Record movement.
3. Pull Anchor rod at Full tension load and hold for 2 minutes. Record movement.
4. Release tension and record rod movement.
5. For 2 anchor configuration, the single anchor will be pulled at 50% Tension. Wait 5 minutes between pulls.

**Comments**

A1 Gravel (log anchor)

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR ANTAK | | Dec 8/18 |
| QC Representative | Phil McKinley | Phil McKinley | Dec 7 2018 |
| Client Inspector | | | |

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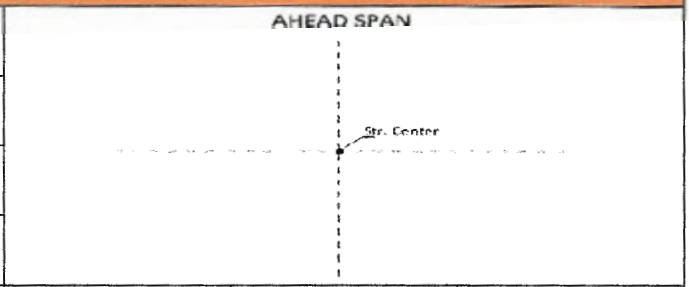
POWERLINE CONSTRUCTION

# Anchor Pull Test

| Project # | 4581 | Project Name | Eagle gold 69KV | Facility# | |
|---|---|---|---|---|---|
| Structure # | 2/6 | Structure Type | PT | | |

## Anchor Test Record

| | |
|---|---|
| Time and Date Started | Nov 4 2018 10:10 |
| Time and Date completed | Nov 4 2018 10:45 |
| Test Device | Dyna Link 2 MSI7300 |
| Operator | Excavator/Foreman |




| Anchor # | Pre-Load Benchmark | Amount of Stretch at 50% Tension | Final Reading at Full Tension | Final Reading when Tension Released | Change After Testing |
|---|---|---|---|---|---|
| 1 | 0 mm @ 0 | 0 mm @ 9140 | 2 mm @ 18220 | 2 mm @ 0 | 2 mm |
| 2 | 0 mm @ 0 | 0 mm @ 9090 | 2 mm @ 18080 | 2 mm @ 0 | 2 mm |
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**Test Procedure:**

1. Take Benchmark reading of anchor rod.
2. Pull Anchor rod at 50% load and hold for 2 minutes. Record movement.
3. Pull Anchor rod at Full tension load and hold for 2 minutes. Record movement.
4. Release tension and record rod movement.
5. For 2 anchor configuration, the single anchor will be pulled at 50% Tension. Wait 5 minutes between pulls.

**Comments**

A1 and A2 Permafrost ( plate anchors)

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR ANTAL | | Nov 5/18 |
| QC Representative | Phil McKinley | Phil McKinley | Nov 4/18 |
| Client Inspector | | | |

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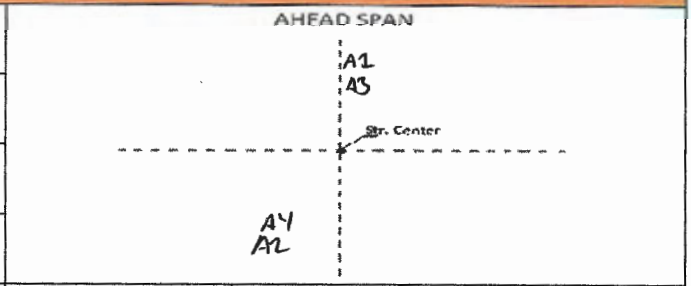
POWERLINE CONSTRUCTION

# Anchor Pull Test

| Project # | 4581 | Project Name | Eagle gold 69KV | Facility# | |
|---|---|---|---|---|---|
| Structure # | 27/1 | Structure Type | VDEMA | | |

## Anchor Test Record

| | |
|---|---|
| Time and Date Started | Dec 6 2018 10;00 |
| Time and Date completed | Dec 6 2018 11:15 |
| Test Device | Dyna Link 2 MSI7300 |
| Operator | Excavator/Foreman |




| Anchor # | Pre-Load Benchmark | Amount of Stretch at 50% Tension | Final Reading at Full Tension | Final Reading when Tension Released | Change After Testing |
|---|---|---|---|---|---|
| 1 | 0 mm @ 0 | 0 mm @ 9240 | 2 mm @ 18290 | 2 mm @ 0 | 2 mm |
| 2 | 0 mm @ 0 | 0 mm @ 9150 | 3 mm @ 18170 | 3 mm @ 0 | 3 mm |
| 3 | 0 mm @ 0 | 0 mm @ 9120 | 3 mm @ 18080 | 3 mm @ 0 | 3 mm |
| 4 | 0 mm @ 0 | 0 mm @ 9240 | 3 mm @ 18040 | 3 mm @ 0 | 3 mm |
| | | | | | |
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**Test Procedure:**

1. Take Benchmark reading of anchor rod.
2. Pull Anchor rod at 50% load and hold for 2 minutes. Record movement.
3. Pull Anchor rod at Full tension load and hold for 2 minutes. Record movement.
4. Release tension and record rod movement.
5. For 2 anchor configuration, the single anchor will be pulled at 50% Tension. Wait 5 minutes between pulls.

**Comments**

A1,A2,A3,A4 Gravel (log anchors)

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR ANTAL | | Dec 9/18 |
| QC Representative | Phil McKinley | Phil McKinley | Dec 8 2018 |
| Client Inspector | | | |

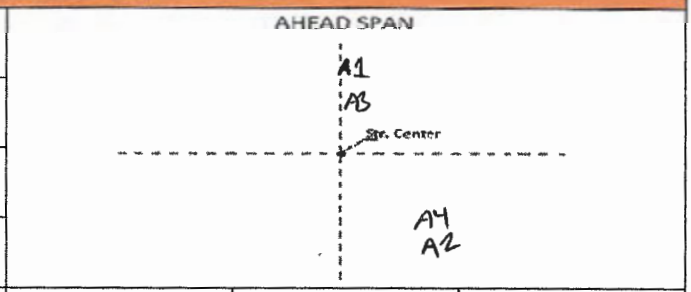
Forbes Bros LTD
POWERLINE CONSTRUCTION

# Anchor Pull Test

| Project # | 4581 | Project Name | Eagle gold 69KV | Facility# | |
|---|---|---|---|---|---|
| Structure # | 28/13 | Structure Type | VDEMA | | |

## Anchor Test Record

| | |
|---|---|
| Time and Date Started | Dec 8 2018 10:10 |
| Time and Date completed | Dec 8 2018 11:15 |
| Test Device | Dyna Link 2 MSI7300 |
| Operator | Excavator/Foreman |




| Anchor # | Pre-Load Benchmark | Amount of Stretch at 50% Tension | Final Reading at Full Tension | Final Reading when Tension Released | Change After Testing |
|---|---|---|---|---|---|
| 1 | 0 mm @ 0 | 0 mm @ 9140 | 3 mm @ 18230 | 3 mm @ 0 | 3 mm |
| 2 | 0 mm @ 0 | 0 mm @ 9170 | 2 mm @ 18200 | 2 mm @ 0 | 2 mm |
| 3 | 0 mm @ 0 | 0 mm @ 9020 | 3 mm @ 18250 | 3 mm @ 0 | 3 mm |
| 4 | 0 mm @ 0 | 0 mm @ 9260 | 4 mm @ 18060 | 4 mm @ 0 | 4 mm |
| | | | | | |
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| | | | | | |

**Test Procedure:**

1. Take Benchmark reading of anchor rod.
2. Pull Anchor rod at 50% load and hold for 2 minutes. Record movement.
3. Pull Anchor rod at Full tension load and hold for 2 minutes. Record movement.
4. Release tension and record rod movement.
5. For 2 anchor configuration, the single anchor will be pulled at 50% Tension. Wait 5 minutes between pulls.

**Comments**

A1,A2,A3,A4 Gravel (log anchors)

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR AWYAL | | Dec 12/18 |
| QC Representative | Phil McKinley | | Dec 11 2018 |
| Client Inspector | | | |

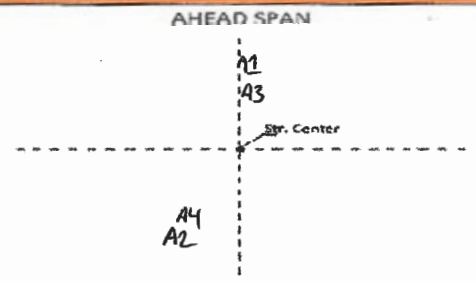
Forbes Bros LTD
POWERLINE CONSTRUCTION

# Anchor Pull Test

| Project # | 4581 | Project Name | Eagle gold 69KV | Facility# | |
|---|---|---|---|---|---|
| Structure # | 28/2 | Structure Type | VDEMA | | |

## Anchor Test Record

| | |
|---|---|
| Time and Date Started | Dec 7 2018 12:15 |
| Time and Date completed | Dec 7 2018 13:20 |
| Test Device | Dyna Link 2 MSI7300 |
| Operator | Excavator/Foreman |




| Anchor # | Pre-Load Benchmark | Amount of Stretch at 50% Tension | Final Reading at Full Tension | Final Reading when Tension Released | Change After Testing |
|---|---|---|---|---|---|
| 1 | 0 mm @ 0 | 0 mm @ 9160 | 2 mm @ 18160 | 2 mm @ 0 | 2 mm |
| 2 | 0 mm @ 0 | 0 mm @ 9240 | 3 mm @ 18200 | 2 mm @ 0 | 2 mm |
| 3 | 0 mm @ 0 | 0 mm @ 9270 | 3 mm @ 18280 | 3 mm @ 0 | 3 mm |
| 4 | 0 mm @ 0 | 0 mm @ 9080 | 2 mm @ 18150 | 2 mm @ 0 | 2 mm |
| | | | | | |
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| | | | | | |

**Test Procedure:**

1. Take Benchmark reading of anchor rod.
2. Pull Anchor rod at 50% load and hold for 2 minutes. Record movement.
3. Pull Anchor rod at Full tension load and hold for 2 minutes. Record movement.
4. Release tension and record rod movement.
5. For 2 anchor configuration, the single anchor will be pulled at 50% Tension. Wait 5 minutes between pulls.

**Comments**

A1,A2,A3,A4 Gravel (log anchors)

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR ANTAL | | Dec 9/18 |
| QC Representative | Phil McKinley | Phil McKinley | Dec 8 2018 |
| Client Inspector | | | |

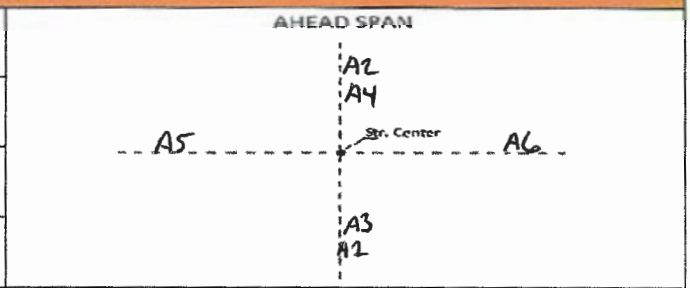
Forbes Bros LTD
POWERLINE CONSTRUCTION

# Anchor Pull Test

| Project # | 4581 | Project Name | Eagle gold 69KV | Facility# | |
|---|---|---|---|---|---|
| Structure # | 28/7 | Structure Type | FDE | | |

## Anchor Test Record

| | |
|---|---|
| Time and Date Started | Dec 7 2018 14:30 |
| Time and Date completed | Dec 7 2018 15:40 |
| Test Device | Dyna Link 2 MSI7300 |
| Operator | Excavator/Foreman |




| Anchor # | Pre-Load Benchmark | Amount of Stretch at 50% Tension | Final Reading at Full Tension | Final Reading when Tension Released | Change After Testing |
|---|---|---|---|---|---|
| 1 | 0 mm @ 0 | 0 mm @ 9230 | 2 mm @ 18020 | 2 mm @ 0 | 2 mm |
| 2 | 0 mm @ 0 | 0 mm @ 9140 | 2 mm @ 18290 | 2 mm @ 0 | 2 mm |
| 3 | 0 mm @ 0 | 0 mm @ 9160 | 4 mm @ 18270 | 4 mm @ 0 | 4 mm |
| 4 | 0 mm @ 0 | 0 mm @ 9280 | 3 mm @ 18110 | 3 mm @ 0 | 3 mm |
| 5 | 0 mm @ 0 | 0 mm @ 9220 | 2 mm @ 18260 | 2 mm @ 0 | 2 mm |
| 6 | 0 mm @ 0 | 0 mm @ 9080 | 3 mm @ 18240 | 3 mm @ 0 | 3 mm |
| | | | | | |
| | | | | | |

**Test Procedure:**

1. Take Benchmark reading of anchor rod.
2. Pull Anchor rod at 50% load and hold for 2 minutes. Record movement.
3. Pull Anchor rod at Full tension load and hold for 2 minutes. Record movement.
4. Release tension and record rod movement.
5. For 2 anchor configuration, the single anchor will be pulled at 50% Tension. Wait 5 minutes between pulls.

**Comments**

A1,A2,A3,A4,A5,A6 Gravel (log anchors)

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR ANTAL | | Dec 9/18 |
| QC Representative | Phil McKinley | | Dec 8 2018 |
| Client Inspector | | | |

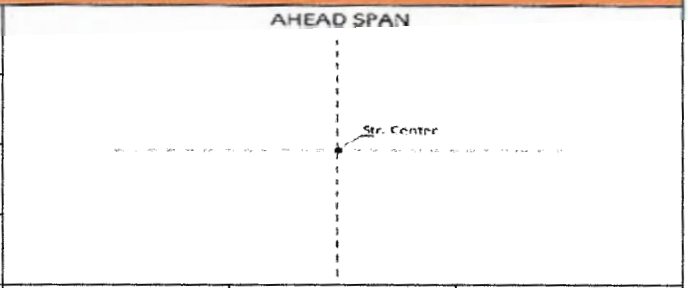
Forbes Bros LTD
POWERLINE CONSTRUCTION

# Anchor Pull Test

| Project # | 4581 | Project Name | Eagle gold 69KV | Facility# | |
|---|---|---|---|---|---|
| Structure # | 2/9 | Structure Type | PT | | |

## Anchor Test Record

| | |
|---|---|
| Time and Date Started | Oct 3 2018 16:15 |
| Time and Date completed | Oct 3 2018 17:20 |
| Test Device | Dyna Link 2 MSI7300 |
| Operator | Excavator/Foreman |




| Anchor # | Pre-Load Benchmark | Amount of Stretch at 50% Tension | Final Reading at Full Tension | Final Reading when Tension Released | Change After Testing |
|---|---|---|---|---|---|
| 1 | 0 mm @ 0 | 0 mm @ 9250 | 3 mm @ 18230 | 2 mm @ 0 | 2 mm |
| 2 | 0 mm @ 0 | 0 mm @ 9160 | 2 mm @ 18160 | 2 mm @ 0 | 2 mm |
| | | | | | |
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**Test Procedure:**

1. Take Benchmark reading of anchor rod.
2. Pull Anchor rod at 50% load and hold for 2 minutes. Record movement.
3. Pull Anchor rod at Full tension load and hold for 2 minutes. Record movement.
4. Release tension and record rod movement.
5. For 2 anchor configuration, the single anchor will be pulled at 50% Tension. Wait 5 minutes between pulls.

**Comments**

A1,A2 Permafrost ( plate anchors)

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR ANTAL | | OCT 5/18 |
| QC Representative | Phil McKinley | Phil McKinley | Oct 4 2018 |
| Client Inspector | | | |

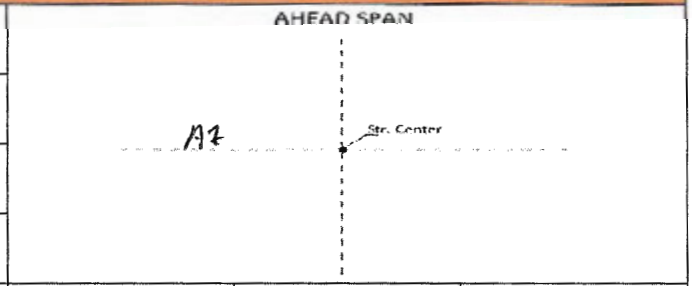
Forbes Bros LTD
POWERLINE CONSTRUCTION

# Anchor Pull Test

| Project # | 4581 | Project Name | Eagle gold 69KV | Facility# | |
|---|---|---|---|---|---|
| Structure # | 29/6 | Structure Type | PTG | | |

## Anchor Test Record

| | |
|---|---|
| Time and Date Started | Dec 9 2018 11:20 |
| Time and Date completed | Dec 9 2018 11:30 |
| Test Device | Dyna Link 2 MSI7300 |
| Operator | Excavator/Foreman |




| Anchor # | Pre-Load Benchmark | Amount of Stretch at 50% Tension | Final Reading at Full Tension | Final Reading when Tension Released | Change After Testing |
|---|---|---|---|---|---|
| 1 | 0 mm @ 0 | 0 mm @ 9260 | 2 mm @ 18150 | 2 mm @ 0 | 2 mm |
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**Test Procedure:**

1. Take Benchmark reading of anchor rod.
2. Pull Anchor rod at 50% load and hold for 2 minutes. Record movement.
3. Pull Anchor rod at Full tension load and hold for 2 minutes. Record movement.
4. Release tension and record rod movement.
5. For 2 anchor configuration, the single anchor will be pulled at 50% Tension. Wait 5 minutes between pulls.

**Comments**

A1 Gravel (log anchor)

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR AWTAC | | Dec 12/18 |
| QC Representative | Phil McKinley | Phil McKinley | Dec 11 2018 |
| Client Inspector | | | |

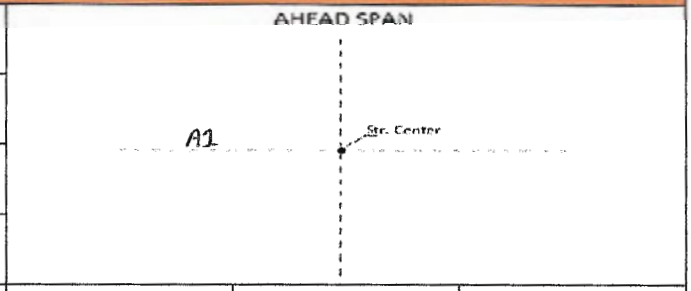
Forbes Bros LTD
POWERLINE CONSTRUCTION

# Anchor Pull Test

| Project # | 4581 | Project Name | Eagle gold 69KV | Facility# | |
|---|---|---|---|---|---|
| Structure # | 29/7 | Structure Type | PTG | | |

## Anchor Test Record

| | |
|---|---|
| Time and Date Started | Dec 9 2018 12:40 |
| Time and Date completed | Dec 2018 12:50 |
| Test Device | Dyna Link 2 MSI7300 |
| Operator | Excavator/Foreman |




| Anchor # | Pre-Load Benchmark | Amount of Stretch at 50% Tension | Final Reading at Full Tension | Final Reading when Tension Released | Change After Testing |
|---|---|---|---|---|---|
| 1 | 0 mm @ 0 | 0 mm @ 9180 | 3 mm @ 18290 | 3 mm @ 0 | 3 mm |
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**Test Procedure:**

1. Take Benchmark reading of anchor rod.
2. Pull Anchor rod at 50% load and hold for 2 minutes. Record movement.
3. Pull Anchor rod at Full tension load and hold for 2 minutes. Record movement.
4. Release tension and record rod movement.
5. For 2 anchor configuration, the single anchor will be pulled at 50% Tension. Wait 5 minutes between pulls.

**Comments**

A1 Gravel (log anchor)

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR AMYAC | | Dec 12/18 |
| QC Representative | Phil McKinley | Phil McKinley | Dec 11 2018 |
| Client Inspector | | | |

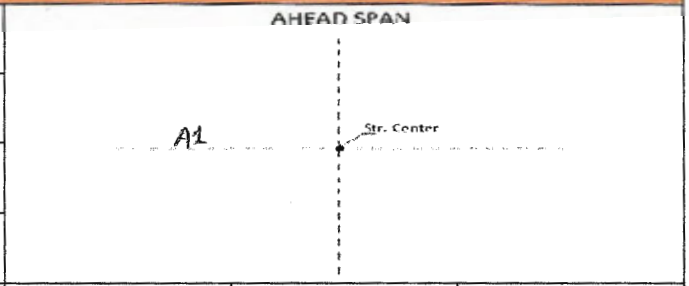
Forbes Bros LTD
POWERLINE CONSTRUCTION

# Anchor Pull Test

| Project # | 4581 | Project Name | Eagle gold 69KV | Facility# | |
|---|---|---|---|---|---|
| Structure # | 30/1 | Structure Type | PTG | | |

## Anchor Test Record

| | |
|---|---|
| Time and Date Started | Dec 9 2018 14:05 |
| Time and Date completed | Dec 9 2018 14:20 |
| Test Device | Dyna Link 2 MSI7300 |
| Operator | Excavator/Foreman |




| Anchor # | Pre-Load Benchmark | Amount of Stretch at 50% Tension | Final Reading at Full Tension | Final Reading when Tension Released | Change After Testing |
|---|---|---|---|---|---|
| 1 | 0 mm @ 0 | 0 mm @ 9060 | 3 mm @ 18130 | 3 mm @ 0 | 3 mm |
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**Test Procedure:**

1. Take Benchmark reading of anchor rod.
2. Pull Anchor rod at 50% load and hold for 2 minutes. Record movement.
3. Pull Anchor rod at Full tension load and hold for 2 minutes. Record movement.
4. Release tension and record rod movement.
5. For 2 anchor configuration, the single anchor will be pulled at 50% Tension. Wait 5 minutes between pulls.

**Comments**

A1 Gravel (log anchor)

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR ANTAL | | Dec 12/18 |
| QC Representative | Phil McKinley | Phil McKinley | Dec 11 2018 |
| Client Inspector | | | |

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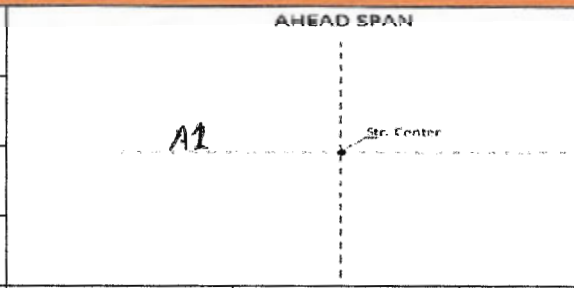
POWERLINE CONSTRUCTION

# Anchor Pull Test

| Project # | 4581 | Project Name | Eagle gold 69KV | Facility# | |
|---|---|---|---|---|---|
| Structure # | 30/2 | Structure Type | PTG | | |

## Anchor Test Record

| | |
|---|---|
| Time and Date Started | Dec 9 2018 14:45 |
| Time and Date completed | Dec 9 2018 15:00 |
| Test Device | Dyna Link 2 MSI7300 |
| Operator | Excavator/Foreman |




| Anchor # | Pre-Load Benchmark | Amount of Stretch at 50% Tension | Final Reading at Full Tension | Final Reading when Tension Released | Change After Testing |
|---|---|---|---|---|---|
| 1 | 0 mm @ 0 | 0 mm @ 9170 | 2 mm @ 18230 | 2 mm @ 0 | 2 mm |
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**Test Procedure:**

1. Take Benchmark reading of anchor rod.
2. Pull Anchor rod at 50% load and hold for 2 minutes. Record movement.
3. Pull Anchor rod at Full tension load and hold for 2 minutes. Record movement.
4. Release tension and record rod movement.
5. For 2 anchor configuration, the single anchor will be pulled at 50% Tension. Wait 5 minutes between pulls.

**Comments**

A1 Gravel (log anchor)

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR ANDREW | | Dec 12/18 |
| QC Representative | Phil McKinley | Phil McKinley | Dec 11 2018 |
| Client Inspector | | | |

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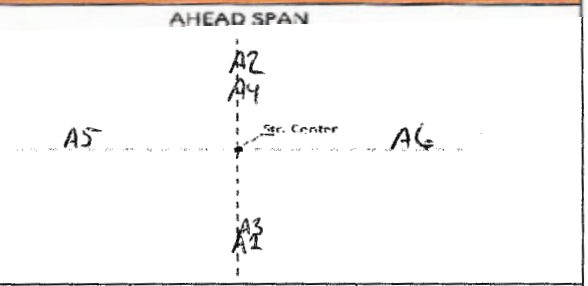
# Anchor Pull Test

| Project # | 4581 | Project Name | Eagle gold 69KV | Facility# | |
|---|---|---|---|---|---|
| Structure # | 30/5 | Structure Type | FDE | | |

## Anchor Test Record

| | |
|---|---|
| Time and Date Started | Dec 10 2018 11:40 |
| Time and Date completed | Dec 10 2018 12:50 |
| Test Device | Dyna Link 2 MSI7300 |
| Operator | Excavator/Foreman |




| Anchor # | Pre-Load Benchmark | Amount of Stretch at 50% Tension | Final Reading at Full Tension | Final Reading when Tension Released | Change After Testing |
|---|---|---|---|---|---|
| 1 | 0 mm @ 0 | 0 mm @ 9180 | 2 mm @ 18230 | 2 mm @ 0 | 2 mm |
| 2 | 0 mm @ 0 | 0 mm @ 9060 | 4 mm @ 18100 | 3 mm @ 0 | 3 mm |
| 3 | 0 mm @ 0 | 0 mm @ 9140 | 3 mm @ 18090 | 3 mm @ 0 | 3 mm |
| 4 | 0 mm @ 0 | 0 mm @ 9210 | 3 mm @ 18240 | 3 mm @ 0 | 3 mm |
| 5 | 0 mm @ 0 | 0 mm @ 9280 | 2 mm @ 18170 | 2 mm @ 0 | 2 mm |
| 6 | 0 mm @ 0 | 0 mm @ 9150 | 4 mm @ 18280 | 4 mm @ 0 | 4 mm |
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**Test Procedure:**

1. Take Benchmark reading of anchor rod.
2. Pull Anchor rod at 50% load and hold for 2 minutes. Record movement.
3. Pull Anchor rod at Full tension load and hold for 2 minutes. Record movement.
4. Release tension and record rod movement.
5. For 2 anchor configuration, the single anchor will be pulled at 50% Tension. Wait 5 minutes between pulls.

**Comments**

A1,A2,A3,A4,A5,A6 Gravel (log anchors)

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR ANTAL | | Dec 12/18 |
| QC Representative | Phil McKinley | Phil McKinley | Dec 11 2018 |
| Client Inspector | | | |

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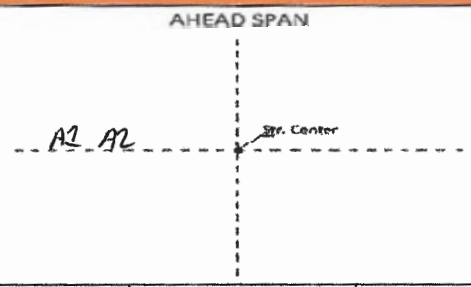
# Anchor Pull Test

| Project # | 4581 | Project Name | Eagle gold 69KV | Facility# | |
|---|---|---|---|---|---|
| Structure # | 30/9 | Structure Type | VMA | | |

## Anchor Test Record

| | |
|---|---|
| Time and Date Started | Dec 9 2018 13:40 |
| Time and Date completed | Dec 9 2018 14:05 |
| Test Device | Dyna Link 2 MSI7300 |
| Operator | Excavator/Foreman |




| Anchor # | Pre-Load Benchmark | Amount of Stretch at 50% Tension | Final Reading at Full Tension | Final Reading when Tension Released | Change After Testing |
|---|---|---|---|---|---|
| 1 | 0 mm @ 0 | 0 mm @ 9140 | 2 mm @ 18270 | 2 mm @ 0 | 2 mm |
| 2 | 0 mm @ 0 | 0 mm @ 9090 | 2 mm @ 18240 | 2 mm @ 0 | 2 mm |
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**Test Procedure:**

1. Take Benchmark reading of anchor rod.
2. Pull Anchor rod at 50% load and hold for 2 minutes. Record movement.
3. Pull Anchor rod at Full tension load and hold for 2 minutes. Record movement.
4. Release tension and record rod movement.
5. For 2 anchor configuration, the single anchor will be pulled at 50% Tension. Wait 5 minutes between pulls.

**Comments**

A1,A2 Gravel (log anchors)

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR ANDAC | | Dec 14/18 |
| QC Representative | Phil McKinley | Phil McKinley | Dec 13 2018 |
| Client Inspector | | | |

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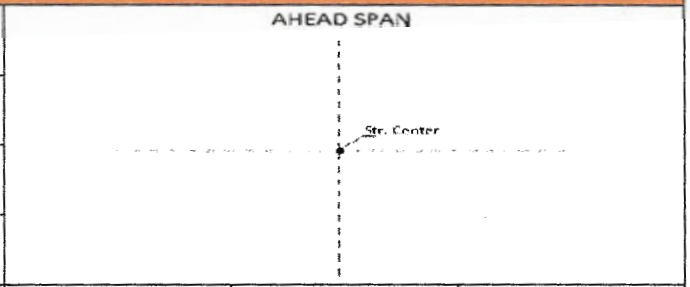
# Anchor Pull Test

| Project # | 4581 | Project Name | Eagle gold 69KV | Facility# | |
|---|---|---|---|---|---|
| Structure # | 3/1 | Structure Type | SAH | | |

## Anchor Test Record

| | |
|---|---|
| Time and Date Started | Nov 6 2018 9:30 |
| Time and Date completed | Nov 6 2018 10:00 |
| Test Device | Dyna Link 2 MSI7300 |
| Operator | Excavator/Foreman |




| Anchor # | Pre-Load Benchmark | Amount of Stretch at 50% Tension | Final Reading at Full Tension | Final Reading when Tension Released | Change After Testing |
|---|---|---|---|---|---|
| 1 | 0 mm @ 0 | 0 mm @ 9040 | 3 mm @ 18120 | 3 mm @ 0 | 3 mm |
| 2 | 0 mm @ 0 | 0 mm @ 9230 | 3 mm @ 18160 | 2 mm @ 0 | 2 mm |
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**Test Procedure:**

1. Take Benchmark reading of anchor rod.
2. Pull Anchor rod at 50% load and hold for 2 minutes. Record movement.
3. Pull Anchor rod at Full tension load and hold for 2 minutes. Record movement.
4. Release tension and record rod movement.
5. For 2 anchor configuration, the single anchor will be pulled at 50% Tension. Wait 5 minutes between pulls.

**Comments**

A1,A2 Permafrost ( plate anchors)

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR AWTAC | | Nov 7/18 |
| QC Representative | Phil McKinley | Phil McKinley | Nov 6 2018 |
| Client Inspector | | | |

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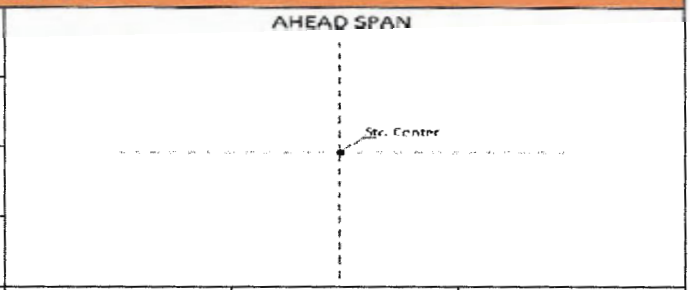
# Anchor Pull Test

| Project # | 4581 | Project Name | Eagle gold 69KV | Facility# | |
|---|---|---|---|---|---|
| Structure # | 3/11 | Structure Type | VMA | | |

## Anchor Test Record

| | |
|---|---|
| Time and Date Started | Oct 23 2018 7:30 |
| Time and Date completed | Oct 23 2018 8:10 |
| Test Device | Dyna Link 2 MSI7300 |
| Operator | Excavator/Foreman |




| Anchor # | Pre-Load Benchmark | Amount of Stretch at 50% Tension | Final Reading at Full Tension | Final Reading when Tension Released | Change After Testing |
|---|---|---|---|---|---|
| 1 | 0 mm @ 0 | 0 mm @ 9270 | 2mm @ 18120 | 2 mm @ 0 | 2 mm |
| 2 | 0 mm @ 0 | 0 mm @ 9110 | 1 mm @ 18020 | 1 mm @ 0 | 1 mm |
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**Test Procedure:**

1. Take Benchmark reading of anchor rod.
2. Pull Anchor rod at 50% load and hold for 2 minutes. Record movement.
3. Pull Anchor rod at Full tension load and hold for 2 minutes. Record movement.
4. Release tension and record rod movement.
5. For 2 anchor configuration, the single anchor will be pulled at 50% Tension. Wait 5 minutes between pulls.

**Comments**

A1,A2 Gravel ( log anchors)

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR ANTAL | | OCT 25/18 |
| QC Representative | Phil McKinley | Phil McKinley | Oct 24 2018 |
| Client Inspector | | | |

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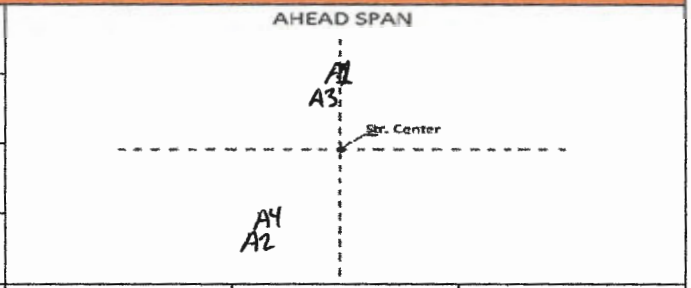
POWERLINE CONSTRUCTION

# Anchor Pull Test

| Project # | 4581 | Project Name | Eagle gold 69KV | Facility# | |
|---|---|---|---|---|---|
| Structure # | 31/11 | Structure Type | VDEHA | | |

## Anchor Test Record

| | |
|---|---|
| Time and Date Started | Dec 13 2018 16:40 |
| Time and Date completed | Dec 13 2018 17:35 |
| Test Device | Dyna Link 2 MSI7300 |
| Operator | Excavator/Foreman |




| Anchor # | Pre-Load Benchmark | Amount of Stretch at 50% Tension | Final Reading at Full Tension | Final Reading when Tension Released | Change After Testing |
|---|---|---|---|---|---|
| 1 | 0 mm @ 0 | 0 mm @ 9180 | 2 mm@ 18220 | 2 mm @ 0 | 2 mm |
| 2 | 0 mm @ 0 | 0 mm @ 9030 | 3 mm @ 18200 | 3 mm @ 0 | 3 mm |
| 3 | 0 mm @ 0 | 0 mm @ 9250 | 3 mm @ 18170 | 3 mm @ 0 | 3 mm |
| 4 | 0 mm @ 0 | 0 mm @ 9010 | 3 mm @ 18280 | 3 mm @ 0 | 3 mm |
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**Test Procedure:**

1. Take Benchmark reading of anchor rod.
2. Pull Anchor rod at 50% load and hold for 2 minutes. Record movement.
3. Pull Anchor rod at Full tension load and hold for 2 minutes. Record movement.
4. Release tension and record rod movement.
5. For 2 anchor configuration, the single anchor will be pulled at 50% Tension. Wait 5 minutes between pulls.

**Comments**

A1,A2,A3,A4 Gravel (log anchors)

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR ANTYPE | | Dec 17/18 |
| QC Representative | Phil McKinley | | Dec 16 2018 |
| Client Inspector | | | |

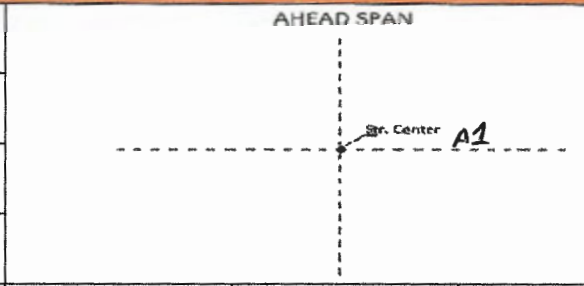
Forbes Bros LTD
POWERLINE CONSTRUCTION

# Anchor Pull Test

| Project # | 4581 | Project Name | Eagle gold 69KV | Facility# | |
|---|---|---|---|---|---|
| Structure # | 31/11 A | Structure Type | PTG | | |

## Anchor Test Record

| | |
|---|---|
| Time and Date Started | Dec 14 2018 9:20 |
| Time and Date completed | Dec 14 2018 9:30 |
| Test Device | Dyna Link 2 MSI7300 |
| Operator | Excavator/Foreman |




| Anchor # | Pre-Load Benchmark | Amount of Stretch at 50% Tension | Final Reading at Full Tension | Final Reading when Tension Released | Change After Testing |
|---|---|---|---|---|---|
| 1 | 0 mm @ 0 | 0 mm @ 9280 | 3 mm @ 18240 | 3 mm @ 0 | 3 mm |
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**Test Procedure:**

1. Take Benchmark reading of anchor rod.
2. Pull Anchor rod at 50% load and hold for 2 minutes. Record movement.
3. Pull Anchor rod at Full tension load and hold for 2 minutes. Record movement.
4. Release tension and record rod movement.
5. For 2 anchor configuration, the single anchor will be pulled at 50% Tension. Wait 5 minutes between pulls.

**Comments**

A1 Gravel (log anchor)

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR ANDAL | | Dec 17/18 |
| QC Representative | Phil McKinley | Phil McKinley | Dec 16 2018 |
| Client Inspector | | | |

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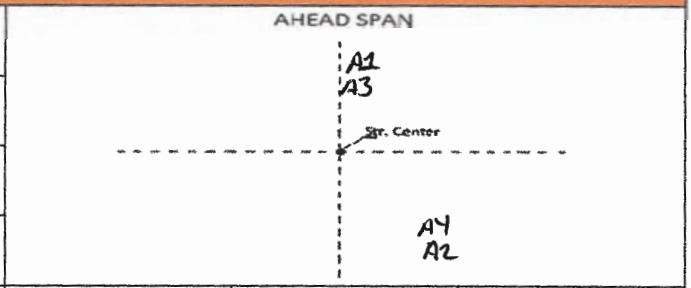
POWERLINE CONSTRUCTION

# Anchor Pull Test

| Project # | 4581 | Project Name | Eagle gold 69KV | Facility# | |
|---|---|---|---|---|---|
| Structure # | 31/6 | Structure Type | VDEHA | | |

## Anchor Test Record

| | |
|---|---|
| Time and Date Started | Dec 13 2018 9:30 |
| Time and Date completed | Dec 13 2018 10:10 |
| Test Device | Dyna Link 2 MSI7300 |
| Operator | Excavator/Foreman |




| Anchor # | Pre-Load Benchmark | Amount of Stretch at 50% Tension | Final Reading at Full Tension | Final Reading when Tension Released | Change After Testing |
|---|---|---|---|---|---|
| 1 | 0 mm @ 0 | 0 mm @ 9010 | 3 mm @ 18150 | 2 mm @ 0 | 2 mm |
| 2 | 0 mm @ 0 | 0 mm @ 9140 | 2 mm @ 18280 | 2 mm @ 0 | 2 mm |
| 3 | 0 mm @ 0 | 0 mm @ 9070 | 3 mm @ 18120 | 3 mm @ 0 | 3 mm |
| 4 | 0 mm @ 0 | 0 mm @ 9280 | 3 mm @ 18190 | 3 mm @ 0 | 3 mm |
| | | | | | |
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**Test Procedure:**

1. Take Benchmark reading of anchor rod.
2. Pull Anchor rod at 50% load and hold for 2 minutes. Record movement.
3. Pull Anchor rod at Full tension load and hold for 2 minutes. Record movement.
4. Release tension and record rod movement.
5. For 2 anchor configuration, the single anchor will be pulled at 50% Tension. Wait 5 minutes between pulls.

**Comments**

A1,A2,A3,A4 Gravel (log anchors)

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR ANTAL | | Dec 18/18 |
| QC Representative | Phil McKinley | Phil McKinley | Dec 17 2018 |
| Client Inspector | | | |

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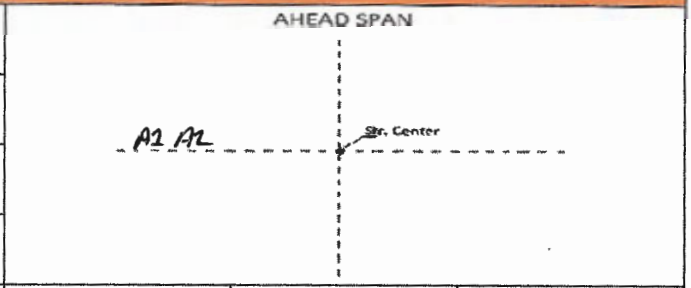
POWERLINE CONSTRUCTION

# Anchor Pull Test

| Project # | 4581 | Project Name | Eagle gold 69KV | Facility# | |
|---|---|---|---|---|---|
| Structure # | 31/7A | Structure Type | VMA | | |

## Anchor Test Record

| | |
|---|---|
| Time and Date Started | Dec 13 2018 12:40 |
| Time and Date completed | Dec 13 2018 1:00 |
| Test Device | Dyna Link 2 MSI7300 |
| Operator | Excavator/Foreman |




| Anchor # | Pre-Load Benchmark | Amount of Stretch at 50% Tension | Final Reading at Full Tension | Final Reading when Tension Released | Change After Testing |
|---|---|---|---|---|---|
| 1 | 0 mm @ 0 | 0 mm @ 9290 | 3 mm @ 18140 | 3 mm @ 0 | 3 mm |
| 2 | 0 mm @ 0 | 0 mm @ 9210 | 3 mm @ 18100 | 3 mm @ 0 | 3 mm |
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**Test Procedure:**

1. Take Benchmark reading of anchor rod.
2. Pull Anchor rod at 50% load and hold for 2 minutes. Record movement.
3. Pull Anchor rod at Full tension load and hold for 2 minutes. Record movement.
4. Release tension and record rod movement.
5. For 2 anchor configuration, the single anchor will be pulled at 50% Tension. Wait 5 minutes between pulls.

**Comments**

A1,A2 Gravel (log anchors)

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR AWITAK | | Dec 17/18 |
| QC Representative | Phil McKinley | Phil McKinley | Dec 16 2018 |
| Client Inspector | | | |

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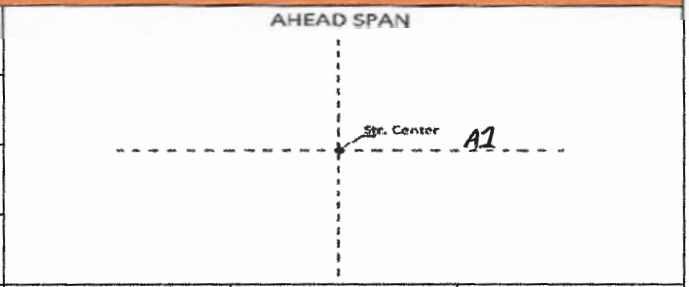
POWERLINE CONSTRUCTION

# Anchor Pull Test

| Project # | 4581 | Project Name | Eagle gold 69KV | Facility# | |
|---|---|---|---|---|---|
| Structure # | 32/1 | Structure Type | PTG | | |

## Anchor Test Record

| | |
|---|---|
| Time and Date Started | Dec 14 2018 10:50 |
| Time and Date completed | Dec 14 2018 11:00 |
| Test Device | Dyna Link 2 MSI7300 |
| Operator | Excavator/Foreman |




| Anchor # | Pre-Load Benchmark | Amount of Stretch at 50% Tension | Final Reading at Full Tension | Final Reading when Tension Released | Change After Testing |
|---|---|---|---|---|---|
| 1 | 0 mm @ 0 | 0 mm @ 9140 | 3 mm @ 18270 | 2 mm @ 0 | 2 mm |
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**Test Procedure:**

1. Take Benchmark reading of anchor rod.
2. Pull Anchor rod at 50% load and hold for 2 minutes. Record movement.
3. Pull Anchor rod at Full tension load and hold for 2 minutes. Record movement.
4. Release tension and record rod movement.
5. For 2 anchor configuration, the single anchor will be pulled at 50% Tension. Wait 5 minutes between pulls.

**Comments**

A1 Gravel (log anchor)

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR ANSTAR | | Dec 17/18 |
| QC Representative | Phil McKinley | Phil McKinley | Dec 16 2018 |
| Client Inspector | | | |

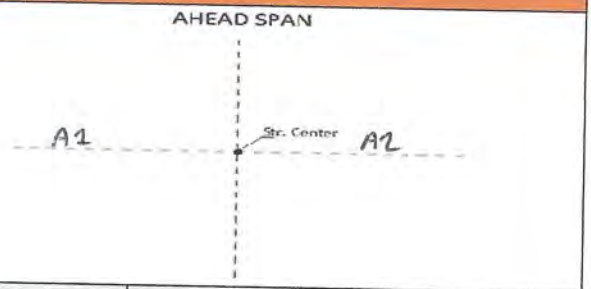
Forbes Bros LTD
POWERLINE CONSTRUCTION

# Anchor Pull Test

| Project # | 4581 | Project Name | Eagle gold 69 KV | Facility# | |
|---|---|---|---|---|---|
| Structure # | 32/10 | Structure Type | PTR | | |

## Anchor Test Record

| | |
|---|---|
| Time and Date Started | February 20 2019 16:30 |
| Time and Date completed | February 20 2019 17:00 |
| Test Device | Dyna Link 2 MSI7300 |
| Operator | Excavator/Foreman |




| Anchor # | Pre-Load Benchmark | Amount of Stretch at 50% Tension | Final Reading at Full Tension | Final Reading when Tension Released | Change After Testing |
|---|---|---|---|---|---|
| 1 | 0 mm @ 0 | 0 mm @ 9120 | 2 mm @ 18220 | 2 mm @ 0 | 2 mm |
| 2 | 0 mm @ 0 | 0 mm @ 9150 | 2 mm @ 18270 | 2 mm @ 0 | 2 mm |
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**Test Procedure:**

1. Take Benchmark reading of anchor rod.
2. Pull Anchor rod at 50% load and hold for 2 minutes. Record movement.
3. Pull Anchor rod at Full tension load and hold for 2 minutes. Record movement.
4. Release tension and record rod movement.
5. For 2 anchor configuration, the single anchor will be pulled at 50% Tension. Wait 5 minutes between pulls.

**Comments**

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR ANDAL | | FEB 23 2019 |
| QC Representative | Phil McKinley | Phil McKinley | Feb 23 2019 |
| Client Inspector | Matt. C | | Feb 25, 19 |

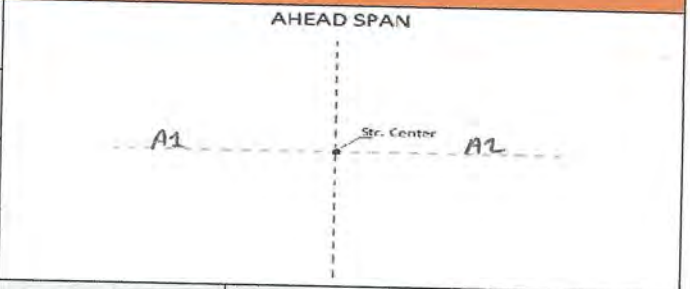
Forbes Bros LTD
POWERLINE CONSTRUCTION

# Anchor Pull Test

| Project # | 4581 | Project Name | Eagle gold 69 KV | Facility# | |
|---|---|---|---|---|---|
| Structure # | 32/11 | Structure Type | PT | | |

## Anchor Test Record

| | |
|---|---|
| Time and Date Started | February 20 2019 13:40 |
| Time and Date completed | February 20 2019 14:00 |
| Test Device | Dyna Link 2 MSI7300 |
| Operator | Excavator/Foreman |




| Anchor # | Pre-Load Benchmark | Amount of Stretch at 50% Tension | Final Reading at Full Tension | Final Reading when Tension Released | Change After Testing |
|---|---|---|---|---|---|
| 1 | 0 mm @ 0 | 0 mm @ 9250 | 1 mm @ 18240 | 1 mm @ 0 | 1 mm |
| 2 | 0 mm @ 0 | 0 mm @ 9280 | 1 mm @ 18130 | 1 mm @ 0 | 1 mm |
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**Test Procedure:**

1. Take Benchmark reading of anchor rod.
2. Pull Anchor rod at 50% load and hold for 2 minutes. Record movement.
3. Pull Anchor rod at Full tension load and hold for 2 minutes. Record movement.
4. Release tension and record rod movement.
5. For 2 anchor configuration, the single anchor will be pulled at 50% Tension. Wait 5 minutes between pulls.

**Comments**

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR ANTAL | | FEB 23 2019 |
| QC Representative | Phil McKinley | Phil McKinley | Feb 23 2019 |
| Client Inspector | Matt. C | | Feb 25, 19 |

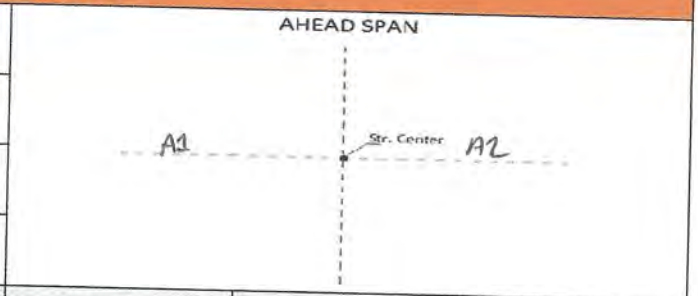
Forbes Bros LTD
POWERLINE CONSTRUCTION

# Anchor Pull Test

| Project # | 4581 | Project Name | Eagle gold 69 KV | Facility# | |
|---|---|---|---|---|---|
| Structure # | 32/12 | Structure Type | PT | | |

## Anchor Test Record

| | |
|---|---|
| Time and Date Started | February 20 2019 11:10 |
| Time and Date completed | February 20 2019 11:30 |
| Test Device | Dyna Link 2 MSI7300 |
| Operator | Excavator/Foreman |




| Anchor # | Pre-Load Benchmark | Amount of Stretch at 50% Tension | Final Reading at Full Tension | Final Reading when Tension Released | Change After Testing |
|---|---|---|---|---|---|
| 1 | 0 mm @ 0 | 0 mm @ 9260 | 3 mm @ 18220 | 2 mm @ 0 | 2 mm |
| 2 | 0 mm @ 0 | 0 mm @ 9040 | 2 mm @ 18190 | 2 mm @ 0 | 2 mm |
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**Test Procedure:**

1. Take Benchmark reading of anchor rod.
2. Pull Anchor rod at 50% load and hold for 2 minutes. Record movement.
3. Pull Anchor rod at Full tension load and hold for 2 minutes. Record movement.
4. Release tension and record rod movement.
5. For 2 anchor configuration, the single anchor will be pulled at 50% Tension. Wait 5 minutes between pulls.

**Comments**

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR ANTAL | | FEB 23 2019 |
| QC Representative | Phil McKinley | Phil McKinley | Feb 23 2019 |
| Client Inspector | Matt Cavedale | MC | Feb 25, 19 |

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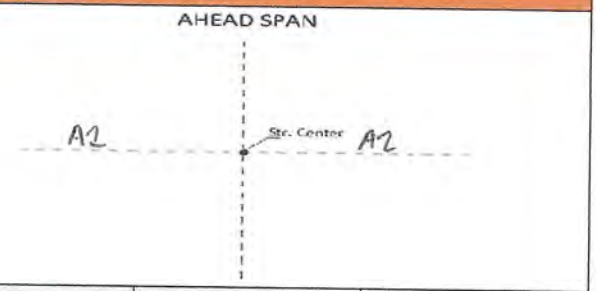
# Anchor Pull Test

| Project # | 4581 | Project Name | Eagle gold 69 KV | Facility# | |
|---|---|---|---|---|---|
| Structure # | 32/13 | Structure Type | PT | | |

## Anchor Test Record

| | |
|---|---|
| Time and Date Started | February 20 2019 9:20 |
| Time and Date completed | February 20 2019 9:50 |
| Test Device | Dyna Link 2 MSI7300 |
| Operator | Excavator/Foreman |




| Anchor # | Pre-Load Benchmark | Amount of Stretch at 50% Tension | Final Reading at Full Tension | Final Reading when Tension Released | Change After Testing |
|---|---|---|---|---|---|
| 1 | 0 mm @ 0 | 0 mm @ 9260 | 1 mm @ 18280 | 1 mm @ 0 | 1 mm |
| 2 | 0 mm @ 0 | 0 mm @ 9220 | 2 mm @ 18230 | 2 mm @ 0 | 2 mm |
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**Test Procedure:**

1. Take Benchmark reading of anchor rod.
2. Pull Anchor rod at 50% load and hold for 2 minutes. Record movement.
3. Pull Anchor rod at Full tension load and hold for 2 minutes. Record movement.
4. Release tension and record rod movement.
5. For 2 anchor configuration, the single anchor will be pulled at 50% Tension. Wait 5 minutes between pulls.

**Comments**

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR ANTAL | | FEB 23 2019 |
| QC Representative | Phil McKinley | Phil McKinley | Feb 23 2019 |
| Client Inspector | Matt Caverdale | | Feb 23/19 |

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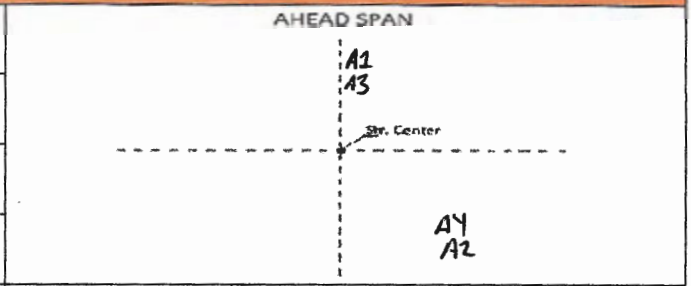
# Anchor Pull Test

| Project # | 4581 | Project Name | Eagle gold 69KV | Facility# | |
|---|---|---|---|---|---|
| Structure # | 32/8 | Structure Type | VDEMA | | |

## Anchor Test Record

| | |
|---|---|
| Time and Date Started | Dec 14 2018 15:40 |
| Time and Date completed | Dec 14 2018 16:50 |
| Test Device | Dyna Link 2 MSI7300 |
| Operator | Excavator/Foreman |




| Anchor # | Pre-Load Benchmark | Amount of Stretch at 50% Tension | Final Reading at Full Tension | Final Reading when Tension Released | Change After Testing |
|---|---|---|---|---|---|
| 1 | 0 mm @ 0 | 0 mm @ 9170 | 4 mm @ 18289 | 4 mm @ 0 | 4 mm |
| 2 | 0 mm @ 0 | 0 mm @ 9250 | 2 mm @ 18120 | 2 mm @ 0 | 2 mm |
| 3 | 0 mm @ 0 | 0 mm @ 9260 | 3 mm @ 18070 | 3 mm @ 0 | 3 mm |
| 4 | 0 mm @ 0 | 0 mm @ 2180 | 3 mm @ 18100 | 3 mm @ 0 | 3 mm |
| | | | | | |
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**Test Procedure:**

1. Take Benchmark reading of anchor rod.
2. Pull Anchor rod at 50% load and hold for 2 minutes. Record movement.
3. Pull Anchor rod at Full tension load and hold for 2 minutes. Record movement.
4. Release tension and record rod movement.
5. For 2 anchor configuration, the single anchor will be pulled at 50% Tension. Wait 5 minutes between pulls.

**Comments**

A1,A2,A3,A4 Gravel (log anchors)

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR ANSTEE | | Dec 17/18 |
| QC Representative | Phil McKinley | Phil McKinley | Dec 16 2018 |
| Client Inspector | | | |

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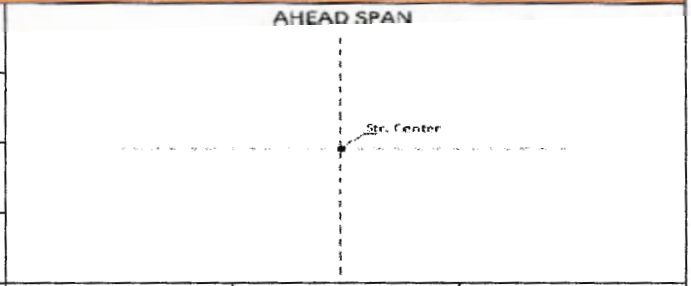
# Anchor Pull Test

| Project # | 4581 | Project Name | Eagle gold 69KV | Facility# | |
|---|---|---|---|---|---|
| Structure # | 3/3 | Structure Type | FDE | | |

## Anchor Test Record

| | |
|---|---|
| Time and Date Started | Oct 22 2018 13:45 |
| Time and Date completed | Oct 22 2018 15:20 |
| Test Device | Dyna Link 2 MSI7300 |
| Operator | Excavator/Foreman |




| Anchor # | Pre-Load Benchmark | Amount of Stretch at 50% Tension | Final Reading at Full Tension | Final Reading when Tension Released | Change After Testing |
|---|---|---|---|---|---|
| 1 | 0 mm @ 0 | 0 mm @ 9140 | 3 mm @ 18180 | 3 mm @ 0 | 3 mm |
| 2 | 0 mm @ 0 | 0 mm @ 9060 | 4 mm @ 18200 | 4 mm @ 0 | 4 mm |
| 3 | 0 mm @ 0 | 0 mm @ 9290 | 3 mm @ 18120 | 3 mm @ 0 | 3 mm |
| 4 | 0 mm @ 0 | 0 mm @ 9220 | 3 mm @ 18040 | 2 mm @ 0 | 2 mm |
| 5 | 0 mm @ 0 | 0 mm @ 9100 | 2 mm @ 18210 | 2 mm @ 0 | 2 mm |
| 6 | 0 mm @ 0 | 0 mm @ 9180 | 2 mm @ 18150 | 2 mm @ 0 | 2 mm |
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**Test Procedure:**

1. Take Benchmark reading of anchor rod.
2. Pull Anchor rod at 50% load and hold for 2 minutes. Record movement.
3. Pull Anchor rod at Full tension load and hold for 2 minutes. Record movement.
4. Release tension and record rod movement.
5. For 2 anchor configuration, the single anchor will be pulled at 50% Tension. Wait 5 minutes between pulls.

**Comments**

A1,A2,A3,A4,A5,A6 Permafrost ( log anchors)

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR AUTAK | | OCT 23/18 |
| QC Representative | Phil McKinley | Phil McKinley | Oct 22 2018 |
| Client Inspector | | | |

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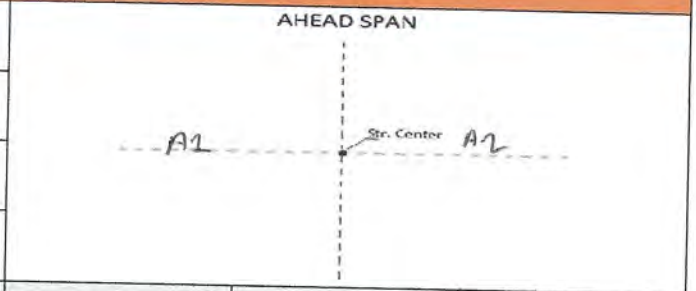
# Anchor Pull Test

| Project # | 4581 | Project Name | Eagle gold 69 KV | Facility# | |
|---|---|---|---|---|---|
| Structure # | 33/1 | Structure Type | PT | | |

## Anchor Test Record

| | |
|---|---|
| Time and Date Started | February 20 2019 9:20 |
| Time and Date completed | February 20 2019 9:50 |
| Test Device | Dyna Link 2 MSI7300 |
| Operator | Excavator/Foreman |




| Anchor # | Pre-Load Benchmark | Amount of Stretch at 50% Tension | Final Reading at Full Tension | Final Reading when Tension Released | Change After Testing |
|---|---|---|---|---|---|
| 1 | 0 mm @ 0 | 0 mm @ 9180 | 2 mm @ 18250 | 2 mm @ 0 | 2 mm |
| 2 | 0 mm @ 0 | 0 mm @ 9210 | 2 mm @ 18190 | 2 mm @ 0 | 2 mm |
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**Test Procedure:**

1. Take Benchmark reading of anchor rod.
2. Pull Anchor rod at 50% load and hold for 2 minutes. Record movement.
3. Pull Anchor rod at Full tension load and hold for 2 minutes. Record movement.
4. Release tension and record rod movement.
5. For 2 anchor configuration, the single anchor will be pulled at 50% Tension. Wait 5 minutes between pulls.

**Comments**

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR ANTAL | | FEB 24 2019 |
| QC Representative | Phil McKinley | Phil McKinley | Feb 23 2019 |
| Client Inspector | Matt C | | Feb 25, 19 |

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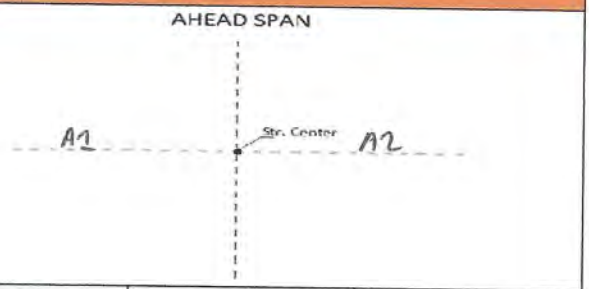
# Anchor Pull Test

| Project # | 4581 | Project Name | Eagle gold 69 KV | Facility# | |
|---|---|---|---|---|---|
| Structure # | 33/10 | Structure Type | PT | | |

## Anchor Test Record

| | |
|---|---|
| Time and Date Started | February 18 2019 17:40 |
| Time and Date completed | February 18 2019 18:05 |
| Test Device | Dyna Link 2 MSI7300 |
| Operator | Excavator/Foreman |




| Anchor # | Pre-Load Benchmark | Amount of Stretch at 50% Tension | Final Reading at Full Tension | Final Reading when Tension Released | Change After Testing |
|---|---|---|---|---|---|
| 1 | 0 mm @ 0 | 0 mm @ 9180 | 3 mm @ 18130 | 2 mm @ 0 | 2 mm |
| 2 | 0 mm @ 0 | 0 mm @ 9050 | 2 mm @ 18260 | 2 mm @ 0 | 2 mm |
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**Test Procedure:**

1. Take Benchmark reading of anchor rod.
2. Pull Anchor rod at 50% load and hold for 2 minutes. Record movement.
3. Pull Anchor rod at Full tension load and hold for 2 minutes. Record movement.
4. Release tension and record rod movement.
5. For 2 anchor configuration, the single anchor will be pulled at 50% Tension. Wait 5 minutes between pulls.

**Comments**

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR ANTAL | | FEB 22 2019 |
| QC Representative | Phil McKinley | Phil McKinley | Feb 21 2019 |
| Client Inspector | Matt C | | Feb 25, 19 |

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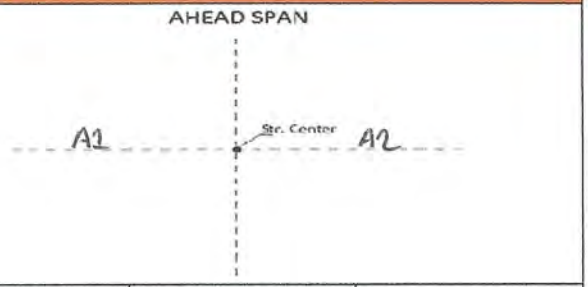
# Anchor Pull Test

| Project # | 4581 | Project Name | Eagle gold 69 KV | Facility# | |
|---|---|---|---|---|---|
| Structure # | 33/2 | Structure Type | PT | | |

## Anchor Test Record

| | |
|---|---|
| Time and Date Started | February 19 2019 17:40 |
| Time and Date completed | February 19 2019 18:00 |
| Test Device | Dyna Link 2 MSI7300 |
| Operator | Excavator/Foreman |




| Anchor # | Pre-Load Benchmark | Amount of Stretch at 50% Tension | Final Reading at Full Tension | Final Reading when Tension Released | Change After Testing |
|---|---|---|---|---|---|
| 1 | 0 mm @ 0 | 0 mm @ 9140 | 2 mm @ 18230 | 2 mm @ 0 | 2 mm |
| 2 | 0 mm @ 0 | 0 mm @ 9260 | 3 mm @ 18290 | 3 mm @ 0 | 3 mm |
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**Test Procedure:**

1. Take Benchmark reading of anchor rod.
2. Pull Anchor rod at 50% load and hold for 2 minutes. Record movement.
3. Pull Anchor rod at Full tension load and hold for 2 minutes. Record movement.
4. Release tension and record rod movement.
5. For 2 anchor configuration, the single anchor will be pulled at 50% Tension. Wait 5 minutes between pulls.

**Comments**

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR ANTAL | | FEB 22 2019 |
| QC Representative | Phil McKinley | Phil McKinley | Feb 21 2019 |
| Client Inspector | Matt Cavedale | | Feb23,209 |

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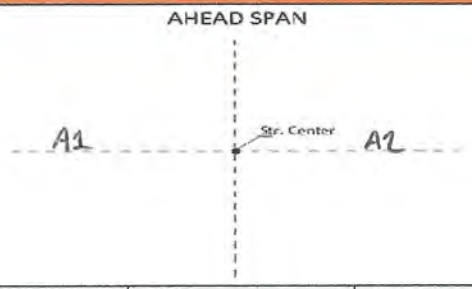
POWERLINE CONSTRUCTION

# Anchor Pull Test

| Project # | 4581 | Project Name | Eagle gold 69 KV | Facility# | |
|---|---|---|---|---|---|
| Structure # | 33/3 | Structure Type | PT | | |

## Anchor Test Record

| | |
|---|---|
| Time and Date Started | February 19 2019 15:50 |
| Time and Date completed | February 19 2019 16:10 |
| Test Device | Dyna Link 2 MSI7300 |
| Operator | Excavator/Foreman |




| Anchor # | Pre-Load Benchmark | Amount of Stretch at 50% Tension | Final Reading at Full Tension | Final Reading when Tension Released | Change After Testing |
|---|---|---|---|---|---|
| 1 | 0 mm @ 0 | 0 mm @ 9140 | 2 mm @ 18230 | 2 mm @ 0 | 2 mm |
| 2 | 0 mm @ 0 | 0 mm @ 9260 | 3 mm @ 18290 | 3 mm @ 0 | 3 mm |
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**Test Procedure:**

1. Take Benchmark reading of anchor rod.
2. Pull Anchor rod at 50% load and hold for 2 minutes. Record movement.
3. Pull Anchor rod at Full tension load and hold for 2 minutes. Record movement.
4. Release tension and record rod movement.
5. For 2 anchor configuration, the single anchor will be pulled at 50% Tension. Wait 5 minutes between pulls.

**Comments**

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR ANTAL | | FEB 22/2019 |
| QC Representative | Phil McKinley | Phil McKinley | Feb 21 2019 |
| Client Inspector | Matt Caverdale | | Feb 23, 2019 |

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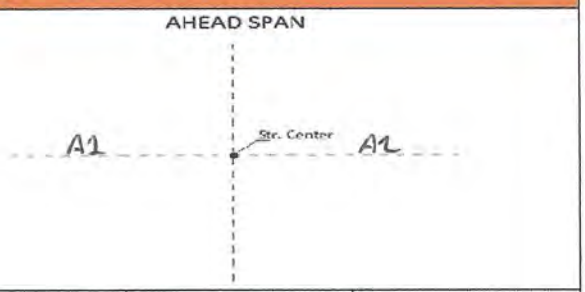
# Anchor Pull Test

| Project # | 4581 | Project Name | Eagle gold 69 KV | Facility# | |
|---|---|---|---|---|---|
| Structure # | 33/4 | Structure Type | PT | | |

## Anchor Test Record

| | |
|---|---|
| Time and Date Started | February 19 2019 13:20 |
| Time and Date completed | February 19 2019 13:45 |
| Test Device | Dyna Link 2 MSI7300 |
| Operator | Excavator/Foreman |




| Anchor # | Pre-Load Benchmark | Amount of Stretch at 50% Tension | Final Reading at Full Tension | Final Reading when Tension Released | Change After Testing |
|---|---|---|---|---|---|
| 1 | 0 mm @ 0 | 0 mm @ 9250 | 1 mm @ 18280 | 1 mm @ 0 | 1 mm |
| 2 | 0 mm @ 0 | 0 mm @ 9020 | 2 mm @ 18240 | 2 mm @ 0 | 2 mm |
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**Test Procedure:**

1. Take Benchmark reading of anchor rod.
2. Pull Anchor rod at 50% load and hold for 2 minutes. Record movement.
3. Pull Anchor rod at Full tension load and hold for 2 minutes. Record movement.
4. Release tension and record rod movement.
5. For 2 anchor configuration, the single anchor will be pulled at 50% Tension. Wait 5 minutes between pulls.

**Comments**

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR ANTAL | | FEB 22 2019 |
| QC Representative | Phil McKinley | Phil McKinley | Feb 21 2019 |
| Client Inspector | Matt Covesdale | | Feb 23, 2019 |

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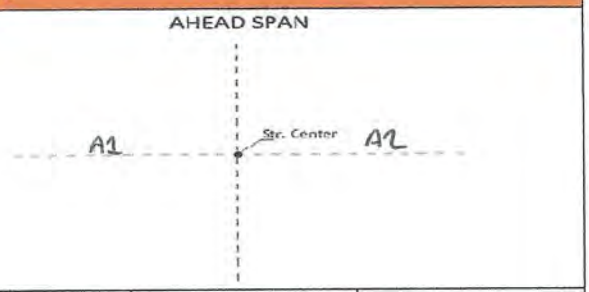
# Anchor Pull Test

| Project # | 4581 | Project Name | Eagle gold 69 KV | Facility# | |
|---|---|---|---|---|---|
| Structure # | 33/6 | Structure Type | PT | | |

## Anchor Test Record

| | |
|---|---|
| Time and Date Started | February 19 2019 10:30 |
| Time and Date completed | February 19 2019 11:00 |
| Test Device | Dyna Link 2 MSI7300 |
| Operator | Excavator/Foreman |




| Anchor # | Pre-Load Benchmark | Amount of Stretch at 50% Tension | Final Reading at Full Tension | Final Reading when Tension Released | Change After Testing |
|---|---|---|---|---|---|
| 1 | 0 mm @ 0 | 0 mm @ 9240 | 2 mm @ 18220 | 2 mm @ 0 | 2 mm |
| 2 | 0 mm @ 0 | 0 mm @ 9280 | 2 mm @ 18200 | 2 mm @ 0 | 2 mm |
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**Test Procedure:**

1. Take Benchmark reading of anchor rod.
2. Pull Anchor rod at 50% load and hold for 2 minutes. Record movement.
3. Pull Anchor rod at Full tension load and hold for 2 minutes. Record movement.
4. Release tension and record rod movement.
5. For 2 anchor configuration, the single anchor will be pulled at 50% Tension. Wait 5 minutes between pulls.

**Comments**

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR ANTAL | | FEB 22 2019 |
| QC Representative | Phil McKinley | Phil McKinley | Feb 21 2019 |
| Client Inspector | Matt Coverdale | | Feb 23, 2019 |

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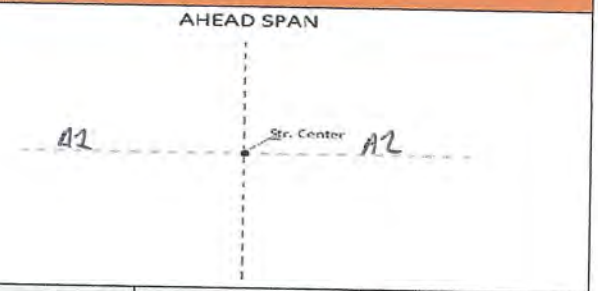
# Anchor Pull Test

| Project # | 4581 | Project Name | Eagle gold 69 KV | Facility# | |
|---|---|---|---|---|---|
| Structure # | 33/9 | Structure Type | PT | | |

## Anchor Test Record

| | |
|---|---|
| Time and Date Started | February 19 2019 9:10 |
| Time and Date completed | February 19 2019 9:40 |
| Test Device | Dyna Link 2 MSI7300 |
| Operator | Excavator/Foreman |




| Anchor # | Pre-Load Benchmark | Amount of Stretch at 50% Tension | Final Reading at Full Tension | Final Reading when Tension Released | Change After Testing |
|---|---|---|---|---|---|
| 1 | 0 mm @ 0 | 0 mm @ 9060 | 2 mm @ 18210 | 2 mm @ 0 | 2 mm |
| 2 | 0 mm @ 0 | 0 mm @ 9130 | 2 mm @ 18270 | 2 mm @ 0 | 2 mm |
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**Test Procedure:**

1. Take Benchmark reading of anchor rod.
2. Pull Anchor rod at 50% load and hold for 2 minutes. Record movement.
3. Pull Anchor rod at Full tension load and hold for 2 minutes. Record movement.
4. Release tension and record rod movement.
5. For 2 anchor configuration, the single anchor will be pulled at 50% Tension. Wait 5 minutes between pulls.

**Comments**

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR ANTAL | | FEB 22 2019 |
| QC Representative | Phil McKinley | Phil McKinley | Feb 21 2019 |
| Client Inspector | Matt C | me | Feb 25, 19 |

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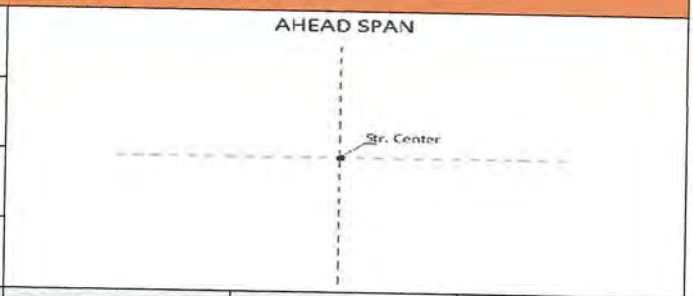
# Anchor Pull Test

| Project # | 4581 | Project Name | Eagle gold 69 KV | Facility# | |
|---|---|---|---|---|---|
| Structure # | 34/1 | Structure Type | PT | | |

## Anchor Test Record

| | |
|---|---|
| Time and Date Started | February 18 2019 14:40 |
| Time and Date completed | February 18 2019 15:00 |
| Test Device | Dyna Link 2 MSI7300 |
| Operator | Excavator/Foreman |




| Anchor # | Pre-Load Benchmark | Amount of Stretch at 50% Tension | Final Reading at Full Tension | Final Reading when Tension Released | Change After Testing |
|---|---|---|---|---|---|
| 1 | 0 mm @ 0 | 0 mm @ 9020 | 3 mm @ 18230 | 3 mm @ 0 | 3 mm |
| 2 | 0 mm @ 0 | 0 mm @ 9060 | 1 mm @ 18170 | 1 mm @ 0 | 1 mm |
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**Test Procedure:**

1. Take Benchmark reading of anchor rod.
2. Pull Anchor rod at 50% load and hold for 2 minutes. Record movement.
3. Pull Anchor rod at Full tension load and hold for 2 minutes. Record movement.
4. Release tension and record rod movement.
5. For 2 anchor configuration, the single anchor will be pulled at 50% Tension. Wait 5 minutes between pulls.

**Comments**

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR ANTAL | | FEB 22 2019 |
| QC Representative | Phil McKinley | Phil McKinley | Feb 21 2019 |
| Client Inspector | Matt C | MC | Feb 25, 19 |

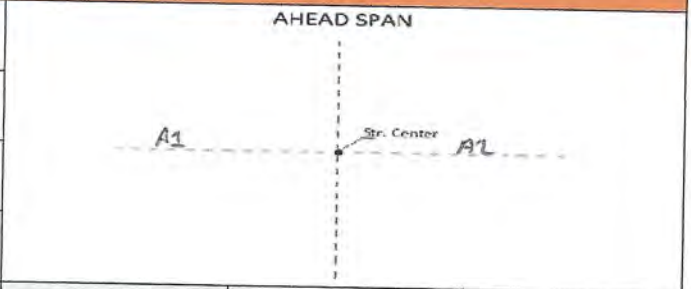
Forbes Bros LTD
POWERLINE CONSTRUCTION

# Anchor Pull Test

| Project # | 4581 | Project Name | Eagle gold 69 KV | Facility# | |
|---|---|---|---|---|---|
| Structure # | 34/3 | Structure Type | PT | | |

## Anchor Test Record

| | |
|---|---|
| Time and Date Started | February 18 2019 11:20 |
| Time and Date completed | February 18 2019 11:50 |
| Test Device | Dyna Link 2 MSI7300 |
| Operator | Excavator/Foreman |




| Anchor # | Pre-Load Benchmark | Amount of Stretch at 50% Tension | Final Reading at Full Tension | Final Reading when Tension Released | Change After Testing |
|---|---|---|---|---|---|
| 1 | 0 mm @ 0 | 0 mm @ 9170 | 2 mm @ 18230 | 2 mm @ 0 | 2 mm |
| 2 | 0 mm @ 0 | 0 mm @ 9240 | 2 mm @ 18229 | 2 mm @ 0 | 2 mm |
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**Test Procedure:**

1. Take Benchmark reading of anchor rod.
2. Pull Anchor rod at 50% load and hold for 2 minutes. Record movement.
3. Pull Anchor rod at Full tension load and hold for 2 minutes. Record movement.
4. Release tension and record rod movement.
5. For 2 anchor configuration, the single anchor will be pulled at 50% Tension. Wait 5 minutes between pulls.

**Comments**

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR ANTAL | | FEB 21 2019 |
| QC Representative | Phil McKinley | Phil McKinley | Feb 21 2019 |
| Client Inspector | Matt C | | Feb 25, 19 |

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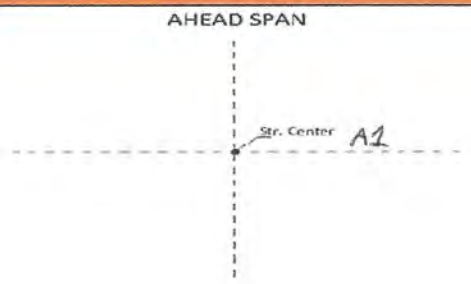
POWERLINE CONSTRUCTION

# Anchor Pull Test

| Project # | 4581 | Project Name | Eagle gold 69KV | Facility# | |
|---|---|---|---|---|---|
| Structure # | 34/7 | Structure Type | PTG | | |

## Anchor Test Record

| | |
|---|---|
| Time and Date Started | Dec 15 2018 14:40 |
| Time and Date completed | Dec 15 2018 14:55 |
| Test Device | Dyna Link 2 MSI7300 |
| Operator | Excavator/Foreman |




| Anchor # | Pre-Load Benchmark | Amount of Stretch at 50% Tension | Final Reading at Full Tension | Final Reading when Tension Released | Change After Testing |
|---|---|---|---|---|---|
| 1 | 0 mm @ 0 | 0 mm @ 9050 | 3 mm @ 18110 | 3 mm @ 0 | 3 mm |
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**Test Procedure:**

1. Take Benchmark reading of anchor rod.
2. Pull Anchor rod at 50% load and hold for 2 minutes. Record movement.
3. Pull Anchor rod at Full tension load and hold for 2 minutes. Record movement.
4. Release tension and record rod movement.
5. For 2 anchor configuration, the single anchor will be pulled at 50% Tension. Wait 5 minutes between pulls.

**Comments**

A1 Gravel (log anchor)

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR AUTAL | | Dec 19/19 |
| QC Representative | Phil McKinley | Phil McKinley | Dec 18 2018 |
| Client Inspector | | | |

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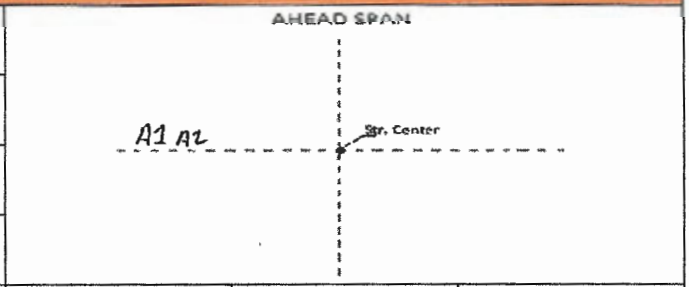
POWERLINE CONSTRUCTION

# Anchor Pull Test

| Project # | 4581 | Project Name | Eagle gold 69KV | Facility# | |
|---|---|---|---|---|---|
| Structure # | 35/2 | Structure Type | VMA | | |

## Anchor Test Record

| | |
|---|---|
| Time and Date Started | Jan 6 2019 16:50 |
| Time and Date completed | Jan 6 2019 17:05 |
| Test Device | Dyna Link 2 MSI7300 |
| Operator | Excavator/Foreman |




| Anchor # | Pre-Load Benchmark | Amount of Stretch at 50% Tension | Final Reading at Full Tension | Final Reading when Tension Released | Change After Testing |
|---|---|---|---|---|---|
| 1 | 0 mm @ 0 | 0 mm @ 9150 | 2 mm @ 18200 | 2 mm @ 0 | 2 mm |
| 2 | 0 mm @ 0 | 0 mm @ 9280 | 1 mm @ 18030 | 1 mm @ 0 | 1 mm |
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**Test Procedure:**

1. Take Benchmark reading of anchor rod.
2. Pull Anchor rod at 50% load and hold for 2 minutes. Record movement.
3. Pull Anchor rod at Full tension load and hold for 2 minutes. Record movement.
4. Release tension and record rod movement.
5. For 2 anchor configuration, the single anchor will be pulled at 50% Tension. Wait 5 minutes between pulls.

**Comments**

A1,A2 Gravel (log anchors)

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR ANTTAL | | Jan 8/19 |
| QC Representative | Phil McKinley | Phil McKinley | Jan 7 2019 |
| Client Inspector | | | |

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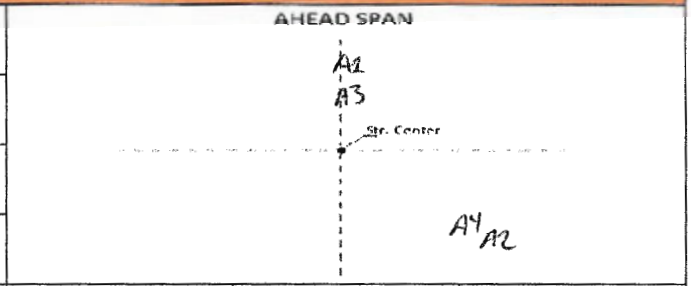
# Anchor Pull Test

| Project # | 4581 | Project Name | Eagle gold 69KV | Facility# | |
|---|---|---|---|---|---|
| Structure # | 35/3 | Structure Type | VDEMA | | |

## Anchor Test Record

| | |
|---|---|
| Time and Date Started | Nov 17 2018 12:45 |
| Time and Date completed | Nov 17 2018 13:50 |
| Test Device | Dyna Link 2 MSI7300 |
| Operator | Excavator/Foreman |




| Anchor # | Pre-Load Benchmark | Amount of Stretch at 50% Tension | Final Reading at Full Tension | Final Reading when Tension Released | Change After Testing |
|---|---|---|---|---|---|
| 1 | 0 mm @ 0 | 0 mm @ 9070 | 2 mm @ 18250 | 2 mm @ 0 | 2 mm |
| 2 | 0 mm @ 0 | 0 mm @ 9260 | 3 mm @ 18180 | 3 mm @ 0 | 3 mm |
| 3 | 0 mm @ 0 | 0 mm @ 9230 | 3 mm @ 18200 | 3 mm @ 0 | 3 mm |
| 4 | 0 mm @ 0 | 0 mm @ 9190 | 3 mm @ 18240 | 3 mm @ 0 | 3 mm |
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**Test Procedure:**

1. Take Benchmark reading of anchor rod.
2. Pull Anchor rod at 50% load and hold for 2 minutes. Record movement.
3. Pull Anchor rod at Full tension load and hold for 2 minutes. Record movement.
4. Release tension and record rod movement.
5. For 2 anchor configuration, the single anchor will be pulled at 50% Tension. Wait 5 minutes between pulls.

**Comments**

A1,A2,A3,A4 Gravel (log anchors)

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR ANTAL | | Nov 19/18 |
| QC Representative | Phil McKinley | Phil McKinley | Nov 18 2018 |
| Client Inspector | | | |

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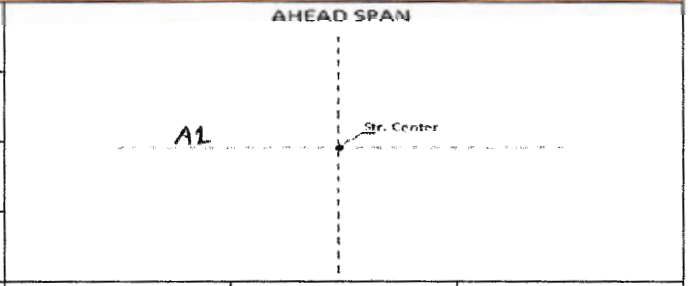
# Anchor Pull Test

| Project # | 4581 | Project Name | Eagle gold 69KV | Facility# | |
|---|---|---|---|---|---|
| Structure # | 35/4 | Structure Type | PTG | | |

## Anchor Test Record

| | |
|---|---|
| Time and Date Started | Nov 17 2018 12:20 |
| Time and Date completed | Nov 17 2018 12:30 |
| Test Device | Dyna Link 2 MSI7300 |
| Operator | Excavator/Foreman |




| Anchor # | Pre-Load Benchmark | Amount of Stretch at 50% Tension | Final Reading at Full Tension | Final Reading when Tension Released | Change After Testing |
|---|---|---|---|---|---|
| 1 | 0 mm @ 0 | 0 mm @ 9060 | 2 mm @ 18090 | 2 mm @ 0 | 2 mm |
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**Test Procedure:**

1. Take Benchmark reading of anchor rod.
2. Pull Anchor rod at 50% load and hold for 2 minutes. Record movement.
3. Pull Anchor rod at Full tension load and hold for 2 minutes. Record movement.
4. Release tension and record rod movement.
5. For 2 anchor configuration, the single anchor will be pulled at 50% Tension. Wait 5 minutes between pulls.

**Comments**

A1 Gravel (log anchor)

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR ANTYPC | | Nov 19/18 |
| QC Representative | Phil McKinley | Phil McKinley | Nov 18 2018 |
| Client Inspector | | | |

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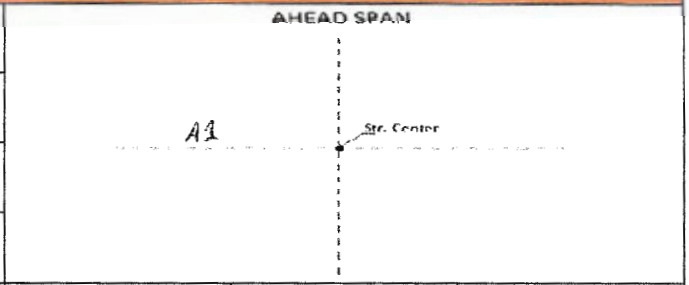
POWERLINE CONSTRUCTION

# Anchor Pull Test

| Project # | 4581 | Project Name | Eagle gold 69KV | Facility# | |
|---|---|---|---|---|---|
| Structure # | 35/8 | Structure Type | PTG | | |

## Anchor Test Record

| | |
|---|---|
| Time and Date Started | Nov 17 2018 11:25 |
| Time and Date completed | Nov 17 2018 11:40 |
| Test Device | Dyna Link 2 MSI7300 |
| Operator | Excavator/Foreman |




| Anchor # | Pre-Load Benchmark | Amount of Stretch at 50% Tension | Final Reading at Full Tension | Final Reading when Tension Released | Change After Testing |
|---|---|---|---|---|---|
| 1 | 0 mm @ 0 | 0 mm @ 9140 | 4 mm @ 18200 | 3 mm @ 0 | 3 mm |
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**Test Procedure:**

1. Take Benchmark reading of anchor rod.
2. Pull Anchor rod at 50% load and hold for 2 minutes. Record movement.
3. Pull Anchor rod at Full tension load and hold for 2 minutes. Record movement.
4. Release tension and record rod movement.
5. For 2 anchor configuration, the single anchor will be pulled at 50% Tension. Wait 5 minutes between pulls.

**Comments**

A1 Gravel (log anchor)

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR AWTAC | | Nov 19/18 |
| QC Representative | Phil McKinley | Phil McKinley | Nov 18 2018 |
| Client Inspector | | | |

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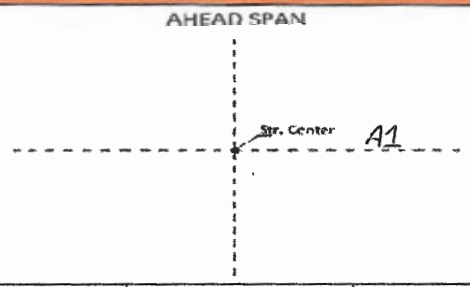
# Anchor Pull Test

| Project # | 4581 | Project Name | Eagle gold 69KV | Facility# | |
|---|---|---|---|---|---|
| Structure # | 36/11 | Structure Type | PTG | | |

## Anchor Test Record

| | |
|---|---|
| Time and Date Started | Dec 18 2018 13:30 |
| Time and Date completed | Dec 18 2018 13:45 |
| Test Device | Dyna Link 2 MSI7300 |
| Operator | Excavator/Foreman |




| Anchor # | Pre-Load Benchmark | Amount of Stretch at 50% Tension | Final Reading at Full Tension | Final Reading when Tension Released | Change After Testing |
|---|---|---|---|---|---|
| 1 | 0 mm @ 0 | 0 mm @ 9230 | 1 mm @ 18190 | 1 mm @ 0 | 1 mm |
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**Test Procedure:**

1. Take Benchmark reading of anchor rod.
2. Pull Anchor rod at 50% load and hold for 2 minutes. Record movement.
3. Pull Anchor rod at Full tension load and hold for 2 minutes. Record movement.
4. Release tension and record rod movement.
5. For 2 anchor configuration, the single anchor will be pulled at 50% Tension. Wait 5 minutes between pulls.

**Comments**

A1 Gravel (log anchor)

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR ANTAL | | Jan 8/19 |
| QC Representative | Phil McKinley | Phil McKinley | Jan 7 2019 |
| Client Inspector | | | |

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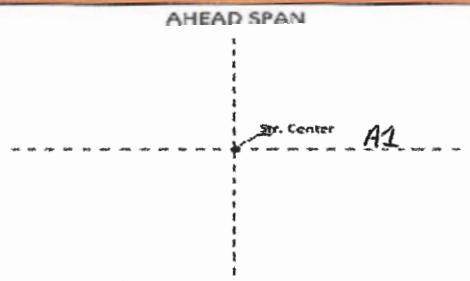
# Anchor Pull Test

| Project # | 4581 | Project Name | Eagle gold 69KV | Facility# | |
|---|---|---|---|---|---|
| Structure # | 36/12 | Structure Type | PTG | | |

## Anchor Test Record

| | |
|---|---|
| Time and Date Started | Dec 18 208 16:30 |
| Time and Date completed | Dec 18 2018 16:45 |
| Test Device | Dyna Link 2 MSI7300 |
| Operator | Excavator/Foreman |




| Anchor # | Pre-Load Benchmark | Amount of Stretch at 50% Tension | Final Reading at Full Tension | Final Reading when Tension Released | Change After Testing |
|---|---|---|---|---|---|
| 1 | 0 mm @ 0 | 0 mm @ 9050 | 2 mm @ 18110 | 2 mm @ 0 | 2 mm |
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**Test Procedure:**

1. Take Benchmark reading of anchor rod.
2. Pull Anchor rod at 50% load and hold for 2 minutes. Record movement.
3. Pull Anchor rod at Full tension load and hold for 2 minutes. Record movement.
4. Release tension and record rod movement.
5. For 2 anchor configuration, the single anchor will be pulled at 50% Tension. Wait 5 minutes between pulls.

**Comments**

A1 Gravel ( log anchor)

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR ANTAL | | Jan 9/19 |
| QC Representative | Phil McKinley | Phil McKinley | Jan 7 2019 |
| Client Inspector | | | |

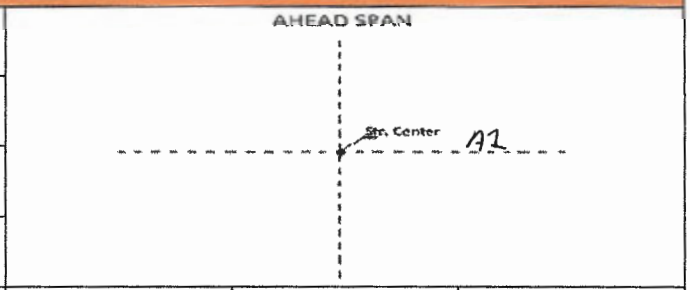
Forbes Bros LTD
POWERLINE CONSTRUCTION

# Anchor Pull Test

| Project # | 4581 | Project Name | Eagle gold 69KV | Facility# | |
|---|---|---|---|---|---|
| Structure # | 36/3 | Structure Type | PTG | | |

## Anchor Test Record

| | |
|---|---|
| Time and Date Started | Dec 18 2018 9:20 |
| Time and Date completed | Dec 18 2018 9:30 |
| Test Device | Dyna Link 2 MSI7300 |
| Operator | Excavator/Foreman |




| Anchor # | Pre-Load Benchmark | Amount of Stretch at 50% Tension | Final Reading at Full Tension | Final Reading when Tension Released | Change After Testing |
|---|---|---|---|---|---|
| 1 | 0 mm @ 0 | 0 mm @ 9230 | 3 mm @ 18160 | 2 mm @ 0 | 2 mm |
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**Test Procedure:**

1. Take Benchmark reading of anchor rod.
2. Pull Anchor rod at 50% load and hold for 2 minutes. Record movement.
3. Pull Anchor rod at Full tension load and hold for 2 minutes. Record movement.
4. Release tension and record rod movement.
5. For 2 anchor configuration, the single anchor will be pulled at 50% Tension. Wait 5 minutes between pulls.

**Comments**

A1 Gravel (log anchor)

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR ANTAL | | Jan 5/19 |
| QC Representative | Phil McKinley | Phil McKinley | Jan 4 2018 |
| Client Inspector | | | |

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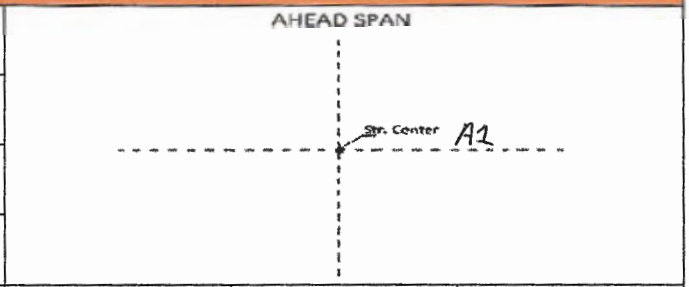
POWERLINE CONSTRUCTION

# Anchor Pull Test

| Project # | 4581 | Project Name | Eagle gold 69KV | Facility# | |
|---|---|---|---|---|---|
| Structure # | 36/4 | Structure Type | PTG | | |

## Anchor Test Record

| | |
|---|---|
| Time and Date Started | Dec 18 2018 10:45 |
| Time and Date completed | Dec 18 2018 10:55 |
| Test Device | Dyna Link 2 MSI7300 |
| Operator | Excavator/Foreman |




| Anchor # | Pre-Load Benchmark | Amount of Stretch at 50% Tension | Final Reading at Full Tension | Final Reading when Tension Released | Change After Testing |
|---|---|---|---|---|---|
| 1 | 0mm @ 0 | 0 mm @ 9120 | 2 mm @ 18280 | 2 mm @ 0 | 2 mm |
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**Test Procedure:**

1. Take Benchmark reading of anchor rod.
2. Pull Anchor rod at 50% load and hold for 2 minutes. Record movement.
3. Pull Anchor rod at Full tension load and hold for 2 minutes. Record movement.
4. Release tension and record rod movement.
5. For 2 anchor configuration, the single anchor will be pulled at 50% Tension. Wait 5 minutes between pulls.

**Comments**

A1 Gravel (log anchor)

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR ANTAL | | Jan 8/19 |
| QC Representative | Phil McKinley | PM McKinley | Jan 7 2019 |
| Client Inspector | | | |

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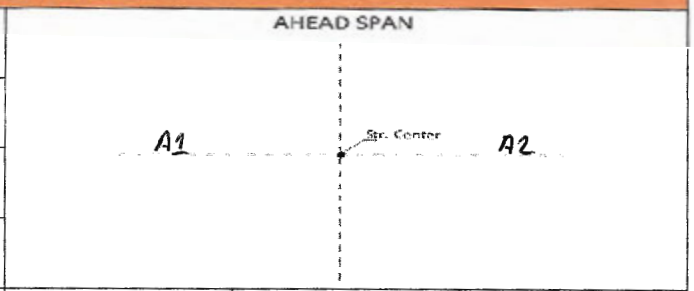
# Anchor Pull Test

| Project # | 4581 | Project Name | Eagle gold 69KV | Facility# | |
|---|---|---|---|---|---|
| Structure # | 36/9 | Structure Type | SAH | | |

## Anchor Test Record

| | |
|---|---|
| Time and Date Started | Jan 9 2019 15:40 |
| Time and Date completed | Jan 9 2019 16:05 |
| Test Device | Dyna Link 2 MSI7300 |
| Operator | Excavator/Foreman |




| Anchor # | Pre-Load Benchmark | Amount of Stretch at 50% Tension | Final Reading at Full Tension | Final Reading when Tension Released | Change After Testing |
|---|---|---|---|---|---|
| 1 | 0 mm @ 0 | 0 mm @ 9240 | 2 mm @ 18180 | 1 mm @ 0 | 1 mm |
| 2 | 0 mm @ 0 | 0 mm @ 9100 | 2 mm @ 18110 | 2 mm @ 0 | 2 mm |
| | | | | | |
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**Test Procedure:**

1. Take Benchmark reading of anchor rod.
2. Pull Anchor rod at 50% load and hold for 2 minutes. Record movement.
3. Pull Anchor rod at Full tension load and hold for 2 minutes. Record movement.
4. Release tension and record rod movement.
5. For 2 anchor configuration, the single anchor will be pulled at 50% Tension. Wait 5 minutes between pulls.

**Comments**

A1 & A2 Permafrost (plate anchors)

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR ANTAL | | Jan 13/19 |
| QC Representative | Phil McKinley | Phil McKinley | Jan 12 2019 |
| Client Inspector | | | |

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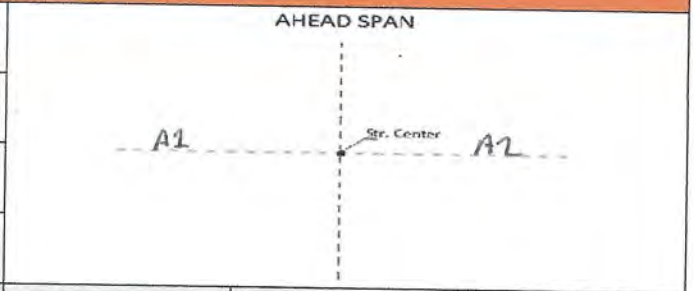
POWERLINE CONSTRUCTION

# Anchor Pull Test

| Project # | 4581 | Project Name | Eagle gold 69 KV | Facility# | |
|---|---|---|---|---|---|
| Structure # | 37/10 | Structure Type | PT | | |

## Anchor Test Record

| | |
|---|---|
| Time and Date Started | February 15 2019 15:50 |
| Time and Date completed | February 15 2019 16:15 |
| Test Device | Dyna Link 2 MSI7300 |
| Operator | Excavator/Foreman |




| Anchor # | Pre-Load Benchmark | Amount of Stretch at 50% Tension | Final Reading at Full Tension | Final Reading when Tension Released | Change After Testing |
|---|---|---|---|---|---|
| 1 | 0 mm @ 0 | 0 mm @ 9020 | 2 mm @ 18200 | 2 mm @ 0 | 2 mm |
| 2 | 0 mm @ 0 | 0 mm @ 9180 | 2 mm @ 18140 | 2 mm @ 0 | 2 mm |
| | | | | | |
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**Test Procedure:**

1. Take Benchmark reading of anchor rod.
2. Pull Anchor rod at 50% load and hold for 2 minutes. Record movement.
3. Pull Anchor rod at Full tension load and hold for 2 minutes. Record movement.
4. Release tension and record rod movement.
5. For 2 anchor configuration, the single anchor will be pulled at 50% Tension. Wait 5 minutes between pulls.

**Comments**

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR ANTAL | | FEB 18 2019 |
| QC Representative | Phil McKinley | Phil McKinley | Feb 17 2019 |
| Client Inspector | MMC | MMC | Feb 25, 19 |

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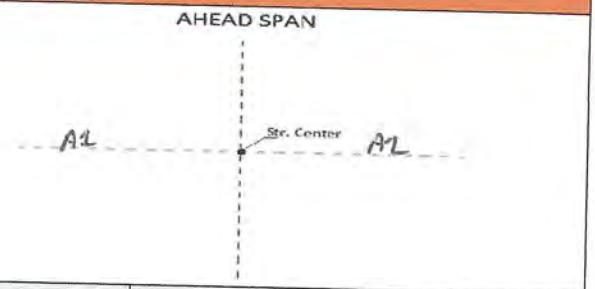
# Anchor Pull Test

| Project # | 4581 | Project Name | Eagle gold 69 KV | Facility# | |
|---|---|---|---|---|---|
| Structure # | 37/11 | Structure Type | PT | | |

## Anchor Test Record

| | |
|---|---|
| Time and Date Started | February 15 2019 13:40 |
| Time and Date completed | February 15 2019 14:00 |
| Test Device | Dyna Link 2 MSI7300 |
| Operator | Excavator/Foreman |




| Anchor # | Pre-Load Benchmark | Amount of Stretch at 50% Tension | Final Reading at Full Tension | Final Reading when Tension Released | Change After Testing |
|---|---|---|---|---|---|
| 1 | 0 mm @ 0 | 0 mm @ 9240 | 1 mm @ 18130 | 1 mm @ 0 | 1 mm |
| 2 | 0 mm @ 0 | 0 mm @ 9270 | 2 mm @ 18290 | 2 mm @ 0 | 2 mm |
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**Test Procedure:**

1. Take Benchmark reading of anchor rod.
2. Pull Anchor rod at 50% load and hold for 2 minutes. Record movement.
3. Pull Anchor rod at Full tension load and hold for 2 minutes. Record movement.
4. Release tension and record rod movement.
5. For 2 anchor configuration, the single anchor will be pulled at 50% Tension. Wait 5 minutes between pulls.

**Comments**

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR ANSTEE | | FEB 18 2019 |
| QC Representative | Phil McKinley | Phil McKinley | Feb 17 2019 |
| Client Inspector | Matt C | | Feb 25, 19 |

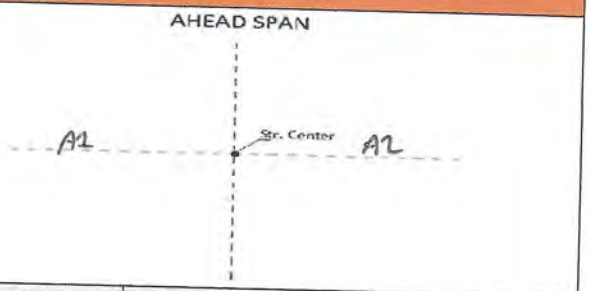
Forbes Bros LTD
POWERLINE CONSTRUCTION

# Anchor Pull Test

| Project # | 4581 | Project Name | Eagle gold 69 KV | Facility# | |
|---|---|---|---|---|---|
| Structure # | 37/12 | Structure Type | PT | | |

## Anchor Test Record

| | |
|---|---|
| Time and Date Started | February 15 2019 11:20 |
| Time and Date completed | February 15 2019 11:55 |
| Test Device | Dyna Link 2 MSI7300 |
| Operator | Excavator/Foreman |




| Anchor # | Pre-Load Benchmark | Amount of Stretch at 50% Tension | Final Reading at Full Tension | Final Reading when Tension Released | Change After Testing |
|---|---|---|---|---|---|
| 1 | 0 mm @ 0 | 0 mm @ 9190 | 3 mm @ 18250 | 2 mm @ 0 | 2 mm |
| 2 | 0 mm @ 0 | 0 mm @ 9200 | 2 mm @ 18270 | 2 mm @ 0 | 2 mm |
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**Test Procedure:**

1. Take Benchmark reading of anchor rod.
2. Pull Anchor rod at 50% load and hold for 2 minutes. Record movement.
3. Pull Anchor rod at Full tension load and hold for 2 minutes. Record movement.
4. Release tension and record rod movement.
5. For 2 anchor configuration, the single anchor will be pulled at 50% Tension. Wait 5 minutes between pulls.

**Comments**

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR AUSTIN | | Feb 18 2019 |
| QC Representative | Phil McKinley | Phil McKinley | Feb 17 2019 |
| Client Inspector | Matt C | | Feb 25, 19 |

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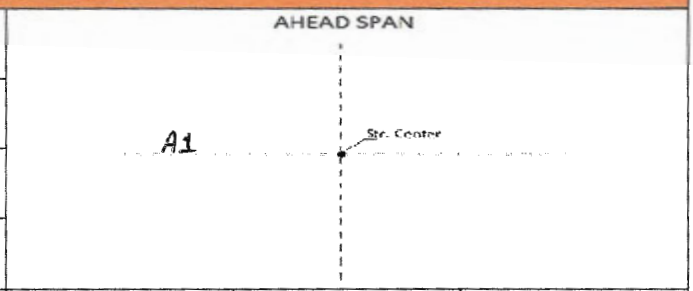
# Anchor Pull Test

| Project # | 4581 | Project Name | Eagle gold 69KV | Facility# | |
|---|---|---|---|---|---|
| Structure # | 37/13 | Structure Type | PTG | | |

## Anchor Test Record

| | |
|---|---|
| Time and Date Started | January 13 2019 11:40 |
| Time and Date completed | January 13 2019 11:50 |
| Test Device | Dyna Link 2 MSI7300 |
| Operator | Excavator/Foreman |




| Anchor # | Pre-Load Benchmark | Amount of Stretch at 50% Tension | Final Reading at Full Tension | Final Reading when Tension Released | Change After Testing |
|---|---|---|---|---|---|
| 1 | 0 mm @ 0 | 0 mm @ 9250 | 2 mm @ 18120 | 2 mm @ 0 | 2 mm |
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**Test Procedure:**

1. Take Benchmark reading of anchor rod.
2. Pull Anchor rod at 50% load and hold for 2 minutes. Record movement.
3. Pull Anchor rod at Full tension load and hold for 2 minutes. Record movement.
4. Release tension and record rod movement.
5. For 2 anchor configuration, the single anchor will be pulled at 50% Tension. Wait 5 minutes between pulls.

**Comments**

A1 Permafrost (log anchor)

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR ANTAL | | Jan 15/19 |
| QC Representative | Phil McKinley | Phil McKinley | Jan 14 2019 |
| Client Inspector | | | |

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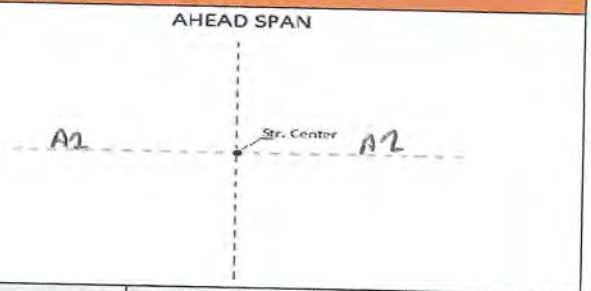
# Anchor Pull Test

| Project # | 4581 | Project Name | Eagle gold 69 KV | Facility# | |
|---|---|---|---|---|---|
| Structure # | 37/8 | Structure Type | PTR | | |

## Anchor Test Record

| | |
|---|---|
| Time and Date Started | February 15 2019 17:30 |
| Time and Date completed | February 15 2019 17:50 |
| Test Device | Dyna Link 2 MSI7300 |
| Operator | Excavator/Foreman |




| Anchor # | Pre-Load Benchmark | Amount of Stretch at 50% Tension | Final Reading at Full Tension | Final Reading when Tension Released | Change After Testing |
|---|---|---|---|---|---|
| 1 | 0 mm @ 0 | 0 mm @ 9060 | 2 mm @ 18250 | 2 mm @ 0 | 2 mm |
| 2 | 0 mm @ 0 | 0 mm @ 9030 | 3 mm @ 18270 | 3 mm @ 0 | 3 mm |
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**Test Procedure:**

1. Take Benchmark reading of anchor rod.
2. Pull Anchor rod at 50% load and hold for 2 minutes. Record movement.
3. Pull Anchor rod at Full tension load and hold for 2 minutes. Record movement.
4. Release tension and record rod movement.
5. For 2 anchor configuration, the single anchor will be pulled at 50% Tension. Wait 5 minutes between pulls.

**Comments**

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR ANTAL | | FEB 18 2019 |
| QC Representative | Phil McKinley | Phil McKinley | Feb 17 2019 |
| Client Inspector | Matt C | MC | Feb 25, 19 |

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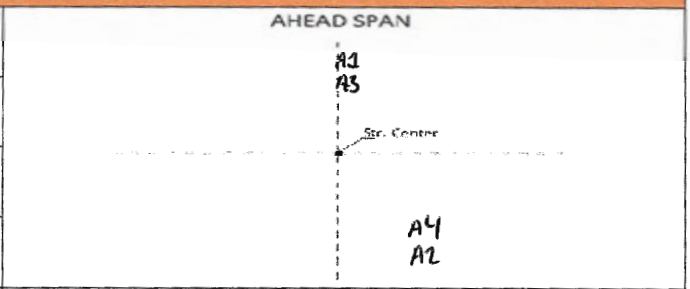
# Anchor Pull Test

| Project # | 4581 | Project Name | Eagle gold 69KV | Facility# | |
|---|---|---|---|---|---|
| Structure # | 37/9 | Structure Type | VDEHA | | |

## Anchor Test Record

| | |
|---|---|
| Time and Date Started | January 13 2019 9:40 |
| Time and Date completed | January 13 2019 10:25 |
| Test Device | Dyna Link 2 MSI7300 |
| Operator | Excavator/Foreman |




| Anchor # | Pre-Load Benchmark | Amount of Stretch at 50% Tension | Final Reading at Full Tension | Final Reading when Tension Released | Change After Testing |
|---|---|---|---|---|---|
| 1 | 0 mm @ 0 | 0 mm @ 9070 | 3 mm @ 18280 | 3 mm @ 0 | 3 mm |
| 2 | 0 mm @ 0 | 0 mm @ 9130 | 2 mm @ 18200 | 2 mm @ 0 | 2 mm |
| 3 | 0 mm @ 0 | 0 mm @ 9250 | 2 mm @ 18140 | 2 mm @ 0 | 2 mm |
| 4 | 0 mm @ 0 | 0 mm @ 9210 | 3 mm @ 18090 | 2 mm @ 0 | 2 mm |
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**Test Procedure:**

1. Take Benchmark reading of anchor rod.
2. Pull Anchor rod at 50% load and hold for 2 minutes. Record movement.
3. Pull Anchor rod at Full tension load and hold for 2 minutes. Record movement.
4. Release tension and record rod movement.
5. For 2 anchor configuration, the single anchor will be pulled at 50% Tension. Wait 5 minutes between pulls.

**Comments**

A1,A2,A3,A4 Gravel (log anchors)

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR ANSTAL | | Jan 15/19 |
| QC Representative | Phil McKinley | Phil McKinley | Jan 14 2019 |
| Client Inspector | | | |

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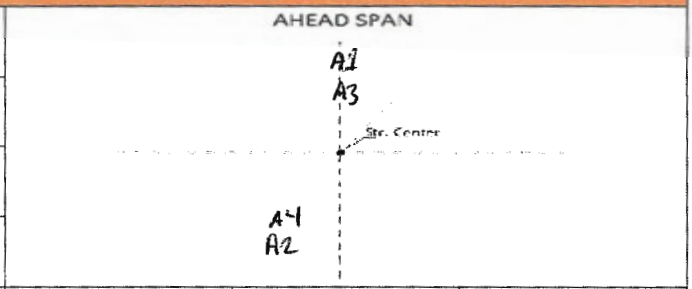
# Anchor Pull Test

| Project # | 4581 | Project Name | Eagle gold 69KV | Facility# | |
|---|---|---|---|---|---|
| Structure # | 38/1 | Structure Type | VDEHA | | |

## Anchor Test Record

| | |
|---|---|
| Time and Date Started | January 13 2019 16:15 |
| Time and Date completed | January 13 2019 17:00 |
| Test Device | Dyna Link 2 MSI7300 |
| Operator | Excavator/Foreman |




| Anchor # | Pre-Load Benchmark | Amount of Stretch at 50% Tension | Final Reading at Full Tension | Final Reading when Tension Released | Change After Testing |
|---|---|---|---|---|---|
| 1 | 0 mm @ 0 | 0 mm @ 9010 | 2 mm @ 18230 | 2 mm @ 0 | 2 mm |
| 2 | 0 mm @ 0 | 0 mm @ 9290 | 3 mm @ 18060 | 3 mm @ 0 | 3 mm |
| 3 | 0 mm @ 0 | 0 mm @ 9100 | 3 mm @ 18270 | 3 mm @ 0 | 3 mm |
| 4 | 0 mm @ 0 | 0 mm @ 9240 | 3 mm @ 18100 | 2 mm @ 0 | 2 mm |
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**Test Procedure:**

1. Take Benchmark reading of anchor rod.
2. Pull Anchor rod at 50% load and hold for 2 minutes. Record movement.
3. Pull Anchor rod at Full tension load and hold for 2 minutes. Record movement.
4. Release tension and record rod movement.
5. For 2 anchor configuration, the single anchor will be pulled at 50% Tension. Wait 5 minutes between pulls.

**Comments**

A1,A2,A3,A4 Gravel (log anchors)

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR ANTAL | | Jan 15/19 |
| QC Representative | Phil McKinley | Phil McKinley | Jan 14 2019 |
| Client Inspector | | | |

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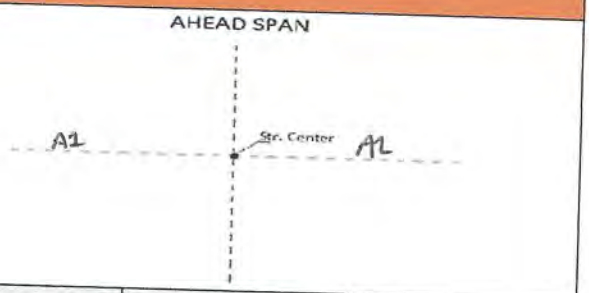
# Anchor Pull Test

| Project # | 4581 | Project Name | Eagle gold 69 KV | Facility# | |
|---|---|---|---|---|---|
| Structure # | 40/10 | Structure Type | PT | | |

## Anchor Test Record

| | |
|---|---|
| Time and Date Started | February 14 2019 13:45 |
| Time and Date completed | February 14 2019 14:15 |
| Test Device | Dyna Link 2 MSI7300 |
| Operator | Excavator/Foreman |




| Anchor # | Pre-Load Benchmark | Amount of Stretch at 50% Tension | Final Reading at Full Tension | Final Reading when Tension Released | Change After Testing |
|---|---|---|---|---|---|
| 1 | 0 mm @ 0 | 0 mm @ 9070 | 3 mm @ 18240 | 2 mm @ 0 | 2 mm |
| 2 | 0 mm @ 0 | 0 mm @ 9210 | 1 mm @ 18160 | 1 mm @ 0 | 1 mm |
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**Test Procedure:**

1. Take Benchmark reading of anchor rod.
2. Pull Anchor rod at 50% load and hold for 2 minutes. Record movement.
3. Pull Anchor rod at Full tension load and hold for 2 minutes. Record movement.
4. Release tension and record rod movement.
5. For 2 anchor configuration, the single anchor will be pulled at 50% Tension. Wait 5 minutes between pulls.

**Comments**

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR ANTAL | | FEB 18 2019 |
| QC Representative | Phil McKinley | Phil McKinley | Feb 17 2019 |
| Client Inspector | Matt C | MC | Feb 25, 19 |

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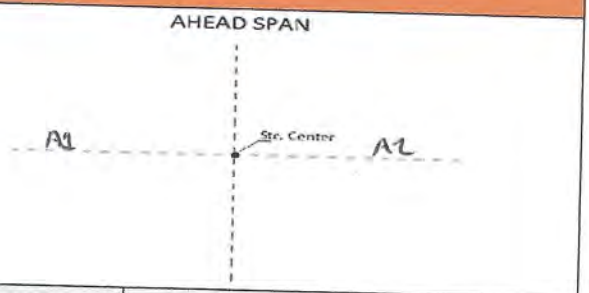
# Anchor Pull Test

| Project # | 4581 | Project Name | Eagle gold 69 KV | Facility# | |
|---|---|---|---|---|---|
| Structure # | 40/11 | Structure Type | PT | | |

## Anchor Test Record

| | |
|---|---|
| Time and Date Started | February 14 2019 11:20 |
| Time and Date completed | February 14 2019 12:00 |
| Test Device | Dyna Link 2 MSI7300 |
| Operator | Excavator/Foreman |




| Anchor # | Pre-Load Benchmark | Amount of Stretch at 50% Tension | Final Reading at Full Tension | Final Reading when Tension Released | Change After Testing |
|---|---|---|---|---|---|
| 1 | 0 mm @ 0 | 0 mm @ 9240 | 2 mm @ 18260 | 2 mm @ 0 | 2 mm |
| 2 | 0 mm @ 0 | 0 mm @ 9230 | 2 mm @ 18210 | 2 mm @ 0 | 2 mm |
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**Test Procedure:**

1. Take Benchmark reading of anchor rod.
2. Pull Anchor rod at 50% load and hold for 2 minutes. Record movement.
3. Pull Anchor rod at Full tension load and hold for 2 minutes. Record movement.
4. Release tension and record rod movement.
5. For 2 anchor configuration, the single anchor will be pulled at 50% Tension. Wait 5 minutes between pulls.

**Comments**

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR ANDAL | | FEB 18 2019 |
| QC Representative | Phil McKinley | Phil McKinley | Feb 17 2019 |
| Client Inspector | Matt C | MC | Feb 25, 19 |

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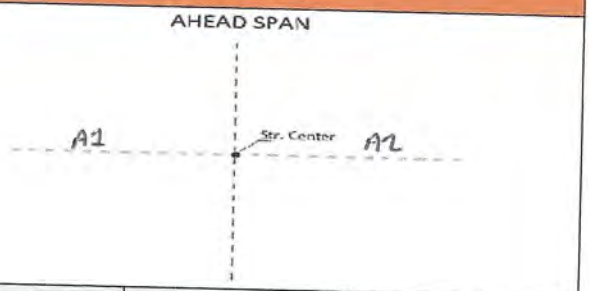
POWERLINE CONSTRUCTION

# Anchor Pull Test

| Project # | 4581 | Project Name | Eagle gold 69 KV | Facility# | |
|---|---|---|---|---|---|
| Structure # | 40/12 | Structure Type | PT | | |

## Anchor Test Record

| | |
|---|---|
| Time and Date Started | February 14 2019 9:30 |
| Time and Date completed | February 14 2019 10:10 |
| Test Device | Dyna Link 2 MSI7300 |
| Operator | Excavator/Foreman |




| Anchor # | Pre-Load Benchmark | Amount of Stretch at 50% Tension | Final Reading at Full Tension | Final Reading when Tension Released | Change After Testing |
|---|---|---|---|---|---|
| 1 | 0 mm @ 0 | 0 mm @ 9160 | 1 mm @ 18220 | 2 mm @ 0 | 2 mm |
| 2 | 0 mm @ 0 | 0 mm @ 9280 | 2 mm @ 18040 | 1 mm @ 0 | 1 mm |
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**Test Procedure:**

1. Take Benchmark reading of anchor rod.
2. Pull Anchor rod at 50% load and hold for 2 minutes. Record movement.
3. Pull Anchor rod at Full tension load and hold for 2 minutes. Record movement.
4. Release tension and record rod movement.
5. For 2 anchor configuration, the single anchor will be pulled at 50% Tension. Wait 5 minutes between pulls.

**Comments**

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR ANTAL | | FEB 18 2019 |
| QC Representative | Phil McKinley | Phil McK | Feb 17 2019 |
| Client Inspector | Matte | Me | Feb 25, 19 |

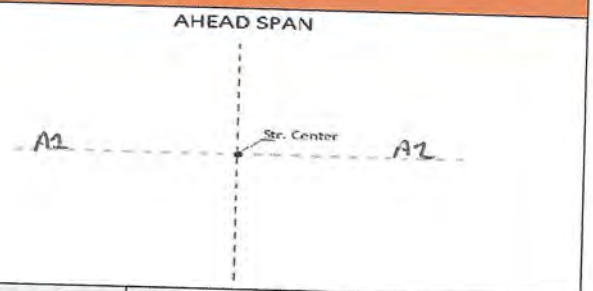
Forbes Bros LTD
POWERLINE CONSTRUCTION

# Anchor Pull Test

| Project # | 4581 | Project Name | Eagle gold 69 KV | Facility# | |
|---|---|---|---|---|---|
| Structure # | 40/3 | Structure Type | PTR | | |

## Anchor Test Record

| | |
|---|---|
| Time and Date Started | February 15 2019 8:20 |
| Time and Date completed | February 15 2019 8:45 |
| Test Device | Dyna Link 2 MSI7300 |
| Operator | Excavator/Foreman |




| Anchor # | Pre-Load Benchmark | Amount of Stretch at 50% Tension | Final Reading at Full Tension | Final Reading when Tension Released | Change After Testing |
|---|---|---|---|---|---|
| 1 | 0 mm @ 0 | 0 mm @ 9260 | 2 mm @ 18160 | 2 mm @ 0 | 2 mm |
| 2 | 0 mm @ 0 | 0 mm @ 9030 | 2 mm @ 18220 | 2 mm @ 0 | 2 mm |
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**Test Procedure:**

1. Take Benchmark reading of anchor rod.
2. Pull Anchor rod at 50% load and hold for 2 minutes. Record movement.
3. Pull Anchor rod at Full tension load and hold for 2 minutes. Record movement.
4. Release tension and record rod movement.
5. For 2 anchor configuration, the single anchor will be pulled at 50% Tension. Wait 5 minutes between pulls.

**Comments**

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR ANTAL | | FEB 18 2019 |
| QC Representative | Phil McKinley | Phil McKinley | Feb 17 2019 |
| Client Inspector | Matt C | | Feb 25, 19 |

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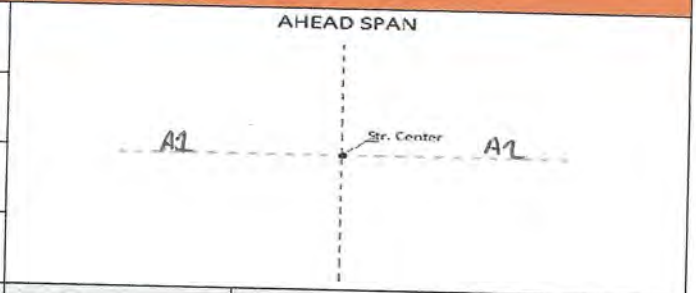
POWERLINE CONSTRUCTION

# Anchor Pull Test

| Project # | 4581 | Project Name | Eagle gold 69 KV | Facility# | |
|---|---|---|---|---|---|
| Structure # | 40/8 | Structure Type | PT | | |

## Anchor Test Record

| | |
|---|---|
| Time and Date Started | February 14 2019 17:20 |
| Time and Date completed | February 14 2019 18:00 |
| Test Device | Dyna Link 2 MSI7300 |
| Operator | Excavator/Foreman |




| Anchor # | Pre-Load Benchmark | Amount of Stretch at 50% Tension | Final Reading at Full Tension | Final Reading when Tension Released | Change After Testing |
|---|---|---|---|---|---|
| 1 | 0 mm @ 0 | 0 mm @ 9070 | 1 mm @ 18200 | 1 mm @ 0 | 1 mm |
| 2 | 0 mm @ 0 | 0 mm @ 9150 | 1 mm @ 18240 | 1 mm @ 0 | 1 mm |
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**Test Procedure:**

1. Take Benchmark reading of anchor rod.
2. Pull Anchor rod at 50% load and hold for 2 minutes. Record movement.
3. Pull Anchor rod at Full tension load and hold for 2 minutes. Record movement.
4. Release tension and record rod movement.
5. For 2 anchor configuration, the single anchor will be pulled at 50% Tension. Wait 5 minutes between pulls.

**Comments**

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR ANTAL | | FEB 18 2019 |
| QC Representative | Phil McKinley | Phil McKinley | Feb 17 2019 |
| Client Inspector | Matt C | | Feb 25, 19 |

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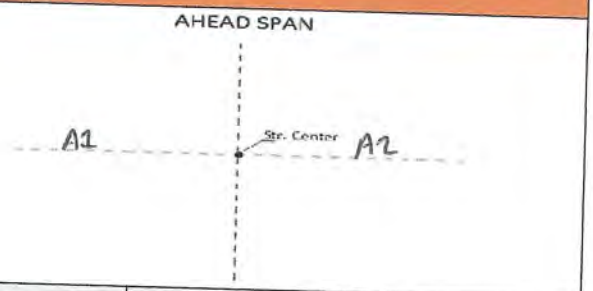
# Anchor Pull Test

| Project # | 4581 | Project Name | Eagle gold 69 KV | Facility# | |
|---|---|---|---|---|---|
| Structure # | 40/9 | Structure Type | PT | | |

## Anchor Test Record

| | |
|---|---|
| Time and Date Started | February 14 2019 15:40 |
| Time and Date completed | February 14 2019 16:00 |
| Test Device | Dyna Link 2 MSI7300 |
| Operator | Excavator/Foreman |




| Anchor # | Pre-Load Benchmark | Amount of Stretch at 50% Tension | Final Reading at Full Tension | Final Reading when Tension Released | Change After Testing |
|---|---|---|---|---|---|
| 1 | 0 mm @ 0 | 0 mm @ 9290 | 2 mm @ 18250 | 2 mm @ 0 | 2 mm |
| 2 | 0 mm @ 0 | 0 mm @ 9230 | 1 mm @ 18020 | 1 mm @ 0 | 1 mm |
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**Test Procedure:**

1. Take Benchmark reading of anchor rod.
2. Pull Anchor rod at 50% load and hold for 2 minutes. Record movement.
3. Pull Anchor rod at Full tension load and hold for 2 minutes. Record movement.
4. Release tension and record rod movement.
5. For 2 anchor configuration, the single anchor will be pulled at 50% Tension. Wait 5 minutes between pulls.

**Comments**

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR ANOTAL | | FEB 18 2019 |
| QC Representative | Phil McKinley | Phil McKinley | Feb 17 2019 |
| Client Inspector | Matt C | | Feb 25, 19 |

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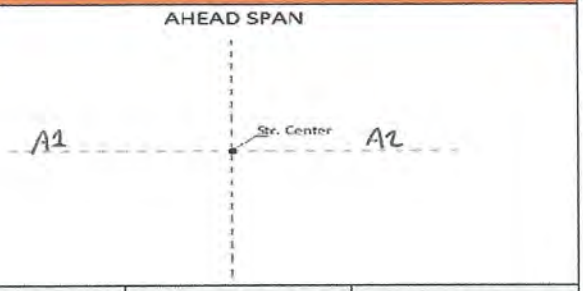
# Anchor Pull Test

| Project # | 4581 | Project Name | Eagle gold 69 KV | Facility# | |
|---|---|---|---|---|---|
| Structure # | 41/1 | Structure Type | PT | | |

## Anchor Test Record

| | |
|---|---|
| Time and Date Started | Feb 13 2019 16:50 |
| Time and Date completed | Feb 13 2019 17:20 |
| Test Device | Dyna Link 2 MSI7300 |
| Operator | Excavator/Foreman |




| Anchor # | Pre-Load Benchmark | Amount of Stretch at 50% Tension | Final Reading at Full Tension | Final Reading when Tension Released | Change After Testing |
|---|---|---|---|---|---|
| 1 | 0 mm @ 0 | 0 mm @ 9130 | 1 mm @ 18220 | 1 mm @ 0 | 1 mm |
| 2 | 0 mm @ 0 | 0 mm @ 9280 | 2 mm @ 18040 | 1 mm @ 0 | 1 mm |
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**Test Procedure:**

1. Take Benchmark reading of anchor rod.
2. Pull Anchor rod at 50% load and hold for 2 minutes. Record movement.
3. Pull Anchor rod at Full tension load and hold for 2 minutes. Record movement.
4. Release tension and record rod movement.
5. For 2 anchor configuration, the single anchor will be pulled at 50% Tension. Wait 5 minutes between pulls.

**Comments**

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR ANTAL | | FEB 20 /19 |
| QC Representative | Phil McKinley | Phil McKinley | Feb 16 2019 |
| Client Inspector | S ARCHIMOWITZ | Sarchit | FEB 19/19 |

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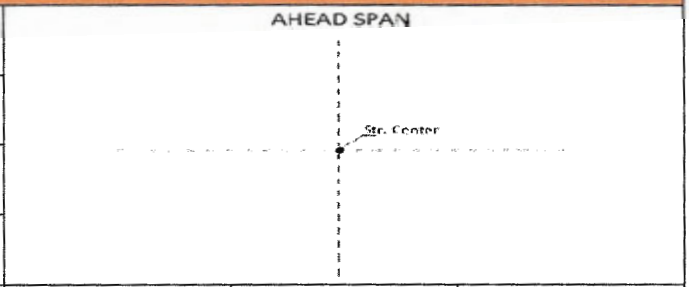
# Anchor Pull Test

| Project # | 4581 | Project Name | Eagle gold 69KV | Facility# | |
|---|---|---|---|---|---|
| Structure # | 4/11 | Structure Type | PT | | |

## Anchor Test Record

| | |
|---|---|
| Time and Date Started | Oct 7 2018 12:15 |
| Time and Date completed | Oct 7 2018 13:00 |
| Test Device | Dyna Link 2 MSI7300 |
| Operator | Excavator/Foreman |




| Anchor # | Pre-Load Benchmark | Amount of Stretch at 50% Tension | Final Reading at Full Tension | Final Reading when Tension Released | Change After Testing |
|---|---|---|---|---|---|
| 1 | 0 mm @ 0 | 0 mm @ 9230 | 3 mm @ 18120 | 3 mm @ 0 | 3 mm |
| 2 | 0 mm @ 0 | 0 mm @ 9060 | 2 mm @ 18300 | 2 mm @ 0 | 2 mm |
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**Test Procedure:**

1. Take Benchmark reading of anchor rod.
2. Pull Anchor rod at 50% load and hold for 2 minutes. Record movement.
3. Pull Anchor rod at Full tension load and hold for 2 minutes. Record movement.
4. Release tension and record rod movement.
5. For 2 anchor configuration, the single anchor will be pulled at 50% Tension. Wait 5 minutes between pulls.

**Comments**

A1,A2 Permafrost (plate anchors)

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR ANTJAC | | OCT 9/18 |
| QC Representative | Phil McKinley | Phil McKinley | Oct 8 2018 |
| Client Inspector | | | |

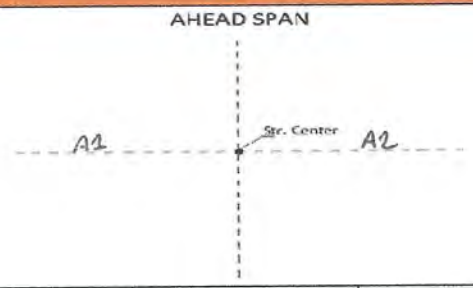
Forbes Bros LTD
POWERLINE CONSTRUCTION

# Anchor Pull Test

| Project # | 4581 | Project Name | Eagle gold 69 KV | Facility# | |
|---|---|---|---|---|---|
| Structure # | 41/10 | Structure Type | PVO | | |

## Anchor Test Record

| | |
|---|---|
| Time and Date Started | Feb 12 2019 12:50 |
| Time and Date completed | Feb 12 2019 13:20 |
| Test Device | Dyna Link 2 MSI7300 |
| Operator | Excavator/Foreman |




| Anchor # | Pre-Load Benchmark | Amount of Stretch at 50% Tension | Final Reading at Full Tension | Final Reading when Tension Released | Change After Testing |
|---|---|---|---|---|---|
| 1 | 0 mm @ 0 | 0 mm @ 9270 | 2 mm @ 18290 | 2 mm @ 0 | 2 mm |
| 2 | 0 mm @ 0 | 0 mm @ 9140 | 1 mm @ 18160 | 1 mm @ 0 | 1 mm |
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**Test Procedure:**

1. Take Benchmark reading of anchor rod.
2. Pull Anchor rod at 50% load and hold for 2 minutes. Record movement.
3. Pull Anchor rod at Full tension load and hold for 2 minutes. Record movement.
4. Release tension and record rod movement.
5. For 2 anchor configuration, the single anchor will be pulled at 50% Tension. Wait 5 minutes between pulls.

**Comments**

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR ANTAL | | FEB 20 2019 |
| QC Representative | Phil McKinley | Phil McKinley | Feb 16 2019 |
| Client Inspector | SUEN ARCHINOWITZ | | FEB 19/19 |

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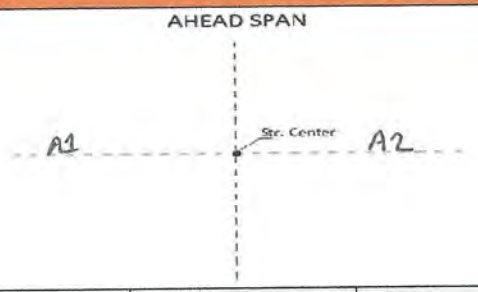
POWERLINE CONSTRUCTION

# Anchor Pull Test

| Project # | 4581 | Project Name | Eagle gold 69 KV | Facility# | |
|---|---|---|---|---|---|
| Structure # | 41/11 | Structure Type | PVO | | |

## Anchor Test Record

| | |
|---|---|
| Time and Date Started | Feb 12 2019 10:25 |
| Time and Date completed | Feb 12 2019 11:00 |
| Test Device | Dyna Link 2 MSI7300 |
| Operator | Excavator/Foreman |




| Anchor # | Pre-Load Benchmark | Amount of Stretch at 50% Tension | Final Reading at Full Tension | Final Reading when Tension Released | Change After Testing |
|---|---|---|---|---|---|
| 1 | 0 mm @ 0 | 0 mm @ 9160 | 3 mm @ 18220 | 2 mm @ 0 | 2 mm |
| 2 | 0 mm @ 0 | 0 mm @ 9200 | 2 mm @ 18130 | 2 mm @ 0 | 2 mm |
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**Test Procedure:**

1. Take Benchmark reading of anchor rod.
2. Pull Anchor rod at 50% load and hold for 2 minutes. Record movement.
3. Pull Anchor rod at Full tension load and hold for 2 minutes. Record movement.
4. Release tension and record rod movement.
5. For 2 anchor configuration, the single anchor will be pulled at 50% Tension. Wait 5 minutes between pulls.

**Comments**

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR ANTAL | | Feb 20/19 |
| QC Representative | Phil McKinley | Phil McKinley | Feb 16 2019 |
| Client Inspector | S ARCHIMOWITZ | SArchi | FEB 19/19 |

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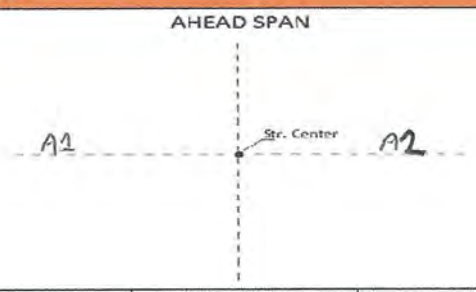
# Anchor Pull Test

| Project # | 4581 | Project Name | Eagle gold 69 KV | Facility# | |
|---|---|---|---|---|---|
| Structure # | 41/12 | Structure Type | PVO | | |

## Anchor Test Record

| | |
|---|---|
| Time and Date Started | Feb 12 2019 8:15 |
| Time and Date completed | Feb 12 2019 8:40 |
| Test Device | Dyna Link 2 MSI7300 |
| Operator | Excavator/Foreman |




| Anchor # | Pre-Load Benchmark | Amount of Stretch at 50% Tension | Final Reading at Full Tension | Final Reading when Tension Released | Change After Testing |
|---|---|---|---|---|---|
| 1 | 0 mm @ 0 | 0 mm @ 9140 | 2 mm @ 18170 | 2 mm @ 0 | 2 mm |
| 2 | 0 mm @ 0 | 0 mm @ 9210 | 2 mm @ 18080 | 2 mm @ 0 | 2 mm |
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**Test Procedure:**

1. Take Benchmark reading of anchor rod.
2. Pull Anchor rod at 50% load and hold for 2 minutes. Record movement.
3. Pull Anchor rod at Full tension load and hold for 2 minutes. Record movement.
4. Release tension and record rod movement.
5. For 2 anchor configuration, the single anchor will be pulled at 50% Tension. Wait 5 minutes between pulls.

**Comments**

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR ANTAL | | Feb 20/19 |
| QC Representative | Phil McKinley | Phil McKinley | Feb 16 2019 |
| Client Inspector | S ARCHIMOWITZ | Stachit | FEB 19/19 |

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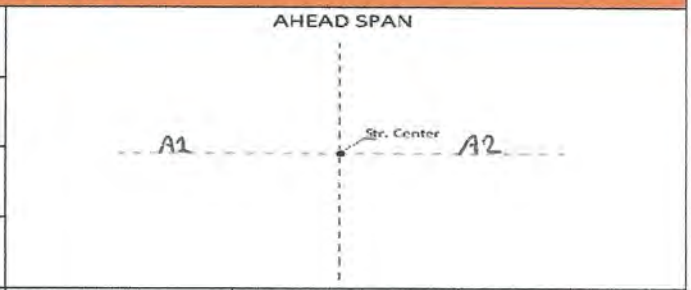
# Anchor Pull Test

| Project # | 4581 | Project Name | Eagle gold 69 KV | Facility# | |
|---|---|---|---|---|---|
| Structure # | 41/13 | Structure Type | PVO | | |

## Anchor Test Record

| | |
|---|---|
| Time and Date Started | Feb 11 2019 16:25 |
| Time and Date completed | Feb 11 2019 17:10 |
| Test Device | Dyna Link 2 MSI7300 |
| Operator | Excavator/Foreman |




| Anchor # | Pre-Load Benchmark | Amount of Stretch at 50% Tension | Final Reading at Full Tension | Final Reading when Tension Released | Change After Testing |
|---|---|---|---|---|---|
| 1 | 0 mm @ 0 | 0 mm @ 9050 | 1 mm @ 18250 | 1 mm @ 0 | 1 mm |
| 2 | 0 mm @ 0 | 0 mm @ 9270 | 3 mm @ 18260 | 3 mm @ 0 | 3 mm |
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**Test Procedure:**

1. Take Benchmark reading of anchor rod.
2. Pull Anchor rod at 50% load and hold for 2 minutes. Record movement.
3. Pull Anchor rod at Full tension load and hold for 2 minutes. Record movement.
4. Release tension and record rod movement.
5. For 2 anchor configuration, the single anchor will be pulled at 50% Tension. Wait 5 minutes between pulls.

**Comments**

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR ANTAL | | Feb 20/19 |
| QC Representative | Phil McKinley | Phil McKinley | Feb 15 2019 |
| Client Inspector | S ARCHIMOWITZ | SArch | FEB 19/19 |

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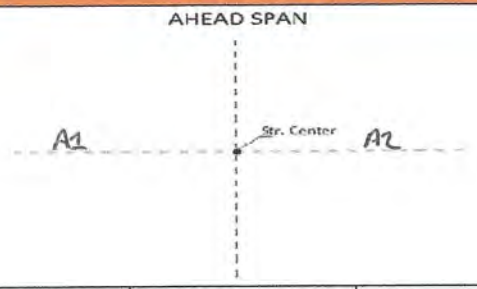
# Anchor Pull Test

| Project # | 4581 | Project Name | Eagle gold 69 KV | Facility# | |
|---|---|---|---|---|---|
| Structure # | 41/2 | Structure Type | PT | | |

## Anchor Test Record

| | |
|---|---|
| Time and Date Started | Feb 13 2019 14:50 |
| Time and Date completed | Feb 13 2019 15:15 |
| Test Device | Dyna Link 2 MSI7300 |
| Operator | Excavator/Foreman |




| Anchor # | Pre-Load Benchmark | Amount of Stretch at 50% Tension | Final Reading at Full Tension | Final Reading when Tension Released | Change After Testing |
|---|---|---|---|---|---|
| 1 | 0 mm @ 0 | 0 mm @ 9250 | 3 mm @ 18290 | 3 mm @ 0 | 3 mm |
| 2 | 0 mm @ 0 | 0 mm @ 9280 | 2 mm @ 18130 | 2 mm @ 0 | 2 mm |
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**Test Procedure:**

1. Take Benchmark reading of anchor rod.
2. Pull Anchor rod at 50% load and hold for 2 minutes. Record movement.
3. Pull Anchor rod at Full tension load and hold for 2 minutes. Record movement.
4. Release tension and record rod movement.
5. For 2 anchor configuration, the single anchor will be pulled at 50% Tension. Wait 5 minutes between pulls.

**Comments**

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR ANTAL | | FEB 20 /19 |
| QC Representative | Phil McKinley | Phil McKinley | Feb 16 2019 |
| Client Inspector | S. ARCHIMOWITZ | S Archit | FEB 19/19 |

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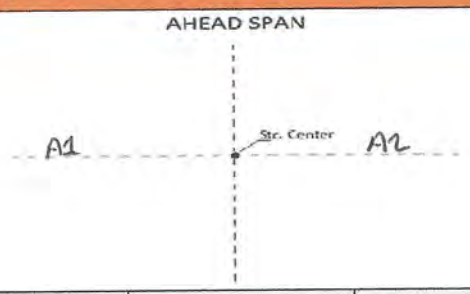
# Anchor Pull Test

| Project # | 4581 | Project Name | Eagle gold 69 KV | Facility# | |
|---|---|---|---|---|---|
| Structure # | 41/4 | Structure Type | PT | | |

## Anchor Test Record

| | |
|---|---|
| Time and Date Started | Feb 13 2019 12:45 |
| Time and Date completed | Feb 13 2019 13:05 |
| Test Device | Dyna Link 2 MSI7300 |
| Operator | Excavator/Foreman |




| Anchor # | Pre-Load Benchmark | Amount of Stretch at 50% Tension | Final Reading at Full Tension | Final Reading when Tension Released | Change After Testing |
|---|---|---|---|---|---|
| 1 | 0 mm @ 0 | 0 mm @ 9180 | 2 mm @ 18130 | 1 mm @ 0 | 1 mm |
| 2 | 0 mm @ 0 | 0 mm @ 9140 | 2 mm @ 18120 | 2 mm @ 0 | 2 mm |
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**Test Procedure:**

1. Take Benchmark reading of anchor rod.
2. Pull Anchor rod at 50% load and hold for 2 minutes. Record movement.
3. Pull Anchor rod at Full tension load and hold for 2 minutes. Record movement.
4. Release tension and record rod movement.
5. For 2 anchor configuration, the single anchor will be pulled at 50% Tension. Wait 5 minutes between pulls.

**Comments**

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR ANTAR | | Feb 20/19 |
| QC Representative | Phil McKinley | Phil McKinley | Feb 16 2019 |
| Client Inspector | S. ARCHIMOWITZ | | FEB 19/19 |

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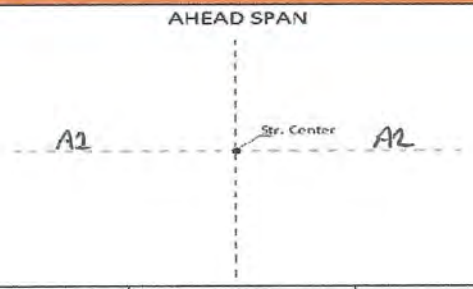
# Anchor Pull Test

| Project # | 4581 | Project Name | Eagle gold 69 KV | Facility# | |
|---|---|---|---|---|---|
| Structure # | 41/5 | Structure Type | PTR | | |

## Anchor Test Record

| | |
|---|---|
| Time and Date Started | Feb 13 2019 10:30 |
| Time and Date completed | Feb 13 2019 11:00 |
| Test Device | Dyna Link 2 MSI7300 |
| Operator | Excavator/Foreman |




| Anchor # | Pre-Load Benchmark | Amount of Stretch at 50% Tension | Final Reading at Full Tension | Final Reading when Tension Released | Change After Testing |
|---|---|---|---|---|---|
| 1 | 0 mm @ 0 | 0 mm @ 9250 | 1 mm @ 18270 | 1 mm @ 0 | 1 mm |
| 2 | 0 mm @ 0 | 0 mm @ 9230 | 2 mm @ 18200 | 2 mm @ 0 | 2 mm |
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**Test Procedure:**

1. Take Benchmark reading of anchor rod.
2. Pull Anchor rod at 50% load and hold for 2 minutes. Record movement.
3. Pull Anchor rod at Full tension load and hold for 2 minutes. Record movement.
4. Release tension and record rod movement.
5. For 2 anchor configuration, the single anchor will be pulled at 50% Tension. Wait 5 minutes between pulls.

**Comments**

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR ANTAL | | FEB 20/19 |
| QC Representative | Phil McKinley | Phil McKinley | Feb 16 2019 |
| Client Inspector | SARAH MCWATT | SArchit | FEB 19/19 |

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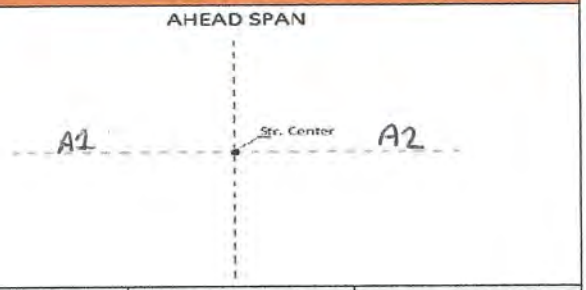
# Anchor Pull Test

| Project # | 4581 | Project Name | Eagle gold 69 KV | Facility# | |
|---|---|---|---|---|---|
| Structure # | 41/7 | Structure Type | PVO | | |

## Anchor Test Record

| | |
|---|---|
| Time and Date Started | Feb 13 2019 8:40 |
| Time and Date completed | Feb 13 2019 9:20 |
| Test Device | Dyna Link 2 MSI7300 |
| Operator | Excavator/Foreman |




| Anchor # | Pre-Load Benchmark | Amount of Stretch at 50% Tension | Final Reading at Full Tension | Final Reading when Tension Released | Change After Testing |
|---|---|---|---|---|---|
| 1 | 0 mm @ 0 | 0 mm @ 9060 | 2 mm @ 18120 | 2 mm @ 0 | 2 mm |
| 2 | 0 mm @ 0 | 0 mm @ 9270 | 2 mm @ 18200 | 2 mm @ 0 | 2 mm |
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**Test Procedure:**

1. Take Benchmark reading of anchor rod.
2. Pull Anchor rod at 50% load and hold for 2 minutes. Record movement.
3. Pull Anchor rod at Full tension load and hold for 2 minutes. Record movement.
4. Release tension and record rod movement.
5. For 2 anchor configuration, the single anchor will be pulled at 50% Tension. Wait 5 minutes between pulls.

**Comments**

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR ANTAL | | FEB 20/19 |
| QC Representative | Phil McKinley | Phil McKinley | Feb 16 2019 |
| Client Inspector | S. ARCHIMOWITZ | S Archit | FEB 19/19 |

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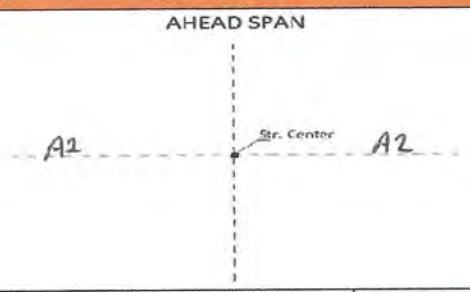
# Anchor Pull Test

| Project # | 4581 | Project Name | Eagle gold 69 KV | Facility# | |
|---|---|---|---|---|---|
| Structure # | 41/08 | Structure Type | PVO | | |

## Anchor Test Record

| | |
|---|---|
| Time and Date Started | Feb 12 2019 17:20 |
| Time and Date completed | Feb 12 2019 17:50 |
| Test Device | Dyna Link 2 MSI7300 |
| Operator | Excavator/Foreman |




| Anchor # | Pre-Load Benchmark | Amount of Stretch at 50% Tension | Final Reading at Full Tension | Final Reading when Tension Released | Change After Testing |
|---|---|---|---|---|---|
| 1 | 0 mm @ 0 | 0 mm @ 9100 | 3 mm @ 18280 | 2 mm @ 0 | 2 mm |
| 2 | 0 mm @ 0 | 0 mm @ 9270 | 2 mm @ 18240 | 2 mm @ 0 | 2 mm |
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**Test Procedure:**

1. Take Benchmark reading of anchor rod.
2. Pull Anchor rod at 50% load and hold for 2 minutes. Record movement.
3. Pull Anchor rod at Full tension load and hold for 2 minutes. Record movement.
4. Release tension and record rod movement.
5. For 2 anchor configuration, the single anchor will be pulled at 50% Tension. Wait 5 minutes between pulls.

**Comments**

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR ANTAL | | FEB 20/19 |
| QC Representative | Phil McKinley | Phil McKinley | Feb 16 2019 |
| Client Inspector | SARTIMOWITZ | | FEB19/19 |

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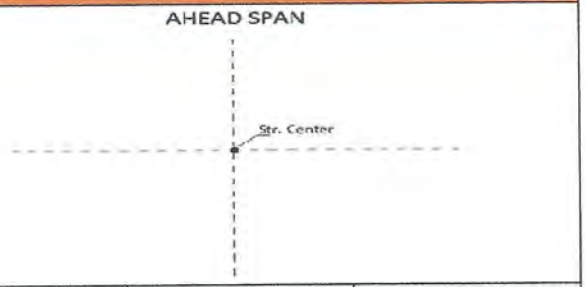
POWERLINE CONSTRUCTION

# Anchor Pull Test

| Project # | 4581 | Project Name | Eagle gold 69 KV | Facility# | |
|---|---|---|---|---|---|
| Structure # | 41/09 | Structure Type | PVO | | |

## Anchor Test Record

| | |
|---|---|
| Time and Date Started | Feb 12 2019 14:50 |
| Time and Date completed | Feb 12 2019 15:45 |
| Test Device | Dyna Link 2 MSI7300 |
| Operator | Excavator/Foreman |




| Anchor # | Pre-Load Benchmark | Amount of Stretch at 50% Tension | Final Reading at Full Tension | Final Reading when Tension Released | Change After Testing |
|---|---|---|---|---|---|
| 1 | 0 mm @ 0 | 0 mm @ 9060 | 3 mm @ 18170 | 3 mm @ 0 | 3 mm |
| 2 | 0 mm @ 0 | 0 mm @ 9230 | 2 mm @ 18000 | 2 mm @ 0 | 2 mm |
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**Test Procedure:**

1. Take Benchmark reading of anchor rod.
2. Pull Anchor rod at 50% load and hold for 2 minutes. Record movement.
3. Pull Anchor rod at Full tension load and hold for 2 minutes. Record movement.
4. Release tension and record rod movement.
5. For 2 anchor configuration, the single anchor will be pulled at 50% Tension. Wait 5 minutes between pulls.

**Comments**

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR ANTAK | | Feb 17/19 |
| QC Representative | Phil McKinley | Phil McKinley | Feb 16 2019 |
| Client Inspector | SVEN ARCHIMOWITZ | SArch | FEB 19/19 |

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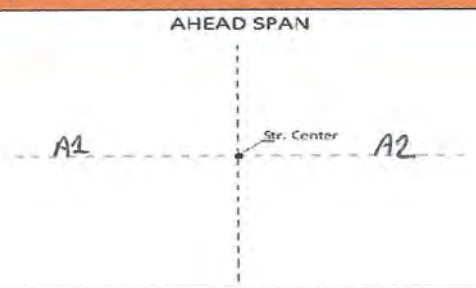
# Anchor Pull Test

| Project # | 4581 | Project Name | Eagle gold 69 KV | Facility# | |
|---|---|---|---|---|---|
| Structure # | 42/1 | Structure Type | PVO | | |

## Anchor Test Record

| | |
|---|---|
| Time and Date Started | Feb 11 2019 14:50 |
| Time and Date completed | Feb 11 2019 15:30 |
| Test Device | Dyna Link 2 MSI7300 |
| Operator | Excavator/Foreman |




| Anchor # | Pre-Load Benchmark | Amount of Stretch at 50% Tension | Final Reading at Full Tension | Final Reading when Tension Released | Change After Testing |
|---|---|---|---|---|---|
| 1 | 0 mm @ 0 | 0 mm @ 9280 | 3 mm @ 18140 | 2 mm @ 0 | 2 mm |
| 2 | 0 mm @ 0 | 0 mm @ 9270 | 2 mm @ 18210 | 2 mm @ 0 | 2 mm |
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**Test Procedure:**

1. Take Benchmark reading of anchor rod.
2. Pull Anchor rod at 50% load and hold for 2 minutes. Record movement.
3. Pull Anchor rod at Full tension load and hold for 2 minutes. Record movement.
4. Release tension and record rod movement.
5. For 2 anchor configuration, the single anchor will be pulled at 50% Tension. Wait 5 minutes between pulls.

**Comments**

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR ANTAL | | FEB 20/19 |
| QC Representative | Phil McKinley | Phil McKinley | Feb 15 2019 |
| Client Inspector | S. ARCHIMOWITZ | S. Archimowitz | FEB 19/19 |

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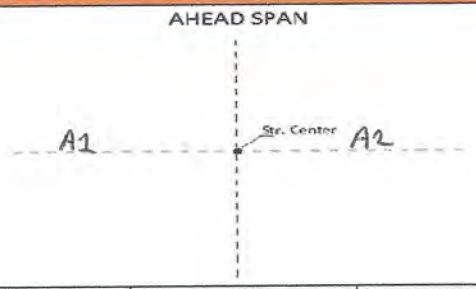
POWERLINE CONSTRUCTION

# Anchor Pull Test

| Project # | 4581 | Project Name | Eagle gold 69 KV | Facility# | |
|---|---|---|---|---|---|
| Structure # | 42/2 | Structure Type | SAHO | | |

## Anchor Test Record

| | |
|---|---|
| Time and Date Started | Feb 11 2019 12:50 |
| Time and Date completed | Feb 11 2019 13:30 |
| Test Device | Dyna Link 2 MSI7300 |
| Operator | Excavator/Foreman |




| Anchor # | Pre-Load Benchmark | Amount of Stretch at 50% Tension | Final Reading at Full Tension | Final Reading when Tension Released | Change After Testing |
|---|---|---|---|---|---|
| 1 | 0 mm @ 0 | 0 mm @ 9230 | 1 mm @ 18160 | 1 mm @ 0 | 1 mm |
| 2 | 0 mm @ 0 | 0 mm @ 9020 | 2 mm @ 18200 | 2 mm @ 0 | 2 mm |
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**Test Procedure:**

1. Take Benchmark reading of anchor rod.
2. Pull Anchor rod at 50% load and hold for 2 minutes. Record movement.
3. Pull Anchor rod at Full tension load and hold for 2 minutes. Record movement.
4. Release tension and record rod movement.
5. For 2 anchor configuration, the single anchor will be pulled at 50% Tension. Wait 5 minutes between pulls.

**Comments**

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR ANTAL | | Feb 20/19 |
| QC Representative | Phil McKinley | Phil McKinley | Feb 15 2019 |
| Client Inspector | S. ARCHIMOWITZ | | FEB 19/19 |

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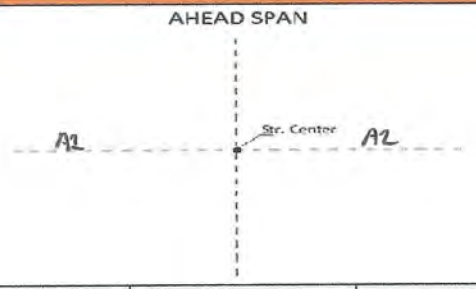
# Anchor Pull Test

| Project # | 4581 | Project Name | Eagle gold 69 KV | Facility# | |
|---|---|---|---|---|---|
| Structure # | 42/5 | Structure Type | SAHO | | |

## Anchor Test Record

| | |
|---|---|
| Time and Date Started | Feb 11 2019 10:30 |
| Time and Date completed | Feb 11 2019 11:00 |
| Test Device | Dyna Link 2 MSI7300 |
| Operator | Excavator/Foreman |




| Anchor # | Pre-Load Benchmark | Amount of Stretch at 50% Tension | Final Reading at Full Tension | Final Reading when Tension Released | Change After Testing |
|---|---|---|---|---|---|
| 1 | 0 mm @ 0 | 0 mm @ 9050 | 2 mm @ 18150 | 2 mm @ 0 | 2 mm |
| 2 | 0 mm @ 0 | 0 mm @ 9140 | 2 mm @ 18220 | 2 mm @ 0 | 2 mm |
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**Test Procedure:**

1. Take Benchmark reading of anchor rod.
2. Pull Anchor rod at 50% load and hold for 2 minutes. Record movement.
3. Pull Anchor rod at Full tension load and hold for 2 minutes. Record movement.
4. Release tension and record rod movement.
5. For 2 anchor configuration, the single anchor will be pulled at 50% Tension. Wait 5 minutes between pulls.

**Comments**

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR ANTAL | | FEB 20/19 |
| QC Representative | Phil McKinley | Phil McKinley | Feb 15 2019 |
| Client Inspector | S ARCHINOWITZ | SArch | FEB 19/19 |

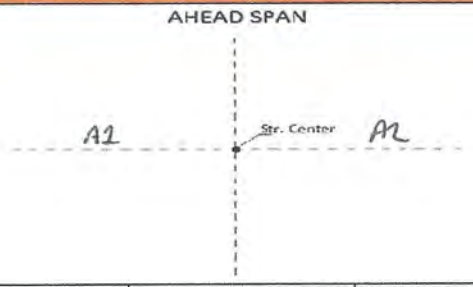
Forbes Bros LTD
POWERLINE CONSTRUCTION

# Anchor Pull Test

| Project # | 4581 | Project Name | Eagle gold 69 KV | Facility# | |
|---|---|---|---|---|---|
| Structure # | 42/6 | Structure Type | PVO | | |

## Anchor Test Record

| | |
|---|---|
| Time and Date Started | Feb 11 2019 8:45 |
| Time and Date completed | Feb 11 2019 8:10 |
| Test Device | Dyna Link 2 MSI7300 |
| Operator | Excavator/Foreman |




| Anchor # | Pre-Load Benchmark | Amount of Stretch at 50% Tension | Final Reading at Full Tension | Final Reading when Tension Released | Change After Testing |
|---|---|---|---|---|---|
| 1 | 0 mm @ 0 | 0 mm @ 9240 | 1 mm @ 18190 | 1 mm @ 0 | 1 mm |
| 2 | 0 mm @ 0 | 0 mm @ 9270 | 2 mm @ 18210 | 1 mm @ 0 | 1 mm |
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**Test Procedure:**

1. Take Benchmark reading of anchor rod.
2. Pull Anchor rod at 50% load and hold for 2 minutes. Record movement.
3. Pull Anchor rod at Full tension load and hold for 2 minutes. Record movement.
4. Release tension and record rod movement.
5. For 2 anchor configuration, the single anchor will be pulled at 50% Tension. Wait 5 minutes between pulls.

**Comments**

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR ANTAL | | Feb 20/19 |
| QC Representative | Phil McKinley | Phil McKinley | Feb 15 2019 |
| Client Inspector | S ARCHIMOWITZ | SArchi | FEB19/19 |

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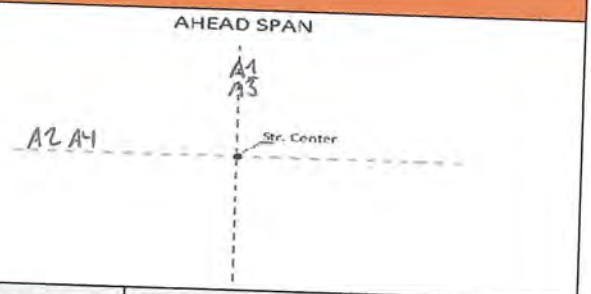
# Anchor Pull Test

| Project # | 4581 | Project Name | Eagle gold 69KV | Facility# | |
|---|---|---|---|---|---|
| Structure # | 42/7 | Structure Type | VDEHAO | | |

## Anchor Test Record

| | |
|---|---|
| Time and Date Started | January 20 2019 11:20 |
| Time and Date completed | January 20 2019 12:10 |
| Test Device | Dyna Link 2 MSI7300 |
| Operator | Excavator/Foreman |




| Anchor # | Pre-Load Benchmark | Amount of Stretch at 50% Tension | Final Reading at Full Tension | Final Reading when Tension Released | Change After Testing |
|---|---|---|---|---|---|
| 1 | 0 mm @ 0 | 0 mm @ 9020 | 2 mm @ 18230 | 2 mm @ 0 | 2 mm |
| 2 | 0 mm @ 0 | 0 mm @ 9270 | 2 mm @ 18200 | 1 mm @ 0 | 1 mm |
| 3 | 0 mm @ 0 | 0 mm @ 9240 | 2 mm @ 18260 | 2 mm @ 0 | 2 mm |
| 4 | 0 mm @ 0 | 0 mm @ 9180 | 3 mm @ 18130 | 3 mm @ 0 | 3 mm |
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**Test Procedure:**

1. Take Benchmark reading of anchor rod.
2. Pull Anchor rod at 50% load and hold for 2 minutes. Record movement.
3. Pull Anchor rod at Full tension load and hold for 2 minutes. Record movement.
4. Release tension and record rod movement.
5. For 2 anchor configuration, the single anchor will be pulled at 50% Tension. Wait 5 minutes between pulls.

**Comments**

A1,A2,A3,A4 Permafrost (log anchors)

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR ANTAC | | Jan 24/19 |
| QC Representative | Phil McKinley | Phil McKinley | Jan 23 2019 |
| Client Inspector | S. ARCHIMOWITZ | S Archimowitz | JAN 31/19 |

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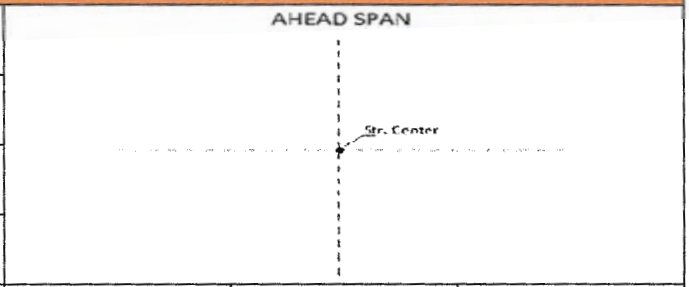
# Anchor Pull Test

| Project # | 4581 | Project Name | Eagle gold 69KV | Facility# | |
|---|---|---|---|---|---|
| Structure # | 4/5 | Structure Type | PTG | | |

## Anchor Test Record

| | |
|---|---|
| Time and Date Started | Oct 23 2018 9:30 |
| Time and Date completed | Oct 23 2018 10:00 |
| Test Device | Dyna Link 2 MSI7300 |
| Operator | Excavator/Foreman |




| Anchor # | Pre-Load Benchmark | Amount of Stretch at 50% Tension | Final Reading at Full Tension | Final Reading when Tension Released | Change After Testing |
|---|---|---|---|---|---|
| 1 | 0 mm @ 0 | 0 mm @ 9220 | 2 mm @ 18130 | 2 mm @ 0 | 2 mm |
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**Test Procedure:**

1. Take Benchmark reading of anchor rod.
2. Pull Anchor rod at 50% load and hold for 2 minutes. Record movement.
3. Pull Anchor rod at Full tension load and hold for 2 minutes. Record movement.
4. Release tension and record rod movement.
5. For 2 anchor configuration, the single anchor will be pulled at 50% Tension. Wait 5 minutes between pulls.

**Comments**

A1 Gravel ( log anchor)

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR AWTRY | | OCT 26/18 |
| QC Representative | Phil McKinley | Phil McKinley | Oct 25 2018 |
| Client Inspector | | | |

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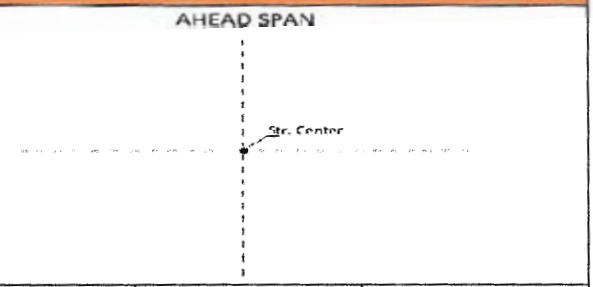
# Anchor Pull Test

| Project # | 4581 | Project Name | Eagle gold 69KV | Facility# | |
|---|---|---|---|---|---|
| Structure # | 4/8 | Structure Type | PT | | |

## Anchor Test Record

| | |
|---|---|
| Time and Date Started | Oct 23 2018 10:40 |
| Time and Date completed | Oct 23 2018 11:30 |
| Test Device | Dyna Link 2 MSI7300 |
| Operator | Excavator/Foreman |




| Anchor # | Pre-Load Benchmark | Amount of Stretch at 50% Tension | Final Reading at Full Tension | Final Reading when Tension Released | Change After Testing |
|---|---|---|---|---|---|
| 1 | 0 mm @ 0 | 0 mm @ 9190 | 3 mm @ 18240 | 1 mm @ 0 | 1 mm |
| 2 | 0 mm @ 0 | 0 mm @ 9250 | 2 mm @ 18180 | 2 mm @ 0 | 2 mm |
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**Test Procedure:**

1. Take Benchmark reading of anchor rod.
2. Pull Anchor rod at 50% load and hold for 2 minutes. Record movement.
3. Pull Anchor rod at Full tension load and hold for 2 minutes. Record movement.
4. Release tension and record rod movement.
5. For 2 anchor configuration, the single anchor will be pulled at 50% Tension. Wait 5 minutes between pulls.

**Comments**

A1,A2 Permafrost (plate anchors)

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR ANTAR | | OCT 25/18 |
| QC Representative | Phil McKinley | Phil McKinley | Oct 24 2018 |
| Client Inspector | | | |

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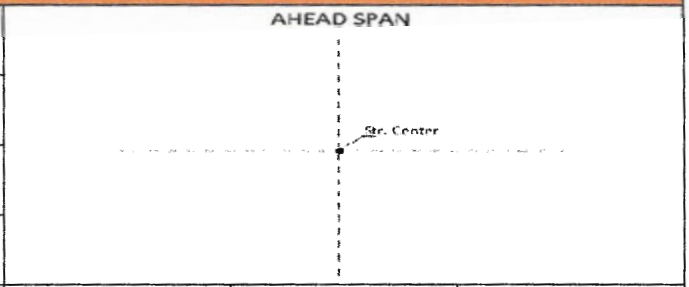
# Anchor Pull Test

| Project # | 4581 | Project Name | Eagle gold 69KV | Facility# | |
|---|---|---|---|---|---|
| Structure # | 5/1 | Structure Type | VMA | | |

## Anchor Test Record

| | |
|---|---|
| Time and Date Started | Oct 21 2018 16:20 |
| Time and Date completed | Oct 21 2018 17:00 |
| Test Device | Dyna Link 2 MSI7300 |
| Operator | Excavator/Foreman |




| Anchor # | Pre-Load Benchmark | Amount of Stretch at 50% Tension | Final Reading at Full Tension | Final Reading when Tension Released | Change After Testing |
|---|---|---|---|---|---|
| 1 | 0 mm @ 0 | 0 mm @ 9140 | 2 mm @ 18090 | 2 mm @ 0 | 2 mm |
| 2 | 0 mm @ 0 | 0 mm @ 9010 | 2 mm @ 18220 | 2 mm @ 0 | 2 mm |
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**Test Procedure:**

1. Take Benchmark reading of anchor rod.
2. Pull Anchor rod at 50% load and hold for 2 minutes. Record movement.
3. Pull Anchor rod at Full tension load and hold for 2 minutes. Record movement.
4. Release tension and record rod movement.
5. For 2 anchor configuration, the single anchor will be pulled at 50% Tension. Wait 5 minutes between pulls.

**Comments**

A1,A2 Gravel ( log anchors)

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR AWTAL | | OCT 23/18 |
| QC Representative | Phil McKinley | Phil McKinley | Oct 22 2018 |
| Client Inspector | | | |

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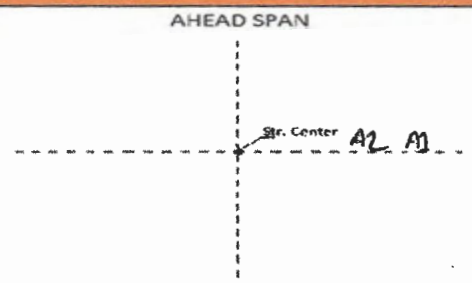
# Anchor Pull Test

| Project # | 4581 | Project Name | Eagle gold 69KV | Facility# | |
|---|---|---|---|---|---|
| Structure # | 5/10 | Structure Type | VMA | | |

## Anchor Test Record

| | |
|---|---|
| Time and Date Started | Oct 25 2018 10:40 |
| Time and Date completed | Oct 25 2018 11:25 |
| Test Device | Dyna Link 2 MSI7300 |
| Operator | Excavator/Foreman |




| Anchor # | Pre-Load Benchmark | Amount of Stretch at 50% Tension | Final Reading at Full Tension | Final Reading when Tension Released | Change After Testing |
|---|---|---|---|---|---|
| 1 | 0 mm @ 0 | 0 mm @ 9260 | 3 mm @ 18120 | 2 mm @ 0 | 2 mm |
| 2 | 0 mm @ 0 | 0 mm @ 9100 | 3 mm @ 18220 | 3 mm @ 0 | 3 mm |
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**Test Procedure:**

1. Take Benchmark reading of anchor rod.
2. Pull Anchor rod at 50% load and hold for 2 minutes. Record movement.
3. Pull Anchor rod at Full tension load and hold for 2 minutes. Record movement.
4. Release tension and record rod movement.
5. For 2 anchor configuration, the single anchor will be pulled at 50% Tension. Wait 5 minutes between pulls.

**Comments**

A1,A2 Gravel ( log anchors)

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR AWTRE | | OCT 28/18 |
| QC Representative | Phil McKinley | Phil McKinley | Oct 27 2018 |
| Client Inspector | | | |

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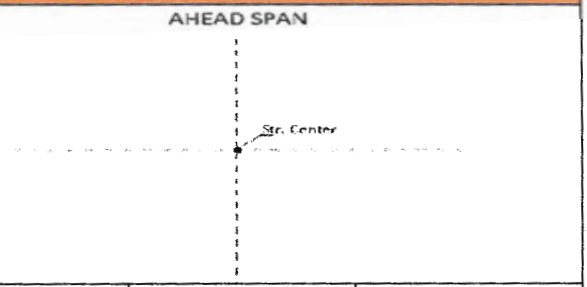
# Anchor Pull Test

| Project # | 4581 | Project Name | Eagle gold 69KV | Facility# | |
|---|---|---|---|---|---|
| Structure # | 5/2 | Structure Type | PTG | | |

## Anchor Test Record

| | |
|---|---|
| Time and Date Started | Oct 21 2018 15:00 |
| Time and Date completed | Oct 21 2018 15:30 |
| Test Device | Dyna Link 2 MSI7300 |
| Operator | Excavator/Foreman |




| Anchor # | Pre-Load Benchmark | Amount of Stretch at 50% Tension | Final Reading at Full Tension | Final Reading when Tension Released | Change After Testing |
|---|---|---|---|---|---|
| 1 | 0 mm @ 0 | 0 mm @ 9180 | 4 mm @ 18140 | 4 mm @ 0 | 4 mm |
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**Test Procedure:**

1. Take Benchmark reading of anchor rod.
2. Pull Anchor rod at 50% load and hold for 2 minutes. Record movement.
3. Pull Anchor rod at Full tension load and hold for 2 minutes. Record movement.
4. Release tension and record rod movement.
5. For 2 anchor configuration, the single anchor will be pulled at 50% Tension. Wait 5 minutes between pulls.

**Comments**

A1 Gravel ( log anchor)

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR AWOTA | | OCT 23/18 |
| QC Representative | Phil McKinley | Phil McKinley | Oct 22 2018 |
| Client Inspector | | | |

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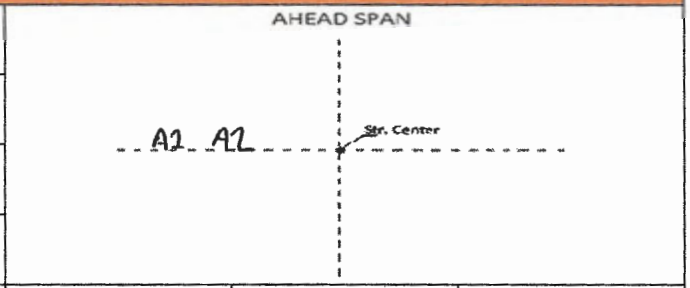
# Anchor Pull Test

| Project # | 4581 | Project Name | Eagle gold 69KV | Facility# | |
|---|---|---|---|---|---|
| Structure # | 5/3 | Structure Type | VMA | | |

## Anchor Test Record

| | |
|---|---|
| Time and Date Started | Oct 21 2018 13:15 |
| Time and Date completed | Oct 21 2018 14:00 |
| Test Device | Dyna Link 2 MSI7300 |
| Operator | Excavator/Foreman |




| Anchor # | Pre-Load Benchmark | Amount of Stretch at 50% Tension | Final Reading at Full Tension | Final Reading when Tension Released | Change After Testing |
|---|---|---|---|---|---|
| 1 | 0 mm @ 0 | 0 mm @ 9070 | 2 mm @ 18240 | 2 mm @ 0 | 2 mm |
| 2 | 0 mm @ 0 | 0 mm @ 9210 | 3 mm @ 18160 | 3 mm @ 0 | 3 mm |
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**Test Procedure:**

1. Take Benchmark reading of anchor rod.
2. Pull Anchor rod at 50% load and hold for 2 minutes. Record movement.
3. Pull Anchor rod at Full tension load and hold for 2 minutes. Record movement.
4. Release tension and record rod movement.
5. For 2 anchor configuration, the single anchor will be pulled at 50% Tension. Wait 5 minutes between pulls.

**Comments**

A1,A2 Gravel ( log anchors)

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR AWITT | | OCT 23/18 |
| QC Representative | Phil McKinley | Phil McKinley | Oct 22 2018 |
| Client Inspector | | | |

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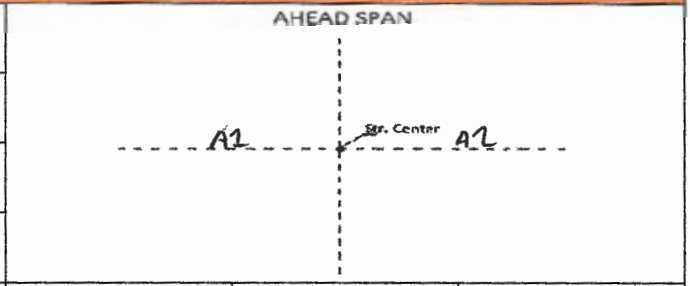
# Anchor Pull Test

| Project # | 4581 | Project Name | Eagle gold 69KV | Facility# | |
|---|---|---|---|---|---|
| Structure # | 5/4 | Structure Type | PTR | | |

## Anchor Test Record

| | |
|---|---|
| Time and Date Started | Oct 6 2018 10:00 |
| Time and Date completed | Oct 6 2018 10:45 |
| Test Device | Dyna Link 2 MSI7300 |
| Operator | Excavator/Foreman |




| Anchor # | Pre-Load Benchmark | Amount of Stretch at 50% Tension | Final Reading at Full Tension | Final Reading when Tension Released | Change After Testing |
|---|---|---|---|---|---|
| 1 | 0 mm @ 0 | 0 mm @ 9250 | 1 mm @ 18300 | 1 mm @ 0 | 1 mm |
| 2 | 0 mm @ 0 | 0 mm @ 9030 | 3 mm @ 18150 | 2 mm @ 0 | 2 mm |
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**Test Procedure:**

1. Take Benchmark reading of anchor rod.
2. Pull Anchor rod at 50% load and hold for 2 minutes. Record movement.
3. Pull Anchor rod at Full tension load and hold for 2 minutes. Record movement.
4. Release tension and record rod movement.
5. For 2 anchor configuration, the single anchor will be pulled at 50% Tension. Wait 5 minutes between pulls.

**Comments**

A1,A2 Permafrost ( plate anchors)

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR MUTAC | | OCT 8/18 |
| QC Representative | Phil McKinley | Phil McKinley | Oct 7 2018 |
| Client Inspector | | | |

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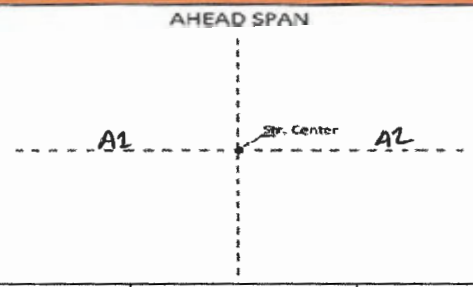
POWERLINE CONSTRUCTION

# Anchor Pull Test

| Project # | 4581 | Project Name | Eagle gold 69KV | Facility# | |
|---|---|---|---|---|---|
| Structure # | 5/5 | Structure Type | PT | | |

## Anchor Test Record

| | |
|---|---|
| Time and Date Started | Oct 6 2018 11:15 |
| Time and Date completed | Oct 6 2018 12:00 |
| Test Device | Dyna Link 2 MSI7300 |
| Operator | Excavator/Foreman |




| Anchor # | Pre-Load Benchmark | Amount of Stretch at 50% Tension | Final Reading at Full Tension | Final Reading when Tension Released | Change After Testing |
|---|---|---|---|---|---|
| 1 | 0 mm @ 0 | 0 mm @ 9280 | 2 mm @ 18110 | 2 mm @ 0 | 2 mm |
| 2 | 0 mm @ 0 | 0 @ 9240 | 2 mm @ 18240 | 2 mm @ 0 | 2 mm |
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**Test Procedure:**

1. Take Benchmark reading of anchor rod.
2. Pull Anchor rod at 50% load and hold for 2 minutes. Record movement.
3. Pull Anchor rod at Full tension load and hold for 2 minutes. Record movement.
4. Release tension and record rod movement.
5. For 2 anchor configuration, the single anchor will be pulled at 50% Tension. Wait 5 minutes between pulls.

**Comments**

A1,A2 Permafrost ( plate anchors)

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR KNIAC | | OCT 8/18 |
| QC Representative | Phil McKinley | Phil McKinley | Oct 7 2018 |
| Client Inspector | | | |

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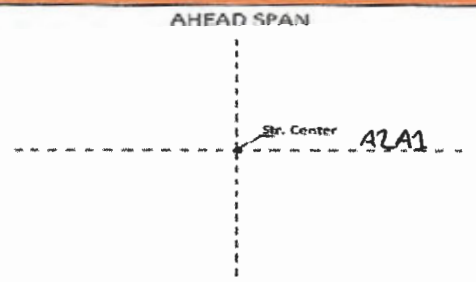
POWERLINE CONSTRUCTION

# Anchor Pull Test

| Project # | 4581 | Project Name | Eagle gold 69KV | Facility# | |
|---|---|---|---|---|---|
| Structure # | 5/8 | Structure Type | VMA | | |

## Anchor Test Record

| | |
|---|---|
| Time and Date Started | Oct 25 2018 8:20 |
| Time and Date completed | Oct 25 2018 8:50 |
| Test Device | Dyna Link 2 MSI7300 |
| Operator | Excavator/Foreman |




| Anchor # | Pre-Load Benchmark | Amount of Stretch at 50% Tension | Final Reading at Full Tension | Final Reading when Tension Released | Change After Testing |
|---|---|---|---|---|---|
| 1 | 0 mm @ 0 | 0 mm @ 9140 | 1 mm @ 18220 | 1 mm @ 0 | 1 mm |
| 2 | 0 mm @ 0 | 0 mm @ 9090 | 3 mm @ 18140 | 3 mm @ 0 | 3 mm |
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**Test Procedure:**

1. Take Benchmark reading of anchor rod.
2. Pull Anchor rod at 50% load and hold for 2 minutes. Record movement.
3. Pull Anchor rod at Full tension load and hold for 2 minutes. Record movement.
4. Release tension and record rod movement.
5. For 2 anchor configuration, the single anchor will be pulled at 50% Tension. Wait 5 minutes between pulls.

**Comments**

A1,A2 Gravel ( log anchors)

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR AWTAC | | OCT 28/18 |
| QC Representative | Phil McKinley | Phil McKinley | Oct 27 2018 |
| Client Inspector | | | |

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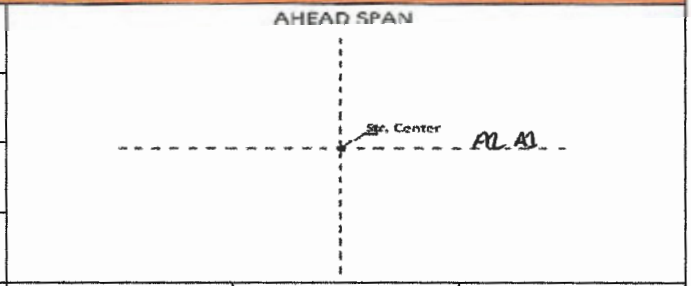
POWERLINE CONSTRUCTION

# Anchor Pull Test

| Project # | 4581 | Project Name | Eagle gold 69KV | Facility# | |
|---|---|---|---|---|---|
| Structure # | 5/9 | Structure Type | VMA | | |

## Anchor Test Record

| | |
|---|---|
| Time and Date Started | Oct 25 2018 9:20 |
| Time and Date completed | Oct 25 2018 10:10 |
| Test Device | Dyna Link 2 MSI7300 |
| Operator | Excavator/Foreman |




| Anchor # | Pre-Load Benchmark | Amount of Stretch at 50% Tension | Final Reading at Full Tension | Final Reading when Tension Released | Change After Testing |
|---|---|---|---|---|---|
| 1 | 0 mm @ 0 | 0 mm @ 9220 | 2 mm @ 18180 | 2 mm @ 0 | 2 mm |
| 2 | 0 mm @ 0 | 0 mm @ 9150 | 2 mm @ 18270 | 2 mm @ 0 | 2 mm |
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**Test Procedure:**

1. Take Benchmark reading of anchor rod.
2. Pull Anchor rod at 50% load and hold for 2 minutes. Record movement.
3. Pull Anchor rod at Full tension load and hold for 2 minutes. Record movement.
4. Release tension and record rod movement.
5. For 2 anchor configuration, the single anchor will be pulled at 50% Tension. Wait 5 minutes between pulls.

**Comments**

A1,A2 Gravel ( log anchors)

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR ANTYR | | OCT 28/18 |
| QC Representative | Phil McKinley | Phil McKinley | Oct 27 2018 |
| Client Inspector | | | |

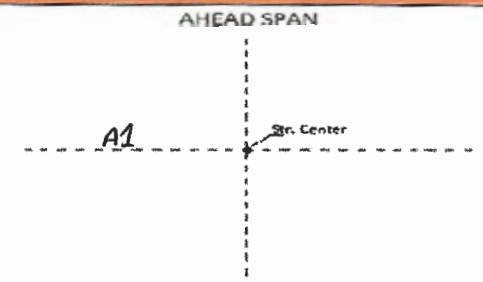
Forbes Bros LTD
POWERLINE CONSTRUCTION

# Anchor Pull Test

| Project # | 4581 | Project Name | Eagle gold 69KV | Facility# | |
|---|---|---|---|---|---|
| Structure # | 6/11 | Structure Type | PTG | | |

## Anchor Test Record

| | |
|---|---|
| Time and Date Started | Oct 25 2018 13:30 |
| Time and Date completed | Oct 25 2018 14:00 |
| Test Device | Dyna Link 2 MSI7300 |
| Operator | Excavator/Foreman |




| Anchor # | Pre-Load Benchmark | Amount of Stretch at 50% Tension | Final Reading at Full Tension | Final Reading when Tension Released | Change After Testing |
|---|---|---|---|---|---|
| 1 | 0 mm @ 0 | 0 mm @ 9150 | 1 mm @ 18220 | 1mm @ 0 | 1 mm |
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**Test Procedure:**

1. Take Benchmark reading of anchor rod.
2. Pull Anchor rod at 50% load and hold for 2 minutes. Record movement.
3. Pull Anchor rod at Full tension load and hold for 2 minutes. Record movement.
4. Release tension and record rod movement.
5. For 2 anchor configuration, the single anchor will be pulled at 50% Tension. Wait 5 minutes between pulls.

**Comments**

A1 Gravel ( log anchor)

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR AWTA | | OCT 28/18 |
| QC Representative | Phil McKinley | Phil McKinley | Oct 27 2018 |
| Client Inspector | | | |

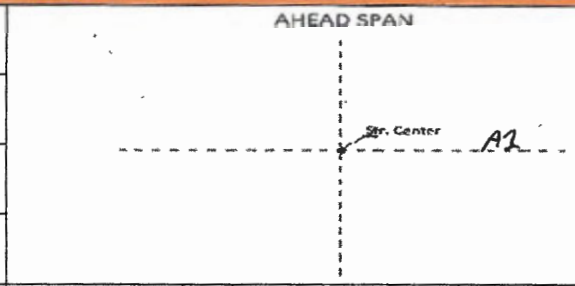
Forbes Bros LTD
POWERLINE CONSTRUCTION

# Anchor Pull Test

| Project # | 4581 | Project Name | Eagle gold 69KV | Facility# | |
|---|---|---|---|---|---|
| Structure # | 6/4 | Structure Type | PTG | | |

## Anchor Test Record

| | |
|---|---|
| Time and Date Started | Nov 16 2018 11:30 |
| Time and Date completed | Nov 16 2018 12:00 |
| Test Device | Dyna Link 2 MSI7300 |
| Operator | Excavator/Foreman |




| Anchor # | Pre-Load Benchmark | Amount of Stretch at 50% Tension | Final Reading at Full Tension | Final Reading when Tension Released | Change After Testing |
|---|---|---|---|---|---|
| 1 | 0 mm @ 0 | 0 mm @ 9270 | 2 mm @ 18180 | 2 mm @ 0 | 2 mm |
| | | | | | |
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**Test Procedure:**

1. Take Benchmark reading of anchor rod.
2. Pull Anchor rod at 50% load and hold for 2 minutes. Record movement.
3. Pull Anchor rod at Full tension load and hold for 2 minutes. Record movement.
4. Release tension and record rod movement.
5. For 2 anchor configuration, the single anchor will be pulled at 50% Tension. Wait 5 minutes between pulls.

**Comments**

A1 Gravel ( log anchor )

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR SMITH | | NOV 17/18 |
| QC Representative | Phil McKinley | Phil McK | Nov 17 2018 |
| Client Inspector | | | |

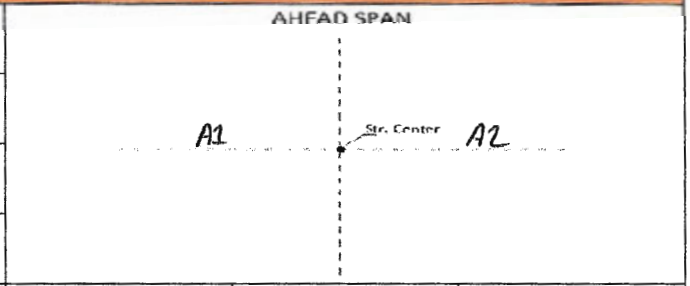
Forbes Bros LTD
POWERLINE CONSTRUCTION

# Anchor Pull Test

| Project # | 4581 | Project Name | Eagle gold 69KV | Facility# | |
|---|---|---|---|---|---|
| Structure # | 7/10 | Structure Type | PT | | |

## Anchor Test Record

| | |
|---|---|
| Time and Date Started | Oct 4 2018 9:00 |
| Time and Date completed | Oct 4 2018 9:45 |
| Test Device | Dyna Link 2 MSI7300 |
| Operator | Excavator/Foreman |




| Anchor # | Pre-Load Benchmark | Amount of Stretch at 50% Tension | Final Reading at Full Tension | Final Reading when Tension Released | Change After Testing |
|---|---|---|---|---|---|
| 1 | 0 mm @ 0 | 0 mm @ 9230 | 2 mm @ 18180 | 2 mm @ 0 | 2 |
| 2 | 0 mm @ 0 | 0 mm @ 9060 | 3 mm @ 18250 | 3 mm @ 0 | 3 |
| | | | | | |
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**Test Procedure:**

1. Take Benchmark reading of anchor rod.
2. Pull Anchor rod at 50% load and hold for 2 minutes. Record movement.
3. Pull Anchor rod at Full tension load and hold for 2 minutes. Record movement.
4. Release tension and record rod movement.
5. For 2 anchor configuration, the single anchor will be pulled at 50% Tension. Wait 5 minutes between pulls.

**Comments**

A1,A2 Permafrost ( plate anchors)

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR ANTAL | | OCT 7/18 |
| QC Representative | Phil McKinley | Phil McKinley | Oct 6 2018 |
| Client Inspector | | | |

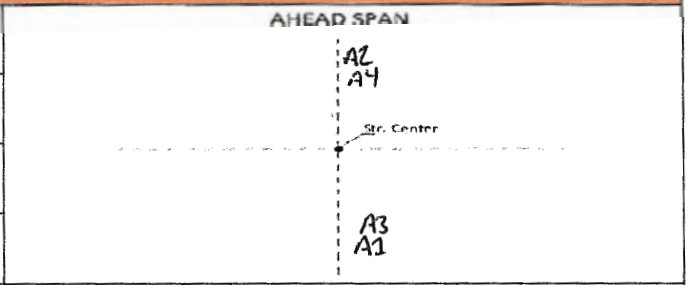
Forbes Bros LTD
POWERLINE CONSTRUCTION

# Anchor Pull Test

| Project # | 4581 | Project Name | Eagle gold 69KV | Facility# | |
|---|---|---|---|---|---|
| Structure # | 7/12 | Structure Type | VDEMA | | |

## Anchor Test Record

| | |
|---|---|
| Time and Date Started | Nov 2 2018 15:00 |
| Time and Date completed | Nov 2 2018 16:30 |
| Test Device | Dyna Link 2 MSI7300 |
| Operator | Excavator/Foreman |




| Anchor # | Pre-Load Benchmark | Amount of Stretch at 50% Tension | Final Reading at Full Tension | Final Reading when Tension Released | Change After Testing |
|---|---|---|---|---|---|
| 1 | 0 mm @ 0 | 0 mm @ 9170 | 2 mm @ 18240 | 2 mm @ 0 | 2 mm |
| 2 | 0 mm @ 0 | 0 mm @ 9040 | 4 mm @ 18290 | 4 mm @ 0 | 4 mm |
| 3 | 0 mm @ 0 | 0 mm @ 9200 | 2 mm @ 18130 | 2 mm @ 0 | 2 mm |
| 4 | 0 mm @ 0 | 0 mm @ 9120 | 3 mm @ 18180 | 3 mm @ 0 | 3 mm |
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**Test Procedure:**

1. Take Benchmark reading of anchor rod.
2. Pull Anchor rod at 50% load and hold for 2 minutes. Record movement.
3. Pull Anchor rod at Full tension load and hold for 2 minutes. Record movement.
4. Release tension and record rod movement.
5. For 2 anchor configuration, the single anchor will be pulled at 50% Tension. Wait 5 minutes between pulls.

**Comments**

A1,A2,A3,A4 Gravel ( log anchors)

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR AUTAC | | Nov 4/18 |
| QC Representative | Phil McKinley | Phil McKinley | Nov 3 2018 |
| Client Inspector | | | |

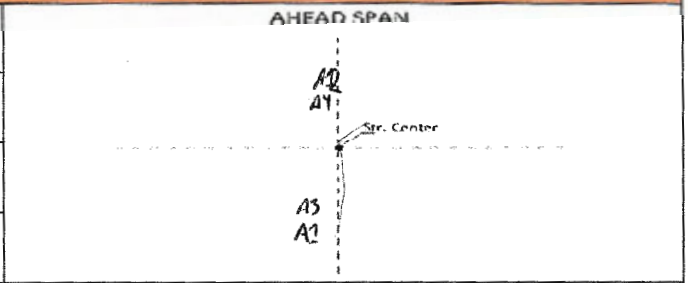
Forbes Bros LTD
POWERLINE CONSTRUCTION

# Anchor Pull Test

| Project # | 4581 | Project Name | Eagle gold 69KV | Facility# | |
|---|---|---|---|---|---|
| Structure # | 7/2 | Structure Type | VDEHA | | |

## Anchor Test Record

| | |
|---|---|
| Time and Date Started | Oct 25 2018 15:15 |
| Time and Date completed | Oct 25 2018 17:00 |
| Test Device | Dyna Link 2 MSI7300 |
| Operator | Excavator/Foreman |




| Anchor # | Pre-Load Benchmark | Amount of Stretch at 50% Tension | Final Reading at Full Tension | Final Reading when Tension Released | Change After Testing |
|---|---|---|---|---|---|
| 1 | 0 mm @ 0 | 0 mm @ 9150 | 3 mm @ 18280 | 3 mm @ 0 | 3 mm |
| 2 | 0 mm @ 0 | 0 mm @ 9040 | 2 mm @ 18140 | 2 mm @ 0 | 2 mm |
| 3 | 0 mm @ 0 | 0 mm @ 9170 | 3 mm @ 18220 | 2 mm @ 0 | 2 mm |
| 4 | 0 mm @ 0 | 0 mm @ 9110 | 3 mm @ 18080 | 2 mm @ 0 | 2 mm |
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**Test Procedure:**

1. Take Benchmark reading of anchor rod.
2. Pull Anchor rod at 50% load and hold for 2 minutes. Record movement.
3. Pull Anchor rod at Full tension load and hold for 2 minutes. Record movement.
4. Release tension and record rod movement.
5. For 2 anchor configuration, the single anchor will be pulled at 50% Tension. Wait 5 minutes between pulls.

**Comments**

A1, A2, A3, A4 Gravel (log anchors)

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR ANTAL | | OCT 22/18 |
| QC Representative | Phil McKinley | Phil McKinley | Oct 27 2018 |
| Client Inspector | | | |

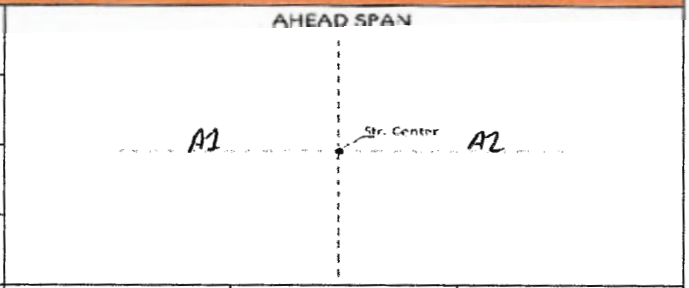
Forbes Bros LTD
POWERLINE CONSTRUCTION

# Anchor Pull Test

| Project # | 4581 | Project Name | Eagle gold 69KV | Facility# | |
|---|---|---|---|---|---|
| Structure # | 7/4 | Structure Type | SAH | | |

## Anchor Test Record

| | |
|---|---|
| Time and Date Started | Oct 26 2018 7:30 |
| Time and Date completed | Oct 26 2018 8:00 |
| Test Device | Dyna Link 2 MSI7300 |
| Operator | Excavator/Foreman |




| Anchor # | Pre-Load Benchmark | Amount of Stretch at 50% Tension | Final Reading at Full Tension | Final Reading when Tension Released | Change After Testing |
|---|---|---|---|---|---|
| 1 | 0 mm @ 0 | 0 mm @ 9280 | 2 mm @ 18180 | 2 mm @ 0 | 2 mm |
| 2 | 0 mm @ 0 | 0 mm @ 9150 | 4 mm @ 18220 | 4 mm @ 0 | 4 mm |
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**Test Procedure:**

1. Take Benchmark reading of anchor rod.
2. Pull Anchor rod at 50% load and hold for 2 minutes. Record movement.
3. Pull Anchor rod at Full tension load and hold for 2 minutes. Record movement.
4. Release tension and record rod movement.
5. For 2 anchor configuration, the single anchor will be pulled at 50% Tension. Wait 5 minutes between pulls.

**Comments**

A1,A2 Permafrost ( plate anchors)

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR ANTAC | | OCT 27/18 |
| QC Representative | Phil McKinley | Phil McKinley | Oct 27 2018 |
| Client Inspector | | | |

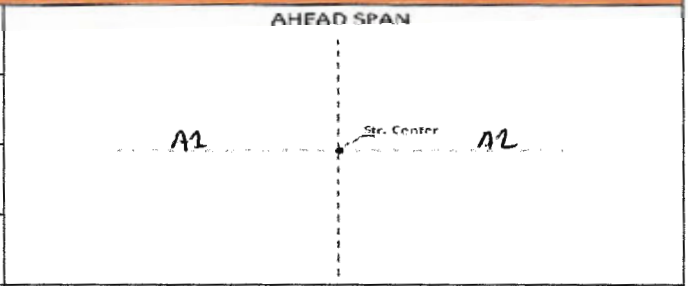
Forbes Bros LTD
POWERLINE CONSTRUCTION

# Anchor Pull Test

| Project # | 4581 | Project Name | Eagle gold 69KV | Facility# | |
|---|---|---|---|---|---|
| Structure # | 7/5 | Structure Type | PT | | |

## Anchor Test Record

| | |
|---|---|
| Time and Date Started | Oct 30 2018 14:20 |
| Time and Date completed | Oct 30 2018 15:10 |
| Test Device | Dyna Link 2 MSI7300 |
| Operator | Excavator/Foreman |




| Anchor # | Pre-Load Benchmark | Amount of Stretch at 50% Tension | Final Reading at Full Tension | Final Reading when Tension Released | Change After Testing |
|---|---|---|---|---|---|
| 1 | 0 mm @ 0 | 0 mm @ 9270 | 2 mm @ 18120 | 2 mm @ 0 | 2 mm |
| 2 | 0 mm @ 0 | 0mm @ 9280 | 1 mm @ 18220 | 1 mm @ 0 | 1 mm |
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**Test Procedure:**

1. Take Benchmark reading of anchor rod.
2. Pull Anchor rod at 50% load and hold for 2 minutes. Record movement.
3. Pull Anchor rod at Full tension load and hold for 2 minutes. Record movement.
4. Release tension and record rod movement.
5. For 2 anchor configuration, the single anchor will be pulled at 50% Tension. Wait 5 minutes between pulls.

**Comments**

A1,A2 Permafrost ( plate anchors)

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR ANTAC | | OCT 30/18 |
| QC Representative | Phil McKinley | Phil McKinley | Oct 29 2018 |
| Client Inspector | | | |

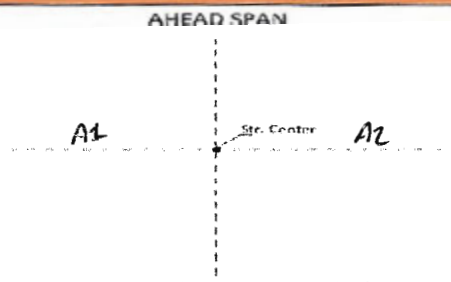
Forbes Bros LTD
POWERLINE CONSTRUCTION

# Anchor Pull Test

| Project # | 4581 | Project Name | Eagle gold 69KV | Facility# | |
|---|---|---|---|---|---|
| Structure # | 7/6 | Structure Type | PT | | |

## Anchor Test Record

| | |
|---|---|
| Time and Date Started | Nov 4 2018 9:30 |
| Time and Date completed | Nov 4 2018 10:00 |
| Test Device | Dyna Link 2 MSI7300 |
| Operator | Excavator/Foreman |




| Anchor # | Pre-Load Benchmark | Amount of Stretch at 50% Tension | Final Reading at Full Tension | Final Reading when Tension Released | Change After Testing |
|---|---|---|---|---|---|
| 1 | 0 mm @ 0 | 0 mm @ 9240 | 0 mm @ 18160 | 0 mm @ 0 | 0 |
| 2 | 0 mm @ 0 | 0 mm @ 9200 | 2 mm @ 18280 | 2 mm @ 0 | 2 mm |
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**Test Procedure:**

1. Take Benchmark reading of anchor rod.
2. Pull Anchor rod at 50% load and hold for 2 minutes. Record movement.
3. Pull Anchor rod at Full tension load and hold for 2 minutes. Record movement.
4. Release tension and record rod movement.
5. For 2 anchor configuration, the single anchor will be pulled at 50% Tension. Wait 5 minutes between pulls.

**Comments**

A1,A2 Permafrost ( plate anchors)

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR ANTYPAS | | Nov 6/18 |
| QC Representative | Phil McKinley | Phil McKinley | Nov 5 2018 |
| Client Inspector | | | |

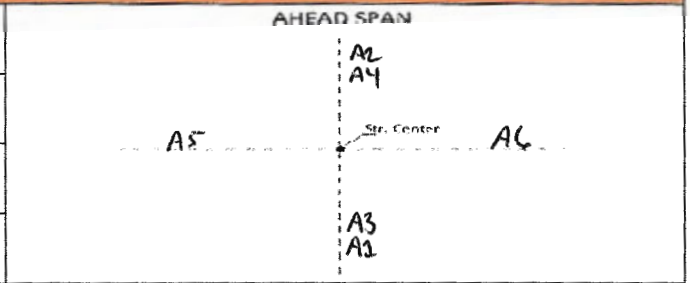
Forbes Bros LTD
POWERLINE CONSTRUCTION

# Anchor Pull Test

| Project # | 4581 | Project Name | Eagle gold 69KV | Facility# | |
|---|---|---|---|---|---|
| Structure # | 7/7 | Structure Type | FDE | | |

## Anchor Test Record

| | |
|---|---|
| Time and Date Started | Nov 4 2018 10:30 |
| Time and Date completed | Nov 4 2018 12:15 |
| Test Device | Dyna Link 2 MSI7300 |
| Operator | Excavator/Foreman |




| Anchor # | Pre-Load Benchmark | Amount of Stretch at 50% Tension | Final Reading at Full Tension | Final Reading when Tension Released | Change After Testing |
|---|---|---|---|---|---|
| 1 | 0 mm @ 0 | 0 mm @ 9240 | 3 mm @ 18040 | 3 mm @ 0 | 3 mm |
| 2 | 0 mm @ 0 | 0 mm @ 9260 | 3 mm @ 18270 | 3 mm @ 0 | 3 mm |
| 3 | 0 mm @ 0 | 0 mm @ 9170 | 4 mm @ 18120 | 4 mm @ 0 | 4 mm |
| 4 | 0 mm @ 0 | 0mm @ 9210 | 3 mm @ 18280 | 3 mm @ 0 | 3 mm |
| 5 | 0 mm @ 0 | 0 mm @ 9110 | 2 mm @ 18220 | 2 mm @ 0 | 2 mm |
| 6 | 0 mm @ 0 | 0 mm @ 9260 | 3 mm @ 18260 | 3 mm @ 0 | 3 mm |
| | | | | | |
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**Test Procedure:**

1. Take Benchmark reading of anchor rod.
2. Pull Anchor rod at 50% load and hold for 2 minutes. Record movement.
3. Pull Anchor rod at Full tension load and hold for 2 minutes. Record movement.
4. Release tension and record rod movement.
5. For 2 anchor configuration, the single anchor will be pulled at 50% Tension. Wait 5 minutes between pulls.

**Comments**

A1,A2,A3,A4,A5,A6 Permafrost ( log anchors)

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR ANTAC | | Nov 6/18 |
| QC Representative | Phil McKinley | Phil McKinley | Nov 5 2018 |
| Client Inspector | | | |

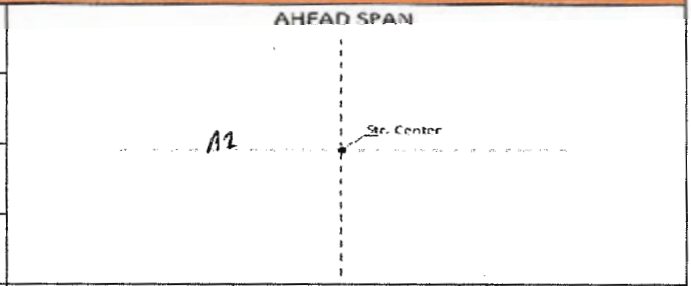
Forbes Bros LTD
POWERLINE CONSTRUCTION

# Anchor Pull Test

| Project # | 4581 | Project Name | Eagle gold 69KV | Facility# | |
|---|---|---|---|---|---|
| Structure # | 8/10 | Structure Type | PTG | | |

## Anchor Test Record

| | |
|---|---|
| Time and Date Started | Nov 5 2018 13:30 |
| Time and Date completed | Nov 5 2018 13:45 |
| Test Device | Dyna Link 2 MSI7300 |
| Operator | Excavator/Foreman |




| Anchor # | Pre-Load Benchmark | Amount of Stretch at 50% Tension | Final Reading at Full Tension | Final Reading when Tension Released | Change After Testing |
|---|---|---|---|---|---|
| 1 | 0 mm @ 0 | 0 mm @ 9050 | 3 mm @ 18170 | 3 mm @ 0 | 3 mm |
| | | | | | |
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| | | | | | |
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**Test Procedure:**

1. Take Benchmark reading of anchor rod.
2. Pull Anchor rod at 50% load and hold for 2 minutes. Record movement.
3. Pull Anchor rod at Full tension load and hold for 2 minutes. Record movement.
4. Release tension and record rod movement.
5. For 2 anchor configuration, the single anchor will be pulled at 50% Tension. Wait 5 minutes between pulls.

**Comments**

A1 Gravel ( log anchor)

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR ANTAL | | Nov 7/18 |
| QC Representative | Phil McKinley | Phil McKinley | Nov 6 2018 |
| Client Inspector | | | |

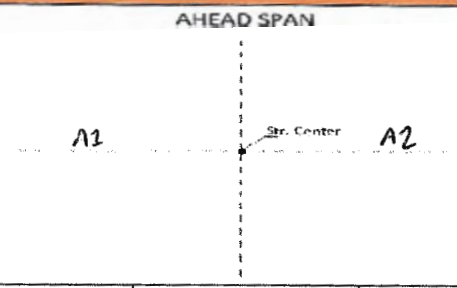
Forbes Bros LTD
POWERLINE CONSTRUCTION

# Anchor Pull Test

| Project # | 4581 | Project Name | Eagle gold 69KV | Facility# | |
|---|---|---|---|---|---|
| Structure # | 8/3 | Structure Type | PT | | |

## Anchor Test Record

| | |
|---|---|
| Time and Date Started | Nov 5 2018 8:30 |
| Time and Date completed | Nov 5 2018 9:00 |
| Test Device | Dyna Link 2 MSI7300 |
| Operator | Excavator/Foreman |




| Anchor # | Pre-Load Benchmark | Amount of Stretch at 50% Tension | Final Reading at Full Tension | Final Reading when Tension Released | Change After Testing |
|---|---|---|---|---|---|
| 1 | 0 mm @ 0 | 0 mm @ 9230 | 2mm @ 18270 | 2mm @ 0 | 2mm |
| 2 | 0 mm @ 0 | 0 mm @ 9150 | 2 mm @ 18100 | 1 mm @ 0 | 1mm |
| | | | | | |
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**Test Procedure:**

1. Take Benchmark reading of anchor rod.
2. Pull Anchor rod at 50% load and hold for 2 minutes. Record movement.
3. Pull Anchor rod at Full tension load and hold for 2 minutes. Record movement.
4. Release tension and record rod movement.
5. For 2 anchor configuration, the single anchor will be pulled at 50% Tension. Wait 5 minutes between pulls.

**Comments**

A1,A2 Permafrost ( plate anchors )

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR ANTAC | | Nov 7/18 |
| QC Representative | Phil McKinley | Phil McKinley | Nov 6 2018 |
| Client Inspector | | | |

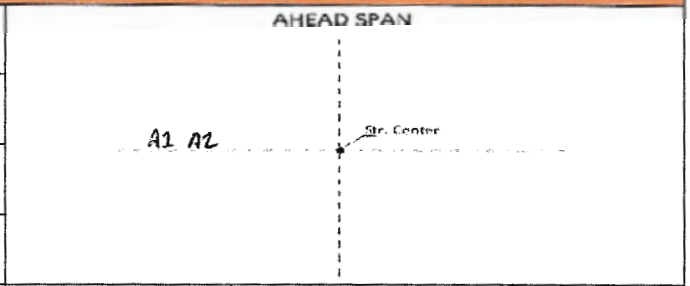
Forbes Bros LTD
POWERLINE CONSTRUCTION

# Anchor Pull Test

| Project # | 4581 | Project Name | Eagle gold 69KV | Facility# | |
|---|---|---|---|---|---|
| Structure # | 8/5 | Structure Type | VMA | | |

## Anchor Test Record

| | |
|---|---|
| Time and Date Started | Nov 5 2018 10:30 |
| Time and Date completed | Nov 5 2018 11:00 |
| Test Device | Dyna Link 2 MSI7300 |
| Operator | Excavator/Foreman |




| Anchor # | Pre-Load Benchmark | Amount of Stretch at 50% Tension | Final Reading at Full Tension | Final Reading when Tension Released | Change After Testing |
|---|---|---|---|---|---|
| 1 | 0 mm @ 0 | 0 mm @ 9260 | 2 mm @ 18150 | 2 mm @ 0 | 2 mm |
| 2 | 0 mm @ 0 | 0 mm @ 9220 | 3 mm @ 18080 | 3 mm @ 0 | 3 mm |
| | | | | | |
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**Test Procedure:**

1. Take Benchmark reading of anchor rod.
2. Pull Anchor rod at 50% load and hold for 2 minutes. Record movement.
3. Pull Anchor rod at Full tension load and hold for 2 minutes. Record movement.
4. Release tension and record rod movement.
5. For 2 anchor configuration, the single anchor will be pulled at 50% Tension. Wait 5 minutes between pulls.

**Comments**

A1,A2 Sand ( log anchors)

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR ANTAC | | Nov 7/18 |
| QC Representative | Phil McKinley | Phil McKinley | Nov 6 2018 |
| Client Inspector | | | |

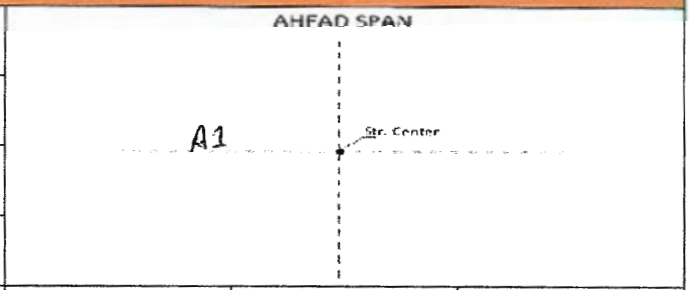
Forbes Bros LTD
POWERLINE CONSTRUCTION

# Anchor Pull Test

| Project # | 4581 | Project Name | Eagle gold 69KV | Facility# | |
|---|---|---|---|---|---|
| Structure # | 8/6 | Structure Type | PTG | | |

## Anchor Test Record

| | |
|---|---|
| Time and Date Started | Nov 5 2018 11:30 |
| Time and Date completed | Nov 5 2018 12:00 |
| Test Device | Dyna Link 2 MSI7300 |
| Operator | Excavator/Foreman |




| Anchor # | Pre-Load Benchmark | Amount of Stretch at 50% Tension | Final Reading at Full Tension | Final Reading when Tension Released | Change After Testing |
|---|---|---|---|---|---|
| 1 | 0 mm @ 0 | 0 mm @ 9270 | 3 mm @ 18180 | 2 mm @ 0 | 2 mm |
| | | | | | |
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**Test Procedure:**

1. Take Benchmark reading of anchor rod.
2. Pull Anchor rod at 50% load and hold for 2 minutes. Record movement.
3. Pull Anchor rod at Full tension load and hold for 2 minutes. Record movement.
4. Release tension and record rod movement.
5. For 2 anchor configuration, the single anchor will be pulled at 50% Tension. Wait 5 minutes between pulls.

**Comments**

A1 Permafrost ( log anchor)

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR AWTAC | | Nov 7/18 |
| QC Representative | Phil McKinley | Phil McKinley | Nov 6 2018 |
| Client Inspector | | | |

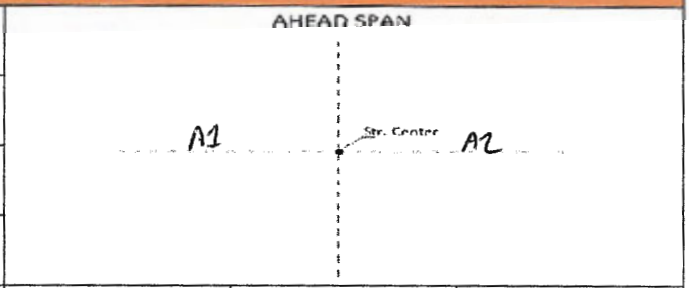
Forbes Bros LTD
POWERLINE CONSTRUCTION

# Anchor Pull Test

| Project # | 4581 | Project Name | Eagle gold 69KV | Facility# | |
|---|---|---|---|---|---|
| Structure # | 8/7 | Structure Type | PT | | |

## Anchor Test Record

| | |
|---|---|
| Time and Date Started | Oct 2 2018 13:40 |
| Time and Date completed | Oct 2 2018 14:30 |
| Test Device | Dyna Link 2 MSI7300 |
| Operator | Excavator/Foreman |




| Anchor # | Pre-Load Benchmark | Amount of Stretch at 50% Tension | Final Reading at Full Tension | Final Reading when Tension Released | Change After Testing |
|---|---|---|---|---|---|
| ~~1~~ | ~~0 mm @ 0~~ | ~~0 mm @ 9150~~ | ~~1 mm @ 18090~~ | ~~1 mm @ 0~~ | ~~1 mm~~ |
| 2 | 0 mm @ 0 | 0 mm @ 9230 | 3 mm @ 18270 | 3 mm @ 0 | 3 mm |
| | | | | | |
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See Page 2

**Test Procedure:**

1. Take Benchmark reading of anchor rod.
2. Pull Anchor rod at 50% load and hold for 2 minutes. Record movement.
3. Pull Anchor rod at Full tension load and hold for 2 minutes. Record movement.
4. Release tension and record rod movement.
5. For 2 anchor configuration, the single anchor will be pulled at 50% Tension. Wait 5 minutes between pulls.

**Comments**

A1,A2 Permafrost ( plate anchors)

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR ANTAL | | OCT 4/18 |
| QC Representative | Phil McKinley | Phil McKinley | Oct 3 2018 |
| Client Inspector | | | |

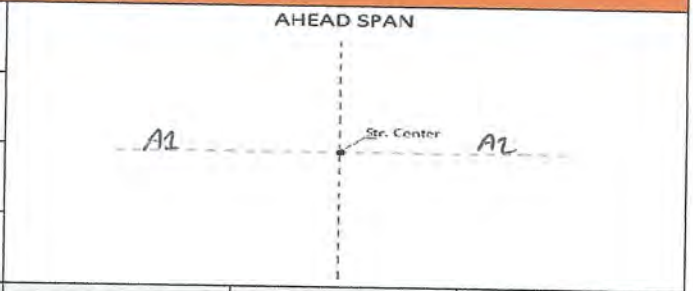
Forbes Bros LTD
POWERLINE CONSTRUCTION

# Anchor Pull Test

| Project # | 4581 | Project Name | Eagle gold 69 KV | Facility# | |
|---|---|---|---|---|---|
| Structure # | 8/7 | Structure Type | PT | | |

## Anchor Test Record

| | |
|---|---|
| Time and Date Started | February 25 2019 10:20 |
| Time and Date completed | February 25 2019 10:30 |
| Test Device | Dyna Link 2 MSI7300 |
| Operator | Excavator/Foreman |




| Anchor # | Pre-Load Benchmark | Amount of Stretch at 50% Tension | Final Reading at Full Tension | Final Reading when Tension Released | Change After Testing |
|---|---|---|---|---|---|
| 1 | 0 mm @ 0 | 0 mm @ 9250 | 1 mm @ 18160 | 1 mm @ 0 | 1 mm |
| | | | | | |
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**Test Procedure:**

1. Take Benchmark reading of anchor rod.
2. Pull Anchor rod at 50% load and hold for 2 minutes. Record movement.
3. Pull Anchor rod at Full tension load and hold for 2 minutes. Record movement.
4. Release tension and record rod movement.
5. For 2 anchor configuration, the single anchor will be pulled at 50% Tension. Wait 5 minutes between pulls.

**Comments**

Anchor was moved in 1.5 m closer to the pole from road

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR ANTAL | | FEB 26/2019 |
| QC Representative | Phil McKinley | Phil McKinley | Feb 26 2019 |
| Client Inspector | Matt C | | Feb 25, 19 |

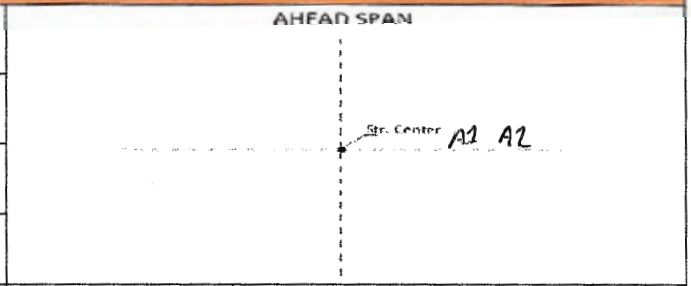
Forbes Bros LTD
POWERLINE CONSTRUCTION

# Anchor Pull Test

| Project # | 4581 | Project Name | Eagle gold 69KV | Facility# | |
|---|---|---|---|---|---|
| Structure # | 9/1 | Structure Type | VMA | | |

## Anchor Test Record

| | |
|---|---|
| Time and Date Started | Nov 5 2018 14:30 |
| Time and Date completed | Nov 5 2018 15:15 |
| Test Device | Dyna Link 2 MSI7300 |
| Operator | Excavator/Foreman |




| Anchor # | Pre-Load Benchmark | Amount of Stretch at 50% Tension | Final Reading at Full Tension | Final Reading when Tension Released | Change After Testing |
|---|---|---|---|---|---|
| 1 | 0 mm @ 0 | 0 mm @ 9240 | 4 mm @ 18170 | 4 mm @ 0 | 4 mm |
| 2 | 0 mm @ 0 | 0 mm @ 9070 | 2 mm @ 18220 | 2 mm @ 0 | 2 mm |
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**Test Procedure:**

1. Take Benchmark reading of anchor rod.
2. Pull Anchor rod at 50% load and hold for 2 minutes. Record movement.
3. Pull Anchor rod at Full tension load and hold for 2 minutes. Record movement.
4. Release tension and record rod movement.
5. For 2 anchor configuration, the single anchor will be pulled at 50% Tension. Wait 5 minutes between pulls.

**Comments**

A1,A2 Gravel ( log anchors)

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR AWTAC | | Nov 7/18 |
| QC Representative | Phil McKinley | Phil McKinley | Nov 6 2018 |
| Client Inspector | | | |

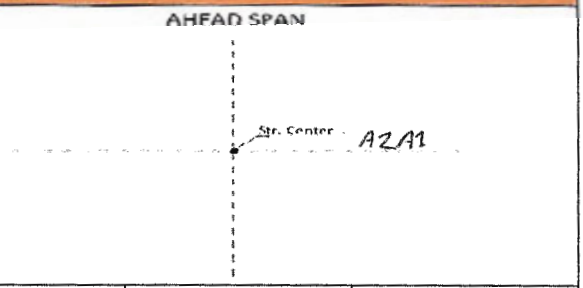
Forbes Bros LTD
POWERLINE CONSTRUCTION

# Anchor Pull Test

| Project # | 4581 | Project Name | Eagle gold 69KV | Facility# | |
|---|---|---|---|---|---|
| Structure # | 9/10 | Structure Type | VMA | | |

## Anchor Test Record

| | |
|---|---|
| Time and Date Started | Nov 6 2018 7:15 |
| Time and Date completed | Nov 6 2018 7:45 |
| Test Device | Dyna Link 2 MSI7300 |
| Operator | Excavator/Foreman |




| Anchor # | Pre-Load Benchmark | Amount of Stretch at 50% Tension | Final Reading at Full Tension | Final Reading when Tension Released | Change After Testing |
|---|---|---|---|---|---|
| 1 | 0 mm @ 0 | 0 mm @ 9140 | 2 mm @ 18270 | 2 mm @ 0 | 2 mm |
| 2 | 0 mm @ 0 | 0 mm @ 9050 | 2 mm @ 18140 | 2 mm @ 0 | 2 mm |
| | | | | | |
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**Test Procedure:**

1. Take Benchmark reading of anchor rod.
2. Pull Anchor rod at 50% load and hold for 2 minutes. Record movement.
3. Pull Anchor rod at Full tension load and hold for 2 minutes. Record movement.
4. Release tension and record rod movement.
5. For 2 anchor configuration, the single anchor will be pulled at 50% Tension. Wait 5 minutes between pulls.

**Comments**

A1,A2 Gravel ( log anchors)

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR AUTAE | | NOV 8/18 |
| QC Representative | Phil McKinley | Phil McKinley | Nov 7 2018 |
| Client Inspector | | | |

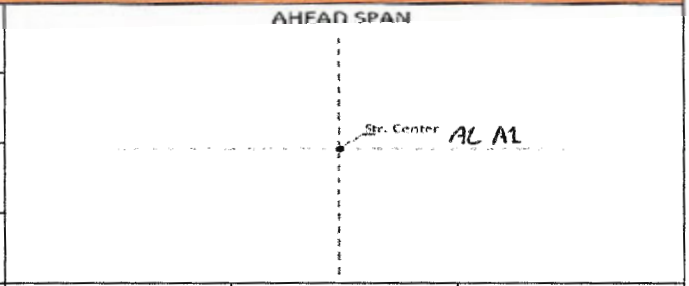
Forbes Bros LTD
POWERLINE CONSTRUCTION

# Anchor Pull Test

| Project # | 4581 | Project Name | Eagle gold 69KV | Facility# | |
|---|---|---|---|---|---|
| Structure # | 9/11 | Structure Type | VMA | | |

## Anchor Test Record

| | |
|---|---|
| Time and Date Started | Nov 6 2018 8:30 |
| Time and Date completed | Nov 6 2018 9:15 |
| Test Device | Dyna Link 2 MSI7300 |
| Operator | Excavator/Foreman |




| Anchor # | Pre-Load Benchmark | Amount of Stretch at 50% Tension | Final Reading at Full Tension | Final Reading when Tension Released | Change After Testing |
|---|---|---|---|---|---|
| 1 | 0 mm @ 0 | 0 mm @ 9060 | 2 mm @ 18170 | 2 mm @ 0 | 2 mm |
| 2 | 0 mm @ 0 | 0 mm @ 9140 | 2 mm @ 18220 | 2 mm @ 0 | 2 mm |
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**Test Procedure:**

1. Take Benchmark reading of anchor rod.
2. Pull Anchor rod at 50% load and hold for 2 minutes. Record movement.
3. Pull Anchor rod at Full tension load and hold for 2 minutes. Record movement.
4. Release tension and record rod movement.
5. For 2 anchor configuration, the single anchor will be pulled at 50% Tension. Wait 5 minutes between pulls.

**Comments**

A1,A2 Gravel ( log anchors)

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR ANTAL | | Nov 7/18 |
| QC Representative | Phil McKinley | Phil McKinley | Nov 6 2018 |
| Client Inspector | | | |

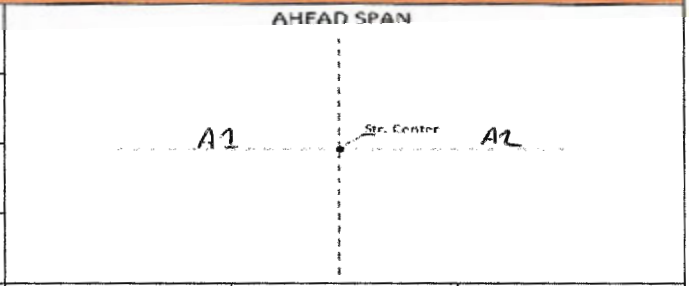
Forbes Bros LTD
POWERLINE CONSTRUCTION

# Anchor Pull Test

| Project # | 4581 | Project Name | Eagle gold 69KV | Facility# | |
|---|---|---|---|---|---|
| Structure # | 9/2 | Structure Type | PTR | | |

## Anchor Test Record

| | |
|---|---|
| Time and Date Started | Oct 8 2018 10:15 |
| Time and Date completed | Oct 8 2018 11:20 |
| Test Device | Dyna Link 2 MSI7300 |
| Operator | Excavator/Foreman |




| Anchor # | Pre-Load Benchmark | Amount of Stretch at 50% Tension | Final Reading at Full Tension | Final Reading when Tension Released | Change After Testing |
|---|---|---|---|---|---|
| 1 | 0 mm @ 0 | 0 mm @ 9150 | 3 mm @ 18180 | 2 mm @ 0 | 2 mm |
| 2 | 0 mm @ 0 | 0 mm @ 9090 | 3 mm @ 18260 | 3 mm @ 0 | 3 mm |
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**Test Procedure:**

1. Take Benchmark reading of anchor rod.
2. Pull Anchor rod at 50% load and hold for 2 minutes. Record movement.
3. Pull Anchor rod at Full tension load and hold for 2 minutes. Record movement.
4. Release tension and record rod movement.
5. For 2 anchor configuration, the single anchor will be pulled at 50% Tension. Wait 5 minutes between pulls.

**Comments**

A1,A2 Permafrost ( plate anchors)

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR ANTOL | | OCT 10/18 |
| QC Representative | Phil McKinley | Phil McKinley | Oct 9 2018 |
| Client Inspector | | | |

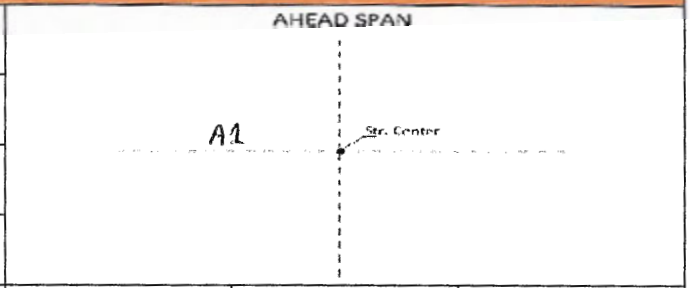
Forbes Bros LTD
POWERLINE CONSTRUCTION

# Anchor Pull Test

| Project # | 4581 | Project Name | Eagle gold 69KV | Facility# | |
|---|---|---|---|---|---|
| Structure # | 9/4 | Structure Type | PTG | | |

## Anchor Test Record

| | |
|---|---|
| Time and Date Started | Nov 5 2018 15.45 |
| Time and Date completed | Nov 5 2018 16:15 |
| Test Device | Dyna Link 2 MSI7300 |
| Operator | Excavator/Foreman |




| Anchor # | Pre-Load Benchmark | Amount of Stretch at 50% Tension | Final Reading at Full Tension | Final Reading when Tension Released | Change After Testing |
|---|---|---|---|---|---|
| 1 | 0 mm @ 0 | 0 mm @ 9240 | 3 mm @ 18110 | 3 mm @ 0 | 3 mm |
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**Test Procedure:**

1. Take Benchmark reading of anchor rod.
2. Pull Anchor rod at 50% load and hold for 2 minutes. Record movement.
3. Pull Anchor rod at Full tension load and hold for 2 minutes. Record movement.
4. Release tension and record rod movement.
5. For 2 anchor configuration, the single anchor will be pulled at 50% Tension. Wait 5 minutes between pulls.

**Comments**

A1 Gravel ( log anchor)

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR ANDY | | Nov 7/18 |
| QC Representative | Phil McKinley | Phil McKinley | Nov 6 2018 |
| Client Inspector | | | |

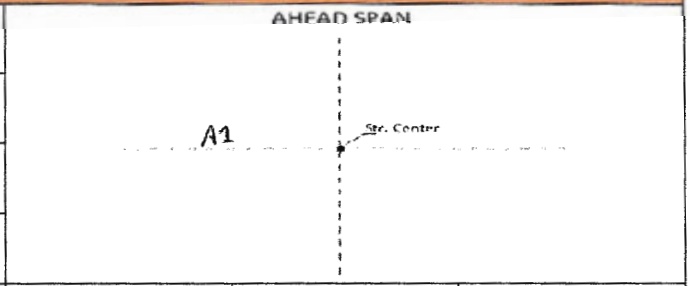
Forbes Bros LTD
POWERLINE CONSTRUCTION

# Anchor Pull Test

| Project # | 4581 | Project Name | Eagle gold 69KV | Facility# | |
|---|---|---|---|---|---|
| Structure # | 9/5 | Structure Type | PTG | | |

## Anchor Test Record

| | |
|---|---|
| Time and Date Started | Nov 5 2018 16:40 |
| Time and Date completed | Nov 5 2018 17:00 |
| Test Device | Dyna Link 2 MSI7300 |
| Operator | Excavator/Foreman |




| Anchor # | Pre-Load Benchmark | Amount of Stretch at 50% Tension | Final Reading at Full Tension | Final Reading when Tension Released | Change After Testing |
|---|---|---|---|---|---|
| 1 | 0 mm @ 0 | 0 mm @ 9230 | 2 mm @ 18140 | 2 mm @ 0 | 2 mm |
| | | | | | |
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**Test Procedure:**

1. Take Benchmark reading of anchor rod.
2. Pull Anchor rod at 50% load and hold for 2 minutes. Record movement.
3. Pull Anchor rod at Full tension load and hold for 2 minutes. Record movement.
4. Release tension and record rod movement.
5. For 2 anchor configuration, the single anchor will be pulled at 50% Tension. Wait 5 minutes between pulls.

**Comments**

A1 Gravel ( log anchors )

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR ANTAR | | NOV 7/18 |
| QC Representative | Phil McKinley | Phil McKinley | Nov 6 2018 |
| Client Inspector | | | |

Forbes Bros LTD
POWERLINE CONSTRUCTION

# Clipping Inspection

| Project No. | 4581 | Project Name | Eagle Gold 13.8 KV | | |
|---|---|---|---|---|---|
| Line No. | 1 | From Structure No. | 01 | To Structure No. | 21 |

## Checklist

| Items | Inspected | Comments |
|---|---|---|
| Verify if Required, any crossing Permits and agreements are in place | Y ☐ N/A ☑ | |
| Verify Conductor is sagged as specified | Y ☑ N/A ☐ | |
| Insulator strings on at least 3 suspension structures adjacent to the new sag section clipped in | Y ☐ N/A ☑ | |
| Verify all Insulators & conductor hardware is clean & free of defects | Y ☑ N/A ☐ | |
| Travelers removed and conductor clipped in as per specifications | Y ☑ N/A ☐ | |
| Verify Suspension clamp is plumb and centered on conductor point mark | Y ☑ N/A ☐ | |
| Compression joints required in sagged span and recorded | Y ☑ N/A ☐ | |
| All assemblies are made in strict accordance with the manufacture applicable specifications | Y ☑ N/A ☐ | |
| Sagged conductor is free from any Bird caging/damage and does not required any repair | Y ☑ N/A ☐ | |
| Verify no metal contact made with Insulators and no conductor damage during Clipping procedure | Y ☑ N/A ☐ | |

Additional Comments

Compression Joint in between span 19 and 20 is 11 meters away from structure 19
L2 09 Deadend hardware has been verified correct and jumpers installed correctly

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR ANTAL | | Feb 20/19 |
| Quality Representative | Phil McKinley | Phil McKinley | Feb 19 2019 |
| Client Representative | Matt Caesdale | | Feb 23.2019 |

Forbes Bros LTD
POWERLINE CONSTRUCTION

# Clipping Inspection

| Project No. | 4581 | Project Name | Eagle Gold 13.8 KV | | |
|---|---|---|---|---|---|
| Line No. | 2 | From Structure No. | 11 | To Structure No. | 22 |

## Checklist

| Items | Inspected | Comments |
|---|---|---|
| Verify if Required, any crossing Permits and agreements are in place | Y ☐ N/A ☑ | |
| Verify Conductor is sagged as specified | Y ☑ N/A ☐ | |
| Insulator strings on at least 3 suspension structures adjacent to the new sag section clipped in | Y ☐ N/A ☑ | |
| Verify all Insulators & conductor hardware is clean & free of defects | Y ☑ N/A ☐ | |
| Travelers removed and conductor clipped in as per specifications | Y ☑ N/A ☐ | |
| Verify Suspension clamp is plumb and centered on conductor point mark | Y ☑ N/A ☐ | |
| Compression joints required in sagged span and recorded | Y ☐ N/A ☑ | |
| All assemblies are made in strict accordance with the manufacture applicable specifications | Y ☑ N/A ☐ | |
| Sagged conductor is free from any Bird caging/damage and does not required any repair | Y ☑ N/A ☐ | |
| Verify no metal contact made with Insulators and no conductor damage during Clipping procedure | Y ☑ N/A ☐ | |

Additional Comments

L2 17 Dead End hardware verified correct and jumpers done correctly
L2 11 and L2 22 Riser poles connections have been verified correct

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR ANTAL | | Feb 20/19 |
| Quality Representative | Phil McKinley | Phil McKinley | Feb 19 2019 |
| Client Representative | Matt Caerdale | MC | Feb 23, 2019 |

Forbes Bros LTD
POWERLINE CONSTRUCTION

# Clipping Inspection

| Project No. | 4581 | Project Name | Eagle Gold 69 KV | | |
|---|---|---|---|---|---|
| Line No. | L251 | From Structure No. | 3/3 | To Structure No. | 7/12 |

## Checklist

| Items | Inspected | Comments |
|---|---|---|
| Verify if Required, any crossing Permits and agreements are in place | Y ☐ N/A ☑ | |
| Verify Conductor is sagged as specified | Y ☑ N/A ☐ | |
| Insulator strings on at least 3 suspension structures adjacent to the new sag section clipped in | Y ☑ N/A ☐ | |
| Verify all Insulators & conductor hardware is clean & free of defects | Y ☑ N/A ☐ | |
| Travelers removed and conductor clipped in as per specifications | Y ☑ N/A ☐ | |
| Verify Suspension clamp is plumb and centered on conductor point mark | Y ☑ N/A ☐ | |
| Compression joints required in sagged span and recorded | Y ☐ N/A ☑ | |
| All assemblies are made in strict accordance with the manufacture applicable specifications | Y ☑ N/A ☐ | |
| Sagged conductor is free from any Bird caging/damage and does not required any repair | Y ☑ N/A ☐ | |
| Verify no metal contact made with Insulators and no conductor damage during Clipping procedure | Y ☑ N/A ☐ | |

Additional Comments

Used 10" Y ball clevis at 3/11, 5/1, 5/3, 5/8, 5/9, 5/10

3/3, 7/2, 7/7 and 7/12 are deadends - Insulators have been verified and hardware inspected

- No Compression or impla used

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR AWIAC | | NOV 29 2018 |
| Quality Representative | Phil McKinley | Phil McKinley | NOV 28 2018 |
| Client Representative | | | |

Forbes Bros LTD
POWERLINE CONSTRUCTION

# Clipping Inspection

| Project No. | 4581 | Project Name | Eagle Gold 69 KV | | |
|---|---|---|---|---|---|
| Line No. | L251 | From Structure No. | 0/10A | To Structure No. | 3/3 |

## Checklist

| Items | Inspected | Comments |
|---|---|---|
| Verify if Required, any crossing Permits and agreements are in place | Y ☐ N/A ☑ | |
| Verify Conductor is sagged as specified | Y ☑ N/A ☐ | |
| Insulator strings on at least 3 suspension structures adjacent to the new sag section clipped in | Y ☑ N/A ☐ | |
| Verify all Insulators & conductor hardware is clean & free of defects | Y ☑ N/A ☐ | |
| Travelers removed and conductor clipped in as per specifications | Y ☑ N/A ☐ | |
| Verify Suspension clamp is plumb and centered on conductor point mark | Y ☑ N/A ☐ | |
| Compression joints required in sagged span and recorded | Y ☐ N/A ☑ | |
| All assemblies are made in strict accordance with the manufacture applicable specifications | Y ☑ N/A ☐ | |
| Sagged conductor is free from any Bird caging/damage and does not required any repair | Y ☑ N/A ☐ | |
| Verify no metal contact made with Insulators and no conductor damage during Clipping procedure | Y ☑ N/A ☐ | |

Additional Comments

Used 10 " turkey legs at structures 1/9 VMA 3/1 and 3/2 SAH structures

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR ANTAL | | Nov 24 / 18 |
| Quality Representative | Phil McKinley | Phil McKinley | Nov 23 2018 |
| Client Representative | | | |

Forbes Bros LTD
POWERLINE CONSTRUCTION

# Clipping Inspection

| Project No. | 4581 | Project Name | Eagle Gold 69 KV | | |
|---|---|---|---|---|---|
| Line No. | L251 | From Structure No. | 7/12 | To Structure No. | 13/2 |

## Checklist

| Items | Inspected | Comments |
|---|---|---|
| Verify if Required, any crossing Permits and agreements are in place | Y ☐ N/A ☑ | |
| Verify Conductor is sagged as specified | Y ☑ N/A ☐ | |
| Insulator strings on at least 3 suspension structures adjacent to the new sag section clipped in | Y ☑ N/A ☐ | |
| Verify all Insulators & conductor hardware is clean & free of defects | Y ☑ N/A ☐ | |
| Travelers removed and conductor clipped in as per specifications | Y ☑ N/A ☐ | |
| Verify Suspension clamp is plumb and centered on conductor point mark | Y ☑ N/A ☐ | |
| Compression joints required in sagged span and recorded | Y ☐ N/A ☑ | |
| All assemblies are made in strict accordance with the manufacture applicable specifications | Y ☑ N/A ☐ | |
| Sagged conductor is free from any Bird caging/damage and does not required any repair | Y ☑ N/A ☐ | |
| Verify no metal contact made with Insulators and no conductor damage during Clipping procedure | Y ☑ N/A ☐ | |

Additional Comments

Used 10" Y ball clevis at 8/5, 9/1, 9/10, 9/11, 10/5, 11/12, 12/2, 12/6,

10/9, 10/13, 11/4, 13/2 - Insulators and hardware verified
- No compression or impto used

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR ANTAC | | Dec 6 |
| Quality Representative | Phil McKinley | Phil McKinley | Dec 5 2018 |
| Client Representative | | | |

Forbes Bros LTD
POWERLINE CONSTRUCTION

# Clipping Inspection

| Project No. | 4581 | Project Name | Eagle Gold 69 KV | | |
|---|---|---|---|---|---|
| Line No. | L251 | From Structure No. | 13/2 | To Structure No. | 16/11 |

## Checklist

| Items | Inspected | Comments |
|---|---|---|
| Verify if Required, any crossing Permits and agreements are in place | Y ☐ N/A ☑ | |
| Verify Conductor is sagged as specified | Y ☑ N/A ☐ | |
| Insulator strings on at least 3 suspension structures adjacent to the new sag section clipped in | Y ☑ N/A ☐ | |
| Verify all Insulators & conductor hardware is clean & free of defects | Y ☑ N/A ☐ | |
| Travelers removed and conductor clipped in as per specifications | Y ☑ N/A ☐ | |
| Verify Suspension clamp is plumb and centered on conductor point mark | Y ☑ N/A ☐ | |
| Compression joints required in sagged span and recorded | Y ☐ N/A ☑ | |
| All assemblies are made in strict accordance with the manufacture applicable specifications | Y ☑ N/A ☐ | |
| Sagged conductor is free from any Bird caging/damage and does not required any repair | Y ☑ N/A ☐ | |
| Verify no metal contact made with Insulators and no conductor damage during Clipping procedure | Y ☑ N/A ☐ | |

Additional Comments

Used 10" Y ball clevis at 13/13, 14/2, 14/8, 15/13, 16/4,
16/11 insulators and hardware are correct - No compresion or implo's used

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR ANDY | | Dec 6/18 |
| Quality Representative | Phil McKinley | Phil McKinley | Dec 5 2018 |
| Client Representative | | | |

Forbes Bros LTD
POWERLINE CONSTRUCTION

# Clipping Inspection

| Project No. | 4581 | Project Name | Eagle Gold 69 KV | | |
|---|---|---|---|---|---|
| Line No. | L251 | From Structure No. | 40/6 | To Structure No. | 42/8 |

## Checklist

| Items | Inspected | Comments |
|---|---|---|
| Verify if Required, any crossing Permits and agreements are in place | Y ☐ N/A ☑ | |
| Verify Conductor is sagged as specified | Y ☑ N/A ☐ | |
| Insulator strings on at least 3 suspension structures adjacent to the new sag section clipped in | Y ☑ N/A ☐ | |
| Verify all Insulators & conductor hardware is clean & free of defects | Y ☑ N/A ☐ | |
| Travelers removed and conductor clipped in as per specifications | Y ☑ N/A ☐ | |
| Verify Suspension clamp is plumb and centered on conductor point mark | Y ☑ N/A ☐ | |
| Compression joints required in sagged span and recorded | Y ☐ N/A ☑ | |
| All assemblies are made in strict accordance with the manufacture applicable specifications | Y ☑ N/A ☐ | |
| Sagged conductor is free from any Bird caging/damage and does not required any repair | Y ☑ N/A ☐ | |
| Verify no metal contact made with Insulators and no conductor damage during Clipping procedure | Y ☑ N/A ☐ | |

Additional Comments

40/6,41/6,42/7,42/8 Dead End assemblies are verified correct and jumpers installed properly
No Implos or compression joints used

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR ANTAC | | Feb 4/19 |
| Quality Representative | Phil McKinley | Phil McKinley | Feb 3 2019 |
| Client Representative | SVEN ARCHIMBAULT | | FEB 5/19 |

Forbes Bros LTD
POWERLINE CONSTRUCTION

# Clipping Inspection

| Project No. | 4581 | Project Name | Eagle Gold 69 KV | | |
|---|---|---|---|---|---|
| Line No. | L251 | From Structure No. | 37/9 | To Structure No. | 40/6 |

## Checklist

| Items | Inspected | Comments |
|---|---|---|
| Verify if Required, any crossing Permits and agreements are in place | Y ☐ N/A ☑ | |
| Verify Conductor is sagged as specified | Y ☑ N/A ☐ | |
| Insulator strings on at least 3 suspension structures adjacent to the new sag section clipped in | Y ☑ N/A ☐ | |
| Verify all Insulators & conductor hardware is clean & free of defects | Y ☑ N/A ☐ | |
| Travelers removed and conductor clipped in as per specifications | Y ☑ N/A ☐ | |
| Verify Suspension clamp is plumb and centered on conductor point mark | Y ☑ N/A ☐ | |
| Compression joints required in sagged span and recorded | Y ☐ N/A ☑ | |
| All assemblies are made in strict accordance with the manufacture applicable specifications | Y ☑ N/A ☐ | |
| Sagged conductor is free from any Bird caging/damage and does not required any repair | Y ☑ N/A ☐ | |
| Verify no metal contact made with Insulators and no conductor damage during Clipping procedure | Y ☑ N/A ☐ | |

Additional Comments

37/9, 38/1, 38/6, 39/4, 40/4, 40/6 Dead end assemblies and jumpers have been verified correct
No implos or compresion joints used

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR ANTAZ | | Jan 24/19 |
| Quality Representative | Phil McKinley | Phil McKinley | Jan 23 2019 |
| Client Representative | SARCHIMOWITZ | | JAN 31/19 |

Forbes Bros. LTD
POWERLINE CONSTRUCTION

# Clipping Inspection

| Project No. | 4581 | Project Name | Eagle Gold 69 KV | | |
|---|---|---|---|---|---|
| Line No. | L251 | From Structure No. | 28/13 | To Structure No. | 32/8 |

**Checklist**

| Items | Inspected | Comments |
|---|---|---|
| Verify if Required, any crossing Permits and agreements are in place | Y ☐ N/A ☑ | |
| Verify Conductor is sagged as specified | Y ☑ N/A ☐ | |
| Insulator strings on at least 3 suspension structures adjacent to the new sag section clipped in | Y ☑ N/A ☐ | |
| Verify all Insulators & conductor hardware is clean & free of defects | Y ☑ N/A ☐ | |
| Travelers removed and conductor clipped in as per specifications | Y ☑ N/A ☐ | |
| Verify Suspension clamp is plumb and centered on conductor point mark | Y ☑ N/A ☐ | |
| Compression joints required in sagged span and recorded | Y ☐ N/A ☑ | |
| All assemblies are made in strict accordance with the manufacture applicable specifications | Y ☑ N/A ☐ | |
| Sagged conductor is free from any Bird caging/damage and does not required any repair | Y ☑ N/A ☐ | |
| Verify no metal contact made with Insulators and no conductor damage during Clipping procedure | Y ☑ N/A ☐ | |

Additional Comments

28/13,30/5,31/6,31/11,32/8 all hardware and insulators have been verified as correct as per drawing
- No implos or compression fittings where used

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR ANTAL | | Dec 19/18 |
| Quality Representative | Phil McKinley | Phil McKinley | Dec 19 2018 |
| Client Representative | | | |

Forbes Bros LTD
POWERLINE CONSTRUCTION

# Clipping Inspection

| Project No. | 4581 | Project Name | Eagle Gold 69 KV | | |
|---|---|---|---|---|---|
| Line No. | L251 | From Structure No. | 26/1 | To Structure No. | 28/13 |

**Checklist**

| Items | Inspected | Comments |
|---|---|---|
| Verify if Required, any crossing Permits and agreements are in place | Y ☐ N/A ☑ | |
| Verify Conductor is sagged as specified | Y ☑ N/A ☐ | |
| Insulator strings on at least 3 suspension structures adjacent to the new sag section clipped in | Y ☑ N/A ☐ | |
| Verify all Insulators & conductor hardware is clean & free of defects | Y ☑ N/A ☐ | |
| Travelers removed and conductor clipped in as per specifications | Y ☑ N/A ☐ | |
| Verify Suspension clamp is plumb and centered on conductor point mark | Y ☑ N/A ☐ | |
| Compression joints required in sagged span and recorded | Y ☐ N/A ☑ | |
| All assemblies are made in strict accordance with the manufacture applicable specifications | Y ☑ N/A ☐ | |
| Sagged conductor is free from any Bird caging/damage and does not required any repair | Y ☑ N/A ☐ | |
| Verify no metal contact made with Insulators and no conductor damage during Clipping procedure | Y ☑ N/A ☐ | |

Additional Comments

26/1,27/1,28/2,28/7 and 28/13 have been inspected for correct hardware and insulators as per drawings
- No implos or compression fittings where used

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR ANTIAC | | Dec 17/18 |
| Quality Representative | Phil McKinley | Phil McKinley | Dec 16 2018 |
| Client Representative | | | |

Forbes Bros LTD
POWERLINE CONSTRUCTION

# Clipping Inspection

| Project No. | 4581 | Project Name | Eagle Gold 69 KV | | |
|---|---|---|---|---|---|
| Line No. | L251 | From Structure No. | 21/2 | To Structure No. | 26/1 |

## Checklist

| Items | Inspected | Comments |
|---|---|---|
| Verify if Required, any crossing Permits and agreements are in place | Y ☐ N/A ☑ | |
| Verify Conductor is sagged as specified | Y ☑ N/A ☐ | |
| Insulator strings on at least 3 suspension structures adjacent to the new sag section clipped in | Y ☑ N/A ☐ | |
| Verify all Insulators & conductor hardware is clean & free of defects | Y ☑ N/A ☐ | |
| Travelers removed and conductor clipped in as per specifications | Y ☑ N/A ☐ | |
| Verify Suspension clamp is plumb and centered on conductor point mark | Y ☑ N/A ☐ | |
| Compression joints required in sagged span and recorded | Y ☐ N/A ☑ | |
| All assemblies are made in strict accordance with the manufacture applicable specifications | Y ☑ N/A ☐ | |
| Sagged conductor is free from any Bird caging/damage and does not required any repair | Y ☑ N/A ☐ | |
| Verify no metal contact made with Insulators and no conductor damage during Clipping procedure | Y ☐ N/A ☐ | |

Additional Comments

21/2,22/8 and 26/1 have been completed as per drawings, All insulators and hardware are verified correct , No Implos or compression fittings needed

22/6 damaged wire 3m from structure - Victoria Gold is aware and have put armour rod on it as a patch

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR AWPA | | Dec 15/18 |
| Quality Representative | Phil McKinley | Phil McKinley | Dec 14 2018 |
| Client Representative | | | |

Forbes Bros LTD
POWERLINE CONSTRUCTION

# Clipping Inspection

| Project No. | 4581 | Project Name | Eagle Gold 69 KV | | |
|---|---|---|---|---|---|
| Line No. | L251 | From Structure No. | 16/11 | To Structure No. | 21/2 |

## Checklist

| Items | Inspected | Comments |
|---|---|---|
| Verify if Required, any crossing Permits and agreements are in place | Y ☐ N/A ☑ | |
| Verify Conductor is sagged as specified | Y ☑ N/A ☐ | |
| Insulator strings on at least 3 suspension structures adjacent to the new sag section clipped in | Y ☑ N/A ☐ | |
| Verify all Insulators & conductor hardware is clean & free of defects | Y ☑ N/A ☐ | |
| Travelers removed and conductor clipped in as per specifications | Y ☑ N/A ☐ | |
| Verify Suspension clamp is plumb and centered on conductor point mark | Y ☑ N/A ☐ | |
| Compression joints required in sagged span and recorded | Y ☐ N/A ☑ | |
| All assemblies are made in strict accordance with the manufacture applicable specifications | Y ☑ N/A ☐ | |
| Sagged conductor is free from any Bird caging/damage and does not required any repair | Y ☑ N/A ☐ | |
| Verify no metal contact made with Insulators and no conductor damage during Clipping procedure | Y ☑ N/A ☐ | |

Additional Comments

16/11 (VDEMA)and 21/2 (VDEHA) Insulators and hardware have been verified as correct
- No Compression splices or Implos used

16/13,17/5, 20/8 and 21/1 used 10" Y ball clevices (turkey legs)

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR ANTAL | | Dec 12/18 |
| Quality Representative | Phil McKinley | | Dec 11 2018 |
| Client Representative | | | |

# ADSS/OPGW
# Splicing & Testing
Quality Control

| | | | |
|---|---|---|---|
| Project: | Gold Eagle | Date: | Jan/28/2019 |
| Line: | 69 Kv | Structure: | Pole 39-13 |

| Quality Checks | Yes / No |
|---|---|
| Adequate cable length left for splicing? | Yes |
| Slack storage unit installed prior to arrival? | Yes |
| Cable Type: | 24F ADSS |
| Splice completed successfully? | Yes |
| Splice enclosure mounted? | Yes |
| Residual cable removed from site? | Yes |
| Photographs provided? | Yes |
| **Testing** | **Yes / No** |
| **Pre-string** Reel numbers: | |
| Test results were within compliance? | |
| **Bi-Directional** | |
| Location 1: | |
| Location 2: | |
| Test results were within compliance? | Yes |

| | |
|---|---|
| Return visit to site necessary? | No |
| Explanation if yes: | |

| |
|---|
| Additional comments and/or concerns: |

Splicing and Testing form to be completed for every structure splice and bi-directional testing (2 locations)

Nathan May
Aurora Employee *print*

Jan/28/2019
Date

Signature

*Aurora Comm Inc.*

# ADSS/OPGW
# Splicing & Testing
Quality Control

| | | | |
|---|---|---|---|
| Project: | Gold Eagle | Date: | Jan/26/2019 |
| Line: | 69 Kv | Structure: | Pole 34-5 |

| Quality Checks | Yes / No |
|---|---|
| Adequate cable length left for splicing? | Yes |
| Slack storage unit installed prior to arrival? | Yes |
| Cable Type: | 24F ADSS |
| Splice completed successfully? | Yes |
| Splice enclosure mounted? | Yes |
| Residual cable removed from site? | Yes |
| Photographs provided? | Yes |
| **Testing** | **Yes / No** |
| **Pre-string** Reel numbers: | |
| Test results were within compliance? | |
| **Bi-Directional** | |
| Location 1: | |
| Location 2: | |
| Test results were within compliance? | Yes |

| | |
|---|---|
| Return visit to site necessary? | No |
| Explanation if yes: | |

Additional comments and/or concerns:

Splicing and Testing form to be completed for every structure splice and bi-directional testing (2 locations)

Nathan May
Aurora Employee *print*

Jan/26/2019
Date

Signature

# ADSS/OPGW
# Splicing & Testing
Quality Control

| | | | |
|---|---|---|---|
| Project: | Gold Eagle | Date: | Jan/28/2019 |
| Line: | 69 Kv | Structure: | Pole 28-10 |

| Quality Checks | Yes / No |
|---|---|
| Adequate cable length left for splicing? | Yes |
| Slack storage unit installed prior to arrival? | Yes |
| Cable Type: | 24F ADSS |
| Splice completed successfully? | Yes |
| Splice enclosure mounted? | Yes |
| Residual cable removed from site? | Yes |
| Photographs provided? | Yes |
| **Testing** | **Yes / No** |
| **Pre-string** Reel numbers: | |
| Test results were within compliance? | |
| **Bi-Directional** | |
| Location 1: | |
| Location 2: | |
| Test results were within compliance? | Yes |

| | |
|---|---|
| Return visit to site necessary? | No |
| Explanation if yes: | |

Additional comments and/or concerns:

Splicing and Testing form to be completed for every structure splice and bi-directional testing (2 locations)

Nathan May
Aurora Employee *print*

Jan/28/2019
Date

Signature

# ADSS/OPGW
# Splicing & Testing
Quality Control

| | | | |
|---|---|---|---|
| Project: | Gold Eagle | Date: | Jan/28/2019 |
| Line: | 69 Kv | Structure: | Pole 23-2 |

| Quality Checks | Yes / No |
|---|---|
| Adequate cable length left for splicing? | Yes |
| Slack storage unit installed prior to arrival? | Yes |
| Cable Type: | 24F ADSS |
| Splice completed successfully? | Yes |
| Splice enclosure mounted? | Yes |
| Residual cable removed from site? | Yes |
| Photographs provided? | Yes |
| **Testing** | **Yes / No** |
| **Pre-string** Reel numbers: | |
| Test results were within compliance? | |
| **Bi-Directional** | |
| Location 1: | |
| Location 2: | |
| Test results were within compliance? | Yes |

| | |
|---|---|
| Return visit to site necessary? | No |
| Explanation if yes: | |

Additional comments and/or concerns:

Splicing and Testing form to be completed for every structure splice and bi-directional testing (2 locations)

Nathan May
Aurora Employee *print*

Jan/28/2019
Date

Signature

# ADSS/OPGW
# Splicing & Testing
Quality Control

| | | | |
|---|---|---|---|
| Project: | Gold Eagle | Date: | Jan/27/2019 |
| Line: | 69 Kv | Structure: | Pole 17-7 |

| Quality Checks | Yes / No |
|---|---|
| Adequate cable length left for splicing? | Yes |
| Slack storage unit installed prior to arrival? | Yes |
| Cable Type: | 24F ADSS |
| Splice completed successfully? | Yes |
| Splice enclosure mounted? | Yes |
| Residual cable removed from site? | Yes |
| Photographs provided? | Yes |
| **Testing** | **Yes / No** |
| **Pre-string** Reel numbers: | |
| Test results were within compliance? | |
| **Bi-Directional** | |
| Location 1: | |
| Location 2: | |
| Test results were within compliance? | Yes |

| | |
|---|---|
| Return visit to site necessary? | No |
| Explanation if yes: | |

Additional comments and/or concerns:

Splicing and Testing form to be completed for every structure splice and bi-directional testing (2 locations)

Nathan May
Aurora Employee *print*

Jan/27/2019
Date

Signature

# ADSS/OPGW
# Splicing & Testing
Quality Control

| | | | |
|---|---|---|---|
| Project: | Gold Eagle | Date: | Jan/27/2019 |
| Line: | 69 Kv | Structure: | Pole 11-10 |

| Quality Checks | Yes / No |
|---|---|
| Adequate cable length left for splicing? | Yes |
| Slack storage unit installed prior to arrival? | Yes |
| Cable Type: | 24F ADSS |
| Splice completed successfully? | Yes |
| Splice enclosure mounted? | Yes |
| Residual cable removed from site? | Yes |
| Photographs provided? | Yes |
| **Testing** | **Yes / No** |
| **Pre-string** Reel numbers: | |
| Test results were within compliance? | |
| **Bi-Directional** | |
| Location 1: | |
| Location 2: | |
| Test results were within compliance? | Yes |

| | |
|---|---|
| Return visit to site necessary? | No |
| Explanation if yes: | |

Additional comments and/or concerns:

Splicing and Testing form to be completed for every structure splice and bi-directional testing (2 locations)

Nathan May
Aurora Employee *print*

Jan/27/2019
Date

Signature

*Aurora Comm Inc.*

# ADSS/OPGW
# Splicing & Testing
Quality Control

| | | | |
|---|---|---|---|
| Project: | Gold Eagle | Date: | Jan/27/2019 |
| Line: | 69 Kv | Structure: | Pole 6-2 |

| Quality Checks | Yes / No |
|---|---|
| Adequate cable length left for splicing? | Yes |
| Slack storage unit installed prior to arrival? | Yes |
| Cable Type: | 24F ADSS |
| Splice completed successfully? | Yes |
| Splice enclosure mounted? | Yes |
| Residual cable removed from site? | Yes |
| Photographs provided? | Yes |
| **Testing** | **Yes / No** |
| **Pre-string** Reel numbers: | |
| Test results were within compliance? | |
| **Bi-Directional** | |
| Location 1: | |
| Location 2: | |
| Test results were within compliance? | Yes |

| | |
|---|---|
| Return visit to site necessary? | No |
| Explanation if yes: | |

| |
|---|
| Additional comments and/or concerns: |

Splicing and Testing form to be completed for every structure splice and bi-directional testing (2 locations)

Nathan May
Aurora Employee *print*

Jan/27/2019
Date

Signature

*Aurora Comm Inc.*

Forbes Bros LTD
POWERLINE CONSTRUCTION

# Structure Setting and Framing

| Project# | 4581 | Project Name | Eagle Gold 69kv | Line# | L251 | Date | January 23 2019 |
|---|---|---|---|---|---|---|---|

## Patrol Checklist

| Str.# | Pole# | Pole Length | Pole Class | Drilling Schedule as per Drawing | Soil type | Setting Depth | Casing/ Culvert used | Backfill Type | Backfill Compacted | Butt Plates installed | Ground Wire Installed | Guy Anchor hardware installed | Pole Plumb | Framing as per Drawings |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 42/8 | RP | 55 | 1 | ✓ | Gravel | 2.29 | | Gravel | ✓ | ✓ | ✓ | | ✓ | ✓ |
| 42/8 | LP | 55 | 1 | ✓ | Gravel | 2.29 | | Gravel | ✓ | ✓ | ✓ | | ✓ | ✓ |
| 42/7 | | 95 | 1 | ✓ | Permafrost | 3.81 | | Gravel | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 42/6 | | 75 | 1 | ✓ | Permafrost | 3.21 | | Gravel | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 42/5 | RP | 80 | 2 | ✓ | Permafrost | 4.45 | | Gravel | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 42/5 | LP | 80 | 2 | ✓ | Permafrost | 3.36 | | Gravel | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 42/4 | RP | 90 | 2 | ✓ | Gravel | 3.75 | | Gravel | ✓ | ✓ | ✓ | | ✓ | ✓ |
| 42/4 | LP | 90 | 2 | ✓ | Gravel | 3.42 | | Gravel | ✓ | ✓ | ✓ | | ✓ | ✓ |
| 42/2 | RP | 80 | 2 | ✓ | Permafrost | 3.98 | | Gravel | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 42/2 | LP | 80 | 2 | ✓ | Permafrost | 3.63 | | Gravel | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 42/1 | | 80 | 1 | ✓ | Permafrost | 3.36 | | Gravel | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 41/13 | | 90 | 1 | ✓ | Permafrost | 3.66 | | Gravel | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |

Comments

3/4" bolts substituted for 7/8 " on Post Vertical Structures as approved by Philip Clark of Clean Energy

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR AWTAK | | Jan 24/19 |
| QC Inspector | Phil McKinley | Phil McKinley | Jan 23 2019 |
| Client Inspector | SVEN ARCHIMOWITZ | | JAN 31/19 |

Forbes Bros LTD
POWERLINE CONSTRUCTION

## Structure Setting and Framing

| Project# | 4581 | Project Name | Eagle Gold 69kv | Line# | L251 | Date | January 23 2019 |
|---|---|---|---|---|---|---|---|

**Patrol Checklist**

| Str.# | Pole# | Pole Length | Pole Class | Drilling Schedule as per Drawing | Soil type | Setting Depth | Casing/ Culvert used | Backfill Type | Backfill Compacted | Butt Plates installed | Ground Wire Installed | Guy Anchor hardware Installed | Pole Plumb | Framing as per Drawings |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 41/12 | | 85 | 1 | ✓ | Permafrost | 3.51 | | Gravel | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 41/11 | | 85 | 1 | ✓ | Permafrost | 3.51 | | Gravel | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 41/10 | | 85 | 1 | ✓ | Permafrost | 3.51 | | Gravel | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 41/9 | | 80 | 1 | ✓ | Permafrost | 3.35 | | Gravel | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 41/8 | | 85 | 1 | ✓ | Permafrost | 3.51 | | Gravel | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 41/7 | | 85 | 1 | ✓ | Permafrost | 3.51 | | Gravel | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 41/6 | | 85 | 1 | ✓ | Permafrost | 3.51 | | Gravel | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 41/5 | | 65 | 1 | ✓ | Permafrost | 2.9 | | Gravel | ✓ | ✓ | | ✓ | ✓ | ✓ |
| 39/5 | | 60 | 1 | ✓ | Gravel | 2.74 | | Gravel | ✓ | ✓ | | | ✓ | ✓ |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |

Comments

3/4 " substituted for 7/8" on tangents as approved by Philip Clark of Clean Energy

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR AWITAC | | Jan 24/19 |
| QC Inspector | Phil McKinley | Phil McKinley | Jan 23 2019 |
| Client Inspector | SVEN ARCHIMOWITZ | | JAN 31/19 |

Forbes Bros LTD
POWERLINE CONSTRUCTION

# Structure Setting and Framing

| Project# | 4581 | Project Name | Eagle Gold 69kv | Line# | L251 | Date | Jan 25 2019 |
|---|---|---|---|---|---|---|---|

## Patrol Checklist

| Str.# | Pole# | Pole Length | Pole Class | Drilling Schedule as per Drawing | Soil type | Setting Depth | Casing/ Culvert used | Backfill Type | Backfill Compacted | Butt Plates installed | Ground Wire Installed | Guy Anchor hardware installed | Pole Plumb | Framing as per Drawings |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 41/4 | | 60 | 1 | ✓ | Permafrost | 2.74 | | Gravel | ✓ | ✓ | | ✓ | ✓ | ✓ |
| 41/3 | | 85 | 1 | ✓ | Gravel | 3.51 | | Gravel | ✓ | ✓ | | | ✓ | ✓ |
| 41/2 | | 80 | 1 | ✓ | Permafrost | 3.35 | | Gravel | ✓ | ✓ | | ✓ | ✓ | ✓ |
| 41/1 | | 65 | 1 | ✓ | Permafrost | 2.9 | | Gravel | ✓ | ✓ | | ✓ | ✓ | ✓ |
| 40/12 | | 65 | 1 | ✓ | Permafrost | 2.9 | | Gravel | ✓ | ✓ | | ✓ | ✓ | ✓ |
| 40/11 | | 65 | 1 | ✓ | Permafrost | 2.9 | | Gravel | ✓ | ✓ | | ✓ | ✓ | ✓ |
| 40/10 | | 65 | 1 | ✓ | Permafrost | 2.9 | | Gravel | ✓ | ✓ | | ✓ | ✓ | ✓ |
| 40/9 | | 70 | 1 | ✓ | Permafrost | 3.05 | | Gravel | ✓ | ✓ | | ✓ | ✓ | ✓ |
| 40/8 | | 60 | 1 | ✓ | Permafrost | 2.74 | | Gravel | ✓ | ✓ | | ✓ | ✓ | ✓ |
| 40/7 | | 70 | 1 | ✓ | Permafrost | 3.05 | | Gravel | ✓ | ✓ | | ✓ | ✓ | ✓ |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |

Comments

3/4" bolts substituted for 7/8" on tangent structures as approved by Philip Clark of Clean Energy Ltd

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR ANTAC | | Jan 26/19 |
| QC Inspector | Phil McKinley | Phil McKinley | Jan 25 2019 |
| Client Inspector | SVEN ARCHINOWITZ | | JAN 31/19 |

Forbes Bros LTD
POWERLINE CONSTRUCTION

# Structure Setting and Framing

| Project# | 4581 | Project Name | Eagle Gold 69kv | Line# | L251 | Date | Jan 18 2019 |
|---|---|---|---|---|---|---|---|

## Patrol Checklist

| Str.# | Pole# | Pole Length | Pole Class | Drilling Schedule as per Drawing | Soil type | Setting Depth | Casing/ Culvert used | Backfill Type | Backfill Compacted | Butt Plates Installed | Ground Wire Installed | Guy Anchor hardware installed | Pole Plumb | Framing as per Drawings |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 40/6 | | 80 | 1 | ✓ | Wet/gravel | 3.35 | ✓ | Gravel | ✓ | ✓ | | ✓ | ✓ | ✓ |
| 39/9 | | 60 | 1 | ✓ | Gravel | 2.74 | | Gravel | ✓ | ✓ | | | ✓ | ✓ |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
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| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |

**Comments**

3/4" substituted for 7/8" as approved by Philip Clark of Clean Energy

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR ANTYPA | | Jan 20/19 |
| QC Inspector | Phil McKinley | Phil McKinley | Jan 19 2019 |
| Client Inspector | | | |

Forbes Bros LTD
POWERLINE CONSTRUCTION

# Structure Setting and Framing

| Project# | 4581 | Project Name | Eagle Gold 69kv | Line# | L251 | Date | Jan 16 2019 |
|---|---|---|---|---|---|---|---|

## Patrol Checklist

| Str.# | Pole# | Pole Length | Pole Class | Drilling Schedule as per Drawing | Soil type | Setting Depth | Casing/ Culvert used | Backfill Type | Backfill Compacted | Butt Plates installed | Ground Wire Installed | Guy Anchor hardware installed | Pole Plumb | Framing as per Drawings |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 38/7 | | 60 | 1 | ✓ | Gravel | 2.74 | | Gravel | ✓ | ✓ | | | ✓ | ✓ |
| 38/8 | | 60 | 1 | ✓ | Gravel | 2.74 | | Gravel | ✓ | ✓ | | | ✓ | ✓ |
| 38/9 | | 60 | 1 | ✓ | Gravel | 2.74 | | Gravel | ✓ | ✓ | | | ✓ | ✓ |
| 38/10 | | 60 | 1 | ✓ | Gravel | 2.74 | | Gravel | ✓ | ✓ | | | ✓ | ✓ |
| 38/11 | | 60 | 1 | ✓ | Gravel | 2.74 | | Gravel | ✓ | ✓ | | | ✓ | ✓ |
| 38/12 | | 60 | 1 | ✓ | Gravel | 2.74 | | Gravel | ✓ | ✓ | | | ✓ | ✓ |
| 38/13 | | 60 | 1 | ✓ | Gravel | 2.74 | | Gravel | ✓ | ✓ | | | ✓ | ✓ |
| 39/1 | | 65 | 1 | ✓ | Gravel | 2.9 | | Gravel | ✓ | ✓ | | | ✓ | ✓ |
| 39/2 | | 60 | 1 | ✓ | Gravel | 2.74 | | Gravel | ✓ | ✓ | | | ✓ | ✓ |
| 39/3 | | 60 | 1 | ✓ | Gravel | 2.74 | | Gravel | ✓ | ✓ | | | ✓ | ✓ |
| 39/4 | | 65 | H2 | ✓ | Gravel | 2.9 | | Gravel | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 39/5 | | 60 | 1 | ✓ | Gravel | 2.74 | | Gravel | ✓ | ✓ | | | ✓ | ✓ |

**Comments**

3/4" substituted for 7/8" on tangents as approved by Philip Clark of Clean Energy

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR ANTAL | | Jan 18/19 |
| QC Inspector | Phil McKinley | Phil McKinley | Jan 17 2019 |
| Client Inspector | | | |

Forbes Bros LTD
POWERLINE CONSTRUCTION

# Structure Setting and Framing

| Project# | 4581 | Project Name | Eagle Gold 69kv | Line# | L251 | Date | Jan 15 2019 |
|---|---|---|---|---|---|---|---|

## Patrol Checklist

| Str.# | Pole# | Pole Length | Pole Class | Drilling Schedule as per Drawing | Soil type | Setting Depth | Casing/ Culvert used | Backfill Type | Backfill Compacted | Butt Plates installed | Ground Wire Installed | Guy Anchor hardware installed | Pole Plumb | Framing as per Drawings |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 37/8 | | 65 | 1 | ✓ | Permafrost | 2.9 | | Gravel | ✓ | ✓ | | ✓ | ✓ | ✓ |
| 37/9 | | 80 | 1 | ✓ | Gravel | 3.35 | | Gravel | ✓ | ✓ | | ✓ | ✓ | ✓ |
| 37/10 | | 70 | 1 | ✓ | Permafrost | 3.05 | | Gravel | ✓ | ✓ | | ✓ | ✓ | ✓ |
| 37/11 | | 60 | 1 | ✓ | Permafrost | 2.74 | | Gravel | ✓ | ✓ | | ✓ | ✓ | ✓ |
| 37/12 | | 65 | 1 | ✓ | Permafrost | 2.9 | | Gravel | ✓ | ✓ | | ✓ | ✓ | ✓ |
| 37/13 | | 70 | 1 | ✓ | Permafrost | 3.05 | | Gravel | ✓ | ✓ | | ✓ | ✓ | ✓ |
| 38/1 | | 75 | 1 | ✓ | Gravel | 3.2 | | Gravel | ✓ | ✓ | | | ✓ | ✓ |
| 38/2 | | 60 | 1 | ✓ | Gravel | 2.74 | | Gravel | ✓ | ✓ | | | ✓ | ✓ |
| 38/3 | | 60 | 1 | ✓ | Gravel | 2.74 | | Gravel | ✓ | ✓ | | | ✓ | ✓ |
| 38/4 | | 60 | 1 | ✓ | Gravel | 2.74 | | Gravel | ✓ | ✓ | | | ✓ | ✓ |
| 38/5 | | 65 | 1 | ✓ | Gravel | 2.9 | | Gravel | ✓ | ✓ | | | ✓ | ✓ |
| 38/6 | | 85 | 1 | ✓ | Gravel | 3.51 | | Gravel | ✓ | ✓ | | ✓ | ✓ | ✓ |

**Comments**

Structures will be rechecked for plumb once guy wires are tensioned and wire strung through
3/4" substituted for 7/8" on tangents as approved by Philip Clark of Clean Energy

| | Name | Signature | Date |
|---|---|---|---|
| **Foreman** | TREVOR ANTAL | | Jan 16/19 |
| **QC Inspector** | Phil McKinley | Phil McKinley | Jan 15 2019 |
| **Client Inspector** | | | |

Forbes Bros LTD
POWERLINE CONSTRUCTION

# Structure Setting and Framing

| Project# | 4581 | Project Name | Eagle Gold 69kv | Line# | L251 | Date | Nov 13 20 |
|---|---|---|---|---|---|---|---|

## Patrol Checklist

| Str.# | Pole# | Pole Length | Pole Class | Drilling Schedule as per Drawing | Soil type | Setting Depth | Casing/ Culvert used | Backfill Type | Backfill Compacted | Butt Plates installed | Ground Wire Installed | Guy Anchor hardware installed | Pole Plumb | Framing as per Drawings |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 35/3 | | 90 | 1 | ✓ | Gravel | 3.66 | | Gravel | ✓ | ✓ | | ✓ | ✓ | ✓ |
| 35/4 | | 65 | 1 | ✓ | Gravel | 2.9 | | Gravel | ✓ | ✓ | | ✓ | ✓ | ✓ |
| 35/5 | | 70 | 1 | ✓ | Gravel | 3.05 | | Gravel | ✓ | ✓ | | | ✓ | ✓ |
| 35/6 | | 60 | 1 | ✓ | Gravel | 2.74 | | Gravel | ✓ | ✓ | | | ✓ | ✓ |
| 35/7 | | 75 | 1 | ✓ | Gravel | 3.2 | | Gravel | ✓ | ✓ | | | ✓ | ✓ |
| 35/8 | | 70 | 1 | ✓ | Gravel | 3.05 | | Gravel | ✓ | ✓ | | ✓ | ✓ | ✓ |
| 35/9 | | 65 | 1 | ✓ | Permafrost | 2.9 | | Gravel | ✓ | ✓ | | | ✓ | ✓ |
| 35/10 | | 60 | 1 | ✓ | Gravel | 2.74 | | Gravel | ✓ | ✓ | | | ✓ | ✓ |
| 35/11 | | 60 | 1 | ✓ | Permafrost | 2.74 | | Gravel | ✓ | ✓ | | | ✓ | ✓ |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |

**Comments**

Guy wire at 35/3 needs changed ( too short)
35/9 and 35/11 need Transverse guys installed and plate anchors dug

| | Name | Signature | Date |
|---|---|---|---|
| **Foreman** | TREVOR ANTAL | | Nov 16/18 |
| **QC Inspector** | Phil McKinley | Phil McKinley | Nov 15 2018 |
| **Client Inspector** | | | |

Forbes Bros LTD
POWERLINE CONSTRUCTION

# Structure Setting and Framing

| Project# | 4581 | Project Name | Eagle Gold 69kv | Line# | L251 | Date | Jan 4 2019 |
|---|---|---|---|---|---|---|---|

## Patrol Checklist

| Str.# | Pole# | Pole Length | Pole Class | Drilling Schedule as per Drawing | Soil type | Setting Depth | Casing/ Culvert used | Backfill Type | Backfill Compacted | Butt Plates installed | Ground Wire Installed | Guy Anchor hardware installed | Pole Plumb | Framing as per Drawings |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 32/12 | | 60 | 1 | ✓ | Permafrost | 2.74 | | Gravel | ✓ | ✓ | | | ✓ | ✓ |
| 32/13 | | 65 | 1 | ✓ | Permafrost | 2.9 | | Gravel | ✓ | ✓ | | | ✓ | ✓ |
| 33/1 | | 60 | 1 | ✓ | Permafrost | 2.74 | | Gravel | ✓ | ✓ | | | ✓ | ✓ |
| 33/2 | | 60 | 1 | ✓ | Permafrost | 2.74 | | Gravel | ✓ | ✓ | | | ✓ | ✓ |
| 33/3 | | 65 | 1 | ✓ | Permafrost | 2.9 | | Gravel | ✓ | ✓ | | | ✓ | ✓ |
| 33/4 | | 75 | 1 | ✓ | Permafrost | 3.2 | | Gravel | ✓ | ✓ | | | ✓ | ✓ |
| 33/5 | | 70 | 1 | ✓ | Gravel | 3.05 | | Gravel | ✓ | ✓ | | | ✓ | ✓ |
| 33/6 | | 65 | 1 | ✓ | Permafrost | 2.9 | | Gravel | ✓ | ✓ | | | ✓ | ✓ |
| 33/7 | | 60 | 1 | ✓ | Gravel | 2.74 | | Gravel | ✓ | ✓ | | | ✓ | ✓ |
| 33/8 | | 65 | 1 | ✓ | Permafrost | 2.9 | | Gravel | ✓ | ✓ | | ✓ | ✓ | ✓ |
| 33/9 | | 60 | 1 | ✓ | Permafrost | 2.74 | | Gravel | ✓ | ✓ | | | ✓ | ✓ |
| 33/10 | | 60 | 1 | ✓ | Permafrost | 2.74 | | Gravel | ✓ | ✓ | | | ✓ | ✓ |

**Comments**

All structures except 33/5,33/7,33/8 need guy wire installed because of Permafrost
3/4" bolts where used to secure stacks instead of 7/8" as approved by Philip Clark of Clean Energy

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR ANTAL | | Jan 5/19 |
| QC Inspector | Phil McKinley | Phil McKinley | Jan 4 2019 |
| Client Inspector | | | |

Forbes Bros LTD
POWERLINE CONSTRUCTION

# Structure Setting and Framing

| Project# | 4581 | Project Name | Eagle Gold 69kv | Line# | L251 | Date | Dec 19 2018 |
|---|---|---|---|---|---|---|---|

## Patrol Checklist

| Str.# | Pole# | Pole Length | Pole Class | Drilling Schedule as per Drawing | Soil type | Setting Depth | Casing/ Culvert used | Backfill Type | Backfill Compacted | Butt Plates installed | Ground Wire Installed | Guy Anchor hardware installed | Pole Plumb | Framing as per Drawings |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 31/11 B | | 60 | 1 | ✓ | Gravel | 2.74 | | Gravel | ✓ | ✓ | | | ✓ | ✓ |
| 32/1 | | 85 | 1 | ✓ | Gravel | 3.51 | | Gravel | ✓ | ✓ | | ✓ | ✓ | ✓ |
| 32/2 | | 70 | 1 | ✓ | Gravel | 3.05 | | Gravel | ✓ | ✓ | | | ✓ | ✓ |
| 32/3 | | 65 | 1 | ✓ | Gravel | 2.9 | ✓ | Gravel | ✓ | | | | ✓ | ✓ |
| 32/4 | | 65 | 1 | ✓ | Wet/Gravel | 2.9 | ✓ | Gravel | ✓ | ✓ | | | ✓ | ✓ |
| 32/5 | | 65 | 1 | ✓ | Gravel | 2.9 | ✓ | Gravel | ✓ | | | | ✓ | ✓ |
| 32/6 | | 70 | 1 | ✓ | Gravel | 3.05 | | Gravel | ✓ | ✓ | | | ✓ | ✓ |
| 32/7 | | 70 | 1 | ✓ | Gravel | 3.05 | | Gravel | ✓ | ✓ | | | ✓ | ✓ |
| 32/8 | | 90 | 1 | ✓ | Gravel | 3.66 | | Gravel | ✓ | ✓ | | ✓ | ✓ | ✓ |
| 32/9 | | 90 | 1 | ✓ | Permafrost | 3.78 | | Gravel | ✓ | ✓ | | ✓ | ✓ | ✓ |
| 32/10 | | 65 | 1 | ✓ | Permafrost | 2.9 | | Gravel | ✓ | ✓ | | ✓ | ✓ | ✓ |
| 32/11 | | 65 | 1 | ✓ | Permafrost | 2.9 | | Gravel | ✓ | ✓ | | ✓ | ✓ | ✓ |

**Comments**

Butt Plates not installed in culverts of good ground as per drawing 1405-T-2005
Butt plates installed at 32/4 culvert because of bad ground
Transverse guys installed at 32/10 and 32/11 because of permafrost

| | Name | Signature | Date |
|---|---|---|---|
| **Foreman** | TREVOR ANTAL | | Dec 20 /18 |
| **QC Inspector** | Phil McKinley | Phil McKinley | Dec 20 2018 |
| **Client Inspector** | | | |

Forbes Bros LTD
POWERLINE CONSTRUCTION

# Structure Setting and Framing

| Project# | 4581 | Project Name | Eagle Gold 69kv | Line# | L251 | Date | Dec 15 2018 |
|---|---|---|---|---|---|---|---|

## Patrol Checklist

| Str.# | Pole# | Pole Length | Pole Class | Drilling Schedule as per Drawing | Soil type | Setting Depth | Casing/ Culvert used | Backfill Type | Backfill Compacted | Butt Plates installed | Ground Wire Installed | Guy Anchor hardware installed | Pole Plumb | Framing as per Drawings |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 31/3 | | 70 | 1 | ✓ | Gravel | 3.05 | | Gravel | ✓ | ✓ | | | ✓ | ✓ |
| 31/4 | | 70 | 1 | ✓ | Gravel | 3.05 | | Gravel | ✓ | ✓ | | | ✓ | ✓ |
| 31/5 | | 70 | 1 | ✓ | Gravel | 3.05 | | Gravel | ✓ | ✓ | | | ✓ | ✓ |
| 31/6 | | 85 | 1 | ✓ | Gravel | 3.51 | | Gravel | ✓ | ✓ | | ✓ | ✓ | ✓ |
| 31/7 | | 80 | 1 | ✓ | Gravel | 3.35 | | Gravel | ✓ | ✓ | | | ✓ | ✓ |
| 31/7A | | 80 | 1 | ✓ | Gravel | 3.35 | | Gravel | ✓ | ✓ | | ✓ | ✓ | ✓ |
| 31/8 | LP | 85 | 2 | ✓ | Gravel | 3.51 | ✓ | Gravel | ✓ | | ✓ | | ✓ | ✓ |
| 31/8 | RP | 85 | 2 | ✓ | Gravel | 3.78 | ✓ | Gravel | ✓ | | ✓ | | ✓ | ✓ |
| 31/10 | LP | 90 | 2 | ✓ | Gravel | 3.93 | ✓ | Gravel | ✓ | | ✓ | | ✓ | ✓ |
| 31/10 | RP | 90 | 2 | ✓ | Gravel | 3.66 | ✓ | Gravel | ✓ | | ✓ | | ✓ | ✓ |
| 31/11 | | 75 | 1 | ✓ | Gravel | 3.2 | | Gravel | ✓ | ✓ | | ✓ | ✓ | ✓ |
| 31/11A | | 65 | 1 | ✓ | Gravel | 2.9 | | Gravel | ✓ | ✓ | | ✓ | ✓ | ✓ |

**Comments**

31/3, 31/4, 31/5, 31/7, 31/11A used 3/4" bolts to secure stacks instead of 7/8" as approved by Philip Clark of Clean Energy
Butt plates not used in culverts of good ground as per drawing 1407-T-2005

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR ANTAL | | Dec 16/18 |
| QC Inspector | Phil McKinley | Phil McKinley | Dec 15 2018 |
| Client Inspector | | | |

Forbes Bros LTD
POWERLINE CONSTRUCTION

# Structure Setting and Framing

| Project# | 4581 | Project Name | Eagle Gold 69kv | Line# | L251 | Date | Dec 11 2018 |
|---|---|---|---|---|---|---|---|

## Patrol Checklist

| Str.# | Pole# | Pole Length | Pole Class | Drilling Schedule as per Drawing | Soil type | Setting Depth | Casing/ Culvert used | Backfill Type | Backfill Compacted | Butt Plates installed | Ground Wire Installed | Guy Anchor hardware installed | Pole Plumb | Framing as per Drawings |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 30/3 | | 60 | 1 | ✓ | Gravel | 2.74 | | Gravel | ✓ | ✓ | | | ✓ | ✓ |
| 30/4 | | 70 | 1 | ✓ | Gravel | 3.04 | | Gravel | ✓ | ✓ | | | ✓ | ✓ |
| 30/5 | | 70 | H2 | ✓ | Gravel | 3.05 | | Gravel | ✓ | ✓ | | ✓ | ✓ | ✓ |
| 30/6 | | 70 | 1 | ✓ | Gravel | 3.05 | | Gravel | ✓ | ✓ | | | ✓ | ✓ |
| 30/7 | | 65 | 1 | ✓ | Gravel | 2.9 | | Gravel | ✓ | ✓ | | | ✓ | ✓ |
| 30/8 | | 65 | 1 | ✓ | Gravel | 2.9 | | Gravel | ✓ | ✓ | | | ✓ | ✓ |
| 30/9 | | 85 | 1 | ✓ | Gravel | 3.8 | | Gravel | ✓ | ✓ | | ✓ | ✓ | ✓ |
| 30/10 | | 65 | 1 | ✓ | Gravel | 2.9 | | Gravel | ✓ | ✓ | | | ✓ | ✓ |
| 30/11 | | 65 | 1 | ✓ | Gravel | 2.9 | | Gravel | ✓ | ✓ | | | ✓ | ✓ |
| 30/12 | | 60 | 1 | ✓ | Gravel | 2.74 | | Gravel | ✓ | ✓ | | | ✓ | ✓ |
| 31/1 | | 65 | 1 | ✓ | Gravel | 2.9 | | Gravel | ✓ | ✓ | | | ✓ | ✓ |
| 31/2 | | 65 | 1 | ✓ | Gravel | 2.9 | | Gravel | ✓ | ✓ | | | ✓ | ✓ |

**Comments**

All poles except 30/5 used 3/4 inch bolts on the stacks instead of 7/8" as was approved by Philip Clark of Clean Energy.

| | Name | Signature | Date |
|---|---|---|---|
| **Foreman** | TREVOR ANTAC | | Dec 14 |
| **QC Inspector** | Phil McKinley | Phil McKinley | Dec 13 2018 |
| **Client Inspector** | | | |

Forbes Bros LTD
POWERLINE CONSTRUCTION

# Structure Setting and Framing

| Project# | 4581 | Project Name | Eagle Gold 69kv | Line# | L251 | Date | Dec 10 2018 |
|---|---|---|---|---|---|---|---|

## Patrol Checklist

| Str.# | Pole# | Pole Length | Pole Class | Drilling Schedule as per Drawing | Soil type | Setting Depth | Casing/ Culvert used | Backfill Type | Backfill Compacted | Butt Plates installed | Ground Wire Installed | Guy Anchor hardware installed | Pole Plumb | Framing as per Drawings |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 29/3 | | 60 | 1 | ✓ | Gravel | 2.74 | | Gravel | ✓ | ✓ | | | ✓ | ✓ |
| 29/4 | | 70 | 1 | ✓ | Gravel | 3.05 | | Gravel | ✓ | ✓ | | | ✓ | ✓ |
| 29/5 | | 75 | 1 | ✓ | Gravel | 3.2 | | Gravel | ✓ | ✓ | | | ✓ | ✓ |
| 29/6 | | 70 | 1 | ✓ | Gravel | 3.05 | | Gravel | ✓ | ✓ | | ✓ | ✓ | ✓ |
| 29/7 | | 70 | 1 | ✓ | Gravel | 3.05 | | Gravel | ✓ | ✓ | | ✓ | ✓ | ✓ |
| 29/8 | | 65 | 1 | ✓ | Gravel | 2.9 | | Gravel | ✓ | ✓ | | | ✓ | ✓ |
| 29/9 | | 70 | 1 | ✓ | Gravel | 3.05 | | Gravel | ✓ | ✓ | | | ✓ | ✓ |
| 29/10 | | 65 | 1 | ✓ | Gravel | 2.9 | | Gravel | ✓ | ✓ | | | ✓ | ✓ |
| 29/11 | | 65 | 1 | ✓ | Gravel | 2.9 | | Gravel | ✓ | ✓ | | | ✓ | ✓ |
| 29/12 | | 65 | 1 | ✓ | Gravel | 2.9 | | Gravel | ✓ | ✓ | | | ✓ | ✓ |
| 30/1 | | 75 | 1 | ✓ | Gravel | 3.2 | | Gravel | ✓ | ✓ | | ✓ | ✓ | ✓ |
| 30/2 | | 60 | 1 | ✓ | Gravel | 2.74 | | Gravel | ✓ | ✓ | | ✓ | ✓ | ✓ |

**Comments**

| | Name | Signature | Date |
|---|---|---|---|
| **Foreman** | TREVOR ANTAK | | Dec 12/18 |
| **QC Inspector** | Phil McKinley | Phil McKinley | Dec 11 2018 |
| **Client Inspector** | | | |

Forbes Bros LTD
POWERLINE CONSTRUCTION

# Structure Setting and Framing

| Project# | 4581 | Project Name | Eagle Gold 69kv | Line# | L251 | Date | Dec 8 2018 |
|---|---|---|---|---|---|---|---|

## Patrol Checklist

| Str.# | Pole# | Pole Length | Pole Class | Drilling Schedule as per Drawing | Soil type | Setting Depth | Casing/ Culvert used | Backfill Type | Backfill Compacted | Butt Plates installed | Ground Wire Installed | Guy Anchor hardware installed | Pole Plumb | Framing as per Drawings |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 28/4 | | 70 | 1 | ✓ | Gravel | 3.05 | | Gravel | ✓ | ✓ | | | ✓ | ✓ |
| 28/5 | | 75 | 1 | ✓ | Gravel | 3.2 | | Gravel | ✓ | ✓ | | | ✓ | ✓ |
| 28/6 | | 75 | 1 | ✓ | Gravel | 3.2 | | Gravel | ✓ | ✓ | | | ✓ | ✓ |
| 28/7 | | 60 | H2 | ✓ | Gravel | 2.74 | | Gravel | ✓ | ✓ | | ✓ | ✓ | ✓ |
| 28/8 | | 80 | 1 | ✓ | Gravel | 3.35 | | Gravel | ✓ | ✓ | | | ✓ | ✓ |
| 28/9 | | 80 | 1 | ✓ | Gravel | 3.35 | | Gravel | ✓ | ✓ | | | ✓ | ✓ |
| 28/10 | | 70 | 1 | ✓ | Gravel | 3.05 | | Gravel | ✓ | ✓ | | | ✓ | ✓ |
| 28/11 | | 65 | 1 | ✓ | Gravel | 2.9 | | Gravel | ✓ | ✓ | | | ✓ | ✓ |
| 28/12 | | 75 | 1 | ✓ | Gravel | 3.2 | | Gravel | ✓ | ✓ | | | ✓ | ✓ |
| 28/13 | | 85 | 1 | ✓ | Gravel | 3.66 | | Gravel | ✓ | ✓ | | ✓ | ✓ | ✓ |
| 29/1 | | 60 | 1 | ✓ | Gravel | 2.74 | | Gravel | ✓ | ✓ | | | ✓ | ✓ |
| 29/2 | | 60 | 1 | ✓ | Gravel | 2.74 | | Gravel | ✓ | ✓ | | | ✓ | ✓ |

**Comments**

28/13 changed to DF-1-85 as per RFI 022

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR ANTAL | | Dec 9/18 |
| QC Inspector | Phil McKinley | Phil McKinley | Dec 8 2018 |
| Client Inspector | | | |

Forbes Bros LTD
POWERLINE CONSTRUCTION

# Structure Setting and Framing

| Project# | 4581 | Project Name | Eagle Gold 69kv | Line# | L251 | Date | Dec 5 2018 |
|---|---|---|---|---|---|---|---|

## Patrol Checklist

| Str.# | Pole# | Pole Length | Pole Class | Drilling Schedule as per Drawing | Soil type | Setting Depth | Casing/ Culvert used | Backfill Type | Backfill Compacted | Butt Plates installed | Ground Wire Installed | Guy Anchor hardware installed | Pole Plumb | Framing as per Drawings |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 27/4 | | 60 | 1 | ✓ | Gravel | 2.74 | | Gravel | ✓ | ✓ | | | ✓ | ✓ |
| 27/5 | | 60 | 1 | ✓ | Gravel | 2.74 | | Gravel | ✓ | ✓ | | | ✓ | ✓ |
| 27/6 | | 65 | 1 | ✓ | Gravel | 2.9 | | Gravel | ✓ | ✓ | | | ✓ | ✓ |
| 27/7 | | 65 | 1 | ✓ | Gravel | 2.9 | | Gravel | ✓ | ✓ | | | ✓ | ✓ |
| 27/8 | | 65 | 1 | ✓ | Gravel | 2.9 | | Gravel | ✓ | ✓ | | | ✓ | ✓ |
| 27/9 | | 60 | 1 | ✓ | Gravel | 2.74 | | Gravel | ✓ | ✓ | | | ✓ | ✓ |
| 27/10 | | 65 | 1 | ✓ | Gravel | 2.9 | | Gravel | ✓ | ✓ | | | ✓ | ✓ |
| 27/11 | | 60 | 1 | ✓ | Gravel | 2.74 | | Gravel | ✓ | ✓ | | | ✓ | ✓ |
| 27/12 | | 60 | 1 | ✓ | Gravel | 2.74 | | Gravel | ✓ | ✓ | | | ✓ | ✓ |
| 28/1 | | 65 | 1 | ✓ | Gravel | 2.9 | | Gravel | ✓ | ✓ | | | ✓ | ✓ |
| 28/2 | | 85 | 1 | ✓ | Gravel | 3.51 | | Gravel | ✓ | ✓ | | ✓ | ✓ | ✓ |
| 28/3 | | 70 | 1 | ✓ | Gravel | 3.05 | | Gravel | ✓ | ✓ | | | ✓ | ✓ |

**Comments**

28/2 will be rechecked for plumb once guy wires are tensioned

| | Name | Signature | Date |
|---|---|---|---|
| **Foreman** | TREVOR ANJAK | | Dec 6/18 |
| **QC Inspector** | Phil McKinley | Phil McKinley | Dec 5 2018 |
| **Client Inspector** | | | |

Forbes Bros LTD
POWERLINE CONSTRUCTION

# Structure Setting and Framing

| Project# | 4581 | Project Name | Eagle Gold 69kv | Line# | L251 | Date | Dec 5 2018 |
|---|---|---|---|---|---|---|---|

## Patrol Checklist

| Str.# | Pole# | Pole Length | Pole Class | Drilling Schedule as per Drawing | Soil type | Setting Depth | Casing/ Culvert used | Backfill Type | Backfill Compacted | Butt Plates Installed | Ground Wire Installed | Guy Anchor hardware Installed | Pole Plumb | Framing as per Drawings |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 26/3 | | 65 | 1 | ✓ | Gravel | 2.9 | | Gravel | ✓ | ✓ | | | ✓ | ✓ |
| 26/4 | | 60 | 1 | ✓ | Gravel | 2.74 | | Gravel | ✓ | ✓ | | | ✓ | ✓ |
| 26/5 | | 60 | 1 | ✓ | Gravel | 2.74 | | Gravel | ✓ | ✓ | | | ✓ | ✓ |
| 26/6 | | 65 | 1 | ✓ | Gravel | 2.9 | | Gravel | ✓ | ✓ | | | ✓ | ✓ |
| 26/7 | | 60 | 1 | ✓ | Gravel | 2.74 | | Gravel | ✓ | ✓ | | | ✓ | ✓ |
| 26/8 | | 65 | 1 | ✓ | Gravel | 2.9 | | Gravel | ✓ | ✓ | | | ✓ | ✓ |
| 26/9 | | 65 | 1 | ✓ | Gravel | 2.9 | | Gravel | ✓ | ✓ | | | ✓ | ✓ |
| 26/10 | | 60 | 1 | ✓ | Gravel | 2.74 | | Gravel | ✓ | ✓ | | | ✓ | ✓ |
| 26/11 | | 65 | 1 | ✓ | Gravel | 2.9 | | Gravel | ✓ | ✓ | | | ✓ | ✓ |
| 27/1 | | 75 | 1 | ✓ | Gravel | 3.2 | | Gravel | ✓ | ✓ | | ✓ | ✓ | ✓ |
| 27/2 | | 65 | 1 | ✓ | Gravel | 2.9 | | Gravel | ✓ | ✓ | | | ✓ | ✓ |
| 27/3 | | 60 | 1 | ✓ | Gravel | 2.74 | | Gravel | ✓ | ✓ | | | ✓ | ✓ |

**Comments**

Poles will be rechecked for plumb once guy wire is tensioned

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR ANSTA | | Dec 6/18 |
| QC Inspector | Phil McKinley | Phil McKinley | Dec 5 2018 |
| Client Inspector | | | |

Forbes Bros LTD
POWERLINE CONSTRUCTION

# Structure Setting and Framing

| Project# | 4581 | Project Name | Eagle Gold 69kv | Line# | L251 | Date | Dec 1 2018 |
|---|---|---|---|---|---|---|---|

## Patrol Checklist

| Str.# | Pole# | Pole Length | Pole Class | Drilling Schedule as per Drawing | Soil type | Setting Depth | Casing/ Culvert used | Backfill Type | Backfill Compacted | Butt Plates installed | Ground Wire Installed | Guy Anchor hardware installed | Pole Plumb | Framing as per Drawings |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 25/3 | | 70 | 1 | ✓ | Gravel | 3.05 | | Gravel | ✓ | ✓ | | | ✓ | ✓ |
| 25/4 | | 60 | 1 | ✓ | Gravel | 2.74 | | Gravel | ✓ | ✓ | | | ✓ | ✓ |
| 25/5 | | 60 | 1 | ✓ | Gravel | 2.74 | | Gravel | ✓ | ✓ | | ✓ | ✓ | ✓ |
| 25/6 | | 65 | 1 | ✓ | Gravel | 2.9 | | Gravel | ✓ | ✓ | | | ✓ | ✓ |
| 25/7 | | 65 | 1 | ✓ | Gravel | 2.9 | | Gravel | ✓ | ✓ | | ✓ | ✓ | ✓ |
| 25/8 | | 60 | 1 | ✓ | Gravel | 2.74 | | Gravel | ✓ | ✓ | | ✓ | ✓ | ✓ |
| 25/9 | | 60 | 1 | ✓ | Gravel | 2.74 | | Gravel | ✓ | ✓ | | | ✓ | ✓ |
| 25/10 | | 60 | 1 | ✓ | Gravel | 2.74 | | Gravel | ✓ | ✓ | | | ✓ | ✓ |
| 25/11 | | 65 | 1 | ✓ | Gravel | 2.9 | | Gravel | ✓ | ✓ | | ✓ | ✓ | ✓ |
| 25/12 | | 70 | 1 | ✓ | Gravel | 3.05 | | Gravel | ✓ | ✓ | | | ✓ | ✓ |
| 26/1 | | 65 | H2 | ✓ | Gravel | 2.9 | | Gravel | ✓ | ✓ | | ✓ | ✓ | ✓ |
| 26/2 | | 65 | 1 | ✓ | Gravel | 2.9 | | Gravel | ✓ | ✓ | | | ✓ | ✓ |

**Comments**

All structures will be rechecked for plumb once guy wire is tensioned

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR ANTAL | | Dec 6/18 |
| QC Inspector | Phil McKinley | Phil McKinley | Dec 5 2018 |
| Client Inspector | | | |

Forbes Bros LTD
POWERLINE CONSTRUCTION

# Structure Setting and Framing

| Project# | 4581 | Project Name | Eagle Gold 69kv | Line# | L251 | Date | Dec 1 2018 |
|---|---|---|---|---|---|---|---|

## Patrol Checklist

| Str.# | Pole# | Pole Length | Pole Class | Drilling Schedule as per Drawing | Soil type | Setting Depth | Casing/ Culvert used | Backfill Type | Backfill Compacted | Butt Plates installed | Ground Wire Installed | Guy Anchor hardware installed | Pole Plumb | Framing as per Drawings |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 24/2 | | 65 | 1 | ✓ | Gravel | 2.9 | | Gravel | ✓ | ✓ | | ✓ | ✓ | ✓ |
| 24/3 | | 70 | 1 | ✓ | Gravel | 2.94 | | Gravel | ✓ | ✓ | | | ✓ | ✓ |
| 24/4 | | 65 | 1 | ✓ | Gravel | 2.93 | | Gravel | ✓ | ✓ | | | ✓ | ✓ |
| 24/5 | | 60 | 1 | ✓ | Gravel | 2.71 | | Gravel | ✓ | ✓ | | | ✓ | ✓ |
| 24/6 | | 60 | 1 | ✓ | Gravel | 2.74 | | Gravel | ✓ | ✓ | | | ✓ | ✓ |
| 24/7 | | 60 | 1 | ✓ | Gravel | 2.72 | | Gravel | ✓ | ✓ | | | ✓ | ✓ |
| 24/8 | | 60 | 1 | ✓ | Gravel | 2.63 | | Gravel | ✓ | ✓ | | | ✓ | ✓ |
| 24/9 | | 75 | 1 | ✓ | Gravel | 3.2 | | Gravel | ✓ | ✓ | | ✓ | ✓ | ✓ |
| 24/10 | | 60 | 1 | ✓ | Gravel | 2.74 | | Gravel | ✓ | ✓ | | | ✓ | ✓ |
| 24/11 | | 65 | 1 | ✓ | Gravel | 2.9 | | Gravel | ✓ | ✓ | | | ✓ | ✓ |
| 25/1 | | 65 | 1 | ✓ | Gravel | 2.9 | | Gravel | ✓ | ✓ | | | ✓ | ✓ |
| 25/2 | | 70 | 1 | ✓ | Gravel | 3.05 | | Gravel | ✓ | ✓ | | | ✓ | ✓ |

**Comments**

All poles will be rechecked for plumb on final inspection after all guys are tensioned

| | Name | Signature | Date |
|---|---|---|---|
| **Foreman** | TREVOR ANTYAC | | Dec 6 |
| **QC Inspector** | Phil McKinley | Phil McKinley | Dec 5 2018 |
| **Client Inspector** | | | |

Forbes Bros LTD
POWERLINE CONSTRUCTION

# Structure Setting and Framing

| Project# | 4581 | Project Name | Eagle Gold 69kv | Line# | L251 | Date | Nov 26 2018 |
|---|---|---|---|---|---|---|---|

## Patrol Checklist

| Str.# | Pole# | Pole Length | Pole Class | Drilling Schedule as per Drawing | Soil type | Setting Depth | Casing/ Culvert used | Backfill Type | Backfill Compacted | Butt Plates installed | Ground Wire Installed | Guy Anchor hardware installed | Pole Plumb | Framing as per Drawings |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 22/8 | | 65 | H2 | ✓ | Gravel | 2.9 | ✓ | Gravel | ✓ | | | ✓ | ✓ | ✓ |
| 22/9 | | 60 | 1 | ✓ | Gravel | 2.74 | ✓ | Gravel | ✓ | | | | ✓ | ✓ |
| 23/1 | | 60 | 1 | ✓ | Gravel | 2.74 | ✓ | Gravel | ✓ | | | | ✓ | ✓ |
| 23/2 | | 60 | 1 | ✓ | Gravel | 2.74 | ✓ | Gravel | ✓ | | | | ✓ | ✓ |
| 23/3 | | 60 | 1 | ✓ | Gravel | 2.74 | | Gravel | ✓ | ✓ | | | ✓ | ✓ |
| 23/4 | | 60 | 1 | ✓ | Gravel | 2.74 | | Gravel | ✓ | ✓ | | | ✓ | ✓ |
| 23/5 | | 60 | 1 | ✓ | Gravel | 2.74 | | Gravel | ✓ | ✓ | | | ✓ | ✓ |
| 23/6 | | 65 | 1 | ✓ | Gravel | 2.9 | | Gravel | ✓ | ✓ | | ✓ | ✓ | ✓ |
| 23/7 | | 65 | 1 | ✓ | Gravel | 2.9 | | Gravel | ✓ | ✓ | | | ✓ | ✓ |
| 23/8 | | 65 | 1 | ✓ | Gravel | 2.9 | | Gravel | ✓ | ✓ | | ✓ | ✓ | ✓ |
| 23/9 | | 85 | 1 | ✓ | Gravel | 3.48 | | Gravel | ✓ | ✓ | | ✓ | ✓ | ✓ |
| 23/10 | | 65 | 1 | ✓ | Gravel | 2.9 | | Gravel | ✓ | ✓ | | | ✓ | ✓ |

**Comments**

22/8 Grounding will be installed when anchors are installed
Structures will be rechecked for plumb once guy wires are tensioned and wire strung
Butt plates not installed in culverts of good ground as per drawing 1405-T-2005

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | Trevor Antel | | Nov 29/18 |
| QC Inspector | Phil McKinley | Phil McKinley | Nov 28 2018 |
| Client Inspector | | | |

Forbes Bros LTD
POWERLINE CONSTRUCTION

# Structure Setting and Framing

| Project# | 4581 | Project Name | Eagle Gold 69kv | Line# | L251 | Date | Nov 23 2018 |
|---|---|---|---|---|---|---|---|

## Patrol Checklist

| Str.# | Pole# | Pole Length | Pole Class | Drilling Schedule as per Drawing | Soil type | Setting Depth | Casing/ Culvert used | Backfill Type | Backfill Compacted | Butt Plates installed | Ground Wire Installed | Guy Anchor hardware installed | Pole Plumb | Framing as per Drawings |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 21/7 | | 60 | 1 | ✓ | Permafrost | 2.74 | ✓ | Gravel | ✓ | | | ✓ | ✓ | ✓ |
| 21/8 | | 80 | 1 | ✓ | Permafrost | 3.38 | ✓ | Gravel | ✓ | | | ✓ | ✓ | ✓ |
| 21/9 | | 60 | 1 | ✓ | Permafrost | 2.74 | ✓ | Gravel | ✓ | | | ✓ | ✓ | ✓ |
| 21/10 | | 65 | 1 | ✓ | Permafrost | 2.9 | ✓ | Gravel | ✓ | | | ✓ | ✓ | ✓ |
| 21/11 | | 60 | 1 | ✓ | Gravel | 2.74 | ✓ | Gravel | ✓ | | | | ✓ | ✓ |
| 21/12 | | 60 | 1 | ✓ | Permafrost | 2.74 | ✓ | Gravel | ✓ | | | ✓ | ✓ | ✓ |
| 21/13 | | 65 | 1 | ✓ | Permafrost | 2.9 | ✓ | Gravel | ✓ | | | ✓ | ✓ | ✓ |
| 22/1 | LP | 85 | 2 | | Permafrost | 3.59 | ✓ | Gravel | ✓ | | | | ✓ | |
| 22/1 | RP | 85 | 2 | | Permafrost | 3.42 | ✓ | Gravel | ✓ | | | | ✓ | |
| 22/5 | | 70 | 1 | ✓ | Gravel | 3.05 | ✓ | Gravel | ✓ | | | | ✓ | ✓ |
| 22/6 | | 65 | 1 | ✓ | Gravel | 2.9 | ✓ | Gravel | ✓ | | | | ✓ | ✓ |
| 22/7 | | 60 | 1 | ✓ | Gravel | 2.74 | ✓ | Gravel | ✓ | | | | ✓ | ✓ |

**Comments**

Butt plates not installed in culverts of good ground as per drawing 1407- T - 2005
Structures will be rechecked for plumb once anchors are installed and guy wires are tensioned
22/1 poles set will be framed in the air, ground wire will be installed at that time

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | Trevor Antal | | Nov 26/18 |
| QC Inspector | Phil McKinley | Phil McKinley | Nov 25 2018 |
| Client Inspector | | | |

Forbes Bros LTD
POWERLINE CONSTRUCTION

# Structure Setting and Framing

| Project# | 4581 | Project Name | Eagle Gold 69kv | Line# | L251 | Date | Nov 21 2018 |
|---|---|---|---|---|---|---|---|

**Patrol Checklist**

| Str.# | Pole# | Pole Length | Pole Class | Drilling Schedule as per Drawing | Soil type | Setting Depth | Casing/ Culvert used | Backfill Type | Backfill Compacted | Butt Plates Installed | Ground Wire Installed | Guy Anchor hardware installed | Pole Plumb | Framing as per Drawings |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 20/10 | | 60 | 1 | ✓ | Gravel | 2.74 | | Gravel | ✓ | ✓ | | | ✓ | ✓ |
| 20/11 | | 70 | 1 | ✓ | Gravel | 3.05 | | Gravel | ✓ | ✓ | | ✓ | ✓ | ✓ |
| 20/12 | LP | 75 | 2 | | Gravel | 3.19 | | Gravel | ✓ | ✓ | | | ✓ | |
| 20/12 | RP | 75 | 2 | | Gravel | 3.21 | | Gravel | ✓ | ✓ | | | ✓ | |
| 21/1 | LP | 85 | 1 | | Gravel | 3.47 | | Gravel | ✓ | ✓ | | | ✓ | |
| 21/1 | RP | 85 | 1 | | Gravel | 3.53 | | Gravel | ✓ | ✓ | | | ✓ | |
| 21/2 | | 85 | 1 | ✓ | Gravel | 3.51 | | Gravel | ✓ | ✓ | | ✓ | ✓ | ✓ |
| 21/2A | | 75 | 1 | ✓ | Gravel | 3.2 | | Gravel | ✓ | ✓ | | | ✓ | ✓ |
| 21/3 | | 70 | 1 | ✓ | Gravel | 3.05 | | Gravel | ✓ | ✓ | | | ✓ | ✓ |
| 21/4 | | 60 | 1 | ✓ | Permafrost | 2.74 | ✓ | Gravel | ✓ | | | ✓ | ✓ | ✓ |
| 21/5 | | 60 | 1 | ✓ | Permafrost | 2.74 | ✓ | Gravel | ✓ | | | ✓ | ✓ | ✓ |
| 21/6 | | 60 | 1 | ✓ | Permafrost | 2.74 | ✓ | Gravel | ✓ | | | ✓ | ✓ | ✓ |

**Comments**

20/12 & 21/1 are set but not framed, will frame in the air
Butt plates not used in culverts of good ground as per drawing 1407 - T - 2005
All structures with guy wire will be rechecked for plumb once anchors are installed and guy wire tensioned

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR ANDRE | | Nov 22/18 |
| QC Inspector | Phil McKinley | Phil McKinley | Nov 21 2018 |
| Client Inspector | | | |

Forbes Bros LTD
POWERLINE CONSTRUCTION

# Structure Setting and Framing

| Project# | 4581 | Project Name | Eagle Gold 69kv | Line# | L251 | Date | Nov 21 2018 |
|---|---|---|---|---|---|---|---|

## Patrol Checklist

| Str.# | Pole# | Pole Length | Pole Class | Drilling Schedule as per Drawing | Soil type | Setting Depth | Casing/ Culvert used | Backfill Type | Backfill Compacted | Butt Plates installed | Ground Wire Installed | Guy Anchor hardware installed | Pole Plumb | Framing as per Drawings |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 19/10 | | 60 | 1 | ✓ | Gravel | 2.74 | | Gravel | ✓ | ✓ | | | ✓ | ✓ |
| 19/11 | | 60 | 1 | ✓ | Gravel | 2.74 | | Gravel | ✓ | ✓ | | | ✓ | ✓ |
| 19/12 | | 60 | 1 | ✓ | Gravel | 2.74 | | Gravel | ✓ | ✓ | | | ✓ | ✓ |
| 20/1 | | 60 | 1 | ✓ | Gravel | 2.74 | | Gravel | ✓ | ✓ | | | ✓ | ✓ |
| 20/2 | | 60 | 1 | ✓ | Gravel | 2.74 | | Gravel | ✓ | ✓ | | | ✓ | ✓ |
| 20/3 | | 60 | 1 | ✓ | Gravel | 2.74 | | Gravel | ✓ | ✓ | | | ✓ | ✓ |
| 20/4 | | 60 | 1 | ✓ | Gravel | 2.74 | | Gravel | ✓ | ✓ | | | ✓ | ✓ |
| 20/5 | | 60 | 1 | ✓ | Gravel | 2.74 | | Gravel | ✓ | ✓ | | | ✓ | ✓ |
| 20/6 | | 60 | 1 | ✓ | Gravel | 2.74 | | Gravel | ✓ | ✓ | | | ✓ | ✓ |
| 20/7 | | 65 | 1 | ✓ | Gravel | 2.9 | | Gravel | ✓ | ✓ | | ✓ | ✓ | ✓ |
| 20/8 | | 85 | 1 | ✓ | Gravel | 3.48 | | Gravel | ✓ | ✓ | | ✓ | ✓ | ✓ |
| 20/9 | | 60 | 1 | ✓ | Gravel | 2.74 | | Gravel | ✓ | ✓ | | | ✓ | ✓ |

**Comments**

All structures with guy wire will be rechecked for plumb once anchors are installed and guy wire are tensioned

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | Trevor Arndt | | Nov 22/18 |
| QC Inspector | Phil McKinley | | Nov 21 2018 |
| Client Inspector | | | |

Forbes Bros LTD
POWERLINE CONSTRUCTION

# Structure Setting and Framing

| Project# | 4581 | Project Name | Eagle Gold 69kv | Line# | L251 | Date | Nov 19 2018 |
|---|---|---|---|---|---|---|---|

## Patrol Checklist

| Str.# | Pole# | Pole Length | Pole Class | Drilling Schedule as per Drawing | Soil type | Setting Depth | Casing/ Culvert used | Backfill Type | Backfill Compacted | Butt Plates installed | Ground Wire Installed | Guy Anchor hardware installed | Pole Plumb | Framing as per Drawings |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 19/5 | | 65 | 1 | ✓ | Gravel | 2.9 | | Gravel | ✓ | ✓ | | | ✓ | ✓ |
| 19/6 | | 70 | 1 | ✓ | Gravel | 3.05 | | Gravel | ✓ | ✓ | | | ✓ | ✓ |
| 19/7 | | 60 | 1 | ✓ | Gravel | 2.74 | | Gravel | ✓ | ✓ | | | ✓ | ✓ |
| 19/8 | | 60 | 1 | ✓ | Gravel | 2.74 | | Gravel | ✓ | ✓ | | ✓ | ✓ | ✓ |
| 19/9 | | 60 | 1 | ✓ | Gravel | 2.74 | | Gravel | ✓ | ✓ | | | ✓ | ✓ |
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| | | | | | | | | | | | | | | |

**Comments**

Poles will be rechecked for plumb once anchors are installed and guy wire tensioned

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR AWDAL | | Nov 20/18 |
| QC Inspector | Phil McKinley | Phil McKinley | Nov 19 2018 |
| Client Inspector | | | |

Forbes Bros LTD
POWERLINE CONSTRUCTION

# Structure Setting and Framing

| Project# | 4581 | Project Name | Eagle Gold 69kv | Line# | L251 | Date | Nov 19 2018 |
|---|---|---|---|---|---|---|---|

## Patrol Checklist

| Str.# | Pole# | Pole Length | Pole Class | Drilling Schedule as per Drawing | Soil type | Setting Depth | Casing/ Culvert used | Backfill Type | Backfill Compacted | Butt Plates installed | Ground Wire Installed | Guy Anchor hardware installed | Pole Plumb | Framing as per Drawings |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18/6 | | 65 | 1 | ✓ | Gravel | 2.98 | ✓ | Gravel | ✓ | | | | ✓ | ✓ |
| 18/7 | | 75 | 1 | ✓ | Permafrost | 3.2 | ✓ | Gravel | ✓ | | | ✓ | ✓ | ✓ |
| 18/8 | | 60 | 1 | ✓ | Gravel | 2.74 | | Gravel | ✓ | ✓ | | ✓ | ✓ | ✓ |
| 18/9 | | 60 | 1 | ✓ | Gravel | 2.74 | | Gravel | ✓ | ✓ | | | ✓ | ✓ |
| 18/10 | | 60 | 1 | ✓ | Gravel | 2.74 | | Gravel | ✓ | ✓ | | | ✓ | ✓ |
| 18/11 | | 60 | 1 | ✓ | Gravel | 2.74 | | Gravel | ✓ | ✓ | | ✓ | ✓ | ✓ |
| 18/12 | | 60 | 1 | ✓ | Gravel | 2.74 | | Gravel | ✓ | ✓ | | | ✓ | ✓ |
| 18/13 | | 60 | 1 | ✓ | Gravel | 2.74 | | Gravel | ✓ | ✓ | | ✓ | ✓ | ✓ |
| 19/1 | | 60 | 1 | ✓ | Gravel | 2.74 | | Gravel | ✓ | ✓ | | | ✓ | ✓ |
| 19/2 | | 60 | 1 | ✓ | Gravel | 2.74 | | Gravel | ✓ | ✓ | | | ✓ | ✓ |
| 19/3 | | 60 | 1 | ✓ | Gravel | 2.74 | | Gravel | ✓ | ✓ | | | ✓ | ✓ |
| 19/4 | | 60 | 1 | ✓ | Gravel | 2.74 | | Gravel | ✓ | ✓ | | | ✓ | ✓ |

**Comments**

Butt plates not installed in culverts of good ground as per drawing 1407-T-2005
Poles will be rechecked for plumb once anchors are installed and guy wires are tensioned
18/7,18/11,18/13 need angle brackets,vertical insulators and split bolts installed

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR AWITAC | | Nov 20 /18 |
| QC Inspector | Phil McKinley | | Nov 19 2018 |
| Client Inspector | | | |

Forbes Bros LTD
POWERLINE CONSTRUCTION

# Structure Setting and Framing

| Project# | 4581 | Project Name | Eagle Gold 69kv | Line# | L251 | Date | Nov 19 2018 |
|---|---|---|---|---|---|---|---|

## Patrol Checklist

| Str.# | Pole# | Pole Length | Pole Class | Drilling Schedule as per Drawing | Soil type | Setting Depth | Casing/ Culvert used | Backfill Type | Backfill Compacted | Butt Plates installed | Ground Wire Installed | Guy Anchor hardware installed | Pole Plumb | Framing as per Drawings |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 17/5 | | 75 | 1 | ✓ | Gravel | 3.21 | | Gravel | ✓ | ✓ | | ✓ | ✓ | ✓ |
| 17/7 | | 60 | 1 | ✓ | Gravel | 2.74 | | Gravel | ✓ | ✓ | | | ✓ | ✓ |
| 17/8 | | 60 | 1 | ✓ | Gravel | 2.74 | | Gravel | ✓ | ✓ | | | ✓ | ✓ |
| 17/9 | | 60 | 1 | ✓ | Gravel | 2.74 | | Gravel | ✓ | ✓ | | | ✓ | ✓ |
| 17/10 | | 60 | 1 | ✓ | Gravel | 2.74 | | Gravel | ✓ | ✓ | | | ✓ | ✓ |
| 17/11 | | 65 | 1 | ✓ | Gravel | 2.9 | | Gravel | ✓ | ✓ | | ✓ | ✓ | ✓ |
| 17/12 | | 60 | 1 | ✓ | Permafrost | 2.74 | ✓ | Gravel | ✓ | | | ✓ | ✓ | ✓ |
| 18/1 | | 65 | 1 | ✓ | Permafrost | 2.9 | ✓ | Gravel | ✓ | | | ✓ | ✓ | ✓ |
| 18/2 | | 70 | 1 | ✓ | Gravel | 3.05 | ✓ | Gravel | ✓ | | | ✓ | ✓ | ✓ |
| 18/3 | | 65 | 1 | ✓ | Permafrost | 2.9 | ✓ | Gravel | ✓ | | | ✓ | ✓ | ✓ |
| 18/4 | | 60 | 1 | ✓ | Gravel | 2.83 | ✓ | Gravel | ✓ | | | | ✓ | ✓ |
| 18/5 | | 65 | 1 | ✓ | Permafrost | 2.88 | ✓ | Gravel | ✓ | | | ✓ | ✓ | ✓ |

**Comments**

Butt plates not installed in culverts of good ground as per drawing 1407-t-2005
17/11 needs a split bolt
18/3 needs vertical stack All structures will be rechecked for plumb once anchors are installed and guy wire tensioned

| | Name | Signature | Date |
|---|---|---|---|
| **Foreman** | TREVOR ANDRE | | NOV 20/18 |
| **QC Inspector** | Phil McKinley | Phil McKinley | Nov 19 2018 |
| **Client Inspector** | | | |

Forbes Bros LTD
POWERLINE CONSTRUCTION

# Structure Setting and Framing

| Project# | 4581 | Project Name | Eagle Gold 69kv | Line# | L251 | Date | Dec 1 2018 |
|---|---|---|---|---|---|---|---|

## Patrol Checklist

| Str.# | Pole# | Pole Length | Pole Class | Drilling Schedule as per Drawing | Soil type | Setting Depth | Casing/ Culvert used | Backfill Type | Backfill Compacted | Butt Plates installed | Ground Wire Installed | Guy Anchor hardware installed | Pole Plumb | Framing as per Drawings |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 17/4 | | 80 | 1 | ✓ | Gravel | 3.35 | | Gravel | ✓ | ✓ | | | ✓ | ✓ |
| 17/6 | | 65 | 1 | ✓ | Gravel | 2.9 | | Gravel | ✓ | ✓ | | | ✓ | ✓ |
| 22/2 | LP | 100 | 2 | ✓ | Wet | 3.94 | ✓ | Gravel | ✓ | ✓ | | | ✓ | ✓ |
| 22/2 | RP | 100 | 2 | ✓ | Wet | 3.98 | ✓ | Gravel | ✓ | ✓ | | | ✓ | ✓ |
| 22/3 | LP | 100 | 2 | ✓ | Wet | 3.97 | ✓ | Gravel | ✓ | ✓ | | | ✓ | ✓ |
| 22/3 | RP | 100 | 2 | ✓ | Wet | 3.94 | ✓ | Gravel | ✓ | ✓ | | | ✓ | ✓ |
| 22/4 | LP | 85 | 2 | ✓ | Wet | 3.44 | ✓ | Gravel | ✓ | ✓ | | | ✓ | ✓ |
| 22/4 | RP | 85 | 2 | ✓ | Wet | 3.58 | ✓ | Gravel | ✓ | ✓ | | | ✓ | ✓ |
| 23/10 | | 65 | 1 | ✓ | Gravel | 2.9 | | Gravel | ✓ | ✓ | | | ✓ | ✓ |
| 23/11 | | 65 | 1 | ✓ | Gravel | 2.9 | | Gravel | ✓ | ✓ | | ✓ | ✓ | ✓ |
| 23/12 | | 65 | 1 | ✓ | Gravel | 2.9 | | Gravel | ✓ | ✓ | | ✓ | ✓ | ✓ |
| 24/1 | | 65 | 1 | ✓ | Gravel | 2.9 | | Gravel | ✓ | ✓ | | ✓ | ✓ | ✓ |

**Comments**

22/2,22/3,22/4 needs ground rods installed
All poles will be rechecked for plumb upon final inspection

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR AMIRAL | | Dec 6 2018 |
| QC Inspector | Phil McKinley | Phil McKinley | Dec 5 2018 |
| Client Inspector | | | |

Forbes Bros LTD
POWERLINE CONSTRUCTION

## Structure Setting and Framing

| Project# | 4581 | Project Name | Eagle Gold 69 KV | Line# | L251 | Date | Nov 11 2018 |
|---|---|---|---|---|---|---|---|

**Patrol Checklist**

| Str.# | Pole# | Pole Length | Pole Class | Drilling Schedule as per Drawing | Soil type | Setting Depth | Casing/ Culvert used | Backfill Type | Backfill Compacted | Butt Plates installed | Ground Wire Installed | Guy Anchor hardware installed | Pole Plumb | Framing as per Drawings |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 16/13 | LP | 75 | 2 | X | Gravel | 3.21 | ✓ | Gravel | ✓ | X | ~~NA~~ | NA | ✓ | X |
| 16/13 | RP | 75 | 2 | X | Gravel | 3.15 | X | Gravel | ✓ | ✓ | X | NA | ✓ | X |
| 16/14 | | 60 | 1 | ✓ | Gravel | 2.74 | X | Gravel | ✓ | ✓ | NA | NA | ✓ | ✓ |
| 17/1 | | 60 | 1 | ✓ | Gravel | 2.74 | X | Gravel | ✓ | ✓ | NA | NA | ✓ | ✓ |
| 16/11 | | 95 | 1 | ✓ | Permafrost | 3.81 | ✓ | Gravel | ✓ | X | NA | ✓ | ✓ | ✓ |
| | | | | | | | | | | | | | | |
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**Comments**

16/13 poles set not framed, will be framed in the air
16/11 pole will be rechecked for plumb once guy wires are tensioned and wire sagged
Ground wire will be installed at 16/13 when framed

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR AWTAR | | Nov 13/18 |
| QC Inspector | Phil McKinley | Phil McKinley | Nov 12 2018 |
| Client Inspector | | | |

Forbes Bros LTD
POWERLINE CONSTRUCTION

# Structure Setting and Framing

| Project# | 4581 | Project Name | Eagle Gold 69 Kv | Line# | L251 | Date | Nov 9 2018 |
|---|---|---|---|---|---|---|---|

## Patrol Checklist

| Str.# | Pole# | Pole Length | Pole Class | Drilling Schedule as per Drawing | Soil type | Setting Depth | Casing/ Culvert used | Backfill Type | Backfill Compacted | Butt Plates Installed | Ground Wire Installed | Guy Anchor hardware installed | Pole Plumb | Framing as per Drawings |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 15/12 | | 60 | 1 | ✓ | Gravel | 2.74 | X | Gravel | ✓ | ✓ | NA | NA | ✓ | ✓ |
| 15/13 | | 75 | 1 | ✓ | Gravel | 3.24 | ✓ | Gravel | ✓ | X | NA | ✓ | ✓ | ✓ |
| 16/1 | | 60 | 1 | ✓ | Gravel | 2.74 | X | Gravel | ✓ | ✓ | NA | NA | ✓ | ✓ |
| 16/2 | | 60 | 1 | ✓ | Gravel | 2.74 | X | Gravel | ✓ | ✓ | NA | NA | ✓ | ✓ |
| 16/3 | | 70 | 1 | ✓ | Gravel | 3.05 | X | Gravel | ✓ | ✓ | NA | NA | ✓ | ✓ |
| 16/4 | | 85 | 1 | ✓ | Gravel | 3.56 | ✓ | Gravel | ✓ | X | NA | ✓ | ✓ | ✓ |
| 16/5 | | 65 | 1 | ✓ | Gravel | 2.9 | ✓ | Gravel | ✓ | X | NA | NA | ✓ | ✓ |
| | | | | | | | | | | | | | | |
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| | | | | | | | | | | | | | | |

**Comments**

All poles require split bolts
15/13 & 16/4 will be rechecked for plumb once guy wires are tensioned
Butt plates not installed in culverts of good ground as per drawing 1407-T-2005

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR ANTAL | | Nov 2018 |
| QC Inspector | Phil McKinley | Phil McKinley | Nov 10 2018 |
| Client Inspector | | | |

Forbes Bros LTD
POWERLINE CONSTRUCTION

# Structure Setting and Framing

| Project# | 4581 | Project Name | Eagle Gold 69 kV | Line# | L 251 | Date | Nov 9 2018 |
|---|---|---|---|---|---|---|---|

## Patrol Checklist

| Str.# | Pole# | Pole Length | Pole Class | Drilling Schedule as per Drawing | Soil type | Setting Depth | Casing/ Culvert used | Backfill Type | Backfill Compacted | Butt Plates installed | Ground Wire Installed | Guy Anchor hardware installed | Pole Plumb | Framing as per Drawings |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 14/13 | | 60 | 1 | ✓ | Gravel | 2.74 | X | Gravel | ✓ | ✓ | NA | NA | ✓ | ✓ |
| 15/1 | | 60 | 1 | ✓ | Gravel | 2.74 | ✓ | Gravel | ✓ | X | NA | NA | ✓ | ✓ |
| 15/2 | | 75 | 1 | ✓ | Gravel | 3.2 | ✓ | Gravel | ✓ | X | NA | NA | ✓ | ✓ |
| 15/3 | | 60 | 1 | ✓ | Gravel | 2.74 | ✓ | Gravel | ✓ | X | NA | ✓ | ✓ | ✓ |
| 15/4 | | 60 | 1 | ✓ | Gravel | 2.74 | ✓ | Gravel | ✓ | X | NA | NA | ✓ | ✓ |
| 15/5 | | 60 | 1 | ✓ | Gravel | 2.74 | ✓ | Gravel | ✓ | X | NA | NA | ✓ | ✓ |
| 15/6 | | 70 | 1 | ✓ | Gravel | 3.05 | ✓ | Gravel | ✓ | X | NA | NA | ✓ | ✓ |
| 15/7 | | 60 | 1 | ✓ | Gravel | 2.74 | ✓ | Gravel | ✓ | X | NA | ✓ | ✓ | ✓ |
| 15/8 | | 60 | 1 | ✓ | Gravel | 2.74 | ✓ | Gravel | ✓ | X | NA | NA | ✓ | ✓ |
| 15/9 | | 60 | 1 | ✓ | Gravel | 2.74 | ✓ | Gravel | ✓ | X | NA | NA | ✓ | ✓ |
| 15/10 | | 60 | 1 | ✓ | Gravel | 2.74 | ✓ | Gravel | ✓ | X | NA | NA | ✓ | ✓ |
| 15/11 | | 60 | 1 | ✓ | Gravel | 2.74 | X | Gravel | ✓ | ✓ | NA | NA | ✓ | ✓ |

**Comments**

14/13, 15/7, 15/8, 15/9, 15/10, 15/11, Need split bolts
Structures will be rechecked for plumb once guy wires are tensioned
Butt plates not installed in culverts of good ground as per drawing 1407-T-2005

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR ANTAL | | Nov 11 2018 |
| QC Inspector | Phil McKinley | Phil McKinley | Nov 10 2018 |
| Client Inspector | | | |

Forbes Bros LTD
POWERLINE CONSTRUCTION

# Structure Setting and Framing

| Project# | 4581 | Project Name | Eagle Gold 69 kV | Line# | L 251 | Date | Nov 8 2016 |
|---|---|---|---|---|---|---|---|

## Patrol Checklist

| Str.# | Pole# | Pole Length | Pole Class | Drilling Schedule as per Drawing | Soil type | Setting Depth | Casing/ Culvert used | Backfill Type | Backfill Compacted | Butt Plates installed | Ground Wire Installed | Guy Anchor hardware installed | Pole Plumb | Framing as per Drawings |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 14/7 | | 70 | 1 | ✓ | Gravel | 3.05 | X | Gravel | ✓ | ✓ | NA | NA | ✓ | ✓ |
| 14/8 | | 85 | 1 | ✓ | Gravel | 3.48 | X | Gravel | ✓ | ✓ | NA | ✓ | ✓ | ✓ |
| 14/9 | | 70 | 1 | ✓ | Gravel | 3.05 | X | Gravel | ✓ | ✓ | NA | NA | ✓ | ✓ |
| 14/10 | | 60 | 1 | ✓ | Gravel | 2.74 | X | Gravel | ✓ | ✓ | NA | NA | ✓ | ✓ |
| 14/11 | | 60 | 1 | ✓ | Gravel | 2.74 | X | Gravel | ✓ | ✓ | NA | NA | ✓ | ✓ |
| 14/12 | | 70 | 1 | ✓ | Gravel | 3.05 | X | Gravel | ✓ | ✓ | NA | ✓ | ✓ | ✓ |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |

Comments
14/7, 14/8, 14/9, 14/10, 14/11 & 14/12 need split baits
All poles will be rechecked for plumb once guy wire is tensioned

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR AWYAT | | NOV 10/18 |
| QC Inspector | Phil McKinley | Phil McKinley | Nov 9 2018 |
| Client Inspector | | | |

Forbes Bros LTD
POWERLINE CONSTRUCTION

# Structure Setting and Framing

| Project# | 4581 | Project Name | Eagle Gold 69kv | Line# | L 251 | Date | Nov 8 2018 |
|---|---|---|---|---|---|---|---|

## Patrol Checklist

| Str.# | Pole# | Pole Length | Pole Class | Drilling Schedule as per Drawing | Soil type | Setting Depth | Casing/ Culvert used | Backfill Type | Backfill Compacted | Butt Plates installed | Ground Wire Installed | Guy Anchor hardware installed | Pole Plumb | Framing as per Drawings |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 13/8 | | 60 | 1 | ✓ | Gravel | 2.74 | X | Gravel | ✓ | ✓ | NA | NA | ✓ | ✓ |
| 13/9 | | 80 | 1 | ✓ | Gravel | 3.36 | X | Gravel | ✓ | ✓ | NA | ✓ | ✓ | ✓ |
| 13/10 | | 65 | 1 | ✓ | Gravel | 2.9 | X | Gravel | ✓ | ✓ | NA | NA | ✓ | ✓ |
| 13/11 | | 60 | 1 | ✓ | Gravel | 2.74 | X | Gravel | ✓ | ✓ | NA | NA | ✓ | ✓ |
| 13/12 | | 60 | 1 | ✓ | Gravel | 2.74 | X | Gravel | ✓ | ✓ | NA | NA | ✓ | ✓ |
| 13/13 | | 75 | 1 | ✓ | Gravel | 3.2 | X | Gravel | ✓ | ✓ | NA | ✓ | ✓ | ✓ |
| 14/1 | | 70 | 1 | ✓ | Gravel | 3.05 | X | Gravel | ✓ | ✓ | NA | NA | ✓ | ✓ |
| 14/2 | | 80 | 1 | ✓ | Gravel | 3.37 | X | Gravel | ✓ | ✓ | NA | ✓ | ✓ | ✓ |
| 14/3 | | 60 | 1 | ✓ | Gravel | 2.74 | X | Gravel | ✓ | ✓ | NA | NA | ✓ | ✓ |
| 14/4 | | 60 | 1 | ✓ | Gravel | 2.74 | X | Gravel | ✓ | ✓ | NA | NA | ✓ | ✓ |
| 14/5 | | 60 | 1 | ✓ | Gravel | 2.74 | X | Gravel | ✓ | ✓ | NA | ✓ | ✓ | ✓ |
| 14/6 | | 65 | 1 | ✓ | Gravel | 2.9 | X | Gravel | ✓ | ✓ | NA | NA | ✓ | ✓ |

**Comments**
13/12, 14/1, 14/4, 14/5, 14/6 need split bolts
All poles will be ~~pantambedmotor guy~~ checked again for plumb once guy wires are tensioned

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR ANTAL | | Nov 10/18 |
| QC Inspector | Phil McKinley | Phil McKinley | Nov 9 2018 |
| Client Inspector | | | |

Forbes Bros LTD
POWERLINE CONSTRUCTION

# Structure Setting and Framing

| Project# | 4581 | Project Name | Eagle Gold 69 KV | Line# | L 251 | Date | Nov 7 2018 |
|---|---|---|---|---|---|---|---|

**Patrol Checklist**

| Str.# | Pole# | Pole Length | Pole Class | Drilling Schedule as per Drawing | Soil type | Setting Depth | Casing/ Culvert used | Backfill Type | Backfill Compacted | Butt Plates installed | Ground Wire Installed | Guy Anchor hardware installed | Pole Plumb | Framing as per Drawings |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 12/10 | | 65 | 1 | ✓ | Gravel | 2.9 | X | Gravel | ✓ | ✓ | NA | NA | ✓ | ✓ |
| 12/11 | | 60 | 1 | ✓ | Gravel | 2.74 | X | Gravel | ✓ | ✓ | NA | NA | ✓ | ✓ |
| 12/12 | | 60 | 1 | ✓ | Gravel | 2.74 | X | Gravel | ✓ | ✓ | NA | NA | ✓ | ✓ |
| 12/13 | | 60 | 1 | ✓ | Gravel | 2.74 | X | Gravel | ✓ | ✓ | NA | NA | ✓ | ✓ |
| 13/1 | | 70 | 1 | ✓ | Gravel | 3.05 | X | Gravel | ✓ | ✓ | NA | NA | ✓ | ✓ |
| 13/2 | | 85 | 1 | ✓ | Gravel | 3.51 | X | Gravel | ✓ | ✓ | NA | ✓ | ✓ | ✓ |
| 13/3 | | 65 | 1 | ✓ | Gravel | 2.9 | X | Gravel | ✓ | ✓ | NA | NA | ✓ | ✓ |
| 13/4 | | 60 | 1 | ✓ | Gravel | 2.74 | X | Gravel | ✓ | ✓ | NA | NA | ✓ | ✓ |
| 13/5 | | 60 | 1 | ✓ | Gravel | 2.74 | X | Gravel | ✓ | ✓ | NA | NA | ✓ | ✓ |
| 13/6 | | 70 | 1 | ✓ | Gravel | 3.05 | X | Gravel | ✓ | ✓ | NA | NA | ✓ | ✓ |
| 13/7 | | 65 | 1 | ✓ | Gravel | 2.9 | X | Gravel | ✓ | ✓ | NA | NA | ✓ | ✓ |
| | | | | ☐ | | | ☐ | | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |

**Comments**

12/11, 12/12, 12/13, 13/5, 13/6, 13/7 need split bolts
Guy wire needs to be tensioned

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR AWTM | | NOV 8 2018 |
| QC Inspector | Phil McKinley | Phil McKinley | Nov 7 2018 |
| Client Inspector | | | |

Forbes Bros LTD
POWERLINE CONSTRUCTION

## Structure Setting and Framing

| Project# | 41581 | Project Name | Eagle Gold 69kV | Line# | L251 | Date | Nov 6 2018 |
|---|---|---|---|---|---|---|---|

**Patrol Checklist**

| Str.# | Pole# | Pole Length | Pole Class | Drilling Schedule as per Drawing | Soil type | Setting Depth | Casing/ Culvert used | Backfill Type | Backfill Compacted | Butt Plates installed | Ground Wire Installed | Guy Anchor hardware installed | Pole Plumb | Framing as per Drawings |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 11/10 | | 65 | 1 | ✓ | Gravel | 2.9 | X | Gravel | ✓ | ✓ | NA | ✓ | ✓ | ✓ |
| 11/11 | | 70 | 1 | ✓ | Gravel | 3.05 | X | Gravel | ✓ | ✓ | NA | ✓ | ✓ | ✓ |
| 11/12 | | 85 | 1 | ✓ | PermaFrost | 3.58 | ✓ | Gravel | ✓ | X | NA | ✓ | ✓ | ✓ |
| 12/1 | | 70 | 1 | ✓ | Gravel | 3.05 | ✓ | Gravel | ✓ | X | NA | X | ✓ | ✓ |
| 12/2 | | 80 | 1 | ✓ | PermaFrost | 3.58 | ✓ | Gravel | ✓ | X | NA | ✓ | ✓ | ✓ |
| 12/3 | | 65 | 1 | ✓ | Gravel | 2.9 | ✓ | Gravel | ✓ | X | NA | NA | ✓ | ✓ |
| 12/4 | | 65 | 1 | ✓ | Gravel | 2.9 | X | Gravel | ✓ | ✓ | NA | NA | ✓ | ✓ |
| 12/5 | | 65 | 1 | ✓ | Gravel | 2.9 | X | Gravel | ✓ | ✓ | NA | NA | ✓ | ✓ |
| 12/6 | | 80 | 1 | ✓ | Gravel | 3.42 | X | Gravel | ✓ | ✓ | NA | ✓ | ✓ | ✓ |
| 12/7 | | 75 | 1 | ✓ | Gravel | 3.2 | X | Gravel | ✓ | ✓ | NA | ✓ | ✓ | ✓ |
| 12/8 | | 65 | 1 | ✓ | Gravel | 2.9 | X | Gravel | ✓ | ✓ | NA | NA | ✓ | ✓ |
| 12/9 | | 60 | 1 | ✓ | Gravel | 2.74 | X | Gravel | ✓ | ✓ | NA | NA | ✓ | ✓ |

**Comments**

12/8 & 12/9 & 12/4 need split bolts
Guy wire needs to be tensioned
Butt plates not installed in culverts of good ground as per drawing 1407-T-2005

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR ANTYR | | Nov 8 2018 |
| QC Inspector | Phil McKinley | Phil McKinley | Nov 7 2018 |
| Client Inspector | | | |

Forbes Bros LTD
POWERLINE CONSTRUCTION

## Structure Setting and Framing

| Project# | 4581 | Project Name | Eagle Gold 69kV | Line# | L251 | Date | Nov 5 2018 |
|---|---|---|---|---|---|---|---|

**Patrol Checklist**

| Str.# | Pole# | Pole Length | Pole Class | Drilling Schedule as per Drawing | Soil type | Setting Depth | Casing/ Culvert used | Backfill Type | Backfill Compacted | Butt Plates installed | Ground Wire Installed | Guy Anchor hardware installed | Pole Plumb | Framing as per Drawings |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 10/12 | | 65 | 1 | ✓ | Clay | 2.9 | ✓ | Gravel | ✓ | X | NA | NA | ✓ | ✓ |
| 10/13 | | 80 | 1 | ✓ | Permafrost | 3.35 | ✓ | Gravel | ✓ | X | NA | ✓ | ✓ | ✓ |
| 10/14 | | 65 | 1 | ✓ | Permafrost | 2.9 | ✓ | Gravel | ✓ | X | NA | ✓ | ✓ | ✓ |
| 11/1 | | 60 | 1 | ✓ | Clay | 2.74 | ✓ | Gravel | ✓ | X | NA | NA | ✓ | ✓ |
| 11/2 | | 65 | 1 | ✓ | Gravel | 2.9 | ✓ | Gravel | ✓ | X | NA | NA | ✓ | ✓ |
| 11/3 | | 70 | 1 | ✓ | Permafrost | 3.05 | ✓ | Gravel | ✓ | X | NA | ✓ | ✓ | ✓ |
| 11/4 | | 80 | 1 | ✓ | Permafrost | 3.35 | ✓ | Gravel | ✓ | X | NA | ✓ | ✓ | ✓ |
| 11/5 | | 65 | 1 | ✓ | Gravel | 2.9 | ✓ | Gravel | ✓ | X | NA | NA | ✓ | ✓ |
| 11/6 | | 70 | 1 | ✓ | Permafrost | 3.05 | ✓ | Gravel | ✓ | X | NA | ✓ | ✓ | ✓ |
| 11/7 | | 60 | 1 | ✓ | Permafrost | 2.74 | ✓ | Gravel | ✓ | X | NA | ✓ | ✓ | ✓ |
| 11/8 | | 60 | 1 | ✓ | Permafrost | 2.74 | ✓ | Gravel | ✓ | X | NA | ✓ | ✓ | ✓ |
| 11/9 | | 70 | 1 | ✓ | Permafrost | 3.05 | ✓ | Gravel | ✓ | X | NA | ✓ | ✓ | ✓ |

**Comments**
10/14, 11/1, 11/3, 11/5, 11/8, 11/9 need split bolts
Guywires need to be tensioned
Buttplates not used in culverts of good ground as per drawing 1407-T-2005

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR ANTAC | | NOV 8 2018 |
| QC Inspector | Phil McKinley | Phil McKinley | Nov 7 2018 |
| Client Inspector | | | |

Forbes Bros LTD
POWERLINE CONSTRUCTION

## Structure Setting and Framing

| Project# | 4581 | Project Name | Eagle Gold 69 kV | Line# | L251 | Date | Nov 6 2018 |
|---|---|---|---|---|---|---|---|

**Patrol Checklist**

| Str.# | Pole# | Pole Length | Pole Class | Drilling Schedule as per Drawing | Soil type | Setting Depth | Casing/ Culvert used | Backfill Type | Backfill Compacted | Butt Plates installed | Ground Wire Installed | Guy Anchor hardware installed | Pole Plumb | Framing as per Drawings |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 9/12 | | 65 | 1 | ✓ | Gravel | 2.9 | X | Gravel | ✓ | ✓ | NA | NA | ✓ | ✓ |
| 10/1 | | 65 | 1 | ✓ | Gravel | 2.9 | X | Gravel | ✓ | ✓ | NA | ✓ | ✓ | ✓ |
| 10/2 | | 65 | 1 | ✓ | Gravel | 2.9 | ✓ | Gravel | ✓ | X | NA | NA | ✓ | ✓ |
| 10/3 | | 60 | 1 | ✓ | Gravel | 2.74 | ✓ | Gravel | ✓ | X | NA | NA | ✓ | ✓ |
| 10/4 | | 65 | 1 | ✓ | Permafrost | 2.9 | ✓ | Gravel | ✓ | X | NA | ✓ | ✓ | ✓ |
| 10/5 | | 80 | 1 | ✓ | Permafrost | 3.39 | ✓ | Gravel | ✓ | X | NA | ✓ | ✓ | ✓ |
| 10/6 | | 70 | 1 | ✓ | Permafrost | 3.05 | ✓ | Gravel | ✓ | X | NA | ✓ | ✓ | ✓ |
| 10/7 | | 70 | 1 | ✓ | Permafrost | 3.05 | ✓ | Gravel | ✓ | X | NA | ✓ | ✓ | ✓ |
| 10/8 | | 75 | 1 | ✓ | Clay | 3.2 | ✓ | Gravel | ✓ | X | NA | NA | ✓ | ✓ |
| 10/9 | | 80 | 1 | ✓ | Sand | 3.35 | ✓ | Gravel | ✓ | X | NA | ✓ | ✓ | ✓ |
| 10/10 | | 75 | 1 | ✓ | Permafrost | 3.2 | ✓ | Gravel | ✓ | X | NA | ✓ | ✓ | ✓ |
| 10/11 | | 60 | 1 | ✓ | Sand | 2.74 | ✓ | Gravel | ✓ | X | NA | NA | ✓ | ✓ |

**Comments**

10/2, 10/3, 10/4, 10/5, 10/10 & 10/11 need split bolts
10/9 stamp is wrong says it is '60' but its an 80 (was measured prior to framing)
Butt plates not installed in culverts or good ground as per drawing 1407-7-2005

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | Mike Sweetland | | Nov 6/18 |
| QC Inspector | Phil McKinley | Phil McKinley | Nov 6 2018 |
| Client Inspector | | | |

Forbes Bros LTD
POWERLINE CONSTRUCTION

## Structure Setting and Framing

| Project# | 4581 | Project Name | Eagle Gold 69 Kv | Line# | L251 | Date | Nov 4 2018 |
|---|---|---|---|---|---|---|---|

**Patrol Checklist**

| Str.# | Pole# | Pole Length | Pole Class | Drilling Schedule as per Drawing | Soil type | Setting Depth | Casing/ Culvert used | Backfill Type | Backfill Compacted | Butt Plates installed | Ground Wire Installed | Guy Anchor hardware installed | Pole Plumb | Framing as per Drawings |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 8/13 | | 70 | 1 | ✓ | Gravel | 3.05 | ✓ | Gravel | ✓ | X | NA | NA | ✓ | ✓ |
| 9/1 | | 85 | 1 | ✓ | Gravel | 3.54 | ✓ | Gravel | ✓ | X | NA | ✓ | ✓ | ✓ |
| 9/2 | | 65 | 1 | ✓ | PermaFrost | 2.4 | ✓ | Gravel | ✓ | X | NA | ✓ | ✓ | ✓ |
| 9/3 | | 60 | 1 | ✓ | Gravel | 2.74 | ✓ | Gravel | ✓ | X | NA | NA | ✓ | ✓ |
| 9/4 | | 60 | 1 | ✓ | Gravel | 2.74 | ✓ | Gravel | ✓ | X | NA | ✓ | ✓ | ✓ |
| 9/5 | | 60 | 1 | ✓ | Gravel | 2.74 | ✓ | Gravel | ✓ | X | NA | ✓ | ✓ | ✓ |
| 9/6 | | 60 | 1 | ✓ | Clay | 2.74 | ✓ | Gravel | ✓ | X | NA | NA | ✓ | ✓ |
| 9/7 | | 60 | 1 | ✓ | Gravel | 2.74 | X | Gravel | ✓ | ✓ | NA | NA | ✓ | ✓ |
| 9/8 | | 60 | 1 | ✓ | Gravel | 2.74 | X | Gravel | ✓ | ✓ | NA | NA | ✓ | ✓ |
| 9/9 | | 65 | 1 | ✓ | Gravel | 2.9 | X | Gravel | ✓ | ✓ | NA | NA | ✓ | ✓ |
| 9/10 | | 80 | 1 | ✓ | Gravel | 3.39 | X | Gravel | ✓ | ✓ | NA | ✓ | ✓ | ✓ |
| 9/11 | | 80 | 1 | ✓ | Gravel | 3.39 | X | Gravel | ✓ | ✓ | NA | ✓ | ✓ | ✓ |

**Comments**

9/8 needs split bolt
Guy wire needs pulled and tensioned
Buttplates not installed in culverts of good ground as per drawing 1407-T-2005

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | Mike Sweetland | | Nov 5/18 |
| QC Inspector | Phil McKinley | Phil McKinley | Nov 5 2018 |
| Client Inspector | | | |

Forbes Bros LTD
POWERLINE CONSTRUCTION

# Structure Setting and Framing

| Project# | 4581 | Project Name | Eagle Gold 69 KV | Line# | L251 | Date | Oct 20 2018 |
|---|---|---|---|---|---|---|---|

## Patrol Checklist

| Str.# | Pole# | Pole Length | Pole Class | Drilling Schedule as per Drawing | Soil type | Setting Depth | Casing/ Culvert used | Backfill Type | Backfill Compacted | Butt Plates installed | Ground Wire Installed | Guy Anchor hardware installed | Pole Plumb | Framing as per Drawings |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7/9 | | 60 | 1 | ✓ | Gravel | 2.74 | ✓ | Gravel | ✓ | X | NA | NA | ✓ | ✓ |
| 7/10 | | 60 | 1 | ✓ | Permafrost | 2.74 | ✓ | Gravel | ✓ | X | NA | ✓ | ✓ | ✓ |
| 7/11 | | 65 | 1 | ✓ | Gravel | 2.9 | ✓ | Gravel | ✓ | X | NA | NA | ✓ | ✓ |
| 7/12 | | 90 | 1 | ✓ | Gravel | 3.66 | ✓ | Gravel | ✓ | X | NA | ✓ | ✓ | ✓ |
| 8/1 | | 65 | 1 | ✓ | Sand | 2.9 | ✓ | Gravel | ✓ | X | NA | NA | ✓ | ✓ |
| 8/2 | | 60 | 1 | ✓ | Sand | 2.74 | ✓ | Gravel | ✓ | X | NA | NA | ✓ | ✓ |
| 8/3 | | 65 | 1 | ✓ | Permafrost | 2.9 | ✓ | Gravel | ✓ | X | NA | ✓ | ✓ | ✓ |
| 8/4 | | 65 | 1 | ✓ | Gravel | 2.9 | ✓ | Gravel | ✓ | X | NA | NA | ✓ | ✓ |
| 8/7 | | 65 | 1 | ✓ | Permafrost | 2.9 | ✓ | Gravel | ✓ | X | NA | ✓ | ✓ | ✓ |
| 8/8 | | 60 | 1 | ✓ | Gravel | 2.74 | ✓ | Gravel | ✓ | X | NA | NA | ✓ | ✓ |
| 8/9 | | 60 | 1 | ✓ | Gravel | 2.74 | ✓ | Gravel | ✓ | X | NA | NA | ✓ | ✓ |
| | | | | ☐ | | | ☐ | | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |

Comments
7/9, 7/11, 8/3, 8/7, 8/8 & 8/9 need split bolts
7/10 needs guy wire
Structures in culverts with good ground no butt plates as per drawing 1407-T-2005
All structures with guy wire will be replumbed once at tension

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR ANTAL | | OCT 24/18 |
| QC Inspector | Phil McKinley | Phil McKinley | Oct 23 2018 |
| Client Inspector | | | |

Forbes Bros LTD
POWERLINE CONSTRUCTION

## Structure Setting and Framing

| Project# | 4581 | Project Name | Eagle Gold 69 Kv | Line# | L 251 | Date | Oct 20 2018 |
|---|---|---|---|---|---|---|---|

**Patrol Checklist**

| Str.# | Pole# | Pole Length | Pole Class | Drilling Schedule as per Drawing | Soil type | Setting Depth | Casing/ Culvert used | Backfill Type | Backfill Compacted | Butt Plates Installed | Ground Wire Installed | Guy Anchor hardware Installed | Pole Plumb | Framing as per Drawings |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 6/10 | | 65 | 1 | ✓ | Gravel | 2.9 | ✓ | Gravel | ✓ | X | NA | NA | ✓ | ✓ |
| 6/11 | | 65 | 1 | ✓ | Gravel | 2.9 | ✓ | Gravel | ✓ | X | NA | ✓ | ✓ | ✓ |
| 7/1 | | 70 | 1 | ✓ | Gravel | 3.05 | ✓ | Gravel | ✓ | X | NA | NA | ✓ | ✓ |
| 7/2 | | 80 | 1 | ✓ | Gravel | 3.35 | ✓ | Gravel | ✓ | X | NA | ✓ | ✓ | ✓ |
| 7/3 | LP | 90 | 2 | ✓ | Gravel | 3.8 | ✓ | Gravel | ✓ | X | ✓ | NA | ✓ | ✓ |
| 7/3 | RP | 90 | 2 | ✓ | Gravel | 3.46 | ✓ | Gravel | ✓ | X | ✓ | NA | ✓ | ✓ |
| 7/4 | LP | 90 | 2 | ✓ | PermaFrost | 3.81 | ✓ | Gravel | ✓ | X | ✓ | ✓ | ✓ | ✓ |
| 7/4 | RP | 90 | 2 | ✓ | PermaFrost | 3.66 | ✓ | Gravel | ✓ | X | ✓ | ✓ | ✓ | ✓ |
| 7/5 | | 70 | 1 | ✓ | PermaFrost | 3.05 | ✓ | Gravel | ✓ | X | NA | ✓ | ✓ | ✓ |
| 7/6 | | 65 | 1 | ✓ | PermaFrost | 2.9 | ✓ | Gravel | ✓ | X | NA | ✓ | ✓ | ✓ |
| 7/7 | | 60 | H2 | ✓ | PermaFrost | 2.74 | ✓ | Gravel | ✓ | X | X | ✓ | ✓ | ✓ |
| 7/8 | | 60 | 1 | ✓ | Gravel | 2.74 | ✓ | Gravel | ✓ | X | NA | NA | ✓ | ✓ |

Comments 6/11 split bolt, pole top angle bracket, vertical insulator
7/1 split bolt
7/7 5/8" cross arm bracket bolt, Ground wire
NA No butt plates installed when culverts are used in good ground as per drawing 1407-T-2005

-All structures with guy wire will be replumbed with guy wire

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR AWTAC | | OCT 24/18 |
| QC Inspector | Phil McKinley | Phil McKinley | Oct 23 2018 |
| Client Inspector | | | |

Forbes Bros LTD
POWERLINE CONSTRUCTION

# Structure Setting and Framing

| Project# | 4581 | Project Name | Eagle Gold 69 Kv | Line# | L251 | Date | Oct 20 2018 |
|---|---|---|---|---|---|---|---|

## Patrol Checklist

| Str.# | Pole# | Pole Length | Pole Class | Drilling Schedule as per Drawing | Soil type | Setting Depth | Casing/ Culvert used | Backfill Type | Backfill Compacted | Butt Plates installed | Ground Wire Installed | Guy Anchor hardware installed | Pole Plumb | Framing as per Drawings |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5/11 | | 60 | 1 | ✓ | Gravel | 2.74 | X | Gravel | ✓ | ✓ | NA | NA | ✓ | ✓ |
| 5/12 | | 60 | 1 | ✓ | Gravel | 2.74 | X | Gravel | ✓ | ✓ | NA | NA | ✓ | ✓ |
| 5/13 | | 60 | 1 | ✓ | Gravel | 2.74 | X | Gravel | ✓ | ✓ | NA | NA | ✓ | ✓ |
| 6/1 | | 60 | 1 | ✓ | Gravel | 2.74 | X | Gravel | ✓ | ✓ | NA | NA | ✓ | ✓ |
| 6/2 | | 60 | 1 | ✓ | Gravel | 2.74 | X | Gravel | ✓ | ✓ | NA | NA | ✓ | ✓ |
| 6/3 | | 60 | 1 | ✓ | Gravel | 2.74 | ✓ | Gravel | ✓ | X | NA | NA | ✓ | ✓ |
| 6/4 | | 60 | 1 | ✓ | Sand/Gravel | 2.74 | ✓ | Gravel | ✓ | X | NA | ✓ | ✓ | ✓ |
| 6/5 | | 65 | 1 | ✓ | Sand/Gravel | 2.9 | ✓ | Gravel | ✓ | X | NA | NA | ✓ | ✓ |
| 6/6 | | 60 | 1 | ✓ | Sand/Gravel | 2.74 | ✓ | Gravel | ✓ | X | NA | NA | ✓ | ✓ |
| 6/7 | | 60 | 1 | ✓ | Gravel | 2.74 | ✓ | Gravel | ✓ | X | NA | NA | ✓ | ✓ |
| 6/8 | | 60 | 1 | ✓ | Gravel | 2.74 | ✓ | Gravel | ✓ | X | NA | NA | ✓ | ✓ |
| 6/9 | | 60 | 1 | ✓ | Gravel | 2.74 | ✓ | Gravel | ✓ | X | NA | NA | ✓ | ✓ |

**Comments**

5/11, 5/12, 5/13, 6/1, 6/2, 6/3, 6/4, 6/6, 6/8, 6/9 Need split bolts
6/4 Needs pole top angle bracket and vertical insulator
All poles with guy wire will be replumbed once guy wire is pulled No buttplates on poles in culverts as per drawing 1407-T-2005

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR ANTAL | | OCT 24/18 |
| QC Inspector | Phil McKinley | Phil McKinley | Oct 23 2018 |
| Client Inspector | | | |

Forbes Bros LTD
POWERLINE CONSTRUCTION

## Structure Setting and Framing

| Project# | 4581 | Project Name | Eagle Gold 69 Kv | Line# | L251 | Date | Oct 24 2018 |
|---|---|---|---|---|---|---|---|

**Patrol Checklist**

| Str.# | Pole# | Pole Length | Pole Class | Drilling Schedule as per Drawing | Soil type | Setting Depth | Casing/ Culvert used | Backfill Type | Backfill Compacted | Butt Plates installed | Ground Wire Installed | Guy Anchor hardware installed | Pole Plumb | Framing as per Drawings |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 517 | | 65 | 1 | ✓ | Clay | 2.9 | ✓ | Gravel | ✓ | X | NA | NA | ✓ | ✓ |
| 311 | LP | 95 | 2 | ✓ | Permafrost | 3.76 | ✓ | Gravel | ✓ | X | ✓ | ✓ | ✓ | ✓ |
| 311 | RP | 95 | 2 | ✓ | Permafrost | 3.75 | ✓ | Gravel | ✓ | X | ✓ | ✓ | ✓ | ✓ |
| 312 | LP | 95 | 2 | ✓ | Clay | 3.71 | ✓ | Gravel | ✓ | X | ✓ | NA | ✓ | ✓ |
| 312 | RP | 95 | 2 | ✓ | Clay | 3.84 | ✓ | Gravel | ✓ | X | ✓ | NA | ✓ | ✓ |
| | | | | | | | | | | | | | | |
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| | | | | | | | | | | | | | | |

Comments
Butt plates not installed in culverts of good ground as per drawing 1407-T-2005

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR AWIN | | OCT 26/18 |
| QC Inspector | Phil McKinley | Phil McKinley | Oct 25 2018 |
| Client Inspector | | | |

Forbes Bros. LTD
POWERLINE CONSTRUCTION

## Structure Setting and Framing

| Project# | 4581 | Project Name | Eagle Gold 69Kv | Line# | L251 | Date | Nov 4 2018 |
|---|---|---|---|---|---|---|---|

**Patrol Checklist**

| Str.# | Pole# | Pole Length | Pole Class | Drilling Schedule as per Drawing | Soil type | Setting Depth | Casing/ Culvert used | Backfill Type | Backfill Compacted | Butt Plates installed | Ground Wire Installed | Guy Anchor hardware installed | Pole Plumb | Framing as per Drawings |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1/9 | | 80 | 1 | ✓ | Gravel | 3.31 | ✓ | Gravel | ✓ | X | NA | ✓ | ✓ | ✓ |
| 3/11 | | 75 | 1 | ✓ | Gravel | 3.2 | ✓ | Gravel | ✓ | X | NA | ✓ | ✓ | ✓ |
| 5/2 | | 75 | 1 | ✓ | Gravel | 3.23 | ✓ | Gravel | ✓ | X | NA | ✓ | ✓ | ✓ |
| 5/3 | | 80 | 1 | ✓ | Permafrost | 3.35 | ✓ | Gravel | ✓ | X | NA | ✓ | ✓ | ✓ |
| 5/8 | | 85 | 1 | ✓ | Gravel | 3.46 | ✓ | Gravel | ✓ | X | NA | ✓ | ✓ | ✓ |
| 5/9 | | 90 | 1 | ✓ | Gravel | 3.64 | ✓ | Gravel | ✓ | X | NA | ✓ | ✓ | ✓ |
| 5/10 | | 80 | 1 | ✓ | Gravel | 3.34 | ✓ | Gravel | ✓ | X | NA | ✓ | ✓ | ✓ |
| 8/5 | | 75 | 1 | ✓ | Sand/Gravel | 3.48 | ✓ | Gravel | ✓ | X | NA | ✓ | ✓ | ✓ |
| 8/6 | | 70 | 1 | ✓ | Permafrost | 3.05 | ✓ | Gravel | ✓ | X | NA | ✓ | ✓ | ✓ |
| 8/10 | | 60 | 1 | ✓ | Gravel | 2.74 | ✓ | Gravel | ✓ | X | NA | ✓ | ✓ | ✓ |
| 8/11 | | 60 | 1 | ✓ | Gravel | 2.74 | ✓ | Gravel | ✓ | X | NA | NA | ✓ | ✓ |
| 8/12 | | 60 | 1 | ✓ | Gravel | 2.74 | ✓ | Gravel | ✓ | X | NA | NA | ✓ | ✓ |

**Comments**

5/1, 5/3, are missing split bolts
Guy wires need to be pulled and tensioned
Buttplates not used in culverts of good ground as per drawing H07-T-2005

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | Mike Sweetland | Mike Sweetland | Nov 4/18 |
| QC Inspector | Phil McKinley | Phil McKinley | Nov 4 2018 |
| Client Inspector | | | |

Forbes Bros LTD
POWERLINE CONSTRUCTION

# Structure Setting and Framing

| Project# | 4581 | Project Name | Eagle Gold Project | Line# | 69 kV Line | Date | 13-Oct-2018 |
|---|---|---|---|---|---|---|---|

## Patrol Checklist

| Str.# | Pole# | Pole Length | Pole Class | Drilling Schedule as per Drawing | Soil type | Setting Depth | Casing/ Culvert used | Backfill Type | Backfill Compacted | Butt Plates installed | Ground Wire Installed | Guy Anchor hardware installed | Pole Plumb | Framing as per Drawings |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0/10B | | 80 ft | H1 | ✔ | Gravel | 3.34m | ✔ | Gravel | ✔ | | ✔ | | ✔ | ✔ |
| 0/10C | | 80 ft | H1 | ✔ | Gravel | 3.35m | ✔ | Gravel | ✔ | | ✔ | | ✔ | ✔ |
| 0/12 | | 80 ft | H1 | ✔ | Gravel | 3.35m | ✔ | Gravel | ✔ | | ✔ | | ✔ | ✔ |
| | | | | | | | | | | | | | | |
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| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |

**Comments**

Poles installed as per drawing 1407-T-2005_r0. Ground rods have not been installed, grounding wire was coiled on the bottom of each pole.

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR ANTAL | | OCT 27/2018 |
| QC Inspector | Phil McKinlay | Phil McKinlay | Oct 26 2018 |
| Client Inspector | | | |

Forbes Bros LTD
POWERLINE CONSTRUCTION

# Structure Setting and Framing

| Project# | 4581 | Project Name | Eagle Gold 13.8 KV | Line# | L2 | Date | February 3 2019 |
|---|---|---|---|---|---|---|---|

## Patrol Checklist

| Str.# | Pole# | Pole Length | Pole Class | Drilling Schedule as per Drawing | Soil type | Setting Depth | Casing/ Culvert used | Backfill Type | Backfill Compacted | Butt Plates installed | Ground Wire Installed | Guy Anchor hardware installed | Pole Plumb | Framing as per Drawings |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 11 | | 55 | 2 | ✓ | Gravel | 9.5 | | Gravel | ✓ | | ✓ | ✓ | ✓ | ✓ |
| 12 | | 50 | 3 | ✓ | Gravel | 7 | | Gravel | ✓ | | | | ✓ | ✓ |
| 13 | | 50 | 3 | ✓ | Gravel | 7 | | Gravel | ✓ | | | | ✓ | ✓ |
| 14 | | 50 | 3 | ✓ | Gravel | 7 | | Gravel | ✓ | | | | ✓ | ✓ |
| 15 | | 50 | 3 | ✓ | Gravel | 7 | | Gravel | ✓ | | | | ✓ | ✓ |
| 16 | | 50 | 3 | ✓ | Gravel | 7 | | Gravel | ✓ | | | | ✓ | ✓ |
| 17 | | 65 | 2 | ✓ | Gravel | 8.5 | | Gravel | ✓ | | | ✓ | ✓ | ✓ |
| 18 | | 50 | 3 | ✓ | Gravel | 7 | | Gravel | ✓ | | | | ✓ | ✓ |
| 19 | | 50 | 3 | ✓ | Gravel | 7 | | Gravel | ✓ | | | | ✓ | ✓ |
| 20 | | 50 | 3 | ✓ | Gravel | 7 | | Gravel | ✓ | | | | ✓ | ✓ |
| 21 | | 50 | 3 | ✓ | Gravel | 7 | | Gravel | ✓ | | | | ✓ | ✓ |
| 22 | | 50 | 2 | ✓ | Gravel | 9 | | Gravel | ✓ | | ✓ | ✓ | ✓ | ✓ |

**Comments**

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR ANITAC | | Feb 9/19 |
| QC Inspector | Phil McKinley | Phil McKinley | Feb 6 2019 |
| Client Inspector | SVEN ARCHIMOWITZ | | FEB 8/19 |

Forbes Bros LTD
POWERLINE CONSTRUCTION

# Structure Setting and Framing

| Project# | 4581 | Project Name | Eagle Gold 13.8 KV | Line# | L2 | Date | February 15 2019 |
|---|---|---|---|---|---|---|---|

## Patrol Checklist

| Str.# | Pole# | Pole Length | Pole Class | Drilling Schedule as per Drawing | Soil type | Setting Depth | Casing/ Culvert used | Backfill Type | Backfill Compacted | Butt Plates installed | Ground Wire installed | Guy Anchor hardware installed | Pole Plumb | Framing as per Drawings |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 09 | | 55 | 2 | ✔ | Gravel | 7.5 | ✔ | Gravel | ✔ | | | | ✔ | ✔ |
| 10 | A | 60 | 2 | ✔ | Gravel | 10 | ✔ | Gravel | ✔ | | | ✔ | ✔ | ✔ |
| 10 | B | 60 | 2 | ✔ | Gravel | 10 | ✔ | Gravel | ✔ | | | ✔ | ✔ | ✔ |
| Pole 6 | | 55 | 2 | ✔ | Gravel | 7.5 | ✔ | Gravel | ✔ | | | | ✔ | ✔ |
| Pole 5 | | 55 | 2 | ✔ | Gravel | 7.5 | ✔ | Gravel | ✔ | | | | ✔ | ✔ |
| Pole 4 | | 55 | 2 | ✔ | Gravel | 7.5 | ✔ | Gravel | ✔ | | | | ✔ | ✔ |
| Pole 3 | | 55 | 2 | ✔ | Gravel | 7.5 | ✔ | Gravel | ✔ | | | | ✔ | ✔ |
| Pole 2 | | 55 | 2 | ✔ | Gravel | 7.5 | ✔ | Gravel | ✔ | | | | ✔ | ✔ |
| Pole 1 | P1 | 55 | 2 | ✔ | Gravel | 9.5 | ✔ | Gravel | ✔ | | ✔ | ✔ | ✔ | ✔ |
| Pole 1 | P2 | 55 | 2 | ✔ | Gravel | 9.5 | ✔ | Gravel | ✔ | | ✔ | ✔ | ✔ | ✔ |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |

**Comments**

Pole 2 was set on February 19 2019

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | | | |
| QC Inspector | Phil McKinley | Phil McKinley | Feb 19 2019 |
| Client Inspector | Matt Berdale | ME | Feb 23, 2019 |

Forbes Bros LTD
POWERLINE CONSTRUCTION

# Structure Setting and Framing

| Project# | 4581 | Project Name | Eagle Gold 13.8 KV | Line# | L2 | Date | February 4 2019 |
|---|---|---|---|---|---|---|---|

## Patrol Checklist

| Str.# | Pole# | Pole Length | Pole Class | Drilling Schedule as per Drawing | Soil type | Setting Depth | Casing/ Culvert used | Backfill Type | Backfill Compacted | Butt Plates installed | Ground Wire Installed | Guy Anchor hardware installed | Pole Plumb | Framing as per Drawings |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 01A | | 50 | 2 | ✓ | Gravel | 9 | ✓ | Gravel | ✓ | | ✓ | ✓ | ✓ | ✓ |
| 01B | | 50 | 2 | ✓ | Gravel | 9 | ✓ | Gravel | ✓ | | ✓ | ✓ | ✓ | ✓ |
| 2 | | 55 | 2 | ✓ | Gravel | 7.5 | ✓ | Gravel | ✓ | | | | ✓ | ✓ |
| 3 | | 60 | 2 | ✓ | Gravel | 8 | ✓ | Gravel | ✓ | | | ✓ | ✓ | ✓ |
| 4 | | 55 | 2 | ✓ | Gravel | 7.5 | ✓ | Gravel | ✓ | | | | ✓ | ✓ |
| 5 | | 55 | 2 | ✓ | Gravel | 7.5 | ✓ | Gravel | ✓ | | | | ✓ | ✓ |
| 6 | | 55 | 2 | ✓ | Gravel | 7.5 | ✓ | Gravel | ✓ | | | | ✓ | ✓ |
| 7 | | 55 | 2 | ✓ | Gravel | 7.5 | ✓ | Gravel | ✓ | | | | ✓ | ✓ |
| 8 | | 55 | 2 | ✓ | Gravel | 7.5 | ✓ | Gravel | ✓ | | | | ✓ | ✓ |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |

Comments

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR ANDRAE | | Feb 7/19 |
| QC Inspector | Phil McKinley | Phil McKinley | Feb 6 2019 |
| Client Inspector | SVEN ARCHIMOWITZ | | FEB 8/19 |

Forbes Bros LTD
POWERLINE CONSTRUCTION

# Structure Setting and Framing

| Project# | 4581 | Project Name | Eagle Gold 13.8 KV | Line# | L1 | Date | Jan 31 2019 |
|---|---|---|---|---|---|---|---|

## Patrol Checklist

| Str.# | Pole# | Pole Length | Pole Class | Drilling Schedule as per Drawing | Soil type | Setting Depth | Casing/ Culvert used | Backfill Type | Backfill Compacted | Butt Plates installed | Ground Wire Installed | Guy Anchor hardware installed | Pole Plumb | Framing as per Drawings |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 13 | | 55 | 3 | ✔ | Gravel | 7.5 | | Gravel | ✔ | | | ✔ | ✔ | ✔ |
| 14 | | 45 | 3 | ✔ | Gravel | 65 | | Gravel | ✔ | | | | ✔ | ✔ |
| 15 | | 55 | 3 | ✔ | Gravel | 7.5 | | Gravel | ✔ | | | | ✔ | ✔ |
| 16 | | 45 | 3 | ✔ | Gravel | 6.5 | | Gravel | ✔ | | | ✔ | ✔ | ✔ |
| 17 | | 50 | 3 | ✔ | Gravel | 7 | | Gravel | ✔ | | | | ✔ | ✔ |
| 18 | | 50 | 3 | ✔ | Gravel | 7 | | Gravel | ✔ | | | | ✔ | ✔ |
| 19 | | 50 | 3 | ✔ | Gravel | 7 | | Gravel | ✔ | | | | ✔ | ✔ |
| 20 | | 50 | 3 | ✔ | Gravel | 7 | | Gravel | ✔ | | | | ✔ | ✔ |
| 21 | | 50 | 2 | ✔ | Gravel | 9 | | Gravel | ✔ | | ✔ | ✔ | ✔ | ✔ |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |

Comments

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR CANTAR | | FEB 8/19 |
| QC Inspector | Phil McKinley | Phil McKinley | Jan 5 2019 |
| Client Inspector | SARCHIMOWITZ | | FEB 7/19 |

Forbes Bros LTD
POWERLINE CONSTRUCTION

# Structure Setting and Framing

| Project# | 4581 | Project Name | Eagle Gold 13.8 KV | Line# | L1 | Date | Jan 30 2019 |
|---|---|---|---|---|---|---|---|

## Patrol Checklist

| Str.# | Pole# | Pole Length | Pole Class | Drilling Schedule as per Drawing | Soil type | Setting Depth | Casing/ Culvert used | Backfill Type | Backfill Compacted | Butt Plates installed | Ground Wire installed | Guy Anchor hardware installed | Pole Plumb | Framing as per Drawings |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 01 | | 50 | 2 | ✔ | Gravel | 9 ft | ✔ | Gravel | ✔ | | ✔ | ✔ | ✔ | ✔ |
| 02 | | 50 | 3 | ✔ | Gravel | 7 | ✔ | Gravel | ✔ | | | | ✔ | ✔ |
| 03 | | 45 | 3 | ✔ | Gravel | 6.5 | ✔ | Gravel | ✔ | | | | ✔ | ✔ |
| 04 | | 50 | 3 | ✔ | Gravel | 7 | ✔ | Gravel | ✔ | | | ✔ | ✔ | ✔ |
| 05 | | 60 | 3 | ✔ | Gravel | 8 | ✔ | Gravel | ✔ | | | ✔ | ✔ | ✔ |
| 06 | | 50 | 3 | ✔ | Gravel | 7 | ✔ | Gravel | ✔ | | | ✔ | ✔ | ✔ |
| 07 | | 50 | 3 | ✔ | Gravel | 7 | ✔ | Gravel | ✔ | | | | ✔ | ✔ |
| 08 | | 50 | 3 | ✔ | Gravel | 7 | ✔ | Gravel | ✔ | | | | ✔ | ✔ |
| 09 | | 60 | 2 | ✔ | Gravel | 8 | ✔ | Gravel | ✔ | | | ✔ | ✔ | ✔ |
| 10 | | 50 | 3 | ✔ | Gravel | 7 | ✔ | Gravel | ✔ | | | | ✔ | ✔ |
| 11 | | 50 | 3 | ✔ | Gravel | 7 | | Gravel | ✔ | | | | ✔ | ✔ |
| 12 | | 50 | 3 | ✔ | Gravel | 7 | | Gravel | ✔ | | | | ✔ | ✔ |

Comments

| | Name | Signature | Date |
|---|---|---|---|
| Foreman | TREVOR BUTTAZ | | Jan 6/19 |
| QC Inspector | Phil McKinley | Phil McKinley | Jan 5 2019 |
| Client Inspector | SVEN ARCHIMOWITZ | | FEB 7/19 |




# EAGLE GOLD PROJECT

## HEAP LEACH FACILITY CONSTRUCTION REPORT

*MARCH 2018*

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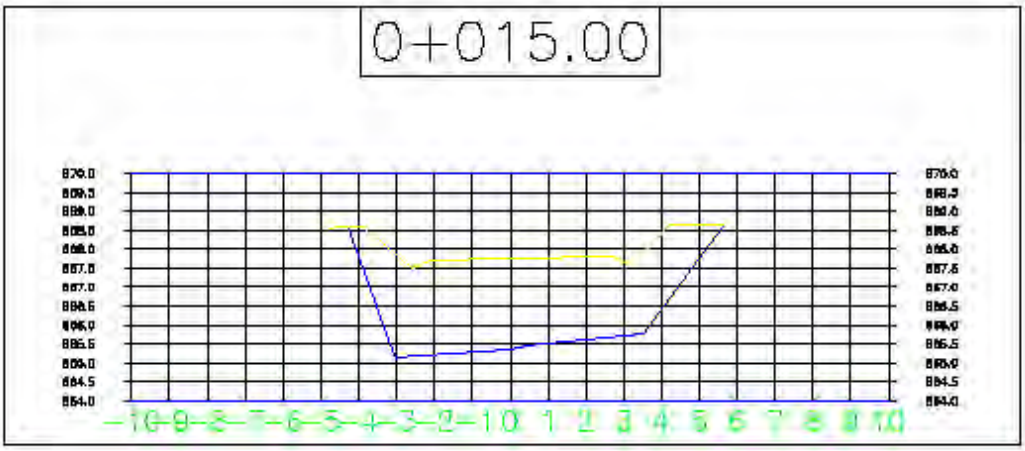
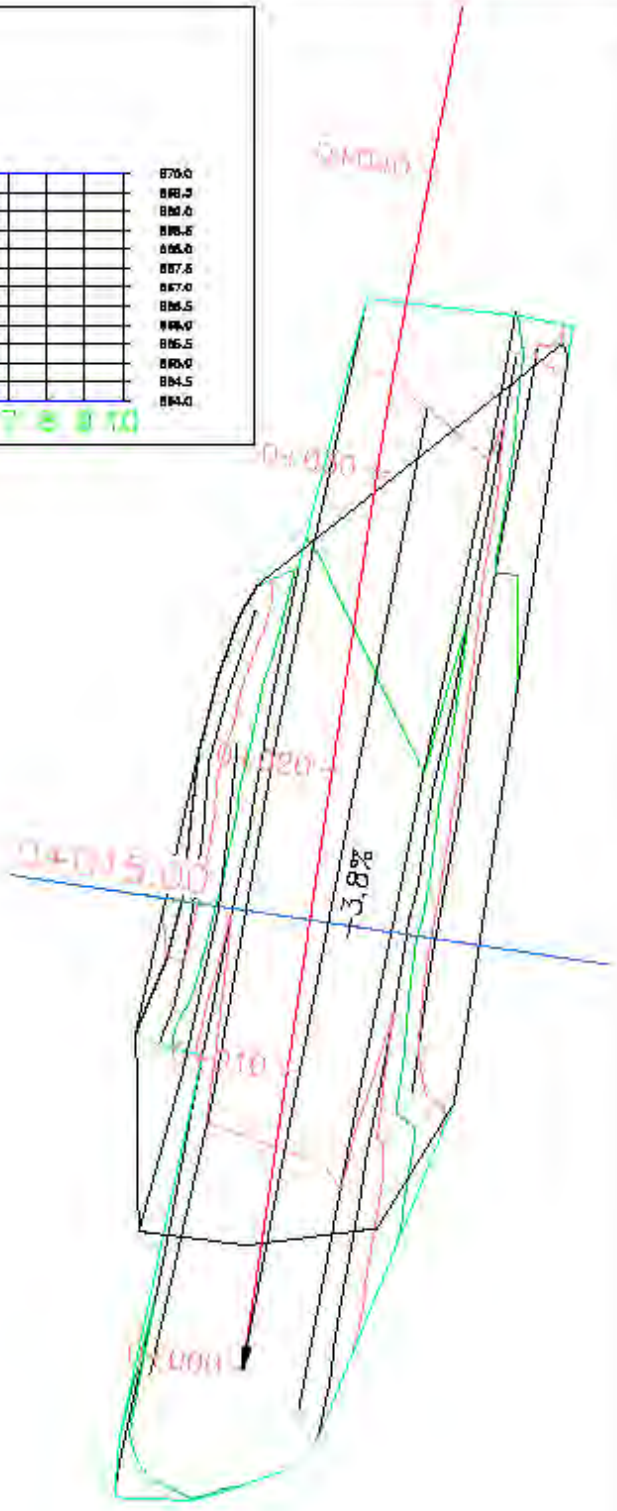
## List of Attachments

| | |
|---|---|
| Attachment A | Record Drawings |
| Attachment B | Request for Information Forms |
| Attachment C | Field Review Reports |
| Attachment D | Quality Control Inspection and Testing |

# ATTACHMENT A

## Record Drawings




REFERENCE DRAWINGS:

| NO. | DRAWING FILE |
|---|---|
| | |

LEGEND

**EXCAVATION**

**FINAL ASBUILT SURFACE**

Notes: Showing Embankment Toe Type 2 Material placed on excavation and final asbuilt surface.
GeoFabric installed at 0.5m above excavation surface and 0.5m below final grade.

ISSUES:

| NO. | REVISION | INIT. | DESCRIPTION |
|---|---|---|---|
| | | | |

eshemuta Construction Surveyors

SURVEYED: C.M./BAX | DRAWN: BAX

CLIENT: Pelly Construction Ltd.

CHECKED: | APPROVED:

PROJECT:
EAGLE GOLD MINE CONSTRUCTION

TITLE:
HLF EMB TOE EXCAVATION AND FINAL ASBUILT SECTION

DRAWING SCALE: H 1:250

DATE: 18/07/04 | DWG No: EMB-008-03

DRAWING FILE: 180704 HLF EMB TOE_SCTN

DRAWING VIEW: 8.5x11 Portrait

PROJECT NO.: 17003

SHEET: 001

459300 E
7101600 N
459700 E
7101600 N

APPROVED TYPE 3 SECTION 27

APPROVED TYPE 3 SECTION 28

EMBANKMENT STRIPPING LIMITS AS–BUILT

AUGUST MONTH END TYPE 3 MATERIAL AS–BUILT

CLOSURE PIPE ALIGNMENT & INVERT ELEVATIONS

SECTION 1
SECTION 2
SECTION 3
SECTION 4
SECTION 5
SECTION 6
SECTION 7
SECTION 8
SECTION 9
SECTION 10
SECTION 11
SECTION 12
SECTION 13
SECTION 14
SECTION 15
SECTION 16
SECTION 17
SECTION 18
SECTION 19
SECTION 20
SECTION 21
SECTION 22
SECTION 23
SECTION 24
SECTION 25
SECTION 26

459300 E
7101300 N
459700 E
7101300 N

Roy Morton
BGC
9-11-2018

**REFERENCE DRAWINGS:**

| NO. | DRAWING FILE: |
|---|---|
| 01 | 180904 EMB-006-S24 EMBANKMENT SECTION 26.dwg |

**DRAWING NOTES:**

1. SHOWING TYPE 3 APPROVAL SECTIONS 1-28
2. SHOWING TYPE 3 LIFT APPROVAL SURFACE FOR EMBANKMENT FILL TO SEPTEMBER 9, 2018
3. TYPE 3 LIFT APPROVALS ARE SURVEYED PRIOR TO EMBANKMENT FILL AT EACH LIFT.
4. TYPE 3 LIFT APPROVALS ARE INSPECTED BY BGC REPRESENTATIVE IN THE FIELD BEFORE SUBSEQUENT LIFTS CAN BE PLACED AND COMPACTED.

**ISSUES:**

| REV. | YY/MM/DD | INIT. | DESCRIPTION |
|---|---|---|---|
| 0.0 | 18/09/10 | CM | ISSUED FOR INFORMATION |

CLIENT: Pelly Construction Ltd.

eshemuta Construction Surveyors

PROJECT: EAGLE GOLD MINE CONSTRUCTION

TITLE: TYPE 3 APPROVAL SECTIONS 1- 28 OVERLAYED ON APPROVED TYPE 3 LIFT ASBUILT SURFACE

DRAWING SCALE: H 1:1500

| | |
|---|---|
| DATE: 18/09/10 | DWG No: EMB-006-S27&28 |
| SURVEYED: TEAM | CHECKED: |
| DRAWN: CM | APPROVED: |

DRAWING FILE: 180909 EMB-006-S27&28 EMBANKMENT SECTIONS 27 &28 dwg

DRAWING VIEW: 11x17 Landscape

SHEET: 001

PROJECT NO.: 17003

459300 E
7101600 N
459700 E
7101600 N

SECTION 22 TYPE 3 MATERIAL AS–BUILT

SECTION 1
SECTION 2
SECTION 3
SECTION 4
SECTION 8
SECTION 5
SECTION 7
SECTION 13
SECTION 17
SECTION 15
SECTION 16
SECTION 14
SECTION 21
SECTION 10
SECTION 6
SECTION 11
SECTION 9
SECTION 19
SECTION 14
20
12
18

0+292
0+250
0+200
0+150
0+100
0+050
0+000

EMBANKMENT STRIPPING LIMITS AS–BUILT

CLOSURE PIPE ALIGNMENT & INVERT ELEVATIONS

459300 E
7101300 N
459700 E
7101300 N

TROY MEYER BGC

14/08/18

**REFERENCE DRAWINGS:**

| NO. | DRAWING FILE: |
|---|---|
| 01 | Xref.dwg |

**DRAWING NOTES:**

1. CONTOUR INTERVALS = 1m & 5m
2. AREAS OUTLINED IN PURPLE DENOTE PREVIOUSLY APPROVED SECTIONS.
3. COORDINATES SHOWN ARE UTM NAD 83 ZONE 8.

**ISSUES:**

| REV. | YY/MM/DD | INIT. | DESCRIPTION |
|---|---|---|---|
| 0.0 | 18/08/12 | CM | ISSUED FOR INFORMATION |

CLIENT: Pelly Construction Ltd.

eshemuta Construction Surveyors

PROJECT:
EAGLE GOLD MINE CONSTRUCTION

TITLE:
EMBANKMENT SECTION 22 EXCAVATION TO TYPE 3 TOPOGRAPHY AS-BUILT

DRAWING SCALE: 1:1500

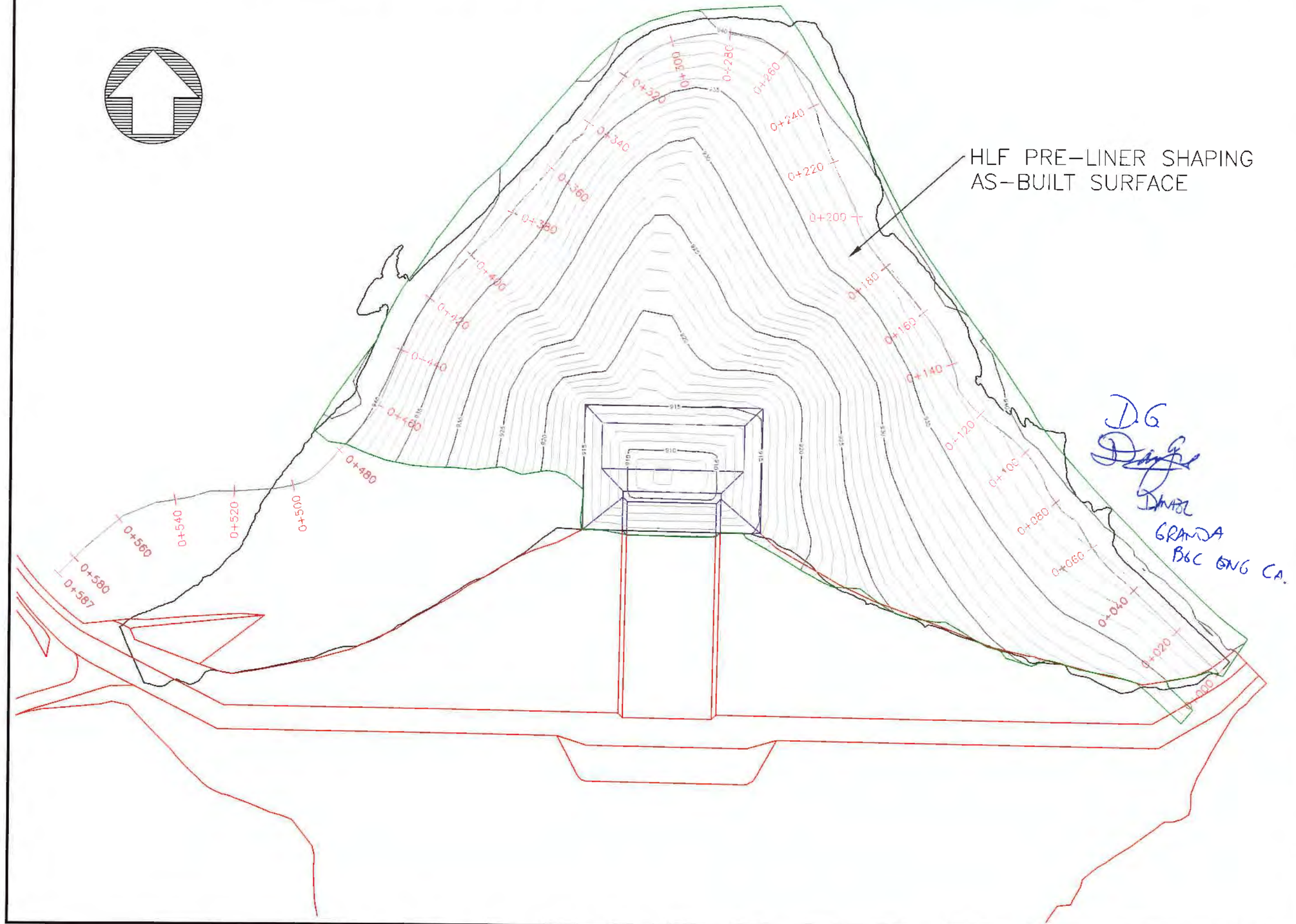
| | | | |
|---|---|---|---|
| DATE: | 18/08/12 | DWG No: | EMB-006-S22 |
| SURVEYED: | C.M. | CHECKED: | |
| DRAWN: | C.M. | APPROVED: | |

DRAWING FILE: 180812 EMB-006 S22 EMBANKMENT SECTION 22.dwg

DRAWING VIEW: 11x17 Landscape

PROJECT NO.: 17003

SHEET: 001




**REFERENCE DRAWINGS:**

| NO. | DRAWING FILE: |
|---|---|
| 01 | 100-302-CP-3D.dwg |

**DRAWING NOTES:**

1. SURFACE CONTOUR INTERVALS ARE SET AT 1M & 5M
2. RED LINES DENOTE EMBANKMENT DESIGN
3. PURPLE LINES DENOTE HLF SUMP DESIGN
4. BLACK LINE REPRESENTS BGC HLF DESIGN SURFACE BOUNDARY
5. SECTION APPROVALS ARE INSPECTED BY BGC FIELD REPRESENTATIVE BEFORE FINAL PRE-LINER TOPOGRAPHY IS SURVEYED

**ISSUES:**

| REV. | YY/MM/DD | INIT. | DESCRIPTION |
|---|---|---|---|
| 5.0 | 18/10/04 | CM | ISSUED FOR INFORMATION |

CLIENT: Pelly Construction Ltd.

eshemuta Construction Surveyors

PROJECT:
EAGLE GOLD MINE
CONSTRUCTION

TITLE:
HLF PRE-LINER
TOPOGRAPHY SHAPING
AS-BUILT

DRAWING SCALE: 1:1250

| | | | |
|---|---|---|---|
| DATE: | 18/10/04 | DWG No: | HLF-012 |
| SURVEYED: | C.M./BAX/E.J. | CHECKED: | |
| DRAWN: | C.M. | APPROVED: | |

DRAWING FILE: 181004 HLF PRE-LINER SHAPING ASB.dwg

DRAWING VIEW: 11x17 Landscape

PROJECT NO.: 17003

SHEET: 001

459300 E
7101600 N

459700 E
7101600 N

0+292

0+250

0+200

0+150

0+100

0+050

0+000

SECTION 1
SECTION 2
SECTION 3
SECTION 4
SECTION 5
SECTION 7
SECTION 8
SECTION 12
SECTION 20
SECTION 21
SECTION 19
SECTION 9
SECTION 11
SECTION 10
SECTION 6
SECTION 18
SECTION 14
SECTION 17
SECTION 13
SECTION 15
SECTION 16
SECTION 14
SECTION 22

EMBANKMENT STRIPPING LIMITS AS-BUILT

SECTION ~~22~~ 23 TYPE 3 MATERIAL AS-BUILT

459300 E
7101300 N

459700 E
7101300 N

CLOSURE PIPE ALIGNMENT & INVERT ELEVATIONS

Roy Marler
BSC 9-4-18

**REFERENCE DRAWINGS:**

| NO. | DRAWING FILE: |
|---|---|
| 01 | Xref.dwg |

**DRAWING NOTES:**

1. CONTOUR INTERVALS = 1m & 5m
2. AREAS OUTLINED IN PURPLE DENOTE PREVIOUSLY APPROVED SECTIONS.
3. COORDINATES SHOWN ARE UTM NAD 83 ZONE 8.

**ISSUES:**

| REV. | YY/MM/DD | INIT. | DESCRIPTION |
|---|---|---|---|
| 0.0 | 18/08/15 | CM | ISSUED FOR INFORMATION |

CLIENT: Pelly Construction Ltd.

eshemuta Construction Surveyors

PROJECT:
EAGLE GOLD MINE CONSTRUCTION

TITLE:
EMBANKMENT SECTION 23 EXCAVATION TO TYPE 3 TOPOGRAPHY AS-BUILT

DRAWING SCALE: 1:1500

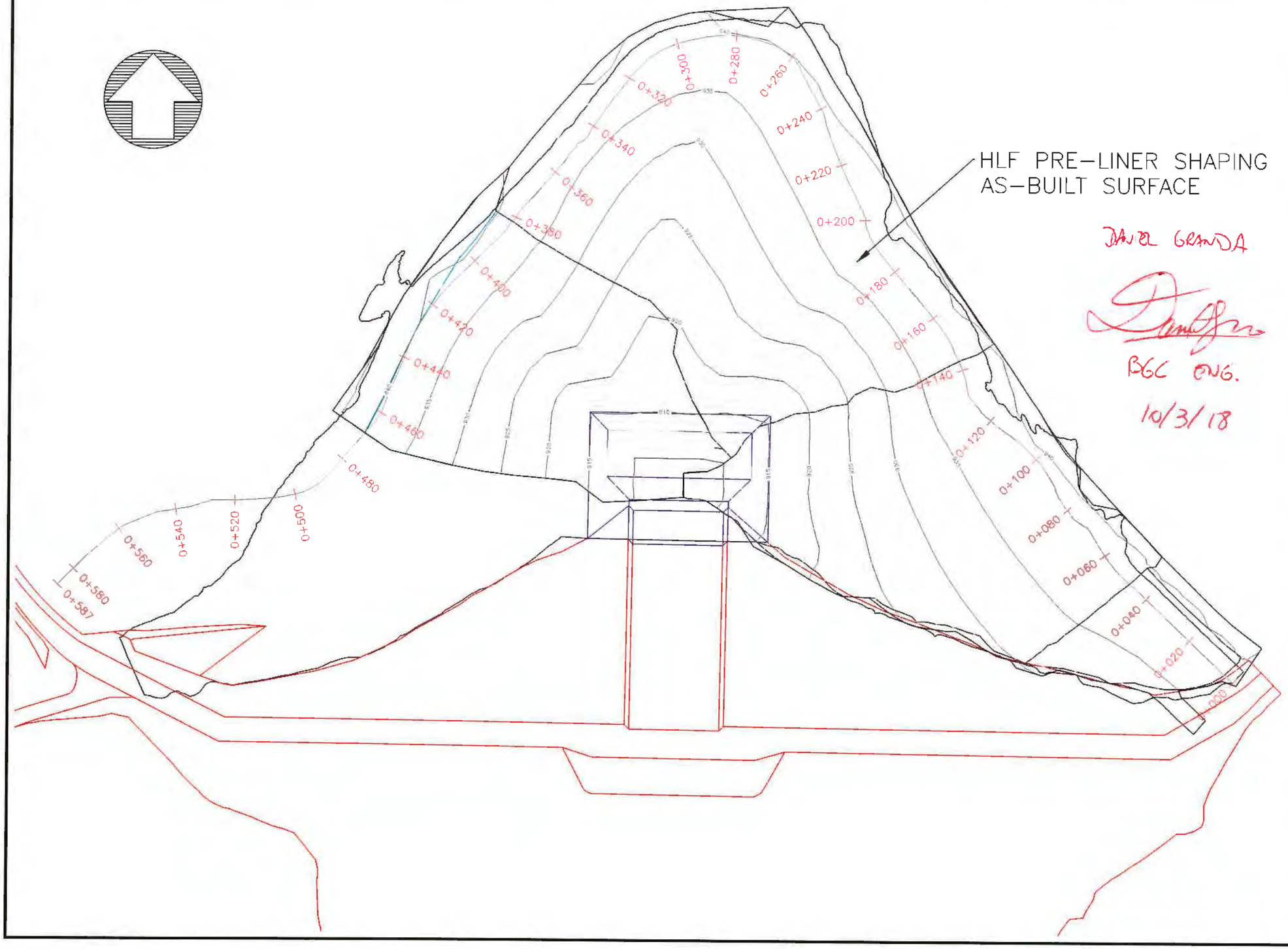
| | | | |
|---|---|---|---|
| DATE: | 18/08/15 | DWG No: | EMB-006-S23 |
| SURVEYED: | C.M. | CHECKED: | |
| DRAWN: | C.M. | APPROVED: | |

DRAWING FILE: 180815 EMB-006 S23 EMBANKMENT SECTION 23.dwg

DRAWING VIEW: 11x17 Landscape

PROJECT NO.: 17003

SHEET: 001




DANIEL GRANDA

BGC ENG.

10/3/18

| REFERENCE DRAWINGS: | |
|---|---|
| NO. | DRAWING FILE: |
| 01 | 100-302-CP-3D.dwg |

**DRAWING NOTES:**

1. SURFACE CONTOUR INTERVALS ARE SET AT 1M & 5M
2. RED LINES DENOTE EMBANKMENT DESIGN
3. PURPLE LINES DENOTE HLF SUMP DESIGN
4. BLACK LINE REPRESENTS BGC HLF DESIGN SURFACE BOUNDARY
5. SECTION APPROVALS ARE INSPECTED BY BGC FIELD REPRESENTATIVE BEFORE FINAL PRE-LINER TOPOGRAPHY IS SURVEYED

| ISSUES: | | | |
|---|---|---|---|
| REV. | YY/MM/DD | INIT. | DESCRIPTION |
| 0.0 | 18/09/30 | CM | ISSUED FOR INFORMATION |

CLIENT:

Pelly Construction Ltd.

eshemuta Construction Surveyors

PROJECT:

EAGLE GOLD MINE CONSTRUCTION

TITLE:

HLF PRE-LINER TOPOGRAPHY SHAPING AS-BUILT 0+000 to 0+470

DRAWING SCALE: 1:1250

| | | | |
|---|---|---|---|
| DATE: | 18/09/30 | DWG No: | HLF-012-S3 |
| SURVEYED: | C.M./BAX/E.J. | CHECKED: | |
| DRAWN: | BAX | APPROVED: | |

DRAWING FILE: 180930 HLF PRE-LINER SHAPING ASB 0+000 - 0+470.dwg

DRAWING VIEW: 11x17 Landscape

PROJECT NO.: 17003

SHEET: 001

459300 E
7101600 N
459700 E
7101600 N
459300 E
7101300 N
459700 E
7101300 N
0+292
0+250
0+200
0+150
0+100
0+050
0+000
SECTION 1
SECTION 2
SECTION 3
SECTION 4
SECTION 5
SECTION 7
SECTION 8
SECTION 13
SECTION 15
SECTION 17
SECTION 16
SECTION 14
SECTION 18
SECTION 19
SECTION 20
SECTION 12
SECTION 9
SECTION 11
SECTION 10
SECTION 6
SECTION 21
SECTION 23
SECTION 22
EMBANKMENT STRIPPING LIMITS AS-BUILT
SECTION 24 TYPE 3 MATERIAL AS-BUILT
CLOSURE PIPE ALIGNMENT & INVERT ELEVATIONS

Roy Morlock BGC 9-4-18

**REFERENCE DRAWINGS:**

| NO | DRAWING FILE: |
|---|---|
| 01 | Xref.dwg |

**DRAWING NOTES:**

1. CONTOUR INTERVALS = 1m & 5m
2. AREAS OUTLINED IN PURPLE DENOTE PREVIOUSLY APPROVED SECTIONS.
3. COORDINATES SHOWN ARE UTM NAD 83 ZONE 8

**ISSUES:**

| REV. | YY/MM/DD | INIT. | DESCRIPTION |
|---|---|---|---|
| 0.0 | 18/08/17 | CM | ISSUED FOR INFORMATION |

**CLIENT:** Pelly Construction Ltd.

eshemuta Construction Surveyors

**PROJECT:** EAGLE GOLD MINE CONSTRUCTION

**TITLE:** EMBANKMENT SECTION 24 EXCAVATION TO TYPE 3 TOPOGRAPHY AS-BUILT

**DRAWING SCALE:** 1:1500

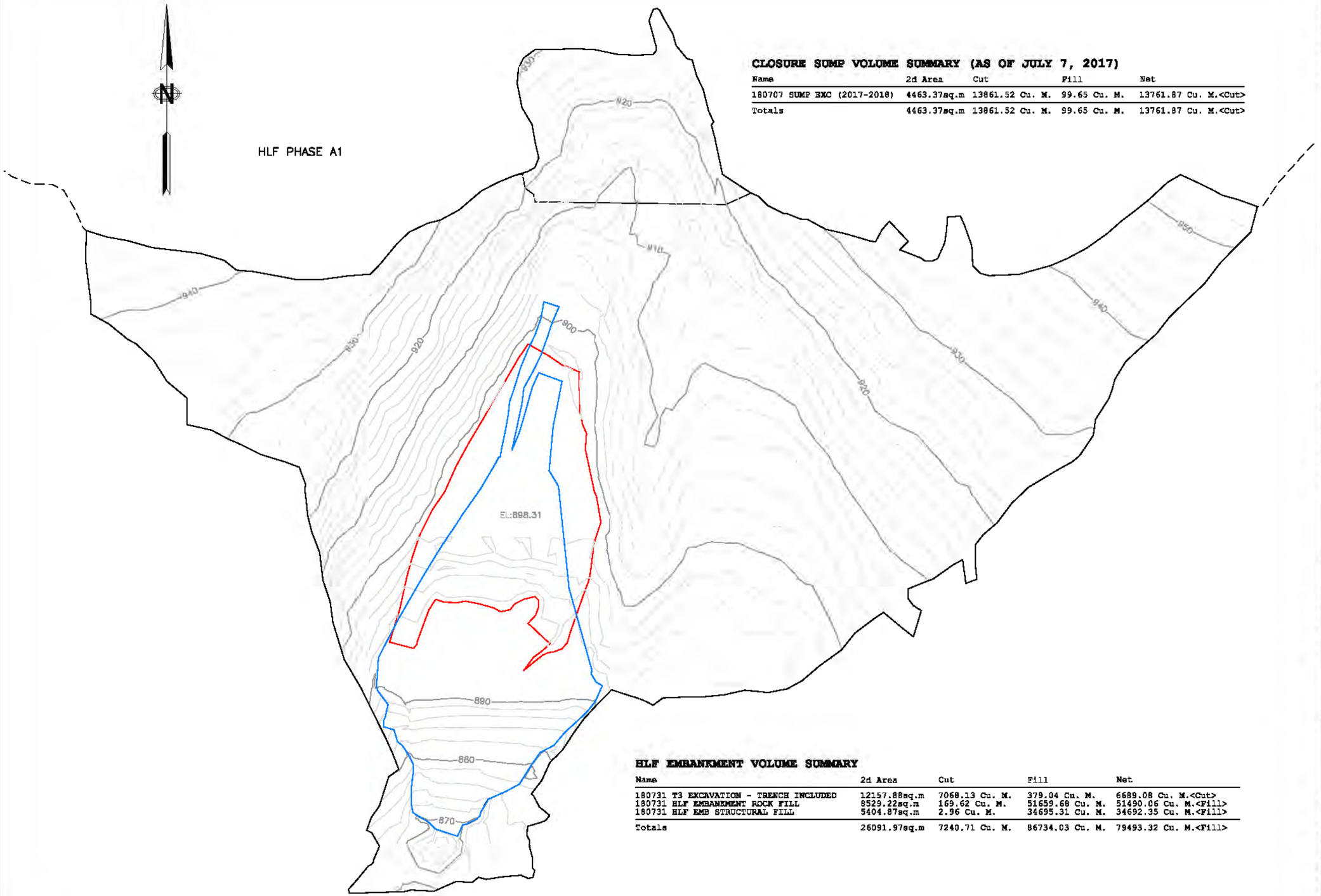
| | |
|---|---|
| DATE: 18/08/17 | DWG No: EMB-006-S24 |
| SURVEYED: C.M. | CHECKED: |
| DRAWN: C.M. | APPROVED: |

**DRAWING FILE:** 180815 EMB-006 S23 EMBANKMENT SECTION 23.dwg

**DRAWING VIEW:** 11x17 Landscape

**PROJECT NO.:** 17003

**SHEET:** 001




## CLOSURE SUMP VOLUME SUMMARY (AS OF JULY 7, 2017)

| Name | 2d Area | Cut | Fill | Net |
|---|---|---|---|---|
| 180707 SUMP EXC (2017-2018) | 4463.37sq.m | 13861.52 Cu. M. | 99.65 Cu. M. | 13761.87 Cu. M.<Cut> |
| Totals | 4463.37sq.m | 13861.52 Cu. M. | 99.65 Cu. M. | 13761.87 Cu. M.<Cut> |

## HLF EMBANKMENT VOLUME SUMMARY

| Name | 2d Area | Cut | Fill | Net |
|---|---|---|---|---|
| 180731 T3 EXCAVATION - TRENCH INCLUDED | 12157.88sq.m | 7068.13 Cu. M. | 379.04 Cu. M. | 6689.08 Cu. M.<Cut> |
| 180731 HLF EMBANKMENT ROCK FILL | 8529.22sq.m | 169.62 Cu. M. | 51659.68 Cu. M. | 51490.06 Cu. M.<Fill> |
| 180731 HLF EMB STRUCTURAL FILL | 5404.87sq.m | 2.96 Cu. M. | 34695.31 Cu. M. | 34692.35 Cu. M.<Fill> |
| Totals | 26091.97sq.m | 7240.71 Cu. M. | 86734.03 Cu. M. | 79493.32 Cu. M.<Fill> |

**REFERENCE DRAWINGS:**

| NO. | DRAWING FILE: |
|---|---|
| | |

**DRAWING NOTES:**

1. HLF EMBANKMENT ROCK FILL PROGRESS SURFACE OUTLINED IN RED.
2. HLF EMBANKMENT STRUCTURAL FILL PROGRESS SURFACE OUTLINED IN BLUE.
3. APPROVED TYPE 3 SURFACE TO JULY 31 2016 WAS USED TO COMPUTE STRUCTURAL AND ROCK FILL VOLUMES. SURFACE NOT SHOWN FOR CLARITY.
4. CLOSURE SUMP VOLUME OBTAINED USING OCTOBER 2017 APPROVED TYPE 3 SURFACE AS A BASE AND JULY 7 HANDOVER SURFACE AS A COMPARAISON SURFACE.
5. SURVEYS EXECUTED BETWEEN JULY 1 AND JULY 31, 2018.
6. CONTOURS = 2m

**ISSUES:**

| REV. | YY/MM/DD | INIT. | DESCRIPTION |
|---|---|---|---|
| 0.0 | 18/08/06 | CB | ISSUED FOR INFORMATION |

**CLIENT:** Pelly Construction Ltd.

eshemuta Construction Surveyors

**PROJECT:** EAGLE GOLD MINE CONSTRUCTION

**TITLE:** HLF EMBANKMENT JULY PROGRESS

**DRAWING SCALE:** H 1:1500

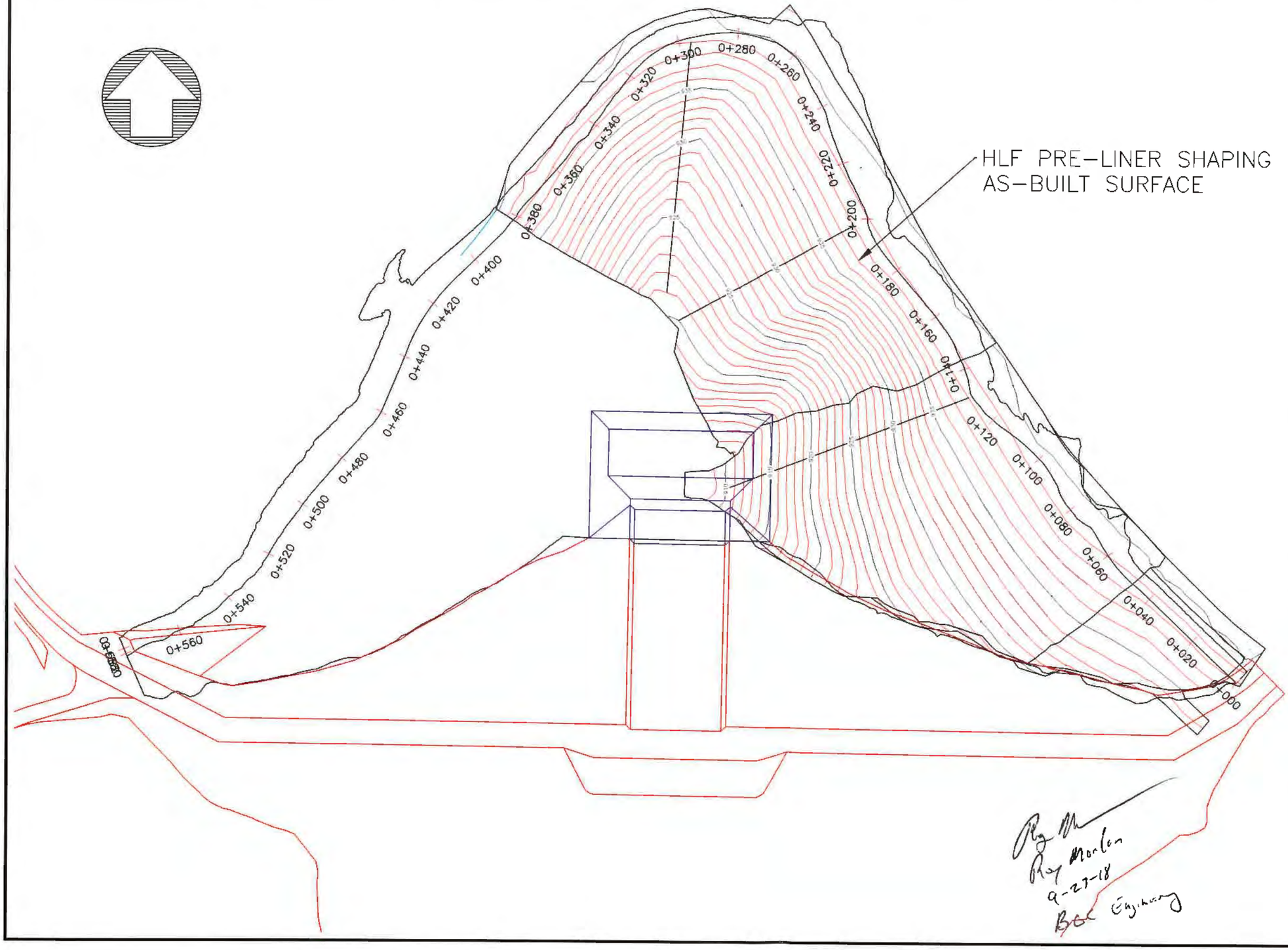
| | |
|---|---|
| DATE: 18/08/06 | DWG No: 184110-006 |
| SURVEYED: JB CM EJ SP | CHECKED: |
| DRAWN: CB, JB, CM | APPROVED: |

**DRAWING FILE:** 180805 HLF EMBANKMENT JULY PROGRESS.DWG

**DRAWING VIEW:** 11x17 Landscape

**PROJECT NO.:** 17003

**SHEET:** 001




| REFERENCE DRAWINGS: | |
|---|---|
| NO. | DRAWING FILE: |
| 01 | 100-302-CP-3D.dwg |

**DRAWING NOTES:**

1. SURFACE CONTOUR INTERVALS ARE SET AT 1M & 5M
2. RED LINES DENOTE EMBANKMENT DESIGN
3. PURPLE LINES DENOTE HLF SUMP DESIGN
4. BLACK LINE REPRESENTS BGC HLF DESIGN SURFACE BOUNDARY
5. SECTION APPROVALS ARE INSPECTED BY BGC FIELD REPRESENTATIVE BEFORE FINAL PRE-LINER TOPOGRAPHY IS SURVEYED

| ISSUES: | | | |
|---|---|---|---|
| REV. | YY/MM/DD | INIT. | DESCRIPTION |
| 0.0 | 18/09/12 | CM | ISSUED FOR INFORMATION |

CLIENT:
Pelly Construction Ltd.

eshemuta Construction Surveyors

PROJECT:
EAGLE GOLD MINE CONSTRUCTION

TITLE:
HLF PRE-LINER TOPOGRAPHY SHAPING AS-BUILT 0+000 to 0+380

DRAWING SCALE: 1:1250

| | | | |
|---|---|---|---|
| DATE: | 18/09/22 | DWG No: | HLF-012-S2 |
| SURVEYED: | C.M./BAX | CHECKED: | |
| DRAWN: | BAX | APPROVED: | |

DRAWING FILE: 180922 HLF PRE-LINER SHAPING ASB 0+000 - 0+380.dwg

DRAWING VIEW: 11x17 Landscape

PROJECT NO.: 17003

SHEET: 001

459300 E
7101600 N

459700 E
7101600 N

SECTION 1
SECTION 2
SECTION 3
SECTION 4
SECTION 5
SECTION 6
SECTION 7
SECTION 8
SECTION 9
SECTION 10
SECTION 11
SECTION 12
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SECTION 20
SECTION 21
SECTION 22
SECTION 23
SECTION 24
SECTION 25
SECTION 26
SECTION 27
SECTION 28
926

APPROVED TYPE 3 SECTION 29

EMBANKMENT STRIPPING LIMITS AS-BUILT

AUGUST MONTH END TYPE 3 MATERIAL AS-BUILT

459300 E
7101300 N

459700 E
7101300 N

Roy Morton
Roy Morton BGC
9-12-18

**REFERENCE DRAWINGS:**

| NO. | DRAWING FILE: |
|---|---|
| 01 | 180910 EMB-006-S27&28 EMBANKMENT SECTION 27 & 28.dwg |

**DRAWING NOTES:**

1. SHOWING TYPE 3 APPROVAL SECTIONS 1-29
2. SHOWING TYPE 3 LIFT APPROVAL SURFACE FOR EMBANKMENT FILL TO SEPTEMBER 1, 2018.
3. TYPE 3 LIFT APPROVALS ARE SURVEYED PRIOR TO EMBANKMENT FILL AT EACH LIFT
4. TYPE 3 LIFT APPROVALS ARE INSPECTED BY BGC REPRESENTATIVE IN THE FIELD BEFORE SUBSEQUENT LIFTS CAN BE PLACED AND COMPACTED.

**ISSUES:**

| REV. | YY/MM/DD | INIT. | DESCRIPTION |
|---|---|---|---|
| 0.0 | 18/09/12 | CM | ISSUED FOR INFORMATION |

CLIENT: Pelly Construction Ltd.

eshemuta Construction Surveyors

PROJECT:
EAGLE GOLD MINE CONSTRUCTION

TITLE:
TYPE 3 APPROVAL SECTIONS 1- 29 OVERLAYED ON APPROVED TYPE 3 LIFT ASBUILT SURFACE

DRAWING SCALE: H 1:1500

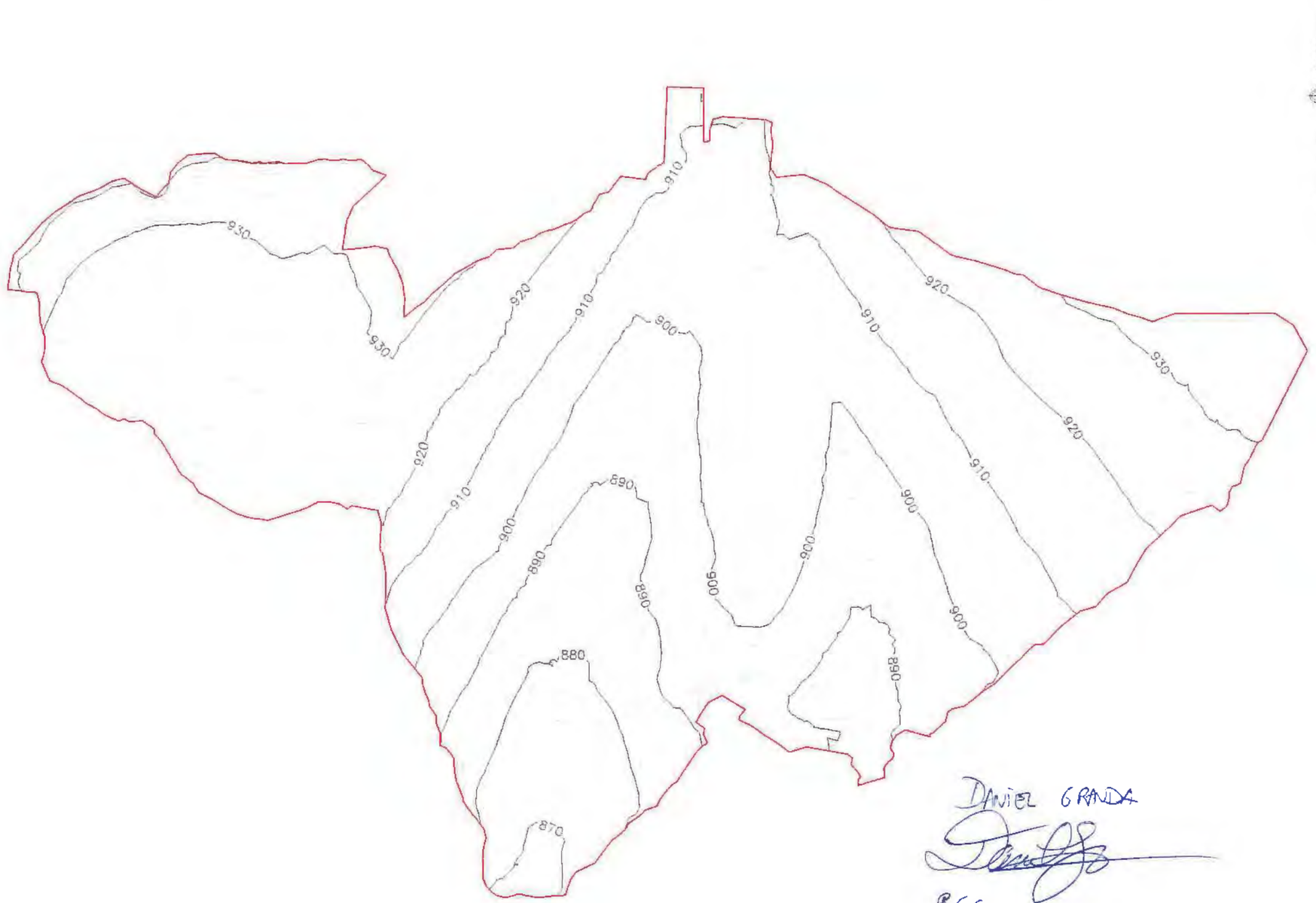
| | |
|---|---|
| DATE: 18/09/12 | DWG No: EMB-006-S29 |
| SURVEYED: TEAM | CHECKED: |
| DRAWN: CM | APPROVED: |

DRAWING FILE: 1809012 EMB-006-S29 EMBANKMENT SECTIONS 29.dwg

DRAWING VIEW: 11x17 Landscape

PROJECT NO.: 17003

SHEET: 001




DANIEL GRANDA

BGC ENGINEERING

10/14/18

**REFERENCE DRAWINGS:**

| NO. | DRAWING FILE: |
|---|---|
| 01 | Xref.dwg |

**DRAWING NOTES:**

1. DRAWING SHOWING EMBANKMENT EXCAVATION TO APPROVED TYPE 3 MATERIAL
2. SURFACE MATERIAL WAS INSPECTED AND APPROVED BY BGC REPRESENTATIVE PRIOR TO ALL TOPOGRAPHY AS-BUILT SURVEYS
3. CONTOUR INTERVAL = 2m

**ISSUES:**

| REV. | YY/MM/DD | INIT. | DESCRIPTION |
|---|---|---|---|
| 0.0 | 18/10/13 | CM | ISSUED FOR INFORMATION |

**CLIENT:** Pelly Construction Ltd.

eshemuta Construction Surveyors

**PROJECT:** EAGLE GOLD MINE CONSTRUCTION

**TITLE:** HLF EMBANKMENT APPROVED TYPE 3 EXCAVATION AS-BUILT

**DRAWING SCALE:** H 1:1500

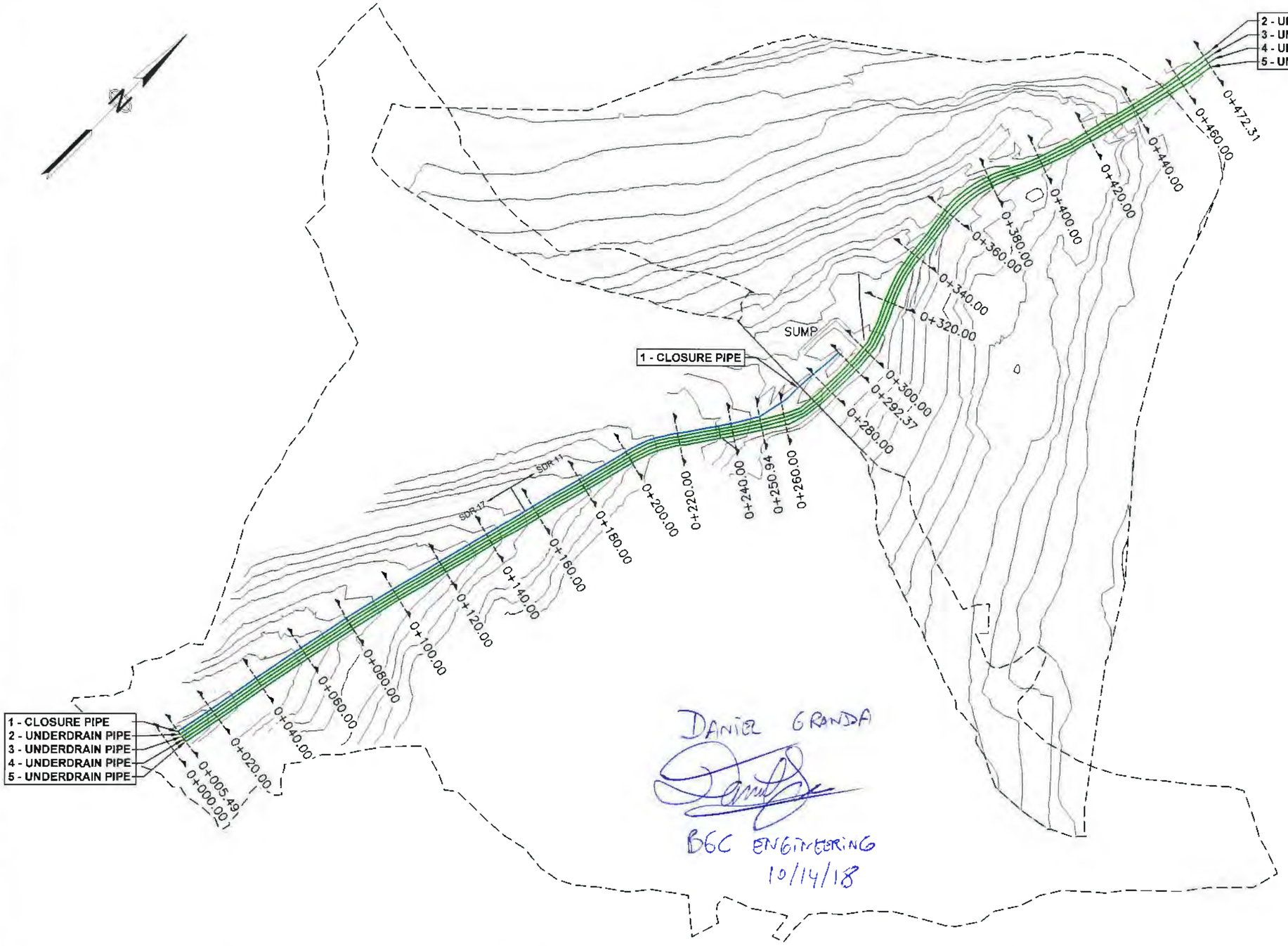
| | | | |
|---|---|---|---|
| DATE: | 18/10/13 | DWG No: | 184110-17 |
| SURVEYED: | TEAM | CHECKED: | |
| DRAWN: | C.M. | APPROVED: | |

**DRAWING FILE:** 181013 HLF EMB APPROVED TYPE 3 EXCAVATION ASB.dwg

**DRAWING VIEW:** 11x17 Landscape

**PROJECT NO.:** 17003

**SHEET:** 001




DANIEL GRANDA

B&C ENGINEERING

10/14/18

**REFERENCE DRAWINGS:**

| NO. | DRAWING FILE: |
|---|---|
| 01 | |

**DRAWING NOTES:**

1. CLOSURE DRAIN PIPE SHOWN IN BLUE.
2. UNDERDRAIN PIPES SHOWN IN GREEN.
3. AS-BUILT SURVEYS EXECUTED BETWEEN JUNE 26 AND SEPTEMBER 2, 2018.

**ISSUES:**

| REV. | YY/MM/DD | INIT. | DESCRIPTION |
|---|---|---|---|
| 0.0 | 18/09/02 | CB | ISSUED FOR INFORMATION |
| 1.0 | 18/09/17 | CB | ASBUILT ISSUE |
| 2.0 | 18/09/25 | CB | RE-ISSUED FOR ASBUILT |

CLIENT: Pelly Construction Ltd.

eshemuta Construction Surveyors

PROJECT: EAGLE GOLD MINE CONSTRUCTION

TITLE: HLF PIPING INSTALLATION SITE PLAN (ASBUILT)

DRAWING SCALE: H 1:1500

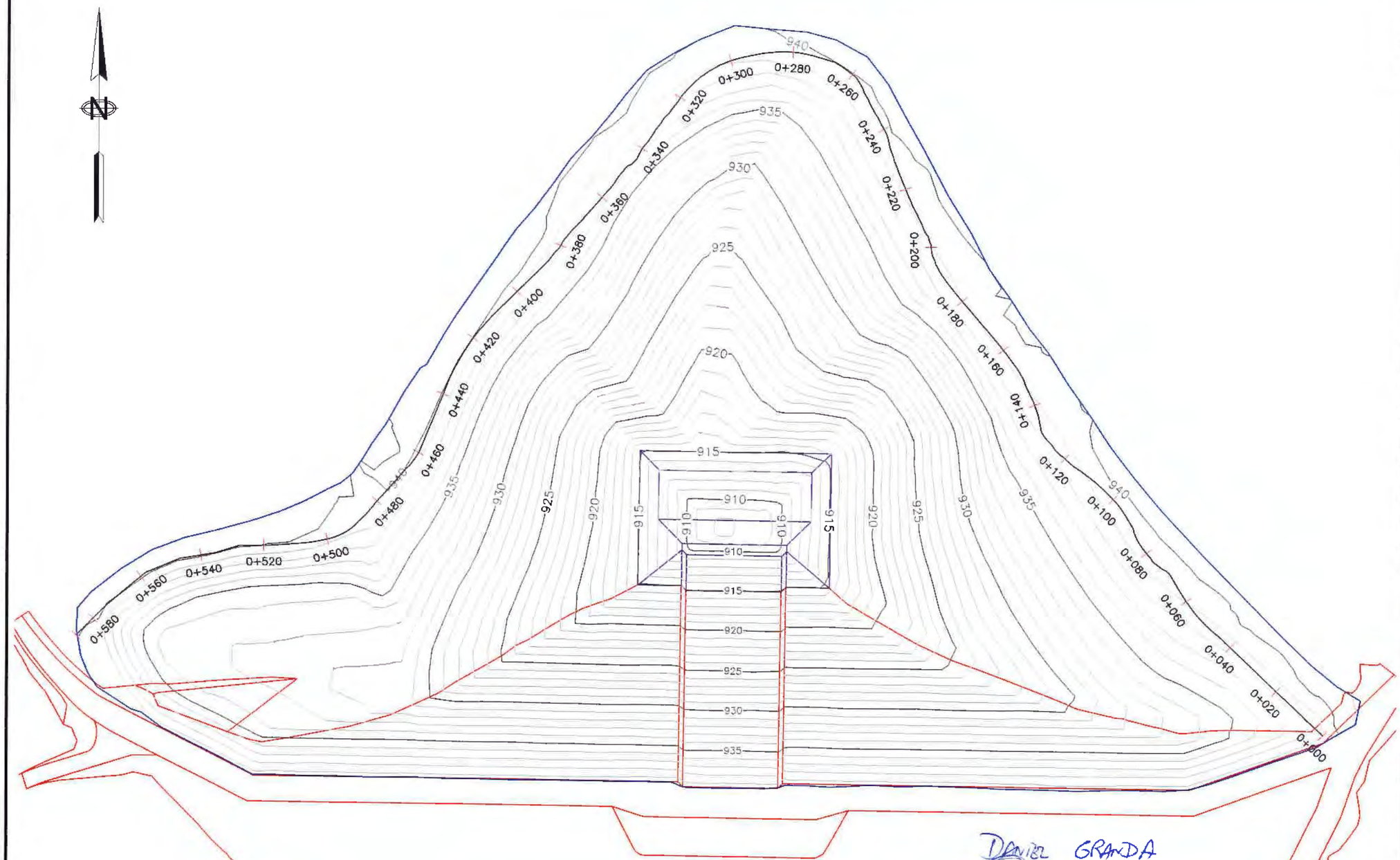
| | | | |
|---|---|---|---|
| DATE: | 18/09/25 | DWG No: | 184110-011 |
| SURVEYED: | EJB SP CM | CHECKED: | |
| DRAWN: | JB CB FvD | APPROVED: | |

DRAWING FILE: 180925 HLF EMD UNDERDRAIN AND CLOSURE PIPE ASBUILT.DWG

DRAWING VIEW: 11x17 Landscape

PROJECT NO.: 17003

SHEET: 001




DANIEL GRANDA
BGC ENGINEERING
10/14/18

**REFERENCE DRAWINGS:**

| NO. | DRAWING FILE: |
|---|---|
| 01 | 100-302-CP-3D.dwg |

**DRAWING NOTES:**

1. RED LINES DENOTE EMBANKMENT DESIGN
2. PURPLE LINES DENOTE HLF SUMP DESIGN
3. BLUE LINE REPRESENTS HLF AS-BUILT BOUNDARY
4. BLACK LINE DEONTES DESIGN HLF 940m BENCH ALIGNMENT
5. HLF SHAPING SURFACE IS INSPECTED BY BGC FIELD REPRESENTATIVE BEFORE FINAL PRE-LINER TOPOGRAPHY IS APPROVED
6. CONTOUR INTERVAL = 1m

**ISSUES:**

| REV. | YY/MM/DD | INIT. | DESCRIPTION |
|---|---|---|---|
| 0.0 | 18/10/13 | CM | ISSUED FOR INFORMATION |

CLIENT: Pelly Construction Ltd.

eshemuta Construction Surveyors

PROJECT: EAGLE GOLD MINE CONSTRUCTION

TITLE: HLF FINAL PRE-LINER TOPOGRAPHY SHAPING AS-BUILT

DRAWING SCALE: H 1:1250

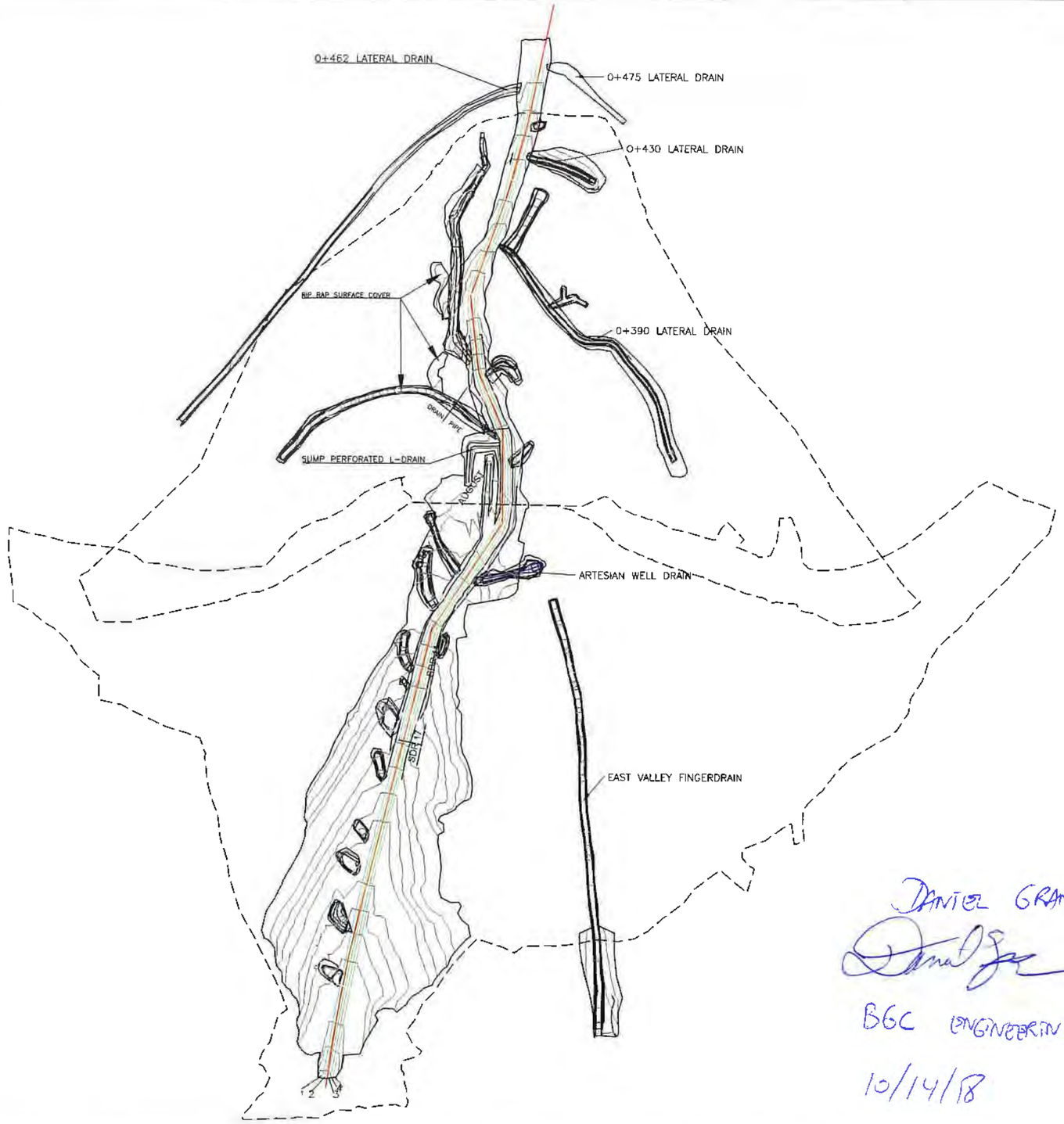
| | |
|---|---|
| DATE: 18/10/13 | DWG No: HLF-012-FINAL |
| SURVEYED: TEAM | CHECKED: |
| DRAWN: C.M. | APPROVED: |

DRAWING FILE: 181013 HLF PRE-LINER SHAPING ASB - FINAL.dwg

DRAWING VIEW: 11x17 Landscape

PROJECT NO.: 17003

SHEET: 001




DANIEL GRANDA

BGC ENGINEERING

10/14/18

**REFERENCE DRAWINGS:**

| NO. | DRAWING FILE: |
|---|---|
| 01 | |

**DRAWING NOTES:**

1. SHOWING FINGERDRAIN SURFACES ALONG CLOSURE AND UNDERDRAIN ALIGNMENT.
2. AS-BUILT SURVEYS EXECUTED BETWEEN JUNE 20 TO SEPTEMBER 17, 2018.
3. ALL SURFACES SURVEYED WITH GPS.
4. EACH FINGERDRAIN CONSISTS OF EXCAVATION, DRAIN ROCK AND REJECT SAND SURFACES UNLESS NOTED.

**ISSUES:**

| REV. | YY/MM/DD | INIT. | DESCRIPTION |
|---|---|---|---|
| 0.0 | 18/09/22 | BAX | ISSUED FOR INFORMATION |

**CLIENT:** Pelly Construction Ltd.

eshemuta Construction Surveyors

**PROJECT:** EAGLE GOLD MINE CONSTRUCTION

**TITLE:** HLF EMBANKMENT OVERALL DRAIN INSTALLATION

**DRAWING SCALE:** H 1:2000

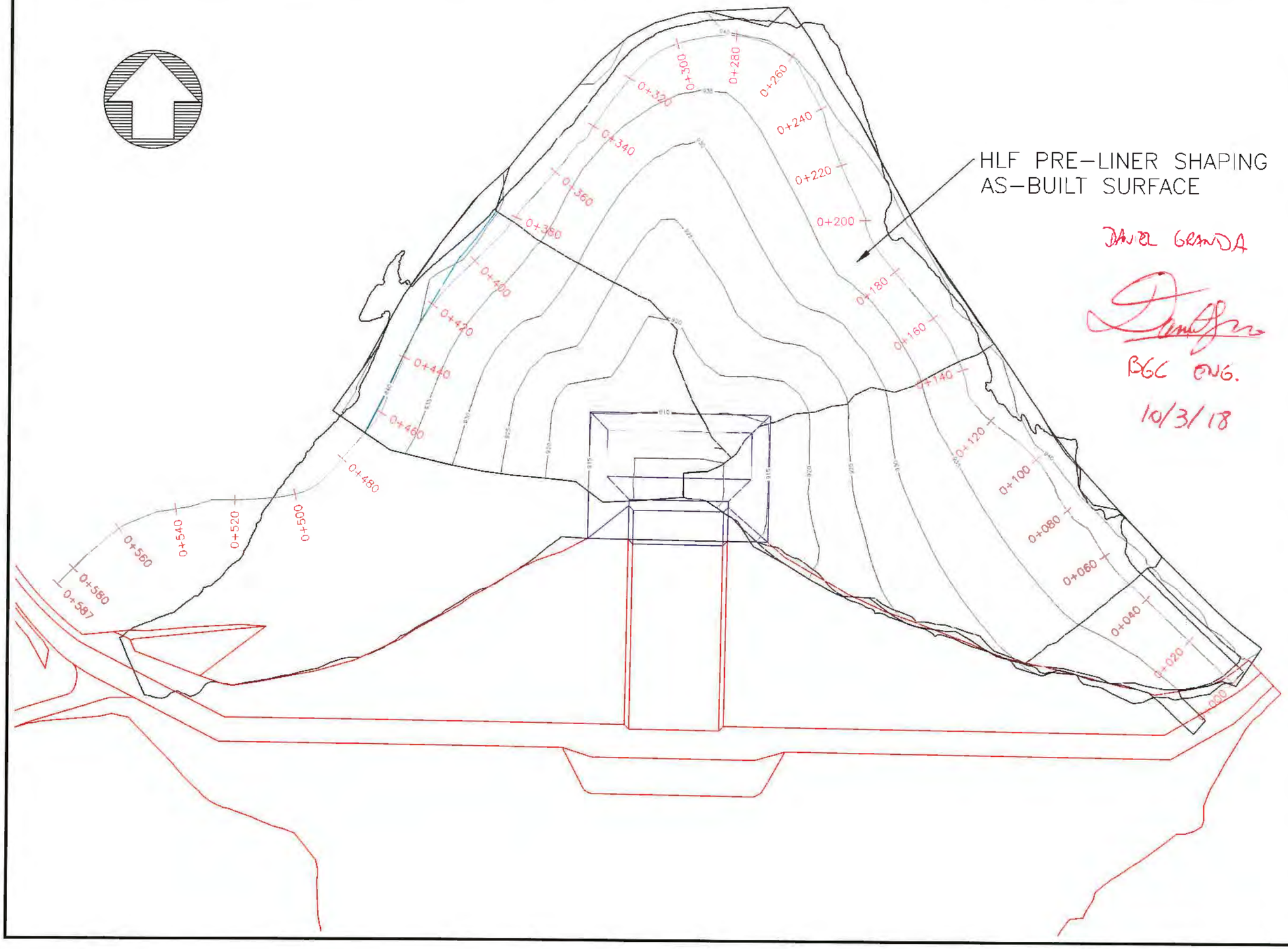
| | | | |
|---|---|---|---|
| DATE: | 18/08/25 | DWG No: | 164110-010 |
| SURVEYED: | TEAM | CHECKED: | |
| DRAWN: | CM/BAX | APPROVED: | |

**DRAWING FILE:** 180925 MASTER HLF EMB OVERALL DRAIN INSTALLATION ASB.dwg

**DRAWING VIEW:** 11x17 Landscape

**PROJECT NO.:** 17003

**SHEET:** 001




DANIEL GRANDA

BGC ENG.

10/3/18

**REFERENCE DRAWINGS:**

| NO. | DRAWING FILE: |
|---|---|
| 01 | 100-302-CP-3D.dwg |

**DRAWING NOTES:**

1. SURFACE CONTOUR INTERVALS ARE SET AT 1M & 5M
2. RED LINES DENOTE EMBANKMENT DESIGN
3. PURPLE LINES DENOTE HLF SUMP DESIGN
4. BLACK LINE REPRESENTS BGC HLF DESIGN SURFACE BOUNDARY
5. SECTION APPROVALS ARE INSPECTED BY BGC FIELD REPRESENTATIVE BEFORE FINAL PRE-LINER TOPOGRAPHY IS SURVEYED

**ISSUES:**

| REV. | YY/MM/DD | INIT. | DESCRIPTION |
|---|---|---|---|
| 0.0 | 18/09/30 | CM | ISSUED FOR INFORMATION |

CLIENT:

Pelly Construction Ltd.

eshemuta Construction Surveyors

PROJECT:

EAGLE GOLD MINE CONSTRUCTION

TITLE:

HLF PRE-LINER TOPOGRAPHY SHAPING AS-BUILT 0+000 to 0+470

DRAWING SCALE: 1:1250

| | |
|---|---|
| DATE: 18/09/30 | DWG No: HLF-012-S3 |
| SURVEYED: C.M./BAX/E.J. | CHECKED: |
| DRAWN: BAX | APPROVED: |

DRAWING FILE: 180930 HLF PRE-LINER SHAPING ASB 0+000 - 0+470.dwg

DRAWING VIEW: 11x17 Landscape

PROJECT NO.: 17003

SHEET: 001




**REFERENCE DRAWINGS:**

| NO. | DRAWING FILE: |
|---|---|
| 01 | Xref.dwg |

**DRAWING NOTES:**

1. HLF EMBANKMENT FINAL AS-BUILT SURFACE SHOWN IN RED
2. CONTOUR INTERVAL = 1m

**ISSUES:**

| REV. | YY/MM/DD | INIT. | DESCRIPTION |
|---|---|---|---|
| 0.0 | 18/11/03 | CM | ISSUED FOR TURNOVER |

CLIENT: Pelly Construction Ltd.

eshemuta Construction Surveyors

PROJECT: EAGLE GOLD MINE CONSTRUCTION

TITLE: HLF EMBANKMENT FINAL AS-BUILT

DRAWING SCALE: H 1:1250

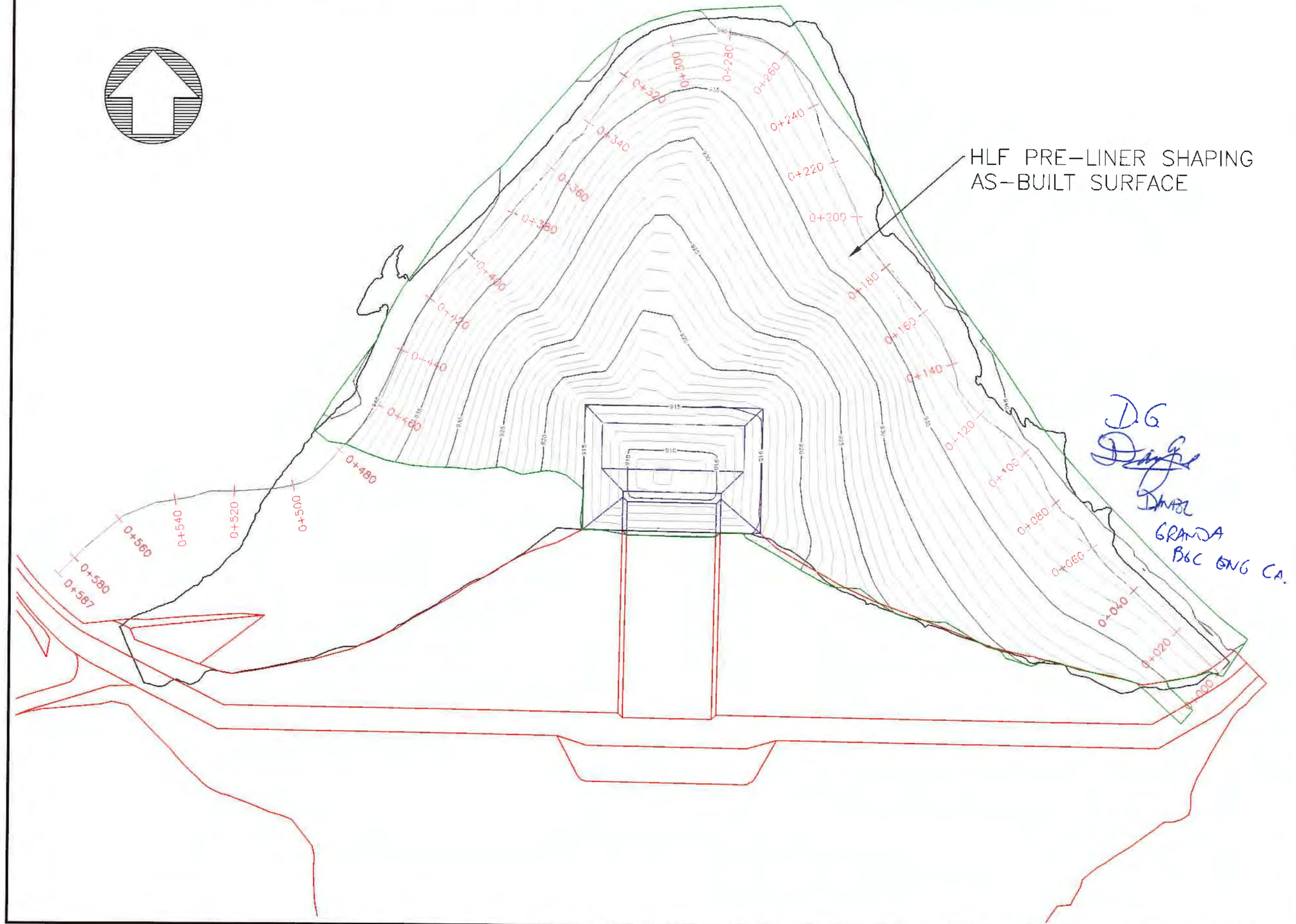
| | |
|---|---|
| DATE: 18/11/03 | DWG No: 184110-18 |
| SURVEYED: TEAM | CHECKED: |
| DRAWN: C.M. | APPROVED: |

DRAWING FILE: 181103 HLF EMBANKMENT SURFACE ASB - FINAL.dwg

DRAWING VIEW: 11x17 Landscape

PROJECT NO.: 17003

SHEET: 001




DG
DMASL
GRANDA
B&C ENG CA.

**REFERENCE DRAWINGS:**

| NO. | DRAWING FILE: |
|---|---|
| 01 | 100-302-CP-3D.dwg |

**DRAWING NOTES:**

1. SURFACE CONTOUR INTERVALS ARE SET AT 1M & 5M
2. RED LINES DENOTE EMBANKMENT DESIGN
3. PURPLE LINES DENOTE HLF SUMP DESIGN
4. BLACK LINE REPRESENTS BGC HLF DESIGN SURFACE BOUNDARY
5. SECTION APPROVALS ARE INSPECTED BY BGC FIELD REPRESENTATIVE BEFORE FINAL PRE-LINER TOPOGRAPHY IS SURVEYED

**ISSUES:**

| REV. | YY/MM/DD | INIT. | DESCRIPTION |
|---|---|---|---|
| 5.0 | 18/10/04 | CM | ISSUED FOR INFORMATION |

CLIENT:
Pelly Construction Ltd.

eshemuta Construction Surveyors

PROJECT:
EAGLE GOLD MINE CONSTRUCTION

TITLE:
HLF PRE-LINER TOPOGRAPHY SHAPING AS-BUILT

DRAWING SCALE: 1:1250

| | | | |
|---|---|---|---|
| DATE: | 18/10/04 | DWG No: | HLF-012 |
| SURVEYED: | C.M./BAX/E.J. | CHECKED: | |
| DRAWN: | C.M. | APPROVED: | |

DRAWING FILE: 181004 HLF PRE-LINER SHAPING ASB.dwg

DRAWING VIEW: 11x17 Landscape

PROJECT NO.: 17003

SHEET: 001

Title: **INSPECTION AND TEST PLAN FOR HLF EMBANKMENT FINGER DRAINS**

Contractor: **PELLY CONSTRUCTION LTD**
Project: **EAGLE GOLD PROJECT**
Item **TBD**
CWP: **HLF EMBANKMENT FINGER DRAINS**
Revision: **0**

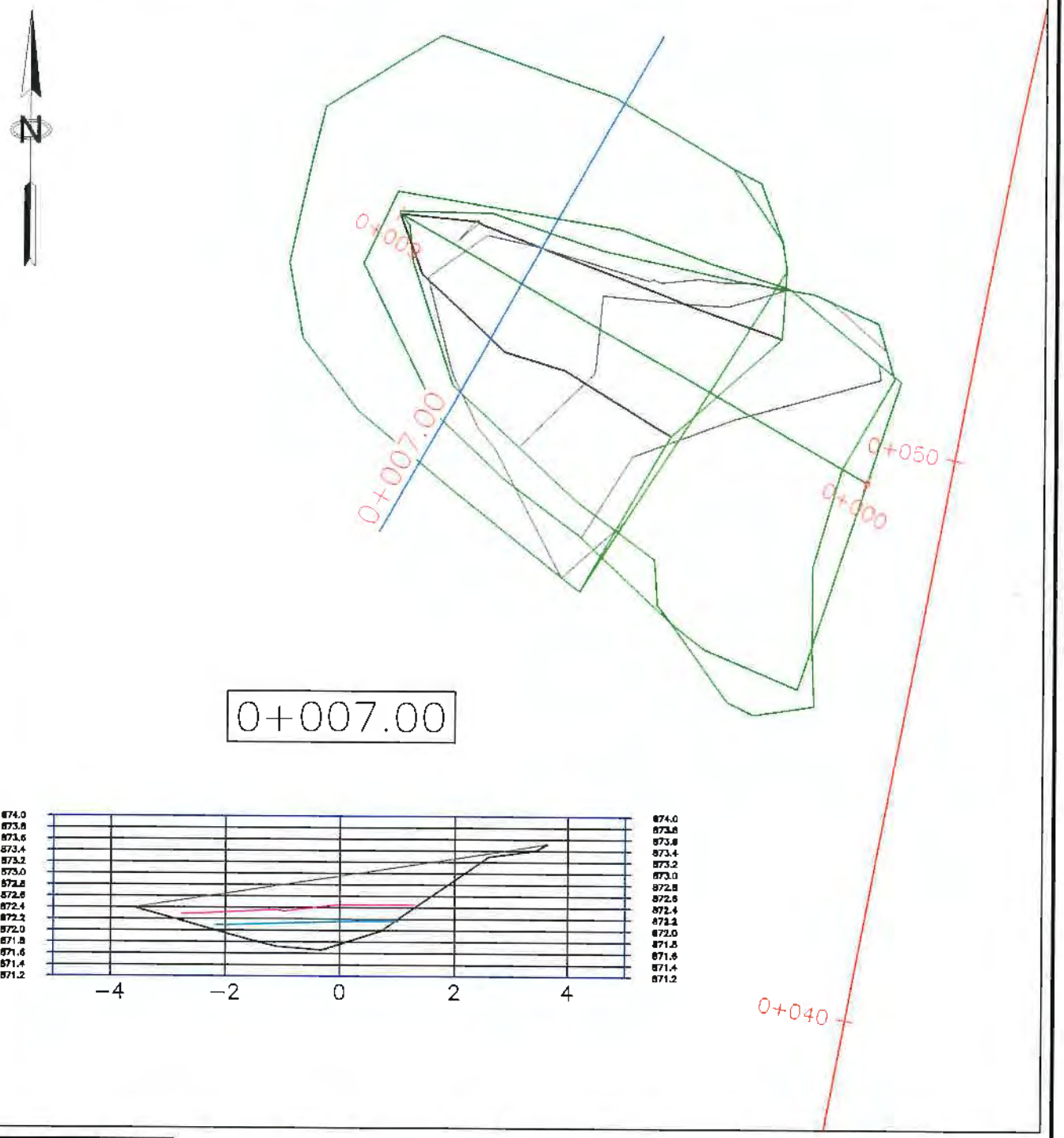
Contract No **CC204**
ITP No **006-A**
Date: **20-Jun-18**
Station: **STA 0+60 RT**

Pelly Construction Ltd.

| ITEM NO. | TASK DESCRIPTION | ACTIVITIES AND ACCEPTANCE CRITERIA | PARTY RESPONSIBLE | VERIFICATION DOCUMENT OR FORM | CONTRACTOR REP | | CLIENT REP | | COMMENTS |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | INITIALS | DATE | INITIALS | DATE | |
| 1.1 | ITP review and approval | Client approval | Client | This approved ITP document bearing signatures | SB | Jun | | | |
| 1.2 | RFI's | Obtain RFI response to close request | Client | Client RFI forms | SB | | | | |
| 1.3 | Finger drain design drawing | Drawing received by Contractor; Verify design drawing | Contractor/Client | Drawings reviewed | SB | Jun | | | |
| 1.4 | Quality of materials | Verify materials received meet all requirements | Contractor/Client | Material specification sheet and quality/inspection certificates | SB | Jun | | | |
| 1.5 | Engineers approval of drain excavation | Inspection of excavation to design depth, width, and subgrade foundation | Contractor/Client | Engineers initials on this document | SB | Jun | | | |
| 1.6 | Installation of 12oz nonwoven geotextile | Install geotextile as per design | Contractor/Client | Engineers initials on this document | SB | Jun | | | |
| 1.7 | Installation of select drain fill to minimum of 0.45m | Install drain fill as per design; Thickness to meet requirement | Contractor/Client | Engineers initials on this document | SB | Jun | | | |
| 1.8 | Close envelope of 12oz nonwoven geotextile | Geotextile to fully encompass drain fill maintaining minimum 0.5m overlap | Contractor/Client | Engineers initials on this document | SB | Jun | | | |
| 1.9 | Place and compact minimum 0.3m of material 2 or material 3 above getotextile top layer | Install geotextile as per design engineers correspondence | Contractor/Client | Engineers initials on this document | SB | Jun | | | |
| 1.10 | Survey asbuilt of requested construction steps | Survey to asbuilt steps during construction as requested | Contractor/Client | Asbuilt drawings provided as requested | | | | | |
| 1.11 | Quality records complete and in turnover package | To be updated throughout the project | Contractor | As per documentation outlined in this ITP | | | | | |

Client Rep: Ray Morton (print) _____ (sign) Jun 21, 2018 (date)

Contractor Rep: SHIPENG ZHENG (print) _____ (sign) Jun 21, 2018 (date)




0+007.00




| REFERENCE DRAWINGS: | |
|---|---|
| NO. | DRAWING FILE: |
| 01 | Xref.dwg |

**DRAWING NOTES:**

- TYPE 3 MATERIAL
- TOP STRUCTJRAL FILL
- TOP DRAIN ROCK
- EXCAVATION

| ISSUES: | | | |
|---|---|---|---|
| REV. | YY/MM/DD | INIT. | DESCRIPTION |
| 0.0 | 18/07/18 | C.M. | ISSUED FOR INFORMATION |

eshemuta Construction Surveyors

SURVEYED: | DRAWN: C.M. | CHECKED: | APPROVED:

CLIENT: Pelly Construction Ltd.

PROJECT: EAGLE GOLD MINE CONSTRUCTION

TITLE: HLF EMBANKMENT FINGERDRAIN 0+050

DRAWING SCALE: H 1:100

DATE: 18/07/18 | DWG No: EMB-FD050

DRAWING FILE: 180718 FINGERDRAIN 0+050

DRAWING VIEW: 8.5x11 Portrait

PROJECT NO.: 17003

SHEET: 001

Title: **INSPECTION AND TEST PLAN FOR HLF EMBANKMENT FINGER DRAINS**

Contractor: **PELLY CONSTRUCTION LTD**
Project: **EAGLE GOLD PROJECT**
Item: **TBD**
CWP: **HLF EMBANKMENT FINGER DRAINS**
Revision: **0**

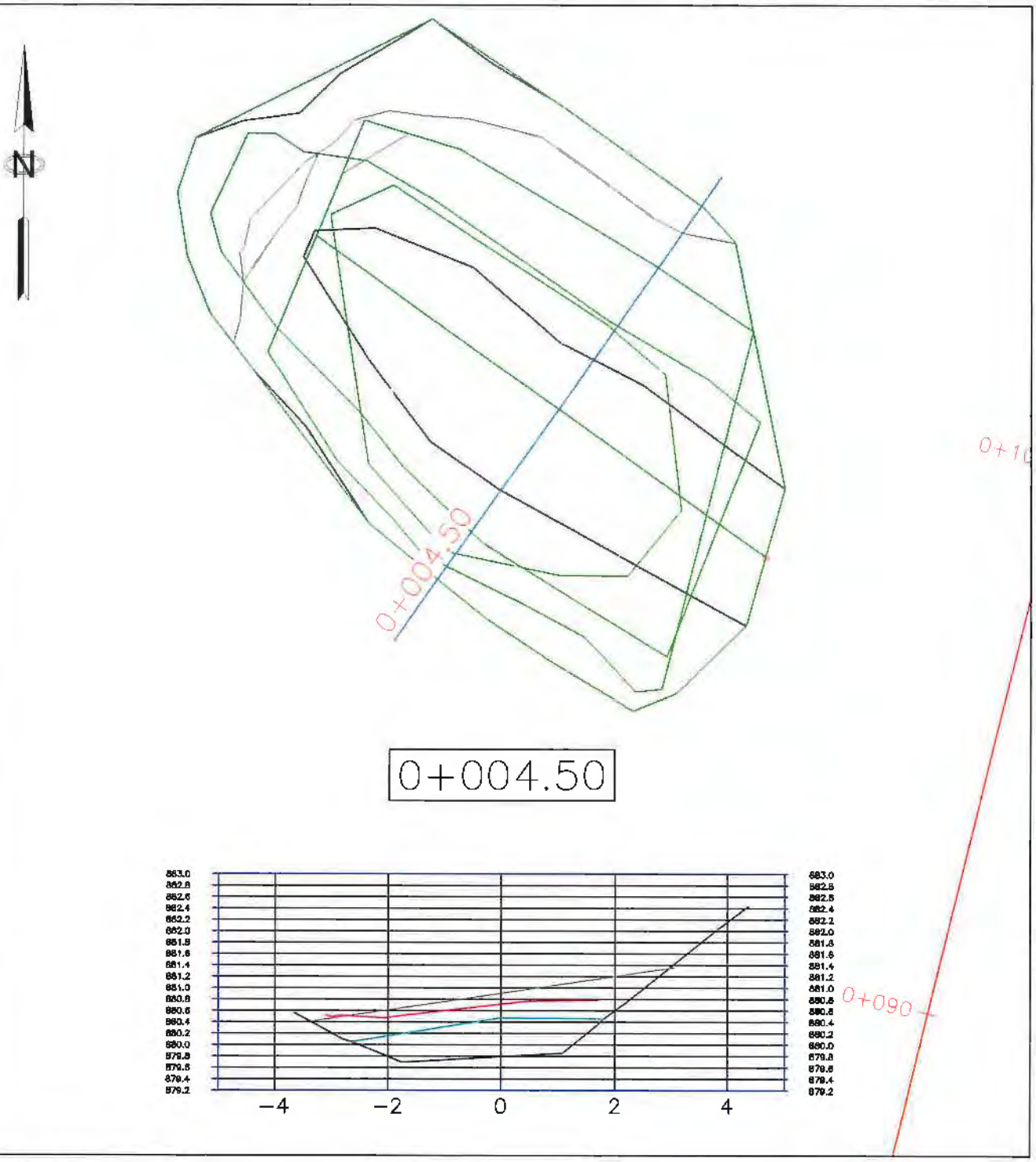
Contract No **CC204**
ITP No. **006-B**
Date: **20-Jun-18**
Station: **STA 0+90 RT**

Pelly Construction Ltd.

| ITEM NO. | TASK DESCRIPTION | ACTIVITIES AND ACCEPTANCE CRITERIA | PARTY RESPONSIBLE | VERIFICATION DOCUMENT OR FORM | CONTRACTOR REP | | CLIENT REP | | COMMENTS |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | INITIALS | DATE | INITIALS | DATE | |
| 1.1 | ITP review and approval | Client approval | Client | This approved ITP document bearing signatures | SZ | RM | | | |
| 1.2 | RFI's | Obtain RFI response to close request | Client | Client RFI forms | | | | | |
| 1.3 | Finger drain design drawing | Drawing received by Contractor; Verify design drawing | Contractor/Client | Drawings reviewed | SZ | RM | | | |
| 1.4 | Quality of materials | Verify materials received meet all requirements | Contractor/Client | Material specification sheet and quality/inspection certificates | SZ | RM | | | |
| 1.5 | Engineers approval of drain excavation | Inspection of excavation to design depth, width, and subgrade foundation | Contractor/Client | Engineers initials on this document | SZ | RM | | | |
| 1.6 | Installation of 12oz nonwoven geotextile | Install geotextile as per design | Contractor/Client | Engineers initials on this document | SZ | RM | | | |
| 1.7 | Installation of select drain fill to minimum of 0 45m | Install drain fill as per design; Thickness to meet requirement | Contractor/Client | Engineers initials on this document | SZ | RM | | | |
| 1.8 | Close envelope of 12oz nonwoven geotextile | Geotextile to fully encompass drain fill maintaining minimum 0 5m overlap | Contractor/Client | Engineers initials on this document | SZ | RM | | | |
| 1.9 | Place and compact minimum 0.3m of material 2 or material 3 above getotextile top layer | Install geotextile as per design engineers correspondence | Contractor/Client | Engineers initials on this document | SZ | RM | | | |
| 1.10 | Survey asbuilt of requested construction steps | Survey to asbuilt steps during construction as requested | Contractor/Client | Asbuilt drawings provided as requested | | | | | |
| 1.11 | Quality records complete and in turnover package | To be updated throughout the project | Contractor | As per documentation outlined in this ITP | | | | | |

**Client Rep:** Roy Marlow (print) RM (sign) Jun 21, 2018 (date)

**Contractor Rep:** SHIPENG ZHEN (print) (sign) June 21, 2018 (date)




0+004.50




| REFERENCE DRAWINGS: | |
|---|---|
| NO. | DRAWING FILE: |
| 01 | Xref.dwg |

DRAWING NOTES:

- TYPE 3 MATERIAL
- TOP TYPE 2 MATERIAL
- TOP DRAIN ROCK
- EXCAVATION

| ISSUES: | | | |
|---|---|---|---|
| REV. | YY/MM/DD | INIT. | DESCRIPTION |
| 1.0 | 18/07/19 | CM. | ISSUED FOR INFORMATION |

eshemuta Construction Surveyors

SURVEYED: BAX | DRAWN: BAX | CHECKED: | APPROVED:

CLIENT: Pelly Construction Ltd.

PROJECT: EAGLE GOLD MINE CONSTRUCTION

TITLE: HLF EMBANKMENT FINGERDRAIN 0+090

DRAWING SCALE: H 1:100

DATE: 18/07/01 | DWG No: EMB-FD0090

DRAWING FILE: 180702 FINGERDRAIN 0+090

DRAWING VIEW: 8.5x11 Portrait

PROJECT NO : 17003

SHEET: 001

Title: **INSPECTION AND TEST PLAN FOR HLF EMBANKMENT FINGER DRAINS**

Contractor: **PELLY CONSTRUCTION LTD**
Project: **EAGLE GOLD PROJECT**
Item **TBD**
CWP **HLF EMBANKMENT FINGER DRAINS**
Revision **0**

Contract No. **CC204**
ITP No **006-D**
Date: **20-Jun-18**
Station: **STA 0+100 RT**

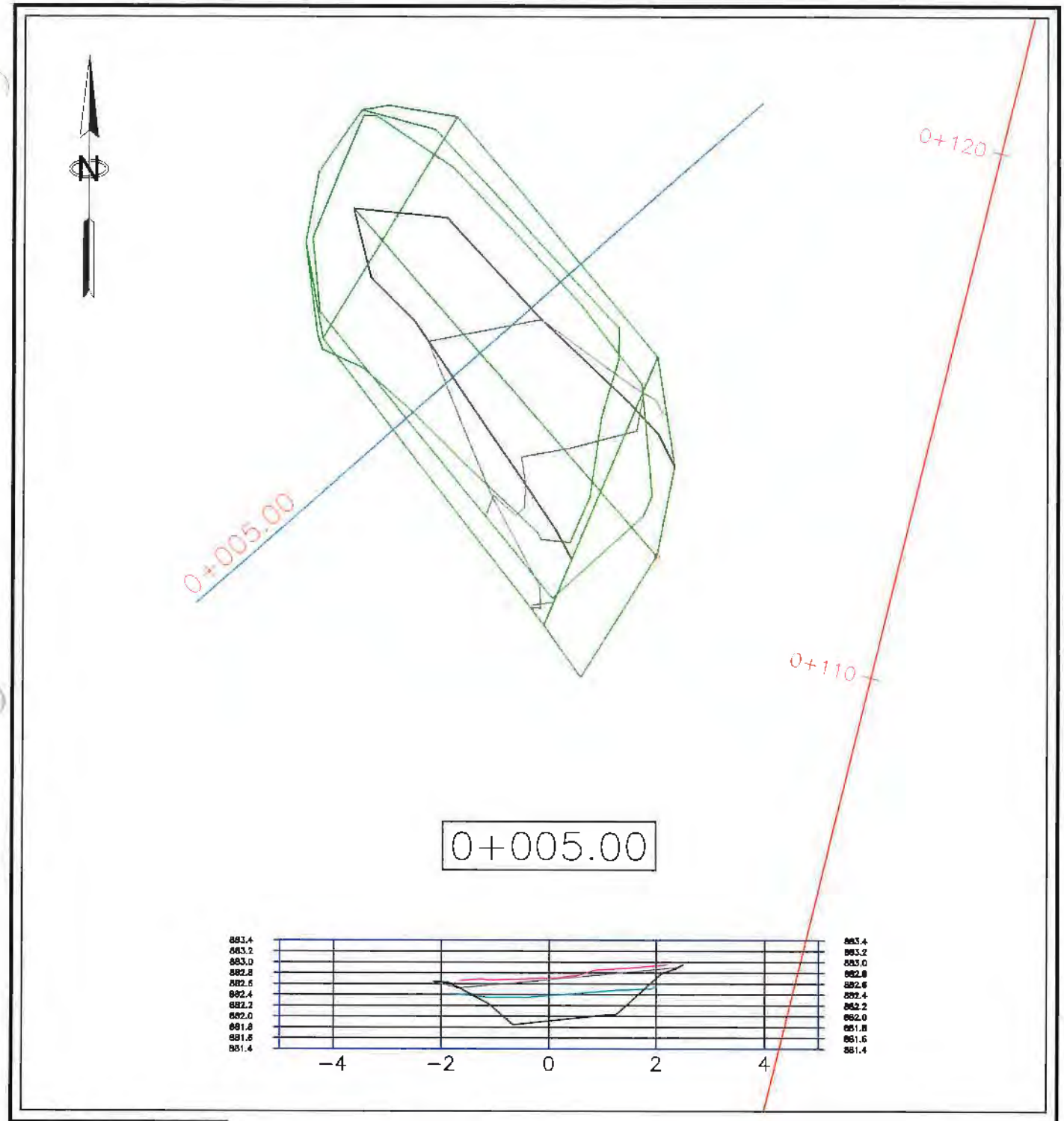
Pelly Construction Ltd.

| ITEM NO. | TASK DESCRIPTION | ACTIVITIES AND ACCEPTANCE CRITERIA | PARTY RESPONSIBLE | VERIFICATION DOCUMENT OR FORM | CONTRACTOR REP INITIALS | CONTRACTOR REP DATE | CLIENT REP INITIALS | CLIENT REP DATE | COMMENTS |
|---|---|---|---|---|---|---|---|---|---|
| 1.1 | ITP review and approval | Client approval | Client | This approved ITP document bearing signatures | | | | | |
| 1.2 | RFI's | Obtain RFI response to close request | Client | Client RFI forms | | | | | |
| 1.3 | Finger drain design drawing | Drawing received by Contractor; Verify design drawing | Contractor/Client | Drawings reviewed | SZ | | RM | 62518 | |
| 1.4 | Quality of materials | Verify materials received meet all requirements | Contractor/Client | Material specification sheet and quality/inspection certificates | SZ | | RM | 62518 | |
| 1.5 | Engineers approval of drain excavation | Inspection of excavation to design depth, width, and subgrade foundation | Contractor/Client | Engineers initials on this document | SZ | | RM | 62518 | |
| 1.6 | Installation of 12oz nonwoven geotextile | Install geotextile as per design | Contractor/Client | Engineers initials on this document | SZ | | RM | 62518 | |
| 1.7 | Installation of select drain fill to minimum of 0 45m | Install drain fill as per design; Thickness to meet requirement | Contractor/Client | Engineers initials on this document | SZ | | RM | 62518 | |
| 1.8 | Close envelope of 12oz nonwoven geotextile | Geotextile to fully encompass drain fill maintaining minimum 0.5m overlap | Contractor/Client | Engineers initials on this document | SZ | | RM | 62518 | |
| 1.9 | Place and compact minimum 0 3m of material 2 or material 3 above getotextile top layer | Install geotextile as per design engineers correspondence | Contractor/Client | Engineers initials on this document | SZ | | RM | 62518 | |
| 1.10 | Survey asbuilt of requested construction steps | Survey to asbuilt steps during construction as requested | Contractor/Client | Asbuilt drawings provided as requested | SZ | | RM | 62518 | |
| 1.11 | Quality records complete and in turnover package | To be updated throughout the project | Contractor | As per documentation outlined in this ITP | SZ | | RM | 62518 | |

Client Rep: Roy Moalm [signature] 6-25-18
print sign date

Contractor Rep: SHIPENG ZHENG [signature] June 25, 2018
print sign date

* As built Pending RM 62518




0+005.00




| REFERENCE DRAWINGS: | |
|---|---|
| NO. | DRAWING FILE: |
| 01 | Xref.dwg |

DRAWING NOTES:

- TYPE 3 MATERIAL
- TOP TYPE 2 MATERIAL
- TOP DRAIN ROCK
- EXCAVATION

| ISSUES: | | | |
|---|---|---|---|
| REV. | YY/MM/DD | INIT. | DESCRIPTION |
| 1.0 | 18/07/19 | CM | ISSUED FOR INFORMATION |

eshemuta Construction Surveyors

SURVEYED: BAX | DRAWN: BAX | CHECKED: | APPROVED:

CLIENT: Pelly Construction Ltd.

PROJECT: EAGLE GOLD MINE CONSTRUCTION

TITLE: HLF EMBANKMENT FINGERDRAIN 0+110

DRAWING SCALE: H 1:100

DATE: 18/07/03 | DWG No: EMB-FD0110

DRAWING FILE: 180703 FINGERDRAIN_0+110

DRAWING VIEW: 8.5x11 Portrait

PROJECT NO.: 17003

SHEET: 001

Title: **INSPECTION AND TEST PLAN FOR HLF EMBANKMENT FINGER DRAINS**

Contractor: **PELLY CONSTRUCTION LTD**
Project: **EAGLE GOLD PROJECT**
Item: **9000.13**
CWP: **HLF EMBANKMENT FINGER DRAINS**
Revision: **0**

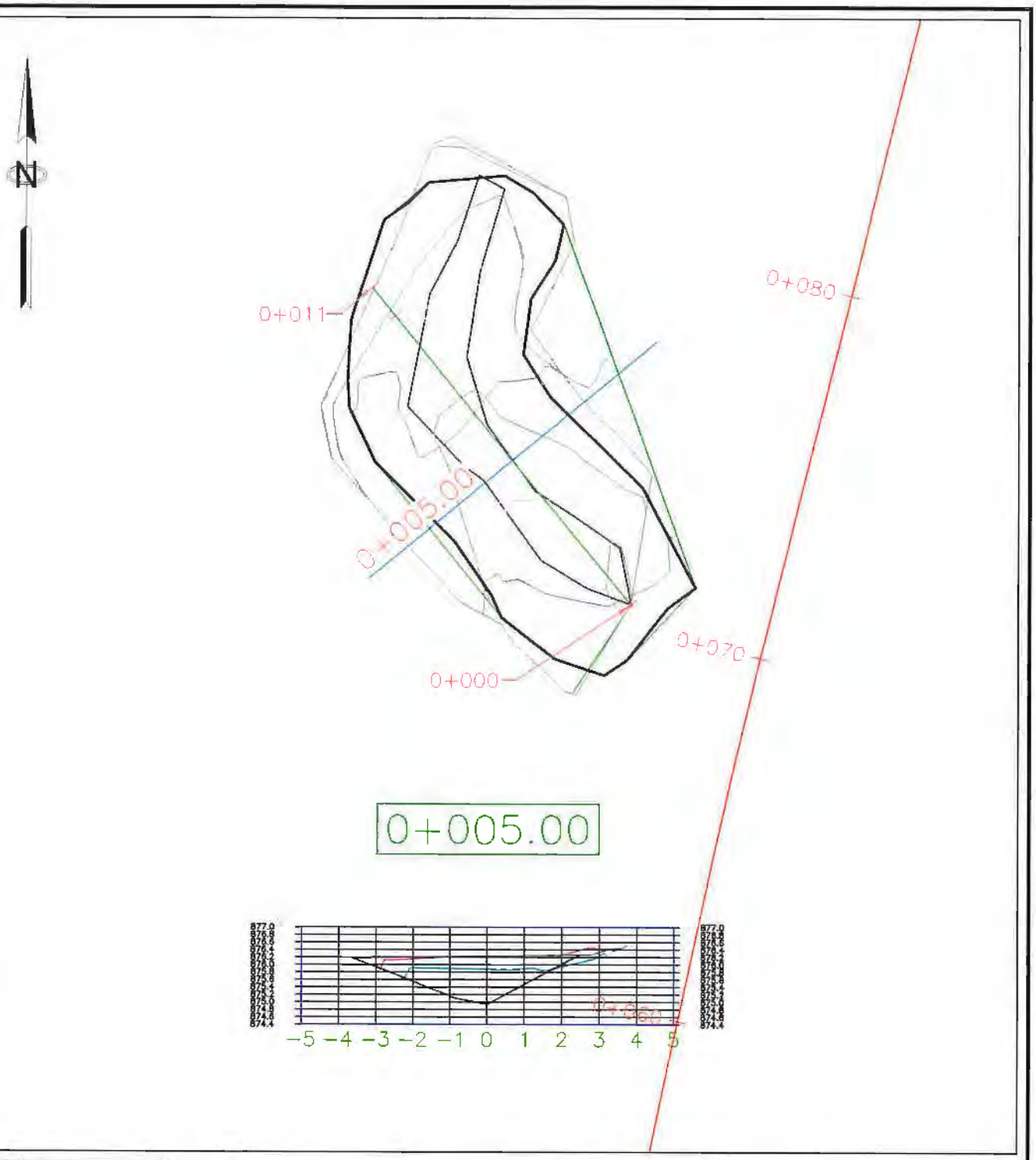
Contract No. **CC204**
ITP No **006-E**
Date: **20-Jun-18**
Station: **STA 0+70 RT**

Pelly Construction Ltd.

| ITEM NO. | TASK DESCRIPTION | ACTIVITIES AND ACCEPTANCE CRITERIA | PARTY RESPONSIBLE | VERIFICATION DOCUMENT OR FORM | CONTRACTOR REP INITIALS | CONTRACTOR REP DATE | CLIENT REP INITIALS | CLIENT REP DATE | COMMENTS |
|---|---|---|---|---|---|---|---|---|---|
| 1.1 | ITP review and approval | Client approval | Client | This approved ITP document bearing signatures | Dino | 7/10 | EJF | 7/10 | |
| 1.2 | RFI's | Obtain RFI response to close request | Client | Client RFI forms | Dino | 7/10 | EJF | 7/10 | |
| 1.3 | Finger drain design drawing | Drawing received by Contractor; Verify design drawing | Contractor/Client | Drawings reviewed | Dino | 7/10 | EJF | 7/10 | |
| 1.4 | Quality of materials | Verify materials received meet all requirements | Contractor/Client | Material specification sheet and quality/inspection certificates | Dino | 7/10 | EJF | 7/10 | |
| 1.5 | Engineers approval of drain excavation | Inspection of excavation to design depth, width, and subgrade foundation | Contractor/Client | Engineers initials on this document | Dino | 7/10 | EJF | 7/10 | |
| 1.6 | Installation of 12oz nonwoven geotextile | Install geotextile as per design | Contractor/Client | Engineers initials on this document | Dino | 7/10 | EJF | 7/10 | |
| 1.7 | Installation of select drain fill to minimum of 0 45m | Install drain fill as per design; Thickness to meet requirement | Contractor/Client | Engineers initials on this document | Dino | 7/10 | EJF | 7/10 | |
| 1.8 | Close envelope of 12oz nonwoven geotextile | Geotextile to fully encompass drain fill maintaining minimum 0.5m overlap | Contractor/Client | Engineers initials on this document | Dino | 7/10 | EJF | 7/10 | |
| 1.9 | Place and compact minimum 0 3m of material 2 or material 3 above getotextile top layer | Install geotextile as per design engineers correspondence | Contractor/Client | Engineers initials on this document | Dino | 7/10 | EJF | 7/10 | |
| 1.10 | Survey asbuilt of requested construction steps | Survey to asbuilt steps during construction as requested | Contractor/Client | Asbuilt drawings provided as requested | Dino | 7/10 | EJF | 7/10 | |
| 1.11 | Quality records complete and in turnover package | To be updated throughout the project | Contractor | As per documentation outlined in this ITP | Dino | 7/10 | EJF | 7/10 | |

**Client Rep:** EDWAN FABER (print) [signature] (sign) 07/10/18 (date)

**Contractor Rep:** David M. Opper (print) [signature] (sign) 07/10/18 (date)




| REFERENCE DRAWINGS: | |
|---|---|
| NO. | DRAWING FILE |
| 01 | Xref.dwg |

LEGEND:

- TYPE 3 MATERIAL
- TOP TYPE 2 MATERIAL
- TOP DRAIN ROCK
- EXCAVATION

| ISSUES: | | | |
|---|---|---|---|
| REV. | YY/MM/DD | INIT. | DESCRIPTION |
| 1.0 | 18/07/19 | C.M. | ISSUED FOR INFORMATION |

eshemuta Construction Surveyors

SURVEYED: BAX | DRAWN: BAX | CHECKED: | APPROVED:

CLIENT: Pelly Construction Ltd.

PROJECT: EAGLE GOLD MINE CONSTRUCTION

TITLE: HLF EMBANKMENT FINGERDRAIN 0+070

DRAWING SCALE: H 1:150

DATE: 18/07/08 | DWG No: EMB-F0070

DRAWING FILE: 180708 FINGERDRAIN 0+070

DRAWING VIEW: 8.5x11 Portrait

PROJECT NO.: 17003

SHEET: 001

Title: **INSPECTION AND TEST PLAN FOR HLF EMBANKMENT FINGER DRAINS**

Contractor: **PELLY CONSTRUCTION LTD**
Project: **EAGLE GOLD PROJECT**
Item: **9000.13**
CWP: **HLF EMBANKMENT FINGER DRAINS**
Revision: **0**

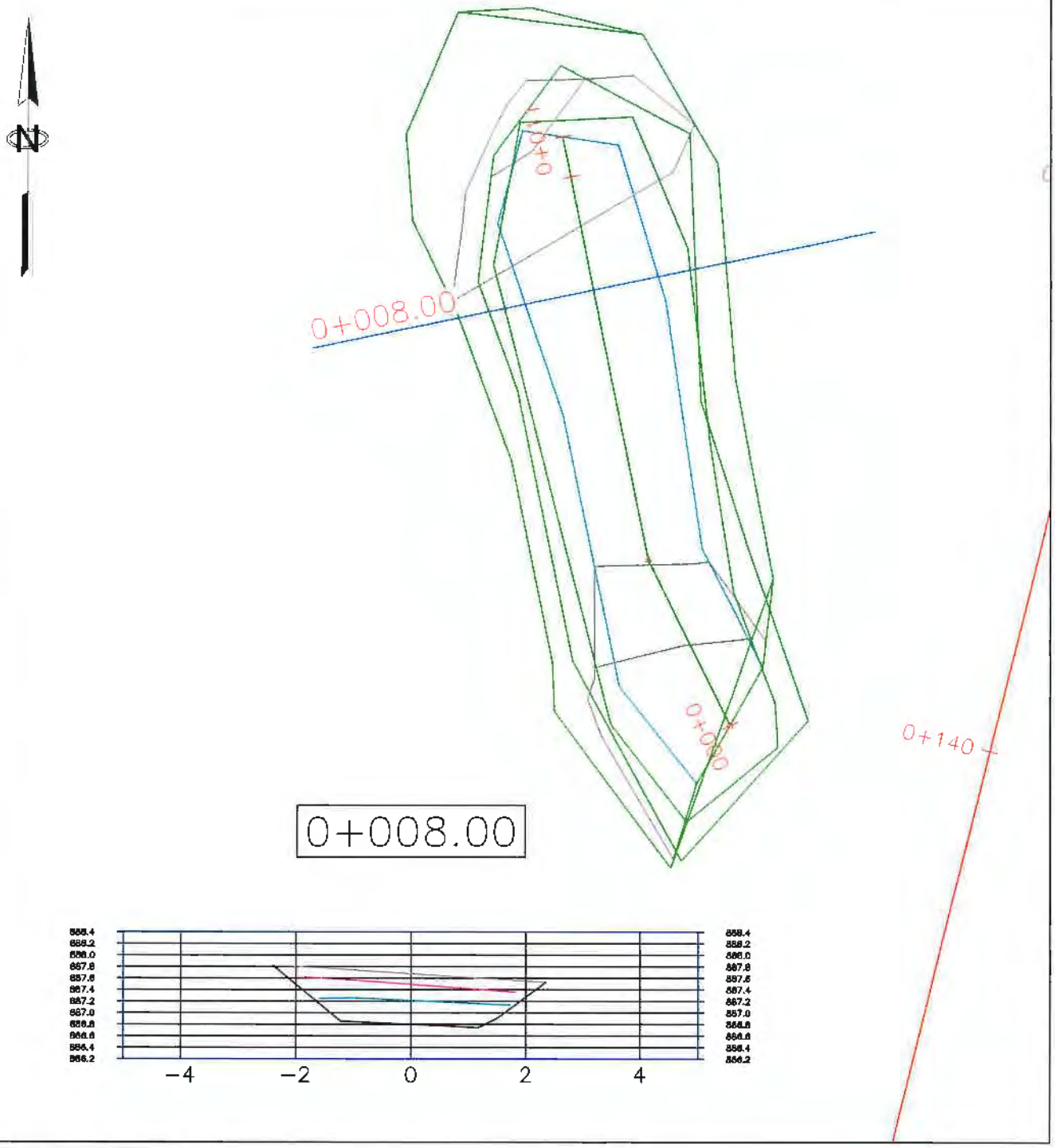
Contract No. **CC204**
ITP No. **006-F**
Date: **20-Jun-18**
Station: **STA ~~0+00~~ RT** 0+140

Pelly Construction Ltd.

| ITEM NO. | TASK DESCRIPTION | ACTIVITIES AND ACCEPTANCE CRITERIA | PARTY RESPONSIBLE | VERIFICATION DOCUMENT OR FORM | CONTRACTOR REP | | CLIENT REP | | COMMENTS |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | INITIALS | DATE | INITIALS | DATE | |
| 1.1 | ITP review and approval | Client approval | Client | This approved ITP document bearing signatures | Dino | 7/10 | EJF | 7/10 | |
| 1.2 | RFI's | Obtain RFI response to close request | Client | Client RFI forms | Dino | 7/10 | EJF | 7/10 | |
| 1.3 | Finger drain design drawing | Drawing received by Contractor; Verify design drawing | Contractor/Client | Drawings reviewed | Dino | 7/10 | EJF | 7/10 | |
| 1.4 | Quality of materials | Verify materials received meet all requirements | Contractor/Client | Material specification sheet and quality/inspection certificates | Dino | 7/10 | EJF | 7/10 | |
| 1.5 | Engineers approval of drain excavation | Inspection of excavation to design depth, width, and subgrade foundation | Contractor/Client | Engineers initials on this document | Dino | 7/10 | EJF | 7/10 | |
| 1.6 | Installation of 12oz nonwoven geotextile | Install geotextile as per design | Contractor/Client | Engineers initials on this document | Dino | 7/10 | EJF | 7/10 | |
| 1.7 | Installation of select drain fill to minimum of 0.45m | Install drain fill as per design; Thickness to meet requirement | Contractor/Client | Engineers initials on this document | Dino | 7/10 | EJF | 7/10 | |
| 1.8 | Close envelope of 12oz nonwoven geotextile | Geotextile to fully encompass drain fill maintaining minimum 0.5m overlap | Contractor/Client | Engineers initials on this document | Dino | 7/10 | EJF | 7/10 | |
| 1.9 | Place and compact minimum 0.3m of material 2 or material 3 above getotextile top layer | Install geotextile as per design engineers correspondence | Contractor/Client | Engineers initials on this document | Dino | 7/10 | EJF | 7/10 | |
| 1.10 | Survey asbuilt of requested construction steps | Survey to asbuilt steps during construction as requested | Contractor/Client | Asbuilt drawings provided as requested | Dino | 7/10 | EJF | 7/10 | |
| 1.11 | Quality records complete and in turnover package | To be updated throughout the project | Contractor | As per documentation outlined in this ITP | Dino | 7/10 | EJF | 7/10 | |

**Client Rep:** ETHAN FARGE _____ 07/10/18
print sign date

**Contractor Rep:** _____ _____ 07/10/18
print sign date







| REFERENCE DRAWINGS: | |
|---|---|
| NO. | DRAWING FILE: |
| 01. | Xref.dwg |

DRAWING NOTES:

- TYPE 3 MATERIAL
- TOP TYPE 2 MATERIAL
- TOP DRAIN ROCK
- EXCAVATION

| ISSUES: | | | |
|---|---|---|---|
| REV. | YY/MM/DD | INIT. | DESCRIPTION |
| 0.0 | 18/07/18 | C.M. | ISSUED FOR INFORMATION |

eshemuta Construction Surveyors

SURVEYED: C.M. | DRAWN: C.M. | CHECKED: | APPROVED:

CLIENT: Pelly Construction Ltd.

PROJECT: EAGLE GOLD MINE CONSTRUCTION

TITLE: HLF EMBANKMENT FINGERDRAIN 0+140

DRAWING SCALE: H 1:100

DATE: 18/07/18 | DWG No: EMB-FD0140

DRAWING FILE: 180718 FINGERDRAIN 0+140

DRAWING VIEW: 8.5x11 Portrait

PROJECT NO.: 17003

SHEET: 001

Title: **INSPECTION AND TEST PLAN FOR HLF EMBANKMENT FINGER DRAINS**

Contractor: **PELLY CONSTRUCTION LTD**
Project: **EAGLE GOLD PROJECT**
Item: **9000.13**
CWP: **HLF EMBANKMENT FINGER DRAINS**
Revision: **0**

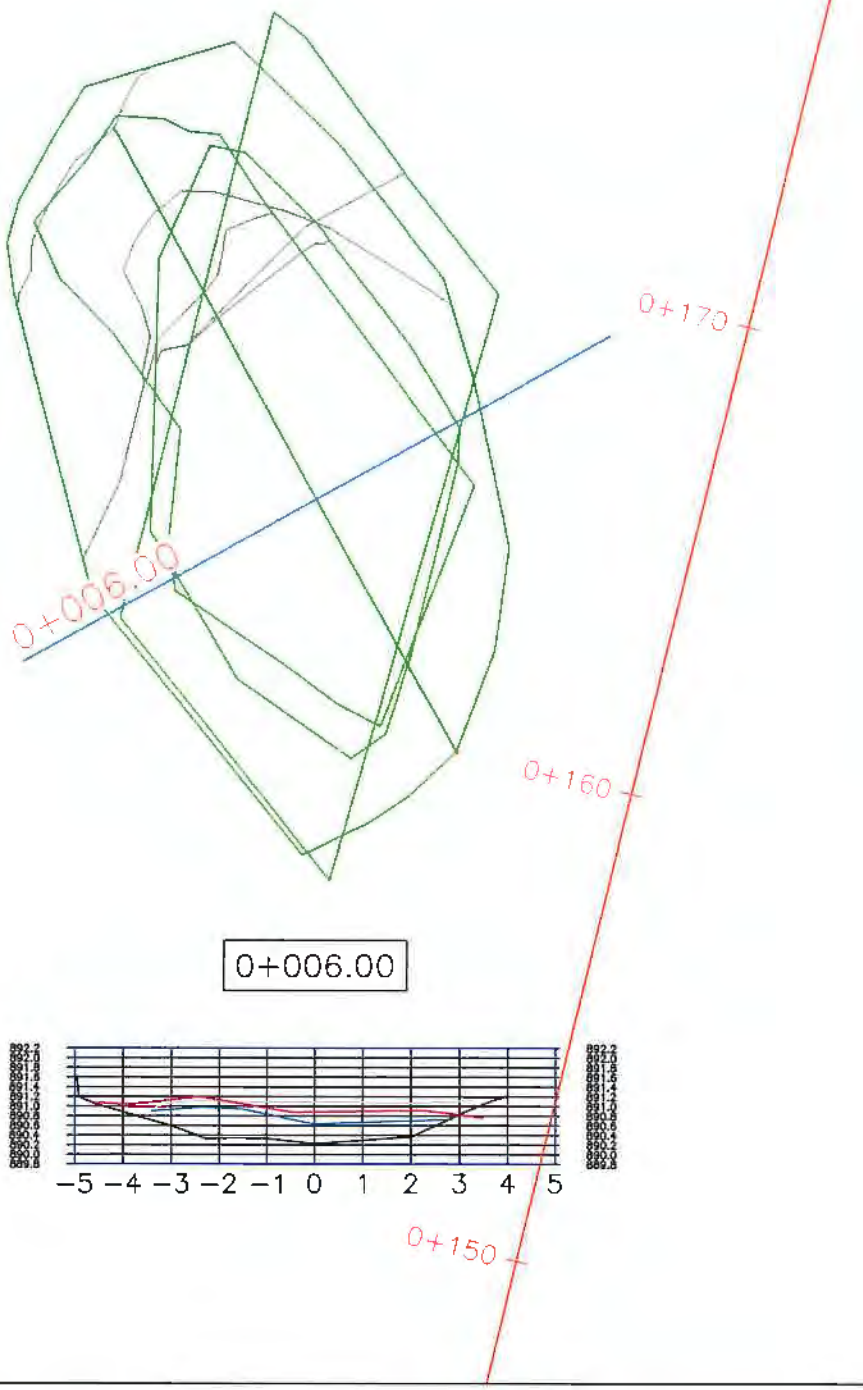
Contract No. **CC204**
ITP No. **006-G**
Date: ~~**20-Jun-18**~~ July 12th 2018
Station: **STA 0+~~115~~ 160 RT**

Pelly Construction Ltd.

| ITEM NO. | TASK DESCRIPTION | ACTIVITIES AND ACCEPTANCE CRITERIA | PARTY RESPONSIBLE | VERIFICATION DOCUMENT OR FORM | CONTRACTOR REP | | CLIENT REP | | COMMENTS |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | INITIALS | DATE | INITIALS | DATE | |
| 1.1 | ITP review and approval | Client approval | Client | This approved ITP document bearing signatures | DAS | 7/13/18 | EJF | 7/13 | |
| 1.2 | RFI's | Obtain RFI response to close request | Client | Client RFI forms | DAS | 7/13/18 | EJF | 7/13 | |
| 1.3 | Finger drain design drawing | Drawing received by Contractor; Verify design drawing | Contractor/Client | Drawings reviewed | DAS | 7/13/18 | EJF | 7/13 | |
| 1.4 | Quality of materials | Verify materials received meet all requirements | Contractor/Client | Material specification sheet and quality/inspection certificates | DAS | 7/13/18 | EJF | 7/13 | |
| 1.5 | Engineers approval of drain excavation | Inspection of excavation to design depth, width, and subgrade foundation | Contractor/Client | Engineers initials on this document | DAS | 7/13/18 | EJF | 7/13 | |
| 1.6 | Installation of 12oz nonwoven geotextile | Install geotextile as per design | Contractor/Client | Engineers initials on this document | DAS | 7/13/18 | EJF | 7/13 | |
| 1.7 | Installation of select drain fill to minimum of 0.45m | Install drain fill as per design; Thickness to meet requirement | Contractor/Client | Engineers initials on this document | DAS | 7/13/18 | EJF | 7/13 | |
| 1.8 | Close envelope of 12oz nonwoven geotextile | Geotextile to fully encompass drain fill maintaining minimum 0.5m overlap | Contractor/Client | Engineers initials on this document | DAS | 7/13/18 | EJF | 7/13 | |
| 1.9 | Place and compact minimum 0.3m of material 2 or material 3 above getotextile top layer | Install geotextile as per design engineers correspondence | Contractor/Client | Engineers initials on this document | DAS | 7/13/18 | EJF | 7/13 | |
| 1.10 | Survey asbuilt of requested construction steps | Survey to asbuilt steps during construction as requested | Contractor/Client | Asbuilt drawings provided as requested | DAS | 7/13/18 | EJF | 7/13 | |
| 1.11 | Quality records complete and in turnover package | To be updated throughout the project | Contractor | As per documentation outlined in this ITP | DAS | 7/13/18 | EJF | 7/13 | |

**Client Rep:** ETHAN FAGER _____ 7/13/18
print sign date

**Contractor Rep:** DEAN SORGE _____ 7/13/18
print sign date




| REFERENCE DRAWINGS: | |
|---|---|
| NO. | DRAWING FILE: |
| 01 | Xref.dwg |

DRAWING NOTES:

LEGEND:

- TYPE 3 MATERIAL
- TOP TYPE 2 MATERIAL
- TOP DRAIN ROCK
- EXCAVATION

| ISSUES: | | | |
|---|---|---|---|
| REV. | YY/MM/DD | INIT. | DESCRIPTION |
| 1.0 | 18/07/19 | C.M. | ISSUED FOR INFORMATION |

eshemuta Construction Surveyors

SURVEYED: BAX | DRAWN: BAX | CHECKED: | APPROVED:

CLIENT: Pelly Construction Ltd.

PROJECT: EAGLE GOLD MINE CONSTRUCTION

TITLE: HLF EMBANKMENT FINGERDRAIN 0+160

DRAWING SCALE: H 1:150

DATE: 18/07/03 | DWG No: EMB-FD0160

DRAWING FILE: 180702 FINGERDRAIN 0+160

DRAWING VIEW: 8.5x11 Portrait

PROJECT NO.: 17003

SHEET: 001

Title: **INSPECTION AND TEST PLAN FOR HLF EMBANKMENT FINGER DRAINS**

Contractor: **PELLY CONSTRUCTION LTD**
Project: **EAGLE GOLD PROJECT**
Item: **9000.13**
CWP: **HLF EMBANKMENT FINGER DRAINS**
Revision: **0**

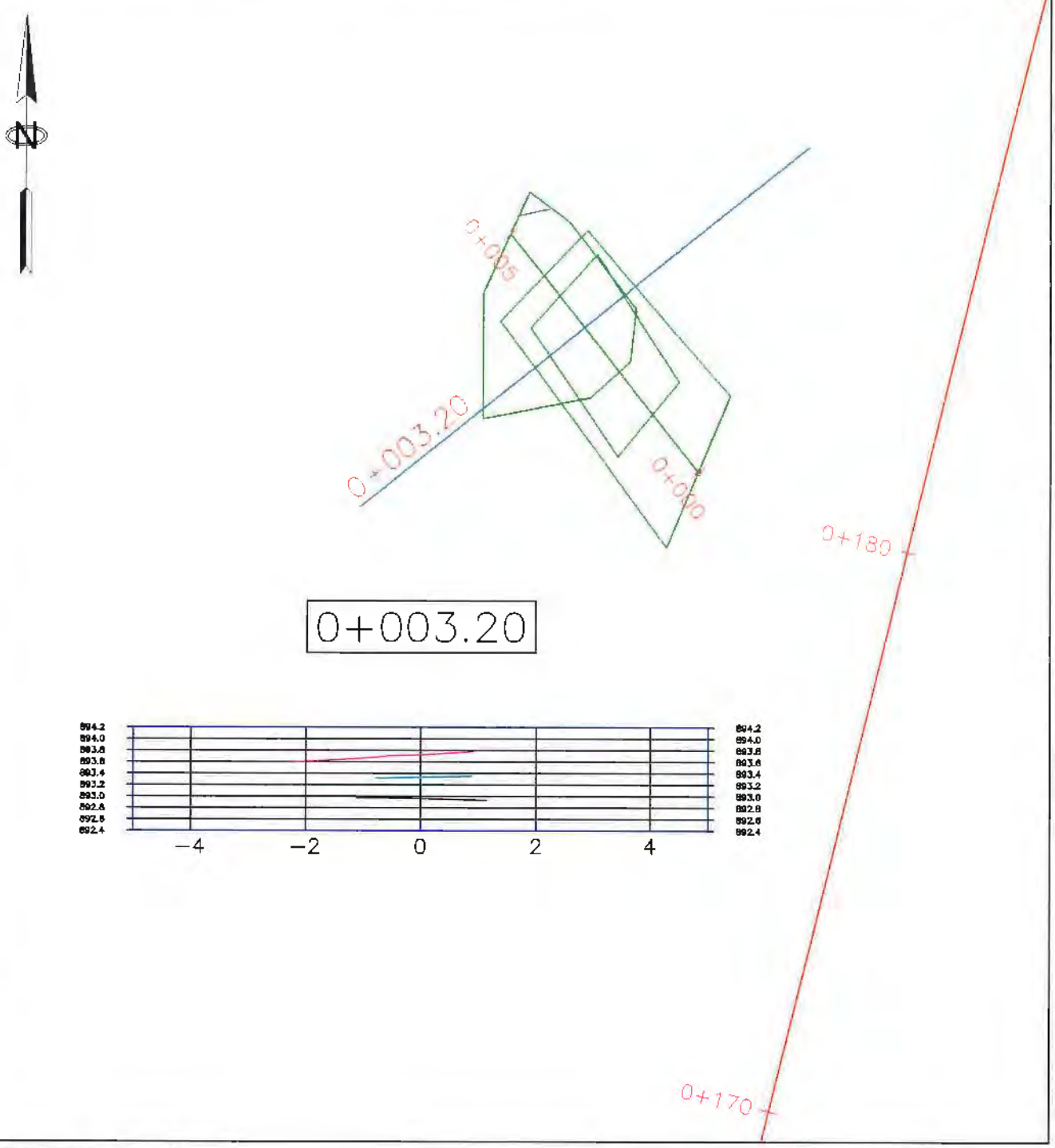
Contract No. **CC204**
ITP No **006-H**
Date: **13-Jul-18**
Station: **STA 0+190 RT**

Pelly Construction Ltd.

| ITEM NO. | TASK DESCRIPTION | ACTIVITIES AND ACCEPTANCE CRITERIA | PARTY RESPONSIBLE | VERIFICATION DOCUMENT OR FORM | CONTRACTOR REP | | CLIENT REP | | COMMENTS |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | INITIALS | DATE | INITIALS | DATE | |
| 1.1 | ITP review and approval | Client approval | Client | This approved ITP document bearing signatures | DAS | 7/13/18 | EJF | 7/13/18 | |
| 1.2 | RFI's | Obtain RFI response to close request | Client | Client RFI forms | DAS | 7/13/18 | EJF | 7/13/18 | |
| 1.3 | Finger drain design drawing | Drawing received by Contractor; Verify design drawing | Contractor/Client | Drawings reviewed | DAS | 7/13/18 | EJF | 7/13/18 | |
| 1.4 | Quality of materials | Verify materials received meet all requirements | Contractor/Client | Material specification sheet and quality/inspection certificates | DAS | 7/13/18 | EJF | 7/13/18 | |
| 1.5 | Engineers approval of drain excavation | Inspection of excavation to design depth, width, and subgrade foundation | Contractor/Client | Engineers initials on this document | DAS | 7/13/18 | EJF | 7/13/18 | |
| 1.6 | Installation of 12oz nonwoven geotextile | Install geotextile as per design | Contractor/Client | Engineers initials on this document | DAS | 7/13/18 | EJF | 7/13/18 | |
| 1.7 | Installation of select drain fill to minimum of 0.45m | Install drain fill as per design; Thickness to meet requirement | Contractor/Client | Engineers initials on this document | DAS | 7/13/18 | EJF | 7/13/18 | |
| 1.8 | Close envelope of 12oz nonwoven geotextile | Geotextile to fully encompass drain fill maintaining minimum 0.5m overlap | Contractor/Client | Engineers initials on this document | DAS | 7/13/18 | EJF | 7/13/18 | |
| 1.9 | Place and compact minimum 0.3m of material 2 or material 3 above getotextile top layer | Install geotextile as per design engineers correspondence | Contractor/Client | Engineers initials on this document | DAS | 7/13/18 | EJF | 7/13/18 | |
| 1.10 | Survey asbuilt of requested construction steps | Survey to asbuilt steps during construction as requested | Contractor/Client | Asbuilt drawings provided as requested | DAS | 7/13/18 | EJF | 7/13/18 | |
| 1.11 | Quality records complete and in turnover package | To be updated throughout the project | Contractor | As per documentation outlined in this ITP | DAS | 7/13/18 | EJF | 7/13/18 | |

**Client Rep:** ETHAN FABER _____ 7/13/18
print sign date

**Contractor Rep:** DEAN SOREL _____ 7/13/18
print sign date




0+003.20




| REFERENCE DRAWINGS: | |
|---|---|
| NO. | DRAWING FILE: |
| 01 | Xref.dwg |

DRAWING NOTES:

- TYPE 3 MATERIAL
- TOP TYPE 2 MATERIAL
- TOP DRAIN ROCK
- EXCAVATION

| ISSUES: | | | |
|---|---|---|---|
| REV. | YY/MM/DD | INIT. | DESCRIPTION |
| 0.0 | 18/07/19 | C.M. | ISSUED FOR INFORMATION |

eshemuta Construction Surveyors

SURVEYED: C.M. | DRAWN: C.M. | CHECKED: | APPROVED:

CLIENT: Pelly Construction Ltd.

PROJECT: EAGLE GOLD MINE CONSTRUCTION

TITLE: HLF EMBANKMENT SIDE DRAIN 0+~~110~~ 180

DRAWING SCALE: H 1:100

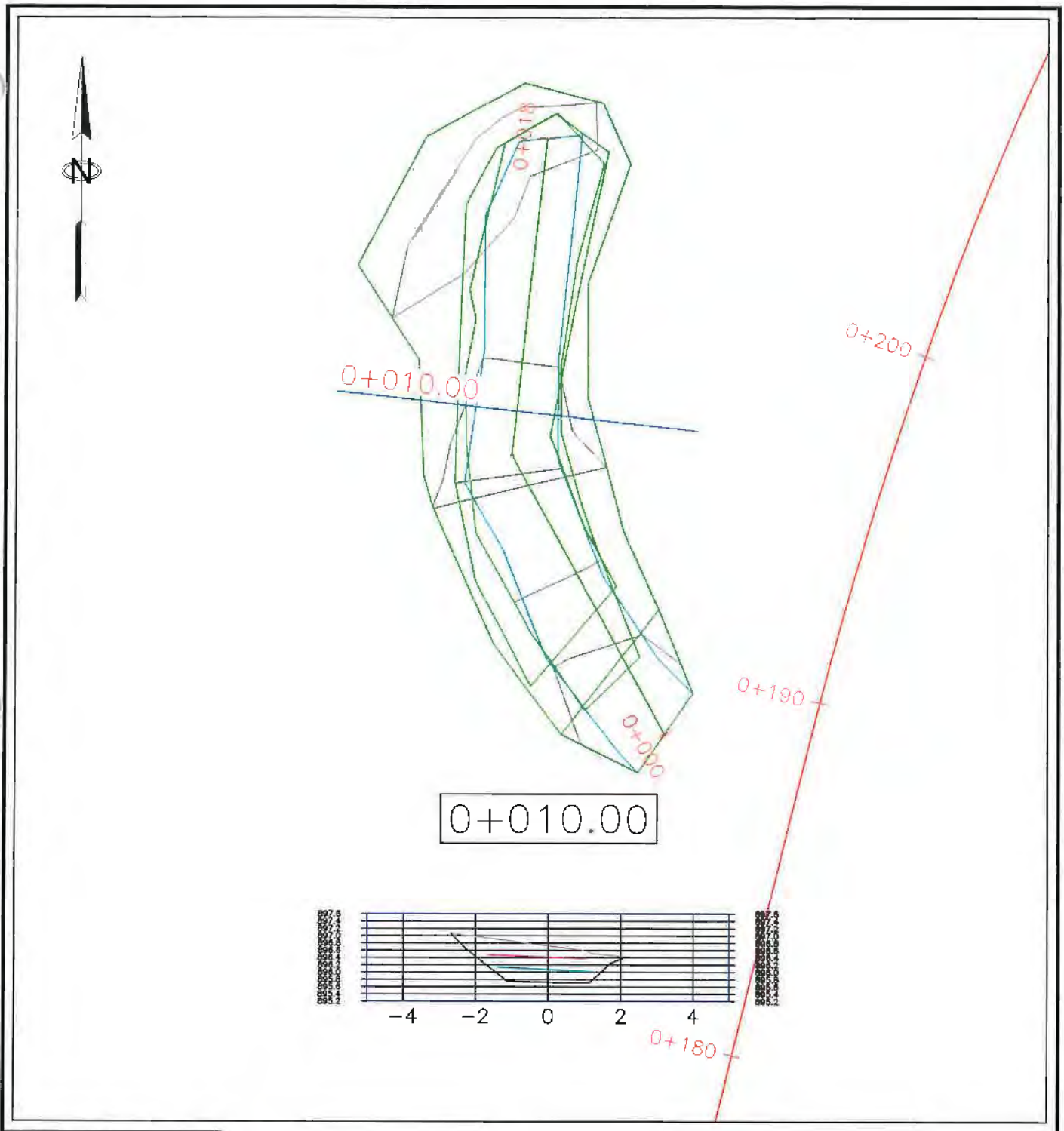
DATE: 18/07/19 | DWG No: EMS-SD0180

DRAWING FILE: 180719 SIDEDRAIN 0+180

DRAWING VIEW: 8.5x11 Portrait

PROJECT NO.: 17003

SHEET: 001




| REFERENCE DRAWINGS: | |
|---|---|
| NO. | DRAWING FILE: |
| 01 | Xref.dwg |

**DRAWING NOTES:**

- TYPE 3 MATERIAL
- TOP TYPE 2 MATERIAL
- TOP DRAIN ROCK
- EXCAVATION

| ISSUES: | | | |
|---|---|---|---|
| REV. | YY/MM/DD | INIT. | DESCRIPTION |
| 0.0 | 18/07/18 | C.M. | ISSUED FOR INFORMATION |

eshemuta Construction Surveyors

SURVEYED: C.M. | DRAWN: C.M. | CHECKED: | APPROVED:

CLIENT: Pelly Construction Ltd.

PROJECT: EAGLE GOLD MINE CONSTRUCTION

TITLE: HLF EMBANKMENT FINGERDRAIN 0+190

DRAWING SCALE: H 1:150

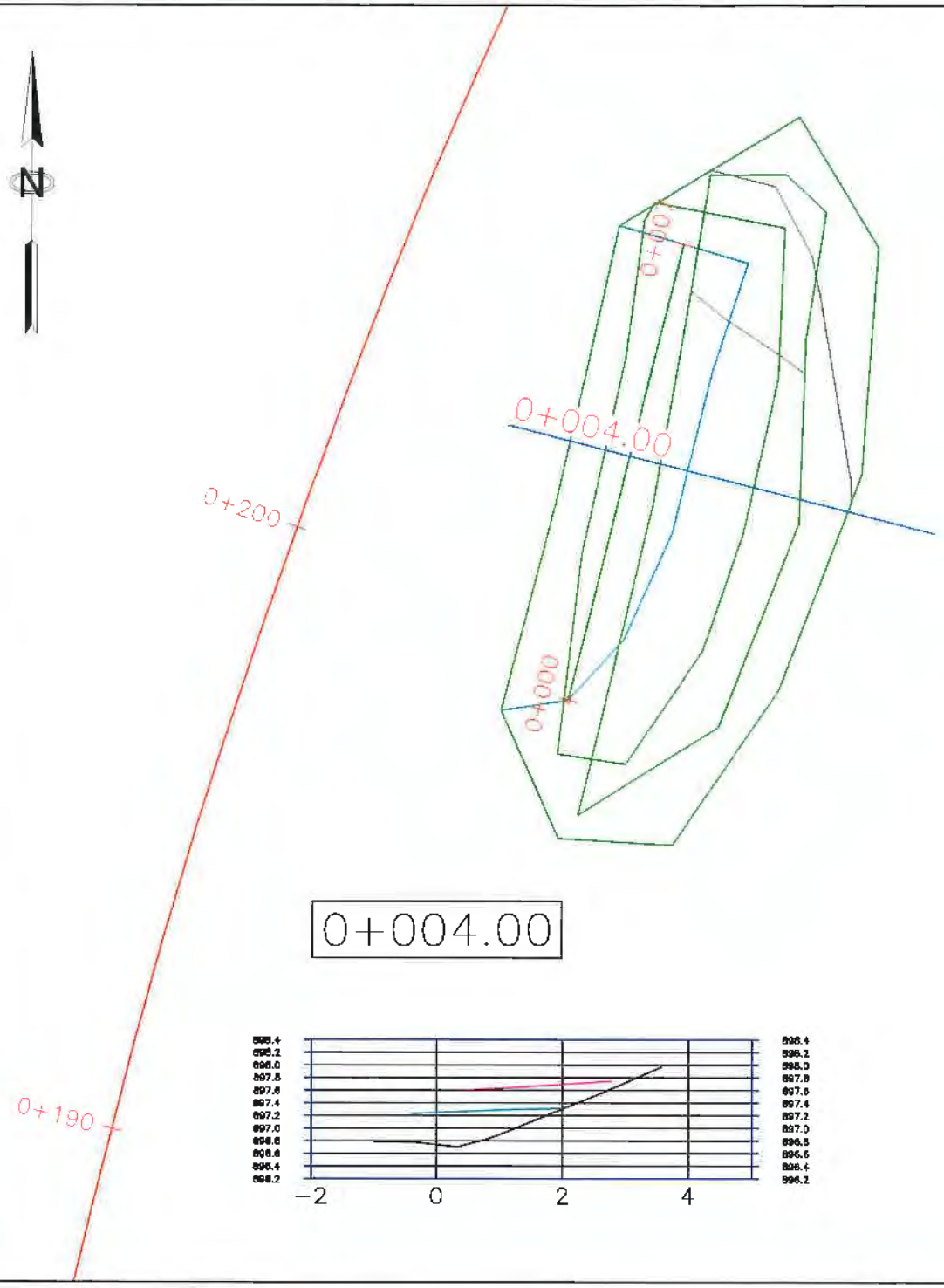
DATE: 18/07/18 | DWG No: EMB-FD190

DRAWING FILE: 180703 FINGERDRAIN 0+190

DRAWING VIEW: 8.5x11 Portrait

PROJECT NO.: 17003

SHEET: 001







| REFERENCE DRAWINGS: | |
|---|---|
| NO. | DRAWING FILE: |
| 01 | Xref.dwg |

DRAWING NOTES:

- TYPE 3 MATERIAL
- TOP TYPE 2 MATERIAL
- TOP DRAIN ROCK
- EXCAVATION

| ISSUES: | | | |
|---|---|---|---|
| REV. | YY/MM/DD | INIT. | DESCRIPTION |
| 0.0 | 18/07/22 | C.M. | ISSUED FOR INFORMATION |

eshemuta Construction Surveyors

SURVEYED: C.M. | DRAWN: C.M. | CHECKED: | APPROVED:

CLIENT: Pelly Construction Ltd.

PROJECT: EAGLE GOLD MINE CONSTRUCTION

TITLE: HLF EMBANKMENT SIDEDRAIN 0+200

DRAWING SCALE: H 1:100

DATE: 18/07/22 | DWG No: EMB-SD0200

DRAWING FILE: 180722 FINGERDRAIN 0+220

DRAWING VIEW: 8.5x11 Portrait

PROJECT NO.: 17003

SHEET: 001

Title: **INSPECTION AND TEST PLAN FOR HLF EMBANKMENT FINGER DRAINS**

Contractor: **PELLY CONSTRUCTION LTD**
Project: **EAGLE GOLD PROJECT**
Item: **9000.13**
CWP: **HLF EMBANKMENT FINGER DRAINS**
Revision: **0**

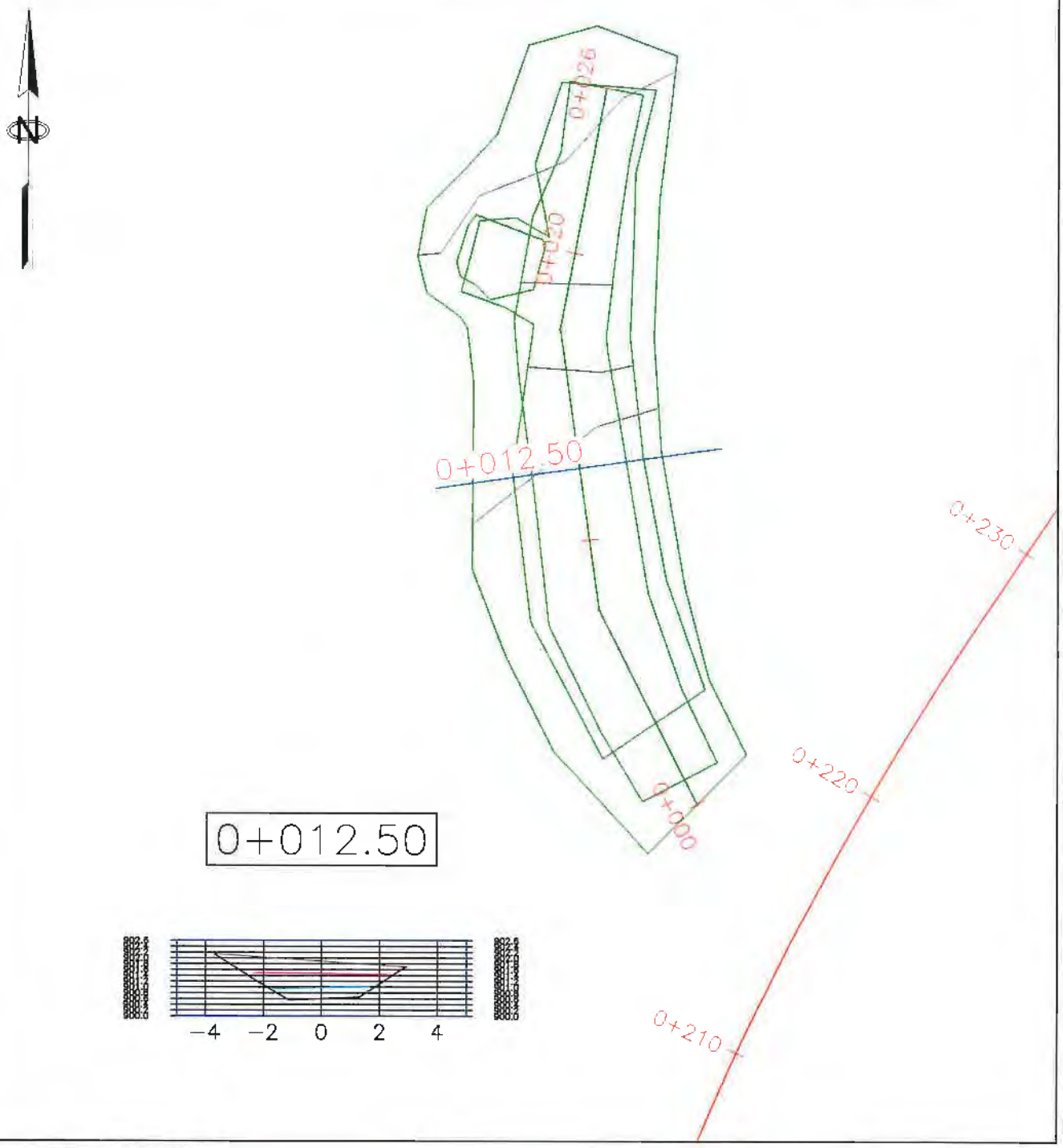
Contract No. **CC204**
ITP No. **006-I**
Date: **13-Jul-18**
Station: **STA 0+220 RT**

Pelly Construction Ltd.

| ITEM NO. | TASK DESCRIPTION | ACTIVITIES AND ACCEPTANCE CRITERIA | PARTY RESPONSIBLE | VERIFICATION DOCUMENT OR FORM | CONTRACTOR REP | | CLIENT REP | | COMMENTS |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | INITIALS | DATE | INITIALS | DATE | |
| 1.1 | ITP review and approval | Client approval | Client | This approved ITP document bearing signatures | SB | July 22/18 | D.6 | July 23/18 | |
| 1.2 | RFI's | Obtain RFI response to close request | Client | Client RFI forms | | | | | |
| 1.3 | Finger drain design drawing | Drawing received by Contractor; Verify design drawing | Contractor/Client | Drawings reviewed | SB | July 22/18 | D6 | July 23/18 | |
| 1.4 | Quality of materials | Verify materials received meet all requirements | Contractor/Client | Material specification sheet and quality/inspection certificates | SB | Jul 22/18 | D6 | July 23/18 | |
| 1.5 | Engineers approval of drain excavation | Inspection of excavation to design depth, width, and subgrade foundation | Contractor/Client | Engineers initials on this document | SB | Jul 22/18 | D.6 | July 23/18 | |
| 1.6 | Installation of 12oz nonwoven geotextile | Install geotextile as per design | Contractor/Client | Engineers initials on this document | SB | Jul 22/18 | D 6 | July 23/18 | |
| 1.7 | Installation of select drain fill to minimum of 0.45m | Install drain fill as per design; Thickness to meet requirement | Contractor/Client | Engineers initials on this document | SB | Jul 22/18 | D.6 | July 23/18 | |
| 1.8 | Close envelope of 12oz nonwoven geotextile | Geotextile to fully encompass drain fill maintaining minimum 0.5m overlap | Contractor/Client | Engineers initials on this document | SB | Jul 22/18 | D.6 | July 23/18 | |
| 1.9 | Place and compact minimum 0.3m of material 2 or material 3 above getotextile top layer | Install geotextile as per design engineers correspondence | Contractor/Client | Engineers initials on this document | SB | Jul 22/18 | D.6 | July 23/18 | |
| 1.10 | Survey asbuilt of requested construction steps | Survey to asbuilt steps during construction as requested | Contractor/Client | Asbuilt drawings provided as requested | | | | | |
| 1.11 | Quality records complete and in turnover package | To be updated throughout the project | Contractor | As per documentation outlined in this ITP | | | | | |

**Client Rep:** Roy Marlin _____ 11-27-18
print sign date

**Contractor Rep:** DEAN SEREDA _____ 11/27/18
print sign date




| REFERENCE DRAWINGS: | |
|---|---|
| NO. | DRAWING FILE: |
| 01 | Xref.dwg |

DRAWING NOTES:

- TYPE 3 MATERIAL
- TOP TYPE 2 MATERIAL
- TOP DRAIN ROCK
- EXCAVATION

| ISSUES: | | | |
|---|---|---|---|
| REV. | YY/MM/DD | INT. | DESCRIPTION |
| 0.0 | 18/07/21 | C.M. | ISSUED FOR INFORMATION |

eshemuta Construction Surveyors

SURVEYED: C.M. DRAWN: C.M. CHECKED: APPROVED:

CLIENT: Pelly Construction Ltd.

PROJECT: EAGLE GOLD MINE CONSTRUCTION

TITLE: HLF EMBANKMENT FINGERDRAIN 0+215

DRAWING SCALE: H 1:200

DATE: 18/07/21 DWG No: EMB-FD0215

DRAWING FILE: 180721 FINGERDRAIN 0+215

DRAWING VIEW: 8.5x11 Portrait

PROJECT NO: 17003

SHEET: 001

Title: **INSPECTION AND TEST PLAN FOR HLF EMBANKMENT FINGER DRAINS**

Contractor: **PELLY CONSTRUCTION LTD**
Project: **EAGLE GOLD PROJECT**
Item: **9000.13**
CWP: **HLF EMBANKMENT FINGER DRAINS**
Revision: **0**

Contract No. **CC204**
ITP No. **006-Artesian**
Date: **30-Jul-18**
Station: **STA**

Pelly Construction Ltd.

| ITEM NO. | TASK DESCRIPTION | ACTIVITIES AND ACCEPTANCE CRITERIA | PARTY RESPONSIBLE | VERIFICATION DOCUMENT OR FORM | CONTRACTOR REP | | CLIENT REP | | COMMENTS |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | INITIALS | DATE | INITIALS | DATE | |
| 1.1 | ITP review and approval | Client approval | Client | This approved ITP document bearing signatures | YF | 8-6-18 | RM | 8-6-18 | |
| 1.2 | RFI's | Obtain RFI response to close request | Client | Client RFI forms | YF | 8-6-18 | RM | 8-6-18 | |
| 1.3 | Artesian drain design drawing | Drawing received by Contractor; Verify design drawing | Contractor/Client | Drawings reviewed | YF | 8-6-18 | RM | 8-6-18 | |
| 1.4 | Quality of materials | Verify materials received meet all requirements | Contractor/Client | Material specification sheet and quality/inspection certificates | YF | Aug 6/18 | RM | 8-6-18 | |
| 1.5 | Engineers approval of drain excavation * | Inspection of excavation to design depth, width, and subgrade foundation | Contractor/Client | Engineers initials on this document | YF | 8-6-18 | RM | 8-6-18 | |
| 1.6 | Installation of 12oz nonwoven geotextile | Install geotextile as per design | Contractor/Client | Engineers initials on this document | YF | 8-8-18 | RM | 8-8-18 | |
| 1.7 | Installation of ~~select~~ ODF or Concrete aggs drain fill to minimum of 0.3m | Install drain fill as per design; Thickness to meet requirement | Contractor/Client | Engineers initials on this document | YF | 8-8-18 | RM | 8-8-18 | |
| 1.8 | Installation of SDR 11 perforated pipe loop | Install the perforated pipe as per design | Contractor/Client | Engineers initials on this document | YF | 8-6-18 | RM | 8-6-18 | |
| 1.9 | Installation of select drain fill to minimum of 0.7m above the pipe | Install drain fill as per design; Thickness to meet requirement | Contractor/Client | Engineers initials on this document | YF | 8-8-18 | RM | 8-8-18 | |
| 1.10 | Installation of the bentonite plug | Install the betonite plug | Contractor/Client | Engineers initials on this document | YF | 8-8-18 | RM | 8-8-18 | |
| 1.11 | Close envelope of 12oz nonwoven geotextile | Geotextile to fully encompass drain fill maintaining minimum 0.5m overlap | Contractor/Client | Engineers initials on this document | YF | 8-8-18 | RM | 8-8-18 | |
| 1.12 | Place and compact minimum 0.3m of material 2 or material 3 above getotextile top layer | Install geotextile as per design engineers correspondence | Contractor/Client | Engineers initials on this document | YF | 8-8-18 | RM | 8-8-18 | |
| 1.13 | Survey asbuilt of requested construction steps | Survey to asbuilt steps during construction as requested | Contractor/Client | Asbuilt drawings provided as requested | | | | | |
| 1.14 | Quality records complete and in turnover package | To be updated throughout the project | Contractor | As per documentation outlined in this ITP | | | | | |

*Min excavation changed from 3m to 2m

Upstream from bentonite plug material changed from select drain fill to ODF and concrete aggregate

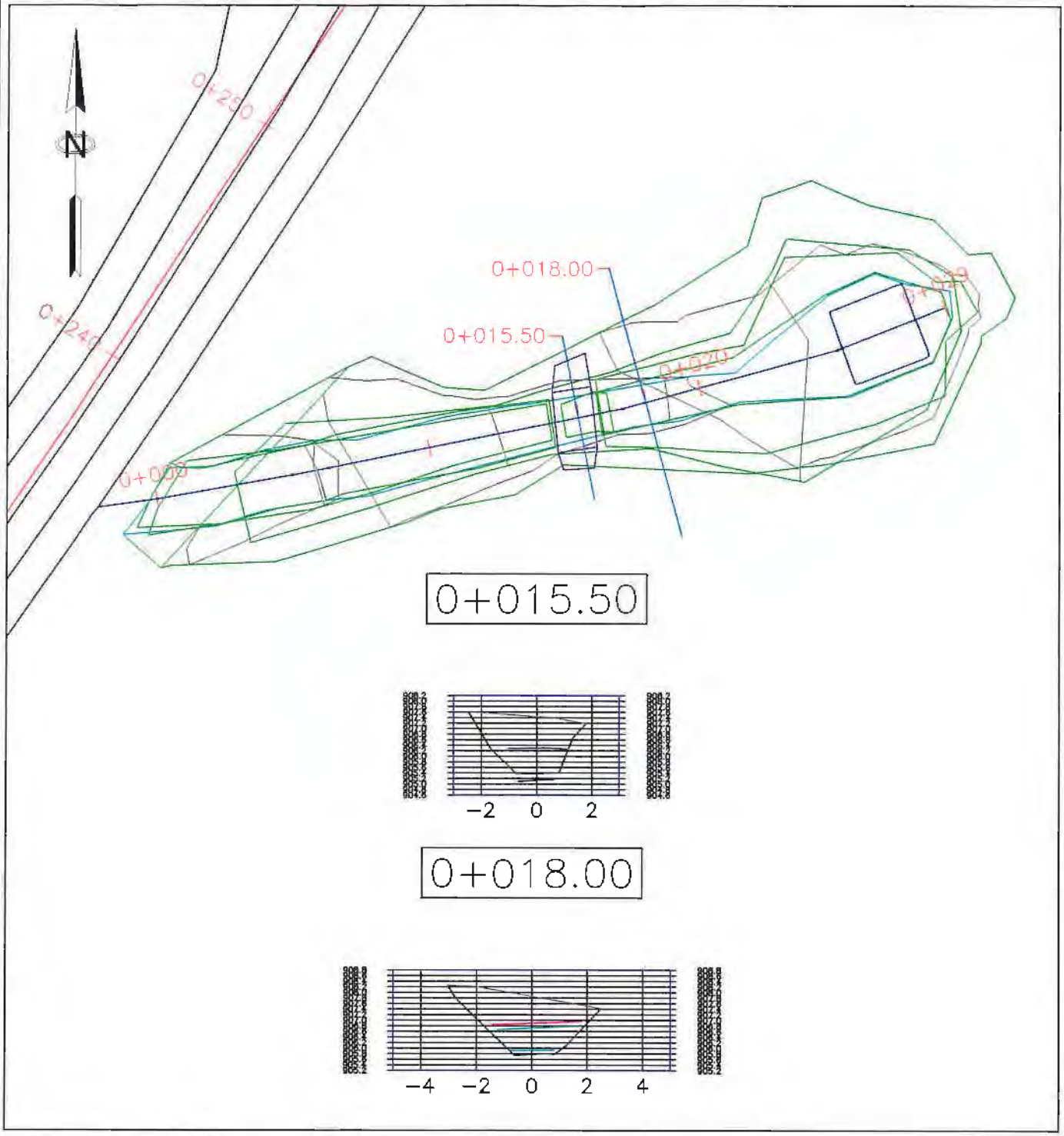
Min 0.4m drain fill below pipe

also other changes See as built

Roy Morlan ——— 8-6-18

**Client Rep:** Roy Morlan ——— 11-27-18
print / sign / date

**Contractor Rep:** DEAN SERVOS ——— 11/27/18
print / sign / date




| REFERENCE DRAWINGS: | |
|---|---|
| NO. | DRAWING FILE: |
| 01 | Xref.dwg |

**DRAWING NOTES:**

- TYPE 3 MATERIAL
- TOP TYPE 2 MATERIAL
- TOP DRAIN ROCK
- EXCAVATION
- PERFORATED 150mm SDR11
- BENTONITE PLUG

| ISSUES: | | | |
|---|---|---|---|
| REV. | YY/MM/DD | INIT. | DESCRIPTION |
| 1.0 | 18/07/19 | CM | ISSUED FOR INFORMATION |

eshemuta Construction Surveyors

SURVEYED: BAX & SP | DRAWN: CM | CHECKED: | APPROVED:

CLIENT: Pelly Construction Ltd.

PROJECT: EAGLE GOLD MINE CONSTRUCTION

TITLE: HLF EMBANKMENT ARTESIAN WELL DRAIN

DRAWING SCALE: H 1:200

DATE: 18/08/11 | DWG No: EMB-AW0231

DRAWING FILE: 180811 ARTESIAN WELL DRAIN COMPLETE ASB.dwg

DRAWING VIEW: 8.5x11 Portrait

PROJECT NO.: 17003

SHEET: 001

Title: **INSPECTION AND TEST PLAN FOR HLF EMBANKMENT FINGER DRAINS**

Contractor: **PELLY CONSTRUCTION LTD**
Project: **EAGLE GOLD PROJECT**
Item: **9000.13**
CWP: **HLF EMBANKMENT BLANKET DRAIN**
Revision: **0**

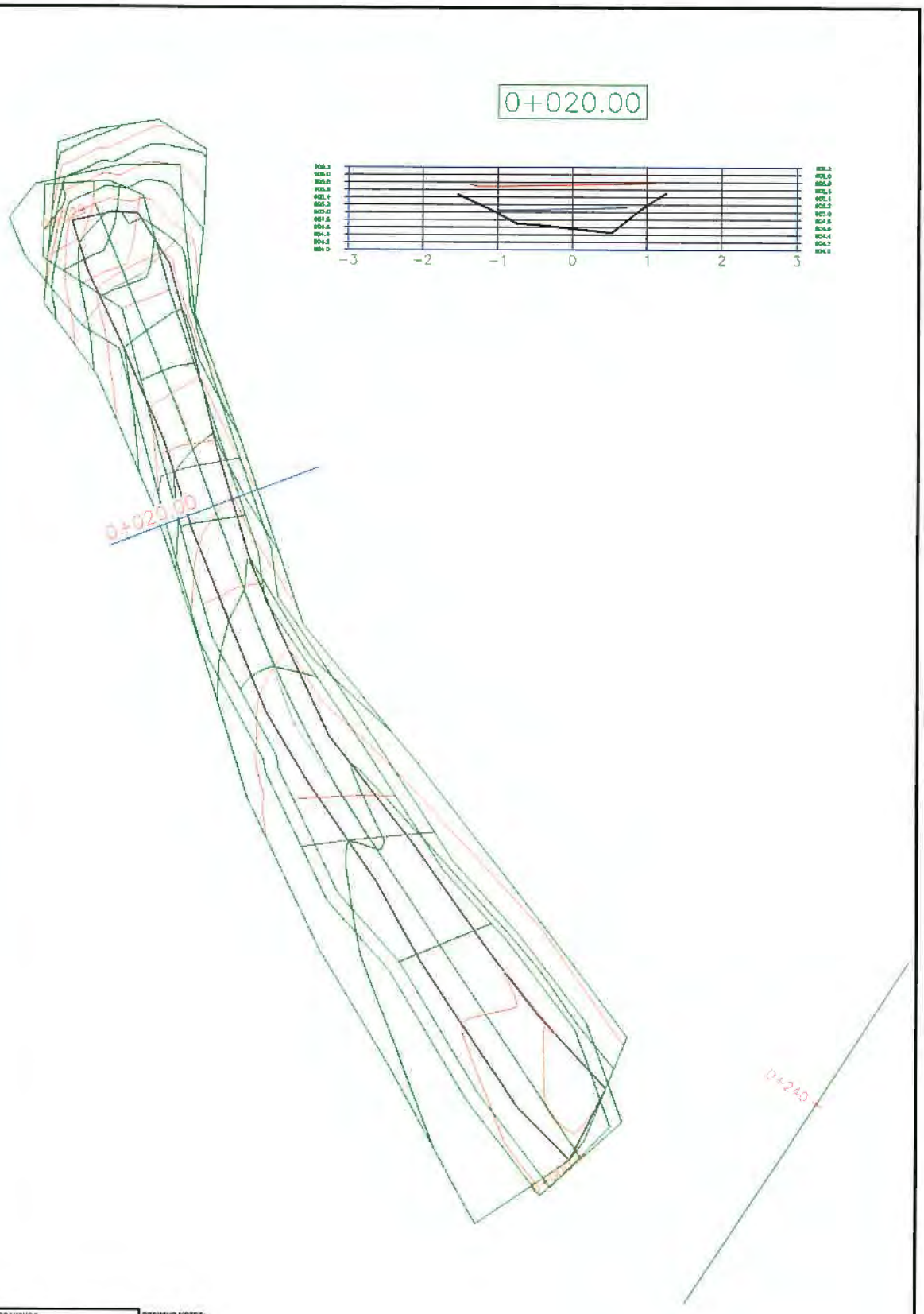
Contract No. **CC204**
ITP No **006-J**
Date: **31-Jul-18**
Station: **STA 0+240 RT**

Pelly Construction Ltd.

| ITEM NO. | TASK DESCRIPTION | ACTIVITIES AND ACCEPTANCE CRITERIA | PARTY RESPONSIBLE | VERIFICATION DOCUMENT OR FORM | CONTRACTOR REP | | CLIENT REP | | COMMENTS |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | INITIALS | DATE | INITIALS | DATE | |
| 1.1 | ITP review and approval | Client approval | Client | This approved ITP document bearing signatures | SZ | 08/18/18 | H.V. | 08/18/18 | |
| 1.2 | RFI's | Obtain RFI response to close request | Client | Client RFI forms | | | H.V. | 08/18/18 | |
| 1.3 | Finger drain design drawing | Drawing received by Contractor; Verify design drawing | Contractor/Client | Drawings reviewed | SZ | 08/18/18 | H.V. | 08/18/18 | |
| 1.4 | Quality of materials | Verify materials received meet all requirements | Contractor/Client | Material specification sheet and quality/inspection certificates | SZ | 4 | H.V. | 08/18/18 | |
| 1.5 | Engineers approval of drain excavation | Inspection of excavation to design depth, width, and subgrade foundation | Contractor/Client | Engineers initials on this document | SZ | 11 | H.V. | 08/18/18 | |
| 1.6 | Installation of 12oz nonwoven geotextile | Install geotextile as per design | Contractor/Client | Engineers initials on this document | SZ | 11 | H.V. | 08/18/18 | |
| 1.7 | Installation of select drain fill to minimum of 0.20m | Install drain fill as per design; Thickness to meet requirement | Contractor/Client | Engineers initials on this document | SZ | 11 | H.V. | 08/14/18 | |
| 1.8 | Close envelope of 12oz nonwoven geotextile | Geotextile to fully encompass drain fill maintaining minimum 0.5m overlap | Contractor/Client | Engineers initials on this document | SZ | 11 | H.V. | 08/14/18 | |
| 1.9 | Place and compact minimum 0.2m of material 2 or material 3 above getotextile top layer | Install geotextile as per design engineers correspondence | Contractor/Client | Engineers initials on this document | SZ | 11 | H.V. | 08/14/18 | |
| 1.10 | Survey asbuilt of requested construction steps | Survey to asbuilt steps during construction as requested | Contractor/Client | Asbuilt drawings provided as requested | SZ | 11 | H.V. | 08/14/18 | |
| 1.11 | Quality records complete and in turnover package | To be updated throughout the project | Contractor | As per documentation outlined in this ITP | SZ | 1 | H.V. | 08/14/18 | |

**Client Rep:** Harro Vandeleon (print) (sign) 08/14/18 (date)

**Contractor Rep:** SHIPENG ZHENG (print) (sign) 08/18/18 (date)




| REFERENCE DRAWINGS: | |
|---|---|
| NO. | DRAWING FILE: |
| 01 | HLF UNDERDRAIN AND CLOSURE ALIGNMENT |

DRAWING NOTES:

**LEGEND**

- SAND
- GRAVEL
- TRENCH

| ISSUES: | | | |
|---|---|---|---|
| REV. | YY/MM/DD | INIT. | DESCRIPTION |
| 0.0 | 17/07/01 | CB | ISSUED FOR... |

eshemuta Construction Surveyors

SURVEYED: C.B. DRAWN: C.B

CLIENT: Pelly Construction Ltd.

CHECKED: APPROVED:

PROJECT: EAGLE GOLD MINE CONSTRUCTION

TITLE: 0+235 BLANKET DRAIN SECTION

DRAWING SCALE: H 1:100

DATE: 18/08/18 DWG No: EMB-FD-0235

DRAWING FILE: 180815 0235 BLANKET DRAIN SECTION.dwg

DRAWING VIEW: 11x17 Portrait

SHEET: 001

PROJECT NO.: 17003

Title: **INSPECTION AND TEST PLAN FOR HLF EMBANKMENT FINGER DRAINS**

Contractor: **PELLY CONSTRUCTION LTD**
Project: **EAGLE GOLD PROJECT**
Item: **9000.13**
CWP: **HLF EMBANKMENT FINGER DRAINS**
Revision: **0**

Contract No. **CC204**
ITP No **006-Closure Sump Interceptor Drain**
Date: **06-Aug-18**
Station: **Closure Sump**

Pelly Construction Ltd.

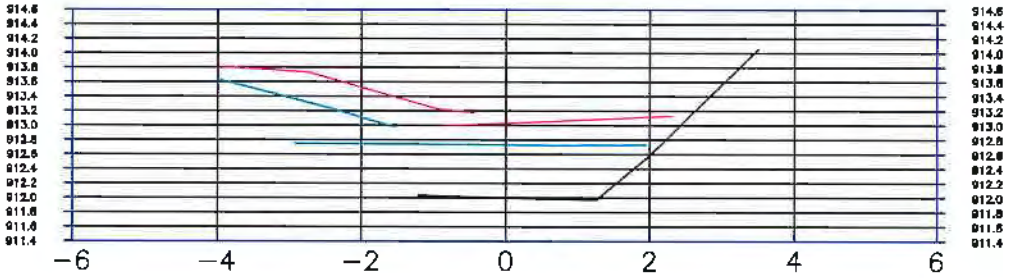
| ITEM NO. | TASK DESCRIPTION | ACTIVITIES AND ACCEPTANCE CRITERIA | PARTY RESPONSIBLE | VERIFICATION DOCUMENT OR FORM | CONTRACTOR REP INITIALS | CONTRACTOR REP DATE | CLIENT REP INITIALS | CLIENT REP DATE | COMMENTS |
|---|---|---|---|---|---|---|---|---|---|
| 1.1 | ITP review and approval | Client approval | Client | This approved ITP document bearing signatures | YF | 8-8-18 | [illegible] | 8-8-18 | |
| 1.2 | RFI's | Obtain RFI response to close request | Client | Client RFI forms | YF | 8-8-18 | [illegible] | 8-8-18 | |
| 1.3 | Closure sump interceptor drain design | Drawing received by Contractor; Verify design drawing | Contractor/Client | Drawings reviewed | YF | 8-8-18 | [illegible] | 8-8-18 | |
| 1.4 | Quality of materials | Verify materials received meet all requirements | Contractor/Client | Material specification sheet and quality/inspection certificates | D.S. | 12/8/18 | H.V. | 08/14/18 | |
| 1.5 | Engineers approval of drain excavation | Inspection of excavation to design depth, width, and subgrade foundation | Contractor/Client | Engineers initials on this document | YF | 8-8-18 | [illegible] | 8-8-18 | |
| 1.6 | Installation of 12oz nonwoven geotextile | Install geotextile as per design | Contractor/Client | Engineers initials on this document | D.S. | 12/8/18 | H.V. | 08/14/18 | |
| 1.7 | Installation of ODF or Concrete Aggregate below pipe | Install drain fill as per design; Thickness to meet requirement | Contractor/Client | Engineers initials on this document | D.S. | 12/8/18 | H.V. | 08/14/18 | |
| 1.8 | Iinstallation of SDR 11 perforated piping | Install the perforated pipe as per design | Contractor/Client | Engineers initials on this document | D.S. | 12/8/18 | H.V. | 08/14/18 | |
| 1.9 | Installation of ODF or Concrete Aggregate above the pipe | Install drain fill as per design; Thickness to meet requirement | Contractor/Client | Engineers initials on this document | D.S. | 12/8/18 | H.V. | 08/14/18 | |
| 1.10 | Close envelope of 12oz nonwoven geotextile | Geotextile to fully encompass drain fill maintaining minimum 0 5m overlap | Contractor/Client | Engineers initials on this document | D.S. | 12/8/18 | H.V. | 08/14/18 | |
| 1.11 | Place and compact minimum 0 3m of material 2 or material 3 above getotextile top layer | Install geotextile as per design engineers correspondence | Contractor/Client | Engineers initials on this document | D.S. | 12/8/18 | H.V. | 08/14/18 | |
| 1.12 | Survey asbuilt of requested construction steps | Survey to asbuilt steps during construction as requested | Contractor/Client | Asbuilt drawings provided as requested | | | | | |
| 1.13 | Quality records complete and in turnover package | To be updated throughout the project | Contractor | As per documentation outlined in this ITP | | | | | |

**Client Rep:** Roy Morley [signature] 11-27-18
print sign date

**Contractor Rep:** DEAN SORELO [signature] 11/27/18
print sign date




0+013.00




| REFERENCE DRAWINGS: | |
|---|---|
| NO. | DRAWING FILE: |
| 01 | Xref.dwg |

DRAWING NOTES:

- TYPE 3 MATERIAL
- TOP TYPE 2 MATERIAL
- TOP DRAIN ROCK
- EXCAVATION

| ISSUES: | | | |
|---|---|---|---|
| REV. | YY/MM/DD | INIT. | DESCRIPTION |
| 0.0 | 18/08/25 | C.M. | ISSUED FOR INFORMATION |

eshemuta Construction Surveyors

SURVEYED: C.M. | DRAWN: C.M. | CHECKED: | APPROVED:

CLIENT: Pelly Construction Ltd.

PROJECT: EAGLE GOLD MINE CONSTRUCTION

TITLE: HLF EMBANKMENT FINGERDRAIN L-DRAIN

DRAWING SCALE: H 1:100

DATE: 18/08/25 | DWG No: EMB-FD-LD

DRAWING FILE: 180725 FINGERDRAIN L-DRAIN.dwg

DRAWING VIEW: 8.5x11 Portrait

PROJECT NO.: 17003

SHEET: 001

Title: **INSPECTION AND TEST PLAN FOR HLF EMBANKMENT FINGER DRAINS**

Contractor: **PELLY CONSTRUCTION LTD**
Project: **EAGLE GOLD PROJECT**
Item: **9000.13**
CWP: **HLF EMBANKMENT**
Revision: **0**

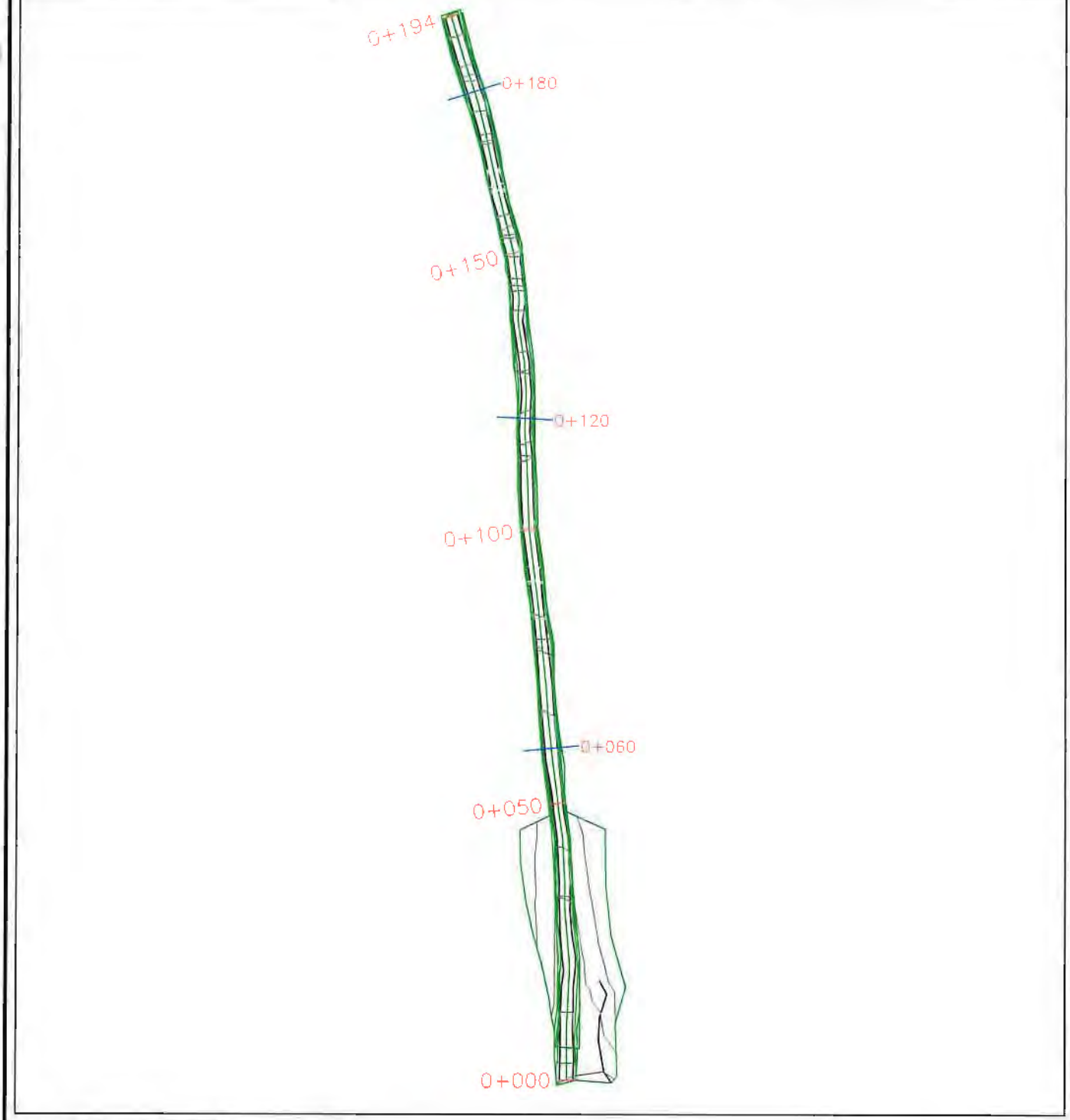
Contract No **CC204**
ITP No **006-East Underdrain**
Date: **14-Aug-18**
Station: **East Valley EMB Footprint**

Pelly Construction Ltd.

| ITEM NO. | TASK DESCRIPTION | ACTIVITIES AND ACCEPTANCE CRITERIA | PARTY RESPONSIBLE | VERIFICATION DOCUMENT OR FORM | CONTRACTOR REP | | CLIENT REP | | COMMENTS |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | INITIALS | DATE | INITIALS | DATE | |
| 1.1 | ITP review and approval | Client approval | Client | This approved ITP document bearing signatures | SZ | 18/08/18 | CFM | 19/08/19 | |
| 1.2 | RFI's | Obtain RFI response to close request | Client | Client RFI forms | | | | | |
| 1.3 | Underdrain design drawing (Verbal direction from BGC) | Verbal requirements received from BGC Engineer | Contractor/Client | Design Received | SZ | 18/08/18 | CFM | 18/08/19 | |
| 1.4 | Quality of materials | Verify materials received meet all requirements | Contractor/Client | Material specification sheet and quality/inspection certificates | SZ | 18/08/18 | CFM | 19/08/19 | |
| 1.5 | Engineers approval of drain excavation | Inspection of excavation to design depth, width, and subgrade foundation | Contractor/Client | Engineers initials on this document | SZ | 18/08/18 | CFM | 18/08/19 | |
| 1.6 | Installation of 12oz nonwoven geotextile | Install geotextile as per design | Contractor/Client | Engineers initials on this document | SZ | 18/08/18 | CFM | 18/08/19 | |
| 1.7 | Installation of select drain fill to minimum of 0.70m | Install drain fill as per design; Thickness to meet requirement | Contractor/Client | Engineers initials on this document | SZ | 18/08/18 | CFM | 19/08/19 | |
| 1.8 | Close envelope of 12oz nonwoven geotextile | Geotextile to fully encompass drain fill maintaining minimum 0.5m overlap | Contractor/Client | Engineers initials on this document | SZ | 18/08/18 | CFM | 18/08/19 | |
| 1.9 | Place and compact minimum 0.3m of material 2 or material 3 above getotextile top layer | Install geotextile as per design engineers correspondence | Contractor/Client | Engineers initials on this document | SZ | 18/08/18 | CFM | 19/08/19 | |
| 1.10 | Survey asbuilt of requested construction steps | Survey to asbuilt steps during construction as requested | Contractor/Client | Asbuilt drawings provided as requested | SZ | 18/08/18 | CFM | 18/08/19 | |
| 1.11 | Quality records complete and in turnover package | To be updated throughout the project | Contractor | As per documentation outlined in this ITP | | | | | |

**Client Rep:** Roy Morlan _____ 11-27-18
print sign date

**Contractor Rep:** DEAN SERENA _____ 11/27/18
print sign date




| REFERENCE DRAWINGS: | |
|---|---|
| NO. | DRAWING FILE: |
| 01 | Xref.dwg |

**DRAWING NOTES:**

- TYPE 3 MATERIAL
- TOP TYPE 2 MATERIAL
- TOP DRAIN ROCK
- EXCAVATION

| ISSUES: | | | |
|---|---|---|---|
| REV. | YY/MM/DD | INIT. | DESCRIPTION |
| 0.0 | 18/08/25 | C.M. | ISSUED FOR INFORMATION |

eshemuta Construction Surveyors

SURVEYED: SP, CM, CJ | DRAWN: C.M.

CLIENT: Pelly Construction Ltd.

CHECKED: | APPROVED:

PROJECT: EAGLE GOLD MINE CONSTRUCTION

TITLE: HLF EMBANKMENT EAST VALLEY FINGERDRAIN

DRAWING SCALE: H 1:1000

DATE: 18/08/25 | DWG No: EMB-FD-EV

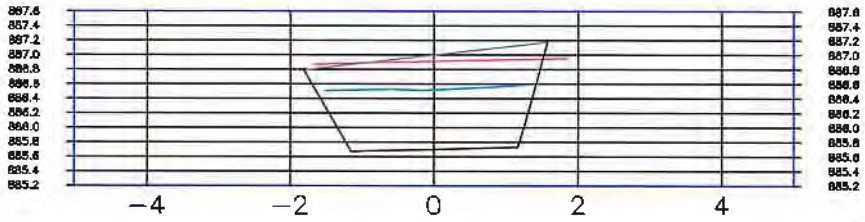
DRAWING FILE: 180825 FINGERDRAIN EAST VALLEY.dwg

DRAWING VIEW: 8.5x11 Portrait

PROJECT NO: 17003

SHEET: 001

## 0+060.00

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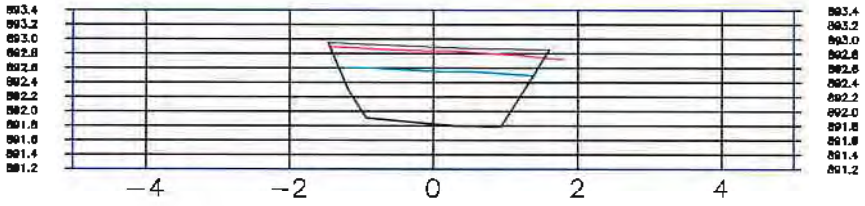


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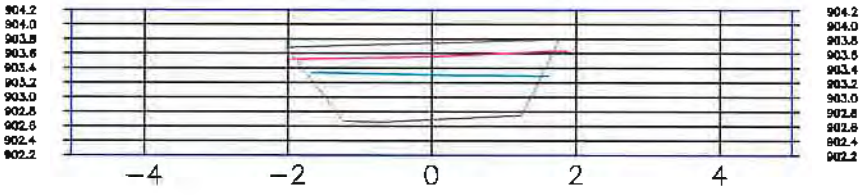



| REFERENCE DRAWINGS: | |
|---|---|
| NO. | DRAWING FILE: |
| 01 | Xref.dwg |

DRAWING NOTES:

- TYPE 3 MATERIAL
- TOP TYPE 2 MATERIAL
- TOP DRAIN ROCK
- EXCAVATION

| ISSUES: | | | |
|---|---|---|---|
| REV. | YY/MM/DD | INIT. | DESCRIPTION |
| 0.0 | 18/08/25 | C.M. | ISSUED FOR INFORMATION |

eshemuta Construction Surveyors

SURVEYED: SP, CM, CJ | DRAWN: C.M. | CHECKED: | APPROVED:

CLIENT: Pelly Construction Ltd.

PROJECT: EAGLE GOLD MINE CONSTRUCTION

TITLE: HLF EMBANKMENT EAST VALLEY FINGERDRAIN

DRAWING SCALE: H 1:100

DATE: 18/08/25 | DWG No: EMB-FD-EV2

DRAWING FILE: 180825 FINGERDRAIN EAST VALLEY.dwg

DRAWING VIEW: 8.5x11 Portrait

PROJECT NO: 17003

SHEET: 001

Title: **INSPECTION AND TEST PLAN FOR HLF EMBANKMENT FINGER DRAINS**

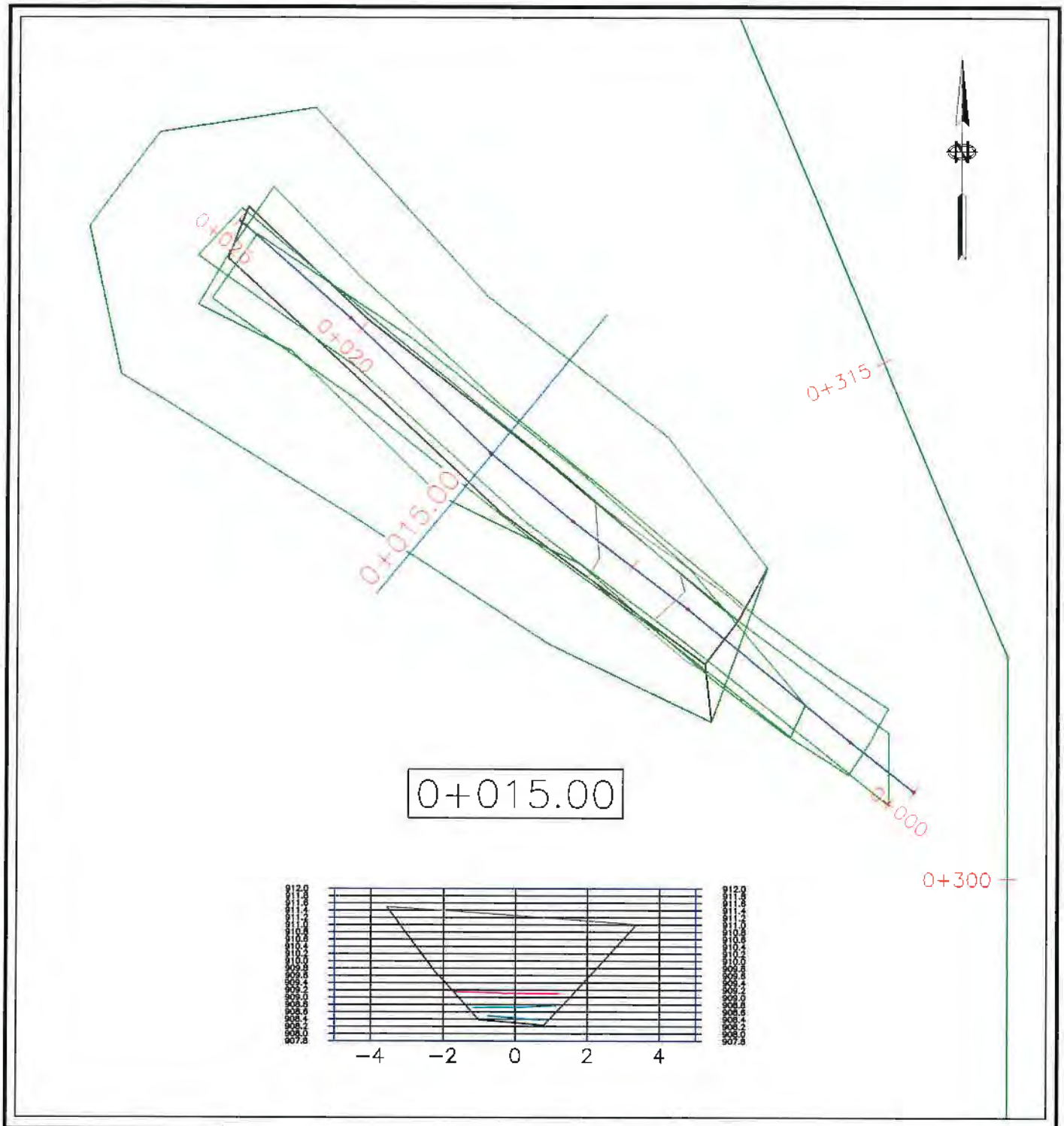
Contractor: **PELLY CONSTRUCTION LTD**
Project: **EAGLE GOLD PROJECT**
Item: **9000.13**
CWP: **HLF EMBANKMENT BLANKET DRAIN**
Revision: **0**

Contract No. **CC204**
ITP No. **006-K**
Date: **18-Aug-18**
Station: **HLF In-heap Sump**

| ITEM NO. | TASK DESCRIPTION | ACTIVITIES AND ACCEPTANCE CRITERIA | PARTY RESPONSIBLE | VERIFICATION DOCUMENT OR FORM | CONTRACTOR REP | | CLIENT REP | | COMMENTS |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | INITIALS | DATE | INITIALS | DATE | |
| 1.1 | ITP review and approval | Client approval | Client | This approved ITP document bearing signatures | SZ | 08/18/18 | | 08/19/18 | |
| 1.2 | RFI's | Obtain RFI response to close request | Client | Client RFI forms | | | | | |
| 1.3 | Finger drain design drawing | Drawing received by Contractor; Verify design drawing | Contractor/Client | Drawings reviewed | SZ | 08/18/18 | | 08/19/18 | |
| 1.4 | Quality of materials | Verify materials received meet all requirements | Contractor/Client | Material specification sheet and quality/inspection certificates | SZ | 08/18/18 | | 08/19/18 | |
| 1.5 | Engineers approval of drain excavation | Inspection of excavation to design depth, width, and subgrade foundation | Contractor/Client | Engineers initials on this document | SZ | 08/18/18 | | 08/19/18 | |
| 1.6 | Installation of 12oz nonwoven geotextile | Install geotextile as per design | Contractor/Client | Engineers initials on this document | SZ | 08/18/18 | | 08/19/18 | |
| 1.7 | Installation of select drain fill to minimum of 0.3m | Install drain fill as per design; Thickness to meet requirement | Contractor/Client | Engineers initials on this document | SZ | 08/18/18 | | 08/19/18 | |
| 1.8 | Close envelope of 12oz nonwoven geotextile | Geotextile to fully encompass drain fill maintaining minimum 0.5m overlap | Contractor/Client | Engineers initials on this document | SZ | 08/18/18 | | 08/19/18 | |
| 1.9 | Place and compact minimum 0.3m of material 2 or material 3 above getotextile top layer | Install geotextile as per design engineers correspondence | Contractor/Client | Engineers initials on this document | SZ | 08/18/18 | | 08/19/18 | |
| 1.10 | Survey asbuilt of requested construction steps | Survey to asbuilt steps during construction as requested | Contractor/Client | Asbuilt drawings provided as requested | SZ | 08/18/18 | | 08/19/18 | |
| 1.11 | Quality records complete and in turnover package | To be updated throughout the project | Contractor | As per documentation outlined in this ITP | | | | | |

**Client Rep:** _____ _____ 11-27-18
print sign date

**Contractor Rep:** DEAN SERVOS _____ 11/27/18
print sign date




0+015.00




| REFERENCE DRAWINGS: | |
|---|---|
| NO. | DRAWING FILE: |
| 01 | Xref.dwg |

**DRAWING NOTES:**

- TYPE 3 MATERIAL
- TOP TYPE 2 MATERIAL
- TOP DRAIN ROCK
- EXCAVATION
- PERFORATED 150mm SDR11

| ISSUES: | | | |
|---|---|---|---|
| REV. | YY/MM/DD | INIT. | DESCRIPTION |
| 0.0 | 18/07/12 | C.M. | ISSUED FOR INFORMATION |

eshemuta Construction Surveyors

SURVEYED: C.M. | DRAWN: C.M. | CHECKED: | APPROVED:

CLIENT: Pelly Construction Ltd.

PROJECT: EAGLE GOLD MINE CONSTRUCTION

TITLE: HLF EMBANKMENT FINGERDRAIN 0+300

DRAWING SCALE: H 1:150

DATE: 18/07/18 | DWG No: EMB-FD0300

DRAWING FILE: 180912 HLF FINGERDRAIN 0+300 ASB.dwg

DRAWING VIEW: 8.5x11 Portrait

PROJECT NO.: 17003

SHEET: 001

Title: **INSPECTION AND TEST PLAN FOR HLF EMBANKMENT FINGER DRAINS**

Contractor: **PELLY CONSTRUCTION LTD**
Project: **EAGLE GOLD PROJECT**
Item: **9000.13**
CWP: **HLF EMBANKMENT FINGER DRAINS**
Revision: **0**

Contract No. **CC204**
ITP No. **006-Upslope In Heap Interceptor Drain**
Date: **21-Aug-18**
Station: **Closure Sump**

Pelly Construction Ltd.

| ITEM NO. | TASK DESCRIPTION | ACTIVITIES AND ACCEPTANCE CRITERIA | PARTY RESPONSIBLE | VERIFICATION DOCUMENT OR FORM | CONTRACTOR REP INITIALS | CONTRACTOR REP DATE | CLIENT REP INITIALS | CLIENT REP DATE | COMMENTS |
|---|---|---|---|---|---|---|---|---|---|
| 1.1 | ITP review and approval | Client approval | Client | This approved ITP document bearing signatures | YF | Aug 25/18 | [signature] | 8/25 | |
| 1.2 | RFI's | Obtain RFI response to close request | Client | Client RFI forms | | | | | |
| 1.3 | Closure sump interceptor drain design | Drawing received by Contractor; Verify design drawing | Contractor/Client | Drawings reviewed | YF | 8/25 | [signature] | 8/25 | |
| 1.4 | Quality of materials | Verify materials received meet all requirements | Contractor/Client | Material specification sheet and quality/inspection certificates | YF | 8/25 | [signature] | 8/25 | |
| 1.5 | Engineers approval of drain excavation | Inspection of excavation to design depth, width, and subgrade foundation | Contractor/Client | Engineers initials on this document | YF | 8/25 | [signature] | 8/25 | |
| 1.6 | Installation of 12oz nonwoven geotextile | Install geotextile as per design | Contractor/Client | Engineers initials on this document | YF | 8/25 | [signature] | 8/25 | |
| 1.7 | Installation of ODF or Concrete Aggregate below pipe | Install drain fill as per design; Thickness to meet requirement | Contractor/Client | Engineers initials on this document | YF | 8/25 | [signature] | 8/25 | |
| 1.8 | Iinstallation of SDR 11 perforated piping | Install the perforated pipe as per design | Contractor/Client | Engineers initials on this document | YF | 8/25 | [signature] | 8/25 | |
| 1.9 | Installation of ODF or Concrete Aggregate above the pipe | Install drain fill as per design; Thickness to meet requirement | Contractor/Client | Engineers initials on this document | YF | 8/25 | [signature] | 8/25 | |
| 1.10 | Close envelope of 12oz nonwoven geotextile | Geotextile to fully encompass drain fill maintaining minimum 0 5m overlap | Contractor/Client | Engineers initials on this document | YF | 8/25 | [signature] | 8/25 | |
| 1.11 | Place and compact minimum 0.3m of material 2 or material 3 above getotextile top layer | Install geotextile as per design engineers correspondence | Contractor/Client | Engineers initials on this document | YF | 8/25 | [signature] | 8/25 | |
| 1.12 | Survey asbuilt of requested construction steps | Survey to asbuilt steps during construction as requested | Contractor/Client | Asbuilt drawings provided as requested | YF | 8/25 | [signature] | 8/25 | |
| 1.13 | Quality records complete and in turnover package | To be updated throughout the project | Contractor | As per documentation outlined in this ITP | | | | | |

* DRAIN WAS EXTENDED WEST UPSLOPE TO TIE INTO EXFILTRATION TRENCH CAPTURING MELT WATER; EXCAVATION WAS 1.5m BELOW LINER SURFACE AND WIDTH OF LB 490 EXCAVATOR BUCKET; NO GEOTEXTILE REQUIRED AS PER BGL; EXTENSION WAS FILLED WITH 0.5m of RIP RAP MATERIAL; MINIMUM 0.45m OF STRUCTURAL FILL WAS PLACED AND COMPACTED ABOVE. [signature] 9/18/2018

**Client Rep:** [signature] 11-27-18
print sign date

**Contractor Rep:** DEAN SERELO [signature] 11/27/18
print sign date

Title: **INSPECTION AND TEST PLAN FOR HLF EMBANKMENT FINGER DRAINS**

Contractor: **PELLY CONSTRUCTION LTD**
Project: **EAGLE GOLD PROJECT**
Item: **9000.13**
CWP: **HLF EMBANKMENT FINGER DRAINS**
Revision: **0**

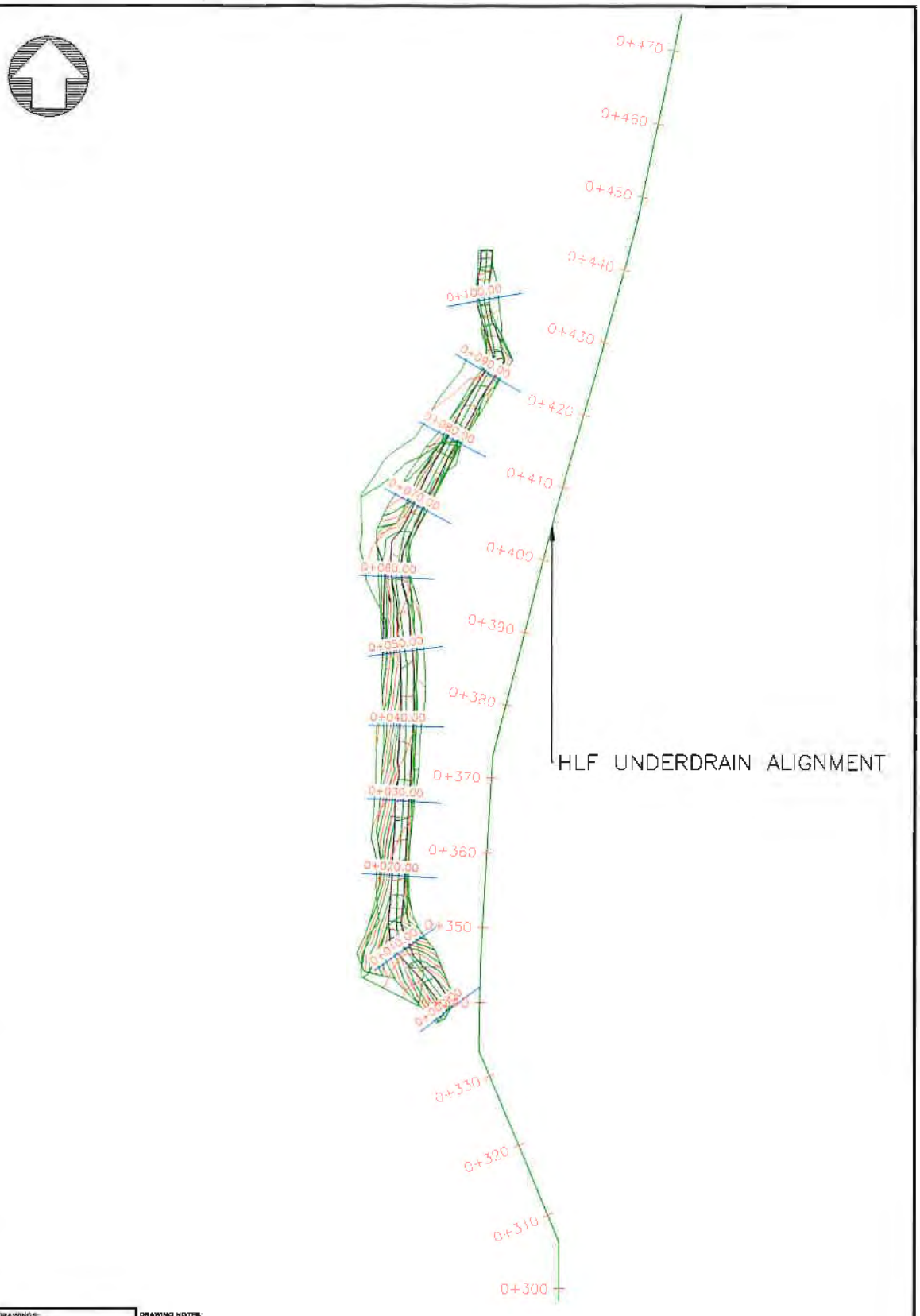
Contract No **CC204**
ITP No **006-L Perimeter Drain**
Date: **07-Sep-18**
Station: **STA 0+340 RT**

Pelly Construction Ltd.

| ITEM NO. | TASK DESCRIPTION | ACTIVITIES AND ACCEPTANCE CRITERIA | PARTY RESPONSIBLE | VERIFICATION DOCUMENT OR FORM | CONTRACTOR REP | | CLIENT REP | | COMMENTS |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | INITIALS | DATE | INITIALS | DATE | |
| 1.1 | ITP review and approval | Client approval | Client | This approved ITP document bearing signatures | D.S. | 9/7/18 | EJF | 9/8/18 | |
| 1.2 | RFI's | Obtain RFI response to close request | Client | Client RFI forms | D.S | 9/7/18 | EJF | 9/8/18 | |
| 1.3 | Finger drain design drawing | Drawing received by Contractor; Verify design drawing | Contractor/Client | Drawings reviewed | D.S | 9/7/18 | EJF | 9/8/18 | |
| 1.4 | Quality of materials | Verify materials received meet all requirements | Contractor/Client | Material specification sheet and quality/inspection certificates | D.S | 9/7/18 | EJF | 9/8/18 | |
| 1.5 | Engineers approval of drain excavation | Inspection of excavation to design depth, width, and subgrade foundation | Contractor/Client | Engineers initials on this document | D.S | 9/7/18 | EJF | 9/8/18 | |
| 1.6 | Installation of 12oz nonwoven geotextile | Install geotextile as per design | Contractor/Client | Engineers initials on this document | D.S | 9/7/18 | EJF | 9/8/18 | |
| 1.7 | Installation of select drain fill to minimum of 0.50m | Install drain fill as per design; Thickness to meet requirement | Contractor/Client | Engineers initials on this document | D.S. | 9/7/18 | EJF | 9/8/18 | |
| 1.8 | Close envelope of 12oz nonwoven geotextile | Geotextile to fully encompass drain fill maintaining minimum 0.5m overlap | Contractor/Client | Engineers initials on this document | D.S. | 9/7/18 | EJF | 9/8/18 | |
| 1.7 | Installation of select drain fill to minimum of 0.30m | Install drain fill as per design; Thickness to meet requirement | Contractor/Client | Engineers initials on this document | D.S. | 9/7/18 | EJF | 9/8/18 | |
| 1.8 | Place 12oz non woven geotextile on top of 0.30m SDF | Geotextile to fully cover layer of SDF extending upslope on bank | Contractor/Client | Engineers initials on this document | D.S | 9/7/18 | EJF | 9/8/18 | |
| 1.9 | Place rock material on top of geotextile | Rock to cover geotextile extending upslope on bank | Contractor/Client | Engineers initials on this document | D.S. | 9/7/18 | EJF | 9/8/18 | |
| 1.9 | Place and compact minimum 0.3m of material 2 or material 3 above getotextile top layer | Material 2 or material 3 to be placed where rock material not needed | Contractor/Client | Engineers initials on this document | D.S | 9/7/18 | EJF | 9/8/18 | |
| 1.10 | Survey asbuilt of requested construction steps | Survey to asbuilt steps during construction as requested | Contractor/Client | Asbuilt drawings provided as requested | D.S | 9/7/18 | EJF | 9/8/18 | |
| 1.11 | Quality records complete and in turnover package | To be updated throughout the project | Contractor | As per documentation outlined in this ITP | D.S. | 9/7/18 | EJF | 9/8/18 | |

**Client Rep:** ETHAN FRASER _____ 9/8/18
print sign date

**Contractor Rep:** DEAN SERETO _____ 9/7/18
print sign date




| REFERENCE DRAWINGS: | |
|---|---|
| NO. | DRAWING FILE |
| 01 | Roadway |

DRAWING NOTES:

1 SHOWING FINGERDRAIN INSTALLED AT 0+0340 OF UNDERDRAIN TRENCH

| ISSUES: | | | |
|---|---|---|---|
| REV. | YY/MM/DD | INIT. | DESCRIPTION |
| 0.0 | 17/01/01 | CB | ISSUED FOR |

eshemuta Construction Surveyors

SURVEYED: CB DRAWN: BAX

CLIENT: Pelly Construction Ltd.

CHECKED: APPROVED:

PROJECT: EAGLE GOLD MINE CONSTRUCTION

TITLE: FINGERDRAIN 0+340

DRAWING SCALE: H 1:500

DATE: 18/09/12 DWG No: EMB-FD-0340

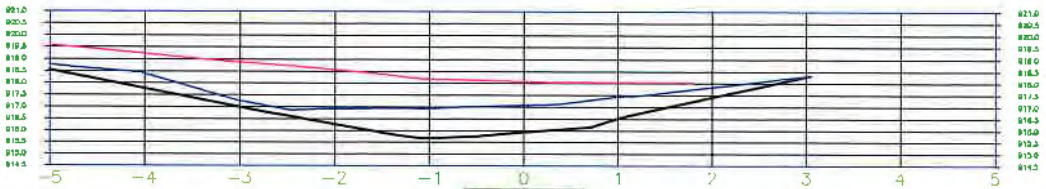
DRAWING FILE: 150912 0340 FINGER DRAIN SECTION.dwg

DRAWING VIEW: 11x17 Portrait

PROJECT NO.: 17003

SHEET: 001

0+010.00

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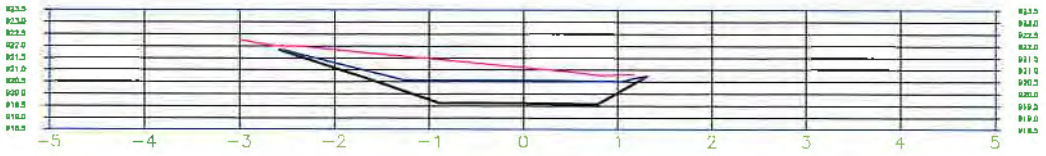
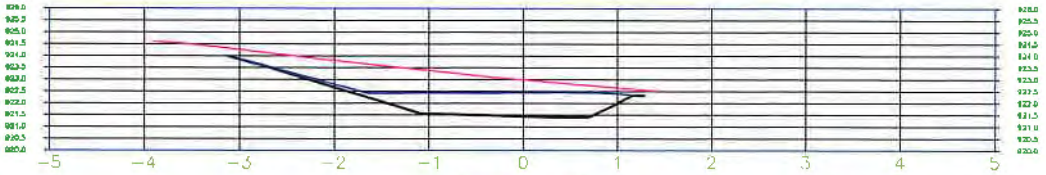
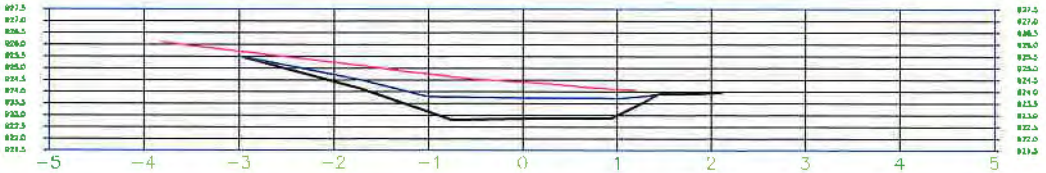



0+030.00




0+040.00




REFERENCE DRAWINGS:

| NO. | DRAWING FILE |
|---|---|
| 01 | [illegible] |

DRAWING NOTES:

**LEGEND**

- SAND
- RIP RAP
- GRAVEL
- TRENCH

ISSUES:

| REV. | YY/MM/DD | INIT. | DESCRIPTION |
|---|---|---|---|
| 0.0 | YY/MM/DD | DB | ISSUED FOR... |

CLIENT:

Pelly Construction Ltd.

eshemuta Construction Surveyors

PROJECT:

EAGLE GOLD MINE CONSTRUCTION

TITLE:

FINGERDRAIN 0+340 SECTIONS 0+010 TO 0+040

DRAWING SCALE:

NOT TO SCALE

| | |
|---|---|
| DATE: [illegible] | DWG No.: [illegible] |
| SURVEYED: E.J | CHECKED: |
| DRAWN: BAX | APPROVED: |

DRAWING FILE:

180812 0340 FINGER DRAIN SECTION.dwg

DRAWING VIEW:

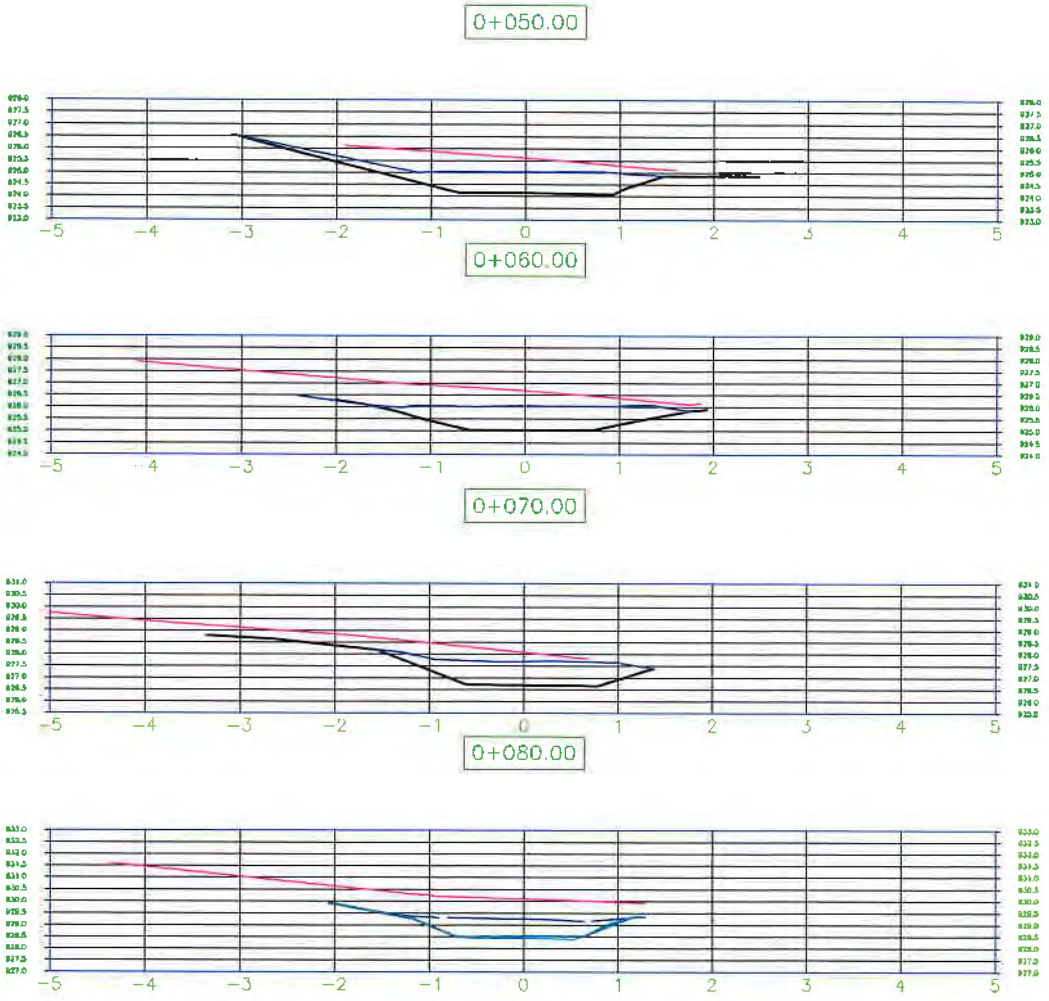
11x17 Landscape

PROJECT NO.:

17003

SHEET:

001




REFERENCE DRAWINGS:

| NO | DRAWING FILE |
|---|---|
| 01 | [illegible].dwg |

DRAWING NOTES:

**LEGEND**

- SAND
- RIP RAP
- GRAVEL
- TRENCH

ISSUES:

| REV. | YY/MM/DD | INIT. | DESCRIPTION |
|---|---|---|---|
| 0.0 | 12/09/07 | CB | ISSUED FOR... |

CLIENT: Pelly Construction Ltd.

eshemuta Construction Surveyors

PROJECT:

EAGLE GOLD MINE CONSTRUCTION

TITLE:

FINGERDRAIN
0+340 SECTIONS
0+050 TO 0+080

DRAWING SCALE: NOT TO SCALE

| | | | |
|---|---|---|---|
| DATE: | 18/09/12 | DWG No: | [illegible] |
| SURVEYED: | E J | CHECKED: | |
| DRAWN: | BAX | APPROVED: | |

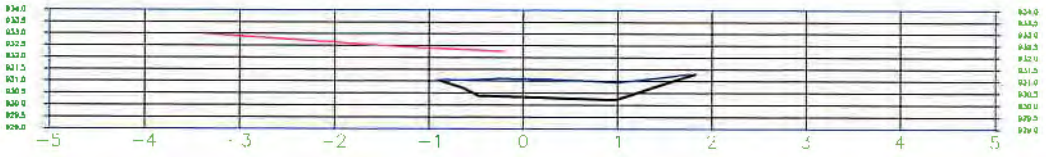
DRAWING FILE: 180912 0340 FINGER DRAIN SECTION.dwg

DRAWING VIEW: 11x17 Landscape

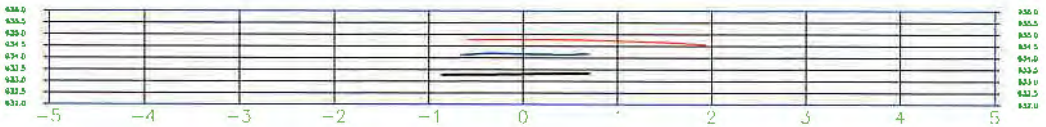
PROJECT NO.: 17003

SHEET: 001

0+090.00




0+100.00




REFERENCE DRAWINGS:

| NO. | DRAWING FILE: |
|---|---|
| 01 | [illegible] |

DRAWING NOTES:

**LEGEND**

- SAND
- RIP RAP
- GRAVEL
- TRENCH

ISSUES:

| REV. | PLANNED | INIT. | DESCRIPTION |
|---|---|---|---|
| [illegible] | [illegible] | EB | [illegible] |

CLIENT:

Pelly Construction Ltd.

eshemuta Construction Surveyors

PROJECT:

EAGLE GOLD MINE CONSTRUCTION

TITLE:

FINGERDRAIN
0+340 SECTIONS
0+090 TO 0+100

DRAWING SCALE:

NOT TO SCALE

| DATE: | 18/09/12 | DWG No: |
|---|---|---|
| SURVEYED: | E.J /C.M | CHECKED: |
| DRAWN: | BAX | APPROVED: |

DRAWING FILE: 180912 0340 FINGER DRAIN SECTIONS.dwg

DRAWING VIEW: 11x17 Landscape

PROJECT NO.: 17003

SHEET: 001

Title: **INSPECTION AND TEST PLAN FOR HLF EMBANKMENT FINGER DRAINS**

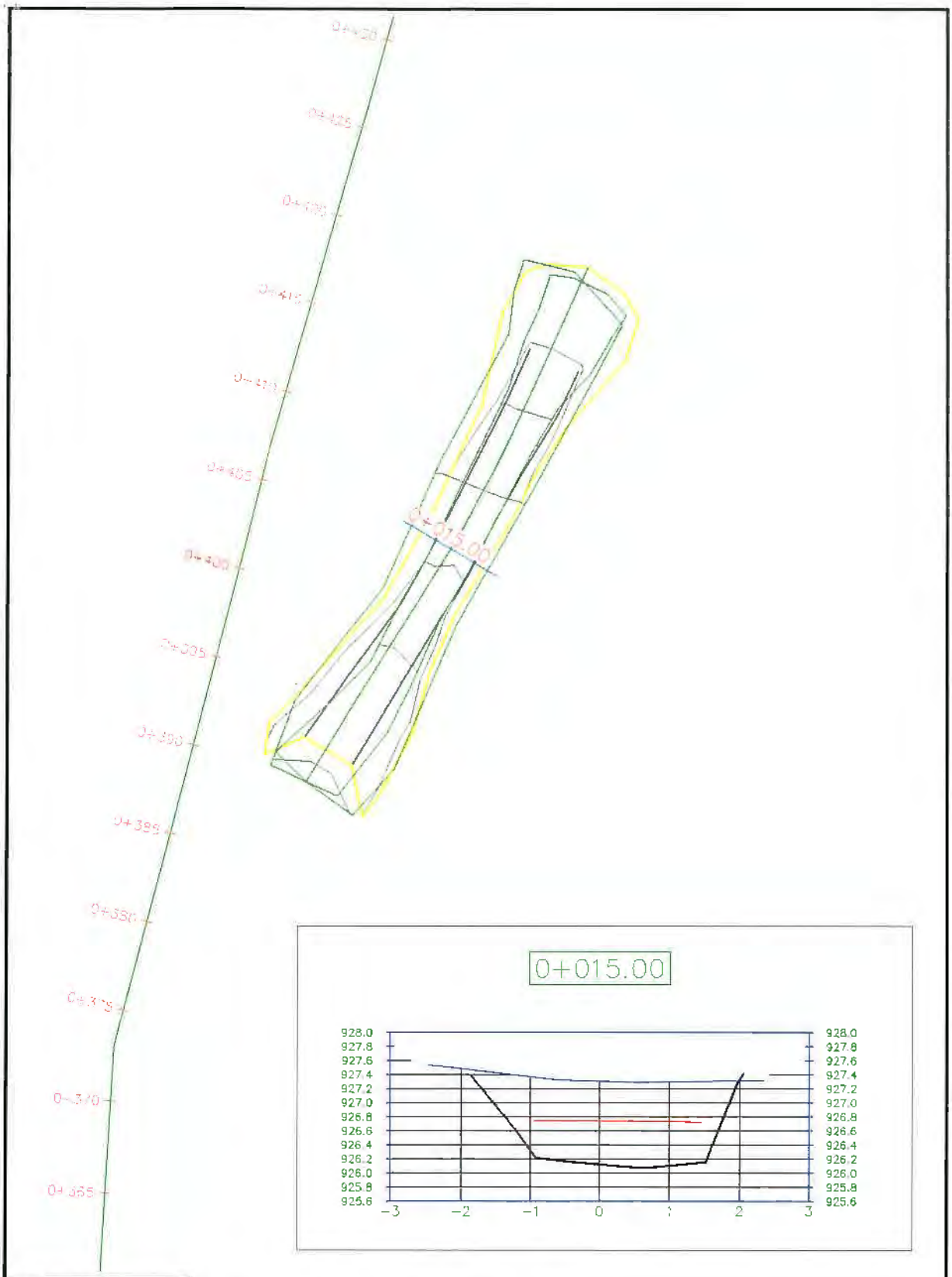
| | | | |
|---|---|---|---|
| Contractor | **PELLY CONSTRUCTION LTD** | Contract No. | **CC204** |
| Project: | **EAGLE GOLD PROJECT** | ITP No | **006-M** |
| Item: | **9000.13** | Date: | **13-Jul-18** |
| CWP: | **HLF EMBANKMENT FINGER DRAINS** | Station: | **STA 0+390 RT** |
| Revision: | **0** | | |

Pelly Construction Ltd.

| ITEM NO. | TASK DESCRIPTION | ACTIVITIES AND ACCEPTANCE CRITERIA | PARTY RESPONSIBLE | VERIFICATION DOCUMENT OR FORM | CONTRACTOR REP | | CLIENT REP | | COMMENTS |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | INITIALS | DATE | INITIALS | DATE | |
| 1.1 | ITP review and approval | Client approval | Client | This approved ITP document bearing signatures | D.S | 9/7/18 | EJF | 9/8/18 | |
| 1.2 | RFI's | Obtain RFI response to close request | Client | Client RFI forms | D.S | 9/7/18 | EJF | 9/8/18 | Email |
| 1.3 | Finger drain design drawing | Drawing received by Contractor; Verify design drawing | Contractor/Client | Drawings reviewed | D.S | 9/7/18 | EJF | 9/8/18 | |
| 1.4 | Quality of materials | Verify materials received meet all requirements | Contractor/Client | Material specification sheet and quality/inspection certificates | D.S. | 9/7/18 | EJF | 9/8/18 | |
| 1.5 | Engineers approval of drain excavation | Inspection of excavation to design depth, width, and subgrade foundation | Contractor/Client | Engineers initials on this document | D.S. | 9/7/18 | EJF | 9/8/18 | |
| 1.6 | Installation of 12oz nonwoven geotextile | Install geotextile as per design | Contractor/Client | Engineers initials on this document | D.S. | 9/7/18 | EJF | 9/8/18 | |
| 1.7 | Installation of select drain fill to minimum of 0.45m | Install drain fill as per design; Thickness to meet requirement | Contractor/Client | Engineers initials on this document | D.S. | 9/7/18 | EJF | 9/8/18 | |
| 1.8 | Close envelope of 12oz nonwoven geotextile | Geotextile to fully encompass drain fill maintaining minimum 0.5m overlap | Contractor/Client | Engineers initials on this document | D.S | 9/7/18 | EJF | 9/8/18 | |
| 1.9 | Place and compact minimum 0.3m of material 2 or material 3 above getotextile top layer | Install geotextile as per design engineers correspondence | Contractor/Client | Engineers initials on this document | D.S. | 9/7/18 | EJF | 9/8/18 | |
| 1.10 | Survey asbuilt of requested construction steps | Survey to asbuilt steps during construction as requested | Contractor/Client | Asbuilt drawings provided as requested | D.S. | 9/7/18 | EJF | 9/8/18 | |
| 1.11 | Quality records complete and in turnover package | To be updated throughout the project | Contractor | As per documentation outlined in this ITP | D.S | 9/7/18 | EJF | 9/8/18 | |

**Client Rep:** ETHAN FABER _____ 9/8/18
print sign date

**Contractor Rep:** DEAN SERELO _____ 9/7/18
print sign date







| REFERENCE DRAWINGS: | |
|---|---|
| NO. | DRAWING FILE: |
| 01 | Xsf.dwg |

DRAWING NOTES:

- SHOWING FINGERDRAIN INSTALLED AT APPROXIMATELY STA 0+390 OF UNDERDRAIN TRENCH ALIGNMENT

LEGEND

- TRENCH EXCAVATION
- DRAIN ROCK
- SAND

| ISSUES: | | | |
|---|---|---|---|
| REV. | YYMMDD | INT. | DESCRIPTION |
| 00 | 190101 | CB | ISSUED FOR... |

eshemuta Construction Surveyors

SURVEYED: C B | DRAWN: C B

CLIENT: Pelly Construction Ltd.

CHECKED: | APPROVED:

PROJECT: EAGLE GOLD MINE CONSTRUCTION

TITLE: 0+390 FINGERDRAIN CROSS SECTION

DRAWING SCALE: H 1:200

DATE: 19/09/09 | DWG No: FDRN-0390

DRAWING FILE: 190905 0390 FINGERDRAIN SECTION.dwg

DRAWING VIEW: 11x17 Portrait

PROJECT NO: 17003

SHEET: 001

Title: **INSPECTION AND TEST PLAN FOR HLF EMBANKMENT FINGER DRAINS**

Contractor: **PELLY CONSTRUCTION LTD**
Project: **EAGLE GOLD PROJECT**
Item: **9000.13**
CWP: **HLF EMBANKMENT FINGER DRAINS**
Revision: **0**

Contract No. **CC204**
ITP No. **006-N**
Date: **13-Jul-18**
Station: **STA 0+445 RT**

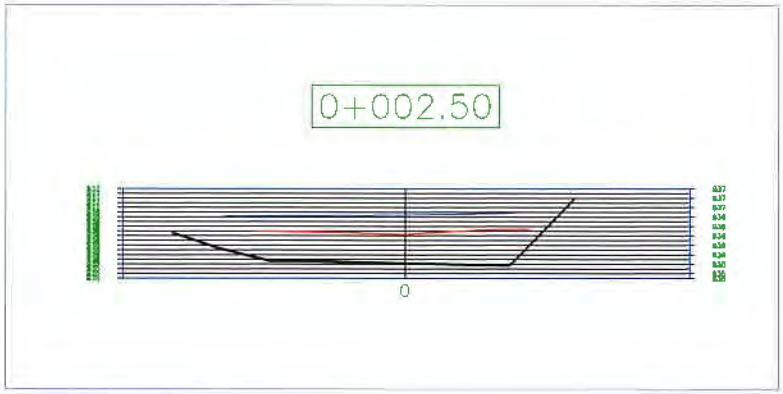
Pelly Construction Ltd.

| ITEM NO. | TASK DESCRIPTION | ACTIVITIES AND ACCEPTANCE CRITERIA | PARTY RESPONSIBLE | VERIFICATION DOCUMENT OR FORM | CONTRACTOR REP INITIALS | CONTRACTOR REP DATE | CLIENT REP INITIALS | CLIENT REP DATE | COMMENTS |
|---|---|---|---|---|---|---|---|---|---|
| 1.1 | ITP review and approval | Client approval | Client | This approved ITP document bearing signatures | D.S. | 9/7/18 | EJF | 9/8/18 | |
| 1.2 | RFI's | Obtain RFI response to close request | Client | Client RFI forms | D.S. | 9/7/18 | EJF | 9/8/18 | EMAIL |
| 1.3 | Finger drain design drawing | Drawing received by Contractor; Verify design drawing | Contractor/Client | Drawings reviewed | D.S. | 9/7/18 | EJF | 9/8/18 | |
| 1.4 | Quality of materials | Verify materials received meet all requirements | Contractor/Client | Material specification sheet and quality/inspection certificates | D.S | 9/7/18 | EJF | 9/8/18 | |
| 1.5 | Engineers approval of drain excavation | Inspection of excavation to design depth, width, and subgrade foundation | Contractor/Client | Engineers initials on this document | D.S | 9/7/18 | EJF | 9/8/18 | |
| 1.6 | Installation of 12oz nonwoven geotextile | Install geotextile as per design | Contractor/Client | Engineers initials on this document | D.S | 9/7/18 | EJF | 9/8/18 | |
| 1.7 | Installation of select drain fill to minimum of 0 45m | Install drain fill as per design; Thickness to meet requirement | Contractor/Client | Engineers initials on this document | D.S. | 9/7/18 | EJF | 9/8/18 | |
| 1.8 | Close envelope of 12oz nonwoven geotextile | Geotextile to fully encompass drain fill maintaining minimum 0 5m overlap | Contractor/Client | Engineers initials on this document | D.S. | 9/7/18 | EJF | 9/8/18 | |
| 1.9 | Place and compact minimum 0.3m of material 2 or material 3 above getotextile top layer | Install geotextile as per design engineers correspondence | Contractor/Client | Engineers initials on this document | D.S. | 9/7/18 | EJF | 9/8/18 | |
| 1.10 | Survey asbuilt of requested construction steps | Survey to asbuilt steps during construction as requested | Contractor/Client | Asbuilt drawings provided as requested | D.S. | 9/7/18 | EJF | 9/8/18 | |
| 1.11 | Quality records complete and in turnover package | To be updated throughout the project | Contractor | As per documentation outlined in this ITP | D.S | 9/7/18 | EJF | 9/8/18 | |

**Client Rep:** EITHAN FABEN _____ 9/8/18
print sign date

**Contractor Rep:** DEAN SERELO _____ 9/7/18
print sign date




**REFERENCE DRAWINGS:**

| NO. | DRAWING FILE: |
|---|---|
| 01 | fingerdrain |

**DRAWING NOTES:**

1. SHOWING CROSS-SECTION OF FINGERDRAIN AT STA 0+445 OF UNDERDRAIN AND CLOSURE TRENCH

LEGEND

- TRENCH EXCAVATION
- DRAIN ROCK
- SAND

**ISSUES:**

| REV. | Y/MM/DD | INIT. | DESCRIPTION: |
|---|---|---|---|
| 00 | 10/09/01 | DB | ISSUED FOR... |

**CLIENT:**

eshemuta
Construction Surveyors

**PROJECT:**

EAGLE GOLD MINE CONSTRUCTION

**TITLE:**

FINGERDRAIN 0+445 CROSS-SECTION

**DRAWING SCALE:**

H 1:100

| | | | |
|---|---|---|---|
| DATE: | 18/09/10 | DWG No: | EMB-FD-0445 |
| SURVEYED: | E.J | CHECKED: | |
| DRAWN: | BAX | APPROVED: | |

DRAWING FILE: 180910 0445 FINGERDRAIN SECTION.dwg

DRAWING VIEW: 11x17 Landscape

PROJECT NO.: 17003

SHEET: 001

Title: **INSPECTION AND TEST PLAN FOR HLF EMBANKMENT FINGER DRAINS**

Contractor: **PELLY CONSTRUCTION LTD**
Project: **EAGLE GOLD PROJECT**
Item: **9000.13**
CWP: **HLF EMBANKMENT FINGER DRAINS**
Revision: **0**

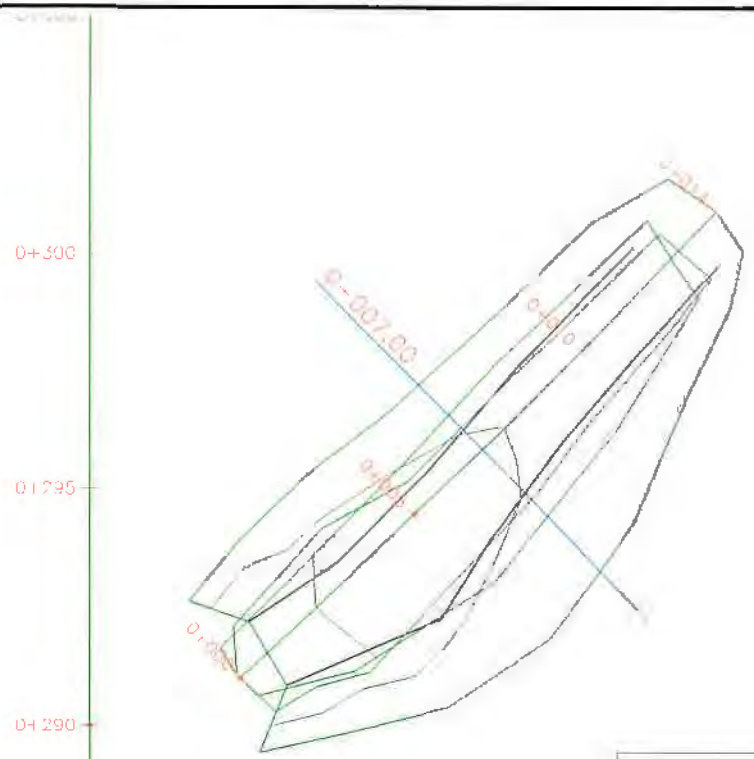
Contract No **CC204**
ITP No. **006-O**
Date: **09-Sep-18**
Station: **STA 0+292 RT**

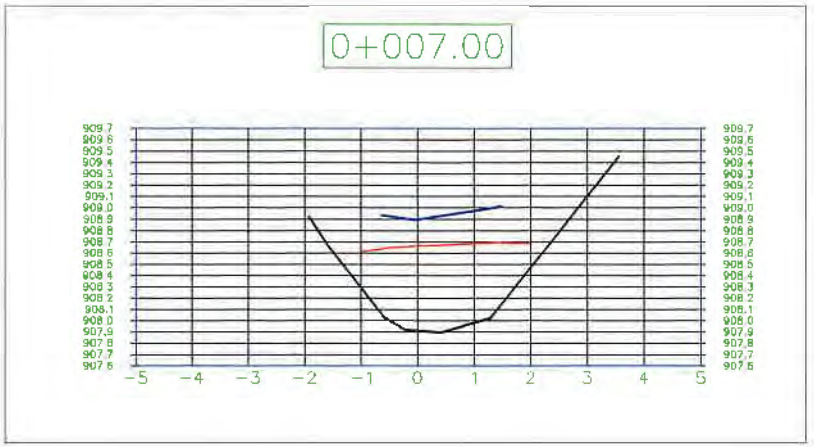
Pelly Construction Ltd.

| ITEM NO. | TASK DESCRIPTION | ACTIVITIES AND ACCEPTANCE CRITERIA | PARTY RESPONSIBLE | VERIFICATION DOCUMENT OR FORM | CONTRACTOR REP | | CLIENT REP | | COMMENTS |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | INITIALS | DATE | INITIALS | DATE | |
| 1.1 | ITP review and approval | Client approval | Client | This approved ITP document bearing signatures | D.S. | 9/10/18 | EJF | 9/10 | |
| 1.2 | RFI's | Obtain RFI response to close request | Client | Client RFI forms | D.S. | 9/10/18 | EJF | 9/10 | |
| 1.3 | Finger drain design drawing | Drawing received by Contractor; Verify design drawing | Contractor/Client | Drawings reviewed | D.S. | 9/10/18 | EJF | 9/10 | |
| 1.4 | Quality of materials | Verify materials received meet all requirements | Contractor/Client | Material specification sheet and quality/inspection certificates | D.S | 9/10/18 | EJF | 9/10 | |
| 1.5 | Engineers approval of drain excavation | Inspection of excavation to design depth, width, and subgrade foundation | Contractor/Client | Engineers initials on this document | D.S | 9/10/18 | EJF | 9/10 | |
| 1.6 | Installation of 12oz nonwoven geotextile | Install geotextile as per design | Contractor/Client | Engineers initials on this document | D.S | 9/10/18 | EJF | 9/10 | |
| 1.7 | Installation of select drain fill to minimum of 0.45m | Install drain fill as per design; Thickness to meet requirement | Contractor/Client | Engineers initials on this document | D.S | 9/10/18 | EJF | 9/10 | |
| 1.8 | Close envelope of 12oz nonwoven geotextile | Geotextile to fully encompass drain fill maintaining minimum 0 5m overlap | Contractor/Client | Engineers initials on this document | D.S | 9/10/18 | EJF | 9/10 | |
| 1.9 | Place and compact minimum 0.3m of material 2 or material 3 above getotextile top layer | Material thickness and compaction to meet specifications | Contractor/Client | Engineers initials on this document | D.S | 9/10/18 | EJF | 9/10 | |
| 1.10 | Survey asbuilt of requested construction steps | Survey to asbuilt steps during construction as requested | Contractor/Client | Asbuilt drawings provided as requested | D.S | 9/10/18 | EJF | 9/10 | |
| 1.11 | Quality records complete and in turnover package | To be updated throughout the project | Contractor | As per documentation outlined in this ITP | D.S | 9/10/18 | EJF | 9/10 | |

**Client Rep:** ETHAN FORGE _____ 9/10/18
print sign date

**Contractor Rep:** DEAN SERELO _____ 9/10/18
print sign date




REFERENCE DRAWINGS:

| NO. | DRAWING TITLE: |
|---|---|
| 01 | Test dwg |

DRAWING NOTES:

1. SHOWING CROSS SECTION OF FINGERDRAIN AT STA 0+292 OF UNDERDRAIN AND CLOSURE LENGTH

LEGEND

TRENCH EXCAVATION
DRAIN ROCK
SAND

ISSUES:

| REV. | Y/M/D | INIT. | DESCRIPTION |
|---|---|---|---|
| 00 | Y/M/D | CB | ISSUED FOR... |

CLIENT: Pelly Construction Ltd.

eshemuta Construction Surveyors

PROJECT: EAGLE GOLD MINE CONSTRUCTION

TITLE: CROSS- SECTION FINGERDRAIN 0+292

DRAWING SCALE: H 1:100

| | | | |
|---|---|---|---|
| DATE: | 19/09/10 | DWG #: | EMB-FD-0292 |
| SURVEYED: | C.M. | CHECKED: | |
| DRAWN: | BAX | APPROVED: | |

DRAWING FILE: 190910 0+292 FINGERDRAIN SECTION.dwg

DRAWING VIEW: 11x17 Landscape

SHEET: 001

PROJECT NO.: 17003

Title: **INSPECTION AND TEST PLAN FOR HLF EMBANKMENT FINGER DRAINS**

Contractor: **PELLY CONSTRUCTION LTD**
Project: **EAGLE GOLD PROJECT**
Item: **9000.13**
CWP: **HLF EMBANKMENT FINGER DRAINS**
Revision: **0**

Contract No **CC204**
ITP No **006-O**
Date: **10-Sep-18**
Station: **STA 0+035 along 0+390 E Lateral**

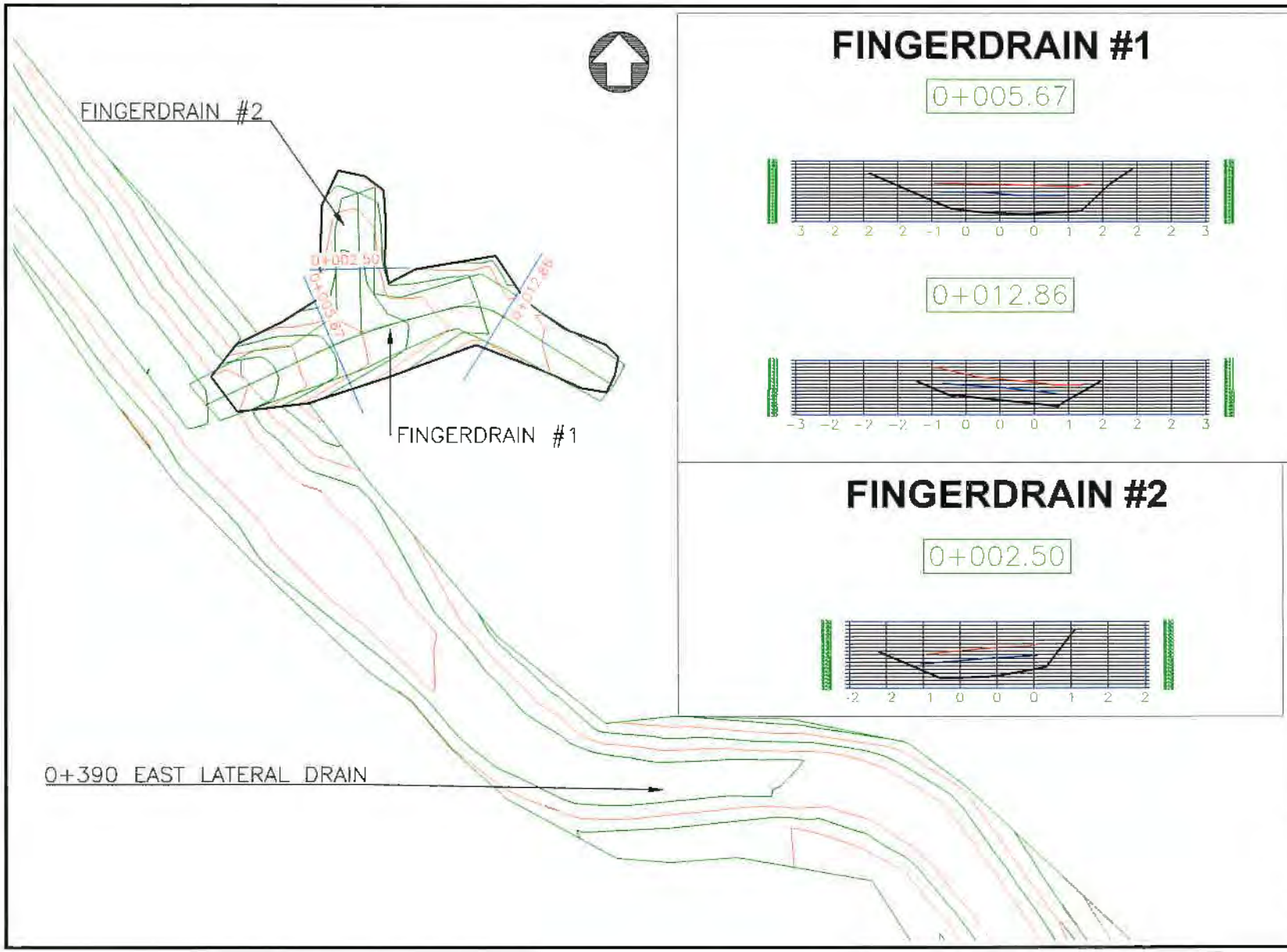
Pelly Construction Ltd.

| ITEM NO. | TASK DESCRIPTION | ACTIVITIES AND ACCEPTANCE CRITERIA | PARTY RESPONSIBLE | VERIFICATION DOCUMENT OR FORM | CONTRACTOR REP | | CLIENT REP | | COMMENTS |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | INITIALS | DATE | INITIALS | DATE | |
| 1.1 | ITP review and approval | Client approval | Client | This approved ITP document bearing signatures | D.S. | 12/09/18 | RM | 9.13.18 | |
| 1.2 | RFI's | Obtain RFI response to close request | Client | Client RFI forms | D.S. | 12/09/18 | RM | 9.13.18 | |
| 1.3 | Finger drain design drawing | Drawing received by Contractor; Verify design drawing | Contractor/Client | Drawings reviewed | D.S. | 12/09/18 | RM | 9.13.18 | |
| 1.4 | Quality of materials | Verify materials received meet all requirements | Contractor/Client | Material specification sheet and quality/inspection certificates | D.S | 12/09/18 | RM | 9.13.18 | |
| 1.5 | Engineers approval of drain excavation | Inspection of excavation to design depth, width, and subgrade foundation | Contractor/Client | Engineers initials on this document | D.S | 12/09/18 | RM | 9/13/18 | |
| 1.6 | Installation of 12oz nonwoven geotextile | Install geotextile as per design | Contractor/Client | Engineers initials on this document | D.S. | 12/09/18 | RM | 9/13/18 | |
| 1.7* | Installation of select drain fill to minimum of 0 45m | Install drain fill as per design; Thickness to meet requirement | Contractor/Client | Engineers initials on this document | D.S | 12/09/18 | RM | 9/13/18 | |
| 1.8 | Close envelope of 12oz nonwoven geotextile | Geotextile to fully encompass drain fill maintaining minimum 0.5m overlap | Contractor/Client | Engineers initials on this document | D.S | 12/09/18 | RM | 9/13/18 | |
| 1.9 | Place and compact minimum 0 3m of material 2 or material 3 above getotextile top layer | Material thickness and compaction to meet specifications | Contractor/Client | Engineers initials on this document | D.S. | 12/09/18 | RM | 9/13/18 | |
| 1.10 | Survey asbuilt of requested construction steps | Survey to asbuilt steps during construction as requested | Contractor/Client | Asbuilt drawings provided as requested | D.S | 12/09/18 | RM | 9/13/18 | |
| 1.11 | Quality records complete and in turnover package | To be updated throughout the project | Contractor | As per documentation outlined in this ITP | D.S | 12/09/18 | RM | 9/13/18 | |

* SDF was placed between 0.3-0.45m to allow for fill between drain and liner surface

**Client Rep:** Roy Morlan (print) RM (sign) 9-13-18 (date)

**Contractor Rep:** DEAN SERGO (print) (sign) 12/09/18 (date)




REFERENCE DRAWINGS:

| NO. | DRAWING FILE: |
|---|---|
| 01 | [illegible] EAST LATERAL DRAIN EX [illegible] |

DRAWING NOTES:

1. SHOWING FINGERDRAIN EXCAVATED ALONG EAST LATERAL DRAIN
2. EAST LATERAL DRAIN IS LOCATED AT [illegible] OF UNDERDRAIN TRENCH

ISSUES:

| REV. | YY/MM/DD | INIT. | DESCRIPTION |
|---|---|---|---|
| 0.0 | [illegible] | CB | ISSUED FOR |

CLIENT:

Pelly Construction Ltd.

eshemuta Construction Surveyors

PROJECT:

EAGLE GOLD MINE CONSTRUCTION

TITLE:

FINGERDRAIN INSTALLED ON EAST LATERAL DRAIN

DRAWING SCALE: H 1:150

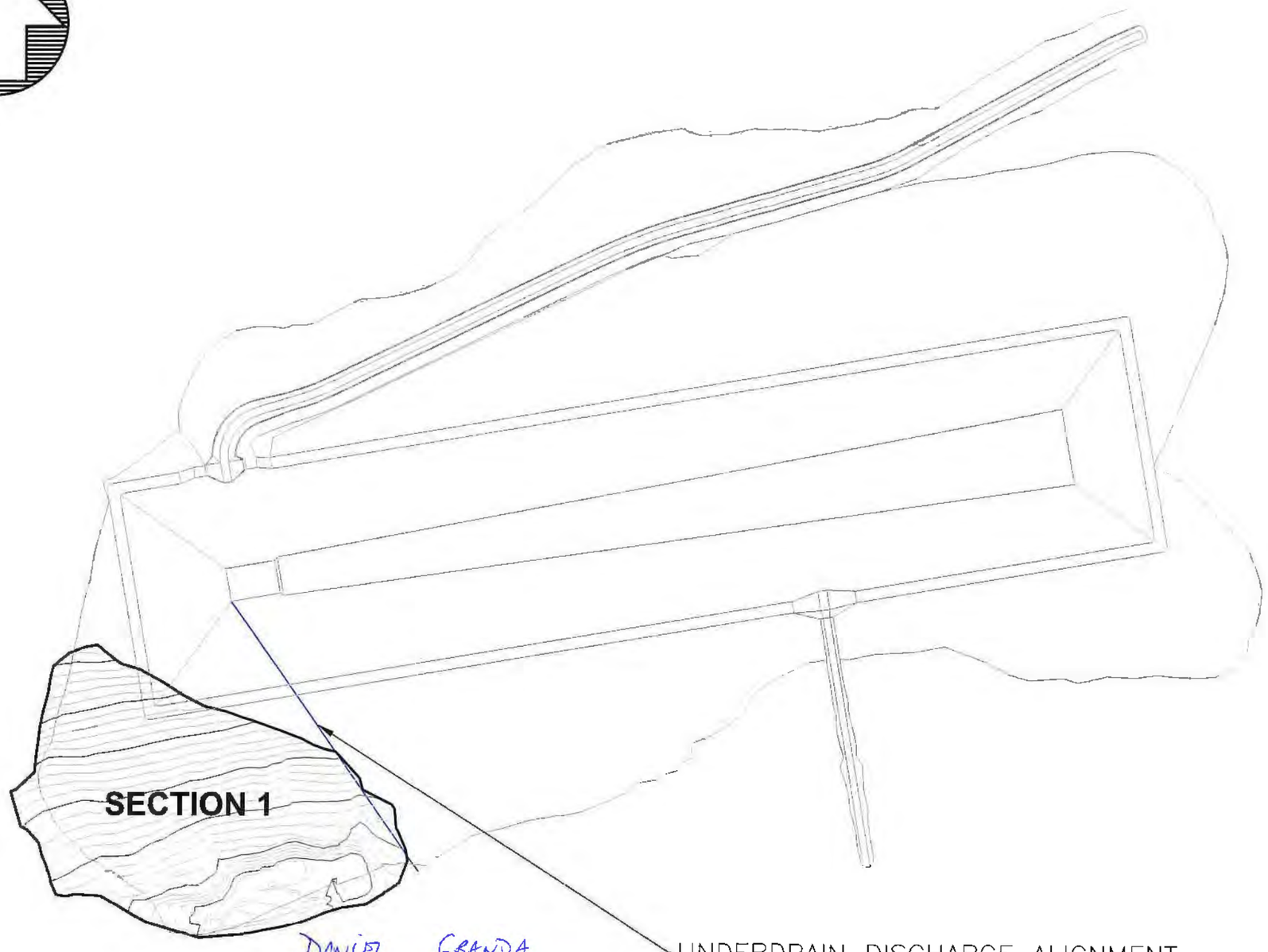
| | |
|---|---|
| DATE: 18/09/11 | DWG No: HLF - FD -EL |
| SURVEYED: C.B | CHECKED: |
| DRAWN: C.B | APPROVED: |

DRAWING FILE: 0+390 EAST LATERAL DRAIN FINGERDRAIN.dwg

DRAWING VIEW: 11x17 Landscape

PROJECT NO.: 17003

SHEET: 001




DANIEL GRANDA

BGC ENG.

10/3/2018

**REFERENCE DRAWINGS:**

| NO. | DRAWING FILE: |
|---|---|
| 01 | 180929 JDS EVENT POND AND DISCHARGE.dxf |

**DRAWING NOTES:**

1. SHOWING BGC APPROVED FOUNDATION SURFACE SECTION 1 IN THE EVENT POND.
2. SURFACE CONTOUR INTERVALS ARE SHOWN WITH MINOR CONTOURS EVERY 1M AND MAJOR CONTOURS EVERY 5M.

**ISSUES:**

| REV. | YY/MM/DD | INIT. | DESCRIPTION |
|---|---|---|---|
| 2.0 | 18/10/03 | CM | ISSUED FOR INFORMATION |

**CLIENT:** Pelly Construction Ltd.

eshemuta Construction Surveyors

**PROJECT:** EAGLE GOLD MINE CONSTRUCTION

**TITLE:** EVENT POND FOUNDATION APPROVAL SECTION 1

**DRAWING SCALE:** H 1:2000

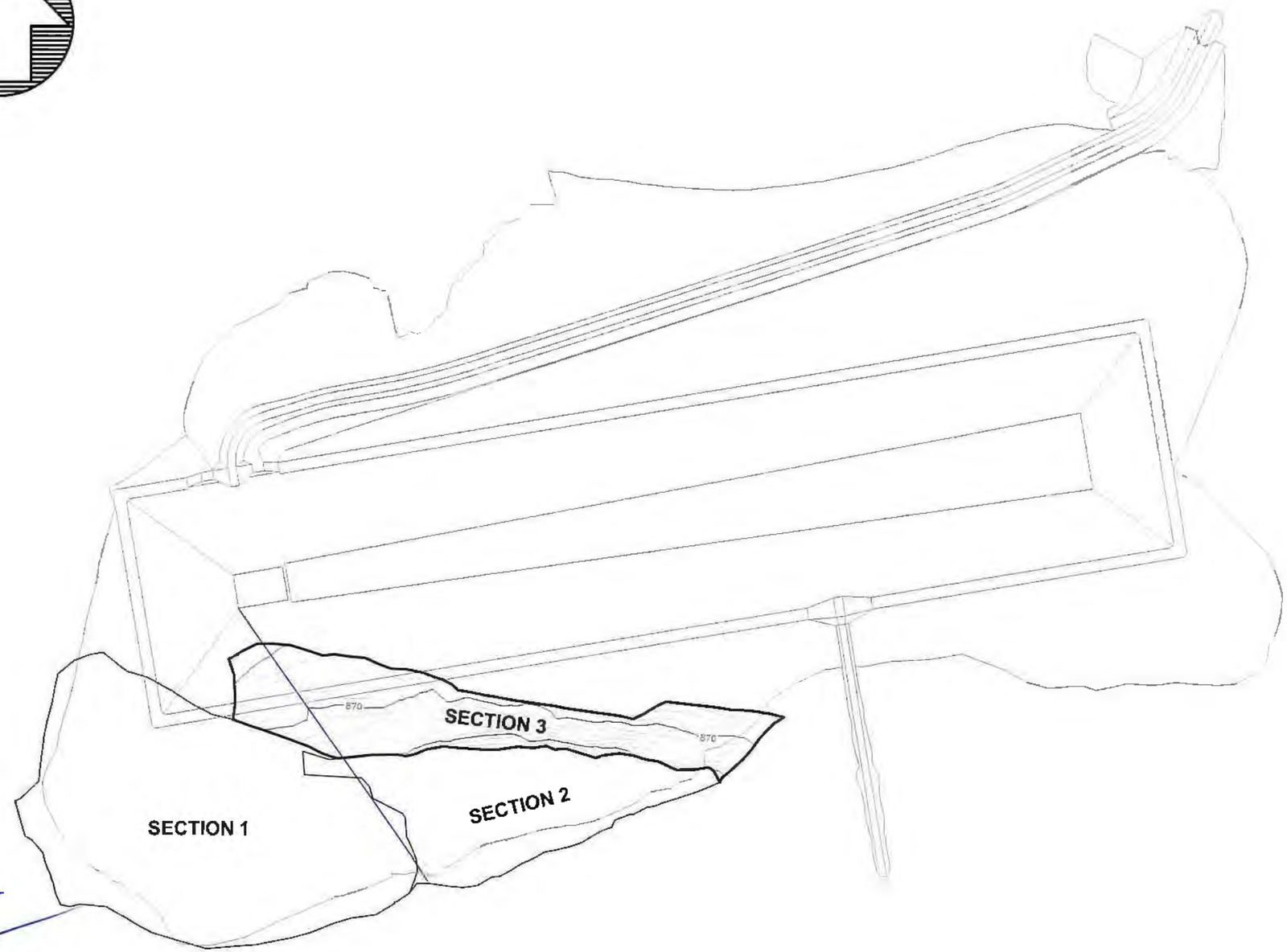
| | | | |
|---|---|---|---|
| DATE: | 18/10/03 | DWG No: | EP-001-S1 |
| SURVEYED: | J.C.B. / E.J. | CHECKED: | |
| DRAWN: | C.M. | APPROVED: | |

**DRAWING FILE:** 181003 EP-001-S1 FOUNDATION APPROVAL_REV2.dwg

**DRAWING VIEW:** 11x17 Landscape

**PROJECT NO.:** 17003

**SHEET:** 001




Roy Morton
BGC
10-20-18

**REFERENCE DRAWINGS:**

| NO. | DRAWING FILE: |
|---|---|
| 01 | 180929 JDS EVENT POND AND DISCHARGE.dxf |

**DRAWING NOTES:**

1. SHOWING BGC APPROVED FOUNDATION SURFACE SECTION 3 IN THE EVENT POND.
2. SURFACE CONTOUR INTERVALS ARE SHOWN WITH MINOR CONTOURS EVERY 1M AND MAJOR CONTOURS EVERY 5M.
3. BLUE LINE REPRESENTS UNDERDRAIN DISCHARGE ALIGNMENT

**ISSUES:**

| REV. | YY/MM/DD | INIT. | DESCRIPTION |
|---|---|---|---|
| 0.0 | 18/10/20 | CM | ISSUED FOR INFORMATION |

**CLIENT:** Pelly Construction Ltd.

eshemuta Construction Surveyors

**PROJECT:** EAGLE GOLD MINE CONSTRUCTION

**TITLE:** EVENT POND FOUNDATION APPROVAL SECTION 3

**DRAWING SCALE:** H 1:2000

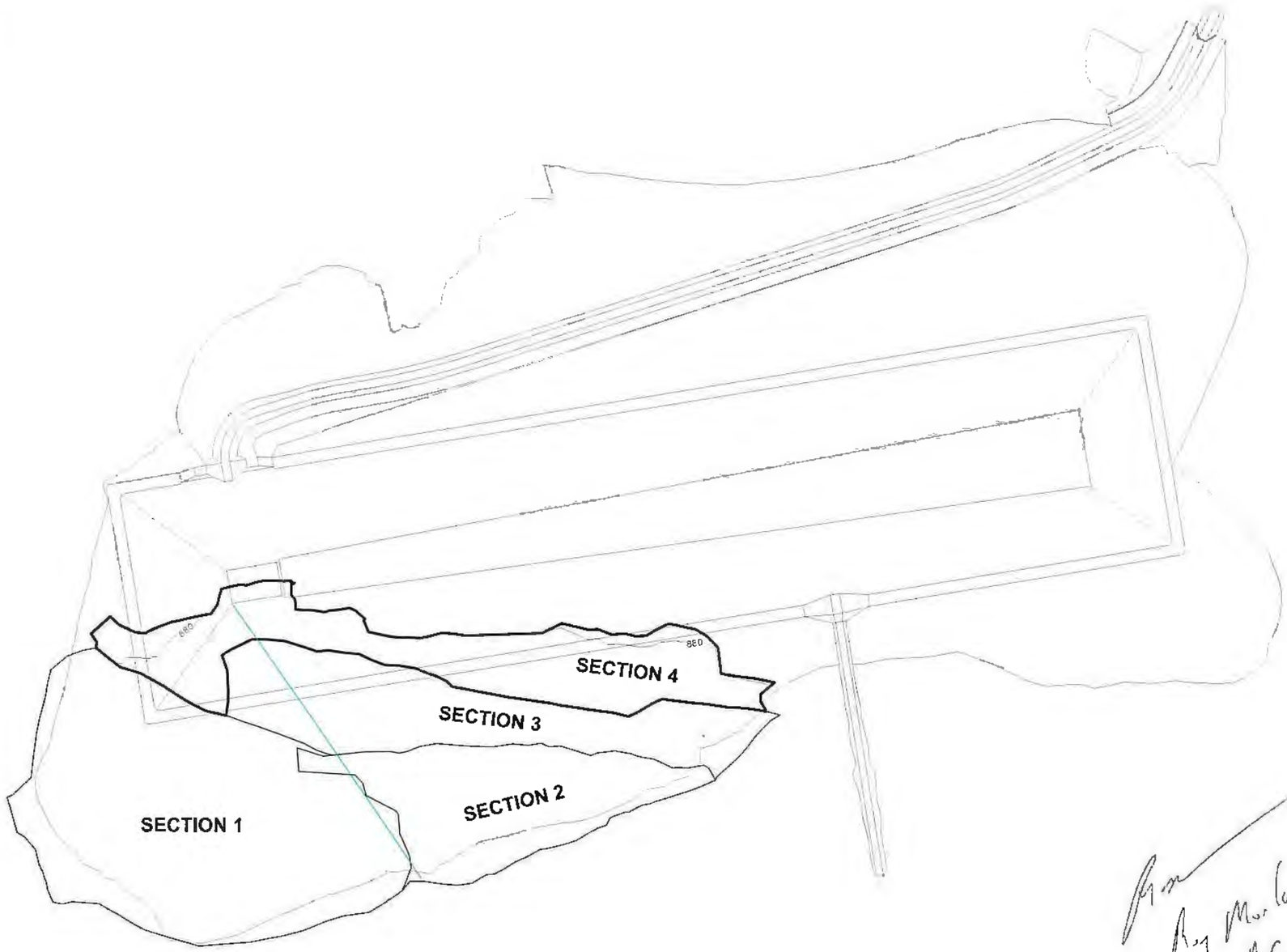
| | | | |
|---|---|---|---|
| DATE: | 18/10/20 | DWG No: | EP-001-S3 |
| SURVEYED: | TEAM | CHECKED: | |
| DRAWN: | C.M. | APPROVED: | |

**DRAWING FILE:** 181020 EP-001-S3 FOUNDATION APPROVAL.dwg

**DRAWING VIEW:** 11x17 Landscape

**PROJECT NO.:** 17003

**SHEET:** 001




**REFERENCE DRAWINGS:**

| NO. | DRAWING FILE: |
|---|---|
| 01 | 180929 JDS EVENT POND AND DISCHARGE.dxf |

**DRAWING NOTES:**

1. SHOWING BGC APPROVED FOUNDATION SURFACE SECTION 4 IN THE EVENT POND
3. UNDERDRAIN DISCHARGE ALIGNMENT SHOWN IN BLUE.
4. CONTOURS = 2m

**ISSUES:**

| REV. | YY/MM/DD | INIT. | DESCRIPTION |
|---|---|---|---|
| 0.0 | 18/10/24 | CB | ISSUED FOR INFORMATION |

**CLIENT:** Pelly Construction Ltd.

eshemuta Construction Surveyors

**PROJECT:** EAGLE GOLD MINE CONSTRUCTION

**TITLE:** EVENT POND FOUNDATION APPROVAL SECTION 4

**DRAWING SCALE:** H 1:2000

| | |
|---|---|
| DATE: 18/10/27 | DWG No: EP-001-S4 |
| SURVEYED: TEAM | CHECKED: |
| DRAWN: CB | APPROVED: |

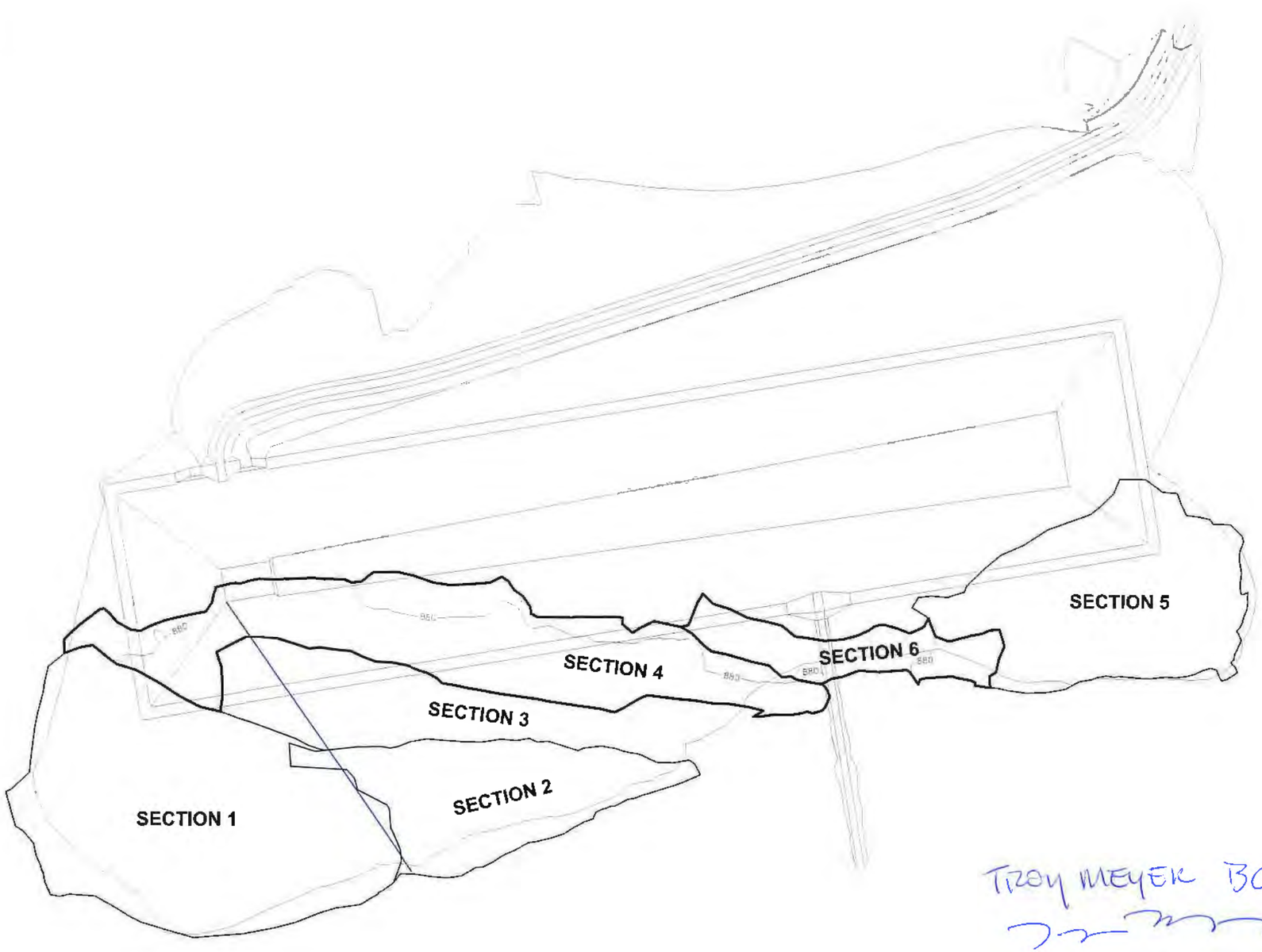
**DRAWING FILE:** 181024 EP-001-S4 FOUNDATION APPROVAL REV 3.dwg

**DRAWING VIEW:** 11x17 Landscape

**PROJECT NO.:** 17003

**SHEET:** 001

16-2-1-18




TROY MEYER BGC

**REFERENCE DRAWINGS:**

| NO. | DRAWING FILE: |
|---|---|
| 01 | 161021 EP LINEWORK WITH MERGED SW RE-DESIGN.dxf |

**DRAWING NOTES:**

1. SHOWING BGC APPROVED EVENT POND FOUNDATION SURFACE SECTIONS 4 REVISION 5 AND SECTION 6.
2. UNDERDRAIN DISCHARGE ALIGNMENT SHOWN IN BLUE
3. CONTOURS = 2m
4. SECTION APPROVALS ARE INSPECTED BY BGC FIELD REPRESENTATIVE BEFORE FOUNDATION TOPOGRAPHY IS SURVEYED.

**ISSUES:**

| REV. | YY/MM/DD | INIT. | DESCRIPTION |
|---|---|---|---|
| 0.0 | 18/11/14 | CM | ISSUED FOR INFORMATION |

CLIENT: Pelly Construction Ltd.

eshemuta Construction Surveyors

PROJECT: EAGLE GOLD MINE CONSTRUCTION

TITLE: EVENT POND FOUNDATION APPROVAL SECTION 4 REV 5 AND SECTION 6

DRAWING SCALE: H 1:2000

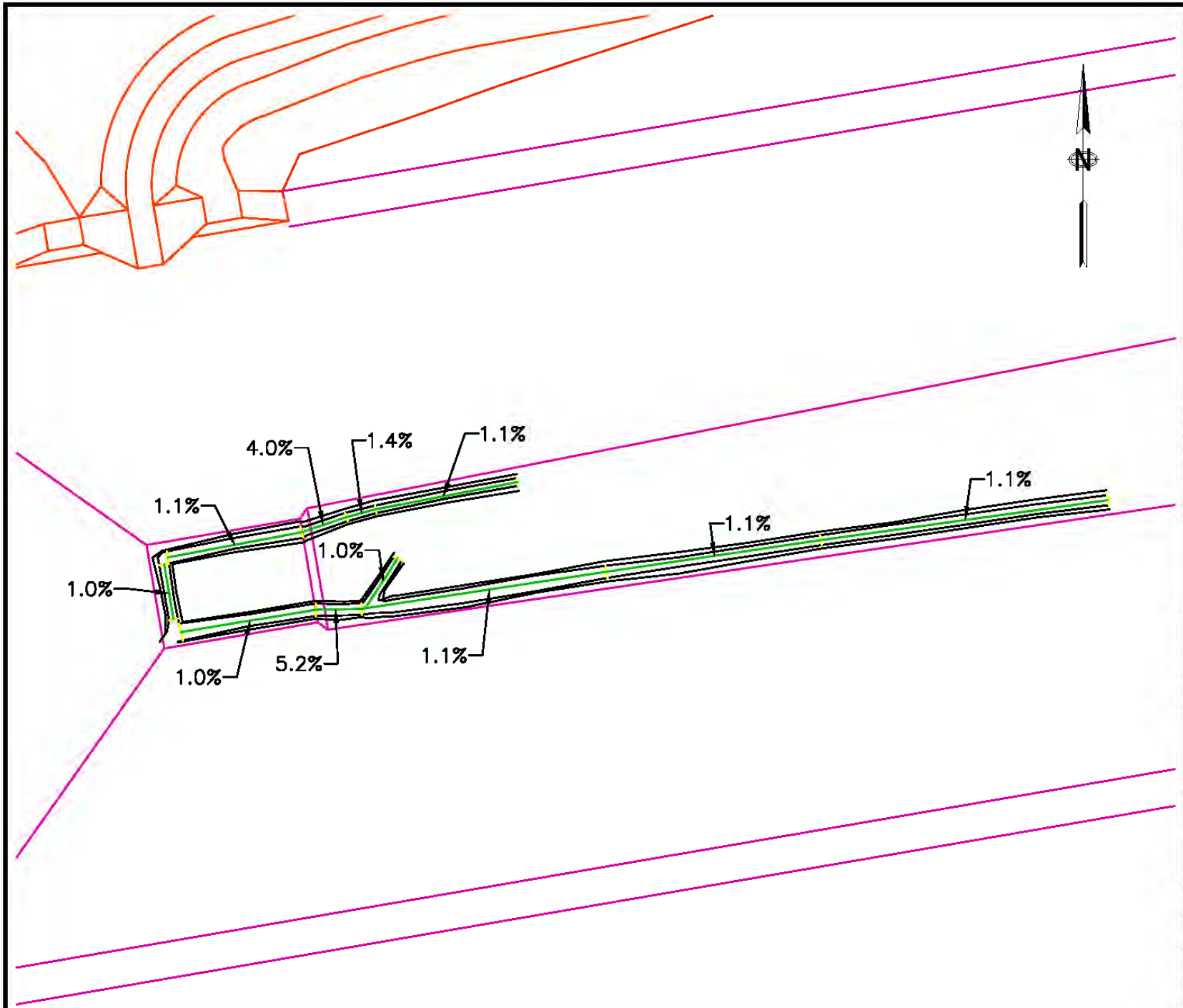
| | |
|---|---|
| DATE: 18/11/14 | DWG No: EP-001-S4 |
| SURVEYED: N.R. & J.C.B. | CHECKED: |
| DRAWN: C.M. | APPROVED: |

DRAWING FILE: 181114 EP-001-S6 FOUNDATION APPROVAL.dwg

DRAWING VIEW: 11x17 Landscape

PROJECT NO.: 17003

SHEET: 001




REFERENCE DRAWINGS:

| NO. | DRAWING FILE: |
|---|---|
| 01 | 181001 EP LINEWORK WITH MERGED SW RE-DESIGN.dwg |

DRAWING NOTES:

1. BLACK LINES REPRESENT EXCAVATED UNDERDRAIN TRENCH BREAKLINES.
2. GREEN LINES REPRESENT APPROX. AS-BUILT UNDERDRAIN TRENCH CENTERLINE.
3. PURPLE LINES REPRESENT EVENT POND DESIGN LINEWORK.
4. ORANGE LINE REPRESENT EVENT POND SPILLWAY DESIGN LINEWORK.

ISSUES:

| REV. | YYMMDD | INIT. | DESCRIPTION |
|---|---|---|---|
| 0.0 | 18/12/12 | CM | ISSUED FOR INFORMATION |

CLIENT: Pelly Construction Ltd.

eshemuta Construction Surveyors

PROJECT:

EAGLE GOLD MINE CONSTRUCTION

TITLE:

# EVENT POND AS-BUILT UNDERDRAIN TRENCH GRADES

DRAWING SCALE: H 1:750

| | | | |
|---|---|---|---|
| DATE: | 18/12/12 | DWG No: | |
| SURVEYED: | E.J. & C.M. | CHECKED: | |
| DRAWN: | C.M. | APPROVED: | |

DRAWING FILE: 181212 EP UNDERDRAIN TRENCH ASB.dwg

DRAWING VIEW: 8.5x11 Landscape

PROJECT NO.: 17003

SHEET: 001

# ATTACHMENT B

## Request for Information Forms

STRATAGOLD
EAGLE GOLD PROJECT

# REQUEST FOR INFORMATION

| | |
|---|---|
| EPCM RFI No.: | **Site Location:** Eagle Gold |
| Sub-Contractor RFI No.: CC204-RFI-006 | **Date Submitted:** May 02, 2018 |
| Subject: HLF Embankment Fill | Project Zone/Area: |
| **Sub-contractor: PELLY CONSTRUCTION LTD** | **Station/Location: HLF EMBANKMENT** |
| **Attention:** | **Discipline:** |

## REQUEST

| | |
|---|---|
| **Related Drawings:** | **Other Related Documents:** |

**Information Request/Description of Issue:**
**The material from the ADR plant excavation, some of which is designated to go into the heap leach embankment is getting hard to rip and may have to be blasted. Blasting of the ADR cut was not expected. The resulting material may not meet the contract criteria for embankment fill.**

**Proposed Corrective Action**
**See attached.**

**Type of Change:** ☐ Owner Change ☐ Clarification/Info ☐ Field Change ☐ Vendor Change x Design Change ☐ Other

| | |
|---|---|
| **Cost Impact:** | **Unknown until owner specifies alternate source, excepting quantity and unit price to haul rock material to waste dump.** |
| **Schedule Impact:** | **Depends on cost of developing alternate source and extra haul.** |

**Requested by:** DAN RUSSELL (Name) (Signature) May 1/2018. (Date)

## RESPONSE

☐ Approved ☒ Approved as noted ☐ Rejected as noted

**Response:**

See BGC Attachment for approval details.

**Answered by:** Roy Morlan, BGC Engineering (Name) Roy Morlan (Signature) May 10, 2018 (Date)

*Note: Response to this RFI does not constitute authorization to perform a change to any Contract. The Requestor may proceed with the response only on the basis*

The borrow for use as general fill is defined as "course grained colluvial/alluvial soils or weathered bedrock with little or no ice content and/or coarse grained sands and gravels with zones of variable ice content." The excavated material coming from the ADR cut is beginning to turn hard. If it continues to be rippable it should meet the criteria for weathered bedrock which is within specification.

Should the material become unrippable, it will be necessary to complete the excavation by drilling and blasting, the resulting material should still be quite satisfactory and is likely to be denser than the specified general fill and still be porous enough to better aid in the prevention of pore pressure build up from moisture entering the embankment from the insitu contacts. Good consolidation can be achieved by placing the material in 0.5 meter lifts and consolidating by cat packing and passing over each lift with a vibratory compactor equipped with Elliot Grid drum surface. Any pieces larger than can be accommodated in the lift could be bladed off of the fill. There would be no change in the unit prices other than the drill and blast costs that will be incurred in any case.

If the use of shot rock is not permitted in the embankment, the alternative is to take that material to the waste dump and replace it with other material which may be very hard to source nearby. This would raise the cost of the embankment fill considerably.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

# Response to CC204-RFI-006

| | | | |
|---|---|---|---|
| **To:** | **D'Arcy Comerford** | **Project:** | **Eagle Gold HLF** |
| **Company:** | **JDS** | **Project No.** | **0792021** |
| **From:** | **Roy Morlan** | **Date:** | **May 10, 2018** |
| **Copied:** | **Troy Meyer; Dan Granda** | **Record:** | **Response to CC204-RFI-006** |

**Re: Response to CC204-RFI-006:**

## 1.0 INTRODUCTION AND OBJECTIVE

Use of rock generated from blasting for Rockfill as a substitution for structural fill is permittable. A final determination of Rockfill suitability should be evaluated by BGC once the material is generated. In general, Rockfill used in the embankment should conform with the following:

- Shot-rock will generally be allowed provided it meets the requirements for Rockfill in the project specifications.
- The rockfill shall generally have 300 mm maximum rock particle size and oversized rocks larger than 300 mm shall be removed to the exterior fill slopes. Rocks larger than 300 mm may be incorporated in thicker fill lifts provided the rocks do not protrude from the lift surfaces after compaction and the required compaction of the lifts is proven achievable by a test fill.
- Larger particles (>8”) should have a rock strength of at least an R3 on the International Society of Rock Mechanics Field Identification Hardness Scale.
- A test fill should be performed using the Rockfill material to determine the lift size and compaction/wetting method. A lift thickness of 50cm has been proposed by Pelly and can be tested with a test fill. The max Rockfill particle size should be 2/3 the lift thickness. Therefore, a 50cm lift would require a maximum particle size of 33cm (13 -inches). Other lift thicknesses can also be tested depending on the maximum particle sizes being generated.
- Rockfill and Structural Fill lifts cannot be interbedded. Rockfill and Structural Fill materials cannot be interchanged during construction of a single lift. Zones defined in EPCM-RFI-002 should be maintained.
- A method for keying the rockfill and structural fill zones should be proposed by Pelly and reviewed by BGC. It should include the equipment proposed to do the work.

- The QC program for Rockfill placement at the embankment will be developed by BGC after the test fill observations.

STRATAGOLD
EAGLE GOLD PROJECT

# REQUEST FOR INFORMATION

| | |
|---|---|
| EPCM RFI No.: | **Site Location:** Eagle Gold |
| Sub-Contractor RFI No.: RFI-007 | **Date Submitted:** May 9, 2018 |
| Subject: HLF Underdrain Closure Drain Pipes | Project Zone/Area: HLF Embankment |
| **Sub-contractor: Pelly Construction** | **Station/Location: HLF Embankment** |
| **Attention:** | **Discipline:** |

**REQUEST**

| | |
|---|---|
| **Related Drawings:**<br>**BGC EGHLF-XD-03-05**<br>**BGC EGHLF-XD-05-05** | **Other Related Documents:** |

**Information Request/Description of Issue:**

**On the drawing 03-05, the Closure Drain Pipe specification is 150mm SDR 11 HPDE. On the details section drawing 05-05, the Closure Drain Pipe specification is 300mm SDR 9 HPDE.**

**Proposed Corrective Action**

**Please advise on the correct specification for the Closure Drain Pipes.**

**Type of Change:** ☐ Owner Change ☐ Clarification/Info ☐ Field Change ☐ Vendor Change ☐ Design Change ☐ Other

| | |
|---|---|
| **Cost Impact:** | |
| **Schedule Impact:** | |

**Requested by:** **Shipeng Zheng** **2018-05-09**

Name Signature Date

**RESPONSE**

☐ Approved ☐ Approved as noted ☐ Rejected as noted

**Response:**

The closure drain pipe depicted in Closure Sump and Piping Plan detail 37 from drawing number EGHLF-XD-05-05 should be 150mm SDR 11 HDPE. None of the closure drain pipe should be 300mm SDR 9 HDPE. This drawing will be revised and reissued.

**Answered by:**

Name Roy Morlan Signature Roy Morlan Date May 10, 2018

*Note: Response to this RFI does not constitute authorization to perform a change to any Contract. The Requestor may proceed with the response only on the basis that the Requestor agrees that it is not a contract change. If the Requestor believes that the response does constitute a contract change, the Requestor shall immediately notify JDS. Work undertaken without JDS written authorization is at the Sub-contractor's risk and expense.*

**STRATAGOLD**
**EAGLE GOLD PROJECT**

# REQUEST FOR INFORMATION

| | |
|---|---|
| EPCM RFI No.: | **Site Location:** Eagle Gold |
| Sub-Contractor RFI No.: RFI-008 | **Date Submitted:** May 12, 2018 |
| Subject: HLF Underdrain Pipe Fusing | Project Zone/Area: HLF Embankment |
| **Sub-contractor: Pelly Construction** | **Station/Location: HLF Embankment** |
| **Attention:** | **Discipline:** |

## REQUEST

| | |
|---|---|
| **Related Drawings:**<br>**BGC EGHLF-XD-03-03**<br>**BGC EGHLF-XD-03-04**<br>**BGC EGHLF-XD-03-05** | **Other Related Documents:** |

**Information Request/Description of Issue:**

**Pelly is requesting the approval to use electrofusion in the construction of joints in the HLF underdrain piping system. Electrofusion will be substituted for butt fusing where the procedure is more feasible.**

**Proposed Corrective Action**

**Please advise if electrofusion is a suitable substitution for butt fusing.**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Type of Change:** | ☐ | Owner Change | ☒ | Clarification/Info | ☐ | Field Change | |
| | ☐ | Vendor Change | ☐ | Design Change | ☐ | Other | |

| | |
|---|---|
| **Cost Impact:** | |
| **Schedule Impact:** | |

| | | | |
|---|---|---|---|
| **Requested by:** | **Dean Serelo** | | **2018-05-12** |
| | Name | Signature | Date |

## RESPONSE

☐ Approved ☒ Approved as noted ☐ Rejected as noted

**Response:**
See attached response.

**Answered by:**

Name Roy Morlan Signature Roy Morlan Date May 23, 2018

*Note: Response to this RFI does not constitute authorization to perform a change to any Contract. The Requestor may proceed with the response only on the basis that the Requestor agrees that it is not a contract change. If the Requestor believes that the response does constitute a contract change, the Requestor shall immediately notify JDS. Work undertaken without JDS written authorization is at the Sub-contractor's risk and expense.*

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# Response to CC204-RFI-008

| | | | |
|---|---|---|---|
| **To:** | **Calvin Goldschmidt** | **Project:** | **Eagle Gold HLF** |
| **Company:** | **JDS** | **Project No.** | **0792021** |
| **From:** | **Roy Morlan** | **Date:** | **May 23, 2018** |
| **Copied:** | **Troy Meyer; Dan Granda** | **Record:** | **Response to CC204-RFI-008** |

**Re: Response to CC204-RFI-008:**

## 1.0 RESPONSE

The use of electro-fusion is conditionally approved as a general replacement for butt-fusion in the underdrains at the embankment, HLF, and event pond. Conditions to this approval are as follows:

-Butt fusing is the preferred method. Electro fusion should only be used where butt fusion is not practical (ie limited space, equipment not available, ect).

-Fusion should be performed in strict adherence to the manufactures recommendations and applicable ASTM standards and that fusion should be performed by a qualified technician. The procedure should adhere to the manufacture's quality control requirements. Fusion procedures and QC plans should be reviewed by the engineer prior to use of this technique. BGC has already been provided the fusion equipment's operation manual.

- Pipe couplings at minimum need to meet the standards and specifications for the pipe they will be joining. Coupling specifications should be provided to the Engineer for review and inclusion in the construction record.

-Provide the Engineer with installation details and procedures ensuring and that the liner system and geotextiles will be protected from puncture or tearing if the pipe and couplings are moved across or placed on these surfaces.

-Joints should not be dragged across uneven, jagged, or rocky ground and fills. If this becomes necessary the Constructor should review the process for dragging the pipe with the Engineer.

STRATAGOLD
EAGLE GOLD PROJECT

# REQUEST FOR INFORMATION

| | |
|---|---|
| EPCM RFI No.: | **Site Location:** Eagle Gold |
| Sub-Contractor RFI No.: RFI-009 | **Date Submitted:** May 14, 2018 |
| Subject: HLF Design Materials Take Off List | Project Zone/Area: HLF Phase 1 |
| **Sub-contractor: Pelly Construction** | **Station/Location: HLF Phase 1** |
| **Attention:** | **Discipline:** |

## REQUEST

| | |
|---|---|
| **Related Drawings:**<br>**All Drawings included in *EAGLE GOLD PROJECT HEAP LEACH FACILITY PHASE 1 FINAL DESIGN*** | **Other Related Documents:** |

**Information Request/Description of Issue:**

**Pelly is requesting to be provided with the design materials take off list for the *Eagle Gold Project Heap Leach Facility Phase 1 Final Design* IFC drawings package**

**Proposed Corrective Action**

**N/A**

**Type of Change:** ☐ Owner Change ☐ Clarification/Info ☐ Field Change ☐ Vendor Change ☐ Design Change ☐ Other

| | |
|---|---|
| **Cost Impact:** | |
| **Schedule Impact:** | |

**Requested by:** **Dean Serelo** **2018-05-14**

Name Signature Date

## RESPONSE

☐ Approved ☐ Approved as noted ☐ Rejected as noted

**Response:**

*EPCM provided Pelly with an EPCM generated materials take-off via email on April 8th and attached for convenience. EPCM instructs the Contractor to perform their own materials takeoff as the Contractor is responsible for supply and installation of all materials. The EPCM materials list provided should be used as guidance only. Any variation to the provided take-off shall be noted by the contractor when returning the updated unit pricing for the selected items.*

**Answered by:** D'Arcy Comerford 2018-05-18

Name Signature Date

*Note: Response to this RFI does not constitute authorization to perform a change to any Contract. The Requestor may proceed with the response only on the basis that the Requestor agrees that it is not a contract change. If the Requestor believes that the response does constitute a contract change, the Requestor shall immediately notify JDS. Work undertaken without JDS written authorization is at the Sub-contractor's risk and expense.*

STRATAGOLD
EAGLE GOLD PROJECT

# REQUEST FOR INFORMATION

| | |
|---|---|
| EPCM RFI No.: | **Site Location:** Eagle Gold |
| Sub-Contractor RFI No.: RFI-009 | **Date Submitted:** May 14, 2018 |
| Subject: HLF Design Materials Take Off List | Project Zone/Area: HLF Phase 1 |
| **Sub-contractor: Pelly Construction** | **Station/Location: HLF Phase 1** |
| **Attention:** | **Discipline:** |

## REQUEST

| | |
|---|---|
| **Related Drawings:**<br>**All Drawings included in *EAGLE GOLD PROJECT HEAP LEACH FACILITY PHASE 1 FINAL DESIGN*** | **Other Related Documents:** |

**Information Request/Description of Issue:**

**Pelly is requesting to be provided with the design materials take off list for the *Eagle Gold Project Heap Leach Facility Phase 1 Final Design* IFC drawings package.**

**Proposed Corrective Action**

**N/A**

| | | | | | |
|---|---|---|---|---|---|
| **Type of Change:** | ☐ | Owner Change | ☐ | Clarification/Info | ☐ Field Change |
| | ☐ | Vendor Change | ☐ | Design Change | ☐ Other |

| | |
|---|---|
| **Cost Impact:** | |
| **Schedule Impact:** | |

| | | | |
|---|---|---|---|
| **Requested by:** | **Dean Serelo** | | **2018-05-14** |
| | Name | Signature | Date |

## RESPONSE

☐ Approved ☐ Approved as noted ☒ Rejected as noted

**Response:**

Material take-off quantities were developed and provided to Pelly by JDS. Pelly should request quantity clarifications from JDS. If additional clarifications on quantities is needed the request should come to BGC through a JDS RFI.

**Answered by:**

Name Roy Morlan Signature Roy Morlan Date May 17, 2018

*Note: Response to this RFI does not constitute authorization to perform a change to any Contract. The Requestor may proceed with the response only on the basis that the Requestor agrees that it is not a contract change. If the Requestor believes that the response does constitute a contract change, the Requestor shall immediately notify JDS. Work undertoken without JDS written authorization is at the Sub-contractor's risk and expense.*

**STRATAGOLD**
**EAGLE GOLD PROJECT**

# REQUEST FOR INFORMATION

| | |
|---|---|
| EPCM RFI No.: | **Site Location:** Eagle Gold |
| Sub-Contractor RFI No.: RFI-010 | **Date Submitted:** May 15, 2018 |
| Subject: Horizontal Liner Seams | Project Zone/Area: HLF Phase 1 |
| **Sub-contractor: Pelly Construction** | **Station/Location: HLF Phase 1** |
| **Attention:** | **Discipline:** |

## REQUEST

| | |
|---|---|
| **Related Drawings:** | **Other Related Documents:**<br>**BGC Eagle Gold Project**<br>**Technical Specifications – Heap Leach Facility**<br>**Geomembrane – 4.1.7.1** |

**Information Request/Description of Issue:**

**Layfield liner contractor is requesting change to specification 4.1.7.1 to approve horizontal seams throughout project.**

**Proposed Corrective Action**

**Change specification 4.1.7.1 to allow for horizontal seams throughout the project. See attached documents for details.**

| | | | | | |
|---|---|---|---|---|---|
| **Type of Change:** | ☐ | Owner Change | ☐ | Clarification/Info | ☐ Field Change |
| | ☐ | Vendor Change | ☐ | Design Change | ☐ Other |
| **Cost Impact:** | | | | | |
| **Schedule Impact:** | **Potential to maintain or increase schedule** | | | | |

| | | | |
|---|---|---|---|
| **Requested by:** | **Dean Serelo** | | **2018-05-15** |
| | Name | Signature | Date |

## RESPONSE

☐ Approved ☒ Approved as noted ☐ Rejected as noted

**Response:**

Horizontal seams shall be allowed on slopes up to 2.5H:1V. Steeper slopes shall not have horizontal seams without the permission of the Engineer. Horizontal seams must be staggered at different elevations across the slope. No horizontal seams shall be within 2m of the toe or crest of a slope.

| | | | |
|---|---|---|---|
| **Answered by:** | Troy Meyer | | 15 May 2018 |
| | Name | Signature | Date |

*Note: Response to this RFI does not constitute authorization to perform a change to any Contract. The Requestor may proceed with the response only on the basis that the Requestor agrees that it is not a contract change. If the Requestor believes that the response does constitute a contract change, the Requestor shall immediately notify JDS. Work undertaken without JDS written authorization is at the Sub-contractor's risk and expense.*

LAYFIELD
CANADIAN PRAIRIES

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17720 – 129 Avenue NW, Edmonton, AB T5V 0C4 Canada

■ Phone: 780 451-7239
■ Fax: 780 455-5218

■ Web: www.layfieldgroup.com

# Request for Information

| | | | |
|---|---|---|---|
| **Contract Title** | Eagle Gold Heap Leach | **Date Issued** | May 11, 2018 |
| **Client** | Pelly | **RFI #** | 01 |
| **Contract #** | 27233 | **Revision #** | 00 |
| **Layfield Project #** | CT001045 | **Layfield Originator** | Jason Wheeler |

**Type:** Change specifications to have horizontal seams approved throughout project

**Description:** We would like to change the specification in 4.1.7.1. to allow for horizontal seams throughout the project. Most of the project will be at 3H:1V and is allowable as per spec but we are hoping we can avoid delays during installation and have horizontal seams approved in advance instead of cutting at 45 degree angles.

**Schedule Impact:** Should help maintain or increase our schedule as we have many cross seams to do.

**Total Value of Change:** Quicker installation and less wasted material

**Attached Drawings and/or Documents:** Proposed Layout plans, Shear testing results

**Response Required by:** May 30, 2018

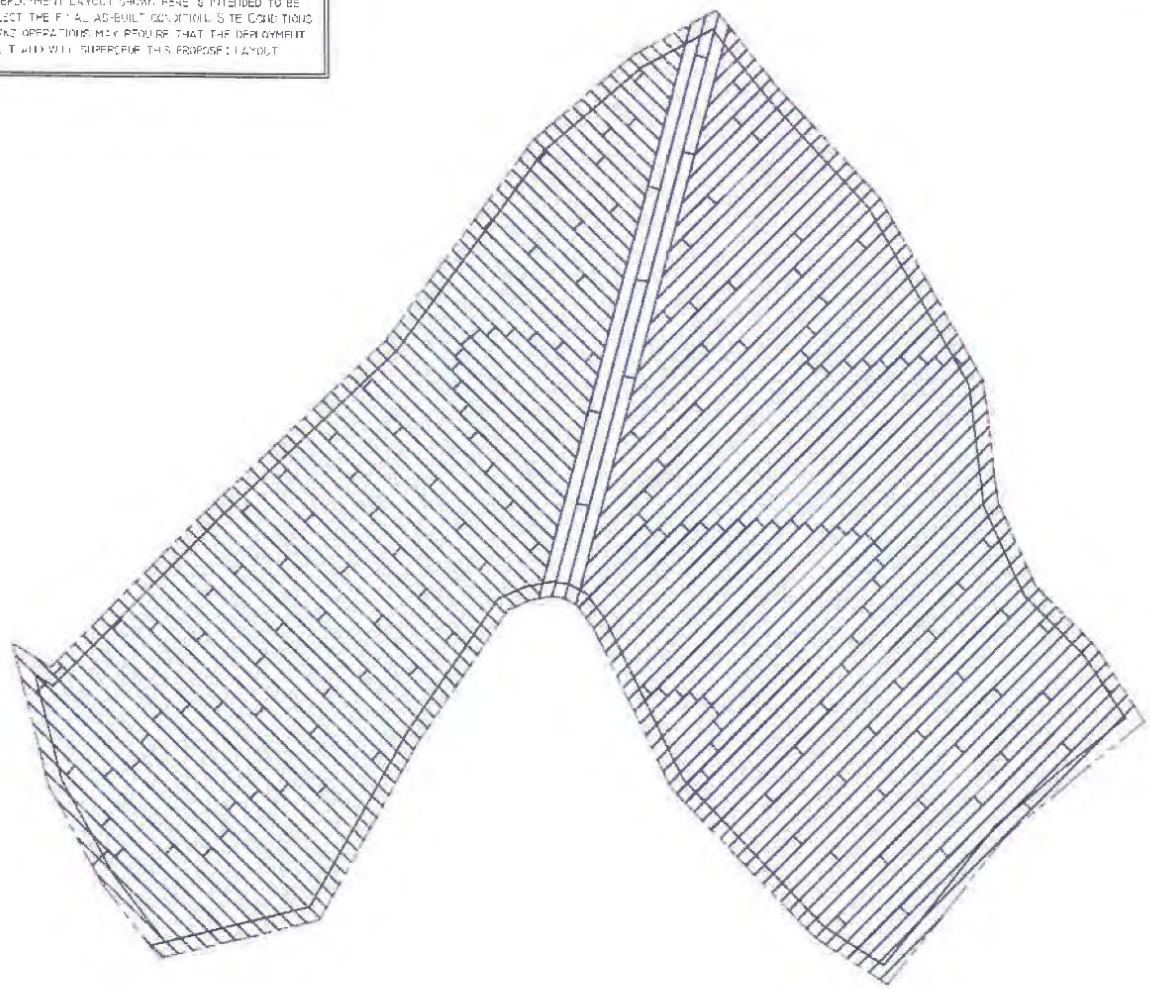
**Client Response:**

**Name & Title:**

**Signature:**

**Date:**

THE PROPOSED LINER PANEL DEPLOYMENT LAYOUT SHOWN HERE IS INTENDED TO BE CONCEPTUAL AND MAY NOT REFLECT THE FINAL AS-BUILT CONDITIONS SITE CONDITIONS AND SEQUENCING OF EARTHWORKS OPERATIONS MAY REQUIRE THAT THE DEPLOYMENT LAYOUT BE CHANGED TO SUIT AND WILL SUPERCEDE THIS PROPOSED LAYOUT



# 80MIL LLDPE DST LINER - CONCEPTUAL PANEL LAYOUT

SUBJECT TO CHANGE TO SUIT CONDITIONS IN THE FIELD

LEGEND

ANCHOR TRENCH AND SLOPE FACTOR

NOTES

LAYFIELD

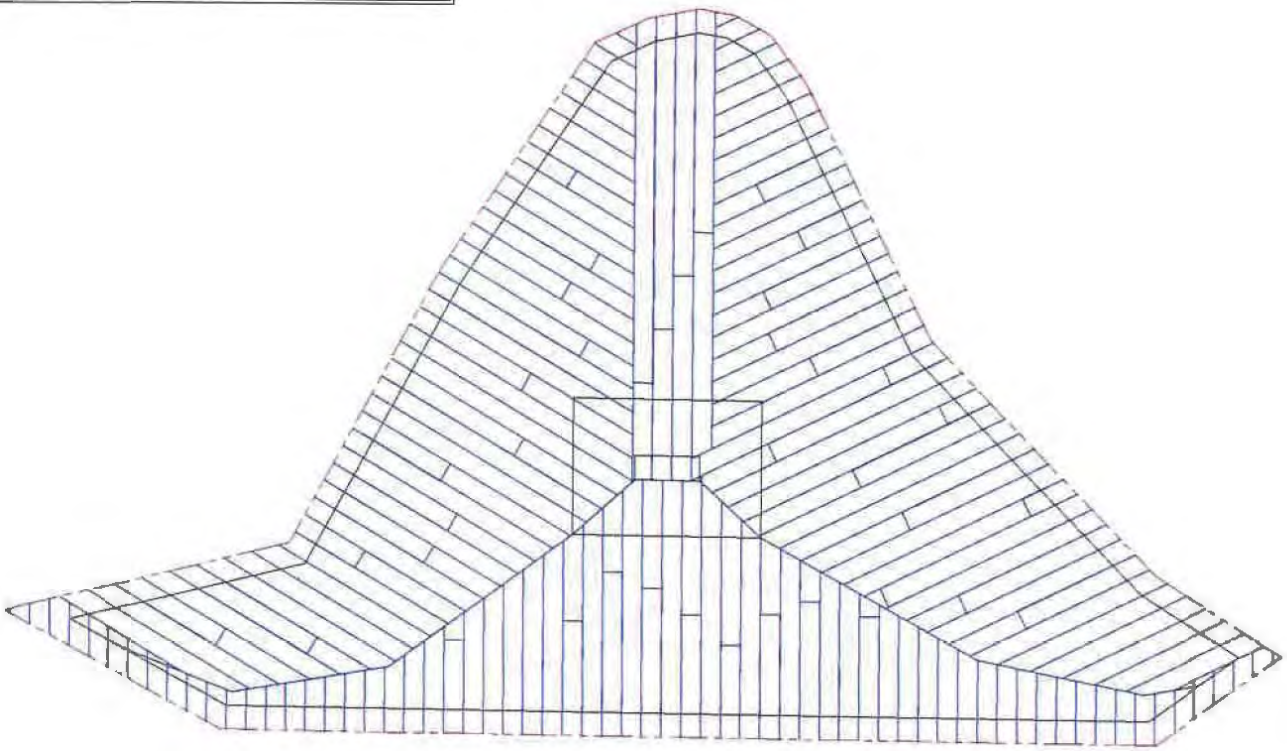
EAGLE GOLD MINE
HEAP LEACH - PHASE IA
CONCEPTUAL PANEL LAYOUT
STRATA GOLD CORPORATION
MAYO, YT

| | |
|---|---|
| P10348 | CT00XXX |

| | | |
|---|---|---|
| 1 OF 1 | | |
| | | |
| | | |

ANSI B Size Page (Horizontal)

THE PROPOSED LINER PANEL DEPLOYMENT LAYOUT SHOWN HERE IS INTENDED TO BE CONCEPTUAL AND MAY NOT REFLECT THE FINAL AS-BUILT CONDITION. SITE CONDITIONS AND SEQUENCING OF EARTHWORKS OPERATIONS MAY REQUIRE THAT THE DEPLOYMENT LAYOUT BE CHANGED TO SUIT AND WILL SUPERCEDE THIS PROPOSED LAYOUT



LEGEND

ANCHOR TRENCH AND SLOPE FACTOR

NOTES

LAYFIELD

EAGLE GOLD MINE
IN-HEAP POND
CONCEPTUAL PANEL LAYOUT
STRATA GOLD CORPORATION
MAYO, YT

# 80MIL LLDPE DST LINER - CONCEPTUAL PANEL LAYOUT

SUBJECT TO CHANGE TO SUIT CONDITIONS IN THE FIELD

ANSI B Size Page (Horizontal)

Shear Testing of avg. 8" sample of Tex 2 side 80 mil LLDPE
Minimum Pass is 120lb/in

| Sample At 45 Degree angle | | | |
|---|---|---|---|
| Sample # | Width/in | Result | lb/in |
| 1 | 7.625 | 1543 | 202.3607 |
| 2 | 8 | 1555 | 194.375 |
| 3 | 7.125 | 1377 | 193.2632 |
| | | Avg. | 196.6663 |

| Sample at 90 Degree angle | | | |
|---|---|---|---|
| Sample # | Width | Result | lb/in |
| 1 | 8 | 1524 | 190.5 |
| 2 | 7.875 | 1506 | 191.2381 |
| 3 | 8 | 1521 | 190.125 |
| | | Avg. | 190.621 |

STRATAGOLD
EAGLE GOLD PROJECT

# REQUEST FOR INFORMATION

| | |
|---|---|
| EPCM RFI No.: | **Site Location:** Eagle Gold |
| Sub-Contractor RFI No.: RFI-012 | **Date Submitted:** May 16, 2018 |
| Subject: HLF Steel Pipe Specifications and Construction | Project Zone/Area: HLF Phase 1 |
| **Sub-contractor: Pelly Construction** | **Station/Location: HLF Phase 1** |
| **Attention:** | **Discipline:** |

## REQUEST

| | |
|---|---|
| **Related Drawings:**<br>**HLF PHASE 1 FINAL DESIGN (Issued For Construction)** | **Other Related Documents:**<br>**BGC-01163_EG18-002_HLF Final Design Report_Stamped** |

**Information Request/Description of Issue:**

(1) **Steel/Pipe specification. Please confirm specification for steel materials. Plans and Design Report call for ASTM 139 High Strength Low Alloy Steel (A606 Type 4). We understand that this specification provides some level of corrosion resistance. However, these materials are more difficult and expensive to procure, approximately double the cost before freight and fabrication considerations.**

(2) **Constructability. The long section of pipe and manifold systems will be onerous to cost and schedule, and create more risk to damaging liner if welding fabrication must occur within the sump areas.**

(3) **Information Request: geotextile wrapping of steel:plastic connections in LDRS and PLS sump systems, what is the purpose of this?**

(4) **N12 perf pipe specification. Some supplier vendors proposing socked material for parts of the scope.**

**Proposed Corrective Action**

(1) **There was verbal suggestion that all these steel pipe requirements in the HLF could be replaced with common stock steel, using schedule 40 pipe with typical ~150psi pressure rating. Pelly would like this confirmed in writing prior to procurement.**

(2) **Fabrication and installation will be more manageable and readily achieved with less risk to liner through use of segmented components that will be flanged together in the field.**

   a. **Pelly would like confirmation that using a flanged approach is acceptable.**
   b. **Pelly would like to know of any design constraints that these flanges must achieve to ensure same structural and performance integrity:**
      i. **Gasket material specification.**
      ii. **Hardware, bolt pattern specification**

(3) **N/A, clarification request.**

(4) **Pelly is seeking permission to use socked material if cost effective to procure.**

| | | | | | | |
|---|---|---|---|---|---|---|
| **Type of Change:** | ☐ | Owner Change | X | Clarification/Info | ☐ | Field Change |
| | ☐ | Vendor Change | X | Design Change | ☐ | Other |

| | |
|---|---|
| **Cost Impact:** | |
| **Schedule Impact:** | |

| | | | |
|---|---|---|---|
| **Requested by:** | **Dean Serelo** | | **2018-05-16** |
| | Name | Signature | Date |

## RESPONSE

**STRATAGOLD**
**EAGLE GOLD PROJECT**

☐ Approved ☐ Approved as noted ☑ Rejected as noted

**Response:**

BGC Response to Questions 3 and 4 attached to this document.

**Answered by:**

**Name** Roy Morlan **Signature** Roy Morlan **Date** May 19, 2018

*Note: Response to this RFI does not constitute authorization to perform a change to any Contract. The Requestor may proceed with the response only on the basis that the Requestor agrees that it is not a contract change. If the Requestor believes that the response does constitute a contract change, the Requestor shall immediately notify JDS. Work undertaken without JDS written authorization is at the Sub-contractor's risk and expense.*

BGC ENGINEERING INC.
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# Response to CC204-RFI-012

| | | | |
|---|---|---|---|
| **To:** | **Calvin Goldschmidt** | **Project:** | **Eagle Gold HLF** |
| **Company:** | **JDS** | **Project No.** | **0792021** |
| **From:** | **Roy Morlan** | **Date:** | **May 19, 2018** |
| **Copied:** | **Troy Meyer; Dan Granda** | **Record:** | **Response to CC204-RFI-012** |

**Re: Response to CC204-RFI-012:**

## 1.0 RESPONSE

Question 3: "Information request – geotextile wrapping of steel: plastic connections in LDRS and PLS Sump System, what is the purpose of this?"

Response: Secure geotextile wrapping of both sides of the steel: plastic connections are to decrease the risk of sediment infiltration. This wrapping may also serve as an extra layer of protection against damaging the geomembrane, depending on its location and application. Wrapping these connections were one of the recommendations made during a peer review of the project.

Questions 4: "N12 perf pipe specification. Some supplier vendors propose sock material for parts of the scope."

Wrapping of perforated, corrugated, N-12 PE pipes are not permitted due to potential reduction in permeability over time at the pipe slots.

STRATAGOLD
EAGLE GOLD PROJECT

# REQUEST FOR INFORMATION

| | |
|---|---|
| **EPCM RFI No.:** CC204_RFI-012 | **Site Location:** Eagle Gold |
| **Sub-Contractor RFI No.:** RFI-012 | **Date Submitted:** May 16, 2018 |
| **Subject:** Heap Leach Facility – Water Control | **Project Zone/Area:** HLF Phase 1 |
| **Sub-contractor:** Pelly Construction | **Station/Location:** HLF Phase 1 |
| **Attention:** | **Discipline:** |

**REQUEST**

| | | | | | | |
|---|---|---|---|---|---|---|
| **Type of Change:** | ☐ | Owner Change | ☒ | Clarification/Info | ☐ | Field Change |
| | ☐ | Vendor Change | ☒ | Design Change | ☐ | Other |

| | |
|---|---|
| **Related Drawings:** HLF PHASE 1 FINAL DESIGN (Issued For Construction) | **Other Related Documents:** BGC-01163-EG18-002_HLF Final Design Report_Stamped |

**Information Request/Description of Issue:**

1) Steel/Pipe specification. Please confirm specification for steel materials. Plans and Design Report call for ASTM 139 High Strength Low Alloy Steel (A606 Type 4). We understand that this specification provides some level of corrosion resistance. However, these materials are more difficult and expensive to procure, approximately double the cost before freight and fabrication considerations.
2) Constructability. The long section of pipe and manifold systems will be onerous to cost and schedule, and create more risk to damaging liner if welding fabrication must occur within the sump areas.
3) Information Request: geotextile wrapping of steel:plastic connections in LDRS and PLS sump systems, what is the purpose of this?
4) N12 perf pipe specification. Some supplier vendors proposing socked material for parts of the scope.

**Proposed Corrective Action**

1) There was verbal suggestion that all these steel pipe requirements in the HLF could be replaced with common stock steel, using schedule 40 pipe with typical ~150 psi pressure rating. Pelly would like this confirmed in writing prior to procurement.
2) Fabrication and installation will be more manageable and readily achieved with less risk to liner through use of segmented components that will be flanged together in the field.
    a. Pelly would like confirmation that using a flanged approach is acceptable.
    b. Pelly would like to know of any design constraints that these flanges must achieve to ensure same structural and performance integrity:
        i. Gasket material specification.
        ii. Hardware, bolt pattern specification
3) N/A, clarification request.
4) Pelly is seeking permission to use socked material if cost effective to procure.

| | |
|---|---|
| **Cost Impact:** | |
| **Schedule Impact:** | |

| | | | |
|---|---|---|---|
| **Requested by:** | Dean Serelo | | 2018-05-16 |
| | Name | Signature | Date |

| RESPONSE | | | | | |
|---|---|---|---|---|---|
| ☐ | Approved | ☐ | Approved as noted | ☒ | Rejected as noted |

**Response:**

**Item 1 of the RFI:** Pump Casings for Barren Solution Pumps:

Caution should be made with placement of the material around the pipe – There is some risk of ovalizing the pipe.

Go with 900mm x 12.7mm (or thicker) AWWA C200 pipe.
This pipe is spiral welded.
We should ensure the steel grade is A36 / A139 Gr B / A252 Gr. 2 as a minimum.

**Item 2 of the RFI:** We would expect that these headers can be fabricated using metal flanges – specification should be as per FLS pipe spec with

- Gasket, 3mm PTFE Garlock Blue-Gard 3000
- Bolts, Stud w/2 heavy Hex Nuts ASTM A193 GR B7/A194 GR 2H Nuts

**Answered by:**

Bruce Rustad Signature Date: 25 May 2018

Note: *Response to this RFI does not constitute authorization to perform a change to any Contract. The Requestor may proceed with the response only on the basis that the Requestor agrees that it is not a contract change. If the Requestor believes that the response does constitute a contract change, the Requestor shall immediately notify JDS. Work undertaken without JDS written authorization is at the Sub-contractor's risk and expense.*

**STRATAGOLD**
**EAGLE GOLD PROJECT**

# REQUEST FOR INFORMATION

| | |
|---|---|
| EPCM RFI No.: | **Site Location:** Eagle Gold |
| Sub-Contractor RFI No.: RFI-013 | **Date Submitted:** May 16, 2018 |
| Subject: Pipe Penetration in HLF Sump | Project Zone/Area: HLF Phase 1 |
| **Sub-contractor: Pelly Construction** | **Station/Location: HLF Phase 1** |
| **Attention:** | **Discipline:** |

**REQUEST**

| | |
|---|---|
| **Related Drawings:**<br>**EGHLF-XD-05-02** | **Other Related Documents:** |

**Information Request/Description of Issue:**

**Layfield liner contractor is requesting change to penetrating pipe boot. See attached document for details.**

**Proposed Corrective Action**

**Corrective actions for review in attached document.**

| | | | | | |
|---|---|---|---|---|---|
| **Type of Change:** | ☐ | Owner Change | ☐ | Clarification/Info | ☐ Field Change |
| | ☐ | Vendor Change | ☐ | Design Change | ☐ Other |
| **Cost Impact:** | | | | | |
| **Schedule Impact:** | | | | | |

| | | | |
|---|---|---|---|
| **Requested by:** | **Dean Serelo** | | **2018-05-16** |
| | Name | Signature | Date |

**RESPONSE**

☐ Approved ☒ Approved as noted ☐ Rejected as noted

**Response:**

Option 1 is acceptable as explained in this RFI and on Layfield drawing 08-01-01 HDPE Plate and HDPE Pipe System LLDPE Liner Connection. HDPE plate should be fused or prefabricated around the entire circumference of the pipe to ensure no seepage along the outside pipe walls.

Option 2 is acceptable as shown in Layfield drawing 08-01-01 Slope Pipe Boot.

**Answered by:**

| | | | |
|---|---|---|---|
| Roy Morlan | Name | Signature Roy Morlan | Date May 17, 2018 |

*Note: Response to this RFI does not constitute authorization to perform a change to any Contract. The Requestor may proceed with the response only on the basis that the Requestor agrees that it is not a contract change If the Requestor believes that the response does constitute a contract change, the Requestor shall immediately notify JDS. Work undertaken without JDS written authorization is at the Sub-contractor's risk and expense.*

LAYFIELD
CANADIAN PRAIRIES

**LAYFIELD CANADA LTD.**
17720 – 129 Avenue NW, Edmonton, AB T5V 0C4 Canada
■ Phone: 780 451-7239
■ Fax: 780 455-5218
■ Web: www.layfieldgroup.com

# Request for Information

| | | | |
|---|---|---|---|
| **Contract Title** | Eagle Gold Heap Leach | **Date Issued** | May 16, 2018 |
| **Client** | Pelly | **RFI #** | 02 |
| **Contract #** | 27233 | **Revision #** | 00 |
| **Layfield Project #** | CT001045 | **Layfield Originator** | Jason Wheeler |

**Type:** Change specifications to have horizontal seams approved throughout project

**Description:** On drawing Number EGHLF-XD-05-02 PLS, LDRS & CLOSURE SUMP DETAIL 22, in the closure sump the drawing shows a boot that is inverted and going into the slope. Layfield will not be able to install a boot like this in the field. We would like to propose 2 options for review:

1. If the pipe installation/fusing crew deems it possible installs a HDPE plate at the location where the pipe meets the slope at the proper slope factor. Layfield can attach to the HDPE plate when we are installing the liner system
2. We install a typical sloped pipe boot which would be going into the pond. We will be able to do this when on site for the liner installation

**Schedule Impact:** Would need to install the boot during slope construction. Chances of the skirt left to attach to being damaged and not repairable is very high

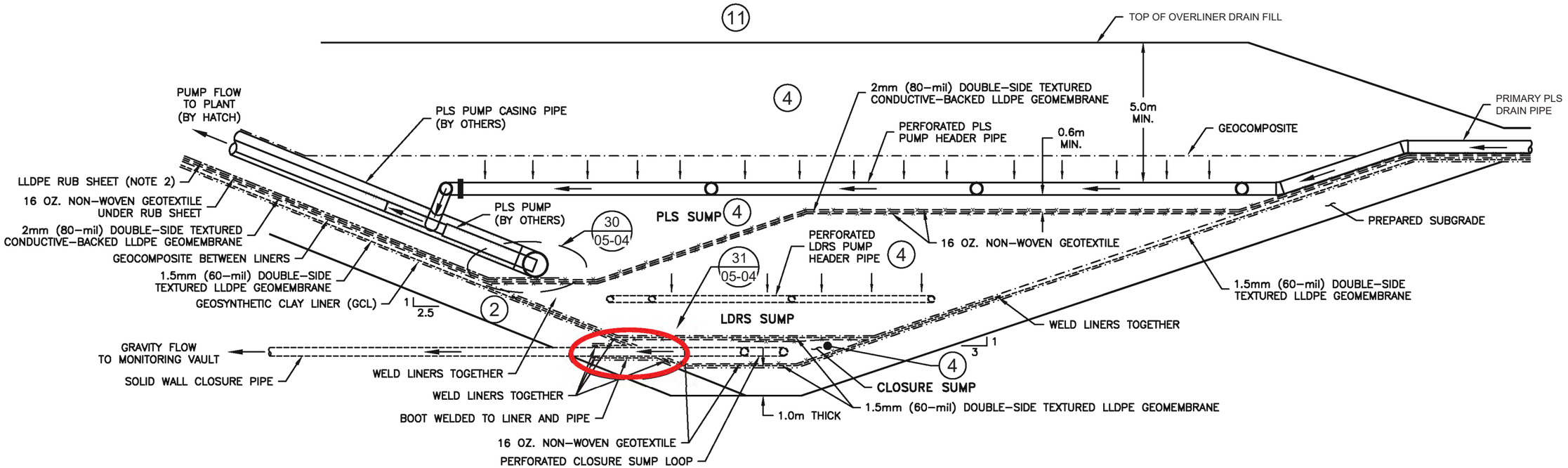
**Total Value of Change:** N/A

**Attached Drawings and/or Documents:** Typical sloped pipe boot penetration detail, HDPE plate to pipe penetration, copy of drawing in question

**Response Required by:** May 30, 2018

**Client Response:**

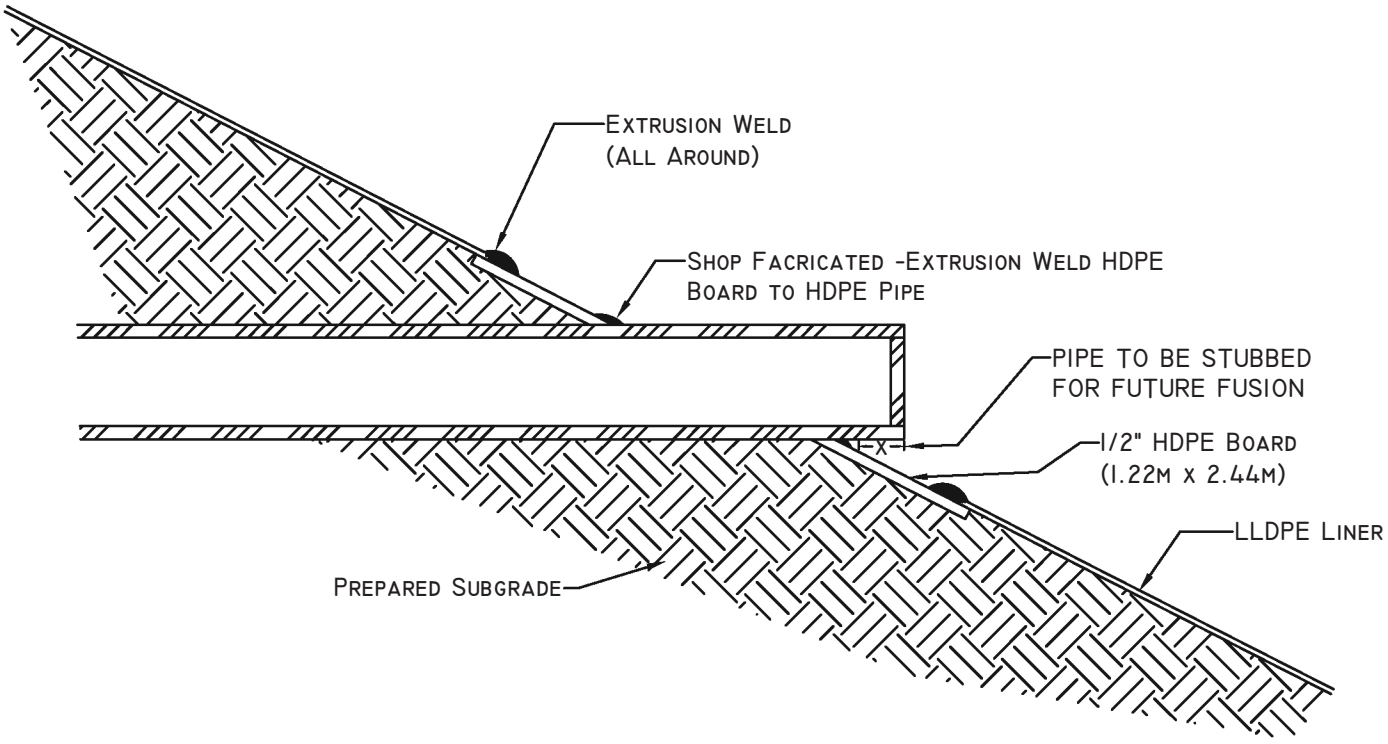
**Name & Title:**




PLS, LDRS & CLOSURE SUMP DETAIL 22 / 05-01

File Name: LS-04-QF-001

| No. | Revisions | Date (MM/DD/YY) | By |
|---|---|---|---|




# HDPE PLATE AND HDPE PIPE SYSTEM
# LLDPE LINER CONNECTION

LAYFIELD CANADA LTD.

Standard Detail

Pipe Penetration

DRAWING No.
08-01-01

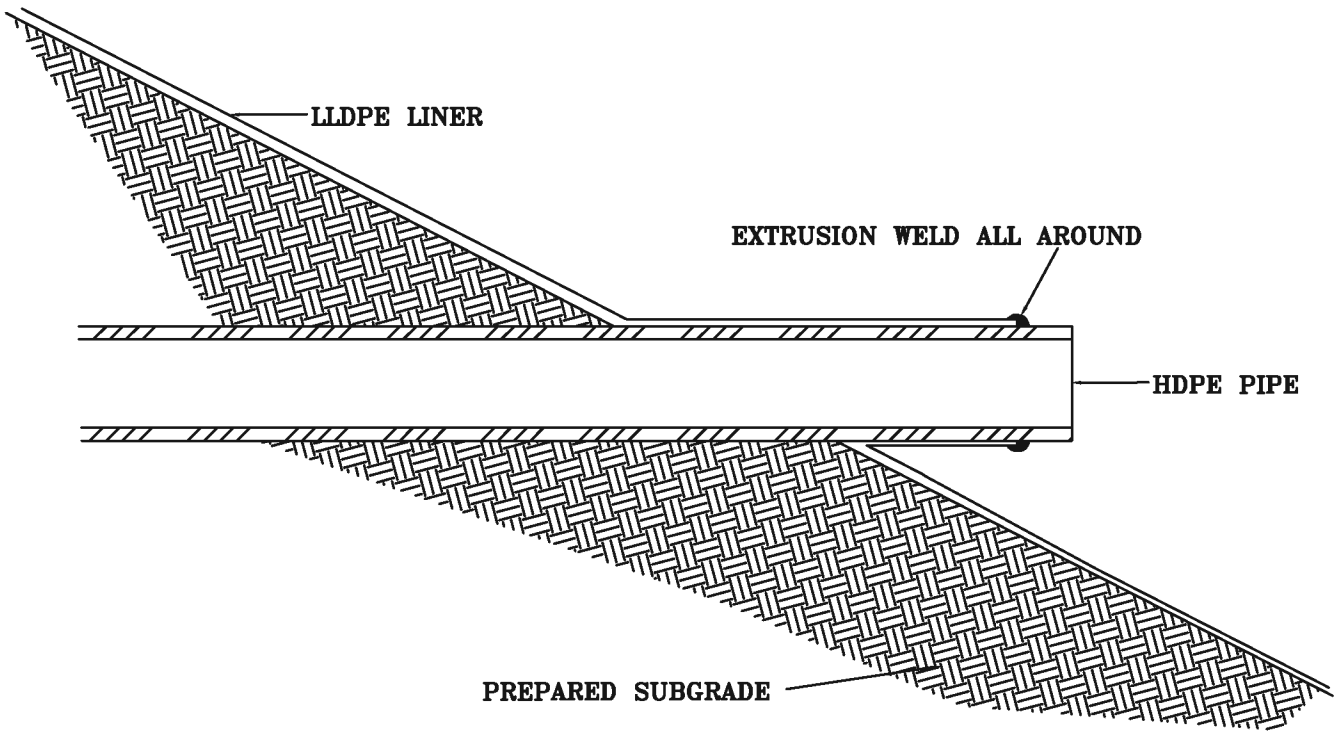
| DWG: 1 OF 1 | SCALE: N.T.S. | |
|---|---|---|
| DWN: KS | CHKD: SR | APP'D: JW |
| DATE: 05/15/18 | REVISION: 1 | |

Layout Page: 1

ANSI A(Letter) Size Page

File Name: LS-04-QF-001

| No. | Revisions | Date (MM/DD/YY) | By |
|---|---|---|---|




# SLOPED PIPE BOOT

LAYFIELD CANADA LTD.

Standard Detail

Pipe Penetration

DRAWING No.
08-01-01

| DWG: 1 OF 1 | SCALE: N.T.S. | |
|---|---|---|
| DWN: KS | CHKD: SR | APP'D: JW |
| DATE: 05/15/18 | REVISION: 1 | |

Layout Page: 1

ANSI A(Letter) Size Page

STRATAGOLD
EAGLE GOLD PROJECT

# REQUEST FOR INFORMATION

| | |
|---|---|
| EPCM RFI No.: | **Site Location:** Eagle Gold |
| Sub-Contractor RFI No.: RFI-014 | **Date Submitted:** May 16, 2018 |
| Subject: Nonwoven Geotextile | Project Zone/Area: HLF Phase 1 |
| **Sub-contractor: Pelly Construction** | **Station/Location: HLF Phase 1** |
| ***Attention:*** | ***Discipline:*** |

## REQUEST

| | |
|---|---|
| **Related Drawings:**<br>**EGHLF-XD-03-04** | **Other Related Documents:**<br>**BGC Eagle Gold Project**<br>**Technical Specifications – Heap Leach Facility**<br>**Nonwoven Geotextile – 4.3.2** |

**Information Request/Description of Issue:**

**Pelly is requesting confirmation on requirement for heat fusing or sewing nonwoven geotextile during installation. This request is for the installation of the underdrain pipes. Please advise if it is applicable to all nonwoven geotextile installation throughout project.**

**Proposed Corrective Action**

**Change specification 4.3.2 to remove the requirement for heat fusing/sewing. Maintain minimum 0.5m overlap shown in detail 14 (03-05) drawing EGHLF-XD-03-04.**

| | | | | | |
|---|---|---|---|---|---|
| **Type of Change:** | ☐ | Owner Change | ☐ | Clarification/Info | ☐ Field Change |
| | ☐ | Vendor Change | ☐ | Design Change | ☐ Other |
| **Cost Impact:** | | | | | |
| **Schedule Impact:** | | | | | |

| | | | |
|---|---|---|---|
| **Requested by:** | **Dean Serelo** | | **2018-05-16** |
| | Name | Signature | Date |

## RESPONSE

☐ Approved ☑ Approved as noted ☐ Rejected as noted

**Response:**

Fusing/sowing will not be required in the underdrain trench if the Constructor maintains a minimum overlap of 0.5m measured perpendicular from the overlapping edge of one sheet to the underlying edge of the adjacent sheet.

**Answered by:**

Name Roy Morlan Signature Roy Morlan Date May 17, 2018

*Note: Response to this RFI does not constitute authorization to perform a change to any Contract. The Requestor may proceed with the response only on the basis that the Requestor agrees that it is not a contract change. If the Requestor believes that the response does constitute a contract change, the Requestor shall immediately notify JDS Work undertaken without JDS written authorization is at the Sub-contractor's risk and expense.*

STRATAGOLD
EAGLE GOLD PROJECT

# REQUEST FOR INFORMATION

| | |
|---|---|
| EPCM RFI No.: | **Site Location:** Eagle Gold |
| Sub-Contractor RFI No.: RFI-015 | **Date Submitted:** May 17, 2018 |
| Subject: Event Pond Underdrain Piping | Project Zone/Area: HLF Phase 1 |
| **Sub-contractor: Pelly Construction** | **Station/Location: Event Pond** |
| **Attention:** | **Discipline:** |

**REQUEST**

| | |
|---|---|
| **Related Drawings:**<br>**EGHLF-XD-03-03**<br>**EGHLF-XD-03-04** | **Other Related Documents:** |

**Information Request/Description of Issue:**

**Pelly is requesting confirmation on the event pond underdrain piping specifications. There is conflicting/ambiguous details specified in EGHLF-XD-03-03 and EGHLF-XD-03-04 specifically where 3 PERFORATED PIPES connect to 1 SOLID WALL PIPE.**

**Proposed Corrective Action**

**Confirm pipe specifications regarding event pond underdrain system for all pipe segments.**

**Type of Change:** ☐ Owner Change ☐ Clarification/Info ☐ Field Change ☐ Vendor Change ☐ Design Change ☐ Other

| | |
|---|---|
| **Cost Impact:** | |
| **Schedule Impact:** | |

| | | | |
|---|---|---|---|
| **Requested by:** | **Dean Serelo** | | **2018-05-17** |
| | Name | Signature | Date |

RESPONSE

☐ Approved ☐ Approved as noted ☐ Rejected as noted

**Response:**
**See attachment below**

| | | | |
|---|---|---|---|
| **Answered by:** | **Daniel Granda** | **Daniel Granda** | **2018-05-18** |
| | Name | Signature | Date |

*Note: Response to this RFI does not constitute authorization to perform a change to any Contract. The Requestor may proceed with the response only on the basis that the Requestor agrees that it is not a contract change. If the Requestor believes that the response does constitute a contract change, the Requestor shall immediately notify JDS. Work undertaken without JDS written authorization is at the Sub-contractor's risk and expense.*

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

# Response to CC204-RFI-015

| | | | |
|---|---|---|---|
| **To:** | **Calvin Goldschmidt** | **Project:** | **Eagle Gold HLF** |
| **Company:** | **JDS** | **Project No.** | **0792021** |
| **From:** | **Daniel Granda** | **Date:** | **May 25, 2018** |
| **Copied:** | **Troy Meyer; Roy Morlan** | **Record:** | **Response to CC204-RFI-015** |

**Re: Response to CC204-RFI-015:**

## 1.0 RESPONSE

Pipe specifications:

The pipe specifications regarding the event pond underdrain system consists of 150 mm diameter perforated corrugated ADS N-12 PE.

The solid wall pipe consists of a solid 150 mm diameter corrugated ADS N-12 PE to Discharge.

The usage of split coupling, elbow or T joints can be considered. A plan for constructing the underdrain system should be submitted to Engineer for approval and any further clarifications.

STRATAGOLD
EAGLE GOLD PROJECT

# REQUEST FOR INFORMATION

| | |
|---|---|
| EPCM RFI No.: | **Site Location:** Eagle Gold |
| Sub-Contractor RFI No.: RFI-016 | **Date Submitted:** May 16, 2018 |
| Subject: HLF Monitoring Well Decommissioning | Project Zone/Area: HLF Phase 1 |
| **Sub-contractor: Pelly Construction** | **Station/Location: HLF Phase 1 Embankment** |
| **Attention:** | **Discipline:** |

**REQUEST**

| | |
|---|---|
| **Related Drawings:** | **Other Related Documents:**<br>**EPCM-RFI-007 HLF – Monitoring Well Decommissioning RFP Scope of Work** |

**Information Request/Description of Issue:**

Regarding the decommissioning of monitoring well #: BH-BGC 16-091 located within the HLF embankment footprint. It has been understood that decommissioning of this well was the responsibility of OTHERS. Other than simply assisting with exposing the top of the well at the Type 3 contact in the embankment footprint, Pelly has not allocated or planned any further effort in regards to the decommissioning of this well. The 2017 RFP scope of work does not reference any requirement to decommission this well as part of Pelly's scope.

**Proposed Corrective Action**

Confirm decommissioning of well is being placed in Pelly's scope and issue change order.

| | | | | | |
|---|---|---|---|---|---|
| **Type of Change:** | ☐ | Owner Change | ☐ | Clarification/Info | ☐ Field Change |
| | ☐ | Vendor Change | ☐ | Design Change | ☐ Other |

| | |
|---|---|
| **Cost Impact:** | |
| **Schedule Impact:** | |

| | | | |
|---|---|---|---|
| **Requested by:** | **Dean Serelo** | | **2018-05-17** |
| | Name | Signature | Date |

RESPONSE

☐ Approved ☐ Approved as noted ☐ Rejected as noted

**Response:**

**EPCM is aware well decommissioning is outside of Pelly Scope as communicated via email by Calvin Goldschmidt May 17, 2018 (Attached) and discussed in contractor progress meetings.**

**Work will be added to Pelly scope upon change order review and approval. Please submit change order request for above noted work.**

| | | |
|---|---|---|
| **Answered by: D'Arcy Comerford** | | **2018-05-21** |
| Name | Signature | Date |



*Note: Response to this RFI does not constitute authorization to perform a change to any Contract. The Requestor may proceed with the response only on the basis that the Requestor agrees that it is not a contract change. If the Requestor believes that the response does constitute a contract change, the Requestor shall immediately notify JDS. Work undertaken without JDS written authorization is at the Sub-contractor's risk and expense.*

2017 RFP:

3.13 Heap Leach Earthworks (Activities 5.80 to 5.99)

The overall construction of the Heap Leach Pad (HLP) is comprised of several different elements and involves several different types of construction methodology. Construction plans and the finished quality of the constructed leach pad/collection ponds are the most important aspects of the project. The location is a natural valley, which is made up of the east and west banks of what is named Ann Gulch. The containment of the emulsion solution requires the construction of an earth embankment, installation of multi-layers of LLDPE (liner low density polyethylene) and GCL. (geocomposite clay liner) Included in this scope is the sump collection piping, and sloped piping installation to the top of the embankment.
The 2017 scope is comprised in a manner to support the strategy where a majority of the work is to be undertaken in 2018. No additional work beyond the description below will be undertaken without approval from the Owner.

In 2017, the contractor will be responsible for:

- Clearing the vegetation and removing the topsoil off the entire HLP footprint, (Phase 1) (as described in the Clearing and Topsoil stockpiling scope) the Process Area Pad and the Event Ponds.
- Supply and installation of silt fencing at the interface line of the site work and Dublin Gulch.
- Excavation of the sediment containment pond, (required at the south end of the embankment excavation) and all diversion/water management ditches. (refer to the Water Management Plan)
- The partial construction of the HLP embankment in 2017, which includes (within the HLP embankment footprint) the excavation to bedrock, stockpiling and replacement of soil back to original ground. (with suitable material) Borrow Material for the embankment construction will be drawn from the Process Area Pad excavation. The remainder of the embankment, (above original ground) will be constructed starting in the spring of 2018. The contractor will be required to manage any water generated from the immediate area, during the construction of the embankment. Refer to the Water Management scope for additional information regarding the areas infrastructure to support water management.
  The construction of the Process Area Pad, (cut and fill) as per the design and specifications.

Excavation quantity of the HLP Embankment (from original ground) is approximately 136,000 m3
In 2018, the Contractor will be responsible for:

- Remobilization of necessary resources to continue the construction of the Embankment, Heap Leach Pad, and Event Ponds.
- Snow removal from the working area footprint.
- Reinstatement of any erosion control/water management measures.
- Preparation of Embankment Area to continue addition of remaining fill.
- Supply and installation of the non –perforated under liner drainage piping, (within the Embankment footprint) including the monitoring vault.

- Construction of the Embankment. (in concert with the excavation of the Event Ponds and ADR Plant Pad)
- Supply and installation of the perforated under liner drainage piping. Construction of the Closure Sump, Leak Detection and Recovery Sump, and the PLS Collection Sump. (includes all liners, piping, and associated components)
- Supply and installation of the LLDPE, Geocomposite, and HDPE liners.
- Supply and installation of collection piping.
- Installation of over liner fill.
- Demobilization, removal of all stationary equipment, mobile equipment, tools, and support resources upon completion of the scope.

Activity 5.80:
The Contractor shall excavate the Heap Leach Embankment limits in accordance with direction of the Owners Engineer down to an approved foundation (rock). This material is considered suitable for engineered embankment backfill; however it requires excavation, placement and compaction.
Activity 5.81:
The Contractor shall place and compact the Heap Leach Embankment in accordance with the drawings and specifications. This activity shall fully compensate the Contractor for this activity.
Activity 5.82:
The Contractor shall excavate the heap leach area to the design grades. This material may be used as backfill for embankment.
Activity 5.83:
In the event that any material unsuitable for engineered backfill / embankment is encountered in activity 5.80 or 5.82 and the Owners Engineer directs the Contractor to haul this material to waste, then activity 5.83 shall compensate the contractor to haul the material to a waste storage facility within 1.5km.

## 1.7 Water Management

The contractor is to take into consideration the Water Management activities required to support the Earthworks scope. The responsible water management on the site is a regulated requirement, and will require the installation of infrastructure such as:

- Supply and installation of silt fencing.
- Excavation of swales or ditches to direct water to a collection point, or to the Collection Pond
- Temporary culverts
- The excavation of the Collection Pond
- The excavation of temporary sedimentation ponds.

Costs for the construction of the Control Pond are captured in the price breakdown spreadsheet, but all other costs associated with water management are to be inclusive within the unit rates.

STRATAGOLD
EAGLE GOLD PROJECT

# REQUEST FOR INFORMATION

| | |
|---|---|
| EPCM RFI No.: | **Site Location:** Eagle Gold |
| Sub-Contractor RFI No.: RFI-017 | **Date Submitted:** May 21, 2018 |
| Subject: HLF Embankment Foundation at toe | Project Zone/Area: HLF Phase 1 |
| **Sub-contractor: Pelly Construction** | **Station/Location: HLF Phase 1 Embankment** |
| **Attention:** | **Discipline:** |

**REQUEST**

| | |
|---|---|
| **Related Drawings:**<br>**EGHLF-XD-03-03**<br>**EGHLF-XD-03-05**<br>**EGHLF-XD-04-02**<br>**EGHLF-XD-04-03**<br>**EGHLF-XD-05-06** | **Other Related Documents:** |

**Information Request/Description of Issue:**

**Due to geology at toe of embankment where type 3 rock profile changes, Pelly is requesting direction in completion of excavating underdrain trench towards monitoring vault.**

**Proposed Corrective Action**
**Supply direction in moving forward with completion of underdrain trench at toe of embankment toward monitoring vault.**

**Type of Change:** ☐ Owner Change ☐ Clarification/Info ☐ Field Change ☐ Vendor Change ☐ Design Change ☐ Other

| | |
|---|---|
| **Cost Impact:** | |
| **Schedule Impact:** | |

| | | | |
|---|---|---|---|
| **Requested by:** | **Dean Serelo** | | **2018-05-21** |
| | Name | Signature | Date |

RESPONSE

☐ Approved ☐ Approved as noted ☐ Rejected as noted

**Response: Please see attachment for response.**

| | | | |
|---|---|---|---|
| **Answered by:** | **Roy Morlan/Daniel Granda** | **Daniel Granda** | **5/31/18** |
| | Name | Signature | Date |

*Note: Response to this RFI does not constitute authorization to perform a change to any Contract. The Requestor may proceed with the response only on the basis that the Requestor agrees that it is not a contract change. If the Requestor believes that the response does constitute a contract change, the Requestor shall immediately notify JDS. Work undertaken without JDS written authorization is at the Sub-contractor's risk and expense.*

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

# Response to CC204-RFI-017

| | | | |
|---|---|---|---|
| **To:** | **Calvin Goldschmidt** | **Project:** | **Eagle Gold HLF** |
| **Company:** | **JDS** | **Project No.** | **0792021** |
| **From:** | **Daniel Granda/Roy Morlan** | **Date:** | **May 31, 2018** |
| **Copied:** | **Troy Meyer** | **Record:** | **Response to CC204-RFI-017** |

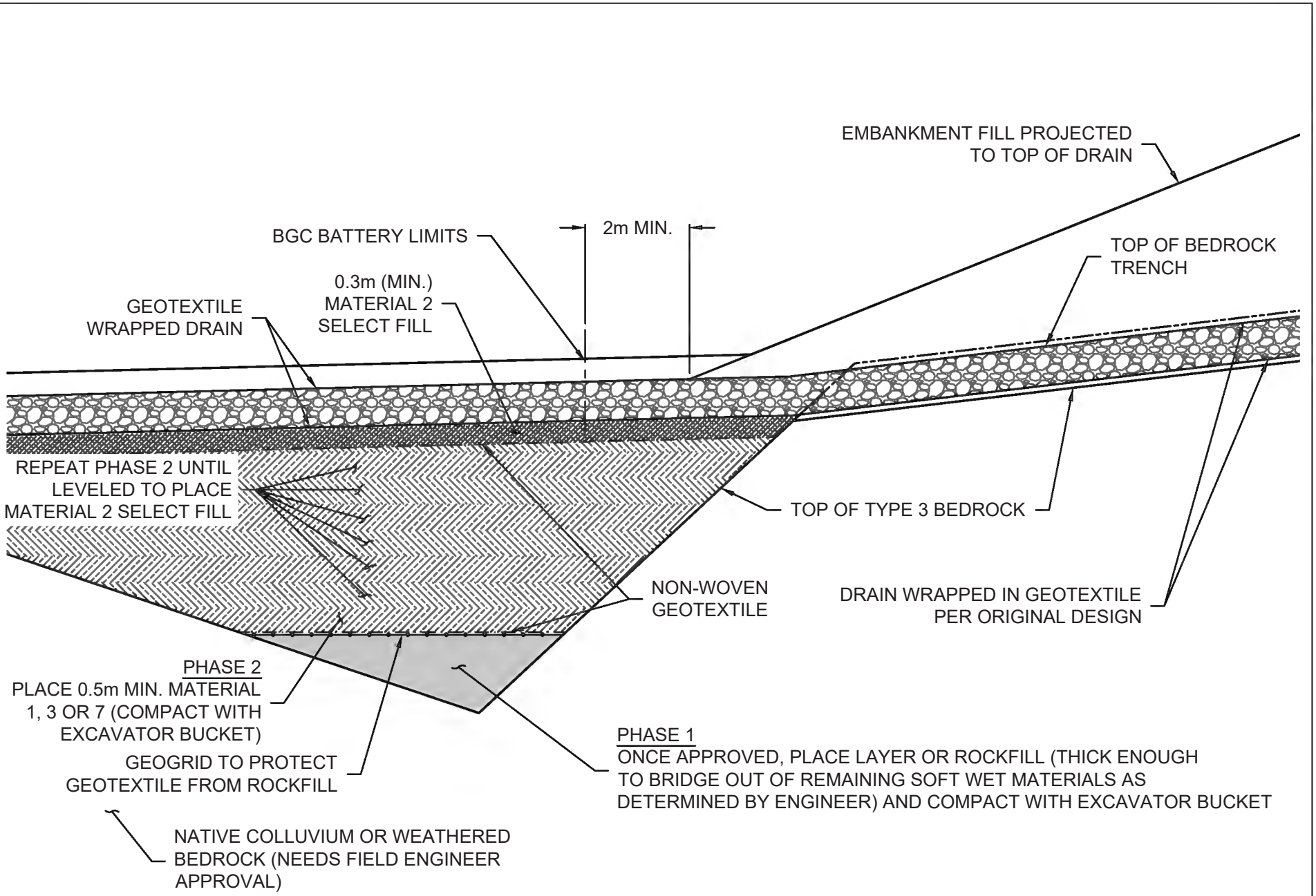
**Re: Response to CC204-RFI-017:**

## 1.0 RESPONSE

The embankment toe and drain trench should be completed as shown in the attached ***Figure 1***. Construction should conform with the requirements in the Technical Specifications. Beyond details presented in the figures and specifications the following requirements should also be followed:

- Due to the difficulties of water management in this area and uncertain subsurface conditions the construction approach in this response is discussed in phases. Phase 1 includes identify and preparing competent foundation. Phase 2 includes backfill and drain construction.
- The first step should include water removal, control, and monitoring as well as cleaning loose silt and soil from toe and drain area, as best as possible. Once water runoff to work area is controlled, the work zone should be excavated to take out all sedimentation collected and deteriorated colluvium and type 3. Excavator should indicate when harder material has been reached to Field Engineer.
- Once approved by Field Engineer, Excavator will commence Phase 1 of Detail 1 with approved Rockfill material (should be free draining) by Field Engineer. The Excavator will place material in lifts and compact with bucket until thick enough to bridge out remaining soft wet materials as determined by Field Engineer.
- A geogrid should be placed as a base for the geofabric, before commencing Phase 2 as presented in ***Figure 1***.
- Phase 2 is repeated until surface field matches the point of entry from the underdrain upstream. After this is reached, all aspects of the original design should be considered.
- Course, strong, rockfill can be used as backfill under the pipe trench. The rockfill should be relatively free draining. Rockfill should be approved by the Engineer prior to placement.

- Final elevations will be dependent on work performed to prepare the foundation and will be approved by the Engineer.


EMBANKMENT FILL PROJECTED TO TOP OF DRAIN
BGC BATTERY LIMITS
2m MIN.
TOP OF BEDROCK TRENCH
0.3m (MIN.) MATERIAL 2 SELECT FILL
GEOTEXTILE WRAPPED DRAIN
REPEAT PHASE 2 UNTIL LEVELED TO PLACE MATERIAL 2 SELECT FILL
TOP OF TYPE 3 BEDROCK
NON-WOVEN GEOTEXTILE
DRAIN WRAPPED IN GEOTEXTILE PER ORIGINAL DESIGN
PHASE 2
PLACE 0.5m MIN. MATERIAL 1, 3 OR 7 (COMPACT WITH EXCAVATOR BUCKET)
GEOGRID TO PROTECT GEOTEXTILE FROM ROCKFILL
PHASE 1
ONCE APPROVED, PLACE LAYER OR ROCKFILL (THICK ENOUGH TO BRIDGE OUT OF REMAINING SOFT WET MATERIALS AS DETERMINED BY ENGINEER) AND COMPACT WITH EXCAVATOR BUCKET
NATIVE COLLUVIUM OR WEATHERED BEDROCK (NEEDS FIELD ENGINEER APPROVAL)

PROFILE

STRATAGOLD
EAGLE GOLD PROJECT

# REQUEST FOR INFORMATION

| | |
|---|---|
| **EPCM RFI No.:** | **Site Location:** Eagle Gold |
| **Sub-Contractor RFI No.:** BGC-RFI-001 | **Date Submitted:** May 26, 2018 |
| **Subject:** HLF Monitoring Holes Location | **Project Zone/Area:** HLF Phase 1 |
| **Sub-contractor:** Pelly Construction | **Station/Location:** HLF Phase 1 Embankment |
| **Attention:** | **Discipline:** |

## REQUEST

**Type of Change:** ☐ Owner Change ☒ Clarification/Info ☐ Field Change ☐ Vendor Change ☐ Design Change ☐ Other

| | |
|---|---|
| **Related Drawings:** | **Other Related Documents:** |

**Information Request/Description of Issue:**

Pelly is requesting a map (including coordinates) to show all Boring and Monitoring holes within the HLF area.

**Proposed Corrective Action**
N/A

| | |
|---|---|
| **Cost Impact:** | |
| **Schedule Impact:** | |

**Requested by:**

| Name | Signature | Date |
|---|---|---|
| Shipeng Zheng | | 2018-05-26 |

## RESPONSE

☒ Approved ☐ Approved as noted ☐ Rejected as noted

**Response:**

Please see the attached documents detailing the locations of the exploration holes within the HLF boundary.

Please note that the DG-17 holes were surveyed using a handheld GPS only, therefore the precision may not be exact.

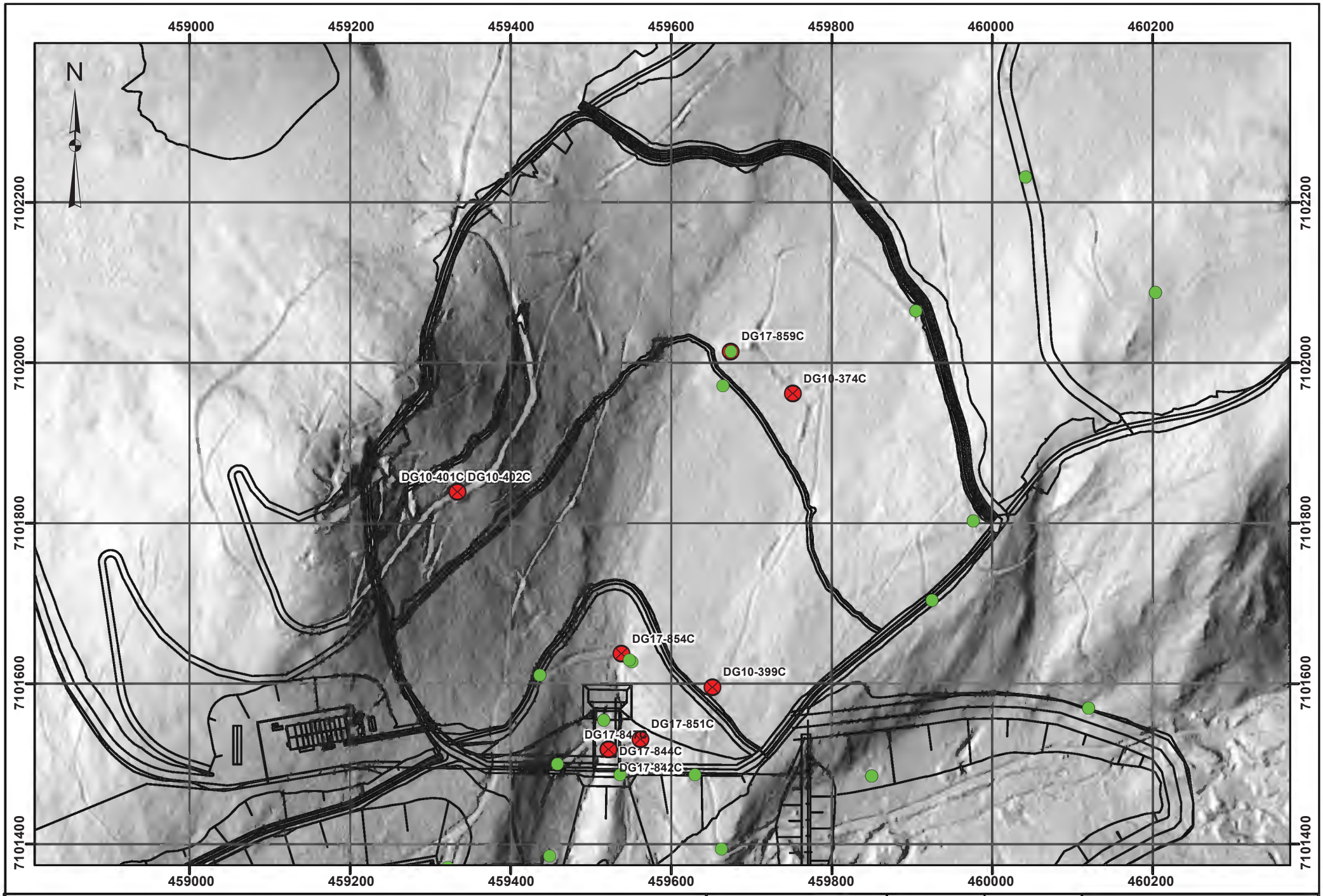
The exploration holes on the project were generally not closed and the casing was usually pulled out.

**Answered by:**

| Name | Signature | Date |
|---|---|---|
| Branden Fraser | | 2018-05-26 |

Note: *Response to this RFI does not constitute authorization to perform a change to any Contract. The Requestor may proceed with the response only on the basis that the Requestor agrees that it is not a contract change. If the Requestor believes that the response does constitute a contract change, the Requestor shall immediately notify JDS. Work undertaken without JDS written authorization is at the Sub-contractor's risk and expense.*

| Hole_ID | Location | UTM_E | UTM_N | Elevation | UTM_Zone | Azimuth | Dip | Depth__m | Type | Hole_Purpo | Surveyed |
|---|---|---|---|---|---|---|---|---|---|---|---|
| DG10-374C | Ann Gulch | 459752.7 | 7101962 | 1001.708 | NAD83 UTM8 | 250 | -50 | 109.42 | Core | Condemnation | Y |
| DG10-399C | Ann Gulch | 459652.1 | 7101594 | 945.214 | NAD83 UTM8 | 250 | -45 | 120.70 | Core | Condemnation | Y |
| DG10-401C | Tin Dome | 459332.9 | 7101838 | 1016.837 | NAD83 UTM8 | 110 | -45 | 123.75 | Core | Condemnation | Y |
| DG10-402C | Tin Dome | 459332.9 | 7101838 | 1016.837 | NAD83 UTM8 | 315 | -45 | 126.19 | Core | Condemnation | Y |
| DG17-842C | Ann Gulch | 459522 | 7101516 | 911 | NAD83 UTM8 | 350 | -45 | 112.78 | Core | Exploration | N |
| DG17-844C | Ann Gulch | 459522 | 7101516 | 911 | NAD83 UTM8 | 320 | -45 | 80.77 | Core | Exploration | N |
| DG17-847C | Ann Gulch | 459522 | 7101516 | 911 | NAD83 UTM8 | 50 | -55 | 159.41 | Core | Exploration | N |
| DG17-851C | Ann Gulch | 459562 | 7101529 | 916 | NAD83 UTM8 | 350 | -45 | 144.78 | Core | Exploration | N |
| DG17-854C | Ann Gulch | 459538 | 7101636 | 928 | NAD83 UTM8 | 340 | -45 | 152.41 | Core | Exploration | N |
| DG17-859C | Ann Gulch | 459675 | 7102014 | 1007 | NAD83 UTM8 | 275 | -45 | 149.35 | Core | Exploration | N |




**Legend**

**Hole_Purpo**

- Exploration
- Other

Victoria GOLD CORP

Meters

0 35 70 140

Projection: NAD83 UTM8

Drawn By: HK

Date: May 26, 2018

**EAGLE GOLD PROJECT**
**YUKON TERRITORY**

Heap Leach Facility
Exploration Drilling

STRATAGOLD
EAGLE GOLD PROJECT

# REQUEST FOR INFORMATION

| | |
|---|---|
| **EPCM RFI No.:** | **Site Location:** Eagle Gold |
| **Sub-Contractor RFI No.:** RFI-019 | **Date Submitted:** May 26, 2018 |
| **Subject:** HLF Liner Subgrade Preparation | **Project Zone/Area:** HLF PHASE 1 |
| **Sub-contractor:** Pelly Construction | **Station/Location: HLF** |
| **Attention:** | **Discipline:** |

**REQUEST**

**Type of Change:** ☐ Owner Change ☒ Clarification/Info ☐ Field Change ☐ Vendor Change ☐ Design Change ☐ Other

| | |
|---|---|
| **Related Drawings:** XD-02-03 & 04 Note: #3 | **Other Related Documents:** |

**Information Request/Description of Issue:**

A 1.8m subsoil excavation is required below the 940 elevation and 0.3m subsoil excavation is required above the 940 elevation. The design scope calls for these spoiled materials to be backfilled in 0.15m lifts throughout the pad area.

If these materials are unsuitable as backfill, where must these materials be wasted and what will be the alternative backfilling medium? Please identify which cost item this is applicable to if not already clearly identified.

**Proposed Corrective Action**

| | |
|---|---|
| **Cost Impact:** | |
| **Schedule Impact:** | |

**Requested by:**

| **Shipeng Zheng** | | **May 26, 2018** |
|---|---|---|
| Name | Signature | Date |

**RESPONSE**

☐ Approved ☒ Approved as noted ☐ Rejected as noted

**Response:** EPCM assumes that the Contractor is referring to Note #3 on BGC drawings XD-02-03 & 04. Please see note #6 on XD-00-02 where it states that Contractor is responsible for verifying subsurface conditions. EPCM recommend that Pelly dig a number of test pits with BGC field representative present to confirm subsurface conditions. EPCM have instructed BGC to further clarify what is meant by “prepared subgrade” and a response will be provided in due course.

**Answered by:** **Calvin Goldschmidt**

Name | Signature | Date

Note: *Response to this RFI does not constitute authorization to perform a change to any Contract. The Requestor may proceed with the response only on the basis that the Requestor agrees that it is not a contract change. If the Requestor believes that the response does constitute a contract change, the Requestor shall immediately notify JDS. Work undertaken without JDS written authorization is at the Sub-contractor's risk and expense.*

STRATAGOLD
EAGLE GOLD PROJECT

# REQUEST FOR INFORMATION

| | |
|---|---|
| **EPCM RFI No.:** | **Site Location:** Eagle Gold |
| **Sub-Contractor RFI No.:** RFI-020 | **Date Submitted:** May 26, 2018 |
| **Subject:** HLF Underdrain System | **Project Zone/Area:** HLF PHASE 1 |
| **Sub-contractor:** Pelly Construction | **Station/Location: HLF EMBANKMENT** |
| **Attention:** | **Discipline:** |

**REQUEST**

**Type of Change:** ☐ Owner Change ☒ Clarification/Info ☐ Field Change ☐ Vendor Change ☐ Design Change ☐ Other

| **Related Drawings:** | **Other Related Documents:** |
|---|---|
| | |

**Information Request/Description of Issue:**

Upstream of the Embankment structure Pelly would like confirmation on the underdrain installation depths. The underdrain piping will be below the primary collection and liner systems, it is not entirely clear what min/max depths the underdrains need to be installed relative to other infrastructure or if the same type 3 bedrock constraint must be maintained upstream of the embankment.
Q1. Please describe the constraints and where possible provide 3D dxf/dwg linework of designed pipe invert routing as shown on the IFC drawings.
Q2. Please confirm minimum cover requirements for bearing a loaded 40ton articulated truck without damaging the piping associated with the underdrain systems.

**Proposed Corrective Action**

| | |
|---|---|
| **Cost Impact:** | |
| **Schedule Impact:** | |

**Requested by:**

| **Shipeng Zheng** | | **May 26, 2018** |
|---|---|---|
| Name | Signature | Date |

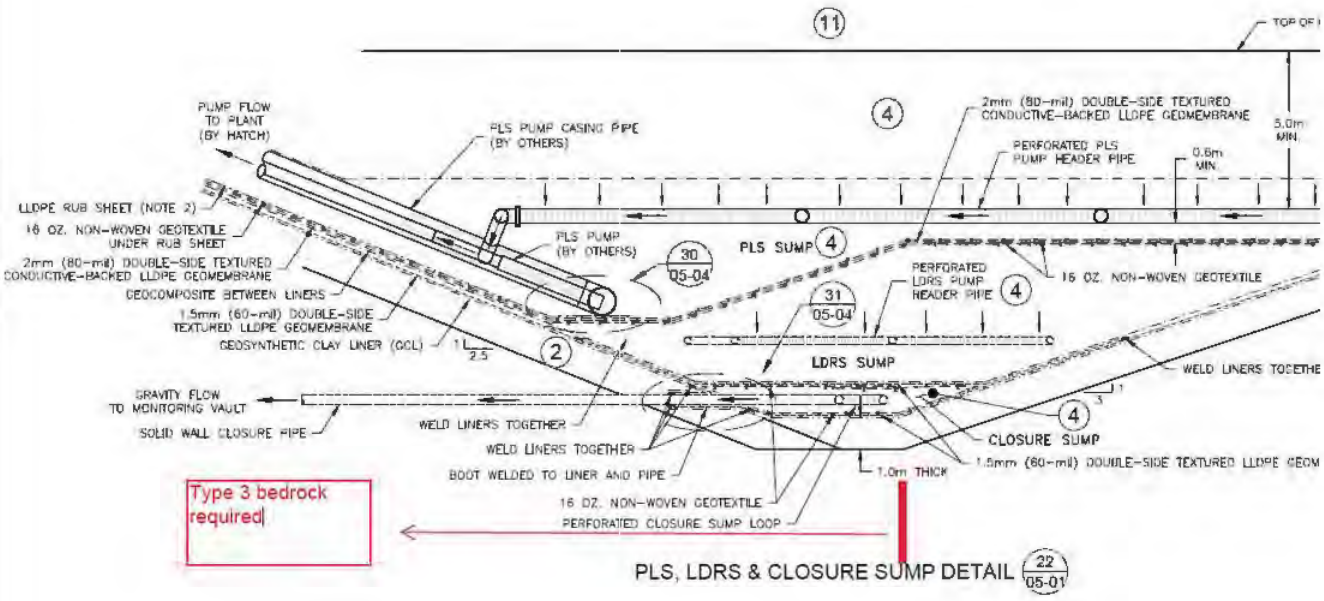
RESPONSE

☐ Approved ☐ Approved as noted ☐ Rejected as noted

**Response:**

**The dimensions can also be found from other details e.g. Detail 22 on drawing 05-02 shows a subgrade thickness of 1 metre. The underdrain will be installed at the bottom of this zone and is about 0.5 metres thick, meaning there will be a 0.5 metres subgrade cover over the drain.**

**Question 1.**
**Figure 1 presents the type 3 bedrock constraint.**




**Question 2.**

**We will require official specifications of the equipment that will be used. Respond with an RFI attaching official CAT information for trucks and dozers for a better response. Please submit a separate RFI with attached official equipment information.**

| **Answered by:** | **Daniel Granda** | | **May 31, 2018** |
|---|---|---|---|
| | Name | Signature | Date |

Note: *Response to this RFI does not constitute authorization to perform a change to any Contract. The Requestor may proceed with the response only on the basis that the Requestor agrees that it is not a contract change. If the Requestor believes that the response does constitute a contract change, the Requestor shall immediately notify JDS. Work undertaken without JDS written authorization is at the Sub-contractor's risk and expense.*

STRATAGOLD
EAGLE GOLD PROJECT

## aREQUEST FOR INFORMATION

| | |
|---|---|
| **EPCM RFI No.:** | **Site Location:** Eagle Gold |
| **Sub-Contractor RFI No.:** RFI-021 | **Date Submitted:** May 26, 2018 |
| **Subject:** HLF In-Heap Sump | **Project Zone/Area:** HLF PHASE 1 |
| **Sub-contractor:** Pelly Construction | **Station/Location: HLF In-Heap Sump** |
| **Attention:** | **Discipline:** |

**REQUEST**

| | | | | | |
|---|---|---|---|---|---|
| **Type of Change:** | ☐ Owner Change | ☒ Clarification/Info | ☐ Field Change | | |
| | ☐ Vendor Change | ☐ Design Change | ☐ Other | | |

| **Related Drawings:** | **Other Related Documents:** |
|---|---|
| | |

**Information Request/Description of Issue:**

Upstream of the Embankment structure, specifically in the in-heap sump, Pelly would like confirmation on the subgrade preparation requirements. It is understood that 1.8m of subsoil excavation is required. Is there any requirement to establish a specific contact or ground condition in this area?

**Proposed Corrective Action**

| | |
|---|---|
| **Cost Impact:** | |
| **Schedule Impact:** | |

**Requested by:**

| **Shipeng Zheng** | | **May 26, 2018** |
|---|---|---|
| Name | Signature | Date |

**RESPONSE**

☐ Approved ☐ Approved as noted ☐ Rejected as noted

**Response: Please refer to Section 2.3 of Subgrade preparation in the Technical Specifications. Given that Pelly has cleared vegetation and mechanically moved material. BGC will provide locations of test pits to confirm excavation requirements in work areas as needed and follow Section 2.3 recommendations for testing and preparation. The subgrade shall be prepared to the satisfaction of the Engineer.**

| **Answered by:** | **Daniel Granda** | **Daniel Granda** | **6/3/2018** |
|---|---|---|---|
| | Name | Signature | Date |

Note: *Response to this RFI does not constitute authorization to perform a change to any Contract. The Requestor may proceed with the response only on the basis that the Requestor agrees that it is not a contract change. If the Requestor believes that the response does constitute a contract change, the Requestor shall immediately notify JDS. Work undertaken without JDS written authorization is at the Sub-contractor's risk and expense.*

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# REQUEST FOR INFORMATION

| | |
|---|---|
| **EPCM RFI No.:** | **Site Location:** Eagle Gold |
| **Sub-Contractor RFI No.:** RFI-022 | **Date Submitted:** May 26, 2018 |
| **Subject:** HLF Embankment Fill | **Project Zone/Area:** HLF PHASE 1 |
| **Sub-contractor:** Pelly Construction | **Station/Location: HLF Embankment** |
| **Attention:** | **Discipline:** |

**REQUEST**

| | | | | | | |
|---|---|---|---|---|---|---|
| **Type of Change:** | ☐ | Owner Change | ☒ | Clarification/Info | ☐ | Field Change |
| | ☐ | Vendor Change | ☐ | Design Change | ☐ | Other |

| | |
|---|---|
| **Related Drawings:** | **Other Related Documents:** |

**Information Request/Description of Issue:**

Please provide data for the various material zones. This is needed for construction survey to layout targeted zone boundaries as the embankment raises. Please provide design data in dxf/dwg format.

**Proposed Corrective Action**

| | |
|---|---|
| **Cost Impact:** | |
| **Schedule Impact:** | |

**Requested by:**

| **Shipeng Zheng** | | **May 26, 2018** |
|---|---|---|
| Name | Signature | Date |

**RESPONSE**

☐ Approved ☐ Approved as noted ☐ Rejected as noted

**Response:**

See attached response.

**Answered by:**

| Name | Roy Morlan/ Troy Meyer | Signature | Roy Morlan | Date | June 16, 2018 |
|---|---|---|---|---|---|

Note: *Response to this RFI does not constitute authorization to perform a change to any Contract. The Requestor may proceed with the response only on the basis that the Requestor agrees that it is not a contract change. If the Requestor believes that the response does constitute a contract change, the Requestor shall immediately notify JDS. Work undertaken without JDS written authorization is at the Sub-contractor's risk and expense.*

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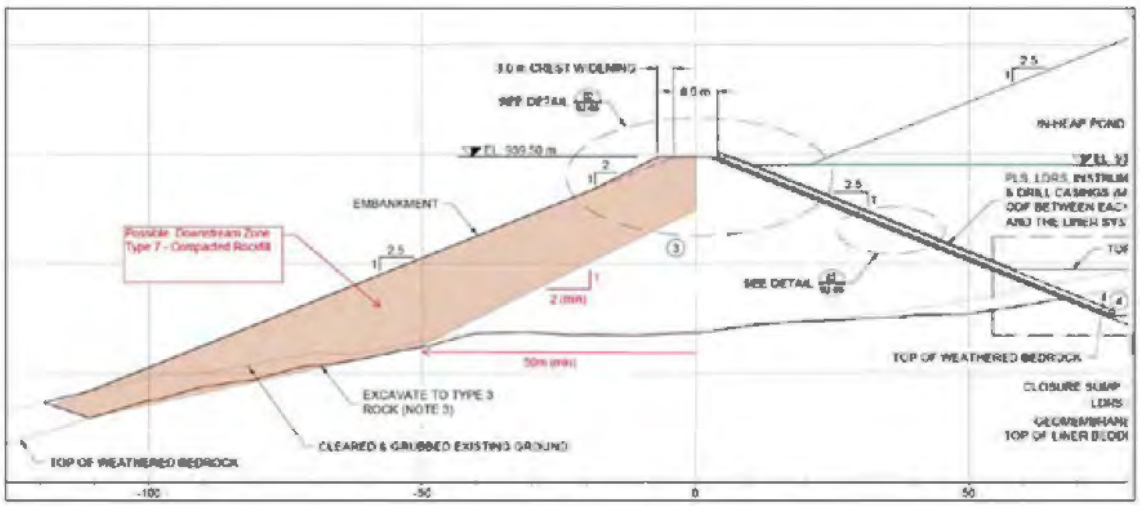
# Response to CC204-RFI-022

| | | | |
|---|---|---|---|
| **To:** | **Calvin Goldschmidt** | **Project:** | **Eagle Gold HLF** |
| **Company:** | **JDS** | **Project No.** | **0792021** |
| **From:** | **Roy Morlan** | **Date:** | **June 16, 2018** |
| **Copied:** | **Troy Meyer; Dan Granda** | **Record:** | **Response to CC204-RFI-022** |

**Re: Response to CC204-RFI-022:**

## 1.0 RESPONSE

The use of rockfill for construction of the HLF embankment was approved and initially described in EPCM-RFI-002. A drawing was included in the response to that RFI to provide guidance for the use of Rockfill and is presented as ***Figure 1***.




Sketch illustrating acceptable area for placement of Compacted Rockfill, shown in red shade. Background drawing (black) is for reference only, not for construction.

***Figure 1***: Figure included in response to EPCM-RFI-002 showing the general configuration of Material 7 – Rockfill and Material 3 – Structural Fill in the embankment.

CC204-RFI-022 requested design lines provided in a dxf/dwg file. Design lines cannot be provided by BGC because the amount of Structural Fill Pelly will substitute with Rockfill is unknown to us. For this reason we provided the general guidelines in the EPCM-RFI-002 response.

The following response provides further clarification to the use of Material 7 – Rockfill in the embankment to help Pelly plan for its use.

**Configuration of Zones**

BGC originally approved the use of Material 7 using the dimensions shown in Figure 1. Take-off volumes for the conditions set forth in Figure 1 were provided to Pelly and JDS via email on May 5, 2018. As shown in Figure 1, rockfill should be placed in a separate zone downstream of the structural fill core. The structural fill should have a base of a minimum of 50 m measured from the center line of the crest to the downstream toe of the Structural Fill core zone. The contact between the Rockfill and Structural Fill on the downstream side of the embankment should be sloped in the downstream direction and should not be greater than 1 vertical for every 2 horizontal. A near horizontal slope at the contact between the Rockfill and Structural Fill is not acceptable as it can potentially create a zone susceptible to increased pore water pressure and/or water accumulation at this contact. Rockfill and Structural Fill cannot be interbedded. The height of the structural fill on the downstream side of the embankment will be governed by the final thickness of rockfill and the downstream slope of the Structural Fill/Rockfill contact. Rockfill cannot be in contact with Material 2 – Select Fill used as bedding underneath the upstream liner system.

**Construction Considerations**

If Rockfill is used in the construction of the embankment lift thicknesses should be chosen to allow the Rockfill to be easily tied into the Structural Fill lifts. Downstream lifts should be keyed into upstream construction by removing all lose material from the face of the slope and excavating a key platform to allow a minimum 1m overlap (measured horizontally). Key platforms must be prepared as a typical lift surface prior to placement and compaction of the Rockfill lift as is required in the Technical Specifications.

**Alternative Sloping of the Contact Between Rockfill and Structural Fill**

Alternative grade breaks in the contact between Rockfill and Material 3 – Structural Fill can be considered. The location of the grade break would be determined by the volumes of materials being generated. Pelly should propose a grade break based on material quantities available and constructability. All grades used at the contact between the rockfill on the downstream side of the embankment should be a minimum 1 vertical for every 2 horizontal. Slopes should be sufficient to allow water filtration from the overlaying rockfill to drain towards the downstream underdrain. An example of the grade break proposed by Pelly is included in ***Figure 2***.

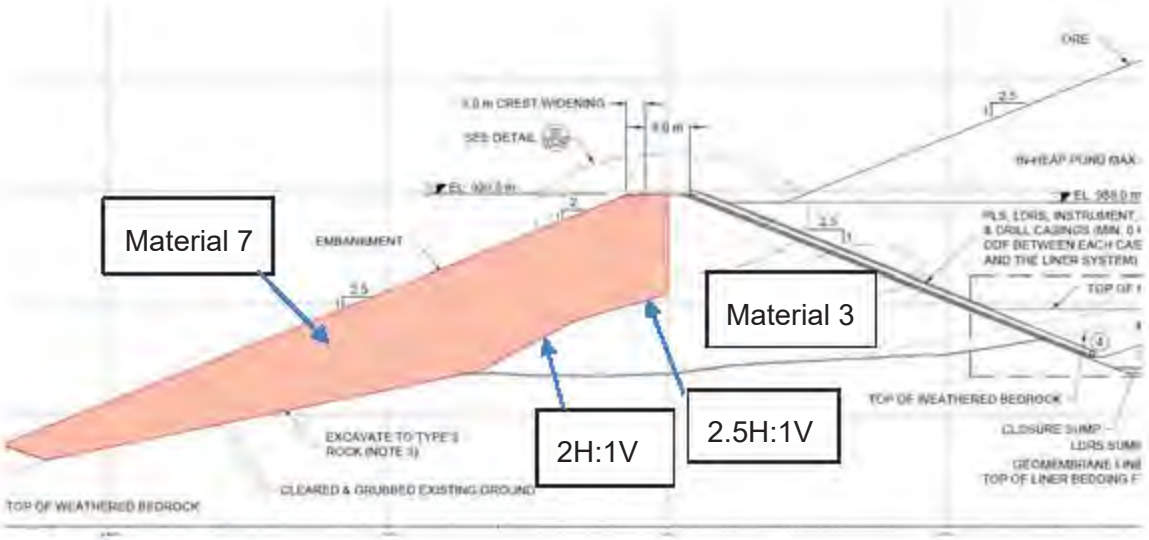



**Figure 2:** Example of potential grade break.

### Upstream Construction Phasing

Pelly discussed the potential use of upstream construction by building a portion of the upstream embankment face with Material 3 then completing the remaining raise of the dam using both Material 3 and Material 7 as shown in ***Figure 3***. This is an acceptable method if Pelly finds it more efficient to construct. Configurations of zones should follow the layout previously discussed in this document. Downstream embankment phases must be keyed into the upstream phase as discussed earlier in this document. The top surface of the Phase 1 construction should be prepared like a typical lift surface as discussed in the Technical Specifications.

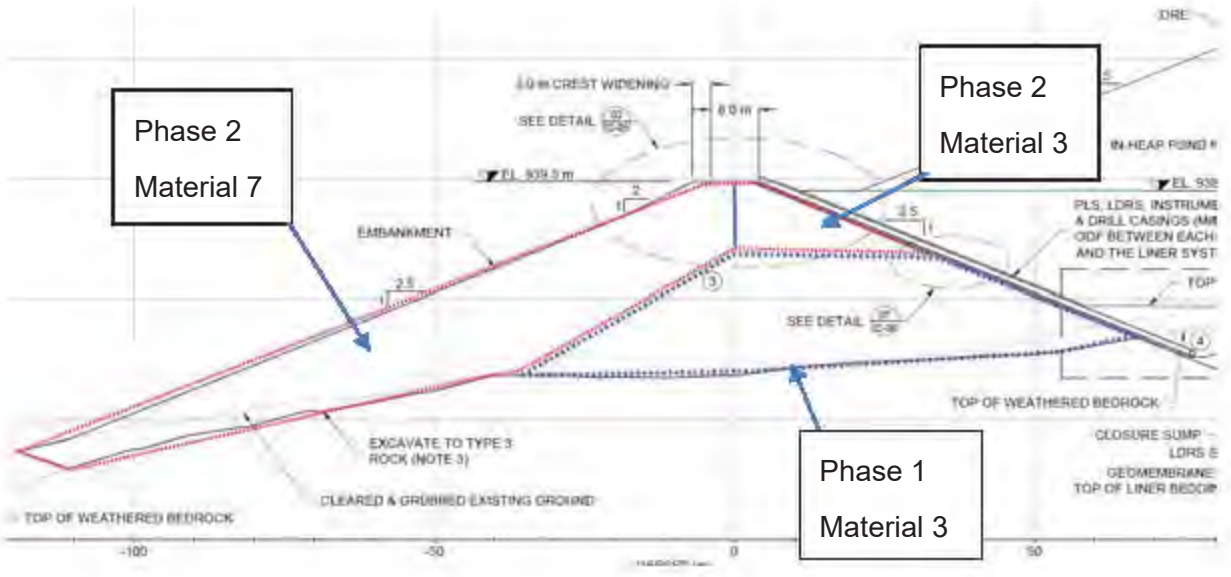



**Figure 3**: Phase construction proposed by Pelly.

**Construction using Material 3 over Material 7**

The use of Material 3 over Material 7 is not recommended as it can result in piping from the Material 3 into the Material 7. Options to prevent piping in such a configuration would include development of transition zones and/or engineering the gradation of both the Material 3 and 7. Both options would limit the availability of the materials, increase the complexity of the design, and could add a significant amount of cost to the project.

STRATAGOLD
EAGLE GOLD PROJECT

# REQUEST FOR INFORMATION

| | |
|---|---|
| **EPCM RFI No.:** | **Site Location:** Eagle Gold |
| **Sub-Contractor RFI No.:** RFI-029 | **Date Submitted:** May 29, 2018 |
| **Subject:** ADS N-12 Connection Joint | **Project Zone/Area:** HLF PHASE 1A & EVENT POND |
| **Sub-contractor:** Pelly Construction | **Station/Location:** |
| **Attention:** | **Discipline:** |

**REQUEST**

**Type of Change:** ☐ Owner Change ☒ Clarification/Info ☐ Field Change ☐ Vendor Change ☐ Design Change ☐ Other

| **Related Drawings:** | **Other Related Documents:** |
|---|---|
| | |

**Information Request/Description of Issue:**

ADS N-12 pipe used throughout the HLF and Event Pond piping systems:
N-12 pipe is available in soil tight (ST), water tight (WT) and plain end, all of which offer joint options of bell and spigot design, gasket, bell wrap or pressure-rated 10.8 psi coupler.

**Proposed Corrective Action**

Connections have been verbally discussed in the past, however please confirm which type of connecting joint is required in each part of Pelly's scope associated with these materials.

| | |
|---|---|
| **Cost Impact:** | |
| **Schedule Impact:** | |

**Requested by:**

| **Shipeng Zheng** | | **May 29, 2018** |
|---|---|---|
| Name | Signature | Date |

RESPONSE

☐ Approved ☐ Approved as noted ☐ Rejected as noted

**Response:**

**Answered by:**

| Name | Signature | Date |
|---|---|---|

Note: *Response to this RFI does not constitute authorization to perform a change to any Contract. The Requestor may proceed with the response only on the basis that the Requestor agrees that it is not a contract change. If the Requestor believes that the response does constitute a contract change, the Requestor shall immediately notify JDS. Work undertaken without JDS written authorization is at the Sub-contractor's risk and expense.*

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EAGLE GOLD PROJECT

## REQUEST FOR INFORMATION

| | |
|---|---|
| **EPCM RFI No.:** | **Site Location:** Eagle Gold |
| **Sub-Contractor RFI No.:** RFI-030 | **Date Submitted:** May 29, 2018 |
| **Subject:** Steel Pipe Works | **Project Zone/Area:** HLF PHASE 1A |
| **Sub-contractor:** Pelly Construction | **Station/Location: HLF Embankment** |
| **Attention:** | **Discipline:** |

**REQUEST**

**Type of Change:** ☐ Owner Change ☒ Clarification/Info ☐ Field Change ☐ Vendor Change ☐ Design Change ☐ Other

**Related Drawings:**

1) EGHLF-XD-05-03 Detail #27
2) EGHLF-XD-05-04 Detail #28 and #29
3) EGHLF-XD-05-03 Detail #27 & EGHLF-XD-05-05 Detail #36
4) EGHLF-XD-05-05 Detail #34
5) EGHLF-XD-05-01 Detail #31
6) RFI-12 RESPONSE

**Other Related Documents:**

**Information Request/Description of Issue:**

1) Please confirm the supply and installation of the PLS and LDRS pump casing is by Pelly; this is contrary to what the drawing shows

2) Pelly understands that the PLS and LDRS pump piping, pipe supports, concrete and polylock embedment strip or batten strip liner anchor will be by others, please confirm

3) For ease of fabrication, Pelly would like to know if there are any limiting constraints or specific design criteria associated with the piping and connections between the casing and manifold piping that must be achieved. Angles, spacing, distances. A pipe schematic design diagram with angles and distances is requested.
   Other than some faint hatching on the pipe drawings there are no specific references to slotting requirements for the PLS casing pipes. Please confirm slotting requirements, if any, with the PLS pump casings.

4) Per note #9, slotting of the casing materials for the LDRS sump is specified for the instrumentation casing. Please confirm that no slotting is required for the LDRS pump casings.

5) Given the slope distance and mean average temperature, please confirm overall length of pipe that is required for each casing. To understand constructability constraints, please provide minimum cover and/or submersion requirements for the thermal protection of buried pipe infrastructure over winter/persisting freezing conditions.

6) Albeit different pipe diameter, please confirm the same gasket and bolt requirements are the same for steel components associated with the LDRS system. Please also confirm if flanging is permissible on the embankment slope components (pump and instrumentation casings) that follow the slope. Pelly's fabricator highly recommends a flanged approach for sectioning the spiral pipe components; this will speed up installation, increase quality assurance, reduce overall cost, and reduce risk of damaging liner by reducing onsite welding and fabrication.

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**Proposed Corrective Action**

| | |
|---|---|
| **Cost Impact:** | |
| **Schedule Impact:** | |

**Requested by:**

| **Shipeng Zheng** | | **May 29, 2018** |
|---|---|---|
| Name | Signature | Date |

RESPONSE

☐ Approved ☐ Approved as noted ☐ Rejected as noted

**Response:**

**Answered by:**

| Name | Signature | Date |
|---|---|---|

Note: *Response to this RFI does not constitute authorization to perform a change to any Contract. The Requestor may proceed with the response only on the basis that the Requestor agrees that it is not a contract change. If the Requestor believes that the response does constitute a contract change, the Requestor shall immediately notify JDS. Work undertaken without JDS written authorization is at the Sub-contractor's risk and expense.*

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EAGLE GOLD PROJECT

# REQUEST FOR INFORMATION

| | |
|---|---|
| **EPCM RFI No.:** | **Site Location:** Eagle Gold |
| **Sub-Contractor RFI No.:** RFI-031 | **Date Submitted:** May 30, 2018 |
| **Subject:** Split Coupling | **Project Zone/Area:** HLF PHASE 1A |
| **Sub-contractor: Pelly Construction Ltd.** | **Station/Location: HLF Embankment Underdrain** |
| **Attention:** | **Discipline:** |

**REQUEST**

| | | | | | | |
|---|---|---|---|---|---|---|
| **Type of Change:** | ☐ | Owner Change | ☒ | Clarification/Info | ☐ | Field Change |
| | ☐ | Vendor Change | ☐ | Design Change | ☐ | Other |

| | |
|---|---|
| **Related Drawings:** XD-03-04 Detail 19 | **Other Related Documents:** Attached drawing |

**Information Request/Description of Issue:**

Pelly's supplier does not stock off the shelf split couplings for the solid HDPE pipe to Corrugated ADS N12. Attached is a solution that our supplier will be able to fabricate using an extrusion weld to fuse the 2 pipe types. Please confirm this is acceptable.

**Proposed Corrective Action**

| | |
|---|---|
| **Cost Impact:** | |
| **Schedule Impact:** | |

**Requested by:**

| **Shipeng Zheng** | | **May 30, 2018** |
|---|---|---|
| Name | Signature | Date |

**RESPONSE**

| | | | | | |
|---|---|---|---|---|---|
| ☐ | Approved | ☐ | Approved as noted | ☒ | Rejected as noted |

**Response: BGC asks Pelly to provide drawing detailing how this change will be used per the design drawings provided. Also provide all engineering properties, procedures of installation to evaluate design change. An installation plan is needed to understand how Pelly will use this item in the the presented design. The drawing should include on a plan view where this item will be used.**

| **Answered by:** | **Daniel Granda** | **Daniel Granda** | **6/3/2018** |
|---|---|---|---|
| | Name | Signature | Date |

Note: *Response to this RFI does not constitute authorization to perform a change to any Contract. The Requestor may proceed with the response*

*only on the basis that the Requestor agrees that it is not a contract change. If the Requestor believes that the response does constitute a contract change, the Requestor shall immediately notify JDS. Work undertaken without JDS written authorization is at the Sub-contractor's risk and expense.*

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EAGLE GOLD PROJECT

# REQUEST FOR INFORMATION

| | |
|---|---|
| **EPCM RFI No.:** | **Site Location:** Eagle Gold |
| **Sub-Contractor RFI No.:** RFI-032 | **Date Submitted:** May 30, 2018 |
| **Subject:** Monitoring Well Decommissioning Requirements | **Project Zone/Area:** HLF Phase 1 |
| **Sub-contractor: Pelly Construction Ltd** | **Station/Location: HLF Embankment** |
| **Attention:** | **Discipline:** |

**REQUEST**

| | | | | | | |
|---|---|---|---|---|---|---|
| **Type of Change:** | ☐ | Owner Change | ☒ | Clarification/Info | ☐ | Field Change |
| | ☐ | Vendor Change | ☐ | Design Change | ☐ | Other |

| | |
|---|---|
| **Related Drawings:** | **Other Related Documents:** |

**Information Request/Description of Issue:**

Pelly is requesting BGC's requirements for the monitor well decommissioning.

Pelly's contractor is mobilizing on June 4, 2018, please send requirements as soon as possible to allow time for the contractor to prepare.

**Proposed Corrective Action**

| | |
|---|---|
| **Cost Impact:** | |
| **Schedule Impact:** | |

**Requested by:**

| **Shipeng Zheng** | | **May 30, 2018** |
|---|---|---|
| Name | Signature | Date |

**RESPONSE**

☐ Approved ☐ Approved as noted ☐ Rejected as noted

**Response:**

The requirements should follow the Protocol for the ***Contaminated Sites Regulation Under the Environment Act, Protocol No. 7: Groundwater Monitoring Well Installations, Sampling and Decommissioning, effective March 1, 2011***. This document, along with ***ASTM D5299-99*** should be the main guide for monitoring well decommissioning requirements. Further requirements are attached to this response.

**Answered by:**

| **Daniel Granda** | | **June 1, 2018** |
|---|---|---|
| Name | Signature | Date |



Note: *Response to this RFI does not constitute authorization to perform a change to any Contract. The Requestor may proceed with the response only on the basis that the Requestor agrees that it is not a contract change. If the Requestor believes that the response does constitute a contract change, the Requestor shall immediately notify JDS. Work undertaken without JDS written authorization is at the Sub-contractor's risk and expense.*

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# Monitoring Well Decommissioning Requirements

| | | | |
|---|---|---|---|
| **To:** | **Calvin Goldschmidt** | **Project:** | **Eagle Gold HLF** |
| **Company:** | **JDS** | **Project No.** | **0792021** |
| **From:** | **Daniel Granda** | **Date:** | **June 1, 2018** |
| **Copied:** | **Troy Meyer; Roy Morlan** | **Record:** | **Water Management** |

**Re: Monitoring Well Decommissioning Requirements**

The requirements should follow the Protocol for the ***Contaminated Sites Regulation Under the Environment Act, Protocol No. 7: Groundwater Monitoring Well Installations, Sampling and Decommissioning, effective March 1, 2011***. This document, along with ***ASTM D5299-99*** should be the main guide for monitoring well decommissioning requirements.

## 1.0 PURPOSE

To decommission monitoring wells within the vicinity of the Eagle Gold HLF and achieve the following:

- Preventing contamination of groundwater by surface sources,
- Reducing risk of void creation in foundation area of Heap Leach Facility,
- Reducing environmental and engineering risk through construction phases, operation and closure.

## 2.0 GROUT MATERIAL

The grout mix should be designed by contractor and meet the following criteria:

- Not react with groundwater or in-situ geology,
- Have a lower than in-situ geology hydraulic conductivity,
- Form a tight bond with the borehole wall (wall should be clean of obstructions),
- Be resistant to cracking and shrinking,
- Be capable of being placed safely, and
- Have sufficient strength to withstand subsurface pressures.

# 3.0 FIELD PROCEDURE

The suggested field procedure for decommissioning a groundwater monitoring well is described below.

## 3.1. Inspection and Preparation

Each borehole and decommissioned well should be inspected to confirm depth, obstructions (e.g. debris, and caving) that may interfere with the placement and performance of the grout. A camera survey can identify the depth and construction of the well if this information is not known.

## 3.2. Casing Removal

Casings will be removed as part of properly sealing a borehole or decommissioned well. The technique of pulling casing using a rig is acceptable only for steel casings. The technique of over drilling, which means drilling around the borehole or decommissioned well casing and pulling out the casing, is also acceptable.

If casing cannot be removed through these two methods, the Engineer with consultation from Victoria Gold's Environmental Representatives will need to approve a plan to seal properly.

## 3.3. Grouting

The borehole should be pressure grouted using a tremie pipe as the drilling stem is removed. The grout should be applied in one continuous procedure to prevent segregation, bridging and dilution. The tremie pipe should be in constant contact with the grout level inside the borehole or decommissioned well to prevent air pockets from forming. The borehole and decommissioned well should be sealed from the bottom of hole to surface. Grout should be inspected 24 hours after placement for settlement, more grout should be added if needed. Inspection should be done by Engineer.

# 4.0 ARTESIAN WELLS

Driller should be equipped to handle a 10 litre per minute artesian well. The hole ID: DG17-847C, is 154.25 metres deep, angle with a true azimuth of 50 degrees and adip of -45 degrees. Hole size is HTW. Regulations should be followed on decommissioning this type of hole, grout from bottom of hole to surface is the expected solution.

## 5.0 DOCUMENTATION

Driller contractor should keep logs of end of construction sealing practices, product certificates and specification. This documentation will be collected for the final construction report from BGC and to document decommissioning of the wells on the Heap Leach Facility.

## 6.0 PROCEDURES AND PROTOCOL

Contractor should refer to “Protocol for the Contaminated Sites Regulation Under the Environment Act, Protocol No. 7: Groundwater Monitoring Well Installation, Sampling and Decommissioning.

Section 4, titled Well Decommissioning, applies and governs all procedures. The standard used by this document refers to American Society of Testing and Materials (ASTM) standard D 5299-99 Standard Guide for Decommissioning of Ground Water Wells, Vadose Zone Monitoring Devices, Boreholes and Other Devices for Environmental Activities.

## 7.0 NOTIFICATION

BGC is expected to be notified of activities for decommissioning to observe procedures and conduct an independent inspection 24 hours after grouting was placed. BGC will ask for copy of the logs at the earliest convenience of drilling contractor for records of construction and foundation preparation.

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EAGLE GOLD PROJECT

# REQUEST FOR INFORMATION

| | |
|---|---|
| **EPCM RFI No.:** | **Site Location:** Eagle Gold |
| **Sub-Contractor RFI No.:** RFI-032 | **Date Submitted:** June 1, 2018 |
| **Subject:** LDRS Pump Casings | **Project Zone/Area:** HLF Embankment Phase 1 |
| **Sub-contractor:** Pelly Construction Ltd | **Station/Location:** |
| **Attention:** | **Discipline:** |

**REQUEST**

**Type of Change:** ☐ Owner Change ☒ Clarification/Info ☐ Field Change ☐ Vendor Change ☐ Design Change ☐ Other

| | |
|---|---|
| **Related Drawings:** XD-05-01/02/03/03/05 | **Other Related Documents:** |

**Information Request/Description of Issue:**

1) LDRS Pump Casings: confirm if perforations required on all 3 casings or just the instrumentation casing as depicted on the drawings. XD-05-05 showing only instrumentation casing with inset note "Perforated & Geotextile Wrapped, 600mm dia SCH 40, 1m Each Way"

2) LDRS & PLS Pump Casings: confirm upper elevation or distance off bottom of pump casing for where perforations should cease, if/where perforations are applicable.

**Proposed Corrective Action**

| | |
|---|---|
| **Cost Impact:** | |
| **Schedule Impact:** | |

**Requested by:**

| **Shipeng Zheng** | | **June 1, 2018** |
|---|---|---|
| Name | Signature | Date |

**RESPONSE**

☐ Approved ☐ Approved as noted ☐ Rejected as noted

**Response:**

1. Please detail 34/05-01. Just instrumentation casing.
2. BGC provided JDS with 3D image of this system, please refer to that document for this answer.

| **Answered by:** | **Daniel Granda** | **Daniel Granda** | **6/11/18** |
|---|---|---|---|
| | Name | Signature | Date |

Note: *Response to this RFI does not constitute authorization to perform a change to any Contract. The Requestor may proceed with the response only on the basis that the Requestor agrees that it is not a contract change. If the Requestor believes that the response does constitute a contract change, the Requestor shall immediately notify JDS. Work undertaken without JDS written authorization is at the Sub-contractor's risk and expense.*

STRATAGOLD
EAGLE GOLD PROJECT

# REQUEST FOR INFORMATION

| | |
|---|---|
| **EPCM RFI No.:** | **Site Location:** Eagle Gold |
| **Sub-Contractor RFI No.:** RFI-034 | **Date Submitted:** June 1, 2018 |
| **Subject:** Closure Drill Casing | **Project Zone/Area:** HLF Embankment Phase 1 |
| **Sub-contractor:** Pelly Construction | **Station/Location:** |
| **Attention:** | **Discipline:** |

**REQUEST**

**Type of Change:** ☐ Owner Change ☒ Clarification/Info ☐ Field Change ☐ Vendor Change ☐ Design Change ☐ Other

| **Related Drawings:** | **Other Related Documents:** |
|---|---|
| Closure Drill Casing Detail #33 | |

**Information Request/Description of Issue:**

1) Is linear welding a necessary requirement here, can we drill, bolt and fishplate these together?

2) Within sump zones, the steel plates are shown as continuous to dimensions provided.
   (a) Standard stock generally ranges up to 5'x10' sheets without requiring special order. Can fabricator construct with standard stock?
   (b) And if so, can fabricator use connection method described in Q1?
   (c) Standard stock is 10' width, ~3m, whereas plan calls for 4m, using 3m will align with standard stock dimension and improve installation efficiency and overall cost, is 3m width acceptable?

3) Steel angle stop at bottom. Please provide dimensions for height of angled stop that is required for drill termination.

**Proposed Corrective Action**

| | |
|---|---|
| **Cost Impact:** | |
| **Schedule Impact:** | |

**Requested by:**

| **Shipeng Zheng** | | **June 1, 2018** |
|---|---|---|
| Name | Signature | Date |

**RESPONSE**

☐ Approved ☐ Approved as noted ☐ Rejected as noted

**Response:**

1.) Fish-plating or any method requiring bolting of plates together is not acceptable. Bold can cause stress points on the liner during operation.
2.) Plate width should be 4m wide per the design. If two connected plates are used the total width should be 4m.
3.) The steel angle should be the width of the steel plate (i.e. 4m) and should have a height of 0.5m perpendicular to the steel plate.

**Answered by:**

Name Troy Meyer Roy Morlan | Signature Roy Morlan | Date June 17, 2018

Note: *Response to this RFI does not constitute authorization to perform a change to any Contract. The Requestor may proceed with the response only on the basis that the Requestor agrees that it is not a contract change. If the Requestor believes that the response does constitute a contract change, the Requestor shall immediately notify JDS. Work undertaken without JDS written authorization is at the Sub-contractor's risk and expense.*

STRATAGOLD
EAGLE GOLD PROJECT

# REQUEST FOR INFORMATION

| | |
|---|---|
| **EPCM RFI No.:** | **Site Location:** Eagle Gold |
| **Sub-Contractor RFI No.:** RFI-035 | **Date Submitted:** June 5, 2018 |
| **Subject:** Plug cut-off elevation | **Project Zone/Area:** HLF Embankment Phase 1 |
| **Sub-contractor:** | **Station/Location: HLF** |
| **Attention:** | **Discipline:** |

**REQUEST**

**Type of Change:** ☐ Owner Change ☒ Clarification/Info ☐ Field Change ☐ Vendor Change ☐ Design Change ☐ Other

| **Related Drawings:** | **Other Related Documents:** |
|---|---|
| | |

**Information Request/Description of Issue:**

Please advise on the plug cut-off elevation for the well decommissioning.

**Proposed Corrective Action**

| | |
|---|---|
| **Cost Impact:** | |
| **Schedule Impact:** | |

**Requested by:**

| **Shipeng Zheng** | | **June, 5, 2018** |
|---|---|---|
| Name | Signature | Date |

RESPONSE

☐ Approved ☐ Approved as noted ☐ Rejected as noted

**Response:**
As per Victoria Gold Well de-commissioning procedure (Attached), plug cut off elevation is to be 1m below the existing surface, backfilled and bucket compacted with surrounding material.

As the well locations in question fall within BGC HLF design area, BGC site engineer has directed cut off elevation of plug to be at existing ground elevation to suit field conditions.

| **Answered by:** | **D'Arcy Comerford** | | **2018-06-11** |
|---|---|---|---|
| | Name | Signature | Date |

Note: *Response to this RFI does not constitute authorization to perform a change to any Contract. The Requestor may proceed with the response only on the basis that the Requestor agrees that it is not a contract change. If the Requestor believes that the response does constitute a contract change, the Requestor shall immediately notify JDS. Work undertaken without JDS written authorization is at the Sub-contractor's risk and expense.*

# EAGLE GOLD PROJECT

## GROUNDWATER WELL/BOREHOLE DECOMMISSIONING GUIDE

**October 2017**

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APPENDIX A Well /Borehole Inspection and Decommissioning Record

# 1 SUMMARY

This procedure covers steps necessary to permanently decommission wells on the Eagle Gold property. The document has been adapted from the ASTM International *Standard Guide for Decommissioning of Groundwater Wells, Vadose Zone Monitoring Devices, Boreholes, and Other Devices for Environmental Activities* (2012). The information contained herein is designed to serve as a general guide only. The ASTM standards should be consulted in the event that any deviation from the steps listed in this document is required.

The guidelines apply to the following:

- Boreholes used for geoenvironmental purposes;
- Monitoring wells;
- Observation wells;
- Piezometers;
- Boreholes used to construct monitoring wells; and
- Any other vadose zone monitoring device.

The process outlined in this document contains four primary phases:

1. Information gathering and planning;
2. Plan implementation;
3. Decontamination of downhole equipment; and
4. Documentation.

Most monitoring wells and piezometers on the Eagle Gold property are used for water quality sampling and/or water level observations. Decommissioning monitoring wells is necessary to prevent migration of contaminants into an aquifer or between aquifers. The intent of this procedure is to provide a reasonable level of confidence to Strata Gold Corp and its contractors in the integrity of decommissioning activities during the construction phase of the Eagle Gold Project.

# 2 PLANNING AND INFORMATION GATHERING

Ideally, planning for well and borehole decommissioning, including information gathering and field inspection, should occur two weeks prior to the anticipated decommissioning date. SGC will share all available well location information with JDS so that appropriate planning can take place and interruptions to the construction schedule can be avoided.

## 2.1 INFORMATION REVIEW

Prior to decommissioning a well, SGC and JDS will work to gather and review all available well-specific information including consultant installation reports and historic test results. SGC and JDS personnel will conduct a field inspection of the well and take a current water level depth reading. Prior to developing a plan for decommissioning a particular well or borehole, SGC, JDS and their subcontractors, should have a thorough understanding of:

- Borehole Depth;
- Historic water level fluctuation;
- Current water level;
- Surface infrastructure (existing and proposed);
- Downhole casing, screen, and instrumentation types;
- Downhole geophysical conditions;
- Contamination concerns; and
- Other installation details.

## 2.2 REVIEW OF DECOMMISSIONING OPTIONS

Decommissioning options will be determined based on well/borehole details gathered during the information review. The casing-type most commonly used on the Eagle Gold property is PVC with vibrating wire piezometers (VWPs) or thermistors installed at one or more depths. However, the characteristics of each well/borehole must be independently verified prior to selecting the most appropriate decommissioning approach (casing removal, plug material, etc.). Below is a general decommissioning process for cased monitoring holes. If water depth is measured at 20 m or less to top of casing, water quality testing and dewatering may have to occur. This determination should be made by the field engineer.

- Whenever possible, the well construction material (casing) should be removed. This can be accomplished through over-drilling for deeper PVC wells, or through the use of an excavator or crane for shallow or steel encased wells. If steel casing cannot be removed, a strategy that perforates the pipe should be considered with a pressurized plug injection system.
- Once casing and instrumentation have been removed, the borehole should be plugged with bentonite, grout, or a bentonite/grout mixture that conforms with ASTM standards.

- Whenever possible, the plugging material should be added as the casing is being removed, serving as a tremie pipe (a.k.a. grout pipe), and ensuring the plug reaches the lowest depth of the borehole.
- If bentonite chips are used, they should be applied in 1 m lifts and allowed to hydrate (absorb water and swell) prior to adding additional lifts. Water used in the creation of a slurry should be of good quality and free of debris, silt, or other deleterious materials.
- Once the grout or bentonite has set, the top 1 m should be excavated and backfilled with surrounding overburden and top soil material.
- The step-by-step decommissioning process utilized should be documented using a standardized form (Appendix A) and include before and after pictures, inspection records, and all other pertinent information such as problems encountered during decommissioning.

Consult Appendix A of the ASTM guidelines for trouble shooting information if abnormal conditions are anticipated or encountered during the decommissioning process.

## 2.3 REVIEW OF MATERIALS

Using borehole specific data, determine the most suitable type and quantity of plug material. To prevent borehole volume underestimation, for example due to overdrilling, it is recommended that an additional 25% of plug material be added to the minimum volume estimate. The use of additives such as cement accelerators or retarders should also be considered where appropriate.

If possible, it is recommended that an on-site geotechnical or hydrogeological engineer be consulted to determine appropriate plug material. This is particularly important in areas near major infrastructure, such as beneath waste rock storage facilities, the heap leach facility, and other water management infrastructure.

# 3 IMPLEMENTATION

## 3.1 DEVELOP FIELD PROCEDURE

Using the information gathered in the previous steps, the EPCM team (SGC and JDS) and sub-contractors should formally review the procedure to identify risks and associated mitigation strategies.

A template for the decommissioning plan can be found in Appendix A.

## 3.2 PLAN IMPLEMENTATION

If possible, a field engineer, hydrogeologist or geologist should be on site to help direct decommissioning activities. If unforeseen conditions cause deviation from the original plan, these deviations will be thoroughly recorded and reported on once decommissioning activities are complete.

# 4 DECONTAMINATION OF DOWNHOLE EQUIPMENT

Some boreholes will contain downhole monitoring equipment such as thermistors or piezometers. Unless already cemented in place, all equipment should be salvaged whenever possible. While contamination is considered to be low risk on the Eagle Gold property, if it is suspected upon inspection that a well or it's groundwater might be contaminated staff should consult the ASTM guidelines for appropriate decontamination strategies.

# 5 DOCUMENTATION

## 5.1 INSPECTION RECORDS

The primary purpose field work records are to provide evidence that appropriate measures have been taken to permanently decommission a well or borehole in a manner that minimizes it from being a conduit for fluid, water, or vapor migration. Properly decommissioned boreholes and wells should have no adverse influence on the local environment.

Maintain the narrative report of activities as a permanent record of the decommissioning activities and include the full set of field activities including:

- Decommissioning date;
- Personnel;
- Source of decommissioning method;
- Step-by-step procedures used in the field;
- Record of all measurements made, depths encountered, types and volume of fluids pumped;
- Photographs before and after, and
- All other pertinent information that is required based on site conditions or regulatory requirements. Any problems encountered should also be documented in detail.

See Appendix A for template.

## 5.2 REPORT

At the completion of field work, a formal technical memo will be developed to document the entire procedure used in the decommissioning process for the borehole or well.

Report in detail the following items as a minimum:

- Background Information:
    - Location of the borehole/well,
    - Purpose of the borehole/well,
    - History of the borehole/well,
    - Chemical parameters and concentrations present during the active life of the well and at the time of plugging; and
    - Information collected prior to the inspection record.
- Testing Prior to Decommissioning:
    - Site characterization (if applicable),
    - Physical testing (depth, structural condition, etc.),
    - Chemical testing results (last chemical analysis for record), and
- Geophysical logging results (if any).
- Decommissioning Design Procedure:
    - Rationale for selection of method used, and
    - Presentation of a decommissioning plan.
- Field Implementation:
    - Description of activities,
    - Variance from plan, and
    - Result of testing and measurements.

# *APPENDIX A*

## Well/Borehole Inspection and Decommissioning Record

*Electronic Versions Attached*

# Well/Borehole Inspection & Decommissioning Record

*Eagle Gold Project*

## *WELL/BOREHOLE INFORMATION SUMMARY*

| Well/Borehole ID | Location Description | Type/Purpose | Install Date |
|---|---|---|---|
| | | | |
| **Depth** | **Coordinates (UTM)** | **Instrumentation** | **Decommission Date** |
| | | | |

## *INSPECTION/MEETING RECORD*

| Date | Purpose | Attendee | Attendee | Attendee | Attendee |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |

## *DECOMMISSIONING DESCRIPTION*

**CASING REMOVAL**

**INSTRUMENTATION REMOVAL**

**PLUG MATERIAL**

**PLUG VOLUME**

## *DECOMMISSIONING PLAN*

| Step | Description | Followed? | Deviation From Plan |
|---|---|---|---|
| 1 | | | |
| 2 | | | |
| 3 | | | |
| 4 | | | |
| 5 | | | |
| 6 | | | |

## *PHOTOGRAPHS*

| Before Decommissioning | | After Decommissioning |
|---|---|---|
| | | |

## *LIST ATTACHMENTS*

STRATAGOLD
EAGLE GOLD PROJECT

# REQUEST FOR INFORMATION

| | |
|---|---|
| **EPCM RFI No.:** | **Site Location:** Eagle Gold |
| **Sub-Contractor RFI No.:** RFI-036 | **Date Submitted:** June 13, 2018 |
| **Subject:** Embankment Underdrain Design | **Project Zone/Area:** HLF Embankment Phase 1 |
| **Sub-contractor:** | **Station/Location: HLF** |
| **Attention:** | **Discipline:** |

**REQUEST**

**Type of Change:** ☐ Owner Change ☒ Clarification/Info ☐ Field Change ☐ Vendor Change ☐ Design Change ☐ Other

| **Related Drawings:** | **Other Related Documents:** |
|---|---|
| EGHLF-XD-03-03<br>EGHLF-XD-03-04<br>EGHLF-XD-03-05 | |

**Information Request/Description of Issue:**

Pelly is requesting details on design changes to the HLF embankment underdrain plan where seeps have been identified within the embankment footprint.

**Proposed Corrective Action**
Provide detailed drawings outlining the design changes, materials required, and placement to accommodate the identified seeps.

| | |
|---|---|
| **Cost Impact:** | Additional work and materials required beyond contract scope |
| **Schedule Impact:** | Extended schedule for underdrain installation |

**Requested by:**

| **Dean Serelo** | | **June 13, 2018** |
|---|---|---|
| Name | Signature | Date |

**RESPONSE**

☐ Approved ☐ Approved as noted ☐ Rejected as noted

**Response:**

Response included in the attached memorandum FM-003 Seeps and Finger Drains.

**Answered by:**

| Name Roy Morlan | Signature *Roy Morlan* | Date June 14, 2018 |
|---|---|---|

Note: *Response to this RFI does not constitute authorization to perform a change to any Contract. The Requestor may proceed with the response only on the basis that the Requestor agrees that it is not a contract change. If the Requestor believes that the response does constitute a contract change, the Requestor shall immediately notify JDS. Work undertaken without JDS written authorization is at the Sub-contractor's risk and expense.*

| | | | |
|---|---|---|---|
| **To:** | **JDS** | **Project:** | **Eagle Gold Construction Support** |
| **Company:** | **BGC** | **Project No.** | **1406-006** |
| **From:** | **Daniel Granda, P.E./Roy Morlan, P.G.** | **Date:** | **2018-06-13** |
| **Copied:** | **Elliot Matthew EIT; Troy Meyer** | **Record:** | **FM-003** |

**Re: Seeps and Finger Drains**

## 1.0 INTRODUCTION

The purpose of this memorandum is to discuss the field observations made along the exposed right abutment and artesian well identified upstream of the partially excavated undrain pipe trench.

Field observations included daily monitoring of potential seeps during no precipitation days, photo records to document observations, and visual confirmation of water flow. The intend of this document is to classify areas that may interfere with moisture conditioning of lifts during construction, damage approved fill placement through water flow and present solutions to be implemented in the field during construction.

## 2.0 WATER MANAGEMENT FIELD OBSERVATION

On May 26th, 2018, representatives from Pelly and JDS, accompanied BGC Resident Engineer (Daniel Granda) to walk the site (**Figure 1**). This meeting took place a day after significant rainfall and the ground was fairly moist. This was used a baseline for identifying seeps occurring during drier conditions.




**Figure 1**: Pelly and JDS representatives present for water management field observation visit.

During the visit, the ground was found to be moist. Sediments had been transported on exposed Type 3 foundation in underdrain pipe trench and moisture from the abutments seemed to be rainfall moisture (**Figure 2**).




**Figure 2**: Seeps were difficult to see after significant rainfall events.

## 3.0 OBSERVATIONS

During a course of 5 days, and in consistent drier weather, moisture spots remained concentrated in areas identified. **Figure 3** presents observations from June 1st, 2018 inspection. **Figure 4** presents field interpretation and seep identification.




**Figure 3**: Upstream view from proposed embankment toe looking upstream




**Figure 4**: Field Interpretation of seeps with identifications for descriptions.




**Figure 4**: Field Interpretation of seeps with identifications for descriptions.




**Figure 5**: Seep 1 view from left abutment.

Both Seep 1 and 2 have been occurring for the past 5 days. Weak, very moist and low resistance to puncture zones were identified by applying finger pressure on wet areas. **Figure 6** presents the interpretation that may be confirmed during abutment foundation preparation for seep 1.




**Figure 6**: Seep 1 interpretation of potential flow path.

The specific source zone point is unknown as the materials on the abutment have high moisture absorption and fine lenses exhibit matric suction properties. In seep 1, the moisture is visible at the close sight on the abutment, liquid is transported downstream of the abutment and reconnects to the underdrain trench sides.




**Figure 7**: Seep 2 view from left abutment.

Seep 2 exhibits the same characteristics as seep 1, with ponded water on surface on bench between abutment and bottom of underdrain trench.

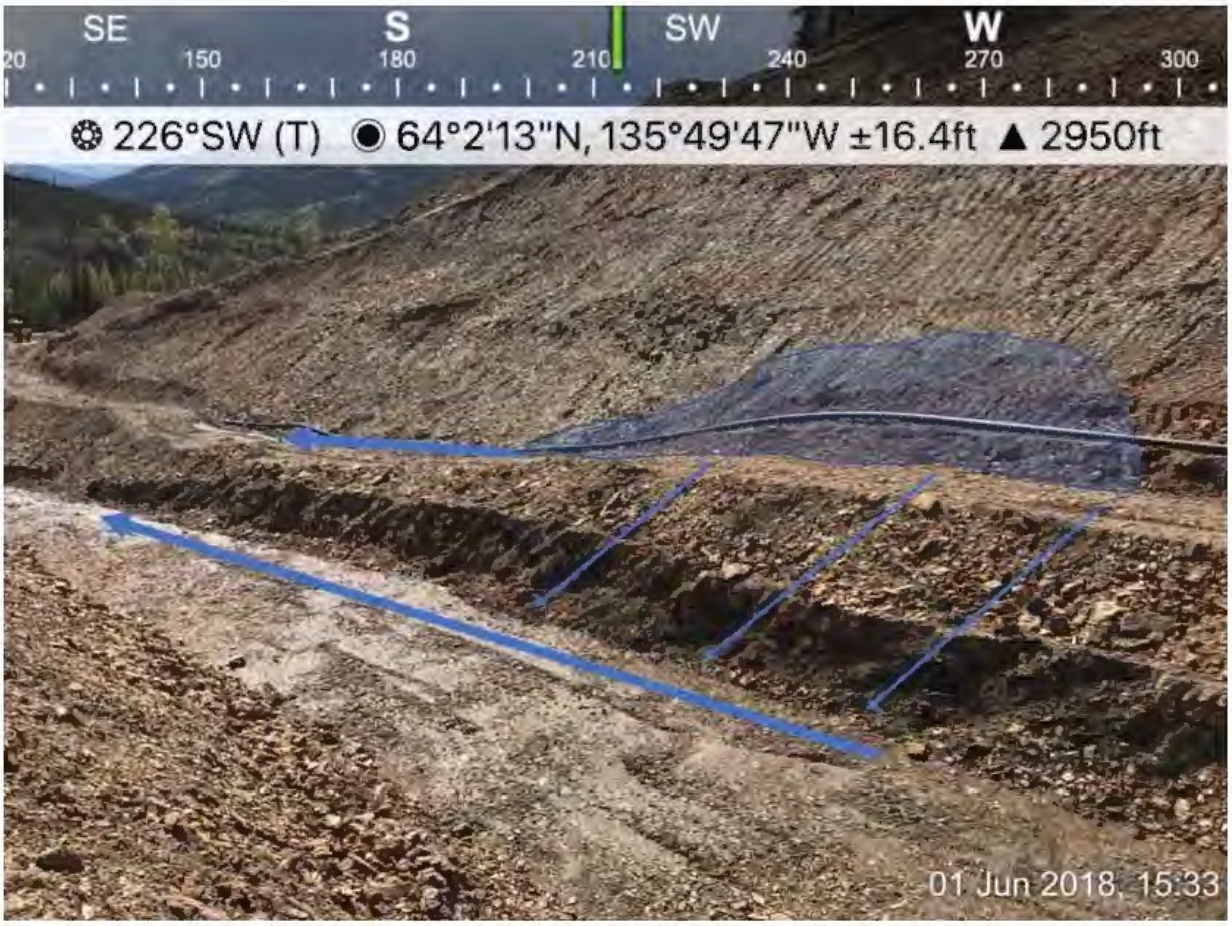


**Figure 8**: Seep 2 interpretation of potential flow path.




**Figure 9**: Seep 3 view from upstream underdrain trench

Seep 3 is believed to be coming from the artesian source identified during inspections. There is a clear connection of moisture oriented from the assumed source to the underdrain trench.




**Figure 10**: Seep 3 interpretation of potential flow path.

## 4.0 SUGGESTED MITIGATION

A field design to help the contractor to dissipate seepage and surface runoff from the abutments during construction seems to be the best approach. The goal of this mitigation is to provide a way of transporting excess water during construction (lift placements and compaction) to meet compaction specifications, transport and reduce pore water pressures inside the constructed embankment for long term stability.

## 5.0 FINGER DRAIN

A total of 3 finger drains are proposed (one finger drain at Seep 1, one finger drains at Seep 2, and one finger drain at Seep 3). The centerline location of each finger drain was surveyed by Pelly's survey team. A figure showing the location was not provided to BGC before completion of this memorandum. However, each drain will be an estimated 10 m in length. Although it is not currently anticipated, these finger drains can be extended in length if moisture along the abutments appear to be an issue during construction.

The finger drain trenches should be a minimum of 2 m wide, by a minimum of 0.75 m high, with a 2:1 slope on each side. The drain trench should be excavated in Type 3 Bedrock or better. Similar requirements to the underdrain will be used to construct it (e.g. geotextile overlap, select throughout). The final drain will be field fitted and the final length and construction details will be dependent on the ground conditions and its ability to tie into the Pipe Trench. However, the drain should meet the minimum dimensions discussed here. The detail for the minimum requirements is presented as **Figure 11**.

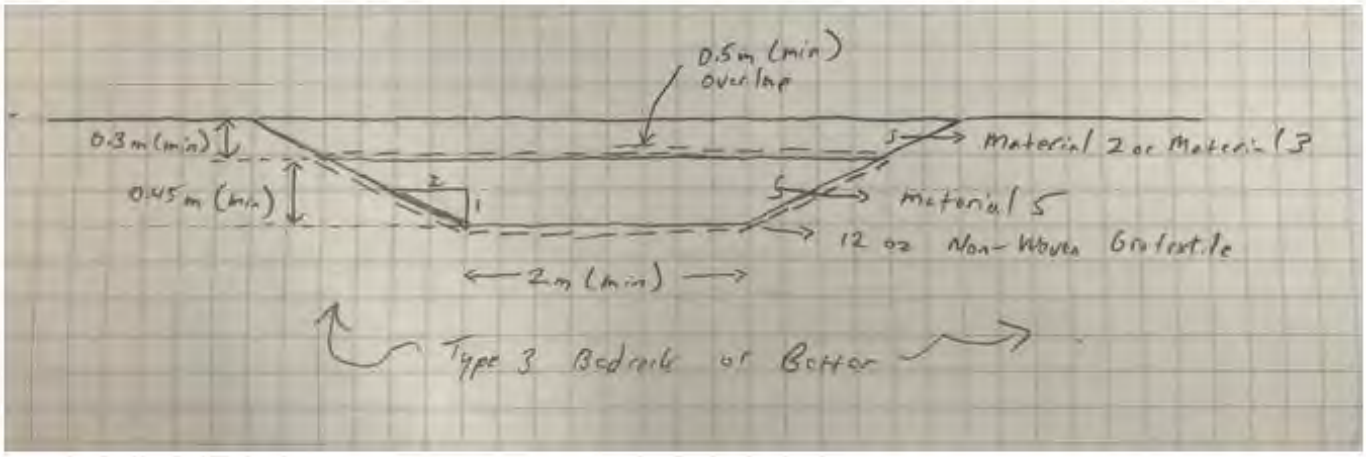


**Figure 11**: Typical section for finger drain.

Finger drains will tie into the drain rock at the pipe trench. Geotextile in the finger drains should overlap with the pipe trench by a minimum of 0.5 m. The Constructor should propose a method to overlap the geotextile at this connection based on constructability. BGC should review this connection prior to construction. The following sketch is a plan view of the finger drains in relation to the pipe trench (**Figure 12**).

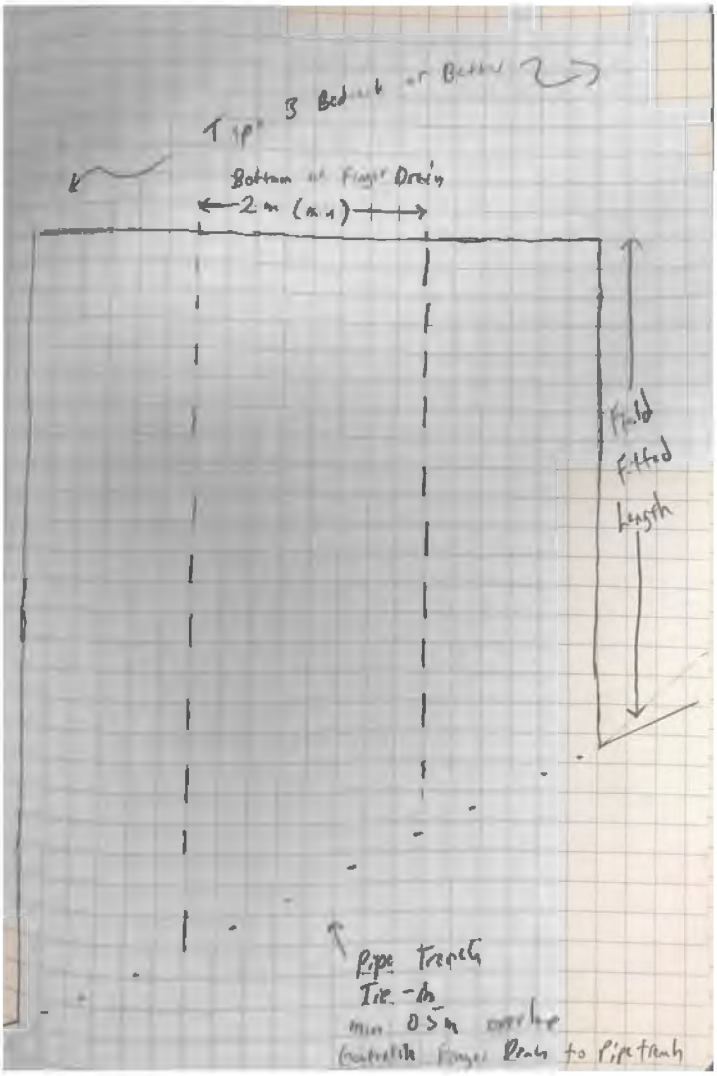


**Figure 12**: Plan view for finger drain layout.

## 6.0 SUMMARY AND RECOMMENDATIONS

A finger drain will be needed to reduce porewater pressures during construction through operations. The design presented could help drain slopes and maintain control of water during material lift placements prior to compaction.

This drain design is not intended for the control of the water on the east side of the embankment where the artesian hole was discovered. A separate design will be developed for the drain on that side of the embankment.

## 7.0 CLOSURE

BGC Engineering Inc. (BGC) prepared this document for the account of JDS. The material in it reflects the judgment of BGC staff in light of the information available to BGC at the time of document preparation. Any use which a third party makes of this document or any reliance on decisions to be based on it is the responsibility of such third parties. BGC accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this document.

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Yours sincerely,

**BGC ENGINEERING INC.**
**per:**

Roy Morlan, PG.

June 18, 2018

Attention: Roy Morlan : BGC Engineering

**Re: Strata Gold – Eagle Gold Project**
**Contract No. YG403 – Heap Leach Facility**
**Subject: Stockpile Management Plan**

**Response to BGC-RFI-003**

**Response:**

The produced Heap Leach Facility (HLF) fill materials are to be managed by the EPCM team while Pelly Construction will manage stockpiled materials excavated from the ADR Plant pad and HLF abutment.

**EPCM Managed Materials**

Attached drawing VICEAG05E-220-9900-0001 illustrates the produced stockpiles locations, material type, specification, total quantity produced, contractor responsible for placement, and engineering firm responsible for materials specification.

- HLF Materials
    1. Spec #6 – Pipe Bedding (SDF) Select Drain Fill
    2. Spec #7 – Overliner Drain Fill (ODF)

- Material Testing
    - Sieve analysis testing will continue to be performed by Tetra-tech.

- Quantity
    - Produced stockpiles will be surveyed weekly; updated quantities and newly produced stockpiles will be shown in an updated revision of drawing VICEAG05E-220-9900-0001 and distributed to the appropriate parties.

- Identification
    - Signs are to be placed at the toe of each stockpile identifying the material type and contractor responsible for placement.

- Tracking
    - Placed material quantities to be tracked by recording the number of loads by truck type.

**Pelly Construction Managed Materials**

Attached drawings EMB008-1 and EMB008-2 illustrates stockpiled locations, material type, and quantity.

- Structural Fill
  1. 82,181 m3 contained within the HLF Embankment footprint
  2. 55,912 m3 at the ADR Pad stockpile
  3. Estimated 34,300 m3 will be structural fill for the remainder of the unexcavated ADR Pad material

- Rockfill
  1. 89,995m3 at the ADR Pad stockpiles
  2. Estimated 68,700 m3 will be rockfill for the remainder of the unexcavated ADR Pad material

- Quantity
  - Produced stockpiles will be surveyed prior to excavation

- Tracking
  - Placed material quantities to be tracked by recording the number of loads by truck type.

**STRATAGOLD**
**EAGLE GOLD PROJECT**

# REQUEST FOR INFORMATION

| | |
|---|---|
| EPCM RFI No.: 37 | **Site Location:** EGP_HLF |
| Sub-Contractor RFI No.:CC204 | **Date Submitted:** June 20, 2018 |
| Subject: HLF PAD UNDERDRAINS | Project Zone/Area: |
| **Sub-contractor: Pelly** | **Station/Location: Eagle Gold** |
| **Attention: JDS** | **Discipline: Earthworks** |

**REQUEST**

| | |
|---|---|
| **Related Drawings:**<br>**EGHLF-XD-03-03**<br><br>**EGHLF-XD-03-04 Detail 18, 19**<br><br>**EGHLF-XD-03-05 REV A DRAFT IFC**<br><br>**EGHLF-XD-03-05** | **Other Related Documents:** |

**Information Request/Description of Issue:**

Issue:

(1) The majority of surface water and groundwater seepage is found at the interface between colluvial material and bedrock, as a result, the use of temporary sumps and ditching in the overlying colluvium are not sufficient to capture/divert upslope drainage from reaching embankment underdrain system during course of construction.

The colluvium materials exhibit signs of high moisture: a solution is required to help drain elevated moistures in advance of subsequent pad development while helping to reduce unsuitable material classification that results from excessive moisture content.

The wet colluvium materials and drainage along bedrock contacts is already disruptive to planned productivities in achieving timely embankment construction and threatens to delay further embankment and pad area preparations if not sufficiently addressed.

(2) Potential encroachment conflict between underdrain piping and overlying liner and PLS collection systems.

(3) IFC drawings showing a pitchfork arrangement for the closure underdrain that splits into 3 runs leading up to the closure sump. This was changed from Y connections in the course of the draft drawings in response to procurement options that were being explored.

(4) The drawings do not specify the exact type of ADS N12 product to use, therefore Pelly is seeking formal approval of the ADS N12 pipe material that our vendor can supply.

Proposed solution for approval relative to above numbering:

(1)

a. Begin construction of pad area underdrains upstream of the embankment. Pelly seeks approval to proceed with the sump and pad area underdrain installations (associated with this will be COR#3 pertaining to

4110.5.03/04 pad area underdrains, to follow after confirmation of the construction approach).

b. Help ensure drainage occurring at the interface with bedrock is most efficiently captured by the underdrains by excavating trenches for the underdrains such that the underdrains are sufficiently recessed below the bedrock contact, including consideration for Select Fill and Select Drain Fill.

   i. Trench spoil will be side cast as there will be no practical means to achieve hauling access for loading out materials; colluvial and bedrock materials will both be casted and mixed together.

   ii. Once the headers and laterals are installed, colluvium to design depth will be dozed down slope, above/across installed underdrains for loading out where practical truck access may be achieved.

(2) Pelly requests a 3D profile of the trench before backfill that establishes the maximum elevation profile for underdrain piping occurring below the PLS header piping. This is needed to ensure a minimum excavation depth such that there is no encroachment on the liner and PLS collection system requirements, with consideration for minimum thicknesses for Select Fill and Select Drain Fill, liner bedding and geometries as may be applicable.

(3) Revert to Y connection arrangement as originally shown on EGHLF-XD-03-05 REV A; insofar as the Y type connections versus a cross connection with 2x 90 degree elbows to establish the 3 runs to the closure sump.

(4) ADS N12 BXS HDPE Perforated Corrugated.

**Proposed Corrective Action**

| **Type of Change:** | ☐ Owner Change | ■ Clarification/Info | ☐ Field Change |
|---|---|---|---|
| | ☐ Vendor Change | ☐ Design Change | ☐ Other |
| **Cost Impact:** | | | |
| **Schedule Impact:** | | | |

**Requested by:** **Dan Russell** **June 20, 2018**

Name Signature Date

## RESPONSE

☐ Approved ☐ Approved as noted ☐ Rejected as noted

**Response:**

See attached Response to CC204-RFI-037

**Answered by:**

Name Roy Morlan Signature Roy Morlan Date June 25, 2018

*Note: Response to this RFI does not constitute authorization to perform a change to any Contract. The Requestor may proceed with the response only on the basis that the Requestor agrees that it is not a contract change. If the Requestor believes that the response does constitute a contract change, the Requestor shall*

BGC ENGINEERING INC.
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# Response to CC204-RFI-037

| | | | |
|---|---|---|---|
| **To:** | **Calvin Goldschmidt** | **Project:** | **Eagle Gold HLF** |
| **Company:** | **JDS** | **Project No.** | **0792021** |
| **From:** | **Roy Morlan** | **Date:** | **June 25, 2018** |
| **Copied:** | **Troy Meyer; Dan Granda** | **Record:** | **Response to CC204-RFI-037** |

**Re: Response to CC204-RFI-037:**

## 1.0 RESPONSE

**Response to Question 1: The use of heap leach underdrains as water control for construction.**

*Construction of the Header Trench and Lateral Trenches into Bedrock*

The Header Trench and Lateral Trenches will meet the design intent if excavated into the upper bedrock zone and the drains constructed. If done so, the final construction to grade should be as shown in ***Figure 1*** where colluvium will separate the drain construction from the liner system. Construction can be done prior to preparation of subgrade at the Phase 1 HLF, as is suggested in the RFI. BGC would provide approval of what constitutes the upper bedrock zone based on the Technical Specifications. Excavation should not be performed unless BGC is present.

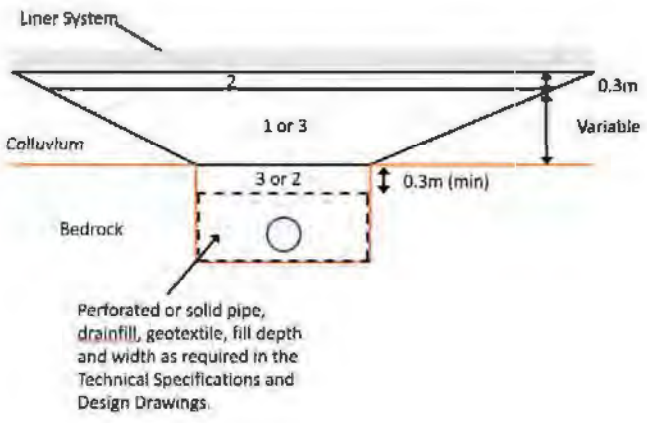


***Figure 1:*** Typical completed drain trench design when build in bedrock with colluvium overburden.

*Construction considerations*

The following construction considerations should be taken into account:

- Trench spoils can be side cast from the trench with the assumption that they will be removed or used later in construction.
- Trench spoils may be used to backfill in the trench. However, the spoils must meet requirements in the Technical Specifications for the zone it will be used in (i.e. Material 1, Material 2, or Material 3).
- Dozing over drain construction is acceptable if the drain fill maintains a cover of at least 0.3m. Trafficking over a drain with less than 0.3m of cover may result in excavation and re-construction of the drain due to the potential for damaging of the drain pipe.
- If dozing during site grading results in undercutting of the pipe trench fill materials or adjacent bedrock then the undercut area will be filled back to grade with Material 2 or Material 3. Damage to the geotextile in the drain will result in excavation and repair of that drain.
- All Lateral Drains must be sloped at a minimum of 2% towards the Header Trench through the entire run of the drain.
- If high velocity water flows are observed in the drain trenches measures may be needed to reduce the volume and/or flow velocities in order to place materials.
- Material 2 and Material 1 must be graded such that they are filter compatible when placed next to each other. The field engineer will determine compatibility based on lab testing and recommend mitigation measure (such as geotextile separation) if appropriate.
- Drain construction (i.e select drain fill, geotextile, and 30cm cover) should be protected from erosion caused by surface flow. This can be done by placing sacrificial lifts above the construction. Pelly can propose other methods to protect the construction for BGC's review.
- Installed drain rock, piping, and geotextile should not be left exposed where siltation can occur.
- The final spacing, location, and number of the laterals may be altered by the field engineer to accommodate observed field conditions and/or to collect observed seeps and drain wet areas.

**Response to Question 2: 3D profile**

BGC can provide a 3D profile of the Lateral and Header pipe trenches before backfill, pursuant on JDS's approval of the costs associated with the effort. For Pelly's planning purposes it should be understood that before a profile can be generated BGC will need to be provided a detailed topography and raw data for the entire area to be modeled with a resolution of 1m. BGC will require 7 days from the time we receive this data to complete the model and perform quality control.

**Response to Question 3: Y Connection**

A Y connection will be acceptable.

**Response to Question 4: ADS N12**

The cell classification for ADS N12 BXS HDPE perforated, corrugated pipe provided does not meet all criteria of the Technical Specifications. Pelly should provide pipe manufacture information that shows a minimum compliance with all cell classification or an explanation from the pipe manufacture how a comparable test method shows compliance with the cell classifications.

Pelly should provide BGC specifications sheets showing that the perforations in the pipe meet the required standards referenced in the Technical Specifications.

Via an email sent by Dan Russel (Pelly) on June 21, 2018 Pelly has also asked for approval to remove wire ties from the ADS N12 installation. BGC recommends that the wire ties not be removed due to risk of pipe separation.

STRATAGOLD
EAGLE GOLD PROJECT

# REQUEST FOR INFORMATION

| | |
|---|---|
| **EPCM RFI No.:** | **Site Location:** Eagle Gold |
| **Sub-Contractor RFI No.:** RFI-038 | **Date Submitted:** June 25, 2018 |
| **Subject:** Bobcat MT85 | **Project Zone/Area:** HLF Phase 1A |
| **Sub-contractor:** | **Station/Location: HLF Embankment Underdrain** |
| **Attention:** | **Discipline:** |

**REQUEST**

**Type of Change:** ☐ Owner Change ☒ Clarification/Info ☐ Field Change ☐ Vendor Change ☐ Design Change ☐ Other

| | |
|---|---|
| **Related Drawings:** | **Other Related Documents:** Bobcat MT85 specification |

**Information Request/Description of Issue:**

Pelly wants to bring in a Bobat MT85 ride-on mini track loader for spreading Select Drain Fill on top of the geotextile and above the drain pipes.

**Proposed Corrective Action**

| | |
|---|---|
| **Cost Impact:** | |
| **Schedule Impact:** | |

**Requested by:**

| **Shipeng Zheng** | | **June 25, 2018** |
|---|---|---|
| Name | Signature | Date |

**RESPONSE**

☐ Approved ☐ Approved as noted ☐ Rejected as noted

**Response:**

**Answered by:**

| Name | Signature | Date |
|---|---|---|

Note: *Response to this RFI does not constitute authorization to perform a change to any Contract. The Requestor may proceed with the response only on the basis that the Requestor agrees that it is not a contract change. If the Requestor believes that the response does constitute a contract change, the Requestor shall immediately notify JDS. Work undertaken without JDS written authorization is at the Sub-contractor's risk and expense.*

Pelly Construction Ltd.

# Field Changes

- The backfill material above the HLF Embankment Underdrain header pipes has changed to Material 2 from Nuway. Pelly will construct in 30cm lifts and compacted by a CAT68B vibratory compactor. BGC has approved the backfill material, the size of the vibratory compactor, and the method of compaction.

Moisture will need to be added before placement to meet optimal moisture.

Ray Murlin

6-26-18

STRATAGOLD
EAGLE GOLD PROJECT

# REQUEST FOR INFORMATION

| | |
|---|---|
| **EPCM RFI No.:** | **Site Location:** Eagle Gold |
| **Sub-Contractor RFI No.:** RFI-039 | **Date Submitted:** July 8, 2018 |
| **Subject:** Embankment Construction | **Project Zone/Area:** HLF Phase 1A |
| **Sub-contractor:** | **Station/Location: HLF Embankment** |
| **Attention:** | **Discipline:** |

**REQUEST**

| | | | | | | |
|---|---|---|---|---|---|---|
| **Type of Change:** | ☐ | Owner Change | ☒ | Clarification/Info | ☐ | Field Change |
| | ☐ | Vendor Change | ☐ | Design Change | ☐ | Other |

| | |
|---|---|
| **Related Drawings:** Eagle Gold Project HLF Phase 1 Final Design Drawings | **Other Related Documents:** Eagle Gold Project HLF Phase 1 Final Design Report |

**Information Request/Description of Issue:**

1. Pelly is requesting from the EPCM, the approved plan for the artesian well drain system. The conceptual solution as understood by Pelly via email exchange with Clint and others in about June 22 was to order materials to satisfy two setups: 2 of HDPE 6" Y's connections, 2 of 24"HDPE:24"ADS_N12 butt fused adapters (vendor fabricated), 2 of 6" ADS end caps, and 72m of ADS N12 perforated pipe. These materials were procured on June 25th, awaiting delivery.
2. Pelly is requesting from the EPCM, the approved test fill plan (rock fill and structural fill) that outlines the material testing requirements and frequencies (ie. Tests per volume and/or lifts placed). This is needed by Pelly in its response to BGC RFI#8 in order to understand construction scheduling constraints associated with the embankment construction.
3.

**Proposed Corrective Action**

| | |
|---|---|
| **Cost Impact:** | |
| **Schedule Impact:** | |

**Requested by:**

| **Shipeng Zheng** | | **June 25, 2018** |
|---|---|---|
| Name | Signature | Date |

**RESPONSE**

| | | | | | |
|---|---|---|---|---|---|
| ☐ | Approved | ☐ | Approved as noted | ☐ | Rejected as noted |

**Response:**

**Answered by:**

Name Signature Date

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EAGLE GOLD PROJECT

# REQUEST FOR INFORMATION

| | |
|---|---|
| **EPCM RFI No.:** | **Site Location:** Eagle Gold |
| **Sub-Contractor RFI No.:** RFI-40 | **Date Submitted:** Aug 1, 2018 |
| **Subject:** HLF Embankment Construction | **Project Zone/Area:** |
| **Sub-contractor:** | **Station/Location: HLF Embankment** |
| **Attention:** | **Discipline:** |

**REQUEST**

**Type of Change:** ☐ Owner Change ☐ Clarification/Info ☒ Field Change ☐ Vendor Change ☐ Design Change ☐ Other

| | |
|---|---|
| **Related Drawings:** See attached 03-05 | **Other Related Documents:** |

**Information Request/Description of Issue:**
Pelly is requesting the confirmation of the new Embankment material geometry discussed in the field on July 27, 2018.

| | |
|---|---|
| **Cost Impact:** | |
| **Schedule Impact:** | |

**Requested by:**

| Name | Signature | Date |
|---|---|---|
| **Shipeng Zheng** | | **Aug 1, 2018** |

**RESPONSE**

☐ Approved ☒ Approved as noted ☐ Rejected as noted

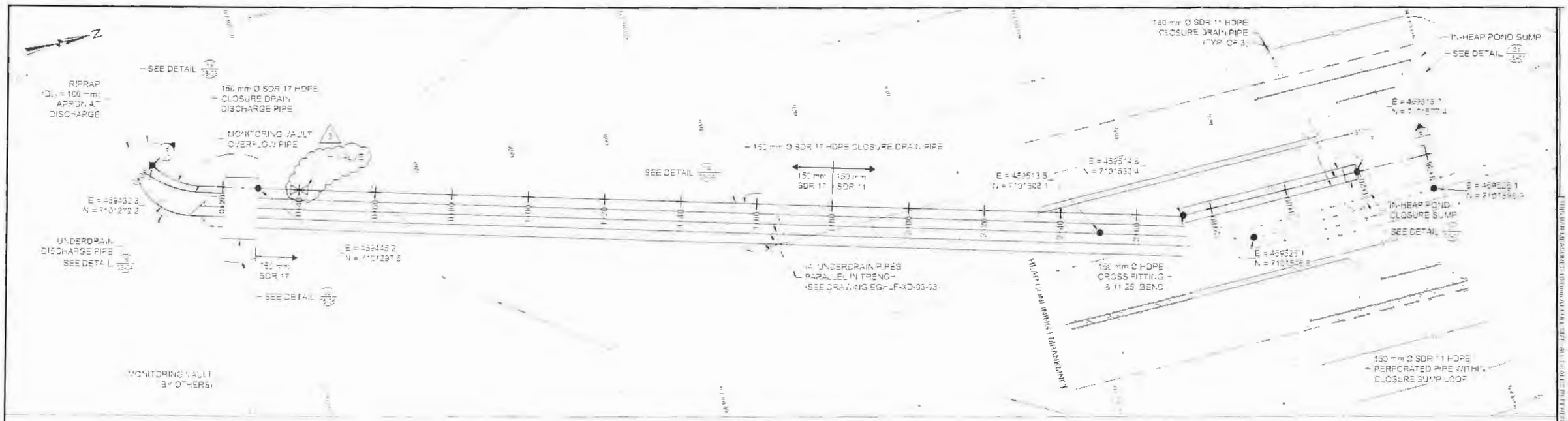
**Response:**

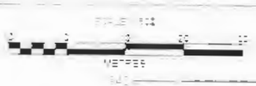
See attached drawing with zoning discussed in the field July 27, 2018. An answer to this RFI was informally provided the week of July 30 and work has proceeded forward in compliance with this change. This response is to formally close this RFI.

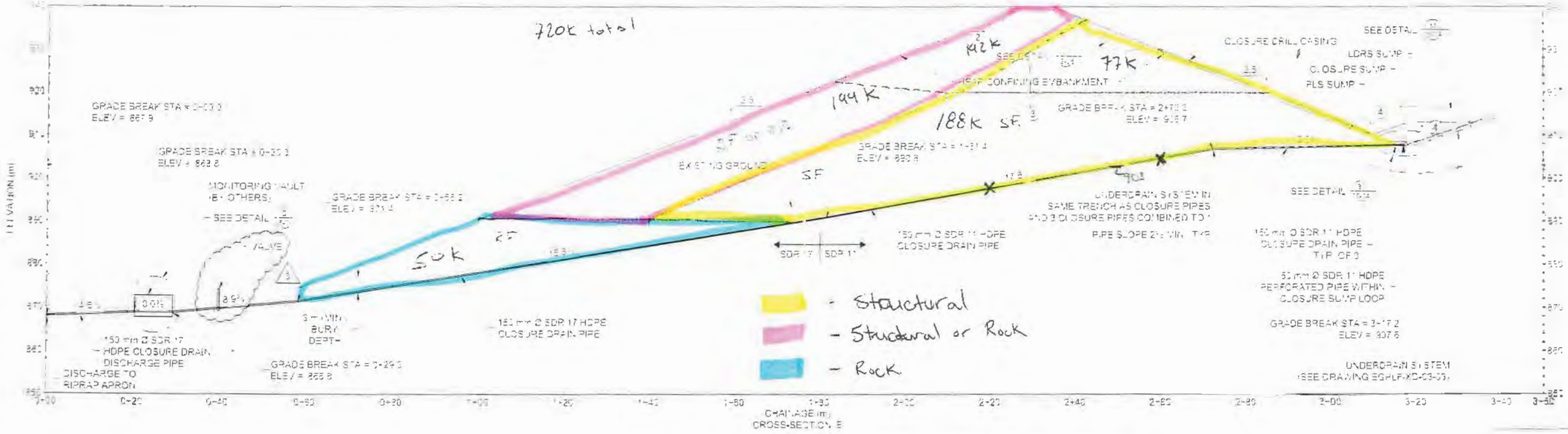
**Answered by:**

Name: Roy Morlan Signature: Roy Morlan Date: September 6, 2018

Note: *Response to this RFI does not constitute authorization to perform a change to any Contract. The Requestor may proceed with the response only on the basis that the Requestor agrees that it is not a contract change. If the Requestor believes that the response does constitute a contract change, the Requestor shall immediately notify JDS. Work undertaken without JDS written authorization is at the Sub-contractor's risk and expense.*

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142K
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EXISTING GROUND
HEAP CONFINING EMBANKMENT
CLOSURE DRILL CASING
LDRS SUMP
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PLS SUMP
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GRADE BREAK STA = 0+30.0
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EAGLE GOLD PROJECT

# REQUEST FOR INFORMATION

| | |
|---|---|
| **EPCM RFI No.:** | **Site Location:** Eagle Gold |
| **Sub-Contractor RFI No.:** RFI-041 | **Date Submitted:** Sept 18, 2018 |
| **Subject:** HLF PLS Header and Recovery Piping | **Project Zone/Area:** HLF in heap |
| **Sub-contractor:** Pelly Construction | **Station/Location: HLF Embankment** |
| **Attention:** | **Discipline:** |

**REQUEST**

**Type of Change:** ☐ Owner Change ☒ Clarification/Info ☒ Field Change ☐ Vendor Change ☐ Design Change ☐ Other

| **Related Drawings:** | **Other Related Documents:** |
|---|---|
| XD-05-01; XD-05-02; XD-05-03; XD-05-04<br>XD-06-01; XD-06-02; XD-06-03 | Image 1: PLS piping plan overlaid on JDS liner surface |

**Information Request/Description of Issue:**
Pelly is requesting details and requirements for the extension of the PLS header pipes from the PLS sump through the impoundment area. The header pipes will require to transition from horizontal to a 3:1 slope leaving the in heap sump as well as transition from the 24m spacing leaving the sump to the minimum 5m spacing through the impoundment. The rough liner shaping surface of the in heap area was supplied by JDS and creates significant grade changes between the top of the in heap sump and the 940 bench elevation.
Concerns:
-custom fittings required to match slope changes and allow for bending of PLS header pipes
-requirement for piping to lie directly on liner surface or allow for ODF material to be placed below the pipes
-corrugated collector piping will branch off of header pipes on transitioning slopes and angles

| | |
|---|---|
| **Cost Impact:** | |
| **Schedule Impact:** | |

**Requested by:**

| **Dean Serelo** | | **Sept 18, 2018** |
|---|---|---|
| Name | Signature | Date |

**RESPONSE**

☐ Approved ☐ Approved as noted ☐ Rejected as noted

**Response:**

**Answered by:**

| Name | Signature | Date |
|---|---|---|

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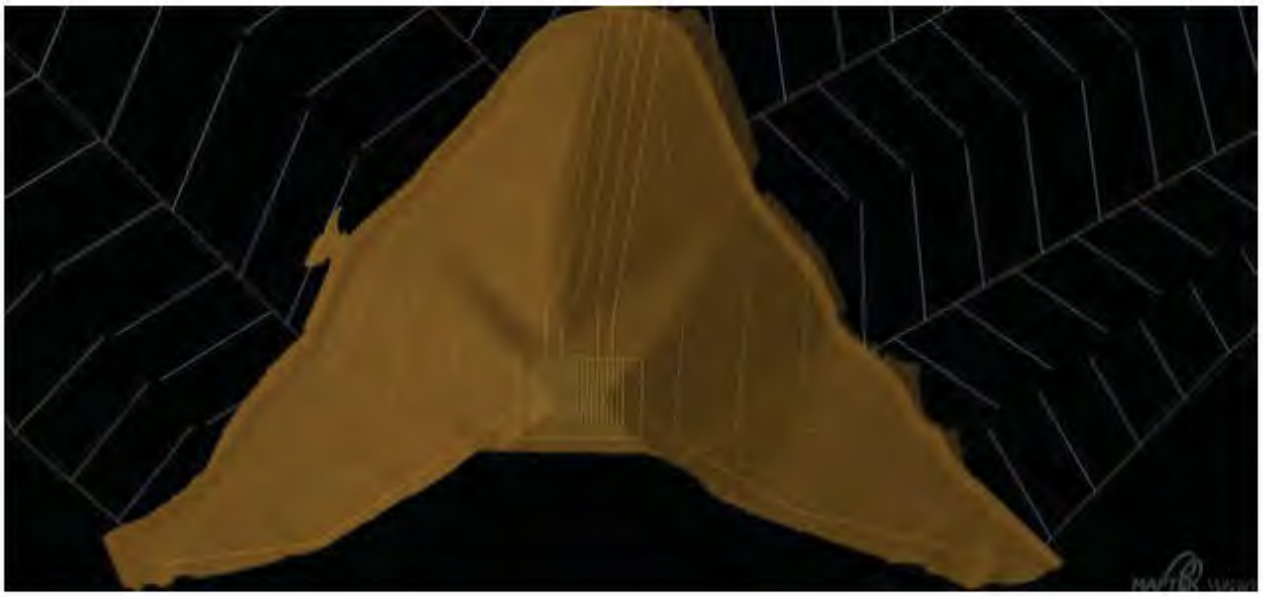


Image 1: PLS piping plan overlaid on JDS liner surface

STRATAGOLD
EAGLE GOLD PROJECT

# REQUEST FOR INFORMATION

| | |
|---|---|
| **EPCM RFI No.:** | **Site Location:** Eagle Gold |
| **Sub-Contractor RFI No.:** RFI-042 | **Date Submitted:** Sept 21, 2018 |
| **Subject:** HLF PLS Header and Recovery Piping | **Project Zone/Area:** HLF in heap |
| **Sub-contractor:** Pelly Construction | **Station/Location: HLF Embankment** |
| **Attention:** | **Discipline:** |

**REQUEST**

**Type of Change:** ☐ Owner Change ☒ Clarification/Info ☒ Field Change ☐ Vendor Change ☐ Design Change ☐ Other

| **Related Drawings:** | **Other Related Documents:** |
|---|---|
| XD-06-02-Detail 47 and 49 | |

**Information Request/Description of Issue:**

1) Regarding detail #47 (EGHLF-XD-06-02):
   -calls for 3m of 300mm SDR11 connected to 250mm Corrugated & Perforated PE N-12. I'd like to proceed as we did with the underdrain laterals with the ADS N-12 material fused onto the end of the HDPE pipe. This will require a slight change in the design whereby the upstream end of the 3m 12" HDPE pipe will have a 12"x10" HDPE reducer incorporated that is then fused with the ADS. Total assembly rated to 0 PSI due to the ADS end connection. For your reference I've attached the ADS-N12 manufacturer specifications.
2) Regarding detail #49 (EGHLF-XD-06-02):
   -Trying to understand the reasoning for this in the design?? Seems like a cumbersome requirement for installation, not to mention added cost.
   -for the double pipe section, are these required to be 1m minimum distance apart as noted in other detail?
   -assuming 1m clearance, I think a T connection with pair of 90's will be required versus a wye connection.
3) Use of sleepers. Constructability and fusing on top of liner, can we utilize sleepers (wood dunnage to prop pipe off of the liner) to provide clearance and for aligning pipe to perform fusing in place? Is this permissible, and what kind of precautions should we need in place to protect liner – I'm thinking in terms of point loading, ie. 16oz rub sheet on top of liner, overlain by plywood of sum area(?), overlain by dimensional blocking (8" sleeper) to support the pipe. If impractical to remove without risking damage to liner, can we leave these sleepers in place (permanently? -I anticipate this only for the 18" HDPE piping.

For (1) and (2), hoping to hear from you in next few hours so I can line up final ordering details and fabrication requirements by end of today.

| | |
|---|---|
| **Cost Impact:** | |
| **Schedule Impact:** | |

**Requested by:**

| **Shipeng Zheng** | | **Sept 21, 2018** |
|---|---|---|
| Name | Signature | Date |

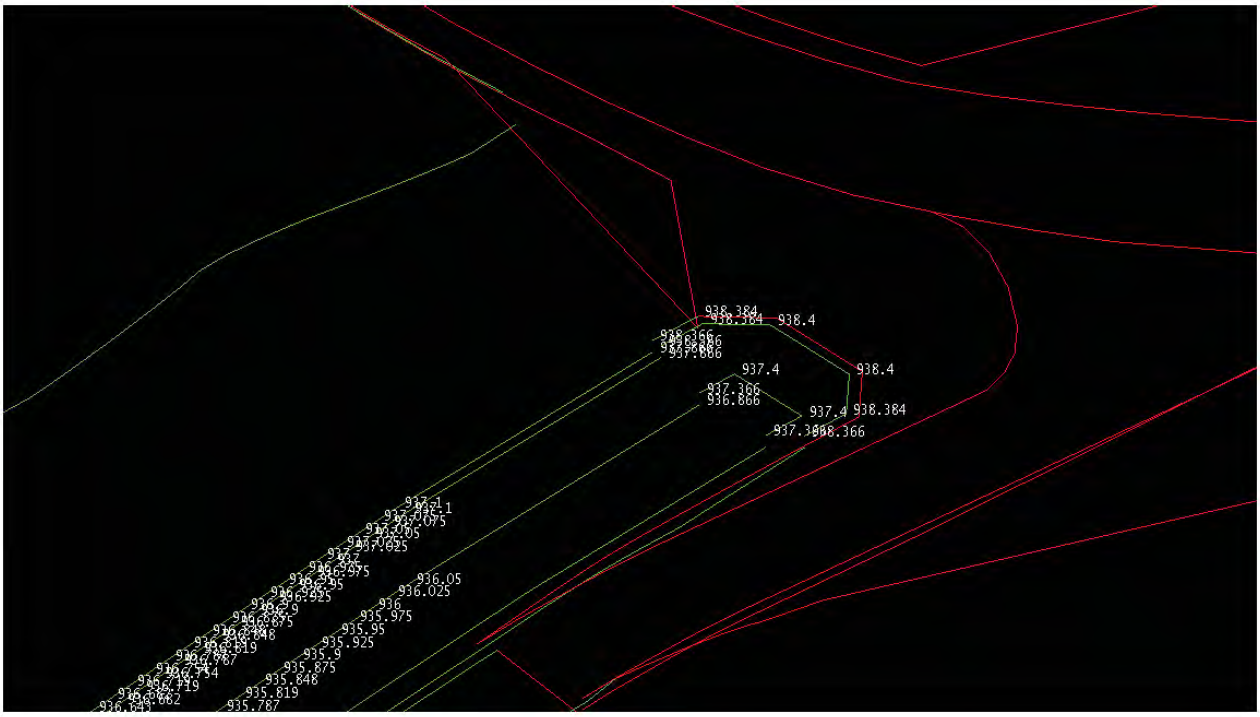
**RESPONSE**

☐ Approved ☐ Approved as noted ☐ Rejected as noted

**Response:** 1) the proposed pipe arrangement is acceptable. 2) detail #49 can be disregarded due to recent reduction in the design process flow rate. 3) BGC suggests the use of geosynthetics in place of wood, where possible. A geocomposite and geomembrane rub sheet combination should provide protection for the liner and could be left in place. Wood products shall not be left in place.

| **Answered by:** | Troy Meyer | | Sept 25, 2018 |
|---|---|---|---|
| | Name | Signature | Date |

Note: *Response to this RFI does not constitute authorization to perform a change to any Contract. The Requestor may proceed with the response only on the basis that the Requestor agrees that it is not a contract change. If the Requestor believes that the response does constitute a contract change, the Requestor shall immediately notify JDS. Work undertaken without JDS written authorization is at the Sub-contractor's risk and expense.*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BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

# BGC-RFI-015

| | | | |
|---|---|---|---|
| **To:** | **Jean-Francois Maille (JDS)**<br>**Calvin Goldschmidt (JDS)** | **Project:** | **Eagle Gold HLF** |
| **Company:** | **JDS** | **Project No.** | **0792021** |
| **From:** | **Troy Meyer (BGC)** | **Date:** | **September 26, 2018** |
| **Copied:** | **Roy Morlan, Dan Granda (BGC)** | **Record:** | **BGC-RFI-015** |

**Re: BGC-RFI-015: Closure Sump Piping Design Clarification**

BGC requests JDS provide acknowledgment of receipt of the following design clarification.

Figure 1 presents design Detail 37 from Drawing EGHLF-XD-05-05 for the closure sump piping plan. The 150mm solid PE closure drain pipes connecting the sump to the monitoring vault have been reduced from 3 pipes to 1 pipe due to the as-built pipe flow grade. The perforated pipework in the sump must be modified to accommodate a single outlet pipe. A configuration with elbows connectors and a single tee connector will be acceptable as shown on Figure 2.

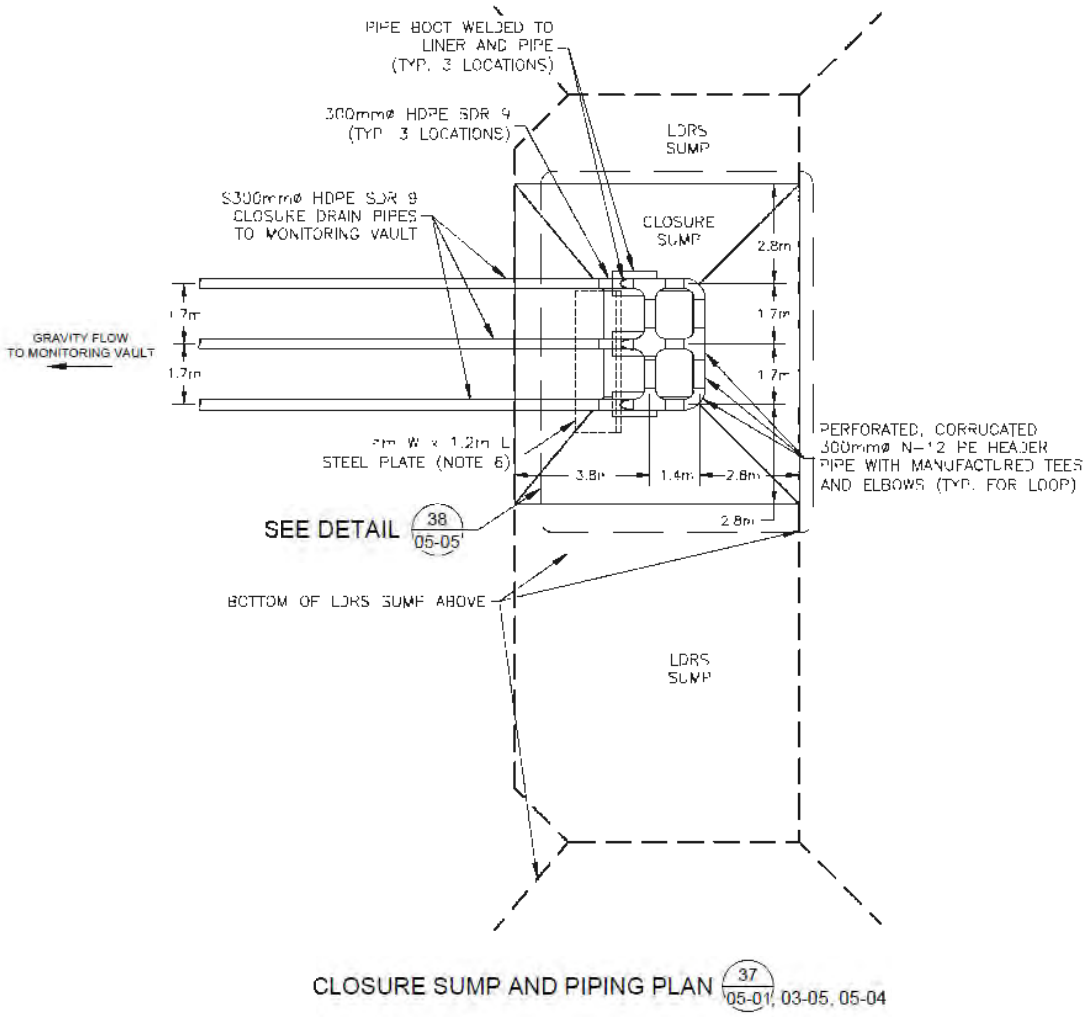



Figure 1 – Detail 37, Drawing EGHLF-XD-05-05

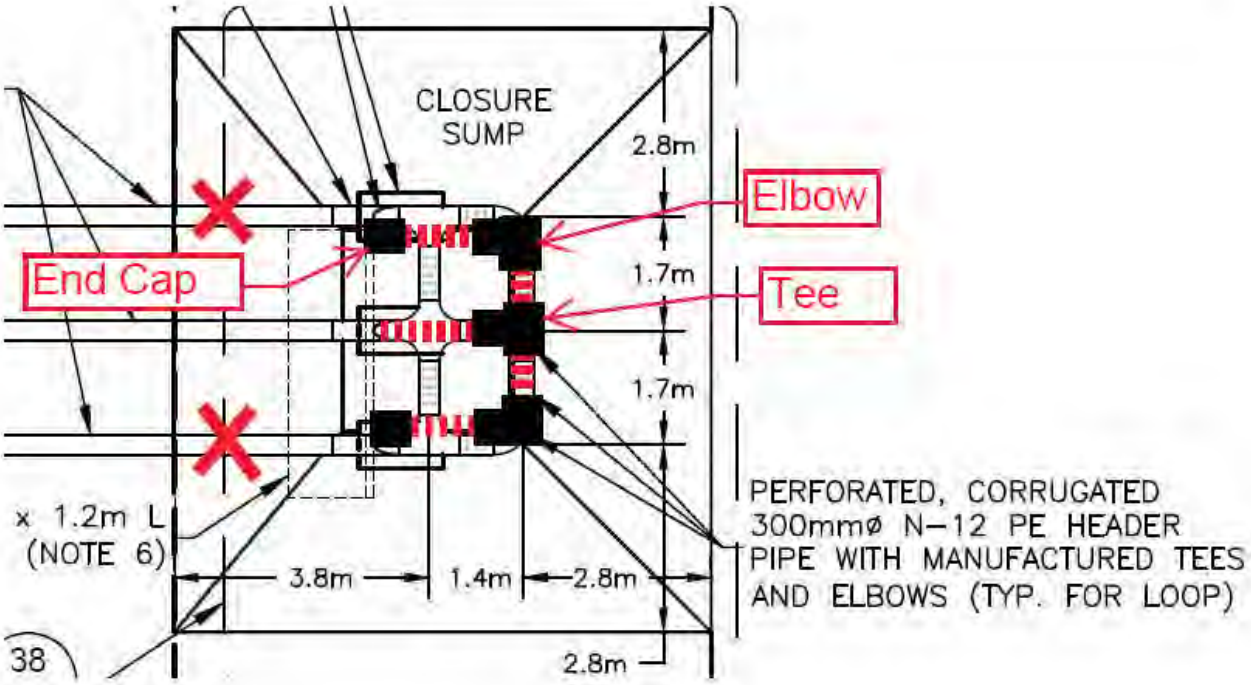



Figure 2 – Modified Detail 37, Drawing EGHLF-XD-05-05

**Response:**

**Answered by:**

Name Signature Date

STRATAGOLD
EAGLE GOLD PROJECT

# REQUEST FOR INFORMATION

| | |
|---|---|
| **EPCM RFI No.:** | **Site Location:** Eagle Gold |
| **Sub-Contractor RFI No.:** RFI-044 | **Date Submitted:** October 08, 2018 |
| **Subject:** PLS Piping Installation Rub Sheets (4110.7.01) | **Project Zone/Area:** HLF Phase 1A |
| **Sub-contractor:** | **Station/Location: HLF Phase 1A B** |
| **Attention:** | **Discipline:** |

**REQUEST**

**Type of Change:** ☐ Owner Change ☒ Clarification/Info ☐ Field Change ☐ Vendor Change ☐ Design Change ☐ Other

| | |
|---|---|
| **Related Drawings:** EGHLF-XD-06-01 rev1 | **Other Related Documents:** |

**Information Request/Description of Issue:**

Pelly is requesting confirmation for the following:
1. 18" DR11 collection piping can be pulled over the HLF liner providing there is a rub sheet between the collection pipe and HLF liner.
2. The aforementioned rub sheet will consist of a 16oz non-woven geotextile over and under a layer of 2mm (80-mil) double-side textured LLDPE geomembrane.
3. There is no geomembrane on geomembrane contact permitted – meaning in the case where geomembrane rolls are wider than those of the geotextile, the geotextile will require multiple rolls in width (both over and under the geomembrane).
4. Rub sheets meeting these requirements will be permitted to be left in place.

**Proposed Corrective Action**

| | |
|---|---|
| **Cost Impact:** | |
| **Schedule Impact:** | |

**Requested by:**

| **Dean Serelo** | | **October 08, 2018** |
|---|---|---|
| Name | Signature | Date |

RESPONSE

☐ Approved ☒ Approved as noted ☐ Rejected as noted

**Response: BGC agrees with the method. The geotextile can be 12 or 16 oz. And the geomembrane liners can be 60 or 80 mil.**

**Answered by:** **Daniel Granda** **Daniel Granda** **10/9/2018**

| Name | Signature | Date |
|---|---|---|

Note: *Response to this RFI does not constitute authorization to perform a change to any Contract. The Requestor may proceed with the response only on the basis that the Requestor agrees that it is not a contract change. If the Requestor believes that the response does constitute a contract change, the Requestor shall immediately notify JDS. Work undertaken without JDS written authorization is at the Sub-contractor's risk and expense.*

# ATTACHMENT C

## Field Review Reports

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

| | | | |
|---|---|---|---|
| **Project Name:** | Eagle Gold Construction Support | **Project No.:** | 0792021 |
| **Client:** | Victoria Gold | **Date:** | April 26, 2018 |
| **Construction:** | JDS Mining | **Inspection Number:** | FND09 |
| **BGC Personnel:** | Tony Monasterio | **Approved:** | Y / N |

**Summary and Observations**

Pelly area(s) approved by this document: Section 09, Survey drawing attached.
Approval/Rejection Observations and Recommendations:

- Areas was cleared in October 2017. However, BGC was demobilized before approval could be completed. BGC has inspected this area on April 26 and has approved it.
- Section 09 will require surface cleaning as ice removal activities in April 2018 has generated mud from pulverization of the upper portion (5 to 20 cm) of type 3 foundation. The area should be resurveyed once cleaning is complete and the final limits should be amended to this report, if needed.
- Section 09 has been excavated to the top of Type 3 bedrock or deeper, as required in the Technical Specifications.

**Inspection Items**

| | |
|---|---|
| ☐ Culverts/ trenches | ☐ Foundation Treatment needed |
| ☐ Clearing and grubbing complete | ☐ Unusable material segregated |
| ☐ Excavation beyond design limits | X Excavation to Type 3 bedrock |
| ☐ Backfill compacted to spec | ☐ Ruts backfilled and compacted |
| ☐ Ice identified | ☐ No geosynthetics stress points visible |
| ☐ Ice extent delineated and removed (including method) | |
| ☐ | ☐ |

**PHOTOGRAPHS**




***Photo 1***: Section 9.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

| | | | |
|---|---|---|---|
| **Project Name:** | Eagle Gold Construction Support | **Project No.:** | 0792021 |
| **Client:** | Victoria Gold | **Date:** | May 2, 2018 |
| **Construction:** | JDS Mining | **Inspection Number:** | FND10 |
| **BGC Personnel:** | Roy Morlan | **Approved:** | Y / N |

**Summary and Observations**

Pelly area(s) approved by this document: Section 10, Survey drawing attached.
Approval/Rejection Observations and Recommendations:

- Ground ice was encountered through most of the area. Foundation was over excavated in some areas between 30 to 50 cm as loose material at the surface was frozen to stronger material below and all material would be dislodged in one large frozen chunk. Type 3 foundation rock left had visible ice between joints in some sections. Ground temperature was measured between -1 C to 2C in Section 10.
- Frozen areas of type 3 will be inspected again after thaw to ensure that they did not lose strength. If frozen foundation has become loose after thaw it will have to be removed.
- As with all other approved sections, Section 10 will require minor cleaning of loose material and possibly benching/lift keying prior to construction.
- Section 10 has been excavated to the top of Type 3 bedrock or deeper, as required in the Technical Specifications.

**Inspection Items**

| | |
|---|---|
| ☐ Culverts/ trenches | ☐ Foundation Treatment needed |
| ☐ Clearing and grubbing complete | ☐ Unusable material segregated |
| ☐ Excavation beyond design limits | X Excavation to Type 3 bedrock |
| ☐ Backfill compacted to spec | ☐ Ruts backfilled and compacted |
| ☐ Ice identified | ☐ No geosynthetics stress points visible |
| ☐ Ice extent delineated and removed (including method) | |
| ☐ | ☐ |

**PHOTOGRAPHS**




***Photo 1***: Foundation excavation spoils.




***Photo 2***: Example of type 3 foundation with ice between the joints. In place strength will need to be re-evaluated after ice has thawed. Area may need additional cleaning of loose material after ice has thawed.

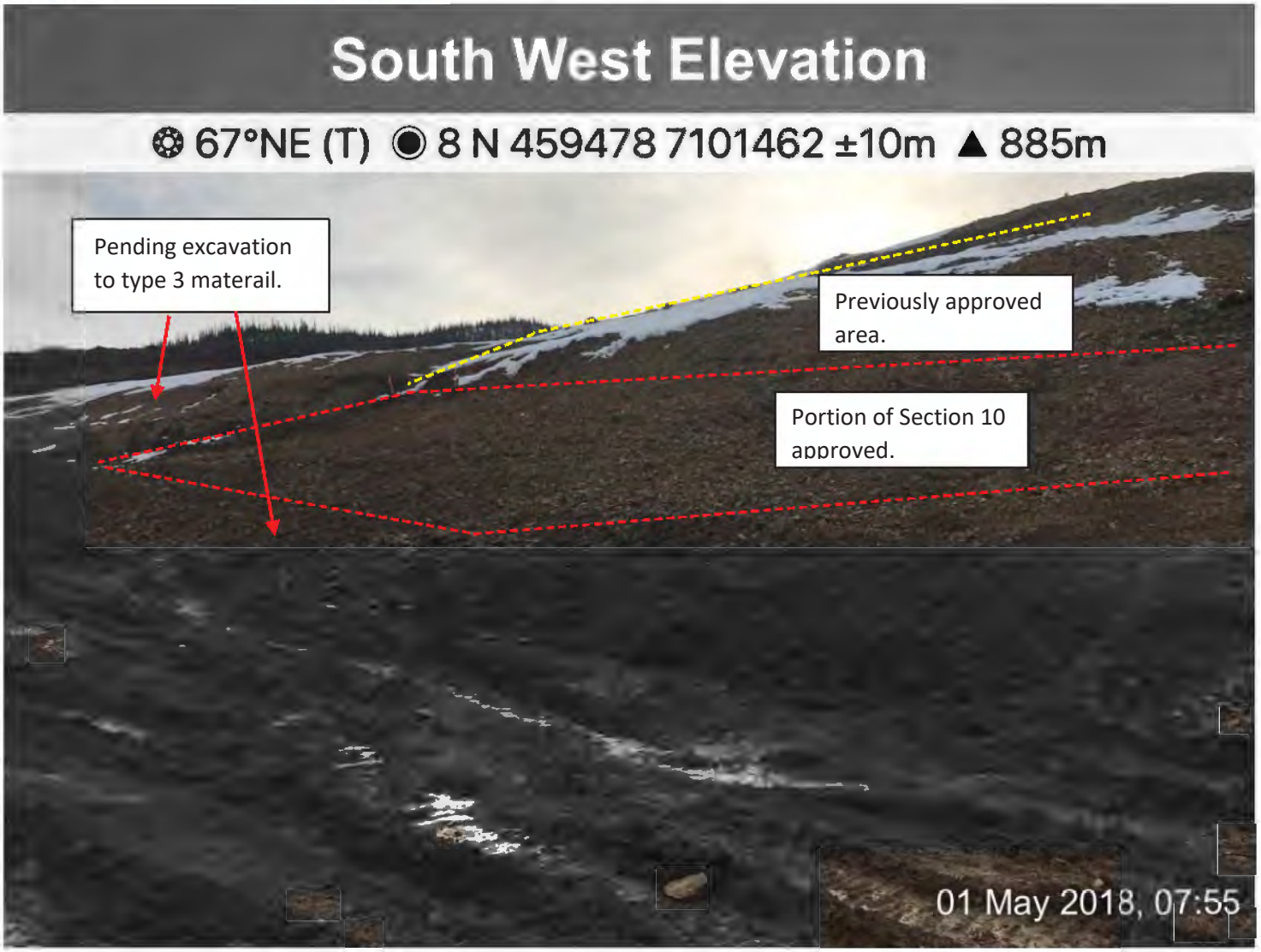



***Photo 3***: Portion of the area where type 3 foundation was approved in Section 10.

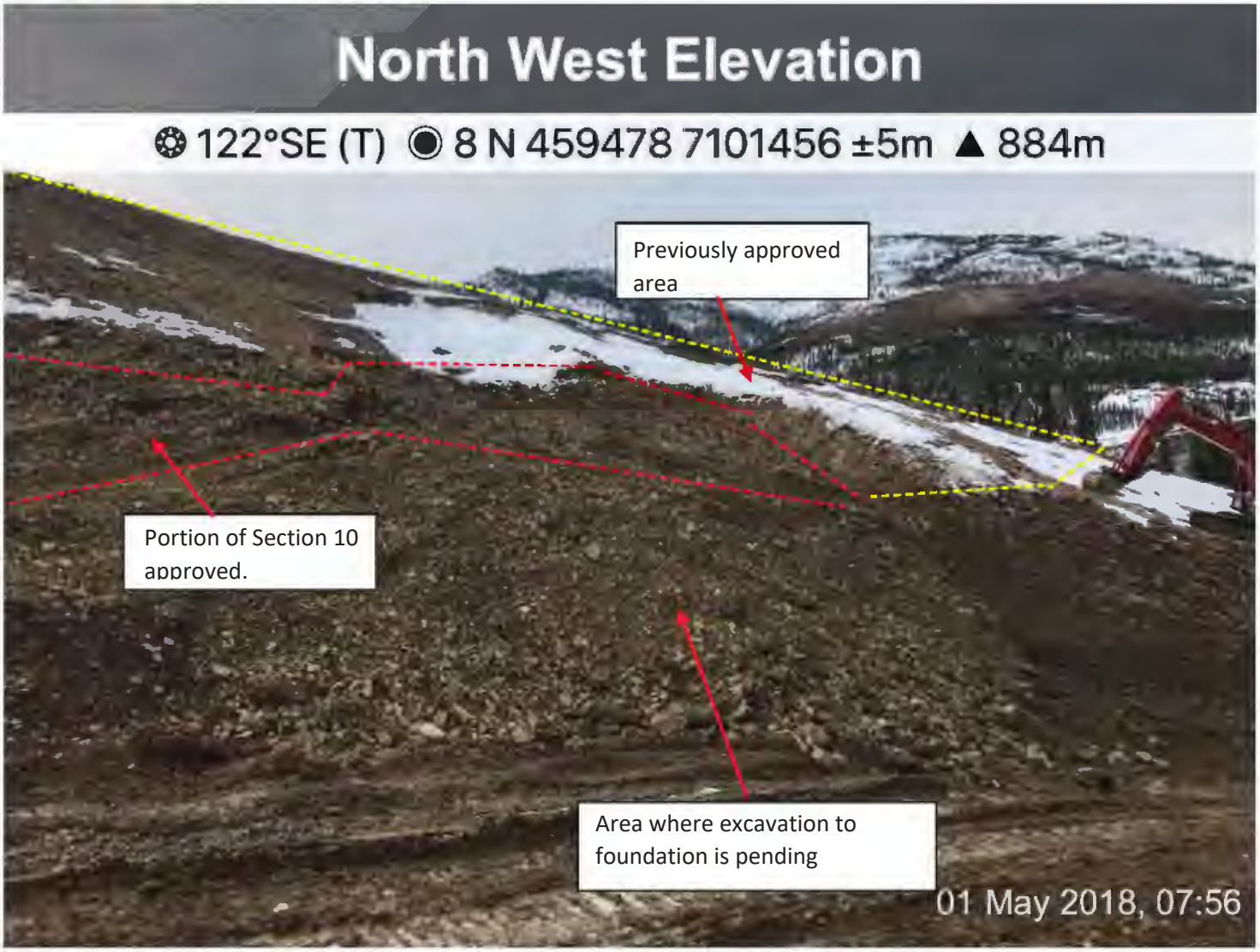
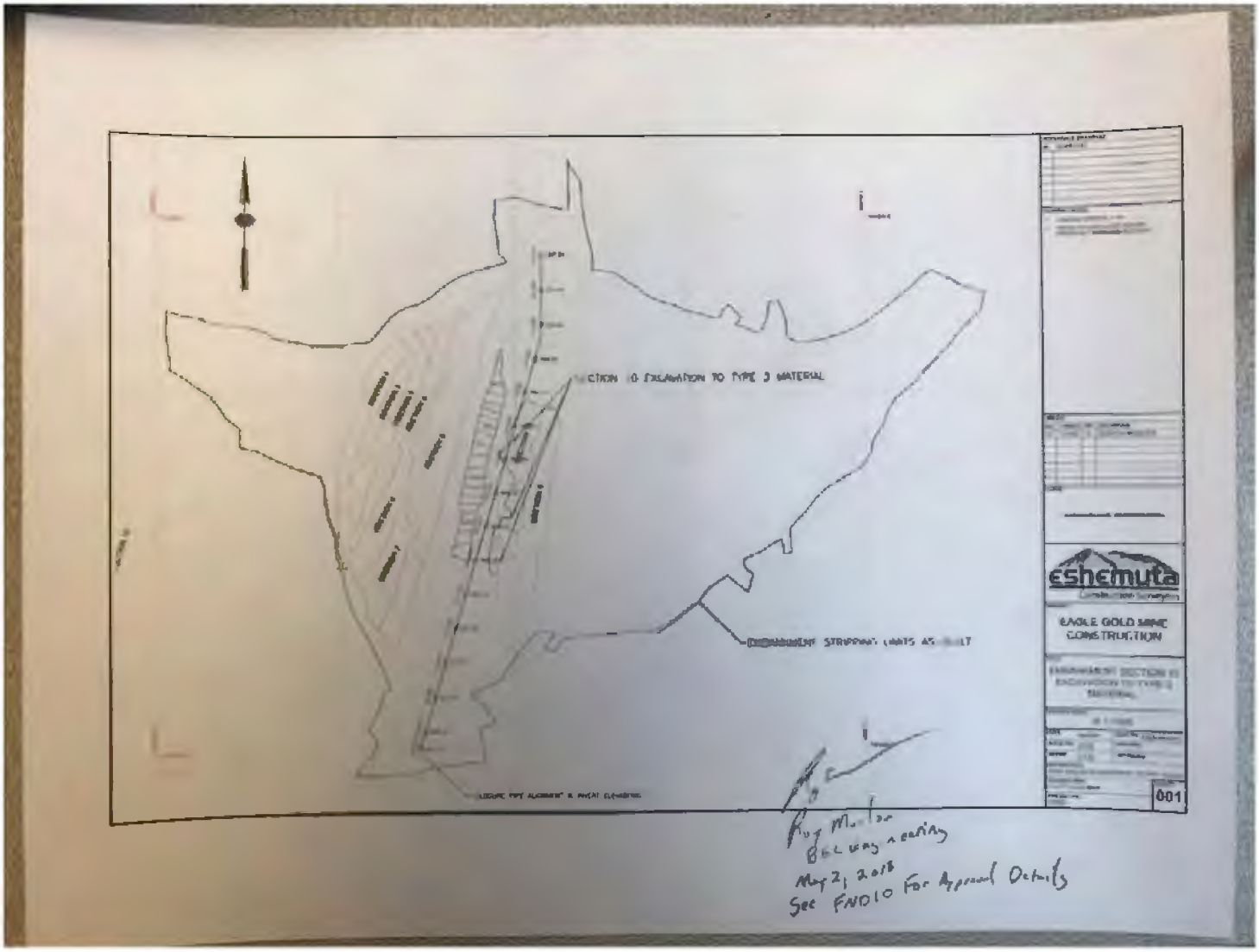



***Photo 4***: Remaining portion of Section 10 foundation approval.




**Section 10 Foundation Approval Limits**

BGC ENGINEERING INC.
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| | | | |
|---|---|---|---|
| **Project Name:** | Eagle Gold Construction Support | **Project No.:** | 0792021 |
| **Client:** | Victoria Gold | **Date:** | May 8, 2018 |
| **Construction:** | JDS Mining | **Inspection Number:** | FND11 |
| **BGC Personnel:** | Roy Morlan | **Approved:** | Y / N |

**Summary and Observations**

Pelly area(s) approved by this document: Section 11, Survey drawing attached.
Approval/Rejection Observations and Recommendations:

- Ground ice was encountered through most of the area. Some Type 3 foundation rock left had visible ice between joints in some sections.
- Frozen areas of type 3 will be inspected again after thaw to ensure that they did not lose strength. If frozen foundation has become loose after thaw it will have to be removed.
- As with all other approved sections, Section 11 will require minor cleaning of loose material and possibly benching/lift keying prior to construction.
- Section 11 has been excavated to the top of Type 3 bedrock or deeper, as required in the Technical Specifications.

**Inspection Items**

| | |
|---|---|
| ☐ Culverts/ trenches | ☐ Foundation Treatment needed |
| ☐ Clearing and grubbing complete | ☐ Unusable material segregated |
| ☐ Excavation beyond design limits | X Excavation to Type 3 bedrock |
| ☐ Backfill compacted to spec | ☐ Ruts backfilled and compacted |
| ☐ Ice identified | ☐ No geosynthetics stress points visible |
| ☐ Ice extent delineated and removed (including method) | |
| ☐ | ☐ |

**PHOTOGRAPHS**

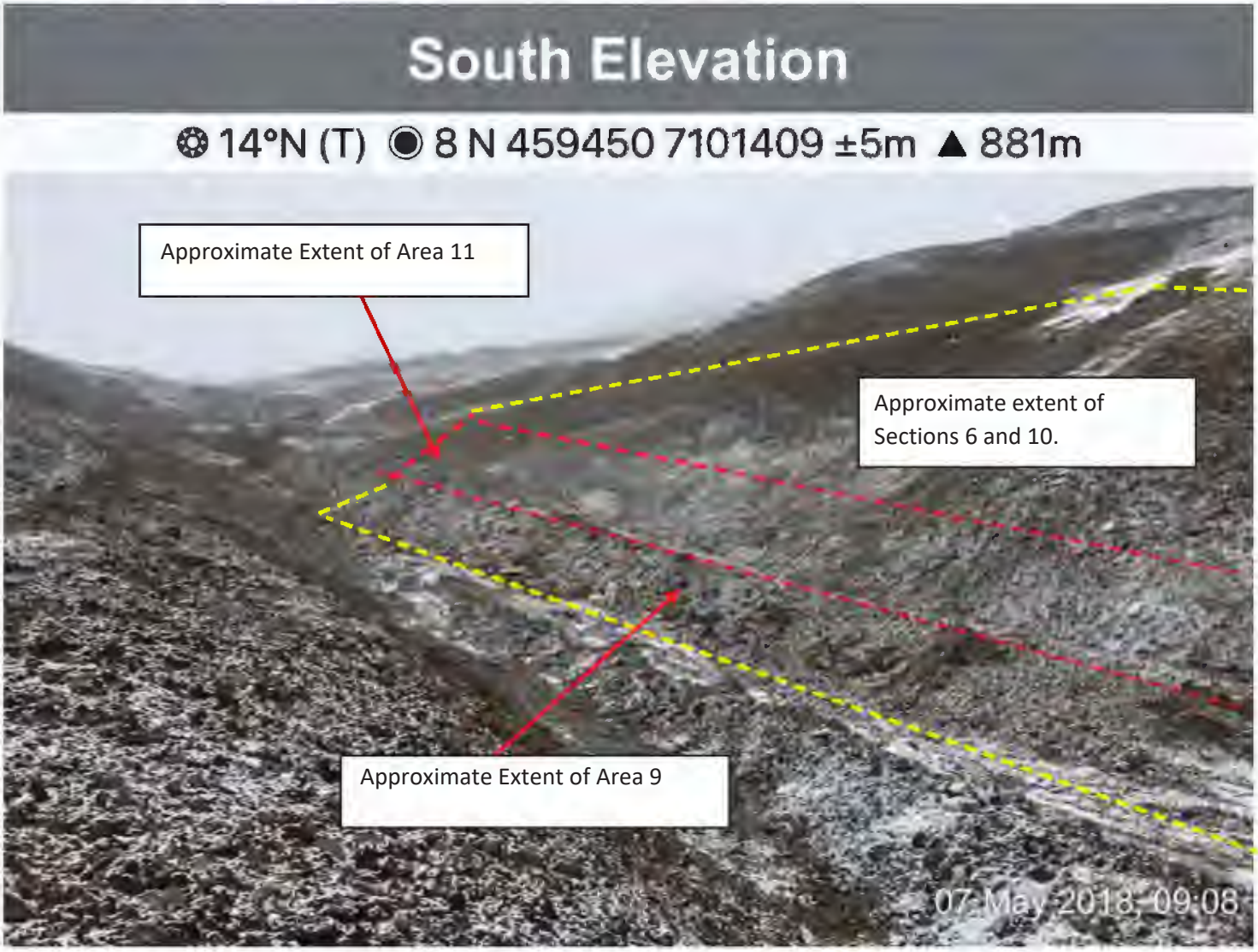



***Photo 1***: Photograph of a portion of Area 11.



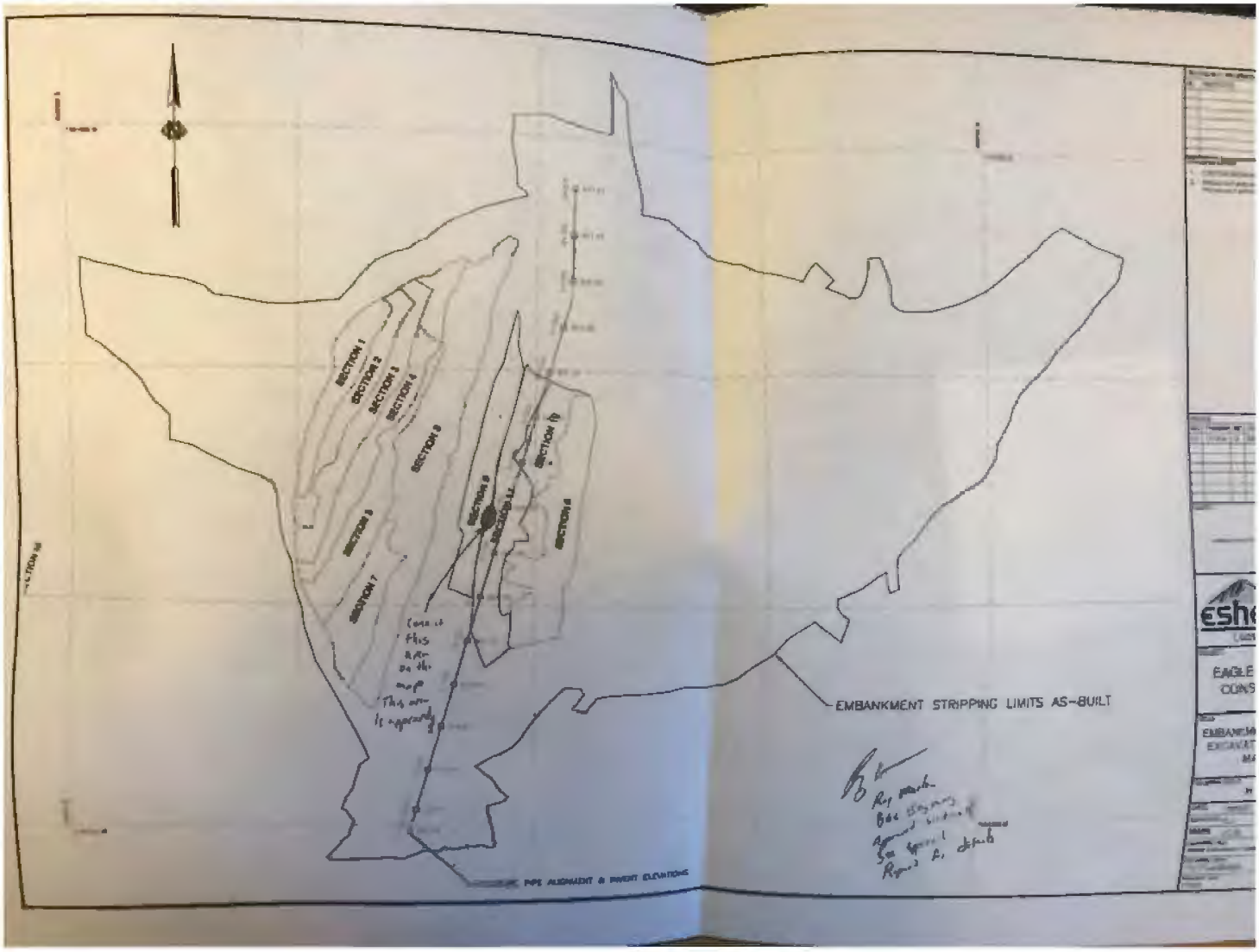

***Photo 2***: Example of type 3 bedrock in Section 11.




***Photo 3***: Example of type 3 bedrock in Section 11.




***Photo 4***: Example of type 3 bedrock in Section 11.




**Section 11 Foundation Approval Limits**

BGC ENGINEERING INC.
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| | | | |
|---|---|---|---|
| **Project Name:** | Eagle Gold Construction Support | **Project No.:** | 0792021 |
| **Client:** | Victoria Gold | **Date:** | May 9, 2018 |
| **Construction:** | JDS Mining | **Inspection Number:** | FND12 |
| **BGC Personnel:** | Roy Morlan | **Approved:** | Y / N |

**Summary and Observations**

Pelly area(s) approved by this document: Section 12, Survey drawing attached.
Approval/Rejection Observations and Recommendations:

- Ground ice was encountered through most of the area. Some Type 3 foundation rock left had visible ice between joints in some sections.
- Frozen areas of type 3 will be inspected again after thaw to ensure that they did not lose strength. If frozen foundation has become loose after thaw it will have to be removed.
- As with all other approved sections, Section 12 will require minor cleaning of loose material and possibly benching/lift keying prior to construction.
- Section 12 has been excavated to the top of Type 3 bedrock or deeper, as required in the Technical Specifications.

**Inspection Items**

| | |
|---|---|
| ☐ Culverts/ trenches | ☐ Foundation Treatment needed |
| ☐ Clearing and grubbing complete | ☐ Unusable material segregated |
| ☐ Excavation beyond design limits | X Excavation to Type 3 bedrock |
| ☐ Backfill compacted to spec | ☐ Ruts backfilled and compacted |
| ☐ Ice identified | ☐ No geosynthetics stress points visible |
| ☐ Ice extent delineated and removed (including method) | |
| ☐ | ☐ |

**PHOTOGRAPHS**

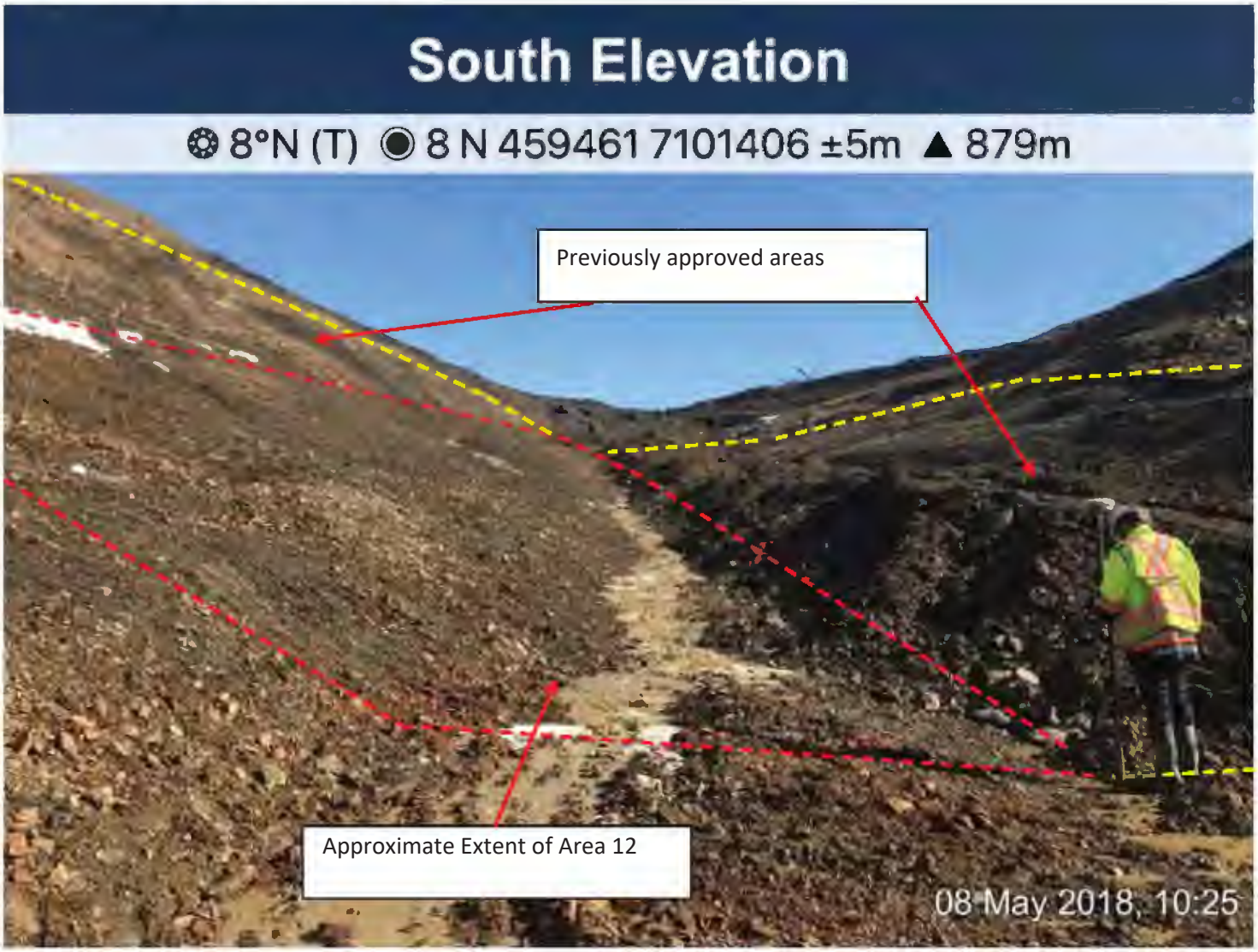



***Photo 1***: Photograph of a portion of Area 12.



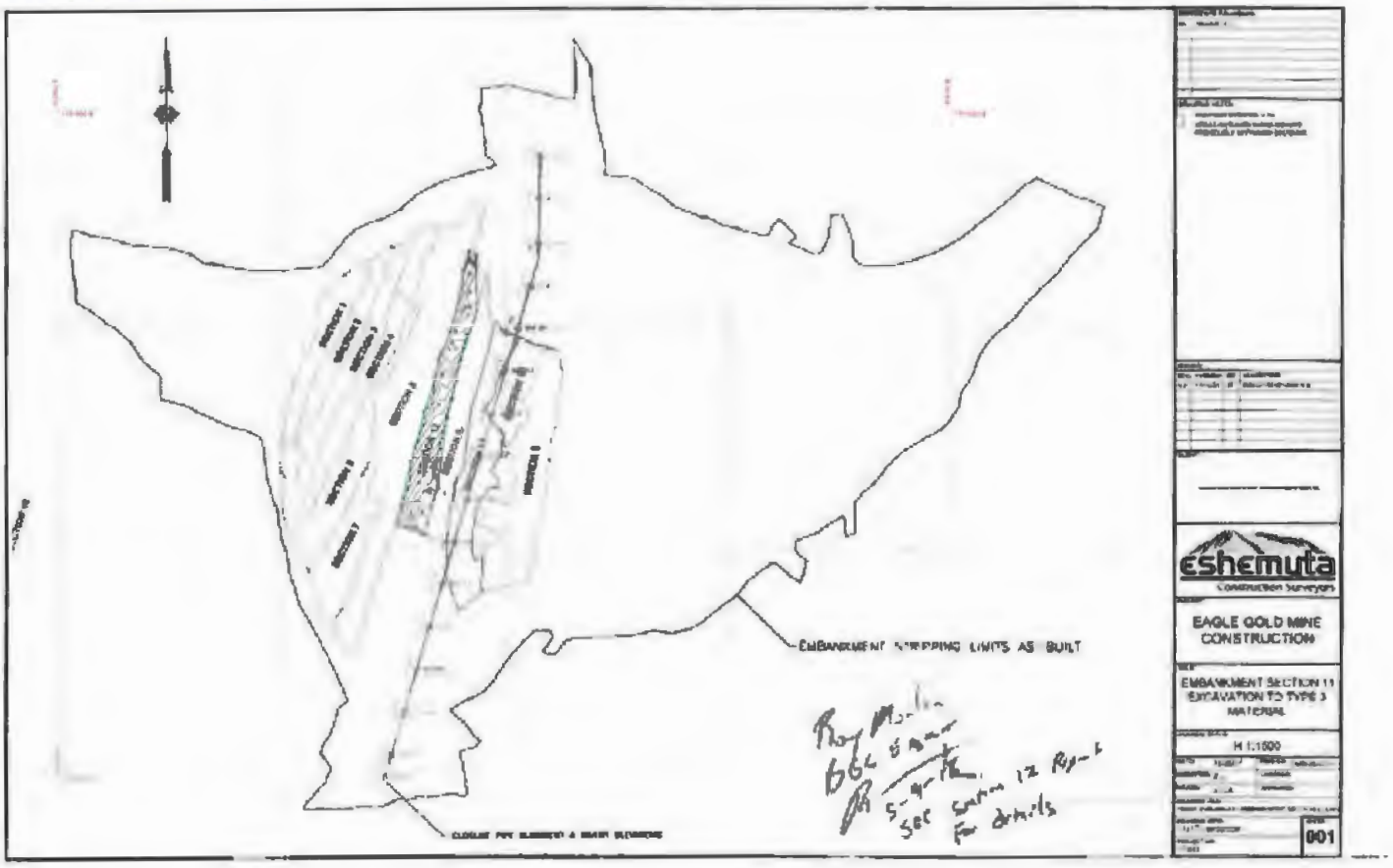

***Photo 2***: Example of type 3 bedrock in Section 12.




***Photo 3***: Example of type 3 bedrock in Section 12.




***Photo 4***: Example of type 3 bedrock in Section 12.




**Section 12 Foundation Approval Limits**

BGC ENGINEERING INC.
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| | | | |
|---|---|---|---|
| **Project Name:** | Eagle Gold Construction Support | **Project No.:** | 0792021 |
| **Client:** | Victoria Gold | **Date:** | May 15, 2018 |
| **Construction:** | JDS Mining | **Inspection Number:** | FND13 |
| **BGC Personnel:** | Roy Morlan | **Approved:** | Y / N |

**Summary and Observations**

Pelly area(s) approved by this document: Section 13, Survey drawing attached.
Approval/Rejection Observations and Recommendations:

- As with all other approved sections, Section 13 will require minor cleaning of loose material and possibly benching/lift keying prior to construction.
- Section 13 has been excavated to the top of Type 3 bedrock or deeper, as required in the Technical Specifications.

**Inspection Items**

| | |
|---|---|
| ☐ Culverts/ trenches | ☐ Foundation Treatment needed |
| ☐ Clearing and grubbing complete | ☐ Unusable material segregated |
| ☐ Excavation beyond design limits | X Excavation to Type 3 bedrock |
| ☐ Backfill compacted to spec | ☐ Ruts backfilled and compacted |
| ☐ Ice identified | ☐ No geosynthetics stress points visible |
| ☐ Ice extent delineated and removed (including method) | |
| ☐ | ☐ |

**PHOTOGRAPHS**

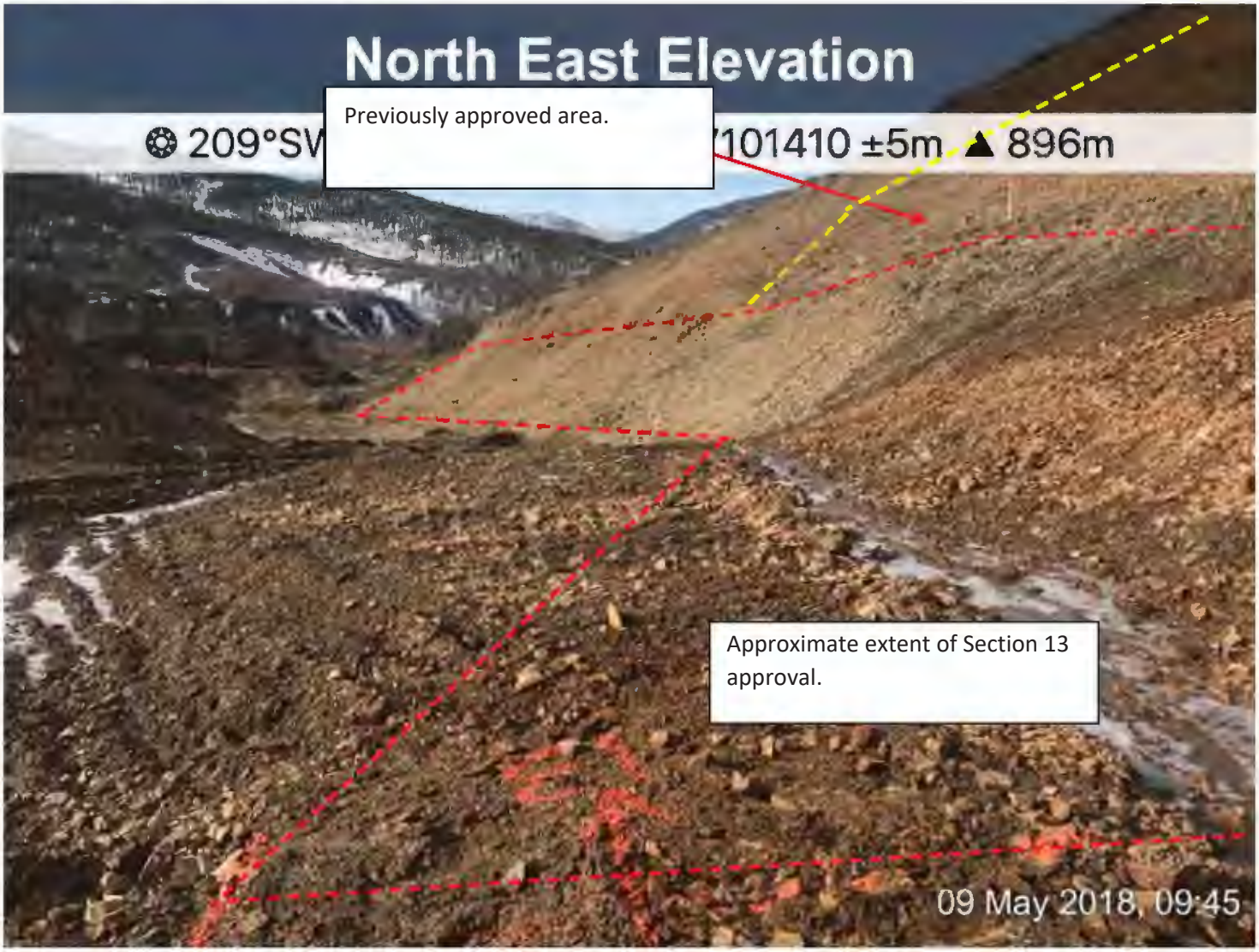


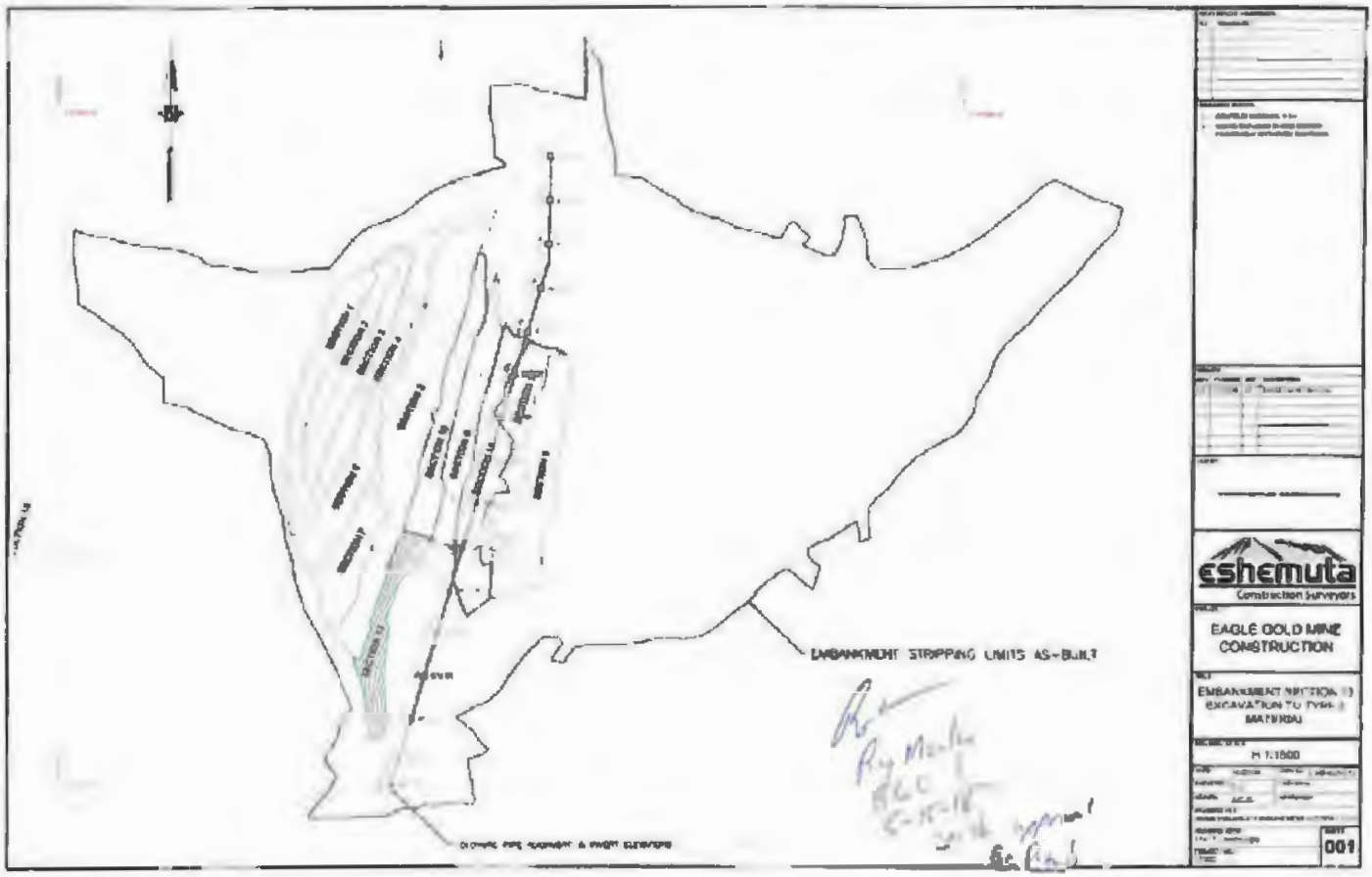

***Photo 1***: Photograph of a portion of Section 13.




***Photo 2***: Example of type 3 bedrock or better in Section 13.




***Photo 3***: Example of type 3 bedrock just below a thin layer of softer material (in this case sluff from overhead excavation). Area is approved but soft, loose material will have to be removed prior to placement of embankment fill.




**Section 13 Foundation Approval Limits**

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

| | | | |
|---|---|---|---|
| **Project Name:** | Eagle Gold Construction Support | **Project No.:** | 0792021 |
| **Client:** | Victoria Gold | **Date:** | May 15, 2018 |
| **Construction:** | JDS Mining | **Inspection Number:** | FND14 |
| **BGC Personnel:** | Roy Morlan | **Approved:** | Y / N |

**Summary and Observations**

Pelly area(s) approved by this document: Section 14, Survey drawing attached.
Approval/Rejection Observations and Recommendations:

- As with all other approved sections, Section 14 will require minor cleaning of loose material and possibly benching/lift keying prior to construction.
- Portions of this section are approved on the condition that access roads and berms will be excavated prior to placement of embankment fill. Portions of the roads built directly into type 3 rock do not have to be removed. These structures were left in place by Pelly to allow access to the valley for transport of material.
- Section 14 has been excavated to the top of Type 3 bedrock or deeper, as required in the Technical Specifications.

**Inspection Items**

| | |
|---|---|
| ☐ Culverts/ trenches | ☐ Foundation Treatment needed |
| ☐ Clearing and grubbing complete | ☐ Unusable material segregated |
| ☐ Excavation beyond design limits | X Excavation to Type 3 bedrock |
| ☐ Backfill compacted to spec | ☐ Ruts backfilled and compacted |
| ☐ Ice identified | ☐ No geosynthetics stress points visible |
| ☐ Ice extent delineated and removed (including method) | |
| ☐ | ☐ |

**PHOTOGRAPHS**

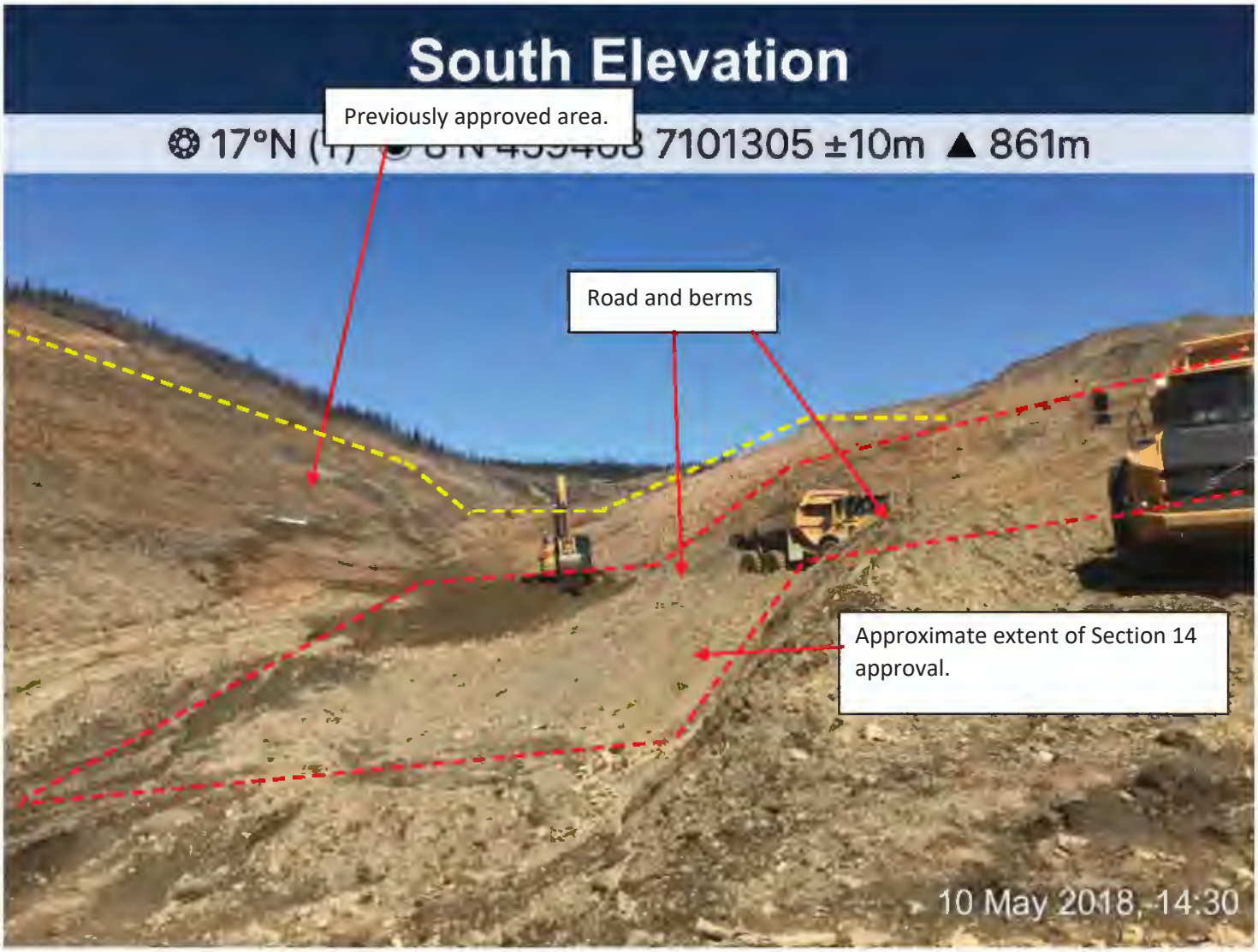


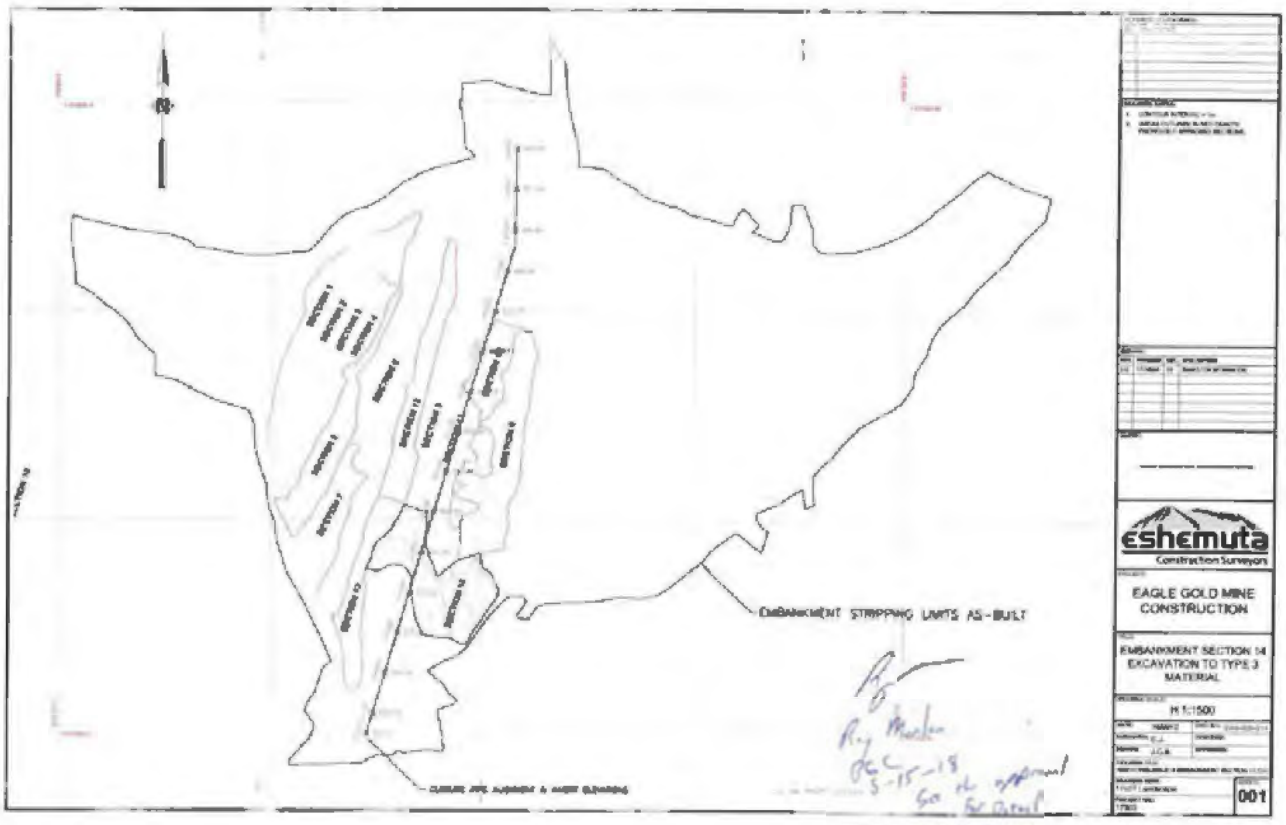

***Photo 1***: Photograph of Section 14 approved. Road and berms will have to be removed prior to placement of embankment fill.




***Photo 2***: Example of type 3 bedrock or better in Section 14.




***Photo 3***: Example of type 3 bedrock or better in Section 14.




**Section 14 Foundation Approval Limits**

BGC ENGINEERING INC.
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| | | | |
|---|---|---|---|
| **Project Name:** | Eagle Gold Construction Support | **Project No.:** | 0792021 |
| **Client:** | Victoria Gold | **Date:** | May 15, 2018 |
| **Construction:** | JDS Mining | **Inspection Number:** | FND15 |
| **BGC Personnel:** | Roy Morlan | **Approved:** | Y / N |

**Summary and Observations**

Pelly area(s) approved by this document: Section 15, Survey drawing attached.
Approval/Rejection Observations and Recommendations:

- As with all other approved sections, Section 15 will require minor cleaning of loose material and possibly benching/lift keying prior to construction.
- Slopes built in colluvium to key in the embankment toe were wet and loose and, therefore, could not be approved. Further excavation likely would not have resulted in drier, denser material because of the amount of water reporting to this area. Once water has been controlled in this areas the slopes can be re-inspected and determination of foundation treatment can be evaluated.
- Section 15 has been excavated to the top of Type 3 bedrock or deeper, as required in the Technical Specifications.

**Inspection Items**

| | |
|---|---|
| ☐ Culverts/ trenches | ☐ Foundation Treatment needed |
| ☐ Clearing and grubbing complete | ☐ Unusable material segregated |
| ☐ Excavation beyond design limits | X Excavation to Type 3 bedrock |
| ☐ Backfill compacted to spec | ☐ Ruts backfilled and compacted |
| ☐ Ice identified | ☐ No geosynthetics stress points visible |
| ☐ Ice extent delineated and removed (including method) | |
| ☐ | ☐ |

**PHOTOGRAPHS**

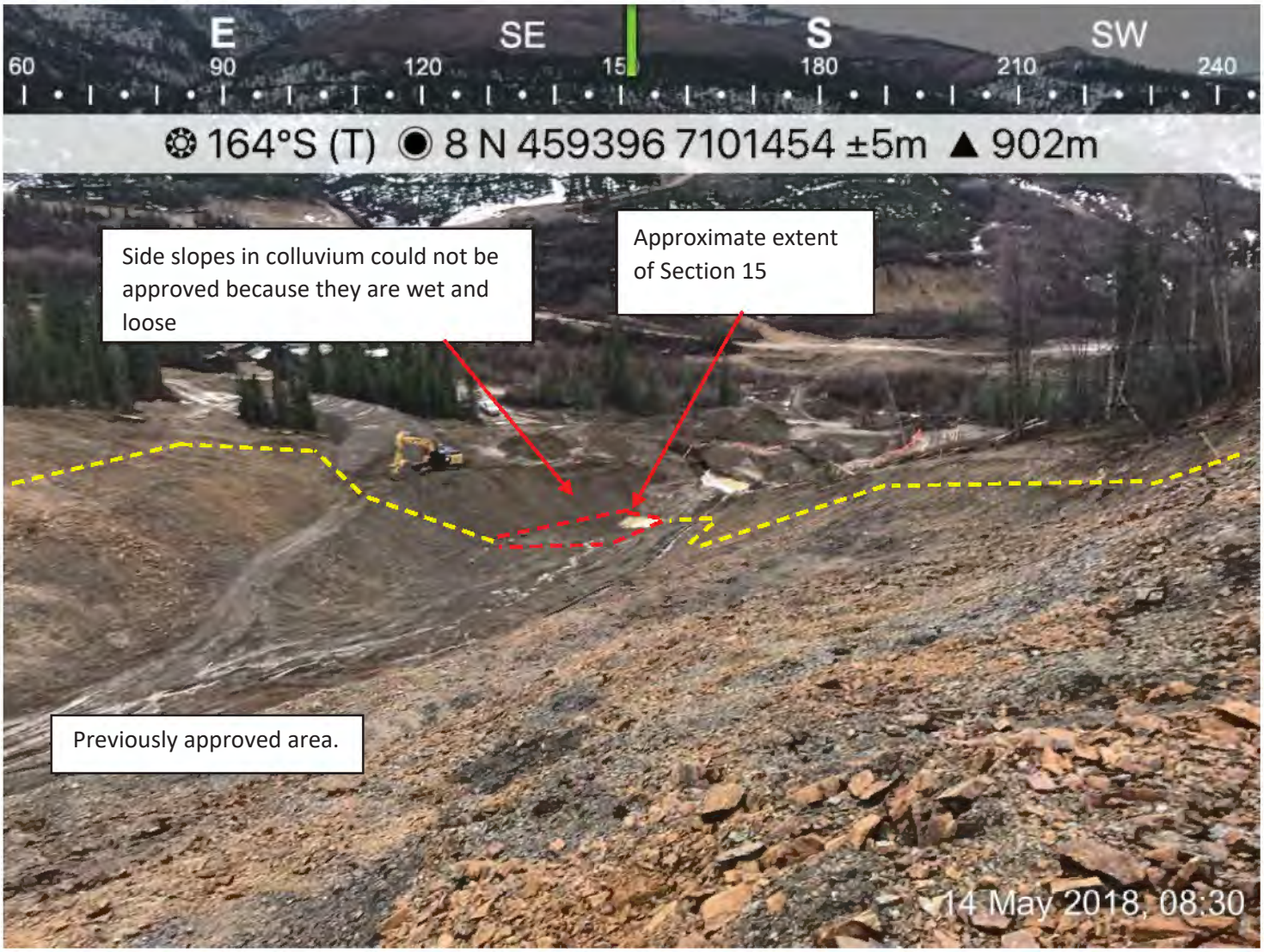
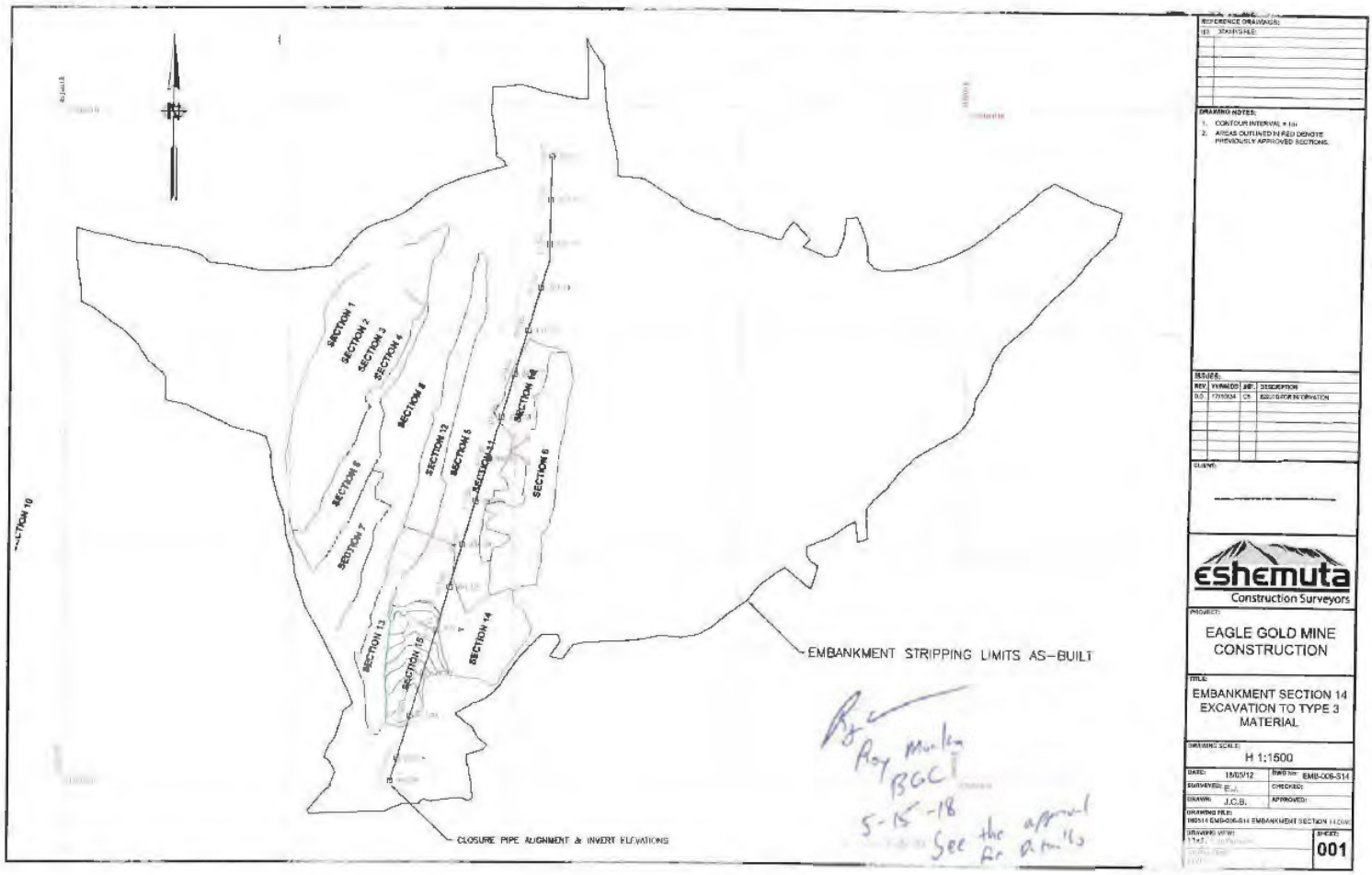



***Photo 1***: Photograph of Section 15 approved. Side slopes in colluvium were wet and loose. They could not be approved.




***Photo 2***: Example of type 3 bedrock being pulled apart by excavator at the bottom of Section 15.




**Section 15 Foundation Approval Limits**

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

| | | | |
|---|---|---|---|
| **Project Name:** | Eagle Gold Construction Support | **Project No.:** | 0792021 |
| **Client:** | Victoria Gold | **Date:** | September 4, 2018 |
| **Construction:** | JDS Mining | **Inspection Number:** | FND16 trough FND25 |
| **BGC Personnel:** | Roy Morlan | **Approved:** | Y / N |

**Summary and Observations**

Pelly area(s) approved by this document: Section 16 through Section 25, Survey drawing attached.
Approval/Rejection Observations and Recommendations:

- As with all other approved sections, Sections 16 through 25 will require minor cleaning of loose material and possibly benching/lift keying prior to construction.
- Drains built in the foundation will be included in sperate approvals.
- Sections 16 through 25 have been excavated to the top of Type 3 bedrock or deeper, as required in the Technical Specifications.

**Inspection Items**

| | |
|---|---|
| ☐ Culverts/ trenches | ☐ Foundation Treatment needed |
| ☐ Clearing and grubbing complete | ☐ Unusable material segregated |
| ☐ Excavation beyond design limits | X Excavation to Type 3 bedrock |
| ☐ Backfill compacted to spec | ☐ Ruts backfilled and compacted |
| ☐ Ice identified | ☐ No geosynthetics stress points visible |
| ☐ Ice extent delineated and removed (including method) | |

**PHOTOGRAPHS**

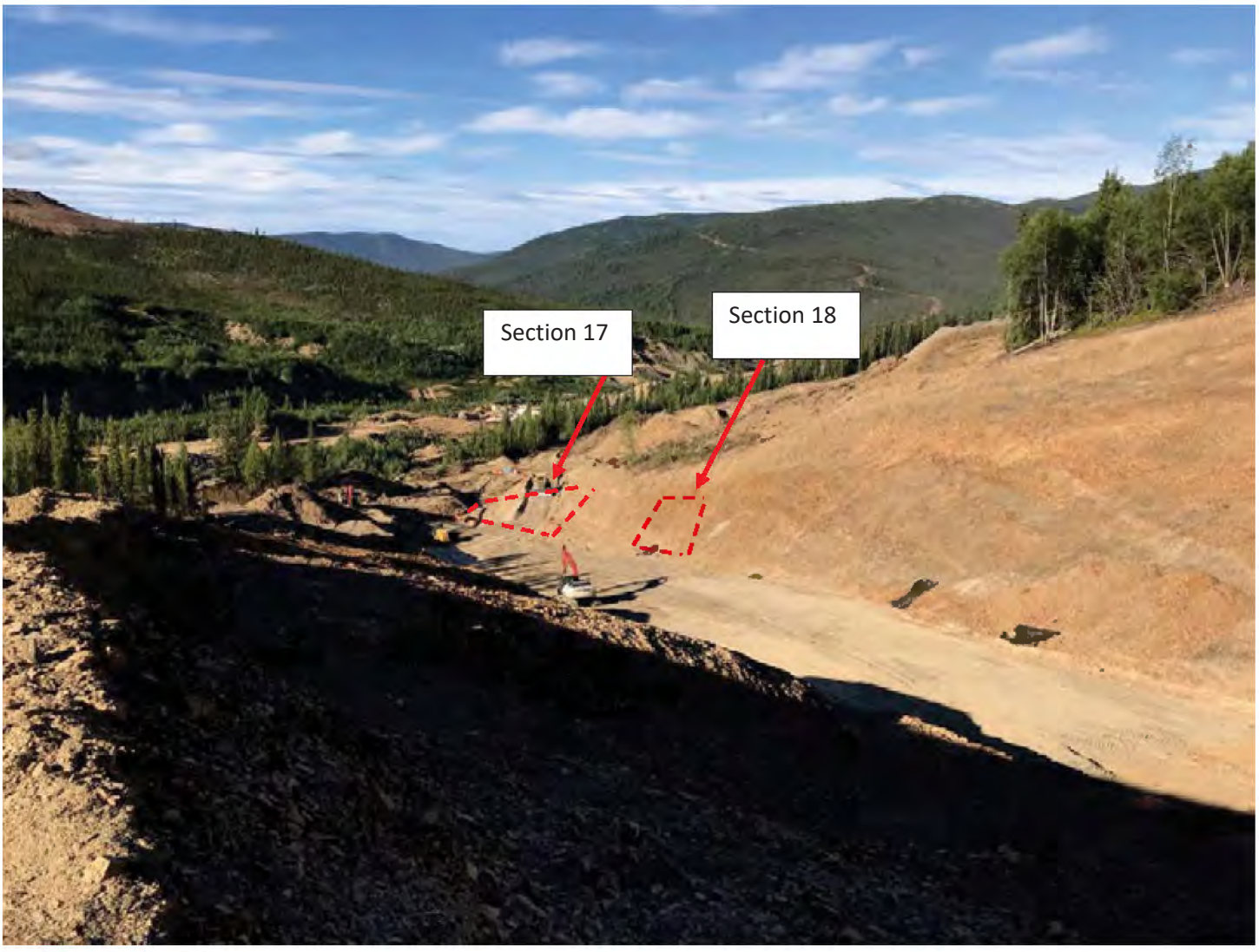


***Photo 1***: Photograph of Section 17 and 18 approved.

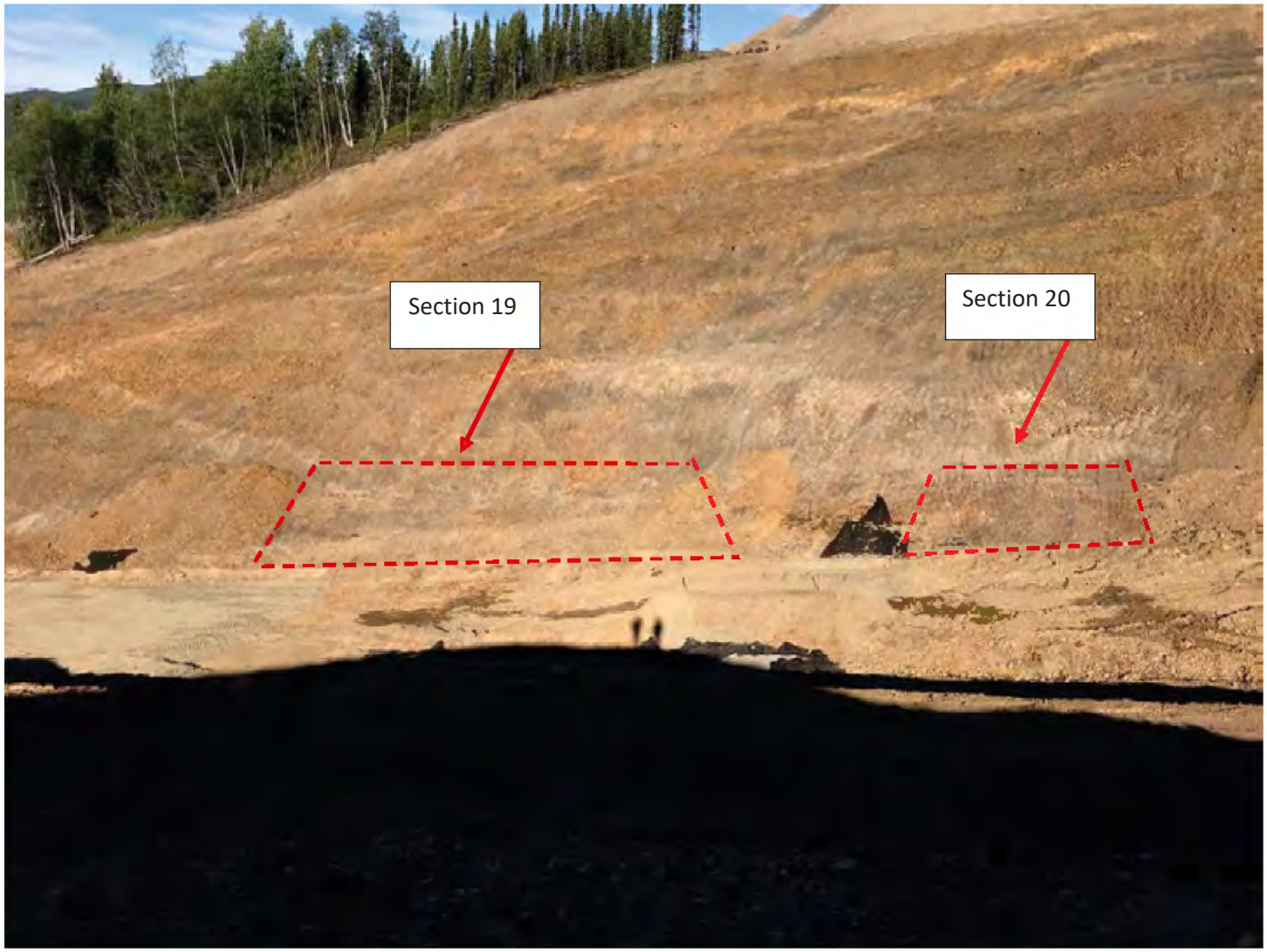



***Photo 2***: Photograph of Section 15 approved. Side slopes in colluvium were wet and loose. They could not be approved.

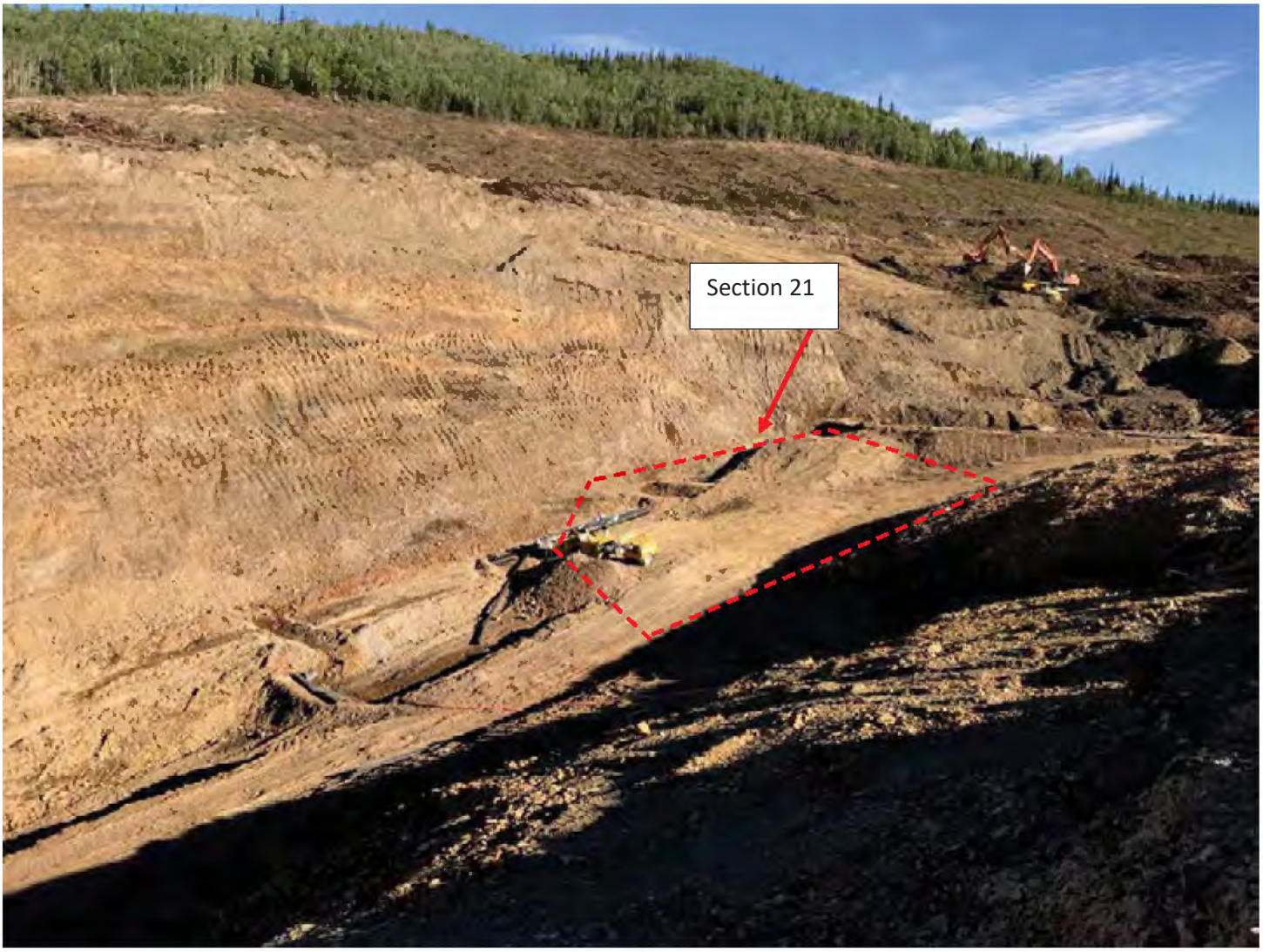



***Photo 3***: Photograph of Section 15 approved. Side slopes in colluvium were wet and loose. They could not be approved.

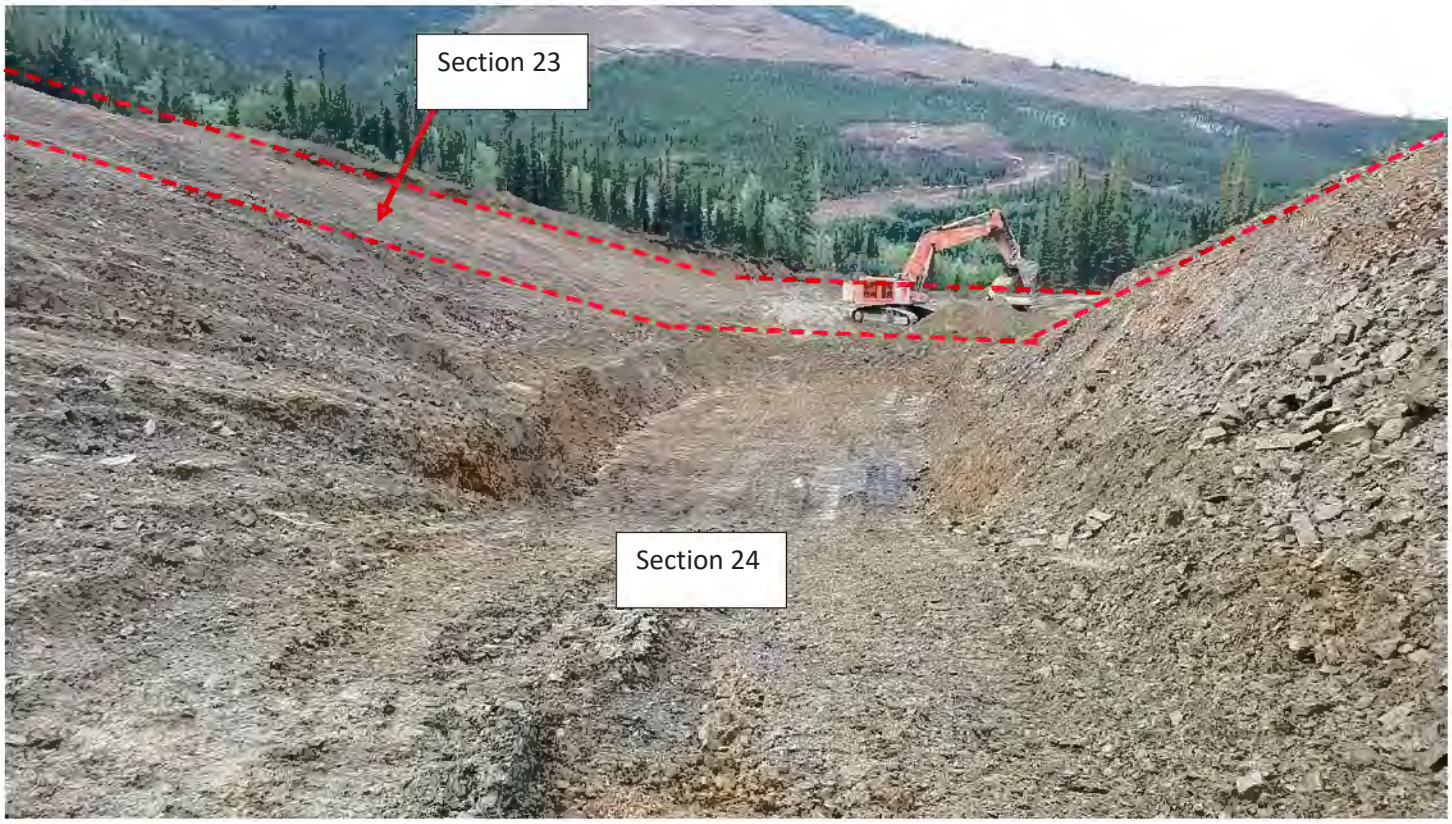



***Photo 4***: Section 23 and 24.

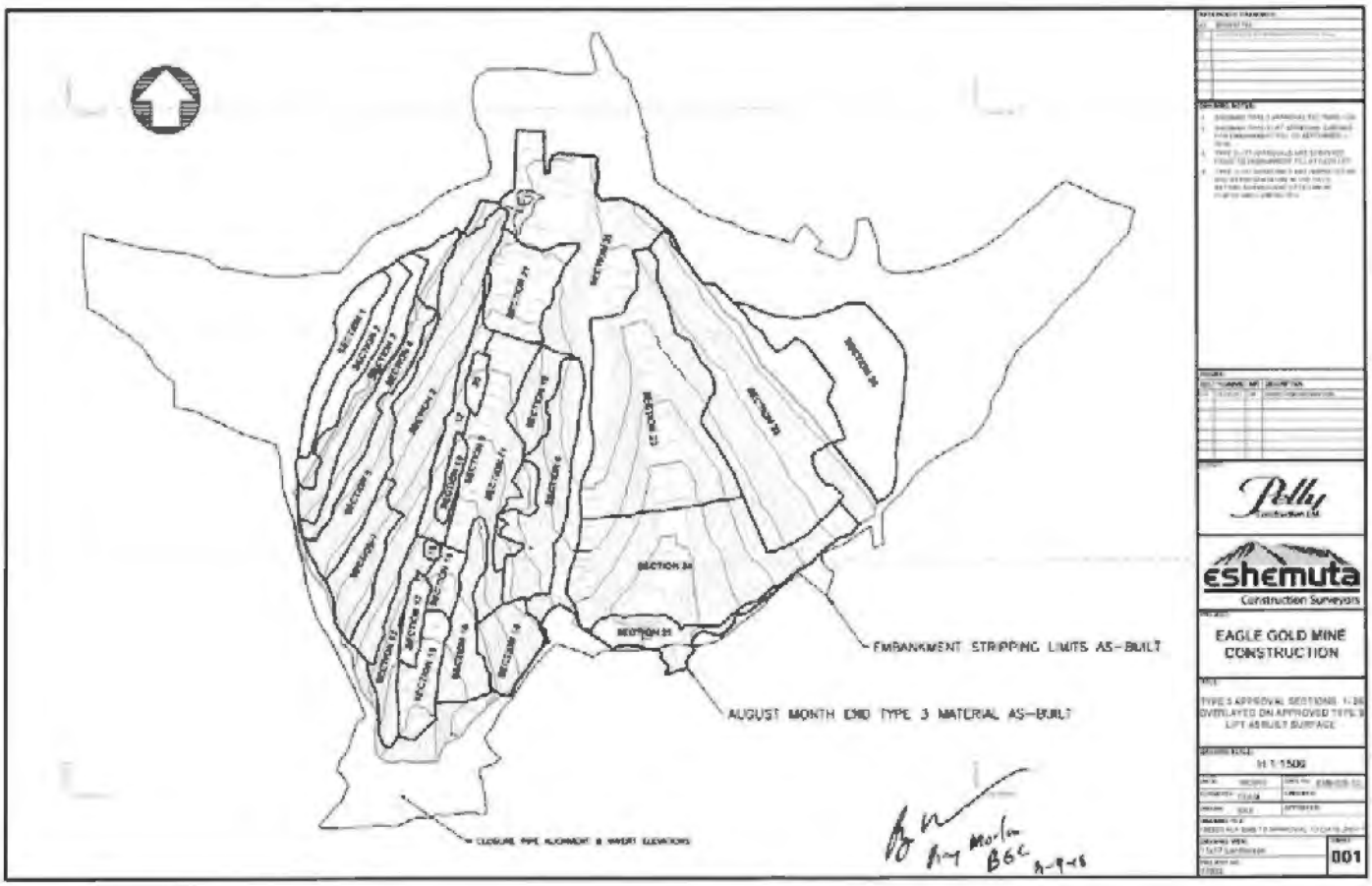



***Figure 1***: Approved Sections

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| | | | |
|---|---|---|---|
| **Project Name:** | Eagle Gold Construction Support | **Project No.:** | 0792021 |
| **Client:** | Victoria Gold | **Date:** | May 2, 2018 |
| **Construction:** | JDS Mining | **Inspection Number:** | FND10 |
| **BGC Personnel:** | Roy Morlan | **Approved:** | Y / N |

**Summary and Observations**

Pelly area(s) approved by this document: Section 10, Survey drawing attached.
Approval/Rejection Observations and Recommendations:

- Ground ice was encountered through most of the area. Foundation was over excavated in some areas between 30 to 50 cm as loose material at the surface was frozen to stronger material below and all material would be dislodged in one large frozen chunk. Type 3 foundation rock left had visible ice between joints in some sections. Ground temperature was measured between -1 C to 2C in Section 10.
- Frozen areas of type 3 will be inspected again after thaw to ensure that they did not lose strength. If frozen foundation has become loose after thaw it will have to be removed.
- As with all other approved sections, Section 10 will require minor cleaning of loose material and possibly benching/lift keying prior to construction.
- Section 10 has been excavated to the top of Type 3 bedrock or deeper, as required in the Technical Specifications.

**Inspection Items**

| | |
|---|---|
| ☐ Culverts/ trenches | ☐ Foundation Treatment needed |
| ☐ Clearing and grubbing complete | ☐ Unusable material segregated |
| ☐ Excavation beyond design limits | X Excavation to Type 3 bedrock |
| ☐ Backfill compacted to spec | ☐ Ruts backfilled and compacted |
| ☐ Ice identified | ☐ No geosynthetics stress points visible |
| ☐ Ice extent delineated and removed (including method) | |
| ☐ | ☐ |

**PHOTOGRAPHS**




***Photo 1***: Foundation excavation spoils.




***Photo 2***: Example of type 3 foundation with ice between the joints. In place strength will need to be re-evaluated after ice has thawed. Area may need additional cleaning of loose material after ice has thawed.

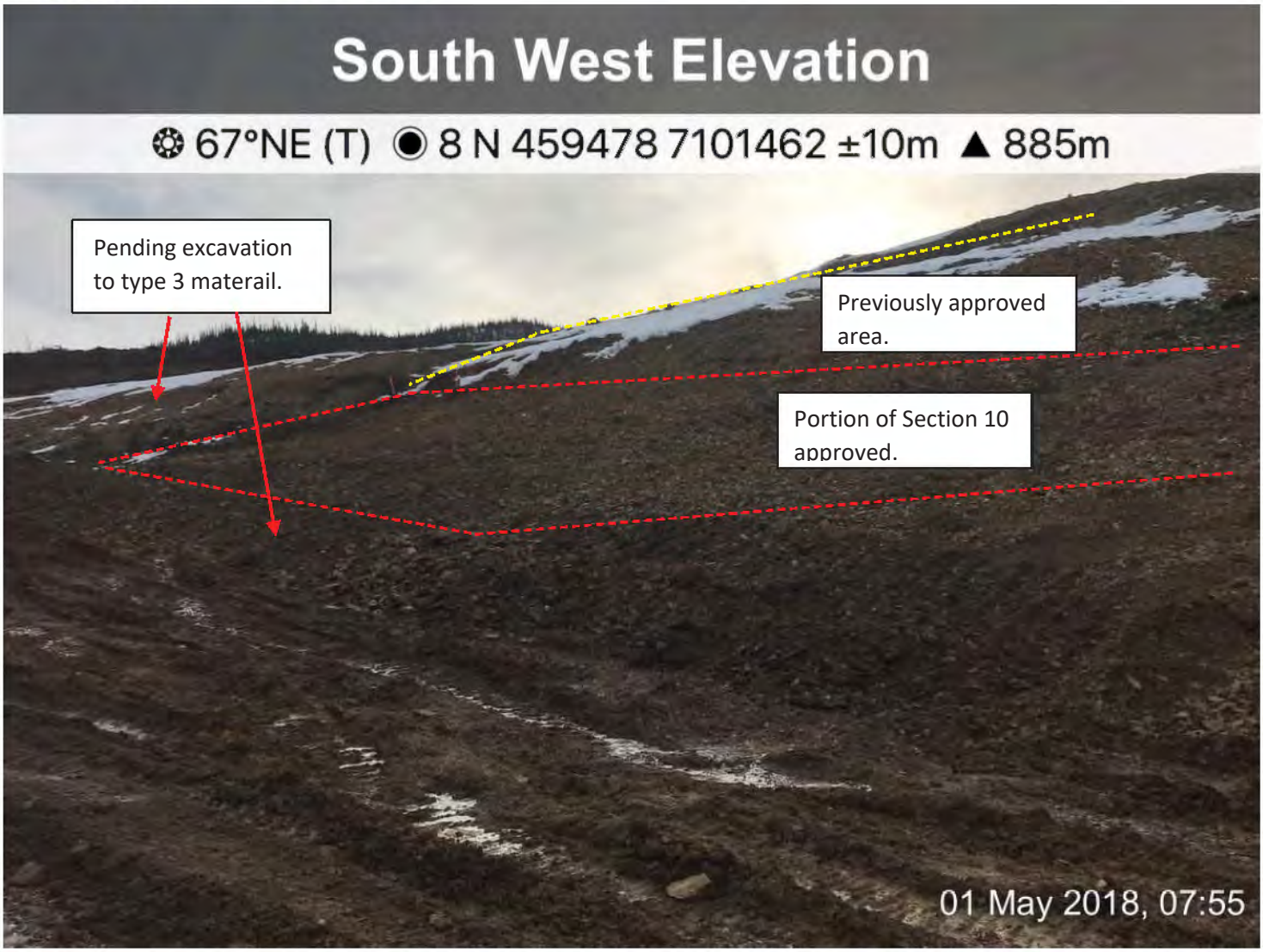



***Photo 3***: Portion of the area where type 3 foundation was approved in Section 10.

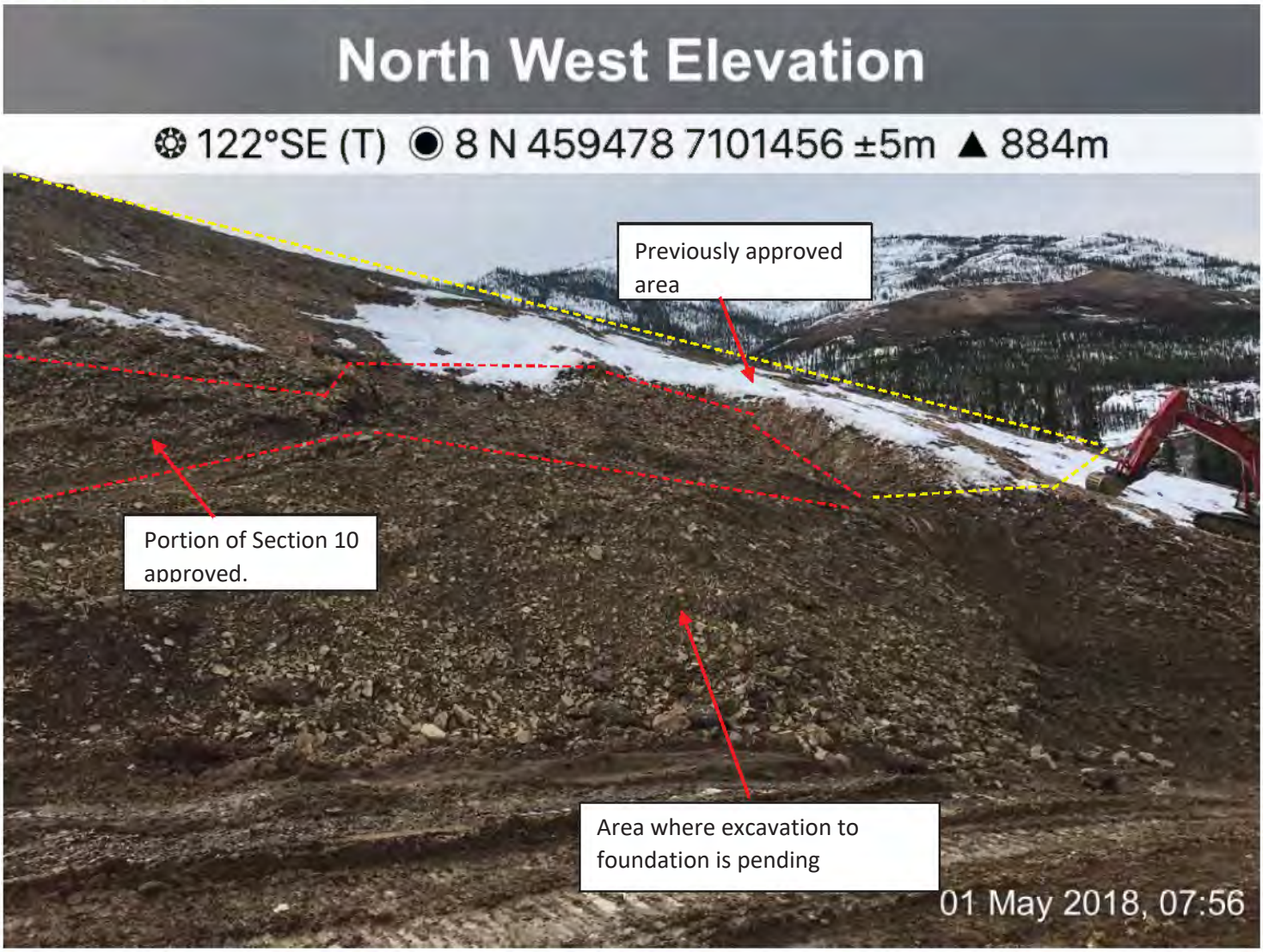
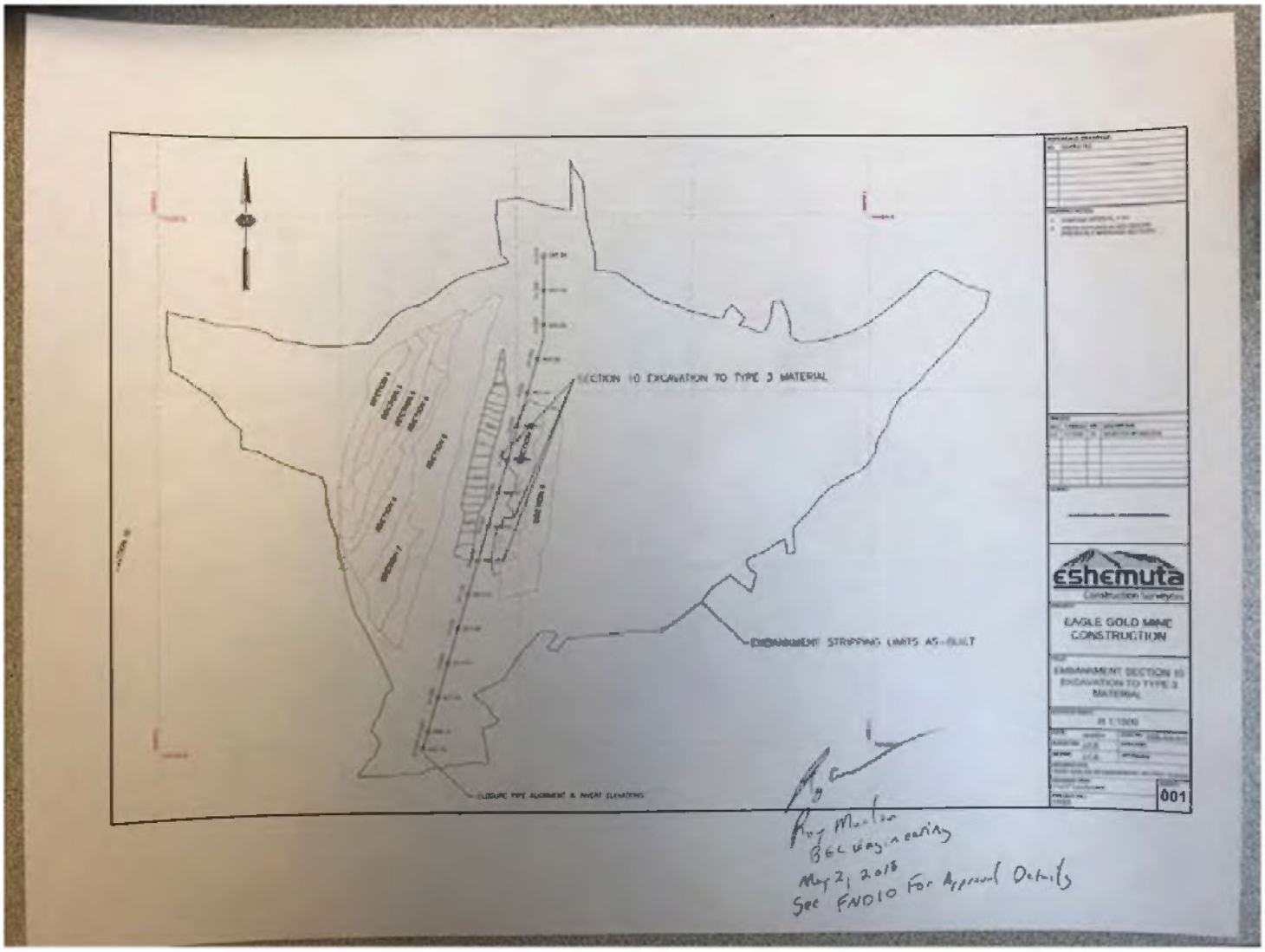



***Photo 4***: Remaining portion of Section 10 foundation approval.




**Section 10 Foundation Approval Limits**

Title: **INSPECTION AND TEST PLAN FOR HLF EMBANKMENT TOE REDESIGN**

Contractor: **PELLY CONSTRUCTION LTD**
Project: **EAGLE GOLD PROJECT**
Item: **9000.07**
CWP: **HLF Embankment Toe Redesign**
Revision: **0**

Contract No. **CC204**
ITP No. **0045**
Date: **02-Jun-18**

Pelly Construction Ltd.

| ITEM NO. | TASK DESCRIPTION | ACTIVITIES AND ACCEPTANCE CRITERIA | PARTY RESPONSIBLE | VERIFICATION DOCUMENT OR FORM | CONTRACTOR REP INITIALS | CONTRACTOR REP DATE | CLIENT REP INITIALS | CLIENT REP DATE | COMMENTS |
|---|---|---|---|---|---|---|---|---|---|
| 1.1 | ITP review and approval | Client approval | Client | This approved ITP document bearing signatures | DK | | D.G | | |
| 1.2 | RFI's | Obtain RFI response to close request | Client | Client RFI forms | DK | | D.G | | |
| 1.3 | Embankment Toe Redesign Drawing | Verify all related Redesign drawing | Contractor/Client | Drawings reviewed | DK | | D.G | | |
| 1.4 | Quality of materials | Verify materials received meet all requirements | Contractor/Client | Material specification sheet and quality/inspection certificates | DK | | D.G | | NOT ENOUGH GEOGRID; BUT APPROVED |
| 1.5 | Engineers approval of Subgrade foundation | Install geotextile as per design engineers correspondence | Contractor/Client | Engineers written approval subgrade foundation | DK | | D.G | | |
| 1.6 | Engineers approval of Phase 1 foundation | Install geotextile as per design engineers correspondence | Contractor/Client | Engineers written approval of Phase 1 foundation | DK | | D.G | | |
| 1.7 | Engineers approval of Geogrid installation | Install geotextile as per design engineers correspondence | Contractor/Client | Engineers written approval of geogrid | DK | | D.G | | NOT ENOUGH BUT APPROVED |
| 1.8 | Engineers approval of Nonwoven Geotextile installation - bottom | Install geotextile as per design engineers correspondence | Contractor/Client | Engineers written approval of geotextile installation | DK | | D.G. | | |
| 1.9 | Engineers approval of Phase 2 foundation | Install geotextile as per design engineers correspondence | Contractor/Client | Engineers written approval of Phase 2 foundation | DK | | R.M. | | |
| 1.10 | Engineers approval of Nonwoven geotextile installation - top | Install geotextile as per design engineers correspondence | Contractor/Client | Engineers written approval of geotextile installation | DS | | RM | | |
| 1.11 | Engineers approval of Select Fill layer foundation | Install geotextile as per design engineers correspondence | Contractor/Client | Engineers written approval of Select Fill foundation | SZ | | RM | | |
| 1.12 | Quality records complete and in turnover package | To be updated throughout the project | Contractor | As per documentation outlined in this ITP | SZ | | RM | | |
| 1.13 | All items in this ITP are signed off | Verify all documents are signed off | Contractor/Client | Contractor ITP | SZ | | RM | | |

**Client Rep:** Roy Murlan (print) [signature] (sign) 6-21-18 (date)

**Contractor Rep:** Shipeng Zheng (print) [signature] (sign) 06-21-18 (date)

1.8A → Add in Type 2 & Type 3 mix

CONTRACTOR REP
[signature] June 5 2018

CLIENT REP
Roy Murlan BGC

## CC204 Pelly Underdrain Installation

| Station | Type 3 Foundation | | Geotextile - 12oz | | 10cm SDF Bedding | | Header Pipes | | Backfill min. 0.2m above pipes - SDF | | Close off geotextile | | Backfill min. 0.3m above geotextile | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Pelly | BGC | Pelly | BGC | Pelly | BGC | Pelly | BGC | Pelly | BGC | Pelly | BGC | Pelly | BGC |
| 0+10 | | | | | | | | | | | | | | |
| 0+20 | Toe Redesign Dino | To Redsign RM | SZ | ERM | SZ | ERM | Dino | ERM | Dino | RM | SZ | RM | SZ | RM |
| 0+30 | Toe Redsign Dino | Toe Redsign ERM | SZ | ERM | Dino | ERM | Dino | ERM | Dino | RM | SZ | RM | SZ | RM |
| 0+40 | SZ | ERM | Dino | ERM | Dino | ERM | Dino | ERM | Dino | RM | SZ | RM | SZ | RM |
| 0+50 | SZ | ERM | Dino | ERM | Dino | ERM 6/23 | Dino | ERM | Dino | RM | SZ | RM | SZ | RM |
| 0+60 | SZ | ERM | Dino | RM | Dino | ERM 6/24 | Dino | ERM | Dino | RM | SZ | RM | SZ | RM |
| 0+70 | SZ | RM | Dino | RM 6/23 | Dino | ERM | Dino | ERM | Dino | RM | SZ | RM | SZ | RM |
| 0+80 | SZ | RM 6/23 | Dino | ERM 6/24 | Dino | ERM | Dino | ERM | Dino | RM | SZ | RM | SZ | RM |
| 0+90 | Dino | ERM 6/24 | Dino | ERM | Dino | ERM | Dino | ERM 6/25 | Dino | RM | SZ | RM | SZ | RM |
| 0+100 | Dino | ERM | Dino | ERM | Dino | ERM | Dino | RM | Dino | RM | SZ | RM | SZ | RM |
| 0+110 | Dino | ERM | Dino | ERM | Dino | ERM | Dino | RM | Dino | RM | SZ | RM | SZ | RM |
| 0+120 | Dino | ERM | Dino | ERM | Dino | ERM | Dino | RM | Dino | RM | SZ | RM | SZ | RM |
| 0+130 | Dino | ERM | Dino | ERM | Dino | ERM | Dino | RM | Dino | RM | SZ | RM | SZ | RM |
| 0+140 | Dino | ERM | Dino | ERM | Dino | ERM | Dino | RM | Dino | RM | SZ | RM | SZ | RM |
| 0+150 | Dino | ERM | Dino | ERM | Dino | ERM | Dino | RM | Dino | RM | SZ | RM | SZ | RM |
| 0+160 | Dino | ERM | Dino | ERM 6/24 | Dino | ERM | Dino | RM | Dino | RM | SZ | RM | SZ | RM |
| 0+170 | Dino | ERM | DAS | D.6 | DS | D.6 | SZ | D.6 | SZ | H.V. | SZ | D.6 | SZ | D.6 |
| 0+180 | DAS | D.6 | DAS | D.6 | DS | D.6 | SZ | D.6 | SZ | H.V. | SZ | D.D | SZ | D.6 |

* Field approval. Final approval dependant on as-built. ERM & Roy Morlan
* Field approval pending as-builts for finger drains
* Final approval requiring survey thickness of Drain rock.
* @ STN 1+10, a 50cm x 50cm piece of geotextile was cut-out, it will be heat-tac @ a later stage per BGC request
* BGC approved the use of mini-Hoe CAT304 working on the 0.5m of material 2 above the closed off geotextile.

## CC204 Pelly Underdrain Installation

| Station | Type 3 Foundation | | Geotextile - 12oz | | 10cm SDF Bedding | | Header Pipes * | | Backfill min. 0.2m above pipes - SDF | | Close off geotextile | | Backfill min. 0.3m above geotextile | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Pelly | BGC | Pelly | BGC | Pelly | BGC | Pelly | BGC | Pelly | BGC | Pelly | BGC | Pelly | BGC | |
| 0+190 | DAS | D.6 | DAS | D.6 | DAS | D.6 | [illegible] | D.6 | [illegible] | H.V. | [illegible] | D.6 | [illegible] | D.6 | |
| 0+200 | DAS | D.6 | DAS | D.6 | DAS | D.6 | [illegible] | D.6 | [illegible] | H.V. | [illegible] | D.6 | [illegible] | D.6 | |
| 0+210 | DAS | D.6 | DAS | D.6 | DAS | D.6 | [illegible] | D.6 | [illegible] | H.V. | [illegible] | D.6 | [illegible] | D.6 | |
| 0+220 | DAS | D.6 | DAS | D.6 | DAS | D.6 | [illegible] | D.6 | YF | H.V. | YF | H.V. | YF | H.V. | |
| 0+230 | [illegible] | H.V. | [illegible] | H.V. | [illegible] | H.V. | YF | H.V. | YF | H.V. | YF | H.V. | YF | H.V. | |
| 0+240 | [illegible] | H.V. | [illegible] | H.V. | [illegible] | H.V. | YF | H.V. | YF | H.V. | YF | H.V. | YF | H.V. | |
| 0+250 | D.S. | H.V. | D.S. | H.V. | D.S. | H.V. | D.S. | H.V. | YF | H.V. | D.S. | H.V. | YF | [illegible] | 8/25 Δ |
| 0+260 | D.S. | H.V. | D.S. | H.V. | D.S. | H.V. | D.S. | H.V. | D.S. | H.V. | D.S. | H.V. | YF | [illegible] | 8/25 Δ |
| 0+270 | D.S. | H.V. | D.S. | H.V. | D.S. | H.V. | D.S. | H.V. | D.S. | H.V. | D.S. | H.V. | YF | [illegible] | 8/25 Δ |
| 0+280 | D.S. | H.V. | D.S. | H.V. | D.S. | H.V. | D.S. | H.V. | D.S. | H.V. | D.S. | H.V. | YF | [illegible] | 8/25 Δ |
| 0+290 | D.S. | H.V. | D.S. | H.V. | D.S. | H.V. | D.S. | H.V. | D.S. | H.V. | YF | [illegible] | YF | [illegible] | 8/24 |
| 0+300 | D.S. | H.V. | D.S. | H.V. | D.S. | H.V. | D.S. | H.V. | YF | [illegible] | YF | [illegible] | YF | [illegible] | |
| 0+310 | YF | [illegible] | YF | [illegible] | YF | [illegible] | YF | [illegible] | YF | [illegible] | YF | [illegible] | YF | [illegible] | |
| 0+320 | YF | [illegible] | YF | [illegible] | YF | [illegible] | YF | [illegible] | YF | [illegible] | YF | [illegible] | YF | [illegible] | |
| 0+330 | YF | [illegible] | YF | [illegible] | YF | [illegible] | YF | [illegible] | YF | [illegible] | YF | [illegible] | YF | [illegible] | 8/24 |
| 0+340 | YF | [illegible] | YF | [illegible] | YF | [illegible] | YF | [illegible] | YF | [illegible] | YF | [illegible] | YF | [illegible] | 8/26 |
| 0+350 | YF | [illegible] | YF | [illegible] | YF | [illegible] | YF | [illegible] | YF | [illegible] | YF | [illegible] | YF | [illegible] | 8/26 |
| 0+360 | YF | [illegible] | YF | [illegible] | YF | [illegible] | YF | [illegible] | YF | [illegible] | YF | [illegible] | YF | [illegible] | 8/26 |

* Pressure testing of underdrain and/or closure pipe is not required as spot test completed previously is sufficient. 18/07/18

* ↳ [illegible] Gouge on closure pipe pending survey review to determine if replacement is required

Δ Signed for area previously placed under supervision of H.V.

## CC204 Pelly Underdrain Installation

| Station | Type 3 Foundation | | Geotextile - 12oz | | 10cm SDF Bedding | | Header Pipes | | Backfill min. 0.2m above pipes - SDF | | Close off geotextile | | Backfill min. 0.3m above geotextile | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Pelly | BGC | Pelly | BGC | Pelly | BGC | Pelly | BGC | Pelly | BGC | Pelly | BGC | Pelly | BGC |
| 0+370 | YF | [sig] | YF | [sig] | YF | [sig] | YF | [sig] | YF | [sig] | YF | [sig] | YF | [sig] |
| 0+380 | YF | [sig] | YF | [sig] | YF | [sig] | YF | [sig] | YF | [sig] | YF | [sig] | YF | [sig] |
| 0+390 | YF | [sig] | YF | [sig] | YF | [sig] | YF | [sig] | YF | [sig] | YF | [sig] | YF | [sig] |
| 0+400 | YF | [sig] | YF | [sig] | YF | [sig] | YF | [sig] | YF | [sig] | YF | [sig] | YF | [sig] |
| 0+410 | YF | [sig] * | YF | [sig] * | YF | [sig] * | YF | [sig] | DS | EJF | DS | EJF | DS | EJF |
| 0+420 | YF | [sig] * | DS | EJF | DS | EJF | DS | EJF | DS | EJF | DS | EJF | DS | EJF |
| 0+430 | DS | EJF | DS | EJF | DS | EJF | DS | EJF | DS | EJF | DS | EJF | DS | EJF |
| 0+440 | DS | EJF | DS | EJF | DS | EJF | DS | EJF | DS | EJF | DS | EJF | DS | EJF |
| 0+450 | DS | EJF | DS | EJF | DS | EJF | DS | EJF | DS | EJF | DS | EJF | DS | EJF |
| 0+460 | DS | EJF | DS | EJF | DS | EJF | DS | EJF | DS | EJF | DS | EJF | DS | EJF |
| 0+ | | | | | | | | | | | | | | |
| 0+ | | | | | | | | | | | | | | |
| 0+ | | | | | | | | | | | | | | |
| 0+ | | | | | | | | | | | | | | |
| 0+ | | | | | | | | | | | | | | |
| 0+ | | | | | | | | | | | | | | |
| 0+ | | | | | | | | | | | | | | |
| 0+ | | | | | | | | | | | | | | |

8/22

* Conditional Approval following clean-up passes to remove mud and water.

→ Good.

## CC204 Pelly Closure Pipe Installation

| Station | Type 3 Foundation or Approved Subgrade | | Geotextile - 12oz | | 10cm SDF Bedding | | Header Pipes | | Backfill min. 0.2m above pipes - SDF | | Close off Geotextile | | Backfill min. 0.3 above geotextile | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Pelly | BGC | Pelly | BGC | Pelly | BGC | Pelly | BGC | Pelly | BGC | Pelly | BGC | Pelly | BGC |
| 0+260 | D.S. | H.V. | D.S. | H.V. | D.S. | H.V. | D.S. | H.V. | D.S. | H.V. | D.S. | H.V. | D.S. | H.V. |
| 0+270 | D.S. | H.V. | D.S. | H.V. | D.S. | H.V. | D.S. | H.V. | D.S. | H.V. | D.S. | H.V. | D.S. | H.V. |
| 0+280 | D.S. | H.V. | D.S. | H.V. | D.S. | H.V. | D.S. | H.V. | D.S. | H.V. | D.S. | H.V. | D.S. | H.V. |
| 0+290 | D.S. | H.V. | D.S. | H.V. | D.S. | H.V. | D.S. | H.V. | D.S. | H.V. | D.S. | H.V. | D.S. | H.V. |
| 0+300 | D.S. | H.V. | D.S. | H.V. | D.S. | H.V. | D.S. | H.V. | N/A | N/A * | N/A | N/A * | N/A | N/A * |

* SDF Bedding below closure pipe is >10cm to achieve design grade where closure pipe enters closure sump

* No Longer Pelly scope; Exposed pipe was left for another contractor

| Elevation (m) | CC204 Pelly Construction Abutements/Rock Fills | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | ACTUAL ELEV: | | 870.15 | | 870.7 | | 871.45 | | 872.0 | |
| | Station | West Abutements | | East Abutements | | Rock Fill Lifts 1 | | Rock Fill Lifts 2 | | Rock Fill Lifts 3 | | Rock Fill Lifts 4 | | Rock Fill Lifts 5 |
| | | | | | TARGET ELEV: | 869.7 | | 870.70 | | 871.05 | | 871.6 | | 872.35 |
| | | Pelly | BGC | Pelly | BGC | Pelly | BGC | Pelly | BGC | Pelly | BGC | Pelly | BGC | Pelly | BGC |
| ---.7 | 0+7.5 | | | | | | | | | | | | | | |
| | 0+10 | Dino | | Dino | | Dino | EJF | | | | | | | | |
| | 0+20 | Dino | | Dino | | Dino | EJF | Dino | EJF | Dino | EJF | Dino | EJF | DAS | EJF |
| | 0+30 | Dino | | Dino | | Dino | EJF | Dino | EJF | Dino | EJF | Dino | EJF | DAS | EJF |
| | 0+40 | Dino | | Dino | | Dino | EJF | | | | | Dino | EJF | DAS | EJF |
| | 0+50 | Dino | | Dino | | Dino | EJF | | | | | | | | |
| | 0+60 | Dino | | Dino | | Dino | EJF | | | | | | | | |
| | 0+70 | Dino | | Dino | | Dino | EJF | | | | | | | | |
| | 0+80 | Dino | | Dino | | Dino | EJF | | | | | | | | |
| | 0+90 | Dino | | Dino | | Dino | EJF | | | | | | | | |
| | 0+100 | Dino | | Dino | | Dino | EJF | | | | | | | | |
| | 0+110 | Dino | | Dino | | Dino | EJF | | | | | | | | |
| | 0+120 | Dino | | Dino | | Dino | EJF. | | | | | | | | |
| | 0+130 | | | | | | | | | | | | | | |
| | 0+140 | | | | | | | | | | | | | | |
| | 0+150 | | | | | | | | | | | | | | |
| | 0+160 | | | | | | | | | | | | | | |
| | 0+170 | | | | | | | | | | | | | | |

Finger DRAIN @ Station 0+060 (Build as per Contract Specifications). [signature] 07/10/18 [signature] (BGC) 07/10/18

Finger DRAIN @ Station 0+070 (Build as per Contract Specifications). [signature] 07/10/18 [signature] (BGC) 07/10/18

NOTE: Asbuilt Approvals to follow as per Specification. [signature] 07/10/18.

1.4m overbuild on design toe @ Lift 1 and 2, 3, 4 [signature] (BGC) 07/10/18

[signature] 07/10/18

[signature] 07/11/18 (BGC)

Volume $H_2O$ Test & Asbuilt. [signature] 07/10/18.

(TEST HOLE 1) LIFT 3 [signature] (BGC) 07/11/18

0.9m overbuild on design toe @ lift 5 and 6 [signature] 07/13/18 [signature] 7/13/18

0.3m overbuild on design toe @ lift 7, 8, 9, 10 [signature] 07/13/18 [signature] 7/13/18

TEST HOLE 2 @ LIFT 7 Completed [signature] 7/14/18

| CC204 Pelly Construction Abutements/Rock Fills | | | | | ACTUAL: 872.8 | | 873.4 | | 874.17 | | 874.7 | | 875.35 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Station | West Abutements | | East Abutements | | TARGET: 872.90 | | 873.70 | | 874.3 | | 875.07 | | 875.6 | |
| | Pelly | BGC | Pelly | BGC | Pelly | BGC | Pelly | BGC | Pelly | BGC | Pelly | BGC | Pelly | BGC |
| 0+00 | | | | | | | | | | | | | | |
| 0+10 | | | | | | | | | | | | | | |
| 0+20 | | | | | DAS | EJF | DAS | EJF | DAS | D6 | DAS | D.6 | DAS | ~~EJF~~ |
| 0+30 | | | | | DAS | EJF | DAS | EJF | DAS | D6 | DAS | D.6 | DAS | EJF |
| 0+40 | | | | | DAS | EJF | DAS | EJF | DAS | D6 | DAS | D.6 | DAS | EJF |
| 0+50 | | | | | DAS | EJF | DAS | EJF | DAS | D6 | DAS | D.6 | DAS | EJF |
| 0+60 | | | | | | | DAS | EJF | DAS | D6 | DAS | D.6 | DAS | EJF |
| 0+70 | | | | | | | | | | | | | DAS | EJF |
| 0+80 | | | | | | | | | | | | | | |
| 0+90 | | | | | | | | | | | | | | |
| 0+100 | | | | | | | | | | | | | | |
| 0+110 | | | | | | | | | | | | | | |
| 0+120 | | | | | | | | | | | | | | |
| 0+130 | | | | | | | | | | | | | | |
| 0+140 | | | | | | | | | | | | | | |
| 0+150 | | | | | | | | | | | | | | |
| 0+160 | | | | | | | | | | | | | | |
| 0+170 | | | | | | | | | | | | | | |

Water replacement density test @ lift 10 — 14/07/18

TEST HOLE 3 — 07/14/18

**CC204 Pelly Construction Ltd**
**Rock Fill Lift Checklist**

*all lifts maintain a minimum 0.3m overbuild at embankment toe

| Elevation | Rock Fill Lift 11 | | Rock Fill Lift 12 | | Rock Fill Lift 13 | | Rock Fill Lift 14 | | Rock Fill Lift 15 | | Rock Fill Lift 16 | | Rock Fill Lift 17 | | Rock Fill Lift 18 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Target (m) | 876.25 | | 877.0 | | 877.75 | | 878.48 | | 879.10 | | ~~879.55~~ 879.8 | | 880.45 | | 881.20 | |
| Actual (m) | 876.10 | | ~~877.0~~ 876.85 | | 877.58 | | 878.20 | | 878.90 | | 879.55 | | 880.30 | | 881.05 | |
| **Abutments** | **Pelly** | **BGC** | **Pelly** | **BGC** | **Pelly** | **BGC** | **Pelly** | **BGC** | **Pelly** | **BGC** | **Pelly** | **BGC** | **Pelly** | **BGC** | **Pelly** | **BGC** |
| east | DAS | EJF | DAS | EJF | DAS | EJF | DAS | D6 | DAS | D.6 | DAS | D6 | DAS | D6 | DAS | D.6 |
| west | DAS | EJF | DAS | EJF | DAS | EJF | DAS | D.6 | DAS | D.6 | DAS | D.6 | DAS | D.6 | DAS | D.6 |
| **Station** | | | | | | | | | | | | | | | | |
| 0+020 | | | | | | | | | | | | | | | | |
| 0+030 | DAS | EJF | DAS | EJF | | | | | | | | | | | | |
| 0+040 | DAS | EJF | DAS | EJF | DAS | EJF | DAS | EJF | DAS | D.6 | DAS | D.6 | DAS | D.6 | DAS | D.6 |
| 0+050 | DAS | EJF | DAS | EJP | DAS | EJF | DAS | EJF | DAS | D.6 | DAS | D.6 | DAS | D.6 | DAS | D.6 |
| 0+060 | DAS | EJF | DAS | EJP | DAS | EJF | DAS | EJF | DAS | D.6 | DAS | D.6 | DAS | D.6 | DAS | D.6 |
| 0+070 | DAS | EJF | DAS | EJF | DAS | EJF | DAS | EJF | DAS | D.6 | DAS | D.6 | DAS | D.6 | DAS | D.6 |
| 0+080 | | | DAS | EJF | DAS | EJF | DAS | EJF | DAS | D.6 | DAS | D.6 | DAS | D.6 | DAS | D.6 |
| 0+090 | | | | | | | DAS | EJF | DAS | D.6 | DAS | D.6 | DAS | D.6 | DAS | D.6 |
| 0+100 | | | | | | | | | | D.6 | DAS | D.6 | DAS | D.6 | DAS | D.6 |
| 0+110 | | | | | | | | | | | | | | | | |
| 0+120 | | | | | | | | | | | | | | | | |
| 0+130 | | | | | | | | | | | | | | | | |
| 0+140 | | | | | | | | | | | | | | | | |
| 0+150 | | | | | | | | | | | | | | | | |
| 0+160 | | | | | | | | | | | | | | | | |
| 0+170 | | | | | | | | | | | | | | | | |

**EXTRAS:**

Water replacement density test @ lift 12 - test hole 4

| CC204 Pelly Construction Ltd<br>Rock Fill Lift Checklist | | | *all lifts maintain a minimum 0.3m overbuild at embankment toe | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Elevation** | **Rock Fill Lift 19** | | **Rock Fill Lift 20** | | **Rock Fill Lift 21** | | **Rock Fill Lift 22** | | **Rock Fill Lift 23** | | **Rock Fill Lift 24** | | **Rock Fill Lift 25** | | **Rock Fill Lift 26** | |
| Target (m) | 881.95 | | 882.80 | | 884.0 | | 884.65 | | 885.40 | | 886.15 | | 886.90 | | 887.65 | |
| Actual (m) | 882.66 | | 883.2012 | | ~~883~~ 883.75 | | 884.49 | | 885.25 | | 886.00 | | 886.00 | | 887.40 | |
| **Abutments** | **Pelly** | **BGC** | **Pelly** | **BGC** | **Pelly** | **BGC** | **Pelly** | **BGC** | **Pelly** | **BGC** | **Pelly** | **BGC** | **Pelly** | **BGC** | **Pelly** | **BGC** |
| east | Dino | SD | Dino | SD | | D.6 | Dino | SD | Dino | HV | Dino | SD | Dino | | Dino | SD |
| west | Dino | SD | Dino | SD | | D.6 | Dino | SD | Dino | HV | Dino | SD | Dino | | Dino | SD |
| **Station** | | | | | | | | | | | | | | | | |
| 0+020 | | | | | | | | | | | | | | | | |
| 0+030 | | | | | | | | | | | | | | | | |
| 0+040 | Dino | SD | Dino | SD | | D.6 | Dino | SD | | | | | | | | |
| 0+050 | Dino | SD | Dino | SD | | D.6 | Dino | SD | Dino | HV | Dino | SD | | HV | Dino | SD |
| 0+060 | Dino | SD | Dino | SD | | D.6 | Dino | SD | Dino | HV | Dino | SD | | HV | Dino | SD |
| 0+070 | Dino | SD | Dino | SD | | D.6 | Dino | SD | Dino | HV | Dino | SD | | HV | Dino | SD |
| 0+080 | Dino | SD | Dino | SD | | D.6 | Dino | SD | Dino | HV | Dino | SD | | HV | Dino | SD |
| 0+090 | Dino | SD | Dino | SD | | D.6 | Dino | SD | Dino | HV | Dino | SD | | HV | Dino | SD |
| 0+100 | Dino | SD | Dino | SD | | D.6 | Dino | SD | Dino | HV | Dino | SD | | HV | Dino | SD |
| 0+110 | Dino | SD | Dino | SD | | D.6 | Dino | SD | Dino | HV | Dino | SD | | HV | Dino | SD |
| 0+120 | | | | | | | | | | | Dino | SD | | HV | Dino | SD |
| 0+130 | | | | | | | | | | | | | | | Dino | SD |
| 0+140 | | | | | | | | | | | | | | | | |
| 0+150 | | | | | | | | | | | | | | | | |
| 0+160 | | | | | | | | | | | | | | | | |
| 0+170 | | | | | | | | | | | | | | | | |

**EXTRAS:**

0900: Lift 19 - Rock fill packed & CS78B Smooth drum. 882.60m. Dino

SF1A SF2A SF3A SF4A SF5A SF6A SF7A SF8A

**CC204 Pelly Construction Ltd**
**Rock Fill Lift Checklist**

*all lifts maintain a minimum 0.3m overbuild at embankment toe

| Elevation | Fill Lift 67 | | Fill Lift 68 | | Fill Lift 69 | | Fill Lift 70 | | Fill Lift 71 | | Fill Lift 72 | | Fill Lift 73 | | Fill Lift 74 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Target (m) | | | 891.48 | | 891.80 | | 892.18 | | 892.55 | | 893.00 | | 893.33 | | 893.70 | |
| Actual (m) | 891.08 | | 891.40 | | 891.75 | | 892.15 | | 892.60 | | 892.93 | | 893.30 | | 893.63 | |
| Abutments | Pelly | BGC | Pelly | BGC | Pelly | BGC | Pelly | BGC | Pelly | BGC | Pelly | BGC | Pelly | BGC | Pelly | BGC |
| east | YF | H.V. | YF | Rm | TP | RO | YF | H.V. | YF | H.V. | YF | H.V. | YF | H.V. | TP | RO |
| west | YF | H.V. | YF | Rm | TP | RO | YF | H.V. | YF | H.V. | YF | H.V. | YF | H.V. | TP | RO |
| Station | | | | | | | | | | | | | | | | |
| 0+100 | YF | H.V. | YF | Rm | TP | RO | YF | H.V. | YF | H.V. | YF | H.V. | YF | H.V. | TP | RO |
| 0+110 | YF | H.V. | YF | Rm | TP | RO | YF | H.V. | YF | H.V. | YF | H.V. | YF | H.V. | TP | RO |
| 0+120 | YF | H.V. | YF | Rm | TP | RO | YF | H.V. | YF | H.V. | YF | H.V. | YF | H.V. | TP | RO |
| 0+130 | YF | H.V. | YF | Rm | TP | RO | YF | H.V. | YF | H.V. | YF | H.V. | YF | H.V. | TP | RO |
| 0+140 | YF | H.V. | YF | Rm | TP | RO | YF | H.V. | YF | H.V. | YF | H.V. | YF | H.V. | TP | RO |
| 0+150 | | | | | | | | | | | | | | | | |
| 0+160 | | | | | | | | | | | | | | | | |
| 0+170 | | | | | | | | | | | | | | | | |
| 0+180 | | | | | | | | | | | | | | | | |
| 0+190 | | | | | | | | | | | | | | | | |
| 0+200 | | | | | | | | | | | | | | | | |
| 0+210 | | | | | | | | | | | | | | | | |
| 0+220 | | | | | | | | | | | | | | | | |
| 0+230 | | | | | | | | | | | | | | | | |
| 0+240 | | | | | | | | | | | | | | | | |
| 0+250 | | | | | | | | | | | | | | | | |
| 0+260 | | | | | | | | | | | | | | | | |
| 0+270 | | | | | | | | | | | | | | | | |
| 0+280 | | | | | | | | | | | | | | | | |
| 0+290 | | | | | | | | | | | | | | | | |
| 0+300 | | | | | | | | | | | | | | | | |
| 0+310 | | | | | | | | | | | | | | | | |
| 0+320 | | | | | | | | | | | | | | | | |
| 0+330 | | | | | | | | | | | | | | | | |

**EXTRAS:**

SF9A Target 894.03 Actual 893.98

SF10A Target 894.38 Actual 894.27

SF11A Target 894.67

**CC204 Pelly Construction Ltd**
**Rock Fill Lift Checklist**

*all lifts maintain a minimum 0.3m overbuild at embankment toe

| Elevation | SF LIFT 9A | | SF LIFT 10A | | SF LIFT 11A | | SF LIFT 12A | | SF LIFT 13A | | SF LIFT 14A | | SF LIFT 15A | | SF LIFT 16A | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Target (m) | 844.03 | | 844.38 | | 844.67 | | 845.02 | | 845.38 | | 845.78 | | 846.17 | | 846.45 | |
| Actual (m) | 843.48 | | 844.27 | | 844.62 | | 844.98 | | 845.38 | | 845.77 | | 846.05 | | 846.40 | |
| **Abutments** | **Pelly** | **BGC** | **Pelly** | **BGC** | **Pelly** | **BGC** | **Pelly** | **BGC** | **Pelly** | **BGC** | **Pelly** | **BGC** | **Pelly** | **BGC** | **Pelly** | **BGC** |
| east | YF | H.V. | YF | H.V. | YF | H.V. | YF | H.V. | TP | RO | TP | RO | YF | H.V. | YF | H.V. |
| west | YF | H.V. | YF | H.V. | YF | H.V. | YF | H.V. | TP | RO | TP | RO | YF | H.V. | YF | H.V. |
| **Station** | | | | | | | | | | | | | | | | |
| 0+100 | YF | H.V. | YF | H.V. | YF | H.V. | YF | H.V. | TP | RO | TP | RO | YF | | | |
| 0+110 | YF | H.V. | YF | H.V. | YF | H.V. | YF | H.V. | TP | RO | TP | RO | YF | H.V. | YF | H.V. |
| 0+120 | YF | H.V. | YF | H.V. | YF | H.V. | YF | H.V. | TP | RO | TP | RO | YF | H.V. | YF | H.V. |
| 0+130 | YF | H.V. | YF | H.V. | YF | H.V. | YF | H.V. | TP | RO | TP | RO | YF | H.V. | YF | H.V. |
| 0+140 | YF | H.V. | YF | H.V. | YF | H.V. | YF | H.V. | TP | RO | TP | RO | YF | H.V. | YF | H.V. |
| 0+150 | YF | H.V. | YF | H.V. | YF | H.V. | YF | H.V. | TP | RO | TP | RO | YF | H.V. | YF | H.V. |
| 0+160 | | | YF | H.V. | YF | H.V. | YF | H.V. | TP | RO | TP | RO | YF | H.V. | YF | H.V. |
| 0+170 | | | | | | | | | | | | | YF | H.V. | YF | H.V. |
| 0+180 | | | | | | | | | | | | | | | | / |
| 0+190 | | | | | | | | | | | | | | | | |
| 0+200 | | | | | | | | | | | | | | | | |
| 0+210 | | | | | | | | | | | | | | | | |
| 0+220 | | | | | | | | | | | | | | | | |
| 0+230 | | | | | | | | | | | | | | | | |
| 0+240 | | | | | | | | | | | | | | | | |
| 0+250 | | | | | | | | | | | | | | | | |
| 0+260 | | | | | | | | | | | | | | | | |
| 0+270 | | | | | | | | | | | | | | | | |
| 0+280 | | | | | | | | | | | | | | | | |
| 0+290 | | | | | | | | | | | | | | | | |
| 0+300 | | | | | | | | | | | | | | | | |
| 0+310 | | | | | | | | | | | | | | | | |
| 0+320 | | | | | | | | | | | | | | | | |
| 0+330 | | | | | | | | | | | | | | | | |

**EXTRAS:**

**CC204 Pelly Construction Ltd**
**~~Rock~~ Fill Lift Checklist**

*all lifts maintain a minimum 0.3m overbuild at embankment toe

| Elevation | SF LIFT 17A | | SF LIFT 18A | | SF LIFT 19A | | SF LIFT | | SF LIFT | | SF LIFT | | SF LIFT | | SF LIFT | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Target (m) | 896.80 | | 897.20 | | 897.56 | | | | | | | | | | | |
| Actual (m) | 896.80 | | 897.16 | | 897.48 | | | | | | | | | | | |
| **Abutments** | **Pelly** | **BGC** | **Pelly** | **BGC** | **Pelly** | **BGC** | **Pelly** | **BGC** | **Pelly** | **BGC** | **Pelly** | **BGC** | **Pelly** | **BGC** | **Pelly** | **BGC** |
| east | YF | H.V. | TP | RO | TP | RO | | | | | | | | | | |
| west | YF | H.V. | TP | RO | TP | RO | | | | | | | | | | |
| **Station** | | | | | | | | | | | | | | | | |
| 0+100 | | | | | | | | | | | | | | | | |
| 0+110 | YF | H.V. | TP | RO | TP | RO | | | | | | | | | | |
| 0+120 | YF | H.V. | TP | RO | TP | RO | | | | | | | | | | |
| 0+130 | YF | H.V. | TP | RO | TP | RO | | | | | | | | | | |
| 0+140 | YF | H.V. | TP | RO | TP | RO | | | | | | | | | | |
| 0+150 | YF | H.V. | TP | RO | TP | RO | | | | | | | | | | |
| 0+160 | YF | H.V. | TP | RO | TP | RO | | | | | | | | | | |
| 0+170 | | | | | | | | | | | | | | | | |
| 0+180 | | | | | | | | | | | | | | | | |
| 0+190 | | | | | | | | | | | | | | | | |
| 0+200 | | | | | | | | | | | | | | | | |
| 0+210 | | | | | | | | | | | | | | | | |
| 0+220 | | | | | | | | | | | | | | | | |
| 0+230 | | | | | | | | | | | | | | | | |
| 0+240 | | | | | | | | | | | | | | | | |
| 0+250 | | | | | | | | | | | | | | | | |
| 0+260 | | | | | | | | | | | | | | | | |
| 0+270 | | | | | | | | | | | | | | | | |
| 0+280 | | | | | | | | | | | | | | | | |
| 0+290 | | | | | | | | | | | | | | | | |
| 0+300 | | | | | | | | | | | | | | | | |
| 0+310 | | | | | | | | | | | | | | | | |
| 0+320 | | | | | | | | | | | | | | | | |
| 0+330 | | | | | | | | | | | | | | | | |

**EXTRAS:**

**CC204 Pelly Construction Ltd**
**Rock Fill Lift Checklist**

*all lifts maintain a minimum 0.3m overbuild at embankment toe

| Elevation | Rock Fill Lift 27 | | Rock Fill Lift 28 | | Rock Fill Lift 29 | | Rock Fill Lift 30 | | Rock Fill Lift 31 | | Structural Rock Fill Lift 32 | | Structural Rock Fill Lift 33 | | Structural Rock Fill Lift 34 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Target (m) | 888.30 | | 888.90 | | 889.60 | | 890.30 | | 891.00 | | 891.25 | | 891.55 | | 891.90 | |
| Actual (m) | 888.00 | | 888.70 | | 889.40 | | 890.20 | | 890.80 | | 891.10 | | 891.45 | | 891.80 | |
| **Abutment:** | **Pelly** | **BGC** | **Pelly** | **BGC** | **Pelly** | **BGC** | **Pelly** | **BGC** | **Pelly** | **BGC** | **Pelly** | **BGC** | **Pelly** | **BGC** | **Pelly** | **BGC** |
| east | Dino | SD | Dino | SD * | YF | H.V. | YF | H.V. | YF | H.V. | Dino | SD | Dino | SD | YF | H.V. |
| west | Dino | SD | Dino | SD * | YF | H.V. | YF | H.V. | YF | H.V. | Dino | SD | Dino | SD | YF | H.V. |
| **Station** | | | | | | | | | | | | | | | | |
| 0+020 | | | | | | | | | | | | | | | | |
| 0+030 | | | | | | | | | | | | | | | | |
| 0+040 | | | | | | | | | | | | | | | | |
| 0+050 | Dino | SD | Dino | SD * | SB | H.V. | | | | | | | | | | |
| 0+060 | Dino | SD | Dino | SD * | SB | H.V. | YF | H.V. | | | | | | | | |
| 0+070 | Dino | SD | Dino | SD * | SB | H.V. | YF | H.V. | YF | H.V. | | | | | | |
| 0+080 | Dino | SD | Dino | SD * | SB | H.V. | YF | H.V. | YF | H.V. | Dino | SD | Dino | SD | | |
| 0+090 | Dino | SD | Dino | SD * | SB | H.V. | YF | H.V. | YF | H.V. | Dino | SD | Dino | SD | | |
| 0+100 | Dino | SD | Dino | SD * | SB | H.V. | YF | H.V. | YF | H.V. | Dino | SD | Dino | SD | | |
| 0+110 | Dino | SD | Dino | SD * | SB | H.V. | YF | H.V. | YF | H.V. | Dino | SD | Dino | SD | YF | H.V. |
| 0+120 | Dino | SD | Dino | SD * | SB | H.V. | YF | H.V. | YF | H.V. | Dino | SD | Dino | SD | YF | H.V. |
| 0+130 | Dino | SD | Dino | SD * | SB | H.V. | YF | H.V. | YF | H.V. | Dino | SD | Dino | SD | YF | H.V. |
| 0+140 | | | Dino | SD * | SB | H.V. | YF | H.V. | YF | H.V. | Dino | SD | Dino | SD | YF | H.V. |
| 0+150 | | | | | SB | H.V. | YF | H.V. | YF | H.V. | Dino | SD | Dino | SD | YF | H.V. |
| 0+160 | | | | | | | | | YF | H.V. | Dino | SD | | | YF | H.V. |
| 0+170 | | | | | | | | | | | Dino | | | | YF | H.V. |

**EXTRAS:**

* Lift 28 - Did not witness placement or compaction (DD) - Just survey DD
July 25/18

Lift 31 - Last rock fill lift (pending confirmation)

(Sta 1+10)

Lift 32 - 40m offset marked by green stakes, 45m uncompacted Structural Fill

892.41

Structural #5 Structural 6 SF7 Structural SF8 Structural

**CC204 Pelly Construction Ltd**

**~~Rock~~ Fill Lift Checklist** SF4

*all lifts maintain a minimum 0.3m overbuild at embankment toe

SF9 SF10 SF11

| Elevation | ~~Rock~~ Fill Lift 35 | | ~~Rock~~ Fill Lift 36 | | ~~Rock~~ Fill Lift 37 | | ~~Rock~~ Fill Lift 38 | | ~~Rock~~ Fill Lift 39 | | ~~Rock~~ Fill Lift 40 | | ~~Rock~~ Fill Lift 41 | | ~~Rock~~ Fill Lift 42 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Target (m) | 842.25 | | 842.68 | | [redacted] | | 893.30 | | 893.65 | | 894.05 | | 894.42 | | 894.83 | |
| Actual (m) | 842.23 | | 842.61 | | 892.85 | | 893.20 | | 893.60 | | 893.97 | | 894.38 | | 894.77 | |
| **Abutment:** | **Pelly** | **BGC** | **Pelly** | **BGC** | **Pelly** | **BGC** | **Pelly** | **BGC** | **Pelly** | **BGC** | **Pelly** | **BGC** | **Pelly** | **BGC** | **Pelly** | **BGC** |
| east | YF | H.V. | YF | H.V. | Dino | [redacted] | Dino | [redacted] | Dino | H.V. | YF | H.V. | YF | H.V. | T.P. | H.V. |
| west | YF | H.V. | YF | H.V. | Dino | [redacted] | Dino | [redacted] | Dino | H.V. | YF | H.V. | YF | H.V. | T.P. | H.V. |
| **Station** | | | | | | | | | | | | | | | | |
| 0+020 | | | | | | | | | | | | | | | | |
| 0+030 | | | | | | | | | | | | | | | | |
| 0+040 | | | | | | | | | | | | | | | | |
| 0+050 | | | | | | | | | | | | | | | | |
| 0+060 | | | | | | | | | | | | | | | | |
| 0+070 | | | | | | | | | | | | | | | | |
| 0+080 | | | | | | | | | | | | | | | | |
| 0+090 | | | | | | | | | | | | | | | | |
| 0+100 | | | | | Dino | [redacted] | Dino | [redacted] | Dino | H.V. | YF | H.V. | YF | H.V. | T.P. | H.V. |
| 0+110 | YF | H.V. | YF | H.V. | Dino | [redacted] | Dino | [redacted] | Dino | H.V. | YF | H.V. | YF | H.V. | T.P. | H.V. |
| 0+120 | YF | H.V. | YF | H.V. | Dino | [redacted] | Dino | [redacted] | Dino | H.V. | YF | H.V. | YF | H.V. | T.P. | H.V. |
| 0+130 | YF | H.V. | YF | H.V. | Dino | [redacted] | Dino | [redacted] | Dino | H.V. | YF | H.V. | YF | H.V. | T.P. | H.V. |
| 0+140 | YF | H.V. | YF | H.V. | Dino | [redacted] | Dino | [redacted] | Dino | H.V. | YF | H.V. | YF | H.V. | T.P. | H.V. |
| 0+150 | YF | H.V. | YF | H.V. | Dino | [redacted] | Dino | [redacted] | Dino | H.V. | YF | H.V. | YF | H.V. | T.P. | H.V. |
| 0+160 | YF | H.V. | YF | H.V. | Dino | [redacted] | Dino | [redacted] | Dino | H.V. | YF | H.V. | YF | H.V. | T.P. | H.V. |
| 0+170 | YF | H.V. | YF | H.V. | Dino | [redacted] | Dino | [redacted] | Dino | H.V. | YF | H.V. | YF | H.V. | T.P. | H.V. |

**EXTRAS:**

Structural 6 – Down to 30cm lift due to using lighter packer (0+180 # of runs TBD) 0+180

CAT 78B – 0.45m on 2 passes

CAT 54B – 0.3m on 2 passes

**CC204 Pelly Construction Ltd**

**Rock Fill Lift Checklist** SF12 SF13 SF14 SF15 SF16 SF17 SF18 SF19

*all lifts maintain a minimum 0.3m overbuild at embankment toe

| Elevation | Fill Lift 43 | | Fill Lift 44 | | Fill Lift 45 | | Fill Lift 46 | | Fill Lift 47 | | Fill Lift 48 | | Fill Lift 49 | | Fill Lift 50 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Target (m) | 895.17 | | 895.55 | | 895.95 | | 896.35 | | 896.61 | | 846.40 | | 847.35 | | 897.68 | |
| Actual (m) | | | 895.50 | | 895.87 | | 846.21 | | 846.50 | | 846.95 | | 847.28 | | 897.58 | |
| **Abutment:** | **Pelly** | **BGC** | **Pelly** | **BGC** | **Pelly** | **BGC** | **Pelly** | **BGC** | **Pelly** | **BGC** | **Pelly** | **BGC** | **Pelly** | **BGC** | **Pelly** | **BGC** |
| east | Dino | QD | Dino | QD | Dino | QD | Dino | H.V. | YF | H.V. | YF | H.V. | YF | H.V. | YF | QD |
| west | Dino | QD | Dino | QD | Dino | QD | Dino | H.V. | YF | H.V. | YF | H.V. | YF | H.V. | YF | QD |
| **Station** | | | | | | | | | | | | | | | | |
| 0+100 | | | | | | | | | | | | | | | | |
| 0+110 | Dino | QD | Dino | QD | Dino | QD | Dino | H.V. | YF | H.V. | YF | H.V. | YF | H.V. | YF | QD |
| 0+120 | Dino | QD | Dino | QD | Dino | QD | Dino | H.V. | YF | H.V. | YF | H.V. | YF | H.V. | YF | QD |
| 0+130 | Dino | QD | Dino | QD | Dino | QD | Dino | H.V. | YF | H.V. | YF | H.V. | YF | H.V. | YF | QD |
| 0+140 | Dino | QD | Dino | QD | Dino | QD | Dino | H.V. | YF | H.V. | YF | H.V. | YF | H.V. | YF | QD |
| 0+150 | Dino | QD | Dino | QD | Dino | QD | Dino | H.V. | YF | H.V. | YF | H.V. | YF | H.V. | YF | QD |
| 0+160 | Dino | QD | Dino | QD | Dino | QD | Dino | H.V. | YF | H.V. | YF | H.V. | YF | H.V. | YF | QD |
| 0+170 | Dino | QD | Dino | QD | Dino | QD | Dino | H.V. | YF | H.V. | YF | H.V. | YF | H.V. | YF | QD |
| 0+180 | Dino | QD | Dino | QD | Dino | QD | Dino | H.V. | YF | H.V. | YF | H.V. | YF | H.V. | YF | QD |
| 0+190 | Dino | QD | Dino | QD | Dino | QD | Dino | H.V. | YF | H.V. | YF | H.V. | YF | H.V. | YF | QD |
| 0+200 | | | | | | | | | | | | | YF | H.V. | YF | QD |
| 0+210 | | | | | | | | | | | | | | | | |
| 0+220 | | | | | | | | | | | | | | | | |
| 0+230 | | | | | | | | | | | | | | | | |
| 0+240 | | | | | | | | | | | | | | | | |
| 0+250 | | | | | | | | | | | | | | | | |
| 0+260 | | | | | | | | | | | | | | | | |
| 0+270 | | | | | | | | | | | | | | | | |
| 0+280 | | | | | | | | | | | | | | | | |
| 0+290 | | | | | | | | | | | | | | | | |
| 0+300 | | | | | | | | | | | | | | | | |
| 0+310 | | | | | | | | | | | | | | | | |
| 0+320 | | | | | | | | | | | | | | | | |
| 0+330 | | | | | | | | | | | | | | | | |

**EXTRAS:** 40 cm lifts for foreseeable future

SF20

**CC204 Pelly Construction Ltd**
**Rock Fill Lift Checklist**

SF21 SF22 SF23 SF24 SF25 SF26 SF27

*all lifts maintain a minimum 0.3m overbuild at embankment toe

| Elevation | Fill Lift 51 | | Fill Lift 52 | | Fill Lift 53 | | Fill Lift 54 | | Fill Lift 55 | | Fill Lift 56 | | Fill Lift 57 | | Fill Lift 58 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Target (m) | 897.98 | | 898.35 | | 898.7 | | 899.05 | | 899.37 | | 899.72 | | 900.08 | | 900.45 | |
| Actual (m) | 897.95 | | 898.32 | | 898.65 | | 898.97 | | 899.32 | | 899.68 | | 900.05 | | 900.45 | |
| Abutment: | Pelly | BGC | Pelly | BGC | Pelly | BGC | Pelly | BGC | Pelly | BGC | Pelly | BGC | Pelly | BGC | Pelly | BGC |
| east | TP | RO | TP | RO | YF | H.V. | YF | H.V. | YF | H.V. | YF | H.V. | TP | RO | TP | RO |
| west | TP | RO | TP | RO | YF | H.V. | YF | H.V. | YF | H.V. | YF | H.V. | TP | RO | TP | RO |
| Station | | | | | | | | | | | | | | | | |
| 0+100 | TP | RO | TP | RO | YF | H.V. | | | | | | | | | | |
| 0+110 | TP | RO | TP | RO | YF | H.V. | | | | | | | | | | |
| 0+120 | TP | RO | TP | RO | YF | H.V. | | | | | | | | | | |
| 0+130 | TP | RO | TP | RO | YF | H.V. | YF | H.V. | YF | H.V. | YF | H.V. | TP | RO | TP | RO |
| 0+140 | TP | RO | TP | RO | YF | H.V. | YF | H.V. | YF | H.V. | YF | H.V. | TP | RO | TP | RO |
| 0+150 | TP | RO | TP | RO | YF | H.V. | YF | H.V. | YF | H.V. | YF | H.V. | TP | RO | TP | RO |
| 0+160 | TP | RO | TP | RO | YF | H.V. | YF | H.V. | YF | H.V. | YF | H.V. | TP | RO | TP | RO |
| 0+170 | TP | RO | TP | RO | YF | H.V. | YF | H.V. | YF | H.V. | YF | H.V. | TP | RO | TP | RO |
| 0+180 | TP | RO | TP | RO | YF | H.V. | YF | H.V. | YF | H.V. | YF | H.V. | TP | RO | TP | RO |
| 0+190 | TP | RO | TP | RO | YF | H.V. | YF | H.V. | YF | H.V. | YF | H.V. | TP | RO | TP | RO |
| 0+200 | TP | RO | TP | RO | YF | H.V. | YF | H.V. | YF | H.V. | YF | H.V. | TP | RO | TP | RO |
| 0+210 | | | | RO | YF | H.V. | YF | H.V. | YF | H.V. | YF | H.V. | TP | RO | TP | RO |
| 0+220 | | | | | | | | | | | | | | | | |
| 0+230 | | | | | | | | | | | | | | | | |
| 0+240 | | | | | | | | | | | | | | | | |
| 0+250 | | | | | | | | | | | | | | | | |
| 0+260 | | | | | | | | | | | | | | | | |
| 0+270 | | | | | | | | | | | | | | | | |
| 0+280 | | | | | | | | | | | | | | | | |
| 0+290 | | | | | | | | | | | | | | | | |
| 0+300 | | | | | | | | | | | | | | | | |
| 0+310 | | | | | | | | | | | | | | | | |
| 0+320 | | | | | | | | | | | | | | | | |
| 0+330 | | | | | | | | | | | | | | | | |

**EXTRAS:**

SF28 SF29 30 SF31 SF32 SF33 SF34 35

**CC204 Pelly Construction Ltd**
**~~Rock~~ Fill Lift Checklist**

*all lifts maintain a minimum 0.3m overbuild at embankment toe

| Elevation | Fill Lift 59 | | Fill Lift 60 | | Fill Lift 61 | | Fill Lift 62 | | Fill Lift 63 | | Fill Lift 64 | | Fill Lift 65 | | Fill Lift 66 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Target (m) | 900.81 | | 901.15 | | 901.47 | | 901.82 | | 902.14 | | 902.50 | | 902.82 | | 903.22 | |
| Actual (m) | 900.75 | | 901.07 | | 901.42 | | 901.74 | | 902.10 | | 902.42 | | 902.82 | | 903.10 | |
| **Abutment:** | **Pelly** | **BGC** | **Pelly** | **BGC** | **Pelly** | **BGC** | **Pelly** | **BGC** | **Pelly** | **BGC** | **Pelly** | **BGC** | **Pelly** | **BGC** | **Pelly** | **BGC** |
| east | YF | H.V. | YF | H.V. | YF | H.V. | TP | RO | YF | H.V. | YF | H.V. | YF | H.V. | YF | H.V. |
| west | YF | H.V. | YF | H.V. | YF | H.V. | TP | RO | YF | H.V. | YF | H.V. | YF | H.V. | YF | H.V. |
| **Station** | | | | | | | | | | | | | | | | |
| 0+100 | | | | | | | | | | | | | | | | |
| 0+110 | | | | | | | | | | | | | | | | |
| 0+120 | | | | | | | | | | | | | | | | |
| 0+130 | | | | | | | | | | | | | | | | |
| 0+140 | YF | H.V. | YF | H.V. | YF | H.V. | TP | RO | YF | H.V. | YF | H.V. | YF | H.V. | YF | H.V. |
| 0+150 | YF | H.V. | YF | H.V. | YF | H.V. | TP | RO | YF | H.V. | YF | H.V. | YF | H.V. | YF | H.V. |
| 0+160 | YF | H.V. | YF | H.V. | YF | H.V. | TP | RO | YF | H.V. | YF | H.V. | YF | H.V. | YF | H.V. |
| 0+170 | YF | H.V. | YF | H.V. | YF | H.V. | TP | RO | YF | H.V. | YF | H.V. | YF | H.V. | YF | H.V. |
| 0+180 | YF | H.V. | YF | H.V. | YF | H.V. | TP | RO | YF | H.V. | YF | H.V. | YF | H.V. | YF | H.V. |
| 0+190 | YF | H.V. | YF | H.V. | YF | H.V. | TP | RO | YF | H.V. | YF | H.V. | YF | H.V. | YF | H.V. |
| 0+200 | YF | H.V. | YF | H.V. | YF | H.V. | TP | RO | YF | H.V. | YF | H.V. | YF | H.V. | YF | H.V. |
| 0+210 | YF | H.V. | YF | H.V. | YF | H.V. | TP | RO | YF | H.V. | YF | H.V. | YF | H.V. | YF | H.V. |
| 0+220 | YF | H.V. | YF | H.V. | YF | H.V. | TP | RO | YF | H.V. | YF | H.V. | YF | H.V. | YF | H.V. |
| 0+230 | | | | | | | | | | | | | | | | |
| 0+240 | | | | | | | | | | | | | | | | |
| 0+250 | | | | | | | | | | | | | | | | |
| 0+260 | | | | | | | | | | | | | | | | |
| 0+270 | | | | | | | | | | | | | | | | |
| 0+280 | | | | | | | | | | | | | | | | |
| 0+290 | | | | | | | | | | | | | | | | |
| 0+300 | | | | | | | | | | | | | | | | |
| 0+310 | | | | | | | | | | | | | | | | |
| 0+320 | | | | | | | | | | | | | | | | |
| 0+330 | | | | | | | | | | | | | | | | |

**EXTRAS:**

* SF lift 1A as continuation from RF lift 31 will require to key into downstream face access ramps only as far as haul traffic travel has occurred; No further compaction is required within areas of haul traffic on access ramps.

**CC204 Pelly Construction Ltd**
**~~Rock~~ Fill Lift Checklist**

*all lifts maintain a minimum 0.3m overbuild at embankment toe

| Elevation | SF LIFT 36 | | SF LIFT 37 | | SF LIFT 38 | | SF LIFT 39 | | SF LIFT 40 | | SF LIFT 41 | | SF LIFT 42 | | SF LIFT 43 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Target (m) | 903.50 | | 903.76 | | 904.12 | | 904.48 | | 904.83 | | 905.26 | | 905.63 | | 905.94 | |
| Actual (m) | 903.76 | | 903.72 | | 904.08 | | 904.43 | | 904.86 | | 905.23 | | 905.54 | | 905.97 | |
| **Abutments** | **Pelly** | **BGC** | **Pelly** | **BGC** | **Pelly** | **BGC** | **Pelly** | **BGC** | **Pelly** | **BGC** | **Pelly** | **BGC** | **Pelly** | **BGC** | **Pelly** | **BGC** |
| east | TP | RTD | YF | H.V. | D.S. | H.V. | D.S. | H.V. | D.S. | H.V. | D.S. | H.V. | D.S. | H.V. | D.S. | H.V. |
| west | TP | RTD | YF | H.V. | D.S. | H.V. | D.S. | H.V. | D.S. | H.V. | D.S. | H.V. | D.S. | H.V. | D.S. | H.V. |
| **Station** | | | | | | | | | | | | | | | | |
| 0+100 | | | | | | | | | | | | | | | | |
| 0+110 | | | | | | | | | | | | | | | | |
| 0+120 | | | | | | | | | | | | | | | | |
| 0+130 | | | | | | | | | | | | | | | | |
| 0+140 | TP | RTD | YF | H.V. | D.S. | H.V. | D.S. | H.V. | D.S. | H.V. | | | | | | |
| 0+150 | TP | RTD | YF | H.V. | D.S. | H.V. | D.S. | H.V. | D.S. | H.V. | D.S. | H.V. | D.S. | H.V. | D.S. | H.V. |
| 0+160 | TP | RTD | YF | H.V. | D.S. | H.V. | D.S. | H.V. | D.S. | H.V. | D.S. | H.V. | D.S. | H.V. | D.S. | H.V. |
| 0+170 | TP | RTD | YF | H.V. | D.S. | H.V. | D.S. | H.V. | D.S. | H.V. | D.S. | H.V. | D.S. | H.V. | D.S. | H.V. |
| 0+180 | TP | RTD | YF | H.V. | D.S. | H.V. | D.S. | H.V. | D.S. | H.V. | D.S. | H.V. | D.S. | H.V. | D.S. | H.V. |
| 0+190 | TP | RTD | YF | H.V. | D.S. | H.V. | D.S. | H.V. | D.S. | H.V. | D.S. | H.V. | D.S. | H.V. | D.S. | H.V. |
| 0+200 | TP | RTD | YF | H.V. | D.S. | H.V. | D.S. | H.V. | D.S. | H.V. | D.S. | H.V. | D.S. | H.V. | D.S. | H.V. |
| 0+210 | TP | RTD | YF | H.V. | D.S. | H.V. | D.S. | H.V. | D.S. | H.V. | D.S. | H.V. | D.S. | H.V. | D.S. | H.V. |
| 0+220 | TP | RTD | YF | H.V. | D.S. | H.V. | D.S. | H.V. | D.S. | H.V. | D.S. | H.V. | D.S. | H.V. | D.S. | H.V. |
| 0+230 | | | | | | | | | | | D.S. | H.V. | D.S. | H.V. | D.S. | H.V. |
| 0+240 | | | | | | | | | | | | | | | D.S. | H.V. |
| 0+250 | | | | | | | | | | | | | | | | |
| 0+260 | | | | | | | | | | | | | | | | |
| 0+270 | | | | | | | | | | | | | | | | |
| 0+280 | | | | | | | | | | | | | | | | |
| 0+290 | | | | | | | | | | | | | | | | |
| 0+300 | | | | | | | | | | | | | | | | |
| 0+310 | | | | | | | | | | | | | | | | |
| 0+320 | | | | | | | | | | | | | | | | |
| 0+330 | | | | | | | | | | | | | | | | |

**EXTRAS:**

* Lift 38 was subbed out in SW corner where significant deflection was noticed; Brought down to solid and replaced with suitable material and compacted. * Also completed in North Central area of pad.

**CC204 Pelly Construction Ltd**
**~~Rock~~ Fill Lift Checklist**

*all lifts maintain a minimum 0.3m overbuild at embankment toe

| Elevation | SF LIFT 44 | | SF LIFT 45 | | SF LIFT 46 | | SF LIFT 47 | | SF LIFT 48 | | SF LIFT 49 | | SF LIFT 50 | | SF LIFT 51 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Target (m) | 906.33 | | 906.70 | | 907.07 | | 907.44 | | 907.87 | | 908.08 | | 908.42 | | 908.79 | |
| Actual (m) | 906.30 | | 906.66 | | 907.04 | | 907.27 | | 907.68 | | 908.02 | | 908.39 | | 908.75 | |
| **Abutments** | **Pelly** | **BGC** | **Pelly** | **BGC** | **Pelly** | **BGC** | **Pelly** | **BGC** | **Pelly** | **BGC** | **Pelly** | **BGC** | **Pelly** | **BGC** | **Pelly** | **BGC** |
| east | D.S. | H.V. | D.S. | H.V. | D.S. | H.V. | O.K | RO | D.S. | RO | O.K | RO | OK | RO | D.S. | RO |
| west | D.S. | H.V. | D.S. | H.V. | D.S. | H.V. | O.K | RO | D.S. | RO | O.K | RO | OK | RO | D.S. | RO |
| **Station** | | | | | | | | | | | | | | | | |
| 0+100 | | | | | | | | | | | | | | | | |
| 0+110 | | | | | | | | | | | | | | | | |
| 0+120 | | | | | | | | | | | | | | | | |
| 0+130 | | | | | | | | | | | | | | | | |
| 0+140 | | | | | | | | | | | | | | | | |
| 0+150 | D.S. | ~~H.V.~~ | | | | | | | | | | | | | | |
| 0+160 | D.S. | ~~D.S H.V~~ | D.S. | H.V. | D.S. | H.V. | O.K | RO | D.S. | RO | OK | RO | OK | RO | D.S. | RO |
| 0+170 | D.S. | ~~D.S H.V~~ | D.S. | H.V. | D.S. | H.V. | O.K | RO | D.S. | RO | OK | RO | OK | RO | D.S. | RO |
| 0+180 | D.S. | ~~D.S H.V~~ | D.S. | H.V. | D.S. | H.V. | O.K | RO | D.S. | RO | OK | RO | OK | RO | D.S. | RO |
| 0+190 | D.S. | H.V. | D.S. | H.V. | D.S. | H.V. | O.K | RO | D.S. | RO | OK | RO | OK | RO | D.S. | RO |
| 0+200 | D.S. | H.V. | D.S. | H.V. | D.S. | H.V. | O.K | RO | D.S. | RO | OK | RO | OK | RO | D.S. | RO |
| 0+210 | D.S. | H.V. | D.S. | H.V. | D.S. | H.V. | O.K | RO | D.S. | RO | OK | RO | OK | RO | D.S. | RO |
| 0+220 | D.S. | H.V. | D.S. | H.V. | D.S. | H.V. | O.K | RO | D.S. | RO | OK | RO | OK | RO | D.S. | RO |
| 0+230 | D.S. | H.V. | D.S. | H.V. | D.S. | H.V. | O.K | RO | D.S. | RO | OK | RO | OK | RO | D.S. | RO |
| 0+240 | D.S. | H.V. | D.S. | H.V. | D.S. | H.V. | O.K | RO | D.S. | RO | OK | RO | OK | RO | D.S. | RO |
| 0+250 | D.S. | H.V. | D.S. | H.V. | D.S. | H.V. | O.K | RO | D.S. | RO | OK | RO | OK | RO | D.S. | RO |
| 0+260 | | | D.S. | H.V. | D.S. | H.V. | O.K | RO | D.S. | RO | OK | RO | OK | RO | D.S. | RO |
| 0+270 | | | | | | | | | D.S. | RO | OK | RO | OK | RO | D.S. | RO |
| 0+280 | | | | | | | | | | | | | | | D.S. | |
| 0+290 | | | | | | | | | | | | | | | | |
| 0+300 | | | | | | | | | | | | | | | | |
| 0+310 | | | | | | | | | | | | | | | | |
| 0+320 | | | | | | | | | | | | | | | | |
| 0+330 | | | | | | | | | | | | | | | | |

**EXTRAS:**

**CC204 Pelly Construction Ltd**
**~~Rock~~ Fill Lift Checklist**

*all lifts maintain a minimum 0.3m overbuild at embankment toe

| Elevation | SF LIFT 52 | | SF LIFT 53 | | SF LIFT 54 | | SF LIFT 55 | | SF LIFT 56 | | SF LIFT 57 | | SF LIFT 58 | | SF LIFT 59 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Target (m) | 909.15 | | 909.50 | | 909.90 | | 910.30 | | 910.71 | | 911.06 | | 911.43 | | 911.81 | |
| Actual (m) | 909.10 | | 909.50 | | 909.90 | | 910.31 | | 910.66 | | 911.03 | | 911.41 | | ~~911.84~~ 911.84 | |
| **Abutments** | **Pelly** | **BGC** | **Pelly** | **BGC** | **Pelly** | **BGC** | **Pelly** | **BGC** | **Pelly** | **BGC** | **Pelly** | **BGC** | **Pelly** | **BGC** | **Pelly** | **BGC** |
| east | OK | RO | OK | RO | O.S. | EPM | OK | RO | OK | RO | | | | | OK | SD |
| west | OK | RO | OK | RO | O.S. | EPM | OK | RO | OK | RO | | | | | OK | SD |
| **Station** | | | | | | | | | | | | | | | | |
| 0+100 | | | | | | | | | | | | | | | | |
| 0+110 | | | | | | | | | | | | | | | | |
| 0+120 | | | | | | | | | | | | | | | | |
| 0+130 | | | | | | | | | | | | | | | | |
| 0+140 | | | | | | | | | | | | | | | | |
| 0+150 | | | | | | | | | | | | | | | | |
| 0+160 | OK | RO | OK | RO | O.S. | EPM | OK | RO | OK | RO | SE | EPM | SE | EPM | OK | SD |
| 0+170 | OK | RO | OK | RO | O.S. | EPM | OK | RO | OK | RO | SE | EPM | SE | EPM | OK | SD |
| 0+180 | OK | RO | OK | RO | O.S. | EPM | OK | RO | OK | RO | SE | EPM | SE | EPM | OK | SD |
| 0+190 | OK | RO | OK | RO | O.S. | EPM | OK | RO | OK | RO | SE | EPM | SE | EPM | OK | SD |
| 0+200 | OK | RO | OK | RO | O.S. | EPM | OK | RO | OK | RO | SE | EPM | SE | EPM | OK | SD |
| 0+210 | OK | RO | OK | RO | O.S. | EPM | OK | RO | OK | RO | SE | EPM | SE | EPM | OK | SD |
| 0+220 | OK | RO | OK | RO | O.S. | EPM | OK | RO | OK | RO | SE | EPM | SE | EPM | OK | SD |
| 0+230 | OK | RO | OK | RO | O.S. | EPM | OK | RO | OK | RO | SE | EPM | SE | EPM | OK | SD |
| 0+240 | OK | RO | OK | RO | O.S. | EPM | OK | RO | OK | RO | SE | EPM | SE | EPM | OK | SD |
| 0+250 | OK | RO | OK | RO | O.S. | EPM | OK | RO | OK | RO | SE | EPM | SE | EPM | OK | SD |
| 0+260 | | | | | | | | | | | | | | | | |
| 0+270 | | | | | | | | | | | | | | | | |
| 0+280 | | | | | | | | | | | | | | | | |
| 0+290 | | | | | | | | | | | | | | | | |
| 0+300 | | | | | | | | | | | | | | | | |
| 0+310 | | | | | | | | | | | | | | | | |
| 0+320 | | | | | | | | | | | | | | | | |
| 0+330 | | | | | | | | | | | | | | | | |

**EXTRAS:**

* Lifts will begin to be offset to the WEST by ~~3m~~ 2m per lift once lift elevation exceeds highest point of centre rock ridge * East abutment defined @ 2 m offset EPM

**CC204 Pelly Construction Ltd**
**~~Rock~~-Fill Lift Checklist**

EAST

*all lifts maintain a minimum 0.3m overbuild at embankment toe

| Elevation | SF LIFT Correction | | SF LIFT Correction | | SF LIFT Correction | | SF LIFT Correction | | SF LIFT | | SF LIFT | | SF LIFT | | SF LIFT | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Target (m) | 40cm | | 40cm | | 40cm | | 40cm | | 886.86 | | | | | | | |
| Actual (m) | 40cm | | 40cm | | 40cm | | 40cm | | | | 887.26 | | 887.70 | | 888.10 | |
| **Abutments** | **Pelly** | **BGC** | **Pelly** | **BGC** | **Pelly** | **BGC** | **Pelly** | **BGC** | **Pelly** | **BGC** | **Pelly** | **BGC** | **Pelly** | **BGC** | **Pelly** | **BGC** |
| east | OK | [illegible] | OK | [illegible] | OK | [illegible] | OK | [illegible] | OK | [illegible] | OK | [illegible] | OK | [illegible] | OK | [illegible] |
| west | | | | | | | | | | | | | | | | |
| **Station** | | | | | | | | | | | | | | | | |
| 0+100 | | | | | | | | | | | | | | | | |
| 0+110 | | | | | | | | | | | | | | | | |
| 0+120 | | | | | | | | | | | | | | | | |
| 0+130 | | | | | | | | | | | | | | | | |
| 0+140 | | | | | | | | | | | | | | | | |
| 0+150 | | | | | | | | | | | | | | | | |
| 0+160 | | | | | | | | | | | | | | | | |
| 0+170 | | | | | | | | | | | | | | | | |
| 0+180 | | | | | | | | | | | | | | | | |
| 0+190 | | | | | | | | | | | | | | | | |
| 0+200 | | | | | | | | | | | | | | | | |
| 0+210 | | | | | | | | | | | | | | | | |
| 0+220 | | | | | | | | | | | | | | | | |
| 0+230 | | | | | | | | | | | | | | | | |
| 0+240 | | | | | | | | | | | | | | | | |
| 0+250 | | | | | | | | | | | | | | | | |
| 0+260 | | | | | | | | | | | | | | | | |
| 0+270 | | | | | | | | | | | | | | | | |
| 0+280 | | | | | | | | | | | | | | | | |
| 0+290 | | | | | | | | | | | | | | | | |
| 0+300 | | | | | | | | | | | | | | | | |
| 0+310 | | | | | | | | | | | | | | | | |
| 0+320 | | | | | | | | | | | | | | | | |
| 0+330 | | | | | | | | | | | | | | | | |

**EXTRAS:** EAST EMBANKMENT

**CC204 Pelly Construction Ltd**
**~~Rock~~ Fill Lift Checklist**

*all lifts maintain a minimum 0.3m overbuild at embankment toe

| Elevation | SF LIFT 60 | | SF LIFT 61 | | SF LIFT 62 | | SF LIFT | | SF LIFT | | SF LIFT | | SF LIFT | | SF LIFT | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Target (m) | 912.21 | | 912.58 | | 913.00 | | | | | | | | | | | |
| Actual (m) | 912.18 | | 912.60 | | | | | | | | | | | | | |
| **Abutments** | **Pelly** | **BGC** | **Pelly** | **BGC** | **Pelly** | **BGC** | **Pelly** | **BGC** | **Pelly** | **BGC** | **Pelly** | **BGC** | **Pelly** | **BGC** | **Pelly** | **BGC** |
| east | TP | EPM | TP | EPM | | | | | | | | | | | | |
| west | TP | EPM | TP | EPM | | | | | | | | | | | | |
| **Station** | | | | | | | | | | | | | | | | |
| 0+100 | | | | | | | | | | | | | | | | |
| 0+110 | | | | | | | | | | | | | | | | |
| 0+120 | | | | | | | | | | | | | | | | |
| 0+130 | | | | | | | | | | | | | | | | |
| 0+140 | | | | | | | | | | | | | | | | |
| 0+150 | | | | | | | | | | | | | | | | |
| 0+160 | TP | EPM | TP | EPM | | | | | | | | | | | | |
| 0+170 | TP | EPM | TP | EPM | | | | | | | | | | | | |
| 0+180 | TP | EPM | TP | EPM | | | | | | | | | | | | |
| 0+190 | TP | EPM | TP | EPM | | | | | | | | | | | | |
| 0+200 | TP | EPM | TP | EPM | | | | | | | | | | | | |
| 0+210 | TP | EPM | TP | EPM | | | | | | | | | | | | |
| 0+220 | TP | EPM | TP | EPM | | | | | | | | | | | | |
| 0+230 | TP | EPM | TP | EPM | | | | | | | | | | | | |
| 0+240 | | | | | | | | | | | | | | | | |
| 0+250 | | | | | | | | | | | | | | | | |
| 0+260 | | | | | | | | | | | | | | | | |
| 0+270 | | | | | | | | | | | | | | | | |
| 0+280 | | | | | | | | | | | | | | | | |
| 0+290 | | | | | | | | | | | | | | | | |
| 0+300 | | | | | | | | | | | | | | | | |
| 0+310 | | | | | | | | | | | | | | | | |
| 0+320 | | | | | | | | | | | | | | | | |
| 0+330 | | | | | | | | | | | | | | | | |

**EXTRAS:**

East Embankment

**CC204 Pelly Construction Ltd**
**~~Rock~~ Fill Lift Checklist**

*all lifts maintain a minimum 0.3m overbuild at embankment toe

| Elevation | SF LIFT | | SF LIFT | | SF LIFT | | SF LIFT | | SF LIFT | | SF LIFT | | SF LIFT 14 A | | SF LIFT 14 B | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Target (m) | 888.53 | | 888.96 | | 889.36 | | 889.75 | | 890.15 | | 890.55 | | 890.98 | | 890.98 | |
| Actual (m) | 888.56 | | 888.96 | | 889.38 | | 889.75 | | | | | | | | 890.98 | |
| **Abutments** | **Pelly** | **BGC** | **Pelly** | **BGC** | **Pelly** | **BGC** | **Pelly** | **BGC** | **Pelly** | **BGC** | **Pelly** | **BGC** | **Pelly** | **BGC** | **Pelly** | **BGC** |
| east | TP | EPM | TP | EPM | TP | EPM | TP | EPM | OK | SD | OK | SD | OK | SD | OK | EPM |
| west | TP | EPM | TP | EPM | TP | EPM | TP | EPM | OK | SD. | OK | SD. | OK | SD. | OK | EPM |
| **Station** | | | | | | | | | | | | | | | | |
| 0+100 | | | | | | | | | | | | | | | | |
| 0+110 | | | | | | | | | | | | | | | | |
| 0+120 | | | | | | | | | | | | | | | | |
| 0+130 | | | | | | | | | | | | | | | | |
| 0+140 | | | | | | | | | | | | | | | | |
| 0+150 | | | | | | | | | | | | | | | | |
| 0+160 | | | | | | | | | | | | | | | | |
| 0+170 | | | | | | | | | | | | | | | | |
| 0+180 | | | | | | | | | | | | | | | | |
| 0+190 | | | | | | | | | | | | | | | | |
| 0+200 | | | | | | | | | | | | | | | | |
| 0+210 | | | | | | | | | | | | | | | | |
| 0+220 | | | | | | | | | | | | | | | | |
| 0+230 | | | | | | | | | | | | | | | | |
| 0+240 | | | | | | | | | | | | | | | | |
| 0+250 | | | | | | | | | | | | | | | | |
| 0+260 | | | | | | | | | | | | | | | | |
| 0+270 | | | | | | | | | | | | | | | | |
| 0+280 | | | | | | | | | | | | | | | | |
| 0+290 | | | | | | | | | | | | | | | | |
| 0+300 | | | | | | | | | | | | | | | | |
| 0+310 | | | | | | | | | | | | | | | | |
| 0+320 | | | | | | | | | | | | | | | | |
| 0+330 | | | | | | | | | | | | | | | | |

**EXTRAS:**

14A - ... W half of lift, 14-B (E half) to be completed by daylight SD

*14 B was left for Dayshift to complete

East Embankment

**CC204 Pelly Construction Ltd**
**Compaction Fill Lift Checklist**

*all lifts maintain a minimum 0.3m overbuild at embankment toe

| Elevation | SF LIFT 15 | | SF LIFT 16 | | SF LIFT 17 | | SF LIFT 18 | | SF LIFT 19 | | SF LIFT 20 | | SF LIFT 21 | | SF LIFT 22 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Target (m) | ~~[illegible]~~ 891.38 | | 891.81 | | ~~[illegible]~~ 892.24 | | 892.61 | | 892.98 | | 893.35 | | 893.76 | | 894.15 | |
| Actual (m) | 891.41 | | 891.84 | | | | 892.58 | | 892.95 | | 893.36 | | 893.75 | | 894.13 | |
| **Abutments** | **Pelly** | **BGC** | **Pelly** | **BGC** | **Pelly** | **BGC** | **Pelly** | **BGC** | **Pelly** | **BGC** | **Pelly** | **BGC** | **Pelly** | **BGC** | **Pelly** | **BGC** |
| east | TP | ~~TP~~ | TP | ~~TP~~ | SD | SD | OK | SD | OK | SD | OK | SD | ~~OK~~ | ~~TP~~ | TP | ~~TP~~ |
| west | TP | ~~TP~~ | TP | ~~TP~~ | SD | SD | OK | SD | OK | SD | OK | SD | ~~OK~~ | ~~TP~~ | TP | ~~TP~~ |
| **Station** | | | | | | | | | | | | | | | | |
| 0+100 | | | | | | | | | | | | | | | | |
| 0+110 | | | | | | | | | | | | | | | | |
| 0+120 | | | | | | | | | | | | | | | | |
| 0+130 | | | | | | | | | | | | | | | | |
| 0+140 | | | | | | | | | | | | | | | | |
| 0+150 | | | | | | | | | | | | | | | | |
| 0+160 | | | | | | | | | | | | | | | | |
| 0+170 | | | | | | | | | | | | | | | | |
| 0+180 | | | | | | | | | | | | | | | | |
| 0+190 | | | | | | | | | | | | | | | | |
| 0+200 | | | | | | | | | | | | | | | | |
| 0+210 | | | | | | | | | | | | | | | | |
| 0+220 | | | | | | | | | | | | | | | | |
| 0+230 | | | | | | | | | | | | | | | | |
| 0+240 | | | | | | | | | | | | | | | | |
| 0+250 | | | | | | | | | | | | | | | | |
| 0+260 | | | | | | | | | | | | | | | | |
| 0+270 | | | | | | | | | | | | | | | | |
| 0+280 | | | | | | | | | | | | | | | | |
| 0+290 | | | | | | | | | | | | | | | | |
| 0+300 | | | | | | | | | | | | | | | | |
| 0+310 | | | | | | | | | | | | | | | | |
| 0+320 | | | | | | | | | | | | | | | | |
| 0+330 | | | | | | | | | | | | | | | | |

**EXTRAS:**

Oasis

**CC204 Pelly Construction Ltd**
**Compaction Fill Lift Checklist**

*all lifts maintain a minimum 0.3m overbuild at embankment toe

| Elevation | SF LIFT 23 | | SF LIFT 24 | | SF LIFT 25 | | SF LIFT 26 | | SF LIFT 27 | | SF LIFT 28 | | SF LIFT 29 | | SF LIFT 30 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Target (m) | 894.82 | | 894.92 | | 895.32 | | 895.75 | | 896.16 | | 896.6 | | 897.05 | | 897.47 | |
| Actual (m) | 894.52 | | 895.22 | | 895.35 | | 895.76 | | 896.20 | | 896.65 | | 897.07 | | 897.40 | |
| **Abutments** | **Pelly** | **BGC** | **Pelly** | **BGC** | **Pelly** | **BGC** | **Pelly** | **BGC** | **Pelly** | **BGC** | **Pelly** | **BGC** | **Pelly** | **BGC** | **Pelly** | **BGC** |
| east | TP | | TP | | OK | SD | OK | SD | OK | SD | OK | [illegible] | TP | [illegible] | TP | [illegible] |
| west | TP | | TP | | OK | SD | OK | SD | OK | SD | OK | [illegible] | TP | [illegible] | TP | [illegible] |
| **Station** | | | | | | | | | | | | | | | | |
| 0+100 | | | | | | | | | | | | | | | | |
| 0+110 | | | | | | | | | | | | | | | | |
| 0+120 | | | | | | | | | | | | | | | | |
| 0+130 | | | | | | | | | | | | | | | | |
| 0+140 | | | | | | | | | | | | | | | | |
| 0+150 | | | | | | | | | | | | | | | | |
| 0+160 | | | | | | | | | | | | | | | | |
| 0+170 | | | | | | | | | | | | | | | | |
| 0+180 | | | | | | | | | | | | | | | | |
| 0+190 | | | | | | | | | | | | | | | | |
| 0+200 | | | | | | | | | | | | | | | | |
| 0+210 | | | | | | | | | | | | | | | | |
| 0+220 | | | | | | | | | | | | | | | | |
| 0+230 | | | | | | | | | | | | | | | | |
| 0+240 | | | | | | | | | | | | | | | | |
| 0+250 | | | | | | | | | | | | | | | | |
| 0+260 | | | | | | | | | | | | | | | | |
| 0+270 | | | | | | | | | | | | | | | | |
| 0+280 | | | | | | | | | | | | | | | | |
| 0+290 | | | | | | | | | | | | | | | | |
| 0+300 | | | | | | | | | | | | | | | | |
| 0+310 | | | | | | | | | | | | | | | | |
| 0+320 | | | | | | | | | | | | | | | | |
| 0+330 | | | | | | | | | | | | | | | | |

**EXTRAS:** 30 lift tied into the A lifts, *No overlap yet. Lift 31 will overlap

East

**CC204 Pelly Construction Ltd**
**Compaction Fill Lift Checklist**

*all lifts maintain a minimum 0.3m overbuild at embankment toe

| Elevation | SF LIFT 31 * | | SF LIFT 32 | | SF LIFT 33 | | SF LIFT 34 | | SF LIFT 35 | | SF LIFT 36 | | SF LIFT 37 | | SF LIFT 38 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Target (m) | 897.82 | | 894.17 | | 898.57 | | 898.95 | | 899.34 | | 899.75 | | 900.09 | | 900.47 | |
| Actual (m) | 897.77 | | 894.17 | | 898.55 | | 898.94 | | 899.35 | | 899.69 | | 900.07 | | 900.47 | |
| **Abutments** | **Pelly** | **BGC** | **Pelly** | **BGC** | **Pelly** | **BGC** | **Pelly** | **BGC** | **Pelly** | **BGC** | **Pelly** | **BGC** | **Pelly** | **BGC** | **Pelly** | **BGC** |
| east | TP | [signature] | OK | SD | OK | SD | OK | SD | TP | [signature] | TP | [signature] | TP | [signature] | OK | |
| west | TP | [signature] | OK | SD | OK | SD | OK | SD | TP | [signature] | TP | [signature] | TP | [signature] | OK | |
| **Station** | | | | | | | | | | | | | | | | |
| 0+100 | | | | | | | | | | | | | | | | |
| 0+110 | | | | | | | | | | | | | | | | |
| 0+120 | | | | | | | | | | | | | | | | |
| 0+130 | | | | | | | | | | | | | | | | |
| 0+140 | | | | | | | | | | | | | | | | |
| 0+150 | | | | | | | | | | | | | | | | |
| 0+160 | | | | | | | | | | | | | | | | |
| 0+170 | | | | | | | | | | | | | | | | |
| 0+180 | | | | | | | | | | | | | | | | |
| 0+190 | | | | | | | | | | | | | | | | |
| 0+200 | | | | | | | | | | | | | | | | |
| 0+210 | | | | | | | | | | | | | | | | |
| 0+220 | | | | | | | | | | | | | | | | |
| 0+230 | | | | | | | | | | | | | | | | |
| 0+240 | | | | | | | | | | | | | | | | |
| 0+250 | | | | | | | | | | | | | | | | |
| 0+260 | | | | | | | | | | | | | | | | |
| 0+270 | | | | | | | | | | | | | | | | |
| 0+280 | | | | | | | | | | | | | | | | |
| 0+290 | | | | | | | | | | | | | | | | |
| 0+300 | | | | | | | | | | | | | | | | |
| 0+310 | | | | | | | | | | | | | | | | |
| 0+320 | | | | | | | | | | | | | | | | |
| 0+330 | | | | | | | | | | | | | | | | |

**EXTRAS:**

* Lift 31 tied into A section of west embankment with (full-overlap)

*

**CC204 Pelly Construction Ltd**
**Compaction Fill Lift Checklist**

*all lifts maintain a minimum 0.3m overbuild at embankment toe

| Elevation | SF LIFT 39 | | SF LIFT 40 | | SF LIFT 41 | | SF LIFT 42 | | SF LIFT 43 | | SF LIFT 44 | | SF LIFT 45 | | SF LIFT 46 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Target (m) | 900.97 | | ~~901.50~~ 901.15 | | 901.50 | | 901.85 | | 902.17 | | 902.53 | | 902.85 | | 903.20 | |
| Actual (m) | ~~901.70~~ 900.75 | | 901.10 | | 901.45 | | 901.77 | | 902.13 | | 902.45 | | 902.80 | | 903.12 | |
| **Abutments** | **Pelly** | **BGC** | **Pelly** | **BGC** | **Pelly** | **BGC** | **Pelly** | **BGC** | **Pelly** | **BGC** | **Pelly** | **BGC** | **Pelly** | **BGC** | **Pelly** | **BGC** |
| east | OK | | OK | | TP | EAN | TP | EAN | TP | EAN | ~~OK~~ OK | ELN | OK | ELN | YF | ELN |
| west | OK | | OK | | TP | EAN | TP | EAN | TP | EAN | ~~OK~~ OK | ELN | OK | ELN | YF | EAN |
| **Station** | | | | | | | | | | | | | | | | |
| 0+100 | | | | | | | | | | | | | | | | |
| 0+110 | | | | | | | | | | | | | | | | |
| 0+120 | | | | | | | | | | | | | | | | |
| 0+130 | | | | | | | | | | | | | | | | |
| 0+140 | | | | | | | | | | | | | | | | |
| 0+150 | | | | | | | | | | | | | | | | |
| 0+160 | | | | | | | | | | | | | | | | |
| 0+170 | | | | | | | | | | | | | | | | |
| 0+180 | | | | | | | | | | | | | | | | |
| 0+190 | | | | | | | | | | | | | | | | |
| 0+200 | | | | | | | | | | | | | | | | |
| 0+210 | | | | | | | | | | | | | | | | |
| 0+220 | | | | | | | | | | | | | | | | |
| 0+230 | | | | | | | | | | | | | | | | |
| 0+240 | | | | | | | | | | | | | | | | |
| 0+250 | | | | | | | | | | | | | | | | |
| 0+260 | | | | | | | | | | | | | | | | |
| 0+270 | | | | | | | | | | | | | | | | |
| 0+280 | | | | | | | | | | | | | | | | |
| 0+290 | | | | | | | | | | | | | | | | |
| 0+300 | | | | | | | | | | | | | | | | |
| 0+310 | | | | | | | | | | | | | | | | |
| 0+320 | | | | | | | | | | | | | | | | |
| 0+330 | | | | | | | | | | | | | | | | |

**EXTRAS:**

**CC204 Pelly Construction Ltd**
**Compaction Fill Lift Checklist**

*all lifts maintain a minimum 0.3m overbuild at embankment toe

| Elevation | SF LIFT 47 | | SF LIFT 48 | | SF LIFT 49 | | SF LIFT 50 | | SF LIFT 51 | | SF LIFT 52 | | SF LIFT 53 | | SF LIFT 54 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Target (m) | 903.52 | | 903.88 | | 904.28 | | 904.68 | | 905.07 | | 905.47 | | 905.89 | | 906.27 | |
| Actual (m) | 903.43 | | 903.83 | | 904.23 | | 904.62 | | 905.02 | | 905.49 | | 905.82 | | 906.20 | |
| **Abutments** | **Pelly** | **BGC** | **Pelly** | **BGC** | **Pelly** | **BGC** | **Pelly** | **BGC** | **Pelly** | **BGC** | **Pelly** | **BGC** | **Pelly** | **BGC** | **Pelly** | **BGC** |
| east | YF | [illegible] | YF | [illegible] | TP | [illegible] | YF | [illegible] | YF | [illegible] | TP | [illegible] | TP | [illegible] | YF | [illegible] |
| west | YF | [illegible] | YF | [illegible] | TP | [illegible] | YF | [illegible] | YF | [illegible] | TP | [illegible] | TP | [illegible] | YF | [illegible] |
| **Station** | | | | | | | | | | | | | | | | |
| 0+100 | | | | | | | | | | | | | | | | |
| 0+110 | | | | | | | | | | | | | | | | |
| 0+120 | | | | | | | | | | | | | | | | |
| 0+130 | | | | | | | | | | | | | | | | |
| 0+140 | | | | | | | | | | | | | | | | |
| 0+150 | | | | | | | | | | | | | | | | |
| 0+160 | | | | | | | | | | | | | | | | |
| 0+170 | | | | | | | | | | | | | | | | |
| 0+180 | | | | | | | | | | | | | | | | |
| 0+190 | | | | | | | | | | | | | | | | |
| 0+200 | | | | | | | | | | | | | | | | |
| 0+210 | | | | | | | | | | | | | | | | |
| 0+220 | | | | | | | | | | | | | | | | |
| 0+230 | | | | | | | | | | | | | | | | |
| 0+240 | | | | | | | | | | | | | | | | |
| 0+250 | | | | | | | | | | | | | | | | |
| 0+260 | | | | | | | | | | | | | | | | |
| 0+270 | | | | | | | | | | | | | | | | |
| 0+280 | | | | | | | | | | | | | | | | |
| 0+290 | | | | | | | | | | | | | | | | |
| 0+300 | | | | | | | | | | | | | | | | |
| 0+310 | | | | | | | | | | | | | | | | |
| 0+320 | | | | | | | | | | | | | | | | |
| 0+330 | | | | | | | | | | | | | | | | |

**EXTRAS:** 45 cent lifts due to GPS dozer - Lift 48 onwards

**CC204 Pelly Construction Ltd**
**Compaction Fill Lift Checklist**

*all lifts maintain a minimum 0.3m overbuild at embankment toe

| Elevation | SF LIFT 55 | | SF LIFT 56 | | SF LIFT 57 | | SF LIFT 58 | | SF LIFT 59 | | SF LIFT 60 | | SF LIFT 61 | | SF LIFT 62 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Target (m) | 906.65 | | 907.05 | | 907.48 | | 907.91 | | 908.32 | | 908.69 | | 909.12 | | 909.51 | |
| Actual (m) | 906.60 | | 907.03 | | 907.46 | | 907.87 | | 908.24 | | 908.67 | | 909.06 | | 909.43 | |
| **Abutments** | **Pelly** | **BGC** | **Pelly** | **BGC** | **Pelly** | **BGC** | **Pelly** | **BGC** | **Pelly** | **BGC** | **Pelly** | **BGC** | **Pelly** | **BGC** | **Pelly** | **BGC** |
| east | YF | [illegible] | YF | [illegible] | TP | ELW | TP | ELW | YF | [illegible] | YF | [illegible] | TP | ELW | TP | ELW |
| west | YF | [illegible] | YF | [illegible] | TP | ELW | TP | ELW | YF | [illegible] | YF | [illegible] | TP | ELW | TP | ELW |
| **Station** | | | | | | | | | | | | | | | | |
| 0+100 | | | | | | | | | | | | | | | | |
| 0+110 | | | | | | | | | | | | | | | | |
| 0+120 | | | | | | | | | | | | | | | | |
| 0+130 | | | | | | | | | | | | | | | | |
| 0+140 | | | | | | | | | | | | | | | | |
| 0+150 | | | | | | | | | | | | | | | | |
| 0+160 | | | | | | | | | | | | | | | | |
| 0+170 | | | | | | | | | | | | | | | | |
| 0+180 | | | | | | | | | | | | | | | | |
| 0+190 | | | | | | | | | | | | | | | | |
| 0+200 | | | | | | | | | | | | | | | | |
| 0+210 | | | | | | | | | | | | | | | | |
| 0+220 | | | | | | | | | | | | | | | | |
| 0+230 | | | | | | | | | | | | | | | | |
| 0+240 | | | | | | | | | | | | | | | | |
| 0+250 | | | | | | | | | | | | | | | | |
| 0+260 | | | | | | | | | | | | | | | | |
| 0+270 | | | | | | | | | | | | | | | | |
| 0+280 | | | | | | | | | | | | | | | | |
| 0+290 | | | | | | | | | | | | | | | | |
| 0+300 | | | | | | | | | | | | | | | | |
| 0+310 | | | | | | | | | | | | | | | | |
| 0+320 | | | | | | | | | | | | | | | | |
| 0+330 | | | | | | | | | | | | | | | | |

**EXTRAS:**

**CC204 Pelly Construction Ltd**
**Compaction Fill Lift Checklist**

*all lifts maintain a minimum 0.3m overbuild at embankment toe

| Elevation | SF LIFT 63 | | SF LIFT 64 | | SF LIFT 65 | | SF LIFT 66 | | SF LIFT 67 | | SF LIFT 68 | | SF LIFT 69 | | SF LIFT 70 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Target (m) | 909.88 | | 910.25 | | 910.66 | | 911.05 | | 911.41 | | 911.81 | | 912.21 | | 912.60 | |
| Actual (m) | 909.80 | | 910.21 | | 910.60 | | 910.96 | | 911.36 | | 911.76 | | 912.15 | | 912.55 | |
| **Abutments** | **Pelly** | **BGC** | **Pelly** | **BGC** | **Pelly** | **BGC** | **Pelly** | **BGC** | **Pelly** | **BGC** | **Pelly** | **BGC** | **Pelly** | **BGC** | **Pelly** | **BGC** |
| east | YF | EPM | YF | EPM | TP | ELW | TP | ELW | YF | EPM | TP | ELW | TP | ELW | YF | EPM |
| west | YF | EPM | YF | EPM | TP | ELW | TP | ELW | YF | EPM | TP | ELW | TP | ELW | YF | EPM |
| **Station** | | | | | | | | | | | | | | | | |
| 0+100 | | | | | | | | | | | | | | | | |
| 0+110 | | | | | | | | | | | | | | | | |
| 0+120 | | | | | | | | | | | | | | | | |
| 0+130 | | | | | | | | | | | | | | | | |
| 0+140 | | | | | | | | | | | | | | | | |
| 0+150 | | | | | | | | | | | | | | | | |
| 0+160 | | | | | | | | | | | | | | | | |
| 0+170 | | | | | | | | | | | | | | | | |
| 0+180 | | | | | | | | | | | | | | | | |
| 0+190 | | | | | | | | | | | | | | | | |
| 0+200 | | | | | | | | | | | | | | | | |
| 0+210 | | | | | | | | | | | | | | | | |
| 0+220 | | | | | | | | | | | | | | | | |
| 0+230 | | | | | | | | | | | | | | | | |
| 0+240 | | | | | | | | | | | | | | | | |
| 0+250 | | | | | | | | | | | | | | | | |
| 0+260 | | | | | | | | | | | | | | | | |
| 0+270 | | | | | | | | | | | | | | | | |
| 0+280 | | | | | | | | | | | | | | | | |
| 0+290 | | | | | | | | | | | | | | | | |
| 0+300 | | | | | | | | | | | | | | | | |
| 0+310 | | | | | | | | | | | | | | | | |
| 0+320 | | | | | | | | | | | | | | | | |
| 0+330 | | | | | | | | | | | | | | | | |

**EXTRAS:**

Lift 68 - remove large rock and re-fill, then good for signoff on night shift

↳ Back edge check on 68/67 (upstream-toe edge) → confirm built to design location

**CC204 Pelly Construction Ltd**
**Compaction Fill Lift Checklist**

*all lifts maintain a minimum 0.3m overbuild at embankment toe

| Elevation | SF LIFT 71 | | SF LIFT 72 | | SF LIFT 73 | | SF LIFT 74 | | SF LIFT 75 | | SF LIFT 76 | | SF LIFT 77 | | SF LIFT 78 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Target (m) | 913.00 | | 913.37 | | 913.76 | | 914.14 | | 914.54 | | 914.94 | | 915.31 | | 915.70 | |
| Actual (m) | 912.92 | | 913.31 | | 913.69 | | 914.09 | | 914.49 | | 914.86 | | 915.25 | | 915.65 | |
| **Abutments** | **Pelly** | **BGC** | **Pelly** | **BGC** | **Pelly** | **BGC** | **Pelly** | **BGC** | **Pelly** | **BGC** | **Pelly** | **BGC** | **Pelly** | **BGC** | **Pelly** | **BGC** |
| east | YF | ELN | YF | ELN | D.S. | ETF | YF | ELN | YF | ELN | D.S. | EJF | YF | ELN | D.S. | EJF |
| west | YP | EJP | YF | ELN | D.S. | EJP | YF | ELN | YF | ELN | D.S. | EJP | YF | ELN | D.S. | EJF |
| **Station** | | | | | | | | | | | | | | | | |
| 0+100 | | | | | | | | | | | | | | | | |
| 0+110 | | | | | | | | | | | | | | | | |
| 0+120 | | | | | | | | | | | | | | | | |
| 0+130 | | | | | | | | | | | | | | | | |
| 0+140 | | | | | | | | | | | | | | | | |
| 0+150 | | | | | | | | | | | | | | | | |
| 0+160 | | | | | | | | | | | | | | | | |
| 0+170 | | | | | | | | | | | | | | | | |
| 0+180 | | | | | | | | | | | | | | | | |
| 0+190 | | | | | | | | | | | | | | | | |
| 0+200 | | | | | | | | | | | | | | | | |
| 0+210 | | | | | | | | | | | | | | | | |
| 0+220 | | | | | | | | | | | | | | | | |
| 0+230 | | | | | | | | | | | | | | | | |
| 0+240 | | | | | | | | | | | | | | | | |
| 0+250 | | | | | | | | | | | | | | | | |
| 0+260 | | | | | | | | | | | | | | | | |
| 0+270 | | | | | | | | | | | | | | | | |
| 0+280 | | | | | | | | | | | | | | | | |
| 0+290 | | | | | | | | | | | | | | | | |
| 0+300 | | | | | | | | | | | | | | | | |
| 0+310 | | | | | | | | | | | | | | | | |
| 0+320 | | | | | | | | | | | | | | | | |
| 0+330 | | | | | | | | | | | | | | | | |

**EXTRAS:**

Lift 71 last one of "East" lifts - ties into old lift at this elevation

Lift 72 first "full" lift (continuing numbering system)

Lift 78 - Mostly completed by Night Shift, did not sign due to small area where haul truck broke down

Started 79 already

**CC204 Pelly Construction Ltd**
**Compaction Fill Lift Checklist**

*all lifts maintain a minimum 0.3m overbuild at embankment toe

| Elevation | SF LIFT 79 | | SF LIFT 80 | | SF LIFT 81 | | SF LIFT 82 | | SF LIFT 83 | | SF LIFT 84 | | SF LIFT 85 | | SF LIFT 86 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Target (m) | 916.10 | | 916.5 | | 916.88 | | 917.27 | | 917.67 | | 918.06 | | 918.45 | | 918.85 | |
| Actual (m) | 916.05 | | 916.43 | | 916.82 | | 917.22 | | 917.61 | | 918.00 | | 918.40 | | 918.78 | |
| **Abutments** | **Pelly** | **BGC** | **Pelly** | **BGC** | **Pelly** | **BGC** | **Pelly** | **BGC** | **Pelly** | **BGC** | **Pelly** | **BGC** | **Pelly** | **BGC** | **Pelly** | **BGC** |
| east | D.S. | EJF | YF | ELN | YF | EJF | D.S. | EJF | YF | ELN | D.S. | EJF | YF | ELN | D.S. | EJF |
| west | D.S. | EJF | YF | ELN | YF | EJF | D.S. | EJF | YF | ELN | D.S. | EJF | YF | ELN | D.S. | EJF |
| **Station** | | | | | | | | | | | | | | | | |
| 0+100 | | | | | | | | | | | | | | | | |
| 0+110 | | | | | | | | | | | | | | | | |
| 0+120 | | | | | | | | | | | | | | | | |
| 0+130 | | | | | | | | | | | | | | | | |
| 0+140 | | | | | | | | | | | | | | | | |
| 0+150 | | | | | | | | | | | | | | | | |
| 0+160 | | | | | | | | | | | | | | | | |
| 0+170 | | | | | | | | | | | | | | | | |
| 0+180 | | | | | | | | | | | | | | | | |
| 0+190 | | | | | | | | | | | | | | | | |
| 0+200 | | | | | | | | | | | | | | | | |
| 0+210 | | | | | | | | | | | | | | | | |
| 0+220 | | | | | | | | | | | | | | | | |
| 0+230 | | | | | | | | | | | | | | | | |
| 0+240 | | | | | | | | | | | | | | | | |
| 0+250 | | | | | | | | | | | | | | | | |
| 0+260 | | | | | | | | | | | | | | | | |
| 0+270 | | | | | | | | | | | | | | | | |
| 0+280 | | | | | | | | | | | | | | | | |
| 0+290 | | | | | | | | | | | | | | | | |
| 0+300 | | | | | | | | | | | | | | | | |
| 0+310 | | | | | | | | | | | | | | | | |
| 0+320 | | | | | | | | | | | | | | | | |
| 0+330 | | | | | | | | | | | | | | | | |

**EXTRAS:** Lift 84 - Mostly placed by Night Shift, Day shift removed thawed ice creating soft spots and replaced with suitable material

**CC204 Pelly Construction Ltd**
**Compaction Fill Lift Checklist**

*all lifts maintain a minimum 0.3m overbuild at embankment toe

| Elevation | SF LIFT 87 | | SF LIFT 88 | | SF LIFT 89 | | SF LIFT 90 | | SF LIFT 91 | | SF LIFT 92 | | SF LIFT 93 | | SF LIFT 94 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Target (m) | 919.23 | | 919.62 | | 920.00 | | 920.38 | | 920.77 | | 921.15 | | 921.52 | | 921.90 | |
| Actual (m) | 919.17 | | 919.55 | | 919.93 | | 920.32 | | 920.70 | | 921.07 | | 921.45 | | 921.78 | |
| **Abutments** | **Pelly** | **BGC** | **Pelly** | **BGC** | **Pelly** | **BGC** | **Pelly** | **BGC** | **Pelly** | **BGC** | **Pelly** | **BGC** | **Pelly** | **BGC** | **Pelly** | **BGC** |
| east | D.S. | EJF | YF | RO | D.S. | RO | D.S. | RO | YF | RO | D.S. | RO | TP | RO | D.S. | EJF |
| west | D.S. | EJF | YF | RO | D.S. | RO | D.S. | RO | YF | RO | D.S. | RO | TP | RO | D.S. | EJF |
| **Station** | | | | | | | | | | | | | | | | |
| 0+100 | | | | | | | | | | | | | | | | |
| 0+110 | | | | | | | | | | | | | | | | |
| 0+120 | | | | | | | | | | | | | | | | |
| 0+130 | | | | | | | | | | | | | | | | |
| 0+140 | | | | | | | | | | | | | | | | |
| 0+150 | | | | | | | | | | | | | | | | |
| 0+160 | | | | | | | | | | | | | | | | |
| 0+170 | | | | | | | | | | | | | | | | |
| 0+180 | | | | | | | | | | | | | | | | |
| 0+190 | | | | | | | | | | | | | | | | |
| 0+200 | | | | | | | | | | | | | | | | |
| 0+210 | | | | | | | | | | | | | | | | |
| 0+220 | | | | | | | | | | | | | | | | |
| 0+230 | | | | | | | | | | | | | | | | |
| 0+240 | | | | | | | | | | | | | | | | |
| 0+250 | | | | | | | | | | | | | | | | |
| 0+260 | | | | | | | | | | | | | | | | |
| 0+270 | | | | | | | | | | | | | | | | |
| 0+280 | | | | | | | | | | | | | | | | |
| 0+290 | | | | | | | | | | | | | | | | |
| 0+300 | | | | | | | | | | | | | | | | |
| 0+310 | | | | | | | | | | | | | | | | |
| 0+320 | | | | | | | | | | | | | | | | |
| 0+330 | | | | | | | | | | | | | | | | |

**EXTRAS:**

**CC204 Pelly Construction Ltd**
**Compaction Fill Lift Checklist**

*all lifts maintain a minimum 0.3m overbuild at embankment toe

| Elevation | SF LIFT 95 | | SF LIFT 96 | | SF LIFT 97 | | SF LIFT 98 | | SF LIFT 99 | | SF LIFT 100 | | SF LIFT 101 | | SF LIFT 102 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Target (m) | 922.23 | | 922.60 | | 922.99 | | 923.40 | | 923.75 | | 924.11 | | 924.51 | | 924.89 | |
| Actual (m) | 922.15 | | 922.54 | | 922.95 | | 923.30 | | 923.66 | | 924.06 | | 924.44 | | 924.82 | |
| **Abutments** | **Pelly** | **BGC** | **Pelly** | **BGC** | **Pelly** | **BGC** | **Pelly** | **BGC** | **Pelly** | **BGC** | **Pelly** | **BGC** | **Pelly** | **BGC** | **Pelly** | **BGC** |
| east | D.S. | EJF | D.S. | EJF | D.S. | EJF | TP | RO | D.S | EJF | D.S. | EJF | TP | RO | TP | RO |
| west | D.S. | EJF | D.S. | EJF | D.S. | EJF | TP | RO | D.S | EJF | D.S | EJF | TP | RO | TP | RO |
| **Station** | | | | | | | | | | | | | | | | |
| 0+100 | | | | | | | | | | | | | | | | |
| 0+110 | | | | | | | | | | | | | | | | |
| 0+120 | | | | | | | | | | | | | | | | |
| 0+130 | | | | | | | | | | | | | | | | |
| 0+140 | | | | | | | | | | | | | | | | |
| 0+150 | | | | | | | | | | | | | | | | |
| 0+160 | | | | | | | | | | | | | | | | |
| 0+170 | | | | | | | | | | | | | | | | |
| 0+180 | | | | | | | | | | | | | | | | |
| 0+190 | | | | | | | | | | | | | | | | |
| 0+200 | | | | | | | | | | | | | | | | |
| 0+210 | | | | | | | | | | | | | | | | |
| 0+220 | | | | | | | | | | | | | | | | |
| 0+230 | | | | | | | | | | | | | | | | |
| 0+240 | | | | | | | | | | | | | | | | |
| 0+250 | | | | | | | | | | | | | | | | |
| 0+260 | | | | | | | | | | | | | | | | |
| 0+270 | | | | | | | | | | | | | | | | |
| 0+280 | | | | | | | | | | | | | | | | |
| 0+290 | | | | | | | | | | | | | | | | |
| 0+300 | | | | | | | | | | | | | | | | |
| 0+310 | | | | | | | | | | | | | | | | |
| 0+320 | | | | | | | | | | | | | | | | |
| 0+330 | | | | | | | | | | | | | | | | |

**EXTRAS:**

| CC204 Pelly Construction Ltd<br>Compaction Fill Lift Checklist | | | *all lifts maintain a minimum 0.3m overbuild at embankment toe | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Elevation** | **SF LIFT 103** | | **SF LIFT 104** | | **SF LIFT 105** | | **SF LIFT 106** | | **SF LIFT 107** | | **SF LIFT 108** | | **SF LIFT 109** | | **SF LIFT 110** | |
| Target (m) | 925.27 | | 925.65 | | 926.04 | | 926.45 | | 926.84 | | 927.25 | | 927.62 | | 928.01 | |
| Actual (m) | 925.20 | | 925.59 | | ~~926~~926.00 | | 926.39 | | 926.80 | | 927.17 | | 927.56 | | 927.99 | |
| **Abutments** | **Pelly** | **BGC** | **Pelly** | **BGC** | **Pelly** | **BGC** | **Pelly** | **BGC** | **Pelly** | **BGC** | **Pelly** | **BGC** | **Pelly** | **BGC** | **Pelly** | **BGC** |
| east | TN | RO | D.S. | EJF | D.S. | EJF | D.S. | EJF | D.S. | EJF | TP | RO | D.S. | EJF | TN | RTO |
| west | TP | RO | D.S. | EJF | D.S. | EJF | D.S. | EJF | D.S. | EJF | TP | RO | D.S. | EJF | TN | RTO |
| **Station** | | | | | | | | | | | | | | | | |
| 0+100 | | | | | | | | | | | | | | | | |
| 0+110 | | | | | | | | | | | | | | | | |
| 0+120 | | | | | | | | | | | | | | | | |
| 0+130 | | | | | | | | | | | | | | | | |
| 0+140 | | | | | | | | | | | | | | | | |
| 0+150 | | | | | | | | | | | | | | | | |
| 0+160 | | | | | | | | | | | | | | | | |
| 0+170 | | | | | | | | | | | | | | | | |
| 0+180 | | | | | | | | | | | | | | | | |
| 0+190 | | | | | | | | | | | | | | | | |
| 0+200 | | | | | | | | | | | | | | | | |
| 0+210 | | | | | | | | | | | | | | | | |
| 0+220 | | | | | | | | | | | | | | | | |
| 0+230 | | | | | | | | | | | | | | | | |
| 0+240 | | | | | | | | | | | | | | | | |
| 0+250 | | | | | | | | | | | | | | | | |
| 0+260 | | | | | | | | | | | | | | | | |
| 0+270 | | | | | | | | | | | | | | | | |
| 0+280 | | | | | | | | | | | | | | | | |
| 0+290 | | | | | | | | | | | | | | | | |
| 0+300 | | | | | | | | | | | | | | | | |
| 0+310 | | | | | | | | | | | | | | | | |
| 0+320 | | | | | | | | | | | | | | | | |
| 0+330 | | | | | | | | | | | | | | | | |

**EXTRAS:**

| CC204 Pelly Construction Ltd<br>Compaction Fill Lift Checklist | | | *all lifts maintain a minimum 0.3m overbuild at embankment toe | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Elevation** | **SF LIFT** 111 | | **SF LIFT** 112 | | **SF LIFT** 113 | | **SF LIFT** 114 | | **SF LIFT** 115 | | **SF LIFT** 116 | | **SF LIFT** 117 | | **SF LIFT** 118 | |
| Target (m) | ~~928.44~~ | | 928.81 | | 929.20 | | 929.60 | | 930.00 | | 930.25 | | 930.49 | | 930.89 | |
| Actual (m) | 928.36 | | 928.75 | | 929.15 | | 929.55 | | 929.95 | | 930.19 | | 930.44 | | 930.84 | |
| **Abutments** | **Pelly** | **BGC** | **Pelly** | **BGC** | **Pelly** | **BGC** | **Pelly** | **BGC** | **Pelly** | **BGC** | **Pelly** | **BGC** | **Pelly** | **BGC** | **Pelly** | **BGC** |
| east | D.S. | RTO | D.S. | RTO | TP | RTO | D.S. | TP | TP | RTO | TP | RTO | D.S. | TP | TN | RTO |
| west | D.S. | RTO | D.S | RTO | TP | RTO | D.S. | TP | TP | RTO | TP | RTO | D.S | TP | TN | RTO |
| **Station** | | | | | | | | | | | | | | | | |
| 0+100 | | | | | | | | | | | | | | | | |
| 0+110 | | | | | | | | | | | | | | | | |
| 0+120 | | | | | | | | | | | | | | | | |
| 0+130 | | | | | | | | | | | | | | | | |
| 0+140 | | | | | | | | | | | | | | | | |
| 0+150 | | | | | | | | | | | | | | | | |
| 0+160 | | | | | | | | | | | | | | | | |
| 0+170 | | | | | | | | | | | | | | | | |
| 0+180 | | | | | | | | | | | | | | | | |
| 0+190 | | | | | | | | | | | | | | | | |
| 0+200 | | | | | | | | | | | | | | | | |
| 0+210 | | | | | | | | | | | | | | | | |
| 0+220 | | | | | | | | | | | | | | | | |
| 0+230 | | | | | | | | | | | | | | | | |
| 0+240 | | | | | | | | | | | | | | | | |
| 0+250 | | | | | | | | | | | | | | | | |
| 0+260 | | | | | | | | | | | | | | | | |
| 0+270 | | | | | | | | | | | | | | | | |
| 0+280 | | | | | | | | | | | | | | | | |
| 0+290 | | | | | | | | | | | | | | | | |
| 0+300 | | | | | | | | | | | | | | | | |
| 0+310 | | | | | | | | | | | | | | | | |
| 0+320 | | | | | | | | | | | | | | | | |
| 0+330 | | | | | | | | | | | | | | | | |

**EXTRAS:**

Lift 116 set at 30 cent due to material from HLF

Lift 115 required a large section to be dug out due to organics

Lift 117 set at 30 cm due to material from HLF

Lift 118 Saturated area in center of lift required removal, replace with dry material and compact

**CC204 Pelly Construction Ltd**
**Compaction Fill Lift Checklist**

*all lifts maintain a minimum 0.3m overbuild at embankment toe

| Elevation | SF LIFT 119 | | SF LIFT 120 | | SF LIFT 121 | | SF LIFT 122 | | SF LIFT 123 | | SF LIFT 124 | | SF LIFT 125 | | SF LIFT 126 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Target (m) | 931.29 | | 931.69 | | 932.03 | | 932.48 | | 932.85 | | 933.30 | | 933.71 | | 934.10 | |
| Actual (m) | 931.24 | | 931.62 | | 932.03 | | 932.40 | | 932.87 | | 933.26 | | 931.65 | | 934.06 | |
| **Abutments** | **Pelly** | **BGC** | **Pelly** | **BGC** | **Pelly** | **BGC** | **Pelly** | **BGC** | **Pelly** | **BGC** | **Pelly** | **BGC** | **Pelly** | **BGC** | **Pelly** | **BGC** |
| east | TP | RD | D.S. | EFM | D.S. | EFM | TP | AS | D.S. | EFM | [illegible] | EFM | TP | AS | TP | AS |
| west | TP | RD | D.S. | EFM | D.S. | EFM | TP | AS | D.S. | EFM | [illegible] | EFM | TP | AS | TP | AS |
| **Station** | | | | | | | | | | | | | | | | |
| 0+100 | | | | | | | | | | | | | | | | |
| 0+110 | | | | | | | | | | | | | | | | |
| 0+120 | | | | | | | | | | | | | | | | |
| 0+130 | | | | | | | | | | | | | | | | |
| 0+140 | | | | | | | | | | | | | | | | |
| 0+150 | | | | | | | | | | | | | | | | |
| 0+160 | | | | | | | | | | | | | | | | |
| 0+170 | | | | | | | | | | | | | | | | |
| 0+180 | | | | | | | | | | | | | | | | |
| 0+190 | | | | | | | | | | | | | | | | |
| 0+200 | | | | | | | | | | | | | | | | |
| 0+210 | | | | | | | | | | | | | | | | |
| 0+220 | | | | | | | | | | | | | | | | |
| 0+230 | | | | | | | | | | | | | | | | |
| 0+240 | | | | | | | | | | | | | | | | |
| 0+250 | | | | | | | | | | | | | | | | |
| 0+260 | | | | | | | | | | | | | | | | |
| 0+270 | | | | | | | | | | | | | | | | |
| 0+280 | | | | | | | | | | | | | | | | |
| 0+290 | | | | | | | | | | | | | | | | |
| 0+300 | | | | | | | | | | | | | | | | |
| 0+310 | | | | | | | | | | | | | | | | |
| 0+320 | | | | | | | | | | | | | | | | |
| 0+330 | | | | | | | | | | | | | | | | |

**EXTRAS:** Lift 124 set to 43 cm → 45 cm plus target of 123 due to concerns over high average as a result of large portion of lift 123 being done without gps dozer and being ~~lift~~ slightly high

**CC204 Pelly Construction Ltd**
**Compaction Fill Lift Checklist**

*all lifts maintain a minimum 0.3m overbuild at embankment toe

| Elevation | SF LIFT 127 | | SF LIFT 128 | | SF LIFT 129 | | SF LIFT 130 | | SF LIFT 131 | | SF LIFT 132 | | SF LIFT 133 | | SF LIFT 134 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Target (m) | 934.51 | | 934.90 | | 935.25 | | 935.66 | | 936.07 | | 936.47 | | 936.87 | | 937.14 | |
| Actual (m) | 934.45 | | 934.93 | | 935.21 | | 935.62 | | 936.02 | | 936.42 | | 936.86 | | 937.13 | |
| **Abutments** | **Pelly** | **BGC** | **Pelly** | **BGC** | **Pelly** | **BGC** | **Pelly** | **BGC** | **Pelly** | **BGC** | **Pelly** | **BGC** | **Pelly** | **BGC** | **Pelly** | **BGC** |
| east | SE | | SE | | TP | AS | TP | AS | TP | AS | SE | | SE | | SE | |
| west | SE | | SE | | TP | AS | TP | AS | TP | AS | SE | | SE | | SE | |
| **Station** | | | | | | | | | | | | | | | | |
| 0+100 | | | | | | | | | | | | | | | | |
| 0+110 | | | | | | | | | | | | | | | | |
| 0+120 | | | | | | | | | | | | | | | | |
| 0+130 | | | | | | | | | | | | | | | | |
| 0+140 | | | | | | | | | | | | | | | | |
| 0+150 | | | | | | | | | | | | | | | | |
| 0+160 | | | | | | | | | | | | | | | | |
| 0+170 | | | | | | | | | | | | | | | | |
| 0+180 | | | | | | | | | | | | | | | | |
| 0+190 | | | | | | | | | | | | | | | | |
| 0+200 | | | | | | | | | | | | | | | | |
| 0+210 | | | | | | | | | | | | | | | | |
| 0+220 | | | | | | | | | | | | | | | | |
| 0+230 | | | | | | | | | | | | | | | | |
| 0+240 | | | | | | | | | | | | | | | | |
| 0+250 | | | | | | | | | | | | | | | | |
| 0+260 | | | | | | | | | | | | | | | | |
| 0+270 | | | | | | | | | | | | | | | | |
| 0+280 | | | | | | | | | | | | | | | | |
| 0+290 | | | | | | | | | | | | | | | | |
| 0+300 | | | | | | | | | | | | | | | | |
| 0+310 | | | | | | | | | | | | | | | | |
| 0+320 | | | | | | | | | | | | | | | | |
| 0+330 | | | | | | | | | | | | | | | | |

**EXTRAS:**

**CC204 Pelly Construction Ltd**
**Compaction Fill Lift Checklist**

*all lifts maintain a minimum 0.3m overbuild at embankment toe

| Elevation | SF LIFT 135 | | SF LIFT 136 | | SF LIFT 137 | | SF LIFT 138 | | SF LIFT 139 | | SF LIFT 140 | | SF LIFT | | SF LIFT | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Target (m) | 937.58 | | 937.91 | | 938.33 | | 938.74 | | 939.14 | | 939.50 | | | | | |
| Actual (m) | 937.56 | | 937.88 | | 938.29 | | 938.69 | | 939.10 | | 939.44 | | | | | |
| **Abutments** | **Pelly** | **BGC** | **Pelly** | **BGC** | **Pelly** | **BGC** | **Pelly** | **BGC** | **Pelly** | **BGC** | **Pelly** | **BGC** | **Pelly** | **BGC** | **Pelly** | **BGC** |
| east | YF | AS | YF | AS | YF | AS | ~~SZ~~ | | ~~SZ~~ | | ~~SZ~~ | | | | | |
| west | YF | AS | YF | AS | YF | AS | ~~SZ~~ | | ~~SZ~~ | | ~~SZ~~ | | | | | |
| **Station** | | | | | | | | | | | | | | | | |
| 0+100 | | | | | | | | | | | | | | | | |
| 0+110 | | | | | | | | | | | | | | | | |
| 0+120 | | | | | | | | | | | | | | | | |
| 0+130 | | | | | | | | | | | | | | | | |
| 0+140 | | | | | | | | | | | | | | | | |
| 0+150 | | | | | | | | | | | | | | | | |
| 0+160 | | | | | | | | | | | | | | | | |
| 0+170 | | | | | | | | | | | | | | | | |
| 0+180 | | | | | | | | | | | | | | | | |
| 0+190 | | | | | | | | | | | | | | | | |
| 0+200 | | | | | | | | | | | | | | | | |
| 0+210 | | | | | | | | | | | | | | | | |
| 0+220 | | | | | | | | | | | | | | | | |
| 0+230 | | | | | | | | | | | | | | | | |
| 0+240 | | | | | | | | | | | | | | | | |
| 0+250 | | | | | | | | | | | | | | | | |
| 0+260 | | | | | | | | | | | | | | | | |
| 0+270 | | | | | | | | | | | | | | | | |
| 0+280 | | | | | | | | | | | | | | | | |
| 0+290 | | | | | | | | | | | | | | | | |
| 0+300 | | | | | | | | | | | | | | | | |
| 0+310 | | | | | | | | | | | | | | | | |
| 0+320 | | | | | | | | | | | | | | | | |
| 0+330 | | | | | | | | | | | | | | | | |

**EXTRAS:**

**CC204 Pelly Construction Ltd**
**Compaction Fill Lift Checklist**

*all lifts maintain a minimum 0.3m overbuild at embankment toe

| Elevation | SF LIFT W17 | | SF LIFT W18 | | SF LIFT W19 | | SF LIFT W20 | | SF LIFT W21 | | SF LIFT W22 | | SF LIFT W23 | | SF LIFT W24 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Target (m) | 925.[illegible] | | 925.66 | | 926.06 | | 926.45 | | 926.76 | | 927.17 | | 927.53 | | 927.93 | |
| Actual (m) | | | 925.61 | | 926.00 | | 926.31 | | 926.72 | | 927.08 | | 927.48 | | 927.88 | |
| **Abutments** | **Pelly** | **BGC** | **Pelly** | **BGC** | **Pelly** | **BGC** | **Pelly** | **BGC** | **Pelly** | **BGC** | **Pelly** | **BGC** | **Pelly** | **BGC** | **Pelly** | **BGC** |
| east | SZ | [illegible] | YF | AS | YF | AS | YF | AS | YF | AS | SZ | [illegible] | SZ | [illegible] | SZ | [illegible] |
| west | SZ | [illegible] | YF | AS | YF | AS | YF | AS | YF | AS | SZ | [illegible] | SZ | [illegible] | SZ | [illegible] |
| **Station** | | | | | | | | | | | | | | | | |
| 0+100 | | | | | | | | | | | | | | | | |
| 0+110 | | | | | | | | | | | | | | | | |
| 0+120 | | | | | | | | | | | | | | | | |
| 0+130 | | | | | | | | | | | | | | | | |
| 0+140 | | | | | | | | | | | | | | | | |
| 0+150 | | | | | | | | | | | | | | | | |
| 0+160 | | | | | | | | | | | | | | | | |
| 0+170 | | | | | | | | | | | | | | | | |
| 0+180 | | | | | | | | | | | | | | | | |
| 0+190 | | | | | | | | | | | | | | | | |
| 0+200 | | | | | | | | | | | | | | | | |
| 0+210 | | | | | | | | | | | | | | | | |
| 0+220 | | | | | | | | | | | | | | | | |
| 0+230 | | | | | | | | | | | | | | | | |
| 0+240 | | | | | | | | | | | | | | | | |
| 0+250 | | | | | | | | | | | | | | | | |
| 0+260 | | | | | | | | | | | | | | | | |
| 0+270 | | | | | | | | | | | | | | | | |
| 0+280 | | | | | | | | | | | | | | | | |
| 0+290 | | | | | | | | | | | | | | | | |
| 0+300 | | | | | | | | | | | | | | | | |
| 0+310 | | | | | | | | | | | | | | | | |
| 0+320 | | | | | | | | | | | | | | | | |
| 0+330 | | | | | | | | | | | | | | | | |

**EXTRAS:**

**CC204 Pelly Construction Ltd**
**Compaction Fill Lift Checklist**

*all lifts maintain a minimum 0.3m overbuild at embankment toe

| Elevation | SF LIFT W25 | | SF LIFT W26 | | SF LIFT W27 | | SF LIFT W28 | | SF LIFT W29 | | SF LIFT W30 | | SF LIFT W31 | | SF LIFT W32 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Target (m) | 928.33 | | 928.75 | | 929.16 | | 929.55 | | 929.96 | | 930.35 | | 930.76 | | 931.17 | |
| Actual (m) | 928.30 | | 928.71 | | 929.10 | | 929.51 | | 929.90 | | 930.31 | | 930.72 | | 931.14 | |
| **Abutments** | **Pelly** | **BGC** | **Pelly** | **BGC** | **Pelly** | **BGC** | **Pelly** | **BGC** | **Pelly** | **BGC** | **Pelly** | **BGC** | **Pelly** | **BGC** | **Pelly** | **BGC** |
| east | YF | AS | ~~58~~ | D6 | 58 | D.6 | 58 | AS | YF | AS | YF | AS | 5Z | D6 | ~~58~~ | D6 |
| west | YF | AS | 57 | D6 | 5Z | D.6 | 5Z | AS | YF | AS | YF | AS | 57 | D6 | ~~5Z~~ | D6 |
| **Station** | | | | | | | | | | | | | | | | |
| 0+100 | | | | | | | | | | | | | | | | |
| 0+110 | | | | | | | | | | | | | | | | |
| 0+120 | | | | | | | | | | | | | | | | |
| 0+130 | | | | | | | | | | | | | | | | |
| 0+140 | | | | | | | | | | | | | | | | |
| 0+150 | | | | | | | | | | | | | | | | |
| 0+160 | | | | | | | | | | | | | | | | |
| 0+170 | | | | | | | | | | | | | | | | |
| 0+180 | | | | | | | | | | | | | | | | |
| 0+190 | | | | | | | | | | | | | | | | |
| 0+200 | | | | | | | | | | | | | | | | |
| 0+210 | | | | | | | | | | | | | | | | |
| 0+220 | | | | | | | | | | | | | | | | |
| 0+230 | | | | | | | | | | | | | | | | |
| 0+240 | | | | | | | | | | | | | | | | |
| 0+250 | | | | | | | | | | | | | | | | |
| 0+260 | | | | | | | | | | | | | | | | |
| 0+270 | | | | | | | | | | | | | | | | |
| 0+280 | | | | | | | | | | | | | | | | |
| 0+290 | | | | | | | | | | | | | | | | |
| 0+300 | | | | | | | | | | | | | | | | |
| 0+310 | | | | | | | | | | | | | | | | |
| 0+320 | | | | | | | | | | | | | | | | |
| 0+330 | | | | | | | | | | | | | | | | |

**EXTRAS:**

**CC204 Pelly Construction Ltd**
**Compaction Fill Lift Checklist**

*all lifts maintain a minimum 0.3m overbuild at embankment toe

| Elevation | SF LIFT W33 | | SF LIFT W34 | | SF LIFT W35 | | SF LIFT W36 | | SF LIFT W37 | | SF LIFT W38 | | SF LIFT W39 | | SF LIFT W40 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Target (m) | 931.59 | | 932.00 | | 932.41 | | 932.82 | | 933.22 | | 933.64 | | 934.03 | | 934.45 | |
| Actual (m) | 931.55 | | 932.96 | | 932.37 | | 932.78 | | 933.19 | | 933.58 | | 934.00 | | 934.42 | |
| **Abutments** | **Pelly** | **BGC** | **Pelly** | **BGC** | **Pelly** | **BGC** | **Pelly** | **BGC** | **Pelly** | **BGC** | **Pelly** | **BGC** | **Pelly** | **BGC** | **Pelly** | **BGC** |
| east | YF | AS | YF | AS | SZ | | SZ | | YF | AS | YF | AS | MM | | MM | |
| west | YF | AS | YF | AS | SZ | | SZ | | YF | AS | YF | AS | MM | | MM | |
| **Station** | | | | | | | | | | | | | | | | |
| 0+100 | | | | | | | | | | | | | | | | |
| 0+110 | | | | | | | | | | | | | | | | |
| 0+120 | | | | | | | | | | | | | | | | |
| 0+130 | | | | | | | | | | | | | | | | |
| 0+140 | | | | | | | | | | | | | | | | |
| 0+150 | | | | | | | | | | | | | | | | |
| 0+160 | | | | | | | | | | | | | | | | |
| 0+170 | | | | | | | | | | | | | | | | |
| 0+180 | | | | | | | | | | | | | | | | |
| 0+190 | | | | | | | | | | | | | | | | |
| 0+200 | | | | | | | | | | | | | | | | |
| 0+210 | | | | | | | | | | | | | | | | |
| 0+220 | | | | | | | | | | | | | | | | |
| 0+230 | | | | | | | | | | | | | | | | |
| 0+240 | | | | | | | | | | | | | | | | |
| 0+250 | | | | | | | | | | | | | | | | |
| 0+260 | | | | | | | | | | | | | | | | |
| 0+270 | | | | | | | | | | | | | | | | |
| 0+280 | | | | | | | | | | | | | | | | |
| 0+290 | | | | | | | | | | | | | | | | |
| 0+300 | | | | | | | | | | | | | | | | |
| 0+310 | | | | | | | | | | | | | | | | |
| 0+320 | | | | | | | | | | | | | | | | |
| 0+330 | | | | | | | | | | | | | | | | |

**EXTRAS:**

| CC204 Pelly Construction Ltd<br>Compaction Fill Lift Checklist | *all lifts maintain a minimum 0.3m overbuild at embankment toe |
|---|---|

| Elevation | SF LIFT W41 | | SF LIFT W42 | | SF LIFT W43 | | SF LIFT W44 | | SF LIFT W45 | | SF LIFT W46 | | SF LIFT W47 | | SF LIFT W48 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Target (m) | 934.87 | | 935.28 | | 935.67 | | 936.06 * | | 936.47 * | | 936.88 * | | 937.31 * | | 937.70 | |
| Actual (m) | 934.83 | | 935.22 | | 935.61 | | 936.02 * | | 936.43 * | | 936.86 * | | 937.25 * | | 937.65 | |
| **Abutments** | **Pelly** | **BGC** | **Pelly** | **BGC** | **Pelly** | **BGC** | **Pelly** | **BGC** | **Pelly** | **BGC** | **Pelly** | **BGC** | **Pelly** | **BGC** | **Pelly** | **BGC** |
| east | MM | AS | YF | AS | YF | AS | YF | AS | YF | AS | YF | AS | YF | AS | MM | ERM |
| west | MM | AS | YF | AS | YF | AS | YF | AS | YF | AS | YF | AS | YF | AS | MM | ERM |
| **Station** | | | | | | | | | | | | | | | | |
| 0+100 | | | | | | | | | | | | | | | | |
| 0+110 | | | | | | | | | | | | | | | | |
| 0+120 | | | | | | | | | | | | | | | | |
| 0+130 | | | | | | | | | | | | | | | | |
| 0+140 | | | | | | | | | | | | | | | | |
| 0+150 | | | | | | | | | | | | | | | | |
| 0+160 | | | | | | | | | | | | | | | | |
| 0+170 | | | | | | | | | | | | | | | | |
| 0+180 | | | | | | | | | | | | | | | | |
| 0+190 | | | | | | | | | | | | | | | | |
| 0+200 | | | | | | | | | | | | | | | | |
| 0+210 | | | | | | | | | | | | | | | | |
| 0+220 | | | | | | | | | | | | | | | | |
| 0+230 | | | | | | | | | | | | | | | | |
| 0+240 | | | | | | | | | | | | | | | | |
| 0+250 | | | | | | | | | | | | | | | | |
| 0+260 | | | | | | | | | | | | | | | | |
| 0+270 | | | | | | | | | | | | | | | | |
| 0+280 | | | | | | | | | | | | | | | | |
| 0+290 | | | | | | | | | | | | | | | | |
| 0+300 | | | | | | | | | | | | | | | | |
| 0+310 | | | | | | | | | | | | | | | | |
| 0+320 | | | | | | | | | | | | | | | | |
| 0+330 | | | | | | | | | | | | | | | | |

**EXTRAS:**

* Not constructed as a continuous lift, later tied-in to allow cleaning of west wall (edge of embankment - right abutment).

**CC204 Pelly Construction Ltd**
**Compaction Fill Lift Checklist**

*all lifts maintain a minimum 0.3m overbuild at embankment toe

| Elevation | SF LIFT W49 | | SF LIFT W50 | | SF LIFT W51 | | SF LIFT W52 | | SF LIFT W53 | | SF LIFT | | SF LIFT | | SF LIFT | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Target (m) | 938.10 | | 938.53 | | 938.95 | | 939.30 | | 939.50 | | | | | | | |
| Actual (m) | 935.08 | | 938.50 | | | | | | | | | | | | | |
| **Abutments** | **Pelly** | **BGC** | **Pelly** | **BGC** | **Pelly** | **BGC** | **Pelly** | **BGC** | **Pelly** | **BGC** | **Pelly** | **BGC** | **Pelly** | **BGC** | **Pelly** | **BGC** |
| east | MM | [illegible] | MM | [illegible] | YF | [illegible] | YF | AS | YF | AS | | | | | | |
| west | MM | [illegible] | MM | [illegible] | YF | [illegible] | YF | AS | YF | AS | | | | | | |
| **Station** | | | | | | | | | | | | | | | | |
| 0+100 | | | | | | | | | | | | | | | | |
| 0+110 | | | | | | | | | | | | | | | | |
| 0+120 | | | | | | | | | | | | | | | | |
| 0+130 | | | | | | | | | | | | | | | | |
| 0+140 | | | | | | | | | | | | | | | | |
| 0+150 | | | | | | | | | | | | | | | | |
| 0+160 | | | | | | | | | | | | | | | | |
| 0+170 | | | | | | | | | | | | | | | | |
| 0+180 | | | | | | | | | | | | | | | | |
| 0+190 | | | | | | | | | | | | | | | | |
| 0+200 | | | | | | | | | | | | | | | | |
| 0+210 | | | | | | | | | | | | | | | | |
| 0+220 | | | | | | | | | | | | | | | | |
| 0+230 | | | | | | | | | | | | | | | | |
| 0+240 | | | | | | | | | | | | | | | | |
| 0+250 | | | | | | | | | | | | | | | | |
| 0+260 | | | | | | | | | | | | | | | | |
| 0+270 | | | | | | | | | | | | | | | | |
| 0+280 | | | | | | | | | | | | | | | | |
| 0+290 | | | | | | | | | | | | | | | | |
| 0+300 | | | | | | | | | | | | | | | | |
| 0+310 | | | | | | | | | | | | | | | | |
| 0+320 | | | | | | | | | | | | | | | | |
| 0+330 | | | | | | | | | | | | | | | | |

**EXTRAS:**

Title: **INSPECTION AND TEST PLAN FOR HLF EMBANKMENT TOE REDESIGN**

Contractor: **PELLY CONSTRUCTION LTD**
Project: **EAGLE GOLD PROJECT**
Item: **9000.07**
CWP: **HLF Embankment Toe Redesign**
Revision: **0**

Contract No. **CC204**
ITP No. **0015**
Date: **02-Jun-18**

Pelly Construction Ltd.

| ITEM NO. | TASK DESCRIPTION | ACTIVITIES AND ACCEPTANCE CRITERIA | PARTY RESPONSIBLE | VERIFICATION DOCUMENT OR FORM | CONTRACTOR REP INITIALS | CONTRACTOR REP DATE | CLIENT REP INITIALS | CLIENT REP DATE | COMMENTS |
|---|---|---|---|---|---|---|---|---|---|
| 1.1 | ITP review and approval | Client approval | Client | This approved ITP document bearing signatures | DK | | D.G | | |
| 1.2 | RFI's | Obtain RFI response to close request | Client | Client RFI forms | DK | | D.G | | |
| 1.3 | *Embankment Toe Redesign Drawing* | Verify all related Redesign drawing | Contractor/Client | Drawings reviewed | DK | | D.G | | |
| 1.4 | Quality of materials | Verify materials received meet all requirements | Contractor/Client | Material specification sheet and quality/inspection certificates | DK | | D.G | | NOT ENOUGH GEOGRID BUT APPROVED |
| 1.5 | Engineers approval of Subgrade foundation | Install geotextile as per design engineers correspondence | Contractor/Client | Engineers written approval subgrade foundation | DK | | D.G | | |
| 1.6 | Engineers approval of Phase 1 foundation | Install geotextile as per design engineers correspondence | Contractor/Client | Engineers written approval of Phase 1 foundation | DK | | D.G | | |
| 1.7 | Engineers approval of Geogrid installation | Install geotextile as per design engineers correspondence | Contractor/Client | Engineers written approval of geogrid | DK | | D.G | | NOT ENOUGH BUT APPROVED |
| 1.8 | Engineers approval of Nonwoven Geotextile installation - bottom | Install geotextile as per design engineers correspondence | Contractor/Client | Engineers written approval of geotextile installation | DK | | D.G | | |
| 1.9 | Engineers approval of Phase 2 foundation | Install geotextile as per design engineers correspondence | Contractor/Client | Engineers written approval of Phase 2 foundation | DK | | R.M. | | |
| 1.10 | Engineers approval of Nonwoven geotextile installation - *top* | Install geotextile as per design engineers correspondence | Contractor/Client | Engineers written approval of geotextile installation | D.S. | | RM | | |
| 1.11 | Engineers approval of Select Fill layer foundation | Install geotextile as per design engineers correspondence | Contractor/Client | Engineers written approval of Select Fill foundation | SF | | RM | | |
| 1.12 | Quality records complete and in turnover package | To be updated throughout the project | Contractor | As per documentation outlined in this ITP | SF | | | | |
| 1.13 | All items in this ITP are signed off | Verify all documents are signed off | Contractor/Client | Contractor ITP | SF | | | | |

**Client Rep:** Roy Morlan _____ 6-21-18
print sign date

**Contractor Rep:** Shipeng Zhang _____ 06-21-18
print sign date

1.8A → Add in Type 2 & Type 3 mix

CONTRACTOR REP
JUNE 5 2018

CLIENT REP
Roy Morlan BGC

Title: **INSPECTION AND TEST PLAN FOR HLF EMBANKMENT FINGER DRAINS**

Contractor: **PELLY CONSTRUCTION LTD**
Project: **EAGLE GOLD PROJECT**
Item: **TBD**
CWP: **HLF EMBANKMENT FINGER DRAINS**
Revision: **0**

Contract No **CC204**
ITP No **006-A**
Date: **20-Jun-18**
Station: **STA 0+60 RT**

Pelly Construction Ltd.

| ITEM NO. | TASK DESCRIPTION | ACTIVITIES AND ACCEPTANCE CRITERIA | PARTY RESPONSIBLE | VERIFICATION DOCUMENT OR FORM | CONTRACTOR REP | | CLIENT REP | | COMMENTS |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | INITIALS | DATE | INITIALS | DATE | |
| 1.1 | ITP review and approval | Client approval | Client | This approved ITP document bearing signatures | SZ | Jun | | | |
| 1.2 | RFI's | Obtain RFI response to close request | Client | Client RFI forms | SZ | | | | |
| 1.3 | Finger drain design drawing | Drawing received by Contractor; Verify design drawing | Contractor/Client | Drawings reviewed | SZ | Jun | | | |
| 1.4 | Quality of materials | Verify materials received meet all requirements | Contractor/Client | Material specification sheet and quality/inspection certificates | SZ | Jun | | | |
| 1.5 | Engineers approval of drain excavation | Inspection of excavation to design depth, width, and subgrade foundation | Contractor/Client | Engineers initials on this document | SZ | Jun | | | |
| 1.6 | Installation of 12oz nonwoven geotextile | Install geotextile as per design | Contractor/Client | Engineers initials on this document | SZ | Jun | | | |
| 1.7 | Installation of select drain fill to minimum of 0 45m | Install drain fill as per design; Thickness to meet requirement | Contractor/Client | Engineers initials on this document | SZ | Jun | | | |
| 1.8 | Close envelope of 12oz nonwoven geotextile | Geotextile to fully encompass drain fill maintaining minimum 0.5m overlap | Contractor/Client | Engineers initials on this document | SZ | Jun | | | |
| 1.9 | Place and compact minimum 0.3m of material 2 or material 3 above getotextile top layer | Install geotextile as per design engineers correspondence | Contractor/Client | Engineers initials on this document | SZ | Jun | | | |
| 1.10 | Survey asbuilt of requested construction steps | Survey to asbuilt steps during construction as requested | Contractor/Client | Asbuilt drawings provided as requested | | | | | |
| 1.11 | Quality records complete and in turnover package | To be updated throughout the project | Contractor | As per documentation outlined in this ITP | | | | | |

**Client Rep:** Ray Morden (print) _____ (sign) Jun 21, 2018 (date)

**Contractor Rep:** SHIPENG ZHENG (print) _____ (sign) Jun 21, 2018 (date)

Title: **INSPECTION AND TEST PLAN FOR HLF EMBANKMENT FINGER DRAINS**

Contractor: **PELLY CONSTRUCTION LTD**
Project: **EAGLE GOLD PROJECT**
Item: **TBD**
CWP: **HLF EMBANKMENT FINGER DRAINS**
Revision: **0**

Contract No. **CC204**
ITP No **006-B**
Date: **20-Jun-18**
Station: **STA 0+90 RT**

Pelly Construction Ltd.

| ITEM NO. | TASK DESCRIPTION | ACTIVITIES AND ACCEPTANCE CRITERIA | PARTY RESPONSIBLE | VERIFICATION DOCUMENT OR FORM | CONTRACTOR REP | | CLIENT REP | | COMMENTS |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | INITIALS | DATE | INITIALS | DATE | |
| 1.1 | ITP review and approval | Client approval | Client | This approved ITP document bearing signatures | SZ | Jun 21 | | | |
| 1.2 | RFI's | Obtain RFI response to close request | Client | Client RFI forms | | | | | |
| 1.3 | Finger drain design drawing | Drawing received by Contractor; Verify design drawing | Contractor/Client | Drawings reviewed | SZ | Jun 21 | | | |
| 1.4 | Quality of materials | Verify materials received meet all requirements | Contractor/Client | Material specification sheet and quality/inspection certificates | SZ | Jun 21 | | | |
| 1.5 | Engineers approval of drain excavation | Inspection of excavation to design depth, width, and subgrade foundation | Contractor/Client | Engineers initials on this document | SZ | Jun 21 | | | |
| 1.6 | Installation of 12oz nonwoven geotextile | Install geotextile as per design | Contractor/Client | Engineers initials on this document | SZ | Jun 21 | | | |
| 1.7 | Installation of select drain fill to minimum of 0.45m | Install drain fill as per design; Thickness to meet requirement | Contractor/Client | Engineers initials on this document | SZ | Jun 21 | | | |
| 1.8 | Close envelope of 12oz nonwoven geotextile | Geotextile to fully encompass drain fill maintaining minimum 0.5m overlap | Contractor/Client | Engineers initials on this document | SZ | Jun 21 | | | |
| 1.9 | Place and compact minimum 0.3m of material 2 or material 3 above getotextile top layer | Install geotextile as per design engineers correspondence | Contractor/Client | Engineers initials on this document | SZ | Jun 21 | | | |
| 1.10 | Survey asbuilt of requested construction steps | Survey to asbuilt steps during construction as requested | Contractor/Client | Asbuilt drawings provided as requested | | | | | |
| 1.11 | Quality records complete and in turnover package | To be updated throughout the project | Contractor | As per documentation outlined in this ITP | | | | | |

**Client Rep:** Roy Mueller (print) _____ (sign) June 21, 2018 (date)

**Contractor Rep:** SHIPENG ZHEN (print) _____ (sign) June 21, 2018 (date)

Title: **INSPECTION AND TEST PLAN FOR HLF EMBANKMENT FINGER DRAINS**

Contractor: **PELLY CONSTRUCTION LTD**
Project: **EAGLE GOLD PROJECT**
Item: **TBD**
CWP: **HLF EMBANKMENT FINGER DRAINS**
Revision: **0**

Contract No. **CC204**
ITP No. **006-D**
Date: **20-Jun-18**
Station: **STA 0+100 RT**

Pelly Construction Ltd.

| ITEM NO. | TASK DESCRIPTION | ACTIVITIES AND ACCEPTANCE CRITERIA | PARTY RESPONSIBLE | VERIFICATION DOCUMENT OR FORM | CONTRACTOR REP INITIALS | CONTRACTOR REP DATE | CLIENT REP INITIALS | CLIENT REP DATE | COMMENTS |
|---|---|---|---|---|---|---|---|---|---|
| 1.1 | ITP review and approval | Client approval | Client | This approved ITP document bearing signatures | | | | | |
| 1.2 | RFI's | Obtain RFI response to close request | Client | Client RFI forms | | | | | |
| 1.3 | Finger drain design drawing | Drawing received by Contractor; Verify design drawing | Contractor/Client | Drawings reviewed | SZ | | RM | 62518 | |
| 1.4 | Quality of materials | Verify materials received meet all requirements | Contractor/Client | Material specification sheet and quality/inspection certificates | SZ | | RM | 62518 | |
| 1.5 | Engineers approval of drain excavation | Inspection of excavation to design depth, width, and subgrade foundation | Contractor/Client | Engineers initials on this document | SZ | | RM | 62518 | |
| 1.6 | Installation of 12oz nonwoven geotextile | Install geotextile as per design | Contractor/Client | Engineers initials on this document | SZ | | RM | 62518 | |
| 1.7 | Installation of select drain fill to minimum of 0.45m | Install drain fill as per design; Thickness to meet requirement | Contractor/Client | Engineers initials on this document | SZ | | RM | 62518 | |
| 1.8 | Close envelope of 12oz nonwoven geotextile | Geotextile to fully encompass drain fill maintaining minimum 0.5m overlap | Contractor/Client | Engineers initials on this document | SZ | | RM | 62518 | |
| 1.9 | Place and compact minimum 0.3m of material 2 or material 3 above getotextile top layer | Install geotextile as per design engineers correspondence | Contractor/Client | Engineers initials on this document | SZ | | RM | 62518 | |
| 1.10 | Survey asbuilt of requested construction steps | Survey to asbuilt steps during construction as requested | Contractor/Client | Asbuilt drawings provided as requested | SZ | | RM | 62518 | |
| 1.11 | Quality records complete and in turnover package | To be updated throughout the project | Contractor | As per documentation outlined in this ITP | SZ | | RM | 62518 | |

**Client Rep:** Roy Morlan [signature] 6-25-18
print sign date

**Contractor Rep:** SHIPENG ZHENG [signature] June 25, 2018
print sign date

* As built Pending RM 62518

Title: **INSPECTION AND TEST PLAN FOR HLF EMBANKMENT FINGER DRAINS**

Contractor: **PELLY CONSTRUCTION LTD**
Project: **EAGLE GOLD PROJECT**
Item: **9000.13**
CWP: **HLF EMBANKMENT FINGER DRAINS**
Revision: **0**

Contract No **CC204**
ITP No. **006-E**
Date: **20-Jun-18**
Station: **STA 0+70 RT**

Pelly Construction Ltd.

| ITEM NO. | TASK DESCRIPTION | ACTIVITIES AND ACCEPTANCE CRITERIA | PARTY RESPONSIBLE | VERIFICATION DOCUMENT OR FORM | CONTRACTOR REP | | CLIENT REP | | COMMENTS |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | INITIALS | DATE | INITIALS | DATE | |
| 1.1 | ITP review and approval | Client approval | Client | This approved ITP document bearing signatures | [illegible] | 7/10 | EJF | 7/10 | |
| 1.2 | RFI's | Obtain RFI response to close request | Client | Client RFI forms | [illegible] | 7/10 | EJF | 7/10 | |
| 1.3 | Finger drain design drawing | Drawing received by Contractor; Verify design drawing | Contractor/Client | Drawings reviewed | [illegible] | 7/10 | EJF | 7/10 | |
| 1.4 | Quality of materials | Verify materials received meet all requirements | Contractor/Client | Material specification sheet and quality/inspection certificates | [illegible] | 7/10 | EJF | 7/10 | |
| 1.5 | Engineers approval of drain excavation | Inspection of excavation to design depth, width, and subgrade foundation | Contractor/Client | Engineers initials on this document | [illegible] | 7/10 | EJF | 7/10 | |
| 1.6 | Installation of 12oz nonwoven geotextile | Install geotextile as per design | Contractor/Client | Engineers initials on this document | [illegible] | 7/10 | EJF | 7/10 | |
| 1.7 | Installation of select drain fill to minimum of 0.45m | Install drain fill as per design; Thickness to meet requirement | Contractor/Client | Engineers initials on this document | [illegible] | 7/10 | EJF | 7/10 | |
| 1.8 | Close envelope of 12oz nonwoven geotextile | Geotextile to fully encompass drain fill maintaining minimum 0.5m overlap | Contractor/Client | Engineers initials on this document | [illegible] | 7/10 | EJF | 7/10 | |
| 1.9 | Place and compact minimum 0.3m of material 2 or material 3 above getotextile top layer | Install geotextile as per design engineers correspondence | Contractor/Client | Engineers initials on this document | [illegible] | 7/10 | EJF | 7/10 | |
| 1.10 | Survey asbuilt of requested construction steps | Survey to asbuilt steps during construction as requested | Contractor/Client | Asbuilt drawings provided as requested | [illegible] | 7/10 | EJF | 7/10 | |
| 1.11 | Quality records complete and in turnover package | To be updated throughout the project | Contractor | As per documentation outlined in this ITP | [illegible] | 7/10 | EJF | 7/10 | |

**Client Rep:** ETHAN FRASER [signature] 07/10/18
print sign date

**Contractor Rep:** [illegible] [signature] 07/10/18
print sign date

Title: **INSPECTION AND TEST PLAN FOR HLF EMBANKMENT FINGER DRAINS**

Contractor: **PELLY CONSTRUCTION LTD**
Project: **EAGLE GOLD PROJECT**
Item: **9000.13**
CWP: **HLF EMBANKMENT FINGER DRAINS**
Revision: **0**

Contract No. **CC204**
ITP No **006-F**
Date: **20-Jun-18**
Station: **STA 0+60 RT**

Pelly Construction Ltd.

| ITEM NO. | TASK DESCRIPTION | ACTIVITIES AND ACCEPTANCE CRITERIA | PARTY RESPONSIBLE | VERIFICATION DOCUMENT OR FORM | CONTRACTOR REP INITIALS | CONTRACTOR REP DATE | CLIENT REP INITIALS | CLIENT REP DATE | COMMENTS |
|---|---|---|---|---|---|---|---|---|---|
| 1.1 | ITP review and approval | Client approval | Client | This approved ITP document bearing signatures | Dino | 7/10 | EJF | 7/10 | |
| 1.2 | RFI's | Obtain RFI response to close request | Client | Client RFI forms | Dino | 7/10 | EJF | 7/10 | |
| 1.3 | Finger drain design drawing | Drawing received by Contractor; Verify design drawing | Contractor/Client | Drawings reviewed | Dino | 7/10 | EJF | 7/10 | |
| 1.4 | Quality of materials | Verify materials received meet all requirements | Contractor/Client | Material specification sheet and quality/inspection certificates | Dino | 7/10 | EJF | 7/10 | |
| 1.5 | Engineers approval of drain excavation | Inspection of excavation to design depth, width, and subgrade foundation | Contractor/Client | Engineers initials on this document | Dino | 7/10 | EJF | 7/10 | |
| 1.6 | Installation of 12oz nonwoven geotextile | Install geotextile as per design | Contractor/Client | Engineers initials on this document | Dino | 7/10 | EJF | 7/10 | |
| 1.7 | Installation of select drain fill to minimum of 0.45m | Install drain fill as per design; Thickness to meet requirement | Contractor/Client | Engineers initials on this document | Dino | 7/10 | EJF | 7/10 | |
| 1.8 | Close envelope of 12oz nonwoven geotextile | Geotextile to fully encompass drain fill maintaining minimum 0.5m overlap | Contractor/Client | Engineers initials on this document | Dino | 7/10 | EJF | 7/10 | |
| 1.9 | Place and compact minimum 0.3m of material 2 or material 3 above getotextile top layer | Install geotextile as per design engineers correspondence | Contractor/Client | Engineers initials on this document | Dino | 7/10 | EJF | 7/10 | |
| 1.10 | Survey asbuilt of requested construction steps | Survey to asbuilt steps during construction as requested | Contractor/Client | Asbuilt drawings provided as requested | Dino | 7/10 | EJF | 7/10 | |
| 1.11 | Quality records complete and in turnover package | To be updated throughout the project | Contractor | As per documentation outlined in this ITP | Dino | 7/10 | EJF | 7/10 | |

**Client Rep:** ETHAN FAGEC [signature] 07/10/18
print sign date

**Contractor Rep:** Daniel M. Oppio [signature] 07/10/18
print sign date

Title: **INSPECTION AND TEST PLAN FOR HLF EMBANKMENT FINGER DRAINS**

Contractor: **PELLY CONSTRUCTION LTD**
Project: **EAGLE GOLD PROJECT**
Item: **9000.13**
CWP: **HLF EMBANKMENT FINGER DRAINS**
Revision: **0**

Contract No **CC204**
ITP No **006-G**
Date: ~~**20-Jun-18**~~ JULY 12TH 2018
Station: **STA 0~~+115~~ RT** 160

Pelly Construction Ltd.

| ITEM NO. | TASK DESCRIPTION | ACTIVITIES AND ACCEPTANCE CRITERIA | PARTY RESPONSIBLE | VERIFICATION DOCUMENT OR FORM | CONTRACTOR REP | | CLIENT REP | | COMMENTS |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | INITIALS | DATE | INITIALS | DATE | |
| 1.1 | ITP review and approval | Client approval | Client | This approved ITP document bearing signatures | DAS | 7/13/18 | EJF | 7/13 | |
| 1.2 | RFI's | Obtain RFI response to close request | Client | Client RFI forms | DAS | 7/13/18 | EJF | 7/13 | |
| 1.3 | Finger drain design drawing | Drawing received by Contractor; Verify design drawing | Contractor/Client | Drawings reviewed | DAS | 7/13/18 | EJF | 7/13 | |
| 1.4 | Quality of materials | Verify materials received meet all requirements | Contractor/Client | Material specification sheet and quality/inspection certificates | DAS | 7/13/18 | EJF | 7/13 | |
| 1.5 | Engineers approval of drain excavation | Inspection of excavation to design depth, width, and subgrade foundation | Contractor/Client | Engineers initials on this document | DAS | 7/13/18 | EJF | 7/13 | |
| 1.6 | Installation of 12oz nonwoven geotextile | Install geotextile as per design | Contractor/Client | Engineers initials on this document | DAS | 7/13/18 | EJF | 7/13 | |
| 1.7 | Installation of select drain fill to minimum of 0.45m | Install drain fill as per design; Thickness to meet requirement | Contractor/Client | Engineers initials on this document | DAS | 7/13/18 | EJF | 7/13 | |
| 1.8 | Close envelope of 12oz nonwoven geotextile | Geotextile to fully encompass drain fill maintaining minimum 0.5m overlap | Contractor/Client | Engineers initials on this document | DAS | 7/13/18 | EJF | 7/13 | |
| 1.9 | Place and compact minimum 0 3m of material 2 or material 3 above getotextile top layer | Install geotextile as per design engineers correspondence | Contractor/Client | Engineers initials on this document | DAS | 7/13/18 | EJF | 7/13 | |
| 1.10 | Survey asbuilt of requested construction steps | Survey to asbuilt steps during construction as requested | Contractor/Client | Asbuilt drawings provided as requested | DAS | 7/13/18 | EJF | 7/13 | |
| 1.11 | Quality records complete and in turnover package | To be updated throughout the project | Contractor | As per documentation outlined in this ITP | DAS | 7/13/18 | EJF | 7/13 | |

**Client Rep:** ETHAN FAGER _____ 7/13/18
print sign date

**Contractor Rep:** DEAN SACHS _____ 7/13/18
print sign date

Title: **INSPECTION AND TEST PLAN FOR HLF EMBANKMENT FINGER DRAINS**

Contractor: **PELLY CONSTRUCTION LTD**
Project: **EAGLE GOLD PROJECT**
Item: **9000.13**
CWP: **HLF EMBANKMENT FINGER DRAINS**
Revision: **0**

Contract No. **CC204**
ITP No. **006-H**
Date: **13-Jul-18**
Station: **STA 0+190 RT**

Pelly Construction Ltd.

| ITEM NO. | TASK DESCRIPTION | ACTIVITIES AND ACCEPTANCE CRITERIA | PARTY RESPONSIBLE | VERIFICATION DOCUMENT OR FORM | CONTRACTOR REP | | CLIENT REP | | COMMENTS |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | INITIALS | DATE | INITIALS | DATE | |
| 1.1 | ITP review and approval | Client approval | Client | This approved ITP document bearing signatures | DAS | 7/13/18 | EJF | 7/13/18 | |
| 1.2 | RFI's | Obtain RFI response to close request | Client | Client RFI forms | DAS | 7/13/18 | EJF | 7/13/18 | |
| 1.3 | Finger drain design drawing | Drawing received by Contractor; Verify design drawing | Contractor/Client | Drawings reviewed | DAS | 7/13/18 | EJF | 7/13/18 | |
| 1.4 | Quality of materials | Verify materials received meet all requirements | Contractor/Client | Material specification sheet and quality/inspection certificates | DAS | 7/13/18 | EJF | 7/13/18 | |
| 1.5 | Engineers approval of drain excavation | Inspection of excavation to design depth, width, and subgrade foundation | Contractor/Client | Engineers initials on this document | DAS | 7/13/18 | EJF | 7/13/18 | |
| 1.6 | Installation of 12oz nonwoven geotextile | Install geotextile as per design | Contractor/Client | Engineers initials on this document | DAS | 7/13/18 | EJF | 7/13/18 | |
| 1.7 | Installation of select drain fill to minimum of 0.45m | Install drain fill as per design; Thickness to meet requirement | Contractor/Client | Engineers initials on this document | DAS | 7/13/18 | EJF | 7/13/18 | |
| 1.8 | Close envelope of 12oz nonwoven geotextile | Geotextile to fully encompass drain fill maintaining minimum 0.5m overlap | Contractor/Client | Engineers initials on this document | DAS | 7/13/18 | EJF | 7/13/18 | |
| 1.9 | Place and compact minimum 0.3m of material 2 or material 3 above getotextile top layer | Install geotextile as per design engineers correspondence | Contractor/Client | Engineers initials on this document | DAS | 7/13/18 | EJF | 7/13/18 | |
| 1.10 | Survey asbuilt of requested construction steps | Survey to asbuilt steps during construction as requested | Contractor/Client | Asbuilt drawings provided as requested | DAS | 7/13/18 | EJF | 7/13/18 | |
| 1.11 | Quality records complete and in turnover package | To be updated throughout the project | Contractor | As per documentation outlined in this ITP | DAS | 7/13/18 | EJF | 7/13/18 | |

**Client Rep:** ETHAN FABER (print) _____ (sign) 7/13/18 (date)

**Contractor Rep:** DEAN SEREDO (print) _____ (sign) 7/13/18 (date)

Title: **INSPECTION AND TEST PLAN FOR HLF EMBANKMENT FINGER DRAINS**

Contractor: **PELLY CONSTRUCTION LTD**
Project: **EAGLE GOLD PROJECT**
Item: **9000.13**
CWP: **HLF EMBANKMENT FINGER DRAINS**
Revision: **0**

Contract No. **CC204**
ITP No. **006-I**
Date: **13-Jul-18**
Station: **STA 0+220 RT**

Pelly Construction Ltd.

| ITEM NO. | TASK DESCRIPTION | ACTIVITIES AND ACCEPTANCE CRITERIA | PARTY RESPONSIBLE | VERIFICATION DOCUMENT OR FORM | CONTRACTOR REP | | CLIENT REP | | COMMENTS |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | INITIALS | DATE | INITIALS | DATE | |
| 1.1 | ITP review and approval | Client approval | Client | This approved ITP document bearing signatures | SB | July 22/18 | D.6 | July 23/18 | |
| 1.2 | RFI's | Obtain RFI response to close request | Client | Client RFI forms | | | | | |
| 1.3 | Finger drain design drawing | Drawing received by Contractor; Verify design drawing | Contractor/Client | Drawings reviewed | SB | July 22/18 | D6 | July 23/18 | |
| 1.4 | Quality of materials | Verify materials received meet all requirements | Contractor/Client | Material specification sheet and quality/inspection certificates | SB | Jul 22/18 | D6 | July 23/18 | |
| 1.5 | Engineers approval of drain excavation | Inspection of excavation to design depth, width, and subgrade foundation | Contractor/Client | Engineers initials on this document | SB | Jul 22/18 | D.6 | July 23/18 | |
| 1.6 | Installation of 12oz nonwoven geotextile | Install geotextile as per design | Contractor/Client | Engineers initials on this document | SB | Jul 22/18 | D 6 | July 23/18 | |
| 1.7 | Installation of select drain fill to minimum of 0.45m | Install drain fill as per design; Thickness to meet requirement | Contractor/Client | Engineers initials on this document | SB | Jul 22/18 | D.6 | July 23/18 | |
| 1.8 | Close envelope of 12oz nonwoven geotextile | Geotextile to fully encompass drain fill maintaining minimum 0.5m overlap | Contractor/Client | Engineers initials on this document | SB | Jul 22/18 | D.6 | July 23/18 | |
| 1.9 | Place and compact minimum 0.3m of material 2 or material 3 above getotextile top layer | Install geotextile as per design engineers correspondence | Contractor/Client | Engineers initials on this document | SB | Jul 22/18 | D-6 | July 23/18 | |
| 1.10 | Survey asbuilt of requested construction steps | Survey to asbuilt steps during construction as requested | Contractor/Client | Asbuilt drawings provided as requested | | | | | |
| 1.11 | Quality records complete and in turnover package | To be updated throughout the project | Contractor | As per documentation outlined in this ITP | | | | | |

**Client Rep:** _____
print sign date

**Contractor Rep:** _____
print sign date

Title: **INSPECTION AND TEST PLAN FOR HLF EMBANKMENT**

Contractor: **PELLY CONSTRUCTION LTD**
Project: **EAGLE GOLD PROJECT**
Item: ~~TBD~~ Rock Fills
CWP: **HLF EMBANKMENT**
Revision: **0**

Contract No **CC204**
ITP No. **008**
Date: **07-Jul-18**
Station: **STA 0+~~07.5~~ 010 to STA 0+140**

Pelly Construction Ltd.

| ITEM NO. | TASK DESCRIPTION | ACTIVITIES AND ACCEPTANCE CRITERIA | PARTY RESPONSIBLE | VERIFICATION DOCUMENT OR FORM | CONTRACTOR REP | | CLIENT REP | | COMMENTS |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | INITIALS | DATE | INITIALS | DATE | |
| 1.1 | ITP review and approval | Client approval | Client | This approved ITP document bearing signatures | Dino | 07/10 | EJF | 7/10 | |
| 1.2 | RFI's | Obtain RFI response to close request | Client | Client RFI forms | Dino | 07/10 | EJF | 7/10 | |
| 1.4 | Quality of materials | Verify materials received meet all requirements | Contractor/Client | Material specification sheet and quality/inspection certificates | Dino | 07/10 | EJF | 7/10 | |
| 1.5 | Excavated/Stockpiled material to haul to placement position | Inspection of excavation material | Contractor/Client | Engineers initials on this document | Dino | 07/10 | EJF | 7/10 | |
| 1.6 | Constructed in 0.9m thick lifts with maximum particle size no greater than 2/3 the fill loose lift. | Inspection of placed material | Contractor/Client | Engineers initials on this document | Dino | 07/10 | EJF | 7/10 | |
| 1.7 | Test fills will be conducted to determine if a greater Rockfill lift is permissible | Inspection of placed material | Contractor/Client | Engineers initials on this document | Dino | 07/10 | EJF | 7/10 | |
| 1.8 | Structural fill section will be constructed in 0.3m thick lifts with maximum particle size no greater than 2/3 the fill loose lift | Inspection of placed material | Contractor/Client | Engineers initials on this document | Dino | 07/10 | EJF | 7/10 | |
| 1.9 | Structural fill section will be constructed in 0.9m thick lifts with maximum particle size no greater than 2/3 the fill loose lift | Inspection of placed material | Contractor/Client | Approvals Checklist | Dino | 07/10 | EJF | 7/10 | |
| 1.10 | Rockfill will key into the Structural fill horizontally by 1.0m for every 0.9m incremental vertical lifts | Inspection of placed material | Contractor/Client | Engineers initials on this document | Dino | 07/10 | EJF | 7/10 | |
| 1.11 | Every compacted lift will be scarified prior to placement of the next lift | Inspection of placed material | Contractor/Client | Engineers initials on this document | Dino | 07/10 | EJF | 7/10 | |
| 1.12 | Smooth and Grid drum packers to pack lift material | Inspection of placed material | Contractor/Client | Engineers initials on this document | Dino | 07/10 | EJF | 7/10 | |
| 1.13 | Survey asbuilt of requested construction steps | Survey to asbuilt steps during construction as requested | Contractor/Client | Asbuilt drawings provided as requested | Dino | 07/10 | EJF | 7/10 | |
| 1.14 | Quality records complete and in turnover package | To be updated throughout the project | Contractor | As per documentation outlined in this ITP | Dino | 07/10 | EJF | 7/10 | |

**Client Rep:** ETHAN FABER (print) _____ (sign) 07/10/18 (date)

**Contractor Rep:** _____ (print) _____ (sign) 07/10/18 (date)

Title: INSPECTION AND TEST PLAN FOR HLF EMBANKMENT EXCAVATION
Task: Inspection of excavation section to type 3 rock
Contractor: PELLY CONSTRUCTION LTD
Project: EAGLE GOLD PROJECT
Item: 7.02
CWP: TBD HLF EMBANKMENT
Revision and Date: September 20, 2017

Contract No. CC204
ITP No. 001
Drawing: EMB-006

Pelly Construction Ltd.

| Section No. | Completion of excavation to type 3 rock | CONTRACTOR REP INITIALS | CONTRACTOR REP DATE | CLIENT REP INITIALS | CLIENT REP DATE | COMMENTS |
|---|---|---|---|---|---|---|
| 1 | Section 1 excavated down to Type 3 rock | SZ | 9/21/17 | ATM | 9/21/17 | BGC |
| 2 | Section 2 excavated down to Type 3 rock | SZ | 9/21/17 | ATM | 9/21/17 | BGC |
| 3 | Section 3 excavated down to Type 3 rock | SZ | 9/23/17 | ATM | 9/23/17 | BGC |
| 4 | Section 4 excavated down to Type 3 rock | D.S. | 10/7/17 | RM | 10-7-17 | BGC |
| 5 | Section 5 excavated down to Type 3 rock | D.S. | 10/7/17 | RM | 10-7-17 | BGC |
| 6 | Section 6 excavated down to Type 3 rock | D.S. | 10/7/17 | RM | 10-7-17 | BGC |
| 7 | Section 7 excavated down to Type 3 rock | D.S. | 10/11/17 | RM | 10-11-17 | BGC |
| 8 | Section 8 excavated down to Type 3 rock | D.S. | 10/18/17 | RM | 10-18-17 | BGC |
| 9 | Section 9 excavated down to Type 3 rock | SZ | 11/11/17 | ATM | 4/26/18 | BGC |
| 10 | Section 10 excavated down to Type 3 rock | SZ | 05/02/18 | RM | 5-3-18 | BGC |
| 11 | Section 11 excavated down to Type 3 rock | SZ | 05/08/18 | RM | 5-8-18 | BGC |
| 12 | Section 12 excavated down to Type 3 rock | SZ | 05/09/18 | RM | 5-9-18 | BCC |
| 13 | Section 13 excavated down to Type 3 rock | D.S. | 05/14/18 | RM | 5-14-18 | BGC |
| 14 | Section 14 excavated down to Type 3 rock | D.S. | 05/14/18 | RM | 5-14-18 | BGC |
| 15 | Section 15 excavated down to Type 3 rock | D.S. | 05/14/18 | RM | 5-19-18 | BGC |
| 16 | Section 16 excavated down to Type 3 rock | D.S. | 9-4-18 | RM | 5-4-18 | BGC |

Client Rep: Roy Morlan (print) [signature] (sign) 9-6-18 (date)

Contractor Rep: DEAN SERELO (print) [signature] (sign) 9/6/18 (date)

Title: **INSPECTION AND TEST PLAN FOR HLF EMBANKMENT EXCAVATION**
Task: **Inspection of excavation section to type 3 rock**
Contractor: **PELLY CONSTRUCTION LTD** Contract No. **CC204**
Project: **EAGLE GOLD PROJECT** ITP No. **001**
Item: **4110.1.03** Drawing: **EMB-006**
CWP: HLF Embankment
Revision and Date: **September 3, 2018**

Pelly Construction Ltd.

| Section No. | Completion of excavation to type 3 rock | CONTRACTOR REP INITIALS | CONTRACTOR REP DATE | CLIENT REP INITIALS | CLIENT REP DATE | COMMENTS |
|---|---|---|---|---|---|---|
| 17 | Section 17 excavated down to Type 3 rock | D.S. | 7/9/18 | RM | 9-7-18 | |
| 18 | Section 18 excavated down to Type 3 rock | D.S | 7/9/18 | RM | 9-7-18 | |
| 19 | Section 19 excavated down to Type 3 rock | D.S | 7/9/18 | RM | 9-7-18 | |
| 20 | Section 20 excavated down to Type 3 rock | D.S. | 7/9/18 | RM | 9-7-18 | |
| 21 | Section 21 excavated down to Type 3 rock | D.S. | 7/9/18 | RM | 9-7-18 | |
| 22 | Section 22 excavated down to Type 3 rock | D.S | 7/9/18 | RM | 9-7-18 | |
| 23 | Section 23 excavated down to Type 3 rock | D.S | 7/9/18 | RM | 9-7-18 | |
| 24 | Section 24 excavated down to Type 3 rock | D.S | 7/9/18 | RM | 9-7-18 | |
| 25 | Section 25 excavated down to Type 3 rock | D.S. | 7/9/18 | RM | 9-7-18 | |
| 26 | Section 26 excavated down to Type 3 rock | D.S | 7/9/18 | RM | 9-7-18 | |
| 27 | Section 27 excavated down to Type 3 rock | | | | | |
| 28 | Section 28 excavated down to Type 3 rock | | | | | |
| 29 | Section 29 excavated down to Type 3 rock | | | | | |
| 30 | Section 30 excavated down to Type 3 rock | | | | | |
| 31 | Section 31 excavated down to Type 3 rock | | | | | |
| 32 | Section 32 excavated down to Type 3 rock | | | | | |

**Client Rep:** Roy Mackey _____ 9-7-18
print sign date

**Contractor Rep:** _____
print sign date

# Well/Borehole Inspection & Decommissioning Record

*Eagle Gold Project*

## *WELL/BOREHOLE INFORMATION SUMMARY*

| Well/Borehole ID | Location Description | Type/Purpose | Install Date |
|---|---|---|---|
| BH-BGC16-086 | HLF EMBANKMENT | | |
| **Depth** | **Coordinates (UTM)** | **Instrumentation** | **Decommission Date** |
| | | | June 2, 2018 |

## *INSPECTION/MEETING RECORD*

| Date | Purpose | Attendee | Attendee | Attendee | Attendee |
|---|---|---|---|---|---|
| 180602 | To locate the hole | BGC - Daniel Granda | Pelly - Dominic Korn | Pelly - Dale Burtch | Eshemuta - Colin |
| | | | | | Mackay |
| | | | | | |
| | | | | | |

## *DECOMMISSIONING DESCRIPTION*

**CASING REMOVAL**

N/A

**INSTRUMENTATION REMOVAL**

N/A

**PLUG MATERIAL**

N/A

**PLUG VOLUME**

N/A

## *DECOMMISSIONING PLAN*

| Step | Description | Followed? | Deviation From Plan |
|---|---|---|---|
| 1 | To locate the hole | Yes | Unsafe to Excavate |
| 2 | | | The area is excavated to |
| 3 | | | Type 3 bedrock |
| 4 | | | |
| 5 | | | |
| 6 | | | |

## *PHOTOGRAPHS*

| Before Decommissioning | After Decommissioning |
|---|---|
|  | |

***Engineer:*** ***Signature:***

***Date:***

# Well/Borehole Inspection & Decommissioning Record

*Eagle Gold Project*

## *WELL/BOREHOLE INFORMATION SUMMARY*

| Well/Borehole ID | Location Description | Type/Purpose | Install Date |
|---|---|---|---|
| BH-BGC16-087 | HLF EMBANKMENT | | |
| **Depth** | **Coordinates (UTM)** | **Instrumentation** | **Decommission Date** |
| | | | June 2, 2018 |

## *INSPECTION/MEETING RECORD*

| Date | Purpose | Attendee | Attendee | Attendee | Attendee |
|---|---|---|---|---|---|
| 180602 | To locate the hole | BGC - Daniel Granda | Pelly - Dominic Korn | Pelly - Dale Burtch | Eshemuta - Colin |
| | | | | | Mackay |
| | | | | | |
| | | | | | |

## *DECOMMISSIONING DESCRIPTION*

**CASING REMOVAL**

N/A

**INSTRUMENTATION REMOVAL**

N/A

**PLUG MATERIAL**

N/A

**PLUG VOLUME**

N/A

## *DECOMMISSIONING PLAN*

| Step | Description | Followed? | Deviation From Plan |
|---|---|---|---|
| 1 | To locate the hole | Yes | Cannot locate the hole |
| 2 | | | |
| 3 | | | |
| 4 | | | |
| 5 | | | |
| 6 | | | |

## *PHOTOGRAPHS*

**Before Decommissioning**



**After Decommissioning**



***Engineer:*** ***Signature:***

***Date:***

# Well/Borehole Inspection & Decommissioning Record

*Eagle Gold Project*

## *WELL/BOREHOLE INFORMATION SUMMARY*

| Well/Borehole ID | Location Description | Type/Purpose | Install Date |
|---|---|---|---|
| BH-BGC16-089 | HLF EMBANKMENT | | |
| **Depth** | **Coordinates (UTM)** | **Instrumentation** | **Decommission Date** |
| | | | June 2, 2018 |

## *INSPECTION/MEETING RECORD*

| Date | Purpose | Attendee | Attendee | Attendee | Attendee |
|---|---|---|---|---|---|
| 180602 | To locate the hole | BGC - Daniel Granda | Pelly - Dominic Korn | Pelly - Dale Burtch | Eshemuta - Colin |
| | | | | | Mackay |
| | | | | | |
| | | | | | |

## *DECOMMISSIONING DESCRIPTION*

**CASING REMOVAL**

N/A

**INSTRUMENTATION REMOVAL**

N/A

**PLUG MATERIAL**

N/A

**PLUG VOLUME**

N/A

## *DECOMMISSIONING PLAN*

| Step | Description | Followed? | Deviation From Plan |
|---|---|---|---|
| 1 | To locate the hole | Yes | Cannot locate the hole |
| 2 | | | |
| 3 | | | |
| 4 | | | |
| 5 | | | |
| 6 | | | |

## *PHOTOGRAPHS*

**Before Decommissioning**



**After Decommissioning**



***Engineer:*** ***Signature:***

***Date:***

# Well/Borehole Inspection & Decommissioning Record

*Eagle Gold Project*

## *WELL/BOREHOLE INFORMATION SUMMARY*

| Well/Borehole ID | Location Description | Type/Purpose | Install Date |
|---|---|---|---|
| BH-BGC-090 | HLF EMBANKMENT | | |
| **Depth** | **Coordinates (UTM)** | **Instrumentation** | **Decommission Date** |
| | | | June 2, 2018 |

## *INSPECTION/MEETING RECORD*

| Date | Purpose | Attendee | Attendee | Attendee | Attendee |
|---|---|---|---|---|---|
| 180602 | To locate the hole | BGC - Daniel Granda | Pelly - Dominic Korn | Pelly - Dale Burtch | Eshemuta - Colin |
| | | | | | Mackay |
| | | | | | |
| | | | | | |

## *DECOMMISSIONING DESCRIPTION*

**CASING REMOVAL**

N/A

**INSTRUMENTATION REMOVAL**

N/A

**PLUG MATERIAL**

N/A

**PLUG VOLUME**

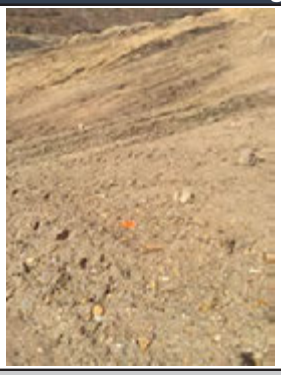
N/A

## *DECOMMISSIONING PLAN*

| Step | Description | Followed? | Deviation From Plan |
|---|---|---|---|
| 1 | To locate the hole | Yes | Cannot locate the hole |
| 2 | | | |
| 3 | | | |
| 4 | | | |
| 5 | | | |
| 6 | | | |

## *PHOTOGRAPHS*

**Before Decommissioning**



**After Decommissioning**



***Engineer:*** ***Signature:***

***Date:***

# Well/Borehole Inspection & Decommissioning Record

*Eagle Gold Project*

## *WELL/BOREHOLE INFORMATION SUMMARY*

| Well/Borehole ID | Location Description | Type/Purpose | Install Date |
|---|---|---|---|
| BH-BGC16-091 | HLF EMBANKMENT | | |
| **Depth** | **Coordinates (UTM)** | **Instrumentation** | **Decommission Date** |
| | | | June 2, 2018 |

## *INSPECTION/MEETING RECORD*

| Date | Purpose | Attendee | Attendee | Attendee | Attendee |
|---|---|---|---|---|---|
| 180602 | To locate the hole | BGC - Daniel Granda | Pelly - Dominic Korn | Pelly - Dale Burtch | Eshemuta - Colin |
| | | | | | Mackay |
| | | | | | |
| | | | | | |

## *DECOMMISSIONING DESCRIPTION*

**CASING REMOVAL**

N/A

**INSTRUMENTATION REMOVAL**

N/A

**PLUG MATERIAL**

N/A

**PLUG VOLUME**

N/A

## *DECOMMISSIONING PLAN*

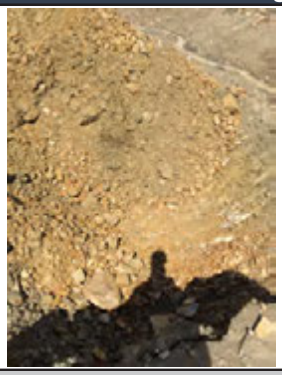
| Step | Description | Followed? | Deviation From Plan |
|---|---|---|---|
| 1 | To locate the hole | Yes | Cannot locate the hole |
| 2 | | | |
| 3 | | | |
| 4 | | | |
| 5 | | | |
| 6 | | | |

## *PHOTOGRAPHS*

**Before Decommissioning**



**After Decommissioning**



***Engineer:*** ***Signature:***

***Date:***

# Well/Borehole Inspection & Decommissioning Record

*Eagle Gold Project*

Victoria GOLD CORP

## WELL/BOREHOLE INFORMATION SUMMARY

| Well / Borehole ID | Location Description | Type / Purpose | Install Date |
|---|---|---|---|
| DG10-399C | Ann Gulch | Exploration hole | May 2010 |
| **Well Depth / Water Depth** | **Coordinates (UTM)** | **Instrumentation** | **Decommission Date** |
| 120.3m | 459652.073, 7101594 | None | 2018-06-08 |

## INSPECTION/MEETING RECORD

| Date | Purpose | Attendee | Attendee | Attendee | Attendee |
|---|---|---|---|---|---|
| 2018-06-05 | Record water level & pull instrument | Crystal Beaudry | Alex Therriault | | |
| 6/8/2018 | Observe/report | Dan Granda | | | |
| | | | | | |
| | | | | | |

## DECOMMISSIONING DESCRIPTION

**CASING REMOVAL**

Metal Casing 1m deep

**INSTRUMENTATION REMOVAL**

none

**PLUG MATERIAL**

Grout

**PLUG VOLUME**

2.2m$^3$

## DECOMMISSIONING PLAN

| Step | Description | Followed? | Deviation From Plan |
|---|---|---|---|
| 1 | Remove casing | YES | |
| 2 | Grout Borehole | YES | |
| 3 | | | |
| 4 | | | |
| 5 | | | |
| 6 | | | |

## PHOTOGRAPHS

**Before Decommissioning**



**After Decommissioning**



## LIST ATTACHMENTS

# Well/Borehole Inspection & Decommissioning Record

*Eagle Gold Project*

## *WELL/BOREHOLE INFORMATION SUMMARY*

| Well/Borehole ID | Location Description | Type/Purpose | Install Date |
|---|---|---|---|
| DG17-847C/844C/842C | HLF EMBANKMENT | | |
| **Depth** | **Coordinates (UTM)** | **Instrumentation** | **Decommission Date** |
| | | | June 2, 2018 |

## *INSPECTION/MEETING RECORD*

| Date | Purpose | Attendee | Attendee | Attendee | Attendee |
|---|---|---|---|---|---|
| 180602 | To locate the hole | BGC - Daniel Granda | Pelly - Dominic Korn | Pelly - Dale Burtch | Eshemuta - Colin |
| | | | | | Mackay |
| | | | | | |
| | | | | | |

## *DECOMMISSIONING DESCRIPTION*

| CASING REMOVAL |
|---|
| N/A |
| **INSTRUMENTATION REMOVAL** |
| N/A |
| **PLUG MATERIAL** |
| N/A |
| **PLUG VOLUME** |
| N/A |

## *DECOMMISSIONING PLAN*

| Step | Description | Followed? | Deviation From Plan |
|---|---|---|---|
| 1 | To locate the hole | Yes | Cannot locate the hole |
| 2 | | | |
| 3 | | | |
| 4 | | | |
| 5 | | | |
| 6 | | | |

## *PHOTOGRAPHS*

| Before Decommissioning | After Decommissioning |
|---|---|
|  |  |

***Engineer:*** ***Signature:***

***Date:***

# Well/Borehole Inspection & Decommissioning Record

*Eagle Gold Project*

## *WELL/BOREHOLE INFORMATION SUMMARY*

| Well/Borehole ID | Location Description | Type/Purpose | Install Date |
|---|---|---|---|
| DG17-851C | HLF EMBANKMENT | | |
| **Depth** | **Coordinates (UTM)** | **Instrumentation** | **Decommission Date** |
| | | | June 2, 2018 |

## *INSPECTION/MEETING RECORD*

| Date | Purpose | Attendee | Attendee | Attendee | Attendee |
|---|---|---|---|---|---|
| 180602 | To locate the hole | BGC - Daniel Granda | Pelly - Dominic Korn | Pelly - Dale Burtch | Eshemuta - Colin |
| | | | | | Mackay |
| | | | | | |
| | | | | | |

## *DECOMMISSIONING DESCRIPTION*

**CASING REMOVAL**

N/A

**INSTRUMENTATION REMOVAL**

N/A

**PLUG MATERIAL**

N/A

**PLUG VOLUME**

N/A

## *DECOMMISSIONING PLAN*

| Step | Description | Followed? | Deviation From Plan |
|---|---|---|---|
| 1 | To locate the hole | Yes | Cannot locate the hole |
| 2 | | | |
| 3 | | | |
| 4 | | | |
| 5 | | | |
| 6 | | | |

## *PHOTOGRAPHS*

**Before Decommissioning**



**After Decommissioning**



***Engineer:*** ***Signature:***

***Date:***

# Well/Borehole Inspection & Decommissioning Record

*Eagle Gold Project*

## *WELL/BOREHOLE INFORMATION SUMMARY*

| Well/Borehole ID | Location Description | Type/Purpose | Install Date |
|---|---|---|---|
| DG17-854C | HLF EMBANKMENT | | |
| **Depth** | **Coordinates (UTM)** | **Instrumentation** | **Decommission Date** |
| | | | June 2, 2018 |

## *INSPECTION/MEETING RECORD*

| Date | Purpose | Attendee | Attendee | Attendee | Attendee |
|---|---|---|---|---|---|
| 180602 | To identify the hole | BGC - Daniel Granda | Pelly - Dominic Korn | Pelly - Dale Burtch | Eshemuta - Colin |
| | | | | | Mackay |
| | | | | | |
| | | | | | |

## *DECOMMISSIONING DESCRIPTION*

**CASING REMOVAL**

N/A

**INSTRUMENTATION REMOVAL**

N/A

**PLUG MATERIAL**

N/A

**PLUG VOLUME**

N/A

## *DECOMMISSIONING PLAN*

| Step | Description | Followed? | Deviation From Plan |
|---|---|---|---|
| 1 | Locate the hole | Yes | Cannot locate the hole |
| 2 | | | |
| 3 | | | |
| 4 | | | |
| 5 | | | |
| 6 | | | |

## *PHOTOGRAPHS*

**Before Decommissioning**



**After Decommissioning**



***Engineer:*** ***Signature:***

***Date:***

# Well/Borehole Inspection & Decommissioning Record

*Eagle Gold Project*

Victoria GOLD CORP

## WELL/BOREHOLE INFORMATION SUMMARY

| Well / Borehole ID | Location Description | Type / Purpose | Install Date |
|---|---|---|---|
| MW10-AG5 | Ann Gulch | Groundwater monitoring well | May 2010 |
| **Well Depth / Water Depth** | **Coordinates (UTM)** | **Instrumentation** | **Decommission Date** |
| 21.3 m deep / 6.0 m to water from top PVC | 459548, 7101624 | None | 2018-06-07 |

## INSPECTION/MEETING RECORD

| Date | Purpose | Attendee | Attendee | Attendee | Attendee |
|---|---|---|---|---|---|
| 2018-06-05 | Record water level & well depth | Crystal Beaudry | Alex Therriault | | |
| 6/7/2018 | Observing/notes | Dan Granda | | | |
| | | | | | |
| | | | | | |

## DECOMMISSIONING DESCRIPTION

**CASING REMOVAL**

PVC Pipe

**INSTRUMENTATION REMOVAL**

non existant

**PLUG MATERIAL**

Grout

**PLUG VOLUME**

0.38m$^3$

## DECOMMISSIONING PLAN

| Step | Description | Followed? | Deviation From Plan |
|---|---|---|---|
| 1 | Record water level and well depth | YES | |
| 2 | Remove monument casing | YES | |
| 3 | Grout borehole | YES | |
| 4 | | | |
| 5 | | | |
| 6 | | | |

## PHOTOGRAPHS

**Before Decommissioning**



**After Decommissioning**



## LIST ATTACHMENTS

# Well/Borehole Inspection & Decommissioning Record

*Eagle Gold Project*

Victoria GOLD CORP

## WELL/BOREHOLE INFORMATION SUMMARY

| Well / Borehole ID | Location Description | Type / Purpose | Install Date |
|---|---|---|---|
| Unnamed well next to MW10-AG5 | Ann Gulch | Groundwater monitoring well | May 2010 |
| **Well Depth / Water Depth** | **Coordinates (UTM)** | **Instrumentation** | **Decommission Date** |
| 21.3 m deep / 6.0 m to water from top PVC | 459541, 7101639 | None | 2018-06-06 |

## INSPECTION/MEETING RECORD

| Date | Purpose | Attendee | Attendee | Attendee | Attendee |
|---|---|---|---|---|---|
| 2018-06-05 | Record water level & well depth | Crystal Beaudry | Alex Therriault | | |
| 6/6/2018 | Observing/notes | Dan Granda | Dominic Korn | | |
| | | | | | |
| | | | | | |

## DECOMMISSIONING DESCRIPTION

**CASING REMOVAL**

PVC Pipe removed

**INSTRUMENTATION REMOVAL**

non existant

**PLUG MATERIAL**

grouting from bottom to top with a tremie pipe

**PLUG VOLUME**

0.38m$^3$

## DECOMMISSIONING PLAN

| Step | Description | Followed? | Deviation From Plan |
|---|---|---|---|
| 1 | Record water level and well depth | YES | |
| 2 | Casing removed | YES | |
| 3 | Grout borehole | YES | |
| 4 | | | |
| 5 | | | |
| 6 | | | |

## PHOTOGRAPHS

**Before Decommissioning**




**After Decommissioning**




## LIST ATTACHMENTS

# Well/Borehole Inspection & Decommissioning Record

*Eagle Gold Project*

## *WELL/BOREHOLE INFORMATION SUMMARY*

| Well/Borehole ID | Location Description | Type/Purpose | Install Date |
|---|---|---|---|
| Unnamed Artesian Well | HLF Embankment | Exploration hole | |
| **Depth** | **Coordinates (UTM)** | **Instrumentation** | **Decommission Date** |
| | | | |

## *INSPECTION/MEETING RECORD*

| Date | Purpose | Attendee | Attendee | Attendee | Attendee |
|---|---|---|---|---|---|
| 180605 | To inspect the well | BGC - Dan G. | Pelly - Shipeng Z. | Pelly - Jason A. | Eshemuta - Colin M. |
| | | Pelly - Declan M. | Midnight sun - | Midnight sun- | Midnight sun - |
| | | | | | |
| | | | | | |

## *DECOMMISSIONING DESCRIPTION*

**CASING REMOVAL**

No casing found

**INSTRUMENTATION REMOVAL**

N/A

**PLUG MATERIAL**

Grout

**PLUG VOLUME**

## *DECOMMISSIONING PLAN*

| Step | Description | Followed? | Deviation From Plan |
|---|---|---|---|
| 1 | To identify the hole | | |
| 2 | Drill to Az. 50 Dip-55, Depth 159.41m | | |
| 3 | | | |
| 4 | | | |
| 5 | | | |
| 6 | | | |

## *PHOTOGRAPHS*

| Before Decommissioning | After Decommissioning |
|---|---|
|  | |

## *LIST ATTACHMENTS*

Pelly Construction Ltd.

July 4, 2018

As of 13:00 on July 4, 2018, all the foundation areas up to Station 1+~~70~~ 45 (see drawing EMB-006-S14) has been conditionally approved by BGC.

Pelly can start the placement of the HLF Embankment Fill starting from the bottom at the toe and begin placing in lifts.

However, there are areas with loose rocks that will require a final clean up prior to the placement of the Embankment fill. A BGC representative must be present to approve the final clean up prior to the placement. Pelly will clean and load out all the loose rocks in the concern areas.

July 4, 2018

July 4, 2018

Field Engineer

Shipeng Zheng

Pelly Construction

Pelly Construction Ltd.

To: Daniel Granda, BGC

From: Dean Serelo, Pelly Construction

Project: Eagle Gold HLF

Date: July 13, 2018

RE: Suitable Fill Materials for HLF Embankment Construction

The following items were a result of a collaborative in field meeting between BGC, Pelly, and JDS:

1. Type 3 bedrock material produced from the required excavation to re-expose type 3 bedrock can be blended into the rockfill (Type 7) lifts and be used as suitable material for embankment fill. PER DISCRETION OF ENGINEER, UNSUITABLE NOT CONSIDERED TYPE 3 BEDROCK WILL NEED REMOVAL.
2. All current stockpiles of material staged near the ADR pad (Pelly's stockpile management plan) including the remaining in-situ rock cut volume is approved to be used as rockfill (Type 7) and suitable material for embankment fill

AS APPROVED BY ENGINEER, AS MATERIALS MAY REQUIRE BLENDING, MIXING AND MOISTURE CONDITIONING.

Dean Serelo

Pelly Construction Ltd.

Field Engineer

Daniel Granda

BGC

Geotechnical Engineer

Pelly Construction Ltd.

July 29, 2018

Heap Leach Facility Embankment Construction:

Starting on nightshift on July 28, 2018, BGC has agreed to use the average elevation to determine the lift elevation. Previously, the lowest surveyed point would be used as the "actual elevation" but it was determined the select few outliers does not give a good representation of the overall data.

BGC Roy has agreed to monitor the first few lifts to determine if this is acceptable going forward.

Shipeng Zheng

Approved as a pilot test
Data will be reviewed over
First couple days to determine
if implemented permanently

Roy Morlan BGC 7-29-18

Pelly Construction Ltd.

July 30, 2018

HLF Embankment Construction Grade Control

1. Surveyors will survey a few representative spots and the average elevation between the surveyed points will determine the base elevation

2. Pelly will target a placement of 0.40m for each lift

3. A laser level will be used to perform spot checks

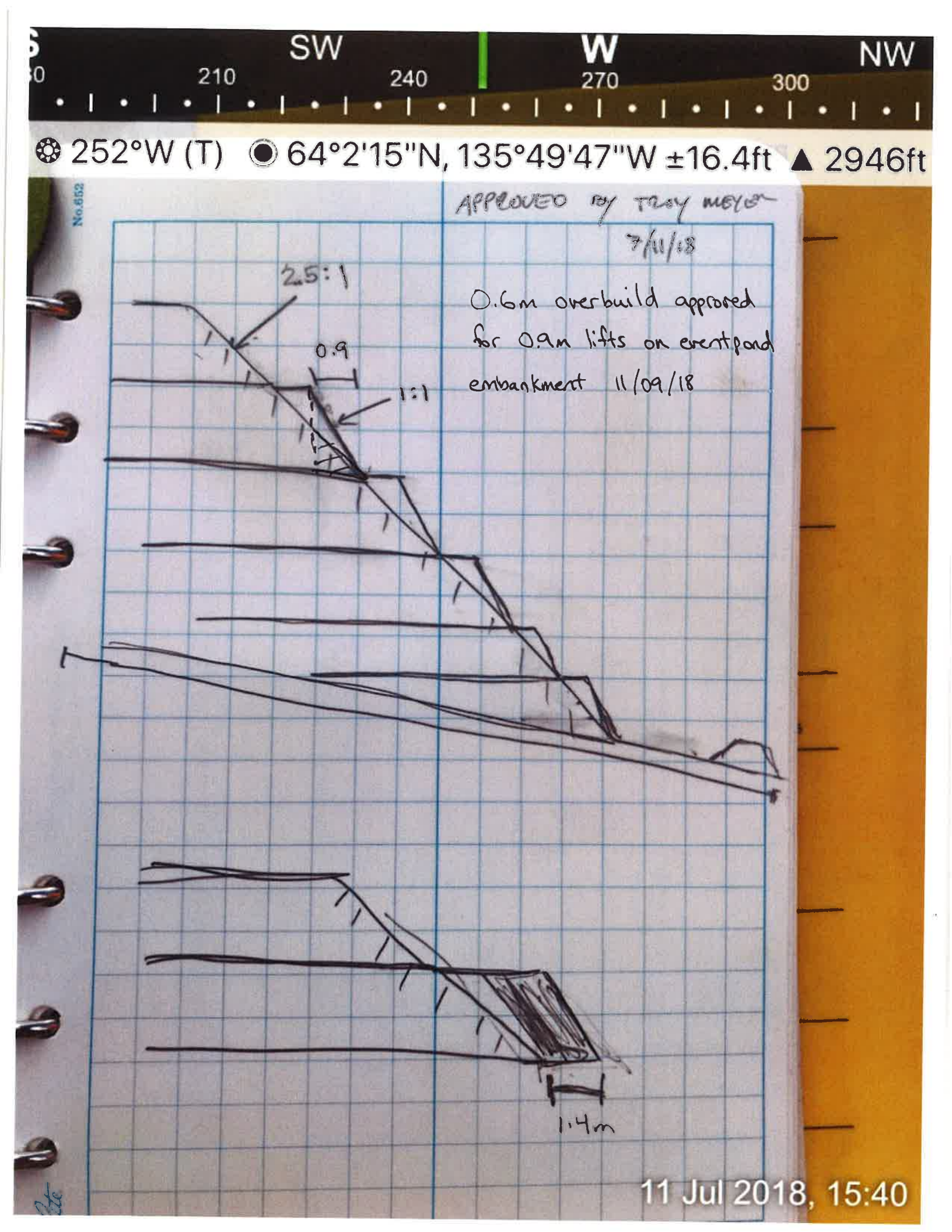
4. The placed lift cannot be more than 0.10m above our target lift thickness

5. Any lift above our maximum allowable tolerance will have to be cut down

6. Surveyor to repeat Step 1

Pelly will continue to submit surveyed asbuilt to BGC for every 3rd compacted lift.

Look Good to me
Roy Murchu
BCG
July 30, 2018


SW
W
NW
210
240
270
300
252°W (T)
64°2'15"N, 135°49'47"W ±16.4ft
2946ft
APPROVED BY TROY MEYER
7/11/18
2.5:1
0.9
1:1
0.6m overbuild approved for 0.9m lifts on evertpond embankment 11/09/18
1.4m
11 Jul 2018, 15:40

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

# Construction Tracking Field Memorandum CTFM-05

| | | | |
|---|---|---|---|
| **Client:** | **Victoria Gold Corp** | **Project:** | **Eagle Gold Construction Support** |
| **EPCM:** | **JDS** | **Project No.** | **0792021** |
| **From:** | **Troy Meyer, P.Eng.** | **Date:** | **August 21, 2018** |
| **Copied:** | **Roy Morlan; Dan Granda** | **Record:** | **CTFM-05** |

**Re: Material 3 Test Fill 03**

## 1.0 INTRODUCTION AND OBJECTIVE

On August 21, 2018 BGC developed and oversaw a test fill to evaluate the compaction of Material 3 – Structural Fill with loaded haul trucks.

## 2.0 TEST FILL CONSTRUCTION AND EXECUTION

BGC's representative, Troy Meyer, developed the test fills and was present during the execution. The test fill was constructed and surveyed by Pelly Construction. Material testing was performed by Tetra Tech. The following sections discuss the execution of the test fill.

### 2.1. Test Fill Materials and Borrow Description

The material used in the test fills was generated by Pelly as borrow from excavation of the ADR West stockpile. This material has been designated as Material 3 Structural Fill. Gradation, moisture, and proctor testing was performed by Tetra Tech. The results from this testing are included in ***Attachment 1***. The material generally consists of broken weak to moderately strong rock in a matrix of gravel and sand with few fines (***Photograph 1***).



**Photograph 1:** Photograph of loose material used in the test fill.

## 2.2. Test Fill Foundation

The HLF embankment fill placement areas was used as the test location (***Figure 1***). The test foundation was an approved compacted lift of structural fill (***Photograph 2***).

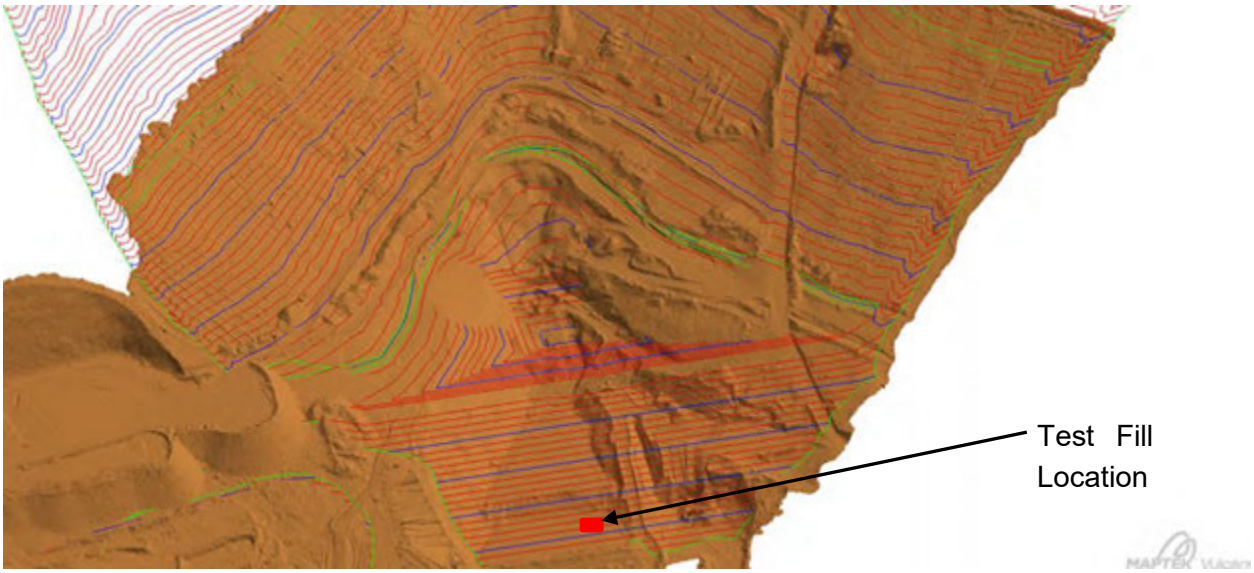



***Figure 1:*** Test Fill Location



***Photograph 2:*** Compaction of the test fill foundation.

### 2.3. Test Fill Lift Placement and Compaction

The test fill was constructed by dumping and pushing material with a D10 and D6 Dozer in a 0.5m loose lift. Lift thickness was measured by Pelly's surveyor using a mobile station. The test fill measured approximately 20m x 12m.

### 2.4. Moisture Conditioning

Moisture was added to the test fill material at the stockpile.

### 2.5. Test Fill Compaction and Settlement Measurements

To perform compaction tracking three steel plates were placed in a row down the center of the lift and used as a monitoring points (***Figure 2***). Initial survey of the settlement monitoring points was collected using a GPS surveying rod. Test fill surface was compacted with two cycles (1 forward pass and 1 reverse pass) of a loaded CAT 777 haul truck with an operating weigh of about 163,000 kg. After completion of one compaction pass, settlement was measured at the settlement points. This compaction/survey procedure was repeated for 2 full compaction cycles (4 passes). Specifications for the CAT 777 haul truck are included in ***Attachment 1***.



***Photograph 3:*** Placement of material in test fill.




***Photograph 4:*** Compaction of the test fill with loaded CAT 777.



***Photograph 5:*** Survey of the settlement plates.

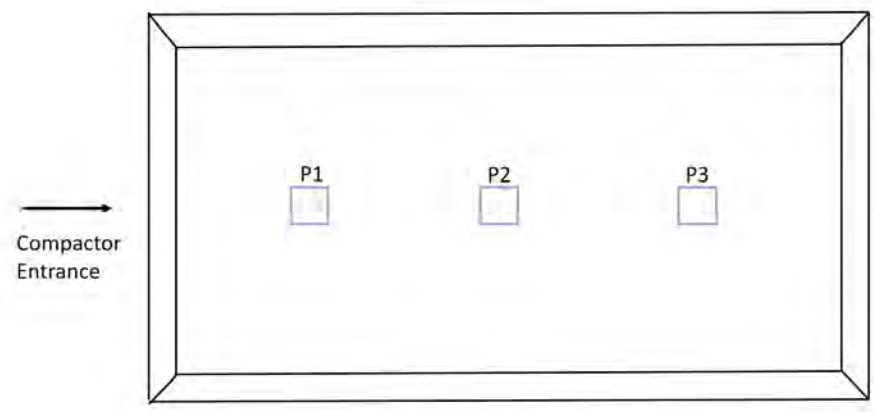



***Figure 2***: Approximation of test fill pad and survey points

Settlement data collected is included in ***Table 1***. A settlement graph is shown in ***Figure 3***.

| | Pre-Compaction (m) | Pass 1 (m) | Pass 2 (m) | Pass 3 (m) | Pass 4 (m) |
|---|---|---|---|---|---|
| Survey Point 1 (P1) | 898.404 | 898.366 | 898.371 | 898.36 | 898.404 |
| Survey Point 2 (P2) | 898.265 | 898.236 | 898.239 | 898.227 | 898.265 |
| Survey Point 3 (P3) | 898.326 | 898.287 | 898.297 | 898.287 | 898.326 |

***Table 1:*** Survey elevation data collected during settlement tracking.

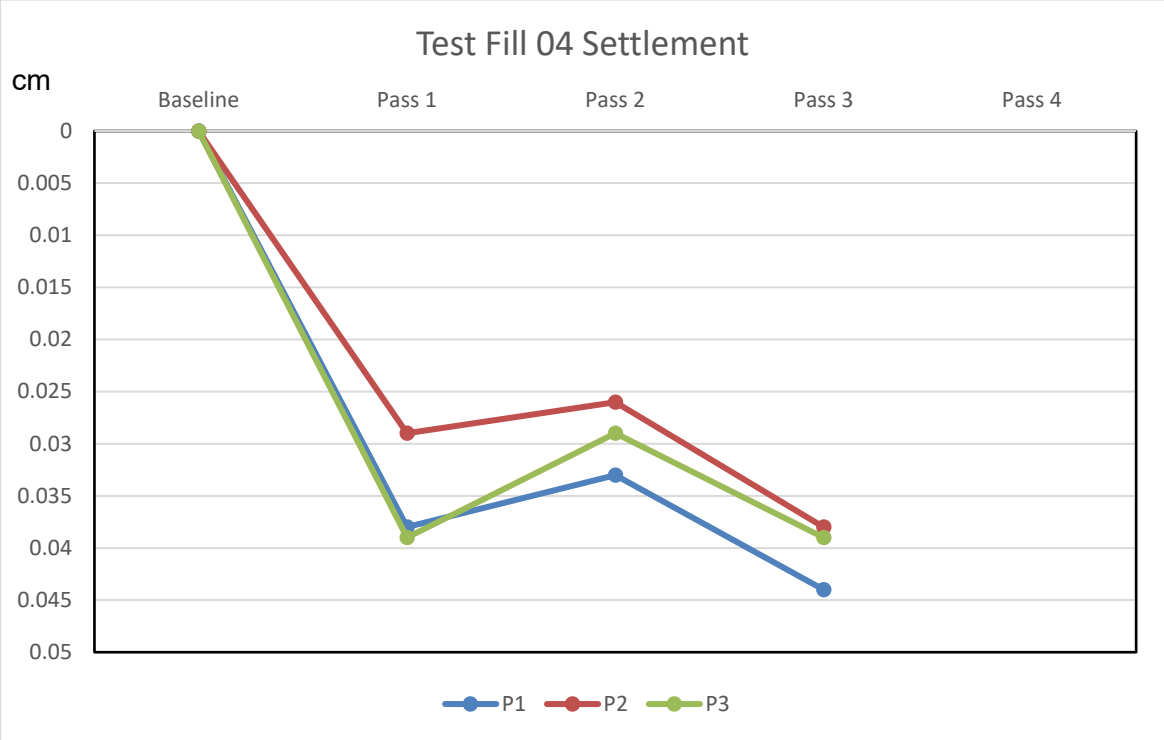



***Figure 3***: Test Fill 03 settlement recorded for each pass.

In-situ density and moisture testing was collected by Tetra Tech using a nuclear density gauge. Results were compared to the proctor for this material performed by Tetra Tech. The standard proctor performed on the material reported a maximum dry density (MDD) of 2,270 kg/m$^3$ at an optimum moisture of 6.7%. The test results indicated a dry density 2,208 kg/m$^3$ with a moisture content of 3.7%. The result is 97.3% of the MDD.

## 3.0 CONCLUSIONS

The results of the test fill indicate that Material 3 can achieve sufficient densities with a minimum of 1 pass of a minimum loaded CAT 777 haul truck and in lifts of up to 0.50m. These results were obtained with a moisture of 3.7%. Additional moisture conditioning of the material will aid compaction.

BGC recommends that the following criteria be used for placement and compaction of the Material 3 within the embankment:

- A maximum loose lift thickness of 0.50m should be used.
- Moisture content should be maintained between 3% and 6%.
- A minimum of 1 pass a loaded CAT 777 haul truck should be used. Unloaded haul trucks and smaller trucks will not provide the required compaction.

- If deflection of the compacted surface is observed with haul traffic, additional compaction will be required, either with loaded haul trucks or approved vibratory compactors.
- QC should be performed by tracking and reporting the above. In-situ QC testing using a nuclear density gauge should also be performed. Testing should report density and moisture. A minimum of 1 tests per compacted lift should be performed. The amount of tests can be reduced by the engineer after observing placement and compaction of the first several lifts and all criteria appear consistent. The average of the tests should determine to either pass or fail: 95% of 2,270 kg/m$^3$; moisture between 3% and 6%.

**Attachments:**

Attachment 1 – CAT 777 Specification Sheet.

# ATTAHMENT 1

## Engine

| Engine Model | Cat® 3508B EUI | |
|---|---|---|
| Gross Power – SAE J1995 | 746 kW | 1,000 hp |
| Net Power – SAE J1349 | 699 kW | 938 hp |
| Net Power – Cat | 699 kW | 938 hp |
| Flywheel Power | 699 kW | 938 hp |
| Net Power – ISO 9249 | 699 kW | 938 hp |
| Net Power – 80/1269/EEC | 699 kW | 938 hp |
| Peak Torque | 4713 N·m | 3,476 lb ft |
| Torque Rise | 23% | |
| Bore | 170 mm | 6.7 in |
| Stroke | 190 mm | 7.5 in |
| Displacement | 34.5 L | 2,105 $in^3$ |

- Net power advertised is the power available at rated speed of 1750 rpm, measured at the flywheel when the engine is equipped with fan, air cleaner, muffler and alternator.
- Ratings based on standard air conditions of 25° C (77° F) and 99 kPa (29.32 Hg) dry barometer. Power based on fuel having API gravity of 35 at 16° C (60° F) and an LHV of 42 780 kJ/kg (18,390 BTU/lb) when engine used at 30° C (86° F).
- No engine derating required up to 2288 m (7,500 ft) altitude.
- Meets U.S. Environmental Protection Agency Tier 1 emissions standards.

## Weights – Approximate

| Target Gross Machine Operating Weight | 163 360 kg | 360,143 lb |
|---|---|---|
| Operating Weight – empty | 64 670 kg | 142,573 lb |

## Operating Specifications

| Nominal Payload Capacity | 90.4 tonnes | 100 tons |
|---|---|---|
| Body Capacity – Struck | 42.1 $m^3$ | 55.06 $yd^3$ |
| Body Capacity – SAE 2:1 | 60.1 $m^3$ | 78.6 $yd^3$ |

- Refer to the Caterpillar 10/10/20 Payload Guidelines.

## Transmission

| Forward 1 | 10.5 km/h | 6.5 mph |
|---|---|---|
| Forward 2 | 14.3 km/h | 8.9 mph |
| Forward 3 | 19.3 km/h | 12 mph |
| Forward 4 | 26 km/h | 16.2 mph |
| Forward 5 | 34.9 km/h | 21.9 mph |
| Forward 6 | 46.6 km/h | 29.4 mph |
| Forward 7 | 60.4 km/h | 39.9 mph |
| Reverse | 11.9 km/h | 7.4 mph |

- Maximum travel speeds with standard 27.00-R49 tires.

## Final Drives

| Differential Ratio | 2.74:1 |
|---|---|
| Planetary Ratio | 7.00:1 |
| Total Reduction Ratio | 19.16:1 |

- Planetary, full-floating.

## Brakes

| Brake Surface – Front | 2787 $cm^2$ | 432 $in^2$ |
|---|---|---|
| Brake Surface – Rear | 102 116 $cm^2$ | 15,828 $in^2$ |

- Meets ISO 3450:1996 standards up to 163 293 kg (360,000 lb) gross operating weight.

## Body Hoists

| Pump Flow – High Idle | 498 L/min | 131.5 gal/min |
|---|---|---|
| Relief Valve Setting – Raise | 18 962 kPa | 2,750 psi |
| Relief Valve Setting – Lower | 18 950 kPa | 3,450 psi |
| Body Raise Time – High Idle | 15 Seconds | |
| Body Lower Time – Float | 13 Seconds | |
| Body Power Down – High Idle | 13 Seconds | |

## Capacity – Dual Slope – 100% fill factor

| Struck | 42.1 $m^3$ | 55 $yd^3$ |
|---|---|---|
| Heaped 2:1 (SAE) | 60.1 $m^3$ | 78.6 $yd^3$ |

## Weight Distributions – Approximate

| Front Axle – Empty | 47% |
|---|---|
| Front Axle – Loaded | 33% |
| Rear Axle – Empty | 53% |
| Rear Axle – Loaded | 67% |

## Suspension

| Effective Cylinder Stroke – Front | 318 mm | 12.5 in |
|---|---|---|
| Effective Cylinder Stroke – Rear | 165 mm | 6.5 in |
| Rear Axle Oscillation | 5.4° | |

## Approximate Weights – Dual Slope

| | | |
|---|---|---|
| Empty vehicle | 64 670 kg | 142,573 lb |
| Chassis | 46 600 kg | 107,144 lb |
| Body | 16 070 kg | 35,428 lb |

## Service Refill Capacities

| | | |
|---|---|---|
| Fuel Tank | 1137 L | 300 gal |
| Cooling System | 268 L | 71 gal |
| Crankcase | 91 L | 24 gal |
| Differentials and Final Drives | 306 L | 81 gal |
| Steering Tank | 40 L | 11 gal |
| Torque Converter/Brake/ Hoist Hydraulic Tank | 250 L | 66 gal |
| Torque Converter/ Transmission Tank | 95 L | 25 gal |

## Tires

| | |
|---|---|
| Standard Tire | 27.00-R49 (E4) Tire |

- Productive capabilities of the 777D truck are such that, under certain job conditions, TKPH (TMPH) capabilities of standard or optional tires could be exceeded and, therefore, limit production.
- Caterpillar recommends the customer evaluate all job conditions and consult the tire manufacturer for proper tire selection.

## ROPS

| | |
|---|---|
| ROPS/FOPS Standards | SAE J1040 MAY94, ISO 3471:1997 |

- ROPS (Rollover Protective Structure) for cab offered by Caterpillar meets SAE J1040 MAY94 and ISO 3471:1997 Level II ROPS criteria.

## Sound

| | |
|---|---|
| Sound Standards | ANSI/SAE J1166 MAY90, SAE J88 JUN96 |

- The operator sound exposure Leq (equivalent sound pressure level) measured according to work cycle procedures specified in ANSI/SAE J1166 MAY90 is 78 dB(A) for cab offered by Caterpillar, when properly installed and maintained and tested with doors and windows closed.
- The exterior sound pressure level for the standard machine measured at a distance of 15 m (49 ft) according to the test procedures specified in SAE J88 JUN86, mid-gear moving operation is 90 dB(A).
- Hearing protection may be needed when operating with an open operator station and cab (when not properly maintained or doors/windows open) for extended periods or in a noisy environment.

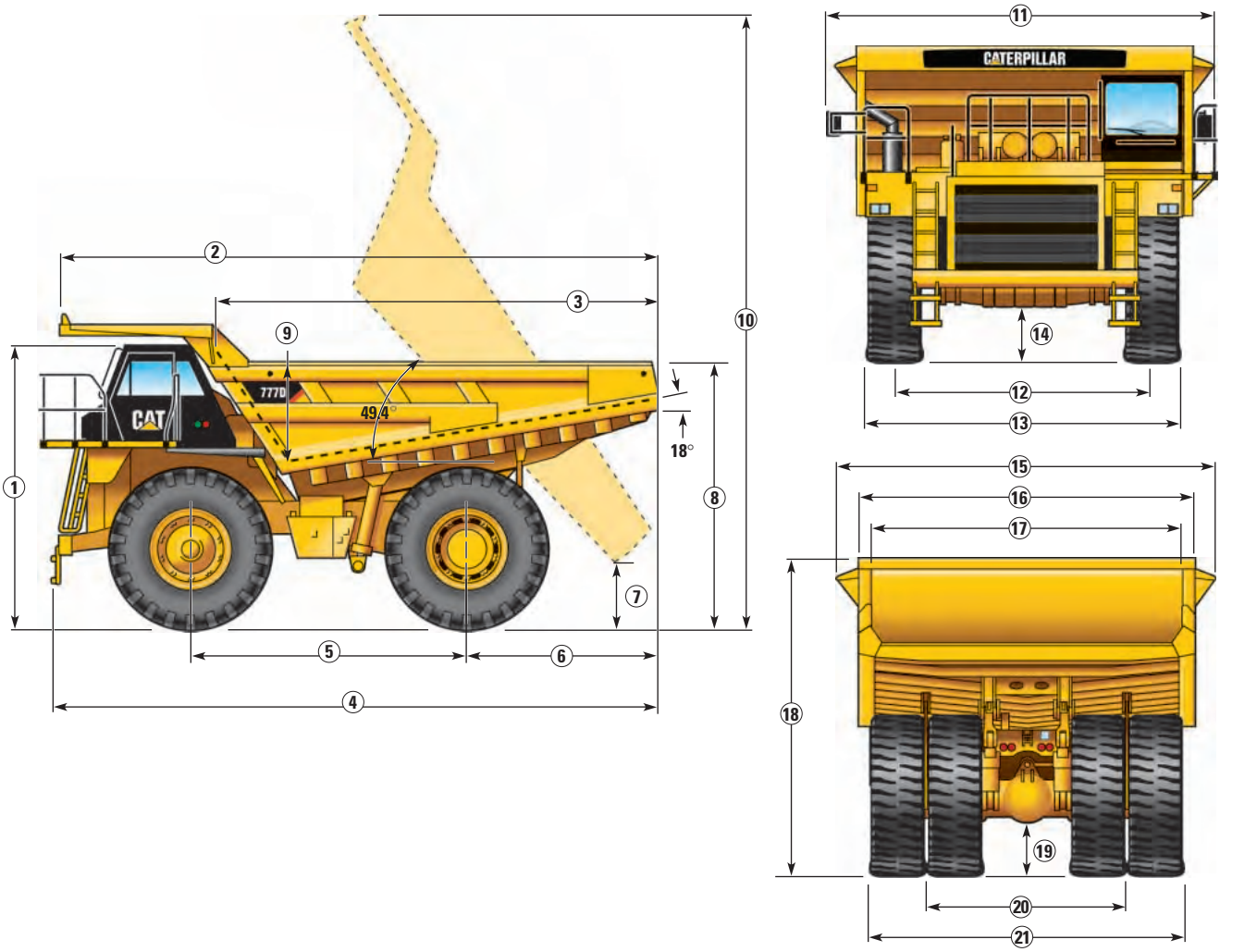
## Steering

| | |
|---|---|
| Steering Standards | SAE J1511 OCT90, ISO 5010:1992 (E) |

- Turning diameter on front wheel track with standard tires: 25.3 m (83 ft).
- Machine clearance turning circle: 28.4 m (93 ft 2 in).
- Steering angle, left or right: 30.5 degrees.
- Separate hydraulic system prevents cross contamination.

# Dimensions

All dimensions are approximate. (Shown with dual slope body)

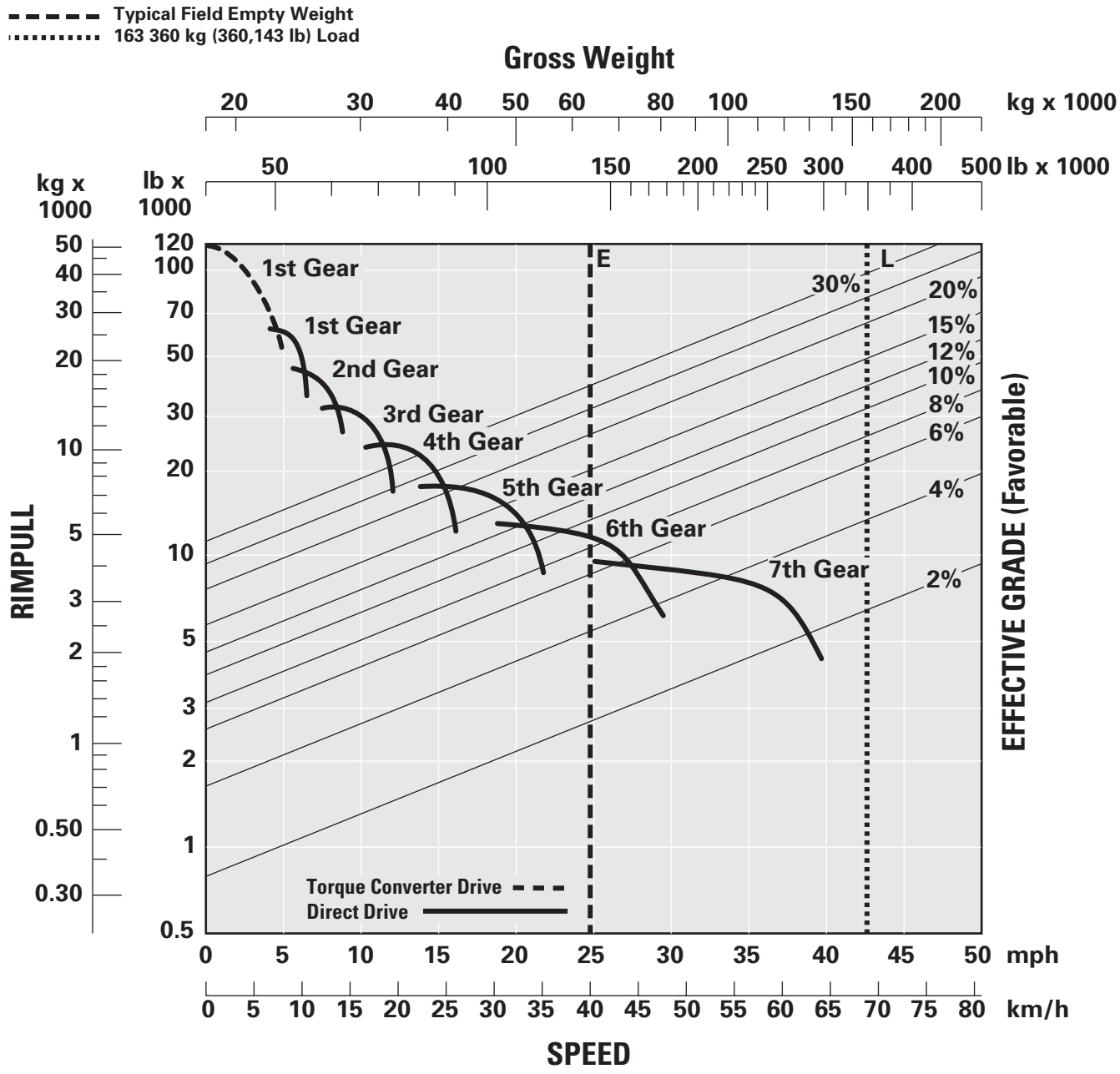



| | | Dual Slope | |
|---|---|---|---|
| **1** | Height to Top of ROPS – Full | 4472 mm | 14 ft 8 in |
| **1** | Height to Top of ROPS – Empty | 4567 mm | 15 ft |
| **2** | Overall Body Length | 9525 mm | 31 ft 3 in |
| **3** | Inside Body Length | 7234 mm | 23 ft 9 in |
| **4** | Overall Length | 9780 mm | 32 ft 1 in |
| **5** | Wheelbase | 4570 mm | 15 ft |
| **6** | Rear Axle to Tail | 3020 mm | 9 ft 11 in |
| **7** | Dump Clearance – Empty | 1164 mm | 3 ft 10 in |
| **7** | Dump Clearance – Loaded | 1062 mm | 3 ft 6 in |
| **8** | Loading Height – Empty | 4380 mm | 14 ft 4 in |
| **9** | Inside Body Depth – Max | 1898 mm | 6 ft 3 in |
| **10** | Overall Height – Body Raised | 10 059 mm | 33 ft |

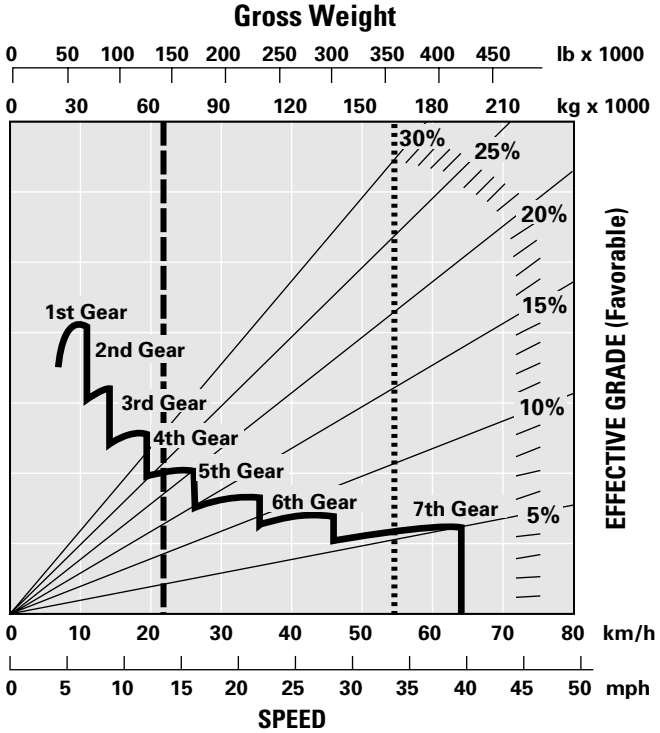
| | | Dual Slope | |
|---|---|---|---|
| **11** | Operating Width | 6105 mm | 20 ft |
| **12** | Centerline Front Tire Width | 4173 mm | 13 ft 8 in |
| **13** | Overall Front Tire Width | 4961 mm | 16 ft 3 in |
| **14** | Engine Guard Clearance – Empty | 700 mm | 2 ft 4 in |
| **15** | Overall Canopy Width | 6048 mm | 19 ft 10 in |
| **16** | Outside Body Width | 5524 mm | 18 ft 2 in |
| **17** | Inside Body Width | 5200 mm | 17 ft 1 in |
| **18** | Front Canopy Height – Empty | 5147 mm | 16 ft 10 in |
| **18** | Front Canopy Height – Loaded | 5045 mm | 16 ft 6 in |
| **19** | Rear Axle Clearance – Empty | 750 mm | 2 ft 6 in |
| **20** | Centerline Rear Dual Tire Width | 3576 mm | 11 ft 9 in |
| **21** | Overall Rear Dual Tire Width | 5262 mm | 17 ft 3 in |

# Gradeability/Speed/Rimpull

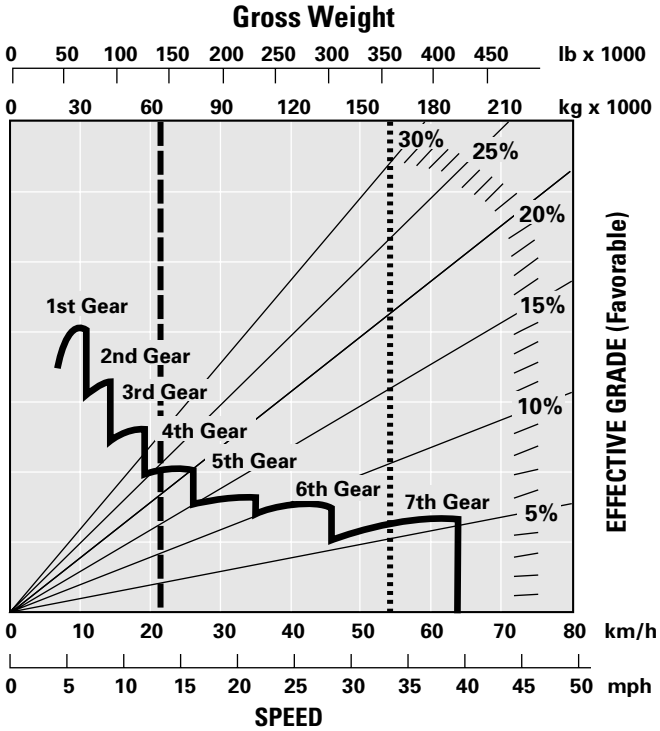
To determine gradeability performance: Read from gross weight down to the percent of total resistance. Total resistance equals actual percent grade plus 1% for each 10 kg/t (20 lb/ton) of rolling resistance. From this weight-resistance point, read horizontally to the curve with the highest obtainable gear, then down to maximum speed. Usable rimpull will depend upon traction available and weight on drive wheels.



# Retarding Performance

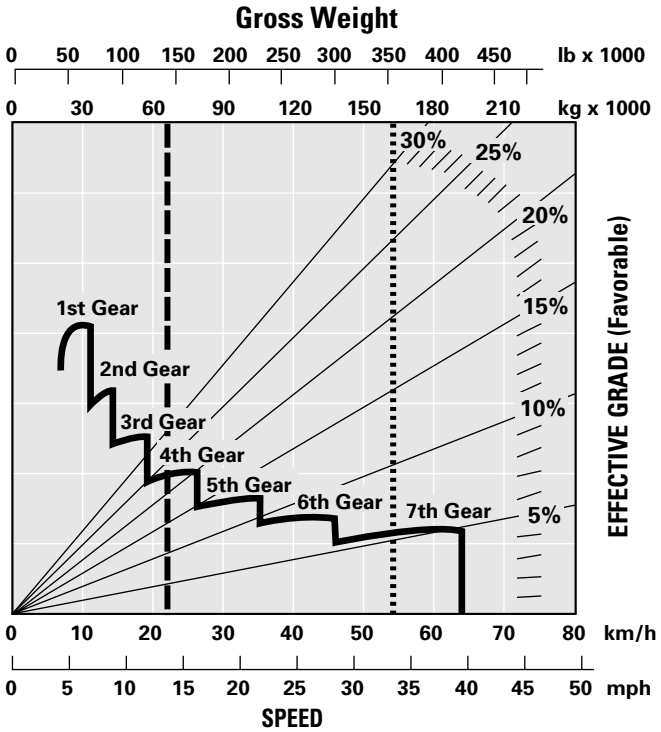



Grade Distance — 450 m (1500 ft.)

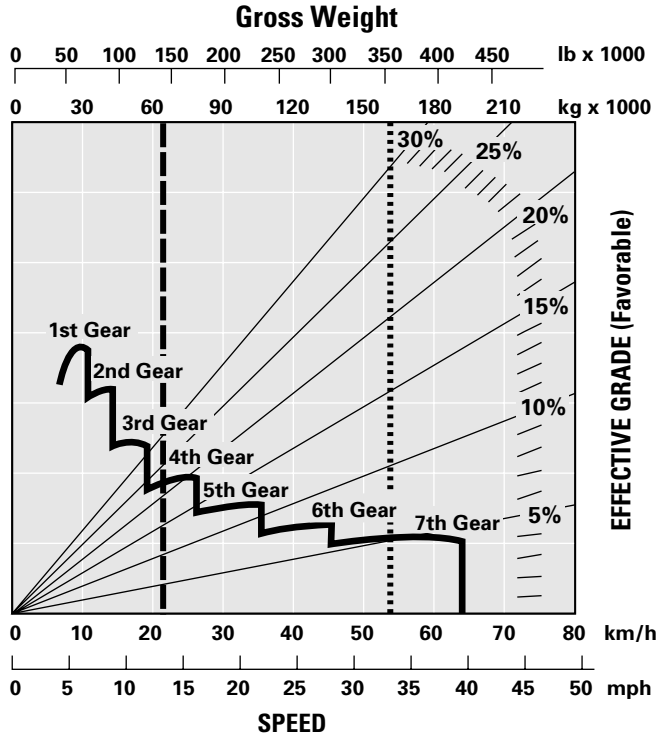



Grade Distance — 600 m (2000 ft.)

# Retarding Performance




Grade Distance — 900 m (3000 ft.)




Grade Distance — 1500 m (5000 ft.)

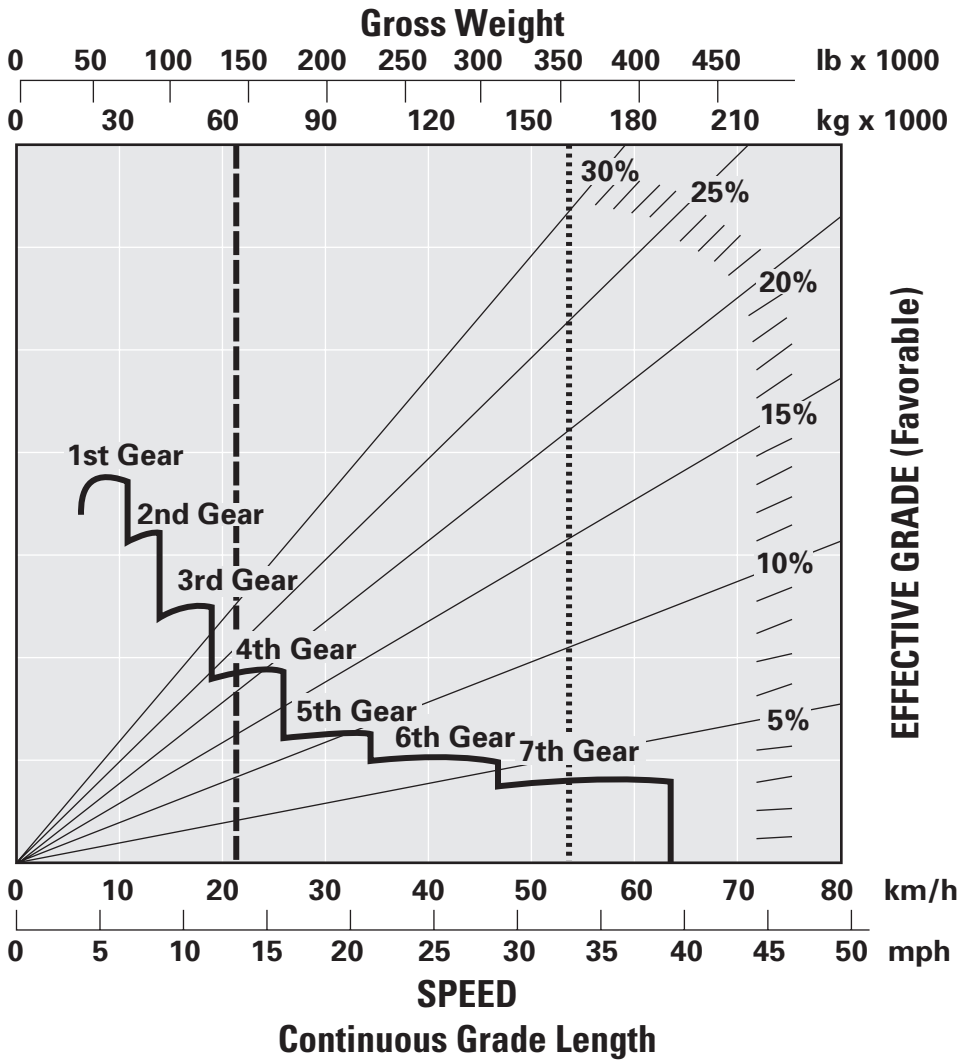
# Retarding Performance

To determine retarding performance: Add lengths of all downhill segments and, using this total, refer to proper retarding chart. Read from gross weight down to the percent effective grade. Effective grade equals actual % grade minus 1% for each 10 kg/t (20 lb/ton) of rolling resistance. From this weight-effective grade point, read horizontally to the curve with the highest obtainable gear, then down to maximum descent speed brakes can properly handle without exceeding cooling capacity. The following charts are based on these conditions: 32° C (90° F) ambient temperature, at sea level, with 27.00-R49 tires.

**NOTE:** Select the proper gear to maintain engine rpm at the highest possible level, without overspeeding the engine. If cooling oil overheats, reduce ground speed to allow transmission to shift to the next lower speed range.

**Typical Field Empty Weight**

**Gross Machine Operating Weight 163 360 kg (360,143 lb)**



## Standard Equipment

*Standard equipment may vary. Consult your Caterpillar dealer for details.*

- Air Line Dryer
- Alternator (100-amp)
- Alarm, Back-up
- Batteries, 190-amp hour, 12-volt (4)
- Battery Disconnect Switch, ground level
- Body Mounting Group
- Body Safety Pins
- Body Up Reverse Inhibitor
- Braking System
  - Brake Disconnect Switch, front
  - Brake Heat Exchanger
  - Brake Release Motor for Towing
  - Oil-Cooled Multiple Disc Brakes (rear)
  - Parking Brake
  - Retarder
  - Secondary Brake
- Cab, ROPS
  - Coat Hook
  - Diagnostic Connector Port, 24-volt
  - Electronic Monitoring System III
  - Hoist Lever, finger tip-actuated
  - Horn, air
  - Insulated and Sound-Suppressed
  - Power Port, 24-volt
  - Product Link Ready
  - Radio Ready, 5-amp converter, speakers, antenna, wiring
  - Seat, Caterpillar Comfort, full air suspension
  - Seat Belts, 75 mm (3 in) wide retractable
  - Seat, Passenger
  - Steering Wheel, tilt, padded, telescopic
  - Storage Compartment
  - Sun Visor
  - Tinted Glass
  - Window, electric (operator)
- Coolant, Extended Life, –35° C (–30° F)
- Crankcase Guard
- Drive line Guard
- Electrical System, 24-volt
- Engine
  - Cat 3508B Electronic Unit Injection
  - 8-Cylinder Diesel
  - Turbocharged
  - Aftercooled
  - Air Cleaner with Precleaner (2)
  - Automatic Cold Mode Idle Control
  - Electric Start
  - Engine Shutdown Switch, ground level
  - Starting Aid, Ether
- Filters, Spin-on
- Gauges
  - Actual Gear Indicator
  - Air Cleaner Service Indicator
  - Air Pressure
  - Body Down Indicator
  - Brake Oil Temperature
  - Coolant Temperature
  - Engine Overspeed Indicator
  - Fuel Level
  - Hour Meter
  - Load Counter, automatic
  - Odometer
  - Speedometer
  - Tachometer
- Lighting System
  - Auxiliary Jump Start Receptacle
  - Back-up Lights
  - Directional Signals and Hazard Warning, LED
  - Dome/Courtesy Light
  - Headlights, Halogen, with dimmer
  - Stop and Tail Lights, LED
- Mirrors, right/left
- Reservoirs (separate)
  - Brake/Converter/Hoist
  - Steering
  - Transmission/Torque Converter
- Rims, 19.5 × 49
- Rock Ejectors
- Service Platform, bolt-on
- Supplemental Steering, automatic
- Tires, 27.00-R49, radial
- Tow Hooks, front
- Tow Pin, rear
- Transmission
  - 7-Speed Automatic Power Shift, electronic control
  - Body-up Shift Limiter
  - Controlled Throttle Shifting
  - Directional Shift Management
  - Downshift/Reverse Shift Inhibitor
  - Economy Shift Mode
  - Engine Overspeed Protection
  - Reverse Neutralizer During Dumping
  - Neutral Coast Inhibitor
  - Neutral Start Switch
  - Programmable Top Gear Selection
- Vandalism Protection Locks
- Windshield Wipers and Washer, electric intermittent

## Optional Equipment

*Optional equipment may vary. Consult your Caterpillar dealer for details.*

Air Conditioning
Automatic Retarder Control (ARC), dry
Body Tail End Liner
  Dual Slope
Fuel Fast Fill Adapter
Fuel Tank
Integrated Braking Control (IBC), dry
  Combines Traction Control System (TCS) and Automatic Retarder Control (ARC) into one system.
Lubrication Group – Automatic
Muffler
Muffler/Exhaust Diverter
Wiggins Service Center

## Weight/Payload Calculation*

(Example)

| | Dual Slope | | Dual Slope w/Liner | |
|---|---|---|---|---|
| CHASSIS | kg | lb | kg | lb |
| Empty Chassis Weight + 10% fuel | 48 600 | 107,144 | 48 600 | 107,144 |
| Fuel Correction (90% × 300 × 7.1 lb/gal) | 870 | 1,918 | 870 | 1,918 |
| Optional Attachments Weight Debris Allowance (4% of chassis weight) | +1944 | +4,286 | +1944 | +4,286 |
| **Total Chassis Weight** | 51 414 | 113,347 | 51 414 | 113,347 |
| BODY | | | | |
| Body Weight | 16 070 | 35,428 | 16 070 | 35,428 |
| Body Attachment Weights | | | 5 432 | 11,975 |
| **Total Body Weight** | +16 070 | +35,428 | +21 502 | +47,403 |
| Total Empty Operating Weight | 67 484 | 148,775 | 72 916 | 160,751 |
| **Target Payload** | **+95 876** | **+211,368** | **+90 444** | **+199,393** |
| **Gross Machine Operating Weight** | 163 360 | 360,143 | 163 360 | 360,143 |

* Refer to Caterpillar's 10/10/20 Payload Policy for Quarry and Construction Trucks.

Pelly Construction Ltd.

To: Roy Morlan, BGC

From: Dean Serelo, Pelly Construction

Project: Eagle Gold HLF

Date: Sept 11th, 2018

RE: HLF West Lateral Drain Within Impoundment

On September 4th, 2018 Pelly was informed by BGC Engineering that a lateral drain was not required below the 940 m elevation within the west HLF impoundment as there were no groundwater seeps identified during inspections. A finger drain was installed parallel to the underdrain system along the west face of the impoundment as a water mitigation measure for construction purposes.

Dean Serelo

Pelly Construction Ltd.

Field Engineer

Roy Morlan

BGC Engineering Inc.

Senior Engineering Geologist

To: Daniel Granda, BGC

From: Dean Serelo, Pelly Construction

Project: Eagle Gold HLF

Date: July 13, 2018

RE: Suitable Fill Materials for HLF Embankment Construction

The following items were a result of a collaborative in field meeting between BGC, Pelly, and JDS:

1. Type 3 bedrock material produced from the required excavation to re-expose type 3 bedrock can be blended into the rockfill (Type 7) lifts and be used as suitable material for embankment fill

2. All current stockpiles of material staged near the ADR pad (Pelly's stockpile management plan) including the remaining in-situ rock cut volume is approved to be used as rockfill (Type 7) and suitable material for embankment fill

| | |
|---|---|
| Dean Serelo | Daniel Granda |
| Pelly Construction Ltd. | BGC |
| Field Engineer | Geotechnical Engineer |

HEAVY NORTH

# Heavy North - JDS - VGC
## PRC0033 - JDS Eagle Gold
## Heap Leach Facility

| | |
|---|---|
| ITP Line Item Number: | ITP#3.7 - HN-ITP-PRC0033-002 |
| Date: | December 10, 2018 |
| Location to be inspected and or released for proceeding with work: | |
| As per highlighted area on drawing # | EGHLF-XD-05-03_00, H354138-4120-250-270-0001_00 |
| Document # | HN-CIV-019 - PRC0033 - PIIR-004 |

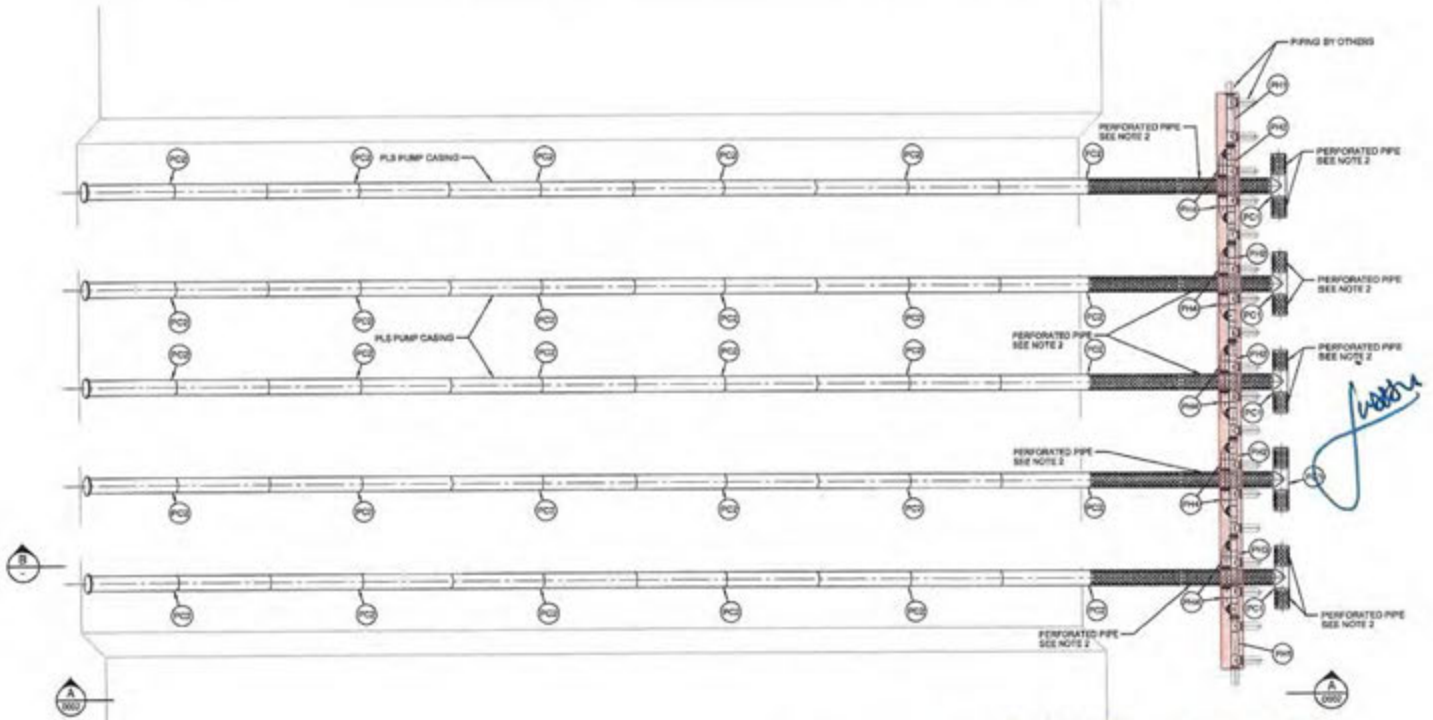
| Description | N/A | No | Yes | |
|---|---|---|---|---|
| Survey confirmed location | | | ✓ | |
| Unsuitable material removed from bottom of excavation | | | ✓ | |
| Correct bedding material used | | | ✓ | |
| Correct invert elevation achieved Refer to NCR CC206-HN-HLF-001 | | ✓ | | |
| Correct slope applied to pipe continuously Field Fit As Is JF | ✓ | | | Dec 9/18 |
| Gaskets installed at all joints | | | ✓ | Dec 9/18 |
| All fasteners installed 26 flanges x 16 studs x 32 nuts / flange | | | ✓ | Dec 11/18 |
| Survey as-built prior to backfill | | | ✓ | Dec 12/18 |
| Backfill ~~and compaction as per WIP~~ Partially w/ screened rock JF | | | ✓ | Dec 12/18 |
| Geotextile and rip-rap placed at culvert ends | ✓ | | | |

Add Sketch and or Comments:

- *See attached site plan with area highlighted;*
- *By signing off on this document, the installation of backfill material has been permitted;*

**Sign Off**

| | Print | Sign | Date |
|---|---|---|---|
| **HN Quality Designate:** | Tony Jay | | Dec 12/18 |
| **Contractor Quality Designate:** | J Maille | | 2018/12/12 |
| **Owner:** | | | 2018/12/12 |




| 03IF PLS PUMP CASING | | |
|---|---|---|
| ITEM No. | DWG No. | QTY |
| PC1 | H354138-4120-250-278-0001 | 5 |
| PC2 | H354138-4120-250-278-0002 | 30 |
| 01IF PLS SUMP HEADER | | |
| PH1 | H354138-4120-250-278-0003 | 2 |
| PH2 | H354138-4120-250-278-0004 | 4 |
| PH3 | H354138-4120-250-278-0005 | 1 |
| PH4 | H354138-4120-250-278-0006 | 10 |
| 02IF LDRS PUMP CASING | | |
| LC1 | H354138-4120-250-278-0011 | 3 |
| LC2 | H354138-4120-250-278-0012 | 18 |
| LC3 | H354138-4120-250-278-0013 | 3 |
| 01IF LDRS SUMP HEADER | | |
| LH1 | H354138-4120-250-278-0014 | 2 |
| LH2 | H354138-4120-250-278-0015 | 2 |
| LH3 | H354138-4120-250-278-0016 | 2 |
| LH4 | H354138-4120-250-278-0017 | 2 |

HN-CIV-019-PRC0033-P11R-004

PERMIT TO PRACTICE
HATCH
SIGNATURE
Date 2018-08-16
PERMIT NUMBER PP154
Association of Professional Engineers of Yukon

PLAN

0 1.5 3.0 4.5 6.0 7.5
1:150 SCALE IN METRES

NOTES:
1. ALL WELDS TO BE FULL PENETRATION.
2. WELDING NDT REQUIREMENTS:
   - 100% VISUAL INSPECTION WITH ACCEPTANCE CRITERIA PER AWS D1.1.
   - 100% MAGNETIC PARTICLE TESTING WITH ACCEPTANCE CRITERIA PER AWS D1.1 OR 100% ULTRASONIC TESTING OF 10% OF THE JOINTS WITH METHODS AND ACCEPTANCE CRITERIA PER ASME BPVC SEC. VIII, DIVISION 1.
3. SEE BGC ENGINEERING INC. DRAWING EGHLF-XD-08-03 FOR ADDITIONAL DETAILS.
4. PERFORATED PIPE WITH 20x150 SLOTS. FOR DETAILS SEE DRAWING: H354138-4120-250-279-0032.

| DRAWING No. | DRAWING TITLE |
|---|---|
| REFERENCE DRAWINGS | |

PROFESSIONAL ENGINEER YUKON TERRITORY
2018-08-16
REG. PROFESSIONAL

| No. | DESCRIPTION | BY | CHKD | DATE |
|---|---|---|---|---|
| REVISIONS | | | | |

HATCH

| ROLE | NAME | SIGNATURE & DATE |
|---|---|---|
| DRAFT/PERSON | K. MAJOR | NR 2018-07-19 |
| DESIGNER | K. MAJOR | NR 2018-07-19 |
| CHECKER | S. PERKINS | |
| DESIGN COORD. | S. PERKINS | |
| RESP. ENG. | D. SALEH | |
| LEAD DISC. ENG. | D. SALEH | |
| ENG. MANAGER | S. RUSTAD | |
| RBCU MANAGER | S. RUSTAD | |
| DRAWING APPROVAL STATUS: | Approved for Construction | |

StrataGold Corporation

EAGLE GOLD PROJECT

PREGNANT SOLUTION PUMPING PIPING ARRANGEMENT PLAN

| SCALE: 1:150 | DWG No. H354138-4120-250-270-0001 | REV 0 |
|---|---|---|

SHEET SIZE: D

DRAWING NO. H354138-4120-250-270-0001

15:04 15-AUG-2018 SYLIS PRINTED: SK_pwarwick

# ATTACHMENT D

## Quality Control Inspection and Testing

SKAPS Industries (Nonwoven Division)
335, Athena Drive
Athens, GA 30601 (U.S.A.)
Phone (706) 354-3700 Fax (706) 354-3737
E-mail: contact@skaps.com

Sales Office:
Engineered Synthetic Product Inc.
Phone: (770)564-1857
Fax: (770)564-1818

**January 17, 2018**
**Layfield Canada Ltd.**
17720 - 129 Avenue NW
Edmonton, AB, T5V 0C4
**PO : E30467**
**BOL : 062242**

Dear Sir/Madam:

This is to certify that SKAPS GT112 (Layfield LP 12) is a high quality needle-punched nonwoven geotextile made of 100% polypropylene staple fibers, randomly networked to form a high strength dimensionally stable fabric. SKAPS GT112 (Layfield LP 12) resists ultraviolet deterioration, rotting, biological degradation. The fabric is inert to commonly encountered soil chemicals. Polypropylene is stable within a pH range of 2 to 13. SKAPS GT112 (Layfield LP 12) conforms to the property values listed below:

| PROPERTY | TEST METHOD | UNITS | M.A.R.V. Minimum Average Roll Value |
|---|---|---|---|
| Grab Tensile | ASTM D 4632 | lbs (kN) | 300 (1.33) |
| Grab Elongation | ASTM D 4632 | % | 50 |
| Trapezoidal Tear | ASTM D 4533 | lbs (kN) | 115 (0.51) |
| CBR Puncture | ASTM D 6241 | lbs (kN) | 850 (3.78) |
| Permittivity* | ASTM D 4491 | $sec^{-1}$ | 1.00 |
| Water Flow* | ASTM D 4491 | $gpm/ft^2(l/min/m^2)$ | 75 (3056) |
| AOS* | ASTM D 4751 | US Sieve (mm) | 100 (0.15) |
| UV Resistance | ASTM D 4355 | %/hrs | 70/500 |

**Notes:**
* At the time of manufacturing. Handling may change these properties.

**KOUROSH SABZEVARI**
QUALITY CONTROL MANAGER

**Product : GT112-180 (Layfield LP 12)**

| ROLL # ASTM METHOD UNITS TARGET | MD TENSILE D4632 lbs. 300 | MD ELONG D4632 % 50 | XMD TENSILE D4632 lbs 300 | XMD ELONG D4632 % 50 | MD TRAP D4533 lbs. 115 | XMD TRAP D4533 lbs 115 | CBR PUNCTURE D6241 lbs. 850 | AOS D4751 US Sieve 100 | WATER FLOW D4491 gpm/ft2 75 | PERMITTIVITY D4491 sec-1 1.00 |
|---|---|---|---|---|---|---|---|---|---|---|
| 030621449 | 409 | 68 | 326 | 93 | 140 | 150 | 1019 | 100 | 87 | 1.16 |
| 030621450 | 409 | 68 | 326 | 93 | 140 | 150 | 1019 | 100 | 87 | 1.16 |
| 030621451 | 409 | 68 | 326 | 93 | 140 | 150 | 1019 | 100 | 87 | 1.16 |
| 030621452 | 409 | 68 | 326 | 93 | 140 | 150 | 1019 | 100 | 87 | 1.16 |
| 030621453 | 409 | 68 | 326 | 93 | 140 | 150 | 1019 | 100 | 87 | 1.16 |
| 030621454 | 409 | 68 | 326 | 93 | 140 | 150 | 1019 | 100 | 87 | 1.16 |
| 030621455 | 409 | 68 | 326 | 93 | 140 | 150 | 1019 | 100 | 87 | 1.16 |
| 030621456 | 409 | 68 | 326 | 93 | 140 | 150 | 1019 | 100 | 87 | 1.16 |
| 030621457 | 409 | 68 | 326 | 93 | 140 | 150 | 1019 | 100 | 87 | 1.16 |
| 030621467 | 409 | 68 | 326 | 93 | 140 | 150 | 1019 | 100 | 87 | 1.16 |
| 030621468 | 409 | 68 | 326 | 93 | 140 | 150 | 1019 | 100 | 87 | 1.16 |
| 030621469 | 409 | 68 | 326 | 93 | 140 | 150 | 1019 | 100 | 87 | 1.16 |
| 030621470 | 409 | 68 | 326 | 93 | 140 | 150 | 1019 | 100 | 87 | 1.16 |
| 030621471 | 409 | 68 | 326 | 93 | 140 | 150 | 1019 | 100 | 87 | 1.16 |
| 030621472 | 409 | 68 | 326 | 93 | 140 | 150 | 1019 | 100 | 87 | 1.16 |
| 030621473 | 409 | 68 | 326 | 93 | 140 | 150 | 1019 | 100 | 87 | 1.16 |
| 030621474 | 409 | 68 | 326 | 93 | 140 | 150 | 1019 | 100 | 87 | 1.16 |
| 030621475 | 363 | 68 | 312 | 99 | 142 | 172 | 1004 | 100 | 85 | 1.14 |
| 030621476 | 363 | 68 | 312 | 99 | 142 | 172 | 1004 | 100 | 85 | 1.14 |
| 030621477 | 363 | 68 | 312 | 99 | 142 | 172 | 1004 | 100 | 85 | 1.14 |
| 030621478 | 363 | 68 | 312 | 99 | 142 | 172 | 1004 | 100 | 85 | 1.14 |
| 030621479 | 363 | 68 | 312 | 99 | 142 | 172 | 1004 | 100 | 85 | 1.14 |
| 030621480 | 363 | 68 | 312 | 99 | 142 | 172 | 1004 | 100 | 85 | 1.14 |
| 030621481 | 363 | 68 | 312 | 99 | 142 | 172 | 1004 | 100 | 85 | 1.14 |
| 030621492 | 363 | 68 | 312 | 99 | 142 | 172 | 1004 | 100 | 85 | 1.14 |
| 030621493 | 363 | 68 | 312 | 99 | 142 | 172 | 1004 | 100 | 85 | 1.14 |
| 030621494 | 363 | 68 | 312 | 99 | 142 | 172 | 1004 | 100 | 85 | 1.14 |
| 030621516 | 354 | 73 | 426 | 92 | 146 | 168 | 1198 | 100 | 79 | 1.06 |
| 030621517 | 354 | 73 | 426 | 92 | 146 | 168 | 1198 | 100 | 79 | 1.06 |
| 030621518 | 354 | 73 | 426 | 92 | 146 | 168 | 1198 | 100 | 79 | 1.06 |
| 030621522 | 354 | 73 | 426 | 92 | 146 | 168 | 1198 | 100 | 79 | 1.06 |
| 030621523 | 394 | 65 | 313 | 102 | 134 | 126 | 1040 | 100 | 99 | 1.32 |
| 030621524 | 394 | 65 | 313 | 102 | 134 | 126 | 1040 | 100 | 99 | 1.32 |
| 030621525 | 394 | 65 | 313 | 102 | 134 | 126 | 1040 | 100 | 99 | 1.32 |
| 030621526 | 394 | 65 | 313 | 102 | 134 | 126 | 1040 | 100 | 99 | 1.32 |
| 030621527 | 394 | 65 | 313 | 102 | 134 | 126 | 1040 | 100 | 99 | 1.32 |

* All values are MARV.

**Product : GT112-180 (Layfield LP 12)**

| ROLL # ASTM METHOD UNITS TARGET | MD TENSILE D4632 lbs. 300 | MD ELONG D4632 % 50 | XMD TENSILE D4632 lbs 300 | XMD ELONG D4632 % 50 | MD TRAP D4533 lbs. 115 | XMD TRAP D4533 lbs 115 | CBR PUNCTURE D6241 lbs. 850 | AOS D4751 US Sieve 100 | WATER FLOW D4491 gpm/ft2 75 | PERMITTIVITY D4491 sec-1 1.00 |
|---|---|---|---|---|---|---|---|---|---|---|
| 030621528 | 394 | 65 | 313 | 102 | 134 | 126 | 1040 | 100 | 99 | 1.32 |
| 030621529 | 394 | 65 | 313 | 102 | 134 | 126 | 1040 | 100 | 99 | 1.32 |
| 030621530 | 394 | 65 | 313 | 102 | 134 | 126 | 1040 | 100 | 99 | 1.32 |
| 030621531 | 394 | 65 | 313 | 102 | 134 | 126 | 1040 | 100 | 99 | 1.32 |
| 030621532 | 394 | 65 | 313 | 102 | 134 | 126 | 1040 | 100 | 99 | 1.32 |
| 030621533 | 394 | 65 | 313 | 102 | 134 | 126 | 1040 | 100 | 99 | 1.32 |
| 030621534 | 394 | 65 | 313 | 102 | 134 | 126 | 1040 | 100 | 99 | 1.32 |
| 030621535 | 394 | 65 | 313 | 102 | 134 | 126 | 1040 | 100 | 99 | 1.32 |
| 030621536 | 394 | 65 | 313 | 102 | 134 | 126 | 1040 | 100 | 99 | 1.32 |
| 030621537 | 394 | 65 | 313 | 102 | 134 | 126 | 1040 | 100 | 99 | 1.32 |
| 030621538 | 394 | 65 | 313 | 102 | 134 | 126 | 1040 | 100 | 99 | 1.32 |
| 030621539 | 394 | 65 | 313 | 102 | 134 | 126 | 1040 | 100 | 99 | 1.32 |
| 030621540 | 394 | 65 | 313 | 102 | 134 | 126 | 1040 | 100 | 99 | 1.32 |
| 030621541 | 394 | 65 | 313 | 102 | 134 | 126 | 1040 | 100 | 99 | 1.32 |
| 030621542 | 394 | 65 | 313 | 102 | 134 | 126 | 1040 | 100 | 99 | 1.32 |
| 030621543 | 394 | 65 | 313 | 102 | 134 | 126 | 1040 | 100 | 99 | 1.32 |
| 030621544 | 394 | 65 | 313 | 102 | 134 | 126 | 1040 | 100 | 99 | 1.32 |
| 030621545 | 394 | 65 | 313 | 102 | 134 | 126 | 1040 | 100 | 99 | 1.32 |
| 030621546 | 394 | 65 | 313 | 102 | 134 | 126 | 1040 | 100 | 99 | 1.32 |
| 030621547 | 406 | 64 | 339 | 96 | 124 | 148 | 1068 | 100 | 99 | 1.32 |
| 030621548 | 406 | 64 | 339 | 96 | 124 | 148 | 1068 | 100 | 99 | 1.32 |
| 030621549 | 406 | 64 | 339 | 96 | 124 | 148 | 1068 | 100 | 99 | 1.32 |
| 030621552 | 406 | 64 | 339 | 96 | 124 | 148 | 1068 | 100 | 99 | 1.32 |
| 030621553 | 406 | 64 | 339 | 96 | 124 | 148 | 1068 | 100 | 99 | 1.32 |
| 030621554 | 406 | 64 | 339 | 96 | 124 | 148 | 1068 | 100 | 99 | 1.32 |
| 030621555 | 406 | 64 | 339 | 96 | 124 | 148 | 1068 | 100 | 99 | 1.32 |
| 030621556 | 406 | 64 | 339 | 96 | 124 | 148 | 1068 | 100 | 99 | 1.32 |
| 030621557 | 406 | 64 | 339 | 96 | 124 | 148 | 1068 | 100 | 99 | 1.32 |
| 030621558 | 406 | 64 | 339 | 96 | 124 | 148 | 1068 | 100 | 99 | 1.32 |
| 030621559 | 406 | 64 | 339 | 96 | 124 | 148 | 1068 | 100 | 99 | 1.32 |
| 030621560 | 406 | 64 | 339 | 96 | 124 | 148 | 1068 | 100 | 99 | 1.32 |
| 030621561 | 406 | 64 | 339 | 96 | 124 | 148 | 1068 | 100 | 99 | 1.32 |
| 030621562 | 406 | 64 | 339 | 96 | 124 | 148 | 1068 | 100 | 99 | 1.32 |
| 030621563 | 406 | 64 | 339 | 96 | 124 | 148 | 1068 | 100 | 99 | 1.32 |
| 030621564 | 406 | 64 | 339 | 96 | 124 | 148 | 1068 | 100 | 99 | 1.32 |
| 030621565 | 406 | 64 | 339 | 96 | 124 | 148 | 1068 | 100 | 99 | 1.32 |

* All values are MARV.

**Product : GT112-180 (Layfield LP 12)**

| ROLL # ASTM METHOD UNITS TARGET | MD TENSILE D4632 lbs. 300 | MD ELONG D4632 % 50 | XMD TENSILE D4632 lbs 300 | XMD ELONG D4632 % 50 | MD TRAP D4533 lbs. 115 | XMD TRAP D4533 lbs 115 | CBR PUNCTURE D6241 lbs. 850 | AOS D4751 US Sieve 100 | WATER FLOW D4491 gpm/ft2 75 | PERMITTIVITY D4491 sec-1 1.00 |
|---|---|---|---|---|---|---|---|---|---|---|
| 030621571 | 394 | 67 | 341 | 94 | 138 | 150 | 1131 | 100 | 132 | 1.76 |
| 030621572 | 394 | 67 | 341 | 94 | 138 | 150 | 1131 | 100 | 132 | 1.76 |
| 030621573 | 394 | 67 | 341 | 94 | 138 | 150 | 1131 | 100 | 132 | 1.76 |
| 050454739 | 357 | 82 | 427 | 108 | 159 | 185 | 1192 | 100 | 81 | 1.08 |
| 050454740 | 357 | 82 | 427 | 108 | 159 | 185 | 1192 | 100 | 81 | 1.08 |
| 050454741 | 357 | 82 | 427 | 108 | 159 | 185 | 1192 | 100 | 81 | 1.08 |
| 050454743 | 357 | 82 | 427 | 108 | 159 | 185 | 1192 | 100 | 81 | 1.08 |
| 050454747 | 357 | 82 | 427 | 108 | 159 | 185 | 1192 | 100 | 81 | 1.08 |
| 050454748 | 357 | 82 | 427 | 108 | 159 | 185 | 1192 | 100 | 81 | 1.08 |

* All values are MARV.

SKAPS Industries (Nonwoven Division)
335, Athena Drive
Athens, GA 30601 (U.S.A.)
Phone (706) 354-3700 Fax (706) 354-3737
E-mail: contact@skaps.com

Sales Office:
Engineered Synthetic Product Inc.
Phone: (770)564-1857
Fax: (770)564-1818

**March 12, 2018**
**Layfield Canada Ltd.**
17720 - 129 Avenue NW
Edmonton, AB, T5V 0C4
**PO : E30638**
**BOL : 063055**

Dear Sir/Madam:

This is to certify that SKAPS GT116 (Layfield LP 16) is a high quality needle-punched nonwoven geotextile made of 100% polypropylene staple fibers, randomly networked to form a high strength dimensionally stable fabric. SKAPS GT116 (Layfield LP 16) resists ultraviolet deterioration, rotting, biological degradation. The fabric is inert to commonly encountered soil chemicals. Polypropylene is stable within a pH range of 2 to 13. SKAPS GT116 (Layfield LP 16) conforms to the property values listed below:

| PROPERTY | TEST METHOD | UNITS | M.A.R.V. Minimum Average Roll Value |
|---|---|---|---|
| Grab Tensile | ASTM D 4632 | lbs (kN) | 380 (1.69) |
| Grab Elongation | ASTM D 4632 | % | 50 |
| Trapezoidal Tear | ASTM D 4533 | lbs (kN) | 145 (0.65) |
| CBR Puncture | ASTM D 6241 | lbs (kN) | 1080 (4.82) |
| Permittivity* | ASTM D 4491 | $sec^{-1}$ | 0.70 |
| Water Flow* | ASTM D 4491 | $gpm/ft^2(l/min/m^2)$ | 50 (2037) |
| AOS* | ASTM D 4751 | US Sieve (mm) | 100 (0.15) |
| UV Resistance | ASTM D 4355 | %/hrs | 70/500 |

**Notes:**
* At the time of manufacturing. Handling may change these properties.

**KOUROSH SABZEVARI**
QUALITY CONTROL MANAGER

**Product : GT116-180 (Layfield LP 16)**

| ROLL # ASTM METHOD UNITS TARGET | MD TENSILE D4632 lbs. 380 | MD ELONG D4632 % 50 | XMD TENSILE D4632 lbs 380 | XMD ELONG D4632 % 50 | MD TRAP D4533 lbs. 145 | XMD TRAP D4533 lbs 145 | CBR PUNCTURE D6241 lbs. 1080 | AOS D4751 US Sieve 100 | WATER FLOW D4491 $gpm/ft^2$ 50 | PERMITTIVITY D4491 $sec^{-1}$ 0.70 |
|---|---|---|---|---|---|---|---|---|---|---|
| 030626951 | 437 | 71 | 448 | 107 | 186 | 261 | 1408 | 120 | 103 | 1.37 |
| 030626952 | 437 | 71 | 448 | 107 | 186 | 261 | 1408 | 120 | 103 | 1.37 |
| 030626953 | 437 | 71 | 448 | 107 | 186 | 261 | 1408 | 120 | 103 | 1.37 |
| 030626954 | 437 | 71 | 448 | 107 | 186 | 261 | 1408 | 120 | 103 | 1.37 |
| 030626955 | 437 | 71 | 448 | 107 | 186 | 261 | 1408 | 120 | 103 | 1.37 |
| 030626956 | 437 | 71 | 448 | 107 | 186 | 261 | 1408 | 120 | 103 | 1.37 |
| 030626957 | 437 | 71 | 448 | 107 | 186 | 261 | 1408 | 120 | 103 | 1.37 |
| 030626958 | 437 | 71 | 448 | 107 | 186 | 261 | 1408 | 120 | 103 | 1.37 |
| 030626959 | 437 | 71 | 448 | 107 | 186 | 261 | 1408 | 120 | 103 | 1.37 |
| 030626960 | 437 | 71 | 448 | 107 | 186 | 261 | 1408 | 120 | 103 | 1.37 |
| 030626961 | 437 | 71 | 448 | 107 | 186 | 261 | 1408 | 120 | 103 | 1.37 |
| 030626962 | 437 | 71 | 448 | 107 | 186 | 261 | 1408 | 120 | 103 | 1.37 |
| 030626963 | 437 | 71 | 448 | 107 | 186 | 261 | 1408 | 120 | 103 | 1.37 |
| 030626964 | 437 | 71 | 448 | 107 | 186 | 261 | 1408 | 120 | 103 | 1.37 |
| 030626965 | 437 | 71 | 448 | 107 | 186 | 261 | 1408 | 120 | 103 | 1.37 |
| 030626966 | 437 | 71 | 448 | 107 | 186 | 261 | 1408 | 120 | 103 | 1.37 |
| 030626967 | 437 | 71 | 448 | 107 | 186 | 261 | 1408 | 120 | 103 | 1.37 |
| 030626968 | 437 | 71 | 448 | 107 | 186 | 261 | 1408 | 120 | 103 | 1.37 |
| 030626969 | 437 | 71 | 448 | 107 | 186 | 261 | 1408 | 120 | 103 | 1.37 |
| 030626970 | 487 | 70 | 457 | 121 | 172 | 262 | 1439 | 120 | 105 | 1.40 |
| 030626971 | 487 | 70 | 457 | 121 | 172 | 262 | 1439 | 120 | 105 | 1.40 |
| 030626972 | 487 | 70 | 457 | 121 | 172 | 262 | 1439 | 120 | 105 | 1.40 |
| 030626973 | 487 | 70 | 457 | 121 | 172 | 262 | 1439 | 120 | 105 | 1.40 |
| 030626974 | 487 | 70 | 457 | 121 | 172 | 262 | 1439 | 120 | 105 | 1.40 |
| 030626975 | 487 | 70 | 457 | 121 | 172 | 262 | 1439 | 120 | 105 | 1.40 |
| 030626976 | 487 | 70 | 457 | 121 | 172 | 262 | 1439 | 120 | 105 | 1.40 |
| 030626977 | 487 | 70 | 457 | 121 | 172 | 262 | 1439 | 120 | 105 | 1.40 |
| 030626978 | 487 | 70 | 457 | 121 | 172 | 262 | 1439 | 120 | 105 | 1.40 |
| 030626979 | 487 | 70 | 457 | 121 | 172 | 262 | 1439 | 120 | 105 | 1.40 |
| 030626980 | 487 | 70 | 457 | 121 | 172 | 262 | 1439 | 120 | 105 | 1.40 |
| 030626981 | 487 | 70 | 457 | 121 | 172 | 262 | 1439 | 120 | 105 | 1.40 |
| 030626982 | 487 | 70 | 457 | 121 | 172 | 262 | 1439 | 120 | 105 | 1.40 |
| 030626983 | 487 | 70 | 457 | 121 | 172 | 262 | 1439 | 120 | 105 | 1.40 |
| 030626984 | 487 | 70 | 457 | 121 | 172 | 262 | 1439 | 120 | 105 | 1.40 |
| 030626985 | 457 | 77 | 420 | 108 | 185 | 243 | 1366 | 120 | 108 | 1.44 |
| 030626986 | 457 | 77 | 420 | 108 | 185 | 243 | 1366 | 120 | 108 | 1.44 |

* All values are MARV.

**Product : GT116-180 (Layfield LP 16)**

| ROLL # ASTM METHOD UNITS TARGET | MD TENSILE D4632 lbs. 380 | MD ELONG D4632 % 50 | XMD TENSILE D4632 lbs 380 | XMD ELONG D4632 % 50 | MD TRAP D4533 lbs. 145 | XMD TRAP D4533 lbs 145 | CBR PUNCTURE D6241 lbs. 1080 | AOS D4751 US Sieve 100 | WATER FLOW D4491 gpm/ft$^2$ 50 | PERMITTIVITY D4491 sec$^{-1}$ 0.70 |
|---|---|---|---|---|---|---|---|---|---|---|
| 030626987 | 457 | 77 | 420 | 108 | 185 | 243 | 1366 | 120 | 108 | 1.44 |
| 030626988 | 457 | 77 | 420 | 108 | 185 | 243 | 1366 | 120 | 108 | 1.44 |
| 030626989 | 457 | 77 | 420 | 108 | 185 | 243 | 1366 | 120 | 108 | 1.44 |
| 030626990 | 457 | 77 | 420 | 108 | 185 | 243 | 1366 | 120 | 108 | 1.44 |
| 030626991 | 457 | 77 | 420 | 108 | 185 | 243 | 1366 | 120 | 108 | 1.44 |
| 030626992 | 457 | 77 | 420 | 108 | 185 | 243 | 1366 | 120 | 108 | 1.44 |
| 030626993 | 457 | 77 | 420 | 108 | 185 | 243 | 1366 | 120 | 108 | 1.44 |
| 030626994 | 457 | 77 | 420 | 108 | 185 | 243 | 1366 | 120 | 108 | 1.44 |
| 030626995 | 457 | 77 | 420 | 108 | 185 | 243 | 1366 | 120 | 108 | 1.44 |
| 030626996 | 457 | 77 | 420 | 108 | 185 | 243 | 1366 | 120 | 108 | 1.44 |
| 030626997 | 457 | 77 | 420 | 108 | 185 | 243 | 1366 | 120 | 108 | 1.44 |
| 030626998 | 457 | 77 | 420 | 108 | 185 | 243 | 1366 | 120 | 108 | 1.44 |
| 030626999 | 457 | 77 | 420 | 108 | 185 | 243 | 1366 | 120 | 108 | 1.44 |
| 030627000 | 457 | 77 | 420 | 108 | 185 | 243 | 1366 | 120 | 108 | 1.44 |
| 030627001 | 457 | 77 | 420 | 108 | 185 | 243 | 1366 | 120 | 108 | 1.44 |
| 030627002 | 457 | 77 | 420 | 108 | 185 | 243 | 1366 | 120 | 108 | 1.44 |
| 030627003 | 457 | 77 | 420 | 108 | 185 | 243 | 1366 | 120 | 108 | 1.44 |
| 030627004 | 457 | 77 | 420 | 108 | 185 | 243 | 1366 | 120 | 108 | 1.44 |
| 030627005 | 457 | 77 | 420 | 108 | 185 | 243 | 1366 | 120 | 108 | 1.44 |
| 030627006 | 457 | 77 | 420 | 108 | 185 | 243 | 1366 | 120 | 108 | 1.44 |
| 030627007 | 457 | 77 | 420 | 108 | 185 | 243 | 1366 | 120 | 108 | 1.44 |
| 030627008 | 457 | 77 | 420 | 108 | 185 | 243 | 1366 | 120 | 108 | 1.44 |
| 030627009 | 457 | 77 | 420 | 108 | 185 | 243 | 1366 | 120 | 108 | 1.44 |
| 030627010 | 457 | 77 | 420 | 108 | 185 | 243 | 1366 | 120 | 108 | 1.44 |
| 030627011 | 457 | 77 | 420 | 108 | 185 | 243 | 1366 | 120 | 108 | 1.44 |
| 030627012 | 457 | 77 | 420 | 108 | 185 | 243 | 1366 | 120 | 108 | 1.44 |
| 030627014 | 457 | 77 | 420 | 108 | 185 | 243 | 1366 | 120 | 108 | 1.44 |
| 030627015 | 457 | 77 | 420 | 108 | 185 | 243 | 1366 | 120 | 108 | 1.44 |
| 030627016 | 485 | 78 | 475 | 117 | 217 | 274 | 1440 | 120 | 115 | 1.53 |
| 030627020 | 485 | 78 | 475 | 117 | 217 | 274 | 1440 | 120 | 115 | 1.53 |
| 030627021 | 485 | 78 | 475 | 117 | 217 | 274 | 1440 | 120 | 115 | 1.53 |
| 030627022 | 485 | 78 | 475 | 117 | 217 | 274 | 1440 | 120 | 115 | 1.53 |
| 030627023 | 485 | 78 | 475 | 117 | 217 | 274 | 1440 | 120 | 115 | 1.53 |
| 030627024 | 485 | 78 | 475 | 117 | 217 | 274 | 1440 | 120 | 115 | 1.53 |
| 030627025 | 485 | 78 | 475 | 117 | 217 | 274 | 1440 | 120 | 115 | 1.53 |
| 030627026 | 485 | 78 | 475 | 117 | 217 | 274 | 1440 | 120 | 115 | 1.53 |

* All values are MARV.

**Product : GT116-180 (Layfield LP 16)**

| ROLL # ASTM METHOD UNITS TARGET | MD TENSILE D4632 lbs. 380 | MD ELONG D4632 % 50 | XMD TENSILE D4632 lbs 380 | XMD ELONG D4632 % 50 | MD TRAP D4533 lbs. 145 | XMD TRAP D4533 lbs 145 | CBR PUNCTURE D6241 lbs. 1080 | AOS D4751 US Sieve 100 | WATER FLOW D4491 $gpm/ft^2$ 50 | PERMITTIVITY D4491 $sec^{-1}$ 0.70 |
|---|---|---|---|---|---|---|---|---|---|---|
| 030627027 | 485 | 78 | 475 | 117 | 217 | 274 | 1440 | 120 | 115 | 1.53 |
| 030627028 | 485 | 78 | 475 | 117 | 217 | 274 | 1440 | 120 | 115 | 1.53 |
| 030627029 | 485 | 78 | 475 | 117 | 217 | 274 | 1440 | 120 | 115 | 1.53 |
| 030627030 | 485 | 78 | 475 | 117 | 217 | 274 | 1440 | 120 | 115 | 1.53 |
| 030627031 | 485 | 78 | 475 | 117 | 217 | 274 | 1440 | 120 | 115 | 1.53 |
| 030627032 | 485 | 78 | 475 | 117 | 217 | 274 | 1440 | 120 | 115 | 1.53 |
| 030627033 | 485 | 78 | 475 | 117 | 217 | 274 | 1440 | 120 | 115 | 1.53 |
| 030627034 | 485 | 78 | 475 | 117 | 217 | 274 | 1440 | 120 | 115 | 1.53 |
| 030627035 | 485 | 78 | 475 | 117 | 217 | 274 | 1440 | 120 | 115 | 1.53 |
| 030627038 | 485 | 78 | 475 | 117 | 217 | 274 | 1440 | 120 | 115 | 1.53 |
| 030627039 | 485 | 78 | 475 | 117 | 217 | 274 | 1440 | 120 | 115 | 1.53 |
| 030627040 | 485 | 78 | 475 | 117 | 217 | 274 | 1440 | 120 | 115 | 1.53 |
| 030627041 | 485 | 78 | 475 | 117 | 217 | 274 | 1440 | 120 | 115 | 1.53 |
| 030627043 | 485 | 78 | 475 | 117 | 217 | 274 | 1440 | 120 | 115 | 1.53 |
| 030627044 | 485 | 78 | 475 | 117 | 217 | 274 | 1440 | 120 | 115 | 1.53 |
| 030627045 | 485 | 78 | 475 | 117 | 217 | 274 | 1440 | 120 | 115 | 1.53 |
| 030627046 | 504 | 68 | 432 | 97 | 227 | 255 | 1404 | 120 | 102 | 1.36 |
| 030627047 | 504 | 68 | 432 | 97 | 227 | 255 | 1404 | 120 | 102 | 1.36 |
| 030627048 | 504 | 68 | 432 | 97 | 227 | 255 | 1404 | 120 | 102 | 1.36 |
| 030627049 | 504 | 68 | 432 | 97 | 227 | 255 | 1404 | 120 | 102 | 1.36 |
| 030627050 | 504 | 68 | 432 | 97 | 227 | 255 | 1404 | 120 | 102 | 1.36 |
| 030627051 | 504 | 68 | 432 | 97 | 227 | 255 | 1404 | 120 | 102 | 1.36 |
| 030627052 | 504 | 68 | 432 | 97 | 227 | 255 | 1404 | 120 | 102 | 1.36 |
| 030627053 | 504 | 68 | 432 | 97 | 227 | 255 | 1404 | 120 | 102 | 1.36 |
| 030627054 | 504 | 68 | 432 | 97 | 227 | 255 | 1404 | 120 | 102 | 1.36 |
| 030627055 | 504 | 68 | 432 | 97 | 227 | 255 | 1404 | 120 | 102 | 1.36 |
| 030627056 | 504 | 68 | 432 | 97 | 227 | 255 | 1404 | 120 | 102 | 1.36 |
| 030627057 | 504 | 68 | 432 | 97 | 227 | 255 | 1404 | 120 | 102 | 1.36 |
| 030627058 | 504 | 68 | 432 | 97 | 227 | 255 | 1404 | 120 | 102 | 1.36 |
| 030627059 | 504 | 68 | 432 | 97 | 227 | 255 | 1404 | 120 | 102 | 1.36 |
| 030627060 | 504 | 68 | 432 | 97 | 227 | 255 | 1404 | 120 | 102 | 1.36 |
| 030627061 | 504 | 68 | 432 | 97 | 227 | 255 | 1404 | 120 | 102 | 1.36 |
| 030627062 | 504 | 68 | 432 | 97 | 227 | 255 | 1404 | 120 | 102 | 1.36 |
| 030627063 | 504 | 68 | 432 | 97 | 227 | 255 | 1404 | 120 | 102 | 1.36 |
| 030627064 | 504 | 68 | 432 | 97 | 227 | 255 | 1404 | 120 | 102 | 1.36 |
| 030627065 | 504 | 68 | 432 | 97 | 227 | 255 | 1404 | 120 | 102 | 1.36 |

* All values are MARV.

**Product : GT116-180 (Layfield LP 16)**

| ROLL # ASTM METHOD UNITS TARGET | MD TENSILE D4632 lbs. 380 | MD ELONG D4632 % 50 | XMD TENSILE D4632 lbs 380 | XMD ELONG D4632 % 50 | MD TRAP D4533 lbs. 145 | XMD TRAP D4533 lbs 145 | CBR PUNCTURE D6241 lbs. 1080 | AOS D4751 US Sieve 100 | WATER FLOW D4491 $gpm/ft^2$ 50 | PERMITTIVITY D4491 $sec^{-1}$ 0.70 |
|---|---|---|---|---|---|---|---|---|---|---|
| 030627066 | 504 | 68 | 432 | 97 | 227 | 255 | 1404 | 120 | 102 | 1.36 |
| 030627067 | 504 | 68 | 432 | 97 | 227 | 255 | 1404 | 120 | 102 | 1.36 |
| 030627068 | 504 | 68 | 432 | 97 | 227 | 255 | 1404 | 120 | 102 | 1.36 |
| 030627069 | 504 | 68 | 432 | 97 | 227 | 255 | 1404 | 120 | 102 | 1.36 |
| 030627070 | 504 | 68 | 432 | 97 | 227 | 255 | 1404 | 120 | 102 | 1.36 |
| 030627071 | 504 | 68 | 432 | 97 | 227 | 255 | 1404 | 120 | 102 | 1.36 |
| 030627072 | 504 | 68 | 432 | 97 | 227 | 255 | 1404 | 120 | 102 | 1.36 |
| 030627073 | 504 | 68 | 432 | 97 | 227 | 255 | 1404 | 120 | 102 | 1.36 |
| 030627074 | 504 | 68 | 432 | 97 | 227 | 255 | 1404 | 120 | 102 | 1.36 |

* All values are MARV.

# ATLANTIC INDUSTRIES
## LP 12, LP 16
## S / O # 330551 > DATE : MAR/23/2018

| LP 12 > (10 ROLLS) | LP 16 > (18 ROLLS) | |
|---|---|---|
| 030621474 | 030626998 | |
| 030621473 | 030626997 | |
| 030621475 | 030627000 | |
| 030621481 | 030627068 | |
| 030621532 | 030627071 | |
| 030621531 | 030627067 | |
| 030621530 | 030626981 | |
| 030621469 | 030627049 | |
| 030621468 | 030627066 | |
| 030621467 | 030627025 | |
| | 030627026 | |
| | 030627027 | |
| | 030627031 | |
| | 030627030 | |
| | 030627029 | |
| | 030627035 | |
| | 030626991 | |
| | 030627028 | |
| | | |
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| | | |

# A Report on Lifetime of Wind Defender Ballast Netting

**Prepared for:**

**Wind Defender, LLC**

**4 South 2nd Street, Suite 206**

**Pottsville, PA 17901**

**Prepared by:**

**Narejo Inc.**

**5829 W Sam Houston Pkwy N, Unit 308**

**Houston, TX 77041**

**September 22, 2016**

**Lifetime of Exposed Wind Defender Ballast Netting**

## Introduction

Wind Defender is an engineered netting material that is used as a surface protection material and as a ballast over other geosynthetics including geomembranes and geotextiles. Figure 1 presents a photo of the material being discussed in this report. Since it is used in an exposed state, i.e., it is exposed to Sun, an important engineering concern is its lifetime. Wind Defender has been formulated specifically to perform satisfactorily for a long time. How long? is the question often asked by designers and regulators. The oldest use of the material is on projects that are about ten years old. The actual experience from these projects indicates that there is no noticeable degradation of the material during ten years of exposure. However, ten years is not close to the fifty years or more of lifetime expected of engineered materials.

The Geosynthetic Institute has recently published a methodology to determine the lifetime of exposed geosynthetics. This methodology involves the use of time-temperature superposition to calculate lifetime based on laboratory test data. The procedure involves three steps: i) laboratory exposure at three temperatures, ii) obtain lifetime at 20-degree Celsius by using Arrhenius modeling, i.e., extrapolate from higher laboratory temperature to a lower site temperature, and iii) account for the site specific UV exposure since much higher UV irradiance is used during the test. The reader may note the use of time-temperature superposition in Step (ii) which requires at least three different temperatures, and therefore, a considerable time and expense. Manufacturers typically rely on the GSI test data to answer questions about lifetime in a general manner.

To keep the test program within budget, only one temperature was used in this test program. Coupons of Wind Defender were exposed to UV light in a fluorescent ultraviolet device according to ASTM test method D7238. Test coupons were subjected to a 6-hour cycle that consisted of 5 hours of light at 50°C followed by 1 hours of condensation without light at 25°C. Therefore, the daily UV exposure is 20 hours with a ratio of 24 hours/20 hours = 1.2. This ratio is used later in the calculation to convert laboratory time to actual lifetime. The coupons were periodically retrieved and following three tests were performed: a) High Pressure OIT, b) tensile elongation and c) tensile strength. A separate report available from the manufacturer (Wind Defender, LLC) presents detailed results of the laboratory test program. The objective of this report is to analyze the data resulting from the test program, and to obtain a quantitative assessment of the lifetime.

**Procedure and Test Data:**

A 3 ft by roll width sample of Wind Defender engineered netting product was delivered to SAGEOS in Quebec, Canada. The laboratory tested the "AS-RECEIVED" material to determine the following baseline properties: i) Thickness, ii) Mass, iii) Tensile Strength, iv) Tensile Elongation and v) High Pressure OIT. Table 1 presents laboratory data on the virgin material. Coupons of the material were then cut and mounted within the UV Chamber. The exposed coupons were retrieved at 3-month interval over a time period of 15 months. Table 2 presents laboratory data on exposed coupons. The data presented in tables 1 and 2 was analyzed to obtain an estimate of lifetime of the material. Consistent with the GSI publications on this topic, half-life was used as the criteria for design life. The half-life of the material is defined here as the time required for the material to reach 50% of its strength and elongation at site-specific temperature and UV radiation.

Table 1 – "AS-RECEVED" and Exposed Properties of Wind Defender

| Property | Test Method | Exposure Time (Months) | | | | |
|---|---|---|---|---|---|---|
| | | 0 | 3 | 6 | 9 | 15 |
| Mass per Unit Area ($oz./yd^2$) | ASTM D3776 | 6.5 | - | - | - | - |
| Thickness (mils) | ASTM D5199 | 56.0 | - | - | - | - |
| High Pressure OIT (min) | ASTM D5885 | 1549 | 936 | 809 | 475 | 487 |
| Tensile Strength (lbs/2 inch) | ASTM D5035 | 157.2 | 163.1 | 146.5 | 146.3 | 137.5 |
| Elongation at Max Force (%) | ASTM D5035 | 70.6 | 80.8 | 74.1 | 70.7 | 69.2 |

**Analysis and Discussion:**

Figure 2 presents the last three properties in Table 1 as percentage change with time. It may be noted that the HPOIT data shows a leveling off indicating no additional change with time. Tensile strength and elongation values reported in Figure 2 are replotted in figures 3 and 4 on a semi-logarithmic plot. These plots are of a similar nature as those utilized in the GSI reports as the basis of lifetime prediction for a number of different geosynthetics. These plots indicate that the target 50 percentage reduction (here half-life is used as the lifetime) in mechanical properties occurs at 55 years based on elongation and 50

years based on strength at a laboratory temperature of 50°C and the laboratory UV exposure. The next step is typically to extrapolate to 20°C and site-specific UV exposure.

In order to extrapolate from laboratory to field temperature, tests must be performed at three or more temperatures. Since only one temperature was evaluated, the time-temperature extrapolation is not feasible. Since temperature has a significant effect on rate of aging, life-time at 20 degrees is expected to be much higher than that at 50 degrees. The consideration of site-specific UV intensity is, however, possible and is illustrated for Phoenix, AZ. The UV-fluorescent weathering device has an irradiance of 42.42 $W/m^2$ between 250 and 400 nm wavelengths. UV radiation in Phoenix is 28 $MJ/m^2$-month. Lifetime predicted is 50 years at 50° C. Then (42.42/28)x50 = 75 years is the lifetime of Wind Defender in Phoenix at 50°C. However, the ratio between UV time in the lab and total time is 1.2 as calculated previously. Therefore, lifetime is 75x1.2 = 90 years at 50°C. The lifetime at ambient temperature of 20°C is expected to be much higher than the value calculated at 50°C.

**Conclusion**

The Wind Defender ballast and UV protection material was exposed to UV radiation according to ASTM test method D 7238. The material was subjected to UV at a temperature of 50°C to accelerate degradation. This information was then utilized to calculate lifetime at a conservative site-specific temperature of 50°C. The calculated lifetime was found to be 90 years if the material is installed in Phoenix, AZ. The actual lifetime at an ambient temperature of 20°C is expected to be more than 90 years.

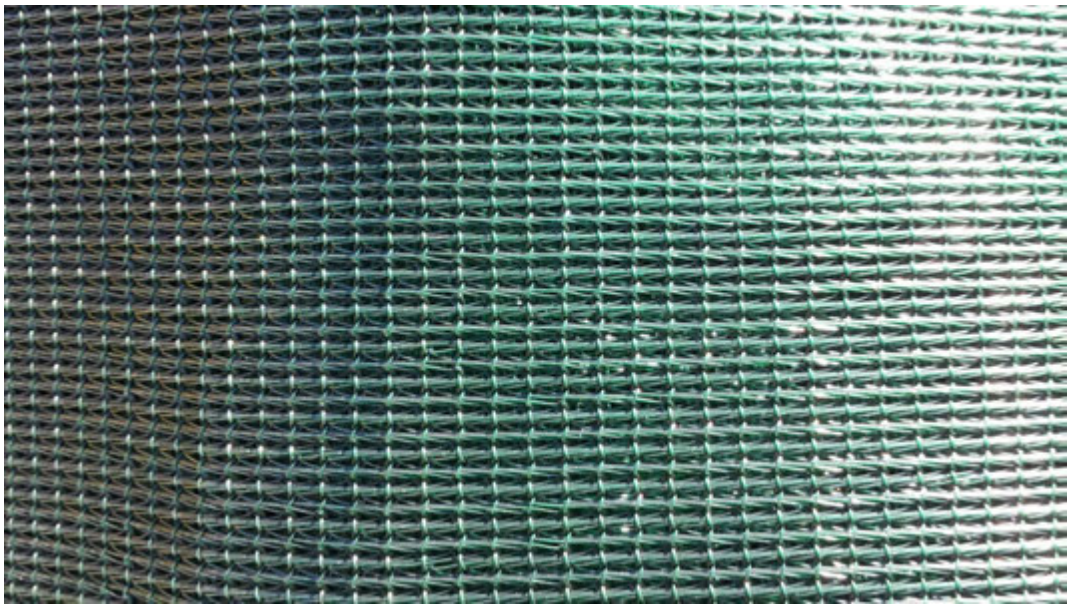

Figure 1 – A Photo Showing the Structure of Wind Defender.

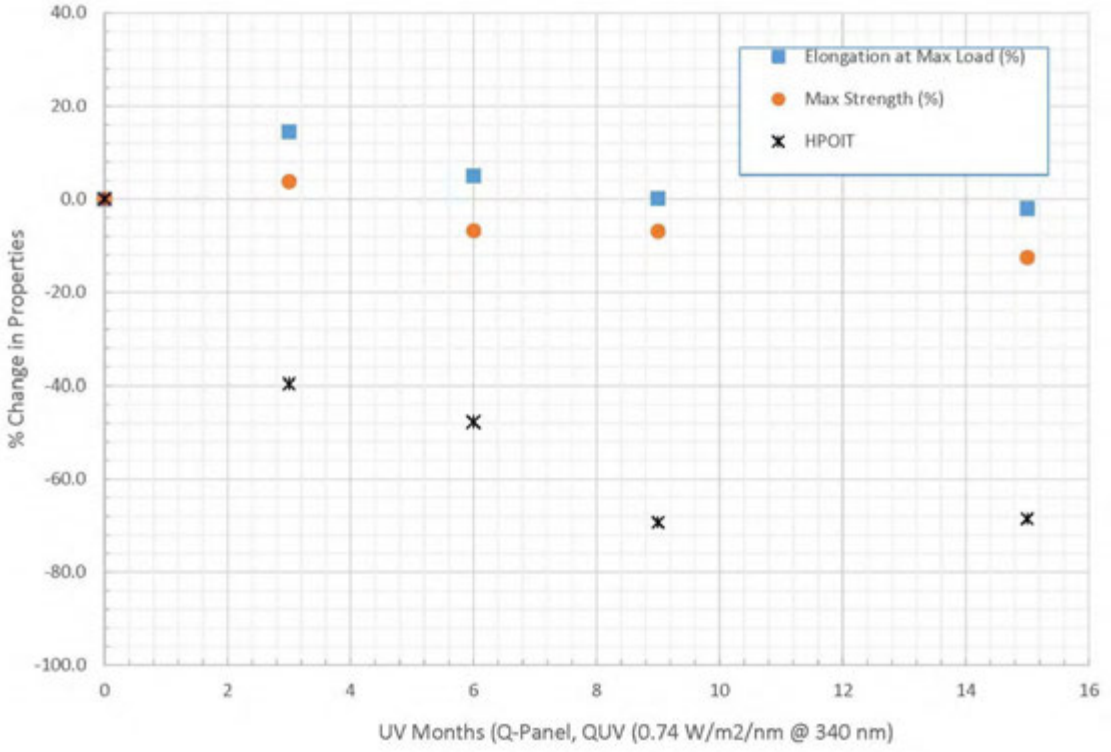


Figure 2 – A Plot of Change in Properties with Time.

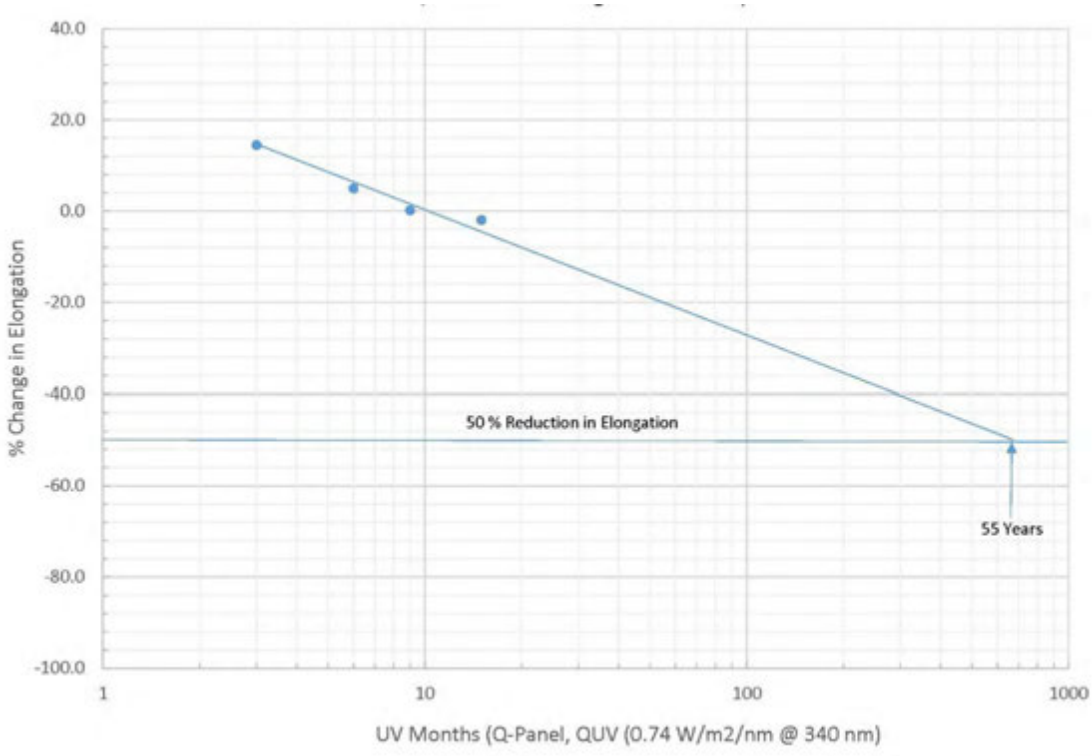

Figure 3 – Extrapolation of Elongation Data to Calculate Lifetime.

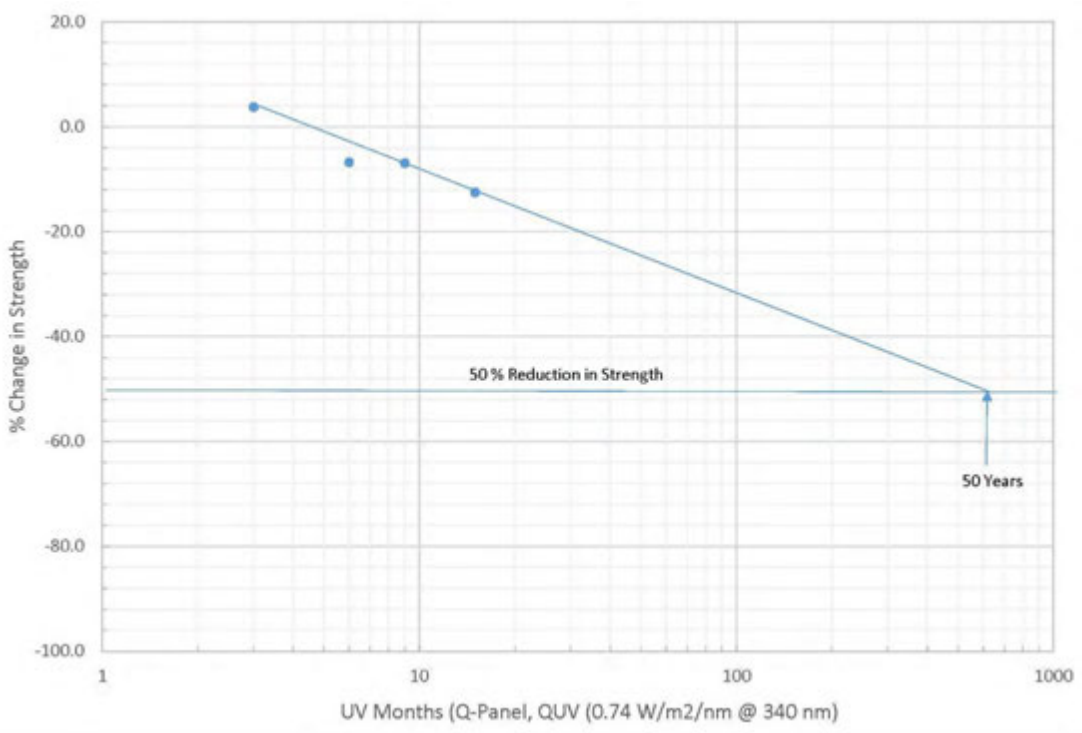


Figure 4 – Extrapolation of Strength Data to Calculate Lifetime.

AB 082616 - 3 - 4 - 5



ArcelorMittal Dofasco G.P.
P.O. Box 2460
Hamilton, Ontario
L8N 3J5

CHEMISTRY REPORT
RAPPORT DE COMPOSITION CHIMIQUE
Page 1 of 1

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Date: 08/15/2016

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P.O. BOX 1006, 3155 ROUTE 935
DORCHESTER, NB.
E4K 3V5

_Ship To/Expedier A_

ATLANTIC INDUSTRIES LIMITED
1237 PICKARDVILLE ROAD
WESTLOCK, AB.
T7P 2P4

_Spec/Norm et Spec_

CSA G401 (March 2014)
STD ASTM,2/3 FOR HDG GT.075 (2MM),WELD OK HELICAL STEEL
STANDARD UNEXPOSED SURFACE
STANDARD FLATNESS _ ASTM FULL TOLERANCE

_Material Description/Description du Material_

DOFASCO 'PREMIER' TM GALVANIZED CSP SHEET
COILS Z610 (2 OZ)
PASSIVATED DRY

CHEMICAL ANALYSIS REPORT REQUIRED

CODE CPR280724

2.8 MM X 724 MM X COIL

WEIGHT: 41780 LBS

_Test Methods/Methods d'Essai_

ASTM E1019, E415

| HEAT COULEE | C | Mn | P | S | Si | Cu | Ni | Cr | Sn | Mo | Als | Alt | Cb | V | Ti | Ca | N | B | O |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 138772 | .05 | .15 | .007 | .009 | .02 | .16 | .04 | .08 | .006 | .010 | .044 | .048 | .0005 | .002 | .010 | .001 | .0050 | .0002 | |

| Heat Coulee | Serial Number No. de Serie | Lift Number No. de Fardeau |
|---|---|---|
| 138772 | L16856/02 | 3488776 |
| | L16856/03 | 3488777 |
| | L16856/04 | 3488792 |

2.8 × 1300MM, 1200MM
4/10M 4/10M
1/9M 1/9M

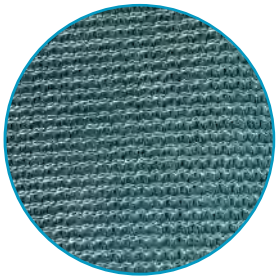
PELLY
SO 28842



9/1/2016

WIND DEFENDER®

# Product Data Sheet



## WIND DEFENDER® HD

Special reinforced geotextile windscreen made of knitted, green, UV stabilized HDPE filament. Wind Defender® is deployed and tensioned over an installed geomembrane in order to achieve a stable and reliable ballast system. Wind Defender® can also standalone as a dust screen to prevent fugitive dust particles from leaving an area.

**Nominal Product Values***

| Test | ASTM Method | English (Typical) | Metric (Typical) |
|---|---|---|---|
| Thickness | D 5199 | 55 mils | 1.40mm |
| Mass/Unit Area | D 5261 | 6.50 oz/yd^2 | 220 g/m^2 |
| Grab Strength | D 4632 | MD 175 lbs | 778 N |
| | | XD-300 lbs | 1,334 N |
| Grab Elongation | D 4632 | MD-90% | MD-90% |
| | | XD-70% | XD-70% |
| CBR Puncture | D 6241 | 700 lbs | 3,113 N |
| UV Resistance at 15 months, 50C°, 20 hour UV, 4 hour condensation | D 7238 | 475 min HPOIT<br>65 lbs/in strength<br>65% elongation | 475 min HPOIT<br>11.38 kN/m<br>65% elongation |

**Typical U.V. Resistance- 500 Hour Exposure**

| | | | |
|---|---|---|---|
| Break Strength MD | D 4355 | % retained | 98 |
| Break Strength XD | D 4355 | % retained | 109 |
| Break Elongation MD | D 4355 | % retained | 101 |
| Break Elongation XD | D 4355 | % retained | 101 |

| Typical Roll Dimensions | English | Metric |
|---|---|---|
| Roll Length | 328 ft | 100 m |
| Roll Width | 20 ft | 6 m |
| Roll Area | 6,560 sf | 609 m^2 |
| Roll Weight | 305 lbs | 138 kg |

*Nominal product values are average values with an acceptable maximum variance of - 10%*

## KEY BENEFITS

- Aesthetically pleasing
- UV Stabilized
- Provides 60% UV block for underlying materials
- Installs quickly
- Available in large rolls
- Performs well under snow load
- Lasts 3 to 10 times longer than most traditional sandbag and rope anchoring systems
- Safer to install than making and deploying heavy sandbags

## APPLICATIONS

- Landfill Covers
- Stockpile Covers
- Dust Screen
- Soil Cover

# TECHNICAL DATA SHEET

LLDPE Series, 1.50 mm

Black, Textured

Solmax, 2801 Boul. Marie-Victorin, Varennes, Qc, Canada, J3X 1P7
Tel.: (450) 929-1234 Fax: (450) 929-2550 www.solmax.com

| PROPERTY | TEST METHOD | FREQUENCY (1) | UNIT Metric | 1008824 |
|---|---|---|---|---|
| **SPECIFICATIONS** | | | | |
| Nominal Thickness | - | - | mm | 1.50 |
| Thickness (min. avg.) | ASTM D-5994 | Every roll | mm | 1.43 |
| Lowest ind. for 8 out of 10 values | | | mm | 1.35 |
| Lowest ind. for 10 out of 10 values | | | mm | 1.28 |
| Asperity Height (min. avg.) (3) | ASTM D-7466 | Every roll | mm | 0.40 |
| Resin Density | ASTM D-1505 | 1/Batch | g/cc | < 0.926 |
| Melt Index - 190/2.16 (max.) | ASTM D-1238 | 1/Batch | g/10 min | 1.0 |
| Sheet Density (8) | ASTM D-792 | Every 10 rolls | g/cc | ≤ 0.939 |
| Carbon Black Content (9) | ASTM D-4218 | Every 2 rolls | % | 2.0 - 3.0 |
| Carbon Black Dispersion | ASTM D-5596 | Every 10 rolls | Category | Cat. 1 / Cat. 2 |
| OIT - standard (avg.) | ASTM D-3895 | Per formulation | min | 100 |
| Tensile Properties (min. avg) (2) | ASTM D-6693 | Every 2 rolls | | |
| Strength at Break | | | kN/m | 23 |
| Elongation at Break | | | % | 400 |
| 2% Modulus (max.) | ASTM D-5323 | Per formulation | kN/m | 630 |
| Tear Resistance (min. avg.) | ASTM D-1004 | Every 5 rolls | N | 165 |
| Puncture Resistance (min. avg.) | ASTM D-4833 | Every 5 rolls | N | 375 |
| Dimensional Stability | ASTM D-1204 | Certified | % | ± 2 |
| Multi-Axial Tensile (min.) | ASTM D-5617 | Per formulation | % | 30 |
| Oven Aging - % retained after 90 days | ASTM D-5721 | Per formulation | | |
| STD OIT (min. avg.) | ASTM D-3895 | | % | 35 |
| HP OIT (min. avg.) | ASTM D-5885 | | % | 60 |
| UV Res. - % retained after 1600 hr | GRI-GM-11 | Per formulation | | |
| HP-OIT (min. avg.) | ASTM D-5885 | | % | 35 |
| **SUPPLY SPECIFICATIONS** (Roll dimensions may vary ±1%) | | | | |
| Roll Dimension - Width | - | | m | 6.80 |
| Roll Dimension - Length | - | | m | 164.6 |
| Area (Surface/Roll) | - | | m² | 1119.3 |

## NOTES

1. Testing frequency based on standard roll dimensions and one batch is approximately 180,000 lbs (or one railcar).
2. Machine Direction (MD) and Cross Machine Direction (XMD or TD) average values should be on the basis of 5 specimens each direction.
3. Lowest individual and 8 out of 10 readings as per GRI-GM13 / 17, latest version.
8. Correlation table is available for ASTM D792 vs ASTM D1505. Both methods give the same results.
9. Correlation table is available for ASTM D1603 vs ASTM D4218. Both methods give the same results.

* All values are nominal test results, except when specified as minimum or maximum.
* The information contained herein is provided for reference purposes only and is not intended as a warranty of guarantee. Final determination of suitability for use contemplated is the sole responsability of the user. SOLMAX assumes no liability in connection with the use of this information.

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# TECHNICAL DATA SHEET

LLDPE Series, 2.00 mm

Black, Textured

Solmax, 2801 Boul. Marie-Victorin, Varennes, Qc, Canada, J3X 1P7
Tel.: (450) 929-1234 Fax: (450) 929-2550 www.solmax.com

| PROPERTY | TEST METHOD | FREQUENCY (1) | UNIT Metric | 1011709 |
|---|---|---|---|---|
| **SPECIFICATIONS** | | | | |
| Nominal Thickness | - | - | mm | 2.00 |
| Thickness (min. avg.) | ASTM D-5994 | Every roll | mm | 1.90 |
| Lowest ind. for 8 out of 10 values | | | mm | 1.80 |
| Lowest ind. for 10 out of 10 values | | | mm | 1.70 |
| Asperity Height (min. avg.) (3) | ASTM D-7466 | Every roll | mm | 0.40 |
| Resin Density | ASTM D-1505 | 1/Batch | g/cc | < 0.926 |
| Melt Index - 190/2.16 (max.) | ASTM D-1238 | 1/Batch | g/10 min | 1.0 |
| Sheet Density (8) | ASTM D-792 | Every 10 rolls | g/cc | ≤ 0.939 |
| Carbon Black Content (9) | ASTM D-4218 | Every 2 rolls | % | 2.0 - 3.0 |
| Carbon Black Dispersion | ASTM D-5596 | Every 10 rolls | Category | Cat. 1 / Cat. 2 |
| OIT - standard (avg.) | ASTM D-3895 | Per formulation | min | 100 |
| Tensile Properties (min. avg) (2) | ASTM D-6693 | Every 2 rolls | | |
| Strength at Break | | | kN/m | 31 |
| Elongation at Break | | | % | 400 |
| 2% Modulus (max.) | ASTM D-5323 | Per formulation | kN/m | 840 |
| Tear Resistance (min. avg.) | ASTM D-1004 | Every 5 rolls | N | 220 |
| Puncture Resistance (min. avg.) | ASTM D-4833 | Every 5 rolls | N | 500 |
| Dimensional Stability | ASTM D-1204 | Certified | % | ± 2 |
| Multi-Axial Tensile (min.) | ASTM D-5617 | Per formulation | % | 30 |
| Oven Aging - % retained after 90 days | ASTM D-5721 | Per formulation | | |
| STD OIT (min. avg.) | ASTM D-3895 | | % | 35 |
| HP OIT (min. avg.) | ASTM D-5885 | | % | 60 |
| UV Res. - % retained after 1600 hr | GRI-GM-11 | Per formulation | | |
| HP-OIT (min. avg.) | ASTM D-5885 | | % | 35 |
| **SUPPLY SPECIFICATIONS** (Roll dimensions may vary ±1%) | | | | |
| Roll Dimension - Width | - | | m | 6.80 |
| Roll Dimension - Length | - | | m | 128.0 |
| Area (Surface/Roll) | - | | $m^2$ | 870.4 |

## NOTES

1. Testing frequency based on standard roll dimensions and one batch is approximately 180,000 lbs (or one railcar).
2. Machine Direction (MD) and Cross Machine Direction (XMD or TD) average values should be on the basis of 5 specimens each direction.
3. Lowest individual and 8 out of 10 readings as per GRI-GM13 / 17, latest version.
8. Correlation table is available for ASTM D792 vs ASTM D1505. Both methods give the same results.
9. Correlation table is available for ASTM D1603 vs ASTM D4218. Both methods give the same results.

* All values are nominal test results, except when specified as minimum or maximum.
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Solmax is not a design professional and has not performed any design services to determine if Solmax's goods comply with any project plans or specifications, or with the application or use of Solmax's goods to any particular system, project, purpose, installation or specification.

PRODUCT DATA SHEET

# GSE BentoLiner NWL-60 Geosynthetic Clay Liner

GSE BentoLiner "NWL-60" is a heavily needlepunched reinforced composite geosynthetic clay liner (GCL) comprised of a uniform layer of granular sodium bentonite encapsulated between a nonwoven and a scrim-nonwoven geotextile for dimensional stability. The product is intended for steep slopes and high load applications where increased internal shear strength is required.

[*]

**AT THE CORE:**

This composite clay liner is intended for steep slopes and high load applications where increased internal shear strength is required.

## Product Specifications

| Tested Property | Test Method | Frequency | VALUE |
|---|---|---|---|
| **Geotextile Property** | | | |
| Cap Nonwoven, Mass/Unit Area | ASTM D 5261 | 1/200,000 $ft^2$ | 6.0 $oz/yd^2$ MARV(1) |
| Carrier Scrim Nonwoven, Mass/Unit Area | ASTM D 5261 | 1/200,000 $ft^2$ | 6.0 $oz/yd^2$ MARV |
| **Bentonite Property** | | | |
| Swell Index | ASTM D 5890 | 1/100,000 lb | 24 ml/2 g min |
| Moisture Content | ASTM D 4643 | 1/100,000 lb | 12% max |
| Fluid Loss | ASTM D 5891 | 1/100,000 lb | 18 ml max |
| **Finished GCL Property** | | | |
| Bentonite, Mass/Unit Area(2) | ASTM D 5993 | 1/40,000 $ft^2$ | 0.75 $lb/ft^2$ MARV |
| Tensile Strength(3) | ASTM D 6768 | 1/40,000 $ft^2$ | 50 lb/in MARV |
| Peel Strength | ASTM D 6496<br>ASTM D 4632(4) | 1/40,000 $ft^2$ | 12 lb/in MARV<br>60 lb MARV |
| Hydraulic Conductivity(5) | ASTM D 5887 | 1/Week | 5 x $10^{-9}$ cm/sec max |
| Index Flux(5) | ASTM D 5887 | 1/Week | 1 x $10^{-8}$ $m^3/m^2$/sec max |
| Internal Shear Strength(6) | ASTM D 6243 | Periodically | 500 psf Typical |
| TYPICAL ROLL DIMENSIONS | | | |
| Width x Length(7) | Typical | Every Roll | 15.5 ft x 150 ft |
| Area per Roll | Typical | Every Roll | 2,325 $ft^2$ |
| Packaged Weight | Typical | Every Roll | 2,600 lb |

NOTES:

- (1)Minimum Average Roll Value.
- (2)At 0% moisture content.
- (3)Tested in machine direction.
- (4)Modified ASTM D 4632 to use a 4 in wide grip. The maximum peak of five specimens averaged in machine direction.
- (5)Deaired, deionized water @ 5 psi maximum effective confining stress and 2 psi head pressure.
- (6)Typical peak value for specimen hydrated for 24 hours and sheared under a 200 psf normal stress.
- (7)Roll widths and lengths have a tolerance of ±1%.

GSE is a leading manufacturer and marketer of geosynthetic lining products and services. We've built a reputation of reliability through our dedication to providing consistency of product, price and protection to our global customers.

Our commitment to innovation, our focus on quality and our industry expertise allow us the flexibility to collaborate with our clients to develop a custom, purpose-fit solution.

GSE ENVIRONMENTAL™

[ DURABILITY RUNS DEEP ]

For more information on this product and others, please visit us at GSEworld.com, call 800.435.2008 or contact your local sales office.

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LAYFIELD *Leaders in Film & Geosynthetic Technology*

# Mill Certification Report

| | |
|---|---|
| **Sales Order #** | 325808 |
| **Order Date** | 10/24/2017 |
| **Req Ship Date** | 2/2/2018 |

**Customer Name** FG & RM - CP & EC EDMONTON

17720 129th Avenue NW
EDMONTON, AB
CANADA
780-453-6731
LAYFIELD

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Inspection #** | 28984 | **Job** | E0006803 | **Status** | Active | **Result** | Pass |
| **Stock Code** | 3322708S2 | EL 4280 270" 80 MIL SE TEX-2 | | **Inspection Date** | 2/1/2018 | **Completion Date** | |

| Serial | Result | Core Width (273 in +/- 0.5 in) | Roll Length (420 ft +/- 0 ft) | Roll Weight - Net (3993 lbs +/- 0 lbs) | Sheet Width (270 in +/- 2 in) | Roll Area m2 | Thickness - Average ASTM D5994 (76 mils to 84 mils) |
|---|---|---|---|---|---|---|---|
| 3322708s2-e0006803-001 | Pass | 271.50 | 420 | 4076.2 | 270.00 | 877.9 | 81.9 |
| 3322708s2-e0006803-002 | Pass | 272.50 | 420 | 4086.2 | 270.00 | 877.9 | 80.0 |
| 3322708s2-e0006803-003 | Pass | 271.50 | 420 | 4111.2 | 269.75 | 877.9 | 78.6 |
| 3322708s2-e0006803-004 | Pass | 271.50 | 420 | 4126.2 | 269.75 | 877.9 | 79.9 |
| 3322708s2-e0006803-005 | Pass | 271.50 | 420 | 4111.2 | 269.50 | 877.9 | 80.4 |
| 3322708s2-e0006803-006 | Pass | 271.50 | 420 | 4111.2 | 269.50 | 877.9 | 79.9 |
| 3322708s2-e0006803-007 | Pass | 271.50 | 420 | 4116.2 | 270.00 | 877.9 | 80.0 |

LAYFIELD Leaders in Film & Geosynthetic Technology

# Mill Certification Report

**Sales Order #** 325808
**Order Date** 10/24/2017
**Req Ship Date** 2/2/2018

**Customer Name** FG & RM - CP & EC EDMONTON

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LAYFIELD

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Inspection #** | 28984 | **Job** | E0006803 | **Status** | Active | **Result** | Pass |
| **Stock Code** | 3322708S2 | EL 4280 270" 80 MIL SE TEX-2 | | **Inspection Date** | 2/1/2018 | **Completion Date** | |

| Serial | Thickness - Minimum ASTM D5994 (68 mils to 84 mils) | Asperity - Printed Average ASTM D7466 (18 mils to 30 mils) | Asperity - Unprinted Average ASTM D7466 (18 mils to 30 mils) | Break Strength - MD Average ASTM D638 (120 lbs/in to 325 lbs/in) | Break Elongation - MD Average ASTM D638 (250 % to 1200 %) | Break Strength - TD Average ASTM D638 (120 lbs/in to 325 lbs/in) | Break Elongation - TD Average ASTM D638 (250 % to 1200 %) |
|---|---|---|---|---|---|---|---|
| 3322708s2-e0006803-001 | 69.00 | 24.3 | 29.4 | 274.4 | 591 | 292.0 | 559 |
| 3322708s2-e0006803-002 | 72.80 | 21.6 | 28.8 | 274.4 | 591 | 292.0 | 559 |
| 3322708s2-e0006803-003 | 77.10 | 25.7 | 24.5 | 274.4 | 591 | 292.0 | 559 |
| 3322708s2-e0006803-004 | 75.00 | 22.9 | 23.7 | 274.4 | 591 | 292.0 | 559 |
| 3322708s2-e0006803-005 | 76.00 | 20.9 | 22.5 | 274.4 | 591 | 292.0 | 559 |
| 3322708s2-e0006803-006 | 72.90 | 21.3 | 22.5 | 300.3 | 637 | 306.6 | 632 |
| 3322708s2-e0006803-007 | 76.00 | 22.0 | 23.3 | 300.3 | 637 | 306.6 | 632 |

LAYFIELD Leaders in Film & Geosynthetic Technology

# Mill Certification Report

**Sales Order #** 325808
**Order Date** 10/24/2017
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**Customer Name** FG & RM - CP & EC EDMONTON

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780-453-6731
LAYFIELD

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Inspection #** | 28984 | **Job** | E0006803 | **Status** | Active | **Result** | Pass |
| **Stock Code** | 3322708S2 | EL 4280 270" 80 MIL SE TEX-2 | | **Inspection Date** | 2/1/2018 | **Completion Date** | |

| Serial | Tear Strength - MD Average ASTM D1004 (44 lbs to 70 lbs) | Tear Strength - TD Average ASTM D1004 (44 lbs to 70 lbs) | Puncture Strength - Average ASTM D4833 (88 lbs to 170 lbs) | Density ASTM D1505 (0.925 g/cc to 0.939 g/cc) | Carbon Black Content ASTM D4218 (2 % to 3 %) | Carbon Black Dispersion ASTM D5596 | OIT - High Pressure ASTM D5885 |
|---|---|---|---|---|---|---|---|
| 3322708s2-e0006803-001 | 61 | 65 | 153 | 0.931 | 2.11 | >= 9 in Cat 1 or 2 | Pass > 400 mins |
| 3322708s2-e0006803-002 | 61 | 65 | 153 | 0.931 | 2.11 | >= 9 in Cat 1 or 2 | Pass > 400 mins |
| 3322708s2-e0006803-003 | 61 | 65 | 153 | 0.931 | 2.11 | >= 9 in Cat 1 or 2 | Pass > 400 mins |
| 3322708s2-e0006803-004 | 61 | 65 | 153 | 0.931 | 2.11 | >= 9 in Cat 1 or 2 | Pass > 400 mins |
| 3322708s2-e0006803-005 | 61 | 65 | 153 | 0.931 | 2.11 | >= 9 in Cat 1 or 2 | Pass > 400 mins |
| 3322708s2-e0006803-006 | 61 | 65 | 153 | 0.931 | 2.11 | >= 9 in Cat 1 or 2 | Pass > 400 mins |
| 3322708s2-e0006803-007 | 61 | 65 | 153 | 0.931 | 2.11 | >= 9 in Cat 1 or 2 | Pass > 400 mins |

# TECHNICAL DATA SHEET

## LLDPE Series, 2.00 mm

Black, Textured

2801 Marie-Victorin Blvd. Varennes, Quebec Canada J3X 1P7
Tel: (450) 929-1234 Sales: (450) 929-2544 Toll free in North America:1-800-571-3904 www.Solmax.com www.solmax.com

| PROPERTY | TEST METHOD | FREQUENCY[1] | UNIT Metric | 1007064 |
|---|---|---|---|---|
| **SPECIFICATIONS** | | | | |
| Nominal Thickness | - | - | mm | 2.00 |
| Thickness (min. avg.) | ASTM D-5994 | Every roll | mm | 1.90 |
| Lowest ind. for 8 out of 10 values | | | mm | 1.80 |
| Lowest ind. for 10 out of 10 values | | | mm | 1.70 |
| Asperity Height (min. avg.) (3) | ASTM D-7466 | Every roll | mm | 0.50 |
| Melt Index - 190/2.16 (max.) | ASTM D-1238 | 1/Batch | g/10 min | 1.0 |
| Sheet Density (8) | ASTM D-792 | Every 10 rolls | g/cc | ≤ 0.939 |
| Carbon Black Content (9) | ASTM D-4218 | Every 2 rolls | % | 2.0 - 3.0 |
| Carbon Black Dispersion | ASTM D-5596 | Every 10 rolls | Category | Cat. 1 / Cat. 2 |
| OIT - standard (avg.) | ASTM D-3895 | 1/Batch | min | 100 |
| Tensile Properties (min. avg) (2) | ASTM D-6693 | Every 2 rolls | | |
| Strength at Break | | | kN/m | 31 |
| Elongation at Break | | | % | 400 |
| 2% Modulus (max.) | ASTM D-5323 | Per formulation | kN/m | 840 |
| Tear Resistance (min. avg.) | ASTM D-1004 | Every 5 rolls | N | 220 |
| Puncture Resistance (min. avg.) | ASTM D-4833 | Every 5 rolls | N | 500 |
| Dimensional Stability | ASTM D-1204 | Certified | % | ± 2 |
| Multi-Axial Tensile (min.) | ASTM D-5617 | Per formulation | % | 30 |
| Oven Aging - % retained after 90 days | ASTM D-5721 | Per formulation | | |
| STD OIT (min. avg.) | ASTM D-3895 | | % | 35 |
| HP OIT (min. avg.) | ASTM D-5885 | | % | 60 |
| UV Res. - % retained after 1600 hr | ASTM D-7238 | Per formulation | | |
| HP-OIT (min. avg.) | ASTM D-5885 | | % | 35 |
| Low Temperature Brittleness | ASTM D-746 | Certified | °C | - 77 |
| **SUPPLY SPECIFICATIONS** (Roll dimensions may vary ±1%) | | | | |
| Roll Dimension - Width | - | | m | 6.80 |
| Roll Dimension - Length | - | | m | 121.9 |
| Area (Surface/Roll) | - | | m² | 828.9 |

## NOTES

1. Testing frequency based on standard roll dimension and one batch is approximately 180,000 lbs (or one railcar).
2. Machine Direction (MD) and Cross Machine Direction (XMD or TD) average values should be on the basis of 5 specimens each direction.
3. ASTM D7466 is identical to GRI-GM12.
8. Correlation table is available for ASTM D792 vs ASTM D1505. Both methods give the same results.
9. Correlation table is available for ASTM D1603 vs ASTM D4218. Both methods give the same results.

* All values are nominal test results, except when specified as minimum or maximum.
* The information contained herein is provided for reference purposes only and is not intended as a warranty of guarantee. Final determination of suitability for use contemplated is the sole responsability of the user. SOLMAX assumes no liability in connection with the use of this information.

Solmax is not a design professional and has not performed any design services to determine if Solmax's goods comply with any project plans or specifications, or with the application or use of Solmax's goods to any particular system, project, purpose, installation or specification.

# SKAPS INDUSTRIES, INC.

405 Hood Road
Lilburn GA 30047
Phone (770)564-1857


## Strata Gold Corporation-Eagle Gold Project-Event Pond

DRAINAGE PRODUCT DESCRIPTION SHEET

**TRANSNET 220-2-8**

Transnet 220-2-8 is a superior quality drainage media made by extruding two sets of HDPE strands together to form a diamond shaped net. The net is then heat laminated to an 8 ounce non-woven fabric. This three dimensional structure provides excellent planar liquid flow. The Transnet 220-2-8 conforms to the physical property values listed below:

| NET PROPERTY | TEST METHOD | UNITS | MINIMUM AVERAGE ROLL VALUE |
|---|---|---|---|
| Thickness | ASTM D-5199 | mm | 5.0 |
| Density of Polymer | ASTM D-1505 | $g/cm^2$ | 0.94 |
| Carbon Black | ASTM D-1603 | % | 2 |
| Transmissivity (Geonet) | ASTM D-4716 | $m^2/s$ | $1 \times 10^{-3}$* |
| Tensile Strength | ASTM D-5035 | N/mm | 7.9 |
| Melt Flow Index | ASTM D-1238 | g/10min | 1(max) |
| Ply Adhesion | ASTM D-7005 | g/cm | 89 |

*Transmissivity measured using water at 20 Degrees C with a gradient of 0.1, between 2 steel plates, under a confining pressure of 480kPa after fifteen minutes. Values may vary based on dimension of the transmissivity specimen and specific laboratory.

**STYLE GE-180**

GE-180 is a superior quality, nonwoven geotextile produced by needlepunching together 100% polypropylene staple fibers in a random network to form a high strength dimensionally stable fabric. The polypropylene fibers are specially formulated to resist ultraviolet light deterioration, and are inert to commonly encountered soil chemicals. The fabric will not mildew, is non-biodegradable, and is resistant to damage from insects and rodents. Polypropylene is stable within a ph range of 2 to 13. GE180 conforms to the physical property values below:

| FABRIC PROPERTY | TEST METHOD | UNITS | MINIMUM AVERAGE ROLL VALUE |
|---|---|---|---|
| Weight | ASTM D-5261 | $g/m^2$ | 270 |
| Grab Tensile | ASTM D-4632 | N | 975 |
| Grab Elongation | ASTM D-4632 | % | 50 |
| CBR Puncture | ASTM D-6241 | N | 2,557 |
| Water Flow Rate | ATMD D-4491 | $l/min/m^2$ | 3,865 |
| Permittivity | ATMD D-4491 | $sec^{-1}$ | 1.26 |
| UV Resistance | ASTM D-4355 | % | 70@500hrs. |

*At time of manufacturing. Handling may change these properties.


To the best of our knowledge the information contained herein is accurate. However, ESP, Inc. cannot anticipate all conditions under which ESP's product information and our products, or the products of other manufacturers in combination with our products, may be used. We accept no responsibility for results obtained by the application of this information or the safety or suitability of our products either alone or in combination with other products. Final determination of the suitability of any information or material for the use contemplated, of its manner of use, and whether the suggested use infringes any patents is the sole responsibility of the user.

# SKAPS INDUSTRIES, INC.

405 Hood Road
Lilburn GA 30047
Phone (770)564-1857


## Strata Gold Corporation-Eagle Gold Project-In Heap Pond

DRAINAGE PRODUCT DESCRIPTION SHEET

**TRANSNET 350-2-8**

Transnet 330-2-8 is a superior quality drainage media made by extruding two sets of HDPE strands together to form a diamond shaped net. The net is then heat laminated to an 8 ounce non-woven fabric. This three dimensional structure provides excellent planar liquid flow. The Transnet 350-2-8 conforms to the physical property values listed below:

| NET PROPERTY | TEST METHOD | UNITS | MINIMUM AVERAGE ROLL VALUE |
|---|---|---|---|
| Thickness | ASTM D-5199 | mm | 8.4 |
| Density of Polymer | ASTM D-1505 | $g/cm^2$ | 0.94 |
| Carbon Black | ASTM D-1603 | % | 2 |
| Transmissivity (Geonet) | ASTM D-4716 | $m^2/s$ | $6 \times 10^{-3}$* |
| Tensile Strength | ASTM D-5035 | N/mm | 17.5 |
| Melt Flow Index | ASTM D-1238 | g/10min | 1(max) |
| Ply Adhesion | ASTM D-7005 | g/cm | 89 |

*Transmissivity measured using water at 20 Degrees C with a gradient of 0.1, between 2 steel plates, under a confining pressure of 480kPa after fifteen minutes. Values may vary based on dimension of the transmissivity specimen and specific laboratory.

**STYLE GE-180**

GE-180 is a superior quality, nonwoven geotextile produced by needlepunching together 100% polypropylene staple fibers in a random network to form a high strength dimensionally stable fabric. The polypropylene fibers are specially formulated to resist ultraviolet light deterioration, and are inert to commonly encountered soil chemicals. The fabric will not mildew, is non-biodegradable, and is resistant to damage from insects and rodents. Polypropylene is stable within a ph range of 2 to 13. GE180 conforms to the physical property values below:

| FABRIC PROPERTY | TEST METHOD | UNITS | MINIMUM AVERAGE ROLL VALUE |
|---|---|---|---|
| Weight | ASTM D-5261 | $g/m^2$ | 270 |
| Grab Tensile | ASTM D-4632 | N | 975 |
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| Permittivity | ATMD D-4491 | $sec^{-1}$ | 1.26 |
| UV Resistance | ASTM D-4355 | % | 70@500hrs. |

*At time of manufacturing. Handling may change these properties.


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BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

# Field Memo
# BGC-FM-003

| | | | |
|---|---|---|---|
| **To:** | **JDS** | **Project:** | **Eagle Gold HLF** |
| **Company:** | **BGC Engineering** | **Project No.** | **0792021** |
| **From:** | **Elliot R. Matthews** | **Date:** | **June 21, 2018** |
| **Copied:** | **Troy Meyer, Daniel Granda, Roy Morlan** | **Record:** | **BGC-FM-003** |

**Re: HDPE Pipe Leak Test**

## 1.0 INTRODUCTION

The purpose of this memo is to provide a summary of the pipe testing observations made by BGC Engineering (BGC) during Pelly Constructions (Pelly) testing of the HDPE SDR 17 portion of the Closure Pipe to be used between stations 0+29.3 to 1+81.4. Pelly performed pressure testing on June 16th, 2018 between 11:30 HRS and 17:35 HRS based on ASTM F2164-13.

## 2.0 OBSERVATIONS AND RESULTS

Pelly provided a description of the test procedure and testing equipment components, which can be viewed in the attached memo from Pelly (Attachment 1).

BGC observed the HDPE pipe test throughout the time of testing. Pressure was checked by Pelly using a regulator attached to one end of the pipe. Photos were taken by BGC of each of the 9 butt-fused pipe joints at regular intervals in addition to the flange-pipe connections at the ends of the pipe (Attachment 2).

The test was started early in the morning following a night of light rain. The pipe at the start of the test was wet on the outside from the overnight rain. The pipe gradually dried during the test, assisting in potential leak detection. BGC observed that pressure within the pipe was stable through the duration of the test with fluctuations ranging between 0 and 5 psi. A summary of BGC's observations for each regular check interval can be viewed in the attachments (Attachment 3).

## 3.0 CONCLUSIONS

Pelly reported that the pipe passed the pressure test. BGC's observations confirm this. BGC's observations also confirm that Pelly followed the ASTM standard being used for the pipe test. Visual inspection of the pipe did not indicate the presence of air or water leaks. BGC attributed

the slight fluctuation in psi to compressor variation and regulator performance, not to a leak along butt-fused pipe joints.

## 4.0 CLOSURE

BGC Engineering Inc. (BGC) prepared this document for the account of JDS. The material in it reflects the judgment of BGC staff in light of the information available to BGC at the time of document preparation. Any use which a third party makes of this document or any reliance on decisions to be based on it is the responsibility of such third parties. BGC accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this document.

As a mutual protection to our client, the public, and ourselves, all documents and drawings are submitted for the confidential information of our client for a specific project. Authorization for any use and/or publication of this document or any data, statements, conclusions or abstracts from or regarding our documents and drawings, through any form of print or electronic media, including without limitation, posting or reproduction of same on any website, is reserved pending BGC's written approval. If this document is issued in an electronic format, an original paper copy is on file at BGC and that copy is the primary reference with precedence over any electronic copy of the document, or any extracts from our documents published by others.

Yours sincerely,

**BGC ENGINEERING INC.**
**per:**

Elliot Matthews, E.I.T.(BC)

Geotechnical Engineer

# Attachment 1

| | | | |
|---|---|---|---|
| **Work Plan:** | HLF Embankment Underdrain Pipe Leak Test | **Revision:** | 0 |
| **Location:** | HLF Embankment approx. 1.5km Dublin Road | **Date:** | 2018-06-20 |

## OBJECTIVE

The objective of this CWP is to outline the procedure and provide results of a leak test to be completed on the underdrain pipe(s) to be installed within the HLF Embankment in Response to BGC RFI-004.

## SUMMARY

The scope of work includes:

1. Test pipe for leaks following guidelines outlined in ASTM F2164-13
2. Monitor and record test results
3. Approval of tested pipe

## SAFETY

| Potential Hazard | Precautions and Actions |
|---|---|
| Outlined in attached JHA | Job Hazard assessment completed for work to be done |

## SCOPE OF WORK

| Description | |
|---|---|
| 1. <u>Test pipe for leaks</u><br><br>**Test Pipe:** The test pipe will consist of approx. 150m length of HDPE SDR 17 pipe to be used as the closure pipe between station 0+29.3 (upstream vault contact) and 1+81.4 SDR 17 to SDR 11 connection as per drawing EGHLF-XD-03-05.<br><br>• Pipe leak test will be completed guided by procedures and safety precautions included in ASTM F2164-13 (attached). Most recently fused pipe will be selected as a spot test to prove quality of welds and free of any leaks. In the event that the selected pipe fails the procedure, all pipes will then have to be tested as quality assurance.<br><br>**Procedure:**<br>• Flanges will be fused onto the selected pipe consisting of a cap and gasket to seal pressure at one end and introduce water and pressure into the other end.<br>• The pipe will be placed into a confining ditch where all welds in question are visible. Pipe will be placed in a constant graded position to minimize undulations and air pockets.<br>• The pipe will be filled with water to capacity.<br>• Pneumatic pressure will be introduced into the pipe in stages of 20 – 30 psi up 100 psi agreed upon by BGC representative. Each stage must sustain constant pressure for 15 minutes while remaining free of any leaks.<br>• The pipe will be required to sustain 100 psi of constant pressure and be | |

| | | |
|---|---|---|
| StrataGold Corporation | Pelly Construction Ltd. | JDS Energy & Mining Inc. |

| | | | |
|---|---|---|---|
| **Work Plan:** | HLF Embankment Underdrain Pipe Leak Test | **Revision:** | 0 |
| **Location:** | HLF Embankment approx. 1.5km Dublin Road | **Date:** | 2018-06-20 |

| Description | |
|---|---|
| free of any leaks for a period of 4 hours.<br>• Pressure will be reduced to a constant pressure of 90 psi for 1 hour while remaining free of any leaks.<br>• Pipe to be drained of water and marked as the tested pipe to be used as the closure pipe during construction. | |
| 2. **Monitor and record test results:**<br>• Pressure was introduced into pipe in stages up 100 psi remaining free of any leaks<br>• Pipe sustained 100 psi of constant pressure for 4 hours while remaining free of any leaks<br>• Pressure was reduced and pipe sustained 90 psi of constant pressure for 1 hour while remaining free of any leaks | Pelly BGC<br>D.S<br>D.S<br>D.S |
| 3. **Approval of tested pipe:**<br>• Approved tested pipe has been flagged to be used as the closure pipe during HLF Embankment Underdrain Construction<br>**Signatures of Approval:**<br>Roy Morlan<br>Senior Engineering Geologist/Geotechnical Engineer<br>BGC | **Date**<br>**Signature** |

Pelly Construction Ltd.

# JOB HAZARD ASSESSMENT # 013

## Project #2017-1 Victoria Gold

**Work to be completed: Pressure Testing** **Date: June 16 2018**

**Task Location: Event Pond Road** **Emergency Meeting Location:**

**Required Personal Protective Equipment: Standard; Steel-toed boots, high vis vest, safety glasses, gloves, long sleeves**

| STEP | TASK DESCRIPTION | HAZARD | CONTROLS |
|---|---|---|---|
| 1: | Fill pipe with water then pressurize with compressed air to 100psi | Possible chance of blowing water seal gaskets, black pipe fittings, air regulator components | Visual Inspections while slowly pressurizing pipe. Keeping a safe distance away from areas described as hazards. Wear all appropriate PPE. 2 people doing visual inspections at either end of the pipe while being pressurized.<br>2 way radios for guys doing the inspections as well as the person pressurizing the pipe. No one should have contact with the pipe as its being pressurized. |
| 2: | | | |
| 3: | | | |
| 4: | | | |
| 5: | | | |

**WORKERS HAVE THE RIGHT TO REFUSE UNSAFE WORK**

Pelly Construction Ltd.

**WORKERS HAVE THE RIGHT TO REFUSE UNSAFE WORK**

Please print and sign below (*all members of the crew*) prior to commencing work

Workers Name and Signature (below)

Foreman's Name and Signature: GREG COPP

DEAN SERELO

Jordan Jordan (Pelly Safety)

Elliot Matthews Elliot Matthews

Raymond Bergsma Raymond Bergsma

Clayton Johnson

Albert Seychew

Dominic Korn

Ron Morlan

**Job Completion**

Was this area cleaned up at the end of the job/shift? Yes ✓ No___

Were there any incidents/injuries? Yes___ No ✓ If yes, please explain: _____

Reviewed by: T Jewell Signature: T Jewell Date: _____

This international standard was developed in accordance with internationally recognized principles on standardization established in the Decision on Principles for the Development of International Standards, Guides and Recommendations issued by the World Trade Organization Technical Barriers to Trade (TBT) Committee.

Designation: F2164 – 13

# Standard Practice for Field Leak Testing of Polyethylene (PE) and Crosslinked Polyethylene (PEX) Pressure Piping Systems Using Hydrostatic Pressure[1]

This standard is issued under the fixed designation F2164; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon (ε) indicates an editorial change since the last revision or reapproval.

## 1. Scope*

1.1 This practice provides information on apparatus, safety, pre-test preparation, and procedures for conducting field tests of polyethylene and crosslinked polyethylene pressure piping systems by filling with a liquid and applying pressure to determine if leaks exist in the system.

1.2 This practice does not address leak testing using a pressurized gas (pneumatic testing). For safety reasons, some manufacturers prohibit or restrict pneumatic pressure testing of their products. Failure during a pressure leak test can be explosive, violent, and dangerous, especially if a compressed gas is used. In a compressed gas test, both the pressure stress on the system and the energy used to compress the gas are released at a failure. Contact component manufacturers for information about testing with gas under pressure.

1.3 This practice does not apply to leak testing of non-pressure, gravity-flow, negative pressure (vacuum), or non-thermoplastic piping systems. For field-testing of plastic gravity flow sewer lines, see Test Method F1417.

1.4 The values stated in inch-pound units are to be regarded as standard. The values given in parentheses are mathematical conversions to SI units that are provided for information only and are not considered standard.

1.5 *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.* Additional safety information is presented in Section 7 and throughout this standard.

## 2. Referenced Documents

2.1 *ASTM Standards:*[2]

D1600 Terminology for Abbreviated Terms Relating to Plastics

F412 Terminology Relating to Plastic Piping Systems

F1417 Practice for Installation Acceptance of Plastic Non-pressure Sewer Lines Using Low-Pressure Air

2.2 *Other Documents:*

PPI TR-4-PPI Listing of Hydrostatic Design Basis (HDB), Pressure Design Bases (PDB) and Minimum Required Strength (MRS) Ratings for Thermoplastic Piping Materials[3]

## 3. Terminology

3.1 Abbreviations and terms are in accordance with Terminology D1600 and Terminology F412 unless otherwise indicated.

3.2 *Definitions of Terms Specific to This Standard:*

3.2.1 *authority having jurisdiction, n*—the organization, office, or individual responsible for "approving" equipment and installation, or a procedure.

3.2.1.1 *Discussion*—The term "authority having jurisdiction" is used in this practice in a broad manner since jurisdictions and "approval" agencies vary, as do their responsibilities. Where public safety is concerned, the "authority having jurisdiction" may be a federal, state, local, or other regional department or individual such as a Fire Chief, Fire Marshall, chief of a fire prevention bureau, labor department, building official, or others having statutory authority. For insurance purposes, an insurance inspection department, rating bureau, or other insurance company representative may be the "authority

[1] This practice is under the jurisdiction of ASTM Committee F17 on Plastic Piping Systems and is the direct responsibility of Subcommittee F17.40 on Test Methods.

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[2] For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

[3] Available from Plastics Pipe Institute (PPI), 105 Decker Court, Suite 825, Irving, TX 75062, http://www.plasticpipe.org.

***A Summary of Changes section appears at the end of this standard**

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having jurisdiction." In many circumstances, the property owner or his authorized engineer or agent assumes the role of the "authority having jurisdiction"; at government installations, the commanding officer or departmental official may be the "authority having jurisdiction."

3.2.2 *approved, vt*—acceptable to the authority having jurisdiction.

3.2.3 *pressure piping system, n*—a piping system where all components in the system are pressure rated and intended for conveying a fluid under continuous internal pressure. (See also Terminology F412, *pressure pipe* and *non-pressure pipe*.) To verify suitability for pressure service, consult the component manufacturer.

NOTE 1—PPI TR-4 provides information about stress ratings for some plastic materials and products.

3.2.4 *restraint, n*—temporary or permanent structural measures or devices which restrict, guide, prevent, or safely limit disjoining or movement of piping system components while the system is under pressure during testing or service conditions. Restraint may include backfill, anchors, thrust blocks, external clamps and tie rods (joint restraints), pipe guides, and so forth. Restraint means that if violent separation or failure occurs during the test, any movement of components or parts is sufficiently constrained such that damage or injury is prevented.

3.2.5 *system design pressure, n*—the limiting continuous internal pressure specified by the piping system designer. System design pressure may be less than the pressure ratings of components in the system. System design pressure may be limited by component pressure ratings, by code or application requirements, or by other restrictions.

3.2.6 *visible leakage, n*—the visible escape (drip, spray, stream, flow, and so forth.) of test liquid from the test section through components, joints, connections, appurtenances, and the like in the test section.

## 4. Summary of Practice

4.1 The section of the piping system to be tested is isolated from other parts of the system and restrained against movement to prevent catastrophic failure. Components that are not to be subjected to test pressure or could be damaged by test pressure are isolated or removed as necessary. Isolated components are vented to atmosphere. The test section is filled with the testing liquid, raised to the test pressure, and allowed to stabilize. The system is inspected or monitored for leakage, and then test pressure is relieved. If repairs or corrections are necessary, they are performed only when the test section is depressurized. If necessary, a retest is performed after a relaxation period. At the conclusion of an acceptable test, the test section may be placed in service. Purging and disposal of the test liquid from the test section may be necessary.

4.2 Acceptance is determined by the approval of the authority having jurisdiction.

4.3 The authority having jurisdiction may specify procedures or requirements for test liquid disposal or erosion control.

## 5. Significance and Use

5.1 If required by the authority having jurisdiction, hydrostatic pressure leak testing may be conducted to discover and correct leaks or faults in a newly constructed or modified polyethylene or crosslinked polyethylene pressure piping system before placing the system in service. Leakage or faults usually occur at connections, joints, and mechanical seals where sealing under pressure is required. (**Warning**—Safety is of paramount importance when conducting hydrostatic pressure leak tests because testing under pressure may cause sudden violent rupture or failure.)

5.2 This practice uses a pressurized liquid to test for leaks. It does not verify if a piping material or a piping system design is suitable for pressure service. The suitability of a piping system for pressure service and its pressure rating or operating pressure is determined solely by its design and its installed components.

5.3 Systems that are not suitable for pressure testing should not be pressure tested. Such systems may contain lower pressure rated or non-pressure rated components that cannot be isolated from test pressure, or temporary caps or closures may not be practical. In these systems, leak inspections should be conducted during and after installation. Inspections typically include visual examination of joint appearance, mechanical checks of bolt or joint tightness, and other relevant examinations. See also Test Method F1417.

5.4 *Leakage Allowance*—There is no leakage allowance for a section of heat-fusion joined polyethylene piping, because properly made heat fusion joints do not leak. See 7.6.1.

5.4.1 Other types of joints or connections in the system may have a leakage allowance. Contact the joint or connection manufacturer for information.

5.5 *Expansion Allowance*—When test pressure is applied, polyethylene or crosslinked polyethylene pipe will expand slightly due to elasticity and Poisson effects. To compensate for expansion, make-up water is added during the initial expansion phase. The amount of make-up water (expansion allowance) will vary because expansion is not linear. This procedure compensates for expansion with an initial expansion phase, followed by a test phase. In the test phase, expansion is suspended by slightly reducing test pressure. See 9.6.

5.6 *Poisson Effect*—When test pressure is applied to plastic piping systems that have fully restrained joints (joints such as heat fusion, electrofusion, bolted flanges, and so forth.), diametrical expansion of the pipe may reduce the overall length of the fully restrained section. Poisson-effect length reduction may affect or cause disjoining in other contiguous sections that have partially restrained or non-restrained joints, such as bell-and-spigot joints, when such joints are in-line with the test section. To prevent Poisson-effect disjoining, take measures such as the installation of external joint restraints (diametrical clamps and tie-rods) on in-line non-restrained joints, installing in-line thrust anchors at the ends of the fully restrained section, or isolating the fully restrained test section from piping with non-restrained or partially restrained joints.

NOTE 2—When a tensile stress is applied to a material, it will elongate

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in the direction of the applied stress, and will decrease in dimension at right angles to the direction of the applied stress. The ratio of decrease to elongation is the Poisson ratio. Under test pressure, piping materials will expand slightly in diameter and contract in length slightly according to the Poisson ratio of the material.

## 6. Apparatus and Equipment for Hydrostatic Procedures

6.1 *General*—Components such as caps, valves, blind flanges, manual or automatic air release devices, vents, and other devices that are used to isolate the test section from other parts of the system, to purge air from the system, and to isolate components that are not to be subjected to test pressure are generally needed.

6.1.1 Test section isolation and closure components are to be rated for pressures equal to or greater than the test pressure applied to the test section.

6.1.2 Although section isolation and closure components may only be connected to the test section for the duration of the test, the joint between the test section and a closure or isolation component should be at least as strong as joints in the test section. Additional restraint may be required.

6.1.3 Air release devices should be located at all high points along the test section.

6.1.4 Excessively worn or deteriorated equipment is unsuitable and is not to be used.

6.2 *Test Liquid*—An adequate supply of a safe test liquid, such as water, is necessary. The test liquid should be of appropriate safety and quality so that the environment, system, test equipment, and disposal (if necessary) are not adversely affected.

6.2.1 Where an existing water supply is used to supply test water, protect the existing water supply from backflow contamination in accordance with local codes or as required by the authority having jurisdiction. Remove backflow protection and isolate the test section from the existing water supply before testing.

6.2.2 Excluding retesting (if necessary), the quantity of liquid needed to fill the internal volume of the pipe test section and accommodate test section expansion and possible leakage at non-fusion joints and seals is estimated using:

$$V_{gal} = 1.015 \times 0.04 \times (ID_{in.})^2 \times L_{ft} \quad (1)$$

$$V_{m^3} = 1.015 \times 0.785 \times 10^{-6} \times (ID_{mm})^2 \times L_m$$

where:

$V_{gal}$ = pipe section volume, U.S. gal,
$ID_{in.}$ = pipe inside diameter, in.,
$L_{ft}$ = test section length, ft,
$V_{m^3}$ = pipe section volume, $m^3$,
$ID_{mm}$ = pipe inside diameter, mm, and
$L_m$ = test section length, m.

6.3 *Filling and Pressurizing Equipment*—Liquid filling and pressurizing equipment such as pumps, and pressure regulating devices will usually be necessary. Filling equipment should be capable of filling the test section in a reasonable time against any elevation head pressure that may be present. Pressurizing equipment should be able to maintain the necessary test pressure in the test section and provide sufficient quantities of make-up test liquid for the duration of the test. Pressure regulating equipment should be capable of maintaining test pressure for the duration of the test.

6.3.1 Filling equipment and pressurizing equipment do not need to be the same equipment.

6.4 *Pressure Monitoring*—Use at least one calibrated pressure gage or sensor accurate to within two percent (2 %) of full scale. It is preferred that the gage or sensor full scale value not be more than twice the test pressure, and that scale graduations be no greater than two percent (2 %) of the full scale value. Using a valved tee, a gage cock for bleeding, a pressure snubber, and a duplicate, back-up pressure gage are recommended. A continuous pressure-recording device may be required.

6.4.1 Locate the test pressure gage or sensor to monitor test pressure at the lowest point in the test section. Pressure may be monitored at other points in the test section as well.

NOTE 3—Test pressure is a combination of pump pressure and the height (head) of liquid in the pipeline. Therefore, test pressure is always monitored at the lowest elevation point in the section where pressure is highest. Test pressure will be lower at higher points in the section. If a minimum test pressure at higher elevations must also be met, select test sections so that the minimum test pressure is met at the higher elevation, but do not increase test pressure at the lowest point. Excessive test pressure can cause damage or pipeline failure.

6.5 Other equipment to connect the pump(s) to the test section and the test liquid supply, control the flow of test liquid, power the pump(s), connect the pressure gage(s) or sensor(s) to the test section, monitor pressure, and drain or purge the test liquid from the test section may also be necessary.

## 7. Specific Safety Precautions

7.1 This specific safety information is in addition to the safety information in other sections of this practice.

7.2 Always take precautions to eliminate hazards to persons near lines being tested. For the entire duration of the procedure, including filling, initial pressurization, time at test pressure, and depressurization, only persons conducting the test or inspecting the system being tested should be allowed near the section under test. These persons should be fully informed of the hazards of field pressure testing. All other persons should be kept a safe distance away.

7.3 The test section is to be supervised at all times during pressure testing.

7.4 Failure may result in sudden, violent, uncontrolled, and dangerous movement of system piping, or components, or parts of components.

7.5 *Restraint Against Movement*—Take measures to ensure that all parts of the section under test are restrained against movement if failure occurs. Such measures may include backfilling, anchoring, or other appropriate means.

7.5.1 *Partial Backfilling During Testing*—When underground connections, joints, and seals are to be exposed for observation during the test, use sufficient backfill material placed between the joints, and over the pipe to prevent movement, giving due consideration to restraining thrust forces. In particular, pipes connected to restrained joints that

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derive their stability from the interaction of the pipe and soil are to be backfilled prior to testing.

7.6 Leakage usually occurs at a connection, joint, or seal in the system. Depending upon the type of connection, joint, or seal, leakage may be seepage, spray, or a stream of internal test liquid.

7.6.1 When properly made, heat fusion joints in polyethylene pipe are as strong as the pipe and do not leak. Leakage at a fusion joint indicates a faulty joint that may rupture completely at any time. If leakage is observed at a fusion joint, move away immediately, and depressurize the test section.

## 8. Pre-Test Preparation and Set-Up

8.1 *General:*

8.1.1 Before testing, heat fusion joints are to be completely cooled. Mechanical joints are to be completely assembled with all necessary seals and all fasteners installed and tightened.

8.1.2 Flushing, pigging, or other means of cleaning the system to remove dirt and debris that may damage valves, regulators, and so forth, may be required before testing.

8.1.3 Allow concrete supports and anchors in the test section to cure until they have developed sufficient strength to withstand test pressure thrust forces.

8.1.4 Restrain all parts of the test section against movement in the event of failure. Temporarily remove, restrain, or isolate expansion joints and expansion compensators before starting.

8.2 *Test Section*—Testing may be conducted on the entire system, or on sections of the system. Test section size is determined by the capacity of the filling and pressurizing equipment. It is necessary to fill, pressurize, and test the section within the allotted overall time for the test. Equipment that has inadequate capacity may not be able to complete the test within allowable testing time limits. If so, use higher capacity test equipment, or test a smaller (shorter) section of the system.

8.3 *Test Temperature*—Polyethylene and crosslinked polyethylene piping materials are typically pressure rated at 73°F (23°C). At higher temperatures, reduced pressure ratings and test pressures may be required. Contact pipe, fitting, or component manufacturers for assistance with elevated temperature pressure ratings.

8.4 *Maximum Test Pressure*—Maximum test pressure is designated by the authority having jurisdiction in accordance with 8.4.1 – 8.4.4.

8.4.1 The maximum test pressure for pressure-rated polyethylene or crosslinked polyethylene piping is not to exceed 1.5 × the system design pressure where lower pressure-rated components or devices are not present, or have been removed or isolated from the test section.

8.4.2 The maximum test pressure is not to exceed the pressure rating of the lowest pressure-rated component in the test section, where lower pressure-rated components or devices cannot be removed or isolated from the test section. Consult the component manufacturer for pressure ratings.

NOTE 4—Lower pressure-rated components or devices may include components or devices such as pipe or fittings made from other plastics or metals, or appurtenances such as valves, hydrants, regulators, pressure relief devices, or the like, or some types of mechanical connections such as lower pressure-rated compression couplings or flanges with lower pressure-rated back-up rings.

8.4.3 Do not use higher test pressure even though some components in the test section may have a higher pressure rating.

8.4.4 To determine the maximum test pressure at elevated temperature, apply an elevated temperature system design pressure reduction per 8.3.

8.5 *Test Duration*—Test duration is limited for safety reasons and to prevent damage to the system. Per 7.2 and 7.3, access to systems under test is controlled for the duration of the test.

8.5.1 When the maximum test pressure is between system design pressure and 1.5 × the system design pressure or at 1.5 × the system design pressure, total testing time including the time required to pressurize, stabilize, hold test pressure, and depressurize should not exceed 8 h.

8.5.1.1 If retesting is necessary, the test section should be depressurized for 8 h prior to retesting.

8.5.2 When the maximum test pressure is the system design pressure or less, the total test time including time required to pressurize, stabilize, hold test pressure, and depressurize should be limited to a practical time period. See 7.2 and 7.3. (A test time of about 72 h or less is suggested.)

8.5.3 Before pressure is applied, examine test equipment and all connections to and in the test section to ensure that all are in proper operating condition and tightly connected.

8.5.4 Before pressure is applied, isolated components or devices are to be vented to atmosphere.

8.5.5 Before pressure is applied, disconnect or isolate and vent all low pressure filling lines and other low pressure items.

## 9. Hydrostatic Test Procedure

9.1 Use appropriate apparatus per Section 6, and water or an appropriate test liquid per 6.2.

9.2 Observe all safety precautions and specific safety precautions per Section 7.

9.3 Prepare and set-up the test section for hydrostatic pressure leak testing per Section 8.

9.4 *Filling*—Fill the test section slowly. Purge all air. Take all appropriate precautions to ensure that no air is trapped in the test section. (**Warning**—Entrapped air can result in an explosive, violent, and dangerous catastrophic failure because both the pressure stress on piping and the energy used to compress the entrapped air are released.)

9.4.1 To allow air to escape from the test section, flow velocities during filling should not exceed the capacities of air release devices or other openings used to release entrapped air. To avoid or limit transient pressure surges, the filling flow velocity should not exceed the design velocity of the piping system.

9.5 *Temperature Equalization*—Allow the test section and the test liquid to equalize to a common temperature.

9.6 *Pressurizing—Initial Expansion Phase*—When the test section is completely filled and purged of air, gradually increase pressure in the test section to the required test pressure.

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9.6.1 If the test pressure cannot be attained, or if it takes an unreasonably long time to reach test pressure, there may be faults such as excessive leakage, entrapped air, or open valving, or the pressurizing equipment may be inadequate for the size of the test section. If such faults exist, discontinue pressurizing, and correct them before continuing.

9.6.2 Add make-up water as necessary to maintain maximum test pressure for 4 h.

9.7 *Test Phase*—Reduce test pressure by 10 psi (69.0 kPa) and monitor pressure for 1 h. Do not increase pressure or add make-up water.

9.8 *Pass/Fail Criteria*—If no visual leakage is observed, and pressure during the test phase remains steady (within 5 % of the test phase pressure) for the 1 h test phase period, a passing test is indicated.

9.9 *Retesting*—If retesting is necessary, depressurize the test section per 9.10 and correct any faults or leaks in the test section. Do not attempt to correct faults or fix leaks while the test section is under pressure.

9.9.1 When maximum test pressure is between system design pressure and 1.5 × system design pressure or at 1.5 × the system design pressure, allow the test section to "relax" for at least 8 h before re-pressurizing. After the relaxation period, repeat the initial expansion and test phases per 9.6 and 9.7.

9.10 *Depressurization*—Depressurize the test section by reducing pressure or releasing test liquid at a controlled rate. Sudden depressurization can cause water hammer.

9.11 *After the Test*—Remove temporary closure and isolation devices from the test section. Depending upon the application, flushing, disinfecting, or draining may be necessary. Regulations and codes may restrict or require specific procedures for some post-test procedures such as test liquid draining and disposal.

## 10. Test Records

10.1 Information about the leak test may need to be recorded if required by the authority having jurisdiction. Documentation may include the following information:

10.1.1 The test liquid.

10.1.1.1 Backflow prevention devices, if used.

10.1.2 The weather conditions and ambient temperature at the site during the test.

10.1.3 The test pressure.

10.1.3.1 The type of test gages in the test section.

10.1.3.2 The placement of test gages in the test section, such as test gage location distances and elevations from the beginning of the section.

10.1.3.3 Test gage calibration records.

10.1.3.4 Test pressures recorded during the test.

10.1.3.5 Any adjustments made to test pressure for elevated temperature.

10.1.4 The test duration.

10.1.5 A description of the test section length, elevations, and site location.

10.1.6 A description of the test section components.

10.1.7 Description of any leaks or failures and the corrective actions taken.

10.1.8 The date and time of day of the test.

10.1.9 The identification of the party conducting the test.

## 11. Keywords

11.1 crosslinked polyethylene; field leak test; hydrostatic leak test; leak test; polyethylene pipe

## SUMMARY OF CHANGES

Committee F17 has identified the location of selected changes to this standard since the last issue (F2164–10$^{\varepsilon 1}$) that may impact the use of this standard.

*(1)* Title was revised.
*(2)* 1.1 was revised.
*(3)* 5.1 was revised.
*(4)* 5.5 was revised.
*(5)* 8.3 was revised.
*(6)* 8.4.1 was revised.
*(7)* Section 11 was revised.

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# Attachment 2



**Photo 1.**
**Flange Close-up**

Close-up of uphill end-flange with capped valve and regulator.




**Photo 2.**
**Regulator Pressure Gauge Close-up**

Close-up of the regulator dial indicating the various units of pressure and measurement ticks.



**Photo 3.**
**Pelly Monitors Pressure**

Photo fo Pelly laborer adjusting the pressure regulator and monitoring the pressure gauge during pipe leak tests.



**Photo 4.**
**Uphill Looking Downhill Along Pipe**

Photo taken looking downhill from the uphilll (monitoring location) end of the pipe.



**Photo 5.**
**BGC QA Inspection**

Photo of Roy inspecting the pipe during the pre-test portion of pipe leak testing.



**Photo 6.**
**Joint 1- Beginning of Test**

Photo taken of Joint 1 (numbered from the uphill end) during the first regular check of the pipe leak test.



**Photo 7.**
**Joint 1- End of Test**

Photo taken of Joint 1 (numbered from the uphill end) during the last regular check of the pipe leak test.



**Photo 8.**
**Pipe End Flange**

Downhill end flange of the pipe test system. Photo taken at end the end of the pipe leak test.



**Photo 9.**
**Pelly Monitors Pipe Leak Test**

Looking downslope from the regulator (uphill) end of the pipe.

# Attachment 3

Day 9 | 1 | Saturday 6/16/2018

# Uphill Pressure Tests

| | ① 100% | ② 90% | Observations |
|---|---|---|---|
| 1 | | | Correct Pressure Y/N |
| | ✓ | ✓ | Correct Time ... 4 hr, 1 hr Y/N |
| 2 | | | Leaks? Y/N @ 25% -10 PSI |
| | ✓ | ✓ | 74 m = 105 PSI (4 hrs) + 25% = 132 |
| 3 | | | -10 PSI = (122 PSI (1 hr) |
| | ✓ | ✓ | |
| 4 | | | Stages / Time |
| | ✓ | ✓ | ① 30 PSI, 15 minutes / 11:30 |
| 5 | | | ② 50 PSI, 15 / 11:55 |
| | ✓ | ✓ | ③ 80 PSI, 15 / 12:10 |
| 6 | | | ④ 100 PSI, 4 hrs / 12:25 |
| | ✓ | ✓ | ⑤ 90 PSI, 1 hrs / 16:30 |
| 7 | | | |
| | ✓ | ✓ | Results / Pass / Photos |
| 8 | | | ① Start PSI - 30 ✓ (Y) |
| | ✓ | ✓ | End PSI - 30 |
| 9 | | | ② Start PSI - 50 ✓ (N) |
| | ✓ | ✓ | End PSI - 52 |
| 10 | | | ③ Start PSI - 80 ✓ (Y) |
| | ✓ | ✓ | END PSI - 75 |
| Notes | | | ④ Start PSI - 100 ✓ (Y) |
| | | | END PSI - 100 |
| | | | ⑤ Start PSI - 90 ✓ (Y) |
| | | | End PSI - 90 |

Downhill

FIELD

R. D. PENHALL LTD. MADE IN VANCOUVER, CANADA DUKSBAK WATERPROOF

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Day 9 | 1 | Saturday 6/16/2018

7:00 – start in office

8:20 – arrive @ site prep for pipe test

8:30 start stage 1, water valve is starting to leak,
↳ Put on hold until cap added @ 8:45
↳ 9:20 new valve failed, on hold again

10:40 → Troy arrives, walk trench, point out seeps

11:30 → called to test pipe

11:30 Start Test,

| 4hr Test | PSI | Photos |
|---|---|---|
| 1 hr | 100 | ✓ |
| 2 hr | 101 | ✓ |
| 3 hr | 101 | ✓ |
| 4 hr | 100 | X |

| ¼ hr | Test | |
|---|---|---|
| 1 hr | 90 | ✓ |

17:35 End Test

17:40 Move to embankment toe, prep for leveling & side compaction

18:10 begin

19:00 return to office, area partly placed & compacted

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# Construction Tracking Field Memorandum CTFM-02

| | | | |
|---|---|---|---|
| **Client:** | **Victoria Gold Corp** | **Project:** | **Eagle Gold Construction Support** |
| **EPCM:** | **JDS** | **Project No.** | **0792021** |
| **From:** | **Roy Morlan** | **Date:** | **June 30, 2018** |
| **Copied:** | **Troy Meyer; Dan Granda** | **Record:** | **CTFM-02** |

**Re: Material 7 Test Fill 01**

## 1.0 INTRODUCTION AND OBJECTIVE

On June 30, 2018 BGC developed and oversaw a test fill to evaluate the engineering properties of Material 7 – Compacted Rockfill for use in the embankment construction. The rockfill was generated from the ADR excavation mostly from ripping and blasting bedrock.

## 2.0 TEST FILL CONSTRUCTION AND EXECUTION

The test fill was performed on June 30, 2018. BGC's representative, Roy Morlan, developed the test fill and was present during the test fills execution. Material 7 – Rockfill was placed in 0.9m loose lifts. The test fills were constructed and survey control was provided by Pelly Construction. Material sampling and testing was performed by Tetra Tech. Water replacement density testing was overseen by BGC. The following sections discuss the execution of the test fill.

### 2.1. Test Fill Materials and Borrow Description

The rockfill used in the test fill was generated by Pelly construction as borrow from excavation of the ADR plant foundation. Gradation testing was performed on the finer (3" minus) fraction of the material by Tetra Tech. Mid-fraction material (3" to 8") was estimated by Tetra Tech by scalping this material from the 3" sample. Larger fraction (>8") was visually estimated. Moisture content for the finer fraction of material was analyzed by Tetra Tech. The results from this testing are included in ***Attachment 1***. The material generally consists of a well graded gravel and sand matrix with approximately 30% rocks greater than 8" and a maximum size of 23". Moisture content of the fine fraction was reported as 3.2 %.

The rock used in the test fill was derived from a mostly quartzite source, which is the predominant rock type at this borrow. The quartzite material properties are mostly fine grained, orange brown, some banding present, slightly weathered (W2), strong to very strong (R4 to R5), and hard (H3).

Although not used in the test fill, zones of a weaker phyllitic rock (potentially phyllite or phyllonite) are also present within this borrow. This material is platy, very fine grained (aphantic), micaceous, has a significant amount of graphite, is gray, slightly weathered (W2), with rock quality ranging from (R1 to R3), and varies from soft (H6) to moderate hard (H4). The general recommended approach will involve mixing the stronger quartzite rock with the weaker phyllitic rock to produce an acceptable material for embankment fill. Additional test fills will be necessary to evaluate rock fill with significant portions of phyllitic rock. Alternatively, the weaker phyllitic material could be sorted and used as Material 3 fill.

## 2.2. Test Fill Foundation

An area on top of the ADR Material 3 Stockpile was used as the test location because it was close to the source material and relatively traffic free (***Figure 1***). The test location was hard, dry and previously compacted by heavy equipment traffic. However, the location was not flat so a leveling pad was constructed for the test fill. The leveling pad was constructed with Material 7 rockfill placed in an approximately 0.5m lift and compacted using a CAT CS68 B vibratory compactor and 4 passes. (***Photo 1***). The final foundation was flat, dry, and dense. No deflection from roller passes was noted in the foundation after compaction.

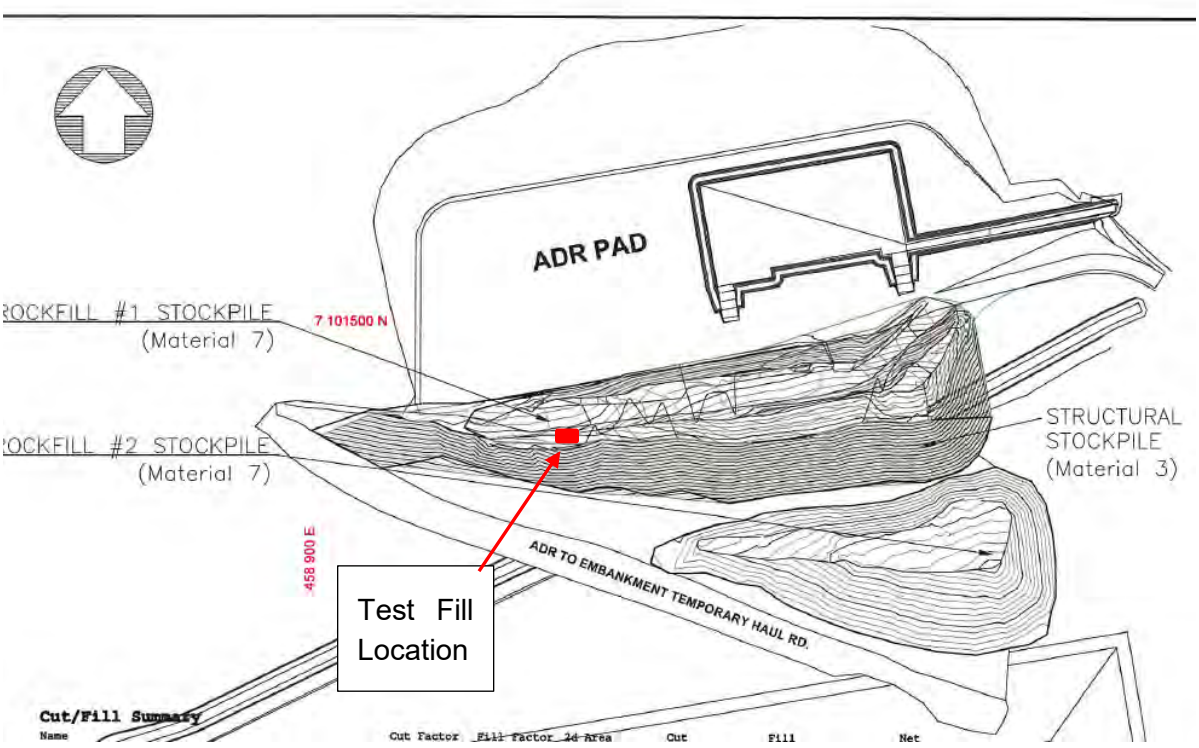


***Figure 1:*** Test Fill Location




***Photo 1:*** Construction of the test fill foundation leveling lift.

### 2.3. Test Fill Lift Placement

The test fill lift was placed by a Link Belt track mounted excavator directly from the stockpile. Material 7 – Test Fill 1 was placed in one 0.9 m loose lift. Lift thickness was measured by Pelly's surveyor using a mobile station. The test fill measured approximately 8m x 6m.

### 2.4. Moisture Conditioning

Moisture was not added to the material prior or during the test fill. However, moisture conditioning is generally encouraged during rock fill placement to facilitate compaction and will likely be necessary.

### 2.5. Compaction Testing and Settlement Surveying

To perform compaction tracking three steel plates were placed in a row down the center of the lift and used as a monitoring points (***Figure 2***). Initial survey of the settlement monitoring points was collected using a GPS surveying rod. The entire test fill surface was then compacted with one cycle (1 forward pass and 1 reverse pass) of a CAT CS68 B vibratory compactor with an effective

drum weight of 8,920 kg. After completion of one compaction cycle, settlement was measured at the settlement points. This compaction/survey procedure was repeated for 4 full compaction cycles.

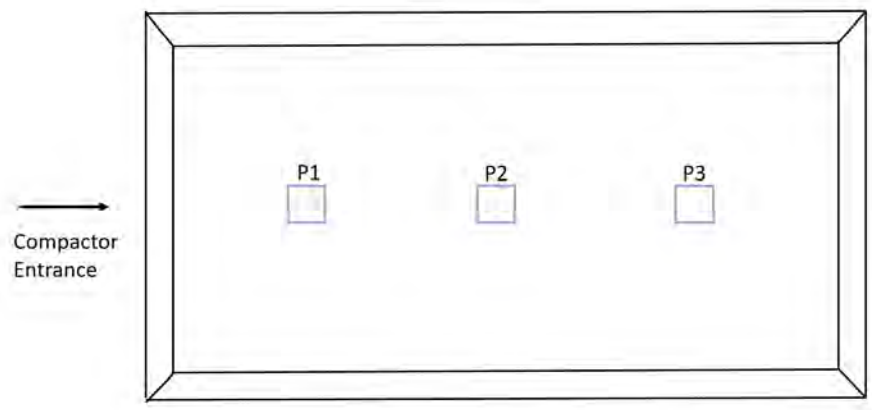


***Figure 1*****:** Approximation of test fill pad and survey points

Settlement data collected is included in ***Table 1***. A settlement graph is shown in ***Figure 3***.

| | Pre-Compaction | Pass 1 | Pass 2 | Pass 3 | Pass 4 |
|---|---|---|---|---|---|
| Survey Point 1 (P1) | 950.40 m | 950.37 m | 950.35 m | 950.33 m | 950.32 m |
| Survey Point 2 (P2) | 950.55 m | 950.46 m | 950.46 m | 950.43 m | 950.43 m |
| Survey Point 3 (P3) | 950.59 m | 950.49 m | 950.47 m | 950.46 m | 950.45 m |

***Table 1:*** Survey elevation data collected during settlement tracking.

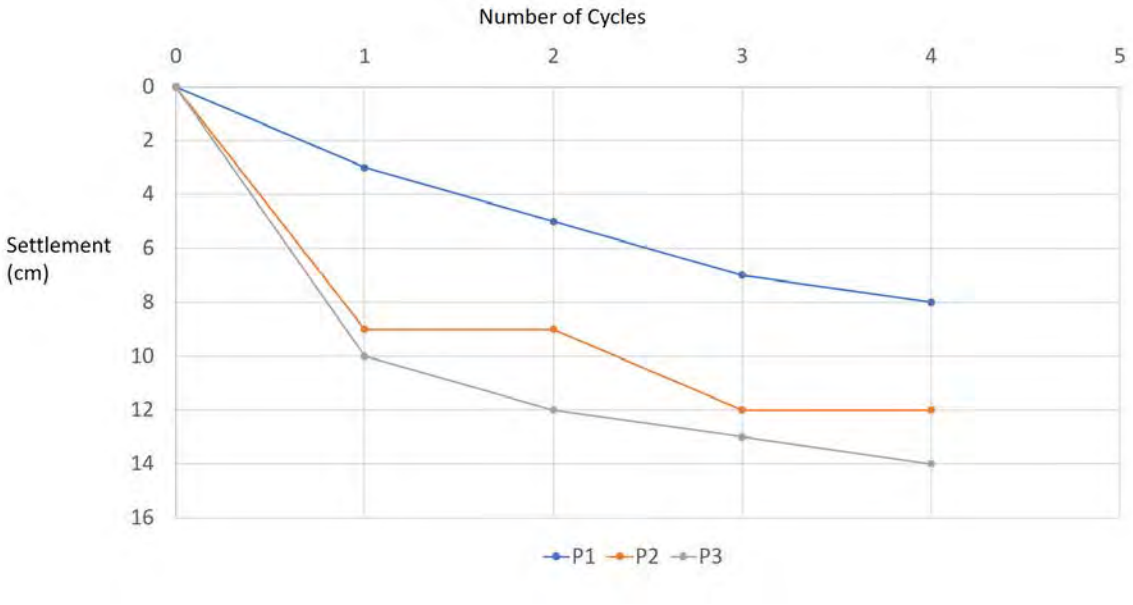


***Figure 3*:** Settlement recorded for each cycle.

## 2.6. In-situ Density and Moisture Testing

*In-situ density and moisture collected by Tetra Tech*

In-situ density and moisture testing was collected for reference by Tetra Tech using a nuclear density gauge. Results from nuclear density gauge testing on rockfill are known to be unreliable due to the presence of large, dense rocks and void spaces caused by displacement of rocks when hammering the steel rod. Therefore, these tests were performed for reference only. Water content was also analyzed by Tetra Tech in their field laboratory from a sample of the rockfill's finer material fraction (>3"). Density and moistures reported by Tetra Tech are included in ***Table 2***. Tetra Tech's data report for this testing is included in ***Attachment 1***.

| | Dry Density (kg/m$^3$) | Moisture (%) |
|---|---|---|
| Nuclear Gage Test 1 | 2224 | 4.6 |
| Nuclear Gage Test 2 | 2137 | 5.0 |
| Standard Lab Testing | NA | 3.2% |

***Table 2:*** Tetra Tech testing results

*Water Replacement Test*

A water replacement test was performed to determine the density of the compacted soil (***Photo 2 and 3***). A test pit was dug in the compacted lift. Material excavated from the pit was placed in three super sacks and weighed using Pelly's Terex Crane RT780 crane. The test pit was lined with 60 mil poly urethane liner and filled with water. The volume of water used was recorded and the density determined using the weight of the material excavated and the volume of the test pit.

The weight of the material was reported as 2,676 kg and volume of the test pit was determined to be 1.33 cubic meters. The density of the compacted rockfill was determined to be 2,012 kg/m$^3$ wet density and an estimated 1,965 kg/m$^3$ dry density assuming 70% rock smaller than 8".



***Photo 2***: Volume determination using water.



***Photo 3***: Super sacks with material excavated for the water replacement test.

## 2.7. Field Testing Observational

Little surface yield was observed in the lifts after the initial compaction pass. Excavations through the compacted material lifts revealed a well compacted, well graded matrix with little void space. Moisture within the lift was spread evenly. Rock was predominantly supported by the sandy gravel matrix. No material degradation or pulverization was observed. (***Photo 4***)



***Photo 4***: Compacted rockfill observed in the test fill trench cut.

## 3.0 CONCLUSIONS

The results of the test fill indicate that the rockfill produced from a mostly quartzite source at the ADR borrow can achieve sufficient compaction with a minimum of 4 cycles (1 forward and 1 reverse pass per cycle) of a minimum 9,000 kg compactor with vibration, and in lifts of up to 0.90m. These results were obtained with a stockpile moisture of 3.2% within the fill's fine fraction matrix.

BGC recommends that this criteria be used for placement and compaction of the rockfill within the embankment. If rock size and/or rock type, or general gradation varies significantly within this material an additional test fill will be required. If moisture content of the rockfill is below 3.2 % the Engineer may require additional moisture to be added before placement. Overly wet material may require the removal of moisture before placement. The Engineer will inspect the rockfill material during borrowing or placement to make these determinations.

As the rockfill generated from the ADR borrow area is variable due to the presence of weaker zones of phyllitic material, BGC recommends that the above criteria be used on rockfill produced from the zones of harder quartzite formations, which are more predominant at this borrow. Small zones of phyllitic material should be blended within the quartzite rockfill before use. Phyllitic material should not be allowed to be placed in a manner that would create lifts or zones within a lift composed of predominately weaker phyllitic material. Since these zones are more prone to material breakdown and develop a finer matrix they may be sorted and re-stockpiled for use as Material 3 – Structural Fill. A sperate test fill should be performed to determine if these phyllitic materials can be used as the predominant component of a Material 7 lift.

**Attachments:**

Attachment 1 – Tetra Tech Test Reports

Attachment 2 – CAT CS64 B Specification Sheet.

# ATTACHMENT 1

# MOISTURE CONTENT TEST RESULTS

ASTM D2216

| | | | |
|---|---|---|---|
| Project: | Eagle Gold Project | Sample No.: | SA1 |
| Project No.: | 704-WARC03235-01 | Date Tested: | June 29, 2018 |
| Client: | JDS/BGC | Tested By: | JB |
| Address: | Roy Morlan | Page: | 1 of 1 |

| B.H. Number | Sample Number | Moisture Content (%) | Visual Description of Soil |
|---|---|---|---|
| N/A | SA1 | 3.2 | Blasted Quartz Bedrock |
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**Reviewed By:** _____ C.E.T.

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TETRA TECH

# COMPACTION DENSITY TEST SUMMARY REPORT

ASTM Designation D6938

**Project:** Eagle Gold Project | **Test Apparatus:** Nuclear | **Troxler No:** 60841

QC Inspection & Testing | **Specified Compaction:** 98 % Std. Proctor Max. Dry Density

**Project No.:** WARC.03235-05 | **Specified Moisture** (MC)**:** As Below

**Client:** JDS Energy & Mining/BGC | **Temperature** **Air:** 14 ºC **Soil:** ºC

**Attention:** R.Morlan/D. Granda | **Date Tested:** 2018-06-29 **By:** J. Buyck

**Contractor:** Pelly Construction | **Construction Period:** DAYSHIFT

**Soil Description:** Test Pad - Rock Fill Type 7 (Blasted Quartz)

**Material Usage/Zone:** Method Spec Test Pad near ADR Plant

| **Date** yyyy/mm/dd | **Test No.** / Probe (mm) | **Location:** | Depth to Grade (m) | Dry Density (kg/m³ ) | MC % | Max. Dry Density (kg/m³ ) | Opt. MC % | Comp % SPD |
|---|---|---|---|---|---|---|---|---|
| 2018-06-29 | **1** / 300 | Method Spec Test 1 - surface of test fill | Gr | 2224 | 4.6 | See remarks | | |
| 2018-06-29 | **2** / 300 | Method Spec Test 2 - surface of test fill rotated 180 degrees | Gr | 2045 | 6.3 | | | |
| 1900-01-00 | **3** / 300 | Method Spec Test 1 - surface of test fill | 0.5 | 2137 | 5.0 | | | |
| 1900-01-00 | **4** / 300 | Method Spec Test 2 - surface of test fill rotated 180 degrees | 0.5 | 2138 | 4.5 | | | |
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**Remarks:** Densities provided under supervision of Roy Morlan. The results were found to be inconsistent due to coarseness of the Type 7 rock fill material.

**Copies:**

**Reviewed By:** _____ C.E.T.

Data presented hereon is for the sole use of the stipulated client. Tetra Tech EBA is not responsible, nor can be held liable, for use made of this report by any other party, with or without the knowledge of Tetra Tech EBA. The testing services reported herein have been performed to recognized industry standards, unless noted. No other warranty is made. These data do not include or represent any interpretation or opinion of specification compliance or material suitability. Should engineering interpretation be required, Tetra Tech EBA will provide it upon written request.

TETRA TECH

# ATTACHMENT 2

# B-Series
# CS

## Smooth Drum
## Vibratory Soil Compactors



### Comfort to Operate with Confidence

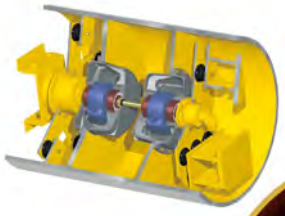
- NEW • *Comfortable redesigned cab with best-in-class climate control, multi-position windows*
- NEW • *Control console and display are integrated with pivoting seat* (optional deluxe cloth seat available)*
- NEW • *Display provides instrumentation data and diagnostics at a glance**
- *Exceptional visibility to tires and drum edge*
- NEW – *Larger mirrors for enhanced rear visibility*
- NEW – *Narrower rear frame*
- NEW • *Optional light package upgrade provides four additional lights for excellent low light visibility*

### Do More

- NEW • *Exclusive Cat® dual pump propel system with electronic control† provides:*
  - *– Exceptional traction and gradeability*
  - *– Plenty of power for leveling blade*
- *Optional equipment:*
  - *– Leveling blade*
  - *– Oval pad or square pad shell kit*

### Work Smarter with Optional Compaction Measurement Technology

- NEW • *Cat Compaction Control*
  - *– Factory installed, dealer supported; integrated with machine for better protection from theft, vandalism*
  - *– Two sensor options available:*
    - NEW *- Machine Drive Power (MDP): exclusive Cat technology, rolling resistance-based*
    - *- Compaction Meter Value (CMV), accelerometer-based*
  - *– Mapping/Positioning option*
    - *- SBAS GNSS; upgradeable to RTK*
    - *- Includes seperate display, GNSS antenna*



Cat® Pod-style Vibratory System







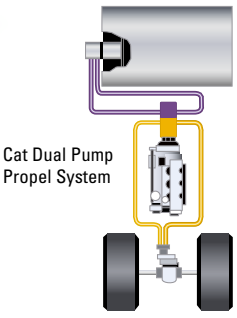
Cat Compaction Control with GNSS Mapping (SBAS)

### Achieve Quality Compaction Faster

- *Enhanced compaction force*
- NEW – *More weight at the drum*
- NEW – *Best-in-class amplitude*
- NEW • *Enhanced propel system with electronic control for better performance†*
- NEW • *Standard technology automates functions that enable high quality and uniformity:*
  - *– Automatic Speed Control†*
  - *– Auto-vibe*

### Best Value Available

- *Designed for easy maintenance, long service intervals*
- *High reliablity due to robust design*
- *Powerful and efficient engine*
  - *– Meets emissions standards where applicable*
  - NEW *– Reduces fuel burn when Eco-mode is used*
  - *– Self-monitors and alerts operator to abnormal engine performance*
- *Highest resale value in the industry*



Cat Dual Pump Propel System

* In some markets, this feature available as an option on the CS54B.
† In some markets, this feature not available on the CS54B.

## B-Series: CS Vibratory Soil Compactor Specifications

| Model* | Operating Weight** | Weight at Drum | Drum Width | Engine† | Rated Power† |
|---|---|---|---|---|---|
| CS54B | 10 555 kg (23,265 lb) | 5880 kg (12,959 lb) | 2130 mm (84") | C4.4 with ACERT | 98 kW (131 hp) |
| CS56B | 11 500 kg (25,346 lb) | 6350 kg (13,990 lb) | 2130 mm (84") | C4.4 with ACERT | 117 kW (157 hp) |
| CS64B | 12 055 kg (26,569 lb) | 7120 kg (15,690 lb) | 2130 mm (84") | C4.4 with ACERT | 98 kW (131 hp)) |
| CS66B | 12 360 kg (27,245 lb) | 7355 kg (16,214 lb) | 2130 mm (84") | C4.4 with ACERT | 117 kW (157 hp) |
| CS68B | 14 325 kg (31,572 lb) | 9150 kg (20,164 lb) | 2130 mm (84") | C4.4 with ACERT | 117 kW (157 hp) |
| CS74B | 16 000 kg (35,264 lb) | 10 620 kg (23,410 lb) | 2130 mm (84") | C4.4 with ACERT | 129.5 kW (173.7 hp) |
| CS76B | 17 445 kg (38,450 lb) | 12 190 kg (26,868 lb) | 2130 mm (84") | C4.4 with ACERT | 129.5 kW (173.7 hp) |
| CS78B | 18 700 kg (41,214 lb) | 13 440 kg (29,626 lb) | 2130 mm (84") | C4.4 with ACERT | 129.5 kW (173.7 hp) |

### Vibratory System

| Frequency | *Standard High Amp* | *Eco-mode High Amp* | *Optional Variable Frequency* |
|---|---|---|---|
| CS54B, 56B, 64B, 66B, 68B | 30.5 Hz (1830 vpm) | 27.7 Hz (1664 vpm) | 23.3 – 30.5 Hz (1400 – 1830 vpm) |
| CS74B, 76B, 78B | 28 Hz (1680 vpm) | 25.45 Hz (1527 vpm) | 23.3 – 28 Hz (1400 – 1800 vpm) |

| Nominal Amplitude | *High* | *Low* |
|---|---|---|
| CS54B, 64B | 1.9 mm (0.075") | 0.95 mm (0.037") |
| CS56B, 66B, 68B, 74B, 76B, 78B | 2.1 mm (0.083") | 0.98 mm (0.039") |

* Not all models are available in all markets.
** Operating Weights are approximate and include ROPS/FOPS cab, AC, coolant, lubricants, full fuel tank and 80 kg (175 lb) operator.
† In some markets certain models are equipped with C6.6 engine with ACERT. Rated Power can vary slightly by market.

## Cat® Compaction Control Comparison - MDP and CMV

| Feature | Machine Drive Power (MDP) | Compaction Meter Value (CMV) | Comment |
|---|---|---|---|
| Measurement Depth | 30 - 60 cm (12 - 24 in) | 1 - 1.2 m (3.3 - 4 ft) | Systems measure different depths, volumes |
| Correlates w/portable measurement devices | ✔ | | Gives you confidence to move on |
| Usable on smooth drum or padfoot shell | ✔ | | MDP is only technology for padfoot |
| Usable on granular or cohesive material | ✔ | | CMV does not work on cohesive |
| Measures with or without vibration | ✔ | | CMV disturbs soil as it is measuring |
| Exclusive Cat technology | ✔ | | MDP only available from Caterpillar |

## The Cat® Advantage - Single Source Provider

| | Cat Dealer | Competitive Dealer | Comment |
|---|---|---|---|
| Convenient worldwide dealer locations | ✔ | | More than our 5 largest competitors combined |
| Engine service | ✔ | | Cat machines feature Cat engines |
| Machine service | ✔ | ✔ | |
| Service technician trained for paving equipment | ✔ | | Cat technicians trained on Cat machines |
| 24/7/365 parts availability on most service parts | ✔ | | Long lead times for competitive OEM parts |
| New OEM parts | ✔ | | Competition offers inferior aftermarket parts |
| Reconditioned OEM parts | ✔ | | Rebuilt to OEM spec by Cat Reman |
| Available financing options | ✔ | | Available through Cat Financial |
| Application expertise | ✔ | | Personnel understand the paving business |
| Machine rental | ✔ | | Keeps your capital expense low |
| Products with high resale value | ✔ | | Durable Cat machines built to last |

For more complete information on Cat products, dealer services, and industry solutions, visit us on the web at www.cat.com/paving

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Featured machines in photos may include additional equipment.
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BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

# Construction Tracking Field Memorandum CTFM-03

| | | | |
|---|---|---|---|
| **Client:** | **Victoria Gold Corp** | **Project:** | **Eagle Gold Construction Support** |
| **EPCM:** | **JDS** | **Project No.** | **0792021** |
| **From:** | **Roy Morlan** | **Date:** | **August 5, 2018** |
| **Copied:** | **Troy Meyer; Dan Granda** | **Record:** | **CTFM-03** |

**Re: Material 3 Test Fill 01 and 02**

## 1.0 INTRODUCTION AND OBJECTIVE

On July 27, 2018 BGC developed and oversaw two test fills to evaluate the engineering properties of Material 3 – Structural Fill for use in the embankment construction. The material was generated from the ADR excavation.

## 2.0 TEST FILL CONSTRUCTION AND EXECUTION

BGC's representative, Roy Morlan, developed the test fills and was present during the execution. Two tests were conducted using Material 3 – Structural Fill. The test fills were constructed and surveyed by Pelly Construction. Material sampling and testing was performed by Tetra Tech. The following sections discuss the execution of the test fill.

### 2.1. Test Fill Materials and Borrow Description

The material used in the test fills was generated by Pelly as borrow from excavation of the ADR plant foundation and the area labeled as ADR West. Gradation testing was performed on the finer (3" minus) fraction of the material by Tetra Tech. Mid-fraction material (3" to 8") was estimated by Tetra Tech by scalping this material from the 3" sample. Moisture content for the finer fraction of material was analyzed by Tetra Tech. The results from this testing are included in ***Attachment 1***. The material generally consists of a well graded gravel and sand matrix with approximately 15% rock between 3" and 8". Moisture content was measured at approximately 5%. (***Photograph 1***)



**Photograph 1:** Photograph of loose material used in both test fills.

The 3” to 8” rocks in the test fill material were mostly quartzite, which is the predominant rock type at this borrow. The quartzite material properties are mostly fine grained, orange brown, some banding present, slightly weathered (W2), strong to very strong (R4 to R5), and hard (H3). Rocks were resistant to scratching and broke after several blows with a hammer (***Photograph 2***).



**Photograph 2:** Example of material between 3” and 8”.

Phyllitic material is present in the Material 3 mixture. The phyllitic material content is approximately 20 to 30% and mostly present in particle sizes less than 0.5”. This material is platy, very fine grained (aphanitic), micaceous, has a significant amount of graphite, is gray, slightly weathered (W2), with rock quality ranging from (R1 to R3), and varies from soft (H6) to moderate hard (H4).

## 2.2. Test Fill Foundation

An area on top of the ADR Material 3 Stockpile was used as the test location because it was close to the source material and relatively traffic free (***Figure 1***). The test location was hard, dry and previously compacted by heavy equipment traffic. No deflection from roller passes was noted in the foundation.

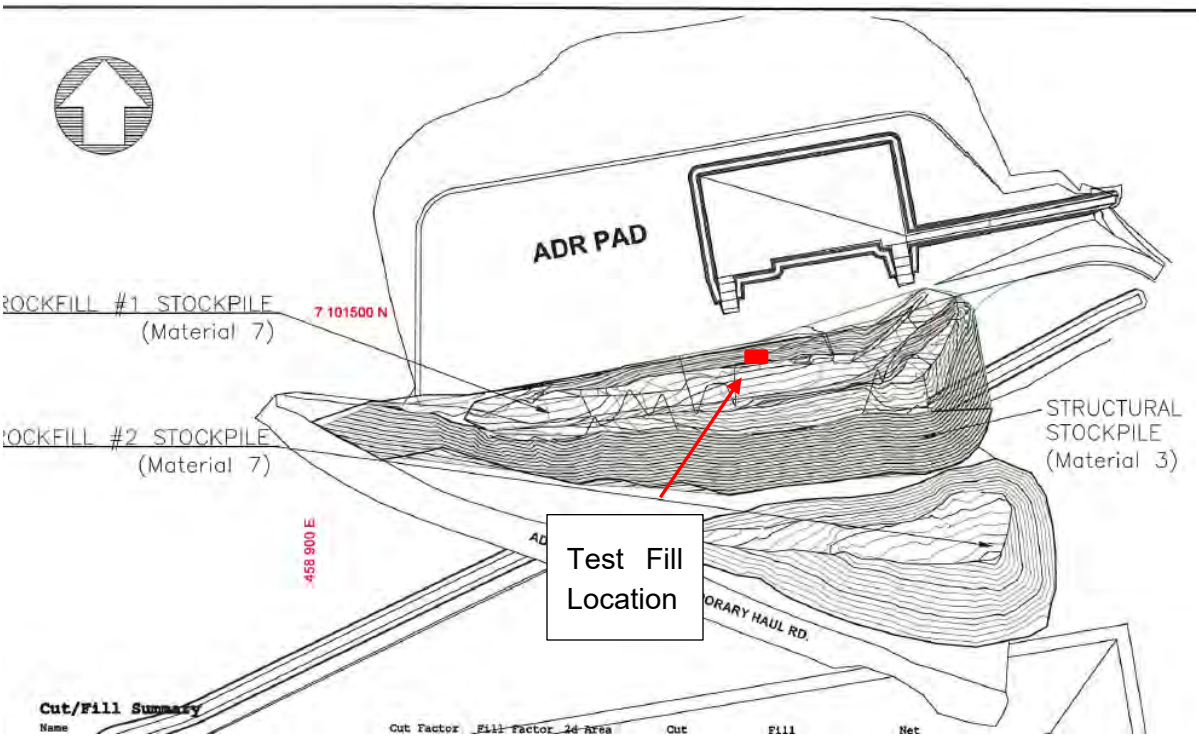


***Figure 1:*** Test Fill Location

### 2.3. Test Fill Lift Placement and Compaction

Both test fills were constructed by pushing the material from the stockpile to the prepared foundation using a CAT D7 track mounted dozer. For Test Fill 01 material was placed in a 0.5m loose lifts. For Test Fill 02 material was placed in a 0.75 m loose lift. Lift thickness was measured by Pelly's surveyor using a mobile station. The test fill measured approximately 8m x 6m.

### 2.4. Moisture Conditioning

Moisture was not added to Test Fill 01 or Test Fill 02.

### 2.5. Test Fill 01 Compaction and Settlement Measurements

To perform compaction tracking three steel plates were placed in a row down the center of the lift and used as a monitoring points (***Figure 2***). Initial survey of the settlement monitoring points was collected using a GPS surveying rod. Test fill surfaces were compacted with one cycle (1 forward pass and 1 reverse pass) of a CAT CS78 B vibratory compactor with an effective drum weight of 13,440 kg. After completion of one compaction cycle, settlement was measured at the settlement points. This compaction/survey procedure was repeated for 3 full compaction cycles for Test Fill 01 and 4 full cycles for Test Fill 2. Specifications for the CAT CS78 B compactor are included in ***Attachment 1***.

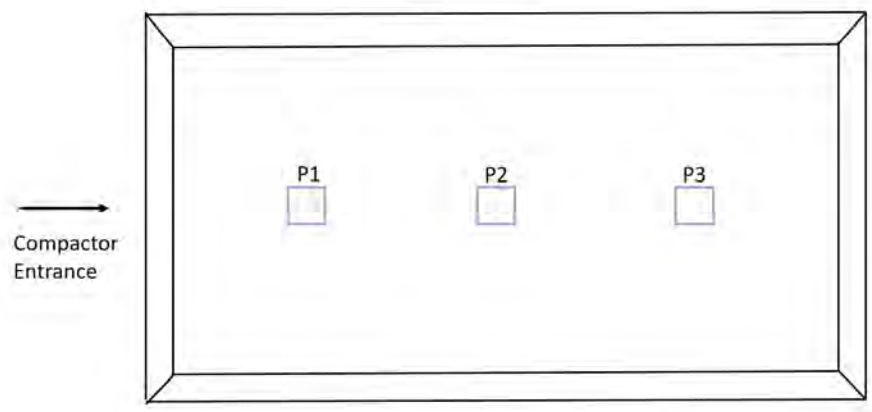


***Figure 2*****:** Approximation of test fill pad and survey points

Settlement data collected is included in ***Table 1***. Settlement graphs are shown in ***Figure 3 and 4***.

| | Pre-Compaction (m) | Pass 1 (m) | Pass 2 (m) | Pass 3 (m) | Pass 4 (m) |
|---|---|---|---|---|---|
| Test Fill 01 | | | | | |
| Survey Point 1 (P1) | 948.80 | 948.79 | 948.76 | 948.75 | NA |
| Survey Point 2 (P2) | 948.80 | 948.79 | 948.75 | 948.74 | NA |
| Survey Point 3 (P3) | 948.79 | 948.76 | 948.75 | 948.74 | NA |
| Test Fill 02 | | | | | |
| Survey Point 1 (P1) | 949.10 | 949.07 | 949.07 | 949.05 | 949.05 |
| Survey Point 2 (P2) | 949.08 | 949.03 | 949.03 | 949.00 | 949.01 |
| Survey Point 3 (P3) | 949.02 | 948.97 | 948.96 | 948.94 | 948.94 |

***Table 1:*** Survey elevation data collected during settlement tracking.

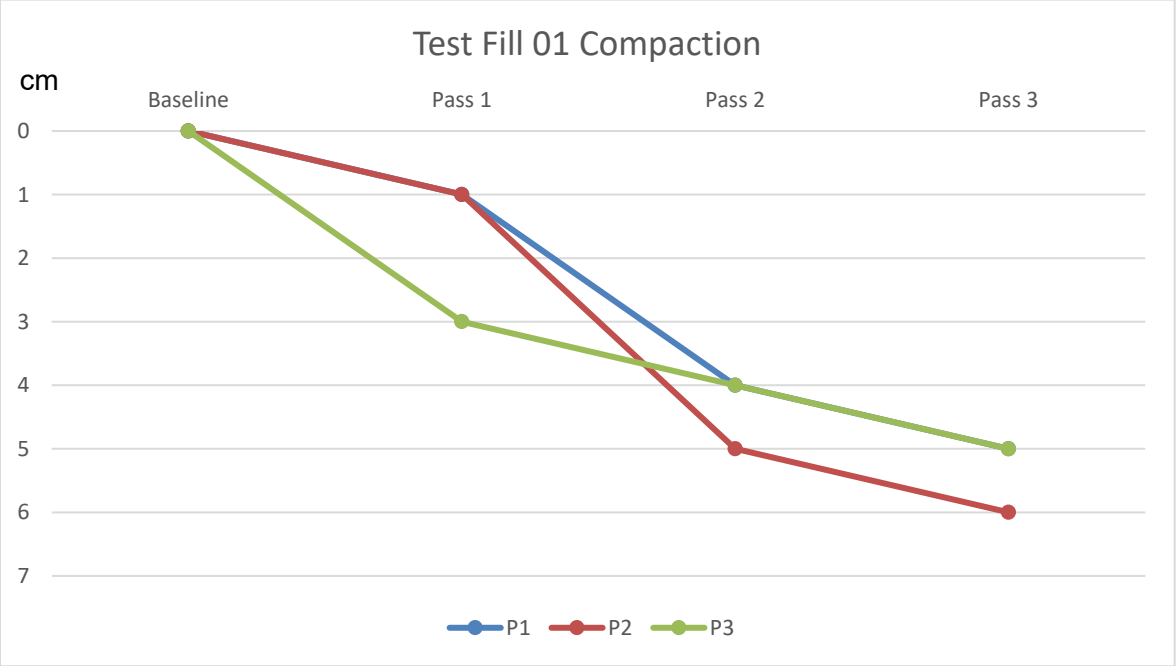


***Figure 3***: Test Fill 01 settlement recorded for each cycle.

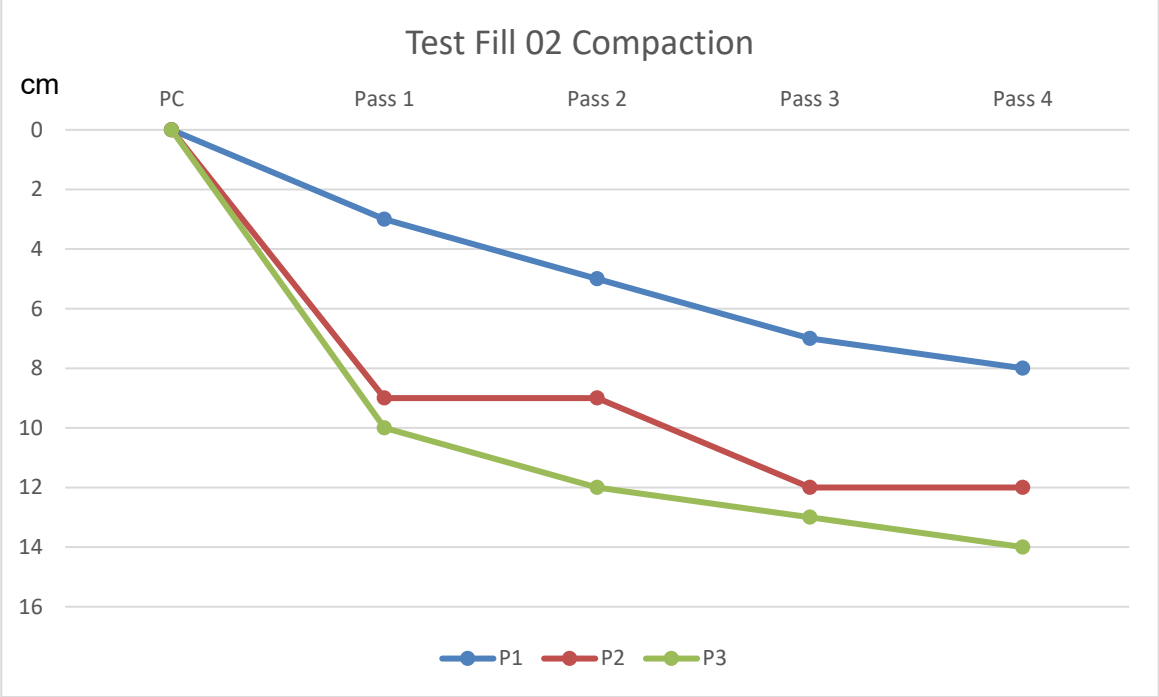


***Figure 4***: Test Fill 02 settlement recorded for each cycle.

### 2.5.1. In-situ Density and Moisture Testing

In-situ density and moisture testing was collected by Tetra Tech using a nuclear density gauge. Results were compared to the proctor for this material performed by Tetra Tech. The sample was scalped at material greater than 3". A rock correction was applied to the results by Tetra Tech. Optimum moisture was reported as 6.5% and density at this moisture was reported as 2,270 kg/m$^3$. Density and moistures reported by Tetra Tech are included in ***Table 2***. Tetra Tech's data report for this testing is included in ***Attachment 1***.

| | Depth (cm) | Dry Density (kg/m$^3$) | Moisture (%) |
|---|---|---|---|
| Test Fill 01 | | | |
| Test 1 (uncompacted) | 30 | 2037 | 5.3 |
| Test 2 (1 pass cycle) | 30 | 2235 | 6.0 |
| Test 3 (2 pass cycles) | 30 | 2286 | 5.6 |
| Test 4 (3 pass cycles) | 30 | 2281 | 5.9 |
| Test Fill 02 | | | |
| Test 1 (uncompacted) | 30 | 2,015 | 5.0 |
| Test 2 (1 pass cycle) | 30 | 2,160 | 5.4 |
| Test 3 (2 pass cycles) | 30 | 2,272 | 5.4 |
| Test 4 (3 pass cycles) | 30 | 2,271 | 5.2 |
| Test 5 (4 pass cycles) | 30 | 2,236 | 5.1 |
| Test 6 (4 pass cycles) | 70 | 1,812 | 5.3 |

***Table 2:*** Tetra Tech nuclear density gauge testing results

### 2.5.2. Field Testing Observations

Some surface yield was observed in both test fills after the initial compaction pass. Excavations through each compacted test fill revealed a well compacted, well graded matrix with little void space. Moisture within the lift was spread evenly. Rock was predominantly supported by the sandy gravel matrix. No material degradation or pulverization was observed. A trench was photograph of Test Fill 01 is included as ***Photo 3***. A trench wall photograph of Test Fill 02 is included as ***Photo 4***.



***Photo 3***: Trench wall photograph from Test Fill 01.



***Photo 04***: Trench wall photograph from Test Fill 02.

## 3.0 CONCLUSIONS

The results of the test fills indicate that the Material 3 tested can achieve sufficient densities with a minimum of 2 passes of a minimum 13,000 kg compactor with vibration, and in lifts of up to 0.50m. These results were obtained with an average moisture of approximately 5.7%. Test Fill 02 did not achieve sufficient compaction below 0.5m even after 4 passes.

BGC recommends that the following criteria be used for placement and compaction of the Material 3 within the embankment:

- A maximum loose lift thickness of 0.45m should be used.
- Moisture content should be maintained between 5% and 7%. This will likely require moisture conditioning at the stockpile during loading for placement.
- Gradation of the material should not vary significantly from the material used in this test fill. If gradation varies significantly additional testing may be required.

- A minimum of two pass cycles (1 forward pass and 1 back pass per cycle) using a 13,000 kg vibrating compactor should be used. Use of lighter compactors should be approved by the Engineer and may require additional testing.
- Material should be sourced from a stockpile approved by the Engineer.
- QC should be performed by tracking and reporting the above. In-situ QC testing using a nuclear density gauge should also be performed. Testing should report density and moisture. A minimum of 6 tests per compacted lift should be performed. The amount of test can be reduced by the engineer after observing placement and compaction of the first several lifts and all criteria appear consistent. The average of the tests should determine to either pass or fail: 95% of 2,270 kg/$m^3$; moisture between 5% and 7%.

If general gradation or material composition (quartzite content) varies significantly within this material an additional test fill will be required. If moisture content of the rockfill is below 5 % the Engineer may reject the material until it is moisture conditioned. Overly wet samples may require the removal of moisture before placement. The Engineer will inspect the material during borrowing or placement and review QC reports to make these determinations.

BGC recommends that the above criteria be used on material produced from the zones of harder quartzite formations, which are more predominant at this borrow. Small zones of phyllitic material should be blended within the quartzite before use. Phyllitic rich material (25% to 100% phyllitic material) should be used on the upstream side of the lift. Phyllitic rich material should not constitute an entire lift or along the downstream face of the embankment.

**Attachments:**

Attachment 1 – Tetra Tech Test Reports

Attachment 2 – CAT CS64 B Specification Sheet.

# ATTAHMENT 1

# COMPACTION DENSITY TEST SUMMARY REPORT

ASTM Designation D6938

**Project:** Eagle Gold Project | **Test Apparatus:** Nuclear | **Troxler No:** 60841

QC Inspection & Testing | **Specified Compaction:** 95 % Mod. Proctor Max. Dry Density

**Project No.:** WARC.03235-05 | **Specified Moisture** (MC)**:** As Below

**Client:** JDS Energy & Mining/BGC | **Temperature** **Air:** 28 ºC **Soil:** ºC

**Attention:** R.Morlan/D. Granda | **Date Tested:** 7/27/2018 **By:** M. Estrada

**Contractor:** Pelly Construction | **Construction Period:** DAYSHIFT

**Soil Description:** Test Pad - Type 3 Structural Fill

**Material Usage/Zone:** Method Spec Test Pad near ADR Plant

| **Date** yyyy/mm/dd | **Test No.** / Probe (mm) | **Location:** | Depth to Grade (m) | Dry Density (kg/m³ ) | MC % | Max. Dry Density | Opt. MC % | Comp % MPD |
|---|---|---|---|---|---|---|---|---|
| 7/27/2018 | **1** / 300 | Method Spec Test Fill 1 - Uncompacted | Gr | 2037 | 5.3 | 2270 | 6.7 | **89.7** |
| 7/27/2018 | **2** / 300 | Method Spec Test Fill 1 - 1 pass cycle | Gr | 2235 | 6.0 | 2270 | 6.7 | **98.5** |
| 7/27/2018 | **3** / 300 | Method Spec Test Fill 1 - 2 pass cycles | Gr | 2286 | 5.6 | 2270 | 6.7 | **100.7** |
| 7/27/2018 | **4** / 300 | Method Spec Test Fill 1 - 3 pass cycles | Gr | 2281 | 5.9 | 2270 | 6.7 | **100.5** |
| 7/27/2018 | **5** / 300 | Method Spec Test Fill 2 - Uncompacted | Gr | 2015 | 5.0 | 2270 | 6.7 | **88.8** |
| 7/27/2018 | **6** / 300 | Method Spec Test Fill 2 - 1 pass cycle | Gr | 2160 | 5.4 | 2270 | 6.7 | **95.2** |
| 7/27/2018 | **7** / 300 | Method Spec Test Fill 2 - 2 pass cycles | Gr | 2272 | 5.4 | 2270 | 6.7 | **100.1** |
| 7/27/2018 | **8** / 300 | Method Spec Test Fill 2 - 3 pass cycles | Gr | 2271 | 5.2 | 2270 | 6.7 | **100.0** |
| 7/27/2018 | **9** / 300 | Method Spec Test Fill 2 - 4 pass cycles | Gr | 2236 | 5.1 | 2270 | 6.7 | **98.5** |
| 7/27/2018 | **10** / 300 | Method Spec Test Fill 2 - 4 pass cycles | 0.4 | 1812 | 5.3 | 2270 | 6.7 | **79.8** |
| | | | | | | | | |

**Remarks:** Densities provided under supervision of Roy Morlan.

**Copies:**

**Reviewed By:** _____ C.E.T.

Data presented hereon is for the sole use of the stipulated client. Tetra Tech EBA is not responsible, nor can be held liable, for use made of this report by any other party, with or without the knowledge of Tetra Tech EBA. The testing services reported herein have been performed to recognized industry standards, unless noted. No other warranty is made. These data do not include or represent any interpretation or opinion of specification compliance or material suitability. Should engineering interpretation be required, Tetra Tech EBA will provide it upon written request.

TETRA TECH

# ATTACHMENT 2

WHY BUY, RENT OR LEASE CAT® VIBRATORY SOIL COMPACTORS?
LEARN MORE

COMPACTORS

# CS78B

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CS78B Vibratory Soil Compactor

PHOTO VIDEOS








SPECIFICATIONS BENEFITS & FEATURES RELATED PRODUCTS COMPARE MODELS

# OVERVIEW

The CS78B Vibratory Soil Compactor combines world-class productivity with outstanding operator comfort while continuing the legacy of durability, reliability and ease-of-service that contractors worldwide have come to expect from Cat® machines.

## WEIGHTS

UNITS: US METRIC

| | |
|---|---|
| Operating Weight - With Cab | 18700.0 kg |
| Weight - Drum with Cab | 13440.0 kg |

## OPERATING SPECIFICATIONS

| | |
|---|---|
| Compaction Width | 2134.0 mm |
| Ground Clearance | 437.0 mm |
| Static Linear Load - With Cab | 63.0 kg/cm |
| Travel Speed - Maximum | 11.4 km/h |
| Turning Radius - Inside Drum Edge | 3.68 m |

## ENGINE

| | |
|---|---|
| Gross Power | 129.5 kW |
| Engine Model | Cat C4.4 with ACERT |

**DIMENSIONS**

| | |
|---|---|
| Drum Diameter | 1534.0 mm |
| Drum Width | 2134.0 mm |
| Height - With ROPS/FOPS or Cab | 3.11 m |
| Overall Length | 6.13 m |
| Overall Width | 2.36 m |
| Wheel Base | 2.9 m |

**VIBRATORY SYSTEM**

| | |
|---|---|
| Centrifugal Force - Maximum | 332.0 kN |
| Centrifugal Force - Minimum | 166.0 kN |
| Nominal Amplitude - High | 2.1 mm |
| Nominal Amplitude - Low | 0.98 mm |
| Variable Frequency Option Range | 23.3 - 28 Hz (1400-1680 vpm) |
| Vibratory Frequency - Standard | 28 Hz (1680 vpm) |

**TIRES**

| | |
|---|---|
| Tires | 23.1 x 26 |

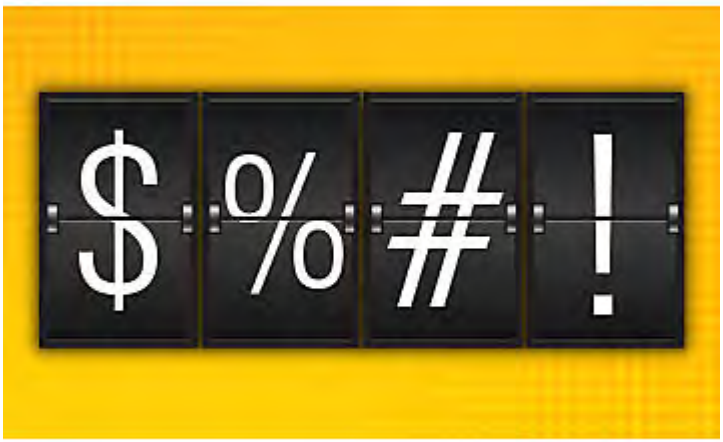
**SERVICE REFILL CAPACITIES**

| | |
|---|---|
| Fuel Tank Capacity | 332.0 l |

## SWEAR BY EQUIPMENT MANAGEMENT

Fuel costs. Labor costs. Maintenance costs. They can all tax your patience. But with timely, accurate data, you can better manage your equipment to keep operating expenses in line. Cat® EMSolutions offers everything you need to control costs, help your guys work better, reduce risks and get more done every day.

SEE HOW



BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

# Construction Tracking Field Memorandum CTFM-05

| | | | |
|---|---|---|---|
| **Client:** | **Victoria Gold Corp** | **Project:** | **Eagle Gold Construction Support** |
| **EPCM:** | **JDS** | **Project No.** | **0792021** |
| **From:** | **Troy Meyer** | **Date:** | **Nov 8, 2018** |
| **Copied:** | **Roy Morlan** | **Record:** | **CTFM-05** |

**Re: Material 7 Test Fill 02**

## 1.0 INTRODUCTION AND OBJECTIVE

On November 5, 2018 BGC developed and oversaw a test fill to evaluate the engineering properties of Material 7 – Compacted Rockfill for use in the embankment construction. The rockfill was generated from the required excavation of the Event Pond and from blasted rock at the ADR West borrow.

## 2.0 TEST FILL CONSTRUCTION AND EXECUTION

The test fill was performed on November 5, 2018. BGC's representative, Troy Meyer developed the test fill and was present during the test fills execution. Material 7 – Rockfill was placed in a 0.9m loose lifts. The test fills were constructed and survey control was provided by Pelly Construction. Material sampling and testing was performed by Tetra Tech. Field density testing was overseen by BGC. The following sections discuss the execution of the test fill.

### 2.1. Test Fill Materials and Borrow Description

Two separate sources of rockfill were used in two separate test fills. The material referred to as "ADR Blast Rock" was generated by Pelly construction as borrow from blasting and excavation at the borrow located west of the ADR plant. he material referred to as "Event Pond Cut" was generated by Pelly construction from required excavations at the eastern end of the event pond.

The material generally consists of quartzite rock with low to moderate strength and a maximum size of 60 cm. The quartzite material properties are mostly fine grained, orange brown, some banding present, slightly weathered (W2), strong to very strong (R4 to R5), and hard (H3).

The ADR Blast Rock contains a higher percentage of large rock than the Event Pond Cut material, which is more well-graded with a gravel and sand matrix. Both materials classify as Material 7 – Rockfill having more than 30 percent particles larger than 19. Moisture content of the minus 6-inch fraction was reported as 3.2 % for ADR Blast Rock and 4.6 % for Event Pond Cut.

Although not used in the test fill, zones of a weaker phyllitic rock (potentially phyllite or phyllonite) are also present within each source area. This material is platy, very fine grained (aphantic), micaceous, has a significant amount of graphite, is gray, slightly weathered (W2), with rock quality ranging from (R1 to R3), and varies from soft (H6) to moderate hard (H4).

## 2.2. Test Fill Foundation

An area on top of the south Event Pond embankment crest was used as the test location. ***Figure 1*** shows the locations of the test pad and the borrow areas. The test location was frozen, hard and previously compacted by heavy equipment traffic. ***Photo 1*** shows initial placement of fill on the test pad.



***Photograph 1:*** ADR Blast Rock Test fill construction.




***Figure 1:*** Test Fill and Borrow Locations



***Photograph 3:*** Event Pond Cut material as delivered.

### 2.3. Test Fill Lift Placement

The test fill lift was placed by dumping and spreading with a GPS enabled D6 dozer. Both test fills were placed in one 0.9 m loose lift. Lift thickness was controlled by the Dozer and spot checked by Pelly's surveyor using a mobile station. Each test fill measured approximately 8m x 10m.

### 2.4. Moisture Conditioning and Temperature

Moisture was not added to the material prior or during the test fill. The ambient air temperature was -19 deg C. The delivered material temperature was measured with a thermal gun:

- ADR Blast Rock +10 deg C
- Event Pond Cut +4 deg C

The temperature of both materials reduced to -5 to -10 deg C at the time of compaction.

## 2.5. Compaction Testing and Settlement Surveying

To perform compaction tracking three steel plates were placed in a row down the center of the lift and used as a monitoring points (***Figure 2***). Initial survey of the settlement monitoring points was collected using a GPS surveying rod. The entire test fill surface was then compacted with one cycle (1 forward pass and 1 reverse pass) of a CAT CS68 B vibratory compactor with an effective drum weight of 9,150 kg. After completion of one compaction cycle, settlement was measured at the settlement points. This compaction/survey procedure was repeated for 4 full compaction cycles.

A loaded CAT777 haul truck was also used for compaction on adjacent sections of the test pads. The truck was trafficked at a slow speed over the plates and settlement measure by survey after each single pass.

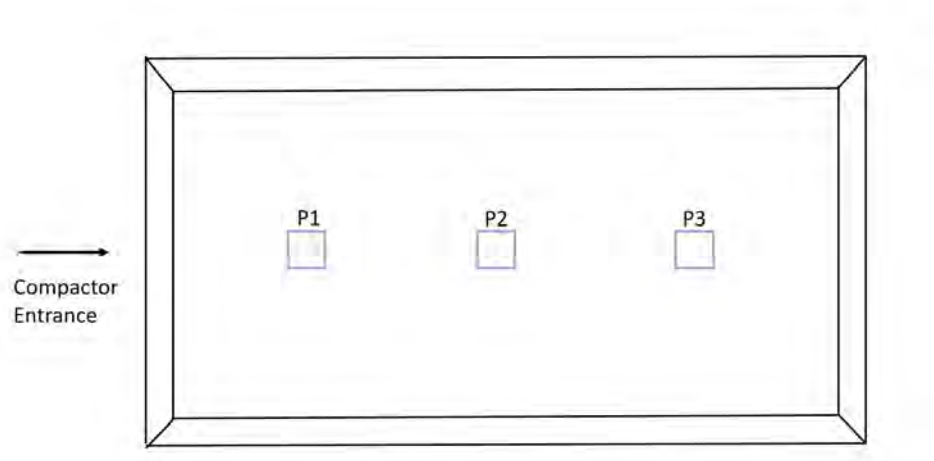



***Figure 2*:** Approximation of test fill pad and survey points

Settlement data collected is included in Table 1 through 4 and settlement graphs are shown as Figures 3 through 6.



***Photograph 4:*** Compaction with Loaded CAT777 Haul Truck.

| | Pre-Compaction | Cycle 1 | Cycle 2 | Cycle 3 | Cycle 4 |
|---|---|---|---|---|---|
| Survey Point 1 (P1) | 877.058 | 877.04 | 877.028 | 877.027 | 877.022 |
| Survey Point 2 (P2) | 877.027 | 877.022 | 877.02 | 877.006 | 877.006 |
| Survey Point 3 (P3) | 877.074 | 877.033 | 877.017 | 877.011 | 877.008 |

***Table 1:*** Survey Data for ADR Blast Rock with Compactor.

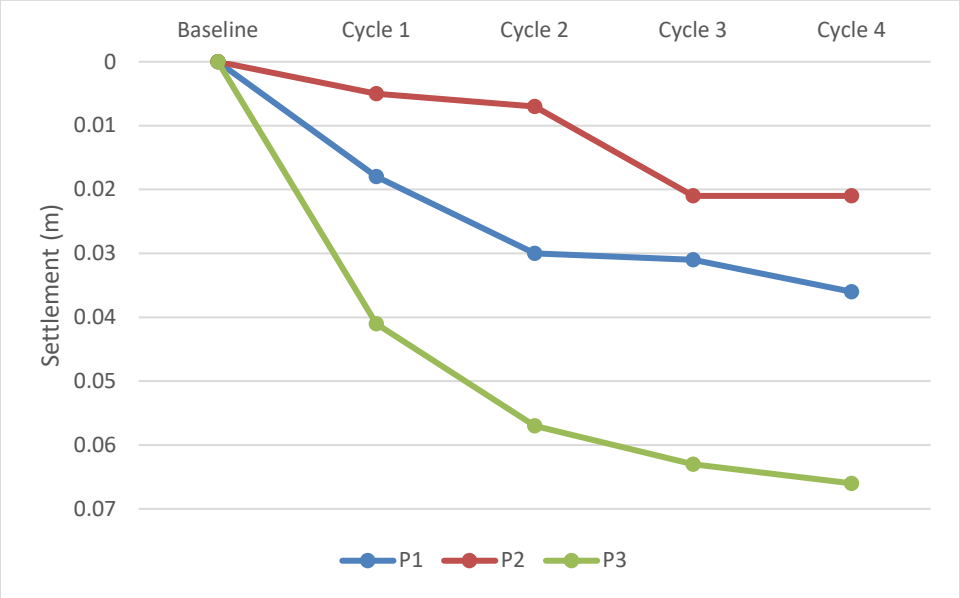



***Figure 3*:** Settlement for ADR Blast Rock with Compactor.

| | Pre-Compaction | Pass 1 | Pass 2 | Pass 3 |
|---|---|---|---|---|
| Survey Point 1 (P1) | 877.114 | 877.096 | 877.095 | 877.096 |
| Survey Point 2 (P2) | 877.096 | 877.07 | 877.065 | 877.065 |
| Survey Point 3 (P3) | 877.034 | 876.995 | 876.994 | 876.991 |

***Table 2:*** Survey Data for ADR Blast Rock with Loaded Haul Truck.

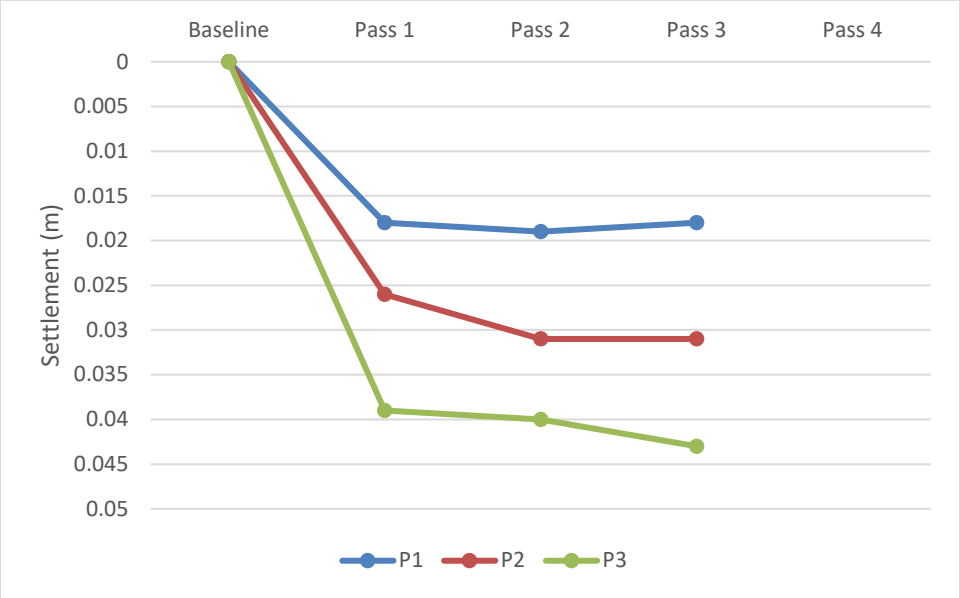



***Figure 4*:** Settlement for ADR Blast Rock with Loaded Haul Truck.

| | Pre-Compaction | Cycle 1 | Cycle 2 | Cycle 3 | Cycle 4 |
|---|---|---|---|---|---|
| Survey Point 1 (P1) | 877.137 | 877.086 | 877.073 | 877.057 | 877.059 |
| Survey Point 2 (P2) | 877.066 | 877.034 | 877.015 | 877.006 | 877.005 |
| Survey Point 3 (P3) | 877.105 | 877.073 | 877.058 | 877.052 | 877.049 |

***Table 3:*** Survey Data for Event Pond Cut with Compactor.

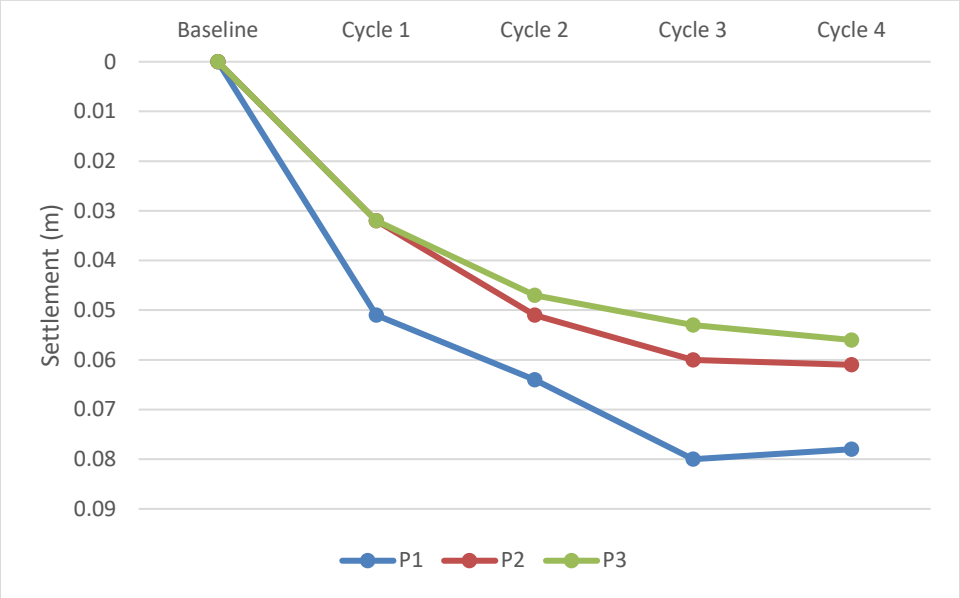



***Figure 5*:** Settlement for Event Pond Cut with Compactor.

| | Pre-Compaction | Pass 1 | Pass 2 | Pass 3 |
|---|---|---|---|---|
| Survey Point 1 (P1) | 877.125 | 877.098 | 877.082 | 877.078 |
| Survey Point 2 (P2) | 877.102 | 877.055 | 877.041 | 877.039 |
| Survey Point 3 (P3) | 877.121 | 877.091 | 877.074 | 877.074 |

***Table 4:*** Survey Data for Event Pond Cut with Loaded Haul Truck.

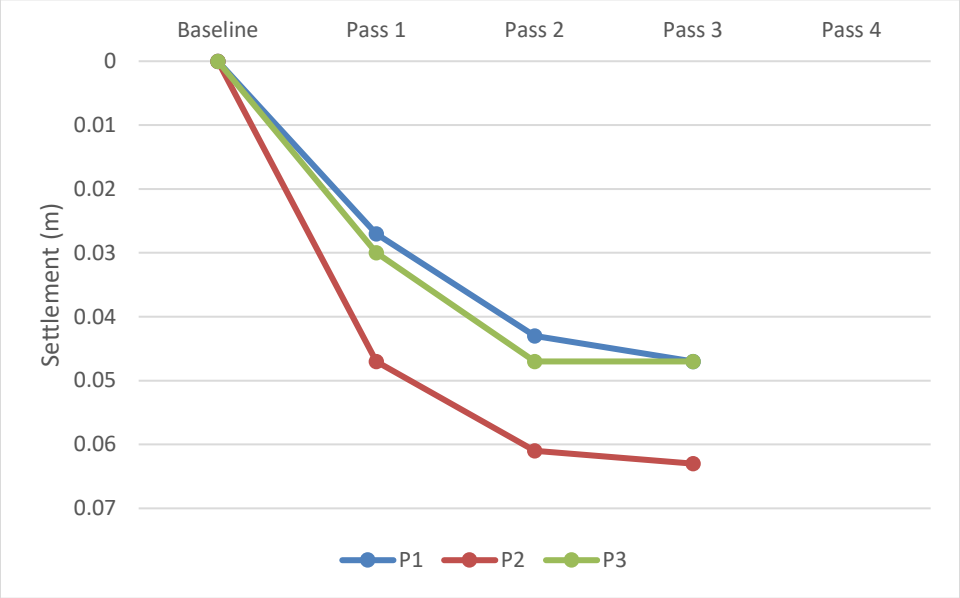



***Figure 6*:** Settlement for Event Pond Cut with Loaded Haul Truck.

## 2.6. In-situ Density and Moisture Testing

A volumetric test was performed to determine the density of the compacted soil (***Photo 4***). A test pit was dug in the compacted lift. Material excavated from the pit was placed in three super sacks and weighed using a digital scale suspended by a forklift. The test pit volume was determined from drone surveys by Underhill Surveyors.

| Test Fill | Weight (kg) | Volume (m3) | Calculated Wet Density (kg/m3) | Estimated Moisture Content (%) | Calculated Dry Density (kg/m3) |
|---|---|---|---|---|---|
| ADR Blast Rock | 2485 | 0.96 | 2588 | 3.2% | 2508 |
| Event Pond Cut | 2766 | 1.1 | 2515 | 4.6% | 2404 |

***Table 5:*** Density data.

The dry density of the compacted rockfill was determined to be 2,508 kg/m$^3$ and 2,404 kg/m$^3$ for the ADR Blast Rock and Event Pond Cut material, respectively.



***Photograph 5***: Filling sacks for weighing.

## 3.0 CONCLUSIONS

The results of the test fill indicate that the rockfill produced from a mostly quartzite source at the ADR borrow and Event Pond cut can achieve sufficient densities with a minimum of 3 passes of a minimum 9,000 kg compactor with vibration, and in lifts of up to 0.90m. Alternatively, one pass with a loaded haul truck will provide adequate compaction. These results were obtained with a material moisture of under 6% within the fill's fine fraction matrix.

BGC recommends these criteria be used for placement and compaction of the rockfill within the Event Pond embankment. If rock size or general gradation varies significantly within this material an additional test fill will be required. If moisture content of the rockfill is above 6% the compaction may be inhibited by frost. Recommendations for placement of winter fills is provided in FM18-020 issued by BGC and dated October 27, 2018.

As the rockfill generated from both the ADR borrow area and Event Pond cut is variable due to the presence of weaker zones of phyllitic material, BGC recommends that the above criteria be used on rockfill produced from the zones of harder quartzite formations. Small zones of phyllitic material should be blended within the quartzite rockfill before use since these zones are more prone to material breakdown and frost. Phyllitic material should not be allowed to be placed in a manner that would create lifts or zones within a lift composed of predominately this material.

The Engineer will inspect the rockfill material during borrowing or placement to make these determinations. Quality control and assurance will be performed by BGC and Tetra Tech based on visual observations of material characteristics and proof rolling with loaded CAT777 trucks. Modifications to lift thickness may be recommended based on observations and additional field density tests may be required by the Engineer to verify compaction, as needed.

**Attachments:**

Attachment 1 – Tetra Tech Lab Test Report

Attachment 2 – Underhill Survey Data

Attachment 3 – CAT CS68B Specification Sheet.

# ATTAHMENT 1

# MOISTURE CONTENT TEST RESULTS

ASTM D2216

| | | | |
|---|---|---|---|
| Project: | 704-ENG.WARC3235-01 | Sample No.: | SA1 (x2) |
| Project No.: | Eagle Gold Project - Event Pond Embankment Fi | Date Tested: | November 6, 2018 |
| Client: | JDS Energy & Mining | Tested By: | ELN |
| Address: | | Page: | 1 of 1 |

| Source | Sample Number | Moisture Content (%) | Visual Description of Soil |
|---|---|---|---|
| ADR Blast Rock | SA1 | 3.2 | Embankment Rock Fill - Larger particles, orange colored |
| Event Pond | SA1 | 4.6 | Embankment Rock Fill - smaller particles, brownish |
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**Reviewed By: ISSUED FOR REVIEW** C.E.T.

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TETRA TECH

# ATTACHMENT 2

# Underhill Geomatics

## Eagle Gold Project

**Volume Report –** North Pad Volume

**Client:** JDS

**Project Name:** F:\6 Miscellaneous\2018-11-06 Pelly Compaction Test After\2018-11-06 Pelly Compaction Hole Volume.dwg

**Project Description:**

**Report Date:** 06/11/2018 11:46:41 AM

**Prepared by:** DB

| **Linear Units:** meter | **Area Units:** squareMeter | **Volume Units:** cubicMeter |
|---|---|---|

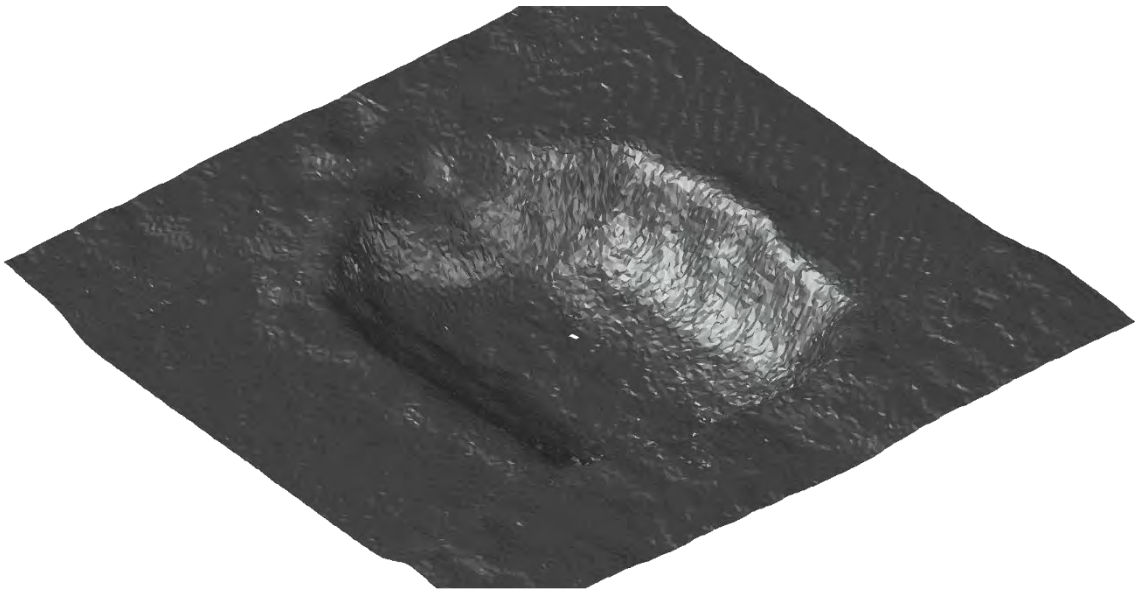
**Surface: North Pad Volume**

| | |
|---|---|
| Area 2D: 13.477 | Area 3D: 15.294 |
| Elevation Max: 0.106 | Elevation Min: -0.512 |
| Number of Points: 560063 | Number of Triangles: 1115130 |

**Volume Surface: North Pad Volume**

Volume Total: -1.10m³

Compare Surface: 2018-11-06 North Pad After
Base Surface: 2018-11-05 North Pad Before



# Underhill Geomatics

## Eagle Gold Project

**Volume Report –** South Pad Volume

**Client:** JDS

**Project Name:** F:\6 Miscellaneous\2018-11-06 Pelly Compaction Test After\2018-11-06 Pelly Compaction Hole Volume.dwg

**Project Description:**

**Report Date:** 06/11/2018 11:50:20 AM

**Prepared by:** DB

| **Linear Units:** meter | **Area Units:** squareMeter | **Volume Units:** cubicMeter |
|---|---|---|

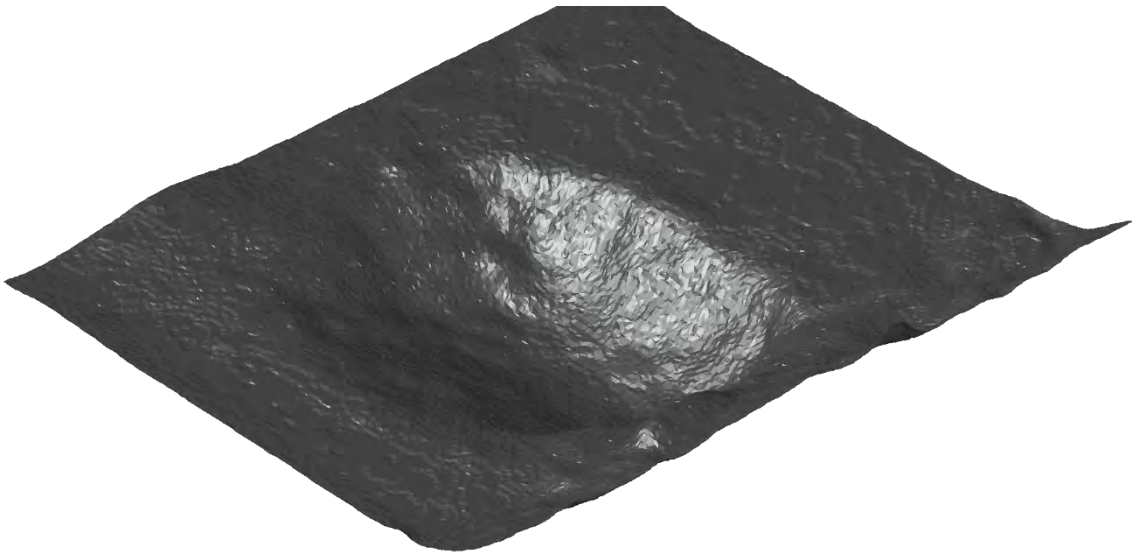
**Surface: South Pad Volume**

| | |
|---|---|
| Area 2D: 14.723 | Area 3D: 16.070 |
| Elevation Max: 0.114 | Elevation Min: -0.500 |
| Number of Points: 618270 | Number of Triangles: 1230239 |

**Volume Surface: South Pad Volume**

Volume Total: -0.96m³

Compare Surface: 2018-11-06 South Pad After
Base Surface: 2018-11-05 South Pad Before



# ATTACHMENT 3



# Cat®
# CS68B

## Smooth Drum
## Vibratory Soil Compactor

**Features:**
The Cat® CS68B features a smooth drum and is ideally suited for granular soil applications:

- **Comfortable and ergonomic operator station** features pivoting seat with integrated multifunction LCD display and control console, outstanding visibility to the front and rear of machine, low sound levels and vibration for greater operator comfort and productivity.
- **World-class propel system** built around the exclusive Cat dual pump propel system, two pumps provide separate dedicated flow to drum drive motor and rear axle motor for exceptional gradeability and traction in forward and reverse. New electronic propel control enables more precise machine control.
- **Virtually maintenance free** due to maintenance-free hitch bearings and extended maintenance intervals for vibratory system and hydraulic system, providing more uptime and lower maintenance costs.
- **Enhanced compaction performance** due to more weight at the drum and greater amplitude. Automated propel and vibratory system functions make it easy to ensure consistent, high quality.
- **Optional Cat® Compaction Control** helps the operator determine when compaction has been completed to specification for greater productivity and uniform compaction quality.

## Specifications

### Engine - Power Train

| | | |
|---|---|---|
| Engine Model | Cat® C4.4 with ACERT™ | |
| Global Emissions | US EPA Tier 4i/EU Stage IIIB | |
| Gross Power ISO 14396 | 117 kW | 157 hp |
| Displacement | 4.4 L | 268.5 in³ |
| Stroke | 127 mm | 5 in |
| Bore | 105 mm | 4.1 in |
| Max. Travel Speed (Forward or Reverse) | 11.4 km/h | 7 mph |

### Weights

| | | |
|---|---|---|
| Operating Weight w/ ROPS/FOPS cab | 14 325 kg | 31,572 lb |
| w/ padfoot shell kit | 15 730 kg | 34,662 lb |
| w/ leveling blade | 14 980 kg | 33,011 lb |
| w/ padfoot shell kit and leveling blade | 16 380 kg | 36,101 lb |
| Weight at Drum w/ ROPS/FOPS cab | 9150 kg | 20,164 lb |
| w/ padfoot shell kit | 10 550 kg | 23,247 lb |
| w/ leveling blade | 10 105 kg | 22,271 lb |
| w/ padfoot shell kit and leveling blade | 11 505 kg | 25,354 lb |

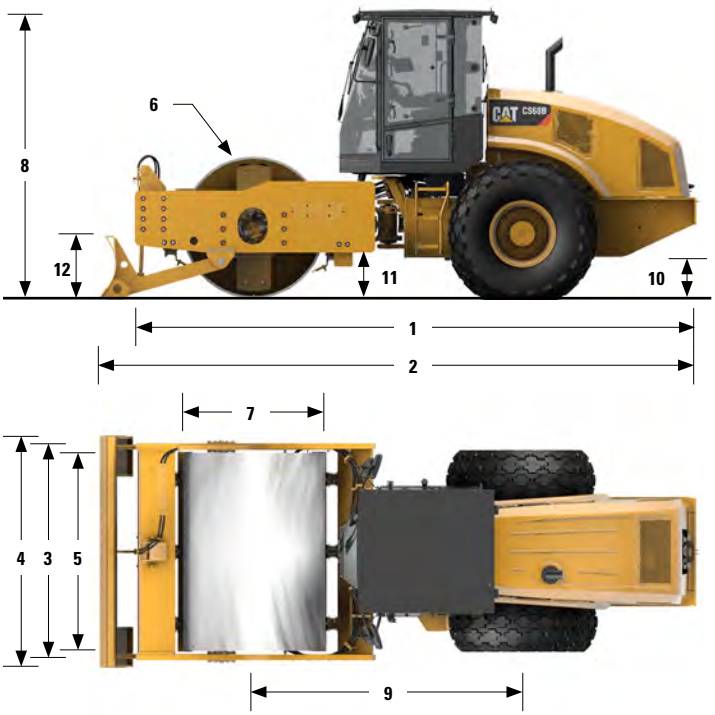
### Vibratory System Specifications

| | | |
|---|---|---|
| Frequency | | |
| Standard | 30.5 Hz | 1830 vpm |
| During Eco-mode Operation | 27.7 Hz | 1664 vpm |
| Optional Variable Frequency | 23.3-30.5 Hz | 1400-1830 vpm |
| Nominal Amplitude @30.5 Hz (1830 vpm) | | |
| High | 2.1 mm | 0.083 in |
| Low | 0.98 mm | 0.039 in |
| Centrifugal Force @ 30.5 Hz (1830 vpm) | | |
| Maximum | 301 kN | 67,600 lb |
| Minimum | 141 kN | 31,670 lb |
| Static Linear Load | | |
| w/ ROPS/FOPS Cab | 42.9 kg/cm | 240 lbs/in |

### Service Refill Capacities

| | | |
|---|---|---|
| Fuel Tank, total capacity | 242 L | 64 gal |
| Cooling System | 27.8 L | 7.3 gal |
| Engine Oil w/ Filter | 11.6 L | 3.1 gal |
| Eccentric Weight Housings | 26 L | 6.9 gal |
| Axle and Final Drives | 18 L | 4.8 gal |
| Hydraulic Tank (service refill) | 50 L | 13.2 gal |

# CS68B Vibratory Soil Compactor




## Dimensions

| | | | |
|---|---|---|---|
| **1** | Overall Length | 6.05 m | 19.8 ft |
| **2** | Overall Length w/ Optional Leveling Blade | 6.55 m | 21.5 ft |
| **3** | Overall Width | 2.33 m | 7.64 ft |
| **4** | Overall Width w/ Optional Leveling Blade | 2.50 m | 8.25 ft |
| **5** | Drum Width | 2134 mm | 84 in |
| **6** | Drum Shell Thickness | 30 mm | 1.18 in |
| **7** | Drum Diameter | 1434 mm | 56.5 in |
| **8** | Overall Height | 3.11 m | 10.2 ft |
| **9** | Wheelbase | 2.9 m | 9.5 ft |
| **10** | Ground Clearance | 437 mm | 17.2 in |
| **11** | Curb Clearance | 489 mm | 19.3 in |
| **12** | Optional Leveling Blade Height | 688 mm | 27.1 in |
| | Inside Turning Radius | 3.68 m | 12.07 ft |
| | Hitch Articulation Angle | 34° | |
| | Hitch Oscillation Angle | 15° | |
| | Optional Leveling Blade Height | 688 mm | 27.1 in |

## STANDARD EQUIPMENT *Varies by market- contact your Dealer for specifics.*

### ELECTRICAL
- 24 volt Electrical System
- 100 ampere Alternator
- 750 Cold-cranking Amps Battery Capacity

### OPERATOR ENVIRONMENT
- ROPS/FOPS Cab with Climate Control (Heat, Air Conditioning)
- Cloth Adjustable Pivoting Seat with Integrated Console and LCD Display, Seat Belt
- Multifunction LCD Display with gauges and/or audible warning alarm for: *Hydraulic oil temperature, Engine oil pressure, Engine coolant temperature, Alternator charge, Fuel level, Service hour meter, Engine RPM, Ground speed, Vibe frequency, Fuel rate, Air filter constriction, Engine load and Optional Cat Compaction Control*
- Adjustable Tilting Steering Column with Integrated Cup Holders
- 12-volt Power Outlet
- Floor Mat
- Interior Rear View Mirror
- Horn, Backup Alarm
- Radio-ready

### POWER TRAIN
- Cat® C4.4 Diesel Engine
- Air Cleaner, Dual Element
- Three-speed Throttle Switch w/ Eco-mode, Automatic Speed Control
- Dual Propel Pumps; One for Drum Drive, One for Rear Axle
- Fuel Filter, Water Separator, Electronic Priming Pump, Water Indicator
- Tilting Radiator/Hydraulic Oil Cooler
- Dual Braking System
- Two-speed Hydrostatic Transmission

### VIBRATORY SYSTEM
- Smooth Drum
- Dual Amplitude, Single Frequency
- Dual Pod-Style Eccentric Weight Housings
- Auto-vibe Function
- Front Adjustable Steel Scraper

### OTHER
- Hydraulic Oil Level Sight Gauge
- Radiator Coolant Level Sight Gauge
- Cat® ToughGuard™ Hose
- S·O·S℠ Sampling Valves, Engine Oil and Hydraulic Oil

## OPTIONAL EQUIPMENT
- Padfoot Shell Kit
- Leveling Blade
- Variable Vibration Frequency
- Beacon, Rotating
- Polyurethane Drum Scrapers
- Steel Rear-side Drum Scraper
- Bio-oil Factory Fill
- Sun Visor
- Deluxe High-back Air-ride Pivoting Seat
- Cat Compaction Control, Machine Drive Power or CMV
- SBAS GNSS Mapping for Cat Compaction Control (RTK available)
- Upgraded Halogen Light Package
- Cab Internal Rear View Mirrors
- Cab Internal Roll-down Sun Screen
- Product Link
- Additional Rear View Mirrors

For more complete information on Cat products, dealer services, and industry solutions, visit us on the web at www.cat.com

QEHQ1560-02 (03-12)

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Materials and specifications are subject to change without notice. Featured machines in photos may include additional equipment. See your Cat dealer for available options.

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Title: **FIELD CHECKLIST SUBSURFACE SIGN OFF**

Contractor: **PELLY CONSTRUCTION LTD**
Project: **EAGLE GOLD PROJECT**
Item: **4110.6.01**
Revised Item #: **Surface preparation**
Revision: **0**
Contract: **CC204**

Description: **Approval for Liner Surface Within In-Heap as per Activities and Criteria Outlined in ITP-010**

Details: **Stations Positioned East-West-Embankment Face From Top of 940 Bench Perpendicular to North Face of PLS Base. Stations are Positioned in 10m Increments in the Field. Stations to be Included in As-Built Drawings by Pelly.**

| STA | Pelly Approval for Completion | Client Representative's Approval for Completion | Comments |
|---|---|---|---|
| 0+010 | D.S. 9/11/18 | EJF 9/11/18 | NICE. INITAL SURFACE APPROVED FOR GRADE 3 FINAL SURFACE (NO RIPPING) |
| 0+020 | D.S. 9/11/18 | EJF 9/11/18 | |
| 0+030 | D.S. 9/11/18 | EJF 9/11/18 | |
| 0+040 | D.S. 9/11/18 | EJF 9/11/18 | |
| 0+050 | D.S. 9/11/18 | EJF 9/11/18 | |
| 0+060 | D.S. 9/11/18 | EJF 9/11/18 | |
| 0+070 | D.S. 9/11/18 | EJF 9/11/18 | |
| 0+080 | D.S. 9/11/18 | EJF 9/11/18 | |
| 0+090 | D.S. 9/11/18 | EJF 9/11/18 | BOTTOM OF LDRS IN-SUMP ON |
| 0+100 | D.S. 9/11/18 | EJF 9/11/18 | EAST SIDE IS GOOD |
| 0+110 | D.S. 9/11/18 | EJF 9/11/18 | |
| 0+120 | D.S. 9/11/18 | EJF 9/11/18 | |
| 0+130 | D.S. 9/11/18 | EJF 9/11/18 | |
| 0+140 | D.S. 9/11/18 | EJF 9/11/18 | |
| 0+150 | SZ. 9/21/18 | EFord 9/12/18 * | * Pending removal of sand pile, 0+200 – 0+230 |
| 0+160 | SZ 9/21/18 | EFord 9/12/18 * | |
| 0+170 | SZ 9/21/18 | EFord 9/12/18 * | |
| 0+180 | SZ 9/21/18 | EFord 9/12/18 * | 9/13 update → piles removed ✓✓ EFord |
| 0+190 | SZ 9/21/18 | EFord 9/12/18 * | |
| 0+200 | SZ 9/21/18 | EFord 9/12/18 * | |
| 0+210 | SZ 9/21/18 | EFord 9/12/18 * | |
| 0+220 | SZ 9/21/18 | EFord 9/12/18 * | |
| 0+230 | SZ 9/21/18 | EFord 9/12/18 * | |
| 0+240 | SZ 9/21/18 | AM 9/21/18 | |
| 0+250 | SZ 9/21/18 | RM * | |
| 0+260 | SZ 9/21/18 | RM * | |
| 0+270 | SZ 9/21/18 | RM * | |
| 0+280 | SZ 9/21/18 | RM * | |
| 0+290 | SZ 9/21/18 | RM * | |
| 0+300 | SZ 9/21/18 | RM * | |
| 0+310 | SZ 9/21/18 | RM * | |
| 0+320 | SZ 9/21/18 | RM * | |
| 0+330 | SZ 9/21/18 | RM * | |
| 0+340 | SZ 9/21/18 | RM * | |
| 0+350 | SZ 9/21/18 | RM * | |

* minor clean up required. Final verification of cleanup to be done in the field prior to build over foundation

Title: **FIELD CHECKLIST SUBSURFACE SIGN OFF**

Contractor: **PELLY CONSTRUCTION LTD**
Project: **EAGLE GOLD PROJECT**
Item: **4110.6.01**
Revised Item #: **Surface preparation**
Revision: **0**
Contract: **CC204**

Description: **Approval for Liner Surface Within In-Heap as per Activities and Criteria Outlined in ITP-010**

Details: **Stations Positioned East-West-Embankment Face From Top of 940 Bench Perpendicular to North Face of PLS Base. Stations are Positioned in 10m Increments in the Field. Stations to be Included in As-Built Drawings by Pelly.**

| STA | Pelly Approval for Completion | Client Representative's Approval for Completion | Comments |
|---|---|---|---|
| 0+360 | SB 9/21/18 | Rm 9-21-18 * | |
| 0+370 | SB 9/21/18 | Rm 9-21-18 * | |
| 0+380 | SB 9/21/18 | Rm 9-21-18 * | |
| 0+390 | D.S. 10/1/18 | D.G. 10/1/18 | |
| 0+400 | D.S. 10/1/18 | D.G 10/1/18 | |
| 0+410 | D.S. 10/1/18 | D.G 10/1/18 | |
| 0+420 | D.S. 10/1/18 | D.G 10/1/18 | |
| 0+430 | D.S. 10/1/18 | D.G 10/1/18 | |
| 0+440 | D.S. 10/1/18 | D.G 10/1/18 | |
| 0+450 | D.S. 10/1/18 | D.G 10/1/18 | |
| 0+460 | D.S. 10/1/18 | D.G 10/1/18 | |
| 0+470 | D.S. 12/1/18 | R.M 12/2/18 | |
| 0+480 | D.S. 12/1/18 | | |
| 0+490 | D.S. 12/1/18 | | |
| 0+500 | D.S. 12/1/18 | | |
| 0+510 | D.S. 12/1/18 | | |
| 0+520 | D.S. 12/1/18 | | |
| 0+530 | D.S. 12/1/18 | | |
| 0+540 | D.S. 12/1/18 | | |
| 0+550 | D.S. 12/1/18 | | |
| 0+560 | D.S. 12/1/18 | | |
| 0+570 | D.S. 12/1/18 | | |
| 0+580 | D.S. 12/1/18 | | |
| 0+590 | D.S. 12/1/18 | | |
| 0+600 | D.S. 12/1/18 | | |
| 0+610 | D.S. 12/1/18 | | |
| 0+620 | D.S. 12/1/18 | | |
| 0+630 | D.S. 12/1/18 | | |
| 0+640 | D.S. 12/1/18 | | |
| 0+650 | D.S. 12/1/18 | | |
| 0+660 | D.S. 12/1/18 | | |
| 0+670 | D.S. 12/1/18 | | |
| 0+680 | D.S. 12/1/18 | | |
| 0+690 | D.S. 12/1/18 | | |
| 0+700 | D.S. 10/10/18 | D.G. 10/10/18 | |

* See note [illegible] pl

Title: **FIELD CHECKLIST SUBSURFACE SIGN OFF**

Pelly Construction Ltd.

Contractor: **PELLY CONSTRUCTION LTD**
Project: **EAGLE GOLD PROJECT**
Item: **4110.6.01**
Revised Item #: **Surface preparation**
Revision: **0**
Contract: **CC204**

Description: **Approval for Liner Surface Within In-Heap as per Activities and Criteria Outlined in ITP-010**

Details: **Stations Positioned East-West-Embankment Face From Top of 940 Bench Perpendicular to North Face of PLS Base. Stations are Positioned in 10m Increments in the Field. Stations to be Included in As-Built Drawings by Pelly.**

| STA | Pelly Approval for Completion | Client Representative's Approval for Completion | Comments |
|---|---|---|---|
| 0+710 | D.S. 10/10/18 | D.G 10/10/18 | |
| 0+720 | D.S. 10/10/18 | D.G. 10/10/18 | |
| 0+730 | D.S. 10/10/18 | D.G. 10/10/18 | |
| 0+740 | D.S. 10/10/18 | D.G. 10/10/18 | |
| 0+750 | D.S. 10/10/18 | D.G 10/10/18 | |
| 0+760 | D.S 10/10/18 | D.G. 10/10/18 | |
| 0+770 | D.S. 10/4/18 | D.G 10/4/18 | |
| 0+780 | D.S. 10/4/18 | D.G 10/4/18 | |
| 0+790 | D.S. 10/4/18 | D.G 10/4/18 | |
| 0+800 | D.S. 10/4/18 | D.G 10/4/18 | |
| 0+810 | D.S. 10/4/18 | D.G 10/4/18 | |
| 0+820 | D.S. 10/4/18 | D.G 10/4/18 | |
| 0+830 | D.S. 10/2/18 | D.G 10/4/18 | |
| 0+840 | D.S 10/2/18 | D.G 10/4/18 | |
| 0+850 | D.S 10/2/18 | D.G 10/4/18 | |
| 0+860 | D.S 10/2/18 | D.G 10/4/18 | |
| 0+870 | D.S. 10/2/18 | D.G 10/4/18 | |
| 0+880 | D.S 10/2/18 | D.G 10/4/18 | |
| 0+890 | D.S. 10/2/18 | D.G 10/4/18 | |
| 0+900 | D.S. 10/2/18 | D.G 10/4/18 | |
| 0+910 | D.S. 10/2/18 | D.G 10/4/18 | |
| 0+920 | D.S 10/2/18 | D.G 10/4/18 | |
| 0+930 | D.S. 10/2/18 | D.G 10/4/18 | |
| 0+940 | D.S. 10/2/18 | D.G 10/4/18 | |
| 0+950 | D.S. 10/2/18 | D.G 10/4/18 | |
| 0+960 | D.S. 10/2/18 | D.G 10/4/18 | |
| 0+970 | D.S. 10/2/18 | D.G. 10/4/18 | |
| 0+980 | D.S. 10/2/18 | D.G 10/4/18 | |
| 0+990 | D.S. 10/2/18 | D.G. 10/4/18 | |
| 1+000 | D.S. 10/2/18 | D.G 10/4/18 | |
| 1+010 | D.S. 10/2/18 | D.G. 10/4/18 | |

* Closure Sump up to 915 m is approved D.G.

BGC ENG. 10/4/18

D.S. PELLY 10/4/18

Printed: 2018-06-25 23:00:59 UTC

# McElroy Joint Report

Reference Number 975659

## Job Details

| | |
|---|---|
| Joint Number | 1 |
| Joint Time | 2018-06-06 11:33:08 GMT |
| Job | 1 |
| Operator | jordan |
| Aborted Joint | No |

## Fusion Machine

| | |
|---|---|
| Machine Name | 618 HF |
| Machine Model | 618 HF |
| Piston Area | 11.78 in² |

## Pipe Specifications

| | |
|---|---|
| Pipe Material | PE4710 |
| Pipe Size | 6 " IPS |
| Wall Thickness | DR 17 |

## Pressures

| | | |
|---|---|---|
| Drag Pressure | 41 psi | |
| | Interfacial | Gauge |
| Bead Up | 75 psi | 90 psi |
| Heat Soak | 0 psi | 41 psi |
| Fuse/Cool | 75 psi | 90 psi |

## Fusion Specification

| | |
|---|---|
| Fusion Type | Butt Fusion |
| Fusion Specification | ASTM F2620 |
| Bead Time | 0 seconds |
| Bead Size | 3/16" |
| Heat/Soak Time | 105 seconds |
| Fuse Time | 257 seconds |
| Open/Close Time | 10 seconds |
| Cool Time | 0 seconds |

| | Minimum | Maximum |
|---|---|---|
| Bead Up | 80 psi | 99 psi |
| Heat Soak | 0 psi | 41 psi |
| Fuse | 80 psi | 99 psi |
| Cool | 0 psi | 0 psi |

## External Heater Temperatures

| | Side A | Side B |
|---|---|---|

## GPS Location

| Date | Latitude | Longitude |
|---|---|---|
| 2018-06-06 11:33:08.0 | 64°2'5.464800"N | 135°50'5.163000"W |

## Logged Data Summary

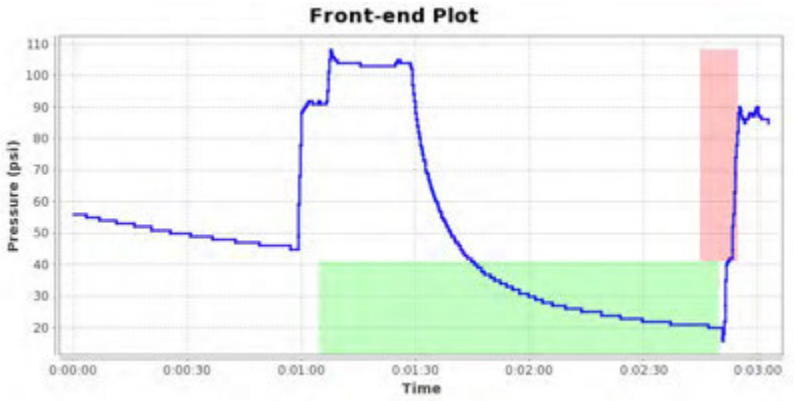
| | |
|---|---|
| Number of Data Points | 298 |
| Total Fusion Time | 498 seconds |
| Maximum Recorded Pressure | 108 psi |

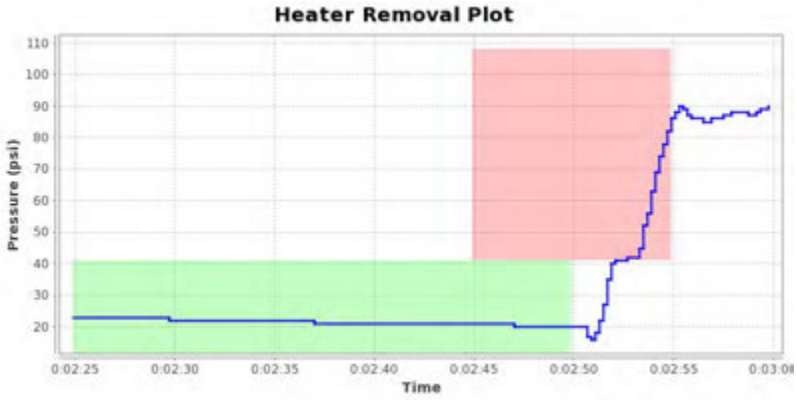
## Device Information

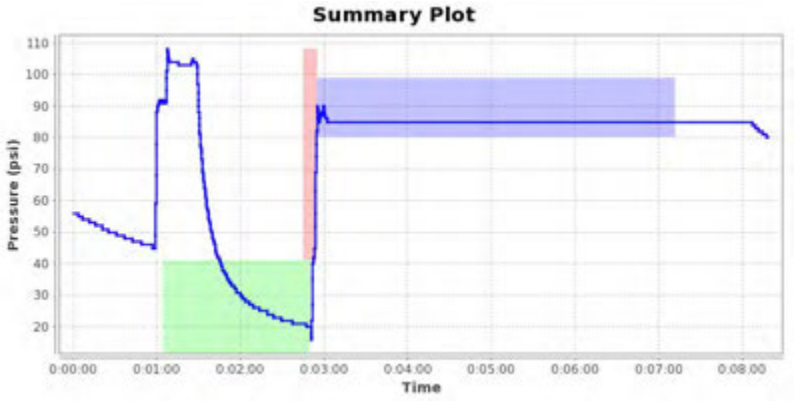
| | |
|---|---|
| DataLogger Serial Number | RH803Z0550 |
| Sensor Serial Number | MDL6621 |
| Calibration Date | 2018-04-04 |
| Firmware Version | v6.0 |
| Software Version | 1.06 (25) |
| Software Product Name | DataLogger 6 |

## Data Source

| | |
|---|---|
| Upload Time | 2018-06-11 21:22:25 GMT |

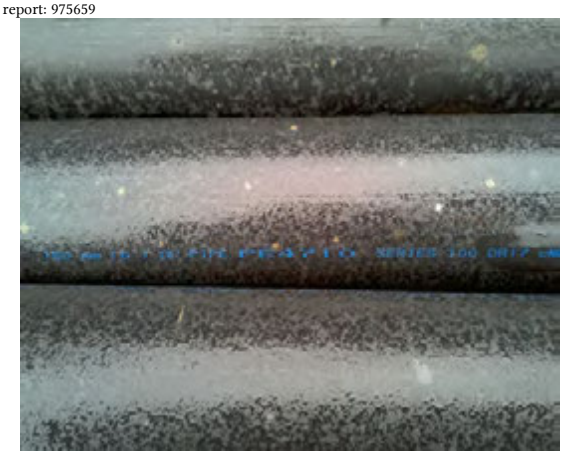



## Notes

Images for report: 975659





Printed: 2018-06-25 23:00:59 UTC

# McElroy Joint Report

Reference Number 975659

## Job Details

| | |
|---|---|
| Joint Number | 1 |
| Joint Time | 2018-06-06 11:33:08 GMT |
| Job | 1 |
| Operator | jordan |
| Aborted Joint | No |

## Fusion Machine

| | |
|---|---|
| Machine Name | 618 HF |
| Machine Model | 618 HF |
| Piston Area | 11.78 in² |

## Pipe Specifications

| | |
|---|---|
| Pipe Material | PE4710 |
| Pipe Size | 6 " IPS |
| Wall Thickness | DR 17 |

## Pressures

| | | |
|---|---|---|
| Drag Pressure | 41 psi | |
| | Interfacial | Gauge |
| Bead Up | 75 psi | 90 psi |
| Heat Soak | 0 psi | 41 psi |
| Fuse/Cool | 75 psi | 90 psi |

## Fusion Specification

| | |
|---|---|
| Fusion Type | Butt Fusion |
| Fusion Specification | ASTM F2620 |
| Bead Time | 0 seconds |
| Bead Size | 3/16" |
| Heat/Soak Time | 105 seconds |
| Fuse Time | 257 seconds |
| Open/Close Time | 10 seconds |
| Cool Time | 0 seconds |

| | Minimum | Maximum |
|---|---|---|
| Bead Up | 80 psi | 99 psi |
| Heat Soak | 0 psi | 41 psi |
| Fuse | 80 psi | 99 psi |
| Cool | 0 psi | 0 psi |

## External Heater Temperatures

| | Side A | Side B |
|---|---|---|

## GPS Location

| Date | Latitude | Longitude |
|---|---|---|
| 2018-06-06 11:33:08.0 | 64°2'5.464800"N | 135°50'5.163000"W |

## Logged Data Summary

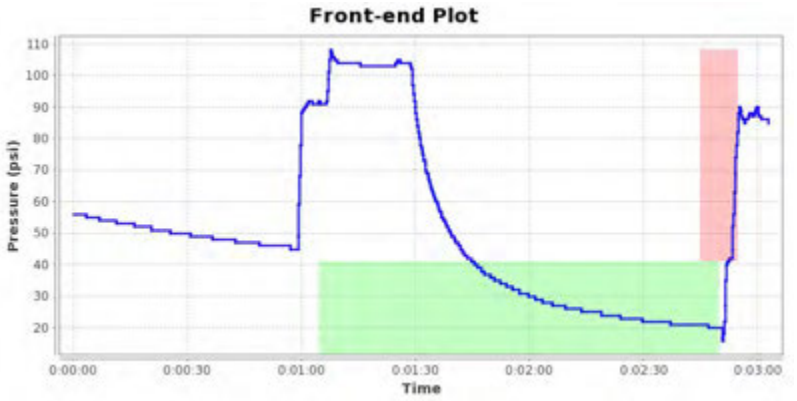
| | |
|---|---|
| Number of Data Points | 298 |
| Total Fusion Time | 498 seconds |
| Maximum Recorded Pressure | 108 psi |

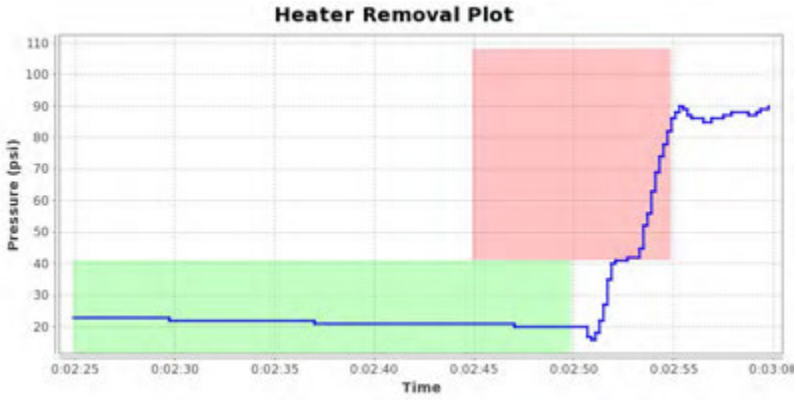
## Device Information

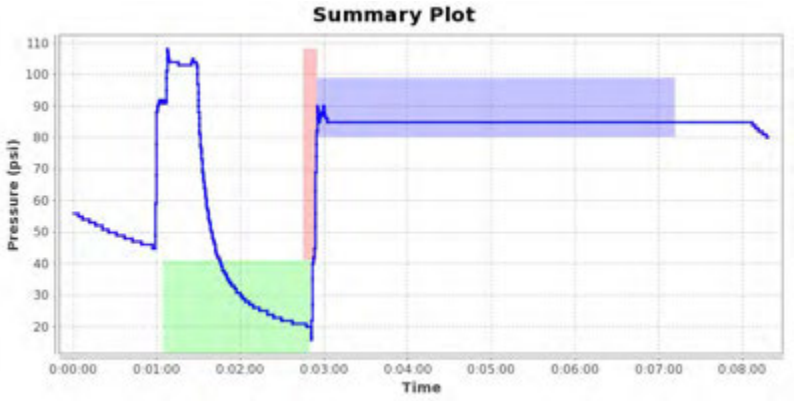
| | |
|---|---|
| DataLogger Serial Number | RH803Z0550 |
| Sensor Serial Number | MDL6621 |
| Calibration Date | 2018-04-04 |
| Firmware Version | v6.0 |
| Software Version | 1.06 (25) |
| Software Product Name | DataLogger 6 |

## Data Source

| | |
|---|---|
| Upload Time | 2018-06-11 21:22:25 GMT |

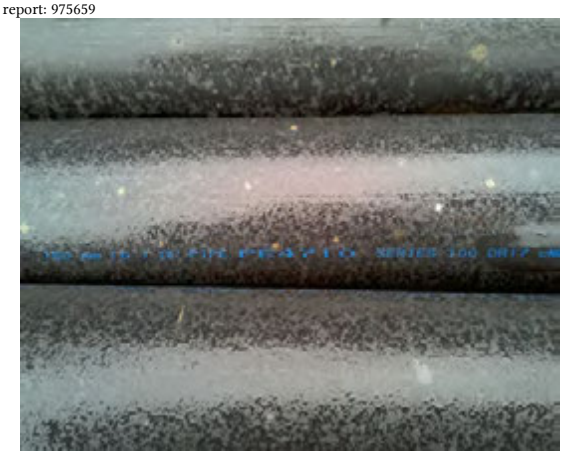



## Notes

Images for report: 975659





Printed: 2018-06-25 23:00:49 UTC

# McElroy Joint Report

Reference Number 975660

## Job Details

| | |
|---|---|
| Joint Number | 2 |
| Joint Time | 2018-06-06 12:07:33 GMT |
| Job | 1 |
| Operator | jordan |
| Aborted Joint | No |

## Fusion Machine

| | |
|---|---|
| Machine Name | 618 HF |
| Machine Model | 618 HF |
| Piston Area | 11.78 in² |

## Pipe Specifications

| | |
|---|---|
| Pipe Material | PE4710 |
| Pipe Size | 6 " IPS |
| Wall Thickness | DR 17 |

## Pressures

| | | |
|---|---|---|
| Drag Pressure | 41 psi | |
| | Interfacial | Gauge |
| Bead Up | 75 psi | 90 psi |
| Heat Soak | 0 psi | 41 psi |
| Fuse/Cool | 75 psi | 90 psi |

## Fusion Specification

| | |
|---|---|
| Fusion Type | Butt Fusion |
| Fusion Specification | ASTM F2620 |
| Bead Time | 0 seconds |
| Bead Size | 3/16" |
| Heat/Soak Time | 105 seconds |
| Fuse Time | 257 seconds |
| Open/Close Time | 10 seconds |
| Cool Time | 0 seconds |

| | Minimum | Maximum |
|---|---|---|
| Bead Up | 80 psi | 99 psi |
| Heat Soak | 0 psi | 41 psi |
| Fuse | 80 psi | 99 psi |
| Cool | 0 psi | 0 psi |

## External Heater Temperatures

| | Side A | Side B |
|---|---|---|

## GPS Location

| Date | Latitude | Longitude |
|---|---|---|
| 2018-06-06 12:07:33.0 | 64°2'5.361000"N | 135°50'5.509800"W |

## Logged Data Summary

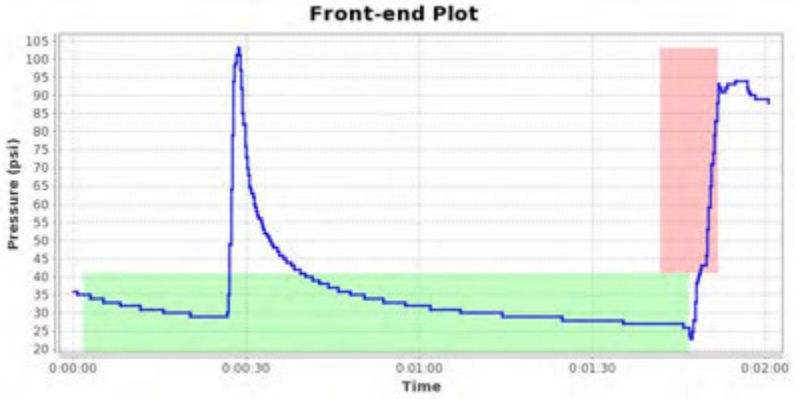
| | |
|---|---|
| Number of Data Points | 292 |
| Total Fusion Time | 444 seconds |
| Maximum Recorded Pressure | 103 psi |

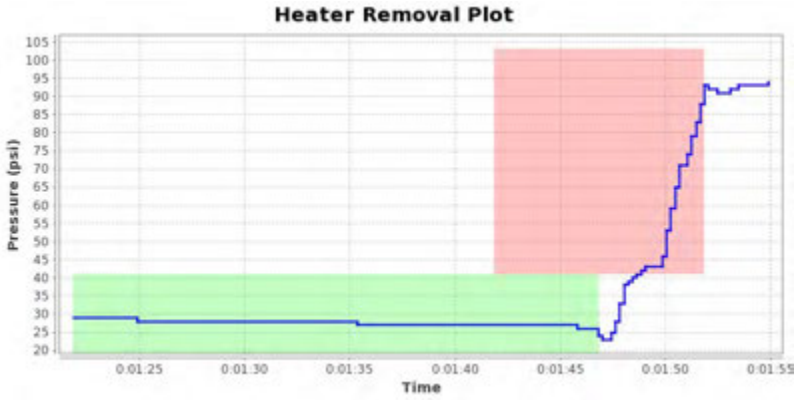
## Device Information

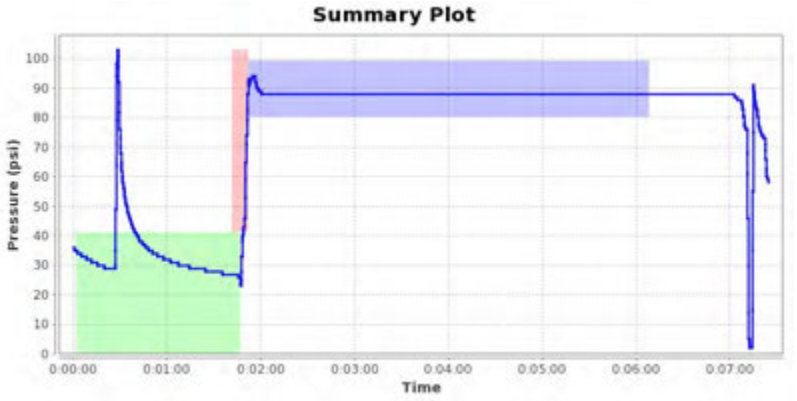
| | |
|---|---|
| DataLogger Serial Number | RH803Z0550 |
| Sensor Serial Number | MDL6621 |
| Calibration Date | 2018-04-04 |
| Firmware Version | v6.0 |
| Software Version | 1.06 (25) |
| Software Product Name | DataLogger 6 |

## Data Source

| | |
|---|---|
| Upload Time | 2018-06-11 21:22:37 GMT |




## Notes

Images for report: 975660



Printed: 2018-06-25 23:00:40 UTC

# McElroy Joint Report

Reference Number 975661

## Job Details

| | |
|---|---|
| Joint Number | 3 |
| Joint Time | 2018-06-06 12:40:28 GMT |
| Job | 1 |
| Operator | jordan |
| Aborted Joint | No |

## Fusion Machine

| | |
|---|---|
| Machine Name | 618 HF |
| Machine Model | 618 HF |
| Piston Area | 11.78 in² |

## Pipe Specifications

| | |
|---|---|
| Pipe Material | PE4710 |
| Pipe Size | 6 " IPS |
| Wall Thickness | DR 17 |

## Pressures

| | | |
|---|---|---|
| Drag Pressure | 41 psi | |
| | Interfacial | Gauge |
| Bead Up | 75 psi | 90 psi |
| Heat Soak | 0 psi | 41 psi |
| Fuse/Cool | 75 psi | 90 psi |

## Fusion Specification

| | |
|---|---|
| Fusion Type | Butt Fusion |
| Fusion Specification | ASTM F2620 |
| Bead Time | 0 seconds |
| Bead Size | 3/16" |
| Heat/Soak Time | 105 seconds |
| Fuse Time | 257 seconds |
| Open/Close Time | 10 seconds |
| Cool Time | 0 seconds |

| | Minimum | Maximum |
|---|---|---|
| Bead Up | 80 psi | 99 psi |
| Heat Soak | 0 psi | 41 psi |
| Fuse | 80 psi | 99 psi |
| Cool | 0 psi | 0 psi |

## External Heater Temperatures

| | Side A | Side B |
|---|---|---|

## GPS Location

| Date | Latitude | Longitude |
|---|---|---|
| 2018-06-06 12:40:28.0 | 64°2'5.478000"N | 135°50'5.654400"W |

## Logged Data Summary

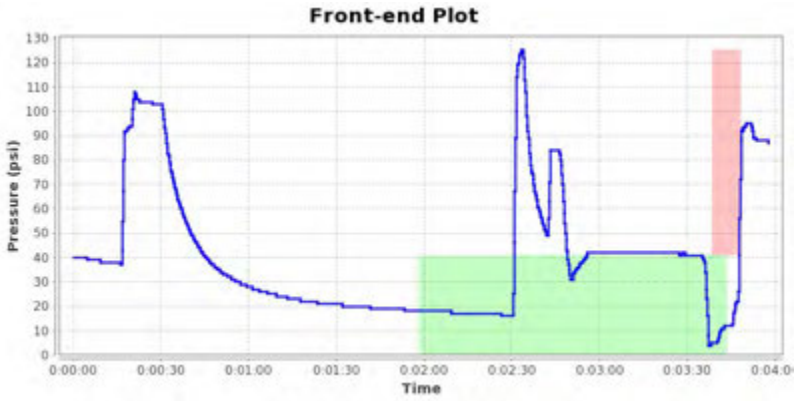
| | |
|---|---|
| Number of Data Points | 464 |
| Total Fusion Time | 500 seconds |
| Maximum Recorded Pressure | 125 psi |

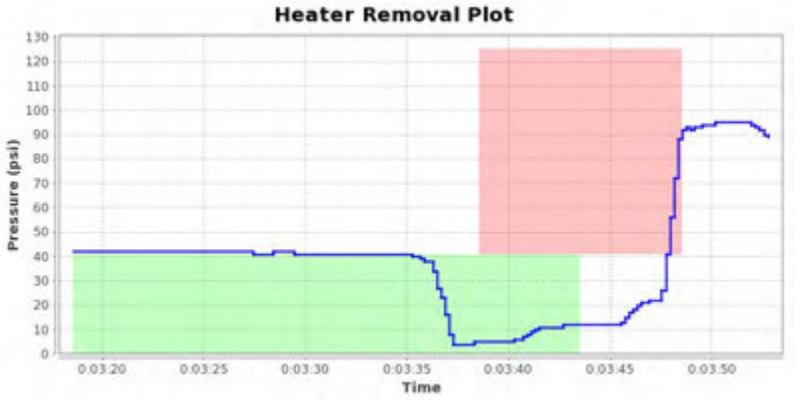
## Device Information

| | |
|---|---|
| DataLogger Serial Number | RH803Z0550 |
| Sensor Serial Number | MDL6621 |
| Calibration Date | 2018-04-04 |
| Firmware Version | v6.0 |
| Software Version | 1.06 (25) |
| Software Product Name | DataLogger 6 |

## Data Source

| | |
|---|---|
| Upload Time | 2018-06-11 21:22:52 GMT |







## Notes

Images for report: 975661



Printed: 2018-06-25 23:00:30 UTC

# McElroy Joint Report

Reference Number 975662

## Job Details

| | |
|---|---|
| Joint Number | 4 |
| Joint Time | 2018-06-06 13:06:07 GMT |
| Job | 1 |
| Operator | jordan |
| Aborted Joint | No |

## Fusion Machine

| | |
|---|---|
| Machine Name | 618 HF |
| Machine Model | 618 HF |
| Piston Area | 11.78 in² |

## Pipe Specifications

| | |
|---|---|
| Pipe Material | PE4710 |
| Pipe Size | 6 " IPS |
| Wall Thickness | DR 17 |

## Pressures

| | | |
|---|---|---|
| Drag Pressure | 41 psi | |
| | Interfacial | Gauge |
| Bead Up | 75 psi | 90 psi |
| Heat Soak | 0 psi | 41 psi |
| Fuse/Cool | 75 psi | 90 psi |

## Fusion Specification

| | |
|---|---|
| Fusion Type | Butt Fusion |
| Fusion Specification | ASTM F2620 |
| Bead Time | 0 seconds |
| Bead Size | 3/16" |
| Heat/Soak Time | 105 seconds |
| Fuse Time | 257 seconds |
| Open/Close Time | 10 seconds |
| Cool Time | 0 seconds |

| | Minimum | Maximum |
|---|---|---|
| Bead Up | 80 psi | 99 psi |
| Heat Soak | 0 psi | 41 psi |
| Fuse | 80 psi | 99 psi |
| Cool | 0 psi | 0 psi |

## External Heater Temperatures

| | Side A | Side B |
|---|---|---|

## GPS Location

| Date | Latitude | Longitude |
|---|---|---|
| 2018-06-06 13:06:07.0 | 64°2'5.523600"N | 135°50'5.827200"W |

## Logged Data Summary

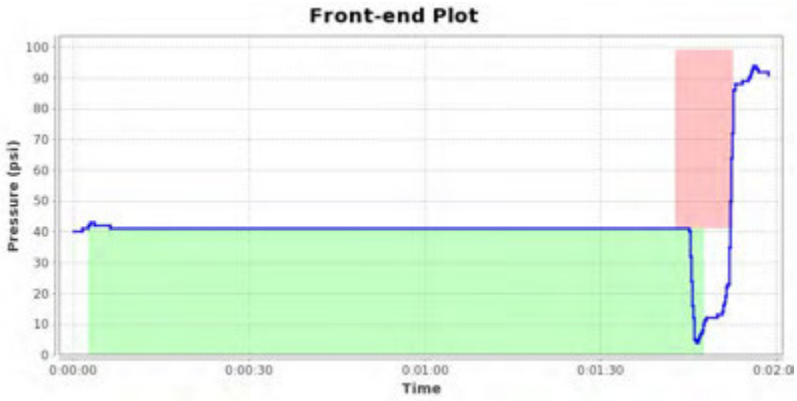
| | |
|---|---|
| Number of Data Points | 88 |
| Total Fusion Time | 425 seconds |
| Maximum Recorded Pressure | 94 psi |

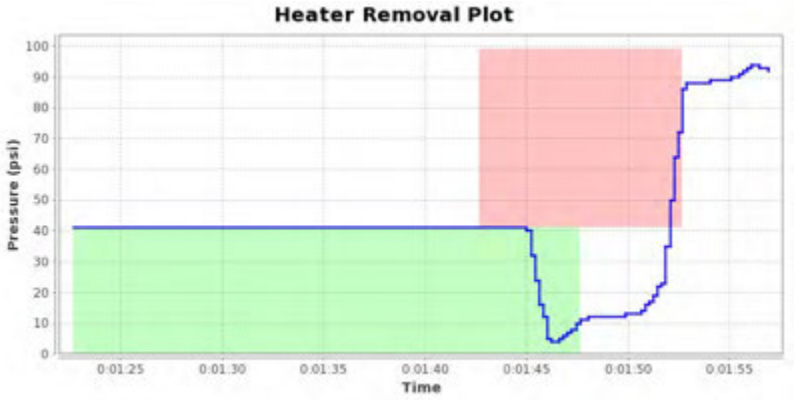
## Device Information

| | |
|---|---|
| DataLogger Serial Number | RH803Z0550 |
| Sensor Serial Number | MDL6621 |
| Calibration Date | 2018-04-04 |
| Firmware Version | v6.0 |
| Software Version | 1.06 (25) |
| Software Product Name | DataLogger 6 |

## Data Source

| | |
|---|---|
| Upload Time | 2018-06-11 21:23:04 GMT |







## Notes

Images for report: 975662



Printed: 2018-06-25 23:00:20 UTC

# McElroy Joint Report

Reference Number 975663

## Job Details

| | |
|---|---|
| Joint Number | 5 |
| Joint Time | 2018-06-06 14:28:02 GMT |
| Job | 1 |
| Operator | jordan |
| Aborted Joint | No |

## Fusion Machine

| | |
|---|---|
| Machine Name | 618 HF |
| Machine Model | 618 HF |
| Piston Area | 11.78 in² |

## Pipe Specifications

| | |
|---|---|
| Pipe Material | PE4710 |
| Pipe Size | 6 " IPS |
| Wall Thickness | DR 17 |

## Pressures

| | | |
|---|---|---|
| Drag Pressure | 41 psi | |
| | Interfacial | Gauge |
| Bead Up | 75 psi | 90 psi |
| Heat Soak | 0 psi | 41 psi |
| Fuse/Cool | 75 psi | 90 psi |

## Fusion Specification

| | |
|---|---|
| Fusion Type | Butt Fusion |
| Fusion Specification | ASTM F2620 |
| Bead Time | 0 seconds |
| Bead Size | 3/16" |
| Heat/Soak Time | 105 seconds |
| Fuse Time | 257 seconds |
| Open/Close Time | 10 seconds |
| Cool Time | 0 seconds |

| | Minimum | Maximum |
|---|---|---|
| Bead Up | 80 psi | 99 psi |
| Heat Soak | 0 psi | 41 psi |
| Fuse | 80 psi | 99 psi |
| Cool | 0 psi | 0 psi |

## External Heater Temperatures

| | Side A | Side B |
|---|---|---|

## GPS Location

| Date | Latitude | Longitude |
|---|---|---|
| 2018-06-06 14:28:02.0 | 64°2'5.401200"N | 135°50'5.172000"W |

## Logged Data Summary

| | |
|---|---|
| Number of Data Points | 98 |
| Total Fusion Time | 396 seconds |
| Maximum Recorded Pressure | 99 psi |

## Device Information

| | |
|---|---|
| DataLogger Serial Number | RH803Z0550 |
| Sensor Serial Number | MDL6621 |
| Calibration Date | 2018-04-04 |
| Firmware Version | v6.0 |
| Software Version | 1.06 (25) |
| Software Product Name | DataLogger 6 |

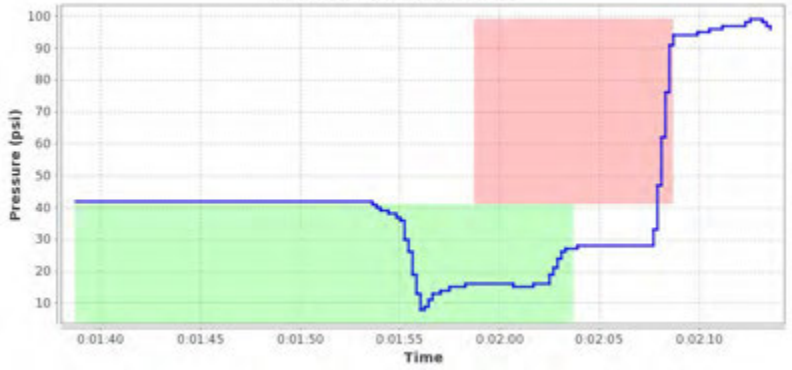
## Data Source

| | |
|---|---|
| Upload Time | 2018-06-11 21:23:14 GMT |

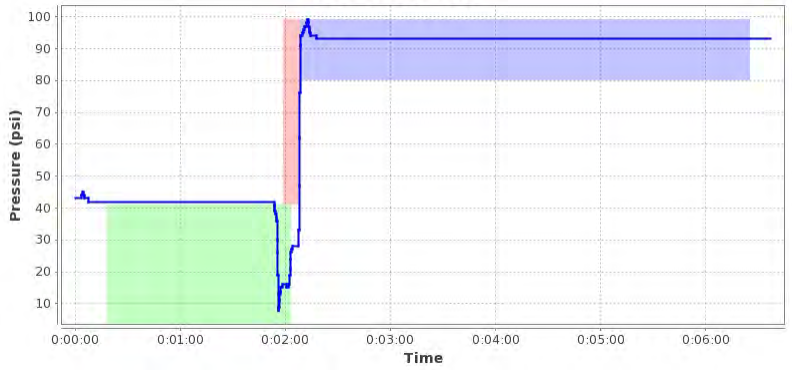
### Front-end Plot




### Heater Removal Plot




### Summary Plot




## Notes

Images for report: 975663



Printed: 2018-06-25 23:00:11 UTC

# McElroy Joint Report

Reference Number 975664

## Job Details

| | |
|---|---|
| Joint Number | 6 |
| Joint Time | 2018-06-06 14:50:07 GMT |
| Job | 1 |
| Operator | jordan |
| Aborted Joint | No |

## Fusion Machine

| | |
|---|---|
| Machine Name | 618 HF |
| Machine Model | 618 HF |
| Piston Area | 11.78 in² |

## Pipe Specifications

| | |
|---|---|
| Pipe Material | PE4710 |
| Pipe Size | 6 " IPS |
| Wall Thickness | DR 17 |

## Pressures

| | | |
|---|---|---|
| Drag Pressure | 41 psi | |
| | Interfacial | Gauge |
| Bead Up | 75 psi | 90 psi |
| Heat Soak | 0 psi | 41 psi |
| Fuse/Cool | 75 psi | 90 psi |

## Fusion Specification

| | |
|---|---|
| Fusion Type | Butt Fusion |
| Fusion Specification | ASTM F2620 |
| Bead Time | 0 seconds |
| Bead Size | 3/16" |
| Heat/Soak Time | 105 seconds |
| Fuse Time | 257 seconds |
| Open/Close Time | 10 seconds |
| Cool Time | 0 seconds |

| | Minimum | Maximum |
|---|---|---|
| Bead Up | 80 psi | 99 psi |
| Heat Soak | 0 psi | 41 psi |
| Fuse | 80 psi | 99 psi |
| Cool | 0 psi | 0 psi |

## External Heater Temperatures

| | Side A | Side B |
|---|---|---|

## GPS Location

| Date | Latitude | Longitude |
|---|---|---|
| 2018-06-06 14:50:07.0 | 64°2'5.324400"N | 135°50'5.220600"W |

## Logged Data Summary

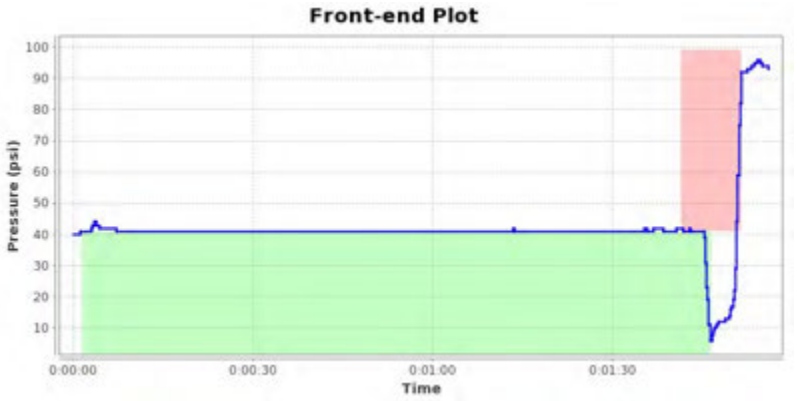
| | |
|---|---|
| Number of Data Points | 120 |
| Total Fusion Time | 371 seconds |
| Maximum Recorded Pressure | 96 psi |

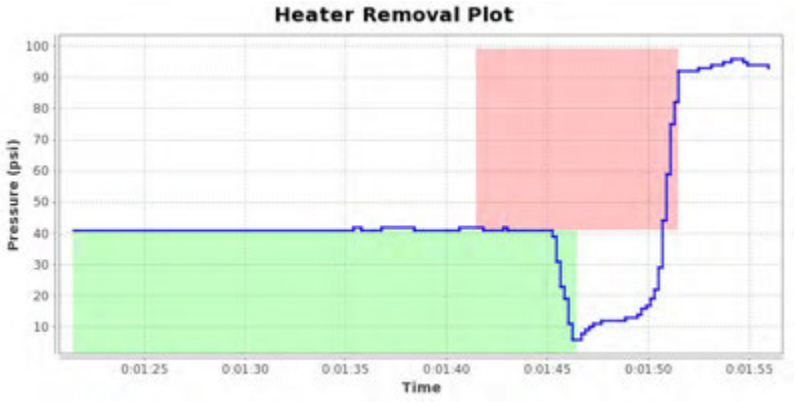
## Device Information

| | |
|---|---|
| DataLogger Serial Number | RH803Z0550 |
| Sensor Serial Number | MDL6621 |
| Calibration Date | 2018-04-04 |
| Firmware Version | v6.0 |
| Software Version | 1.06 (25) |
| Software Product Name | DataLogger 6 |

## Data Source

| | |
|---|---|
| Upload Time | 2018-06-11 21:23:25 GMT |







## Notes

Images for report: 975664



Printed: 2018-06-25 22:59:59 UTC

# McElroy Joint Report

Reference Number 975665

## Job Details

| | |
|---|---|
| Joint Number | 7 |
| Joint Time | 2018-06-06 15:14:17 GMT |
| Job | 1 |
| Operator | jordan |
| Aborted Joint | No |

## Fusion Machine

| | |
|---|---|
| Machine Name | 618 HF |
| Machine Model | 618 HF |
| Piston Area | 11.78 in² |

## Pipe Specifications

| | |
|---|---|
| Pipe Material | PE4710 |
| Pipe Size | 6 " IPS |
| Wall Thickness | DR 17 |

## Pressures

| | | |
|---|---|---|
| Drag Pressure | 41 psi | |
| | Interfacial | Gauge |
| Bead Up | 75 psi | 90 psi |
| Heat Soak | 0 psi | 41 psi |
| Fuse/Cool | 75 psi | 90 psi |

## Fusion Specification

| | |
|---|---|
| Fusion Type | Butt Fusion |
| Fusion Specification | ASTM F2620 |
| Bead Time | 0 seconds |
| Bead Size | 3/16" |
| Heat/Soak Time | 105 seconds |
| Fuse Time | 257 seconds |
| Open/Close Time | 10 seconds |
| Cool Time | 0 seconds |

| | Minimum | Maximum |
|---|---|---|
| Bead Up | 80 psi | 99 psi |
| Heat Soak | 0 psi | 41 psi |
| Fuse | 80 psi | 99 psi |
| Cool | 0 psi | 0 psi |

## External Heater Temperatures

| | Side A | Side B |
|---|---|---|

## GPS Location

| Date | Latitude | Longitude |
|---|---|---|
| 2018-06-06 15:14:17.0 | 64°2'5.305200"N | 135°50'5.151600"W |

## Logged Data Summary

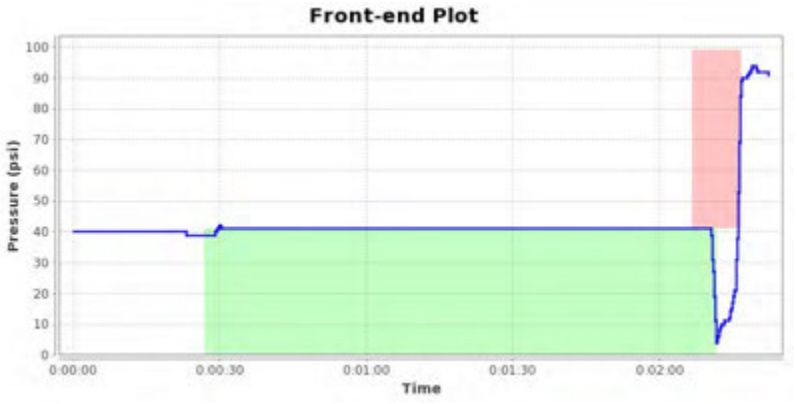
| | |
|---|---|
| Number of Data Points | 302 |
| Total Fusion Time | 463 seconds |
| Maximum Recorded Pressure | 94 psi |

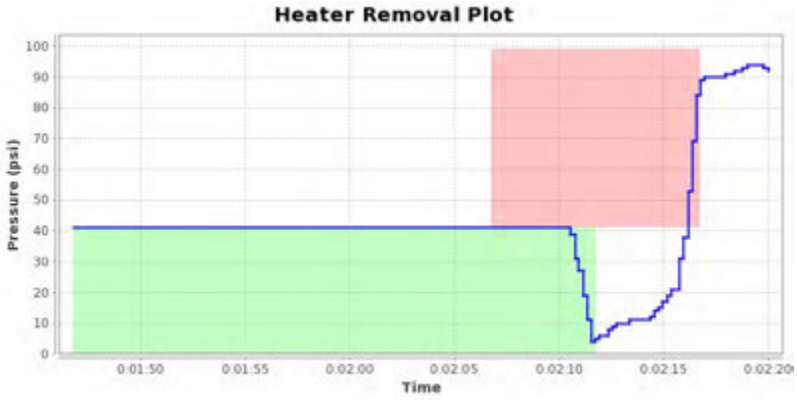
## Device Information

| | |
|---|---|
| DataLogger Serial Number | RH803Z0550 |
| Sensor Serial Number | MDL6621 |
| Calibration Date | 2018-04-04 |
| Firmware Version | v6.0 |
| Software Version | 1.06 (25) |
| Software Product Name | DataLogger 6 |

## Data Source

| | |
|---|---|
| Upload Time | 2018-06-11 21:23:36 GMT |







## Notes

Images for report: 975665



Printed: 2018-06-25 22:59:50 UTC

# McElroy Joint Report

Reference Number 975666

## Job Details

| | |
|---|---|
| Joint Number | 8 |
| Joint Time | 2018-06-06 15:39:44 GMT |
| Job | 1 |
| Operator | jordan |
| Aborted Joint | No |

## Fusion Machine

| | |
|---|---|
| Machine Name | 618 HF |
| Machine Model | 618 HF |
| Piston Area | 11.78 in² |

## Pipe Specifications

| | |
|---|---|
| Pipe Material | PE4710 |
| Pipe Size | 6 " IPS |
| Wall Thickness | DR 17 |

## Pressures

| | | |
|---|---|---|
| Drag Pressure | 41 psi | |
| | Interfacial | Gauge |
| Bead Up | 75 psi | 90 psi |
| Heat Soak | 0 psi | 41 psi |
| Fuse/Cool | 75 psi | 90 psi |

## Fusion Specification

| | |
|---|---|
| Fusion Type | Butt Fusion |
| Fusion Specification | ASTM F2620 |
| Bead Time | 0 seconds |
| Bead Size | 3/16" |
| Heat/Soak Time | 105 seconds |
| Fuse Time | 257 seconds |
| Open/Close Time | 10 seconds |
| Cool Time | 0 seconds |

| | Minimum | Maximum |
|---|---|---|
| Bead Up | 80 psi | 99 psi |
| Heat Soak | 0 psi | 41 psi |
| Fuse | 80 psi | 99 psi |
| Cool | 0 psi | 0 psi |

## External Heater Temperatures

| | Side A | Side B |
|---|---|---|

## GPS Location

| Date | Latitude | Longitude |
|---|---|---|
| 2018-06-06 15:39:44.0 | 64°2'5.259600"N | 135°50'5.689800"W |

## Logged Data Summary

| | |
|---|---|
| Number of Data Points | 136 |
| Total Fusion Time | 406 seconds |
| Maximum Recorded Pressure | 93 psi |

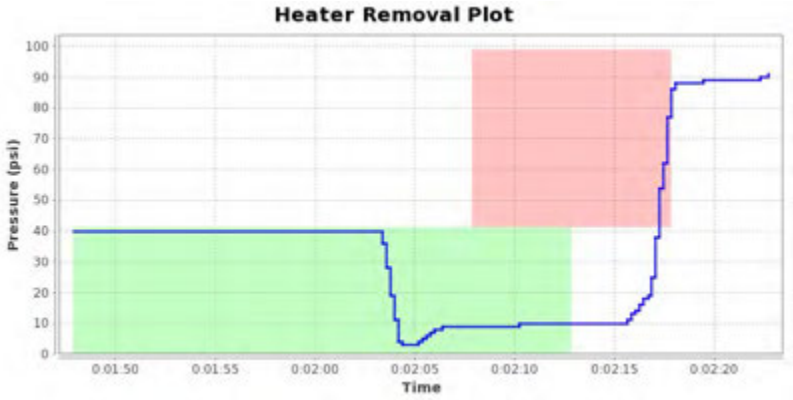
## Device Information

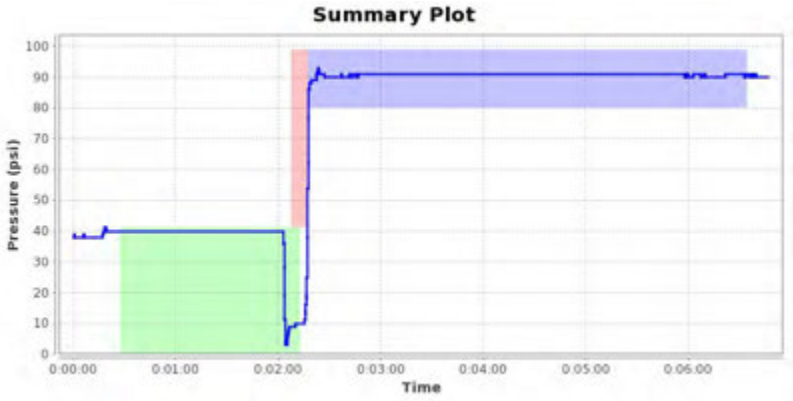
| | |
|---|---|
| DataLogger Serial Number | RH803Z0550 |
| Sensor Serial Number | MDL6621 |
| Calibration Date | 2018-04-04 |
| Firmware Version | v6.0 |
| Software Version | 1.06 (25) |
| Software Product Name | DataLogger 6 |

## Data Source

| | |
|---|---|
| Upload Time | 2018-06-11 21:23:45 GMT |




## Notes

Images for report: 975666



Printed: 2018-06-25 22:59:40 UTC

# McElroy Joint Report

Reference Number 975667

## Job Details

| | |
|---|---|
| Joint Number | 9 |
| Joint Time | 2018-06-06 16:42:14 GMT |
| Job | 1 |
| Operator | jordan |
| Aborted Joint | No |

## Fusion Machine

| | |
|---|---|
| Machine Name | 618 HF |
| Machine Model | 618 HF |
| Piston Area | 11.78 in² |

## Pipe Specifications

| | |
|---|---|
| Pipe Material | PE4710 |
| Pipe Size | 6 " IPS |
| Wall Thickness | DR 17 |

## Pressures

| | | |
|---|---|---|
| Drag Pressure | 41 psi | |
| | Interfacial | Gauge |
| Bead Up | 75 psi | 90 psi |
| Heat Soak | 0 psi | 41 psi |
| Fuse/Cool | 75 psi | 90 psi |

## Fusion Specification

| | |
|---|---|
| Fusion Type | Butt Fusion |
| Fusion Specification | ASTM F2620 |
| Bead Time | 0 seconds |
| Bead Size | 3/16" |
| Heat/Soak Time | 105 seconds |
| Fuse Time | 257 seconds |
| Open/Close Time | 10 seconds |
| Cool Time | 0 seconds |

| | Minimum | Maximum |
|---|---|---|
| Bead Up | 80 psi | 99 psi |
| Heat Soak | 0 psi | 41 psi |
| Fuse | 80 psi | 99 psi |
| Cool | 0 psi | 0 psi |

## External Heater Temperatures

| | Side A | Side B |
|---|---|---|

## GPS Location

| Date | Latitude | Longitude |
|---|---|---|
| 2018-06-06 16:42:14.0 | 64°2'5.259600"N | 135°50'5.881200"W |

## Logged Data Summary

| | |
|---|---|
| Number of Data Points | 210 |
| Total Fusion Time | 466 seconds |
| Maximum Recorded Pressure | 92 psi |

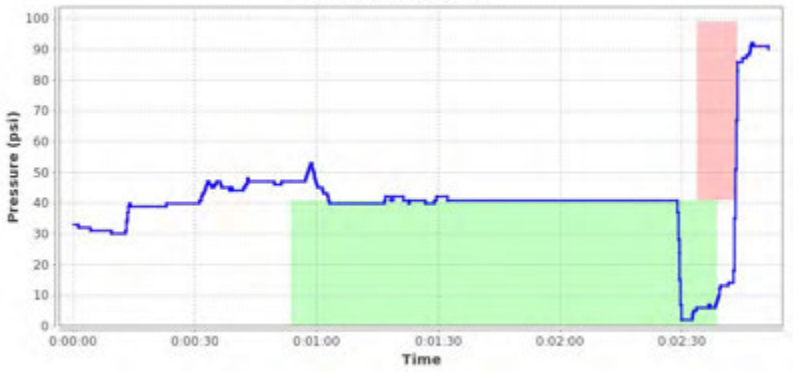
## Device Information

| | |
|---|---|
| DataLogger Serial Number | RH803Z0550 |
| Sensor Serial Number | MDL6621 |
| Calibration Date | 2018-04-04 |
| Firmware Version | v6.0 |
| Software Version | 1.06 (25) |
| Software Product Name | DataLogger 6 |

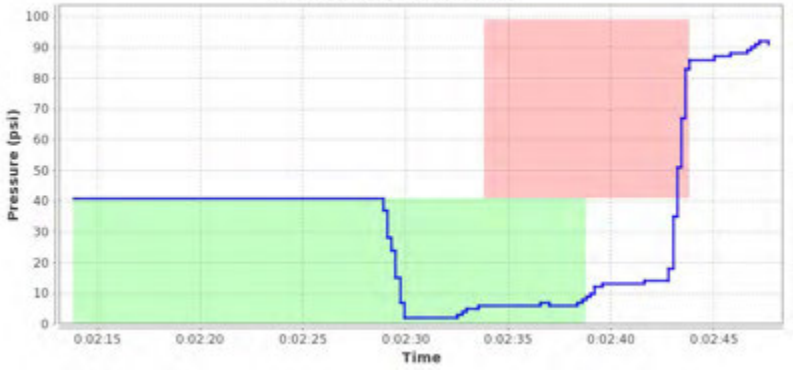
## Data Source

| | |
|---|---|
| Upload Time | 2018-06-11 21:23:52 GMT |

### Front-end Plot




### Heater Removal Plot




### Summary Plot




## Notes

Images for report: 975667



Printed: 2018-06-25 22:59:31 UTC

# McElroy Joint Report

Reference Number 975668

## Job Details

| | |
|---|---|
| Joint Number | 10 |
| Joint Time | 2018-06-06 17:27:57 GMT |
| Job | 1 |
| Operator | jordan |
| Aborted Joint | No |

## Fusion Machine

| | |
|---|---|
| Machine Name | 618 HF |
| Machine Model | 618 HF |
| Piston Area | 11.78 in² |

## Pipe Specifications

| | |
|---|---|
| Pipe Material | PE4710 |
| Pipe Size | 6 " IPS |
| Wall Thickness | DR 17 |

## Pressures

| | | |
|---|---|---|
| Drag Pressure | 41 psi | |
| | Interfacial | Gauge |
| Bead Up | 75 psi | 90 psi |
| Heat Soak | 0 psi | 41 psi |
| Fuse/Cool | 75 psi | 90 psi |

## Fusion Specification

| | |
|---|---|
| Fusion Type | Butt Fusion |
| Fusion Specification | ASTM F2620 |
| Bead Time | 0 seconds |
| Bead Size | 3/16" |
| Heat/Soak Time | 105 seconds |
| Fuse Time | 257 seconds |
| Open/Close Time | 10 seconds |
| Cool Time | 0 seconds |

| | Minimum | Maximum |
|---|---|---|
| Bead Up | 80 psi | 99 psi |
| Heat Soak | 0 psi | 41 psi |
| Fuse | 80 psi | 99 psi |
| Cool | 0 psi | 0 psi |

## External Heater Temperatures

| | Side A | Side B |
|---|---|---|

## GPS Location

| Date | Latitude | Longitude |
|---|---|---|
| 2018-06-06 17:27:57.0 | 64°2'5.350800"N | 135°50'5.319600"W |

## Logged Data Summary

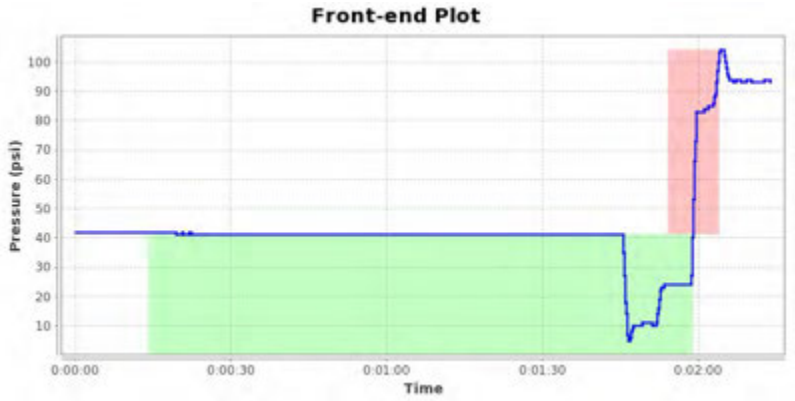
| | |
|---|---|
| Number of Data Points | 140 |
| Total Fusion Time | 437 seconds |
| Maximum Recorded Pressure | 104 psi |

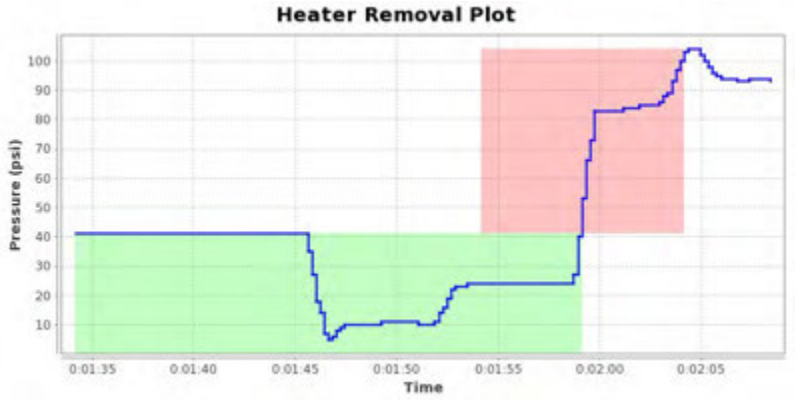
## Device Information

| | |
|---|---|
| DataLogger Serial Number | RH803Z0550 |
| Sensor Serial Number | MDL6621 |
| Calibration Date | 2018-04-04 |
| Firmware Version | v6.0 |
| Software Version | 1.06 (25) |
| Software Product Name | DataLogger 6 |

## Data Source

| | |
|---|---|
| Upload Time | 2018-06-11 21:24:03 GMT |







## Notes

Images for report: 975668



Printed: 2018-06-25 22:59:21 UTC

# McElroy Joint Report

Reference Number 975669

## Job Details

| | |
|---|---|
| Joint Number | 11 |
| Joint Time | 2018-06-06 17:48:15 GMT |
| Job | 1 |
| Operator | jordan |
| Aborted Joint | No |

## Fusion Machine

| | |
|---|---|
| Machine Name | 618 HF |
| Machine Model | 618 HF |
| Piston Area | 11.78 in² |

## Pipe Specifications

| | |
|---|---|
| Pipe Material | PE4710 |
| Pipe Size | 6 " IPS |
| Wall Thickness | DR 17 |

## Pressures

| | | |
|---|---|---|
| Drag Pressure | 41 psi | |
| | Interfacial | Gauge |
| Bead Up | 75 psi | 90 psi |
| Heat Soak | 0 psi | 41 psi |
| Fuse/Cool | 75 psi | 90 psi |

## Fusion Specification

| | |
|---|---|
| Fusion Type | Butt Fusion |
| Fusion Specification | ASTM F2620 |
| Bead Time | 0 seconds |
| Bead Size | 3/16" |
| Heat/Soak Time | 105 seconds |
| Fuse Time | 257 seconds |
| Open/Close Time | 10 seconds |
| Cool Time | 0 seconds |

| | Minimum | Maximum |
|---|---|---|
| Bead Up | 80 psi | 99 psi |
| Heat Soak | 0 psi | 41 psi |
| Fuse | 80 psi | 99 psi |
| Cool | 0 psi | 0 psi |

## External Heater Temperatures

| | Side A | Side B |
|---|---|---|

## GPS Location

| Date | Latitude | Longitude |
|---|---|---|
| 2018-06-06 17:48:15.0 | 64°2'5.258400"N | 135°50'5.461200"W |

## Logged Data Summary

| | |
|---|---|
| Number of Data Points | 136 |
| Total Fusion Time | 377 seconds |
| Maximum Recorded Pressure | 93 psi |

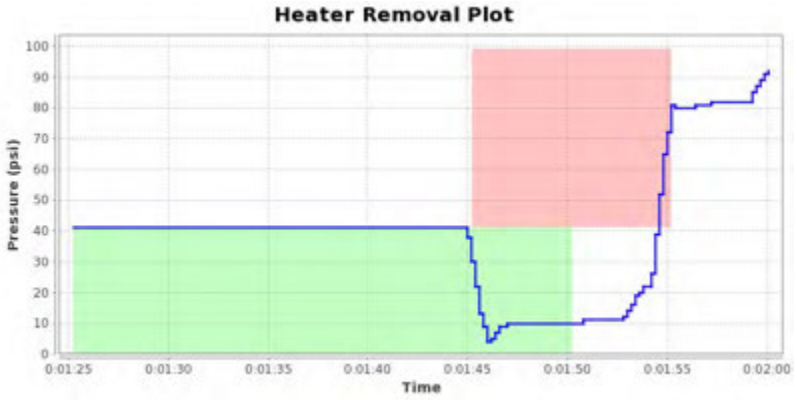
## Device Information

| | |
|---|---|
| DataLogger Serial Number | RH803Z0550 |
| Sensor Serial Number | MDL6621 |
| Calibration Date | 2018-04-04 |
| Firmware Version | v6.0 |
| Software Version | 1.06 (25) |
| Software Product Name | DataLogger 6 |

## Data Source

| | |
|---|---|
| Upload Time | 2018-06-11 21:24:09 GMT |







## Notes

Images for report: 975669



Printed: 2018-06-25 22:59:12 UTC

# McElroy Joint Report

Reference Number 975670

## Job Details

| | |
|---|---|
| Joint Number | 12 |
| Joint Time | 2018-06-06 18:14:57 GMT |
| Job | 1 |
| Operator | jordan |
| Aborted Joint | No |

## Fusion Machine

| | |
|---|---|
| Machine Name | 618 HF |
| Machine Model | 618 HF |
| Piston Area | 11.78 in² |

## Pipe Specifications

| | |
|---|---|
| Pipe Material | PE4710 |
| Pipe Size | 6 " IPS |
| Wall Thickness | DR 17 |

## Pressures

| | | |
|---|---|---|
| Drag Pressure | 41 psi | |
| | Interfacial | Gauge |
| Bead Up | 75 psi | 90 psi |
| Heat Soak | 0 psi | 41 psi |
| Fuse/Cool | 75 psi | 90 psi |

## Fusion Specification

| | |
|---|---|
| Fusion Type | Butt Fusion |
| Fusion Specification | ASTM F2620 |
| Bead Time | 0 seconds |
| Bead Size | 3/16" |
| Heat/Soak Time | 105 seconds |
| Fuse Time | 257 seconds |
| Open/Close Time | 10 seconds |
| Cool Time | 0 seconds |

| | Minimum | Maximum |
|---|---|---|
| Bead Up | 80 psi | 99 psi |
| Heat Soak | 0 psi | 41 psi |
| Fuse | 80 psi | 99 psi |
| Cool | 0 psi | 0 psi |

## External Heater Temperatures

| | Side A | Side B |
|---|---|---|

## GPS Location

| Date | Latitude | Longitude |
|---|---|---|
| 2018-06-06 18:14:57.0 | 64°2'5.464200"N | 135°50'5.119200"W |

## Logged Data Summary

| | |
|---|---|
| Number of Data Points | 266 |
| Total Fusion Time | 515 seconds |
| Maximum Recorded Pressure | 92 psi |

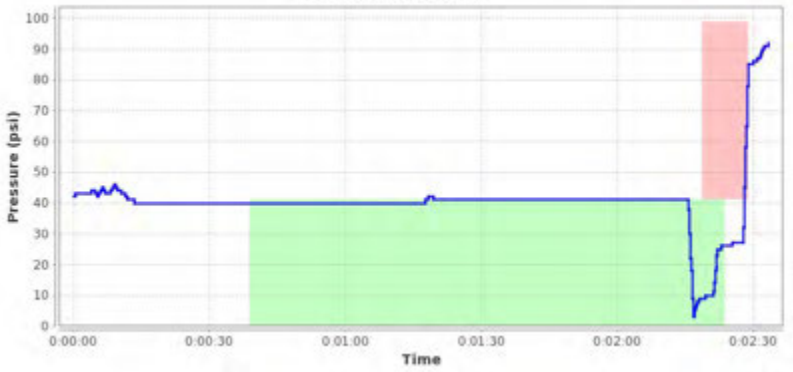
## Device Information

| | |
|---|---|
| DataLogger Serial Number | RH803Z0550 |
| Sensor Serial Number | MDL6621 |
| Calibration Date | 2018-04-04 |
| Firmware Version | v6.0 |
| Software Version | 1.06 (25) |
| Software Product Name | DataLogger 6 |

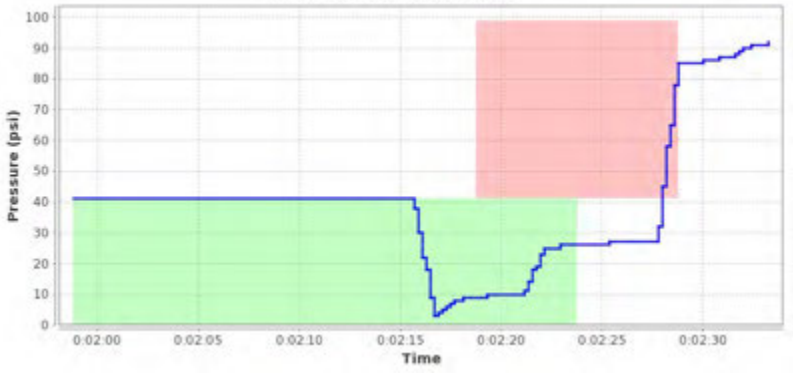
## Data Source

| | |
|---|---|
| Upload Time | 2018-06-11 21:24:11 GMT |

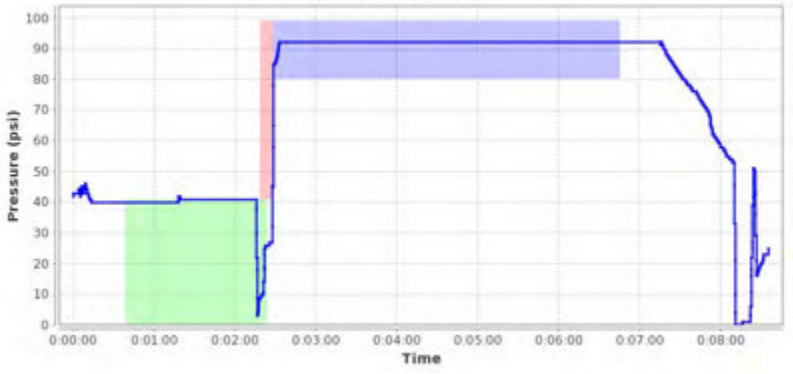
### Front-end Plot




### Heater Removal Plot




### Summary Plot




## Notes

Printed: 2018-06-25 22:59:03 UTC

# McElroy Joint Report

Reference Number 975671

## Job Details

| | |
|---|---|
| Joint Number | 13 |
| Joint Time | 2018-06-07 07:52:39 GMT |
| Job | 1 |
| Operator | jordan |
| Aborted Joint | No |

## Fusion Machine

| | |
|---|---|
| Machine Name | 618 HF |
| Machine Model | 618 HF |
| Piston Area | 11.78 in² |

## Pipe Specifications

| | |
|---|---|
| Pipe Material | PE4710 |
| Pipe Size | 6 " IPS |
| Wall Thickness | DR 17 |

## Pressures

| | | |
|---|---|---|
| Drag Pressure | 41 psi | |
| | Interfacial | Gauge |
| Bead Up | 75 psi | 90 psi |
| Heat Soak | 0 psi | 41 psi |
| Fuse/Cool | 75 psi | 90 psi |

## Fusion Specification

| | |
|---|---|
| Fusion Type | Butt Fusion |
| Fusion Specification | ASTM F2620 |
| Bead Time | 0 seconds |
| Bead Size | 3/16" |
| Heat/Soak Time | 105 seconds |
| Fuse Time | 257 seconds |
| Open/Close Time | 10 seconds |
| Cool Time | 0 seconds |

| | Minimum | Maximum |
|---|---|---|
| Bead Up | 80 psi | 99 psi |
| Heat Soak | 0 psi | 41 psi |
| Fuse | 80 psi | 99 psi |
| Cool | 0 psi | 0 psi |

## External Heater Temperatures

| | Side A | Side B |
|---|---|---|

## GPS Location

| Date | Latitude | Longitude |
|---|---|---|
| 2018-06-07 07:52:39.0 | 64°2'5.205600"N | 135°50'5.463000"W |

## Logged Data Summary

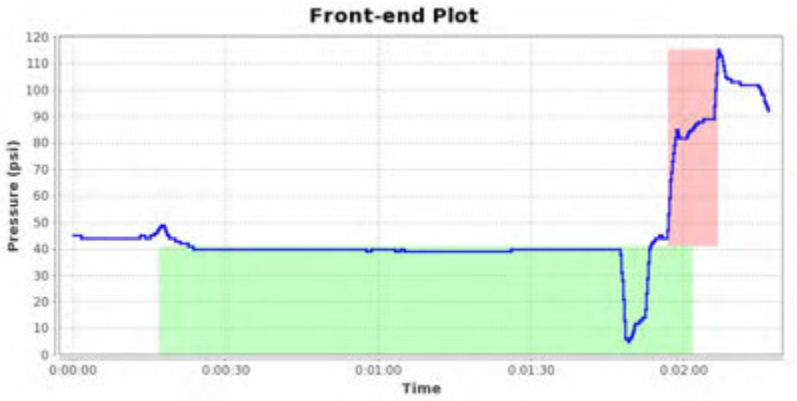
| | |
|---|---|
| Number of Data Points | 282 |
| Total Fusion Time | 428 seconds |
| Maximum Recorded Pressure | 115 psi |

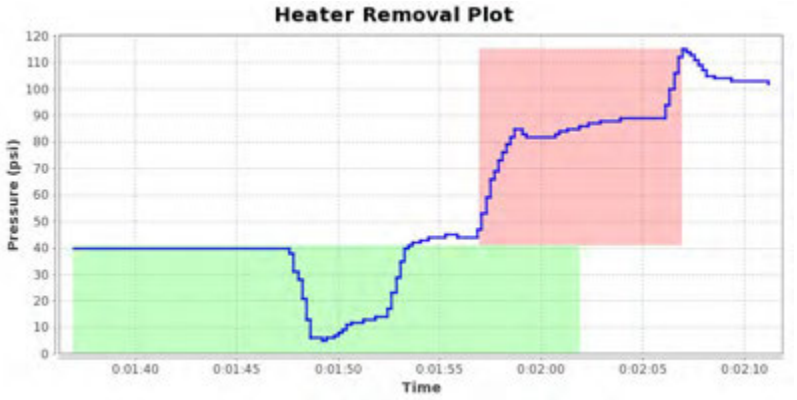
## Device Information

| | |
|---|---|
| DataLogger Serial Number | RH803Z0550 |
| Sensor Serial Number | MDL6621 |
| Calibration Date | 2018-04-04 |
| Firmware Version | v6.0 |
| Software Version | 1.06 (25) |
| Software Product Name | DataLogger 6 |

## Data Source

| | |
|---|---|
| Upload Time | 2018-06-11 21:24:20 GMT |







## Notes

Images for report: 975671



Printed: 2018-06-25 22:58:54 UTC

# McElroy Joint Report

Reference Number 975672

## Job Details

| | |
|---|---|
| Joint Number | 14 |
| Joint Time | 2018-06-07 10:07:07 GMT |
| Job | 1 |
| Operator | jordan |
| Aborted Joint | No |

## Fusion Machine

| | |
|---|---|
| Machine Name | 618 HF |
| Machine Model | 618 HF |
| Piston Area | 11.78 in² |

## Pipe Specifications

| | |
|---|---|
| Pipe Material | PE4710 |
| Pipe Size | 6 " IPS |
| Wall Thickness | DR 17 |

## Pressures

| | | |
|---|---|---|
| Drag Pressure | 41 psi | |
| | Interfacial | Gauge |
| Bead Up | 75 psi | 90 psi |
| Heat Soak | 0 psi | 41 psi |
| Fuse/Cool | 75 psi | 90 psi |

## Fusion Specification

| | | |
|---|---|---|
| Fusion Type | Butt Fusion | |
| Fusion Specification | ASTM F2620 | |
| Bead Time | 0 seconds | |
| Bead Size | 3/16" | |
| Heat/Soak Time | 105 seconds | |
| Fuse Time | 257 seconds | |
| Open/Close Time | 10 seconds | |
| Cool Time | 0 seconds | |
| | Minimum | Maximum |
| Bead Up | 80 psi | 99 psi |
| Heat Soak | 0 psi | 41 psi |
| Fuse | 80 psi | 99 psi |
| Cool | 0 psi | 0 psi |

## External Heater Temperatures

| | Side A | Side B |
|---|---|---|

## GPS Location

| Date | Latitude | Longitude |
|---|---|---|
| 2018-06-07 10:07:07.0 | 64°2'5.420400"N | 135°50'5.599800"W |

## Logged Data Summary

| | |
|---|---|
| Number of Data Points | 234 |
| Total Fusion Time | 427 seconds |
| Maximum Recorded Pressure | 105 psi |

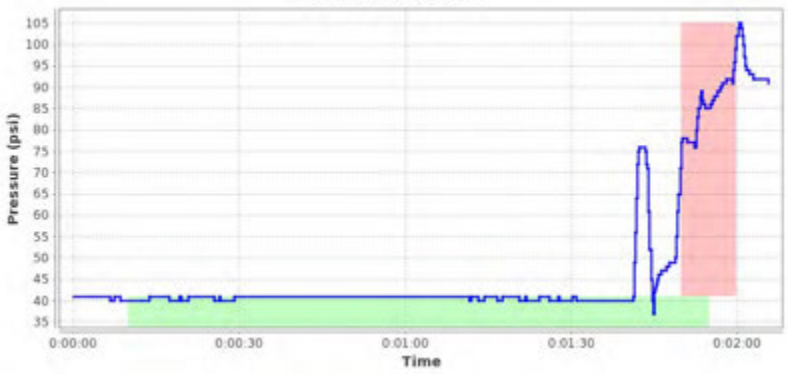
## Device Information

| | |
|---|---|
| DataLogger Serial Number | RH803Z0550 |
| Sensor Serial Number | MDL6621 |
| Calibration Date | 2018-04-04 |
| Firmware Version | v6.0 |
| Software Version | 1.06 (25) |
| Software Product Name | DataLogger 6 |

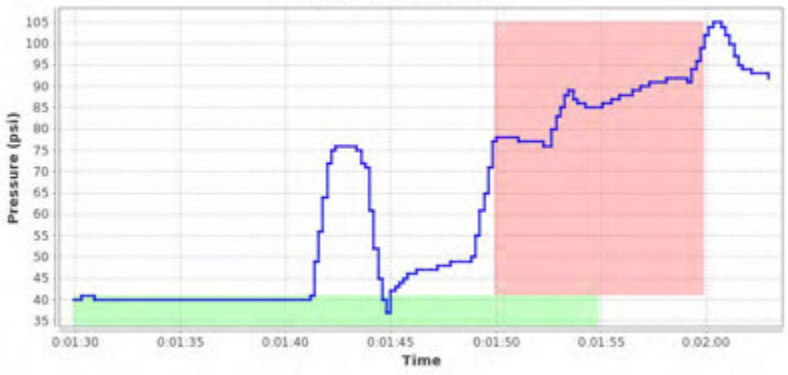
## Data Source

| | |
|---|---|
| Upload Time | 2018-06-11 21:24:22 GMT |

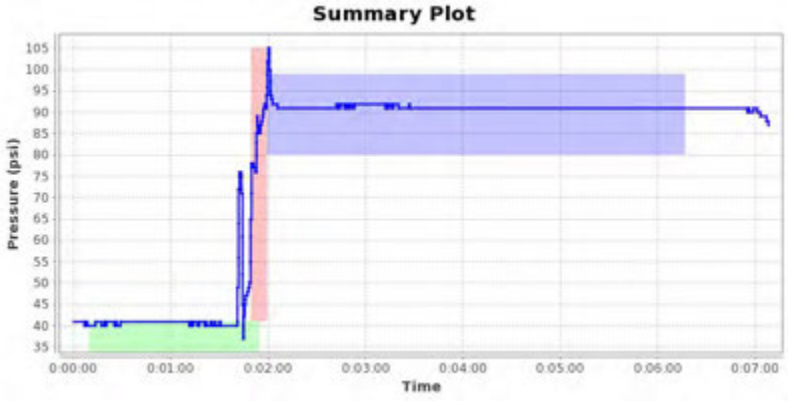
### Front-end Plot




### Heater Removal Plot




### Summary Plot




## Notes

Printed: 2018-06-25 22:58:44 UTC

# McElroy Joint Report

Reference Number 975673

## Job Details

| | |
|---|---|
| Joint Number | 15 |
| Joint Time | 2018-06-07 11:08:27 GMT |
| Job | 1 |
| Operator | jordan |
| Aborted Joint | No |

## Fusion Machine

| | |
|---|---|
| Machine Name | 618 HF |
| Machine Model | 618 HF |
| Piston Area | 11.78 in² |

## Pipe Specifications

| | |
|---|---|
| Pipe Material | PE4710 |
| Pipe Size | 6 " IPS |
| Wall Thickness | DR 17 |

## Pressures

| | | |
|---|---|---|
| Drag Pressure | 37 psi | |
| | Interfacial | Gauge |
| Bead Up | 75 psi | 86 psi |
| Heat Soak | 0 psi | 37 psi |
| Fuse/Cool | 75 psi | 86 psi |

## Fusion Specification

| | |
|---|---|
| Fusion Type | Butt Fusion |
| Fusion Specification | ASTM F2620 |
| Bead Time | 0 seconds |
| Bead Size | 3/16" |
| Heat/Soak Time | 105 seconds |
| Fuse Time | 257 seconds |
| Open/Close Time | 10 seconds |
| Cool Time | 0 seconds |

| | Minimum | Maximum |
|---|---|---|
| Bead Up | 76 psi | 95 psi |
| Heat Soak | 0 psi | 37 psi |
| Fuse | 76 psi | 95 psi |
| Cool | 0 psi | 0 psi |

## External Heater Temperatures

| | Side A | Side B |
|---|---|---|

## GPS Location

| Date | Latitude | Longitude |
|---|---|---|
| 2018-06-07 11:08:27.0 | 64°2'5.349600"N | 135°50'5.294400"W |

## Logged Data Summary

| | |
|---|---|
| Number of Data Points | 252 |
| Total Fusion Time | 472 seconds |
| Maximum Recorded Pressure | 91 psi |

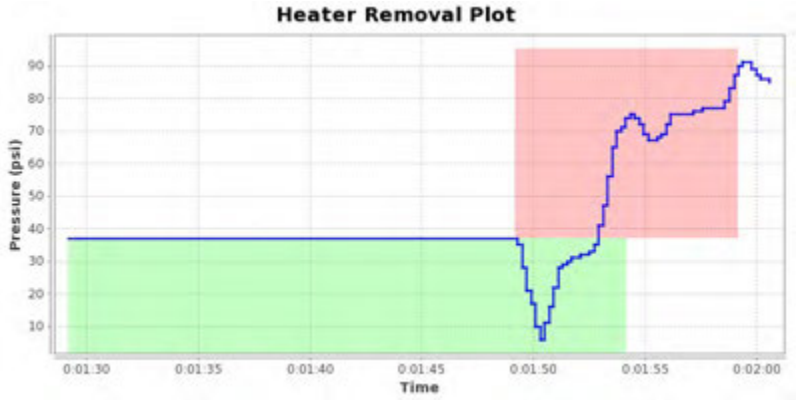
## Device Information

| | |
|---|---|
| DataLogger Serial Number | RH803Z0550 |
| Sensor Serial Number | MDL6621 |
| Calibration Date | 2018-04-04 |
| Firmware Version | v6.0 |
| Software Version | 1.06 (25) |
| Software Product Name | DataLogger 6 |

## Data Source

| | |
|---|---|
| Upload Time | 2018-06-11 21:24:30 GMT |







## Notes

Images for report: 975673



Printed: 2018-06-25 22:58:35 UTC

# McElroy Joint Report

Reference Number 975674

## Job Details

| | |
|---|---|
| Joint Number | 16 |
| Joint Time | 2018-06-07 12:15:16 GMT |
| Job | 1 |
| Operator | jordan |
| Aborted Joint | No |

## Fusion Machine

| | |
|---|---|
| Machine Name | 618 HF |
| Machine Model | 618 HF |
| Piston Area | 11.78 in² |

## Pipe Specifications

| | |
|---|---|
| Pipe Material | PE4710 |
| Pipe Size | 6 " IPS |
| Wall Thickness | DR 17 |

## Pressures

| | | |
|---|---|---|
| Drag Pressure | 33 psi | |
| | Interfacial | Gauge |
| Bead Up | 75 psi | 82 psi |
| Heat Soak | 0 psi | 33 psi |
| Fuse/Cool | 75 psi | 82 psi |

## Fusion Specification

| | |
|---|---|
| Fusion Type | Butt Fusion |
| Fusion Specification | ASTM F2620 |
| Bead Time | 0 seconds |
| Bead Size | 3/16" |
| Heat/Soak Time | 105 seconds |
| Fuse Time | 257 seconds |
| Open/Close Time | 10 seconds |
| Cool Time | 0 seconds |

| | Minimum | Maximum |
|---|---|---|
| Bead Up | 72 psi | 91 psi |
| Heat Soak | 0 psi | 33 psi |
| Fuse | 72 psi | 91 psi |
| Cool | 0 psi | 0 psi |

## External Heater Temperatures

| | Side A | Side B |
|---|---|---|

## GPS Location

| Date | Latitude | Longitude |
|---|---|---|
| 2018-06-07 12:15:16.0 | 64°2'5.302200"N | 135°50'5.586000"W |

## Logged Data Summary

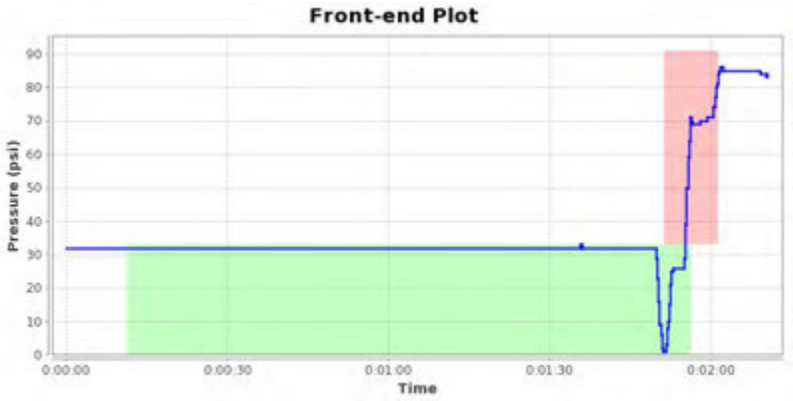
| | |
|---|---|
| Number of Data Points | 284 |
| Total Fusion Time | 1566 seconds |
| Maximum Recorded Pressure | 86 psi |

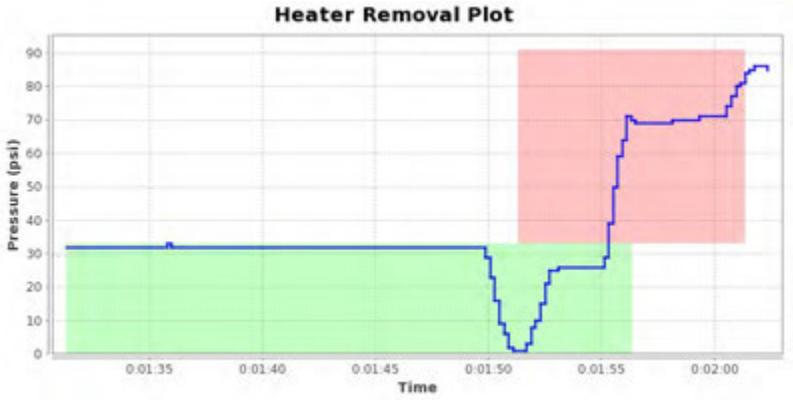
## Device Information

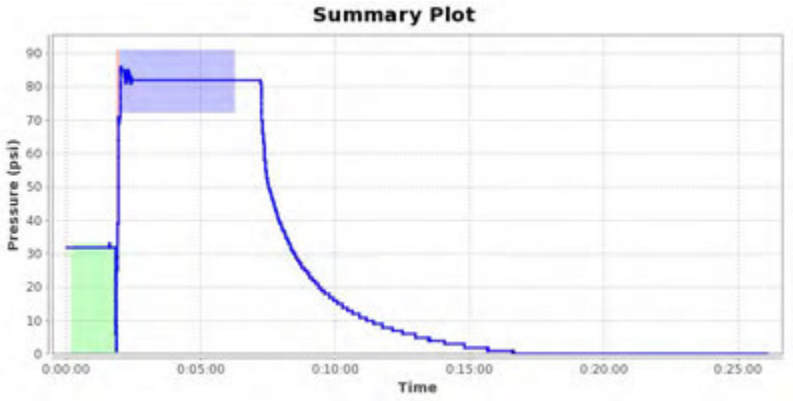
| | |
|---|---|
| DataLogger Serial Number | RH803Z0550 |
| Sensor Serial Number | MDL6621 |
| Calibration Date | 2018-04-04 |
| Firmware Version | v6.0 |
| Software Version | 1.06 (25) |
| Software Product Name | DataLogger 6 |

## Data Source

| | |
|---|---|
| Upload Time | 2018-06-11 21:24:40 GMT |




## Notes

Images for report: 975674



Printed: 2018-06-25 22:58:25 UTC

# McElroy Joint Report

Reference Number 975675

## Job Details

| | |
|---|---|
| Joint Number | 17 |
| Joint Time | 2018-06-07 12:38:04 GMT |
| Job | 1 |
| Operator | jordan |
| Aborted Joint | No |

## Fusion Machine

| | |
|---|---|
| Machine Name | 618 HF |
| Machine Model | 618 HF |
| Piston Area | 11.78 in² |

## Pipe Specifications

| | |
|---|---|
| Pipe Material | PE4710 |
| Pipe Size | 6 " IPS |
| Wall Thickness | DR 17 |

## Pressures

| | | |
|---|---|---|
| Drag Pressure | 39 psi | |
| | Interfacial | Gauge |
| Bead Up | 75 psi | 88 psi |
| Heat Soak | 0 psi | 39 psi |
| Fuse/Cool | 75 psi | 88 psi |

## Fusion Specification

| | |
|---|---|
| Fusion Type | Butt Fusion |
| Fusion Specification | ASTM F2620 |
| Bead Time | 0 seconds |
| Bead Size | 3/16" |
| Heat/Soak Time | 105 seconds |
| Fuse Time | 257 seconds |
| Open/Close Time | 10 seconds |
| Cool Time | 0 seconds |

| | Minimum | Maximum |
|---|---|---|
| Bead Up | 78 psi | 97 psi |
| Heat Soak | 0 psi | 39 psi |
| Fuse | 78 psi | 97 psi |
| Cool | 0 psi | 0 psi |

## External Heater Temperatures

| | Side A | Side B |
|---|---|---|

## GPS Location

| Date | Latitude | Longitude |
|---|---|---|
| 2018-06-07 12:38:04.0 | 64°2'5.391000"N | 135°50'5.684400"W |

## Logged Data Summary

| | |
|---|---|
| Number of Data Points | 90 |
| Total Fusion Time | 275 seconds |
| Maximum Recorded Pressure | 92 psi |

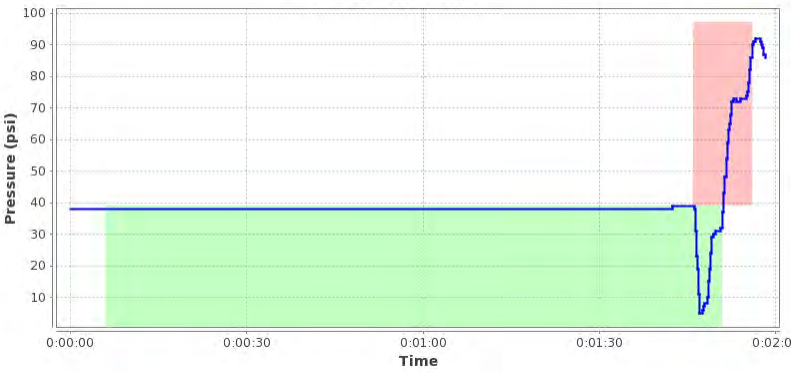
## Device Information

| | |
|---|---|
| DataLogger Serial Number | RH803Z0550 |
| Sensor Serial Number | MDL6621 |
| Calibration Date | 2018-04-04 |
| Firmware Version | v6.0 |
| Software Version | 1.06 (25) |
| Software Product Name | DataLogger 6 |

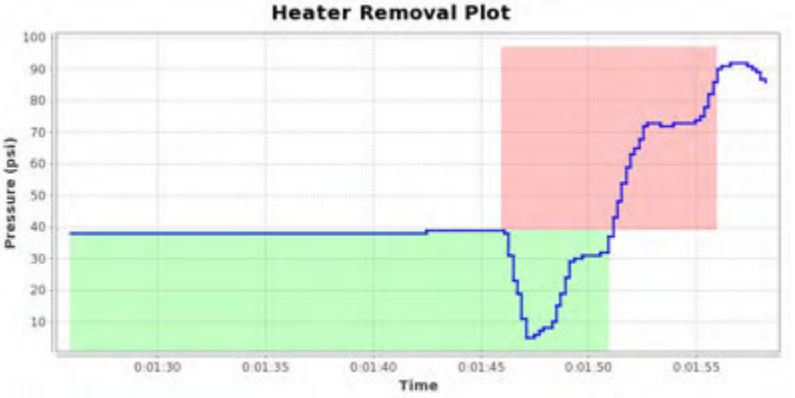
## Data Source

| | |
|---|---|
| Upload Time | 2018-06-11 21:24:46 GMT |

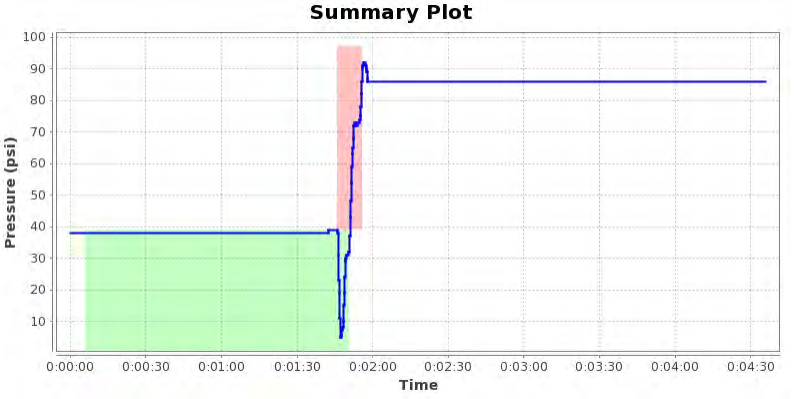
**Front-end Plot**




**Heater Removal Plot**




**Summary Plot**




## Notes

Went ffor full time just meessed up timer

Images for report: 975675



Printed: 2018-06-25 22:58:13 UTC

# McElroy Joint Report

Reference Number 975676

## Job Details

| | |
|---|---|
| Joint Number | 18 |
| Joint Time | 2018-06-07 15:12:40 GMT |
| Job | 1 |
| Operator | jordan |
| Aborted Joint | No |

## Fusion Machine

| | |
|---|---|
| Machine Name | 618 HF |
| Machine Model | 618 HF |
| Piston Area | 11.78 in² |

## Pipe Specifications

| | |
|---|---|
| Pipe Material | PE4710 |
| Pipe Size | 6 " IPS |
| Wall Thickness | DR 17 |

## Pressures

| | | |
|---|---|---|
| Drag Pressure | 32 psi | |
| | Interfacial | Gauge |
| Bead Up | 75 psi | 81 psi |
| Heat Soak | 0 psi | 32 psi |
| Fuse/Cool | 75 psi | 81 psi |

## Fusion Specification

| | |
|---|---|
| Fusion Type | Butt Fusion |
| Fusion Specification | ASTM F2620 |
| Bead Time | 0 seconds |
| Bead Size | 3/16" |
| Heat/Soak Time | 105 seconds |
| Fuse Time | 257 seconds |
| Open/Close Time | 10 seconds |
| Cool Time | 0 seconds |

| | Minimum | Maximum |
|---|---|---|
| Bead Up | 71 psi | 90 psi |
| Heat Soak | 0 psi | 32 psi |
| Fuse | 71 psi | 90 psi |
| Cool | 0 psi | 0 psi |

## External Heater Temperatures

| | Side A | Side B |
|---|---|---|

## GPS Location

| Date | Latitude | Longitude |
|---|---|---|
| 2018-06-07 15:12:40.0 | 64°2'5.119800"N | 135°50'5.788800"W |

## Logged Data Summary

| | |
|---|---|
| Number of Data Points | 408 |
| Total Fusion Time | 1566 seconds |
| Maximum Recorded Pressure | 96 psi |

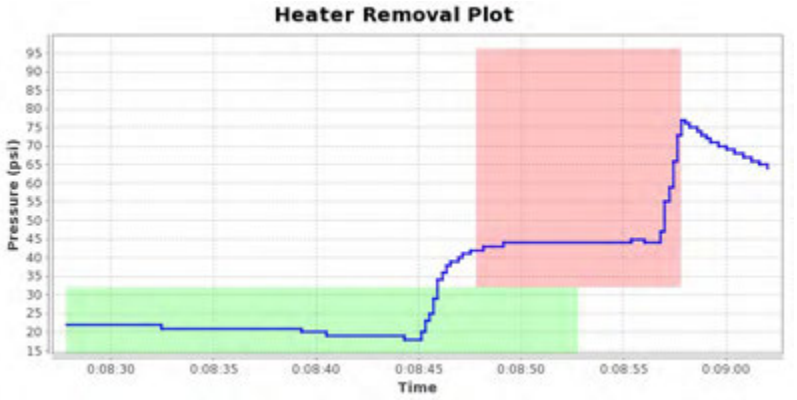
## Device Information

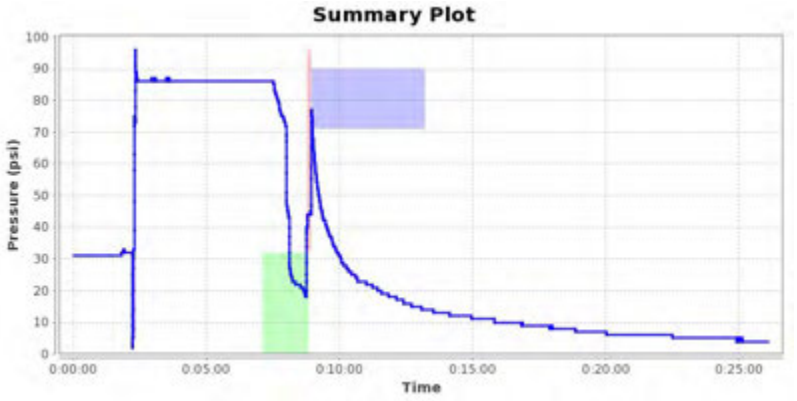
| | |
|---|---|
| DataLogger Serial Number | RH803Z0550 |
| Sensor Serial Number | MDL6621 |
| Calibration Date | 2018-04-04 |
| Firmware Version | v6.0 |
| Software Version | 1.06 (25) |
| Software Product Name | DataLogger 6 |

## Data Source

| | |
|---|---|
| Upload Time | 2018-06-11 21:24:58 GMT |




## Notes

Images for report: 975676



Printed: 2018-06-25 22:57:54 UTC

# McElroy Joint Report

Reference Number 975677

## Job Details

| | |
|---|---|
| Joint Number | 19 |
| Joint Time | 2018-06-07 15:51:57 GMT |
| Job | 1 |
| Operator | jordan |
| Aborted Joint | No |

## Fusion Machine

| | |
|---|---|
| Machine Name | 618 HF |
| Machine Model | 618 HF |
| Piston Area | 11.78 in² |

## Pipe Specifications

| | |
|---|---|
| Pipe Material | PE4710 |
| Pipe Size | 6 " IPS |
| Wall Thickness | DR 17 |

## Pressures

| | | |
|---|---|---|
| Drag Pressure | 32 psi | |
| | Interfacial | Gauge |
| Bead Up | 75 psi | 81 psi |
| Heat Soak | 0 psi | 32 psi |
| Fuse/Cool | 75 psi | 81 psi |

## Fusion Specification

| | |
|---|---|
| Fusion Type | Butt Fusion |
| Fusion Specification | ASTM F2620 |
| Bead Time | 0 seconds |
| Bead Size | 3/16" |
| Heat/Soak Time | 105 seconds |
| Fuse Time | 257 seconds |
| Open/Close Time | 10 seconds |
| Cool Time | 0 seconds |

| | Minimum | Maximum |
|---|---|---|
| Bead Up | 71 psi | 90 psi |
| Heat Soak | 0 psi | 32 psi |
| Fuse | 71 psi | 90 psi |
| Cool | 0 psi | 0 psi |

## External Heater Temperatures

| | Side A | Side B |
|---|---|---|

## GPS Location

| Date | Latitude | Longitude |
|---|---|---|
| 2018-06-07 15:51:57.0 | 64°2'5.418600"N | 135°50'5.375400"W |

## Logged Data Summary

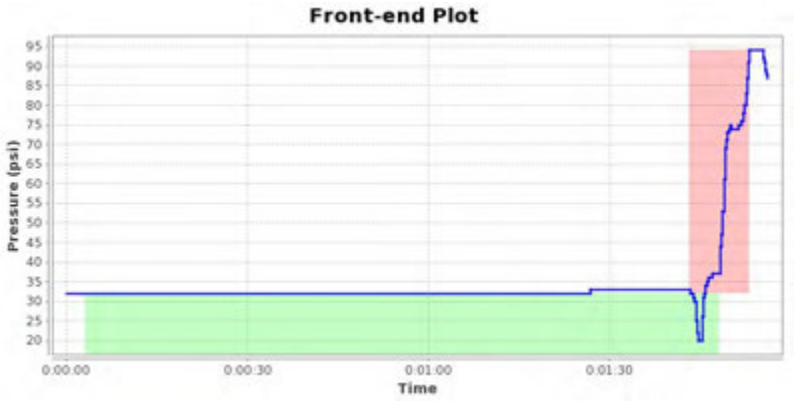
| | |
|---|---|
| Number of Data Points | 110 |
| Total Fusion Time | 397 seconds |
| Maximum Recorded Pressure | 94 psi |

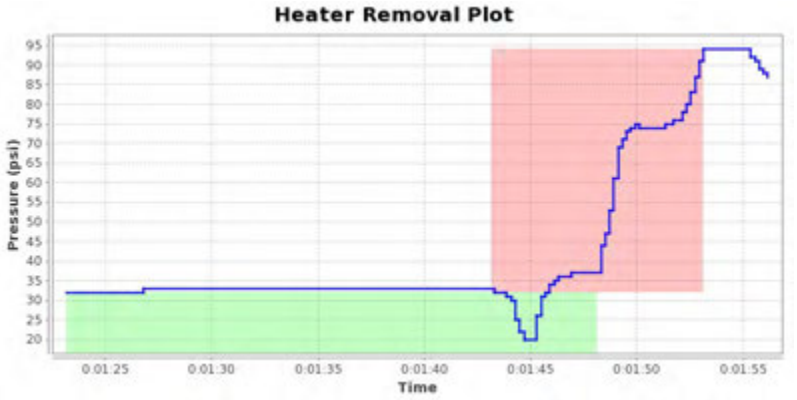
## Device Information

| | |
|---|---|
| DataLogger Serial Number | RH803Z0550 |
| Sensor Serial Number | MDL6621 |
| Calibration Date | 2018-04-04 |
| Firmware Version | v6.0 |
| Software Version | 1.06 (25) |
| Software Product Name | DataLogger 6 |

## Data Source

| | |
|---|---|
| Upload Time | 2018-06-11 21:25:06 GMT |







## Notes

Images for report: 975677



Printed: 2018-06-25 22:57:44 UTC

# McElroy Joint Report

Reference Number 975678

## Job Details

| | |
|---|---|
| Joint Number | 20 |
| Joint Time | 2018-06-07 16:23:37 GMT |
| Job | 1 |
| Operator | jordan |
| Aborted Joint | No |

## Fusion Machine

| | |
|---|---|
| Machine Name | 618 HF |
| Machine Model | 618 HF |
| Piston Area | 11.78 in² |

## Pipe Specifications

| | |
|---|---|
| Pipe Material | PE4710 |
| Pipe Size | 6 " IPS |
| Wall Thickness | DR 17 |

## Pressures

| | | |
|---|---|---|
| Drag Pressure | 33 psi | |
| | Interfacial | Gauge |
| Bead Up | 75 psi | 82 psi |
| Heat Soak | 0 psi | 33 psi |
| Fuse/Cool | 75 psi | 82 psi |

## Fusion Specification

| | |
|---|---|
| Fusion Type | Butt Fusion |
| Fusion Specification | ASTM F2620 |
| Bead Time | 0 seconds |
| Bead Size | 3/16" |
| Heat/Soak Time | 105 seconds |
| Fuse Time | 257 seconds |
| Open/Close Time | 10 seconds |
| Cool Time | 0 seconds |

| | Minimum | Maximum |
|---|---|---|
| Bead Up | 72 psi | 91 psi |
| Heat Soak | 0 psi | 33 psi |
| Fuse | 72 psi | 91 psi |
| Cool | 0 psi | 0 psi |

## External Heater Temperatures

| | Side A | Side B |
|---|---|---|

## GPS Location

| Date | Latitude | Longitude |
|---|---|---|
| 2018-06-07 16:23:37.0 | 64°2'5.361000"N | 135°50'5.340600"W |

## Logged Data Summary

| | |
|---|---|
| Number of Data Points | 358 |
| Total Fusion Time | 527 seconds |
| Maximum Recorded Pressure | 82 psi |

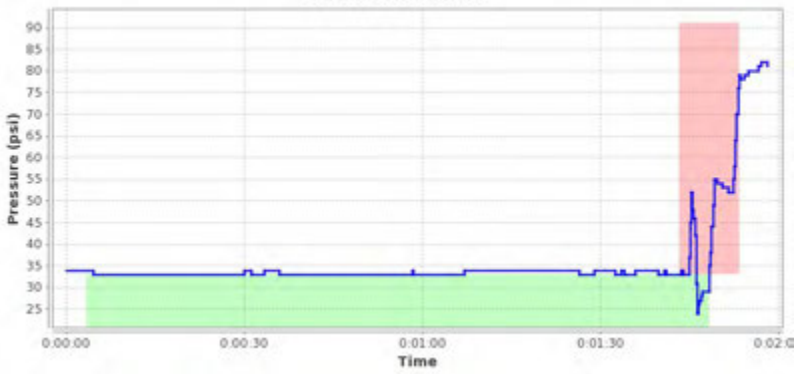
## Device Information

| | |
|---|---|
| DataLogger Serial Number | RH803Z0550 |
| Sensor Serial Number | MDL6621 |
| Calibration Date | 2018-04-04 |
| Firmware Version | v6.0 |
| Software Version | 1.06 (25) |
| Software Product Name | DataLogger 6 |

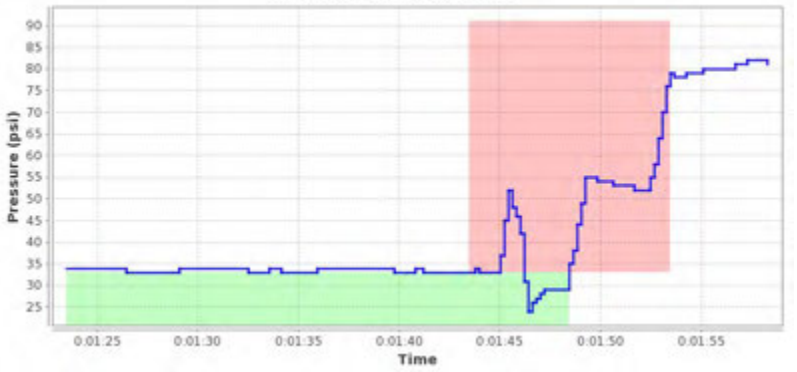
## Data Source

| | |
|---|---|
| Upload Time | 2018-06-11 21:25:17 GMT |

### Front-end Plot




### Heater Removal Plot




### Summary Plot




## Notes

Images for report: 975678



Printed: 2018-06-25 22:57:19 UTC

# McElroy Joint Report

Reference Number 975679

## Job Details

| | |
|---|---|
| Joint Number | 21 |
| Joint Time | 2018-06-07 17:44:48 GMT |
| Job | 1 |
| Operator | jordan |
| Aborted Joint | No |

## Fusion Machine

| | |
|---|---|
| Machine Name | 618 HF |
| Machine Model | 618 HF |
| Piston Area | 11.78 in² |

## Pipe Specifications

| | |
|---|---|
| Pipe Material | PE4710 |
| Pipe Size | 6 " IPS |
| Wall Thickness | DR 17 |

## Pressures

| | | |
|---|---|---|
| Drag Pressure | 33 psi | |
| | Interfacial | Gauge |
| Bead Up | 75 psi | 82 psi |
| Heat Soak | 0 psi | 33 psi |
| Fuse/Cool | 75 psi | 82 psi |

## Fusion Specification

| | |
|---|---|
| Fusion Type | Butt Fusion |
| Fusion Specification | ASTM F2620 |
| Bead Time | 0 seconds |
| Bead Size | 3/16" |
| Heat/Soak Time | 105 seconds |
| Fuse Time | 257 seconds |
| Open/Close Time | 10 seconds |
| Cool Time | 0 seconds |

| | Minimum | Maximum |
|---|---|---|
| Bead Up | 72 psi | 91 psi |
| Heat Soak | 0 psi | 33 psi |
| Fuse | 72 psi | 91 psi |
| Cool | 0 psi | 0 psi |

## External Heater Temperatures

| | Side A | Side B |
|---|---|---|

## GPS Location

| Date | Latitude | Longitude |
|---|---|---|
| 2018-06-07 17:44:48.0 | 64°2'5.370000"N | 135°50'5.454000"W |

## Logged Data Summary

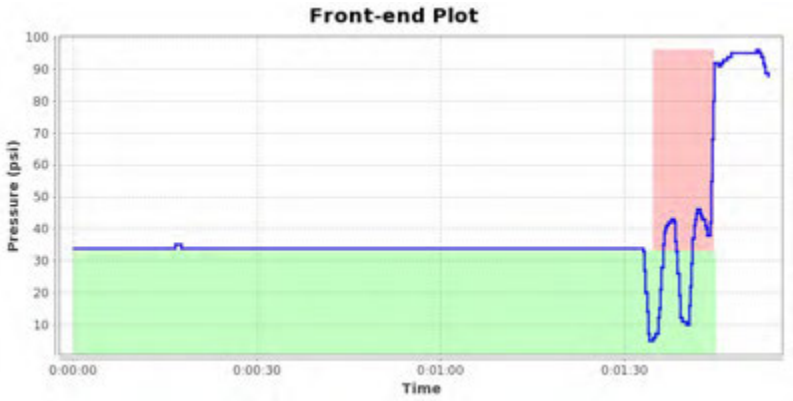
| | |
|---|---|
| Number of Data Points | 338 |
| Total Fusion Time | 497 seconds |
| Maximum Recorded Pressure | 96 psi |

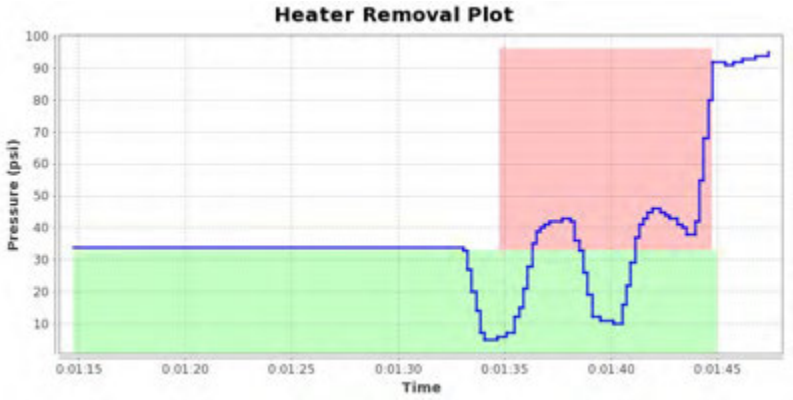
## Device Information

| | |
|---|---|
| DataLogger Serial Number | RH803Z0550 |
| Sensor Serial Number | MDL6621 |
| Calibration Date | 2018-04-04 |
| Firmware Version | v6.0 |
| Software Version | 1.06 (25) |
| Software Product Name | DataLogger 6 |

## Data Source

| | |
|---|---|
| Upload Time | 2018-06-11 21:25:30 GMT |







## Notes

Slight impurity on final bead

Images for report: 975679



Printed: 2018-06-25 22:57:10 UTC

# McElroy Joint Report

Reference Number 975680

## Job Details

| | |
|---|---|
| Joint Number | 22 |
| Joint Time | 2018-06-07 18:22:57 GMT |
| Job | 1 |
| Operator | jordan |
| Aborted Joint | No |

## Fusion Machine

| | |
|---|---|
| Machine Name | 618 HF |
| Machine Model | 618 HF |
| Piston Area | 11.78 in² |

## Pipe Specifications

| | |
|---|---|
| Pipe Material | PE4710 |
| Pipe Size | 6 " IPS |
| Wall Thickness | DR 17 |

## Pressures

| | | |
|---|---|---|
| Drag Pressure | 31 psi | |
| | Interfacial | Gauge |
| Bead Up | 75 psi | 80 psi |
| Heat Soak | 0 psi | 31 psi |
| Fuse/Cool | 75 psi | 80 psi |

## Fusion Specification

| | |
|---|---|
| Fusion Type | Butt Fusion |
| Fusion Specification | ASTM F2620 |
| Bead Time | 0 seconds |
| Bead Size | 3/16" |
| Heat/Soak Time | 105 seconds |
| Fuse Time | 257 seconds |
| Open/Close Time | 10 seconds |
| Cool Time | 0 seconds |

| | Minimum | Maximum |
|---|---|---|
| Bead Up | 70 psi | 89 psi |
| Heat Soak | 0 psi | 31 psi |
| Fuse | 70 psi | 89 psi |
| Cool | 0 psi | 0 psi |

## External Heater Temperatures

| | Side A | Side B |
|---|---|---|

## GPS Location

| Date | Latitude | Longitude |
|---|---|---|
| 2018-06-07 18:22:57.0 | 64°2'5.239800"N | 135°50'5.671200"W |

## Logged Data Summary

| | |
|---|---|
| Number of Data Points | 664 |
| Total Fusion Time | 1289 seconds |
| Maximum Recorded Pressure | 90 psi |

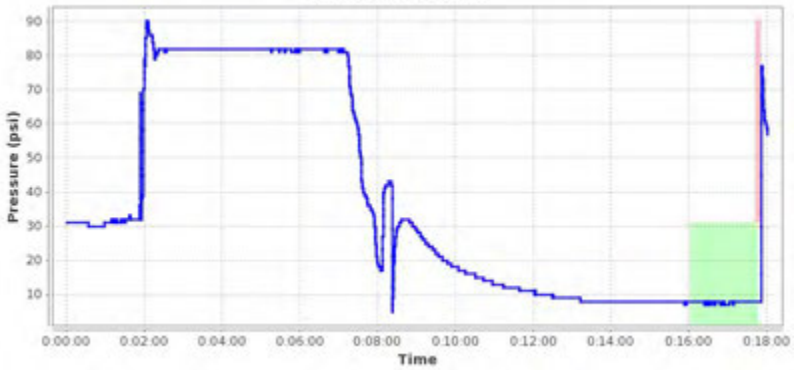
## Device Information

| | |
|---|---|
| DataLogger Serial Number | RH803Z0550 |
| Sensor Serial Number | MDL6621 |
| Calibration Date | 2018-04-04 |
| Firmware Version | v6.0 |
| Software Version | 1.06 (25) |
| Software Product Name | DataLogger 6 |

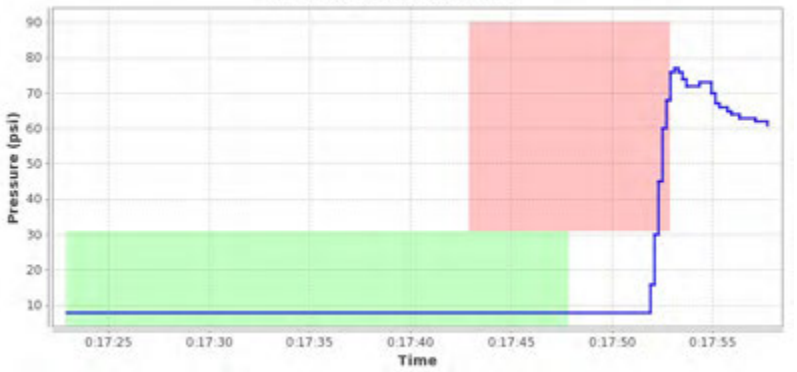
## Data Source

| | |
|---|---|
| Upload Time | 2018-06-11 21:25:34 GMT |

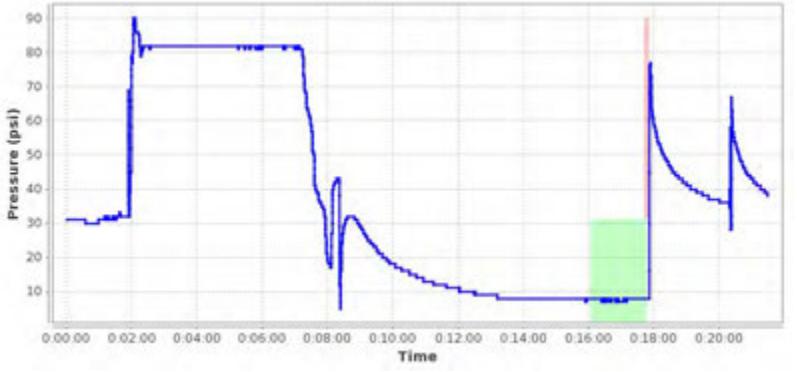
### Front-end Plot




### Heater Removal Plot




### Summary Plot




## Notes

Printed: 2018-06-25 22:57:01 UTC

# McElroy Joint Report

Reference Number 975681

## Job Details

| | |
|---|---|
| Joint Number | 23 |
| Joint Time | 2018-06-08 08:24:20 GMT |
| Job | 1 |
| Operator | jordan |
| Aborted Joint | No |

## Fusion Machine

| | |
|---|---|
| Machine Name | 618 HF |
| Machine Model | 618 HF |
| Piston Area | 11.78 in² |

## Pipe Specifications

| | |
|---|---|
| Pipe Material | PE4710 |
| Pipe Size | 6 " IPS |
| Wall Thickness | DR 17 |

## Pressures

| | | |
|---|---|---|
| Drag Pressure | 31 psi | |
| | Interfacial | Gauge |
| Bead Up | 75 psi | 80 psi |
| Heat Soak | 0 psi | 31 psi |
| Fuse/Cool | 75 psi | 80 psi |

## Fusion Specification

| | |
|---|---|
| Fusion Type | Butt Fusion |
| Fusion Specification | ASTM F2620 |
| Bead Time | 0 seconds |
| Bead Size | 3/16" |
| Heat/Soak Time | 105 seconds |
| Fuse Time | 257 seconds |
| Open/Close Time | 10 seconds |
| Cool Time | 0 seconds |

| | Minimum | Maximum |
|---|---|---|
| Bead Up | 70 psi | 89 psi |
| Heat Soak | 0 psi | 31 psi |
| Fuse | 70 psi | 89 psi |
| Cool | 0 psi | 0 psi |

## External Heater Temperatures

| | Side A | Side B |
|---|---|---|

## GPS Location

| Date | Latitude | Longitude |
|---|---|---|
| 2018-06-08 08:24:20.0 | 64°2'5.326200"N | 135°50'5.116200"W |

## Logged Data Summary

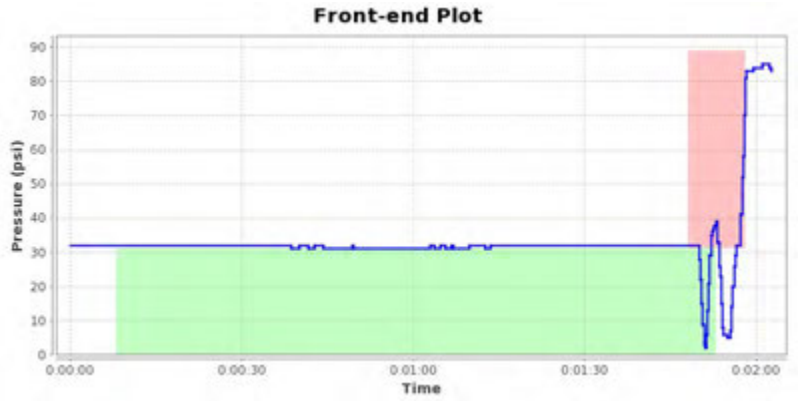
| | |
|---|---|
| Number of Data Points | 144 |
| Total Fusion Time | 357 seconds |
| Maximum Recorded Pressure | 85 psi |

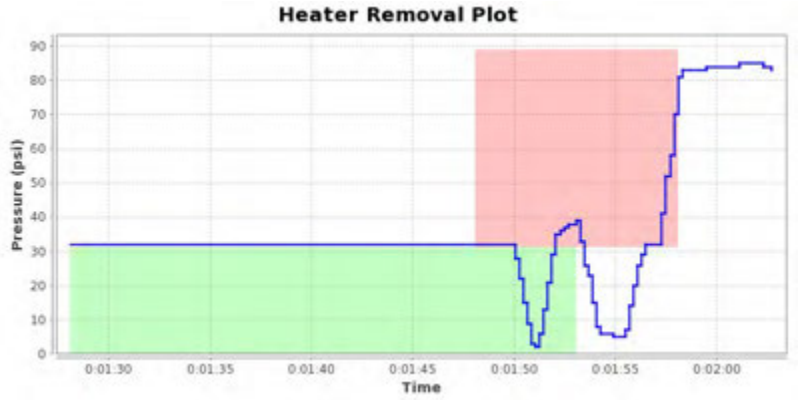
## Device Information

| | |
|---|---|
| DataLogger Serial Number | RH803Z0550 |
| Sensor Serial Number | MDL6621 |
| Calibration Date | 2018-04-04 |
| Firmware Version | v6.0 |
| Software Version | 1.06 (25) |
| Software Product Name | DataLogger 6 |

## Data Source

| | |
|---|---|
| Upload Time | 2018-06-11 21:25:48 GMT |







## Notes

Images for report: 975681



Printed: 2018-06-25 22:56:51 UTC

# McElroy Joint Report

Reference Number 975682

## Job Details

| | |
|---|---|
| Joint Number | 24 |
| Joint Time | 2018-06-08 08:50:38 GMT |
| Job | 1 |
| Operator | jordan |
| Aborted Joint | No |

## Fusion Machine

| | |
|---|---|
| Machine Name | 618 HF |
| Machine Model | 618 HF |
| Piston Area | 11.78 in² |

## Pipe Specifications

| | |
|---|---|
| Pipe Material | PE4710 |
| Pipe Size | 6 " IPS |
| Wall Thickness | DR 17 |

## Pressures

| | | |
|---|---|---|
| Drag Pressure | 31 psi | |
| | Interfacial | Gauge |
| Bead Up | 75 psi | 80 psi |
| Heat Soak | 0 psi | 31 psi |
| Fuse/Cool | 75 psi | 80 psi |

## Fusion Specification

| | |
|---|---|
| Fusion Type | Butt Fusion |
| Fusion Specification | ASTM F2620 |
| Bead Time | 0 seconds |
| Bead Size | 3/16" |
| Heat/Soak Time | 105 seconds |
| Fuse Time | 257 seconds |
| Open/Close Time | 10 seconds |
| Cool Time | 0 seconds |

| | Minimum | Maximum |
|---|---|---|
| Bead Up | 70 psi | 89 psi |
| Heat Soak | 0 psi | 31 psi |
| Fuse | 70 psi | 89 psi |
| Cool | 0 psi | 0 psi |

## External Heater Temperatures

| | Side A | Side B |
|---|---|---|

## GPS Location

| Date | Latitude | Longitude |
|---|---|---|
| 2018-06-08 08:50:38.0 | 64°2'5.279400"N | 135°50'5.342400"W |

## Logged Data Summary

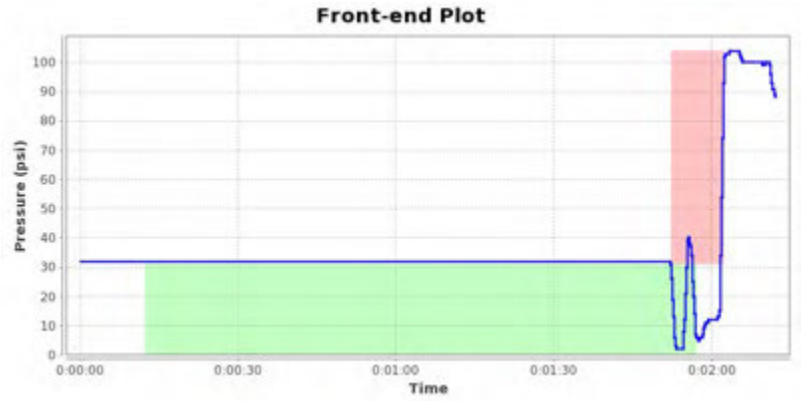
| | |
|---|---|
| Number of Data Points | 416 |
| Total Fusion Time | 461 seconds |
| Maximum Recorded Pressure | 104 psi |

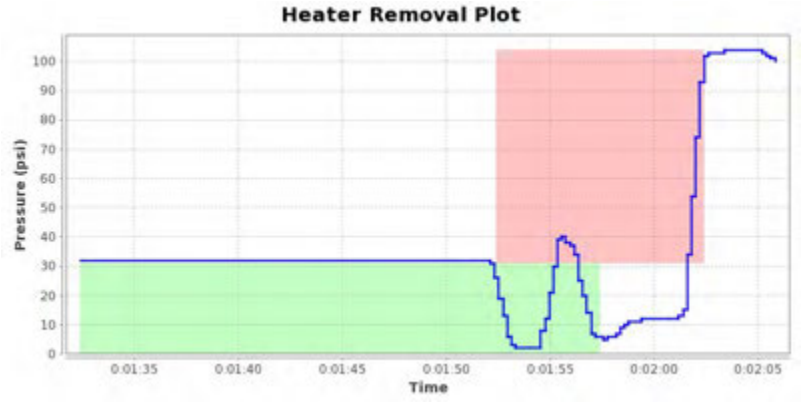
## Device Information

| | |
|---|---|
| DataLogger Serial Number | RH803Z0550 |
| Sensor Serial Number | MDL6621 |
| Calibration Date | 2018-04-04 |
| Firmware Version | v6.0 |
| Software Version | 1.06 (25) |
| Software Product Name | DataLogger 6 |

## Data Source

| | |
|---|---|
| Upload Time | 2018-06-11 21:26:01 GMT |







## Notes

Images for report: 975682



Printed: 2018-06-25 22:56:37 UTC

# McElroy Joint Report

Reference Number 975683

## Job Details

| | |
|---|---|
| Joint Number | 25 |
| Joint Time | 2018-06-08 09:11:51 GMT |
| Job | 1 |
| Operator | jordan |
| Aborted Joint | No |

## Fusion Machine

| | |
|---|---|
| Machine Name | 618 HF |
| Machine Model | 618 HF |
| Piston Area | 11.78 in² |

## Pipe Specifications

| | |
|---|---|
| Pipe Material | PE4710 |
| Pipe Size | 6 " IPS |
| Wall Thickness | DR 17 |

## Pressures

| | | |
|---|---|---|
| Drag Pressure | 31 psi | |
| | Interfacial | Gauge |
| Bead Up | 75 psi | 80 psi |
| Heat Soak | 0 psi | 31 psi |
| Fuse/Cool | 75 psi | 80 psi |

## Fusion Specification

| | |
|---|---|
| Fusion Type | Butt Fusion |
| Fusion Specification | ASTM F2620 |
| Bead Time | 0 seconds |
| Bead Size | 3/16" |
| Heat/Soak Time | 105 seconds |
| Fuse Time | 257 seconds |
| Open/Close Time | 10 seconds |
| Cool Time | 0 seconds |

| | Minimum | Maximum |
|---|---|---|
| Bead Up | 70 psi | 89 psi |
| Heat Soak | 0 psi | 31 psi |
| Fuse | 70 psi | 89 psi |
| Cool | 0 psi | 0 psi |

## External Heater Temperatures

| | Side A | Side B |
|---|---|---|

## GPS Location

| Date | Latitude | Longitude |
|---|---|---|
| 2018-06-08 09:11:51.0 | 64°2'5.562600"N | 135°50'5.517600"W |

## Logged Data Summary

| | |
|---|---|
| Number of Data Points | 212 |
| Total Fusion Time | 399 seconds |
| Maximum Recorded Pressure | 87 psi |

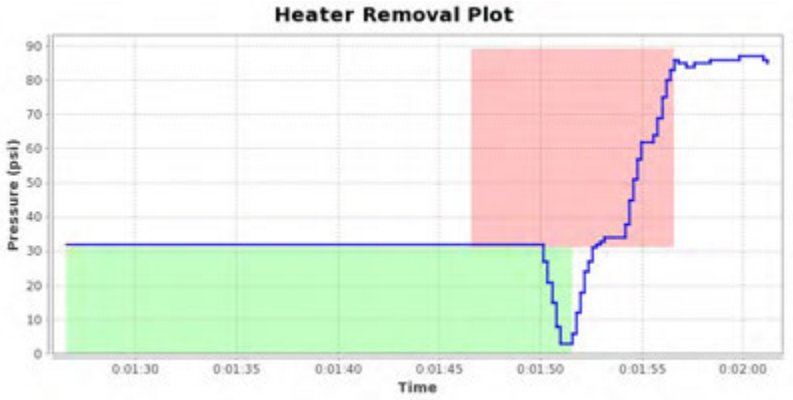
## Device Information

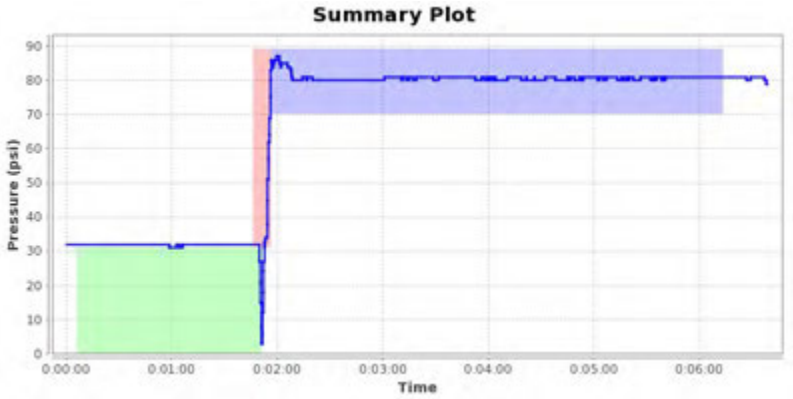
| | |
|---|---|
| DataLogger Serial Number | RH803Z0550 |
| Sensor Serial Number | MDL6621 |
| Calibration Date | 2018-04-04 |
| Firmware Version | v6.0 |
| Software Version | 1.06 (25) |
| Software Product Name | DataLogger 6 |

## Data Source

| | |
|---|---|
| Upload Time | 2018-06-11 21:26:14 GMT |




## Notes

Images for report: 975683



Printed: 2018-06-25 23:04:21 UTC

# McElroy Joint Report

Reference Number 975638

## Job Details

| | |
|---|---|
| Joint Number | 26 |
| Joint Time | 2018-06-08 11:01:07 GMT |
| Job | 1 |
| Operator | jordan |
| Aborted Joint | No |

## Fusion Machine

| | |
|---|---|
| Machine Name | 618 HF |
| Machine Model | 618 HF |
| Piston Area | 11.78 in² |

## Pipe Specifications

| | |
|---|---|
| Pipe Material | PE4710 |
| Pipe Size | 6 " IPS |
| Wall Thickness | DR 17 |

## Pressures

| | | |
|---|---|---|
| Drag Pressure | 36 psi | |
| | Interfacial | Gauge |
| Bead Up | 75 psi | 85 psi |
| Heat Soak | 0 psi | 36 psi |
| Fuse/Cool | 75 psi | 85 psi |

## Fusion Specification

| | |
|---|---|
| Fusion Type | Butt Fusion |
| Fusion Specification | ASTM F2620 |
| Bead Time | 0 seconds |
| Bead Size | 3/16" |
| Heat/Soak Time | 105 seconds |
| Fuse Time | 257 seconds |
| Open/Close Time | 10 seconds |
| Cool Time | 0 seconds |

| | Minimum | Maximum |
|---|---|---|
| Bead Up | 75 psi | 94 psi |
| Heat Soak | 0 psi | 36 psi |
| Fuse | 75 psi | 94 psi |
| Cool | 0 psi | 0 psi |

## External Heater Temperatures

| | Side A | Side B |
|---|---|---|

## GPS Location

| Date | Latitude | Longitude |
|---|---|---|
| 2018-06-08 11:01:07.0 | 64°2'5.397600"N | 135°50'5.557800"W |

## Logged Data Summary

| | |
|---|---|
| Number of Data Points | 234 |
| Total Fusion Time | 508 seconds |
| Maximum Recorded Pressure | 85 psi |

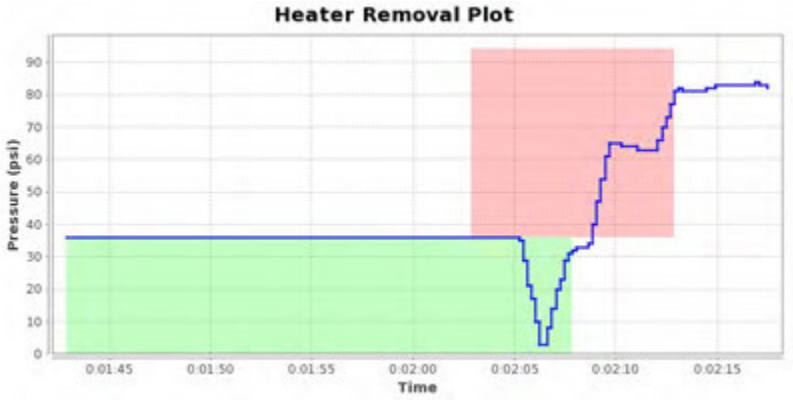
## Device Information

| | |
|---|---|
| DataLogger Serial Number | RH803Z0550 |
| Sensor Serial Number | MDL6621 |
| Calibration Date | 2018-04-04 |
| Firmware Version | v6.0 |
| Software Version | 1.06 (25) |
| Software Product Name | DataLogger 6 |

## Data Source

| | |
|---|---|
| Upload Time | 2018-06-11 21:18:58 GMT |







## Notes

Images for report: 975638



Printed: 2018-06-25 23:04:11 UTC

# McElroy Joint Report

Reference Number 975639

## Job Details

| | |
|---|---|
| Joint Number | 27 |
| Joint Time | 2018-06-08 11:26:12 GMT |
| Job | 1 |
| Operator | jordan |
| Aborted Joint | No |

## Fusion Machine

| | |
|---|---|
| Machine Name | 618 HF |
| Machine Model | 618 HF |
| Piston Area | 11.78 in² |

## Pipe Specifications

| | |
|---|---|
| Pipe Material | PE4710 |
| Pipe Size | 6 " IPS |
| Wall Thickness | DR 17 |

## Pressures

| | | |
|---|---|---|
| Drag Pressure | 36 psi | |
| | Interfacial | Gauge |
| Bead Up | 75 psi | 85 psi |
| Heat Soak | 0 psi | 36 psi |
| Fuse/Cool | 75 psi | 85 psi |

## Fusion Specification

| | |
|---|---|
| Fusion Type | Butt Fusion |
| Fusion Specification | ASTM F2620 |
| Bead Time | 0 seconds |
| Bead Size | 3/16" |
| Heat/Soak Time | 105 seconds |
| Fuse Time | 257 seconds |
| Open/Close Time | 10 seconds |
| Cool Time | 0 seconds |

| | Minimum | Maximum |
|---|---|---|
| Bead Up | 75 psi | 94 psi |
| Heat Soak | 0 psi | 36 psi |
| Fuse | 75 psi | 94 psi |
| Cool | 0 psi | 0 psi |

## External Heater Temperatures

| | Side A | Side B |
|---|---|---|

## GPS Location

| Date | Latitude | Longitude |
|---|---|---|
| 2018-06-08 11:26:12.0 | 64°2'5.443200"N | 135°50'5.577000"W |

## Logged Data Summary

| | |
|---|---|
| Number of Data Points | 362 |
| Total Fusion Time | 508 seconds |
| Maximum Recorded Pressure | 90 psi |

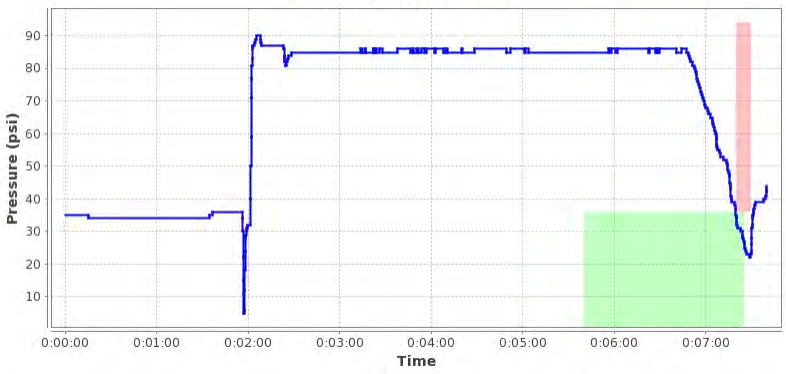
## Device Information

| | |
|---|---|
| DataLogger Serial Number | RH803Z0550 |
| Sensor Serial Number | MDL6621 |
| Calibration Date | 2018-04-04 |
| Firmware Version | v6.0 |
| Software Version | 1.06 (25) |
| Software Product Name | DataLogger 6 |

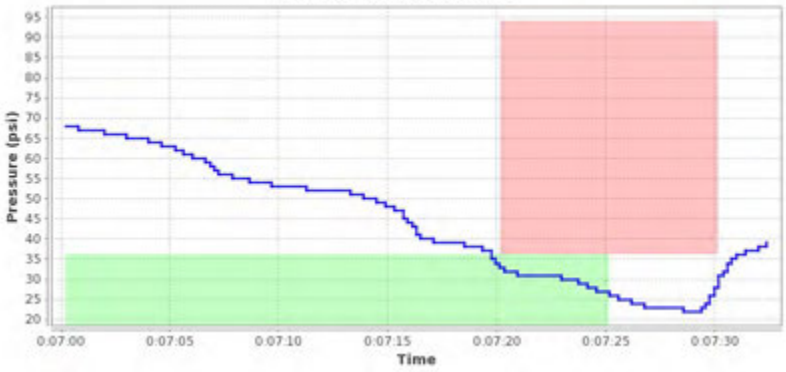
## Data Source

| | |
|---|---|
| Upload Time | 2018-06-11 21:19:07 GMT |

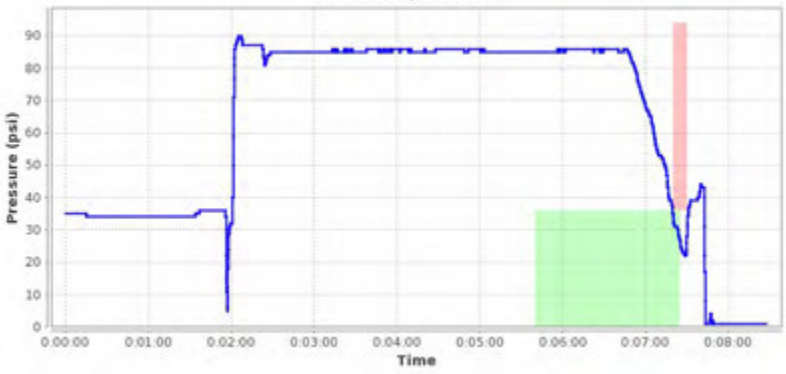
### Front-end Plot




### Heater Removal Plot




### Summary Plot




## Notes

Images for report: 975639



Printed: 2018-06-25 23:04:01 UTC

# McElroy Joint Report

Reference Number 975640

## Job Details

| | |
|---|---|
| Joint Number | 28 |
| Joint Time | 2018-06-08 11:49:01 GMT |
| Job | 1 |
| Operator | jordan |
| Aborted Joint | No |

## Fusion Machine

| | |
|---|---|
| Machine Name | 618 HF |
| Machine Model | 618 HF |
| Piston Area | 11.78 in² |

## Pipe Specifications

| | |
|---|---|
| Pipe Material | PE4710 |
| Pipe Size | 6 " IPS |
| Wall Thickness | DR 17 |

## Pressures

| | | |
|---|---|---|
| Drag Pressure | 31 psi | |
| | Interfacial | Gauge |
| Bead Up | 75 psi | 80 psi |
| Heat Soak | 0 psi | 31 psi |
| Fuse/Cool | 75 psi | 80 psi |

## Fusion Specification

| | |
|---|---|
| Fusion Type | Butt Fusion |
| Fusion Specification | ASTM F2620 |
| Bead Time | 0 seconds |
| Bead Size | 3/16" |
| Heat/Soak Time | 105 seconds |
| Fuse Time | 257 seconds |
| Open/Close Time | 10 seconds |
| Cool Time | 0 seconds |

| | Minimum | Maximum |
|---|---|---|
| Bead Up | 70 psi | 89 psi |
| Heat Soak | 0 psi | 31 psi |
| Fuse | 70 psi | 89 psi |
| Cool | 0 psi | 0 psi |

## External Heater Temperatures

| | Side A | Side B |
|---|---|---|

## GPS Location

| Date | Latitude | Longitude |
|---|---|---|
| 2018-06-08 11:49:01.0 | 64°2'5.317200"N | 135°50'5.468400"W |

## Logged Data Summary

| | |
|---|---|
| Number of Data Points | 244 |
| Total Fusion Time | 487 seconds |
| Maximum Recorded Pressure | 90 psi |

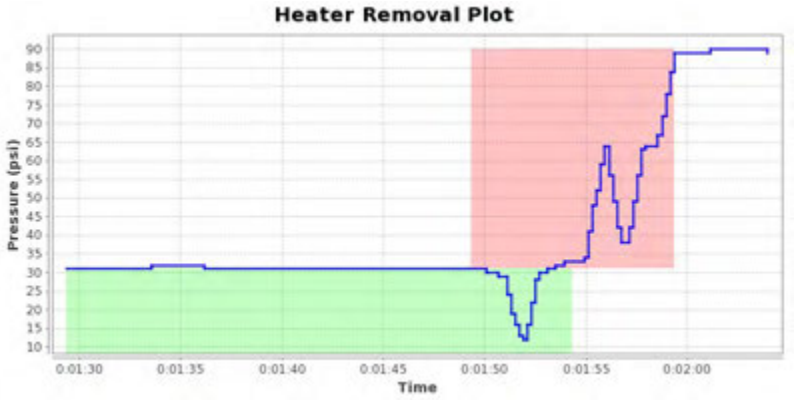
## Device Information

| | |
|---|---|
| DataLogger Serial Number | RH803Z0550 |
| Sensor Serial Number | MDL6621 |
| Calibration Date | 2018-04-04 |
| Firmware Version | v6.0 |
| Software Version | 1.06 (25) |
| Software Product Name | DataLogger 6 |

## Data Source

| | |
|---|---|
| Upload Time | 2018-06-11 21:19:16 GMT |







## Notes

Images for report: 975640



Printed: 2018-06-25 23:03:51 UTC

# McElroy Joint Report

Reference Number 975641

## Job Details

| | |
|---|---|
| Joint Number | 29 |
| Joint Time | 2018-06-08 13:06:58 GMT |
| Job | 1 |
| Operator | jordan |
| Aborted Joint | No |

## Fusion Machine

| | |
|---|---|
| Machine Name | 618 HF |
| Machine Model | 618 HF |
| Piston Area | 11.78 in² |

## Pipe Specifications

| | |
|---|---|
| Pipe Material | PE4710 |
| Pipe Size | 6 " IPS |
| Wall Thickness | DR 17 |

## Pressures

| | | |
|---|---|---|
| Drag Pressure | 31 psi | |
| | Interfacial | Gauge |
| Bead Up | 75 psi | 80 psi |
| Heat Soak | 0 psi | 31 psi |
| Fuse/Cool | 75 psi | 80 psi |

## Fusion Specification

| | |
|---|---|
| Fusion Type | Butt Fusion |
| Fusion Specification | ASTM F2620 |
| Bead Time | 0 seconds |
| Bead Size | 3/16" |
| Heat/Soak Time | 105 seconds |
| Fuse Time | 257 seconds |
| Open/Close Time | 10 seconds |
| Cool Time | 0 seconds |

| | Minimum | Maximum |
|---|---|---|
| Bead Up | 70 psi | 89 psi |
| Heat Soak | 0 psi | 31 psi |
| Fuse | 70 psi | 89 psi |
| Cool | 0 psi | 0 psi |

## External Heater Temperatures

| | Side A | Side B |
|---|---|---|

## GPS Location

| Date | Latitude | Longitude |
|---|---|---|
| 2018-06-08 13:06:58.0 | 64°2'5.358000"N | 135°50'5.528400"W |

## Logged Data Summary

| | |
|---|---|
| Number of Data Points | 218 |
| Total Fusion Time | 472 seconds |
| Maximum Recorded Pressure | 81 psi |

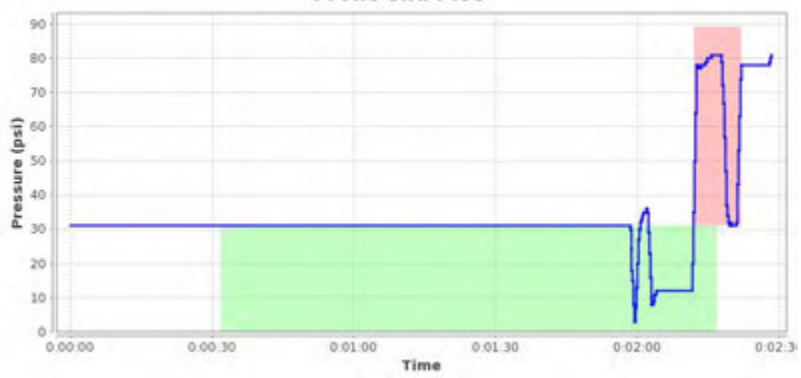
## Device Information

| | |
|---|---|
| DataLogger Serial Number | RH803Z0550 |
| Sensor Serial Number | MDL6621 |
| Calibration Date | 2018-04-04 |
| Firmware Version | v6.0 |
| Software Version | 1.06 (25) |
| Software Product Name | DataLogger 6 |

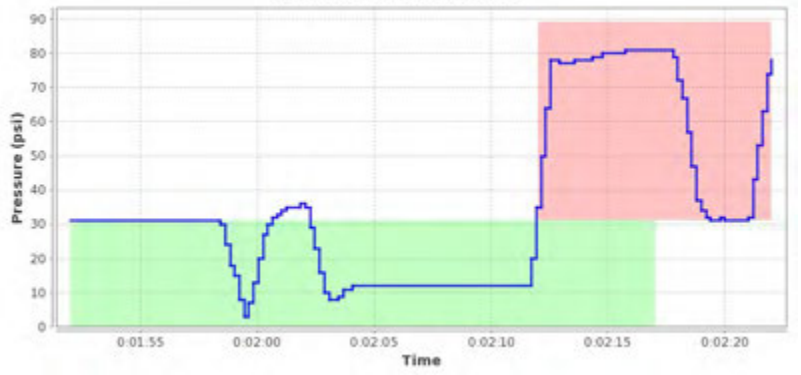
## Data Source

| | |
|---|---|
| Upload Time | 2018-06-11 21:19:18 GMT |

### Front-end Plot




### Heater Removal Plot




### Summary Plot




## Notes

Printed: 2018-06-25 23:03:41 UTC

# McElroy Joint Report

Reference Number 975642

## Job Details

| | |
|---|---|
| Joint Number | 30 |
| Joint Time | 2018-06-08 13:27:52 GMT |
| Job | 1 |
| Operator | jordan |
| Aborted Joint | No |

## Fusion Machine

| | |
|---|---|
| Machine Name | 618 HF |
| Machine Model | 618 HF |
| Piston Area | 11.78 $in^2$ |

## Pipe Specifications

| | |
|---|---|
| Pipe Material | PE4710 |
| Pipe Size | 6 " IPS |
| Wall Thickness | DR 17 |

## Pressures

| | | |
|---|---|---|
| Drag Pressure | 31 psi | |
| | Interfacial | Gauge |
| Bead Up | 75 psi | 80 psi |
| Heat Soak | 0 psi | 31 psi |
| Fuse/Cool | 75 psi | 80 psi |

## Fusion Specification

| | |
|---|---|
| Fusion Type | Butt Fusion |
| Fusion Specification | ASTM F2620 |
| Bead Time | 0 seconds |
| Bead Size | 3/16" |
| Heat/Soak Time | 105 seconds |
| Fuse Time | 257 seconds |
| Open/Close Time | 10 seconds |
| Cool Time | 0 seconds |

| | Minimum | Maximum |
|---|---|---|
| Bead Up | 70 psi | 89 psi |
| Heat Soak | 0 psi | 31 psi |
| Fuse | 70 psi | 89 psi |
| Cool | 0 psi | 0 psi |

## External Heater Temperatures

| | Side A | Side B |
|---|---|---|

## GPS Location

| Date | Latitude | Longitude |
|---|---|---|
| 2018-06-08 13:27:52.0 | 64°2'5.276400"N | 135°50'5.684400"W |

## Logged Data Summary

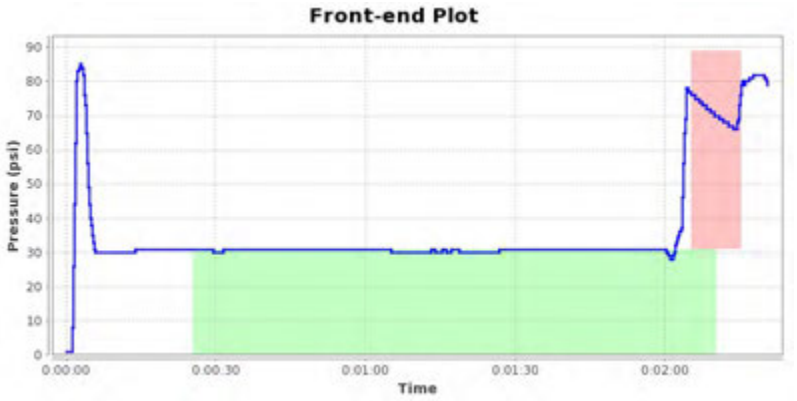
| | |
|---|---|
| Number of Data Points | 240 |
| Total Fusion Time | 381 seconds |
| Maximum Recorded Pressure | 85 psi |

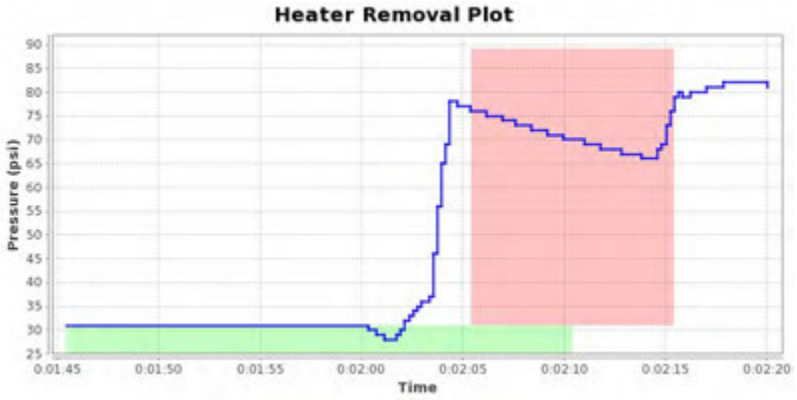
## Device Information

| | |
|---|---|
| DataLogger Serial Number | RH803Z0550 |
| Sensor Serial Number | MDL6621 |
| Calibration Date | 2018-04-04 |
| Firmware Version | v6.0 |
| Software Version | 1.06 (25) |
| Software Product Name | DataLogger 6 |

## Data Source

| | |
|---|---|
| Upload Time | 2018-06-11 21:19:28 GMT |







## Notes

Images for report: 975642



Printed: 2018-06-25 23:03:32 UTC

# McElroy Joint Report

Reference Number 975643

## Job Details

| | |
|---|---|
| Joint Number | 31 |
| Joint Time | 2018-06-08 13:49:20 GMT |
| Job | 1 |
| Operator | jordan |
| Aborted Joint | No |

## Fusion Machine

| | |
|---|---|
| Machine Name | 618 HF |
| Machine Model | 618 HF |
| Piston Area | 11.78 in² |

## Pipe Specifications

| | |
|---|---|
| Pipe Material | PE4710 |
| Pipe Size | 6 " IPS |
| Wall Thickness | DR 17 |

## Pressures

| | | |
|---|---|---|
| Drag Pressure | 31 psi | |
| | Interfacial | Gauge |
| Bead Up | 75 psi | 80 psi |
| Heat Soak | 0 psi | 31 psi |
| Fuse/Cool | 75 psi | 80 psi |

## Fusion Specification

| | |
|---|---|
| Fusion Type | Butt Fusion |
| Fusion Specification | ASTM F2620 |
| Bead Time | 0 seconds |
| Bead Size | 3/16" |
| Heat/Soak Time | 105 seconds |
| Fuse Time | 257 seconds |
| Open/Close Time | 10 seconds |
| Cool Time | 0 seconds |

| | Minimum | Maximum |
|---|---|---|
| Bead Up | 70 psi | 89 psi |
| Heat Soak | 0 psi | 31 psi |
| Fuse | 70 psi | 89 psi |
| Cool | 0 psi | 0 psi |

## External Heater Temperatures

| | Side A | Side B |
|---|---|---|

## GPS Location

| Date | Latitude | Longitude |
|---|---|---|
| 2018-06-08 13:49:20.0 | 64°2'5.433000"N | 135°50'5.487600"W |

## Logged Data Summary

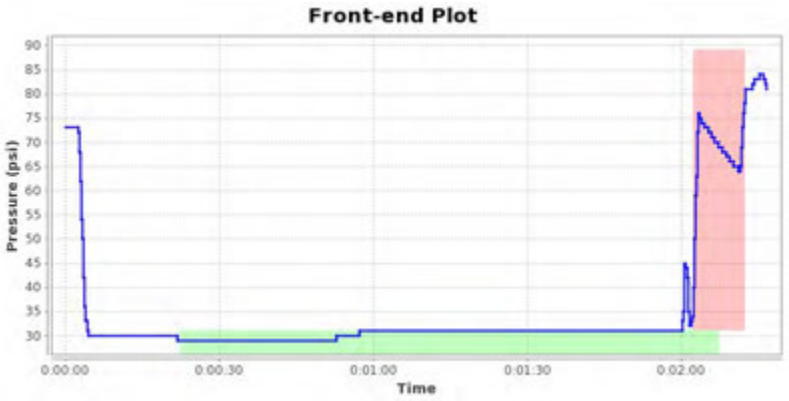
| | |
|---|---|
| Number of Data Points | 140 |
| Total Fusion Time | 449 seconds |
| Maximum Recorded Pressure | 84 psi |

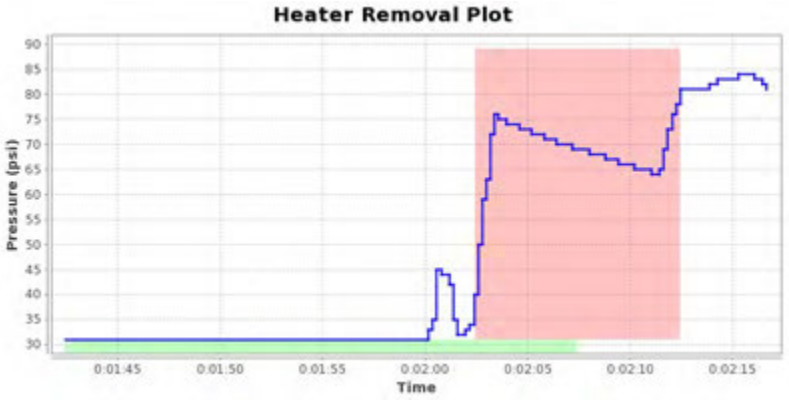
## Device Information

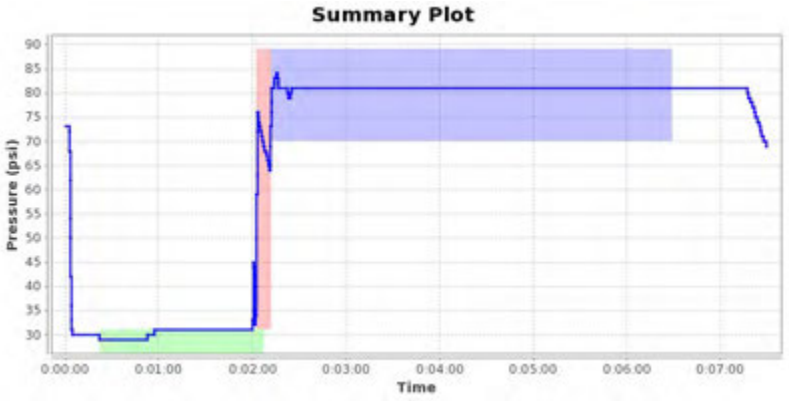
| | |
|---|---|
| DataLogger Serial Number | RH803Z0550 |
| Sensor Serial Number | MDL6621 |
| Calibration Date | 2018-04-04 |
| Firmware Version | v6.0 |
| Software Version | 1.06 (25) |
| Software Product Name | DataLogger 6 |

## Data Source

| | |
|---|---|
| Upload Time | 2018-06-11 21:19:38 GMT |




## Notes

Images for report: 975643



Printed: 2018-06-25 23:03:22 UTC

# McElroy Joint Report

Reference Number 975644

## Job Details

| | |
|---|---|
| Joint Number | 32 |
| Joint Time | 2018-06-08 14:13:14 GMT |
| Job | 1 |
| Operator | jordan |
| Aborted Joint | No |

## Fusion Machine

| | |
|---|---|
| Machine Name | 618 HF |
| Machine Model | 618 HF |
| Piston Area | 11.78 in² |

## Pipe Specifications

| | |
|---|---|
| Pipe Material | PE4710 |
| Pipe Size | 6 " IPS |
| Wall Thickness | DR 17 |

## Pressures

| | | |
|---|---|---|
| Drag Pressure | 31 psi | |
| | Interfacial | Gauge |
| Bead Up | 75 psi | 80 psi |
| Heat Soak | 0 psi | 31 psi |
| Fuse/Cool | 75 psi | 80 psi |

## Fusion Specification

| | |
|---|---|
| Fusion Type | Butt Fusion |
| Fusion Specification | ASTM F2620 |
| Bead Time | 0 seconds |
| Bead Size | 3/16" |
| Heat/Soak Time | 105 seconds |
| Fuse Time | 257 seconds |
| Open/Close Time | 10 seconds |
| Cool Time | 0 seconds |

| | Minimum | Maximum |
|---|---|---|
| Bead Up | 70 psi | 89 psi |
| Heat Soak | 0 psi | 31 psi |
| Fuse | 70 psi | 89 psi |
| Cool | 0 psi | 0 psi |

## External Heater Temperatures

| | Side A | Side B |
|---|---|---|

## GPS Location

| Date | Latitude | Longitude |
|---|---|---|
| 2018-06-08 14:13:14.0 | 64°2'5.527200"N | 135°50'5.589600"W |

## Logged Data Summary

| | |
|---|---|
| Number of Data Points | 108 |
| Total Fusion Time | 385 seconds |
| Maximum Recorded Pressure | 82 psi |

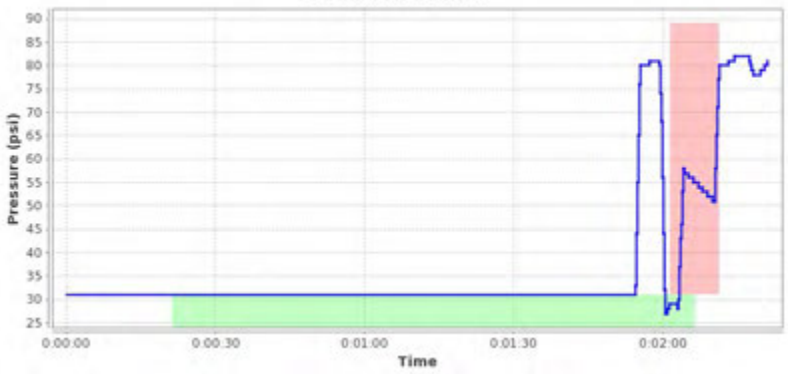
## Device Information

| | |
|---|---|
| DataLogger Serial Number | RH803Z0550 |
| Sensor Serial Number | MDL6621 |
| Calibration Date | 2018-04-04 |
| Firmware Version | v6.0 |
| Software Version | 1.06 (25) |
| Software Product Name | DataLogger 6 |

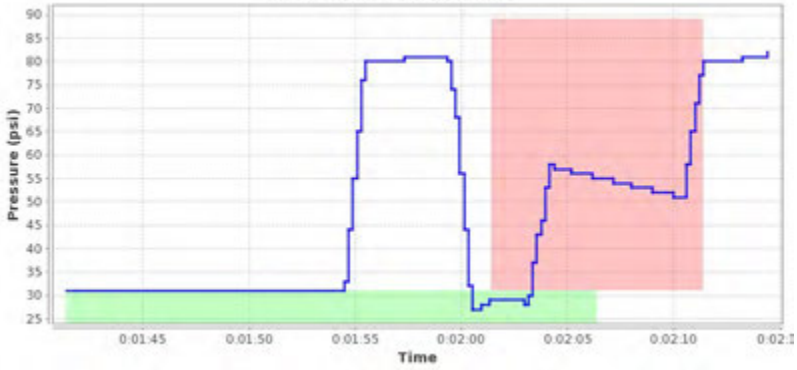
## Data Source

| | |
|---|---|
| Upload Time | 2018-06-11 21:19:48 GMT |

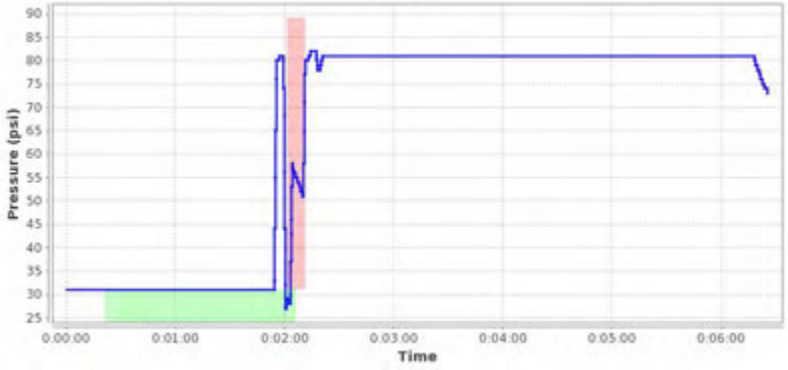
### Front-end Plot




### Heater Removal Plot




### Summary Plot




## Notes

Images for report: 975644



Printed: 2018-06-25 23:03:12 UTC

# McElroy Joint Report

Reference Number 975645

## Job Details

| | |
|---|---|
| Joint Number | 33 |
| Joint Time | 2018-06-08 14:41:36 GMT |
| Job | 1 |
| Operator | jordan |
| Aborted Joint | No |

## Fusion Machine

| | |
|---|---|
| Machine Name | 618 HF |
| Machine Model | 618 HF |
| Piston Area | 11.78 in² |

## Pipe Specifications

| | |
|---|---|
| Pipe Material | PE4710 |
| Pipe Size | 6 " IPS |
| Wall Thickness | DR 17 |

## Pressures

| | | |
|---|---|---|
| Drag Pressure | 31 psi | |
| | Interfacial | Gauge |
| Bead Up | 75 psi | 80 psi |
| Heat Soak | 0 psi | 31 psi |
| Fuse/Cool | 75 psi | 80 psi |

## Fusion Specification

| | |
|---|---|
| Fusion Type | Butt Fusion |
| Fusion Specification | ASTM F2620 |
| Bead Time | 0 seconds |
| Bead Size | 3/16" |
| Heat/Soak Time | 105 seconds |
| Fuse Time | 257 seconds |
| Open/Close Time | 10 seconds |
| Cool Time | 0 seconds |

| | Minimum | Maximum |
|---|---|---|
| Bead Up | 70 psi | 89 psi |
| Heat Soak | 0 psi | 31 psi |
| Fuse | 70 psi | 89 psi |
| Cool | 0 psi | 0 psi |

## External Heater Temperatures

| | Side A | Side B |
|---|---|---|

## GPS Location

| Date | Latitude | Longitude |
|---|---|---|
| 2018-06-08 14:41:36.0 | 64°2'5.556600"N | 135°50'5.416200"W |

## Logged Data Summary

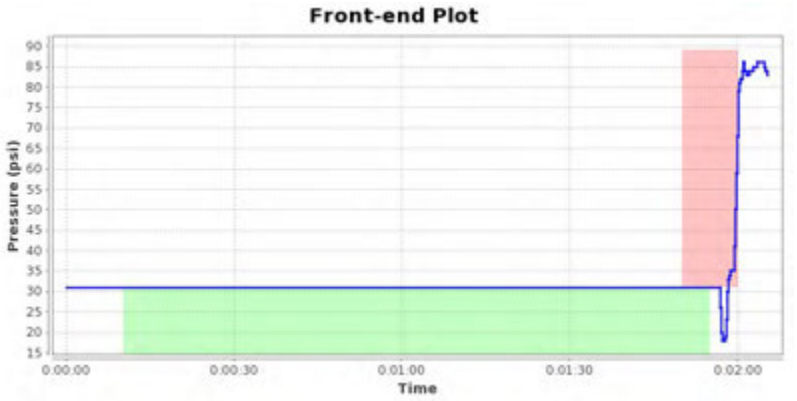
| | |
|---|---|
| Number of Data Points | 126 |
| Total Fusion Time | 461 seconds |
| Maximum Recorded Pressure | 86 psi |

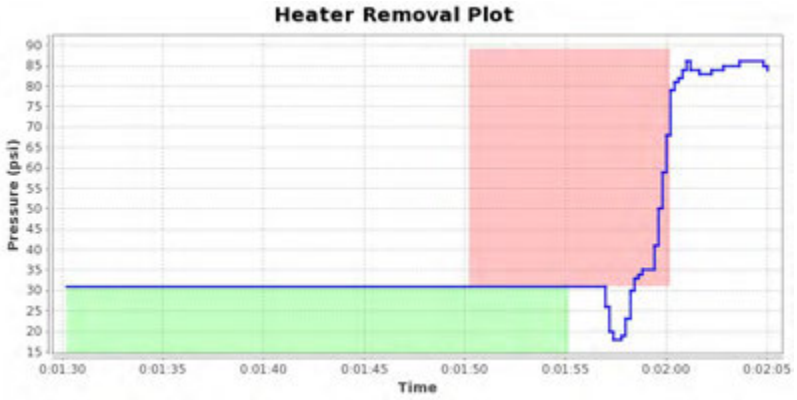
## Device Information

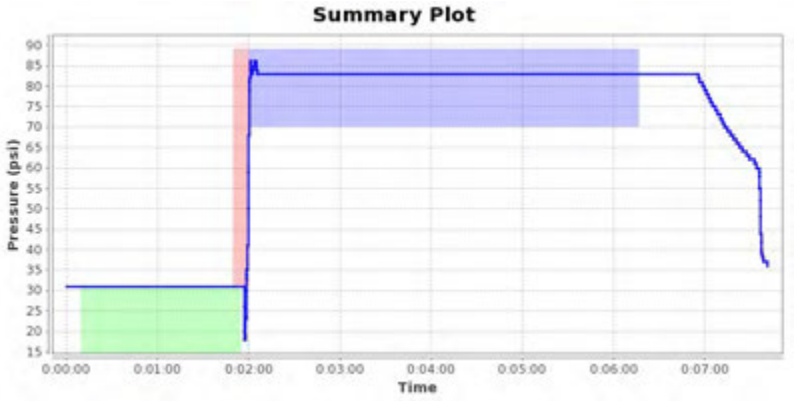
| | |
|---|---|
| DataLogger Serial Number | RH803Z0550 |
| Sensor Serial Number | MDL6621 |
| Calibration Date | 2018-04-04 |
| Firmware Version | v6.0 |
| Software Version | 1.06 (25) |
| Software Product Name | DataLogger 6 |

## Data Source

| | |
|---|---|
| Upload Time | 2018-06-11 21:20:00 GMT |




## Notes

Images for report: 975645



Printed: 2018-06-25 23:03:03 UTC

# McElroy Joint Report

Reference Number 975646

## Job Details

| | |
|---|---|
| Joint Number | 34 |
| Joint Time | 2018-06-08 15:26:49 GMT |
| Job | 1 |
| Operator | jordan |
| Aborted Joint | No |

## Fusion Machine

| | |
|---|---|
| Machine Name | 618 HF |
| Machine Model | 618 HF |
| Piston Area | 11.78 in² |

## Pipe Specifications

| | |
|---|---|
| Pipe Material | PE4710 |
| Pipe Size | 6 " IPS |
| Wall Thickness | DR 17 |

## Pressures

| | | |
|---|---|---|
| Drag Pressure | 31 psi | |
| | Interfacial | Gauge |
| Bead Up | 75 psi | 80 psi |
| Heat Soak | 0 psi | 31 psi |
| Fuse/Cool | 75 psi | 80 psi |

## Fusion Specification

| | |
|---|---|
| Fusion Type | Butt Fusion |
| Fusion Specification | ASTM F2620 |
| Bead Time | 0 seconds |
| Bead Size | 3/16" |
| Heat/Soak Time | 105 seconds |
| Fuse Time | 257 seconds |
| Open/Close Time | 10 seconds |
| Cool Time | 0 seconds |

| | Minimum | Maximum |
|---|---|---|
| Bead Up | 70 psi | 89 psi |
| Heat Soak | 0 psi | 31 psi |
| Fuse | 70 psi | 89 psi |
| Cool | 0 psi | 0 psi |

## External Heater Temperatures

| | Side A | Side B |
|---|---|---|

## GPS Location

| Date | Latitude | Longitude |
|---|---|---|
| 2018-06-08 15:26:49.0 | 64°2'5.514600"N | 135°50'5.750400"W |

## Logged Data Summary

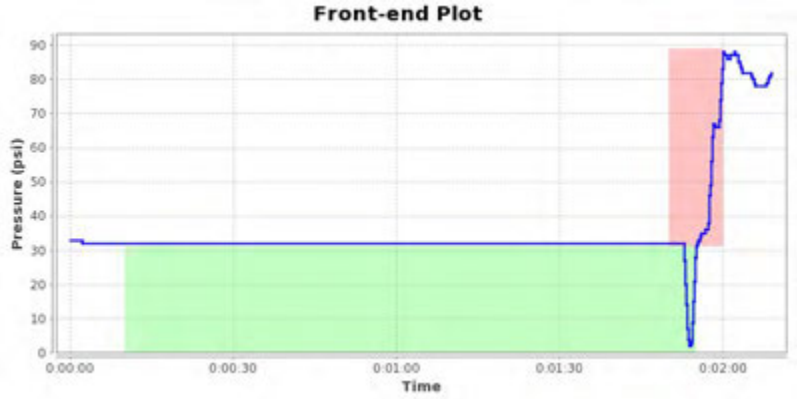
| | |
|---|---|
| Number of Data Points | 136 |
| Total Fusion Time | 411 seconds |
| Maximum Recorded Pressure | 88 psi |

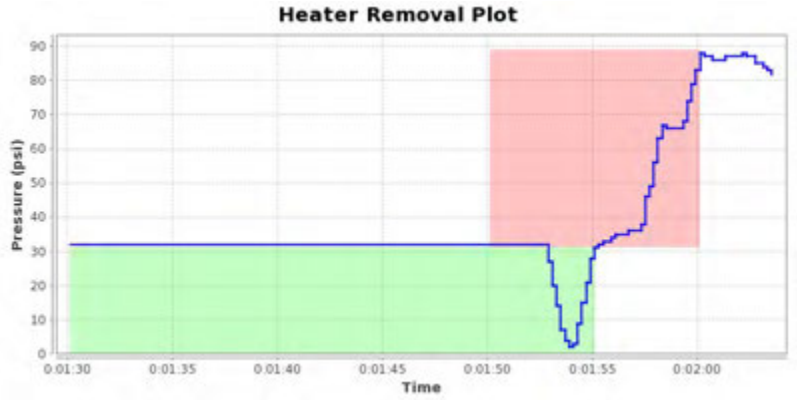
## Device Information

| | |
|---|---|
| DataLogger Serial Number | RH803Z0550 |
| Sensor Serial Number | MDL6621 |
| Calibration Date | 2018-04-04 |
| Firmware Version | v6.0 |
| Software Version | 1.06 (25) |
| Software Product Name | DataLogger 6 |

## Data Source

| | |
|---|---|
| Upload Time | 2018-06-11 21:20:12 GMT |







## Notes

Images for report: 975646



Printed: 2018-06-25 23:02:54 UTC

# McElroy Joint Report

Reference Number 975647

## Job Details

| | |
|---|---|
| Joint Number | 35 |
| Joint Time | 2018-06-08 15:55:32 GMT |
| Job | 1 |
| Operator | jordan |
| Aborted Joint | No |

## Fusion Machine

| | |
|---|---|
| Machine Name | 618 HF |
| Machine Model | 618 HF |
| Piston Area | 11.78 in² |

## Pipe Specifications

| | |
|---|---|
| Pipe Material | PE4710 |
| Pipe Size | 6 " IPS |
| Wall Thickness | DR 17 |

## Pressures

| | | |
|---|---|---|
| Drag Pressure | 113 psi | |
| | Interfacial | Gauge |
| Bead Up | 75 psi | 162 psi |
| Heat Soak | 0 psi | 113 psi |
| Fuse/Cool | 75 psi | 162 psi |

## Fusion Specification

| | |
|---|---|
| Fusion Type | Butt Fusion |
| Fusion Specification | ASTM F2620 |
| Bead Time | 0 seconds |
| Bead Size | 3/16" |
| Heat/Soak Time | 105 seconds |
| Fuse Time | 257 seconds |
| Open/Close Time | 10 seconds |
| Cool Time | 0 seconds |

| | Minimum | Maximum |
|---|---|---|
| Bead Up | 152 psi | 171 psi |
| Heat Soak | 0 psi | 113 psi |
| Fuse | 152 psi | 171 psi |
| Cool | 0 psi | 0 psi |

## External Heater Temperatures

| | Side A | Side B |
|---|---|---|

## GPS Location

| Date | Latitude | Longitude |
|---|---|---|
| 2018-06-08 15:55:32.0 | 64°2'5.536800"N | 135°50'5.557800"W |

## Logged Data Summary

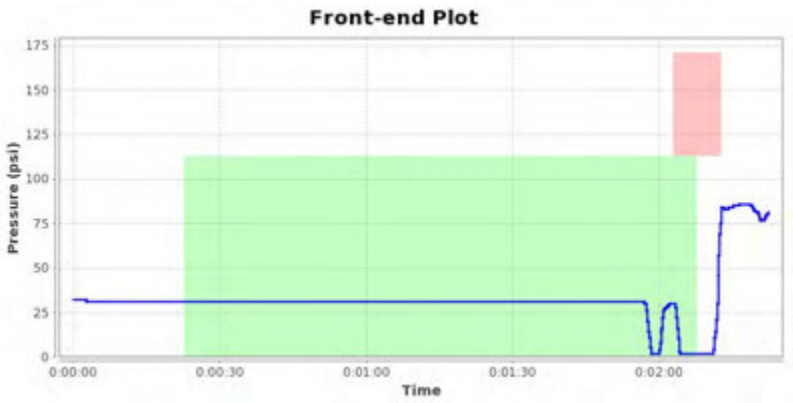
| | |
|---|---|
| Number of Data Points | 116 |
| Total Fusion Time | 430 seconds |
| Maximum Recorded Pressure | 86 psi |

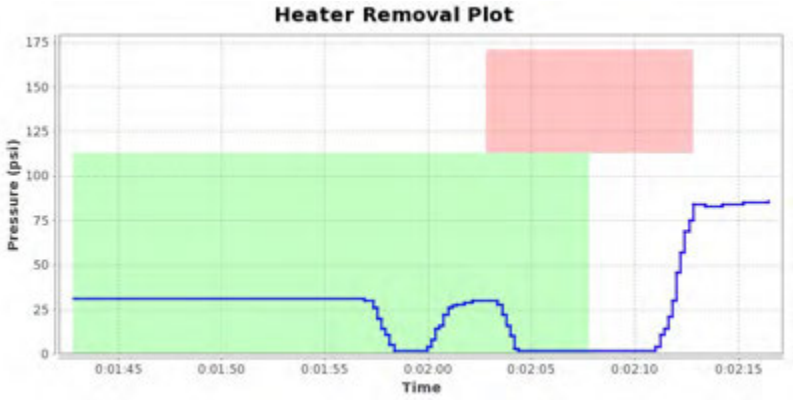
## Device Information

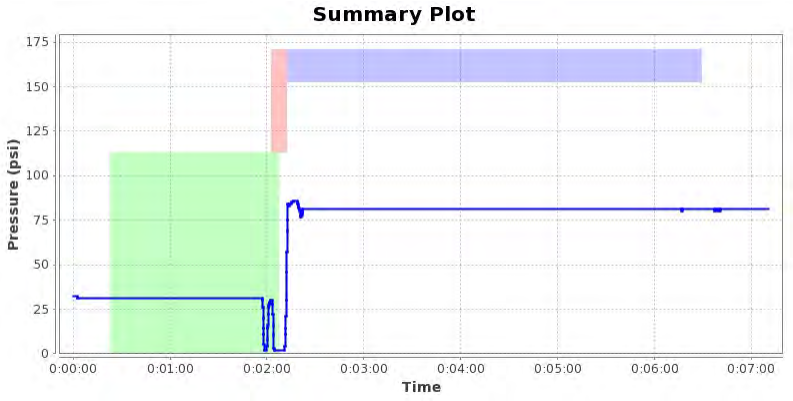
| | |
|---|---|
| DataLogger Serial Number | RH803Z0550 |
| Sensor Serial Number | MDL6621 |
| Calibration Date | 2018-04-04 |
| Firmware Version | v6.0 |
| Software Version | 1.06 (25) |
| Software Product Name | DataLogger 6 |

## Data Source

| | |
|---|---|
| Upload Time | 2018-06-11 21:20:24 GMT |




## Notes

Heay rain during heating\jointing will remove\redo

Images for report: 975647



Printed: 2018-06-25 23:02:44 UTC

# McElroy Joint Report

Reference Number 975648

## Job Details

| | |
|---|---|
| Joint Number | 36 |
| Joint Time | 2018-06-08 17:24:26 GMT |
| Job | 1 |
| Operator | jordan |
| Aborted Joint | No |

## Fusion Machine

| | |
|---|---|
| Machine Name | 618 HF |
| Machine Model | 618 HF |
| Piston Area | 11.78 in² |

## Pipe Specifications

| | |
|---|---|
| Pipe Material | PE4710 |
| Pipe Size | 6 " IPS |
| Wall Thickness | DR 17 |

## Pressures

| | | |
|---|---|---|
| Drag Pressure | 31 psi | |
| | Interfacial | Gauge |
| Bead Up | 75 psi | 80 psi |
| Heat Soak | 0 psi | 31 psi |
| Fuse/Cool | 75 psi | 80 psi |

## Fusion Specification

| | |
|---|---|
| Fusion Type | Butt Fusion |
| Fusion Specification | ASTM F2620 |
| Bead Time | 0 seconds |
| Bead Size | 3/16" |
| Heat/Soak Time | 105 seconds |
| Fuse Time | 257 seconds |
| Open/Close Time | 10 seconds |
| Cool Time | 0 seconds |

| | Minimum | Maximum |
|---|---|---|
| Bead Up | 70 psi | 89 psi |
| Heat Soak | 0 psi | 31 psi |
| Fuse | 70 psi | 89 psi |
| Cool | 0 psi | 0 psi |

## External Heater Temperatures

| | Side A | Side B |
|---|---|---|

## GPS Location

| Date | Latitude | Longitude |
|---|---|---|
| 2018-06-08 17:24:26.0 | 64°2'5.334000"N | 135°50'5.527200"W |

## Logged Data Summary

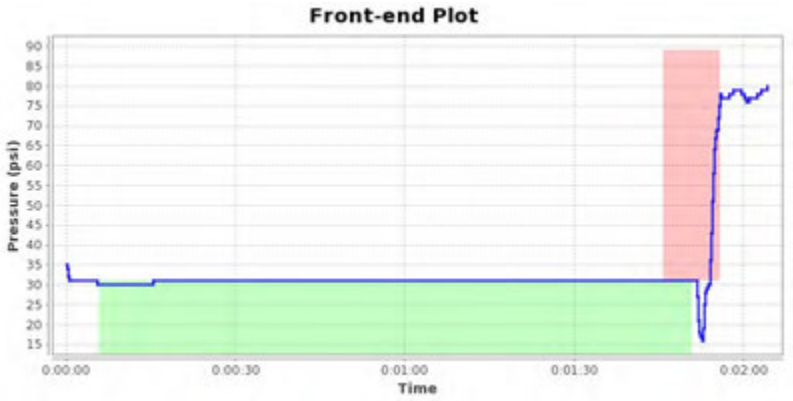
| | |
|---|---|
| Number of Data Points | 110 |
| Total Fusion Time | 399 seconds |
| Maximum Recorded Pressure | 81 psi |

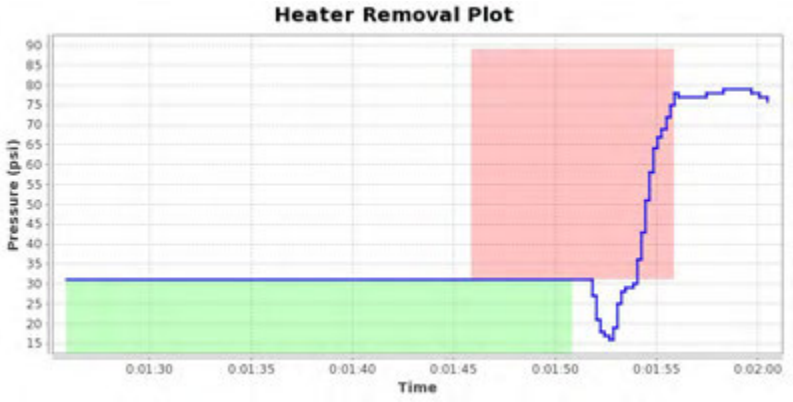
## Device Information

| | |
|---|---|
| DataLogger Serial Number | RH803Z0550 |
| Sensor Serial Number | MDL6621 |
| Calibration Date | 2018-04-04 |
| Firmware Version | v6.0 |
| Software Version | 1.06 (25) |
| Software Product Name | DataLogger 6 |

## Data Source

| | |
|---|---|
| Upload Time | 2018-06-11 21:20:36 GMT |







## Notes

Images for report: 975648



Printed: 2018-06-25 23:02:34 UTC

# McElroy Joint Report

Reference Number 975649

## Job Details

| | |
|---|---|
| Joint Number | 37 |
| Joint Time | 2018-06-08 17:43:59 GMT |
| Job | 1 |
| Operator | jordan |
| Aborted Joint | No |

## Fusion Machine

| | |
|---|---|
| Machine Name | 618 HF |
| Machine Model | 618 HF |
| Piston Area | 11.78 in² |

## Pipe Specifications

| | |
|---|---|
| Pipe Material | PE4710 |
| Pipe Size | 6 " IPS |
| Wall Thickness | DR 17 |

## Pressures

| | | |
|---|---|---|
| Drag Pressure | 31 psi | |
| | Interfacial | Gauge |
| Bead Up | 75 psi | 80 psi |
| Heat Soak | 0 psi | 31 psi |
| Fuse/Cool | 75 psi | 80 psi |

## Fusion Specification

| | |
|---|---|
| Fusion Type | Butt Fusion |
| Fusion Specification | ASTM F2620 |
| Bead Time | 0 seconds |
| Bead Size | 3/16" |
| Heat/Soak Time | 105 seconds |
| Fuse Time | 257 seconds |
| Open/Close Time | 10 seconds |
| Cool Time | 0 seconds |

| | Minimum | Maximum |
|---|---|---|
| Bead Up | 70 psi | 89 psi |
| Heat Soak | 0 psi | 31 psi |
| Fuse | 70 psi | 89 psi |
| Cool | 0 psi | 0 psi |

## External Heater Temperatures

| | Side A | Side B |
|---|---|---|

## GPS Location

| Date | Latitude | Longitude |
|---|---|---|
| 2018-06-08 17:43:59.0 | 64°2'5.191800"N | 135°50'5.759400"W |

## Logged Data Summary

| | |
|---|---|
| Number of Data Points | 238 |
| Total Fusion Time | 406 seconds |
| Maximum Recorded Pressure | 84 psi |

## Device Information

| | |
|---|---|
| DataLogger Serial Number | RH803Z0550 |
| Sensor Serial Number | MDL6621 |
| Calibration Date | 2018-04-04 |
| Firmware Version | v6.0 |
| Software Version | 1.06 (25) |
| Software Product Name | DataLogger 6 |

## Data Source

| | |
|---|---|
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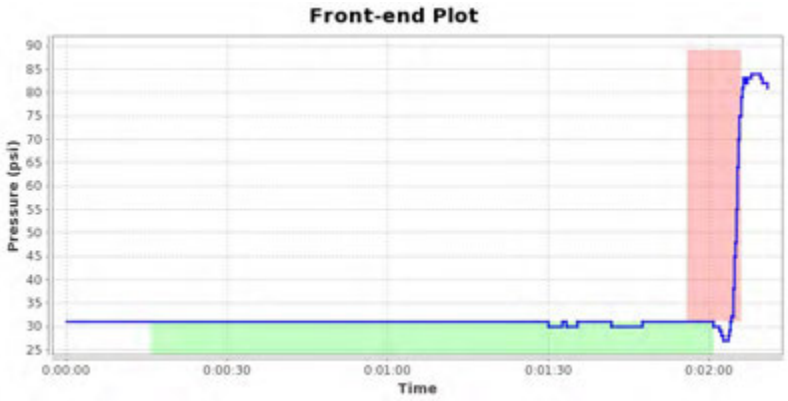
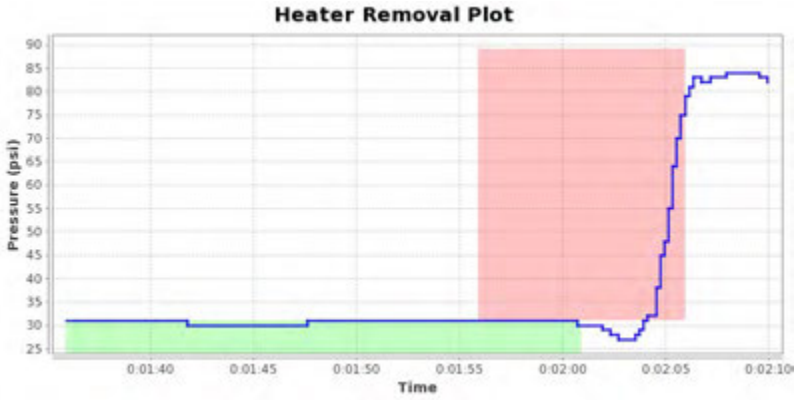
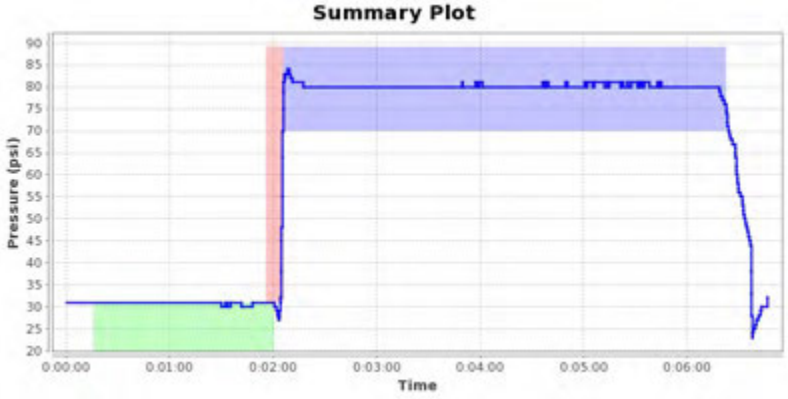



## Notes

Images for report: 975649



Printed: 2018-06-25 23:02:25 UTC

# McElroy Joint Report

Reference Number 975650

## Job Details

| | |
|---|---|
| Joint Number | 38 |
| Joint Time | 2018-06-08 18:10:03 GMT |
| Job | 1 |
| Operator | jordan |
| Aborted Joint | No |

## Fusion Machine

| | |
|---|---|
| Machine Name | 618 HF |
| Machine Model | 618 HF |
| Piston Area | 11.78 in² |

## Pipe Specifications

| | |
|---|---|
| Pipe Material | PE4710 |
| Pipe Size | 6 " IPS |
| Wall Thickness | DR 17 |

## Pressures

| | | |
|---|---|---|
| Drag Pressure | 31 psi | |
| | Interfacial | Gauge |
| Bead Up | 75 psi | 80 psi |
| Heat Soak | 0 psi | 31 psi |
| Fuse/Cool | 75 psi | 80 psi |

## Fusion Specification

| | |
|---|---|
| Fusion Type | Butt Fusion |
| Fusion Specification | ASTM F2620 |
| Bead Time | 0 seconds |
| Bead Size | 3/16" |
| Heat/Soak Time | 105 seconds |
| Fuse Time | 257 seconds |
| Open/Close Time | 10 seconds |
| Cool Time | 0 seconds |

| | Minimum | Maximum |
|---|---|---|
| Bead Up | 70 psi | 89 psi |
| Heat Soak | 0 psi | 31 psi |
| Fuse | 70 psi | 89 psi |
| Cool | 0 psi | 0 psi |

## External Heater Temperatures

| | Side A | Side B |
|---|---|---|

## GPS Location

| Date | Latitude | Longitude |
|---|---|---|
| 2018-06-08 18:10:03.0 | 64°2'5.168400"N | 135°50'5.908800"W |

## Logged Data Summary

| | |
|---|---|
| Number of Data Points | 184 |
| Total Fusion Time | 664 seconds |
| Maximum Recorded Pressure | 81 psi |

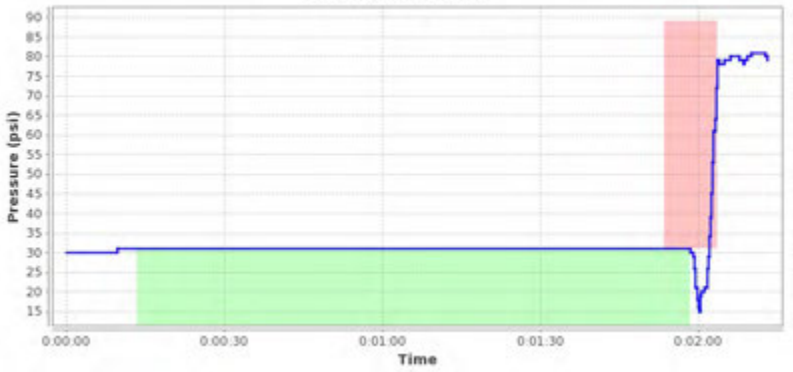
## Device Information

| | |
|---|---|
| DataLogger Serial Number | RH803Z0550 |
| Sensor Serial Number | MDL6621 |
| Calibration Date | 2018-04-04 |
| Firmware Version | v6.0 |
| Software Version | 1.06 (25) |
| Software Product Name | DataLogger 6 |

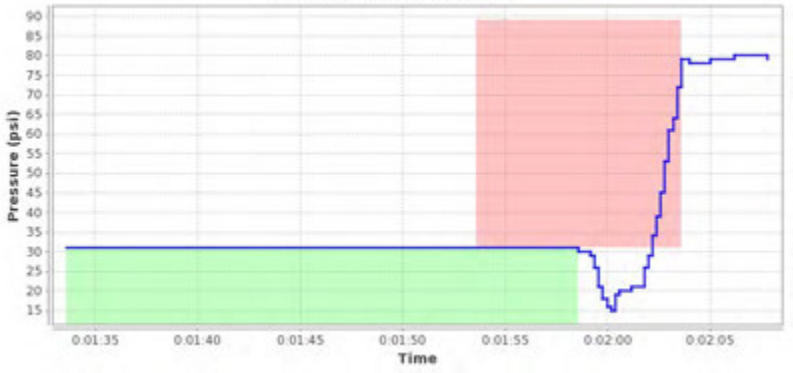
## Data Source

| | |
|---|---|
| Upload Time | 2018-06-11 21:20:52 GMT |

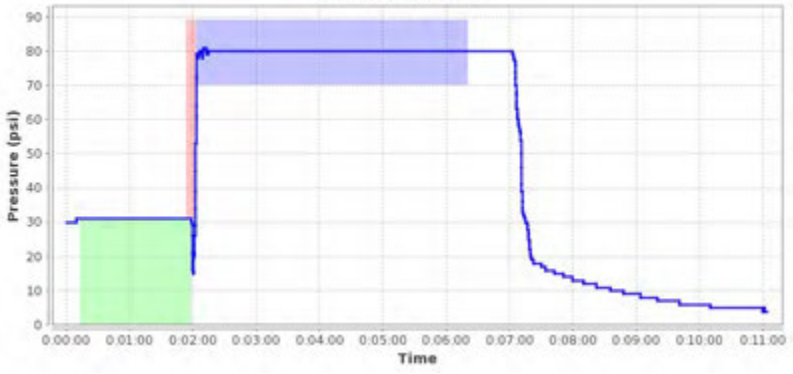
### Front-end Plot




### Heater Removal Plot




### Summary Plot




## Notes

Printed: 2018-06-25 23:02:15 UTC

# McElroy Joint Report

Reference Number 975651

## Job Details

| | |
|---|---|
| Joint Number | 39 |
| Joint Time | 2018-06-09 08:09:22 GMT |
| Job | 1 |
| Operator | jordan |
| Aborted Joint | No |

## Fusion Machine

| | |
|---|---|
| Machine Name | 618 HF |
| Machine Model | 618 HF |
| Piston Area | 11.78 in² |

## Pipe Specifications

| | |
|---|---|
| Pipe Material | PE4710 |
| Pipe Size | 6 " IPS |
| Wall Thickness | DR 17 |

## Pressures

| | | |
|---|---|---|
| Drag Pressure | 31 psi | |
| | Interfacial | Gauge |
| Bead Up | 75 psi | 80 psi |
| Heat Soak | 0 psi | 31 psi |
| Fuse/Cool | 75 psi | 80 psi |

## Fusion Specification

| | |
|---|---|
| Fusion Type | Butt Fusion |
| Fusion Specification | ASTM F2620 |
| Bead Time | 0 seconds |
| Bead Size | 3/16" |
| Heat/Soak Time | 105 seconds |
| Fuse Time | 257 seconds |
| Open/Close Time | 10 seconds |
| Cool Time | 0 seconds |

| | Minimum | Maximum |
|---|---|---|
| Bead Up | 70 psi | 89 psi |
| Heat Soak | 0 psi | 31 psi |
| Fuse | 70 psi | 89 psi |
| Cool | 0 psi | 0 psi |

## External Heater Temperatures

| | Side A | Side B |
|---|---|---|

## GPS Location

| Date | Latitude | Longitude |
|---|---|---|
| 2018-06-09 08:09:22.0 | 64°2'5.527200"N | 135°50'5.792400"W |

## Logged Data Summary

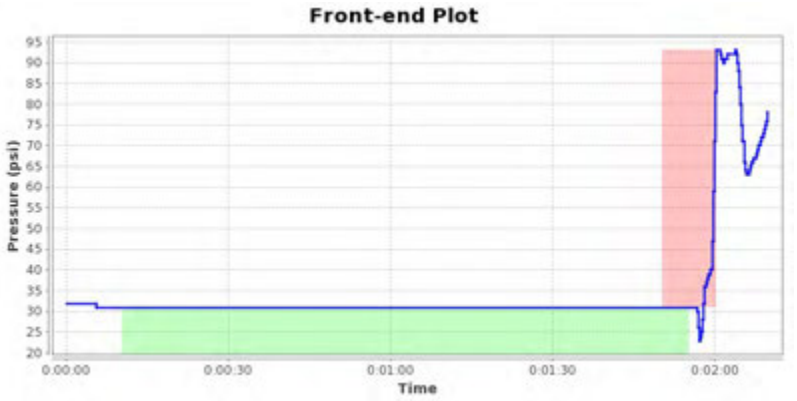
| | |
|---|---|
| Number of Data Points | 186 |
| Total Fusion Time | 415 seconds |
| Maximum Recorded Pressure | 93 psi |

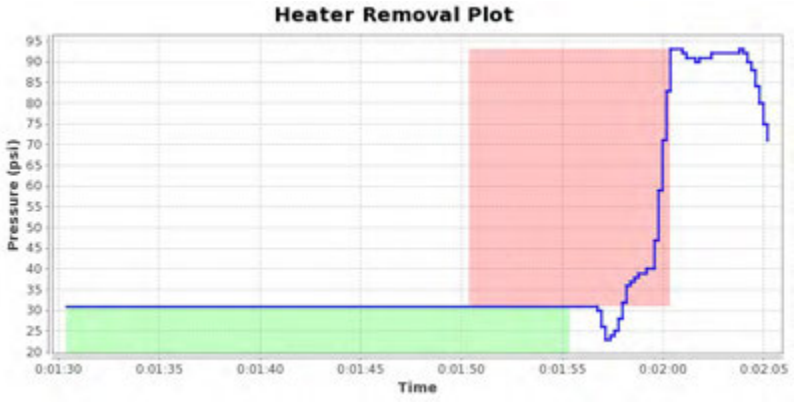
## Device Information

| | |
|---|---|
| DataLogger Serial Number | RH803Z0550 |
| Sensor Serial Number | MDL6621 |
| Calibration Date | 2018-04-04 |
| Firmware Version | v6.0 |
| Software Version | 1.06 (25) |
| Software Product Name | DataLogger 6 |

## Data Source

| | |
|---|---|
| Upload Time | 2018-06-11 21:21:01 GMT |







## Notes

Images for report: 975651



Printed: 2018-06-25 23:02:07 UTC

# McElroy Joint Report

Reference Number 975652

## Job Details

| | |
|---|---|
| Joint Number | 40 |
| Joint Time | 2018-06-09 08:30:50 GMT |
| Job | 1 |
| Operator | jordan |
| Aborted Joint | No |

## Fusion Machine

| | |
|---|---|
| Machine Name | 618 HF |
| Machine Model | 618 HF |
| Piston Area | 11.78 in² |

## Pipe Specifications

| | |
|---|---|
| Pipe Material | PE4710 |
| Pipe Size | 6 " IPS |
| Wall Thickness | DR 17 |

## Pressures

Drag Pressure 31 psi

| | Interfacial | Gauge |
|---|---|---|
| Bead Up | 75 psi | 80 psi |
| Heat Soak | 0 psi | 31 psi |
| Fuse/Cool | 75 psi | 80 psi |

## Fusion Specification

| | |
|---|---|
| Fusion Type | Butt Fusion |
| Fusion Specification | ASTM F2620 |
| Bead Time | 0 seconds |
| Bead Size | 3/16" |
| Heat/Soak Time | 105 seconds |
| Fuse Time | 257 seconds |
| Open/Close Time | 10 seconds |
| Cool Time | 0 seconds |

| | Minimum | Maximum |
|---|---|---|
| Bead Up | 70 psi | 89 psi |
| Heat Soak | 0 psi | 31 psi |
| Fuse | 70 psi | 89 psi |
| Cool | 0 psi | 0 psi |

## External Heater Temperatures

| | Side A | Side B |
|---|---|---|

## GPS Location

| Date | Latitude | Longitude |
|---|---|---|
| 2018-06-09 08:30:50.0 | 64°2'5.565000"N | 135°50'5.469000"W |

## Logged Data Summary

| | |
|---|---|
| Number of Data Points | 340 |
| Total Fusion Time | 488 seconds |
| Maximum Recorded Pressure | 86 psi |

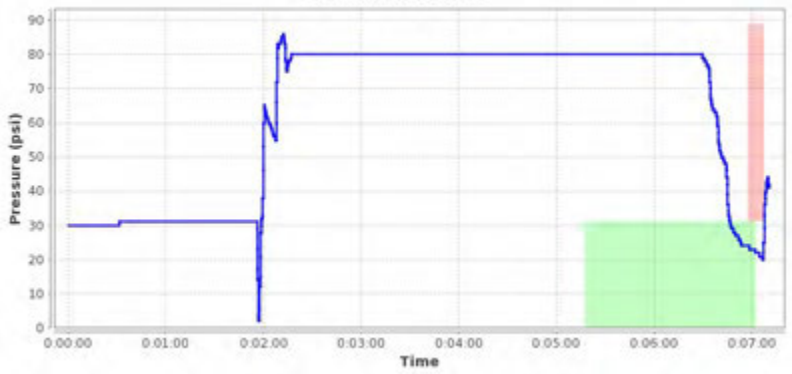
## Device Information

| | |
|---|---|
| DataLogger Serial Number | RH803Z0550 |
| Sensor Serial Number | MDL6621 |
| Calibration Date | 2018-04-04 |
| Firmware Version | v6.0 |
| Software Version | 1.06 (25) |
| Software Product Name | DataLogger 6 |

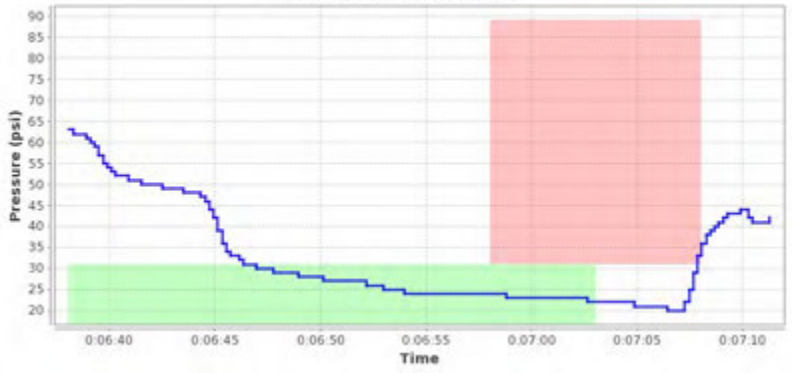
## Data Source

| | |
|---|---|
| Upload Time | 2018-06-11 21:21:04 GMT |

### Front-end Plot




### Heater Removal Plot




### Summary Plot




## Notes

Printed: 2018-06-25 23:01:57 UTC

# McElroy Joint Report

Reference Number 975653

## Job Details

| | |
|---|---|
| Joint Number | 41 |
| Joint Time | 2018-06-09 08:48:16 GMT |
| Job | 1 |
| Operator | jordan |
| Aborted Joint | No |

## Fusion Machine

| | |
|---|---|
| Machine Name | 618 HF |
| Machine Model | 618 HF |
| Piston Area | 11.78 in² |

## Pipe Specifications

| | |
|---|---|
| Pipe Material | PE4710 |
| Pipe Size | 6 " IPS |
| Wall Thickness | DR 17 |

## Pressures

| | | |
|---|---|---|
| Drag Pressure | 31 psi | |
| | Interfacial | Gauge |
| Bead Up | 75 psi | 80 psi |
| Heat Soak | 0 psi | 31 psi |
| Fuse/Cool | 75 psi | 80 psi |

## Fusion Specification

| | |
|---|---|
| Fusion Type | Butt Fusion |
| Fusion Specification | ASTM F2620 |
| Bead Time | 0 seconds |
| Bead Size | 3/16" |
| Heat/Soak Time | 105 seconds |
| Fuse Time | 257 seconds |
| Open/Close Time | 10 seconds |
| Cool Time | 0 seconds |

| | Minimum | Maximum |
|---|---|---|
| Bead Up | 70 psi | 89 psi |
| Heat Soak | 0 psi | 31 psi |
| Fuse | 70 psi | 89 psi |
| Cool | 0 psi | 0 psi |

## External Heater Temperatures

| | Side A | Side B |
|---|---|---|

## GPS Location

| Date | Latitude | Longitude |
|---|---|---|
| 2018-06-09 08:48:16.0 | 64°2'5.484600"N | 135°50'5.814600"W |

## Logged Data Summary

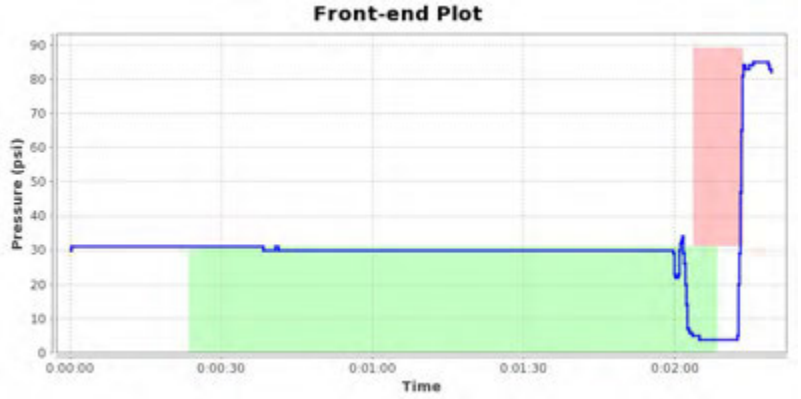
| | |
|---|---|
| Number of Data Points | 90 |
| Total Fusion Time | 375 seconds |
| Maximum Recorded Pressure | 85 psi |

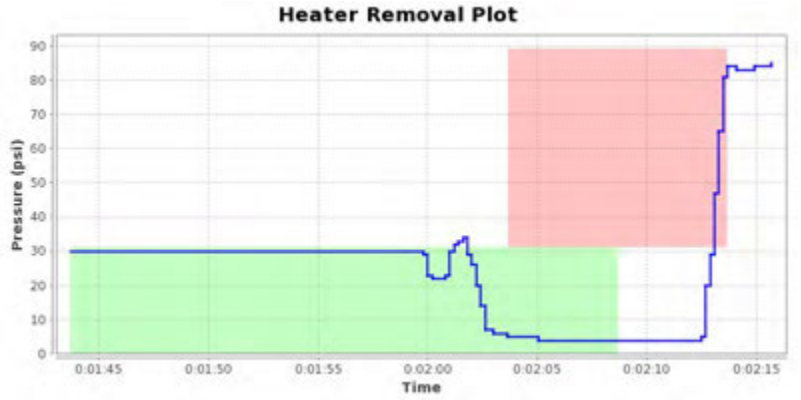
## Device Information

| | |
|---|---|
| DataLogger Serial Number | RH803Z0550 |
| Sensor Serial Number | MDL6621 |
| Calibration Date | 2018-04-04 |
| Firmware Version | v6.0 |
| Software Version | 1.06 (25) |
| Software Product Name | DataLogger 6 |

## Data Source

| | |
|---|---|
| Upload Time | 2018-06-11 21:21:15 GMT |







## Notes

Images for report: 975653



Printed: 2018-06-25 23:01:48 UTC

# McElroy Joint Report

Reference Number 975654

## Job Details

| | |
|---|---|
| Joint Number | 42 |
| Joint Time | 2018-06-09 09:30:40 GMT |
| Job | 1 |
| Operator | jordan |
| Aborted Joint | No |

## Fusion Machine

| | |
|---|---|
| Machine Name | 618 HF |
| Machine Model | 618 HF |
| Piston Area | 11.78 in² |

## Pipe Specifications

| | |
|---|---|
| Pipe Material | PE4710 |
| Pipe Size | 6 " IPS |
| Wall Thickness | DR 17 |

## Pressures

| | | |
|---|---|---|
| Drag Pressure | 31 psi | |
| | Interfacial | Gauge |
| Bead Up | 75 psi | 80 psi |
| Heat Soak | 0 psi | 31 psi |
| Fuse/Cool | 75 psi | 80 psi |

## Fusion Specification

| | |
|---|---|
| Fusion Type | Butt Fusion |
| Fusion Specification | ASTM F2620 |
| Bead Time | 0 seconds |
| Bead Size | 3/16" |
| Heat/Soak Time | 105 seconds |
| Fuse Time | 257 seconds |
| Open/Close Time | 10 seconds |
| Cool Time | 0 seconds |

| | Minimum | Maximum |
|---|---|---|
| Bead Up | 70 psi | 89 psi |
| Heat Soak | 0 psi | 31 psi |
| Fuse | 70 psi | 89 psi |
| Cool | 0 psi | 0 psi |

## External Heater Temperatures

| | Side A | Side B |
|---|---|---|

## GPS Location

| Date | Latitude | Longitude |
|---|---|---|
| 2018-06-09 09:30:40.0 | 64°2'5.350800"N | 135°50'5.907000"W |

## Logged Data Summary

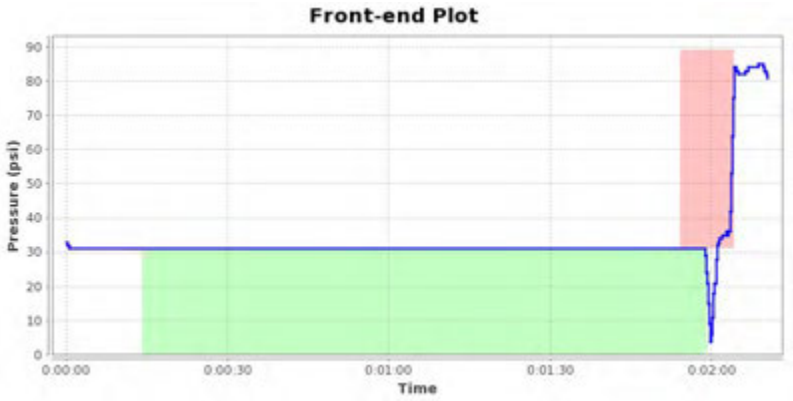
| | |
|---|---|
| Number of Data Points | 286 |
| Total Fusion Time | 441 seconds |
| Maximum Recorded Pressure | 85 psi |

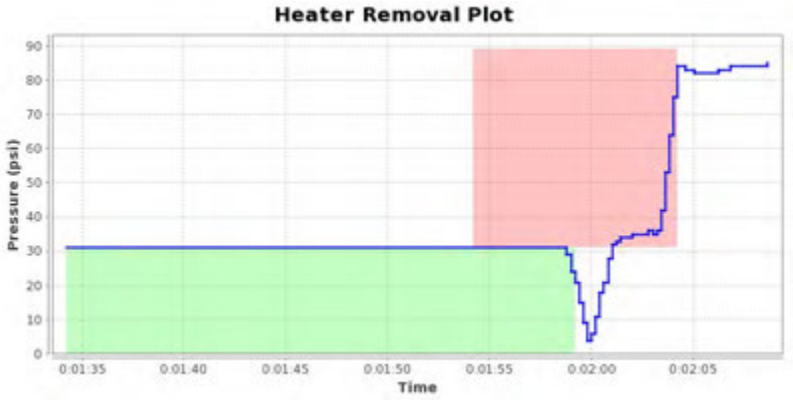
## Device Information

| | |
|---|---|
| DataLogger Serial Number | RH803Z0550 |
| Sensor Serial Number | MDL6621 |
| Calibration Date | 2018-04-04 |
| Firmware Version | v6.0 |
| Software Version | 1.06 (25) |
| Software Product Name | DataLogger 6 |

## Data Source

| | |
|---|---|
| Upload Time | 2018-06-11 21:21:26 GMT |







## Notes

Images for report: 975654



Printed: 2018-06-25 23:01:38 UTC

# McElroy Joint Report

Reference Number 975655

## Job Details

| | |
|---|---|
| Joint Number | 43 |
| Joint Time | 2018-06-09 10:00:50 GMT |
| Job | 1 |
| Operator | jordan |
| Aborted Joint | No |

## Fusion Machine

| | |
|---|---|
| Machine Name | 618 HF |
| Machine Model | 618 HF |
| Piston Area | 11.78 in² |

## Pipe Specifications

| | |
|---|---|
| Pipe Material | PE4710 |
| Pipe Size | 6 " IPS |
| Wall Thickness | DR 17 |

## Pressures

| | | |
|---|---|---|
| Drag Pressure | 31 psi | |
| | Interfacial | Gauge |
| Bead Up | 75 psi | 80 psi |
| Heat Soak | 0 psi | 31 psi |
| Fuse/Cool | 75 psi | 80 psi |

## Fusion Specification

| | |
|---|---|
| Fusion Type | Butt Fusion |
| Fusion Specification | ASTM F2620 |
| Bead Time | 0 seconds |
| Bead Size | 3/16" |
| Heat/Soak Time | 105 seconds |
| Fuse Time | 257 seconds |
| Open/Close Time | 10 seconds |
| Cool Time | 0 seconds |

| | Minimum | Maximum |
|---|---|---|
| Bead Up | 70 psi | 89 psi |
| Heat Soak | 0 psi | 31 psi |
| Fuse | 70 psi | 89 psi |
| Cool | 0 psi | 0 psi |

## External Heater Temperatures

| | Side A | Side B |
|---|---|---|

## GPS Location

| Date | Latitude | Longitude |
|---|---|---|
| 2018-06-09 10:00:50.0 | 64°2'5.467800"N | 135°50'5.956200"W |

## Logged Data Summary

| | |
|---|---|
| Number of Data Points | 128 |
| Total Fusion Time | 390 seconds |
| Maximum Recorded Pressure | 84 psi |

## Device Information

| | |
|---|---|
| DataLogger Serial Number | RH803Z0550 |
| Sensor Serial Number | MDL6621 |
| Calibration Date | 2018-04-04 |
| Firmware Version | v6.0 |
| Software Version | 1.06 (25) |
| Software Product Name | DataLogger 6 |

## Data Source

| | |
|---|---|
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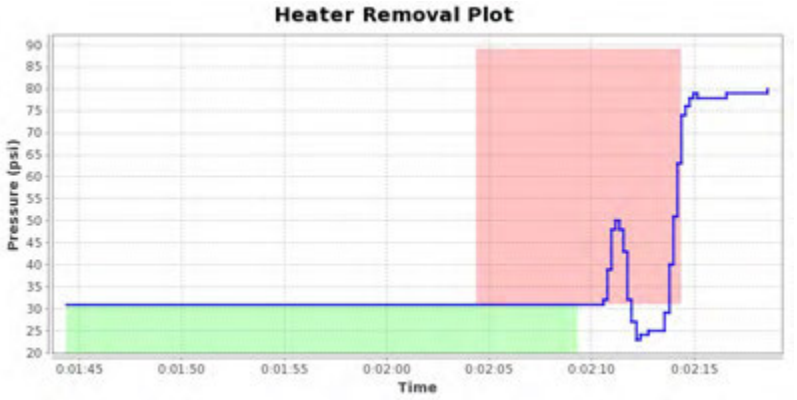
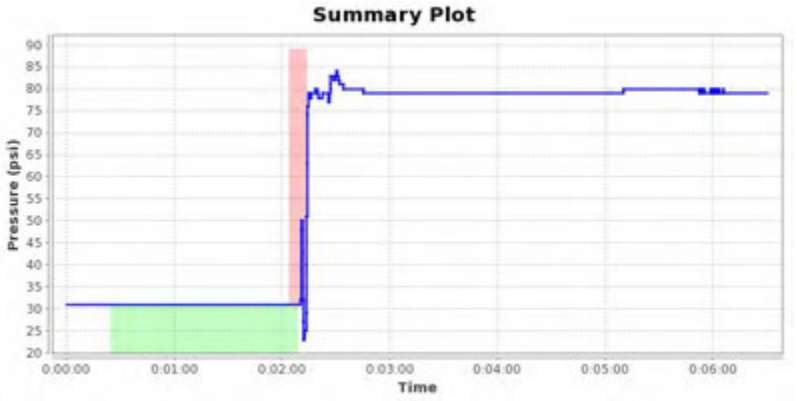



## Notes

Images for report: 975655



Printed: 2018-06-25 23:01:28 UTC

# McElroy Joint Report

Reference Number 975656

## Job Details

| | |
|---|---|
| Joint Number | 44 |
| Joint Time | 2018-06-09 10:55:01 GMT |
| Job | 1 |
| Operator | jordan |
| Aborted Joint | No |

## Fusion Machine

| | |
|---|---|
| Machine Name | 618 HF |
| Machine Model | 618 HF |
| Piston Area | 11.78 in² |

## Pipe Specifications

| | |
|---|---|
| Pipe Material | PE4710 |
| Pipe Size | 6 " IPS |
| Wall Thickness | DR 17 |

## Pressures

| | | |
|---|---|---|
| Drag Pressure | 31 psi | |
| | Interfacial | Gauge |
| Bead Up | 75 psi | 80 psi |
| Heat Soak | 0 psi | 31 psi |
| Fuse/Cool | 75 psi | 80 psi |

## Fusion Specification

| | |
|---|---|
| Fusion Type | Butt Fusion |
| Fusion Specification | ASTM F2620 |
| Bead Time | 0 seconds |
| Bead Size | 3/16" |
| Heat/Soak Time | 105 seconds |
| Fuse Time | 257 seconds |
| Open/Close Time | 10 seconds |
| Cool Time | 0 seconds |

| | Minimum | Maximum |
|---|---|---|
| Bead Up | 70 psi | 89 psi |
| Heat Soak | 0 psi | 31 psi |
| Fuse | 70 psi | 89 psi |
| Cool | 0 psi | 0 psi |

## External Heater Temperatures

| | Side A | Side B |
|---|---|---|

## GPS Location

| Date | Latitude | Longitude |
|---|---|---|
| 2018-06-09 10:55:01.0 | 64°2'5.200800"N | 135°50'5.673000"W |

## Logged Data Summary

| | |
|---|---|
| Number of Data Points | 260 |
| Total Fusion Time | 484 seconds |
| Maximum Recorded Pressure | 87 psi |

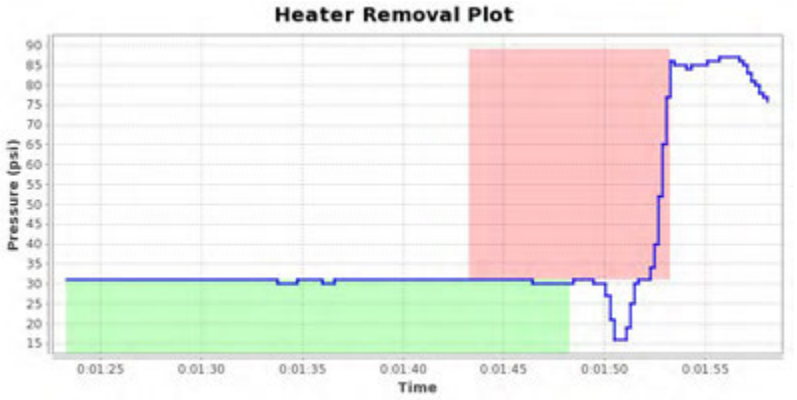
## Device Information

| | |
|---|---|
| DataLogger Serial Number | RH803Z0550 |
| Sensor Serial Number | MDL6621 |
| Calibration Date | 2018-04-04 |
| Firmware Version | v6.0 |
| Software Version | 1.06 (25) |
| Software Product Name | DataLogger 6 |

## Data Source

| | |
|---|---|
| Upload Time | 2018-06-11 21:21:47 GMT |







## Notes

Images for report: 975656



Printed: 2018-06-25 23:01:19 UTC

# McElroy Joint Report

Reference Number 975657

## Job Details

| | |
|---|---|
| Joint Number | 45 |
| Joint Time | 2018-06-09 12:40:49 GMT |
| Job | 1 |
| Operator | jordan |
| Aborted Joint | No |

## Fusion Machine

| | |
|---|---|
| Machine Name | 618 HF |
| Machine Model | 618 HF |
| Piston Area | 11.78 $in^2$ |

## Pipe Specifications

| | |
|---|---|
| Pipe Material | PE4710 |
| Pipe Size | 6 " IPS |
| Wall Thickness | DR 17 |

## Pressures

Drag Pressure 31 psi

| | Interfacial | Gauge |
|---|---|---|
| Bead Up | 75 psi | 80 psi |
| Heat Soak | 0 psi | 31 psi |
| Fuse/Cool | 75 psi | 80 psi |

## Fusion Specification

| | |
|---|---|
| Fusion Type | Butt Fusion |
| Fusion Specification | ASTM F2620 |
| Bead Time | 0 seconds |
| Bead Size | 3/16" |
| Heat/Soak Time | 105 seconds |
| Fuse Time | 257 seconds |
| Open/Close Time | 10 seconds |
| Cool Time | 0 seconds |

| | Minimum | Maximum |
|---|---|---|
| Bead Up | 70 psi | 89 psi |
| Heat Soak | 0 psi | 31 psi |
| Fuse | 70 psi | 89 psi |
| Cool | 0 psi | 0 psi |

## External Heater Temperatures

| | Side A | Side B |
|---|---|---|

## GPS Location

| Date | Latitude | Longitude |
|---|---|---|
| 2018-06-09 12:40:49.0 | 64°2'5.197800"N | 135°50'5.562000"W |

## Logged Data Summary

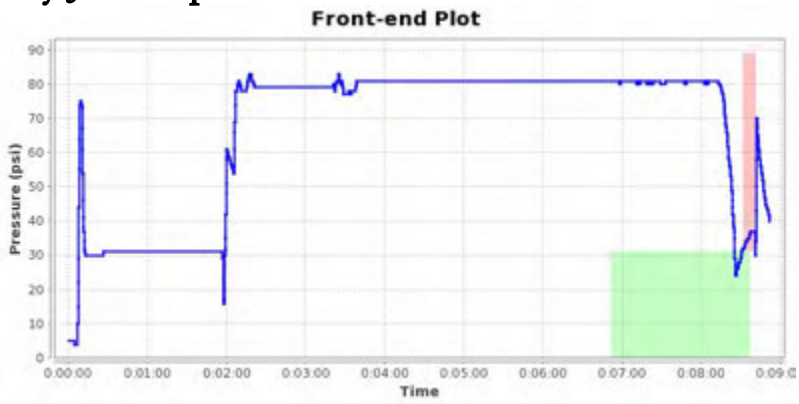
| | |
|---|---|
| Number of Data Points | 458 |
| Total Fusion Time | 614 seconds |
| Maximum Recorded Pressure | 83 psi |

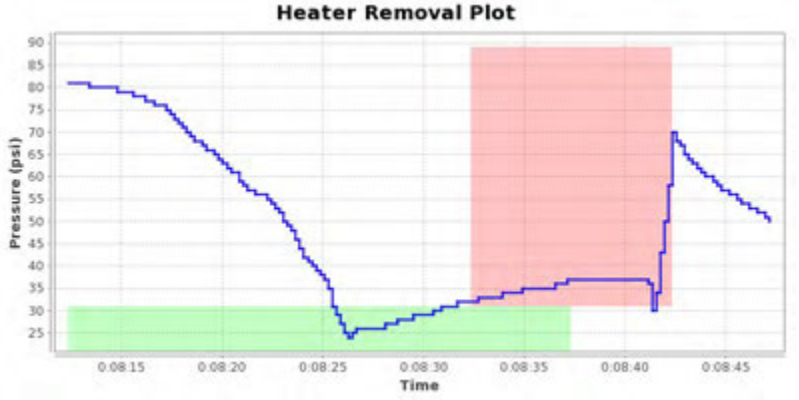
## Device Information

| | |
|---|---|
| DataLogger Serial Number | RH803Z0550 |
| Sensor Serial Number | MDL6621 |
| Calibration Date | 2018-04-04 |
| Firmware Version | v6.0 |
| Software Version | 1.06 (25) |
| Software Product Name | DataLogger 6 |

## Data Source

| | |
|---|---|
| Upload Time | 2018-06-11 21:21:50 GMT |







## Notes

Printed: 2018-06-25 23:01:10 UTC

# McElroy Joint Report

Reference Number 975658

## Job Details

| | |
|---|---|
| Joint Number | 46 |
| Joint Time | 2018-06-09 12:58:06 GMT |
| Job | 1 |
| Operator | jordan |
| Aborted Joint | No |

## Fusion Machine

| | |
|---|---|
| Machine Name | 618 HF |
| Machine Model | 618 HF |
| Piston Area | 11.78 $in^2$ |

## Pipe Specifications

| | |
|---|---|
| Pipe Material | PE4710 |
| Pipe Size | 6 " IPS |
| Wall Thickness | DR 17 |

## Pressures

| | | |
|---|---|---|
| Drag Pressure | 31 psi | |
| | Interfacial | Gauge |
| Bead Up | 75 psi | 80 psi |
| Heat Soak | 0 psi | 31 psi |
| Fuse/Cool | 75 psi | 80 psi |

## Fusion Specification

| | |
|---|---|
| Fusion Type | Butt Fusion |
| Fusion Specification | ASTM F2620 |
| Bead Time | 0 seconds |
| Bead Size | 3/16" |
| Heat/Soak Time | 105 seconds |
| Fuse Time | 257 seconds |
| Open/Close Time | 10 seconds |
| Cool Time | 0 seconds |

| | Minimum | Maximum |
|---|---|---|
| Bead Up | 70 psi | 89 psi |
| Heat Soak | 0 psi | 31 psi |
| Fuse | 70 psi | 89 psi |
| Cool | 0 psi | 0 psi |

## External Heater Temperatures

| | Side A | Side B |
|---|---|---|

## GPS Location

| Date | Latitude | Longitude |
|---|---|---|
| 2018-06-09 12:58:06.0 | 64°2'5.303400"N | 135°50'5.620200"W |

## Logged Data Summary

| | |
|---|---|
| Number of Data Points | 234 |
| Total Fusion Time | 435 seconds |
| Maximum Recorded Pressure | 85 psi |

## Device Information

| | |
|---|---|
| DataLogger Serial Number | RH803Z0550 |
| Sensor Serial Number | MDL6621 |
| Calibration Date | 2018-04-04 |
| Firmware Version | v6.0 |
| Software Version | 1.06 (25) |
| Software Product Name | DataLogger 6 |

## Data Source

| | |
|---|---|
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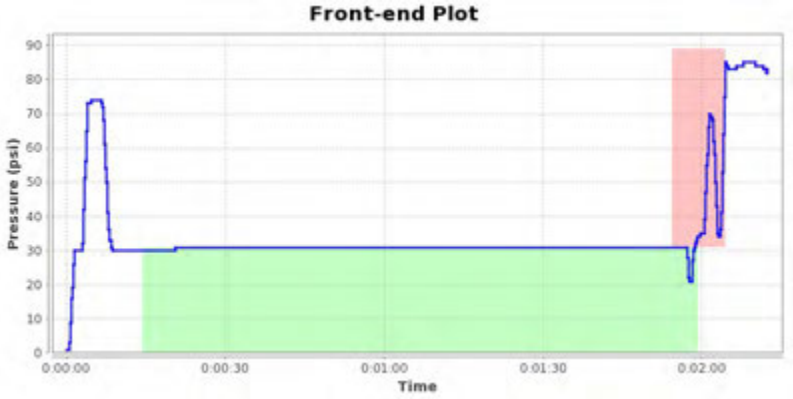


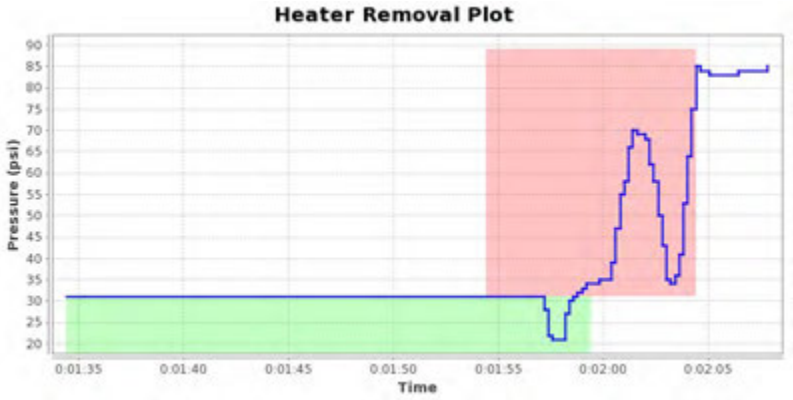





## Notes

Images for report: 975658



Printed: 2018-06-25 23:06:27 UTC

# McElroy Joint Report

Reference Number 993177

## Job Details

| | |
|---|---|
| Joint Number | 47 |
| Joint Time | 2018-06-09 14:12:50 GMT |
| Job | 1 |
| Operator | jordan |
| Aborted Joint | No |

## Fusion Machine

| | |
|---|---|
| Machine Name | 618 HF |
| Machine Model | 618 HF |
| Piston Area | 11.78 in² |

## Pipe Specifications

| | |
|---|---|
| Pipe Material | PE4710 |
| Pipe Size | 6 " IPS |
| Wall Thickness | DR 17 |

## Pressures

| | | |
|---|---|---|
| Drag Pressure | 31 psi | |
| | Interfacial | Gauge |
| Bead Up | 75 psi | 80 psi |
| Heat Soak | 0 psi | 31 psi |
| Fuse/Cool | 75 psi | 80 psi |

## Fusion Specification

| | |
|---|---|
| Fusion Type | Butt Fusion |
| Fusion Specification | ASTM F2620 |
| Bead Time | 0 seconds |
| Bead Size | 3/16" |
| Heat/Soak Time | 105 seconds |
| Fuse Time | 257 seconds |
| Open/Close Time | 10 seconds |
| Cool Time | 0 seconds |

| | Minimum | Maximum |
|---|---|---|
| Bead Up | 70 psi | 89 psi |
| Heat Soak | 0 psi | 31 psi |
| Fuse | 70 psi | 89 psi |
| Cool | 0 psi | 0 psi |

## External Heater Temperatures

| | Side A | Side B |
|---|---|---|

## GPS Location

| Date | Latitude | Longitude |
|---|---|---|
| 2018-06-09 14:12:50.0 | 64°2'5.462400"N | 135°50'5.793000"W |

## Logged Data Summary

| | |
|---|---|
| Number of Data Points | 290 |
| Total Fusion Time | 435 seconds |
| Maximum Recorded Pressure | 82 psi |

## Device Information

| | |
|---|---|
| DataLogger Serial Number | RH803Z0550 |
| Sensor Serial Number | MDL6621 |
| Calibration Date | 2018-04-04 |
| Firmware Version | v6.0 |
| Software Version | 1.06 (25) |
| Software Product Name | DataLogger 6 |

## Data Source

| | |
|---|---|
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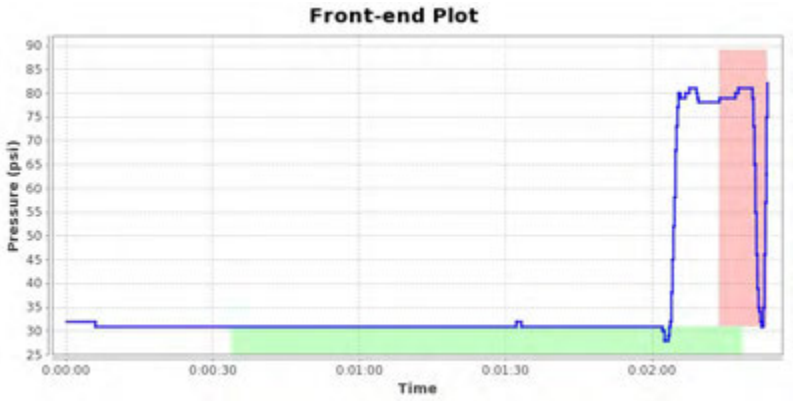
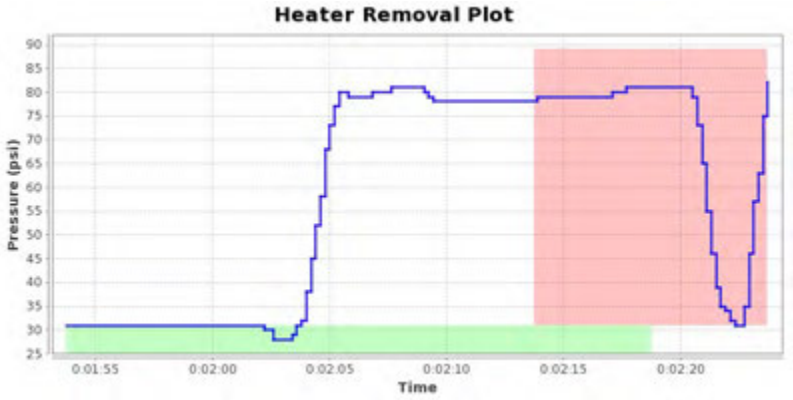






## Notes

Images for report: 993177



Printed: 2018-06-25 23:06:18 UTC

# McElroy Joint Report

Reference Number 993178

## Job Details

| | |
|---|---|
| Joint Number | 48 |
| Joint Time | 2018-06-13 15:03:30 GMT |
| Job | 1 |
| Operator | jordan |
| Aborted Joint | No |

## Fusion Machine

| | |
|---|---|
| Machine Name | 618 HF |
| Machine Model | 618 HF |
| Piston Area | 11.78 in² |

## Pipe Specifications

| | |
|---|---|
| Pipe Material | PE4710 |
| Pipe Size | 6 " IPS |
| Wall Thickness | DR 17 |

## Pressures

Drag Pressure 31 psi

| | Interfacial | Gauge |
|---|---|---|
| Bead Up | 75 psi | 80 psi |
| Heat Soak | 0 psi | 31 psi |
| Fuse/Cool | 75 psi | 80 psi |

## Fusion Specification

| | |
|---|---|
| Fusion Type | Butt Fusion |
| Fusion Specification | ASTM F2620 |
| Bead Time | 0 seconds |
| Bead Size | 3/16" |
| Heat/Soak Time | 105 seconds |
| Fuse Time | 257 seconds |
| Open/Close Time | 10 seconds |
| Cool Time | 0 seconds |

| | Minimum | Maximum |
|---|---|---|
| Bead Up | 70 psi | 89 psi |
| Heat Soak | 0 psi | 31 psi |
| Fuse | 70 psi | 89 psi |
| Cool | 0 psi | 0 psi |

## External Heater Temperatures

| | Side A | Side B |
|---|---|---|

## GPS Location

| Date | Latitude | Longitude |
|---|---|---|
| 2018-06-13 15:03:30.0 | 64°2'7.426800"N | 135°49'54.900000"W |

## Logged Data Summary

| | |
|---|---|
| Number of Data Points | 630 |
| Total Fusion Time | 1628 seconds |
| Maximum Recorded Pressure | 107 psi |

## Device Information

| | |
|---|---|
| DataLogger Serial Number | RH803Z0550 |
| Sensor Serial Number | MDL6621 |
| Calibration Date | 2018-04-04 |
| Firmware Version | v6.0 |
| Software Version | 1.06 (25) |
| Software Product Name | DataLogger 6 |

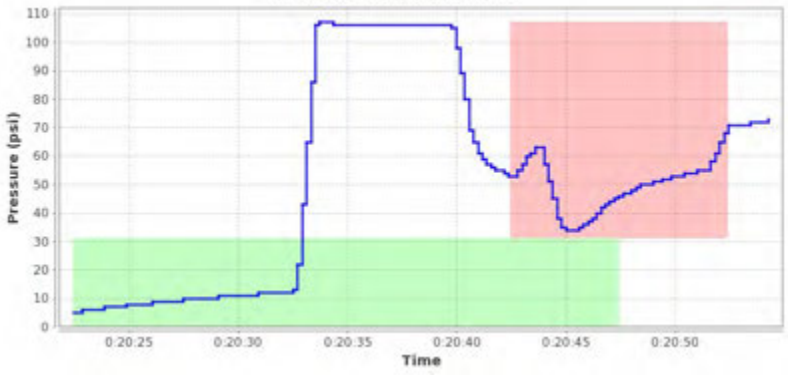
## Data Source

| | |
|---|---|
| Upload Time | 2018-06-25 22:58:11 GMT |

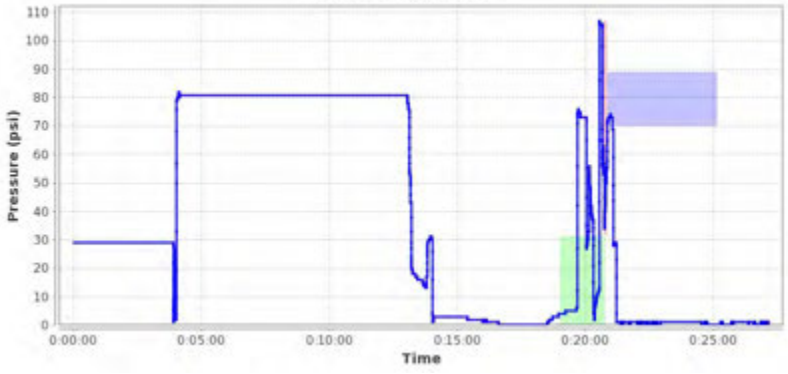
### Front-end Plot




### Heater Removal Plot




### Summary Plot




## Notes

Printed: 2018-06-25 23:06:09 UTC

# McElroy Joint Report

Reference Number 993179

## Job Details

| | |
|---|---|
| Joint Number | 49 |
| Joint Time | 2018-06-13 17:16:17 GMT |
| Job | 1 |
| Operator | jordan |
| Aborted Joint | No |

## Fusion Machine

| | |
|---|---|
| Machine Name | 618 HF |
| Machine Model | 618 HF |
| Piston Area | 11.78 in² |

## Pipe Specifications

| | |
|---|---|
| Pipe Material | PE4710 |
| Pipe Size | 6 " IPS |
| Wall Thickness | DR 17 |

## Pressures

| | | |
|---|---|---|
| Drag Pressure | 31 psi | |
| | Interfacial | Gauge |
| Bead Up | 75 psi | 80 psi |
| Heat Soak | 0 psi | 31 psi |
| Fuse/Cool | 75 psi | 80 psi |

## Fusion Specification

| | |
|---|---|
| Fusion Type | Butt Fusion |
| Fusion Specification | ASTM F2620 |
| Bead Time | 0 seconds |
| Bead Size | 3/16" |
| Heat/Soak Time | 105 seconds |
| Fuse Time | 257 seconds |
| Open/Close Time | 10 seconds |
| Cool Time | 0 seconds |

| | Minimum | Maximum |
|---|---|---|
| Bead Up | 70 psi | 89 psi |
| Heat Soak | 0 psi | 31 psi |
| Fuse | 70 psi | 89 psi |
| Cool | 0 psi | 0 psi |

## External Heater Temperatures

| | Side A | Side B |
|---|---|---|

## GPS Location

| Date | Latitude | Longitude |
|---|---|---|
| 2018-06-13 17:16:17.0 | 64°2'7.341000"N | 135°49'55.423200"W |

## Logged Data Summary

| | |
|---|---|
| Number of Data Points | 2684 |
| Total Fusion Time | 7898 seconds |
| Maximum Recorded Pressure | 118 psi |

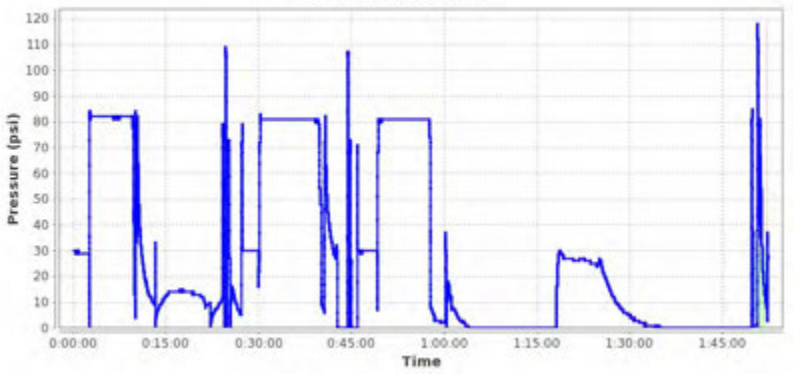
## Device Information

| | |
|---|---|
| DataLogger Serial Number | RH803Z0550 |
| Sensor Serial Number | MDL6621 |
| Calibration Date | 2018-04-04 |
| Firmware Version | v6.0 |
| Software Version | 1.06 (25) |
| Software Product Name | DataLogger 6 |

## Data Source

| | |
|---|---|
| Upload Time | 2018-06-25 22:58:24 GMT |

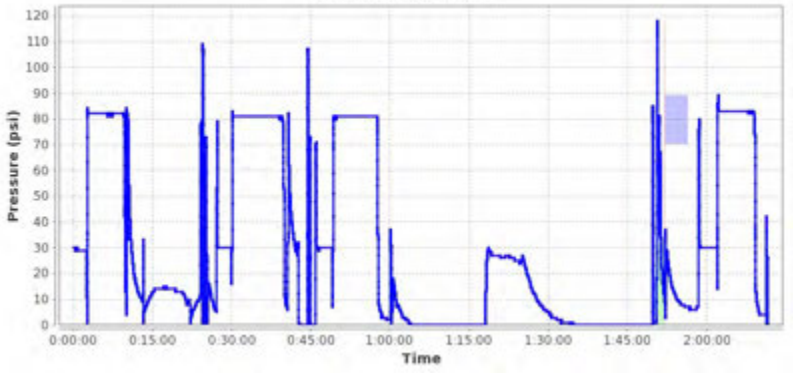
### Front-end Plot




### Heater Removal Plot




### Summary Plot




## Notes

Printed: 2018-06-25 22:56:18 UTC

# McElroy Joint Report

Reference Number 993176

## Job Details

| | |
|---|---|
| Joint Number | 50 |
| Joint Time | 2018-06-25 14:53:31 GMT |
| Job | 1 |
| Operator | jordan |
| Aborted Joint | No |

## Fusion Machine

| | |
|---|---|
| Machine Name | 618 HF |
| Machine Model | 618 HF |
| Piston Area | 11.78 in² |

## Pipe Specifications

| | |
|---|---|
| Pipe Material | PE4710 |
| Pipe Size | 6 " IPS |
| Wall Thickness | DR 17 |

## Pressures

| | | |
|---|---|---|
| Drag Pressure | 31 psi | |
| | Interfacial | Gauge |
| Bead Up | 75 psi | 80 psi |
| Heat Soak | 0 psi | 31 psi |
| Fuse/Cool | 75 psi | 80 psi |

## Fusion Specification

| | |
|---|---|
| Fusion Type | Butt Fusion |
| Fusion Specification | ASTM F2620 |
| Bead Time | 0 seconds |
| Bead Size | 3/16" |
| Heat/Soak Time | 105 seconds |
| Fuse Time | 257 seconds |
| Open/Close Time | 10 seconds |
| Cool Time | 0 seconds |

| | Minimum | Maximum |
|---|---|---|
| Bead Up | 70 psi | 89 psi |
| Heat Soak | 0 psi | 31 psi |
| Fuse | 70 psi | 89 psi |
| Cool | 0 psi | 0 psi |

## External Heater Temperatures

| | Side A | Side B |
|---|---|---|

## GPS Location

| Date | Latitude | Longitude |
|---|---|---|
| 2018-06-25 14:53:31.0 | 64°2'12.390000"N | 135°49'48.114000"W |

## Logged Data Summary

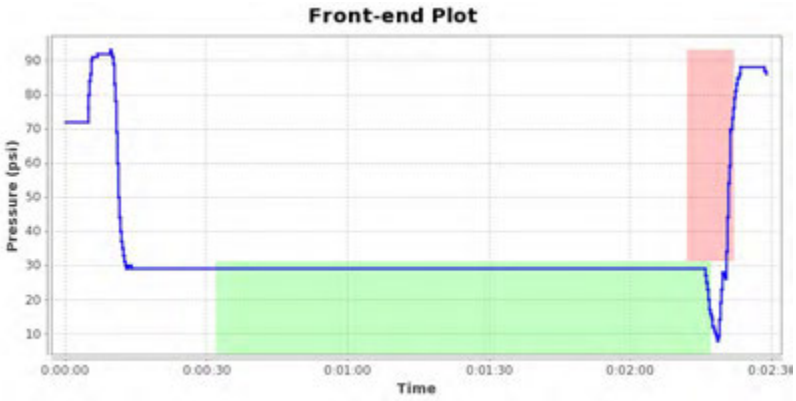
| | |
|---|---|
| Number of Data Points | 162 |
| Total Fusion Time | 397 seconds |
| Maximum Recorded Pressure | 93 psi |

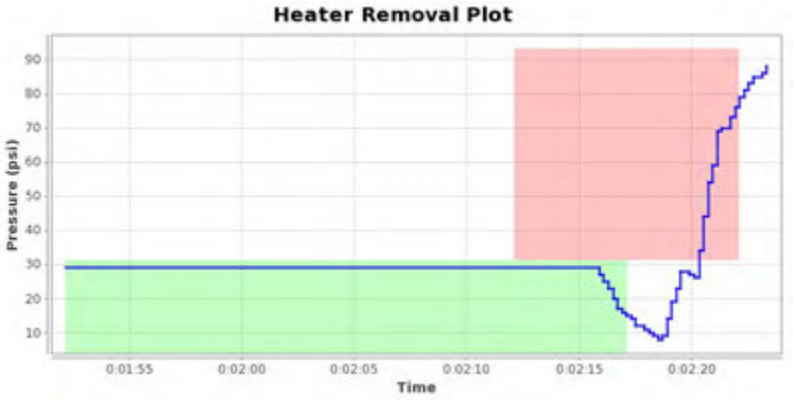
## Device Information

| | |
|---|---|
| DataLogger Serial Number | RH803Z0550 |
| Sensor Serial Number | MDL6621 |
| Calibration Date | 2018-04-04 |
| Firmware Version | v6.0 |
| Software Version | 1.06 (25) |
| Software Product Name | DataLogger 6 |

## Data Source

| | |
|---|---|
| Upload Time | 2018-06-25 22:55:43 GMT |







## Notes

Images for report: 993176





Printed: 2018-07-27 04:19:53 UTC

# McElroy Joint Report

Reference Number 1041036

## Job Details

| | |
|---|---|
| Joint Number | 51 |
| Joint Time | 2018-07-18 18:26:00 GMT |
| Job | 1 |
| Operator | jordan |
| Aborted Joint | No |

## Fusion Machine

| | |
|---|---|
| Machine Name | 618 HF |
| Machine Model | 618 HF |
| Piston Area | 11.78 in² |

## Pipe Specifications

| | |
|---|---|
| Pipe Material | PE4710 |
| Pipe Size | 6 " IPS |
| Wall Thickness | DR 17 |

## Pressures

| | | |
|---|---|---|
| Drag Pressure | 31 psi | |
| | Interfacial | Gauge |
| Bead Up | 75 psi | 80 psi |
| Heat Soak | 0 psi | 31 psi |
| Fuse/Cool | 75 psi | 80 psi |

## Fusion Specification

| | |
|---|---|
| Fusion Type | Butt Fusion |
| Fusion Specification | ASTM F2620 |
| Bead Time | 0 seconds |
| Bead Size | 3/16" |
| Heat/Soak Time | 105 seconds |
| Fuse Time | 257 seconds |
| Open/Close Time | 10 seconds |
| Cool Time | 0 seconds |

| | Minimum | Maximum |
|---|---|---|
| Bead Up | 70 psi | 89 psi |
| Heat Soak | 0 psi | 31 psi |
| Fuse | 70 psi | 89 psi |
| Cool | 0 psi | 0 psi |

## External Heater Temperatures

| | Side A | Side B |
|---|---|---|

## GPS Location

| Date | Latitude | Longitude |
|---|---|---|
| 2018-07-18 18:26:00.0 | 64°2'14.891400"N | 135°49'47.067000"W |

## Logged Data Summary

| | |
|---|---|
| Number of Data Points | 152 |
| Total Fusion Time | 491 seconds |
| Maximum Recorded Pressure | 85 psi |

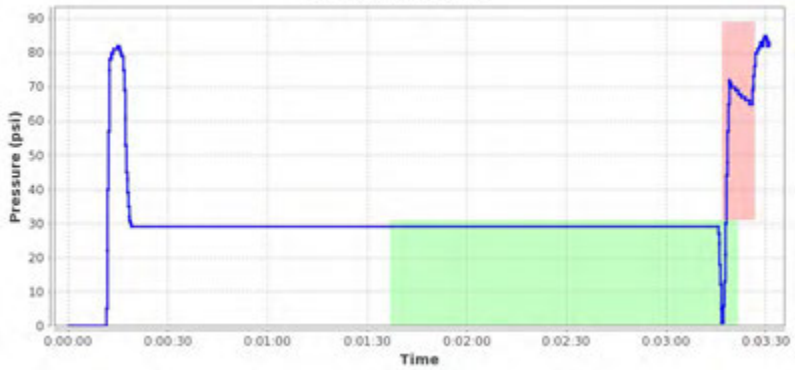
## Device Information

| | |
|---|---|
| DataLogger Serial Number | RH803Z0550 |
| Sensor Serial Number | MDL6621 |
| Calibration Date | 2018-04-04 |
| Firmware Version | v6.0 |
| Software Version | 1.08 (27) |
| Software Product Name | DataLogger 6 |

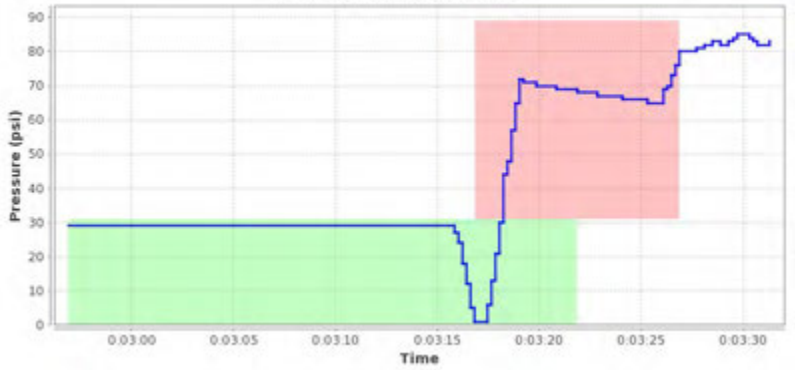
## Data Source

| | |
|---|---|
| Upload Time | 2018-07-27 04:03:35 GMT |

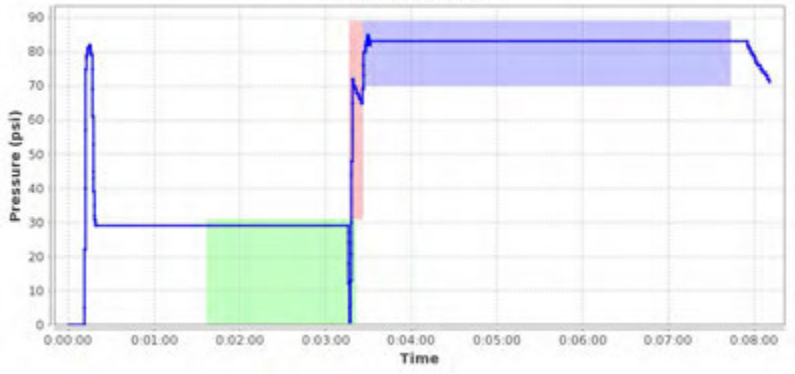
### Front-end Plot




### Heater Removal Plot




### Summary Plot




## Notes

Printed: 2018-07-27 04:19:52 UTC

# McElroy Joint Report

Reference Number 1041066

## Job Details

| | |
|---|---|
| Joint Number | 52 |
| Joint Time | 2018-07-19 08:42:39 GMT |
| Job | 1 |
| Operator | jordan |
| Aborted Joint | No |

## Fusion Machine

| | |
|---|---|
| Machine Name | 618 HF |
| Machine Model | 618 HF |
| Piston Area | 11.78 in² |

## Pipe Specifications

| | |
|---|---|
| Pipe Material | PE4710 |
| Pipe Size | 6 " IPS |
| Wall Thickness | DR 17 |

## Pressures

| | | |
|---|---|---|
| Drag Pressure | 31 psi | |
| | Interfacial | Gauge |
| Bead Up | 75 psi | 80 psi |
| Heat Soak | 0 psi | 31 psi |
| Fuse/Cool | 75 psi | 80 psi |

## Fusion Specification

| | |
|---|---|
| Fusion Type | Butt Fusion |
| Fusion Specification | ASTM F2620 |
| Bead Time | 0 seconds |
| Bead Size | 3/16" |
| Heat/Soak Time | 105 seconds |
| Fuse Time | 257 seconds |
| Open/Close Time | 10 seconds |
| Cool Time | 0 seconds |

| | Minimum | Maximum |
|---|---|---|
| Bead Up | 70 psi | 89 psi |
| Heat Soak | 0 psi | 31 psi |
| Fuse | 70 psi | 89 psi |
| Cool | 0 psi | 0 psi |

## External Heater Temperatures

| | Side A | Side B |
|---|---|---|

## GPS Location

| Date | Latitude | Longitude |
|---|---|---|
| 2018-07-19 08:42:39.0 | 64°2'14.775000"N | 135°49'46.407600"W |

## Logged Data Summary

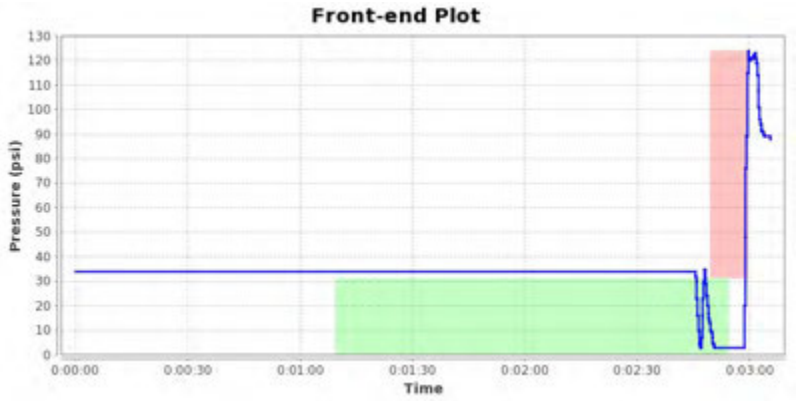
| | |
|---|---|
| Number of Data Points | 190 |
| Total Fusion Time | 551 seconds |
| Maximum Recorded Pressure | 124 psi |

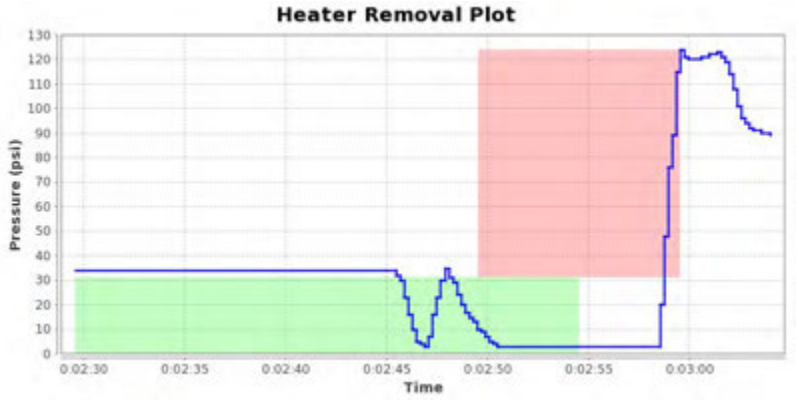
## Device Information

| | |
|---|---|
| DataLogger Serial Number | RH803Z0550 |
| Sensor Serial Number | MDL6621 |
| Calibration Date | 2018-04-04 |
| Firmware Version | v6.0 |
| Software Version | 1.08 (27) |
| Software Product Name | DataLogger 6 |

## Data Source

| | |
|---|---|
| Upload Time | 2018-07-27 04:06:12 GMT |







## Notes

Images for report: 1041066







Printed: 2018-07-27 04:19:50 UTC

# McElroy Joint Report

Reference Number 1041067

## Job Details

| | |
|---|---|
| Joint Number | 53 |
| Joint Time | 2018-07-19 10:02:59 GMT |
| Job | 1 |
| Operator | jordan |
| Aborted Joint | No |

## Fusion Machine

| | |
|---|---|
| Machine Name | 618 HF |
| Machine Model | 618 HF |
| Piston Area | 11.78 in² |

## Pipe Specifications

| | |
|---|---|
| Pipe Material | PE4710 |
| Pipe Size | 6 " IPS |
| Wall Thickness | DR 11 |

## Pressures

| | | |
|---|---|---|
| Drag Pressure | 31 psi | |
| | Interfacial | Gauge |
| Bead Up | 75 psi | 104 psi |
| Heat Soak | 0 psi | 31 psi |
| Fuse/Cool | 75 psi | 104 psi |

## Fusion Specification

| | |
|---|---|
| Fusion Type | Butt Fusion |
| Fusion Specification | ASTM F2620 |
| Bead Time | 0 seconds |
| Bead Size | 3/16" |
| Heat/Soak Time | 162 seconds |
| Fuse Time | 397 seconds |
| Open/Close Time | 15 seconds |
| Cool Time | 0 seconds |

| | Minimum | Maximum |
|---|---|---|
| Bead Up | 89 psi | 118 psi |
| Heat Soak | 0 psi | 31 psi |
| Fuse | 89 psi | 118 psi |
| Cool | 0 psi | 0 psi |

## External Heater Temperatures

| | Side A | Side B |
|---|---|---|

## GPS Location

| Date | Latitude | Longitude |
|---|---|---|
| 2018-07-19 10:02:59.0 | 64°2'14.743800"N | 135°49'46.413000"W |

## Logged Data Summary

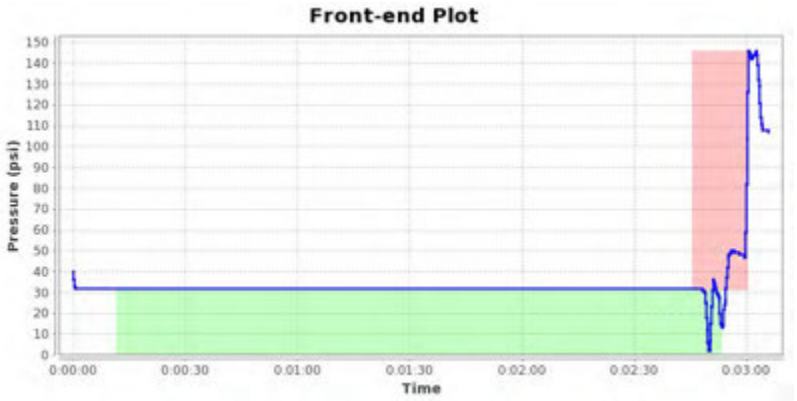
| | |
|---|---|
| Number of Data Points | 256 |
| Total Fusion Time | 589 seconds |
| Maximum Recorded Pressure | 146 psi |

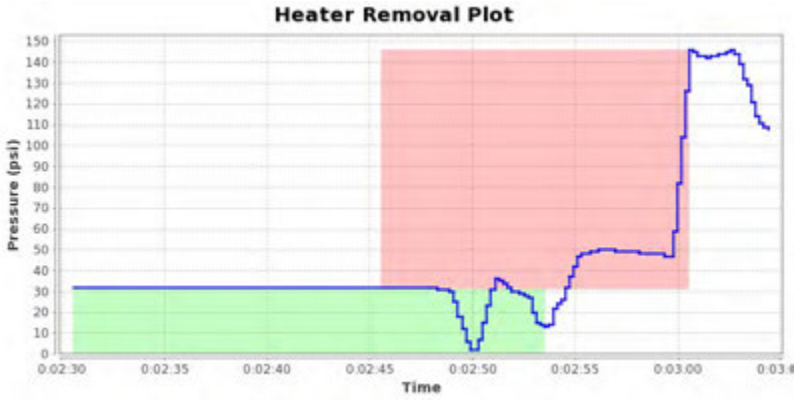
## Device Information

| | |
|---|---|
| DataLogger Serial Number | RH803Z0550 |
| Sensor Serial Number | MDL6621 |
| Calibration Date | 2018-04-04 |
| Firmware Version | v6.0 |
| Software Version | 1.08 (27) |
| Software Product Name | DataLogger 6 |

## Data Source

| | |
|---|---|
| Upload Time | 2018-07-27 04:08:00 GMT |







## Notes

Images for report: 1041067







Printed: 2018-07-27 04:20:30 UTC

# McElroy Joint Report

Reference Number 1040998

## Job Details

| | |
|---|---|
| Joint Number | 54 |
| Joint Time | 2018-07-19 10:39:58 GMT |
| Job | 1 |
| Operator | jordan |
| Aborted Joint | No |

## Fusion Machine

| | |
|---|---|
| Machine Name | 618 HF |
| Machine Model | 618 HF |
| Piston Area | 11.78 in² |

## Pipe Specifications

| | |
|---|---|
| Pipe Material | PE4710 |
| Pipe Size | 6 " IPS |
| Wall Thickness | DR 11 |

## Pressures

| | | |
|---|---|---|
| Drag Pressure | 31 psi | |
| | Interfacial | Gauge |
| Bead Up | 75 psi | 104 psi |
| Heat Soak | 0 psi | 31 psi |
| Fuse/Cool | 75 psi | 104 psi |

## Fusion Specification

| | |
|---|---|
| Fusion Type | Butt Fusion |
| Fusion Specification | ASTM F2620 |
| Bead Time | 0 seconds |
| Bead Size | 3/16" |
| Heat/Soak Time | 162 seconds |
| Fuse Time | 397 seconds |
| Open/Close Time | 15 seconds |
| Cool Time | 0 seconds |

| | Minimum | Maximum |
|---|---|---|
| Bead Up | 89 psi | 118 psi |
| Heat Soak | 0 psi | 31 psi |
| Fuse | 89 psi | 118 psi |
| Cool | 0 psi | 0 psi |

## External Heater Temperatures

| | Side A | Side B |
|---|---|---|

## GPS Location

| Date | Latitude | Longitude |
|---|---|---|
| 2018-07-19 10:39:58.0 | 64°2'14.808600"N | 135°49'46.651200"W |

## Logged Data Summary

| | |
|---|---|
| Number of Data Points | 230 |
| Total Fusion Time | 577 seconds |
| Maximum Recorded Pressure | 142 psi |

## Device Information

| | |
|---|---|
| DataLogger Serial Number | RH803Z0550 |
| Sensor Serial Number | MDL6621 |
| Calibration Date | 2018-04-04 |
| Firmware Version | v6.0 |
| Software Version | 1.08 (27) |
| Software Product Name | DataLogger 6 |

## Data Source

| | |
|---|---|
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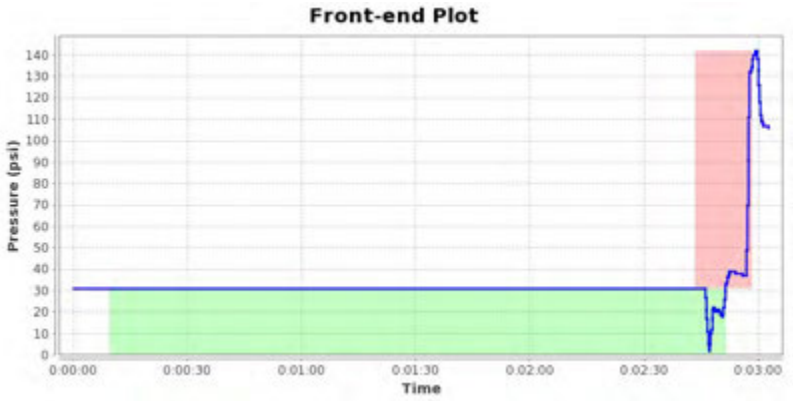


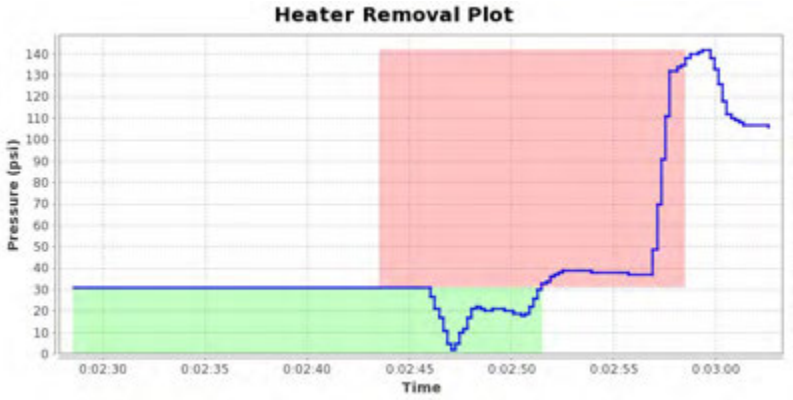





## Notes

Images for report: 1040998







Printed: 2018-07-27 04:20:29 UTC

# McElroy Joint Report

Reference Number 1040999

## Job Details

| | |
|---|---|
| Joint Number | 55 |
| Joint Time | 2018-07-19 11:35:29 GMT |
| Job | 1 |
| Operator | jordan |
| Aborted Joint | No |

## Fusion Machine

| | |
|---|---|
| Machine Name | 618 HF |
| Machine Model | 618 HF |
| Piston Area | 11.78 in² |

## Pipe Specifications

| | |
|---|---|
| Pipe Material | PE4710 |
| Pipe Size | 6 " IPS |
| Wall Thickness | DR 11 |

## Pressures

| | | |
|---|---|---|
| Drag Pressure | 31 psi | |
| | Interfacial | Gauge |
| Bead Up | 75 psi | 104 psi |
| Heat Soak | 0 psi | 31 psi |
| Fuse/Cool | 75 psi | 104 psi |

## Fusion Specification

| | |
|---|---|
| Fusion Type | Butt Fusion |
| Fusion Specification | ASTM F2620 |
| Bead Time | 0 seconds |
| Bead Size | 3/16" |
| Heat/Soak Time | 162 seconds |
| Fuse Time | 397 seconds |
| Open/Close Time | 15 seconds |
| Cool Time | 0 seconds |

| | Minimum | Maximum |
|---|---|---|
| Bead Up | 89 psi | 118 psi |
| Heat Soak | 0 psi | 31 psi |
| Fuse | 89 psi | 118 psi |
| Cool | 0 psi | 0 psi |

## External Heater Temperatures

| | Side A | Side B |
|---|---|---|

## GPS Location

| Date | Latitude | Longitude |
|---|---|---|
| 2018-07-19 11:35:29.0 | 64°2'14.808600"N | 135°49'46.704000"W |

## Logged Data Summary

| | |
|---|---|
| Number of Data Points | 162 |
| Total Fusion Time | 586 seconds |
| Maximum Recorded Pressure | 127 psi |

## Device Information

| | |
|---|---|
| DataLogger Serial Number | RH803Z0550 |
| Sensor Serial Number | MDL6621 |
| Calibration Date | 2018-04-04 |
| Firmware Version | v6.0 |
| Software Version | 1.08 (27) |
| Software Product Name | DataLogger 6 |

## Data Source

| | |
|---|---|
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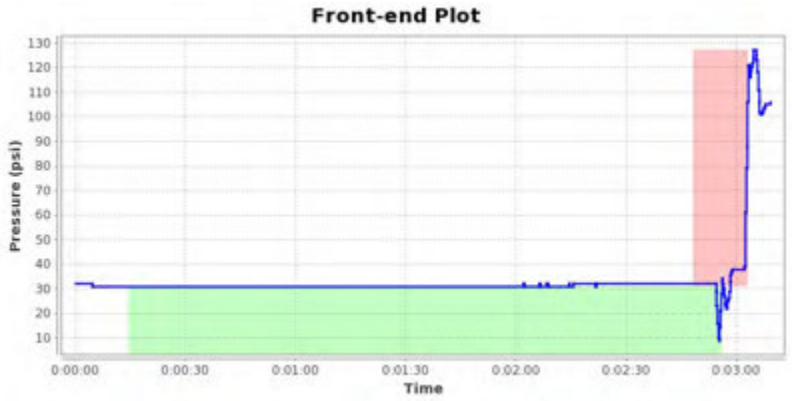


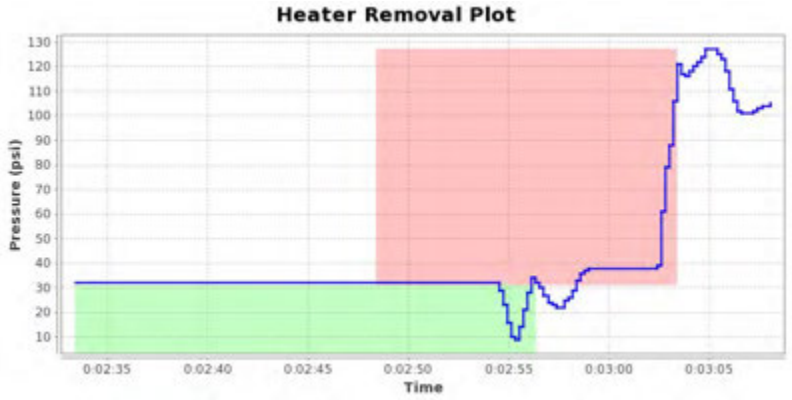


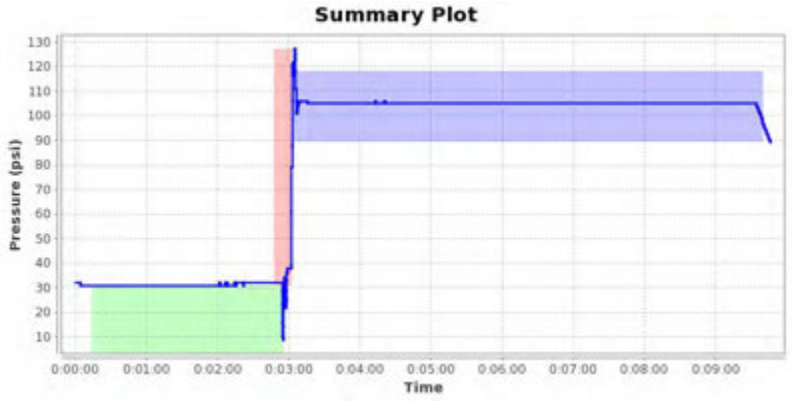


## Notes

Images for report: 1040999







Printed: 2018-07-27 04:20:25 UTC

# McElroy Joint Report

Reference Number 1041001

## Job Details

| | |
|---|---|
| Joint Number | 56 |
| Joint Time | 2018-07-19 12:31:08 GMT |
| Job | 1 |
| Operator | jordan |
| Aborted Joint | No |

## Fusion Machine

| | |
|---|---|
| Machine Name | 618 HF |
| Machine Model | 618 HF |
| Piston Area | 11.78 in² |

## Pipe Specifications

| | |
|---|---|
| Pipe Material | PE4710 |
| Pipe Size | 6 " IPS |
| Wall Thickness | DR 11 |

## Pressures

| | | |
|---|---|---|
| Drag Pressure | 31 psi | |
| | Interfacial | Gauge |
| Bead Up | 75 psi | 104 psi |
| Heat Soak | 0 psi | 31 psi |
| Fuse/Cool | 75 psi | 104 psi |

## Fusion Specification

| | |
|---|---|
| Fusion Type | Butt Fusion |
| Fusion Specification | ASTM F2620 |
| Bead Time | 0 seconds |
| Bead Size | 3/16" |
| Heat/Soak Time | 162 seconds |
| Fuse Time | 397 seconds |
| Open/Close Time | 15 seconds |
| Cool Time | 0 seconds |

| | Minimum | Maximum |
|---|---|---|
| Bead Up | 89 psi | 118 psi |
| Heat Soak | 0 psi | 31 psi |
| Fuse | 89 psi | 118 psi |
| Cool | 0 psi | 0 psi |

## External Heater Temperatures

| | Side A | Side B |
|---|---|---|

## GPS Location

| Date | Latitude | Longitude |
|---|---|---|
| 2018-07-19 12:31:08.0 | 64°2'14.709000"N | 135°49'47.045400"W |

## Logged Data Summary

| | |
|---|---|
| Number of Data Points | 118 |
| Total Fusion Time | 619 seconds |
| Maximum Recorded Pressure | 139 psi |

## Device Information

| | |
|---|---|
| DataLogger Serial Number | RH803Z0550 |
| Sensor Serial Number | MDL6621 |
| Calibration Date | 2018-04-04 |
| Firmware Version | v6.0 |
| Software Version | 1.08 (27) |
| Software Product Name | DataLogger 6 |

## Data Source

| | |
|---|---|
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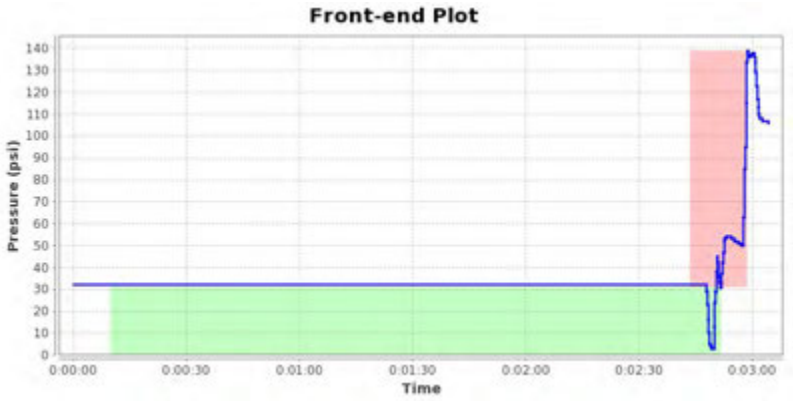
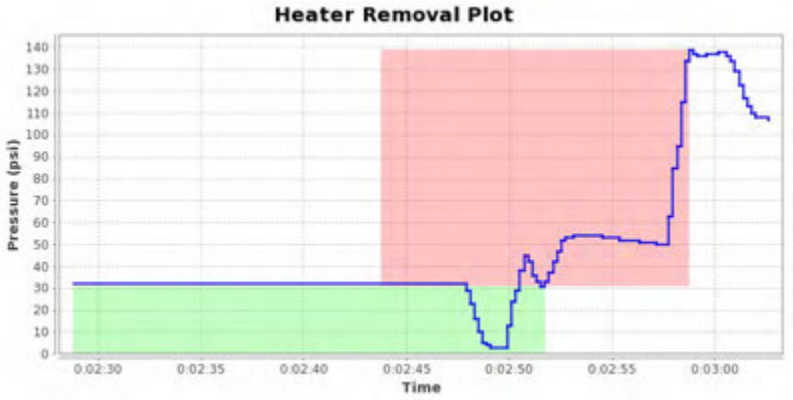






## Notes

Images for report: 1041001







Printed: 2018-07-27 04:20:23 UTC

# McElroy Joint Report

Reference Number 1041002

## Job Details

| | |
|---|---|
| Joint Number | 57 |
| Joint Time | 2018-07-19 13:55:34 GMT |
| Job | 1 |
| Operator | jordan |
| Aborted Joint | No |

## Fusion Machine

| | |
|---|---|
| Machine Name | 618 HF |
| Machine Model | 618 HF |
| Piston Area | 11.78 $in^2$ |

## Pipe Specifications

| | |
|---|---|
| Pipe Material | PE4710 |
| Pipe Size | 6 " IPS |
| Wall Thickness | DR 11 |

## Pressures

| | | |
|---|---|---|
| Drag Pressure | 31 psi | |
| | Interfacial | Gauge |
| Bead Up | 75 psi | 104 psi |
| Heat Soak | 0 psi | 31 psi |
| Fuse/Cool | 75 psi | 104 psi |

## Fusion Specification

| | |
|---|---|
| Fusion Type | Butt Fusion |
| Fusion Specification | ASTM F2620 |
| Bead Time | 0 seconds |
| Bead Size | 3/16" |
| Heat/Soak Time | 162 seconds |
| Fuse Time | 397 seconds |
| Open/Close Time | 15 seconds |
| Cool Time | 0 seconds |

| | Minimum | Maximum |
|---|---|---|
| Bead Up | 89 psi | 118 psi |
| Heat Soak | 0 psi | 31 psi |
| Fuse | 89 psi | 118 psi |
| Cool | 0 psi | 0 psi |

## External Heater Temperatures

| Side A | Side B |
|---|---|

## GPS Location

| Date | Latitude | Longitude |
|---|---|---|
| 2018-07-19 13:55:34.0 | 64°2'14.754600"N | 135°49'46.589400"W |

## Logged Data Summary

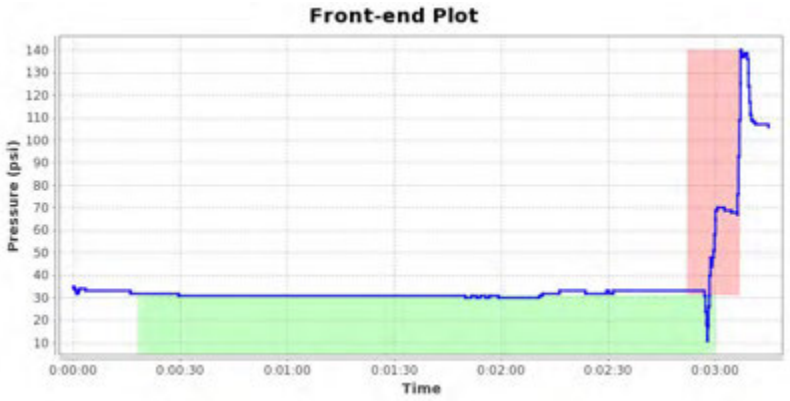
| | |
|---|---|
| Number of Data Points | 130 |
| Total Fusion Time | 579 seconds |
| Maximum Recorded Pressure | 140 psi |

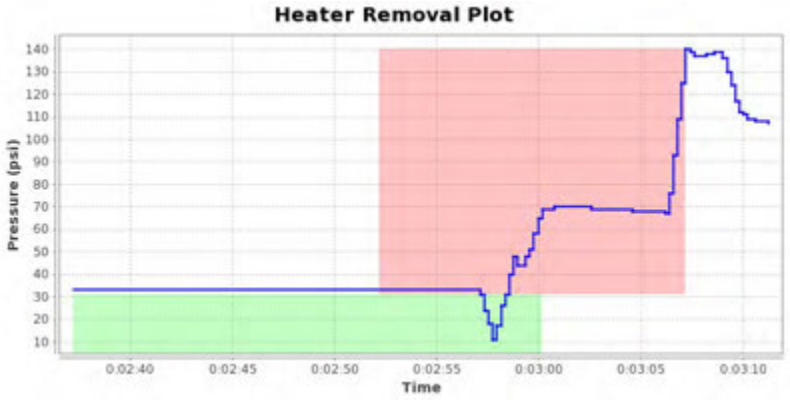
## Device Information

| | |
|---|---|
| DataLogger Serial Number | RH803Z0550 |
| Sensor Serial Number | MDL6621 |
| Calibration Date | 2018-04-04 |
| Firmware Version | v6.0 |
| Software Version | 1.08 (27) |
| Software Product Name | DataLogger 6 |

## Data Source

| | |
|---|---|
| Upload Time | 2018-07-27 03:40:34 GMT |







## Notes

Images for report: 1041002







Printed: 2018-07-27 04:20:21 UTC

# McElroy Joint Report

Reference Number 1041003

## Job Details

| | |
|---|---|
| Joint Number | 58 |
| Joint Time | 2018-07-19 14:36:15 GMT |
| Job | 1 |
| Operator | jordan |
| Aborted Joint | No |

## Fusion Machine

| | |
|---|---|
| Machine Name | 618 HF |
| Machine Model | 618 HF |
| Piston Area | 11.78 in² |

## Pipe Specifications

| | |
|---|---|
| Pipe Material | PE4710 |
| Pipe Size | 6 " IPS |
| Wall Thickness | DR 11 |

## Pressures

| | | |
|---|---|---|
| Drag Pressure | 31 psi | |
| | Interfacial | Gauge |
| Bead Up | 75 psi | 104 psi |
| Heat Soak | 0 psi | 31 psi |
| Fuse/Cool | 75 psi | 104 psi |

## Fusion Specification

| | |
|---|---|
| Fusion Type | Butt Fusion |
| Fusion Specification | ASTM F2620 |
| Bead Time | 0 seconds |
| Bead Size | 3/16" |
| Heat/Soak Time | 162 seconds |
| Fuse Time | 397 seconds |
| Open/Close Time | 15 seconds |
| Cool Time | 0 seconds |

| | Minimum | Maximum |
|---|---|---|
| Bead Up | 89 psi | 118 psi |
| Heat Soak | 0 psi | 31 psi |
| Fuse | 89 psi | 118 psi |
| Cool | 0 psi | 0 psi |

## External Heater Temperatures

| | Side A | Side B |
|---|---|---|

## GPS Location

| Date | Latitude | Longitude |
|---|---|---|
| 2018-07-19 14:36:15.0 | 64°2'15.028200"N | 135°49'46.357200"W |

## Logged Data Summary

| | |
|---|---|
| Number of Data Points | 122 |
| Total Fusion Time | 599 seconds |
| Maximum Recorded Pressure | 144 psi |

## Device Information

| | |
|---|---|
| DataLogger Serial Number | RH803Z0550 |
| Sensor Serial Number | MDL6621 |
| Calibration Date | 2018-04-04 |
| Firmware Version | v6.0 |
| Software Version | 1.08 (27) |
| Software Product Name | DataLogger 6 |

## Data Source

| | |
|---|---|
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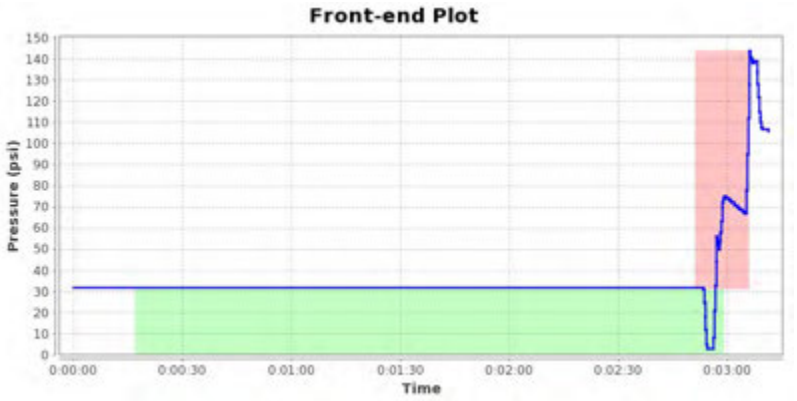
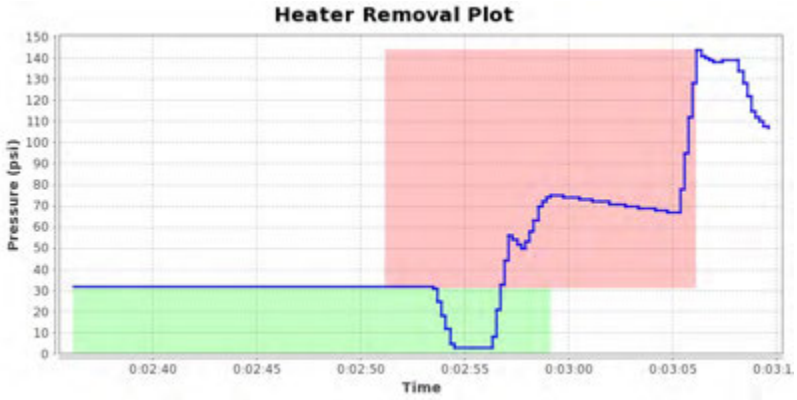






## Notes

Images for report: 1041003







Printed: 2018-07-27 04:20:20 UTC

# McElroy Joint Report

Reference Number 1041004

## Job Details

| | |
|---|---|
| Joint Number | 59 |
| Joint Time | 2018-07-25 17:33:32 GMT |
| Job | 1 |
| Operator | jordan |
| Aborted Joint | No |

## Fusion Machine

| | |
|---|---|
| Machine Name | 618 HF |
| Machine Model | 618 HF |
| Piston Area | 11.78 in² |

## Pipe Specifications

| | |
|---|---|
| Pipe Material | PE4710 |
| Pipe Size | 6 " IPS |
| Wall Thickness | DR 11 |

## Pressures

| | | |
|---|---|---|
| Drag Pressure | 32 psi | |
| | Interfacial | Gauge |
| Bead Up | 75 psi | 105 psi |
| Heat Soak | 0 psi | 32 psi |
| Fuse/Cool | 75 psi | 105 psi |

## Fusion Specification

| | |
|---|---|
| Fusion Type | Butt Fusion |
| Fusion Specification | ASTM F2620 |
| Bead Time | 0 seconds |
| Bead Size | 3/16" |
| Heat/Soak Time | 162 seconds |
| Fuse Time | 397 seconds |
| Open/Close Time | 15 seconds |
| Cool Time | 0 seconds |

| | Minimum | Maximum |
|---|---|---|
| Bead Up | 90 psi | 119 psi |
| Heat Soak | 0 psi | 32 psi |
| Fuse | 90 psi | 119 psi |
| Cool | 0 psi | 0 psi |

## External Heater Temperatures

| | Side A | Side B |
|---|---|---|

## GPS Location

| Date | Latitude | Longitude |
|---|---|---|
| 2018-07-25 17:33:32.0 | 64°2'15.850800"N | 135°49'46.554000"W |

## Logged Data Summary

| | |
|---|---|
| Number of Data Points | 494 |
| Total Fusion Time | 650 seconds |
| Maximum Recorded Pressure | 109 psi |

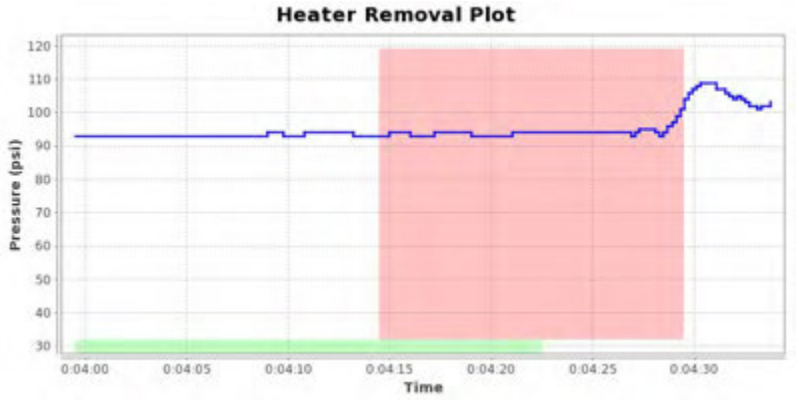
## Device Information

| | |
|---|---|
| DataLogger Serial Number | RH803Z0550 |
| Sensor Serial Number | MDL6621 |
| Calibration Date | 2018-04-04 |
| Firmware Version | v6.0 |
| Software Version | 1.08 (27) |
| Software Product Name | DataLogger 6 |

## Data Source

| | |
|---|---|
| Upload Time | 2018-07-27 03:42:20 GMT |







## Notes

Images for report: 1041004





Printed: 2018-07-27 04:20:17 UTC

# McElroy Joint Report

Reference Number 1041005

## Job Details

| | |
|---|---|
| Joint Number | 60 |
| Joint Time | 2018-07-25 18:41:46 GMT |
| Job | 1 |
| Operator | jordan |
| Aborted Joint | No |

## Fusion Machine

| | |
|---|---|
| Machine Name | 618 HF |
| Machine Model | 618 HF |
| Piston Area | 11.78 in² |

## Pipe Specifications

| | |
|---|---|
| Pipe Material | PE4710 |
| Pipe Size | 6 " IPS |
| Wall Thickness | DR 11 |

## Pressures

| | | |
|---|---|---|
| Drag Pressure | 32 psi | |
| | Interfacial | Gauge |
| Bead Up | 75 psi | 105 psi |
| Heat Soak | 0 psi | 32 psi |
| Fuse/Cool | 75 psi | 105 psi |

## Fusion Specification

| | |
|---|---|
| Fusion Type | Butt Fusion |
| Fusion Specification | ASTM F2620 |
| Bead Time | 0 seconds |
| Bead Size | 3/16" |
| Heat/Soak Time | 162 seconds |
| Fuse Time | 397 seconds |
| Open/Close Time | 15 seconds |
| Cool Time | 0 seconds |

| | Minimum | Maximum |
|---|---|---|
| Bead Up | 90 psi | 119 psi |
| Heat Soak | 0 psi | 32 psi |
| Fuse | 90 psi | 119 psi |
| Cool | 0 psi | 0 psi |

## External Heater Temperatures

| | Side A | Side B |
|---|---|---|

## GPS Location

| Date | Latitude | Longitude |
|---|---|---|
| 2018-07-25 18:41:46.0 | 64°2'16.746000"N | 135°49'45.439800"W |

## Logged Data Summary

| | |
|---|---|
| Number of Data Points | 678 |
| Total Fusion Time | 784 seconds |
| Maximum Recorded Pressure | 105 psi |

## Device Information

| | |
|---|---|
| DataLogger Serial Number | RH803Z0550 |
| Sensor Serial Number | MDL6621 |
| Calibration Date | 2018-04-04 |
| Firmware Version | v6.0 |
| Software Version | 1.08 (27) |
| Software Product Name | DataLogger 6 |

## Data Source

| | |
|---|---|
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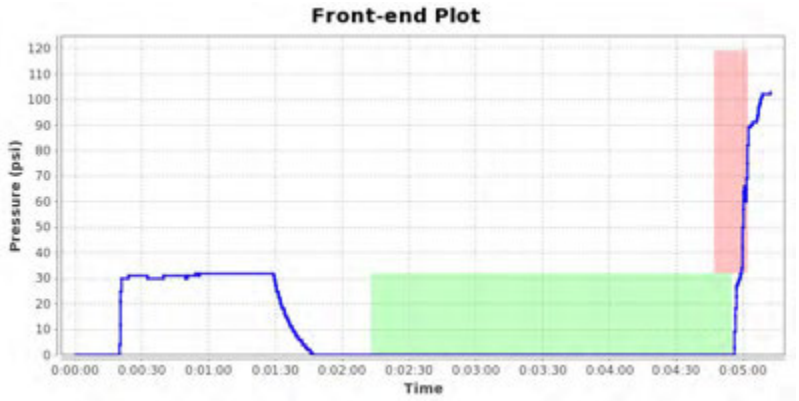


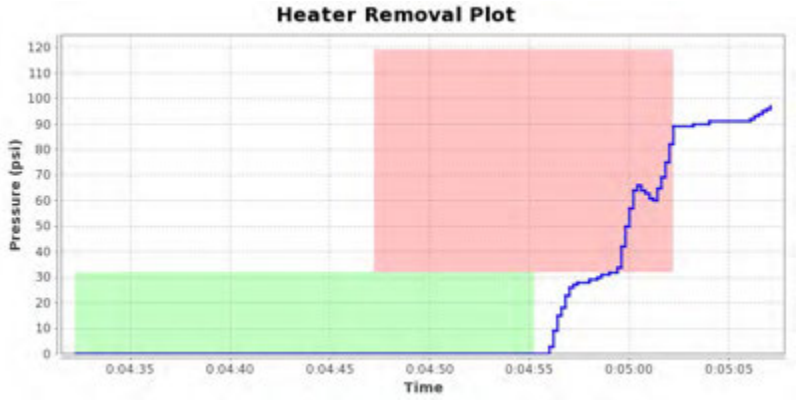


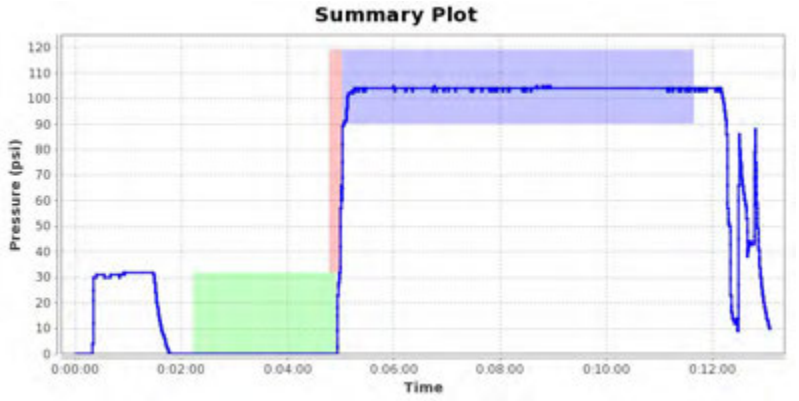


## Notes

Images for report: 1041005





Printed: 2018-07-27 04:20:15 UTC

# McElroy Joint Report

Reference Number 1041006

### Job Details

| | |
|---|---|
| Joint Number | 61 |
| Joint Time | 2018-07-26 07:42:12 GMT |
| Job | 1 |
| Operator | jordan |
| Aborted Joint | No |

### Fusion Machine

| | |
|---|---|
| Machine Name | 618 HF |
| Machine Model | 618 HF |
| Piston Area | 11.78 in² |

### Pipe Specifications

| | |
|---|---|
| Pipe Material | PE4710 |
| Pipe Size | 6 " IPS |
| Wall Thickness | DR 11 |

### Pressures

| | | |
|---|---|---|
| Drag Pressure | 32 psi | |
| | Interfacial | Gauge |
| Bead Up | 75 psi | 105 psi |
| Heat Soak | 0 psi | 32 psi |
| Fuse/Cool | 75 psi | 105 psi |

### Fusion Specification

| | |
|---|---|
| Fusion Type | Butt Fusion |
| Fusion Specification | ASTM F2620 |
| Bead Time | 0 seconds |
| Bead Size | 3/16" |
| Heat/Soak Time | 162 seconds |
| Fuse Time | 397 seconds |
| Open/Close Time | 15 seconds |
| Cool Time | 0 seconds |

| | Minimum | Maximum |
|---|---|---|
| Bead Up | 90 psi | 119 psi |
| Heat Soak | 0 psi | 32 psi |
| Fuse | 90 psi | 119 psi |
| Cool | 0 psi | 0 psi |

### External Heater Temperatures

| | Side A | Side B |
|---|---|---|

### GPS Location

| Date | Latitude | Longitude |
|---|---|---|
| 2018-07-26 07:42:12.0 | 64°2'16.654800"N | 135°49'45.282000"W |

### Logged Data Summary

| | |
|---|---|
| Number of Data Points | 520 |
| Total Fusion Time | 767 seconds |
| Maximum Recorded Pressure | 106 psi |

### Device Information

| | |
|---|---|
| DataLogger Serial Number | RH803Z0550 |
| Sensor Serial Number | MDL6621 |
| Calibration Date | 2018-04-04 |
| Firmware Version | v6.0 |
| Software Version | 1.08 (27) |
| Software Product Name | DataLogger 6 |

### Data Source

| | |
|---|---|
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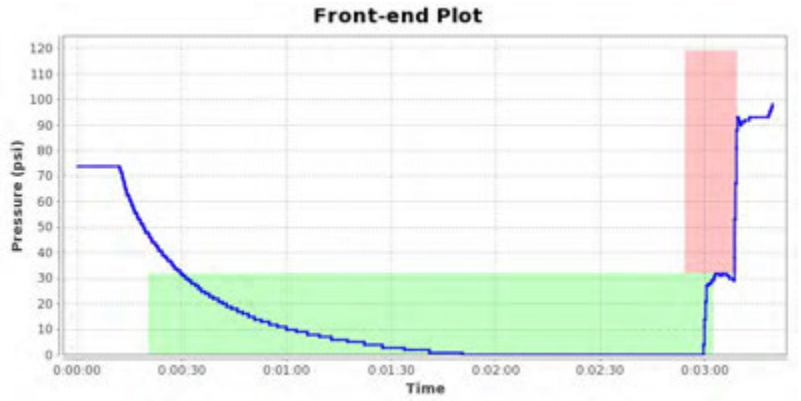


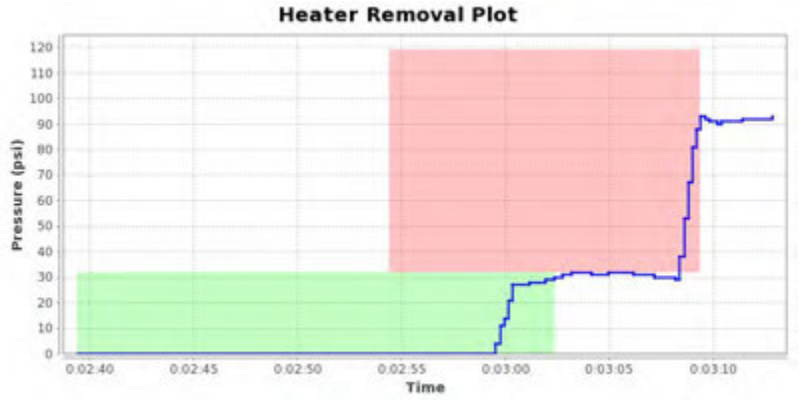


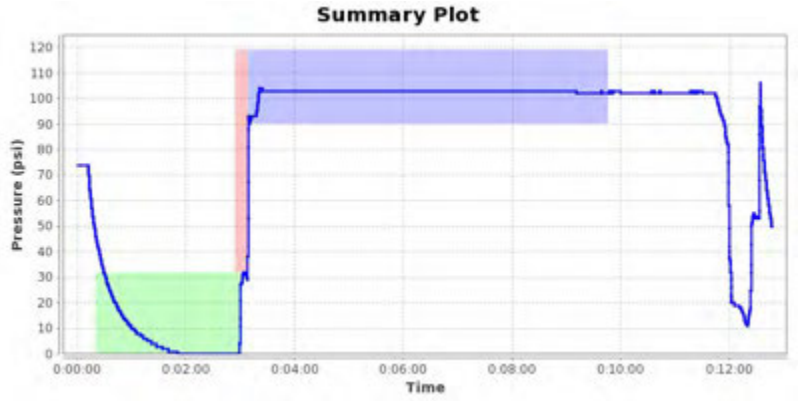


### Notes

Images for report: 1041006





Printed: 2018-07-27 04:20:09 UTC

# McElroy Joint Report

Reference Number 1041007

## Job Details

| | |
|---|---|
| Joint Number | 62 |
| Joint Time | 2018-07-26 08:19:54 GMT |
| Job | 1 |
| Operator | jordan |
| Aborted Joint | No |

## Fusion Machine

| | |
|---|---|
| Machine Name | 618 HF |
| Machine Model | 618 HF |
| Piston Area | 11.78 in² |

## Pipe Specifications

| | |
|---|---|
| Pipe Material | PE4710 |
| Pipe Size | 6 " IPS |
| Wall Thickness | DR 11 |

## Pressures

| | | |
|---|---|---|
| Drag Pressure | 32 psi | |
| | Interfacial | Gauge |
| Bead Up | 75 psi | 105 psi |
| Heat Soak | 0 psi | 32 psi |
| Fuse/Cool | 75 psi | 105 psi |

## Fusion Specification

| | |
|---|---|
| Fusion Type | Butt Fusion |
| Fusion Specification | ASTM F2620 |
| Bead Time | 0 seconds |
| Bead Size | 3/16" |
| Heat/Soak Time | 162 seconds |
| Fuse Time | 397 seconds |
| Open/Close Time | 15 seconds |
| Cool Time | 0 seconds |

| | Minimum | Maximum |
|---|---|---|
| Bead Up | 90 psi | 119 psi |
| Heat Soak | 0 psi | 32 psi |
| Fuse | 90 psi | 119 psi |
| Cool | 0 psi | 0 psi |

## External Heater Temperatures

| | Side A | Side B |
|---|---|---|

## GPS Location

| Date | Latitude | Longitude |
|---|---|---|
| 2018-07-26 08:19:54.0 | 64°2'16.653600"N | 135°49'45.226200"W |

## Logged Data Summary

| | |
|---|---|
| Number of Data Points | 372 |
| Total Fusion Time | 919 seconds |
| Maximum Recorded Pressure | 116 psi |

## Device Information

| | |
|---|---|
| DataLogger Serial Number | RH803Z0550 |
| Sensor Serial Number | MDL6621 |
| Calibration Date | 2018-04-04 |
| Firmware Version | v6.0 |
| Software Version | 1.08 (27) |
| Software Product Name | DataLogger 6 |

## Data Source

| | |
|---|---|
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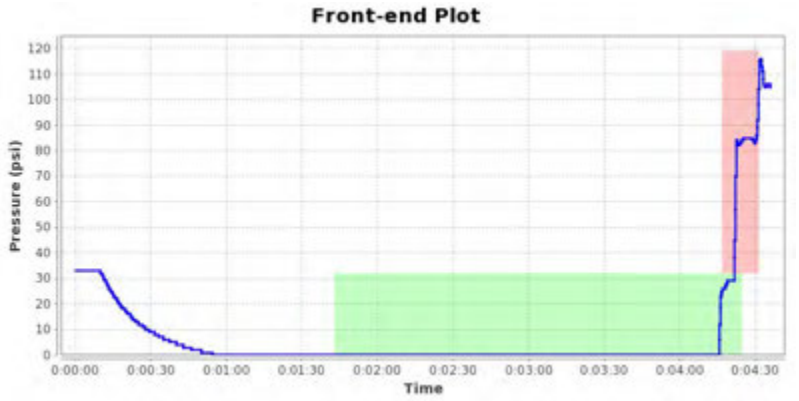


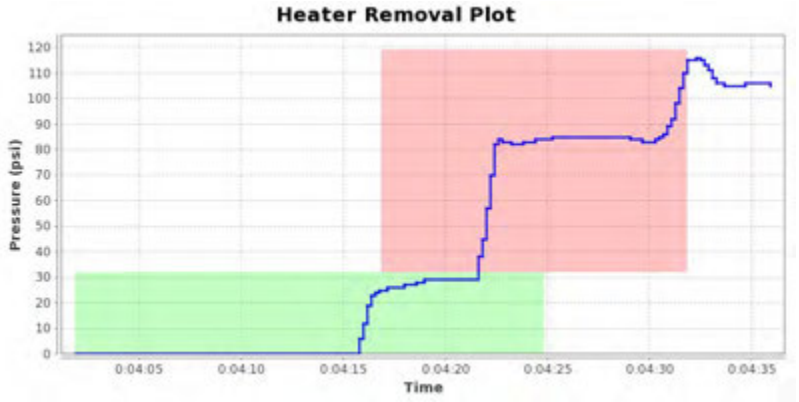


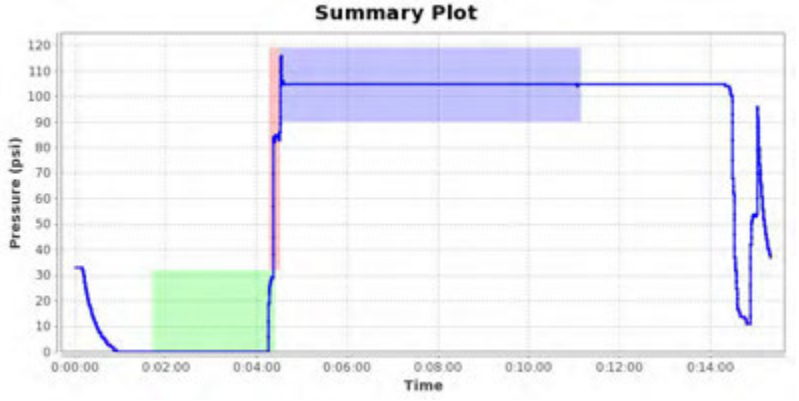


## Notes

Images for report: 1041007



Printed: 2018-07-27 04:20:07 UTC

# McElroy Joint Report

Reference Number 1041008

## Job Details

| | |
|---|---|
| Joint Number | 63 |
| Joint Time | 2018-07-26 09:26:26 GMT |
| Job | 1 |
| Operator | jordan |
| Aborted Joint | No |

## Fusion Machine

| | |
|---|---|
| Machine Name | 618 HF |
| Machine Model | 618 HF |
| Piston Area | 11.78 in² |

## Pipe Specifications

| | |
|---|---|
| Pipe Material | PE4710 |
| Pipe Size | 6 " IPS |
| Wall Thickness | DR 11 |

## Pressures

| | | |
|---|---|---|
| Drag Pressure | 26 psi | |
| | Interfacial | Gauge |
| Bead Up | 75 psi | 99 psi |
| Heat Soak | 0 psi | 26 psi |
| Fuse/Cool | 75 psi | 99 psi |

## Fusion Specification

| | |
|---|---|
| Fusion Type | Butt Fusion |
| Fusion Specification | ASTM F2620 |
| Bead Time | 0 seconds |
| Bead Size | 3/16" |
| Heat/Soak Time | 162 seconds |
| Fuse Time | 397 seconds |
| Open/Close Time | 15 seconds |
| Cool Time | 0 seconds |

| | Minimum | Maximum |
|---|---|---|
| Bead Up | 84 psi | 113 psi |
| Heat Soak | 0 psi | 26 psi |
| Fuse | 84 psi | 113 psi |
| Cool | 0 psi | 0 psi |

## External Heater Temperatures

| | Side A | Side B |
|---|---|---|

## GPS Location

| Date | Latitude | Longitude |
|---|---|---|
| 2018-07-26 09:26:26.0 | 64°2'16.656000"N | 135°49'45.540000"W |

## Logged Data Summary

| | |
|---|---|
| Number of Data Points | 658 |
| Total Fusion Time | 1536 seconds |
| Maximum Recorded Pressure | 126 psi |

## Device Information

| | |
|---|---|
| DataLogger Serial Number | RH803Z0550 |
| Sensor Serial Number | MDL6621 |
| Calibration Date | 2018-04-04 |
| Firmware Version | v6.0 |
| Software Version | 1.08 (27) |
| Software Product Name | DataLogger 6 |

## Data Source

| | |
|---|---|
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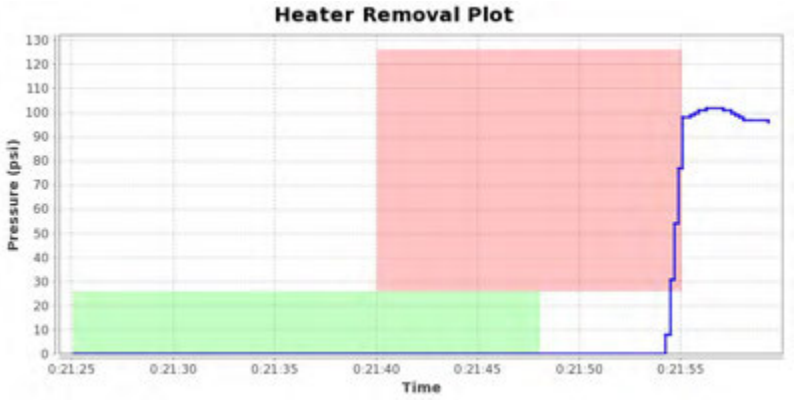






## Notes

Images for report: 1041008





Printed: 2018-07-27 04:20:05 UTC

# McElroy Joint Report

Reference Number 1041009

## Job Details

| | |
|---|---|
| Joint Number | 64 |
| Joint Time | 2018-07-26 09:51:43 GMT |
| Job | 1 |
| Operator | jordan |
| Aborted Joint | No |

## Fusion Machine

| | |
|---|---|
| Machine Name | 618 HF |
| Machine Model | 618 HF |
| Piston Area | 11.78 in² |

## Pipe Specifications

| | |
|---|---|
| Pipe Material | PE4710 |
| Pipe Size | 6 " IPS |
| Wall Thickness | DR 11 |

## Pressures

| | | |
|---|---|---|
| Drag Pressure | 33 psi | |
| | Interfacial | Gauge |
| Bead Up | 75 psi | 106 psi |
| Heat Soak | 0 psi | 33 psi |
| Fuse/Cool | 75 psi | 106 psi |

## Fusion Specification

| | |
|---|---|
| Fusion Type | Butt Fusion |
| Fusion Specification | ASTM F2620 |
| Bead Time | 0 seconds |
| Bead Size | 3/16" |
| Heat/Soak Time | 162 seconds |
| Fuse Time | 397 seconds |
| Open/Close Time | 15 seconds |
| Cool Time | 0 seconds |

| | Minimum | Maximum |
|---|---|---|
| Bead Up | 91 psi | 120 psi |
| Heat Soak | 0 psi | 33 psi |
| Fuse | 91 psi | 120 psi |
| Cool | 0 psi | 0 psi |

## External Heater Temperatures

| | Side A | Side B |
|---|---|---|

## GPS Location

| Date | Latitude | Longitude |
|---|---|---|
| 2018-07-26 09:51:43.0 | 64°2'16.633800"N | 135°49'45.568200"W |

## Logged Data Summary

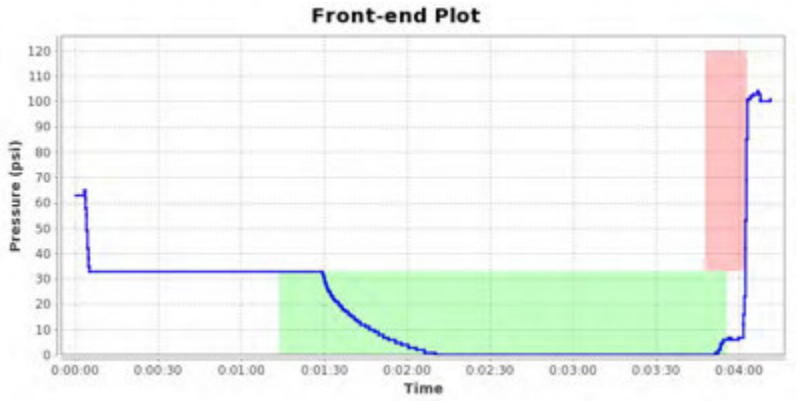
| | |
|---|---|
| Number of Data Points | 322 |
| Total Fusion Time | 701 seconds |
| Maximum Recorded Pressure | 110 psi |

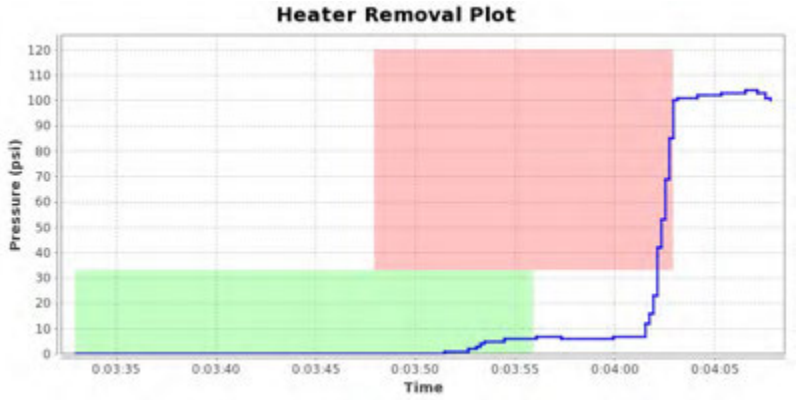
## Device Information

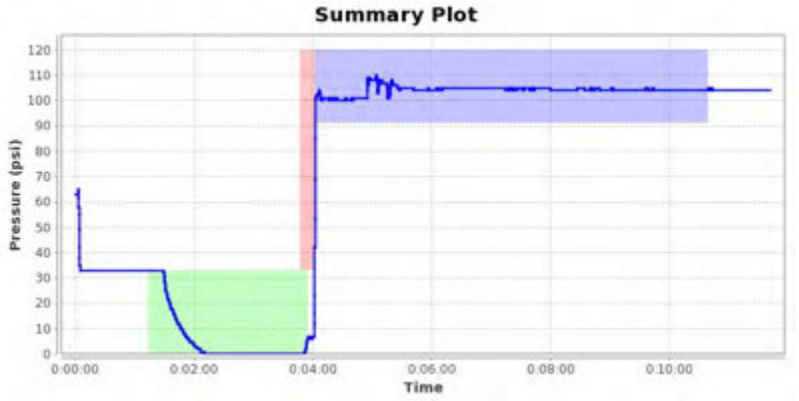
| | |
|---|---|
| DataLogger Serial Number | RH803Z0550 |
| Sensor Serial Number | MDL6621 |
| Calibration Date | 2018-04-04 |
| Firmware Version | v6.0 |
| Software Version | 1.08 (27) |
| Software Product Name | DataLogger 6 |

## Data Source

| | |
|---|---|
| Upload Time | 2018-07-27 03:50:19 GMT |



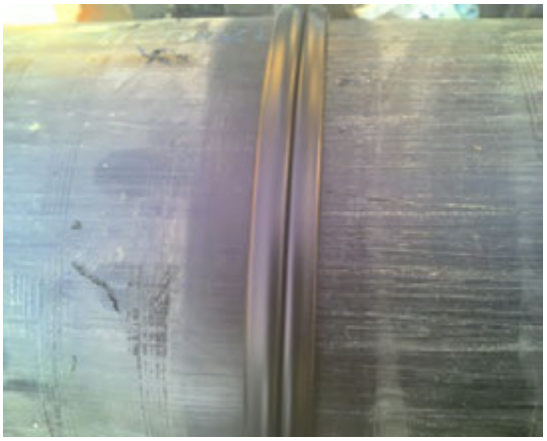




## Notes

Images for report: 1041009





Printed: 2018-07-27 04:20:03 UTC

# McElroy Joint Report

Reference Number 1041010

## Job Details

| | |
|---|---|
| Joint Number | 65 |
| Joint Time | 2018-07-26 10:34:51 GMT |
| Job | 1 |
| Operator | jordan |
| Aborted Joint | No |

## Fusion Machine

| | |
|---|---|
| Machine Name | 618 HF |
| Machine Model | 618 HF |
| Piston Area | 11.78 $in^2$ |

## Pipe Specifications

| | |
|---|---|
| Pipe Material | PE4710 |
| Pipe Size | 6 " IPS |
| Wall Thickness | DR 11 |

## Pressures

| | | |
|---|---|---|
| Drag Pressure | 23 psi | |
| | Interfacial | Gauge |
| Bead Up | 75 psi | 96 psi |
| Heat Soak | 0 psi | 23 psi |
| Fuse/Cool | 75 psi | 96 psi |

## Fusion Specification

| | |
|---|---|
| Fusion Type | Butt Fusion |
| Fusion Specification | ASTM F2620 |
| Bead Time | 0 seconds |
| Bead Size | 3/16" |
| Heat/Soak Time | 162 seconds |
| Fuse Time | 397 seconds |
| Open/Close Time | 15 seconds |
| Cool Time | 0 seconds |

| | Minimum | Maximum |
|---|---|---|
| Bead Up | 81 psi | 110 psi |
| Heat Soak | 0 psi | 23 psi |
| Fuse | 81 psi | 110 psi |
| Cool | 0 psi | 0 psi |

## External Heater Temperatures

| | Side A | Side B |
|---|---|---|

## GPS Location

| Date | Latitude | Longitude |
|---|---|---|
| 2018-07-26 10:34:51.0 | 64°2'17.334600"N | 135°49'44.517000"W |

## Logged Data Summary

| | |
|---|---|
| Number of Data Points | 506 |
| Total Fusion Time | 836 seconds |
| Maximum Recorded Pressure | 105 psi |

## Device Information

| | |
|---|---|
| DataLogger Serial Number | RH803Z0550 |
| Sensor Serial Number | MDL6621 |
| Calibration Date | 2018-04-04 |
| Firmware Version | v6.0 |
| Software Version | 1.08 (27) |
| Software Product Name | DataLogger 6 |

## Data Source

| | |
|---|---|
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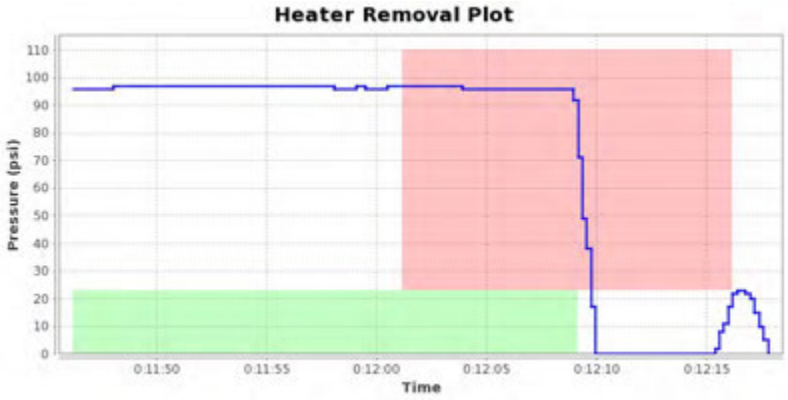
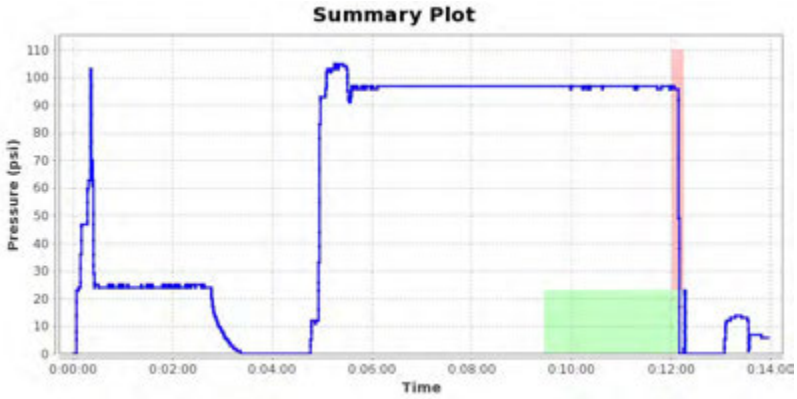



## Notes

Images for report: 1041010





Printed: 2018-07-27 04:20:01 UTC

# McElroy Joint Report

Reference Number 1041011

## Job Details

| | |
|---|---|
| Joint Number | 66 |
| Joint Time | 2018-07-26 11:54:13 GMT |
| Job | 1 |
| Operator | jordan |
| Aborted Joint | No |

## Fusion Machine

| | |
|---|---|
| Machine Name | 618 HF |
| Machine Model | 618 HF |
| Piston Area | 11.78 in² |

## Pipe Specifications

| | |
|---|---|
| Pipe Material | PE4710 |
| Pipe Size | 6 " IPS |
| Wall Thickness | DR 11 |

## Pressures

| | | |
|---|---|---|
| Drag Pressure | 23 psi | |
| | Interfacial | Gauge |
| Bead Up | 75 psi | 96 psi |
| Heat Soak | 0 psi | 23 psi |
| Fuse/Cool | 75 psi | 96 psi |

## Fusion Specification

| | |
|---|---|
| Fusion Type | Butt Fusion |
| Fusion Specification | ASTM F2620 |
| Bead Time | 0 seconds |
| Bead Size | 3/16" |
| Heat/Soak Time | 162 seconds |
| Fuse Time | 397 seconds |
| Open/Close Time | 15 seconds |
| Cool Time | 0 seconds |

| | Minimum | Maximum |
|---|---|---|
| Bead Up | 81 psi | 110 psi |
| Heat Soak | 0 psi | 23 psi |
| Fuse | 81 psi | 110 psi |
| Cool | 0 psi | 0 psi |

## External Heater Temperatures

| | Side A | Side B |
|---|---|---|

## GPS Location

| Date | Latitude | Longitude |
|---|---|---|
| 2018-07-26 11:54:13.0 | 64°2'17.465400"N | 135°49'44.332200"W |

## Logged Data Summary

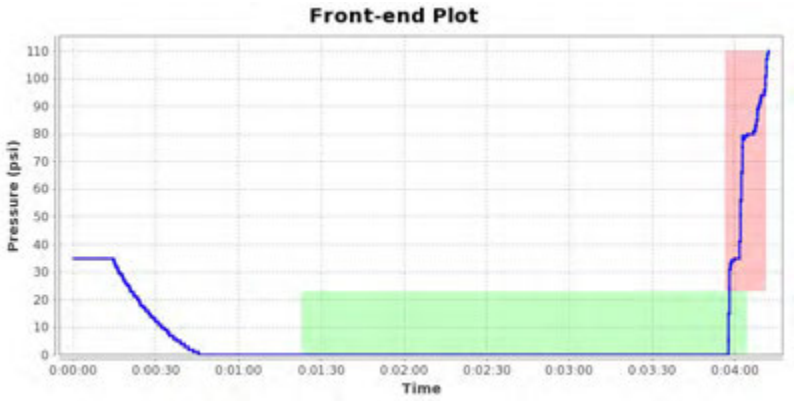
| | |
|---|---|
| Number of Data Points | 470 |
| Total Fusion Time | 780 seconds |
| Maximum Recorded Pressure | 110 psi |

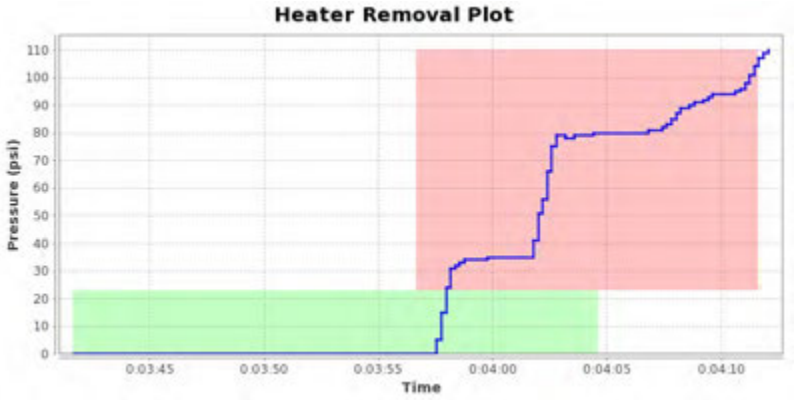
## Device Information

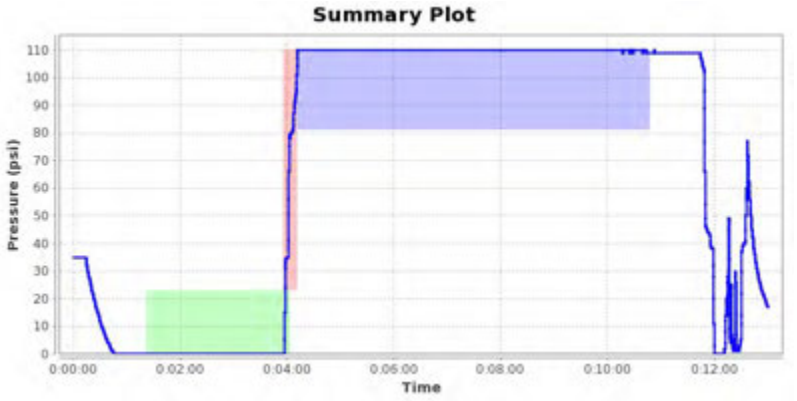
| | |
|---|---|
| DataLogger Serial Number | RH803Z0550 |
| Sensor Serial Number | MDL6621 |
| Calibration Date | 2018-04-04 |
| Firmware Version | v6.0 |
| Software Version | 1.08 (27) |
| Software Product Name | DataLogger 6 |

## Data Source

| | |
|---|---|
| Upload Time | 2018-07-27 03:54:50 GMT |




## Notes

Images for report: 1041011





Printed: 2018-07-27 04:19:59 UTC

# McElroy Joint Report

Reference Number 1041012

## Job Details

| | |
|---|---|
| Joint Number | 67 |
| Joint Time | 2018-07-26 12:18:20 GMT |
| Job | 1 |
| Operator | jordan |
| Aborted Joint | No |

## Fusion Machine

| | |
|---|---|
| Machine Name | 618 HF |
| Machine Model | 618 HF |
| Piston Area | 11.78 in² |

## Pipe Specifications

| | |
|---|---|
| Pipe Material | PE4710 |
| Pipe Size | 6 " IPS |
| Wall Thickness | DR 11 |

## Pressures

| | | |
|---|---|---|
| Drag Pressure | 23 psi | |
| | Interfacial | Gauge |
| Bead Up | 75 psi | 96 psi |
| Heat Soak | 0 psi | 23 psi |
| Fuse/Cool | 75 psi | 96 psi |

## Fusion Specification

| | |
|---|---|
| Fusion Type | Butt Fusion |
| Fusion Specification | ASTM F2620 |
| Bead Time | 0 seconds |
| Bead Size | 3/16" |
| Heat/Soak Time | 162 seconds |
| Fuse Time | 397 seconds |
| Open/Close Time | 15 seconds |
| Cool Time | 0 seconds |

| | Minimum | Maximum |
|---|---|---|
| Bead Up | 81 psi | 110 psi |
| Heat Soak | 0 psi | 23 psi |
| Fuse | 81 psi | 110 psi |
| Cool | 0 psi | 0 psi |

## External Heater Temperatures

| | Side A | Side B |
|---|---|---|

## GPS Location

| Date | Latitude | Longitude |
|---|---|---|
| 2018-07-26 12:18:20.0 | 64°2'17.518800"N | 135°49'44.284200"W |

## Logged Data Summary

| | |
|---|---|
| Number of Data Points | 372 |
| Total Fusion Time | 571 seconds |
| Maximum Recorded Pressure | 107 psi |

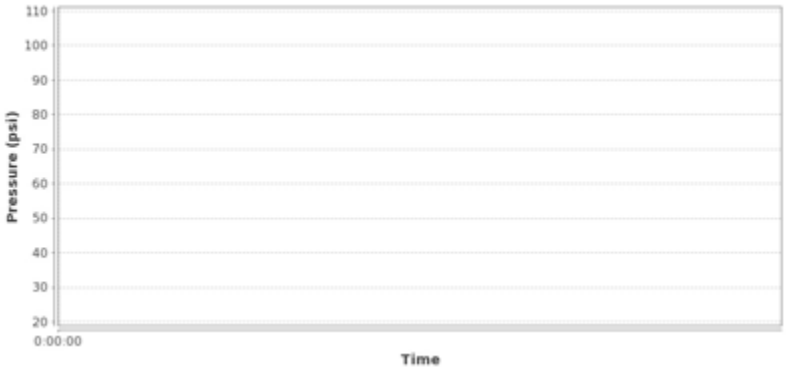
## Device Information

| | |
|---|---|
| DataLogger Serial Number | RH803Z0550 |
| Sensor Serial Number | MDL6621 |
| Calibration Date | 2018-04-04 |
| Firmware Version | v6.0 |
| Software Version | 1.08 (27) |
| Software Product Name | DataLogger 6 |

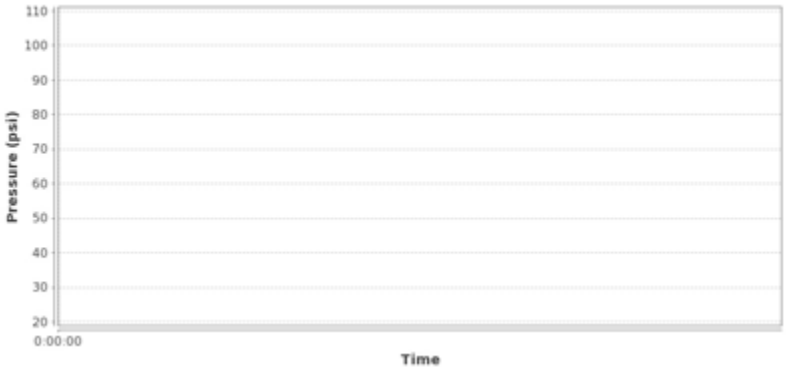
## Data Source

| | |
|---|---|
| Upload Time | 2018-07-27 03:56:43 GMT |

**Front-end Plot**




**Heater Removal Plot**




**Summary Plot**




## Notes

Images for report: 1041012





Printed: 2018-07-27 04:19:58 UTC

# McElroy Joint Report

Reference Number 1041017

## Job Details

| | |
|---|---|
| Joint Number | 68 |
| Joint Time | 2018-07-26 13:52:24 GMT |
| Job | 1 |
| Operator | jordan |
| Aborted Joint | No |

## Fusion Machine

| | |
|---|---|
| Machine Name | 618 HF |
| Machine Model | 618 HF |
| Piston Area | 11.78 in² |

## Pipe Specifications

| | |
|---|---|
| Pipe Material | PE4710 |
| Pipe Size | 6 " IPS |
| Wall Thickness | DR 11 |

## Pressures

| | | |
|---|---|---|
| Drag Pressure | 23 psi | |
| | Interfacial | Gauge |
| Bead Up | 75 psi | 96 psi |
| Heat Soak | 0 psi | 23 psi |
| Fuse/Cool | 75 psi | 96 psi |

## Fusion Specification

| | |
|---|---|
| Fusion Type | Butt Fusion |
| Fusion Specification | ASTM F2620 |
| Bead Time | 0 seconds |
| Bead Size | 3/16" |
| Heat/Soak Time | 162 seconds |
| Fuse Time | 397 seconds |
| Open/Close Time | 15 seconds |
| Cool Time | 0 seconds |

| | Minimum | Maximum |
|---|---|---|
| Bead Up | 81 psi | 110 psi |
| Heat Soak | 0 psi | 23 psi |
| Fuse | 81 psi | 110 psi |
| Cool | 0 psi | 0 psi |

## External Heater Temperatures

| | Side A | Side B |
|---|---|---|

## GPS Location

| Date | Latitude | Longitude |
|---|---|---|
| 2018-07-26 13:52:24.0 | 64°2'17.091600"N | 135°49'44.512200"W |

## Logged Data Summary

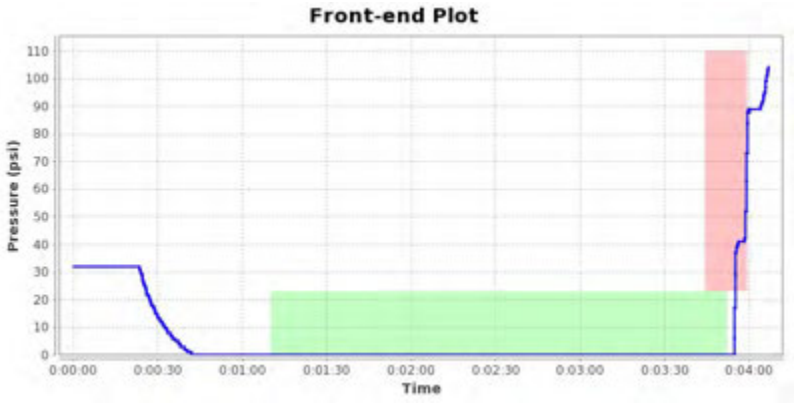
| | |
|---|---|
| Number of Data Points | 474 |
| Total Fusion Time | 757 seconds |
| Maximum Recorded Pressure | 107 psi |

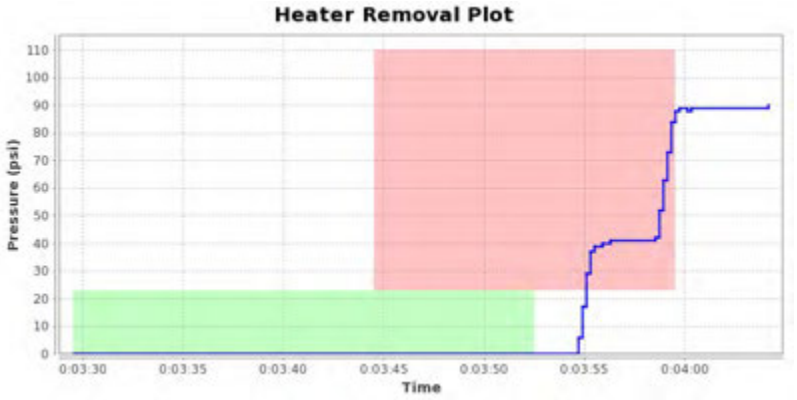
## Device Information

| | |
|---|---|
| DataLogger Serial Number | RH803Z0550 |
| Sensor Serial Number | MDL6621 |
| Calibration Date | 2018-04-04 |
| Firmware Version | v6.0 |
| Software Version | 1.08 (27) |
| Software Product Name | DataLogger 6 |

## Data Source

| | |
|---|---|
| Upload Time | 2018-07-27 03:59:12 GMT |







## Notes

Images for report: 1041017





Printed: 2018-07-27 04:19:56 UTC

# McElroy Joint Report

Reference Number 1041033

## Job Details

| | |
|---|---|
| Joint Number | 69 |
| Joint Time | 2018-07-26 14:25:27 GMT |
| Job | 1 |
| Operator | jordan |
| Aborted Joint | No |

## Fusion Machine

| | |
|---|---|
| Machine Name | 618 HF |
| Machine Model | 618 HF |
| Piston Area | 11.78 $in^2$ |

## Pipe Specifications

| | |
|---|---|
| Pipe Material | PE4710 |
| Pipe Size | 6 " IPS |
| Wall Thickness | DR 11 |

## Pressures

Drag Pressure 23 psi

| | Interfacial | Gauge |
|---|---|---|
| Bead Up | 75 psi | 96 psi |
| Heat Soak | 0 psi | 23 psi |
| Fuse/Cool | 75 psi | 96 psi |

## Fusion Specification

| | |
|---|---|
| Fusion Type | Butt Fusion |
| Fusion Specification | ASTM F2620 |
| Bead Time | 0 seconds |
| Bead Size | 3/16" |
| Heat/Soak Time | 162 seconds |
| Fuse Time | 397 seconds |
| Open/Close Time | 15 seconds |
| Cool Time | 0 seconds |

| | Minimum | Maximum |
|---|---|---|
| Bead Up | 81 psi | 110 psi |
| Heat Soak | 0 psi | 23 psi |
| Fuse | 81 psi | 110 psi |
| Cool | 0 psi | 0 psi |

## External Heater Temperatures

| | Side A | Side B |
|---|---|---|

## GPS Location

| Date | Latitude | Longitude |
|---|---|---|
| 2018-07-26 14:25:27.0 | 64°2'17.025000"N | 135°49'44.405400"W |

## Logged Data Summary

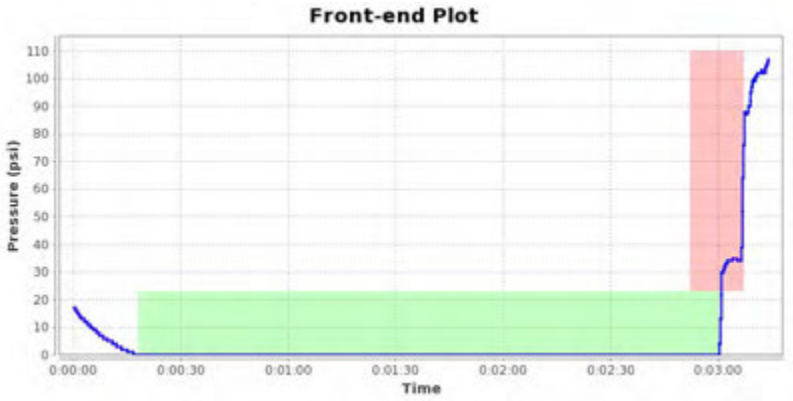
| | |
|---|---|
| Number of Data Points | 556 |
| Total Fusion Time | 765 seconds |
| Maximum Recorded Pressure | 107 psi |

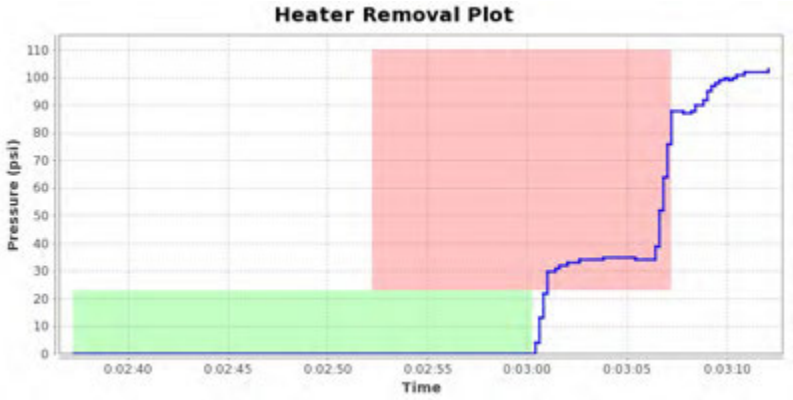
## Device Information

| | |
|---|---|
| DataLogger Serial Number | RH803Z0550 |
| Sensor Serial Number | MDL6621 |
| Calibration Date | 2018-04-04 |
| Firmware Version | v6.0 |
| Software Version | 1.08 (27) |
| Software Product Name | DataLogger 6 |

## Data Source

| | |
|---|---|
| Upload Time | 2018-07-27 04:01:05 GMT |







## Notes

Images for report: 1041033





Printed: 2018-07-27 04:19:55 UTC

# McElroy Joint Report

Reference Number 1041034

## Job Details

| | |
|---|---|
| Joint Number | 70 |
| Joint Time | 2018-07-26 16:16:59 GMT |
| Job | 1 |
| Operator | jordan |
| Aborted Joint | No |

## Fusion Machine

| | |
|---|---|
| Machine Name | 618 HF |
| Machine Model | 618 HF |
| Piston Area | 11.78 in² |

## Pipe Specifications

| | |
|---|---|
| Pipe Material | PE4710 |
| Pipe Size | 6 " IPS |
| Wall Thickness | DR 11 |

## Pressures

| | | |
|---|---|---|
| Drag Pressure | 23 psi | |
| | Interfacial | Gauge |
| Bead Up | 75 psi | 96 psi |
| Heat Soak | 0 psi | 23 psi |
| Fuse/Cool | 75 psi | 96 psi |

## Fusion Specification

| | |
|---|---|
| Fusion Type | Butt Fusion |
| Fusion Specification | ASTM F2620 |
| Bead Time | 0 seconds |
| Bead Size | 3/16" |
| Heat/Soak Time | 162 seconds |
| Fuse Time | 397 seconds |
| Open/Close Time | 15 seconds |
| Cool Time | 0 seconds |

| | Minimum | Maximum |
|---|---|---|
| Bead Up | 81 psi | 110 psi |
| Heat Soak | 0 psi | 23 psi |
| Fuse | 81 psi | 110 psi |
| Cool | 0 psi | 0 psi |

## External Heater Temperatures

| | Side A | Side B |
|---|---|---|

## GPS Location

| Date | Latitude | Longitude |
|---|---|---|
| 2018-07-26 16:16:59.0 | 64°2'17.324400"N | 135°49'44.556000"W |

## Logged Data Summary

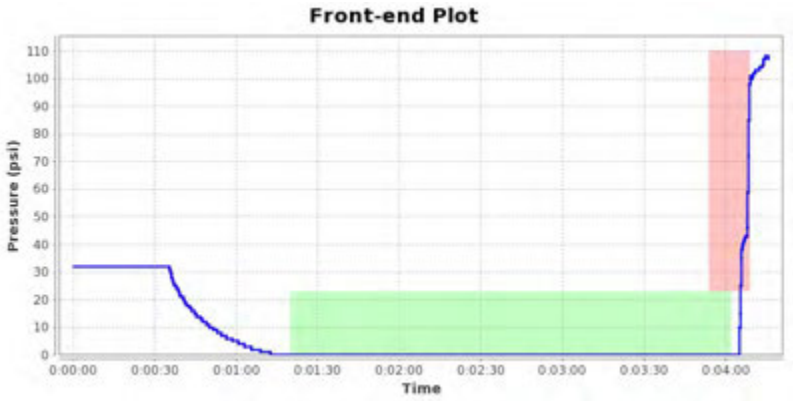
| | |
|---|---|
| Number of Data Points | 250 |
| Total Fusion Time | 794 seconds |
| Maximum Recorded Pressure | 108 psi |

## Device Information

| | |
|---|---|
| DataLogger Serial Number | RH803Z0550 |
| Sensor Serial Number | MDL6621 |
| Calibration Date | 2018-04-04 |
| Firmware Version | v6.0 |
| Software Version | 1.08 (27) |
| Software Product Name | DataLogger 6 |

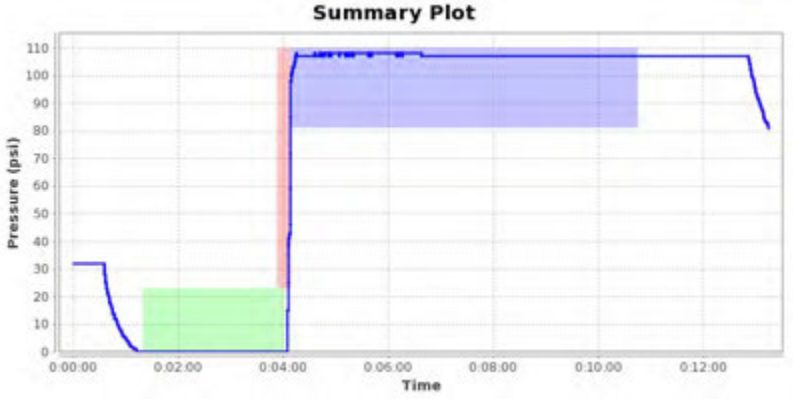
## Data Source

| | |
|---|---|
| Upload Time | 2018-07-27 04:02:16 GMT |










## Notes

Images for report: 1041034



Printed: 2018-07-27 04:19:54 UTC

# McElroy Joint Report

Reference Number 1041035

## Job Details

| | |
|---|---|
| Joint Number | 71 |
| Joint Time | 2018-07-26 17:25:53 GMT |
| Job | 1 |
| Operator | jordan |
| Aborted Joint | No |

## Fusion Machine

| | |
|---|---|
| Machine Name | 618 HF |
| Machine Model | 618 HF |
| Piston Area | 11.78 $in^2$ |

## Pipe Specifications

| | |
|---|---|
| Pipe Material | PE4710 |
| Pipe Size | 6 " IPS |
| Wall Thickness | DR 11 |

## Pressures

| | | |
|---|---|---|
| Drag Pressure | 23 psi | |
| | Interfacial | Gauge |
| Bead Up | 75 psi | 96 psi |
| Heat Soak | 0 psi | 23 psi |
| Fuse/Cool | 75 psi | 96 psi |

## Fusion Specification

| | |
|---|---|
| Fusion Type | Butt Fusion |
| Fusion Specification | ASTM F2620 |
| Bead Time | 0 seconds |
| Bead Size | 3/16" |
| Heat/Soak Time | 162 seconds |
| Fuse Time | 397 seconds |
| Open/Close Time | 15 seconds |
| Cool Time | 0 seconds |

| | Minimum | Maximum |
|---|---|---|
| Bead Up | 81 psi | 110 psi |
| Heat Soak | 0 psi | 23 psi |
| Fuse | 81 psi | 110 psi |
| Cool | 0 psi | 0 psi |

## External Heater Temperatures

| | Side A | Side B |
|---|---|---|

## GPS Location

| Date | Latitude | Longitude |
|---|---|---|
| 2018-07-26 17:25:53.0 | 64°2'17.249400"N | 135°49'44.614200"W |

## Logged Data Summary

| | |
|---|---|
| Number of Data Points | 118 |
| Total Fusion Time | 729 seconds |
| Maximum Recorded Pressure | 108 psi |

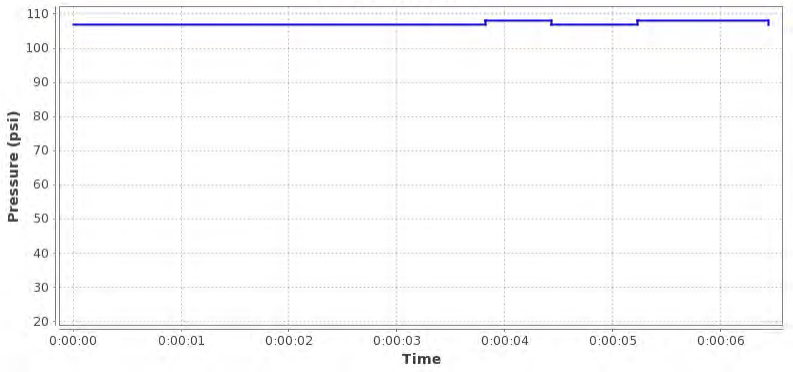
## Device Information

| | |
|---|---|
| DataLogger Serial Number | RH803Z0550 |
| Sensor Serial Number | MDL6621 |
| Calibration Date | 2018-04-04 |
| Firmware Version | v6.0 |
| Software Version | 1.08 (27) |
| Software Product Name | DataLogger 6 |

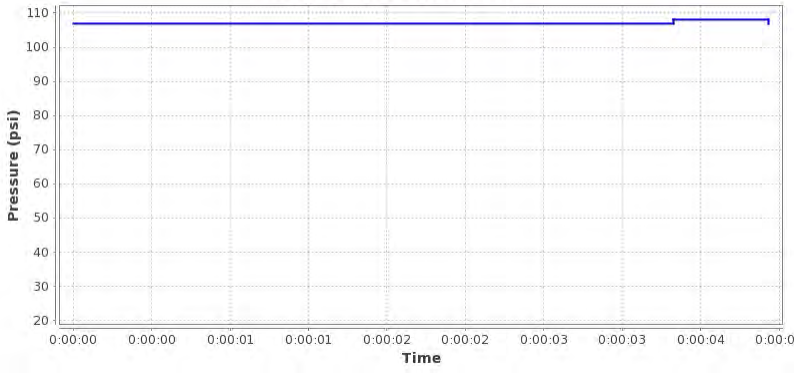
## Data Source

| | |
|---|---|
| Upload Time | 2018-07-27 04:03:04 GMT |

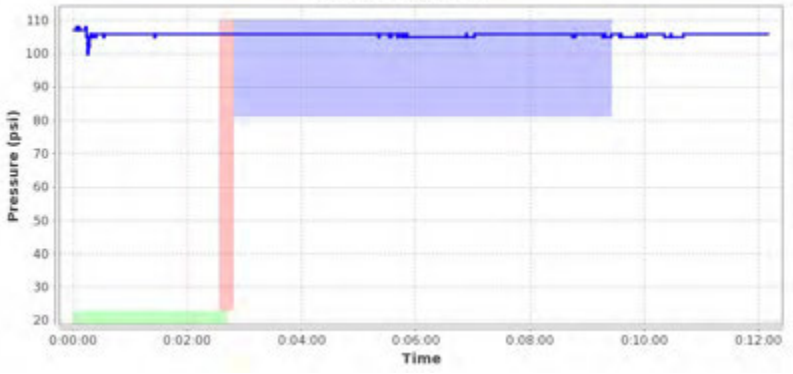
### Front-end Plot




### Heater Removal Plot




### Summary Plot




## Notes

Printed: 2018-07-31 02:46:10 UTC

# McElroy Joint Report

Reference Number 1047792

## Job Details

| | |
|---|---|
| Joint Number | 72 |
| Joint Time | 2018-07-27 08:11:05 GMT |
| Job | 1 |
| Operator | jordan |
| Aborted Joint | No |

## Fusion Machine

| | |
|---|---|
| Machine Name | 618 HF |
| Machine Model | 618 HF |
| Piston Area | 11.78 in² |

## Pipe Specifications

| | |
|---|---|
| Pipe Material | PE4710 |
| Pipe Size | 6 " IPS |
| Wall Thickness | DR 11 |

## Pressures

| | | |
|---|---|---|
| Drag Pressure | 23 psi | |
| | Interfacial | Gauge |
| Bead Up | 75 psi | 96 psi |
| Heat Soak | 0 psi | 23 psi |
| Fuse/Cool | 75 psi | 96 psi |

## Fusion Specification

| | |
|---|---|
| Fusion Type | Butt Fusion |
| Fusion Specification | ASTM F2620 |
| Bead Time | 0 seconds |
| Bead Size | 3/16" |
| Heat/Soak Time | 162 seconds |
| Fuse Time | 397 seconds |
| Open/Close Time | 15 seconds |
| Cool Time | 0 seconds |

| | Minimum | Maximum |
|---|---|---|
| Bead Up | 81 psi | 110 psi |
| Heat Soak | 0 psi | 23 psi |
| Fuse | 81 psi | 110 psi |
| Cool | 0 psi | 0 psi |

## External Heater Temperatures

| | Side A | Side B |
|---|---|---|

## GPS Location

| Date | Latitude | Longitude |
|---|---|---|
| 2018-07-27 08:11:05.0 | 64°2'17.047800"N | 135°49'44.383800"W |

## Logged Data Summary

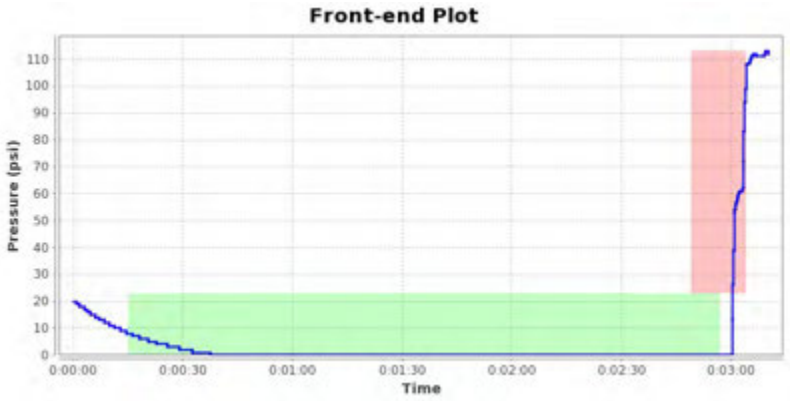
| | |
|---|---|
| Number of Data Points | 304 |
| Total Fusion Time | 2620 seconds |
| Maximum Recorded Pressure | 113 psi |

## Device Information

| | |
|---|---|
| DataLogger Serial Number | RH803Z0550 |
| Sensor Serial Number | MDL6621 |
| Calibration Date | 2018-04-04 |
| Firmware Version | v6.0 |
| Software Version | 1.08 (27) |
| Software Product Name | DataLogger 6 |

## Data Source

| | |
|---|---|
| Upload Time | 2018-07-31 02:42:23 GMT |










## Notes

Images for report: 1047792





Printed: 2018-07-31 02:46:09 UTC

# McElroy Joint Report

Reference Number 1047793

## Job Details

| | |
|---|---|
| Joint Number | 73 |
| Joint Time | 2018-07-27 11:34:13 GMT |
| Job | 1 |
| Operator | jordan |
| Aborted Joint | No |

## Fusion Machine

| | |
|---|---|
| Machine Name | 618 HF |
| Machine Model | 618 HF |
| Piston Area | 11.78 $in^2$ |

## Pipe Specifications

| | |
|---|---|
| Pipe Material | PE4710 |
| Pipe Size | 6 " IPS |
| Wall Thickness | DR 11 |

## Pressures

| | | |
|---|---|---|
| Drag Pressure | 23 psi | |
| | Interfacial | Gauge |
| Bead Up | 75 psi | 96 psi |
| Heat Soak | 0 psi | 23 psi |
| Fuse/Cool | 75 psi | 96 psi |

## Fusion Specification

| | |
|---|---|
| Fusion Type | Butt Fusion |
| Fusion Specification | ASTM F2620 |
| Bead Time | 0 seconds |
| Bead Size | 3/16" |
| Heat/Soak Time | 162 seconds |
| Fuse Time | 397 seconds |
| Open/Close Time | 15 seconds |
| Cool Time | 0 seconds |

| | Minimum | Maximum |
|---|---|---|
| Bead Up | 81 psi | 110 psi |
| Heat Soak | 0 psi | 23 psi |
| Fuse | 81 psi | 110 psi |
| Cool | 0 psi | 0 psi |

## External Heater Temperatures

| | Side A | Side B |
|---|---|---|

## GPS Location

| Date | Latitude | Longitude |
|---|---|---|
| 2018-07-27 11:34:13.0 | 64°2'17.248200"N | 135°49'44.441400"W |

## Logged Data Summary

| | |
|---|---|
| Number of Data Points | 350 |
| Total Fusion Time | 1319 seconds |
| Maximum Recorded Pressure | 110 psi |

## Device Information

| | |
|---|---|
| DataLogger Serial Number | RH803Z0550 |
| Sensor Serial Number | MDL6621 |
| Calibration Date | 2018-04-04 |
| Firmware Version | v6.0 |
| Software Version | 1.08 (27) |
| Software Product Name | DataLogger 6 |

## Data Source

| | |
|---|---|
| Upload Time | 2018-07-31 02:42:48 GMT |

### Front-end Plot




### Heater Removal Plot




### Summary Plot




## Notes

Images for report: 1047793





Printed: 2018-07-31 02:46:08 UTC

# McElroy Joint Report

Reference Number 1047794

## Job Details

| | |
|---|---|
| Joint Number | 74 |
| Joint Time | 2018-07-28 14:37:56 GMT |
| Job | 1 |
| Operator | jordan |
| Aborted Joint | No |

## Fusion Machine

| | |
|---|---|
| Machine Name | 618 HF |
| Machine Model | 618 HF |
| Piston Area | 11.78 in² |

## Pipe Specifications

| | |
|---|---|
| Pipe Material | PE4710 |
| Pipe Size | 6 " IPS |
| Wall Thickness | DR 11 |

## Pressures

| | | |
|---|---|---|
| Drag Pressure | 23 psi | |
| | Interfacial | Gauge |
| Bead Up | 75 psi | 96 psi |
| Heat Soak | 0 psi | 23 psi |
| Fuse/Cool | 75 psi | 96 psi |

## Fusion Specification

| | |
|---|---|
| Fusion Type | Butt Fusion |
| Fusion Specification | ASTM F2620 |
| Bead Time | 0 seconds |
| Bead Size | 3/16" |
| Heat/Soak Time | 162 seconds |
| Fuse Time | 397 seconds |
| Open/Close Time | 15 seconds |
| Cool Time | 0 seconds |

| | Minimum | Maximum |
|---|---|---|
| Bead Up | 81 psi | 110 psi |
| Heat Soak | 0 psi | 23 psi |
| Fuse | 81 psi | 110 psi |
| Cool | 0 psi | 0 psi |

## External Heater Temperatures

| | Side A | Side B |
|---|---|---|

## GPS Location

| Date | Latitude | Longitude |
|---|---|---|
| 2018-07-28 14:37:56.0 | 64°2'17.304600"N | 135°49'45.326400"W |

## Logged Data Summary

| | |
|---|---|
| Number of Data Points | 92 |
| Total Fusion Time | 184 seconds |
| Maximum Recorded Pressure | 131 psi |

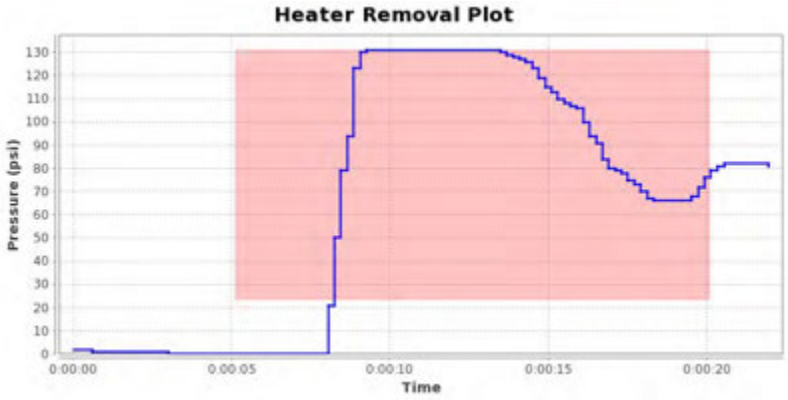
## Device Information

| | |
|---|---|
| DataLogger Serial Number | RH803Z0550 |
| Sensor Serial Number | MDL6621 |
| Calibration Date | 2018-04-04 |
| Firmware Version | v6.0 |
| Software Version | 1.08 (27) |
| Software Product Name | DataLogger 6 |

## Data Source

| | |
|---|---|
| Upload Time | 2018-07-31 02:43:07 GMT |







## Notes

Images for report: 1047794





Printed: 2018-07-31 02:46:06 UTC

# McElroy Joint Report

Reference Number 1047795

## Job Details

| | |
|---|---|
| Joint Number | 75 |
| Joint Time | 2018-07-28 15:22:46 GMT |
| Job | 1 |
| Operator | jordan |
| Aborted Joint | No |

## Fusion Machine

| | |
|---|---|
| Machine Name | 618 HF |
| Machine Model | 618 HF |
| Piston Area | 11.78 in² |

## Pipe Specifications

| | |
|---|---|
| Pipe Material | PE4710 |
| Pipe Size | 6 " IPS |
| Wall Thickness | DR 11 |

## Pressures

| | | |
|---|---|---|
| Drag Pressure | 23 psi | |
| | Interfacial | Gauge |
| Bead Up | 75 psi | 96 psi |
| Heat Soak | 0 psi | 23 psi |
| Fuse/Cool | 75 psi | 96 psi |

## Fusion Specification

| | |
|---|---|
| Fusion Type | Butt Fusion |
| Fusion Specification | ASTM F2620 |
| Bead Time | 0 seconds |
| Bead Size | 3/16" |
| Heat/Soak Time | 162 seconds |
| Fuse Time | 397 seconds |
| Open/Close Time | 15 seconds |
| Cool Time | 0 seconds |

| | Minimum | Maximum |
|---|---|---|
| Bead Up | 81 psi | 110 psi |
| Heat Soak | 0 psi | 23 psi |
| Fuse | 81 psi | 110 psi |
| Cool | 0 psi | 0 psi |

## External Heater Temperatures

| | Side A | Side B |
|---|---|---|

## GPS Location

| Date | Latitude | Longitude |
|---|---|---|
| 2018-07-28 15:22:46.0 | 64°2'17.694000"N | 135°49'45.353400"W |

## Logged Data Summary

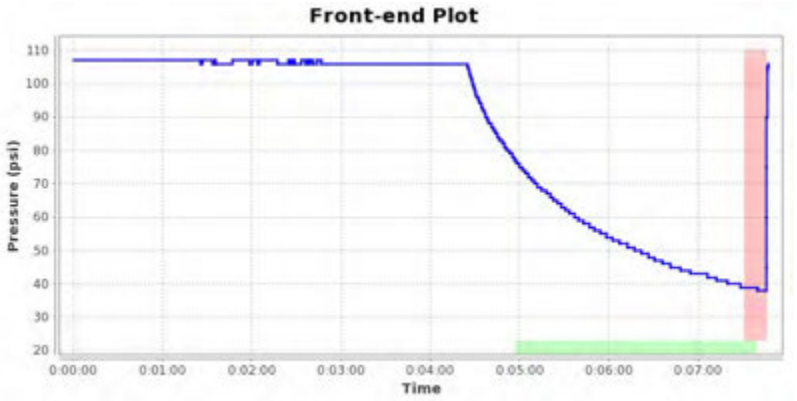
| | |
|---|---|
| Number of Data Points | 266 |
| Total Fusion Time | 621 seconds |
| Maximum Recorded Pressure | 107 psi |

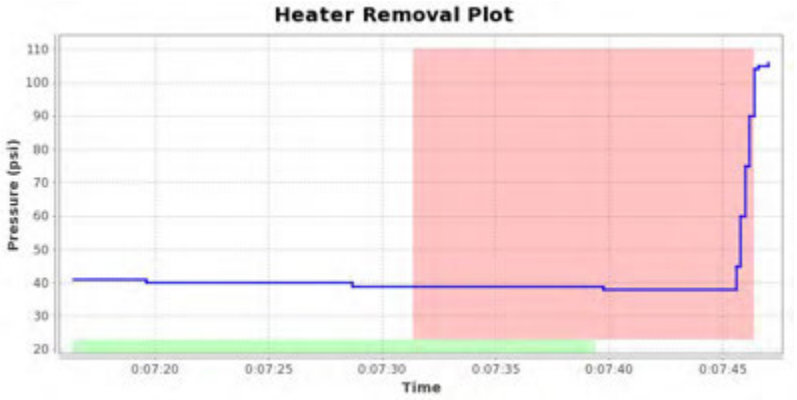
## Device Information

| | |
|---|---|
| DataLogger Serial Number | RH803Z0550 |
| Sensor Serial Number | MDL6621 |
| Calibration Date | 2018-04-04 |
| Firmware Version | v6.0 |
| Software Version | 1.08 (27) |
| Software Product Name | DataLogger 6 |

## Data Source

| | |
|---|---|
| Upload Time | 2018-07-31 02:43:29 GMT |







## Notes

Images for report: 1047795





Printed: 2018-07-31 02:46:05 UTC

# McElroy Joint Report

Reference Number 1047796

## Job Details

| | |
|---|---|
| Joint Number | 76 |
| Joint Time | 2018-07-28 15:42:56 GMT |
| Job | 1 |
| Operator | jordan |
| Aborted Joint | No |

## Fusion Machine

| | |
|---|---|
| Machine Name | 618 HF |
| Machine Model | 618 HF |
| Piston Area | 11.78 in² |

## Pipe Specifications

| | |
|---|---|
| Pipe Material | PE4710 |
| Pipe Size | 6 " IPS |
| Wall Thickness | DR 11 |

## Pressures

| | | |
|---|---|---|
| Drag Pressure | 23 psi | |
| | Interfacial | Gauge |
| Bead Up | 75 psi | 96 psi |
| Heat Soak | 0 psi | 23 psi |
| Fuse/Cool | 75 psi | 96 psi |

## Fusion Specification

| | |
|---|---|
| Fusion Type | Butt Fusion |
| Fusion Specification | ASTM F2620 |
| Bead Time | 0 seconds |
| Bead Size | 3/16" |
| Heat/Soak Time | 162 seconds |
| Fuse Time | 397 seconds |
| Open/Close Time | 15 seconds |
| Cool Time | 0 seconds |

| | Minimum | Maximum |
|---|---|---|
| Bead Up | 81 psi | 110 psi |
| Heat Soak | 0 psi | 23 psi |
| Fuse | 81 psi | 110 psi |
| Cool | 0 psi | 0 psi |

## External Heater Temperatures

| | Side A | Side B |
|---|---|---|

## GPS Location

| Date | Latitude | Longitude |
|---|---|---|
| 2018-07-28 15:42:56.0 | 64°2'17.458800"N | 135°49'45.434400"W |

## Logged Data Summary

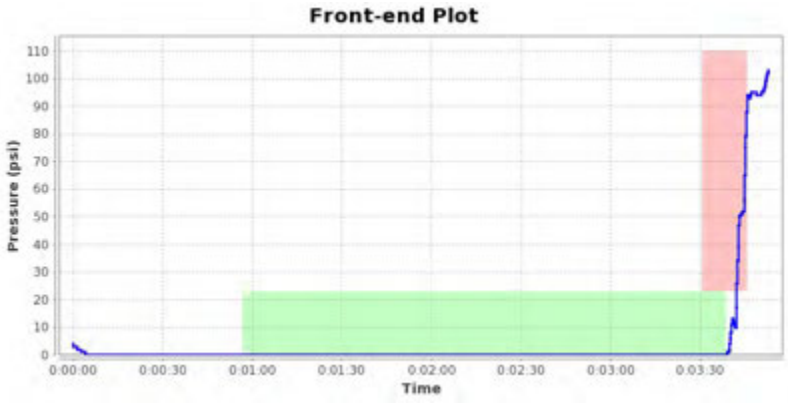
| | |
|---|---|
| Number of Data Points | 324 |
| Total Fusion Time | 768 seconds |
| Maximum Recorded Pressure | 106 psi |

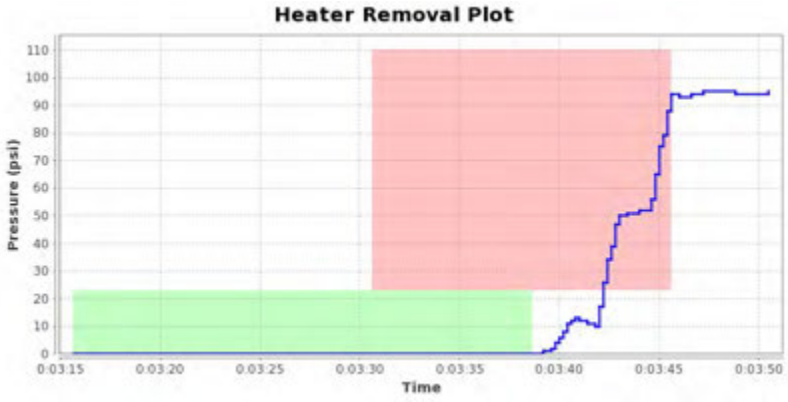
## Device Information

| | |
|---|---|
| DataLogger Serial Number | RH803Z0550 |
| Sensor Serial Number | MDL6621 |
| Calibration Date | 2018-04-04 |
| Firmware Version | v6.0 |
| Software Version | 1.08 (27) |
| Software Product Name | DataLogger 6 |

## Data Source

| | |
|---|---|
| Upload Time | 2018-07-31 02:43:53 GMT |







## Notes

Images for report: 1047796





Printed: 2018-07-31 02:46:04 UTC

# McElroy Joint Report

Reference Number 1047797

## Job Details

| | |
|---|---|
| Joint Number | 77 |
| Joint Time | 2018-07-28 16:00:41 GMT |
| Job | 1 |
| Operator | jordan |
| Aborted Joint | No |

## Fusion Machine

| | |
|---|---|
| Machine Name | 618 HF |
| Machine Model | 618 HF |
| Piston Area | 11.78 in² |

## Pipe Specifications

| | |
|---|---|
| Pipe Material | PE4710 |
| Pipe Size | 6 " IPS |
| Wall Thickness | DR 11 |

## Pressures

| | | |
|---|---|---|
| Drag Pressure | 23 psi | |
| | Interfacial | Gauge |
| Bead Up | 75 psi | 96 psi |
| Heat Soak | 0 psi | 23 psi |
| Fuse/Cool | 75 psi | 96 psi |

## Fusion Specification

| | |
|---|---|
| Fusion Type | Butt Fusion |
| Fusion Specification | ASTM F2620 |
| Bead Time | 0 seconds |
| Bead Size | 3/16" |
| Heat/Soak Time | 162 seconds |
| Fuse Time | 397 seconds |
| Open/Close Time | 15 seconds |
| Cool Time | 0 seconds |

| | Minimum | Maximum |
|---|---|---|
| Bead Up | 81 psi | 110 psi |
| Heat Soak | 0 psi | 23 psi |
| Fuse | 81 psi | 110 psi |
| Cool | 0 psi | 0 psi |

## External Heater Temperatures

| | Side A | Side B |
|---|---|---|

## GPS Location

| Date | Latitude | Longitude |
|---|---|---|
| 2018-07-28 16:00:41.0 | 64°2'17.469600"N | 135°49'45.345600"W |

## Logged Data Summary

| | |
|---|---|
| Number of Data Points | 180 |
| Total Fusion Time | 477 seconds |
| Maximum Recorded Pressure | 106 psi |

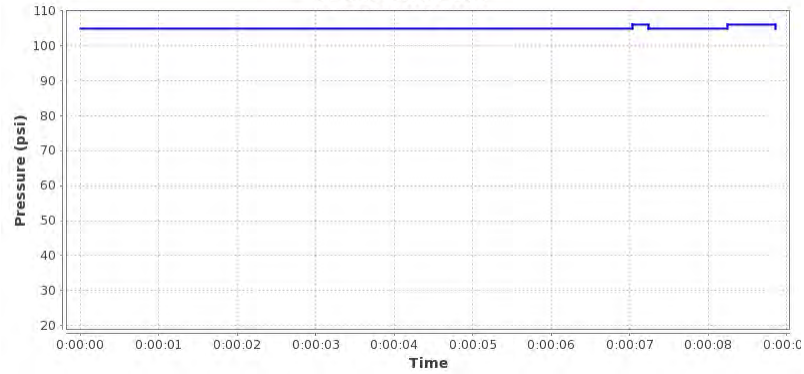
## Device Information

| | |
|---|---|
| DataLogger Serial Number | RH803Z0550 |
| Sensor Serial Number | MDL6621 |
| Calibration Date | 2018-04-04 |
| Firmware Version | v6.0 |
| Software Version | 1.08 (27) |
| Software Product Name | DataLogger 6 |

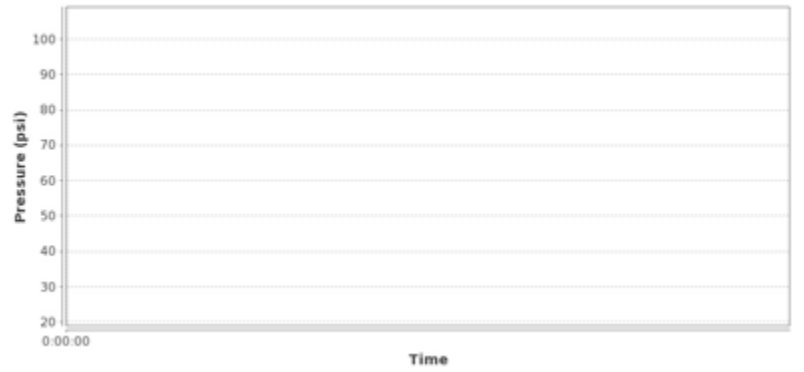
## Data Source

| | |
|---|---|
| Upload Time | 2018-07-31 02:44:24 GMT |

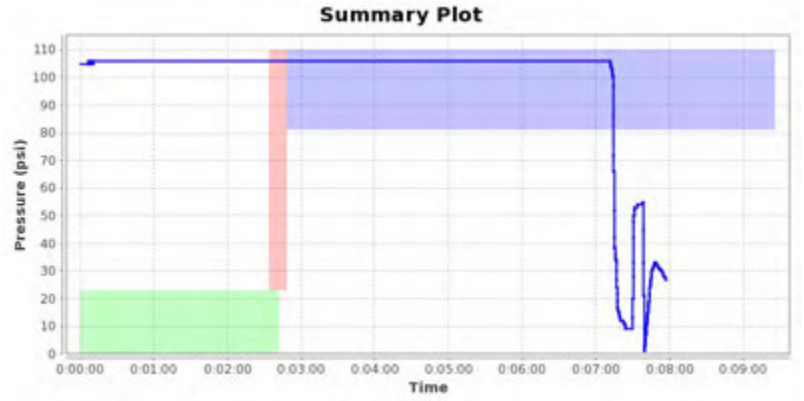
**Front-end Plot**




**Heater Removal Plot**




**Summary Plot**




## Notes

Images for report: 1047797





Printed: 2018-07-31 02:46:02 UTC

# McElroy Joint Report

Reference Number 1047798

## Job Details

| | |
|---|---|
| Joint Number | 78 |
| Joint Time | 2018-07-28 17:06:16 GMT |
| Job | 1 |
| Operator | jordan |
| Aborted Joint | No |

## Fusion Machine

| | |
|---|---|
| Machine Name | 618 HF |
| Machine Model | 618 HF |
| Piston Area | 11.78 in² |

## Pipe Specifications

| | |
|---|---|
| Pipe Material | PE4710 |
| Pipe Size | 6 " IPS |
| Wall Thickness | DR 11 |

## Pressures

| | | |
|---|---|---|
| Drag Pressure | 23 psi | |
| | Interfacial | Gauge |
| Bead Up | 75 psi | 96 psi |
| Heat Soak | 0 psi | 23 psi |
| Fuse/Cool | 75 psi | 96 psi |

## Fusion Specification

| | |
|---|---|
| Fusion Type | Butt Fusion |
| Fusion Specification | ASTM F2620 |
| Bead Time | 0 seconds |
| Bead Size | 3/16" |
| Heat/Soak Time | 162 seconds |
| Fuse Time | 397 seconds |
| Open/Close Time | 15 seconds |
| Cool Time | 0 seconds |

| | Minimum | Maximum |
|---|---|---|
| Bead Up | 81 psi | 110 psi |
| Heat Soak | 0 psi | 23 psi |
| Fuse | 81 psi | 110 psi |
| Cool | 0 psi | 0 psi |

## External Heater Temperatures

| | Side A | Side B |
|---|---|---|

## GPS Location

| Date | Latitude | Longitude |
|---|---|---|
| 2018-07-28 17:06:16.0 | 64°2'17.286000"N | 135°49'45.235200"W |

## Logged Data Summary

| | |
|---|---|
| Number of Data Points | 134 |
| Total Fusion Time | 514 seconds |
| Maximum Recorded Pressure | 118 psi |

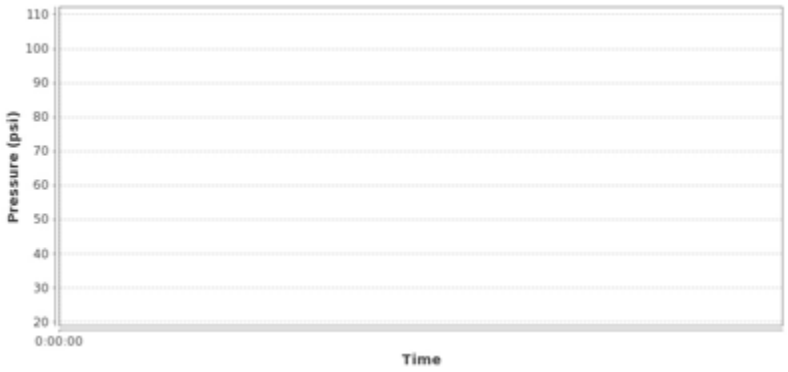
## Device Information

| | |
|---|---|
| DataLogger Serial Number | RH803Z0550 |
| Sensor Serial Number | MDL6621 |
| Calibration Date | 2018-04-04 |
| Firmware Version | v6.0 |
| Software Version | 1.08 (27) |
| Software Product Name | DataLogger 6 |

## Data Source

| | |
|---|---|
| Upload Time | 2018-07-31 02:44:57 GMT |

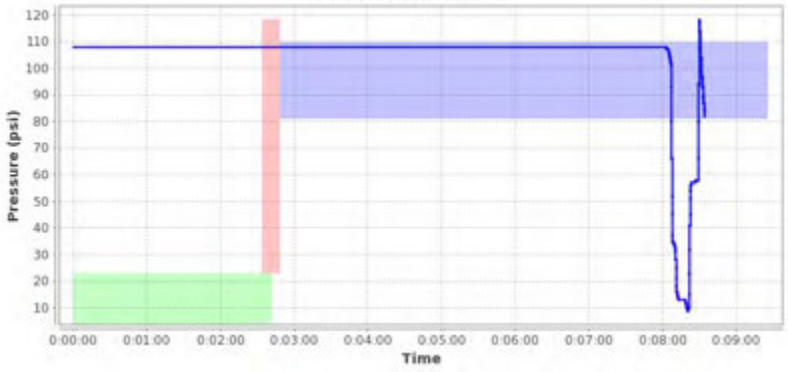
**Front-end Plot**




**Heater Removal Plot**




**Summary Plot**




## Notes

Images for report: 1047798





Printed: 2018-07-31 02:46:01 UTC

# McElroy Joint Report

Reference Number 1047799

## Job Details

| | |
|---|---|
| Joint Number | 79 |
| Joint Time | 2018-07-28 17:40:51 GMT |
| Job | 1 |
| Operator | jordan |
| Aborted Joint | No |

## Fusion Machine

| | |
|---|---|
| Machine Name | 618 HF |
| Machine Model | 618 HF |
| Piston Area | 11.78 in² |

## Pipe Specifications

| | |
|---|---|
| Pipe Material | PE4710 |
| Pipe Size | 6 " IPS |
| Wall Thickness | DR 11 |

## Pressures

| | | |
|---|---|---|
| Drag Pressure | 23 psi | |
| | Interfacial | Gauge |
| Bead Up | 75 psi | 96 psi |
| Heat Soak | 0 psi | 23 psi |
| Fuse/Cool | 75 psi | 96 psi |

## Fusion Specification

| | |
|---|---|
| Fusion Type | Butt Fusion |
| Fusion Specification | ASTM F2620 |
| Bead Time | 0 seconds |
| Bead Size | 3/16" |
| Heat/Soak Time | 162 seconds |
| Fuse Time | 397 seconds |
| Open/Close Time | 15 seconds |
| Cool Time | 0 seconds |

| | Minimum | Maximum |
|---|---|---|
| Bead Up | 81 psi | 110 psi |
| Heat Soak | 0 psi | 23 psi |
| Fuse | 81 psi | 110 psi |
| Cool | 0 psi | 0 psi |

## External Heater Temperatures

| | Side A | Side B |
|---|---|---|

## GPS Location

| Date | Latitude | Longitude |
|---|---|---|
| 2018-07-28 17:40:51.0 | 64°2'17.336400"N | 135°49'45.215400"W |

## Logged Data Summary

| | |
|---|---|
| Number of Data Points | 10 |
| Total Fusion Time | 545 seconds |
| Maximum Recorded Pressure | 107 psi |

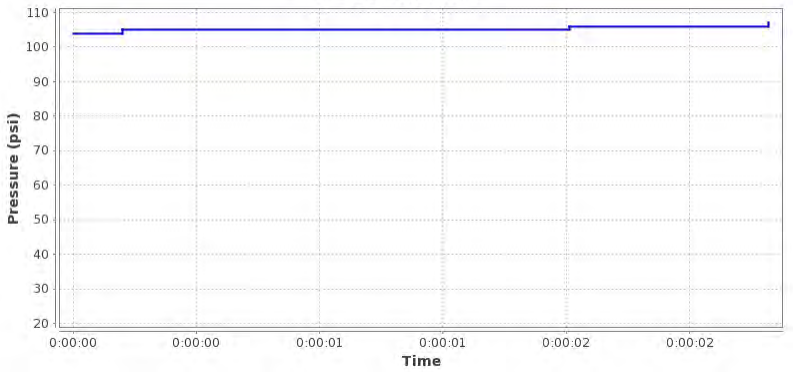
## Device Information

| | |
|---|---|
| DataLogger Serial Number | RH803Z0550 |
| Sensor Serial Number | MDL6621 |
| Calibration Date | 2018-04-04 |
| Firmware Version | v6.0 |
| Software Version | 1.08 (27) |
| Software Product Name | DataLogger 6 |

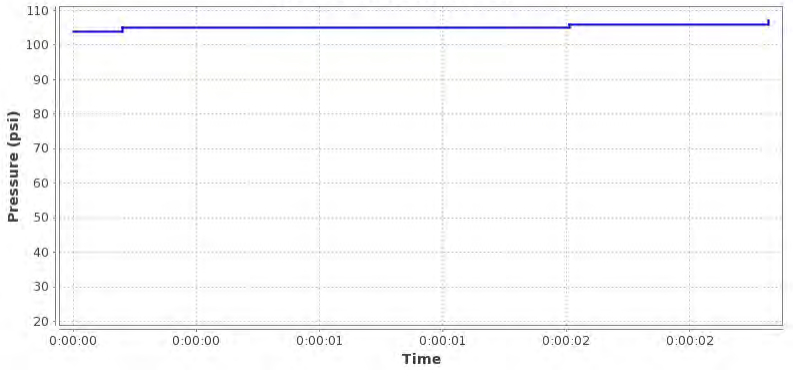
## Data Source

| | |
|---|---|
| Upload Time | 2018-07-31 02:45:24 GMT |

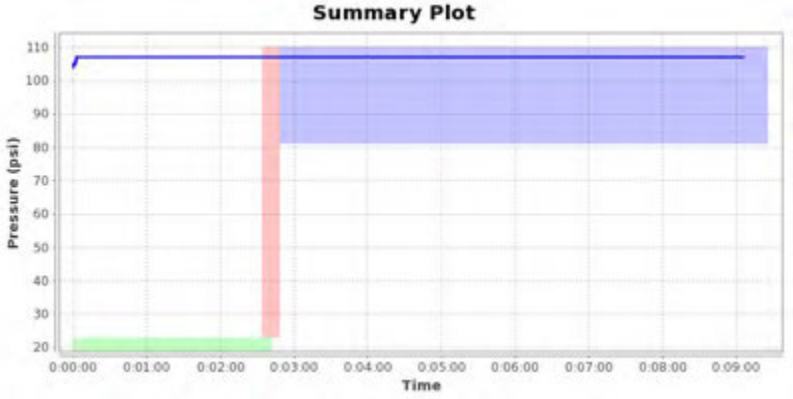
**Front-end Plot**




**Heater Removal Plot**




**Summary Plot**




## Notes

Images for report: 1047799





Printed: 2018-07-31 02:47:19 UTC

# McElroy Joint Report

Reference Number 1047776

## Job Details

| | |
|---|---|
| Joint Number | 80 |
| Joint Time | 2018-07-28 18:05:29 GMT |
| Job | 1 |
| Operator | jordan |
| Aborted Joint | No |

## Fusion Machine

| | |
|---|---|
| Machine Name | 618 HF |
| Machine Model | 618 HF |
| Piston Area | 11.78 in² |

## Pipe Specifications

| | |
|---|---|
| Pipe Material | PE4710 |
| Pipe Size | 6 " IPS |
| Wall Thickness | DR 11 |

## Pressures

| | | |
|---|---|---|
| Drag Pressure | 23 psi | |
| | Interfacial | Gauge |
| Bead Up | 75 psi | 96 psi |
| Heat Soak | 0 psi | 23 psi |
| Fuse/Cool | 75 psi | 96 psi |

## Fusion Specification

| | |
|---|---|
| Fusion Type | Butt Fusion |
| Fusion Specification | ASTM F2620 |
| Bead Time | 0 seconds |
| Bead Size | 3/16" |
| Heat/Soak Time | 162 seconds |
| Fuse Time | 397 seconds |
| Open/Close Time | 15 seconds |
| Cool Time | 0 seconds |

| | Minimum | Maximum |
|---|---|---|
| Bead Up | 81 psi | 110 psi |
| Heat Soak | 0 psi | 23 psi |
| Fuse | 81 psi | 110 psi |
| Cool | 0 psi | 0 psi |

## External Heater Temperatures

| | Side A | Side B |
|---|---|---|

## GPS Location

| Date | Latitude | Longitude |
|---|---|---|
| 2018-07-28 18:05:29.0 | 64°2'17.372400"N | 135°49'45.252000"W |

## Logged Data Summary

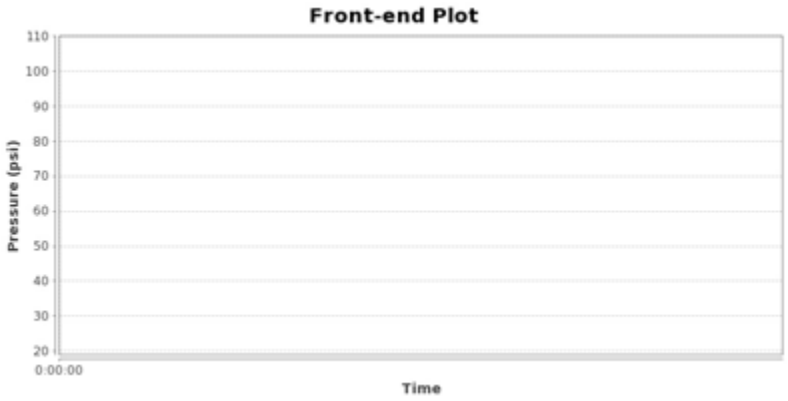
| | |
|---|---|
| Number of Data Points | 300 |
| Total Fusion Time | 596 seconds |
| Maximum Recorded Pressure | 107 psi |

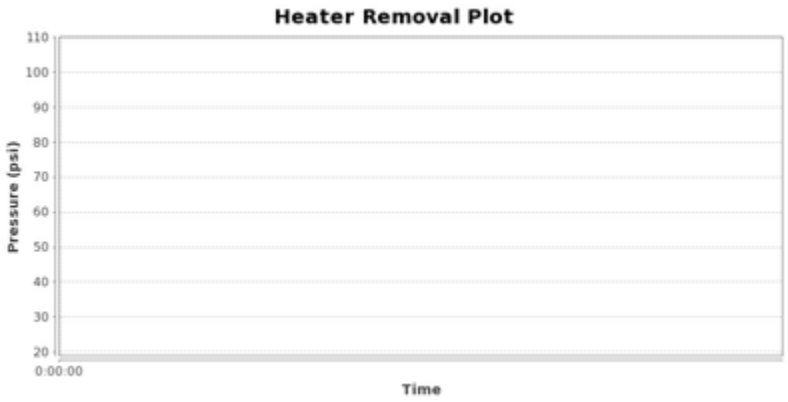
## Device Information

| | |
|---|---|
| DataLogger Serial Number | RH803Z0550 |
| Sensor Serial Number | MDL6621 |
| Calibration Date | 2018-04-04 |
| Firmware Version | v6.0 |
| Software Version | 1.08 (27) |
| Software Product Name | DataLogger 6 |

## Data Source

| | |
|---|---|
| Upload Time | 2018-07-31 02:26:42 GMT |







## Notes

Images for report: 1047776





Printed: 2018-07-31 02:46:54 UTC

# McElroy Joint Report

Reference Number 1047777

## Job Details

| | |
|---|---|
| Joint Number | 81 |
| Joint Time | 2018-07-29 09:37:50 GMT |
| Job | 1 |
| Operator | jordan |
| Aborted Joint | No |

## Fusion Machine

| | |
|---|---|
| Machine Name | 618 HF |
| Machine Model | 618 HF |
| Piston Area | 11.78 in² |

## Pipe Specifications

| | |
|---|---|
| Pipe Material | PE4710 |
| Pipe Size | 6 " IPS |
| Wall Thickness | DR 11 |

## Pressures

| | | |
|---|---|---|
| Drag Pressure | 23 psi | |
| | Interfacial | Gauge |
| Bead Up | 75 psi | 96 psi |
| Heat Soak | 0 psi | 23 psi |
| Fuse/Cool | 75 psi | 96 psi |

## Fusion Specification

| | |
|---|---|
| Fusion Type | Butt Fusion |
| Fusion Specification | ASTM F2620 |
| Bead Time | 0 seconds |
| Bead Size | 3/16" |
| Heat/Soak Time | 162 seconds |
| Fuse Time | 397 seconds |
| Open/Close Time | 15 seconds |
| Cool Time | 0 seconds |

| | Minimum | Maximum |
|---|---|---|
| Bead Up | 81 psi | 110 psi |
| Heat Soak | 0 psi | 23 psi |
| Fuse | 81 psi | 110 psi |
| Cool | 0 psi | 0 psi |

## External Heater Temperatures

| | Side A | Side B |
|---|---|---|

## GPS Location

| Date | Latitude | Longitude |
|---|---|---|
| 2018-07-29 09:37:50.0 | 64°2'18.277200"N | 135°49'43.591800"W |

## Logged Data Summary

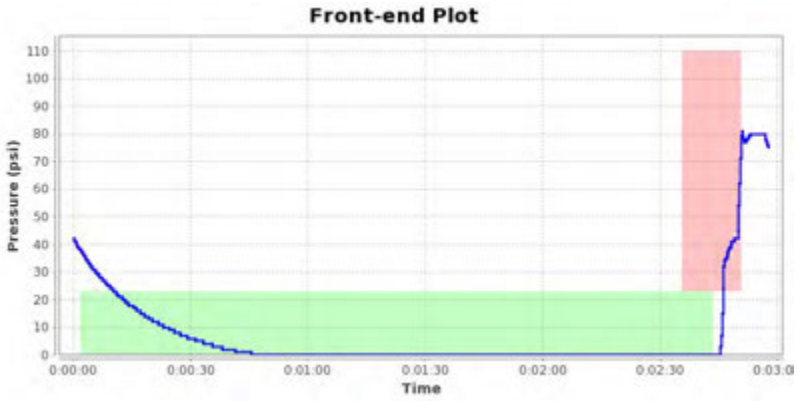
| | |
|---|---|
| Number of Data Points | 166 |
| Total Fusion Time | 625 seconds |
| Maximum Recorded Pressure | 81 psi |

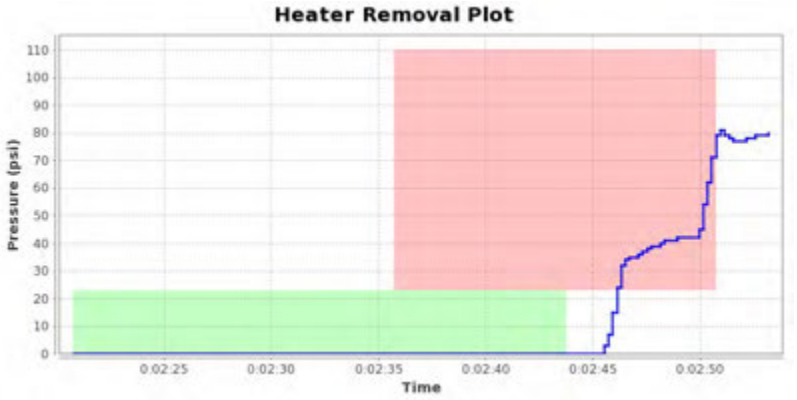
## Device Information

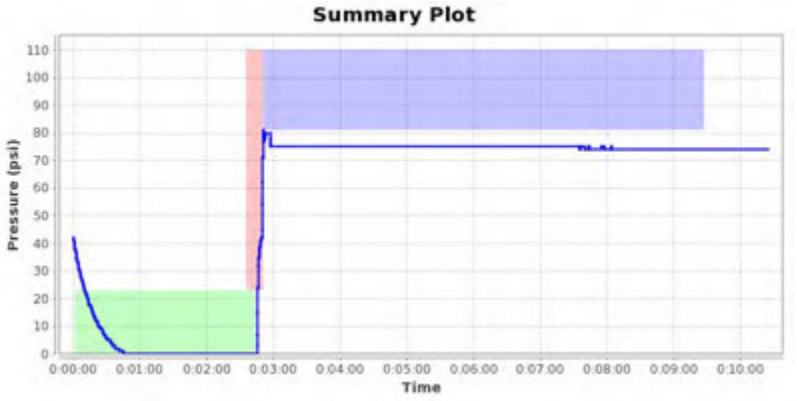
| | |
|---|---|
| DataLogger Serial Number | RH803Z0550 |
| Sensor Serial Number | MDL6621 |
| Calibration Date | 2018-04-04 |
| Firmware Version | v6.0 |
| Software Version | 1.08 (27) |
| Software Product Name | DataLogger 6 |

## Data Source

| | |
|---|---|
| Upload Time | 2018-07-31 02:28:02 GMT |




## Notes

Images for report: 1047777





Printed: 2018-07-31 02:46:52 UTC

# McElroy Joint Report

Reference Number 1047778

## Job Details

| | |
|---|---|
| Joint Number | 82 |
| Joint Time | 2018-07-29 12:16:34 GMT |
| Job | 1 |
| Operator | jordan |
| Aborted Joint | No |

## Fusion Machine

| | |
|---|---|
| Machine Name | 618 HF |
| Machine Model | 618 HF |
| Piston Area | 11.78 $in^2$ |

## Pipe Specifications

| | |
|---|---|
| Pipe Material | PE4710 |
| Pipe Size | 6 " IPS |
| Wall Thickness | DR 11 |

## Pressures

| | | |
|---|---|---|
| Drag Pressure | 23 psi | |
| | Interfacial | Gauge |
| Bead Up | 75 psi | 96 psi |
| Heat Soak | 0 psi | 23 psi |
| Fuse/Cool | 75 psi | 96 psi |

## Fusion Specification

| | |
|---|---|
| Fusion Type | Butt Fusion |
| Fusion Specification | ASTM F2620 |
| Bead Time | 0 seconds |
| Bead Size | 3/16" |
| Heat/Soak Time | 162 seconds |
| Fuse Time | 397 seconds |
| Open/Close Time | 15 seconds |
| Cool Time | 0 seconds |

| | Minimum | Maximum |
|---|---|---|
| Bead Up | 81 psi | 110 psi |
| Heat Soak | 0 psi | 23 psi |
| Fuse | 81 psi | 110 psi |
| Cool | 0 psi | 0 psi |

## External Heater Temperatures

| | Side A | Side B |
|---|---|---|

## GPS Location

| Date | Latitude | Longitude |
|---|---|---|
| 2018-07-29 12:16:34.0 | 64°2'18.018600"N | 135°49'42.996000"W |

## Logged Data Summary

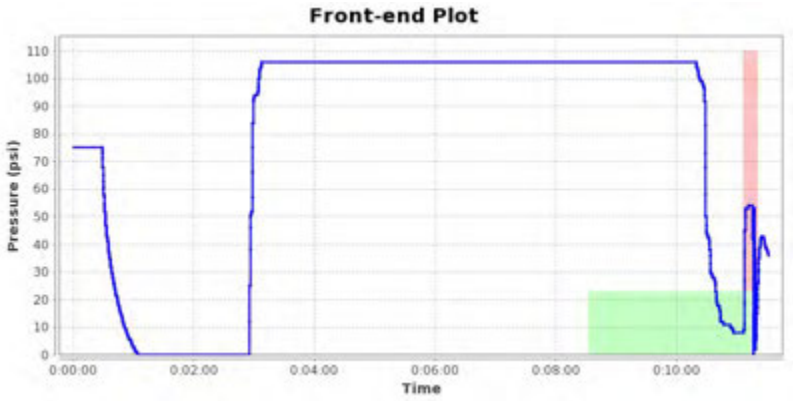
| | |
|---|---|
| Number of Data Points | 460 |
| Total Fusion Time | 846 seconds |
| Maximum Recorded Pressure | 106 psi |

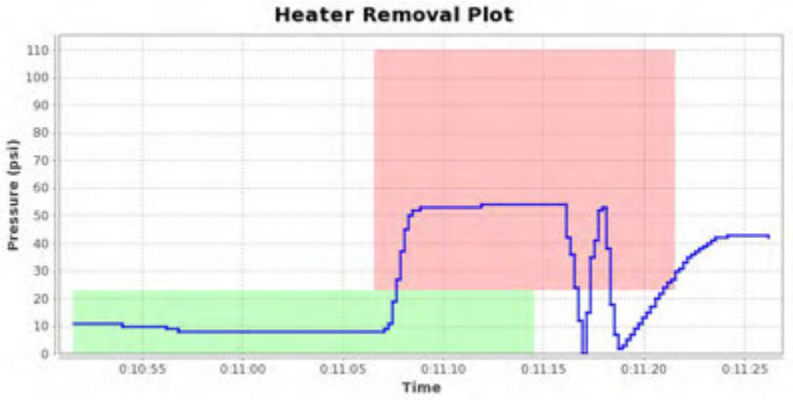
## Device Information

| | |
|---|---|
| DataLogger Serial Number | RH803Z0550 |
| Sensor Serial Number | MDL6621 |
| Calibration Date | 2018-04-04 |
| Firmware Version | v6.0 |
| Software Version | 1.08 (27) |
| Software Product Name | DataLogger 6 |

## Data Source

| | |
|---|---|
| Upload Time | 2018-07-31 02:29:21 GMT |







## Notes

Images for report: 1047778





Printed: 2018-07-31 02:46:28 UTC

# McElroy Joint Report

Reference Number 1047779

## Job Details

| | |
|---|---|
| Joint Number | 83 |
| Joint Time | 2018-07-29 12:35:36 GMT |
| Job | 1 |
| Operator | jordan |
| Aborted Joint | No |

## Fusion Machine

| | |
|---|---|
| Machine Name | 618 HF |
| Machine Model | 618 HF |
| Piston Area | 11.78 in² |

## Pipe Specifications

| | |
|---|---|
| Pipe Material | PE4710 |
| Pipe Size | 6 " IPS |
| Wall Thickness | DR 11 |

## Pressures

| | | |
|---|---|---|
| Drag Pressure | 23 psi | |
| | Interfacial | Gauge |
| Bead Up | 75 psi | 96 psi |
| Heat Soak | 0 psi | 23 psi |
| Fuse/Cool | 75 psi | 96 psi |

## Fusion Specification

| | |
|---|---|
| Fusion Type | Butt Fusion |
| Fusion Specification | ASTM F2620 |
| Bead Time | 0 seconds |
| Bead Size | 3/16" |
| Heat/Soak Time | 162 seconds |
| Fuse Time | 397 seconds |
| Open/Close Time | 15 seconds |
| Cool Time | 0 seconds |

| | Minimum | Maximum |
|---|---|---|
| Bead Up | 81 psi | 110 psi |
| Heat Soak | 0 psi | 23 psi |
| Fuse | 81 psi | 110 psi |
| Cool | 0 psi | 0 psi |

## External Heater Temperatures

| | Side A | Side B |
|---|---|---|

## GPS Location

| Date | Latitude | Longitude |
|---|---|---|
| 2018-07-29 12:35:36.0 | 64°2'17.941200"N | 135°49'43.141800"W |

## Logged Data Summary

| | |
|---|---|
| Number of Data Points | 280 |
| Total Fusion Time | 670 seconds |
| Maximum Recorded Pressure | 106 psi |

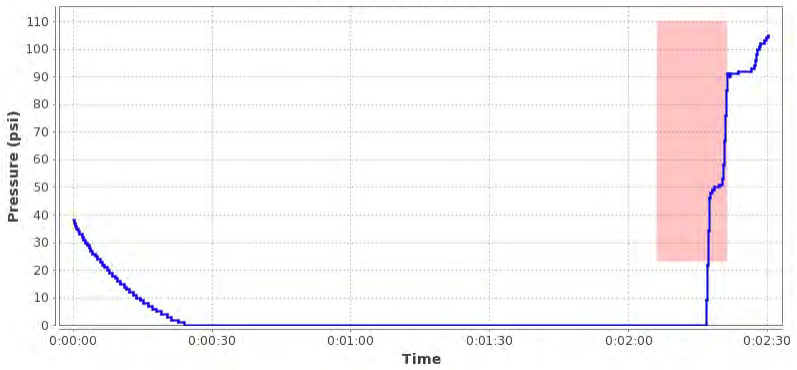
## Device Information

| | |
|---|---|
| DataLogger Serial Number | RH803Z0550 |
| Sensor Serial Number | MDL6621 |
| Calibration Date | 2018-04-04 |
| Firmware Version | v6.0 |
| Software Version | 1.08 (27) |
| Software Product Name | DataLogger 6 |

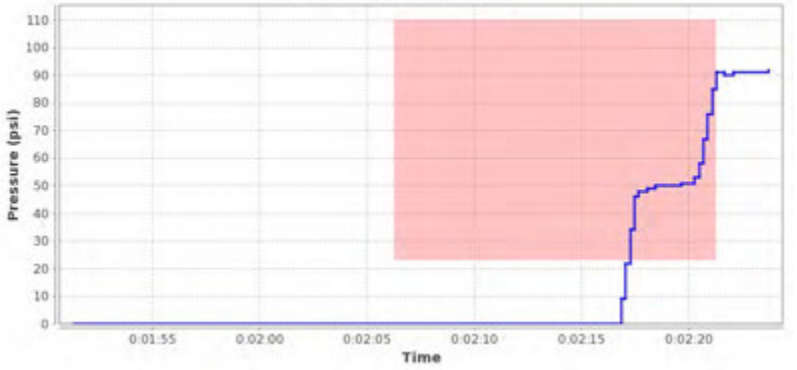
## Data Source

| | |
|---|---|
| Upload Time | 2018-07-31 02:30:32 GMT |

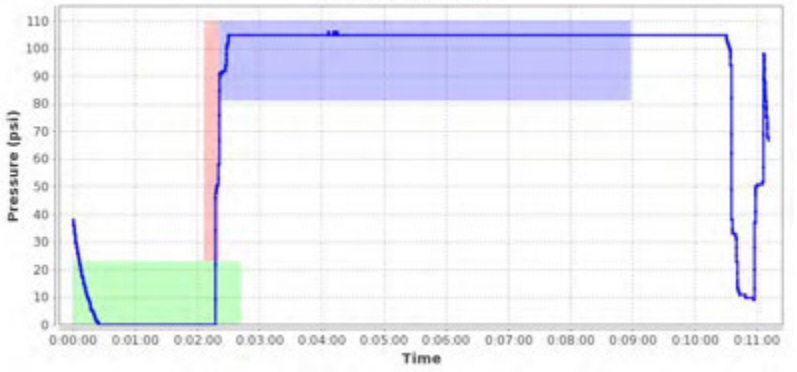
### Front-end Plot




### Heater Removal Plot

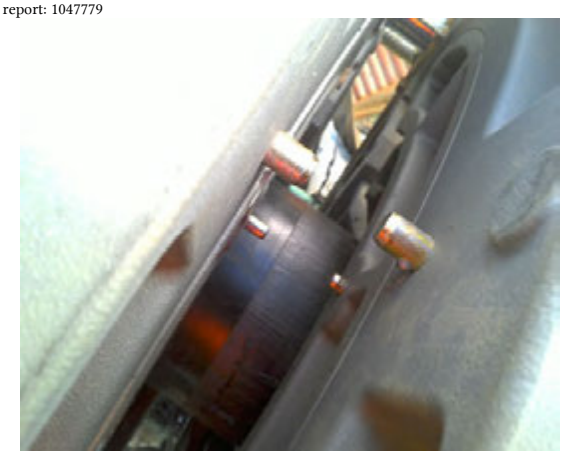


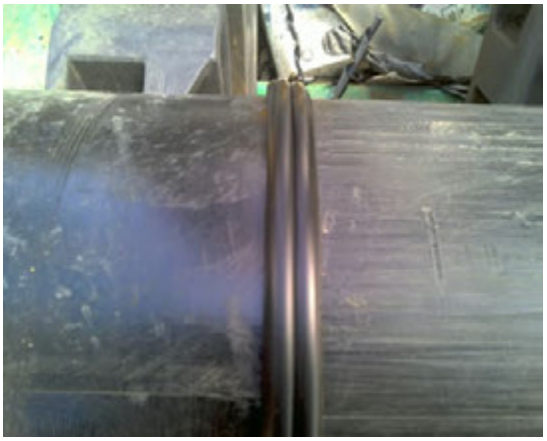

### Summary Plot




## Notes

Images for report: 1047779





Printed: 2018-07-31 02:46:27 UTC

# McElroy Joint Report

Reference Number 1047780

## Job Details

| | |
|---|---|
| Joint Number | 84 |
| Joint Time | 2018-07-29 13:21:45 GMT |
| Job | 1 |
| Operator | jordan |
| Aborted Joint | No |

## Fusion Machine

| | |
|---|---|
| Machine Name | 618 HF |
| Machine Model | 618 HF |
| Piston Area | 11.78 $in^2$ |

## Pipe Specifications

| | |
|---|---|
| Pipe Material | PE4710 |
| Pipe Size | 6 " IPS |
| Wall Thickness | DR 11 |

## Pressures

| | | |
|---|---|---|
| Drag Pressure | 23 psi | |
| | Interfacial | Gauge |
| Bead Up | 75 psi | 96 psi |
| Heat Soak | 0 psi | 23 psi |
| Fuse/Cool | 75 psi | 96 psi |

## Fusion Specification

| | |
|---|---|
| Fusion Type | Butt Fusion |
| Fusion Specification | ASTM F2620 |
| Bead Time | 0 seconds |
| Bead Size | 3/16" |
| Heat/Soak Time | 162 seconds |
| Fuse Time | 397 seconds |
| Open/Close Time | 15 seconds |
| Cool Time | 0 seconds |

| | Minimum | Maximum |
|---|---|---|
| Bead Up | 81 psi | 110 psi |
| Heat Soak | 0 psi | 23 psi |
| Fuse | 81 psi | 110 psi |
| Cool | 0 psi | 0 psi |

## External Heater Temperatures

| | Side A | Side B |
|---|---|---|

## GPS Location

| Date | Latitude | Longitude |
|---|---|---|
| 2018-07-29 13:21:45.0 | 64°2'18.004800"N | 135°49'42.970800"W |

## Logged Data Summary

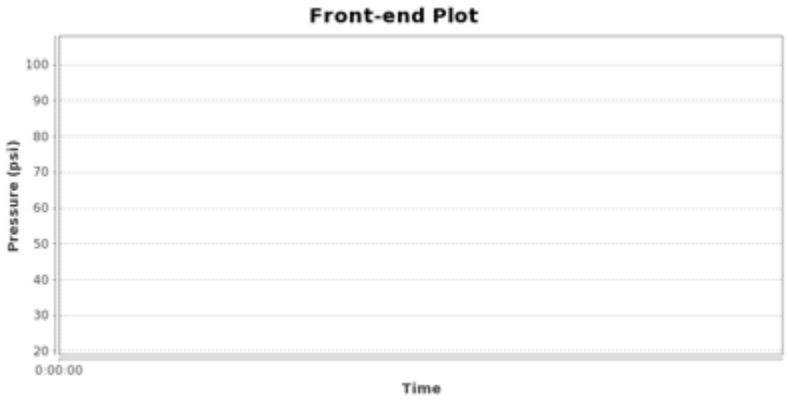
| | |
|---|---|
| Number of Data Points | 108 |
| Total Fusion Time | 1854 seconds |
| Maximum Recorded Pressure | 104 psi |

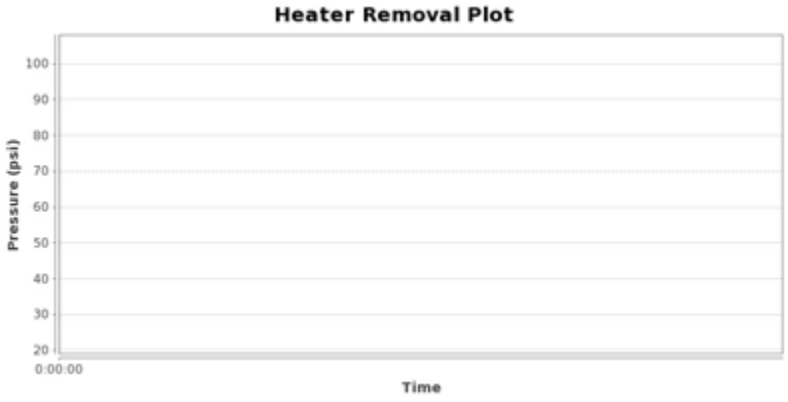
## Device Information

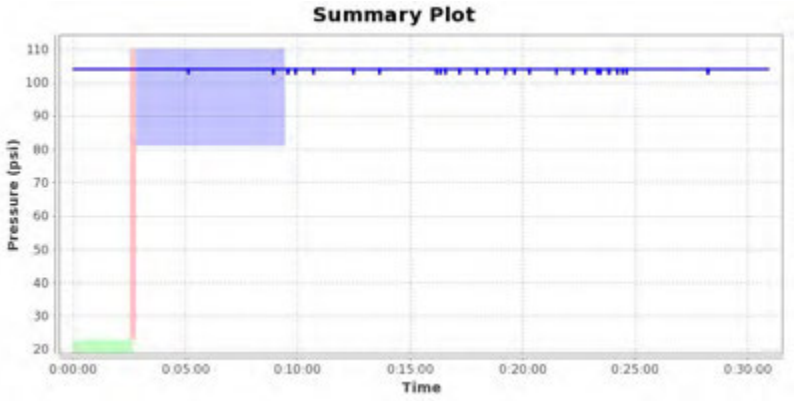
| | |
|---|---|
| DataLogger Serial Number | RH803Z0550 |
| Sensor Serial Number | MDL6621 |
| Calibration Date | 2018-04-04 |
| Firmware Version | v6.0 |
| Software Version | 1.08 (27) |
| Software Product Name | DataLogger 6 |

## Data Source

| | |
|---|---|
| Upload Time | 2018-07-31 02:31:59 GMT |




## Notes

Images for report: 1047780





Printed: 2018-07-31 02:46:26 UTC

# McElroy Joint Report

Reference Number 1047782

## Job Details

| | |
|---|---|
| Joint Number | 85 |
| Joint Time | 2018-07-29 14:20:28 GMT |
| Job | 1 |
| Operator | jordan |
| Aborted Joint | No |

## Fusion Machine

| | |
|---|---|
| Machine Name | 618 HF |
| Machine Model | 618 HF |
| Piston Area | 11.78 in² |

## Pipe Specifications

| | |
|---|---|
| Pipe Material | PE4710 |
| Pipe Size | 6 " IPS |
| Wall Thickness | DR 11 |

## Pressures

| | | |
|---|---|---|
| Drag Pressure | 23 psi | |
| | Interfacial | Gauge |
| Bead Up | 75 psi | 96 psi |
| Heat Soak | 0 psi | 23 psi |
| Fuse/Cool | 75 psi | 96 psi |

## Fusion Specification

| | |
|---|---|
| Fusion Type | Butt Fusion |
| Fusion Specification | ASTM F2620 |
| Bead Time | 0 seconds |
| Bead Size | 3/16" |
| Heat/Soak Time | 162 seconds |
| Fuse Time | 397 seconds |
| Open/Close Time | 15 seconds |
| Cool Time | 0 seconds |

| | Minimum | Maximum |
|---|---|---|
| Bead Up | 81 psi | 110 psi |
| Heat Soak | 0 psi | 23 psi |
| Fuse | 81 psi | 110 psi |
| Cool | 0 psi | 0 psi |

## External Heater Temperatures

| | Side A | Side B |
|---|---|---|

## GPS Location

| Date | Latitude | Longitude |
|---|---|---|
| 2018-07-29 14:20:28.0 | 64°2'18.113400"N | 135°49'42.850800"W |

## Logged Data Summary

| | |
|---|---|
| Number of Data Points | 224 |
| Total Fusion Time | 1759 seconds |
| Maximum Recorded Pressure | 105 psi |

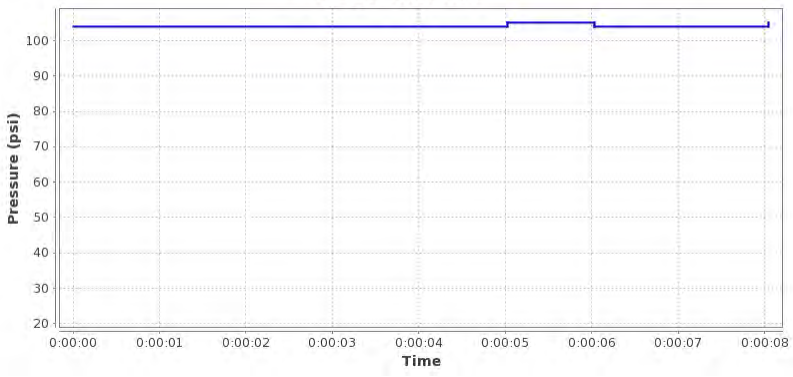
## Device Information

| | |
|---|---|
| DataLogger Serial Number | RH803Z0550 |
| Sensor Serial Number | MDL6621 |
| Calibration Date | 2018-04-04 |
| Firmware Version | v6.0 |
| Software Version | 1.08 (27) |
| Software Product Name | DataLogger 6 |

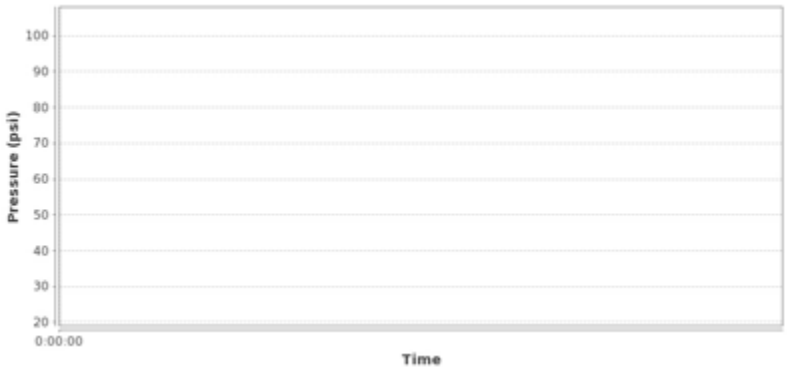
## Data Source

| | |
|---|---|
| Upload Time | 2018-07-31 02:33:14 GMT |

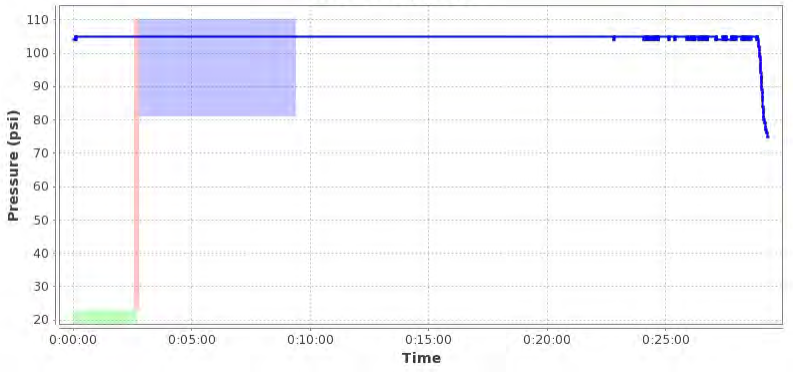
### Front-end Plot




### Heater Removal Plot




### Summary Plot




## Notes

Images for report: 1047782





Printed: 2018-07-31 02:46:21 UTC

# McElroy Joint Report

Reference Number 1047784

## Job Details

| | |
|---|---|
| Joint Number | 86 |
| Joint Time | 2018-07-29 15:23:25 GMT |
| Job | 1 |
| Operator | jordan |
| Aborted Joint | No |

## Fusion Machine

| | |
|---|---|
| Machine Name | 618 HF |
| Machine Model | 618 HF |
| Piston Area | 11.78 in² |

## Pipe Specifications

| | |
|---|---|
| Pipe Material | PE4710 |
| Pipe Size | 6 " IPS |
| Wall Thickness | DR 11 |

## Pressures

| | | |
|---|---|---|
| Drag Pressure | 23 psi | |
| | Interfacial | Gauge |
| Bead Up | 75 psi | 96 psi |
| Heat Soak | 0 psi | 23 psi |
| Fuse/Cool | 75 psi | 96 psi |

## Fusion Specification

| | |
|---|---|
| Fusion Type | Butt Fusion |
| Fusion Specification | ASTM F2620 |
| Bead Time | 0 seconds |
| Bead Size | 3/16" |
| Heat/Soak Time | 162 seconds |
| Fuse Time | 397 seconds |
| Open/Close Time | 15 seconds |
| Cool Time | 0 seconds |

| | Minimum | Maximum |
|---|---|---|
| Bead Up | 81 psi | 110 psi |
| Heat Soak | 0 psi | 23 psi |
| Fuse | 81 psi | 110 psi |
| Cool | 0 psi | 0 psi |

## External Heater Temperatures

| | Side A | Side B |
|---|---|---|

## GPS Location

| Date | Latitude | Longitude |
|---|---|---|
| 2018-07-29 15:23:25.0 | 64°2'17.923800"N | 135°49'43.193400"W |

## Logged Data Summary

| | |
|---|---|
| Number of Data Points | 236 |
| Total Fusion Time | 1803 seconds |
| Maximum Recorded Pressure | 104 psi |

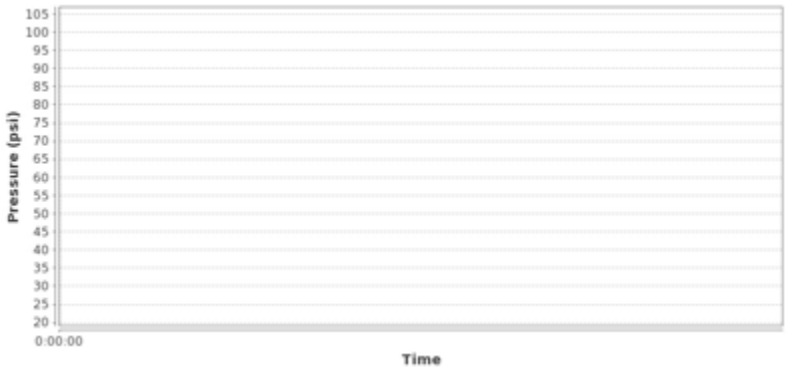
## Device Information

| | |
|---|---|
| DataLogger Serial Number | RH803Z0550 |
| Sensor Serial Number | MDL6621 |
| Calibration Date | 2018-04-04 |
| Firmware Version | v6.0 |
| Software Version | 1.08 (27) |
| Software Product Name | DataLogger 6 |

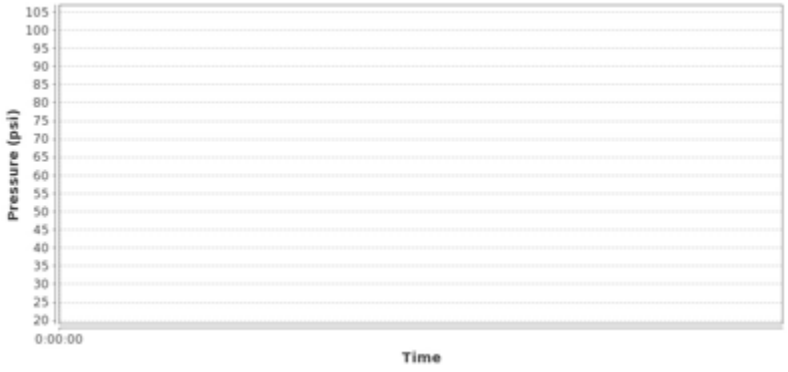
## Data Source

| | |
|---|---|
| Upload Time | 2018-07-31 02:34:51 GMT |

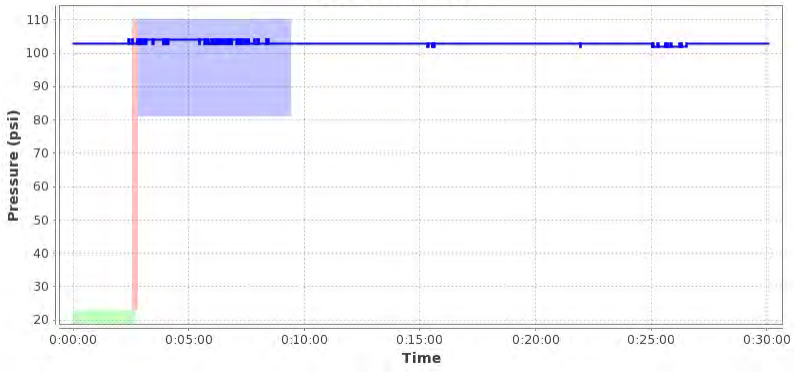
### Front-end Plot




### Heater Removal Plot




### Summary Plot




## Notes

Images for report: 1047784





Printed: 2018-07-31 02:46:19 UTC

# McElroy Joint Report

Reference Number 1047785

## Job Details

| | |
|---|---|
| Joint Number | 87 |
| Joint Time | 2018-07-29 15:58:28 GMT |
| Job | 1 |
| Operator | jordan |
| Aborted Joint | No |

## Fusion Machine

| | |
|---|---|
| Machine Name | 618 HF |
| Machine Model | 618 HF |
| Piston Area | 11.78 in² |

## Pipe Specifications

| | |
|---|---|
| Pipe Material | PE4710 |
| Pipe Size | 6 " IPS |
| Wall Thickness | DR 11 |

## Pressures

| | | |
|---|---|---|
| Drag Pressure | 23 psi | |
| | Interfacial | Gauge |
| Bead Up | 75 psi | 96 psi |
| Heat Soak | 0 psi | 23 psi |
| Fuse/Cool | 75 psi | 96 psi |

## Fusion Specification

| | |
|---|---|
| Fusion Type | Butt Fusion |
| Fusion Specification | ASTM F2620 |
| Bead Time | 0 seconds |
| Bead Size | 3/16" |
| Heat/Soak Time | 162 seconds |
| Fuse Time | 397 seconds |
| Open/Close Time | 15 seconds |
| Cool Time | 0 seconds |

| | Minimum | Maximum |
|---|---|---|
| Bead Up | 81 psi | 110 psi |
| Heat Soak | 0 psi | 23 psi |
| Fuse | 81 psi | 110 psi |
| Cool | 0 psi | 0 psi |

## External Heater Temperatures

| | Side A | Side B |
|---|---|---|

## GPS Location

| Date | Latitude | Longitude |
|---|---|---|
| 2018-07-29 15:58:28.0 | 64°2'17.994000"N | 135°49'43.204200"W |

## Logged Data Summary

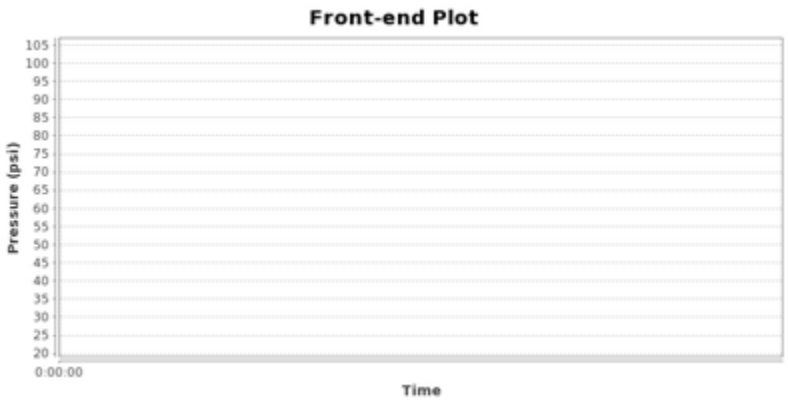
| | |
|---|---|
| Number of Data Points | 576 |
| Total Fusion Time | 738 seconds |
| Maximum Recorded Pressure | 104 psi |

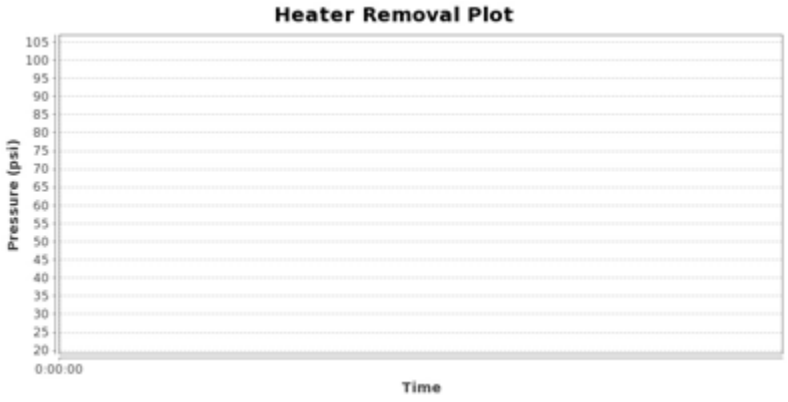
## Device Information

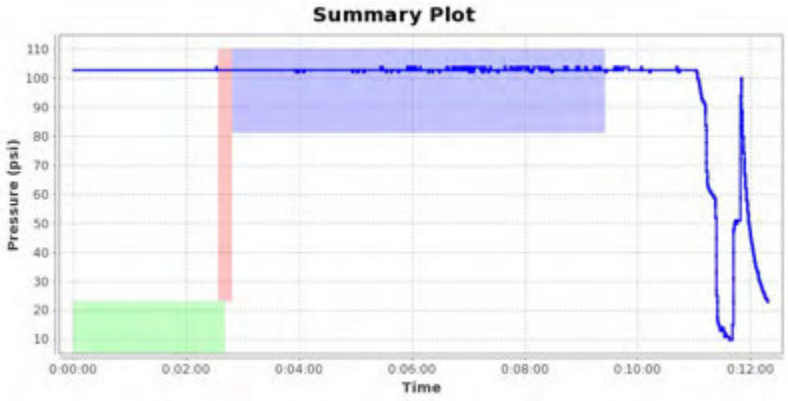
| | |
|---|---|
| DataLogger Serial Number | RH803Z0550 |
| Sensor Serial Number | MDL6621 |
| Calibration Date | 2018-04-04 |
| Firmware Version | v6.0 |
| Software Version | 1.08 (27) |
| Software Product Name | DataLogger 6 |

## Data Source

| | |
|---|---|
| Upload Time | 2018-07-31 02:36:17 GMT |




## Notes

Images for report: 1047785





Printed: 2018-07-31 02:46:18 UTC

# McElroy Joint Report

Reference Number 1047787

## Job Details

| | |
|---|---|
| Joint Number | 88 |
| Joint Time | 2018-07-29 16:34:34 GMT |
| Job | 1 |
| Operator | jordan |
| Aborted Joint | No |

## Fusion Machine

| | |
|---|---|
| Machine Name | 618 HF |
| Machine Model | 618 HF |
| Piston Area | 11.78 $in^2$ |

## Pipe Specifications

| | |
|---|---|
| Pipe Material | PE4710 |
| Pipe Size | 6 " IPS |
| Wall Thickness | DR 11 |

## Pressures

| | | |
|---|---|---|
| Drag Pressure | 23 psi | |
| | Interfacial | Gauge |
| Bead Up | 75 psi | 96 psi |
| Heat Soak | 0 psi | 23 psi |
| Fuse/Cool | 75 psi | 96 psi |

## Fusion Specification

| | |
|---|---|
| Fusion Type | Butt Fusion |
| Fusion Specification | ASTM F2620 |
| Bead Time | 0 seconds |
| Bead Size | 3/16" |
| Heat/Soak Time | 162 seconds |
| Fuse Time | 397 seconds |
| Open/Close Time | 15 seconds |
| Cool Time | 0 seconds |

| | Minimum | Maximum |
|---|---|---|
| Bead Up | 81 psi | 110 psi |
| Heat Soak | 0 psi | 23 psi |
| Fuse | 81 psi | 110 psi |
| Cool | 0 psi | 0 psi |

## External Heater Temperatures

| | Side A | Side B |
|---|---|---|

## GPS Location

| Date | Latitude | Longitude |
|---|---|---|
| 2018-07-29 16:34:34.0 | 64°2'17.953200"N | 135°49'42.885000"W |

## Logged Data Summary

| | |
|---|---|
| Number of Data Points | 756 |
| Total Fusion Time | 956 seconds |
| Maximum Recorded Pressure | 104 psi |

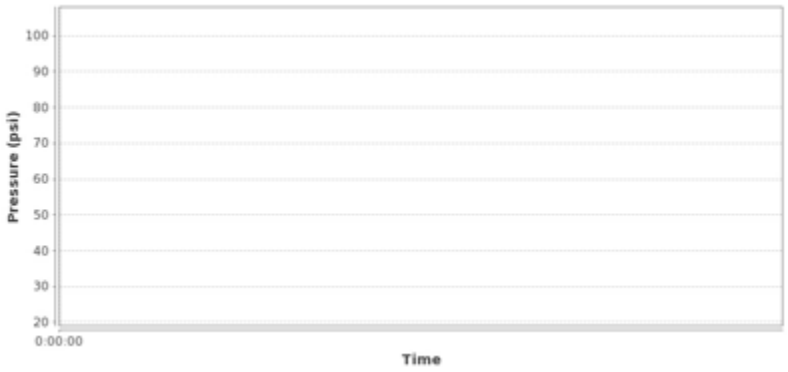
## Device Information

| | |
|---|---|
| DataLogger Serial Number | RH803Z0550 |
| Sensor Serial Number | MDL6621 |
| Calibration Date | 2018-04-04 |
| Firmware Version | v6.0 |
| Software Version | 1.08 (27) |
| Software Product Name | DataLogger 6 |

## Data Source

| | |
|---|---|
| Upload Time | 2018-07-31 02:37:21 GMT |

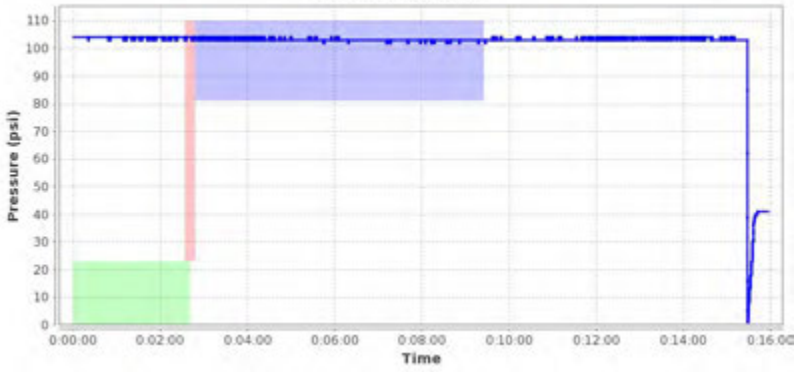
**Front-end Plot**




**Heater Removal Plot**




**Summary Plot**




## Notes

Images for report: 1047787





Printed: 2018-07-31 02:46:17 UTC

# McElroy Joint Report

Reference Number 1047788

## Job Details

| | |
|---|---|
| Joint Number | 89 |
| Joint Time | 2018-07-29 17:11:19 GMT |
| Job | 1 |
| Operator | jordan |
| Aborted Joint | No |

## Fusion Machine

| | |
|---|---|
| Machine Name | 618 HF |
| Machine Model | 618 HF |
| Piston Area | 11.78 $in^2$ |

## Pipe Specifications

| | |
|---|---|
| Pipe Material | PE4710 |
| Pipe Size | 6 " IPS |
| Wall Thickness | DR 11 |

## Pressures

| | | |
|---|---|---|
| Drag Pressure | 23 psi | |
| | Interfacial | Gauge |
| Bead Up | 75 psi | 96 psi |
| Heat Soak | 0 psi | 23 psi |
| Fuse/Cool | 75 psi | 96 psi |

## Fusion Specification

| | |
|---|---|
| Fusion Type | Butt Fusion |
| Fusion Specification | ASTM F2620 |
| Bead Time | 0 seconds |
| Bead Size | 3/16" |
| Heat/Soak Time | 162 seconds |
| Fuse Time | 397 seconds |
| Open/Close Time | 15 seconds |
| Cool Time | 0 seconds |

| | Minimum | Maximum |
|---|---|---|
| Bead Up | 81 psi | 110 psi |
| Heat Soak | 0 psi | 23 psi |
| Fuse | 81 psi | 110 psi |
| Cool | 0 psi | 0 psi |

## External Heater Temperatures

| | Side A | Side B |
|---|---|---|

## GPS Location

| Date | Latitude | Longitude |
|---|---|---|
| 2018-07-29 17:11:19.0 | 64°2'17.862000"N | 135°49'43.059600"W |

## Logged Data Summary

| | |
|---|---|
| Number of Data Points | 48 |
| Total Fusion Time | 735 seconds |
| Maximum Recorded Pressure | 104 psi |

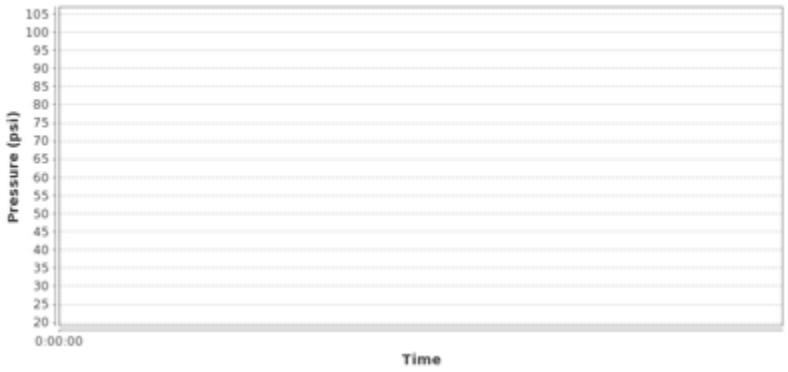
## Device Information

| | |
|---|---|
| DataLogger Serial Number | RH803Z0550 |
| Sensor Serial Number | MDL6621 |
| Calibration Date | 2018-04-04 |
| Firmware Version | v6.0 |
| Software Version | 1.08 (27) |
| Software Product Name | DataLogger 6 |

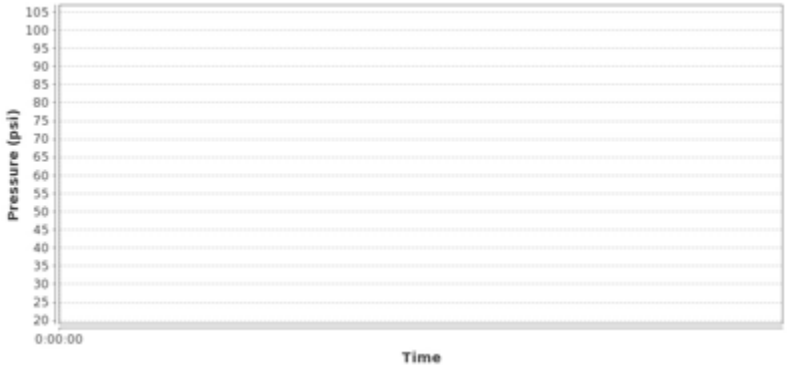
## Data Source

| | |
|---|---|
| Upload Time | 2018-07-31 02:38:24 GMT |

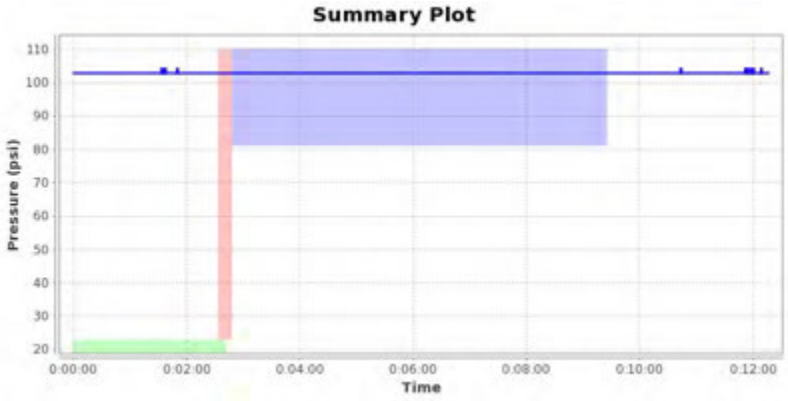
### Front-end Plot




### Heater Removal Plot




### Summary Plot




## Notes

Images for report: 1047788





Printed: 2018-07-31 02:46:15 UTC

# McElroy Joint Report

Reference Number 1047789

## Job Details

| | |
|---|---|
| Joint Number | 90 |
| Joint Time | 2018-07-29 18:01:24 GMT |
| Job | 1 |
| Operator | jordan |
| Aborted Joint | No |

## Fusion Machine

| | |
|---|---|
| Machine Name | 618 HF |
| Machine Model | 618 HF |
| Piston Area | 11.78 in² |

## Pipe Specifications

| | |
|---|---|
| Pipe Material | PE4710 |
| Pipe Size | 6 " IPS |
| Wall Thickness | DR 11 |

## Pressures

| | | |
|---|---|---|
| Drag Pressure | 23 psi | |
| | Interfacial | Gauge |
| Bead Up | 75 psi | 96 psi |
| Heat Soak | 0 psi | 23 psi |
| Fuse/Cool | 75 psi | 96 psi |

## Fusion Specification

| | |
|---|---|
| Fusion Type | Butt Fusion |
| Fusion Specification | ASTM F2620 |
| Bead Time | 0 seconds |
| Bead Size | 3/16" |
| Heat/Soak Time | 162 seconds |
| Fuse Time | 397 seconds |
| Open/Close Time | 15 seconds |
| Cool Time | 0 seconds |

| | Minimum | Maximum |
|---|---|---|
| Bead Up | 81 psi | 110 psi |
| Heat Soak | 0 psi | 23 psi |
| Fuse | 81 psi | 110 psi |
| Cool | 0 psi | 0 psi |

## External Heater Temperatures

| | Side A | Side B |
|---|---|---|

## GPS Location

| Date | Latitude | Longitude |
|---|---|---|
| 2018-07-29 18:01:24.0 | 64°2'17.990400"N | 135°49'43.011600"W |

## Logged Data Summary

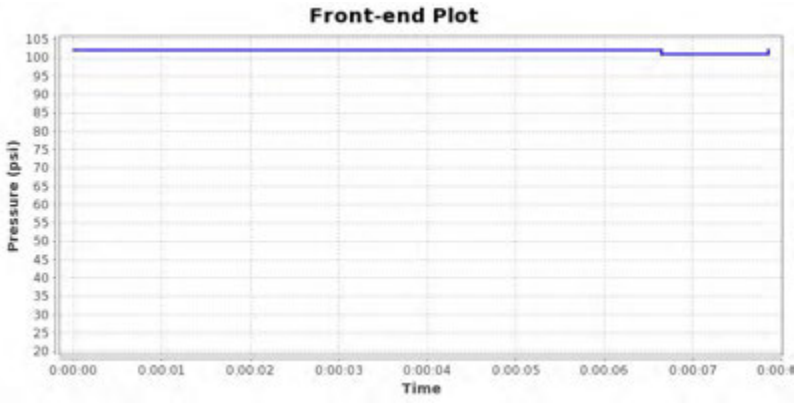
| | |
|---|---|
| Number of Data Points | 654 |
| Total Fusion Time | 1202 seconds |
| Maximum Recorded Pressure | 103 psi |

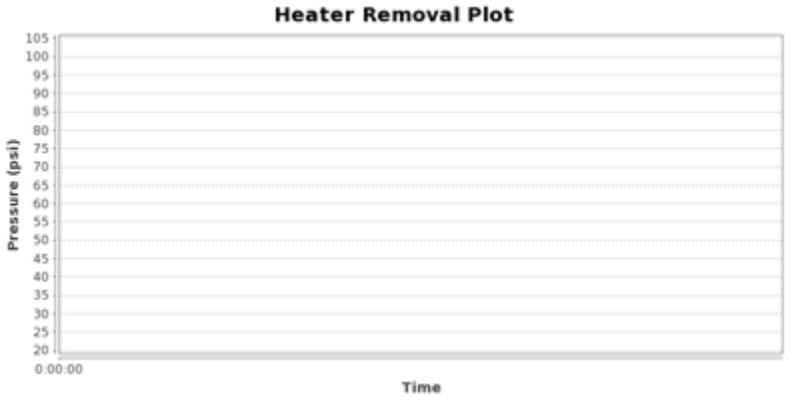
## Device Information

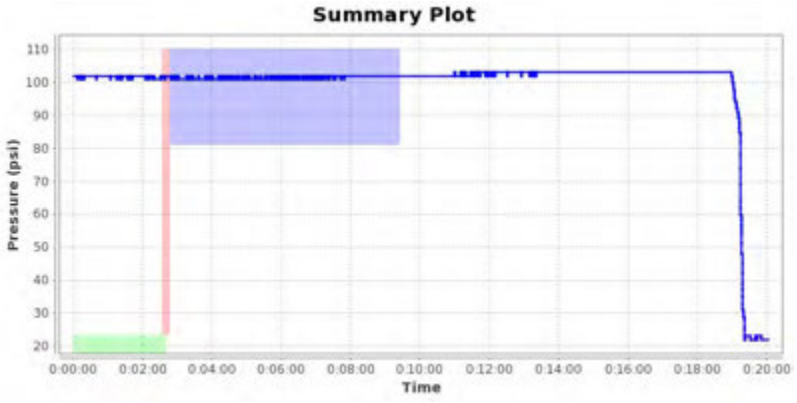
| | |
|---|---|
| DataLogger Serial Number | RH803Z0550 |
| Sensor Serial Number | MDL6621 |
| Calibration Date | 2018-04-04 |
| Firmware Version | v6.0 |
| Software Version | 1.08 (27) |
| Software Product Name | DataLogger 6 |

## Data Source

| | |
|---|---|
| Upload Time | 2018-07-31 02:39:42 GMT |




## Notes

Images for report: 1047789





Printed: 2018-07-31 02:46:14 UTC

# McElroy Joint Report

Reference Number 1047790

## Job Details

| | |
|---|---|
| Joint Number | 91 |
| Joint Time | 2018-07-30 12:33:27 GMT |
| Job | 1 |
| Operator | jordan |
| Aborted Joint | No |

## Fusion Machine

| | |
|---|---|
| Machine Name | 618 HF |
| Machine Model | 618 HF |
| Piston Area | 11.78 in² |

## Pipe Specifications

| | |
|---|---|
| Pipe Material | PE4710 |
| Pipe Size | 6 " IPS |
| Wall Thickness | DR 11 |

## Pressures

| | | |
|---|---|---|
| Drag Pressure | 23 psi | |
| | Interfacial | Gauge |
| Bead Up | 75 psi | 96 psi |
| Heat Soak | 0 psi | 23 psi |
| Fuse/Cool | 75 psi | 96 psi |

## Fusion Specification

| | |
|---|---|
| Fusion Type | Butt Fusion |
| Fusion Specification | ASTM F2620 |
| Bead Time | 0 seconds |
| Bead Size | 3/16" |
| Heat/Soak Time | 162 seconds |
| Fuse Time | 397 seconds |
| Open/Close Time | 15 seconds |
| Cool Time | 0 seconds |

| | Minimum | Maximum |
|---|---|---|
| Bead Up | 81 psi | 110 psi |
| Heat Soak | 0 psi | 23 psi |
| Fuse | 81 psi | 110 psi |
| Cool | 0 psi | 0 psi |

## External Heater Temperatures

| | Side A | Side B |
|---|---|---|

## GPS Location

| Date | Latitude | Longitude |
|---|---|---|
| 2018-07-30 12:33:27.0 | 64°2'17.917800"N | 135°49'42.901200"W |

## Logged Data Summary

| | |
|---|---|
| Number of Data Points | 298 |
| Total Fusion Time | 2482 seconds |
| Maximum Recorded Pressure | 108 psi |

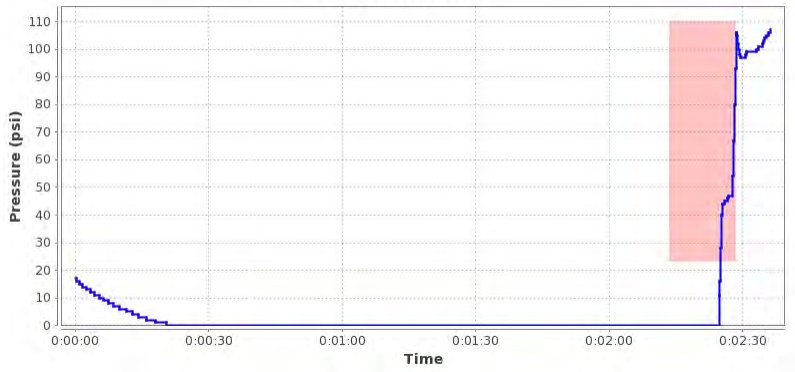
## Device Information

| | |
|---|---|
| DataLogger Serial Number | RH803Z0550 |
| Sensor Serial Number | MDL6621 |
| Calibration Date | 2018-04-04 |
| Firmware Version | v6.0 |
| Software Version | 1.08 (27) |
| Software Product Name | DataLogger 6 |

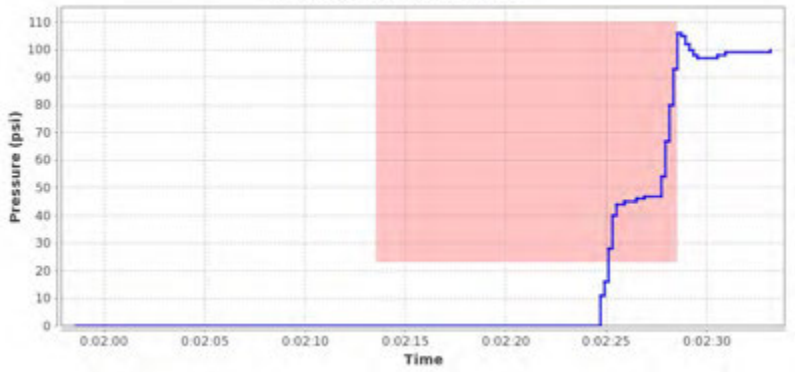
## Data Source

| | |
|---|---|
| Upload Time | 2018-07-31 02:41:11 GMT |

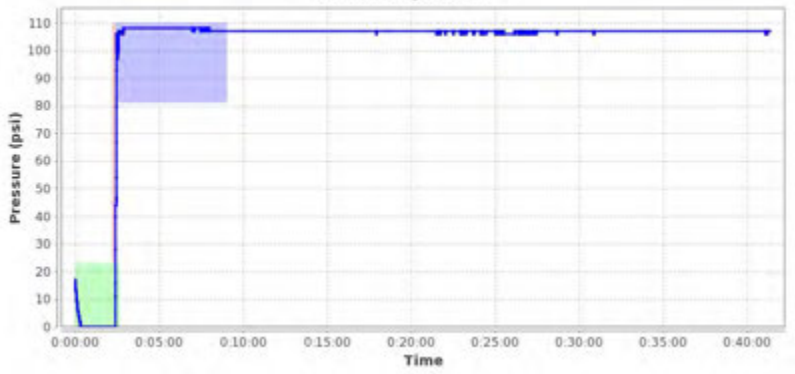
### Front-end Plot




### Heater Removal Plot



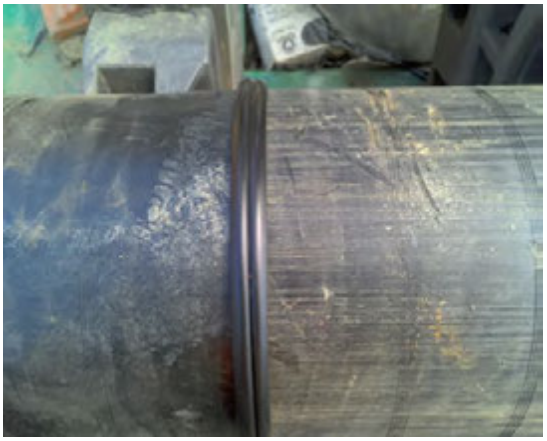

### Summary Plot




## Notes

Images for report: 1047790





Printed: 2018-07-31 02:46:12 UTC

# McElroy Joint Report

Reference Number 1047791

## Job Details

| | |
|---|---|
| Joint Number | 92 |
| Joint Time | 2018-07-30 13:58:20 GMT |
| Job | 1 |
| Operator | jordan |
| Aborted Joint | No |

## Fusion Machine

| | |
|---|---|
| Machine Name | 618 HF |
| Machine Model | 618 HF |
| Piston Area | 11.78 in² |

## Pipe Specifications

| | |
|---|---|
| Pipe Material | PE4710 |
| Pipe Size | 6 " IPS |
| Wall Thickness | DR 11 |

## Pressures

| | | |
|---|---|---|
| Drag Pressure | 23 psi | |
| | Interfacial | Gauge |
| Bead Up | 75 psi | 96 psi |
| Heat Soak | 0 psi | 23 psi |
| Fuse/Cool | 75 psi | 96 psi |

## Fusion Specification

| | |
|---|---|
| Fusion Type | Butt Fusion |
| Fusion Specification | ASTM F2620 |
| Bead Time | 0 seconds |
| Bead Size | 3/16" |
| Heat/Soak Time | 162 seconds |
| Fuse Time | 397 seconds |
| Open/Close Time | 15 seconds |
| Cool Time | 0 seconds |

| | Minimum | Maximum |
|---|---|---|
| Bead Up | 81 psi | 110 psi |
| Heat Soak | 0 psi | 23 psi |
| Fuse | 81 psi | 110 psi |
| Cool | 0 psi | 0 psi |

## External Heater Temperatures

| | Side A | Side B |
|---|---|---|

## GPS Location

| Date | Latitude | Longitude |
|---|---|---|
| 2018-07-30 13:58:20.0 | 64°2'17.964000"N | 135°49'44.741400"W |

## Logged Data Summary

| | |
|---|---|
| Number of Data Points | 1208 |
| Total Fusion Time | 2402 seconds |
| Maximum Recorded Pressure | 106 psi |

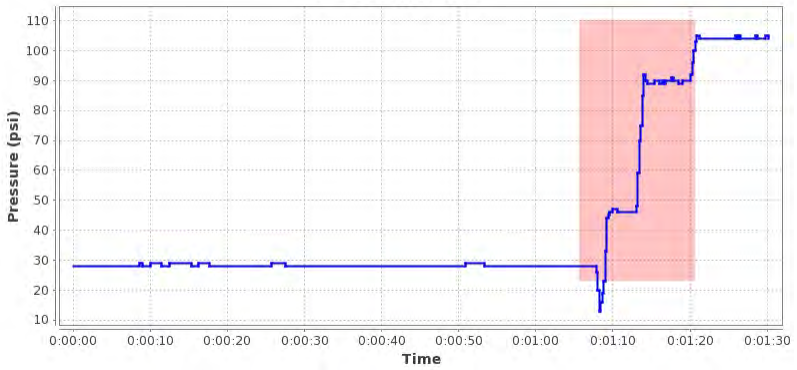
## Device Information

| | |
|---|---|
| DataLogger Serial Number | RH803Z0550 |
| Sensor Serial Number | MDL6621 |
| Calibration Date | 2018-04-04 |
| Firmware Version | v6.0 |
| Software Version | 1.08 (27) |
| Software Product Name | DataLogger 6 |

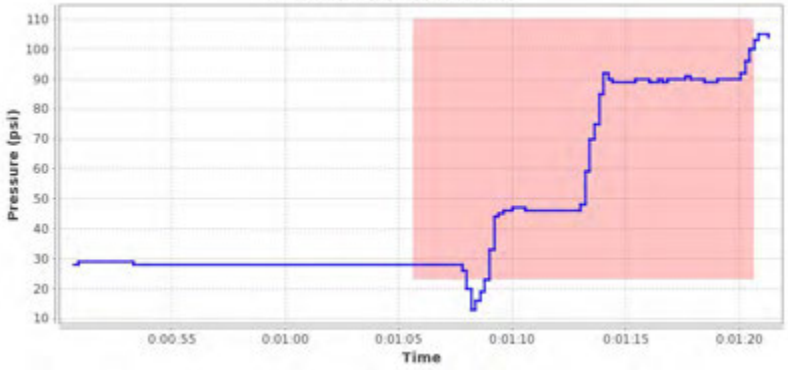
## Data Source

| | |
|---|---|
| Upload Time | 2018-07-31 02:41:46 GMT |

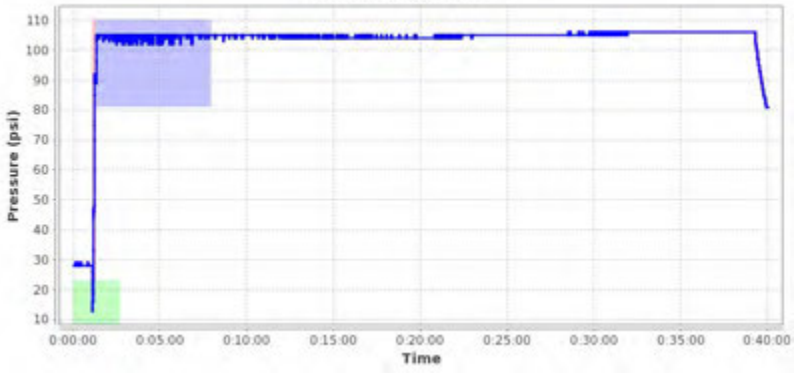
### Front-end Plot




### Heater Removal Plot




### Summary Plot




## Notes

Images for report: 1047791





Printed: 2018-08-20 15:54:39 UTC

# McElroy Joint Report

Reference Number 1078047

## Job Details

| | |
|---|---|
| Joint Number | 93 |
| Joint Time | 2018-08-03 18:18:34 GMT |
| Job | 1 |
| Operator | jordan |
| Aborted Joint | No |

## Fusion Machine

| | |
|---|---|
| Machine Name | 618 HF |
| Machine Model | 618 HF |
| Piston Area | 11.78 in² |

## Pipe Specifications

| | |
|---|---|
| Pipe Material | PE4710 |
| Pipe Size | 6 " IPS |
| Wall Thickness | DR 11 |

## Pressures

| | | |
|---|---|---|
| Drag Pressure | 23 psi | |
| | Interfacial | Gauge |
| Bead Up | 75 psi | 96 psi |
| Heat Soak | 0 psi | 23 psi |
| Fuse/Cool | 75 psi | 96 psi |

## Fusion Specification

| | |
|---|---|
| Fusion Type | Butt Fusion |
| Fusion Specification | ASTM F2620 |
| Bead Time | 0 seconds |
| Bead Size | 3/16" |
| Heat/Soak Time | 162 seconds |
| Fuse Time | 397 seconds |
| Open/Close Time | 15 seconds |
| Cool Time | 0 seconds |

| | Minimum | Maximum |
|---|---|---|
| Bead Up | 81 psi | 110 psi |
| Heat Soak | 0 psi | 23 psi |
| Fuse | 81 psi | 110 psi |
| Cool | 0 psi | 0 psi |

## External Heater Temperatures

| | Side A | Side B |
|---|---|---|

## GPS Location

| Date | Latitude | Longitude |
|---|---|---|
| 2018-08-03 18:18:34.0 | 64°2'17.340600"N | 135°49'44.066400"W |

## Logged Data Summary

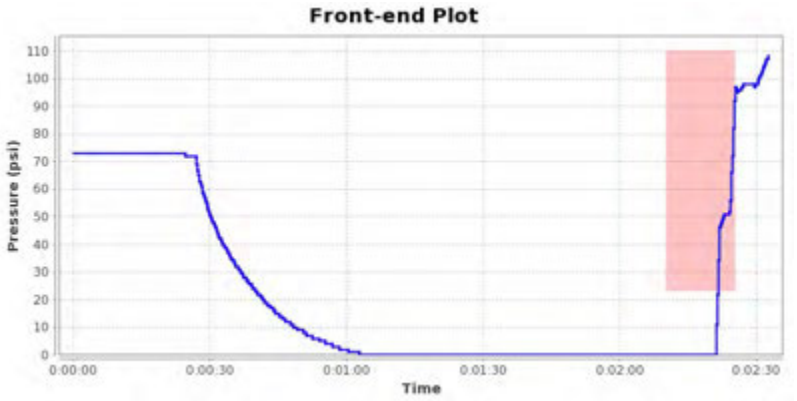
| | |
|---|---|
| Number of Data Points | 432 |
| Total Fusion Time | 616 seconds |
| Maximum Recorded Pressure | 108 psi |

## Device Information

| | |
|---|---|
| DataLogger Serial Number | RH803Z0550 |
| Sensor Serial Number | MDL6621 |
| Calibration Date | 2018-04-04 |
| Firmware Version | v6.0 |
| Software Version | 1.08 (27) |
| Software Product Name | DataLogger 6 |

## Data Source

| | |
|---|---|
| Upload Time | 2018-08-20 13:48:03 GMT |










## Notes

Images for report: 1078047







Printed: 2018-08-20 15:54:38 UTC

# McElroy Joint Report

Reference Number 1078048

## Job Details

| | |
|---|---|
| Joint Number | 94 |
| Joint Time | 2018-08-03 18:43:36 GMT |
| Job | 1 |
| Operator | jordan |
| Aborted Joint | No |

## Fusion Machine

| | |
|---|---|
| Machine Name | 618 HF |
| Machine Model | 618 HF |
| Piston Area | 11.78 in² |

## Pipe Specifications

| | |
|---|---|
| Pipe Material | PE4710 |
| Pipe Size | 6 " IPS |
| Wall Thickness | DR 11 |

## Pressures

| | | |
|---|---|---|
| Drag Pressure | 23 psi | |
| | Interfacial | Gauge |
| Bead Up | 75 psi | 96 psi |
| Heat Soak | 0 psi | 23 psi |
| Fuse/Cool | 75 psi | 96 psi |

## Fusion Specification

| | |
|---|---|
| Fusion Type | Butt Fusion |
| Fusion Specification | ASTM F2620 |
| Bead Time | 0 seconds |
| Bead Size | 3/16" |
| Heat/Soak Time | 162 seconds |
| Fuse Time | 397 seconds |
| Open/Close Time | 15 seconds |
| Cool Time | 0 seconds |

| | Minimum | Maximum |
|---|---|---|
| Bead Up | 81 psi | 110 psi |
| Heat Soak | 0 psi | 23 psi |
| Fuse | 81 psi | 110 psi |
| Cool | 0 psi | 0 psi |

## External Heater Temperatures

| | Side A | Side B |
|---|---|---|

## GPS Location

| Date | Latitude | Longitude |
|---|---|---|
| 2018-08-03 18:43:36.0 | 64°2'17.295000"N | 135°49'44.134200"W |

## Logged Data Summary

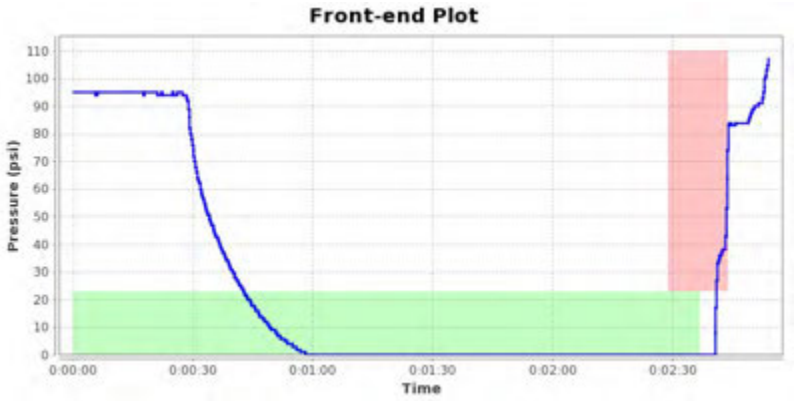
| | |
|---|---|
| Number of Data Points | 466 |
| Total Fusion Time | 752 seconds |
| Maximum Recorded Pressure | 110 psi |

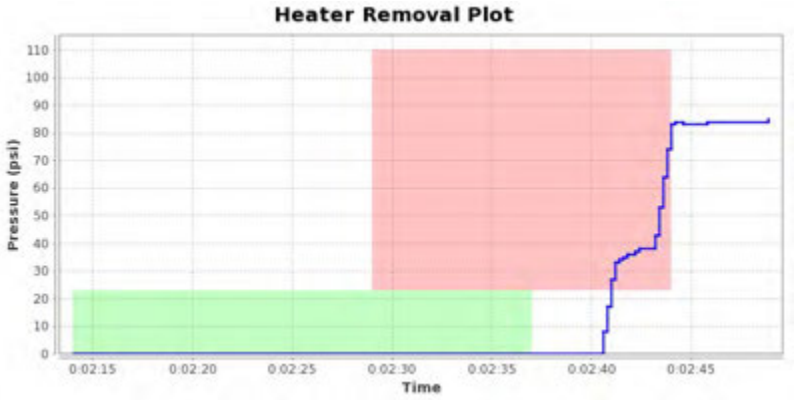
## Device Information

| | |
|---|---|
| DataLogger Serial Number | RH803Z0550 |
| Sensor Serial Number | MDL6621 |
| Calibration Date | 2018-04-04 |
| Firmware Version | v6.0 |
| Software Version | 1.08 (27) |
| Software Product Name | DataLogger 6 |

## Data Source

| | |
|---|---|
| Upload Time | 2018-08-20 13:48:19 GMT |







## Notes

Images for report: 1078048







Printed: 2018-08-20 15:54:37 UTC

# McElroy Joint Report

Reference Number 1078049

## Job Details

| | |
|---|---|
| Joint Number | 95 |
| Joint Time | 2018-08-03 19:05:55 GMT |
| Job | 1 |
| Operator | jordan |
| Aborted Joint | No |

## Fusion Machine

| | |
|---|---|
| Machine Name | 618 HF |
| Machine Model | 618 HF |
| Piston Area | 11.78 in² |

## Pipe Specifications

| | |
|---|---|
| Pipe Material | PE4710 |
| Pipe Size | 6 " IPS |
| Wall Thickness | DR 11 |

## Pressures

| | | |
|---|---|---|
| Drag Pressure | 23 psi | |
| | Interfacial | Gauge |
| Bead Up | 75 psi | 96 psi |
| Heat Soak | 0 psi | 23 psi |
| Fuse/Cool | 75 psi | 96 psi |

## Fusion Specification

| | |
|---|---|
| Fusion Type | Butt Fusion |
| Fusion Specification | ASTM F2620 |
| Bead Time | 0 seconds |
| Bead Size | 3/16" |
| Heat/Soak Time | 162 seconds |
| Fuse Time | 397 seconds |
| Open/Close Time | 15 seconds |
| Cool Time | 0 seconds |

| | Minimum | Maximum |
|---|---|---|
| Bead Up | 81 psi | 110 psi |
| Heat Soak | 0 psi | 23 psi |
| Fuse | 81 psi | 110 psi |
| Cool | 0 psi | 0 psi |

## External Heater Temperatures

| | Side A | Side B |
|---|---|---|

## GPS Location

| Date | Latitude | Longitude |
|---|---|---|
| 2018-08-03 19:05:55.0 | 64°2'17.331000"N | 135°49'44.271600"W |

## Logged Data Summary

| | |
|---|---|
| Number of Data Points | 392 |
| Total Fusion Time | 745 seconds |
| Maximum Recorded Pressure | 109 psi |

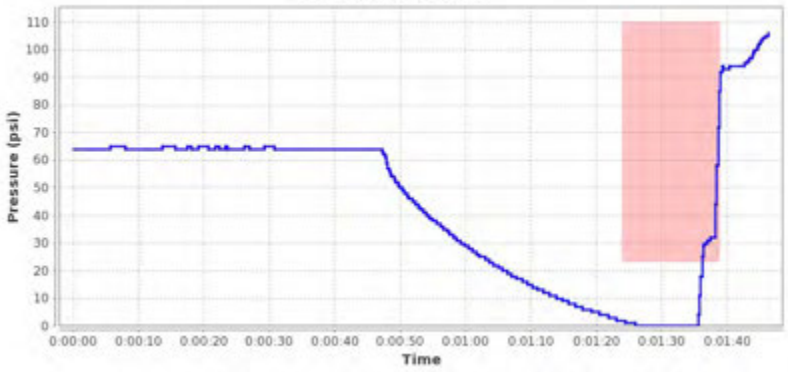
## Device Information

| | |
|---|---|
| DataLogger Serial Number | RH803Z0550 |
| Sensor Serial Number | MDL6621 |
| Calibration Date | 2018-04-04 |
| Firmware Version | v6.0 |
| Software Version | 1.08 (27) |
| Software Product Name | DataLogger 6 |

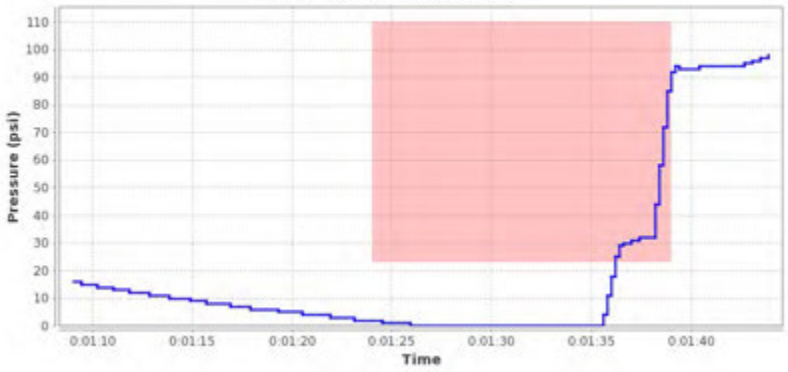
## Data Source

| | |
|---|---|
| Upload Time | 2018-08-20 13:48:32 GMT |

### Front-end Plot




### Heater Removal Plot




### Summary Plot




## Notes

Images for report: 1078049





Printed: 2018-08-20 15:54:36 UTC

# McElroy Joint Report

Reference Number 1078050

## Job Details

| | |
|---|---|
| Joint Number | 96 |
| Joint Time | 2018-08-03 19:25:26 GMT |
| Job | 1 |
| Operator | jordan |
| Aborted Joint | No |

## Fusion Machine

| | |
|---|---|
| Machine Name | 618 HF |
| Machine Model | 618 HF |
| Piston Area | 11.78 in² |

## Pipe Specifications

| | |
|---|---|
| Pipe Material | PE4710 |
| Pipe Size | 6 " IPS |
| Wall Thickness | DR 11 |

## Pressures

| Drag Pressure | 23 psi | |
|---|---|---|
| | Interfacial | Gauge |
| Bead Up | 75 psi | 96 psi |
| Heat Soak | 0 psi | 23 psi |
| Fuse/Cool | 75 psi | 96 psi |

## Fusion Specification

| | |
|---|---|
| Fusion Type | Butt Fusion |
| Fusion Specification | ASTM F2620 |
| Bead Time | 0 seconds |
| Bead Size | 3/16" |
| Heat/Soak Time | 162 seconds |
| Fuse Time | 397 seconds |
| Open/Close Time | 15 seconds |
| Cool Time | 0 seconds |

| | Minimum | Maximum |
|---|---|---|
| Bead Up | 81 psi | 110 psi |
| Heat Soak | 0 psi | 23 psi |
| Fuse | 81 psi | 110 psi |
| Cool | 0 psi | 0 psi |

## External Heater Temperatures

| | Side A | Side B |
|---|---|---|

## GPS Location

| Date | Latitude | Longitude |
|---|---|---|
| 2018-08-03 19:25:26.0 | 64°2'17.382600"N | 135°49'44.301000"W |

## Logged Data Summary

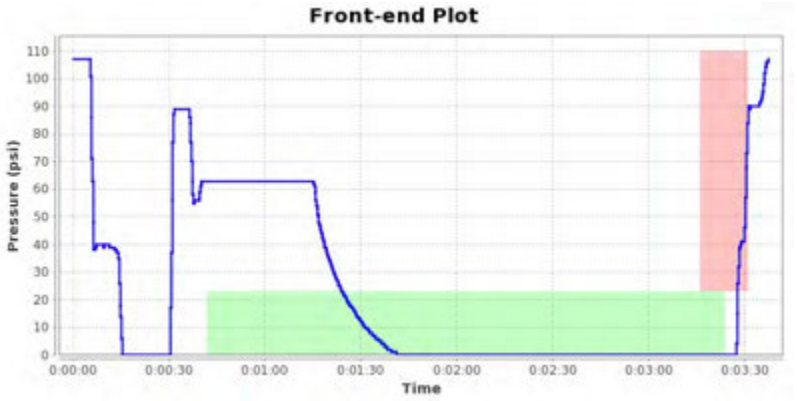
| | |
|---|---|
| Number of Data Points | 354 |
| Total Fusion Time | 691 seconds |
| Maximum Recorded Pressure | 107 psi |

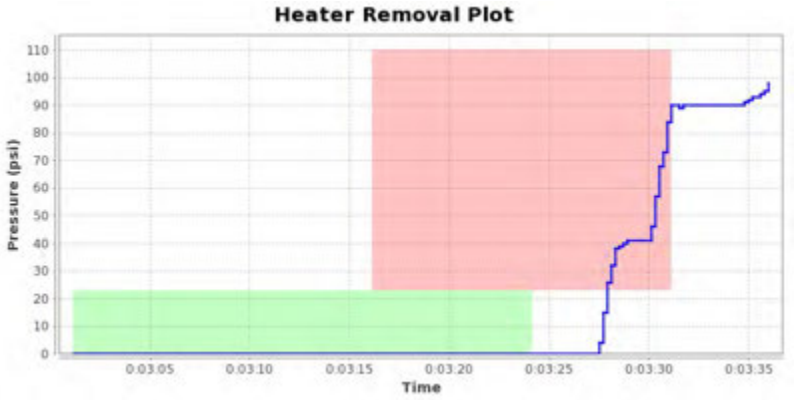
## Device Information

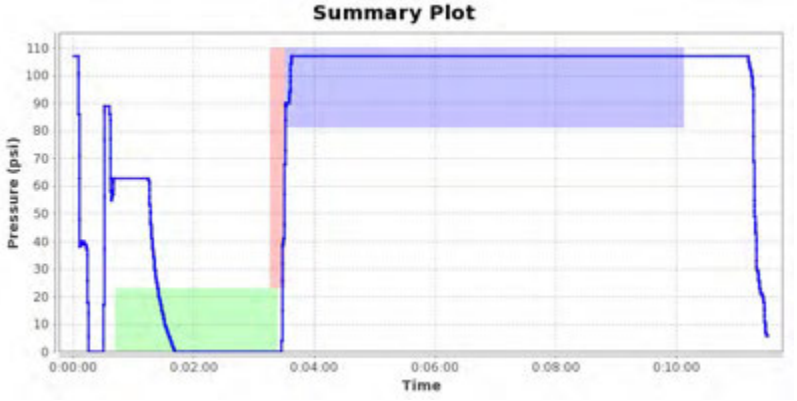
| | |
|---|---|
| DataLogger Serial Number | RH803Z0550 |
| Sensor Serial Number | MDL6621 |
| Calibration Date | 2018-04-04 |
| Firmware Version | v6.0 |
| Software Version | 1.08 (27) |
| Software Product Name | DataLogger 6 |

## Data Source

| | |
|---|---|
| Upload Time | 2018-08-20 13:48:40 GMT |




## Notes

Images for report: 1078050





Printed: 2018-08-20 15:54:36 UTC

# McElroy Joint Report

Reference Number 1078051

## Job Details

| | |
|---|---|
| Joint Number | 97 |
| Joint Time | 2018-08-03 20:10:00 GMT |
| Job | 1 |
| Operator | jordan |
| Aborted Joint | No |

## Fusion Machine

| | |
|---|---|
| Machine Name | 618 HF |
| Machine Model | 618 HF |
| Piston Area | 11.78 in² |

## Pipe Specifications

| | |
|---|---|
| Pipe Material | PE4710 |
| Pipe Size | 6 " IPS |
| Wall Thickness | DR 11 |

## Pressures

| | | |
|---|---|---|
| Drag Pressure | 23 psi | |
| | Interfacial | Gauge |
| Bead Up | 75 psi | 96 psi |
| Heat Soak | 0 psi | 23 psi |
| Fuse/Cool | 75 psi | 96 psi |

## Fusion Specification

| | |
|---|---|
| Fusion Type | Butt Fusion |
| Fusion Specification | ASTM F2620 |
| Bead Time | 0 seconds |
| Bead Size | 3/16" |
| Heat/Soak Time | 162 seconds |
| Fuse Time | 397 seconds |
| Open/Close Time | 15 seconds |
| Cool Time | 0 seconds |

| | Minimum | Maximum |
|---|---|---|
| Bead Up | 81 psi | 110 psi |
| Heat Soak | 0 psi | 23 psi |
| Fuse | 81 psi | 110 psi |
| Cool | 0 psi | 0 psi |

## External Heater Temperatures

| | Side A | Side B |
|---|---|---|

## GPS Location

| Date | Latitude | Longitude |
|---|---|---|
| 2018-08-03 20:10:00.0 | 64°2'17.300400"N | 135°49'44.202000"W |

## Logged Data Summary

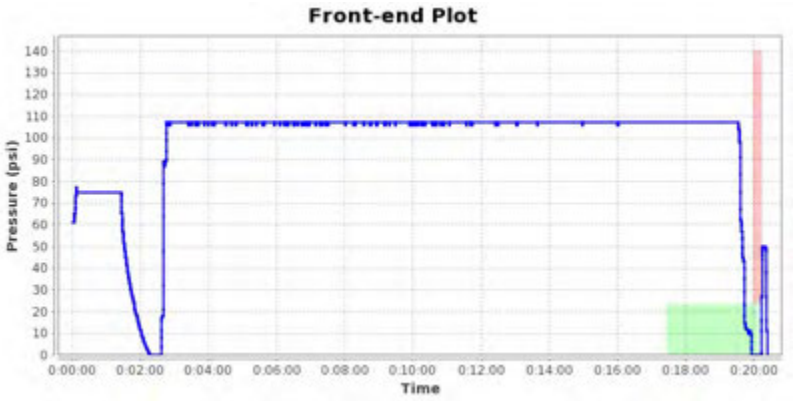
| | |
|---|---|
| Number of Data Points | 1272 |
| Total Fusion Time | 2080 seconds |
| Maximum Recorded Pressure | 140 psi |

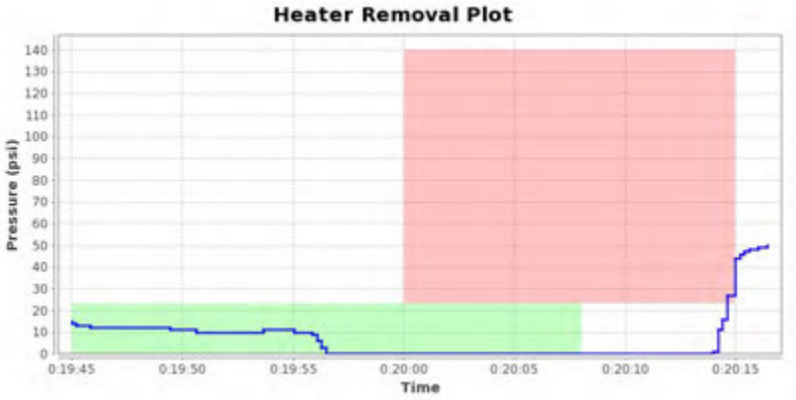
## Device Information

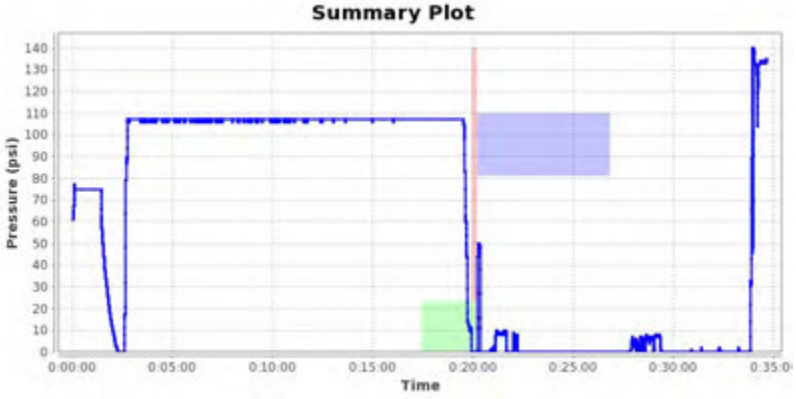
| | |
|---|---|
| DataLogger Serial Number | RH803Z0550 |
| Sensor Serial Number | MDL6621 |
| Calibration Date | 2018-04-04 |
| Firmware Version | v6.0 |
| Software Version | 1.08 (27) |
| Software Product Name | DataLogger 6 |

## Data Source

| | |
|---|---|
| Upload Time | 2018-08-20 13:48:53 GMT |




## Notes

Images for report: 1078051





Printed: 2018-08-20 15:54:35 UTC

# McElroy Joint Report

Reference Number 1078052

## Job Details

| | |
|---|---|
| Joint Number | 98 |
| Joint Time | 2018-08-03 20:35:19 GMT |
| Job | 1 |
| Operator | jordan |
| Aborted Joint | No |

## Fusion Machine

| | |
|---|---|
| Machine Name | 618 HF |
| Machine Model | 618 HF |
| Piston Area | 11.78 in² |

## Pipe Specifications

| | |
|---|---|
| Pipe Material | PE4710 |
| Pipe Size | 6 " IPS |
| Wall Thickness | DR 11 |

## Pressures

| | | |
|---|---|---|
| Drag Pressure | 23 psi | |
| | Interfacial | Gauge |
| Bead Up | 75 psi | 96 psi |
| Heat Soak | 0 psi | 23 psi |
| Fuse/Cool | 75 psi | 96 psi |

## Fusion Specification

| | |
|---|---|
| Fusion Type | Butt Fusion |
| Fusion Specification | ASTM F2620 |
| Bead Time | 0 seconds |
| Bead Size | 3/16" |
| Heat/Soak Time | 162 seconds |
| Fuse Time | 397 seconds |
| Open/Close Time | 15 seconds |
| Cool Time | 0 seconds |

| | Minimum | Maximum |
|---|---|---|
| Bead Up | 81 psi | 110 psi |
| Heat Soak | 0 psi | 23 psi |
| Fuse | 81 psi | 110 psi |
| Cool | 0 psi | 0 psi |

## External Heater Temperatures

| | Side A | Side B |
|---|---|---|

## GPS Location

| Date | Latitude | Longitude |
|---|---|---|
| 2018-08-03 20:35:19.0 | 64°2'17.298000"N | 135°49'44.142000"W |

## Logged Data Summary

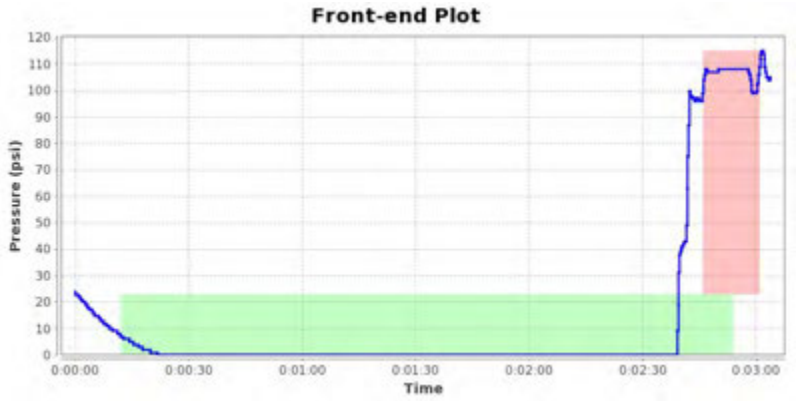
| | |
|---|---|
| Number of Data Points | 424 |
| Total Fusion Time | 1235 seconds |
| Maximum Recorded Pressure | 115 psi |

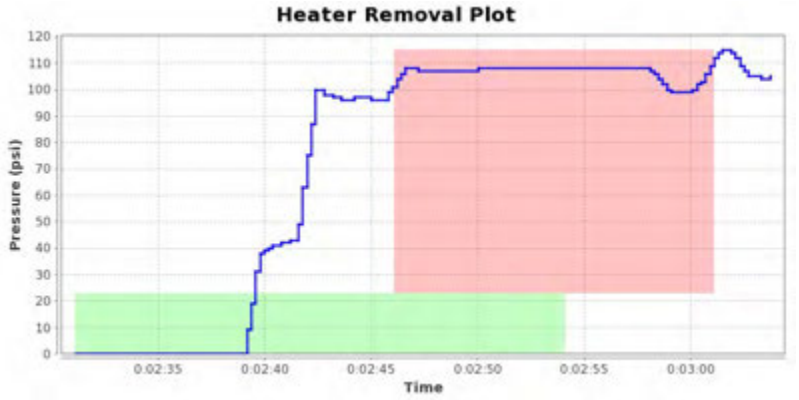
## Device Information

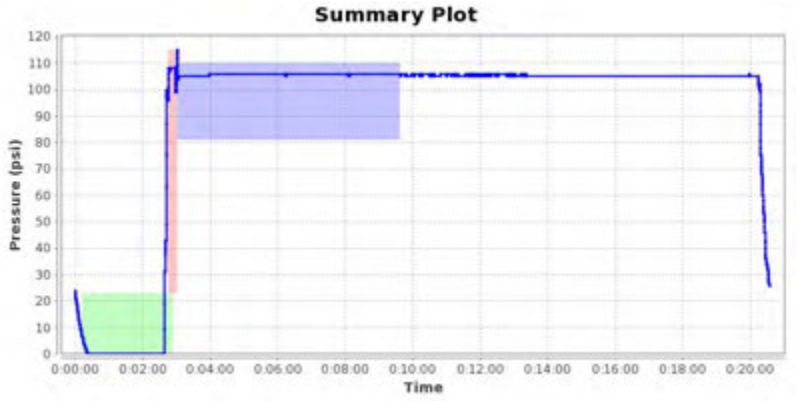
| | |
|---|---|
| DataLogger Serial Number | RH803Z0550 |
| Sensor Serial Number | MDL6621 |
| Calibration Date | 2018-04-04 |
| Firmware Version | v6.0 |
| Software Version | 1.08 (27) |
| Software Product Name | DataLogger 6 |

## Data Source

| | |
|---|---|
| Upload Time | 2018-08-20 13:49:08 GMT |




## Notes

Images for report: 1078052





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# McElroy Joint Report

Reference Number 1078053

## Job Details

| | |
|---|---|
| Joint Number | 99 |
| Joint Time | 2018-08-03 21:07:58 GMT |
| Job | 1 |
| Operator | jordan |
| Aborted Joint | No |

## Fusion Machine

| | |
|---|---|
| Machine Name | 618 HF |
| Machine Model | 618 HF |
| Piston Area | 11.78 in² |

## Pipe Specifications

| | |
|---|---|
| Pipe Material | PE4710 |
| Pipe Size | 6 " IPS |
| Wall Thickness | DR 11 |

## Pressures

| | | |
|---|---|---|
| Drag Pressure | 23 psi | |
| | Interfacial | Gauge |
| Bead Up | 75 psi | 96 psi |
| Heat Soak | 0 psi | 23 psi |
| Fuse/Cool | 75 psi | 96 psi |

## Fusion Specification

| | |
|---|---|
| Fusion Type | Butt Fusion |
| Fusion Specification | ASTM F2620 |
| Bead Time | 0 seconds |
| Bead Size | 3/16" |
| Heat/Soak Time | 162 seconds |
| Fuse Time | 397 seconds |
| Open/Close Time | 15 seconds |
| Cool Time | 0 seconds |

| | Minimum | Maximum |
|---|---|---|
| Bead Up | 81 psi | 110 psi |
| Heat Soak | 0 psi | 23 psi |
| Fuse | 81 psi | 110 psi |
| Cool | 0 psi | 0 psi |

## External Heater Temperatures

| | Side A | Side B |
|---|---|---|

## GPS Location

| Date | Latitude | Longitude |
|---|---|---|
| 2018-08-03 21:07:58.0 | 64°2'17.388600"N | 135°49'44.233200"W |

## Logged Data Summary

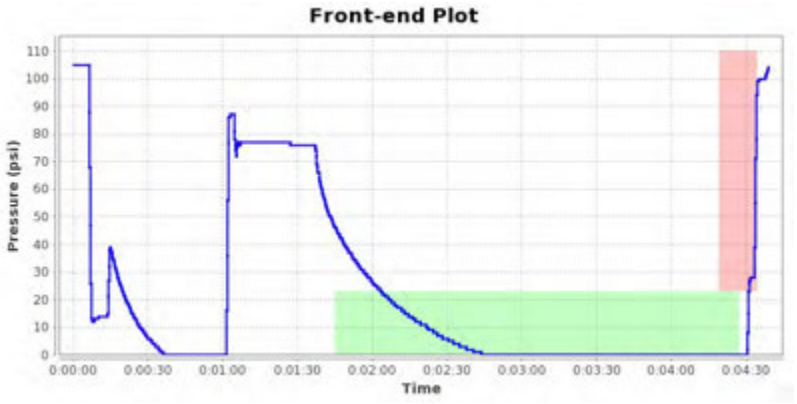
| | |
|---|---|
| Number of Data Points | 516 |
| Total Fusion Time | 1264 seconds |
| Maximum Recorded Pressure | 107 psi |

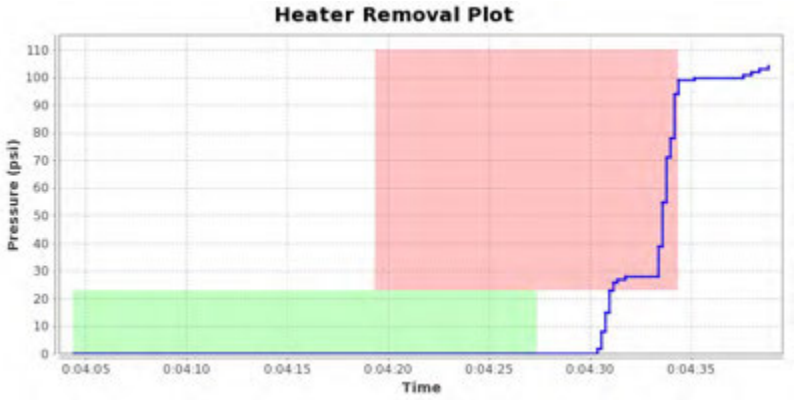
## Device Information

| | |
|---|---|
| DataLogger Serial Number | RH803Z0550 |
| Sensor Serial Number | MDL6621 |
| Calibration Date | 2018-04-04 |
| Firmware Version | v6.0 |
| Software Version | 1.08 (27) |
| Software Product Name | DataLogger 6 |

## Data Source

| | |
|---|---|
| Upload Time | 2018-08-20 13:49:19 GMT |







## Notes

Images for report: 1078053





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# McElroy Joint Report

Reference Number 1078054

## Job Details

| | |
|---|---|
| Joint Number | 100 |
| Joint Time | 2018-08-04 11:01:02 GMT |
| Job | 1 |
| Operator | jordan |
| Aborted Joint | No |

## Fusion Machine

| | |
|---|---|
| Machine Name | 618 HF |
| Machine Model | 618 HF |
| Piston Area | 11.78 in² |

## Pipe Specifications

| | |
|---|---|
| Pipe Material | PE4710 |
| Pipe Size | 6 " IPS |
| Wall Thickness | DR 11 |

## Pressures

| | | |
|---|---|---|
| Drag Pressure | 23 psi | |
| | Interfacial | Gauge |
| Bead Up | 75 psi | 96 psi |
| Heat Soak | 0 psi | 23 psi |
| Fuse/Cool | 75 psi | 96 psi |

## Fusion Specification

| | |
|---|---|
| Fusion Type | Butt Fusion |
| Fusion Specification | ASTM F2620 |
| Bead Time | 0 seconds |
| Bead Size | 3/16" |
| Heat/Soak Time | 162 seconds |
| Fuse Time | 397 seconds |
| Open/Close Time | 15 seconds |
| Cool Time | 0 seconds |

| | Minimum | Maximum |
|---|---|---|
| Bead Up | 81 psi | 110 psi |
| Heat Soak | 0 psi | 23 psi |
| Fuse | 81 psi | 110 psi |
| Cool | 0 psi | 0 psi |

## External Heater Temperatures

| | Side A | Side B |
|---|---|---|

## GPS Location

| Date | Latitude | Longitude |
|---|---|---|
| 2018-08-04 11:01:02.0 | 64°2'17.842800"N | 135°49'43.564200"W |

## Logged Data Summary

| | |
|---|---|
| Number of Data Points | 318 |
| Total Fusion Time | 870 seconds |
| Maximum Recorded Pressure | 121 psi |

## Device Information

| | |
|---|---|
| DataLogger Serial Number | RH803Z0550 |
| Sensor Serial Number | MDL6621 |
| Calibration Date | 2018-04-04 |
| Firmware Version | v6.0 |
| Software Version | 1.08 (27) |
| Software Product Name | DataLogger 6 |

## Data Source

| | |
|---|---|
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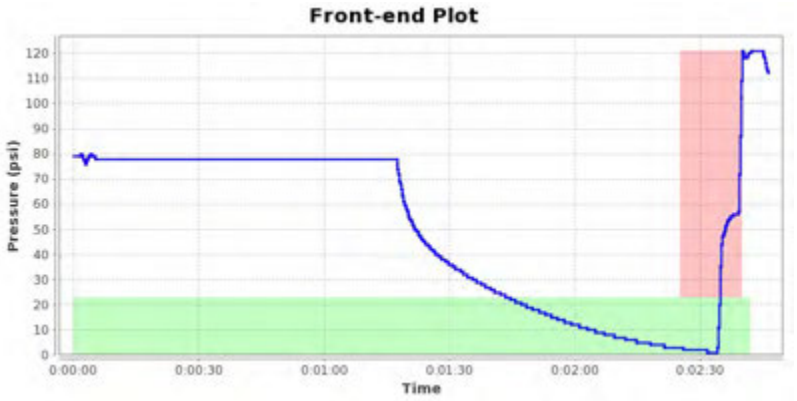


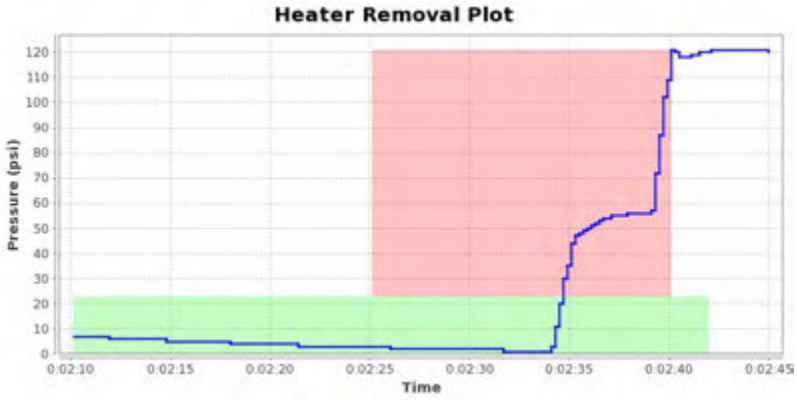





## Notes

Images for report: 1078054





Printed: 2018-08-20 15:55:45 UTC

# McElroy Joint Report

Reference Number 1078010

## Job Details

| | |
|---|---|
| Joint Number | 101 |
| Joint Time | 2018-08-04 11:25:37 GMT |
| Job | 1 |
| Operator | jordan |
| Aborted Joint | No |

## Fusion Machine

| | |
|---|---|
| Machine Name | 618 HF |
| Machine Model | 618 HF |
| Piston Area | 11.78 in² |

## Pipe Specifications

| | |
|---|---|
| Pipe Material | PE4710 |
| Pipe Size | 6 " IPS |
| Wall Thickness | DR 11 |

## Pressures

| | | |
|---|---|---|
| Drag Pressure | 23 psi | |
| | Interfacial | Gauge |
| Bead Up | 75 psi | 96 psi |
| Heat Soak | 0 psi | 23 psi |
| Fuse/Cool | 75 psi | 96 psi |

## Fusion Specification

| | |
|---|---|
| Fusion Type | Butt Fusion |
| Fusion Specification | ASTM F2620 |
| Bead Time | 0 seconds |
| Bead Size | 3/16" |
| Heat/Soak Time | 162 seconds |
| Fuse Time | 397 seconds |
| Open/Close Time | 15 seconds |
| Cool Time | 0 seconds |

| | Minimum | Maximum |
|---|---|---|
| Bead Up | 81 psi | 110 psi |
| Heat Soak | 0 psi | 23 psi |
| Fuse | 81 psi | 110 psi |
| Cool | 0 psi | 0 psi |

## External Heater Temperatures

| | Side A | Side B |
|---|---|---|

## GPS Location

| Date | Latitude | Longitude |
|---|---|---|
| 2018-08-04 11:25:37.0 | 64°2'17.807400"N | 135°49'43.567200"W |

## Logged Data Summary

| | |
|---|---|
| Number of Data Points | 310 |
| Total Fusion Time | 903 seconds |
| Maximum Recorded Pressure | 107 psi |

## Device Information

| | |
|---|---|
| DataLogger Serial Number | RH803Z0550 |
| Sensor Serial Number | MDL6621 |
| Calibration Date | 2018-04-04 |
| Firmware Version | v6.0 |
| Software Version | 1.08 (27) |
| Software Product Name | DataLogger 6 |

## Data Source

| | |
|---|---|
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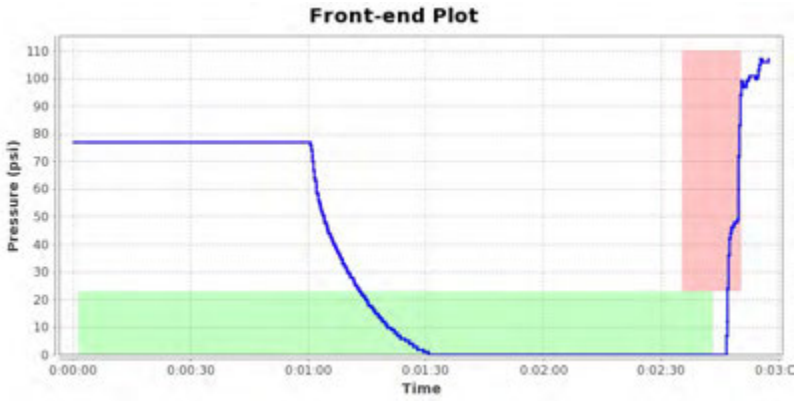


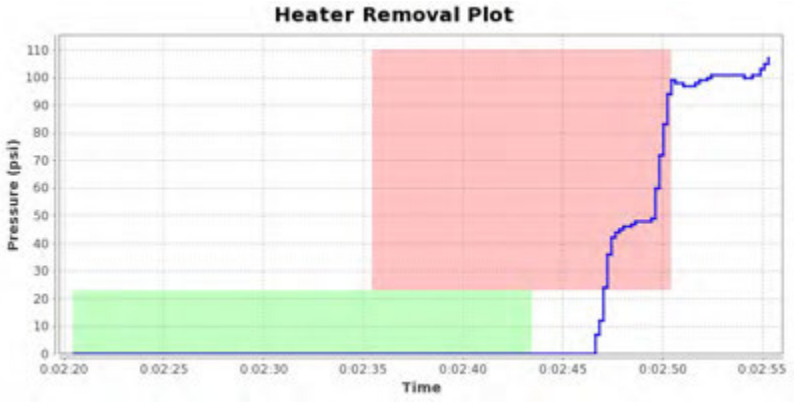





## Notes

Images for report: 1078010





Printed: 2018-08-20 15:55:44 UTC

# McElroy Joint Report

Reference Number 1078011

## Job Details

| | |
|---|---|
| Joint Number | 102 |
| Joint Time | 2018-08-04 11:52:31 GMT |
| Job | 1 |
| Operator | jordan |
| Aborted Joint | No |

## Fusion Machine

| | |
|---|---|
| Machine Name | 618 HF |
| Machine Model | 618 HF |
| Piston Area | 11.78 in² |

## Pipe Specifications

| | |
|---|---|
| Pipe Material | PE4710 |
| Pipe Size | 6 " IPS |
| Wall Thickness | DR 11 |

## Pressures

| | | |
|---|---|---|
| Drag Pressure | 23 psi | |
| | Interfacial | Gauge |
| Bead Up | 75 psi | 96 psi |
| Heat Soak | 0 psi | 23 psi |
| Fuse/Cool | 75 psi | 96 psi |

## Fusion Specification

| | |
|---|---|
| Fusion Type | Butt Fusion |
| Fusion Specification | ASTM F2620 |
| Bead Time | 0 seconds |
| Bead Size | 3/16" |
| Heat/Soak Time | 162 seconds |
| Fuse Time | 397 seconds |
| Open/Close Time | 15 seconds |
| Cool Time | 0 seconds |

| | Minimum | Maximum |
|---|---|---|
| Bead Up | 81 psi | 110 psi |
| Heat Soak | 0 psi | 23 psi |
| Fuse | 81 psi | 110 psi |
| Cool | 0 psi | 0 psi |

## External Heater Temperatures

| | Side A | Side B |
|---|---|---|

## GPS Location

| Date | Latitude | Longitude |
|---|---|---|
| 2018-08-04 11:52:31.0 | 64°2'17.688000"N | 135°49'43.724400"W |

## Logged Data Summary

| | |
|---|---|
| Number of Data Points | 314 |
| Total Fusion Time | 971 seconds |
| Maximum Recorded Pressure | 106 psi |

## Device Information

| | |
|---|---|
| DataLogger Serial Number | RH803Z0550 |
| Sensor Serial Number | MDL6621 |
| Calibration Date | 2018-04-04 |
| Firmware Version | v6.0 |
| Software Version | 1.08 (27) |
| Software Product Name | DataLogger 6 |

## Data Source

| | |
|---|---|
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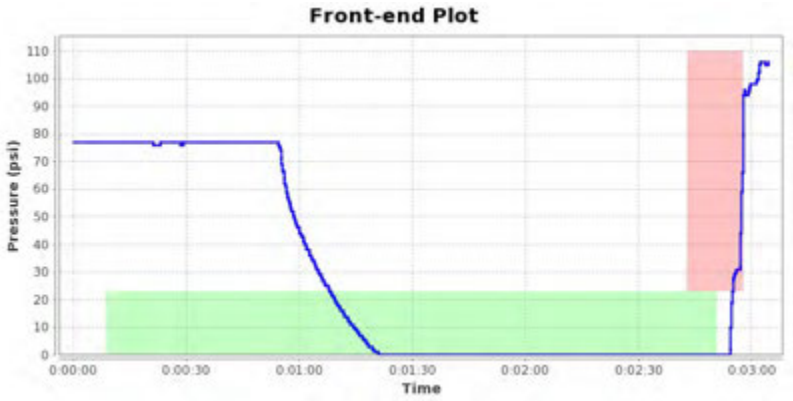








## Notes

Images for report: 1078011





Printed: 2018-08-20 15:55:43 UTC

# McElroy Joint Report

Reference Number 1078012

## Job Details

| | |
|---|---|
| Joint Number | 103 |
| Joint Time | 2018-08-04 12:18:56 GMT |
| Job | 1 |
| Operator | jordan |
| Aborted Joint | No |

## Fusion Machine

| | |
|---|---|
| Machine Name | 618 HF |
| Machine Model | 618 HF |
| Piston Area | 11.78 in² |

## Pipe Specifications

| | |
|---|---|
| Pipe Material | PE4710 |
| Pipe Size | 6 " IPS |
| Wall Thickness | DR 11 |

## Pressures

| | | |
|---|---|---|
| Drag Pressure | 23 psi | |
| | Interfacial | Gauge |
| Bead Up | 75 psi | 96 psi |
| Heat Soak | 0 psi | 23 psi |
| Fuse/Cool | 75 psi | 96 psi |

## Fusion Specification

| | |
|---|---|
| Fusion Type | Butt Fusion |
| Fusion Specification | ASTM F2620 |
| Bead Time | 0 seconds |
| Bead Size | 3/16" |
| Heat/Soak Time | 162 seconds |
| Fuse Time | 397 seconds |
| Open/Close Time | 15 seconds |
| Cool Time | 0 seconds |

| | Minimum | Maximum |
|---|---|---|
| Bead Up | 81 psi | 110 psi |
| Heat Soak | 0 psi | 23 psi |
| Fuse | 81 psi | 110 psi |
| Cool | 0 psi | 0 psi |

## External Heater Temperatures

| | Side A | Side B |
|---|---|---|

## GPS Location

| Date | Latitude | Longitude |
|---|---|---|
| 2018-08-04 12:18:56.0 | 64°2'17.767800"N | 135°49'43.957200"W |

## Logged Data Summary

| | |
|---|---|
| Number of Data Points | 318 |
| Total Fusion Time | 1012 seconds |
| Maximum Recorded Pressure | 106 psi |

## Device Information

| | |
|---|---|
| DataLogger Serial Number | RH803Z0550 |
| Sensor Serial Number | MDL6621 |
| Calibration Date | 2018-04-04 |
| Firmware Version | v6.0 |
| Software Version | 1.08 (27) |
| Software Product Name | DataLogger 6 |

## Data Source

| | |
|---|---|
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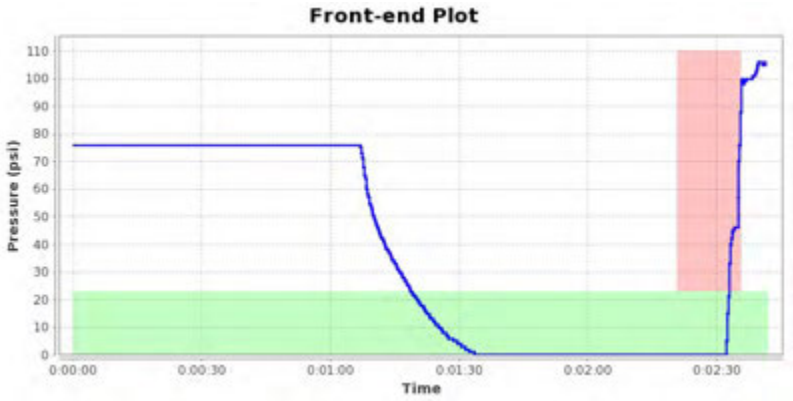
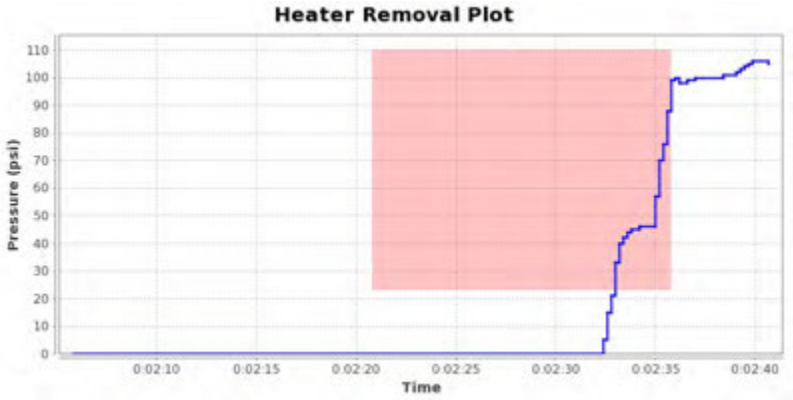






## Notes

Images for report: 1078012





Printed: 2018-08-20 15:55:37 UTC

# McElroy Joint Report

Reference Number 1078014

## Job Details

| | |
|---|---|
| Joint Number | 104 |
| Joint Time | 2018-08-04 13:53:17 GMT |
| Job | 1 |
| Operator | jordan |
| Aborted Joint | No |

## Fusion Machine

| | |
|---|---|
| Machine Name | 618 HF |
| Machine Model | 618 HF |
| Piston Area | 11.78 in² |

## Pipe Specifications

| | |
|---|---|
| Pipe Material | PE4710 |
| Pipe Size | 6 " IPS |
| Wall Thickness | DR 11 |

## Pressures

| | | |
|---|---|---|
| Drag Pressure | 23 psi | |
| | Interfacial | Gauge |
| Bead Up | 75 psi | 96 psi |
| Heat Soak | 0 psi | 23 psi |
| Fuse/Cool | 75 psi | 96 psi |

## Fusion Specification

| | |
|---|---|
| Fusion Type | Butt Fusion |
| Fusion Specification | ASTM F2620 |
| Bead Time | 0 seconds |
| Bead Size | 3/16" |
| Heat/Soak Time | 162 seconds |
| Fuse Time | 397 seconds |
| Open/Close Time | 15 seconds |
| Cool Time | 0 seconds |

| | Minimum | Maximum |
|---|---|---|
| Bead Up | 81 psi | 110 psi |
| Heat Soak | 0 psi | 23 psi |
| Fuse | 81 psi | 110 psi |
| Cool | 0 psi | 0 psi |

## External Heater Temperatures

| | Side A | Side B |
|---|---|---|

## GPS Location

| Date | Latitude | Longitude |
|---|---|---|
| 2018-08-04 13:53:17.0 | 64°2'17.752200"N | 135°49'44.073000"W |

## Logged Data Summary

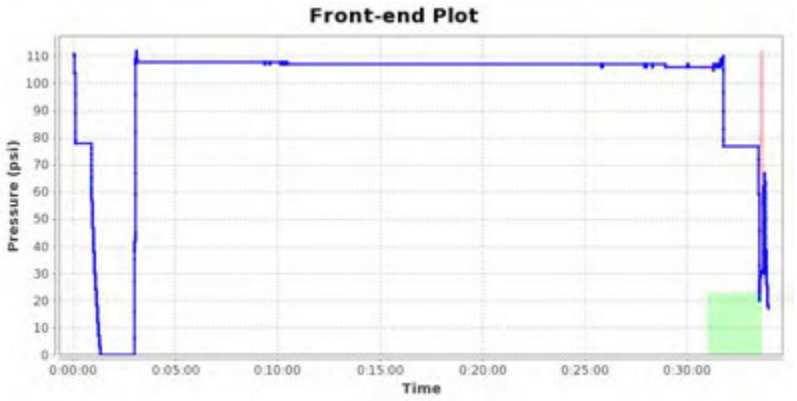
| | |
|---|---|
| Number of Data Points | 496 |
| Total Fusion Time | 2527 seconds |
| Maximum Recorded Pressure | 112 psi |

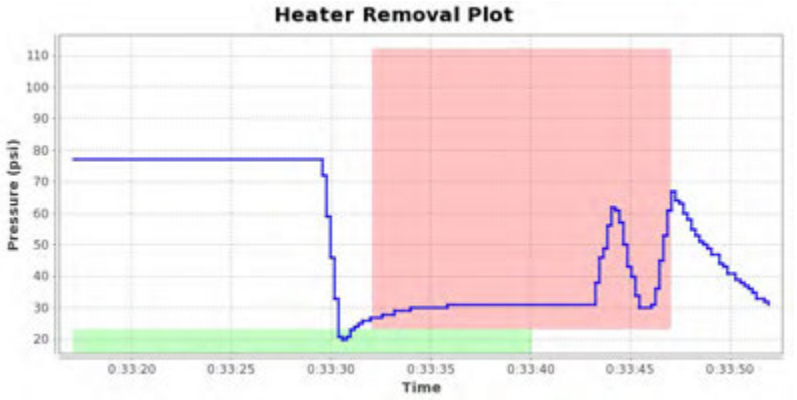
## Device Information

| | |
|---|---|
| DataLogger Serial Number | RH803Z0550 |
| Sensor Serial Number | MDL6621 |
| Calibration Date | 2018-04-04 |
| Firmware Version | v6.0 |
| Software Version | 1.08 (27) |
| Software Product Name | DataLogger 6 |

## Data Source

| | |
|---|---|
| Upload Time | 2018-08-20 13:38:40 GMT |







## Notes

Images for report: 1078014





Printed: 2018-08-20 15:55:37 UTC

# McElroy Joint Report

Reference Number 1078015

## Job Details

| | |
|---|---|
| Joint Number | 105 |
| Joint Time | 2018-08-06 10:37:08 GMT |
| Job | 1 |
| Operator | jordan |
| Aborted Joint | No |

## Fusion Machine

| | |
|---|---|
| Machine Name | 618 HF |
| Machine Model | 618 HF |
| Piston Area | 11.78 in² |

## Pipe Specifications

| | |
|---|---|
| Pipe Material | PE4710 |
| Pipe Size | 6 " IPS |
| Wall Thickness | DR 11 |

## Pressures

| | | |
|---|---|---|
| Drag Pressure | 23 psi | |
| | Interfacial | Gauge |
| Bead Up | 75 psi | 96 psi |
| Heat Soak | 0 psi | 23 psi |
| Fuse/Cool | 75 psi | 96 psi |

## Fusion Specification

| | |
|---|---|
| Fusion Type | Butt Fusion |
| Fusion Specification | ASTM F2620 |
| Bead Time | 0 seconds |
| Bead Size | 3/16" |
| Heat/Soak Time | 162 seconds |
| Fuse Time | 397 seconds |
| Open/Close Time | 15 seconds |
| Cool Time | 0 seconds |

| | Minimum | Maximum |
|---|---|---|
| Bead Up | 81 psi | 110 psi |
| Heat Soak | 0 psi | 23 psi |
| Fuse | 81 psi | 110 psi |
| Cool | 0 psi | 0 psi |

## External Heater Temperatures

| | Side A | Side B |
|---|---|---|

## GPS Location

| Date | Latitude | Longitude |
|---|---|---|
| 2018-08-06 10:37:08.0 | 64°2'17.993400"N | 135°49'43.469400"W |

## Logged Data Summary

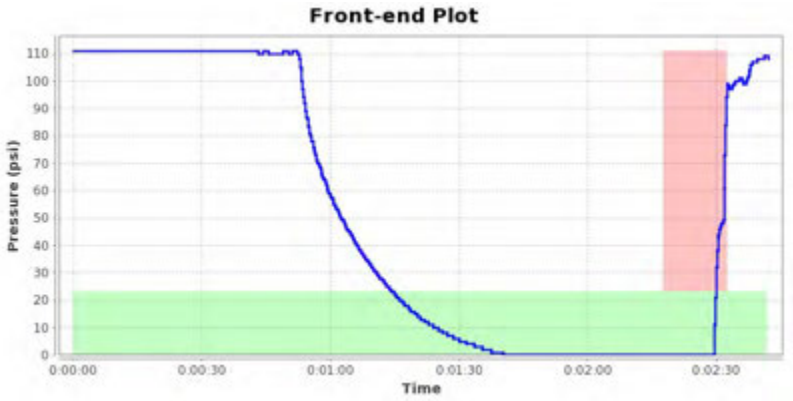
| | |
|---|---|
| Number of Data Points | 308 |
| Total Fusion Time | 1607 seconds |
| Maximum Recorded Pressure | 111 psi |

## Device Information

| | |
|---|---|
| DataLogger Serial Number | RH803Z0550 |
| Sensor Serial Number | MDL6621 |
| Calibration Date | 2018-04-04 |
| Firmware Version | v6.0 |
| Software Version | 1.08 (27) |
| Software Product Name | DataLogger 6 |

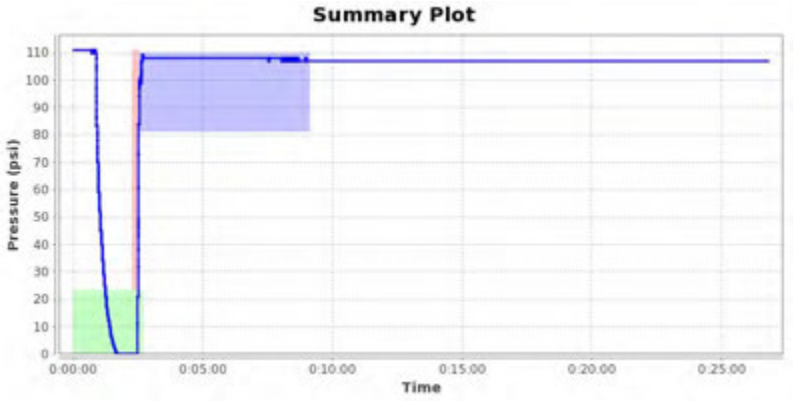
## Data Source

| | |
|---|---|
| Upload Time | 2018-08-20 13:38:54 GMT |










## Notes

Images for report: 1078015





Printed: 2018-08-20 15:55:36 UTC

# McElroy Joint Report

Reference Number 1078016

## Job Details

| | |
|---|---|
| Joint Number | 106 |
| Joint Time | 2018-08-06 12:03:49 GMT |
| Job | 1 |
| Operator | jordan |
| Aborted Joint | No |

## Fusion Machine

| | |
|---|---|
| Machine Name | 618 HF |
| Machine Model | 618 HF |
| Piston Area | 11.78 in² |

## Pipe Specifications

| | |
|---|---|
| Pipe Material | PE4710 |
| Pipe Size | 6 " IPS |
| Wall Thickness | DR 11 |

## Pressures

| | | |
|---|---|---|
| Drag Pressure | 23 psi | |
| | Interfacial | Gauge |
| Bead Up | 75 psi | 96 psi |
| Heat Soak | 0 psi | 23 psi |
| Fuse/Cool | 75 psi | 96 psi |

## Fusion Specification

| | |
|---|---|
| Fusion Type | Butt Fusion |
| Fusion Specification | ASTM F2620 |
| Bead Time | 0 seconds |
| Bead Size | 3/16" |
| Heat/Soak Time | 162 seconds |
| Fuse Time | 397 seconds |
| Open/Close Time | 15 seconds |
| Cool Time | 0 seconds |

| | Minimum | Maximum |
|---|---|---|
| Bead Up | 81 psi | 110 psi |
| Heat Soak | 0 psi | 23 psi |
| Fuse | 81 psi | 110 psi |
| Cool | 0 psi | 0 psi |

## External Heater Temperatures

| | Side A | Side B |
|---|---|---|

## GPS Location

| Date | Latitude | Longitude |
|---|---|---|
| 2018-08-06 12:03:49.0 | 64°2'17.316000"N | 135°49'42.601200"W |

## Logged Data Summary

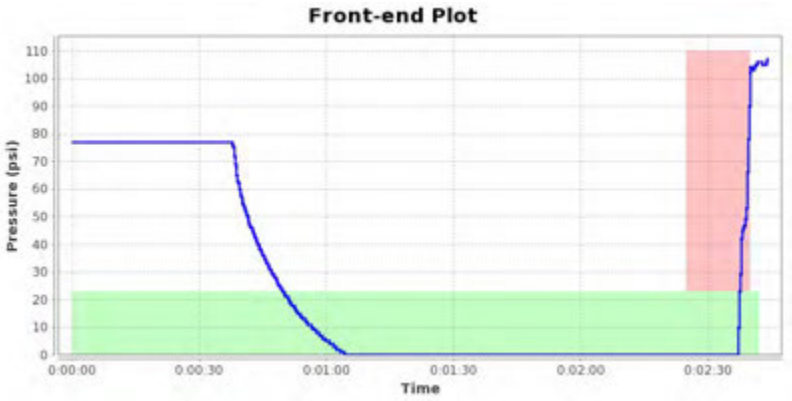
| | |
|---|---|
| Number of Data Points | 228 |
| Total Fusion Time | 1296 seconds |
| Maximum Recorded Pressure | 107 psi |

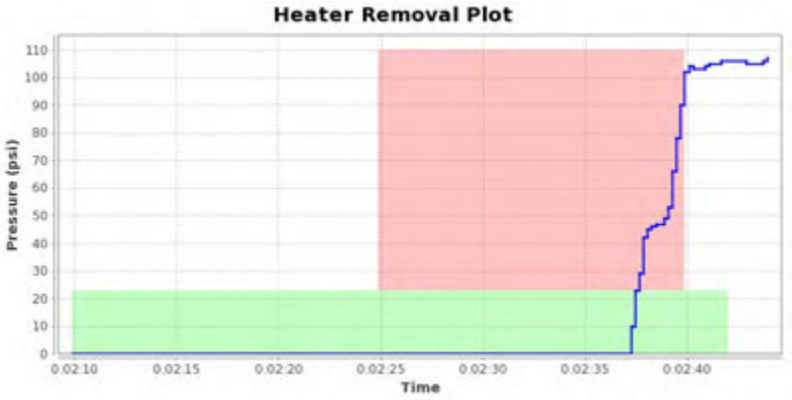
## Device Information

| | |
|---|---|
| DataLogger Serial Number | RH803Z0550 |
| Sensor Serial Number | MDL6621 |
| Calibration Date | 2018-04-04 |
| Firmware Version | v6.0 |
| Software Version | 1.08 (27) |
| Software Product Name | DataLogger 6 |

## Data Source

| | |
|---|---|
| Upload Time | 2018-08-20 13:39:05 GMT |







## Notes

Images for report: 1078016





Printed: 2018-08-20 15:55:30 UTC

# McElroy Joint Report

Reference Number 1078017

## Job Details

| | |
|---|---|
| Joint Number | 107 |
| Joint Time | 2018-08-06 13:01:31 GMT |
| Job | 1 |
| Operator | jordan |
| Aborted Joint | No |

## Fusion Machine

| | |
|---|---|
| Machine Name | 618 HF |
| Machine Model | 618 HF |
| Piston Area | 11.78 in² |

## Pipe Specifications

| | |
|---|---|
| Pipe Material | PE4710 |
| Pipe Size | 6 " IPS |
| Wall Thickness | DR 11 |

## Pressures

| | | |
|---|---|---|
| Drag Pressure | 23 psi | |
| | Interfacial | Gauge |
| Bead Up | 75 psi | 96 psi |
| Heat Soak | 0 psi | 23 psi |
| Fuse/Cool | 75 psi | 96 psi |

## Fusion Specification

| | |
|---|---|
| Fusion Type | Butt Fusion |
| Fusion Specification | ASTM F2620 |
| Bead Time | 0 seconds |
| Bead Size | 3/16" |
| Heat/Soak Time | 162 seconds |
| Fuse Time | 397 seconds |
| Open/Close Time | 15 seconds |
| Cool Time | 0 seconds |

| | Minimum | Maximum |
|---|---|---|
| Bead Up | 81 psi | 110 psi |
| Heat Soak | 0 psi | 23 psi |
| Fuse | 81 psi | 110 psi |
| Cool | 0 psi | 0 psi |

## External Heater Temperatures

| | Side A | Side B |
|---|---|---|

## GPS Location

| Date | Latitude | Longitude |
|---|---|---|
| 2018-08-06 13:01:31.0 | 64°2'17.299800"N | 135°49'43.665000"W |

## Logged Data Summary

| | |
|---|---|
| Number of Data Points | 408 |
| Total Fusion Time | 1937 seconds |
| Maximum Recorded Pressure | 106 psi |

## Device Information

| | |
|---|---|
| DataLogger Serial Number | RH803Z0550 |
| Sensor Serial Number | MDL6621 |
| Calibration Date | 2018-04-04 |
| Firmware Version | v6.0 |
| Software Version | 1.08 (27) |
| Software Product Name | DataLogger 6 |

## Data Source

| | |
|---|---|
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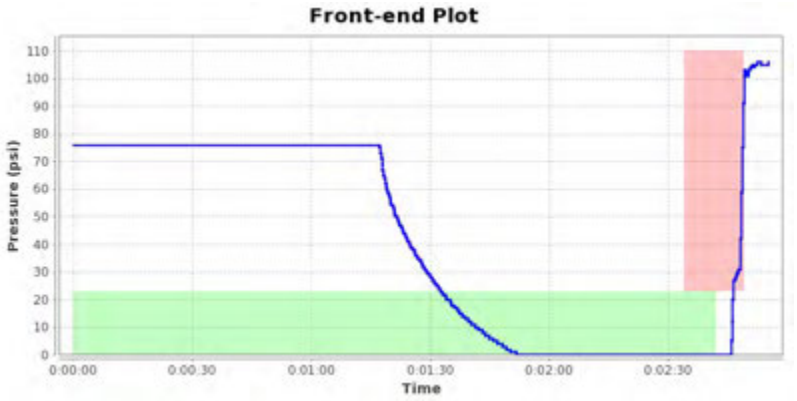





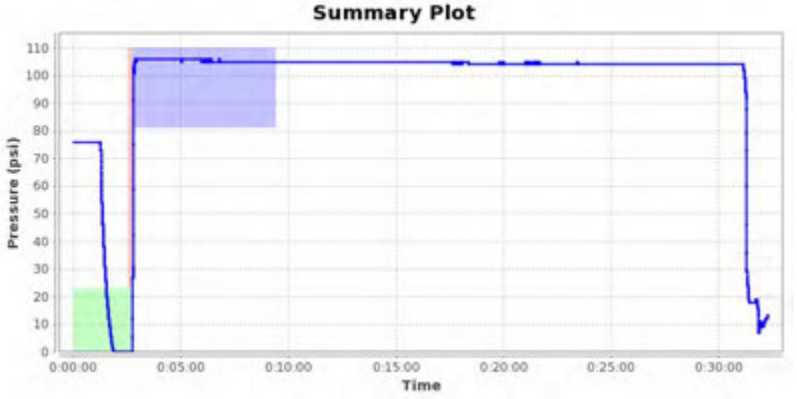


## Notes

Images for report: 1078017





Printed: 2018-08-20 15:55:29 UTC

# McElroy Joint Report

Reference Number 1078018

## Job Details

| | |
|---|---|
| Joint Number | 108 |
| Joint Time | 2018-08-06 14:14:14 GMT |
| Job | 1 |
| Operator | jordan |
| Aborted Joint | No |

## Fusion Machine

| | |
|---|---|
| Machine Name | 618 HF |
| Machine Model | 618 HF |
| Piston Area | 11.78 in² |

## Pipe Specifications

| | |
|---|---|
| Pipe Material | PE4710 |
| Pipe Size | 6 " IPS |
| Wall Thickness | DR 11 |

## Pressures

| | | |
|---|---|---|
| Drag Pressure | 23 psi | |
| | Interfacial | Gauge |
| Bead Up | 75 psi | 96 psi |
| Heat Soak | 0 psi | 23 psi |
| Fuse/Cool | 75 psi | 96 psi |

## Fusion Specification

| | |
|---|---|
| Fusion Type | Butt Fusion |
| Fusion Specification | ASTM F2620 |
| Bead Time | 0 seconds |
| Bead Size | 3/16" |
| Heat/Soak Time | 162 seconds |
| Fuse Time | 397 seconds |
| Open/Close Time | 15 seconds |
| Cool Time | 0 seconds |

| | Minimum | Maximum |
|---|---|---|
| Bead Up | 81 psi | 110 psi |
| Heat Soak | 0 psi | 23 psi |
| Fuse | 81 psi | 110 psi |
| Cool | 0 psi | 0 psi |

## External Heater Temperatures

| | Side A | Side B |
|---|---|---|

## GPS Location

| Date | Latitude | Longitude |
|---|---|---|
| 2018-08-06 14:14:14.0 | 64°2'17.073600"N | 135°49'43.903800"W |

## Logged Data Summary

| | |
|---|---|
| Number of Data Points | 514 |
| Total Fusion Time | 1667 seconds |
| Maximum Recorded Pressure | 138 psi |

## Device Information

| | |
|---|---|
| DataLogger Serial Number | RH803Z0550 |
| Sensor Serial Number | MDL6621 |
| Calibration Date | 2018-04-04 |
| Firmware Version | v6.0 |
| Software Version | 1.08 (27) |
| Software Product Name | DataLogger 6 |

## Data Source

| | |
|---|---|
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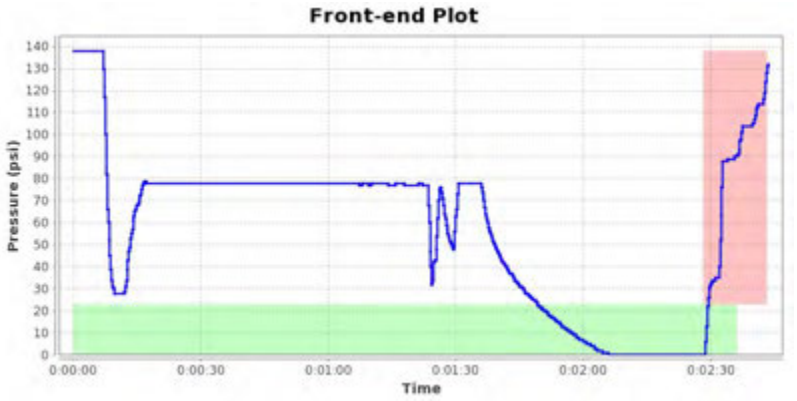
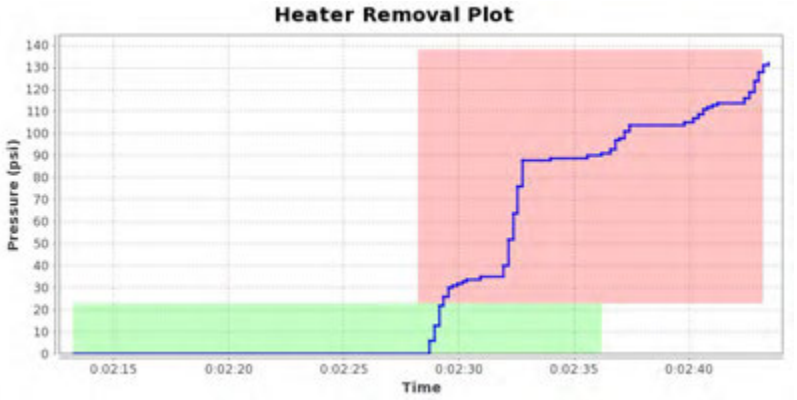
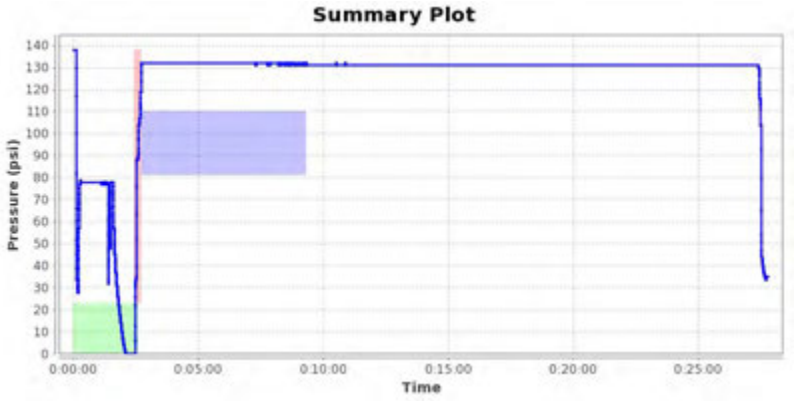



## Notes

Images for report: 1078018





Printed: 2018-08-20 15:55:28 UTC

# McElroy Joint Report

Reference Number 1078020

## Job Details

| | |
|---|---|
| Joint Number | 109 |
| Joint Time | 2018-08-07 08:33:30 GMT |
| Job | 1 |
| Operator | jordan |
| Aborted Joint | No |

## Fusion Machine

| | |
|---|---|
| Machine Name | 618 HF |
| Machine Model | 618 HF |
| Piston Area | 11.78 in² |

## Pipe Specifications

| | |
|---|---|
| Pipe Material | PE4710 |
| Pipe Size | 6 " IPS |
| Wall Thickness | DR 11 |

## Pressures

| | | |
|---|---|---|
| Drag Pressure | 23 psi | |
| | Interfacial | Gauge |
| Bead Up | 75 psi | 96 psi |
| Heat Soak | 0 psi | 23 psi |
| Fuse/Cool | 75 psi | 96 psi |

## Fusion Specification

| | |
|---|---|
| Fusion Type | Butt Fusion |
| Fusion Specification | ASTM F2620 |
| Bead Time | 0 seconds |
| Bead Size | 3/16" |
| Heat/Soak Time | 162 seconds |
| Fuse Time | 397 seconds |
| Open/Close Time | 15 seconds |
| Cool Time | 0 seconds |

| | Minimum | Maximum |
|---|---|---|
| Bead Up | 81 psi | 110 psi |
| Heat Soak | 0 psi | 23 psi |
| Fuse | 81 psi | 110 psi |
| Cool | 0 psi | 0 psi |

## External Heater Temperatures

| | Side A | Side B |
|---|---|---|

## GPS Location

| Date | Latitude | Longitude |
|---|---|---|
| 2018-08-07 08:33:30.0 | 64°2'18.129600"N | 135°49'43.162800"W |

## Logged Data Summary

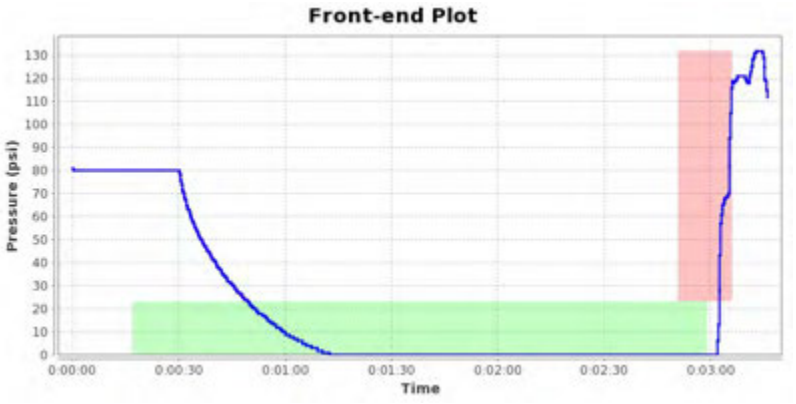
| | |
|---|---|
| Number of Data Points | 318 |
| Total Fusion Time | 837 seconds |
| Maximum Recorded Pressure | 132 psi |

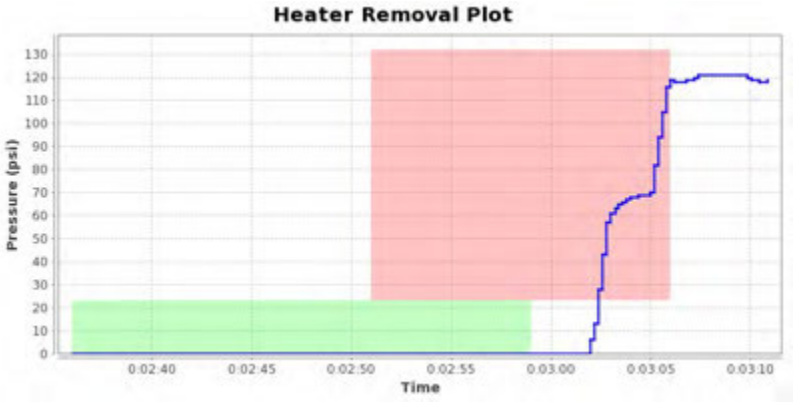
## Device Information

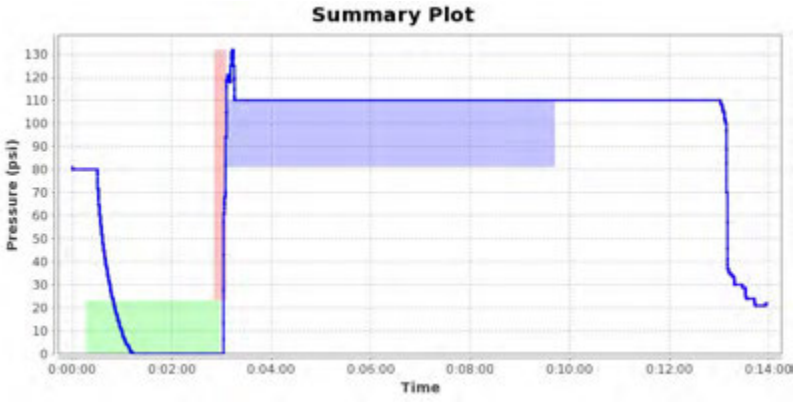
| | |
|---|---|
| DataLogger Serial Number | RH803Z0550 |
| Sensor Serial Number | MDL6621 |
| Calibration Date | 2018-04-04 |
| Firmware Version | v6.0 |
| Software Version | 1.08 (27) |
| Software Product Name | DataLogger 6 |

## Data Source

| | |
|---|---|
| Upload Time | 2018-08-20 13:39:38 GMT |




## Notes

Images for report: 1078020





Printed: 2018-08-20 15:55:20 UTC

# McElroy Joint Report

Reference Number 1078021

## Job Details

| | |
|---|---|
| Joint Number | 110 |
| Joint Time | 2018-08-07 09:44:38 GMT |
| Job | 1 |
| Operator | jordan |
| Aborted Joint | No |

## Fusion Machine

| | |
|---|---|
| Machine Name | 618 HF |
| Machine Model | 618 HF |
| Piston Area | 11.78 in² |

## Pipe Specifications

| | |
|---|---|
| Pipe Material | PE4710 |
| Pipe Size | 6 " IPS |
| Wall Thickness | DR 11 |

## Pressures

| | | |
|---|---|---|
| Drag Pressure | 23 psi | |
| | Interfacial | Gauge |
| Bead Up | 75 psi | 96 psi |
| Heat Soak | 0 psi | 23 psi |
| Fuse/Cool | 75 psi | 96 psi |

## Fusion Specification

| | |
|---|---|
| Fusion Type | Butt Fusion |
| Fusion Specification | ASTM F2620 |
| Bead Time | 0 seconds |
| Bead Size | 3/16" |
| Heat/Soak Time | 162 seconds |
| Fuse Time | 397 seconds |
| Open/Close Time | 15 seconds |
| Cool Time | 0 seconds |

| | Minimum | Maximum |
|---|---|---|
| Bead Up | 81 psi | 110 psi |
| Heat Soak | 0 psi | 23 psi |
| Fuse | 81 psi | 110 psi |
| Cool | 0 psi | 0 psi |

## External Heater Temperatures

| | Side A | Side B |
|---|---|---|

## GPS Location

| Date | Latitude | Longitude |
|---|---|---|
| 2018-08-07 09:44:38.0 | 64°2'18.025800"N | 135°49'43.395600"W |

## Logged Data Summary

| | |
|---|---|
| Number of Data Points | 264 |
| Total Fusion Time | 1032 seconds |
| Maximum Recorded Pressure | 126 psi |

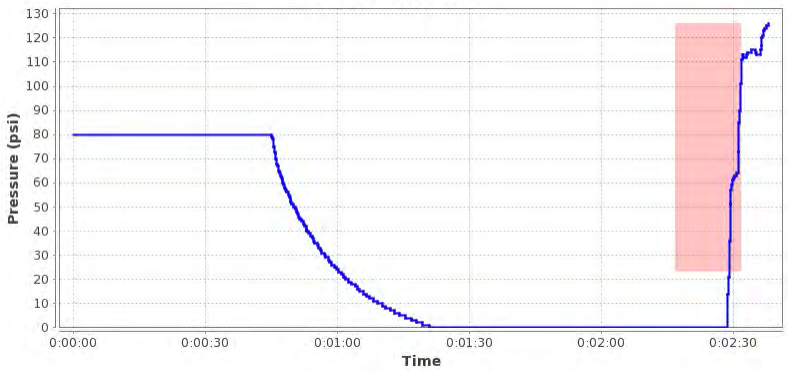
## Device Information

| | |
|---|---|
| DataLogger Serial Number | RH803Z0550 |
| Sensor Serial Number | MDL6621 |
| Calibration Date | 2018-04-04 |
| Firmware Version | v6.0 |
| Software Version | 1.08 (27) |
| Software Product Name | DataLogger 6 |

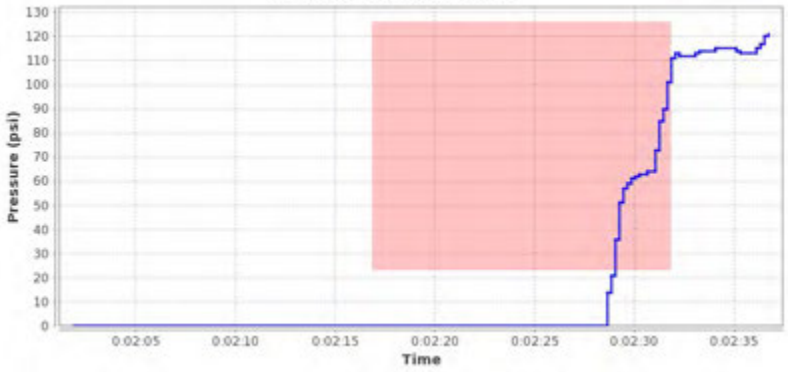
## Data Source

| | |
|---|---|
| Upload Time | 2018-08-20 13:39:53 GMT |

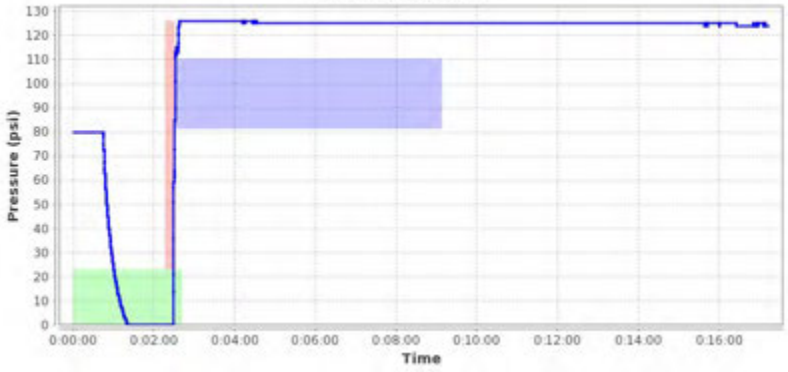
### Front-end Plot




### Heater Removal Plot




### Summary Plot




## Notes

Images for report: 1078021





Printed: 2018-08-20 15:55:20 UTC

# McElroy Joint Report

Reference Number 1078022

## Job Details

| | |
|---|---|
| Joint Number | 111 |
| Joint Time | 2018-08-07 15:49:24 GMT |
| Job | 1 |
| Operator | jordan |
| Aborted Joint | No |

## Fusion Machine

| | |
|---|---|
| Machine Name | 618 HF |
| Machine Model | 618 HF |
| Piston Area | 11.78 in² |

## Pipe Specifications

| | |
|---|---|
| Pipe Material | PE4710 |
| Pipe Size | 6 " IPS |
| Wall Thickness | DR 11 |

## Pressures

| | | |
|---|---|---|
| Drag Pressure | 0 psi | |
| | Interfacial | Gauge |
| Bead Up | 75 psi | 73 psi |
| Heat Soak | 0 psi | 0 psi |
| Fuse/Cool | 75 psi | 73 psi |

## Fusion Specification

| | |
|---|---|
| Fusion Type | Butt Fusion |
| Fusion Specification | ASTM F2620 |
| Bead Time | 0 seconds |
| Bead Size | 3/16" |
| Heat/Soak Time | 162 seconds |
| Fuse Time | 397 seconds |
| Open/Close Time | 15 seconds |
| Cool Time | 0 seconds |

| | Minimum | Maximum |
|---|---|---|
| Bead Up | 58 psi | 87 psi |
| Heat Soak | 0 psi | 0 psi |
| Fuse | 58 psi | 87 psi |
| Cool | 0 psi | 0 psi |

## External Heater Temperatures

| | Side A | Side B |
|---|---|---|

## GPS Location

| Date | Latitude | Longitude |
|---|---|---|
| 2018-08-07 15:49:24.0 | 64°2'18.268200"N | 135°49'43.364400"W |

## Logged Data Summary

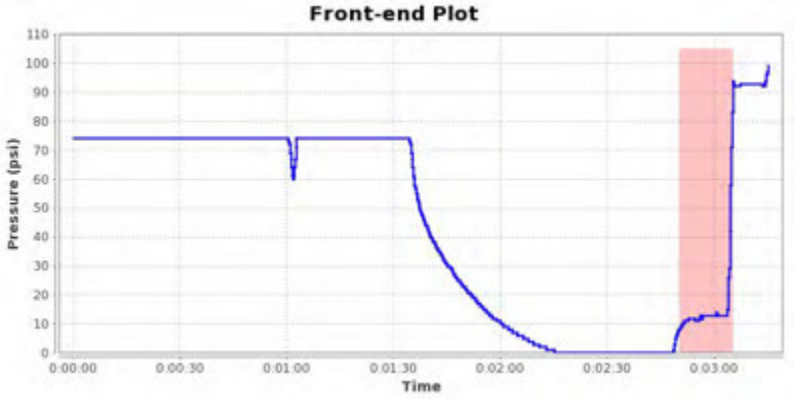
| | |
|---|---|
| Number of Data Points | 346 |
| Total Fusion Time | 1039 seconds |
| Maximum Recorded Pressure | 105 psi |

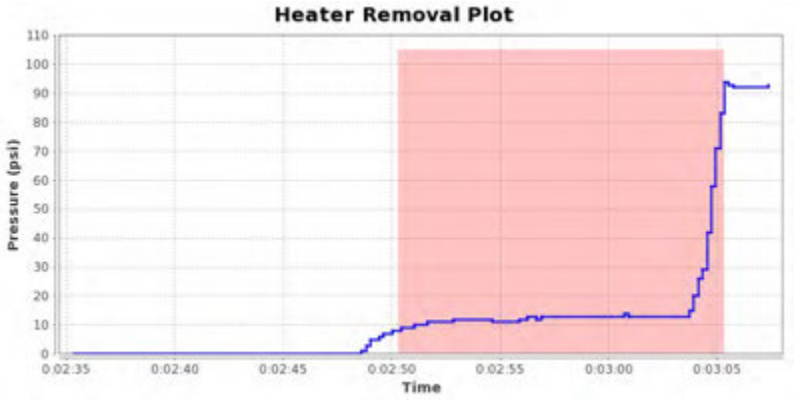
## Device Information

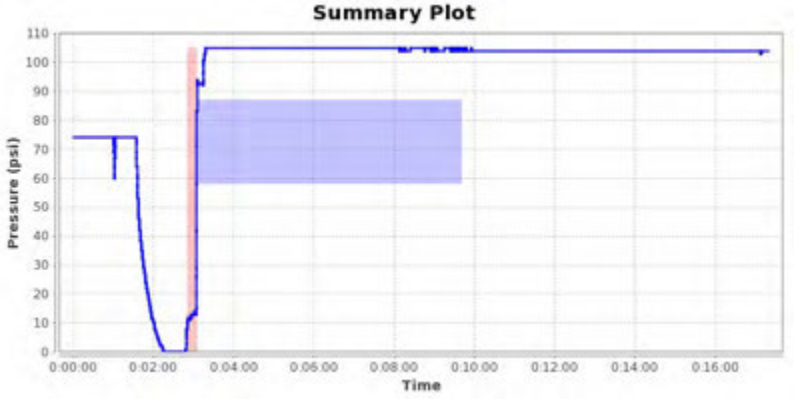
| | |
|---|---|
| DataLogger Serial Number | RH803Z0550 |
| Sensor Serial Number | MDL6621 |
| Calibration Date | 2018-04-04 |
| Firmware Version | v6.0 |
| Software Version | 1.08 (27) |
| Software Product Name | DataLogger 6 |

## Data Source

| | |
|---|---|
| Upload Time | 2018-08-20 13:40:13 GMT |




## Notes

Images for report: 1078022





Printed: 2018-08-20 15:55:14 UTC

# McElroy Joint Report

Reference Number 1078023

## Job Details

| | |
|---|---|
| Joint Number | 112 |
| Joint Time | 2018-08-09 08:21:53 GMT |
| Job | 1 |
| Operator | Rafel |
| Aborted Joint | No |

## Fusion Machine

| | |
|---|---|
| Machine Name | 618 HF |
| Machine Model | 618 HF |
| Piston Area | 11.78 $in^2$ |

## Pipe Specifications

| | |
|---|---|
| Pipe Material | PE4710 |
| Pipe Size | 6 " IPS |
| Wall Thickness | DR 11 |

## Pressures

| | | |
|---|---|---|
| Drag Pressure | 32 psi | |
| | Interfacial | Gauge |
| Bead Up | 75 psi | 105 psi |
| Heat Soak | 0 psi | 32 psi |
| Fuse/Cool | 75 psi | 105 psi |

## Fusion Specification

| | |
|---|---|
| Fusion Type | Butt Fusion |
| Fusion Specification | ASTM F2620 |
| Bead Time | 0 seconds |
| Bead Size | 3/16" |
| Heat/Soak Time | 162 seconds |
| Fuse Time | 397 seconds |
| Open/Close Time | 15 seconds |
| Cool Time | 0 seconds |

| | Minimum | Maximum |
|---|---|---|
| Bead Up | 90 psi | 119 psi |
| Heat Soak | 0 psi | 32 psi |
| Fuse | 90 psi | 119 psi |
| Cool | 0 psi | 0 psi |

## External Heater Temperatures

| | Side A | Side B |
|---|---|---|

## GPS Location

| Date | Latitude | Longitude |
|---|---|---|
| 2018-08-09 08:21:53.0 | 64°2'18.150000"N | 135°49'43.600200"W |

## Logged Data Summary

| | |
|---|---|
| Number of Data Points | 142 |
| Total Fusion Time | 1065 seconds |
| Maximum Recorded Pressure | 122 psi |

## Device Information

| | |
|---|---|
| DataLogger Serial Number | RH803Z0550 |
| Sensor Serial Number | MDL6621 |
| Calibration Date | 2018-04-04 |
| Firmware Version | v6.0 |
| Software Version | 1.08 (27) |
| Software Product Name | DataLogger 6 |

## Data Source

| | |
|---|---|
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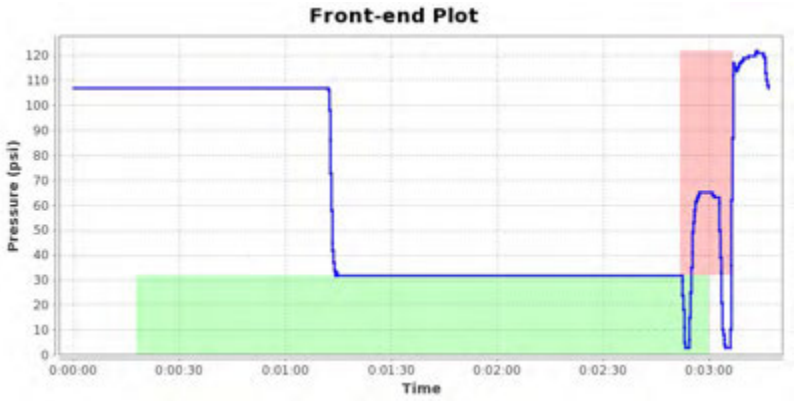


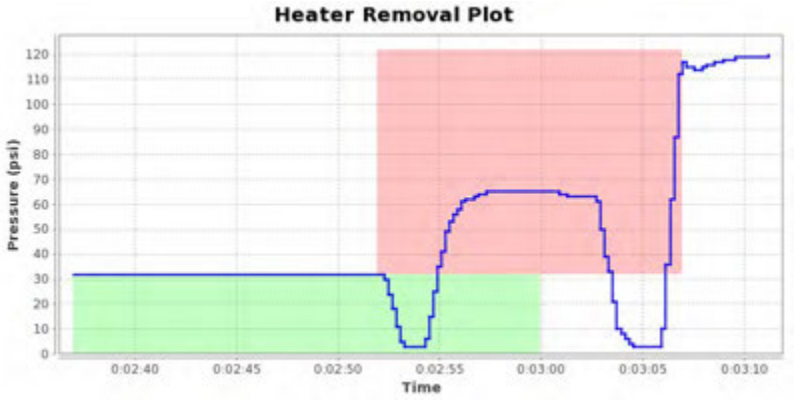





## Notes

Images for report: 1078023





Printed: 2018-08-20 15:55:13 UTC

# McElroy Joint Report

Reference Number 1078024

## Job Details

| | |
|---|---|
| Joint Number | 113 |
| Joint Time | 2018-08-09 12:30:25 GMT |
| Job | 1 |
| Operator | Rafel |
| Aborted Joint | No |

## Fusion Machine

| | |
|---|---|
| Machine Name | 618 HF |
| Machine Model | 618 HF |
| Piston Area | 11.78 in² |

## Pipe Specifications

| | |
|---|---|
| Pipe Material | PE4710 |
| Pipe Size | 6 " IPS |
| Wall Thickness | DR 11 |

## Pressures

| | | |
|---|---|---|
| Drag Pressure | 23 psi | |
| | Interfacial | Gauge |
| Bead Up | 75 psi | 96 psi |
| Heat Soak | 0 psi | 23 psi |
| Fuse/Cool | 75 psi | 96 psi |

## Fusion Specification

| | |
|---|---|
| Fusion Type | Butt Fusion |
| Fusion Specification | ASTM F2620 |
| Bead Time | 0 seconds |
| Bead Size | 3/16" |
| Heat/Soak Time | 162 seconds |
| Fuse Time | 397 seconds |
| Open/Close Time | 15 seconds |
| Cool Time | 0 seconds |

| | Minimum | Maximum |
|---|---|---|
| Bead Up | 81 psi | 110 psi |
| Heat Soak | 0 psi | 23 psi |
| Fuse | 81 psi | 110 psi |
| Cool | 0 psi | 0 psi |

## External Heater Temperatures

| | Side A | Side B |
|---|---|---|

## GPS Location

| Date | Latitude | Longitude |
|---|---|---|
| 2018-08-09 12:30:25.0 | 64°2'18.221400"N | 135°49'44.100000"W |

## Logged Data Summary

| | |
|---|---|
| Number of Data Points | 412 |
| Total Fusion Time | 1209 seconds |
| Maximum Recorded Pressure | 113 psi |

## Device Information

| | |
|---|---|
| DataLogger Serial Number | RH803Z0550 |
| Sensor Serial Number | MDL6621 |
| Calibration Date | 2018-04-04 |
| Firmware Version | v6.0 |
| Software Version | 1.08 (27) |
| Software Product Name | DataLogger 6 |

## Data Source

| | |
|---|---|
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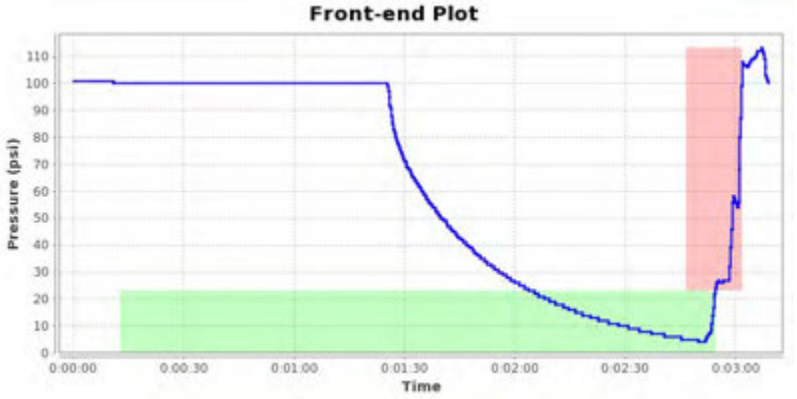
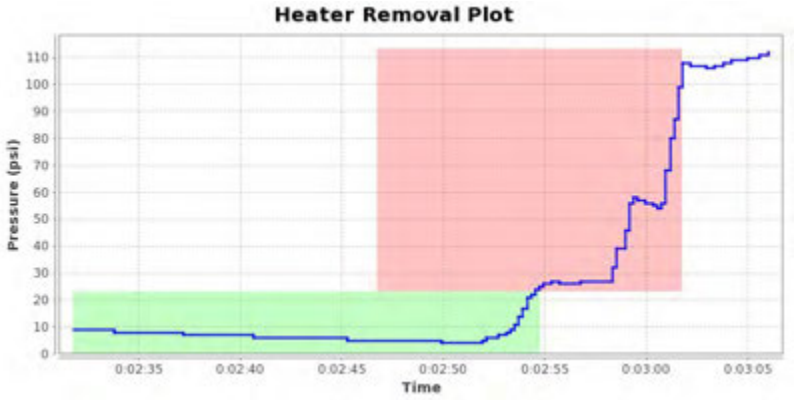
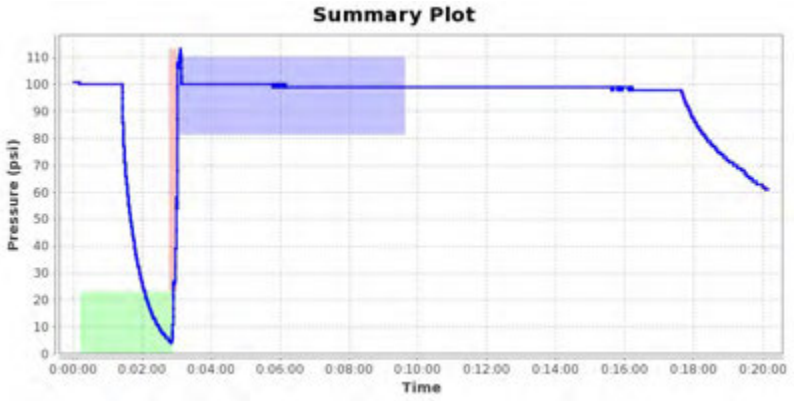



## Notes

Images for report: 1078024





Printed: 2018-08-20 15:55:13 UTC

# McElroy Joint Report

Reference Number 1078025

## Job Details

| | |
|---|---|
| Joint Number | 114 |
| Joint Time | 2018-08-09 13:12:58 GMT |
| Job | 1 |
| Operator | Rafel |
| Aborted Joint | No |

## Fusion Machine

| | |
|---|---|
| Machine Name | 618 HF |
| Machine Model | 618 HF |
| Piston Area | 11.78 in² |

## Pipe Specifications

| | |
|---|---|
| Pipe Material | PE4710 |
| Pipe Size | 6 " IPS |
| Wall Thickness | DR 11 |

## Pressures

| | | |
|---|---|---|
| Drag Pressure | 52 psi | |
| | Interfacial | Gauge |
| Bead Up | 75 psi | 125 psi |
| Heat Soak | 0 psi | 52 psi |
| Fuse/Cool | 75 psi | 125 psi |

## Fusion Specification

| | |
|---|---|
| Fusion Type | Butt Fusion |
| Fusion Specification | ASTM F2620 |
| Bead Time | 0 seconds |
| Bead Size | 3/16" |
| Heat/Soak Time | 162 seconds |
| Fuse Time | 397 seconds |
| Open/Close Time | 15 seconds |
| Cool Time | 0 seconds |

| | Minimum | Maximum |
|---|---|---|
| Bead Up | 110 psi | 139 psi |
| Heat Soak | 0 psi | 52 psi |
| Fuse | 110 psi | 139 psi |
| Cool | 0 psi | 0 psi |

## External Heater Temperatures

| | Side A | Side B |
|---|---|---|

## GPS Location

| Date | Latitude | Longitude |
|---|---|---|
| 2018-08-09 13:12:58.0 | 64°2'18.228000"N | 135°49'44.063400"W |

## Logged Data Summary

| | |
|---|---|
| Number of Data Points | 236 |
| Total Fusion Time | 193 seconds |
| Maximum Recorded Pressure | 129 psi |

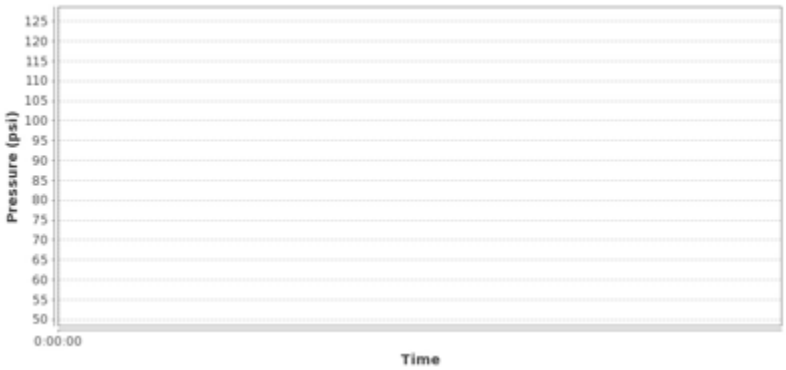
## Device Information

| | |
|---|---|
| DataLogger Serial Number | RH803Z0550 |
| Sensor Serial Number | MDL6621 |
| Calibration Date | 2018-04-04 |
| Firmware Version | v6.0 |
| Software Version | 1.08 (27) |
| Software Product Name | DataLogger 6 |

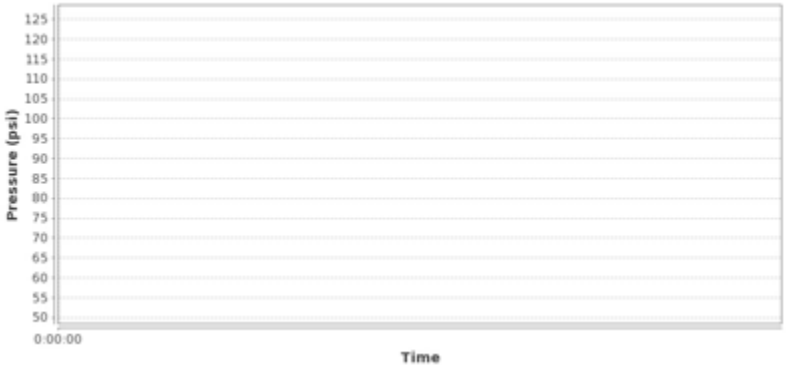
## Data Source

| | |
|---|---|
| Upload Time | 2018-08-20 13:42:04 GMT |

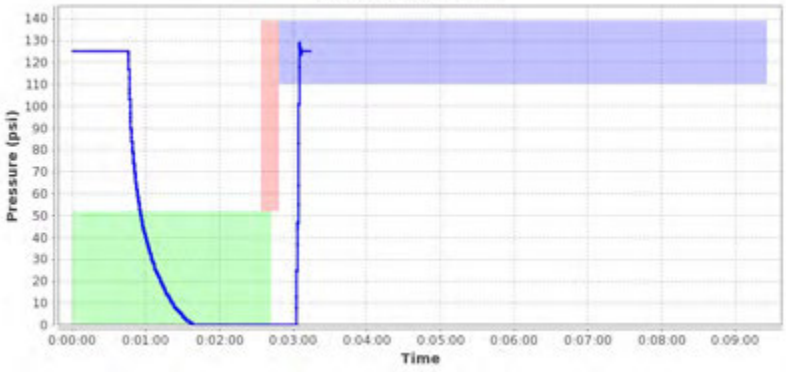
**Front-end Plot**




**Heater Removal Plot**




**Summary Plot**




## Notes

OAaaa

*2018-08-09 13:14:05 UTC*
*pellyconstruction*: Joint aboorted

Images for report: 1078025



Printed: 2018-08-20 15:55:05 UTC

# McElroy Joint Report

Reference Number 1078026

## Job Details

| | |
|---|---|
| Joint Number | 115 |
| Joint Time | 2018-08-09 13:52:22 GMT |
| Job | 1 |
| Operator | Rafel |
| Aborted Joint | No |

## Fusion Machine

| | |
|---|---|
| Machine Name | 618 HF |
| Machine Model | 618 HF |
| Piston Area | 11.78 in² |

## Pipe Specifications

| | |
|---|---|
| Pipe Material | PE4710 |
| Pipe Size | 6 " IPS |
| Wall Thickness | DR 11 |

## Pressures

| | | |
|---|---|---|
| Drag Pressure | 52 psi | |
| | Interfacial | Gauge |
| Bead Up | 75 psi | 125 psi |
| Heat Soak | 0 psi | 52 psi |
| Fuse/Cool | 75 psi | 125 psi |

## Fusion Specification

| | |
|---|---|
| Fusion Type | Butt Fusion |
| Fusion Specification | ASTM F2620 |
| Bead Time | 0 seconds |
| Bead Size | 3/16" |
| Heat/Soak Time | 162 seconds |
| Fuse Time | 397 seconds |
| Open/Close Time | 15 seconds |
| Cool Time | 0 seconds |

| | Minimum | Maximum |
|---|---|---|
| Bead Up | 110 psi | 139 psi |
| Heat Soak | 0 psi | 52 psi |
| Fuse | 110 psi | 139 psi |
| Cool | 0 psi | 0 psi |

## External Heater Temperatures

| | Side A | Side B |
|---|---|---|

## GPS Location

| Date | Latitude | Longitude |
|---|---|---|
| 2018-08-09 13:52:22.0 | 64°2'18.363000"N | 135°49'43.954800"W |

## Logged Data Summary

| | |
|---|---|
| Number of Data Points | 414 |
| Total Fusion Time | 1030 seconds |
| Maximum Recorded Pressure | 133 psi |

## Device Information

| | |
|---|---|
| DataLogger Serial Number | RH803Z0550 |
| Sensor Serial Number | MDL6621 |
| Calibration Date | 2018-04-04 |
| Firmware Version | v6.0 |
| Software Version | 1.08 (27) |
| Software Product Name | DataLogger 6 |

## Data Source

| | |
|---|---|
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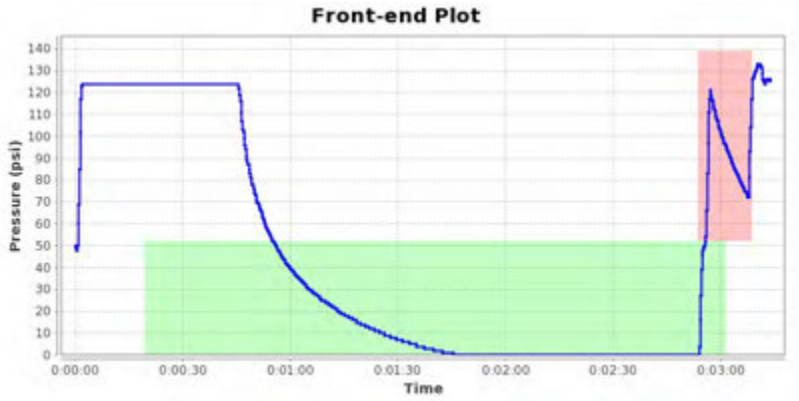


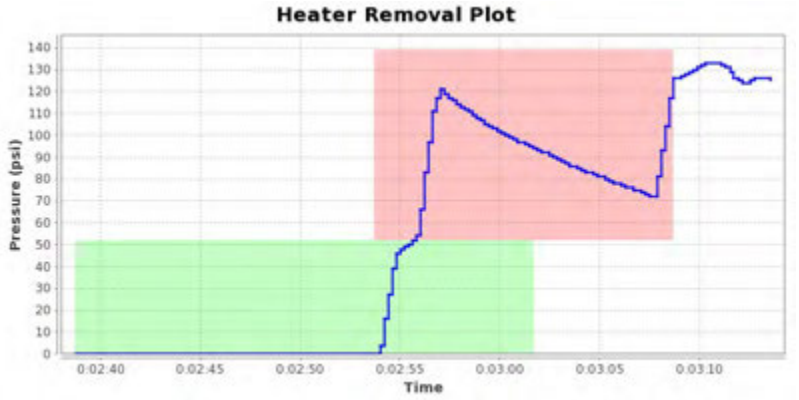





## Notes

Images for report: 1078026





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# McElroy Joint Report

Reference Number 1078027

## Job Details

| | |
|---|---|
| Joint Number | 116 |
| Joint Time | 2018-08-11 10:29:10 GMT |
| Job | 1 |
| Operator | Rafel |
| Aborted Joint | No |

## Fusion Machine

| | |
|---|---|
| Machine Name | 618 HF |
| Machine Model | 618 HF |
| Piston Area | 11.78 in² |

## Pipe Specifications

| | |
|---|---|
| Pipe Material | PE4710 |
| Pipe Size | 6 " IPS |
| Wall Thickness | DR 11 |

## Pressures

| | | |
|---|---|---|
| Drag Pressure | 57 psi | |
| | Interfacial | Gauge |
| Bead Up | 75 psi | 130 psi |
| Heat Soak | 0 psi | 57 psi |
| Fuse/Cool | 75 psi | 130 psi |

## Fusion Specification

| | |
|---|---|
| Fusion Type | Butt Fusion |
| Fusion Specification | ASTM F2620 |
| Bead Time | 0 seconds |
| Bead Size | 3/16" |
| Heat/Soak Time | 162 seconds |
| Fuse Time | 397 seconds |
| Open/Close Time | 15 seconds |
| Cool Time | 0 seconds |

| | Minimum | Maximum |
|---|---|---|
| Bead Up | 115 psi | 144 psi |
| Heat Soak | 0 psi | 57 psi |
| Fuse | 115 psi | 144 psi |
| Cool | 0 psi | 0 psi |

## External Heater Temperatures

| | Side A | Side B |
|---|---|---|

## GPS Location

| Date | Latitude | Longitude |
|---|---|---|
| 2018-08-11 10:29:10.0 | 64°2'17.754000"N | 135°49'45.437400"W |

## Logged Data Summary

| | |
|---|---|
| Number of Data Points | 306 |
| Total Fusion Time | 1564 seconds |
| Maximum Recorded Pressure | 132 psi |

## Device Information

| | |
|---|---|
| DataLogger Serial Number | RH803Z0550 |
| Sensor Serial Number | MDL6621 |
| Calibration Date | 2018-04-04 |
| Firmware Version | v6.0 |
| Software Version | 1.08 (27) |
| Software Product Name | DataLogger 6 |

## Data Source

| | |
|---|---|
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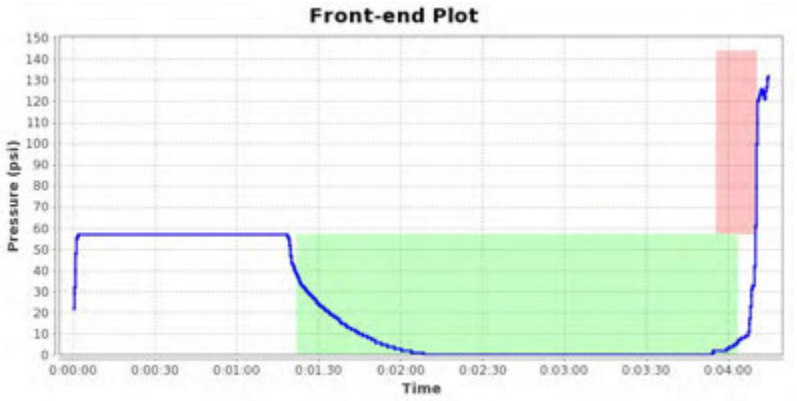


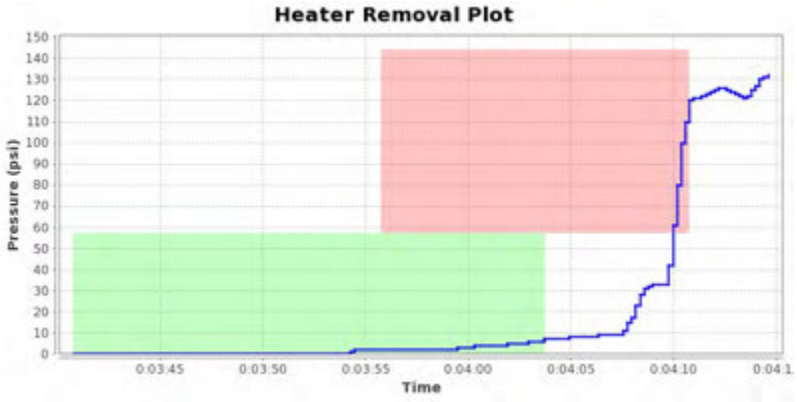


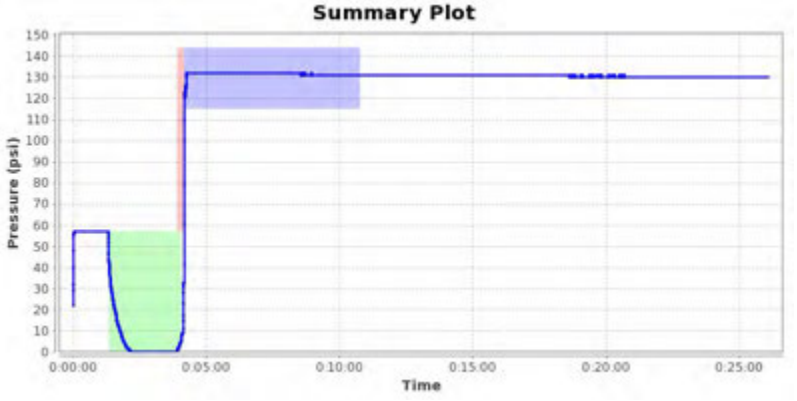


## Notes

Images for report: 1078027





Printed: 2018-08-20 15:55:04 UTC

# McElroy Joint Report

Reference Number 1078028

## Job Details

| | |
|---|---|
| Joint Number | 117 |
| Joint Time | 2018-08-11 11:36:26 GMT |
| Job | 1 |
| Operator | Rafel |
| Aborted Joint | No |

## Fusion Machine

| | |
|---|---|
| Machine Name | 618 HF |
| Machine Model | 618 HF |
| Piston Area | 11.78 in² |

## Pipe Specifications

| | |
|---|---|
| Pipe Material | PE4710 |
| Pipe Size | 6 " IPS |
| Wall Thickness | DR 11 |

## Pressures

| | | |
|---|---|---|
| Drag Pressure | 30 psi | |
| | Interfacial | Gauge |
| Bead Up | 75 psi | 103 psi |
| Heat Soak | 0 psi | 30 psi |
| Fuse/Cool | 75 psi | 103 psi |

## Fusion Specification

| | |
|---|---|
| Fusion Type | Butt Fusion |
| Fusion Specification | ASTM F2620 |
| Bead Time | 0 seconds |
| Bead Size | 3/16" |
| Heat/Soak Time | 162 seconds |
| Fuse Time | 397 seconds |
| Open/Close Time | 15 seconds |
| Cool Time | 0 seconds |

| | Minimum | Maximum |
|---|---|---|
| Bead Up | 88 psi | 117 psi |
| Heat Soak | 0 psi | 30 psi |
| Fuse | 88 psi | 117 psi |
| Cool | 0 psi | 0 psi |

## External Heater Temperatures

| | Side A | Side B |
|---|---|---|

## GPS Location

| Date | Latitude | Longitude |
|---|---|---|
| 2018-08-11 11:36:26.0 | 64°2'18.001800"N | 135°49'45.030000"W |

## Logged Data Summary

| | |
|---|---|
| Number of Data Points | 346 |
| Total Fusion Time | 1386 seconds |
| Maximum Recorded Pressure | 217 psi |

## Device Information

| | |
|---|---|
| DataLogger Serial Number | RH803Z0550 |
| Sensor Serial Number | MDL6621 |
| Calibration Date | 2018-04-04 |
| Firmware Version | v6.0 |
| Software Version | 1.08 (27) |
| Software Product Name | DataLogger 6 |

## Data Source

| | |
|---|---|
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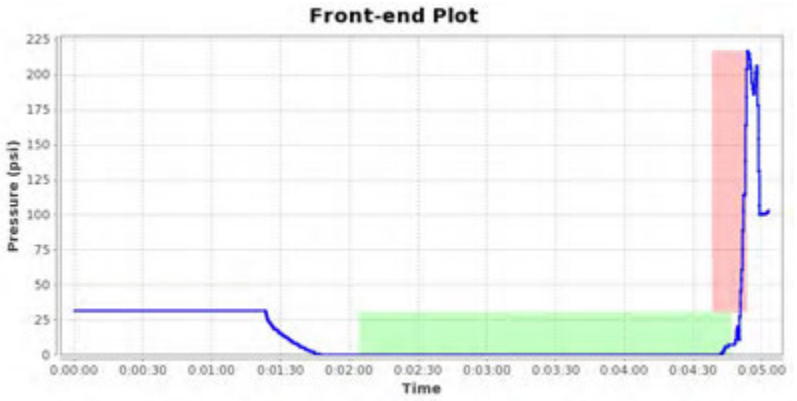
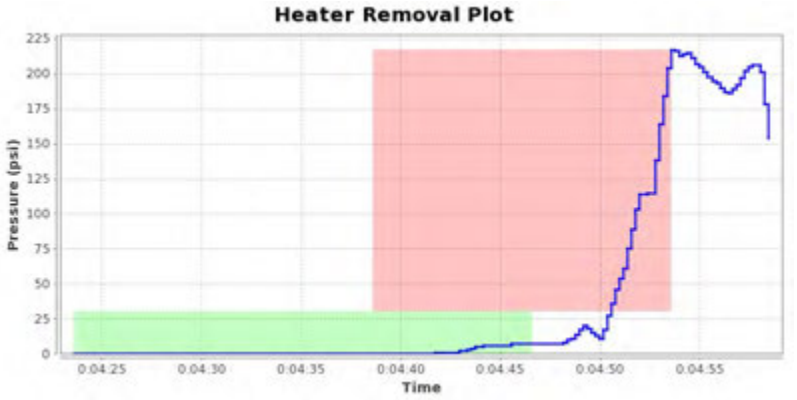
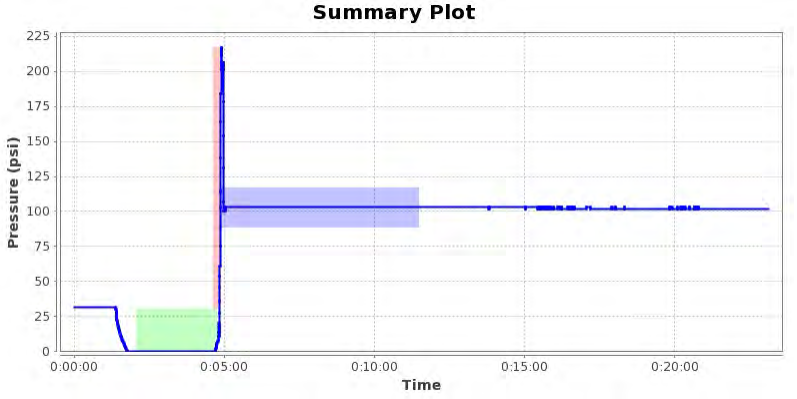


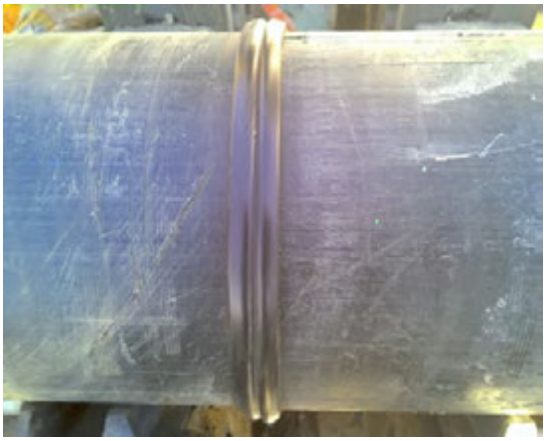




## Notes

Images for report: 1078028





Printed: 2018-08-20 15:54:58 UTC

# McElroy Joint Report

Reference Number 1078029

## Job Details

| | |
|---|---|
| Joint Number | 118 |
| Joint Time | 2018-08-11 12:04:21 GMT |
| Job | 1 |
| Operator | Rafel |
| Aborted Joint | No |

## Fusion Machine

| | |
|---|---|
| Machine Name | 618 HF |
| Machine Model | 618 HF |
| Piston Area | 11.78 in² |

## Pipe Specifications

| | |
|---|---|
| Pipe Material | PE4710 |
| Pipe Size | 6 " IPS |
| Wall Thickness | DR 11 |

## Pressures

| | | |
|---|---|---|
| Drag Pressure | 30 psi | |
| | Interfacial | Gauge |
| Bead Up | 75 psi | 103 psi |
| Heat Soak | 0 psi | 30 psi |
| Fuse/Cool | 75 psi | 103 psi |

## Fusion Specification

| | |
|---|---|
| Fusion Type | Butt Fusion |
| Fusion Specification | ASTM F2620 |
| Bead Time | 0 seconds |
| Bead Size | 3/16" |
| Heat/Soak Time | 162 seconds |
| Fuse Time | 397 seconds |
| Open/Close Time | 15 seconds |
| Cool Time | 0 seconds |

| | Minimum | Maximum |
|---|---|---|
| Bead Up | 88 psi | 117 psi |
| Heat Soak | 0 psi | 30 psi |
| Fuse | 88 psi | 117 psi |
| Cool | 0 psi | 0 psi |

## External Heater Temperatures

| | Side A | Side B |
|---|---|---|

## GPS Location

| Date | Latitude | Longitude |
|---|---|---|
| 2018-08-11 12:04:21.0 | 64°2'17.953800"N | 135°49'45.250800"W |

## Logged Data Summary

| | |
|---|---|
| Number of Data Points | 218 |
| Total Fusion Time | 818 seconds |
| Maximum Recorded Pressure | 104 psi |

## Device Information

| | |
|---|---|
| DataLogger Serial Number | RH803Z0550 |
| Sensor Serial Number | MDL6621 |
| Calibration Date | 2018-04-04 |
| Firmware Version | v6.0 |
| Software Version | 1.08 (27) |
| Software Product Name | DataLogger 6 |

## Data Source

| | |
|---|---|
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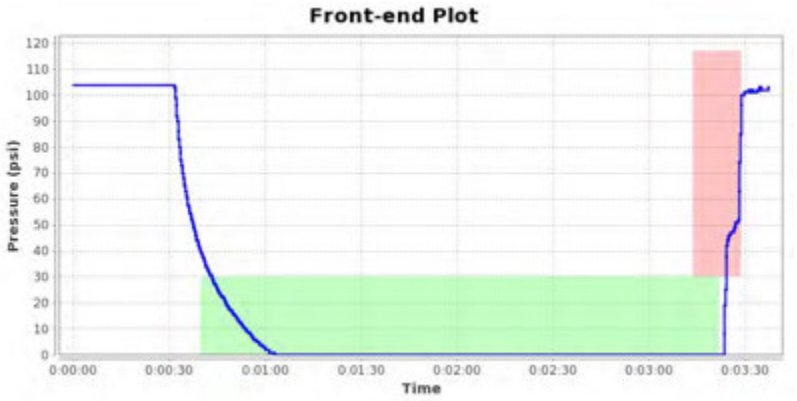


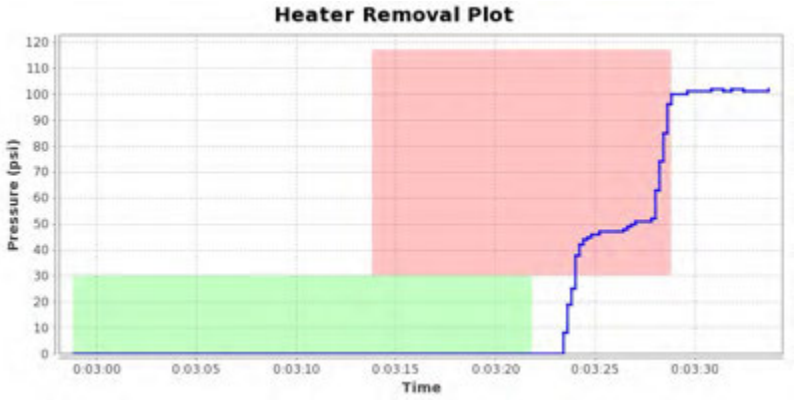


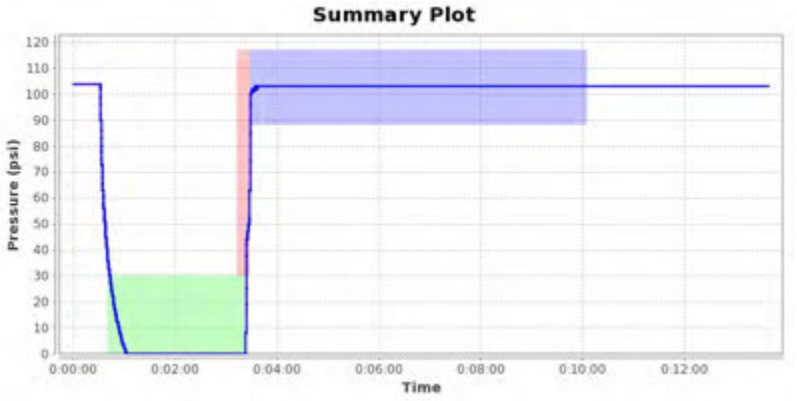


## Notes

Images for report: 1078029





Printed: 2018-08-20 15:54:57 UTC

# McElroy Joint Report

Reference Number 1078030

## Job Details

| | |
|---|---|
| Joint Number | 119 |
| Joint Time | 2018-08-11 12:32:07 GMT |
| Job | 1 |
| Operator | Rafel |
| Aborted Joint | No |

## Fusion Machine

| | |
|---|---|
| Machine Name | 618 HF |
| Machine Model | 618 HF |
| Piston Area | 11.78 in² |

## Pipe Specifications

| | |
|---|---|
| Pipe Material | PE4710 |
| Pipe Size | 6 " IPS |
| Wall Thickness | DR 11 |

## Pressures

| | | |
|---|---|---|
| Drag Pressure | 31 psi | |
| | Interfacial | Gauge |
| Bead Up | 75 psi | 104 psi |
| Heat Soak | 0 psi | 31 psi |
| Fuse/Cool | 75 psi | 104 psi |

## Fusion Specification

| | |
|---|---|
| Fusion Type | Butt Fusion |
| Fusion Specification | ASTM F2620 |
| Bead Time | 0 seconds |
| Bead Size | 3/16" |
| Heat/Soak Time | 162 seconds |
| Fuse Time | 397 seconds |
| Open/Close Time | 15 seconds |
| Cool Time | 0 seconds |

| | Minimum | Maximum |
|---|---|---|
| Bead Up | 89 psi | 118 psi |
| Heat Soak | 0 psi | 31 psi |
| Fuse | 89 psi | 118 psi |
| Cool | 0 psi | 0 psi |

## External Heater Temperatures

| | Side A | Side B |
|---|---|---|

## GPS Location

| Date | Latitude | Longitude |
|---|---|---|
| 2018-08-11 12:32:07.0 | 64°2'17.816400"N | 135°49'45.573000"W |

## Logged Data Summary

| | |
|---|---|
| Number of Data Points | 246 |
| Total Fusion Time | 861 seconds |
| Maximum Recorded Pressure | 105 psi |

## Device Information

| | |
|---|---|
| DataLogger Serial Number | RH803Z0550 |
| Sensor Serial Number | MDL6621 |
| Calibration Date | 2018-04-04 |
| Firmware Version | v6.0 |
| Software Version | 1.08 (27) |
| Software Product Name | DataLogger 6 |

## Data Source

| | |
|---|---|
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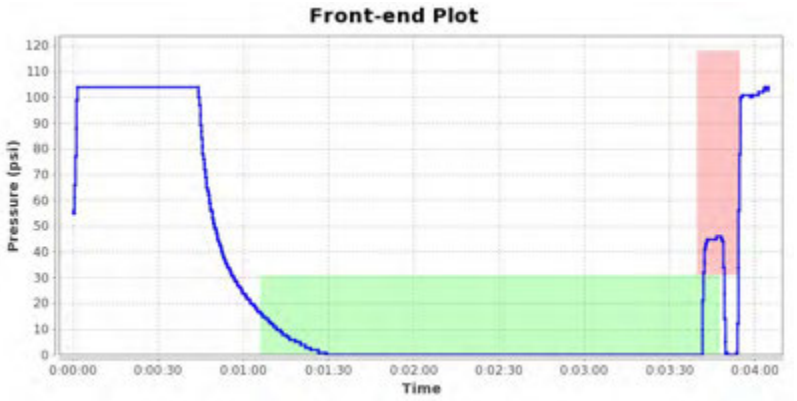


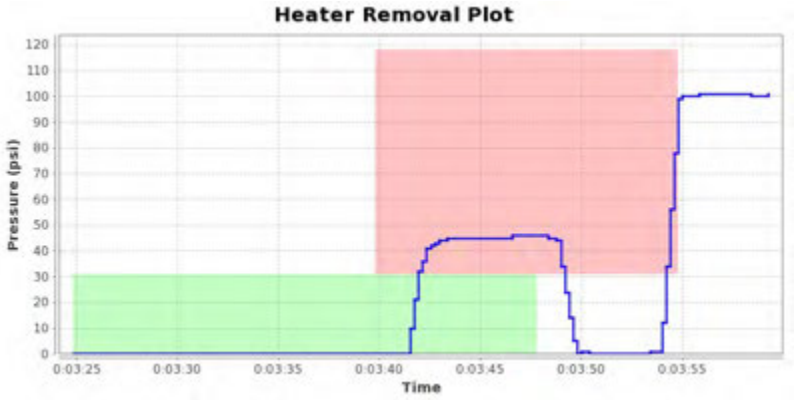





## Notes

Images for report: 1078030





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# McElroy Joint Report

Reference Number 1078031

## Job Details

| | |
|---|---|
| Joint Number | 120 |
| Joint Time | 2018-08-11 13:07:23 GMT |
| Job | 1 |
| Operator | Rafel |
| Aborted Joint | No |

## Fusion Machine

| | |
|---|---|
| Machine Name | 618 HF |
| Machine Model | 618 HF |
| Piston Area | 11.78 in² |

## Pipe Specifications

| | |
|---|---|
| Pipe Material | PE4710 |
| Pipe Size | 6 " IPS |
| Wall Thickness | DR 11 |

## Pressures

| Drag Pressure | 30 psi | |
|---|---|---|
| | Interfacial | Gauge |
| Bead Up | 75 psi | 103 psi |
| Heat Soak | 0 psi | 30 psi |
| Fuse/Cool | 75 psi | 103 psi |

## Fusion Specification

| | |
|---|---|
| Fusion Type | Butt Fusion |
| Fusion Specification | ASTM F2620 |
| Bead Time | 0 seconds |
| Bead Size | 3/16" |
| Heat/Soak Time | 162 seconds |
| Fuse Time | 397 seconds |
| Open/Close Time | 15 seconds |
| Cool Time | 0 seconds |

| | Minimum | Maximum |
|---|---|---|
| Bead Up | 88 psi | 117 psi |
| Heat Soak | 0 psi | 30 psi |
| Fuse | 88 psi | 117 psi |
| Cool | 0 psi | 0 psi |

## External Heater Temperatures

| | Side A | Side B |
|---|---|---|

## GPS Location

| Date | Latitude | Longitude |
|---|---|---|
| 2018-08-11 13:07:23.0 | 64°2'17.709000"N | 135°49'45.568200"W |

## Logged Data Summary

| | |
|---|---|
| Number of Data Points | 252 |
| Total Fusion Time | 681 seconds |
| Maximum Recorded Pressure | 106 psi |

## Device Information

| | |
|---|---|
| DataLogger Serial Number | RH803Z0550 |
| Sensor Serial Number | MDL6621 |
| Calibration Date | 2018-04-04 |
| Firmware Version | v6.0 |
| Software Version | 1.08 (27) |
| Software Product Name | DataLogger 6 |

## Data Source

| | |
|---|---|
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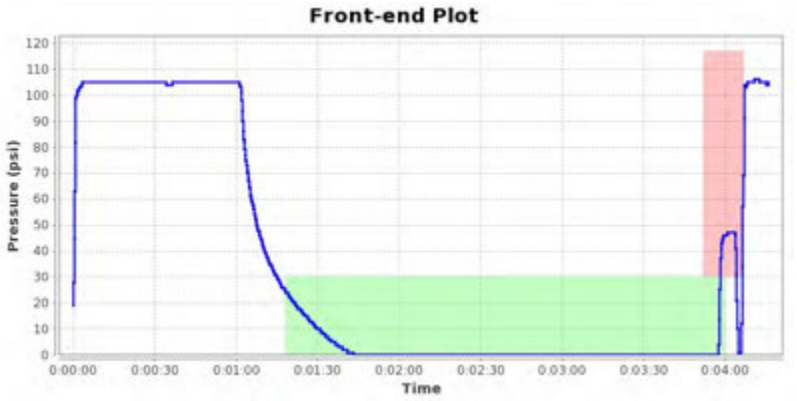


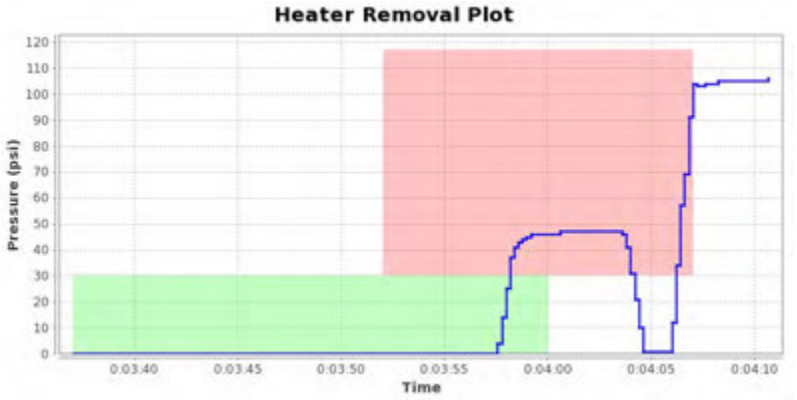


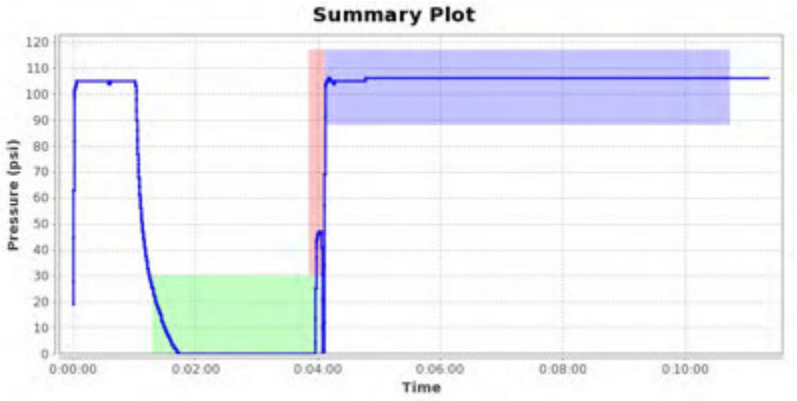


## Notes

Images for report: 1078031





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# McElroy Joint Report

Reference Number 1078032

## Job Details

| | |
|---|---|
| Joint Number | 121 |
| Joint Time | 2018-08-11 13:44:41 GMT |
| Job | 1 |
| Operator | Rafel |
| Aborted Joint | No |

## Fusion Machine

| | |
|---|---|
| Machine Name | 618 HF |
| Machine Model | 618 HF |
| Piston Area | 11.78 in² |

## Pipe Specifications

| | |
|---|---|
| Pipe Material | PE4710 |
| Pipe Size | 6 " IPS |
| Wall Thickness | DR 11 |

## Pressures

| | | |
|---|---|---|
| Drag Pressure | 113 psi | |
| | Interfacial | Gauge |
| Bead Up | 75 psi | 186 psi |
| Heat Soak | 0 psi | 113 psi |
| Fuse/Cool | 75 psi | 186 psi |

## Fusion Specification

| | |
|---|---|
| Fusion Type | Butt Fusion |
| Fusion Specification | ASTM F2620 |
| Bead Time | 0 seconds |
| Bead Size | 3/16" |
| Heat/Soak Time | 162 seconds |
| Fuse Time | 397 seconds |
| Open/Close Time | 15 seconds |
| Cool Time | 0 seconds |

| | Minimum | Maximum |
|---|---|---|
| Bead Up | 171 psi | 200 psi |
| Heat Soak | 0 psi | 113 psi |
| Fuse | 171 psi | 200 psi |
| Cool | 0 psi | 0 psi |

## External Heater Temperatures

| | Side A | Side B |
|---|---|---|

## GPS Location

| Date | Latitude | Longitude |
|---|---|---|
| 2018-08-11 13:44:41.0 | 64°2'17.784600"N | 135°49'45.306000"W |

## Logged Data Summary

| | |
|---|---|
| Number of Data Points | 466 |
| Total Fusion Time | 1016 seconds |
| Maximum Recorded Pressure | 188 psi |

## Device Information

| | |
|---|---|
| DataLogger Serial Number | RH803Z0550 |
| Sensor Serial Number | MDL6621 |
| Calibration Date | 2018-04-04 |
| Firmware Version | v6.0 |
| Software Version | 1.08 (27) |
| Software Product Name | DataLogger 6 |

## Data Source

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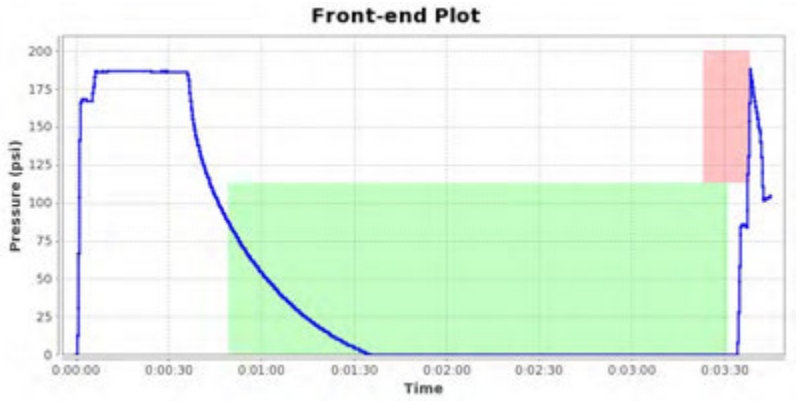


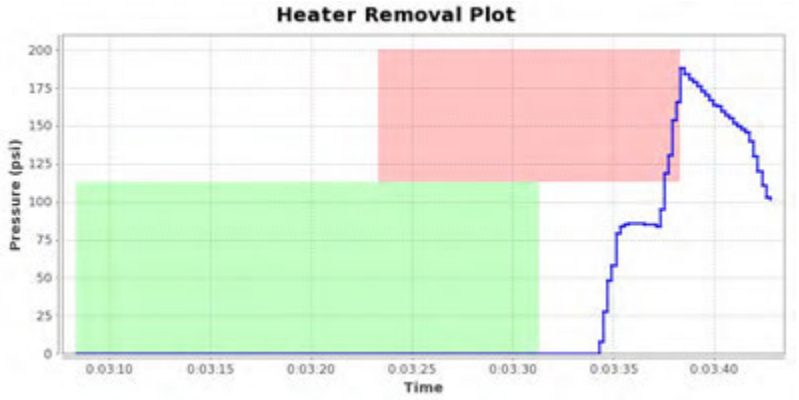





## Notes

Images for report: 1078032





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# McElroy Joint Report

Reference Number 1078033

## Job Details

| | |
|---|---|
| Joint Number | 122 |
| Joint Time | 2018-08-11 14:40:26 GMT |
| Job | 1 |
| Operator | Rafel |
| Aborted Joint | No |

## Fusion Machine

| | |
|---|---|
| Machine Name | 618 HF |
| Machine Model | 618 HF |
| Piston Area | 11.78 in² |

## Pipe Specifications

| | |
|---|---|
| Pipe Material | PE4710 |
| Pipe Size | 6 " IPS |
| Wall Thickness | DR 11 |

## Pressures

| | | |
|---|---|---|
| Drag Pressure | 49 psi | |
| | Interfacial | Gauge |
| Bead Up | 75 psi | 122 psi |
| Heat Soak | 0 psi | 49 psi |
| Fuse/Cool | 75 psi | 122 psi |

## Fusion Specification

| | |
|---|---|
| Fusion Type | Butt Fusion |
| Fusion Specification | ASTM F2620 |
| Bead Time | 0 seconds |
| Bead Size | 3/16" |
| Heat/Soak Time | 162 seconds |
| Fuse Time | 397 seconds |
| Open/Close Time | 15 seconds |
| Cool Time | 0 seconds |

| | Minimum | Maximum |
|---|---|---|
| Bead Up | 107 psi | 136 psi |
| Heat Soak | 0 psi | 49 psi |
| Fuse | 107 psi | 136 psi |
| Cool | 0 psi | 0 psi |

## External Heater Temperatures

| | Side A | Side B |
|---|---|---|

## GPS Location

| Date | Latitude | Longitude |
|---|---|---|
| 2018-08-11 14:40:26.0 | 64°2'17.821800"N | 135°49'45.316200"W |

## Logged Data Summary

| | |
|---|---|
| Number of Data Points | 576 |
| Total Fusion Time | 1184 seconds |
| Maximum Recorded Pressure | 130 psi |

## Device Information

| | |
|---|---|
| DataLogger Serial Number | RH803Z0550 |
| Sensor Serial Number | MDL6621 |
| Calibration Date | 2018-04-04 |
| Firmware Version | v6.0 |
| Software Version | 1.08 (27) |
| Software Product Name | DataLogger 6 |

## Data Source

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|---|---|
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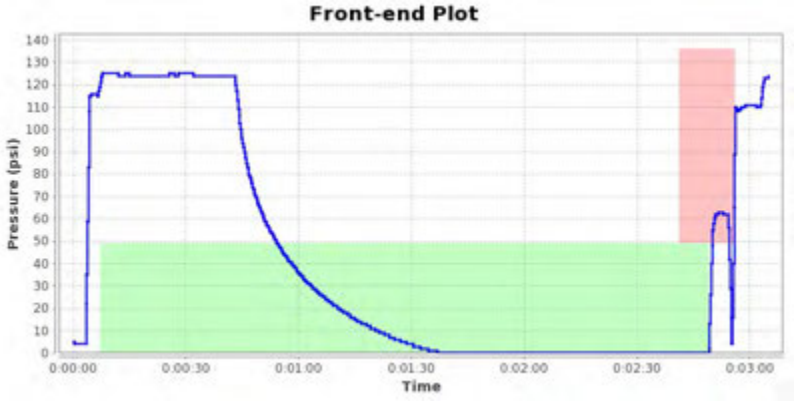
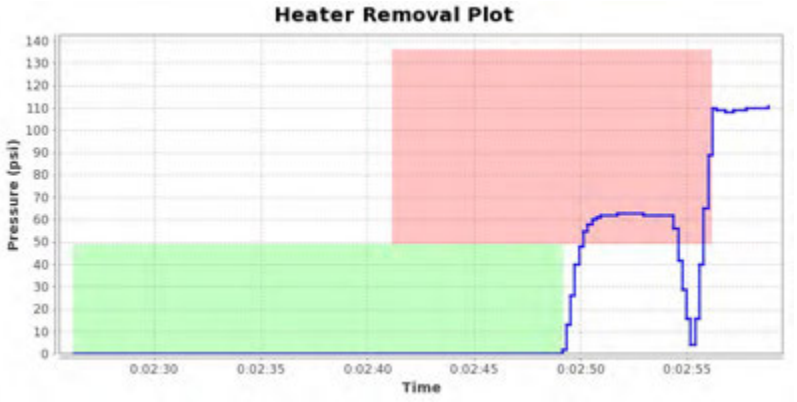


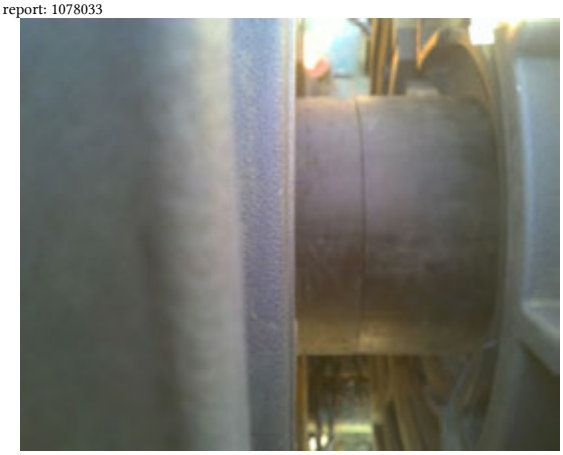



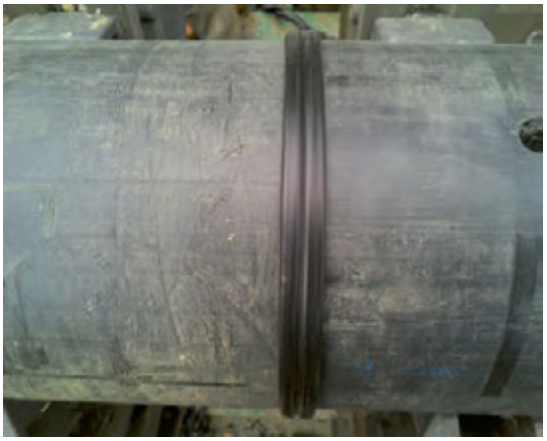




## Notes

Images for report: 1078033





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# McElroy Joint Report

Reference Number 1078034

## Job Details

| | |
|---|---|
| Joint Number | 123 |
| Joint Time | 2018-08-12 11:27:29 GMT |
| Job | 1 |
| Operator | Rafel |
| Aborted Joint | No |

## Fusion Machine

| | |
|---|---|
| Machine Name | 618 HF |
| Machine Model | 618 HF |
| Piston Area | 11.78 in² |

## Pipe Specifications

| | |
|---|---|
| Pipe Material | PE4710 |
| Pipe Size | 6 " IPS |
| Wall Thickness | DR 11 |

## Pressures

| Drag Pressure | 50 psi | |
|---|---|---|
| | Interfacial | Gauge |
| Bead Up | 75 psi | 123 psi |
| Heat Soak | 0 psi | 50 psi |
| Fuse/Cool | 75 psi | 123 psi |

## Fusion Specification

| | |
|---|---|
| Fusion Type | Butt Fusion |
| Fusion Specification | ASTM F2620 |
| Bead Time | 0 seconds |
| Bead Size | 3/16" |
| Heat/Soak Time | 162 seconds |
| Fuse Time | 397 seconds |
| Open/Close Time | 15 seconds |
| Cool Time | 0 seconds |

| | Minimum | Maximum |
|---|---|---|
| Bead Up | 108 psi | 137 psi |
| Heat Soak | 0 psi | 50 psi |
| Fuse | 108 psi | 137 psi |
| Cool | 0 psi | 0 psi |

## External Heater Temperatures

| | Side A | Side B |
|---|---|---|

## GPS Location

| Date | Latitude | Longitude |
|---|---|---|
| 2018-08-12 11:27:29.0 | 64°2'18.644400"N | 135°49'43.492800"W |

## Logged Data Summary

| | |
|---|---|
| Number of Data Points | 310 |
| Total Fusion Time | 1380 seconds |
| Maximum Recorded Pressure | 132 psi |

## Device Information

| | |
|---|---|
| DataLogger Serial Number | RH803Z0550 |
| Sensor Serial Number | MDL6621 |
| Calibration Date | 2018-04-04 |
| Firmware Version | v6.0 |
| Software Version | 1.08 (27) |
| Software Product Name | DataLogger 6 |

## Data Source

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|---|---|
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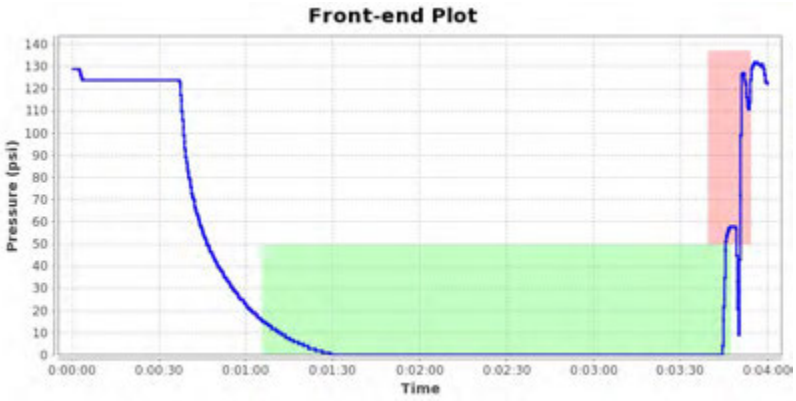


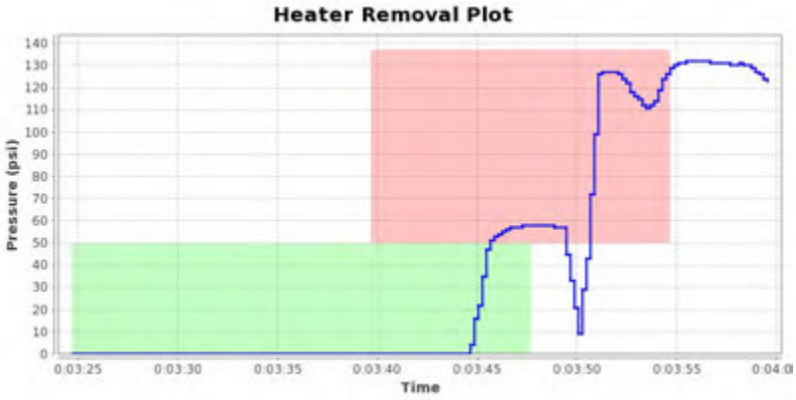


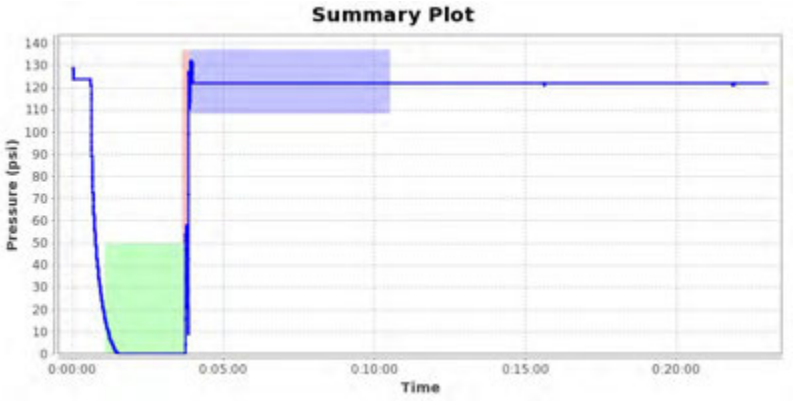


## Notes

Images for report: 1078034





Printed: 2018-08-20 15:54:49 UTC

# McElroy Joint Report

Reference Number 1078035

## Job Details

| | |
|---|---|
| Joint Number | 124 |
| Joint Time | 2018-08-12 12:43:17 GMT |
| Job | 1 |
| Operator | Rafel |
| Aborted Joint | No |

## Fusion Machine

| | |
|---|---|
| Machine Name | 618 HF |
| Machine Model | 618 HF |
| Piston Area | 11.78 in² |

## Pipe Specifications

| | |
|---|---|
| Pipe Material | PE4710 |
| Pipe Size | 6 " IPS |
| Wall Thickness | DR 11 |

## Pressures

| | | |
|---|---|---|
| Drag Pressure | 59 psi | |
| | Interfacial | Gauge |
| Bead Up | 75 psi | 132 psi |
| Heat Soak | 0 psi | 59 psi |
| Fuse/Cool | 75 psi | 132 psi |

## Fusion Specification

| | |
|---|---|
| Fusion Type | Butt Fusion |
| Fusion Specification | ASTM F2620 |
| Bead Time | 0 seconds |
| Bead Size | 3/16" |
| Heat/Soak Time | 162 seconds |
| Fuse Time | 397 seconds |
| Open/Close Time | 15 seconds |
| Cool Time | 0 seconds |

| | Minimum | Maximum |
|---|---|---|
| Bead Up | 117 psi | 146 psi |
| Heat Soak | 0 psi | 59 psi |
| Fuse | 117 psi | 146 psi |
| Cool | 0 psi | 0 psi |

## External Heater Temperatures

| | Side A | Side B |
|---|---|---|

## GPS Location

| Date | Latitude | Longitude |
|---|---|---|
| 2018-08-12 12:43:17.0 | 64°2'18.627600"N | 135°49'43.271400"W |

## Logged Data Summary

| | |
|---|---|
| Number of Data Points | 312 |
| Total Fusion Time | 1125 seconds |
| Maximum Recorded Pressure | 134 psi |

## Device Information

| | |
|---|---|
| DataLogger Serial Number | RH803Z0550 |
| Sensor Serial Number | MDL6621 |
| Calibration Date | 2018-04-04 |
| Firmware Version | v6.0 |
| Software Version | 1.08 (27) |
| Software Product Name | DataLogger 6 |

## Data Source

| | |
|---|---|
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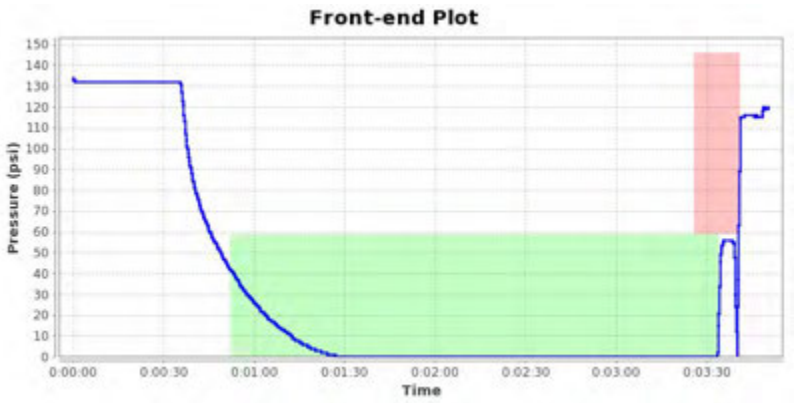


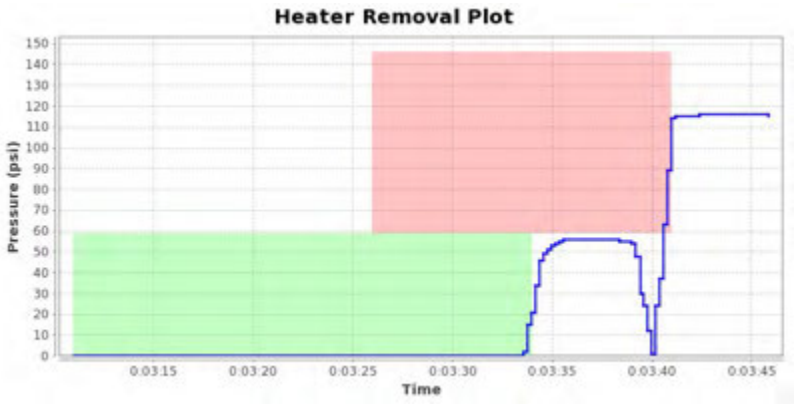


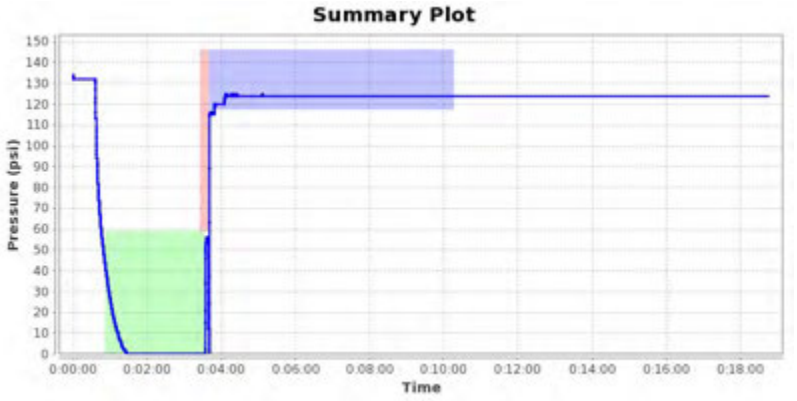


## Notes

Images for report: 1078035





Printed: 2018-08-20 15:54:47 UTC

# McElroy Joint Report

Reference Number 1078036

## Job Details

| | |
|---|---|
| Joint Number | 125 |
| Joint Time | 2018-08-12 13:30:44 GMT |
| Job | 1 |
| Operator | Rafel |
| Aborted Joint | No |

## Fusion Machine

| | |
|---|---|
| Machine Name | 618 HF |
| Machine Model | 618 HF |
| Piston Area | 11.78 in² |

## Pipe Specifications

| | |
|---|---|
| Pipe Material | PE4710 |
| Pipe Size | 6 " IPS |
| Wall Thickness | DR 11 |

## Pressures

| | | |
|---|---|---|
| Drag Pressure | 53 psi | |
| | Interfacial | Gauge |
| Bead Up | 75 psi | 126 psi |
| Heat Soak | 0 psi | 53 psi |
| Fuse/Cool | 75 psi | 126 psi |

## Fusion Specification

| | |
|---|---|
| Fusion Type | Butt Fusion |
| Fusion Specification | ASTM F2620 |
| Bead Time | 0 seconds |
| Bead Size | 3/16" |
| Heat/Soak Time | 162 seconds |
| Fuse Time | 397 seconds |
| Open/Close Time | 15 seconds |
| Cool Time | 0 seconds |

| | Minimum | Maximum |
|---|---|---|
| Bead Up | 111 psi | 140 psi |
| Heat Soak | 0 psi | 53 psi |
| Fuse | 111 psi | 140 psi |
| Cool | 0 psi | 0 psi |

## External Heater Temperatures

| | Side A | Side B |
|---|---|---|

## GPS Location

| Date | Latitude | Longitude |
|---|---|---|
| 2018-08-12 13:30:44.0 | 64°2'18.660000"N | 135°49'43.343400"W |

## Logged Data Summary

| | |
|---|---|
| Number of Data Points | 516 |
| Total Fusion Time | 1131 seconds |
| Maximum Recorded Pressure | 127 psi |

## Device Information

| | |
|---|---|
| DataLogger Serial Number | RH803Z0550 |
| Sensor Serial Number | MDL6621 |
| Calibration Date | 2018-04-04 |
| Firmware Version | v6.0 |
| Software Version | 1.08 (27) |
| Software Product Name | DataLogger 6 |

## Data Source

| | |
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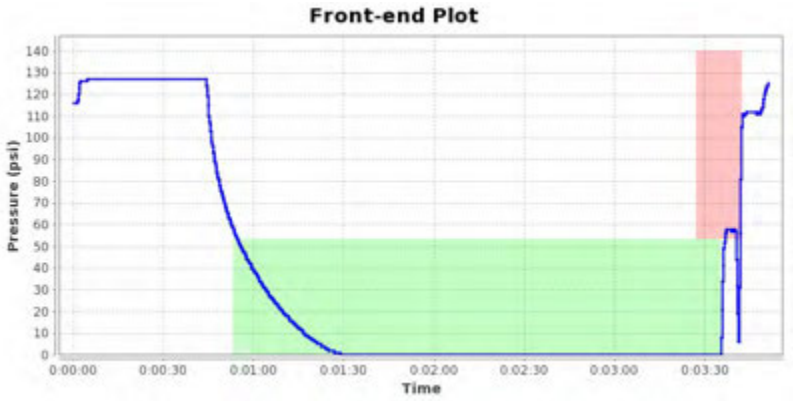


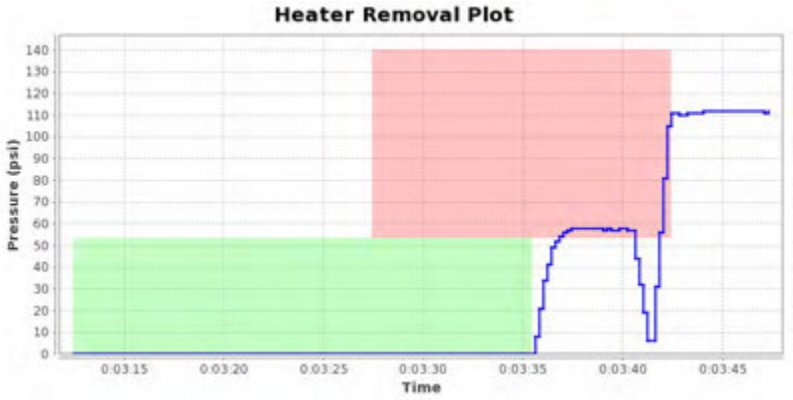





## Notes

Images for report: 1078036





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# McElroy Joint Report

Reference Number 1078037

## Job Details

| | |
|---|---|
| Joint Number | 126 |
| Joint Time | 2018-08-12 14:04:49 GMT |
| Job | 1 |
| Operator | Rafel |
| Aborted Joint | No |

## Fusion Machine

| | |
|---|---|
| Machine Name | 618 HF |
| Machine Model | 618 HF |
| Piston Area | 11.78 in² |

## Pipe Specifications

| | |
|---|---|
| Pipe Material | PE4710 |
| Pipe Size | 6 " IPS |
| Wall Thickness | DR 11 |

## Pressures

| | | |
|---|---|---|
| Drag Pressure | 67 psi | |
| | Interfacial | Gauge |
| Bead Up | 75 psi | 140 psi |
| Heat Soak | 0 psi | 67 psi |
| Fuse/Cool | 75 psi | 140 psi |

## Fusion Specification

| | |
|---|---|
| Fusion Type | Butt Fusion |
| Fusion Specification | ASTM F2620 |
| Bead Time | 0 seconds |
| Bead Size | 3/16" |
| Heat/Soak Time | 162 seconds |
| Fuse Time | 397 seconds |
| Open/Close Time | 15 seconds |
| Cool Time | 0 seconds |

| | Minimum | Maximum |
|---|---|---|
| Bead Up | 125 psi | 154 psi |
| Heat Soak | 0 psi | 67 psi |
| Fuse | 125 psi | 154 psi |
| Cool | 0 psi | 0 psi |

## External Heater Temperatures

| | Side A | Side B |
|---|---|---|

## GPS Location

| Date | Latitude | Longitude |
|---|---|---|
| 2018-08-12 14:04:49.0 | 64°2'18.694800"N | 135°49'43.489800"W |

## Logged Data Summary

| | |
|---|---|
| Number of Data Points | 372 |
| Total Fusion Time | 1143 seconds |
| Maximum Recorded Pressure | 141 psi |

## Device Information

| | |
|---|---|
| DataLogger Serial Number | RH803Z0550 |
| Sensor Serial Number | MDL6621 |
| Calibration Date | 2018-04-04 |
| Firmware Version | v6.0 |
| Software Version | 1.08 (27) |
| Software Product Name | DataLogger 6 |

## Data Source

| | |
|---|---|
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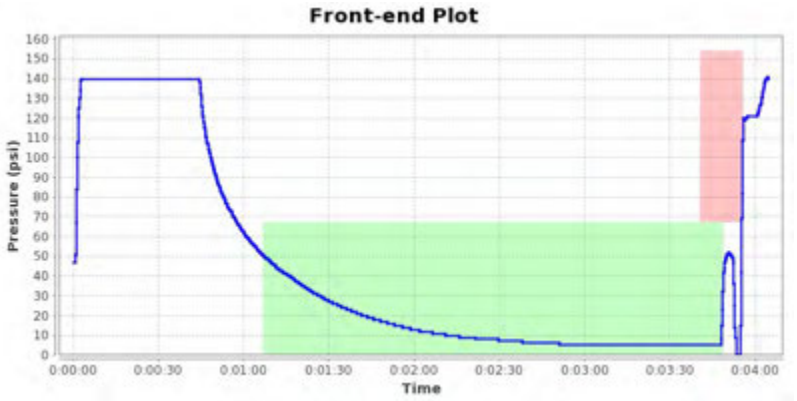


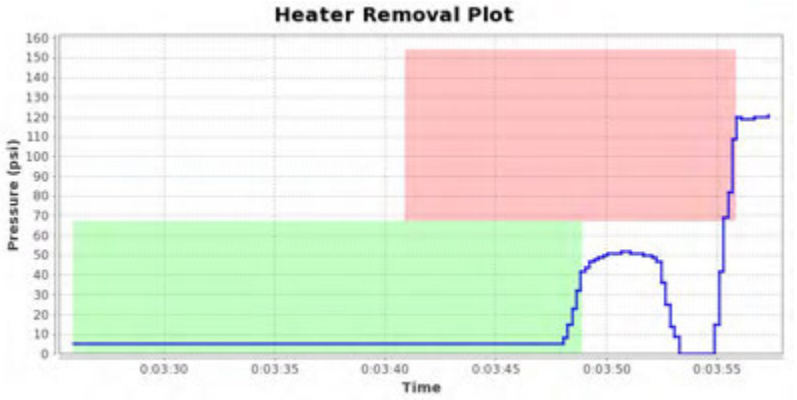


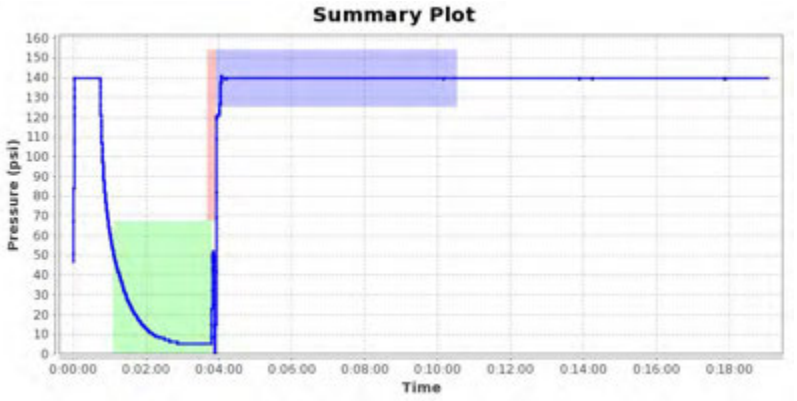


## Notes

Images for report: 1078037





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# McElroy Joint Report

Reference Number 1078038

## Job Details

| | |
|---|---|
| Joint Number | 127 |
| Joint Time | 2018-08-18 11:35:06 GMT |
| Job | 1 |
| Operator | Rafel |
| Aborted Joint | No |

## Fusion Machine

| | |
|---|---|
| Machine Name | 618 HF |
| Machine Model | 618 HF |
| Piston Area | 11.78 in² |

## Pipe Specifications

| | |
|---|---|
| Pipe Material | PE4710 |
| Pipe Size | 6 " IPS |
| Wall Thickness | DR 11 |

## Pressures

| | | |
|---|---|---|
| Drag Pressure | 39 psi | |
| | Interfacial | Gauge |
| Bead Up | 75 psi | 112 psi |
| Heat Soak | 0 psi | 39 psi |
| Fuse/Cool | 75 psi | 112 psi |

## Fusion Specification

| | |
|---|---|
| Fusion Type | Butt Fusion |
| Fusion Specification | ASTM F2620 |
| Bead Time | 0 seconds |
| Bead Size | 3/16" |
| Heat/Soak Time | 162 seconds |
| Fuse Time | 397 seconds |
| Open/Close Time | 15 seconds |
| Cool Time | 0 seconds |

| | Minimum | Maximum |
|---|---|---|
| Bead Up | 97 psi | 126 psi |
| Heat Soak | 0 psi | 39 psi |
| Fuse | 97 psi | 126 psi |
| Cool | 0 psi | 0 psi |

## External Heater Temperatures

| | Side A | Side B |
|---|---|---|

## GPS Location

| Date | Latitude | Longitude |
|---|---|---|
| 2018-08-18 11:35:06.0 | 64°2'18.559800"N | 135°49'42.553800"W |

## Logged Data Summary

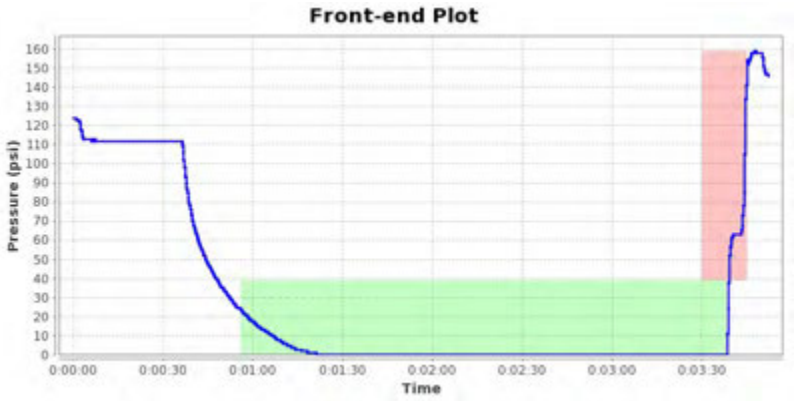
| | |
|---|---|
| Number of Data Points | 434 |
| Total Fusion Time | 1001 seconds |
| Maximum Recorded Pressure | 159 psi |

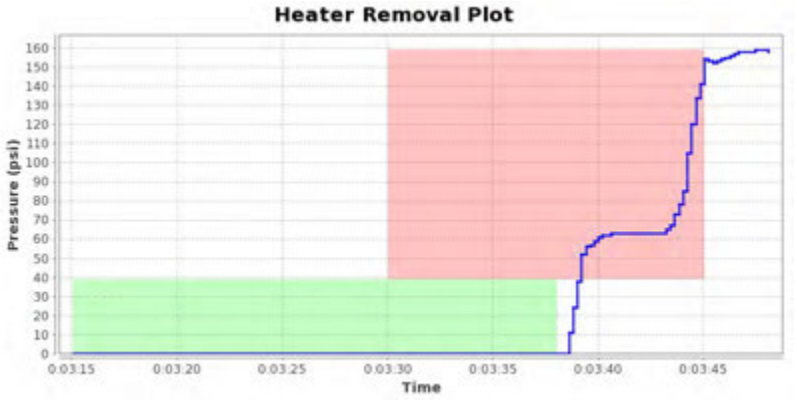
## Device Information

| | |
|---|---|
| DataLogger Serial Number | RH803Z0550 |
| Sensor Serial Number | MDL6621 |
| Calibration Date | 2018-04-04 |
| Firmware Version | v6.0 |
| Software Version | 1.08 (27) |
| Software Product Name | DataLogger 6 |

## Data Source

| | |
|---|---|
| Upload Time | 2018-08-20 13:46:13 GMT |







## Notes

Images for report: 1078038





Printed: 2018-08-20 15:54:45 UTC

# McElroy Joint Report

Reference Number 1078039

## Job Details

| | |
|---|---|
| Joint Number | 128 |
| Joint Time | 2018-08-18 16:08:11 GMT |
| Job | 1 |
| Operator | Rafel |
| Aborted Joint | No |

## Fusion Machine

| | |
|---|---|
| Machine Name | 618 HF |
| Machine Model | 618 HF |
| Piston Area | 11.78 in² |

## Pipe Specifications

| | |
|---|---|
| Pipe Material | PE4710 |
| Pipe Size | 6 " IPS |
| Wall Thickness | DR 11 |

## Pressures

| | | |
|---|---|---|
| Drag Pressure | 39 psi | |
| | Interfacial | Gauge |
| Bead Up | 75 psi | 112 psi |
| Heat Soak | 0 psi | 39 psi |
| Fuse/Cool | 75 psi | 112 psi |

## Fusion Specification

| | |
|---|---|
| Fusion Type | Butt Fusion |
| Fusion Specification | ASTM F2620 |
| Bead Time | 0 seconds |
| Bead Size | 3/16" |
| Heat/Soak Time | 162 seconds |
| Fuse Time | 397 seconds |
| Open/Close Time | 15 seconds |
| Cool Time | 0 seconds |

| | Minimum | Maximum |
|---|---|---|
| Bead Up | 97 psi | 126 psi |
| Heat Soak | 0 psi | 39 psi |
| Fuse | 97 psi | 126 psi |
| Cool | 0 psi | 0 psi |

## External Heater Temperatures

| | Side A | Side B |
|---|---|---|

## GPS Location

| Date | Latitude | Longitude |
|---|---|---|
| 2018-08-18 16:08:11.0 | 64°2'19.044600"N | 135°49'44.899200"W |

## Logged Data Summary

| | |
|---|---|
| Number of Data Points | 324 |
| Total Fusion Time | 1158 seconds |
| Maximum Recorded Pressure | 113 psi |

## Device Information

| | |
|---|---|
| DataLogger Serial Number | RH803Z0550 |
| Sensor Serial Number | MDL6621 |
| Calibration Date | 2018-04-04 |
| Firmware Version | v6.0 |
| Software Version | 1.08 (27) |
| Software Product Name | DataLogger 6 |

## Data Source

| | |
|---|---|
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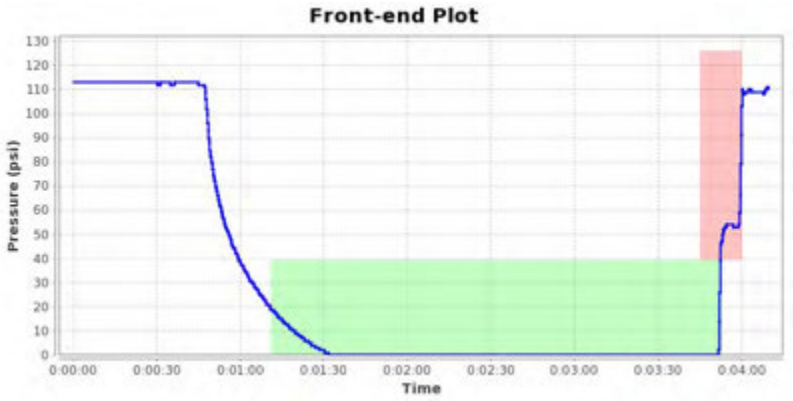


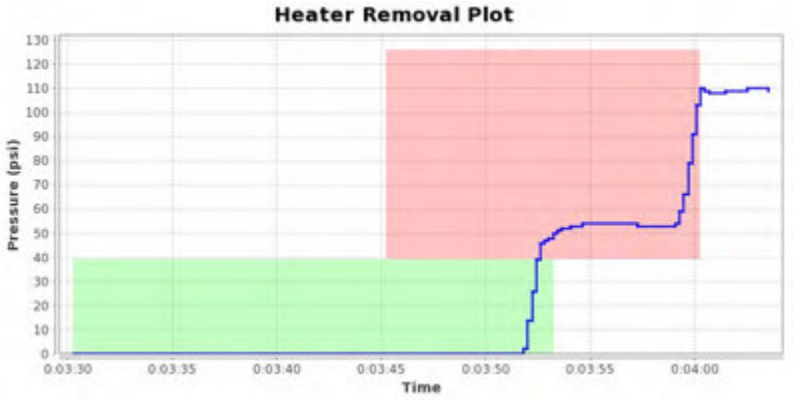


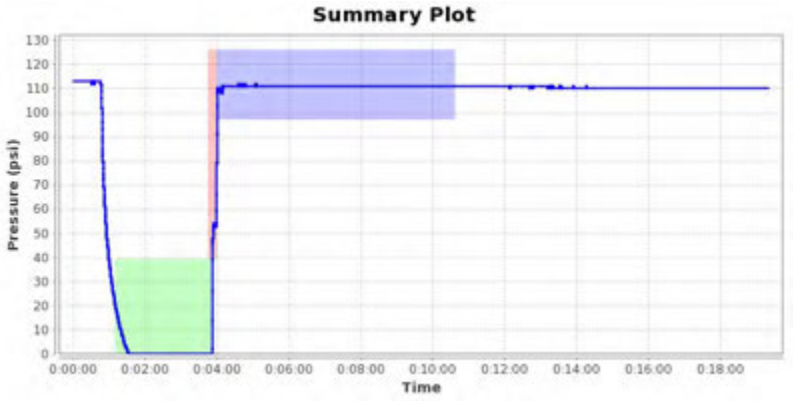


## Notes

Images for report: 1078039





Printed: 2018-08-20 15:54:44 UTC

# McElroy Joint Report

Reference Number 1078040

## Job Details

| | |
|---|---|
| Joint Number | 129 |
| Joint Time | 2018-08-18 16:52:34 GMT |
| Job | 1 |
| Operator | Rafel |
| Aborted Joint | No |

## Fusion Machine

| | |
|---|---|
| Machine Name | 618 HF |
| Machine Model | 618 HF |
| Piston Area | 11.78 in² |

## Pipe Specifications

| | |
|---|---|
| Pipe Material | PE4710 |
| Pipe Size | 6 " IPS |
| Wall Thickness | DR 11 |

## Pressures

| Drag Pressure | 37 psi | |
|---|---|---|
| | Interfacial | Gauge |
| Bead Up | 75 psi | 110 psi |
| Heat Soak | 0 psi | 37 psi |
| Fuse/Cool | 75 psi | 110 psi |

## Fusion Specification

| | |
|---|---|
| Fusion Type | Butt Fusion |
| Fusion Specification | ASTM F2620 |
| Bead Time | 0 seconds |
| Bead Size | 3/16" |
| Heat/Soak Time | 162 seconds |
| Fuse Time | 397 seconds |
| Open/Close Time | 15 seconds |
| Cool Time | 0 seconds |

| | Minimum | Maximum |
|---|---|---|
| Bead Up | 95 psi | 124 psi |
| Heat Soak | 0 psi | 37 psi |
| Fuse | 95 psi | 124 psi |
| Cool | 0 psi | 0 psi |

## External Heater Temperatures

| | Side A | Side B |
|---|---|---|

## GPS Location

| Date | Latitude | Longitude |
|---|---|---|
| 2018-08-18 16:52:34.0 | 64°2'19.111200"N | 135°49'44.933400"W |

## Logged Data Summary

| | |
|---|---|
| Number of Data Points | 410 |
| Total Fusion Time | 1129 seconds |
| Maximum Recorded Pressure | 113 psi |

## Device Information

| | |
|---|---|
| DataLogger Serial Number | RH803Z0550 |
| Sensor Serial Number | MDL6621 |
| Calibration Date | 2018-04-04 |
| Firmware Version | v6.0 |
| Software Version | 1.08 (27) |
| Software Product Name | DataLogger 6 |

## Data Source

| | |
|---|---|
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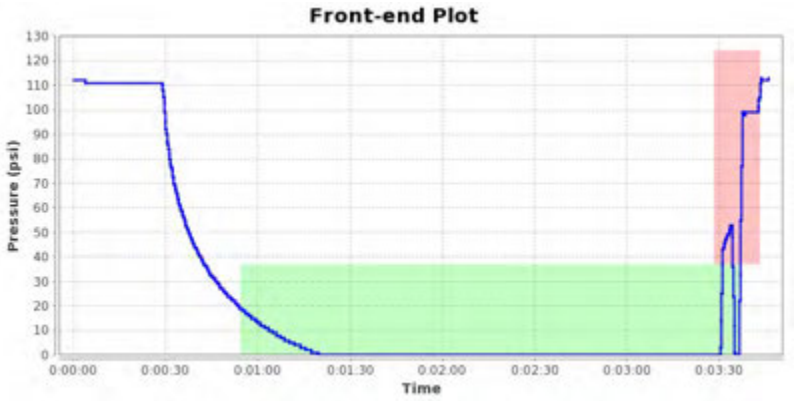


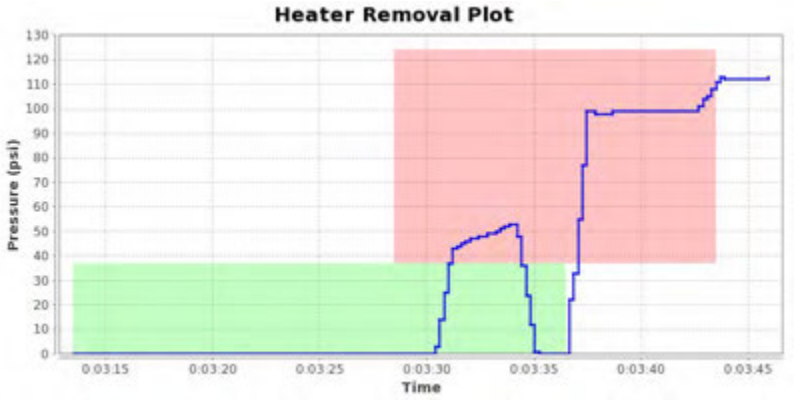


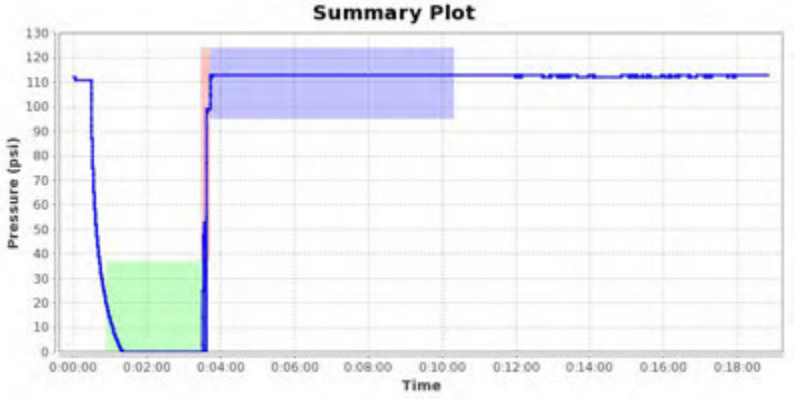


## Notes

Images for report: 1078040





Printed: 2018-08-20 15:54:43 UTC

# McElroy Joint Report

Reference Number 1078041

## Job Details

| | |
|---|---|
| Joint Number | 130 |
| Joint Time | 2018-08-18 17:38:23 GMT |
| Job | 1 |
| Operator | Rafel |
| Aborted Joint | No |

## Fusion Machine

| | |
|---|---|
| Machine Name | 618 HF |
| Machine Model | 618 HF |
| Piston Area | 11.78 in² |

## Pipe Specifications

| | |
|---|---|
| Pipe Material | PE4710 |
| Pipe Size | 6 " IPS |
| Wall Thickness | DR 11 |

## Pressures

| | | |
|---|---|---|
| Drag Pressure | 38 psi | |
| | Interfacial | Gauge |
| Bead Up | 75 psi | 111 psi |
| Heat Soak | 0 psi | 38 psi |
| Fuse/Cool | 75 psi | 111 psi |

## Fusion Specification

| | |
|---|---|
| Fusion Type | Butt Fusion |
| Fusion Specification | ASTM F2620 |
| Bead Time | 0 seconds |
| Bead Size | 3/16" |
| Heat/Soak Time | 162 seconds |
| Fuse Time | 397 seconds |
| Open/Close Time | 15 seconds |
| Cool Time | 0 seconds |

| | Minimum | Maximum |
|---|---|---|
| Bead Up | 96 psi | 125 psi |
| Heat Soak | 0 psi | 38 psi |
| Fuse | 96 psi | 125 psi |
| Cool | 0 psi | 0 psi |

## External Heater Temperatures

| | Side A | Side B |
|---|---|---|

## GPS Location

| Date | Latitude | Longitude |
|---|---|---|
| 2018-08-18 17:38:23.0 | 64°2'19.160400"N | 135°49'44.881800"W |

## Logged Data Summary

| | |
|---|---|
| Number of Data Points | 246 |
| Total Fusion Time | 1147 seconds |
| Maximum Recorded Pressure | 113 psi |

## Device Information

| | |
|---|---|
| DataLogger Serial Number | RH803Z0550 |
| Sensor Serial Number | MDL6621 |
| Calibration Date | 2018-04-04 |
| Firmware Version | v6.0 |
| Software Version | 1.08 (27) |
| Software Product Name | DataLogger 6 |

## Data Source

| | |
|---|---|
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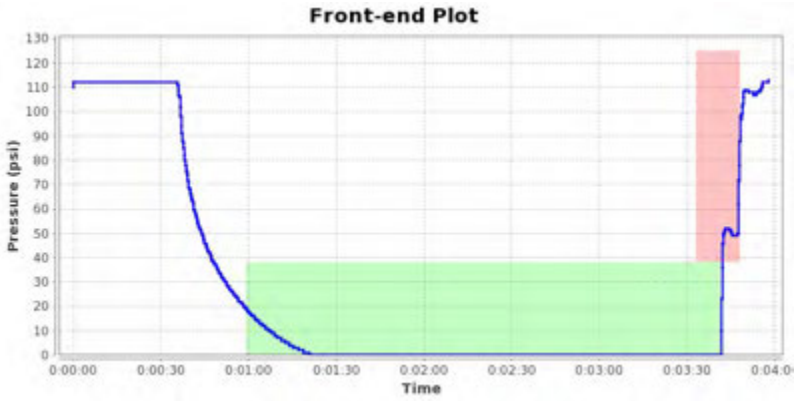


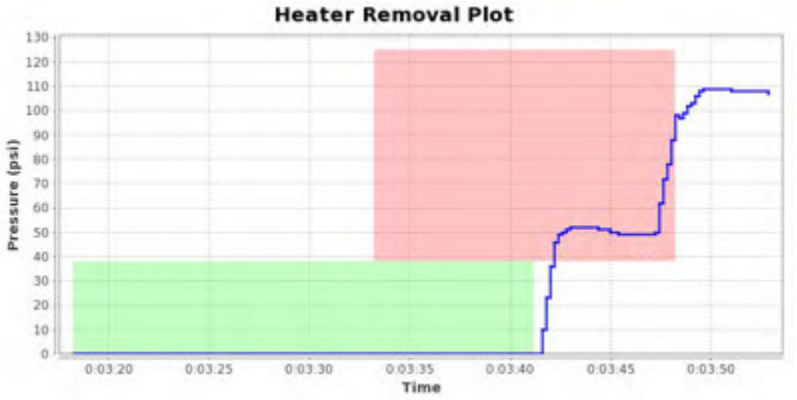





## Notes

Images for report: 1078041





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# McElroy Joint Report

Reference Number 1078042

## Job Details

| | |
|---|---|
| Joint Number | 131 |
| Joint Time | 2018-08-19 10:33:29 GMT |
| Job | 1 |
| Operator | Rafel |
| Aborted Joint | No |

## Fusion Machine

| | |
|---|---|
| Machine Name | 618 HF |
| Machine Model | 618 HF |
| Piston Area | 11.78 in² |

## Pipe Specifications

| | |
|---|---|
| Pipe Material | PE4710 |
| Pipe Size | 6 " IPS |
| Wall Thickness | DR 11 |

## Pressures

| | | |
|---|---|---|
| Drag Pressure | 32 psi | |
| | Interfacial | Gauge |
| Bead Up | 75 psi | 105 psi |
| Heat Soak | 0 psi | 32 psi |
| Fuse/Cool | 75 psi | 105 psi |

## Fusion Specification

| | |
|---|---|
| Fusion Type | Butt Fusion |
| Fusion Specification | ASTM F2620 |
| Bead Time | 0 seconds |
| Bead Size | 3/16" |
| Heat/Soak Time | 162 seconds |
| Fuse Time | 397 seconds |
| Open/Close Time | 15 seconds |
| Cool Time | 0 seconds |

| | Minimum | Maximum |
|---|---|---|
| Bead Up | 90 psi | 119 psi |
| Heat Soak | 0 psi | 32 psi |
| Fuse | 90 psi | 119 psi |
| Cool | 0 psi | 0 psi |

## External Heater Temperatures

| | Side A | Side B |
|---|---|---|

## GPS Location

| Date | Latitude | Longitude |
|---|---|---|
| 2018-08-19 10:33:29.0 | 64°2'18.643200"N | 135°49'43.211400"W |

## Logged Data Summary

| | |
|---|---|
| Number of Data Points | 278 |
| Total Fusion Time | 1141 seconds |
| Maximum Recorded Pressure | 115 psi |

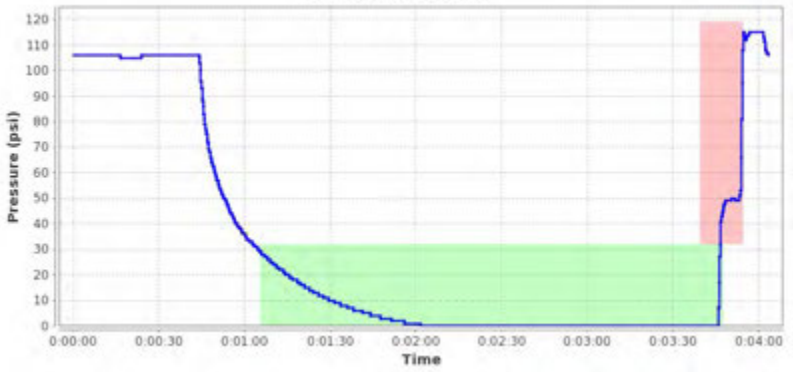
## Device Information

| | |
|---|---|
| DataLogger Serial Number | RH803Z0550 |
| Sensor Serial Number | MDL6621 |
| Calibration Date | 2018-04-04 |
| Firmware Version | v6.0 |
| Software Version | 1.08 (27) |
| Software Product Name | DataLogger 6 |

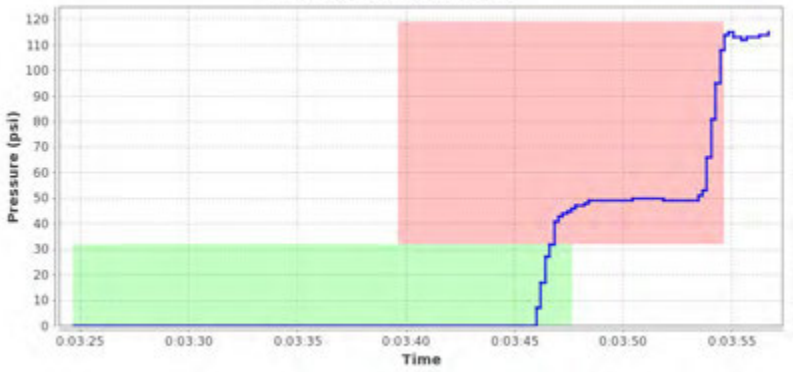
## Data Source

| | |
|---|---|
| Upload Time | 2018-08-20 13:47:02 GMT |

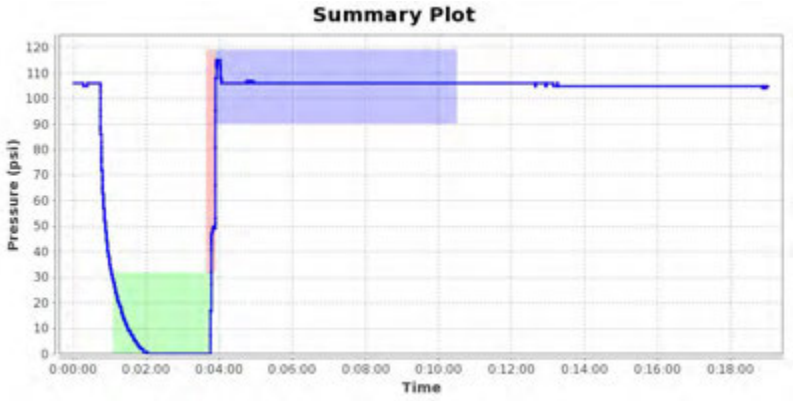
### Front-end Plot




### Heater Removal Plot




### Summary Plot




## Notes

Images for report: 1078042





Printed: 2018-08-20 15:54:42 UTC

# McElroy Joint Report

Reference Number 1078043

## Job Details

| | |
|---|---|
| Joint Number | 132 |
| Joint Time | 2018-08-19 16:41:31 GMT |
| Job | 1 |
| Operator | Rafel |
| Aborted Joint | No |

## Fusion Machine

| | |
|---|---|
| Machine Name | 618 HF |
| Machine Model | 618 HF |
| Piston Area | 11.78 in² |

## Pipe Specifications

| | |
|---|---|
| Pipe Material | PE4710 |
| Pipe Size | 6 " IPS |
| Wall Thickness | DR 11 |

## Pressures

| | | |
|---|---|---|
| Drag Pressure | 31 psi | |
| | Interfacial | Gauge |
| Bead Up | 75 psi | 104 psi |
| Heat Soak | 0 psi | 31 psi |
| Fuse/Cool | 75 psi | 104 psi |

## Fusion Specification

| | |
|---|---|
| Fusion Type | Butt Fusion |
| Fusion Specification | ASTM F2620 |
| Bead Time | 0 seconds |
| Bead Size | 3/16" |
| Heat/Soak Time | 162 seconds |
| Fuse Time | 397 seconds |
| Open/Close Time | 15 seconds |
| Cool Time | 0 seconds |

| | Minimum | Maximum |
|---|---|---|
| Bead Up | 89 psi | 118 psi |
| Heat Soak | 0 psi | 31 psi |
| Fuse | 89 psi | 118 psi |
| Cool | 0 psi | 0 psi |

## External Heater Temperatures

| | Side A | Side B |
|---|---|---|

## GPS Location

| Date | Latitude | Longitude |
|---|---|---|
| 2018-08-19 16:41:31.0 | 64°2'19.269000"N | 135°49'43.176600"W |

## Logged Data Summary

| | |
|---|---|
| Number of Data Points | 422 |
| Total Fusion Time | 1145 seconds |
| Maximum Recorded Pressure | 105 psi |

## Device Information

| | |
|---|---|
| DataLogger Serial Number | RH803Z0550 |
| Sensor Serial Number | MDL6621 |
| Calibration Date | 2018-04-04 |
| Firmware Version | v6.0 |
| Software Version | 1.08 (27) |
| Software Product Name | DataLogger 6 |

## Data Source

| | |
|---|---|
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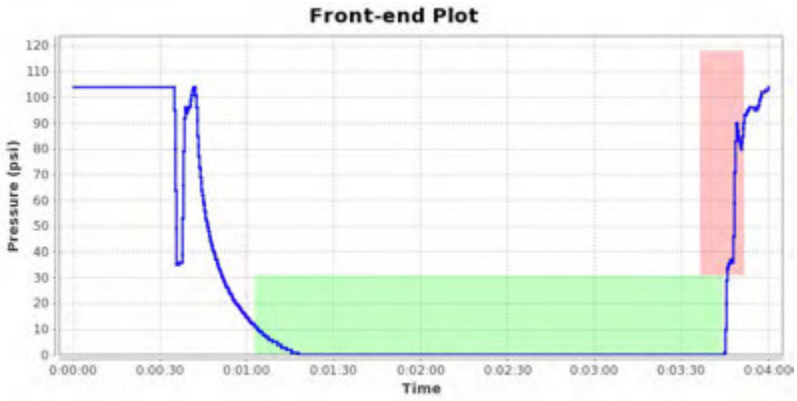
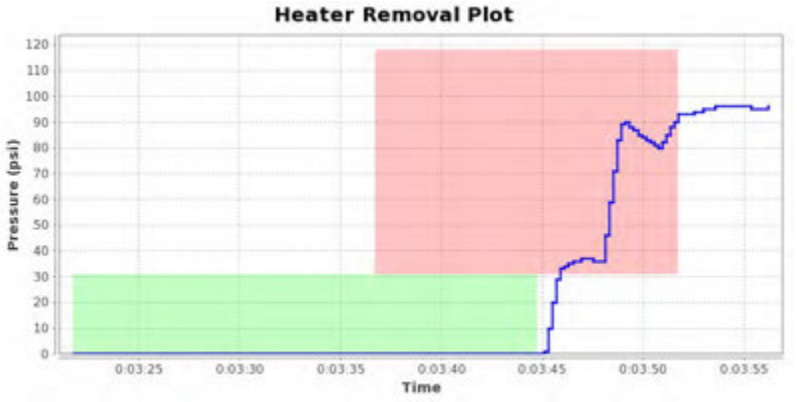
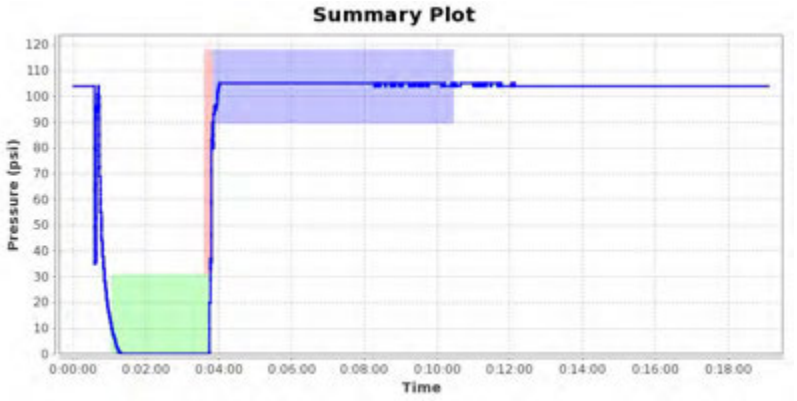



## Notes

Images for report: 1078043





Printed: 2018-08-20 15:54:41 UTC

# McElroy Joint Report

Reference Number 1078044

## Job Details

| | |
|---|---|
| Joint Number | 133 |
| Joint Time | 2018-08-19 17:16:25 GMT |
| Job | 1 |
| Operator | Rafel |
| Aborted Joint | No |

## Fusion Machine

| | |
|---|---|
| Machine Name | 618 HF |
| Machine Model | 618 HF |
| Piston Area | 11.78 in² |

## Pipe Specifications

| | |
|---|---|
| Pipe Material | PE4710 |
| Pipe Size | 6 " IPS |
| Wall Thickness | DR 11 |

## Pressures

| | | |
|---|---|---|
| Drag Pressure | 45 psi | |
| | Interfacial | Gauge |
| Bead Up | 75 psi | 118 psi |
| Heat Soak | 0 psi | 45 psi |
| Fuse/Cool | 75 psi | 118 psi |

## Fusion Specification

| | |
|---|---|
| Fusion Type | Butt Fusion |
| Fusion Specification | ASTM F2620 |
| Bead Time | 0 seconds |
| Bead Size | 3/16" |
| Heat/Soak Time | 162 seconds |
| Fuse Time | 397 seconds |
| Open/Close Time | 15 seconds |
| Cool Time | 0 seconds |

| | Minimum | Maximum |
|---|---|---|
| Bead Up | 103 psi | 132 psi |
| Heat Soak | 0 psi | 45 psi |
| Fuse | 103 psi | 132 psi |
| Cool | 0 psi | 0 psi |

## External Heater Temperatures

| | Side A | Side B |
|---|---|---|

## GPS Location

| Date | Latitude | Longitude |
|---|---|---|
| 2018-08-19 17:16:25.0 | 64°2'19.291800"N | 135°49'43.035600"W |

## Logged Data Summary

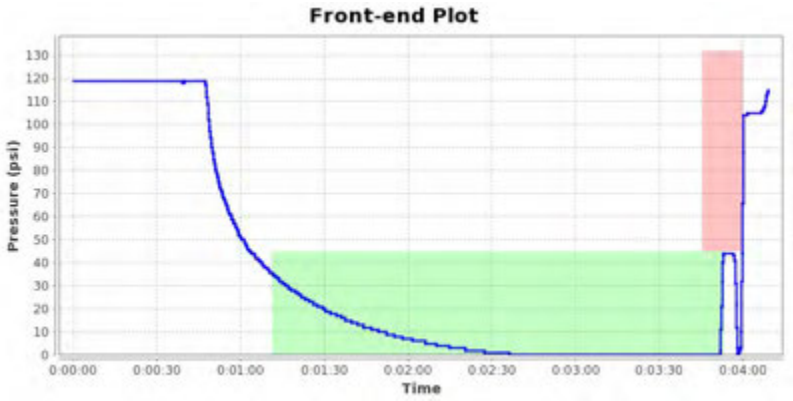
| | |
|---|---|
| Number of Data Points | 606 |
| Total Fusion Time | 1174 seconds |
| Maximum Recorded Pressure | 119 psi |

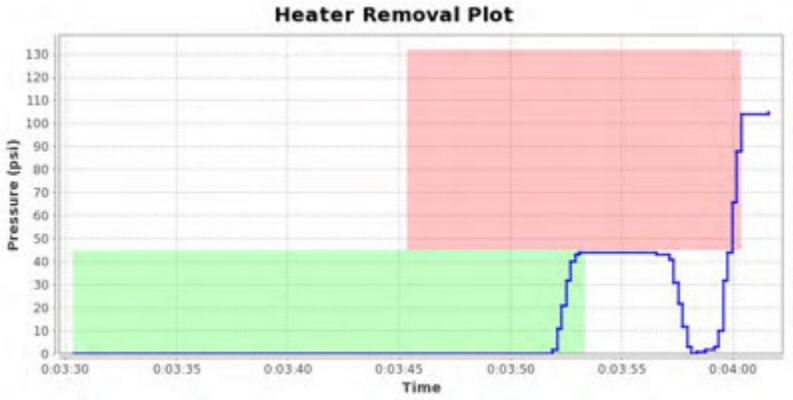
## Device Information

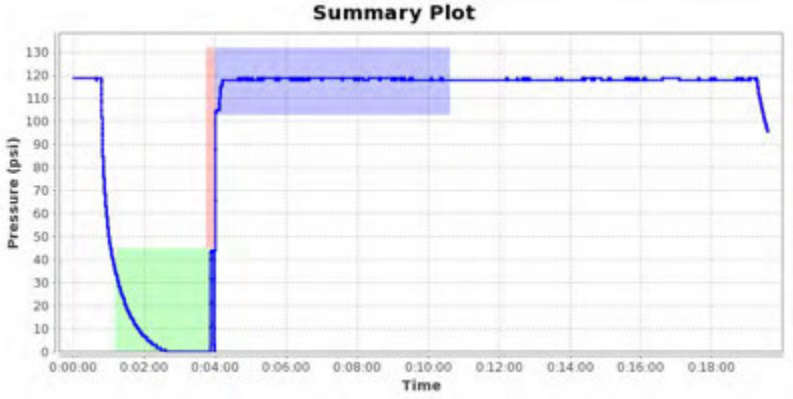
| | |
|---|---|
| DataLogger Serial Number | RH803Z0550 |
| Sensor Serial Number | MDL6621 |
| Calibration Date | 2018-04-04 |
| Firmware Version | v6.0 |
| Software Version | 1.08 (27) |
| Software Product Name | DataLogger 6 |

## Data Source

| | |
|---|---|
| Upload Time | 2018-08-20 13:47:23 GMT |




## Notes

Images for report: 1078044





Printed: 2018-10-14 16:25:25 UTC

# McElroy Joint Report

Reference Number 1078045

## Job Details

| | |
|---|---|
| Joint Number | 134 |
| Joint Time | 2018-08-19 17:55:43 GMT |
| Job | 1 |
| Operator | Rafel |
| Aborted Joint | No |

## Fusion Machine

| | |
|---|---|
| Machine Name | 618 HF |
| Machine Model | 618 HF |
| Piston Area | 11.78 in² |

## Pipe Specifications

| | |
|---|---|
| Pipe Material | PE4710 |
| Pipe Size | 6 " IPS |
| Wall Thickness | DR 11 |

## Pressures

| | | |
|---|---|---|
| Drag Pressure | 30 psi | |
| | Interfacial | Gauge |
| Bead Up | 75 psi | 103 psi |
| Heat Soak | 0 psi | 30 psi |
| Fuse/Cool | 75 psi | 103 psi |

## Fusion Specification

| | |
|---|---|
| Fusion Type | Butt Fusion |
| Fusion Specification | ASTM F2620 |
| Bead Time | 0 seconds |
| Bead Size | 3/16" |
| Heat/Soak Time | 162 seconds |
| Fuse Time | 397 seconds |
| Open/Close Time | 15 seconds |
| Cool Time | 0 seconds |

| | Minimum | Maximum |
|---|---|---|
| Bead Up | 88 psi | 117 psi |
| Heat Soak | 0 psi | 30 psi |
| Fuse | 88 psi | 117 psi |
| Cool | 0 psi | 0 psi |

## External Heater Temperatures

| | Side A | Side B |
|---|---|---|

## GPS Location

| Date | Latitude | Longitude |
|---|---|---|
| 2018-08-19 17:55:43.0 | 64°2'19.071000"N | 135°49'43.302000"W |

## Logged Data Summary

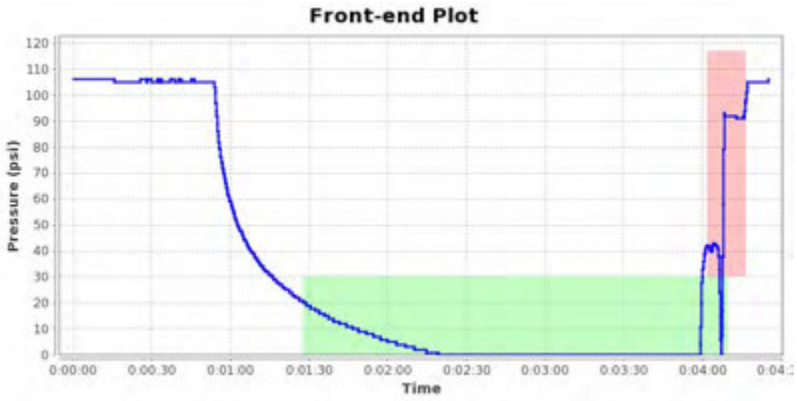
| | |
|---|---|
| Number of Data Points | 300 |
| Total Fusion Time | 1170 seconds |
| Maximum Recorded Pressure | 106 psi |

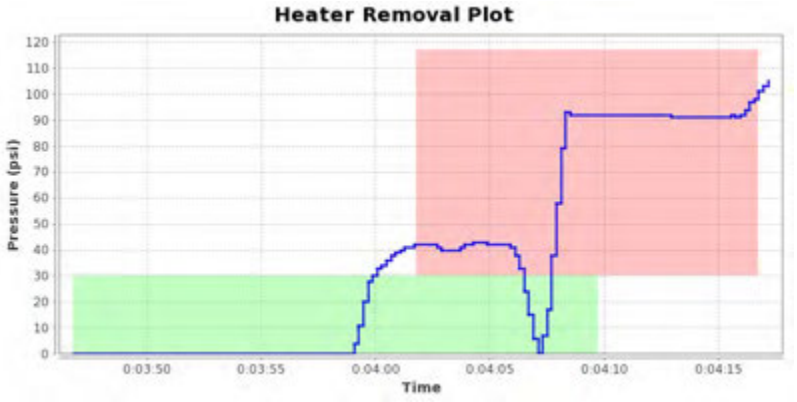
## Device Information

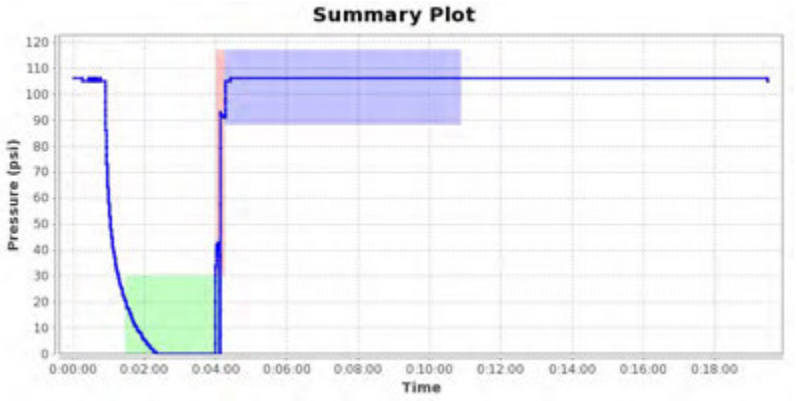
| | |
|---|---|
| DataLogger Serial Number | RH803Z0550 |
| Sensor Serial Number | MDL6621 |
| Calibration Date | 2018-04-04 |
| Firmware Version | v6.0 |
| Software Version | 1.08 (27) |
| Software Product Name | DataLogger 6 |

## Data Source

| | |
|---|---|
| Upload Time | 2018-08-20 13:47:34 GMT |




## Notes

Images for report: 1078045





Printed: 2018-10-14 16:25:23 UTC

# McElroy Joint Report

Reference Number 1078046

## Job Details

| | |
|---|---|
| Joint Number | 135 |
| Joint Time | 2018-08-19 18:26:51 GMT |
| Job | 1 |
| Operator | Rafel |
| Aborted Joint | No |

## Fusion Machine

| | |
|---|---|
| Machine Name | 618 HF |
| Machine Model | 618 HF |
| Piston Area | 11.78 in² |

## Pipe Specifications

| | |
|---|---|
| Pipe Material | PE4710 |
| Pipe Size | 6 " IPS |
| Wall Thickness | DR 11 |

## Pressures

| | | |
|---|---|---|
| Drag Pressure | 36 psi | |
| | Interfacial | Gauge |
| Bead Up | 75 psi | 109 psi |
| Heat Soak | 0 psi | 36 psi |
| Fuse/Cool | 75 psi | 109 psi |

## Fusion Specification

| | |
|---|---|
| Fusion Type | Butt Fusion |
| Fusion Specification | ASTM F2620 |
| Bead Time | 0 seconds |
| Bead Size | 3/16" |
| Heat/Soak Time | 162 seconds |
| Fuse Time | 397 seconds |
| Open/Close Time | 15 seconds |
| Cool Time | 0 seconds |

| | Minimum | Maximum |
|---|---|---|
| Bead Up | 94 psi | 123 psi |
| Heat Soak | 0 psi | 36 psi |
| Fuse | 94 psi | 123 psi |
| Cool | 0 psi | 0 psi |

## External Heater Temperatures

| | Side A | Side B |
|---|---|---|

## GPS Location

| Date | Latitude | Longitude |
|---|---|---|
| 2018-08-19 18:26:51.0 | 64°2'19.038000"N | 135°49'43.471200"W |

## Logged Data Summary

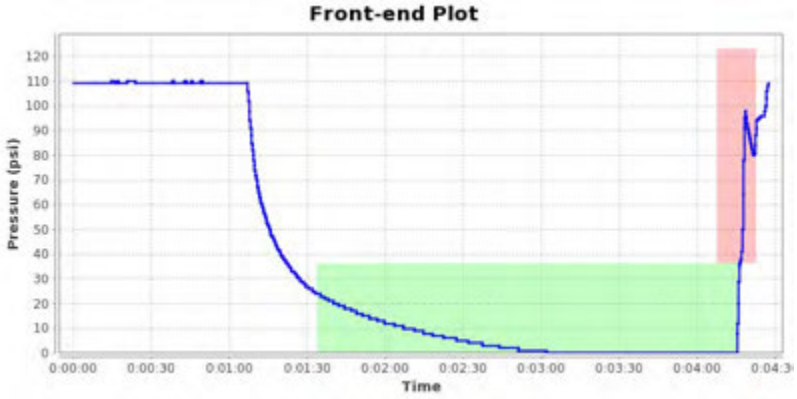
| | |
|---|---|
| Number of Data Points | 580 |
| Total Fusion Time | 1183 seconds |
| Maximum Recorded Pressure | 110 psi |

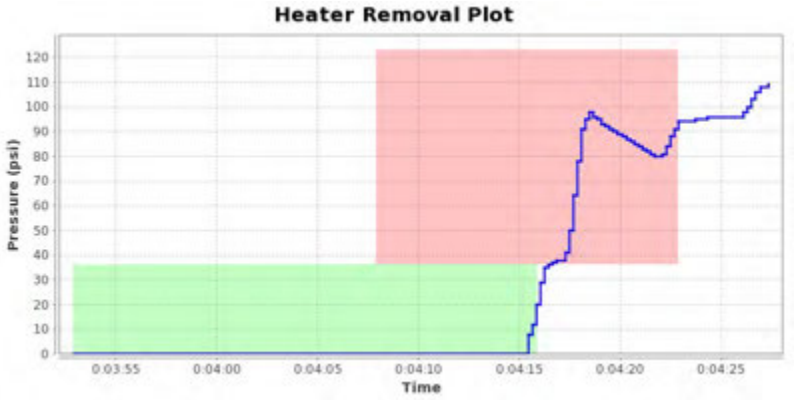
## Device Information

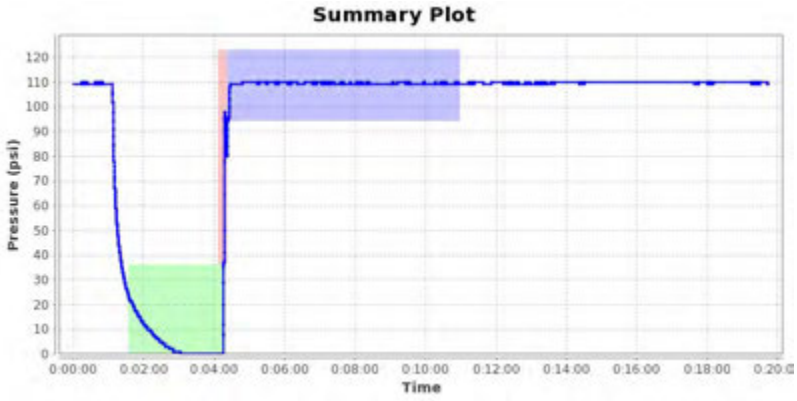
| | |
|---|---|
| DataLogger Serial Number | RH803Z0550 |
| Sensor Serial Number | MDL6621 |
| Calibration Date | 2018-04-04 |
| Firmware Version | v6.0 |
| Software Version | 1.08 (27) |
| Software Product Name | DataLogger 6 |

## Data Source

| | |
|---|---|
| Upload Time | 2018-08-20 13:47:44 GMT |




## Notes

Images for report: 1078046





Printed: 2018-10-14 16:23:43 UTC

# McElroy Joint Report

Reference Number 1164588

## Job Details

| | |
|---|---|
| Joint Number | 136 |
| Joint Time | 2018-08-20 08:56:28 GMT |
| Job | 1 |
| Operator | Rafel |
| Aborted Joint | No |

## Fusion Machine

| | |
|---|---|
| Machine Name | 618 HF |
| Machine Model | 618 HF |
| Piston Area | 11.78 in² |

## Pipe Specifications

| | |
|---|---|
| Pipe Material | PE4710 |
| Pipe Size | 6 " IPS |
| Wall Thickness | DR 11 |

## Pressures

| Drag Pressure | 45 psi | |
|---|---|---|
| | Interfacial | Gauge |
| Bead Up | 75 psi | 118 psi |
| Heat Soak | 0 psi | 45 psi |
| Fuse/Cool | 75 psi | 118 psi |

## Fusion Specification

| | |
|---|---|
| Fusion Type | Butt Fusion |
| Fusion Specification | ASTM F2620 |
| Bead Time | 0 seconds |
| Bead Size | 3/16" |
| Heat/Soak Time | 162 seconds |
| Fuse Time | 397 seconds |
| Open/Close Time | 15 seconds |
| Cool Time | 0 seconds |

| | Minimum | Maximum |
|---|---|---|
| Bead Up | 103 psi | 132 psi |
| Heat Soak | 0 psi | 45 psi |
| Fuse | 103 psi | 132 psi |
| Cool | 0 psi | 0 psi |

## External Heater Temperatures

| | Side A | Side B |
|---|---|---|

## GPS Location

| Date | Latitude | Longitude |
|---|---|---|
| 2018-08-20 08:56:28.0 | 64°2'18.547200"N | 135°49'43.724400"W |

## Logged Data Summary

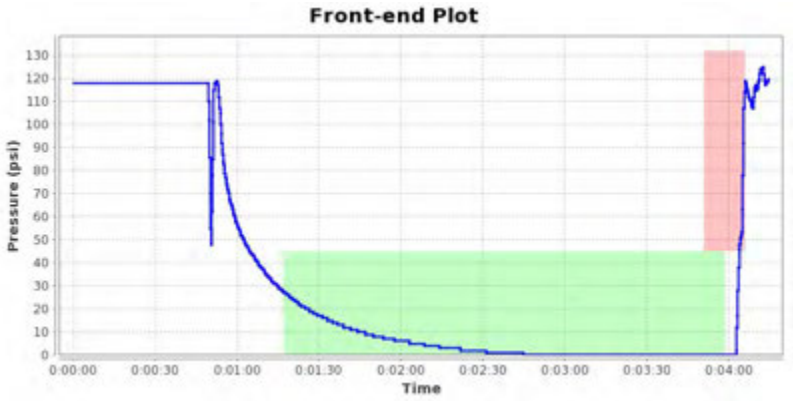
| | |
|---|---|
| Number of Data Points | 440 |
| Total Fusion Time | 1159 seconds |
| Maximum Recorded Pressure | 125 psi |

## Device Information

| | |
|---|---|
| DataLogger Serial Number | RH803Z0550 |
| Sensor Serial Number | MDL6621 |
| Calibration Date | 2018-04-04 |
| Firmware Version | v6.0 |
| Software Version | 1.08 (27) |
| Software Product Name | DataLogger 6 |

## Data Source

| | |
|---|---|
| Upload Time | 2018-10-14 16:21:30 GMT |










## Notes

Images for report: 1164588





Printed: 2018-10-14 16:23:41 UTC

# McElroy Joint Report

Reference Number 1164589

## Job Details

| | |
|---|---|
| Joint Number | 137 |
| Joint Time | 2018-08-20 09:47:37 GMT |
| Job | 1 |
| Operator | Rafel |
| Aborted Joint | No |

## Fusion Machine

| | |
|---|---|
| Machine Name | 618 HF |
| Machine Model | 618 HF |
| Piston Area | 11.78 in² |

## Pipe Specifications

| | |
|---|---|
| Pipe Material | PE4710 |
| Pipe Size | 6 " IPS |
| Wall Thickness | DR 11 |

## Pressures

| | | |
|---|---|---|
| Drag Pressure | 40 psi | |
| | Interfacial | Gauge |
| Bead Up | 75 psi | 113 psi |
| Heat Soak | 0 psi | 40 psi |
| Fuse/Cool | 75 psi | 113 psi |

## Fusion Specification

| | |
|---|---|
| Fusion Type | Butt Fusion |
| Fusion Specification | ASTM F2620 |
| Bead Time | 0 seconds |
| Bead Size | 3/16" |
| Heat/Soak Time | 162 seconds |
| Fuse Time | 397 seconds |
| Open/Close Time | 15 seconds |
| Cool Time | 0 seconds |

| | Minimum | Maximum |
|---|---|---|
| Bead Up | 98 psi | 127 psi |
| Heat Soak | 0 psi | 40 psi |
| Fuse | 98 psi | 127 psi |
| Cool | 0 psi | 0 psi |

## External Heater Temperatures

| | Side A | Side B |
|---|---|---|

## GPS Location

| Date | Latitude | Longitude |
|---|---|---|
| 2018-08-20 09:47:37.0 | 64°2'18.442200"N | 135°49'43.657200"W |

## Logged Data Summary

| | |
|---|---|
| Number of Data Points | 428 |
| Total Fusion Time | 1175 seconds |
| Maximum Recorded Pressure | 115 psi |

## Device Information

| | |
|---|---|
| DataLogger Serial Number | RH803Z0550 |
| Sensor Serial Number | MDL6621 |
| Calibration Date | 2018-04-04 |
| Firmware Version | v6.0 |
| Software Version | 1.08 (27) |
| Software Product Name | DataLogger 6 |

## Data Source

| | |
|---|---|
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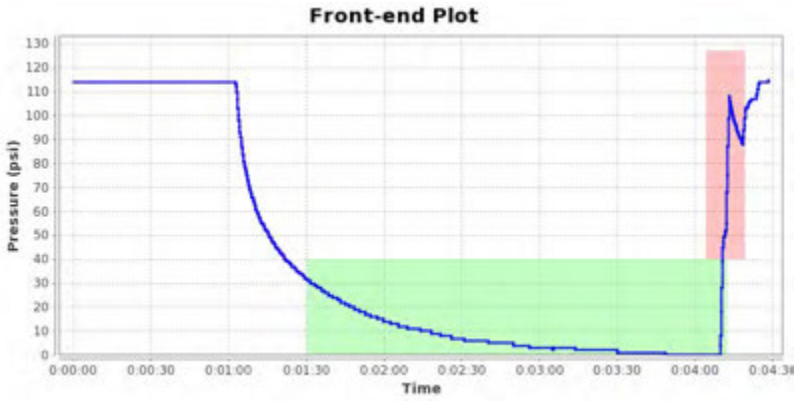


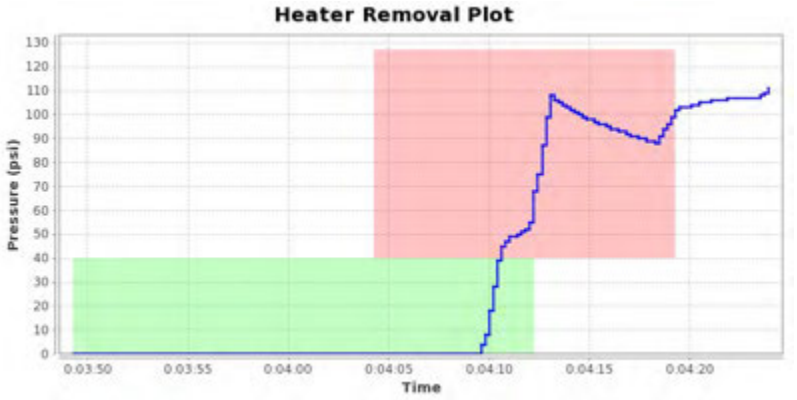


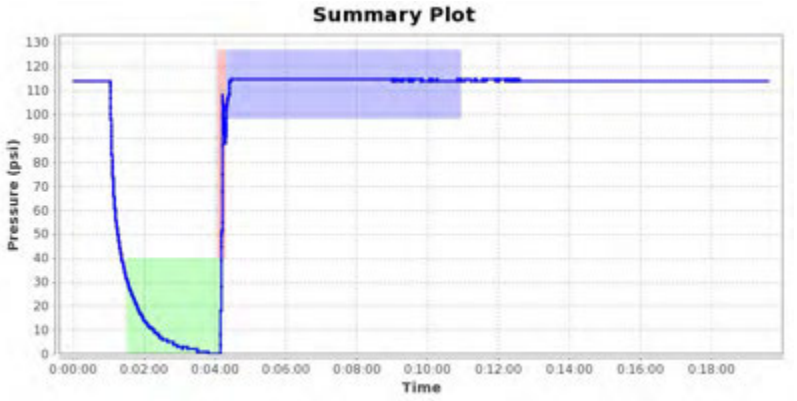


## Notes

Images for report: 1164589





Printed: 2018-10-14 16:23:40 UTC

# McElroy Joint Report

Reference Number 1164590

## Job Details

| | |
|---|---|
| Joint Number | 138 |
| Joint Time | 2018-08-20 10:43:55 GMT |
| Job | 1 |
| Operator | Rafel |
| Aborted Joint | No |

## Fusion Machine

| | |
|---|---|
| Machine Name | 618 HF |
| Machine Model | 618 HF |
| Piston Area | 11.78 in² |

## Pipe Specifications

| | |
|---|---|
| Pipe Material | PE4710 |
| Pipe Size | 6 " IPS |
| Wall Thickness | DR 11 |

## Pressures

| | | |
|---|---|---|
| Drag Pressure | 52 psi | |
| | Interfacial | Gauge |
| Bead Up | 75 psi | 125 psi |
| Heat Soak | 0 psi | 52 psi |
| Fuse/Cool | 75 psi | 125 psi |

## Fusion Specification

| | |
|---|---|
| Fusion Type | Butt Fusion |
| Fusion Specification | ASTM F2620 |
| Bead Time | 0 seconds |
| Bead Size | 3/16" |
| Heat/Soak Time | 162 seconds |
| Fuse Time | 397 seconds |
| Open/Close Time | 15 seconds |
| Cool Time | 0 seconds |

| | Minimum | Maximum |
|---|---|---|
| Bead Up | 110 psi | 139 psi |
| Heat Soak | 0 psi | 52 psi |
| Fuse | 110 psi | 139 psi |
| Cool | 0 psi | 0 psi |

## External Heater Temperatures

| | Side A | Side B |
|---|---|---|

## GPS Location

| Date | Latitude | Longitude |
|---|---|---|
| 2018-08-20 10:43:55.0 | 64°2'18.475200"N | 135°49'43.517400"W |

## Logged Data Summary

| | |
|---|---|
| Number of Data Points | 334 |
| Total Fusion Time | 1117 seconds |
| Maximum Recorded Pressure | 128 psi |

## Device Information

| | |
|---|---|
| DataLogger Serial Number | RH803Z0550 |
| Sensor Serial Number | MDL6621 |
| Calibration Date | 2018-04-04 |
| Firmware Version | v6.0 |
| Software Version | 1.08 (27) |
| Software Product Name | DataLogger 6 |

## Data Source

| | |
|---|---|
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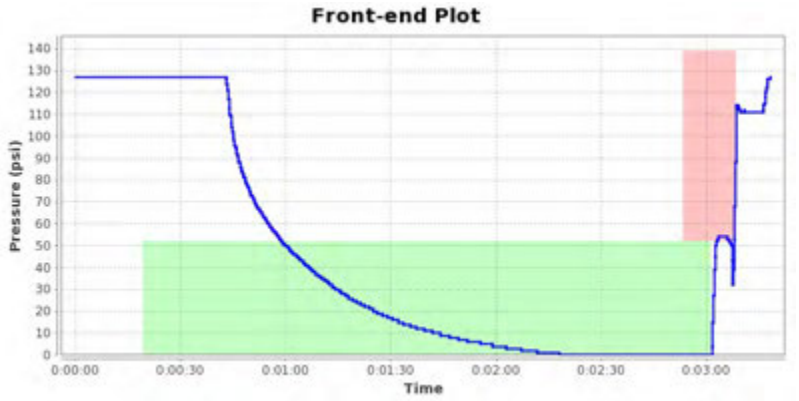


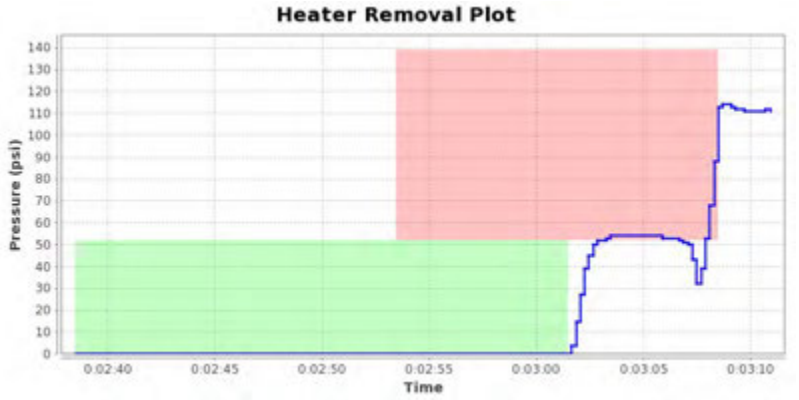





## Notes

Images for report: 1164590





Printed: 2018-10-14 16:23:39 UTC

# McElroy Joint Report

Reference Number 1164591

## Job Details

| | |
|---|---|
| Joint Number | 139 |
| Joint Time | 2018-08-20 11:25:30 GMT |
| Job | 1 |
| Operator | Rafel |
| Aborted Joint | No |

## Fusion Machine

| | |
|---|---|
| Machine Name | 618 HF |
| Machine Model | 618 HF |
| Piston Area | 11.78 in² |

## Pipe Specifications

| | |
|---|---|
| Pipe Material | PE4710 |
| Pipe Size | 6 " IPS |
| Wall Thickness | DR 11 |

## Pressures

| | | |
|---|---|---|
| Drag Pressure | 36 psi | |
| | Interfacial | Gauge |
| Bead Up | 75 psi | 109 psi |
| Heat Soak | 0 psi | 36 psi |
| Fuse/Cool | 75 psi | 109 psi |

## Fusion Specification

| | |
|---|---|
| Fusion Type | Butt Fusion |
| Fusion Specification | ASTM F2620 |
| Bead Time | 0 seconds |
| Bead Size | 3/16" |
| Heat/Soak Time | 162 seconds |
| Fuse Time | 397 seconds |
| Open/Close Time | 15 seconds |
| Cool Time | 0 seconds |

| | Minimum | Maximum |
|---|---|---|
| Bead Up | 94 psi | 123 psi |
| Heat Soak | 0 psi | 36 psi |
| Fuse | 94 psi | 123 psi |
| Cool | 0 psi | 0 psi |

## External Heater Temperatures

| | Side A | Side B |
|---|---|---|

## GPS Location

| Date | Latitude | Longitude |
|---|---|---|
| 2018-08-20 11:25:30.0 | 64°2'18.405000"N | 135°49'43.641000"W |

## Logged Data Summary

| | |
|---|---|
| Number of Data Points | 288 |
| Total Fusion Time | 1159 seconds |
| Maximum Recorded Pressure | 110 psi |

## Device Information

| | |
|---|---|
| DataLogger Serial Number | RH803Z0550 |
| Sensor Serial Number | MDL6621 |
| Calibration Date | 2018-04-04 |
| Firmware Version | v6.0 |
| Software Version | 1.08 (27) |
| Software Product Name | DataLogger 6 |

## Data Source

| | |
|---|---|
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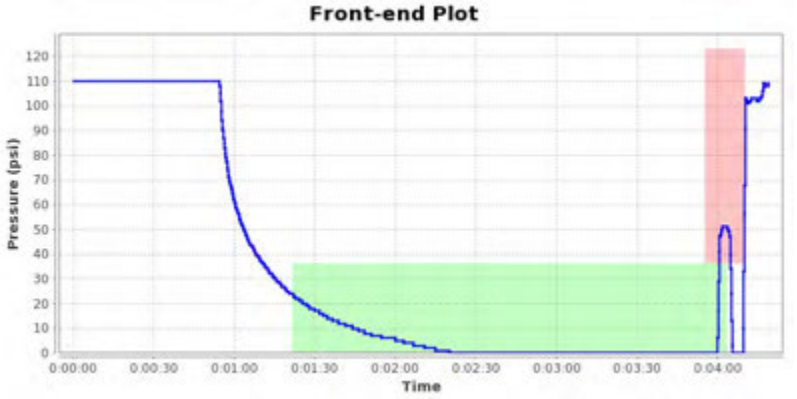


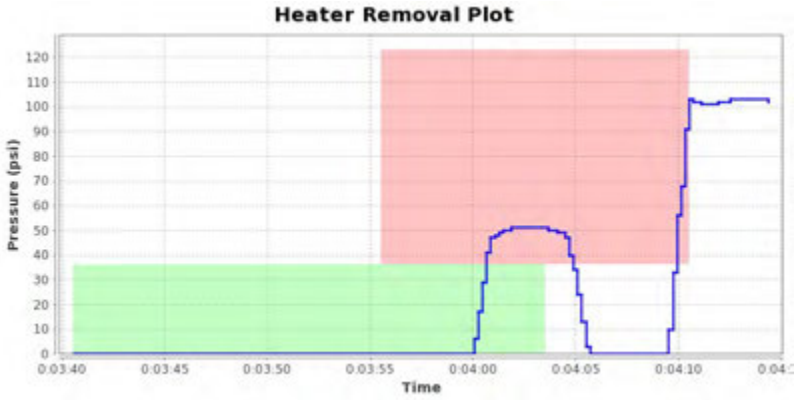


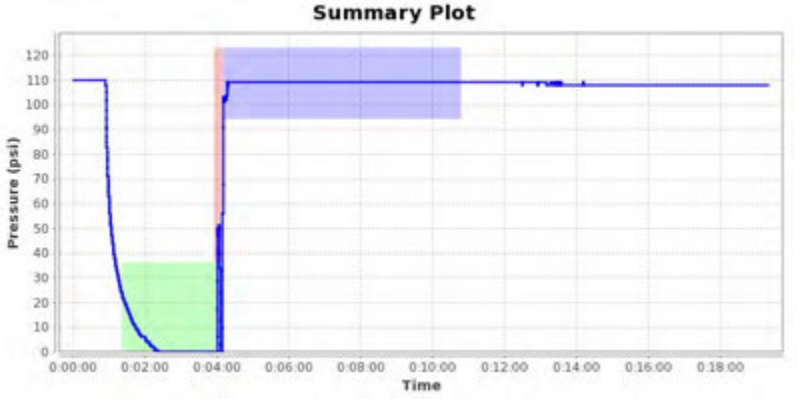


## Notes

Images for report: 1164591





Printed: 2018-10-14 16:23:38 UTC

# McElroy Joint Report

Reference Number 1164592

## Job Details

| | |
|---|---|
| Joint Number | 140 |
| Joint Time | 2018-08-20 16:58:55 GMT |
| Job | 1 |
| Operator | Rafel |
| Aborted Joint | No |

## Fusion Machine

| | |
|---|---|
| Machine Name | 618 HF |
| Machine Model | 618 HF |
| Piston Area | 11.78 in² |

## Pipe Specifications

| | |
|---|---|
| Pipe Material | PE4710 |
| Pipe Size | 6 " IPS |
| Wall Thickness | DR 11 |

## Pressures

| | | |
|---|---|---|
| Drag Pressure | 0 psi | |
| | Interfacial | Gauge |
| Bead Up | 75 psi | 73 psi |
| Heat Soak | 0 psi | 0 psi |
| Fuse/Cool | 75 psi | 73 psi |

## Fusion Specification

| | |
|---|---|
| Fusion Type | Butt Fusion |
| Fusion Specification | ASTM F2620 |
| Bead Time | 0 seconds |
| Bead Size | 3/16" |
| Heat/Soak Time | 162 seconds |
| Fuse Time | 397 seconds |
| Open/Close Time | 15 seconds |
| Cool Time | 0 seconds |

| | Minimum | Maximum |
|---|---|---|
| Bead Up | 58 psi | 87 psi |
| Heat Soak | 0 psi | 0 psi |
| Fuse | 58 psi | 87 psi |
| Cool | 0 psi | 0 psi |

## External Heater Temperatures

| | Side A | Side B |
|---|---|---|

## GPS Location

| Date | Latitude | Longitude |
|---|---|---|
| 2018-08-20 16:58:55.0 | 64°2'19.510200"N | 135°49'43.512000"W |

## Logged Data Summary

| | |
|---|---|
| Number of Data Points | 198 |
| Total Fusion Time | 1176 seconds |
| Maximum Recorded Pressure | 76 psi |

## Device Information

| | |
|---|---|
| DataLogger Serial Number | RH803Z0550 |
| Sensor Serial Number | MDL6621 |
| Calibration Date | 2018-04-04 |
| Firmware Version | v6.0 |
| Software Version | 1.08 (27) |
| Software Product Name | DataLogger 6 |

## Data Source

| | |
|---|---|
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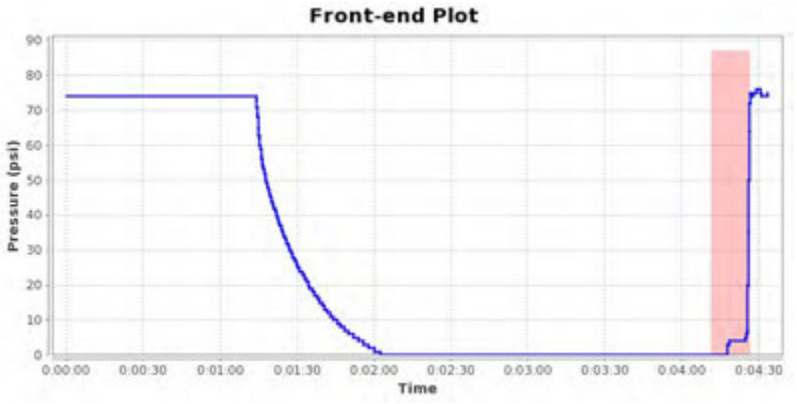


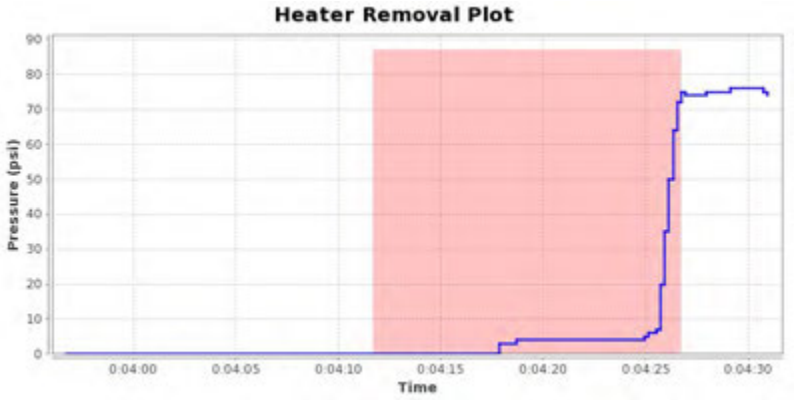


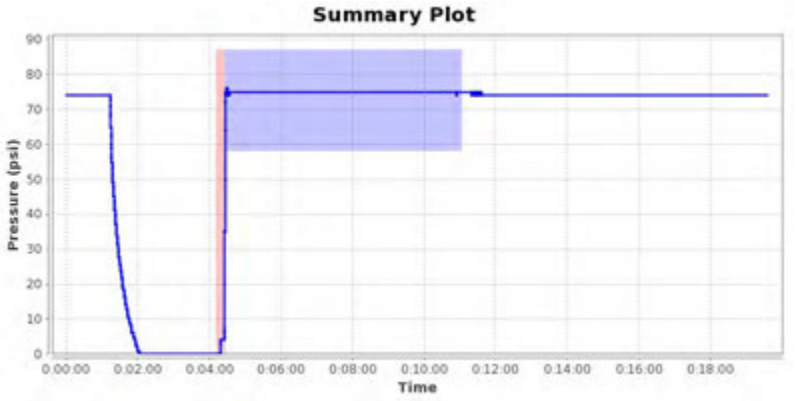


## Notes

Images for report: 1164592





Printed: 2018-10-14 16:25:08 UTC

# McElroy Joint Report

Reference Number 1164526

## Job Details

| | |
|---|---|
| Joint Number | 141 |
| Joint Time | 2018-08-20 17:55:49 GMT |
| Job | 1 |
| Operator | Rafel |
| Aborted Joint | No |

## Fusion Machine

| | |
|---|---|
| Machine Name | 618 HF |
| Machine Model | 618 HF |
| Piston Area | 11.78 in² |

## Pipe Specifications

| | |
|---|---|
| Pipe Material | PE4710 |
| Pipe Size | 6 " IPS |
| Wall Thickness | DR 11 |

## Pressures

| | | |
|---|---|---|
| Drag Pressure | 41 psi | |
| | Interfacial | Gauge |
| Bead Up | 75 psi | 114 psi |
| Heat Soak | 0 psi | 41 psi |
| Fuse/Cool | 75 psi | 114 psi |

## Fusion Specification

| | |
|---|---|
| Fusion Type | Butt Fusion |
| Fusion Specification | ASTM F2620 |
| Bead Time | 0 seconds |
| Bead Size | 3/16" |
| Heat/Soak Time | 162 seconds |
| Fuse Time | 397 seconds |
| Open/Close Time | 15 seconds |
| Cool Time | 0 seconds |

| | Minimum | Maximum |
|---|---|---|
| Bead Up | 99 psi | 128 psi |
| Heat Soak | 0 psi | 41 psi |
| Fuse | 99 psi | 128 psi |
| Cool | 0 psi | 0 psi |

## External Heater Temperatures

| | Side A | Side B |
|---|---|---|

## GPS Location

| Date | Latitude | Longitude |
|---|---|---|
| 2018-08-20 17:55:49.0 | 64°2'19.558200"N | 135°49'43.615800"W |

## Logged Data Summary

| | |
|---|---|
| Number of Data Points | 332 |
| Total Fusion Time | 1166 seconds |
| Maximum Recorded Pressure | 115 psi |

## Device Information

| | |
|---|---|
| DataLogger Serial Number | RH803Z0550 |
| Sensor Serial Number | MDL6621 |
| Calibration Date | 2018-04-04 |
| Firmware Version | v6.0 |
| Software Version | 1.08 (27) |
| Software Product Name | DataLogger 6 |

## Data Source

| | |
|---|---|
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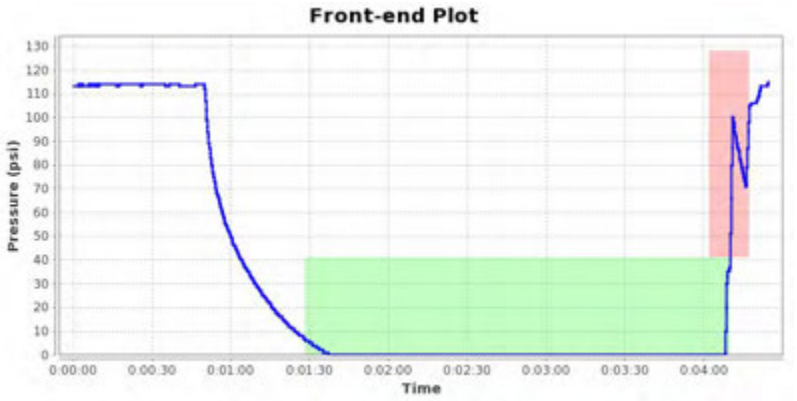


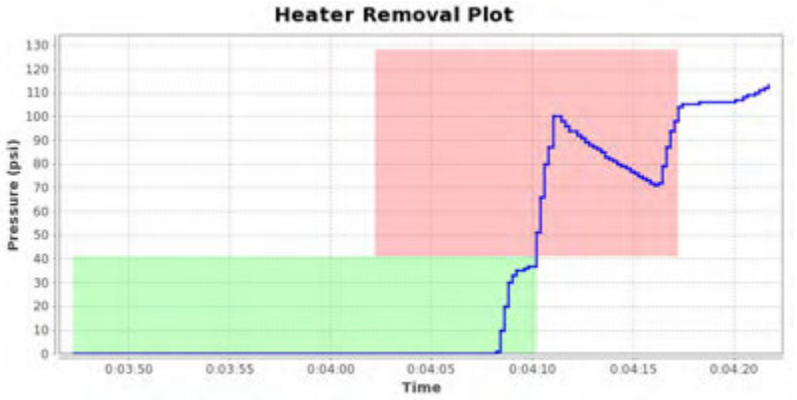





## Notes

Images for report: 1164526





Printed: 2018-10-14 16:25:06 UTC

# McElroy Joint Report

Reference Number 1164527

## Job Details

| | |
|---|---|
| Joint Number | 142 |
| Joint Time | 2018-08-20 18:27:42 GMT |
| Job | 1 |
| Operator | Rafel |
| Aborted Joint | No |

## Fusion Machine

| | |
|---|---|
| Machine Name | 618 HF |
| Machine Model | 618 HF |
| Piston Area | 11.78 in² |

## Pipe Specifications

| | |
|---|---|
| Pipe Material | PE4710 |
| Pipe Size | 6 " IPS |
| Wall Thickness | DR 11 |

## Pressures

| Drag Pressure | 36 psi | |
|---|---|---|
| | Interfacial | Gauge |
| Bead Up | 75 psi | 109 psi |
| Heat Soak | 0 psi | 36 psi |
| Fuse/Cool | 75 psi | 109 psi |

## Fusion Specification

| | |
|---|---|
| Fusion Type | Butt Fusion |
| Fusion Specification | ASTM F2620 |
| Bead Time | 0 seconds |
| Bead Size | 3/16" |
| Heat/Soak Time | 162 seconds |
| Fuse Time | 397 seconds |
| Open/Close Time | 15 seconds |
| Cool Time | 0 seconds |

| | Minimum | Maximum |
|---|---|---|
| Bead Up | 94 psi | 123 psi |
| Heat Soak | 0 psi | 36 psi |
| Fuse | 94 psi | 123 psi |
| Cool | 0 psi | 0 psi |

## External Heater Temperatures

| | Side A | Side B |
|---|---|---|

## GPS Location

| Date | Latitude | Longitude |
|---|---|---|
| 2018-08-20 18:27:42.0 | 64°2'19.491600"N | 135°49'43.764600"W |

## Logged Data Summary

| | |
|---|---|
| Number of Data Points | 290 |
| Total Fusion Time | 987 seconds |
| Maximum Recorded Pressure | 110 psi |

## Device Information

| | |
|---|---|
| DataLogger Serial Number | RH803Z0550 |
| Sensor Serial Number | MDL6621 |
| Calibration Date | 2018-04-04 |
| Firmware Version | v6.0 |
| Software Version | 1.08 (27) |
| Software Product Name | DataLogger 6 |

## Data Source

| | |
|---|---|
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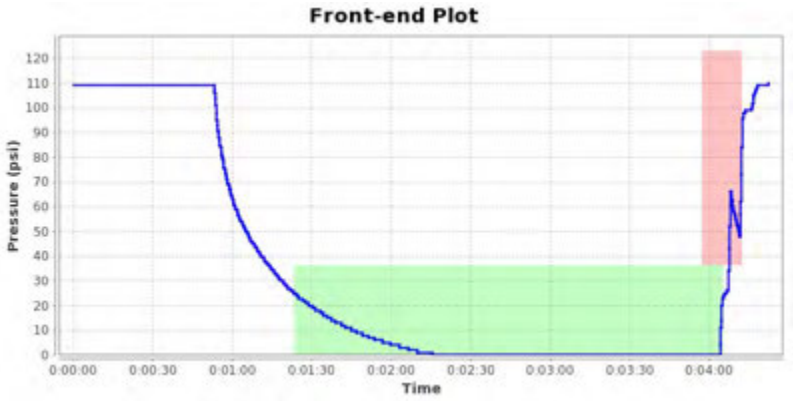
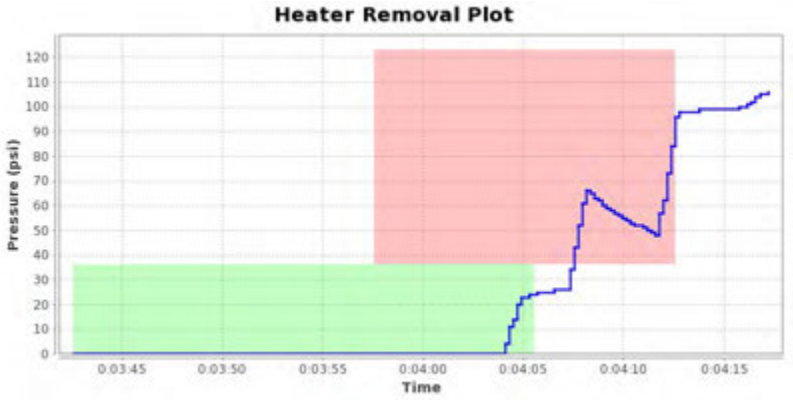






## Notes

Images for report: 1164527





Printed: 2018-10-14 16:25:05 UTC

# McElroy Joint Report

Reference Number 1164528

## Job Details

| | |
|---|---|
| Joint Number | 143 |
| Joint Time | 2018-08-21 07:40:34 GMT |
| Job | 1 |
| Operator | Rafel |
| Aborted Joint | No |

## Fusion Machine

| | |
|---|---|
| Machine Name | 618 HF |
| Machine Model | 618 HF |
| Piston Area | 11.78 in² |

## Pipe Specifications

| | |
|---|---|
| Pipe Material | PE4710 |
| Pipe Size | 6 " IPS |
| Wall Thickness | DR 11 |

## Pressures

| | | |
|---|---|---|
| Drag Pressure | 46 psi | |
| | Interfacial | Gauge |
| Bead Up | 75 psi | 119 psi |
| Heat Soak | 0 psi | 46 psi |
| Fuse/Cool | 75 psi | 119 psi |

## Fusion Specification

| | |
|---|---|
| Fusion Type | Butt Fusion |
| Fusion Specification | ASTM F2620 |
| Bead Time | 0 seconds |
| Bead Size | 3/16" |
| Heat/Soak Time | 162 seconds |
| Fuse Time | 397 seconds |
| Open/Close Time | 15 seconds |
| Cool Time | 0 seconds |

| | Minimum | Maximum |
|---|---|---|
| Bead Up | 104 psi | 133 psi |
| Heat Soak | 0 psi | 46 psi |
| Fuse | 104 psi | 133 psi |
| Cool | 0 psi | 0 psi |

## External Heater Temperatures

| | Side A | Side B |
|---|---|---|

## GPS Location

| Date | Latitude | Longitude |
|---|---|---|
| 2018-08-21 07:40:34.0 | 64°2'19.640400"N | 135°49'43.959000"W |

## Logged Data Summary

| | |
|---|---|
| Number of Data Points | 214 |
| Total Fusion Time | 260 seconds |
| Maximum Recorded Pressure | 119 psi |

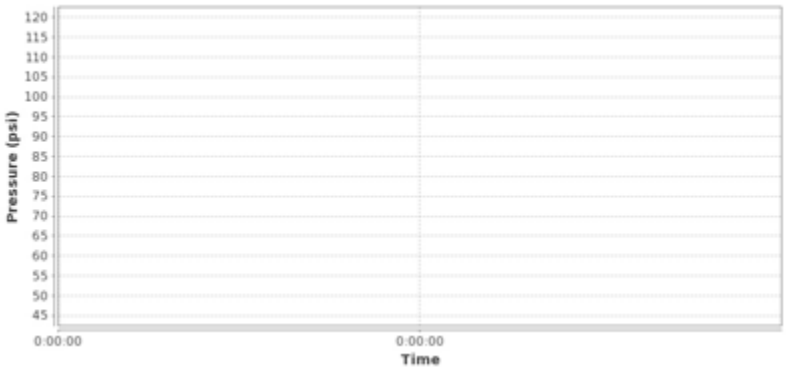
## Device Information

| | |
|---|---|
| DataLogger Serial Number | RH803Z0550 |
| Sensor Serial Number | MDL6621 |
| Calibration Date | 2018-04-04 |
| Firmware Version | v6.0 |
| Software Version | 1.08 (27) |
| Software Product Name | DataLogger 6 |

## Data Source

| | |
|---|---|
| Upload Time | 2018-10-14 16:15:11 GMT |

**Front-end Plot**




**Heater Removal Plot**




**Summary Plot**




## Notes

Joint was aborted!!!

Images for report: 1164528





Printed: 2018-10-14 16:25:04 UTC

# McElroy Joint Report

Reference Number 1164529

## Job Details

| | |
|---|---|
| Joint Number | 144 |
| Joint Time | 2018-08-21 08:04:22 GMT |
| Job | 1 |
| Operator | Rafel |
| Aborted Joint | No |

## Fusion Machine

| | |
|---|---|
| Machine Name | 618 HF |
| Machine Model | 618 HF |
| Piston Area | 11.78 in² |

## Pipe Specifications

| | |
|---|---|
| Pipe Material | PE4710 |
| Pipe Size | 6 " IPS |
| Wall Thickness | DR 11 |

## Pressures

| | | |
|---|---|---|
| Drag Pressure | 46 psi | |
| | Interfacial | Gauge |
| Bead Up | 75 psi | 119 psi |
| Heat Soak | 0 psi | 46 psi |
| Fuse/Cool | 75 psi | 119 psi |

## Fusion Specification

| | |
|---|---|
| Fusion Type | Butt Fusion |
| Fusion Specification | ASTM F2620 |
| Bead Time | 0 seconds |
| Bead Size | 3/16" |
| Heat/Soak Time | 162 seconds |
| Fuse Time | 397 seconds |
| Open/Close Time | 15 seconds |
| Cool Time | 0 seconds |

| | Minimum | Maximum |
|---|---|---|
| Bead Up | 104 psi | 133 psi |
| Heat Soak | 0 psi | 46 psi |
| Fuse | 104 psi | 133 psi |
| Cool | 0 psi | 0 psi |

## External Heater Temperatures

| | Side A | Side B |
|---|---|---|

## GPS Location

| Date | Latitude | Longitude |
|---|---|---|
| 2018-08-21 08:04:22.0 | 64°2'19.666200"N | 135°49'43.915200"W |

## Logged Data Summary

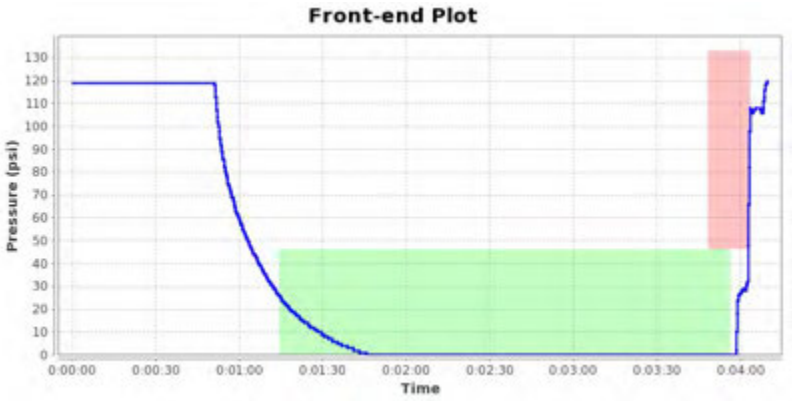
| | |
|---|---|
| Number of Data Points | 472 |
| Total Fusion Time | 1150 seconds |
| Maximum Recorded Pressure | 120 psi |

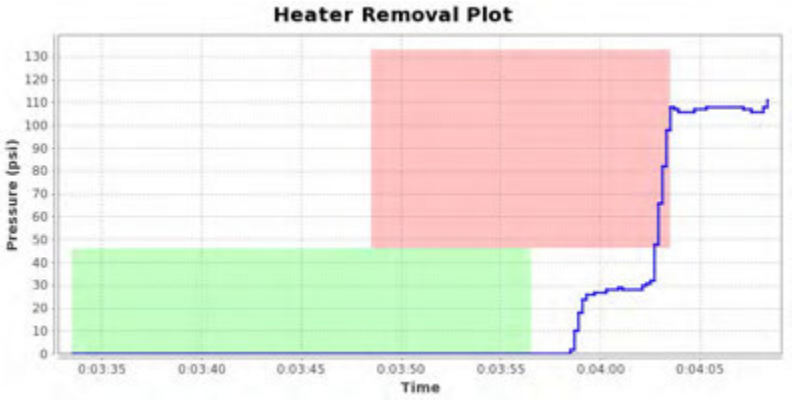
## Device Information

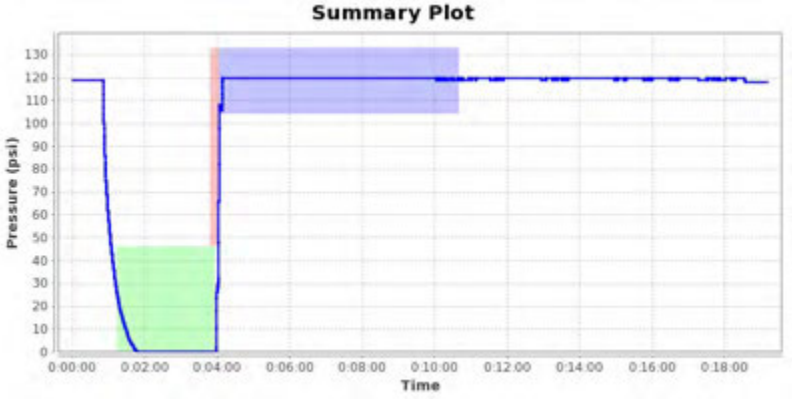
| | |
|---|---|
| DataLogger Serial Number | RH803Z0550 |
| Sensor Serial Number | MDL6621 |
| Calibration Date | 2018-04-04 |
| Firmware Version | v6.0 |
| Software Version | 1.08 (27) |
| Software Product Name | DataLogger 6 |

## Data Source

| | |
|---|---|
| Upload Time | 2018-10-14 16:15:16 GMT |




## Notes

Images for report: 1164529





Printed: 2018-10-14 16:25:02 UTC

# McElroy Joint Report

Reference Number 1164530

## Job Details

| | |
|---|---|
| Joint Number | 145 |
| Joint Time | 2018-08-21 08:49:48 GMT |
| Job | 1 |
| Operator | Rafel |
| Aborted Joint | No |

## Fusion Machine

| | |
|---|---|
| Machine Name | 618 HF |
| Machine Model | 618 HF |
| Piston Area | 11.78 in² |

## Pipe Specifications

| | |
|---|---|
| Pipe Material | PE4710 |
| Pipe Size | 6 " IPS |
| Wall Thickness | DR 11 |

## Pressures

| | | |
|---|---|---|
| Drag Pressure | 30 psi | |
| | Interfacial | Gauge |
| Bead Up | 75 psi | 103 psi |
| Heat Soak | 0 psi | 30 psi |
| Fuse/Cool | 75 psi | 103 psi |

## Fusion Specification

| | |
|---|---|
| Fusion Type | Butt Fusion |
| Fusion Specification | ASTM F2620 |
| Bead Time | 0 seconds |
| Bead Size | 3/16" |
| Heat/Soak Time | 162 seconds |
| Fuse Time | 397 seconds |
| Open/Close Time | 15 seconds |
| Cool Time | 0 seconds |

| | Minimum | Maximum |
|---|---|---|
| Bead Up | 88 psi | 117 psi |
| Heat Soak | 0 psi | 30 psi |
| Fuse | 88 psi | 117 psi |
| Cool | 0 psi | 0 psi |

## External Heater Temperatures

| | Side A | Side B |
|---|---|---|

## GPS Location

| Date | Latitude | Longitude |
|---|---|---|
| 2018-08-21 08:49:48.0 | 64°2'19.887600"N | 135°49'44.069400"W |

## Logged Data Summary

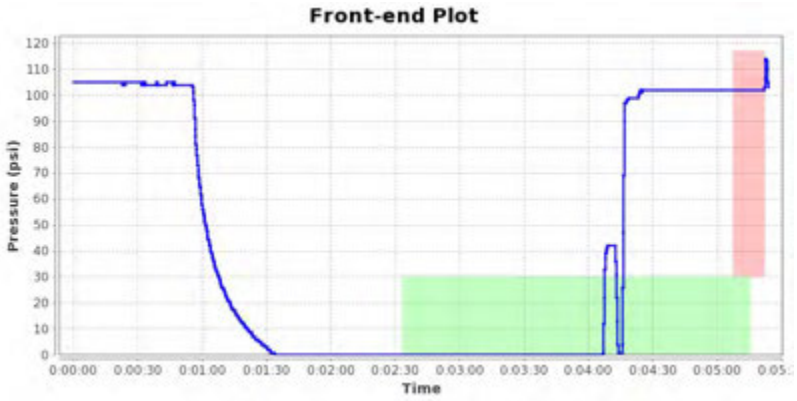
| | |
|---|---|
| Number of Data Points | 256 |
| Total Fusion Time | 1165 seconds |
| Maximum Recorded Pressure | 114 psi |

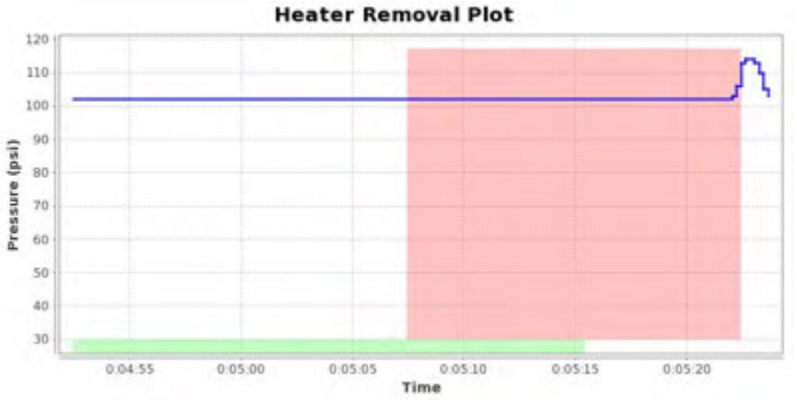
## Device Information

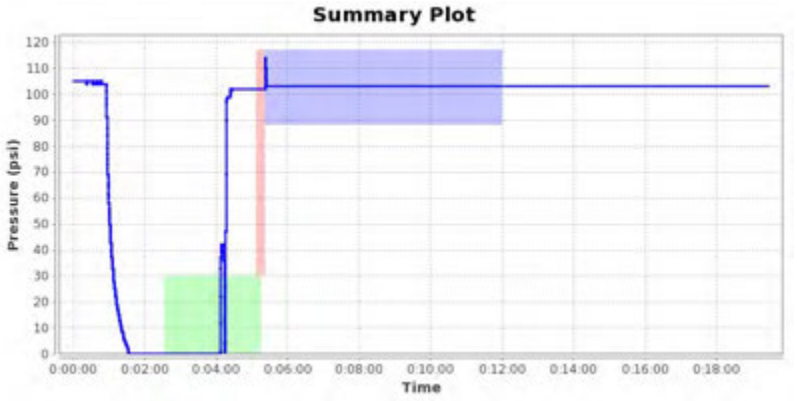
| | |
|---|---|
| DataLogger Serial Number | RH803Z0550 |
| Sensor Serial Number | MDL6621 |
| Calibration Date | 2018-04-04 |
| Firmware Version | v6.0 |
| Software Version | 1.08 (27) |
| Software Product Name | DataLogger 6 |

## Data Source

| | |
|---|---|
| Upload Time | 2018-10-14 16:15:21 GMT |




## Notes

Images for report: 1164530





Printed: 2018-10-14 16:25:01 UTC

# McElroy Joint Report

Reference Number 1164531

## Job Details

| | |
|---|---|
| Joint Number | 146 |
| Joint Time | 2018-08-21 11:30:05 GMT |
| Job | 1 |
| Operator | Rafel |
| Aborted Joint | No |

## Fusion Machine

| | |
|---|---|
| Machine Name | 618 HF |
| Machine Model | 618 HF |
| Piston Area | 11.78 in² |

## Pipe Specifications

| | |
|---|---|
| Pipe Material | PE4710 |
| Pipe Size | 6 " IPS |
| Wall Thickness | DR 11 |

## Pressures

| | | |
|---|---|---|
| Drag Pressure | 48 psi | |
| | Interfacial | Gauge |
| Bead Up | 75 psi | 121 psi |
| Heat Soak | 0 psi | 48 psi |
| Fuse/Cool | 75 psi | 121 psi |

## Fusion Specification

| | |
|---|---|
| Fusion Type | Butt Fusion |
| Fusion Specification | ASTM F2620 |
| Bead Time | 0 seconds |
| Bead Size | 3/16" |
| Heat/Soak Time | 162 seconds |
| Fuse Time | 397 seconds |
| Open/Close Time | 15 seconds |
| Cool Time | 0 seconds |

| | Minimum | Maximum |
|---|---|---|
| Bead Up | 106 psi | 135 psi |
| Heat Soak | 0 psi | 48 psi |
| Fuse | 106 psi | 135 psi |
| Cool | 0 psi | 0 psi |

## External Heater Temperatures

| | Side A | Side B |
|---|---|---|

## GPS Location

| Date | Latitude | Longitude |
|---|---|---|
| 2018-08-21 11:30:05.0 | 64°2'17.563200"N | 135°49'47.136000"W |

## Logged Data Summary

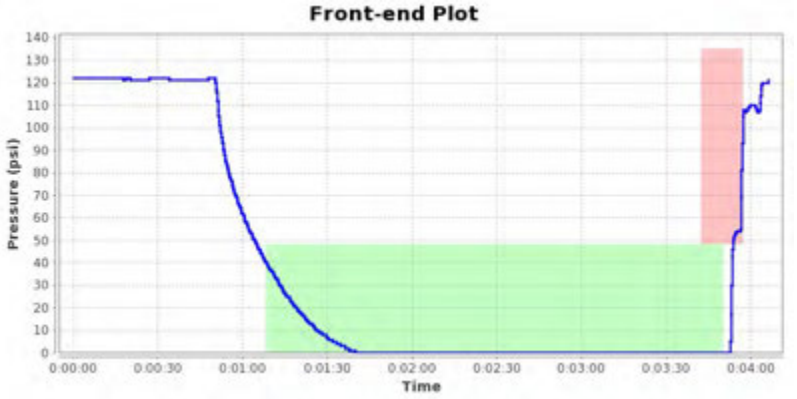
| | |
|---|---|
| Number of Data Points | 348 |
| Total Fusion Time | 1146 seconds |
| Maximum Recorded Pressure | 122 psi |

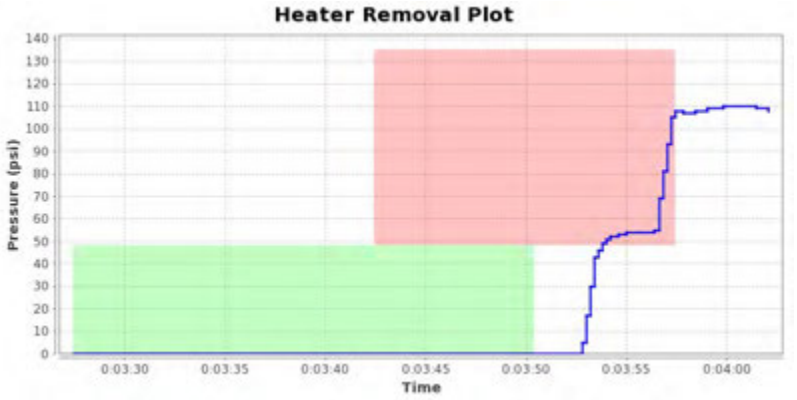
## Device Information

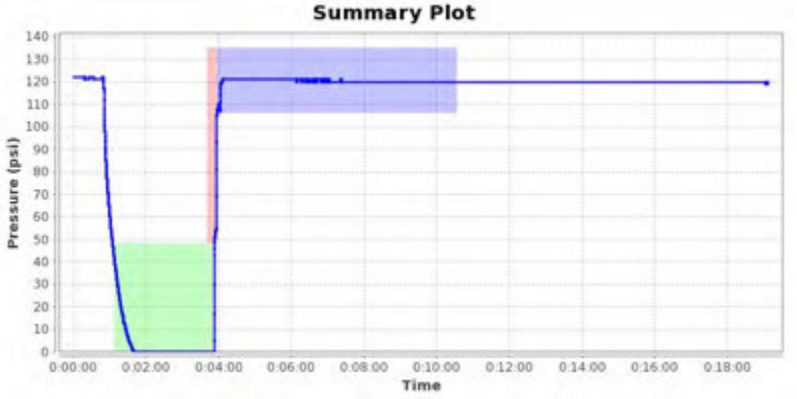
| | |
|---|---|
| DataLogger Serial Number | RH803Z0550 |
| Sensor Serial Number | MDL6621 |
| Calibration Date | 2018-04-04 |
| Firmware Version | v6.0 |
| Software Version | 1.08 (27) |
| Software Product Name | DataLogger 6 |

## Data Source

| | |
|---|---|
| Upload Time | 2018-10-14 16:15:25 GMT |




## Notes

Images for report: 1164531





Printed: 2018-10-14 16:24:59 UTC

# McElroy Joint Report

Reference Number 1164532

## Job Details

| | |
|---|---|
| Joint Number | 147 |
| Joint Time | 2018-08-21 12:52:30 GMT |
| Job | 1 |
| Operator | Rafel |
| Aborted Joint | No |

## Fusion Machine

| | |
|---|---|
| Machine Name | 618 HF |
| Machine Model | 618 HF |
| Piston Area | 11.78 in² |

## Pipe Specifications

| | |
|---|---|
| Pipe Material | PE4710 |
| Pipe Size | 6 " IPS |
| Wall Thickness | DR 11 |

## Pressures

| | | |
|---|---|---|
| Drag Pressure | 47 psi | |
| | Interfacial | Gauge |
| Bead Up | 75 psi | 120 psi |
| Heat Soak | 0 psi | 47 psi |
| Fuse/Cool | 75 psi | 120 psi |

## Fusion Specification

| | |
|---|---|
| Fusion Type | Butt Fusion |
| Fusion Specification | ASTM F2620 |
| Bead Time | 0 seconds |
| Bead Size | 3/16" |
| Heat/Soak Time | 162 seconds |
| Fuse Time | 397 seconds |
| Open/Close Time | 15 seconds |
| Cool Time | 0 seconds |

| | Minimum | Maximum |
|---|---|---|
| Bead Up | 105 psi | 134 psi |
| Heat Soak | 0 psi | 47 psi |
| Fuse | 105 psi | 134 psi |
| Cool | 0 psi | 0 psi |

## External Heater Temperatures

| | Side A | Side B |
|---|---|---|

## GPS Location

| Date | Latitude | Longitude |
|---|---|---|
| 2018-08-21 12:52:30.0 | 64°2'17.603400"N | 135°49'47.179200"W |

## Logged Data Summary

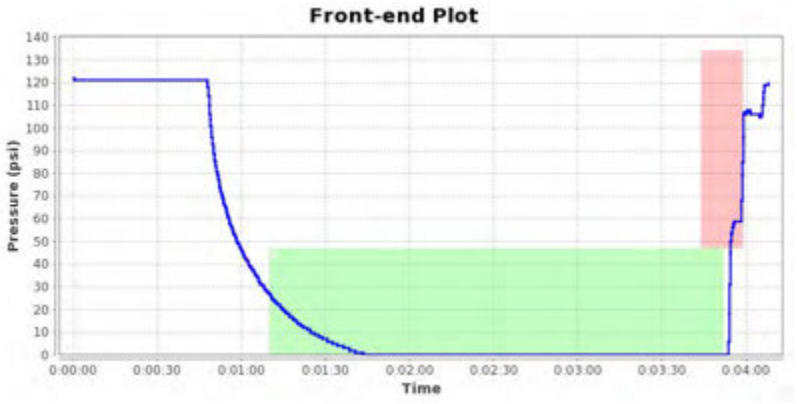
| | |
|---|---|
| Number of Data Points | 374 |
| Total Fusion Time | 964 seconds |
| Maximum Recorded Pressure | 122 psi |

## Device Information

| | |
|---|---|
| DataLogger Serial Number | RH803Z0550 |
| Sensor Serial Number | MDL6621 |
| Calibration Date | 2018-04-04 |
| Firmware Version | v6.0 |
| Software Version | 1.08 (27) |
| Software Product Name | DataLogger 6 |

## Data Source

| | |
|---|---|
| Upload Time | 2018-10-14 16:15:30 GMT |










## Notes

Images for report: 1164532





Printed: 2018-10-14 16:24:58 UTC

# McElroy Joint Report

Reference Number 1164533

## Job Details

| | |
|---|---|
| Joint Number | 148 |
| Joint Time | 2018-08-21 14:13:28 GMT |
| Job | 1 |
| Operator | Rafel |
| Aborted Joint | No |

## Fusion Machine

| | |
|---|---|
| Machine Name | 618 HF |
| Machine Model | 618 HF |
| Piston Area | 11.78 in² |

## Pipe Specifications

| | |
|---|---|
| Pipe Material | PE4710 |
| Pipe Size | 6 " IPS |
| Wall Thickness | DR 11 |

## Pressures

| Drag Pressure | 34 psi | |
|---|---|---|
| | Interfacial | Gauge |
| Bead Up | 75 psi | 107 psi |
| Heat Soak | 0 psi | 34 psi |
| Fuse/Cool | 75 psi | 107 psi |

## Fusion Specification

| | |
|---|---|
| Fusion Type | Butt Fusion |
| Fusion Specification | ASTM F2620 |
| Bead Time | 0 seconds |
| Bead Size | 3/16" |
| Heat/Soak Time | 162 seconds |
| Fuse Time | 397 seconds |
| Open/Close Time | 15 seconds |
| Cool Time | 0 seconds |

| | Minimum | Maximum |
|---|---|---|
| Bead Up | 92 psi | 121 psi |
| Heat Soak | 0 psi | 34 psi |
| Fuse | 92 psi | 121 psi |
| Cool | 0 psi | 0 psi |

## External Heater Temperatures

| | Side A | Side B |
|---|---|---|

## GPS Location

| Date | Latitude | Longitude |
|---|---|---|
| 2018-08-21 14:13:28.0 | 64°2'17.592000"N | 135°49'47.086200"W |

## Logged Data Summary

| | |
|---|---|
| Number of Data Points | 280 |
| Total Fusion Time | 1175 seconds |
| Maximum Recorded Pressure | 108 psi |

## Device Information

| | |
|---|---|
| DataLogger Serial Number | RH803Z0550 |
| Sensor Serial Number | MDL6621 |
| Calibration Date | 2018-04-04 |
| Firmware Version | v6.0 |
| Software Version | 1.08 (27) |
| Software Product Name | DataLogger 6 |

## Data Source

| | |
|---|---|
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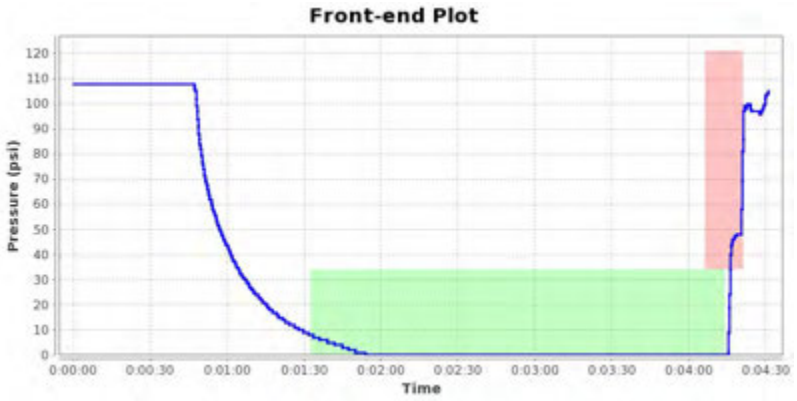
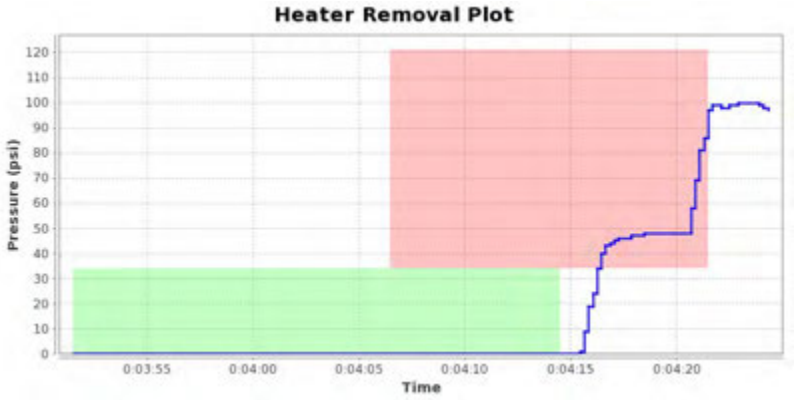
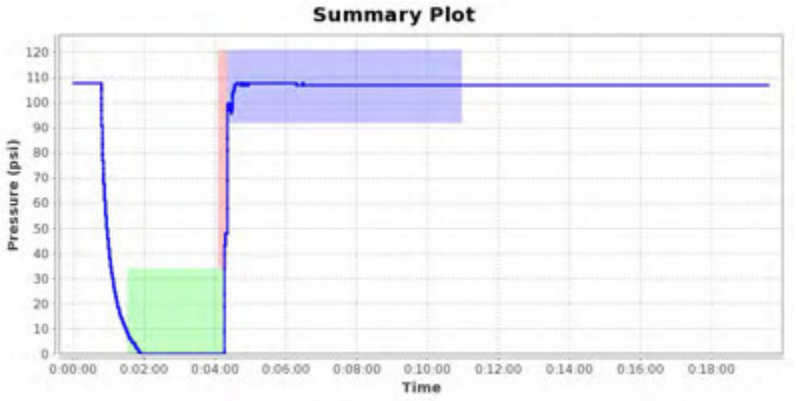



## Notes

Images for report: 1164533





Printed: 2018-10-14 16:24:57 UTC

# McElroy Joint Report

Reference Number 1164534

## Job Details

| | |
|---|---|
| Joint Number | 149 |
| Joint Time | 2018-08-21 14:55:32 GMT |
| Job | 1 |
| Operator | Rafel |
| Aborted Joint | No |

## Fusion Machine

| | |
|---|---|
| Machine Name | 618 HF |
| Machine Model | 618 HF |
| Piston Area | 11.78 in² |

## Pipe Specifications

| | |
|---|---|
| Pipe Material | PE4710 |
| Pipe Size | 6 " IPS |
| Wall Thickness | DR 11 |

## Pressures

| | | |
|---|---|---|
| Drag Pressure | 32 psi | |
| | Interfacial | Gauge |
| Bead Up | 75 psi | 105 psi |
| Heat Soak | 0 psi | 32 psi |
| Fuse/Cool | 75 psi | 105 psi |

## Fusion Specification

| | |
|---|---|
| Fusion Type | Butt Fusion |
| Fusion Specification | ASTM F2620 |
| Bead Time | 0 seconds |
| Bead Size | 3/16" |
| Heat/Soak Time | 162 seconds |
| Fuse Time | 397 seconds |
| Open/Close Time | 15 seconds |
| Cool Time | 0 seconds |

| | Minimum | Maximum |
|---|---|---|
| Bead Up | 90 psi | 119 psi |
| Heat Soak | 0 psi | 32 psi |
| Fuse | 90 psi | 119 psi |
| Cool | 0 psi | 0 psi |

## External Heater Temperatures

| | Side A | Side B |
|---|---|---|

## GPS Location

| Date | Latitude | Longitude |
|---|---|---|
| 2018-08-21 14:55:32.0 | 64°2'17.622600"N | 135°49'46.876800"W |

## Logged Data Summary

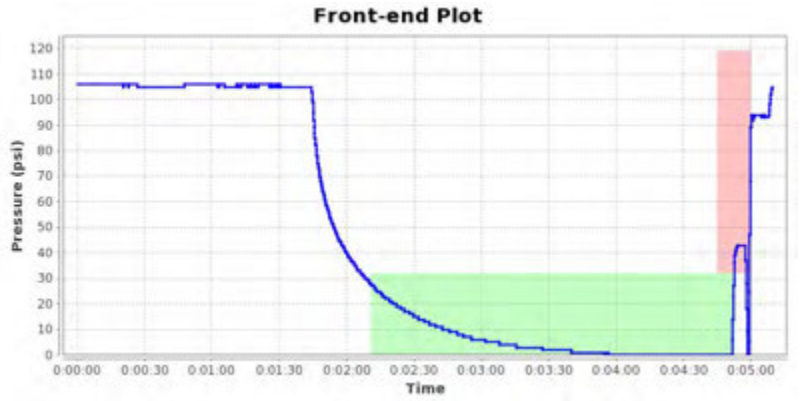
| | |
|---|---|
| Number of Data Points | 316 |
| Total Fusion Time | 1218 seconds |
| Maximum Recorded Pressure | 106 psi |

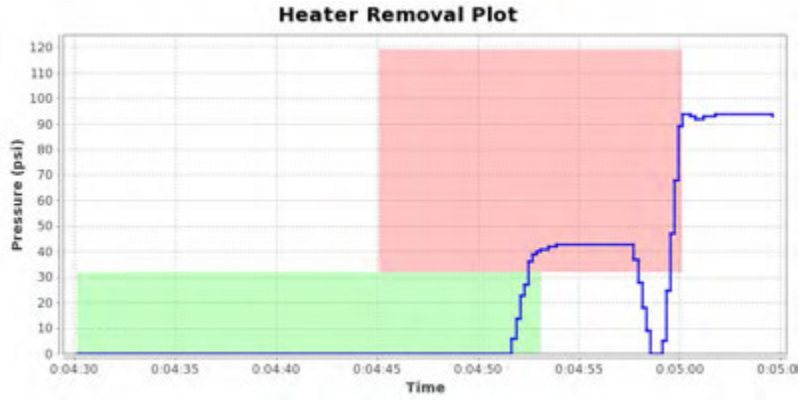
## Device Information

| | |
|---|---|
| DataLogger Serial Number | RH803Z0550 |
| Sensor Serial Number | MDL6621 |
| Calibration Date | 2018-04-04 |
| Firmware Version | v6.0 |
| Software Version | 1.08 (27) |
| Software Product Name | DataLogger 6 |

## Data Source

| | |
|---|---|
| Upload Time | 2018-10-14 16:15:39 GMT |







## Notes

Images for report: 1164534





Printed: 2018-10-14 16:24:55 UTC

# McElroy Joint Report

Reference Number 1164535

## Job Details

| | |
|---|---|
| Joint Number | 150 |
| Joint Time | 2018-08-24 11:56:22 GMT |
| Job | 1 |
| Operator | Rafel |
| Aborted Joint | No |

## Fusion Machine

| | |
|---|---|
| Machine Name | 618 HF |
| Machine Model | 618 HF |
| Piston Area | 11.78 in² |

## Pipe Specifications

| | |
|---|---|
| Pipe Material | PE4710 |
| Pipe Size | 6 " IPS |
| Wall Thickness | DR 11 |

## Pressures

| | | |
|---|---|---|
| Drag Pressure | 31 psi | |
| | Interfacial | Gauge |
| Bead Up | 75 psi | 104 psi |
| Heat Soak | 0 psi | 31 psi |
| Fuse/Cool | 75 psi | 104 psi |

## Fusion Specification

| | |
|---|---|
| Fusion Type | Butt Fusion |
| Fusion Specification | ASTM F2620 |
| Bead Time | 0 seconds |
| Bead Size | 3/16" |
| Heat/Soak Time | 162 seconds |
| Fuse Time | 397 seconds |
| Open/Close Time | 15 seconds |
| Cool Time | 0 seconds |

| | Minimum | Maximum |
|---|---|---|
| Bead Up | 89 psi | 118 psi |
| Heat Soak | 0 psi | 31 psi |
| Fuse | 89 psi | 118 psi |
| Cool | 0 psi | 0 psi |

## External Heater Temperatures

| | Side A | Side B |
|---|---|---|

## GPS Location

| Date | Latitude | Longitude |
|---|---|---|
| 2018-08-24 11:56:22.0 | 64°2'20.431200"N | 135°49'44.176800"W |

## Logged Data Summary

| | |
|---|---|
| Number of Data Points | 286 |
| Total Fusion Time | 1179 seconds |
| Maximum Recorded Pressure | 118 psi |

## Device Information

| | |
|---|---|
| DataLogger Serial Number | RH803Z0550 |
| Sensor Serial Number | MDL6621 |
| Calibration Date | 2018-04-04 |
| Firmware Version | v6.0 |
| Software Version | 1.08 (27) |
| Software Product Name | DataLogger 6 |

## Data Source

| | |
|---|---|
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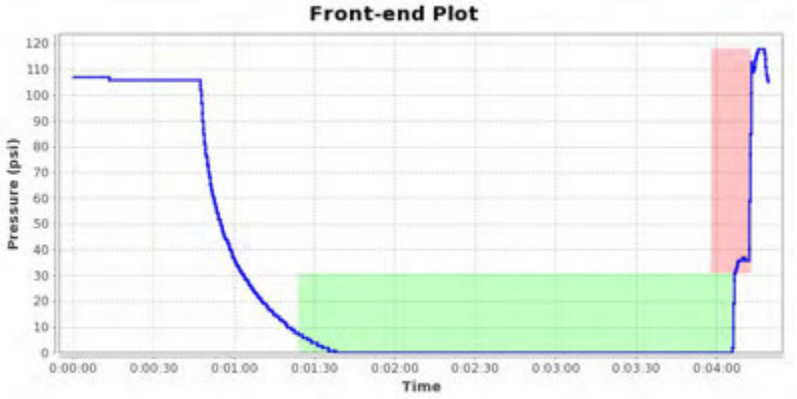
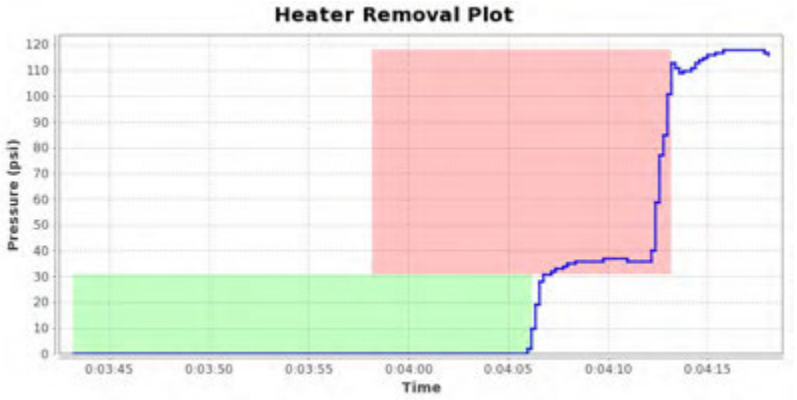
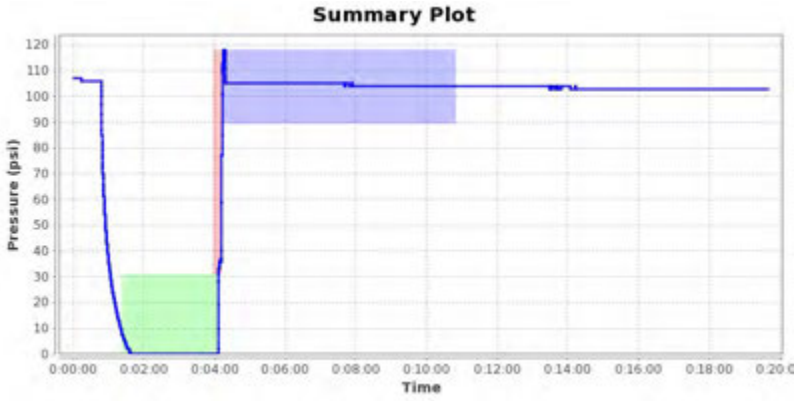


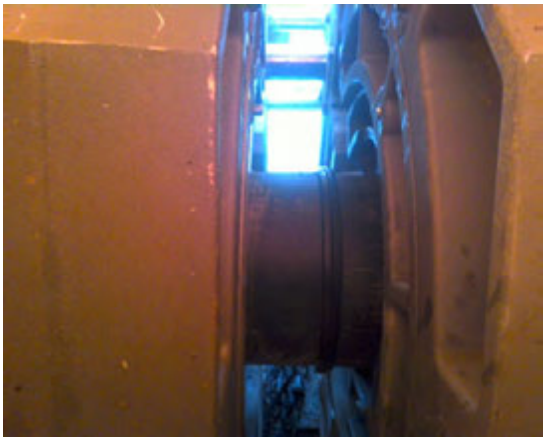




## Notes

Images for report: 1164535





Printed: 2018-10-14 16:24:54 UTC

# McElroy Joint Report

Reference Number 1164536

## Job Details

| | |
|---|---|
| Joint Number | 151 |
| Joint Time | 2018-08-24 12:37:03 GMT |
| Job | 1 |
| Operator | Rafel |
| Aborted Joint | No |

## Fusion Machine

| | |
|---|---|
| Machine Name | 618 HF |
| Machine Model | 618 HF |
| Piston Area | 11.78 in² |

## Pipe Specifications

| | |
|---|---|
| Pipe Material | PE4710 |
| Pipe Size | 6 " IPS |
| Wall Thickness | DR 11 |

## Pressures

| | | |
|---|---|---|
| Drag Pressure | 31 psi | |
| | Interfacial | Gauge |
| Bead Up | 75 psi | 104 psi |
| Heat Soak | 0 psi | 31 psi |
| Fuse/Cool | 75 psi | 104 psi |

## Fusion Specification

| | |
|---|---|
| Fusion Type | Butt Fusion |
| Fusion Specification | ASTM F2620 |
| Bead Time | 0 seconds |
| Bead Size | 3/16" |
| Heat/Soak Time | 162 seconds |
| Fuse Time | 397 seconds |
| Open/Close Time | 15 seconds |
| Cool Time | 0 seconds |

| | Minimum | Maximum |
|---|---|---|
| Bead Up | 89 psi | 118 psi |
| Heat Soak | 0 psi | 31 psi |
| Fuse | 89 psi | 118 psi |
| Cool | 0 psi | 0 psi |

## External Heater Temperatures

| | Side A | Side B |
|---|---|---|

## GPS Location

| Date | Latitude | Longitude |
|---|---|---|
| 2018-08-24 12:37:03.0 | 64°2'20.510400"N | 135°49'44.363400"W |

## Logged Data Summary

| | |
|---|---|
| Number of Data Points | 288 |
| Total Fusion Time | 1164 seconds |
| Maximum Recorded Pressure | 106 psi |

## Device Information

| | |
|---|---|
| DataLogger Serial Number | RH803Z0550 |
| Sensor Serial Number | MDL6621 |
| Calibration Date | 2018-04-04 |
| Firmware Version | v6.0 |
| Software Version | 1.08 (27) |
| Software Product Name | DataLogger 6 |

## Data Source

| | |
|---|---|
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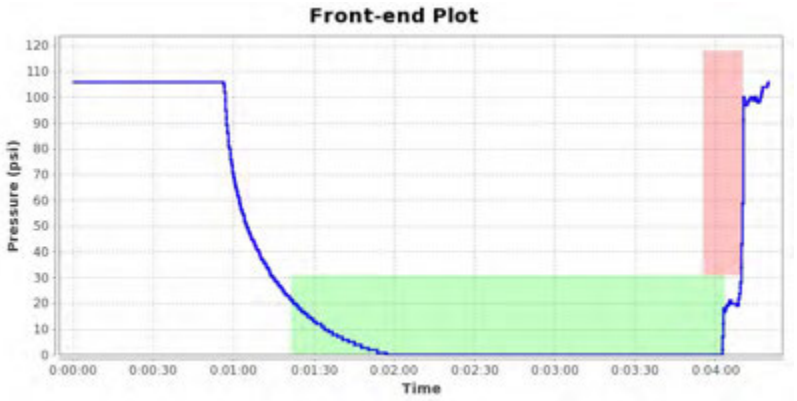


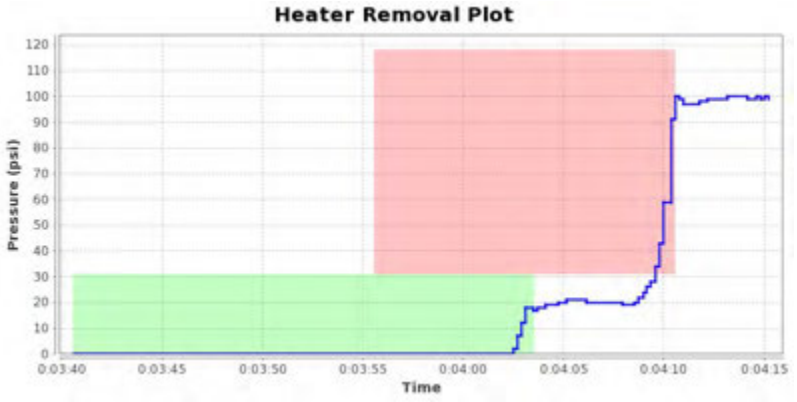


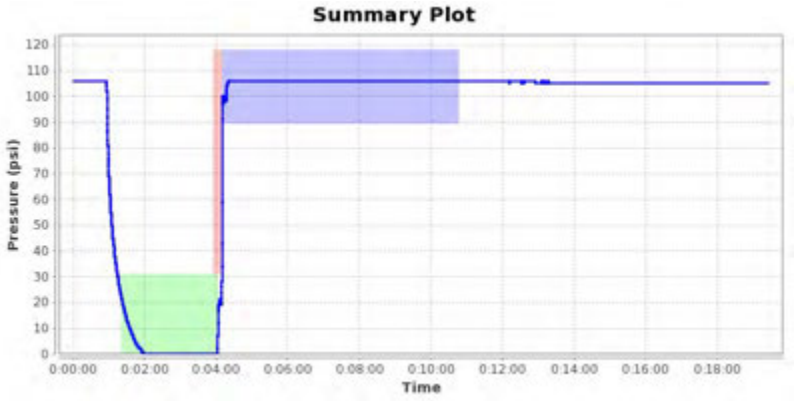


## Notes

Images for report: 1164536





Printed: 2018-10-14 16:24:53 UTC

# McElroy Joint Report

Reference Number 1164537

## Job Details

| | |
|---|---|
| Joint Number | 152 |
| Joint Time | 2018-08-24 13:20:51 GMT |
| Job | 1 |
| Operator | Rafel |
| Aborted Joint | No |

## Fusion Machine

| | |
|---|---|
| Machine Name | 618 HF |
| Machine Model | 618 HF |
| Piston Area | 11.78 in² |

## Pipe Specifications

| | |
|---|---|
| Pipe Material | PE4710 |
| Pipe Size | 6 " IPS |
| Wall Thickness | DR 11 |

## Pressures

| | | |
|---|---|---|
| Drag Pressure | 34 psi | |
| | Interfacial | Gauge |
| Bead Up | 75 psi | 107 psi |
| Heat Soak | 0 psi | 34 psi |
| Fuse/Cool | 75 psi | 107 psi |

## Fusion Specification

| | |
|---|---|
| Fusion Type | Butt Fusion |
| Fusion Specification | ASTM F2620 |
| Bead Time | 0 seconds |
| Bead Size | 3/16" |
| Heat/Soak Time | 162 seconds |
| Fuse Time | 397 seconds |
| Open/Close Time | 15 seconds |
| Cool Time | 0 seconds |

| | Minimum | Maximum |
|---|---|---|
| Bead Up | 92 psi | 121 psi |
| Heat Soak | 0 psi | 34 psi |
| Fuse | 92 psi | 121 psi |
| Cool | 0 psi | 0 psi |

## External Heater Temperatures

| | Side A | Side B |
|---|---|---|

## GPS Location

| Date | Latitude | Longitude |
|---|---|---|
| 2018-08-24 13:20:51.0 | 64°2'20.557200"N | 135°49'44.409000"W |

## Logged Data Summary

| | |
|---|---|
| Number of Data Points | 296 |
| Total Fusion Time | 1158 seconds |
| Maximum Recorded Pressure | 108 psi |

## Device Information

| | |
|---|---|
| DataLogger Serial Number | RH803Z0550 |
| Sensor Serial Number | MDL6621 |
| Calibration Date | 2018-04-04 |
| Firmware Version | v6.0 |
| Software Version | 1.08 (27) |
| Software Product Name | DataLogger 6 |

## Data Source

| | |
|---|---|
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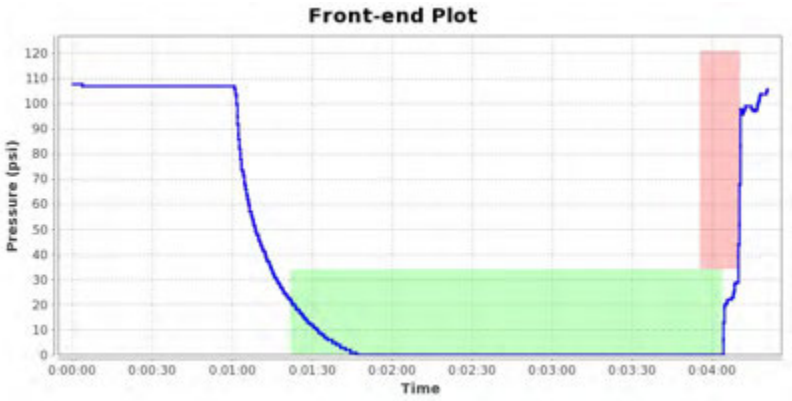


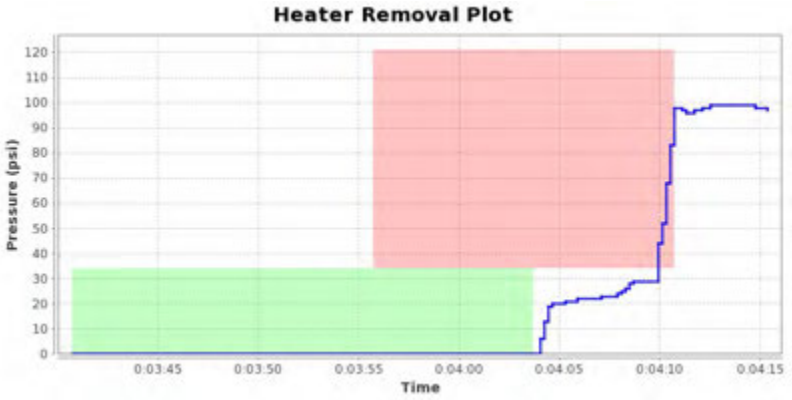


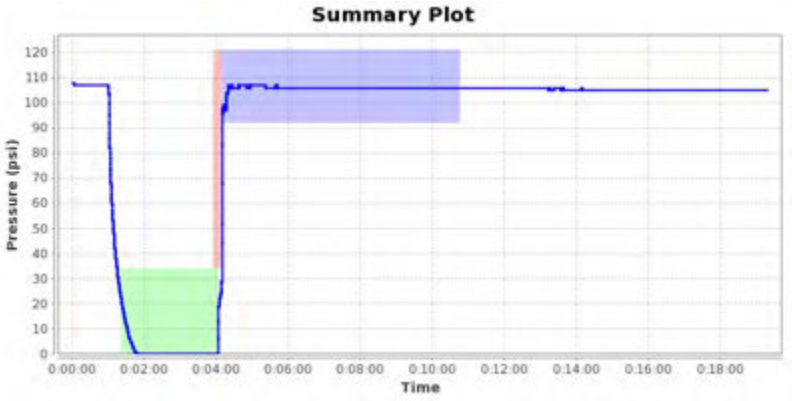


## Notes

Images for report: 1164537





Printed: 2018-10-14 16:24:51 UTC

# McElroy Joint Report

Reference Number 1164538

## Job Details

| | |
|---|---|
| Joint Number | 153 |
| Joint Time | 2018-08-24 14:33:14 GMT |
| Job | 1 |
| Operator | Rafel |
| Aborted Joint | No |

## Fusion Machine

| | |
|---|---|
| Machine Name | 618 HF |
| Machine Model | 618 HF |
| Piston Area | 11.78 in² |

## Pipe Specifications

| | |
|---|---|
| Pipe Material | PE4710 |
| Pipe Size | 6 " IPS |
| Wall Thickness | DR 11 |

## Pressures

| Drag Pressure | 37 psi | |
|---|---|---|
| | Interfacial | Gauge |
| Bead Up | 75 psi | 110 psi |
| Heat Soak | 0 psi | 37 psi |
| Fuse/Cool | 75 psi | 110 psi |

## Fusion Specification

| | |
|---|---|
| Fusion Type | Butt Fusion |
| Fusion Specification | ASTM F2620 |
| Bead Time | 0 seconds |
| Bead Size | 3/16" |
| Heat/Soak Time | 162 seconds |
| Fuse Time | 397 seconds |
| Open/Close Time | 15 seconds |
| Cool Time | 0 seconds |

| | Minimum | Maximum |
|---|---|---|
| Bead Up | 95 psi | 124 psi |
| Heat Soak | 0 psi | 37 psi |
| Fuse | 95 psi | 124 psi |
| Cool | 0 psi | 0 psi |

## External Heater Temperatures

| | Side A | Side B |
|---|---|---|

## GPS Location

| Date | Latitude | Longitude |
|---|---|---|
| 2018-08-24 14:33:14.0 | 64°2'20.623200"N | 135°49'44.261400"W |

## Logged Data Summary

| | |
|---|---|
| Number of Data Points | 376 |
| Total Fusion Time | 1154 seconds |
| Maximum Recorded Pressure | 111 psi |

## Device Information

| | |
|---|---|
| DataLogger Serial Number | RH803Z0550 |
| Sensor Serial Number | MDL6621 |
| Calibration Date | 2018-04-04 |
| Firmware Version | v6.0 |
| Software Version | 1.08 (27) |
| Software Product Name | DataLogger 6 |

## Data Source

| | |
|---|---|
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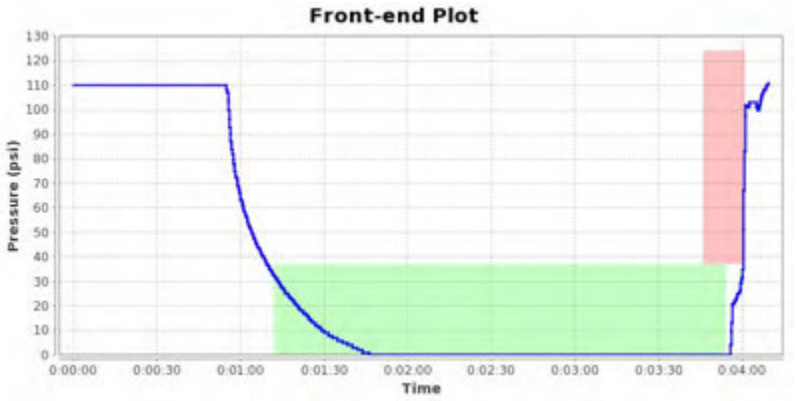
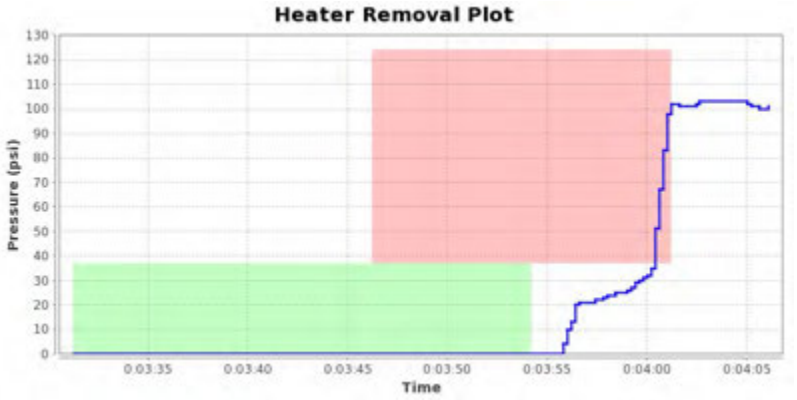
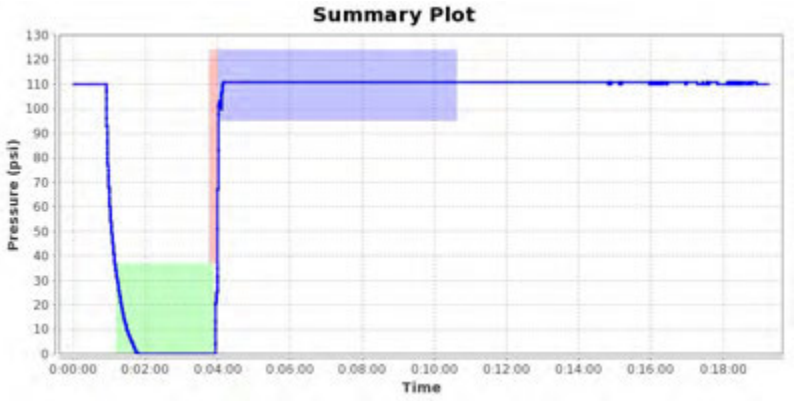



## Notes

Images for report: 1164538





Printed: 2018-10-14 16:24:50 UTC

# McElroy Joint Report

Reference Number 1164539

## Job Details

| | |
|---|---|
| Joint Number | 154 |
| Joint Time | 2018-08-24 15:36:48 GMT |
| Job | 1 |
| Operator | Rafel |
| Aborted Joint | No |

## Fusion Machine

| | |
|---|---|
| Machine Name | 618 HF |
| Machine Model | 618 HF |
| Piston Area | 11.78 in² |

## Pipe Specifications

| | |
|---|---|
| Pipe Material | PE4710 |
| Pipe Size | 6 " IPS |
| Wall Thickness | DR 11 |

## Pressures

| Drag Pressure | 39 psi | |
|---|---|---|
| | Interfacial | Gauge |
| Bead Up | 75 psi | 112 psi |
| Heat Soak | 0 psi | 39 psi |
| Fuse/Cool | 75 psi | 112 psi |

## Fusion Specification

| | |
|---|---|
| Fusion Type | Butt Fusion |
| Fusion Specification | ASTM F2620 |
| Bead Time | 0 seconds |
| Bead Size | 3/16" |
| Heat/Soak Time | 162 seconds |
| Fuse Time | 397 seconds |
| Open/Close Time | 15 seconds |
| Cool Time | 0 seconds |

| | Minimum | Maximum |
|---|---|---|
| Bead Up | 97 psi | 126 psi |
| Heat Soak | 0 psi | 39 psi |
| Fuse | 97 psi | 126 psi |
| Cool | 0 psi | 0 psi |

## External Heater Temperatures

| | Side A | Side B |
|---|---|---|

## GPS Location

| Date | Latitude | Longitude |
|---|---|---|
| 2018-08-24 15:36:48.0 | 64°2'17.322600"N | 135°49'47.177400"W |

## Logged Data Summary

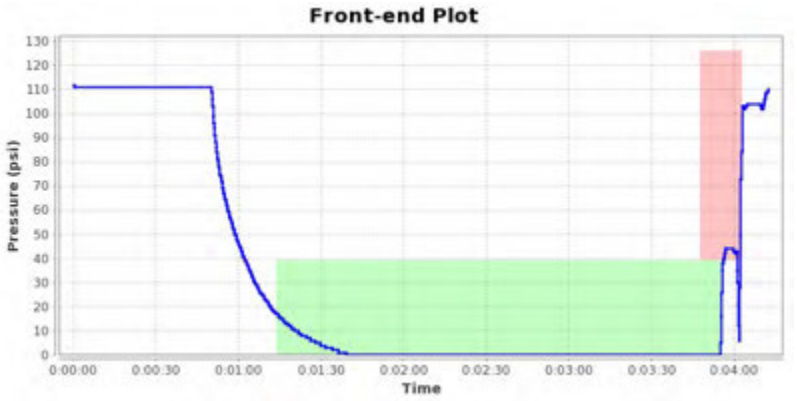
| | |
|---|---|
| Number of Data Points | 356 |
| Total Fusion Time | 1155 seconds |
| Maximum Recorded Pressure | 112 psi |

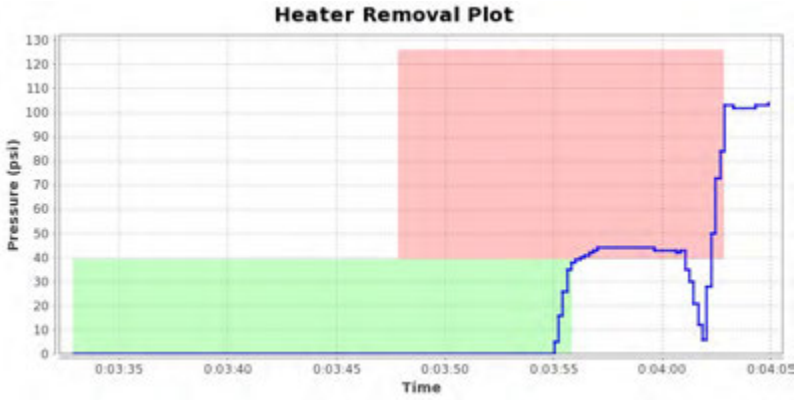
## Device Information

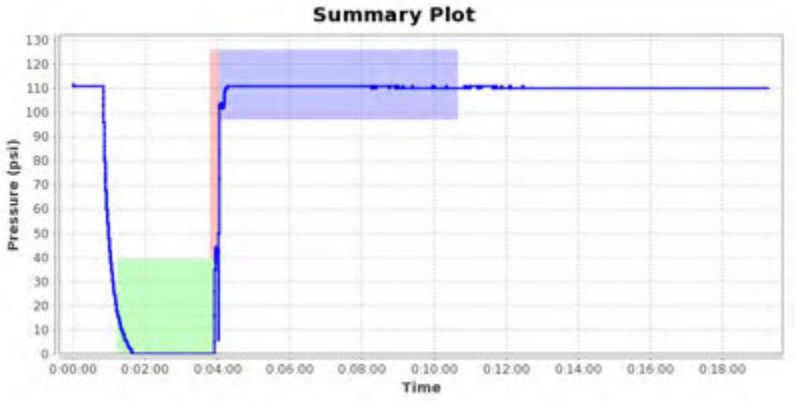
| | |
|---|---|
| DataLogger Serial Number | RH803Z0550 |
| Sensor Serial Number | MDL6621 |
| Calibration Date | 2018-04-04 |
| Firmware Version | v6.0 |
| Software Version | 1.08 (27) |
| Software Product Name | DataLogger 6 |

## Data Source

| | |
|---|---|
| Upload Time | 2018-10-14 16:16:00 GMT |




## Notes

Images for report: 1164539





Printed: 2018-10-14 16:24:48 UTC

# McElroy Joint Report

Reference Number 1164540

## Job Details

| | |
|---|---|
| Joint Number | 155 |
| Joint Time | 2018-08-24 16:57:08 GMT |
| Job | 1 |
| Operator | Rafel |
| Aborted Joint | No |

## Fusion Machine

| | |
|---|---|
| Machine Name | 618 HF |
| Machine Model | 618 HF |
| Piston Area | 11.78 in² |

## Pipe Specifications

| | |
|---|---|
| Pipe Material | PE4710 |
| Pipe Size | 6 " IPS |
| Wall Thickness | DR 11 |

## Pressures

| Drag Pressure | 37 psi | |
|---|---|---|
| | Interfacial | Gauge |
| Bead Up | 75 psi | 110 psi |
| Heat Soak | 0 psi | 37 psi |
| Fuse/Cool | 75 psi | 110 psi |

## Fusion Specification

| | |
|---|---|
| Fusion Type | Butt Fusion |
| Fusion Specification | ASTM F2620 |
| Bead Time | 0 seconds |
| Bead Size | 3/16" |
| Heat/Soak Time | 162 seconds |
| Fuse Time | 397 seconds |
| Open/Close Time | 15 seconds |
| Cool Time | 0 seconds |

| | Minimum | Maximum |
|---|---|---|
| Bead Up | 95 psi | 124 psi |
| Heat Soak | 0 psi | 37 psi |
| Fuse | 95 psi | 124 psi |
| Cool | 0 psi | 0 psi |

## External Heater Temperatures

| | Side A | Side B |
|---|---|---|

## GPS Location

| Date | Latitude | Longitude |
|---|---|---|
| 2018-08-24 16:57:08.0 | 64°2'17.437800"N | 135°49'47.426400"W |

## Logged Data Summary

| | |
|---|---|
| Number of Data Points | 308 |
| Total Fusion Time | 1224 seconds |
| Maximum Recorded Pressure | 112 psi |

## Device Information

| | |
|---|---|
| DataLogger Serial Number | RH803Z0550 |
| Sensor Serial Number | MDL6621 |
| Calibration Date | 2018-04-04 |
| Firmware Version | v6.0 |
| Software Version | 1.08 (27) |
| Software Product Name | DataLogger 6 |

## Data Source

| | |
|---|---|
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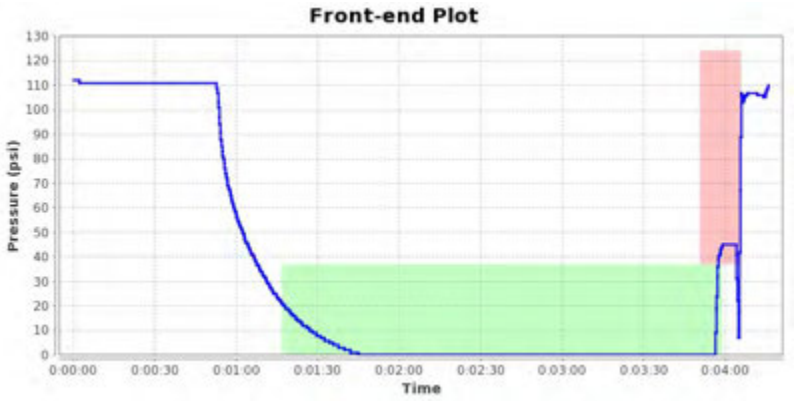


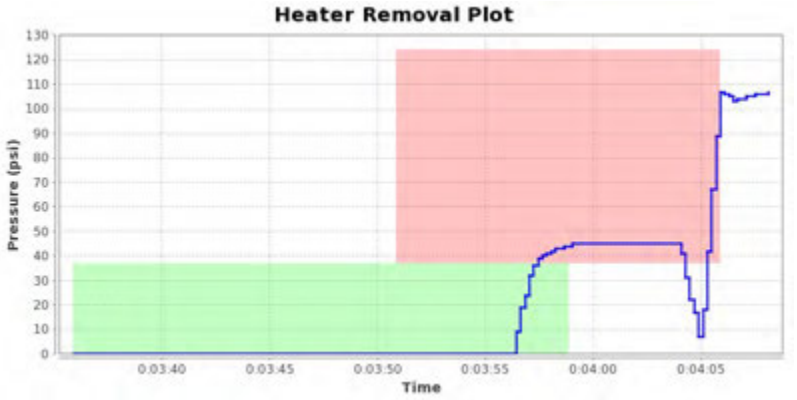


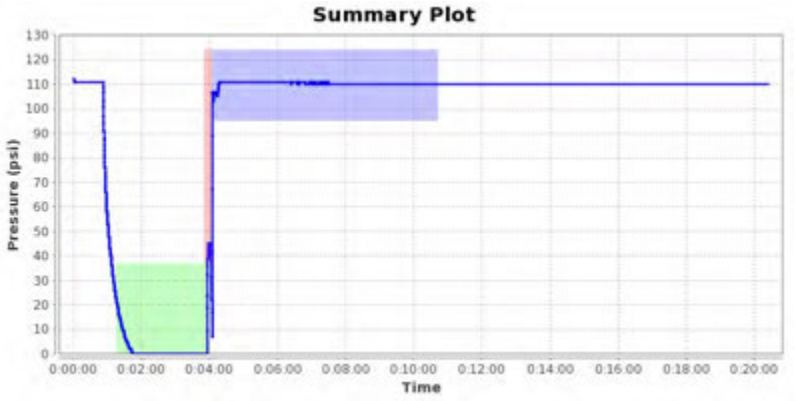


## Notes

Images for report: 1164540





Printed: 2018-10-14 16:24:47 UTC

# McElroy Joint Report

Reference Number 1164541

## Job Details

| | |
|---|---|
| Joint Number | 156 |
| Joint Time | 2018-08-25 11:32:17 GMT |
| Job | 1 |
| Operator | Rafel |
| Aborted Joint | No |

## Fusion Machine

| | |
|---|---|
| Machine Name | 618 HF |
| Machine Model | 618 HF |
| Piston Area | 11.78 in² |

## Pipe Specifications

| | |
|---|---|
| Pipe Material | PE4710 |
| Pipe Size | 6 " IPS |
| Wall Thickness | DR 11 |

## Pressures

| Drag Pressure | 40 psi | |
|---|---|---|
| | Interfacial | Gauge |
| Bead Up | 75 psi | 113 psi |
| Heat Soak | 0 psi | 40 psi |
| Fuse/Cool | 75 psi | 113 psi |

## Fusion Specification

| | |
|---|---|
| Fusion Type | Butt Fusion |
| Fusion Specification | ASTM F2620 |
| Bead Time | 0 seconds |
| Bead Size | 3/16" |
| Heat/Soak Time | 162 seconds |
| Fuse Time | 397 seconds |
| Open/Close Time | 15 seconds |
| Cool Time | 0 seconds |

| | Minimum | Maximum |
|---|---|---|
| Bead Up | 98 psi | 127 psi |
| Heat Soak | 0 psi | 40 psi |
| Fuse | 98 psi | 127 psi |
| Cool | 0 psi | 0 psi |

## External Heater Temperatures

| | Side A | Side B |
|---|---|---|

## GPS Location

| Date | Latitude | Longitude |
|---|---|---|
| 2018-08-25 11:32:17.0 | 64°2'21.329400"N | 135°49'44.495400"W |

## Logged Data Summary

| | |
|---|---|
| Number of Data Points | 496 |
| Total Fusion Time | 1226 seconds |
| Maximum Recorded Pressure | 114 psi |

## Device Information

| | |
|---|---|
| DataLogger Serial Number | RH803Z0550 |
| Sensor Serial Number | MDL6621 |
| Calibration Date | 2018-04-04 |
| Firmware Version | v6.0 |
| Software Version | 1.08 (27) |
| Software Product Name | DataLogger 6 |

## Data Source

| | |
|---|---|
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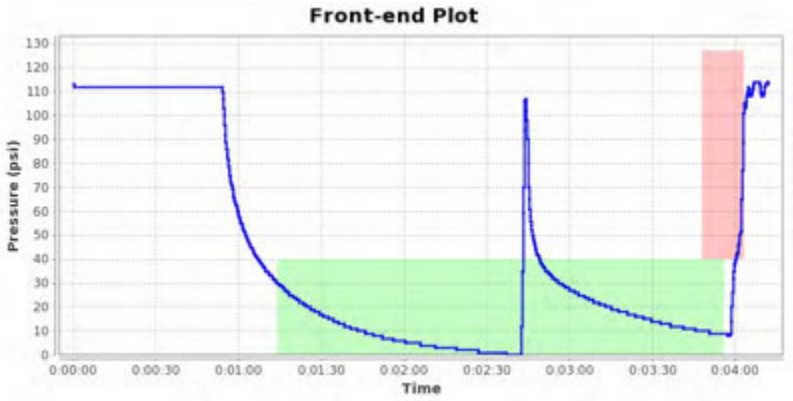


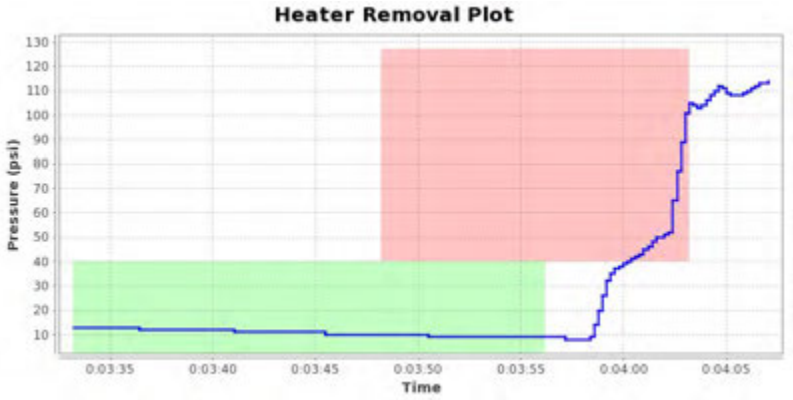





## Notes

Images for report: 1164541





Printed: 2018-10-14 16:24:45 UTC

# McElroy Joint Report

Reference Number 1164542

## Job Details

| | |
|---|---|
| Joint Number | 157 |
| Joint Time | 2018-08-25 12:07:42 GMT |
| Job | 1 |
| Operator | Rafel |
| Aborted Joint | No |

## Fusion Machine

| | |
|---|---|
| Machine Name | 618 HF |
| Machine Model | 618 HF |
| Piston Area | 11.78 in² |

## Pipe Specifications

| | |
|---|---|
| Pipe Material | PE4710 |
| Pipe Size | 6 " IPS |
| Wall Thickness | DR 11 |

## Pressures

| | | |
|---|---|---|
| Drag Pressure | 33 psi | |
| | Interfacial | Gauge |
| Bead Up | 75 psi | 106 psi |
| Heat Soak | 0 psi | 33 psi |
| Fuse/Cool | 75 psi | 106 psi |

## Fusion Specification

| | |
|---|---|
| Fusion Type | Butt Fusion |
| Fusion Specification | ASTM F2620 |
| Bead Time | 0 seconds |
| Bead Size | 3/16" |
| Heat/Soak Time | 162 seconds |
| Fuse Time | 397 seconds |
| Open/Close Time | 15 seconds |
| Cool Time | 0 seconds |

| | Minimum | Maximum |
|---|---|---|
| Bead Up | 91 psi | 120 psi |
| Heat Soak | 0 psi | 33 psi |
| Fuse | 91 psi | 120 psi |
| Cool | 0 psi | 0 psi |

## External Heater Temperatures

| | Side A | Side B |
|---|---|---|

## GPS Location

| Date | Latitude | Longitude |
|---|---|---|
| 2018-08-25 12:07:42.0 | 64°2'21.329400"N | 135°49'44.464800"W |

## Logged Data Summary

| | |
|---|---|
| Number of Data Points | 358 |
| Total Fusion Time | 1140 seconds |
| Maximum Recorded Pressure | 109 psi |

## Device Information

| | |
|---|---|
| DataLogger Serial Number | RH803Z0550 |
| Sensor Serial Number | MDL6621 |
| Calibration Date | 2018-04-04 |
| Firmware Version | v6.0 |
| Software Version | 1.08 (27) |
| Software Product Name | DataLogger 6 |

## Data Source

| | |
|---|---|
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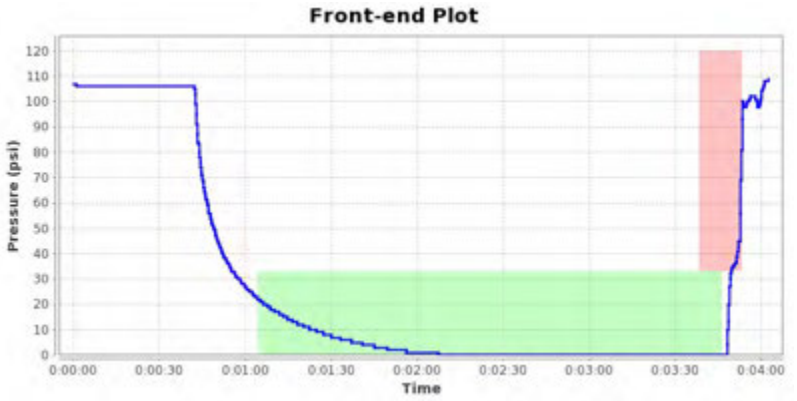


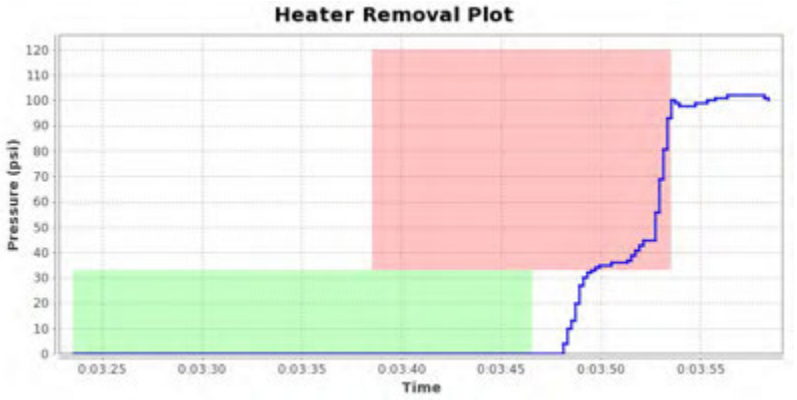


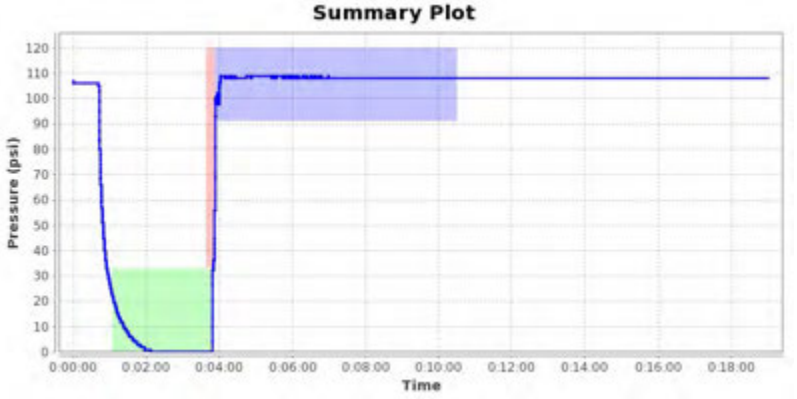


## Notes

Images for report: 1164542





Printed: 2018-10-14 16:24:44 UTC

# McElroy Joint Report

Reference Number 1164543

## Job Details

| | |
|---|---|
| Joint Number | 158 |
| Joint Time | 2018-08-25 12:50:16 GMT |
| Job | 1 |
| Operator | Rafel |
| Aborted Joint | No |

## Fusion Machine

| | |
|---|---|
| Machine Name | 618 HF |
| Machine Model | 618 HF |
| Piston Area | 11.78 in² |

## Pipe Specifications

| | |
|---|---|
| Pipe Material | PE4710 |
| Pipe Size | 6 " IPS |
| Wall Thickness | DR 11 |

## Pressures

| | | |
|---|---|---|
| Drag Pressure | 35 psi | |
| | Interfacial | Gauge |
| Bead Up | 75 psi | 108 psi |
| Heat Soak | 0 psi | 35 psi |
| Fuse/Cool | 75 psi | 108 psi |

## Fusion Specification

| | |
|---|---|
| Fusion Type | Butt Fusion |
| Fusion Specification | ASTM F2620 |
| Bead Time | 0 seconds |
| Bead Size | 3/16" |
| Heat/Soak Time | 162 seconds |
| Fuse Time | 397 seconds |
| Open/Close Time | 15 seconds |
| Cool Time | 0 seconds |

| | Minimum | Maximum |
|---|---|---|
| Bead Up | 93 psi | 122 psi |
| Heat Soak | 0 psi | 35 psi |
| Fuse | 93 psi | 122 psi |
| Cool | 0 psi | 0 psi |

## External Heater Temperatures

| | Side A | Side B |
|---|---|---|

## GPS Location

| Date | Latitude | Longitude |
|---|---|---|
| 2018-08-25 12:50:16.0 | 64°2'21.376200"N | 135°49'44.465400"W |

## Logged Data Summary

| | |
|---|---|
| Number of Data Points | 296 |
| Total Fusion Time | 1147 seconds |
| Maximum Recorded Pressure | 111 psi |

## Device Information

| | |
|---|---|
| DataLogger Serial Number | RH803Z0550 |
| Sensor Serial Number | MDL6621 |
| Calibration Date | 2018-04-04 |
| Firmware Version | v6.0 |
| Software Version | 1.08 (27) |
| Software Product Name | DataLogger 6 |

## Data Source

| | |
|---|---|
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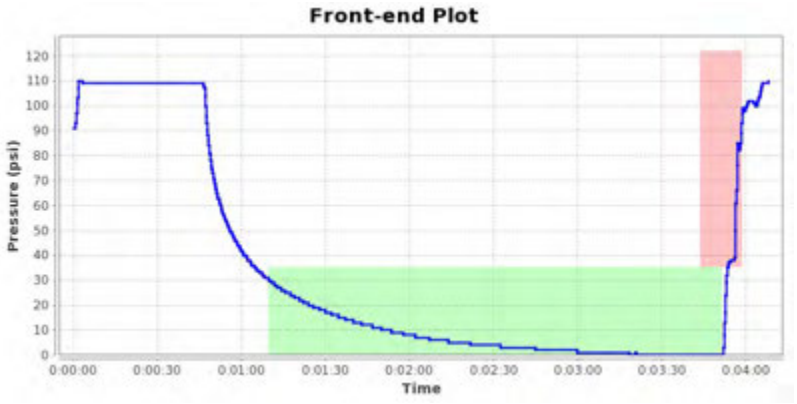


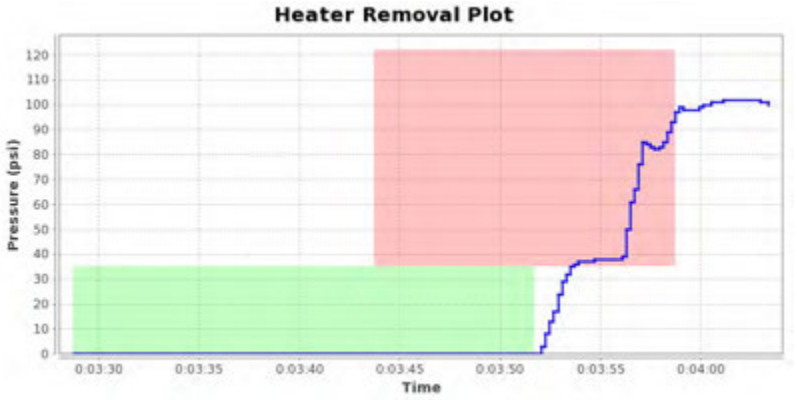


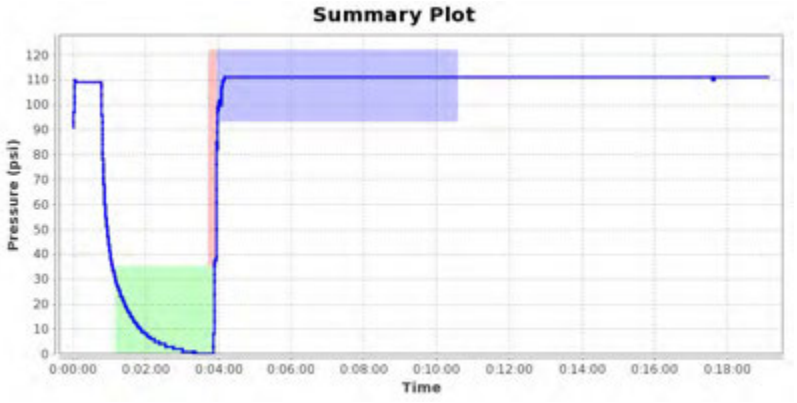


## Notes

Images for report: 1164543





Printed: 2018-10-14 16:24:43 UTC

# McElroy Joint Report

Reference Number 1164544

## Job Details

| | |
|---|---|
| Joint Number | 159 |
| Joint Time | 2018-08-25 13:22:32 GMT |
| Job | 1 |
| Operator | Rafel |
| Aborted Joint | No |

## Fusion Machine

| | |
|---|---|
| Machine Name | 618 HF |
| Machine Model | 618 HF |
| Piston Area | 11.78 in² |

## Pipe Specifications

| | |
|---|---|
| Pipe Material | PE4710 |
| Pipe Size | 6 " IPS |
| Wall Thickness | DR 11 |

## Pressures

| | | |
|---|---|---|
| Drag Pressure | 35 psi | |
| | Interfacial | Gauge |
| Bead Up | 75 psi | 108 psi |
| Heat Soak | 0 psi | 35 psi |
| Fuse/Cool | 75 psi | 108 psi |

## Fusion Specification

| | |
|---|---|
| Fusion Type | Butt Fusion |
| Fusion Specification | ASTM F2620 |
| Bead Time | 0 seconds |
| Bead Size | 3/16" |
| Heat/Soak Time | 162 seconds |
| Fuse Time | 397 seconds |
| Open/Close Time | 15 seconds |
| Cool Time | 0 seconds |

| | Minimum | Maximum |
|---|---|---|
| Bead Up | 93 psi | 122 psi |
| Heat Soak | 0 psi | 35 psi |
| Fuse | 93 psi | 122 psi |
| Cool | 0 psi | 0 psi |

## External Heater Temperatures

| | Side A | Side B |
|---|---|---|

## GPS Location

| Date | Latitude | Longitude |
|---|---|---|
| 2018-08-25 13:22:32.0 | 64°2'21.629400"N | 135°49'44.442000"W |

## Logged Data Summary

| | |
|---|---|
| Number of Data Points | 268 |
| Total Fusion Time | 1149 seconds |
| Maximum Recorded Pressure | 111 psi |

## Device Information

| | |
|---|---|
| DataLogger Serial Number | RH803Z0550 |
| Sensor Serial Number | MDL6621 |
| Calibration Date | 2018-04-04 |
| Firmware Version | v6.0 |
| Software Version | 1.08 (27) |
| Software Product Name | DataLogger 6 |

## Data Source

| | |
|---|---|
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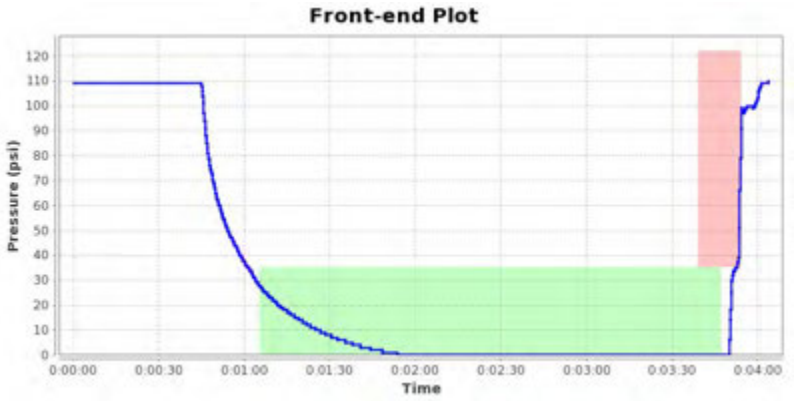


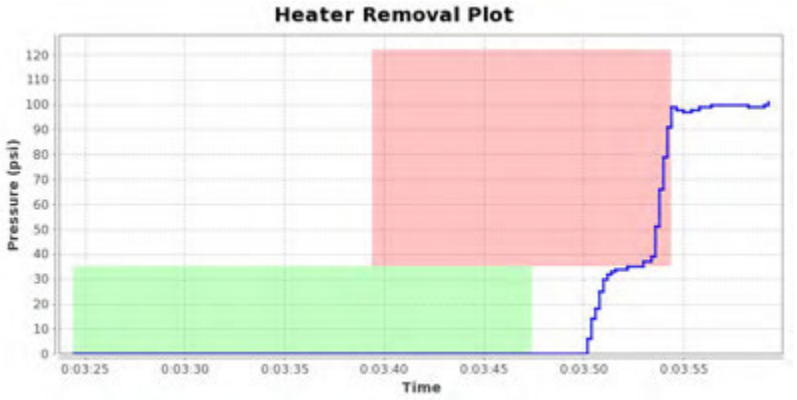


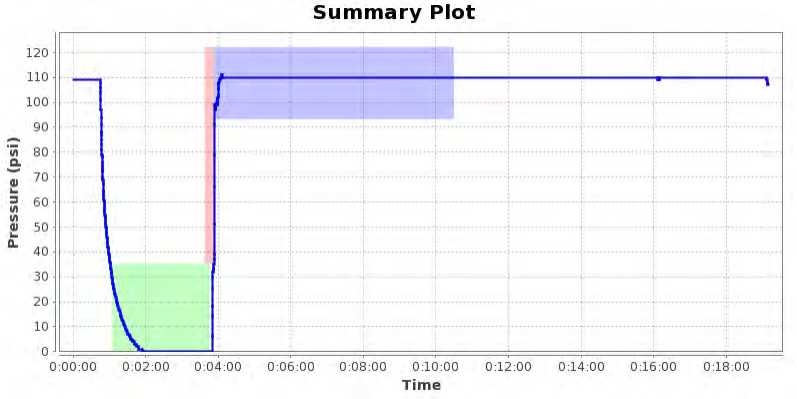


## Notes

Images for report: 1164544





Printed: 2018-10-14 16:24:41 UTC

# McElroy Joint Report

Reference Number 1164545

## Job Details

| | |
|---|---|
| Joint Number | 160 |
| Joint Time | 2018-08-26 09:42:13 GMT |
| Job | 1 |
| Operator | Rafel |
| Aborted Joint | No |

## Fusion Machine

| | |
|---|---|
| Machine Name | 618 HF |
| Machine Model | 618 HF |
| Piston Area | 11.78 in² |

## Pipe Specifications

| | |
|---|---|
| Pipe Material | PE4710 |
| Pipe Size | 6 " IPS |
| Wall Thickness | DR 11 |

## Pressures

| | | |
|---|---|---|
| Drag Pressure | 69 psi | |
| | Interfacial | Gauge |
| Bead Up | 75 psi | 142 psi |
| Heat Soak | 0 psi | 69 psi |
| Fuse/Cool | 75 psi | 142 psi |

## Fusion Specification

| | |
|---|---|
| Fusion Type | Butt Fusion |
| Fusion Specification | ASTM F2620 |
| Bead Time | 0 seconds |
| Bead Size | 3/16" |
| Heat/Soak Time | 162 seconds |
| Fuse Time | 397 seconds |
| Open/Close Time | 15 seconds |
| Cool Time | 0 seconds |

| | Minimum | Maximum |
|---|---|---|
| Bead Up | 127 psi | 156 psi |
| Heat Soak | 0 psi | 69 psi |
| Fuse | 127 psi | 156 psi |
| Cool | 0 psi | 0 psi |

## External Heater Temperatures

| | Side A | Side B |
|---|---|---|

## GPS Location

| Date | Latitude | Longitude |
|---|---|---|
| 2018-08-26 09:42:13.0 | 64°2'17.003400"N | 135°49'45.383400"W |

## Logged Data Summary

| | |
|---|---|
| Number of Data Points | 336 |
| Total Fusion Time | 1207 seconds |
| Maximum Recorded Pressure | 148 psi |

## Device Information

| | |
|---|---|
| DataLogger Serial Number | RH803Z0550 |
| Sensor Serial Number | MDL6621 |
| Calibration Date | 2018-04-04 |
| Firmware Version | v6.0 |
| Software Version | 1.08 (27) |
| Software Product Name | DataLogger 6 |

## Data Source

| | |
|---|---|
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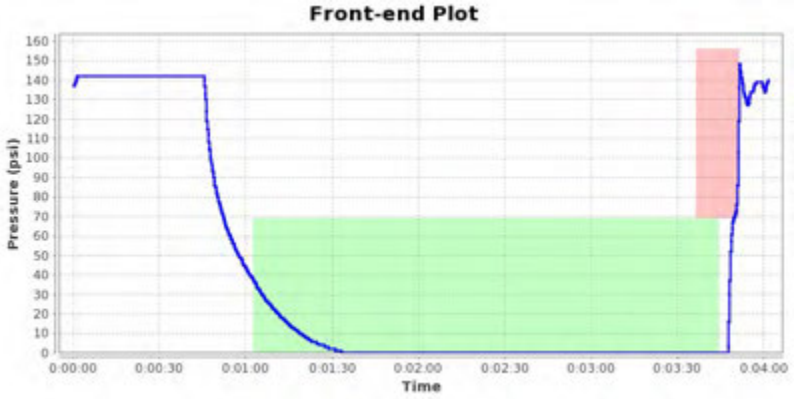
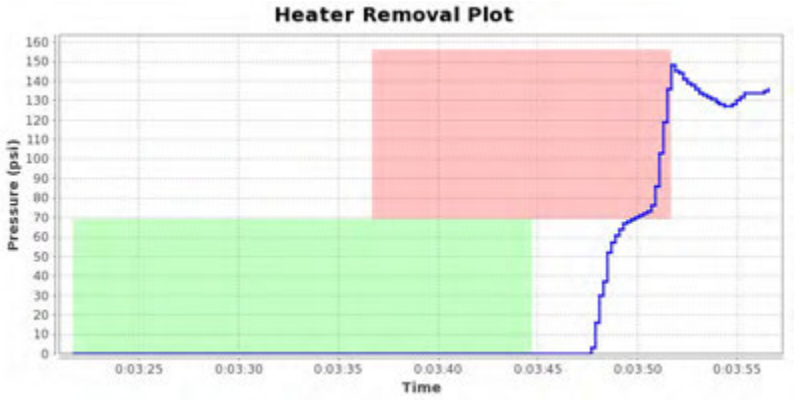






## Notes

Images for report: 1164545





Printed: 2018-10-14 16:24:40 UTC

# McElroy Joint Report

Reference Number 1164546

## Job Details

| | |
|---|---|
| Joint Number | 161 |
| Joint Time | 2018-08-26 10:25:16 GMT |
| Job | 1 |
| Operator | Rafel |
| Aborted Joint | No |

## Fusion Machine

| | |
|---|---|
| Machine Name | 618 HF |
| Machine Model | 618 HF |
| Piston Area | 11.78 in² |

## Pipe Specifications

| | |
|---|---|
| Pipe Material | PE4710 |
| Pipe Size | 6 " IPS |
| Wall Thickness | DR 11 |

## Pressures

| | | |
|---|---|---|
| Drag Pressure | 46 psi | |
| | Interfacial | Gauge |
| Bead Up | 75 psi | 119 psi |
| Heat Soak | 0 psi | 46 psi |
| Fuse/Cool | 75 psi | 119 psi |

## Fusion Specification

| | |
|---|---|
| Fusion Type | Butt Fusion |
| Fusion Specification | ASTM F2620 |
| Bead Time | 0 seconds |
| Bead Size | 3/16" |
| Heat/Soak Time | 162 seconds |
| Fuse Time | 397 seconds |
| Open/Close Time | 15 seconds |
| Cool Time | 0 seconds |

| | Minimum | Maximum |
|---|---|---|
| Bead Up | 104 psi | 133 psi |
| Heat Soak | 0 psi | 46 psi |
| Fuse | 104 psi | 133 psi |
| Cool | 0 psi | 0 psi |

## External Heater Temperatures

| | Side A | Side B |
|---|---|---|

## GPS Location

| Date | Latitude | Longitude |
|---|---|---|
| 2018-08-26 10:25:16.0 | 64°2'16.962000"N | 135°49'45.081600"W |

## Logged Data Summary

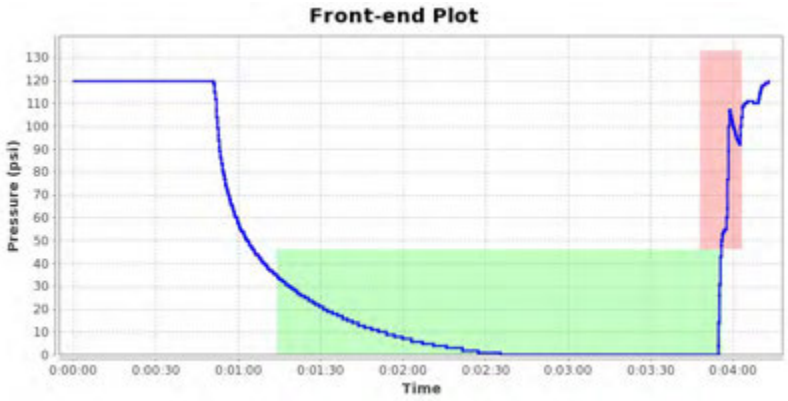
| | |
|---|---|
| Number of Data Points | 354 |
| Total Fusion Time | 1162 seconds |
| Maximum Recorded Pressure | 120 psi |

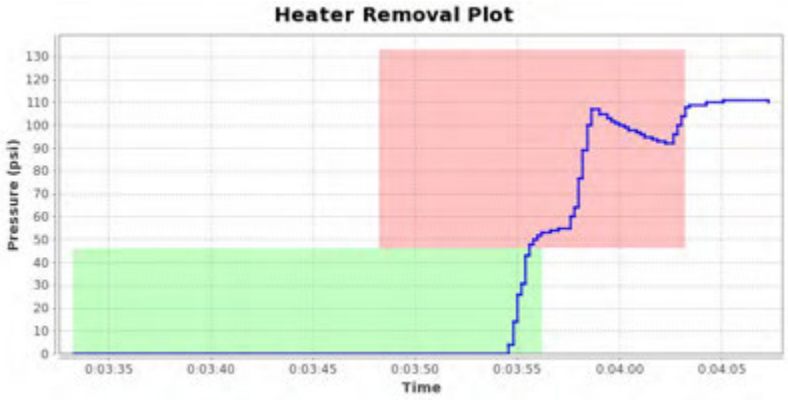
## Device Information

| | |
|---|---|
| DataLogger Serial Number | RH803Z0550 |
| Sensor Serial Number | MDL6621 |
| Calibration Date | 2018-04-04 |
| Firmware Version | v6.0 |
| Software Version | 1.08 (27) |
| Software Product Name | DataLogger 6 |

## Data Source

| | |
|---|---|
| Upload Time | 2018-10-14 16:16:37 GMT |







## Notes

Images for report: 1164546





Printed: 2018-10-14 16:24:38 UTC

# McElroy Joint Report

Reference Number 1164547

## Job Details

| | |
|---|---|
| Joint Number | 162 |
| Joint Time | 2018-08-27 08:15:26 GMT |
| Job | 1 |
| Operator | Rafel |
| Aborted Joint | No |

## Fusion Machine

| | |
|---|---|
| Machine Name | 618 HF |
| Machine Model | 618 HF |
| Piston Area | 11.78 in² |

## Pipe Specifications

| | |
|---|---|
| Pipe Material | PE4710 |
| Pipe Size | 6 " IPS |
| Wall Thickness | DR 11 |

## Pressures

| | | |
|---|---|---|
| Drag Pressure | 37 psi | |
| | Interfacial | Gauge |
| Bead Up | 75 psi | 110 psi |
| Heat Soak | 0 psi | 37 psi |
| Fuse/Cool | 75 psi | 110 psi |

## Fusion Specification

| | |
|---|---|
| Fusion Type | Butt Fusion |
| Fusion Specification | ASTM F2620 |
| Bead Time | 0 seconds |
| Bead Size | 3/16" |
| Heat/Soak Time | 162 seconds |
| Fuse Time | 397 seconds |
| Open/Close Time | 15 seconds |
| Cool Time | 0 seconds |

| | Minimum | Maximum |
|---|---|---|
| Bead Up | 95 psi | 124 psi |
| Heat Soak | 0 psi | 37 psi |
| Fuse | 95 psi | 124 psi |
| Cool | 0 psi | 0 psi |

## External Heater Temperatures

| | Side A | Side B |
|---|---|---|

## GPS Location

| Date | Latitude | Longitude |
|---|---|---|
| 2018-08-27 08:15:26.0 | 64°2'21.787800"N | 135°49'44.101200"W |

## Logged Data Summary

| | |
|---|---|
| Number of Data Points | 370 |
| Total Fusion Time | 1228 seconds |
| Maximum Recorded Pressure | 111 psi |

## Device Information

| | |
|---|---|
| DataLogger Serial Number | RH803Z0550 |
| Sensor Serial Number | MDL6621 |
| Calibration Date | 2018-04-04 |
| Firmware Version | v6.0 |
| Software Version | 1.08 (27) |
| Software Product Name | DataLogger 6 |

## Data Source

| | |
|---|---|
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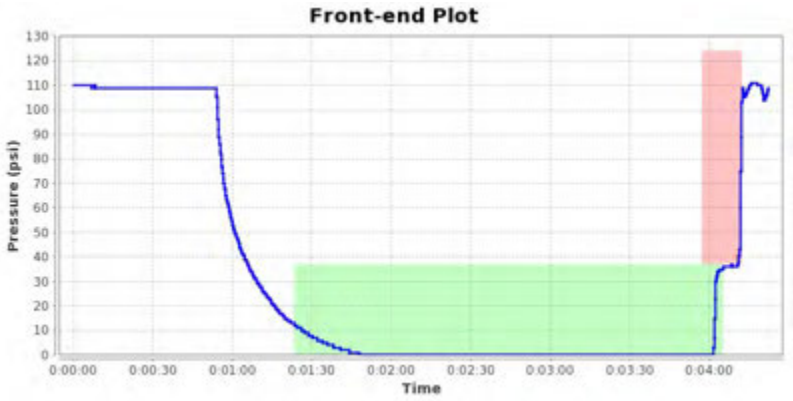
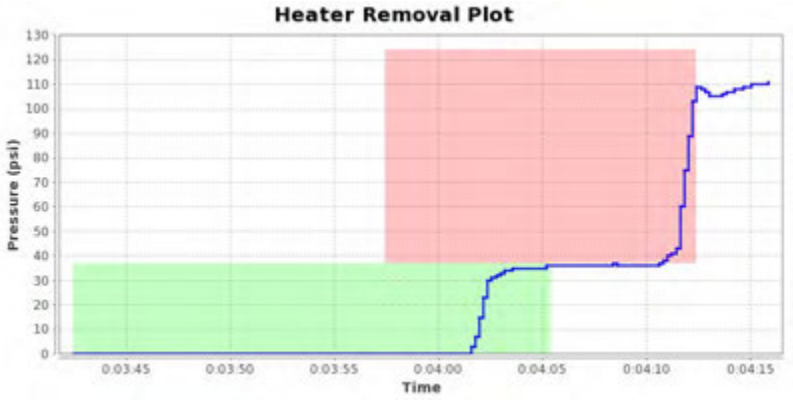
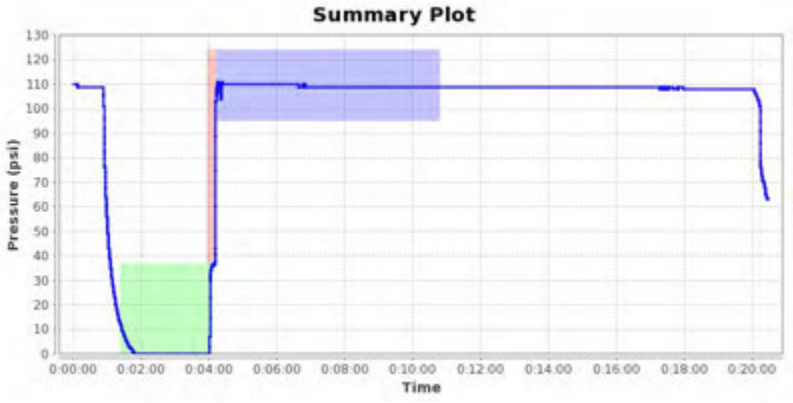



## Notes

Images for report: 1164547





Printed: 2018-10-14 16:24:37 UTC

# McElroy Joint Report

Reference Number 1164548

## Job Details

| | |
|---|---|
| Joint Number | 163 |
| Joint Time | 2018-08-27 09:00:46 GMT |
| Job | 1 |
| Operator | Rafel |
| Aborted Joint | No |

## Fusion Machine

| | |
|---|---|
| Machine Name | 618 HF |
| Machine Model | 618 HF |
| Piston Area | 11.78 in² |

## Pipe Specifications

| | |
|---|---|
| Pipe Material | PE4710 |
| Pipe Size | 6 " IPS |
| Wall Thickness | DR 11 |

## Pressures

| | | |
|---|---|---|
| Drag Pressure | 58 psi | |
| | Interfacial | Gauge |
| Bead Up | 75 psi | 131 psi |
| Heat Soak | 0 psi | 58 psi |
| Fuse/Cool | 75 psi | 131 psi |

## Fusion Specification

| | |
|---|---|
| Fusion Type | Butt Fusion |
| Fusion Specification | ASTM F2620 |
| Bead Time | 0 seconds |
| Bead Size | 3/16" |
| Heat/Soak Time | 162 seconds |
| Fuse Time | 397 seconds |
| Open/Close Time | 15 seconds |
| Cool Time | 0 seconds |

| | Minimum | Maximum |
|---|---|---|
| Bead Up | 116 psi | 145 psi |
| Heat Soak | 0 psi | 58 psi |
| Fuse | 116 psi | 145 psi |
| Cool | 0 psi | 0 psi |

## External Heater Temperatures

| | Side A | Side B |
|---|---|---|

## GPS Location

| Date | Latitude | Longitude |
|---|---|---|
| 2018-08-27 09:00:46.0 | 64°2'21.820200"N | 135°49'44.023200"W |

## Logged Data Summary

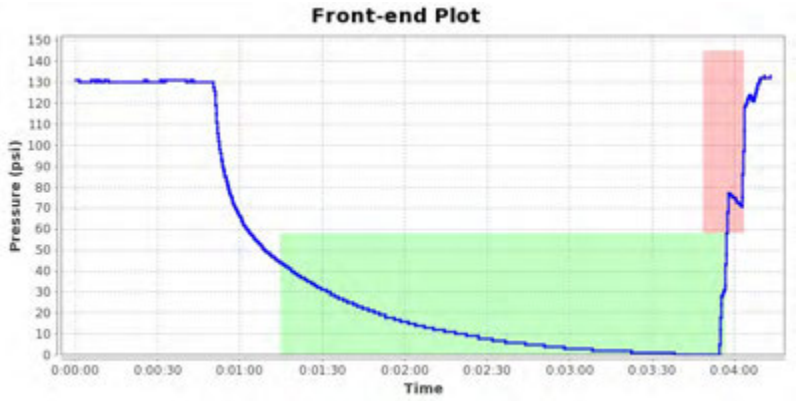
| | |
|---|---|
| Number of Data Points | 350 |
| Total Fusion Time | 1164 seconds |
| Maximum Recorded Pressure | 142 psi |

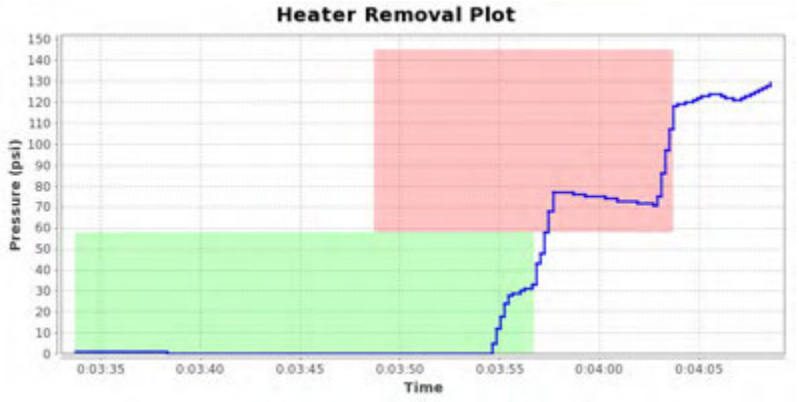
## Device Information

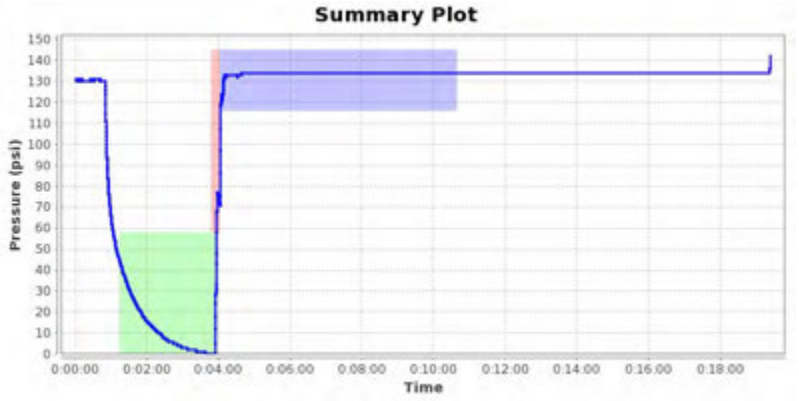
| | |
|---|---|
| DataLogger Serial Number | RH803Z0550 |
| Sensor Serial Number | MDL6621 |
| Calibration Date | 2018-04-04 |
| Firmware Version | v6.0 |
| Software Version | 1.08 (27) |
| Software Product Name | DataLogger 6 |

## Data Source

| | |
|---|---|
| Upload Time | 2018-10-14 16:16:51 GMT |




## Notes

Images for report: 1164548





Printed: 2018-10-14 16:24:35 UTC

# McElroy Joint Report

Reference Number 1164549

## Job Details

| | |
|---|---|
| Joint Number | 164 |
| Joint Time | 2018-08-27 09:49:58 GMT |
| Job | 1 |
| Operator | Rafel |
| Aborted Joint | No |

## Fusion Machine

| | |
|---|---|
| Machine Name | 618 HF |
| Machine Model | 618 HF |
| Piston Area | 11.78 in² |

## Pipe Specifications

| | |
|---|---|
| Pipe Material | PE4710 |
| Pipe Size | 6 " IPS |
| Wall Thickness | DR 11 |

## Pressures

| | | |
|---|---|---|
| Drag Pressure | 50 psi | |
| | Interfacial | Gauge |
| Bead Up | 75 psi | 123 psi |
| Heat Soak | 0 psi | 50 psi |
| Fuse/Cool | 75 psi | 123 psi |

## Fusion Specification

| | |
|---|---|
| Fusion Type | Butt Fusion |
| Fusion Specification | ASTM F2620 |
| Bead Time | 0 seconds |
| Bead Size | 3/16" |
| Heat/Soak Time | 162 seconds |
| Fuse Time | 397 seconds |
| Open/Close Time | 15 seconds |
| Cool Time | 0 seconds |

| | Minimum | Maximum |
|---|---|---|
| Bead Up | 108 psi | 137 psi |
| Heat Soak | 0 psi | 50 psi |
| Fuse | 108 psi | 137 psi |
| Cool | 0 psi | 0 psi |

## External Heater Temperatures

| | Side A | Side B |
|---|---|---|

## GPS Location

| Date | Latitude | Longitude |
|---|---|---|
| 2018-08-27 09:49:58.0 | 64°2'21.907200"N | 135°49'44.095200"W |

## Logged Data Summary

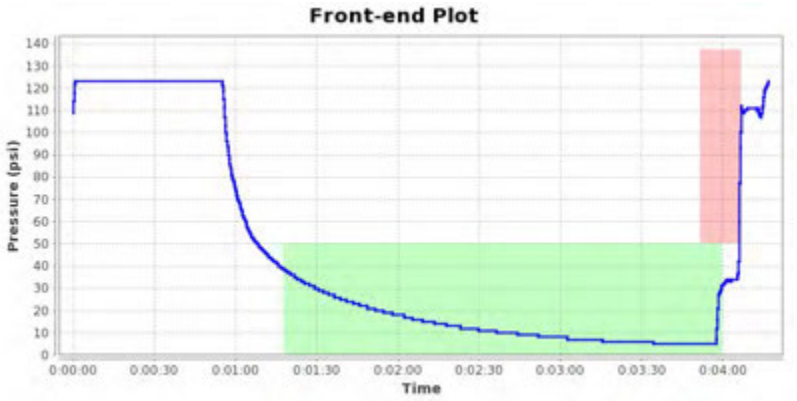
| | |
|---|---|
| Number of Data Points | 578 |
| Total Fusion Time | 1216 seconds |
| Maximum Recorded Pressure | 125 psi |

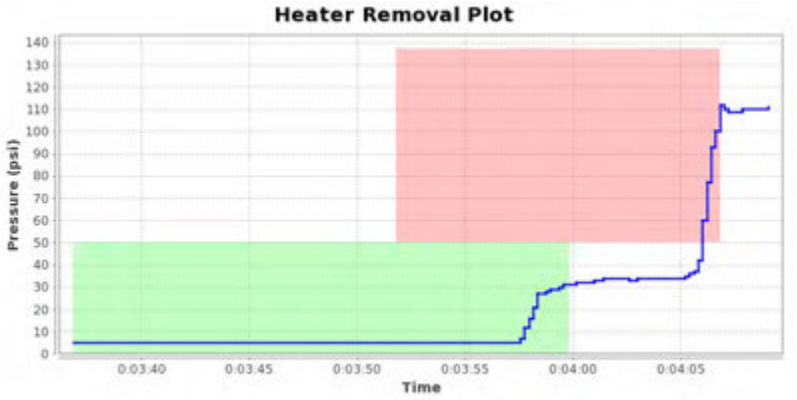
## Device Information

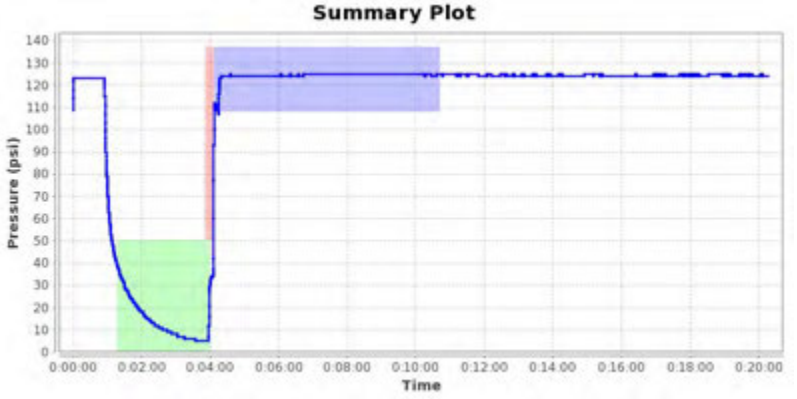
| | |
|---|---|
| DataLogger Serial Number | RH803Z0550 |
| Sensor Serial Number | MDL6621 |
| Calibration Date | 2018-04-04 |
| Firmware Version | v6.0 |
| Software Version | 1.08 (27) |
| Software Product Name | DataLogger 6 |

## Data Source

| | |
|---|---|
| Upload Time | 2018-10-14 16:17:04 GMT |




## Notes

Images for report: 1164549





Printed: 2018-10-14 16:24:34 UTC

# McElroy Joint Report

Reference Number 1164550

## Job Details

| | |
|---|---|
| Joint Number | 165 |
| Joint Time | 2018-08-27 10:29:05 GMT |
| Job | 1 |
| Operator | Rafel |
| Aborted Joint | No |

## Fusion Machine

| | |
|---|---|
| Machine Name | 618 HF |
| Machine Model | 618 HF |
| Piston Area | 11.78 in² |

## Pipe Specifications

| | |
|---|---|
| Pipe Material | PE4710 |
| Pipe Size | 6 " IPS |
| Wall Thickness | DR 11 |

## Pressures

| | | |
|---|---|---|
| Drag Pressure | 42 psi | |
| | Interfacial | Gauge |
| Bead Up | 75 psi | 115 psi |
| Heat Soak | 0 psi | 42 psi |
| Fuse/Cool | 75 psi | 115 psi |

## Fusion Specification

| | |
|---|---|
| Fusion Type | Butt Fusion |
| Fusion Specification | ASTM F2620 |
| Bead Time | 0 seconds |
| Bead Size | 3/16" |
| Heat/Soak Time | 162 seconds |
| Fuse Time | 397 seconds |
| Open/Close Time | 15 seconds |
| Cool Time | 0 seconds |

| | Minimum | Maximum |
|---|---|---|
| Bead Up | 100 psi | 129 psi |
| Heat Soak | 0 psi | 42 psi |
| Fuse | 100 psi | 129 psi |
| Cool | 0 psi | 0 psi |

## External Heater Temperatures

| | Side A | Side B |
|---|---|---|

## GPS Location

| Date | Latitude | Longitude |
|---|---|---|
| 2018-08-27 10:29:05.0 | 64°2'21.934800"N | 135°49'44.062200"W |

## Logged Data Summary

| | |
|---|---|
| Number of Data Points | 496 |
| Total Fusion Time | 1157 seconds |
| Maximum Recorded Pressure | 116 psi |

## Device Information

| | |
|---|---|
| DataLogger Serial Number | RH803Z0550 |
| Sensor Serial Number | MDL6621 |
| Calibration Date | 2018-04-04 |
| Firmware Version | v6.0 |
| Software Version | 1.08 (27) |
| Software Product Name | DataLogger 6 |

## Data Source

| | |
|---|---|
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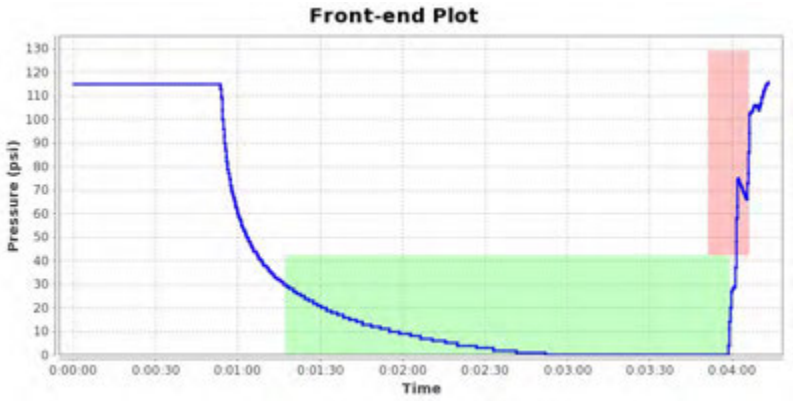


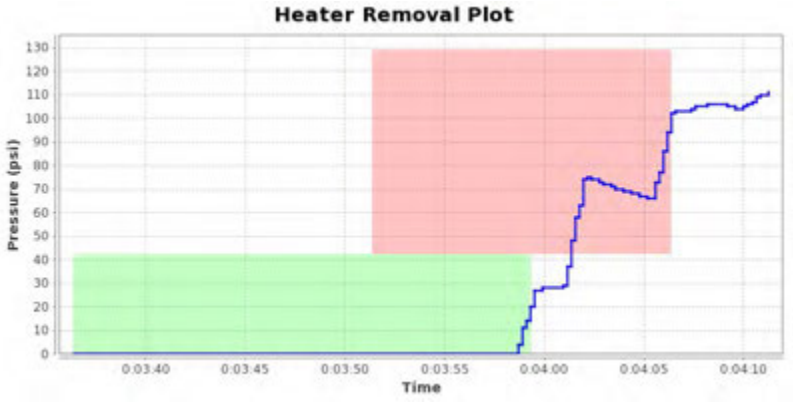


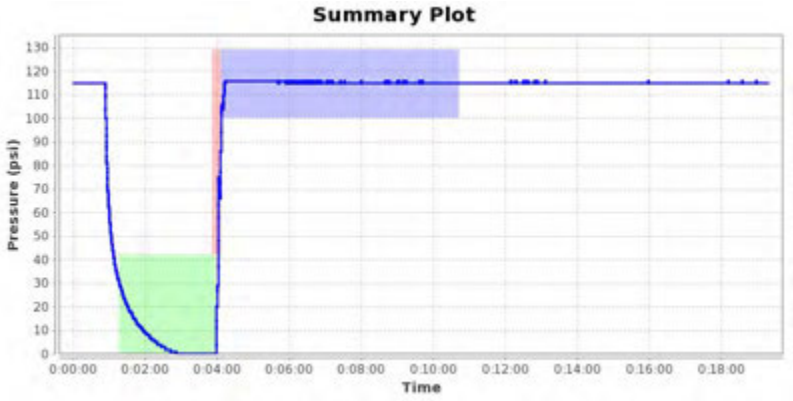


## Notes

Images for report: 1164550





Printed: 2018-10-14 16:24:32 UTC

# McElroy Joint Report

Reference Number 1164551

## Job Details

| | |
|---|---|
| Joint Number | 166 |
| Joint Time | 2018-08-27 17:06:02 GMT |
| Job | 1 |
| Operator | Rafel |
| Aborted Joint | No |

## Fusion Machine

| | |
|---|---|
| Machine Name | 618 HF |
| Machine Model | 618 HF |
| Piston Area | 11.78 in² |

## Pipe Specifications

| | |
|---|---|
| Pipe Material | PE4710 |
| Pipe Size | 6 " IPS |
| Wall Thickness | DR 11 |

## Pressures

| | | |
|---|---|---|
| Drag Pressure | 37 psi | |
| | Interfacial | Gauge |
| Bead Up | 75 psi | 110 psi |
| Heat Soak | 0 psi | 37 psi |
| Fuse/Cool | 75 psi | 110 psi |

## Fusion Specification

| | |
|---|---|
| Fusion Type | Butt Fusion |
| Fusion Specification | ASTM F2620 |
| Bead Time | 0 seconds |
| Bead Size | 3/16" |
| Heat/Soak Time | 162 seconds |
| Fuse Time | 397 seconds |
| Open/Close Time | 15 seconds |
| Cool Time | 0 seconds |

| | Minimum | Maximum |
|---|---|---|
| Bead Up | 95 psi | 124 psi |
| Heat Soak | 0 psi | 37 psi |
| Fuse | 95 psi | 124 psi |
| Cool | 0 psi | 0 psi |

## External Heater Temperatures

| | Side A | Side B |
|---|---|---|

## GPS Location

| Date | Latitude | Longitude |
|---|---|---|
| 2018-08-27 17:06:02.0 | 64°2'22.666200"N | 135°49'43.426200"W |

## Logged Data Summary

| | |
|---|---|
| Number of Data Points | 320 |
| Total Fusion Time | 1215 seconds |
| Maximum Recorded Pressure | 112 psi |

## Device Information

| | |
|---|---|
| DataLogger Serial Number | RH803Z0550 |
| Sensor Serial Number | MDL6621 |
| Calibration Date | 2018-04-04 |
| Firmware Version | v6.0 |
| Software Version | 1.08 (27) |
| Software Product Name | DataLogger 6 |

## Data Source

| | |
|---|---|
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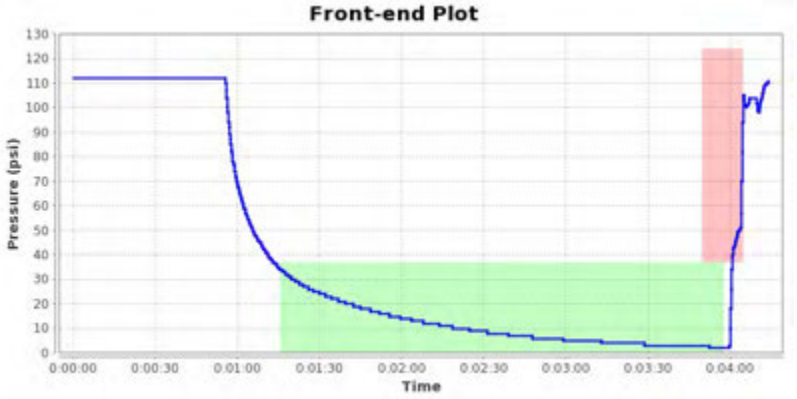


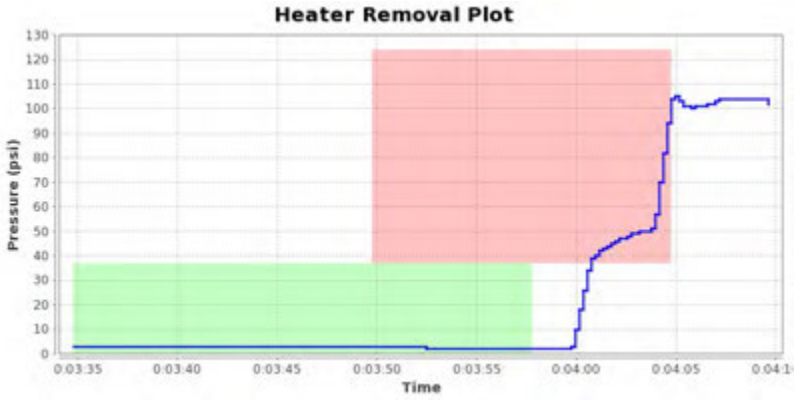


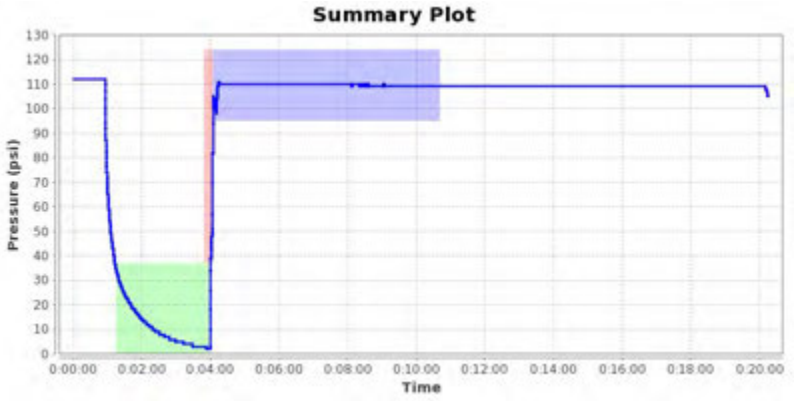


## Notes

Images for report: 1164551





Printed: 2018-10-14 16:24:31 UTC

# McElroy Joint Report

Reference Number 1164552

## Job Details

| | |
|---|---|
| Joint Number | 167 |
| Joint Time | 2018-08-27 17:53:41 GMT |
| Job | 1 |
| Operator | Rafel |
| Aborted Joint | No |

## Fusion Machine

| | |
|---|---|
| Machine Name | 618 HF |
| Machine Model | 618 HF |
| Piston Area | 11.78 in² |

## Pipe Specifications

| | |
|---|---|
| Pipe Material | PE4710 |
| Pipe Size | 6 " IPS |
| Wall Thickness | DR 11 |

## Pressures

| | | |
|---|---|---|
| Drag Pressure | 31 psi | |
| | Interfacial | Gauge |
| Bead Up | 75 psi | 104 psi |
| Heat Soak | 0 psi | 31 psi |
| Fuse/Cool | 75 psi | 104 psi |

## Fusion Specification

| | |
|---|---|
| Fusion Type | Butt Fusion |
| Fusion Specification | ASTM F2620 |
| Bead Time | 0 seconds |
| Bead Size | 3/16" |
| Heat/Soak Time | 162 seconds |
| Fuse Time | 397 seconds |
| Open/Close Time | 15 seconds |
| Cool Time | 0 seconds |

| | Minimum | Maximum |
|---|---|---|
| Bead Up | 89 psi | 118 psi |
| Heat Soak | 0 psi | 31 psi |
| Fuse | 89 psi | 118 psi |
| Cool | 0 psi | 0 psi |

## External Heater Temperatures

| | Side A | Side B |
|---|---|---|

## GPS Location

| Date | Latitude | Longitude |
|---|---|---|
| 2018-08-27 17:53:41.0 | 64°2'21.885000"N | 135°49'43.850400"W |

## Logged Data Summary

| | |
|---|---|
| Number of Data Points | 328 |
| Total Fusion Time | 1168 seconds |
| Maximum Recorded Pressure | 105 psi |

## Device Information

| | |
|---|---|
| DataLogger Serial Number | RH803Z0550 |
| Sensor Serial Number | MDL6621 |
| Calibration Date | 2018-04-04 |
| Firmware Version | v6.0 |
| Software Version | 1.08 (27) |
| Software Product Name | DataLogger 6 |

## Data Source

| | |
|---|---|
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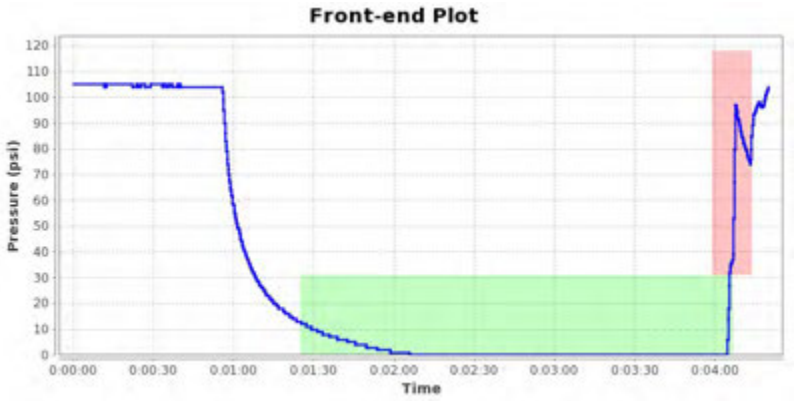


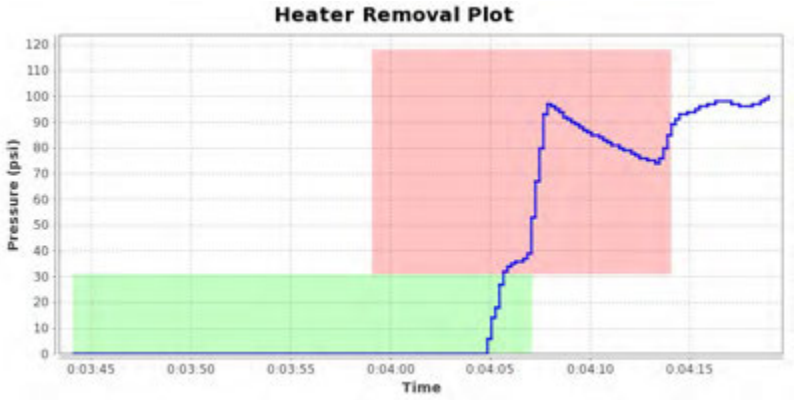


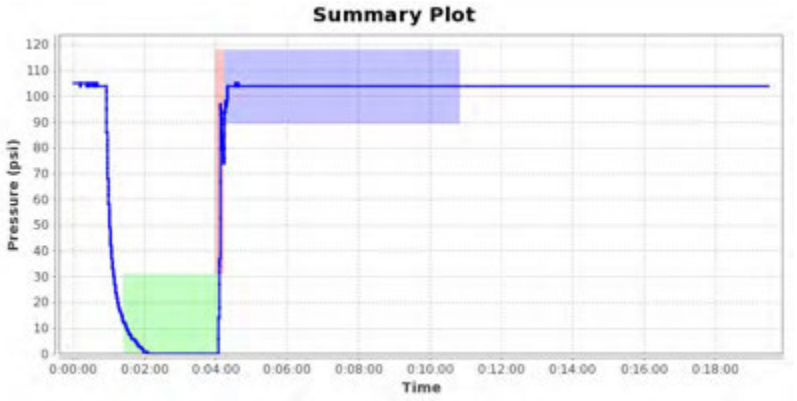


## Notes

Images for report: 1164552





Printed: 2018-10-14 16:24:29 UTC

# McElroy Joint Report

Reference Number 1164553

## Job Details

| | |
|---|---|
| Joint Number | 168 |
| Joint Time | 2018-08-27 18:36:58 GMT |
| Job | 1 |
| Operator | Rafel |
| Aborted Joint | No |

## Fusion Machine

| | |
|---|---|
| Machine Name | 618 HF |
| Machine Model | 618 HF |
| Piston Area | 11.78 in² |

## Pipe Specifications

| | |
|---|---|
| Pipe Material | PE4710 |
| Pipe Size | 6 " IPS |
| Wall Thickness | DR 11 |

## Pressures

| | | |
|---|---|---|
| Drag Pressure | 33 psi | |
| | Interfacial | Gauge |
| Bead Up | 75 psi | 106 psi |
| Heat Soak | 0 psi | 33 psi |
| Fuse/Cool | 75 psi | 106 psi |

## Fusion Specification

| | |
|---|---|
| Fusion Type | Butt Fusion |
| Fusion Specification | ASTM F2620 |
| Bead Time | 0 seconds |
| Bead Size | 3/16" |
| Heat/Soak Time | 162 seconds |
| Fuse Time | 397 seconds |
| Open/Close Time | 15 seconds |
| Cool Time | 0 seconds |

| | Minimum | Maximum |
|---|---|---|
| Bead Up | 91 psi | 120 psi |
| Heat Soak | 0 psi | 33 psi |
| Fuse | 91 psi | 120 psi |
| Cool | 0 psi | 0 psi |

## External Heater Temperatures

| | Side A | Side B |
|---|---|---|

## GPS Location

| Date | Latitude | Longitude |
|---|---|---|
| 2018-08-27 18:36:58.0 | 64°2'21.864600"N | 135°49'43.836600"W |

## Logged Data Summary

| | |
|---|---|
| Number of Data Points | 554 |
| Total Fusion Time | 1155 seconds |
| Maximum Recorded Pressure | 105 psi |

## Device Information

| | |
|---|---|
| DataLogger Serial Number | RH803Z0550 |
| Sensor Serial Number | MDL6621 |
| Calibration Date | 2018-04-04 |
| Firmware Version | v6.0 |
| Software Version | 1.08 (27) |
| Software Product Name | DataLogger 6 |

## Data Source

| | |
|---|---|
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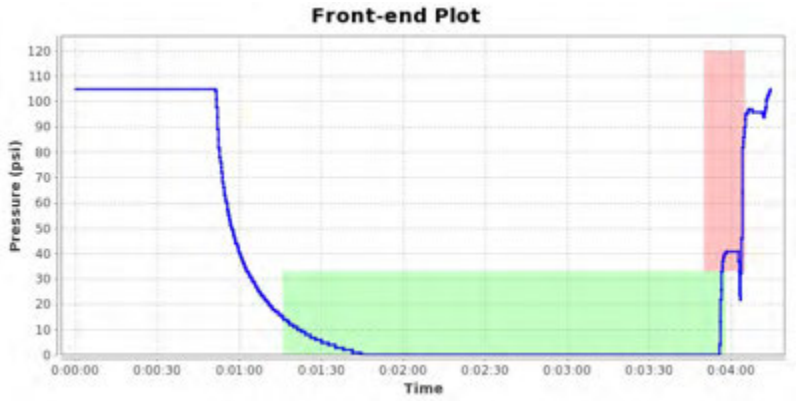


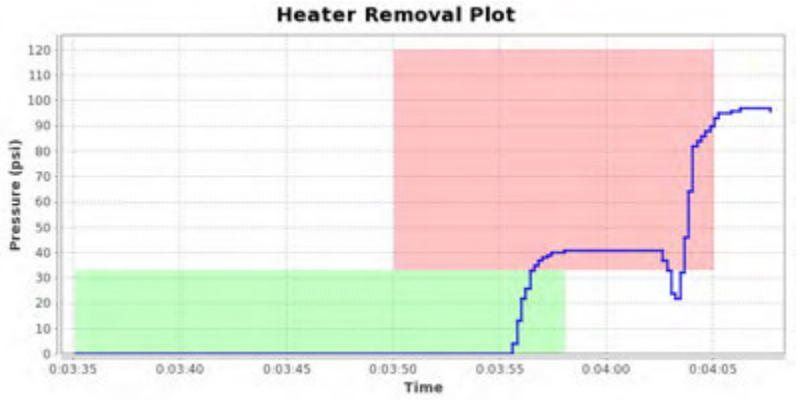


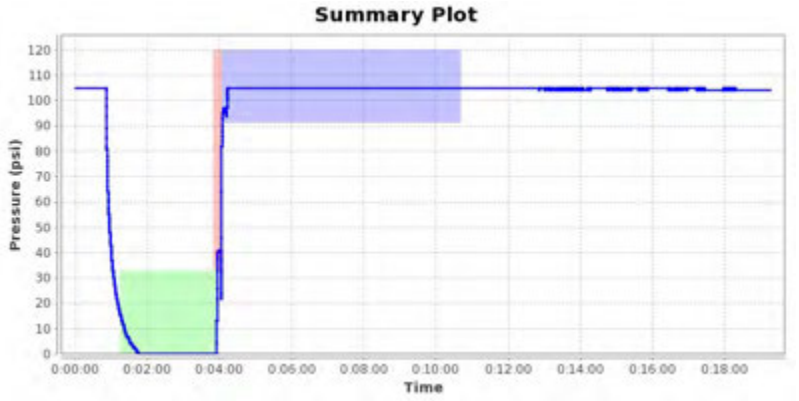


## Notes

Images for report: 1164553





Printed: 2018-10-14 16:24:28 UTC

# McElroy Joint Report

Reference Number 1164554

## Job Details

| | |
|---|---|
| Joint Number | 169 |
| Joint Time | 2018-08-28 07:57:56 GMT |
| Job | 1 |
| Operator | Rafel |
| Aborted Joint | No |

## Fusion Machine

| | |
|---|---|
| Machine Name | 618 HF |
| Machine Model | 618 HF |
| Piston Area | 11.78 in² |

## Pipe Specifications

| | |
|---|---|
| Pipe Material | PE4710 |
| Pipe Size | 6 " IPS |
| Wall Thickness | DR 11 |

## Pressures

| | | |
|---|---|---|
| Drag Pressure | 78 psi | |
| | Interfacial | Gauge |
| Bead Up | 75 psi | 151 psi |
| Heat Soak | 0 psi | 78 psi |
| Fuse/Cool | 75 psi | 151 psi |

## Fusion Specification

| | |
|---|---|
| Fusion Type | Butt Fusion |
| Fusion Specification | ASTM F2620 |
| Bead Time | 0 seconds |
| Bead Size | 3/16" |
| Heat/Soak Time | 162 seconds |
| Fuse Time | 397 seconds |
| Open/Close Time | 15 seconds |
| Cool Time | 0 seconds |

| | Minimum | Maximum |
|---|---|---|
| Bead Up | 136 psi | 165 psi |
| Heat Soak | 0 psi | 78 psi |
| Fuse | 136 psi | 165 psi |
| Cool | 0 psi | 0 psi |

## External Heater Temperatures

| | Side A | Side B |
|---|---|---|

## GPS Location

| Date | Latitude | Longitude |
|---|---|---|
| 2018-08-28 07:57:56.0 | 64°2'21.904200"N | 135°49'43.770600"W |

## Logged Data Summary

| | |
|---|---|
| Number of Data Points | 458 |
| Total Fusion Time | 1206 seconds |
| Maximum Recorded Pressure | 159 psi |

## Device Information

| | |
|---|---|
| DataLogger Serial Number | RH803Z0550 |
| Sensor Serial Number | MDL6621 |
| Calibration Date | 2018-04-04 |
| Firmware Version | v6.0 |
| Software Version | 1.08 (27) |
| Software Product Name | DataLogger 6 |

## Data Source

| | |
|---|---|
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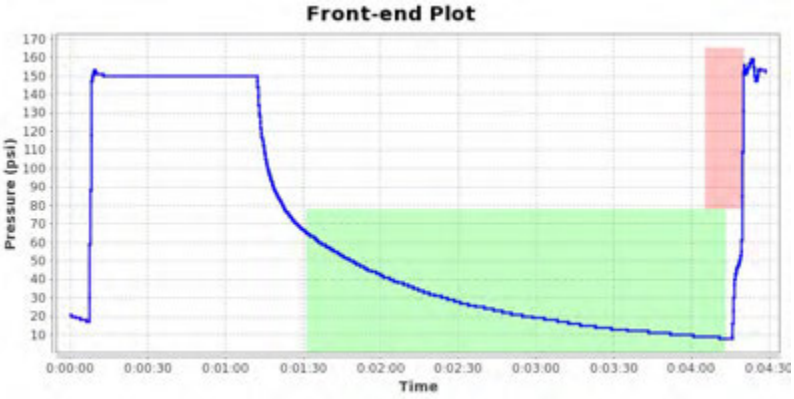
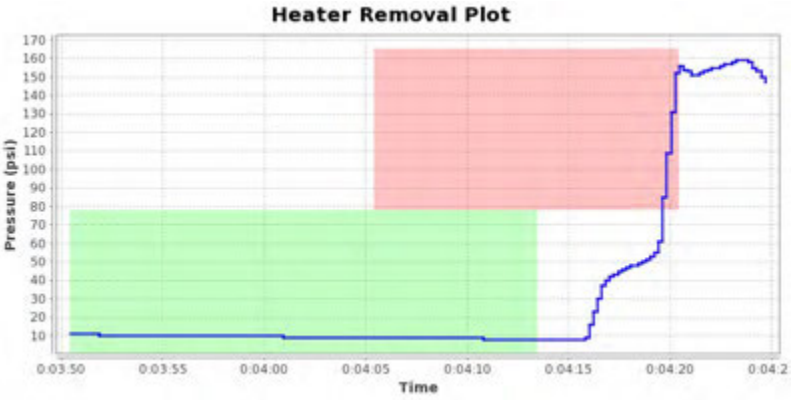






## Notes

Images for report: 1164554





Printed: 2018-10-14 16:24:26 UTC

# McElroy Joint Report

Reference Number 1164555

## Job Details

| | |
|---|---|
| Joint Number | 170 |
| Joint Time | 2018-08-30 16:55:29 GMT |
| Job | 1 |
| Operator | Rafel |
| Aborted Joint | No |

## Fusion Machine

| | |
|---|---|
| Machine Name | 618 HF |
| Machine Model | 618 HF |
| Piston Area | 11.78 in² |

## Pipe Specifications

| | |
|---|---|
| Pipe Material | PE4710 |
| Pipe Size | 6 " IPS |
| Wall Thickness | DR 11 |

## Pressures

| | | |
|---|---|---|
| Drag Pressure | 38 psi | |
| | Interfacial | Gauge |
| Bead Up | 75 psi | 111 psi |
| Heat Soak | 0 psi | 38 psi |
| Fuse/Cool | 75 psi | 111 psi |

## Fusion Specification

| | |
|---|---|
| Fusion Type | Butt Fusion |
| Fusion Specification | ASTM F2620 |
| Bead Time | 0 seconds |
| Bead Size | 3/16" |
| Heat/Soak Time | 162 seconds |
| Fuse Time | 397 seconds |
| Open/Close Time | 15 seconds |
| Cool Time | 0 seconds |

| | Minimum | Maximum |
|---|---|---|
| Bead Up | 96 psi | 125 psi |
| Heat Soak | 0 psi | 38 psi |
| Fuse | 96 psi | 125 psi |
| Cool | 0 psi | 0 psi |

## External Heater Temperatures

| | Side A | Side B |
|---|---|---|

## GPS Location

| Date | Latitude | Longitude |
|---|---|---|
| 2018-08-30 16:55:29.0 | 64°2'21.357600"N | 135°49'42.475800"W |

## Logged Data Summary

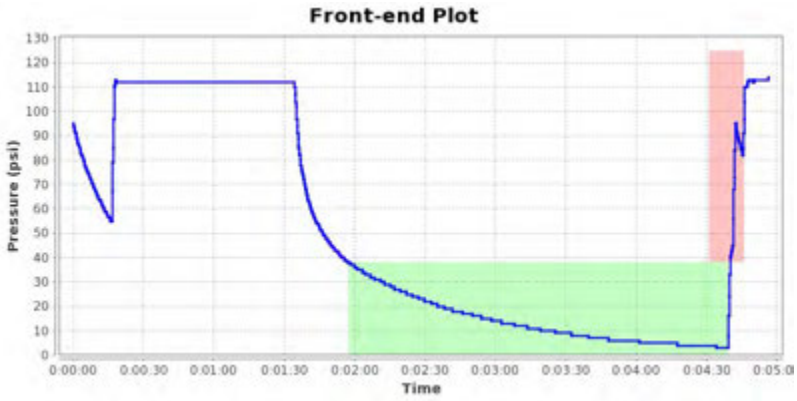
| | |
|---|---|
| Number of Data Points | 374 |
| Total Fusion Time | 1200 seconds |
| Maximum Recorded Pressure | 114 psi |

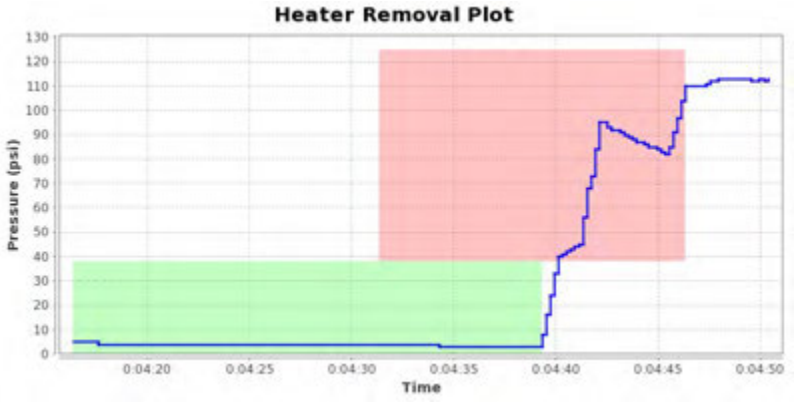
## Device Information

| | |
|---|---|
| DataLogger Serial Number | RH803Z0550 |
| Sensor Serial Number | MDL6621 |
| Calibration Date | 2018-04-04 |
| Firmware Version | v6.0 |
| Software Version | 1.08 (27) |
| Software Product Name | DataLogger 6 |

## Data Source

| | |
|---|---|
| Upload Time | 2018-10-14 16:18:24 GMT |







## Notes

Images for report: 1164555





Printed: 2018-10-14 16:24:25 UTC

# McElroy Joint Report

Reference Number 1164556

## Job Details

| | |
|---|---|
| Joint Number | 171 |
| Joint Time | 2018-08-31 07:43:02 GMT |
| Job | 1 |
| Operator | Rafel |
| Aborted Joint | No |

## Fusion Machine

| | |
|---|---|
| Machine Name | 618 HF |
| Machine Model | 618 HF |
| Piston Area | 11.78 in² |

## Pipe Specifications

| | |
|---|---|
| Pipe Material | PE4710 |
| Pipe Size | 6 " IPS |
| Wall Thickness | DR 11 |

## Pressures

| Drag Pressure | 74 psi | |
|---|---|---|
| | Interfacial | Gauge |
| Bead Up | 75 psi | 147 psi |
| Heat Soak | 0 psi | 74 psi |
| Fuse/Cool | 75 psi | 147 psi |

## Fusion Specification

| | |
|---|---|
| Fusion Type | Butt Fusion |
| Fusion Specification | ASTM F2620 |
| Bead Time | 0 seconds |
| Bead Size | 3/16" |
| Heat/Soak Time | 162 seconds |
| Fuse Time | 397 seconds |
| Open/Close Time | 15 seconds |
| Cool Time | 0 seconds |

| | Minimum | Maximum |
|---|---|---|
| Bead Up | 132 psi | 161 psi |
| Heat Soak | 0 psi | 74 psi |
| Fuse | 132 psi | 161 psi |
| Cool | 0 psi | 0 psi |

## External Heater Temperatures

| | Side A | Side B |
|---|---|---|

## GPS Location

| Date | Latitude | Longitude |
|---|---|---|
| 2018-08-31 07:43:02.0 | 64°2'21.309000"N | 135°49'42.488400"W |

## Logged Data Summary

| | |
|---|---|
| Number of Data Points | 438 |
| Total Fusion Time | 1206 seconds |
| Maximum Recorded Pressure | 176 psi |

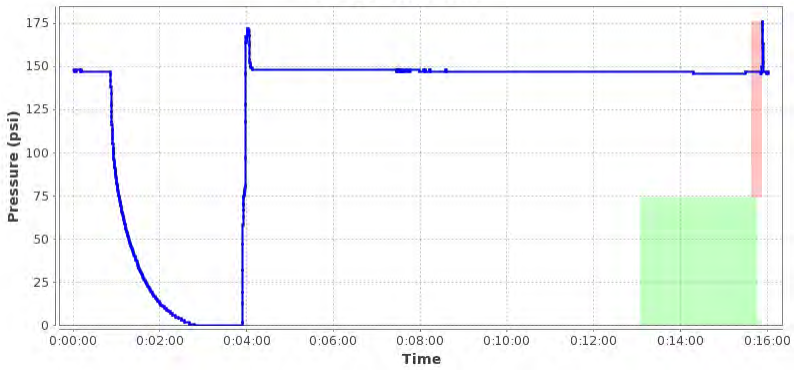
## Device Information

| | |
|---|---|
| DataLogger Serial Number | RH803Z0550 |
| Sensor Serial Number | MDL6621 |
| Calibration Date | 2018-04-04 |
| Firmware Version | v6.0 |
| Software Version | 1.08 (27) |
| Software Product Name | DataLogger 6 |

## Data Source

| | |
|---|---|
| Upload Time | 2018-10-14 16:18:28 GMT |

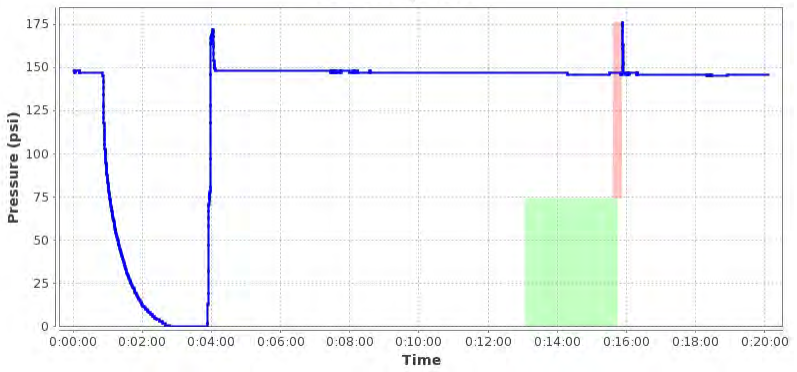
**Front-end Plot**




**Heater Removal Plot**




**Summary Plot**




## Notes

Images for report: 1164556





Printed: 2018-10-14 16:24:23 UTC

# McElroy Joint Report

Reference Number 1164557

## Job Details

| | |
|---|---|
| Joint Number | 172 |
| Joint Time | 2018-08-31 08:54:40 GMT |
| Job | 1 |
| Operator | Rafel |
| Aborted Joint | No |

## Fusion Machine

| | |
|---|---|
| Machine Name | 618 HF |
| Machine Model | 618 HF |
| Piston Area | 11.78 in² |

## Pipe Specifications

| | |
|---|---|
| Pipe Material | PE4710 |
| Pipe Size | 6 " IPS |
| Wall Thickness | DR 11 |

## Pressures

Drag Pressure 58 psi

| | Interfacial | Gauge |
|---|---|---|
| Bead Up | 75 psi | 131 psi |
| Heat Soak | 0 psi | 58 psi |
| Fuse/Cool | 75 psi | 131 psi |

## Fusion Specification

| | |
|---|---|
| Fusion Type | Butt Fusion |
| Fusion Specification | ASTM F2620 |
| Bead Time | 0 seconds |
| Bead Size | 3/16" |
| Heat/Soak Time | 162 seconds |
| Fuse Time | 397 seconds |
| Open/Close Time | 15 seconds |
| Cool Time | 0 seconds |

| | Minimum | Maximum |
|---|---|---|
| Bead Up | 116 psi | 145 psi |
| Heat Soak | 0 psi | 58 psi |
| Fuse | 116 psi | 145 psi |
| Cool | 0 psi | 0 psi |

## External Heater Temperatures

| | Side A | Side B |
|---|---|---|

## GPS Location

| Date | Latitude | Longitude |
|---|---|---|
| 2018-08-31 08:54:40.0 | 64°2'21.199200"N | 135°49'42.609600"W |

## Logged Data Summary

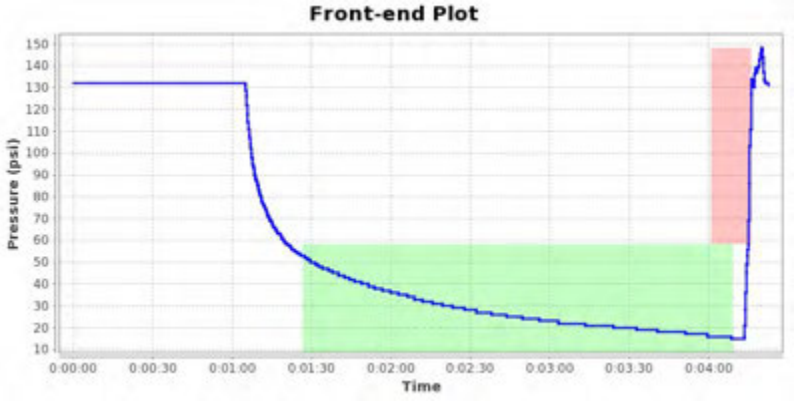
| | |
|---|---|
| Number of Data Points | 270 |
| Total Fusion Time | 1178 seconds |
| Maximum Recorded Pressure | 148 psi |

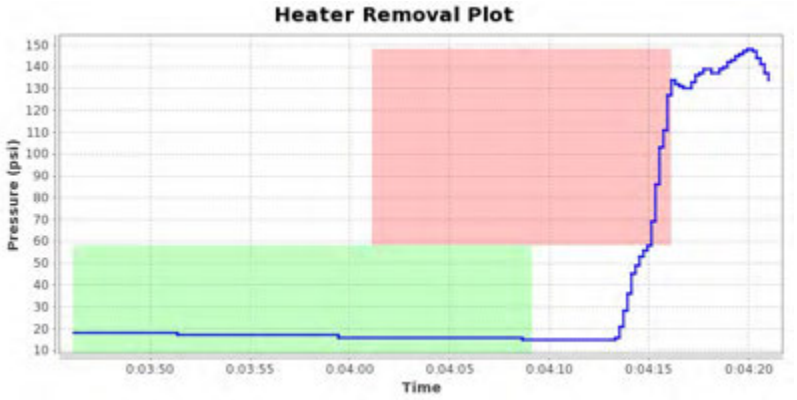
## Device Information

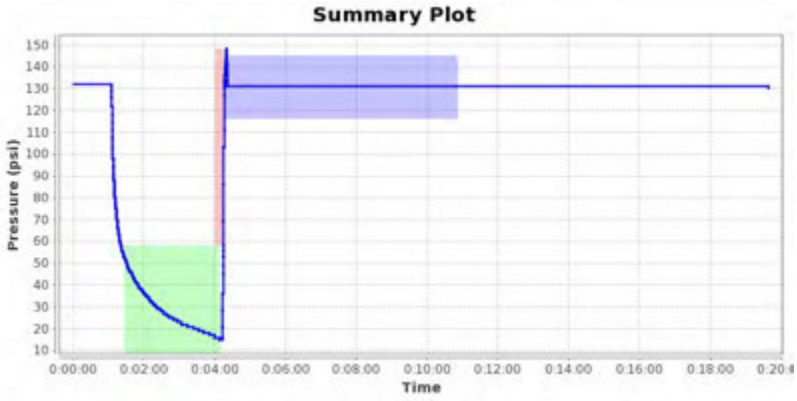
| | |
|---|---|
| DataLogger Serial Number | RH803Z0550 |
| Sensor Serial Number | MDL6621 |
| Calibration Date | 2018-04-04 |
| Firmware Version | v6.0 |
| Software Version | 1.08 (27) |
| Software Product Name | DataLogger 6 |

## Data Source

Upload Time 2018-10-14 16:18:33 GMT




## Notes

Images for report: 1164557





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# McElroy Joint Report

Reference Number 1164558

## Job Details

| | |
|---|---|
| Joint Number | 173 |
| Joint Time | 2018-08-31 10:24:34 GMT |
| Job | 1 |
| Operator | Rafel |
| Aborted Joint | No |

## Fusion Machine

| | |
|---|---|
| Machine Name | 618 HF |
| Machine Model | 618 HF |
| Piston Area | 11.78 in² |

## Pipe Specifications

| | |
|---|---|
| Pipe Material | PE4710 |
| Pipe Size | 6 " IPS |
| Wall Thickness | DR 11 |

## Pressures

| | | |
|---|---|---|
| Drag Pressure | 57 psi | |
| | Interfacial | Gauge |
| Bead Up | 75 psi | 130 psi |
| Heat Soak | 0 psi | 57 psi |
| Fuse/Cool | 75 psi | 130 psi |

## Fusion Specification

| | |
|---|---|
| Fusion Type | Butt Fusion |
| Fusion Specification | ASTM F2620 |
| Bead Time | 0 seconds |
| Bead Size | 3/16" |
| Heat/Soak Time | 162 seconds |
| Fuse Time | 397 seconds |
| Open/Close Time | 15 seconds |
| Cool Time | 0 seconds |

| | Minimum | Maximum |
|---|---|---|
| Bead Up | 115 psi | 144 psi |
| Heat Soak | 0 psi | 57 psi |
| Fuse | 115 psi | 144 psi |
| Cool | 0 psi | 0 psi |

## External Heater Temperatures

| | Side A | Side B |
|---|---|---|

## GPS Location

| Date | Latitude | Longitude |
|---|---|---|
| 2018-08-31 10:24:34.0 | 64°2'21.267000"N | 135°49'42.178200"W |

## Logged Data Summary

| | |
|---|---|
| Number of Data Points | 314 |
| Total Fusion Time | 1232 seconds |
| Maximum Recorded Pressure | 144 psi |

## Device Information

| | |
|---|---|
| DataLogger Serial Number | RH803Z0550 |
| Sensor Serial Number | MDL6621 |
| Calibration Date | 2018-04-04 |
| Firmware Version | v6.0 |
| Software Version | 1.08 (27) |
| Software Product Name | DataLogger 6 |

## Data Source

| | |
|---|---|
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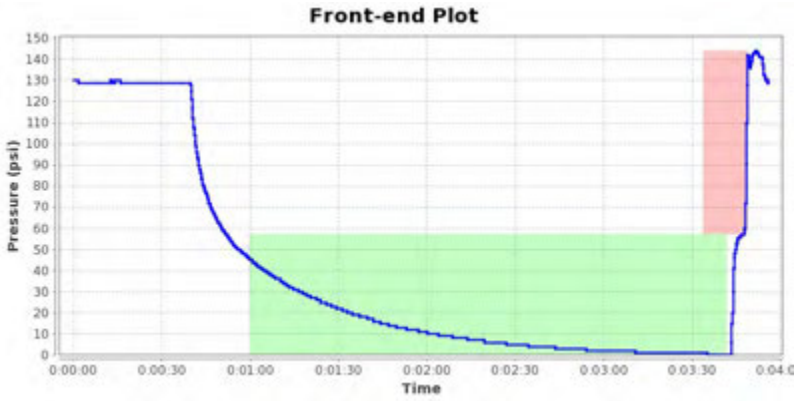


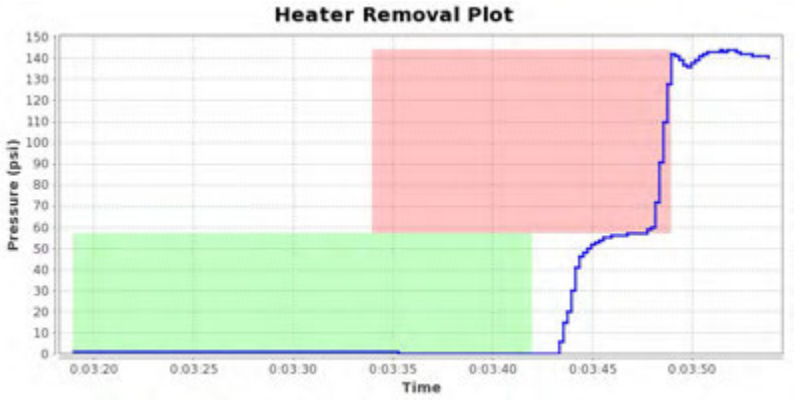





## Notes

Images for report: 1164558





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# McElroy Joint Report

Reference Number 1164559

## Job Details

| | |
|---|---|
| Joint Number | 174 |
| Joint Time | 2018-08-31 11:12:29 GMT |
| Job | 1 |
| Operator | Rafel |
| Aborted Joint | No |

## Fusion Machine

| | |
|---|---|
| Machine Name | 618 HF |
| Machine Model | 618 HF |
| Piston Area | 11.78 in² |

## Pipe Specifications

| | |
|---|---|
| Pipe Material | PE4710 |
| Pipe Size | 6 " IPS |
| Wall Thickness | DR 11 |

## Pressures

| | | |
|---|---|---|
| Drag Pressure | 48 psi | |
| | Interfacial | Gauge |
| Bead Up | 75 psi | 121 psi |
| Heat Soak | 0 psi | 48 psi |
| Fuse/Cool | 75 psi | 121 psi |

## Fusion Specification

| | |
|---|---|
| Fusion Type | Butt Fusion |
| Fusion Specification | ASTM F2620 |
| Bead Time | 0 seconds |
| Bead Size | 3/16" |
| Heat/Soak Time | 162 seconds |
| Fuse Time | 397 seconds |
| Open/Close Time | 15 seconds |
| Cool Time | 0 seconds |

| | Minimum | Maximum |
|---|---|---|
| Bead Up | 106 psi | 135 psi |
| Heat Soak | 0 psi | 48 psi |
| Fuse | 106 psi | 135 psi |
| Cool | 0 psi | 0 psi |

## External Heater Temperatures

| | Side A | Side B |
|---|---|---|

## GPS Location

| Date | Latitude | Longitude |
|---|---|---|
| 2018-08-31 11:12:29.0 | 64°2'22.550400"N | 135°49'43.320000"W |

## Logged Data Summary

| | |
|---|---|
| Number of Data Points | 346 |
| Total Fusion Time | 1168 seconds |
| Maximum Recorded Pressure | 131 psi |

## Device Information

| | |
|---|---|
| DataLogger Serial Number | RH803Z0550 |
| Sensor Serial Number | MDL6621 |
| Calibration Date | 2018-04-04 |
| Firmware Version | v6.0 |
| Software Version | 1.08 (27) |
| Software Product Name | DataLogger 6 |

## Data Source

| | |
|---|---|
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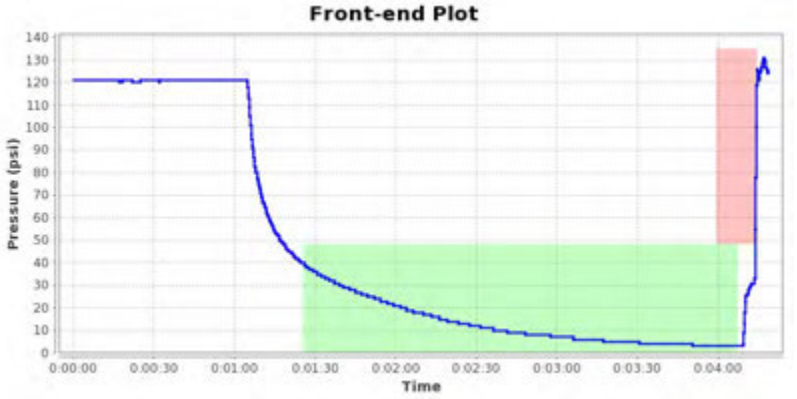


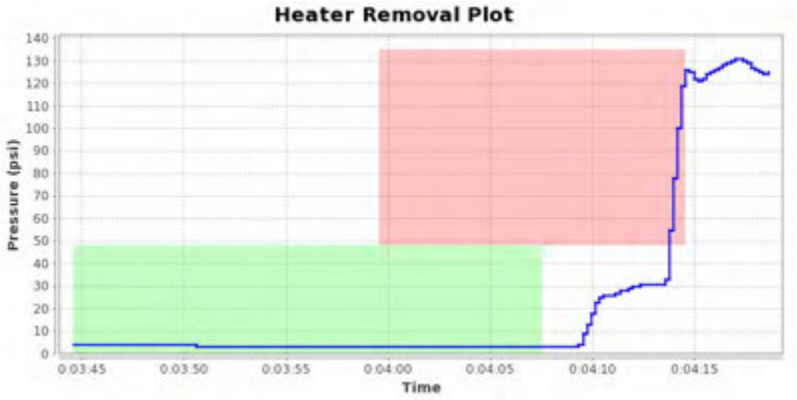


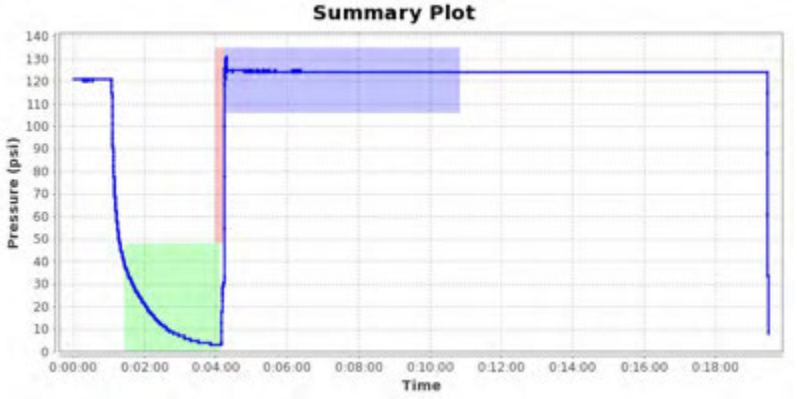


## Notes

Images for report: 1164559





Printed: 2018-10-14 16:24:19 UTC

# McElroy Joint Report

Reference Number 1164560

## Job Details

| | |
|---|---|
| Joint Number | 175 |
| Joint Time | 2018-08-31 11:56:21 GMT |
| Job | 1 |
| Operator | Rafel |
| Aborted Joint | No |

## Fusion Machine

| | |
|---|---|
| Machine Name | 618 HF |
| Machine Model | 618 HF |
| Piston Area | 11.78 in² |

## Pipe Specifications

| | |
|---|---|
| Pipe Material | PE4710 |
| Pipe Size | 6 " IPS |
| Wall Thickness | DR 11 |

## Pressures

| Drag Pressure | 34 psi | |
|---|---|---|
| | Interfacial | Gauge |
| Bead Up | 75 psi | 107 psi |
| Heat Soak | 0 psi | 34 psi |
| Fuse/Cool | 75 psi | 107 psi |

## Fusion Specification

| | |
|---|---|
| Fusion Type | Butt Fusion |
| Fusion Specification | ASTM F2620 |
| Bead Time | 0 seconds |
| Bead Size | 3/16" |
| Heat/Soak Time | 162 seconds |
| Fuse Time | 397 seconds |
| Open/Close Time | 15 seconds |
| Cool Time | 0 seconds |

| | Minimum | Maximum |
|---|---|---|
| Bead Up | 92 psi | 121 psi |
| Heat Soak | 0 psi | 34 psi |
| Fuse | 92 psi | 121 psi |
| Cool | 0 psi | 0 psi |

## External Heater Temperatures

| | Side A | Side B |
|---|---|---|

## GPS Location

| Date | Latitude | Longitude |
|---|---|---|
| 2018-08-31 11:56:21.0 | 64°2'22.585200"N | 135°49'43.611000"W |

## Logged Data Summary

| | |
|---|---|
| Number of Data Points | 330 |
| Total Fusion Time | 1184 seconds |
| Maximum Recorded Pressure | 118 psi |

## Device Information

| | |
|---|---|
| DataLogger Serial Number | RH803Z0550 |
| Sensor Serial Number | MDL6621 |
| Calibration Date | 2018-04-04 |
| Firmware Version | v6.0 |
| Software Version | 1.08 (27) |
| Software Product Name | DataLogger 6 |

## Data Source

| | |
|---|---|
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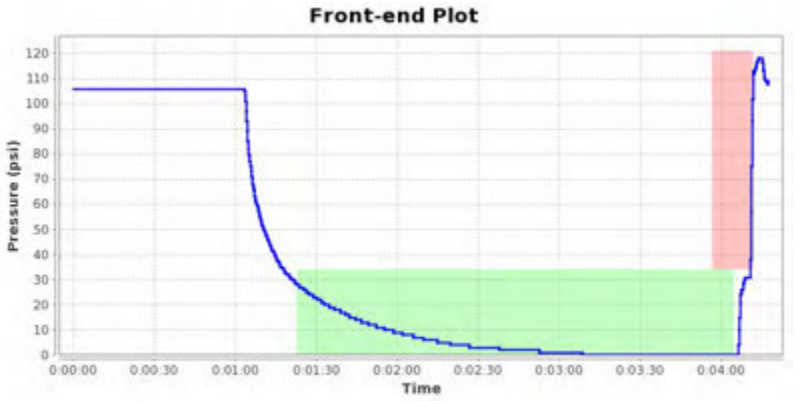


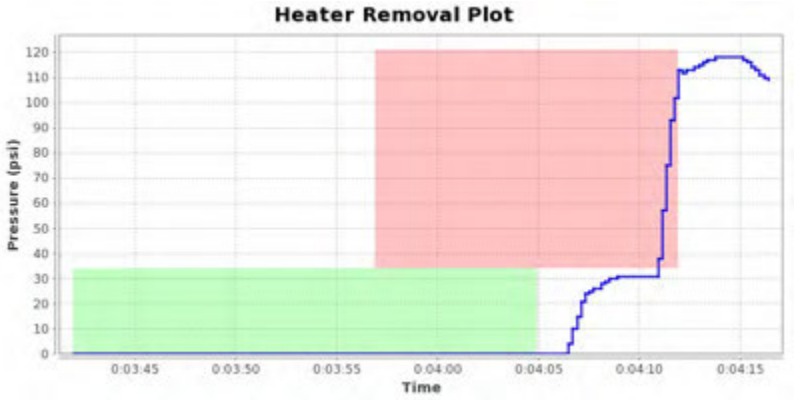





## Notes

Images for report: 1164560





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# McElroy Joint Report

Reference Number 1164561

## Job Details

| | |
|---|---|
| Joint Number | 176 |
| Joint Time | 2018-08-31 12:33:41 GMT |
| Job | 1 |
| Operator | Rafel |
| Aborted Joint | No |

## Fusion Machine

| | |
|---|---|
| Machine Name | 618 HF |
| Machine Model | 618 HF |
| Piston Area | 11.78 in² |

## Pipe Specifications

| | |
|---|---|
| Pipe Material | PE4710 |
| Pipe Size | 6 " IPS |
| Wall Thickness | DR 11 |

## Pressures

| | | |
|---|---|---|
| Drag Pressure | 40 psi | |
| | Interfacial | Gauge |
| Bead Up | 75 psi | 113 psi |
| Heat Soak | 0 psi | 40 psi |
| Fuse/Cool | 75 psi | 113 psi |

## Fusion Specification

| | |
|---|---|
| Fusion Type | Butt Fusion |
| Fusion Specification | ASTM F2620 |
| Bead Time | 0 seconds |
| Bead Size | 3/16" |
| Heat/Soak Time | 162 seconds |
| Fuse Time | 397 seconds |
| Open/Close Time | 15 seconds |
| Cool Time | 0 seconds |

| | Minimum | Maximum |
|---|---|---|
| Bead Up | 98 psi | 127 psi |
| Heat Soak | 0 psi | 40 psi |
| Fuse | 98 psi | 127 psi |
| Cool | 0 psi | 0 psi |

## External Heater Temperatures

| | Side A | Side B |
|---|---|---|

## GPS Location

| Date | Latitude | Longitude |
|---|---|---|
| 2018-08-31 12:33:41.0 | 64°2'22.734000"N | 135°49'43.704000"W |

## Logged Data Summary

| | |
|---|---|
| Number of Data Points | 254 |
| Total Fusion Time | 1157 seconds |
| Maximum Recorded Pressure | 113 psi |

## Device Information

| | |
|---|---|
| DataLogger Serial Number | RH803Z0550 |
| Sensor Serial Number | MDL6621 |
| Calibration Date | 2018-04-04 |
| Firmware Version | v6.0 |
| Software Version | 1.08 (27) |
| Software Product Name | DataLogger 6 |

## Data Source

| | |
|---|---|
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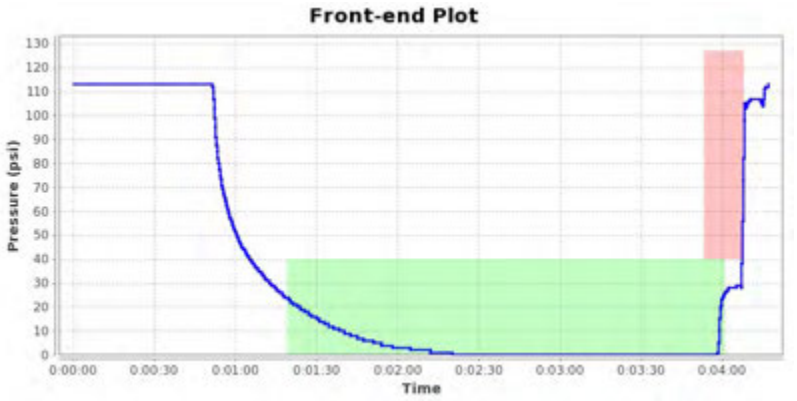


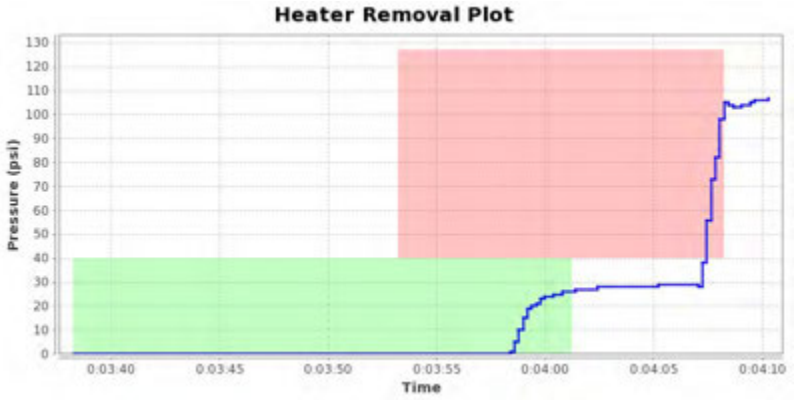


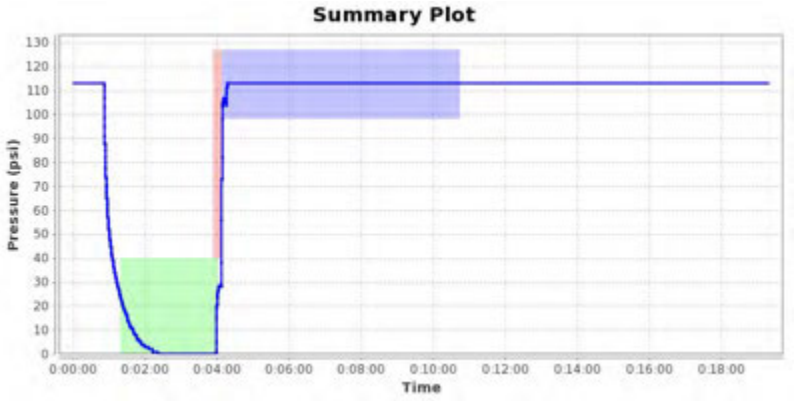


## Notes

Images for report: 1164561





Printed: 2018-10-14 16:24:17 UTC

# McElroy Joint Report

Reference Number 1164562

## Job Details

| | |
|---|---|
| Joint Number | 177 |
| Joint Time | 2018-08-31 14:11:40 GMT |
| Job | 1 |
| Operator | Rafel |
| Aborted Joint | No |

## Fusion Machine

| | |
|---|---|
| Machine Name | 618 HF |
| Machine Model | 618 HF |
| Piston Area | 11.78 in² |

## Pipe Specifications

| | |
|---|---|
| Pipe Material | PE4710 |
| Pipe Size | 6 " IPS |
| Wall Thickness | DR 11 |

## Pressures

| | | |
|---|---|---|
| Drag Pressure | 31 psi | |
| | Interfacial | Gauge |
| Bead Up | 75 psi | 104 psi |
| Heat Soak | 0 psi | 31 psi |
| Fuse/Cool | 75 psi | 104 psi |

## Fusion Specification

| | |
|---|---|
| Fusion Type | Butt Fusion |
| Fusion Specification | ASTM F2620 |
| Bead Time | 0 seconds |
| Bead Size | 3/16" |
| Heat/Soak Time | 162 seconds |
| Fuse Time | 397 seconds |
| Open/Close Time | 15 seconds |
| Cool Time | 0 seconds |

| | Minimum | Maximum |
|---|---|---|
| Bead Up | 89 psi | 118 psi |
| Heat Soak | 0 psi | 31 psi |
| Fuse | 89 psi | 118 psi |
| Cool | 0 psi | 0 psi |

## External Heater Temperatures

| | Side A | Side B |
|---|---|---|

## GPS Location

| Date | Latitude | Longitude |
|---|---|---|
| 2018-08-31 14:11:40.0 | 64°2'22.344600"N | 135°49'43.971000"W |

## Logged Data Summary

| | |
|---|---|
| Number of Data Points | 238 |
| Total Fusion Time | 1167 seconds |
| Maximum Recorded Pressure | 121 psi |

## Device Information

| | |
|---|---|
| DataLogger Serial Number | RH803Z0550 |
| Sensor Serial Number | MDL6621 |
| Calibration Date | 2018-04-04 |
| Firmware Version | v6.0 |
| Software Version | 1.08 (27) |
| Software Product Name | DataLogger 6 |

## Data Source

| | |
|---|---|
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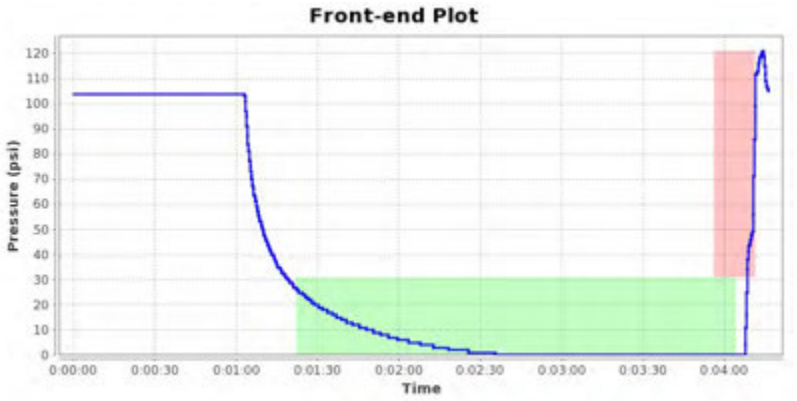


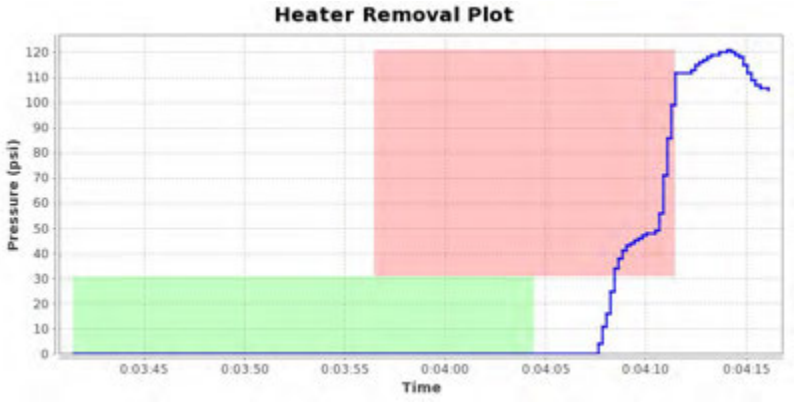


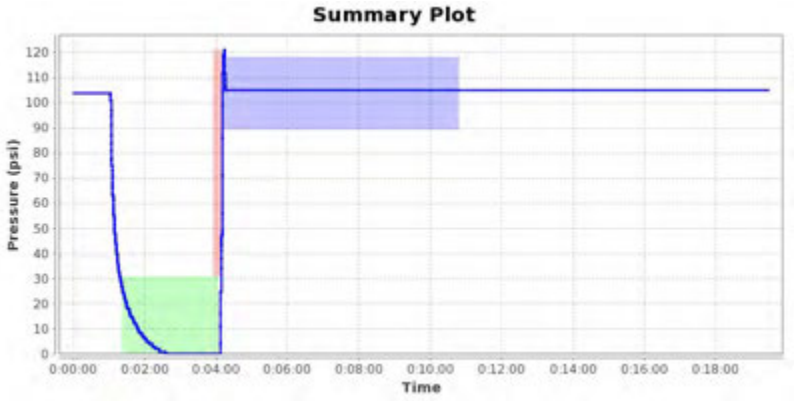


## Notes

Images for report: 1164562





Printed: 2018-10-14 16:24:15 UTC

# McElroy Joint Report

Reference Number 1164563

## Job Details

| | |
|---|---|
| Joint Number | 178 |
| Joint Time | 2018-08-31 15:01:54 GMT |
| Job | 1 |
| Operator | Rafel |
| Aborted Joint | No |

## Fusion Machine

| | |
|---|---|
| Machine Name | 618 HF |
| Machine Model | 618 HF |
| Piston Area | 11.78 in² |

## Pipe Specifications

| | |
|---|---|
| Pipe Material | PE4710 |
| Pipe Size | 6 " IPS |
| Wall Thickness | DR 11 |

## Pressures

| Drag Pressure | 32 psi | |
|---|---|---|
| | Interfacial | Gauge |
| Bead Up | 75 psi | 105 psi |
| Heat Soak | 0 psi | 32 psi |
| Fuse/Cool | 75 psi | 105 psi |

## Fusion Specification

| | |
|---|---|
| Fusion Type | Butt Fusion |
| Fusion Specification | ASTM F2620 |
| Bead Time | 0 seconds |
| Bead Size | 3/16" |
| Heat/Soak Time | 162 seconds |
| Fuse Time | 397 seconds |
| Open/Close Time | 15 seconds |
| Cool Time | 0 seconds |

| | Minimum | Maximum |
|---|---|---|
| Bead Up | 90 psi | 119 psi |
| Heat Soak | 0 psi | 32 psi |
| Fuse | 90 psi | 119 psi |
| Cool | 0 psi | 0 psi |

## External Heater Temperatures

| | Side A | Side B |
|---|---|---|

## GPS Location

| Date | Latitude | Longitude |
|---|---|---|
| 2018-08-31 15:01:54.0 | 64°2'22.239600"N | 135°49'43.881000"W |

## Logged Data Summary

| | |
|---|---|
| Number of Data Points | 238 |
| Total Fusion Time | 1172 seconds |
| Maximum Recorded Pressure | 117 psi |

## Device Information

| | |
|---|---|
| DataLogger Serial Number | RH803Z0550 |
| Sensor Serial Number | MDL6621 |
| Calibration Date | 2018-04-04 |
| Firmware Version | v6.0 |
| Software Version | 1.08 (27) |
| Software Product Name | DataLogger 6 |

## Data Source

| | |
|---|---|
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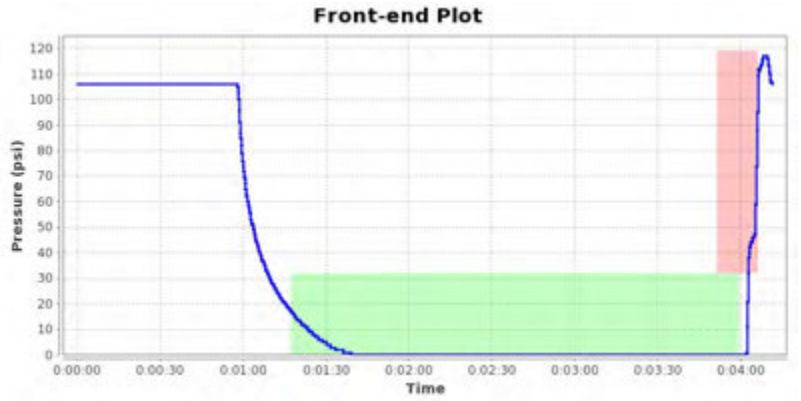
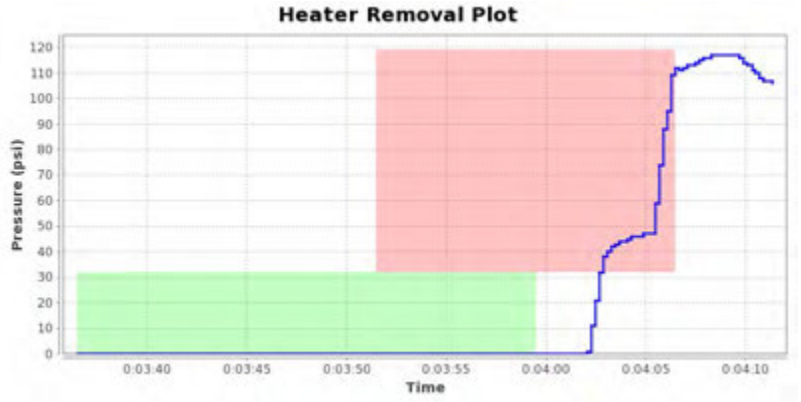
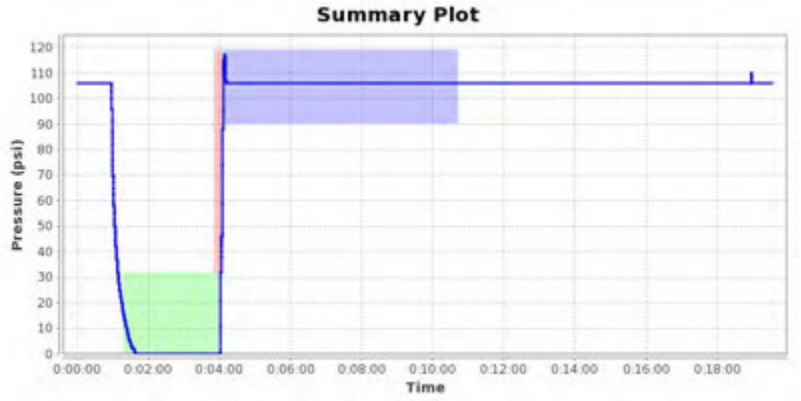



## Notes

Images for report: 1164563





Printed: 2018-10-14 16:24:14 UTC

# McElroy Joint Report

Reference Number 1164564

## Job Details

| | |
|---|---|
| Joint Number | 179 |
| Joint Time | 2018-08-31 15:23:55 GMT |
| Job | 1 |
| Operator | Rafel |
| Aborted Joint | No |

## Fusion Machine

| | |
|---|---|
| Machine Name | 618 HF |
| Machine Model | 618 HF |
| Piston Area | 11.78 $in^2$ |

## Pipe Specifications

| | |
|---|---|
| Pipe Material | PE4710 |
| Pipe Size | 6 " IPS |
| Wall Thickness | DR 11 |

## Pressures

| | | |
|---|---|---|
| Drag Pressure | 32 psi | |
| | Interfacial | Gauge |
| Bead Up | 75 psi | 105 psi |
| Heat Soak | 0 psi | 32 psi |
| Fuse/Cool | 75 psi | 105 psi |

## Fusion Specification

| | |
|---|---|
| Fusion Type | Butt Fusion |
| Fusion Specification | ASTM F2620 |
| Bead Time | 0 seconds |
| Bead Size | 3/16" |
| Heat/Soak Time | 162 seconds |
| Fuse Time | 397 seconds |
| Open/Close Time | 15 seconds |
| Cool Time | 0 seconds |

| | Minimum | Maximum |
|---|---|---|
| Bead Up | 90 psi | 119 psi |
| Heat Soak | 0 psi | 32 psi |
| Fuse | 90 psi | 119 psi |
| Cool | 0 psi | 0 psi |

## External Heater Temperatures

| | Side A | Side B |
|---|---|---|

## GPS Location

| Date | Latitude | Longitude |
|---|---|---|
| 2018-08-31 15:23:55.0 | 64°2'22.193400"N | 135°49'43.816200"W |

## Logged Data Summary

| | |
|---|---|
| Number of Data Points | 280 |
| Total Fusion Time | 860 seconds |
| Maximum Recorded Pressure | 109 psi |

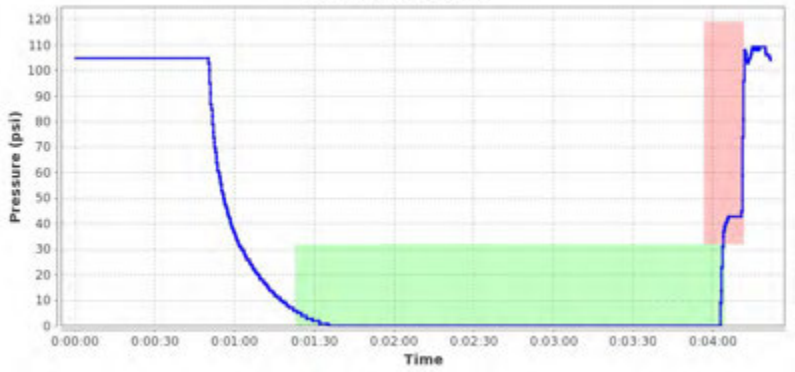
## Device Information

| | |
|---|---|
| DataLogger Serial Number | RH803Z0550 |
| Sensor Serial Number | MDL6621 |
| Calibration Date | 2018-04-04 |
| Firmware Version | v6.0 |
| Software Version | 1.08 (27) |
| Software Product Name | DataLogger 6 |

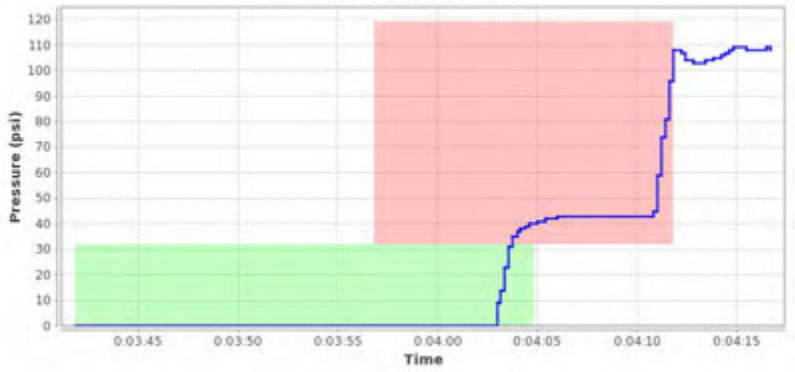
## Data Source

| | |
|---|---|
| Upload Time | 2018-10-14 16:19:04 GMT |

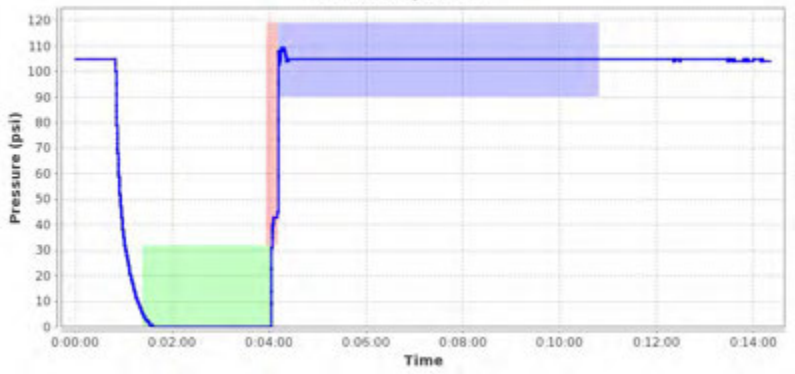
### Front-end Plot




### Heater Removal Plot




### Summary Plot




## Notes

Images for report: 1164564





Printed: 2018-10-14 16:24:13 UTC

# McElroy Joint Report

Reference Number 1164565

## Job Details

| | |
|---|---|
| Joint Number | 180 |
| Joint Time | 2018-08-31 16:10:18 GMT |
| Job | 1 |
| Operator | Rafel |
| Aborted Joint | No |

## Fusion Machine

| | |
|---|---|
| Machine Name | 618 HF |
| Machine Model | 618 HF |
| Piston Area | 11.78 in² |

## Pipe Specifications

| | |
|---|---|
| Pipe Material | PE4710 |
| Pipe Size | 6 " IPS |
| Wall Thickness | DR 11 |

## Pressures

| | | |
|---|---|---|
| Drag Pressure | 41 psi | |
| | Interfacial | Gauge |
| Bead Up | 75 psi | 114 psi |
| Heat Soak | 0 psi | 41 psi |
| Fuse/Cool | 75 psi | 114 psi |

## Fusion Specification

| | |
|---|---|
| Fusion Type | Butt Fusion |
| Fusion Specification | ASTM F2620 |
| Bead Time | 0 seconds |
| Bead Size | 3/16" |
| Heat/Soak Time | 162 seconds |
| Fuse Time | 397 seconds |
| Open/Close Time | 15 seconds |
| Cool Time | 0 seconds |

| | Minimum | Maximum |
|---|---|---|
| Bead Up | 99 psi | 128 psi |
| Heat Soak | 0 psi | 41 psi |
| Fuse | 99 psi | 128 psi |
| Cool | 0 psi | 0 psi |

## External Heater Temperatures

| | Side A | Side B |
|---|---|---|

## GPS Location

| Date | Latitude | Longitude |
|---|---|---|
| 2018-08-31 16:10:18.0 | 64°2'22.688400"N | 135°49'43.242000"W |

## Logged Data Summary

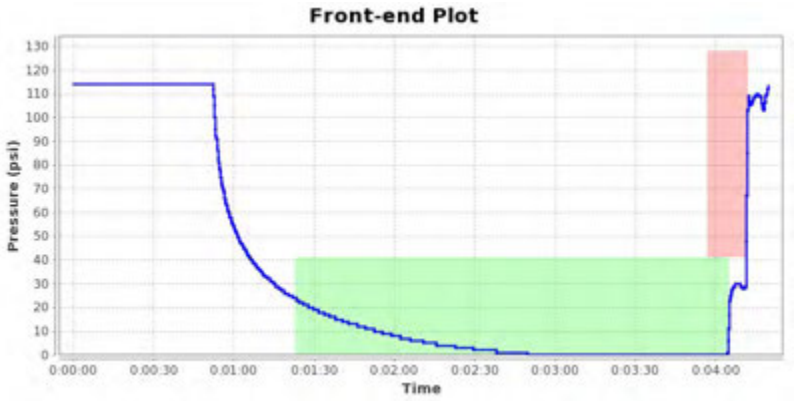
| | |
|---|---|
| Number of Data Points | 284 |
| Total Fusion Time | 1220 seconds |
| Maximum Recorded Pressure | 114 psi |

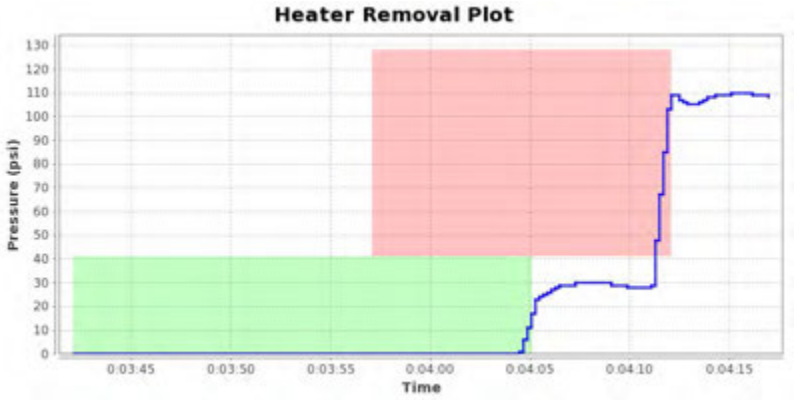
## Device Information

| | |
|---|---|
| DataLogger Serial Number | RH803Z0550 |
| Sensor Serial Number | MDL6621 |
| Calibration Date | 2018-04-04 |
| Firmware Version | v6.0 |
| Software Version | 1.08 (27) |
| Software Product Name | DataLogger 6 |

## Data Source

| | |
|---|---|
| Upload Time | 2018-10-14 16:19:08 GMT |







## Notes

Images for report: 1164565





Printed: 2018-10-14 16:24:11 UTC

# McElroy Joint Report

Reference Number 1164566

## Job Details

| | |
|---|---|
| Joint Number | 181 |
| Joint Time | 2018-08-31 17:09:56 GMT |
| Job | 1 |
| Operator | Rafel |
| Aborted Joint | No |

## Fusion Machine

| | |
|---|---|
| Machine Name | 618 HF |
| Machine Model | 618 HF |
| Piston Area | 11.78 in² |

## Pipe Specifications

| | |
|---|---|
| Pipe Material | PE4710 |
| Pipe Size | 6 " IPS |
| Wall Thickness | DR 11 |

## Pressures

| | | |
|---|---|---|
| Drag Pressure | 31 psi | |
| | Interfacial | Gauge |
| Bead Up | 75 psi | 104 psi |
| Heat Soak | 0 psi | 31 psi |
| Fuse/Cool | 75 psi | 104 psi |

## Fusion Specification

| | |
|---|---|
| Fusion Type | Butt Fusion |
| Fusion Specification | ASTM F2620 |
| Bead Time | 0 seconds |
| Bead Size | 3/16" |
| Heat/Soak Time | 162 seconds |
| Fuse Time | 397 seconds |
| Open/Close Time | 15 seconds |
| Cool Time | 0 seconds |

| | Minimum | Maximum |
|---|---|---|
| Bead Up | 89 psi | 118 psi |
| Heat Soak | 0 psi | 31 psi |
| Fuse | 89 psi | 118 psi |
| Cool | 0 psi | 0 psi |

## External Heater Temperatures

| | Side A | Side B |
|---|---|---|

## GPS Location

| Date | Latitude | Longitude |
|---|---|---|
| 2018-08-31 17:09:56.0 | 64°2'23.221800"N | 135°49'43.006200"W |

## Logged Data Summary

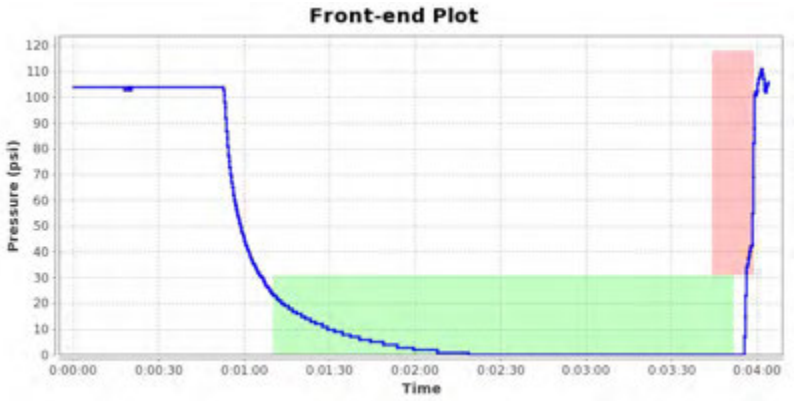
| | |
|---|---|
| Number of Data Points | 244 |
| Total Fusion Time | 1207 seconds |
| Maximum Recorded Pressure | 111 psi |

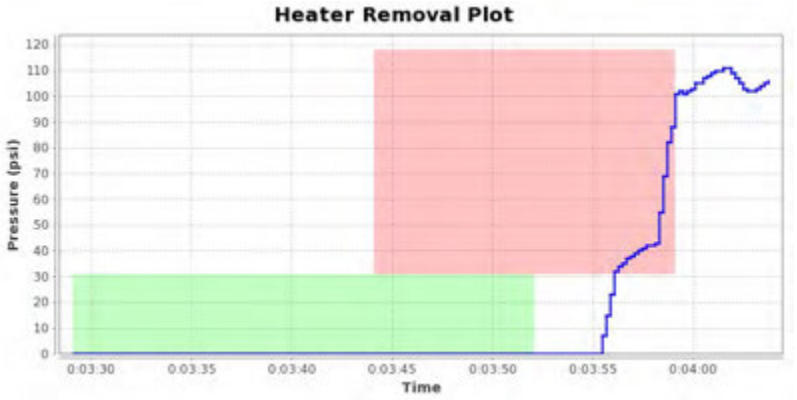
## Device Information

| | |
|---|---|
| DataLogger Serial Number | RH803Z0550 |
| Sensor Serial Number | MDL6621 |
| Calibration Date | 2018-04-04 |
| Firmware Version | v6.0 |
| Software Version | 1.08 (27) |
| Software Product Name | DataLogger 6 |

## Data Source

| | |
|---|---|
| Upload Time | 2018-10-14 16:19:13 GMT |







## Notes

Images for report: 1164566





Printed: 2018-10-14 16:24:10 UTC

# McElroy Joint Report

Reference Number 1164567

## Job Details

| | |
|---|---|
| Joint Number | 182 |
| Joint Time | 2018-08-31 17:41:00 GMT |
| Job | 1 |
| Operator | Rafel |
| Aborted Joint | No |

## Fusion Machine

| | |
|---|---|
| Machine Name | 618 HF |
| Machine Model | 618 HF |
| Piston Area | 11.78 in² |

## Pipe Specifications

| | |
|---|---|
| Pipe Material | PE4710 |
| Pipe Size | 6 " IPS |
| Wall Thickness | DR 11 |

## Pressures

| | | |
|---|---|---|
| Drag Pressure | 38 psi | |
| | Interfacial | Gauge |
| Bead Up | 75 psi | 111 psi |
| Heat Soak | 0 psi | 38 psi |
| Fuse/Cool | 75 psi | 111 psi |

## Fusion Specification

| | |
|---|---|
| Fusion Type | Butt Fusion |
| Fusion Specification | ASTM F2620 |
| Bead Time | 0 seconds |
| Bead Size | 3/16" |
| Heat/Soak Time | 162 seconds |
| Fuse Time | 397 seconds |
| Open/Close Time | 15 seconds |
| Cool Time | 0 seconds |

| | Minimum | Maximum |
|---|---|---|
| Bead Up | 96 psi | 125 psi |
| Heat Soak | 0 psi | 38 psi |
| Fuse | 96 psi | 125 psi |
| Cool | 0 psi | 0 psi |

## External Heater Temperatures

| | Side A | Side B |
|---|---|---|

## GPS Location

| Date | Latitude | Longitude |
|---|---|---|
| 2018-08-31 17:41:00.0 | 64°2'23.250600"N | 135°49'42.953400"W |

## Logged Data Summary

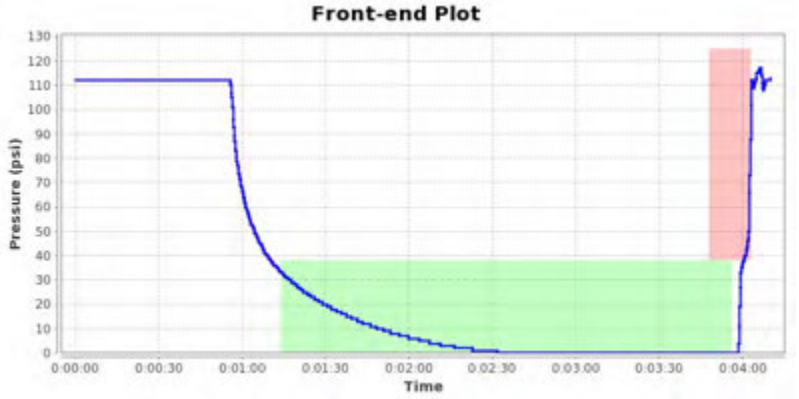
| | |
|---|---|
| Number of Data Points | 368 |
| Total Fusion Time | 1171 seconds |
| Maximum Recorded Pressure | 117 psi |

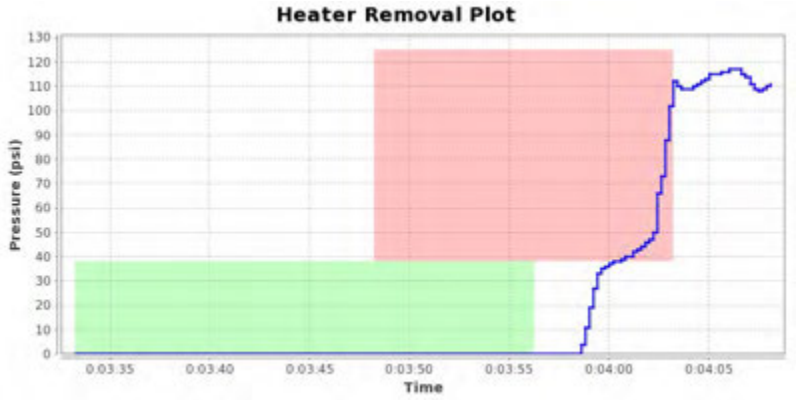
## Device Information

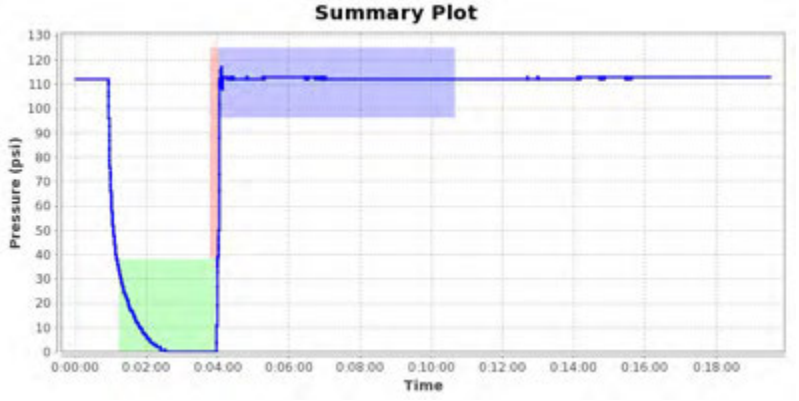
| | |
|---|---|
| DataLogger Serial Number | RH803Z0550 |
| Sensor Serial Number | MDL6621 |
| Calibration Date | 2018-04-04 |
| Firmware Version | v6.0 |
| Software Version | 1.08 (27) |
| Software Product Name | DataLogger 6 |

## Data Source

| | |
|---|---|
| Upload Time | 2018-10-14 16:19:17 GMT |




## Notes

Images for report: 1164567





Printed: 2018-10-14 16:24:09 UTC

# McElroy Joint Report

Reference Number 1164568

## Job Details

| | |
|---|---|
| Joint Number | 183 |
| Joint Time | 2018-09-02 11:28:56 GMT |
| Job | 1 |
| Operator | Rafel |
| Aborted Joint | No |

## Fusion Machine

| | |
|---|---|
| Machine Name | 618 HF |
| Machine Model | 618 HF |
| Piston Area | 11.78 in² |

## Pipe Specifications

| | |
|---|---|
| Pipe Material | PE4710 |
| Pipe Size | 6 " IPS |
| Wall Thickness | DR 11 |

## Pressures

| | | |
|---|---|---|
| Drag Pressure | 33 psi | |
| | Interfacial | Gauge |
| Bead Up | 75 psi | 106 psi |
| Heat Soak | 0 psi | 33 psi |
| Fuse/Cool | 75 psi | 106 psi |

## Fusion Specification

| | |
|---|---|
| Fusion Type | Butt Fusion |
| Fusion Specification | ASTM F2620 |
| Bead Time | 0 seconds |
| Bead Size | 3/16" |
| Heat/Soak Time | 162 seconds |
| Fuse Time | 397 seconds |
| Open/Close Time | 15 seconds |
| Cool Time | 0 seconds |

| | Minimum | Maximum |
|---|---|---|
| Bead Up | 91 psi | 120 psi |
| Heat Soak | 0 psi | 33 psi |
| Fuse | 91 psi | 120 psi |
| Cool | 0 psi | 0 psi |

## External Heater Temperatures

| | Side A | Side B |
|---|---|---|

## GPS Location

| Date | Latitude | Longitude |
|---|---|---|
| 2018-09-02 11:28:56.0 | 64°2'22.315200"N | 135°49'43.490400"W |

## Logged Data Summary

| | |
|---|---|
| Number of Data Points | 248 |
| Total Fusion Time | 1156 seconds |
| Maximum Recorded Pressure | 126 psi |

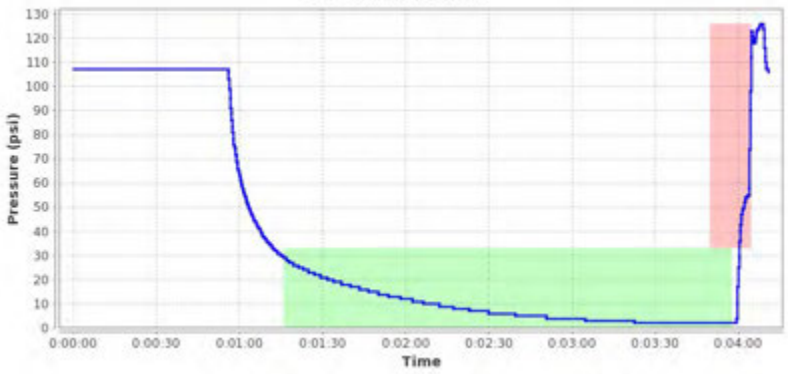
## Device Information

| | |
|---|---|
| DataLogger Serial Number | RH803Z0550 |
| Sensor Serial Number | MDL6621 |
| Calibration Date | 2018-04-04 |
| Firmware Version | v6.0 |
| Software Version | 1.08 (27) |
| Software Product Name | DataLogger 6 |

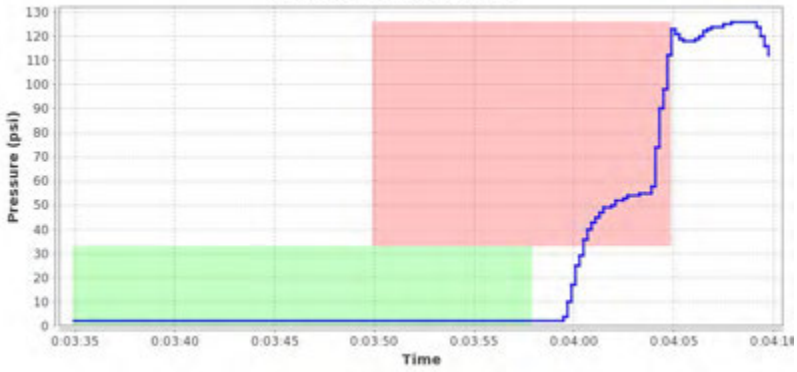
## Data Source

| | |
|---|---|
| Upload Time | 2018-10-14 16:19:23 GMT |

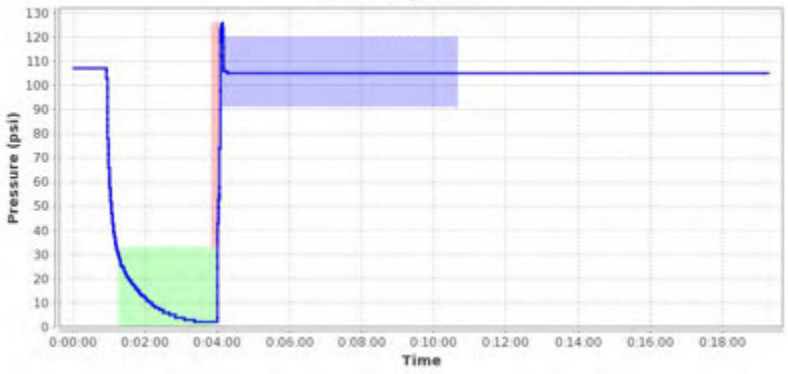
### Front-end Plot




### Heater Removal Plot




### Summary Plot




## Notes

Images for report: 1164568





Printed: 2018-10-14 16:24:07 UTC

# McElroy Joint Report

Reference Number 1164569

## Job Details

| | |
|---|---|
| Joint Number | 184 |
| Joint Time | 2018-09-02 12:04:46 GMT |
| Job | 1 |
| Operator | Rafel |
| Aborted Joint | No |

## Fusion Machine

| | |
|---|---|
| Machine Name | 618 HF |
| Machine Model | 618 HF |
| Piston Area | 11.78 in² |

## Pipe Specifications

| | |
|---|---|
| Pipe Material | PE4710 |
| Pipe Size | 6 " IPS |
| Wall Thickness | DR 11 |

## Pressures

| | | |
|---|---|---|
| Drag Pressure | 35 psi | |
| | Interfacial | Gauge |
| Bead Up | 75 psi | 108 psi |
| Heat Soak | 0 psi | 35 psi |
| Fuse/Cool | 75 psi | 108 psi |

## Fusion Specification

| | |
|---|---|
| Fusion Type | Butt Fusion |
| Fusion Specification | ASTM F2620 |
| Bead Time | 0 seconds |
| Bead Size | 3/16" |
| Heat/Soak Time | 162 seconds |
| Fuse Time | 397 seconds |
| Open/Close Time | 15 seconds |
| Cool Time | 0 seconds |

| | Minimum | Maximum |
|---|---|---|
| Bead Up | 93 psi | 122 psi |
| Heat Soak | 0 psi | 35 psi |
| Fuse | 93 psi | 122 psi |
| Cool | 0 psi | 0 psi |

## External Heater Temperatures

| | Side A | Side B |
|---|---|---|

## GPS Location

| Date | Latitude | Longitude |
|---|---|---|
| 2018-09-02 12:04:46.0 | 64°2'22.347600"N | 135°49'43.312200"W |

## Logged Data Summary

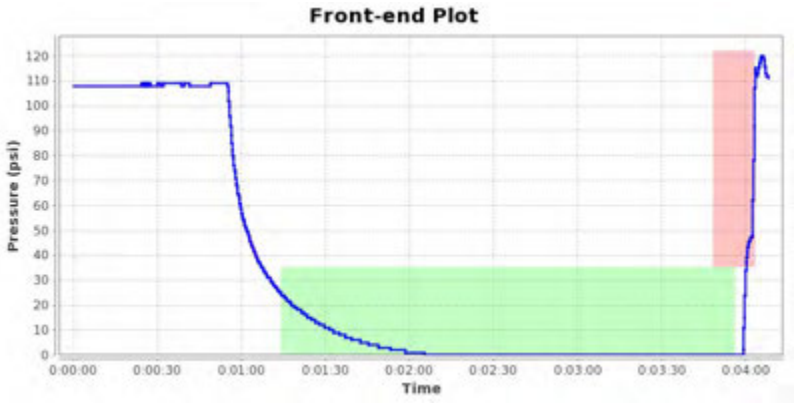
| | |
|---|---|
| Number of Data Points | 272 |
| Total Fusion Time | 1162 seconds |
| Maximum Recorded Pressure | 120 psi |

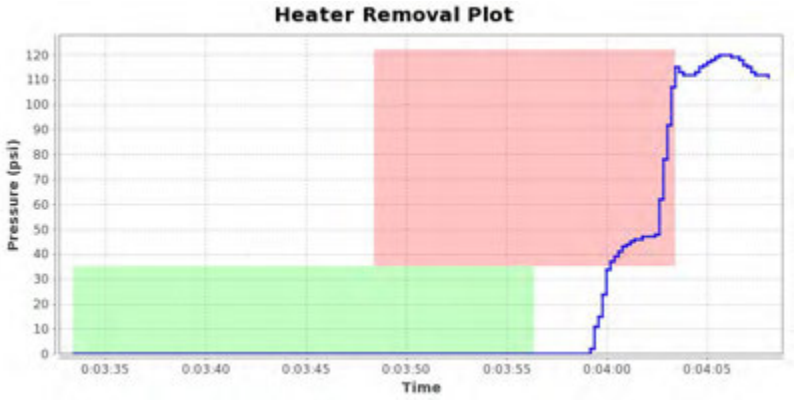
## Device Information

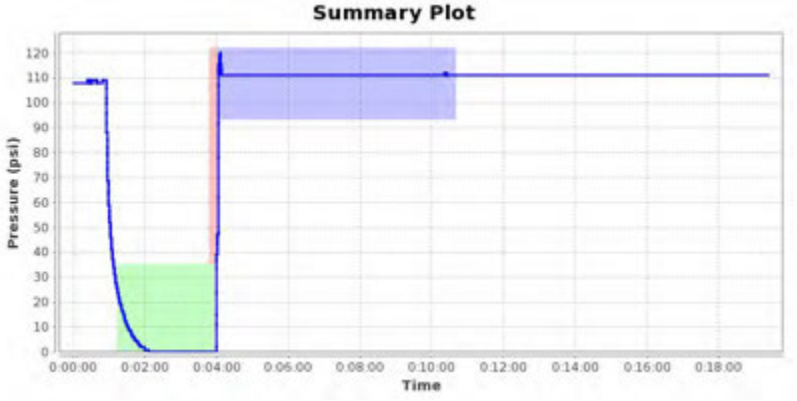
| | |
|---|---|
| DataLogger Serial Number | RH803Z0550 |
| Sensor Serial Number | MDL6621 |
| Calibration Date | 2018-04-04 |
| Firmware Version | v6.0 |
| Software Version | 1.08 (27) |
| Software Product Name | DataLogger 6 |

## Data Source

| | |
|---|---|
| Upload Time | 2018-10-14 16:19:27 GMT |




## Notes

Images for report: 1164569





Printed: 2018-10-14 16:24:06 UTC

# McElroy Joint Report

Reference Number 1164570

## Job Details

| | |
|---|---|
| Joint Number | 185 |
| Joint Time | 2018-09-02 12:35:28 GMT |
| Job | 1 |
| Operator | Rafel |
| Aborted Joint | No |

## Fusion Machine

| | |
|---|---|
| Machine Name | 618 HF |
| Machine Model | 618 HF |
| Piston Area | 11.78 in² |

## Pipe Specifications

| | |
|---|---|
| Pipe Material | PE4710 |
| Pipe Size | 6 " IPS |
| Wall Thickness | DR 11 |

## Pressures

| | | |
|---|---|---|
| Drag Pressure | 35 psi | |
| | Interfacial | Gauge |
| Bead Up | 75 psi | 108 psi |
| Heat Soak | 0 psi | 35 psi |
| Fuse/Cool | 75 psi | 108 psi |

## Fusion Specification

| | |
|---|---|
| Fusion Type | Butt Fusion |
| Fusion Specification | ASTM F2620 |
| Bead Time | 0 seconds |
| Bead Size | 3/16" |
| Heat/Soak Time | 162 seconds |
| Fuse Time | 397 seconds |
| Open/Close Time | 15 seconds |
| Cool Time | 0 seconds |

| | Minimum | Maximum |
|---|---|---|
| Bead Up | 93 psi | 122 psi |
| Heat Soak | 0 psi | 35 psi |
| Fuse | 93 psi | 122 psi |
| Cool | 0 psi | 0 psi |

## External Heater Temperatures

| | Side A | Side B |
|---|---|---|

## GPS Location

| Date | Latitude | Longitude |
|---|---|---|
| 2018-09-02 12:35:28.0 | 64°2'22.415400"N | 135°49'43.529400"W |

## Logged Data Summary

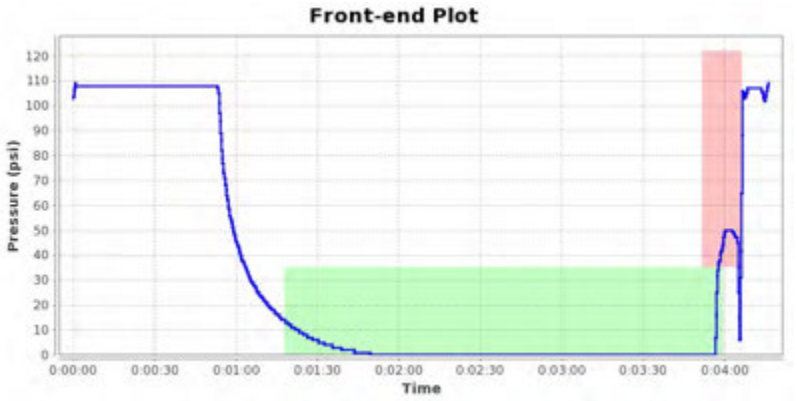
| | |
|---|---|
| Number of Data Points | 272 |
| Total Fusion Time | 858 seconds |
| Maximum Recorded Pressure | 109 psi |

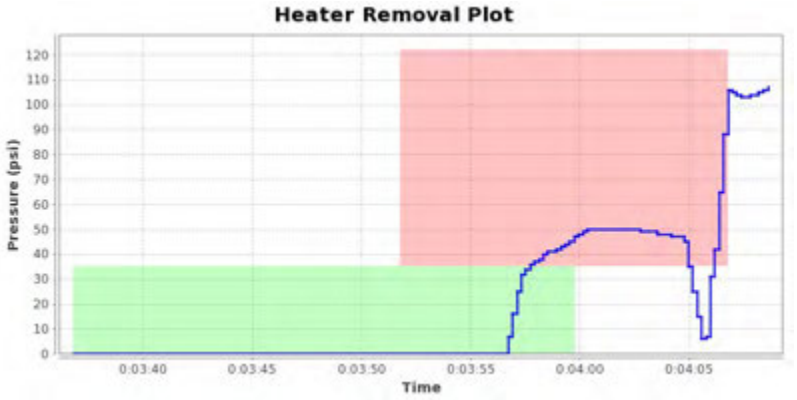
## Device Information

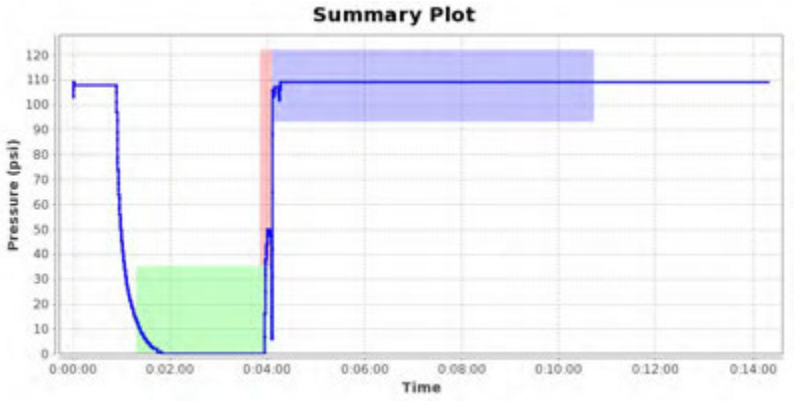
| | |
|---|---|
| DataLogger Serial Number | RH803Z0550 |
| Sensor Serial Number | MDL6621 |
| Calibration Date | 2018-04-04 |
| Firmware Version | v6.0 |
| Software Version | 1.08 (27) |
| Software Product Name | DataLogger 6 |

## Data Source

| | |
|---|---|
| Upload Time | 2018-10-14 16:19:31 GMT |




## Notes

Images for report: 1164570





Printed: 2018-10-14 16:24:05 UTC

# McElroy Joint Report

Reference Number 1164571

## Job Details

| | |
|---|---|
| Joint Number | 186 |
| Joint Time | 2018-09-02 13:05:01 GMT |
| Job | 1 |
| Operator | Rafel |
| Aborted Joint | No |

## Fusion Machine

| | |
|---|---|
| Machine Name | 618 HF |
| Machine Model | 618 HF |
| Piston Area | 11.78 in² |

## Pipe Specifications

| | |
|---|---|
| Pipe Material | PE4710 |
| Pipe Size | 6 " IPS |
| Wall Thickness | DR 11 |

## Pressures

| | | |
|---|---|---|
| Drag Pressure | 41 psi | |
| | Interfacial | Gauge |
| Bead Up | 75 psi | 114 psi |
| Heat Soak | 0 psi | 41 psi |
| Fuse/Cool | 75 psi | 114 psi |

## Fusion Specification

| | |
|---|---|
| Fusion Type | Butt Fusion |
| Fusion Specification | ASTM F2620 |
| Bead Time | 0 seconds |
| Bead Size | 3/16" |
| Heat/Soak Time | 162 seconds |
| Fuse Time | 397 seconds |
| Open/Close Time | 15 seconds |
| Cool Time | 0 seconds |

| | Minimum | Maximum |
|---|---|---|
| Bead Up | 99 psi | 128 psi |
| Heat Soak | 0 psi | 41 psi |
| Fuse | 99 psi | 128 psi |
| Cool | 0 psi | 0 psi |

## External Heater Temperatures

| | Side A | Side B |
|---|---|---|

## GPS Location

| Date | Latitude | Longitude |
|---|---|---|
| 2018-09-02 13:05:01.0 | 64°2'22.470600"N | 135°49'43.429800"W |

## Logged Data Summary

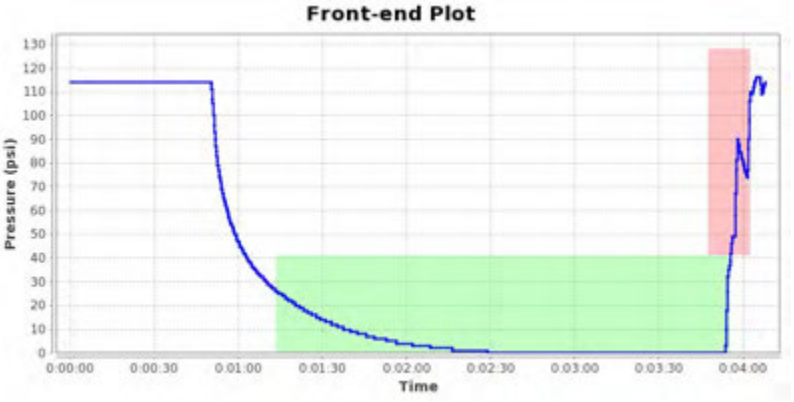
| | |
|---|---|
| Number of Data Points | 290 |
| Total Fusion Time | 908 seconds |
| Maximum Recorded Pressure | 116 psi |

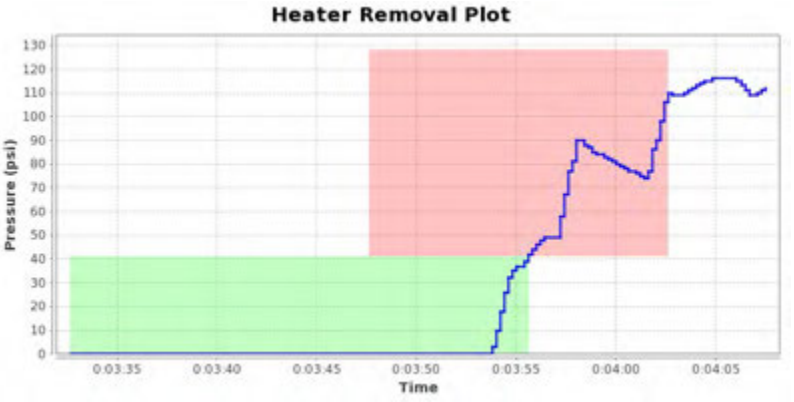
## Device Information

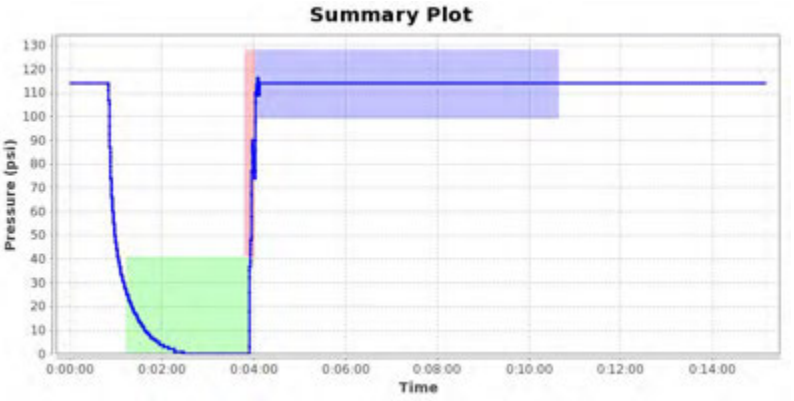
| | |
|---|---|
| DataLogger Serial Number | RH803Z0550 |
| Sensor Serial Number | MDL6621 |
| Calibration Date | 2018-04-04 |
| Firmware Version | v6.0 |
| Software Version | 1.08 (27) |
| Software Product Name | DataLogger 6 |

## Data Source

| | |
|---|---|
| Upload Time | 2018-10-14 16:19:37 GMT |




## Notes

Images for report: 1164571





Printed: 2018-10-14 16:24:03 UTC

# McElroy Joint Report

Reference Number 1164572

## Job Details

| | |
|---|---|
| Joint Number | 187 |
| Joint Time | 2018-09-02 14:12:21 GMT |
| Job | 1 |
| Operator | Rafel |
| Aborted Joint | No |

## Fusion Machine

| | |
|---|---|
| Machine Name | 618 HF |
| Machine Model | 618 HF |
| Piston Area | 11.78 in² |

## Pipe Specifications

| | |
|---|---|
| Pipe Material | PE4710 |
| Pipe Size | 6 " IPS |
| Wall Thickness | DR 11 |

## Pressures

| | | |
|---|---|---|
| Drag Pressure | 56 psi | |
| | Interfacial | Gauge |
| Bead Up | 75 psi | 129 psi |
| Heat Soak | 0 psi | 56 psi |
| Fuse/Cool | 75 psi | 129 psi |

## Fusion Specification

| | |
|---|---|
| Fusion Type | Butt Fusion |
| Fusion Specification | ASTM F2620 |
| Bead Time | 0 seconds |
| Bead Size | 3/16" |
| Heat/Soak Time | 162 seconds |
| Fuse Time | 397 seconds |
| Open/Close Time | 15 seconds |
| Cool Time | 0 seconds |

| | Minimum | Maximum |
|---|---|---|
| Bead Up | 114 psi | 143 psi |
| Heat Soak | 0 psi | 56 psi |
| Fuse | 114 psi | 143 psi |
| Cool | 0 psi | 0 psi |

## External Heater Temperatures

| | Side A | Side B |
|---|---|---|

## GPS Location

| Date | Latitude | Longitude |
|---|---|---|
| 2018-09-02 14:12:21.0 | 64°2'23.589600"N | 135°49'42.760800"W |

## Logged Data Summary

| | |
|---|---|
| Number of Data Points | 288 |
| Total Fusion Time | 956 seconds |
| Maximum Recorded Pressure | 131 psi |

## Device Information

| | |
|---|---|
| DataLogger Serial Number | RH803Z0550 |
| Sensor Serial Number | MDL6621 |
| Calibration Date | 2018-04-04 |
| Firmware Version | v6.0 |
| Software Version | 1.08 (27) |
| Software Product Name | DataLogger 6 |

## Data Source

| | |
|---|---|
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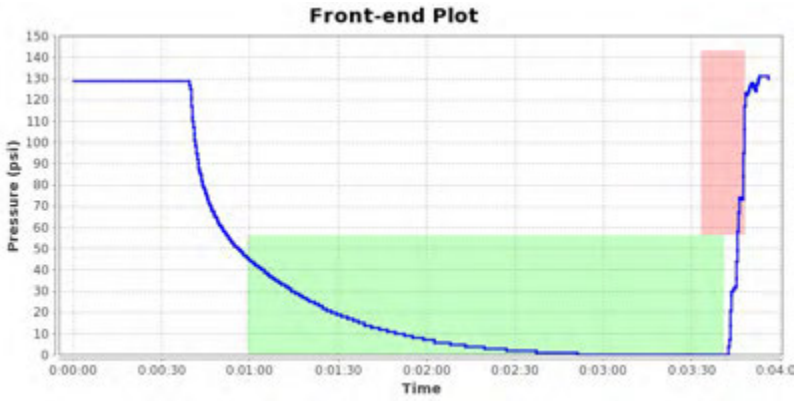


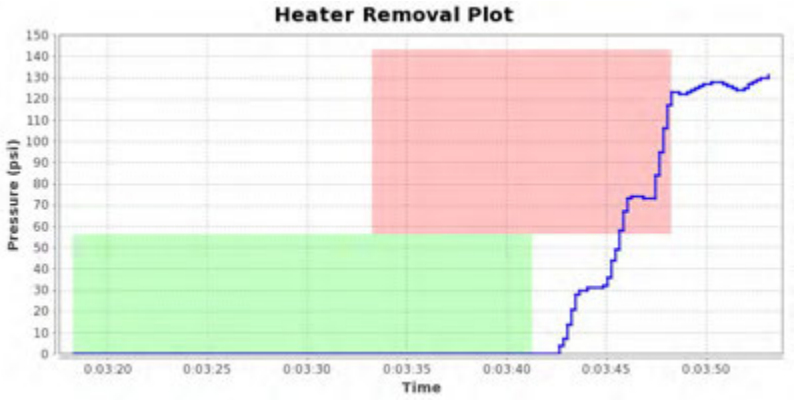


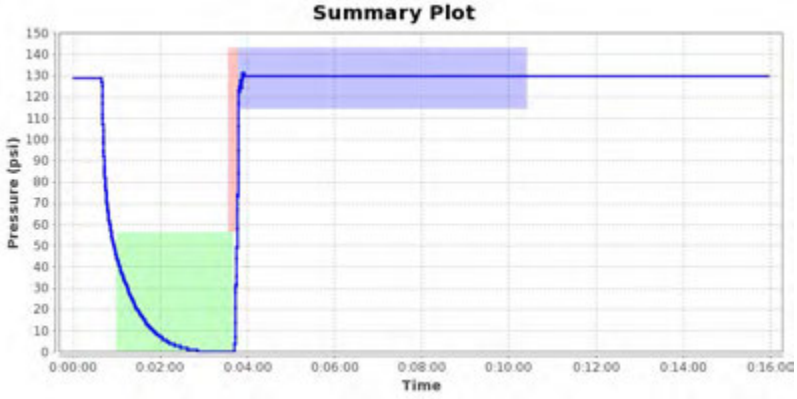


## Notes

Images for report: 1164572





Printed: 2018-10-14 16:24:02 UTC

# McElroy Joint Report

Reference Number 1164573

## Job Details

| | |
|---|---|
| Joint Number | 188 |
| Joint Time | 2018-09-02 14:50:19 GMT |
| Job | 1 |
| Operator | Rafel |
| Aborted Joint | No |

## Fusion Machine

| | |
|---|---|
| Machine Name | 618 HF |
| Machine Model | 618 HF |
| Piston Area | 11.78 in² |

## Pipe Specifications

| | |
|---|---|
| Pipe Material | PE4710 |
| Pipe Size | 6 " IPS |
| Wall Thickness | DR 11 |

## Pressures

| | | |
|---|---|---|
| Drag Pressure | 58 psi | |
| | Interfacial | Gauge |
| Bead Up | 75 psi | 131 psi |
| Heat Soak | 0 psi | 58 psi |
| Fuse/Cool | 75 psi | 131 psi |

## Fusion Specification

| | |
|---|---|
| Fusion Type | Butt Fusion |
| Fusion Specification | ASTM F2620 |
| Bead Time | 0 seconds |
| Bead Size | 3/16" |
| Heat/Soak Time | 162 seconds |
| Fuse Time | 397 seconds |
| Open/Close Time | 15 seconds |
| Cool Time | 0 seconds |

| | Minimum | Maximum |
|---|---|---|
| Bead Up | 116 psi | 145 psi |
| Heat Soak | 0 psi | 58 psi |
| Fuse | 116 psi | 145 psi |
| Cool | 0 psi | 0 psi |

## External Heater Temperatures

| | Side A | Side B |
|---|---|---|

## GPS Location

| Date | Latitude | Longitude |
|---|---|---|
| 2018-09-02 14:50:19.0 | 64°2'23.636400"N | 135°49'42.915600"W |

## Logged Data Summary

| | |
|---|---|
| Number of Data Points | 304 |
| Total Fusion Time | 972 seconds |
| Maximum Recorded Pressure | 132 psi |

## Device Information

| | |
|---|---|
| DataLogger Serial Number | RH803Z0550 |
| Sensor Serial Number | MDL6621 |
| Calibration Date | 2018-04-04 |
| Firmware Version | v6.0 |
| Software Version | 1.08 (27) |
| Software Product Name | DataLogger 6 |

## Data Source

| | |
|---|---|
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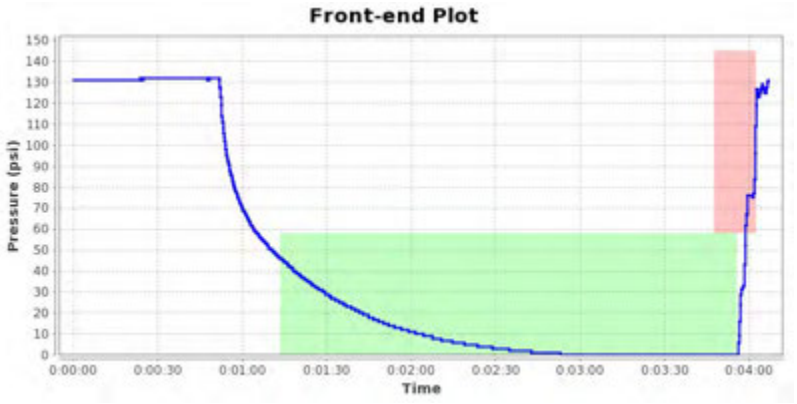


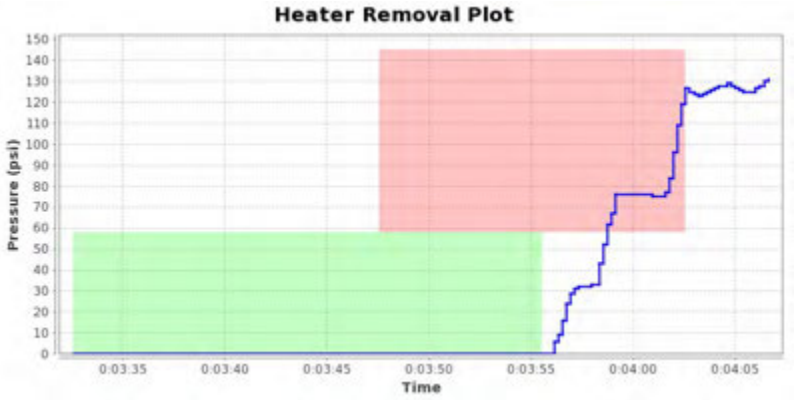





## Notes

Images for report: 1164573





Printed: 2018-10-14 16:24:00 UTC

# McElroy Joint Report

Reference Number 1164574

## Job Details

| | |
|---|---|
| Joint Number | 189 |
| Joint Time | 2018-09-02 15:18:39 GMT |
| Job | 1 |
| Operator | Rafel |
| Aborted Joint | No |

## Fusion Machine

| | |
|---|---|
| Machine Name | 618 HF |
| Machine Model | 618 HF |
| Piston Area | 11.78 in² |

## Pipe Specifications

| | |
|---|---|
| Pipe Material | PE4710 |
| Pipe Size | 6 " IPS |
| Wall Thickness | DR 11 |

## Pressures

| | | |
|---|---|---|
| Drag Pressure | 41 psi | |
| | Interfacial | Gauge |
| Bead Up | 75 psi | 114 psi |
| Heat Soak | 0 psi | 41 psi |
| Fuse/Cool | 75 psi | 114 psi |

## Fusion Specification

| | |
|---|---|
| Fusion Type | Butt Fusion |
| Fusion Specification | ASTM F2620 |
| Bead Time | 0 seconds |
| Bead Size | 3/16" |
| Heat/Soak Time | 162 seconds |
| Fuse Time | 397 seconds |
| Open/Close Time | 15 seconds |
| Cool Time | 0 seconds |

| | Minimum | Maximum |
|---|---|---|
| Bead Up | 99 psi | 128 psi |
| Heat Soak | 0 psi | 41 psi |
| Fuse | 99 psi | 128 psi |
| Cool | 0 psi | 0 psi |

## External Heater Temperatures

| | Side A | Side B |
|---|---|---|

## GPS Location

| Date | Latitude | Longitude |
|---|---|---|
| 2018-09-02 15:18:39.0 | 64°2'23.707800"N | 135°49'42.960600"W |

## Logged Data Summary

| | |
|---|---|
| Number of Data Points | 292 |
| Total Fusion Time | 801 seconds |
| Maximum Recorded Pressure | 115 psi |

## Device Information

| | |
|---|---|
| DataLogger Serial Number | RH803Z0550 |
| Sensor Serial Number | MDL6621 |
| Calibration Date | 2018-04-04 |
| Firmware Version | v6.0 |
| Software Version | 1.08 (27) |
| Software Product Name | DataLogger 6 |

## Data Source

| | |
|---|---|
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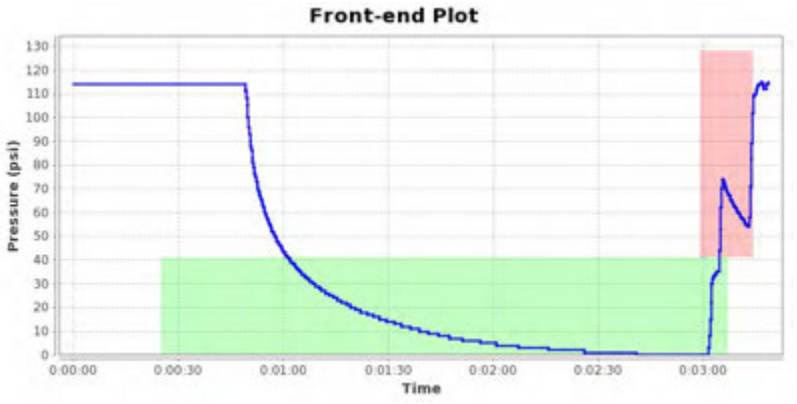


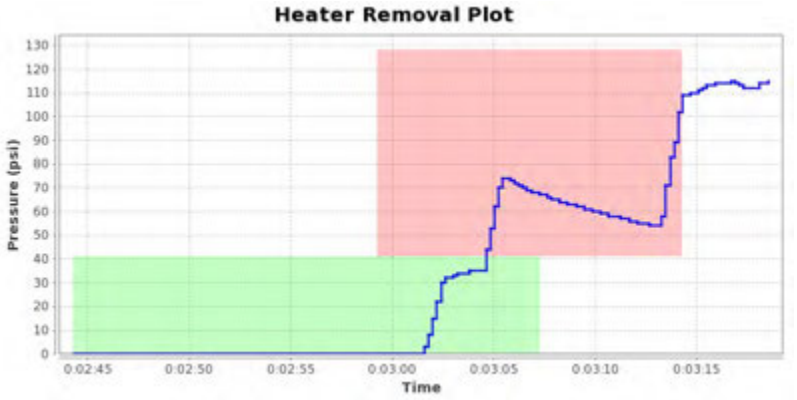


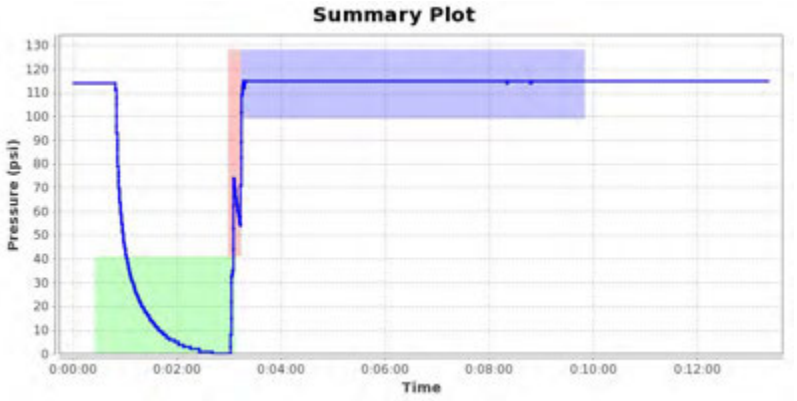


## Notes

Images for report: 1164574





Printed: 2018-10-14 16:23:59 UTC

# McElroy Joint Report

Reference Number 1164575

## Job Details

| | |
|---|---|
| Joint Number | 190 |
| Joint Time | 2018-09-02 15:48:50 GMT |
| Job | 1 |
| Operator | Rafel |
| Aborted Joint | No |

## Fusion Machine

| | |
|---|---|
| Machine Name | 618 HF |
| Machine Model | 618 HF |
| Piston Area | 11.78 in² |

## Pipe Specifications

| | |
|---|---|
| Pipe Material | PE4710 |
| Pipe Size | 6 " IPS |
| Wall Thickness | DR 11 |

## Pressures

| | | |
|---|---|---|
| Drag Pressure | 35 psi | |
| | Interfacial | Gauge |
| Bead Up | 75 psi | 108 psi |
| Heat Soak | 0 psi | 35 psi |
| Fuse/Cool | 75 psi | 108 psi |

## Fusion Specification

| | |
|---|---|
| Fusion Type | Butt Fusion |
| Fusion Specification | ASTM F2620 |
| Bead Time | 0 seconds |
| Bead Size | 3/16" |
| Heat/Soak Time | 162 seconds |
| Fuse Time | 397 seconds |
| Open/Close Time | 15 seconds |
| Cool Time | 0 seconds |

| | Minimum | Maximum |
|---|---|---|
| Bead Up | 93 psi | 122 psi |
| Heat Soak | 0 psi | 35 psi |
| Fuse | 93 psi | 122 psi |
| Cool | 0 psi | 0 psi |

## External Heater Temperatures

| | Side A | Side B |
|---|---|---|

## GPS Location

| Date | Latitude | Longitude |
|---|---|---|
| 2018-09-02 15:48:50.0 | 64°2'23.781000"N | 135°49'43.139400"W |

## Logged Data Summary

| | |
|---|---|
| Number of Data Points | 362 |
| Total Fusion Time | 852 seconds |
| Maximum Recorded Pressure | 109 psi |

## Device Information

| | |
|---|---|
| DataLogger Serial Number | RH803Z0550 |
| Sensor Serial Number | MDL6621 |
| Calibration Date | 2018-04-04 |
| Firmware Version | v6.0 |
| Software Version | 1.08 (27) |
| Software Product Name | DataLogger 6 |

## Data Source

| | |
|---|---|
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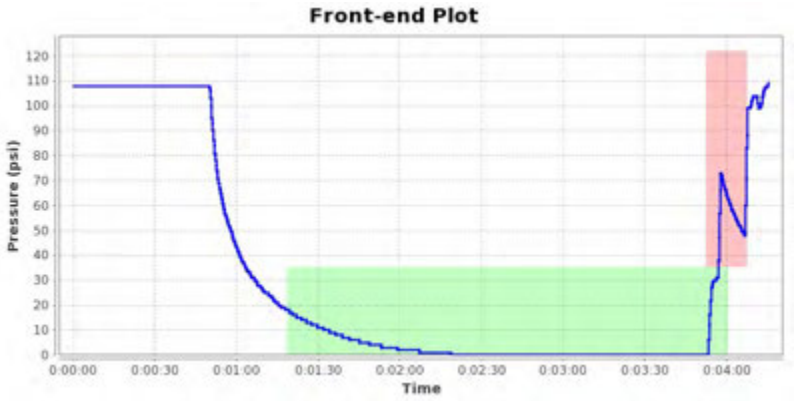
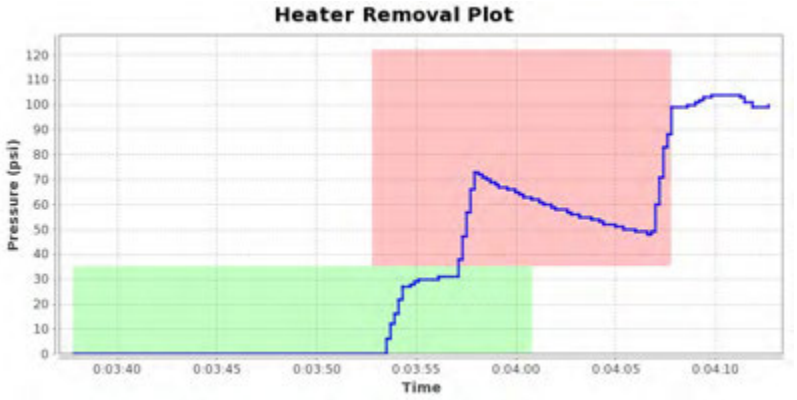
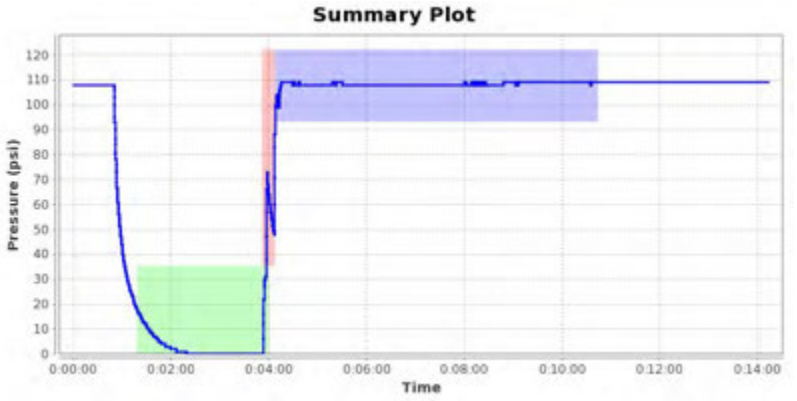



## Notes

Images for report: 1164575





Printed: 2018-10-14 16:23:58 UTC

# McElroy Joint Report

Reference Number 1164576

## Job Details

| | |
|---|---|
| Joint Number | 191 |
| Joint Time | 2018-09-07 14:43:37 GMT |
| Job | 1 |
| Operator | Rafel |
| Aborted Joint | No |

## Fusion Machine

| | |
|---|---|
| Machine Name | 618 HF |
| Machine Model | 618 HF |
| Piston Area | 11.78 in² |

## Pipe Specifications

| | |
|---|---|
| Pipe Material | PE4710 |
| Pipe Size | 6 " IPS |
| Wall Thickness | DR 11 |

## Pressures

| Drag Pressure | 35 psi | |
|---|---|---|
| | Interfacial | Gauge |
| Bead Up | 75 psi | 108 psi |
| Heat Soak | 0 psi | 35 psi |
| Fuse/Cool | 75 psi | 108 psi |

## Fusion Specification

| | |
|---|---|
| Fusion Type | Butt Fusion |
| Fusion Specification | ASTM F2620 |
| Bead Time | 0 seconds |
| Bead Size | 3/16" |
| Heat/Soak Time | 162 seconds |
| Fuse Time | 397 seconds |
| Open/Close Time | 15 seconds |
| Cool Time | 0 seconds |

| | Minimum | Maximum |
|---|---|---|
| Bead Up | 93 psi | 122 psi |
| Heat Soak | 0 psi | 35 psi |
| Fuse | 93 psi | 122 psi |
| Cool | 0 psi | 0 psi |

## External Heater Temperatures

| | Side A | Side B |
|---|---|---|

## GPS Location

| Date | Latitude | Longitude |
|---|---|---|
| 2018-09-07 14:43:37.0 | 64°2'24.595800"N | 135°49'42.400200"W |

## Logged Data Summary

| | |
|---|---|
| Number of Data Points | 448 |
| Total Fusion Time | 643 seconds |
| Maximum Recorded Pressure | 132 psi |

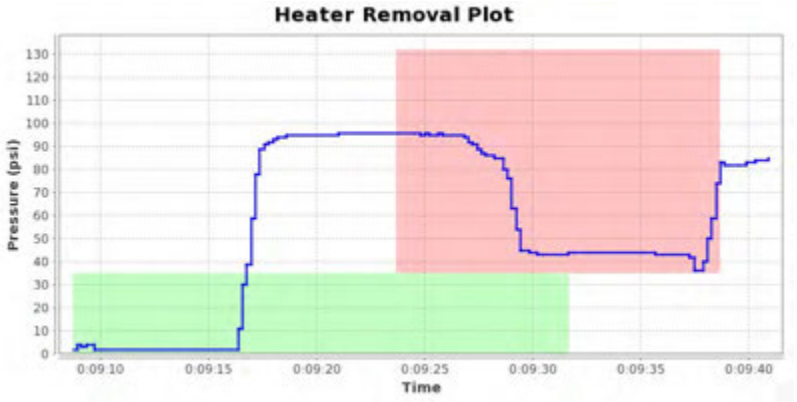
## Device Information

| | |
|---|---|
| DataLogger Serial Number | RH803Z0550 |
| Sensor Serial Number | MDL6621 |
| Calibration Date | 2018-04-04 |
| Firmware Version | v6.0 |
| Software Version | 1.08 (27) |
| Software Product Name | DataLogger 6 |

## Data Source

| | |
|---|---|
| Upload Time | 2018-10-14 16:20:08 GMT |







## Notes

Images for report: 1164576



Printed: 2018-10-14 16:23:56 UTC

# McElroy Joint Report

Reference Number 1164577

## Job Details

| | |
|---|---|
| Joint Number | 192 |
| Joint Time | 2018-09-07 15:35:05 GMT |
| Job | 1 |
| Operator | Rafel |
| Aborted Joint | No |

## Fusion Machine

| | |
|---|---|
| Machine Name | 618 HF |
| Machine Model | 618 HF |
| Piston Area | 11.78 in² |

## Pipe Specifications

| | |
|---|---|
| Pipe Material | PE4710 |
| Pipe Size | 6 " IPS |
| Wall Thickness | DR 11 |

## Pressures

| | | |
|---|---|---|
| Drag Pressure | 35 psi | |
| | Interfacial | Gauge |
| Bead Up | 75 psi | 108 psi |
| Heat Soak | 0 psi | 35 psi |
| Fuse/Cool | 75 psi | 108 psi |

## Fusion Specification

| | |
|---|---|
| Fusion Type | Butt Fusion |
| Fusion Specification | ASTM F2620 |
| Bead Time | 0 seconds |
| Bead Size | 3/16" |
| Heat/Soak Time | 162 seconds |
| Fuse Time | 397 seconds |
| Open/Close Time | 15 seconds |
| Cool Time | 0 seconds |

| | Minimum | Maximum |
|---|---|---|
| Bead Up | 93 psi | 122 psi |
| Heat Soak | 0 psi | 35 psi |
| Fuse | 93 psi | 122 psi |
| Cool | 0 psi | 0 psi |

## External Heater Temperatures

| | Side A | Side B |
|---|---|---|

## GPS Location

| Date | Latitude | Longitude |
|---|---|---|
| 2018-09-07 15:35:05.0 | 64°2'24.774000"N | 135°49'42.649800"W |

## Logged Data Summary

| | |
|---|---|
| Number of Data Points | 190 |
| Total Fusion Time | 904 seconds |
| Maximum Recorded Pressure | 84 psi |

## Device Information

| | |
|---|---|
| DataLogger Serial Number | RH803Z0550 |
| Sensor Serial Number | MDL6621 |
| Calibration Date | 2018-04-04 |
| Firmware Version | v6.0 |
| Software Version | 1.08 (27) |
| Software Product Name | DataLogger 6 |

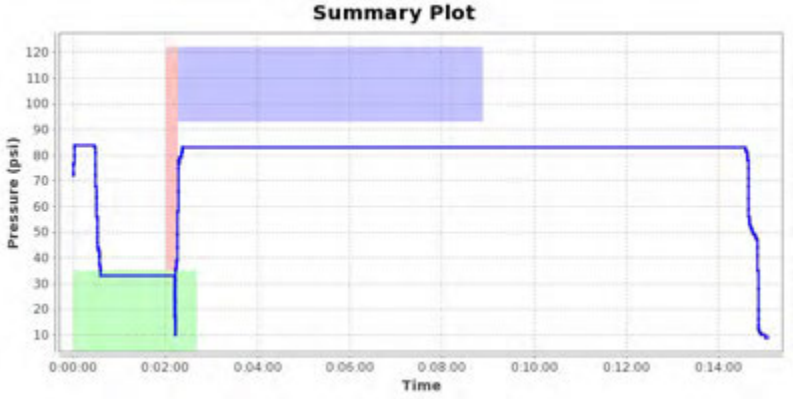
## Data Source

| | |
|---|---|
| Upload Time | 2018-10-14 16:20:25 GMT |










## Notes

Images for report: 1164577





Printed: 2018-10-14 16:23:55 UTC

# McElroy Joint Report

Reference Number 1164578

## Job Details

| | |
|---|---|
| Joint Number | 193 |
| Joint Time | 2018-09-07 18:13:05 GMT |
| Job | 1 |
| Operator | Rafel |
| Aborted Joint | No |

## Fusion Machine

| | |
|---|---|
| Machine Name | 618 HF |
| Machine Model | 618 HF |
| Piston Area | 11.78 in² |

## Pipe Specifications

| | |
|---|---|
| Pipe Material | PE4710 |
| Pipe Size | 6 " IPS |
| Wall Thickness | DR 11 |

## Pressures

| | | |
|---|---|---|
| Drag Pressure | 35 psi | |
| | Interfacial | Gauge |
| Bead Up | 75 psi | 108 psi |
| Heat Soak | 0 psi | 35 psi |
| Fuse/Cool | 75 psi | 108 psi |

## Fusion Specification

| | |
|---|---|
| Fusion Type | Butt Fusion |
| Fusion Specification | ASTM F2620 |
| Bead Time | 0 seconds |
| Bead Size | 3/16" |
| Heat/Soak Time | 162 seconds |
| Fuse Time | 397 seconds |
| Open/Close Time | 15 seconds |
| Cool Time | 0 seconds |

| | Minimum | Maximum |
|---|---|---|
| Bead Up | 93 psi | 122 psi |
| Heat Soak | 0 psi | 35 psi |
| Fuse | 93 psi | 122 psi |
| Cool | 0 psi | 0 psi |

## External Heater Temperatures

| | Side A | Side B |
|---|---|---|

## GPS Location

| Date | Latitude | Longitude |
|---|---|---|
| 2018-09-07 18:13:05.0 | 64°2'24.762000"N | 135°49'42.397800"W |

## Logged Data Summary

| | |
|---|---|
| Number of Data Points | 392 |
| Total Fusion Time | 1093 seconds |
| Maximum Recorded Pressure | 126 psi |

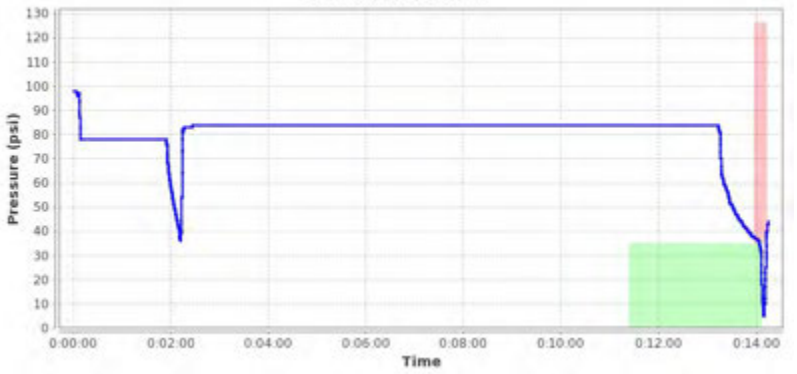
## Device Information

| | |
|---|---|
| DataLogger Serial Number | RH803Z0550 |
| Sensor Serial Number | MDL6621 |
| Calibration Date | 2018-04-04 |
| Firmware Version | v6.0 |
| Software Version | 1.08 (27) |
| Software Product Name | DataLogger 6 |

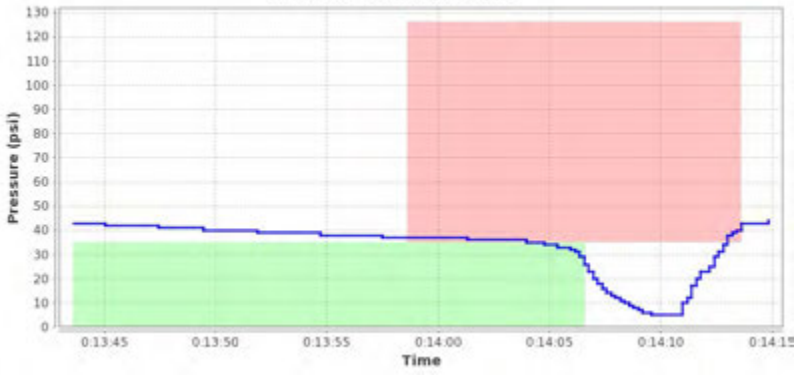
## Data Source

| | |
|---|---|
| Upload Time | 2018-10-14 16:20:29 GMT |

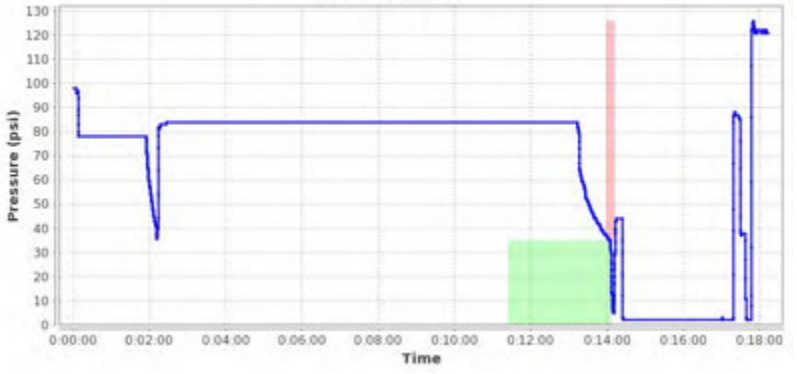
### Front-end Plot




### Heater Removal Plot




### Summary Plot




## Notes

Printed: 2018-10-14 16:23:54 UTC

# McElroy Joint Report

Reference Number 1164579

## Job Details

| | |
|---|---|
| Joint Number | 194 |
| Joint Time | 2018-09-08 08:45:30 GMT |
| Job | 1 |
| Operator | Rafel |
| Aborted Joint | No |

## Fusion Machine

| | |
|---|---|
| Machine Name | 618 HF |
| Machine Model | 618 HF |
| Piston Area | 11.78 in² |

## Pipe Specifications

| | |
|---|---|
| Pipe Material | PE4710 |
| Pipe Size | 6 " IPS |
| Wall Thickness | DR 11 |

## Pressures

| | | |
|---|---|---|
| Drag Pressure | 35 psi | |
| | Interfacial | Gauge |
| Bead Up | 75 psi | 108 psi |
| Heat Soak | 0 psi | 35 psi |
| Fuse/Cool | 75 psi | 108 psi |

## Fusion Specification

| | |
|---|---|
| Fusion Type | Butt Fusion |
| Fusion Specification | ASTM F2620 |
| Bead Time | 0 seconds |
| Bead Size | 3/16" |
| Heat/Soak Time | 162 seconds |
| Fuse Time | 397 seconds |
| Open/Close Time | 15 seconds |
| Cool Time | 0 seconds |

| | Minimum | Maximum |
|---|---|---|
| Bead Up | 93 psi | 122 psi |
| Heat Soak | 0 psi | 35 psi |
| Fuse | 93 psi | 122 psi |
| Cool | 0 psi | 0 psi |

## External Heater Temperatures

| | Side A | Side B |
|---|---|---|

## GPS Location

| Date | Latitude | Longitude |
|---|---|---|
| 2018-09-08 08:45:30.0 | 64°2'24.577200"N | 135°49'42.586200"W |

## Logged Data Summary

| | |
|---|---|
| Number of Data Points | 262 |
| Total Fusion Time | 1714 seconds |
| Maximum Recorded Pressure | 125 psi |

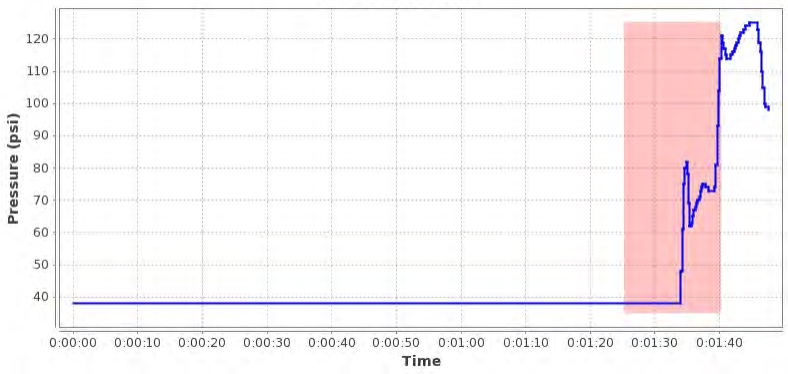
## Device Information

| | |
|---|---|
| DataLogger Serial Number | RH803Z0550 |
| Sensor Serial Number | MDL6621 |
| Calibration Date | 2018-04-04 |
| Firmware Version | v6.0 |
| Software Version | 1.08 (27) |
| Software Product Name | DataLogger 6 |

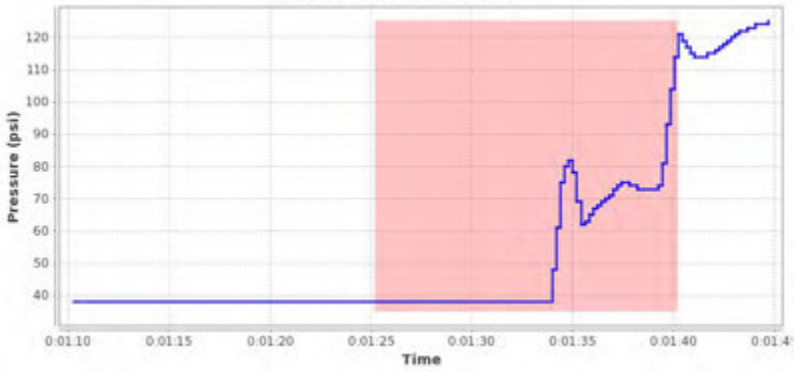
## Data Source

| | |
|---|---|
| Upload Time | 2018-10-14 16:20:35 GMT |

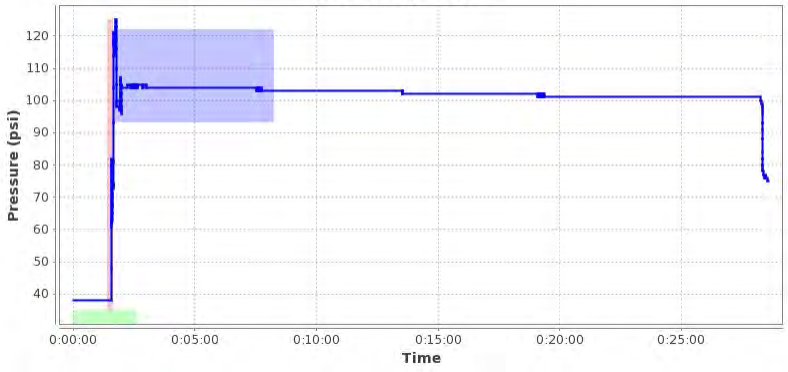
### Front-end Plot




### Heater Removal Plot




### Summary Plot




## Notes

Images for report: 1164579





Printed: 2018-10-14 16:23:53 UTC

# McElroy Joint Report

Reference Number 1164580

## Job Details

| | |
|---|---|
| Joint Number | 195 |
| Joint Time | 2018-09-11 15:36:35 GMT |
| Job | 1 |
| Operator | Rafel |
| Aborted Joint | No |

## Fusion Machine

| | |
|---|---|
| Machine Name | 618 HF |
| Machine Model | 618 HF |
| Piston Area | 11.78 in² |

## Pipe Specifications

| | |
|---|---|
| Pipe Material | PE4710 |
| Pipe Size | 6 " IPS |
| Wall Thickness | DR 11 |

## Pressures

| | | |
|---|---|---|
| Drag Pressure | 35 psi | |
| | Interfacial | Gauge |
| Bead Up | 75 psi | 108 psi |
| Heat Soak | 0 psi | 35 psi |
| Fuse/Cool | 75 psi | 108 psi |

## Fusion Specification

| | |
|---|---|
| Fusion Type | Butt Fusion |
| Fusion Specification | ASTM F2620 |
| Bead Time | 0 seconds |
| Bead Size | 3/16" |
| Heat/Soak Time | 162 seconds |
| Fuse Time | 397 seconds |
| Open/Close Time | 15 seconds |
| Cool Time | 0 seconds |

| | Minimum | Maximum |
|---|---|---|
| Bead Up | 93 psi | 122 psi |
| Heat Soak | 0 psi | 35 psi |
| Fuse | 93 psi | 122 psi |
| Cool | 0 psi | 0 psi |

## External Heater Temperatures

| | Side A | Side B |
|---|---|---|

## GPS Location

| Date | Latitude | Longitude |
|---|---|---|
| 2018-09-11 15:36:35.0 | 64°2'24.594000"N | 135°49'42.516600"W |

## Logged Data Summary

| | |
|---|---|
| Number of Data Points | 238 |
| Total Fusion Time | 1091 seconds |
| Maximum Recorded Pressure | 129 psi |

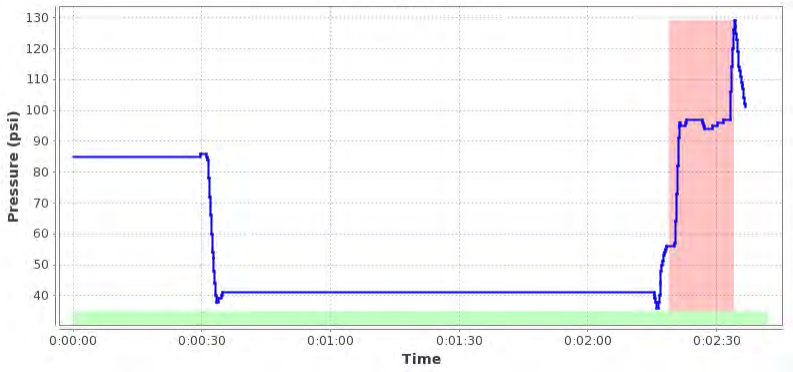
## Device Information

| | |
|---|---|
| DataLogger Serial Number | RH803Z0550 |
| Sensor Serial Number | MDL6621 |
| Calibration Date | 2018-04-04 |
| Firmware Version | v6.0 |
| Software Version | 1.08 (27) |
| Software Product Name | DataLogger 6 |

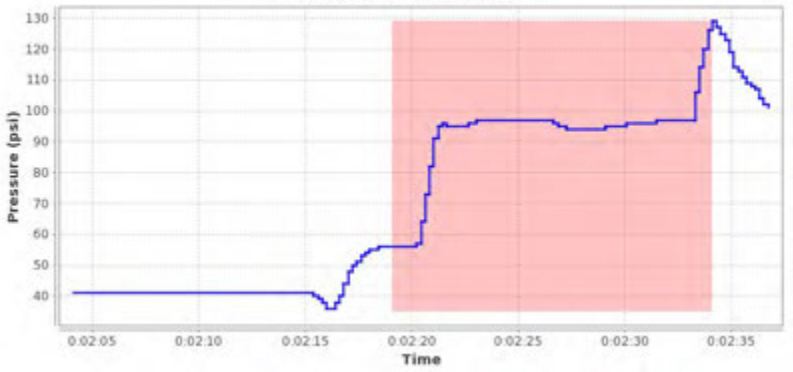
## Data Source

| | |
|---|---|
| Upload Time | 2018-10-14 16:20:42 GMT |

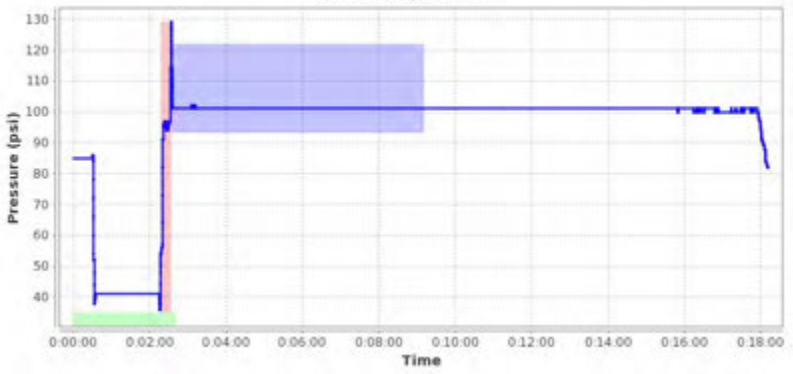
### Front-end Plot




### Heater Removal Plot




### Summary Plot




## Notes

Images for report: 1164580





Printed: 2018-10-14 16:23:52 UTC

# McElroy Joint Report

Reference Number 1164581

## Job Details

| | |
|---|---|
| Joint Number | 196 |
| Joint Time | 2018-09-11 17:05:36 GMT |
| Job | 1 |
| Operator | Rafel |
| Aborted Joint | No |

## Fusion Machine

| | |
|---|---|
| Machine Name | 618 HF |
| Machine Model | 618 HF |
| Piston Area | 11.78 in² |

## Pipe Specifications

| | |
|---|---|
| Pipe Material | PE4710 |
| Pipe Size | 6 " IPS |
| Wall Thickness | DR 11 |

## Pressures

| | | |
|---|---|---|
| Drag Pressure | 35 psi | |
| | Interfacial | Gauge |
| Bead Up | 75 psi | 108 psi |
| Heat Soak | 0 psi | 35 psi |
| Fuse/Cool | 75 psi | 108 psi |

## Fusion Specification

| | |
|---|---|
| Fusion Type | Butt Fusion |
| Fusion Specification | ASTM F2620 |
| Bead Time | 0 seconds |
| Bead Size | 3/16" |
| Heat/Soak Time | 162 seconds |
| Fuse Time | 397 seconds |
| Open/Close Time | 15 seconds |
| Cool Time | 0 seconds |

| | Minimum | Maximum |
|---|---|---|
| Bead Up | 93 psi | 122 psi |
| Heat Soak | 0 psi | 35 psi |
| Fuse | 93 psi | 122 psi |
| Cool | 0 psi | 0 psi |

## External Heater Temperatures

| | Side A | Side B |
|---|---|---|

## GPS Location

| Date | Latitude | Longitude |
|---|---|---|
| 2018-09-11 17:05:36.0 | 64°2'24.635400"N | 135°49'42.322800"W |

## Logged Data Summary

| | |
|---|---|
| Number of Data Points | 4 |
| Total Fusion Time | 1003 seconds |
| Maximum Recorded Pressure | 0 psi |

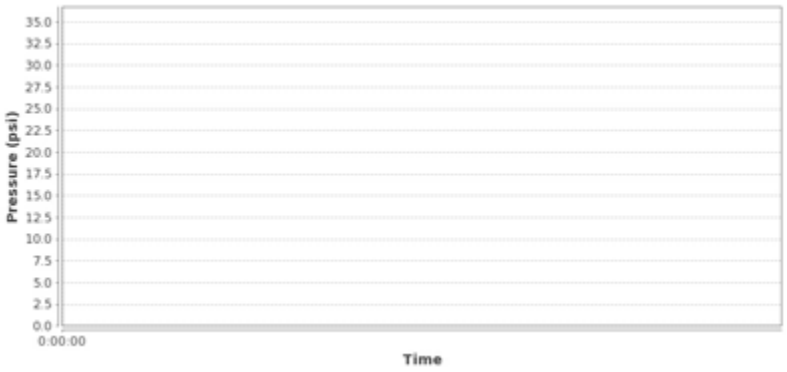
## Device Information

| | |
|---|---|
| DataLogger Serial Number | RH803Z0550 |
| Sensor Serial Number | MDL6621 |
| Calibration Date | 2018-04-04 |
| Firmware Version | v6.0 |
| Software Version | 1.08 (27) |
| Software Product Name | DataLogger 6 |

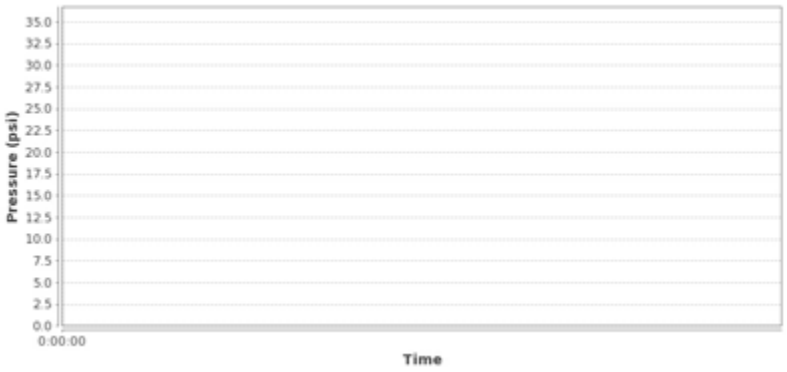
## Data Source

| | |
|---|---|
| Upload Time | 2018-10-14 16:20:47 GMT |

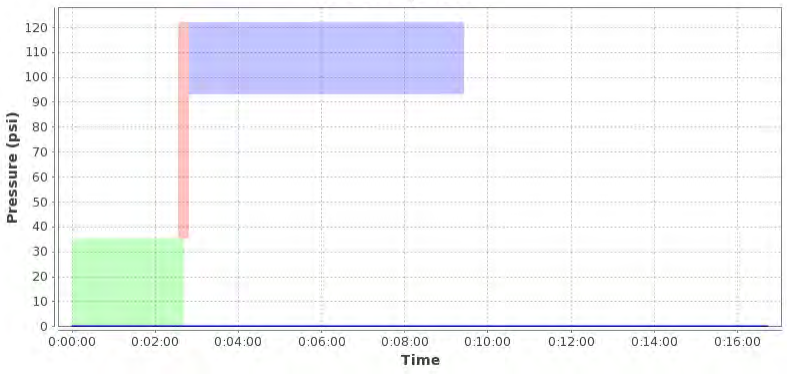
### Front-end Plot




### Heater Removal Plot




### Summary Plot




## Notes

Images for report: 1164581





Printed: 2018-10-14 16:23:51 UTC

# McElroy Joint Report

Reference Number 1164582

## Job Details

| | |
|---|---|
| Joint Number | 197 |
| Joint Time | 2018-09-11 18:24:54 GMT |
| Job | 1 |
| Operator | Rafel |
| Aborted Joint | No |

## Fusion Machine

| | |
|---|---|
| Machine Name | 618 HF |
| Machine Model | 618 HF |
| Piston Area | 11.78 in² |

## Pipe Specifications

| | |
|---|---|
| Pipe Material | PE4710 |
| Pipe Size | 6 " IPS |
| Wall Thickness | DR 11 |

## Pressures

| | | |
|---|---|---|
| Drag Pressure | 35 psi | |
| | Interfacial | Gauge |
| Bead Up | 75 psi | 108 psi |
| Heat Soak | 0 psi | 35 psi |
| Fuse/Cool | 75 psi | 108 psi |

## Fusion Specification

| | |
|---|---|
| Fusion Type | Butt Fusion |
| Fusion Specification | ASTM F2620 |
| Bead Time | 0 seconds |
| Bead Size | 3/16" |
| Heat/Soak Time | 162 seconds |
| Fuse Time | 397 seconds |
| Open/Close Time | 15 seconds |
| Cool Time | 0 seconds |

| | Minimum | Maximum |
|---|---|---|
| Bead Up | 93 psi | 122 psi |
| Heat Soak | 0 psi | 35 psi |
| Fuse | 93 psi | 122 psi |
| Cool | 0 psi | 0 psi |

## External Heater Temperatures

| | Side A | Side B |
|---|---|---|

## GPS Location

| Date | Latitude | Longitude |
|---|---|---|
| 2018-09-11 18:24:54.0 | 64°2'24.369000"N | 135°49'42.482400"W |

## Logged Data Summary

| | |
|---|---|
| Number of Data Points | 210 |
| Total Fusion Time | 1290 seconds |
| Maximum Recorded Pressure | 119 psi |

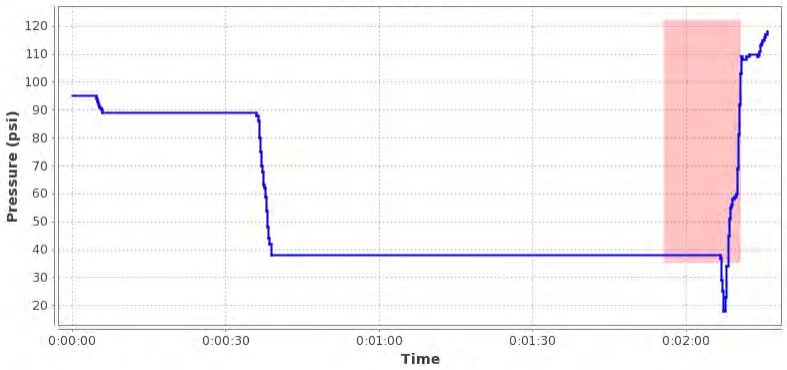
## Device Information

| | |
|---|---|
| DataLogger Serial Number | RH803Z0550 |
| Sensor Serial Number | MDL6621 |
| Calibration Date | 2018-04-04 |
| Firmware Version | v6.0 |
| Software Version | 1.08 (27) |
| Software Product Name | DataLogger 6 |

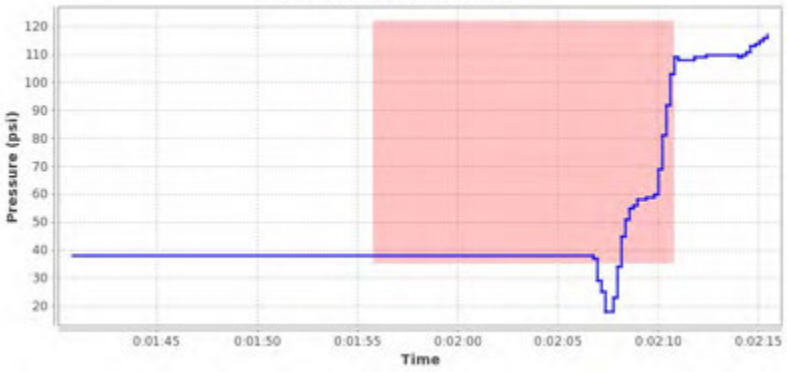
## Data Source

| | |
|---|---|
| Upload Time | 2018-10-14 16:20:51 GMT |

**Front-end Plot**




**Heater Removal Plot**




**Summary Plot**




## Notes

Images for report: 1164582





Printed: 2018-10-14 16:23:49 UTC

# McElroy Joint Report

Reference Number 1164583

## Job Details

| | |
|---|---|
| Joint Number | 198 |
| Joint Time | 2018-09-11 19:03:20 GMT |
| Job | 1 |
| Operator | Rafel |
| Aborted Joint | No |

## Fusion Machine

| | |
|---|---|
| Machine Name | 618 HF |
| Machine Model | 618 HF |
| Piston Area | 11.78 in² |

## Pipe Specifications

| | |
|---|---|
| Pipe Material | PE4710 |
| Pipe Size | 6 " IPS |
| Wall Thickness | DR 11 |

## Pressures

| | | |
|---|---|---|
| Drag Pressure | 35 psi | |
| | Interfacial | Gauge |
| Bead Up | 75 psi | 108 psi |
| Heat Soak | 0 psi | 35 psi |
| Fuse/Cool | 75 psi | 108 psi |

## Fusion Specification

| | |
|---|---|
| Fusion Type | Butt Fusion |
| Fusion Specification | ASTM F2620 |
| Bead Time | 0 seconds |
| Bead Size | 3/16" |
| Heat/Soak Time | 162 seconds |
| Fuse Time | 397 seconds |
| Open/Close Time | 15 seconds |
| Cool Time | 0 seconds |

| | Minimum | Maximum |
|---|---|---|
| Bead Up | 93 psi | 122 psi |
| Heat Soak | 0 psi | 35 psi |
| Fuse | 93 psi | 122 psi |
| Cool | 0 psi | 0 psi |

## External Heater Temperatures

| | Side A | Side B |
|---|---|---|

## GPS Location

| Date | Latitude | Longitude |
|---|---|---|
| 2018-09-11 19:03:20.0 | 64°2'24.382200"N | 135°49'42.361800"W |

## Logged Data Summary

| | |
|---|---|
| Number of Data Points | 288 |
| Total Fusion Time | 1363 seconds |
| Maximum Recorded Pressure | 109 psi |

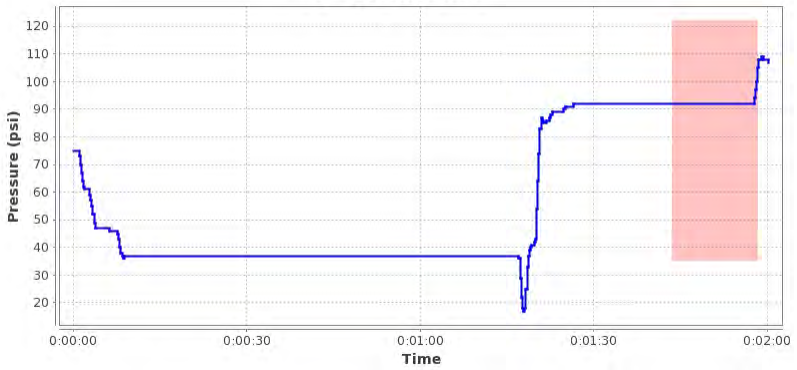
## Device Information

| | |
|---|---|
| DataLogger Serial Number | RH803Z0550 |
| Sensor Serial Number | MDL6621 |
| Calibration Date | 2018-04-04 |
| Firmware Version | v6.0 |
| Software Version | 1.08 (27) |
| Software Product Name | DataLogger 6 |

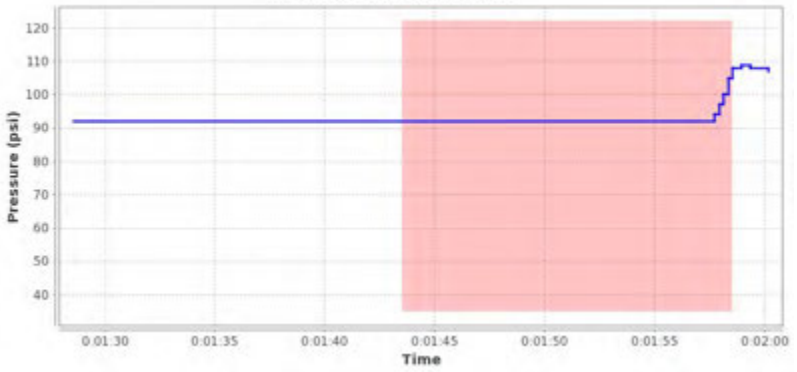
## Data Source

| | |
|---|---|
| Upload Time | 2018-10-14 16:21:00 GMT |

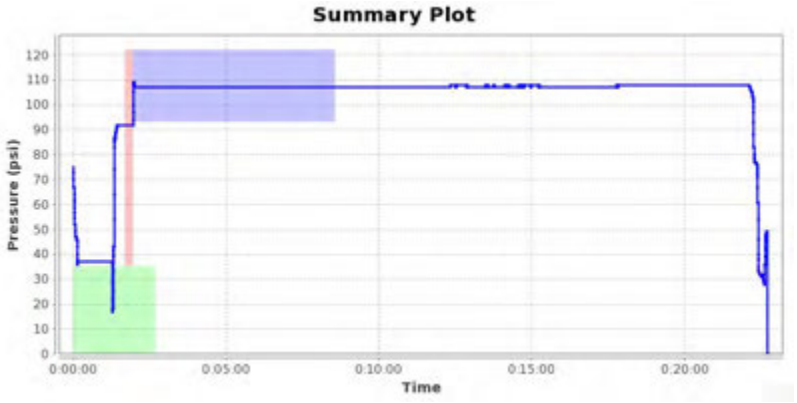
### Front-end Plot




### Heater Removal Plot




### Summary Plot




## Notes

Images for report: 1164583





Printed: 2018-10-14 16:23:48 UTC

# McElroy Joint Report

Reference Number 1164584

## Job Details

| | |
|---|---|
| Joint Number | 199 |
| Joint Time | 2018-09-11 19:29:34 GMT |
| Job | 1 |
| Operator | Rafel |
| Aborted Joint | No |

## Fusion Machine

| | |
|---|---|
| Machine Name | 618 HF |
| Machine Model | 618 HF |
| Piston Area | 11.78 in² |

## Pipe Specifications

| | |
|---|---|
| Pipe Material | PE4710 |
| Pipe Size | 6 " IPS |
| Wall Thickness | DR 11 |

## Pressures

| | | |
|---|---|---|
| Drag Pressure | 35 psi | |
| | Interfacial | Gauge |
| Bead Up | 75 psi | 108 psi |
| Heat Soak | 0 psi | 35 psi |
| Fuse/Cool | 75 psi | 108 psi |

## Fusion Specification

| | |
|---|---|
| Fusion Type | Butt Fusion |
| Fusion Specification | ASTM F2620 |
| Bead Time | 0 seconds |
| Bead Size | 3/16" |
| Heat/Soak Time | 162 seconds |
| Fuse Time | 397 seconds |
| Open/Close Time | 15 seconds |
| Cool Time | 0 seconds |

| | Minimum | Maximum |
|---|---|---|
| Bead Up | 93 psi | 122 psi |
| Heat Soak | 0 psi | 35 psi |
| Fuse | 93 psi | 122 psi |
| Cool | 0 psi | 0 psi |

## External Heater Temperatures

| | Side A | Side B |
|---|---|---|

## GPS Location

| Date | Latitude | Longitude |
|---|---|---|
| 2018-09-11 19:29:34.0 | 64°2'24.532800"N | 135°49'42.136200"W |

## Logged Data Summary

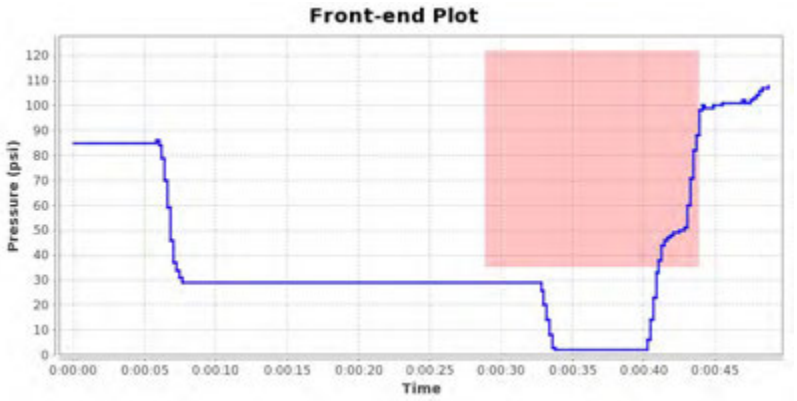
| | |
|---|---|
| Number of Data Points | 158 |
| Total Fusion Time | 1049 seconds |
| Maximum Recorded Pressure | 108 psi |

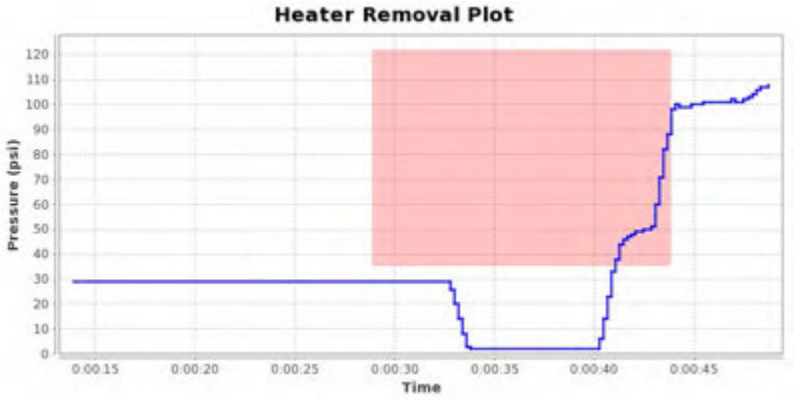
## Device Information

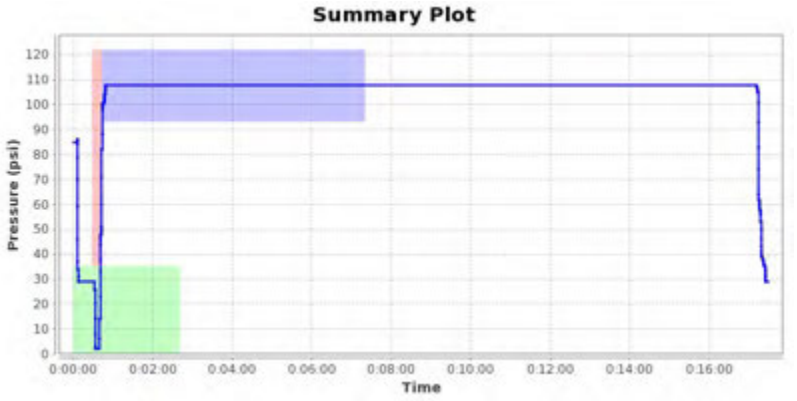
| | |
|---|---|
| DataLogger Serial Number | RH803Z0550 |
| Sensor Serial Number | MDL6621 |
| Calibration Date | 2018-04-04 |
| Firmware Version | v6.0 |
| Software Version | 1.08 (27) |
| Software Product Name | DataLogger 6 |

## Data Source

| | |
|---|---|
| Upload Time | 2018-10-14 16:21:08 GMT |




## Notes

Images for report: 1164584





Printed: 2018-10-14 16:23:47 UTC

# McElroy Joint Report

Reference Number 1164585

## Job Details

| | |
|---|---|
| Joint Number | 200 |
| Joint Time | 2018-09-11 20:41:32 GMT |
| Job | 1 |
| Operator | Rafel |
| Aborted Joint | No |

## Fusion Machine

| | |
|---|---|
| Machine Name | 618 HF |
| Machine Model | 618 HF |
| Piston Area | 11.78 in² |

## Pipe Specifications

| | |
|---|---|
| Pipe Material | PE4710 |
| Pipe Size | 6 " IPS |
| Wall Thickness | DR 11 |

## Pressures

| | | |
|---|---|---|
| Drag Pressure | 35 psi | |
| | Interfacial | Gauge |
| Bead Up | 75 psi | 108 psi |
| Heat Soak | 0 psi | 35 psi |
| Fuse/Cool | 75 psi | 108 psi |

## Fusion Specification

| | |
|---|---|
| Fusion Type | Butt Fusion |
| Fusion Specification | ASTM F2620 |
| Bead Time | 0 seconds |
| Bead Size | 3/16" |
| Heat/Soak Time | 162 seconds |
| Fuse Time | 397 seconds |
| Open/Close Time | 15 seconds |
| Cool Time | 0 seconds |

| | Minimum | Maximum |
|---|---|---|
| Bead Up | 93 psi | 122 psi |
| Heat Soak | 0 psi | 35 psi |
| Fuse | 93 psi | 122 psi |
| Cool | 0 psi | 0 psi |

## External Heater Temperatures

| | Side A | Side B |
|---|---|---|

## GPS Location

| Date | Latitude | Longitude |
|---|---|---|
| 2018-09-11 20:41:32.0 | 64°2'24.379800"N | 135°49'42.475800"W |

## Logged Data Summary

| | |
|---|---|
| Number of Data Points | 226 |
| Total Fusion Time | 2008 seconds |
| Maximum Recorded Pressure | 111 psi |

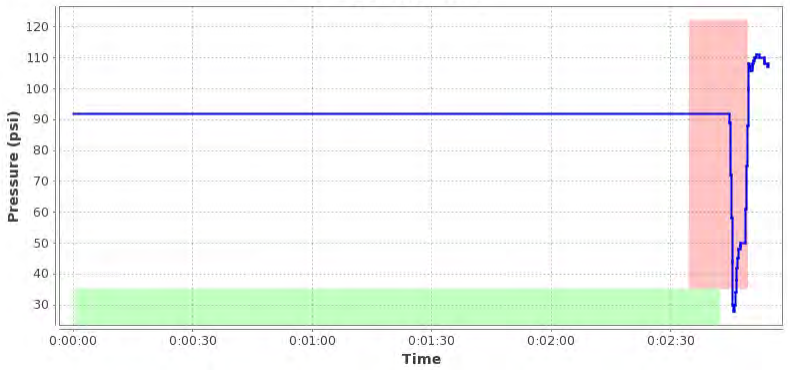
## Device Information

| | |
|---|---|
| DataLogger Serial Number | RH803Z0550 |
| Sensor Serial Number | MDL6621 |
| Calibration Date | 2018-04-04 |
| Firmware Version | v6.0 |
| Software Version | 1.08 (27) |
| Software Product Name | DataLogger 6 |

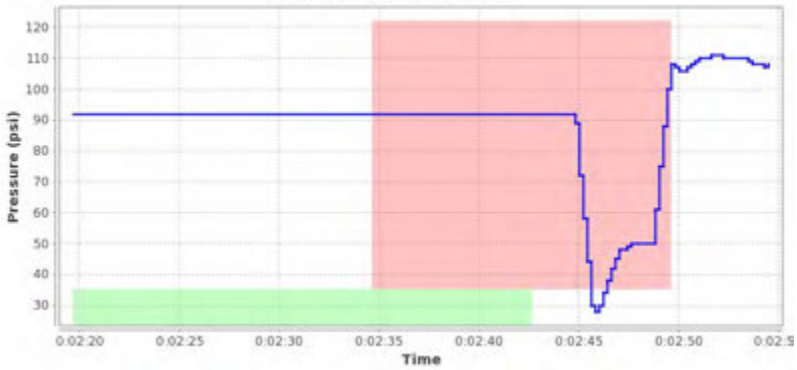
## Data Source

| | |
|---|---|
| Upload Time | 2018-10-14 16:21:13 GMT |

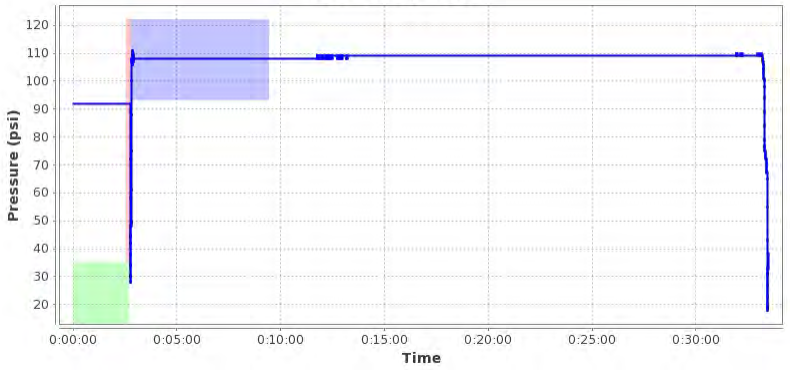
### Front-end Plot




### Heater Removal Plot




### Summary Plot




## Notes

Images for report: 1164585





Printed: 2018-10-14 16:23:45 UTC

# McElroy Joint Report

Reference Number 1164586

## Job Details

| | |
|---|---|
| Joint Number | 201 |
| Joint Time | 2018-09-12 17:55:03 GMT |
| Job | 1 |
| Operator | Rafel |
| Aborted Joint | No |

## Fusion Machine

| | |
|---|---|
| Machine Name | 618 HF |
| Machine Model | 618 HF |
| Piston Area | 11.78 in² |

## Pipe Specifications

| | |
|---|---|
| Pipe Material | PE4710 |
| Pipe Size | 6 " IPS |
| Wall Thickness | DR 11 |

## Pressures

| | | |
|---|---|---|
| Drag Pressure | 35 psi | |
| | Interfacial | Gauge |
| Bead Up | 75 psi | 108 psi |
| Heat Soak | 0 psi | 35 psi |
| Fuse/Cool | 75 psi | 108 psi |

## Fusion Specification

| | |
|---|---|
| Fusion Type | Butt Fusion |
| Fusion Specification | ASTM F2620 |
| Bead Time | 0 seconds |
| Bead Size | 3/16" |
| Heat/Soak Time | 162 seconds |
| Fuse Time | 397 seconds |
| Open/Close Time | 15 seconds |
| Cool Time | 0 seconds |

| | Minimum | Maximum |
|---|---|---|
| Bead Up | 93 psi | 122 psi |
| Heat Soak | 0 psi | 35 psi |
| Fuse | 93 psi | 122 psi |
| Cool | 0 psi | 0 psi |

## External Heater Temperatures

| | Side A | Side B |
|---|---|---|

## GPS Location

| Date | Latitude | Longitude |
|---|---|---|
| 2018-09-12 17:55:03.0 | 64°2'24.651600"N | 135°49'42.406200"W |

## Logged Data Summary

| | |
|---|---|
| Number of Data Points | 350 |
| Total Fusion Time | 927 seconds |
| Maximum Recorded Pressure | 133 psi |

## Device Information

| | |
|---|---|
| DataLogger Serial Number | RH803Z0550 |
| Sensor Serial Number | MDL6621 |
| Calibration Date | 2018-04-04 |
| Firmware Version | v6.0 |
| Software Version | 1.08 (27) |
| Software Product Name | DataLogger 6 |

## Data Source

| | |
|---|---|
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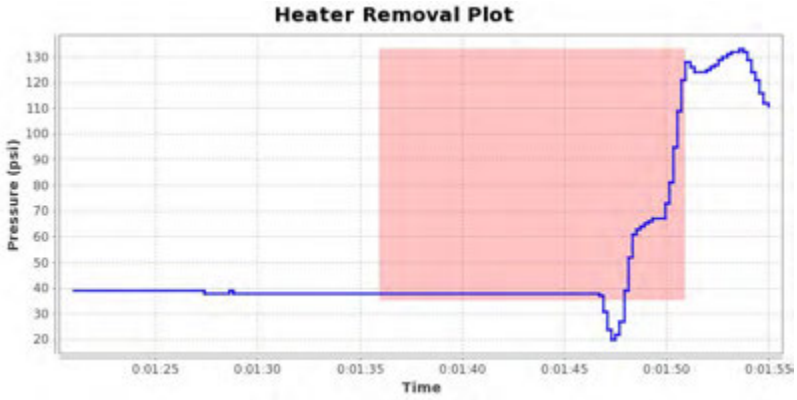
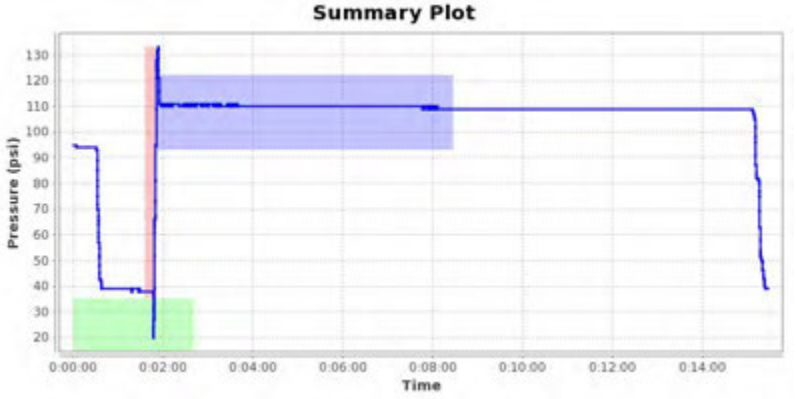



## Notes

Images for report: 1164586





Printed: 2018-10-14 16:23:44 UTC

# McElroy Joint Report

Reference Number 1164587

## Job Details

| | |
|---|---|
| Joint Number | 202 |
| Joint Time | 2018-09-14 14:31:43 GMT |
| Job | 1 |
| Operator | Rafel |
| Aborted Joint | No |

## Fusion Machine

| | |
|---|---|
| Machine Name | 618 HF |
| Machine Model | 618 HF |
| Piston Area | 11.78 in² |

## Pipe Specifications

| | |
|---|---|
| Pipe Material | PE4710 |
| Pipe Size | 6 " IPS |
| Wall Thickness | DR 11 |

## Pressures

| | | |
|---|---|---|
| Drag Pressure | 35 psi | |
| | Interfacial | Gauge |
| Bead Up | 75 psi | 108 psi |
| Heat Soak | 0 psi | 35 psi |
| Fuse/Cool | 75 psi | 108 psi |

## Fusion Specification

| | |
|---|---|
| Fusion Type | Butt Fusion |
| Fusion Specification | ASTM F2620 |
| Bead Time | 0 seconds |
| Bead Size | 3/16" |
| Heat/Soak Time | 162 seconds |
| Fuse Time | 397 seconds |
| Open/Close Time | 15 seconds |
| Cool Time | 0 seconds |

| | Minimum | Maximum |
|---|---|---|
| Bead Up | 93 psi | 122 psi |
| Heat Soak | 0 psi | 35 psi |
| Fuse | 93 psi | 122 psi |
| Cool | 0 psi | 0 psi |

## External Heater Temperatures

| | Side A | Side B |
|---|---|---|

## GPS Location

| Date | Latitude | Longitude |
|---|---|---|
| 2018-09-14 14:31:43.0 | 64°2'24.423000"N | 135°49'42.838800"W |

## Logged Data Summary

| | |
|---|---|
| Number of Data Points | 180 |
| Total Fusion Time | 564 seconds |
| Maximum Recorded Pressure | 108 psi |

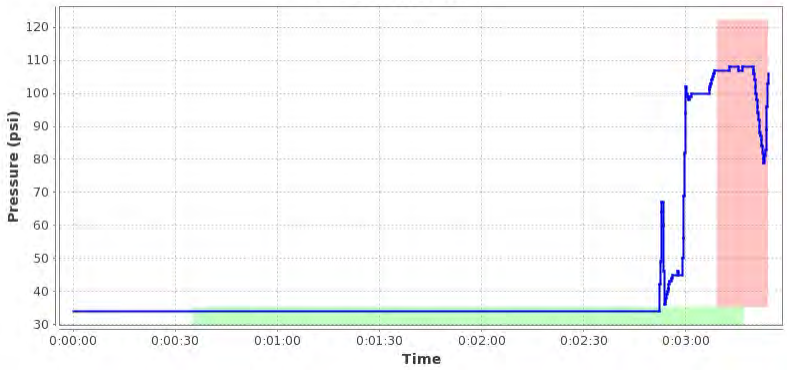
## Device Information

| | |
|---|---|
| DataLogger Serial Number | RH803Z0550 |
| Sensor Serial Number | MDL6621 |
| Calibration Date | 2018-04-04 |
| Firmware Version | v6.0 |
| Software Version | 1.08 (27) |
| Software Product Name | DataLogger 6 |

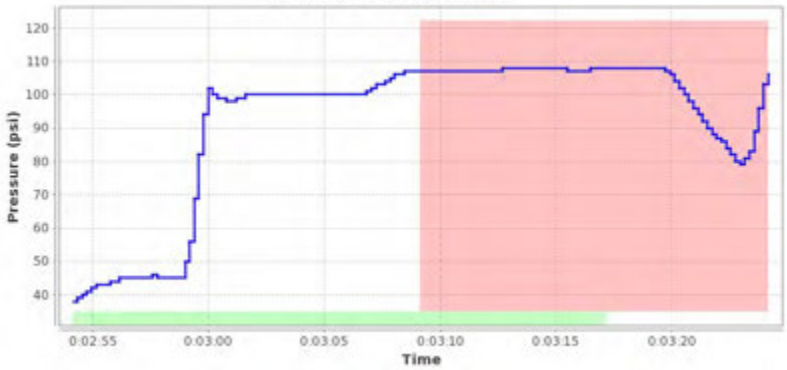
## Data Source

| | |
|---|---|
| Upload Time | 2018-10-14 16:21:24 GMT |

### Front-end Plot




### Heater Removal Plot



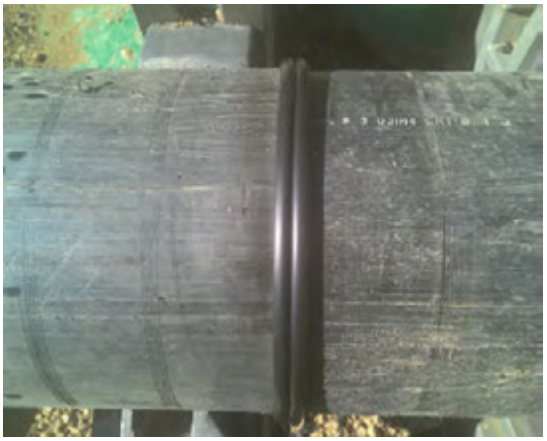

### Summary Plot




## Notes

Images for report: 1164587





# APPENDIX C

## Streamflow Monitoring Report - 2018 Update

Victoria GOLD CORP

# *Eagle Gold*
# *Streamflow Monitoring Report – 2018 Update*



**Project No. A445-2**
**12 March 2019**

LORAX ENVIRONMENTAL

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# 1. Introduction

Victoria
GOLD CORP

# 1. Introduction

## 1.1 Scope of Report

This report presents a summary of all baseline streamflow data collected for the Eagle Gold Project (Project) since August 2007, including hydrometric information summarized in previous reports (Jacques Whitford 2008; Stantec 2010; Stantec 2011; Stantec 2012; Knight Piésold 2013, Lorax 2017 and Lorax 2018).

An overview of the streamflow monitoring program is provided in Section 2. Methods for the measurement of streamflow and stage (both spot and continuous) are presented in Section 3, along with the approach used to develop the rating curves for each station, the paired stage-discharge measurements and associated rating curve error. Stage record corrections (*e.g.*, due to station relocation, frost jacking of the staff gauge, channel aggradation, *etc*.) are also presented.

In Section 4, streamflow data is presented in the following formats:

- Monthly tables showing average, maximum and minimum 15-minute discharge values ($m^3/s$);
- Monthly tables showing average discharge ($m^3/s$), average unit yields ($L/s/km^2$) and total runoff (mm);
- Time-series plots of continous average daily discharge ($m^3/s$) and spot flow measurements ($m^3/s$), and;
- Time series plots of average daily unit yields ($L/s/km^2$), by year.

## 1.2 Previous Reports

The streamflow data collected at the Eagle Gold Project site from 2007 up to and including 2012, has been previously summarized in the following reports:

- *Dublin Gulch Project – Climate and Hydrology Environmental Baseline Report* (2008), prepared by Jacques Whitford AXYS (Burnaby, BC) for Strata Gold Corp. (Vancouver, BC).
- *Eagle Gold Project, Environmental Baseline Report: Hydrology* (2010), prepared by Stantec (Burnaby, BC) for Victoria Gold Corp., February 2010.
- *Eagle Gold Project, Environmental Data Summary Report: Hydrology 2011 Update* (2011), prepared by Stantec (Burnaby, BC) for Victoria Gold Corp., June 2011.

- *Eagle Gold Project, Surface Water Balance Model Report* (2011), prepared by Stantec (Burnaby, BC) for Victoria Gold Corp., June 2011.
- *Eagle Gold Project, Environmental Baseline Data Report: Hydrology 2011 Update* (2012), prepared by Stantec (Burnaby, BC) for Victoria Gold Corp., June 2012.
- *Victoria Gold Corp., Eagle Gold Project – Hydrology Baseline Data Summary. VA101-290/6-10,* prepared by Knight Piésold Ltd. (Vancouver, BC) for Victoria Gold Corp., August 2013.
- *Victoria Gold Corp., Eagle Gold Project – Hydrology Baseline Report* (2017), prepared by Lorax Environmental Ltd. (Vancouver, BC) for Victoria Gold Corp., March 2017.
- *Victoria Gold Corp. Eagle Gold Project – Hydrometeorology Report.* A413-3, prepared by Lorax Environmental Services Ltd. (Vancouver, BC) for Victoria Gold Corp., March 2017.
- *Victoria Gold Corp., Eagle Gold Project – Hydrology Baseline Report* (2018), prepared by Lorax Environmental Ltd. (Vancouver, BC) for Victoria Gold Corp., March 2018.

## *1.3 Project Area Characteristics*

The majority of the Project site lies within the Dublin Gulch watershed, which is a second order tributary to the larger Haggart Creek watershed, which is a major tributary of the South McQuesten River. The South McQuesten River joins the Stewart River, which flows west to its eventual confluence with the Yukon River.

The hydrology of the region is characterized by a dominant snowmelt driven freshet signature, which typically occurs between early May and early June. The recession limb of the freshet tapers to a lower summer flow regime reflective of primarily groundwater, which is punctuated by periodic rainfall driven runoff events, typically one to four days in duration. Base flows are lowest in the winter and flow sub-ice; in the smaller creeks, groundwater is depleted and there is no flow under the ice.

In larger tributaries, groundwater discharge maintains limited amounts of streamflow below the ice throughout the winter (*i.e.*, November through end March). Aufeis (*i.e.*, groundwater that seeps and freezes onto- and adjacent to local watercourses) is present in several places throughout streams at the Project site, where sub-ice flow is not present. As with shelf ice in the streams, aufeis melts during the freshet, but may in some cases persist into the early summer.

Historical placer mining activities in the Project site streams have altered the natural channel conditions, and in some cases, have also altered the drainage areas of several sub-watersheds. More information is provided in Stantec (2012).

# 2. Streamflow Monitoring Program

Victoria GOLD CORP

# 2. Streamflow Monitoring Program

## 2.1 Data Sources

Data collection was originally undertaken by Hallam Knight Piésold (1993 to 1995), then a new program was initiated in 2007 by Jacques Whitford AXYS (now Stantec Consulting Ltd., or Stantec). Field support for this program has been provided by Laberge Environmental Services (Laberge), based out of Whitehorse since the inception of the program. All streamflow data collected at the Project site up to the end of 2017 has been previously summarized in the reports per Section 1.2.

Laberge continues to participate in the field program, conducting regular field visits with Victoria Gold staff in all seasons. Initial QA/QC of the streamflow data collected in 2018 and associated development and updates of rating curves were undertaken by Lorax Environmental. At the time report preparation, there are ten continuously recording hydrometric stations operating at the Project site. Of these, continuous data for nine stations are presented in this report. The tenth station, W45, has a water level record for 2018, but as it does not have a preliminary rating curve at this time, a continuous discharge record has not been developed.

## 2.2 Project Site Hydrometric Stations

The number of continuously recording hydrometric stations has varied over the period of record, but the eight of the nine stations presented in this report update have the most complete records (the ninth, W21, was installed in 2018). These stations and the associated metadata are presented in Table 2-1 and shown in Figure 2-1.

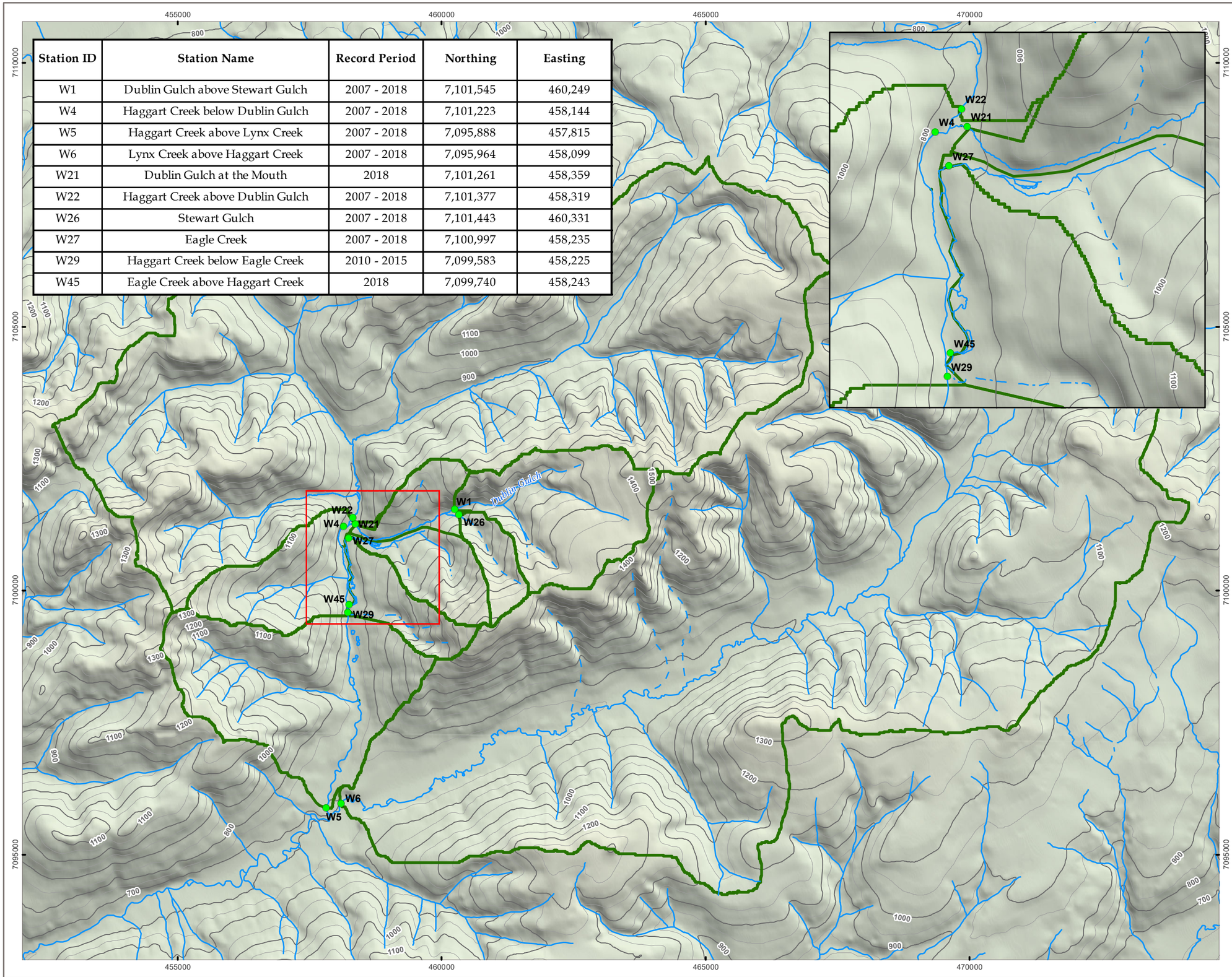
Additional manual streamflow measurements have been collected (often concurrently with water quality samples) at an additional 20 locations at the Project site. Previously collected continuous streamflow records for the Eagle Creek Pond (WECP), W13, W20 and W31 stations span shorter durations (1 to 3 years), and are presented in previous reports.

## Table 2-1:
## Eagle Gold Project hydrometric stations

| Station ID | Station Name | Record Period | Northing | Easting | Drainage Area ($km^2$) | Median Basin Elevation (m) | Notes |
|---|---|---|---|---|---|---|---|
| W1 | Dublin Gulch above Stewart Gulch | 2007 – 2018 | 7,101,545 | 460,249 | 6.8 | 1,303 | Continuous discharge time-series |
| W4 | Haggart Creek below Dublin Gulch | 2007 – 2018 | 7,101,223 | 458,144 | 76.9 | 1,125 | Continuous discharge time-series |
| W5 | Haggart Creek above Lynx Creek | 2007 – 2018 | 7,095,888 | 457,815 | 97.5 | 1,091 | Continuous discharge time-series |
| W6 | Lynx Creek above Haggart Creek | 2007 – 2018 | 7,095,964 | 458,099 | 100.9 | 1,049 | Continuous discharge time-series |
| W21 | Dublin Gulch near the Mouth | 2018 | 7,101,261 | 458,359 | 10.1 | 1,216 | Continuous discharge time-series |
| W22 | Haggart Creek above Dublin Gulch | 2007 – 2018 | 7,101,377 | 458,319 | 66.8 | 1,113 | Continuous discharge time-series |
| W26 | Stewart Gulch | 2007 – 2018 | 7,101,443 | 460,331 | 1.3 | 1,183 | Continuous discharge time-series, manual data only for 2007 - 2009, 2011. |
| W27 | Eagle Creek near Camp | 2007 – 2018 | 7,100,997 | 458,235 | 2.7 | 1,037 | Continuous discharge time-series, manual data only for 2007 |
| W29[2] | Haggart Creek below Eagle Creek | 2010 - 2015 | 7,099,583 | 458,225 | 86.1 | 1,112 | Manual measurements for 2010, continuous data thereafter |
| W45 | Eagle Creek at mouth | 2018 | 7,099,740 | 458,243 | 5.0 | 1,018 | Continuous discharge time-series |

**Notes:**
1. Source of UTM co-ordinates, drainage area and median basin elevation (Knight-Piésold, 2013).
2. No continuous water level data are available for this station for 2016-2018. See Section 2.2.3 for details.

| Station ID | Station Name | Record Period | Northing | Easting |
|---|---|---|---|---|
| W1 | Dublin Gulch above Stewart Gulch | 2007 - 2018 | 7,101,545 | 460,249 |
| W4 | Haggart Creek below Dublin Gulch | 2007 - 2018 | 7,101,223 | 458,144 |
| W5 | Haggart Creek above Lynx Creek | 2007 - 2018 | 7,095,888 | 457,815 |
| W6 | Lynx Creek above Haggart Creek | 2007 - 2018 | 7,095,964 | 458,099 |
| W21 | Dublin Gulch at the Mouth | 2018 | 7,101,261 | 458,359 |
| W22 | Haggart Creek above Dublin Gulch | 2007 - 2018 | 7,101,377 | 458,319 |
| W26 | Stewart Gulch | 2007 - 2018 | 7,101,443 | 460,331 |
| W27 | Eagle Creek | 2007 - 2018 | 7,100,997 | 458,235 |
| W29 | Haggart Creek below Eagle Creek | 2010 - 2015 | 7,099,583 | 458,225 |
| W45 | Eagle Creek above Haggart Creek | 2018 | 7,099,740 | 458,243 |




## LEGEND

- Hydrometric Station
- Watershed Boundary
- Watercourse
- Waterbody
- Contour (100m)
- Contour (50m)

**NOTES**
Base data source:

**STATUS**
FOR INTERNAL USE ONLY

# EAGLE GOLD PROJECT
# YUKON TERRITORY

## Hydrometric Station Network

| PROJECTION | DATUM | CLIENT |
|---|---|---|
| Transverse Mercator UTM Zone 8 | NAD83 | Victoria GOLD CORP |

Scale: 1:70,000
1,300 650 0
Metres

FILE NO.

| PROJECT | DWN | CKD | APVD | REV |
|---|---|---|---|---|
| Eagle Gold | GM | SJ | DHF | 1 |

OFFICE: DATE: March 12, 2019

LORAX ENVIRONMENTAL

**Figure 1**

Path: P:\@Drafting\Eagle Gold\Drafting Figures\MXD\Hydrometric Stations_20161125.mxd

### 2.2.1 Hydrometric Station Summary

A brief summary of the hydrometric network history is provided below. Further details are available in the previous baseline reports listed in Section 1.2.

W1

- Installed in 2007 with a continuous water level recorder, staff guage, and stilling well and survey benchmarks
- Transducer malfunctions in 2013 and 2014 resulted in loss of data
- Bed can be unstable at high flows; channel condition reflects historical placer mining activity

W4

- Installed in 2007 with a continuous water level recorder, staff guage, and stilling well and survey benchmarks
- Datalogger failure resulted in no continuous water level data for 2016

W5

- Installed in 2007 with a continuous water level recorder, staff guage, and stilling well and survey benchmarks
- Staff gauge was knocked over in the 2013 freshet and repaired in July 2013

W6

- Installed in 2007 with a continuous water level recorder, staff guage, and stilling well and survey benchmarks
- A portion of the 2014 record is influenced by a beaver dam located downstream of the control section – influence is minimal and it was possible to correct for the artificially elevated stage.

W21

- A staff gauge, stilling well and water level logger were installed on June 13, 2018.
- Four paired staff gauge:discharge measurements are available for this site, therefore the rating curve and estimated discharges are considered preliminary.

W22

- Installed in 2007 with a continuous water level recorder, staff guage, and stilling well and survey benchmarks

- No data was available for 2011 due to a pressure transducer malfunction. The water level record estimated by Stantec was carried forward in this report.
- Staff gauge was knocked over in the 2013 freshet and repaired in July 2013

W26

- Manual measurements from 2007 to 2009, instrumented with a continuous water level recorder, staff guage, and stilling well and survey benchmarks in 2009.
- V-notch weir installed in 2009, and replaced with a Parshall flume in August 2011
- Technical issues with datalogger installation in 2011 resulted in loss of continous data – only manual measurements are available for this year.

W27

- Installed in 2007 with a continuous water level recorder, staff guage, and stilling well and survey benchmarks however data is not reported due to apparent sedimentation in the stilling well resulting in a continuously rising water level
- V-notch weir installed in 2009, and replaced with a Parshall flume in August 2011
- Malfunction of pressure transducer in August 2015 resulted in loss of data for remainder of this year

W29

- Manual measurements in 2010, instrumented with a continuous water level recorder, staff guage, and stilling well and survey benchmarks in 2011
- Station was destroyed in the 2013 freshet, and a replacement pressure transducer was deployed on an anchor in the streambed just upstream; water levels were surveyed at the old location and the temporary installation to determine the required offset. A new stilling well was installed in July 2015 at the original gauge location.
- Datalogger malfunctions and channel stability issues, including frost jacking of the stilling well resulted in the loss of continuous water level data for 2016 through 2018.

W45

- A staff gauge, stilling well and water level logger were installed on June 13, 2018
- Five paired staff gauge:discharge measurements are available for this site, therefore the rating curve and estimated discharges are considered preliminary.
- Culverts were installed near this station in 2018 shortly after installation, significantly altering the stage:discharge relationship. As a result, this station will

need to be relocated to a more stable location in 2019, and may require the installation of a flume.

The stations that were re-established in 2016 at Bawnboy Gulch upstream of Caskallen (W20) and Olive Gulch upstream of Dublin Gulch (W31) have water level records for 2016 and 2017, but these were not continued in 2018. Further, neither station has sufficient manual flow and stage measurements with which to develop rating curves, and thus continuous records of discharge for 2016 or 2017.

Spot manual measurements of flow were made once in 2017 and once in 2018 at W39 (Haggart Creek above South McQuesten River) and W49 (South McQuesten River below Haggart Creek). These measurements are not presented in this report but will be presented once the datasets are larger.

### 2.2.2 Manual Discharge Measurements

Over time, manual discharge measurements have been conducted using the following methods:

- Velocity area techniques using a current meter;
- Salt dilution;
- Calibrated V-notch weir;
- Calibrated Parshall flume;
- Bucket/Bag and stopwatch, and;
- Float-area method.

The majority of the manual discharge measurements were conducted using the velocity-area method, with approximately one quarter made using the salt dilution technique. Most winter measurements were made while ice encroached on the channel, and therefore salt dilution was the preferred method for winter flow measurements. Typically, one discharge measurement was made at each visit.

### 2.2.3 Stage Measurements and Corrections

All stations were instrumented with metric staff gauges, mounted to vertical angle iron in the stream channel, and regularly surveyed to nearby benchmarks. Continuously recording HOBO pressure transducers were installed in stilling wells and set to record water level every 15 minutes. These readings were corrected for fluctuations in barometric pressure in a post-processing step. During each site visit, the water level was noted on the staff gauge. These readings formed the basis for the continuous water level records, which were

adjusted to match the manual stage readings. Regular surveys were conducted to determine the staff gauge zero datum and water level, and these measurements were used to correct the station records for changes due to shifts in the channel bed (*i.e.*, aggradation or scour), frost-jacking or station relocation following a high-magnitude flood event.

At each station, an annual offset was developed to bring the staff gauge measurements into line with the reference datum from the 2012 benchmark surveys. W27 was the exception, as no survey information was available for 2012, so 2009 was used as the benchmark reference year for this station following Knight Piésold (2013). In this way, the reference datum at each station was kept consistent for the duration of the record period, regardless of station location or streambed conditions.

No notable issues were encountered with the stage records in 2018, with the exception of W29, where the datalogger failed. There are now three consecutive years with no continuous water level, as channel instability led to the rejection of the 2016 water level record, and in June 2017, the stilling well frost jacked completely out of the streambed. This station is located in a highly mobile channel that has not reached equilibrium yet, following historical placer mining disturbances, and is therefore challenging to gauge. This station will be re-installed in 2019.

# 3. Streamflow Record Development

Victoria
GOLD CORP

# 3. Streamflow Record Development

## 3.1 General Approach

To develop continuous time-series of discharge for the Project streams, spot measurements of stage and discharge are combined with continuous water level records collected by the pressure transducers. Mathematical relationships are derived to describe the relationship between water level and discharge, and then applied to the continuous water level records to estimate discharge. By convention, assembled stage and discharge relationships are commonly referred to as rating curves, where the relationship between stage and discharge are unique and specific to each monitoring station.

## 3.2 Rating Curve Development

Adjustments for stage (Section 2.2.3) were made prior to the assembly of rating curves. Winter spot flow measurements provided information on the magnitude of winter discharge, but due to ice effects and greater measurement uncertainty for both stage and discharge, these measurements were not employed in the rating curve development process.

Rating curves were developed using the standard rating equation, and the coefficient, offset and exponent were selected to conform to hydraulic theory (*e.g.*, Maidment, 1993) and the stream channel properties.

$$Q = C(h - a)^n$$

Where:

$Q$ = discharge ($m^3/s$)

$C$ = coefficient (function of channel geometry)

$h$ = stage (m)

$a$ = stage at point of zero flow, offset (m)

$n$ = exponent (function of channel geometry)

The term $C$ is usually 0.5 to 2.5 times the channel width at the control section, and $n$ is often between 1.6 and 3 for moderate gradient streams. The BC RISC standards (RISC, 2009) state that ideally, a rating curve will be based on a minimum of 10 stage-discharge measurements. Given the long duration of monitoring activities at the Project site, all stations meet these guiding criteria, with the exception of W21 and W45. These stations were installed in 2018, and due to the limited record durations, the rating curves are based

on four and five paired measurements, respectively, and thus are considered preliminary. Survey benchmarks are installed at both stations, and future measurements of level and discharge will be used to refine the rating curves, at which point the preliminary discharge records computed for 2018 will be updated.

## *3.3 Rating Curve Error*

The overall quality of the discharge record can be assessed by reviewing the average and standard errors calculated from the differences between the measured discharges, and those estimated from the rating equation. A positive rating curve error is defined where the discharge calculated from the rating curve overestimates the value when compared to the measured discharge, and vice-versa for a negative error.

A summary of the error metrics for all stations is presented in Table 3-1, with reporting for each station in Table 3-2 through Table 3-10. Table 3-1 also reports rating curve control percentages by monitoring station. These values indicate the percent of time that a continuously recorded observation (15-minute intervals) falls between the highest and lowest manually recorded measurements for each monitoring station. For example, at the W6 station, 96% of the 15-minute water level measurements are lower than the highest recorded manual stage measurement. Therefore, the measurements used in the rating curve development are able to represent 96% of the entire continuous water level record, and only 4% of the continuous discharge data derived from the rating curve are based on an extrapolation beyond the highest manually recorded stage-discharge measurement.

Additional manual measurements made at other stations throughout the duration of the streamflow monitoring program, for which rating curves and continuous discharge time-series have not been developed, are presented in Table 3-11 through Table 3-15.

Overall, the rating curves provide reasonable estimates of discharge across a wide range of flows at most of the Project stations. The rating curve errors presented in Table 3-1 indicate that the average errors are relatively low, ranging from -5% to 2%. The standard error, or the degree of variability about the average error values varies more between stations, from a high of 25% for station W1, to a low of 10% for stations W6 and W29. Note that as the W21 curve is currently comprised of only four paired stage:discharge measurements, this curve, and all data reported for W21 in 2018 are considered preliminary and subject to change.

Rating curves for the site hydrometric stations are presented in Figure 3-1 through Figure 3-7, covering the 2012 to 2017 period. For the 2017 update, the rating equations were compared to those previously developed for each station to ensure that the coefficients and exponents were consistent through time. After examining the 2018 data, no further

updates to the rating curves developed in 2017 were necessary, and the same curves were applied to the 2018 continuous water level data. Note that because stations W26 and W27 are instrumented with Parshall flumes, rating curves were not developed for these stations.

**Table 3-1:**
**Rating curve error metric summary for Eagle Gold Project site hydrometric stations**

| Station | Measurements (n) | Average Error (%) | Standard Error (%) | Rating Curve Control |
|---|---|---|---|---|
| W1 | 36 | -5% | 25% | 98% |
| W4 | 41 | -1% | 14% | 98% |
| W5 | 35 | 2% | 12% | 97% |
| W6 | 31 | -1% | 10% | 96% |
| W21 | 4 | 0% | 7% | 79% |
| W22 | 35 | 0% | 16% | 100% |
| W26 | 26 | -- | -- | 100% |
| W27 | 47 | -- | -- | 100% |
| W29 | 18 | -2% | 10% | 95% |
| **Average** | 34 | -1% | 14% | 97% |

**Notes:**
1. Stations W26 and W27 currently have Parshall flumes installed, and therefore rating curves have not been developed for these sites as part of this baseline streamflow update.

## Table 3-2:
## Station W1 – Discharge Measurement Summary

| Date | Method | Stage (m) | Discharge ($m^3/s$) | Rating Curve Discharge ($m^3/s$) | Rating Curve Error (%) | Comments |
|---|---|---|---|---|---|---|
| 2007-08-14 | - | 3.5 | 0.059 | 0.059 | 0% | |
| 2007-08-29 | - | 3.494 | 0.062 | 0.055 | -12% | |
| 2007-09-12 | - | 3.513 | 0.063 | 0.068 | 8% | |
| 2007-09-26 | - | 3.532 | 0.092 | 0.084 | -9% | |
| 2007-10-19 | - | 3.514 | 0.047 | 0.069 | - | Stage affected by snow in channel |
| 2007-11-20 | Salt Dilution | | 0.04 | - | - | Stage measurement not available |
| 2008-04-25 | Salt Dilution | | 0.015 | - | - | Stage measurement not available |
| 2008-06-09 | - | | 0.072 | - | - | Stage measurement not available |
| 2008-08-12 | - | 3.614 | 0.177 | 0.175 | -1% | Average of 2 measurements |
| 2008-10-20 | - | 3.594 | 0.097 | 0.148 | - | Stage affected by snow in channel |
| 2009-07-19 | Current Meter | 3.467 | 0.045 | 0.039 | -14% | |
| 2009-07-26 | - | 3.454 | 0.032 | 0.032 | 1% | |
| 2009-08-09 | - | 3.443 | 0.025 | 0.028 | 10% | |
| 2009-08-20 | - | 3.438 | 0.044 | 0.025 | -42% | |
| 2009-09-01 | Current Meter | 3.459 | 0.074 | 0.035 | -53% | |
| 2009-10-07 | Current Meter | 3.447 | 0.055 | 0.029 | -47% | |
| 2009-10-21 | - | 3.455 | 0.036 | 0.033 | -9% | |
| 2010-03-31 | Salt Dilution | | 0.021 | - | - | Stage measurement not available |
| 2010-05-04 | - | 3.520 | 0.055 | 0.074 | - | Stage affected by snow in channel |
| 2010-06-01 | - | 3.597 | 0.143 | 0.152 | 6% | |
| 2010-06-15 | - | 3.558 | 0.113 | 0.108 | -5% | |
| 2010-08-17 | - | 3.542 | 0.234 | 0.092 | -60% | |
| 2010-09-23 | - | 3.509 | - | 0.065 | - | Discharge measurement not available |
| 2010-10-19 | Salt Dilution | 3.512 | 0.034 | 0.067 | - | Stage affected by snow in channel |
| 2011-03-30 | Salt Dilution | - | 0.017 | - | - | Stage measurement not available |
| 2011-04-19 | Salt Dilution | 3.450 | 0.021 | 0.031 | - | Stage affected by snow in channel |
| 2011-05-04 | - | 3.484 | 0.032 | 0.049 | - | Stage affected by snow in channel |
| 2011-05-17 | Current Meter | 3.593 | 0.147 | 0.147 | 0% | |
| 2011-05-18 | Current Meter | 3.591 | 0.172 | 0.145 | -16% | |
| 2011-06-07 | Current Meter | 3.522 | 0.073 | 0.075 | 3% | |
| 2011-08-16 | Current Meter | 3.573 | 0.190 | 0.124 | -35% | |
| 2011-10-17 | Current Meter | 3.535 | 0.084 | 0.086 | 3% | |
| 2011-11-16 | Salt Dilution | - | 0.041 | - | - | Stage measurement not available |
| 2011-12-06 | Salt Dilution | - | 0.036 | - | - | Stage measurement not available |
| 2012-04-18 | Salt Dilution | 3.460 | 0.015 | 0.035 | - | Stage affected by snow in channel |
| 2012-05-06 | Current Meter | 3.469 | 0.023 | 0.040 | - | Stage affected by snow in channel |
| 2012-08-15 | Current Meter | 3.531 | 0.087 | 0.083 | -5% | |
| 2012-10-16 | Current Meter | 3.499 | 0.044 | 0.058 | 32% | |
| 2012-11-20 | Salt Dilution | - | 0.033 | - | - | Stage measurement not available |
| 2013-04-15 | Salt Dilution | - | 0.010 | - | - | Stage measurement not available |
| 2013-05-21 | Current Meter | 0.099 | 0.051 | 0.069 | 34% | |
| 2013-07-25 | Current Meter | 0.050 | 0.011 | 0.019 | 69% | |
| 2013-09-14 | Current Meter | 0.064 | 0.039 | 0.030 | -24% | |
| 2013-10-19 | Current Meter | 0.065 | 0.036 | 0.031 | -15% | |
| 2014-05-06 | Current Meter | - | 0.381 | - | - | Stage measurement not available |
| 2014-08-06 | Current Meter | 0.083 | 0.055 | 0.049 | -11% | |
| 2014-10-17 | - | 0.095 | - | - | - | Discharge measurement not available |
| 2015-06-18 | Current Meter | 0.121 | 0.080 | 0.101 | 26% | |
| 2015-07-31 | Current Meter | 0.159 | 0.181 | 0.169 | -7% | |
| 2016-07-14 | Current Meter | 0.178 | 0.202 | 0.210 | 4% | |
| 2016-07-15 | Salt dilution | - | 0.374 | - | - | Stage measurement not available |
| 2016-10-13 | Salt dilution | - | 0.072 | - | - | Stage measurement not available |
| 2017-03-15 | Salt dilution | - | 0.019 | - | - | Stage measurement not available |
| 2017-04-13 | Salt dilution | - | 0.013 | - | - | Stage measurement not available |
| 2017-05-03 | Salt dilution | - | 0.040 | - | - | Stage measurement not available |
| 2017-06-10 | Salt dilution | - | 0.071 | - | - | Stage measurement not available |
| 2017-08-03 | Salt dilution | 0.078 | 0.045 | 0.043 | -3% | |
| 2017-08-16 | Current Meter | 0.079 | 0.045 | 0.045 | -1% | |
| 2017-10-11 | Salt dilution | - | 0.167 | - | - | Stage affected by ice in channel |
| 2017-12-06 | Salt dilution | - | 0.040 | - | - | Stage affected by ice in channel |
| 2018-01-28 | Salt dilution | - | 0.021 | - | - | Stage affected by ice in channel |
| 2018-03-22 | Salt dilution | - | 0.013 | - | - | Stage affected by ice in channel |
| 2018-04-24 | Salt dilution | - | 0.011 | - | - | Stage affected by ice in channel |
| 2018-08-19 | Current Meter | 0.118 | 0.108 | 9% | -14% | |
| 2018-08-19 | Salt dilution | 0.119 | 0.096 | 9% | -1% | |
| 2018-08-26 | Salt dilution | 0.147 | 0.117 | 14% | 23% | |
| 2018-09-22 | Salt dilution | 0.100 | 0.085 | 7% | -21% | |
| 2018-10-12 | Salt dilution | - | 0.048 | - | - | Stage affected by ice in channel |
| 2018-11-09 | Salt dilution | - | 0.030 | - | - | Stage affected by ice in channel |
| 2018-11-23 | Salt dilution | - | 0.023 | - | - | Stage affected by ice in channel |
| 2018-12-03 | Salt dilution | - | 0.026 | - | - | Stage affected by ice in channel |
| 2018-12-18 | Salt dilution | - | 0.021 | - | - | Stage affected by ice in channel |
| **Average Error (%)** | | | | | -5% | |
| **Standard Error (%)** | | | | | 25% | |

**Notes:**
1. Measurements highlighted in grey were conducted in ice-affected waters, and were not employed in rating curve development.
2. Stage measurements for the period 2007 to 2012 are as reported in Knight Piésold (2013). Stage measurements for the period 2013 to 2018 are the staff gauge readings relative to the staff gauge datum from 2012.

**Table 3-3:**
**Station W4 – Discharge Measurement Summary**

| Date | Method | Stage (m) | Discharge ($m^3/s$) | Rating Curve Discharge ($m^3/s$) | Rating Curve Error (%) | Comments |
|---|---|---|---|---|---|---|
| 2007-08-13 | - | - | 0.701 | - | - | Stage measurement not available |
| 2007-08-15 | - | 3.046 | 0.693 | 0.665 | -4% | |
| 2007-08-28 | - | 3.033 | 0.631 | 0.594 | -6% | |
| 2007-09-11 | - | 3.073 | 0.810 | 0.829 | 2% | |
| 2007-09-25 | - | 3.091 | 0.737 | - | - | Stage affected by snow in channel |
| 2007-10-19 | - | 3.048 | 0.442 | - | - | Stage affected by snow in channel |
| 2007-11-21 | - | - | 0.360 | - | - | Stage measurement not available |
| 2008-04-25 | Salt Dilution | - | 0.050 | - | - | Stage measurement not available |
| 2008-06-09 | - | 3.056 | 0.740 | 0.724 | -2% | |
| 2008-08-12 | - | 3.164 | 1.575 | 1.543 | -2% | |
| 2008-10-21 | - | 3.104 | 0.926 | - | - | Stage affected by snow in channel |
| 2009-07-18 | Current Meter | 2.983 | 0.361 | 0.362 | 0% | |
| 2009-07-26 | Current Meter | 2.966 | 0.303 | 0.298 | -2% | |
| 2009-08-09 | Current Meter | 2.973 | 0.298 | 0.323 | 8% | |
| 2009-08-20 | Current Meter | 2.973 | 0.344 | 0.323 | -6% | |
| 2009-09-02 | Current Meter | 3.040 | 0.834 | 0.632 | -24% | |
| 2009-10-07 | Current Meter | 3.008 | 0.449 | 0.469 | 5% | |
| 2009-10-21 | Current Meter | 2.999 | 0.430 | 0.429 | 0% | |
| 2010-05-04 | Current Meter | 3.078 | 0.970 | 0.862 | -11% | |
| 2010-06-15 | - | 3.109 | 1.122 | 1.081 | -4% | |
| 2010-08-17 | - | 3.053 | 0.619 | 0.706 | 14% | |
| 2010-09-23 | - | 3.024 | - | - | - | Discharge measurement not available |
| 2010-10-19 | - | 2.406 | 0.294 | - | - | Stage affected by snow in channel |
| 2011-01-27 | Salt Dilution | - | 0.187 | - | - | Stage measurement not available |
| 2011-03-30 | Salt Dilution | - | 0.212 | - | - | Stage measurement not available |
| 2011-04-19 | Salt Dilution | - | 0.229 | - | - | Stage measurement not available |
| 2011-05-04 | Current Meter | 3.128 | 0.445 | - | - | Stage affected by snow in channel |
| 2011-05-17 | Current Meter | 3.295 | 2.050 | 3.051 | 49% | |
| 2011-05-18 | Current Meter | 3.554 | - | - | - | Discharge measurement not available |
| 2011-06-07 | Current Meter | 3.072 | 0.724 | 0.823 | 14% | |
| 2011-06-28 | Current Meter | 3.032 | 0.741 | 0.589 | -21% | |
| 2011-08-16 | Current Meter | 3.169 | 1.970 | 1.590 | -19% | |
| 2011-10-17 | Current Meter | 3.065 | 0.591 | 0.778 | 32% | |
| 2011-11-16 | Salt Dilution | - | 0.333 | - | - | Stage measurement not available |
| 2011-12-06 | Salt Dilution | - | 0.248 | - | - | Stage measurement not available |
| 2012-02-14 | Salt Dilution | - | 0.169 | - | - | Stage measurement not available |
| 2012-04-17 | Salt Dilution | 2.968 | 0.167 | - | - | Stage affected by snow in channel |
| 2012-05-04 | Current Meter | 3.069 | 0.759 | 0.804 | 6% | |
| 2012-08-15 | Current Meter | 3.056 | 0.738 | 0.724 | -2% | |
| 2012-10-16 | Current Meter | 3.027 | 0.478 | 0.562 | 18% | |
| 2012-11-20 | Salt Dilution | - | 0.277 | - | - | Stage affected by snow in channel |
| 2013-02-19 | Salt Dilution | - | 0.216 | - | - | Stage measurement not available |
| 2013-05-21 | Current Meter | 0.318 | 1.183 | 1.178 | 0% | |
| 2013-07-24 | Current Meter | 0.160 | 0.322 | 0.325 | 1% | |
| 2013-09-14 | Current Meter | 0.236 | 0.696 | 0.673 | -3% | |
| 2013-10-19 | Current Meter | 0.171 | 0.370 | 0.368 | 0% | |
| 2014-05-07 | - | 0.485 | - | - | - | Discharge measurement not available |
| 2014-08-06 | Current Meter | 0.183 | 0.416 | 0.418 | 1% | |
| 2014-10-17 | Current Meter | 0.212 | 0.707 | 0.551 | -22% | |
| 2015-06-18 | Current Meter | 0.234 | 0.699 | 0.663 | -5% | |
| 2015-07-31 | Current Meter | 0.349 | 1.609 | 1.402 | -13% | |
| 2015-10-14 | - | 0.251 | - | - | - | Discharge measurement not available |
| 2016-07-14 | Current Meter | 0.263 | 0.911 | 0.825 | -9% | |
| 2017-03-15 | Current Meter | - | 0.054 | - | - | |
| 2017-04-13 | Current Meter | - | 0.150 | - | - | |
| 2017-06-08 | Current Meter | 0.251 | 0.822 | 0.756 | -8% | |
| 2018-08-03 | Current Meter | 0.231 | 0.797 | 0.647 | -19% | |
| 2017-08-16 | Current Meter | 0.190 | 0.376 | 0.449 | 19% | |
| 2017-10-11 | Current Meter | 0.265 | 0.832 | 0.837 | 1% | |
| 2017-12-05 | Current Meter | - | 0.294 | - | - | Stage affected by ice in channel |
| 2018-01-28 | Current Meter | - | 0.198 | - | - | Stage affected by ice in channel |
| 2018-02-13 | Current Meter | - | 0.203 | - | - | Stage affected by ice in channel |
| 2018-03-20 | Current Meter | - | 0.162 | - | - | Stage affected by ice in channel |
| 2018-04-25 | Current Meter | - | 0.151 | - | - | Stage affected by ice in channel |
| 2018-05-16 | Current Meter | 0.500 | 3.271 | 2.797 | -14% | |
| 2018-06-11 | Current Meter | 0.371 | 1.827 | 1.609 | -12% | |
| 2018-07-22 | Current Meter | 0.218 | 0.618 | 0.600 | -3% | |
| 2018-08-21 | Current Meter | 0.261 | 0.851 | 0.838 | -2% | |
| 2018-09-09 | Current Meter | 0.258 | 0.777 | 0.820 | 6% | |
| 2018-10-24 | Current Meter | - | 0.395 | - | - | Stage affected by ice in channel |
| 2018-11-06 | Current Meter | - | 0.275 | - | - | Stage affected by ice in channel |
| 2018-11-25 | Current Meter | - | 0.289 | - | - | Stage affected by ice in channel |
| 2018-12-03 | Current Meter | - | 0.250 | - | - | Stage affected by ice in channel |
| 2018-12-17 | Current Meter | - | 0.251 | - | - | Stage affected by ice in channel |
| **Average Error (%)** | | | | | -1% | |
| **Standard Error (%)** | | | | | 14% | |

**Notes:**
1. Measurements highlighted in grey were conducted in ice-affected waters, and were not employed in rating curve development.
2. Stage measurements for the period 2007 to 2012 are as reported in Knight Piésold (2013). Stage measurements for the period 2013 to 2018 are the staff gauge readings relative to the staff gauge datum from 2012.

**Table 3-4:**
**Station W5 – Discharge Measurement Summary**

| Date | Method | Stage (m) | Discharge ($m^3/s$) | Rating Curve Discharge ($m^3/s$) | Rating Curve Error (%) | Comments |
|---|---|---|---|---|---|---|
| 2007-08-12 | - | - | 0.744 | - | - | Stage measurement not available |
| 2007-08-28 | - | 3.510 | 0.689 | 0.691 | 0% | |
| 2007-09-11 | - | 3.546 | 0.896 | 0.914 | 2% | |
| 2007-09-25 | - | 3.559 | 0.873 | 1.001 | 15% | |
| 2007-10-20 | - | 3.699 | 0.323 | - | - | Stage affected by snow in channel |
| 2007-11-21 | Salt Dilution | - | 0.280 | - | - | Stage measurement not available |
| 2008-04-25 | Salt Dilution | - | 0.282 | - | - | Stage measurement not available |
| 2008-06-10 | - | 3.506 | 0.653 | 0.668 | 2% | |
| 2008-08-13 | - | - | 1.900 | - | - | Stage measurement not available |
| 2008-10-21 | - | 3.633 | 1.230 | - | - | Stage affected by snow in channel |
| 2009-07-20 | Current Meter | 3.499 | 0.452 | 0.629 | 39% | |
| 2009-07-26 | - | 3.476 | 0.419 | 0.507 | 21% | |
| 2009-08-09 | - | 3.462 | 0.385 | 0.439 | 14% | |
| 2009-08-20 | - | 3.456 | 0.458 | 0.411 | -10% | |
| 2009-09-02 | Current Meter | 3.526 | 0.895 | 0.787 | -12% | |
| 2009-10-07 | Current Meter | 3.473 | 0.605 | 0.492 | -19% | |
| 2009-10-22 | - | 3.573 | 0.466 | - | - | Stage affected by snow in channel |
| 2010-05-04 | - | - | 1.166 | - | - | Stage measurement not available |
| 2010-05-30 | - | 3.617 | 1.486 | 1.431 | -4% | |
| 2010-06-15 | - | 3.583 | 1.043 | 1.17 | 12% | |
| 2010-08-17 | - | 3.509 | 0.674 | 0.686 | 2% | |
| 2011-05-17 | - | 3.864 | 3.799 | 3.987 | 5% | |
| 2011-06-08 | - | 3.532 | 0.868 | 0.824 | -5% | |
| 2011-06-29 | Current Meter | 3.523 | 0.965 | 0.769 | -20% | |
| 2011-08-19 | - | 3.609 | 1.357 | 1.367 | 1% | |
| 2011-10-18 | - | 3.528 | 0.778 | 0.799 | 3% | |
| 2012-05-04 | Current Meter | 3.579 | 1.285 | 1.141 | -11% | |
| 2012-07-18 | - | 3.612 | - | - | - | Discharge measurement not available |
| 2012-08-16 | Current Meter | 3.553 | 0.963 | 0.960 | 0% | |
| 2012-09-19 | - | 3.503 | - | - | - | Discharge measurement not available |
| 2012-10-17 | Current Meter | 3.532 | 0.578 | - | - | Stage affected by snow in channel |
| 2012-11-20 | Salt Dilution | - | 0.278 | - | - | Stage measurement not available |
| 2013-05-22 | Current Meter | 0.280 | 1.877 | 1.801 | -4% | |
| 2013-08-05 | - | 0.120 | - | - | - | |
| 2013-09-14 | Current Meter | 0.195 | 0.948 | 0.918 | -3% | |
| 2013-10-20 | Current Meter | 0.145 | 0.510 | 0.528 | 4% | |
| 2014-08-05 | Current Meter | 0.152 | 0.570 | 0.577 | 1% | |
| 2014-10-17 | Current Meter | 0.185 | 0.864 | 0.832 | -4% | |
| 2015-06-19 | Current Meter | 0.175 | 0.735 | 0.750 | 2% | |
| 2015-07-30 | Current Meter | 0.308 | 2.032 | 2.150 | 6% | |
| 2015-10-14 | - | 0.200 | - | - | - | Discharge measurement not available |
| 2016-07-13 | Current Meter | 0.219 | 1.126 | 1.139 | 1% | |
| 2017-06-09 | Current Meter | 0.193 | 0.933 | 0.900 | -4% | |
| 2017-08-02 | Current Meter | 0.147 | 0.607 | 0.542 | -11% | |
| 2017-08-18 | Current Meter | 0.144 | 0.580 | 0.522 | -10% | |
| 2017-10-14 | Current Meter | - | 1.143 | - | - | Stage affected by ice in channel |
| 2017-12-06 | Salt Dilution | - | 0.314 | - | - | Stage affected by ice in channel |
| 2018-01-28 | Salt Dilution | - | 0.219 | - | - | Stage affected by ice in channel |
| 2018-05-17 | Current Meter | 0.450 | - | - | - | |
| 2018-06-13 | Current Meter | 0.279 | 1.594 | 1.788 | 12% | |
| 2018-07-30 | Current Meter | 0.139 | 0.516 | 0.488 | -5% | |
| 2018-08-21 | Current Meter | 0.219 | 0.993 | 1.139 | 15% | |
| 2018-09-10 | Current Meter | 0.216 | 0.878 | 1.110 | 26% | |
| 2018-10-16 | Current Meter | - | 0.308 | - | - | Stage affected by ice in channel |
| 2018-11-30 | Salt Dilution | - | 0.402 | - | - | Stage affected by ice in channel |
| 2018-12-06 | Salt Dilution | - | 0.475 | - | - | Stage affected by ice in channel |
| 2018-12-18 | Salt Dilution | - | 0.512 | - | - | Stage affected by ice in channel |
| **Average Error (%)** | | | | | 2% | |
| **Standard Error (%)** | | | | | 12% | |

**Notes:**
1. Measurements highlighted in grey were conducted in ice-affected waters, and were not employed in rating curve development.
2. Stage measurements for the period 2007 to 2012 are as reported in Knight Piésold (2013). Stage measurements for the period 2013 to 2018 are the staff gauge readings relative to the staff gauge datum from 2012.

**Table 3-5:**
**Station W6 – Discharge Measurement Summary**

| Date | Method | Stage (m) | Discharge ($m^3/s$) | Rating Curve Discharge ($m^3/s$) | Rating Curve Error (%) | Comments |
|---|---|---|---|---|---|---|
| 2007-08-28 | - | 3.820 | 0.872 | 0.850 | -2% | |
| 2007-09-11 | - | 3.901 | 1.399 | 1.291 | -8% | |
| 2007-09-25 | - | 3.880 | 1.059 | 1.169 | 10% | |
| 2007-10-20 | - | 3.787 | 0.231 | - | - | Stage affected by snow in channel |
| 2007-11-21 | Salt Dilution | - | 0.274 | - | - | Stage measurement not available |
| 2008-04-25 | Salt Dilution | - | 0.335 | - | - | Stage measurement not available |
| 2008-06-10 | - | 3.720 | 0.433 | 0.422 | -3% | |
| 2008-08-13 | - | - | 1.810 | - | - | Stage measurement not available |
| 2008-10-21 | - | 3.893 | 1.179 | - | - | Stage affected by snow in channel |
| 2009-07-20 | Current Meter | 3.701 | 0.408 | 0.356 | -13% | |
| 2009-07-26 | - | 3.715 | 0.533 | 0.404 | -24% | |
| 2009-08-09 | - | 3.710 | 0.343 | 0.386 | 13% | |
| 2009-08-20 | - | 3.753 | 0.499 | 0.549 | 10% | |
| 2009-09-02 | Current Meter | 3.873 | 1.161 | 1.130 | -3% | |
| 2009-10-07 | Current Meter | - | 0.771 | - | - | Stage measurement not available |
| 2009-10-22 | - | - | 0.521 | - | - | Stage measurement not available |
| 2010-05-04 | - | - | 2.474 | - | - | Stage measurement not available |
| 2010-05-30 | - | 3.807 | 0.824 | 0.787 | -4% | |
| 2010-06-15 | - | 3.846 | 1.003 | 0.983 | -2% | |
| 2010-08-17 | - | 3.763 | 0.550 | 0.590 | 7% | |
| 2010-10-19 | - | 3.460 | 0.379 | - | - | Stage affected by snow in channel |
| 2011-06-09 | - | - | 0.962 | - | - | Stage measurement not available |
| 2011-06-29 | Current Meter | 2.905 | 1.216 | - | - | Stage affected by snow in channel |
| 2011-08-19 | - | 3.894 | 1.253 | 1.250 | 0% | |
| 2011-10-18 | - | 3.786 | 0.703 | 0.690 | -2% | |
| 2012-05-04 | Current Meter | 3.959 | 1.806 | 1.656 | -8% | |
| 2012-07-18 | - | 3.987 | - | - | - | Discharge measurement not available |
| 2012-08-16 | - | 3.838 | 0.929 | 0.941 | 1% | |
| 2012-09-19 | - | 3.817 | - | 0.836 | - | Discharge measurement not available |
| 2012-10-17 | - | 3.781 | - | 0.667 | - | Discharge measurement not available |
| 2013-05-22 | Current Meter | 0.453 | 2.971 | 2.650 | -11% | |
| 2013-07-25 | - | 0.172 | - | - | - | Discharge measurement not available |
| 2013-09-14 | Current Meter | 0.286 | 1.171 | 1.227 | 5% | |
| 2013-10-20 | Current Meter | 0.196 | 0.699 | 0.652 | -7% | |
| 2014-08-05 | Current Meter | 0.245 | 0.449 | - | - | Beaver dam downstream of gauge site, therefore unreliable stage. |
| 2014-10-17 | Current Meter | 0.250 | 0.973 | 0.980 | 1% | |
| 2015-06-19 | Current Meter | 0.201 | 0.702 | 0.680 | -3% | |
| 2015-07-30 | Current Meter | 0.271 | 1.173 | 1.121 | -4% | |
| 2016-07-13 | Current Meter | 0.317 | 1.345 | 1.458 | 8% | |
| 2017-06-09 | Current Meter | 0.212 | 0.780 | 0.743 | -5% | |
| 2017-08-02 | Current Meter | 0.174 | 0.517 | 0.534 | 3% | |
| 2017-08-18 | Current Meter | 0.177 | 0.449 | 0.550 | 22% | |
| 2017-09-22 | Current Meter | 0.263 | 1.161 | 1.067 | -8% | |
| 2017-10-14 | Current Meter | - | 0.563 | 0.993 | - | Stage affected by ice in channel |
| 2017-12-06 | Salt Dilution | - | 0.365 | - | - | Stage affected by ice in channel |
| 2018-01-28 | Salt Dilution | - | 0.310 | - | - | Stage affected by ice in channel |
| 2018-06-13 | Current Meter | 0.314 | 1.437 | 1.457 | 1% | |
| 2018-07-30 | Current Meter | 0.123 | 0.405 | 0.306 | -24% | |
| 2018-08-21 | Current Meter | 0.213 | 0.762 | 0.764 | 0% | |
| 2018-09-10 | Current Meter | 0.238 | 0.864 | 0.919 | 6% | |
| 2018-10-16 | Current Meter | - | 0.390 | - | - | Stage affected by ice in channel |
| 2018-11-30 | Salt Dilution | - | 0.402 | - | - | Stage affected by ice in channel |
| 2018-12-13 | Salt Dilution | - | 0.235 | - | - | Stage affected by ice in channel |
| 2018-12-18 | Salt Dilution | - | 0.268 | - | - | Stage affected by ice in channel |
| **Average Error (%)** | | | | | -1% | |
| **Standard Error (%)** | | | | | 10% | |

**Notes:**
1. Measurements highlighted in grey were conducted in ice-affected waters, and were not employed in rating curve development.
2. Stage measurements for the period 2007 to 2012 are as reported in Knight Piésold (2013). Stage measurements for the period 2013 to 2018 are the staff gauge readings relative to the staff gauge datum from 2012.

**Table 3-6:**
**Station W21 – Discharge Measurement Summary**

| Date | Method | Stage (m) | Discharge ($m^3/s$) | Rating Curve Discharge ($m^3/s$) | Rating Curve Error (%) | Comments |
|---|---|---|---|---|---|---|
| 2007-08-15 | Current Meter | - | 0.059 | - | - | Staff gauge not installed yet |
| 2007-08-28 | Current Meter | - | 0.05 | - | - | Staff gauge not installed yet |
| 2007-09-11 | Current Meter | - | 0.071 | - | - | Staff gauge not installed yet |
| 2007-09-25 | Current Meter | - | 0.099 | - | - | Staff gauge not installed yet |
| 2007-10-19 | Current Meter | - | 0.043 | - | - | Staff gauge not installed yet |
| 2007-11-21 | Current Meter | - | 0.02 | - | - | Staff gauge not installed yet |
| 2008-08-12 | Current Meter | - | 0.25 | - | - | Staff gauge not installed yet |
| 2008-10-21 | Current Meter | - | 0.098 | - | - | Staff gauge not installed yet |
| 2009-07-18 | Current Meter | 0.150 | 0.012 | - | - | |
| 2009-07-26 | Current Meter | 0.150 | 0.008 | - | - | |
| 2009-08-09 | Current Meter | 0.130 | 0.008 | - | - | |
| 2009-08-20 | Current Meter | 0.160 | 0.012 | - | - | |
| 2009-09-01 | Current Meter | 0.200 | 0.067 | - | - | |
| 2009-10-20 | Current Meter | 0.274 | 0.362 | - | - | |
| 2017-12-05 | Salt Dilution | - | 0.031 | - | - | Staff gauge not installed yet |
| 2018-04-24 | Salt Dilution | - | 0.032 | - | - | Staff gauge not installed yet |
| 2018-05-16 | Current Meter | - | 0.485 | - | - | Staff gauge not installed yet |
| 2018-06-11 | Current Meter | 0.335 | 0.205 | 0.206 | 0% | |
| 2018-08-19 | Current Meter | 0.302 | 0.139 | 0.130 | -7% | |
| 2018-09-22 | Current Meter | 0.291 | 0.109 | 0.106 | -3% | |
| 2018-10-12 | Current Meter | 0.273 | 0.064 | 0.069 | 9% | |
| 2018-12-03 | Salt Dilution | - | 0.024 | - | - | Stage affected by ice in channel |
| 2018-12-18 | Salt Dilution | - | 0.023 | - | - | Stage affected by ice in channel |
| **Average Error (%)** | | | | | 0% | |
| **Standard Error (%)** | | | | | 7% | |

**Notes:**
[1]A rating curve for W21 was not developed in 2009, and no continuous discharge record is available for 2007-2009, therefore no error metrics are reported for this period.

**Table 3-7:**
**Station W22 – Discharge Measurement Summary**

| Date | Method | Stage (m) | Discharge ($m^3/s$) | Rating Curve Discharge ($m^3/s$) | Rating Curve Error (%) | Comments |
|---|---|---|---|---|---|---|
| 2007-08-13 | - | - | 0.597 | - | - | Stage measurement not available |
| 2007-08-15 | - | 2.846 | 0.577 | 0.515 | -11% | |
| 2007-08-28 | - | 2.831 | 0.538 | 0.414 | -23% | |
| 2007-09-11 | - | 2.898 | 0.684 | 0.941 | 38% | |
| 2007-09-25 | - | 2.877 | 0.641 | 0.755 | 18% | |
| 2007-10-19 | - | 2.873 | 0.372 | - | - | Stage affected by snow in channel |
| 2007-11-21 | Salt Dilution | - | 0.343 | - | - | Stage measurement not available |
| 2008-04-25 | Salt Dilution | - | 0.266 | - | - | Stage measurement not available |
| 2008-06-09 | - | 2.866 | 0.688 | 0.666 | -3% | |
| 2008-08-12 | - | 2.927 | 1.237 | 1.226 | -1% | |
| 2008-10-21 | - | 2.936 | 0.741 | | - | Stage affected by snow in channel |
| 2009-04-21 | Salt Dilution | 1.570 | 0.191 | - | - | Stage affected by snow in channel |
| 2009-07-18 | Current Meter | 2.809 | 0.749 | 0.284 | -62% | |
| 2009-07-26 | - | 2.809 | 0.294 | 0.284 | -4% | |
| 2009-08-09 | - | 2.810 | 0.278 | 0.289 | 4% | |
| 2009-08-20 | - | 2.811 | 0.276 | 0.295 | 7% | |
| 2009-09-01 | Current Meter | 2.874 | 0.749 | 0.730 | -2% | |
| 2009-10-07 | Current Meter | 2.824 | 0.361 | 0.370 | 3% | |
| 2010-03-31 | Salt Dilution | - | 0.173 | - | - | Stage measurement not available |
| 2010-05-04 | - | 2.873 | 0.915 | 0.722 | -21% | |
| 2010-06-15 | - | 2.905 | 0.791 | 1.006 | 27% | |
| 2010-08-17 | - | 2.847 | 0.531 | 0.522 | -2% | |
| 2010-09-23 | - | 2.816 | - | - | - | Discharge measurement not available |
| 2010-10-19 | - | 2.910 | 0.265 | - | - | Stage affected by snow in channel |
| 2011-01-27 | Salt Dilution | - | 0.158 | - | - | Stage measurement not available |
| 2011-03-30 | Salt Dilution | - | 0.203 | - | - | Stage measurement not available |
| 2011-04-19 | Salt Dilution | - | 0.194 | - | - | Stage measurement not available |
| 2011-05-04 | Current Meter | 2.975 | 0.418 | - | - | Stage affected by snow in channel |
| 2011-05-17 | - | 2.964 | 2.010 | - | - | Uncertainty in dataset |
| 2011-05-18 | - | 2.936 | 4.989 | - | - | Uncertainty in dataset |
| 2011-06-07 | - | 2.856 | 0.567 | - | - | Uncertainty in dataset |
| 2011-06-28 | Current Meter | 3.099 | 0.676 | - | - | Uncertainty in dataset |
| 2011-08-16 | - | 2.968 | 1.655 | - | - | Uncertainty in dataset |
| 2011-10-17 | Current Meter | 2.962 | 0.523 | - | - | Stage affected by snow in channel |
| 2011-11-16 | Salt Dilution | - | 0.288 | - | - | Stage measurement not available |
| 2011-12-06 | Salt Dilution | - | 0.207 | - | - | Stage measurement not available |
| 2012-03-19 | Salt Dilution | - | 0.154 | - | - | Stage measurement not available |
| 2012-04-17 | Salt Dilution | 2.790 | 0.117 | - | - | Stage affected by snow in channel |
| 2012-05-04 | Current Meter | 2.876 | 0.737 | 0.747 | 1% | |
| 2012-07-18 | - | 2.924 | 1.055 | 1.195 | 13% | |
| 2012-08-15 | Current Meter | 2.860 | 0.609 | 0.619 | 2% | |
| 2012-09-19 | - | 2.841 | - | - | - | Discharge measurement not available |
| 2012-10-16 | Current Meter | 2.827 | 0.403 | 0.389 | -4% | |
| 2012-11-20 | Salt Dilution | - | 0.245 | - | - | Stage measurement not available |

| | | | | | | |
|---|---|---|---|---|---|---|
| 2012-12-17 | Salt Dilution | - | 0.258 | - | - | Stage measurement not available |
| 2013-02-19 | Salt Dilution | - | 0.216 | - | - | Stage measurement not available |
| 2013-04-15 | Salt Dilution | - | 0.159 | - | - | Stage measurement not available. |
| 2013-05-21 | Current Meter | 0.215 | 0.994 | 0.935 | -6% | |
| 2013-07-24 | Current Meter | - | 0.264 | - | - | Stage measurement not available |
| 2013-08-04 | - | 0.105 | - | - | - | Discharge measurement not available |
| 2013-09-14 | Current Meter | 0.183 | 0.698 | 0.699 | 0% | |
| 2013-10-19 | Current Meter | 0.113 | 0.309 | 0.293 | -5% | |
| 2014-08-06 | Current Meter | 0.135 | 0.391 | 0.404 | 3% | |
| 2014-10-17 | Current Meter | 0.165 | 0.587 | 0.580 | -1% | |
| 2015-06-18 | Current Meter | 0.178 | 0.633 | 0.665 | 5% | |
| 2015-07-31 | Current Meter | 0.261 | 1.379 | 1.326 | -4% | |
| 2015-10-14 | - | 0.191 | - | - | - | Discharge measurement not available |
| 2016-07-14 | Current Meter | 0.193 | 0.731 | 0.769 | 5% | |
| 2017-05-04 | Current Meter | - | 0.748 | - | - | Stage measurement ice affected |
| 2017-06-08 | Current Meter | 0.190 | 0.718 | 0.748 | 4% | |
| 2017-08-04 | Current Meter | 0.155 | 0.471 | 0.518 | 10% | |
| 2017-08-16 | Current Meter | 0.130 | 0.377 | 0.377 | 0% | |
| 2017-10-11 | Current Meter | - | 0.698 | - | - | Stage affected by ice in channel |
| 2017-12-06 | Salt Dilution | - | 0.241 | - | - | Stage affected by ice in channel |
| 2018-01-28 | Salt Dilution | - | 0.176 | - | - | Stage affected by ice in channel |
| 2018-02-13 | Salt Dilution | - | 0.182 | - | - | Stage affected by ice in channel |
| 2018-03-20 | Salt Dilution | - | 0.172 | - | - | Stage affected by ice in channel |
| 2018-04-25 | Current Meter | - | 0.098 | - | - | Stage affected by ice in channel |
| 2018-05-16 | Current Meter | 0.410 | 3.015 | 2.971 | -0.015 | |
| 2018-06-11 | Current Meter | 0.261 | 1.544 | 1.311 | -0.151 | |
| 2018-07-22 | Current Meter | 0.151 | 0.473 | 0.486 | 0.028 | |
| 2018-08-21 | Current Meter | 0.200 | 0.760 | 0.809 | 0.065 | |
| 2018-09-09 | Current Meter | 0.190 | 0.660 | 0.738 | 0.117 | |
| 2018-10-24 | Current Meter | - | 0.065 | - | - | Stage affected by ice in channel |
| 2018-11-06 | Salt Dilution | - | 0.249 | - | - | Stage affected by ice in channel |
| 2018-11-25 | Salt Dilution | - | 0.189 | - | - | Stage affected by ice in channel |
| 2018-12-03 | Salt Dilution | - | 0.235 | - | - | Stage affected by ice in channel |
| 2018-12-17 | Salt Dilution | - | 0.216 | - | - | Stage affected by ice in channel |
| **Average Error (%)** | | | | | 0% | |
| **Standard Error (%)** | | | | | 16% | |

**Notes:**
1. Measurements highlighted in grey were conducted in ice-affected waters, and were not employed in rating curve development.
2. Stage measurements for the period 2007 to 2012 are as reported in Knight Piésold (2013). Stage measurements for the period 2013 to 2018 are the staff gauge readings relative to the staff gauge datum from 2012.

## Table 3-8:
## Station W26 – Discharge Measurement Summary

| Date | Method | Stage (m) | Discharge (m3/s) | Comments |
|---|---|---|---|---|
| 2010-06-02 | - | 0.463 | 0.030 | |
| 2010-06-15 | - | 0.446 | 0.023 | |
| 2010-06-18 | - | 0.446 | 0.013 | |
| 2010-09-23 | - | 0.377 | 0.010 | |
| 2010-10-19 | - | 0.333 | 0.003 | Stage affected by snow in channel |
| 2011-05-18 | - | - | 0.121 | Stage measurement not available |
| 2011-05-19 | - | - | 0.142 | Stage measurement not available |
| 2011-08-19 | - | - | 0.017 | Stage measurement not available |
| 2011-10-16 | Flume | 0.532 | 0.007 | Stage affected by snow in channel |
| 2011-11-16 | Flume | - | 0.003 | Stage measurement not available |
| 2012-07-17 | Flume | 0.426 | 0.020 | |
| 2012-08-15 | Flume | 0.394 | 0.012 | |
| 2013-07-25 | Flume | - | 0.001 | Stage measurement not available |
| 2013-09-15 | Flume | 0.040 | 0.004 | |
| 2014-08-06 | Flume | 0.047 | 0.005 | |
| 2014-10-17 | Flume | 0.059 | 0.007 | |
| 2015-07-31 | Flume | 0.131 | 0.024 | |
| 2015-10-14 | Flume | 0.192 | 0.043 | |
| 2016-07-14 | Flume | 0.12 | 0.017 | |
| 2017-08-03 | Flume | 0.025 | 0.003 | |
| 2017-08-16 | Flume | 0.330 | 0.098 | |
| 2017-09-20 | Flume | 0.070 | 0.009 | |
| 2017-10-11 | Flume | 0.065 | 0.008 | |
| 2018-06-13 | Flume | - | 0.024 | Stage measurement not available |
| 2018-07-13 | Flume | 0.020 | 0.002 | |
| 2018-08-26 | Flume | 0.060 | 0.008 | |
| 2018-09-09 | Flume | 0.07 | 0.011 | |

**Notes:**
1. Stage measurements for the period 2007 to 2012 are as reported in Knight Piésold (2013). Stage measurements for the period 2013 to 2018 are the staff gauge readings relative to the staff gauge datum from 2012.
2. A V-notch weir was installed in 2009, and replaced with a Parshall flume in August 2011.

**Table 3-9:**
**Station W27 – Discharge Measurement Summary**

| Date | Method | Stage (m) | Discharge ($m^3/s$) | Rating Curve Discharge ($m^3/s$) | Comments |
|---|---|---|---|---|---|
| 2007-08-14 | Current Meter | - | 0.015 | - | Stage measurement not available |
| 2007-08-28 | - | - | 0.039 | - | Stage measurement not available |
| 2007-09-12 | - | - | 0.017 | - | Stage measurement not available |
| 2007-09-26 | Current Meter | 0.146 | 0.017 | - | Stage measurement not available |
| 2007-10-20 | - | - | 0.011 | - | Stage measurement not available |
| 2007-11-21 | - | - | 0.004 | - | Stage measurement not available |
| 2008-04-26 | Salt Dilution | - | 0.011 | - | Stage measurement not available |
| 2008-06-10 | - | 0.185 | 0.026 | 0.023 | |
| 2008-08-13 | Current Meter | - | 0.050 | - | Stage measurement not available |
| 2008-10-21 | Current Meter | 0.250 | 0.051 | 0.056 | |
| 2009-07-19 | - | 0.209 | 0.033 | 0.034 | |
| 2009-07-26 | - | 0.201 | 0.033 | 0.030 | |
| 2009-08-09 | - | 0.187 | 0.024 | 0.024 | |
| 2009-08-11 | - | 0.189 | 0.023 | 0.025 | |
| 2009-08-20 | - | 0.193 | 0.026 | 0.026 | |
| 2009-08-26 | - | 0.221 | 0.038 | 0.040 | |
| 2009-09-01 | - | 0.197 | 0.029 | 0.028 | |
| 2009-10-22 | - | - | 0.013 | - | Stage measurement not available |
| 2010-05-04 | Salt Dilution | -0.025 | 0.072 | - | |
| 2010-05-05 | Salt Dilution | 0.225 | 0.086 | - | Average of 3 measurements |
| 2010-05-06 | - | 0.209 | 0.069 | - | |
| 2010-06-01 | Salt Dilution | 0.258 | 0.035 | 0.061 | Average of 3 measurements |
| 2010-06-02 | - | 0.261 | 0.035 | 0.063 | |
| 2010-06-15 | - | 0.243 | 0.052 | 0.052 | |
| 2010-06-16 | - | 0.238 | 0.049 | 0.049 | |
| 2010-06-18 | - | 0.227 | 0.046 | 0.043 | |
| 2010-09-23 | - | 0.020 | 0.015 | - | Erratic logger data |
| 2010-10-19 | - | 0.025 | 0.014 | - | Stage affected by snow in channel |
| 2011-03-30 | Salt Dilution | - | 0.010 | - | Stage measurement not available |
| 2011-04-19 | Salt Dilution | - | 0.009 | - | Stage measurement not available |
| 2011-05-17 | Current Meter | 0.339 | 0.120 | 0.127 | |
| 2011-05-18 | Current Meter | 0.363 | 0.261 | - | Erratic logger data |
| 2011-06-06 | - | 0.165 | 0.016 | 0.016 | |
| 2011-08-16 | - | 0.008 | 0.031 | - | Erratic logger data |
| 2011-10-17 | - | 0.173 | 0.008 | - | Stage affected by snow in channel |
| 2012-03-19 | - | - | 0.004 | - | Unreliable discharge measurement |
| 2012-04-17 | - | - | 0.007 | - | Stage measurement not available |
| 2012-05-06 | - | - | 0.040 | - | Stage affected by snow in channel |
| 2012-07-18 | - | 0.281 | 0.025 | 0.077 | |
| 2012-08-15 | - | 0.207 | 0.027 | 0.033 | |
| 2012-09-19 | - | 0.158 | 0.018 | 0.014 | |
| 2012-10-16 | - | - | 0.014 | - | Stage measurement not available |
| 2013-07-25 | Flume | 0.127 | 0.030 | | |
| 2013-09-15 | Flume | 0.110 | 0.023 | | |
| 2013-10-19 | Flume | 0.119 | 0.027 | | |
| 2014-05-07 | Flume | 0.130 | 0.032 | | |
| 2014-08-05 | Flume | 0.119 | 0.027 | | |
| 2014-10-17 | Flume | 0.073 | 0.013 | | |
| 2015-07-31 | Flume | 0.187 | 0.054 | | |
| 2015-10-14 | Flume | 0.149 | 0.038 | | |
| 2016-05-03 | Flume | 0.260 | 0.090 | | |
| 2016-07-14 | Flume | 0.145 | 0.038 | | |
| 2017-06-09 | Flume | 0.101 | 0.024 | | |
| 2017-08-17 | Flume | 0.100 | 0.021 | | |
| 2017-09-20 | Flume | 0.072 | 0.012 | | |
| 2017-10-11 | Flume | 0.021 | 0.002 | | |
| 2018-05-16 | Flume | 0.044 | 0.006 | | |
| 2018-06-12 | Flume | 0.018 | 0.002 | | |
| 2018-07-13 | Flume | 0.030 | 0.004 | | |
| 2018-08-17 | Flume | 0.030 | 0.004 | | |
| 2018-09-09 | Flume | 0.040 | 0.006 | | |

**Notes:**
1. Stage measurements for the period 2007 to 2012 are as reported in Knight Piésold (2013). Stage measurements for the period 2013 to 2018 are the staff gauge readings relative to the staff gauge datum from 2012.
2. A V-notch weir was installed in 2009, and replaced with a Parshall flume in August 2011.

**Table 3-10:**
**Station W29 – Discharge Measurement Summary**

| Date | Method | Stage (m) | Discharge ($m^3/s$) | Rating Curve Discharge ($m^3/s$) | Rating Curve Error (%) | Comments |
|---|---|---|---|---|---|---|
| 2010-10-19 | Current Meter | - | 0.359 | - | - | Stage measurement not available |
| 2011-03-30 | Salt Dilution | - | 0.200 | - | - | Stage measurement not available |
| 2011-05-17 | Current Meter | - | 2.309 | - | - | Stage measurement not available |
| 2011-06-08 | Current Meter | 3.639 | 0.776 | 0.791 | 2% | |
| 2011-06-28 | Current Meter | 3.630 | 0.839 | 0.735 | -12% | |
| 2011-08-16 | - | 3.788 | 1.971 | 1.986 | 1% | |
| 2011-10-17 | - | 3.647 | 0.722 | - | - | Stage affected by snow in channel |
| 2011-11-16 | Salt Dilution | - | 0.377 | - | - | Stage measurement not available |
| 2011-12-06 | Salt Dilution | - | 0.269 | - | - | Stage measurement not available |
| 2012-05-04 | Current Meter | 3.644 | 0.859 | - | - | Stage affected by snow in channel |
| 2012-06-14 | - | 3.749 | - | 1.591 | -5% | Discharge measurement not available |
| 2012-07-18 | - | 3.702 | - | - | - | Discharge measurement not available |
| 2012-08-16 | Current Meter | 3.626 | 0.711 | 0.703 | -1% | |
| 2012-10-17 | Current Meter | 3.581 | 0.447 | - | - | Stage affected by snow in channel |
| 2012-11-20 | Salt Dilution | - | 0.264 | - | - | Stage measurement not available |
| 2012-12-17 | Salt Dilution | - | 0.281 | - | - | Stage measurement not available |
| 2013-02-19 | Salt Dilution | | 0.350 | | | Salt dilution, but based on few concentration determinations |
| 2013-04-15 | Current Meter | 0.298 | 0.165 | - | - | Stage affected by snow in channel |
| 2013-05-21 | Current Meter | 0.366 | 1.513 | 1.628 | 8% | |
| 2013-07-25 | Current Meter | 0.180 | 0.526 | 0.476 | -9% | |
| 2013-08-04 | - | 0.151 | - | - | - | Discharge measurement not available |
| 2013-09-14 | Current Meter | 0.275 | 0.793 | 0.884 | 11% | |
| 2013-10-19 | Current Meter | 0.217 | 0.566 | 0.619 | 9% | |
| 2014-08-05 | Current Meter | 0.191 | 0.505 | 0.516 | 2% | |
| 2014-10-17 | Current Meter | 0.274 | 0.793 | - | - | Stage affected by snow in channel |
| 2015-06-18 | Current Meter | 0.208 | 0.709 | 0.582 | -18% | |
| 2015-07-31 | Current Meter | 0.385 | 1.834 | 1.534 | -16% | |
| 2015-10-14 | Salt Dilution | 0.274 | 0.754 | - | - | Salt dilution, but based on few concentration determinations |
| 2016-07-14 | Current Meter | 0.329 | 1.189 | 1.332 | 12% | |
| 2017-06-09 | Current Meter | - | 0.865 | - | - | Stage measurement not available |
| 2017-08-04 | Current Meter | 0.259 | 0.600 | 0.562 | -6% | |
| 2017-08-16 | Current Meter | - | 0.501 | - | - | Stage measurement not available |
| 2017-10-13 | Salt Dilution | - | 1.124 | - | - | Stage affected by ice in channel |
| 2018-04-24 | Current Meter | - | 0.256 | - | - | Stage affected by ice in channel |
| 2018-06-12 | Current Meter | 0.355 | 1.546 | 1.406 | -9% | |
| 2018-07-22 | Current Meter | 0.237 | 0.665 | 0.735 | 11% | |
| 2018-08-21 | Current Meter | 0.275 | 1.064 | 0.933 | -12% | |
| 2018-09-09 | Current Meter | 0.275 | 0.954 | 0.933 | -2% | |
| 2018-10-16 | Current Meter | - | 0.360 | - | - | Stage affected by ice in channel |
| 2018-11-06 | Salt Dilution | - | 0.380 | - | - | Stage affected by ice in channel |
| 2018-11-29 | Salt Dilution | - | 0.251 | - | - | Stage affected by ice in channel |
| 2018-12-04 | Salt Dilution | - | 0.200 | - | - | Stage affected by ice in channel |
| 2018-12-31 | Salt Dilution | - | 0.210 | - | - | Stage affected by ice in channel |
| **Average Error (%)** | | | | | -2% | |
| **Standard Error (%)** | | | | | 10% | |

**Notes:**
1. Measurements highlighted in grey were conducted in ice-affected waters, and were not employed in rating curve development.
2. Stage measurements for the period 2007 to 2012 are as reported in Knight Piésold (2013). Stage measurements for the period 2013 to 2018 are the staff gauge readings relative to the staff gauge datum from 2012.

**Table 3-11:**
**Station W20 – Discharge Measurement Summary**

| Date | Method | Stage (m) | Discharge ($m^3/s$) | Comments |
|---|---|---|---|---|
| 2007-08-14 | Current Meter | - | 0.025 | No staff gauge reading available |
| 2007-08-29 | Current Meter | - | 0.033 | No staff gauge reading available |
| 2007-09-12 | Current Meter | - | 0.028 | No staff gauge reading available |
| 2008-06-09 | Current Meter | - | 0.015 | No staff gauge reading available |
| 2008-08-12 | Current Meter | - | 0.045 | No staff gauge reading available |
| 2009-07-19 | Current Meter | 0.170 | 0.018 | |
| 2009-07-26 | Current Meter | 0.180 | 0.022 | |
| 2009-08-09 | Current Meter | 0.160 | 0.012 | |
| 2009-08-20 | Current Meter | - | 0.014 | No staff gauge reading available |
| 2009-10-05 | Current Meter | 0.180 | 0.024 | |
| 2016-07-14 | Current Meter | - | 0.064 | No staff gauge reading available |
| 2017-05-04 | Current Meter | - | 0.005 | No staff gauge reading available |
| 2017-06-10 | Salt Dilution | - | 0.025 | No staff gauge reading available |
| 2017-08-03 | Salt Dilution | - | 0.024 | No staff gauge reading available |
| 2017-10-12 | Salt Dilution | - | 0.068 | No staff gauge reading available |
| 2017-12-06 | Salt Dilution | - | 0.014 | Stage affected by ice in channel |
| 2018-02-12 | Salt Dilution | - | 0.004 | Stage affected by ice in channel |
| 2018-06-13 | Salt Dilution | - | 0.040 | Stage affected by ice in channel |
| 2018-07-13 | Salt Dilution | - | 0.044 | No staff gauge reading available |
| 2018-08-21 | Salt Dilution | - | 0.037 | No staff gauge reading available |
| 2018-09-22 | Salt Dilution | 0.291 | 0.029 | |
| 2018-10-12 | Salt Dilution | - | 0.018 | Stage affected by ice in channel |
| 2018-11-09 | Salt Dilution | - | 0.013 | Stage affected by ice in channel |
| 2018-12-31 | Salt Dilution | - | 0.008 | Stage affected by ice in channel |

**Notes:**
[1]Due to the limited number of measurements for this station, no rating curve has been developed.

**Table 3-12:**
**Station W31 – Discharge Measurement Summary**

| Date | Method | Stage (m) | Discharge ($m^3/s$) | Comments |
|---|---|---|---|---|
| 2009-07-26 | Current Meter | - | 0.005 | Staff gauge not installed |
| 2009-08-09 | Current Meter | 0.264 | 0.003 | |
| 2009-08-20 | Current Meter | 0.266 | 0.004 | |
| 2009-08-26 | Current Meter | 0.264 | 0.012 | |
| 2009-10-05 | Current Meter | 0.324 | 0.013 | |
| 2009-10-21 | Current Meter | 0.275 | 0.001 | |
| 2010-06-16 | Current Meter | 0.140 | 0.042 | |
| 2010-10-19 | Current Meter | 0.100 | 0.006 | |
| 2016-07-15 | Current Meter | 0.158 | 0.035 | |
| 2016-10-14 | Current Meter | 0.154 | 0.013 | |
| 2017-05-03 | Current Meter | - | 0.007 | Stage affected by ice in channel |
| 2017-06-10 | Current Meter | - | 0.032 | No staff gauge reading available |
| 2017-10-11 | - | 0.149 | - | Discharge measurement not available |

**Notes:**
[1]Due to the limited number of measurements for this station, no rating curve has been developed.

**Table 3-13:**
**Station W45 – Discharge Measurement Summary**

| Date | Method | Stage (m) | Discharge ($m^3/s$) | Comments |
|---|---|---|---|---|
| 2017-10-11 | Salt Dilution | - | 0.016 | Stage measurement not available |
| 2018-05-16 | Salt Dilution | - | 0.086 | Stage measurement not available |
| 2018-06-12 | Salt Dilution | - | 0.006 | Stage measurement not available |
| 2018-07-02 | Salt Dilution | 0.12 | 0.006 | |
| 2018-07-13 | Salt Dilution | 0.112 | 0.003 | |
| 2018-08-17 | Salt Dilution | 0.122 | 0.006 | |
| 2018-09-23 | Salt Dilution | 0.124 | 0.006 | |
| 2018-10-25 | Salt Dilution | 0.135 | 0.006 | |
| 2018-11-21 | Salt Dilution | - | 0.007 | Stage measurement not available |
| 2018-12-03 | Salt Dilution | - | 0.004 | Stage measurement not available |
| 2018-12-17 | Salt Dilution | - | 0.005 | Stage measurement not available |

**Notes:**
[1]Due to the limited number of measurements for this station, no rating curve has been developed.

**Table 3-14:**
**Station WECP – Discharge Measurement Summary**

| Date | Method | Stage (m) | Discharge ($m^3/s$) | Comments |
|---|---|---|---|---|
| 2009-08-25 | - | - | 0.006 | Stage measurement not available |
| 2010-06-16 | - | - | 0.009 | Stage measurement not available |
| 2010-10-19 | - | - | 0.006 | Stage measurement not available |
| 2011-05-18 | - | - | 0.002 | Stage measurement not available |
| 2011-08-17 | - | - | 0.007 | Stage measurement not available |
| 2011-10-17 | - | 0.150 | 0.001 | |
| 2012-05-06 | - | 0.690 | 0.006 | |
| 2012-08-15 | - | 0.651 | 0.003 | |

**Notes:**
[1]Due to the limited number of measurements for this station, no rating curve has been developed.

## Table 3-15:
## Additional Manual Discharge Measurements

| Station ID | Station Name | Date | Discharge ($m^3/s$) | Stage (m) |
|---|---|---|---|---|
| W13 | Lynx Creek upstream of Ray Gulch | 2007-08-12 | 0.574 | - |
| | | 2007-09-12 | 0.687 | - |
| W30 | Cascallen Gulch | 2009-07-26 | 0.001 | 0.030 |
| | | 2009-08-09 | 0.000 | 0.000 |
| | | 2009-08-20 | 0.000 | 0.000 |
| W31 | Olive Gulch | 2009-07-26 | 0.005 | 0.268 |
| | | 2009-08-09 | 0.003 | 0.264 |
| | | 2009-08-20 | 0.004 | 0.266 |
| | | 2009-08-26 | 0.012 | 0.294 |
| | | 2009-10-05 | 0.013 | 0.324 |
| | | 2009-10-21 | 0.315 | |
| W36 | Stewart Gulch, Main Channel | 2009-07-26 | 0.004 | 0.100 |
| | | 2009-08-09 | 0.004 | 0.100 |
| | | 2009-08-20 | 0.004 | 0.100 |
| W39 | Haggart Creek above South McQuesten River | 2017-08-17 | 0.995 | - |
| | | 2018-08-20 | 2.125 | - |
| W49 | South McQuesten River below Haggart Creek | 2017-08-17 | 4.523 | - |
| | | 2018-06-14 | 19.334 | - |
| W51 | Dublin Gulch, downstream from Cascallen Gulch | 2009-07-26 | 0.014 | 0.150 |
| | | 2009-08-09 | 0.010 | 0.110 |
| | | 2009-08-20 | 0.011 | 0.120 |
| W52 | Dublin Gulch, upstream from Olive Gulch | 2009-07-26 | 0.031 | 0.210 |
| | | 2009-08-09 | 0.036 | 0.220 |
| | | 2009-08-20 | 0.031 | 0.200 |
| W54 | Dulch Gulch, downstream from Ann Gulch | 2009-07-26 | 0.033 | 0.180 |
| | | 2009-08-09 | 0.030 | 0.170 |
| | | 2009-08-20 | 0.032 | 0.180 |
| W61 | Eagle Pup, upstream from Stuttle's Gulch | 2009-07-21 | 0.007 | 0.080 |
| | | 2009-07-25 | 0.008 | 0.080 |

**Notes:**
[1]Due to the limited number of measurements for these stations, no rating curves have been developed.

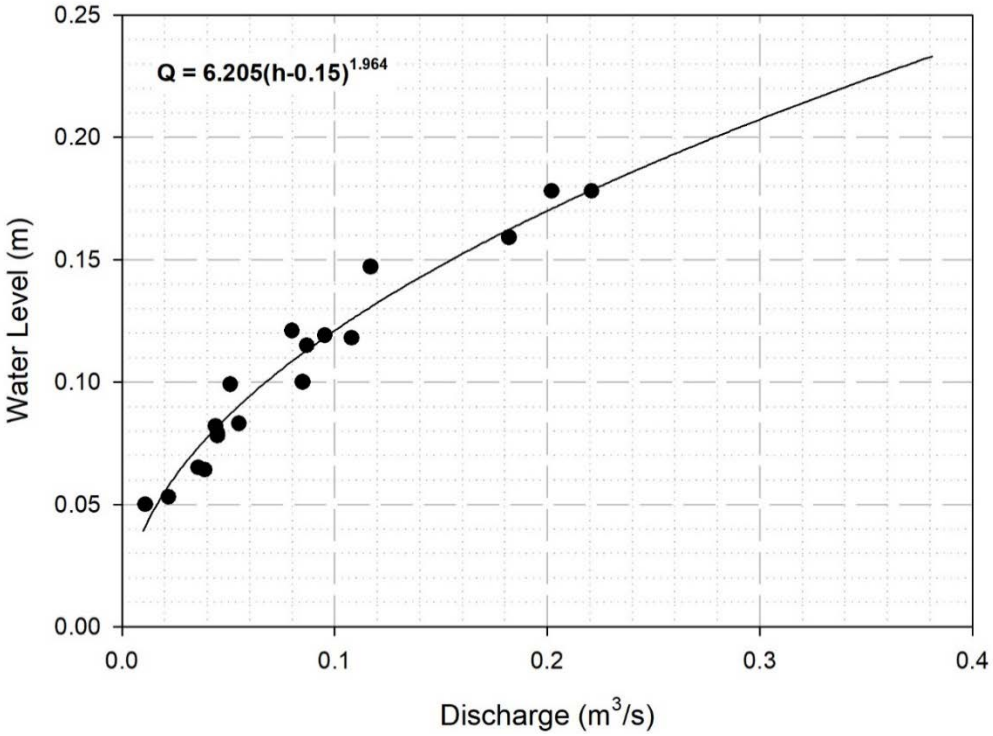



**Figure 3-1: Rating curve for station W1 (2012 – 2018)**

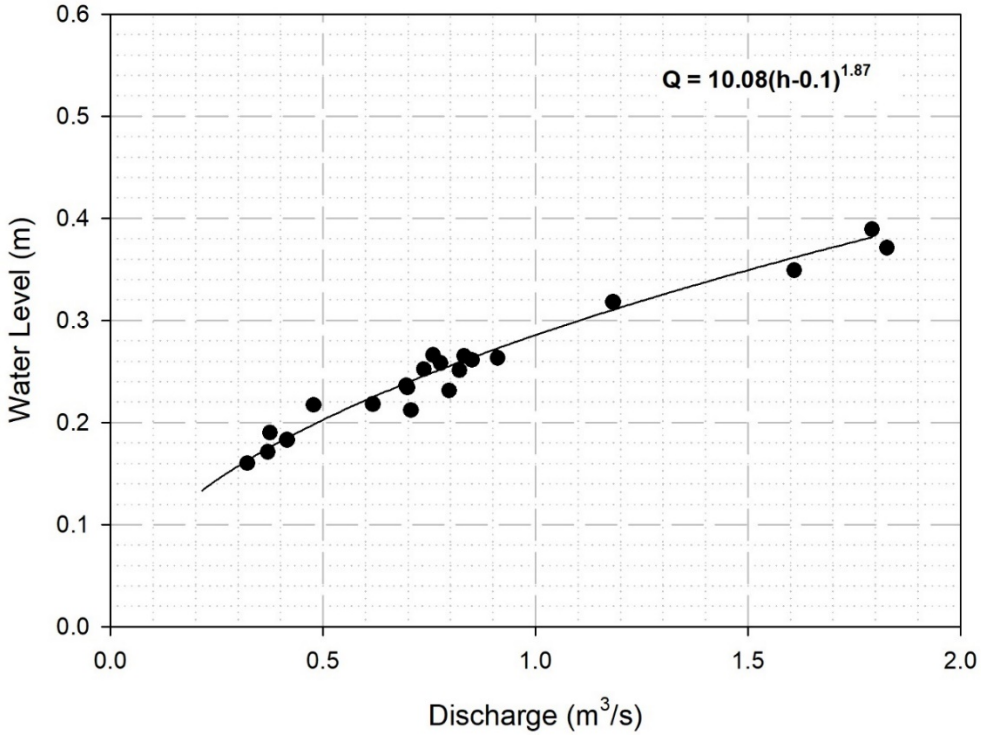



**Figure 3-2: Rating curve for station W4 (2012 – 2018)**

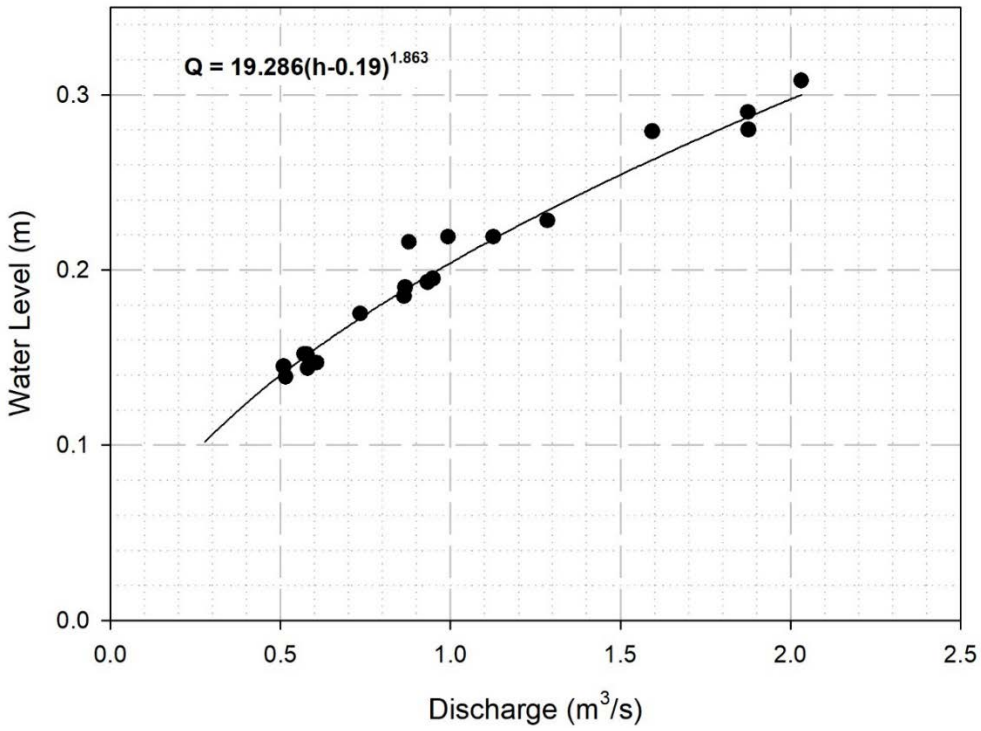



**Figure 3-3: Rating curve for station W5 (2012 – 2018)**

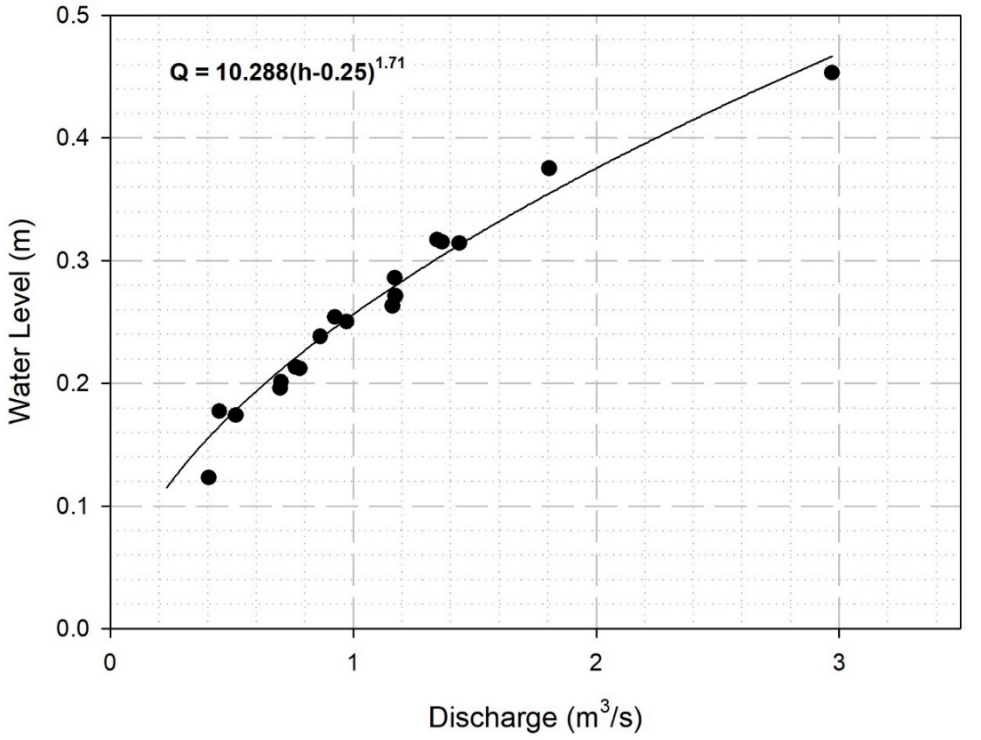



**Figure 3-4: Rating curve for station W6 (2012 – 2018)**

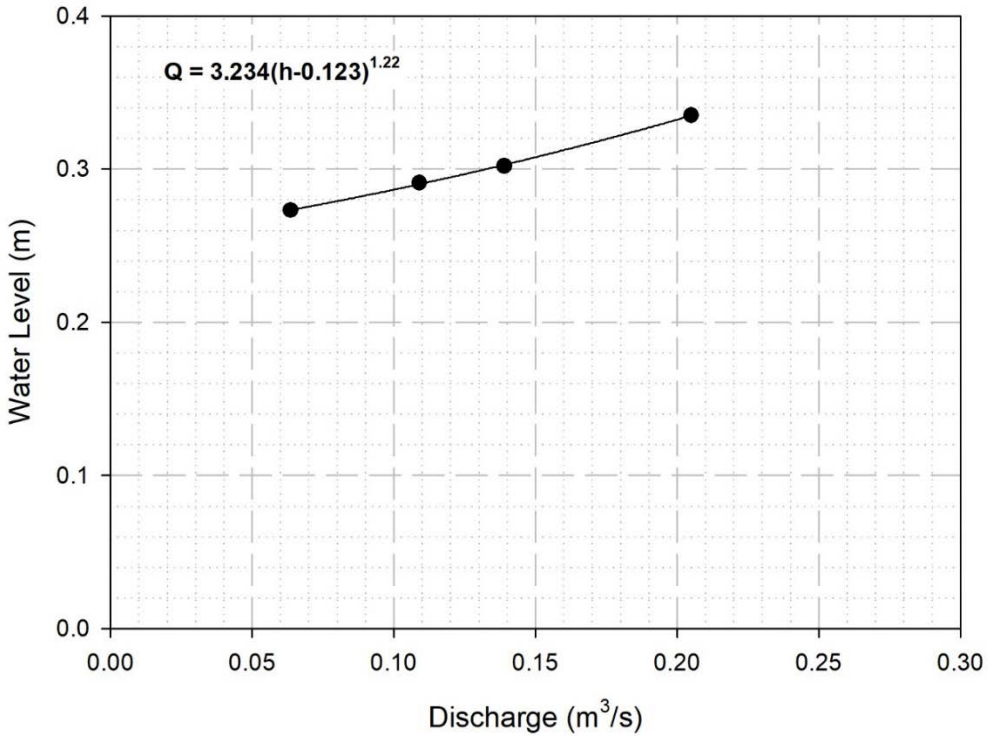



**Figure 3-5: Preliminary rating curve for station W21 (2018).**

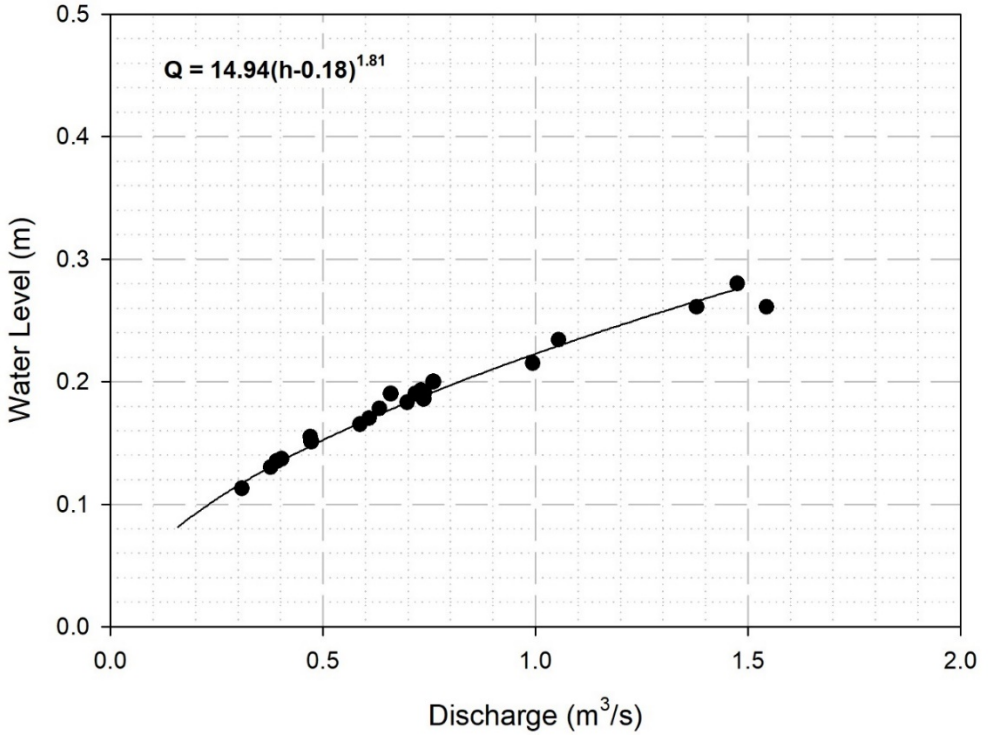



**Figure 3-6: Rating curve for station W22 (2012 – 2018)**

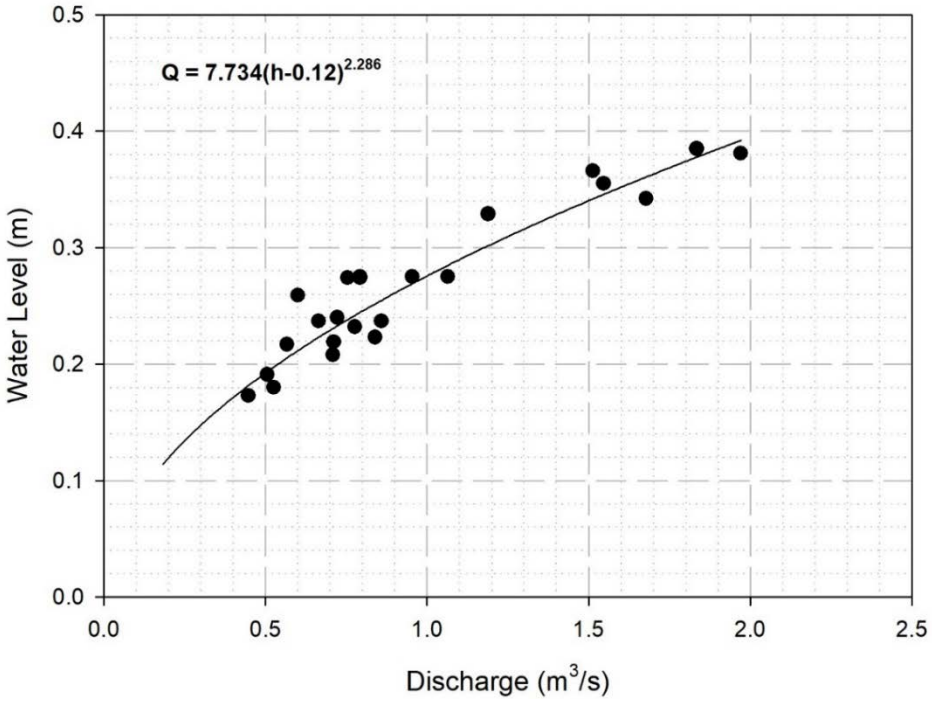



**Figure 3-7: Rating curve for station W29 (2012 – 2018)**

## *3.4 Winter Streamflow Interpolation*

Due to extensive channel icing and complete freezing to the bed in some cases, reliable continuous water level data is not available for the winter season (mid-October to early May in most years). However, spot flow measurements collected during the winter water quality sampling trips are available for most years. Where these measurements span the majority of the winter season, streamflows were estimated by interpolating between the spot flow measurements. This was done by assuming that mid-winter melt or rain events do not occur at site, and that the streamflows are a result of recession from the open-water season discharge regime to a steady-state baseflow driven by the local groundwater system discharging to the stream channel. This recession curve is defined by the equation (Maidment, 1993):

$$Q_t = Q_0\, e^{-kt}$$

Where:

$Q_t$ = discharge at time t ($m^3/s$)

$Q_0$ = initial discharge (both $Q_t$ and $Q_0$ are measured within the same straight segment

$k$ = decay rate (negative for declining flows)

$t$ = number of days between spot measurements (interpolation period)

The decay rate $k$, was unique to each pair of subsequent discharge measurements, and was commonly in the range of $-1 \times 10^{-3}$ to $-0.5 \times 10^{-5}$.

# 4. Results

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# 4. Results

## 4.1 Streamflow Records – Discharge

The computed flow records for all site stations listed in Table 2-1 are presented as average daily discharge time-series and plotted with spot discharge measurements and interpolated baseflows in Figure 4-1 through Figure 4-9. The same flow records are also presented as unit yield plots, with each plot showing annual data for all stations on a single plot (refer to Figure 4-10 to Figure 4-21).

While discharge magnitude varies with watershed area (*i.e.*, larger basin areas result in higher discharge values), it is more often instructive to compare runoff and/or unit yields to remove the influence of watershed area. The variation in runoff and yields across the gauged basins at the Project site is relatively low, with unit yields averaging 14 ± 1.2 L/s/km$^2$ and an average runoff of 187 ± 33 mm for the open water season (Table 4-1).

W22 displays slightly lower average unit yields (12.8 L/s/km$^2$) than the other stations, and W27 and W29 yield slightly more water on average (15.0 and 15.4 L/s/km$^2$, respectively). There appears to be lower than average yields at W26, however, this result is biased lower by the absence of data for the month of May, which is typically the month with the highest proportion of annual runoff. W1 appears to experience the highest overall yields, and in particular, the highest magnitude freshet (in yield terms). Higher than average yields at this station are sustained throughout the seasonal falling limb from September through November.

Table 4-2 through Table 4-19 present the monthly summaries of streamflow as discharge, unit yields and runoff, by station. As noted in Section 2.2.3, reliable continuous water level data is not available for W29 for 2016 through 2018.

**Table 4-1:**
**Summary of monthly average discharge, unit yield and runoff for Project site hydrometric stations.**

| Station (Discharge Area) | Variable | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec | Average/Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **W1 (6.8 km²)** | Average Discharge ($m^3/s$) | -- | -- | -- | 0.024 | 0.218 | 0.099 | 0.086 | 0.089 | 0.091 | 0.090 | 0.069 | -- | 0.096 |
| | Average Yield ($L/s/km^2$) | -- | -- | -- | 3.5 | 32.0 | 14.5 | 12.6 | 13.1 | 13.4 | 13.2 | 10.1 | -- | 14.1 |
| | Runoff (mm) | -- | -- | -- | 5 | 64 | 34 | 34 | 32 | 35 | 21 | 4 | -- | 229 |
| **W4 (76.9 km²)** | Average Discharge ($m^3/s$) | -- | -- | -- | 0.256 | 2.022 | 1.022 | 0.819 | 0.871 | 0.891 | 0.794 | 1.026 | -- | 0.963 |
| | Average Yield ($L/s/km^2$) | -- | -- | -- | 3.3 | 26.3 | 13.3 | 10.6 | 11.3 | 11.6 | 10.3 | 13.3 | -- | 12.5 |
| | Runoff (mm) | -- | -- | -- | 2 | 53 | 31 | 29 | 29 | 30 | 18 | 24 | -- | 216 |
| **W5 (97.5 km²)** | Average Discharge ($m^3/s$) | -- | -- | -- | -- | 2.960 | 1.375 | 1.034 | 1.029 | 1.020 | 1.009 | -- | -- | 1.405 |
| | Average Yield ($L/s/km^2$) | -- | -- | -- | -- | 30.4 | 14.1 | 10.6 | 10.6 | 10.5 | 10.4 | -- | -- | 14.4 |
| | Runoff (mm) | -- | -- | -- | -- | 63 | 32 | 28 | 27 | 27 | 15 | -- | -- | 192 |
| **W6 (100.9 km²)** | Average Discharge ($m^3/s$) | -- | -- | -- | -- | 3.240 | 1.204 | 0.949 | 1.126 | 1.193 | 0.985 | 1.300 | -- | 1.428 |
| | Average Yield ($L/s/km^2$) | -- | -- | -- | -- | 32.1 | 11.9 | 9.4 | 11.2 | 11.8 | 9.8 | 12.9 | -- | 14.2 |
| | Runoff (mm) | -- | -- | -- | -- | 62 | 22 | 24 | 29 | 30 | 16 | 3 | -- | 188 |
| **W21 (8.1 km²)** | Average Discharge ($m^3/s$) | -- | -- | -- | -- | -- | 0.116 | 0.075 | 0.197 | 0.098 | 0.060 | -- | -- | 0.109 |
| | Average Yield ($L/s/km^2$) | -- | -- | -- | -- | -- | 14.4 | 9.2 | 24.3 | 12.0 | 7.4 | -- | -- | 13.5 |
| | Runoff (mm) | -- | -- | -- | -- | -- | 17 | 10 | 27 | 31 | 16 | -- | -- | 102 |
| **W22 (66.8 km²)** | Average Discharge ($m^3/s$) | -- | -- | -- | 0.609 | 1.898 | 0.881 | 0.683 | 0.803 | 0.784 | 0.701 | 0.937 | -- | 0.912 |
| | Average Yield ($L/s/km^2$) | -- | -- | -- | 9.1 | 28.4 | 13.2 | 10.2 | 12.0 | 11.7 | 10.5 | 14.0 | -- | 13.7 |
| | Runoff (mm) | -- | -- | -- | 13 | 58 | 32 | 25 | 31 | 30 | 17 | 15 | -- | 222 |
| **W26 (1.3 km²)** | Average Discharge ($m^3/s$) | -- | -- | -- | -- | 0.018 | 0.017 | 0.014 | 0.014 | 0.013 | 0.010 | -- | -- | 0.014 |
| | Average Yield ($L/s/km^2$) | -- | -- | -- | -- | 14.0 | 12.9 | 10.6 | 11.0 | 9.6 | 7.4 | -- | -- | 10.9 |
| | Runoff (mm) | -- | -- | -- | -- | 11 | 24 | 24 | 29 | 24 | 7 | -- | -- | 120 |
| **W27 (2.7 km²)** | Average Discharge ($m^3/s$) | -- | -- | -- | -- | 0.080 | 0.034 | 0.029 | 0.025 | 0.024 | 0.025 | -- | -- | 0.036 |
| | Average Yield ($L/s/km^2$) | -- | -- | -- | -- | 29.6 | 12.6 | 10.8 | 9.1 | 8.9 | 9.1 | -- | -- | 13.3 |
| | Runoff (mm) | -- | -- | -- | -- | 48 | 30 | 24 | 23 | 22 | 12 | -- | -- | 159 |
| **W29 (86.1 km²)** | Average Discharge ($m^3/s$) | -- | -- | -- | -- | 2.508 | 1.300 | 1.224 | 1.165 | 1.043 | 0.980 | -- | -- | 1.370 |
| | Average Yield ($L/s/km^2$) | -- | -- | -- | -- | 29.1 | 15.1 | 14.2 | 13.5 | 12.1 | 11.4 | -- | -- | 15.9 |
| | Runoff (mm) | -- | -- | -- | -- | 44 | 27 | 38 | 35 | 31 | 20 | -- | -- | 196 |

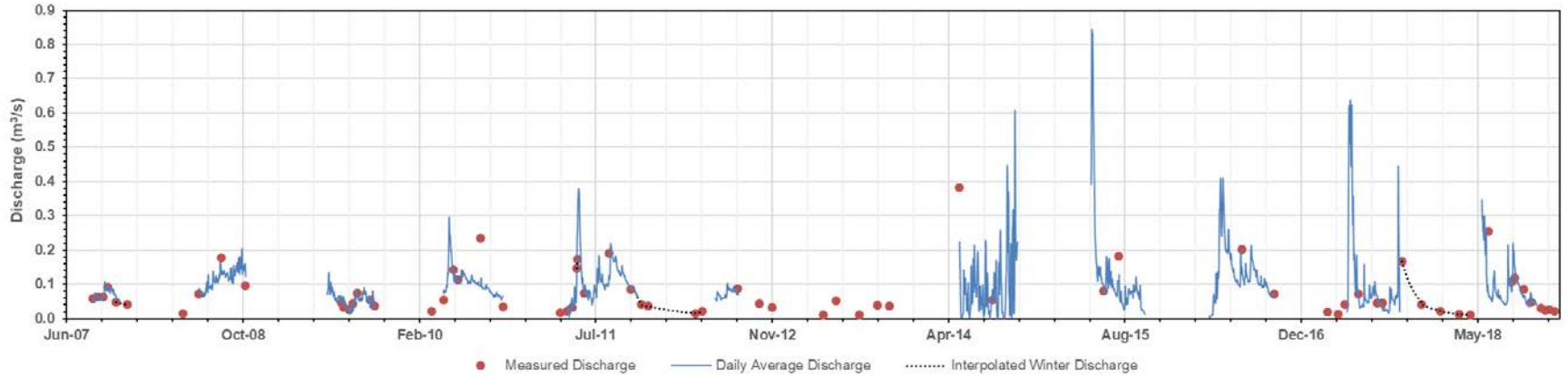


**Figure 4-1: W1 Average daily discharge record (2007 to 2018)**

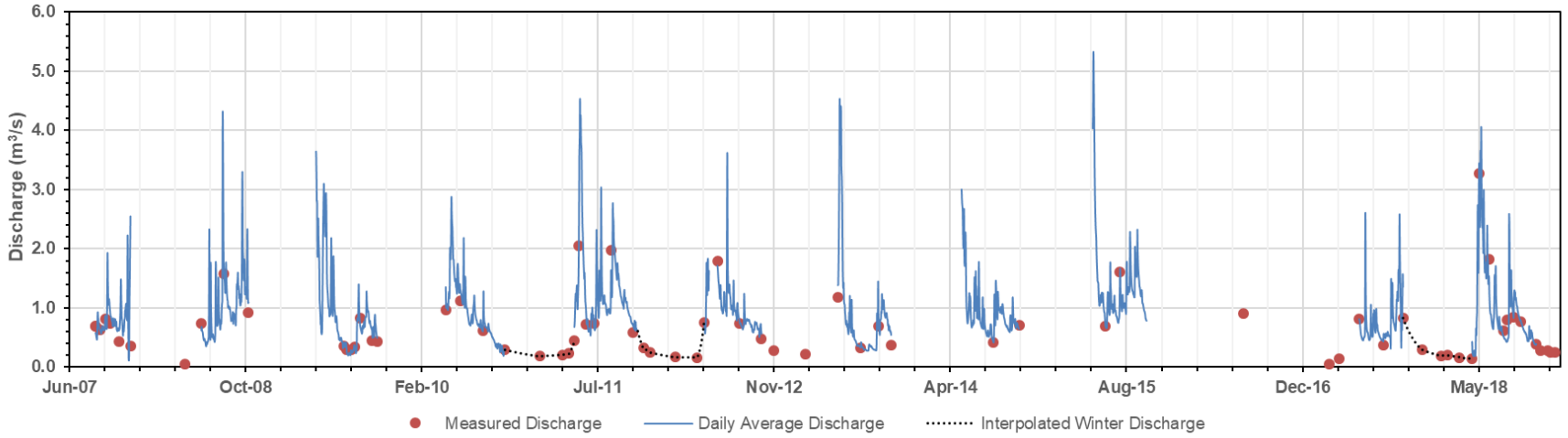


**Figure 4-2: W4 Average daily discharge record (2007 to 2018)**

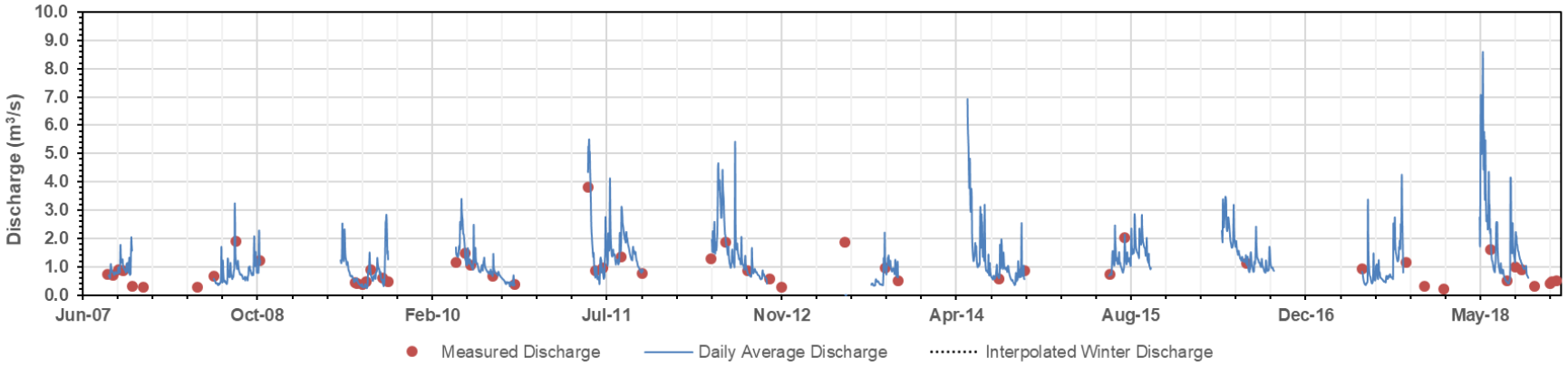


**Figure 4-3: W5 Average daily discharge record (2007 to 2018)**

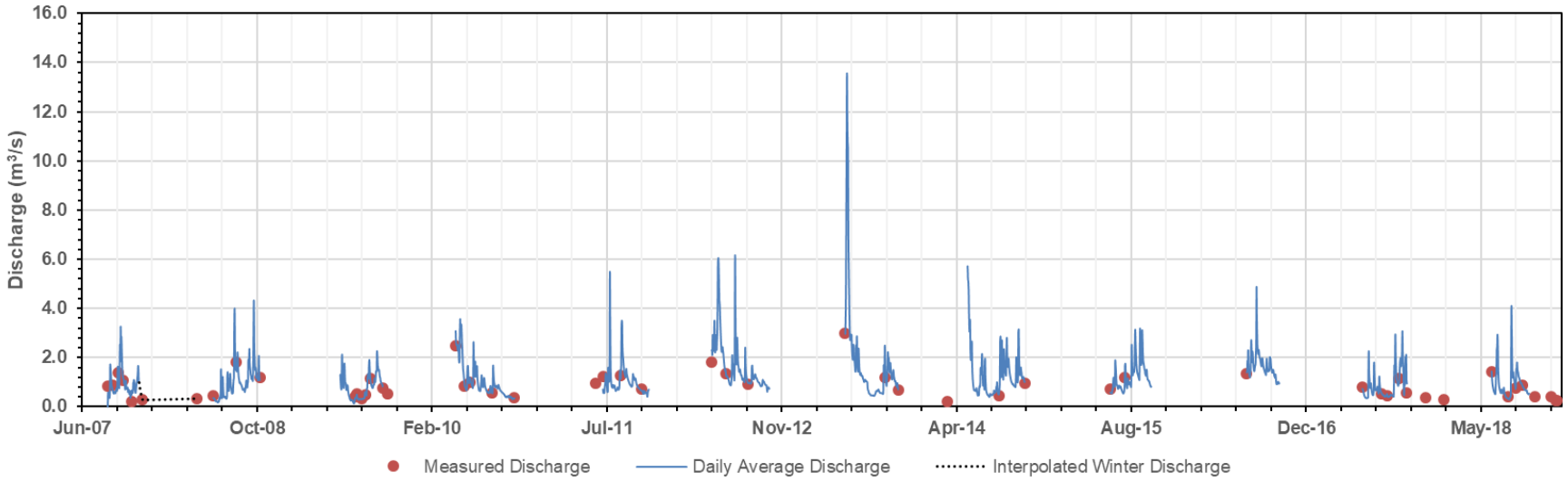


**Figure 4-4: W6 Average daily discharge record (2007 to 2018)**

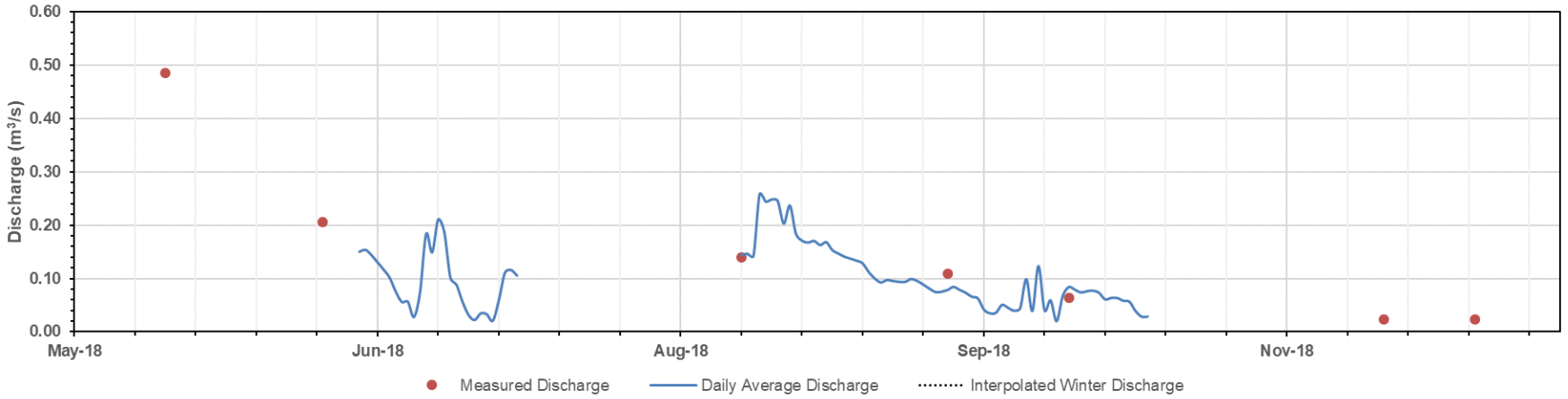


**Figure 4-5: Preliminary W21 Average daily discharge record (2018)**

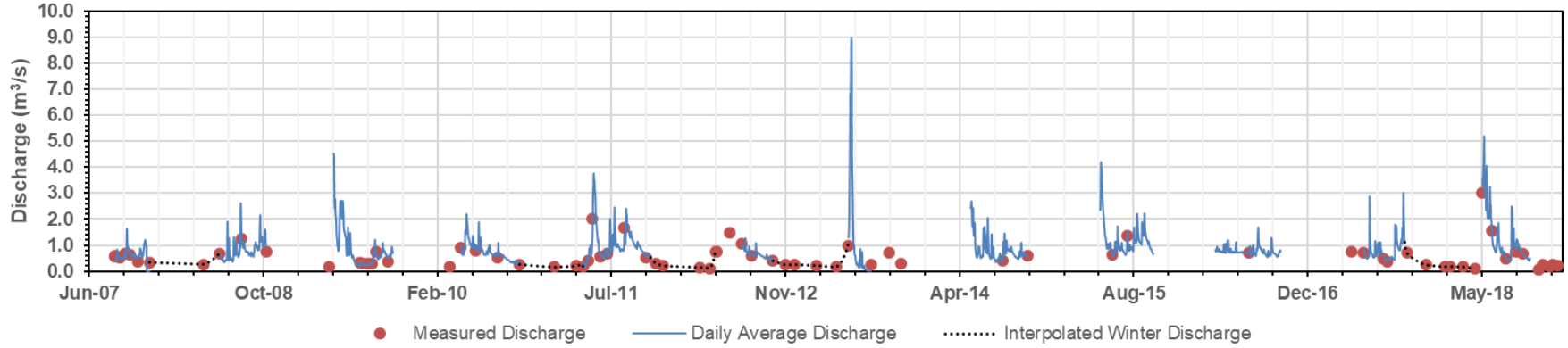


**Figure 4-6: W22 Average daily discharge record (2007 to 2018)**

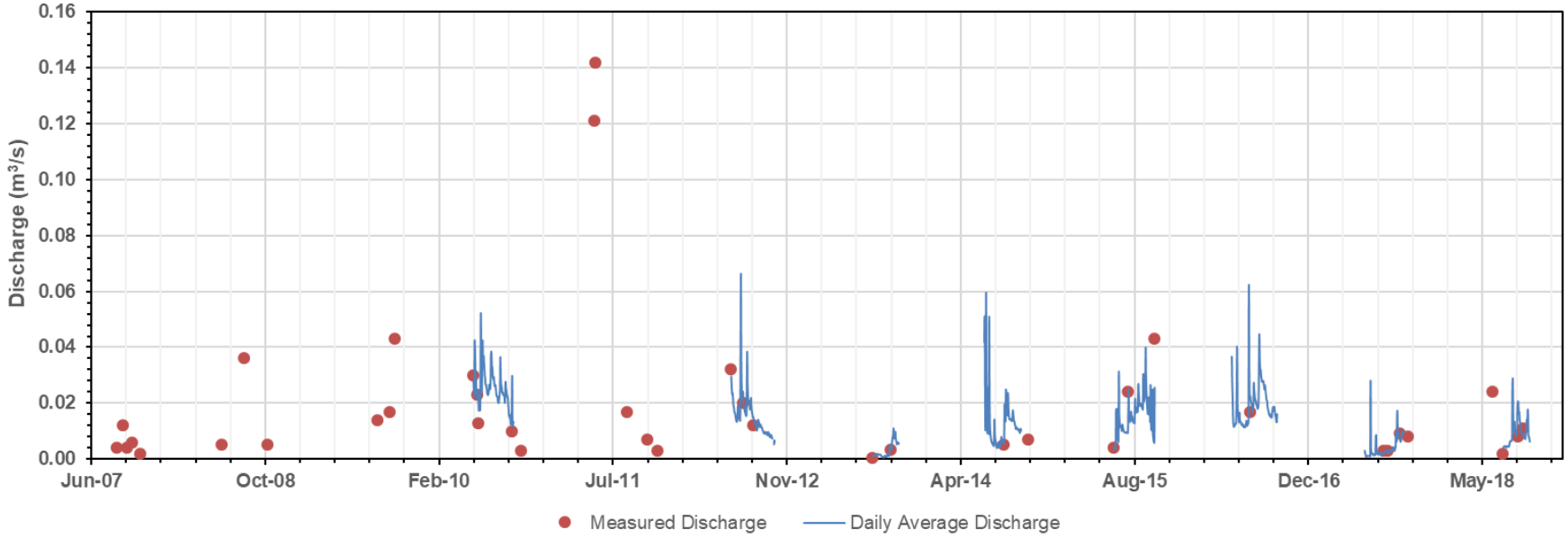


**Figure 4-7: W26 Average daily discharge record (2007 to 2018)**

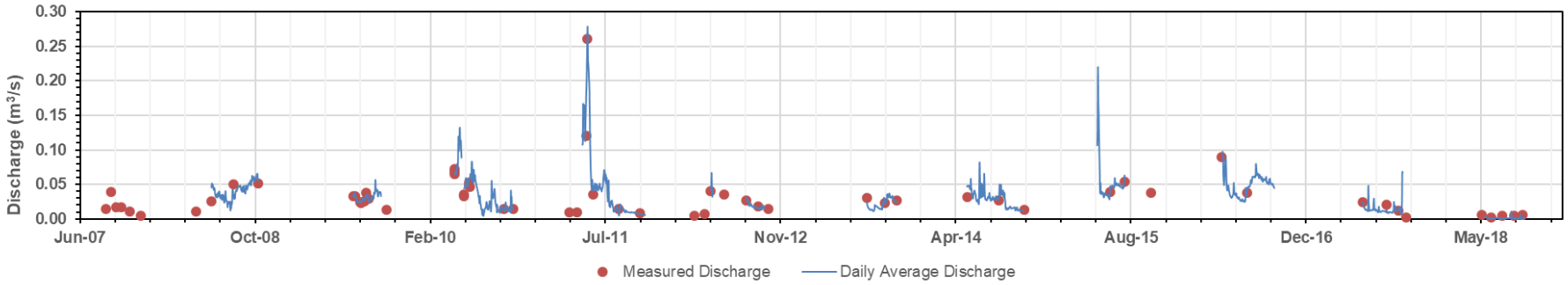


**Figure 4-8: W27 Average daily discharge record (2007 to 2018)**

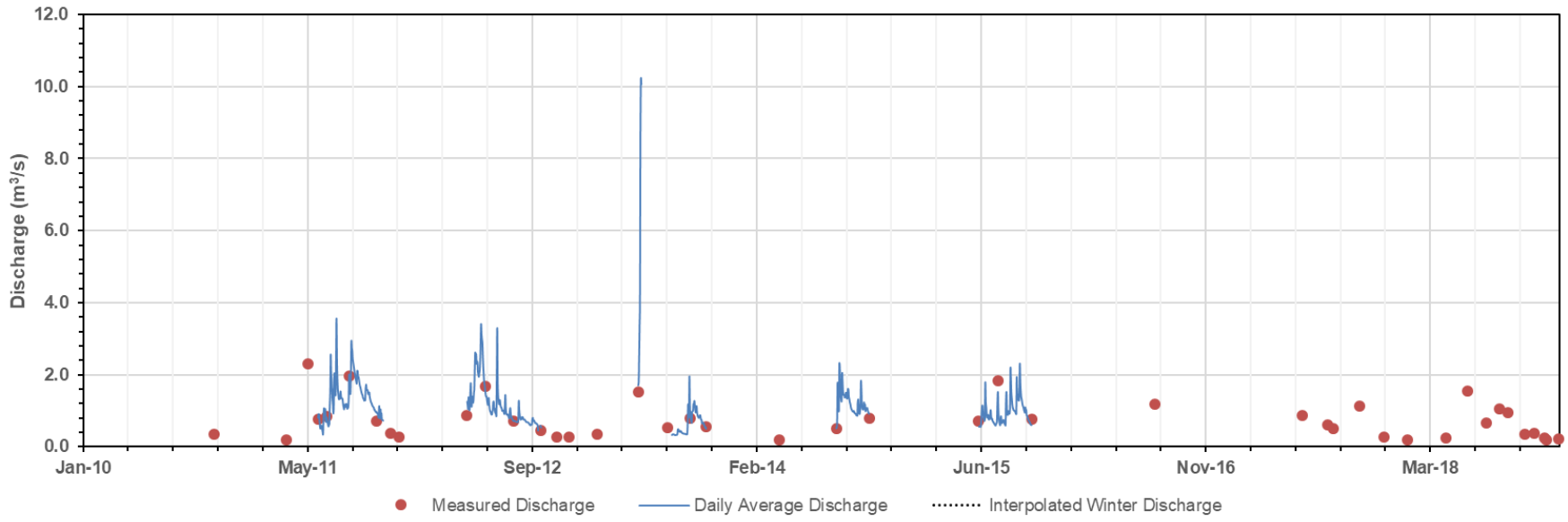


**Figure 4-9: W29 Average daily discharge record (2007 to 2015).**

## *4.2 Streamflow Records – Unit Yields*

Period of record (Figure 4-10) and unit yield plots per year (Figure 4-11 through Figure 4-19) are presented for the eight hydrometric stations in this section.

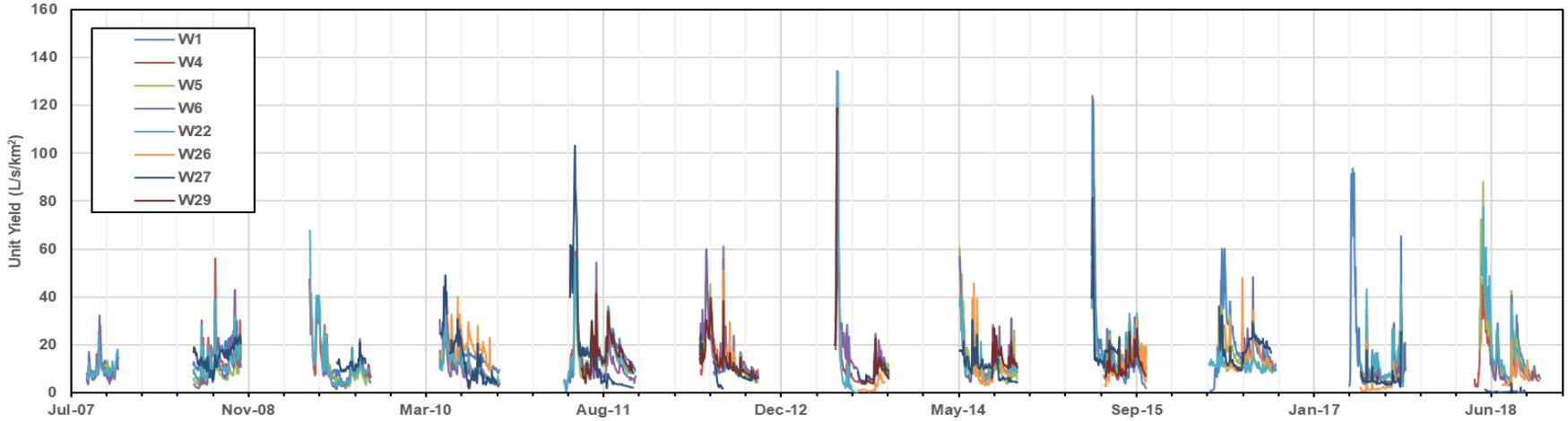


**Figure 4-10: Average daily unit yield time-series for Project stations (2007-2018)**

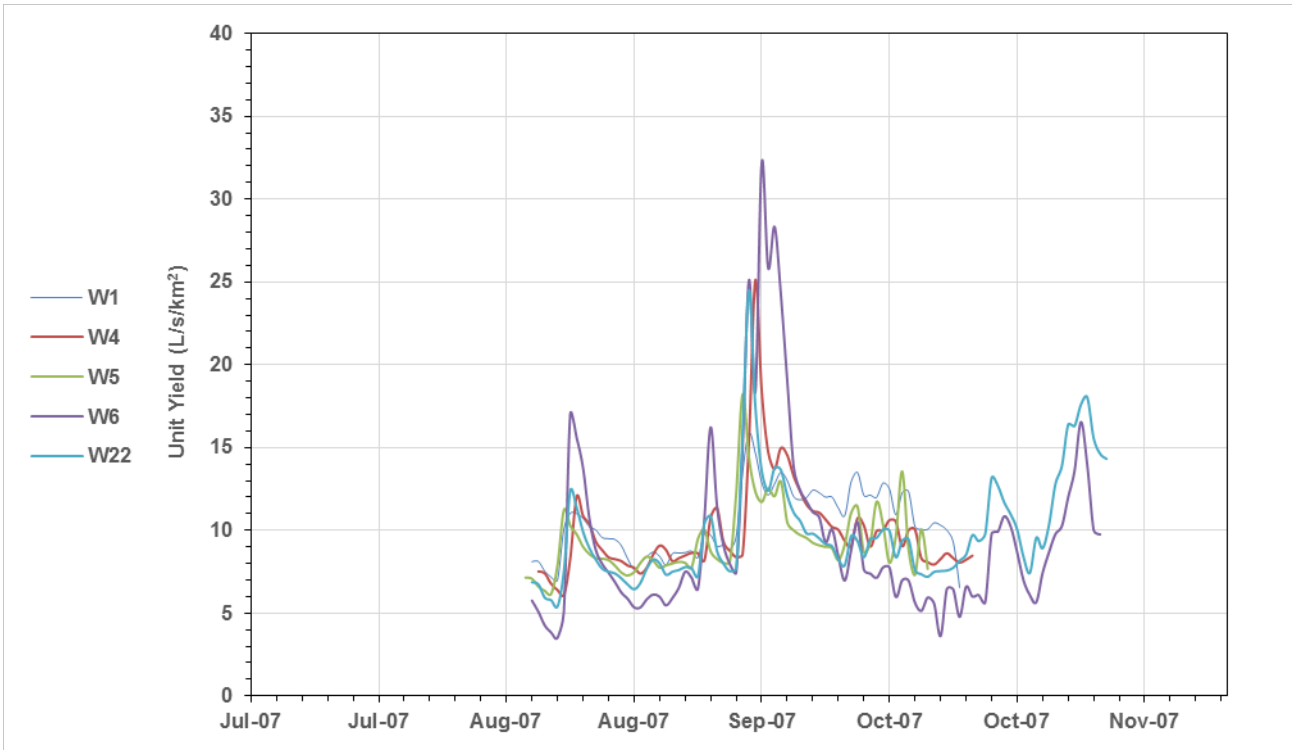


**Figure 4-11: Average daily unit yield time-series for Project stations (2007)**

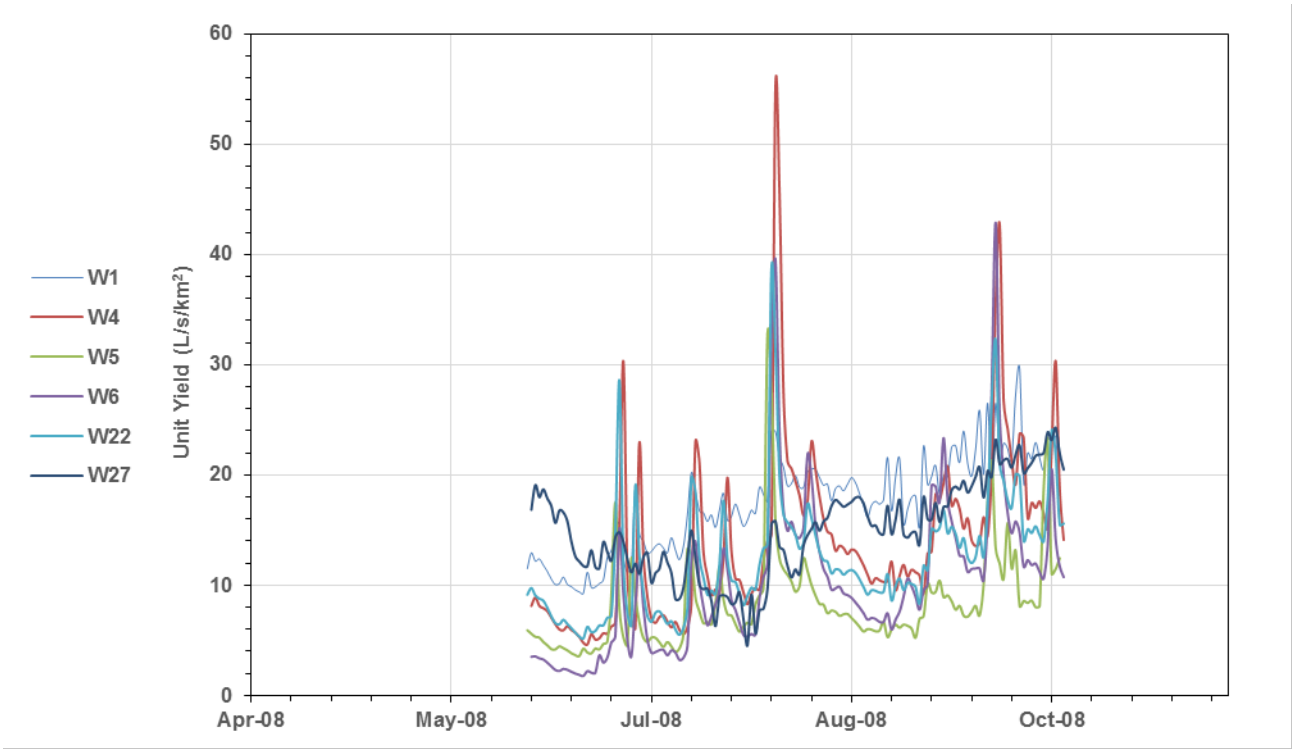


**Figure 4-12: Average daily unit yield time-series for Project stations (2008)**

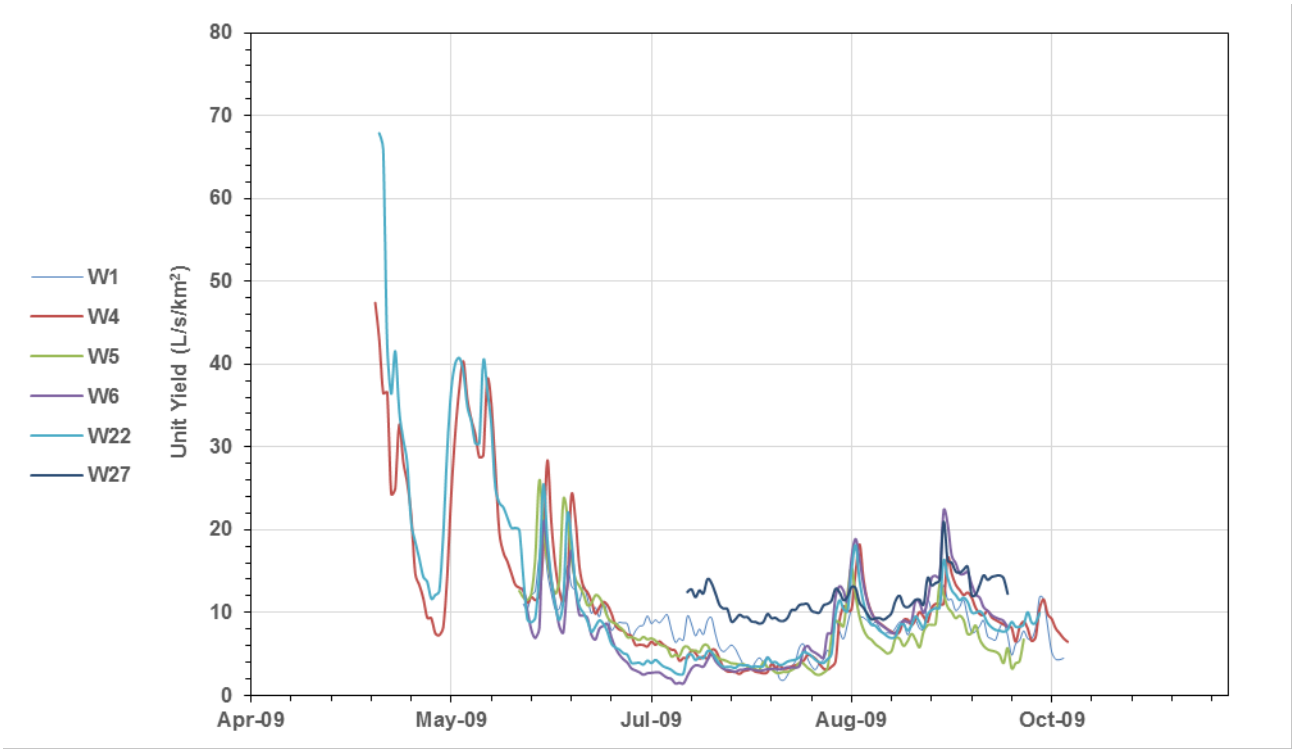


**Figure 4-13: Average daily unit yield time-series for Project stations (2009)**

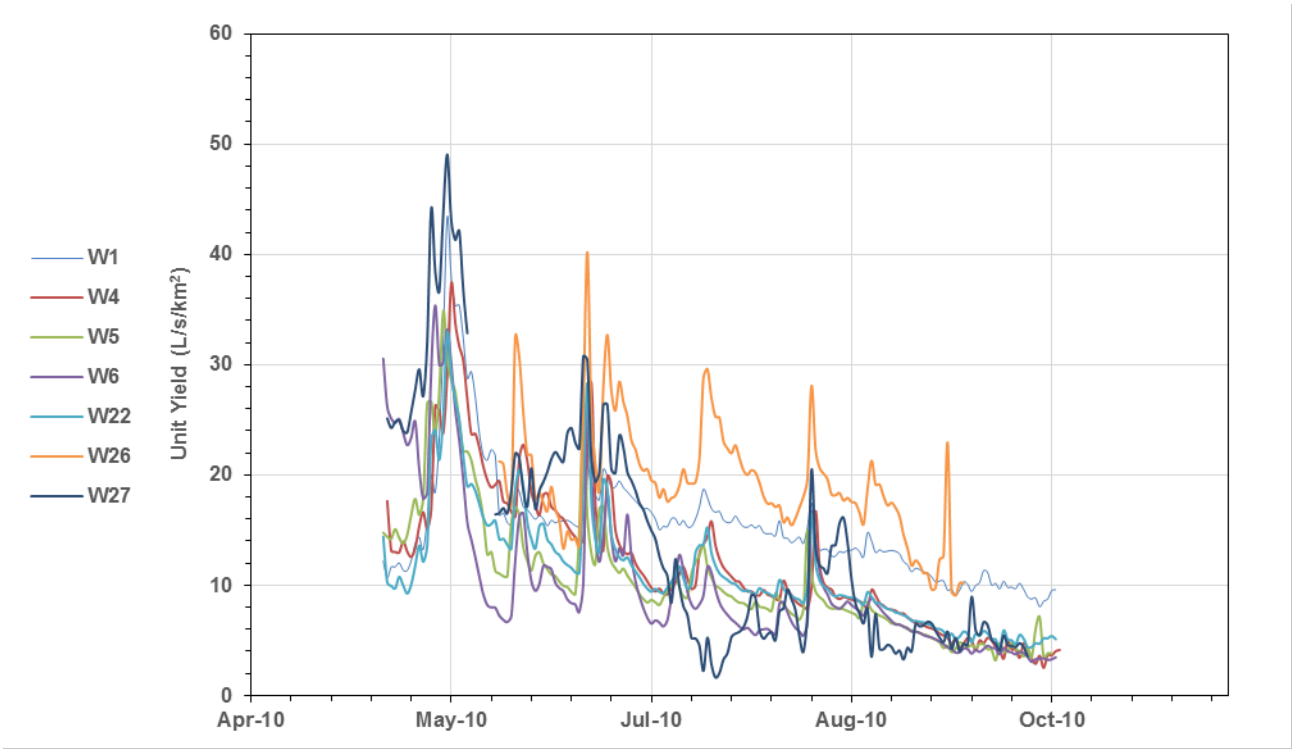


**Figure 4-14: Average daily unit yield time-series for Project stations (2010)**

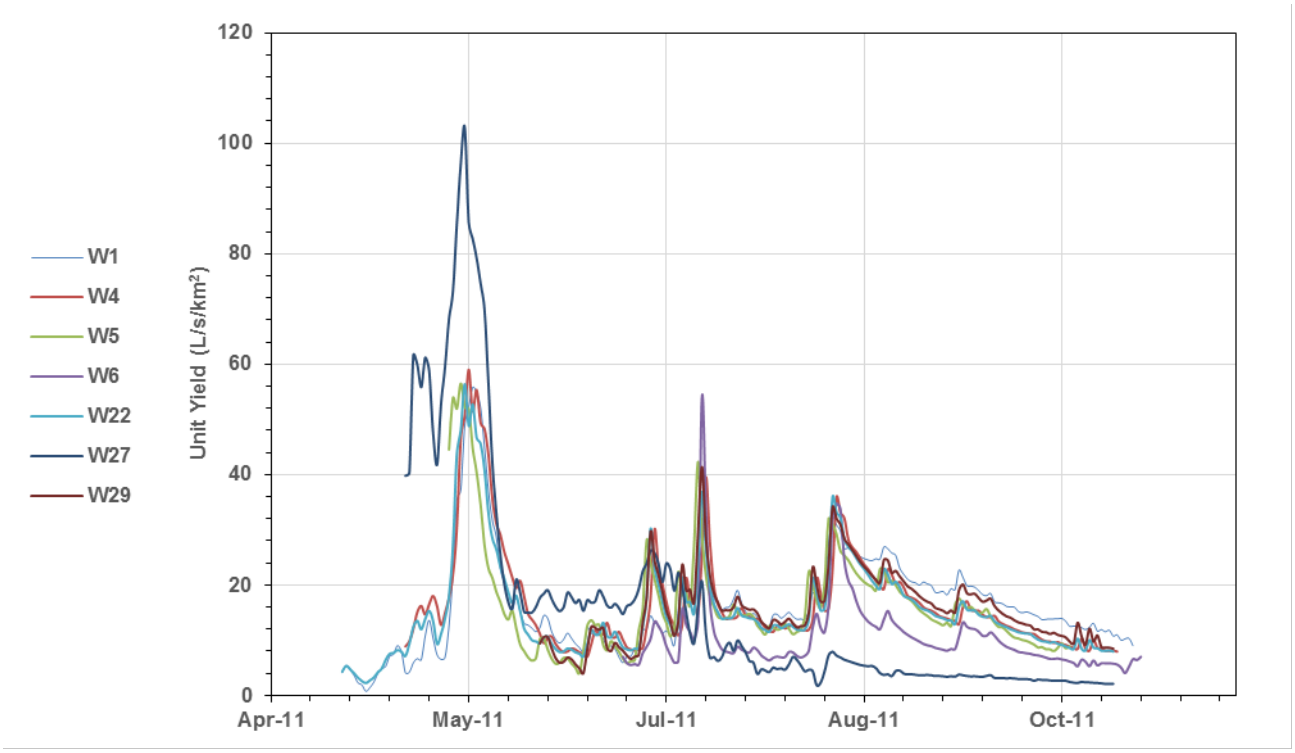


**Figure 4-15: Average daily unit yield time-series for Project stations (2011)**

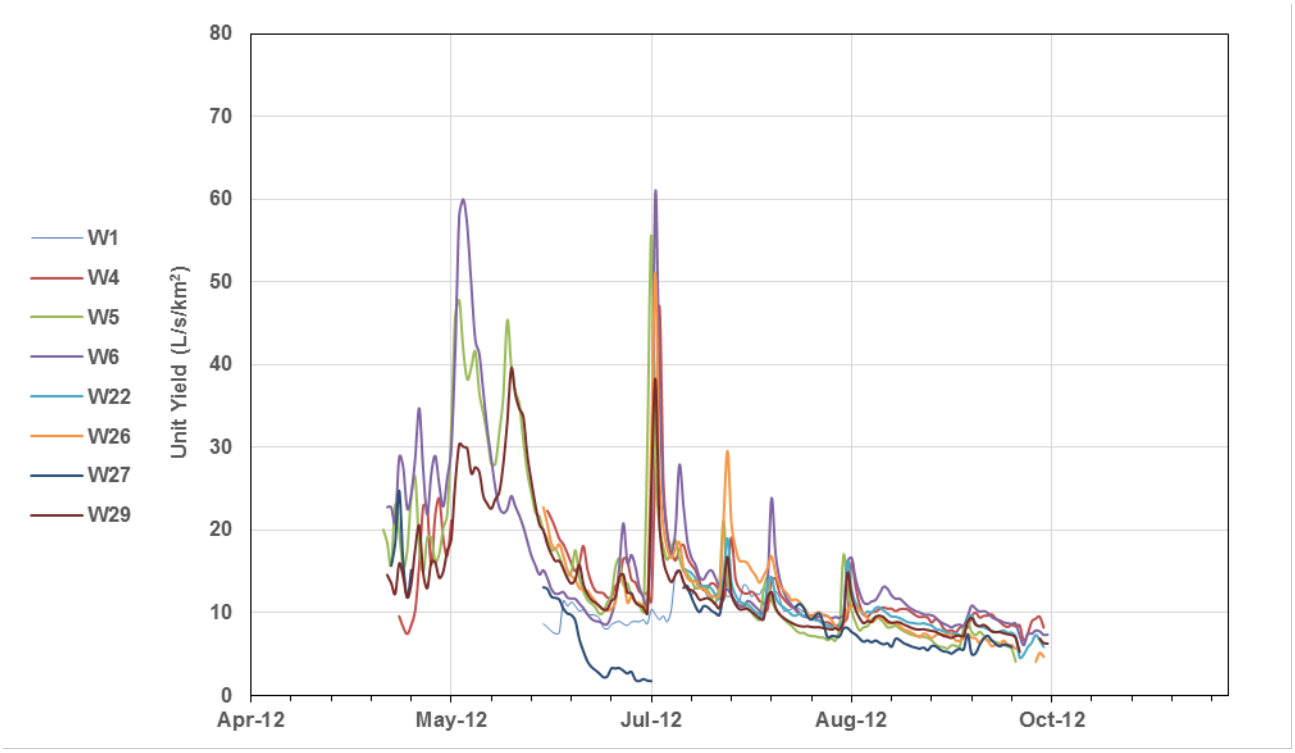


**Figure 4-16: Average daily unit yield time-series for Project stations (2012)**

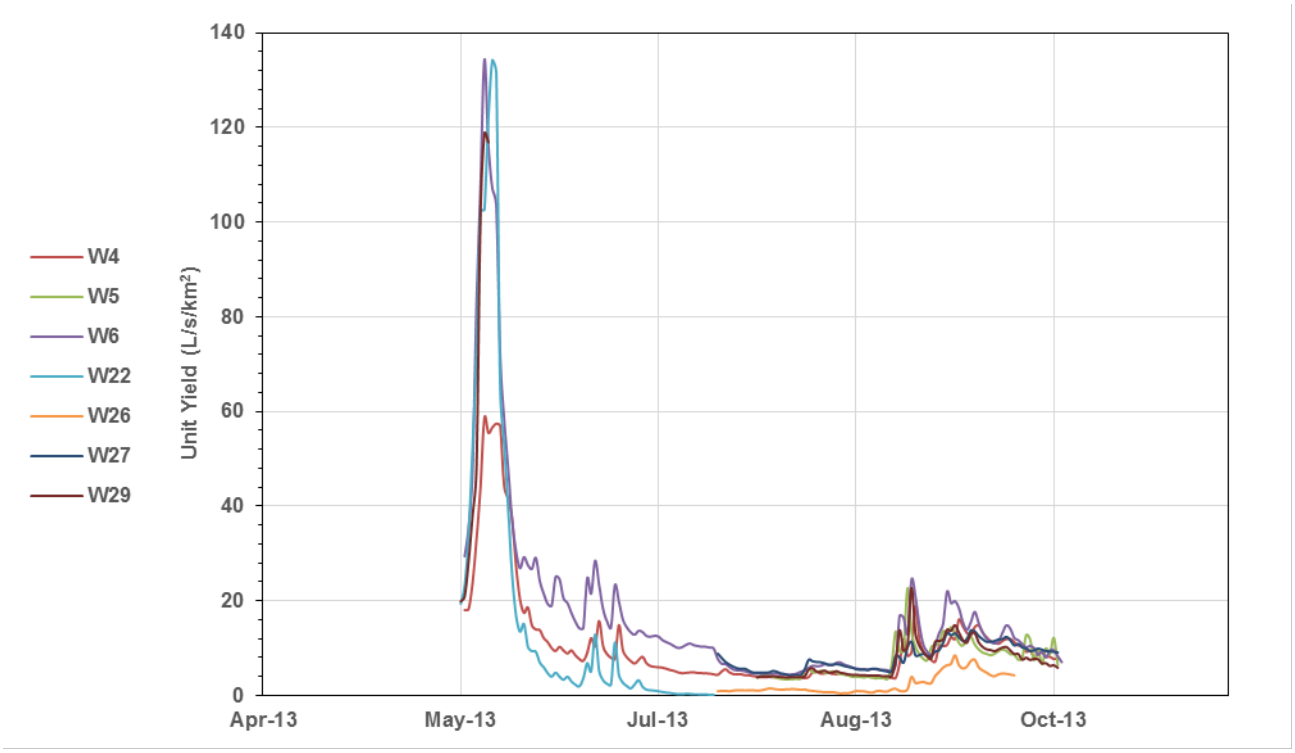


**Figure 4-17: Average daily unit yield time-series for Project stations (2013)**

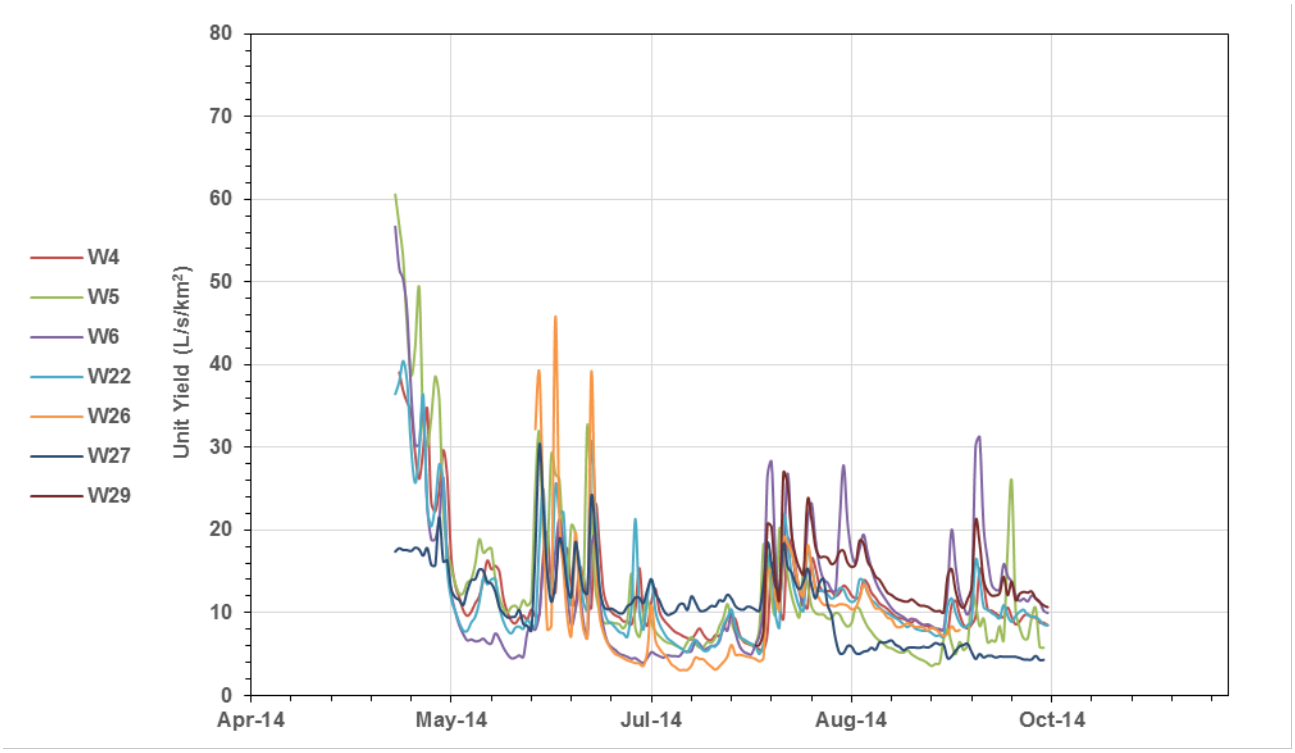


**Figure 4-18: Average daily unit yield time-series for Project stations (2014)**

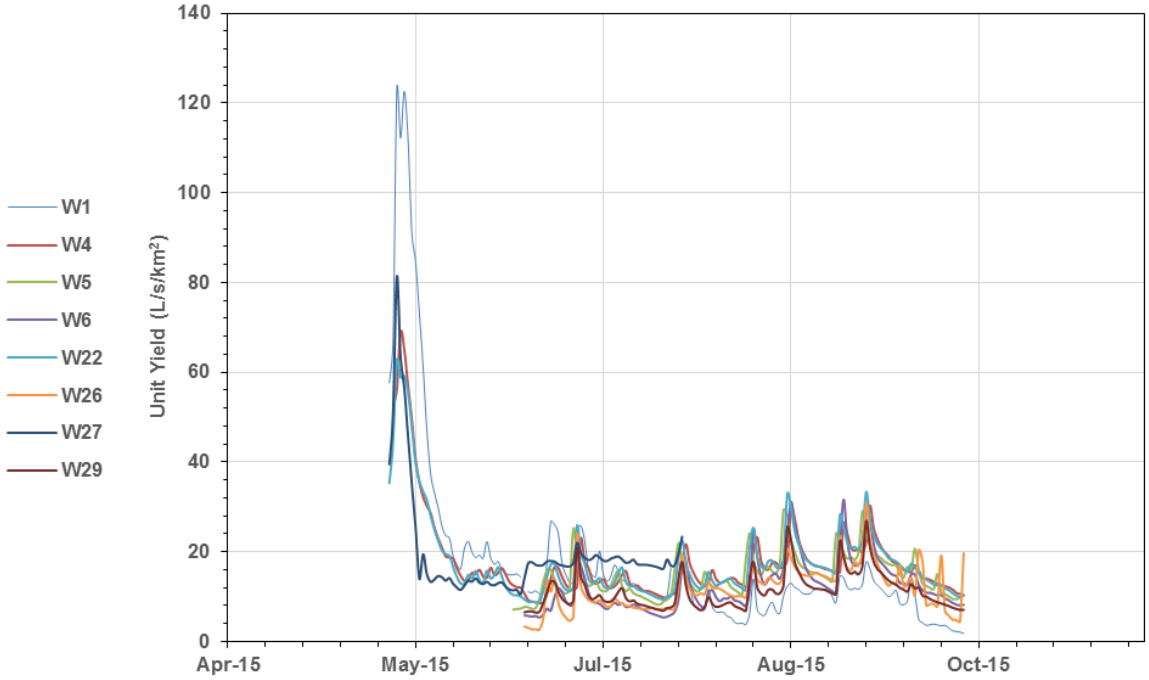


**Figure 4-19: Average daily unit yield time-series for Project stations (2015)**

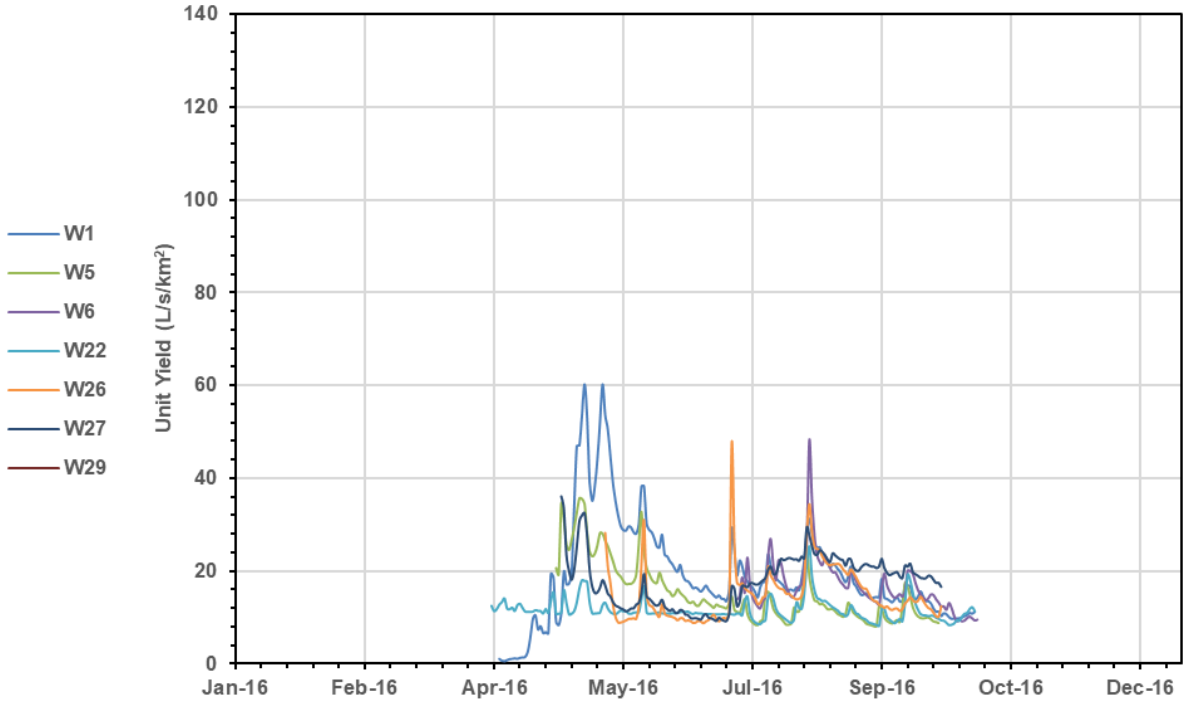


**Figure 4-20: Average daily unit yield time-series for Project stations (2016)**

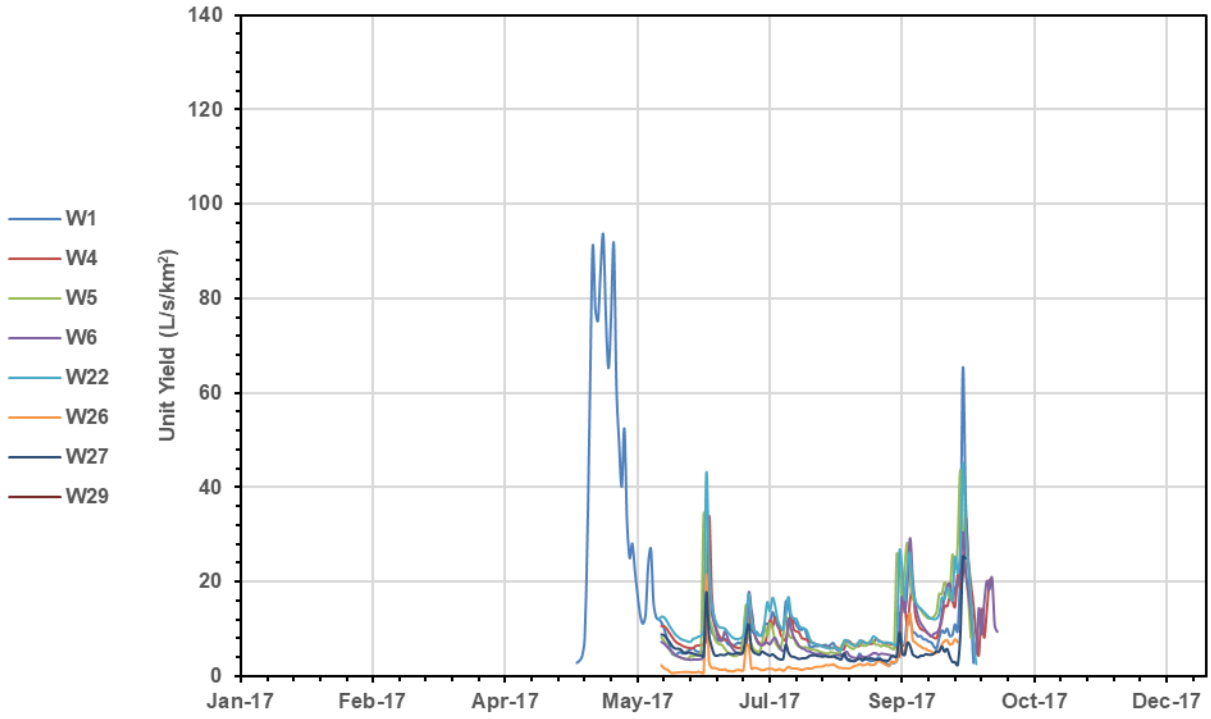


**Figure 4-21: Average daily unit yield time-series for Project stations (2017)**

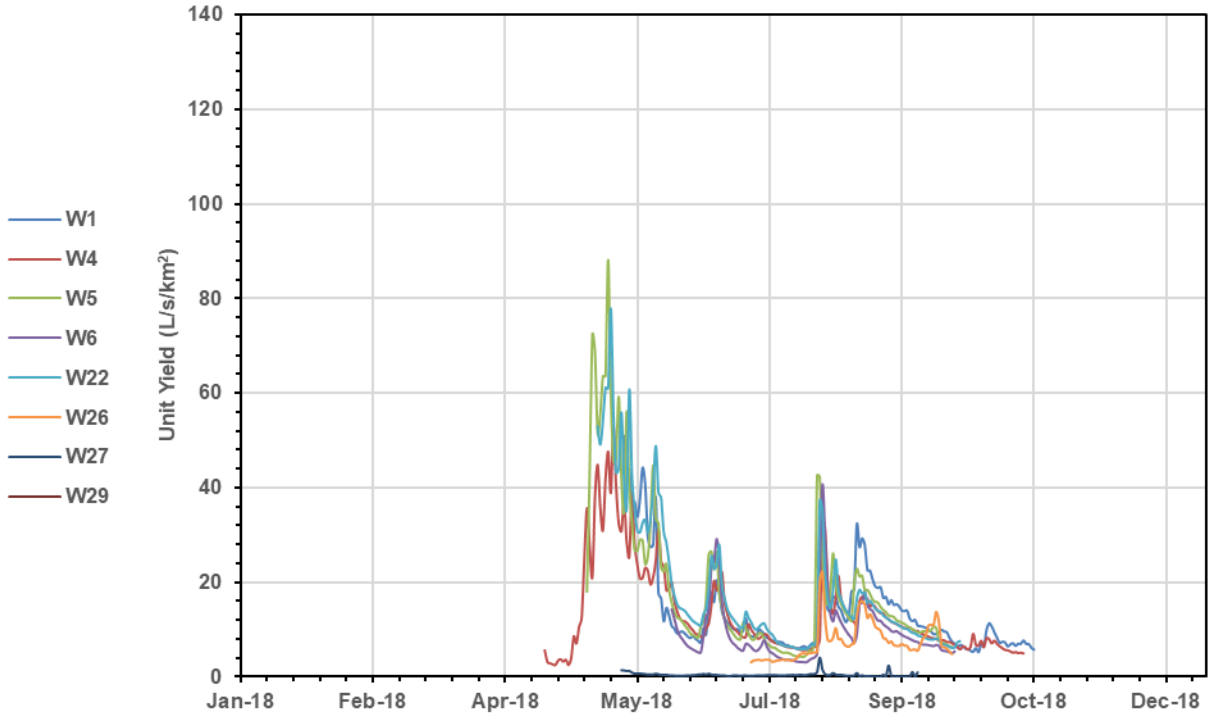


**Figure 4-22: Average daily unit yield time-series for Project stations (2018)**

## *4.3 Streamflow Records – Monthly Summary Tables*

Monthly summary tables are presented for the eight hydrometric stations in this section.

**Table 4-2:**
**W1 Summary statistics for 15-minute discharge record. All values are in $m^3/s$.**

| Year | Variable | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2007 | Average | -- | -- | -- | -- | -- | -- | -- | 0.06 | 0.07 | 0.08 | -- | -- |
| | Maximum | -- | -- | -- | -- | -- | -- | -- | 0.10 | 0.13 | 0.10 | -- | -- |
| | Minimum | -- | -- | -- | -- | -- | -- | -- | 0.04 | 0.05 | 0.04 | -- | -- |
| 2008 | Average | -- | -- | -- | -- | -- | 0.07 | 0.10 | 0.13 | 0.13 | 0.15 | -- | -- |
| | Maximum | -- | -- | -- | -- | -- | 0.11 | 0.18 | 0.21 | 0.25 | 0.26 | -- | -- |
| | Minimum | -- | -- | -- | -- | -- | 0.05 | 0.07 | 0.09 | 0.09 | 0.07 | -- | -- |
| 2009 | Average | -- | -- | -- | -- | -- | 0.08 | 0.05 | 0.04 | 0.06 | 0.05 | -- | -- |
| | Maximum | -- | -- | -- | -- | -- | 0.24 | 0.08 | 0.10 | 0.11 | 0.12 | -- | -- |
| | Minimum | -- | -- | -- | -- | -- | 0.01 | 0.01 | 0.00 | 0.03 | 0.01 | -- | -- |
| 2010 | Average | -- | -- | -- | -- | 0.15 | 0.12 | 0.11 | 0.10 | 0.08 | 0.07 | -- | -- |
| | Maximum | -- | -- | -- | -- | 0.34 | 0.19 | 0.15 | 0.16 | 0.13 | 0.09 | -- | -- |
| | Minimum | -- | -- | -- | -- | 0.06 | 0.09 | 0.09 | 0.08 | 0.05 | 0.05 | -- | -- |
| 2011 | Average | -- | -- | -- | 0.02 | 0.15 | 0.07 | 0.10 | 0.13 | 0.14 | 0.09 | 0.07 | -- |
| | Maximum | -- | -- | -- | 0.05 | 0.48 | 0.14 | 0.26 | 0.29 | 0.21 | 0.12 | 0.09 | -- |
| | Minimum | -- | -- | -- | 0.00 | 0.02 | 0.03 | 0.03 | 0.07 | 0.12 | 0.06 | 0.05 | -- |
| 2012 | Average | -- | -- | -- | -- | -- | 0.06 | 0.08 | 0.08 | -- | -- | -- | -- |
| | Maximum | -- | -- | -- | -- | -- | 0.10 | 0.12 | 0.10 | -- | -- | -- | -- |
| | Minimum | -- | -- | -- | -- | -- | 0.05 | 0.05 | 0.07 | -- | -- | -- | -- |
| 2013 | Average | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | Maximum | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | Minimum | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 2014 | Average | -- | -- | -- | -- | 0.08 | 0.09 | 0.07 | 0.09 | 0.12 | 0.22 | -- | -- |
| | Maximum | -- | -- | -- | -- | 0.78 | 0.27 | 0.28 | 0.29 | 0.56 | 0.72 | -- | -- |
| | Minimum | -- | -- | -- | -- | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | -- | -- |
| 2015 | Average | -- | -- | -- | -- | 0.43 | 0.12 | 0.10 | 0.06 | 0.08 | 0.03 | -- | -- |
| | Maximum | -- | -- | -- | -- | 1.30 | 0.29 | 0.20 | 0.25 | 0.17 | 0.09 | -- | -- |
| | Minimum | -- | -- | -- | -- | 0.12 | 0.07 | 0.00 | 0.02 | 0.03 | 0.01 | -- | -- |
| 2016 | Average | -- | -- | -- | 0.02 | 0.23 | 0.16 | 0.12 | 0.14 | 0.10 | 0.07 | -- | -- |
| | Maximum | -- | -- | -- | 0.10 | 0.58 | 0.33 | 0.35 | 0.26 | 0.15 | 0.09 | -- | -- |
| | Minimum | -- | -- | -- | 0.00 | 0.03 | 0.09 | 0.08 | 0.09 | 0.06 | 0.05 | -- | -- |
| 2017 | Average | -- | -- | -- | -- | 0.34 | 0.07 | 0.07 | 0.04 | 0.06 | 0.21 | -- | -- |
| | Maximum | -- | -- | -- | -- | 1.01 | 0.28 | 0.20 | 0.08 | 0.29 | 0.53 | -- | -- |
| | Minimum | -- | -- | -- | -- | 0.00 | 0.02 | 0.04 | 0.02 | 0.01 | 0.00 | -- | -- |
| 2018 | Average | -- | -- | -- | -- | 0.27 | 0.12 | 0.06 | 0.12 | 0.08 | 0.05 | -- | -- |
| | Maximum | -- | -- | -- | -- | 0.42 | 0.47 | 0.15 | 0.31 | 0.13 | 0.13 | -- | -- |
| | Minimum | -- | -- | -- | -- | 0.17 | 0.04 | 0.03 | 0.03 | 0.02 | 0.02 | -- | -- |
| All Years | Average | -- | -- | -- | 0.02 | 0.22 | 0.10 | 0.09 | 0.09 | 0.09 | 0.09 | 0.07 | -- |
| | Maximum | -- | -- | -- | 0.10 | 1.30 | 0.47 | 0.35 | 0.31 | 0.56 | 0.72 | 0.09 | -- |
| | Minimum | -- | -- | -- | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.05 | -- |

## Table 4-3:
## W1 Summary statistics for daily discharge, unit yield and runoff

| Year | Variable | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2007 | # days with data | -- | -- | -- | -- | -- | -- | -- | *18* | 30 | *20* | -- | -- |
| | Average Discharge ($m^3/s$) | -- | -- | -- | -- | -- | -- | -- | *0.06* | 0.07 | *0.08* | -- | -- |
| | Average Yield ($L/s/km^2$) | -- | -- | -- | -- | -- | -- | -- | *9.03* | 10.85 | *11.14* | -- | -- |
| | Runoff (mm) | -- | -- | -- | -- | -- | -- | -- | *14.0* | 28.1 | *19.3* | -- | -- |
| 2008 | # days with data | -- | -- | -- | -- | -- | *22* | 31 | 31 | 30 | *20* | -- | -- |
| | Average Discharge ($m^3/s$) | -- | -- | -- | -- | -- | *0.07* | 0.10 | 0.13 | 0.13 | *0.15* | -- | -- |
| | Average Yield ($L/s/km^2$) | -- | -- | -- | -- | -- | *10.85* | 15.03 | 19.08 | 19.55 | *22.64* | -- | -- |
| | Runoff (mm) | -- | -- | -- | -- | -- | *20.6* | 40.3 | 51.1 | 50.7 | *39.1* | -- | -- |
| 2009 | # days with data | -- | -- | -- | -- | -- | *23* | 31 | 31 | 30 | *21* | -- | -- |
| | Average Discharge ($m^3/s$) | -- | -- | -- | -- | -- | *0.08* | 0.05 | 0.04 | 0.06 | *0.05* | -- | -- |
| | Average Yield ($L/s/km^2$) | -- | -- | -- | -- | -- | *12.19* | 7.88 | 5.18 | 9.28 | *7.21* | -- | -- |
| | Runoff (mm) | -- | -- | -- | -- | -- | *24.2* | 21.1 | 13.9 | 24.1 | *13.1* | -- | -- |
| 2010 | # days with data | -- | -- | -- | -- | 28 | 30 | 31 | 31 | 30 | 19 | -- | -- |
| | Average Discharge ($m^3/s$) | -- | -- | -- | -- | 0.15 | 0.12 | 0.11 | 0.10 | 0.08 | 0.07 | -- | -- |
| | Average Yield ($L/s/km^2$) | -- | -- | -- | -- | 21.54 | 17.20 | 16.72 | 14.25 | 11.43 | 9.61 | -- | -- |
| | Runoff (mm) | -- | -- | -- | -- | 52.1 | 44.6 | 44.8 | 38.2 | 29.6 | 15.8 | -- | -- |
| 2011 | # days with data | -- | -- | -- | *12* | 31 | 30 | 31 | 31 | 30 | 31 | *5* | -- |
| | Average Discharge ($m^3/s$) | -- | -- | -- | *0.02* | 0.15 | 0.07 | 0.10 | 0.13 | 0.14 | 0.09 | *0.07* | -- |
| | Average Yield ($L/s/km^2$) | -- | -- | -- | *3.38* | 22.18 | 10.99 | 15.23 | 19.57 | 21.04 | 13.83 | *10.10* | -- |
| | Runoff (mm) | -- | -- | -- | *3.5* | 59.4 | 28.5 | 40.8 | 52.4 | 54.5 | 37.0 | *4.4* | -- |
| 2012 | # days with data | -- | -- | -- | -- | -- | *18* | 31 | *18* | -- | -- | -- | -- |
| | Average Discharge ($m^3/s$) | -- | -- | -- | -- | -- | *0.06* | 0.08 | *0.08* | -- | -- | -- | -- |
| | Average Yield ($L/s/km^2$) | -- | -- | -- | -- | -- | *9.33* | 11.03 | *11.54* | -- | -- | -- | -- |
| | Runoff (mm) | -- | -- | -- | -- | -- | *14.5* | 29.6 | *17.9* | -- | -- | -- | -- |
| 2013 | # days with data | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | Average Discharge ($m^3/s$) | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | Average Yield ($L/s/km^2$) | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | Runoff (mm) | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 2014 | # days with data | -- | -- | -- | -- | *23* | 30 | 31 | 31 | 29 | *17* | -- | -- |
| | Average Discharge ($m^3/s$) | -- | -- | -- | -- | *0.07* | 0.09 | 0.06 | 0.08 | 0.11 | *0.20* | -- | -- |
| | Average Yield ($L/s/km^2$) | -- | -- | -- | -- | *10.85* | 13.35 | 9.27 | 12.46 | 16.79 | *29.78* | -- | -- |
| | Runoff (mm) | -- | -- | -- | -- | *21.6* | 34.6 | 24.8 | 33.4 | 42.1 | *43.7* | -- | -- |
| 2015 | # days with data | -- | -- | -- | -- | *18* | 29 | 28 | 31 | 30 | *14* | -- | -- |
| | Average Discharge ($m^3/s$) | -- | -- | -- | -- | *0.43* | 0.12 | 0.10 | 0.06 | 0.08 | *0.03* | -- | -- |
| | Average Yield ($L/s/km^2$) | -- | -- | -- | -- | *63.51* | 17.26 | 14.47 | 8.24 | 11.71 | *3.78* | -- | -- |
| | Runoff (mm) | -- | -- | -- | -- | *98.8* | 43.2 | 35.0 | 22.1 | 30.3 | *4.6* | -- | -- |
| 2016 | # days with data | -- | -- | -- | *19* | 31 | 30 | 31 | 31 | 30 | *13* | -- | -- |
| | Average Discharge ($m^3/s$) | -- | -- | -- | *0.02* | 0.23 | 0.16 | 0.12 | 0.14 | 0.10 | *0.07* | -- | -- |
| | Average Yield ($L/s/km^2$) | -- | -- | -- | *3.59* | 33.94 | 23.96 | 17.80 | 20.24 | 14.12 | *10.32* | -- | -- |
| | Runoff (mm) | -- | -- | -- | *5.9* | 90.9 | 62.1 | 47.7 | 54.2 | 36.6 | *11.6* | -- | -- |
| 2017 | # days with data | -- | -- | -- | -- | *24* | 30 | 31 | 31 | 30 | *5* | -- | -- |
| | Average Discharge ($m^3/s$) | -- | -- | -- | -- | *0.33* | 0.07 | 0.07 | 0.04 | 0.06 | *0.20* | -- | -- |
| | Average Yield ($L/s/km^2$) | -- | -- | -- | -- | *48.73* | 9.72 | 10.01 | 5.27 | 8.11 | *28.95* | -- | -- |
| | Runoff (mm) | -- | -- | -- | -- | *101.1* | 25.2 | 26.8 | 14.1 | 21.0 | *12.5* | -- | -- |
| 2018 | # days with data | -- | -- | -- | -- | *6.0* | 30.0 | 31.0 | 31.0 | 30.0 | 28.0 | -- | -- |
| | Average Discharge ($m^3/s$) | -- | -- | -- | -- | *0.3* | 0.1 | 0.1 | 0.1 | 0.1 | 0.0 | -- | -- |
| | Average Yield ($L/s/km^2$) | -- | -- | -- | -- | *40.9* | 17.1 | 9.1 | 16.9 | 11.4 | 7.1 | -- | -- |
| | Runoff (mm) | -- | -- | -- | -- | *21.2* | 44.4 | 24.4 | 45.3 | 29.6 | 17.2 | -- | -- |
| All Years | Average Discharge ($m^3/s$) | -- | -- | -- | *0.02* | *0.22* | *0.10* | 0.09 | 0.09 | 0.09 | *0.09* | *0.07* | -- |
| | Average Yield ($L/s/km^2$) | -- | -- | -- | *3.51* | *31.99* | *14.54* | 12.64 | 13.11 | 13.42 | *13.17* | *10.10* | -- |
| | Runoff (mm) | -- | -- | -- | *4.7* | *63.6* | 34.2 | 33.5 | 32.4 | 34.7 | *21.4* | *4.4* | -- |

## Table 4-4:
## W4 Summary statistics for 15-minute discharge record. All values are in $m^3/s$.

| Year | Variable | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2007 | Average | -- | -- | -- | -- | -- | -- | -- | 0.64 | 0.87 | 0.77 | 0.85 | -- |
| | Maximum | -- | -- | -- | -- | -- | -- | -- | 1.05 | 2.28 | 2.06 | 1.15 | -- |
| | Minimum | -- | -- | -- | -- | -- | -- | -- | 0.42 | 0.56 | 0.50 | 0.56 | -- |
| 2008 | Average | -- | -- | -- | -- | -- | 0.48 | 0.87 | 1.33 | 1.03 | 1.67 | -- | -- |
| | Maximum | -- | -- | -- | -- | -- | 0.74 | 4.24 | 6.65 | 2.24 | 5.00 | -- | -- |
| | Minimum | -- | -- | -- | -- | -- | 0.31 | 0.38 | 0.54 | 0.59 | 0.61 | -- | -- |
| 2009 | Average | -- | -- | -- | -- | 1.95 | 1.11 | 0.41 | 0.43 | 0.80 | 0.65 | -- | -- |
| | Maximum | -- | -- | -- | -- | 5.29 | 3.11 | 0.71 | 1.56 | 1.47 | 1.23 | -- | -- |
| | Minimum | -- | -- | -- | -- | 0.06 | 0.55 | 0.09 | 0.16 | 0.53 | 0.30 | -- | -- |
| 2010 | Average | -- | -- | -- | -- | 1.62 | 1.35 | 0.88 | 0.72 | 0.49 | 0.31 | -- | -- |
| | Maximum | -- | -- | -- | -- | 3.06 | 2.78 | 1.34 | 1.56 | 0.83 | 0.50 | -- | -- |
| | Minimum | -- | -- | -- | -- | 0.76 | 0.92 | 0.64 | 0.56 | 0.02 | 0.02 | -- | -- |
| 2011 | Average | -- | -- | -- | -- | 2.22 | 0.85 | 1.30 | 1.43 | 1.27 | 0.77 | -- | -- |
| | Maximum | -- | -- | -- | -- | 5.35 | 1.76 | 3.74 | 3.32 | 1.99 | 1.22 | -- | -- |
| | Minimum | -- | -- | -- | -- | 0.61 | 0.49 | 0.57 | 0.80 | 0.94 | 0.56 | -- | -- |
| 2012 | Average | -- | -- | -- | -- | 1.22 | 1.21 | 1.27 | 0.83 | 0.73 | 0.66 | -- | -- |
| | Maximum | -- | -- | -- | -- | 2.09 | 1.87 | 4.83 | 1.48 | 0.90 | 0.85 | -- | -- |
| | Minimum | -- | -- | -- | -- | 0.47 | 0.82 | 0.78 | 0.59 | 0.54 | 0.40 | -- | -- |
| 2013 | Average | -- | -- | -- | -- | 3.34 | 1.07 | 0.42 | 0.32 | 0.75 | 0.75 | -- | -- |
| | Maximum | -- | -- | -- | -- | 7.03 | 3.90 | 0.82 | 0.42 | 1.90 | 1.00 | -- | -- |
| | Minimum | -- | -- | -- | -- | 1.16 | 0.54 | 0.29 | 0.26 | 0.27 | 0.46 | -- | -- |
| 2014 | Average | -- | -- | -- | -- | 1.66 | 1.00 | 0.67 | 0.90 | 0.76 | 0.73 | -- | -- |
| | Maximum | -- | -- | -- | -- | 4.39 | 2.27 | 2.03 | 2.46 | 1.31 | 1.04 | -- | -- |
| | Minimum | -- | -- | -- | -- | 0.61 | 0.62 | 0.49 | 0.38 | 0.45 | 0.58 | -- | -- |
| 2015 | Average | -- | -- | -- | -- | 2.78 | 1.01 | 1.02 | 1.27 | 1.47 | 0.96 | -- | -- |
| | Maximum | -- | -- | -- | -- | 7.01 | 1.51 | 2.32 | 3.13 | 2.70 | 1.37 | -- | -- |
| | Minimum | -- | -- | -- | -- | 1.14 | 0.57 | 0.69 | 0.83 | 1.00 | 0.72 | -- | -- |
| 2016 | Average | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | Maximum | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | Minimum | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 2017 | Average | -- | -- | -- | -- | -- | 0.72 | 0.67 | 0.52 | 0.93 | 1.25 | -- | -- |
| | Maximum | -- | -- | -- | -- | -- | 5.41 | 1.43 | 0.77 | 2.55 | 2.90 | -- | -- |
| | Minimum | -- | -- | -- | -- | -- | 0.41 | 0.41 | 0.40 | 0.31 | 0.17 | -- | -- |
| 2018 | Average | -- | -- | -- | 0.24 | 1.99 | 1.27 | 0.69 | 1.09 | 0.69 | 0.49 | -- | -- |
| | Maximum | -- | -- | -- | 0.59 | 5.74 | 2.62 | 2.12 | 4.16 | 1.09 | 1.25 | -- | -- |
| | Minimum | -- | -- | -- | 0.15 | 0.14 | 0.60 | 0.38 | 0.38 | 0.26 | 0.30 | -- | -- |
| All Years | Average | -- | -- | -- | 0.24 | 2.02 | 1.02 | 0.82 | 0.87 | 0.89 | 0.80 | 0.85 | -- |
| | Maximum | -- | -- | -- | 0.59 | 7.03 | 5.41 | 4.83 | 6.65 | 2.70 | 5.00 | 1.15 | -- |
| | Minimum | -- | -- | -- | 0.15 | 0.06 | 0.31 | 0.09 | 0.16 | 0.02 | 0.02 | 0.56 | -- |

# Table 4-5:
# W4 Summary statistics for daily discharge, unit yield and runoff

| Year | Variable | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2007 | # days with data | -- | -- | -- | -- | -- | -- | -- | *18* | 30 | 31 | *21* | -- |
| | Average Discharge ($m^3/s$) | -- | -- | -- | -- | -- | -- | -- | *0.64* | 0.87 | 0.77 | *1.03* | -- |
| | Average Yield ($L/s/km^2$) | -- | -- | -- | -- | -- | -- | -- | *8.30* | 11.38 | 9.98 | *13.34* | -- |
| | Runoff (mm) | -- | -- | -- | -- | -- | -- | -- | *12.9* | 29.5 | 26.7 | *24.2* | -- |
| 2008 | # days with data | -- | -- | -- | -- | -- | *22* | 31 | 31 | 30 | *21* | -- | -- |
| | Average Discharge ($m^3/s$) | -- | -- | -- | -- | -- | *0.48* | 0.87 | 1.34 | 1.03 | *1.65* | -- | -- |
| | Average Yield ($L/s/km^2$) | -- | -- | -- | -- | -- | *6.30* | 11.29 | 17.40 | 13.45 | *21.48* | -- | -- |
| | Runoff (mm) | -- | -- | -- | -- | -- | *12.0* | 30.2 | 46.6 | 34.9 | *39.0* | -- | -- |
| 2009 | # days with data | -- | -- | -- | -- | 31 | 30 | 31 | 31 | 30 | *21* | -- | -- |
| | Average Discharge ($m^3/s$) | -- | -- | -- | -- | 2.01 | 1.11 | 0.41 | 0.43 | 0.80 | *0.65* | -- | -- |
| | Average Yield ($L/s/km^2$) | -- | -- | -- | -- | 26.12 | 14.42 | 5.28 | 5.54 | 10.34 | *8.48* | -- | -- |
| | Runoff (mm) | -- | -- | -- | -- | 70.0 | 37.4 | 14.1 | 14.8 | 26.8 | *15.4* | -- | -- |
| 2010 | # days with data | -- | -- | -- | -- | 28 | 30 | 31 | 31 | 30 | *19* | -- | -- |
| | Average Discharge ($m^3/s$) | -- | -- | -- | -- | 1.61 | 1.35 | 0.88 | 0.72 | 0.49 | *0.31* | -- | -- |
| | Average Yield ($L/s/km^2$) | -- | -- | -- | -- | 20.96 | 17.62 | 11.43 | 9.40 | 6.40 | *3.98* | -- | -- |
| | Runoff (mm) | -- | -- | -- | -- | 50.7 | 45.7 | 30.6 | 25.2 | 16.6 | *6.5* | -- | -- |
| 2011 | # days with data | -- | -- | -- | -- | 28 | 30 | 31 | 31 | 30 | 31 | -- | -- |
| | Average Discharge ($m^3/s$) | -- | -- | -- | -- | 2.18 | 0.85 | 1.30 | 1.43 | 1.27 | 0.77 | -- | -- |
| | Average Yield ($L/s/km^2$) | -- | -- | -- | -- | 28.41 | 10.99 | 16.91 | 18.60 | 16.49 | 9.99 | -- | -- |
| | Runoff (mm) | -- | -- | -- | -- | 68.7 | 28.5 | 45.3 | 49.8 | 42.7 | 26.8 | -- | -- |
| 2012 | # days with data | -- | -- | -- | -- | *14* | *18* | 31 | 31 | 30 | *16* | -- | -- |
| | Average Discharge ($m^3/s$) | -- | -- | -- | -- | *1.23* | *1.23* | 1.27 | 0.83 | 0.73 | *0.66* | -- | -- |
| | Average Yield ($L/s/km^2$) | -- | -- | -- | -- | *16.02* | *15.93* | 16.53 | 10.83 | 9.44 | *8.57* | -- | -- |
| | Runoff (mm) | -- | -- | -- | -- | *19.4* | *24.8* | 44.3 | 29.0 | 24.5 | *11.9* | -- | -- |
| 2013 | # days with data | -- | -- | -- | -- | *11* | 30 | 31 | 31 | 30 | *19* | -- | -- |
| | Average Discharge ($m^3/s$) | -- | -- | -- | -- | *3.26* | 1.07 | 0.42 | 0.32 | 0.75 | *0.75* | -- | -- |
| | Average Yield ($L/s/km^2$) | -- | -- | -- | -- | *42.39* | 13.85 | 5.46 | 4.12 | 9.75 | *9.72* | -- | -- |
| | Runoff (mm) | -- | -- | -- | -- | *40.3* | 35.9 | 14.6 | 11.0 | 25.3 | *15.9* | -- | -- |
| 2014 | # days with data | -- | -- | -- | -- | *25* | 30 | 31 | 31 | 30 | *17* | -- | -- |
| | Average Discharge ($m^3/s$) | -- | -- | -- | -- | *1.69* | 1.00 | 0.67 | 0.90 | 0.76 | *0.72* | -- | -- |
| | Average Yield ($L/s/km^2$) | -- | -- | -- | -- | *21.93* | 13.06 | 8.73 | 11.69 | 9.87 | *9.42* | -- | -- |
| | Runoff (mm) | -- | -- | -- | -- | *47.4* | 33.8 | 23.4 | 31.3 | 25.6 | *13.8* | -- | -- |
| 2015 | # days with data | -- | -- | -- | -- | *18* | 30 | 31 | 31 | 30 | *14* | -- | -- |
| | Average Discharge ($m^3/s$) | -- | -- | -- | -- | *2.81* | 1.01 | 1.02 | 1.27 | 1.47 | *0.96* | -- | -- |
| | Average Yield ($L/s/km^2$) | -- | -- | -- | -- | *36.55* | 13.18 | 13.24 | 16.53 | 19.11 | *12.45* | -- | -- |
| | Runoff (mm) | -- | -- | -- | -- | *56.8* | 34.2 | 35.5 | 44.3 | 49.5 | *15.1* | -- | -- |
| 2016 | # days with data | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | Average Discharge ($m^3/s$) | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | Average Yield ($L/s/km^2$) | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | Runoff (mm) | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 2017 | # days with data | -- | -- | -- | -- | -- | *23* | 31 | 31 | 30 | *11* | -- | -- |
| | Average Discharge ($m^3/s$) | -- | -- | -- | -- | -- | *0.72* | 0.67 | 0.52 | 0.93 | *1.26* | -- | -- |
| | Average Yield ($L/s/km^2$) | -- | -- | -- | -- | -- | *9.39* | 8.65 | 6.78 | 12.14 | *16.37* | -- | -- |
| | Runoff (mm) | -- | -- | -- | -- | -- | *18.7* | 23.2 | 18.2 | 31.5 | *15.6* | -- | -- |
| 2018 | # days with data | -- | -- | -- | *6.0* | 31.0 | 30.0 | 31.0 | 31.0 | 30.0 | *24.0* | -- | -- |
| | Average Discharge ($m^3/s$) | -- | -- | -- | *0.3* | 2.0 | 1.3 | 0.7 | 1.1 | 0.7 | *0.5* | -- | -- |
| | Average Yield ($L/s/km^2$) | -- | -- | -- | *3.3* | 25.8 | 16.5 | 8.9 | 14.1 | 9.0 | *6.3* | -- | -- |
| | Runoff (mm) | -- | -- | -- | *1.7* | 69.2 | 42.7 | 23.9 | 37.9 | 23.4 | *13.1* | -- | -- |
| All Years | Average Discharge ($m^3/s$) | -- | -- | -- | *0.26* | *2.02* | 1.02 | 0.82 | 0.87 | 0.89 | *0.79* | *1.03* | -- |
| | Average Yield ($L/s/km^2$) | -- | -- | -- | *3.34* | *26.29* | 13.29 | 10.65 | 11.33 | 11.58 | *10.32* | *13.34* | -- |
| | Runoff (mm) | -- | -- | -- | *1.7* | *52.8* | 31.4 | 28.5 | 29.2 | 30.0 | *18.2* | *24.2* | -- |

**Table 4-6:**
**W5 Summary statistics for 15-minute discharge record. All values are in $m^3/s$.**

| Year | Variable | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2007 | Average | -- | -- | -- | -- | -- | -- | -- | 0.79 | 0.97 | 1.08 | -- | -- |
| | Maximum | -- | -- | -- | -- | -- | -- | -- | 1.22 | 2.07 | 2.13 | -- | -- |
| | Minimum | -- | -- | -- | -- | -- | -- | -- | 0.55 | 0.68 | 0.68 | -- | -- |
| 2008 | Average | -- | -- | -- | -- | -- | 0.43 | 0.73 | 0.99 | 0.70 | 1.20 | -- | -- |
| | Maximum | -- | -- | -- | -- | -- | 0.62 | 3.60 | 4.57 | 1.23 | 4.90 | -- | -- |
| | Minimum | -- | -- | -- | -- | -- | 0.32 | 0.34 | 0.49 | 0.46 | 0.41 | -- | -- |
| 2009 | Average | -- | -- | -- | -- | -- | 1.43 | 0.59 | 0.47 | 0.77 | 1.19 | -- | -- |
| | Maximum | -- | -- | -- | -- | -- | 3.46 | 0.94 | 1.67 | 1.51 | 2.90 | -- | -- |
| | Minimum | -- | -- | -- | -- | -- | 0.82 | 0.23 | 0.16 | 0.44 | 0.16 | -- | -- |
| 2010 | Average | -- | -- | -- | -- | 1.99 | 1.27 | 0.99 | 0.82 | 0.57 | 0.42 | -- | -- |
| | Maximum | -- | -- | -- | -- | 3.62 | 3.18 | 1.43 | 1.71 | 0.91 | 0.92 | -- | -- |
| | Minimum | -- | -- | -- | -- | 1.06 | 0.82 | 0.74 | 0.62 | 0.12 | 0.08 | -- | -- |
| 2011 | Average | -- | -- | -- | -- | 3.55 | 0.86 | 1.68 | 1.76 | 1.62 | 0.98 | -- | -- |
| | Maximum | -- | -- | -- | -- | 7.15 | 1.68 | 4.93 | 3.59 | 2.63 | 1.59 | -- | -- |
| | Minimum | -- | -- | -- | -- | 1.27 | 0.26 | 0.45 | 0.93 | 1.12 | 0.55 | -- | -- |
| 2012 | Average | -- | -- | -- | -- | 2.60 | 2.12 | 1.63 | 0.92 | 0.73 | 0.62 | -- | -- |
| | Maximum | -- | -- | -- | -- | 6.24 | 5.16 | 6.88 | 2.00 | 1.01 | 0.79 | -- | -- |
| | Minimum | -- | -- | -- | -- | 0.82 | 0.84 | 0.87 | 0.57 | 0.50 | 0.34 | -- | -- |
| 2013 | Average | -- | -- | -- | -- | -- | -- | -- | 0.42 | 0.93 | 0.89 | -- | -- |
| | Maximum | -- | -- | -- | -- | -- | -- | -- | 0.62 | 3.88 | 2.32 | -- | -- |
| | Minimum | -- | -- | -- | -- | -- | -- | -- | 0.28 | 0.32 | 0.58 | -- | -- |
| 2014 | Average | -- | -- | -- | -- | 2.92 | 1.63 | 0.77 | 1.05 | 0.62 | 0.93 | -- | -- |
| | Maximum | -- | -- | -- | -- | 7.13 | 4.54 | 2.81 | 3.28 | 1.32 | 3.35 | -- | -- |
| | Minimum | -- | -- | -- | -- | 1.07 | 0.80 | 0.49 | 0.54 | 0.32 | 0.50 | -- | -- |
| 2015 | Average | -- | -- | -- | -- | -- | 1.07 | 1.23 | 1.54 | 1.76 | 1.24 | -- | -- |
| | Maximum | -- | -- | -- | -- | -- | 1.86 | 2.96 | 3.81 | 3.04 | 3.06 | -- | -- |
| | Minimum | -- | -- | -- | -- | -- | 0.63 | 0.73 | 0.95 | 1.26 | 0.88 | -- | -- |
| 2016 | Average | -- | -- | -- | -- | 2.54 | 1.69 | 1.15 | 1.20 | 1.01 | -- | -- | -- |
| | Maximum | -- | -- | -- | -- | 4.00 | 3.72 | 1.79 | 2.85 | 2.33 | -- | -- | -- |
| | Minimum | -- | -- | -- | -- | 1.58 | 1.11 | 0.77 | 0.75 | 0.73 | -- | -- | -- |
| 2017 | Average | -- | -- | -- | -- | -- | 0.77 | 0.72 | 0.58 | 1.56 | 2.39 | -- | -- |
| | Maximum | -- | -- | -- | -- | -- | 6.14 | 1.73 | 0.84 | 4.20 | 4.63 | -- | -- |
| | Minimum | -- | -- | -- | -- | -- | 0.28 | 0.36 | 0.39 | 0.52 | 0.23 | -- | -- |
| 2018 | Average | -- | -- | -- | -- | 4.92 | 1.95 | 0.86 | 1.61 | 1.01 | -- | -- | -- |
| | Maximum | -- | -- | -- | -- | 11.42 | 4.80 | 3.15 | 6.82 | 1.71 | -- | -- | -- |
| | Minimum | -- | -- | -- | -- | 1.47 | 0.74 | 0.35 | 0.32 | 0.50 | -- | -- | -- |
| All Years | Average | -- | -- | -- | -- | 3.05 | 1.39 | 1.03 | 1.03 | 1.02 | 1.01 | -- | -- |
| | Maximum | -- | -- | -- | -- | 17.27 | 6.14 | 6.88 | 6.82 | 4.20 | 4.90 | -- | -- |
| | Minimum | -- | -- | -- | -- | 0.82 | 0.26 | 0.23 | 0.16 | 0.12 | 0.08 | -- | -- |

# Table 4-7:
# W5 Summary statistics for daily discharge, unit yield and runoff

| Year | Variable | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2007 | # days with data | -- | -- | -- | -- | -- | -- | -- | *18* | 30 | *20* | -- | -- |
| | Average Discharge ($m^3/s$) | -- | -- | -- | -- | -- | -- | -- | *0.79* | 0.97 | *1.09* | -- | -- |
| | Average Yield ($L/s/km^2$) | -- | -- | -- | -- | -- | -- | -- | *8.06* | 9.94 | *11.22* | -- | -- |
| | Runoff (mm) | -- | -- | -- | -- | -- | -- | -- | *12.5* | 25.8 | *19.4* | -- | -- |
| 2008 | # days with data | -- | -- | -- | -- | -- | *21* | 31 | 31 | 30 | *21* | -- | -- |
| | Average Discharge ($m^3/s$) | -- | -- | -- | -- | -- | *0.43* | 0.73 | 1.00 | 0.70 | *1.20* | -- | -- |
| | Average Yield ($L/s/km^2$) | -- | -- | -- | -- | -- | *4.46* | 7.44 | 10.22 | 7.21 | *12.33* | -- | -- |
| | Runoff (mm) | -- | -- | -- | -- | -- | *8.1* | 19.9 | 27.4 | 18.7 | *22.4* | -- | -- |
| 2009 | # days with data | -- | -- | -- | -- | -- | *23* | 31 | 31 | 30 | *22* | -- | -- |
| | Average Discharge ($m^3/s$) | -- | -- | -- | -- | -- | *1.42* | 0.59 | 0.47 | 0.77 | *1.19* | -- | -- |
| | Average Yield ($L/s/km^2$) | -- | -- | -- | -- | -- | *14.56* | 6.04 | 4.86 | 7.88 | *12.19* | -- | -- |
| | Runoff (mm) | -- | -- | -- | -- | -- | *28.9* | 16.2 | 13.0 | 20.4 | *23.2* | -- | -- |
| 2010 | # days with data | -- | -- | -- | -- | 28 | 30 | 31 | 31 | 30 | *19* | -- | -- |
| | Average Discharge ($m^3/s$) | -- | -- | -- | -- | 1.99 | 1.27 | 0.99 | 0.82 | 0.57 | *0.42* | -- | -- |
| | Average Yield ($L/s/km^2$) | -- | -- | -- | -- | 20.36 | 13.06 | 10.16 | 8.38 | 5.83 | *4.32* | -- | -- |
| | Runoff (mm) | -- | -- | -- | -- | 49.3 | 33.8 | 27.2 | 22.4 | 15.1 | *7.1* | -- | -- |
| 2011 | # days with data | -- | -- | -- | -- | *15* | 30 | 31 | 31 | 30 | *21* | -- | -- |
| | Average Discharge ($m^3/s$) | -- | -- | -- | -- | *3.59* | 0.86 | 1.68 | 1.76 | 1.62 | *0.98* | -- | -- |
| | Average Yield ($L/s/km^2$) | -- | -- | -- | -- | *36.82* | 8.81 | 17.24 | 18.01 | 16.67 | *10.09* | -- | -- |
| | Runoff (mm) | -- | -- | -- | -- | *47.7* | 22.8 | 46.2 | 48.2 | 43.2 | *18.3* | -- | -- |
| 2012 | # days with data | -- | -- | -- | -- | 27 | 30 | 31 | 31 | 30 | *10* | -- | -- |
| | Average Discharge ($m^3/s$) | -- | -- | -- | -- | 2.59 | 2.12 | 1.63 | 0.92 | 0.73 | *0.61* | -- | -- |
| | Average Yield ($L/s/km^2$) | -- | -- | -- | -- | 26.52 | 21.73 | 16.68 | 9.47 | 7.53 | *6.29* | -- | -- |
| | Runoff (mm) | -- | -- | -- | -- | 61.9 | 56.3 | 44.7 | 25.4 | 19.5 | *5.4* | -- | -- |
| 2013 | # days with data | -- | -- | -- | -- | -- | -- | -- | 27 | 30 | *20* | -- | -- |
| | Average Discharge ($m^3/s$) | -- | -- | -- | -- | -- | -- | -- | 0.42 | 0.93 | *0.89* | -- | -- |
| | Average Yield ($L/s/km^2$) | -- | -- | -- | -- | -- | -- | -- | 4.26 | 9.57 | *9.09* | -- | -- |
| | Runoff (mm) | -- | -- | -- | -- | -- | -- | -- | 9.9 | 24.8 | *15.7* | -- | -- |
| 2014 | # days with data | -- | -- | -- | -- | *25* | 30 | 31 | 31 | 30 | *17* | -- | -- |
| | Average Discharge ($m^3/s$) | -- | -- | -- | -- | *3.03* | 1.63 | 0.77 | 1.05 | 0.62 | *0.92* | -- | -- |
| | Average Yield ($L/s/km^2$) | -- | -- | -- | -- | *31.09* | 16.67 | 7.88 | 10.81 | 6.31 | *9.41* | -- | -- |
| | Runoff (mm) | -- | -- | -- | -- | *67.2* | 43.2 | 21.1 | 29.0 | 16.4 | *13.8* | -- | -- |
| 2015 | # days with data | -- | -- | -- | -- | -- | *15* | 31 | 31 | 30 | *14* | -- | -- |
| | Average Discharge ($m^3/s$) | -- | -- | -- | -- | -- | *0.98* | 1.23 | 1.54 | 1.76 | *1.23* | -- | -- |
| | Average Yield ($L/s/km^2$) | -- | -- | -- | -- | -- | *10.01* | 12.58 | 15.81 | 18.07 | *12.63* | -- | -- |
| | Runoff (mm) | -- | -- | -- | -- | -- | *13.0* | 33.7 | 42.3 | 46.8 | *15.3* | -- | -- |
| 2016 | # days with data | -- | -- | -- | -- | 28 | *30* | 31 | 31 | 30 | -- | -- | -- |
| | Average Discharge ($m^3/s$) | -- | -- | -- | -- | 2.54 | *1.69* | 1.15 | 1.20 | 1.01 | -- | -- | -- |
| | Average Yield ($L/s/km^2$) | -- | -- | -- | -- | 26.01 | *17.28* | 11.81 | 12.32 | 10.33 | -- | -- | -- |
| | Runoff (mm) | -- | -- | -- | -- | 62.9 | *44.8* | 31.6 | 33.0 | 26.8 | -- | -- | -- |
| 2017 | # days with data | -- | -- | -- | -- | -- | *22* | 31 | 31 | 30 | *5* | -- | -- |
| | Average Discharge ($m^3/s$) | -- | -- | -- | -- | -- | *0.77* | 0.72 | 0.58 | 1.56 | *2.39* | -- | -- |
| | Average Yield ($L/s/km^2$) | -- | -- | -- | -- | -- | *7.92* | 7.42 | 5.99 | 15.97 | *24.54* | -- | -- |
| | Runoff (mm) | -- | -- | -- | -- | -- | *15.1* | 19.9 | 16.1 | 41.4 | *10.6* | -- | -- |
| 2018 | # days with data | -- | -- | -- | -- | *20.0* | 30.0 | 31.0 | 31.0 | *28.0* | -- | -- | -- |
| | Average Discharge ($m^3/s$) | -- | -- | -- | -- | *4.9* | 2.0 | 0.9 | 1.6 | *1.0* | -- | -- | -- |
| | Average Yield ($L/s/km^2$) | -- | -- | -- | -- | *49.9* | 20.0 | 8.8 | 16.6 | *10.3* | -- | -- | -- |
| | Runoff (mm) | -- | -- | -- | -- | *86.2* | 51.9 | 23.6 | 44.3 | *24.9* | -- | -- | -- |
| All Years | Average Discharge ($m^3/s$) | -- | -- | -- | -- | *2.96* | *1.37* | 1.03 | 1.03 | 1.02 | *1.01* | -- | -- |
| | Average Yield ($L/s/km^2$) | -- | -- | -- | -- | *30.36* | *14.10* | 10.61 | 10.55 | 10.47 | *10.35* | -- | -- |
| | Runoff (mm) | -- | -- | -- | -- | 62.5 | *31.8* | 28.4 | 27.0 | *27.0* | *15.1* | -- | -- |

## Table 4-8:
## W6 Summary statistics for 15-minute discharge record. All values are in $m^3/s$.

| Year | Variable | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2007 | Average | -- | -- | -- | -- | -- | -- | -- | 0.78 | 1.30 | 0.73 | -- | -- |
| | Maximum | -- | -- | -- | -- | -- | -- | -- | 2.06 | 4.25 | 1.49 | -- | -- |
| | Minimum | -- | -- | -- | -- | -- | -- | -- | 0.30 | 0.47 | 0.24 | -- | -- |
| 2008 | Average | -- | -- | -- | -- | -- | 0.27 | 0.74 | 1.34 | 1.12 | 1.67 | -- | -- |
| | Maximum | -- | -- | -- | -- | -- | 0.55 | 1.78 | 4.64 | 2.65 | 5.17 | -- | -- |
| | Minimum | -- | -- | -- | -- | -- | 0.14 | 0.27 | 0.46 | 0.54 | 0.67 | -- | -- |
| 2009 | Average | -- | -- | -- | -- | -- | 1.06 | 0.32 | 0.65 | 1.22 | 0.96 | -- | -- |
| | Maximum | -- | -- | -- | -- | -- | 2.27 | 0.68 | 1.99 | 2.51 | 1.12 | -- | -- |
| | Minimum | -- | -- | -- | -- | -- | 0.62 | 0.04 | 0.27 | 0.72 | 0.71 | -- | -- |
| 2010 | Average | -- | -- | -- | -- | 2.21 | 1.18 | 0.95 | 0.78 | 0.58 | 0.38 | -- | -- |
| | Maximum | -- | -- | -- | -- | 4.32 | 2.82 | 1.81 | 1.84 | 0.95 | 0.54 | -- | -- |
| | Minimum | -- | -- | -- | -- | 0.75 | 0.63 | 0.58 | 0.51 | 0.25 | 0.11 | -- | -- |
| 2011 | Average | -- | -- | -- | -- | -- | 0.63 | 1.18 | 1.35 | 1.10 | 0.71 | 0.57 | -- |
| | Maximum | -- | -- | -- | -- | -- | 1.21 | 6.75 | 3.86 | 1.63 | 1.17 | 0.72 | -- |
| | Minimum | -- | -- | -- | -- | -- | 0.53 | 0.52 | 0.59 | 0.80 | 0.34 | 0.39 | -- |
| 2012 | Average | -- | -- | -- | -- | 3.35 | 1.51 | 1.85 | 1.18 | 1.05 | 0.84 | -- | -- |
| | Maximum | -- | -- | -- | -- | 7.53 | 2.77 | 7.12 | 2.68 | 1.37 | 1.05 | -- | -- |
| | Minimum | -- | -- | -- | -- | 1.51 | 0.81 | 0.99 | 0.91 | 0.80 | 0.50 | -- | -- |
| 2013 | Average | -- | -- | -- | -- | 8.68 | 2.48 | 1.06 | 0.55 | 1.31 | 1.08 | -- | -- |
| | Maximum | -- | -- | -- | -- | 17.95 | 6.77 | 1.75 | 0.74 | 2.81 | 2.43 | -- | -- |
| | Minimum | -- | -- | -- | -- | 2.50 | 1.34 | 0.49 | 0.41 | 0.50 | 0.69 | -- | -- |
| 2014 | Average | -- | -- | -- | -- | 2.11 | 1.03 | 0.89 | 1.66 | 1.28 | 1.32 | -- | -- |
| | Maximum | -- | -- | -- | -- | 6.64 | 2.71 | 2.19 | 3.69 | 3.65 | 2.65 | -- | -- |
| | Minimum | -- | -- | -- | -- | 0.57 | 0.42 | 0.37 | 0.83 | 0.77 | 0.96 | -- | -- |
| 2015 | Average | -- | -- | -- | -- | -- | 0.77 | 0.88 | 1.40 | 1.72 | 1.04 | -- | -- |
| | Maximum | -- | -- | -- | -- | -- | 1.27 | 2.25 | 3.73 | 3.69 | 1.63 | -- | -- |
| | Minimum | -- | -- | -- | -- | -- | 0.49 | 0.51 | 0.71 | 1.05 | 0.78 | -- | -- |
| 2016 | Average | -- | -- | -- | -- | -- | -- | 1.79 | 2.06 | 1.54 | 1.05 | -- | -- |
| | Maximum | -- | -- | -- | -- | -- | -- | 2.99 | 5.35 | 2.12 | 1.69 | -- | -- |
| | Minimum | -- | -- | -- | -- | -- | -- | 1.18 | 1.37 | 1.07 | 0.69 | -- | -- |
| 2017 | Average | -- | -- | -- | -- | -- | 0.68 | 0.78 | 0.46 | 1.29 | 1.57 | -- | -- |
| | Maximum | -- | -- | -- | -- | -- | 3.13 | 1.96 | 0.64 | 3.25 | 3.26 | -- | -- |
| | Minimum | -- | -- | -- | -- | -- | 0.30 | 0.44 | 0.37 | 0.39 | 0.33 | -- | -- |
| 2018 | Average | -- | -- | -- | -- | -- | 1.15 | 0.67 | 1.24 | 0.76 | -- | -- | -- |
| | Maximum | -- | -- | -- | -- | -- | 3.20 | 3.13 | 4.88 | 1.22 | -- | -- | -- |
| | Minimum | -- | -- | -- | -- | -- | 0.47 | 0.28 | 0.27 | 0.38 | -- | -- | -- |
| All Years | Average | -- | -- | -- | -- | 3.23 | 1.21 | 0.98 | 1.13 | 1.19 | 0.99 | 0.90 | -- |
| | Maximum | -- | -- | -- | -- | 17.95 | 6.77 | 7.12 | 5.35 | 4.25 | 5.17 | 1.79 | -- |
| | Minimum | -- | -- | -- | -- | 0.57 | 0.14 | 0.04 | 0.27 | 0.25 | 0.11 | 0.39 | -- |

# Table 4-9:
# W6 Summary statistics for daily discharge, unit yield and runoff

| Year | Variable | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2007 | # days with data | -- | -- | -- | -- | -- | -- | -- | *18* | 30 | 31 | -- | -- |
| | Average Discharge ($m^3/s$) | -- | -- | -- | -- | -- | -- | -- | *0.78* | 1.30 | 0.73 | -- | -- |
| | Average Yield ($L/s/km^2$) | -- | -- | -- | -- | -- | -- | -- | *7.70* | 12.91 | 7.19 | -- | -- |
| | Runoff (mm) | -- | -- | -- | -- | -- | -- | -- | *12.0* | 33.5 | 19.2 | -- | -- |
| 2008 | # days with data | -- | -- | -- | -- | -- | *21* | 31 | 31 | 30 | *21* | -- | -- |
| | Average Discharge ($m^3/s$) | -- | -- | -- | -- | -- | *0.28* | 0.74 | 1.34 | 1.12 | *1.66* | -- | -- |
| | Average Yield ($L/s/km^2$) | -- | -- | -- | -- | -- | *2.74* | 7.35 | 13.31 | 11.11 | *16.41* | -- | -- |
| | Runoff (mm) | -- | -- | -- | -- | -- | *5.0* | 19.7 | 35.7 | 28.8 | *29.8* | -- | -- |
| 2009 | # days with data | -- | -- | -- | -- | -- | *23* | 31 | 31 | 30 | *7* | -- | -- |
| | Average Discharge ($m^3/s$) | -- | -- | -- | -- | -- | *1.07* | 0.32 | 0.65 | 1.22 | *0.96* | -- | -- |
| | Average Yield ($L/s/km^2$) | -- | -- | -- | -- | -- | *10.60* | 3.15 | 6.41 | 12.12 | *9.48* | -- | -- |
| | Runoff (mm) | -- | -- | -- | -- | -- | *21.1* | 8.4 | 17.2 | 31.4 | *5.7* | -- | -- |
| 2010 | # days with data | -- | -- | -- | -- | 28 | 30 | 31 | 31 | 30 | *19* | -- | -- |
| | Average Discharge ($m^3/s$) | -- | -- | -- | -- | 2.23 | 1.18 | 0.95 | 0.78 | 0.58 | *0.38* | -- | -- |
| | Average Yield ($L/s/km^2$) | -- | -- | -- | -- | 22.09 | 11.71 | 9.37 | 7.72 | 5.73 | *3.75* | -- | -- |
| | Runoff (mm) | -- | -- | -- | -- | 53.4 | 30.3 | 25.1 | 20.7 | 14.9 | *6.1* | -- | -- |
| 2011 | # days with data | -- | -- | -- | -- | -- | *2* | 31 | 31 | 30 | 31 | *7* | -- |
| | Average Discharge ($m^3/s$) | -- | -- | -- | -- | -- | *0.65* | 1.18 | 1.35 | 1.10 | 0.71 | *0.57* | -- |
| | Average Yield ($L/s/km^2$) | -- | -- | -- | -- | -- | *6.42* | 11.69 | 13.38 | 10.91 | 7.02 | *5.69* | -- |
| | Runoff (mm) | -- | -- | -- | -- | -- | *1.1* | 31.3 | 35.8 | 28.3 | 18.8 | *3.4* | -- |
| 2012 | # days with data | -- | -- | -- | -- | 27 | 30 | 31 | 31 | 30 | *17* | -- | -- |
| | Average Discharge ($m^3/s$) | -- | -- | -- | -- | 3.33 | 1.51 | 1.85 | 1.18 | 1.05 | *0.84* | -- | -- |
| | Average Yield ($L/s/km^2$) | -- | -- | -- | -- | 32.98 | 14.92 | 18.37 | 11.72 | 10.38 | *8.32* | -- | -- |
| | Runoff (mm) | -- | -- | -- | -- | 76.9 | 38.7 | 49.2 | 31.4 | 26.9 | *12.2* | -- | -- |
| 2013 | # days with data | -- | -- | -- | -- | *10* | 30 | 31 | 31 | 30 | *20* | -- | -- |
| | Average Discharge ($m^3/s$) | -- | -- | -- | -- | *8.43* | 2.48 | 1.06 | 0.55 | 1.31 | *1.08* | -- | -- |
| | Average Yield ($L/s/km^2$) | -- | -- | -- | -- | *83.51* | 24.57 | 10.46 | 5.41 | 12.96 | *10.66* | -- | -- |
| | Runoff (mm) | -- | -- | -- | -- | *72.2* | 63.7 | 28.0 | 14.5 | 33.6 | *18.4* | -- | -- |
| 2014 | # days with data | -- | -- | -- | -- | *25* | 30 | 31 | 31 | 30 | *17* | -- | -- |
| | Average Discharge ($m^3/s$) | -- | -- | -- | -- | *2.20* | 1.03 | 0.56 | 1.58 | 1.28 | *1.32* | -- | -- |
| | Average Yield ($L/s/km^2$) | -- | -- | -- | -- | *21.84* | 10.25 | 5.57 | 15.62 | 12.71 | *13.05* | -- | -- |
| | Runoff (mm) | -- | -- | -- | -- | *47.2* | 26.6 | 14.9 | 41.8 | 32.9 | *19.2* | -- | -- |
| 2015 | # days with data | -- | -- | -- | -- | -- | *12* | 31 | 31 | 30 | *14* | -- | -- |
| | Average Discharge ($m^3/s$) | -- | -- | -- | -- | -- | *0.75* | 0.88 | 1.40 | 1.72 | *1.03* | -- | -- |
| | Average Yield ($L/s/km^2$) | -- | -- | -- | -- | -- | *7.48* | 8.71 | 13.89 | 17.06 | *10.26* | -- | -- |
| | Runoff (mm) | -- | -- | -- | -- | -- | *7.8* | 23.3 | 37.2 | 44.2 | *12.4* | -- | -- |
| 2016 | # days with data | -- | -- | -- | -- | -- | -- | *19* | 31 | 30 | *14* | -- | -- |
| | Average Discharge ($m^3/s$) | -- | -- | -- | -- | -- | -- | *1.78* | 2.06 | 1.54 | *1.05* | -- | -- |
| | Average Yield ($L/s/km^2$) | -- | -- | -- | -- | -- | -- | *17.6* | 20.4 | 15.3 | *10.4* | -- | -- |
| | Runoff (mm) | -- | -- | -- | -- | -- | -- | *28.9* | 54.6 | 39.6 | *12.5* | -- | -- |
| 2017 | # days with data | -- | -- | -- | -- | -- | *22* | 31 | 31 | 30 | *14* | -- | -- |
| | Average Discharge ($m^3/s$) | -- | -- | -- | -- | -- | *0.68* | 0.78 | 0.46 | 1.29 | *1.54* | -- | -- |
| | Average Yield ($L/s/km^2$) | -- | -- | -- | -- | -- | *6.72* | 7.71 | 4.58 | 12.82 | *15.28* | -- | -- |
| | Runoff (mm) | -- | -- | -- | -- | -- | *12.8* | 20.6 | 12.3 | 33.2 | *18.5* | -- | -- |
| 2018 | # days with data | -- | -- | -- | -- | -- | *18.0* | 31.0 | 31.0 | 28.0 | -- | -- | -- |
| | Average Discharge ($m^3/s$) | -- | -- | -- | -- | -- | *1.2* | 0.7 | 1.2 | 0.8 | -- | -- | -- |
| | Average Yield ($L/s/km^2$) | -- | -- | -- | -- | -- | *11.4* | 6.7 | 12.3 | 7.6 | -- | -- | -- |
| | Runoff (mm) | -- | -- | -- | -- | -- | *17.8* | 17.8 | 32.9 | 18.3 | -- | -- | -- |
| All Years | Average Discharge ($m^3/s$) | -- | -- | -- | -- | *3.24* | *1.20* | 0.95 | 1.13 | 1.19 | *0.99* | *1.30* | -- |
| | Average Yield ($L/s/km^2$) | -- | -- | -- | -- | *32.1* | *11.9* | 9.4 | 11.2 | 11.8 | *9.8* | *12.9* | -- |
| | Runoff (mm) | -- | -- | -- | -- | *62.4* | *22.5* | 24.3 | 28.8 | 30.5 | *15.7* | *3.4* | -- |

**Table 4-10:**
**W21 Summary statistics for preliminary 15-minute discharge record. All values are in $m^3/s$.**

| Year | Variable | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2018 | Average | -- | -- | -- | -- | -- | 0.11 | 0.07 | 0.20 | 0.10 | 0.06 | -- | -- |
| | Maximum | -- | -- | -- | -- | -- | 0.29 | 0.27 | 0.35 | 0.19 | 0.25 | -- | -- |
| | Minimum | -- | -- | -- | -- | -- | 0.00 | 0.01 | 0.13 | 0.00 | 0.00 | -- | -- |
| All Years | Average | -- | -- | -- | -- | -- | 0.11 | 0.07 | 0.20 | 0.10 | 0.06 | -- | -- |
| | Maximum | -- | -- | -- | -- | -- | 0.29 | 0.27 | 0.35 | 0.19 | 0.25 | -- | -- |
| | Minimum | -- | -- | -- | -- | -- | 0.00 | 0.01 | 0.13 | 0.00 | 0.00 | -- | -- |

**Table 4-11:**
**W21 Summary statistics for preliminary daily discharge, unit yield and runoff**

| Year | Variable | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2018 | # days with data | -- | -- | -- | -- | -- | 14 | 13 | *13* | 30 | 25 | -- | -- |
| | Average Discharge ($m^3/s$) | -- | -- | -- | -- | -- | 0.12 | 0.07 | *0.20* | 0.10 | 0.06 | -- | -- |
| | Average Yield ($L/s/km^2$) | -- | -- | -- | -- | -- | 14.35 | 9.20 | *24.30* | 12.04 | 7.37 | -- | -- |
| | Runoff (mm) | -- | -- | -- | -- | -- | 1.2 | 0.8 | *2.1* | 1.0 | 0.6 | -- | -- |
| All Years | Average Discharge ($m^3/s$) | -- | -- | -- | -- | -- | *0.12* | 0.07 | 0.20 | 0.10 | *0.06* | -- | -- |
| | Average Yield ($L/s/km^2$) | -- | -- | -- | -- | -- | *14.35* | 9.20 | 24.30 | 12.04 | *7.37* | -- | -- |
| | Runoff (mm) | -- | -- | -- | -- | -- | *17.4* | 10.3 | 27.3 | 31.2 | *15.9* | -- | -- |

**Table 4-12:**
**W22 Summary statistics for 15-minute discharge record. All values are in $m^3/s$.**

| Year | Variable | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2007 | Average | -- | -- | -- | -- | -- | -- | -- | 0.52 | 0.70 | 0.61 | 0.94 | -- |
| | Maximum | -- | -- | -- | -- | -- | -- | -- | 0.93 | 1.95 | 1.03 | 1.34 | -- |
| | Minimum | -- | -- | -- | -- | -- | -- | -- | 0.32 | 0.43 | 0.44 | 0.56 | -- |
| 2008 | Average | -- | -- | -- | -- | -- | 0.46 | 0.73 | 0.94 | 0.79 | 1.23 | -- | -- |
| | Maximum | -- | -- | -- | -- | -- | 0.68 | 3.20 | 3.93 | 1.34 | 2.77 | -- | -- |
| | Minimum | -- | -- | -- | -- | -- | 0.30 | 0.32 | 0.47 | 0.49 | 0.47 | -- | -- |
| 2009 | Average | -- | -- | -- | -- | 2.07 | 0.96 | 0.27 | 0.40 | 0.66 | 0.64 | -- | -- |
| | Maximum | -- | -- | -- | -- | 5.34 | 2.35 | 0.47 | 1.31 | 1.22 | 1.01 | -- | -- |
| | Minimum | -- | -- | -- | -- | 0.19 | 0.33 | 0.06 | 0.19 | 0.43 | 0.37 | -- | -- |
| 2010 | Average | -- | -- | -- | -- | 1.16 | 1.02 | 0.75 | 0.64 | 0.45 | 0.34 | -- | -- |
| | Maximum | -- | -- | -- | -- | 2.39 | 2.51 | 1.11 | 1.30 | 0.68 | 0.47 | -- | -- |
| | Minimum | -- | -- | -- | -- | 0.50 | 0.69 | 0.58 | 0.52 | 0.11 | 0.11 | -- | -- |
| 2011 | Average | -- | -- | -- | 0.26 | 1.60 | 0.70 | 1.12 | 1.24 | 1.10 | 0.67 | -- | -- |
| | Maximum | -- | -- | -- | 0.48 | 4.47 | 1.35 | 3.08 | 2.89 | 1.73 | 1.06 | -- | -- |
| | Minimum | -- | -- | -- | 0.13 | 0.40 | 0.43 | 0.50 | 0.70 | 0.82 | 0.49 | -- | -- |
| 2012 | Average | -- | -- | -- | -- | -- | -- | 0.93 | 0.70 | 0.59 | 0.47 | -- | -- |
| | Maximum | -- | -- | -- | -- | -- | -- | 2.00 | 1.26 | 0.76 | 0.60 | -- | -- |
| | Minimum | -- | -- | -- | -- | -- | -- | 0.73 | 0.52 | 0.46 | 0.19 | -- | -- |
| 2013 | Average | -- | -- | -- | -- | 5.57 | 0.65 | 0.06 | -- | -- | -- | -- | -- |
| | Maximum | -- | -- | -- | -- | 20.63 | 4.74 | 0.36 | -- | -- | -- | -- | -- |
| | Minimum | -- | -- | -- | -- | 1.18 | 0.10 | 0.00 | -- | -- | -- | -- | -- |
| 2014 | Average | -- | -- | -- | -- | 1.37 | 0.93 | 0.55 | 0.79 | 0.65 | 0.65 | -- | -- |
| | Maximum | -- | -- | -- | -- | 3.14 | 2.56 | 2.74 | 2.54 | 1.20 | 0.90 | -- | -- |
| | Minimum | -- | -- | -- | -- | 0.47 | 0.46 | 0.31 | 0.24 | 0.38 | 0.52 | -- | -- |
| 2015 | Average | -- | -- | -- | -- | 2.43 | 0.87 | 0.90 | 1.12 | 1.33 | 0.84 | -- | -- |
| | Maximum | -- | -- | -- | -- | 5.32 | 1.50 | 2.10 | 2.91 | 2.41 | 1.21 | -- | -- |
| | Minimum | -- | -- | -- | -- | 1.00 | 0.53 | 0.57 | 0.70 | 0.98 | 0.62 | -- | -- |
| 2016 | Average | -- | -- | -- | 0.80 | 0.84 | 0.75 | 0.73 | 0.85 | 0.72 | 0.66 | -- | -- |
| | Maximum | -- | -- | -- | 1.45 | 1.51 | 1.43 | 1.41 | 2.10 | 1.46 | 0.91 | -- | -- |
| | Minimum | -- | -- | -- | 0.66 | 0.58 | 0.66 | 0.53 | 0.54 | 0.51 | 0.43 | -- | -- |
| 2017 | Average | -- | -- | -- | -- | -- | 0.79 | 0.75 | 0.48 | 1.04 | 1.43 | -- | -- |
| | Maximum | -- | -- | -- | -- | -- | 5.29 | 1.47 | 0.73 | 2.85 | 3.33 | -- | -- |
| | Minimum | -- | -- | -- | -- | -- | 0.43 | 0.47 | 0.32 | 0.40 | 0.06 | -- | -- |
| 2018 | Average | -- | -- | -- | -- | 3.33 | 1.54 | 0.72 | 1.02 | 0.60 | -- | -- | -- |
| | Maximum | -- | -- | -- | -- | 7.26 | 3.55 | 2.25 | 3.74 | 0.93 | -- | -- | -- |
| | Minimum | -- | -- | -- | -- | 1.95 | 0.67 | 0.35 | 0.34 | 0.32 | -- | -- | -- |
| All Years | Average | -- | -- | -- | 0.61 | 1.90 | 0.88 | 0.68 | 0.80 | 0.78 | 0.70 | 0.94 | -- |
| | Maximum | -- | -- | -- | 1.45 | 20.63 | 5.29 | 3.20 | 3.93 | 2.85 | 3.33 | 1.34 | -- |
| | Minimum | -- | -- | -- | 0.13 | 0.19 | 0.10 | 0.00 | 0.19 | 0.11 | 0.06 | 0.56 | -- |

# Table 4-13:
# W22 Summary statistics for daily discharge, unit yield and runoff

| Year | Variable | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2007 | # days with data | -- | -- | -- | -- | -- | -- | -- | *18* | 30 | 31 | *12* | -- |
| | Average Discharge ($m^3/s$) | -- | -- | -- | -- | -- | -- | -- | *0.52* | 0.70 | 0.61 | *0.94* | -- |
| | Average Yield ($L/s/km^2$) | -- | -- | -- | -- | -- | -- | -- | *7.71* | 10.49 | 9.10 | *14.02* | -- |
| | Runoff (mm) | -- | -- | -- | -- | -- | -- | -- | *12.0* | 27.2 | 24.4 | *14.5* | -- |
| 2008 | # days with data | -- | -- | -- | -- | -- | *22* | 31 | 31 | 30 | *21* | -- | -- |
| | Average Discharge ($m^3/s$) | -- | -- | -- | -- | -- | *0.47* | 0.73 | 0.94 | 0.79 | *1.23* | -- | -- |
| | Average Yield ($L/s/km^2$) | -- | -- | -- | -- | -- | *6.99* | 10.88 | 14.14 | 11.80 | *18.39* | -- | -- |
| | Runoff (mm) | -- | -- | -- | -- | -- | *13.3* | 29.1 | 37.9 | 30.6 | *33.4* | -- | -- |
| 2009 | # days with data | -- | -- | -- | -- | 29 | 30 | 31 | 31 | 30 | *20* | -- | -- |
| | Average Discharge ($m^3/s$) | -- | -- | -- | -- | 2.10 | 0.96 | 0.27 | 0.40 | 0.66 | *0.64* | -- | -- |
| | Average Yield ($L/s/km^2$) | -- | -- | -- | -- | 31.46 | 14.36 | 4.08 | 6.05 | 9.84 | *9.56* | -- | -- |
| | Runoff (mm) | -- | -- | -- | -- | 78.8 | 37.2 | 10.9 | 16.2 | 25.5 | *16.5* | -- | -- |
| 2010 | # days with data | -- | -- | -- | -- | 28 | 30 | 31 | 31 | 30 | *19* | -- | -- |
| | Average Discharge ($m^3/s$) | -- | -- | -- | -- | 1.16 | 1.02 | 0.75 | 0.64 | 0.45 | *0.34* | -- | -- |
| | Average Yield ($L/s/km^2$) | -- | -- | -- | -- | 17.36 | 15.34 | 11.22 | 9.61 | 6.75 | *5.07* | -- | -- |
| | Runoff (mm) | -- | -- | -- | -- | 42.0 | 39.8 | 30.0 | 25.7 | 17.5 | *8.3* | -- | -- |
| 2011 | # days with data | -- | -- | -- | *12* | 31 | 30 | 31 | 31 | 30 | 31 | -- | -- |
| | Average Discharge ($m^3/s$) | -- | -- | -- | *0.27* | 1.60 | 0.70 | 1.12 | 1.24 | 1.10 | 0.67 | -- | -- |
| | Average Yield ($L/s/km^2$) | -- | -- | -- | *3.98* | 23.90 | 10.42 | 16.78 | 18.63 | 16.52 | 10.00 | -- | -- |
| | Runoff (mm) | -- | -- | -- | *4.1* | 64.0 | 27.0 | 44.9 | 49.9 | 42.8 | 26.8 | -- | -- |
| 2012 | # days with data | -- | -- | -- | -- | -- | -- | *14* | 31 | 30 | *16* | -- | -- |
| | Average Discharge ($m^3/s$) | -- | -- | -- | -- | -- | -- | *0.93* | 0.70 | 0.59 | *0.46* | -- | -- |
| | Average Yield ($L/s/km^2$) | -- | -- | -- | -- | -- | -- | *13.95* | 10.46 | 8.89 | *6.95* | -- | -- |
| | Runoff (mm) | -- | -- | -- | -- | -- | -- | *16.9* | 28.0 | 23.0 | *9.6* | -- | -- |
| 2013 | # days with data | -- | -- | -- | -- | *11* | 30 | 24 | -- | -- | -- | -- | -- |
| | Average Discharge ($m^3/s$) | -- | -- | -- | -- | *5.22* | 0.65 | 0.06 | -- | -- | -- | -- | -- |
| | Average Yield ($L/s/km^2$) | -- | -- | -- | -- | *78.11* | 9.79 | 0.92 | -- | -- | -- | -- | -- |
| | Runoff (mm) | -- | -- | -- | -- | *74.2* | 25.4 | 1.9 | -- | -- | -- | -- | -- |
| 2014 | # days with data | -- | -- | -- | -- | 25 | 30 | 31 | 31 | 30 | *17* | -- | -- |
| | Average Discharge ($m^3/s$) | -- | -- | -- | -- | 1.41 | 0.93 | 0.55 | 0.79 | 0.65 | *0.65* | -- | -- |
| | Average Yield ($L/s/km^2$) | -- | -- | -- | -- | 21.06 | 13.88 | 8.20 | 11.75 | 9.72 | *9.68* | -- | -- |
| | Runoff (mm) | -- | -- | -- | -- | 45.5 | 36.0 | 22.0 | 31.5 | 25.2 | *14.2* | -- | -- |
| 2015 | # days with data | -- | -- | -- | -- | *18* | 29 | 31 | 31 | 30 | *14* | -- | -- |
| | Average Discharge ($m^3/s$) | -- | -- | -- | -- | *2.43* | 0.86 | 0.90 | 1.12 | 1.33 | *0.84* | -- | -- |
| | Average Yield ($L/s/km^2$) | -- | -- | -- | -- | *36.38* | 12.93 | 13.42 | 16.79 | 19.88 | *12.51* | -- | -- |
| | Runoff (mm) | -- | -- | -- | -- | *56.6* | 32.4 | 35.9 | 45.0 | 51.5 | *15.1* | -- | -- |
| 2016 | # days with data | -- | -- | -- | *22* | 31 | 30 | 31 | 31 | 30 | *13* | -- | -- |
| | Average Discharge ($m^3/s$) | -- | -- | -- | *0.80* | 0.84 | 0.75 | 0.73 | 0.85 | 0.72 | *0.66* | -- | -- |
| | Average Yield ($L/s/km^2$) | -- | -- | -- | *11.9* | 12.6 | 11.2 | 11.0 | 12.7 | 10.8 | *9.9* | -- | -- |
| | Runoff (mm) | -- | -- | -- | *22.6* | 33.6 | 29.1 | 29.3 | 34.1 | 27.9 | *11.2* | -- | -- |
| 2017 | # days with data | -- | -- | -- | -- | -- | *23* | 31 | 31 | 30 | *6* | -- | -- |
| | Average Discharge ($m^3/s$) | -- | -- | -- | -- | -- | *0.79* | 0.75 | 0.48 | 1.04 | *1.42* | -- | -- |
| | Average Yield ($L/s/km^2$) | -- | -- | -- | -- | -- | *11.88* | 11.27 | 7.16 | 15.58 | *21.29* | -- | -- |
| | Runoff (mm) | -- | -- | -- | -- | -- | *23.6* | 30.2 | 19.2 | 40.4 | *11.0* | -- | -- |
| 2018 | # days with data | -- | -- | -- | -- | *16.0* | 30.0 | 31.0 | 31.0 | 30.0 | -- | -- | -- |
| | Average Discharge ($m^3/s$) | -- | -- | -- | -- | *3.3* | 1.5 | 0.7 | 1.0 | 0.6 | -- | -- | -- |
| | Average Yield ($L/s/km^2$) | -- | -- | -- | -- | *50.1* | 23.1 | 10.7 | 15.3 | 9.0 | -- | -- | -- |
| | Runoff (mm) | -- | -- | -- | -- | *69.2* | 59.9 | 28.7 | 41.1 | 23.2 | -- | -- | -- |
| All Years | Average Discharge ($m^3/s$) | -- | -- | -- | *0.61* | *1.90* | *0.88* | *0.68* | 0.80 | 0.78 | *0.70* | *0.94* | -- |
| | Average Yield ($L/s/km^2$) | -- | -- | -- | *9.11* | *28.42* | *13.19* | *10.22* | 12.02 | 11.74 | *10.50* | *14.02* | -- |
| | Runoff (mm) | -- | -- | -- | *13.4* | *58.0* | 32.4 | 25.5 | 31.0 | 30.4 | *17.1* | *14.5* | -- |

**Table 4-14:**
**W26 Summary statistics for 15-minute discharge record. All values are in $m^3/s$.**

| Year | Variable | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2010 | Average | -- | -- | -- | -- | -- | 0.028 | 0.029 | 0.024 | 0.019 | -- | -- | -- |
| | Maximum | -- | -- | -- | -- | -- | 0.079 | 0.044 | 0.041 | 0.063 | -- | -- | -- |
| | Minimum | -- | -- | -- | -- | -- | 0.013 | 0.019 | 0.016 | 0.010 | -- | -- | -- |
| 2011 | Average | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | Maximum | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | Minimum | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 2012 | Average | -- | -- | -- | -- | -- | 0.019 | 0.022 | 0.016 | 0.010 | 0.008 | -- | -- |
| | Maximum | -- | -- | -- | -- | -- | 0.032 | 0.094 | 0.024 | 0.014 | 0.010 | -- | -- |
| | Minimum | -- | -- | -- | -- | -- | 0.012 | 0.013 | 0.009 | 0.007 | 0.004 | -- | -- |
| 2013 | Average | -- | -- | -- | -- | -- | -- | 0.001 | 0.001 | 0.005 | 0.006 | -- | -- |
| | Maximum | -- | -- | -- | -- | -- | -- | 0.002 | 0.003 | 0.012 | 0.007 | -- | -- |
| | Minimum | -- | -- | -- | -- | -- | -- | 0.001 | 0.000 | 0.000 | 0.004 | -- | -- |
| 2014 | Average | -- | -- | -- | -- | -- | 0.022 | 0.006 | 0.015 | 0.012 | -- | -- | -- |
| | Maximum | -- | -- | -- | -- | -- | 0.094 | 0.019 | 0.042 | 0.019 | -- | -- | -- |
| | Minimum | -- | -- | -- | -- | -- | 0.006 | 0.003 | 0.005 | 0.008 | -- | -- | -- |
| 2015 | Average | -- | -- | -- | -- | -- | 0.009 | 0.012 | 0.017 | 0.021 | 0.012 | -- | -- |
| | Maximum | -- | -- | -- | -- | -- | 0.027 | 0.047 | 0.031 | 0.044 | 0.058 | -- | -- |
| | Minimum | -- | -- | -- | -- | -- | 0.003 | 0.005 | 0.012 | 0.015 | 0.005 | -- | -- |
| 2016 | Average | -- | -- | -- | -- | 0.02 | 0.015 | 0.020 | 0.026 | 0.017 | -- | -- | -- |
| | Maximum | -- | -- | -- | -- | 0.06 | 0.071 | 0.143 | 0.050 | 0.022 | -- | -- | -- |
| | Minimum | -- | -- | -- | -- | 0.01 | 0.010 | 0.011 | 0.017 | 0.012 | -- | -- | -- |
| 2017 | Average | -- | -- | -- | -- | -- | 0.003 | 0.002 | 0.003 | 0.008 | -- | -- | -- |
| | Maximum | -- | -- | -- | -- | -- | 0.080 | 0.029 | 0.005 | 0.033 | -- | -- | -- |
| | Minimum | -- | -- | -- | -- | -- | 0.000 | 0.001 | 0.001 | 0.001 | -- | -- | -- |
| 2018 | Average | -- | -- | -- | -- | -- | -- | 0.005 | 0.013 | 0.010 | -- | -- | -- |
| | Maximum | -- | -- | -- | -- | -- | -- | 0.008 | 0.054 | 0.030 | -- | -- | -- |
| | Minimum | -- | -- | -- | -- | -- | -- | 0.003 | 0.005 | 0.005 | -- | -- | -- |
| All Years | Average | -- | -- | -- | -- | 0.018 | 0.019 | 0.015 | 0.015 | 0.013 | 0.009 | -- | -- |
| | Maximum | -- | -- | -- | -- | 0.060 | 0.094 | 0.143 | 0.054 | 0.063 | 0.058 | -- | -- |
| | Minimum | -- | -- | -- | -- | 0.010 | 0.000 | 0.001 | 0.000 | 0.000 | 0.004 | -- | -- |

## Table 4-15:
## W26 Summary statistics for daily discharge, unit yield and runoff

| Year | Variable | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2010 | # days with data | -- | -- | -- | -- | -- | 29 | 31 | 31 | 26 | -- | -- | -- |
| | Average Discharge ($m^3/s$) | -- | -- | -- | -- | -- | 0.03 | 0.03 | 0.02 | 0.02 | -- | -- | -- |
| | Average Yield ($L/s/km^2$) | -- | -- | -- | -- | -- | 21.44 | 22.18 | 18.71 | 14.30 | -- | -- | -- |
| | Runoff (mm) | -- | -- | -- | -- | -- | 53.7 | 59.4 | 50.1 | 32.1 | -- | -- | -- |
| 2011 | # days with data | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | Average Discharge ($m^3/s$) | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | Average Yield ($L/s/km^2$) | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | Runoff (mm) | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 2012 | # days with data | -- | -- | -- | -- | -- | *18* | 31 | 31 | 30 | *12* | -- | -- |
| | Average Discharge ($m^3/s$) | -- | -- | -- | -- | -- | *0.02* | 0.02 | 0.02 | 0.01 | *0.01* | -- | -- |
| | Average Yield ($L/s/km^2$) | -- | -- | -- | -- | -- | *14.56* | 17.00 | 12.00 | 7.83 | *5.85* | -- | -- |
| | Runoff (mm) | -- | -- | -- | -- | -- | *22.6* | 45.5 | 32.1 | 20.3 | *6.1* | -- | -- |
| 2013 | # days with data | -- | -- | -- | -- | -- | -- | 7 | 31 | 30 | *8* | -- | -- |
| | Average Discharge ($m^3/s$) | -- | -- | -- | -- | -- | -- | 0.00 | 0.00 | 0.00 | *0.01* | -- | -- |
| | Average Yield ($L/s/km^2$) | -- | -- | -- | -- | -- | -- | 0.98 | 0.97 | 3.61 | *4.42* | -- | -- |
| | Runoff (mm) | -- | -- | -- | -- | -- | -- | 0.6 | 2.6 | 9.4 | *3.1* | -- | -- |
| 2014 | # days with data | -- | -- | -- | -- | -- | *20* | 31 | 31 | 25 | -- | -- | -- |
| | Average Discharge ($m^3/s$) | -- | -- | -- | -- | -- | *0.02* | 0.01 | 0.01 | 0.01 | -- | -- | -- |
| | Average Yield ($L/s/km^2$) | -- | -- | -- | -- | -- | *17.19* | 4.50 | 11.19 | 8.98 | -- | -- | -- |
| | Runoff (mm) | -- | -- | -- | -- | -- | *29.7* | 12.0 | 30.0 | 19.4 | -- | -- | -- |
| 2015 | # days with data | -- | -- | -- | -- | -- | *12* | 31 | 31 | 30 | *14* | -- | -- |
| | Average Discharge ($m^3/s$) | -- | -- | -- | -- | -- | *0.01* | 0.01 | 0.02 | 0.02 | *0.01* | -- | -- |
| | Average Yield ($L/s/km^2$) | -- | -- | -- | -- | -- | *6.55* | 9.00 | 12.87 | 16.26 | *10.48* | -- | -- |
| | Runoff (mm) | -- | -- | -- | -- | -- | *6.8* | 24.1 | 34.5 | 42.2 | *12.7* | -- | -- |
| 2016 | # days with data | -- | -- | -- | -- | *9* | 30 | 31 | 31 | 30 | -- | -- | -- |
| | Average Discharge ($m^3/s$) | -- | -- | -- | -- | *0.02* | 0.01 | 0.02 | 0.03 | 0.02 | -- | -- | -- |
| | Average Yield ($L/s/km^2$) | -- | -- | -- | -- | *13.97* | 11.38 | 15.46 | 20.21 | 12.73 | -- | -- | -- |
| | Runoff (mm) | -- | -- | -- | -- | *10.9* | 29.5 | 41.4 | 54.1 | 33.0 | -- | -- | -- |
| 2017 | # days with data | -- | -- | -- | -- | -- | *22* | 31 | 31 | 29 | -- | -- | -- |
| | Average Discharge ($m^3/s$) | -- | -- | -- | -- | -- | *0.00* | 0.00 | 0.00 | 0.01 | -- | -- | -- |
| | Average Yield ($L/s/km^2$) | -- | -- | -- | -- | -- | *2.12* | 1.74 | 2.12 | 5.99 | -- | -- | -- |
| | Runoff (mm) | -- | -- | -- | -- | -- | *4.0* | 4.7 | 5.7 | 15.0 | -- | -- | -- |
| 2018 | # days with data | -- | -- | -- | -- | -- | -- | *19.0* | 31.0 | *27.0* | -- | -- | -- |
| | Average Discharge ($m^3/s$) | -- | -- | -- | -- | -- | -- | *0.0* | 0.0 | *0.0* | -- | -- | -- |
| | Average Yield ($L/s/km^2$) | -- | -- | -- | -- | -- | -- | *3.5* | 9.7 | *7.5* | -- | -- | -- |
| | Runoff (mm) | -- | -- | -- | -- | -- | -- | *5.8* | 26.0 | *17.6* | -- | -- | -- |
| All Years | Average Discharge ($m^3/s$) | -- | -- | -- | -- | *0.02* | 0.02 | 0.01 | 0.01 | 0.01 | *0.01* | -- | -- |
| | Average Yield ($L/s/km^2$) | -- | -- | -- | -- | *13.97* | 12.94 | 10.57 | 10.97 | 9.63 | *7.42* | -- | -- |
| | Runoff (mm) | -- | -- | -- | -- | *10.9* | *24.4* | 24.2 | 29.4 | 23.6 | *7.3* | -- | -- |

**Table 4-16:**
**W27 Summary statistics for 15-minute discharge record. All values are in $m^3/s$.**

| Year | Variable | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2007 | Average | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | Maximum | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | Minimum | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 2008 | Average | -- | -- | -- | -- | -- | 0.040 | 0.030 | 0.037 | 0.045 | 0.058 | -- | -- |
| | Maximum | -- | -- | -- | -- | -- | 0.061 | 0.053 | 0.059 | 0.062 | 0.075 | -- | -- |
| | Minimum | -- | -- | -- | -- | -- | 0.003 | 0.001 | 0.001 | 0.022 | 0.024 | -- | -- |
| 2009 | Average | -- | -- | -- | -- | -- | -- | 0.031 | 0.028 | 0.034 | 0.038 | -- | -- |
| | Maximum | -- | -- | -- | -- | -- | -- | 0.048 | 0.079 | 0.082 | 0.046 | -- | -- |
| | Minimum | -- | -- | -- | -- | -- | -- | 0.021 | 0.021 | 0.021 | 0.028 | -- | -- |
| 2010 | Average | -- | -- | -- | -- | 0.090 | 0.057 | 0.029 | 0.025 | 0.014 | 0.016 | -- | -- |
| | Maximum | -- | -- | -- | -- | 0.146 | 0.115 | 0.070 | 0.076 | 0.074 | 0.105 | -- | -- |
| | Minimum | -- | -- | -- | -- | 0.011 | 0.037 | 0.001 | 0.006 | 0.001 | 0.001 | -- | -- |
| 2011 | Average | -- | -- | -- | -- | 0.160 | 0.046 | 0.041 | 0.014 | 0.010 | 0.007 | -- | -- |
| | Maximum | -- | -- | -- | -- | 0.335 | 0.070 | 0.111 | 0.044 | 0.014 | 0.010 | -- | -- |
| | Minimum | -- | -- | -- | -- | 0.037 | 0.032 | 0.011 | 0.003 | 0.008 | 0.005 | -- | -- |
| 2012 | Average | -- | -- | -- | -- | 0.047 | -- | 0.030 | 0.023 | 0.016 | 0.017 | -- | -- |
| | Maximum | -- | -- | -- | -- | 0.128 | -- | 0.315 | 0.036 | 0.040 | 0.021 | -- | -- |
| | Minimum | -- | -- | -- | -- | 0.018 | -- | 0.021 | 0.015 | 0.012 | 0.015 | -- | -- |
| 2013 | Average | -- | -- | -- | -- | -- | -- | 0.018 | 0.015 | 0.025 | 0.028 | -- | -- |
| | Maximum | -- | -- | -- | -- | -- | -- | 0.030 | 0.061 | 0.123 | 0.035 | -- | -- |
| | Minimum | -- | -- | -- | -- | -- | -- | 0.014 | 0.010 | 0.012 | 0.021 | -- | -- |
| 2014 | Average | -- | -- | -- | -- | 0.042 | 0.037 | 0.030 | 0.031 | 0.015 | 0.012 | -- | -- |
| | Maximum | -- | -- | -- | -- | 0.088 | 0.144 | 0.050 | 0.097 | 0.020 | 0.014 | -- | -- |
| | Minimum | -- | -- | -- | -- | 0.027 | 0.012 | 0.024 | 0.012 | 0.010 | 0.010 | -- | -- |
| 2015 | Average | -- | -- | -- | -- | 0.081 | 0.039 | 0.049 | -- | -- | -- | -- | -- |
| | Maximum | -- | -- | -- | -- | 0.304 | 0.052 | 0.241 | -- | -- | -- | -- | -- |
| | Minimum | -- | -- | -- | -- | 0.005 | 0.027 | 0.041 | -- | -- | -- | -- | -- |
| 2016 | Average | -- | -- | -- | -- | 0.053 | 0.033 | 0.041 | 0.06 | 0.05 | -- | -- | -- |
| | Maximum | -- | -- | -- | -- | 0.123 | 0.064 | 0.127 | 0.14 | 0.07 | -- | -- | -- |
| | Minimum | -- | -- | -- | -- | 0.029 | 0.024 | 0.023 | 0.05 | 0.04 | -- | -- | -- |
| 2017 | Average | -- | -- | -- | -- | -- | 0.017 | 0.013 | 0.01 | 0.01 | 0.07 | -- | -- |
| | Maximum | -- | -- | -- | -- | -- | 0.100 | 0.095 | 0.03 | 0.10 | 0.08 | -- | -- |
| | Minimum | -- | -- | -- | -- | -- | 0.010 | 0.009 | 0.01 | 0.01 | 0.05 | -- | -- |
| 2018 | Average | -- | -- | -- | -- | 0.00 | 0.001 | 0.001 | 0.00 | 0.00 | -- | -- | -- |
| | Maximum | -- | -- | -- | -- | 0.01 | 0.016 | 0.004 | 0.02 | 0.04 | -- | -- | -- |
| | Minimum | -- | -- | -- | -- | 0.00 | 0.000 | 0.000 | 0.00 | 0.00 | -- | -- | -- |
| All Years | Average | -- | -- | -- | -- | 0.086 | 0.034 | 0.026 | 0.021 | 0.021 | 0.026 | -- | -- |
| | Maximum | -- | -- | -- | -- | 0.335 | 0.144 | 0.315 | 0.138 | 0.123 | 0.105 | -- | -- |
| | Minimum | -- | -- | -- | -- | 0.001 | 0.000 | 0.000 | 0.000 | 0.000 | 0.001 | -- | -- |

## Table 4-17:
## W27 Summary statistics for daily discharge, unit yield and runoff

| Year | Variable | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2007 | # days with data | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | Average Discharge ($m^3/s$) | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | Average Yield ($L/s/km^2$) | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | Runoff (mm) | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 2008 | # days with data | -- | -- | -- | -- | -- | *21* | 31 | 31 | 30 | *21* | -- | -- |
| | Average Discharge ($m^3/s$) | -- | -- | -- | -- | -- | *0.040* | 0.030 | 0.036 | 0.045 | *0.058* | -- | -- |
| | Average Yield ($L/s/km^2$) | -- | -- | -- | -- | -- | *14.77* | 10.94 | 13.22 | 16.75 | *21.50* | -- | -- |
| | Runoff (mm) | -- | -- | -- | -- | -- | *26.8* | 29.3 | 35.4 | 43.4 | *39.0* | -- | -- |
| 2009 | # days with data | -- | -- | -- | -- | -- | -- | *13* | 31 | 30 | *7* | -- | -- |
| | Average Discharge ($m^3/s$) | -- | -- | -- | -- | -- | -- | *0.032* | 0.028 | 0.034 | *0.038* | -- | -- |
| | Average Yield ($L/s/km^2$) | -- | -- | -- | -- | -- | -- | *11.70* | 10.42 | 12.44 | *14.01* | -- | -- |
| | Runoff (mm) | -- | -- | -- | -- | -- | -- | *13.1* | 27.9 | 32.2 | *8.5* | -- | -- |
| 2010 | # days with data | -- | -- | -- | -- | *21* | 30 | 31 | 31 | 30 | *19* | -- | -- |
| | Average Discharge ($m^3/s$) | -- | -- | -- | -- | *0.090* | 0.057 | 0.029 | 0.025 | 0.014 | *0.016* | -- | -- |
| | Average Yield ($L/s/km^2$) | -- | -- | -- | -- | *33.21* | 21.18 | 10.70 | 9.36 | 5.31 | *5.94* | -- | -- |
| | Runoff (mm) | -- | -- | -- | -- | *60.3* | 54.9 | 28.6 | 25.1 | 13.8 | *9.7* | -- | -- |
| 2011 | # days with data | -- | -- | -- | -- | 27 | 30 | 31 | 31 | 30 | 31 | -- | -- |
| | Average Discharge ($m^3/s$) | -- | -- | -- | -- | 0.159 | 0.045 | 0.041 | 0.014 | 0.010 | 0.007 | -- | -- |
| | Average Yield ($L/s/km^2$) | -- | -- | -- | -- | 58.90 | 16.85 | 15.25 | 5.29 | 3.71 | 2.64 | -- | -- |
| | Runoff (mm) | -- | -- | -- | -- | 137.4 | 43.7 | 40.9 | 14.2 | 9.6 | 7.1 | -- | -- |
| 2012 | # days with data | -- | -- | -- | -- | *6* | -- | *11* | *17* | 30 | *8* | -- | -- |
| | Average Discharge ($m^3/s$) | -- | -- | -- | -- | *0.046* | -- | *0.030* | *0.023* | 0.016 | *0.017* | -- | -- |
| | Average Yield ($L/s/km^2$) | -- | -- | -- | -- | *16.99* | -- | *11.16* | *8.59* | 5.96 | *6.38* | -- | -- |
| | Runoff (mm) | -- | -- | -- | -- | *8.8* | -- | *10.6* | *12.6* | 15.5 | *4.4* | -- | -- |
| 2013 | # days with data | -- | -- | -- | -- | -- | -- | *7* | 31 | 30 | *19* | -- | -- |
| | Average Discharge ($m^3/s$) | -- | -- | -- | -- | -- | -- | *0.018* | 0.015 | 0.025 | *0.028* | -- | -- |
| | Average Yield ($L/s/km^2$) | -- | -- | -- | -- | -- | -- | *6.79* | 5.58 | 9.35 | *10.46* | -- | -- |
| | Runoff (mm) | -- | -- | -- | -- | -- | -- | *4.1* | 14.9 | 24.2 | *17.2* | -- | -- |
| 2014 | # days with data | -- | -- | -- | -- | *25* | 30 | 31 | 31 | 30 | *16* | -- | -- |
| | Average Discharge ($m^3/s$) | -- | -- | -- | -- | *0.042* | 0.037 | 0.030 | 0.031 | 0.016 | *0.012* | -- | -- |
| | Average Yield ($L/s/km^2$) | -- | -- | -- | -- | *15.56* | 13.86 | 11.08 | 11.41 | 5.75 | *4.57* | -- | -- |
| | Runoff (mm) | -- | -- | -- | -- | *33.6* | 35.9 | 29.7 | 30.6 | 14.9 | *6.3* | -- | -- |
| 2015 | # days with data | -- | -- | -- | -- | *18* | 30 | 31 | -- | -- | -- | -- | -- |
| | Average Discharge ($m^3/s$) | -- | -- | -- | -- | *0.081* | 0.039 | 0.049 | -- | -- | -- | -- | -- |
| | Average Yield ($L/s/km^2$) | -- | -- | -- | -- | *30.12* | 14.30 | 18.14 | -- | -- | -- | -- | -- |
| | Runoff (mm) | -- | -- | -- | -- | *46.8* | 37.1 | 48.6 | -- | -- | -- | -- | -- |
| 2016 | # days with data | -- | -- | -- | -- | *26* | 30 | 31 | 31 | 30 | -- | -- | -- |
| | Average Discharge ($m^3/s$) | -- | -- | -- | -- | *0.054* | 0.033 | 0.041 | 0.06 | 0.05 | -- | -- | -- |
| | Average Yield ($L/s/km^2$) | -- | -- | -- | -- | *20.03* | 12.07 | 15.33 | 22.93 | 19.61 | -- | -- | -- |
| | Runoff (mm) | -- | -- | -- | -- | *45.0* | 31.3 | 41.0 | 61.4 | 50.8 | -- | -- | -- |
| 2017 | # days with data | -- | -- | -- | -- | -- | *22* | 31 | 31 | 30 | *2* | -- | -- |
| | Average Discharge ($m^3/s$) | -- | -- | -- | -- | -- | *0.017* | 0.013 | 0.01 | 0.01 | *0.07* | -- | -- |
| | Average Yield ($L/s/km^2$) | -- | -- | -- | -- | -- | *6.40* | 4.95 | 3.86 | 4.77 | *25.15* | -- | -- |
| | Runoff (mm) | -- | -- | -- | -- | -- | *12.2* | 13.3 | 10.3 | 12.4 | *4.3* | -- | -- |
| 2018 | # days with data | -- | -- | -- | -- | 7.0 | *30.0* | 31.0 | 31.0 | 14.0 | -- | -- | -- |
| | Average Discharge ($m^3/s$) | -- | -- | -- | -- | 0.0 | *0.0* | 0.0 | 0.0 | 0.0 | -- | -- | -- |
| | Average Yield ($L/s/km^2$) | -- | -- | -- | -- | 1.0 | *0.4* | 0.3 | 0.5 | 0.4 | -- | -- | -- |
| | Runoff (mm) | -- | -- | -- | -- | 0.6 | *1.0* | 0.7 | 1.3 | 0.5 | -- | -- | -- |
| All Years | Average Discharge ($m^3/s$) | -- | -- | -- | -- | *0.08* | *0.03* | 0.03 | *0.02* | 0.02 | *0.02* | -- | -- |
| | Average Yield ($L/s/km^2$) | -- | -- | -- | -- | *29.61* | *12.60* | 10.78 | *9.14* | 8.86 | *9.08* | -- | -- |
| | Runoff (mm) | -- | -- | -- | -- | *47.5* | *30.4* | 23.6 | *23.4* | *21.7* | *12.1* | -- | -- |

## Table 4-18:
## W29 Summary statistics for 15-minute discharge record. All values are in $m^3/s$.

| Year | Variable | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2011 | Average | -- | -- | -- | -- | -- | 0.720 | 1.561 | 1.662 | 1.606 | 1.003 | -- | -- |
| | Maximum | -- | -- | -- | -- | -- | 1.269 | 4.466 | 3.312 | 2.407 | 1.629 | -- | -- |
| | Minimum | -- | -- | -- | -- | -- | 0.229 | 0.441 | 0.914 | 1.223 | 0.623 | -- | -- |
| 2012 | Average | -- | -- | -- | -- | 1.690 | 1.736 | 1.222 | 0.823 | 0.714 | 0.638 | -- | -- |
| | Maximum | -- | -- | -- | -- | 3.259 | 3.766 | 4.497 | 1.429 | 0.881 | 0.786 | -- | -- |
| | Minimum | -- | -- | -- | -- | 0.653 | 0.823 | 0.786 | 0.656 | 0.577 | 0.432 | -- | -- |
| 2013 | Average | -- | -- | -- | -- | 5.019 | -- | -- | 0.380 | 0.866 | 0.711 | -- | -- |
| | Maximum | -- | -- | -- | -- | 13.604 | -- | -- | 0.535 | 2.818 | 0.935 | -- | -- |
| | Minimum | -- | -- | -- | -- | 1.370 | -- | -- | 0.308 | 0.328 | 0.448 | -- | -- |
| 2014 | Average | -- | -- | -- | -- | -- | -- | -- | 1.467 | 1.110 | 1.063 | -- | -- |
| | Maximum | -- | -- | -- | -- | -- | -- | -- | 4.955 | 2.568 | 1.703 | -- | -- |
| | Minimum | -- | -- | -- | -- | -- | -- | -- | 0.495 | 0.692 | 0.864 | -- | -- |
| 2015 | Average | -- | -- | -- | -- | -- | 0.789 | 0.856 | 0.954 | 1.249 | 0.771 | -- | -- |
| | Maximum | -- | -- | -- | -- | -- | 1.460 | 2.406 | 3.023 | 2.477 | 1.275 | -- | -- |
| | Minimum | -- | -- | -- | -- | -- | 0.494 | 0.543 | 0.007 | 0.859 | 0.582 | -- | -- |
| 2018 | Average | -- | -- | -- | -- | -- | 1.642 | 1.259 | 1.689 | 0.710 | 1.346 | -- | -- |
| | Maximum | -- | -- | -- | -- | -- | 1.985 | 1.984 | 2.888 | 1.673 | 2.623 | -- | -- |
| | Minimum | -- | -- | -- | -- | -- | 1.144 | 0.493 | 0.620 | 0.177 | 0.356 | -- | -- |
| All Years | Average | -- | -- | -- | -- | 2.352 | 1.307 | 1.224 | 1.171 | 1.043 | 0.987 | -- | -- |
| | Maximum | -- | -- | -- | -- | 13.604 | 3.766 | 4.497 | 4.955 | 2.818 | 2.623 | -- | -- |
| | Minimum | -- | -- | -- | -- | 0.653 | 0.229 | 0.441 | 0.007 | 0.177 | 0.356 | -- | -- |

## Table 4-19:
## W29 Summary statistics for daily discharge, unit yield and runoff

| Year | Variable | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2011 | # days with data | -- | -- | -- | -- | -- | *23* | 31 | 31 | 30 | 31 | -- | -- |
| | Average Discharge ($m^3/s$) | -- | -- | -- | -- | -- | *0.72* | 1.56 | 1.66 | 1.61 | 1.00 | -- | -- |
| | Average Yield ($L/s/km^2$) | -- | -- | -- | -- | -- | *8.39* | 18.12 | 19.31 | 18.66 | 11.65 | -- | -- |
| | Runoff (mm) | -- | -- | -- | -- | -- | *16.7* | 48.5 | 51.7 | 48.4 | 31.2 | -- | -- |
| 2012 | # days with data | -- | -- | -- | -- | *27* | 30 | 31 | 31 | 30 | *13* | -- | -- |
| | Average Discharge ($m^3/s$) | -- | -- | -- | -- | *1.68* | 1.74 | 1.22 | 0.82 | 0.71 | *0.62* | -- | -- |
| | Average Yield ($L/s/km^2$) | -- | -- | -- | -- | *19.52* | 20.16 | 14.19 | 9.55 | 8.29 | *7.21* | -- | -- |
| | Runoff (mm) | -- | -- | -- | -- | *45.5* | 52.3 | 38.0 | 25.6 | 21.5 | *8.1* | -- | -- |
| 2013 | # days with data | -- | -- | -- | -- | *8* | -- | -- | 28 | 30 | *19* | -- | -- |
| | Average Discharge ($m^3/s$) | -- | -- | -- | -- | *5.30* | -- | -- | 0.38 | 0.87 | *0.71* | -- | -- |
| | Average Yield ($L/s/km^2$) | -- | -- | -- | -- | *61.54* | -- | -- | 4.40 | 10.06 | *8.21* | -- | -- |
| | Runoff (mm) | -- | -- | -- | -- | *42.5* | -- | -- | 10.6 | 26.1 | *13.5* | -- | -- |
| 2014 | # days with data | -- | -- | -- | -- | -- | -- | -- | 27 | 30 | *17* | -- | -- |
| | Average Discharge ($m^3/s$) | -- | -- | -- | -- | -- | -- | -- | 1.44 | 1.11 | *1.06* | -- | -- |
| | Average Yield ($L/s/km^2$) | -- | -- | -- | -- | -- | -- | -- | 16.74 | 12.89 | *12.31* | -- | -- |
| | Runoff (mm) | -- | -- | -- | -- | -- | -- | -- | 39.1 | 33.4 | *18.1* | -- | -- |
| 2015 | # days with data | -- | -- | -- | -- | -- | *12* | 31 | 31 | 30 | *14* | -- | -- |
| | Average Discharge ($m^3/s$) | -- | -- | -- | -- | -- | *0.78* | 0.86 | 0.95 | 1.25 | *0.77* | -- | -- |
| | Average Yield ($L/s/km^2$) | -- | -- | -- | -- | -- | *9.04* | 9.94 | 11.09 | 14.51 | *8.90* | -- | -- |
| | Runoff (mm) | -- | -- | -- | -- | -- | *9.4* | 26.6 | 29.7 | 37.6 | *10.8* | -- | -- |
| 2018 | # days with data | -- | -- | -- | -- | -- | *19.0* | 31.0 | 31.0 | 30.0 | 29.0 | -- | -- |
| | Average Discharge ($m^3/s$) | -- | -- | -- | -- | -- | *1.6* | 1.3 | 1.7 | 0.7 | 1.4 | -- | -- |
| | Average Yield ($L/s/km^2$) | -- | -- | -- | -- | -- | *19.0* | 14.6 | 19.6 | 8.2 | 15.7 | -- | -- |
| | Runoff (mm) | -- | -- | -- | -- | -- | *31.3* | 39.2 | 52.5 | 21.4 | 39.3 | -- | -- |
| All Years | Average Discharge ($m^3/s$) | -- | -- | -- | -- | *2.51* | *1.30* | 1.22 | 1.16 | 1.04 | *0.98* | -- | -- |
| | Average Yield ($L/s/km^2$) | -- | -- | -- | -- | *29.13* | *15.10* | 14.22 | 13.53 | 12.11 | *11.38* | -- | -- |
| | Runoff (mm) | -- | -- | -- | -- | *44.0* | *27.4* | 38.1 | 34.9 | 31.4 | *20.2* | -- | -- |

# 5. Closure

Victoria
GOLD CORP

# 5. Closure

We trust that this report meets your expectations at this time. Please contact the undersigned with any questions or comments.

Sincerely,

**LORAX ENVIRONMENTAL SERVICES LTD.**

Prepared by:



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# APPENDIX E

## 2019 Water Balance and Water Quality Model Update Report

StrataGold Corporation



# Eagle Gold Project

## 2019 Water Balance and Water Quality Model Update Report

**Project No. A445-1**
**29 March 2019**

**Prepared by:**
Lorax Environmental Services Ltd.
Vancouver, BC

LORAX ENVIRONMENTAL

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# 1. Introduction

## 1.1 Project Description

The Eagle Gold Project (the Project) is owned by StrataGold Corporation, a wholly owned subsidiary of Victoria Gold Corp. (the "Company"). The Project is located in the Central Yukon Territory, approximately 350 km north of Whitehorse and approximately 45 km north of Mayo. Much of the mine site lies within the Dublin Gulch watershed, a tributary that reports to Haggart Creek, and which then flows to the South McQuesten River. Ultimately, the South McQuesten River joins the Stewart River, which flows west to its eventual confluence with the Yukon River.

A Type A Water Use License (QZ14-041) was issued for the Eagle Gold Project on December 3rd, 2015 to allow the construction, operation and closure of the open pit heap leach gold mine in central Yukon.

The Eagle Gold Mine water balance and water quality model (WBQM) has been updated to reflect the most recent baseline information, heap leach water balance modeling and updated geochemical source term modeling

## 1.2 Scope of Report

The Eagle Gold WBWQM is a GoldSim-based integrated water balance and quality model that was previously developed in two parts. The initial water balance model design was led by Knight-Piésold (KP) who used a runoff-based approach to determine natural and mine-impacted runoff from the catchments that comprise the Eagle mine site. Precipitation was back-calculated from runoff where a precipitation input was required. KP also integrated the Excel-based monthly heap leach facility (HLF) water balance model provided by the Mines Group. The water quality component was developed by Lorax Environmental Services Ltd. (Lorax) and integrated within the WBM to combine source concentrations of potential contaminants of concern with contact and non-contact flows to track contaminant loading throughout the mine site and into the receiving waters of Haggart Creek. The culmination of both these efforts was the 2014 water quality model used in support of StrataGold's Type A Water Use License Application submitted in August 2014 (Exhibit 1.11.1 on the Yukon Water Board Waterline website registry for StrataGold's Type A Water Use License).

Since submission of the 2014 WBWQM, the model has been updated in March 2018 and further revised in June 2018.

This report presents the most recent update of the Eagle Gold water balance model (WBM) and water quality model (WQM) that fully integrates the following:

- Description of the water management plan as described in: *Eagle Gold Project Construction and Operations Water Management Plan*. Version 2108-01. August 2018;
- Revisions to the heap leach facility water balance modeling as described in: *Weekly Water Balance Modeling for the Eagle Gold Mine Heap Leach Pad Facility*. Report prepared by The Mines Group, October 2018;
- Baseline climate and hydrology data collected since 2007 and inclusive of data collected in 2018;
- Updated baseline surface water quality monitoring data collected from 2007 to 2017 prior to initiation of construction in August 2017; and
- Geochemical source term data collected from active field bins of waste rock and leached ore materials, with consideration of data collected up through September 2018 ice-free season.

Following this introduction, Section 2 presents the updated input parameters and assumptions used to update the water balance and water quality models. Section 3 presents a summary of the water quality model results and Section 4 provides a summary of the results for water quantity.

# 2. Model Inputs and Assumptions

## 2.1 Water Balance Model Inputs and Assumptions

For the purposes of this 2019 update, the Goldsim model structure, parameterization and assumptions are largely unchanged from those presented in the previous water balance model report submitted in support of the WUL application (Knight Piésold, 2014) and the updates provided in 2018, with some exceptions, as described below. Section 2.1.1 discusses changes to the WBM based on hydrometeorological updates through 2017, while Section 2.1.1.1 uses 2018 data to help validate the WBM

### 2.1.1 Hydro-meteorological Updates

Following the issuance of WUL QZ14-041, the collection of baseline climate and streamflow data has continued at the Project site. This additional data has been incorporated into the site monitoring records, and the results are presented in the climate and hydrology baseline reports (Lorax 2019a and 2019b). These data were analyzed in conjunction with regional climate and streamflow records to estimate the necessary input parameters for use in the updated WBM. A summary of the updated values of interest is presented in Table 2.1-1, along with the previous estimates derived by Knight Piésold (2013). These estimates are considered representative of the reference elevation of 1,125 m asl, which is the mid-point of the catchment that drains to Haggart Creek below Dublin Gulch hydrometric station (W4; 76.9 $km^2$), and which contains the proposed Project footprint.

Overall, the incorporation of additional baseline climate data and updated synthetic precipitation and runoff estimates have resulted in non material changes to the Project site water balance. As in the previous WBM, annual runoff at the W4 hydrometric station is assumed to represent the effective precipitation at the Project site and forms the primary driver of the WBM. The changes from the initial estimates made by Knight Piesold in 2013 relevant to the WBM parameterization are consistent with Lorax (2018) and are as follows:

- Mean annual precipitation (MAP) at the 1,125 m elevation has decreased by 6%, from 500 mm to 472 mm;
- Mean annual runoff (MAR) for the W4 hydrometric station has increased by 7% from 230 mm to 247 mm;
- The annual orographic precipitation gradient has decreased from +10%/100 m for to +7%/100 m; and

- The monthly distribution of annual runoff used to distribute the MAR value for W4 has changed slightly, as outlined in Table 2.1-2.

**Table 2.1-1:**
**Comparison of 2014 and updated 2017 runoff and precipitation estimates at the Eagle Gold Project site**

| **Knight Piésold Hydrometeorology Report (2013)** | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **Parameter** | **Camp (782 m)** | | | **1125 m** | | | **Potato Hills (1420 m)** | | |
| | Annual | Oct-Apr (SWE) | May-Sept (Rain) | Annual | Oct-Apr (SWE) | May-Sept (Rain) | Annual | Oct-Apr (SWE) | May-Sept (Rain) |
| Potential Evapotranspiration (mm) | 439 | -- | 439 | -- | -- | | 335 | -- | 335 |
| Mean Precipitation (mm) | 357 | 205 | 152 | 500 | 310 | 190 | 652 | 432 | 220 |
| Mean Annual Runoff (W4; mm) | -- | -- | -- | 230 | -- | -- | -- | -- | -- |
| **Lorax Hydrometeorology Report (2017a)** | | | | | | | | | |
| Potential Evapotranspiration (mm) | 483 | -- | 382 | 380 | -- | 344 | 305 | -- | 309 |
| Mean Precipitation (mm) | 375 | 160 | 214 | 472 | 227 | 245 | 581 | 306 | 275 |
| Mean Annual Runoff (W4; mm) | -- | -- | -- | 247 | -- | -- | -- | -- | -- |

**Table 2.1-2:**
**Comparison of 2014 and updated 2017 monthly runoff distributions for the Eagle Gold Project site**

| **Month** | **2014 values** | | **2017 values** | |
|---|---|---|---|---|
| | **Distribution** | **Precipitation (mm)** | **Distribution** | **Precipitation (mm)** |
| JAN | 2% | 3.6 | 3% | 6.5 |
| FEB | 1% | 2.8 | 2% | 5.4 |
| MAR | 1% | 3.0 | 2% | 5.7 |
| APR | 2% | 4.8 | 3% | 8.4 |
| MAY | 30% | 69.6 | 24% | 60.5 |
| JUN | 21% | 48.0 | 17% | 41.1 |
| JUL | 12% | 27.3 | 11% | 28.4 |
| AUG | 10% | 23.9 | 10% | 23.9 |
| SEP | 10% | 23.2 | 10% | 24.2 |
| OCT | 6% | 13.1 | 8% | 20.7 |
| NOV | 3% | 6.9 | 6% | 14.0 |
| DEC | 2% | 4.9 | 3% | 8.2 |
| Total | | 231 | | 247 |

Overall, the changes listed above result in minor and immaterial alterations to the WBM inputs. Winter flows in the larger drainages tend to be higher than previous estimates, and freshet magnitudes are slightly lower.

Additional site monitoring confirms that winter flows within the smaller (and higher elevation) drainages at the Project site are lower relative to those measured at W4, and thus the multiplier of 0.1 for these drainages was carried forward in the WBM update.

The updated annual runoff volumes are higher overall in the larger basins, with the increases ranging from 2% to 10% above the values used in the 2014 WBM (Table 2.1-3). However, the slight increase in the updated winter flow estimates for the smaller basins that are modified by the winter low flow factor, in concert with the slight reductions in freshet volumes, has resulted in small decreases in annual runoff for the Stewart Gulch (W26) and the Eagle Pup drainages, on the order of -4% and -2%, respectively. Annual runoff for Suttles Gulch has increased slightly by 2%, and runoff from Platinum Gulch remains effectively unchanged.

**Table 2.1-3:**
**Comparison of 2014 and 2017 updated monthly runoff distributions**

| Basin | Median Basin Elevation (m) | Area ($km^2$) | 2014 Annual Runoff (mm) | 2017 Annual Runoff (mm) | % change MAR from 2014 WBM |
|---|---|---|---|---|---|
| Upper Dublin Gulch (W1) | 1303 | 6.8 | 274 | 279 | 2% |
| Stewart Gulch (W26)[1] | 1183 | 1.3 | 219 | 212 | -4% |
| Haggart Ck u/s Dublin Gulch (W22) | 1113 | 66.8 | 228 | 245 | 7% |
| Haggart Ck d/s Dublin Gulch (W4) | 1125 | 76.9 | 231 | 247 | 7% |
| Ann Gulch | 1029 | 0.89 | 211 | 231 | 10% |
| Eagle Pup[1] | 1116 | 8.88 | 206 | 202 | -2% |
| Suttles Gulch[1] | 994 | 0.22 | 183 | 186 | 2% |
| Platinum Gulch[1] | 1070 | 0.77 | 197 | 196 | 0% |
| Haggart Ck (btwn W29 and W5) | 1091 | 0.68 | 224 | 241 | 8% |
| Lynx Ck u/s Haggart Ck (W6) | 1049 | 100.9 | 215 | 235 | 9% |

**Note:**
[1]The runoff presented for these nodes was modified by the winter low flow factor of 0.1.

All other climatic and baseline streamflow inputs and assumptions remain unchanged from the previous WBM version.

### 2.1.2 Validation of Water Balance Model Hydrometric Inputs Using 2018 Data

Following the update of the baseline streamflow time-series to include data collected in 2018, a verification exercise was conducted to ensure that the water balance model inputs were still adequately representing site conditions. As outlined in Section 2.1.1, the model

inputs are scaled from the W4 synthetic monthly runoff series, with the winter runoff for the high-elevation sub-basins scaled further by a factor of 0.1 to account for the limited groundwater contributions to winter baseflows.

In most cases, the measured streamflow records cover the open water season from May to October, with May generally showing incomplete data due to extensive channel icing conditions. Therefore, depending on the availability of data for May at each station, it is expected that the measured runoff will be less than the model input. The winter flow data for November to April, where available, are based on monthly averages of manual measurements that are made concurrent with the water quality sampling trips.

Figures 2.1-1 to 2.1-6 present the results of the verification exercise and compare measured and model runoff from key locations within the Haggart Creek, Dublin Gulch and Lynx Creek catchments. Overall, the measured monthly runoff and model input match well, with the modelled runoff ranging from 3% less, to 2% more than the measured data on an annual basis, for those stations that have sufficient monitoring data for comparison. At the monthly scale, modeled June runoff is consistently higher than measured runoff for all nodes, while summer runoff is slightly underpredicted by the model, relative to the available measurements.

Given that the measured record spans from 8 to 12 years, and that many of the monthly averages calculated from this record are based on incomplete records, the long-term synthetic streamflow records upon which the water balance model is based are thought to best represent the long-term average runoff conditions at site. Accordingly, no changes to the runoff inputs to the water balance model are necessary at this time.

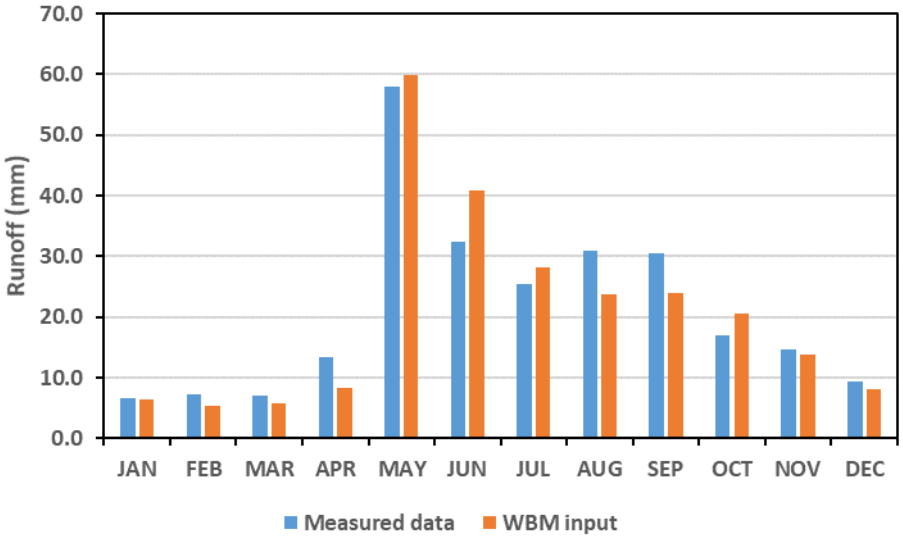



**Figure 2.1-1: Measured and modeled runoff for the W22 station (Haggart Creek upstream of Dublin Gulch).**

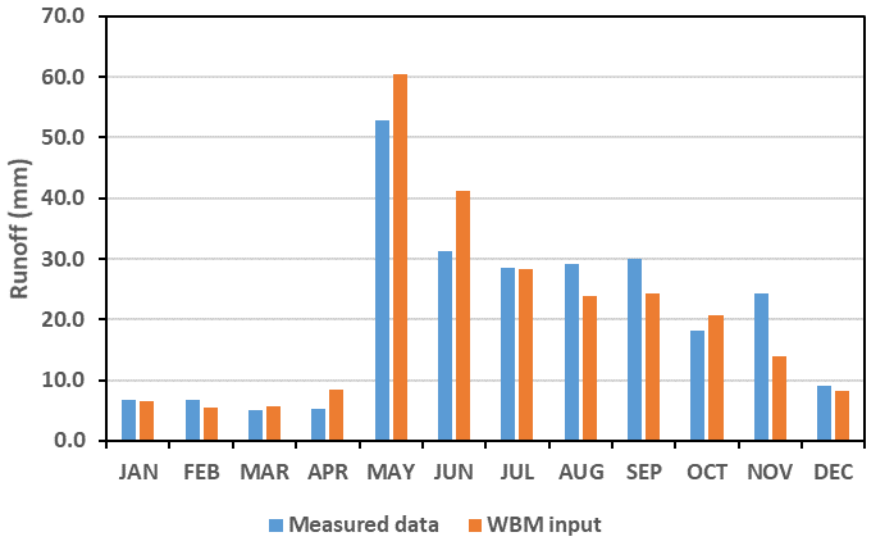



**Figure 2.1-2: Measured and modeled runoff for the W4 station (Haggart Creek downstream of Dublin Gulch).**

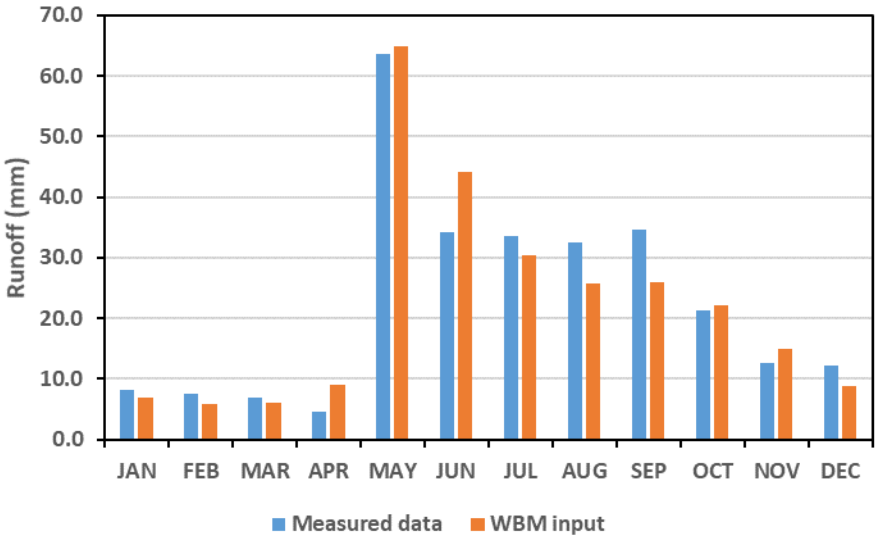



**Figure 2.1-3: Measured and modeled runoff for the W1 station (Upper Dublin Gulch).**

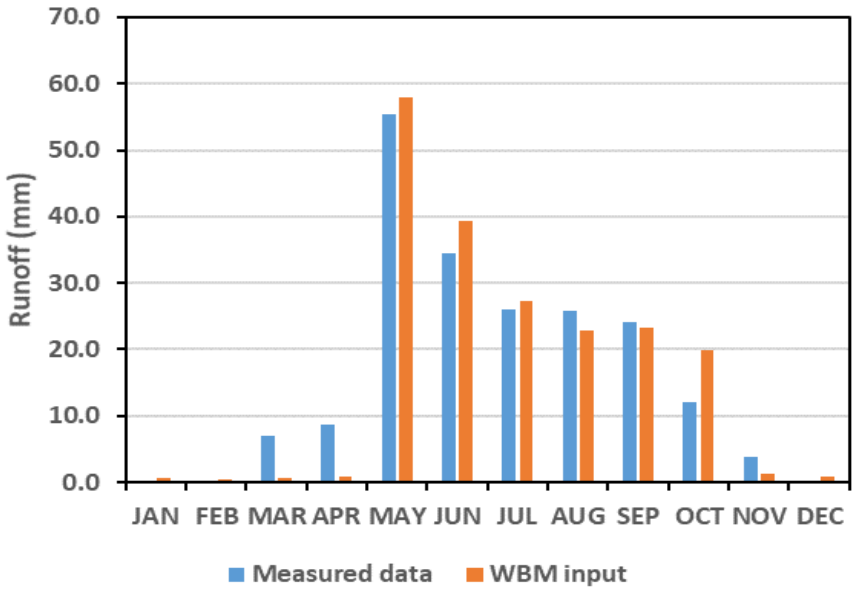



**Figure 2.1-4: Measured and modeled runoff for the W27 station (Haggart Creek downstream of Dublin Gulch)..**

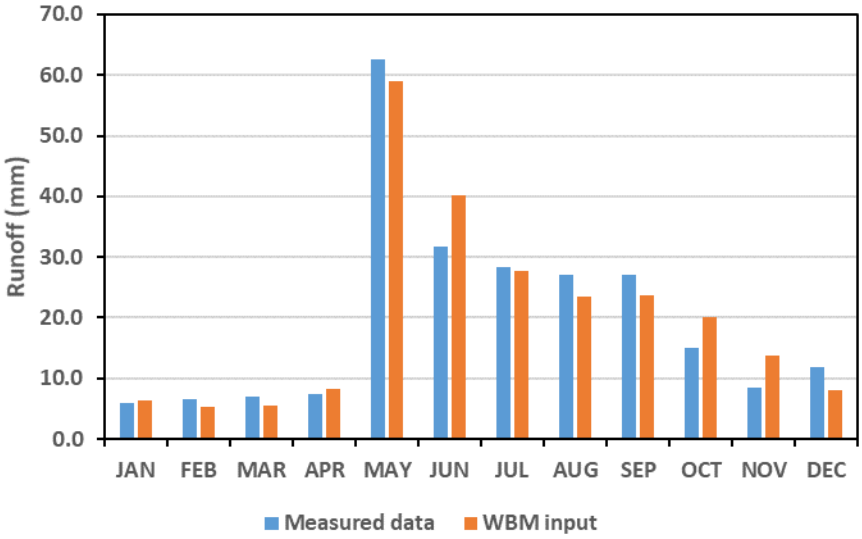



**Figure 2.1-5: Measured and modeled runoff for the W5 station (Haggart Creek (immediately upstream of confluence with Lynx Creek).**

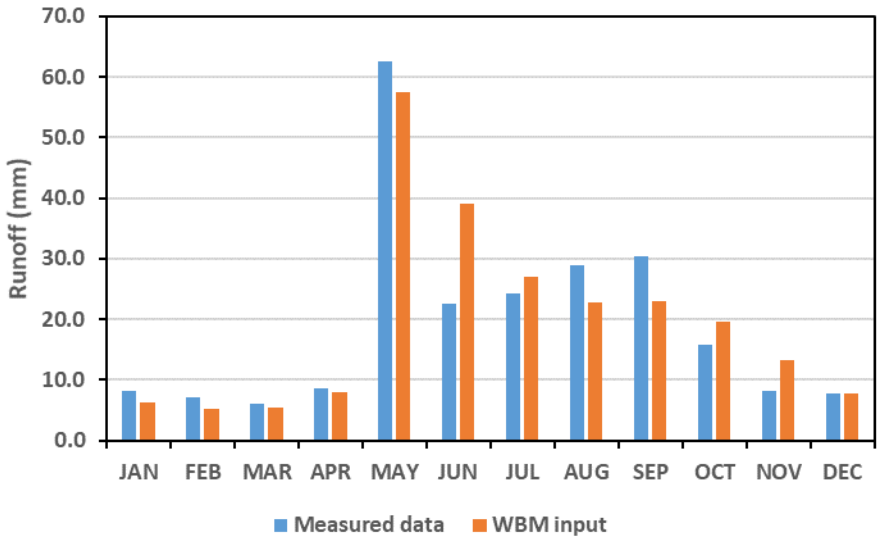



**Figure 2.1-6: Measured and modeled runoff for the W6 station (Lynx Creek upstream of Haggart Creek).**

### 2.1.3 Heap Leach Facility Water Balance Model Updates

The GoldSim HLF model required updates to accommodate the following changes described in: *Weekly Water Balance Modeling for the Eagle Gold Mine Heap Leach Pad Facility*. Report prepared by The Mines Group, October 2018:

1. Maximum In-Heap sump storage of 74,565 $m^3$ and maximum event pond storage of 299,851 $m^3$.
2. Pumped outflow from In-Heap sump storage of 8 L/s (max) to the MWTP beginning in May of mine year 5 and continuing until September of mine year 9.
3. The weekly HLF model includes pumped outflow from the Event Pond storage of 12.1 L/s (max) beginning in October of mine year 9; in practice, this superceded the existing pumping profile already adopted in the GoldSim model to handle required discharge from the Event Pond to the MWTP.

All other inputs, assumptions and parameterizations for the HLF WBM were carried forward from the 2018 update (Lorax 2018).

### 2.1.4 Mine Infrastructure

Since the 2014 WUL application was submitted, there have been some changes to the mine infrastructure layout, including reduction in size of the HLF, elimination of the Dublin Gulch Diversion Channel, realignment of the HLF embankment, minor changes to the progression of waste rock storage areas, slight alterations to the Lower Dublin South Pond (LDSP), and modifications to water management facilities including the addition of several

new contact water routing ditches. These updates were described in the 2018 WBMWQM update (Lorax 2018) and are outlined in detail again below for completeness. All other assumptions made in the 2014 water balance model were carried forward (e.g., camp potable water requirements, dust control water requirements).

#### *2.1.4.1 Waste Rock Storage Area Progression and Assumptions*

Waste rock storage facility placement phasing for Eagle Pup and Platinum Gulch are presented by year in Table 2.1-4.

**Table 2.1-4:**
**Waste Rock Storage Areas Tonnages and Surface Area by Mine Year**

| Facility | Waste Type | Y-1 | Y1 | Y2 | Y3 | Y4 | Y5 | Y6 | Y7 | Y8 | Y9 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Eagle Pup WRSA | Mass incremental (t) | 25,065 | 73,373 | 3,398,833 | 1,919,151 | 16,093,966 | 15,462,200 | 9,213,073 | ,535,787 | 7,668,221 | 10,344,666 |
| | Mass cumulative (t) | 25,065 | 198,438 | 3,597,271 | 5,516,421 | 21,610,387 | 37,072,587 | 46,285,660 | 53,821,447 | 61,489,668 | 71,834,334 |
| | Area (ha) | 2.0 | 5.2 | 16.2 | 31.4 | 55.1 | 61.2 | 74.1 | 75.5 | 77.1 | 81.8 |
| Platinum Gulch WRSA | Mass incremental (t) | 2,125,744 | 1,645,463 | 2,875,178 | 14,541,001 | | | | | | |
| | Mass cumulative (t) | 2,125,744 | 3,771,207 | 6,646,385 | 21,187,386 | | | | | | |
| | Area (ha) | 7.4 | 12.3 | 17.4 | 32.7 | | | | | | |

The proportion of runoff versus infiltration for the WRSAs during operations was carried over from the 2014 WUL application model, with notable changes indicated below. This proportion is characterized as the percent of net precipitation minus AET losses:

- Operations (until closure covers are assumed to be effective):
    - WRSAs and HLF – 100% of net precipitation (e.g. total precipitation minus evaporation) assumed to infiltrate (consistent with the 2014 model).
- Closure (once closure covers are assumed to be effective):
    - WRSAs – 75% of net precipitation was targeted for infiltration to the WRSAs, with the remaining 25% modelled as surface runoff from the cover (consistent with the 2014 model).
        - Platinum Gulch WRSF – closure cover effective as of August in Year 5 (changed from June in Year 7);
        - Eagle Pup WRSA – closure cover effective as of June in Year 12 (consistent with the 2014 model), and;
        - HLF – partial reclamation (500,000 $m^2$) as of June in Year 12 (changed from 650,000 $m^2$ as of September in Year 13), and fully reclaimed (960,000 $m^2$) as of August in Year 21.

Water that infiltrates the WRSAs is assumed to have a 1-month lag time before that water reports to the collection pond (LDSP). This assumption reflects the influence of water retention within the pore spaces of the WRSA, and the slower release of water than would be seen in a natural catchment with thinner overburden cover.

#### *2.1.4.2 Sediment Control Ponds*

The LDSP serves as the primary contact water management pond for the Project throughout Operations, and all contact water from the Eagle Pup WRSA, 90-day ore stockpile, Open Pit and Platinum Gulch WRSA will be directed to this pond. The Platinum Gulch Pond will be constructed during the operations phase of the Project to serve as a trial passive treatment system (PTS). This PTS will continue in operation during the closure and post closure phases.

#### *2.1.4.3 Contact Water Ditches*

A detailed description of contact water ditches and design parameter are presented in StrataGold (2018), but the summary of ditch locations, and the specific water sources reporting to the contact water ditches is presented below.

Ditch A

Ditch A collects contact water from the Platinum Gulch WRSA, 90-day stockpile and open pit, as well as non-contact water from Platinum Gulch, and routes it northwards to the LDSP.

Ditch B/Eagle Creek

Ditch B/Eagle Creek collects contact water from the Eagle Pup WRSA, as well as non-contact water from the Eagle Pup and Suttles Gulch drainage. This ditch is aligned with the natural Eagle Creek drainage and flows west from the northern end of the Eagle Pup WRSA to the LDSP.

Ditch C

Ditch C routes the LDSP outflow westward to Haggart Creek where it discharges just downstream of the confluence of Dublin Gulch. At closure, the updated mine plan routes HLF draindown water to the MWTP and is then discharged directly to Ditch C. At post-closure, HLF seepage water is directed to a PTS, which discharges directly to Haggart Creek immediately upstream of the confluence with Dublin Gulch.

## *2.2 Water Quality Model Inputs and Assumptions*

The Eagle Gold Project water quality model (WQM) is a mass-conserving mixing model that predicts water quality for 38 parameters at key monitoring and compliance points in the receiving waters affected by mine activity. The model was designed on the GoldSim® platform and utilizes a GoldSim® water balance model (WBM). Both the WBM and the WQM use a monthly time-step for 50 years, spanning operations, closure and several years into post-closure. Below is a brief description of water quality model inputs including seepage contact water source terms, Mine Water Treatment Plant (MWTP) and Passive Treatment Systems (PTS) effluent discharge requirements and background water quality for non-contact flows.

### 2.2.1 Seepage Contact Water – Geochemical Source Terms

The drainage chemistry from the various Eagle Gold mine facilities discussed herein is influenced by a variety of geochemical and physical aspects. Overarching controls that will govern the water quality associated with any facility that contains exposed waste rock and ore, include:

- Mineralogy and geochemistry of the exposed material;
- Grain size distribution;
- Water/rock ratio;

- Depositional environment (*e.g.*, saturated versus unsaturated conditions); and
- Temperature.

The rate at which minerals weather chemically in laboratory kinetic tests is typically observed to be many times faster than rates inferred from field observations of drainage from the toe of waste rock piles (Malmström, 2000). This discrepancy is in part due to the formation of distinct flow channels within the waste rock pile that results in the incomplete flushing of weathering products from the waste rock dump (Nichol et al., 2005).

The prediction of both the major and trace elemental geochemistry of waters in contact with the modelled facilities was conducted by upscaling of loading rates derived from kinetic tests (waste rock humidity cells). A flow chart of the work stages comprising this exercise is given in Figure 2.2-1. The following sections describe in detail the different modelling steps used in the generation of the predictive model.

#### *2.2.1.1 Selection of Input Loading Rates*

As a first step in the development of geochemical source terms, the appropriate input solution chemistry needed to be defined. Dissolved concentrations for all chemical species produced during recent and historical kinetic experiments were converted into geochemical loads (in $mg/kg_{rock}/wk$) by multiplying each species with the amount of leachate output volume (in L) and dividing this load by the mass of rock reacting with the leachate (standard humidity cell = 1 kg).

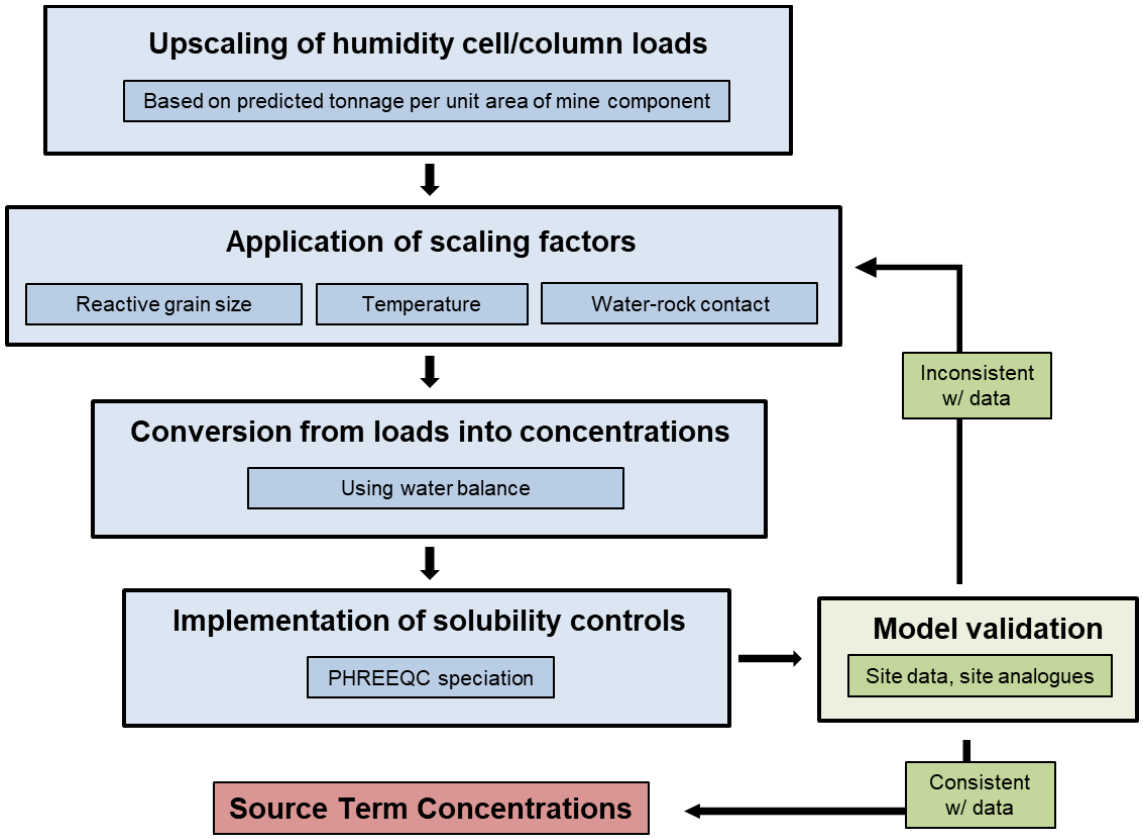



**Figure 2.2-1: Work stages involved in the scaling of geochemical source terms**

For WRSA and pit wall drainage chemistry predictions, Eagle Gold humidity cells were grouped to represent the various waste rock types expected to be exposed during mine development. Humidity cells used to produce the individual input solutions are listed in Table 2.2-1.

Two different scenarios are presented for the WRSA source terms; an operational and a post-closure scenario. More specifically, for the operational scenario, the 75$^{th}$ percentile of all available humidity cell leachates for a given species were used as the model input solution. In contrast, to model longer term ("stable") geochemical loading rates, the 75$^{th}$ percentile loading rates of the last three humidity cell cycles (weeks) with metal analysis were utilized to produce a solution input, assuming geochemical reaction rates reach a steady-steady state after soluble minerals have been flushed. Note that for the derivation of the model pH, the respective median value was used for operational and post-closure scenarios.

Drainage chemistry predictions for the 90-day ore stockpile are based on the 75$^{th}$ percentile of all leachates from two ore composite humidity cells (HC 7, 12; Table 2.2-1) to account for the relatively short duration of storage of material and expected initially high flushing

concentrations. Since changes in tonnage and water balance will repeat annually, one operational set of drainage quality predictions was found to be appropriate for this facility.

**Table 2.2-1:**
**Summary of kinetic test cells used for the individual rock units modelled**

| Lithology/Material | Kinetic cell used |
|---|---|
| Oxidized Granodiorite (OGD) | DGK 3, HC 5, HC 10 |
| Fresh Granodiorite (FGD) | DGK 2, HC 3, HC 9 |
| Altered Granodiorite (AGD) | DGK 4, HC 4, HC 6, HC 11 |
| Oxide Metasediment (OMS) | HC 8 |
| Fresh Metasediment (FMS) | DGK 1, HC 1, HC 2, HC 8, HC 13 |
| Overburden (OB) | HC 10 |
| Stockpiled ore (SP) | HC 7, HC 12 |

Table 2.2-2 and Table 2.2-3 provide an overview of the input solution chemistries used for waste rock and ore-containing facilities, respectively. Note that these values are identical to from previous model iterations and a detailed list of all model inputs can be found in Lorax (2014). Refer to SRK (2014) for a detailed description of humidity cell sample selection rationale and solid phase characteristics.

#### *2.2.1.2 Upscaling of Kinetic Test Loads*

Once the input solution chemistry was defined, the geochemical loads were upscaled to match the tonnage of the mine component in question. Up-to-date estimates of mine tonnage stored in WRSA, ore stockpile and HLF were provided by StrataGold and are based on optimizations made to the Project in 2017 and 2018. The waste production schedule and pit wall exposures used for this assessment are given in Table 2.2-4. Note that a detailed discussion of site analogues used for the calibration and comparison of scaling factors was provided in Lorax (2014).

## Table 2.2-2:
## Composite input loads (mg/kg/wk) used for the different model scenarios in Eagle Gold waste rock facilities

| Scenario | Operational (75th percentile) | | | | | | Post-Closure (75th percentile) | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Lithology** | **OGD** | **FGD** | **AGD** | **OMS** | **FMS** | **OB** | **OGD** | **FGD** | **AGD** | **OMS** | **FMS** | **OB** |
| **pH** | 7.6 | 7.6 | 7.7 | 7.3 | 7.4 | 7.7 | 7.5 | 7.5 | 7.5 | 7.1 | 7.2 | 7.7 |
| **Alkalinity** | 14 | 15 | 17 | 5.1 | 15 | 18 | 11 | 12 | 14 | 4.7 | 8.7 | 17 |
| **Sulfate** | 10 | 14 | 9.6 | 1.7 | 21 | 1.4 | 6.5 | 5.7 | 6.5 | 1.5 | 13 | 1.8 |
| **Chloride** | 0.27 | 0.26 | 0.32 | 0.24 | 0.29 | 0.24 | 0.27 | 0.24 | 0.26 | 0.24 | 0.25 | 0.31 |
| **Fluoride** | 0.081 | 0.15 | 0.10 | 0.030 | 0.088 | 0.14 | 0.028 | 0.11 | 0.027 | 0.019 | 0.052 | 0.043 |
| **Al** | 0.025 | 0.049 | 0.032 | 0.021 | 0.033 | 0.019 | 0.019 | 0.038 | 0.026 | 0.016 | 0.025 | 0.014 |
| **As** | 0.010 | 0.0046 | 0.029 | 0.016 | 0.011 | 0.0029 | 0.0068 | 0.0024 | 0.016 | 0.014 | 0.0089 | 0.0022 |
| **Ca** | 6.7 | 8.3 | 7.1 | 1.6 | 11 | 3.4 | 4.8 | 5.4 | 5.4 | 1.4 | 6.2 | 3.0 |
| **Cd** | 0.0000041 | 0.0000049 | 0.0000088 | 0.0000024 | 0.0000049 | 0.0000054 | 0.0000034 | 0.0000031 | 0.0000047 | 0.0000024 | 0.0000038 | 0.0000045 |
| **Co** | 0.000026 | 0.000025 | 0.000040 | 0.000018 | 0.000065 | 0.0000071 | 0.000014 | 0.000014 | 0.000024 | 0.000014 | 0.000039 | 0.0000040 |
| **Cr** | 0.000049 | 0.000071 | 0.000049 | 0.000061 | 0.000052 | 0.000049 | 0.000072 | 0.000069 | 0.000055 | 0.000082 | 0.000057 | 0.000095 |
| **Cu** | 0.00036 | 0.00040 | 0.00051 | 0.00023 | 0.00042 | 0.00018 | 0.00032 | 0.00032 | 0.00023 | 0.00021 | 0.00023 | 0.00013 |
| **Fe** | 0.0045 | 0.0022 | 0.0033 | 0.0038 | 0.0035 | 0.0033 | 0.0026 | 0.0017 | 0.0036 | 0.0031 | 0.0029 | 0.0024 |
| **Hg** | 0.0000048 | 0.0000049 | 0.0000048 | 0.0000048 | 0.0000049 | 0.0000048 | 0.0000048 | 0.0000048 | 0.0000048 | 0.0000048 | 0.0000048 | 0.0000048 |
| **K** | 2.2 | 1.2 | 1.2 | 0.41 | 2.1 | 1.1 | 1.6 | 0.54 | 0.48 | 0.35 | 0.96 | 0.52 |
| **Mg** | 0.75 | 1.1 | 1.2 | 0.099 | 1.1 | 1.3 | 0.58 | 0.63 | 1.0 | 0.082 | 0.60 | 1.2 |
| **Mn** | 0.0047 | 0.0080 | 0.0044 | 0.00097 | 0.010 | 0.00073 | 0.0028 | 0.0039 | 0.0025 | 0.00053 | 0.0059 | 0.00048 |
| **Mo** | 0.0060 | 0.0013 | 0.0037 | 0.00048 | 0.00034 | 0.012 | 0.0024 | 0.00043 | 0.0014 | 0.00029 | 0.00013 | 0.0046 |
| **Na** | 0.71 | 1.6 | 0.53 | 0.18 | 0.34 | 0.88 | 0.14 | 0.16 | 0.10 | 0.081 | 0.10 | 0.13 |
| **Ni** | 0.00013 | 0.00014 | 0.00015 | 0.00013 | 0.00030 | 0.00013 | 0.000088 | 0.00010 | 0.000074 | 0.00018 | 0.00016 | 0.000078 |
| **Pb** | 0.000028 | 0.000027 | 0.000068 | 0.000019 | 0.000036 | 0.000032 | 0.000015 | 0.000022 | 0.000042 | 0.0000047 | 0.00015 | 0.000017 |
| **Sb** | 0.0011 | 0.032 | 0.032 | 0.00037 | 0.0031 | 0.00010 | 0.00087 | 0.021 | 0.019 | 0.00023 | 0.0015 | 0.000078 |
| **Se** | 0.00028 | 0.00056 | 0.0020 | 0.00012 | 0.00077 | 0.00013 | 0.00018 | 0.00035 | 0.0011 | 0.000093 | 0.00028 | 0.000094 |
| **Si** | 0.68 | 0.74 | 0.64 | 0.45 | 0.92 | 0.71 | 0.53 | 0.54 | 0.33 | 0.40 | 0.57 | 0.57 |
| **Sn** | 0.000012 | 0.000019 | 0.000015 | 0.000015 | 0.00010 | 0.000015 | 0.0000095 | 0.0000097 | 0.000071 | 0.0000048 | 0.000098 | 0.0000095 |
| **U** | 0.0017 | 0.023 | 0.012 | 0.00091 | 0.00053 | 0.0011 | 0.0013 | 0.0096 | 0.0051 | 0.00067 | 0.00034 | 0.0011 |
| **Zn** | 0.00027 | 0.00036 | 0.00044 | 0.00019 | 0.00044 | 0.00022 | 0.00016 | 0.00030 | 0.00032 | 0.00013 | 0.00035 | 0.000094 |

**Notes:** All chemical species given in mg/kg/wk;
OGD = Oxidized granodiorite; FGD = fresh granodiorite; AGD = altered granodiorite; OMS = oxidized metasediment; FMS= fresh metasediment; OB = overburden

**Table 2.2-3:**
**Composite input loads (mg/kg/wk) used for the Eagle Gold 90-day ore stockpile**

| | **Ore (90-day stockpile)** |
|---|---|
| | *Operational* |
| pH | 7.6 |
| Alkalinity | 15 |
| Sulfate | 7.7 |
| Chloride | 0.14 |
| Fluoride | 0.080 |
| Total CN | N/A |
| Al | 0.029 |
| As | 0.026 |
| Ba | 0.0029 |
| Ca | 7.1 |
| Cd | 0.0000044 |
| Co | 0.000020 |
| Cr | 0.000024 |
| Cu | 0.00047 |
| Fe | 0.0019 |
| Hg | 0.0000023 |
| K | 1.0 |
| Mg | 0.52 |
| Mn | 0.0021 |
| Mo | 0.0024 |
| Na | 0.67 |
| Ni | 0.00013 |
| P | 0.00078 |
| Pb | 0.000035 |
| Sb | 0.019 |
| Se | 0.00070 |
| Si | 0.66 |
| Sn | 0.000063 |
| U | 0.0041 |
| Zn | 0.00054 |

## Table 2.2-4:
## Waste rock production schedule and pit wall proportions by mine-year for various Eagle Gold mine components

| Facility | Waste Type | Y -1 | Y1 | Y2 | Y3 | Y4 | Y5 | Y6 | Y7 | Y8 | Y9 | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Eagle Pup (in t) | OGD | 9,908 | 137,512 | 1,512,742 | 1,366,984 | 4,557,910 | 1,344,522 | 1,647,902 | 3,364,908 | 1,457,201 | 2,841,634 | 18,241,224 |
| | AGD | - | - | 7,690 | 2,589 | 72,043 | 646,394 | 844,466 | 146,043 | 366,496 | 401,206 | 2,486,927 |
| | FGD | - | - | 152,405 | 22,446 | 1,225,825 | 2,335,372 | 2,243,743 | 2,199,015 | 2,748,398 | 2,161,221 | 13,088,424 |
| | OMS | 15,156 | 35,862 | 1,632,926 | 478,715 | 5,264,031 | 5,115,224 | 2,726,732 | 1,335,319 | 2,019,922 | 4,213,643 | 22,837,529 |
| | FMS | - | - | 86,057 | 48,417 | 4,960,866 | 5,880,849 | 1,599,653 | 467,432 | 974,952 | 496,064 | 14,514,291 |
| | OB | - | - | 7,014 | - | 13,292 | 139,838 | 150,577 | 23,071 | 101,252 | 230,897 | 665,941 |
| Platinum Gulch (in t) | OGD | 97,457 | 478,435 | 1,153,788 | 2,421,422 | - | - | - | - | - | - | 4,151,103 |
| | AGD | - | - | 47,717 | 4,496 | - | - | - | - | - | - | 52,214 |
| | FGD | 11 | - | 16,705 | 846,640 | - | - | - | - | - | - | 863,356 |
| | OMS | 2,015,524 | 1,147,075 | 1,643,969 | 8,398,767 | - | - | - | - | - | - | 13,205,335 |
| | FMS | 12,752 | 19,953 | - | 2,869,676 | - | - | - | - | - | - | 2,902,380 |
| | OB | - | - | 12,998 | - | - | - | - | - | - | - | 12,998 |
| Pit walls (in %) | OGD | - | 30% | 30% | 28% | 27% | 24% | 22% | 20% | 19% | 18% | |
| | AGD | - | 5% | 5% | 5% | 5% | 6% | 7% | 7% | 8% | 9% | |
| | FGD | - | 5% | 5% | 12% | 18% | 21% | 23% | 25% | 27% | 28% | |
| | OMS | - | 30% | 30% | 27% | 24% | 21% | 18% | 16% | 15% | 15% | |
| | FMS | - | 30% | 30% | 28% | 27% | 28% | 30% | 31% | 31% | 31% | |
| | OB | - | - | - | - | - | - | - | - | - | - | |

**Notes:** OGD = Oxidized granodiorite;
FGD = fresh granodiorite;
AGD = altered granodiorite;
OMS = oxidized metasediment;
FMS= fresh metasediment;
OB = overburden.

The 90-day ore stockpile will vary in tonnage seasonally between zero to ~2.8 Mt. More specifically, it will be constructed every year between January and March (maximum tonnage) at which point the ore is removed and transported to the HLF until all material is consumed by December of the following year.

While the rock mass of the described mine components can be easily translated from the waste and ore production schedule, the derivation of reactive rock mass within the exposed pit walls is less straightforward. The final pit walls are expected to be fractured as a result of blasting operations. Fracturing of the pit walls exposes a greater proportion of the wall rock to weathering and hence wall rock drainage will have the geochemical signature of the respective rock type. In this assessment, it was assumed that controlled blasting would be used at the limits of the proposed open pit mine. However, controlled blasting of rock does not completely eliminate fracture of underlying rock but results in a blast-damaged transition zone extending into the pit walls. This blast-damaged transition zone comprises a blast-fractured zone and a blast-influenced zone that would be subject to oxidative weathering. The penetration depth of the blast-damaged zones into the wall rock is dependent on a variety of parameters. Hustrulid (1999) estimated ranges of 0.85 to 1.05 m and 2.65 to 3.15 m for the blast-fractured and the blast-influenced zones, respectively. These estimates are based on controlled blasting and an intermediate rock strength. For the Eagle Gold pit walls, penetration depths of 0.9 and 2.9 m were chosen for the blast-fractured and the blast-influenced zones, respectively. Using a bulk density of 2.5 $t/m^3$ along with the annual surface areas broken out into waste rock type, these thicknesses were subsequently used to calculate a rock mass that will come in contact with infiltrating waters and produce a geochemical load.

Alkalinity is generally limited by the solubility of carbonate phases and is closely related to pH. Upscaling alkalinity in the same manner as dissolved metals would lead to unrealistically high values affecting the PHREEQC input file and cause extensive carbonate precipitation which would, in turn, alter the output pH inordinately. In that context, field barrels represent a useful analogue (see Section 2.2.1.7) with an acid-base balance and climatic conditions similar to those expected in the Eagle Gold mine components. Therefore, constant typical values seen in field barrel leachates were used for the predictive model (100 mg $CaCO_3$/L for WRSA, and ore stockpile; 60 mg $CaCO_3$/L for pit walls; between 100 and 200 kg $CaCO_3$/L for different HLF scenarios).

### *2.2.1.3 Adjustment of Upscaled Loads*

Owing to several lab-to-field comparison studies it has been recognized that drainage chemistry predictions based on direct mass upscaling often strongly overestimate the quantities of dissolved solids that are in fact leached from the mine rock (Malmström et al., 2000; Sapsford *et al*., 2009; Plante *et al.,* 2014; Kirchner & Mattson, 2015). This is

likely due to a variety of differences between lab and field conditions such as climate, water/rock ratios, hydrogeological pathways, grain size distribution and secondary mineral controls all of which would reduce geochemical loads in the field. As a result, it is the industry standard to implement scaling factors when upscaling humidity cell leachate results to account for these discrepancies. The following describes the scaling factors applied in the Eagle Gold source term model along with their rationale as it relates to the difference in field conditions. Refer to Kempton (2012) for a review of the various scaling factors commonly considered for geochemical source term predictions.

*Temperature*

The Eagle Gold project is located in the Yukon with average monthly temperatures ranging from approximately -21 to 10.5˚C for January and July, respectively. Kinetic experiments used for the source term model were conducted at SGS laboratories at a temperature of 22˚C and it is well known that the rate of many geochemical reactions leading to the release of acidity and dissolved metals is highly temperature-dependent. For Eagle Gold ore and waste rock, the oxidation of pyrite can be considered the driving force in terms of contaminant leaching for most parameters of concern. This reaction has been extensively studied and its rate has been determined over a range of temperatures that can be expressed in terms of an Arrhenius correlation. The Arrhenius relationship describing pyrite oxidation rate as a function of temperature is given by:

$$Temperature\ adjustment\ [\%] = e^{[E_a * (T_x - T_y)/(R * T_x * T_y)]}$$

With $E_a$ = activation energy;

$R$ = universal gas constant;

$T_x$ = temperature of interest; and

$T_y$ = experimental temperature.

The activation energy determines the slope of this function and, therefore, the temperature-dependence of the oxidation reaction. For the purposes of this model, an $E_a$ of 30 kJ/mol was chosen to be consistent with the range of values reported in the literature (e.g., Lowson, 1982; Nicholson *et al.*, 1988; and, Kamei and Ohmoto, 1999).

The bulk portion of waste and ore piles will not adopt ambient air temperatures with a much smaller amplitude in temperature variation to be expected throughout the year. To account for this thermal inertia, monthly temperatures were adjusted for these mine components to produce a smoother temperature distribution curve while still maintaining average annual temperatures and an average temperature scaling factor of approximately 28% (range from 24-34% depending upon month; Table 2.2-5). For the pit walls, the temperature distribution was only smoothed slightly, yielding a wider range in scaling factors (16-41%) while showing a similar average scaling factor throughout the year.

**Table 2.2-5:**
**Summary of Temperature Correction Factors Applied to Scaling**

| Month | Pit walls | Stockpiles* |
|---|---|---|
| **Jan** | 16% | 24% |
| **Feb** | 17% | 24% |
| **Mar** | 19% | 25% |
| **Apr** | 28% | 29% |
| **May** | 33% | 31% |
| **Jun** | 39% | 33% |
| **Jul** | 41% | 34% |
| **Aug** | 37% | 33% |
| **Sep** | 33% | 31% |
| **Oct** | 24% | 28% |
| **Nov** | 21% | 26% |
| **Dec** | 16% | 24% |
| **Average** | 27% | 28% |

*Stockpiles include WRSA, HLF, and the 90-day ore stockpile

*Grain Size Distribution*

Before representative material is placed into laboratory kinetic test cells, rock samples are crushed to a nominal grain size of <1/4" to allow for better comparability of reaction rates between different cells containing different geological material. The smaller the grain size, the higher the amount of surface area that is exposed to weathering. Therefore, reaction rates are generally elevated in the fine fraction of a rock sample. Studies investigating the effect of grain size distribution on drainage chemistry in mine environments found that likely >80% of the geochemical loads are leached from the <25 mm fraction (Strömberg and Banwart, 1999; Stockwell *et al*., 2006). Highly dependent on the rock type and blasting method, it was estimated that this fraction represents between 10 and 40% by mass of a typical waste dump with the majority of studied waste dumps falling into the lower end of this range. Wickland and Wilson (2004) measured the particle size distribution of a waste rock dump and material less than 6 mm accounted for approximately 15% of the total dump mass. For the lack of detailed work regarding the grain size distribution at Eagle Gold WRSA and the pit wall blast-fractured zone, a reasonably conservative scaling factor of 30% was implemented to account for the mass of relatively unreactive rock fractions. A grain size scaling factor of 15% was assigned to the less damaged pit wall blast-influenced zone.

For optimized gold recovery, ore grade material will go through one crushing cycle before being stored in the 90-day ore stockpile and additional two crushing cycles before being stacked on the heap leach pads. The final crushed ore product will have a target grain size of 80% <6.4 mm, roughly equivalent to particle size distribution used in kinetic testing. The primary crusher setting is designed to produce a particle size of 150 mm or less in the

temporary ore stockpile, which falls between the expected grain sizes of waste rock and the final ore product, so a grain size correction factor of 50% was implemented.

*Contact Water*

Humidity cell experiments are conducted using water/rock ratios that allow for the flushing of all rock material placed into the cells. Various studies suggest that only a portion of the rock mass contained in a waste dump is contacted by infiltrating water. In one study, for example, a small-scale waste rock dump was disassembled one year after its construction and the distribution of moisture contents within the dump indicated that the development of preferential flow paths is an important process (Marcoline *et al.,* 2006). Under low-flow conditions, water is retained in and will travel along the fine fractions within the waste dumps, whereas heavy rainfalls may flush relatively higher proportions of the coarser grain sizes (Andrina, 2009). It has also been suggested that, in months of higher rain intensity, a larger overall portion of the dump is contacted as more pathways are being activated. In accordance with this concept, a contact water scaling factor was applied that was dependent on the infiltration volume in each month. Furthermore, as the WRSA becomes larger with time during operations, it was assumed that the percentage of contact water decreases with increasing dump size over time as larger areas become isolated from infiltration as a result of the increasing volume-to-area ratio. An overview of the maximum assumed contact water factor for the two WRSA is provided in Table 2.2-6.

**Table 2.2-6:**
**Maximum contact water scaling factors implemented over time for the WRSA prediction model**

| | Eagle Pup | Platinum Gulch |
|---|---|---|
| Year 1* | 80% | 45% |
| Year 2* | 60% | 35% |
| Year 3* | 50% | 30% |
| Year 4 | 25% | 10% |
| Year 5 | 20% | 10% |
| Year 6 | 15% | - |
| Year 7 | 10% | - |
| Year 8 | 7.5% | - |
| Year 9 | 6% | - |
| Year 10 | 5% | - |
| PC | 5% | - |

*concentrations were set to initial field barrel concentrations if found to be higher than the modeled concentrations

A similar approach was taken for the 90-day ore stockpile where seasonal changes in water balance and material tonnage were considered as best as possible leading to a contact water factor of 0.1 or 10% throughout the year. Note that the maximum contact water factor was held constant for pit walls over time with 90% and 60% assumed to come in contact with the blast-fractured and blast-influenced zones in the highest infiltration month, respectively.

WRSA will be covered with soil as part of the closure process to reduce infiltration into these mine facilities. A reduction of infiltration will simultaneously reduce the geochemical loads being released from the waste rock and ore. Cover performance studies relating infiltration to geochemistry have shown, however, that the reduction in infiltration is not equivalent to the reduction of geochemical loads with the latter generally being attenuated to a lesser degree (Marcoline, 2008). Consequently, while the water infiltration reduction in response to soil cover placement is typically >50%, a geochemical loading reduction of only 25% (i.e., cover correction factor = 0.75) was conservatively assumed.

*Stored Loads*

Pyrite oxidation occurs at relatively low moisture contents (down to <1%) and may therefore even proceed in the unfrozen portions of the waste dump and pit walls that are not regularly flushed. Conceptually, in months with relatively low infiltration rates, a portion of hydrogeological pathways are not actively rinsed, however the moisture content in these months is still sufficient to promote sulphide weathering. Geochemical loads produced during these months are then temporarily stored and subsequently released when these pathways become activated again (*e.g.*, during heavy rainfall events in May). This mechanism has been observed in various mine settings where increased concentrations correlated with heavy rainfalls, especially after extended dry periods (Kempton and Atkins, 2000). This seasonal variation of the load distribution was accounted for by tracking the amount of loads being produced in lower-infiltration months followed by subsequent release of a small portion (2%) of these stored loads in April and May.

#### *2.2.1.4 Mineral Solubility Control*

Water/rock ratios in humidity cell testing are high enough to prevent supersaturation of most species such that secondary mineral precipitation in the test cells is unlikely to occur to a high degree. Upscaling of geochemical loads as described above is generally carried out with no consideration given to mineral phases that may limit the dissolved concentrations of insoluble elements such as Fe, Al, and Ba (at circum-neutral pH). In order to avoid the calculation of unrealistically high concentrations of species that are known to form secondary phases in mine drainage, PHREEQC - a thermodynamic mineral solubility model (Minteq v.4) - was employed on the upscaled concentrations to account for mineral

solubility controls (Parkhurst and Appelo, 1999). Minerals commonly seen in mine drainage and allowed to precipitate from the predicted drainage solutions are listed in Table 2.2-7. Phases that were in fact identified to be supersaturated in at least one output solution draining from the individual mine components are indicated by a check mark. Unmarked phases merely served as a theoretical concentration cap.

Adsorption is known to be an important (and for some species dominant) mechanism in reducing dissolved concentrations in mine drainage (Cheng et al., 2009). PHREEQC has the capability of modelling adsorption attenuation onto surfaces of hydrous ferric oxides (HFO) such as ferrihydrite. Commonly, the effect of adsorption is most prominent in acidic Fe-rich seepage that becomes neutralized downstream and precipitates significant amounts of these HFO. For Eagle Gold drainage, high Fe-concentrations are not expected, and while ferrihydrite was found to be supersaturated in most of the modelled solutions, it should be noted that a thermodynamic database may overestimate the amount of HFO precipitating in the field, therefore overestimating potential adsorption impacts. To maintain conservatism with respect to the dissolved parameters of concern, and to not overcomplicate the prediction model, adsorption modelling was omitted in this approach. This is further justified by the fact that the drainage prediction model was calibrated using site analogue data and bulk scaling factors that already account for adsorption, as "real" drainage data is used as a reference point (Lorax, 2014).

**Table 2.2-7:**
**Mineral phase allowed to precipitate in the Eagle Gold speciation model**

| Mineral | Ideal Formula | Eagle Pup | Platinum Gulch | Pit walls | 90-day SP | Heap Leach |
|---|---|---|---|---|---|---|
| Barite | $BaSO_4$ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Calcite | $CaCO_3$ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Dolomite | $(Ca, Mg)(CO_3)_2$ | | | | | |
| Ferrihydrite | $Fe(OH)_3(a)$ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Gibbsite | $Al(OH)_3$ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Gypsum | $CaSO_4*2H_2O$ | | | | | |
| Malachite | $CuCO_3$ | ✓ | | | | |
| Quartz | $SiO_2$ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Rhodochrosite | $MnCO_3$ | | | | | |
| Smithsonite | $ZnCO_3$ | | | | | |

### *2.2.1.5 Nitrogen Source Term Derivation*

Nitrogen based blasting reagents have been identified by Pommen (1983) as a source of nitrogen compounds from surface mining operations. The nitrogen compounds ammonia ($NH_3$) and nitrate ($NO_3$) are constituents of the explosives, while nitrite ($NO_2$) is typically

an intermediate oxidation product of ammonia. The release of nitrogen compounds from blasting reagents can occur within the pit during mining operations and from residual reagents stored within blasted rock. The release of nitrogen from explosives loaded in boreholes and from explosive residue on blasted rock surfaces occurs by dissolution of nitrogen compounds into water and subsequent aqueous transport to the downstream receiving environment.

A detailed discussion of the Eagle Gold nitrogen-specific source term assumptions and results was presented in Lorax (2014). For this iteration, no changes to this approach were made and the model output remains the same; the reader is referred to Lorax (2014) for an overview of these results.

#### *2.2.1.6 Field Kinetic Experiments*

Larger mass, field-based experiments are advantageous because, compared to humidity cell testing, they more suitably resemble the actual conditions present within WRSA and pit walls including site-specific climate, scale, grain-size, and water-rock ratios. A total of eight field barrels (FB) containing ~225 kg of representative waste rock lithologies were constructed by StrataGold in 2012. Specifically, the barrels were composed of:

- FB 1: Oxide metasediment
- FB 2: Fresh metasediment
- FB 3: Oxide/fresh metasediment
- FB 4: Oxide granodiorite
- FB 5: Fresh granodiorite
- FB 6: Altered granodiorite
- FB 7: Oxide/fresh granodiorite
- FB 8: Overburden (mixed oxide metaseds and oxide granodiorite)

To date, 21 leachate sampling events have occurred over a time span of six years and analyzed for physical and geochemical parameters. This section serves as an overview of the field bin (FB) data, including incorporation of the most recent 2018 results, relevant to the geochemical source term predictions for the updated model. Details with regards to the construction and sampling protocol for the FB are discussed in detail in SRK (2014). Figure 2.2-2 to Figure 2.2-5 illustrate the temporal leaching behaviour observed from 2012 to September 2018 of some species of interest for the various waste types relative to geochemical source term predictions.

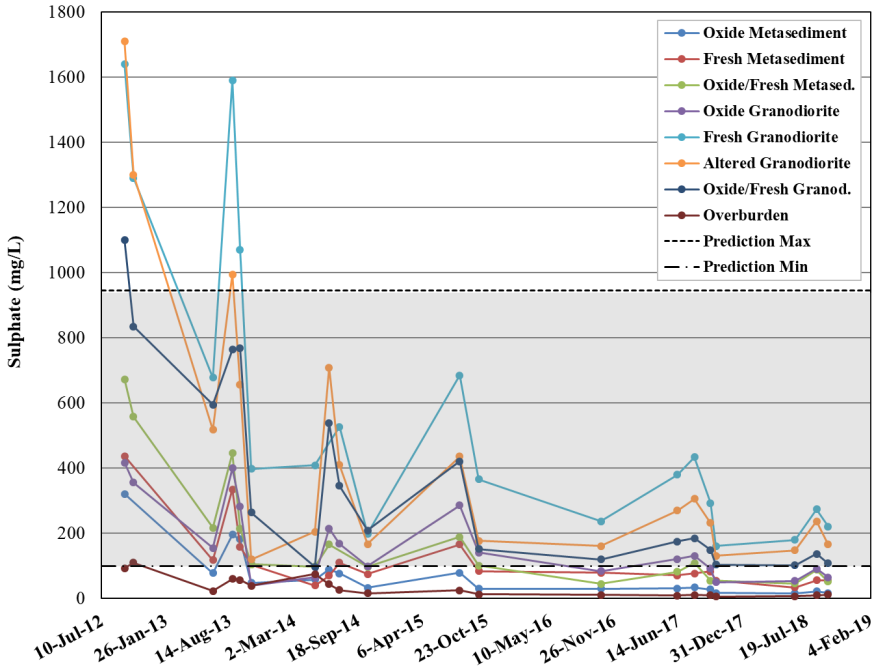



**Figure 2.2-2 Sulphate concentrations over time in leachates from Eagle Gold field barrels. The range of predicted concentrations for the Eagle Pup and Platinum Gulch WRSF is shaded**

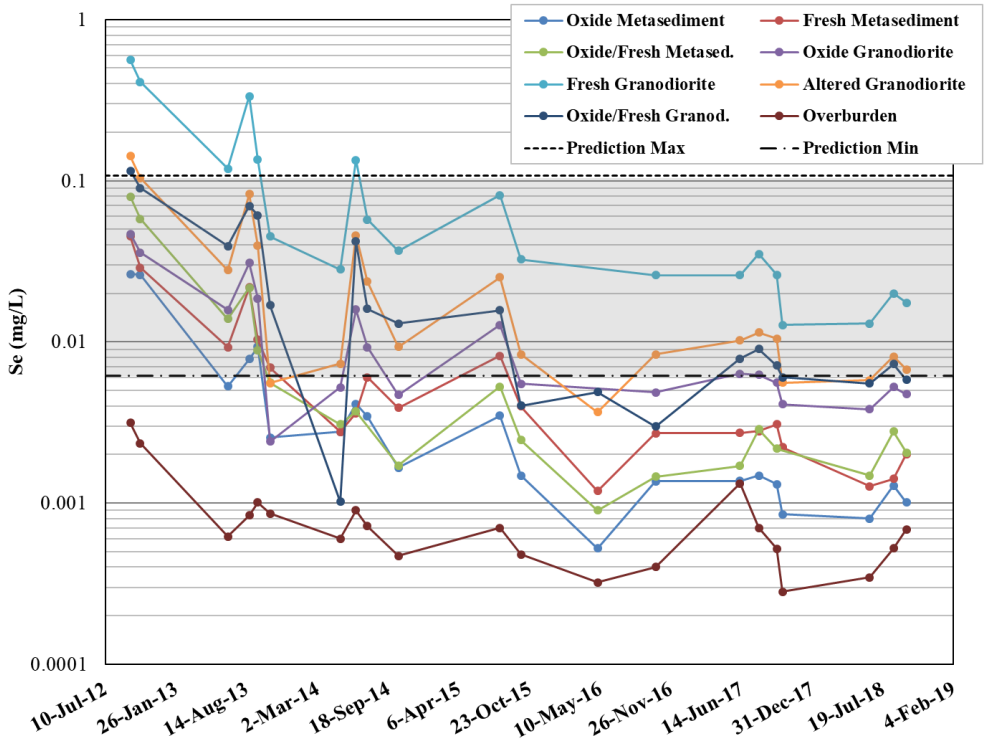



**Figure 2.2-3 Selenium concentrations over time in leachates from Eagle Gold field barrels. The range of predicted concentrations for the Eagle Pup and Platinum Gulch WRSF is shaded**

With pH remaining relatively stable between 7.5 and 8.5 (not shown), dissolved sulphate and Se concentrations display a generally decreasing trend over time with occasional spikes in concentration likely being caused by rain fall events (Figure 2.2-2 and Figure 2.2-3). The initially relatively high concentrations are inferred to be a result of stored loads that may (at least in part) have accumulated in the waste rock pores during storage of drill core.

Conversely, the As and Sb concentrations remain relatively constant over the 5-year period (Figures 2.2-4 and 2.2-5). The single exception to these trends is the increase in As concentration observed in the Oxide Granodiorite field barrel. For As, a marked increase to a value of approximately 3.0 mg/L in the most recent sampling cycle was observed in the oxide granodiorite sample (Figure 2.2-4); this has the highest solid-phase As content (1065 ppm) and is well above the respective 90$^{th}$ percentile value (607 ppm) of the static test database for Eagle Gold waste rock. In other words, less than 10% of oxide granodiorite rock is expected to have an As content as high as that measured in the field barrel sample.

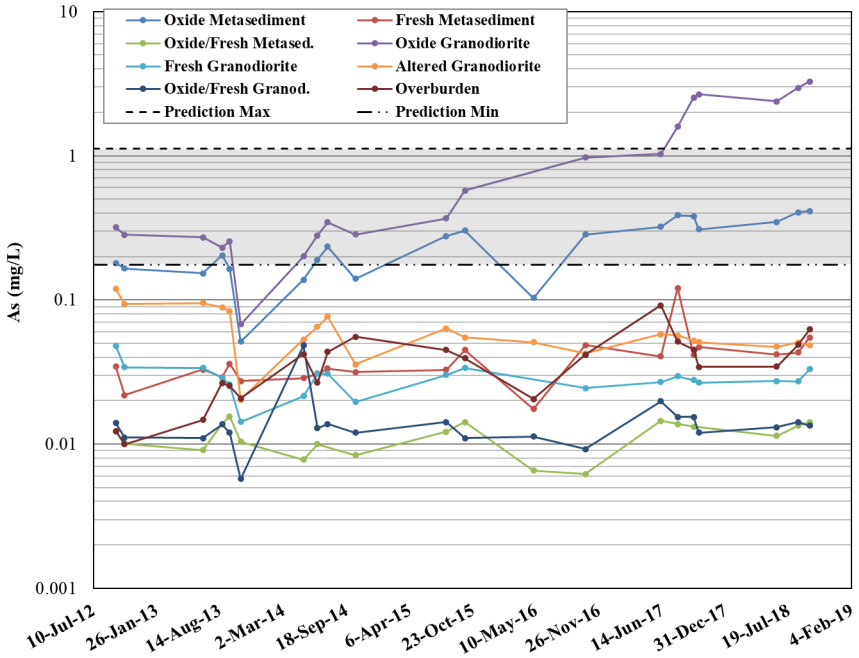



**Figure 2.2-4 Arsenic concentrations over time in leachates from Eagle Gold field barrels. The range of predicted concentrations for the Eagle Pup and Platinum Gulch WRSF is shaded**

However, there does not seem to be a correlation of maximum dissolved As concentrations, in field barrel leachates, which are remarkably constant over the six years, and the solid-phase As content for the remaining tested materials. Variability in concentration that is consistent across field barrel leachates (e.g., drop in As concentration in October 2013) is most likely due to response to precipitation infiltration, where increased or decreased

flushing rates directly affect the leachate concentrations. The more systematic increase in arsenic seen in the oxide granodiorite barrel over the last 3 to 4 years may be explained by either the accumulation and flushing of stored loads or saturation within the field bins due to blockage resulting in reductive dissolution of arsenic.

As mine wastes oxidize in stockpiles, material surfaces may only be irregularly flushed and contribute to seepage geochemical loadings from low water/rock ratios and the development of preferential flow paths. Nevertheless, the moisture content within a waste rock storage facility may still be sufficiently high to promote sulphide oxidation in portions of the pile that are not continuously rinsed. This leads to the local accumulation of stored loads in temporarily immobile pore waters or in the form of secondary mineral phases. During episodes of higher water/rock ratios (e.g. snowmelt, rainfall/storm events) a larger amount of flow paths may become activated, thereby releasing a portion of the stored loads (Kempton and Atkins, 2000) which may result in higher seepage concentrations. However, this effect commonly encompasses various species and is temporary in nature. While the seasonal variability in As concentration across the different field barrels may be attributed to this mechanism, it is unlikely that the more systematic As increase seen in the oxide granodiorite barrel is caused by stored loads rinsing. This process is represented in the source term model leading to seasonal fluctuations in As release rates (Lorax, 2014).

The observation that the highest As concentrations are leaching from the two field barrels made up entirely of oxide materials (5-10 times higher than the other six barrels), although FB1 (oxide metasediment) has relatively low S content, suggests that these materials contain As-bearing phases that are relatively mobile. By definition, oxide materials are made up of rocks that have been naturally weathered via oxidation processes. While this does not mean that these rock types are benign after blasting and exposure to the atmosphere, the reaction and metal leaching rates under oxidizing conditions are commonly lower than those observed in sulphide bearing un-oxidized mine waste. Conversely, one scenario under which oxide waste rock is expected to be more reactive is when stored in a sub- or anoxic environment (e.g., under a water cover). Secondary phases (e.g. hydrous ferric oxides and/or Mn oxides) that formed during the weathering process may then become unstable and remobilized as a result of reductive dissolution. Similarly, metals and or metalloids that are sorbed or were coprecipitated with the oxides are also prone to redissolution. Oxide waste rock from the Eagle Gold deposit is known to contain scorodite, a secondary Fe-As mineral which under neutral and reducing conditions dissolves incongruently, with As being preferentially released into solution as the mineral starts to break down (Bluteau and Demopoulos, 2007). If the field barrels have become blocked with fines or were constructed in a way that does not allow adequate drainage, a saturated layer may develop in the barrel over time promoting suboxic conditions. This saturated layer is likely to become thicker with time, mobilizing more and more As.

Malfunctioning field experiments are not uncommon and given the observed relative As trends along with the mineralogical make-up of the oxide rock, reductive dissolution processes are considered the most likely cause for the observed increasing As concentrations in FB1 and FB4. Investigations in the summer of 2019 are planned to evaluate whether the field barrel data is biased.

Sb concentrations are typically around 0.4 mg/L in leachate from FB6 (altered granodiorite barrel), which has the highest Sb content at 37 ppm suggesting that the solid-phase composition has a direct effect on leaching behaviour in these materials. Except for FB4 and FB6, all the barrels have Sb concentrations in leachate below 0.05 mg/L (Figure 2.2-5).

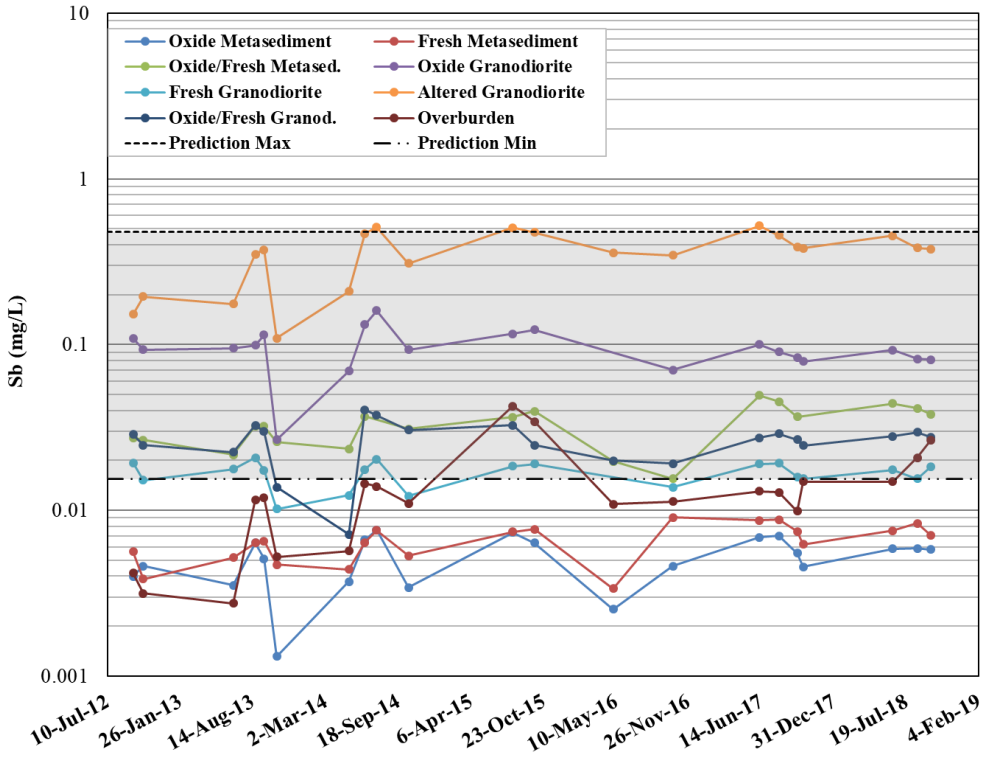



**Figure 2.2-5 Antimony concentrations over time in leachates from Eagle Gold field barrels. The range of predicted concentrations for the Eagle Pup and Platinum Gulch WRSF is shaded**

Interestingly, there is no one lithology that consistently releases the highest loads for all metalloids. Of note is that the Se trend mimics that of sulphate suggesting that these two species are mineralogically associated. The relationship between these species was used to derive Se concentrations from predicted sulphate values in the source term model.

### *2.2.1.7 Results*

One of the most important model results is that drainage from all facilities is expected to show a circum-neutral pH around 8 for all mine phases or, in other words, no acid rock drainage is expected at the Eagle Gold mine.

Analysis of the WRSA model output data lead to the finding that seepage concentrations were unrealistically low for some species in the first three years of operations using the adjusted humidity cell scale-up alone. Based on professional judgement, low values (*e.g.* sulphate) were set to a "first flush" value taken from field barrel leachates. This value was derived by calculating the median concentration observed over the first year of field barrel testing and accounts for the release of geochemical loads from freshly blasted materials.

Another adaption made to the upscaled loads is the derivation of selenium concentrations. Kinetic test data suggest that Se is strongly correlated with dissolved sulphate and is interpreted to be mineralogically associated with sulphur in both sulphate and sulphide minerals. For predictions made based on humidity cell upscaling, Se concentrations were modeled as a function of the sulphate concentration using $Se/SO_4$ ratios observed in the individual field barrels and proportioned according to rock type.

Figure 2.2-6 to Figure 2.2-9 show time-series plots of predicted source term concentrations for the main parameters of potential concern. The relatively large range in the values within a scenario and mine component presented can be explained by the consideration of temperature effects as well as stored loads release (in response to water balance) leading to a pronounced seasonal variability in geochemical loading. Where the predicted concentrations were adjusted to field barrel results, no seasonal variability may be observed (*e.g.*, for $SO_4$ in the ore stockpile predictions).

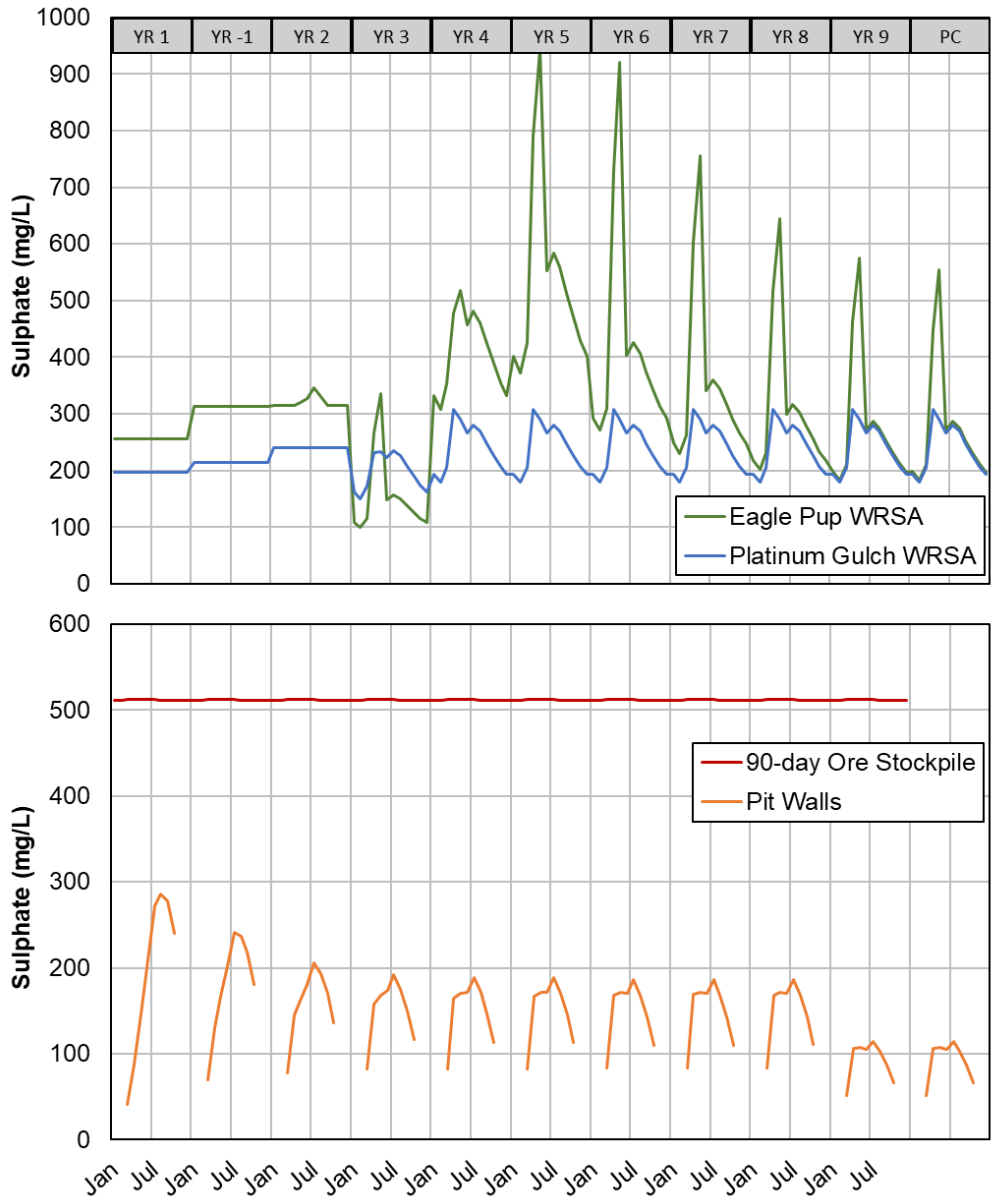



**Figure 2.2-6 Predicted sulphate concentrations for the modelled Eagle Gold mine facilities (PC = Post-closure).**

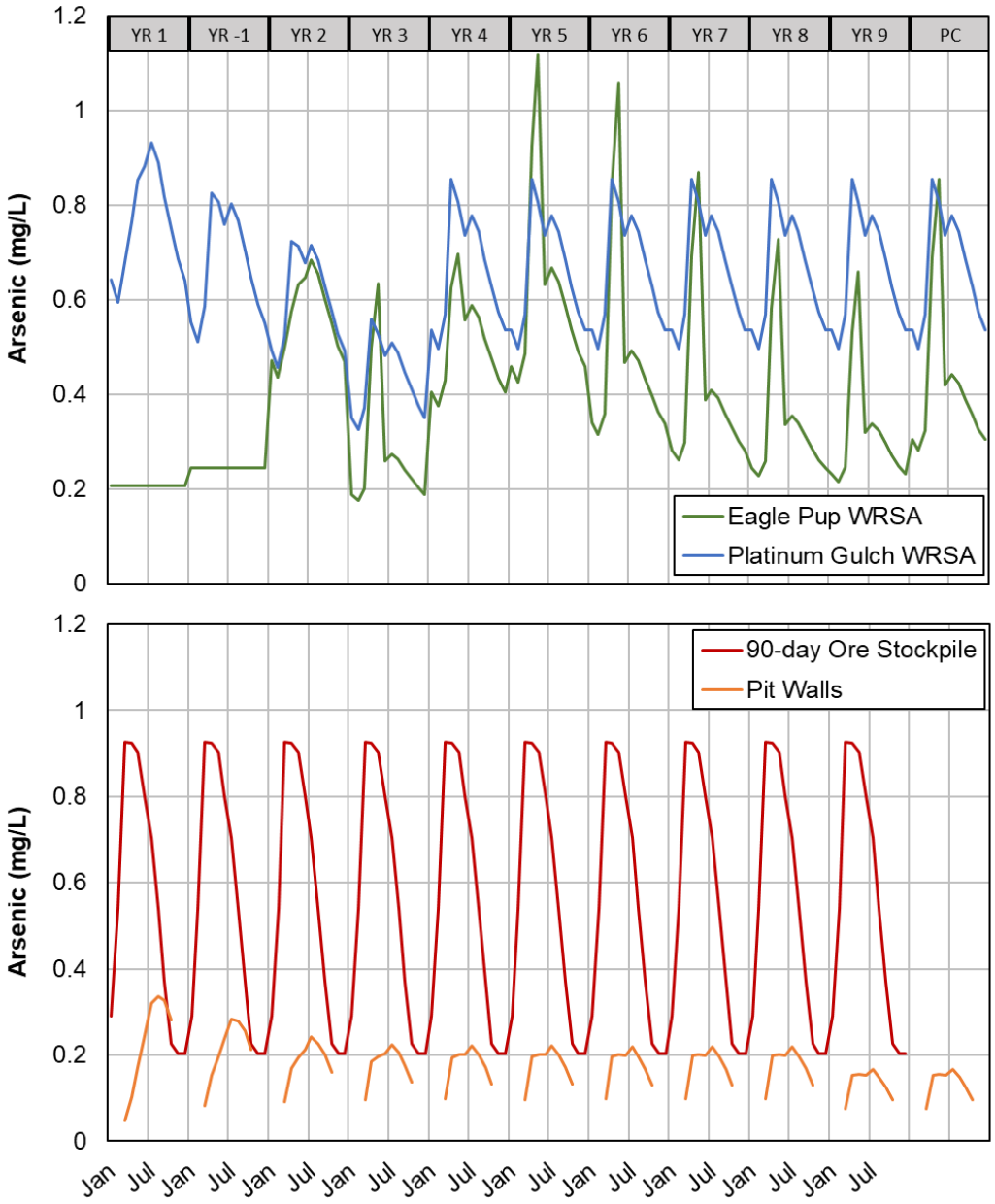



**Figure 2.2-7: Predicted arsenic concentrations for the modelled Eagle Gold mine facilities (PC = Post-closure).**

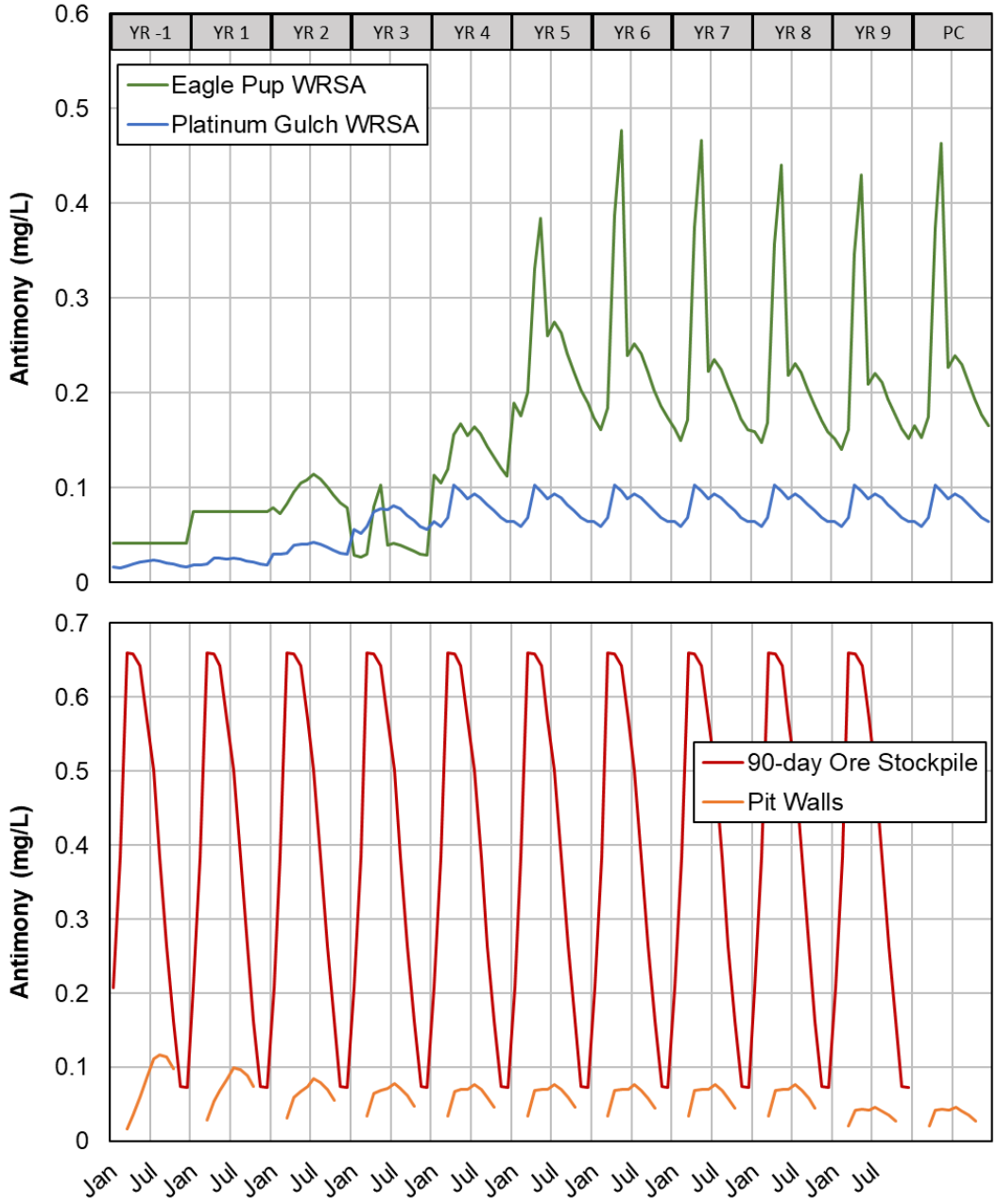



**Figure 2.2-8 Predicted antimony concentrations for the modelled Eagle Gold mine facilities (PC = Post-closure).**

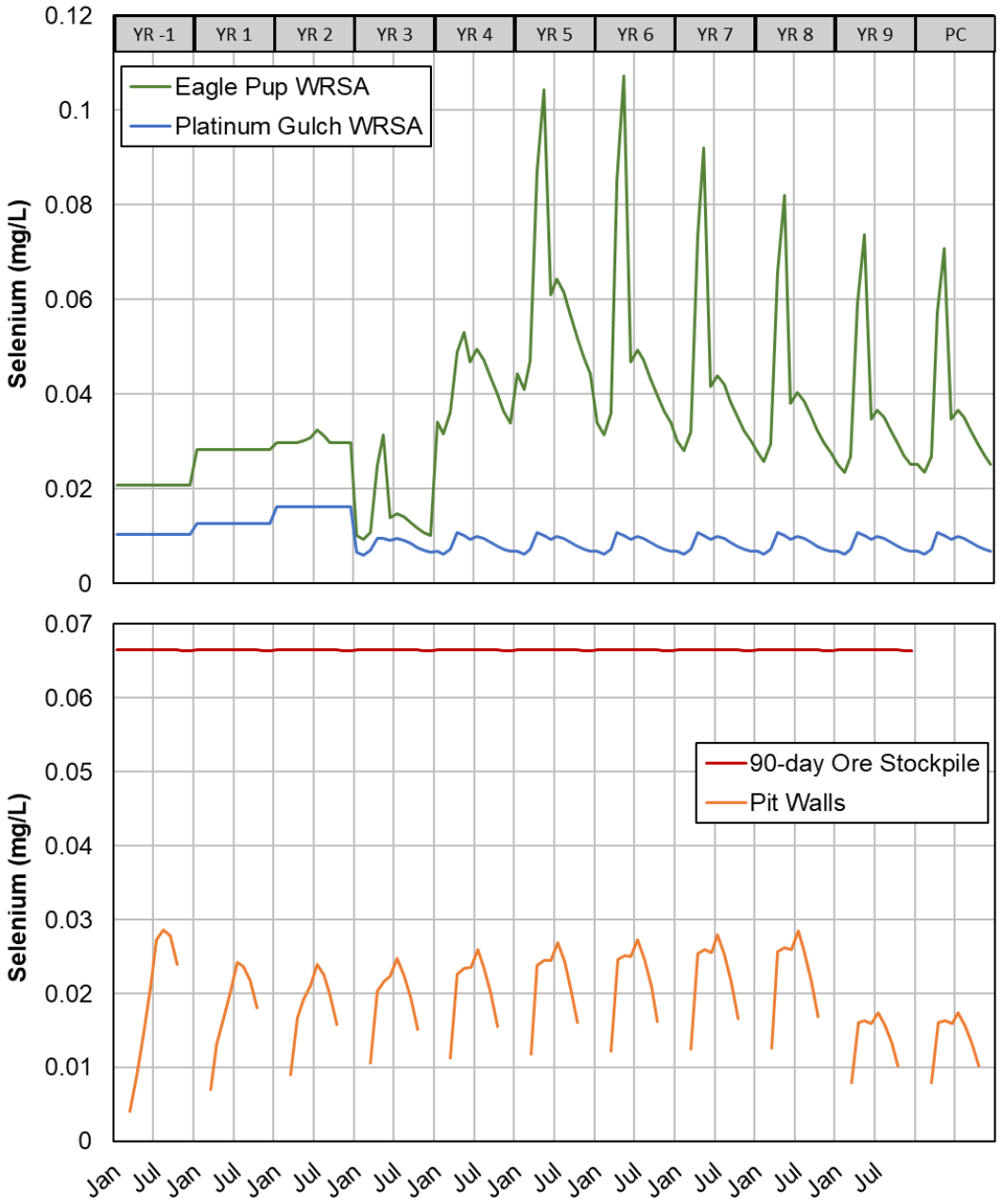



**Figure 2.2-9 Predicted selenium concentrations for the modelled Eagle Gold mine facilities (PC = Post-closure).**

For the 2018 WBWQM update, geochemical source term predictions were updated for four Eagle Gold mine components, namely the Eagle Pup and Platinum Gulch Waste Rock Storage Areas (WRSA), Pit Walls, and the 90-day Ore Stockpile. The Heap Leach Facility (HLF) was not re-modelled in the 2018 source term update as drainage from the HLF following the end of heap leaching is expected to be in geochemical equilibrium and therefore relatively insensitive to minor changes in the facility tonnage. As such, HLF

geochemical source term results presented in Lorax (2014) are still considered valid and have been carried forward in the current water quality model update.

The geochemistry data of field barrel leachates collected through September 2018 were reviewed by Lorax and the potential effect of the expanded database on the source term model was assessed. It was found that, since the last model update in the summer of 2018, the concentrations of major parameters of concern (As, Sb, Se, $SO_4$) remain relatively steady in leachates from the various field barrels and generally fall in the range of the source term predictions One exception to these trends is the increase of As concentration observed in 2017 and 2018 in the Oxide Granodiorite field barrel. It should be noted that this material's solid phase As content (1065 ppm) is well above the respective 90$^{th}$ percentile value (607 ppm) of the static test database for Eagle Gold waste rock. In other words, less than 10% of oxide granodiorite rock is expected to have an As content as high as that measured in the field barrel sample. It is also important to keep in mind that the field barrel leachates are generally only used for semi-quantitative model validation purposes. Overall, the upscaling exercise to derive source term predictions relied primarily on humidity cell testing which is considered the industry standard. Since the field barrels are operated in a less controlled environment than the humidity cells, the geochemical trends observed should be regarded with a larger degree of scrutiny.

In light of the observations from field kinetic testing and the assumption that inputs from the 2018 source term model update remain valid, no changes were made to the 2019 model. Predicted source terms concentrations are provided in Appendix A for all facilities that were considered in the 2018 source term model update and are reproduced herein.

### 2.2.2 MWTP and PTS Effluent Quality Standards

Effluent quality standards were set during the Water Use License process for the MWTP during operations and PTS for the closure phase (Table 2.2-8). The effluent quality standards for each component are utilized in the model representing treatment flows and chemistry.

During the Water Use License application process, it was agreed upon by all parties that the Project would be required to go through additional evaluation to support establishment of final effluent quality standards for the closure phase. As a conservative approach to closure and post closure water quality modeling, it has been assumed that the higher discharge criteria initially proposed by StrataGold would represent the effluent quality discharge. It is understood that continued modeling and eventual field trials of passive treatment systems for the Project will be undertaken by StrataGold to support the planned final reclamation and assessment and permitting for the closure plan of the Project.

**Table 2.2-8:**
**MWTP and PTS Effluent Water Quality Used in Model**

| Parameter | *Effluent Quality Standards (mg/L)* |
|---|---|
| pH | 6.5 to 8 |
| TSS | 15 |
| Cl | 250 |
| $SO_4$ | 1850 |
| Nitrate-N | 19.5 |
| Nitrite-N | 0.12 |
| $NH_3$-N | 7.5 |
| $CN_{WAD}$ | 0.03 |
| Al (diss) | 0.4 |
| Sb | 0.13 |
| As | 0.053 |
| Cd | 0.00125 |
| Cu | 0.026 |
| Co | 0.026 |
| Fe | 6.4 |
| Pb | 0.05 |
| Hg | 0.00008 |
| Mn | 7.7 |
| Mo | 0.45 |
| Ni | 0.5 |
| Se | 0.025 |
| Ag | 0.01 |
| U | 0.09 |
| Zn | 0.23 |

### 2.2.3 Background Water Quality Inputs

Background flows and water quality from runoff (e.g. non-contact water) and background receiving environment water chemistry were fully characterized and included in the model. Baseline water quality data collected from project area streams from 2007 and including data collected in 2016 to August 2017, prior to construction, were incorporated into the water quality baseline dataset.

### 2.2.4 Modeling Approach

Flows from background sources and mine facilities were taken directly from the WBM, with the exception of the seepage from the waste rock facilities. As with the 2014 water quality model submitted as part of the Water Use License application (14WQM), infiltration through the waste rock is provided to the WQM; the model then uses a function that attenuates the flow within the waste rock pile in a manner consistent with observed waste rock seepage hydrographs from other sites.

Water quality parameters tracked by the model are listed in Table 2.2-11. Each parameter is treated as a conservative tracer which is mixed at model nodes (confluences) by the following equation:

$$C_r = \frac{\sum_i Q_i C_i}{\sum_i Q_i}$$

where $C_r$ is the resultant concentration, $Q_i$are the source flows into the mixing point and $C_i$are the concentrations associated with the source flows. The only exceptions to this flow-weighted instantaneous mixing scheme are for the Lower Dublin South Pond (LDSP) and for the open pit lake which are represented by constituent transport flow cells in GoldSim. The water quality for each of these two facilities is handled slightly differently during operations and draindown/closure:

1. During operations, the LDSP and the open pit (drained via sump from a small holding pond) are treated as flow-through reservoirs; their respective outflow chemistries are the same as those of their respective flow-weighted source flows.
2. During post-operations (draindown, closure) the LDSP and open pit lake accumulate and release contaminant load relatively slowly, and their water qualities are determined by the finite volume flow cell concentration (not the input concentration as before).

**Table 2.2-9:**
**Eagle Gold Project Water Quality Model Parameters**

| Parameter | Cont'd | Cont'd |
|---|---|---|
| $NH_4$ | Al | Mn |
| Cl | Sb | Hg |
| F | As | Mo |
| $NO_3$ | Ba | Ni |
| $NO_2$ | B | K |
| N | Cd | Se |
| P | Ca | Si |
| $SO_4$ | Cr | Ag |
| WADCN | Co | Na |
| | Cu | Tl |
| | Fe | U |
| | Pb | V |
| | Mg | Zn |

This difference in methodology has a very small impact in the particular case of the LDSP and helps reduce artificial spikes in concentration during operations which can occur through the rapid filling/draining activities of the pond dring operations.

As previously indicated, the WQM simulates 50 years of mine life, beginning in operation and ending several years into post-closure. The model time step is monthly, and the three principal mine periods for reporting are:

1. Operations (Corresponds to mine–years 1 to 12) with LDSP treated in the MWTP; in Phase 5 the heap is rinsed during cyanide destruction;
2. Early Closure (Corresponds to mine–years 13 to 20): LDSP is decommissioned and the heap drain-down is controlled with the MTWP operating to treat heap seepage. Eagle Pup WRSA and Platinum Gulch WRSA seepage waters are passively treated before discharge to receiving waters;
3. Late Closure (Years 20+): Waste rock, pit overflow contact water and heap seepages are passively treated before discharge to receiving waters.

Source terms were developed for the median and 75$^{th}$ percentile case. To remain conservative, the discussion is based on the results of the 75$^{th}$ percentile source terms coupled with the median WBM flow scenario.

Water quality from mine discharge during operations is driven by the contact water reporting to the Lower Dublin South Pond. Contact water from the Eagle Pup and Platinum Gulch WRSAs, the temporary ore stockpile, and the sump water from the open pit all report to the LDSP at some point during operations. Excess water from the LDSP is treated through the MWTP to meet the effluent quality standards in Table 2.2-8 and discharged to Haggart Creek upstream of W4. Figure 2.2-10 and Figure 2.2-11 are schematic illustrations of the water balance and water quality model for mine year 2 and 9, respectively.

Beginning in year 12, both the Eagle Pup and Platinum Gulch waste rock seeps are treated by the LDSP passive treatment system to meet the discharge criteria in Table 2.2-9. It is conservatively assumed that the Platinum Gulch Pond PTS (established in approximately year 4) does not result in any alteration to the effluent quality from the open pit and Platinum Gulch waste rock seep that reports to the LDSP PTS. During this time period (Phase 6), HLF drain-down water reports to the MWTP and is treated to meet discharge criteria as indicated in Table 2.2-8. Figure 2.2-12 illustrates the water balance conditions for mine year 15.

The late closure period begins with the decommissioning of the MWTP and the full application of passive treatment for all contact mine waters including pit overflow waters (year 20+). At this time, the HLF has little excess water to drain, and post-closure monthly

discharge is driven largely by infiltration. After year 20, the HLF seep is treated solely through a PTS to values indicated in Table 2.2-10 (Figure 2.2-13).

The WQM provides monthly predictions of water quality at key locations in Haggart Creek, namely:

- W4 in Haggart Creek just downstream of the chief compliance point (i.e., MWTP discharge);
- W29 in Haggart Creek downstream of all project influences; and
- W23 in Haggart Creek, immediately downstream of the confluence with Lynx Creek.

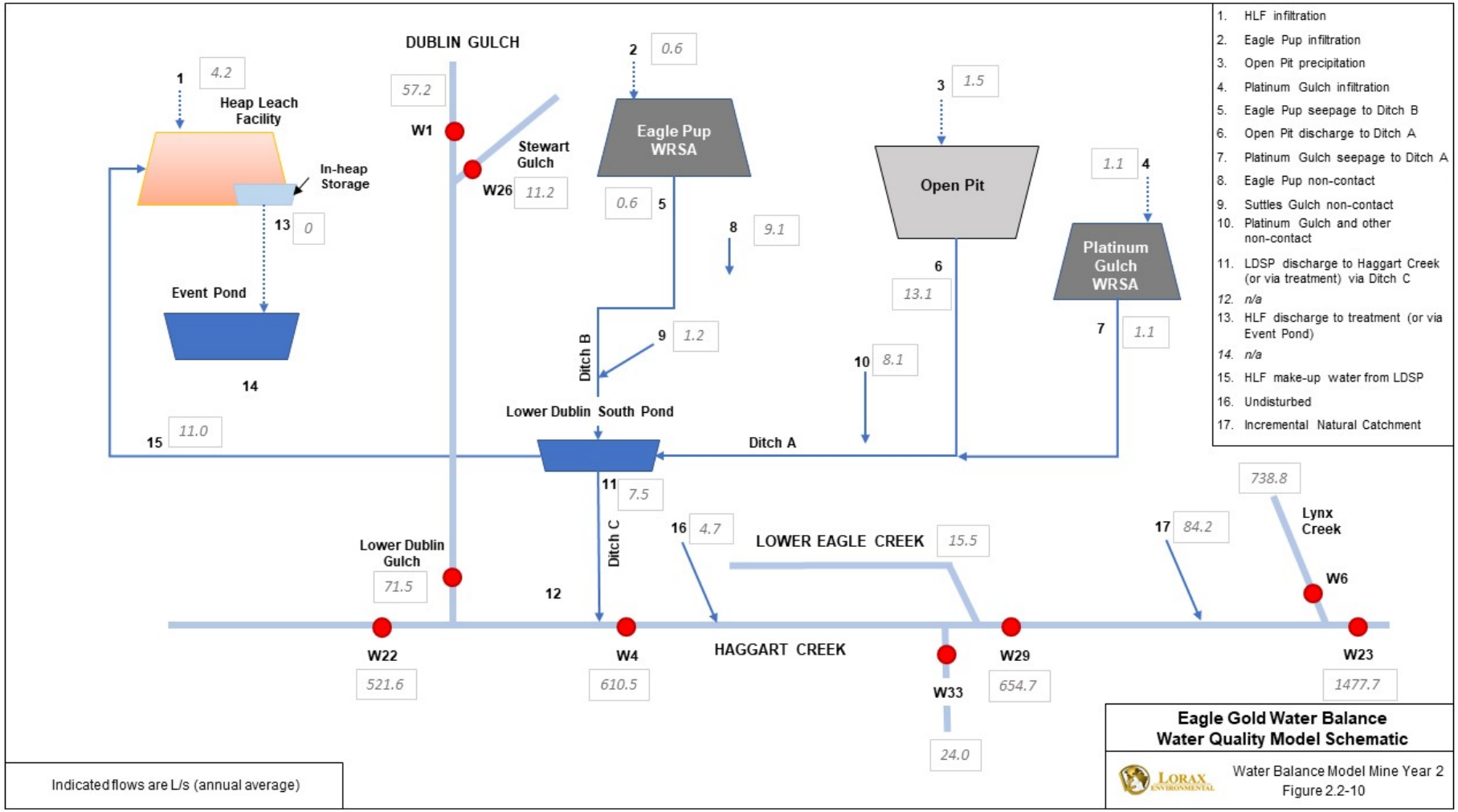



**Figure 2.2-10: Eagle Gold Water Balance and Water Quality Model Schematic for Year 2 of Operations.**

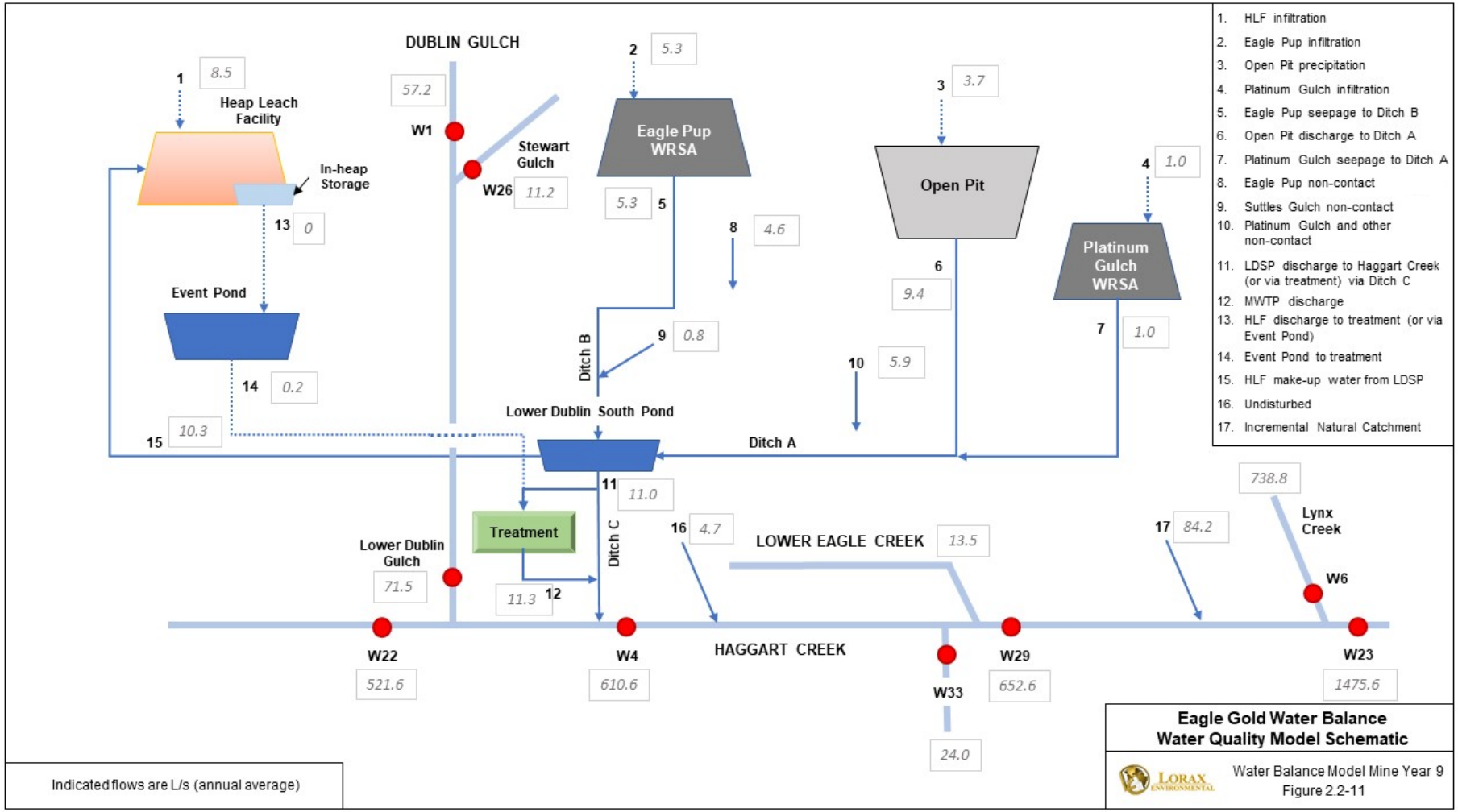



**Figure 2.2-11: Eagle Gold Water Balance and Water Quality Model Schematic for Year 9**

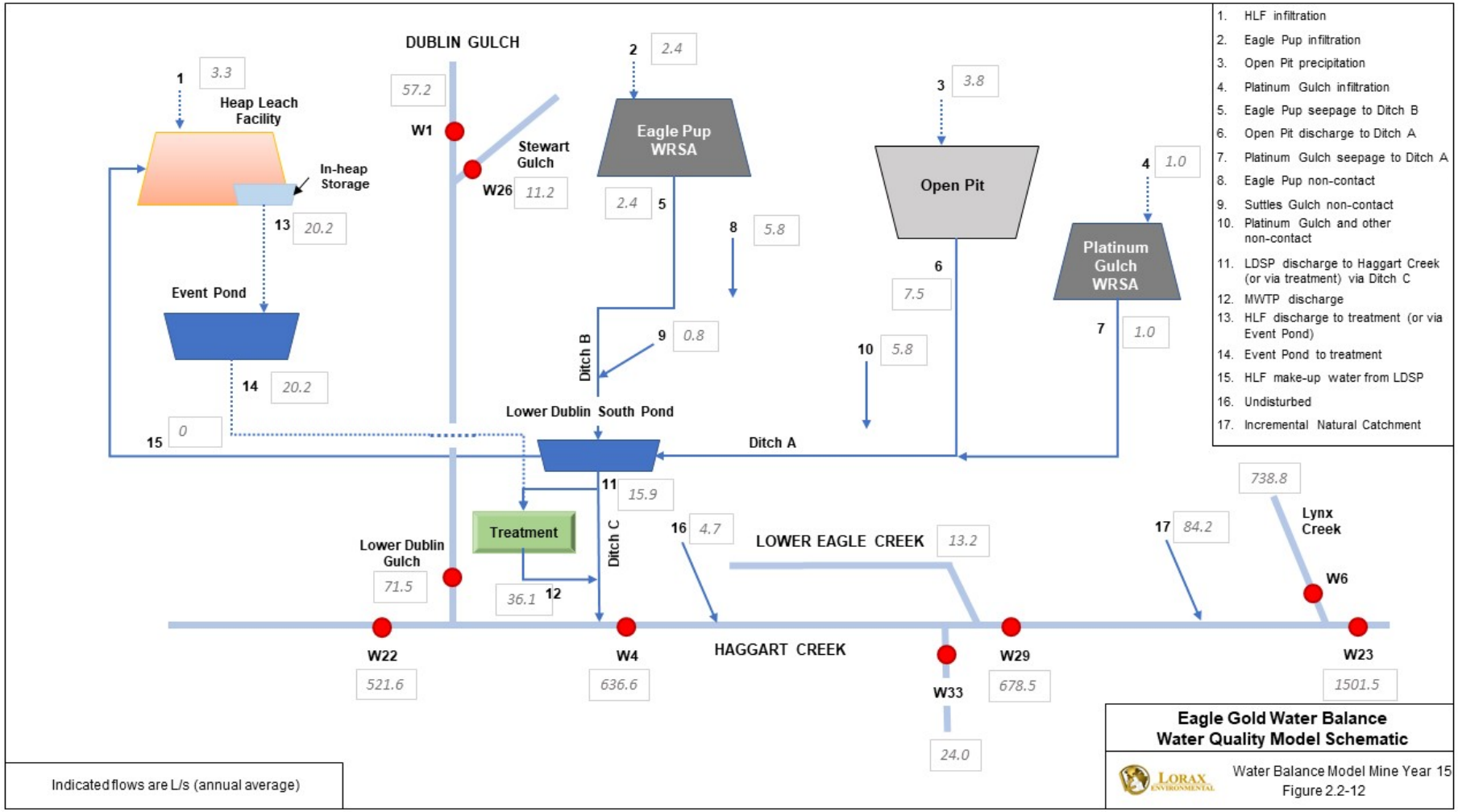



**Figure 2.2-12: Eagle Gold Water Balance and Water Quality Model Schematic for Year 15**

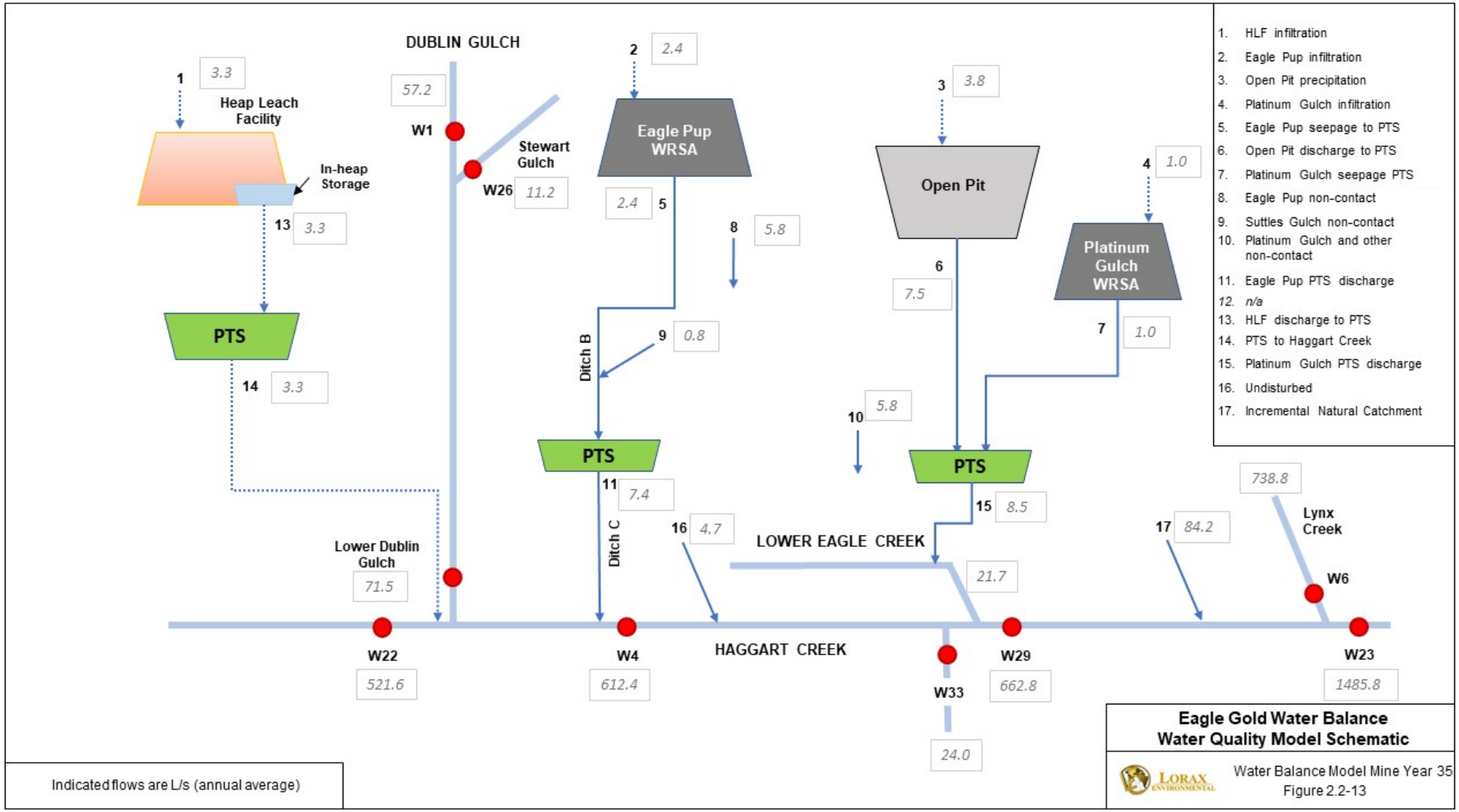



**Figure 2.2-13: Eagle Gold Water Balance and Water Quality Model Schematic for Year 35 (end of active closure).**

# 3. Water Quality Predictions

The results of the 19WQM (WBMWQM v3.4) update are presented in this section. Results are presented in downstream order for the three Haggart Creek receiving environment stations (W4), (W29) and (W23), for the main parameters of interest, namely As and Se. Time-series of all predicted parameters are provided in Appendix B of this report and all raw output data is provided in Appendix C (electronically).

## 3.1 Station W4 – Haggart Creek

Station W4 in Haggart Creek is located just downstream of the chief compliance location for the Eagle Gold project (i.e., discharge via Ditch C from the MWTP and/or the LDSP). Water quality objectives for W4 were developed during the licensing process (Table 3.1-1) and were based on the effluent quality standards specified in QZ14-041.

**Table 3.1-1:**
**Water Quality Objectives for Haggart Creek at W4**

| Parameter List | | WQ Objectives at W4 |
|---|---|---|
| Dissolved Parameters | $SO_4$ | 309 |
| | Cl | 150 |
| | Nitrate-N | 3 |
| | Nitrite-N | 0.02 |
| | $NH_3$-N | 1.13 |
| | $CN_{WAD}$ | 0.005 |
| | Al (diss) | 0.1 |
| Total Metalloids and Metals | Sb | 0.02 |
| | As | 0.0085 |
| | Cd | 0.000197 |
| | Cu | 0.005 |
| | Co | 0.004 |
| | Fe | 1.0 |
| | Pb | 0.0077 |
| | Hg | 0.00002 |
| | Mn | 1.17 |
| | Mo | 0.073 |
| | Ni | 0.116 |
| | Se | 0.002 |
| | Ag | 0.0015 |
| | U | 0.015 |
| | Zn | 0.038 |

All values as mg/L

Figure 3.1-1 summarizes the updated 2019 water quality model predictions for As at W4 in Haggart Creek. The updated model predicts peak As concentrations at W4 of approximately 0.0085 mg/L that occur in the higher flow periods of May during late operations. During HLF draindown (Yr 13 to Yr 22), As concentrations range from approximately 0.007 to 0.008 during the higher flow months of May to July with corresponding As values during the winter low flow months of approximately 0.0065 mg/L during this same period.

Post closure As concentrations (Yr 23 onwards) are predicted to be on the order of 0.0067 mg/L with winter low flow peak concentrations of approximately 0.004 mg/L (Figure 3.1-1).

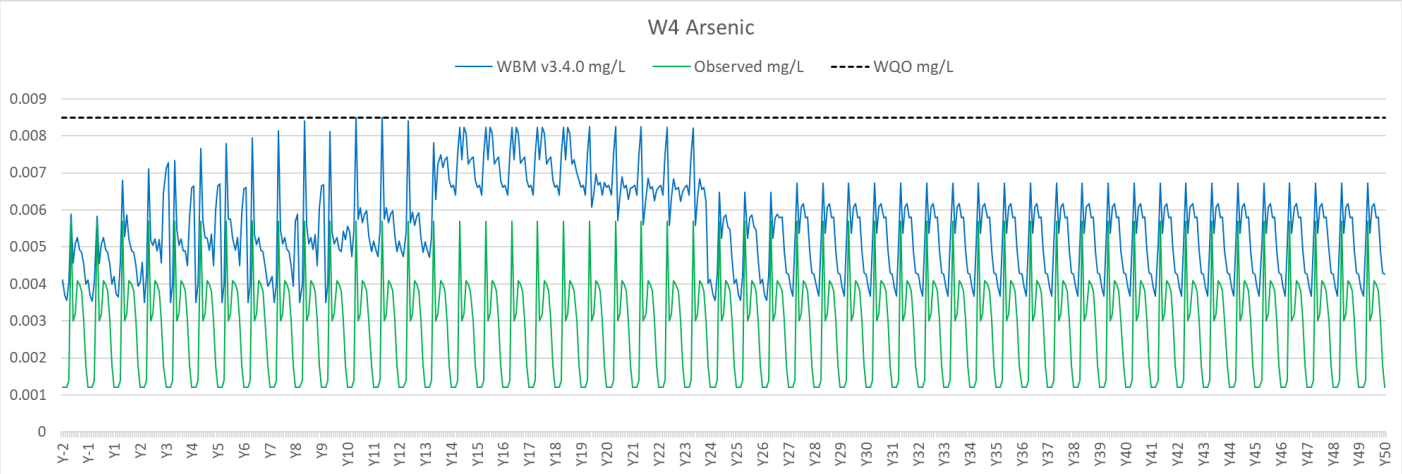



**Figure 3.1-1: Predictions for Total As at W4 in Haggart Creek for 19WQM (WBMWQM v3.4). Baseline mean monthly concentration denoted by blue line; Water Quality Objective denoted by dashed line.**

Similar results are observed for Se at W4 in Haggart Creek (Figure 3.1-2). The primary source of Se is associated with the HLF. Updated predictions indicate that Se concentrations are highest during the HLF draindown period and peak concentrations are predicted to be roughly 0.0019 mg/L. However, throughout the remainder of the life of mine, Se concentrations are predicted to be well below water quality objectives at W4. During post-closure, peak Se concentrations are predicted to be only approximately 0.0007 mg/L.

Table 3.1-2 summarizes the maximum 19WQM predicted concentrations for all parameters at W4 in Haggart Creek. As illustrated, all parameters are predicted to be below their respective water quality objective. 19WQM output for all parameters for station W4 can be found in Appendix B and Appendix C.

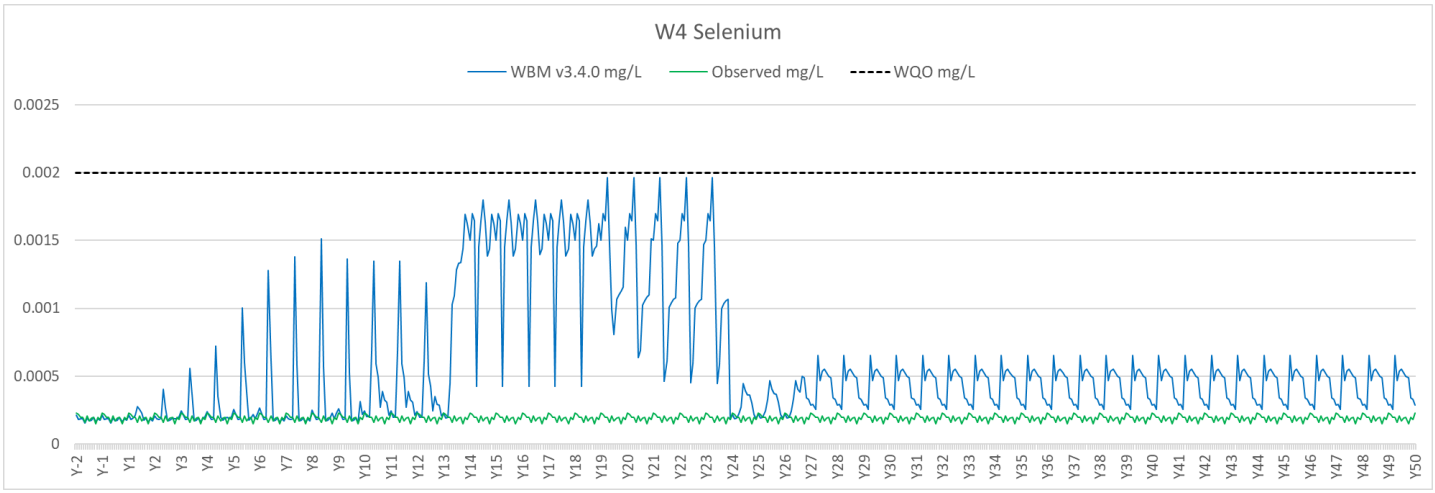



**Figure 3.1-2: Predictions for Total Se at W4 in Haggart Creek for 19WQM (WBMWQM v3.4). Baseline mean monthly concentration denoted by blue line; Water Quality Objective denoted by dashed line.**

**Table 3.1-2:**
**Maximum 19WQM Predicted Concentrations Compared to Water Quality Objectives at W4 for Haggart Creek**

| Parameter List | | Maximum Predicted Concentration at W4 | WQ Objectives at W4 |
|---|---|---|---|
| Dissolved Parameters | $SO_4$ | 114 | 309 |
| | Cl | 1.6 | 150 |
| | Nitrate-N | 1.5 | 3 |
| | Nitrite-N | 0.0095 | 0.02 |
| | $NH_3$-N | 0.078 | 1.13 |
| | $CN_{WAD}$ | 0.0026 | 0.005 |
| | Al (diss) | 0.144 | 0.1 |
| Total Metalloids and Metals | Sb | 0.0096 | 0.02 |
| | As | 0.0085 | 0.0085 |
| | Cd | 0.00008 | 0.000197 |
| | Cu | 0.003 | 0.005 |
| | Co | 0.0009 | 0.004 |
| | Fe | 0.38 | 1.0 |
| | Pb | 0.0036 | 0.0077 |
| | Hg | 0.000015 | 0.00002 |
| | Mn | 0.098 | 1.17 |
| | Mo | 0.0027 | 0.073 |
| | Ni | 0.0034 | 0.116 |
| | Se | 0.0019 | 0.002 |
| | Ag | 0.00011 | 0.0015 |
| | U | 0.0077 | 0.015 |
| | Zn | 0.0087 | 0.038 |

All values as mg/L

## *3.2 Station W29 – Haggart Creek*

19WQM output is graphically presented in Figure 3.2-1 for As at station W29 in Haggart Creek. Peak As concentrations at W29 are predicted to be slightly lower as compared to station W4 during the operation and draindown period (e.g. Yr 1 to Yr 22) and well below the water quality objective. Peak As concentrations for this period are approximately 0.0077 mg/L and occur during the higher flow month of May. During post closure, additional As loadings occur to Haggart Creek upstream of W29 from Platinum Gulch PTS, which treats water from waste rock seepage and pit overflow water. These additional As loadings increase concentrations at W29 to values of approximately 0.0074 mg/L as compared to W4 of approximately 0.0067 mg/L (Compare Figure 3.2-1 and Figure 3.1-1).

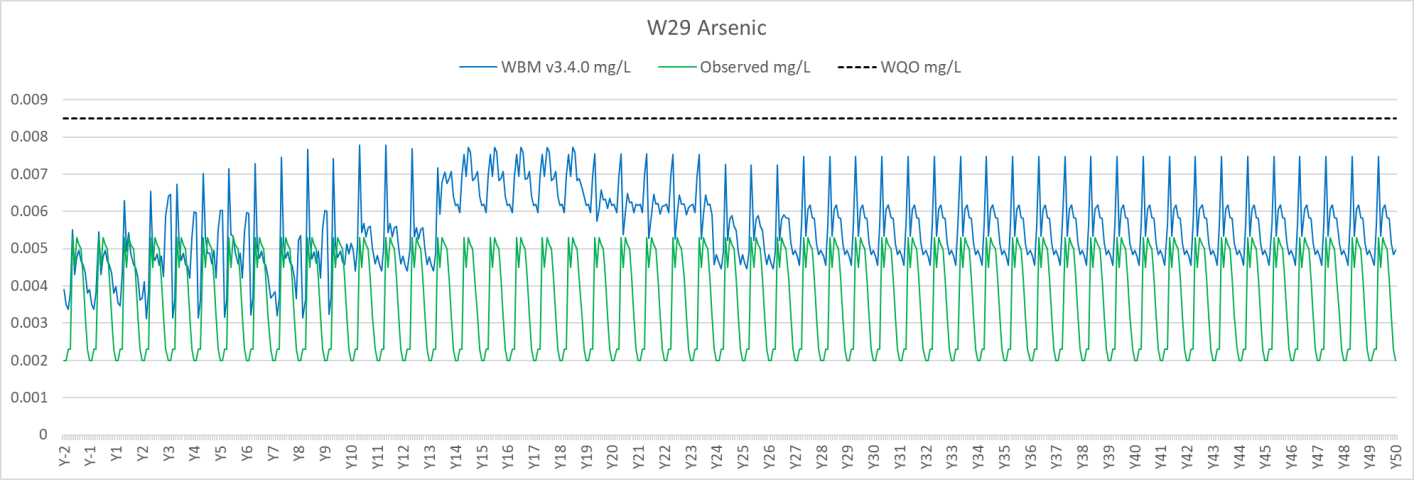



**Figure 3.2-1: Predictions for Total As at W29 in Haggart Creek for 19WQM (WBMWQM v3.4). Baseline mean monthly concentration denoted by blue line; Water Quality Objective denoted by dashed line.**

Similar to arsenic, the predicted peak Se concentrations at W29 are slightly higher than predicted concentrations at station W4 in Haggart Creek. The primary reason for this is additional loadings from the Platinum Gulch PTS.

Full excel output data for all parameters modeled at station W29 is presented in Appendix C.

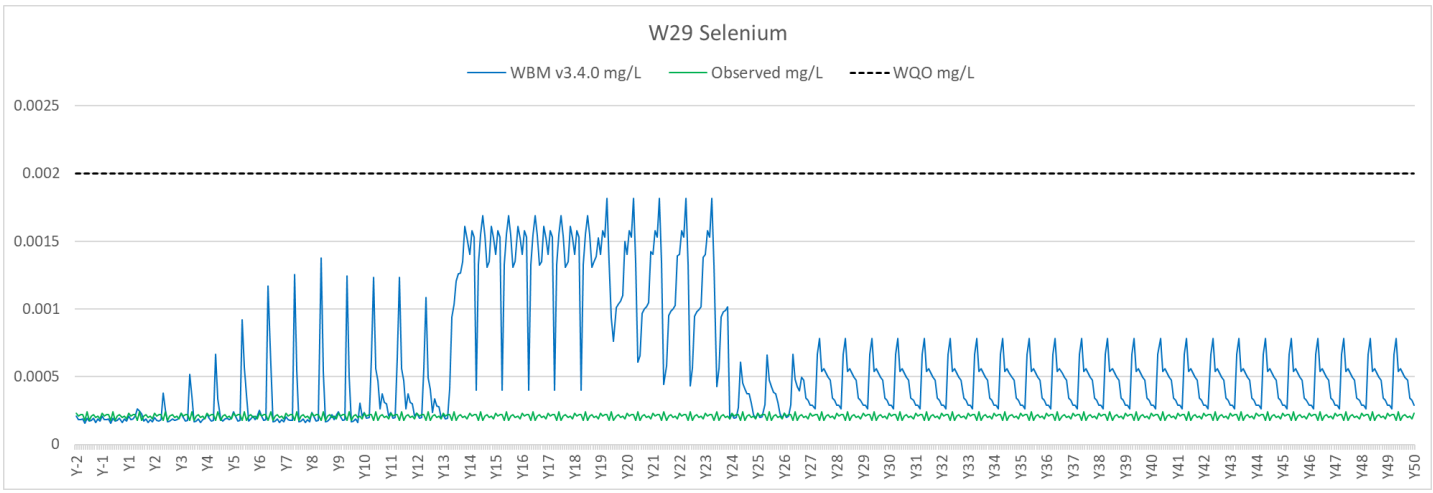



**Figure 3.2-2: Predictions for Total Se at W29 in Haggart Creek for 19WQM (WBMWQM v3.4). Baseline mean monthly concentration denoted by blue line; Water Quality Objective denoted by dashed line.**

## *3.3 Station W23 – Far-Field Haggart Creek*

19WQM predictions for total As at W23 in Haggart Creek are graphically presented in Figure 3.3-1. Unlike stations more proximal to the Eagle Mine in Haggart Creek (e.g. W4 and W29), predicted peak As concentrations at W23 are less variable throughout the life of mine period. For example, peak As concentrations during the operations, draindown and closure are approximately 0.0072 mg/L. The less variable As concentrations at W23 are a result of the natural background As loadings from Lynx Creek that enter Haggart Creek immediately upstream of W23. Predicted concentrations of As at W23 throughout the mine life are all well below the water quality objective.

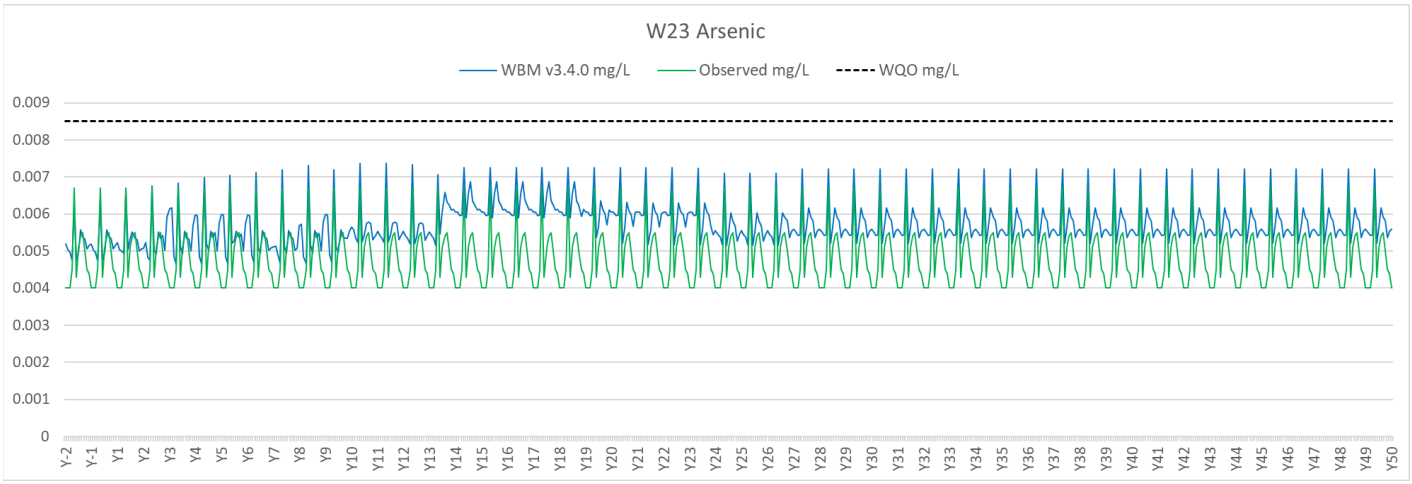



**Figure 3.3-1: Predictions for Total As at W23 in Haggart Creek for 19WQM (WBMWQM v3.4). Baseline mean monthly concentration denoted by blue line.**

Water quality predictions for total Se at W23 are presented in Figure 3.3-2. Maximum predicted total Se concentrations in 18WQM are slightly above 0.001 mg/L and occur during the HLF draindown. Post closure total Se concentration predictions are between 0.005 mg/L and 0.0006 mg/L (Appendix B). All predicted concentrations are well below the water quality objective for Se of 0.002 mg/L

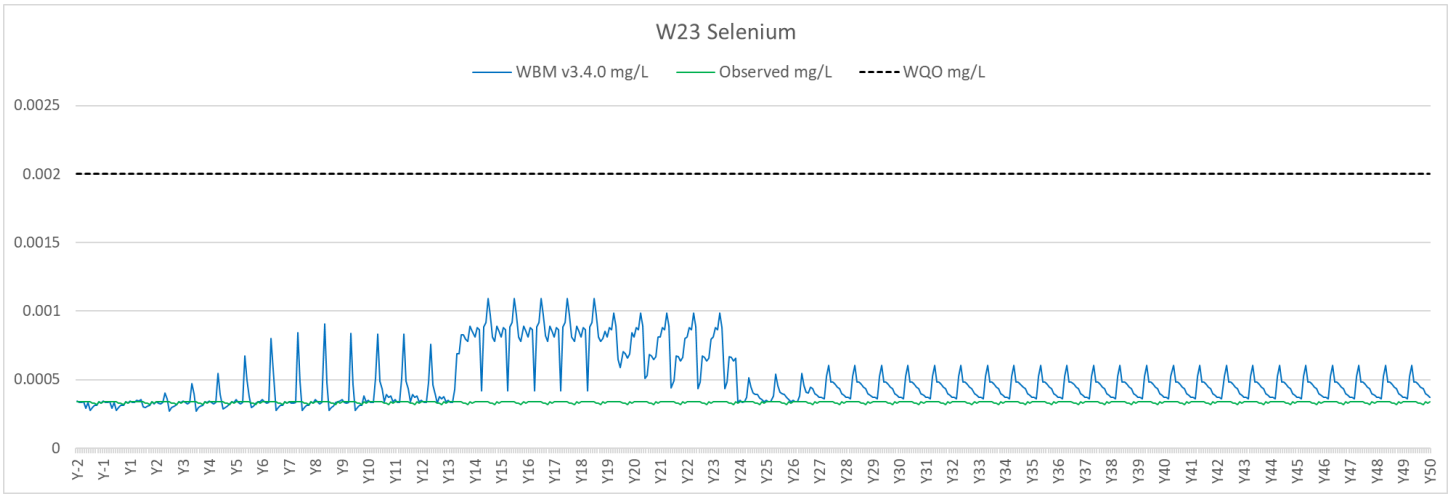



**Figure 3.3-2: Predictions for Total Se at W23 in Haggart Creek for 19WQM (WBMWQM v3.4). Baseline mean monthly concentration denoted by blue line; Water Quality Objective denoted by dashed line.**

# 4. Water Quantity Predictions

## 4.1 Predicted Streamflow Changes

The results of the 19WBM are presented in this section. There have been no substantive changes from the 2014 WBM outputs as a result of the changes in the mine plan since 2014. The predicted changes to the baseline streamflow regime as a result of mine development and operation are presented for the average monthly discharge for four distinct years of the mine life – representative of key changes to the management of site water. These correspond to the WBM/WQM schematics presented in Figure 2.2-10 through Figure 2.2-13.

- Modeled Year 2002 = Year 2 (between Phase 1 and 2 of the HLF)
- Modeled Year 2010 = Year 10 (first year of rinse/gold recovery)
- Modeled Year 2013 = Year 13 (first year of HLF draindown)
- Modeled Year 2023 = Year 23 (end of active closure)

The average monthly baseline and mine affected streamflows are presented for two key receiving environment nodes W4 (Haggart Creek downstream of Dublin Gulch) and W29 (Haggart Creek downstream of Platinum Gulch) in tabular (Table 4.1-1) and figure formats (Figure 4.1-1 through Figure 4.1-8).

**Table 4.1-1:**
**Predicted percent change in receiver stream flows for key years in the Project life, for the W4 and W29 nodes.**

| Mine Phase | Operations (Year 2) | | First Year of HLF Rinsing | | First Year of HLF Draindown | | End of Active Closure | |
|---|---|---|---|---|---|---|---|---|
| **Month** | **W4** | **W29** | **W4** | **W29** | **W4** | **W29** | **W4** | **W29** |
| Jan | -1% | -7% | 2% | -4% | 1% | -5% | 4% | -2% |
| Feb | -9% | -13% | -7% | -12% | -8% | -13% | -5% | -9% |
| Mar | -1% | -6% | 1% | -4% | 1% | -4% | 5% | -1% |
| Apr | -4% | -8% | -2% | -6% | -2% | -6% | 3% | -2% |
| May | 5% | 2% | 8% | 4% | 8% | 4% | 9% | 5% |
| Jun | 0% | -4% | 0% | -5% | 2% | -4% | 0% | -5% |
| Jul | 2% | -2% | 3% | -1% | 6% | 1% | 4% | -1% |
| Aug | 2% | -2% | 2% | -3% | 6% | 1% | 5% | -1% |
| Sep | -1% | -6% | 0% | -5% | 3% | -3% | 1% | -4% |
| Oct | 3% | -1% | 4% | -1% | 7% | 2% | 5% | 0% |
| Nov | -4% | -10% | -3% | -9% | 1% | -5% | -1% | -7% |
| Dec | 4% | -2% | 0% | -5% | 4% | -2% | -1% | -6% |
| **Average** | **0%** | **-5%** | **1%** | **-4%** | **2%** | **-3%** | **2%** | **-3%** |
| **May-Sept** | **2%** | **-2%** | **3%** | **-2%** | **5%** | **0%** | **4%** | **-1%** |

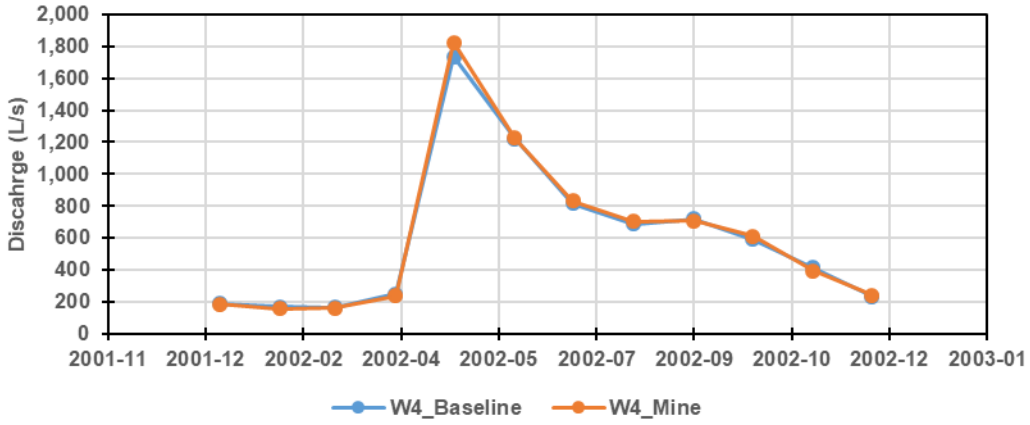



**Figure 4.1-1: Average monthly and predicted mine affected streamflows for the W4 node (Year 2; 19WQM).**

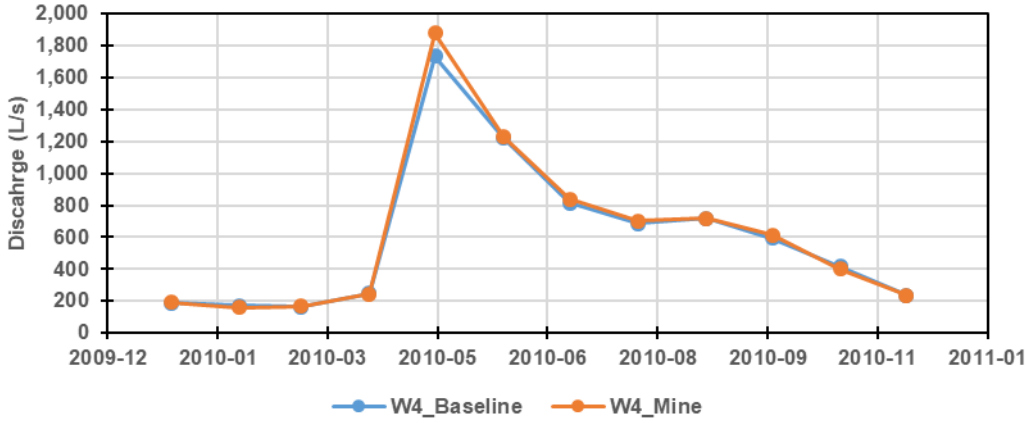



**Figure 4.1-2: Average monthly and predicted mine affected streamflows for the W4 node (Year 10; 19WQM).**

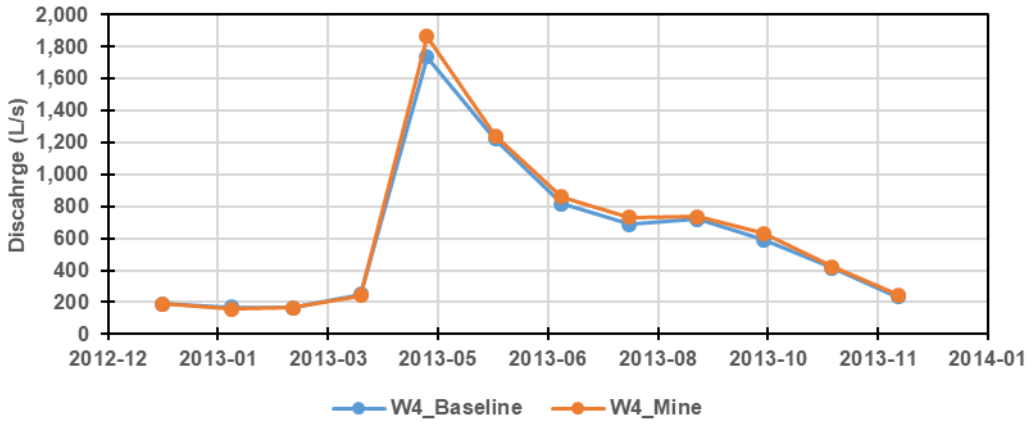



**Figure 4.1-3: Average monthly and predicted mine affected streamflows for the W4 node (Year 13; 19WQM).**

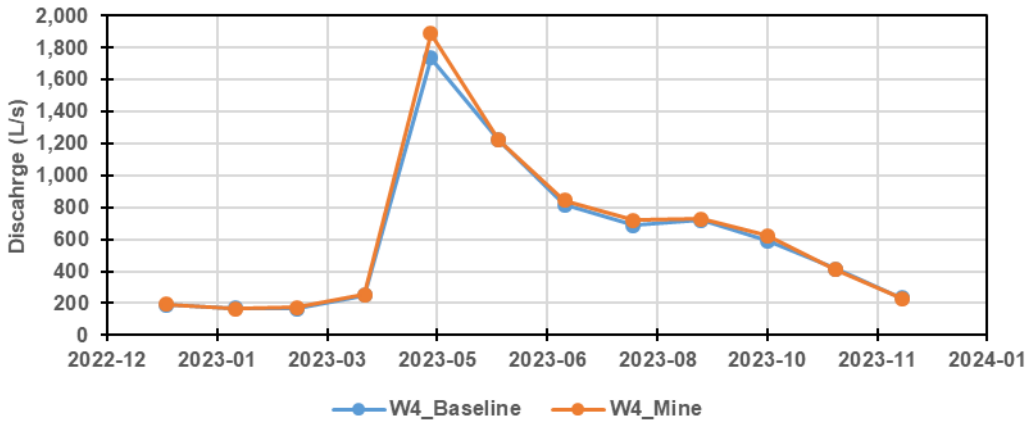



**Figure 4.1-4: Average monthly and predicted mine affected streamflows for the W4 node (Year 22; 19WQM).**

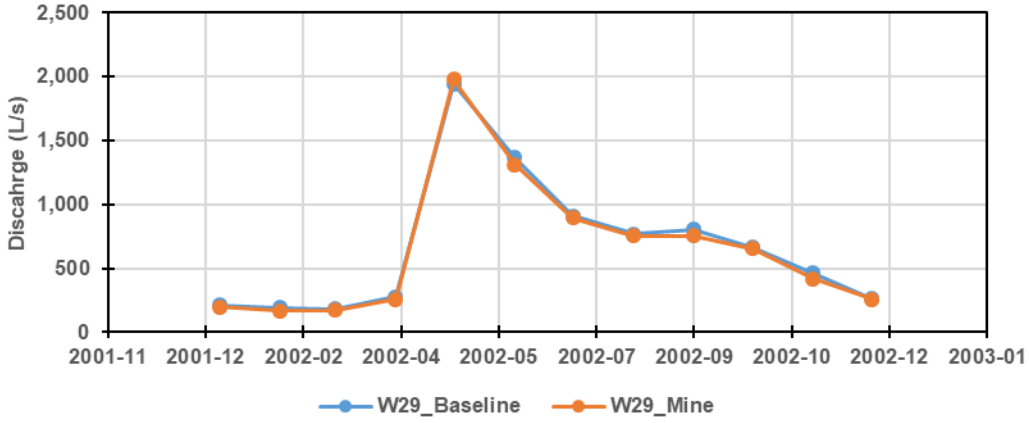



**Figure 4.1-5: Average monthly and predicted mine affected streamflows for the W29 node (Year 2; 19WQM).**

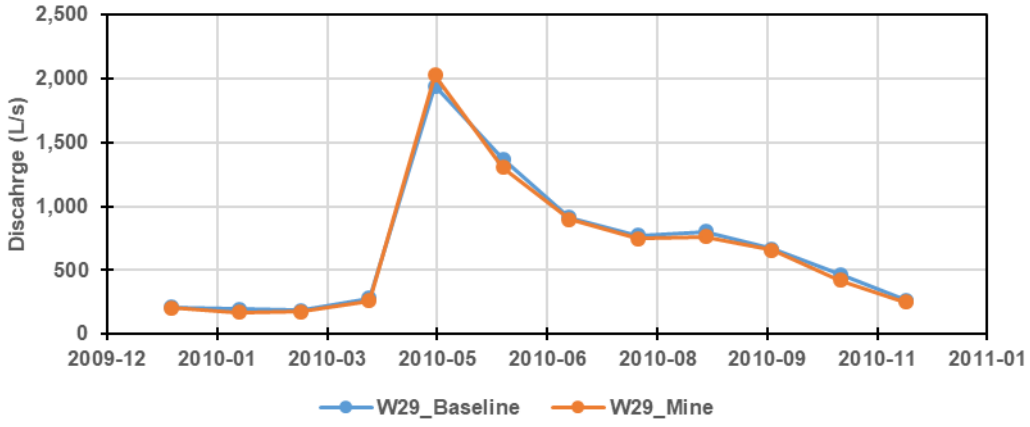



**Figure 4.1-6: Average monthly and predicted mine affected streamflows for the W29 node (Year 10; 19WQM).**

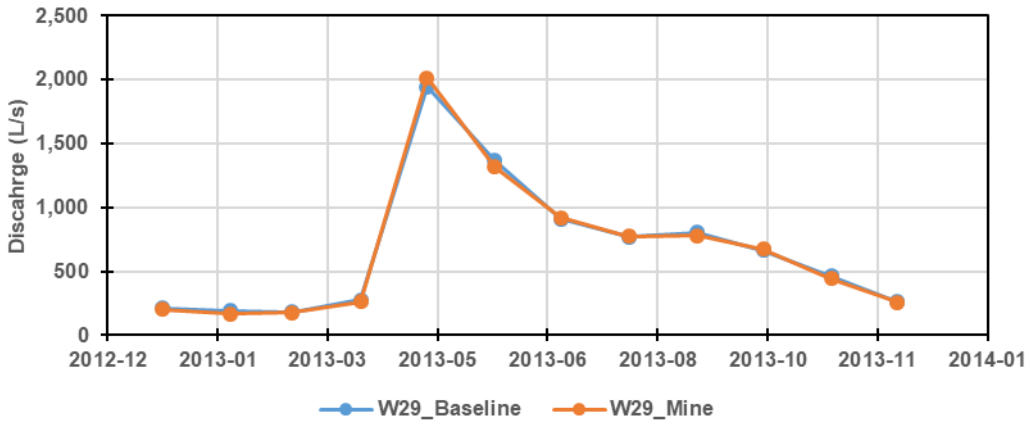



**Figure 4.1-7: Average monthly and predicted mine affected streamflows for the W29 node (Year 13; 19WQM).**

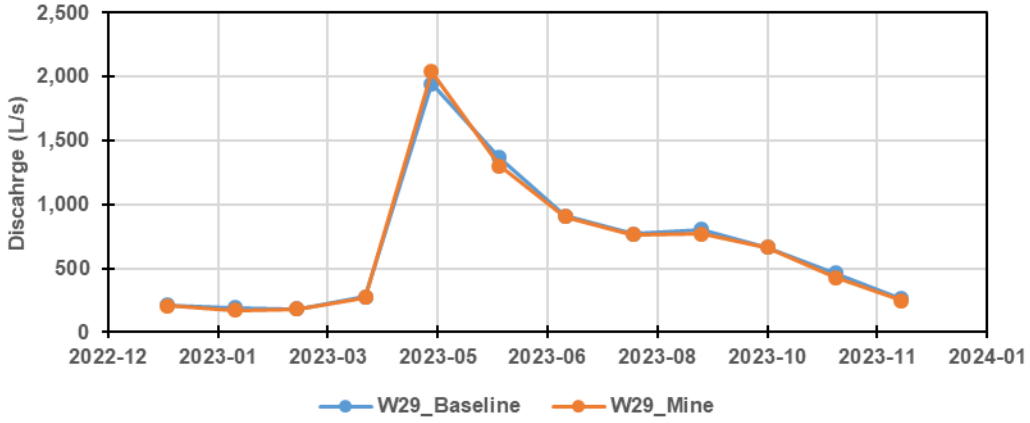



**Figure 4.1-8: Average monthly and predicted mine affected streamflows for the W29 node (Year 23; 19WQM).**

Maximum expected decreases in the baseline streamflow volumes occur in February (-5% to -13%), and the minimum predicted changes occur in June (-5% to 2%; Table 4.1-1). On average, the average open water season (May-September) flow changes are predicted to be negligible, varying from 2% to 5% at W4 for Operations (Year 13). On an average annual basis, flows in Haggart Creek at W4 are predicted to change from baseline by 0% to 2%, and by -2% to 0% at W29. Note that due to the low flows experienced in Haggart Creek during the winter and shoulder seasons (October to April), small changes in predicted flows due to mine operations result in larger relative predicted changes to the baseline streamflow regime. This is also the period for which continuous flow data are not available due to extensive channel icing, and thus characterization of the baseline flow regime is based largely on infrequent spot flow measurements. For these reasons, relatively less weight is placed on the predicted changes to the winter streamflow regime in Haggart Creek.

# 5. Closure

We trust that this report meets your expectations. Please contact the undersigned with any questions or comments.

Sincerely,

**LORAX ENVIRONMENTAL SERVICES LTD.**

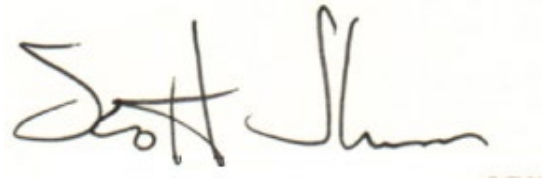
Prepared by:



**David Flather, M.Sc.**
Principal



**Scott Tinis, Ph.D.**
Senior Numerical Modeller



**Scott Jackson, M.Sc., P.Geo.**
Hydrologist

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# *Appendix A: Source Term Output*

**Appendix A.1: 90-day Stockpile**

| | pH | Alkalinity (as $CaCO_3$) | Sulphate | Chloride | Fluoride | Ag | Al | As | B | Ba | Be | Ca |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Jan** | 8.1 | 36 | 512 | 6.4 | 0.89 | 0.000016 | 0.0083 | 0.29 | 0.13 | 0.0078 | 0.00012 | 112 |
| **Feb** | 8.0 | 34 | 512 | 6.4 | 1.7 | 0.000025 | 0.0078 | 0.54 | 0.24 | 0.0081 | 0.00012 | 128 |
| **Mar** | 7.9 | 27 | 512 | 6.4 | 2.8 | 0.000042 | 0.0059 | 0.93 | 0.41 | 0.0097 | 0.00016 | 230 |
| **Apr** | 7.9 | 27 | 512 | 6.4 | 2.8 | 0.000042 | 0.0059 | 0.92 | 0.41 | 0.0097 | 0.00016 | 230 |
| **May** | 7.9 | 27 | 512 | 6.4 | 2.8 | 0.000041 | 0.0060 | 0.90 | 0.40 | 0.0096 | 0.00016 | 224 |
| **Jun** | 7.9 | 28 | 512 | 6.4 | 2.5 | 0.000036 | 0.0064 | 0.80 | 0.35 | 0.0091 | 0.00014 | 196 |
| **Jul** | 8.0 | 30 | 512 | 6.4 | 2.2 | 0.000032 | 0.0068 | 0.70 | 0.31 | 0.0087 | 0.00012 | 171 |
| **Aug** | 8.0 | 34 | 512 | 6.4 | 1.7 | 0.000025 | 0.0078 | 0.54 | 0.24 | 0.0080 | 0.00012 | 128 |
| **Sep** | 8.1 | 36 | 512 | 6.4 | 1.1 | 0.000017 | 0.0083 | 0.37 | 0.16 | 0.0078 | 0.00012 | 112 |
| **Oct** | 8.1 | 36 | 512 | 6.4 | 0.77 | 0.000016 | 0.0083 | 0.23 | 0.10 | 0.0078 | 0.00012 | 112 |
| **Nov** | 8.1 | 36 | 512 | 6.4 | 0.77 | 0.000016 | 0.0083 | 0.20 | 0.046 | 0.0078 | 0.00012 | 112 |
| **Dec** | 8.1 | 36 | 512 | 6.4 | 0.77 | 0.000016 | 0.0038 | 0.20 | 0.024 | 0.0078 | 0.00012 | 111 |

| | pH | Cd | Co | Cr | Cu | Fe | Hg | K | Li | Mg | Mn | Mo | Na |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Jan** | 8.1 | 0.00016 | 0.0031 | 0.00026 | 0.011 | 0.0018 | 0.000026 | 11 | 0.019 | 26 | 0.062 | 0.054 | 54 |
| **Feb** | 8.0 | 0.00016 | 0.0031 | 0.00048 | 0.011 | 0.0019 | 0.000048 | 21 | 0.035 | 26 | 0.062 | 0.054 | 54 |
| **Mar** | 7.9 | 0.00016 | 0.0031 | 0.00083 | 0.015 | 0.0023 | 0.000082 | 36 | 0.060 | 26 | 0.073 | 0.085 | 54 |
| **Apr** | 7.9 | 0.00016 | 0.0031 | 0.00083 | 0.015 | 0.0023 | 0.000082 | 36 | 0.060 | 26 | 0.073 | 0.085 | 54 |
| **May** | 7.9 | 0.00016 | 0.0031 | 0.00081 | 0.015 | 0.0023 | 0.000080 | 35 | 0.059 | 26 | 0.071 | 0.083 | 54 |
| **Jun** | 7.9 | 0.00016 | 0.0031 | 0.00072 | 0.014 | 0.0022 | 0.000071 | 31 | 0.052 | 26 | 0.063 | 0.073 | 54 |
| **Jul** | 8.0 | 0.00016 | 0.0031 | 0.00063 | 0.012 | 0.0021 | 0.000063 | 27 | 0.046 | 26 | 0.062 | 0.065 | 54 |
| **Aug** | 8.0 | 0.00016 | 0.0031 | 0.00048 | 0.011 | 0.0019 | 0.000048 | 21 | 0.035 | 26 | 0.062 | 0.054 | 54 |
| **Sep** | 8.1 | 0.00016 | 0.0031 | 0.00033 | 0.011 | 0.0018 | 0.000033 | 14 | 0.024 | 26 | 0.062 | 0.054 | 54 |
| **Oct** | 8.1 | 0.00016 | 0.0031 | 0.00020 | 0.011 | 0.0018 | 0.000020 | 8.8 | 0.019 | 26 | 0.062 | 0.054 | 54 |
| **Nov** | 8.1 | 0.00016 | 0.0031 | 0.00014 | 0.011 | 0.0018 | 0.000010 | 5.6 | 0.019 | 26 | 0.062 | 0.054 | 54 |
| **Dec** | 8.1 | 0.00016 | 0.0031 | 0.00014 | 0.011 | 0.0018 | 0.000010 | 5.6 | 0.019 | 26 | 0.062 | 0.054 | 54 |

| | pH | Ni | P | Pb | Sb | Se | Si | Sn | Sr | Tl | U | V | Zn |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Jan** | 8.1 | 0.0071 | 0.30 | 0.00039 | 0.21 | 0.067 | 5.2 | 0.00070 | 2.6 | 0.000062 | 0.21 | 0.0015 | 0.0083 |
| **Feb** | 8.0 | 0.0071 | 0.30 | 0.00072 | 0.38 | 0.067 | 5.2 | 0.0013 | 3.4 | 0.00011 | 0.21 | 0.0027 | 0.011 |
| **Mar** | 7.9 | 0.0071 | 0.30 | 0.0012 | 0.66 | 0.067 | 5.2 | 0.0022 | 5.9 | 0.00020 | 0.21 | 0.0047 | 0.019 |
| **Apr** | 7.9 | 0.0071 | 0.30 | 0.0012 | 0.66 | 0.067 | 5.2 | 0.0022 | 5.9 | 0.00020 | 0.21 | 0.0046 | 0.019 |
| **May** | 7.9 | 0.0071 | 0.30 | 0.0012 | 0.64 | 0.067 | 5.2 | 0.0022 | 5.8 | 0.00019 | 0.21 | 0.0045 | 0.019 |
| **Jun** | 7.9 | 0.0071 | 0.30 | 0.0011 | 0.57 | 0.067 | 5.2 | 0.0019 | 5.1 | 0.00017 | 0.21 | 0.0040 | 0.017 |
| **Jul** | 8.0 | 0.0071 | 0.30 | 0.00094 | 0.50 | 0.067 | 5.2 | 0.0017 | 4.5 | 0.00015 | 0.21 | 0.0035 | 0.015 |
| **Aug** | 8.0 | 0.0071 | 0.30 | 0.00072 | 0.38 | 0.067 | 5.2 | 0.0013 | 3.4 | 0.00011 | 0.21 | 0.0027 | 0.011 |
| **Sep** | 8.1 | 0.0071 | 0.30 | 0.00049 | 0.26 | 0.067 | 5.2 | 0.00089 | 2.6 | 0.000079 | 0.21 | 0.0019 | 0.0083 |
| **Oct** | 8.1 | 0.0071 | 0.30 | 0.00030 | 0.16 | 0.067 | 5.2 | 0.00055 | 2.6 | 0.000048 | 0.21 | 0.0012 | 0.0083 |
| **Nov** | 8.1 | 0.0071 | 0.30 | 0.00019 | 0.074 | 0.067 | 4.0 | 0.00025 | 2.6 | 0.000026 | 0.21 | 0.0012 | 0.0083 |
| **Dec** | 8.1 | 0.0071 | 0.30 | 0.00019 | 0.073 | 0.067 | 4.0 | 0.00012 | 2.6 | 0.000026 | 0.21 | 0.0012 | 0.0083 |

*all concentrations in mg/L*

**Appendix A.2: Eagle Pup**

| | | pH | Alkalinity (as $CaCO_3$) | Sulphate | Chloride | Fluoride | Ag | Al | As | B | Ba | Be | Ca |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Year 1** | **Jan** | 8.1 | 42 | 255 | 2.7 | 0.68 | 0.000010 | 0.0099 | 0.21 | 0.041 | 0.012 | 0.00010 | 61 |
| | **Feb** | 8.1 | 42 | 255 | 2.7 | 0.68 | 0.000010 | 0.0099 | 0.21 | 0.038 | 0.012 | 0.00010 | 61 |
| | **Mar** | 8.1 | 42 | 255 | 2.7 | 0.68 | 0.000010 | 0.0099 | 0.21 | 0.044 | 0.012 | 0.00010 | 61 |
| | **Apr** | 8.1 | 42 | 255 | 2.7 | 0.68 | 0.000010 | 0.0099 | 0.21 | 0.049 | 0.012 | 0.00010 | 61 |
| | **May** | 8.1 | 42 | 255 | 2.7 | 0.68 | 0.000010 | 0.0099 | 0.21 | 0.055 | 0.012 | 0.00010 | 61 |
| | **Jun** | 8.1 | 42 | 255 | 2.7 | 0.68 | 0.000010 | 0.0099 | 0.21 | 0.057 | 0.012 | 0.00010 | 61 |
| | **Jul** | 8.1 | 42 | 255 | 2.7 | 0.68 | 0.000010 | 0.0099 | 0.21 | 0.060 | 0.012 | 0.00010 | 61 |
| | **Aug** | 8.1 | 42 | 255 | 2.7 | 0.68 | 0.000010 | 0.0099 | 0.21 | 0.058 | 0.012 | 0.00010 | 61 |
| | **Sep** | 8.1 | 42 | 255 | 2.7 | 0.68 | 0.000010 | 0.0099 | 0.21 | 0.053 | 0.012 | 0.00010 | 61 |
| | **Oct** | 8.1 | 42 | 255 | 2.7 | 0.68 | 0.000010 | 0.0099 | 0.21 | 0.049 | 0.012 | 0.00010 | 61 |
| | **Nov** | 8.1 | 42 | 255 | 2.7 | 0.68 | 0.000010 | 0.0099 | 0.21 | 0.044 | 0.012 | 0.00010 | 61 |
| | **Dec** | 8.1 | 42 | 255 | 2.7 | 0.68 | 0.000010 | 0.0099 | 0.21 | 0.041 | 0.012 | 0.00010 | 61 |
| **Year 2** | **Jan** | 8.1 | 40 | 313 | 3.6 | 0.62 | 0.000020 | 0.0094 | 0.24 | 0.090 | 0.010 | 0.00010 | 72 |
| | **Feb** | 8.1 | 40 | 313 | 3.6 | 0.62 | 0.000020 | 0.0094 | 0.24 | 0.084 | 0.010 | 0.00010 | 72 |
| | **Mar** | 8.1 | 40 | 313 | 3.6 | 0.62 | 0.000020 | 0.0094 | 0.24 | 0.096 | 0.010 | 0.00010 | 72 |
| | **Apr** | 8.1 | 40 | 313 | 3.6 | 0.63 | 0.000020 | 0.0094 | 0.24 | 0.11 | 0.010 | 0.00010 | 72 |
| | **May** | 8.1 | 40 | 313 | 3.6 | 0.69 | 0.000020 | 0.0094 | 0.24 | 0.12 | 0.010 | 0.00010 | 73 |
| | **Jun** | 8.1 | 40 | 313 | 3.6 | 0.70 | 0.000020 | 0.0094 | 0.24 | 0.12 | 0.010 | 0.00010 | 73 |
| | **Jul** | 8.1 | 40 | 313 | 3.6 | 0.74 | 0.000020 | 0.0094 | 0.24 | 0.13 | 0.010 | 0.00010 | 73 |
| | **Aug** | 8.1 | 40 | 313 | 3.6 | 0.71 | 0.000020 | 0.0094 | 0.24 | 0.13 | 0.010 | 0.00010 | 73 |
| | **Sep** | 8.1 | 40 | 313 | 3.6 | 0.65 | 0.000020 | 0.0094 | 0.24 | 0.11 | 0.010 | 0.00010 | 73 |
| | **Oct** | 8.1 | 40 | 313 | 3.6 | 0.62 | 0.000020 | 0.0094 | 0.24 | 0.11 | 0.010 | 0.00010 | 72 |
| | **Nov** | 8.1 | 40 | 313 | 3.6 | 0.62 | 0.000020 | 0.0094 | 0.24 | 0.096 | 0.010 | 0.00010 | 72 |
| | **Dec** | 8.1 | 40 | 313 | 3.6 | 0.62 | 0.000020 | 0.0094 | 0.24 | 0.090 | 0.010 | 0.00010 | 72 |
| **Year 3** | **Jan** | 8.0 | 30 | 316 | 5.8 | 2.2 | 0.000040 | 0.0069 | 0.47 | 0.44 | 0.013 | 0.00017 | 142 |
| | **Feb** | 8.0 | 31 | 316 | 5.4 | 2.0 | 0.000040 | 0.0071 | 0.44 | 0.40 | 0.012 | 0.00016 | 131 |
| | **Mar** | 8.0 | 29 | 316 | 6.2 | 2.3 | 0.000050 | 0.0067 | 0.50 | 0.46 | 0.013 | 0.00018 | 152 |
| | **Apr** | 7.9 | 28 | 316 | 7.1 | 2.7 | 0.000050 | 0.0062 | 0.58 | 0.53 | 0.014 | 0.00021 | 179 |
| | **May** | 7.9 | 27 | 321 | 7.8 | 2.9 | 0.000060 | 0.0060 | 0.63 | 0.59 | 0.014 | 0.00023 | 197 |
| | **Jun** | 7.9 | 26 | 327 | 8.0 | 3.0 | 0.000060 | 0.0059 | 0.65 | 0.60 | 0.014 | 0.00024 | 202 |
| | **Jul** | 7.9 | 26 | 345 | 8.4 | 3.2 | 0.000060 | 0.0058 | 0.68 | 0.63 | 0.014 | 0.00025 | 214 |
| | **Aug** | 7.9 | 26 | 330 | 8.1 | 3.0 | 0.000060 | 0.0059 | 0.65 | 0.60 | 0.014 | 0.00024 | 204 |
| | **Sep** | 7.9 | 27 | 316 | 7.4 | 2.8 | 0.000060 | 0.0061 | 0.60 | 0.55 | 0.014 | 0.00022 | 186 |
| | **Oct** | 7.9 | 28 | 316 | 6.8 | 2.6 | 0.000050 | 0.0064 | 0.55 | 0.51 | 0.014 | 0.00020 | 169 |
| | **Nov** | 8.0 | 29 | 316 | 6.2 | 2.3 | 0.000050 | 0.0067 | 0.50 | 0.47 | 0.013 | 0.00019 | 153 |
| | **Dec** | 8.0 | 30 | 316 | 5.8 | 2.2 | 0.000040 | 0.0069 | 0.47 | 0.43 | 0.013 | 0.00017 | 142 |
| **Year 4** | **Jan** | 8.1 | 39 | 108 | 2.5 | 0.96 | 0.000020 | 0.0093 | 0.19 | 0.18 | 0.025 | 0.000070 | 56 |
| | **Feb** | 8.1 | 41 | 100 | 2.3 | 0.89 | 0.000020 | 0.0096 | 0.18 | 0.17 | 0.026 | 0.000070 | 51 |
| | **Mar** | 8.1 | 38 | 115 | 2.6 | 1.0 | 0.000020 | 0.0090 | 0.20 | 0.19 | 0.024 | 0.000080 | 60 |
| | **Apr** | 7.9 | 28 | 267 | 6.3 | 2.4 | 0.000050 | 0.0064 | 0.50 | 0.47 | 0.015 | 0.00019 | 160 |
| | **May** | 7.9 | 26 | 335 | 8.0 | 3.0 | 0.000060 | 0.0059 | 0.63 | 0.59 | 0.014 | 0.00024 | 206 |
| | **Jun** | 8.1 | 34 | 148 | 3.4 | 1.3 | 0.000020 | 0.0081 | 0.26 | 0.25 | 0.020 | 0.00010 | 82 |
| | **Jul** | 8.0 | 34 | 157 | 3.6 | 1.4 | 0.000030 | 0.0079 | 0.27 | 0.26 | 0.020 | 0.00010 | 87 |
| | **Aug** | 8.1 | 34 | 150 | 3.5 | 1.3 | 0.000030 | 0.0080 | 0.26 | 0.25 | 0.020 | 0.00010 | 83 |
| | **Sep** | 8.1 | 35 | 138 | 3.2 | 1.2 | 0.000020 | 0.0083 | 0.24 | 0.23 | 0.021 | 0.000090 | 75 |
| | **Oct** | 8.1 | 37 | 126 | 2.9 | 1.1 | 0.000020 | 0.0087 | 0.22 | 0.21 | 0.022 | 0.000080 | 68 |
| | **Nov** | 8.1 | 38 | 116 | 2.7 | 1.0 | 0.000020 | 0.0090 | 0.20 | 0.19 | 0.024 | 0.000080 | 61 |
| | **Dec** | 8.1 | 39 | 108 | 2.5 | 0.95 | 0.000020 | 0.0093 | 0.19 | 0.18 | 0.025 | 0.000070 | 56 |

**Appendix A.2: Eagle Pup**

| | | pH | Alkalinity (as $CaCO_3$) | Sulphate | Chloride | Fluoride | Ag | Al | As | B | Ba | Be | Ca |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Year 5** | **Jan** | 7.9 | 27 | 332 | 6.0 | 2.3 | 0.000040 | 0.0062 | 0.41 | 0.40 | 0.013 | 0.00016 | 180 |
| | **Feb** | 7.9 | 28 | 308 | 5.6 | 2.1 | 0.000040 | 0.0064 | 0.38 | 0.37 | 0.013 | 0.00015 | 165 |
| | **Mar** | 7.9 | 26 | 352 | 6.4 | 2.5 | 0.000040 | 0.0061 | 0.43 | 0.42 | 0.013 | 0.00017 | 192 |
| | **Apr** | 7.9 | 24 | 477 | 9.1 | 3.5 | 0.000060 | 0.0054 | 0.63 | 0.61 | 0.011 | 0.00024 | 272 |
| | **May** | 7.8 | 24 | 518 | 10 | 3.8 | 0.000070 | 0.0053 | 0.70 | 0.68 | 0.011 | 0.00027 | 300 |
| | **Jun** | 7.9 | 24 | 457 | 8.3 | 3.2 | 0.000050 | 0.0056 | 0.56 | 0.55 | 0.011 | 0.00022 | 254 |
| | **Jul** | 7.9 | 24 | 482 | 8.8 | 3.4 | 0.000060 | 0.0055 | 0.59 | 0.58 | 0.011 | 0.00023 | 270 |
| | **Aug** | 7.9 | 24 | 461 | 8.4 | 3.2 | 0.000060 | 0.0055 | 0.56 | 0.55 | 0.011 | 0.00022 | 257 |
| | **Sep** | 7.9 | 25 | 423 | 7.7 | 3.0 | 0.000050 | 0.0057 | 0.52 | 0.51 | 0.012 | 0.00020 | 234 |
| | **Oct** | 7.9 | 26 | 389 | 7.1 | 2.7 | 0.000050 | 0.0059 | 0.47 | 0.47 | 0.012 | 0.00019 | 214 |
| | **Nov** | 7.9 | 26 | 355 | 6.5 | 2.5 | 0.000040 | 0.0060 | 0.43 | 0.43 | 0.013 | 0.00017 | 194 |
| | **Dec** | 7.9 | 27 | 332 | 6.0 | 2.3 | 0.000040 | 0.0062 | 0.40 | 0.40 | 0.013 | 0.00016 | 179 |
| **Year 6** | **Jan** | 7.9 | 26 | 402 | 7.0 | 2.7 | 0.000040 | 0.0059 | 0.46 | 0.45 | 0.012 | 0.00018 | 216 |
| | **Feb** | 7.9 | 26 | 372 | 6.4 | 2.5 | 0.000040 | 0.0060 | 0.43 | 0.41 | 0.012 | 0.00017 | 199 |
| | **Mar** | 7.9 | 25 | 426 | 7.4 | 2.9 | 0.000050 | 0.0057 | 0.49 | 0.47 | 0.011 | 0.00019 | 231 |
| | **Apr** | 7.8 | 22 | 790 | 14 | 5.4 | 0.000090 | 0.0047 | 0.93 | 0.91 | 0.0091 | 0.00036 | 449 |
| | **May** | 7.8 | 21 | 945 | 17 | 6.5 | 0.00011 | 0.0045 | 1.1 | 1.1 | 0.0086 | 0.00044 | 543 |
| | **Jun** | 7.8 | 23 | 553 | 9.6 | 3.7 | 0.000060 | 0.0053 | 0.63 | 0.61 | 0.010 | 0.00025 | 305 |
| | **Jul** | 7.8 | 23 | 584 | 10 | 4.0 | 0.000070 | 0.0052 | 0.67 | 0.65 | 0.010 | 0.00026 | 323 |
| | **Aug** | 7.8 | 23 | 559 | 9.7 | 3.8 | 0.000060 | 0.0053 | 0.64 | 0.62 | 0.010 | 0.00025 | 309 |
| | **Sep** | 7.9 | 24 | 513 | 8.9 | 3.5 | 0.000060 | 0.0054 | 0.59 | 0.57 | 0.011 | 0.00023 | 281 |
| | **Oct** | 7.9 | 25 | 471 | 8.1 | 3.2 | 0.000050 | 0.0055 | 0.54 | 0.52 | 0.011 | 0.00021 | 257 |
| | **Nov** | 7.9 | 25 | 430 | 7.4 | 2.9 | 0.000050 | 0.0057 | 0.49 | 0.48 | 0.011 | 0.00019 | 233 |
| | **Dec** | 7.9 | 26 | 402 | 6.9 | 2.7 | 0.000040 | 0.0059 | 0.46 | 0.45 | 0.012 | 0.00018 | 216 |
| **Year 7** | **Jan** | 8.0 | 28 | 293 | 5.1 | 2.1 | 0.000030 | 0.0065 | 0.34 | 0.33 | 0.014 | 0.00013 | 154 |
| | **Feb** | 8.0 | 29 | 271 | 4.7 | 1.9 | 0.000030 | 0.0067 | 0.31 | 0.30 | 0.014 | 0.00012 | 141 |
| | **Mar** | 7.9 | 28 | 310 | 5.4 | 2.2 | 0.000040 | 0.0064 | 0.36 | 0.35 | 0.013 | 0.00014 | 164 |
| | **Apr** | 7.8 | 22 | 730 | 13 | 5.1 | 0.000080 | 0.0048 | 0.84 | 0.82 | 0.0093 | 0.00033 | 412 |
| | **May** | 7.8 | 21 | 921 | 16 | 6.3 | 0.00010 | 0.0046 | 1.1 | 1.0 | 0.0086 | 0.00041 | 525 |
| | **Jun** | 7.9 | 26 | 402 | 7.0 | 2.9 | 0.000050 | 0.0058 | 0.47 | 0.45 | 0.012 | 0.00018 | 218 |
| | **Jul** | 7.9 | 25 | 425 | 7.4 | 3.0 | 0.000050 | 0.0057 | 0.49 | 0.48 | 0.012 | 0.00019 | 232 |
| | **Aug** | 7.9 | 25 | 407 | 7.1 | 2.9 | 0.000050 | 0.0058 | 0.47 | 0.46 | 0.012 | 0.00018 | 221 |
| | **Sep** | 7.9 | 26 | 373 | 6.5 | 2.6 | 0.000040 | 0.0060 | 0.43 | 0.42 | 0.012 | 0.00017 | 201 |
| | **Oct** | 7.9 | 27 | 343 | 6.0 | 2.4 | 0.000040 | 0.0062 | 0.40 | 0.39 | 0.013 | 0.00015 | 183 |
| | **Nov** | 7.9 | 28 | 313 | 5.5 | 2.2 | 0.000040 | 0.0064 | 0.36 | 0.35 | 0.013 | 0.00014 | 166 |
| | **Dec** | 8.0 | 28 | 292 | 5.1 | 2.1 | 0.000030 | 0.0065 | 0.34 | 0.33 | 0.014 | 0.00013 | 153 |
| **Year 8** | **Jan** | 8.0 | 30 | 248 | 4.3 | 1.8 | 0.000030 | 0.0069 | 0.28 | 0.28 | 0.015 | 0.00011 | 129 |
| | **Feb** | 8.0 | 31 | 230 | 4.0 | 1.7 | 0.000030 | 0.0071 | 0.26 | 0.26 | 0.015 | 0.00010 | 118 |
| | **Mar** | 8.0 | 29 | 263 | 4.6 | 1.9 | 0.000030 | 0.0068 | 0.30 | 0.30 | 0.014 | 0.00012 | 138 |
| | **Apr** | 7.8 | 23 | 603 | 11 | 4.3 | 0.000070 | 0.0051 | 0.69 | 0.68 | 0.010 | 0.00027 | 339 |
| | **May** | 7.8 | 22 | 756 | 13 | 5.4 | 0.000090 | 0.0048 | 0.87 | 0.85 | 0.0093 | 0.00034 | 430 |
| | **Jun** | 7.9 | 27 | 341 | 6.0 | 2.5 | 0.000040 | 0.0062 | 0.39 | 0.39 | 0.013 | 0.00015 | 184 |
| | **Jul** | 7.9 | 26 | 360 | 6.3 | 2.7 | 0.000040 | 0.0060 | 0.41 | 0.41 | 0.012 | 0.00016 | 195 |
| | **Aug** | 7.9 | 27 | 345 | 6.0 | 2.5 | 0.000040 | 0.0061 | 0.39 | 0.39 | 0.013 | 0.00016 | 186 |
| | **Sep** | 7.9 | 27 | 317 | 5.5 | 2.3 | 0.000040 | 0.0063 | 0.36 | 0.36 | 0.013 | 0.00014 | 169 |
| | **Oct** | 8.0 | 28 | 291 | 5.1 | 2.1 | 0.000030 | 0.0065 | 0.33 | 0.33 | 0.014 | 0.00013 | 154 |
| | **Nov** | 8.0 | 29 | 266 | 4.6 | 2.0 | 0.000030 | 0.0067 | 0.30 | 0.30 | 0.014 | 0.00012 | 139 |
| | **Dec** | 8.0 | 30 | 248 | 4.3 | 1.8 | 0.000030 | 0.0069 | 0.28 | 0.28 | 0.015 | 0.00011 | 129 |

**Appendix A.2: Eagle Pup**

| | | pH | Alkalinity (as $CaCO_3$) | Sulphate | Chloride | Fluoride | Ag | Al | As | B | Ba | Be | Ca |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Year 9** | **Jan** | 8.0 | 31 | 218 | 3.8 | 1.6 | 0.000020 | 0.0073 | 0.24 | 0.25 | 0.016 | 0.00010 | 112 |
| | **Feb** | 8.0 | 32 | 202 | 3.5 | 1.5 | 0.000020 | 0.0075 | 0.23 | 0.23 | 0.017 | 0.000090 | 102 |
| | **Mar** | 8.0 | 31 | 231 | 4.0 | 1.7 | 0.000030 | 0.0071 | 0.26 | 0.26 | 0.015 | 0.00010 | 119 |
| | **Apr** | 7.8 | 24 | 516 | 9.0 | 3.9 | 0.000060 | 0.0054 | 0.58 | 0.58 | 0.011 | 0.00023 | 289 |
| | **May** | 7.8 | 23 | 644 | 11 | 4.8 | 0.000070 | 0.0050 | 0.73 | 0.73 | 0.0099 | 0.00029 | 366 |
| | **Jun** | 7.9 | 28 | 300 | 5.2 | 2.3 | 0.000030 | 0.0064 | 0.34 | 0.34 | 0.014 | 0.00014 | 160 |
| | **Jul** | 7.9 | 27 | 317 | 5.5 | 2.4 | 0.000040 | 0.0063 | 0.36 | 0.36 | 0.013 | 0.00014 | 170 |
| | **Aug** | 7.9 | 28 | 303 | 5.3 | 2.3 | 0.000030 | 0.0064 | 0.34 | 0.34 | 0.014 | 0.00014 | 162 |
| | **Sep** | 8.0 | 29 | 278 | 4.8 | 2.1 | 0.000030 | 0.0066 | 0.31 | 0.31 | 0.014 | 0.00013 | 147 |
| | **Oct** | 8.0 | 29 | 255 | 4.4 | 1.9 | 0.000030 | 0.0068 | 0.29 | 0.29 | 0.015 | 0.00012 | 134 |
| | **Nov** | 8.0 | 30 | 233 | 4.1 | 1.8 | 0.000030 | 0.0071 | 0.26 | 0.26 | 0.015 | 0.00011 | 121 |
| | **Dec** | 8.0 | 31 | 218 | 3.8 | 1.6 | 0.000020 | 0.0073 | 0.24 | 0.25 | 0.016 | 0.00010 | 111 |
| **Year 10** | **Jan** | 8.0 | 32 | 198 | 3.5 | 1.5 | 0.000020 | 0.0075 | 0.23 | 0.23 | 0.017 | 0.000090 | 101 |
| | **Feb** | 8.0 | 33 | 183 | 3.3 | 1.4 | 0.000020 | 0.0078 | 0.22 | 0.22 | 0.017 | 0.000090 | 92 |
| | **Mar** | 8.0 | 32 | 210 | 3.7 | 1.6 | 0.000020 | 0.0074 | 0.25 | 0.25 | 0.016 | 0.00010 | 108 |
| | **Apr** | 7.9 | 25 | 462 | 8.2 | 3.6 | 0.000050 | 0.0055 | 0.53 | 0.53 | 0.011 | 0.00021 | 258 |
| | **May** | 7.8 | 23 | 576 | 10 | 4.4 | 0.000070 | 0.0052 | 0.66 | 0.66 | 0.010 | 0.00026 | 326 |
| | **Jun** | 8.0 | 29 | 272 | 4.9 | 2.1 | 0.000030 | 0.0067 | 0.32 | 0.32 | 0.014 | 0.00013 | 145 |
| | **Jul** | 8.0 | 28 | 287 | 5.1 | 2.2 | 0.000030 | 0.0065 | 0.34 | 0.34 | 0.014 | 0.00014 | 154 |
| | **Aug** | 8.0 | 29 | 275 | 4.9 | 2.1 | 0.000030 | 0.0066 | 0.32 | 0.32 | 0.014 | 0.00013 | 147 |
| | **Sep** | 8.0 | 29 | 252 | 4.5 | 2.0 | 0.000030 | 0.0068 | 0.30 | 0.30 | 0.015 | 0.00012 | 133 |
| | **Oct** | 8.0 | 30 | 232 | 4.1 | 1.8 | 0.000030 | 0.0071 | 0.27 | 0.27 | 0.015 | 0.00011 | 121 |
| | **Nov** | 8.0 | 31 | 212 | 3.8 | 1.7 | 0.000030 | 0.0073 | 0.25 | 0.25 | 0.016 | 0.00010 | 109 |
| | **Dec** | 8.0 | 32 | 198 | 3.5 | 1.5 | 0.000020 | 0.0075 | 0.23 | 0.23 | 0.017 | 0.000090 | 101 |
| **PC** | **Jan** | 8.0 | 30 | 198 | 4.8 | 1.5 | 0.000050 | 0.0071 | 0.30 | 0.40 | 0.018 | 0.00016 | 116 |
| | **Feb** | 8.0 | 31 | 183 | 4.5 | 1.4 | 0.000050 | 0.0073 | 0.28 | 0.37 | 0.018 | 0.00015 | 106 |
| | **Mar** | 8.0 | 30 | 210 | 5.1 | 1.6 | 0.000060 | 0.0069 | 0.32 | 0.42 | 0.017 | 0.00017 | 124 |
| | **Apr** | 7.8 | 24 | 448 | 11 | 3.3 | 0.00012 | 0.0053 | 0.69 | 0.90 | 0.012 | 0.00036 | 286 |
| | **May** | 7.8 | 22 | 554 | 14 | 4.1 | 0.00015 | 0.0049 | 0.85 | 1.1 | 0.011 | 0.00044 | 359 |
| | **Jun** | 7.9 | 27 | 272 | 6.6 | 2.0 | 0.000070 | 0.0063 | 0.42 | 0.55 | 0.015 | 0.00022 | 166 |
| | **Jul** | 7.9 | 27 | 287 | 7.0 | 2.1 | 0.000080 | 0.0061 | 0.44 | 0.58 | 0.015 | 0.00023 | 176 |
| | **Aug** | 7.9 | 27 | 275 | 6.7 | 2.0 | 0.000070 | 0.0062 | 0.42 | 0.55 | 0.015 | 0.00022 | 168 |
| | **Sep** | 7.9 | 28 | 252 | 6.2 | 1.9 | 0.000070 | 0.0064 | 0.39 | 0.51 | 0.016 | 0.00020 | 152 |
| | **Oct** | 8.0 | 29 | 232 | 5.7 | 1.7 | 0.000060 | 0.0066 | 0.36 | 0.46 | 0.016 | 0.00019 | 139 |
| | **Nov** | 8.0 | 30 | 212 | 5.2 | 1.6 | 0.000060 | 0.0069 | 0.33 | 0.42 | 0.017 | 0.00017 | 125 |
| | **Dec** | 8.0 | 30 | 198 | 4.8 | 1.5 | 0.000050 | 0.0071 | 0.30 | 0.40 | 0.018 | 0.00016 | 116 |

*all concentrations in mg/L*

**Appendix A.2: Eagle Pup**

| | | pH | Cd | Co | Cr | Cu | Fe | Hg | K | Li | Mg | Mn | Mo | Na |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Year 1** | **Jan** | 8.1 | 0.000090 | 0.00093 | 0.00018 | 0.0097 | 0.0016 | 0.000010 | 5.3 | 0.014 | 10 | 0.022 | 0.10 | 45 |
| | **Feb** | 8.1 | 0.000090 | 0.00093 | 0.00018 | 0.0097 | 0.0016 | 0.000010 | 5.3 | 0.014 | 10 | 0.022 | 0.10 | 45 |
| | **Mar** | 8.1 | 0.000090 | 0.00093 | 0.00018 | 0.0097 | 0.0016 | 0.000010 | 5.3 | 0.014 | 10 | 0.022 | 0.10 | 45 |
| | **Apr** | 8.1 | 0.000090 | 0.00093 | 0.00018 | 0.0097 | 0.0016 | 0.000010 | 5.3 | 0.014 | 10 | 0.022 | 0.10 | 45 |
| | **May** | 8.1 | 0.000090 | 0.00093 | 0.00018 | 0.0097 | 0.0016 | 0.000010 | 5.3 | 0.014 | 10 | 0.022 | 0.10 | 45 |
| | **Jun** | 8.1 | 0.000090 | 0.00093 | 0.00018 | 0.0097 | 0.0016 | 0.000010 | 5.3 | 0.014 | 10 | 0.022 | 0.10 | 45 |
| | **Jul** | 8.1 | 0.000090 | 0.00093 | 0.00018 | 0.0097 | 0.0016 | 0.000010 | 5.6 | 0.014 | 10 | 0.022 | 0.10 | 45 |
| | **Aug** | 8.1 | 0.000090 | 0.00093 | 0.00018 | 0.0097 | 0.0016 | 0.000010 | 5.3 | 0.014 | 10 | 0.022 | 0.10 | 45 |
| | **Sep** | 8.1 | 0.000090 | 0.00093 | 0.00018 | 0.0097 | 0.0016 | 0.000010 | 5.3 | 0.014 | 10 | 0.022 | 0.10 | 45 |
| | **Oct** | 8.1 | 0.000090 | 0.00093 | 0.00018 | 0.0097 | 0.0016 | 0.000010 | 5.3 | 0.014 | 10 | 0.022 | 0.10 | 45 |
| | **Nov** | 8.1 | 0.000090 | 0.00093 | 0.00018 | 0.0097 | 0.0016 | 0.000010 | 5.3 | 0.014 | 10 | 0.022 | 0.10 | 45 |
| | **Dec** | 8.1 | 0.000090 | 0.00093 | 0.00018 | 0.0097 | 0.0016 | 0.000010 | 5.3 | 0.014 | 10 | 0.022 | 0.10 | 45 |
| **Year 2** | **Jan** | 8.1 | 0.00012 | 0.0015 | 0.00022 | 0.011 | 0.0017 | 0.000020 | 13 | 0.015 | 10 | 0.034 | 0.064 | 45 |
| | **Feb** | 8.1 | 0.00012 | 0.0015 | 0.00020 | 0.011 | 0.0017 | 0.000020 | 12 | 0.014 | 10 | 0.034 | 0.064 | 45 |
| | **Mar** | 8.1 | 0.00012 | 0.0015 | 0.00023 | 0.011 | 0.0017 | 0.000020 | 14 | 0.016 | 10 | 0.034 | 0.064 | 45 |
| | **Apr** | 8.1 | 0.00012 | 0.0015 | 0.00027 | 0.011 | 0.0017 | 0.000020 | 16 | 0.018 | 10 | 0.035 | 0.064 | 45 |
| | **May** | 8.1 | 0.00012 | 0.0015 | 0.00030 | 0.011 | 0.0017 | 0.000020 | 17 | 0.020 | 10 | 0.038 | 0.064 | 45 |
| | **Jun** | 8.1 | 0.00012 | 0.0015 | 0.00030 | 0.011 | 0.0017 | 0.000020 | 18 | 0.020 | 10 | 0.039 | 0.064 | 45 |
| | **Jul** | 8.1 | 0.00012 | 0.0015 | 0.00031 | 0.011 | 0.0017 | 0.000030 | 19 | 0.021 | 10 | 0.041 | 0.064 | 45 |
| | **Aug** | 8.1 | 0.00012 | 0.0015 | 0.00030 | 0.011 | 0.0017 | 0.000030 | 18 | 0.020 | 10 | 0.039 | 0.064 | 45 |
| | **Sep** | 8.1 | 0.00012 | 0.0015 | 0.00028 | 0.011 | 0.0017 | 0.000020 | 16 | 0.019 | 10 | 0.036 | 0.064 | 45 |
| | **Oct** | 8.1 | 0.00012 | 0.0015 | 0.00025 | 0.011 | 0.0017 | 0.000020 | 15 | 0.017 | 10 | 0.034 | 0.064 | 45 |
| | **Nov** | 8.1 | 0.00012 | 0.0015 | 0.00023 | 0.011 | 0.0017 | 0.000020 | 14 | 0.016 | 10 | 0.034 | 0.064 | 45 |
| | **Dec** | 8.1 | 0.00012 | 0.0015 | 0.00022 | 0.011 | 0.0017 | 0.000020 | 13 | 0.015 | 10 | 0.034 | 0.064 | 45 |
| **Year 3** | **Jan** | 8.0 | 0.00011 | 0.0015 | 0.0012 | 0.011 | 0.0020 | 0.000090 | 47 | 0.054 | 17 | 0.12 | 0.11 | 47 |
| | **Feb** | 8.0 | 0.00011 | 0.0015 | 0.0012 | 0.010 | 0.0020 | 0.000080 | 44 | 0.050 | 16 | 0.11 | 0.10 | 47 |
| | **Mar** | 8.0 | 0.00011 | 0.0015 | 0.0013 | 0.011 | 0.0021 | 0.000090 | 50 | 0.058 | 18 | 0.12 | 0.12 | 47 |
| | **Apr** | 7.9 | 0.00012 | 0.0015 | 0.0015 | 0.013 | 0.0022 | 0.00011 | 58 | 0.067 | 21 | 0.14 | 0.14 | 47 |
| | **May** | 7.9 | 0.00014 | 0.0015 | 0.0017 | 0.015 | 0.0022 | 0.00012 | 64 | 0.073 | 23 | 0.16 | 0.15 | 47 |
| | **Jun** | 7.9 | 0.00014 | 0.0015 | 0.0017 | 0.015 | 0.0023 | 0.00012 | 65 | 0.075 | 23 | 0.16 | 0.15 | 47 |
| | **Jul** | 7.9 | 0.00015 | 0.0015 | 0.0018 | 0.015 | 0.0023 | 0.00013 | 69 | 0.079 | 25 | 0.17 | 0.16 | 47 |
| | **Aug** | 7.9 | 0.00014 | 0.0015 | 0.0017 | 0.015 | 0.0023 | 0.00012 | 66 | 0.075 | 23 | 0.16 | 0.15 | 47 |
| | **Sep** | 7.9 | 0.00013 | 0.0015 | 0.0016 | 0.014 | 0.0022 | 0.00011 | 60 | 0.069 | 22 | 0.15 | 0.14 | 47 |
| | **Oct** | 7.9 | 0.00012 | 0.0015 | 0.0015 | 0.013 | 0.0021 | 0.00010 | 55 | 0.064 | 20 | 0.14 | 0.13 | 47 |
| | **Nov** | 8.0 | 0.00011 | 0.0015 | 0.0013 | 0.012 | 0.0021 | 0.000090 | 50 | 0.058 | 18 | 0.13 | 0.12 | 47 |
| | **Dec** | 8.0 | 0.00011 | 0.0015 | 0.0012 | 0.011 | 0.0020 | 0.000090 | 47 | 0.054 | 17 | 0.12 | 0.11 | 47 |
| **Year 4** | **Jan** | 8.1 | 0.000040 | 0.00036 | 0.00049 | 0.0046 | 0.0016 | 0.000040 | 22 | 0.025 | 7.7 | 0.053 | 0.053 | 7.8 |
| | **Feb** | 8.1 | 0.000040 | 0.00033 | 0.00045 | 0.0043 | 0.0016 | 0.000030 | 20 | 0.023 | 7.2 | 0.049 | 0.049 | 7.3 |
| | **Mar** | 8.1 | 0.000050 | 0.00038 | 0.00052 | 0.0049 | 0.0017 | 0.000040 | 23 | 0.027 | 8.2 | 0.056 | 0.056 | 8.3 |
| | **Apr** | 7.9 | 0.00011 | 0.00091 | 0.0013 | 0.012 | 0.0021 | 0.000090 | 53 | 0.061 | 19 | 0.13 | 0.13 | 20 |
| | **May** | 7.9 | 0.00014 | 0.0012 | 0.0017 | 0.015 | 0.0023 | 0.00012 | 67 | 0.077 | 24 | 0.16 | 0.16 | 25 |
| | **Jun** | 8.1 | 0.000060 | 0.00049 | 0.00067 | 0.0064 | 0.0018 | 0.000050 | 30 | 0.034 | 11 | 0.072 | 0.073 | 11 |
| | **Jul** | 8.0 | 0.000070 | 0.00052 | 0.00071 | 0.0067 | 0.0018 | 0.000050 | 32 | 0.036 | 11 | 0.076 | 0.077 | 11 |
| | **Aug** | 8.1 | 0.000060 | 0.00050 | 0.00068 | 0.0065 | 0.0018 | 0.000050 | 30 | 0.035 | 11 | 0.073 | 0.074 | 11 |
| | **Sep** | 8.1 | 0.000060 | 0.00046 | 0.00062 | 0.0059 | 0.0018 | 0.000050 | 28 | 0.032 | 9.8 | 0.067 | 0.068 | 10 |
| | **Oct** | 8.1 | 0.000050 | 0.00042 | 0.00057 | 0.0054 | 0.0017 | 0.000040 | 25 | 0.029 | 9.0 | 0.062 | 0.062 | 9.2 |
| | **Nov** | 8.1 | 0.000050 | 0.00038 | 0.00052 | 0.0050 | 0.0017 | 0.000040 | 23 | 0.027 | 8.3 | 0.056 | 0.057 | 8.4 |
| | **Dec** | 8.1 | 0.000040 | 0.00036 | 0.00049 | 0.0046 | 0.0016 | 0.000040 | 22 | 0.025 | 7.7 | 0.053 | 0.053 | 7.8 |

**Appendix A.2: Eagle Pup**

| | | pH | Cd | Co | Cr | Cu | Fe | Hg | K | Li | Mg | Mn | Mo | Na |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Year 5** | **Jan** | 7.9 | 0.00011 | 0.0011 | 0.0011 | 0.011 | 0.0022 | 0.000080 | 49 | 0.063 | 21 | 0.16 | 0.081 | 17 |
| | **Feb** | 7.9 | 0.00010 | 0.00099 | 0.0010 | 0.010 | 0.0021 | 0.000070 | 46 | 0.058 | 19 | 0.15 | 0.075 | 15 |
| | **Mar** | 7.9 | 0.00011 | 0.0011 | 0.0012 | 0.012 | 0.0022 | 0.000080 | 52 | 0.066 | 22 | 0.17 | 0.086 | 18 |
| | **Apr** | 7.9 | 0.00016 | 0.0015 | 0.0017 | 0.016 | 0.0024 | 0.00012 | 75 | 0.094 | 30 | 0.24 | 0.14 | 26 |
| | **May** | 7.8 | 0.00018 | 0.0017 | 0.0019 | 0.017 | 0.0025 | 0.00014 | 83 | 0.10 | 33 | 0.26 | 0.16 | 29 |
| | **Jun** | 7.9 | 0.00015 | 0.0015 | 0.0015 | 0.015 | 0.0024 | 0.00011 | 68 | 0.086 | 28 | 0.23 | 0.11 | 23 |
| | **Jul** | 7.9 | 0.00016 | 0.0016 | 0.0016 | 0.016 | 0.0024 | 0.00012 | 72 | 0.091 | 30 | 0.24 | 0.12 | 24 |
| | **Aug** | 7.9 | 0.00015 | 0.0015 | 0.0016 | 0.015 | 0.0024 | 0.00011 | 69 | 0.087 | 29 | 0.23 | 0.11 | 23 |
| | **Sep** | 7.9 | 0.00014 | 0.0014 | 0.0014 | 0.014 | 0.0023 | 0.00010 | 63 | 0.080 | 26 | 0.21 | 0.10 | 21 |
| | **Oct** | 7.9 | 0.00013 | 0.0013 | 0.0013 | 0.013 | 0.0023 | 0.000090 | 58 | 0.073 | 24 | 0.19 | 0.095 | 19 |
| | **Nov** | 7.9 | 0.00012 | 0.0012 | 0.0012 | 0.012 | 0.0022 | 0.000090 | 53 | 0.067 | 22 | 0.18 | 0.087 | 18 |
| | **Dec** | 7.9 | 0.00011 | 0.0011 | 0.0011 | 0.011 | 0.0022 | 0.000080 | 49 | 0.063 | 21 | 0.16 | 0.081 | 17 |
| **Year 6** | **Jan** | 7.9 | 0.00013 | 0.0013 | 0.0013 | 0.013 | 0.0023 | 0.000090 | 53 | 0.071 | 25 | 0.20 | 0.071 | 19 |
| | **Feb** | 7.9 | 0.00012 | 0.0012 | 0.0012 | 0.012 | 0.0022 | 0.000080 | 50 | 0.066 | 23 | 0.19 | 0.066 | 18 |
| | **Mar** | 7.9 | 0.00013 | 0.0014 | 0.0014 | 0.013 | 0.0023 | 0.000090 | 57 | 0.076 | 26 | 0.21 | 0.075 | 20 |
| | **Apr** | 7.8 | 0.00025 | 0.0025 | 0.0026 | 0.019 | 0.0028 | 0.00018 | 110 | 0.14 | 49 | 0.39 | 0.16 | 38 |
| | **May** | 7.8 | 0.00030 | 0.0030 | 0.0031 | 0.020 | 0.0030 | 0.00022 | 133 | 0.17 | 58 | 0.47 | 0.20 | 46 |
| | **Jun** | 7.8 | 0.00017 | 0.0018 | 0.0018 | 0.017 | 0.0025 | 0.00012 | 74 | 0.098 | 34 | 0.28 | 0.097 | 26 |
| | **Jul** | 7.8 | 0.00018 | 0.0019 | 0.0019 | 0.017 | 0.0026 | 0.00013 | 78 | 0.10 | 36 | 0.29 | 0.10 | 28 |
| | **Aug** | 7.8 | 0.00018 | 0.0018 | 0.0018 | 0.017 | 0.0025 | 0.00012 | 74 | 0.099 | 34 | 0.28 | 0.098 | 26 |
| | **Sep** | 7.9 | 0.00016 | 0.0017 | 0.0017 | 0.016 | 0.0025 | 0.00011 | 68 | 0.091 | 31 | 0.26 | 0.090 | 24 |
| | **Oct** | 7.9 | 0.00015 | 0.0015 | 0.0015 | 0.015 | 0.0024 | 0.00010 | 63 | 0.083 | 29 | 0.24 | 0.083 | 22 |
| | **Nov** | 7.9 | 0.00013 | 0.0014 | 0.0014 | 0.013 | 0.0023 | 0.00010 | 57 | 0.076 | 26 | 0.22 | 0.076 | 20 |
| | **Dec** | 7.9 | 0.00013 | 0.0013 | 0.0013 | 0.013 | 0.0023 | 0.000090 | 53 | 0.071 | 25 | 0.20 | 0.071 | 19 |
| **Year 7** | **Jan** | 8.0 | 0.00010 | 0.00093 | 0.00098 | 0.0093 | 0.0021 | 0.000070 | 39 | 0.052 | 18 | 0.15 | 0.052 | 15 |
| | **Feb** | 8.0 | 0.000090 | 0.00087 | 0.00091 | 0.0086 | 0.0020 | 0.000060 | 36 | 0.048 | 17 | 0.14 | 0.048 | 14 |
| | **Mar** | 7.9 | 0.00010 | 0.00099 | 0.0010 | 0.0099 | 0.0021 | 0.000070 | 41 | 0.055 | 19 | 0.16 | 0.055 | 16 |
| | **Apr** | 7.8 | 0.00023 | 0.0023 | 0.0024 | 0.018 | 0.0027 | 0.00016 | 97 | 0.13 | 45 | 0.37 | 0.13 | 36 |
| | **May** | 7.8 | 0.00029 | 0.0030 | 0.0030 | 0.020 | 0.0030 | 0.00021 | 122 | 0.16 | 57 | 0.46 | 0.16 | 45 |
| | **Jun** | 7.9 | 0.00013 | 0.0013 | 0.0014 | 0.013 | 0.0023 | 0.000090 | 53 | 0.072 | 25 | 0.20 | 0.072 | 21 |
| | **Jul** | 7.9 | 0.00014 | 0.0014 | 0.0014 | 0.014 | 0.0023 | 0.00010 | 56 | 0.076 | 27 | 0.21 | 0.076 | 22 |
| | **Aug** | 7.9 | 0.00013 | 0.0013 | 0.0014 | 0.013 | 0.0023 | 0.000090 | 54 | 0.072 | 26 | 0.21 | 0.073 | 21 |
| | **Sep** | 7.9 | 0.00012 | 0.0012 | 0.0013 | 0.012 | 0.0022 | 0.000080 | 49 | 0.066 | 23 | 0.19 | 0.067 | 19 |
| | **Oct** | 7.9 | 0.00011 | 0.0011 | 0.0012 | 0.011 | 0.0022 | 0.000080 | 45 | 0.061 | 21 | 0.17 | 0.061 | 17 |
| | **Nov** | 7.9 | 0.00010 | 0.0010 | 0.0011 | 0.0100 | 0.0021 | 0.000070 | 41 | 0.056 | 20 | 0.16 | 0.056 | 16 |
| | **Dec** | 8.0 | 0.00010 | 0.00093 | 0.00098 | 0.0093 | 0.0021 | 0.000070 | 39 | 0.052 | 18 | 0.15 | 0.052 | 15 |
| **Year 8** | **Jan** | 8.0 | 0.000080 | 0.00077 | 0.00084 | 0.0080 | 0.0020 | 0.000060 | 33 | 0.045 | 16 | 0.13 | 0.049 | 14 |
| | **Feb** | 8.0 | 0.000080 | 0.00072 | 0.00078 | 0.0074 | 0.0019 | 0.000050 | 31 | 0.042 | 15 | 0.12 | 0.045 | 13 |
| | **Mar** | 8.0 | 0.000090 | 0.00082 | 0.00089 | 0.0085 | 0.0020 | 0.000060 | 35 | 0.048 | 17 | 0.13 | 0.052 | 15 |
| | **Apr** | 7.8 | 0.00020 | 0.0019 | 0.0020 | 0.017 | 0.0026 | 0.00014 | 80 | 0.11 | 38 | 0.30 | 0.11 | 32 |
| | **May** | 7.8 | 0.00025 | 0.0024 | 0.0025 | 0.019 | 0.0028 | 0.00017 | 100 | 0.14 | 48 | 0.38 | 0.14 | 40 |
| | **Jun** | 7.9 | 0.00011 | 0.0011 | 0.0012 | 0.011 | 0.0022 | 0.000080 | 46 | 0.062 | 22 | 0.17 | 0.067 | 19 |
| | **Jul** | 7.9 | 0.00012 | 0.0011 | 0.0012 | 0.012 | 0.0022 | 0.000080 | 48 | 0.066 | 23 | 0.18 | 0.071 | 20 |
| | **Aug** | 7.9 | 0.00011 | 0.0011 | 0.0012 | 0.011 | 0.0022 | 0.000080 | 46 | 0.063 | 22 | 0.17 | 0.068 | 19 |
| | **Sep** | 7.9 | 0.00011 | 0.00099 | 0.0011 | 0.010 | 0.0021 | 0.000070 | 43 | 0.058 | 20 | 0.16 | 0.062 | 18 |
| | **Oct** | 8.0 | 0.00010 | 0.00090 | 0.00098 | 0.0093 | 0.0021 | 0.000070 | 39 | 0.053 | 19 | 0.15 | 0.057 | 16 |
| | **Nov** | 8.0 | 0.000090 | 0.00083 | 0.00090 | 0.0085 | 0.0020 | 0.000060 | 36 | 0.048 | 17 | 0.13 | 0.052 | 15 |
| | **Dec** | 8.0 | 0.000080 | 0.00077 | 0.00084 | 0.0080 | 0.0020 | 0.000060 | 33 | 0.045 | 16 | 0.13 | 0.049 | 14 |

**Appendix A.2: Eagle Pup**

| | | pH | Cd | Co | Cr | Cu | Fe | Hg | K | Li | Mg | Mn | Mo | Na |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Year 9** | **Jan** | 8.0 | 0.000070 | 0.00067 | 0.00075 | 0.0070 | 0.0019 | 0.000050 | 29 | 0.040 | 14 | 0.11 | 0.043 | 13 |
| | **Feb** | 8.0 | 0.000070 | 0.00062 | 0.00070 | 0.0065 | 0.0019 | 0.000050 | 27 | 0.037 | 13 | 0.10 | 0.039 | 12 |
| | **Mar** | 8.0 | 0.000080 | 0.00071 | 0.00080 | 0.0075 | 0.0020 | 0.000050 | 31 | 0.042 | 15 | 0.12 | 0.045 | 14 |
| | **Apr** | 7.8 | 0.00017 | 0.0016 | 0.0018 | 0.016 | 0.0025 | 0.00012 | 69 | 0.094 | 33 | 0.26 | 0.10 | 29 |
| | **May** | 7.8 | 0.00022 | 0.0020 | 0.0022 | 0.018 | 0.0027 | 0.00015 | 86 | 0.12 | 41 | 0.33 | 0.13 | 37 |
| | **Jun** | 7.9 | 0.00010 | 0.00092 | 0.0010 | 0.0097 | 0.0021 | 0.000070 | 40 | 0.055 | 19 | 0.15 | 0.059 | 18 |
| | **Jul** | 7.9 | 0.00011 | 0.00097 | 0.0011 | 0.010 | 0.0021 | 0.000070 | 42 | 0.058 | 21 | 0.16 | 0.062 | 19 |
| | **Aug** | 7.9 | 0.00010 | 0.00093 | 0.0011 | 0.0098 | 0.0021 | 0.000070 | 40 | 0.055 | 20 | 0.15 | 0.059 | 18 |
| | **Sep** | 8.0 | 0.000090 | 0.00085 | 0.00096 | 0.0090 | 0.0021 | 0.000060 | 37 | 0.051 | 18 | 0.14 | 0.054 | 16 |
| | **Oct** | 8.0 | 0.000090 | 0.00078 | 0.00088 | 0.0083 | 0.0020 | 0.000060 | 34 | 0.047 | 17 | 0.13 | 0.050 | 15 |
| | **Nov** | 8.0 | 0.000080 | 0.00072 | 0.00081 | 0.0075 | 0.0020 | 0.000050 | 31 | 0.043 | 15 | 0.12 | 0.046 | 14 |
| | **Dec** | 8.0 | 0.000070 | 0.00067 | 0.00075 | 0.0070 | 0.0019 | 0.000050 | 29 | 0.040 | 14 | 0.11 | 0.043 | 13 |
| **Year 10** | **Jan** | 8.0 | 0.000070 | 0.00061 | 0.00072 | 0.0066 | 0.0019 | 0.000050 | 27 | 0.036 | 13 | 0.10 | 0.041 | 12 |
| | **Feb** | 8.0 | 0.000060 | 0.00057 | 0.00067 | 0.0061 | 0.0018 | 0.000040 | 25 | 0.034 | 12 | 0.094 | 0.038 | 11 |
| | **Mar** | 8.0 | 0.000070 | 0.00065 | 0.00076 | 0.0070 | 0.0019 | 0.000050 | 28 | 0.039 | 14 | 0.11 | 0.043 | 13 |
| | **Apr** | 7.9 | 0.00016 | 0.0014 | 0.0016 | 0.015 | 0.0024 | 0.00011 | 62 | 0.085 | 30 | 0.24 | 0.093 | 28 |
| | **May** | 7.8 | 0.00020 | 0.0018 | 0.0020 | 0.017 | 0.0026 | 0.00013 | 77 | 0.11 | 38 | 0.29 | 0.11 | 34 |
| | **Jun** | 8.0 | 0.000090 | 0.00084 | 0.00099 | 0.0091 | 0.0021 | 0.000060 | 37 | 0.050 | 18 | 0.14 | 0.056 | 17 |
| | **Jul** | 8.0 | 0.00010 | 0.00089 | 0.0010 | 0.0096 | 0.0021 | 0.000070 | 39 | 0.053 | 19 | 0.15 | 0.059 | 18 |
| | **Aug** | 8.0 | 0.000090 | 0.00085 | 0.0010 | 0.0091 | 0.0021 | 0.000060 | 37 | 0.051 | 18 | 0.14 | 0.057 | 17 |
| | **Sep** | 8.0 | 0.000090 | 0.00078 | 0.00092 | 0.0084 | 0.0020 | 0.000060 | 34 | 0.047 | 17 | 0.13 | 0.052 | 15 |
| | **Oct** | 8.0 | 0.000080 | 0.00071 | 0.00084 | 0.0077 | 0.0020 | 0.000050 | 31 | 0.043 | 15 | 0.12 | 0.048 | 14 |
| | **Nov** | 8.0 | 0.000070 | 0.00065 | 0.00077 | 0.0070 | 0.0019 | 0.000050 | 29 | 0.039 | 14 | 0.11 | 0.044 | 13 |
| | **Dec** | 8.0 | 0.000070 | 0.00061 | 0.00072 | 0.0066 | 0.0019 | 0.000050 | 27 | 0.036 | 13 | 0.10 | 0.041 | 12 |
| **PC** | **Jan** | 8.0 | 0.000070 | 0.00064 | 0.0020 | 0.0087 | 0.0019 | 0.000080 | 27 | 0.036 | 15 | 0.095 | 0.029 | 3.8 |
| | **Feb** | 8.0 | 0.000070 | 0.00059 | 0.0018 | 0.0080 | 0.0019 | 0.000070 | 25 | 0.034 | 14 | 0.088 | 0.027 | 3.5 |
| | **Mar** | 8.0 | 0.000080 | 0.00068 | 0.0021 | 0.0092 | 0.0020 | 0.000080 | 29 | 0.039 | 16 | 0.10 | 0.030 | 4.0 |
| | **Apr** | 7.8 | 0.00017 | 0.0015 | 0.0044 | 0.016 | 0.0025 | 0.00018 | 61 | 0.083 | 33 | 0.22 | 0.065 | 8.6 |
| | **May** | 7.8 | 0.00021 | 0.0018 | 0.0055 | 0.017 | 0.0027 | 0.00022 | 76 | 0.10 | 41 | 0.27 | 0.080 | 11 |
| | **Jun** | 7.9 | 0.00010 | 0.00088 | 0.0027 | 0.012 | 0.0021 | 0.00011 | 37 | 0.050 | 20 | 0.13 | 0.039 | 5.2 |
| | **Jul** | 7.9 | 0.00011 | 0.00093 | 0.0028 | 0.013 | 0.0022 | 0.00012 | 39 | 0.053 | 21 | 0.14 | 0.042 | 5.5 |
| | **Aug** | 7.9 | 0.00010 | 0.00089 | 0.0027 | 0.012 | 0.0021 | 0.00011 | 38 | 0.051 | 20 | 0.13 | 0.040 | 5.3 |
| | **Sep** | 7.9 | 0.000090 | 0.00082 | 0.0025 | 0.011 | 0.0021 | 0.00010 | 34 | 0.047 | 19 | 0.12 | 0.037 | 4.9 |
| | **Oct** | 8.0 | 0.000090 | 0.00075 | 0.0023 | 0.010 | 0.0020 | 0.000090 | 32 | 0.043 | 17 | 0.11 | 0.034 | 4.5 |
| | **Nov** | 8.0 | 0.000080 | 0.00069 | 0.0021 | 0.0093 | 0.0020 | 0.000080 | 29 | 0.039 | 16 | 0.10 | 0.031 | 4.1 |
| | **Dec** | 8.0 | 0.000070 | 0.00064 | 0.0020 | 0.0087 | 0.0019 | 0.000080 | 27 | 0.036 | 15 | 0.095 | 0.029 | 3.8 |

*all concentrations in mg/L*

**Appendix A.2: Eagle Pup**

| | | pH | Ni | P | Pb | Sb | Se | Si | Sn | Sr | Tl | U | V | Zn |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Year 1** | **Jan** | 8.1 | 0.0044 | 0.30 | 0.000080 | 0.042 | 0.021 | 5.1 | 0.00010 | 0.83 | 0.000010 | 0.086 | 0.0010 | 0.0040 |
| | **Feb** | 8.1 | 0.0044 | 0.30 | 0.000070 | 0.042 | 0.021 | 5.1 | 0.00010 | 0.83 | 0.000010 | 0.086 | 0.0010 | 0.0040 |
| | **Mar** | 8.1 | 0.0044 | 0.30 | 0.000080 | 0.042 | 0.021 | 5.1 | 0.00010 | 0.83 | 0.000020 | 0.086 | 0.0010 | 0.0040 |
| | **Apr** | 8.1 | 0.0044 | 0.30 | 0.000090 | 0.042 | 0.021 | 5.1 | 0.00010 | 0.83 | 0.000020 | 0.086 | 0.0010 | 0.0040 |
| | **May** | 8.1 | 0.0044 | 0.30 | 0.00010 | 0.042 | 0.021 | 5.1 | 0.00010 | 0.83 | 0.000020 | 0.086 | 0.0010 | 0.0040 |
| | **Jun** | 8.1 | 0.0044 | 0.30 | 0.00011 | 0.042 | 0.021 | 5.1 | 0.00010 | 0.83 | 0.000020 | 0.086 | 0.0010 | 0.0040 |
| | **Jul** | 8.1 | 0.0044 | 0.30 | 0.00011 | 0.042 | 0.021 | 5.1 | 0.00010 | 0.83 | 0.000020 | 0.086 | 0.0010 | 0.0040 |
| | **Aug** | 8.1 | 0.0044 | 0.30 | 0.00011 | 0.042 | 0.021 | 5.1 | 0.00010 | 0.83 | 0.000020 | 0.086 | 0.0010 | 0.0040 |
| | **Sep** | 8.1 | 0.0044 | 0.30 | 0.00010 | 0.042 | 0.021 | 5.1 | 0.00010 | 0.83 | 0.000020 | 0.086 | 0.0010 | 0.0040 |
| | **Oct** | 8.1 | 0.0044 | 0.30 | 0.000090 | 0.042 | 0.021 | 5.1 | 0.00010 | 0.83 | 0.000020 | 0.086 | 0.0010 | 0.0040 |
| | **Nov** | 8.1 | 0.0044 | 0.30 | 0.000080 | 0.042 | 0.021 | 5.1 | 0.00010 | 0.83 | 0.000020 | 0.086 | 0.0010 | 0.0040 |
| | **Dec** | 8.1 | 0.0044 | 0.30 | 0.000080 | 0.042 | 0.021 | 5.1 | 0.00010 | 0.83 | 0.000010 | 0.086 | 0.0010 | 0.0040 |
| **Year 2** | **Jan** | 8.1 | 0.0047 | 0.30 | 0.00019 | 0.075 | 0.028 | 4.7 | 0.00010 | 1.1 | 0.000050 | 0.14 | 0.0010 | 0.0044 |
| | **Feb** | 8.1 | 0.0047 | 0.30 | 0.00018 | 0.075 | 0.028 | 4.4 | 0.00010 | 1.1 | 0.000040 | 0.14 | 0.0010 | 0.0044 |
| | **Mar** | 8.1 | 0.0047 | 0.30 | 0.00020 | 0.075 | 0.028 | 4.9 | 0.00010 | 1.1 | 0.000050 | 0.14 | 0.0010 | 0.0044 |
| | **Apr** | 8.1 | 0.0047 | 0.30 | 0.00024 | 0.075 | 0.028 | 5.2 | 0.00012 | 1.1 | 0.000060 | 0.14 | 0.0010 | 0.0044 |
| | **May** | 8.1 | 0.0047 | 0.30 | 0.00026 | 0.075 | 0.028 | 5.2 | 0.00013 | 1.1 | 0.000060 | 0.14 | 0.0010 | 0.0044 |
| | **Jun** | 8.1 | 0.0047 | 0.30 | 0.00026 | 0.075 | 0.028 | 5.2 | 0.00013 | 1.1 | 0.000060 | 0.14 | 0.0010 | 0.0044 |
| | **Jul** | 8.1 | 0.0047 | 0.30 | 0.00028 | 0.075 | 0.028 | 5.2 | 0.00014 | 1.1 | 0.000070 | 0.14 | 0.0011 | 0.0044 |
| | **Aug** | 8.1 | 0.0047 | 0.30 | 0.00026 | 0.075 | 0.028 | 5.2 | 0.00013 | 1.1 | 0.000060 | 0.14 | 0.0010 | 0.0044 |
| | **Sep** | 8.1 | 0.0047 | 0.30 | 0.00024 | 0.075 | 0.028 | 5.2 | 0.00012 | 1.1 | 0.000060 | 0.14 | 0.0010 | 0.0044 |
| | **Oct** | 8.1 | 0.0047 | 0.30 | 0.00022 | 0.075 | 0.028 | 5.2 | 0.00011 | 1.1 | 0.000050 | 0.14 | 0.0010 | 0.0044 |
| | **Nov** | 8.1 | 0.0047 | 0.30 | 0.00020 | 0.075 | 0.028 | 5.0 | 0.00010 | 1.1 | 0.000050 | 0.14 | 0.0010 | 0.0044 |
| | **Dec** | 8.1 | 0.0047 | 0.30 | 0.00019 | 0.075 | 0.028 | 4.6 | 0.00010 | 1.1 | 0.000050 | 0.14 | 0.0010 | 0.0044 |
| **Year 3** | **Jan** | 8.0 | 0.0050 | 0.30 | 0.00086 | 0.079 | 0.030 | 5.2 | 0.00057 | 1.8 | 0.00017 | 0.11 | 0.0031 | 0.0087 |
| | **Feb** | 8.0 | 0.0050 | 0.30 | 0.00079 | 0.073 | 0.030 | 5.2 | 0.00053 | 1.7 | 0.00016 | 0.11 | 0.0029 | 0.0081 |
| | **Mar** | 8.0 | 0.0051 | 0.30 | 0.00091 | 0.084 | 0.030 | 5.2 | 0.00061 | 1.9 | 0.00018 | 0.11 | 0.0033 | 0.0092 |
| | **Apr** | 7.9 | 0.0059 | 0.30 | 0.0011 | 0.095 | 0.030 | 5.2 | 0.00070 | 2.2 | 0.00021 | 0.11 | 0.0038 | 0.011 |
| | **May** | 7.9 | 0.0064 | 0.30 | 0.0012 | 0.11 | 0.030 | 5.2 | 0.00077 | 2.4 | 0.00023 | 0.11 | 0.0042 | 0.012 |
| | **Jun** | 7.9 | 0.0066 | 0.30 | 0.0012 | 0.11 | 0.031 | 5.2 | 0.00079 | 2.5 | 0.00024 | 0.11 | 0.0043 | 0.012 |
| | **Jul** | 7.9 | 0.0069 | 0.30 | 0.0013 | 0.11 | 0.033 | 5.2 | 0.00083 | 2.6 | 0.00025 | 0.12 | 0.0045 | 0.013 |
| | **Aug** | 7.9 | 0.0066 | 0.30 | 0.0012 | 0.11 | 0.031 | 5.2 | 0.00079 | 2.5 | 0.00024 | 0.11 | 0.0043 | 0.012 |
| | **Sep** | 7.9 | 0.0061 | 0.30 | 0.0011 | 0.10 | 0.030 | 5.2 | 0.00073 | 2.3 | 0.00022 | 0.11 | 0.0040 | 0.011 |
| | **Oct** | 7.9 | 0.0056 | 0.30 | 0.0010 | 0.093 | 0.030 | 5.2 | 0.00067 | 2.1 | 0.00020 | 0.11 | 0.0036 | 0.010 |
| | **Nov** | 8.0 | 0.0051 | 0.30 | 0.00092 | 0.085 | 0.030 | 5.2 | 0.00061 | 1.9 | 0.00019 | 0.11 | 0.0033 | 0.0093 |
| | **Dec** | 8.0 | 0.0050 | 0.30 | 0.00086 | 0.079 | 0.030 | 5.2 | 0.00057 | 1.8 | 0.00017 | 0.11 | 0.0031 | 0.0087 |
| **Year 4** | **Jan** | 8.1 | 0.0020 | 0.0087 | 0.00037 | 0.029 | 0.010 | 5.2 | 0.00023 | 0.76 | 0.000080 | 0.030 | 0.0014 | 0.0037 |
| | **Feb** | 8.1 | 0.0018 | 0.0081 | 0.00034 | 0.027 | 0.0094 | 5.2 | 0.00022 | 0.71 | 0.000070 | 0.028 | 0.0013 | 0.0034 |
| | **Mar** | 8.1 | 0.0021 | 0.0092 | 0.00039 | 0.030 | 0.011 | 5.2 | 0.00025 | 0.81 | 0.000080 | 0.032 | 0.0014 | 0.0039 |
| | **Apr** | 7.9 | 0.0051 | 0.022 | 0.00093 | 0.080 | 0.025 | 5.2 | 0.00061 | 1.9 | 0.00019 | 0.082 | 0.0034 | 0.0095 |
| | **May** | 7.9 | 0.0065 | 0.028 | 0.0012 | 0.10 | 0.031 | 5.2 | 0.00078 | 2.5 | 0.00024 | 0.11 | 0.0043 | 0.012 |
| | **Jun** | 8.1 | 0.0027 | 0.012 | 0.00050 | 0.039 | 0.014 | 5.2 | 0.00032 | 1.0 | 0.00011 | 0.042 | 0.0019 | 0.0051 |
| | **Jul** | 8.0 | 0.0029 | 0.013 | 0.00053 | 0.042 | 0.015 | 5.2 | 0.00034 | 1.1 | 0.00011 | 0.044 | 0.0020 | 0.0054 |
| | **Aug** | 8.1 | 0.0028 | 0.012 | 0.00051 | 0.040 | 0.014 | 5.2 | 0.00033 | 1.1 | 0.00011 | 0.042 | 0.0019 | 0.0051 |
| | **Sep** | 8.1 | 0.0025 | 0.011 | 0.00047 | 0.037 | 0.013 | 5.2 | 0.00030 | 0.97 | 0.00010 | 0.039 | 0.0017 | 0.0047 |
| | **Oct** | 8.1 | 0.0023 | 0.010 | 0.00043 | 0.034 | 0.012 | 5.2 | 0.00027 | 0.89 | 0.000090 | 0.036 | 0.0016 | 0.0043 |
| | **Nov** | 8.1 | 0.0021 | 0.0093 | 0.00039 | 0.031 | 0.011 | 5.2 | 0.00025 | 0.81 | 0.000080 | 0.033 | 0.0015 | 0.0040 |
| | **Dec** | 8.1 | 0.0020 | 0.0087 | 0.00037 | 0.029 | 0.010 | 5.2 | 0.00023 | 0.76 | 0.000080 | 0.030 | 0.0014 | 0.0037 |

**Appendix A.2: Eagle Pup**

| | | pH | Ni | P | Pb | Sb | Se | Si | Sn | Sr | Tl | U | V | Zn |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Year 5** | **Jan** | 7.9 | 0.0056 | 0.019 | 0.00088 | 0.11 | 0.034 | 5.2 | 0.0012 | 2.2 | 0.00015 | 0.084 | 0.0032 | 0.0096 |
| | **Feb** | 7.9 | 0.0052 | 0.018 | 0.00081 | 0.10 | 0.032 | 5.2 | 0.0011 | 2.0 | 0.00014 | 0.078 | 0.0030 | 0.0089 |
| | **Mar** | 7.9 | 0.0059 | 0.020 | 0.00093 | 0.12 | 0.036 | 5.2 | 0.0012 | 2.3 | 0.00016 | 0.089 | 0.0034 | 0.010 |
| | **Apr** | 7.9 | 0.0081 | 0.029 | 0.0013 | 0.16 | 0.049 | 5.2 | 0.0016 | 3.1 | 0.00024 | 0.12 | 0.0049 | 0.014 |
| | **May** | 7.8 | 0.0089 | 0.033 | 0.0015 | 0.17 | 0.053 | 5.2 | 0.0017 | 3.4 | 0.00027 | 0.13 | 0.0054 | 0.016 |
| | **Jun** | 7.9 | 0.0077 | 0.026 | 0.0012 | 0.16 | 0.047 | 5.2 | 0.0016 | 3.0 | 0.00021 | 0.12 | 0.0044 | 0.013 |
| | **Jul** | 7.9 | 0.0081 | 0.028 | 0.0013 | 0.16 | 0.049 | 5.2 | 0.0017 | 3.1 | 0.00022 | 0.12 | 0.0047 | 0.014 |
| | **Aug** | 7.9 | 0.0077 | 0.026 | 0.0012 | 0.16 | 0.047 | 5.2 | 0.0016 | 3.0 | 0.00021 | 0.12 | 0.0045 | 0.013 |
| | **Sep** | 7.9 | 0.0071 | 0.024 | 0.0011 | 0.14 | 0.043 | 5.2 | 0.0015 | 2.7 | 0.00019 | 0.11 | 0.0041 | 0.012 |
| | **Oct** | 7.9 | 0.0065 | 0.022 | 0.0010 | 0.13 | 0.040 | 5.2 | 0.0014 | 2.5 | 0.00018 | 0.099 | 0.0038 | 0.011 |
| | **Nov** | 7.9 | 0.0060 | 0.020 | 0.00094 | 0.12 | 0.036 | 5.2 | 0.0012 | 2.3 | 0.00016 | 0.090 | 0.0034 | 0.010 |
| | **Dec** | 7.9 | 0.0056 | 0.019 | 0.00088 | 0.11 | 0.034 | 5.2 | 0.0012 | 2.1 | 0.00015 | 0.084 | 0.0032 | 0.0096 |
| **Year 6** | **Jan** | 7.9 | 0.0066 | 0.023 | 0.0010 | 0.19 | 0.044 | 5.2 | 0.0015 | 2.9 | 0.00017 | 0.13 | 0.0037 | 0.011 |
| | **Feb** | 7.9 | 0.0062 | 0.021 | 0.00095 | 0.18 | 0.041 | 5.2 | 0.0014 | 2.7 | 0.00016 | 0.12 | 0.0034 | 0.010 |
| | **Mar** | 7.9 | 0.0070 | 0.024 | 0.0011 | 0.20 | 0.047 | 5.2 | 0.0016 | 3.0 | 0.00018 | 0.13 | 0.0039 | 0.012 |
| | **Apr** | 7.8 | 0.013 | 0.045 | 0.0020 | 0.33 | 0.087 | 5.1 | 0.0029 | 5.4 | 0.00035 | 0.23 | 0.0074 | 0.022 |
| | **May** | 7.8 | 0.016 | 0.054 | 0.0025 | 0.38 | 0.10 | 5.1 | 0.0034 | 6.4 | 0.00042 | 0.27 | 0.0089 | 0.027 |
| | **Jun** | 7.8 | 0.0091 | 0.031 | 0.0014 | 0.26 | 0.061 | 5.2 | 0.0021 | 4.0 | 0.00024 | 0.17 | 0.0050 | 0.016 |
| | **Jul** | 7.8 | 0.0097 | 0.033 | 0.0015 | 0.28 | 0.064 | 5.2 | 0.0022 | 4.2 | 0.00025 | 0.18 | 0.0053 | 0.016 |
| | **Aug** | 7.8 | 0.0092 | 0.032 | 0.0014 | 0.26 | 0.062 | 5.2 | 0.0021 | 4.0 | 0.00024 | 0.18 | 0.0051 | 0.016 |
| | **Sep** | 7.9 | 0.0085 | 0.029 | 0.0013 | 0.24 | 0.057 | 5.2 | 0.0019 | 3.7 | 0.00022 | 0.16 | 0.0047 | 0.014 |
| | **Oct** | 7.9 | 0.0078 | 0.027 | 0.0012 | 0.22 | 0.052 | 5.2 | 0.0018 | 3.4 | 0.00020 | 0.15 | 0.0043 | 0.013 |
| | **Nov** | 7.9 | 0.0071 | 0.024 | 0.0011 | 0.20 | 0.047 | 5.2 | 0.0016 | 3.1 | 0.00019 | 0.14 | 0.0039 | 0.012 |
| | **Dec** | 7.9 | 0.0066 | 0.023 | 0.0010 | 0.19 | 0.044 | 5.2 | 0.0015 | 2.9 | 0.00017 | 0.13 | 0.0037 | 0.011 |
| **Year 7** | **Jan** | 8.0 | 0.0048 | 0.018 | 0.00077 | 0.17 | 0.034 | 5.2 | 0.0011 | 2.4 | 0.00014 | 0.11 | 0.0027 | 0.0084 |
| | **Feb** | 8.0 | 0.0044 | 0.017 | 0.00071 | 0.16 | 0.032 | 5.2 | 0.00098 | 2.2 | 0.00013 | 0.11 | 0.0025 | 0.0078 |
| | **Mar** | 7.9 | 0.0051 | 0.019 | 0.00081 | 0.18 | 0.036 | 5.2 | 0.0011 | 2.5 | 0.00015 | 0.12 | 0.0029 | 0.0089 |
| | **Apr** | 7.8 | 0.012 | 0.043 | 0.0019 | 0.39 | 0.085 | 5.2 | 0.0027 | 5.5 | 0.00033 | 0.26 | 0.0067 | 0.021 |
| | **May** | 7.8 | 0.015 | 0.054 | 0.0024 | 0.48 | 0.11 | 5.1 | 0.0034 | 6.9 | 0.00041 | 0.32 | 0.0085 | 0.026 |
| | **Jun** | 7.9 | 0.0066 | 0.025 | 0.0011 | 0.24 | 0.047 | 5.2 | 0.0015 | 3.3 | 0.00019 | 0.16 | 0.0037 | 0.012 |
| | **Jul** | 7.9 | 0.0070 | 0.026 | 0.0011 | 0.25 | 0.049 | 5.2 | 0.0015 | 3.4 | 0.00020 | 0.17 | 0.0039 | 0.012 |
| | **Aug** | 7.9 | 0.0067 | 0.025 | 0.0011 | 0.24 | 0.047 | 5.2 | 0.0015 | 3.3 | 0.00019 | 0.16 | 0.0038 | 0.012 |
| | **Sep** | 7.9 | 0.0061 | 0.023 | 0.00098 | 0.22 | 0.043 | 5.2 | 0.0014 | 3.0 | 0.00018 | 0.15 | 0.0035 | 0.011 |
| | **Oct** | 7.9 | 0.0056 | 0.021 | 0.00090 | 0.20 | 0.040 | 5.2 | 0.0012 | 2.8 | 0.00016 | 0.13 | 0.0032 | 0.0098 |
| | **Nov** | 7.9 | 0.0051 | 0.019 | 0.00082 | 0.19 | 0.036 | 5.2 | 0.0011 | 2.5 | 0.00015 | 0.12 | 0.0029 | 0.0090 |
| | **Dec** | 8.0 | 0.0048 | 0.018 | 0.00076 | 0.17 | 0.034 | 5.2 | 0.0011 | 2.4 | 0.00014 | 0.11 | 0.0027 | 0.0084 |
| **Year 8** | **Jan** | 8.0 | 0.0040 | 0.016 | 0.00065 | 0.16 | 0.030 | 5.2 | 0.00084 | 2.1 | 0.00012 | 0.11 | 0.0024 | 0.0071 |
| | **Feb** | 8.0 | 0.0037 | 0.014 | 0.00060 | 0.15 | 0.028 | 5.2 | 0.00078 | 2.0 | 0.00011 | 0.10 | 0.0022 | 0.0066 |
| | **Mar** | 8.0 | 0.0042 | 0.017 | 0.00069 | 0.17 | 0.032 | 5.2 | 0.00089 | 2.3 | 0.00013 | 0.12 | 0.0025 | 0.0075 |
| | **Apr** | 7.8 | 0.0098 | 0.038 | 0.0016 | 0.38 | 0.073 | 5.2 | 0.0021 | 5.0 | 0.00029 | 0.25 | 0.0057 | 0.017 |
| | **May** | 7.8 | 0.012 | 0.047 | 0.0020 | 0.47 | 0.092 | 5.1 | 0.0027 | 6.3 | 0.00036 | 0.31 | 0.0071 | 0.022 |
| | **Jun** | 7.9 | 0.0055 | 0.022 | 0.00089 | 0.22 | 0.042 | 5.2 | 0.0012 | 3.0 | 0.00017 | 0.15 | 0.0033 | 0.0098 |
| | **Jul** | 7.9 | 0.0058 | 0.023 | 0.00094 | 0.24 | 0.044 | 5.2 | 0.0012 | 3.1 | 0.00018 | 0.16 | 0.0034 | 0.010 |
| | **Aug** | 7.9 | 0.0055 | 0.022 | 0.00090 | 0.23 | 0.042 | 5.2 | 0.0012 | 3.0 | 0.00017 | 0.15 | 0.0033 | 0.0099 |
| | **Sep** | 7.9 | 0.0051 | 0.020 | 0.00083 | 0.21 | 0.039 | 5.2 | 0.0011 | 2.7 | 0.00015 | 0.14 | 0.0030 | 0.0091 |
| | **Oct** | 8.0 | 0.0047 | 0.018 | 0.00076 | 0.19 | 0.035 | 5.2 | 0.00099 | 2.5 | 0.00014 | 0.13 | 0.0028 | 0.0083 |
| | **Nov** | 8.0 | 0.0043 | 0.017 | 0.00069 | 0.17 | 0.032 | 5.2 | 0.00090 | 2.3 | 0.00013 | 0.12 | 0.0025 | 0.0076 |
| | **Dec** | 8.0 | 0.0040 | 0.016 | 0.00065 | 0.16 | 0.030 | 5.2 | 0.00084 | 2.1 | 0.00012 | 0.11 | 0.0024 | 0.0071 |

**Appendix A.2: Eagle Pup**

| | | pH | Ni | P | Pb | Sb | Se | Si | Sn | Sr | Tl | U | V | Zn |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Year 9** | **Jan** | 8.0 | 0.0035 | 0.014 | 0.00057 | 0.16 | 0.028 | 5.2 | 0.00072 | 2.0 | 0.00011 | 0.11 | 0.0021 | 0.0063 |
| | **Feb** | 8.0 | 0.0032 | 0.013 | 0.00053 | 0.15 | 0.026 | 5.2 | 0.00067 | 1.9 | 0.00010 | 0.10 | 0.0020 | 0.0058 |
| | **Mar** | 8.0 | 0.0037 | 0.015 | 0.00061 | 0.17 | 0.029 | 5.2 | 0.00076 | 2.1 | 0.00011 | 0.11 | 0.0022 | 0.0066 |
| | **Apr** | 7.8 | 0.0082 | 0.033 | 0.0014 | 0.36 | 0.066 | 5.2 | 0.0017 | 4.6 | 0.00025 | 0.24 | 0.0049 | 0.015 |
| | **May** | 7.8 | 0.010 | 0.041 | 0.0017 | 0.44 | 0.082 | 5.2 | 0.0022 | 5.7 | 0.00032 | 0.30 | 0.0062 | 0.018 |
| | **Jun** | 7.9 | 0.0048 | 0.019 | 0.00078 | 0.22 | 0.038 | 5.2 | 0.00099 | 2.8 | 0.00015 | 0.15 | 0.0029 | 0.0086 |
| | **Jul** | 7.9 | 0.0050 | 0.021 | 0.00083 | 0.23 | 0.040 | 5.2 | 0.0010 | 2.9 | 0.00016 | 0.16 | 0.0031 | 0.0091 |
| | **Aug** | 7.9 | 0.0048 | 0.020 | 0.00079 | 0.22 | 0.039 | 5.2 | 0.0010 | 2.8 | 0.00015 | 0.15 | 0.0029 | 0.0087 |
| | **Sep** | 8.0 | 0.0044 | 0.018 | 0.00073 | 0.20 | 0.035 | 5.2 | 0.00092 | 2.6 | 0.00014 | 0.14 | 0.0027 | 0.0080 |
| | **Oct** | 8.0 | 0.0040 | 0.017 | 0.00067 | 0.19 | 0.033 | 5.2 | 0.00084 | 2.4 | 0.00013 | 0.13 | 0.0025 | 0.0073 |
| | **Nov** | 8.0 | 0.0037 | 0.015 | 0.00061 | 0.17 | 0.030 | 5.2 | 0.00077 | 2.2 | 0.00012 | 0.12 | 0.0023 | 0.0067 |
| | **Dec** | 8.0 | 0.0035 | 0.014 | 0.00057 | 0.16 | 0.028 | 5.2 | 0.00072 | 2.0 | 0.00011 | 0.11 | 0.0021 | 0.0063 |
| **Year 10** | **Jan** | 8.0 | 0.0032 | 0.013 | 0.00053 | 0.15 | 0.025 | 5.2 | 0.00063 | 1.9 | 0.00010 | 0.10 | 0.0020 | 0.0058 |
| | **Feb** | 8.0 | 0.0029 | 0.012 | 0.00049 | 0.14 | 0.023 | 5.2 | 0.00059 | 1.8 | 0.000090 | 0.097 | 0.0018 | 0.0054 |
| | **Mar** | 8.0 | 0.0034 | 0.014 | 0.00056 | 0.16 | 0.027 | 5.2 | 0.00067 | 2.0 | 0.00011 | 0.11 | 0.0021 | 0.0062 |
| | **Apr** | 7.9 | 0.0074 | 0.031 | 0.0012 | 0.35 | 0.059 | 5.2 | 0.0015 | 4.4 | 0.00023 | 0.24 | 0.0045 | 0.013 |
| | **May** | 7.8 | 0.0092 | 0.038 | 0.0015 | 0.43 | 0.074 | 5.2 | 0.0019 | 5.4 | 0.00029 | 0.29 | 0.0056 | 0.017 |
| | **Jun** | 8.0 | 0.0044 | 0.018 | 0.00073 | 0.21 | 0.035 | 5.2 | 0.00087 | 2.6 | 0.00014 | 0.14 | 0.0027 | 0.0080 |
| | **Jul** | 8.0 | 0.0046 | 0.019 | 0.00077 | 0.22 | 0.037 | 5.2 | 0.00092 | 2.8 | 0.00015 | 0.15 | 0.0028 | 0.0084 |
| | **Aug** | 8.0 | 0.0044 | 0.019 | 0.00074 | 0.21 | 0.035 | 5.2 | 0.00088 | 2.6 | 0.00014 | 0.15 | 0.0027 | 0.0081 |
| | **Sep** | 8.0 | 0.0041 | 0.017 | 0.00068 | 0.19 | 0.032 | 5.2 | 0.00081 | 2.4 | 0.00013 | 0.13 | 0.0025 | 0.0074 |
| | **Oct** | 8.0 | 0.0037 | 0.016 | 0.00062 | 0.18 | 0.030 | 5.2 | 0.00074 | 2.2 | 0.00012 | 0.12 | 0.0023 | 0.0068 |
| | **Nov** | 8.0 | 0.0034 | 0.014 | 0.00057 | 0.16 | 0.027 | 5.2 | 0.00068 | 2.0 | 0.00011 | 0.11 | 0.0021 | 0.0062 |
| | **Dec** | 8.0 | 0.0032 | 0.013 | 0.00053 | 0.15 | 0.025 | 5.2 | 0.00063 | 1.9 | 0.00010 | 0.10 | 0.0020 | 0.0058 |
| **PC** | **Jan** | 8.0 | 0.0044 | 0.017 | 0.0013 | 0.17 | 0.025 | 5.2 | 0.00089 | 2.4 | 0.00014 | 0.084 | 0.0029 | 0.0072 |
| | **Feb** | 8.0 | 0.0041 | 0.016 | 0.0012 | 0.15 | 0.023 | 5.2 | 0.00082 | 2.3 | 0.00013 | 0.078 | 0.0027 | 0.0067 |
| | **Mar** | 8.0 | 0.0047 | 0.018 | 0.0014 | 0.18 | 0.027 | 5.2 | 0.00094 | 2.6 | 0.00015 | 0.089 | 0.0031 | 0.0077 |
| | **Apr** | 7.8 | 0.010 | 0.038 | 0.0030 | 0.37 | 0.057 | 5.2 | 0.0020 | 5.5 | 0.00031 | 0.19 | 0.0065 | 0.016 |
| | **May** | 7.8 | 0.012 | 0.048 | 0.0037 | 0.46 | 0.071 | 5.2 | 0.0025 | 6.8 | 0.00039 | 0.24 | 0.0081 | 0.020 |
| | **Jun** | 7.9 | 0.0061 | 0.023 | 0.0018 | 0.23 | 0.035 | 5.2 | 0.0012 | 3.4 | 0.00019 | 0.12 | 0.0040 | 0.0099 |
| | **Jul** | 7.9 | 0.0064 | 0.025 | 0.0019 | 0.24 | 0.037 | 5.2 | 0.0013 | 3.5 | 0.00020 | 0.12 | 0.0042 | 0.010 |
| | **Aug** | 7.9 | 0.0062 | 0.024 | 0.0019 | 0.23 | 0.035 | 5.2 | 0.0012 | 3.4 | 0.00019 | 0.12 | 0.0040 | 0.010 |
| | **Sep** | 7.9 | 0.0057 | 0.022 | 0.0017 | 0.21 | 0.032 | 5.2 | 0.0011 | 3.1 | 0.00018 | 0.11 | 0.0037 | 0.0092 |
| | **Oct** | 8.0 | 0.0052 | 0.020 | 0.0016 | 0.19 | 0.030 | 5.2 | 0.0010 | 2.9 | 0.00016 | 0.099 | 0.0034 | 0.0085 |
| | **Nov** | 8.0 | 0.0047 | 0.018 | 0.0014 | 0.18 | 0.027 | 5.2 | 0.00095 | 2.6 | 0.00015 | 0.090 | 0.0031 | 0.0077 |
| | **Dec** | 8.0 | 0.0044 | 0.017 | 0.0013 | 0.17 | 0.025 | 5.2 | 0.00089 | 2.4 | 0.00014 | 0.084 | 0.0029 | 0.0072 |

*all concentrations in mg/L*

**Appendix A.3: Platinum Gulch**

| | | pH | Alkalinity (as $CaCO_3$) | Sulphate | Chloride | Fluoride | Ag | Al | As | B | Ba | Be | Ca | Cd |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Year 1** | **Jan** | **8.1** | 42 | 197 | 5.0 | 1.3 | 0.000050 | 0.010 | 0.64 | 0.48 | 0.015 | 0.00019 | 59 | 0.000070 |
| | **Feb** | **8.2** | 44 | 197 | 4.6 | 1.2 | 0.000040 | 0.010 | 0.59 | 0.44 | 0.015 | 0.00018 | 55 | 0.000070 |
| | **Mar** | **8.1** | 41 | 197 | 5.3 | 1.4 | 0.000050 | 0.0094 | 0.68 | 0.51 | 0.015 | 0.00020 | 63 | 0.000070 |
| | **Apr** | **8.1** | 39 | 197 | 5.9 | 1.5 | 0.000060 | 0.0089 | 0.76 | 0.57 | 0.016 | 0.00023 | 72 | 0.000070 |
| | **May** | **8.1** | 37 | 197 | 6.6 | 1.7 | 0.000060 | 0.0084 | 0.85 | 0.63 | 0.016 | 0.00025 | 82 | 0.000070 |
| | **Jun** | **8.1** | 36 | 197 | 6.8 | 1.8 | 0.000070 | 0.0082 | 0.88 | 0.66 | 0.016 | 0.00026 | 85 | 0.000070 |
| | **Jul** | **8.0** | 35 | 197 | 7.2 | 1.9 | 0.000070 | 0.0080 | 0.93 | 0.69 | 0.017 | 0.00028 | 91 | 0.000080 |
| | **Aug** | **8.1** | 36 | 197 | 6.9 | 1.8 | 0.000070 | 0.0082 | 0.89 | 0.66 | 0.016 | 0.00026 | 86 | 0.000070 |
| | **Sep** | **8.1** | 37 | 197 | 6.3 | 1.6 | 0.000060 | 0.0085 | 0.82 | 0.61 | 0.016 | 0.00024 | 78 | 0.000070 |
| | **Oct** | **8.1** | 39 | 197 | 5.8 | 1.5 | 0.000060 | 0.0089 | 0.75 | 0.56 | 0.016 | 0.00022 | 71 | 0.000070 |
| | **Nov** | **8.1** | 41 | 197 | 5.3 | 1.4 | 0.000050 | 0.0094 | 0.69 | 0.51 | 0.015 | 0.00020 | 64 | 0.000070 |
| | **Dec** | **8.1** | 42 | 197 | 4.9 | 1.3 | 0.000050 | 0.010 | 0.64 | 0.48 | 0.015 | 0.00019 | 59 | 0.000070 |
| **Year 2** | **Jan** | **8.1** | 39 | 215 | 4.7 | 1.36 | 0.000040 | 0.009 | 0.55 | 0.43 | 0.014 | 0.00017 | 71 | 0.000080 |
| | **Feb** | **8.1** | 41 | 215 | 4.4 | 1.26 | 0.000040 | 0.009 | 0.51 | 0.40 | 0.014 | 0.00016 | 65 | 0.000080 |
| | **Mar** | **8.1** | 38 | 215 | 5.0 | 1.4 | 0.000050 | 0.009 | 0.59 | 0.45 | 0.015 | 0.00018 | 76 | 0.000080 |
| | **Apr** | **8.0** | 33 | 215 | 7.0 | 2.0 | 0.000060 | 0.0075 | 0.83 | 0.64 | 0.016 | 0.00025 | 105 | 0.000090 |
| | **May** | **8.0** | 33 | 215 | 6.9 | 2.0 | 0.000060 | 0.0075 | 0.81 | 0.62 | 0.016 | 0.00025 | 106 | 0.000090 |
| | **Jun** | **8.0** | 33 | 215 | 6.5 | 1.9 | 0.000060 | 0.0076 | 0.76 | 0.59 | 0.016 | 0.00024 | 102 | 0.000080 |
| | **Jul** | **8.0** | 33 | 215 | 6.9 | 2.0 | 0.000060 | 0.0074 | 0.80 | 0.62 | 0.016 | 0.00025 | 108 | 0.000090 |
| | **Aug** | **8.0** | 33 | 215 | 6.6 | 1.9 | 0.000060 | 0.0076 | 0.77 | 0.60 | 0.016 | 0.00024 | 103 | 0.000080 |
| | **Sep** | **8.0** | 35 | 215 | 6.0 | 1.7 | 0.000050 | 0.0079 | 0.70 | 0.55 | 0.015 | 0.00022 | 94 | 0.000080 |
| | **Oct** | **8.1** | 36 | 215 | 5.6 | 1.6 | 0.000050 | 0.0083 | 0.65 | 0.50 | 0.015 | 0.00020 | 85 | 0.000080 |
| | **Nov** | **8.1** | 38 | 215 | 5.1 | 1.5 | 0.000050 | 0.009 | 0.59 | 0.46 | 0.015 | 0.00018 | 77 | 0.000080 |
| | **Dec** | **8.1** | 39 | 215 | 4.7 | 1.36 | 0.000040 | 0.009 | 0.55 | 0.43 | 0.014 | 0.00017 | 71 | 0.000080 |
| **Year 3** | **Jan** | **8.1** | 37 | 241 | 4.7 | 1.47 | 0.000040 | 0.009 | 0.49 | 0.40 | 0.014 | 0.00016 | 83 | 0.000090 |
| | **Feb** | **8.1** | 38 | 241 | 4.3 | 1.36 | 0.000040 | 0.009 | 0.46 | 0.37 | 0.013 | 0.00015 | 76 | 0.000090 |
| | **Mar** | **8.1** | 36 | 241 | 5.0 | 1.56 | 0.000040 | 0.008 | 0.52 | 0.42 | 0.014 | 0.00017 | 88 | 0.000090 |
| | **Apr** | **8.0** | 31 | 241 | 6.7 | 2.1 | 0.000060 | 0.007 | 0.72 | 0.58 | 0.015 | 0.00023 | 121 | 0.000090 |
| | **May** | **8.0** | 31 | 241 | 6.7 | 2.10 | 0.000060 | 0.007 | 0.71 | 0.57 | 0.015 | 0.00023 | 123 | 0.000100 |
| | **Jun** | **8.0** | 32 | 241 | 6.4 | 2.02 | 0.000050 | 0.007 | 0.68 | 0.55 | 0.015 | 0.00022 | 118 | 0.000090 |
| | **Jul** | **8.0** | 31 | 241 | 6.8 | 2.13 | 0.000060 | 0.007 | 0.71 | 0.58 | 0.015 | 0.00023 | 126 | 0.000100 |
| | **Aug** | **8.0** | 32 | 241 | 6.5 | 2.04 | 0.000060 | 0.007 | 0.68 | 0.55 | 0.015 | 0.00022 | 120 | 0.000090 |
| | **Sep** | **8.0** | 33 | 241 | 6.0 | 1.87 | 0.000050 | 0.008 | 0.63 | 0.51 | 0.015 | 0.00020 | 109 | 0.000090 |
| | **Oct** | **8.0** | 34 | 241 | 5.5 | 1.72 | 0.000050 | 0.008 | 0.58 | 0.46 | 0.014 | 0.00019 | 99 | 0.000090 |
| | **Nov** | **8.1** | 36 | 241 | 5.0 | 1.57 | 0.000040 | 0.008 | 0.53 | 0.42 | 0.014 | 0.00017 | 89 | 0.000090 |
| | **Dec** | **8.1** | 37 | 241 | 4.7 | 1.47 | 0.000040 | 0.009 | 0.49 | 0.40 | 0.013 | 0.00016 | 82 | 0.000090 |

**Appendix A.3: Platinum Gulch**

| | | pH | Alkalinity (as $CaCO_3$) | Sulphate | Chloride | Fluoride | Ag | Al | As | B | Ba | Be | Ca | Cd |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Year 4** | **Jan** | **8.0** | 34 | 162 | 3.9 | 1.3 | 0.000030 | 0.0079 | 0.35 | 0.30 | 0.019 | 0.000120 | 86 | 0.000060 |
| | **Feb** | **8.1** | 35 | 150 | 3.6 | 1.23 | 0.000030 | 0.0082 | 0.33 | 0.28 | 0.020 | 0.000110 | 78 | 0.000060 |
| | **Mar** | **8.0** | 33 | 172 | 4.1 | 1.4 | 0.000030 | 0.0078 | 0.37 | 0.32 | 0.018 | 0.00013 | 92 | 0.000060 |
| | **Apr** | **8.0** | 29 | 232 | 6.0 | 2.0 | 0.000050 | 0.0068 | 0.56 | 0.47 | 0.016 | 0.00019 | 133 | 0.000090 |
| | **May** | **8.0** | 30 | 232 | 5.8 | 1.9 | 0.000040 | 0.0068 | 0.53 | 0.45 | 0.016 | 0.00018 | 131 | 0.000090 |
| | **Jun** | **8.0** | 30 | 223 | 5.4 | 1.8 | 0.000040 | 0.0070 | 0.48 | 0.41 | 0.016 | 0.00017 | 124 | 0.000080 |
| | **Jul** | **8.0** | 30 | 236 | 5.7 | 1.9 | 0.000040 | 0.0068 | 0.51 | 0.44 | 0.016 | 0.00017 | 131 | 0.000090 |
| | **Aug** | **8.0** | 30 | 226 | 5.4 | 1.8 | 0.000040 | 0.0069 | 0.49 | 0.42 | 0.016 | 0.00017 | 125 | 0.000080 |
| | **Sep** | **8.0** | 31 | 207 | 5.0 | 1.7 | 0.000040 | 0.0072 | 0.45 | 0.38 | 0.017 | 0.00015 | 113 | 0.000080 |
| | **Oct** | **8.0** | 32 | 190 | 4.6 | 1.6 | 0.000040 | 0.0074 | 0.41 | 0.35 | 0.017 | 0.00014 | 103 | 0.000070 |
| | **Nov** | **8.0** | 33 | 174 | 4.2 | 1.4 | 0.000030 | 0.0077 | 0.38 | 0.32 | 0.018 | 0.00013 | 93 | 0.000060 |
| | **Dec** | **8.0** | 34 | 162 | 3.9 | 1.3 | 0.000030 | 0.0079 | 0.35 | 0.30 | 0.019 | 0.000120 | 86 | 0.000060 |
| **PC** | **Jan** | **8.0** | 31 | 193 | 6.4 | 1.3 | 0.000070 | 0.0071 | 0.54 | 0.55 | 0.018 | 0.00022 | 114 | 0.000080 |
| | **Feb** | **8.0** | 32 | 179 | 5.9 | 1.2 | 0.000060 | 0.0073 | 0.50 | 0.51 | 0.018 | 0.00020 | 104 | 0.000070 |
| | **Mar** | **8.0** | 30 | 205 | 6.8 | 1.4 | 0.000070 | 0.0070 | 0.57 | 0.59 | 0.017 | 0.00023 | 122 | 0.000090 |
| | **Apr** | **7.9** | 26 | 308 | 10 | 2.1 | 0.00011 | 0.0060 | 0.85 | 0.88 | 0.014 | 0.00035 | 192 | 0.00013 |
| | **May** | **7.9** | 27 | 291 | 9.6 | 2.0 | 0.00010 | 0.0061 | 0.81 | 0.83 | 0.015 | 0.00033 | 180 | 0.00012 |
| | **Jun** | **7.9** | 28 | 266 | 8.8 | 1.8 | 0.000090 | 0.0063 | 0.74 | 0.76 | 0.015 | 0.00030 | 163 | 0.00011 |
| | **Jul** | **7.9** | 27 | 281 | 9.3 | 2.0 | 0.00010 | 0.0062 | 0.78 | 0.80 | 0.015 | 0.00032 | 173 | 0.00012 |
| | **Aug** | **7.9** | 27 | 269 | 8.9 | 1.9 | 0.000090 | 0.0063 | 0.74 | 0.77 | 0.015 | 0.00031 | 165 | 0.00011 |
| | **Sep** | **7.9** | 28 | 247 | 8.1 | 1.7 | 0.000090 | 0.0065 | 0.68 | 0.70 | 0.016 | 0.00028 | 150 | 0.00010 |
| | **Oct** | **8.0** | 29 | 227 | 7.5 | 1.6 | 0.000080 | 0.0067 | 0.63 | 0.65 | 0.016 | 0.00026 | 136 | 0.00009 |
| | **Nov** | **8.0** | 30 | 207 | 6.8 | 1.4 | 0.000070 | 0.0069 | 0.57 | 0.59 | 0.017 | 0.00024 | 123 | 0.000090 |
| | **Dec** | **8.0** | 31 | 193 | 6.4 | 1.3 | 0.000070 | 0.0071 | 0.53 | 0.55 | 0.018 | 0.00022 | 113 | 0.000080 |

*all concentrations in mg/L*

**Appendix A.3: Platinum Gulch**

| | | pH | Co | Cr | Cu | Fe | Hg | K | Li | Mg | Mn | Mo | Na | Ni |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Year 1** | **Jan** | **8.1** | 0.00073 | 0.0016 | 0.0093 | 0.0016 | 0.000100 | 20 | 0.017 | 10 | 0.048 | 0.14 | 45 | 0.0050 |
| | **Feb** | **8.2** | 0.00068 | 0.0015 | 0.0086 | 0.0016 | 0.000090 | 18 | 0.017 | 10 | 0.044 | 0.14 | 45 | 0.0047 |
| | **Mar** | **8.1** | 0.00078 | 0.0017 | 0.0098 | 0.0017 | 0.000100 | 21 | 0.018 | 10 | 0.051 | 0.14 | 45 | 0.0053 |
| | **Apr** | **8.1** | 0.00087 | 0.0019 | 0.011 | 0.0017 | 0.00011 | 24 | 0.021 | 10 | 0.057 | 0.14 | 45 | 0.0060 |
| | **May** | **8.1** | 0.00097 | 0.0022 | 0.012 | 0.0018 | 0.00013 | 26 | 0.023 | 10 | 0.064 | 0.14 | 45 | 0.0067 |
| | **Jun** | **8.1** | 0.00101 | 0.0022 | 0.013 | 0.0018 | 0.00013 | 27 | 0.024 | 10 | 0.066 | 0.14 | 45 | 0.0069 |
| | **Jul** | **8.0** | 0.00106 | 0.0024 | 0.013 | 0.0018 | 0.00014 | 29 | 0.025 | 10 | 0.069 | 0.14 | 45 | 0.0073 |
| | **Aug** | **8.1** | 0.00102 | 0.0023 | 0.013 | 0.0018 | 0.00013 | 28 | 0.024 | 10 | 0.066 | 0.14 | 45 | 0.0070 |
| | **Sep** | **8.1** | 0.00093 | 0.0021 | 0.012 | 0.0018 | 0.00012 | 25 | 0.022 | 10 | 0.061 | 0.14 | 45 | 0.0064 |
| | **Oct** | **8.1** | 0.00086 | 0.0019 | 0.0108 | 0.0017 | 0.00011 | 23 | 0.020 | 10 | 0.056 | 0.14 | 45 | 0.0059 |
| | **Nov** | **8.1** | 0.00078 | 0.0017 | 0.0099 | 0.0017 | 0.000100 | 21 | 0.018 | 10 | 0.051 | 0.14 | 45 | 0.0054 |
| | **Dec** | **8.1** | 0.00073 | 0.0016 | 0.0092 | 0.0016 | 0.000100 | 20 | 0.017 | 10 | 0.048 | 0.14 | 45 | 0.0050 |
| **Year 2** | **Jan** | **8.1** | 0.00069 | 0.0014 | 0.0088 | 0.0017 | 0.000090 | 25 | 0.024 | 10 | 0.058 | 0.13 | 45 | 0.0046 |
| | **Feb** | **8.1** | 0.00064 | 0.00129 | 0.0085 | 0.0017 | 0.000080 | 23 | 0.022 | 10 | 0.054 | 0.13 | 45 | 0.0042 |
| | **Mar** | **8.1** | 0.00074 | 0.0015 | 0.0094 | 0.0017 | 0.000090 | 26 | 0.026 | 10 | 0.062 | 0.13 | 45 | 0.0048 |
| | **Apr** | **8.0** | 0.00102 | 0.0021 | 0.0130 | 0.0019 | 0.00013 | 35 | 0.033 | 10 | 0.082 | 0.13 | 45 | 0.0068 |
| | **May** | **8.0** | 0.00101 | 0.0020 | 0.0128 | 0.0019 | 0.000120 | 35 | 0.034 | 10 | 0.083 | 0.13 | 45 | 0.0066 |
| | **Jun** | **8.0** | 0.00095 | 0.0019 | 0.0122 | 0.0019 | 0.000120 | 34 | 0.033 | 10 | 0.080 | 0.13 | 45 | 0.0063 |
| | **Jul** | **8.0** | 0.00101 | 0.0020 | 0.0128 | 0.0019 | 0.000120 | 36 | 0.035 | 11 | 0.085 | 0.13 | 45 | 0.0066 |
| | **Aug** | **8.0** | 0.00096 | 0.0019 | 0.0123 | 0.0019 | 0.000120 | 34 | 0.034 | 10 | 0.081 | 0.13 | 45 | 0.0063 |
| | **Sep** | **8.0** | 0.00089 | 0.0018 | 0.0113 | 0.0018 | 0.000110 | 32 | 0.031 | 10 | 0.074 | 0.13 | 45 | 0.0058 |
| | **Oct** | **8.1** | 0.00081 | 0.0016 | 0.0104 | 0.0018 | 0.000100 | 29 | 0.028 | 10 | 0.068 | 0.13 | 45 | 0.0053 |
| | **Nov** | **8.1** | 0.00074 | 0.0015 | 0.0095 | 0.0017 | 0.000090 | 27 | 0.026 | 10 | 0.062 | 0.13 | 45 | 0.0049 |
| | **Dec** | **8.1** | 0.00069 | 0.0014 | 0.0088 | 0.0017 | 0.000090 | 25 | 0.024 | 10 | 0.058 | 0.13 | 45 | 0.0046 |
| **Year 3** | **Jan** | **8.1** | 0.00077 | 0.00123 | 0.0090 | 0.0018 | 0.000080 | 29 | 0.030 | 11 | 0.068 | 0.11 | 46 | 0.0043 |
| | **Feb** | **8.1** | 0.00077 | 0.00114 | 0.0090 | 0.0017 | 0.000070 | 27 | 0.028 | 11 | 0.063 | 0.11 | 46 | 0.0043 |
| | **Mar** | **8.1** | 0.00077 | 0.00130 | 0.0092 | 0.0018 | 0.000080 | 31 | 0.032 | 11 | 0.072 | 0.11 | 46 | 0.0045 |
| | **Apr** | **8.0** | 0.00097 | 0.00181 | 0.0126 | 0.0020 | 0.000120 | 41 | 0.042 | 13 | 0.095 | 0.11 | 46 | 0.0062 |
| | **May** | **8.0** | 0.00097 | 0.00178 | 0.0125 | 0.0020 | 0.000110 | 42 | 0.043 | 13 | 0.096 | 0.11 | 46 | 0.0061 |
| | **Jun** | **8.0** | 0.00093 | 0.00169 | 0.0120 | 0.0019 | 0.000110 | 40 | 0.042 | 13 | 0.093 | 0.11 | 46 | 0.0058 |
| | **Jul** | **8.0** | 0.00098 | 0.00179 | 0.0127 | 0.0020 | 0.000120 | 43 | 0.044 | 14 | 0.098 | 0.11 | 46 | 0.0061 |
| | **Aug** | **8.0** | 0.00093 | 0.00171 | 0.0121 | 0.0019 | 0.000110 | 41 | 0.042 | 13 | 0.094 | 0.11 | 46 | 0.0059 |
| | **Sep** | **8.0** | 0.00086 | 0.00157 | 0.0111 | 0.0019 | 0.000100 | 37 | 0.039 | 12 | 0.086 | 0.11 | 46 | 0.0054 |
| | **Oct** | **8.0** | 0.00079 | 0.00144 | 0.0102 | 0.0018 | 0.000090 | 34 | 0.036 | 11 | 0.079 | 0.11 | 46 | 0.0049 |
| | **Nov** | **8.1** | 0.00077 | 0.00132 | 0.0093 | 0.0018 | 0.000080 | 31 | 0.033 | 11 | 0.072 | 0.11 | 46 | 0.0045 |
| | **Dec** | **8.1** | 0.00077 | 0.00123 | 0.0090 | 0.0018 | 0.000080 | 29 | 0.030 | 11 | 0.068 | 0.11 | 46 | 0.0043 |

**Appendix A.3: Platinum Gulch**

| | | pH | Co | Cr | Cu | Fe | Hg | K | Li | Mg | Mn | Mo | Na | Ni |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Year 4** | **Jan** | **8.0** | 0.00066 | 0.00093 | 0.0072 | 0.0018 | 0.000060 | 26 | 0.031 | 10.0 | 0.082 | 0.039 | 9.2 | 0.0038 |
| | **Feb** | **8.1** | 0.00061 | 0.00086 | 0.0066 | 0.0018 | 0.000060 | 24 | 0.028 | 9.3 | 0.076 | 0.037 | 8.5 | 0.0035 |
| | **Mar** | **8.0** | 0.00070 | 0.00099 | 0.0076 | 0.0018 | 0.000060 | 27 | 0.032 | 10.7 | 0.087 | 0.042 | 9.8 | 0.0040 |
| | **Apr** | **8.0** | 0.00097 | 0.0015 | 0.0110 | 0.0020 | 0.000090 | 39 | 0.045 | 15 | 0.118 | 0.065 | 14 | 0.0057 |
| | **May** | **8.0** | 0.00096 | 0.0014 | 0.0106 | 0.0020 | 0.000090 | 38 | 0.044 | 15 | 0.118 | 0.060 | 14 | 0.0055 |
| | **Jun** | **8.0** | 0.00090 | 0.00128 | 0.0098 | 0.0020 | 0.000080 | 35 | 0.042 | 14 | 0.113 | 0.054 | 12.7 | 0.0052 |
| | **Jul** | **8.0** | 0.00095 | 0.0014 | 0.0104 | 0.0020 | 0.000090 | 37 | 0.044 | 15 | 0.120 | 0.057 | 13 | 0.0055 |
| | **Aug** | **8.0** | 0.00091 | 0.0013 | 0.0099 | 0.0020 | 0.000080 | 36 | 0.042 | 14 | 0.114 | 0.055 | 12.8 | 0.0052 |
| | **Sep** | **8.0** | 0.00084 | 0.00119 | 0.0091 | 0.0019 | 0.000080 | 33 | 0.039 | 12.8 | 0.105 | 0.050 | 11.7 | 0.0048 |
| | **Oct** | **8.0** | 0.00077 | 0.00109 | 0.0084 | 0.0019 | 0.000070 | 30 | 0.036 | 11.8 | 0.096 | 0.046 | 10.8 | 0.0044 |
| | **Nov** | **8.0** | 0.00070 | 0.00100 | 0.0077 | 0.0018 | 0.000060 | 27 | 0.033 | 10.8 | 0.088 | 0.042 | 9.9 | 0.0040 |
| | **Dec** | **8.0** | 0.00065 | 0.00093 | 0.0072 | 0.0018 | 0.000060 | 26 | 0.031 | 10.0 | 0.082 | 0.039 | 9.2 | 0.0038 |
| **PC** | **Jan** | **8.0** | 0.00080 | 0.0031 | 0.011 | 0.0019 | 0.00011 | 31 | 0.036 | 13 | 0.085 | 0.032 | 4.5 | 0.0071 |
| | **Feb** | **8.0** | 0.00074 | 0.0028 | 0.010 | 0.0019 | 0.00010 | 29 | 0.034 | 12 | 0.079 | 0.030 | 4.2 | 0.0066 |
| | **Mar** | **8.0** | 0.00084 | 0.0032 | 0.012 | 0.0020 | 0.00012 | 33 | 0.039 | 13 | 0.091 | 0.034 | 4.8 | 0.0076 |
| | **Apr** | **7.9** | 0.0013 | 0.0049 | 0.015 | 0.0022 | 0.00018 | 50 | 0.058 | 20 | 0.14 | 0.051 | 7.2 | 0.011 |
| | **May** | **7.9** | 0.0012 | 0.0046 | 0.015 | 0.0022 | 0.00017 | 47 | 0.055 | 19 | 0.13 | 0.048 | 6.8 | 0.011 |
| | **Jun** | **7.9** | 0.0011 | 0.0042 | 0.014 | 0.0021 | 0.00015 | 43 | 0.050 | 17 | 0.12 | 0.044 | 6.2 | 0.0098 |
| | **Jul** | **7.9** | 0.0012 | 0.0044 | 0.014 | 0.0022 | 0.00016 | 45 | 0.053 | 18 | 0.12 | 0.047 | 6.6 | 0.010 |
| | **Aug** | **7.9** | 0.0011 | 0.0042 | 0.014 | 0.0021 | 0.00015 | 43 | 0.051 | 18 | 0.12 | 0.045 | 6.3 | 0.010 |
| | **Sep** | **7.9** | 0.0010 | 0.0039 | 0.014 | 0.0021 | 0.00014 | 40 | 0.046 | 16 | 0.11 | 0.041 | 5.8 | 0.0091 |
| | **Oct** | **8.0** | 0.00093 | 0.0036 | 0.013 | 0.0020 | 0.00013 | 37 | 0.043 | 15 | 0.10 | 0.038 | 5.3 | 0.0084 |
| | **Nov** | **8.0** | 0.00085 | 0.0033 | 0.012 | 0.0020 | 0.00012 | 33 | 0.039 | 14 | 0.091 | 0.034 | 4.8 | 0.0076 |
| | **Dec** | **8.0** | 0.00080 | 0.0031 | 0.011 | 0.0019 | 0.00011 | 31 | 0.036 | 13 | 0.085 | 0.032 | 4.5 | 0.0071 |

*all concentrations in mg/L*

**Appendix A.3: Platinum Gulch**

| | | pH | P | Pb | Sb | Se | Si | Sn | Sr | Tl | U | V | Zn |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Year 1** | **Jan** | **8.1** | 0.30 | 0.00077 | 0.017 | 0.010 | 5.2 | 0.00060 | 0.59 | 0.000090 | 0.037 | 0.0021 | 0.0077 |
| | **Feb** | **8.2** | 0.30 | 0.00071 | 0.015 | 0.010 | 5.2 | 0.00055 | 0.57 | 0.000080 | 0.035 | 0.0019 | 0.0072 |
| | **Mar** | **8.1** | 0.30 | 0.00081 | 0.018 | 0.010 | 5.2 | 0.00063 | 0.62 | 0.000100 | 0.040 | 0.0022 | 0.0082 |
| | **Apr** | **8.1** | 0.30 | 0.00091 | 0.020 | 0.010 | 5.2 | 0.00071 | 0.70 | 0.00011 | 0.045 | 0.0025 | 0.0092 |
| | **May** | **8.1** | 0.30 | 0.00102 | 0.022 | 0.010 | 5.2 | 0.00079 | 0.78 | 0.00012 | 0.050 | 0.0027 | 0.0103 |
| | **Jun** | **8.1** | 0.30 | 0.00105 | 0.023 | 0.010 | 5.2 | 0.00082 | 0.81 | 0.00013 | 0.051 | 0.0028 | 0.0106 |
| | **Jul** | **8.0** | 0.30 | 0.0011 | 0.024 | 0.010 | 5.2 | 0.00086 | 0.85 | 0.00013 | 0.054 | 0.0030 | 0.011 |
| | **Aug** | **8.1** | 0.30 | 0.00106 | 0.023 | 0.010 | 5.2 | 0.00083 | 0.82 | 0.00013 | 0.052 | 0.0029 | 0.0107 |
| | **Sep** | **8.1** | 0.30 | 0.00098 | 0.021 | 0.010 | 5.2 | 0.00076 | 0.75 | 0.00012 | 0.048 | 0.0026 | 0.0098 |
| | **Oct** | **8.1** | 0.30 | 0.00090 | 0.020 | 0.010 | 5.2 | 0.00070 | 0.69 | 0.00011 | 0.044 | 0.0024 | 0.0090 |
| | **Nov** | **8.1** | 0.30 | 0.00082 | 0.018 | 0.010 | 5.2 | 0.00064 | 0.63 | 0.000100 | 0.040 | 0.0022 | 0.0083 |
| | **Dec** | **8.1** | 0.30 | 0.00077 | 0.017 | 0.010 | 5.2 | 0.00059 | 0.59 | 0.000090 | 0.037 | 0.0021 | 0.0077 |
| **Year 2** | **Jan** | **8.1** | 0.30 | 0.00072 | 0.019 | 0.013 | 5.2 | 0.00053 | 0.73 | 0.000100 | 0.047 | 0.0021 | 0.0073 |
| | **Feb** | **8.1** | 0.30 | 0.00067 | 0.019 | 0.013 | 5.2 | 0.00050 | 0.67 | 0.000100 | 0.047 | 0.0020 | 0.0067 |
| | **Mar** | **8.1** | 0.30 | 0.00077 | 0.019 | 0.013 | 5.2 | 0.00057 | 0.77 | 0.000110 | 0.047 | 0.0022 | 0.0077 |
| | **Apr** | **8.0** | 0.30 | 0.00106 | 0.026 | 0.013 | 5.2 | 0.00079 | 1.02 | 0.00015 | 0.053 | 0.0031 | 0.0107 |
| | **May** | **8.0** | 0.30 | 0.00105 | 0.026 | 0.013 | 5.2 | 0.00078 | 1.03 | 0.00015 | 0.053 | 0.0030 | 0.0105 |
| | **Jun** | **8.0** | 0.30 | 0.00100 | 0.025 | 0.013 | 5.2 | 0.00074 | 1.00 | 0.00014 | 0.050 | 0.0029 | 0.0100 |
| | **Jul** | **8.0** | 0.30 | 0.00105 | 0.026 | 0.013 | 5.2 | 0.00078 | 1.05 | 0.00015 | 0.053 | 0.0031 | 0.0106 |
| | **Aug** | **8.0** | 0.30 | 0.00101 | 0.025 | 0.013 | 5.2 | 0.00074 | 1.01 | 0.00014 | 0.051 | 0.0029 | 0.0101 |
| | **Sep** | **8.0** | 0.30 | 0.00092 | 0.023 | 0.013 | 5.2 | 0.00068 | 0.92 | 0.00013 | 0.047 | 0.0027 | 0.0093 |
| | **Oct** | **8.1** | 0.30 | 0.00085 | 0.021 | 0.013 | 5.2 | 0.00063 | 0.85 | 0.000120 | 0.047 | 0.0025 | 0.0085 |
| | **Nov** | **8.1** | 0.30 | 0.00077 | 0.020 | 0.013 | 5.2 | 0.00057 | 0.78 | 0.000110 | 0.047 | 0.0023 | 0.0078 |
| | **Dec** | **8.1** | 0.30 | 0.00072 | 0.019 | 0.013 | 5.2 | 0.00053 | 0.72 | 0.000100 | 0.047 | 0.0021 | 0.0073 |
| **Year 3** | **Jan** | **8.1** | 0.30 | 0.00071 | 0.031 | 0.016 | 5.2 | 0.00048 | 0.92 | 0.000120 | 0.067 | 0.0022 | 0.0071 |
| | **Feb** | **8.1** | 0.30 | 0.00066 | 0.031 | 0.016 | 5.2 | 0.00044 | 0.85 | 0.000110 | 0.067 | 0.0020 | 0.0066 |
| | **Mar** | **8.1** | 0.30 | 0.00076 | 0.031 | 0.016 | 5.2 | 0.00051 | 0.97 | 0.000130 | 0.067 | 0.0023 | 0.0075 |
| | **Apr** | **8.0** | 0.30 | 0.00103 | 0.039 | 0.016 | 5.2 | 0.00070 | 1.27 | 0.000170 | 0.067 | 0.0032 | 0.0102 |
| | **May** | **8.0** | 0.30 | 0.00102 | 0.041 | 0.016 | 5.2 | 0.00069 | 1.30 | 0.000170 | 0.067 | 0.0032 | 0.0102 |
| | **Jun** | **8.0** | 0.30 | 0.00098 | 0.040 | 0.016 | 5.2 | 0.00065 | 1.26 | 0.000170 | 0.067 | 0.0030 | 0.0097 |
| | **Jul** | **8.0** | 0.30 | 0.00103 | 0.043 | 0.016 | 5.2 | 0.00069 | 1.33 | 0.000180 | 0.067 | 0.0032 | 0.0103 |
| | **Aug** | **8.0** | 0.30 | 0.00099 | 0.041 | 0.016 | 5.2 | 0.00066 | 1.27 | 0.000170 | 0.067 | 0.0031 | 0.0098 |
| | **Sep** | **8.0** | 0.30 | 0.00091 | 0.037 | 0.016 | 5.2 | 0.00061 | 1.17 | 0.000160 | 0.067 | 0.0028 | 0.0090 |
| | **Oct** | **8.0** | 0.30 | 0.00083 | 0.034 | 0.016 | 5.2 | 0.00056 | 1.07 | 0.000140 | 0.067 | 0.0026 | 0.0083 |
| | **Nov** | **8.1** | 0.30 | 0.00076 | 0.031 | 0.016 | 5.2 | 0.00051 | 0.98 | 0.000130 | 0.067 | 0.0024 | 0.0076 |
| | **Dec** | **8.1** | 0.30 | 0.00071 | 0.031 | 0.016 | 5.2 | 0.00048 | 0.92 | 0.000120 | 0.067 | 0.0022 | 0.0071 |

**Appendix A.3: Platinum Gulch**

| | | pH | P | Pb | Sb | Se | Si | Sn | Sr | Tl | U | V | Zn |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Year 4** | **Jan** | **8.0** | 0.013 | 0.00058 | 0.056 | 0.0066 | 5.2 | 0.00066 | 1.09 | 0.000090 | 0.048 | 0.0019 | 0.0062 |
| | **Feb** | **8.1** | 0.0124 | 0.00054 | 0.052 | 0.0061 | 5.2 | 0.00061 | 1.01 | 0.000080 | 0.045 | 0.0018 | 0.0057 |
| | **Mar** | **8.0** | 0.014 | 0.00062 | 0.059 | 0.0070 | 5.2 | 0.00070 | 1.15 | 0.000090 | 0.051 | 0.0020 | 0.0066 |
| | **Apr** | **8.0** | 0.021 | 0.00090 | 0.075 | 0.0096 | 5.2 | 0.00093 | 1.6 | 0.00014 | 0.069 | 0.0029 | 0.0094 |
| | **May** | **8.0** | 0.020 | 0.00086 | 0.078 | 0.0095 | 5.2 | 0.00094 | 1.6 | 0.00013 | 0.069 | 0.0028 | 0.0091 |
| | **Jun** | **8.0** | 0.018 | 0.00080 | 0.077 | 0.0091 | 5.2 | 0.00091 | 1.5 | 0.000120 | 0.066 | 0.0026 | 0.0085 |
| | **Jul** | **8.0** | 0.020 | 0.00084 | 0.081 | 0.0096 | 5.2 | 0.00096 | 1.6 | 0.00013 | 0.070 | 0.0028 | 0.0090 |
| | **Aug** | **8.0** | 0.019 | 0.00081 | 0.078 | 0.0092 | 5.2 | 0.00092 | 1.5 | 0.000120 | 0.067 | 0.0027 | 0.0086 |
| | **Sep** | **8.0** | 0.017 | 0.00074 | 0.071 | 0.0084 | 5.2 | 0.00085 | 1.4 | 0.000110 | 0.061 | 0.0024 | 0.0079 |
| | **Oct** | **8.0** | 0.016 | 0.00068 | 0.065 | 0.0078 | 5.2 | 0.00078 | 1.27 | 0.000100 | 0.056 | 0.0022 | 0.0072 |
| | **Nov** | **8.0** | 0.014 | 0.00062 | 0.060 | 0.0071 | 5.2 | 0.00071 | 1.16 | 0.000090 | 0.052 | 0.0020 | 0.0066 |
| | **Dec** | **8.0** | 0.013 | 0.00058 | 0.056 | 0.0066 | 5.2 | 0.00066 | 1.08 | 0.000090 | 0.048 | 0.0019 | 0.0062 |
| **PC** | **Jan** | **8.0** | 0.022 | 0.0012 | 0.065 | 0.0068 | 5.2 | 0.00079 | 1.7 | 0.00013 | 0.052 | 0.0034 | 0.0078 |
| | **Feb** | **8.0** | 0.021 | 0.0011 | 0.060 | 0.0063 | 5.2 | 0.00073 | 1.5 | 0.00012 | 0.048 | 0.0031 | 0.0073 |
| | **Mar** | **8.0** | 0.024 | 0.0013 | 0.068 | 0.0073 | 5.2 | 0.00083 | 1.8 | 0.00014 | 0.055 | 0.0036 | 0.0083 |
| | **Apr** | **7.9** | 0.035 | 0.0020 | 0.10 | 0.011 | 5.2 | 0.0013 | 2.6 | 0.00021 | 0.082 | 0.0053 | 0.013 |
| | **May** | **7.9** | 0.033 | 0.0019 | 0.10 | 0.010 | 5.2 | 0.0012 | 2.5 | 0.00019 | 0.078 | 0.0050 | 0.012 |
| | **Jun** | **7.9** | 0.031 | 0.0017 | 0.089 | 0.0094 | 5.2 | 0.0011 | 2.3 | 0.00018 | 0.071 | 0.0046 | 0.011 |
| | **Jul** | **7.9** | 0.032 | 0.0018 | 0.094 | 0.010 | 5.2 | 0.0011 | 2.4 | 0.00019 | 0.075 | 0.0049 | 0.011 |
| | **Aug** | **7.9** | 0.031 | 0.0017 | 0.090 | 0.0095 | 5.2 | 0.0011 | 2.3 | 0.00018 | 0.072 | 0.0047 | 0.011 |
| | **Sep** | **7.9** | 0.028 | 0.0016 | 0.082 | 0.0087 | 5.2 | 0.0010 | 2.1 | 0.00016 | 0.066 | 0.0043 | 0.010 |
| | **Oct** | **8.0** | 0.026 | 0.0015 | 0.076 | 0.0080 | 5.2 | 0.00092 | 1.9 | 0.00015 | 0.060 | 0.0039 | 0.0092 |
| | **Nov** | **8.0** | 0.024 | 0.0013 | 0.069 | 0.0073 | 5.2 | 0.00084 | 1.8 | 0.00014 | 0.055 | 0.0036 | 0.0084 |
| | **Dec** | **8.0** | 0.022 | 0.0012 | 0.064 | 0.0068 | 5.2 | 0.00079 | 1.7 | 0.00013 | 0.052 | 0.0034 | 0.0078 |

*all concentrations in mg/L*

**Appendix A.4: Pit Walls**

| | | pH | Alkalinity (as $CaCO_3$) | Sulphate | Cl | F | Ag | Al | As | B | Ba | Be | Ca | Cd |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Year 1** | **Mar** | **8.2** | 49 | 41 | 0.72 | 0.27 | 0.0000050 | 0.012 | 0.048 | 0.045 | 0.010 | 0.000018 | 24 | 0.000014 |
| | **Apr** | **8.1** | 41 | 88 | 1.5 | 0.58 | 0.000010 | 0.0097 | 0.10 | 0.096 | 0.022 | 0.000038 | 49 | 0.000029 |
| | **May** | **8.1** | 34 | 146 | 2.6 | 0.96 | 0.000016 | 0.0080 | 0.17 | 0.16 | 0.020 | 0.000064 | 81 | 0.000048 |
| | **Jun** | **8.0** | 30 | 209 | 3.7 | 1.4 | 0.000023 | 0.0071 | 0.25 | 0.23 | 0.017 | 0.000091 | 117 | 0.000068 |
| | **Jul** | **7.9** | 28 | 272 | 4.8 | 1.8 | 0.000030 | 0.0065 | 0.32 | 0.30 | 0.014 | 0.00012 | 154 | 0.000089 |
| | **Aug** | **7.9** | 27 | 286 | 5.0 | 1.9 | 0.000031 | 0.0063 | 0.34 | 0.31 | 0.014 | 0.00012 | 162 | 0.000094 |
| | **Sep** | **7.9** | 28 | 278 | 4.9 | 1.8 | 0.000030 | 0.0064 | 0.33 | 0.30 | 0.014 | 0.00012 | 158 | 0.000091 |
| | **Oct** | **8.0** | 29 | 240 | 4.2 | 1.6 | 0.000026 | 0.0067 | 0.28 | 0.26 | 0.015 | 0.00010 | 135 | 0.000078 |
| **Year 2** | **Mar** | **8.2** | 44 | 70 | 1.2 | 0.46 | 0.0000077 | 0.010 | 0.082 | 0.076 | 0.017 | 0.000030 | 40 | 0.000023 |
| | **Apr** | **8.1** | 35 | 131 | 2.3 | 0.9 | 0.000014 | 0.0084 | 0.15 | 0.14 | 0.022 | 0.000057 | 73 | 0.000043 |
| | **May** | **8.0** | 33 | 166 | 2.9 | 1.1 | 0.000018 | 0.0077 | 0.20 | 0.18 | 0.019 | 0.000072 | 93 | 0.000055 |
| | **Jun** | **8.0** | 31 | 202 | 3.5 | 1.3 | 0.000022 | 0.0072 | 0.24 | 0.22 | 0.017 | 0.000088 | 113 | 0.000066 |
| | **Jul** | **8.0** | 29 | 242 | 4.2 | 1.6 | 0.000026 | 0.0067 | 0.28 | 0.26 | 0.015 | 0.00011 | 136 | 0.000079 |
| | **Aug** | **8.0** | 29 | 237 | 4.1 | 1.6 | 0.000026 | 0.0068 | 0.28 | 0.26 | 0.016 | 0.00010 | 134 | 0.000078 |
| | **Sep** | **8.0** | 30 | 218 | 3.8 | 1.4 | 0.000024 | 0.0070 | 0.26 | 0.24 | 0.016 | 0.000095 | 123 | 0.000071 |
| | **Oct** | **8.0** | 32 | 180 | 3.2 | 1.2 | 0.000020 | 0.0075 | 0.21 | 0.20 | 0.018 | 0.000078 | 101 | 0.000059 |
| **Year 3** | **Mar** | **8.2** | 43 | 77 | 1.4 | 0.51 | 0.0000085 | 0.010 | 0.091 | 0.084 | 0.019 | 0.000034 | 44 | 0.000025 |
| | **Apr** | **8.1** | 34 | 145 | 2.5 | 1.0 | 0.000016 | 0.0081 | 0.17 | 0.16 | 0.021 | 0.000063 | 81 | 0.000047 |
| | **May** | **8.0** | 33 | 164 | 2.9 | 1.1 | 0.000018 | 0.0077 | 0.19 | 0.18 | 0.019 | 0.000072 | 92 | 0.000054 |
| | **Jun** | **8.0** | 32 | 181 | 3.2 | 1.2 | 0.000020 | 0.0074 | 0.21 | 0.20 | 0.018 | 0.000079 | 101 | 0.000059 |
| | **Jul** | **8.0** | 30 | 206 | 3.6 | 1.4 | 0.000023 | 0.0071 | 0.24 | 0.22 | 0.017 | 0.000090 | 116 | 0.000067 |
| | **Aug** | **8.0** | 31 | 193 | 3.4 | 1.3 | 0.000021 | 0.0073 | 0.23 | 0.21 | 0.017 | 0.000084 | 108 | 0.000063 |
| | **Sep** | **8.0** | 32 | 171 | 3.0 | 1.1 | 0.000019 | 0.0076 | 0.20 | 0.19 | 0.019 | 0.000074 | 95 | 0.000056 |
| | **Oct** | **8.1** | 35 | 136 | 2.4 | 0.90 | 0.000015 | 0.0082 | 0.16 | 0.15 | 0.021 | 0.000059 | 76 | 0.000045 |
| **Year 4** | **Mar** | **8.2** | 42 | 82 | 1.4 | 0.54 | 0.0000090 | 0.0099 | 0.096 | 0.089 | 0.020 | 0.000036 | 46 | 0.000027 |
| | **Apr** | **8.0** | 33 | 158 | 2.8 | 1.0 | 0.000017 | 0.0078 | 0.19 | 0.17 | 0.019 | 0.000069 | 88 | 0.000052 |
| | **May** | **8.0** | 33 | 168 | 2.9 | 1.1 | 0.000018 | 0.0076 | 0.20 | 0.18 | 0.019 | 0.000073 | 94 | 0.000055 |
| | **Jun** | **8.0** | 32 | 173 | 3.0 | 1.1 | 0.000019 | 0.0076 | 0.20 | 0.19 | 0.018 | 0.000075 | 97 | 0.000057 |
| | **Jul** | **8.0** | 31 | 192 | 3.4 | 1.3 | 0.000021 | 0.0073 | 0.22 | 0.21 | 0.017 | 0.000083 | 107 | 0.000063 |
| | **Aug** | **8.0** | 32 | 175 | 3.1 | 1.1 | 0.000019 | 0.0075 | 0.20 | 0.19 | 0.018 | 0.000076 | 98 | 0.000057 |
| | **Sep** | **8.1** | 34 | 150 | 2.6 | 0.99 | 0.000016 | 0.0080 | 0.18 | 0.16 | 0.020 | 0.000065 | 84 | 0.000049 |
| | **Oct** | **8.1** | 37 | 117 | 2.0 | 0.77 | 0.000013 | 0.0087 | 0.14 | 0.13 | 0.023 | 0.000051 | 65 | 0.000038 |
| **Year 5** | **Mar** | **8.2** | 42 | 83 | 1.4 | 0.54 | 0.0000090 | 0.0099 | 0.097 | 0.090 | 0.020 | 0.000036 | 46 | 0.000027 |
| | **Apr** | **8.0** | 33 | 165 | 2.9 | 1.1 | 0.000018 | 0.0077 | 0.19 | 0.18 | 0.019 | 0.00007 | 92 | 0.000054 |
| | **May** | **8.0** | 32 | 171 | 3.0 | 1.1 | 0.000019 | 0.0076 | 0.20 | 0.19 | 0.019 | 0.000074 | 96 | 0.000056 |
| | **Jun** | **8.0** | 32 | 172 | 3.0 | 1.1 | 0.000019 | 0.0076 | 0.20 | 0.19 | 0.019 | 0.000075 | 96 | 0.000056 |
| | **Jul** | **8.0** | 31 | 189 | 3.3 | 1.2 | 0.000021 | 0.0073 | 0.22 | 0.21 | 0.018 | 0.000082 | 106 | 0.000062 |
| | **Aug** | **8.0** | 32 | 171 | 3.0 | 1.1 | 0.000019 | 0.0076 | 0.20 | 0.19 | 0.019 | 0.000075 | 96 | 0.000056 |
| | **Sep** | **8.1** | 34 | 147 | 2.6 | 0.96 | 0.000016 | 0.0080 | 0.17 | 0.16 | 0.020 | 0.000064 | 82 | 0.000048 |
| | **Oct** | **8.1** | 37 | 114 | 2.0 | 0.75 | 0.000012 | 0.0088 | 0.13 | 0.12 | 0.024 | 0.000050 | 63 | 0.000037 |

**Appendix A.4: Pit Walls**

| | | pH | Alkalinity (as $CaCO_3$) | Sulphate | Cl | F | Ag | Al | As | B | Ba | Be | Ca | Cd |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Year 6** | **Mar** | **8.2** | 42 | 83 | 1.4 | 0.54 | 0.0000090 | 0.0099 | 0.097 | 0.090 | 0.020 | 0.000036 | 46 | 0.000027 |
| | **Apr** | **8.0** | 33 | 167 | 2.9 | 1.1 | 0.000018 | 0.0077 | 0.20 | 0.18 | 0.019 | 0.00007 | 93 | 0.000055 |
| | **May** | **8.0** | 32 | 171 | 3.0 | 1.1 | 0.000019 | 0.0076 | 0.20 | 0.19 | 0.019 | 0.000075 | 96 | 0.000056 |
| | **Jun** | **8.0** | 32 | 171 | 3.0 | 1.1 | 0.000019 | 0.0076 | 0.20 | 0.19 | 0.019 | 0.000075 | 96 | 0.000056 |
| | **Jul** | **8.0** | 31 | 188 | 3.3 | 1.2 | 0.000021 | 0.0073 | 0.22 | 0.21 | 0.018 | 0.000082 | 105 | 0.000062 |
| | **Aug** | **8.0** | 32 | 170 | 3.0 | 1.1 | 0.000019 | 0.0076 | 0.20 | 0.19 | 0.019 | 0.000074 | 95 | 0.000056 |
| | **Sep** | **8.1** | 34 | 146 | 2.6 | 0.96 | 0.000016 | 0.0080 | 0.17 | 0.16 | 0.020 | 0.000063 | 81 | 0.000048 |
| | **Oct** | **8.1** | 37 | 113 | 2.0 | 0.74 | 0.000012 | 0.0088 | 0.13 | 0.12 | 0.024 | 0.000049 | 63 | 0.000037 |
| **Year 7** | **Mar** | **8.2** | 42 | 83 | 1.5 | 0.55 | 0.0000091 | 0.0099 | 0.098 | 0.091 | 0.020 | 0.000036 | 47 | 0.000027 |
| | **Apr** | **8.0** | 33 | 168 | 2.9 | 1.1 | 0.000018 | 0.0076 | 0.20 | 0.18 | 0.019 | 0.00007 | 94 | 0.000055 |
| | **May** | **8.0** | 32 | 172 | 3.0 | 1.1 | 0.000019 | 0.0076 | 0.20 | 0.19 | 0.019 | 0.000075 | 96 | 0.000056 |
| | **Jun** | **8.0** | 32 | 170 | 3.0 | 1.1 | 0.000019 | 0.0076 | 0.20 | 0.19 | 0.019 | 0.000074 | 95 | 0.000056 |
| | **Jul** | **8.0** | 31 | 186 | 3.3 | 1.2 | 0.000020 | 0.0074 | 0.22 | 0.20 | 0.018 | 0.000081 | 104 | 0.000061 |
| | **Aug** | **8.0** | 33 | 168 | 2.9 | 1.1 | 0.000018 | 0.0076 | 0.20 | 0.18 | 0.019 | 0.000073 | 94 | 0.000055 |
| | **Sep** | **8.1** | 34 | 143 | 2.5 | 0.94 | 0.000016 | 0.0081 | 0.17 | 0.16 | 0.021 | 0.000062 | 80 | 0.000047 |
| | **Oct** | **8.1** | 38 | 110 | 1.9 | 0.73 | 0.000012 | 0.0089 | 0.13 | 0.12 | 0.024 | 0.000048 | 61 | 0.000036 |
| **Year 8** | **Mar** | **8.2** | 42 | 83 | 1.5 | 0.55 | 0.0000091 | 0.0099 | 0.098 | 0.091 | 0.020 | 0.000036 | 47 | 0.000027 |
| | **Apr** | **8.0** | 32 | 169 | 3.0 | 1.1 | 0.000019 | 0.0076 | 0.20 | 0.18 | 0.019 | 0.00007 | 94 | 0.000055 |
| | **May** | **8.0** | 32 | 172 | 3.0 | 1.1 | 0.000019 | 0.0076 | 0.20 | 0.19 | 0.019 | 0.000075 | 96 | 0.000056 |
| | **Jun** | **8.0** | 32 | 170 | 3.0 | 1.1 | 0.000019 | 0.0076 | 0.20 | 0.19 | 0.019 | 0.000074 | 95 | 0.000056 |
| | **Jul** | **8.0** | 31 | 186 | 3.3 | 1.2 | 0.000020 | 0.0074 | 0.22 | 0.20 | 0.018 | 0.000081 | 104 | 0.000061 |
| | **Aug** | **8.0** | 33 | 168 | 2.9 | 1.1 | 0.000018 | 0.0076 | 0.20 | 0.18 | 0.019 | 0.000073 | 94 | 0.000055 |
| | **Sep** | **8.1** | 34 | 143 | 2.5 | 0.94 | 0.000016 | 0.0081 | 0.17 | 0.16 | 0.021 | 0.000062 | 79 | 0.000047 |
| | **Oct** | **8.1** | 38 | 110 | 1.9 | 0.72 | 0.000012 | 0.0089 | 0.13 | 0.12 | 0.024 | 0.000048 | 61 | 0.000036 |
| **Year 9** | **Mar** | **8.2** | 42 | 83 | 1.5 | 0.55 | 0.0000091 | 0.0099 | 0.097 | 0.090 | 0.020 | 0.000036 | 47 | 0.000027 |
| | **Apr** | **8.0** | 32 | 169 | 3.0 | 1.1 | 0.000018 | 0.0076 | 0.20 | 0.18 | 0.019 | 0.00007 | 94 | 0.000055 |
| | **May** | **8.0** | 32 | 172 | 3.0 | 1.1 | 0.000019 | 0.0076 | 0.20 | 0.19 | 0.019 | 0.000075 | 96 | 0.000056 |
| | **Jun** | **8.0** | 32 | 170 | 3.0 | 1.1 | 0.000019 | 0.0076 | 0.20 | 0.19 | 0.019 | 0.000074 | 95 | 0.000056 |
| | **Jul** | **8.0** | 31 | 186 | 3.3 | 1.2 | 0.000020 | 0.0074 | 0.22 | 0.20 | 0.018 | 0.000081 | 104 | 0.000061 |
| | **Aug** | **8.0** | 33 | 168 | 2.9 | 1.1 | 0.000018 | 0.0076 | 0.20 | 0.18 | 0.019 | 0.000073 | 94 | 0.000055 |
| | **Sep** | **8.1** | 34 | 143 | 2.5 | 0.94 | 0.000016 | 0.0081 | 0.17 | 0.16 | 0.021 | 0.000062 | 80 | 0.000047 |
| | **Oct** | **8.1** | 38 | 111 | 1.9 | 0.73 | 0.000012 | 0.0089 | 0.13 | 0.12 | 0.024 | 0.000048 | 62 | 0.000036 |
| **PC** | **Mar** | **8.2** | 48 | 52 | 1.2 | 0.28 | 0.0000128 | 0.0114 | 0.075 | 0.091 | 0.016 | 0.000036 | 32 | 0.000018 |
| | **Apr** | **8.1** | 37 | 106 | 2.4 | 0.6 | 0.000026 | 0.0089 | 0.15 | 0.19 | 0.025 | 0.00007 | 62 | 0.000036 |
| | **May** | **8.1** | 37 | 107 | 2.4 | 0.6 | 0.000026 | 0.0088 | 0.16 | 0.19 | 0.025 | 0.000075 | 62 | 0.000036 |
| | **Jun** | **8.1** | 38 | 105 | 2.4 | 0.6 | 0.000026 | 0.0089 | 0.15 | 0.18 | 0.025 | 0.000073 | 61 | 0.000035 |
| | **Jul** | **8.1** | 36 | 114 | 2.6 | 0.6 | 0.000028 | 0.0086 | 0.17 | 0.20 | 0.024 | 0.000080 | 66 | 0.000039 |
| | **Aug** | **8.1** | 38 | 102 | 2.3 | 0.5 | 0.000025 | 0.0090 | 0.15 | 0.18 | 0.026 | 0.000072 | 60 | 0.000035 |
| | **Sep** | **8.1** | 40 | 87 | 2.0 | 0.46 | 0.000022 | 0.0095 | 0.13 | 0.15 | 0.026 | 0.000061 | 51 | 0.000029 |
| | **Oct** | **8.2** | 44 | 67 | 1.5 | 0.36 | 0.000017 | 0.0105 | 0.10 | 0.12 | 0.020 | 0.000047 | 40 | 0.000023 |

*all concentrations in mg/L*

**Appendix A.4: Pit Walls**

| | | pH | Co | Cr | Cu | Fe | Hg | K | Li | Mg | Mn | Mo | Na |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Year 1** | **Mar** | **8.2** | 0.00013 | 0.00012 | 0.0013 | 0.0015 | 0.0000090 | 5.7 | 0.0074 | 2.6 | 0.020 | 0.0086 | 1.8 |
| | **Apr** | **8.1** | 0.00029 | 0.00026 | 0.0028 | 0.0016 | 0.000019 | 12 | 0.016 | 5.5 | 0.043 | 0.018 | 3.8 |
| | **May** | **8.1** | 0.00047 | 0.00043 | 0.0046 | 0.0018 | 0.000032 | 20 | 0.026 | 9.1 | 0.072 | 0.030 | 6.3 |
| | **Jun** | **8.0** | 0.00068 | 0.00062 | 0.0066 | 0.0020 | 0.000046 | 29 | 0.038 | 13 | 0.10 | 0.043 | 9.1 |
| | **Jul** | **7.9** | 0.00089 | 0.00081 | 0.0086 | 0.0021 | 0.000059 | 38 | 0.049 | 17 | 0.13 | 0.057 | 12 |
| | **Aug** | **7.9** | 0.00093 | 0.00085 | 0.0090 | 0.0021 | 0.000062 | 40 | 0.052 | 18 | 0.14 | 0.059 | 12 |
| | **Sep** | **7.9** | 0.00090 | 0.00082 | 0.0087 | 0.0021 | 0.000061 | 39 | 0.050 | 17 | 0.14 | 0.058 | 12 |
| | **Oct** | **8.0** | 0.00078 | 0.00071 | 0.0075 | 0.0020 | 0.000052 | 33 | 0.043 | 15 | 0.12 | 0.050 | 10 |
| **Year 2** | **Mar** | **8.2** | 0.00023 | 0.00021 | 0.0022 | 0.0015 | 0.000015 | 9.7 | 0.013 | 4.4 | 0.035 | 0.015 | 3.0 |
| | **Apr** | **8.1** | 0.00042 | 0.00039 | 0.0041 | 0.0017 | 0.000028 | 18 | 0.024 | 8.1 | 0.064 | 0.027 | 5.7 |
| | **May** | **8.0** | 0.00054 | 0.00049 | 0.0052 | 0.0018 | 0.000036 | 23 | 0.030 | 10 | 0.082 | 0.035 | 7.2 |
| | **Jun** | **8.0** | 0.00066 | 0.00060 | 0.0064 | 0.0019 | 0.000044 | 28 | 0.036 | 13 | 0.100 | 0.042 | 8.8 |
| | **Jul** | **8.0** | 0.00079 | 0.00072 | 0.0076 | 0.0020 | 0.000053 | 34 | 0.044 | 15 | 0.12 | 0.050 | 10 |
| | **Aug** | **8.0** | 0.00077 | 0.00070 | 0.0075 | 0.0020 | 0.000052 | 33 | 0.043 | 15 | 0.12 | 0.049 | 10 |
| | **Sep** | **8.0** | 0.00071 | 0.00065 | 0.0069 | 0.0020 | 0.000048 | 30 | 0.039 | 14 | 0.11 | 0.045 | 9.5 |
| | **Oct** | **8.0** | 0.00059 | 0.00053 | 0.0057 | 0.0019 | 0.000039 | 25 | 0.033 | 11 | 0.089 | 0.037 | 7.8 |
| **Year 3** | **Mar** | **8.2** | 0.00025 | 0.00023 | 0.0024 | 0.0016 | 0.000017 | 11 | 0.014 | 4.8 | 0.038 | 0.016 | 3.4 |
| | **Apr** | **8.1** | 0.00047 | 0.00043 | 0.0046 | 0.0018 | 0.000032 | 20 | 0.026 | 9 | 0.071 | 0.030 | 6.3 |
| | **May** | **8.0** | 0.00053 | 0.00049 | 0.0052 | 0.0018 | 0.000036 | 23 | 0.030 | 10 | 0.081 | 0.034 | 7.1 |
| | **Jun** | **8.0** | 0.00059 | 0.00054 | 0.0057 | 0.0019 | 0.000039 | 25 | 0.033 | 11 | 0.089 | 0.038 | 7.9 |
| | **Jul** | **8.0** | 0.00067 | 0.00061 | 0.0065 | 0.0019 | 0.000045 | 29 | 0.037 | 13 | 0.10 | 0.043 | 8.9 |
| | **Aug** | **8.0** | 0.00063 | 0.00057 | 0.0061 | 0.0019 | 0.000042 | 27 | 0.035 | 12 | 0.095 | 0.040 | 8.4 |
| | **Sep** | **8.0** | 0.00055 | 0.00051 | 0.0054 | 0.0019 | 0.000037 | 24 | 0.031 | 11 | 0.084 | 0.035 | 7.4 |
| | **Oct** | **8.1** | 0.00044 | 0.00040 | 0.0043 | 0.0018 | 0.000030 | 19 | 0.025 | 8.5 | 0.067 | 0.028 | 5.9 |
| **Year 4** | **Mar** | **8.2** | 0.00027 | 0.00024 | 0.0026 | 0.0016 | 0.000018 | 11 | 0.015 | 5.1 | 0.040 | 0.017 | 3.6 |
| | **Apr** | **8.0** | 0.00051 | 0.00047 | 0.0050 | 0.0018 | 0.000034 | 22 | 0.029 | 10 | 0.08 | 0.033 | 6.9 |
| | **May** | **8.0** | 0.00055 | 0.00050 | 0.0053 | 0.0018 | 0.000037 | 23 | 0.030 | 10 | 0.083 | 0.035 | 7.3 |
| | **Jun** | **8.0** | 0.00056 | 0.00051 | 0.0055 | 0.0019 | 0.000038 | 24 | 0.031 | 11 | 0.086 | 0.036 | 7.5 |
| | **Jul** | **8.0** | 0.00062 | 0.00057 | 0.0060 | 0.0019 | 0.000042 | 27 | 0.035 | 12 | 0.095 | 0.040 | 8.3 |
| | **Aug** | **8.0** | 0.00057 | 0.00052 | 0.0055 | 0.0019 | 0.000038 | 24 | 0.032 | 11 | 0.086 | 0.036 | 7.6 |
| | **Sep** | **8.1** | 0.00049 | 0.00044 | 0.0047 | 0.0018 | 0.000033 | 21 | 0.027 | 9.4 | 0.074 | 0.031 | 6.5 |
| | **Oct** | **8.1** | 0.00038 | 0.00035 | 0.0037 | 0.0017 | 0.000026 | 16 | 0.021 | 7.3 | 0.058 | 0.024 | 5.1 |
| **Year 5** | **Mar** | **8.2** | 0.00027 | 0.00025 | 0.0026 | 0.0016 | 0.000018 | 11 | 0.015 | 5.2 | 0.041 | 0.017 | 3.6 |
| | **Apr** | **8.0** | 0.00054 | 0.00049 | 0.0052 | 0.0018 | 0.000036 | 23 | 0.030 | 10 | 0.08 | 0.034 | 7 |
| | **May** | **8.0** | 0.00056 | 0.00051 | 0.0054 | 0.0019 | 0.000037 | 24 | 0.031 | 11 | 0.08 | 0.035 | 7.4 |
| | **Jun** | **8.0** | 0.00056 | 0.00051 | 0.0054 | 0.0019 | 0.000037 | 24 | 0.031 | 11 | 0.085 | 0.036 | 7.5 |
| | **Jul** | **8.0** | 0.00061 | 0.00056 | 0.0059 | 0.0019 | 0.000041 | 26 | 0.034 | 12 | 0.093 | 0.039 | 8.2 |
| | **Aug** | **8.0** | 0.00056 | 0.00051 | 0.0054 | 0.0019 | 0.000037 | 24 | 0.031 | 11 | 0.084 | 0.036 | 7.4 |
| | **Sep** | **8.1** | 0.00048 | 0.00043 | 0.0046 | 0.0018 | 0.000032 | 20 | 0.026 | 9.1 | 0.072 | 0.030 | 6.4 |
| | **Oct** | **8.1** | 0.00037 | 0.00034 | 0.0036 | 0.0017 | 0.000025 | 16 | 0.021 | 7.1 | 0.056 | 0.024 | 4.9 |

**Appendix A.4: Pit Walls**

| | | pH | Co | Cr | Cu | Fe | Hg | K | Li | Mg | Mn | Mo | Na |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Year 6** | **Mar** | **8.2** | 0.00027 | 0.00025 | 0.0026 | 0.0016 | 0.000018 | 11 | 0.015 | 5.2 | 0.041 | 0.017 | 3.6 |
| | **Apr** | **8.0** | 0.00054 | 0.00049 | 0.0052 | 0.0018 | 0.000036 | 23 | 0.030 | 10 | 0.08 | 0.035 | 7 |
| | **May** | **8.0** | 0.00056 | 0.00051 | 0.0054 | 0.0019 | 0.000037 | 24 | 0.031 | 11 | 0.08 | 0.036 | 7.4 |
| | **Jun** | **8.0** | 0.00056 | 0.00051 | 0.0054 | 0.0019 | 0.000037 | 24 | 0.031 | 11 | 0.084 | 0.036 | 7.4 |
| | **Jul** | **8.0** | 0.00061 | 0.00056 | 0.0059 | 0.0019 | 0.000041 | 26 | 0.034 | 12 | 0.093 | 0.039 | 8.2 |
| | **Aug** | **8.0** | 0.00055 | 0.00050 | 0.0054 | 0.0019 | 0.000037 | 24 | 0.031 | 11 | 0.084 | 0.035 | 7.4 |
| | **Sep** | **8.1** | 0.00047 | 0.00043 | 0.0046 | 0.0018 | 0.000032 | 20 | 0.026 | 9.1 | 0.072 | 0.030 | 6.3 |
| | **Oct** | **8.1** | 0.00037 | 0.00033 | 0.0036 | 0.0017 | 0.000025 | 16 | 0.020 | 7.0 | 0.056 | 0.023 | 4.9 |
| **Year 7** | **Mar** | **8.2** | 0.00027 | 0.00025 | 0.0026 | 0.0016 | 0.000018 | 12 | 0.015 | 5.2 | 0.041 | 0.017 | 3.6 |
| | **Apr** | **8.0** | 0.00054 | 0.00050 | 0.0053 | 0.0018 | 0.000037 | 23 | 0.030 | 10 | 0.08 | 0.035 | 7 |
| | **May** | **8.0** | 0.00056 | 0.00051 | 0.0054 | 0.0019 | 0.000037 | 24 | 0.031 | 11 | 0.08 | 0.036 | 7.4 |
| | **Jun** | **8.0** | 0.00055 | 0.00050 | 0.0054 | 0.0019 | 0.000037 | 24 | 0.031 | 11 | 0.084 | 0.035 | 7.4 |
| | **Jul** | **8.0** | 0.00061 | 0.00055 | 0.0059 | 0.0019 | 0.000041 | 26 | 0.034 | 12 | 0.092 | 0.039 | 8.1 |
| | **Aug** | **8.0** | 0.00055 | 0.00050 | 0.0053 | 0.0018 | 0.000037 | 23 | 0.030 | 10 | 0.083 | 0.035 | 7.3 |
| | **Sep** | **8.1** | 0.00046 | 0.00042 | 0.0045 | 0.0018 | 0.000031 | 20 | 0.026 | 8.9 | 0.071 | 0.030 | 6.2 |
| | **Oct** | **8.1** | 0.00036 | 0.00033 | 0.0035 | 0.0017 | 0.000024 | 15 | 0.020 | 6.9 | 0.054 | 0.023 | 4.8 |
| **Year 8** | **Mar** | **8.2** | 0.00027 | 0.00025 | 0.0026 | 0.0016 | 0.000018 | 12 | 0.015 | 5.2 | 0.041 | 0.017 | 3.6 |
| | **Apr** | **8.0** | 0.00055 | 0.00050 | 0.0053 | 0.0019 | 0.000037 | 24 | 0.031 | 11 | 0.08 | 0.035 | 7 |
| | **May** | **8.0** | 0.00056 | 0.00051 | 0.0054 | 0.0019 | 0.000038 | 24 | 0.031 | 11 | 0.08 | 0.036 | 7.5 |
| | **Jun** | **8.0** | 0.00055 | 0.00050 | 0.0054 | 0.0019 | 0.000037 | 24 | 0.031 | 11 | 0.084 | 0.035 | 7.4 |
| | **Jul** | **8.0** | 0.00060 | 0.00055 | 0.0059 | 0.0019 | 0.000041 | 26 | 0.034 | 12 | 0.092 | 0.039 | 8.1 |
| | **Aug** | **8.0** | 0.00054 | 0.00050 | 0.0053 | 0.0018 | 0.000037 | 23 | 0.030 | 10 | 0.083 | 0.035 | 7.3 |
| | **Sep** | **8.1** | 0.00046 | 0.00042 | 0.0045 | 0.0018 | 0.000031 | 20 | 0.026 | 8.9 | 0.070 | 0.030 | 6.2 |
| | **Oct** | **8.1** | 0.00036 | 0.00033 | 0.0035 | 0.0017 | 0.000024 | 15 | 0.020 | 6.9 | 0.054 | 0.023 | 4.8 |
| **Year 9** | **Mar** | **8.2** | 0.00027 | 0.00025 | 0.0026 | 0.0016 | 0.000018 | 12 | 0.015 | 5.2 | 0.041 | 0.017 | 3.6 |
| | **Apr** | **8.0** | 0.00055 | 0.00050 | 0.0053 | 0.0019 | 0.000037 | 23 | 0.030 | 11 | 0.08 | 0.035 | 7 |
| | **May** | **8.0** | 0.00056 | 0.00051 | 0.0054 | 0.0019 | 0.000037 | 24 | 0.031 | 11 | 0.08 | 0.036 | 7.5 |
| | **Jun** | **8.0** | 0.00055 | 0.00050 | 0.0054 | 0.0019 | 0.000037 | 24 | 0.031 | 11 | 0.084 | 0.035 | 7.4 |
| | **Jul** | **8.0** | 0.00061 | 0.00055 | 0.0059 | 0.0019 | 0.000041 | 26 | 0.034 | 12 | 0.092 | 0.039 | 8.1 |
| | **Aug** | **8.0** | 0.00055 | 0.00050 | 0.0053 | 0.0018 | 0.000037 | 23 | 0.030 | 10 | 0.083 | 0.035 | 7.3 |
| | **Sep** | **8.1** | 0.00047 | 0.00042 | 0.0045 | 0.0018 | 0.000031 | 20 | 0.026 | 8.9 | 0.071 | 0.030 | 6.2 |
| | **Oct** | **8.1** | 0.00036 | 0.00033 | 0.0035 | 0.0017 | 0.000024 | 15 | 0.020 | 6.9 | 0.055 | 0.023 | 4.8 |
| **PC** | **Mar** | **8.2** | 0.00017 | 0.00043 | 0.0019 | 0.0015 | 0.000018 | 7 | 0.009 | 3.5 | 0.023 | 0.007 | 0.8 |
| | **Apr** | **8.1** | 0.00034 | 0.00087 | 0.0040 | 0.0017 | 0.000037 | 14 | 0.019 | 7 | 0.05 | 0.015 | 2 |
| | **May** | **8.1** | 0.00034 | 0.00088 | 0.0040 | 0.0017 | 0.000037 | 14 | 0.019 | 7 | 0.05 | 0.015 | 1.7 |
| | **Jun** | **8.1** | 0.00034 | 0.00086 | 0.0039 | 0.0017 | 0.000037 | 14 | 0.019 | 7 | 0.047 | 0.015 | 1.7 |
| | **Jul** | **8.1** | 0.00037 | 0.00094 | 0.0043 | 0.0017 | 0.000040 | 15 | 0.021 | 8 | 0.052 | 0.016 | 1.8 |
| | **Aug** | **8.1** | 0.00033 | 0.00084 | 0.0038 | 0.0017 | 0.000036 | 14 | 0.018 | 7 | 0.046 | 0.014 | 1.6 |
| | **Sep** | **8.1** | 0.00028 | 0.00072 | 0.0033 | 0.0016 | 0.000030 | 12 | 0.016 | 5.9 | 0.039 | 0.012 | 1.4 |
| | **Oct** | **8.2** | 0.00021 | 0.00055 | 0.0025 | 0.0015 | 0.000023 | 9 | 0.012 | 4.5 | 0.030 | 0.009 | 1.1 |

*all concentrations in mg/L*

**Appendix A.4: Pit Walls**

| | | pH | Ni | P | Pb | Sb | Se | Si | Sn | Sr | Tl | U | V | Zn |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Year 1** | **Mar** | **8.2** | 0.00067 | 0.0025 | 0.00011 | 0.017 | 0.0041 | 2.6 | 0.00015 | 0.27 | 0.000022 | 0.0100 | 0.00037 | 0.0012 |
| | **Apr** | **8.1** | 0.0014 | 0.0053 | 0.00023 | 0.036 | 0.0088 | 5.2 | 0.00033 | 0.58 | 0.000047 | 0.021 | 0.00079 | 0.0025 |
| | **May** | **8.1** | 0.0024 | 0.0087 | 0.00039 | 0.060 | 0.015 | 5.2 | 0.00054 | 0.96 | 0.000077 | 0.035 | 0.0013 | 0.0041 |
| | **Jun** | **8.0** | 0.0034 | 0.012 | 0.00056 | 0.086 | 0.021 | 5.2 | 0.00077 | 1.4 | 0.00011 | 0.050 | 0.0019 | 0.0059 |
| | **Jul** | **7.9** | 0.0044 | 0.016 | 0.00072 | 0.11 | 0.027 | 5.2 | 0.0010 | 1.8 | 0.00014 | 0.066 | 0.0024 | 0.0077 |
| | **Aug** | **7.9** | 0.0047 | 0.017 | 0.00076 | 0.12 | 0.029 | 5.2 | 0.0011 | 1.9 | 0.00015 | 0.069 | 0.0026 | 0.0080 |
| | **Sep** | **7.9** | 0.0045 | 0.017 | 0.00074 | 0.11 | 0.028 | 5.2 | 0.0010 | 1.8 | 0.00015 | 0.067 | 0.0025 | 0.0078 |
| | **Oct** | **8.0** | 0.0039 | 0.014 | 0.00064 | 0.098 | 0.024 | 5.2 | 0.00089 | 1.6 | 0.00013 | 0.058 | 0.0022 | 0.0067 |
| **Year 2** | **Mar** | **8.2** | 0.0011 | 0.0042 | 0.00019 | 0.029 | 0.0070 | 4.3 | 0.00026 | 0.46 | 0.000037 | 0.017 | 0.00063 | 0.0020 |
| | **Apr** | **8.1** | 0.0021 | 0.0078 | 0.00035 | 0.054 | 0.013 | 5.2 | 0.00048 | 0.9 | 0.000069 | 0.032 | 0.0012 | 0.0037 |
| | **May** | **8.0** | 0.0027 | 0.010 | 0.00044 | 0.068 | 0.017 | 5.2 | 0.00062 | 1.1 | 0.000088 | 0.040 | 0.0015 | 0.0047 |
| | **Jun** | **8.0** | 0.0033 | 0.012 | 0.00054 | 0.083 | 0.020 | 5.2 | 0.00075 | 1.3 | 0.00011 | 0.049 | 0.0018 | 0.0057 |
| | **Jul** | **8.0** | 0.0039 | 0.014 | 0.00064 | 0.099 | 0.024 | 5.2 | 0.00090 | 1.6 | 0.00013 | 0.058 | 0.0022 | 0.0068 |
| | **Aug** | **8.0** | 0.0039 | 0.014 | 0.00063 | 0.097 | 0.024 | 5.2 | 0.00088 | 1.6 | 0.00013 | 0.057 | 0.0021 | 0.0067 |
| | **Sep** | **8.0** | 0.0036 | 0.013 | 0.00058 | 0.089 | 0.022 | 5.2 | 0.00081 | 1.4 | 0.00012 | 0.053 | 0.0020 | 0.0061 |
| | **Oct** | **8.0** | 0.0029 | 0.011 | 0.00048 | 0.074 | 0.018 | 5.2 | 0.00067 | 1.2 | 0.000095 | 0.043 | 0.0016 | 0.0051 |
| **Year 3** | **Mar** | **8.2** | 0.0013 | 0.0046 | 0.00021 | 0.032 | 0.0090 | 4.8 | 0.00029 | 0.51 | 0.000041 | 0.019 | 0.00070 | 0.0022 |
| | **Apr** | **8.1** | 0.0024 | 0.009 | 0.00038 | 0.059 | 0.017 | 5.2 | 0.00054 | 1.0 | 0.00008 | 0.035 | 0.0013 | 0.0041 |
| | **May** | **8.0** | 0.0027 | 0.010 | 0.00044 | 0.067 | 0.019 | 5.2 | 0.00061 | 1.1 | 0.000087 | 0.040 | 0.0015 | 0.0046 |
| | **Jun** | **8.0** | 0.0030 | 0.011 | 0.00048 | 0.074 | 0.021 | 5.2 | 0.00067 | 1.2 | 0.000096 | 0.044 | 0.0016 | 0.0051 |
| | **Jul** | **8.0** | 0.0034 | 0.012 | 0.00055 | 0.085 | 0.024 | 5.2 | 0.00076 | 1.4 | 0.00011 | 0.050 | 0.0019 | 0.0058 |
| | **Aug** | **8.0** | 0.0031 | 0.012 | 0.00051 | 0.079 | 0.022 | 5.2 | 0.00072 | 1.3 | 0.00010 | 0.047 | 0.0017 | 0.0054 |
| | **Sep** | **8.0** | 0.0028 | 0.010 | 0.00045 | 0.070 | 0.020 | 5.2 | 0.00063 | 1.1 | 0.000090 | 0.041 | 0.0015 | 0.0048 |
| | **Oct** | **8.1** | 0.0022 | 0.0082 | 0.00036 | 0.056 | 0.016 | 5.2 | 0.00051 | 0.90 | 0.000072 | 0.033 | 0.0012 | 0.0038 |
| **Year 4** | **Mar** | **8.2** | 0.0013 | 0.0049 | 0.00022 | 0.034 | 0.011 | 5.1 | 0.00030 | 0.54 | 0.000043 | 0.020 | 0.00074 | 0.0023 |
| | **Apr** | **8.0** | 0.0026 | 0.009 | 0.00042 | 0.065 | 0.020 | 5.2 | 0.00059 | 1.0 | 0.00008 | 0.038 | 0.0014 | 0.0044 |
| | **May** | **8.0** | 0.0027 | 0.010 | 0.00045 | 0.069 | 0.022 | 5.2 | 0.00062 | 1.1 | 0.00009 | 0.041 | 0.0015 | 0.0047 |
| | **Jun** | **8.0** | 0.0028 | 0.010 | 0.00046 | 0.071 | 0.022 | 5.2 | 0.00064 | 1.1 | 0.000092 | 0.042 | 0.0016 | 0.0049 |
| | **Jul** | **8.0** | 0.0031 | 0.011 | 0.00051 | 0.079 | 0.025 | 5.2 | 0.00071 | 1.3 | 0.00010 | 0.046 | 0.0017 | 0.0054 |
| | **Aug** | **8.0** | 0.0028 | 0.010 | 0.00046 | 0.072 | 0.023 | 5.2 | 0.00065 | 1.1 | 0.000092 | 0.042 | 0.0016 | 0.0049 |
| | **Sep** | **8.1** | 0.0024 | 0.0090 | 0.00040 | 0.062 | 0.019 | 5.2 | 0.00056 | 0.99 | 0.000079 | 0.036 | 0.0013 | 0.0042 |
| | **Oct** | **8.1** | 0.0019 | 0.0070 | 0.00031 | 0.048 | 0.015 | 5.2 | 0.00043 | 0.77 | 0.000062 | 0.028 | 0.0011 | 0.0033 |
| **Year 5** | **Mar** | **8.2** | 0.0013 | 0.0049 | 0.00022 | 0.034 | 0.011 | 5.1 | 0.00031 | 0.54 | 0.000044 | 0.020 | 0.00074 | 0.0023 |
| | **Apr** | **8.0** | 0.0027 | 0.010 | 0.00044 | 0.068 | 0.023 | 5.2 | 0.00061 | 1.1 | 0.00009 | 0.040 | 0.0015 | 0.0046 |
| | **May** | **8.0** | 0.0028 | 0.010 | 0.00045 | 0.070 | 0.023 | 5.2 | 0.00063 | 1.1 | 0.00009 | 0.041 | 0.0015 | 0.0048 |
| | **Jun** | **8.0** | 0.0028 | 0.010 | 0.00046 | 0.070 | 0.024 | 5.2 | 0.00064 | 1.1 | 0.000091 | 0.041 | 0.0015 | 0.0048 |
| | **Jul** | **8.0** | 0.0031 | 0.011 | 0.00050 | 0.078 | 0.026 | 5.2 | 0.00070 | 1.2 | 0.00010 | 0.046 | 0.0017 | 0.0053 |
| | **Aug** | **8.0** | 0.0028 | 0.010 | 0.00045 | 0.070 | 0.024 | 5.2 | 0.00064 | 1.1 | 0.000091 | 0.041 | 0.0015 | 0.0048 |
| | **Sep** | **8.1** | 0.0024 | 0.0088 | 0.00039 | 0.060 | 0.020 | 5.2 | 0.00054 | 0.97 | 0.000078 | 0.035 | 0.0013 | 0.0041 |
| | **Oct** | **8.1** | 0.0019 | 0.0068 | 0.00030 | 0.047 | 0.016 | 5.2 | 0.00042 | 0.75 | 0.000060 | 0.027 | 0.0010 | 0.0032 |

**Appendix A.4: Pit Walls**

| | | pH | Ni | P | Pb | Sb | Se | Si | Sn | Sr | Tl | U | V | Zn |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Year 6** | **Mar** | **8.2** | 0.0013 | 0.0049 | 0.00022 | 0.034 | 0.012 | 5.1 | 0.00031 | 0.54 | 0.000044 | 0.020 | 0.00074 | 0.0023 |
| | **Apr** | **8.0** | 0.0027 | 0.010 | 0.00044 | 0.068 | 0.024 | 5.2 | 0.00062 | 1.1 | 0.00009 | 0.040 | 0.0015 | 0.0047 |
| | **May** | **8.0** | 0.0028 | 0.010 | 0.00046 | 0.070 | 0.024 | 5.2 | 0.00064 | 1.1 | 0.00009 | 0.041 | 0.0015 | 0.0048 |
| | **Jun** | **8.0** | 0.0028 | 0.010 | 0.00046 | 0.070 | 0.024 | 5.2 | 0.00064 | 1.1 | 0.000091 | 0.041 | 0.0015 | 0.0048 |
| | **Jul** | **8.0** | 0.0031 | 0.011 | 0.00050 | 0.077 | 0.027 | 5.2 | 0.00070 | 1.2 | 0.00010 | 0.045 | 0.0017 | 0.0053 |
| | **Aug** | **8.0** | 0.0028 | 0.010 | 0.00045 | 0.070 | 0.024 | 5.2 | 0.00063 | 1.1 | 0.000090 | 0.041 | 0.0015 | 0.0048 |
| | **Sep** | **8.1** | 0.0024 | 0.0087 | 0.00039 | 0.060 | 0.021 | 5.2 | 0.00054 | 0.96 | 0.000077 | 0.035 | 0.0013 | 0.0041 |
| | **Oct** | **8.1** | 0.0018 | 0.0067 | 0.00030 | 0.046 | 0.016 | 5.2 | 0.00042 | 0.74 | 0.000060 | 0.027 | 0.0010 | 0.0032 |
| **Year 7** | **Mar** | **8.2** | 0.0014 | 0.0050 | 0.00022 | 0.034 | 0.012 | 5.2 | 0.00031 | 0.55 | 0.000044 | 0.020 | 0.00075 | 0.0023 |
| | **Apr** | **8.0** | 0.0027 | 0.010 | 0.00045 | 0.069 | 0.025 | 5.2 | 0.00062 | 1.1 | 0.00009 | 0.040 | 0.0015 | 0.0047 |
| | **May** | **8.0** | 0.0028 | 0.010 | 0.00046 | 0.070 | 0.025 | 5.2 | 0.00064 | 1.1 | 0.00009 | 0.041 | 0.0015 | 0.0048 |
| | **Jun** | **8.0** | 0.0028 | 0.010 | 0.00045 | 0.070 | 0.025 | 5.2 | 0.00063 | 1.1 | 0.000090 | 0.041 | 0.0015 | 0.0048 |
| | **Jul** | **8.0** | 0.0030 | 0.011 | 0.00049 | 0.076 | 0.027 | 5.2 | 0.00069 | 1.2 | 0.000099 | 0.045 | 0.0017 | 0.0052 |
| | **Aug** | **8.0** | 0.0027 | 0.010 | 0.00045 | 0.069 | 0.025 | 5.2 | 0.00062 | 1.1 | 0.000089 | 0.040 | 0.0015 | 0.0047 |
| | **Sep** | **8.1** | 0.0023 | 0.0085 | 0.00038 | 0.059 | 0.021 | 5.2 | 0.00053 | 0.94 | 0.000076 | 0.034 | 0.0013 | 0.0040 |
| | **Oct** | **8.1** | 0.0018 | 0.0066 | 0.00029 | 0.045 | 0.016 | 5.2 | 0.00041 | 0.73 | 0.000058 | 0.027 | 0.00099 | 0.0031 |
| **Year 8** | **Mar** | **8.2** | 0.0014 | 0.0050 | 0.00022 | 0.034 | 0.013 | 5.1 | 0.00031 | 0.55 | 0.000044 | 0.020 | 0.00075 | 0.0023 |
| | **Apr** | **8.0** | 0.0028 | 0.010 | 0.00045 | 0.07 | 0.025 | 5.2 | 0.00063 | 1.1 | 0.00009 | 0.041 | 0.0015 | 0.0047 |
| | **May** | **8.0** | 0.0028 | 0.010 | 0.00046 | 0.071 | 0.026 | 5.2 | 0.00064 | 1.1 | 0.00009 | 0.042 | 0.0015 | 0.0048 |
| | **Jun** | **8.0** | 0.0028 | 0.010 | 0.00045 | 0.070 | 0.026 | 5.2 | 0.00063 | 1.1 | 0.000090 | 0.041 | 0.0015 | 0.0048 |
| | **Jul** | **8.0** | 0.0030 | 0.011 | 0.00049 | 0.076 | 0.028 | 5.2 | 0.00069 | 1.2 | 0.000098 | 0.045 | 0.0017 | 0.0052 |
| | **Aug** | **8.0** | 0.0027 | 0.010 | 0.00045 | 0.069 | 0.025 | 5.2 | 0.00062 | 1.1 | 0.000089 | 0.040 | 0.0015 | 0.0047 |
| | **Sep** | **8.1** | 0.0023 | 0.0085 | 0.00038 | 0.059 | 0.022 | 5.2 | 0.00053 | 0.94 | 0.000076 | 0.034 | 0.0013 | 0.0040 |
| | **Oct** | **8.1** | 0.0018 | 0.0066 | 0.00029 | 0.045 | 0.017 | 5.2 | 0.00041 | 0.73 | 0.000058 | 0.027 | 0.00099 | 0.0031 |
| **Year 9** | **Mar** | **8.2** | 0.0014 | 0.0050 | 0.00022 | 0.034 | 0.013 | 5.1 | 0.00031 | 0.55 | 0.000044 | 0.020 | 0.00075 | 0.0023 |
| | **Apr** | **8.0** | 0.0027 | 0.010 | 0.00045 | 0.07 | 0.026 | 5.2 | 0.00063 | 1.1 | 0.00009 | 0.041 | 0.0015 | 0.0047 |
| | **May** | **8.0** | 0.0028 | 0.010 | 0.00046 | 0.071 | 0.026 | 5.2 | 0.00064 | 1.1 | 0.00009 | 0.041 | 0.0015 | 0.0048 |
| | **Jun** | **8.0** | 0.0028 | 0.010 | 0.00045 | 0.070 | 0.026 | 5.2 | 0.00063 | 1.1 | 0.000090 | 0.041 | 0.0015 | 0.0048 |
| | **Jul** | **8.0** | 0.0030 | 0.011 | 0.00049 | 0.076 | 0.028 | 5.2 | 0.00069 | 1.2 | 0.000099 | 0.045 | 0.0017 | 0.0052 |
| | **Aug** | **8.0** | 0.0027 | 0.010 | 0.00045 | 0.069 | 0.026 | 5.2 | 0.00062 | 1.1 | 0.000089 | 0.041 | 0.0015 | 0.0047 |
| | **Sep** | **8.1** | 0.0023 | 0.0086 | 0.00038 | 0.059 | 0.022 | 5.2 | 0.00053 | 0.94 | 0.000076 | 0.035 | 0.0013 | 0.0040 |
| | **Oct** | **8.1** | 0.0018 | 0.0066 | 0.00029 | 0.045 | 0.017 | 5.2 | 0.00041 | 0.73 | 0.000059 | 0.027 | 0.00100 | 0.0031 |
| **PC** | **Mar** | **8.2** | 0.0010 | 0.0040 | 0.00040 | 0.021 | 0.008 | 3.7 | 0.00028 | 0.43 | 0.000035 | 0.011 | 0.00067 | 0.0017 |
| | **Apr** | **8.1** | 0.0021 | 0.008 | 0.00082 | 0.04 | 0.016 | 5.2 | 0.00056 | 0.9 | 0.00007 | 0.022 | 0.0014 | 0.0034 |
| | **May** | **8.1** | 0.0021 | 0.008 | 0.00083 | 0.043 | 0.016 | 5.2 | 0.00057 | 0.9 | 0.00007 | 0.022 | 0.0014 | 0.0035 |
| | **Jun** | **8.1** | 0.0021 | 0.008 | 0.00081 | 0.042 | 0.016 | 5.2 | 0.00056 | 0.9 | 0.000071 | 0.022 | 0.0014 | 0.0034 |
| | **Jul** | **8.1** | 0.0023 | 0.009 | 0.00088 | 0.046 | 0.017 | 5.2 | 0.00061 | 1.0 | 0.000077 | 0.024 | 0.0015 | 0.0037 |
| | **Aug** | **8.1** | 0.0020 | 0.0079 | 0.00079 | 0.041 | 0.016 | 5.2 | 0.00055 | 0.9 | 0.000069 | 0.021 | 0.0013 | 0.0033 |
| | **Sep** | **8.1** | 0.0017 | 0.0067 | 0.00067 | 0.035 | 0.013 | 5.2 | 0.00046 | 0.73 | 0.000059 | 0.018 | 0.0011 | 0.0028 |
| | **Oct** | **8.2** | 0.0013 | 0.0052 | 0.00052 | 0.027 | 0.010 | 4.8 | 0.00036 | 0.56 | 0.000045 | 0.014 | 0.00087 | 0.0022 |

*all concentrations in mg/L*

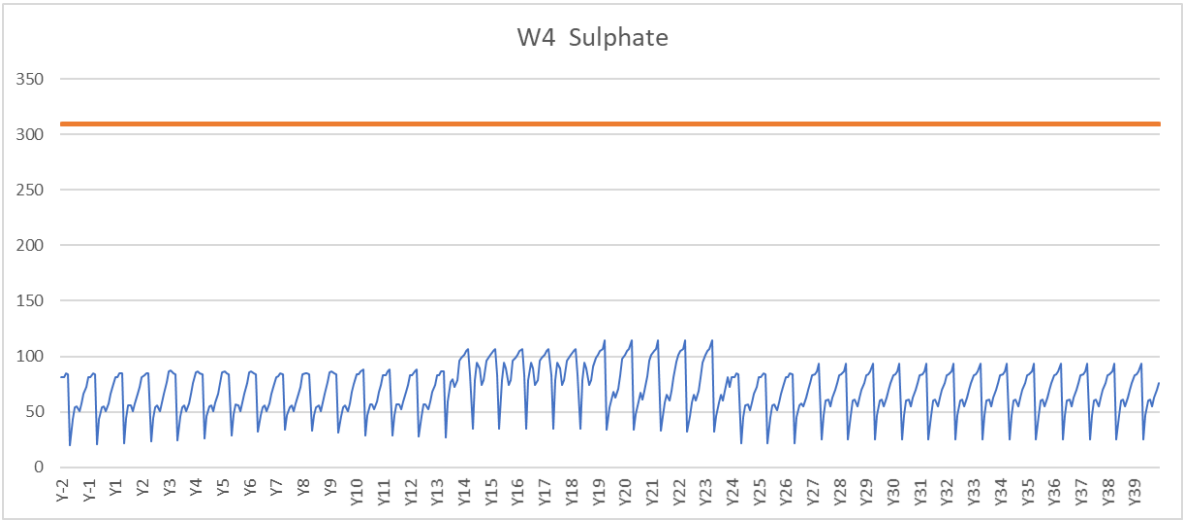
# *Appendix B: Water Quality Model Plots for all Parameters*

B.1. Haggart Creek below Dublin Gulch (W4) – Water Quality Predictions

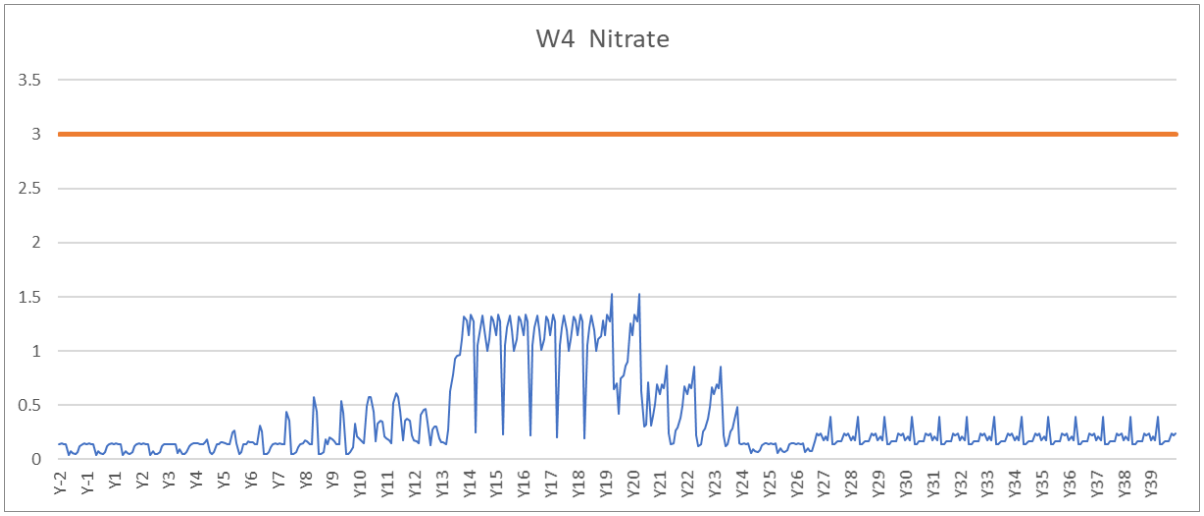
B.2. Haggart Creek below Eagle Creek (W29) – Water Quality Predictions

B.3. Haggart Creek below Lynx Creek (W23) – Water Quality Predictions

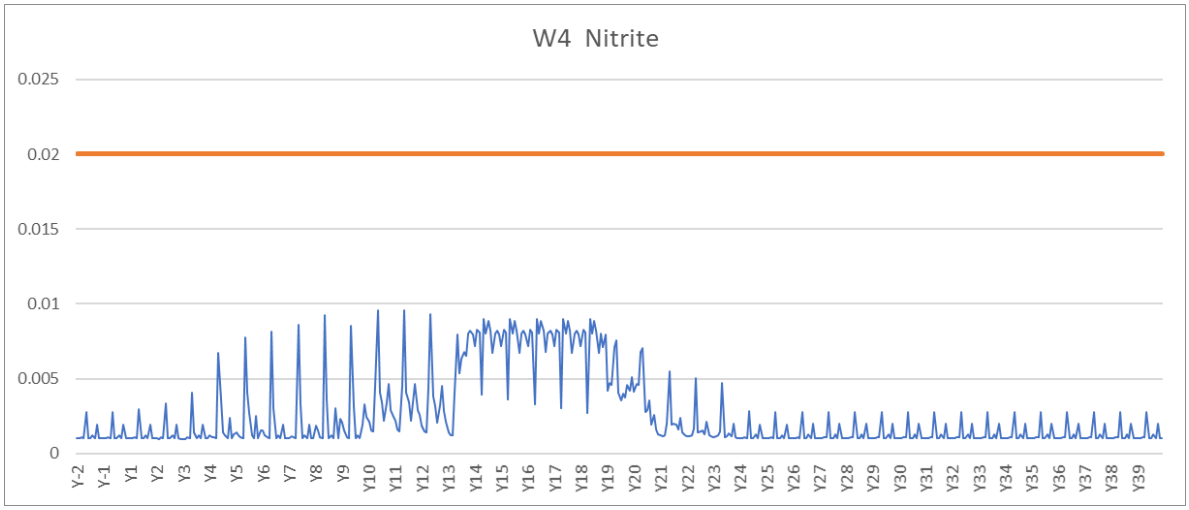
# B.1. Haggart Creek below Dublin Gulch (W4) – Water Quality Predictions



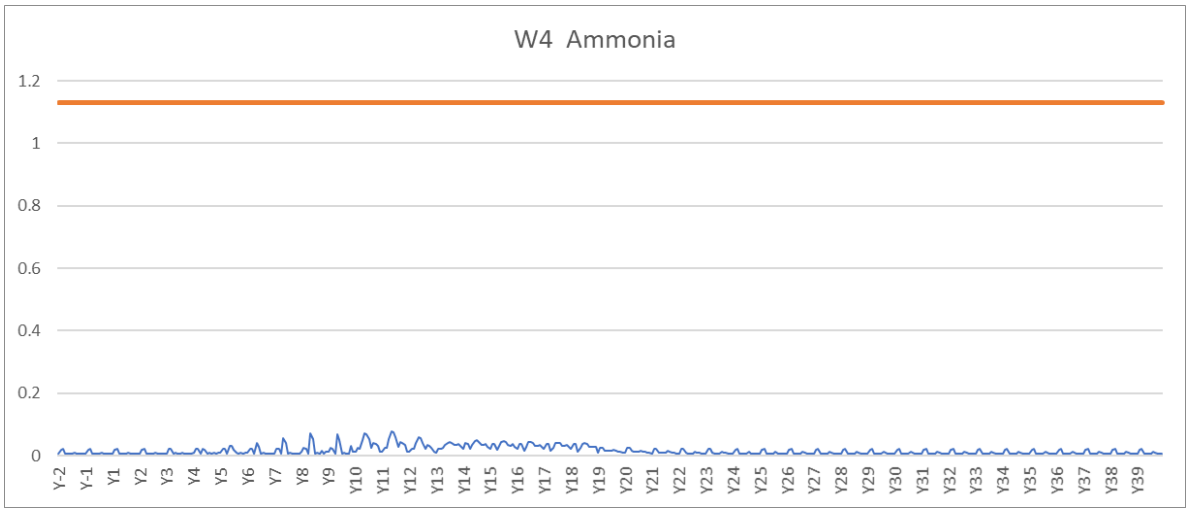

**B.1-1: Time series of predicted sulphate concentrations (mg/L) for W4. Water Quality Objective is shown by red line.**



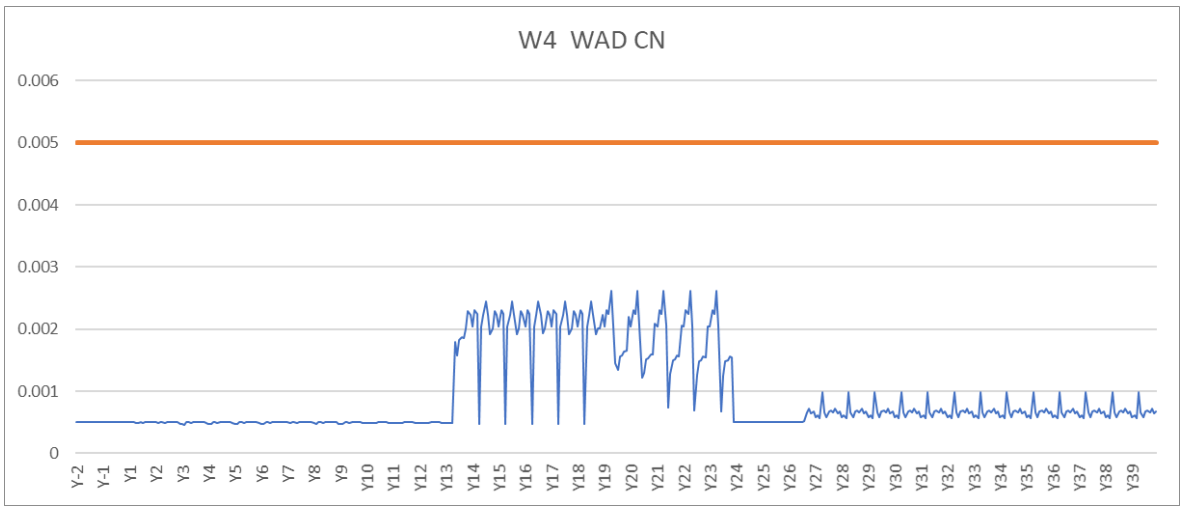

**B.1-2: Time series of predicted nitrate concentrations (mg/L) for W4. Water Quality Objective is shown by red line.**



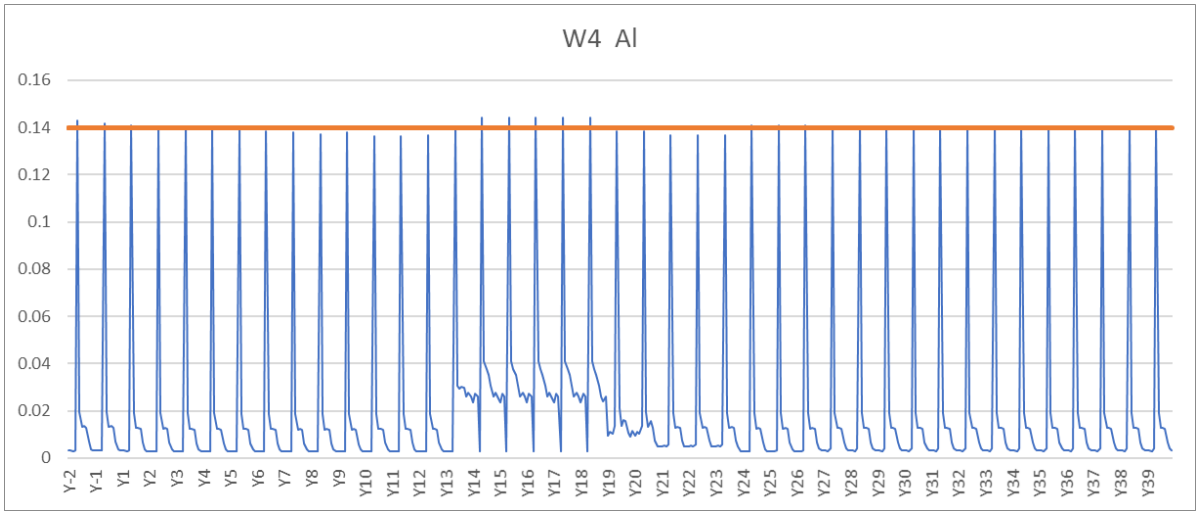

**B.1-3: Time series of predicted nitrite concentrations (mg/L) for W4. Water Quality Objective is shown by red line.**



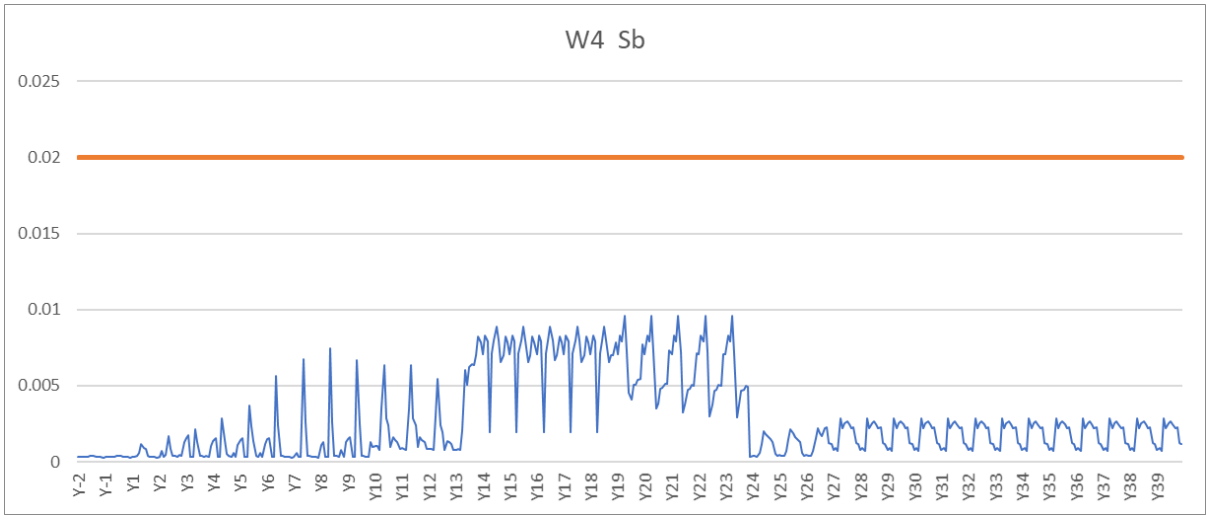

**B.1-4: Time series of predicted ammonia concentrations (mg/L) for W4. Water Quality Objective is shown by red line.**



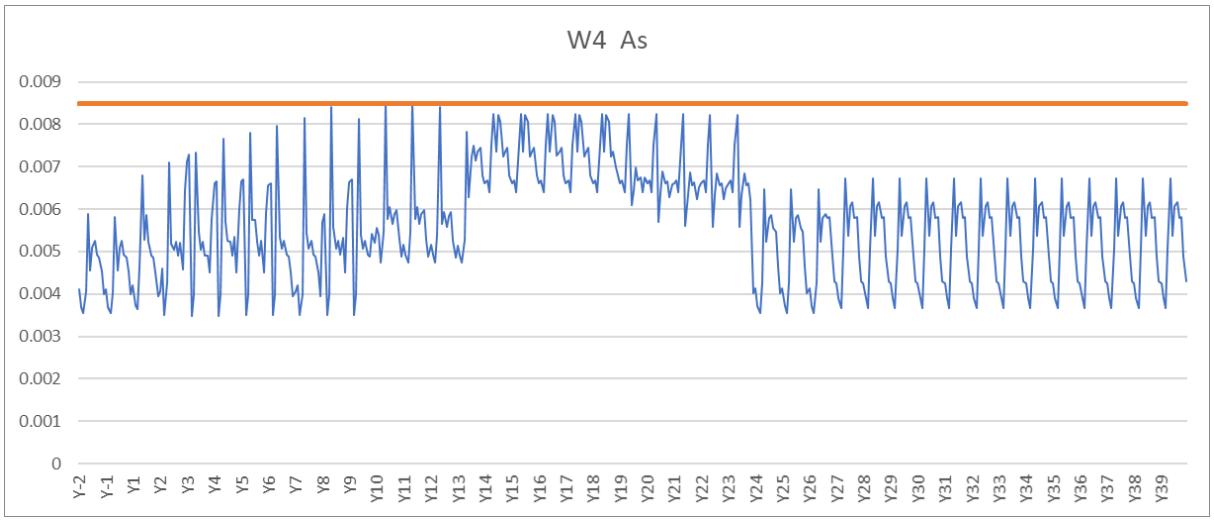

**B.1-5: Time series of predicted WAD-CN concentrations (mg/L) for W4. Water Quality Objective is shown by red line.**



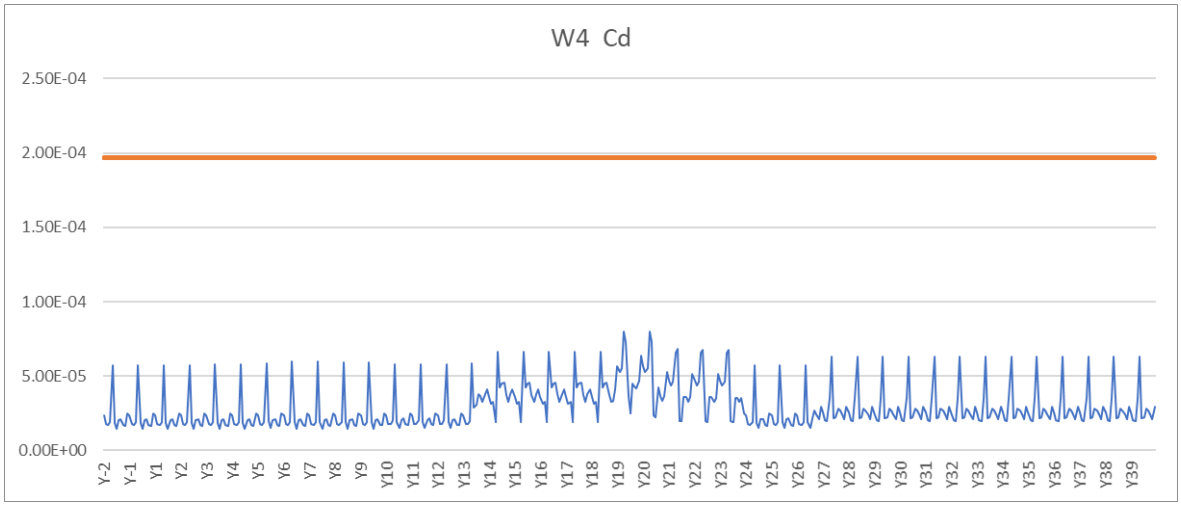

**B.1-6: Time series of predicted aluminum concentrations (mg/L) for W4. Water Quality Objective is shown by red line.**



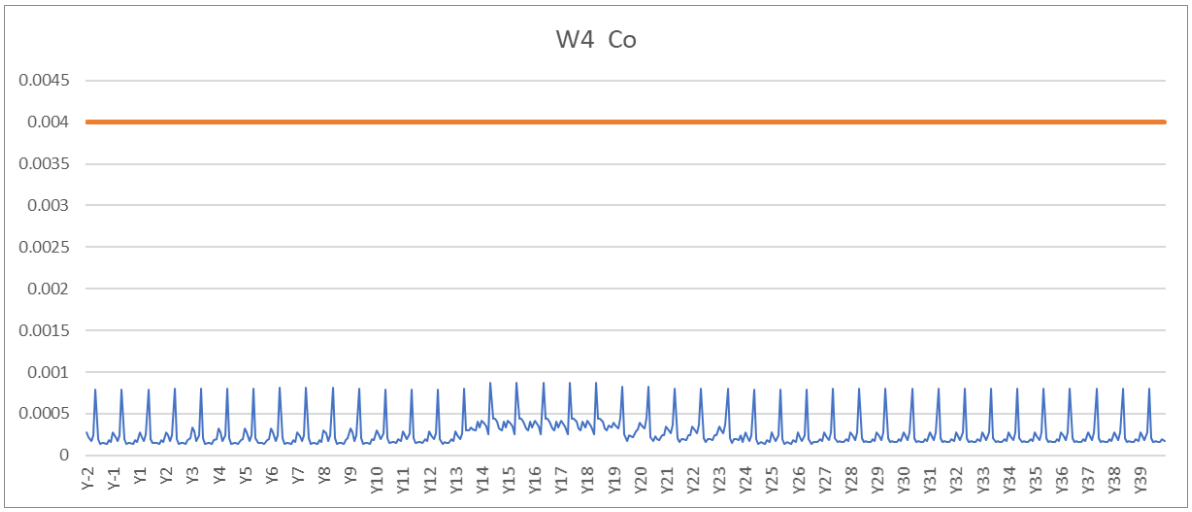

**B.1-7: Time series of predicted antimony concentrations (mg/L) for W4. Water Quality Objective is shown by red line.**



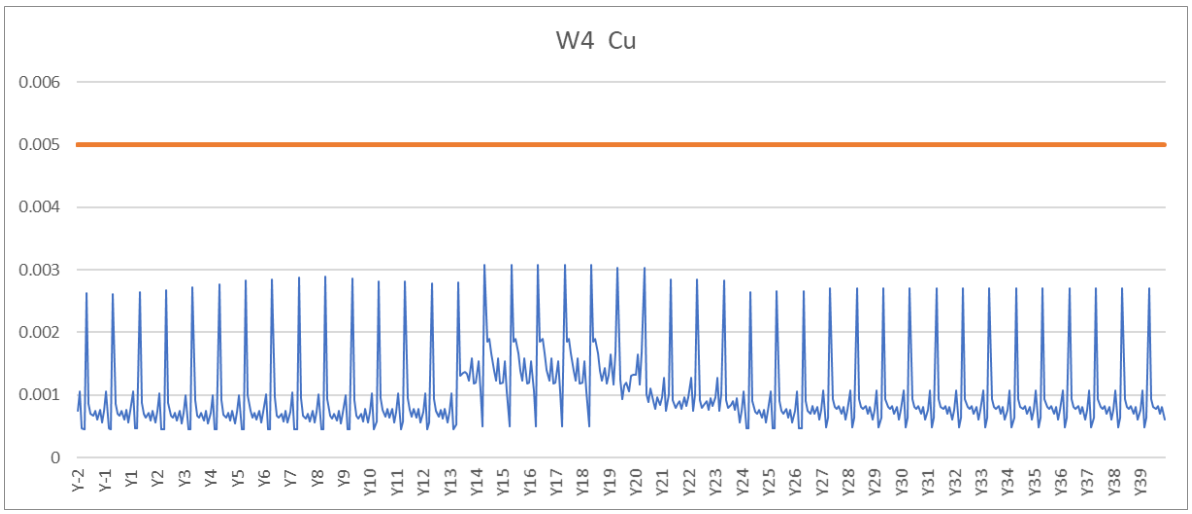

**B.1-8: Time series of predicted arsenic concentrations (mg/L) for W4. Water Quality Objective is shown by red line.**



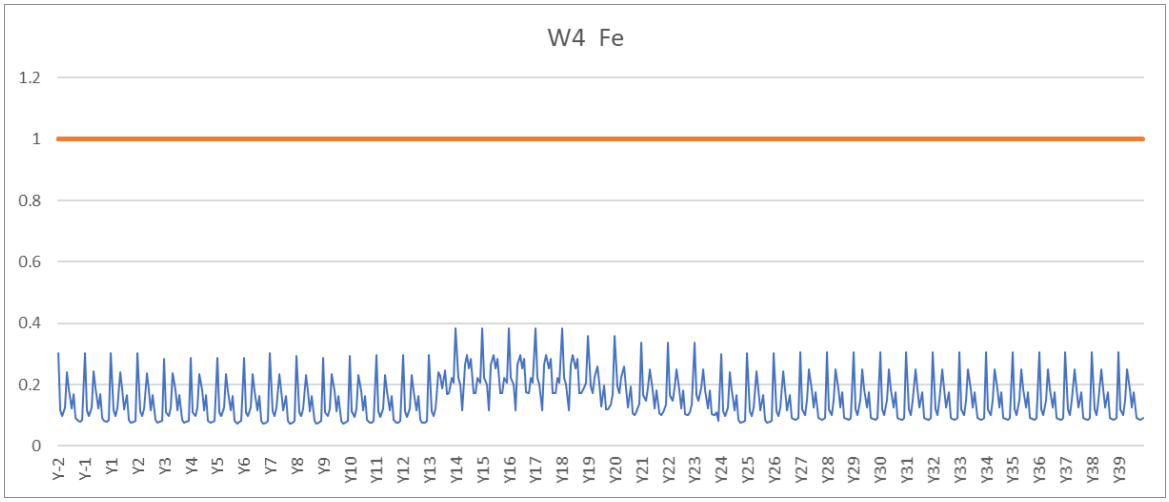

**B.1-9: Time series of predicted cadmium concentrations (mg/L) for W4. Water Quality Objective is shown by red line.**



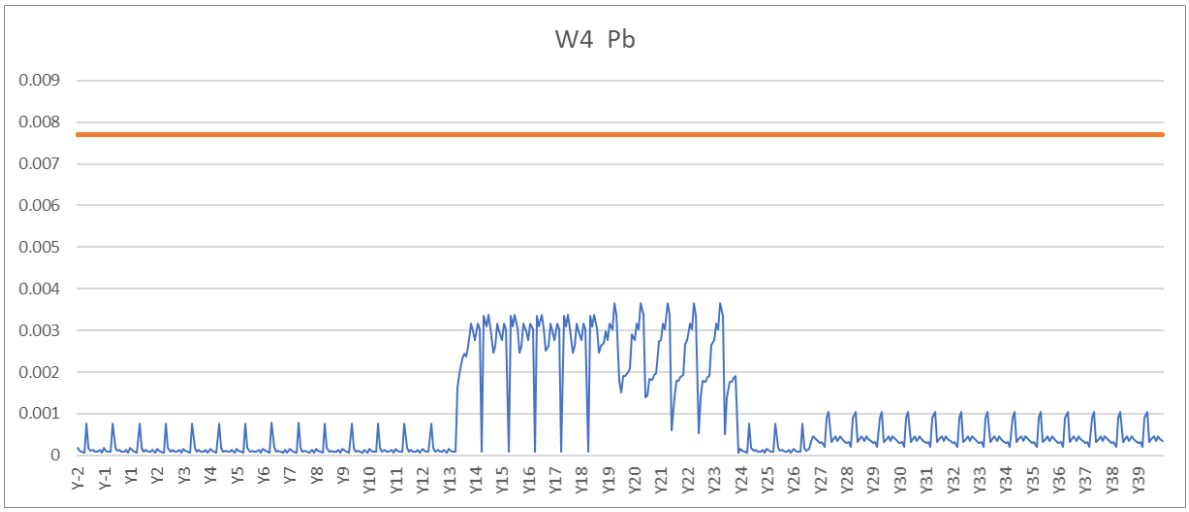

**B.1-10: Time series of predicted cobalt concentrations (mg/L) for W4. Water Quality Objective is shown by red line.**



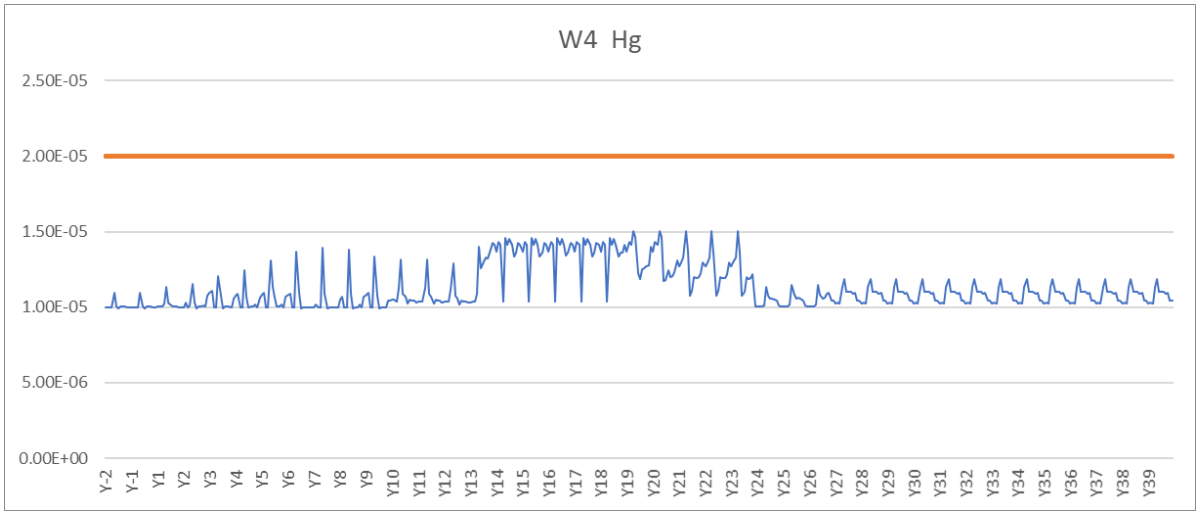

**B.1-11: Time series of predicted copper concentrations (mg/L) for W4. Water Quality Objective is shown by red line.**



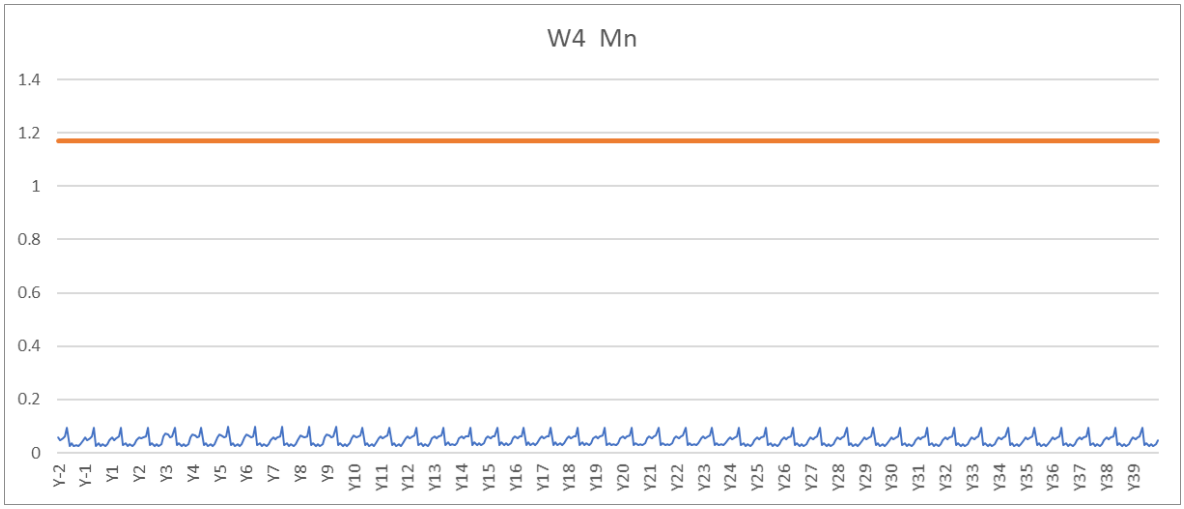

**B.1-12: Time series of predicted iron concentrations (mg/L) for W4. Water Quality Objective is shown by red line.**



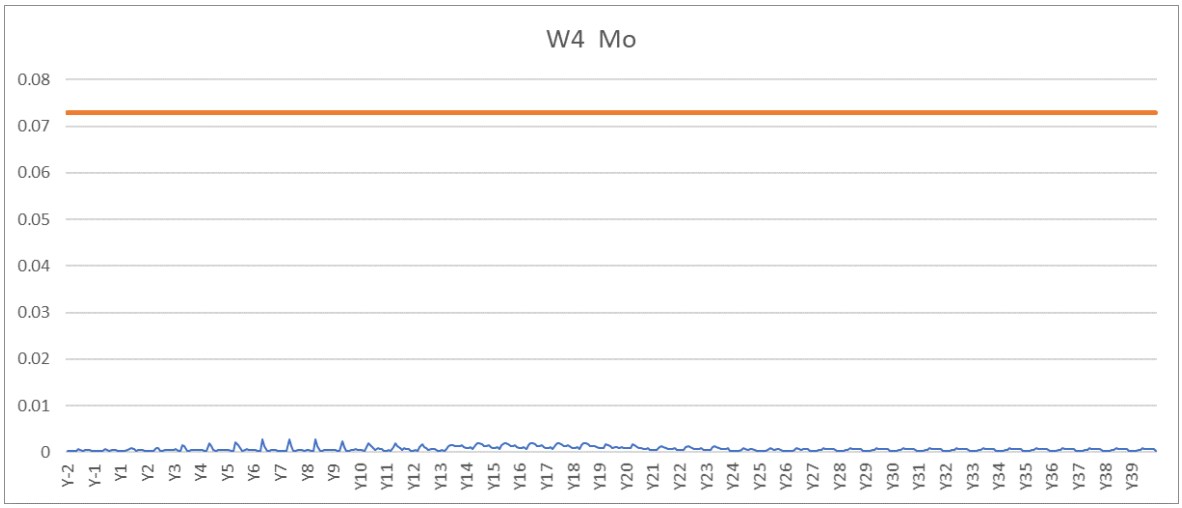

**B.1-13: Time series of predicted lead concentrations (mg/L) for W4. Water Quality Objective is shown by red line.**



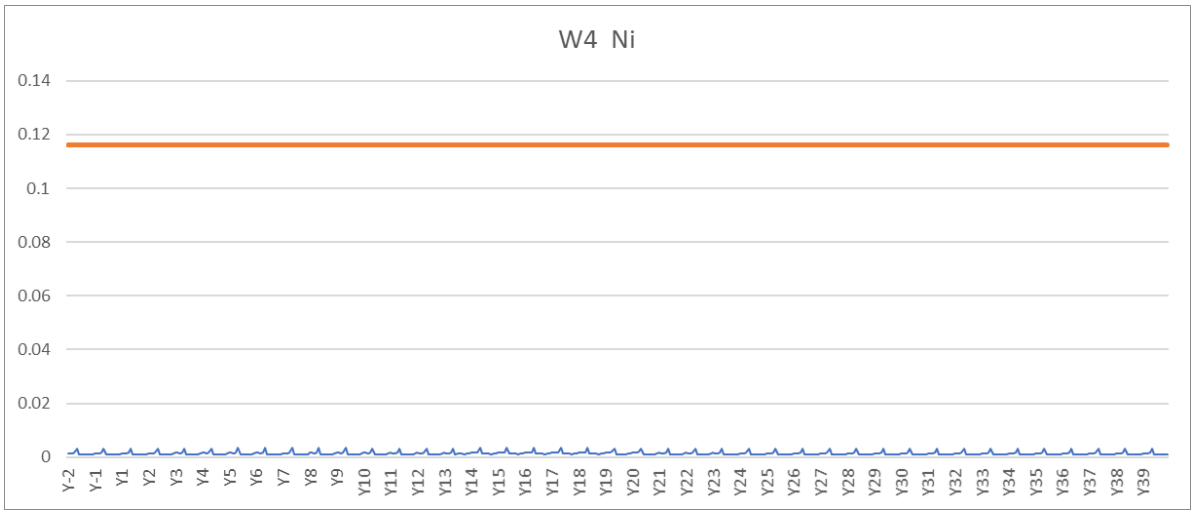

**B.1-14: Time series of predicted mercury concentrations (mg/L) for W4. Water Quality Objective is shown by red line.**



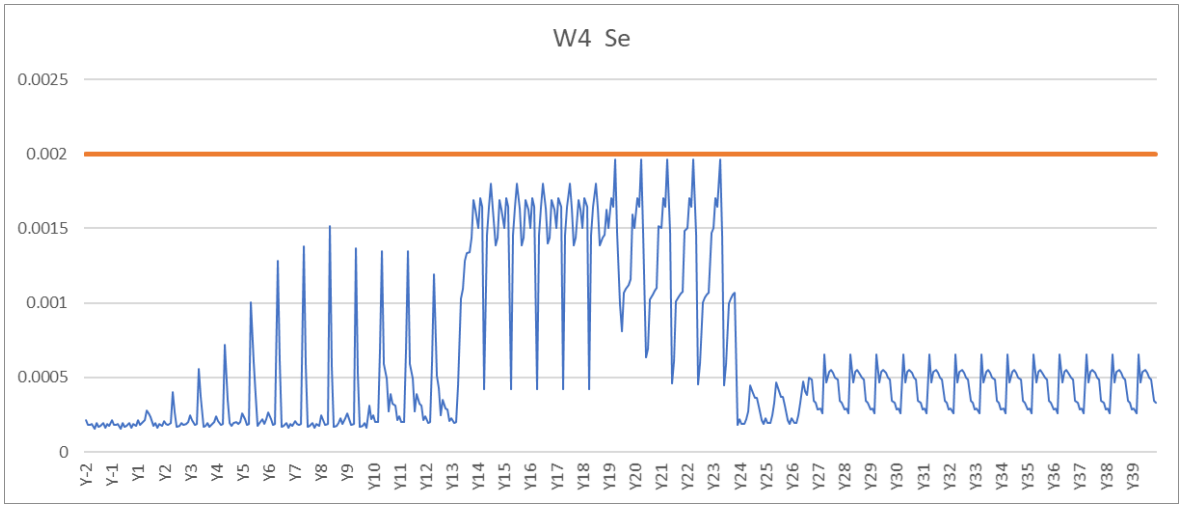

**B.1-15: Time series of predicted manganese concentrations (mg/L) for W4. Water Quality Objective is shown by red line.**



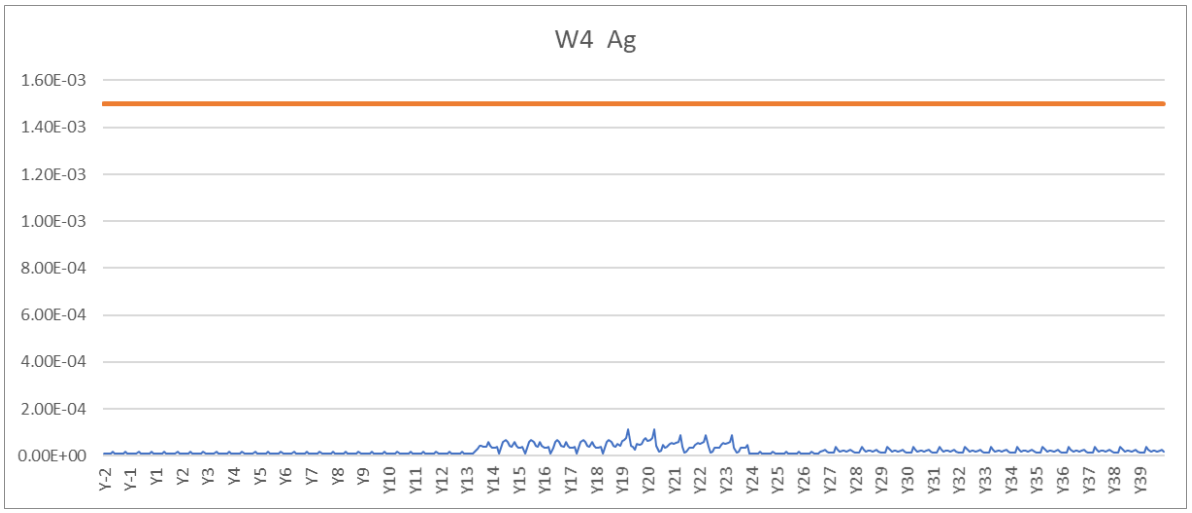

**B.1-16: Time series of predicted molybdenum concentrations (mg/L) for W4. Water Quality Objective is shown by red line.**



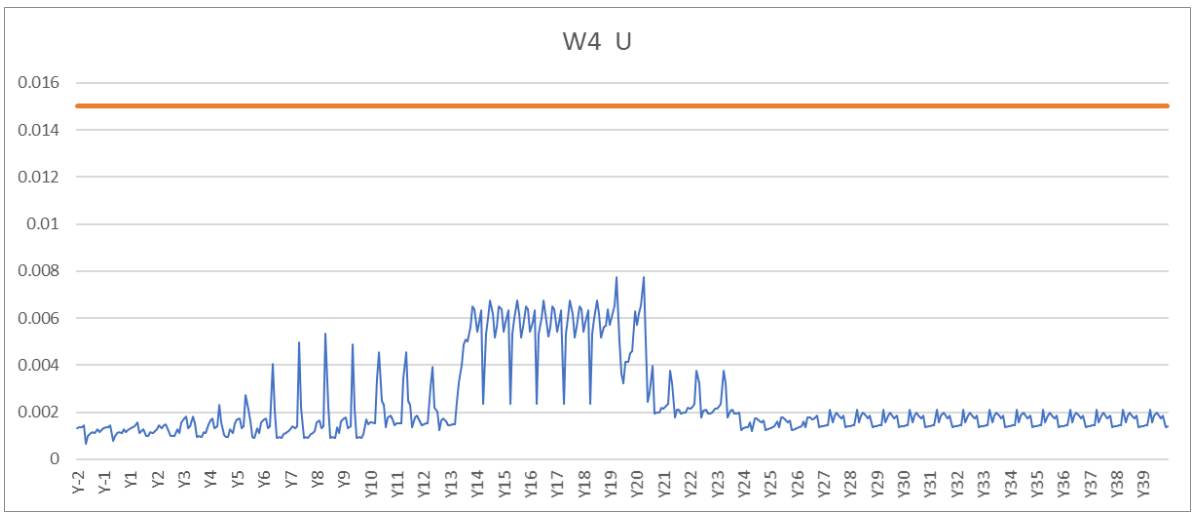

**B.1-17: Time series of predicted nickel concentrations (mg/L) for W4. Water Quality Objective is shown by red line.**



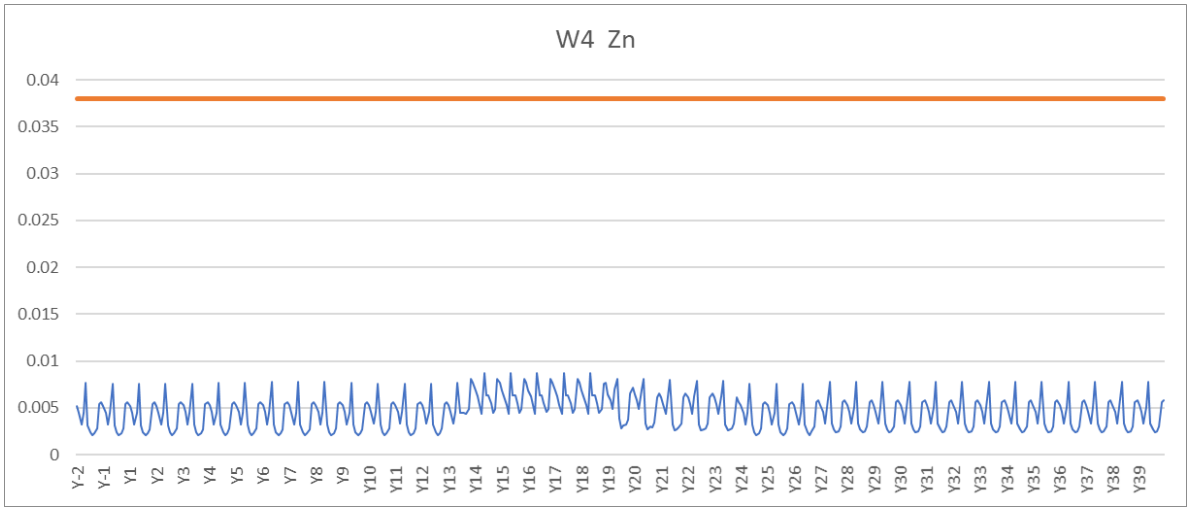

**B.1-18: Time series of predicted selenium concentrations (mg/L) for W4. Water Quality Objective is shown by red line.**




**B.1-19: Time series of predicted silver concentrations (mg/L) for W4. Water Quality Objective is shown by red line.**

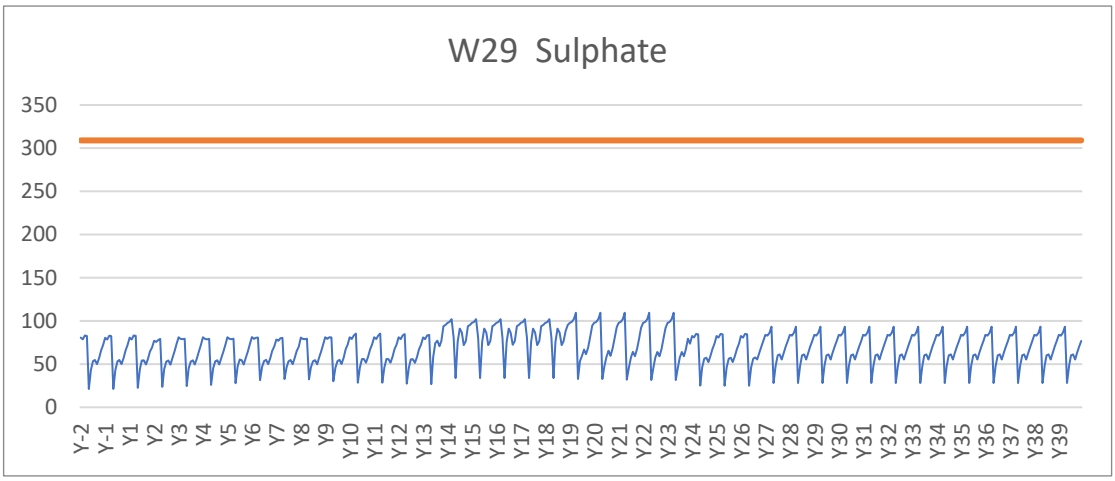



**B.1-20: Time series of predicted uranium concentrations (mg/L) for W4. Water Quality Objective is shown by red line.**

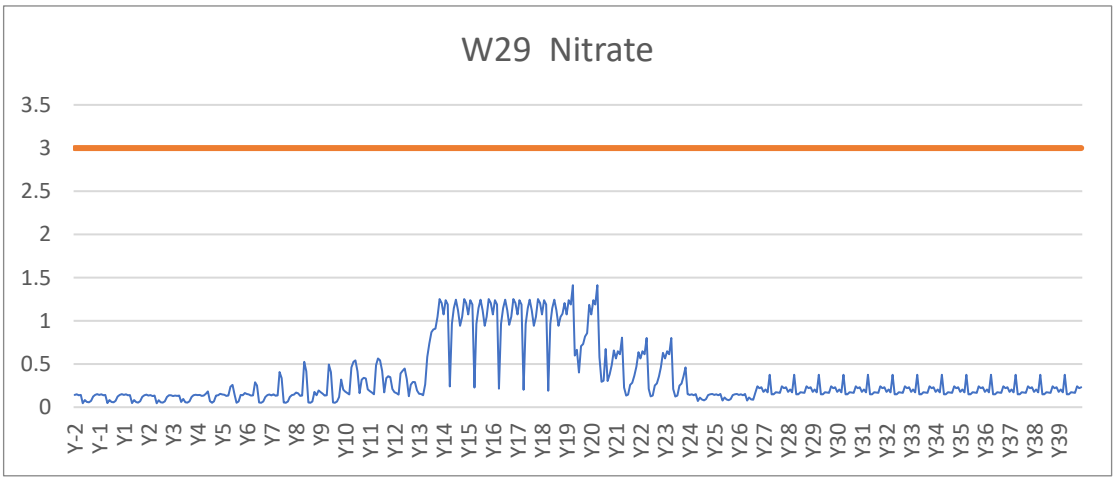



**B.1-21: Time series of predicted zinc concentrations (mg/L) for W4. Water Quality Objective is shown by red line.**

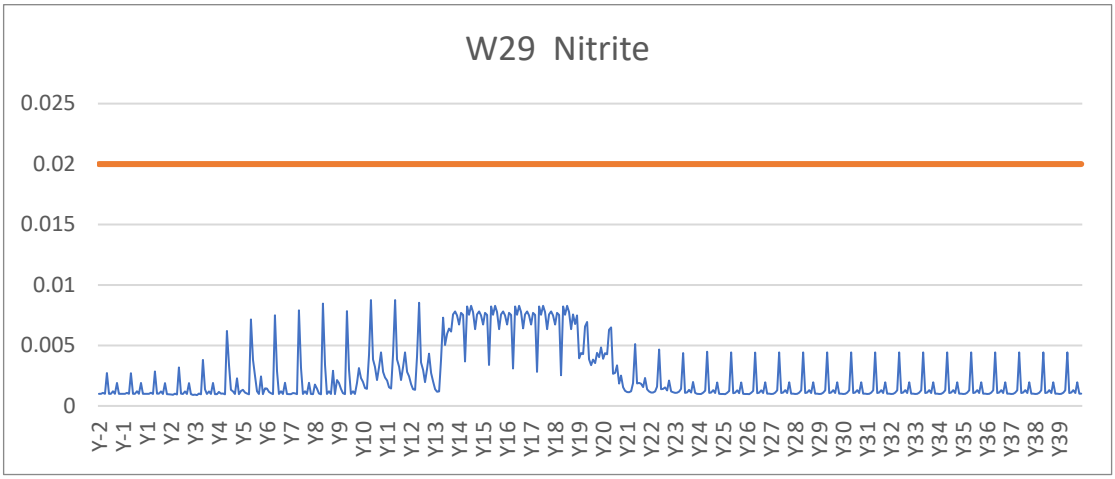
# B.2. Haggart Creek below Eagle Creek (W29) – Water Quality Predictions



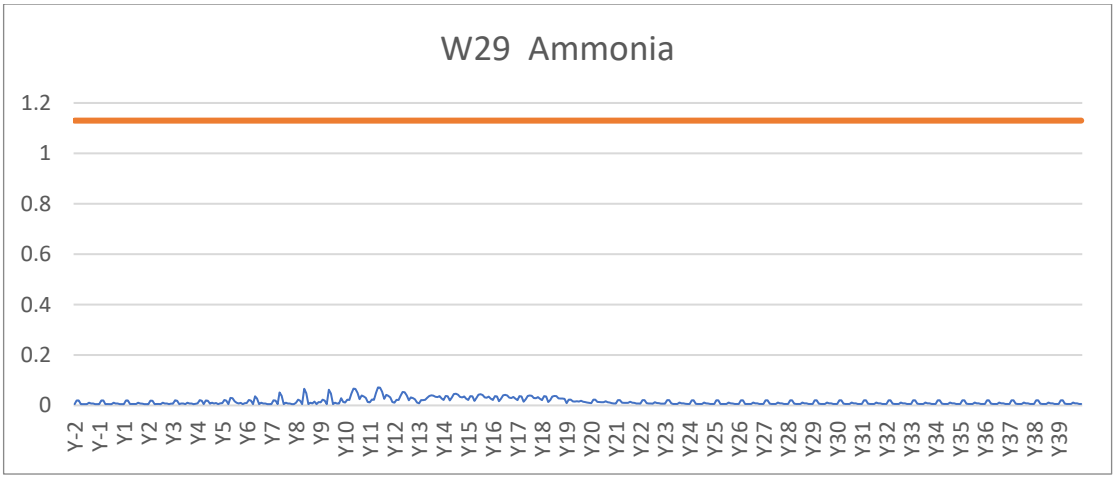

**B.2-1: Time series of predicted sulphate concentrations (mg/L) for W29. Water Quality Objective is shown by red line.**



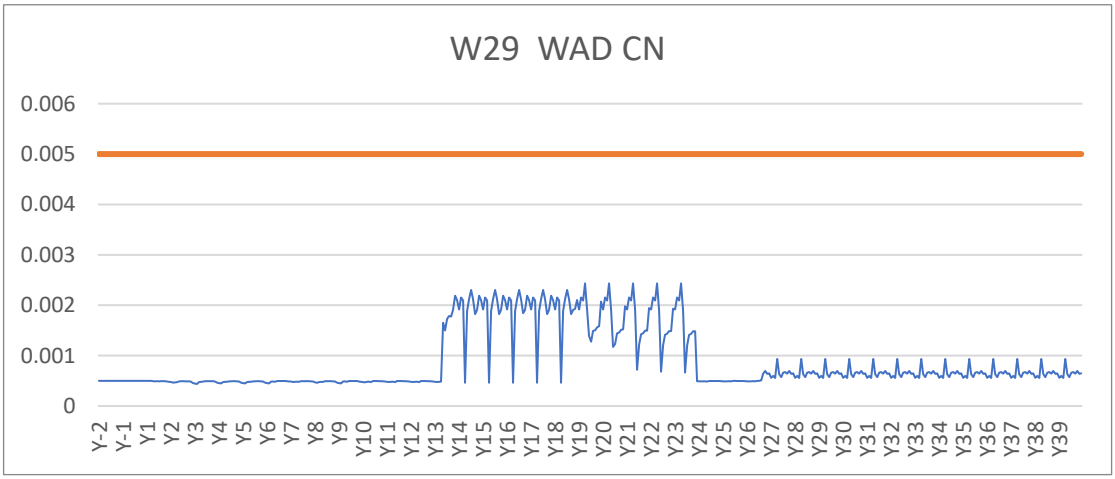

**B.2-2: Time series of predicted nitrate concentrations (mg/L) for W29. Water Quality Objective is shown by red line.**



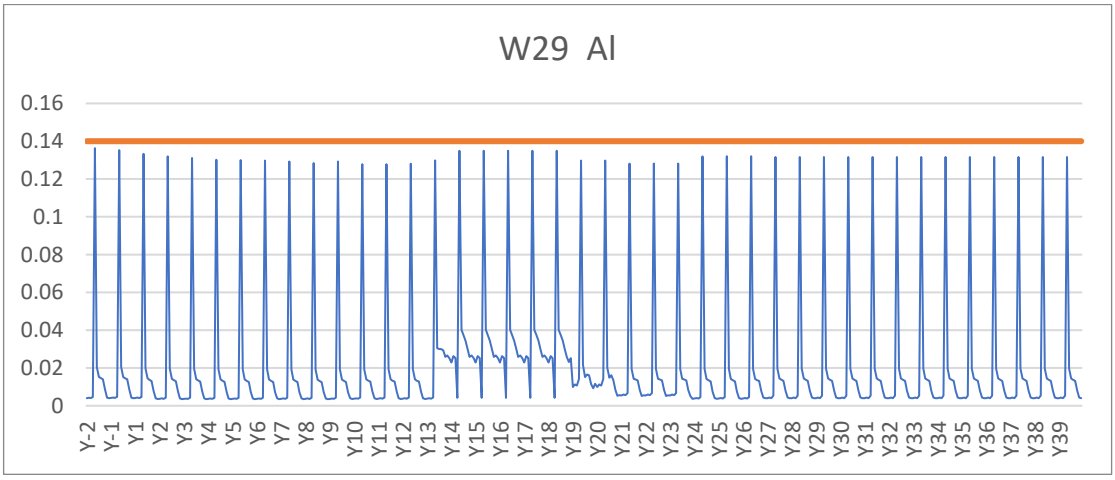

**B.2-3: Time series of predicted nitrite concentrations (mg/L) for W29. Water Quality Objective is shown by red line.**



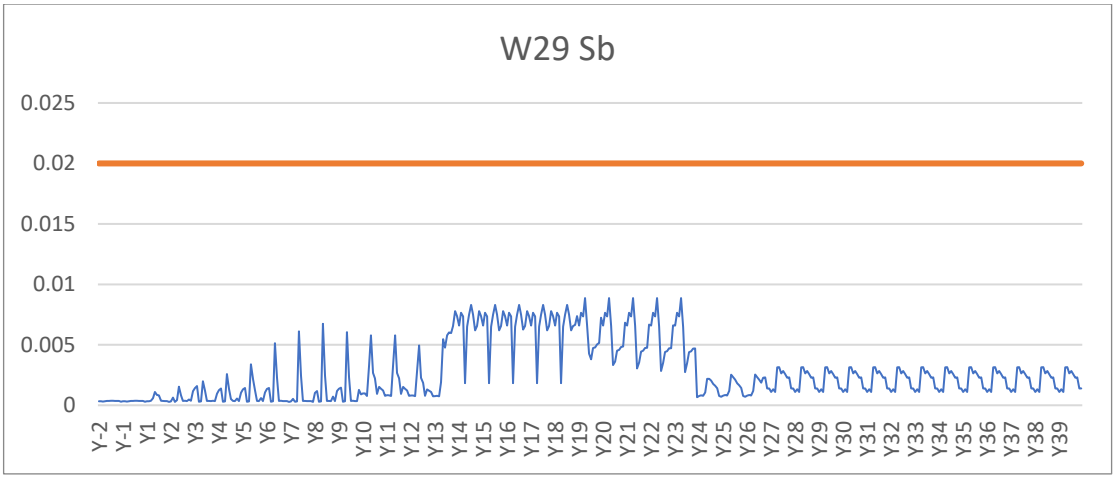

**B.2-4: Time series of predicted ammonia concentrations (mg/L) for W29. Water Quality Objective is shown by red line.**



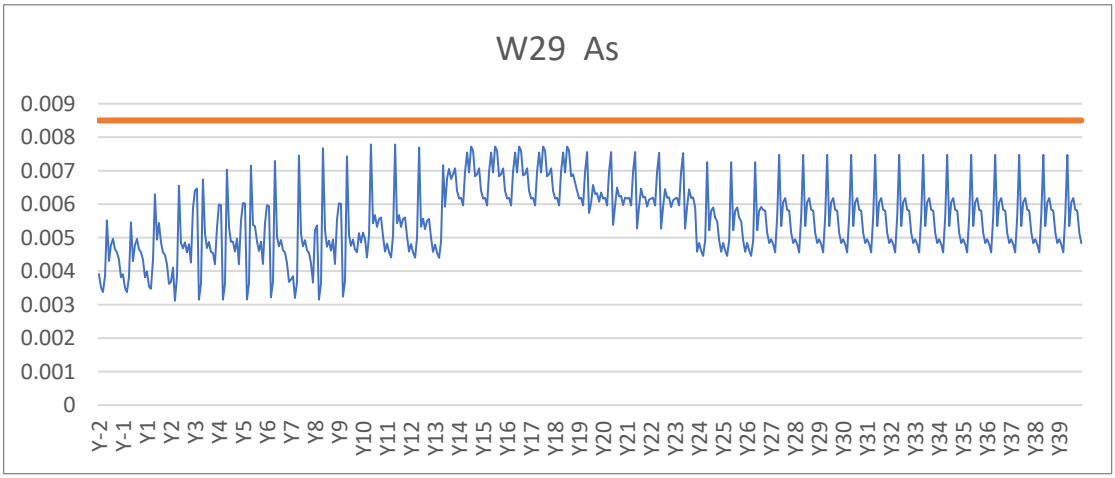

**B.2-5: Time series of predicted WAD-CN concentrations (mg/L) for W29. Water Quality Objective is shown by red line.**



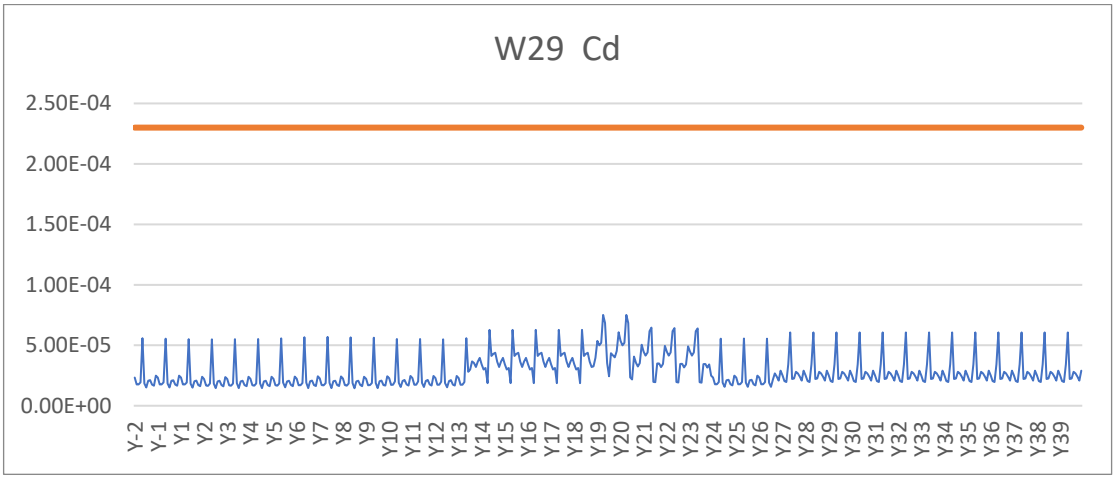

**B.2-6: Time series of predicted aluminum concentrations (mg/L) for W29. Water Quality Objective is shown by red line.**



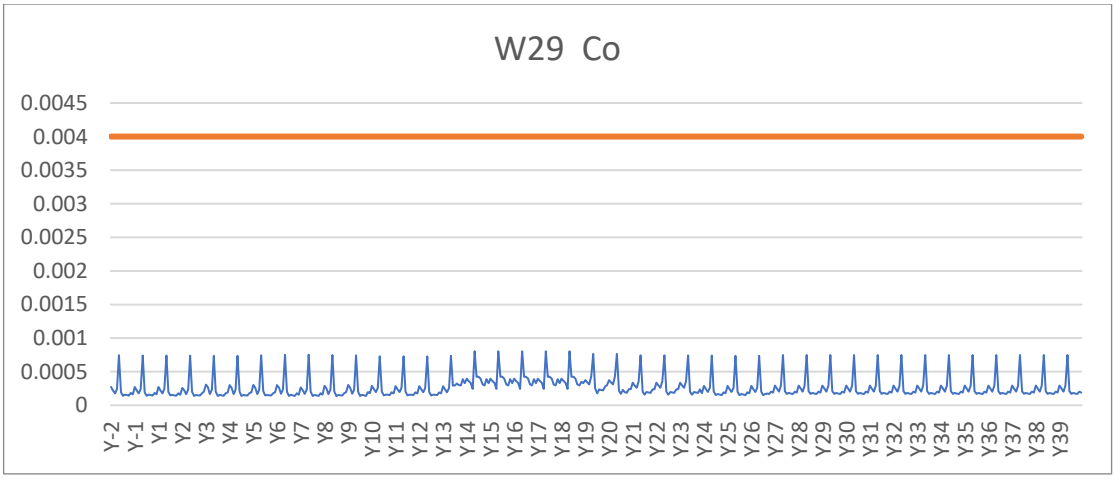

**B.2-7: Time series of predicted antimony concentrations (mg/L) for W29. Water Quality Objective is shown by red line.**



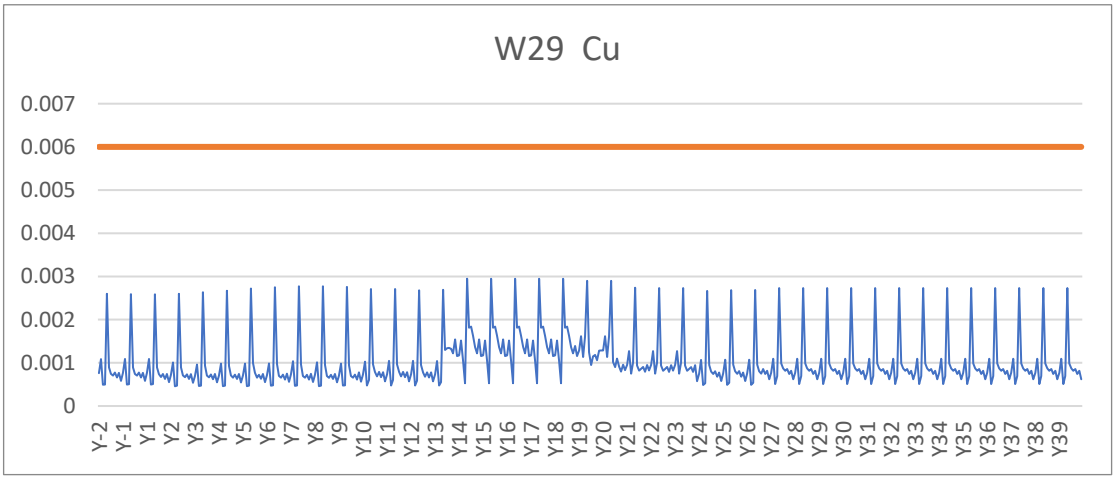

**B.2-8: Time series of predicted arsenic concentrations (mg/L) for W29. Water Quality Objective is shown by red line.**



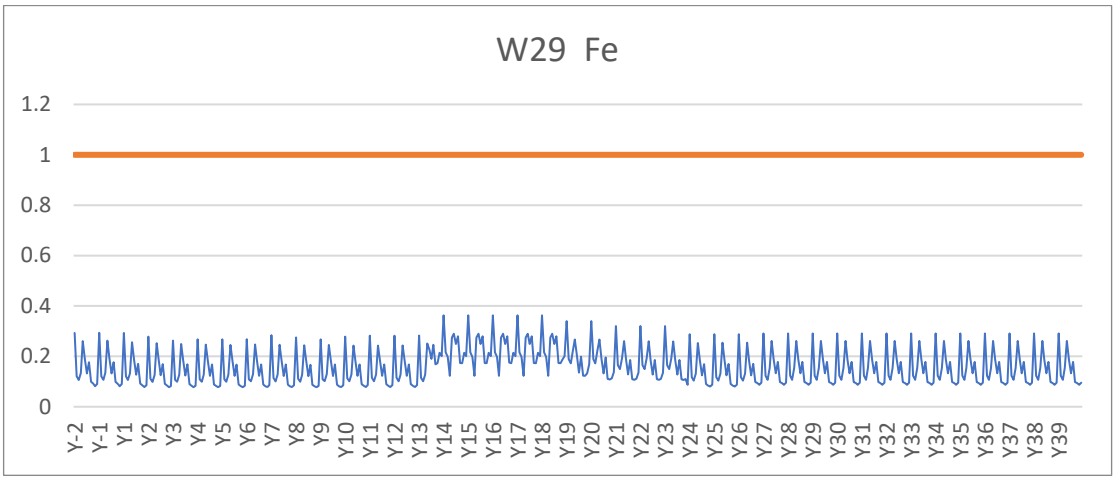

**B.2-9: Time series of predicted cadmium concentrations (mg/L) for W29. Water Quality Objective is shown by red line.**



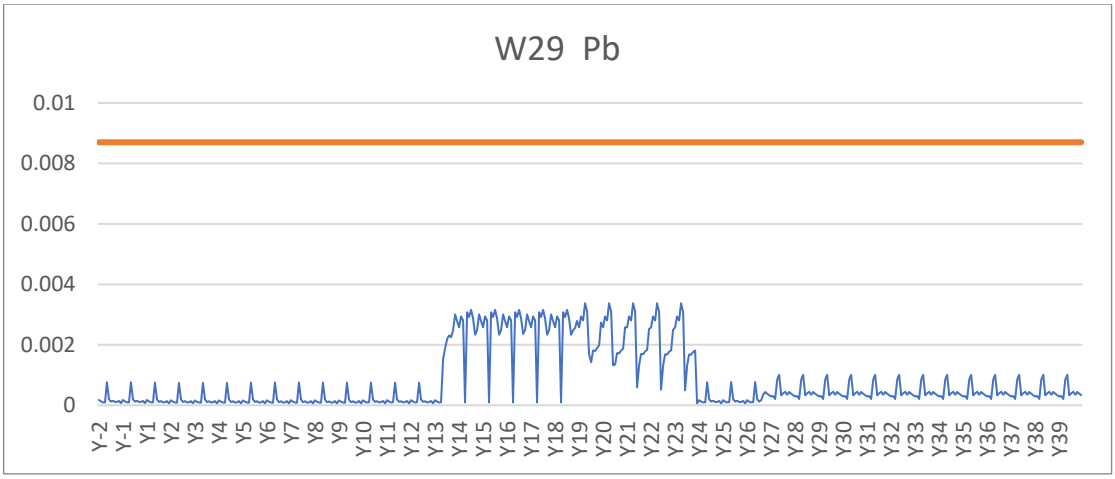

**B.2-10:** **Time series of predicted cobalt concentrations (mg/L) for W29. Water Quality Objective is shown by red line.**



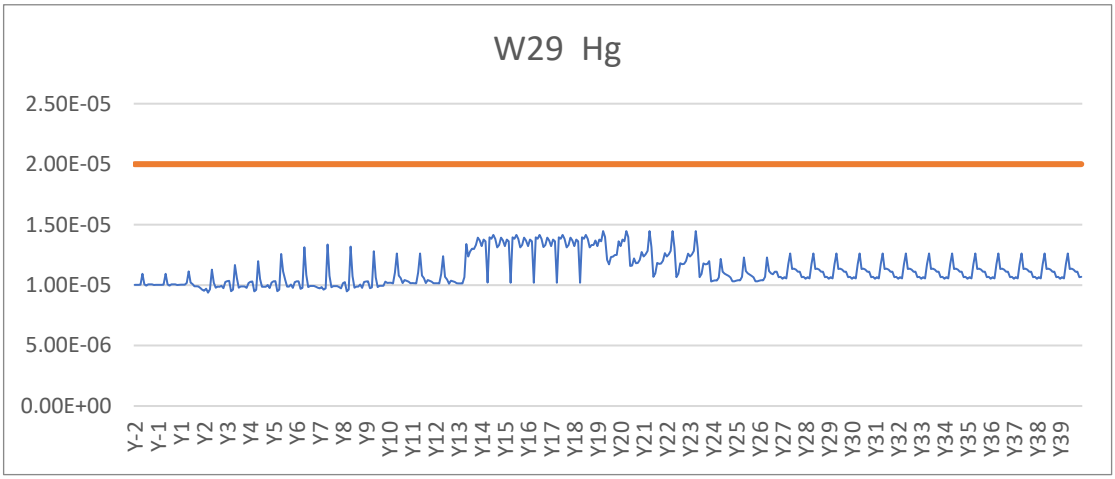

**B.2-11:** **Time series of predicted copper concentrations (mg/L) for W29. Water Quality Objective is shown by red line.**



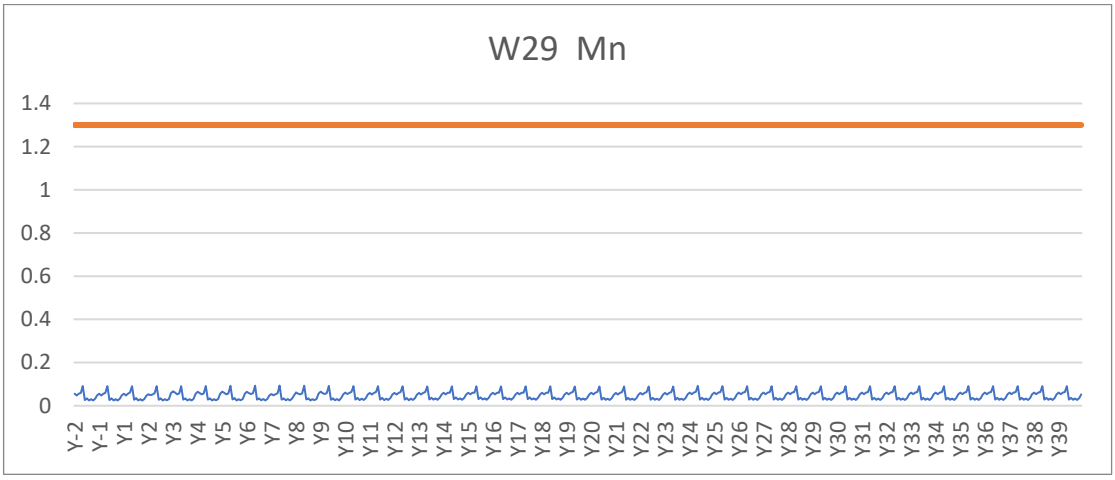

**B.2-12:** **Time series of predicted iron concentrations (mg/L) for W29. Water Quality Objective is shown by red line.**



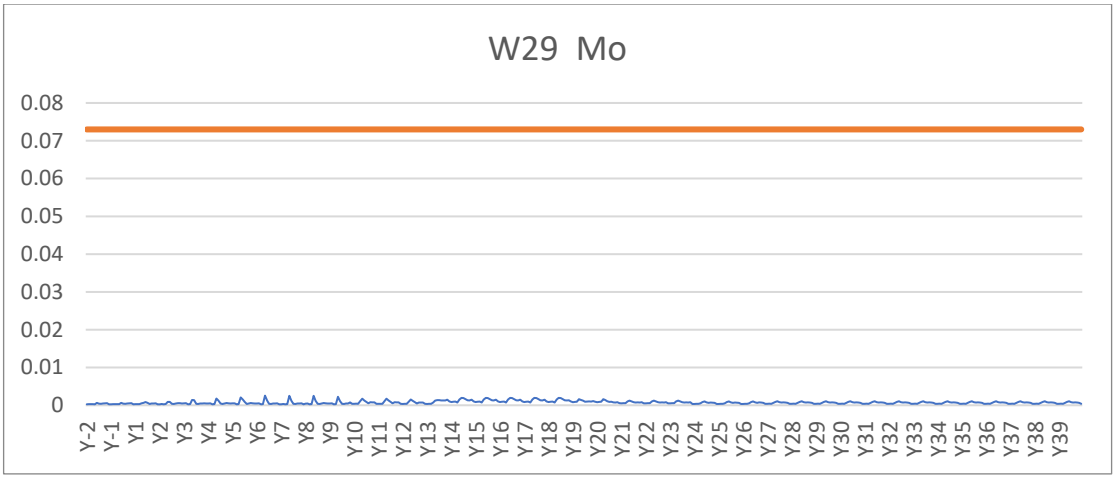

**B.2-13: Time series of predicted lead concentrations (mg/L) for W29. Water Quality Objective is shown by red line.**



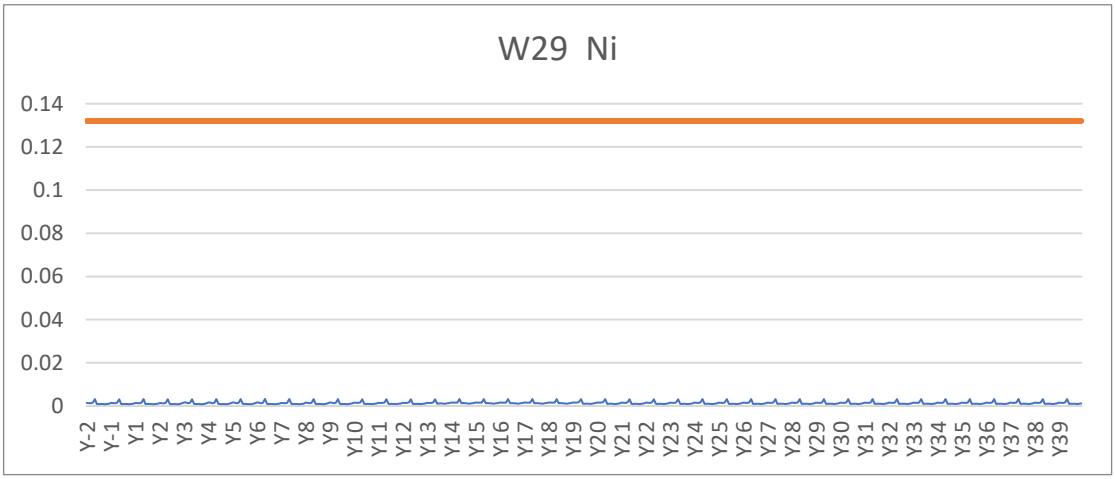

**B.2-14: Time series of predicted mercury concentrations (mg/L) for W29. Water Quality Objective is shown by red line.**



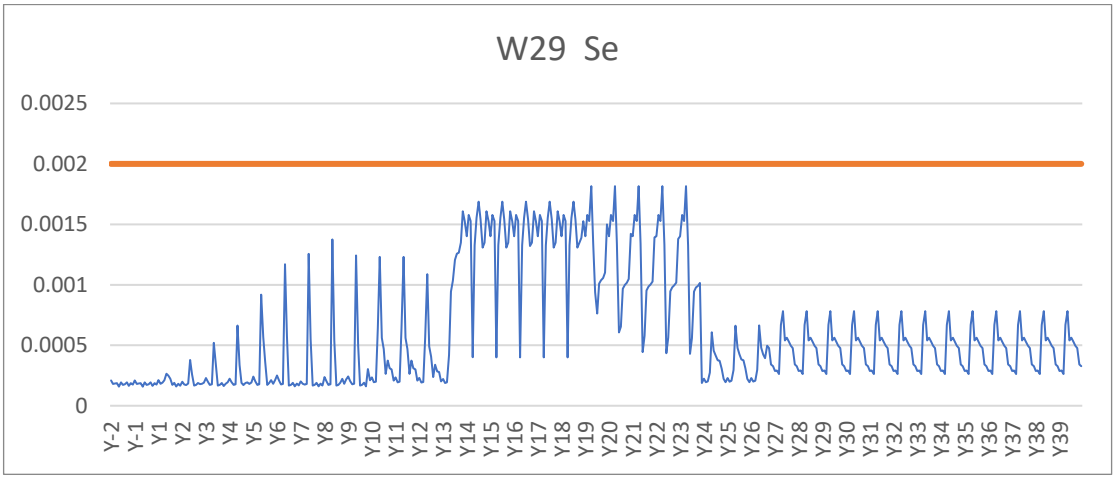

**B.2-15: Time series of predicted manganese concentrations (mg/L) for W29. Water Quality Objective is shown by red line.**



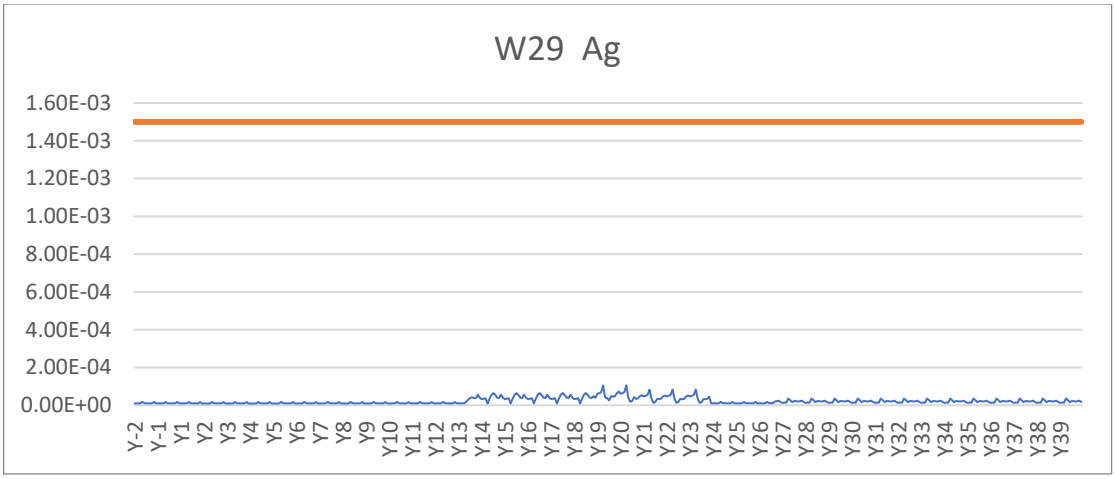

**B.2-16: Time series of predicted molybdenum concentrations (mg/L) for W29. Water Quality Objective is shown by red line.**



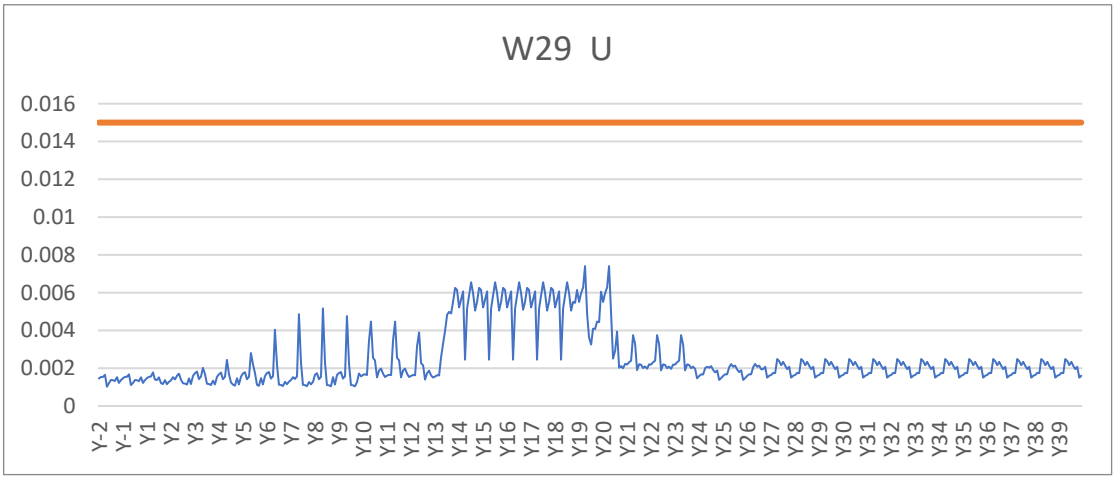

**B.2-17: Time series of predicted nickel concentrations (mg/L) for W29. Water Quality Objective is shown by red line.**



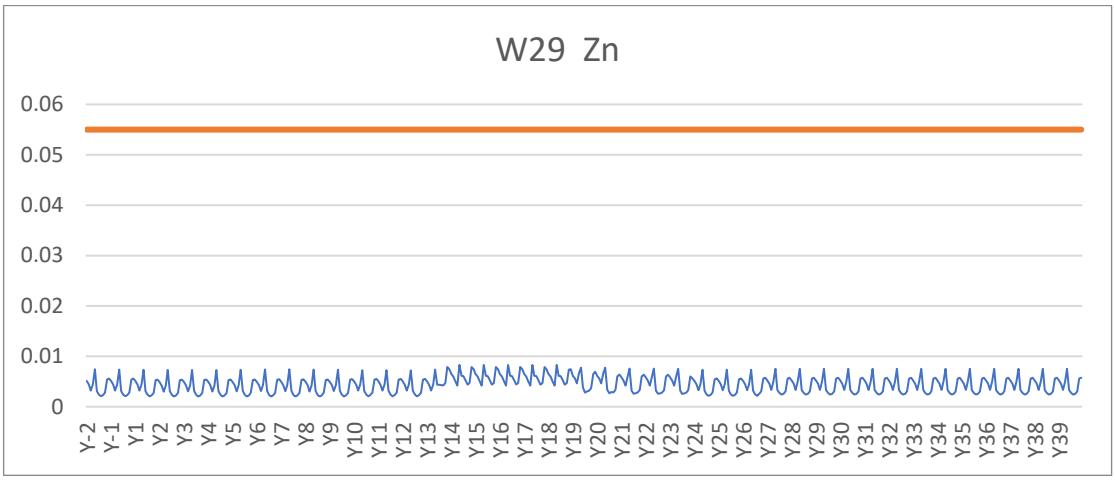

**B.2-18: Time series of predicted selenium concentrations (mg/L) for W29. Water Quality Objective is shown by red line.**




**B.2-19:** **Time series of predicted silver concentrations (mg/L) for W29. Water Quality Objective is shown by red line.**

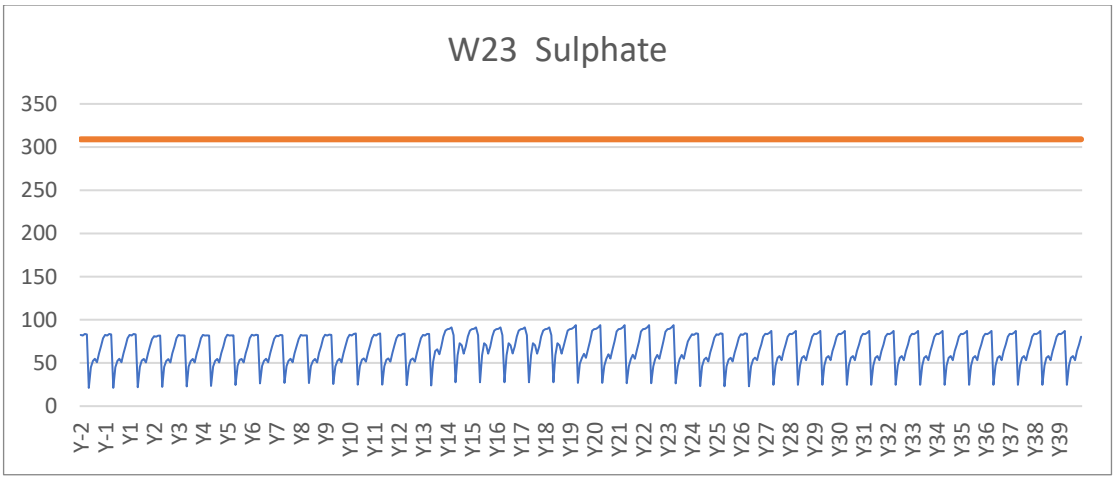



**B.2-20:** **Time series of predicted uranium concentrations (mg/L) for W29. Water Quality Objective is shown by red line.**

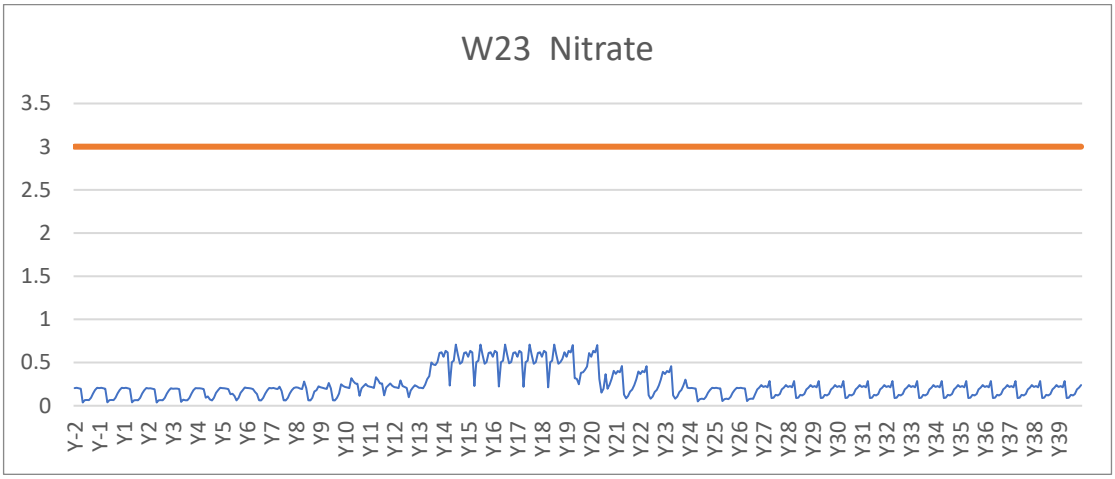



**B.2-21:** **Time series of predicted zinc concentrations (mg/L) for W29. Water Quality Objective is shown by red line.**

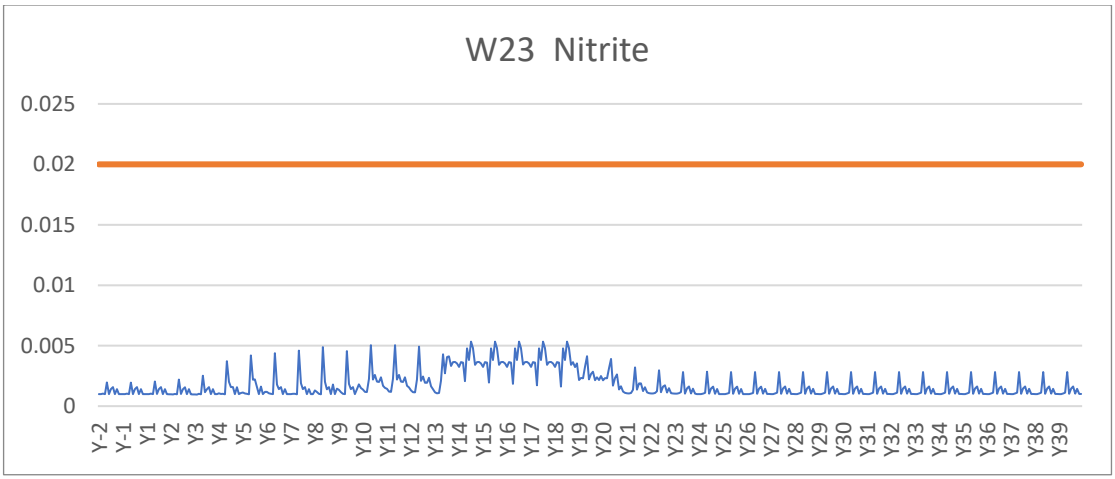
# B.3. Haggart Creek below Lynx Creek (W23) – Water Quality Predictions



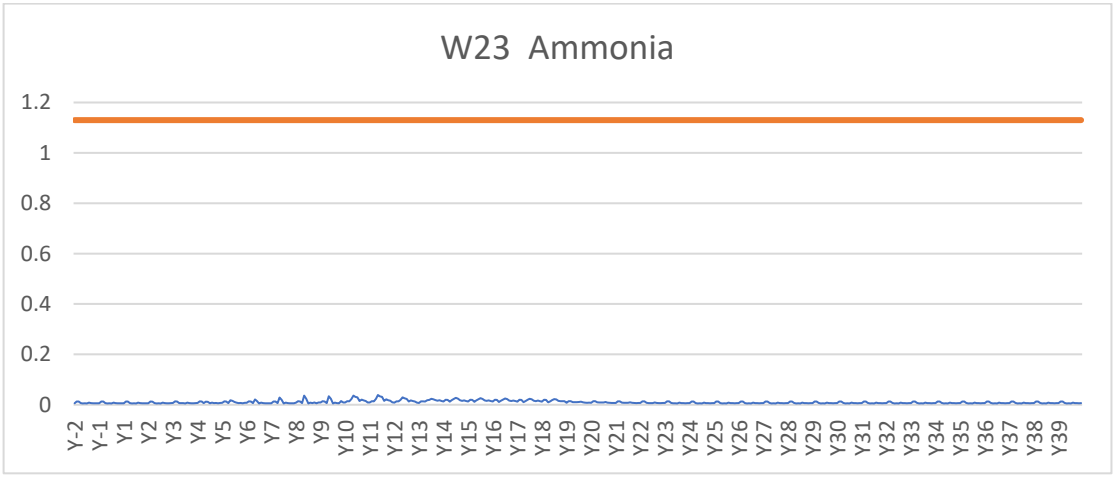

**B.3-1: Time series of predicted sulphate concentrations (mg/L) for W23. Water Quality Objective is shown by red line.**



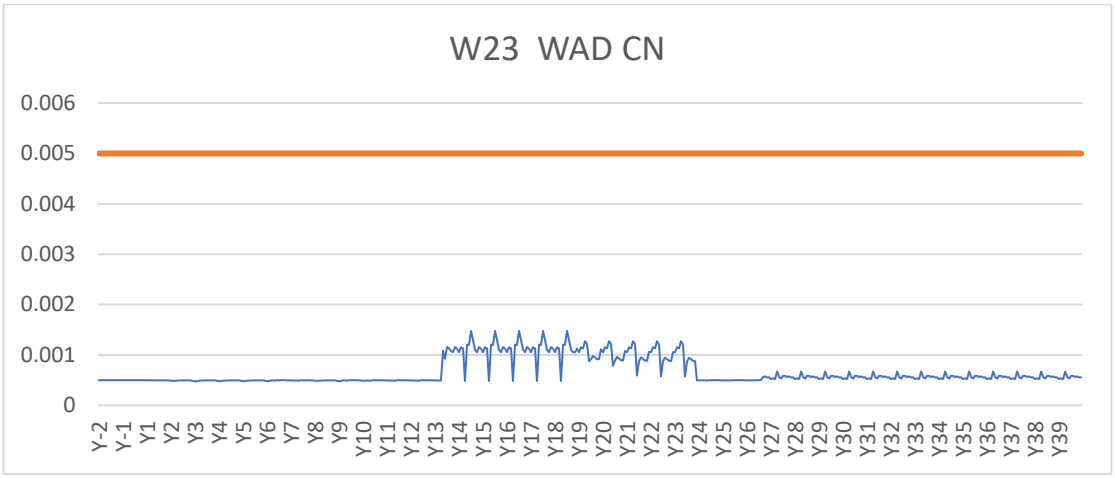

**B.3-2: Time series of predicted nitrate concentrations (mg/L) for W23. Water Quality Objective is shown by red line.**



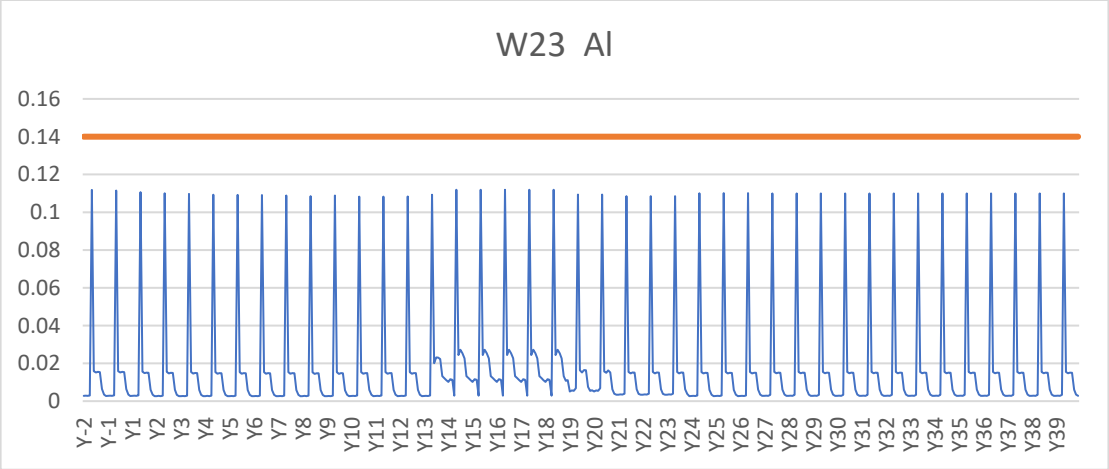

**B.3-3: Time series of predicted nitrite concentrations (mg/L) for W23. Water Quality Objective is shown by red line.**



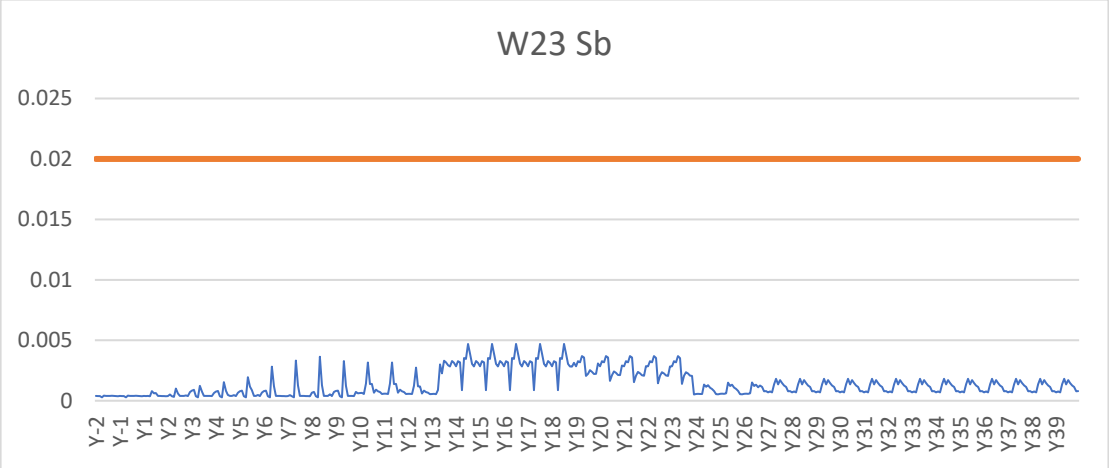

**B.3-4: Time series of predicted ammonia concentrations (mg/L) for W23. Water Quality Objective is shown by red line.**



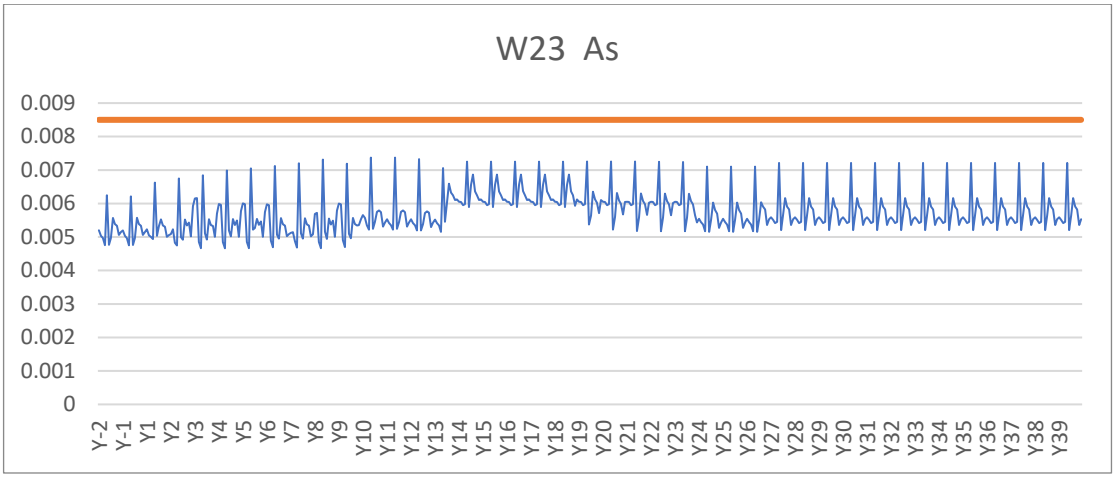

**B.3-5: Time series of predicted WAD-CN concentrations (mg/L) for W23. Water Quality Objective is shown by red line.**



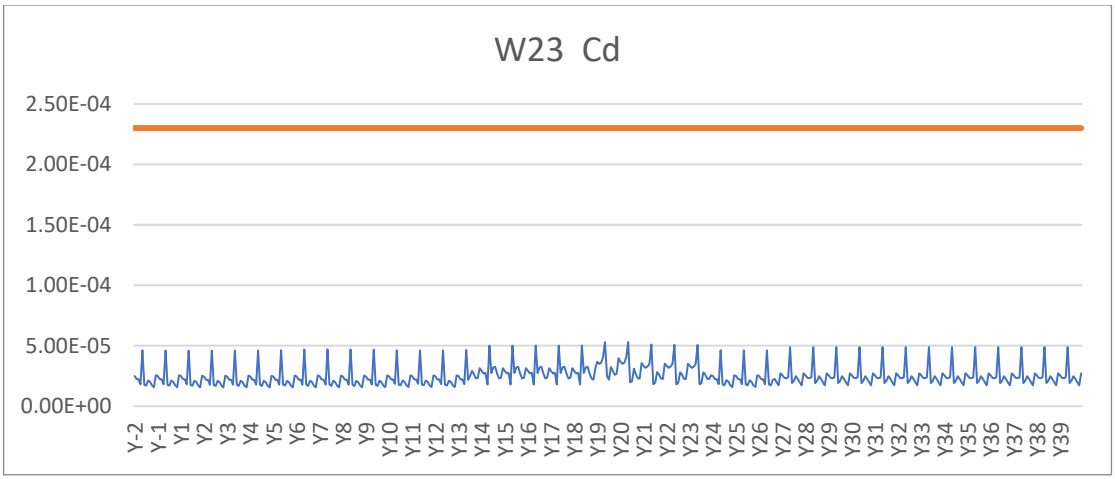

**B.3-6:** **Time series of predicted aluminum concentrations (mg/L) for W23. Water Quality Objective is shown by red line.**



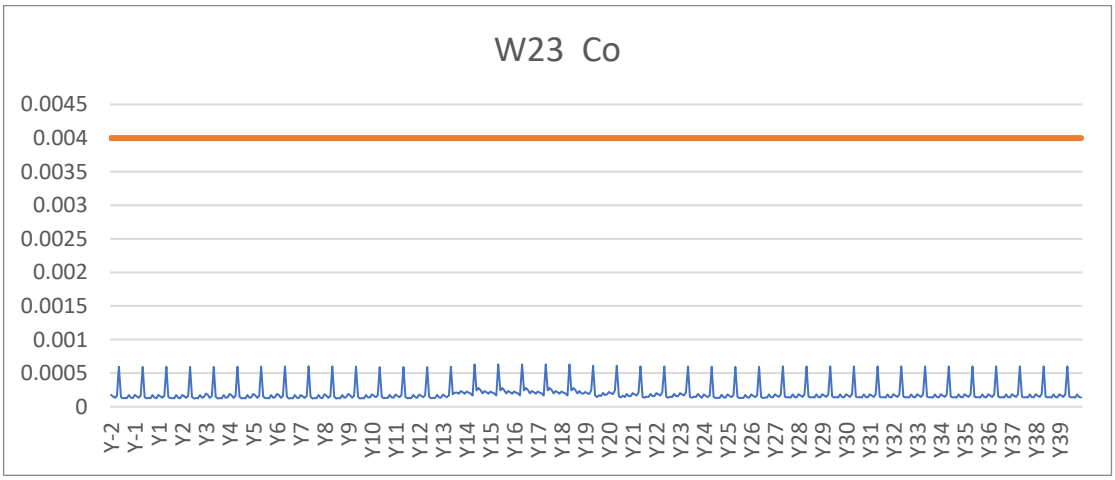

**B.3-7:** **Time series of predicted antimony concentrations (mg/L) for W23. Water Quality Objective is shown by red line.**



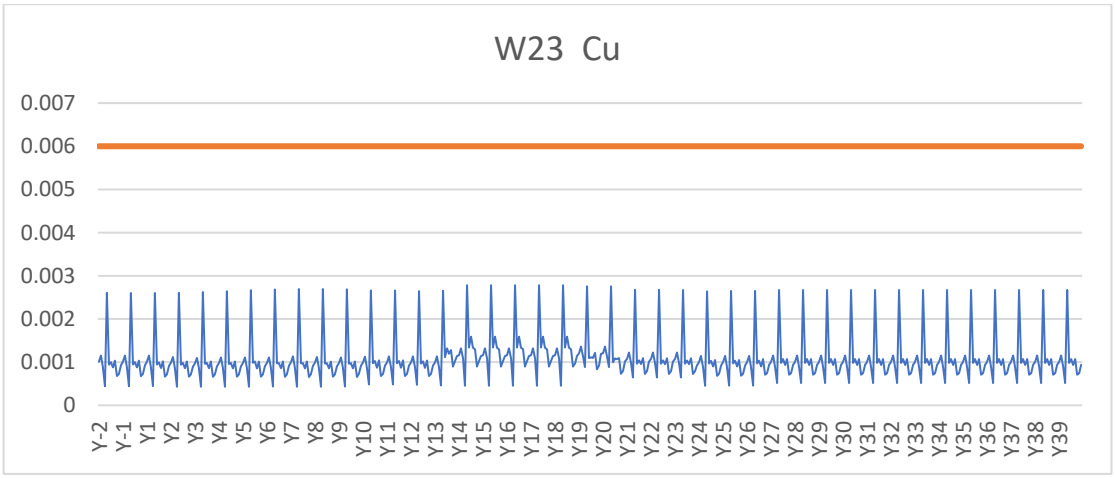

**B.3-8:** **Time series of predicted arsenic concentrations (mg/L) for W23. Water Quality Objective is shown by red line.**



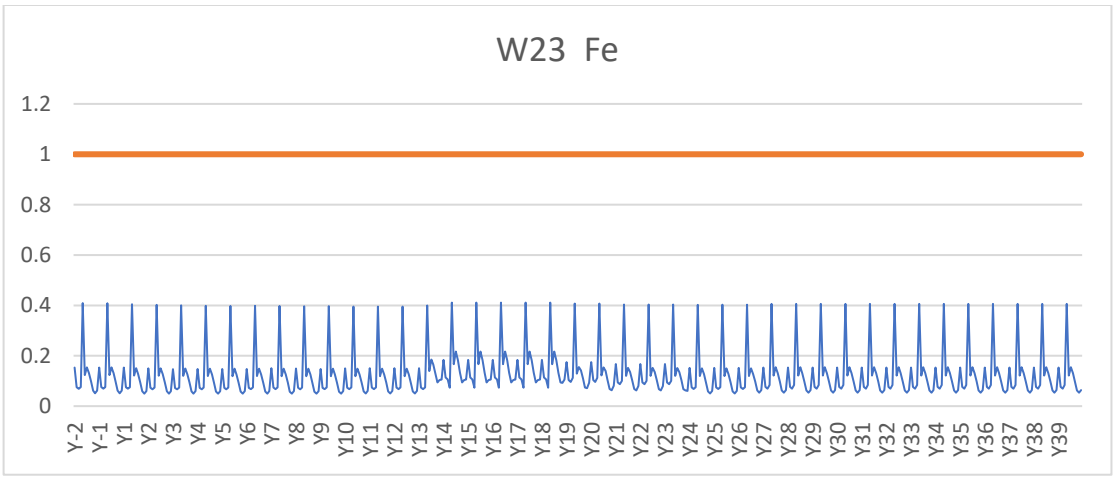

**B.3-9:** **Time series of predicted cadmium concentrations (mg/L) for W23. Water Quality Objective is shown by red line.**



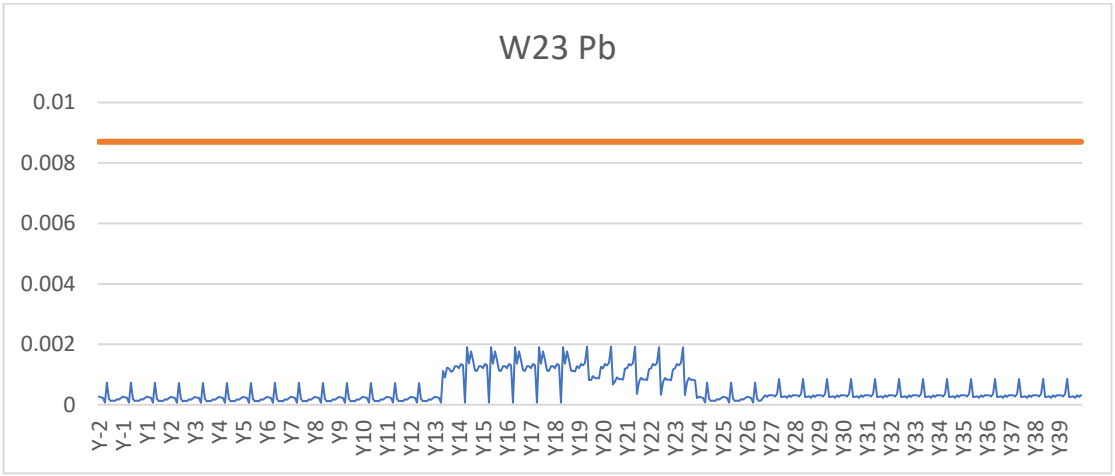

**B.3-10:** **Time series of predicted cobalt concentrations (mg/L) for W23. Water Quality Objective is shown by red line.**



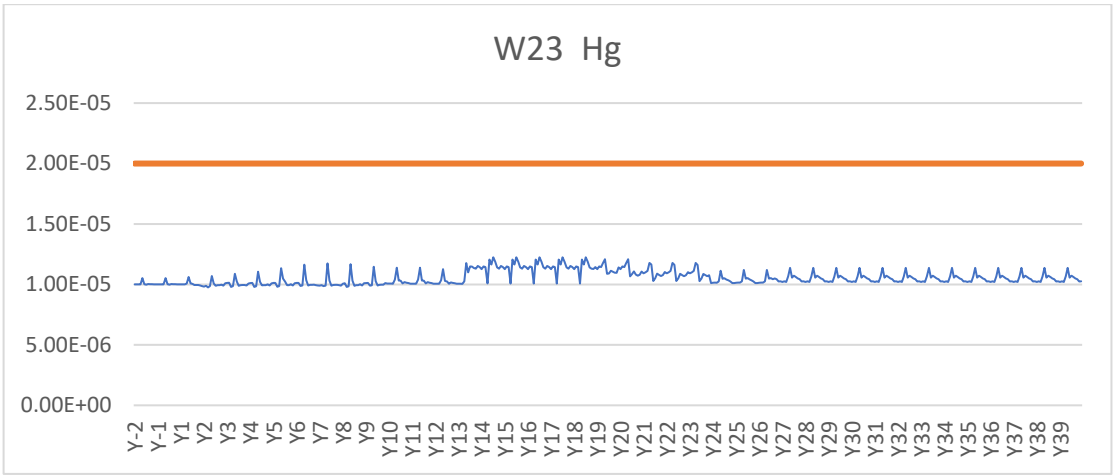

**B.3-11:** **Time series of predicted copper concentrations (mg/L) for W23. Water Quality Objective is shown by red line.**



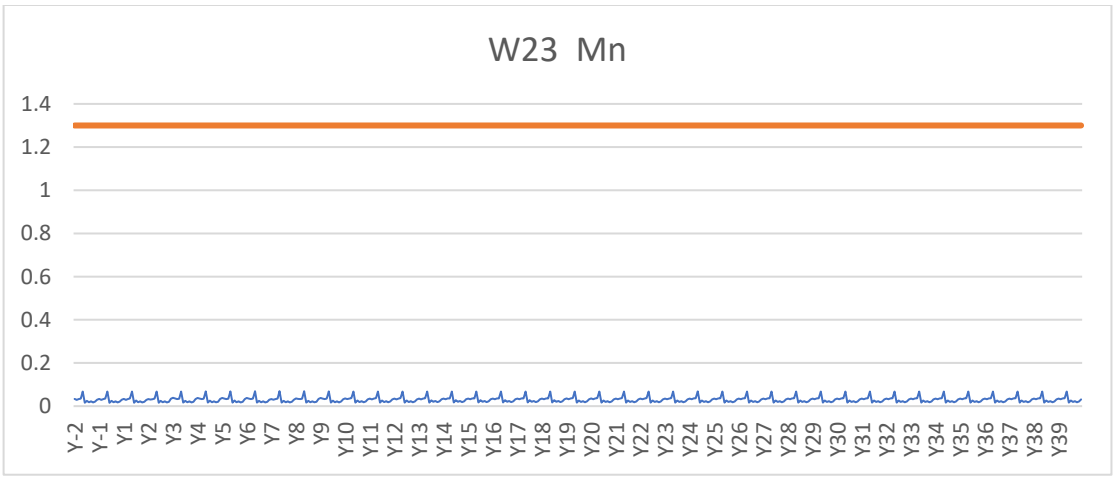

**B.3-12: Time series of predicted iron concentrations (mg/L) for W23. Water Quality Objective is shown by red line.**



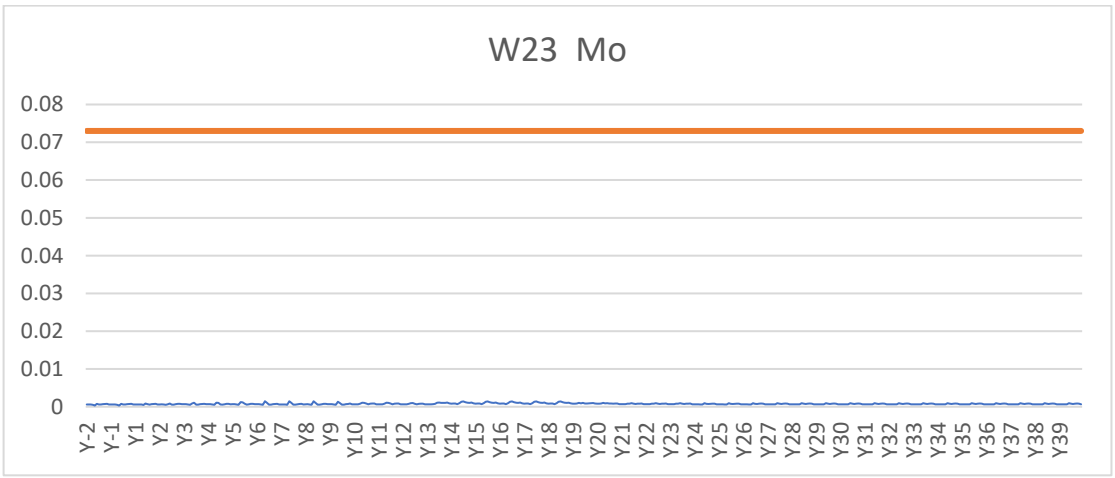

**B.3-13: Time series of predicted lead concentrations (mg/L) for W23. Water Quality Objective is shown by red line.**



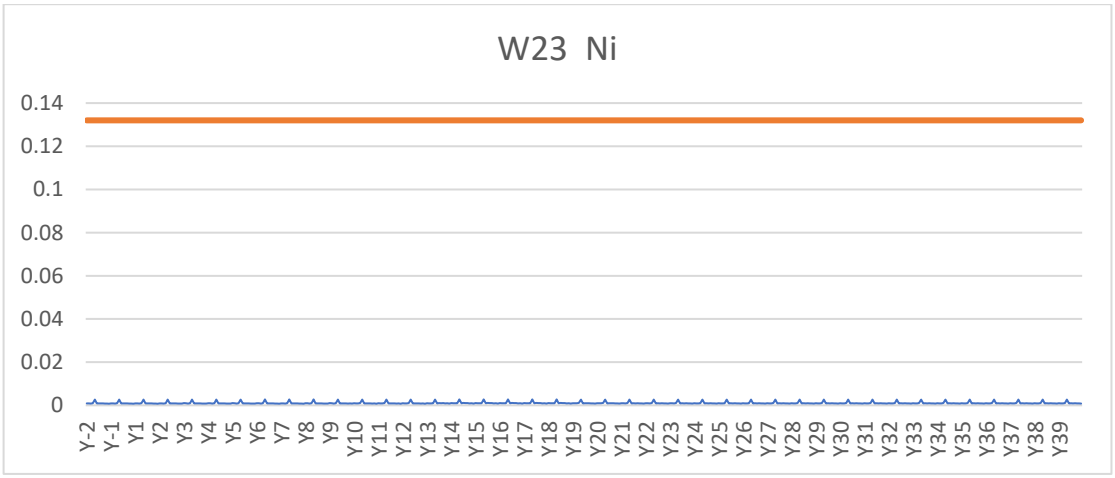

**B.3-14: Time series of predicted mercury concentrations (mg/L) for W23. Water Quality Objective is shown by red line.**



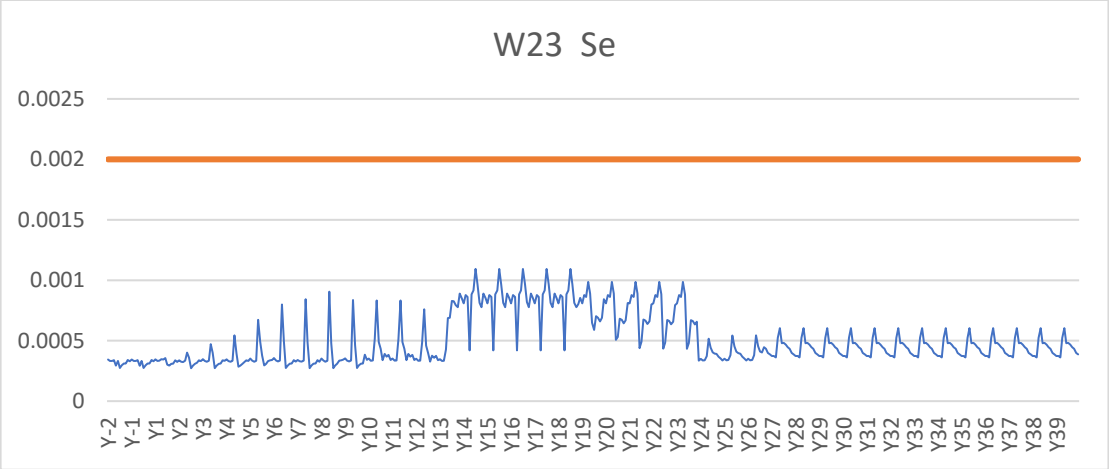

**B.3-15: Time series of predicted manganese concentrations (mg/L) for W23. Water Quality Objective is shown by red line.**



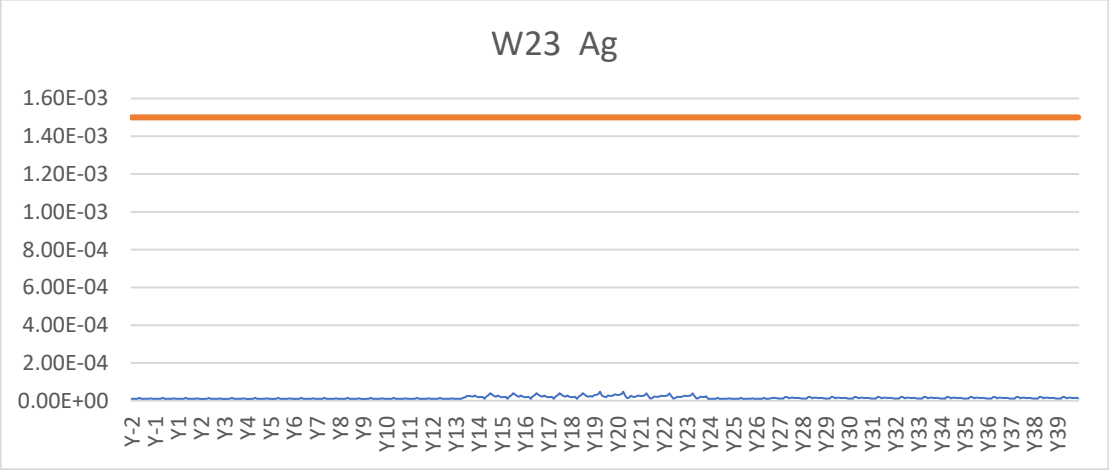

**B.3-16: Time series of predicted molybdenum concentrations (mg/L) for W23. Water Quality Objective is shown by red line.**



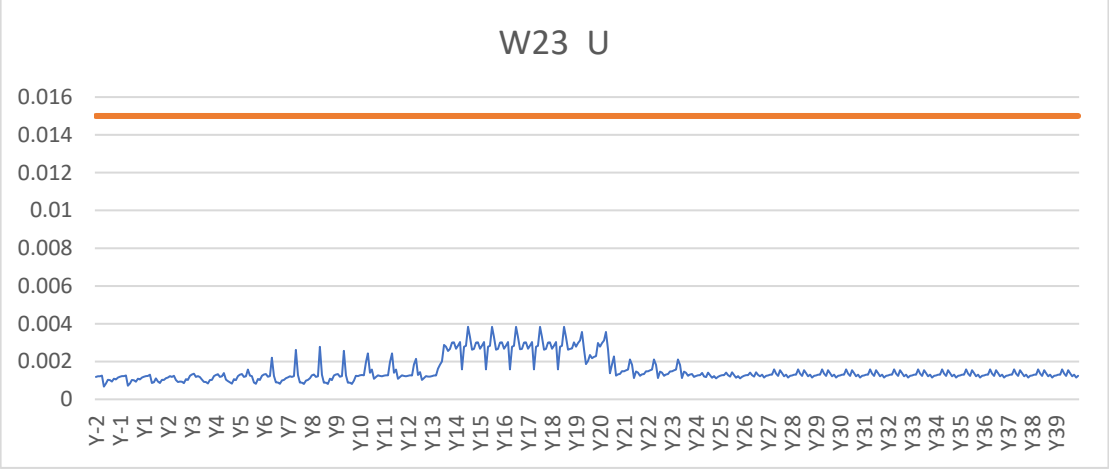

**B.3-17: Time series of predicted nickel concentrations (mg/L) for W23. Water Quality Objective is shown by red line.**



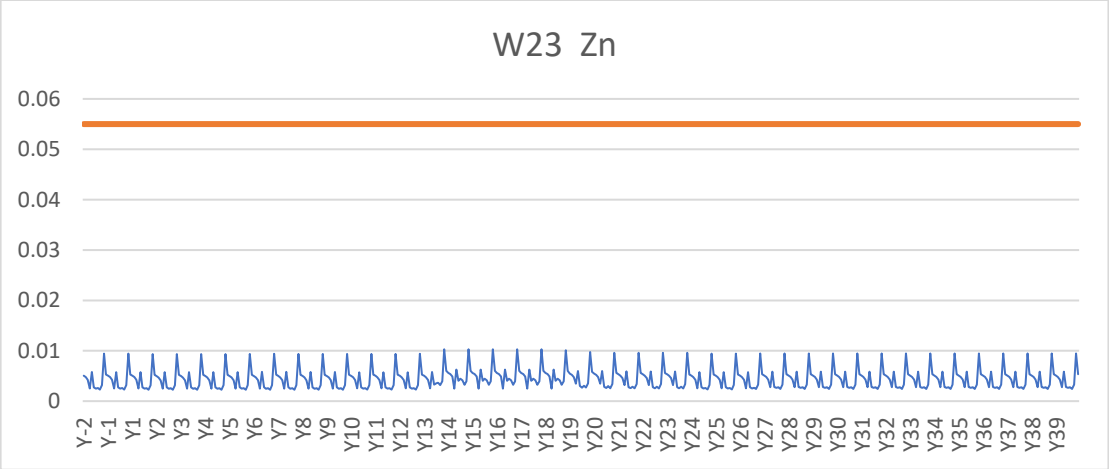

**B.3-18: Time series of predicted selenium concentrations (mg/L) for W23. Water Quality Objective is shown by red line.**




**B.3-19: Time series of predicted silver concentrations (mg/L) for W23. Water Quality Objective is shown by red line.**




**B.3-20: Time series of predicted uranium concentrations (mg/L) for W23. Water Quality Objective is shown by red line.**



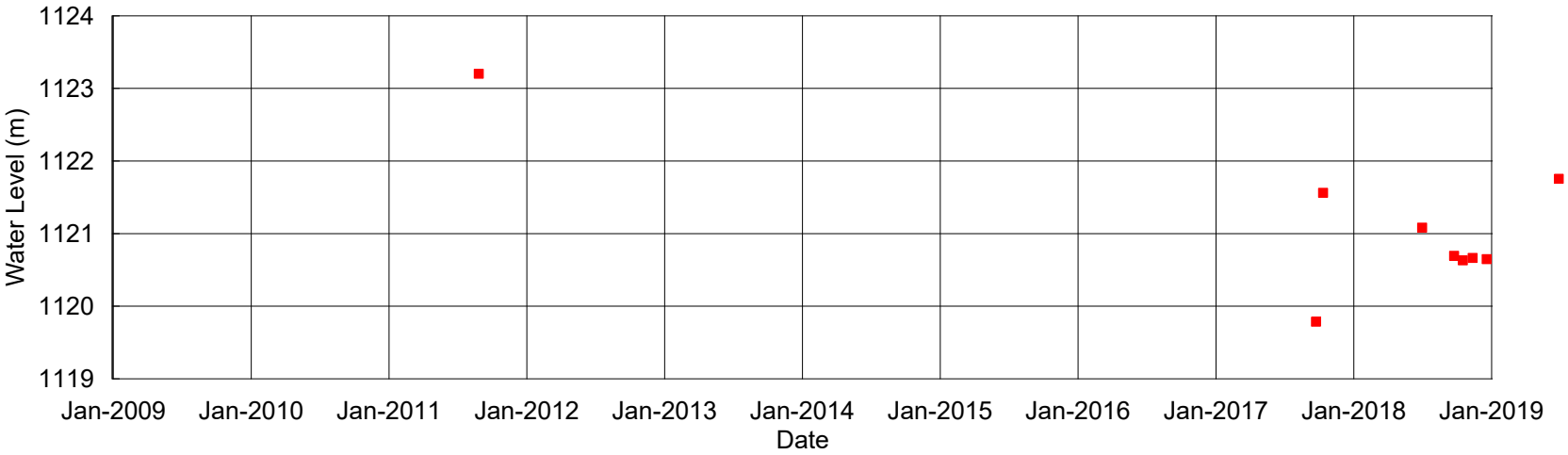

**B.3-21: Time series of predicted zinc concentrations (mg/L) for W23. Water Quality Objective is shown by red line.**

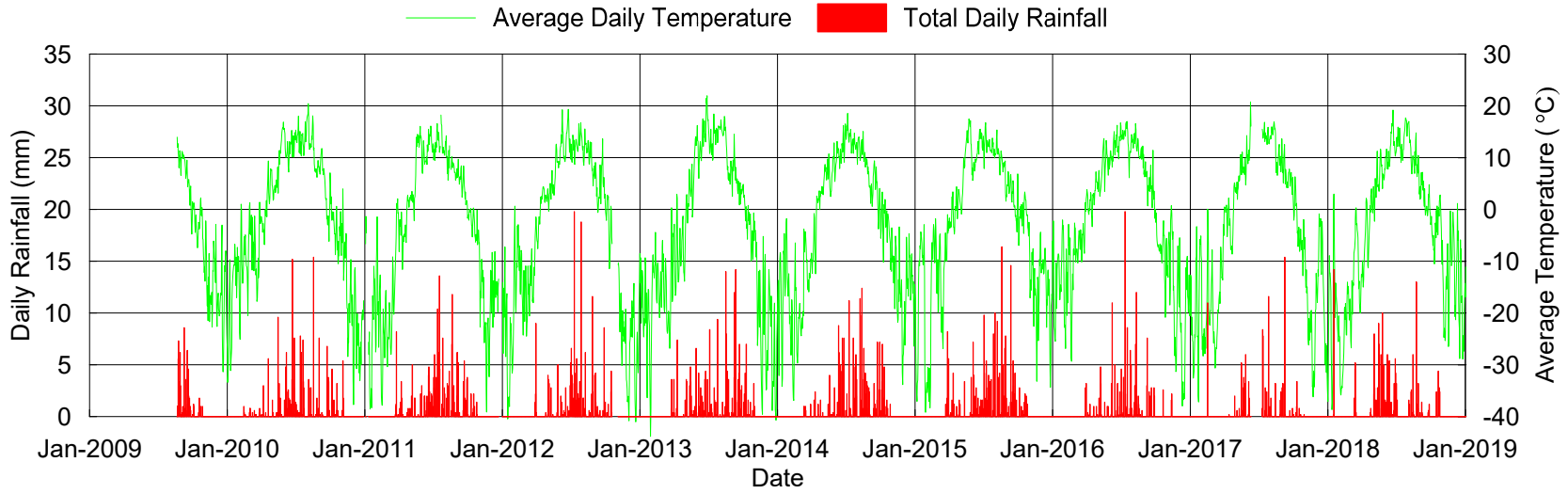
# *Appendix C: Water Quality Model Output for all Parameters*

Provided electronically

# APPENDIX F

## 2018 Groundwater Hydrographs

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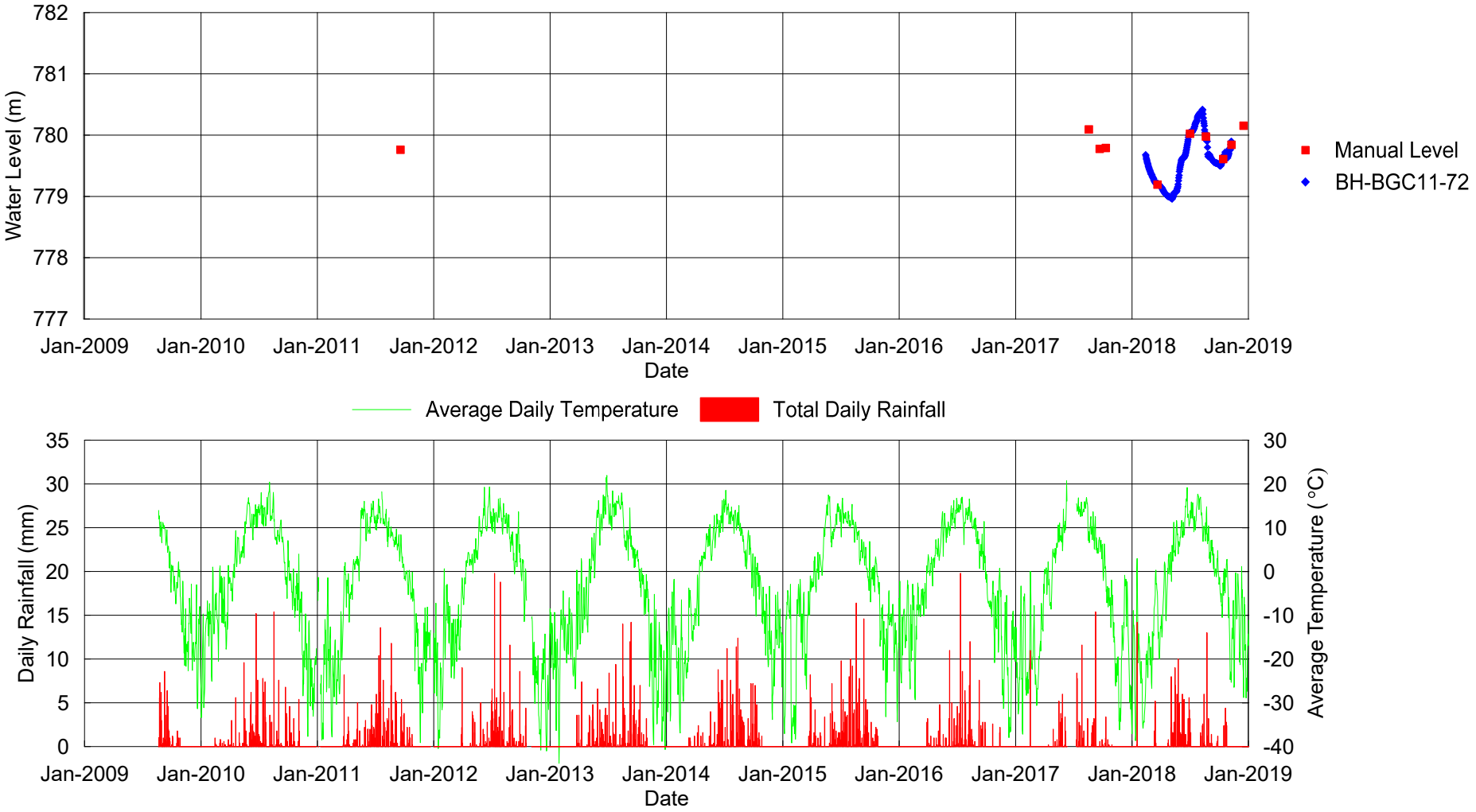


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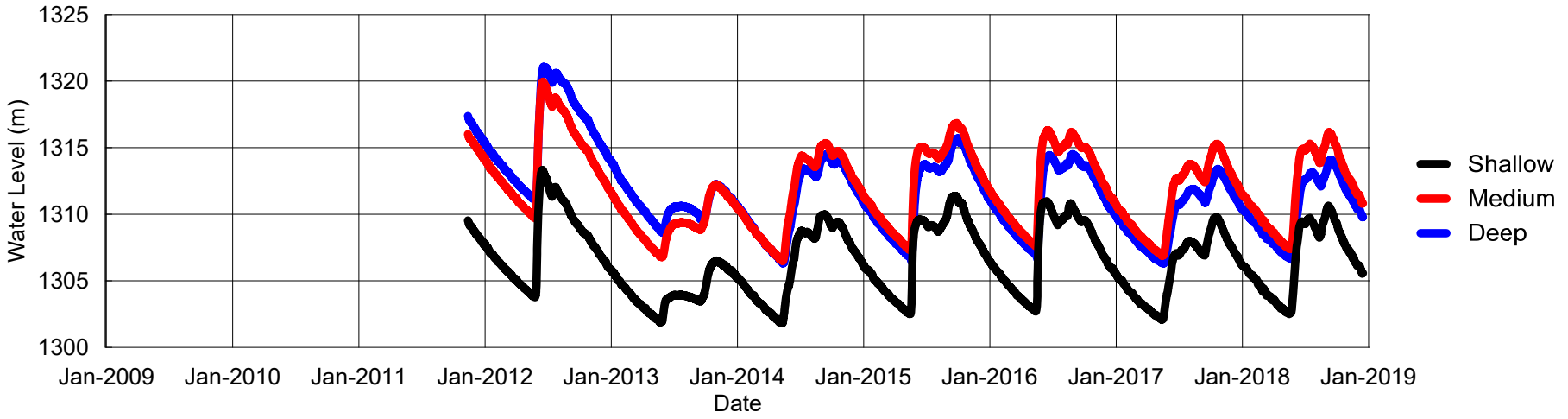


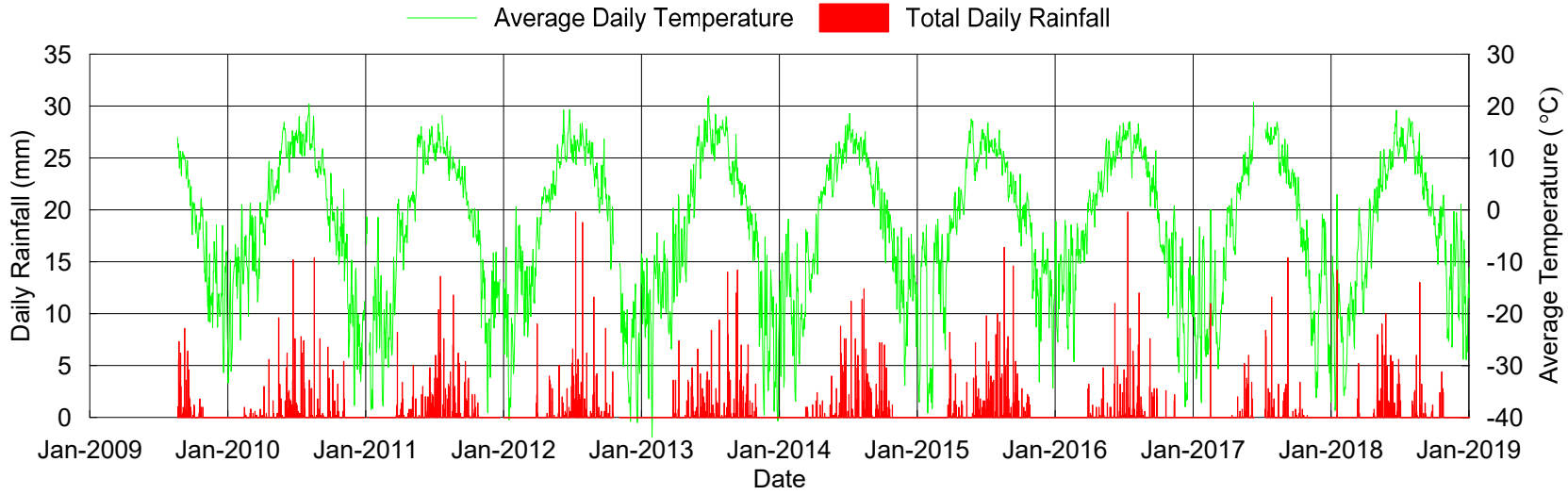


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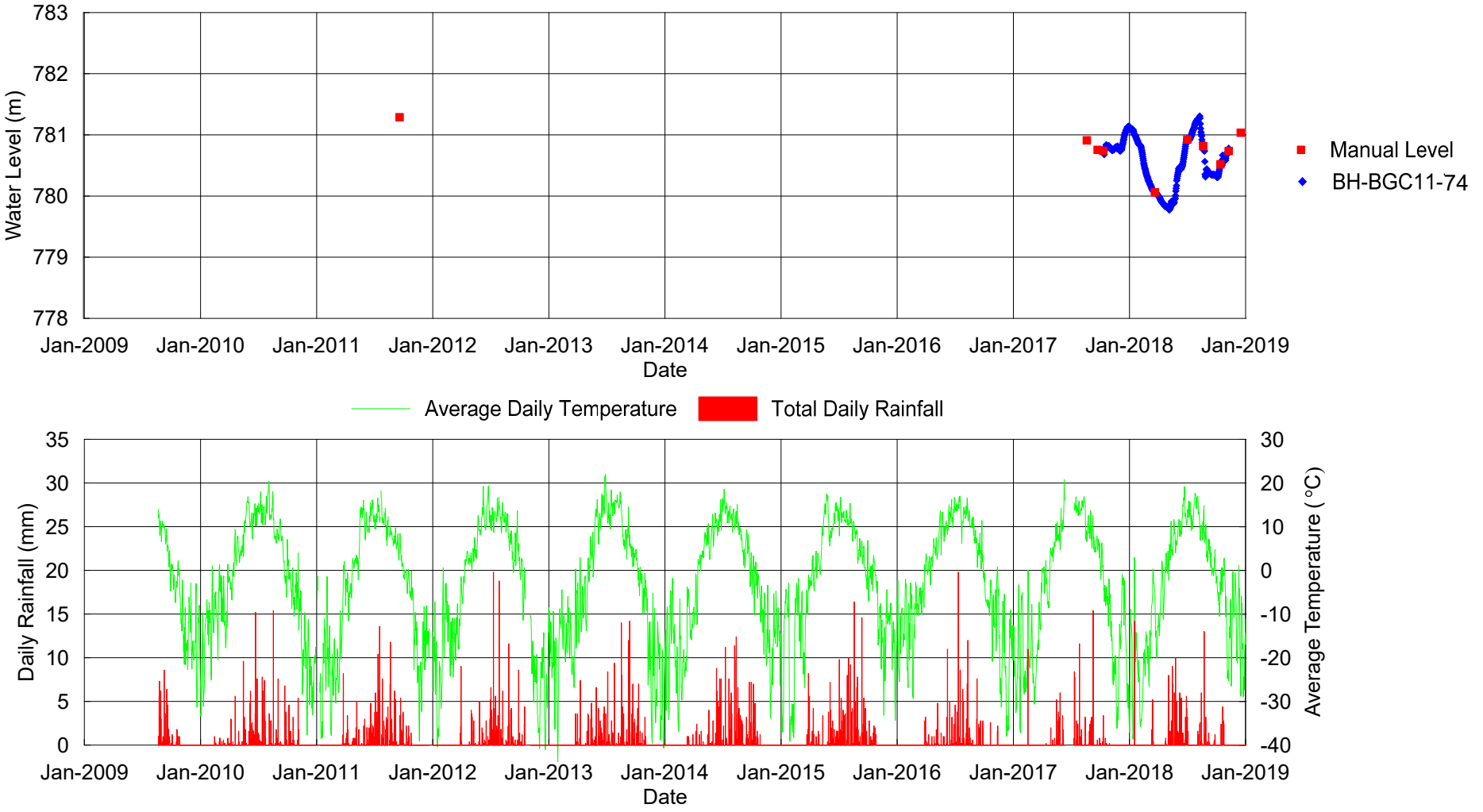


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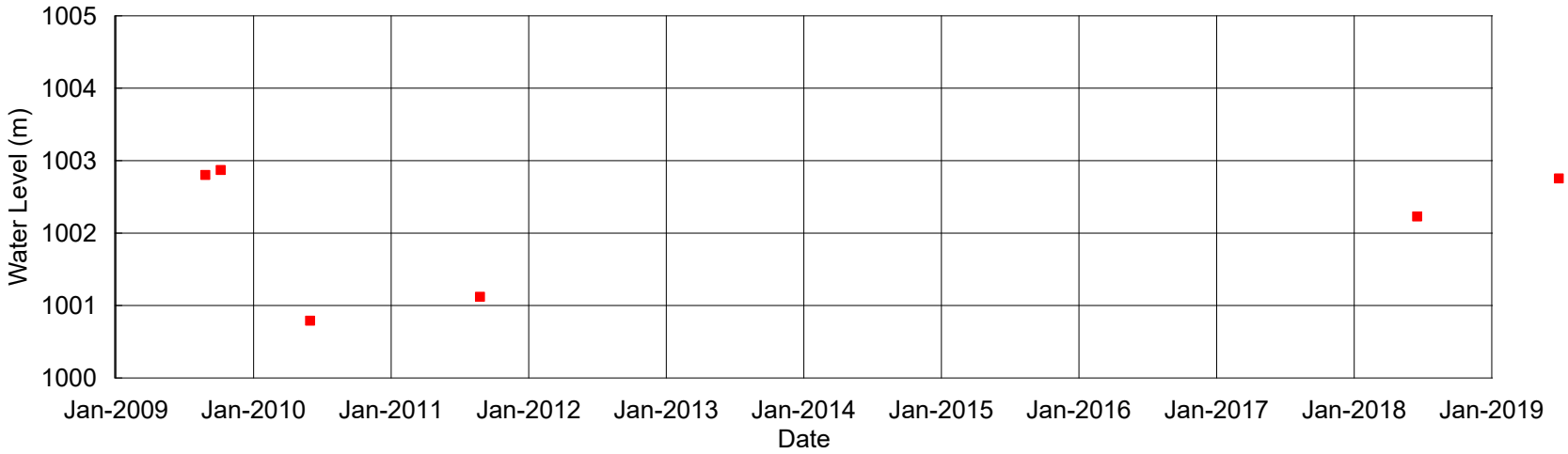


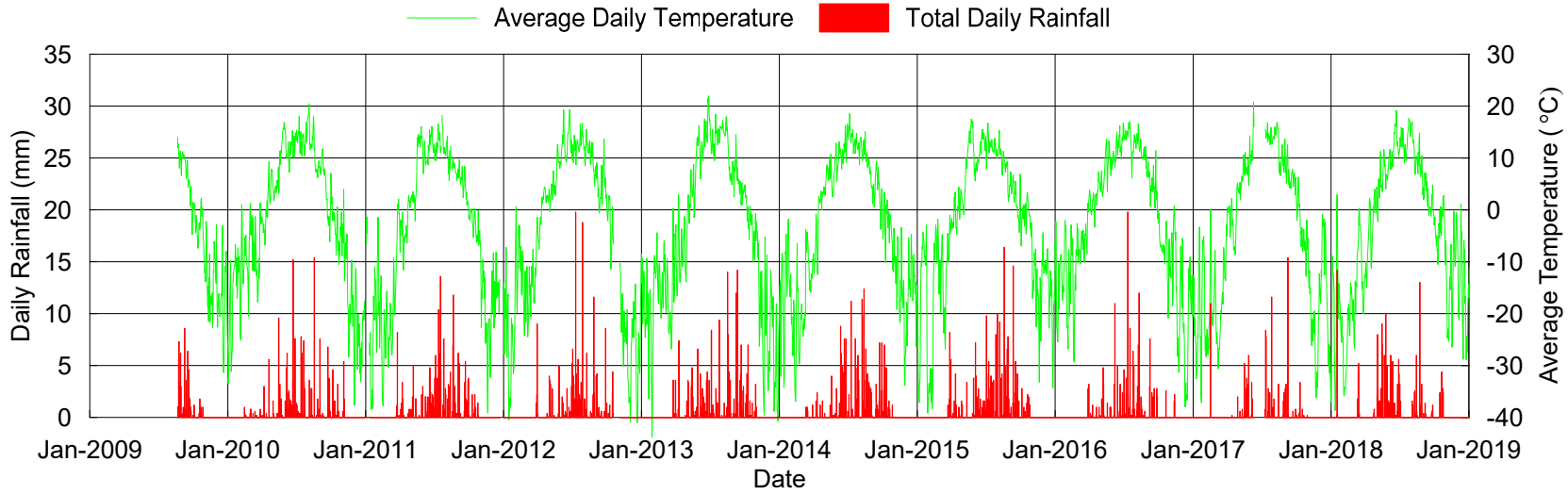


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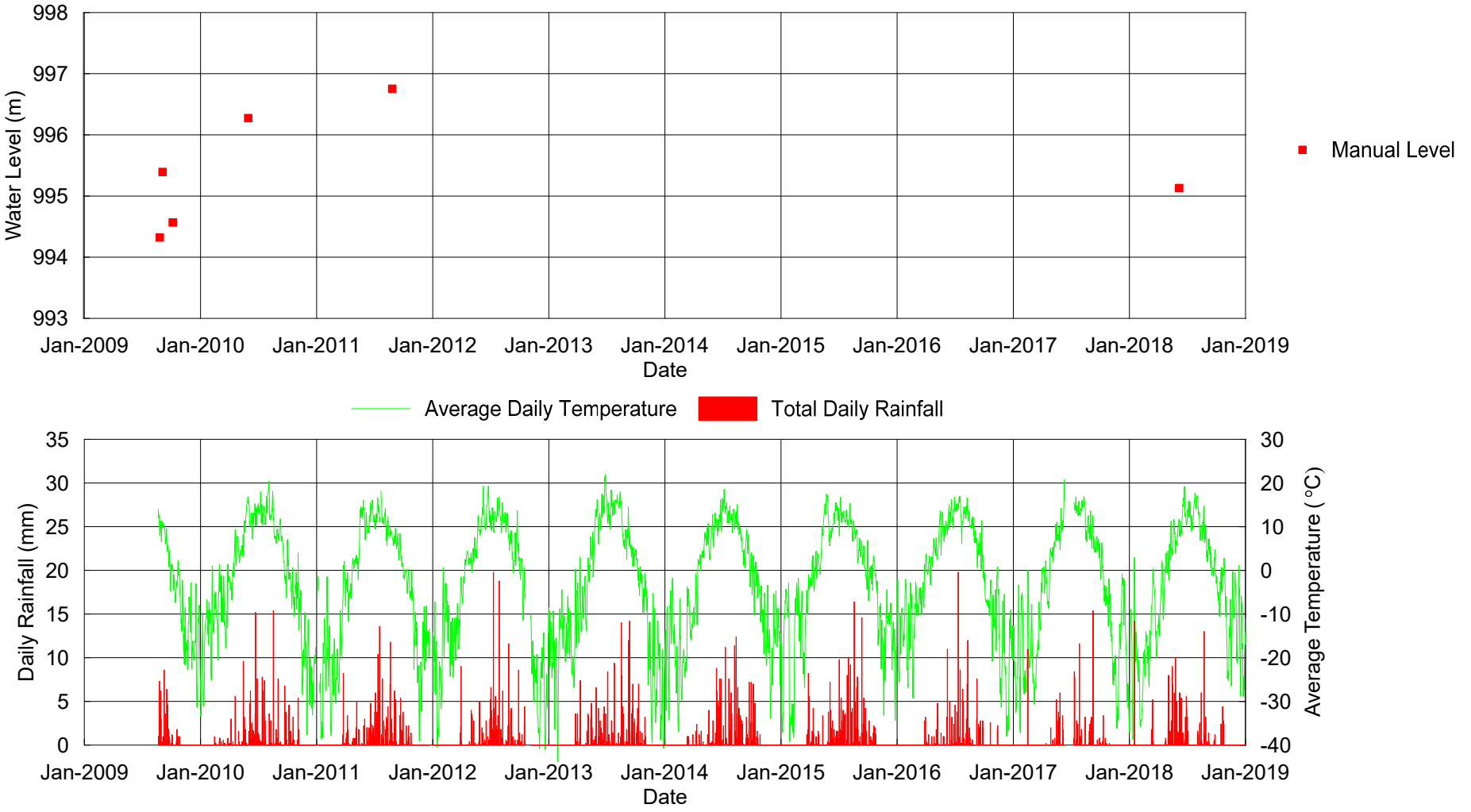


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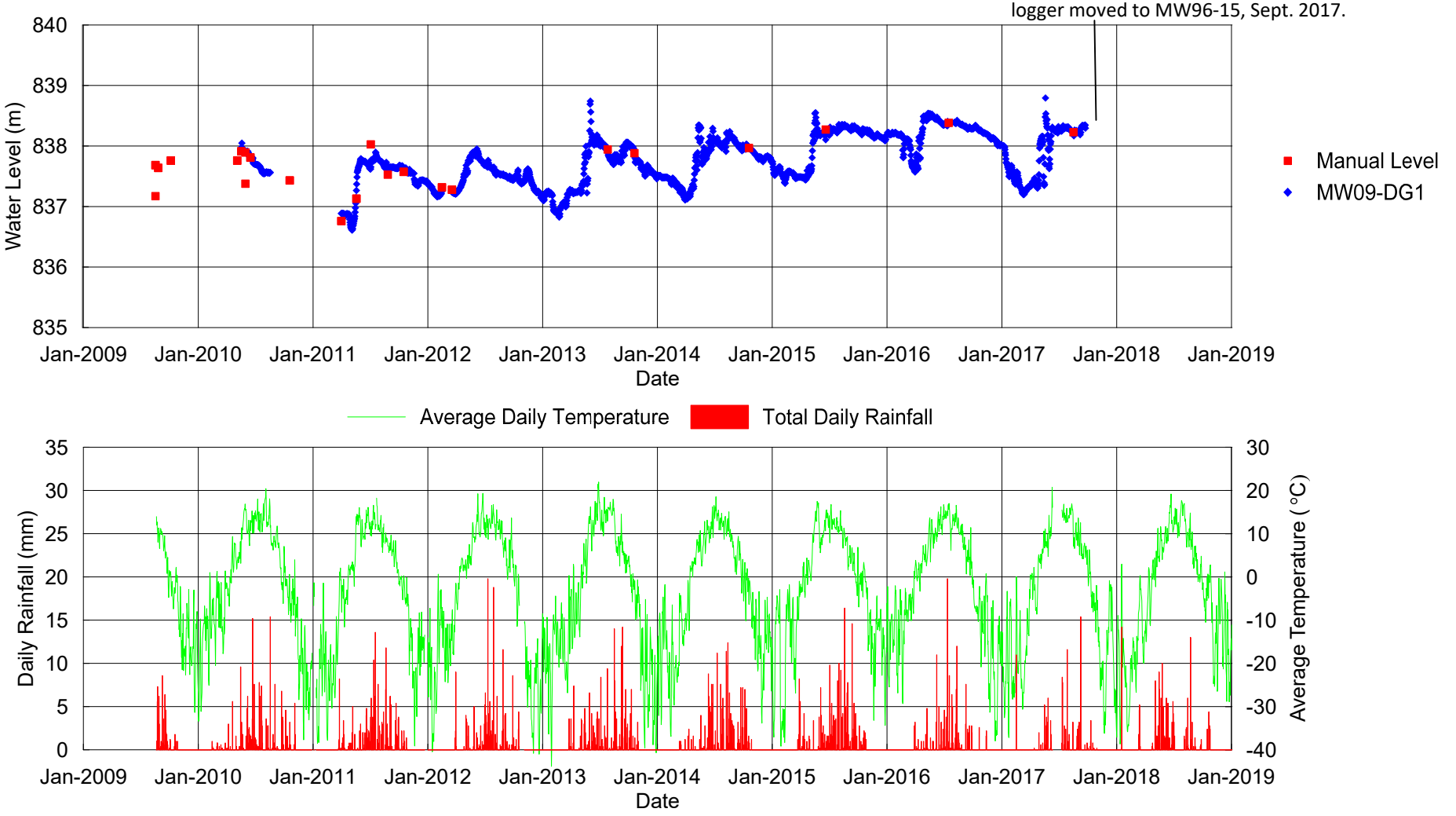


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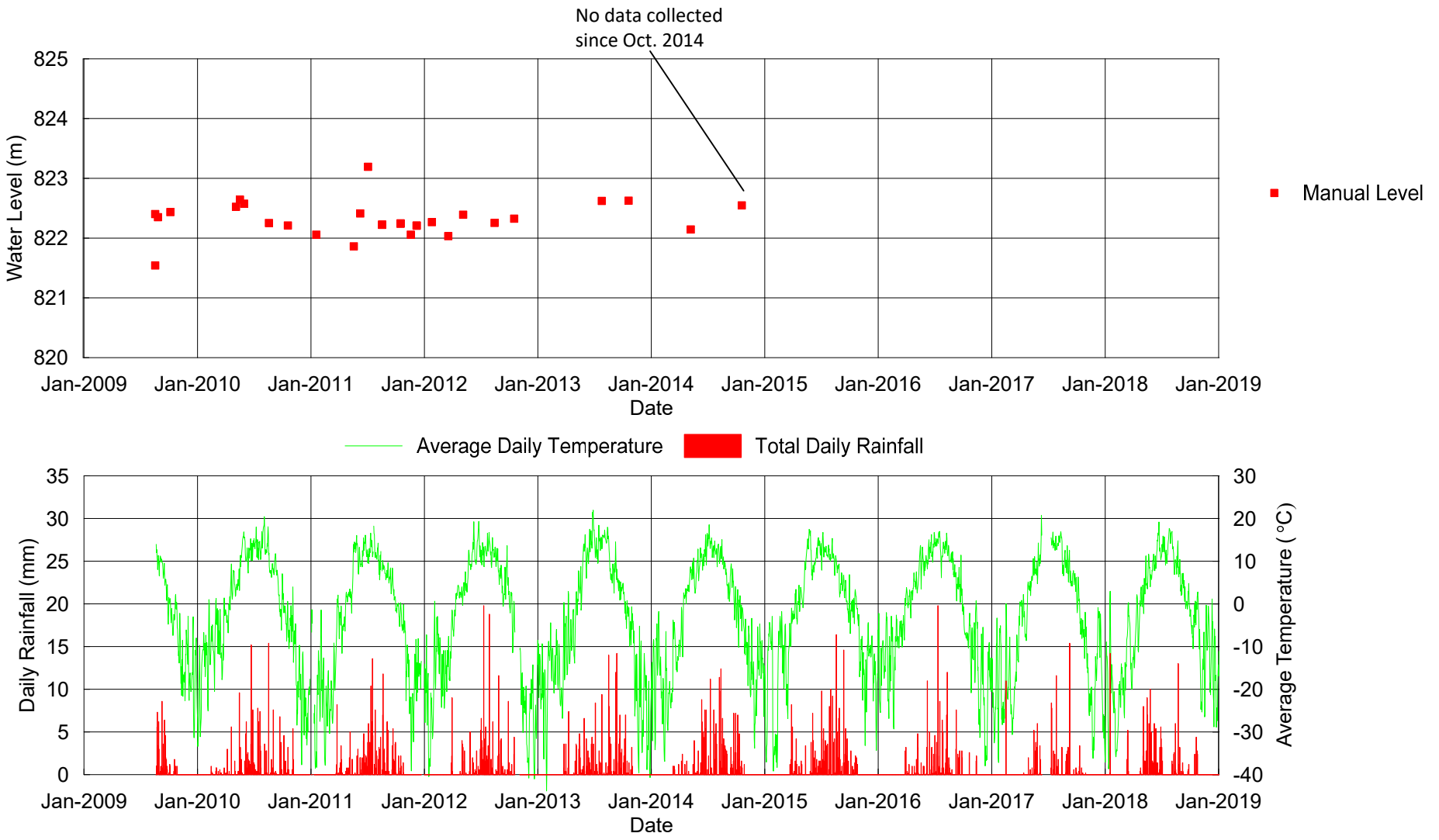


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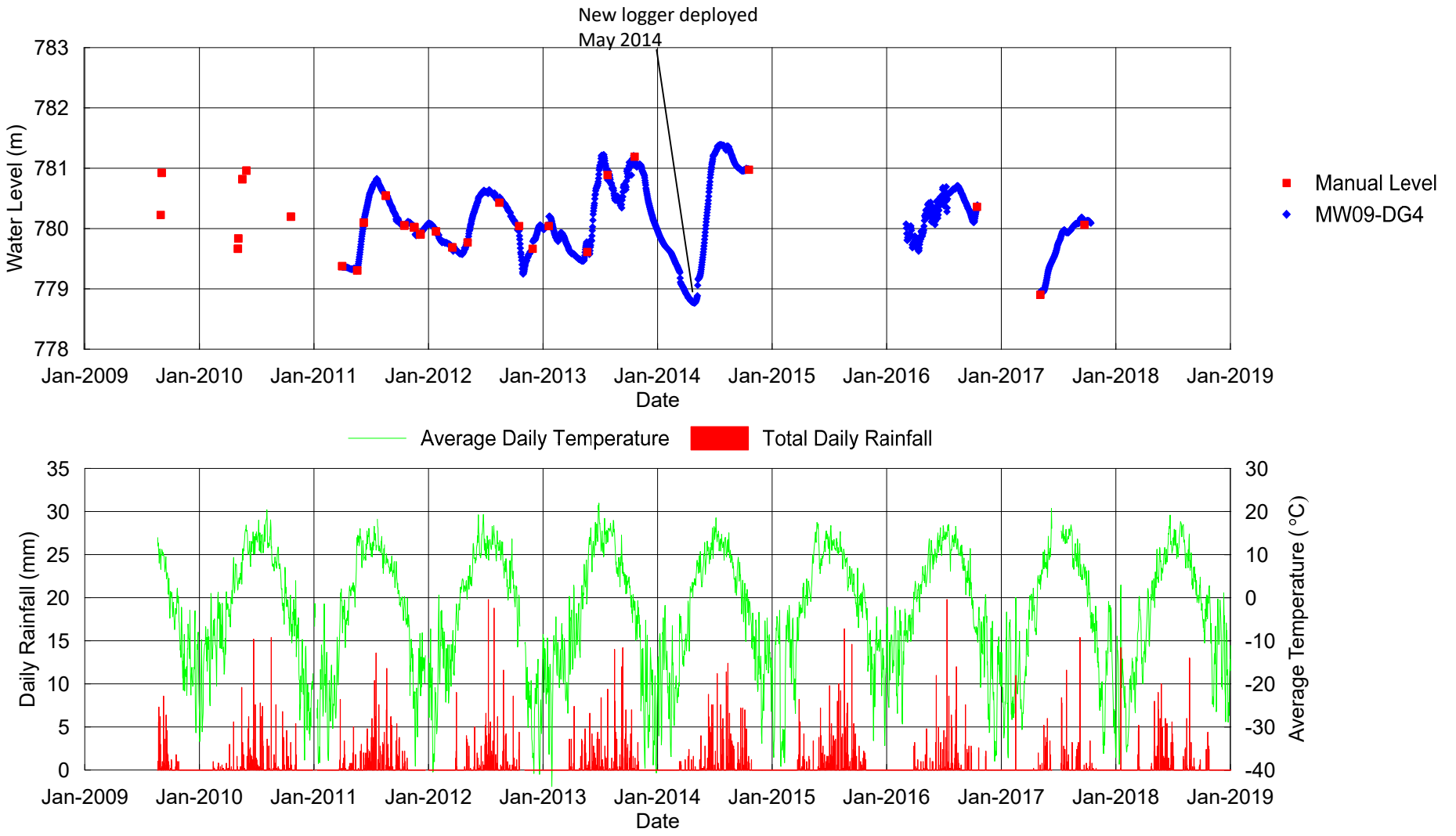


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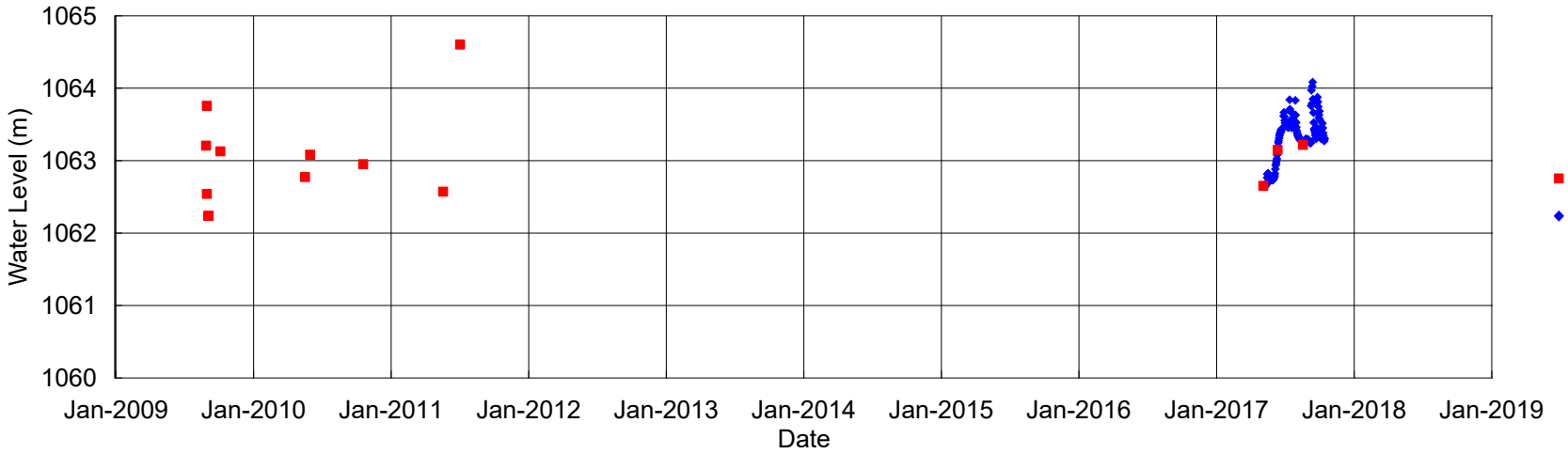


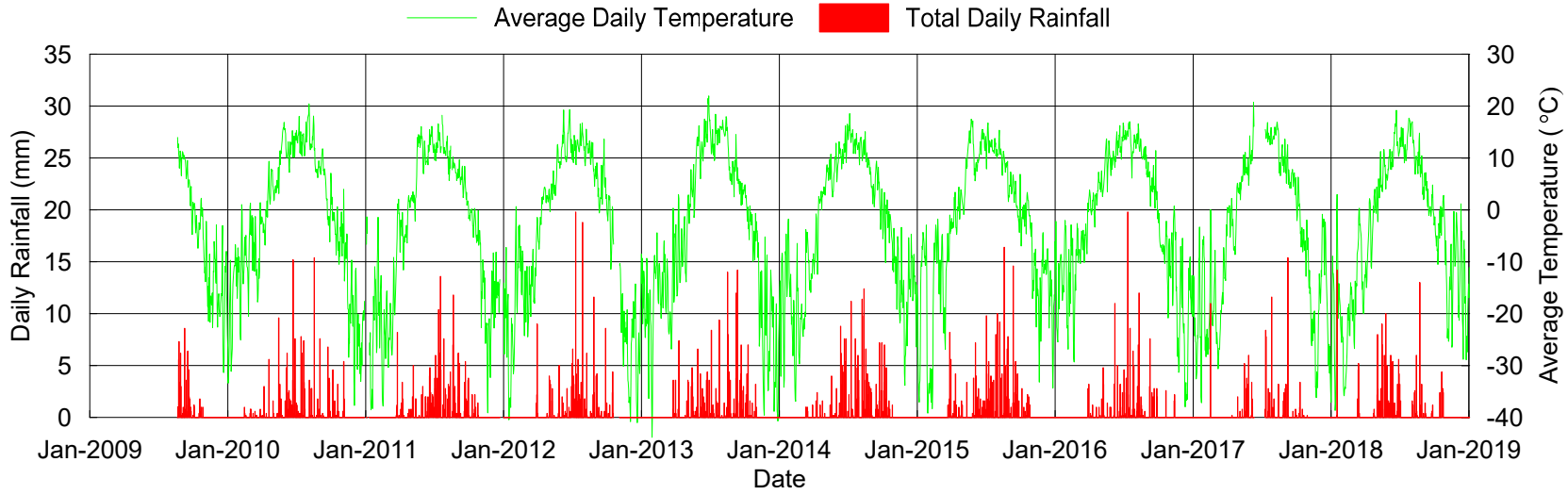


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PROJECT: EAGLE GOLD MINE

TITLE: MW09-OG3 GROUNDWATER ELEVATION AND METEOROLOGICAL DATA

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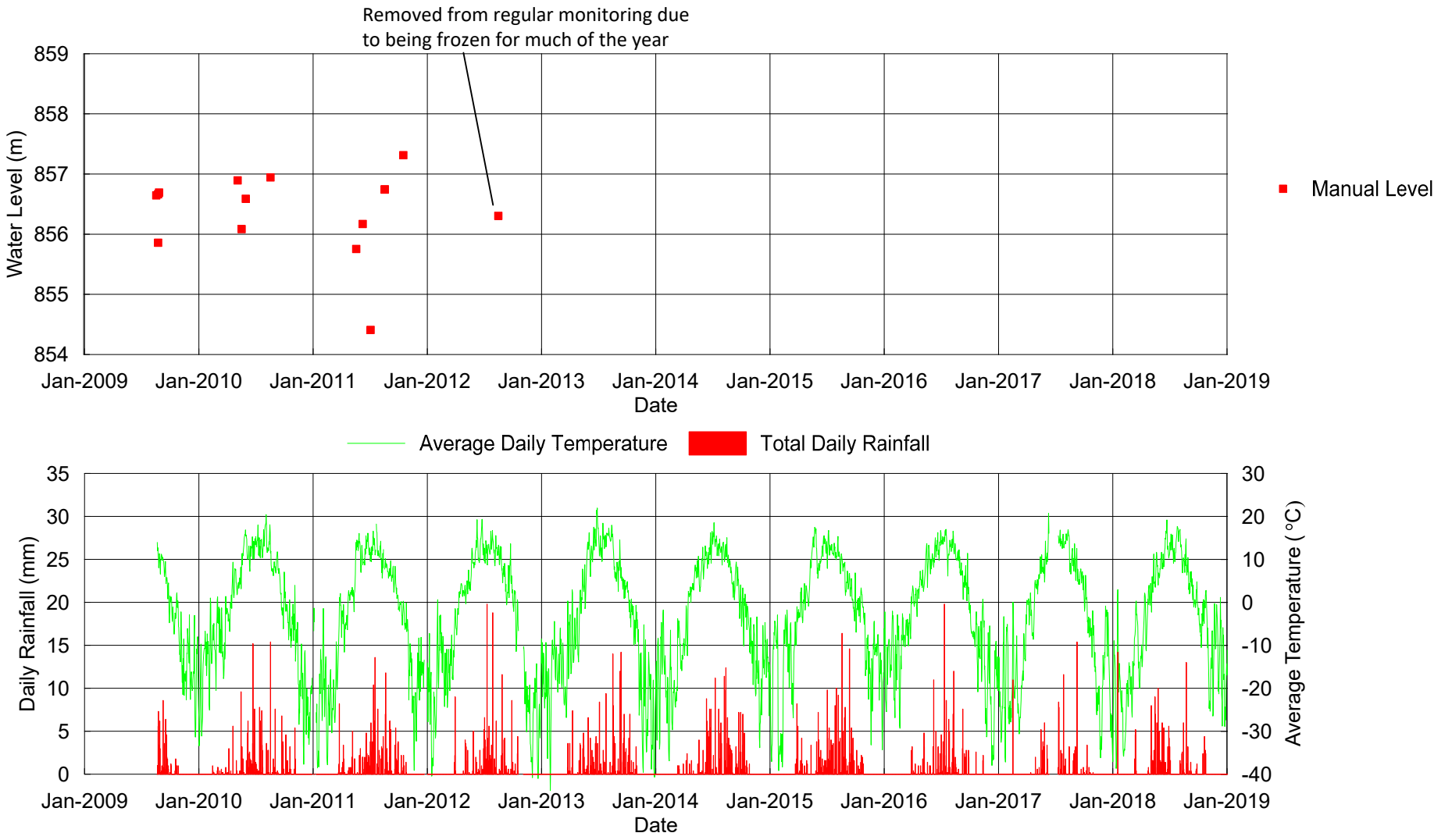


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CLIENT: VICTORIA GOLD CORP.

PROJECT: EAGLE GOLD MINE

TITLE: MW09-STU2 GROUNDWATER ELEVATION AND METEOROLOGICAL DATA

| PROJECT No. | DWG No. | REV. |
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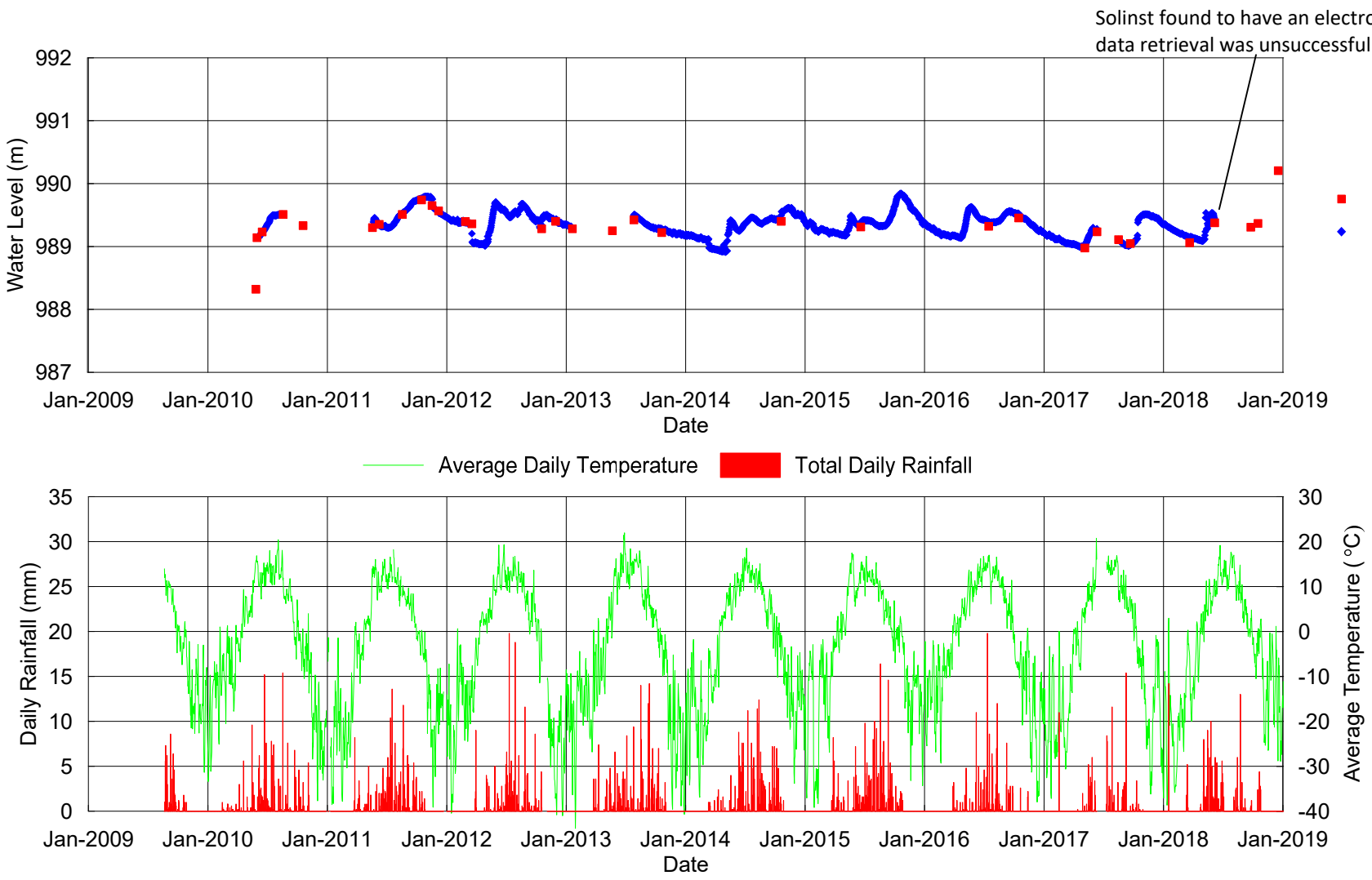


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CLIENT: VICTORIA GOLD CORP.

PROJECT: EAGLE GOLD MINE

TITLE: MW10-AG3A GROUNDWATER ELEVATION AND METEOROLOGICAL DATA

| PROJECT No. | DWG No. | REV. |
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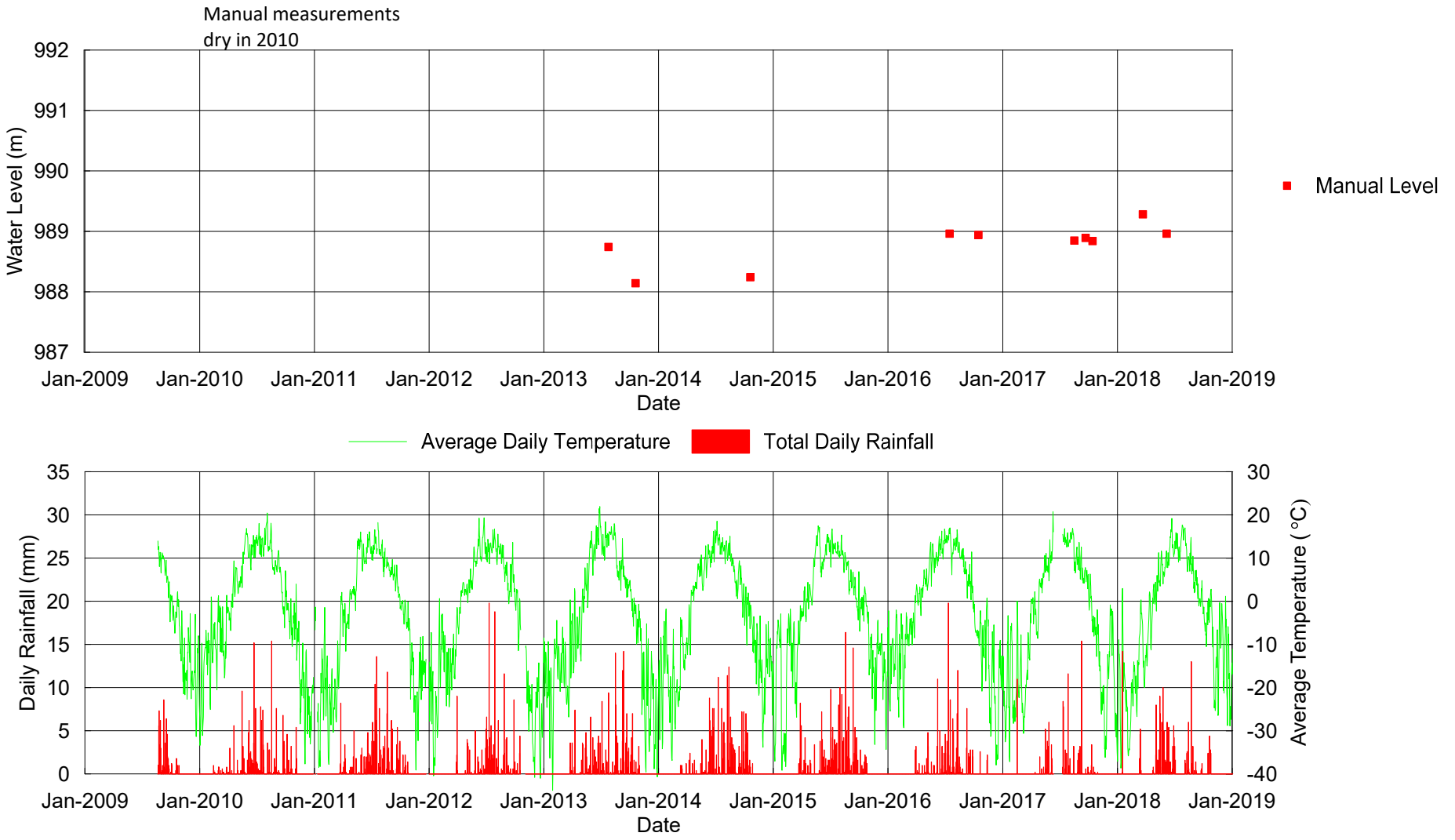


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CLIENT: VICTORIA GOLD CORP.

PROJECT: EAGLE GOLD MINE

TITLE: MW10-AG3B GROUNDWATER ELEVATION AND METEOROLOGICAL DATA

| PROJECT No. | DWG No. | REV. |
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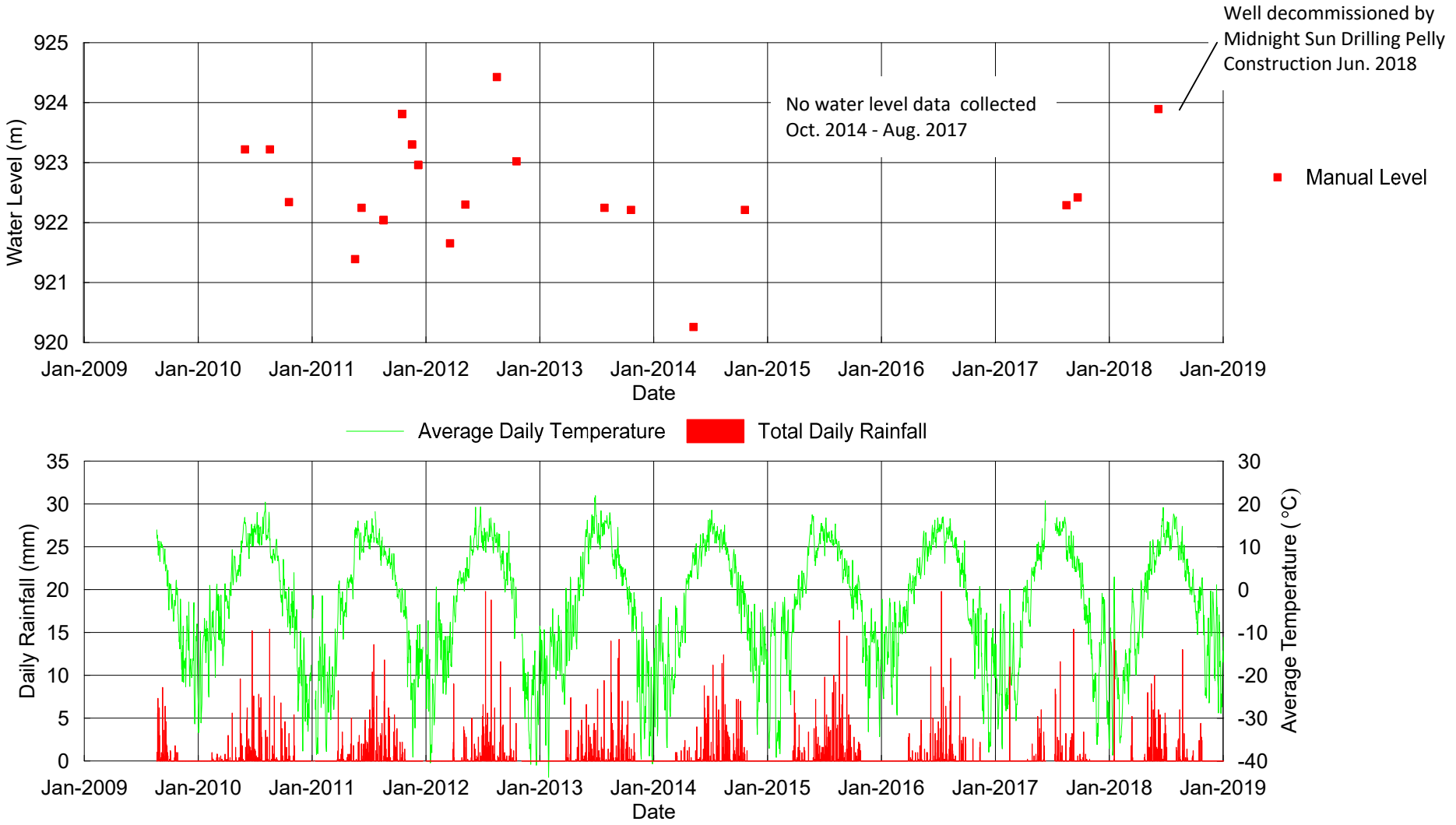


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CLIENT: VICTORIA GOLD CORP.

PROJECT: EAGLE GOLD MINE

TITLE: MW10-AG5 GROUNDWATER ELEVATION AND METEOROLOGICAL DATA

| PROJECT No. | DWG No. | REV. |
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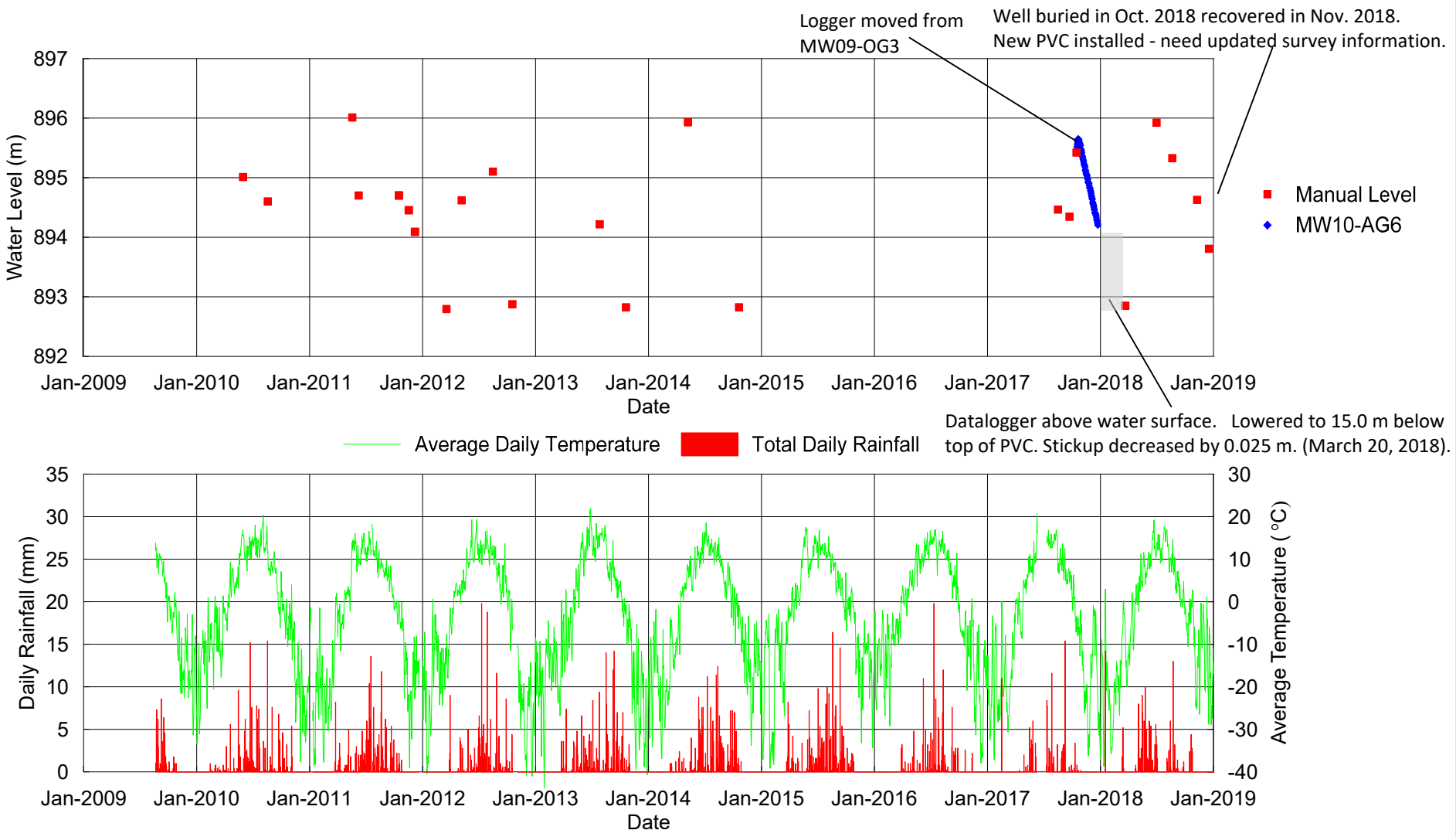


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CLIENT: VICTORIA GOLD CORP.

PROJECT: EAGLE GOLD MINE

TITLE: MW10-AG6 GROUNDWATER ELEVATION AND METEOROLOGICAL DATA

| PROJECT No. | DWG No. | REV. |
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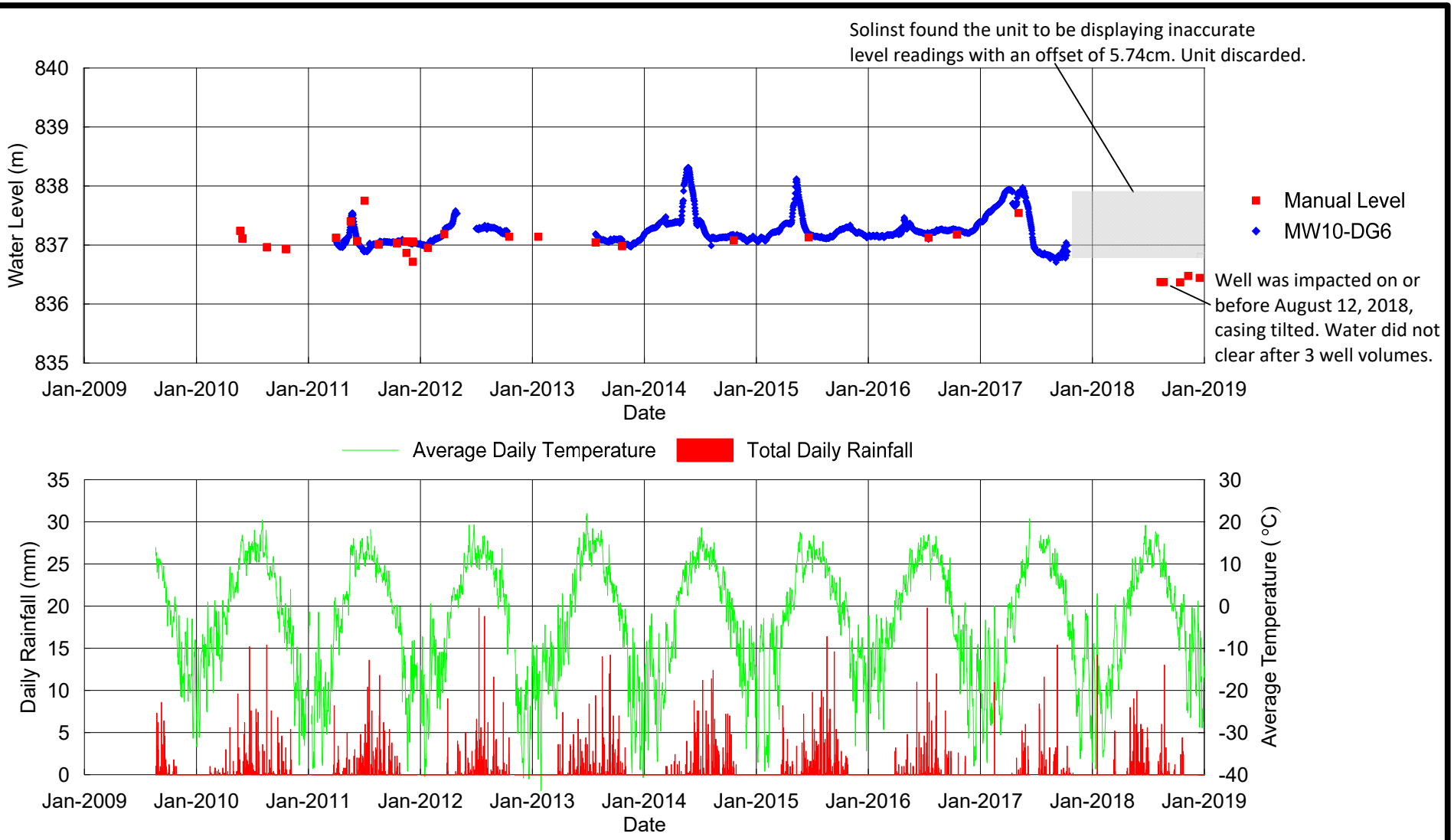


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CLIENT: VICTORIA GOLD CORP.

PROJECT: EAGLE GOLD MINE

TITLE: MW10-DG6 GROUNDWATER ELEVATION AND METEOROLOGICAL DATA

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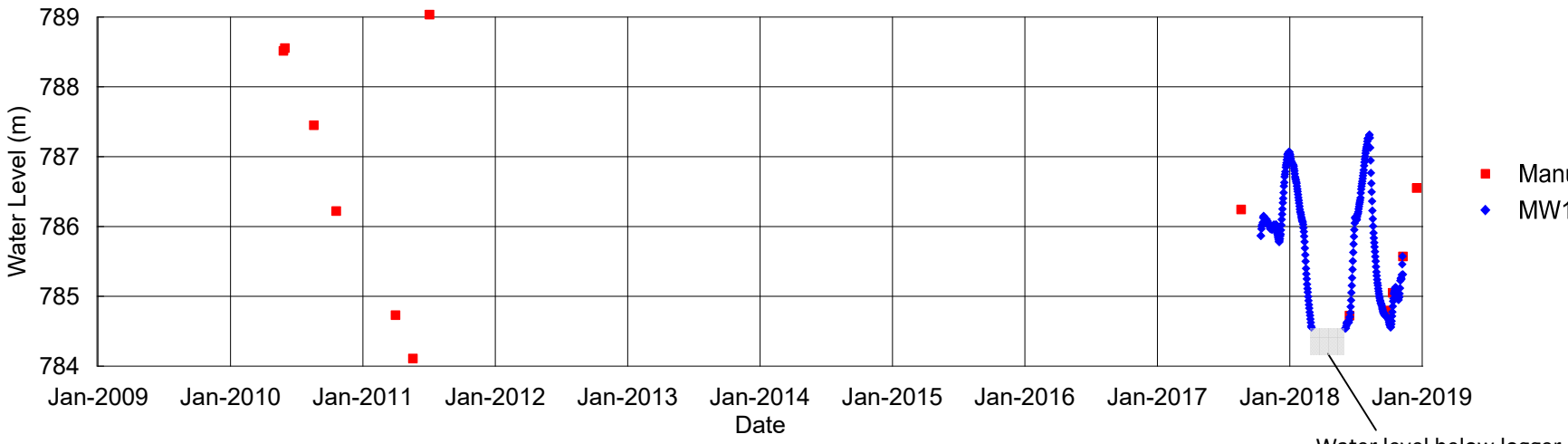


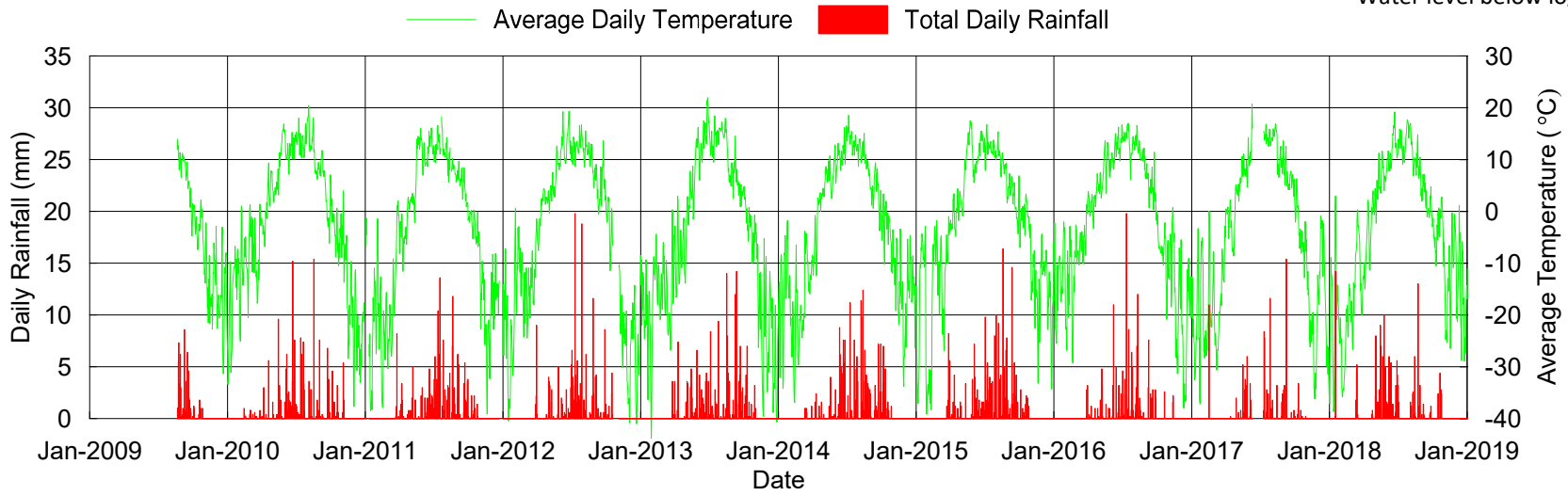


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CLIENT: VICTORIA GOLD CORP.

PROJECT: EAGLE GOLD MINE

TITLE: MW10-OBS1 GROUNDWATER ELEVATION AND METEOROLOGICAL DATA

| PROJECT No. | DWG No. | REV. |
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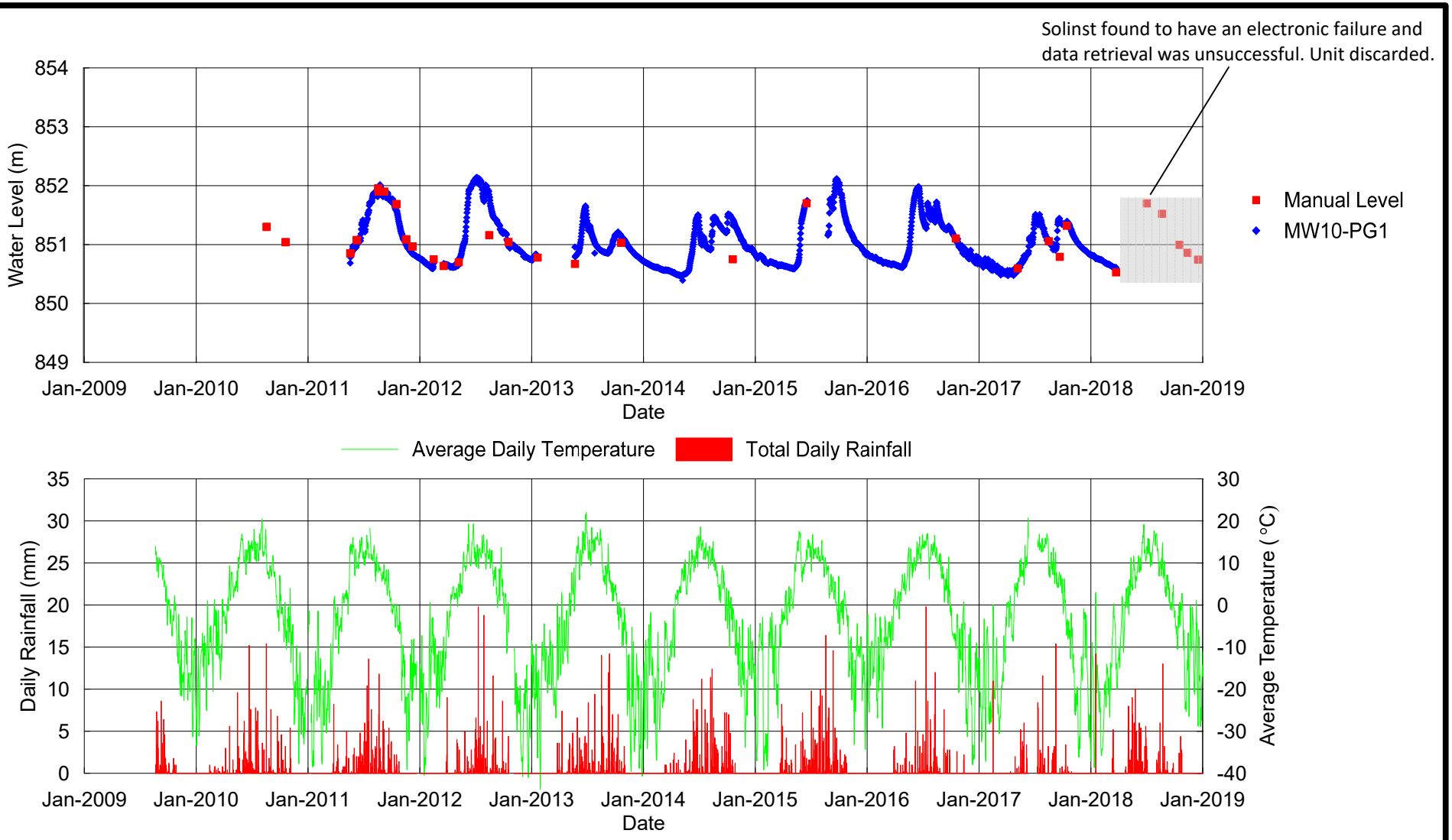


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CLIENT: VICTORIA GOLD CORP.

PROJECT: EAGLE GOLD MINE

TITLE: MW10-PG1 GROUNDWATER ELEVATION AND METEOROLOGICAL DATA

| PROJECT No. | DWG No. | REV. |
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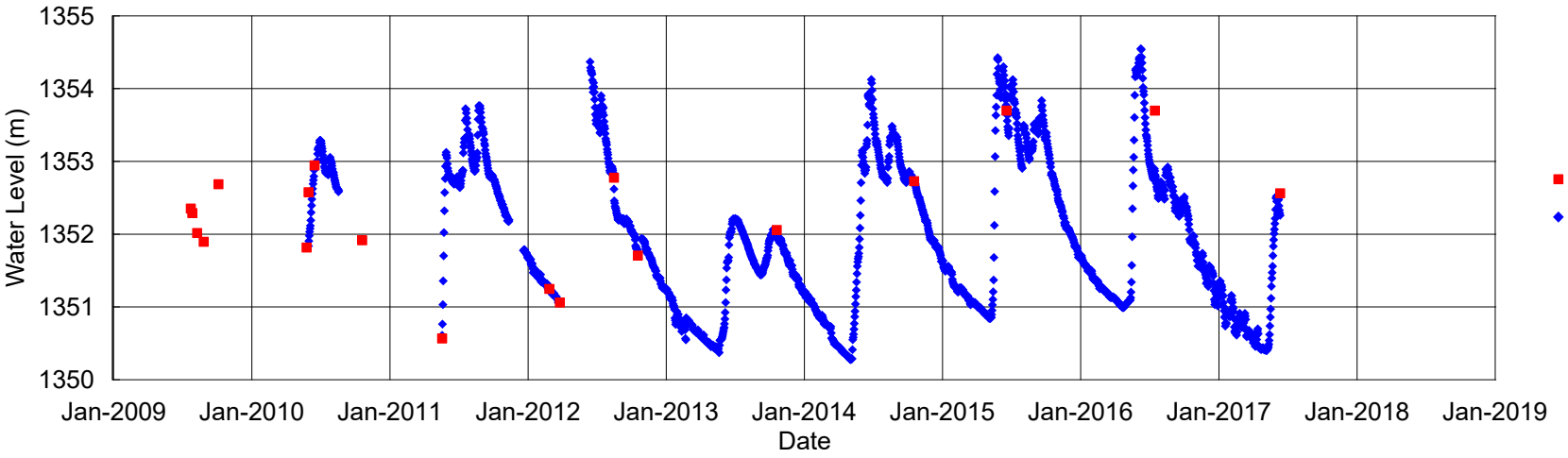


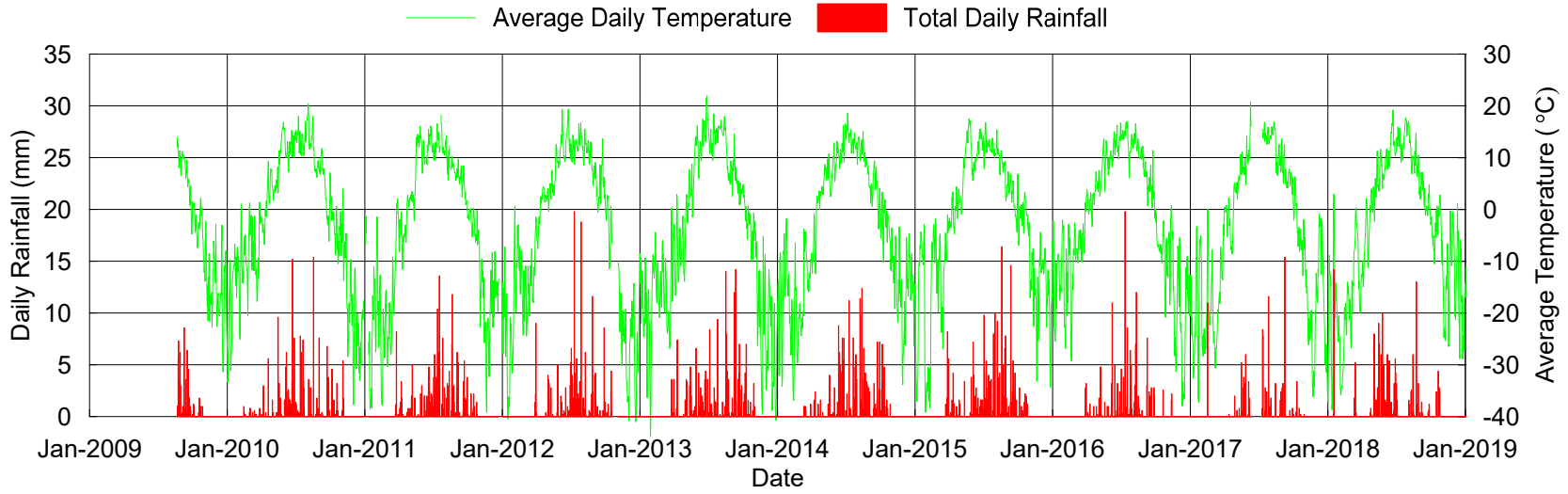


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CLIENT: VICTORIA GOLD CORP.

PROJECT: EAGLE GOLD MINE

TITLE: MW96-9B GROUNDWATER ELEVATION AND METEOROLOGICAL DATA

| PROJECT No. | DWG No. | REV. |
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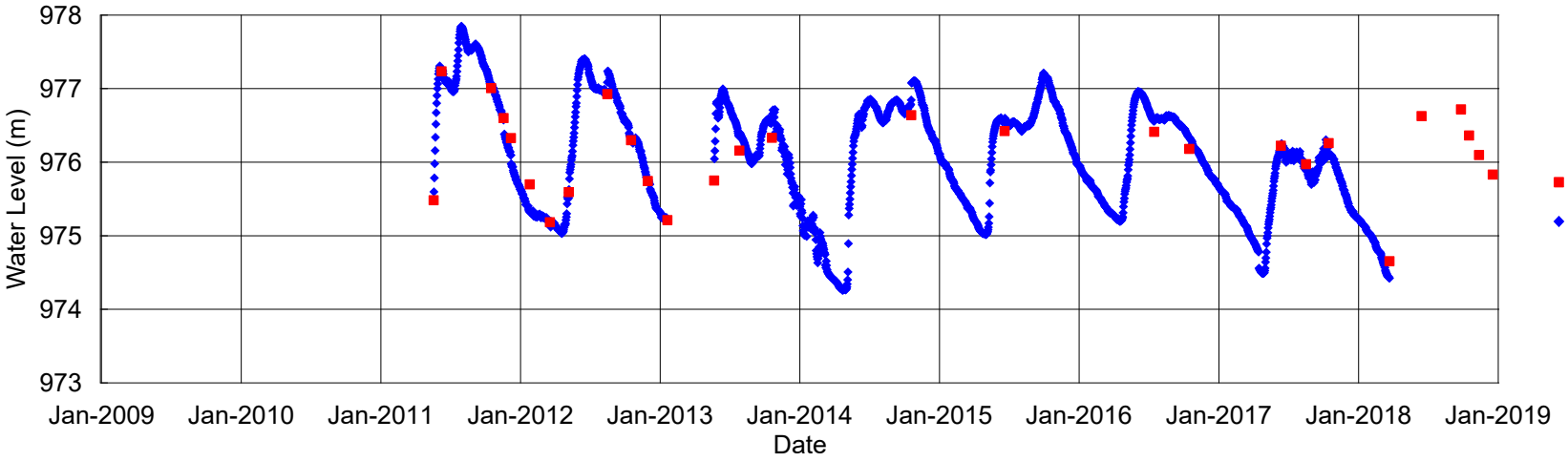


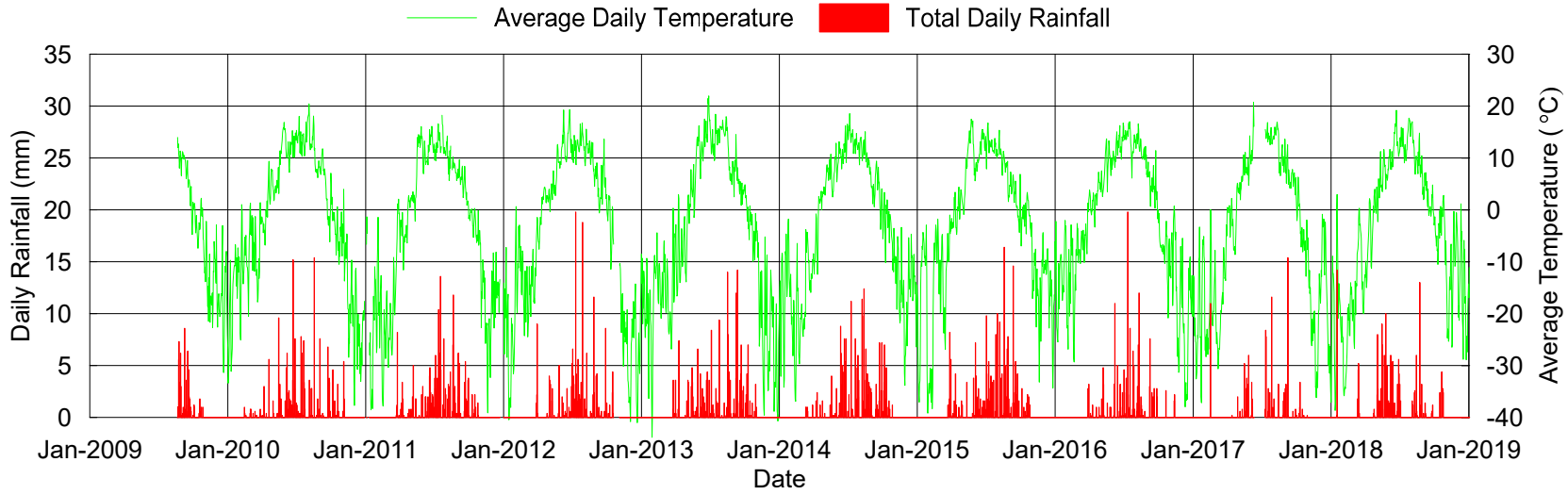


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CLIENT: VICTORIA GOLD CORP.

PROJECT: EAGLE GOLD MINE

TITLE: MW96-13A GROUNDWATER ELEVATION AND METEOROLOGICAL DATA

| PROJECT No. | DWG No. | REV. |
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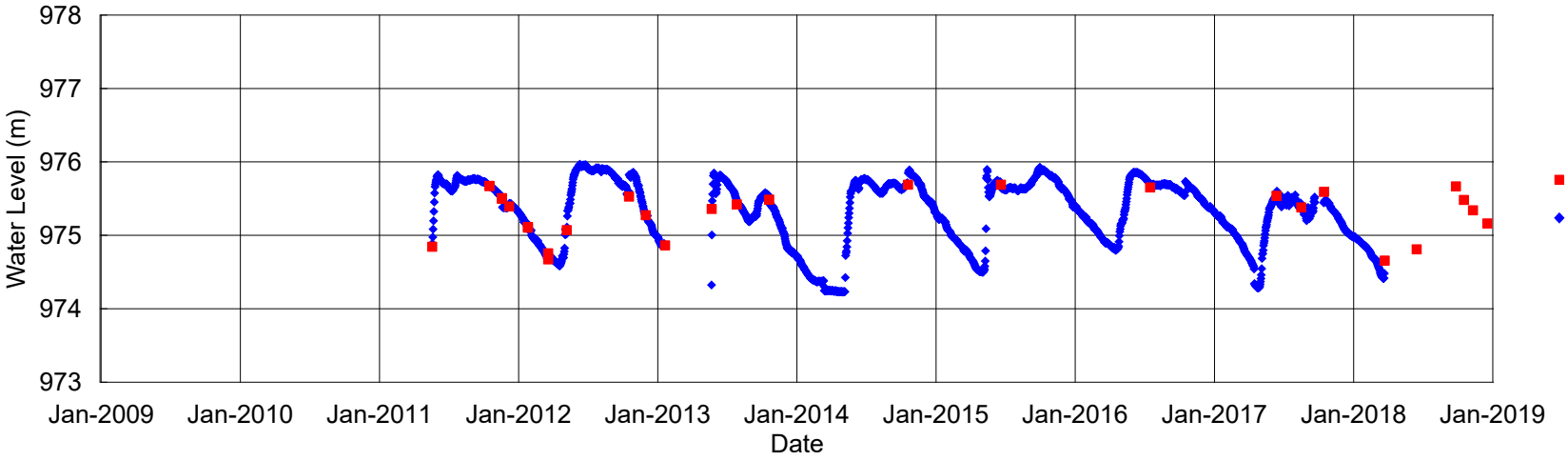


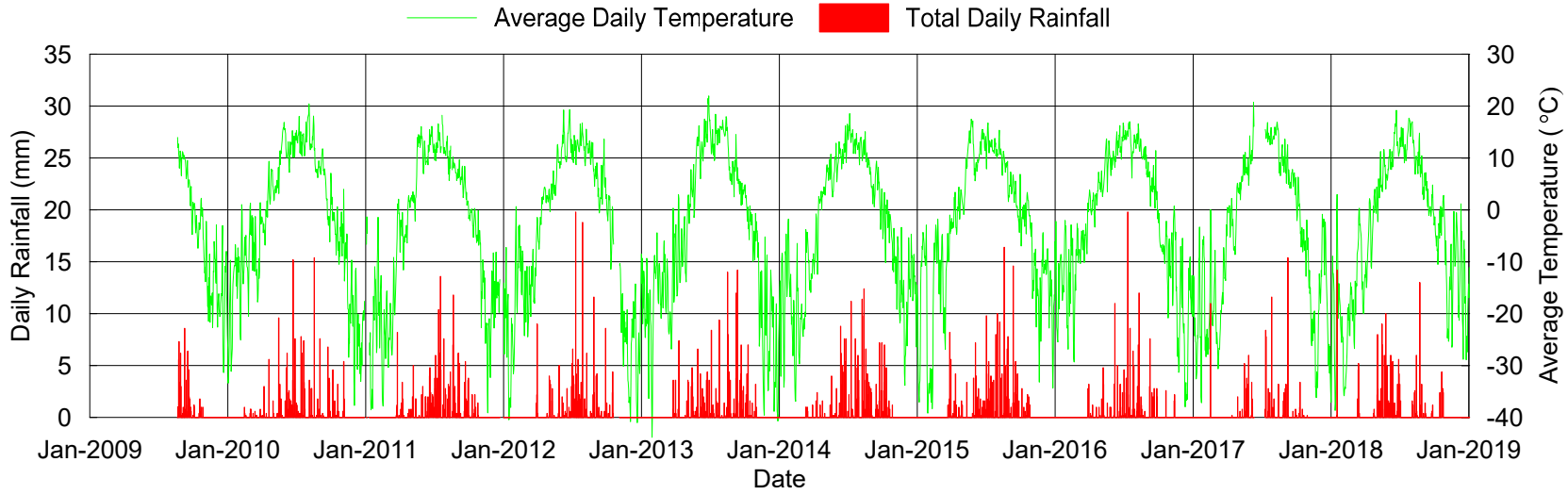


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CLIENT: VICTORIA GOLD CORP.

PROJECT: EAGLE GOLD MINE

TITLE: MW96-13B GROUNDWATER ELEVATION AND METEOROLOGICAL DATA

| PROJECT No. | DWG No. | REV. |
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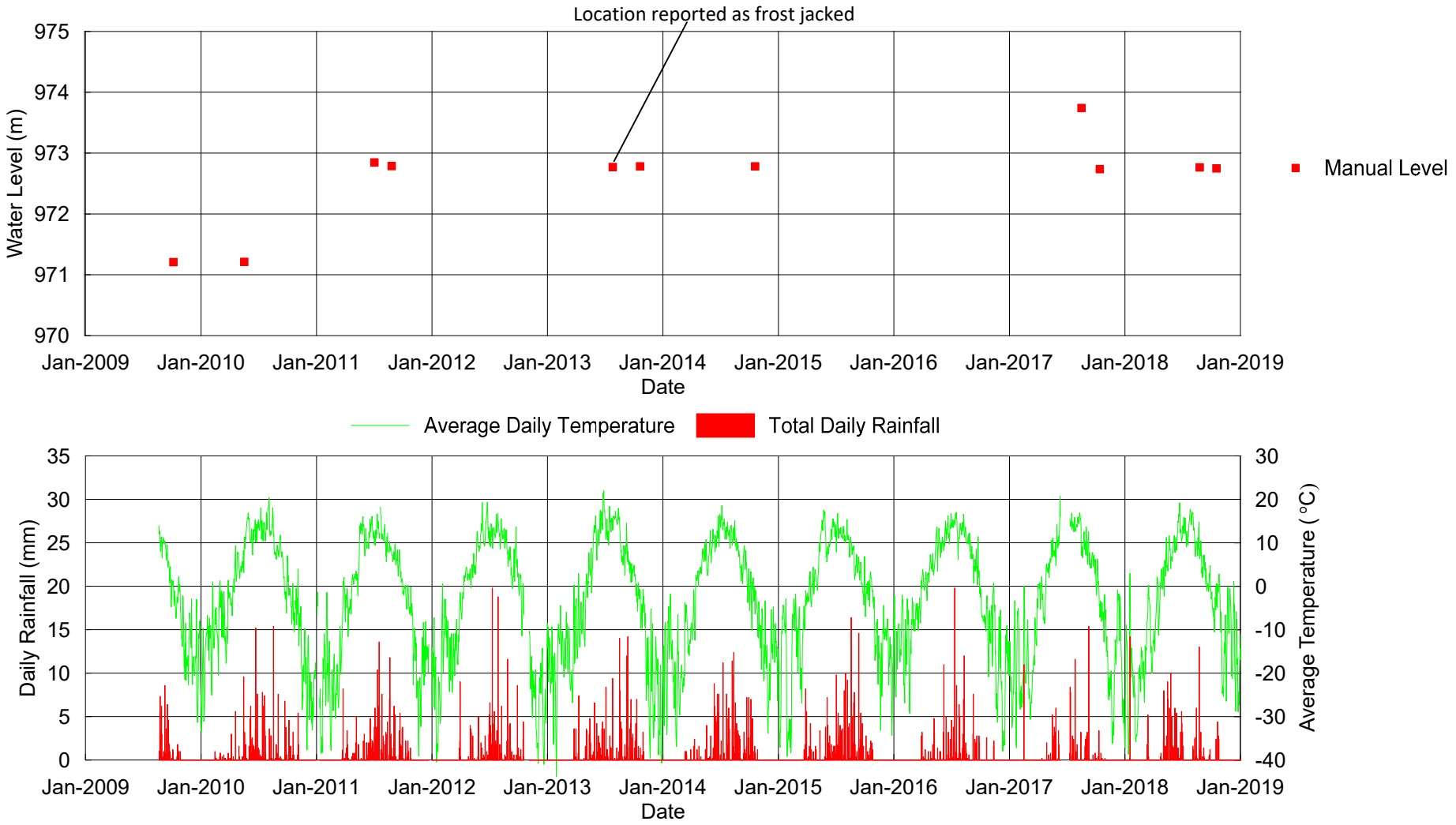


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CLIENT: VICTORIA GOLD CORP.

PROJECT: EAGLE GOLD MINE

TITLE: MW96-14B GROUNDWATER ELEVATION AND METEOROLOGICAL DATA

| PROJECT No. | DWG No. | REV. |
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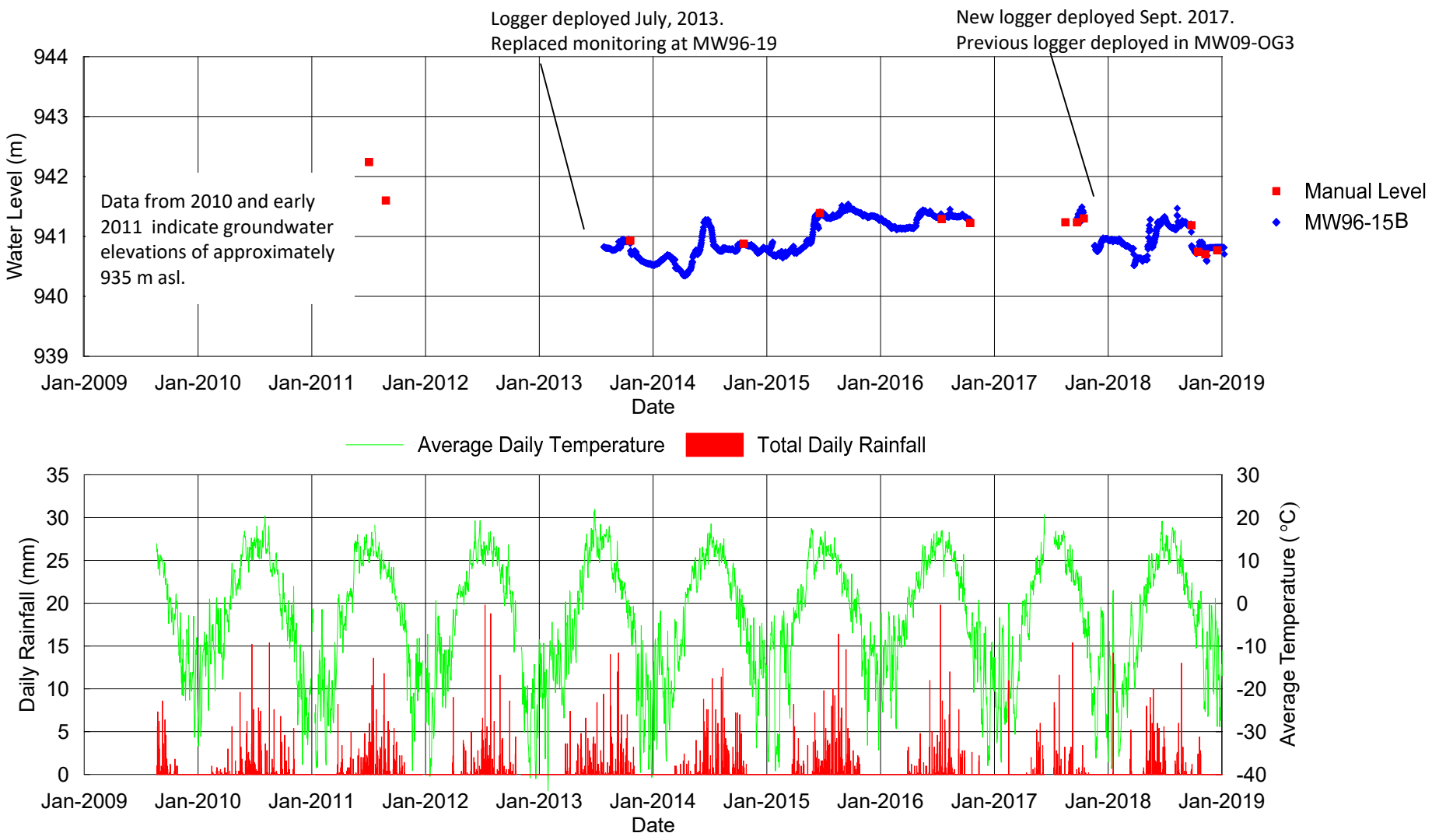


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CLIENT: VICTORIA GOLD CORP.

PROJECT: EAGLE GOLD MINE

TITLE: MW96-15B GROUNDWATER ELEVATION AND METEOROLOGICAL DATA

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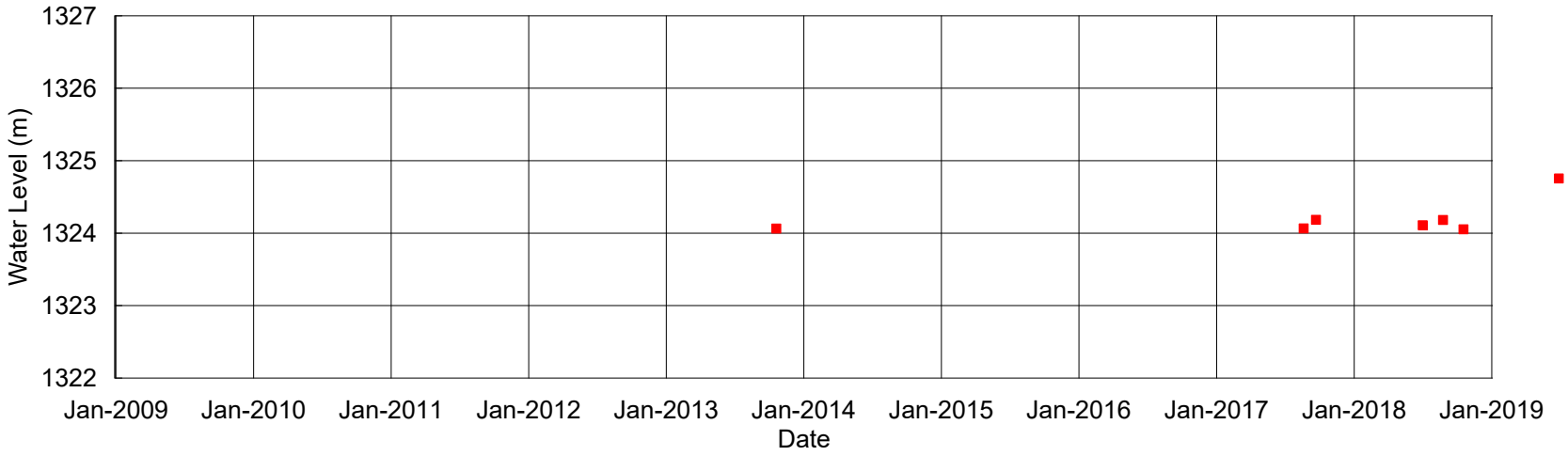


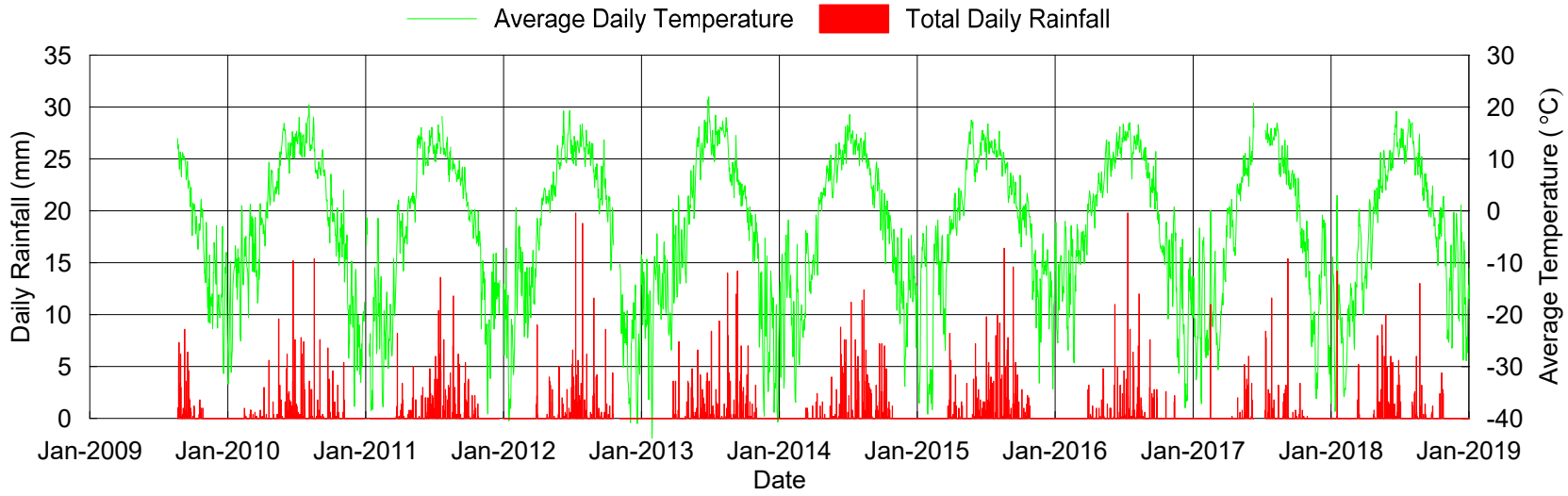


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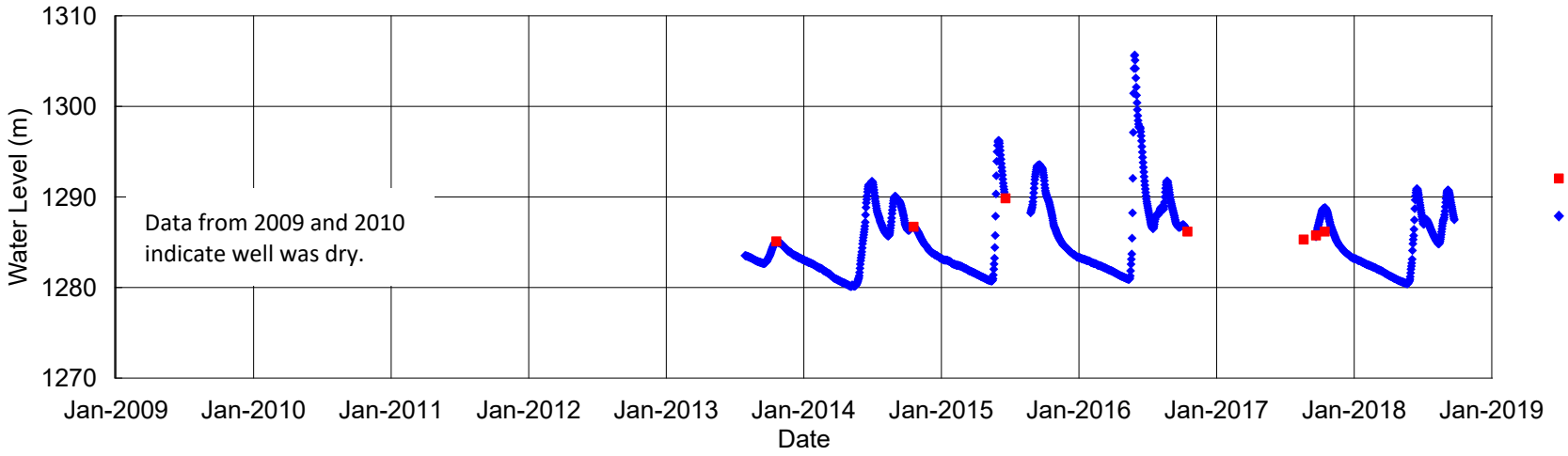


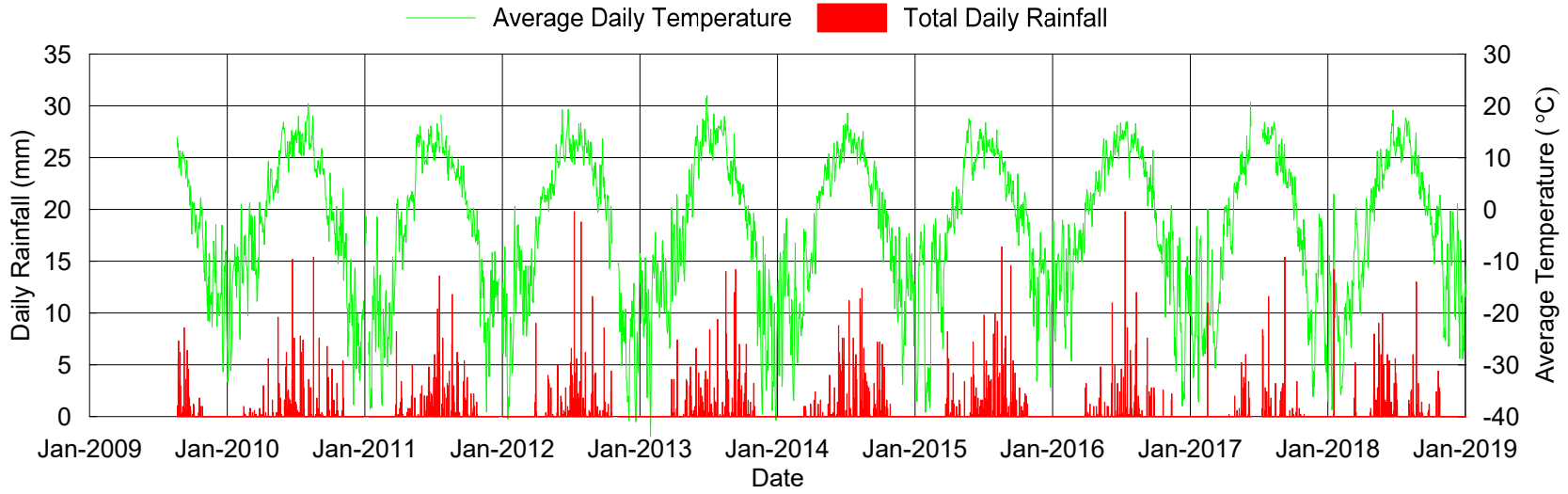


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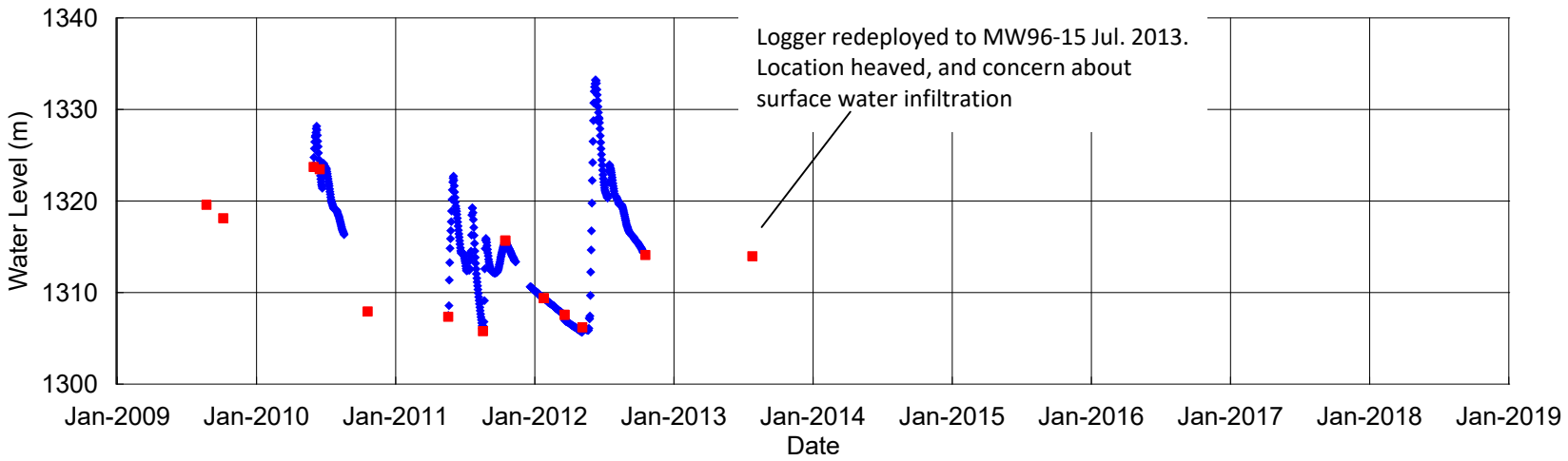


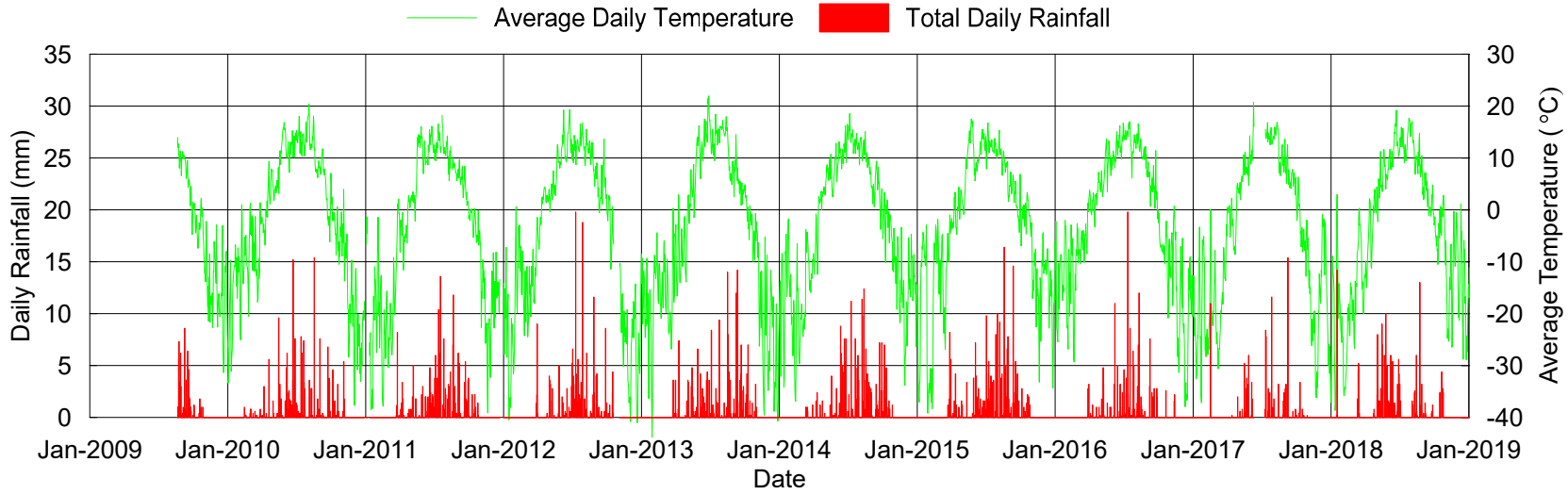


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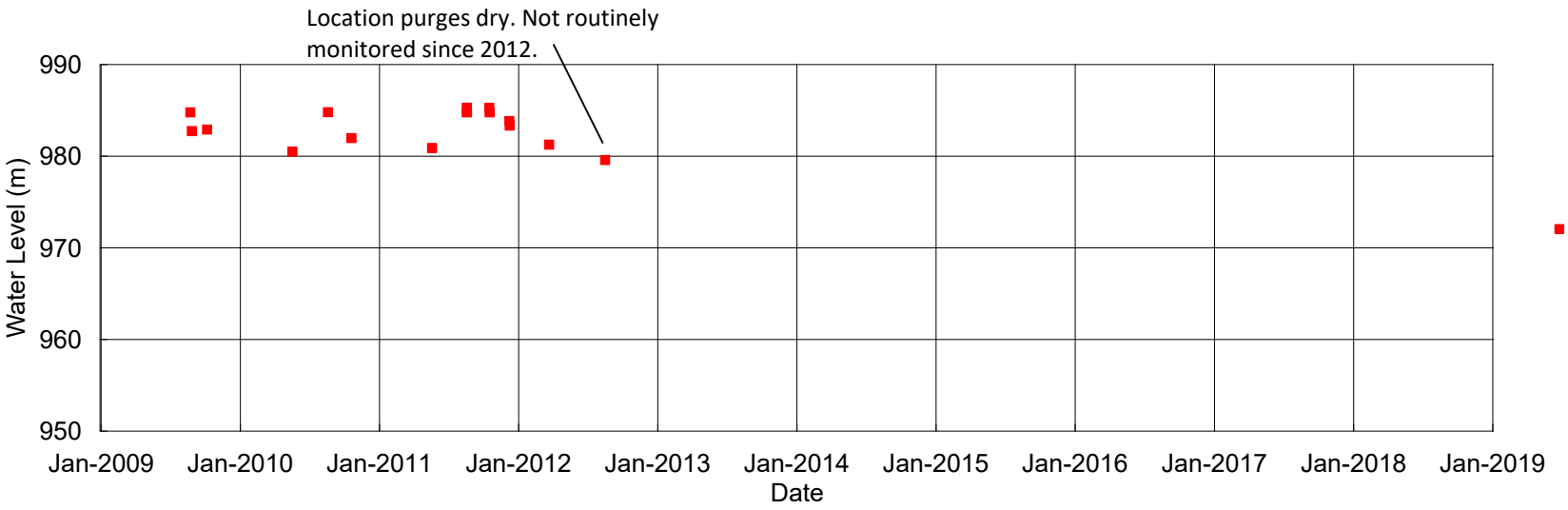


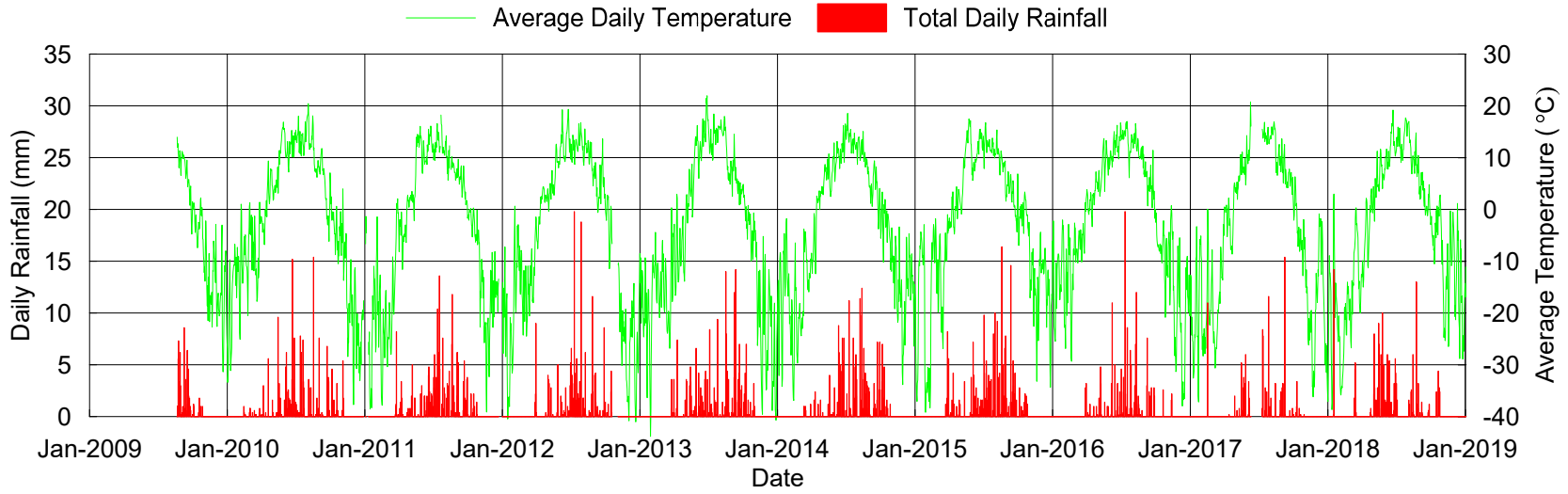


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# APPENDIX H

## 2018 Update on Geochemical Source Terms

# TECHNICAL MEMORANDUM

| | | |
|---|---|---|
| **To:** | **Stephen Wilbur, Victoria Gold Corp.** | **Date: February 26, 2018** |
| **From:** | **Timo Kirchner & David Flather** | **Project #: A445-1** |
| **Subject:** | **Eagle Gold Mine – 2018 Update on Geochemical Source Terms** | |

For the application of the Eagle Gold Water Use Licence (WUL QZ14-041), Victoria Gold Corporation (VIT) retained Lorax Environmental Services Ltd. (Lorax) to provide geochemical source term predictions for the waste rock storage facilities as well as the heap leach pad to be used for the site-wide water quality model. The source term model produced by Lorax was primarily based on laboratory- and field-kinetic testwork conducted on samples representing waste rock and ore.

As a condition of the WUL, VIT is required to prepare an updated water quality model that is reflective of changes climate, hydrology and water quality data collected since the submission of the WUL application. For the current update, the geochemistry of field bin leachates collected through 2017 was compiled and reviewed by Lorax and the potential effect of the additional data on the source term model was assessed. It was found that the major parameters of concern ($SO_4$, As, Sb, Se) show generally steady (As, Sb) or decreasing trends in concentrations leached from the field barrels. One exception is the Oxide Granodiorite field barrel which produces leachates that steadily increase in As concentration up to a value of 2.67 mg/L (Figure 1) in the most recent sample collected (October 2017). It should be noted, however, that this material's solid phase As content (1065 ppm) is well above the respective 90$^{th}$ percentile value (607 ppm) of the static test database for Eagle Gold waste rock. In other words, less than 10% of oxide granodiorite rock is expected to have an As content as high as that within the field barrel sample. Furthermore, this lithology is expected to comprise only around 16% of the total waste produced.

Overall it can be said that the most recent source term model output is still valid and does not currently require updating for the following reasons:

- The field bin leachate data were only directly used in the source term model to calculate a "first flush" value representing the effect of flushing easily soluble species. The values used for this approach have not changed since the last model iteration;
- Overall, the trends observed in field bin leachates over time were used qualitatively for model validation purposes. While variable, these trends have not changed sufficiently to warrant a re-mdoelling of the Eagle Gold waste rock facilities as a whole.

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Should changes to the mine plan be made or new data become available, the source term model will be re-evaluated at that time.

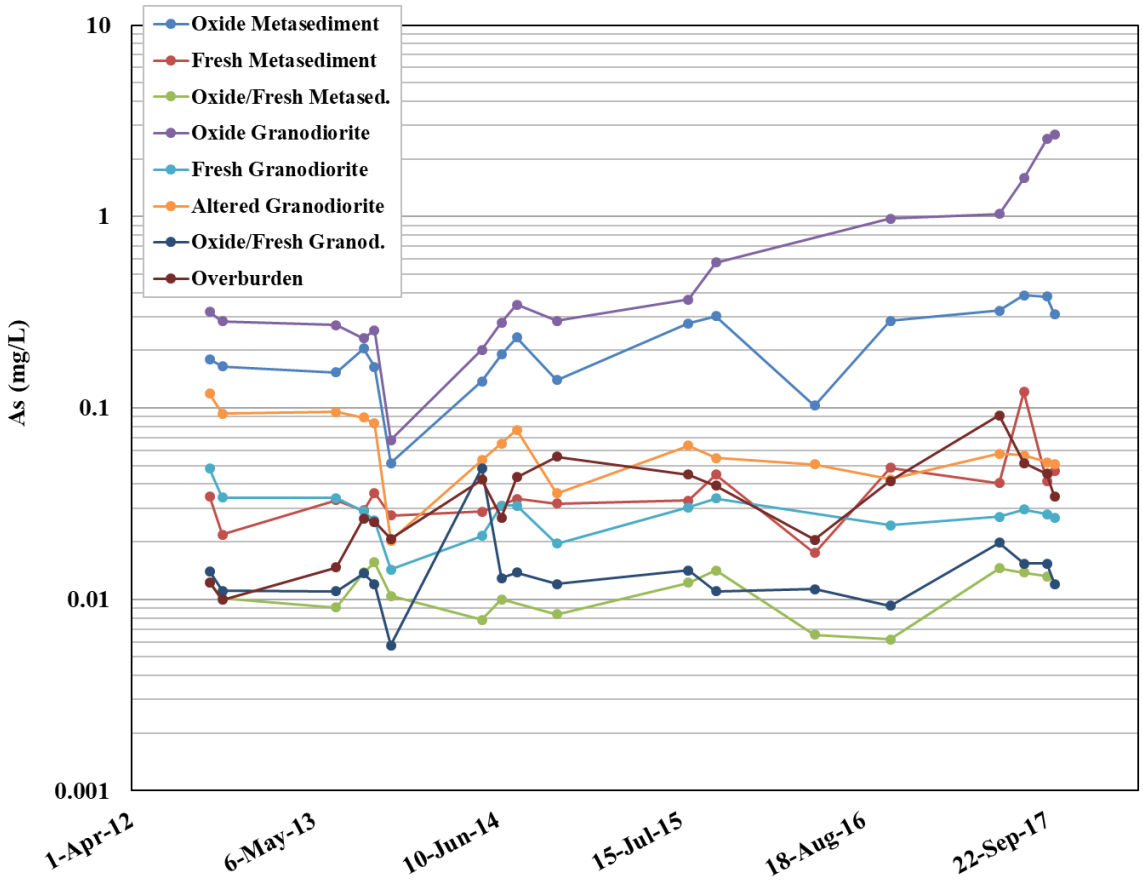


**Figure 1: Arsenic concentrations in field barrel leachates from Eagle Gold waste rock and overburden**

# APPENDIX J

## Stream Sediment Monitoring Report 2018

# STREAM SEDIMENT MONITORING

# AT THE EAGLE GOLD PROJECT

# SEPTEMBER 2018

**For**

Victoria GOLD CORP

**Steve Wilbur**

**Submitted by**

Laberge Environmental Services

**November 2018**

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## 1.0 INTRODUCTION

Various monitoring projects are to be undertaken at the Eagle Gold Project during all phases of the site; construction, operation and closure as outlined in the updated Environmental Monitoring, Surveillance and Adaptive Management Plan (EMSAMP) version 2018-01 (StrataGold Corporation, 2018). The site is currently in the second year of construction and the first annual late summer stream sediment monitoring program was conducted in September 2017. This report presents the findings of the 2018 survey.

The purpose of the study is to continue to obtain data on the stream sediment quality of the watercourses in the study area to evaluate changes related to all phases of the Project. Previous sampling, prior to the implementation of the EMSAMP, has been conducted throughout the project area from 1976 to 2010 on the various watersheds. Relevant past data has been examined and is presented with the current study where appropriate.

## 2.0 METHODS

Triplicate stream sediment samples were collected from nine sites representing four drainage basins. Each sample was a composite of five or more individual sites within the sampled area. Depositional sites were targeted to obtain fine-grained sediment. Samples were collected with a steel trowel, well mixed and placed into acid washed glass jars. All samples were kept cool until delivered to the ALS laboratory in Whitehorse, Yukon.

These samples were collected from four drainage areas within the Victoria Gold footprint and the sites are detailed below in Table 1 and illustrated on Figure 1.

**TABLE 1 LOCATION OF SAMPLE SITES**

| Drainage | Site | Date Sampled | Site Description | Coordinates | |
|---|---|---|---|---|---|
| | | | | Northing | Easting |
| Haggart Creek | W22 | 9/9/2018 | Haggart Creek upstream Dublin Gulch | 7101377 | 458319 |
| | W4 | 9/9/2018 | Haggart Creek downstream Dublin Gulch | 7101223 | 458144 |
| | W29 | 9/9/2018 | Haggart Creek downstream Eagle Creek | 7099583 | 458225 |
| | W5 | 9/10/2018 | Haggart Creek upstream Lynx Creek | 7095887 | 457815 |
| | W23 | 9/8/2018 | Haggart Creek downstream Lynx Creek | 7095682 | 457790 |
| Dublin Gulch | W1 | 9/9/2018 | Dublin Gulch upstream Stewart Gulch | 7101545 | 460249 |
| | W26 | 9/9/2018 | Stewart Gulch upstream Dublin Gulch | 7101443 | 460331 |
| Eagle Cr | W27 | 9/9/2018 | Eagle Creek near Camp Climate Station | 7100997 | 458235 |
| Lynx Cr | W6 | 9/10/2018 | Lynx Creek upstream Haggart Creek | 7095964 | 458099 |

At the laboratory, all samples were sieved and the portion passing 63 microns was analyzed for metals using inductively coupled plasma mass spectrophotometry (ICP-MS) or optical emission spectrophotometry (ICP-OES) as appropriate. Mercury was analyzed by cold vapour atomic fluorescence spectrophotometry (CVAFS).

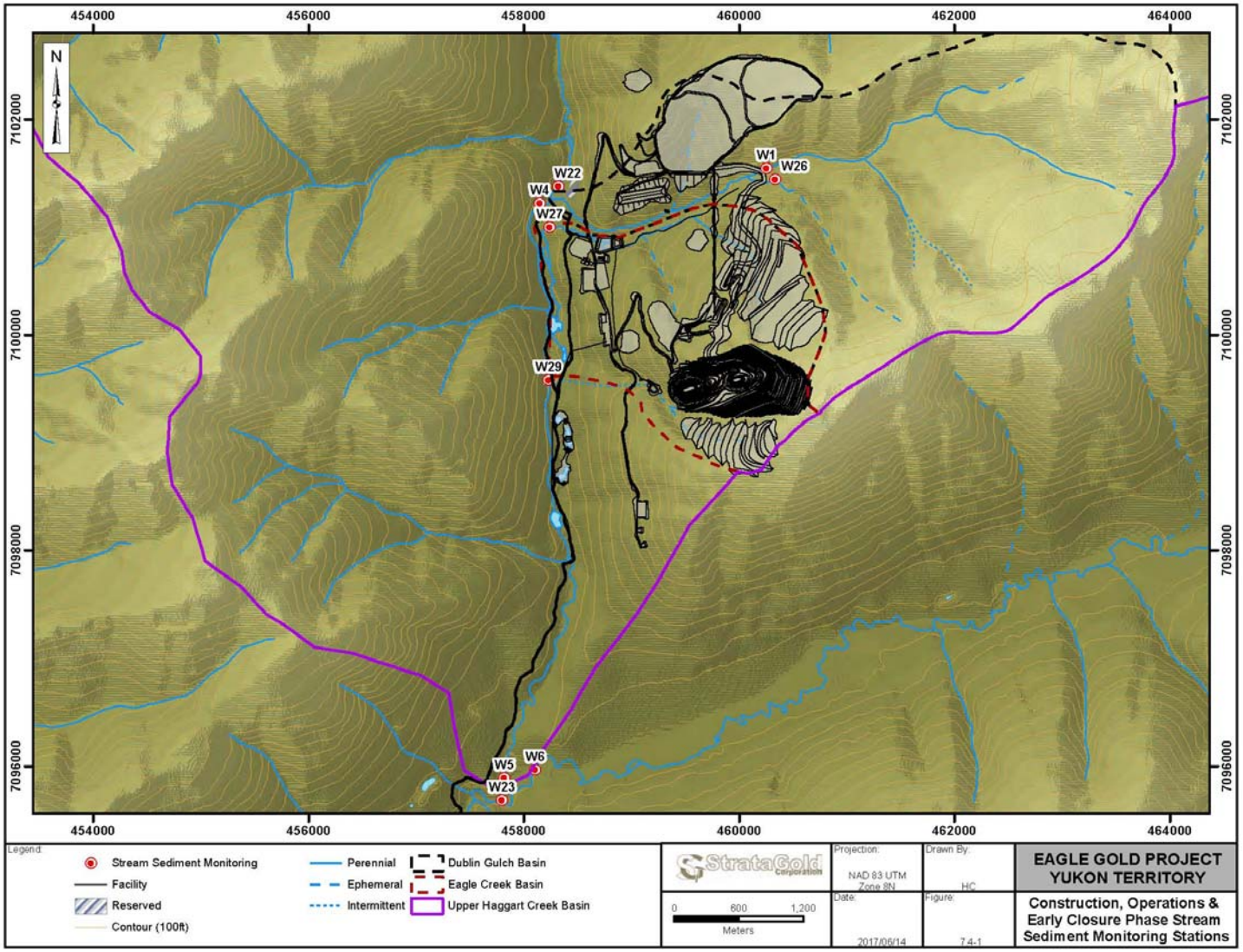



Figure 1 Locations of Stream Sediment Sample Sites During Construction Phase

As a measure of quality assurance/quality control (QA/QC) one duplicate set of sediment samples was collected. Strict sampling protocols were adhered to throughout the field study; sampling equipment was cleaned between samples and sites, disposable gloves were worn per sample and samples were kept cool until relinquished at the laboratory. The lab also performed their own QA/QC by analyzing spiked samples with known concentrations of various parameters.

Upon receipt of the data various metrics were performed. To characterize the stream sediment conditions at each site the triplicates were averaged. Standard deviation was performed to determine the spread of the values. As each of the triplicate samples was collected at different depositional areas within each site, the coefficient variation was calculated (standard deviation divided by mean multiplied by 100) to assess heterogeneity of the stream environment.

## 3.0 RESULTS AND DISCUSSION

### 3.1 2018 Data

Samples were analyzed for soil pH and a suite of 32 metals. The analytical report is presented in Appendix A. The triplicate samples at each site were averaged and these data were used for the tables and discussions. The sites have been arranged per watershed from upstream to downstream in the tables and graphs for ease of interpretation.

The streams throughout the study area are near neutral to slightly alkaline ranging from a pH of 7.34 at W1, Dublin Gulch to 8.17 at W27, Eagle Creek (Table 2).

Of the 32 metals analyzed, boron was not detected in any of the samples. The averages of selected metals are also presented in Table 2. These elements were chosen for closer examination as they can potentially be toxic to aquatic systems, some may be present in the mineral deposit and several have environmental guidelines for the protection of freshwater aquatic life. Since there are no Canadian Environmental Quality Guidelines established for nickel, selenium and silver, the British Columbia Working Sediment Quality Guidelines (BCWSG) were used. Concentrations that exceeded the Interim Sediment Quality Guidelines (ISQG) are displayed in bold and gray highlighted. The ISQG guideline represents where adverse biological effects may only rarely occur. Concentrations that exceeded the Probable Effects Level (PEL) are displayed in bold and highlighted in orange, and indicate a 50% incidence of creating adverse biological effects.

Several guidelines were exceeded for the protection of freshwater aquatic life. The PEL for arsenic, 17 mg/kg, was significantly exceeded at all of the sites ranging from 79.5 mg/kg at W6, Lynx Creek to 383.0 mg/kg at W1, Dublin Gulch.

The concentration of nickel exceeded the BCWSG low level effect guideline (16 mg/kg) in the stream sediments at all of the sites and ranged from 25.0 mg/kg at W29 to 53.2 at W22.

The ISQG was exceeded for cadmium at W6 and W22, both of which are background sites. The ISQG was exceeded for chromium at W26, for copper and lead at W27, and for zinc at W22. Guidelines were met in the study area for mercury, selenium and silver.

**TABLE 2 SUMMARY OF MEAN STREAM SEDIMENT CONCENTRATIONS, SEPTEMBER 2018**

| Drainage | Haggart Creek | | | | | Dublin Gulch | | Eagle Cr | Lynx Cr | CEQG Guidelines | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Site** | **W22** | **W4** | **W29** | **W5** | **W23** | **W1** | **W26** | **W27** | **W6** | **ISQG** | **PEL** |
| pH | 7.75 | 7.51 | 7.49 | 7.98 | 7.74 | 7.34 | 7.77 | 8.17 | 7.44 | na | na |
| Arsenic (mg/kg) | **115.6** | **202.3** | **126.3** | **114.0** | **105.6** | **383.0** | **269.7** | **252.7** | **79.5** | 5.9 | 17 |
| Cadmium (mg/kg) | **0.8** | 0.3 | 0.3 | 0.4 | 0.4 | 0.4 | 0.4 | 0.3 | **1.0** | 0.6 | 3.5 |
| Chromium (mg/kg) | 18.8 | 19.4 | 18.3 | 23.2 | 22.0 | 33.3 | **42.7** | 17.4 | 25.4 | 37.3 | 90 |
| Copper (mg/kg) | 31.3 | 26.7 | 26.5 | 26.2 | 23.8 | 20.0 | 22.8 | **38.2** | 25.1 | 35.7 | 197 |
| Lead (mg/kg) | 28.8 | 24.9 | 28.1 | 30.7 | 25.1 | 30.8 | 29.3 | **46.2** | 17.6 | 35.0 | 91.3 |
| Mercury (mg/kg) | 0.051 | 0.048 | 0.038 | 0.056 | 0.054 | 0.053 | 0.049 | 0.037 | 0.044 | 0.170 | 0.486 |
| Nickel* (mg/kg) | **53.2** | **28.5** | **25.0** | **29.8** | **26.7** | **41.7** | **34.6** | **28.4** | **29.7** | 16 | 75 |
| Selenium* (mg/kg) | 0.37 | 0.39 | 0.27 | 0.33 | 0.44 | 0.32 | 0.41 | 0.28 | 0.82 | 5 | na |
| Silver* (mg/kg) | 0.11 | 0.18 | 0.16 | 0.21 | 0.26 | 0.20 | 0.19 | 0.22 | 0.17 | 0.5 | na |
| Zinc (mg/kg) | **140.0** | 99.1 | 83.0 | 95.5 | 92.3 | 104.7 | 92.3 | 96.8 | 115.7 | 123 | 315 |

* BCWSG na = not applicable

In attempts to determine the reliability of the current data set and the heterogeneity of each site, standard deviation (SD) and coefficient variation (CV) were calculated on the means of the triplicates. The target for CV is no more than 20% when replicate samples collected at the same time and location are all at least five times the detection limit. These results are tabulated in Table A-1 in Appendix A.

The CV was less than 20% at W4, W5 and W29, indicating homogeneous substrates at these sites. Other sites had one to four parameters exceeding 20%, except for W26, Stewart Gulch where 13 parameters had CVs greater than 20%. The composition of the stream sediments at Stewart Gulch had much greater heterogeneity throughout the sampled reach.

The parameters where CV was 20% or less for all sites were pH, aluminum, barium, beryllium, calcium, lithium, magnesium, phosphorus, selenium, strontium, thallium, tin, titanium, uranium vanadium and zinc.

As a measure of quality control and quality assurance, a set of duplicate stream sediment samples was collected from W22. The relative percent difference (RFP) for all parameters in each sample was calculated to determine the representativeness of sample collection and thus the validity of the data (Table A-2, Appendix A). Different sources have determined an acceptable range of RFP of 20% in aqueous media and up to 50% in sediment. A conservative value of 20% RFP was used for this study. Based on this, the representativeness of arsenic, silver and titanium in W22-A, sodium in W22B, and sodium and titanium in W22C, may be questionable. However, the vast majority of RFP for the remaining parameters and samples

were well below 20% and would indicate that the sediment samples are representative of the locations sampled and that data integrity is intact.

Arsenic is prevalent in the stream sediments throughout the study area and as previously mentioned the PEL was exceeded at all sites. Arsenic is typically associated with the mineralogy of gold. The high concentrations documented at W1, Dublin Gulch upstream of Project activities, indicate that this stream drains a mineralized area. The standard deviation showed a small spread of values and the CV was only 7.0% (Table A-1, Appendix A) confirming that the arsenic concentrations at W1 are representative of the site.

Nickel also was widespread throughout the study area and concentrations in the stream sediments exceeded the ISQG at all sites.

These two elements have been graphed below in Figures 2 and 3. Concentrations of arsenic fluctuate throughout the study area whereas nickel concentrations are relatively similar.

**Figure 2 Mean Arsenic (mg/kg) in Stream Sediments, 2018**

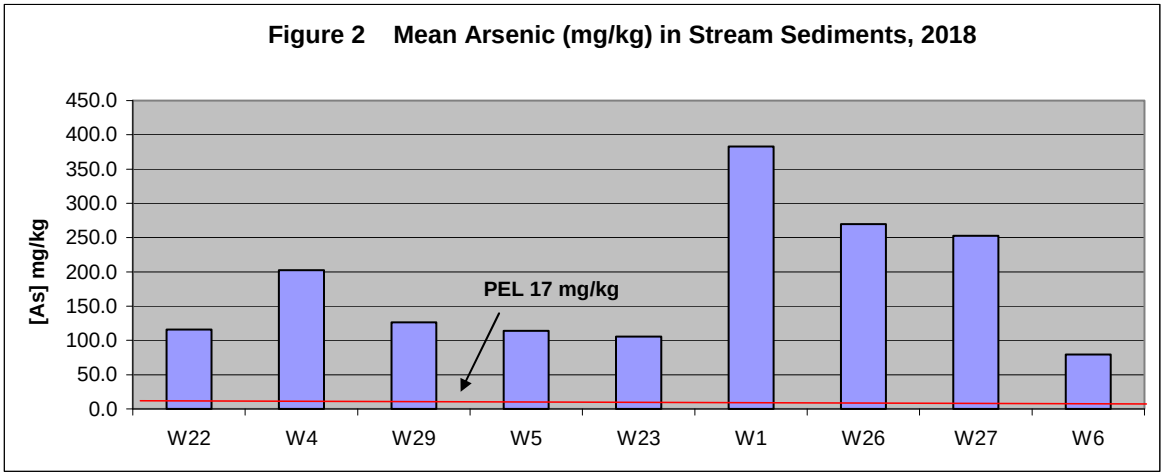
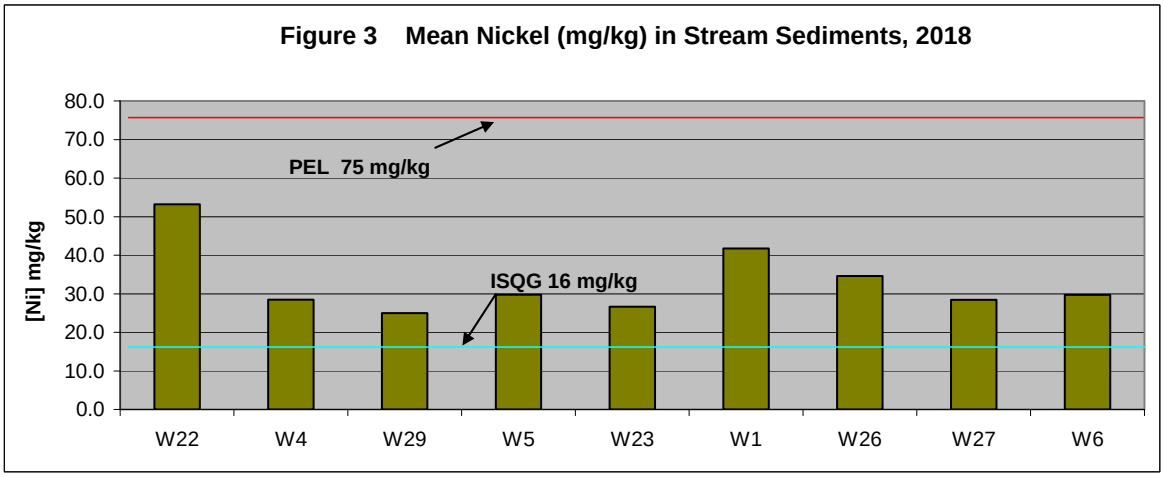



**Figure 3 Mean Nickel (mg/kg) in Stream Sediments, 2018**



## 3.2 Previous Data

Stream sediment samples have been collected in the general Project area in 1976, 1977, 1993, 1995, 2007, 2009 and 2010 (Stantec, 2011) and in 2017 (Laberge, 2017). The number of sites sampled, and the number of replicates collected varied in a given year. Data was examined from these surveys where the analysis was completed on the portion of the sediment that was less than 63 microns and for sites that were sampled in 2018. The mean concentrations for arsenic and nickel over time have been tabulated (Table 3) and graphically represented in Figures 4 and 5 with the 2018 data.

High levels of arsenic were reported at all sites and on all occasions, exceeding the PEL. Concentrations tended to fluctuate year to year at the sites.

Concentrations of nickel exceeded the ISQG throughout the study area and study period with the exception in 2007 at Stewart Gulch (W26), and 2009 at Dublin Gulch (W1).

There were periodic exceedances of guidelines of other metals. This data has not been presented here but is available in a report prepared by Stantec (2011).

**TABLE 3 MEAN CONCENTRATIONS OF ARSENIC AND NICKEL IN STREAM SEDIMENTS, 1995 - 2018**

| Drainage | Site | ARSENIC (mg/kg) | | | | | | NICKEL (mg/kg) | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 1995 n=5 | 2007 n=3 | 2009 n=3 | 2010 n=3 | 2017 n=3 | 2018 n=3 | 1995 n=5 | 2007 n=3 | 2009 n=3 | 2010 n=3 | 2017 n=3 | 2018 n=3 |
| Haggart Creek | W22 | **70.0** | **40.1** | **129.2** | | **55.5** | **115.6** | **27.0** | **27.4** | **25.0** | | **31.3** | **53.2** |
| | W4 | **152.7** | **91.5** | | **165.0** | **109.6** | **202.3** | **21.0** | **24.5** | | **35.2** | **28.0** | **28.5** |
| | W29 | | | **63.6** | **142.4** | **127.2** | **126.3** | | | **25.3** | **25.7** | **31.7** | **25.0** |
| | W5 | **128.5** | **92.7** | **118.3** | | **76.8** | **114.0** | **22.4** | **25.6** | **26.8** | | **26.9** | **29.8** |
| | W23 | | **93.4** | | | **88.8** | **105.6** | | **28.8** | | | **25.9** | **26.7** |
| Dublin Gulch | W1 | | **300.0** | **156.0** | **360.4** | **458.0** | **383.0** | | **65.5** | 13.3 | **39.3** | **57.2** | **41.7** |
| | W26 | | **89.1** | **342.0** | | **209.0** | **269.7** | | 15.7 | **17.0** | | **28.7** | **34.6** |
| Eagle Cr | W27 | | **175.0** | **173.7** | **77.9** | **200.3** | **252.7** | | **25.3** | **20.6** | **21.1** | **31.0** | **28.4** |
| Lynx Cr | W6 | | **65.9** | | | **85.8** | **79.5** | | **23.6** | | | **27.5** | **29.7** |
| CEQG Guideline | **ISQG** | 5.9 | | | | | | 16 | | | | | |
| | **PEL** | 17 | | | | | | 75 | | | | | |

**Figure 4 Mean Arsenic Concentrations in the Study Area Over Time**

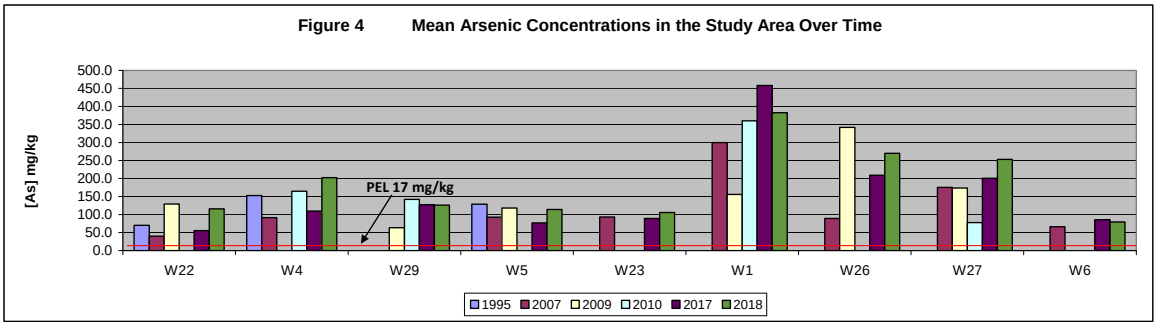
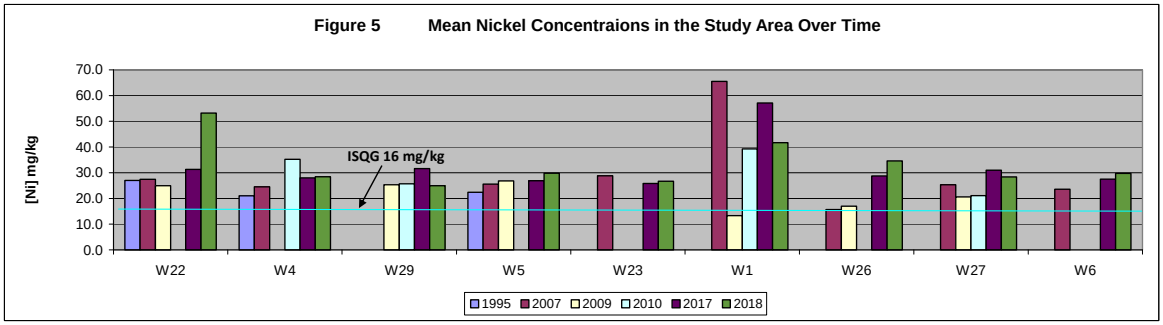



**Figure 5 Mean Nickel Concentraions in the Study Area Over Time**

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# APPENDIX A

- **Table A-1 Statistics on the Triplicate Analyses**
- **Table A-2 RPD for Duplicate Sample**
- **Analytical Report: L2162014**

**TABLE A-1 STATISTICS ON THE TRIPLICATE ANALYSES**

| Site | Parameter | pH (1:2 soil:water) | Aluminum (Al) | Antimony (Sb) | Arsenic (As) | Barium (Ba) | Beryllium (Be) | Bismuth (Bi) | Boron (B) | Cadmium (Cd) | Calcium (Ca) | Chromium (Cr) | Cobalt (Co) | Copper (Cu) | Iron (Fe) | Lead (Pb) | Lithium (Li) | Magnesium (Mg) | Manganese (Mn) | Mercury (Hg) | Molybdenum (Mo) | Nickel (Ni) | Phosphorus (P) | Potassium (K) | Selenium (Se) | Silver (Ag) | Sodium (Na) | Strontium (Sr) | Thallium (Tl) | Tin (Sn) | Titanium (Ti) | Uranium (U) | Vanadium (V) | Zinc (Zn) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | MDL | 0.10 | 50 | 0.10 | 0.050 | 0.50 | 0.10 | 0.10 | 10 | 0.020 | 50 | 0.50 | 0.10 | 0.50 | 50 | 0.10 | 2.0 | 10 | 0.20 | 0.0050 | 0.10 | 0.50 | 50 | 100 | 0.10 | 0.050 | 50 | 0.10 | 0.050 | 0.20 | 1.0 | 0.050 | 0.20 | 1.0 |
| | MDL | 0.10 | 50 | 0.10 | 0.050 | 0.50 | 0.10 | 0.10 | 10 | 0.020 | 50 | 0.50 | 0.10 | 0.50 | 50 | 0.10 | 2.0 | 10 | 0.20 | 0.0050 | 0.10 | 0.50 | 50 | 100 | 0.10 | 0.050 | 50 | 0.10 | 0.050 | 0.20 | 1.0 | 0.050 | 0.20 | 1.0 |
| | 5 x MDL | 0.50 | 250.00 | 0.50 | 0.25 | 2.50 | 0.50 | 0.50 | 50.00 | 0.10 | 250.00 | 2.50 | 0.50 | 2.50 | 250.00 | 0.50 | 10.00 | 50.00 | 1.00 | 0.025 | 0.50 | 2.50 | 250.00 | 500.00 | 0.50 | 0.25 | 250.00 | 0.50 | 0.25 | 1.00 | 5.00 | 0.25 | 1.00 | 5.00 |
| | Units | pH | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg |
| W23 | Average | 7.74 | 10800.00 | 6.08 | 105.60 | 188.00 | 0.39 | 0.46 | | 0.40 | 4820.00 | 21.97 | 11.23 | 23.80 | 25266.67 | 25.07 | 14.47 | 4463.33 | 745.33 | 0.05 | 0.82 | 26.67 | 764.00 | 1100.00 | 0.44 | 0.26 | 123.33 | 34.47 | 0.12 | 0.48 | 375.33 | 1.24 | 30.23 | 92.33 |
| | S.D. | 0.15 | 100.00 | 0.45 | 6.12 | 7.00 | 0.02 | 0.03 | | 0.00 | 160.93 | 0.35 | 0.12 | 0.56 | 550.76 | 0.74 | 0.21 | 40.41 | 47.71 | 0.00 | 0.01 | 0.23 | 45.57 | 60.00 | 0.04 | 0.07 | 6.66 | 0.29 | 0.01 | 0.03 | 8.08 | 0.07 | 0.58 | 0.60 |
| | C.V. | 1.9 | 0.9 | 7.5 | 5.8 | 3.7 | 5.4 | 6.3 | | 0.8 | 3.3 | 1.6 | 1.0 | 2.3 | 2.2 | 2.9 | 1.4 | 0.9 | 6.4 | 6.3 | 0.7 | 0.9 | 6.0 | 5.5 | 9.9 | 27.7 | 5.4 | 0.8 | 7.0 | 6.3 | 2.2 | 5.4 | 1.9 | 0.7 |
| W26 | Average | 7.77 | 16300.00 | 4.51 | 269.67 | 243.00 | 0.58 | 0.58 | | 0.36 | 5006.67 | 42.70 | 12.06 | 22.77 | 28500.00 | 29.30 | 23.40 | 5403.33 | 569.00 | 0.05 | 3.48 | 34.60 | 872.33 | 1496.67 | 0.41 | 0.19 | 149.67 | 47.40 | 0.22 | 0.67 | 639.00 | 2.10 | 46.43 | 92.30 |
| | S.D. | 0.06 | 2645.75 | 1.46 | 92.78 | 40.85 | 0.11 | 0.25 | | 0.09 | 804.76 | 25.62 | 3.06 | 4.86 | 5922.84 | 9.45 | 3.87 | 640.49 | 184.18 | 0.00 | 2.91 | 16.88 | 100.50 | 285.37 | 0.10 | 0.03 | 60.21 | 8.42 | 0.03 | 0.20 | 118.98 | 0.41 | 8.49 | 15.80 |
| | C.V. | 0.8 | 16.2 | 32.4 | 34.4 | 16.8 | 19.7 | 43.9 | | 24.6 | 16.1 | 60.0 | 25.3 | 21.3 | 20.8 | 32.3 | 16.6 | 11.9 | 32.4 | 6.6 | 83.4 | 48.8 | 11.5 | 19.1 | 23.6 | 16.1 | 40.2 | 17.8 | 13.2 | 30.0 | 18.6 | 19.4 | 18.3 | 17.1 |
| W1 | Average | 7.34 | 12900.00 | 11.73 | 383.00 | 236.33 | 0.70 | 0.32 | | 0.39 | 4930.00 | 33.27 | 13.40 | 20.03 | 27300.00 | 30.80 | 18.10 | 4806.67 | 991.33 | 0.05 | 3.98 | 41.73 | 1236.67 | 1606.67 | 0.32 | 0.20 | 137.00 | 33.97 | 0.22 | 0.77 | 591.67 | 4.95 | 42.60 | 104.73 |
| | S.D. | 0.11 | 1249.00 | 0.68 | 26.63 | 7.51 | 0.02 | 0.03 | | 0.02 | 586.17 | 5.12 | 0.85 | 3.66 | 2251.67 | 0.44 | 2.82 | 849.73 | 209.50 | 0.02 | 1.00 | 6.11 | 219.62 | 390.17 | 0.05 | 0.01 | 2.00 | 0.93 | 0.04 | 0.30 | 74.50 | 0.88 | 3.75 | 13.21 |
| | C.V. | 1.4 | 9.7 | 5.8 | 7.0 | 3.2 | 3.3 | 7.9 | | 4.5 | 11.9 | 15.4 | 6.4 | 18.3 | 8.2 | 1.4 | 15.6 | 17.7 | 21.1 | 45.8 | 25.0 | 14.6 | 17.8 | 24.3 | 14.3 | 6.2 | 1.5 | 2.7 | 16.3 | 38.9 | 12.6 | 17.8 | 8.8 | 12.6 |
| W27 | Average | 8.17 | 8623.33 | 13.23 | 252.67 | 116.67 | 0.41 | 2.02 | | 0.35 | 3993.33 | 17.37 | 13.23 | 38.23 | 30633.33 | 46.23 | 12.73 | 3870.00 | 495.67 | 0.04 | 0.99 | 28.40 | 586.67 | 2123.33 | 0.28 | 0.22 | 108.67 | 30.20 | 0.19 | 0.60 | 300.00 | 1.44 | 20.57 | 96.77 |
| | S.D. | 0.03 | 537.80 | 1.32 | 11.02 | 9.61 | 0.02 | 0.46 | | 0.02 | 422.18 | 0.59 | 0.55 | 0.93 | 321.46 | 2.61 | 0.51 | 157.16 | 17.21 | 0.01 | 0.03 | 0.66 | 53.59 | 347.90 | 0.01 | 0.02 | 4.62 | 0.60 | 0.01 | 0.05 | 30.79 | 0.01 | 0.78 | 7.39 |
| | C.V. | 0.4 | 6.2 | 10.0 | 4.4 | 8.2 | 3.7 | 22.8 | | 7.0 | 10.6 | 3.4 | 4.2 | 2.4 | 1.0 | 5.6 | 4.0 | 4.1 | 3.5 | 23.1 | 3.3 | 2.3 | 9.1 | 16.4 | 2.1 | 7.4 | 4.3 | 2.0 | 7.2 | 7.5 | 10.3 | 0.8 | 3.8 | 7.6 |
| W22 | Average | 7.75 | 9116.67 | 5.93 | 115.60 | 209.00 | 0.42 | 0.54 | | 0.79 | 2723.33 | 18.83 | 27.87 | 31.27 | 38900.00 | 28.77 | 13.90 | 3576.67 | 3146.67 | 0.05 | 0.89 | 53.20 | 466.00 | 1160.00 | 0.37 | 0.11 | 71.00 | 30.37 | 0.16 | 0.81 | 135.63 | 1.38 | 22.37 | 140.00 |
| | S.D. | 0.07 | 636.11 | 1.41 | 49.88 | 8.72 | 0.01 | 0.10 | | 0.11 | 104.08 | 1.31 | 2.02 | 1.32 | 519.62 | 2.33 | 0.66 | 115.90 | 333.82 | 0.00 | 0.09 | 4.62 | 52.05 | 17.32 | 0.02 | 0.00 | 4.58 | 1.31 | 0.00 | 0.15 | 31.05 | 0.07 | 1.40 | 7.81 |
| | C.V. | 0.8 | 7.0 | 23.8 | 43.1 | 4.2 | 1.4 | 18.5 | | 14.4 | 3.8 | 6.9 | 7.3 | 4.2 | 1.3 | 8.1 | 4.7 | 3.2 | 10.6 | 7.1 | 10.0 | 8.7 | 11.2 | 1.5 | 5.4 | 0.9 | 6.5 | 4.3 | 2.3 | 18.1 | 22.9 | 4.7 | 6.3 | 5.6 |
| W4 | Average | 7.51 | 10046.67 | 6.99 | 202.33 | 171.00 | 0.52 | 0.69 | | 0.35 | 3820.00 | 19.40 | 12.90 | 26.67 | 28033.33 | 24.87 | 16.20 | 4010.00 | 824.00 | 0.05 | 1.04 | 28.50 | 689.00 | 1303.33 | 0.39 | 0.18 | 90.67 | 31.40 | 0.17 | 0.47 | 335.67 | 1.91 | 27.50 | 99.13 |
| | S.D. | 0.19 | 1046.20 | 0.47 | 12.50 | 10.82 | 0.03 | 0.12 | | 0.03 | 98.49 | 1.14 | 0.78 | 1.29 | 737.11 | 0.12 | 1.32 | 285.83 | 143.38 | 0.00 | 0.12 | 1.47 | 64.02 | 104.08 | 0.03 | 0.03 | 4.04 | 0.75 | 0.02 | 0.02 | 15.31 | 0.37 | 1.85 | 6.34 |
| | C.V. | 2.5 | 10.4 | 6.8 | 6.2 | 6.3 | 4.8 | 16.6 | | 8.9 | 2.6 | 5.9 | 6.1 | 4.8 | 2.6 | 0.5 | 8.2 | 7.1 | 17.4 | 7.8 | 11.3 | 5.2 | 9.3 | 8.0 | 8.3 | 17.9 | 4.5 | 2.4 | 11.4 | 4.4 | 4.6 | 19.2 | 6.7 | 6.4 |
| W29 | Average | 7.49 | 8740.00 | 8.08 | 126.33 | 131.33 | 0.43 | 0.52 | | 0.34 | 3390.00 | 18.27 | 10.82 | 26.53 | 25700.00 | 28.07 | 14.27 | 3673.33 | 483.00 | 0.04 | 0.78 | 24.97 | 621.67 | 1113.33 | 0.27 | 0.16 | 86.67 | 27.17 | 0.12 | 0.52 | 303.00 | 1.43 | 24.83 | 83.00 |
| | S.D. | 0.21 | 277.85 | 1.28 | 17.62 | 12.70 | 0.03 | 0.06 | | 0.04 | 156.20 | 0.75 | 1.07 | 2.40 | 1752.14 | 3.35 | 0.93 | 60.28 | 80.73 | 0.00 | 0.06 | 1.60 | 42.19 | 85.05 | 0.02 | 0.02 | 10.12 | 0.80 | 0.01 | 0.05 | 15.13 | 0.21 | 0.55 | 5.53 |
| | C.V. | 2.8 | 3.2 | 15.8 | 13.9 | 9.7 | 7.4 | 10.9 | | 11.3 | 4.6 | 4.1 | 9.9 | 9.0 | 6.8 | 11.9 | 6.5 | 1.6 | 16.7 | 11.5 | 7.3 | 6.4 | 6.8 | 7.6 | 5.6 | 10.7 | 11.7 | 3.0 | 6.2 | 8.9 | 5.0 | 14.7 | 2.2 | 6.7 |
| DUP | Average | 7.72 | 9813.33 | 6.03 | 93.73 | 204.67 | 0.45 | 0.51 | | 0.86 | 2890.00 | 19.60 | 30.40 | 32.53 | 41233.33 | 28.20 | 15.73 | 3800.00 | 3310.00 | 0.05 | 0.90 | 57.57 | 490.33 | 1250.00 | 0.37 | 0.13 | 93.33 | 30.57 | 0.18 | 0.83 | 156.00 | 1.46 | 24.47 | 146.33 |
| | S.D. | 0.07 | 325.17 | 0.56 | 2.67 | 3.21 | 0.01 | 0.06 | | 0.07 | 329.24 | 0.80 | 2.43 | 0.99 | 1686.22 | 1.71 | 0.21 | 95.39 | 278.39 | 0.00 | 0.07 | 5.23 | 33.20 | 62.45 | 0.04 | 0.02 | 9.81 | 2.24 | 0.00 | 0.13 | 36.72 | 0.09 | 0.97 | 8.08 |
| | C.V. | 0.9 | 3.3 | 9.3 | 2.8 | 1.6 | 1.3 | 12.2 | | 8.5 | 11.4 | 4.1 | 8.0 | 3.0 | 4.1 | 6.1 | 1.3 | 2.5 | 8.4 | 9.7 | 7.6 | 9.1 | 6.8 | 5.0 | 10.8 | 13.8 | 10.5 | 7.3 | 1.6 | 15.8 | 23.5 | 5.8 | 4.0 | 5.5 |
| W5 | Average | 7.98 | 10766.67 | 7.99 | 114.00 | 185.00 | 0.39 | 0.60 | | 0.38 | 4756.67 | 23.20 | 12.70 | 26.23 | 28666.67 | 30.67 | 15.10 | 4543.33 | 808.33 | 0.06 | 0.94 | 29.77 | 830.67 | 1150.00 | 0.33 | 0.21 | 113.00 | 37.13 | 0.13 | 0.56 | 354.00 | 1.47 | 29.83 | 95.53 |
| | S.D. | 0.03 | 152.75 | 0.82 | 8.89 | 4.36 | 0.03 | 0.08 | | 0.02 | 126.62 | 0.46 | 0.26 | 0.61 | 208.17 | 1.65 | 0.53 | 185.83 | 84.29 | 0.00 | 0.08 | 0.29 | 40.53 | 78.10 | 0.04 | 0.02 | 2.00 | 0.81 | 0.01 | 0.05 | 19.00 | 0.07 | 0.91 | 2.40 |
| | C.V. | 0.4 | 1.4 | 10.2 | 7.8 | 2.4 | 7.8 | 12.6 | | 5.9 | 2.7 | 2.0 | 2.1 | 2.3 | 0.7 | 5.4 | 3.5 | 4.1 | 10.4 | 6.2 | 8.5 | 1.0 | 4.9 | 6.8 | 11.6 | 7.9 | 1.8 | 2.2 | 5.9 | 8.9 | 5.4 | 4.6 | 3.0 | 2.5 |
| W6 | Average | 7.44 | 13933.33 | 2.68 | 79.53 | 225.67 | 0.42 | 0.26 | | 0.98 | 6370.00 | 25.37 | 11.60 | 25.10 | 24666.67 | 17.57 | 18.37 | 5320.00 | 834.67 | 0.04 | 1.21 | 29.73 | 879.67 | 1003.33 | 0.82 | 0.17 | 192.67 | 43.57 | 0.15 | 0.39 | 417.33 | 1.32 | 35.93 | 115.67 |
| | S.D. | 0.12 | 635.09 | 0.36 | 9.44 | 19.43 | 0.04 | 0.03 | | 0.20 | 401.12 | 1.81 | 0.95 | 2.82 | 1569.50 | 1.56 | 0.81 | 208.09 | 232.74 | 0.00 | 0.23 | 3.07 | 23.71 | 56.86 | 0.13 | 0.02 | 6.66 | 3.23 | 0.01 | 0.02 | 18.58 | 0.11 | 1.16 | 8.08 |
| | C.V. | 1.6 | 4.6 | 13.5 | 11.9 | 8.6 | 9.5 | 9.8 | | 20.3 | 6.3 | 7.2 | 8.2 | 11.2 | 6.4 | 8.9 | 4.4 | 3.9 | 27.9 | 11.2 | 19.1 | 10.3 | 2.7 | 5.7 | 15.4 | 13.4 | 3.5 | 7.4 | 8.0 | 3.9 | 4.5 | 8.0 | 3.2 | 7.0 |

Not detected in any samples

NOTE: Se and Sn had CVs greater than 20% however, the concentrations reported were not greater than five times the method detection limit.

Values whre the CV is greater than 20% are highlighted in red and with dark red text.

| TABLE A-2 | RPD VALUES FOR DUPLICATE SEDIMENT SAMPLES COLLECTED AT W22 | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| **Parameter** | **Units** | **W22-A** | **DUP A** | **RPD%** | **W22-B** | **DUP B** | **RPD%** | **W22-C** | **DUP C** | **RPD %** |
| pH (1:2 soil:water) | pH | 7.68 | 7.64 | 0.5 | 7.81 | 7.76 | 0.6 | 7.76 | 7.76 | 0.0 |
| Aluminum (Al) | mg/kg | 9730 | 9880 | 1.5 | 9160 | 10100 | 9.8 | 8460 | 9460 | 11.2 |
| Antimony (Sb) | mg/kg | 5.13 | 6.03 | 16.1 | 5.10 | 5.47 | 7.0 | 7.56 | 6.59 | 13.7 |
| Arsenic (As) | mg/kg | 173 | 90.9 | 62.2 | 82.8 | 96.2 | 15.0 | 91.0 | 94.1 | 3.3 |
| Barium (Ba) | mg/kg | 205 | 201 | 2.0 | 203 | 207 | 2.0 | 219 | 206 | 6.1 |
| Beryllium (Be) | mg/kg | 0.42 | 0.44 | 4.7 | 0.43 | 0.45 | 4.5 | 0.42 | 0.45 | 6.9 |
| Bismuth (Bi) | mg/kg | 0.54 | 0.56 | 3.6 | 0.44 | 0.44 | 0.0 | 0.64 | 0.53 | 18.8 |
| Boron (B) | mg/kg | <10 | <10 | ND | <10 | <10 | ND | <10 | <10 | ND |
| Cadmium (Cd) | mg/kg | 0.717 | 0.782 | 8.7 | 0.728 | 0.877 | 18.6 | 0.919 | 0.927 | 0.9 |
| Calcium (Ca) | mg/kg | 2690 | 3070 | 13.2 | 2840 | 3090 | 8.4 | 2640 | 2510 | 5.0 |
| Chromium (Cr) | mg/kg | 18.4 | 20.4 | 10.3 | 20.3 | 19.6 | 3.5 | 17.8 | 18.8 | 5.5 |
| Cobalt (Co) | mg/kg | 26.6 | 27.7 | 4.1 | 26.8 | 31.1 | 14.9 | 30.2 | 32.4 | 7.0 |
| Copper (Cu) | mg/kg | 30.1 | 31.4 | 4.2 | 31.0 | 33.2 | 6.9 | 32.7 | 33.0 | 0.9 |
| Iron (Fe) | mg/kg | 38600 | 39300 | 1.8 | 38600 | 42400 | 9.4 | 39500 | 42000 | 6.1 |
| Lead (Pb) | mg/kg | 26.1 | 26.6 | 1.9 | 29.8 | 28.0 | 6.2 | 30.4 | 30.0 | 1.3 |
| Lithium (Li) | mg/kg | 14.6 | 15.8 | 7.9 | 13.8 | 15.9 | 14.1 | 13.3 | 15.5 | 15.3 |
| Magnesium (Mg) | mg/kg | 3700 | 3790 | 2.4 | 3560 | 3900 | 9.1 | 3470 | 3710 | 6.7 |
| Manganese (Mn) | mg/kg | 2920 | 3010 | 3.0 | 2990 | 3360 | 11.7 | 3530 | 3560 | 0.8 |
| Mercury (Hg) | mg/kg | 0.0538 | 0.0534 | 0.7 | 0.0517 | 0.0499 | 3.5 | 0.0468 | 0.0440 | 6.2 |
| Molybdenum (Mo) | mg/kg | 0.82 | 0.82 | 0.0 | 0.86 | 0.95 | 9.9 | 0.99 | 0.92 | 7.3 |
| Nickel (Ni) | mg/kg | 50.0 | 51.8 | 3.5 | 51.1 | 58.9 | 14.2 | 58.5 | 62.0 | 5.8 |
| Phosphorus (P) | mg/kg | 511 | 509 | 0.4 | 478 | 510 | 6.5 | 409 | 452 | 10.0 |
| Potassium (K) | mg/kg | 1170 | 1200 | 2.5 | 1170 | 1230 | 5.0 | 1140 | 1320 | 14.6 |
| Selenium (Se) | mg/kg | 0.39 | 0.41 | 5.0 | 0.35 | 0.37 | 5.6 | 0.37 | 0.33 | 11.4 |
| Silver (Ag) | mg/kg | 0.110 | 0.146 | 28.1 | 0.109 | 0.122 | 11.3 | 0.108 | 0.112 | 3.6 |
| Sodium (Na) | mg/kg | 75 | 82 | 8.9 | 72 | 99 | 31.6 | 66 | 99 | 40.0 |
| Strontium (Sr) | mg/kg | 29.0 | 32.1 | 10.1 | 31.6 | 31.6 | 0.0 | 30.5 | 28.0 | 8.5 |
| Thallium (Tl) | mg/kg | 0.156 | 0.175 | 11.5 | 0.154 | 0.180 | 15.6 | 0.161 | 0.175 | 8.3 |
| Tin (Sn) | mg/kg | 0.79 | 0.89 | 11.9 | 0.67 | 0.68 | 1.5 | 0.96 | 0.92 | 4.3 |
| Titanium (Ti) | mg/kg | 156 | 198 | 23.7 | 151 | 140 | 7.6 | 99.9 | 130 | 26.2 |
| Uranium (U) | mg/kg | 1.44 | 1.54 | 6.7 | 1.31 | 1.37 | 4.5 | 1.38 | 1.46 | 5.6 |
| Vanadium (V) | mg/kg | 23.5 | 25.3 | 7.4 | 22.8 | 24.7 | 8.0 | 20.8 | 23.4 | 11.8 |
| Zinc (Zn) | mg/kg | 135 | 137 | 1.5 | 136 | 151 | 10.5 | 149 | 151 | 1.3 |

ND = not detected therefore RPD could not be calculated. Values exceeding 20% RPD are highlighted in red, with dark red text.

STRATAGOLD CORPORATION
ATTN: Hugh Coyle
Suite 1000 - 1050 W. Pender St
Vancouver BC V6E 3S7

Date Received: 11-SEP-18
Report Date: 31-OCT-18 18:29 (MT)
Version: FINAL REV. 2

Client Phone: 604-682-5122

# Certificate of Analysis

## Lab Work Order #: L2162014

| | |
|---|---|
| Project P.O. #: | NOT SUBMITTED |
| Job Reference: | EAGLE GOLD |
| C of C Numbers: | 1 of 2, 2 of 2 |
| Legal Site Desc: | Victoria Gold Corp. |

Comments: ADDITIONAL 17-OCT-18 17:04

Heather McKenzie
Account Manager

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# ALS ENVIRONMENTAL ANALYTICAL REPORT

| | Sample ID | L2162014-1 | L2162014-2 | L2162014-3 | L2162014-4 | L2162014-5 |
|---|---|---|---|---|---|---|
| | Description | Sediment | Sediment | Sediment | Sediment | Sediment |
| | Sampled Date | 08-SEP-18 | 08-SEP-18 | 08-SEP-18 | 09-SEP-18 | 09-SEP-18 |
| | Sampled Time | 18:02 | 18:07 | 18:12 | 08:50 | 08:55 |
| | Client ID | W23-A | W23-B | W23-C | W26-A | W26-B |
| **Grouping** | **Analyte** | | | | | |
| **SOIL** | | | | | | |
| **Physical Tests** | pH (1:2 soil:water) (pH) | 7.88 | 7.59 | 7.76 | 7.70 | 7.80 |
| **Particle Size** | % Sand (2.0mm - 0.05mm) (%) | 79.3 | 66.5 | 57.1 | 75.3 | 77.7 |
| | % Silt (0.05mm - 2um) (%) | 19.6 | 31.3 | 39.3 | 21.9 | 18.0 |
| | % Clay (<2um) (%) | 1.1 | 2.2 | 3.6 | 2.8 | 4.3 |
| | Texture | Loamy sand | Sandy loam | Sandy loam | Loamy sand | Loamy sand |
| **Organic / Inorganic Carbon** | Total Organic Carbon (%) | 0.656 | 1.02 | 1.57 | 1.83 | 1.82 |
| **Metals** | Aluminum (Al) (mg/kg) | 10900 | 10700 | 10800 | 13300 | 17300 |
| | Antimony (Sb) (mg/kg) | 6.60 | 5.77 | 5.87 | 3.06 | 4.48 |
| | Arsenic (As) (mg/kg) | 112 | 99.8 | 105 | 173 | 278 |
| | Barium (Ba) (mg/kg) | 181 | 195 | 188 | 196 | 263 |
| | Beryllium (Be) (mg/kg) | 0.41 | 0.37 | 0.38 | 0.45 | 0.61 |
| | Bismuth (Bi) (mg/kg) | 0.49 | 0.44 | 0.44 | 0.35 | 0.53 |
| | Boron (B) (mg/kg) | <10 | <10 | <10 | <10 | <10 |
| | Cadmium (Cd) (mg/kg) | 0.396 | 0.399 | 0.393 | 0.272 | 0.357 |
| | Calcium (Ca) (mg/kg) | 4650 | 4840 | 4970 | 4080 | 5410 |
| | Chromium (Cr) (mg/kg) | 22.0 | 22.3 | 21.6 | 24.5 | 31.6 |
| | Cobalt (Co) (mg/kg) | 11.3 | 11.3 | 11.1 | 8.99 | 12.1 |
| | Copper (Cu) (mg/kg) | 24.3 | 23.9 | 23.2 | 17.3 | 24.4 |
| | Iron (Fe) (mg/kg) | 25900 | 24900 | 25000 | 22300 | 29100 |
| | Lead (Pb) (mg/kg) | 25.9 | 24.8 | 24.5 | 19.7 | 29.6 |
| | Lithium (Li) (mg/kg) | 14.7 | 14.4 | 14.3 | 19.3 | 23.9 |
| | Magnesium (Mg) (mg/kg) | 4510 | 4440 | 4440 | 4720 | 5500 |
| | Manganese (Mn) (mg/kg) | 733 | 798 | 705 | 374 | 593 |
| | Mercury (Hg) (mg/kg) | 0.0571 | 0.0536 | 0.0503 | 0.0457 | 0.0521 |
| | Molybdenum (Mo) (mg/kg) | 0.82 | 0.82 | 0.81 | 1.50 | 2.13 |
| | Nickel (Ni) (mg/kg) | 26.8 | 26.8 | 26.4 | 22.1 | 27.9 |
| | Phosphorus (P) (mg/kg) | 712 | 797 | 783 | 781 | 856 |
| | Potassium (K) (mg/kg) | 1160 | 1100 | 1040 | 1220 | 1480 |
| | Selenium (Se) (mg/kg) | 0.39 | 0.46 | 0.47 | 0.32 | 0.39 |
| | Silver (Ag) (mg/kg) | 0.179 | 0.305 | 0.306 | 0.158 | 0.196 |
| | Sodium (Na) (mg/kg) | 120 | 131 | 119 | 101 | 131 |
| | Strontium (Sr) (mg/kg) | 34.8 | 34.3 | 34.3 | 37.7 | 51.7 |
| | Thallium (Tl) (mg/kg) | 0.132 | 0.119 | 0.116 | 0.188 | 0.225 |
| | Tin (Sn) (mg/kg) | 0.51 | 0.49 | 0.45 | 0.47 | 0.66 |
| | Titanium (Ti) (mg/kg) | 380 | 380 | 366 | 540 | 606 |
| | Uranium (U) (mg/kg) | 1.20 | 1.32 | 1.21 | 1.65 | 2.22 |

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample ID | L2162014-6 | L2162014-7 | L2162014-8 | L2162014-9 | L2162014-10 |
|---|---|---|---|---|---|
| Description | Sediment | Sediment | Sediment | Sediment | Sediment |
| Sampled Date | 09-SEP-18 | 09-SEP-18 | 09-SEP-18 | 09-SEP-18 | 09-SEP-18 |
| Sampled Time | 09:00 | 10:10 | 10:15 | 10:20 | 14:30 |
| Client ID | W26-C | W1-A | W1-B | W1-C | W27-A |
| **Grouping** / **Analyte** | | | | | |
| **SOIL** | | | | | |
| **Physical Tests** pH (1:2 soil:water) (pH) | 7.81 | 7.24 | 7.34 | 7.45 | 8.19 |
| **Particle Size** % Sand (2.0mm - 0.05mm) (%) | 89.1 | 47.8 | 83.0 | 84.2 | 75.6 |
| % Silt (0.05mm - 2um) (%) | 9.2 | 49.3 | 15.1 | 14.2 | 20.5 |
| % Clay (<2um) (%) | 1.8 | 3.0 | 2.0 | 1.6 | 3.9 |
| Texture | Sand | Silt loam | Loamy sand | Loamy sand | Loamy sand |
| **Organic / Inorganic Carbon** Total Organic Carbon (%) | 0.860 | 0.833 | 0.276 | 0.301 | 0.329 |
| **Metals** Aluminum (Al) (mg/kg) | 18300 | 13900 | 11500 | 13300 | 8560 |
| Antimony (Sb) (mg/kg) | 5.98 | 11.2 | 12.5 | 11.5 | 11.8 |
| Arsenic (As) (mg/kg) | 358 | 355 | 408 | 386 | 242 |
| Barium (Ba) (mg/kg) | 270 | 236 | 229 | 244 | 127 |
| Beryllium (Be) (mg/kg) | 0.67 | 0.73 | 0.69 | 0.69 | 0.41 |
| Bismuth (Bi) (mg/kg) | 0.85 | 0.34 | 0.29 | 0.32 | 1.52 |
| Boron (B) (mg/kg) | <10 | <10 | <10 | <10 | <10 |
| Cadmium (Cd) (mg/kg) | 0.449 | 0.392 | 0.371 | 0.406 | 0.320 |
| Calcium (Ca) (mg/kg) | 5530 | 4470 | 5590 | 4730 | 3510 |
| Chromium (Cr) (mg/kg) | 72.0 | 38.8 | 28.7 | 32.3 | 17.6 |
| Cobalt (Co) (mg/kg) | 15.1 | 14.2 | 12.5 | 13.5 | 12.6 |
| Copper (Cu) (mg/kg) | 26.6 | 23.5 | 16.2 | 20.4 | 37.2 |
| Iron (Fe) (mg/kg) | 34100 | 29600 | 25100 | 27200 | 30400 |
| Lead (Pb) (mg/kg) | 38.6 | 31.0 | 30.3 | 31.1 | 43.3 |
| Lithium (Li) (mg/kg) | 27.0 | 20.2 | 14.9 | 19.2 | 12.6 |
| Magnesium (Mg) (mg/kg) | 5990 | 5600 | 3910 | 4910 | 3800 |
| Manganese (Mn) (mg/kg) | 740 | 781 | 1200 | 993 | 508 |
| Mercury (Hg) (mg/kg) | 0.0487 | 0.0368 | 0.0416 | 0.0812 | 0.0460 |
| Molybdenum (Mo) (mg/kg) | 6.82 | 3.08 | 5.05 | 3.82 | 1.01 |
| Nickel (Ni) (mg/kg) | 53.8 | 48.0 | 35.8 | 41.4 | 27.7 |
| Phosphorus (P) (mg/kg) | 980 | 1100 | 1490 | 1120 | 642 |
| Potassium (K) (mg/kg) | 1790 | 1990 | 1210 | 1620 | 1870 |
| Selenium (Se) (mg/kg) | 0.51 | 0.35 | 0.27 | 0.35 | 0.28 |
| Silver (Ag) (mg/kg) | 0.219 | 0.184 | 0.199 | 0.208 | 0.225 |
| Sodium (Na) (mg/kg) | 217 | 137 | 135 | 139 | 114 |
| Strontium (Sr) (mg/kg) | 52.8 | 34.4 | 32.9 | 34.6 | 30.8 |
| Thallium (Tl) (mg/kg) | 0.245 | 0.248 | 0.179 | 0.230 | 0.178 |
| Tin (Sn) (mg/kg) | 0.87 | 0.62 | 1.12 | 0.58 | 0.65 |
| Titanium (Ti) (mg/kg) | 771 | 666 | 517 | 592 | 308 |
| Uranium (U) (mg/kg) | 2.44 | 4.10 | 5.86 | 4.89 | 1.45 |

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample ID | L2162014-11 | L2162014-12 | L2162014-13 | L2162014-14 | L2162014-15 |
|---|---|---|---|---|---|
| Description | Sediment | Sediment | Sediment | Sediment | Sediment |
| Sampled Date | 09-SEP-18 | 09-SEP-18 | 09-SEP-18 | 09-SEP-18 | 09-SEP-18 |
| Sampled Time | 14:40 | 14:50 | 12:15 | 12:25 | 12:35 |
| Client ID | W27-B | W27-C | W22-A | W22-B | W22-C |
| **Grouping** / **Analyte** | | | | | |
| **SOIL** | | | | | |
| **Physical Tests** pH (1:2 soil:water) (pH) | 8.18 | 8.13 | 7.68 | 7.81 | 7.76 |
| **Particle Size** % Sand (2.0mm - 0.05mm) (%) | 70.2 | 46.9 | 91.9 | 90.2 | 92.5 |
| % Silt (0.05mm - 2um) (%) | 25.5 | 48.2 | 7.1 | 9.0 | 7.0 |
| % Clay (<2um) (%) | 4.3 | 4.9 | 1.0 | <1.0 | <1.0 |
| Texture | Sandy loam | Silt loam / Sandy loam | Sand | Sand | Sand |
| **Organic / Inorganic Carbon** Total Organic Carbon (%) | 0.904 | 0.722 | 0.415 | 0.501 | 0.631 |
| **Metals** Aluminum (Al) (mg/kg) | 9190 | 8120 | 9730 | 9160 | 8460 |
| Antimony (Sb) (mg/kg) | 14.4 | 13.5 | 5.13 | 5.10 | 7.56 |
| Arsenic (As) (mg/kg) | 264 | 252 | 173 | 82.8 | 91.0 |
| Barium (Ba) (mg/kg) | 115 | 108 | 205 | 203 | 219 |
| Beryllium (Be) (mg/kg) | 0.43 | 0.40 | 0.42 | 0.43 | 0.42 |
| Bismuth (Bi) (mg/kg) | 2.43 | 2.10 | 0.54 | 0.44 | 0.64 |
| Boron (B) (mg/kg) | <10 | <10 | <10 | <10 | <10 |
| Cadmium (Cd) (mg/kg) | 0.367 | 0.355 | 0.717 | 0.728 | 0.919 |
| Calcium (Ca) (mg/kg) | 4290 | 4180 | 2690 | 2840 | 2640 |
| Chromium (Cr) (mg/kg) | 17.8 | 16.7 | 18.4 | 20.3 | 17.8 |
| Cobalt (Co) (mg/kg) | 13.6 | 13.5 | 26.6 | 26.8 | 30.2 |
| Copper (Cu) (mg/kg) | 38.5 | 39.0 | 30.1 | 31.0 | 32.7 |
| Iron (Fe) (mg/kg) | 30500 | 31000 | 38600 | 38600 | 39500 |
| Lead (Pb) (mg/kg) | 48.3 | 47.1 | 26.1 | 29.8 | 30.4 |
| Lithium (Li) (mg/kg) | 13.3 | 12.3 | 14.6 | 13.8 | 13.3 |
| Magnesium (Mg) (mg/kg) | 4050 | 3760 | 3700 | 3560 | 3470 |
| Manganese (Mn) (mg/kg) | 476 | 503 | 2920 | 2990 | 3530 |
| Mercury (Hg) (mg/kg) | 0.0296 | 0.0342 | 0.0538 | 0.0517 | 0.0468 |
| Molybdenum (Mo) (mg/kg) | 1.00 | 0.95 | 0.82 | 0.86 | 0.99 |
| Nickel (Ni) (mg/kg) | 28.5 | 29.0 | 50.0 | 51.1 | 58.5 |
| Phosphorus (P) (mg/kg) | 535 | 583 | 511 | 478 | 409 |
| Potassium (K) (mg/kg) | 2520 | 1980 | 1170 | 1170 | 1140 |
| Selenium (Se) (mg/kg) | 0.27 | 0.28 | 0.39 | 0.35 | 0.37 |
| Silver (Ag) (mg/kg) | 0.207 | 0.240 | 0.110 | 0.109 | 0.108 |
| Sodium (Na) (mg/kg) | 106 | 106 | 75 | 72 | 66 |
| Strontium (Sr) (mg/kg) | 30.2 | 29.6 | 29.0 | 31.6 | 30.5 |
| Thallium (Tl) (mg/kg) | 0.204 | 0.184 | 0.156 | 0.154 | 0.161 |
| Tin (Sn) (mg/kg) | 0.56 | 0.60 | 0.79 | 0.67 | 0.96 |
| Titanium (Ti) (mg/kg) | 326 | 266 | 156 | 151 | 99.9 |
| Uranium (U) (mg/kg) | 1.45 | 1.43 | 1.44 | 1.31 | 1.38 |

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample ID | L2162014-16 | L2162014-17 | L2162014-18 | L2162014-19 | L2162014-20 |
|---|---|---|---|---|---|
| Description | Sediment | Sediment | Sediment | Sediment | Sediment |
| Sampled Date | 09-SEP-18 | 09-SEP-18 | 09-SEP-18 | 09-SEP-18 | 09-SEP-18 |
| Sampled Time | 10:50 | 11:00 | 11:08 | 16:00 | 16:05 |
| Client ID | W4-A | W4-B | W4-C | W29-A | W29-B |
| **Grouping** / **Analyte** | | | | | |
| **SOIL** | | | | | |
| **Physical Tests** pH (1:2 soil:water) (pH) | 7.44 | 7.37 | 7.72 | 7.35 | 7.40 |
| **Particle Size** % Sand (2.0mm - 0.05mm) (%) | 60.6 | 42.3 | 64.4 | 74.7 | 77.2 |
| % Silt (0.05mm - 2um) (%) | 37.5 | 55.5 | 34.4 | 23.9 | 21.8 |
| % Clay (<2um) (%) | 2.0 | 2.3 | 1.2 | 1.4 | 1.0 |
| Texture | Sandy loam | Silt loam | Sandy loam | Loamy sand | Loamy sand |
| **Organic / Inorganic Carbon** Total Organic Carbon (%) | 1.10 | 1.14 | 0.598 | 0.723 | 0.803 |
| **Metals** Aluminum (Al) (mg/kg) | 10700 | 10600 | 8840 | 8560 | 9060 |
| Antimony (Sb) (mg/kg) | 6.80 | 6.64 | 7.53 | 7.40 | 9.56 |
| Arsenic (As) (mg/kg) | 188 | 208 | 211 | 112 | 146 |
| Barium (Ba) (mg/kg) | 174 | 180 | 159 | 146 | 124 |
| Beryllium (Be) (mg/kg) | 0.55 | 0.52 | 0.50 | 0.42 | 0.47 |
| Bismuth (Bi) (mg/kg) | 0.58 | 0.69 | 0.81 | 0.54 | 0.57 |
| Boron (B) (mg/kg) | <10 | <10 | <10 | <10 | <10 |
| Cadmium (Cd) (mg/kg) | 0.354 | 0.375 | 0.314 | 0.352 | 0.362 |
| Calcium (Ca) (mg/kg) | 3790 | 3930 | 3740 | 3290 | 3310 |
| Chromium (Cr) (mg/kg) | 19.9 | 20.2 | 18.1 | 18.7 | 18.7 |
| Cobalt (Co) (mg/kg) | 13.3 | 13.4 | 12.0 | 10.8 | 11.9 |
| Copper (Cu) (mg/kg) | 28.1 | 25.6 | 26.3 | 26.6 | 28.9 |
| Iron (Fe) (mg/kg) | 28600 | 28300 | 27200 | 25600 | 27500 |
| Lead (Pb) (mg/kg) | 24.8 | 25.0 | 24.8 | 28.1 | 31.4 |
| Lithium (Li) (mg/kg) | 17.2 | 16.7 | 14.7 | 13.5 | 15.3 |
| Magnesium (Mg) (mg/kg) | 4180 | 4170 | 3680 | 3680 | 3730 |
| Manganese (Mn) (mg/kg) | 812 | 973 | 687 | 450 | 575 |
| Mercury (Hg) (mg/kg) | 0.0484 | 0.0518 | 0.0443 | 0.0371 | 0.0421 |
| Molybdenum (Mo) (mg/kg) | 1.07 | 1.14 | 0.91 | 0.80 | 0.83 |
| Nickel (Ni) (mg/kg) | 29.4 | 29.3 | 26.8 | 24.9 | 26.6 |
| Phosphorus (P) (mg/kg) | 626 | 687 | 754 | 669 | 608 |
| Potassium (K) (mg/kg) | 1420 | 1270 | 1220 | 1050 | 1210 |
| Selenium (Se) (mg/kg) | 0.40 | 0.41 | 0.35 | 0.29 | 0.27 |
| Silver (Ag) (mg/kg) | 0.187 | 0.216 | 0.150 | 0.175 | 0.161 |
| Sodium (Na) (mg/kg) | 90 | 95 | 87 | 75 | 93 |
| Strontium (Sr) (mg/kg) | 32.2 | 30.7 | 31.3 | 26.4 | 28.0 |
| Thallium (Tl) (mg/kg) | 0.179 | 0.174 | 0.144 | 0.121 | 0.128 |
| Tin (Sn) (mg/kg) | 0.49 | 0.48 | 0.45 | 0.49 | 0.57 |
| Titanium (Ti) (mg/kg) | 330 | 353 | 324 | 286 | 308 |
| Uranium (U) (mg/kg) | 2.01 | 2.21 | 1.50 | 1.52 | 1.58 |

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample ID | L2162014-21 | L2162014-22 | L2162014-23 | L2162014-24 | L2162014-25 |
|---|---|---|---|---|---|
| Description | Sediment | Sediment | Sediment | Sediment | Sediment |
| Sampled Date | 09-SEP-18 | 08-SEP-18 | 08-SEP-18 | 08-SEP-18 | |
| Sampled Time | 16:10 | | | | |
| Client ID | W29-C | DUP-A | DUP-B | DUP-C | W5A |
| **Grouping** / **Analyte** | | | | | |
| **SOIL** | | | | | |
| **Physical Tests** pH (1:2 soil:water) (pH) | 7.73 | 7.64 | 7.76 | 7.76 | 8.00 |
| **Particle Size** % Sand (2.0mm - 0.05mm) (%) | 62.9 | 94.2 | 95.3 | 95.7 | 51.4 |
| % Silt (0.05mm - 2um) (%) | 36.4 | 5.5 | 4.6 | 4.1 | 44.8 |
| % Clay (<2um) (%) | <1.0 | <1.0 | <1.0 | <1.0 | 3.7 |
| Texture | Sandy loam | Sand | Sand | Sand | Sandy loam |
| **Organic / Inorganic Carbon** Total Organic Carbon (%) | 1.18 | 0.367 | 0.528 | 0.347 | 0.979 |
| **Metals** Aluminum (Al) (mg/kg) | 8600 | 9880 | 10100 | 9460 | 10900 |
| Antimony (Sb) (mg/kg) | 7.29 | 6.03 | 5.47 | 6.59 | 8.00 |
| Arsenic (As) (mg/kg) | 121 | 90.9 | 96.2 | 94.1 | 121 |
| Barium (Ba) (mg/kg) | 124 | 201 | 207 | 206 | 187 |
| Beryllium (Be) (mg/kg) | 0.41 | 0.44 | 0.45 | 0.45 | 0.42 |
| Bismuth (Bi) (mg/kg) | 0.46 | 0.56 | 0.44 | 0.53 | 0.59 |
| Boron (B) (mg/kg) | <10 | <10 | <10 | <10 | <10 |
| Cadmium (Cd) (mg/kg) | 0.292 | 0.782 | 0.877 | 0.927 | 0.389 |
| Calcium (Ca) (mg/kg) | 3570 | 3070 | 3090 | 2510 | 4710 |
| Chromium (Cr) (mg/kg) | 17.4 | 20.4 | 19.6 | 18.8 | 23.6 |
| Cobalt (Co) (mg/kg) | 9.76 | 27.7 | 31.1 | 32.4 | 12.6 |
| Copper (Cu) (mg/kg) | 24.1 | 31.4 | 33.2 | 33.0 | 26.9 |
| Iron (Fe) (mg/kg) | 24000 | 39300 | 42400 | 42000 | 28600 |
| Lead (Pb) (mg/kg) | 24.7 | 26.6 | 28.0 | 30.0 | 30.2 |
| Lithium (Li) (mg/kg) | 14.0 | 15.8 | 15.9 | 15.5 | 15.7 |
| Magnesium (Mg) (mg/kg) | 3610 | 3790 | 3900 | 3710 | 4490 |
| Manganese (Mn) (mg/kg) | 424 | 3010 | 3360 | 3560 | 904 |
| Mercury (Hg) (mg/kg) | 0.0335 | 0.0534 | 0.0499 | 0.0440 | 0.0591 |
| Molybdenum (Mo) (mg/kg) | 0.72 | 0.82 | 0.95 | 0.92 | 1.02 |
| Nickel (Ni) (mg/kg) | 23.4 | 51.8 | 58.9 | 62.0 | 30.1 |
| Phosphorus (P) (mg/kg) | 588 | 509 | 510 | 452 | 791 |
| Potassium (K) (mg/kg) | 1080 | 1200 | 1230 | 1320 | 1240 |
| Selenium (Se) (mg/kg) | 0.26 | 0.41 | 0.37 | 0.33 | 0.37 |
| Silver (Ag) (mg/kg) | 0.141 | 0.146 | 0.122 | 0.112 | 0.200 |
| Sodium (Na) (mg/kg) | 92 | 82 | 99 | 99 | 115 |
| Strontium (Sr) (mg/kg) | 27.1 | 32.1 | 31.6 | 28.0 | 37.6 |
| Thallium (Tl) (mg/kg) | 0.113 | 0.175 | 0.180 | 0.175 | 0.138 |
| Tin (Sn) (mg/kg) | 0.49 | 0.89 | 0.68 | 0.92 | 0.58 |
| Titanium (Ti) (mg/kg) | 315 | 198 | 140 | 130 | 359 |
| Uranium (U) (mg/kg) | 1.19 | 1.54 | 1.37 | 1.46 | 1.39 |

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Grouping | Analyte | Sample ID / Description / Sampled Date / Sampled Time / Client ID | L2162014-26 Sediment W5B | L2162014-27 Sediment W5C | L2162014-28 Sediment W6A | L2162014-29 Sediment W6B | L2162014-30 Sediment W6C |
|---|---|---|---|---|---|---|---|
| **SOIL** | | | | | | | |
| **Physical Tests** | pH (1:2 soil:water) (pH) | | 7.94 | 7.99 | 7.50 | 7.51 | 7.30 |
| **Particle Size** | % Sand (2.0mm - 0.05mm) (%) | | 60.2 | 38.9 PSAL | 93.2 | 92.7 PSAL | 74.3 PSAL |
| | % Silt (0.05mm - 2um) (%) | | 36.5 | 57.3 PSAL | 6.1 | 6.5 PSAL | 23.3 PSAL |
| | % Clay (<2um) (%) | | 3.4 | 3.9 PSAL | <1.0 | <1.0 PSAL | 2.4 PSAL |
| | Texture | | Sandy loam | Silt loam | Sand | Sand | Loamy sand |
| **Organic / Inorganic Carbon** | Total Organic Carbon (%) | | 0.802 | 1.19 | 1.04 | 0.685 | 1.96 |
| **Metals** | Aluminum (Al) (mg/kg) | | 10800 | 10600 | 14300 | 14300 | 13200 |
| | Antimony (Sb) (mg/kg) | | 8.80 | 7.17 | 3.08 | 2.60 | 2.37 |
| | Arsenic (As) (mg/kg) | | 117 | 104 | 87.5 | 82.0 | 69.1 |
| | Barium (Ba) (mg/kg) | | 188 | 180 | 247 | 221 | 209 |
| | Beryllium (Be) (mg/kg) | | 0.40 | 0.36 | 0.46 | 0.42 | 0.38 |
| | Bismuth (Bi) (mg/kg) | | 0.68 | 0.53 | 0.28 | 0.26 | 0.23 |
| | Boron (B) (mg/kg) | | <10 | <10 | <10 | <10 | <10 |
| | Cadmium (Cd) (mg/kg) | | 0.402 | 0.358 | 1.17 | 0.982 | 0.774 |
| | Calcium (Ca) (mg/kg) | | 4660 | 4900 | 6690 | 6500 | 5920 |
| | Chromium (Cr) (mg/kg) | | 23.3 | 22.7 | 26.7 | 26.1 | 23.3 |
| | Cobalt (Co) (mg/kg) | | 13.0 | 12.5 | 12.6 | 11.5 | 10.7 |
| | Copper (Cu) (mg/kg) | | 26.1 | 25.7 | 27.7 | 25.5 | 22.1 |
| | Iron (Fe) (mg/kg) | | 28900 | 28500 | 25900 | 25200 | 22900 |
| | Lead (Pb) (mg/kg) | | 32.5 | 29.3 | 19.0 | 17.8 | 15.9 |
| | Lithium (Li) (mg/kg) | | 14.9 | 14.7 | 19.1 | 18.5 | 17.5 |
| | Magnesium (Mg) (mg/kg) | | 4390 | 4750 | 5430 | 5450 | 5080 |
| | Manganese (Mn) (mg/kg) | | 776 | 745 | 1080 | 807 | 617 |
| | Mercury (Hg) (mg/kg) | | 0.0523 | 0.0551 | 0.0493 | 0.0440 | 0.0394 |
| | Molybdenum (Mo) (mg/kg) | | 0.94 | 0.86 | 1.43 | 1.22 | 0.97 |
| | Nickel (Ni) (mg/kg) | | 29.6 | 29.6 | 32.6 | 30.1 | 26.5 |
| | Phosphorus (P) (mg/kg) | | 872 | 829 | 873 | 906 | 860 |
| | Potassium (K) (mg/kg) | | 1110 | 1100 | 1050 | 1020 | 940 |
| | Selenium (Se) (mg/kg) | | 0.31 | 0.30 | 0.92 | 0.87 | 0.68 |
| | Silver (Ag) (mg/kg) | | 0.199 | 0.228 | 0.198 | 0.166 | 0.153 |
| | Sodium (Na) (mg/kg) | | 111 | 113 | 191 | 200 | 187 |
| | Strontium (Sr) (mg/kg) | | 37.6 | 36.2 | 46.3 | 44.4 | 40.0 |
| | Thallium (Tl) (mg/kg) | | 0.124 | 0.126 | 0.158 | 0.151 | 0.135 |
| | Tin (Sn) (mg/kg) | | 0.59 | 0.50 | 0.41 | 0.39 | 0.38 |
| | Titanium (Ti) (mg/kg) | | 370 | 333 | 396 | 430 | 426 |
| | Uranium (U) (mg/kg) | | 1.52 | 1.49 | 1.36 | 1.40 | 1.20 |

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample ID | L2162014-1 | L2162014-2 | L2162014-3 | L2162014-4 | L2162014-5 |
|---|---|---|---|---|---|
| Description | Sediment | Sediment | Sediment | Sediment | Sediment |
| Sampled Date | 08-SEP-18 | 08-SEP-18 | 08-SEP-18 | 09-SEP-18 | 09-SEP-18 |
| Sampled Time | 18:02 | 18:07 | 18:12 | 08:50 | 08:55 |
| Client ID | W23-A | W23-B | W23-C | W26-A | W26-B |
| **Grouping** **Analyte** | | | | | |
| **SOIL** | | | | | |
| **Metals** Vanadium (V) (mg/kg) | 29.9 | 30.9 | 29.9 | 36.9 | 49.2 |
| Zinc (Zn) (mg/kg) | 92.9 | 92.4 | 91.7 | 75.6 | 94.3 |

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| | Sample ID | L2162014-6 | L2162014-7 | L2162014-8 | L2162014-9 | L2162014-10 |
|---|---|---|---|---|---|---|
| | Description | Sediment | Sediment | Sediment | Sediment | Sediment |
| | Sampled Date | 09-SEP-18 | 09-SEP-18 | 09-SEP-18 | 09-SEP-18 | 09-SEP-18 |
| | Sampled Time | 09:00 | 10:10 | 10:15 | 10:20 | 14:30 |
| | Client ID | W26-C | W1-A | W1-B | W1-C | W27-A |
| **Grouping** | **Analyte** | | | | | |
| **SOIL** | | | | | | |
| **Metals** | Vanadium (V) (mg/kg) | 53.2 | 46.4 | 38.9 | 42.5 | 21.2 |
| | Zinc (Zn) (mg/kg) | 107 | 116 | 90.2 | 108 | 88.6 |

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample ID | L2162014-11 | L2162014-12 | L2162014-13 | L2162014-14 | L2162014-15 |
|---|---|---|---|---|---|
| Description | Sediment | Sediment | Sediment | Sediment | Sediment |
| Sampled Date | 09-SEP-18 | 09-SEP-18 | 09-SEP-18 | 09-SEP-18 | 09-SEP-18 |
| Sampled Time | 14:40 | 14:50 | 12:15 | 12:25 | 12:35 |
| Client ID | W27-B | W27-C | W22-A | W22-B | W22-C |
| **Grouping** / **Analyte** | | | | | |
| **SOIL** | | | | | |
| **Metals** | | | | | |
| Vanadium (V) (mg/kg) | 20.8 | 19.7 | 23.5 | 22.8 | 20.8 |
| Zinc (Zn) (mg/kg) | 103 | 98.7 | 135 | 136 | 149 |

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample ID | L2162014-16 | L2162014-17 | L2162014-18 | L2162014-19 | L2162014-20 |
|---|---|---|---|---|---|
| Description | Sediment | Sediment | Sediment | Sediment | Sediment |
| Sampled Date | 09-SEP-18 | 09-SEP-18 | 09-SEP-18 | 09-SEP-18 | 09-SEP-18 |
| Sampled Time | 10:50 | 11:00 | 11:08 | 16:00 | 16:05 |
| Client ID | W4-A | W4-B | W4-C | W29-A | W29-B |
| **Grouping** **Analyte** | | | | | |
| **SOIL** | | | | | |
| **Metals** Vanadium (V) (mg/kg) | 27.6 | 29.3 | 25.6 | 25.1 | 25.2 |
| Zinc (Zn) (mg/kg) | 100 | 105 | 92.4 | 84.1 | 87.9 |

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample ID | L2162014-21 | L2162014-22 | L2162014-23 | L2162014-24 | L2162014-25 |
|---|---|---|---|---|---|
| Description | Sediment | Sediment | Sediment | Sediment | Sediment |
| Sampled Date | 09-SEP-18 | 08-SEP-18 | 08-SEP-18 | 08-SEP-18 | |
| Sampled Time | 16:10 | | | | |
| Client ID | W29-C | DUP-A | DUP-B | DUP-C | W5A |
| **Grouping** / **Analyte** | | | | | |
| **SOIL** | | | | | |
| **Metals** Vanadium (V) (mg/kg) | 24.2 | 25.3 | 24.7 | 23.4 | 30.2 |
| Zinc (Zn) (mg/kg) | 77.0 | 137 | 151 | 151 | 97.6 |

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample ID | L2162014-26 | L2162014-27 | L2162014-28 | L2162014-29 | L2162014-30 |
|---|---|---|---|---|---|
| Description | Sediment | Sediment | Sediment | Sediment | Sediment |
| Sampled Date | | | | | |
| Sampled Time | | | | | |
| Client ID | W5B | W5C | W6A | W6B | W6C |
| **Grouping** / **Analyte** | | | | | |
| **SOIL** | | | | | |
| **Metals** Vanadium (V) (mg/kg) | 30.5 | 28.8 | 36.5 | 36.7 | 34.6 |
| Zinc (Zn) (mg/kg) | 96.1 | 92.9 | 123 | 117 | 107 |

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

# Reference Information

**QC Samples with Qualifiers & Comments:**

| QC Type Description | Parameter | Qualifier | Applies to Sample Number(s) |
|---|---|---|---|
| Duplicate | Titanium (Ti) | DUP-H | L2162014-20, -21, -22, -23, -24 |

**Qualifiers for Individual Parameters Listed:**

| Qualifier | Description |
|---|---|
| DUP-H | Duplicate results outside ALS DQO, due to sample heterogeneity. |
| PSAL | Limited sample was available for PSA (100g minimum is standard). Measurement Uncertainty for PSA results may be higher than usual. |

**Test Method References:**

| ALS Test Code | Matrix | Test Description | Method Reference** |
|---|---|---|---|
| **C-TIC-PCT-SK** | Soil | Total Inorganic Carbon in Soil | CSSS (2008) P216-217 |

A known quantity of acetic acid is consumed by reaction with carbonates in the soil. The pH of the resulting solution is measured and compared against a standard curve relating pH to weight of carbonate.

| | | | |
|---|---|---|---|
| **C-TOC-CALC-SK** | Soil | Total Organic Carbon Calculation | CSSS (2008) 21.2 |

Total Organic Carbon (TOC) is calculated by the difference between total carbon (TC) and total inorganic carbon. (TIC)

| | | | |
|---|---|---|---|
| **C-TOT-LECO-SK** | Soil | Total Carbon by combustion method | CSSS (2008) 21.2 |

The sample is ignited in a combustion analyzer where carbon in the reduced CO2 gas is determined using a thermal conductivity detector.

| | | | |
|---|---|---|---|
| **HG-63UM-CVAF-VA** | Soil | Hg in Soil by CVAAS | EPA 200.2/245.7 |

This analysis is carried out using procedures from CSR Analytical Method: "Strong Acid Leachable Metals (SALM) in Soil", BC Ministry of Environment, 26 June 2009, and procedures adapted from EPA Method 200.2. The sample is manually homogenized, dried at 60 degrees Celsius, sieved through a 63 um (230 mesh) sieve, and a representative subsample of the dry material is weighed. The sample is then digested at 95 degrees Celsius for 2 hours by block digester using concentrated nitric and hydrochloric acids. Instrumental analysis is by atomic absorption spectrophotometry (EPA Method 245.7).

Method Limitation: This method is not a total digestion technique. It is a very strong acid digestion that is intended to dissolve those metals that may be environmentally available. By design, elements bound in silicate structures are not normally dissolved by this procedure as they are not usually mobile in the environment.

Deviation from Reference Method: This procedure deviates from the BC CSR SALM method, which specifies sieving to 2 mm (10 mesh).

| | | | |
|---|---|---|---|
| **IC-CACO3-CALC-SK** | Soil | Inorganic Carbon as CaCO3 Equivalent | Calculation |
| **MET-63UM-CCMS-VA** | Soil | Metals in Soil by CRC ICPMS (63um) | EPA 200.2/6020A |

Soil/sediment is dried, disaggregated, and sieved (2 mm). Strong Acid Leachable Metals in the <2mm fraction are solubilized by heated digestion with nitric and hydrochloric acids. Instrumental analysis is by Collision / Reaction Cell ICPMS.

Limitations: This method is intended to liberate environmentally available metals. Silicate minerals are not solubilized. Some metals may be only partially recovered (matrix dependent), including Al, Ba, Be, Cr, S, Sr, Ti, Tl, V, W, and Zr. Elemental Sulfur may be poorly recovered by this method. Volatile forms of sulfur (e.g. sulfide, H2S) may be excluded if lost during sampling, storage, or digestion.

| | | | |
|---|---|---|---|
| **PH-1:2-VA** | Soil | pH in Soil (1:2 Soil:Water Extraction) | BC WLAP METHOD: PH, ELECTROMETRIC, SOIL |

This analysis is carried out in accordance with procedures described in the pH, Electrometric in Soil and Sediment method - Section B Physical/Inorganic and Misc. Constituents, BC Environmental Laboratory Manual 2007. The procedure involves mixing the dried (at <60°C) and sieved (No. 10 / 2mm) sample with deionized/distilled water at a 1:2 ratio of sediment to water. The pH of the solution is then measured using a standard pH probe.

| | | | |
|---|---|---|---|
| **PSA-1-SK** | Soil | Particle Size Analysis:Mini-Pipet Method | SSIR-51 Method 3.2.1 |

Dry, < 2 mm soil is treated with sodium hexametaphosphate to ensure complete dispersion of primary soil particles. The homogenized suspension is allowed to settle in accordance with Stoke's Law so that only clay particles remain in suspension.To determine the clay fraction, an aliquot of the clay suspension is removed, then dried and weighed. The sand fraction is determined by wet sieving the remaining suspension, then drying and weighing the sand retained on the sieve. The silt fraction is determined by calculation where % Silt = 100 - (%Sand+%Clay)

** ALS test methods may incorporate modifications from specified reference methods to improve performance.

*The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:*

| Laboratory Definition Code | Laboratory Location |
|---|---|
| SK | ALS ENVIRONMENTAL - SASKATOON, SASKATCHEWAN, CANADA |
| VA | ALS ENVIRONMENTAL - VANCOUVER, BRITISH COLUMBIA, CANADA |

**Chain of Custody Numbers:**

1 of 2 2 of 2

# Reference Information

**GLOSSARY OF REPORT TERMS**

*Surrogate - A compound that is similar in behaviour to target analyte(s), but that does not occur naturally in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery.*
*mg/kg - milligrams per kilogram based on dry weight of sample.*
*mg/kg wwt - milligrams per kilogram based on wet weight of sample.*
*mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight of sample.*
*mg/L - milligrams per litre.*
*< - Less than.*
*D.L. - The reported Detection Limit, also known as the Limit of Reporting (LOR).*
*N/A - Result not available. Refer to qualifier code and definition for explanation.*

*Test results reported relate only to the samples as received by the laboratory.*
*UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.*
*Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.*

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| Contact: | Hugh Coyle | ☑ PDF | ☑ Excel | ☑ Digital | ☐ Fax | ○ Priority (2-4 Business Days) - 50% Surcharge - Contact ALS to Confirm TAT |
| Address: | 1000 - 1050 West Pender Street | Email 1: | hcoyle@vitgoldcorp.com | | | ○ Emergency (1-2 Bus. Days) - 100% Surcharge - Contact ALS to Confirm TAT |
| | Vancouver, BC V6E 3S7 | Email 2: | bonnieburns@northwestel.net | | | ○ Same Day or Weekend Emergency - Contact ALS to Confirm TAT |
| Phone: | 604-696-6600 Fax: | Email 3: | lrear@vitgoldcorp.com | | | Analysis Request |
| Invoice To | Same as Report ? ☑ Yes ☐ No | Client / Project Information | | | | Please indicate below Filtered, Preserved or both (F, P, F/P) |
| Hardcopy of invoice with Report? | ☐ Yes ☑ No | Job #: | Eagle Gold | | | |
| Company: | | PO / AFE: | | | | |
| Contact: | | LSD: | Victoria Gold Corp. | | | |
| Address: | | | | | | |
| Phone: | Fax: | Quote #: | | | | |
| Lab Work Order # (lab use only) | | ALS Contact: | Amber Springer | Sampler: | | |

| Sample # | Sample Identification (This description will appear on the report) | Date (dd-mmm-yy) | Time (hh:mm) | Sample Type | TOC | pH | Metals* | Particle Size Analysis | | | | | | | | Number of Containers |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | W23-A | 08-Sep-18 | 18:02 | Sediment | X | X | X | X | | | | | | | | 2 |
| | W23-B | 08-Sep-18 | 18:07 | Sediment | X | X | X | X | | | | | | | | 2 |
| | W23-C | 08-Sep-18 | 18:12 | Sediment | X | X | X | X | | | | | | | | 2 |
| | W26-A | 09-Sep-18 | 8:50 | Sediment | X | X | X | X | | | | | | | | 2 |
| | W26-B | 09-Sep-18 | 8:55 | Sediment | X | X | X | X | | | | | | | | 2 |
| | W26-C | 09-Sep-18 | 9:00 | Sediment | X | X | X | X | | | | | | | | 2 |
| | W1-A | 09-Sep-18 | 10:10 | Sediment | X | X | X | X | | | | | | | | 2 |
| | W1-B | 09-Sep-18 | 10:15 | Sediment | X | X | X | X | | | | | | | | 2 |
| | W1-C | 09-Sep-18 | 10:20 | Sediment | X | X | X | X | | | | | | | | 2 |
| | W27-A | 09-Sep-18 | 14:30 | Sediment | X | X | X | X | | | | | | | | 2 |
| | W27-B | 09-Sep-18 | 14:40 | Sediment | X | X | X | X | | | | | | | | 2 |
| | W27-C | 09-Sep-18 | 14:50 | Sediment | X | X | X | X | | | | | | | | 2 |
| | W22-A | 09-Sep-18 | 12:15 | Sediment | X | X | X | X | | | | | | | | 2 |

Special Instructions / Regulations with water or land use (CCME-Freshwater Aquatic Life/BC CSR - Commercial/AB Tier 1 - Natural, etc) / Hazardous Details

* ANALYZE THE PORTION THAT PASSES A 63 MICRON SIEVE FOR METALS

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY.

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Also provided on another Excel tab are the ALS location addresses, phone numbers and sample container / preservation / holding time table for common analyses.

| SHIPMENT RELEASE (client use) | | | SHIPMENT RECEPTION (lab use only) | | | | SHIPMENT VERIFICATION (lab use only) | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Released by: Bonnie Burns | Date (dd-mmm-yy): Sept 11/18 | Time (hh-mm): 11:50 | Received by: | Date: Sept 11/18 | Time: 11:50 | Temperature: 1° °C | Verified by: HA | Date: 9/12 | Time: 12:25 P | Observations: Yes / No ? If Yes add SIF |

3, 9, 11



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| Contact: | Hugh Coyle | | | ☑ PDF | ☑ Excel | ☑ Digital | ☐ Fax | ○ Priority (3-4 Business Days) - 50% Surcharge - Contact ALS to Confirm TAT |
| Address: | 1000 - 1050 West Pender Street | | | Email 1: | hcoyle@vitgoldcorp.com | | | ○ Emergency (1-2 Bus. Days) - 100% Surcharge - Contact ALS to Confirm TAT |
| | Vancouver, BC V6E 3S7 | | | Email 2: | bonnieburns@northwestel.net | | | ○ Same Day or Weekend Emergency - Contact ALS to Confirm TAT |
| Phone: | 604-696-6600 | Fax: | | Email 3: | trear@vitgoldcorp.com | | | **Analysis Request** |
| Invoice To | Same as Report ? | ☑ Yes | ☐ No | Client / Project Information | | | | Please indicate below Filtered, Preserved or both (F, P, F/P) |
| Hardcopy of Invoice with Report? | | ☐ Yes | ☑ No | Job #: | Eagle Gold | | | |
| Company: | | | | PO / AFE: | | | | |
| Contact: | | | | LSD: | Victoria Gold Corp. | | | |
| Address: | | | | | | | | |
| Phone: | | Fax: | | Quote #: | | | | |

| Lab Work Order # (lab use only) | | ALS Contact: | Amber Springer | Sampler: |
|---|---|---|---|---|

| Sample # | Sample Identification (This description will appear on the report) | Date (dd-mmm-yy) | Time (hh:mm) | Sample Type | TOC | | Metals* | Particle Size Analysis | | | | | | | | Number of Containers |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | W22-B | 09-Sep-18 | 12:25 | Sediment | X | X | X | X | | | | | | | | 2 |
| | W22-C | 09-Sep-18 | 12:35 | Sediment | X | X | X | X | | | | | | | | 2 |
| | W4-A | 09-Sep-18 | 10:50 | Sediment | X | X | X | X | | | | | | | | 2 |
| | W4-B | 09-Sep-18 | 11:00 | Sediment | X | X | X | X | | | | | | | | 2 |
| | W4-C | 09-Sep-18 | 11:08 | Sediment | X | X | X | X | | | | | | | | 2 |
| | W29-A | 09-Sep-18 | 16:00 | Sediment | X | X | X | X | | | | | | | | 2 |
| | W29-B | 09-Sep-18 | 16:05 | Sediment | X | X | X | X | | | | | | | | 2 |
| | W29-C | 09-Sep-18 | 16:10 | Sediment | X | X | X | X | | | | | | | | 2 |
| | DUP-A | | | Sediment | X | X | X | X | | | | | | | | 2 |
| | DUP-B | | | Sediment | X | X | X | X | | | | | | | | 2 |
| | DUP-C | | | Sediment | X | X | X | X | | | | | | | | 2 |
| | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | |

Special Instructions / Regulations with water or land use (CCME-Freshwater Aquatic Life/BC CSR - Commercial/AB Tier 1 - Natural, etc) / Hazardous Details

* ANALYIS THE PORTION THAT PASSES A 63 MICRON SIEVE FOR METALS

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**Also provided on another Excel tab are the ALS location addresses, phone numbers and sample container / preservation / holding time table for common analyses.**

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|---|---|---|---|---|---|---|---|---|---|---|
| Released by: Bonnie Burns | Date (dd-mmm-yy): 09-Sep-18 | Time (hh-mm): 11:50 | Received by: | Date: | Time: | Temperatures: 3, 9, 11 °C | Verified by: HA | Date: 9/12 | Time: 12:25P | Observations: Yes / No ? If Yes add SIF |

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|---|---|---|---|
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| Contact: | Hugh Coyle | ☑ PDF ☑ Excel ☑ Digital ☐ Fax | ○ Priority (2-4 Business Days) - 50% Surcharge - Contact ALS to Confirm TAT |
| Address: | 1000 - 1050 West Pender Street | Email 1: hcoyle@vitgoldcorp.com | ○ Emergency (1-2 Bus. Days) - 100% Surcharge - Contact ALS to Confirm TAT |
| | Vancouver, BC V6E 3S7 | Email 2: bonnieburns@northwestel.net | ○ Same Day or Weekend Emergency - Contact ALS to Confirm TAT |
| Phone: | 604-696-6600 Fax: | Email 3: lrear@vitgoldcorp.com | |
| **Invoice To** | Same as Report ? ☑ Yes ☐ No | **Client / Project Information** | **Analysis Request** |
| Hardcopy of Invoice with Report? | ☐ Yes ☑ No | Job #: Eagle Gold | Please indicate below Filtered, Preserved or both (F, P, F/P) |
| Company: | | PO / AFE: | |
| Contact: | | LSD: Victoria Gold Corp. | |
| Address: | | | |
| Phone: | Fax: | Quote #: | |
| Lab Work Order # (lab use only) | | **ALS Contact:** Amber Springer | **Sampler:** |

| Sample # | Sample Identification (This description will appear on the report) | Date (dd-mmm-yy) | Time (hh:mm) | Sample Type | TOC | pH | Metals* | Particle Size Analysis | Number of Containers |
|---|---|---|---|---|---|---|---|---|---|
| | W-5a | 10-Sep-18 | 8:40 | Sediment | X | X | X | X | 2 |
| | W-5b | 10-Sep-18 | 8:47 | Sediment | X | X | X | X | 2 |
| | W-5c | 10-Sep-18 | 8:55 | Sediment | X | X | X | X | 2 |
| | W-6a | 10-Sep-18 | 10:00 | Sediment | X | X | X | X | 2 |
| | W-6b | 10-Sep-18 | 10:15 | Sediment | X | X | X | X | 2 |
| | W-6c | 10-Sep-18 | 10:20 | Sediment | X | X | X | X | 2 |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
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**Special Instructions / Regulations with water or land use (CCME-Freshwater Aquatic Life/BC CSR - Commercial/AB Tier 1 - Natural, etc) / Hazardous Details**

*** ANALYIS THE PORTION THAT PASSES A 63 MICRON SIEVE FOR METALS**

**Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY.**

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**Also provided on another Excel tab are the ALS location addresses, phone numbers and sample container / preservation / holding time table for common analyses.**

| SHIPMENT RELEASE (client use) | | | SHIPMENT RECEPTION (lab use only) | | | | SHIPMENT VERIFICATION (lab use only) | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Released by: | Date (dd-mmm-yy) | Time (hh-mm) | Received by: | Date: | Time: | Temperature: | Verified by: | Date: | Time: | Observations: Yes / No ? If Yes add SIF |
| Bonnie Burns | | | | | | °C | HA | 9/12 | 12:25 | |

# APPENDIX K

## Benthic Invertebrate Monitoring Report 2018

# BENTHIC INVERTEBRATE MONITORING

# AT

# THE EAGLE GOLD PROJECT SITE, 2018

**For**

Victoria GOLD CORP

**Submitted by**

Laberge Environmental Services

**February 2019**

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# EXECUTIVE SUMMARY

The 2018 annual benthic invertebrate monitoring program represents the second survey completed during the construction phase of the Eagle Gold Project. Nine sites were investigated within four drainages. The 2018 data indicates healthy robust benthos communities at all sites with good representation of pollution sensitive species.

Water quality and stream sediment programs were also undertaken during the benthic invertebrate assessment to support characterization of the existing habitat conditions. Victoria Gold (VG) staff conduct monthly water quality sampling throughout the Project area, including the nine sites of the benthic invertebrate monitoring program. Sampling was coordinated to occur simultaneously with VG staff while the Laberge Environmental Services staff were on site to complete the benthic and stream sediment programs.

As with all previous studies since before construction, arsenic concentrations were high in the water column and in the stream sediments at all monitoring sites and except for one site (W22) exceeded the recommended federal guidelines for the protection of aquatic life for both media types. The two major uptake vectors of contaminants are through the ingestion of metal enriched sediments or suspended particles and/or uptake from solution. Although concentrations of arsenic were high, it is likely that it is not in a bioavailable form. The presence of pollution-sensitive insects, as reflected in the high numbers of Ephemeroptera, Plecoptera and Trichoptera (EPT) at all of the sites, support this conclusion.

# 1.0 INTRODUCTION

Various monitoring tasks are to be undertaken at the Eagle Gold Project during all phases of the site, including construction, operation and closure as outlined in the Environmental Monitoring, Surveillance and Adaptive Management Plan (EMSAMP) version 2018-01 (StrataGold Corporation, 2018). The construction phase began in August 2017 and the first annual benthic invertebrate monitoring program was conducted in September 2017. The current benthic survey was conducted September 19th to 22nd, 2018.

Monthly water quality samples are collected under the EMSAMP, with nine of these locations coinciding with the benthic invertebrate sites. Victoria Gold (VG) environmental staff collected water quality from these nine sites during the benthic invertebrate survey to characterize the existing aquatic conditions.

The surveys included four drainage areas within the Eagle Gold footprint and the sites are detailed below in Table 1 and illustrated on Figure 1.

**TABLE 1 LOCATION OF SAMPLE SITES**

| Drainage | Site | Date Sampled | Site Description | Coordinates | |
|---|---|---|---|---|---|
| | | | | Northing | Easting |
| Haggart Creek | W22 | 9/9/2018 | Haggart Creek upstream Dublin Gulch | 7101377 | 458319 |
| | W4 | 9/9/2018 | Haggart Creek downstream Dublin Gulch | 7101223 | 458144 |
| | W29 | 9/9/2018 | Haggart Creek downstream Eagle Creek | 7099583 | 458225 |
| | W5 | 9/10/2018 | Haggart Creek upstream Lynx Creek | 7095887 | 457815 |
| | W23 | 9/8/2018 | Haggart Creek downstream Lynx Creek | 7095682 | 457790 |
| Dublin Gulch | W1 | 9/9/2018 | Dublin Gulch upstream Stewart Gulch | 7101545 | 460249 |
| | W26 | 9/9/2018 | Stewart Gulch upstream Dublin Gulch | 7101443 | 460331 |
| Eagle Cr | W27 | 9/9/2018 | Eagle Creek near Camp Climate Station | 7100997 | 458235 |
| Lynx Cr | W6 | 9/10/2018 | Lynx Creek upstream Haggart Creek | 7095964 | 458099 |

# 2.0 METHODS

## 2.1 Water Quality

Water quality samples were collected by VG staff at each benthic invertebrate site in a fast-flowing section of the stream, prior to any other sampling activity. In-situ water quality measurements were obtained using a YSI multi-probe.

Samples were collected in bottles supplied by Analytical Laboratory Services (ALS) from their Whitehorse, Yukon depot. At each site, samples were collected in a 500 mL plastic bottle for general physical parameters. Samples to be analyzed for anions and nutrients were collected in 120 mL plastic bottles. Samples to be analyzed for metals were collected in 60 mL plastic bottles and preserved with nitric acid ($HNO_3$). Total cyanide samples were collected in pre-charged (NaOH) 60 mL brown plastic bottles. Samples to be analyzed for dissolved organic carbon and total organic carbon were collected in 120 mL amber glass bottles and preserved with sulfuric acid.

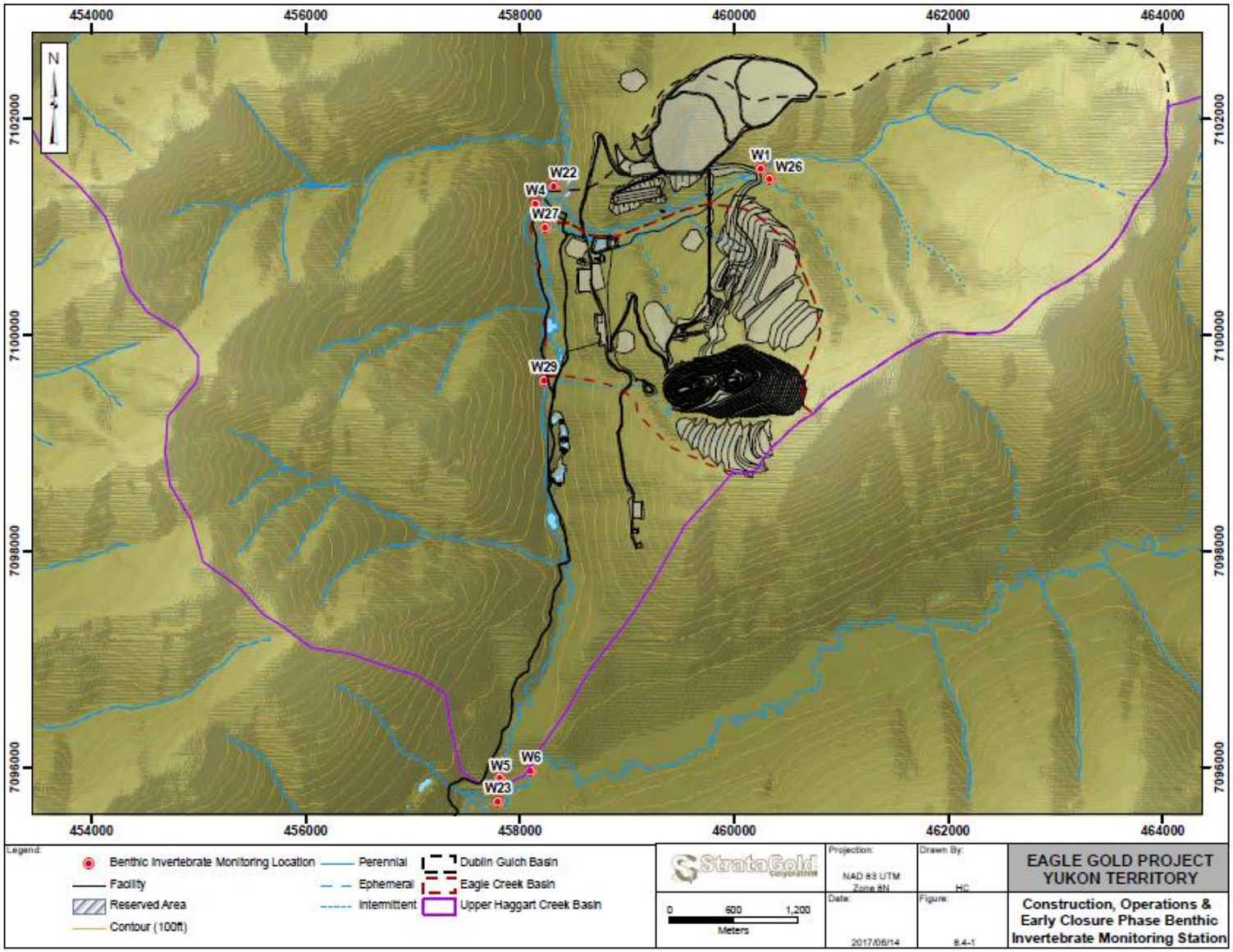



Figure 1 Locations of Benthic Invertebrate Sampling Sites for the Construction Phase

The dissolved metals, dissolved mercury and dissolved organic carbon samples were filtered in the field using disposable sterile syringes and in-line filters (filter pore size 0.45 microns) prior to preservation.

The methods used by ALS are based on the B.C. Ministry of Environment & Climate Change Strategy (BC-MOE) and American Public Health Association (APHA) standard methods and are included in the analytical reports in Appendix A.

## 2.2 Benthic Invertebrates

Triplicate samples were collected from the nine sites using a Surber sampler (area = 0.0920$m^2$) with a mesh size of 300 microns. The sampler was positioned securely at a random location on the stream bottom, parallel to the water flow. The bed material within the frame was cleaned and washed by hand with the fast-flowing current carrying the disturbed bottom fauna and detritus into the collection bag. The remaining sediment was stirred to a 10 cm depth to dislodge invertebrates. The level of effort for each sample and at each site was comparable. Riffle areas were targeted at each site as this habitat supports the greatest density and diversity of invertebrates (Epele et al, 2012). The triplicate samples were collected approximately 5m to 15m apart, as the site-specific geomorphology allowed, starting downstream and moving upstream to minimize substrate disruption and avoid potential contamination.

The captured invertebrates and detritus were transferred from the collection bags to one litre nalgene bottles and preserved with 10% buffered formalin. Samples were shipped by ground transport to an entomologist for sorting, identification and enumeration.

Analysis of the benthic invertebrate samples was conducted by Cordillera Consulting in Summerland, BC. Once the samples were received at the laboratory they were assigned a Cordillera Consulting code (CC#) and entered into a database. Samples were sorted and evaluated for total numbers. If the numbers were estimated to be greater than 600 the sample was subsampled to achieve a minimum number of 300 organisms. Organisms were identified to genus or species level for all insects and if possible to that level for non-insect specimens. For full details on the methodology used, Cordillera Consulting's method and QC report is provided in Appendix B.

### 2.2.1 Quality Assurance / Quality Control (QA/QC)

Quality assurance and quality control (QA/QC) procedures for the field component consisted of; ensuring all personnel were adequately trained, sampling methods per site and between sites were consistent, samples were correctly collected, labeled and preserved, equipment was properly maintained, detailed field notes were kept, chain-of-custody forms were used, and safe shipping and storage methods were followed.

As a measure of QA/QC for the laboratory component, refer to Cordillera Consulting's report in Appendix B.

### 2.2.2 Data Analysis

The data was subjected to several metrics and indices to describe the benthic populations. Abundance was determined by summing all of the individuals present in the sample. As the area of substrate sampled was known, the abundance per site was calculated as density (organisms/$m^3$) to allow comparisons with previous surveys.

Taxonomic richness is a simple measure of diversity where each type of invertebrate is counted per site. Diversity can be further refined using many different indices and the Simpson's Index of Diversity was performed on this dataset using the equation:

$$D = 1 - \frac{\sum n(n-1)}{N(N-1)}$$

Where n = number of individuals of each species and N = total number of individuals of all species.

The Simpson's Diversity Index takes into account the number of species present, as well as the relative abundance of each species, and was chosen to allow comparisons to previous surveys.

Biotic indices are often used to ascertain the general water quality at a particular site. The Hilsenhoff Biotic Index (HBI) is based on a formula using pre-assigned pollution tolerance scores for families. The following equation was used where n equals the number of individuals in taxa i, a is the preassigned pollution tolerance value assigned to taxa i, and N is the total number of individuals in the sample.

$$HBI = \frac{\sum n_i \times a_i}{N}$$

## 3.0 RESULTS

All data in the tables and figures have been grouped into drainages and arranged from upstream sites to downstream sites per drainage.

### 3.1 Water Quality

In-situ data were collected at each site and are presented with the benthic field conditions presented in Table B-1 in Appendix B. Water temperatures were generally cool and reflected late summer/early autumn conditions, ranging from 0.2°C to 6.3°C.

All sites were near neutral to slightly alkaline with pH ranging from 6.10 at W27 to 8.50 at W29. Conductivity is generally a measurement of the dissolved ions present and ranged from 103 µS/cm at W1 to 411 µS/cm at W27.

Water quality samples were also collected from the benthic invertebrate sites as a component of the regular monthly monitoring program. The water quality data for the benthic sites has been tabulated in Table A-1 in Appendix A.

With the exception of W29, the water was clear throughout the study area during the time of sampling. The total suspended solids (TSS) concentration at W29 on the date the benthic samples were collected (September 9th, 2018) was 176 mg/L. The water cleared up the following day when samples were again collected, with a TSS concentration of <3.0 mg/L (see Photos #5 and 6, Appendix C). Both sets of data for W29 are presented in Table A-1.

Except for arsenic, metal concentrations were generally low throughout the study area. The CCME guideline for arsenic for the protection of freshwater aquatic life was exceeded at all of the sites in the both the total and dissolved metals samples, except at the upstream site W22. Arsenic concentrations ranged from 0.00073 mg/L at W22 where it met the guideline, to 0.317mg/L at W29 on September 9th. On September 10th the concentration at W29 was 0.00758 mg/L, and still

exceeded the guideline. Cadmium, chromium, copper and iron total concentrations at W29 also exceeded the guideline on September 9th due to the high sediment load. These parameters met the applicable guidelines in the dissolved sample.

## 3.2 Benthic Invertebrates

Five phyla were found in the study area: Arthropoda, Mollusca, Annelida, Nematoda, and Platyhelminthes (Appendix B). Of these, taxonomists do not consider Nematoda and Platyhelminthes to be benthic organisms. However, the presence of these groups has been noted where encountered in each sample. The numbers for these taxa reported in Appendix B reflect presence, not total numbers of individuals in the sample.

Of the organisms that were enumerated, a total of 9,741 invertebrates, representing 124 different taxonomic groups were identified throughout the study area. The following sections pertain to these taxa.

### 3.2.1 Abundance and Taxonomic Richness

The total number of organisms for the triplicates from each site was summed to give a total abundance value for that site. Densities were calculated based on the total area sampled per site. Community size varied throughout the study area with densities ranging from 1,206 individuals/$m^2$ at W4, Haggart Creek downstream of Dublin Gulch, to 8,715 individuals/$m^2$ at W6, Lynx Creek (Table 2).

Diversity was determined for each site by enumerating all the taxonomic groups identified from species to phylum. For biomonitoring purposes, total taxa richness is the index of choice (Reice and Wohlenberg, 1993). All communities were diverse, ranging from 38 different taxonomic groups at W26, Stewart Gulch, to 65 different taxonomic groups at W23, Haggart Creek downstream of Lynx Creek. The Simpson's Index of Diversity was determined for each sample (Appendix B) and the average per site is presented below in Table 3. This index takes into account the number of species present as well as the relative abundance of each species, and ranges from 0 to 1, with numbers approaching 1 representing greater diversity. This method showed that all communities were very diverse and ranged from 0.86 at W26, Stewart Gulch, to 0.94 at W4, Haggart Creek downstream of Dublin Gulch.

**TABLE 2 GENERAL STATISTICS ON THE BENTHIC COMMUNITIES, 2018**

| Drainage | Site | Abundance (organisms /site) | Density (organisms/$m^3$) | Taxonomic Richness/site | Simpson's Index of Diversity/site |
|---|---|---|---|---|---|
| Haggart Creek | W22 | 731 | 2,623 | 60 | 0.93 |
| | W4 | 336 | 1,206 | 50 | 0.94 |
| | W29 | 933 | 3,348 | 55 | 0.91 |
| | W5 | 519 | 1,862 | 57 | 0.91 |
| | W23 | 1039 | 3,728 | 65 | 0.91 |
| Dublin Gulch | W1 | 849 | 3,046 | 43 | 0.87 |
| | W26 | 2196 | 7,879 | 38 | 0.86 |
| Eagle Creek | W27 | 709 | 2,544 | 43 | 0.87 |
| Lynx Creek | W6 | 2429 | 8,715 | 52 | 0.88 |

### 4.2.2 Distribution

The composition of the benthos communities was calculated as a percentage of the major taxonomic groups present, with pie charts generated for each site (Figure 2). The grouping "Other" consists of invertebrates from Coleoptera, Hemiptera, Lepidoptera, Thysanoptera, Crustacea, Malacostraca, Maxillipoda, Copepoda, Gastropoda and Collembola.

The Insect orders Ephemoptera (mayflies), Plecoptera (stoneflies) and Diptera (true flies) formed the bulk of each community. Significant numbers of Oligochaeta (aquatic earthworms) were also present at W29 where it was the dominant group forming 33.5% of the community. Oligochaeta was common at W1 and represented 15.4% of the population. The majority of Oligochaeta belonged to the Family Lumbriculidae. The lumbriculids are commonly found in freshwater environments but prefer habitats of the quiet reaches of flowing water that have silt, mud and roots in the littoral zone (Pickavance, 1971).

A significant portion of the community at W27, Eagle Creek, was comprised of Collembola (springtails) within the category "Other". Springtails formed 24.5% of the population but was either absent or present in very low numbers at the other sites. They are semiaquatic rather than aquatic organisms and the high catch here is considered atypical as they are very rare in lotic environments (Christiansen, 2009).

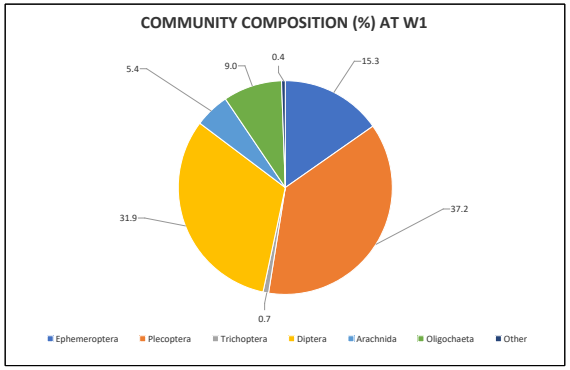
Many aquatic insects require good water quality to thrive. Larvae of mayflies (Ephemeroptera), stoneflies (Plecoptera) and caddisflies (Trichoptera) require clear, clean, well oxygenated water and have very low tolerance to pollution (Rosenberg and Resh, 1993). Analyzing the combined EPT (Ephemeroptera, Plecoptera, Trichoptera) at a site, gives an indication of the overall health of the stream (Hauer and Lamberti, 2006, Resh and Jackson, 1993, DFO-Streamkeepers). Table 3 summarizes the number of EPT found per site, the proportion of EPT in the benthic invertebrate community and the number of EPT taxa (richness) in each community.

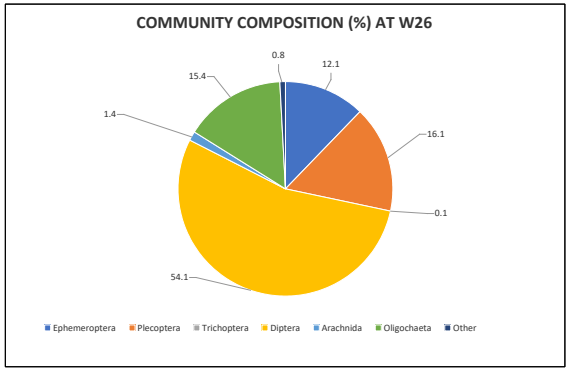
**TABLE 3 EPT ABUNDANCE, PROPORTION & RICHNESS, 2018**

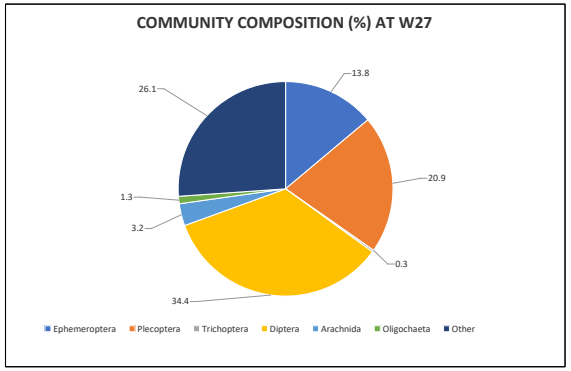
| Drainage | Site # | Site Description | EPT Abundance | EPT % | EPT Richness |
|---|---|---|---|---|---|
| Haggart Creek | W22 | Upstream Dublin Gulch | 539 | 73.7 | 27 |
| | W4 | Downstream Dublin Gulch | 216 | 64.3 | 23 |
| | W29 | Downstream Eagle Creek | 433 | 46.4 | 26 |
| | W5 | Upstream Lynx Creek | 344 | 66.3 | 26 |
| | W23 | Downstream Lynx Creek | 645 | 62.1 | 28 |
| Dublin Gulch | W1 | Upstream Stewart Gulch | 452 | 53.2 | 20 |
| | W26 | Stewart Gulch | 623 | 28.4 | 16 |
| Eagle Creek | W27 | Eagle Creek | 248 | 35.0 | 11 |
| Lynx Creek | W6 | Upstream Haggart Creek | 1954 | 80.4 | 23 |

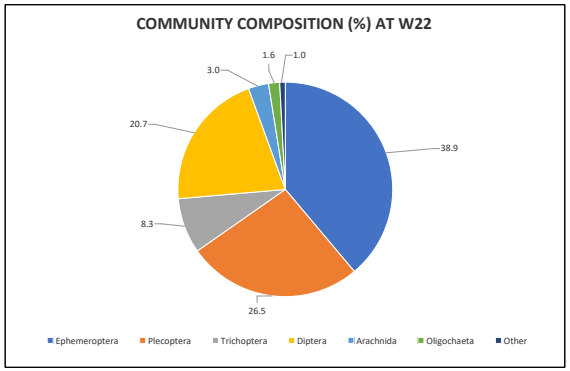
Overall, all communities in the study area had good representation of pollution sensitive invertebrates. The highest abundance of EPT occurred at W6, Lynx Creek, with 1954 individuals present. The highest proportion of EPT was also documented at W6, forming 80.4% of the community. The community at W23 had the greatest EPT richness with 28 different taxa identified. The population at W4, had the lowest abundance, W26 had the lowest richness and W27 had the lowest proportion of EPT.

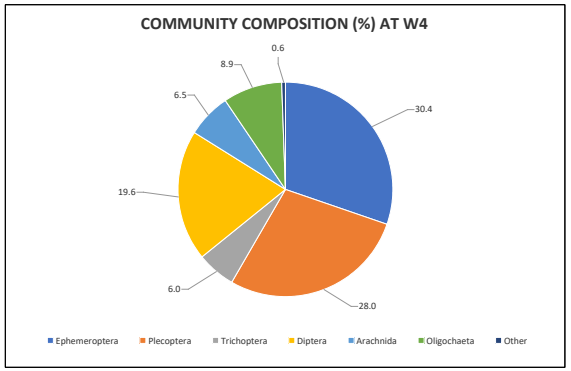
**FIGURE 2 THE COMPOSITION OF THE BENTHIC INVERTEBRATE COMMUNITIES, EAGLE GOLD PROJECT 2018**

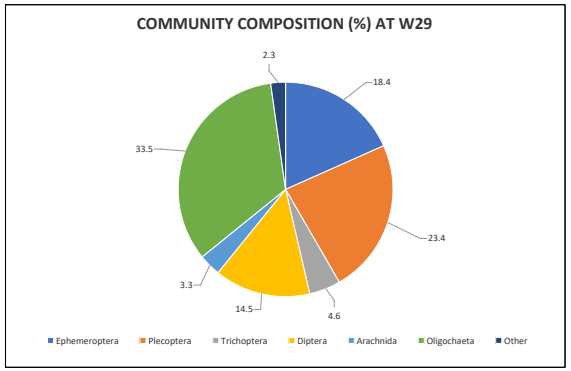


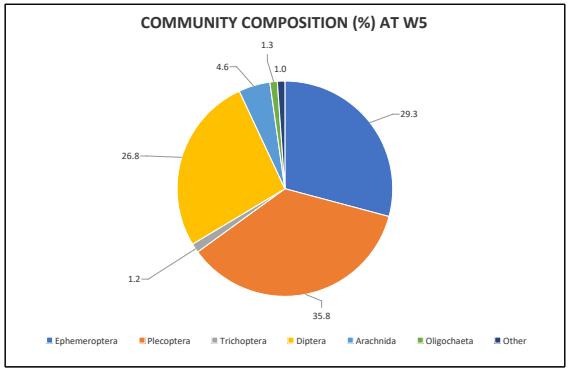



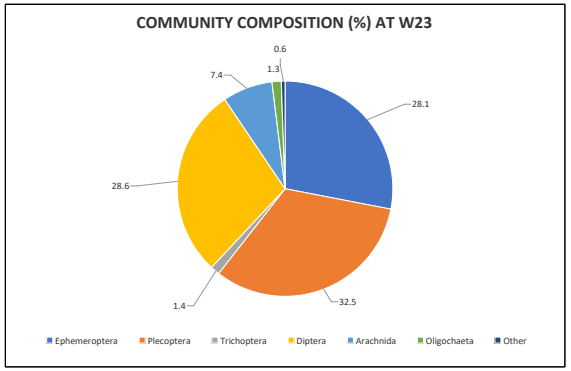



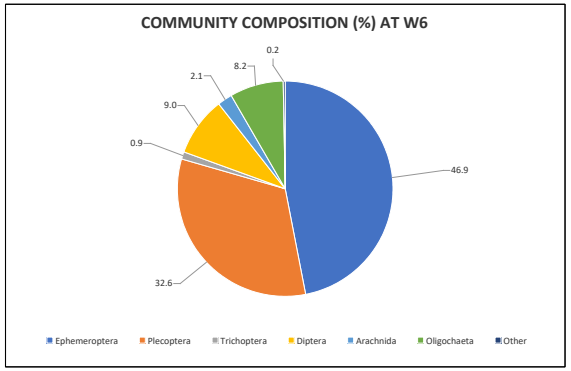



The Pacific Stream Keepers Federation has indicated that streams with an EPT richness greater than 8 are of good quality (DFO). Based on this water quality assessment protocol, all sites in the Eagle Gold Project study area are of good quality.

Another method to determine the health of a stream is to calculate the Hilsenholf Biotic Index (HBI) (Hauer and Lamberti, 2006). Due to differences in their tolerance to pollution, the presence or absence of certain invertebrate families can provide valuable information on stream water quality. The HBI ranges from 0 to 10, where lower numbers indicate the presence of pollution sensitive organisms and the higher numbers represent a greater presence of pollution tolerant families. Therefore, sites with excellent water quality would contain benthic communities with a high number of pollution sensitive families. This index was calculated for each sample (Appendix B) and averaged for each site. Table 4 gives the listing of the categories for the condition of the water and Table 5 summarizes the mean data for the study area.

With the exception of W26, Stewart Gulch, which rated fair, all other sites were of good to excellent quality.

**TABLE 4 WATER QUALITY CATEGORIES BASED ON HBI**

| Hilsenhoff Biotic Index | Water Quality Category |
|---|---|
| 0.00 - 3.75 | Excellent |
| 3.76 - 4.25 | Very Good |
| 4.26 - 5.00 | Good |
| 5.01 - 5.75 | Fair |
| 5.76 - 6.50 | Fairly Poor |
| 6.51 - 7.25 | Poor |
| 7.26 - 10.00 | Very Poor |

**TABLE 5 WATER QUALITY BASED ON HBI FOR THE EAGLE GOLD PROJECT**

| Drainage | Site | Hilsenhoff Biotic Index | Water Quality Category |
|---|---|---|---|
| Haggart Creek | W22 | 2.74 | Excellent |
| | W4 | 2.91 | Excellent |
| | W29 | 4.28 | Good |
| | W5 | 3.03 | Excellent |
| | W23 | 3.96 | Very good |
| Dublin Gulch | W1 | 3.33 | Excellent |
| | W26 | 4.78 | Good |
| Eagle Creek | W27 | 5.52 | Fair |
| Lynx Creek | W6 | 2.57 | Excellent |

### 4.3.3 Comparisons with Past Data

Benthic invertebrate monitoring was conducted in the Eagle Gold Project area in 1995, 2007, 2009 and 2010. These studies have been summarized in a report prepared by Stantec (2011). The first year of the EMSAMP program was undertaken in 2017 (Laberge, 2018a). Data from all of these surveys have been compared to the data collected in 2018 for the sites that overlap. Note that W1 and W5 are the only sites where benthic invertebrates have been collected during each period.

Two parameters were chosen to detect any changes or trends over time; abundance as density, and diversity using the Simpson's Index (Table 6).

The highest densities were documented in the Dublin Gulch watershed in 1995 and have not been duplicated since. There has been some fluctuation in numbers at some of the sites between years. Many variables come into play regarding population numbers including climate (flooding, drought, rainfall events, unusually high or low temperatures), time of year sampled, sampling methods, wildfires in the area or upstream, disturbance to riparian zones, etc.

Generally, it appears that all sites have been diverse over time. The highest diversities generally occurred in 2018.

Although not the same number of sites nor the same frequency of sampling is available per

drainage, averages have been performed to give an overall idea of possible differences between watersheds. These indicate that although Haggart Creek had the lowest densities the communities were the most diverse. The benthic communities in Dublin Gulch had the greatest populations but were not as diverse. Eagle Creek had similar diversity as Dublin Gulch and a slightly higher density than Haggart Creek. High densities were also documented in Lynx Creek with diverse communities. Overall, the limited data suggests stable benthic communities at the sites sampled.

When comparing the site upstream of the project, W22, with the site downstream of the project, W23, the densities and diversities are very similar, suggesting that there is little, if any, impact to Haggart Creek from construction activities at the Eagle Gold project site.

**TABLE 6 DENSITY AND DIVERSITY IN STREAMS OVER THE STUDY PERIOD**

| Drainage | | Haggart Creek | | | | | Dublin Gulch | | Eagle Creek | Lynx Creek |
|---|---|---|---|---|---|---|---|---|---|---|
| Site | | W22 | W4 | W29 | W5 | W23 | W1 | W26 | W27 | W6 |
| Site Description | | Upstream Dublin Gulch | Downstream Dublin Gulch | Downstream Eagle Creek | Upstream Lynx Creek | Downstream Lynx Creek | Upstream Stewart Gulch | Stewart Gulch | Eagle Creek | Upstream Haggart Creek |
| Density (organisms/$m^3$) | 1995 | | 2,700 | | 2,200 | | 20,000 | 19,000 | | 9,100 |
| | 2007 | 2,100 | 2,100 | | 1,700 | 2,400 | 4,800 | | | 3,700 |
| | 2009 | 3,138 | | 3,171 | 5,518 | | 8,087 | 4,461 | 5,374 | |
| | 2010 | 1,832 | | 1,888 | 968 | 2,219 | 3,916 | | 1,890 | |
| | 2017 | 4,313 | 5,404 | 3,592 | 2,339 | 4,223 | 7,069 | 5,540 | 4,657 | 11,704 |
| | 2018 | 2,623 | 1,206 | 3,348 | 1,862 | 3,728 | 3,046 | 7,879 | 2,544 | 8,715 |
| Average/Drainage | | 2,807 | | | | | 8,380 | | 3,616 | 8,305 |
| Diveristy (Simpson's Index) | 1995 | | 0.85 | | 0.76 | | 0.71 | 0.35 | | 0.83 |
| | 2007 | 0.81 | 0.85 | | 0.85 | 0.84 | 0.81 | | | 0.68 |
| | 2009 | 0.85 | | 0.74 | 0.78 | | 0.83 | 0.76 | 0.70 | |
| | 2010 | 0.71 | | 0.57 | 0.86 | 0.87 | 0.73 | | 0.51 | |
| | 2017 | 0.88 | 0.84 | 0.86 | 0.89 | 0.86 | 0.88 | 0.74 | 0.91 | 0.82 |
| | 2018 | 0.93 | 0.94 | 0.91 | 0.91 | 0.91 | 0.87 | 0.86 | 0.87 | 0.88 |
| Average/Drainage | | 0.84 | | | | | 0.75 | | 0.75 | 0.80 |

## 4.0 DISCUSSION

The 2018 benthic invertebrate data indicates healthy robust populations at each of the sites sampled, with good representation of EPT throughout. When examined against previous surveys (Stantec, 2011 and Laberge, 2018a) the 2018 habitat conditions have not changed significantly and appear to support healthy benthic populations at all sites.

In contrast to the benthic invertebrate data, water quality and sediment data (specifically arsenic) collected since 1995 are reflective of a less healthy aquatic environment. Stream sediment samples were collected during the benthic survey and the findings have been submitted under separate cover (Laberge, 2018b). The high concentrations of arsenic found in the water column and in the stream sediments were well above the guidelines for the protection of freshwater aquatic life. The CCME guideline of 0.005 mg/L for arsenic in water was exceeded at all of the sites with the exception of W22. The concentrations of arsenic in the stream sediments exceeded the Probable Effects Level (PEL) of 17 mg/kg at all sites, and at some locations significantly. The arsenic levels have been tabulated and depicted graphically below (Table 7 and Figures 3 and 4). The sites have been arranged in the table and on the X-axes of the graphs to depict site locations from upstream to downstream throughout the study area.

The highest concentrations of arsenic in the stream sediments were reported at W1, Dublin Gulch upstream of all Project activities. Levels were generally lower throughout the Haggart watershed, but likely are influenced by Dublin Gulch. Concentrations in the water and stream sediments were quite high in Stewart Gulch (W26) (also upstream of Project activities) and Eagle Creek (W27). Lynx Creek (W6) unaffected by Project activities, had similar concentrations to W5 and W23.

The highest concentration of arsenic in the water occurred at W29 when TSS was also high. Dublin Gulch, W1, had the next highest concentration.

**TABLE 7 ARSENIC CONCENTRATIONS IN DIFFERENT MEDIA, 2018**

| Site # | Arsenic in Sediment (mg/kg) | Arsenic in Water (ml/L) |
|---|---|---|
| W22 | 115.6 | 0.00073 |
| W26 | 269.7 | 0.0234 |
| W1 | 383.0 | 0.0408 |
| W4 | 202.3 | 0.00929 |
| W27 | 252.7 | 0.0184 |
| W29 | 126.3 | 0.31700 |
| W5 | 114.0 | 0.00898 |
| W6 | 79.5 | 0.00616 |
| W23 | 105.6 | 0.00706 |

**Figure 3 Arsenic Concentrations in Sediment**

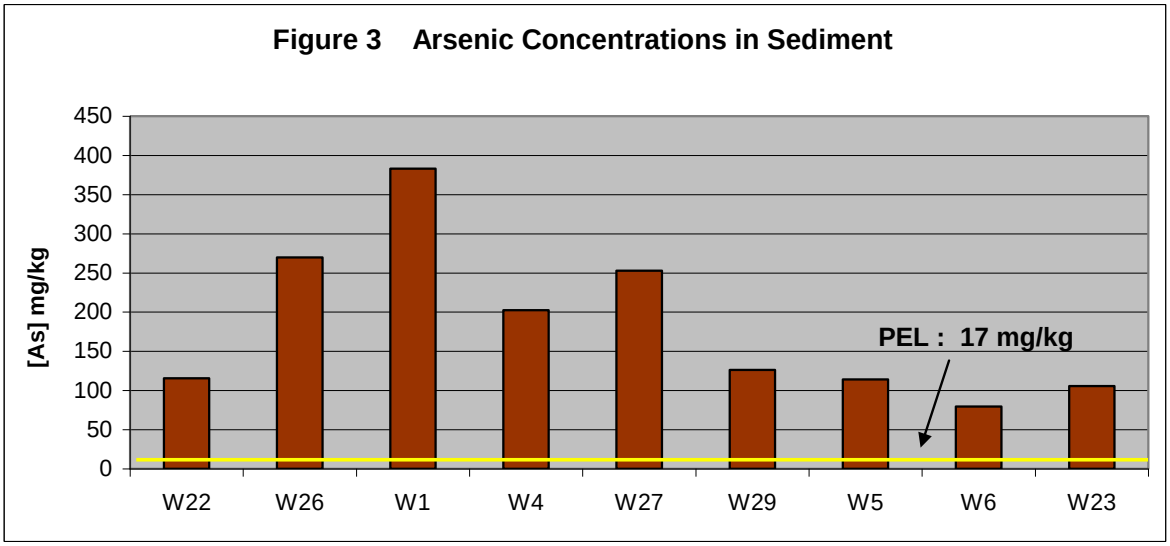
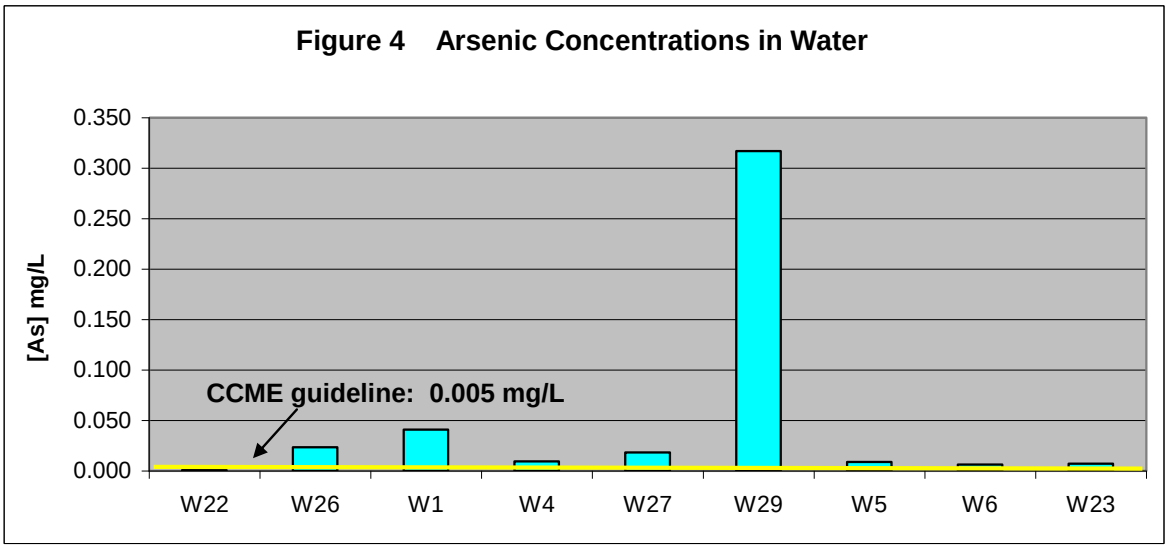



**Figure 4 Arsenic Concentrations in Water**




The metalloid arsenic is ubiquitous in the aquatic environment as a result of natural processes (mineral rock weathering, volcanic emissions and biological activities) (Irving et al, 2007). It undergoes multiple electron transfer reactions and forms a variety of inorganic and organic compounds of different toxicity to aquatic organisms (Moore and Ramamoorthy, 1984). The toxicity of arsenic is dependent on speciation. Arsenite ($AsO_3^{-3}$) forms are much more toxic to biological species. Metallo-organic forms of arsenic also may be much more bioavailable than inorganic forms; however, organic-bound arsenic is excreted by most species and does not appear to be highly toxic (Luoma, 1983). The two major uptake vectors are through the ingestion of metal enriched sediments or suspended particles, and/or uptake from solution.

The abundant presence of pollution sensitive organisms at each of the sites suggests that the arsenic concentrations found in the water column and in the stream sediments are not in a bioavailable form.

It is concluded that the benthos populations documented in 2018 are healthy, stable and had good representation of the major groups of organisms that are typically present in lotic waters.

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# APPENDIX A

- **Table A-1 Water Quality Analytical Data**
- **Table A-2 RPD for Duplicate Sample**
- **Analytical Report: L2163219**
- **Analytical Report: L2170240**

# TABLE A - 1 WATER QUALITY ANALYTICAL DATA WITH CCME GUIDELINES, APPENDIX A

| | | HAGGART CREEK | | | | | | DUBLIN CREEK | | EAGLE CR | LYNX CR | DUP | TRAVEL BLANK | CCME Guidelines for the protection of freshwater aquatic life* |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Site #** | **Units** | **W22** | **W4** | **W29** | **W29** | **W5** | **W23** | **W1** | **W26** | **W27** | **W6** | | | |
| Date Sampled | | 9-Sep-2018 | 9-Sep-2018 | 9-Sep-2018 | 10-Sep-2018 | 10-Sep-2018 | 10-Sep-2018 | 9-Sep-2018 | 9-Sep-2018 | 9-Sep-2018 | 10-Sep-2018 | 10-Sep-2018 | 9-Sep-2018 | |
| Time Sampled | | 12:30 | 11:00 | 16:15 | 12:00 | 9:00 | 11:15 | 9:30 | 8:45 | 14:15 | 10:00 | 0:00 | 0:00 | |
| **Physical Tests (Water)** | | | | | | | | | | | | | | |
| Conductivity | uS/cm | 289 | 272 | 303 | 293 | 311 | 320 | 101 | 285 | 409 | 325 | 311 | <2.0 | |
| Hardness (as CaCO3) | mg/L | 148 | 135 | 142 | 146 | 157 | 159 | 46.1 | 149 | 208 | 163 | 154 | | |
| pH | pH | 8.13 | 8.12 | 8.05 | 8.16 | 8.17 | 8.19 | 7.84 | 8.28 | 8.34 | 8.20 | 8.18 | 5.34 | |
| Total Suspended Solids | mg/L | <3.0 | <3.0 | 176 | <3.0 | 3.9 | 4.1 | <3.0 | 3.0 | <3.0 | <3.0 | 4.9 | <3.0 | |
| TDS (Calculated) | mg/L | 173 | 160 | 175 | 174 | 186 | 193 | 56.9 | 163 | 242 | 198 | 185 | <1.0 | |
| Turbidity | NTU | 0.80 | 0.90 | 197 | 0.46 | 2.62 | 1.24 | 0.60 | 0.15 | 1.55 | 0.21 | 2.87 | <0.10 | |
| **Anions and Nutrients (Water)** | | | | | | | | | | | | | | |
| Alkalinity, Total (as CaCO3) | mg/L | 86.6 | 82.7 | 91.6 | 90.5 | 96.4 | 105 | 40.8 | 122 | 139 | 107 | 97.4 | <1.0 | |
| Ammonia, Total (as N) | mg/L | <0.0050 | <0.0050 | 0.0088 | <0.0050 | <0.0050 | <0.0050 | <0.0050 | <0.0050 | <0.0050 | 0.0067 | <0.0050 | 0.0068 | 1.54 |
| Bromide (Br) | mg/L | <0.050 | <0.050 | <0.050 | <0.050 | <0.050 | <0.050 | <0.050 | <0.050 | <0.050 | <0.050 | <0.050 | <0.050 | |
| Chloride (Cl) | mg/L | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | |
| Fluoride (F) | mg/L | 0.085 | 0.087 | 0.097 | 0.091 | 0.096 | 0.096 | 0.075 | 0.133 | 0.147 | 0.095 | 0.096 | <0.020 | |
| Nitrate (as N) | mg/L | 0.0988 | 0.0938 | 0.0843 | 0.0889 | 0.0881 | 0.0891 | 0.0479 | 0.101 | 0.139 | 0.0924 | 0.0884 | <0.0050 | 13 |
| Nitrite (as N) | mg/L | <0.0010 | <0.0010 | <0.0010 | <0.0010 | <0.0010 | <0.0010 | <0.0010 | <0.0010 | <0.0010 | <0.0010 | <0.0010 | <0.0010 | 60 |
| Total Kjeldahl Nitrogen | mg/L | 0.053 | 0.050 | 0.377 | 0.092 | 0.073 | 0.088 | <0.050 | 0.082 | 0.079 | 0.099 | 0.080 | <0.050 | |
| Total Nitrogen | mg/L | 0.152 | 0.144 | 0.461 | 0.181 | 0.161 | 0.177 | <0.050 | 0.184 | 0.218 | 0.192 | 0.168 | <0.050 | |
| Orthophosphate-Dissolved (as | mg/L | <0.0010 | <0.0010 | 0.0017 | <0.0010 | <0.0010 | <0.0010 | 0.0021 | 0.0029 | <0.0010 | <0.0010 | <0.0010 | <0.0010 | |
| Phosphorus (P)-Total | mg/L | 0.0022 | 0.0029 | 0.164 | <0.0020 | 0.0042 | 0.0034 | 0.0238 | 0.0043 | 0.0031 | <0.0020 | 0.0047 | <0.0020 | |
| Phosphorus (P)-Total Dissolve | mg/L | 0.0032 | 0.0029 | 0.0069 | 0.0030 | 0.0041 | 0.0030 | 0.0044 | 0.0055 | 0.0032 | 0.0035 | 0.0023 | <0.0020 | |
| Sulfate (SO4) | mg/L | 65.4 | 58.8 | 63.4 | 63.9 | 68.6 | 67.4 | 11.2 | 34.6 | 82.4 | 66.0 | 68.6 | <0.30 | |
| Anion Sum | meq/L | 3.1 | 2.89 | 3.16 | 3.15 | 3.37 | 3.51 | 1.05 | 3.16 | 4.51 | 3.53 | 3.39 | <0.10 | |
| Cation Sum | meq/L | 3.05 | 2.8 | 2.94 | 3.02 | 3.26 | 3.3 | 1.02 | 3.09 | 4.35 | 3.38 | 3.18 | <0.10 | |
| Cation - Anion Balance | % | -0.9 | -1.6 | -3.7 | -2 | -1.7 | -3.1 | -1.7 | -1.3 | -1.7 | -2.2 | -3.1 | 0 | |
| **Cyanides (Water)** | | | | | | | | | | | | | | |
| Cyanide, Weak Acid Diss | mg/L | <0.0050 | <0.0050 | <0.0050 | <0.0050 | <0.0050 | <0.0050 | <0.0050 | <0.0050 | <0.0050 | <0.0050 | <0.0050 | <0.0050 | |
| Cyanide, Total | mg/L | <0.0050 | <0.0050 | <0.0050 | <0.0050 | <0.0050 | <0.0050 | <0.0050 | <0.0050 | <0.0050 | <0.0050 | <0.0050 | <0.0050 | |
| **Organic / Inorganic Carbon (** | | | | | | | | | | | | | | |
| Dissolved Organic Carbon | mg/L | 2.22 | 2.12 | 3.10 | 1.99 | 2.47 | 3.09 | 1.83 | 2.96 | 2.13 | 3.85 | 2.49 | | |
| Total Organic Carbon | mg/L | 1.93 | 2.25 | 5.17 | 2.04 | 2.44 | 2.97 | 1.87 | 3.10 | 1.96 | 3.64 | 2.44 | <0.50 | |
| **Total Metals (Water)** | | | | | | | | | | | | | | |
| Aluminum (Al)-Total | mg/L | 0.0107 | 0.0347 | 4.60 | 0.0264 | 0.0814 | 0.0364 | 0.0844 | 0.0099 | 0.0375 | 0.0116 | 0.0744 | <0.0030 | |
| Antimony (Sb)-Total | mg/L | 0.00022 | 0.00053 | 0.0503 | 0.00060 | 0.00098 | 0.00062 | 0.00099 | 0.00096 | 0.00307 | 0.00041 | 0.00093 | <0.00010 | |
| Arsenic (As)-Total | mg/L | 0.00073 | 0.00929 | 0.317 | 0.00758 | 0.00898 | 0.00706 | 0.0408 | 0.0234 | 0.0184 | 0.00616 | 0.00891 | <0.00010 | 0.005 |
| Barium (Ba)-Total | mg/L | 0.0354 | 0.0376 | 0.131 | 0.0379 | 0.0400 | 0.0455 | 0.0415 | 0.0601 | 0.0652 | 0.0524 | 0.0394 | <0.00010 | |
| Beryllium (Be)-Total | mg/L | <0.000020 | <0.000020 | 0.000291 | <0.000020 | <0.000020 | <0.000020 | <0.000020 | <0.000020 | <0.000020 | <0.000020 | <0.000020 | <0.000020 | |
| Bismuth (Bi)-Total | mg/L | <0.000050 | <0.000050 | 0.00117 | <0.000050 | <0.000050 | <0.000050 | <0.000050 | <0.000050 | <0.000050 | <0.000050 | <0.000050 | <0.000050 | |
| Boron (B)-Total | mg/L | <0.010 | <0.010 | <0.010 | <0.010 | <0.010 | <0.010 | <0.010 | <0.010 | <0.010 | <0.010 | <0.010 | <0.010 | |
| Cadmium (Cd)-Total | mg/L | 0.0000085 | 0.0000103 | 0.000129 | 0.0000106 | 0.0000122 | 0.0000103 | 0.0000081 | 0.0000052 | 0.0000146 | 0.0000112 | 0.0000107 | <0.0000050 | 0.00009 |
| Calcium (Ca)-Total | mg/L | 37.0 | 34.1 | 40.4 | 37.2 | 39.1 | 44.1 | 13.3 | 33.7 | 44.0 | 51.4 | 39.2 | <0.050 | |
| Chromium (Cr)-Total | mg/L | <0.00010 | 0.00010 | 0.00777 | <0.00010 | 0.00021 | <0.00010 | 0.00029 | <0.00010 | <0.00010 | <0.00010 | 0.00014 | <0.00010 | 0.001 |
| Cobalt (Co)-Total | mg/L | 0.00012 | 0.00014 | 0.00370 | 0.00010 | 0.00015 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | 0.00015 | <0.00010 | |
| Copper (Cu)-Total | mg/L | <0.00050 | <0.00050 | 0.0170 | 0.00052 | 0.00074 | 0.00068 | <0.00050 | 0.00051 | 0.00090 | 0.00077 | 0.00070 | <0.00050 | 0.002 |
| Iron (Fe)-Total | mg/L | 0.077 | 0.095 | 10.7 | 0.068 | 0.167 | 0.077 | 0.138 | <0.010 | 0.058 | 0.040 | 0.148 | <0.010 | 0.3 |
| Lead (Pb)-Total | mg/L | <0.000050 | 0.000123 | 0.0745 | 0.000114 | 0.000797 | 0.000290 | 0.000228 | <0.000050 | 0.000280 | <0.000050 | 0.000778 | <0.000050 | 0.001 |
| Lithium (Li)-Total | mg/L | 0.0047 | 0.0049 | 0.0118 | 0.0052 | 0.0055 | 0.0035 | 0.0019 | 0.0044 | 0.0119 | 0.0016 | 0.0055 | <0.0010 | |
| Magnesium (Mg)-Total | mg/L | 12.7 | 11.8 | 15.5 | 12.8 | 14.4 | 11.5 | 3.00 | 16.0 | 23.2 | 8.20 | 14.3 | <0.10 | |
| Manganese (Mn)-Total | mg/L | 0.0335 | 0.0263 | 0.166 | 0.0377 | 0.0461 | 0.0250 | 0.00542 | 0.00017 | 0.00388 | 0.0102 | 0.0458 | <0.00010 | |
| Mercury (Hg)-Total | mg/L | <0.0000050 | <0.0000050 | <0.00010 | <0.0000050 | <0.0000050 | <0.0000050 | <0.0000050 | <0.0000050 | <0.0000050 | <0.0000050 | <0.0000050 | <0.0000050 | 0.000026 |
| Molybdenum (Mo)-Total | mg/L | 0.000073 | 0.000400 | 0.000563 | 0.000365 | 0.000304 | 0.000555 | 0.00191 | 0.00324 | 0.000825 | 0.000842 | 0.000316 | <0.000050 | 0.073 |
| Nickel (Ni)-Total | mg/L | 0.00088 | 0.00088 | 0.0100 | 0.00087 | 0.00104 | 0.00074 | 0.00053 | <0.00050 | 0.00063 | 0.00065 | 0.00100 | <0.00050 | 0.025 |
| Phosphorus (P)-Total | mg/L | <0.050 | <0.050 | 0.124 | <0.050 | <0.050 | <0.050 | <0.050 | <0.050 | <0.050 | <0.050 | <0.050 | <0.050 | |
| Potassium (K)-Total | mg/L | 0.83 | 0.88 | 2.21 | 0.95 | 1.00 | 1.08 | 0.67 | 1.03 | 2.32 | 1.16 | 1.00 | <0.10 | |
| Selenium (Se)-Total | mg/L | 0.000147 | 0.000143 | 0.000339 | 0.000185 | 0.000149 | 0.000257 | 0.000110 | 0.000326 | 0.000346 | 0.000385 | 0.000150 | <0.000050 | |
| Silicon (Si)-Total | mg/L | 3.60 | 4.04 | 10.8 | 3.99 | 4.03 | 4.01 | 5.79 | 4.79 | 5.41 | 4.06 | 4.04 | <0.10 | |
| Silver (Ag)-Total | mg/L | <0.000010 | <0.000010 | 0.00127 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | |
| Sodium (Na)-Total | mg/L | 1.72 | 1.75 | 2.02 | 1.81 | 1.86 | 1.94 | 1.83 | 1.88 | 3.26 | 2.12 | 1.83 | <0.050 | |
| Strontium (Sr)-Total | mg/L | 0.184 | 0.174 | 0.204 | 0.191 | 0.200 | 0.208 | 0.0737 | 0.274 | 0.288 | 0.214 | 0.208 | <0.00020 | |
| Sulfur (S)-Total | mg/L | 21.6 | 19.8 | 22.5 | 21.8 | 23.3 | 22.5 | 3.53 | 11.7 | 28.1 | 22.6 | 23.2 | <0.50 | |
| Thallium (Tl)-Total | mg/L | <0.000010 | <0.000010 | 0.000126 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | 0.000017 | <0.000010 | <0.000010 | <0.000010 | |
| Tin (Sn)-Total | mg/L | <0.00010 | <0.00010 | 0.00018 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | |
| Titanium (Ti)-Total | mg/L | <0.00030 | 0.00130 | 0.156 | 0.00086 | 0.00287 | 0.00104 | 0.00464 | <0.00030 | <0.00096 | <0.00030 | 0.00262 | <0.00030 | |
| Uranium (U)-Total | mg/L | 0.000847 | 0.00107 | 0.00166 | 0.00117 | 0.00126 | 0.00102 | 0.000659 | 0.00523 | 0.00310 | 0.000854 | 0.00120 | <0.000010 | 0.015 |
| Vanadium (V)-Total | mg/L | <0.00050 | <0.00050 | 0.0103 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | |
| Zinc (Zn)-Total | mg/L | <0.0030 | 0.0039 | 0.0295 | <0.0030 | 0.0034 | <0.0030 | <0.0030 | <0.0030 | <0.0030 | <0.0030 | <0.0030 | <0.0030 | 0.030 |
| Zirconium (Zr)-Total | mg/L | <0.00030 | <0.00030 | 0.00047 | <0.00030 | <0.00030 | <0.00030 | <0.00030 | <0.00030 | <0.00030 | <0.00030 | <0.00030 | <0.00030 | |
| **Dissolved Metals (Water)** | | | | | | | | | | | | | | |
| Aluminum (Al)-Dissolved | mg/L | 0.0085 | 0.0081 | 0.0182 | 0.0078 | 0.0078 | 0.0078 | 0.0095 | 0.0082 | 0.0032 | 0.0079 | 0.0078 | | |
| Antimony (Sb)-Dissolved | mg/L | 0.00022 | 0.00050 | 0.00126 | 0.00055 | 0.00065 | 0.00053 | 0.00094 | 0.00091 | 0.00311 | 0.00039 | 0.00064 | | |
| Arsenic (As)-Dissolved | mg/L | 0.00072 | 0.00829 | 0.00768 | 0.00715 | 0.00608 | 0.00604 | 0.0394 | 0.0240 | 0.0179 | 0.00616 | 0.00613 | | 0.005 |
| Barium (Ba)-Dissolved | mg/L | 0.0352 | 0.0376 | 0.0458 | 0.0391 | 0.0387 | 0.0447 | 0.0406 | 0.0585 | 0.0665 | 0.0522 | 0.0386 | | |
| Beryllium (Be)-Dissolved | mg/L | <0.000020 | <0.000020 | <0.000020 | <0.000020 | <0.000020 | <0.000020 | <0.000020 | <0.000020 | <0.000020 | <0.000020 | <0.000020 | | |
| Bismuth (Bi)-Dissolved | mg/L | <0.000050 | <0.000050 | <0.000050 | <0.000050 | <0.000050 | <0.000050 | <0.000050 | <0.000050 | <0.000050 | <0.000050 | <0.000050 | | |
| Boron (B)-Dissolved | mg/L | <0.010 | <0.010 | <0.010 | <0.010 | <0.010 | <0.010 | <0.010 | <0.010 | <0.010 | <0.010 | <0.010 | | |
| Cadmium (Cd)-Dissolved | mg/L | 0.0000089 | 0.0000076 | 0.0000091 | 0.0000088 | 0.0000078 | 0.0000087 | 0.0000061 | 0.0000085 | 0.0000102 | 0.0000103 | 0.0000081 | | 0.00009 |
| Calcium (Ca)-Dissolved | mg/L | 37.4 | 33.9 | 36.2 | 36.9 | 39.4 | 44.8 | 13.5 | 33.0 | 44.7 | 51.8 | 38.1 | | |
| Chromium (Cr)-Dissolved | mg/L | <0.00010 | <0.00010 | 0.00011 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | | 0.001 |
| Cobalt (Co)-Dissolved | mg/L | 0.00011 | <0.00010 | 0.00024 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | | |
| Copper (Cu)-Dissolved | mg/L | 0.00055 | 0.00045 | 0.00050 | 0.00057 | 0.00062 | 0.00062 | 0.00063 | 0.00050 | 0.00078 | 0.00074 | 0.00062 | | 0.002 |
| Iron (Fe)-Dissolved | mg/L | 0.061 | 0.032 | 0.040 | 0.027 | 0.024 | 0.025 | <0.010 | <0.010 | <0.010 | 0.032 | 0.023 | | 0.3 |
| Lead (Pb)-Dissolved | mg/L | <0.000050 | <0.000050 | 0.000293 | <0.000050 | <0.000050 | <0.000050 | <0.000050 | <0.000050 | <0.000050 | <0.000050 | <0.000050 | | 0.001 |
| Lithium (Li)-Dissolved | mg/L | 0.0049 | 0.0051 | 0.0052 | 0.0053 | 0.0056 | 0.0036 | 0.0018 | 0.0044 | 0.0124 | 0.0016 | 0.0055 | | |
| Magnesium (Mg)-Dissolved | mg/L | 13.2 | 12.2 | 12.4 | 13.1 | 14.4 | 11.5 | 3.00 | 16.2 | 23.3 | 8.17 | 14.2 | | |
| Manganese (Mn)-Dissolved | mg/L | 0.0339 | 0.0248 | 0.0508 | 0.0357 | 0.0423 | 0.0234 | 0.00063 | 0.00012 | 0.00202 | 0.00953 | 0.0418 | | |
| Mercury (Hg)-Dissolved | mg/L | <0.0000050 | <0.0000050 | <0.0000050 | <0.0000050 | <0.0000050 | <0.0000050 | <0.0000050 | <0.0000050 | <0.0000050 | <0.0000050 | <0.0000050 | | 0.000026 |
| Molybdenum (Mo)-Dissolved | mg/L | 0.000069 | 0.000395 | 0.000358 | 0.000343 | 0.000313 | 0.000579 | 0.00197 | 0.00327 | 0.000869 | 0.000825 | 0.000306 | | 0.073 |
| Nickel (Ni)-Dissolved | mg/L | 0.00086 | 0.00080 | <0.00050 | 0.00081 | 0.00089 | 0.00072 | <0.00050 | <0.00050 | 0.00056 | 0.00062 | 0.00086 | | 0.025 |
| Phosphorus (P)-Dissolved | mg/L | <0.050 | <0.050 | <0.050 | <0.050 | <0.050 | <0.050 | <0.050 | <0.050 | <0.050 | <0.050 | <0.050 | | |
| Potassium (K)-Dissolved | mg/L | 0.86 | 0.91 | 0.96 | 0.97 | 1.00 | 1.10 | 0.70 | 1.03 | 2.46 | 1.19 | 1.00 | | |
| Selenium (Se)-Dissolved | mg/L | 0.000115 | 0.000159 | 0.000186 | 0.000201 | 0.000157 | 0.000279 | 0.000104 | 0.000331 | 0.000361 | 0.000380 | 0.000151 | | |
| Silicon (Si)-Dissolved | mg/L | 3.65 | 4.11 | 3.95 | 4.07 | 3.96 | 4.07 | 5.84 | 4.87 | 5.50 | 4.10 | 4.01 | | |
| Silver (Ag)-Dissolved | mg/L | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | | |
| Sodium (Na)-Dissolved | mg/L | 1.70 | 1.78 | 1.81 | 1.86 | 1.88 | 1.97 | 1.86 | 1.79 | 3.22 | 2.08 | 1.88 | | |
| Strontium (Sr)-Dissolved | mg/L | 0.186 | 0.175 | 0.187 | 0.193 | 0.211 | 0.216 | 0.0740 | 0.269 | 0.301 | 0.213 | 0.211 | | |
| Sulfur (S)-Dissolved | mg/L | 21.6 | 19.9 | 19.9 | 21.6 | 22.8 | 22.6 | 3.50 | 11.5 | 27.5 | 22.1 | 23.4 | | |
| Thallium (Tl)-Dissolved | mg/L | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | 0.000017 | <0.000010 | <0.000010 | | |
| Tin (Sn)-Dissolved | mg/L | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | | |
| Titanium (Ti)-Dissolved | mg/L | <0.00030 | <0.00030 | 0.00049 | <0.00030 | <0.00030 | <0.00030 | <0.00030 | <0.00030 | <0.00030 | <0.00030 | <0.00030 | | |
| Uranium (U)-Dissolved | mg/L | 0.000818 | 0.00102 | 0.00113 | 0.00114 | 0.00122 | 0.000997 | 0.000489 | 0.00485 | 0.00311 | 0.000836 | 0.00121 | | 0.015 |
| Vanadium (V)-Dissolved | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | | |
| Zinc (Zn)-Dissolved | mg/L | 0.0017 | 0.0030 | <0.0010 | 0.0027 | 0.0017 | 0.0012 | <0.0010 | 0.0012 | 0.0015 | <0.0010 | 0.0018 | | 0.030 |
| Zirconium (Zr)-Dissolved | mg/L | <0.00030 | <0.00030 | <0.00030 | <0.00030 | <0.00030 | <0.00030 | <0.00030 | <0.00030 | <0.00030 | <0.00030 | <0.00030 | | |

0.00829 = CCME guideline has been exceeded

**TABLE A-2 RPD% VALUES FOR DUPLICATE SAMPLING**

| Parameter | MDL | Units | W23 | DUP | %RPD |
|---|---|---|---|---|---|
| **Physical Tests (Water)** | | | | | |
| Conductivity | 2.0 | uS/cm | 320 | 311 | 2.9 |
| Hardness (as CaCO3) | 0.50 | mg/L | 159 | 154 | 3.2 |
| pH | 0.10 | pH | 8.19 | 8.18 | 0.1 |
| Total Suspended Solids | 3.0 | mg/L | 4.1 | 4.9 | 17.8 |
| TDS (Calculated) | 1.0 | mg/L | 193 | 185 | 4.2 |
| Turbidity | 0.10 | NTU | 1.24 | 2.87 | **79.3** |
| **Anions and Nutrients (Water)** | | | | | |
| Alkalinity, Total (as CaCO3) | 1.0 | mg/L | 105 | 97.4 | 7.5 |
| Ammonia, Total (as N) | 0.0050 | mg/L | <0.0050 | <0.0050 | ND |
| Bromide (Br) | 0.050 | mg/L | <0.050 | <0.050 | ND |
| Chloride (Cl) | 0.50 | mg/L | <0.50 | <0.50 | ND |
| Fluoride (F) | 0.020 | mg/L | 0.096 | 0.096 | 0.0 |
| Nitrate (as N) | 0.0050 | mg/L | 0.0891 | 0.0884 | 0.8 |
| Nitrite (as N) | 0.0010 | mg/L | <0.0010 | <0.0010 | ND |
| Total Kjeldahl Nitrogen | 0.050 | mg/L | 0.088 | 0.080 | 9.5 |
| Total Nitrogen | 0.050 | mg/L | 0.177 | 0.168 | 5.2 |
| Orthophosphate-Dissolved (as P) | 0.0010 | mg/L | <0.0010 | <0.0010 | ND |
| Phosphorus (P)-Total | 0.0020 | mg/L | 0.0034 | 0.0047 | **32.1** |
| Phosphorus (P)-Total Dissolved | 0.0020 | mg/L | 0.0030 | 0.0023 | **26.4** |
| Sulfate (SO4) | 0.30 | mg/L | 67.4 | 68.6 | 1.8 |
| Anion Sum | | meq/L | 3.51 | 3.39 | 3.5 |
| Cation Sum | | meq/L | 3.3 | 3.18 | 3.7 |
| Cation - Anion Balance | | % | -3.1 | -3.1 | 0.0 |
| **Cyanides (Water)** | | | | | |
| Cyanide, Weak Acid Diss | 0.0050 | mg/L | <0.0050 | <0.0050 | ND |
| Cyanide, Total | 0.0050 | mg/L | <0.0050 | <0.0050 | ND |
| **Organic / Inorganic Carbon (Water)** | | | | | |
| Dissolved Organic Carbon | 0.50 | mg/L | 3.09 | 2.49 | **21.5** |
| Total Organic Carbon | 0.50 | mg/L | 2.97 | 2.44 | 19.6 |
| **Total Metals (Water)** | | | | | |
| Aluminum (Al)-Total | 0.0030 | mg/L | 0.0364 | 0.0744 | **68.6** |
| Antimony (Sb)-Total | 0.00010 | mg/L | 0.00062 | 0.00093 | **40.0** |
| Arsenic (As)-Total | 0.00010 | mg/L | 0.00706 | 0.00891 | **23.2** |
| Barium (Ba)-Total | 0.00010 | mg/L | 0.0455 | 0.0394 | 14.4 |
| Beryllium (Be)-Total | 0.000020 | mg/L | <0.000020 | <0.000020 | ND |
| Bismuth (Bi)-Total | 0.000050 | mg/L | <0.000050 | <0.000050 | ND |
| Boron (B)-Total | 0.010 | mg/L | <0.010 | <0.010 | ND |
| Cadmium (Cd)-Total | ######## | mg/L | 0.0000103 | 0.0000107 | 3.8 |
| Calcium (Ca)-Total | 0.050 | mg/L | 44.1 | 39.2 | 11.8 |
| Chromium (Cr)-Total | 0.00010 | mg/L | <0.00010 | 0.00014 | ND |
| Cobalt (Co)-Total | 0.00010 | mg/L | <0.00010 | 0.00015 | ND |
| Copper (Cu)-Total | 0.00050 | mg/L | 0.00068 | 0.00070 | 2.9 |
| Iron (Fe)-Total | 0.010 | mg/L | 0.077 | 0.148 | **63.1** |
| Lead (Pb)-Total | 0.000050 | mg/L | 0.000290 | 0.000778 | **91.4** |
| Lithium (Li)-Total | 0.0010 | mg/L | 0.0035 | 0.0055 | **44.4** |
| Magnesium (Mg)-Total | 0.10 | mg/L | 11.5 | 14.3 | **21.7** |
| Manganese (Mn)-Total | 0.00010 | mg/L | 0.0250 | 0.0458 | **58.8** |
| Mercury (Hg)-Total | ######## | mg/L | <0.0000050 | <0.0000050 | ND |
| Molybdenum (Mo)-Total | 0.000050 | mg/L | 0.000555 | 0.000316 | **54.9** |
| Nickel (Ni)-Total | 0.00050 | mg/L | 0.00074 | 0.00100 | **29.9** |
| Phosphorus (P)-Total | 0.050 | mg/L | <0.050 | <0.050 | ND |
| Potassium (K)-Total | 0.10 | mg/L | 1.08 | 1.00 | 7.7 |
| Selenium (Se)-Total | 0.000050 | mg/L | 0.000257 | 0.000150 | **52.6** |
| Silicon (Si)-Total | 0.10 | mg/L | 4.01 | 4.04 | 0.7 |
| Silver (Ag)-Total | 0.000010 | mg/L | <0.000010 | <0.000010 | ND |
| Sodium (Na)-Total | 0.050 | mg/L | 1.94 | 1.83 | 5.8 |
| Strontium (Sr)-Total | 0.00020 | mg/L | 0.208 | 0.208 | 0.0 |
| Sulfur (S)-Total | 0.50 | mg/L | 22.5 | 23.2 | 3.1 |
| Thallium (Tl)-Total | 0.000010 | mg/L | <0.000010 | <0.000010 | ND |
| Tin (Sn)-Total | 0.00010 | mg/L | <0.00010 | <0.00010 | ND |
| Titanium (Ti)-Total | 0.00030 | mg/L | 0.00104 | 0.00262 | **86.3** |
| Uranium (U)-Total | 0.000010 | mg/L | 0.00102 | 0.00120 | 16.2 |
| Vanadium (V)-Total | 0.00050 | mg/L | <0.00050 | <0.00050 | ND |
| Zinc (Zn)-Total | 0.0030 | mg/L | <0.0030 | <0.0030 | ND |
| Zirconium (Zr)-Total | 0.00030 | mg/L | <0.00030 | <0.00030 | ND |
| **Dissolved Metals (Water)** | | | | | |
| Aluminum (Al)-Dissolved | 0.0010 | mg/L | 0.0078 | 0.0078 | 0.0 |
| Antimony (Sb)-Dissolved | 0.00010 | mg/L | 0.00053 | 0.00064 | 18.8 |
| Arsenic (As)-Dissolved | 0.00010 | mg/L | 0.00604 | 0.00613 | 1.5 |
| Barium (Ba)-Dissolved | 0.00010 | mg/L | 0.0447 | 0.0386 | 14.6 |
| Beryllium (Be)-Dissolved | 0.000020 | mg/L | <0.000020 | <0.000020 | ND |
| Bismuth (Bi)-Dissolved | 0.000050 | mg/L | <0.000050 | <0.000050 | ND |
| Boron (B)-Dissolved | 0.010 | mg/L | <0.010 | <0.010 | ND |
| Cadmium (Cd)-Dissolved | ######## | mg/L | 0.0000087 | 0.0000081 | 7.1 |
| Calcium (Ca)-Dissolved | 0.050 | mg/L | 44.8 | 38.1 | 16.2 |
| Chromium (Cr)-Dissolved | 0.00010 | mg/L | <0.00010 | <0.00010 | ND |
| Cobalt (Co)-Dissolved | 0.00010 | mg/L | <0.00010 | <0.00010 | ND |
| Copper (Cu)-Dissolved | 0.00020 | mg/L | 0.00062 | 0.00062 | 0.0 |
| Iron (Fe)-Dissolved | 0.010 | mg/L | 0.025 | 0.023 | 8.3 |
| Lead (Pb)-Dissolved | 0.000050 | mg/L | <0.000050 | <0.000050 | ND |
| Lithium (Li)-Dissolved | 0.0010 | mg/L | 0.0036 | 0.0055 | **41.8** |
| Magnesium (Mg)-Dissolved | 0.10 | mg/L | 11.5 | 14.2 | **21.0** |
| Manganese (Mn)-Dissolved | 0.00010 | mg/L | 0.0234 | 0.0418 | **56.4** |
| Mercury (Hg)-Dissolved | ######## | mg/L | <0.0000050 | <0.0000050 | ND |
| Molybdenum (Mo)-Dissolved | 0.000050 | mg/L | 0.000579 | 0.000306 | **61.7** |
| Nickel (Ni)-Dissolved | 0.00050 | mg/L | 0.00072 | 0.00086 | 17.7 |
| Phosphorus (P)-Dissolved | 0.050 | mg/L | <0.050 | <0.050 | ND |
| Potassium (K)-Dissolved | 0.10 | mg/L | 1.10 | 1.00 | 9.5 |
| Selenium (Se)-Dissolved | 0.000050 | mg/L | 0.000279 | 0.000151 | **59.5** |
| Silicon (Si)-Dissolved | 0.050 | mg/L | 4.07 | 4.01 | 1.5 |
| Silver (Ag)-Dissolved | 0.000010 | mg/L | <0.000010 | <0.000010 | ND |
| Sodium (Na)-Dissolved | 0.050 | mg/L | 1.97 | 1.88 | 4.7 |
| Strontium (Sr)-Dissolved | 0.00020 | mg/L | 0.216 | 0.211 | 2.3 |
| Sulfur (S)-Dissolved | 0.50 | mg/L | 22.6 | 23.4 | 3.5 |
| Thallium (Tl)-Dissolved | 0.000010 | mg/L | <0.000010 | <0.000010 | ND |
| Tin (Sn)-Dissolved | 0.00010 | mg/L | <0.00010 | <0.00010 | ND |
| Titanium (Ti)-Dissolved | 0.00030 | mg/L | <0.00030 | <0.00030 | ND |
| Uranium (U)-Dissolved | 0.000010 | mg/L | 0.000997 | 0.00121 | 19.3 |
| Vanadium (V)-Dissolved | 0.00050 | mg/L | <0.00050 | <0.00050 | ND |
| Zinc (Zn)-Dissolved | 0.0010 | mg/L | 0.0012 | 0.0018 | **40.0** |
| Zirconium (Zr)-Dissolved | 0.00030 | mg/L | <0.00030 | <0.00030 | ND |

**bold** = parameters that are greater than 20%

**ND** = not detected

STRATAGOLD CORPORATION
ATTN: Hugh Coyle
Suite 1000 - 1050 W. Pender St
Vancouver BC V6E 3S7

Date Received: 12-SEP-18
Report Date: 26-SEP-18 14:34 (MT)
Version: FINAL

Client Phone: 604-682-5122

# Certificate of Analysis

## Lab Work Order #: L2163219

| | |
|---|---|
| Project P.O. #: | NOT SUBMITTED |
| Job Reference: | EAGLE GOLD |
| C of C Numbers: | 1 of 1 |
| Legal Site Desc: | Victoria Gold Corp. |

Heather McKenzie
Account Manager

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# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Grouping | Analyte | L2163219-1 Water 09-SEP-18 08:45 W26 | L2163219-2 Water 09-SEP-18 09:30 W1 | L2163219-3 Surface Water 09-SEP-18 11:00 W4 | L2163219-4 Surface Water 09-SEP-18 12:30 W22 | L2163219-5 Surface Water 09-SEP-18 14:15 W27 |
|---|---|---|---|---|---|---|
| **Sample ID / Description / Sampled Date / Sampled Time / Client ID** | | | | | | |
| **WATER** | | | | | | |
| **Physical Tests** | Conductivity (uS/cm) | 285 | 101 | 272 | 289 | 409 |
| | Hardness (as CaCO3) (mg/L) | 149 | 46.1 | 135 | 148 | 208 |
| | pH (pH) | 8.28 | 7.84 | 8.12 | 8.13 | 8.34 |
| | Total Suspended Solids (mg/L) | 3.0 | <3.0 | <3.0 | <3.0 | <3.0 |
| | TDS (Calculated) (mg/L) | 163 | 56.9 | 160 | 173 | 242 |
| | Turbidity (NTU) | 0.15 | 0.60 | 0.90 | 0.80 | 1.55 |
| **Anions and Nutrients** | Alkalinity, Total (as CaCO3) (mg/L) | 122 | 40.8 | 82.7 | 86.6 | 139 |
| | Ammonia, Total (as N) (mg/L) | <0.0050 | <0.0050 | <0.0050 | <0.0050 | <0.0050 |
| | Bromide (Br) (mg/L) | <0.050 | <0.050 | <0.050 | <0.050 | <0.050 |
| | Chloride (Cl) (mg/L) | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 |
| | Fluoride (F) (mg/L) | 0.133 | 0.075 | 0.087 | 0.085 | 0.147 |
| | Nitrate (as N) (mg/L) | 0.101 | 0.0479 | 0.0938 | 0.0988 | 0.139 |
| | Nitrite (as N) (mg/L) | <0.0010 | <0.0010 | <0.0010 | <0.0010 | <0.0010 |
| | Total Kjeldahl Nitrogen (mg/L) | 0.082 | <0.050 | 0.050 | 0.053 | 0.079 |
| | Total Nitrogen (mg/L) | 0.184 | <0.050 | 0.144 | 0.152 | 0.218 |
| | Orthophosphate-Dissolved (as P) (mg/L) | 0.0029 | 0.0021 | <0.0010 | <0.0010 | <0.0010 |
| | Phosphorus (P)-Total (mg/L) | 0.0043 | 0.0238 | 0.0029 | 0.0022 | 0.0031 |
| | Phosphorus (P)-Total Dissolved (mg/L) | 0.0055 | 0.0044 | 0.0029 | 0.0032 | 0.0032 |
| | Sulfate (SO4) (mg/L) | 34.6 | 11.2 | 58.8 | 65.4 | 82.4 |
| | Anion Sum (meq/L) | 3.16 | 1.05 | 2.89 | 3.10 | 4.51 |
| | Cation Sum (meq/L) | 3.09 | 1.02 | 2.80 | 3.05 | 4.35 |
| | Cation - Anion Balance (%) | -1.3 | -1.7 | -1.6 | -0.9 | -1.7 |
| **Cyanides** | Cyanide, Weak Acid Diss (mg/L) | <0.0050 | <0.0050 | <0.0050 | <0.0050 | <0.0050 |
| | Cyanide, Total (mg/L) | <0.0050 | <0.0050 | <0.0050 | <0.0050 | <0.0050 |
| **Organic / Inorganic Carbon** | Dissolved Organic Carbon (mg/L) | 2.96 | 1.83 | 2.12 | 2.22 | 2.13 |
| | Total Organic Carbon (mg/L) | 3.10 | 1.87 | 2.25 | 1.93 | 1.96 |
| **Total Metals** | Aluminum (Al)-Total (mg/L) | 0.0099 | 0.0844 | 0.0347 | 0.0107 | 0.0375 |
| | Antimony (Sb)-Total (mg/L) | 0.00096 | 0.00099 | 0.00053 | 0.00022 | 0.00307 |
| | Arsenic (As)-Total (mg/L) | 0.0234 | 0.0408 | 0.00929 | 0.00073 | 0.0184 |
| | Barium (Ba)-Total (mg/L) | 0.0601 | 0.0415 | 0.0376 | 0.0354 | 0.0652 |
| | Beryllium (Be)-Total (mg/L) | <0.000020 | <0.000020 | <0.000020 | <0.000020 | <0.000020 |
| | Bismuth (Bi)-Total (mg/L) | <0.000050 | <0.000050 | <0.000050 | <0.000050 | <0.000050 |
| | Boron (B)-Total (mg/L) | <0.010 | <0.010 | <0.010 | <0.010 | <0.010 |
| | Cadmium (Cd)-Total (mg/L) | 0.0000052 | 0.0000081 | 0.0000103 | 0.0000085 | 0.0000146 |
| | Calcium (Ca)-Total (mg/L) | 33.7 | 13.3 | 34.1 | 37.0 | 44.0 |
| | Chromium (Cr)-Total (mg/L) | <0.00010 | 0.00029 | 0.00010 | <0.00010 | <0.00010 |

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample ID | L2163219-6 | L2163219-7 | L2163219-8 | L2163219-9 | L2163219-10 |
|---|---|---|---|---|---|
| Description | Surface Water | Surface Water | Surface Water | Surface Water | Surface Water |
| Sampled Date | 09-SEP-18 | 10-SEP-18 | 10-SEP-18 | 10-SEP-18 | 10-SEP-18 |
| Sampled Time | | 09:00 | 10:00 | 11:15 | 12:00 |
| Client ID | TRAVEL BLANK | W5 | W6 | W23 | W29 |
| **Grouping** / **Analyte** | | | | | |
| **WATER** | | | | | |
| **Physical Tests** Conductivity (uS/cm) | <2.0 | 311 | 325 | 320 | 293 |
| Hardness (as CaCO3) (mg/L) | | 157 | 163 | 159 | 146 |
| pH (pH) | 5.34 | 8.17 | 8.20 | 8.19 | 8.16 |
| Total Suspended Solids (mg/L) | <3.0 | 3.9 | <3.0 | 4.1 | <3.0 |
| TDS (Calculated) (mg/L) | <1.0 | 186 | 198 | 193 | 174 |
| Turbidity (NTU) | <0.10 | 2.62 | 0.21 | 1.24 | 0.46 |
| **Anions and Nutrients** Alkalinity, Total (as CaCO3) (mg/L) | <1.0 | 96.4 | 107 | 105 | 90.5 |
| Ammonia, Total (as N) (mg/L) | 0.0068 | <0.0050 | 0.0067 | <0.0050 | <0.0050 |
| Bromide (Br) (mg/L) | <0.050 | <0.050 | <0.050 | <0.050 | <0.050 |
| Chloride (Cl) (mg/L) | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 |
| Fluoride (F) (mg/L) | <0.020 | 0.096 | 0.095 | 0.096 | 0.091 |
| Nitrate (as N) (mg/L) | <0.0050 | 0.0881 | 0.0924 | 0.0891 | 0.0889 |
| Nitrite (as N) (mg/L) | <0.0010 | <0.0010 | <0.0010 | <0.0010 | <0.0010 |
| Total Kjeldahl Nitrogen (mg/L) | <0.050 | 0.073 | 0.099 | 0.088 | 0.092 |
| Total Nitrogen (mg/L) | <0.050 | 0.161 | 0.192 | 0.177 | 0.181 |
| Orthophosphate-Dissolved (as P) (mg/L) | <0.0010 | <0.0010 | <0.0010 | <0.0010 | <0.0010 |
| Phosphorus (P)-Total (mg/L) | <0.0020 | 0.0042 | <0.0020 | 0.0034 | <0.0020 |
| Phosphorus (P)-Total Dissolved (mg/L) | <0.0020 | 0.0041 | 0.0035 | 0.0030 | 0.0030 |
| Sulfate (SO4) (mg/L) | <0.30 | 68.6 | 66.0 | 67.4 | 63.9 |
| Anion Sum (meq/L) | <0.10 | 3.37 | 3.53 | 3.51 | 3.15 |
| Cation Sum (meq/L) | <0.10 | 3.26 | 3.38 | 3.30 | 3.02 |
| Cation - Anion Balance (%) | 0.0 | -1.7 | -2.2 | -3.1 | -2.0 |
| **Cyanides** Cyanide, Weak Acid Diss (mg/L) | <0.0050 | <0.0050 | <0.0050 | <0.0050 | <0.0050 |
| Cyanide, Total (mg/L) | <0.0050 | <0.0050 | <0.0050 | <0.0050 | <0.0050 |
| **Organic / Inorganic Carbon** Dissolved Organic Carbon (mg/L) | | 2.47 | 3.85 | 3.09 | 1.99 |
| Total Organic Carbon (mg/L) | <0.50 | 2.44 | 3.64 | 2.97 | 2.04 |
| **Total Metals** Aluminum (Al)-Total (mg/L) | <0.0030 | 0.0814 | 0.0116 | 0.0364 | 0.0264 |
| Antimony (Sb)-Total (mg/L) | <0.00010 | 0.00098 | 0.00041 | 0.00062 | 0.00060 |
| Arsenic (As)-Total (mg/L) | <0.00010 | 0.00898 | 0.00616 | 0.00706 | 0.00758 |
| Barium (Ba)-Total (mg/L) | <0.00010 | 0.0400 | 0.0524 | 0.0455 | 0.0379 |
| Beryllium (Be)-Total (mg/L) | <0.000020 | <0.000020 | <0.000020 | <0.000020 | <0.000020 |
| Bismuth (Bi)-Total (mg/L) | <0.000050 | <0.000050 | <0.000050 | <0.000050 | <0.000050 |
| Boron (B)-Total (mg/L) | <0.010 | <0.010 | <0.010 | <0.010 | <0.010 |
| Cadmium (Cd)-Total (mg/L) | <0.0000050 | 0.0000122 | 0.0000112 | 0.0000103 | 0.0000106 |
| Calcium (Ca)-Total (mg/L) | <0.050 | 39.1 | 51.4 | 44.1 | 37.2 |
| Chromium (Cr)-Total (mg/L) | <0.00010 | 0.00021 | <0.00010 | <0.00010 | <0.00010 |

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| | Sample ID | L2163219-11 | | | | |
|---|---|---|---|---|---|---|
| | Description | Surface Water | | | | |
| | Sampled Date | 10-SEP-18 | | | | |
| | Sampled Time | | | | | |
| | Client ID | DUP | | | | |
| **Grouping** | **Analyte** | | | | | |
| **WATER** | | | | | | |
| **Physical Tests** | Conductivity (uS/cm) | 311 | | | | |
| | Hardness (as CaCO3) (mg/L) | 154 | | | | |
| | pH (pH) | 8.18 | | | | |
| | Total Suspended Solids (mg/L) | 4.9 | | | | |
| | TDS (Calculated) (mg/L) | 185 | | | | |
| | Turbidity (NTU) | 2.87 | | | | |
| **Anions and Nutrients** | Alkalinity, Total (as CaCO3) (mg/L) | 97.4 | | | | |
| | Ammonia, Total (as N) (mg/L) | <0.0050 | | | | |
| | Bromide (Br) (mg/L) | <0.050 | | | | |
| | Chloride (Cl) (mg/L) | <0.50 | | | | |
| | Fluoride (F) (mg/L) | 0.096 | | | | |
| | Nitrate (as N) (mg/L) | 0.0884 | | | | |
| | Nitrite (as N) (mg/L) | <0.0010 | | | | |
| | Total Kjeldahl Nitrogen (mg/L) | 0.080 | | | | |
| | Total Nitrogen (mg/L) | 0.168 | | | | |
| | Orthophosphate-Dissolved (as P) (mg/L) | <0.0010 | | | | |
| | Phosphorus (P)-Total (mg/L) | 0.0047 | | | | |
| | Phosphorus (P)-Total Dissolved (mg/L) | 0.0023 | | | | |
| | Sulfate (SO4) (mg/L) | 68.6 | | | | |
| | Anion Sum (meq/L) | 3.39 | | | | |
| | Cation Sum (meq/L) | 3.18 | | | | |
| | Cation - Anion Balance (%) | -3.1 | | | | |
| **Cyanides** | Cyanide, Weak Acid Diss (mg/L) | <0.0050 | | | | |
| | Cyanide, Total (mg/L) | <0.0050 | | | | |
| **Organic / Inorganic Carbon** | Dissolved Organic Carbon (mg/L) | 2.49 | | | | |
| | Total Organic Carbon (mg/L) | 2.44 | | | | |
| **Total Metals** | Aluminum (Al)-Total (mg/L) | 0.0744 | | | | |
| | Antimony (Sb)-Total (mg/L) | 0.00093 | | | | |
| | Arsenic (As)-Total (mg/L) | 0.00891 | | | | |
| | Barium (Ba)-Total (mg/L) | 0.0394 | | | | |
| | Beryllium (Be)-Total (mg/L) | <0.000020 | | | | |
| | Bismuth (Bi)-Total (mg/L) | <0.000050 | | | | |
| | Boron (B)-Total (mg/L) | <0.010 | | | | |
| | Cadmium (Cd)-Total (mg/L) | 0.0000107 | | | | |
| | Calcium (Ca)-Total (mg/L) | 39.2 | | | | |
| | Chromium (Cr)-Total (mg/L) | 0.00014 | | | | |

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Grouping | Analyte | L2163219-1 Water 09-SEP-18 08:45 W26 | L2163219-2 Water 09-SEP-18 09:30 W1 | L2163219-3 Surface Water 09-SEP-18 11:00 W4 | L2163219-4 Surface Water 09-SEP-18 12:30 W22 | L2163219-5 Surface Water 09-SEP-18 14:15 W27 |
|---|---|---|---|---|---|---|
| **WATER** | | | | | | |
| **Total Metals** | Cobalt (Co)-Total (mg/L) | <0.00010 | <0.00010 | 0.00014 | 0.00012 | <0.00010 |
| | Copper (Cu)-Total (mg/L) | 0.00051 | <0.00050 | <0.00050 | <0.00050 | 0.00090 |
| | Iron (Fe)-Total (mg/L) | <0.010 | 0.138 | 0.095 | 0.077 | 0.058 |
| | Lead (Pb)-Total (mg/L) | <0.000050 | 0.000228 | 0.000123 | <0.000050 | 0.000280 |
| | Lithium (Li)-Total (mg/L) | 0.0044 | 0.0019 | 0.0049 | 0.0047 | 0.0119 |
| | Magnesium (Mg)-Total (mg/L) | 16.0 | 3.00 | 11.8 | 12.7 | 23.2 |
| | Manganese (Mn)-Total (mg/L) | 0.00017 | 0.00542 | 0.0263 | 0.0335 | 0.00388 |
| | Mercury (Hg)-Total (mg/L) | <0.0000050 | <0.0000050 | <0.0000050 | <0.0000050 | <0.0000050 |
| | Molybdenum (Mo)-Total (mg/L) | 0.00324 | 0.00191 | 0.000400 | 0.000073 | 0.000825 |
| | Nickel (Ni)-Total (mg/L) | <0.00050 | 0.00053 | 0.00088 | 0.00088 | 0.00063 |
| | Phosphorus (P)-Total (mg/L) | <0.050 | <0.050 | <0.050 | <0.050 | <0.050 |
| | Potassium (K)-Total (mg/L) | 1.03 | 0.67 | 0.88 | 0.83 | 2.32 |
| | Selenium (Se)-Total (mg/L) | 0.000326 | 0.000110 | 0.000143 | 0.000147 | 0.000346 |
| | Silicon (Si)-Total (mg/L) | 4.79 | 5.79 | 4.04 | 3.60 | 5.41 |
| | Silver (Ag)-Total (mg/L) | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 |
| | Sodium (Na)-Total (mg/L) | 1.88 | 1.83 | 1.75 | 1.72 | 3.26 |
| | Strontium (Sr)-Total (mg/L) | 0.274 | 0.0737 | 0.174 | 0.184 | 0.288 |
| | Sulfur (S)-Total (mg/L) | 11.7 | 3.53 | 19.8 | 21.6 | 28.1 |
| | Thallium (Tl)-Total (mg/L) | <0.000010 | <0.000010 | <0.000010 | <0.000010 | 0.000017 |
| | Tin (Sn)-Total (mg/L) | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 |
| | Titanium (Ti)-Total (mg/L) | <0.00030 | 0.00464 | 0.00130 | <0.00030 | <0.00096 DLM |
| | Uranium (U)-Total (mg/L) | 0.00523 | 0.000659 | 0.00107 | 0.000847 | 0.00310 |
| | Vanadium (V)-Total (mg/L) | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 |
| | Zinc (Zn)-Total (mg/L) | <0.0030 | <0.0030 | 0.0039 | <0.0030 | <0.0030 |
| | Zirconium (Zr)-Total (mg/L) | <0.00030 | <0.00030 | <0.00030 | <0.00030 | <0.00030 |
| **Dissolved Metals** | Dissolved Mercury Filtration Location | FIELD | FIELD | FIELD | FIELD | FIELD |
| | Dissolved Metals Filtration Location | FIELD | FIELD | FIELD | FIELD | FIELD |
| | Aluminum (Al)-Dissolved (mg/L) | 0.0082 | 0.0095 | 0.0081 | 0.0085 | 0.0032 |
| | Antimony (Sb)-Dissolved (mg/L) | 0.00091 | 0.00094 | 0.00050 | 0.00022 | 0.00311 |
| | Arsenic (As)-Dissolved (mg/L) | 0.0240 | 0.0394 | 0.00829 | 0.00072 | 0.0179 |
| | Barium (Ba)-Dissolved (mg/L) | 0.0585 | 0.0406 | 0.0376 | 0.0352 | 0.0665 |
| | Beryllium (Be)-Dissolved (mg/L) | <0.000020 | <0.000020 | <0.000020 | <0.000020 | <0.000020 |
| | Bismuth (Bi)-Dissolved (mg/L) | <0.000050 | <0.000050 | <0.000050 | <0.000050 | <0.000050 |
| | Boron (B)-Dissolved (mg/L) | <0.010 | <0.010 | <0.010 | <0.010 | <0.010 |
| | Cadmium (Cd)-Dissolved (mg/L) | 0.0000085 | 0.0000061 | 0.0000076 | 0.0000089 | 0.0000102 |
| | Calcium (Ca)-Dissolved (mg/L) | 33.0 | 13.5 | 33.9 | 37.4 | 44.7 |
| | Chromium (Cr)-Dissolved (mg/L) | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 |

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample ID | L2163219-6 | L2163219-7 | L2163219-8 | L2163219-9 | L2163219-10 |
|---|---|---|---|---|---|
| Description | Surface Water | Surface Water | Surface Water | Surface Water | Surface Water |
| Sampled Date | 09-SEP-18 | 10-SEP-18 | 10-SEP-18 | 10-SEP-18 | 10-SEP-18 |
| Sampled Time | | 09:00 | 10:00 | 11:15 | 12:00 |
| Client ID | TRAVEL BLANK | W5 | W6 | W23 | W29 |
| **Grouping** / **Analyte** | | | | | |
| **WATER** | | | | | |
| **Total Metals** Cobalt (Co)-Total (mg/L) | <0.00010 | 0.00015 | <0.00010 | <0.00010 | 0.00010 |
| Copper (Cu)-Total (mg/L) | <0.00050 | 0.00074 | 0.00077 | 0.00068 | 0.00052 |
| Iron (Fe)-Total (mg/L) | <0.010 | 0.167 | 0.040 | 0.077 | 0.068 |
| Lead (Pb)-Total (mg/L) | <0.000050 | 0.000797 | <0.000050 | 0.000290 | 0.000114 |
| Lithium (Li)-Total (mg/L) | <0.0010 | 0.0055 | 0.0016 | 0.0035 | 0.0052 |
| Magnesium (Mg)-Total (mg/L) | <0.10 | 14.4 | 8.20 | 11.5 | 12.8 |
| Manganese (Mn)-Total (mg/L) | <0.00010 | 0.0461 | 0.0102 | 0.0250 | 0.0377 |
| Mercury (Hg)-Total (mg/L) | <0.0000050 | <0.0000050 | <0.0000050 | <0.0000050 | <0.0000050 |
| Molybdenum (Mo)-Total (mg/L) | <0.000050 | 0.000304 | 0.000842 | 0.000555 | 0.000365 |
| Nickel (Ni)-Total (mg/L) | <0.00050 | 0.00104 | 0.00065 | 0.00074 | 0.00087 |
| Phosphorus (P)-Total (mg/L) | <0.050 | <0.050 | <0.050 | <0.050 | <0.050 |
| Potassium (K)-Total (mg/L) | <0.10 | 1.00 | 1.16 | 1.08 | 0.95 |
| Selenium (Se)-Total (mg/L) | <0.000050 | 0.000149 | 0.000385 | 0.000257 | 0.000185 |
| Silicon (Si)-Total (mg/L) | <0.10 | 4.03 | 4.06 | 4.01 | 3.99 |
| Silver (Ag)-Total (mg/L) | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 |
| Sodium (Na)-Total (mg/L) | <0.050 | 1.86 | 2.12 | 1.94 | 1.81 |
| Strontium (Sr)-Total (mg/L) | <0.00020 | 0.200 | 0.214 | 0.208 | 0.191 |
| Sulfur (S)-Total (mg/L) | <0.50 | 23.3 | 22.6 | 22.5 | 21.8 |
| Thallium (Tl)-Total (mg/L) | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 |
| Tin (Sn)-Total (mg/L) | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 |
| Titanium (Ti)-Total (mg/L) | <0.00030 | 0.00287 | <0.00030 | 0.00104 | 0.00086 |
| Uranium (U)-Total (mg/L) | <0.000010 | 0.00126 | 0.000854 | 0.00102 | 0.00117 |
| Vanadium (V)-Total (mg/L) | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 |
| Zinc (Zn)-Total (mg/L) | <0.0030 | 0.0034 | <0.0030 | <0.0030 | <0.0030 |
| Zirconium (Zr)-Total (mg/L) | <0.00030 | <0.00030 | <0.00030 | <0.00030 | <0.00030 |
| **Dissolved Metals** Dissolved Mercury Filtration Location | | FIELD | FIELD | FIELD | FIELD |
| Dissolved Metals Filtration Location | | FIELD | FIELD | FIELD | FIELD |
| Aluminum (Al)-Dissolved (mg/L) | | 0.0078 | 0.0079 | 0.0078 | 0.0078 |
| Antimony (Sb)-Dissolved (mg/L) | | 0.00065 | 0.00039 | 0.00053 | 0.00055 |
| Arsenic (As)-Dissolved (mg/L) | | 0.00608 | 0.00616 | 0.00604 | 0.00715 |
| Barium (Ba)-Dissolved (mg/L) | | 0.0387 | 0.0522 | 0.0447 | 0.0391 |
| Beryllium (Be)-Dissolved (mg/L) | | <0.000020 | <0.000020 | <0.000020 | <0.000020 |
| Bismuth (Bi)-Dissolved (mg/L) | | <0.000050 | <0.000050 | <0.000050 | <0.000050 |
| Boron (B)-Dissolved (mg/L) | | <0.010 | <0.010 | <0.010 | <0.010 |
| Cadmium (Cd)-Dissolved (mg/L) | | 0.0000078 | 0.0000103 | 0.0000087 | 0.0000088 |
| Calcium (Ca)-Dissolved (mg/L) | | 39.4 | 51.8 | 44.8 | 36.9 |
| Chromium (Cr)-Dissolved (mg/L) | | <0.00010 | <0.00010 | <0.00010 | <0.00010 |

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| | Sample ID | L2163219-11 | | | | |
|---|---|---|---|---|---|---|
| | Description | Surface Water | | | | |
| | Sampled Date | 10-SEP-18 | | | | |
| | Sampled Time | | | | | |
| | Client ID | DUP | | | | |
| **Grouping** | **Analyte** | | | | | |
| **WATER** | | | | | | |
| **Total Metals** | Cobalt (Co)-Total (mg/L) | 0.00015 | | | | |
| | Copper (Cu)-Total (mg/L) | 0.00070 | | | | |
| | Iron (Fe)-Total (mg/L) | 0.148 | | | | |
| | Lead (Pb)-Total (mg/L) | 0.000778 | | | | |
| | Lithium (Li)-Total (mg/L) | 0.0055 | | | | |
| | Magnesium (Mg)-Total (mg/L) | 14.3 | | | | |
| | Manganese (Mn)-Total (mg/L) | 0.0458 | | | | |
| | Mercury (Hg)-Total (mg/L) | <0.0000050 | | | | |
| | Molybdenum (Mo)-Total (mg/L) | 0.000316 | | | | |
| | Nickel (Ni)-Total (mg/L) | 0.00100 | | | | |
| | Phosphorus (P)-Total (mg/L) | <0.050 | | | | |
| | Potassium (K)-Total (mg/L) | 1.00 | | | | |
| | Selenium (Se)-Total (mg/L) | 0.000150 | | | | |
| | Silicon (Si)-Total (mg/L) | 4.04 | | | | |
| | Silver (Ag)-Total (mg/L) | <0.000010 | | | | |
| | Sodium (Na)-Total (mg/L) | 1.83 | | | | |
| | Strontium (Sr)-Total (mg/L) | 0.208 | | | | |
| | Sulfur (S)-Total (mg/L) | 23.2 | | | | |
| | Thallium (Tl)-Total (mg/L) | <0.000010 | | | | |
| | Tin (Sn)-Total (mg/L) | <0.00010 | | | | |
| | Titanium (Ti)-Total (mg/L) | 0.00262 | | | | |
| | Uranium (U)-Total (mg/L) | 0.00120 | | | | |
| | Vanadium (V)-Total (mg/L) | <0.00050 | | | | |
| | Zinc (Zn)-Total (mg/L) | <0.0030 | | | | |
| | Zirconium (Zr)-Total (mg/L) | <0.00030 | | | | |
| **Dissolved Metals** | Dissolved Mercury Filtration Location | FIELD | | | | |
| | Dissolved Metals Filtration Location | FIELD | | | | |
| | Aluminum (Al)-Dissolved (mg/L) | 0.0078 | | | | |
| | Antimony (Sb)-Dissolved (mg/L) | 0.00064 | | | | |
| | Arsenic (As)-Dissolved (mg/L) | 0.00613 | | | | |
| | Barium (Ba)-Dissolved (mg/L) | 0.0386 | | | | |
| | Beryllium (Be)-Dissolved (mg/L) | <0.000020 | | | | |
| | Bismuth (Bi)-Dissolved (mg/L) | <0.000050 | | | | |
| | Boron (B)-Dissolved (mg/L) | <0.010 | | | | |
| | Cadmium (Cd)-Dissolved (mg/L) | 0.0000081 | | | | |
| | Calcium (Ca)-Dissolved (mg/L) | 38.1 | | | | |
| | Chromium (Cr)-Dissolved (mg/L) | <0.00010 | | | | |

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Grouping | Analyte | L2163219-1 Water 09-SEP-18 08:45 W26 | L2163219-2 Water 09-SEP-18 09:30 W1 | L2163219-3 Surface Water 09-SEP-18 11:00 W4 | L2163219-4 Surface Water 09-SEP-18 12:30 W22 | L2163219-5 Surface Water 09-SEP-18 14:15 W27 |
|---|---|---|---|---|---|---|
| **Sample ID** | | | | | | |
| **Description** | | | | | | |
| **Sampled Date** | | | | | | |
| **Sampled Time** | | | | | | |
| **Client ID** | | | | | | |
| **WATER** | | | | | | |
| **Dissolved Metals** | Cobalt (Co)-Dissolved (mg/L) | <0.00010 | <0.00010 | <0.00010 | 0.00011 | <0.00010 |
| | Copper (Cu)-Dissolved (mg/L) | 0.00050 | 0.00063 | 0.00045 | 0.00055 | 0.00078 |
| | Iron (Fe)-Dissolved (mg/L) | <0.010 | <0.010 | 0.032 | 0.061 | <0.010 |
| | Lead (Pb)-Dissolved (mg/L) | <0.000050 | <0.000050 | <0.000050 | <0.000050 | <0.000050 |
| | Lithium (Li)-Dissolved (mg/L) | 0.0044 | 0.0018 | 0.0051 | 0.0049 | 0.0124 |
| | Magnesium (Mg)-Dissolved (mg/L) | 16.2 | 3.00 | 12.2 | 13.2 | 23.3 |
| | Manganese (Mn)-Dissolved (mg/L) | 0.00012 | 0.00063 | 0.0248 | 0.0339 | 0.00202 |
| | Mercury (Hg)-Dissolved (mg/L) | <0.0000050 | <0.0000050 | <0.0000050 | <0.0000050 | <0.0000050 |
| | Molybdenum (Mo)-Dissolved (mg/L) | 0.00327 | 0.00197 | 0.000395 | 0.000069 | 0.000869 |
| | Nickel (Ni)-Dissolved (mg/L) | <0.00050 | <0.00050 | 0.00080 | 0.00086 | 0.00056 |
| | Phosphorus (P)-Dissolved (mg/L) | <0.050 | <0.050 | <0.050 | <0.050 | <0.050 |
| | Potassium (K)-Dissolved (mg/L) | 1.03 | 0.70 | 0.91 | 0.86 | 2.46 |
| | Selenium (Se)-Dissolved (mg/L) | 0.000331 | 0.000104 | 0.000159 | 0.000115 | 0.000361 |
| | Silicon (Si)-Dissolved (mg/L) | 4.87 | 5.84 | 4.11 | 3.65 | 5.50 |
| | Silver (Ag)-Dissolved (mg/L) | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 |
| | Sodium (Na)-Dissolved (mg/L) | 1.79 | 1.86 | 1.78 | 1.70 | 3.22 |
| | Strontium (Sr)-Dissolved (mg/L) | 0.269 | 0.0740 | 0.175 | 0.186 | 0.301 |
| | Sulfur (S)-Dissolved (mg/L) | 11.5 | 3.50 | 19.9 | 21.6 | 27.5 |
| | Thallium (Tl)-Dissolved (mg/L) | <0.000010 | <0.000010 | <0.000010 | <0.000010 | 0.000017 |
| | Tin (Sn)-Dissolved (mg/L) | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 |
| | Titanium (Ti)-Dissolved (mg/L) | <0.00030 | <0.00030 | <0.00030 | <0.00030 | <0.00030 |
| | Uranium (U)-Dissolved (mg/L) | 0.00485 | 0.000489 | 0.00102 | 0.000818 | 0.00311 |
| | Vanadium (V)-Dissolved (mg/L) | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 |
| | Zinc (Zn)-Dissolved (mg/L) | 0.0012 | <0.0010 | 0.0030 | 0.0017 | 0.0015 |
| | Zirconium (Zr)-Dissolved (mg/L) | <0.00030 | <0.00030 | <0.00030 | <0.00030 | <0.00030 |

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample ID | L2163219-6 | L2163219-7 | L2163219-8 | L2163219-9 | L2163219-10 |
|---|---|---|---|---|---|
| Description | Surface Water | Surface Water | Surface Water | Surface Water | Surface Water |
| Sampled Date | 09-SEP-18 | 10-SEP-18 | 10-SEP-18 | 10-SEP-18 | 10-SEP-18 |
| Sampled Time | | 09:00 | 10:00 | 11:15 | 12:00 |
| Client ID | TRAVEL BLANK | W5 | W6 | W23 | W29 |
| **Grouping** / **Analyte** | | | | | |
| **WATER** | | | | | |
| **Dissolved Metals** | | | | | |
| Cobalt (Co)-Dissolved (mg/L) | | <0.00010 | <0.00010 | <0.00010 | <0.00010 |
| Copper (Cu)-Dissolved (mg/L) | | 0.00062 | 0.00074 | 0.00062 | 0.00057 |
| Iron (Fe)-Dissolved (mg/L) | | 0.024 | 0.032 | 0.025 | 0.027 |
| Lead (Pb)-Dissolved (mg/L) | | <0.000050 | <0.000050 | <0.000050 | <0.000050 |
| Lithium (Li)-Dissolved (mg/L) | | 0.0056 | 0.0016 | 0.0036 | 0.0053 |
| Magnesium (Mg)-Dissolved (mg/L) | | 14.4 | 8.17 | 11.5 | 13.1 |
| Manganese (Mn)-Dissolved (mg/L) | | 0.0423 | 0.00953 | 0.0234 | 0.0357 |
| Mercury (Hg)-Dissolved (mg/L) | | <0.0000050 | <0.0000050 | <0.0000050 | <0.0000050 |
| Molybdenum (Mo)-Dissolved (mg/L) | | 0.000313 | 0.000825 | 0.000579 | 0.000343 |
| Nickel (Ni)-Dissolved (mg/L) | | 0.00089 | 0.00062 | 0.00072 | 0.00081 |
| Phosphorus (P)-Dissolved (mg/L) | | <0.050 | <0.050 | <0.050 | <0.050 |
| Potassium (K)-Dissolved (mg/L) | | 1.00 | 1.19 | 1.10 | 0.97 |
| Selenium (Se)-Dissolved (mg/L) | | 0.000157 | 0.000380 | 0.000279 | 0.000201 |
| Silicon (Si)-Dissolved (mg/L) | | 3.96 | 4.10 | 4.07 | 4.07 |
| Silver (Ag)-Dissolved (mg/L) | | <0.000010 | <0.000010 | <0.000010 | <0.000010 |
| Sodium (Na)-Dissolved (mg/L) | | 1.88 | 2.08 | 1.97 | 1.86 |
| Strontium (Sr)-Dissolved (mg/L) | | 0.211 | 0.213 | 0.216 | 0.193 |
| Sulfur (S)-Dissolved (mg/L) | | 22.8 | 22.1 | 22.6 | 21.6 |
| Thallium (Tl)-Dissolved (mg/L) | | <0.000010 | <0.000010 | <0.000010 | <0.000010 |
| Tin (Sn)-Dissolved (mg/L) | | <0.00010 | <0.00010 | <0.00010 | <0.00010 |
| Titanium (Ti)-Dissolved (mg/L) | | <0.00030 | <0.00030 | <0.00030 | <0.00030 |
| Uranium (U)-Dissolved (mg/L) | | 0.00122 | 0.000836 | 0.000997 | 0.00114 |
| Vanadium (V)-Dissolved (mg/L) | | <0.00050 | <0.00050 | <0.00050 | <0.00050 |
| Zinc (Zn)-Dissolved (mg/L) | | 0.0017 | <0.0010 | 0.0012 | 0.0027 |
| Zirconium (Zr)-Dissolved (mg/L) | | <0.00030 | <0.00030 | <0.00030 | <0.00030 |

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| | Sample ID | L2163219-11 | | | | |
|---|---|---|---|---|---|---|
| | Description | Surface Water | | | | |
| | Sampled Date | 10-SEP-18 | | | | |
| | Sampled Time | | | | | |
| | Client ID | DUP | | | | |
| **Grouping** | **Analyte** | | | | | |
| **WATER** | | | | | | |
| **Dissolved Metals** | Cobalt (Co)-Dissolved (mg/L) | <0.00010 | | | | |
| | Copper (Cu)-Dissolved (mg/L) | 0.00062 | | | | |
| | Iron (Fe)-Dissolved (mg/L) | 0.023 | | | | |
| | Lead (Pb)-Dissolved (mg/L) | <0.000050 | | | | |
| | Lithium (Li)-Dissolved (mg/L) | 0.0055 | | | | |
| | Magnesium (Mg)-Dissolved (mg/L) | 14.2 | | | | |
| | Manganese (Mn)-Dissolved (mg/L) | 0.0418 | | | | |
| | Mercury (Hg)-Dissolved (mg/L) | <0.0000050 | | | | |
| | Molybdenum (Mo)-Dissolved (mg/L) | 0.000306 | | | | |
| | Nickel (Ni)-Dissolved (mg/L) | 0.00086 | | | | |
| | Phosphorus (P)-Dissolved (mg/L) | <0.050 | | | | |
| | Potassium (K)-Dissolved (mg/L) | 1.00 | | | | |
| | Selenium (Se)-Dissolved (mg/L) | 0.000151 | | | | |
| | Silicon (Si)-Dissolved (mg/L) | 4.01 | | | | |
| | Silver (Ag)-Dissolved (mg/L) | <0.000010 | | | | |
| | Sodium (Na)-Dissolved (mg/L) | 1.88 | | | | |
| | Strontium (Sr)-Dissolved (mg/L) | 0.211 | | | | |
| | Sulfur (S)-Dissolved (mg/L) | 23.4 | | | | |
| | Thallium (Tl)-Dissolved (mg/L) | <0.000010 | | | | |
| | Tin (Sn)-Dissolved (mg/L) | <0.00010 | | | | |
| | Titanium (Ti)-Dissolved (mg/L) | <0.00030 | | | | |
| | Uranium (U)-Dissolved (mg/L) | 0.00121 | | | | |
| | Vanadium (V)-Dissolved (mg/L) | <0.00050 | | | | |
| | Zinc (Zn)-Dissolved (mg/L) | 0.0018 | | | | |
| | Zirconium (Zr)-Dissolved (mg/L) | <0.00030 | | | | |

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

# Reference Information

**QC Samples with Qualifiers & Comments:**

| QC Type Description | Parameter | Qualifier | Applies to Sample Number(s) |
|---|---|---|---|
| Matrix Spike | Arsenic (As)-Dissolved | MS-B | L2163219-1, -10, -11, -2, -3, -4, -5, -7, -8, -9 |
| Matrix Spike | Barium (Ba)-Dissolved | MS-B | L2163219-1, -10, -11, -2, -3, -4, -5, -7, -8, -9 |
| Matrix Spike | Calcium (Ca)-Dissolved | MS-B | L2163219-1, -10, -11, -2, -3, -4, -5, -7, -8, -9 |
| Matrix Spike | Magnesium (Mg)-Dissolved | MS-B | L2163219-1, -10, -11, -2, -3, -4, -5, -7, -8, -9 |
| Matrix Spike | Strontium (Sr)-Dissolved | MS-B | L2163219-1, -10, -11, -2, -3, -4, -5, -7, -8, -9 |
| Matrix Spike | Uranium (U)-Dissolved | MS-B | L2163219-1, -10, -11, -2, -3, -4, -5, -7, -8, -9 |
| Matrix Spike | Arsenic (As)-Total | MS-B | L2163219-1, -10, -11, -2, -3, -4, -5, -6, -7, -8, -9 |
| Matrix Spike | Barium (Ba)-Total | MS-B | L2163219-1, -10, -11, -2, -3, -4, -5, -6, -7, -8, -9 |
| Matrix Spike | Calcium (Ca)-Total | MS-B | L2163219-1, -10, -11, -2, -3, -4, -5, -6, -7, -8, -9 |
| Matrix Spike | Magnesium (Mg)-Total | MS-B | L2163219-1, -10, -11, -2, -3, -4, -5, -6, -7, -8, -9 |
| Matrix Spike | Strontium (Sr)-Total | MS-B | L2163219-1, -10, -11, -2, -3, -4, -5, -6, -7, -8, -9 |
| Matrix Spike | Uranium (U)-Total | MS-B | L2163219-1, -10, -11, -2, -3, -4, -5, -6, -7, -8, -9 |

**Qualifiers for Individual Parameters Listed:**

| Qualifier | Description |
|---|---|
| DLM | Detection Limit Adjusted due to sample matrix effects (e.g. chemical interference, colour, turbidity). |
| MS-B | Matrix Spike recovery could not be accurately calculated due to high analyte background in sample. |

## Test Method References:

| ALS Test Code | Matrix | Test Description | Method Reference** |
|---|---|---|---|
| **ALK-TITR-VA** | Water | Alkalinity Species by Titration | APHA 2320 Alkalinity |

This analysis is carried out using procedures adapted from APHA Method 2320 "Alkalinity". Total alkalinity is determined by potentiometric titration to a pH 4.5 endpoint. Bicarbonate, carbonate and hydroxide alkalinity are calculated from phenolphthalein alkalinity and total alkalinity values.

| | | | |
|---|---|---|---|
| **BE-D-L-CCMS-VA** | Water | Diss. Be (low) in Water by CRC ICPMS | APHA 3030B/6020A (mod) |

Water samples are filtered (0.45 um), preserved with nitric acid, and analyzed by CRC ICPMS.

| | | | |
|---|---|---|---|
| **BE-T-L-CCMS-VA** | Water | Total Be (Low) in Water by CRC ICPMS | EPA 200.2/6020A (mod) |

Water samples are digested with nitric and hydrochloric acids, and analyzed by CRC ICPMS.

| | | | |
|---|---|---|---|
| **BR-L-IC-N-WR** | Water | Bromide in Water by IC (Low Level) | EPA 300.1 (mod) |

Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

| | | | |
|---|---|---|---|
| **CARBONS-DOC-VA** | Water | Dissolved organic carbon by combustion | APHA 5310B |

This analysis is carried out using procedures adapted from APHA Method 5310 "Total Organic Carbon (TOC)". Dissolved carbon (DOC) fractions are determined by filtering the sample through a 0.45 micron membrane filter prior to analysis.

| | | | |
|---|---|---|---|
| **CARBONS-TOC-VA** | Water | Total organic carbon by combustion | APHA 5310B TOTAL ORGANIC CARBON (TOC) |

This analysis is carried out using procedures adapted from APHA Method 5310 "Total Organic Carbon (TOC)".

| | | | |
|---|---|---|---|
| **CL-IC-N-WR** | Water | Chloride in Water by IC | EPA 300.1 (mod) |

Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

| | | | |
|---|---|---|---|
| **CN-T-CFA-VA** | Water | Total Cyanide in water by CFA | ISO 14403:2002 |

This analysis is carried out using procedures adapted from ISO Method 14403:2002 "Determination of Total Cyanide using Flow Analysis (FIA and CFA)". Total or strong acid dissociable (SAD) cyanide is determined by in-line UV digestion along with sample distillation and final determination by colourimetric analysis. Method Limitation: This method is susceptible to interference from thiocyanate (SCN). If SCN is present in the sample, there could be a positive interference with this method, but it would be less than 1% and could be as low as zero.

| | | | |
|---|---|---|---|
| **CN-WAD-CFA-VA** | Water | Weak Acid Diss. Cyanide in water by CFA | APHA 4500-CN CYANIDE |

This analysis is carried out using procedures adapted from APHA Method 4500-CN I. "Weak Acid Dissociable Cyanide". Weak Acid Dissociable (WAD) cyanide is determined by in-line sample distillation with final determination by colourimetric analysis.

| | | | |
|---|---|---|---|
| **EC-PCT-VA** | Water | Conductivity (Automated) | APHA 2510 Auto. Conduc. |

This analysis is carried out using procedures adapted from APHA Method 2510 "Conductivity". Conductivity is determined using a conductivity electrode.

| | | | |
|---|---|---|---|
| **EC-SCREEN-VA** | Water | Conductivity Screen (Internal Use Only) | APHA 2510 |

Qualitative analysis of conductivity where required during preparation of other tests - e.g. TDS, metals, etc.

# Reference Information

| | | | |
|---|---|---|---|
| **F-IC-N-WR** | Water | Fluoride in Water by IC | EPA 300.1 (mod) |

Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

| | | | |
|---|---|---|---|
| **HARDNESS-CALC-VA** | Water | Hardness | APHA 2340B |

Hardness (also known as Total Hardness) is calculated from the sum of Calcium and Magnesium concentrations, expressed in CaCO3 equivalents. Dissolved Calcium and Magnesium concentrations are preferentially used for the hardness calculation.

| | | | |
|---|---|---|---|
| **HG-D-CVAA-VA** | Water | Diss. Mercury in Water by CVAAS or CVAFS | APHA 3030B/EPA 1631E (mod) |

Water samples are filtered (0.45 um), preserved with hydrochloric acid, then undergo a cold-oxidation using bromine monochloride prior to reduction with stannous chloride, and analyzed by CVAAS or CVAFS.

| | | | |
|---|---|---|---|
| **HG-T-CVAA-VA** | Water | Total Mercury in Water by CVAAS or CVAFS | EPA 1631E (mod) |

Water samples undergo a cold-oxidation using bromine monochloride prior to reduction with stannous chloride, and analyzed by CVAAS or CVAFS.

| | | | |
|---|---|---|---|
| **IONBALANCE-VA** | Water | Ion Balance Calculation | APHA 1030E |

Cation Sum, Anion Sum, and Ion Balance (as % difference) are calculated based on guidance from APHA Standard Methods (1030E Checking Correctness of Analysis). Because all aqueous solutions are electrically neutral, the calculated ion balance (% difference of cations minus anions) should be near-zero.

Cation and Anion Sums are the total meq/L concentration of major cations and anions. Dissolved species are used where available. Minor ions are included where data is present. Ion Balance is calculated as:

Ion Balance (%) = [Cation Sum-Anion Sum] / [Cation Sum+Anion Sum]

| | | | |
|---|---|---|---|
| **MET-D-CCMS-VA** | Water | Dissolved Metals in Water by CRC ICPMS | APHA 3030B/6020A (mod) |

Water samples are filtered (0.45 um), preserved with nitric acid, and analyzed by CRC ICPMS.

Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.

| | | | |
|---|---|---|---|
| **MET-T-CCMS-VA** | Water | Total Metals in Water by CRC ICPMS | EPA 200.2/6020A (mod) |

Water samples are digested with nitric and hydrochloric acids, and analyzed by CRC ICPMS.

Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.

| | | | |
|---|---|---|---|
| **NH3-F-VA** | Water | Ammonia in Water by Fluorescence | J. ENVIRON. MONIT., 2005, 7, 37-42, RSC |

This analysis is carried out, on sulfuric acid preserved samples, using procedures modified from J. Environ. Monit., 2005, 7, 37 - 42, The Royal Society of Chemistry, "Flow-injection analysis with fluorescence detection for the determination of trace levels of ammonium in seawater", Roslyn J. Waston et al.

| | | | |
|---|---|---|---|
| **NO2-L-IC-N-WR** | Water | Nitrite in Water by IC (Low Level) | EPA 300.1 (mod) |

Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

| | | | |
|---|---|---|---|
| **NO3-L-IC-N-WR** | Water | Nitrate in Water by IC (Low Level) | EPA 300.1 (mod) |

Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

| | | | |
|---|---|---|---|
| **P-T-PRES-COL-VA** | Water | Total P in Water by Colour | APHA 4500-P Phosphorus |

This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". Total Phosphorus is determined colourimetrically after persulphate digestion of the sample.
Samples with very high dissolved solids (i.e. seawaters, brackish waters) may produce a negative bias by this method. Alternate methods are available for these types of samples.

Arsenic (5+), at elevated levels, is a positive interference on colourimetric phosphate analysis.

| | | | |
|---|---|---|---|
| **P-TD-PRES-COL-VA** | Water | Total Dissolved P in Water by Colour | APHA 4500-P Phosphorous |

This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". Total Dissolved Phosphorus is determined colourimetrically after persulphate digestion of a sample that has been lab or field filtered through a 0.45 micron membrane filter.
Samples with very high dissolved solids (i.e. seawaters, brackish waters) may produce a negative bias by this method. Alternate methods are available for these types of samples.

Arsenic (5+), at elevated levels, is a positive interference on colourimetric phosphate analysis.

| | | | |
|---|---|---|---|
| **PH-PCT-VA** | Water | pH by Meter (Automated) | APHA 4500-H pH Value |

This analysis is carried out using procedures adapted from APHA Method 4500-H "pH Value". The pH is determined in the laboratory using a pH electrode

It is recommended that this analysis be conducted in the field.

| | | | |
|---|---|---|---|
| **PO4-DO-COL-VA** | Water | Diss. Orthophosphate in Water by Colour | APHA 4500-P Phosphorus |

# Reference Information

This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". Dissolved Orthophosphate is determined colourimetrically on a sample that has been lab or field filtered through a 0.45 micron membrane filter.
Samples with very high dissolved solids (i.e. seawaters, brackish waters) may produce a negative bias by this method. Alternate methods are available for these types of samples.

Arsenic (5+), at elevated levels, is a positive interference on colourimetric phosphate analysis.

| | | | |
|---|---|---|---|
| **SO4-IC-WR** | Water | Sulfate in Water by IC | EPA 300.1 (mod) |

Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

| | | | |
|---|---|---|---|
| **TDS-CALC-VA** | Water | TDS (Calculated) | APHA 1030E (20TH EDITION) |

This analysis is carried out using procedures adapted from APHA 1030E "Checking Correctness of Analyses".
The Total Dissolved Solids result is calculated from measured concentrations of anions and cations in the sample.

| | | | |
|---|---|---|---|
| **TKN-F-VA** | Water | TKN in Water by Fluorescence | APHA 4500-NORG D. |

This analysis is carried out using procedures adapted from APHA Method 4500-Norg D. "Block Digestion and Flow Injection Analysis". Total Kjeldahl Nitrogen is determined using block digestion followed by Flow-injection analysis with fluorescence detection.

| | | | |
|---|---|---|---|
| **TN-CALC-VA** | Water | Total Nitrogen (Calculation) | BC MOE LABORATORY MANUAL (2005) |

Total Nitrogen is a calculated parameter. Total Nitrogen = Total Kjeldahl Nitrogen + [Nitrate and Nitrite (as N)]

| | | | |
|---|---|---|---|
| **TSS-VA** | Water | Total Suspended Solids by Gravimetric | APHA 2540 D - GRAVIMETRIC |

This analysis is carried out using procedures adapted from APHA Method 2540 "Solids". Solids are determined gravimetrically. Total Suspended Solids (TSS) are determined by filtering a sample through a glass fibre filter, TSS is determined by drying the filter at 104 degrees celsius.
Samples containing very high dissolved solid content (i.e. seawaters, brackish waters) may produce a positive bias by this method. Alternate analysis methods are available for these types of samples.

| | | | |
|---|---|---|---|
| **TURBIDITY-VA** | Water | Turbidity by Meter | APHA 2130 Turbidity |

This analysis is carried out using procedures adapted from APHA Method 2130 "Turbidity". Turbidity is determined by the nephelometric method.

** ALS test methods may incorporate modifications from specified reference methods to improve performance.

*The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:*

| Laboratory Definition Code | Laboratory Location |
|---|---|
| WR | ALS ENVIRONMENTAL - WHITEHORSE, YUKON, CANADA |
| VA | ALS ENVIRONMENTAL - VANCOUVER, BRITISH COLUMBIA, CANADA |

**Chain of Custody Numbers:**

1 of 1

**GLOSSARY OF REPORT TERMS**

*Surrogate - A compound that is similar in behaviour to target analyte(s), but that does not occur naturally in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery.*
*mg/kg - milligrams per kilogram based on dry weight of sample.*
*mg/kg wwt - milligrams per kilogram based on wet weight of sample.*
*mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight of sample.*
*mg/L - milligrams per litre.*
*< - Less than.*
*D.L. - The reported Detection Limit, also known as the Limit of Reporting (LOR).*
*N/A - Result not available. Refer to qualifier code and definition for explanation.*

*Test results reported relate only to the samples as received by the laboratory.*
*UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.*
*Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.*

L2163219-COFC

ALS Environmental

**Chain of Custo**
**Canada Toll Free: 1 800 668 9878**
www.alsglobal.com

COC # _____

Page 1 of 1

| Report To | | Report Format / Distribution | | Service Requested (Rush for routine analysis subject to availability) |
|---|---|---|---|---|
| Company: | StrataGold Corporation | ☑Standard ☐Other | | ◉Regular (Standard Turnaround Times - Business Days) |
| Contact: | Hugh Coyle | ☑PDF ☑Excel ☑Digital ☐Fax | | ○Priority (2-4 Business Days) - 50% Surcharge - Contact ALS to Confirm TAT |
| Address: | 1000 - 1050 West Pender Street | Email 1: | hcoyle@vitgoldcorp.com; jknox@vitgoldcorp.com | ○Emergency (1-2 Bus. Days) - 100% Surcharge - Contact ALS to Confirm TAT |
| | Vancouver, BC V6E 3S7 | Email 2: | lrear@vitgoldcorp.com | ○Same Day or Weekend Emergency - Contact ALS to Confirm TAT |
| Phone: | 604-696-6600 Fax: | Email 3: | | |
| Invoice To | Same as Report ? ☑ Yes ☐ No | Client / Project Information | | Analysis Request |
| Hardcopy of Invoice with Report? | ☐ Yes ☑ No | Job #: | Eagle Gold | Please indicate below Filtered, Preserved or both (F, P, F/P) |
| Company: | | PO / AFE: | | |
| Contact: | | LSD: | Victoria Gold Corp. | |
| Address: | | | | |
| Phone: | Fax: | Quote #: | | |
| Lab Work Order # (lab use only) | | ALS Contact: | Heather McKenzie | Sampler: PE/AT |

| Sample # | Sample Identification (This description will appear on the report) | Date (dd-mmm-yy) | Time (hh:mm) | Sample Type | pH, EC, Turbidity, Total Alk. | TDS, TSS, Anion Scan | Total Cyanide, WAD Cyanide | T-PO4,TD-PO4, Ortho-PO4 | TKN, HN3, TN-CALC-VA | DOC | MET-D-NDR-VA | MET-T-NDR-VA | HG-DIS-LOW-CVAFS-VA | HG-TOT-LOW-CVAFS-VA | TOC | | Number of Containers |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | P | | P | F/P | F/P | P | F/P | P | P | | |
| 1 | W26 | 09-Sep-18 | 8:45 | Water | X | X | X | X | X | x | x | X | x | X | X | | 9 |
| 2 | W1 | 09-Sep-18 | 9:30 | Water | X | X | X | X | X | X | X | X | X | X | X | | 9 |
| 3 | W4 | 09-Sep-18 | 11:00 | Surface Water | X | X | X | X | X | X | X | X | X | X | X | | 9 |
| 4 | W22 | 09-Sep-18 | 12:30 | Surface Water | X | X | X | X | X | X | X | X | X | X | X | | 9 |
| 5 | W27 | 09-Sep-18 | 14:15 | Surface Water | X | X | X | X | X | X | X | X | X | X | X | | 9 |
| 6 | Travel Blank | 09-Sep-18 | | Surface Water | X | X | X | X | X | | | X | | X | X | | 6 |
| 7 | W5 | 10-Sep-18 | 9:00 | Surface Water | X | X | X | X | X | X | X | X | X | X | X | | 9 |
| 8 | W6 | 10-Sep-18 | 10:00 | Surface Water | X | X | X | X | X | X | X | X | X | X | X | | 9 |
| 9 | W23 | 10-Sep-18 | 11:15 | Surface Water | X | X | X | X | X | X | X | X | X | X | X | | 9 |
| 10 | W29 | 10-Sep-18 | 12:00 | Surface Water | X | X | X | X | X | X | X | X | X | X | X | | 9 |
| 11 | DUP | 10-Sep-18 | | Surface Water | X | X | X | X | X | X | X | X | X | X | X | | 9 |
| | | | | | | | | | | | | | | | | | |

***Short Holding Time***

*Rush Processing*

**Special Instructions / Regulations with water or land use (CCME-Freshwater Aquatic Life/BC CSR - Commercial/AB Tier 1 - Natural, etc.) / Hazardous Details**

**Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY.**
By the use of this form the user acknowledges and agrees with the Terms and Conditions as provided on a separate Excel tab.
Also provided on another Excel tab are the ALS location addresses, phone numbers and sample container / preservation / holding time table for common analyses.

| SHIPMENT RELEASE (client use) | | | SHIPMENT RECEPTION (lab use only) | | | | SHIPMENT VERIFICATION (lab use only) | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Released by: | Date (dd-mmm-yy) | Time (hh-mm) | Received by: | Date: | Time: | Temperature: | Verified by: | Date: | Time: | Observations: Yes / No ? If Yes add SIF |
| Phil Emerson | 12-Sep-18 | 7:00 | EHF | 12 SEP 2018 | 16:20 | 5.0°C | IA | 9/14 | 12:25p | |

GENF 20.00 Front

617

STRATAGOLD CORPORATION
ATTN: Hugh Coyle
Suite 1000 - 1050 W. Pender St
Vancouver BC V6E 3S7

Date Received: 25-SEP-18
Report Date: 09-OCT-18 17:20 (MT)
Version: FINAL

Client Phone: 604-682-5122

# Certificate of Analysis

## Lab Work Order #: L2170240

Project P.O. #: NOT SUBMITTED
Job Reference: EAGLE GOLD
C of C Numbers:
Legal Site Desc:

Heather McKenzie
Account Manager

[This report shall not be reproduced except in full without the written authority of the Laboratory.]

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample ID | L2170240-1 | L2170240-2 | L2170240-3 | L2170240-4 | L2170240-5 |
|---|---|---|---|---|---|
| Description | Surface Water | Surface Water | Surface Water | Surface Water | Surface Water |
| Sampled Date | 22-SEP-18 | 22-SEP-18 | 23-SEP-18 | 24-SEP-18 | 22-SEP-18 |
| Sampled Time | | 18:22 | 11:14 | 10:22 | 00:50 |
| Client ID | FIELD BLANK | W21 | W45 | W49 | W20 |
| **Grouping** | **Analyte** | | | | |
| **WATER** | | | | | |
| **Physical Tests** | Conductivity (uS/cm) | <2.0 | 218 | 511 | 402 | 67.0 |
| | Hardness (as CaCO3) (mg/L) | <0.50 | 103 | 261 | 202 | 28.5 |
| | pH (pH) | 5.40 | 8.05 | 7.97 | 8.11 | 7.62 |
| | Total Suspended Solids (mg/L) | <3.0 | 7.4 | 3.6 | <3.0 | 4.2 |
| | TDS (Calculated) (mg/L) | <1.0 | 121 | 283 | 241 | 36.9 |
| | Turbidity (NTU) | <0.10 | 1.04 | 1.18 | 1.53 | 2.09 |
| **Anions and Nutrients** | Alkalinity, Total (as CaCO3) (mg/L) | <1.0 | 72.8 | 136 | 116 | 26.0 |
| | Ammonia, Total (as N) (mg/L) | <0.0050 | 0.0215 | 0.0447 | 0.0088 | <0.0050 |
| | Bromide (Br) (mg/L) | <0.050 | <0.050 | <0.050 | <0.050 | <0.050 |
| | Chloride (Cl) (mg/L) | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 |
| | Fluoride (F) (mg/L) | <0.020 | 0.100 | 0.126 | 0.135 | 0.060 |
| | Nitrate (as N) (mg/L) | <0.0050 | 0.0530 | 0.205 | 0.0602 | 0.0278 |
| | Nitrite (as N) (mg/L) | <0.0010 | <0.0010 | <0.0010 | <0.0010 | <0.0010 |
| | Total Kjeldahl Nitrogen (mg/L) | <0.050 | 0.069 | 0.139 | 0.127 | <0.050 |
| | Total Nitrogen (mg/L) | <0.050 | 0.122 | 0.344 | 0.187 | <0.050 |
| | Orthophosphate-Dissolved (as P) (mg/L) | <0.0010 | 0.0025 | <0.0010 | <0.0010 | 0.0032 |
| | Phosphorus (P)-Total (mg/L) | <0.0020 | 0.0111 | 0.0122 | 0.0054 | 0.0139 |
| | Phosphorus (P)-Total Dissolved (mg/L) | <0.0020 | <0.0020 | <0.0020 | <0.0020 | 0.0037 |
| | Sulfate (SO4) (mg/L) | <0.30 | 35.9 | 99.3 | 94.7 | 7.16 |
| | Anion Sum (meq/L) | <0.10 | 2.21 | 4.81 | 4.30 | 0.67 |
| | Cation Sum (meq/L) | <0.10 | 2.20 | 5.44 | 4.14 | 0.66 |
| | Cation - Anion Balance (%) | 0.0 | -0.3 | 6.1 | -1.9 | -0.9 |
| **Cyanides** | Cyanide, Weak Acid Diss (mg/L) | <0.0050 | <0.0050 | <0.0050 | <0.0050 | <0.0050 |
| | Cyanide, Total (mg/L) | <0.0050 | <0.0050 | <0.0050 | <0.0050 | <0.0050 |
| **Organic / Inorganic Carbon** | Dissolved Organic Carbon (mg/L) | <0.50 | 1.71 | 1.94 | 3.57 | 0.86 |
| | Total Organic Carbon (mg/L) | <0.50 | 2.51 | 2.39 | 3.60 | 1.17 |
| **Total Metals** | Aluminum (Al)-Total (mg/L) | <0.0030 | 0.163 | 0.0774 | 0.251 | 0.161 |
| | Antimony (Sb)-Total (mg/L) | <0.00010 | 0.00189 | 0.00135 | 0.00026 | 0.00060 |
| | Arsenic (As)-Total (mg/L) | <0.00010 | 0.0442 | 0.0159 | 0.00325 | 0.0743 |
| | Barium (Ba)-Total (mg/L) | <0.00010 | 0.0586 | 0.0440 | 0.0648 | 0.0309 |
| | Beryllium (Be)-Total (mg/L) | <0.000020 | <0.000020 | <0.000020 | <0.000020 | <0.000020 |
| | Bismuth (Bi)-Total (mg/L) | <0.000050 | <0.000050 | <0.000050 | <0.000050 | <0.000050 |
| | Boron (B)-Total (mg/L) | <0.010 | <0.010 | <0.010 | <0.010 | <0.010 |
| | Cadmium (Cd)-Total (mg/L) | <0.0000050 | 0.0000152 | 0.0000183 | 0.000387 | 0.0000053 |
| | Calcium (Ca)-Total (mg/L) | <0.050 | 24.4 | 70.7 | 52.1 | 8.87 |
| | Chromium (Cr)-Total (mg/L) | <0.00010 | 0.00034 | 0.00017 | <0.00010 | 0.00028 |

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample ID | L2170240-1 | L2170240-2 | L2170240-3 | L2170240-4 | L2170240-5 |
|---|---|---|---|---|---|
| Description | Surface Water | Surface Water | Surface Water | Surface Water | Surface Water |
| Sampled Date | 22-SEP-18 | 22-SEP-18 | 23-SEP-18 | 24-SEP-18 | 22-SEP-18 |
| Sampled Time | | 18:22 | 11:14 | 10:22 | 00:50 |
| Client ID | FIELD BLANK | W21 | W45 | W49 | W20 |
| **Grouping** / **Analyte** | | | | | |
| **WATER** | | | | | |
| **Total Metals** Cobalt (Co)-Total (mg/L) | <0.00010 | 0.00017 | 0.00022 | 0.00297 | 0.00010 |
| Copper (Cu)-Total (mg/L) | <0.00050 | 0.00064 | 0.00066 | 0.00236 | <0.00050 |
| Iron (Fe)-Total (mg/L) | <0.010 | 0.311 | 0.227 | 0.273 | 0.195 |
| Lead (Pb)-Total (mg/L) | <0.000050 | 0.000423 | 0.000601 | 0.00138 | 0.000230 |
| Lithium (Li)-Total (mg/L) | <0.0010 | 0.0078 | 0.0094 | 0.0059 | 0.0015 |
| Magnesium (Mg)-Total (mg/L) | <0.10 | 10.0 | 18.6 | 16.9 | 1.52 |
| Manganese (Mn)-Total (mg/L) | 0.00014 RRV | 0.0121 | 0.132 | 0.180 | 0.00637 |
| Mercury (Hg)-Total (mg/L) | <0.0000050 | <0.0000050 | <0.0000050 | <0.0000050 | <0.0000050 |
| Molybdenum (Mo)-Total (mg/L) | <0.000050 | 0.00159 | 0.000567 | 0.000493 | 0.000818 |
| Nickel (Ni)-Total (mg/L) | <0.00050 | 0.00091 | 0.00074 | 0.0202 | <0.00050 |
| Phosphorus (P)-Total (mg/L) | <0.050 | <0.050 | <0.050 | <0.050 | <0.050 |
| Potassium (K)-Total (mg/L) | <0.10 | 1.26 | 1.87 | 0.64 | 0.49 |
| Selenium (Se)-Total (mg/L) | <0.000050 | 0.000207 | 0.00166 | 0.000382 | 0.000079 |
| Silicon (Si)-Total (mg/L) | <0.10 | 6.19 | 4.48 | 2.82 | 6.38 |
| Silver (Ag)-Total (mg/L) | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 |
| Sodium (Na)-Total (mg/L) | <0.050 | 2.16 | 3.76 | 1.82 | 1.82 |
| Strontium (Sr)-Total (mg/L) | <0.00020 | 0.161 | 0.412 | 0.224 | 0.0564 |
| Sulfur (S)-Total (mg/L) | <0.50 | 12.7 | 35.6 | 34.0 | 2.20 |
| Thallium (Tl)-Total (mg/L) | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 |
| Tin (Sn)-Total (mg/L) | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 |
| Titanium (Ti)-Total (mg/L) | <0.00030 | 0.0115 | 0.00349 | 0.00067 | <0.0090 DLM |
| Uranium (U)-Total (mg/L) | <0.000010 | 0.00210 | 0.00317 | 0.00104 | 0.000435 |
| Vanadium (V)-Total (mg/L) | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00051 |
| Zinc (Zn)-Total (mg/L) | <0.0030 | 0.0119 | <0.0030 | 0.0607 | <0.0030 |
| Zirconium (Zr)-Total (mg/L) | <0.00030 | <0.00030 | <0.00030 | <0.00030 | <0.00030 |
| **Dissolved Metals** Dissolved Mercury Filtration Location | FIELD | FIELD | FIELD | FIELD | FIELD |
| Dissolved Metals Filtration Location | FIELD | FIELD | FIELD | FIELD | FIELD |
| Aluminum (Al)-Dissolved (mg/L) | <0.0010 | 0.0059 | 0.0011 | 0.0431 | 0.0127 |
| Antimony (Sb)-Dissolved (mg/L) | <0.00010 | 0.00180 | 0.00121 | 0.00025 | 0.00057 |
| Arsenic (As)-Dissolved (mg/L) | <0.00010 | 0.0393 | 0.00977 | 0.00227 | 0.0639 |
| Barium (Ba)-Dissolved (mg/L) | <0.00010 | 0.0553 | 0.0418 | 0.0612 | 0.0267 |
| Beryllium (Be)-Dissolved (mg/L) | <0.000020 | <0.000020 | <0.000020 | <0.000020 | <0.000020 |
| Bismuth (Bi)-Dissolved (mg/L) | <0.000050 | <0.000050 | <0.000050 | <0.000050 | <0.000050 |
| Boron (B)-Dissolved (mg/L) | <0.010 | <0.010 | <0.010 | <0.010 | <0.010 |
| Cadmium (Cd)-Dissolved (mg/L) | <0.0000050 | 0.0000084 | 0.0000154 | 0.000284 | <0.0000050 |
| Calcium (Ca)-Dissolved (mg/L) | <0.050 | 24.7 | 73.2 | 53.0 | 9.00 |
| Chromium (Cr)-Dissolved (mg/L) | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 |

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample ID | L2170240-1 | L2170240-2 | L2170240-3 | L2170240-4 | L2170240-5 |
|---|---|---|---|---|---|
| Description | Surface Water | Surface Water | Surface Water | Surface Water | Surface Water |
| Sampled Date | 22-SEP-18 | 22-SEP-18 | 23-SEP-18 | 24-SEP-18 | 22-SEP-18 |
| Sampled Time | | 18:22 | 11:14 | 10:22 | 00:50 |
| Client ID | FIELD BLANK | W21 | W45 | W49 | W20 |
| **Grouping** / **Analyte** | | | | | |
| **WATER** | | | | | |
| **Dissolved Metals** Cobalt (Co)-Dissolved (mg/L) | <0.00010 | <0.00010 | <0.00010 | 0.00268 | <0.00010 |
| Copper (Cu)-Dissolved (mg/L) | <0.00020 | 0.00040 | 0.00033 | 0.00154 | <0.00020 |
| Iron (Fe)-Dissolved (mg/L) | <0.010 | 0.019 | <0.010 | 0.021 | <0.010 |
| Lead (Pb)-Dissolved (mg/L) | <0.000050 | <0.000050 | <0.000050 | 0.000063 | <0.000050 |
| Lithium (Li)-Dissolved (mg/L) | <0.0010 | 0.0080 | 0.0097 | 0.0062 | 0.0014 |
| Magnesium (Mg)-Dissolved (mg/L) | <0.10 | 10.1 | 19.0 | 16.8 | 1.46 |
| Manganese (Mn)-Dissolved (mg/L) | <0.00010 | 0.00695 | 0.125 | 0.170 | 0.00061 |
| Mercury (Hg)-Dissolved (mg/L) | <0.0000050 | <0.0000050 | <0.0000050 | <0.0000050 | <0.0000050 |
| Molybdenum (Mo)-Dissolved (mg/L) | <0.000050 | 0.00165 | 0.000576 | 0.000504 | 0.000848 |
| Nickel (Ni)-Dissolved (mg/L) | <0.00050 | 0.00060 | 0.00059 | 0.0188 | <0.00050 |
| Phosphorus (P)-Dissolved (mg/L) | <0.30 | <0.050 | <0.050 | <0.050 | <0.050 |
| Potassium (K)-Dissolved (mg/L) | <0.10 | 1.24 | 1.90 | 0.65 | 0.46 |
| Selenium (Se)-Dissolved (mg/L) | <0.000050 | 0.000209 | 0.00192 | 0.000454 | 0.000075 |
| Silicon (Si)-Dissolved (mg/L) | <0.050 | 5.78 | 4.22 | 2.71 | 5.93 |
| Silver (Ag)-Dissolved (mg/L) | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 |
| Sodium (Na)-Dissolved (mg/L) | <0.050 | 2.21 | 3.93 | 1.85 | 1.82 |
| Strontium (Sr)-Dissolved (mg/L) | <0.00020 | 0.154 | 0.397 | 0.222 | 0.0532 |
| Sulfur (S)-Dissolved (mg/L) | | 12.1 | 34.3 | 32.6 | 1.90 |
| Thallium (Tl)-Dissolved (mg/L) | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 |
| Tin (Sn)-Dissolved (mg/L) | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 |
| Titanium (Ti)-Dissolved (mg/L) | <0.010 | <0.00030 | <0.00030 | <0.00030 | <0.00030 |
| Uranium (U)-Dissolved (mg/L) | <0.000010 | 0.00203 | 0.00309 | 0.000968 | 0.000333 |
| Vanadium (V)-Dissolved (mg/L) | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 |
| Zinc (Zn)-Dissolved (mg/L) | <0.0010 | 0.0101 | <0.0010 | 0.0369 | <0.0010 |
| Zirconium (Zr)-Dissolved (mg/L) | | <0.00030 | <0.00030 | <0.00030 | <0.00030 |

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

# Reference Information

**QC Samples with Qualifiers & Comments:**

| QC Type Description | Parameter | Qualifier | Applies to Sample Number(s) |
|---|---|---|---|
| Method Blank | Dissolved Organic Carbon | B | L2170240-1, -2, -3, -4, -5 |
| Method Blank | Molybdenum (Mo)-Total | B | L2170240-1 |
| Method Blank | Silver (Ag)-Total | B | L2170240-1 |
| Matrix Spike | Arsenic (As)-Total | MS-B | L2170240-1, -2, -3, -4, -5 |
| Matrix Spike | Barium (Ba)-Total | MS-B | L2170240-1, -2, -3, -4, -5 |
| Matrix Spike | Calcium (Ca)-Total | MS-B | L2170240-1, -2, -3, -4, -5 |
| Matrix Spike | Magnesium (Mg)-Total | MS-B | L2170240-1, -2, -3, -4, -5 |
| Matrix Spike | Sodium (Na)-Total | MS-B | L2170240-1, -2, -3, -4, -5 |
| Matrix Spike | Strontium (Sr)-Total | MS-B | L2170240-1, -2, -3, -4, -5 |
| Duplicate | Total Kjeldahl Nitrogen | TKND | L2170240-1, -2, -3, -4, -5 |

**Qualifiers for Individual Parameters Listed:**

| Qualifier | Description |
|---|---|
| B | Method Blank exceeds ALS DQO. Associated sample results which are < Limit of Reporting or > 5 times blank level are considered reliable. |
| DLM | Detection Limit Adjusted due to sample matrix effects (e.g. chemical interference, colour, turbidity). |
| MS-B | Matrix Spike recovery could not be accurately calculated due to high analyte background in sample. |
| RRV | Reported Result Verified By Repeat Analysis |
| TKND | TKN duplication was poor due to interference from high nitrate, which causes negative bias on TKN. |

**Test Method References:**

| ALS Test Code | Matrix | Test Description | Method Reference** |
|---|---|---|---|
| **ALK-TITR-VA** | Water | Alkalinity Species by Titration | APHA 2320 Alkalinity |

This analysis is carried out using procedures adapted from APHA Method 2320 "Alkalinity". Total alkalinity is determined by potentiometric titration to a pH 4.5 endpoint. Bicarbonate, carbonate and hydroxide alkalinity are calculated from phenolphthalein alkalinity and total alkalinity values.

| | | | |
|---|---|---|---|
| **BE-D-L-CCMS-VA** | Water | Diss. Be (low) in Water by CRC ICPMS | APHA 3030B/6020A (mod) |

Water samples are filtered (0.45 um), preserved with nitric acid, and analyzed by CRC ICPMS.

| | | | |
|---|---|---|---|
| **BE-T-L-CCMS-VA** | Water | Total Be (Low) in Water by CRC ICPMS | EPA 200.2/6020A (mod) |

Water samples are digested with nitric and hydrochloric acids, and analyzed by CRC ICPMS.

| | | | |
|---|---|---|---|
| **BR-L-IC-N-WR** | Water | Bromide in Water by IC (Low Level) | EPA 300.1 (mod) |

Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

| | | | |
|---|---|---|---|
| **CARBONS-DOC-VA** | Water | Dissolved organic carbon by combustion | APHA 5310B |

This analysis is carried out using procedures adapted from APHA Method 5310 "Total Organic Carbon (TOC)". Dissolved carbon (DOC) fractions are determined by filtering the sample through a 0.45 micron membrane filter prior to analysis.

| | | | |
|---|---|---|---|
| **CARBONS-TOC-VA** | Water | Total organic carbon by combustion | APHA 5310B TOTAL ORGANIC CARBON (TOC) |

This analysis is carried out using procedures adapted from APHA Method 5310 "Total Organic Carbon (TOC)".

| | | | |
|---|---|---|---|
| **CL-IC-N-WR** | Water | Chloride in Water by IC | EPA 300.1 (mod) |

Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

| | | | |
|---|---|---|---|
| **CN-T-CFA-VA** | Water | Total Cyanide in water by CFA | ISO 14403:2002 |

This analysis is carried out using procedures adapted from ISO Method 14403:2002 "Determination of Total Cyanide using Flow Analysis (FIA and CFA)". Total or strong acid dissociable (SAD) cyanide is determined by in-line UV digestion along with sample distillation and final determination by colourimetric analysis. Method Limitation: This method is susceptible to interference from thiocyanate (SCN). If SCN is present in the sample, there could be a positive interference with this method, but it would be less than 1% and could be as low as zero.

| | | | |
|---|---|---|---|
| **CN-WAD-CFA-VA** | Water | Weak Acid Diss. Cyanide in water by CFA | APHA 4500-CN CYANIDE |

This analysis is carried out using procedures adapted from APHA Method 4500-CN I. "Weak Acid Dissociable Cyanide". Weak Acid Dissociable (WAD) cyanide is determined by in-line sample distillation with final determination by colourimetric analysis.

| | | | |
|---|---|---|---|
| **EC-PCT-VA** | Water | Conductivity (Automated) | APHA 2510 Auto. Conduc. |

This analysis is carried out using procedures adapted from APHA Method 2510 "Conductivity". Conductivity is determined using a conductivity electrode.

| | | | |
|---|---|---|---|
| **EC-SCREEN-VA** | Water | Conductivity Screen (Internal Use Only) | APHA 2510 |

# Reference Information

Qualitative analysis of conductivity where required during preparation of other tests - e.g. TDS, metals, etc.

**F-IC-N-WR** Water Fluoride in Water by IC EPA 300.1 (mod)

Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

**HARDNESS-CALC-VA** Water Hardness APHA 2340B

Hardness (also known as Total Hardness) is calculated from the sum of Calcium and Magnesium concentrations, expressed in CaCO3 equivalents. Dissolved Calcium and Magnesium concentrations are preferentially used for the hardness calculation.

**HG-D-CVAA-VA** Water Diss. Mercury in Water by CVAAS or CVAFS APHA 3030B/EPA 1631E (mod)

Water samples are filtered (0.45 um), preserved with hydrochloric acid, then undergo a cold-oxidation using bromine monochloride prior to reduction with stannous chloride, and analyzed by CVAAS or CVAFS.

**HG-T-CVAA-VA** Water Total Mercury in Water by CVAAS or CVAFS EPA 1631E (mod)

Water samples undergo a cold-oxidation using bromine monochloride prior to reduction with stannous chloride, and analyzed by CVAAS or CVAFS.

**IONBALANCE-VA** Water Ion Balance Calculation APHA 1030E

Cation Sum, Anion Sum, and Ion Balance (as % difference) are calculated based on guidance from APHA Standard Methods (1030E Checking Correctness of Analysis). Because all aqueous solutions are electrically neutral, the calculated ion balance (% difference of cations minus anions) should be near-zero.

Cation and Anion Sums are the total meq/L concentration of major cations and anions. Dissolved species are used where available. Minor ions are included where data is present. Ion Balance is calculated as:

Ion Balance (%) = [Cation Sum-Anion Sum] / [Cation Sum+Anion Sum]

**MET-D-CCMS-VA** Water Dissolved Metals in Water by CRC ICPMS APHA 3030B/6020A (mod)

Water samples are filtered (0.45 um), preserved with nitric acid, and analyzed by CRC ICPMS.

Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.

**MET-T-CCMS-VA** Water Total Metals in Water by CRC ICPMS EPA 200.2/6020A (mod)

Water samples are digested with nitric and hydrochloric acids, and analyzed by CRC ICPMS.

Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.

**NH3-F-VA** Water Ammonia in Water by Fluorescence J. ENVIRON. MONIT., 2005, 7, 37-42, RSC

This analysis is carried out, on sulfuric acid preserved samples, using procedures modified from J. Environ. Monit., 2005, 7, 37 - 42, The Royal Society of Chemistry, "Flow-injection analysis with fluorescence detection for the determination of trace levels of ammonium in seawater", Roslyn J. Waston et al.

**NO2-L-IC-N-WR** Water Nitrite in Water by IC (Low Level) EPA 300.1 (mod)

Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

**NO3-L-IC-N-WR** Water Nitrate in Water by IC (Low Level) EPA 300.1 (mod)

Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

**P-T-PRES-COL-VA** Water Total P in Water by Colour APHA 4500-P Phosphorus

This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". Total Phosphorus is determined colourimetrically after persulphate digestion of the sample.
Samples with very high dissolved solids (i.e. seawaters, brackish waters) may produce a negative bias by this method. Alternate methods are available for these types of samples.

Arsenic (5+), at elevated levels, is a positive interference on colourimetric phosphate analysis.

**P-TD-PRES-COL-VA** Water Total Dissolved P in Water by Colour APHA 4500-P Phosphorous

This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". Total Dissolved Phosphorus is determined colourimetrically after persulphate digestion of a sample that has been lab or field filtered through a 0.45 micron membrane filter.
Samples with very high dissolved solids (i.e. seawaters, brackish waters) may produce a negative bias by this method. Alternate methods are available for these types of samples.

Arsenic (5+), at elevated levels, is a positive interference on colourimetric phosphate analysis.

**PH-PCT-VA** Water pH by Meter (Automated) APHA 4500-H pH Value

This analysis is carried out using procedures adapted from APHA Method 4500-H "pH Value". The pH is determined in the laboratory using a pH electrode

# Reference Information

It is recommended that this analysis be conducted in the field.

**PO4-DO-COL-VA** Water Diss. Orthophosphate in Water by Colour APHA 4500-P Phosphorus

This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". Dissolved Orthophosphate is determined colourimetrically on a sample that has been lab or field filtered through a 0.45 micron membrane filter.
Samples with very high dissolved solids (i.e. seawaters, brackish waters) may produce a negative bias by this method. Alternate methods are available for these types of samples.

Arsenic (5+), at elevated levels, is a positive interference on colourimetric phosphate analysis.

**SO4-IC-WR** Water Sulfate in Water by IC EPA 300.1 (mod)

Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

**TDS-CALC-VA** Water TDS (Calculated) APHA 1030E (20TH EDITION)

This analysis is carried out using procedures adapted from APHA 1030E "Checking Correctness of Analyses".
The Total Dissolved Solids result is calculated from measured concentrations of anions and cations in the sample.

**TKN-F-VA** Water TKN in Water by Fluorescence APHA 4500-NORG D.

This analysis is carried out using procedures adapted from APHA Method 4500-Norg D. "Block Digestion and Flow Injection Analysis". Total Kjeldahl Nitrogen is determined using block digestion followed by Flow-injection analysis with fluorescence detection.

**TN-CALC-VA** Water Total Nitrogen (Calculation) BC MOE LABORATORY MANUAL (2005)

Total Nitrogen is a calculated parameter. Total Nitrogen = Total Kjeldahl Nitrogen + [Nitrate and Nitrite (as N)]

**TSS-VA** Water Total Suspended Solids by Gravimetric APHA 2540 D - GRAVIMETRIC

This analysis is carried out using procedures adapted from APHA Method 2540 "Solids". Solids are determined gravimetrically. Total Suspended Solids (TSS) are determined by filtering a sample through a glass fibre filter, TSS is determined by drying the filter at 104 degrees celsius.
Samples containing very high dissolved solid content (i.e. seawaters, brackish waters) may produce a positive bias by this method. Alternate analysis methods are available for these types of samples.

**TURBIDITY-VA** Water Turbidity by Meter APHA 2130 Turbidity

This analysis is carried out using procedures adapted from APHA Method 2130 "Turbidity". Turbidity is determined by the nephelometric method.

** ALS test methods may incorporate modifications from specified reference methods to improve performance.

*The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:*

| Laboratory Definition Code | Laboratory Location |
|---|---|
| WR | ALS ENVIRONMENTAL - WHITEHORSE, YUKON, CANADA |
| VA | ALS ENVIRONMENTAL - VANCOUVER, BRITISH COLUMBIA, CANADA |

**Chain of Custody Numbers:**

**GLOSSARY OF REPORT TERMS**

*Surrogate - A compound that is similar in behaviour to target analyte(s), but that does not occur naturally in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery.*
*mg/kg - milligrams per kilogram based on dry weight of sample.*
*mg/kg wwt - milligrams per kilogram based on wet weight of sample.*
*mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight of sample.*
*mg/L - milligrams per litre.*
*< - Less than.*
*D.L. - The reported Detection Limit, also known as the Limit of Reporting (LOR).*
*N/A - Result not available. Refer to qualifier code and definition for explanation.*

*Test results reported relate only to the samples as received by the laboratory.*
*UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.*
*Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.*

ALS Environmental

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COC # _____

Page 1 of 1

| Report To | | Report Format / Distribution | | Service Requested (Rush for routine analysis subject to availability) |
|---|---|---|---|---|
| Company: | StrataGold Corporation | ☑Standard ☐Other | | ◉Regular (Standard Turnaround Times - Business Days) |
| Contact: | Hugh Coyle | ☑PDF ☑Excel ☑Digital ☐Fax | | ○Priority (2-4 Business Days) - 50% Surcharge - Contact ALS to Confirm TAT |
| Address: | 1000 - 1050 West Pender Street | Email 1: | hcoyle@vitgoldcorp.com; jknox@vitgoldcorp.com | ○Emergency (1-2 Bus. Days) - 100% Surcharge - Contact ALS to Confirm TAT |
| | Vancouver, BC V6E 3S7 | Email 2: | lrear@vitgoldcorp.com | ○Same Day or Weekend Emergency - Contact ALS to Confirm TAT |
| Phone: | 604-696-6600 Fax: | Email 3: | pemerson@vitgoldcorp.com; kbablin@vitgoldcorp | |
| Invoice To | Same as Report ? ☑ Yes ☐ No | Client / Project Information | | Analysis Request |
| Hardcopy of Invoice with Report? | ☐ Yes ☑ No | Job #: | Eagle Gold | Please indicate below Filtered, Preserved or both (F, P, F/P) |
| Company: | | PO / AFE: | | |
| Contact: | | LSD: | Victoria Gold Corp. | |
| Address: | | | | |
| Phone: | Fax: | Quote #: | | |
| Lab Work Order # (lab use only) | | ALS Contact: | Heather McKenzie | Sampler: |

| Sample # | Sample Identification (This description will appear on the report) | Date (dd-mmm-yy) | Time (hh:mm) | Sample Type | pH, EC, Turbidity, Total Alk. | TDS, TSS, Anion Scan | Total Cyanide, WAD Cyanide | T-PO4,TD-PO4, Ortho-PO4 | TKN, HN3, TN-CALC-VA | DOC | MET-D-NDR-VA | MET-T-NDR-VA | HG-DIS-LOW-CVAFS-VA | HG-TOT-LOW-CVAFS-VA | TOC | | Number of Containers |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | P | | P | F/P | F/P | P | F/P | P | P | | |
| | Field Blank | | | Water | X | X | X | X | X | X | X | X | X | X | X | | 9 |
| | W21 | 22-Sep-18 | 18:22 | Surface Water | X | X | X | X | X | X | X | X | X | X | X | | 9 |
| | W45 | 23-Sep-18 | 11:14 | Surface Water | X | X | X | X | X | X | X | X | X | X | X | | 9 |
| | W49 | 24-Sep-18 | 10:22 | Surface Water | X | X | X | X | X | X | X | X | X | X | X | | 9 |
| | W20 | 22-Sep-18 | 12:50 | Surface Water | X | X | X | X | X | X | X | X | X | X | X | | 9 |
| | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
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| | | | | | | | | | | | | | | | | | |
| | | | | Surface Water | X | X | X | X | X | X | X | X | X | X | X | | |
| | | | | Surface Water | X | X | X | X | X | X | X | X | X | X | X | | |

**Special Instructions / Regulations with water or land use (CCME-Freshwater Aquatic Life/BC CSR - Commercial/AB Tier 1 - Natural, etc.) / Hazardous Details**

**Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY.**
**By the use of this form the user acknowledges and agrees with the Terms and Conditions as provided on a separate Excel tab.**
**Also provided on another Excel tab are the ALS location addresses, phone numbers and sample container / preservation / holding time table for common analyses.**

| SHIPMENT RELEASE (client use) | | | SHIPMENT RECEPTION (lab use only) | | | | SHIPMENT VERIFICATION (lab use only) | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Released by: | Date (dd-mmm-yy) | Time (hh-mm) | Received by: | Date: | Time: | Temperature: | Verified by: | Date: | Time: | Observations: Yes / No ? If Yes add SIF |
| | | | EHF | 25 Sep 2018 | 11:50 | 4.0 °C | HA | 9/26 | 11:15P | |

GENF 20.00 Front

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# APPENDIX B

- **Table B-1 Field Conditions September 2018**
- **Table B-2 Additional Metrics per Benthic Sample**
- **Benthic Invertebrate Data, 2018**

| TABLE B-1 FIELD CONDITIONS AT THE TIME OF SAMPLING, SEPTEMBER 2018 | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **Drainage** | **Haggart Creek** | | | | | **Dublin Gulch** | | **Eagle Creek** | **Lynx Creek** |
| **Site #** | **W22** | **W4** | **W29** | **W5** | **W23** | **W1** | **W26** | **W27** | **W6** |
| **Date, 2018** | 9-Sep | 9-Sep | 9-Sep | 10-Sep | 8-Sep | 9-Sep | 9-Sep | 9-Sep | 10-Sep |
| **Time** | 12:30 | 11:00 | 16:15 | 9:00 | 17:45 | 9:15 | 14:15 | 8:00 | 10:00 |
| **Temp $^{o}C$** | 2.1 | 1.0 | 5.2 | 2.0 | 2.4 | 0.9 | 6.3 | 0.2 | 1.6 |
| **Conductivity (uS/cm)** | 295 | 279 | 296 | 318 | 324 | 103 | 411 | 296 | 335 |
| **pH** | 7.00 | 7.57 | 8.50 | 8.02 | 7.93 | 7.05 | 8.19 | 6.09 | 7.88 |
| **Bankfull Width (m)** | 6.04 | 8.20 | 7.50 | 8.05 | 10.50 | 6.30 | 0.62 | 1.10 | 6.02 |
| **Wetted Width (m)** | 5.24 | 7.10 | 6.90 | 7.33 | 9.35 | 5.20 | 0.54 | 1.00 | 6.02 |
| **Water Depth (cm)** | 0.28 | 0.18 | 0.55 | 0.24 | 0.40 | 0.15 | 0.06 | 0.10 | 0.20 |
| **Average Velocity (m/s)** | 0.42 | 0.42 | 0.56 | 0.57 | -- | -- | -- | -- | 0.36 |
| **Discharge ($m^3/s$)** | 0.230 | 0.358 | 0.954 | 0.416 | 1.280 | 0.085 | 0.010 | -- | 0.864 |
| **Substrate** | sand, gravel | sand, gravel | sand, gravel, large cobbles | clay, angular gravels | gravels, cobbles | sand, fine gravel | fine gravels, mud | gravels | gravels, cobbles |
| **Embeddedness** | light | light | moderate | very | moderate | light | quite embedded | light | moderate |
| **Canopy Cover** | <5% | <5% | 10% | <5% | open | 10% | 80% | open | <5% |
| **Riparian Vegetation** | willow, birch, spruce, dwarf birch, cinquefoil, fireweed | alder, willows, white spruce, horsetail, sedges, grasses, forbs | alder, willow, grasses, horsetail, cinquefoil | alder, willows, grasses, horsetail | alder, willow, sedges, rushes, horsetail, forbs | alders, willows, grasses, forbs | willow, horsetail, grasses, spruce, forbs | willows, blueberry, horsetail, dwarf birch, alder, grasses, moss | willows, blueberies, sedges, horsetail, mosses |

**TABLE B-2 ADDTIONAL METRICS PER BENTHIC INVERTEBRATE SITE, EAGLE GOLD PROJECT, 2018**

| **Sample:** | **W1-A** | **W1-B** | **W1-C** | **W4-A** | **W4-B** | **W4-C** |
|---|---|---|---|---|---|---|
| Sample Collection Date: | 09-Sep-18 | 09-Sep-18 | 09-Sep-18 | 09-Sep-18 | 09-Sep-18 | 09-Sep-18 |
| CC#: | CC191481 | CC191482 | CC191483 | CC191484 | CC191485 | CC191486 |
| **Dominance Measures** | | | | | | |
| 1st Dominant Taxon | Tubificinae without hair chaetae | Pagastia | Capniidae | Heptageniidae | Capniidae | Capniidae |
| 1st Dominant Abundance | 57 | 54 | 86 | 19 | 14 | 10 |
| 2nd Dominant Taxon | Diamesa | Zapada | Heptageniidae | Ephemerellidae | Ephemerellidae | Heptageniidae |
| 2nd Dominant Abundance | 51 | 46 | 37 | 17 | 12 | 6 |
| 3rd Dominant Taxon | Capniidae | Zapada oregonensis group | Diamesa | Tubificinae without hair chaetae | Heptageniidae | Diamesa |
| 3rd Dominant Abundance | 35 | 38 | 25 | 17 | 9 | 4 |
| % 1 Dominant Taxon | 18.45% | 17.82% | 36.29% | 9.69% | 14.58% | 22.73% |
| % 2 Dominant Taxa | 16.50% | 15.18% | 15.61% | 8.67% | 12.50% | 13.64% |
| % 3 Dominant Taxa | 11.33% | 12.54% | 10.55% | 8.67% | 9.38% | 9.09% |
| **Functional Group Composition** | | | | | | |
| % Predators | 9.06% | 12.54% | 3.38% | 20.92% | 13.54% | 15.91% |
| % Shredder-Herbivores | 24.60% | 35.31% | 49.37% | 18.37% | 31.25% | 25.00% |
| % Collector-Gatherers | 49.84% | 39.93% | 24.89% | 43.88% | 40.63% | 36.36% |
| % Scrapers | 10.36% | 8.25% | 17.72% | 15.31% | 12.50% | 15.91% |
| % Macrophyte-Herbivore | | | | | | |
| % Collector-Filterer | 0.32% | | | | | |
| % Omnivore | 4.21% | 1.65% | 0.84% | 0.51% | 1.04% | |
| % Parasite | | | | | | |
| % Piercer-Herbivore | | | | | | |
| % Gatherer | | | | | | |
| % Unclassified | 1.62% | 2.31% | 3.80% | 1.02% | 1.04% | 6.82% |
| **Diversity/Evenness Measures** | | | | | | |
| Shannon-Weiner H' (log 10) | 1.11 | 1.16 | 0.97 | 1.44 | 1.24 | 1.13 |
| Shannon-Weiner H' (log 2) | 3.70 | 3.86 | 3.22 | 4.80 | 4.10 | 3.74 |
| Shannon-Weiner H' (log e) | 2.57 | 2.68 | 2.23 | 3.33 | 2.84 | 2.60 |
| Simpson's Index (D) | 0.10 | 0.10 | 0.18 | 0.04 | 0.07 | 0.08 |
| Simpson's Index of Diversity (1 - D) | 0.90 | 0.90 | 0.82 | 0.96 | 0.93 | 0.92 |
| Simpson's Reciprocal Index (1/D) | 9.81 | 10.22 | 5.67 | 22.38 | 15.20 | 12.13 |
| **Biotic Indices** | | | | | | |
| Hilsenhoff Biotic Index | 4.48 | 3.00 | 2.50 | 3.45 | 2.89 | 2.41 |

**TABLE B-2 ADDTIONAL METRICS PER BENTHIC INVERTEBRATE SITE, EAGLE GOLD PROJECT, 2018**

| **Sample:** | **W5-A** | **W5-B** | **W5-C** | **W6-A** | **W6-B** | **W6-C** |
|---|---|---|---|---|---|---|
| Sample Collection Date: | 10-Sep-18 | 10-Sep-18 | 10-Sep-18 | 10-Sep-18 | 10-Sep-18 | 10-Sep-18 |
| CC#: | CC191487 | CC191488 | CC191489 | CC191490 | CC191491 | CC191492 |
| **Dominance Measures** | | | | | | |
| 1st Dominant Taxon | Orthocladius complex | Ephemerellidae | Capniidae | Heptageniidae | Heptageniidae | Heptageniidae |
| 1st Dominant Abundance | 49 | 26 | 23 | 150 | 250 | 315 |
| 2nd Dominant Taxon | Capniidae | Orthocladius complex | Orthocladius complex | Ephemerellidae | Leuctridae | Leuctridae |
| 2nd Dominant Abundance | 41 | 21 | 18 | 84 | 114 | 83 |
| 3rd Dominant Taxon | Plecoptera | Capniidae | Ephemerellidae | Leuctridae | Lumbriculus | Ephemerellidae |
| 3rd Dominant Abundance | 14 | 18 | 16 | 52 | 84 | 69 |
| % 1 Dominant Taxon | 25.39% | 15.29% | 14.74% | 23.73% | 27.41% | 35.59% |
| % 2 Dominant Taxa | 21.24% | 12.35% | 11.54% | 13.29% | 12.50% | 9.38% |
| % 3 Dominant Taxa | 7.25% | 10.59% | 10.26% | 8.23% | 9.21% | 7.80% |
| **Functional Group Composition** | | | | | | |
| % Predators | 5.70% | 11.18% | 7.69% | 8.23% | 8.11% | 6.89% |
| % Shredder-Herbivores | 25.39% | 28.82% | 39.10% | 25.95% | 25.66% | 29.49% |
| % Collector-Gatherers | 51.30% | 41.76% | 41.03% | 32.59% | 29.61% | 20.45% |
| % Scrapers | 6.22% | 12.94% | 7.69% | 28.80% | 31.14% | 38.98% |
| % Macrophyte-Herbivore | | | | | | |
| % Collector-Filterer | | 0.59% | | 1.27% | 0.44% | |
| % Omnivore | 4.15% | 0.59% | 0.64% | 1.27% | 0.88% | 1.13% |
| % Parasite | | | | | | |
| % Piercer-Herbivore | | | | | | |
| % Gatherer | | | | | | |
| % Unclassified | 7.25% | 4.12% | 3.85% | 1.90% | 4.17% | 3.05% |
| **Diversity/Evenness Measures** | | | | | | |
| Shannon-Weiner H' (log 10) | 1.11 | 1.26 | 1.25 | 1.24 | 1.20 | 1.09 |
| Shannon-Weiner H' (log 2) | 3.69 | 4.19 | 4.14 | 4.12 | 4.00 | 3.63 |
| Shannon-Weiner H' (log e) | 2.56 | 2.90 | 2.87 | 2.86 | 2.77 | 2.52 |
| Simpson's Index (D) | 0.13 | 0.07 | 0.07 | 0.10 | 0.11 | 0.16 |
| Simpson's Index of Diversity (1 - D) | 0.87 | 0.93 | 0.93 | 0.90 | 0.89 | 0.84 |
| Simpson's Reciprocal Index (1/D) | 7.85 | 13.77 | 14.01 | 10.21 | 8.82 | 6.38 |
| **Biotic Indices** | | | | | | |
| Hilsenhoff Biotic Index | 3.40 | 2.94 | 2.74 | 2.87 | 2.36 | 2.49 |

**TABLE B-2 ADDTIONAL METRICS PER BENTHIC INVERTEBRATE SITE, EAGLE GOLD PROJECT, 2018**

| **Sample:** | **W22-A** | **W22-B** | **W22-C** | **W23-A** | **W23-B** | **W23-C** |
|---|---|---|---|---|---|---|
| Sample Collection Date: | 09-Sep-18 | 09-Sep-18 | 09-Sep-18 | 08-Sep-18 | 08-Sep-18 | 08-Sep-18 |
| CC#: | CC191493 | CC191494 | CC191495 | CC191496 | CC191497 | CC191498 |
| **Dominance Measures** | | | | | | |
| 1st Dominant Taxon | Heptageniidae | Heptageniidae | Capniidae | Zapada | Zapada | Zapada |
| 1st Dominant Abundance | 84 | 26 | 23 | 52 | 90 | 67 |
| 2nd Dominant Taxon | Ephemerellidae | Ephemerellidae | Heptageniidae | Drunella doddsii | Orthocladius complex | Capniidae |
| 2nd Dominant Abundance | 53 | 18 | 17 | 44 | 80 | 35 |
| 3rd Dominant Taxon | Zapada | Zapada | Oreogeton | Ephemerellidae | Pericoma/Telmatoscopus | Ephemerellidae |
| 3rd Dominant Abundance | 45 | 18 | 12 | 36 | 31 | 32 |
| % 1 Dominant Taxon | 19.40% | 15.66% | 17.42% | 16.15% | 21.84% | 21.97% |
| % 2 Dominant Taxa | 12.24% | 10.84% | 12.88% | 13.66% | 19.42% | 11.48% |
| % 3 Dominant Taxa | 10.39% | 10.84% | 9.09% | 11.18% | 7.52% | 10.49% |
| **Functional Group Composition** | | | | | | |
| % Predators | 24.02% | 16.27% | 28.79% | 11.49% | 23.79% | 11.15% |
| % Shredder-Herbivores | 21.02% | 26.51% | 24.24% | 29.50% | 28.16% | 39.02% |
| % Collector-Gatherers | 26.33% | 35.54% | 19.70% | 47.83% | 43.20% | 36.07% |
| % Scrapers | 26.33% | 16.87% | 22.73% | 7.45% | 3.64% | 11.48% |
| % Macrophyte-Herbivore | | | | | | |
| % Collector-Filterer | 0.46% | 1.81% | 0.76% | | | |
| % Omnivore | 0.23% | | | 2.80% | 0.73% | 0.33% |
| % Parasite | | | | | | |
| % Piercer-Herbivore | | | | | | |
| % Gatherer | | | | | | |
| % Unclassified | 1.62% | 3.01% | 3.79% | 0.93% | 0.49% | 1.97% |
| **Diversity/Evenness Measures** | | | | | | |
| Shannon-Weiner H' (log 10) | 1.29 | 1.32 | 1.34 | 1.32 | 1.25 | 1.25 |
| Shannon-Weiner H' (log 2) | 4.27 | 4.38 | 4.45 | 4.38 | 4.14 | 4.15 |
| Shannon-Weiner H' (log e) | 2.96 | 3.04 | 3.09 | 3.03 | 2.87 | 2.87 |
| Simpson's Index (D) | 0.08 | 0.07 | 0.06 | 0.07 | 0.10 | 0.09 |
| Simpson's Index of Diversity (1 - D) | 0.92 | 0.93 | 0.94 | 0.93 | 0.90 | 0.91 |
| Simpson's Reciprocal Index (1/D) | 12.11 | 15.28 | 15.41 | 13.62 | 9.87 | 11.24 |
| **Biotic Indices** | | | | | | |
| Hilsenhoff Biotic Index | 2.72 | 2.69 | 2.83 | 2.47 | 3.98 | 2.70 |

**TABLE B-2 ADDTIONAL METRICS PER BENTHIC INVERTEBRATE SITE, EAGLE GOLD PROJECT, 2018**

| **Sample:** | **W26-A** | **W26-B** | **W26-C** | **W27-A** | **W27-B** | **W27-C** |
|---|---|---|---|---|---|---|
| Sample Collection Date: | 09-Sep-18 | 09-Sep-18 | 09-Sep-18 | 09-Sep-18 | 09-Sep-18 | 09-Sep-18 |
| CC#: | CC191499 | CC191500 | CC191501 | CC191502 | CC191503 | CC191504 |
| **Dominance Measures** | | | | | | |
| 1st Dominant Taxon | Eukiefferiella | Eukiefferiella | Eukiefferiella | Collembola | Collembola | Collembola |
| 1st Dominant Abundance | 243 | 315 | 87 | 39 | 78 | 56 |
| 2nd Dominant Taxon | Lumbriculidae | Diamesa | Heptageniidae | Nemouridae | Diamesa | Nemouridae |
| 2nd Dominant Abundance | 157 | 69 | 44 | 24 | 36 | 55 |
| 3rd Dominant Taxon | Capniidae | Heptageniidae | Ameletus | Heptageniidae | Orthocladius complex | Orthocladius complex |
| 3rd Dominant Abundance | 118 | 64 | 33 | 21 | 36 | 36 |
| % 1 Dominant Taxon | 24.70% | 35.67% | 26.44% | 25.83% | 28.47% | 19.72% |
| % 2 Dominant Taxa | 15.96% | 7.81% | 13.37% | 15.89% | 13.14% | 19.37% |
| % 3 Dominant Taxa | 11.99% | 7.25% | 10.03% | 13.91% | 13.14% | 12.68% |
| **Functional Group Composition** | | | | | | |
| % Predators | 2.24% | 1.25% | 4.26% | 11.26% | 8.76% | 6.34% |
| % Shredder-Herbivores | 18.50% | 12.12% | 18.84% | 16.56% | 11.31% | 25.35% |
| % Collector-Gatherers | 39.33% | 39.75% | 34.65% | 56.95% | 66.79% | 56.34% |
| % Scrapers | 3.86% | 8.83% | 14.29% | 13.91% | 10.95% | 8.45% |
| % Macrophyte-Herbivore | | | | | | |
| % Collector-Filterer | | | | | | |
| % Omnivore | 24.70% | 35.67% | 26.75% | | 1.82% | 3.17% |
| % Parasite | | | | | | |
| % Piercer-Herbivore | | | | | | |
| % Gatherer | | | | | | |
| % Unclassified | 11.38% | 2.38% | 1.22% | 1.32% | 0.36% | 0.35% |
| **Diversity/Evenness Measures** | | | | | | |
| Shannon-Weiner H' (log 10) | 1.04 | 1.05 | 1.07 | 1.04 | 1.03 | 1.08 |
| Shannon-Weiner H' (log 2) | 3.45 | 3.48 | 3.56 | 3.45 | 3.41 | 3.59 |
| Shannon-Weiner H' (log e) | 2.39 | 2.41 | 2.47 | 2.39 | 2.37 | 2.49 |
| Simpson's Index (D) | 0.12 | 0.16 | 0.12 | 0.13 | 0.14 | 0.12 |
| Simpson's Index of Diversity (1 - D) | 0.88 | 0.84 | 0.88 | 0.87 | 0.86 | 0.88 |
| Simpson's Reciprocal Index (1/D) | 8.01 | 6.26 | 8.05 | 7.80 | 7.22 | 8.53 |
| **Biotic Indices** | | | | | | |
| Hilsenhoff Biotic Index | 4.93 | 5.33 | 4.08 | 5.48 | 5.85 | 5.23 |

## TABLE B-2 ADDTIONAL METRICS PER BENTHIC INVERTEBRATE SITE, EAGLE GOLD PROJECT, 2018

| **Sample:** | **W29-A** | **W29-B** | **W29-C** |
|---|---|---|---|
| Sample Collection Date: | 09-Sep-18 | 09-Sep-18 | 09-Sep-18 |
| CC#: | CC191505 | CC191506 | CC191507 |
| **Dominance Measures** | | | |
| 1st Dominant Taxon | Lumbriculidae | Lumbriculidae | Lumbriculidae |
| 1st Dominant Abundance | 16 | 49 | 192 |
| 2nd Dominant Taxon | Diamesa | Zapada | Nais |
| 2nd Dominant Abundance | 12 | 29 | 38 |
| 3rd Dominant Taxon | Leuctridae | Heptageniidae | Heptageniidae |
| 3rd Dominant Abundance | 10 | 18 | 38 |
| % 1 Dominant Taxon | 12.21% | 18.92% | 35.36% |
| % 2 Dominant Taxa | 9.16% | 11.20% | 7.00% |
| % 3 Dominant Taxa | 7.63% | 6.95% | 7.00% |
| **Functional Group Composition** | | | |
| % Predators | 12.21% | 15.83% | 9.39% |
| % Shredder-Herbivores | 21.37% | 22.78% | 17.86% |
| % Collector-Gatherers | 49.62% | 49.03% | 58.93% |
| % Scrapers | 13.74% | 10.42% | 7.92% |
| % Macrophyte-Herbivore | | | |
| % Collector-Filterer | | 0.39% | 0.55% |
| % Omnivore | 1.53% | | 1.47% |
| % Parasite | | | |
| % Piercer-Herbivore | | | |
| % Gatherer | | | |
| % Unclassified | 1.53% | 1.54% | 3.87% |
| **Diversity/Evenness Measures** | | | |
| Shannon-Weiner H' (log 10) | 1.32 | 1.37 | 1.17 |
| Shannon-Weiner H' (log 2) | 4.38 | 4.53 | 3.89 |
| Shannon-Weiner H' (log e) | 3.04 | 3.14 | 2.69 |
| Simpson's Index (D) | 0.05 | 0.07 | 0.15 |
| Simpson's Index of Diversity (1 - D) | 0.95 | 0.93 | 0.85 |
| Simpson's Reciprocal Index (1/D) | 18.88 | 14.80 | 6.73 |
| **Biotic Indices** | | | |
| Hilsenhoff Biotic Index | 3.31 | 3.56 | 4.99 |

**APPENDIX B** **BENTHIC INVERTEBRATE DATA, EAGLE GOLD PROJECT, SEPTEMBER 2018**

| Sample: | W1-A | W1-B | W1-C | W4-A | W4-B | W4-C | W5-A | W5-B | W5-C | W6-A | W6-B | W6-C | W22-A | W22-B | W22-C |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sample Collection Date: | 09-Sep-18 | 09-Sep-18 | 09-Sep-18 | 09-Sep-18 | 09-Sep-18 | 09-Sep-18 | 10-Sep-18 | 10-Sep-18 | 10-Sep-18 | 10-Sep-18 | 10-Sep-18 | 10-Sep-18 | 09-Sep-18 | 09-Sep-18 | 09-Sep-18 |
| CC#: | CC191481 | CC191482 | CC191483 | CC191484 | CC191485 | CC191486 | CC191487 | CC191488 | CC191489 | CC191490 | CC191491 | CC191492 | CC191493 | CC191494 | CC191495 |
| SubSample %: | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 50 | 50 | 37.5 | 75 | 100 | 100 |
| **Phylum: Arthropoda** | | | | | | | | | | | | | | | |
| **\| Order: Collembola** | | | | | | | | | | | | | | | |
| **\| Family: Entomobryidae** | | | | | | | 1 | | | | | | 3 | | |
| **\| Family: Sminthuridae** | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| **Subphylum: Hexapoda** | | | | | | | | | | | | | | | |
| **\| Class: Insecta** | | | | | | | | | | | | | | | |
| **\| Order: Ephemeroptera** | | | | | | | | | | | | | | | |
| **\| Family: Ameletidae** | | | | | | | | | | | | | | | |
| *Ameletus* | 4 | | | 11 | 1 | 4 | 11 | | 1 | 4 | 2 | | 19 | 3 | 1 |
| **\| Family: Baetidae** | 5 | 2 | 2 | 7 | 1 | | | 12 | 14 | 4 | 10 | 3 | 4 | 3 | 1 |
| *Acentrella* | | | | | | | | 2 | 2 | | | | | | |
| *Baetis* | | | | | | | | 1 | 1 | | | | | | |
| *Baetis fuscatus gr.* | | | | | | | 1 | | | | | | | | |
| *Baetis bicaudatus* | | | | | | | | | | | | | | | |
| **\| Family: Ephemerellidae** | 2 | 7 | 9 | 17 | 12 | 1 | 13 | 26 | 16 | 84 | 62 | 69 | 53 | 18 | 1 |
| *Drunella* | | | | | | | | | | | | | | | |
| *Drunella coloradensis* | | | | 2 | 1 | | | | | | 2 | 3 | 3 | | |
| *Drunella doddsii* | | | | 3 | 1 | | 1 | 6 | 1 | 14 | 34 | 37 | 7 | 2 | 5 |
| *Drunella spinifera* | | | | | | | | | 1 | | | | | | |
| **\| Family: Heptageniidae** | 29 | 23 | 37 | 19 | 9 | 6 | 10 | 17 | 10 | 150 | 250 | 315 | 84 | 26 | 17 |
| *Cinygmula* | | | | 1 | | | | | | 16 | 24 | 19 | 13 | | 3 |
| *Epeorus* | 3 | 2 | 5 | 2 | | | | 3 | 2 | 16 | 10 | 11 | 13 | | 8 |
| *Rhithrogena* | | | | 2 | 1 | 1 | | 1 | | | | | | | |
| | | | | | | | | | | | | | | | |
| **\| Order: Plecoptera** | 2 | 2 | 9 | 2 | 1 | 3 | 14 | 6 | 6 | 2 | 32 | 16 | 1 | 5 | 1 |
| **\| Family: Capniidae** | 35 | 18 | 86 | 16 | 14 | 10 | 41 | 18 | 23 | 48 | 30 | 37 | | | 23 |
| **\| Family: Chloroperlidae** | 0 | 7 | 1 | 4 | 6 | 2 | | 1 | 1 | 8 | 20 | 16 | 4 | 2 | 5 |
| *Haploperla* | 1 | 1 | | 1 | | | | | | | 10 | 3 | 1 | | 4 |
| *Suwallia* | | | | | | | | | | 18 | | | | | |
| *Sweltsa* | | | | | | | | 1 | | 10 | 2 | 8 | 1 | 1 | 4 |
| **\| Family: Leuctridae** | | | | 1 | 1 | | 1 | 6 | 6 | 52 | 114 | 83 | 20 | 12 | |
| *Paraleuctra* | | | | | | | 0 | 1 | | 2 | | | | | |
| **\| Family: Nemouridae** | 11 | | 13 | 7 | 6 | 1 | 5 | 8 | 11 | 24 | 42 | 53 | 15 | 11 | |
| *Nemoura* | | | | | | | | | | | | | | | |
| *Zapada* | | 46 | | 6 | 7 | | | 5 | 13 | 24 | 18 | 61 | 45 | 18 | 3 |
| *Zapada oregonensis group* | 24 | 38 | 11 | 3 | | | | | 1 | 4 | 18 | 3 | 1 | 1 | 2 |
| *Zapada cinctipes* | | | | | | | | | | | | | | | |
| *Zapada columbiana* | 1 | 2 | 2 | 2 | | | 1 | | | 6 | 8 | 21 | 5 | | 1 |
| **\| Family: Perlodidae** | 4 | | | | | | | | | | | | | 1 | 1 |
| *Kogotus* | | | | | | | | | | | | | | | |
| *Megarcys* | | 1 | | | | | | | | | | | | | |
| **\| Family: Taeniopterygidae** | | | | | 1 | | 1 | 9 | 7 | | | | 4 | 1 | 1 |
| *Taenionema* | 1 | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| **\| Order: Trichoptera** | | | | | | | | 1 | | | | | 3 | | |
| **\| Family: Glossosomatidae** | | | | 6 | 2 | | 1 | 1 | | | | | 4 | 2 | |
| *Glossosoma* | | | | | | | | | | | | | | | 2 |
| **\| Family: Hydropsychidae** | 1 | | | | | | | | | | | | | | |
| **\| Family: Limnephilidae** | | | 1 | 1 | | 1 | | | | | 2 | | 1 | | |
| *Dicosmoecus* | | | | | | | | | | | | | | | |
| **\| Family: Rhyacophilidae** | | | | | | | | | | | | | | | |
| *Rhyacophila* | | 2 | | 3 | 2 | 1 | 1 | 1 | | | 6 | | 17 | 6 | 2 |
| *Rhyacophila vobara subgroup* | | | | | | | | | | | | | 1 | | |
| *Rhyacophila vofixa group* | | 2 | | 4 | | | | | 1 | 4 | 2 | 8 | 15 | 5 | 3 |
| *Rhyacophila atrata complex* | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| **\| Order: Coleoptera** | | | | | | | | | | | | | | | |
| **\| Family: Curculionidae** | | | | | | | | | | | | | | | 1 |
| **\| Family: Hydrophilidae** | | | | | | | | | | | | | | | |
| *Laccobius* | | | | | | | | | | | | | | | |
| **\| Family: Staphylinidae** | | | | | | | | | | | | | 1 | | |
| | | | | | | | | | | | | | | | |
| **\| Order: Diptera** | | | | | | | | | | | | | | | 1 |
| **\| Family: Ceratopogonidae** | | | | | | | | 1 | 3 | | | | | | |
| *Bezzia/ Palpomyia* | | | | | | | | | | | | | | | |
| *Ceratopogon* | | | | | | | | | | | | | | | |
| *Culicoides* | | | | | | | | | | | | | | | |
| *Dasyhelea* | | | | | | | | | | | | | | | |
| *Forcipomyia* | | | | | | | | | | | | | | | |
| *Mallochohelea* | | | | | | | | | | | | | | | |
| **\| Family: Chironomidae** | 3 | 3 | | | | | | | | 10 | 6 | 11 | 3 | | 3 |
| **\| Subfamily: Chironominae** | | | | | | | | | | | | | | | |
| **\| Tribe: Chironomini** | | | | | | | | | | | | | | | |
| *Polypedilum* | | | | 1 | | | | | 1 | | | | | | |
| **\| Tribe: Tanytarsini** | | | | | | | 1 | | | 14 | | 3 | 3 | 1 | |
| *Micropsectra* | | 1 | | | 1 | | | | | 10 | 12 | | | | |

**APPENDIX B** **BENTHIC INVERTEBRATE DATA, EAGLE GOLD PROJECT, SEPTEMBER 2018**

| Sample: | W1-A | W1-B | W1-C | W4-A | W4-B | W4-C | W5-A | W5-B | W5-C | W6-A | W6-B | W6-C | W22-A | W22-B | W22-C |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sample Collection Date: | 09-Sep-18 | 09-Sep-18 | 09-Sep-18 | 09-Sep-18 | 09-Sep-18 | 09-Sep-18 | 10-Sep-18 | 10-Sep-18 | 10-Sep-18 | 10-Sep-18 | 10-Sep-18 | 10-Sep-18 | 09-Sep-18 | 09-Sep-18 | 09-Sep-18 |
| CC#: | CC191481 | CC191482 | CC191483 | CC191484 | CC191485 | CC191486 | CC191487 | CC191488 | CC191489 | CC191490 | CC191491 | CC191492 | CC191493 | CC191494 | CC191495 |
| SubSample %: | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 50 | 50 | 37.5 | 75 | 100 | 100 |
| *Stempellinella* | | | | | | | | | | 6 | 4 | | | 3 | 1 |
| **\| Subfamily: Diamesinae** | | | | | | | | | | | | | | | |
| **\| Tribe: Diamesini** | | | | | | | | | | | | | | | |
| *Diamesa* | 51 | 37 | 25 | 11 | 5 | 4 | 1 | | | 6 | | 3 | 3 | 4 | 7 |
| *Pagastia* | 29 | 54 | 11 | 2 | | | | | 2 | 4 | 18 | 5 | 4 | 1 | 3 |
| *Pseudodiamesa* | | | | 1 | | | | | | | | | | | 1 |
| **\| Subfamily: Orthocladiinae** | | | | 3 | | | | | | | | | | 6 | |
| *Brillia* | | | | | | | | | | 2 | | | | | |
| *Eukiefferiella* | 12 | 5 | 2 | | 1 | | | 1 | | | | 5 | | | |
| *Gymnometriocnemus* | | | | | | | 1 | | | | | | | | |
| *Krenosmittia* | | | | | | | | | | | | | | 1 | |
| *Limnophyes* | | | | | | | | | | | | | | | |
| *Metriocnemus* | | | | | | | | | | | | | | | |
| *Orthocladius complex* | 4 | 4 | 2 | 8 | 6 | 2 | 49 | 21 | 18 | 8 | 4 | 16 | 13 | 12 | 2 |
| *Parorthocladius* | | | | 1 | | | | | | | | | | | |
| *Rheocricotopus* | | | | 1 | | | 7 | | 1 | 8 | 8 | 5 | 1 | | |
| *Thienemanniella* | | | | | | | 1 | | 1 | 2 | | | | | |
| *Tvetenia* | | | 1 | | | | 2 | | 1 | 2 | 4 | 5 | | 1 | |
| **\| Subfamily: Tanypodinae** | | | | | | | | | | | | | | | |
| **\| Tribe: Pentaneurini** | | | | | | | | | | | | | | | |
| *Thienemannimyia group* | | | | | | | | | 1 | | | | | | |
| **\| Family: Dixidae** | | | | | | | | | | | | | | | |
| *Dixa* | | | | | | | | | | | | | | | |
| **\| Family: Empididae** | | 2 | | 4 | 2 | | 2 | | | | 2 | | | 2 | |
| *Chelifera/ Metachela* | | | | | | | | | | | | | 4 | | 1 |
| *Clinocera* | | 1 | | | | | | | | | | | | | |
| *Clinocerinae Unknown Genus A* | | | | | | | | | | | | | | | |
| *Neoplasta* | | | | | | | 1 | | | | 2 | | 5 | 1 | |
| *Oreogeton* | | | | 2 | 2 | 1 | | 2 | 1 | 2 | 2 | | 40 | 2 | 12 |
| *Wiedemannia* | | | | | | | | | | | | | | | 3 |
| **\| Family: Psychodidae** | | | | | | | | | | | | | | | |
| *Pericoma/Telmatoscopus* | | | 2 | 2 | 1 | 1 | 10 | 1 | 5 | 2 | 4 | 5 | | 1 | 2 |
| **\| Family: Simuliidae** | | | | | | | | | | 2 | | | 1 | | |
| *Simulium* | | | | | | | | 1 | | | | | | | |
| **\| Family: Tipulidae** | 5 | 3 | 5 | 1 | 1 | | | 2 | | 2 | 4 | 3 | | | |
| *Dicranota* | 3 | 2 | 1 | 1 | | 1 | | | | 2 | | 5 | | | |
| *Gonomyodes* | 1 | 2 | | | | | | | | | | | | | |
| *Hesperoconopa* | | | | | | | | | | | | | | | |
| *Limnophila* | | | | | | | | | | | | | 1 | 1 | 1 |
| *Ormosia* | | | | | | | | | | | | | | | |
| *Rhabdomastix* | | | | | | | | | | | | | | | |
| *Tipula* | | | | | | | 1 | | | | | | | | |
| **\| Order: Hemiptera** | | | | | | | | | | | | | | | |
| **\| Order: Lepidoptera** | | | | | | | | | | | | | | | |
| **\| Order: Thysanoptera** | | 2 | | | | | | | | | | | | | |
| **Subphylum: Crustacea** | | | | | | | | | | | | | | | |
| **\| Class: Ostracoda** | | | | 1 | | 1 | | | | 2 | 2 | | | 1 | |
| **\| Class: Branchiopoda** | | | | | | | | | | | | | | | |
| **\| Order: Cladocera** | | | | | | | | | | | | | 1 | | |
| **Subphylum: Chelicerata** | | | | | | | | | | | | | | | |
| **\| Class: Arachnida** | | | | | | | | | | | | | | | |
| **\| Order: Trombidiformes** | 4 | 3 | | 2 | | | 1 | 1 | 2 | | 14 | 13 | 4 | 3 | |
| **\| Family: Aturidae** | | | | | | | | | | | | | | | |
| *Aturus* | | | | | | | | 1 | | | | | 1 | 2 | |
| **\| Family: Feltriidae** | 16 | | | 9 | | 1 | 2 | | 1 | 8 | | | | | |
| *Feltria* | | 15 | 6 | 1 | | | | | | | 8 | | | 1 | 1 |
| **\| Family: Halacaridae** | | | | 1 | | | | | | | | | | | |
| **\| Family: Hygrobatidae** | | | | | | | | | | | | | | | |
| *Atractides* | | | | 1 | | | | 1 | | | | | | | |
| *Hygrobates* | | | | | | | 1 | | | | | | | | |
| **\| Family: Lebertiidae** | | | | | | | | | | | | | | | |
| *Lebertia* | | | | 1 | | | 1 | 1 | | | | | 3 | | |
| **\| Family: Sperchontidae** | | | | | | | | | | | | | | | |
| *Sperchon* | | 1 | | 4 | | | 1 | 8 | 1 | | | 5 | 3 | 1 | 2 |
| **Suborder: Prostigmata** | | | | | | | | | | | | | | | |
| **\| Family: Stygothrombidiidae** | | | | | | | | | | | | | | | |
| *Stygothrombium* | | | | | | | | | | | | | | | |
| **\| Order: Sarcoptiformes** | | | | | | | | | | | | | | | |
| **\| Order: Oribatida** | | 1 | | | | | | | | | | | | | |
| **\| Family: Hydrozetidae** | | | | 1 | | 1 | 1 | 1 | | | 4 | | 1 | | |
| **\| Class: Malacostraca** | | | | | | | | | | | | | | | |

**APPENDIX B** **BENTHIC INVERTEBRATE DATA, EAGLE GOLD PROJECT, SEPTEMBER 2018**

| Sample: | W1-A | W1-B | W1-C | W4-A | W4-B | W4-C | W5-A | W5-B | W5-C | W6-A | W6-B | W6-C | W22-A | W22-B | W22-C |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sample Collection Date: | 09-Sep-18 | 09-Sep-18 | 09-Sep-18 | 09-Sep-18 | 09-Sep-18 | 09-Sep-18 | 10-Sep-18 | 10-Sep-18 | 10-Sep-18 | 10-Sep-18 | 10-Sep-18 | 10-Sep-18 | 09-Sep-18 | 09-Sep-18 | 09-Sep-18 |
| CC#: | CC191481 | CC191482 | CC191483 | CC191484 | CC191485 | CC191486 | CC191487 | CC191488 | CC191489 | CC191490 | CC191491 | CC191492 | CC191493 | CC191494 | CC191495 |
| SubSample %: | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 50 | 50 | 37.5 | 75 | 100 | 100 |
| **\| Order: Amphipoda** | | | | | | | | | | | | | | | |
| **\| Family: Crangonyctidae** | | | | | | | | | | | | | | | |
| **\| Class: Maxillipoda** | | | | | | | | | | | | | | | |
| **\| Class: Copepoda** | 1 | 1 | | | | | 1 | 1 | 1 | | 2 | | | | |
| **Phylum: Mollusca** | | | | | | | | | | | | | | | |
| **\| Class: Gastropoda** | | | | | | | 1 | | | | | | | | |
| **Phylum: Annelida** | | | | | | | | | | | | | | | |
| **Subphylum: Clitellata** | | | | | | | | | | | | | | | |
| **\| Class: Oligochaeta** | | | | | | | | | | | | | | | |
| **\| Order: Lumbriculida** | | | | | | | | | | | | | | | |
| **\| Family: Lumbriculidae** | | | | | | | | | | 44 | 30 | | 4 | 2 | 3 |
| *Lumbriculus* | | | | | 4 | 2 | | | | 6 | 84 | 35 | | 3 | |
| **\| Order: Tubificida** | | | | | | | | | | | | | | | |
| **\| Family: Naididae** | | | | | | | | | | | | | | | |
| *Nais* | | 2 | | | 7 | | 6 | 1 | | | | | | | |
| **\| Subfamily: Tubificinae with hair chaetae** | | | 6 | | | | | | | | | | | | |
| **\| Subfamily: Tubificinae without** | 57 | 11 | | 17 | | | | | | | | | | | |
| **Totals:** | **309** | **303** | **237** | **196** | **96** | **44** | **193** | **170** | **156** | **632** | **912** | **885** | **433** | **166** | **132** |
| Totals: | 309 | 303 | 237 | 196 | 96 | 44 | 193 | 170 | 156 | 632 | 912 | 885 | 433 | 166 | 132 |
| Total per site | 849 | | | 336 | | | 519 | | | 2429 | | | 731 | | |
| Taxonomic Richness per sample: | 27 | 33 | 21 | 45 | 26 | 19 | 35 | 35 | 32 | 39 | 40 | 32 | 44 | 37 | 36 |
| Taxonomic Richness per site: | 43 | | | 50 | | | 57 | | | 52 | | | 60 | | |
| **Taxa present but not included:** | | | | | | | | | | | | | | | |
| **Phylum: Nemata** | 1 | 1 | 1 | 1 | 1 | | | 1 | 1 | 2 | 2 | | 1 | 1 | |
| **Phylum: Platyhelminthes** | | | | | | | | | | | | | | | |
| **\| Class: Turbellaria** | | | | | | | | | | | | | | | |
| **Totals:** | **1** | **1** | **1** | **1** | **1** | | | **1** | **1** | **2** | **2** | | **1** | **1** | |

**APPENDIX B** **BENTHIC INVERTEBRATE DATA, EAGLE GOLD PROJECT, SEPTEMBER 2018**

| Sample: | W23-A | W23-B | W23-C | W26-A | W26-B | W26-C | W27-A | W27-B | W27-C | W29-A | W29-B | W29-C | TOTALS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sample Collection Date: | 08-Sep-18 | 08-Sep-18 | 08-Sep-18 | 09-Sep-18 | 09-Sep-18 | 09-Sep-18 | 09-Sep-18 | 09-Sep-18 | 09-Sep-18 | 09-Sep-18 | 09-Sep-18 | 09-Sep-18 | |
| CC#: | CC191496 | CC191497 | CC191498 | CC191499 | CC191500 | CC191501 | CC191502 | CC191503 | CC191504 | CC191505 | CC191506 | CC191507 | |
| SubSample %: | 100 | 100 | 100 | 31.25 | 37.5 | 100 | 100 | 100 | 100 | 100 | 100 | 62.5 | |
| **Phylum: Arthropoda** | | | | | | | | | | | | | |
| **\| Order: Collembola** | 1 | | 1 | | 11 | | 39 | 78 | 56 | 2 | 2 | 3 | 193 |
| **\| Family: Entomobryidae** | | | | | | | | | | 4 | 4 | 2 | 14 |
| **\| Family: Sminthuridae** | | | | | | | | | 1 | | | | 1 |
| **Subphylum: Hexapoda** | | | | | | | | | | | | | |
| **\| Class: Insecta** | | | | | | | | | | | | | |
| **\| Order: Ephemeroptera** | | | | | | | 1 | | | | | | 1 |
| **\| Family: Ameletidae** | | | | | | | | | | | | | |
| *Ameletus* | | 3 | 4 | 32 | 19 | 33 | | | | | 3 | 2 | 157 |
| **\| Family: Baetidae** | 21 | 7 | 11 | | 3 | | 1 | 1 | 1 | 3 | 2 | 5 | 123 |
| *Acentrella* | 4 | 4 | 1 | | | | | | | | | 2 | 15 |
| *Baetis* | | | | | 3 | | 5 | 9 | 4 | | | | 23 |
| *Baetis fuscatus gr.* | | | | | | | | | | | | | 1 |
| *Baetis bicaudatus* | | | | | 5 | 2 | | | | | | | 7 |
| **\| Family: Ephemerellidae** | 36 | 12 | 32 | 3 | | | 1 | | | 5 | 7 | 30 | 516 |
| *Drunella* | | | | | | | | | | | 1 | | 1 |
| *Drunella coloradensis* | 1 | 2 | | 3 | | | | | | | | | 17 |
| *Drunella doddsii* | 44 | 14 | 21 | | | | | | | 4 | 9 | 13 | 216 |
| *Drunella spinifera* | 2 | | | | | | | | | | | | 3 |
| **\| Family: Heptageniidae** | 16 | 7 | 22 | 38 | 64 | 44 | 21 | 30 | 24 | 9 | 18 | 38 | 1333 |
| *Cinygmula* | | 7 | 5 | | 3 | 2 | | | | 1 | 2 | | 96 |
| *Epeorus* | 6 | 1 | 8 | | 8 | 1 | | | | 8 | 6 | 3 | 116 |
| *Rhithrogena* | 1 | | | | 3 | | | | | | 1 | | 10 |
| **\| Order: Plecoptera** | | | | | | | | | | 2 | 3 | 21 | 128 |
| **\| Family: Capniidae** | 17 | 4 | 35 | 118 | 51 | 31 | 1 | 5 | 12 | | 2 | 8 | 683 |
| **\| Family: Chloroperlidae** | 4 | | | 3 | | | 2 | 16 | 5 | 6 | 2 | 5 | 120 |
| *Haploperla* | 1 | | 1 | | | | | | | | 1 | | 24 |
| *Suwallia* | | | | | | | | | | | | | 18 |
| *Sweltsa* | | | | | | | | | | | | | 27 |
| **\| Family: Leuctridae** | 4 | | 7 | | | | | | | 10 | 6 | 32 | 355 |
| *Paraleuctra* | | | 1 | | | | | | | | | 2 | 6 |
| **\| Family: Nemouridae** | | | | 64 | 56 | 27 | 24 | 23 | 55 | 2 | 5 | 26 | 489 |
| *Nemoura* | | | | | | | | | 4 | | | | 4 |
| *Zapada* | 52 | 90 | 67 | | | | | | 1 | 10 | 29 | 22 | 517 |
| *Zapada oregonensis group* | 7 | 13 | 4 | | | 3 | | | | 4 | 4 | | 141 |
| *Zapada cinctipes* | 1 | 3 | 1 | | | | | | | | | | 5 |
| *Zapada columbiana* | 1 | | | | | 1 | | | | 1 | 6 | 3 | 61 |
| **\| Family: Perlodidae** | 1 | | | | | | | | | | | | 7 |
| *Kogotus* | | 2 | | | | | | | | | | | 2 |
| *Megarcys* | | 1 | | | | | | | | | | | 2 |
| **\| Family: Taeniopterygidae** | 13 | 4 | 4 | | | | | | | 1 | 5 | | 51 |
| *Taenionema* | | | | | | | | | | | | | 1 |
| **\| Order: Trichoptera** | | | | | | | | | | | | | 4 |
| **\| Family: Glossosomatidae** | | | | | | | | | | | | 2 | 18 |
| *Glossosoma* | 1 | | | | | | | | | | | | 3 |
| **\| Family: Hydropsychidae** | | | | | | | | | | | | 3 | 4 |
| **\| Family: Limnephilidae** | | | | | 3 | | | | | 3 | 1 | 3 | 16 |
| *Dicosmoecus* | | 1 | | | | | | | | | | | 1 |
| **\| Family: Rhyacophilidae** | | | | | | | | | | | | | |
| *Rhyacophila* | 3 | 3 | | | | | 1 | | 1 | 4 | 12 | 11 | 76 |
| *Rhyacophila vobara subgroup* | | | | | | | | | | | | | 1 |
| *Rhyacophila vofixa group* | 2 | 3 | 1 | | | | | | | | 1 | 3 | 54 |
| *Rhyacophila atrata complex* | 1 | | | | | | | | | | | | 1 |
| **\| Order: Coleoptera** | | | | | | | | | | | | | |
| **\| Family: Curculionidae** | | | | | | | | | | | | | 1 |
| **\| Family: Hydrophilidae** | | | | | | | | | | | | | |
| *Laccobius* | 1 | | | | | | | | | | | | 1 |
| **\| Family: Staphylinidae** | | | | | | | | | | | | | 1 |
| **\| Order: Diptera** | | | | | | | | | | | | | 1 |
| **\| Family: Ceratopogonidae** | | | | | | | 1 | | | | | | 5 |
| *Bezzia/ Palpomyia* | | | 1 | | | | | | 1 | | | | 2 |
| *Ceratopogon* | | | | | 3 | | | | | | | | 3 |
| *Culicoides* | | | | | | | | 1 | | | | | 1 |
| *Dasyhelea* | 1 | | | | | | | | | | | | 1 |
| *Forcipomyia* | | | | | | | 1 | | | | | | 1 |
| *Mallochohelea* | 4 | 2 | 4 | | | | | 1 | | | | | 11 |
| **\| Family: Chironomidae** | 3 | 2 | 6 | 112 | 21 | 4 | | 1 | 1 | | 1 | | 190 |
| **\| Subfamily: Chironominae** | | | | | | | | | | | | | |
| **\| Tribe: Chironomini** | | | | | | | | | | | | | |
| *Polypedilum* | | | | | | | | | | | | | 2 |
| **\| Tribe: Tanytarsini** | | | | | | | | | | 1 | | 2 | 25 |
| *Micropsectra* | | | | | | | | | | | | | 24 |

**APPENDIX B** **BENTHIC INVERTEBRATE DATA, EAGLE GOLD PROJECT, SEPTEMBER 2018**

| Sample: | W23-A | W23-B | W23-C | W26-A | W26-B | W26-C | W27-A | W27-B | W27-C | W29-A | W29-B | W29-C | TOTALS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sample Collection Date: | 08-Sep-18 | 08-Sep-18 | 08-Sep-18 | 09-Sep-18 | 09-Sep-18 | 09-Sep-18 | 09-Sep-18 | 09-Sep-18 | 09-Sep-18 | 09-Sep-18 | 09-Sep-18 | 09-Sep-18 | |
| CC#: | CC191496 | CC191497 | CC191498 | CC191499 | CC191500 | CC191501 | CC191502 | CC191503 | CC191504 | CC191505 | CC191506 | CC191507 | |
| SubSample %: | 100 | 100 | 100 | 31.25 | 37.5 | 100 | 100 | 100 | 100 | 100 | 100 | 62.5 | |
| *Stempellinella* | | | | | | | | | | | | | 14 |
| **\| Subfamily: Diamesinae** | | | | | | | | | | | | | |
| **\| Tribe: Diamesini** | | | | | | | | | | | | | |
| *Diamesa* | 6 | 3 | | 48 | 69 | 14 | 14 | 36 | 34 | 12 | 9 | 10 | 412 |
| *Pagastia* | 14 | 14 | 4 | 70 | 64 | 5 | | | | 2 | 12 | 3 | 321 |
| *Pseudodiamesa* | | | | 3 | 11 | 4 | 1 | | 1 | | | | 22 |
| **\| Subfamily: Orthocladiinae** | 2 | 2 | | | | 2 | 1 | 3 | 4 | | | | 23 |
| *Brillia* | | | | | | | | 1 | | | | | 3 |
| *Eukiefferiella* | 9 | 1 | 1 | 243 | 315 | 87 | | 3 | 9 | 2 | | 5 | 701 |
| *Gymnometriocnemus* | | | | | | | | | | | | | 1 |
| *Krenosmittia* | | | | | | | | | | | | | 1 |
| *Limnophyes* | | | | | 16 | 4 | | | | | | | 20 |
| *Metriocnemus* | | | | 10 | | | | 4 | 5 | | | | 19 |
| *Orthocladius complex* | 15 | 80 | 12 | 10 | 21 | | 9 | 36 | 36 | 10 | 9 | 10 | 417 |
| *Parorthocladius* | | | | | | | | | | | | | 1 |
| *Rheocricotopus* | | 1 | | | | | | | | | | 3 | 35 |
| *Thienemanniella* | | | | | | | | | | | | | 4 |
| *Tvetenia* | | | 1 | 3 | 24 | 6 | | | 1 | | 1 | 3 | 55 |
| **\| Subfamily: Tanypodinae** | | | | | | | | | | | | | |
| **\| Tribe: Pentaneurini** | | | | | | | | | | | | | |
| *Thienemannimyia group* | | | | | | | | | | | | | 1 |
| **\| Family: Dixidae** | | | | | | | | | | | | | |
| *Dixa* | | | | | | | 1 | | | | | | 1 |
| **\| Family: Empididae** | 1 | 1 | | | | | | | 2 | | 1 | 2 | 21 |
| *Chelifera/ Metachela* | 2 | 14 | 6 | | | | | | | | | | 27 |
| *Clinocera* | | | | | | | | | | | | | 1 |
| *Clinocerinae Unknown Genus A* | | 2 | | | | | 1 | 1 | | 1 | | 2 | 7 |
| *Neoplasta* | 4 | 11 | 6 | | | | | | | | | 2 | 32 |
| *Oreogeton* | | | 1 | | | | | | | 3 | 11 | 10 | 91 |
| *Wiedemannia* | | | | 3 | 3 | 1 | | | | | | | 10 |
| **\| Family: Psychodidae** | | | | | | | | | | | | | |
| *Pericoma/Telmatoscopus* | 7 | 31 | 14 | 3 | 3 | 3 | 8 | 9 | 11 | | 1 | | 126 |
| **\| Family: Simuliidae** | | | | | | | | | | | | | 3 |
| *Simulium* | | | | | | | | | | | 1 | | 2 |
| **\| Family: Tipulidae** | | | | | | | | 1 | | | 1 | 2 | 30 |
| *Dicranota* | | | 1 | | | 1 | | 1 | 2 | | | | 20 |
| *Gonomyodes* | | | | | | | | | | | | | 3 |
| *Hesperoconopa* | | | 1 | | | | | | | | | | 1 |
| *Limnophila* | | 2 | | | | | | | | | 1 | 2 | 8 |
| *Ormosia* | 2 | | | | | | | | | | | | 2 |
| *Rhabdomastix* | 2 | 1 | | | | | | | | | | | 3 |
| *Tipula* | | | | | | 1 | | 2 | | | | | 4 |
| | | | | | | | | | | | | | |
| **\| Order: Hemiptera** | | | | | | | 2 | | | | | | 2 |
| **\| Order: Lepidoptera** | | | | | | | | 1 | | | | | 1 |
| **\| Order: Thysanoptera** | | | | | | | | | | | | | 2 |
| | | | | | | | | | | | | | |
| **Subphylum: Crustacea** | | | | | | | | | | | | | |
| **\| Class: Ostracoda** | | 1 | | | | | | | | | 1 | 2 | 11 |
| **\| Class: Branchiopoda** | | | | | | | | | | | | | |
| **\| Order: Cladocera** | | | | | | | | | | | | | 1 |
| | | | | | | | | | | | | | |
| **Subphylum: Chelicerata** | | | | | | | | | | | | | |
| **\| Class: Arachnida** | | | | | | | | | | | | | |
| **\| Order: Trombidiformes** | | | | | | | | | 1 | | 2 | 3 | 53 |
| **\| Family: Aturidae** | | | | | | | | | | | | | |
| *Aturus* | | 7 | 3 | | | | | | | | 2 | 3 | 19 |
| **\| Family: Feltriidae** | | | | | | | | | | | | | 37 |
| *Feltria* | 2 | 13 | 2 | 13 | 5 | 4 | | | | 1 | 2 | | 74 |
| **\| Family: Halacaridae** | | | | | | | | | | | | | 1 |
| **\| Family: Hygrobatidae** | | | | | | | | | | | | | |
| *Atractides* | | 2 | | | | | | | | | | | 4 |
| *Hygrobates* | 1 | 1 | | | | | | | | | | | 3 |
| **\| Family: Lebertiidae** | | | | | | | | | | | | | |
| *Lebertia* | 1 | 13 | 6 | | | | | | | | 1 | | 27 |
| **\| Family: Sperchontidae** | | | | | | | | | | | | | |
| *Sperchon* | 2 | 19 | 2 | | | | | | | 1 | 5 | 8 | 63 |
| | | | | | | | | | | | | | |
| **Suborder: Prostigmata** | | | | | | | | | | | | | |
| **\| Family: Stygothrombidiidae** | | | | | | | | | | | | | |
| *Stygothrombium* | 1 | | | | | | | | | | | | 1 |
| | | | | | | | | | | | | | |
| **\| Order: Sarcoptiformes** | | | | | | | | | | | | | |
| **\| Order: Oribatida** | | | | | | 1 | 1 | | | | | | 3 |
| **\| Family: Hydrozetidae** | 1 | 1 | | | | 7 | 11 | 4 | 6 | | 1 | 2 | 42 |
| | | | | | | | | | | | | | |
| **\| Class: Malacostraca** | | | | | | | | | | | | | |

**APPENDIX B** **BENTHIC INVERTEBRATE DATA, EAGLE GOLD PROJECT, SEPTEMBER 2018**

| Sample: | W23-A | W23-B | W23-C | W26-A | W26-B | W26-C | W27-A | W27-B | W27-C | W29-A | W29-B | W29-C | TOTALS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sample Collection Date: | 08-Sep-18 | 08-Sep-18 | 08-Sep-18 | 09-Sep-18 | 09-Sep-18 | 09-Sep-18 | 09-Sep-18 | 09-Sep-18 | 09-Sep-18 | 09-Sep-18 | 09-Sep-18 | 09-Sep-18 | |
| CC#: | CC191496 | CC191497 | CC191498 | CC191499 | CC191500 | CC191501 | CC191502 | CC191503 | CC191504 | CC191505 | CC191506 | CC191507 | |
| SubSample %: | 100 | 100 | 100 | 31.25 | 37.5 | 100 | 100 | 100 | 100 | 100 | 100 | 62.5 | |
| \| Order: Amphipoda | | | | | | | | | | | | | |
| \| Family: Crangonyctidae | | | | | | | 3 | 1 | 3 | | | | 7 |
| \| Class: Maxillipoda | | | | | | | | | | | | | |
| \| Class: Copepoda | 1 | | 1 | 3 | 3 | 1 | 1 | | | | 1 | | 18 |
| Phylum: Mollusca | | | | | | | | | | | | | |
| \| Class: Gastropoda | | | | | | | | | | | | | 1 |
| Phylum: Annelida | | | | | | | | | | | | | |
| Subphylum: Clitellata | | | | | | | | | | | | | |
| \| Class: Oligochaeta | | | | | | | | | | | | | |
| \| Order: Lumbriculida | | | | | | | | | | | | | |
| \| Family: Lumbriculidae | | 7 | 6 | 157 | 64 | 9 | | 4 | 3 | 16 | 49 | 192 | 590 |
| *Lumbriculus* | | | 1 | 45 | 32 | 31 | | 2 | | 3 | 15 | | 263 |
| \| Order: Tubificida | | | | | | | | | | | | | |
| \| Family: Naididae | | | | | | | | | | | | | |
| *Nais* | | | | | | | | | | | | 38 | 54 |
| \| Subfamily: Tubificinae with hai | | | | | | | | | | | | | 6 |
| \| Subfamily: Tubificinae without | | | | | | | | | | | | | 85 |
| **Totals:** | **322** | **412** | **305** | **984** | **883** | **329** | **151** | **274** | **284** | **131** | **259** | **543** | **9741** |
| Totals: | 322 | 412 | 305 | 984 | 883 | 329 | 151 | 274 | 284 | 131 | 259 | 543 | |
| Total per site | 1039 | | | 2196 | | | 709 | | | 933 | | | |
| Taxonomic Richness per sample: | 46 | 43 | 38 | 21 | 27 | 27 | 24 | 26 | 27 | 29 | 45 | 42 | 124 |
| Taxonomic Richness per site: | 65 | | | 38 | | | 43 | | | 55 | | | |
| **Taxa present but not included:** | | | | | | | | | | | | | |
| **Phylum: Nemata** | 1 | 1 | 1 | 3 | 3 | 1 | 1 | | 1 | 1 | 1 | 2 | |
| **Phylum: Platyhelminthes** | | | | | | | | | | | | | |
| **\| Class: Turbellaria** | | | | 3 | 3 | 1 | | | | | | | |
| **Totals:** | **1** | **1** | **1** | **6** | **6** | **2** | **1** | **0** | **1** | **1** | **1** | **2** | |

# APPENDIX C

# PHOTOGRAPHS, 2018



Photo #1:  W1, Dublin Gulch, September 9th, 2018



Photo #2:  W4, Haggart Creek downstream of Dublin, September 9th, 2018



Photo #3:  W23, Haggart Creek downstream of Lynx Creek, Sept 8th, 2018

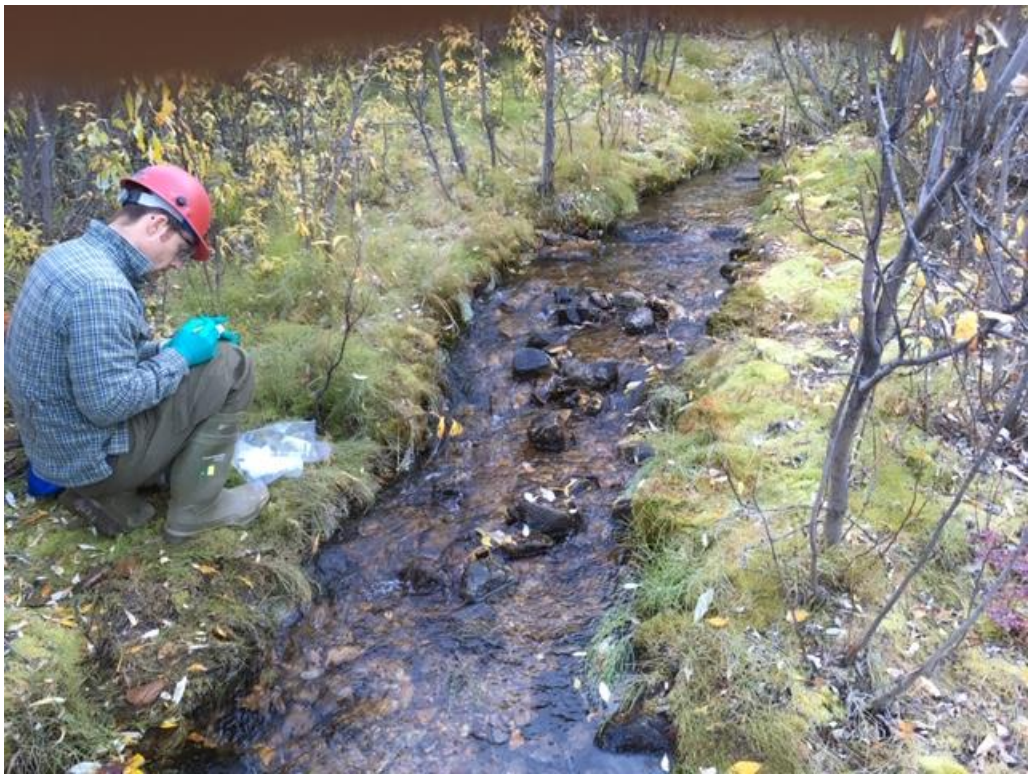

Photo #4:  W27, Eagle Creek, September 9th, 2018




Photo #5: W29, Haggart Cr d/s Dublin Gulch and Eagle Cr, Sept 9, 2018




Photo #6: W29, Haggart Cr d/s Dublin Gulch and Eagle Cr, Sept 10th, 2018

# APPENDIX L

## Fish and Fish Habitat Monitoring Report 2018

# EAGLE GOLD PROJECT
# FISH AND FISH HABITAT MONITORING REPORT
# 2018



**prepared for**

Victoria GOLD CORP

**Submitted by**

Laberge Environmental Services

**March 2019**

# Eagle Gold Project
# Fish and Fish Habitat
# Monitoring Report
# 2018

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Use of the information in this report is for education and information purposes. If you want to use any portion of this report in any publications, you must use the citation above or please contact Victoria Gold Corporation if you require a copy.

Cover Photo: Victoria Gold environmental crew at Lynx Creek monitoring site.
Photo Credit: N. de Graff

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# 1.0 INTRODUCTION

The Eagle Gold Project currently under development by StrataGold Corporation, a subsidiary of Victoria Gold Corporation, is located in Dublin Gulch in the upper reaches of Haggart Creek in north-central Yukon near the town of Mayo, about 400 km north of Whitehorse. The project as proposed is comprised of an open pit mine and associated mine features, improvements to the Haggart Creek Road, and a 44 kilometer, 69 kV transmission line. It is within the Mayo Mining District where placer mining activities on Haggart Creek have occurred intermittently since 1895 (Tempelman-Kluit 1964).

Various monitoring projects have been prepared to oversee all phases of development at the Eagle Gold Project and are outlined in the Environmental Monitoring, Surveillance and Adaptive Management Plan (EMSAMP) version 2017-01 (StrataGold 2017). The purpose of this study is to report on fish and fish habitat monitoring sites related to the construction phase of the Project. Relevant past data (de Graff 2017; Stantec 2010) has been examined and is presented where appropriate. This study represents the second annual late summer fish monitoring program and was completed in mid-September 2018.

# 2.0 STUDY AREA

The Eagle Gold Project is accessible via the Silver Trail and the South McQuesten and Haggart Creek Roads. The Project is situated within the traditional territory of the First Nation of the Na-Cho Nyäk Dun. The watersheds in the study area originate in the low lying mountains between the East and South McQuesten drainage basins of the Stewart Plateau in the north-central Yukon.

The principle drainage is Haggart Creek of which Dublin Gulch, Eagle, Ironrust and Lynx creeks are tributaries. Haggart Creek flows southwest and eventually discharges into the South McQuesten River. The South McQuesten River is a tributary of the Stewart River, a large tributary of the Yukon River drainage basin.

The study area is located in the Boreal Cordillera ecozone that is characterized by mountain ranges that contain numerous high peaks and extensive plateaus, and are separated by wide valleys and lowlands. Landscape features of the region are primarily the result of past glacial activity, erosion and widespread deposits however the majority of the study area remained un-glaciated during the last glacial period (Bostock 1965). Much of the Project area displays physiographic characteristics of the unglaciated areas of the region, with narrow, deep valleys that extend to the head of streams, where they rise steeply and end abruptly (StrataGold 2015).

Black spruce, trembling aspen, balsam poplar, and white birch are the most common forest types. At higher elevations, scrub birch and willow occur in subalpine sections with extensive landscapes of rolling alpine tundra characterized by sedge-

dominated meadows, and lichen-colonized rock fields. The climate in this region is an interior subalpine type with long cold winters and summers that are brief and cool.

# 3.0 METHODS

A total of 5 monitoring sites (HC1, HC2, HC3, IR2, and L1) were assessed in Haggart, Ironrust and Lynx creeks during this study. Figure 1 depicts the locations of each monitoring site. All monitoring sites are consistent with locations that were previously identified and assessed in past baseline studies (de Graff 2017; Stantec 2015) and are referred to in the Environmental Monitoring, Surveillance and Adaptive Management Plan (StrataGold 2017). Descriptions of the drainages included in this project are presented in Table 1.

## 3.1 Aquatic Habitat Surveying

A section of the stream containing representative mesohabitat type (riffle, rapid, run, glide, pool or backwater) was surveyed at each monitoring site (HC1 225 meters, HC2 175 meters, HC3 160 meters, IR2 100 meters and L1 100 meters). CABIN (2018) field assessment sheets and British Columbia Fish and Fish Habitat Inventory (BCMSRM 2001) field protocols were used to record biophysical data. This included the geo-referencing of each monitoring site with a hand-held Garmin GPS (datum WGS 87). Determined attributes from field measurements included those related to site (date, elevation and UTM coordinates), channel characteristics (channel and wetted widths, gradient, stage, fish cover, residual pool depth, crown closure and riparian vegetation) and substrate data (Wolman pebble count, embeddedness, interstitial material and periphyton coverage). Digital photographs included upstream and downstream perspectives of each sampled site. Basic water quality parameters were additionally recorded (clarity, conductivity, pH and temperature).

## 3.2 Fish Sampling

Fish sampling was conducted under a permit (XR 282 2018) obtained from Fisheries and Oceans Canada (Appendix III). At each monitoring site backpack electrofishing (Smith-Root model LR-24) and minnow trapping were the primary techniques used to establish fish presence. For electrofishing, the conductivity of the water was first noted to assist in the initial setup. Captured fish were placed in a water filled bucket. Any fish that were observed or "flipped" and avoided capture with the dipnet were also noted. Voltage was adjusted to enable fish in the bucket to recover within 5 to 20 seconds. A standard waveform of between 180 to 285 volts, a frequency of 60 Hz. and a duty cycle ranging from 14 to 18 percent was effectively used throughout the project. A single-pass methodology with a minimum of 500 seconds of active fishing time was completed at each monitoring site.

Galvanized ¼ inch "Gee" type minnow traps, which were baited with suspended sacs of Yukon River salmon roe, were also utilized at each monitoring site using methods described by the Yukon River Panel (2007). Minnow traps were set in various habitat types such as scour pools, side-channels, undercut banks or in woody debris that provided cover for fish. A total of five minnow traps were set for an overnight period at each monitoring site. Soak times were recorded for each trap. Angling employed the use of small spinners. The time spent angling was used as an index of sampling effort.

All captured fish were measured for either a fork or total length (± 1 mm) and weight (± 0.1 gm). Weight was determined using a digital scale by first blotting excess water from the fish and then placing each fish into a container on the scale. Total length was recorded for slimy sculpin and burbot while fork lengths were noted for Arctic grayling. All captured fish were given time to recover in a water filled bucket before being live-released in a slack water area near the capture site.

# 4.0 RESULTS AND DISCUSSION

## 4.1 Aquatic Habitat

A comparative summary of aquatic habitat characteristics determined for the five monitoring sites is presented in Table 2. Individual site summary tables are presented in Appendix I. While all sites share a similar riffle-pool-run morphology, specific habitat characteristics varied and were dependent on the gradient of the site that link hydrological processes to substrate materials and channel form.

Site HC1, situated on the mainstem of Haggart Creek upstream of the confluence with Lynx Creek, had the greatest average channel width of 11.8 meters. Deep pool and undercut bank microhabitats were the dominant fish cover types with total cover estimated to be about 15 percent of the available aquatic habitat at this location. Residual pool depth (0.5 m) was similar to the other two sites on Haggart Creek however the pools were generally larger and more frequent at this location. Based on the pebble counts, small cobble dominated the substrates and the embeddedness of individual rocks averaged 45 percent (Table 2). Gravel (0.2-1.6 cm) was the predominant type of interstitial material. Periphyton coverage was moderate with rocks having a noticeable slippery feel, with patches of thicker green to brown algae. The irregular wandering channel contained some disturbance indicators in the form of elevated bars, eroding banks, abandoned and multiple channels that appear to reflect past upstream activities related to historic mining.

Monitoring site HC2 is situated between sites HC1 and HC3 at the Dublin Gulch confluence, the principle drainage associated with the Eagle Gold Project. The landscape at this location has been previously disturbed from historic placer mining. Access roads and construction activities associated with the current mine development are in close proximity to this site. The mean channel width at this location was only marginally narrower and of slightly higher gradient than HC1.

Total fish cover was low and estimated to be only 5 percent of the available aquatic habitat available. Fish cover was mainly in the form of boulders however other cover types when present included undercut banks, overhanging vegetation and the occasional deep scour pool with residual depths of about 0.4 meters. Course gravels dominated the substrate and the embeddedness of individual rocks averaged 53 percent. The interstitial material was largely composed of fine sands (<0.2 cm) and gravel (0.2 to 1.6 cm). Periphyton coverage was noticeable with rocks having a definite slippery feel with a yellow brown to light green coloration on the surface. The channel pattern was sinuous with several disturbance indicators including elevated bars, eroding banks, multiple and abandoned channels, and areas of extensive bed scour.

Monitoring site HC3 is situated less than a kilometer upstream of site HC2 and upstream of all project influence. Higher stream velocities associated with the more confined channel (6.1 meters) resulted in the predominance of riffles, rapids and straight runs at this site. Boulders and undercut banks were the dominant forms of fish cover. The only other cover type present was overhanging vegetation along the channel margins. Total cover was estimated to be only 10 percent of the available habitat in the channel. Course gravel dominated the substrate. The embeddedness of individual rocks averaged 53 percent and the interstitial material was predominantly course gravel (1.6 to 3.2 cm). Similar to site HC1 further downstream, periphyton coverage was again noticeable with rocks having a definite slippery feel with a yellow brown to light green coloration on the surface. The channel was sinuous in pattern and occasionally confined by the valley wall. No disturbance indicators were observed in the channel.

The stream morphology at monitoring site IR2 in Ironrust Creek, a water course unaffected by the project, was dominated by riffles and rapids. The channel width of approximately 4.3 meters was the smallest of the surveyed sites. Fish cover was low and represented only 5 percent of the aquatic habitat that was present. Boulders and overhanging vegetation were the primary fish cover types. Scour pools, when present, had very low residual depths (<0.2 meters). While small cobbles dominated the substrate, there were good quantities of course gravel throughout the channel. The site gradient was estimated to be 2.9 percent and was reflected by the substantial cobble armoring that characterized the stream bed. The embeddedness of individual rocks averaged 48 percent and the interstitial material was composed of coarse gravel (1.6 to 3.2 cm). Periphyton thickness was thin with only a slightly slippery feel to the rocks. The sinuous channel was frequently confined in the valley and no disturbance indicators were observed.

The stream channel of Lynx Creek (a water course unaffected by the project) at site L1 was a classic riffle-pool-glide sequence. Total fish cover was estimated to be 20 percent of the aquatic habitat present. Deep pools and undercut banks were the dominant fish cover types but small woody debris and overhanging vegetation also contributed when present. The estimated residual pool depth of 0.8 meters was the deepest in comparison to the other sites providing excellent habitat for fish. The low

channel gradient at this site (0.1 percent) is likely a result of a backwater effect of the large alluvial fan that forms the confluence of Lynx Creek with Haggart Creek. Substrates were composed of varying size classes of gravels making for some of the best substrates for fish in the project area. The interstitial material was mostly composed of fines (<0.1 cm) and the embeddedness of the rocks was 6 percent, the lowest of all the sites studied. Periphyton on the rock surfaces was thin with only a slightly slippery feel apparent. The channel pattern was characterized with irregular meanders, well-defined streambanks and unconfined by the valley walls. The channel at this site is situated near the center of the Lynx Creek valley and no disturbance indicators were observed.

A comparison between 2017 and 2018 substrate size classes as determined by pebble counts are presented in Figure 2. With the exception of some of the class proportions, mainly between coarse gravel and small cobble, little change is apparent between years. The slight differences at each of the sites are thought to be mainly due to the natural variability of the substrate. In particular, high flows at some stations in 2017 (i.e. site IR2) prevented the sampling of substrates across the main channel.

### 4.2 Fish Distribution

The composition of the catch in 2018 was represented by three fish species that included in decreasing frequency of capture: slimy sculpin (21) Arctic grayling (11) and burbot (1). A summary of sampling effort and catch at each of the five monitoring sites is presented in Table 3. A comparison of annual fish catches in 2017 and 2018 is presented in Table 4.

The three fish species captured in 2018 have been previously documented to inhabit Haggart Creek (Hallam Knight Piésold 1995, 1996; Madrone 2006; Stantec 2010, de Graff 2017). Other fish species that have been reported to occur in the drainage, primarily in the lower reaches of Haggart Creek, include Chinook salmon, round whitefish, northern pike and Arctic lamprey. Several Chinook salmon fry (age $1^{+}$) were captured at sites HC1 and HC3 in 2017 however during this study none were captured at any of the sites in 2018. In the baseline assessment by Stantec (2010) only slimy sculpin and Arctic grayling were reported in the catch after study of 10 watercourses representing 38 sampling sites associated with the local study area.

Slimy sculpin dominated the overall catch in 2018 and were found at all five monitoring sites. Site L1 in Lynx Creek had the greatest catch with many others being readily observed along the stream bottom while working at the site. Sculpin captures were few at sites HC3 and IR2 with only a single fish represented in the catch at both sites. Sculpin total lengths ranged from 45 to 120 mm indicating the presence of both juvenile and adult life history stages. This size range was similar to those reported by Stantec (2010) in their baseline study. A length frequency histogram of captured sculpin from both the 2017 and 2018 monitoring programs is presented in Figure 4. Overall captures of sculpin at all of the sites were generally

lower in 2018 compared to 2017 (Table 4). It is believed that the cold-water temperatures during the study (-1.0 to 1.0 ° C) combined with the abundance of frazil ice during the survey likely resulted in fewer captures. This was especially evident with the minnow traps becoming engulfed in frazil ice at some of the monitoring sites (Figure 3). Future monitoring projects should consider an earlier sampling window to avoid these affects.

Arctic grayling were represented in the catch in low numbers at each of the monitoring sites with the exception of sites HC3 and IR2. A single Arctic grayling was observed but not captured at IR2 during the survey. Grayling sampled during this project were thought to be exclusively young-of-the-year and ranged in fork lengths from 67 to 94 mm. Older age classes and larger grayling were noticeably absent in the catch. This artifact may have been a function of seasonal movements initiated by cooler stream temperatures and ice conditions associated with the mid-September sampling window.

Previous studies reported the presence of Chinook salmon in the lower reaches of Haggart Creek (Madrone 1996; Hallam Knight Piésold 1995, 1996). In the baseline study by Stantec (2010) juvenile Chinook salmon were not captured at any of the Haggart Creek monitoring sites, nevertheless, two were captured at HC1 and five at HC3 in 2017 (de Graff 2017). Presence at these locations represents their furthest upstream occurrence in the Haggart Creek watershed. Chinook salmon juveniles (age $0^+$) were not captured during 2018 and may be the result of lower densities in the drainage from a weaker brood year.

## 5.0 CONCLUSION

The results from the current monitoring program was similar to the 2017 program and past baseline studies based on the measured biophysical characteristics and fish species found at each of the five monitoring sites. Notable during this project was the capture of burbot at the Lynx Creek site. While the absolute number of fish captures varied, the species composition continues to be consistent and indicative of a stable fish community. The absence of Chinook salmon juveniles (age $0^+$) in the mainstem of Haggart Creek is consistent with previous surveys. Chinook salmon juveniles have only been sporadically documented in the upper reaches of Haggart Creek (i.e. upstream of the Lynx Creek confluence).

## 6.0 REFERENCES

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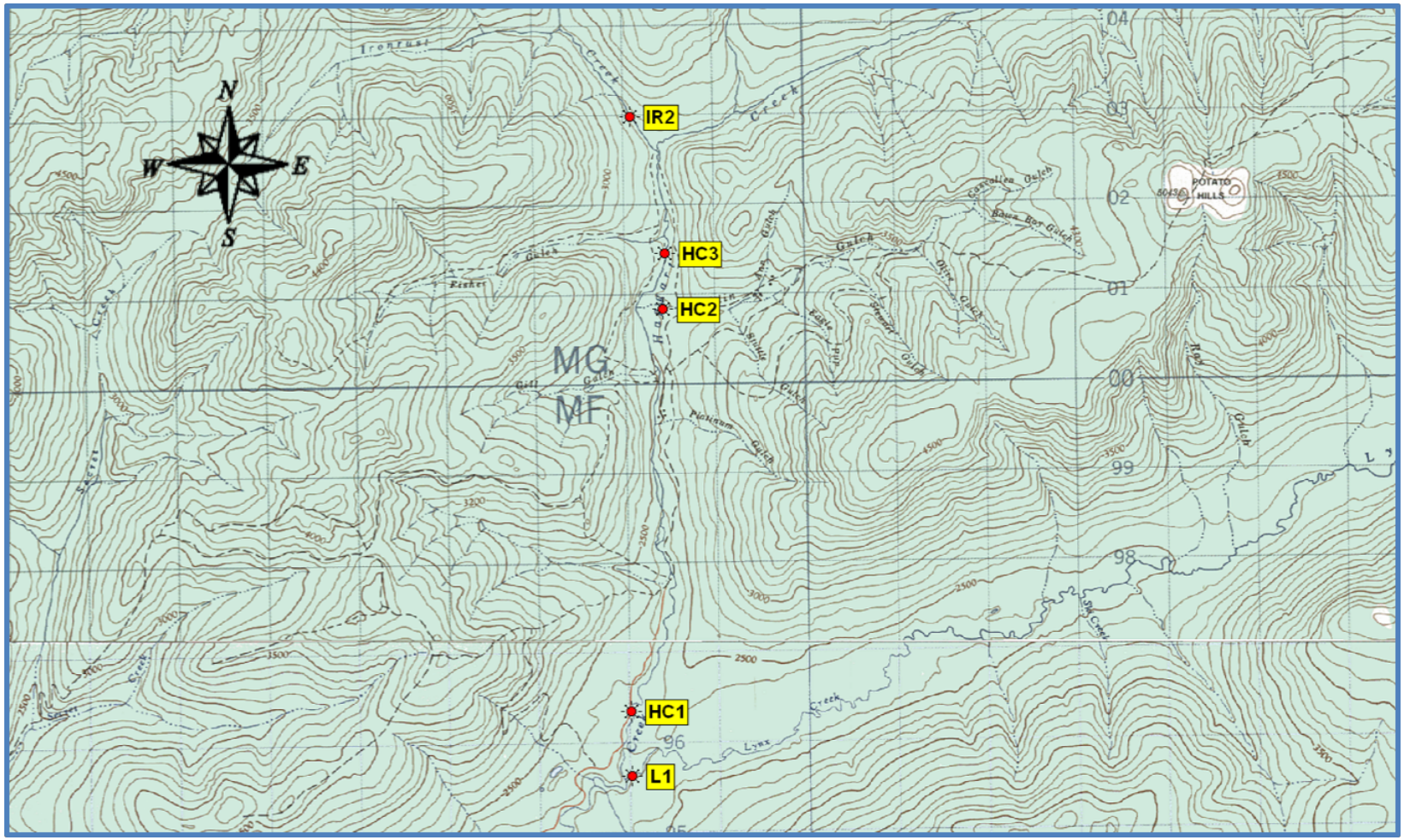



**Figure 1 Monitoring sites associated with the Eagle Gold Project, September 2018.**

**Table 2 Drainage descriptions of monitoring sites associated with the Eagle Gold Project, September 2018.**

| DRAINAGE | DESCRIPTION | MONITORING SITES |
|---|---|---|
| Haggart Creek | Receiving waters from the Eagle Gold Property and discharges into the South McQuesten River. | HC1 |
| Haggart Creek | Receiving waters from the Eagle Gold Property and discharges into the South McQuesten River. | HC2 |
| Haggart Creek | Downstream of the Ironrust Creek confluence and upstream of the Eagle Gold Property. | HC3 |
| Ironrust Creek | Creek draining the west face of Haggart Dome and discharges into Haggart Creek upstream of the Eagle Gold Property. | IR2 |
| Lynx Creek | Creek draining the south face of Potato Hills and discharges into Haggart Creek downstream of the Eagle Gold Property. | L1 |

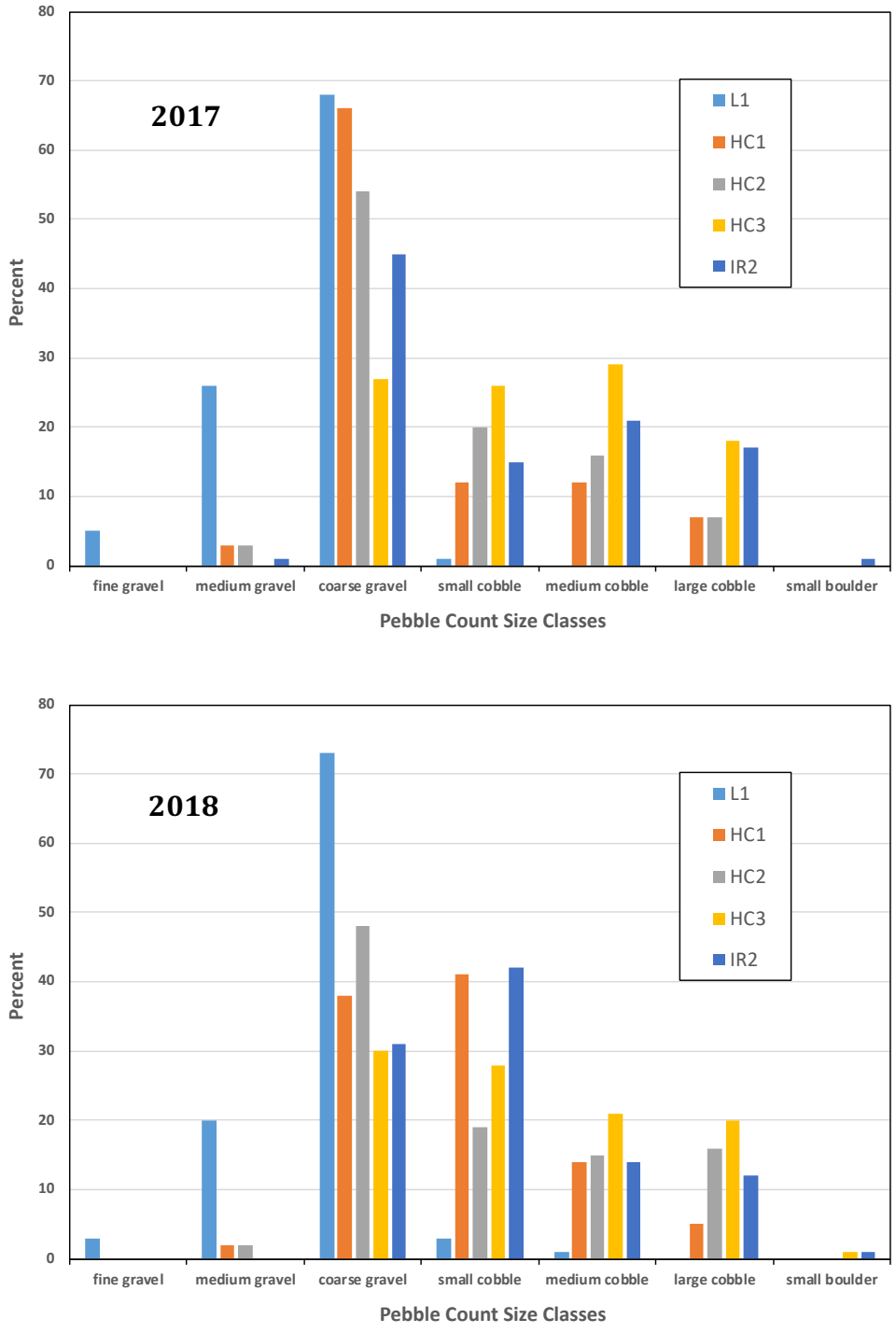



**Figure 2 Comparison of 2017 and 2018 substrate size classes based on pebble counts at monitoring sites associated with the Eagle Gold Project.**

**Table 3 Summary of biophysical characteristics determined at monitoring sites associated with the Eagle Gold Project, September 2018.**

| PARAMETER | | MONITORING SITES | | | | |
|---|---|---|---|---|---|---|
| | | Haggart Creek Drainage | | | Ironrust Creek Drainage | Lynx Creek Drainage |
| | | HC1 | HC2 | HC3 | IR2 | L1 |
| SITE | Survey Date | Sept 19, 2018 | Sept 20, 2018 | Sept 21, 2018 | Sept 20, 2018 | Sept 19, 2018 |
| | Site Elevation (m) | 719 | 783 | 783 | 818 | 712 |
| | UTM (08 V) | E 457967<br>N 7096518 | E 458085<br>N 7101152 | E 458427<br>N 7101584 | E 458005<br>N 7103153 | E 458003<br>N 7095825 |
| SITE BIOPHYSICAL DATA | Mean channel width (m) | 11.8 | 10.0 | 6.1 | 4.3 | 7.0 |
| | Mean wetted width (m) | 9.1 | 6.9 | 5.6 | 3.2 | 5.0 |
| | Gradient (%) | 1.0 | 1.4 | 1.1 | 2.9 | 0.1 |
| | Stage | moderate | moderate | moderate | moderate | moderate |
| | Total fish cover (%) | 15 | 5 | 10 | 5 | 20 |
| | Dominant cover types | deep pool, undercut banks | boulders | boulders, undercut banks | boulders, overhanging vegetation | deep pools, undercut banks |
| | Subdominant cover types | small woody debris, overhanging vegetation | deep pools, undercut banks, overhanging vegetation | overhanging vegetation | undercut banks | small woody debris, overhanging vegetation |
| | Residual pool depth (m) | 0.5 | 0.5 | 0.5 | < 0.2 | 0.8 |
| | Crown closure (%) | 0 | 0 | 0 | 0 | 0 |

**Table 2 Continued**

| PARAMETER | | MONITORING SITES | | | | |
|---|---|---|---|---|---|---|
| | | Haggart Creek Drainage | | | Ironrust Creek Drainage | Lynx Creek Drainage |
| | | HC1 | HC2 | HC3 | IR2 | L1 |
| SITE SUBSTRATE | Dominant Bed Material (mm) | small cobble | coarse gravel | course gravel | small cobble | small cobble |
| | Subdominant Bed Material (mm) | course gravel | small cobble | small cobble | course gravel | medium gravel |
| | Embeddedness (%) | 45 | 53 | 53 | 48 | 6 |
| | Interstitial Material (cm) | 0.2-1.6 | 0.2-1.6 | 1.6-3.2 | 1.6-3.2 | < 0.1 |
| | Periphyton thickness (mm) | 1-5 | 0.5-1 | 1-5 | 0.5-1 | 0.5-1 |
| SITE MORPHOLOGY | Channel Pattern | irregular meandering | sinuous | sinuous | sinuous | irregular meandering |
| | Confinement | unconfined | occasionally confined | occasionally confined | frequently confined | unconfined |
| | Disturbance Indicators | elevated bars, abandoned/multiple channels, eroding banks | multiple / abandoned channels, elevated bars, bed scour | none | none | none |

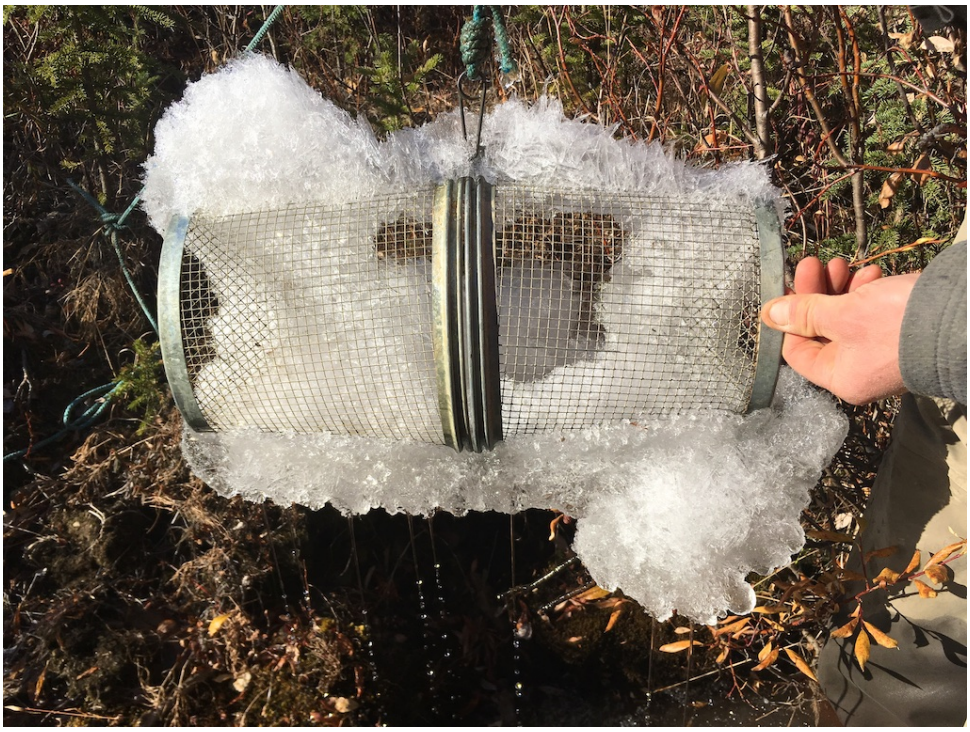


**Figure 3 Picture of a minnow trap lifted after an overnight set from monitoring site IR2. Note the buildup of frazil ice that prevented the trap from working efficiently, September 2018.**

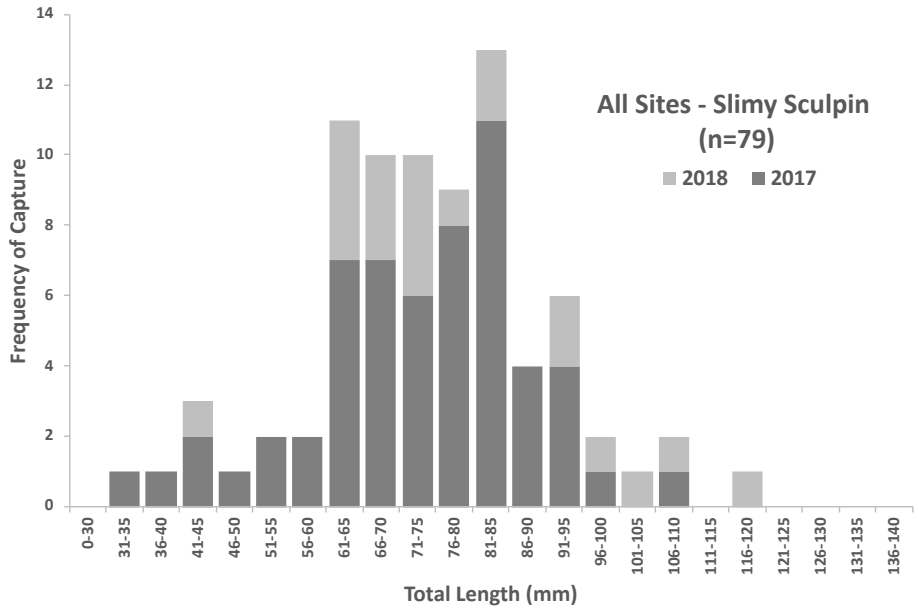



**Figure 4 Length frequency of captured slimy sculpin associated with monitoring sites at the Eagle Gold Project.**

**Table 4 Summary of sampling effort and catch using three fish capture techniques at monitoring sites associated with the Eagle Gold Project, September 2018.**

| MONITORING SITE | | CAPTURE METHOD | SAMPLE EFFORT | CATCH | | | OBSERVED |
|---|---|---|---|---|---|---|---|
| | | | | Arctic Grayling | Burbot | Slimy Sculpin | |
| Haggart Creek | HC1 | Angling | 30 min | 0 | 0 | 0 | |
| | HC1 | Electro | 602 sec | 4 | 0 | 3 | 15 grayling fry |
| | HC1 | MNT | 24.0 hrs | 4 | 0 | 1 | |
| | HC2 | Electro | 635 sec | 2 | 0 | 2 | |
| | HC2 | MNT | 24.5 hrs | 0 | 0 | 1 | |
| | HC3 | Electro | 691 sec | 0 | 0 | 1 | 1 sculpin |
| | HC3 | MNT | 20.5 hrs | 0 | 0 | 0 | |
| Ironrust Creek | IR2 | Electro | 565 sec | 0 | 0 | 1 | 1 grayling adult |
| | IR2 | MNT | 21.0 hrs | 0 | 0 | 0 | |
| Lynx Creek | L1 | Angling | 30 min | 0 | 0 | 0 | several sculpin |
| | L1 | Electro | 596 sec | 1 | 0 | 9 | 1 grayling and 3 sculpin |
| | L1 | MNT | 25.5 hrs | 0 | 1 | 3 | |

Legend: MNT = Minnow trap (5 traps)
Electro = Electrofishing

**Table 5 Comparison of fish capture data at five monitoring sites at the Eagle Gold Project, September 2017 and 2018.**

| SPECIES | SAMPLE SITE | CATCH (#) | |
|---|---|---|---|
| | | 2017* | 2018 |
| Arctic grayling | HC1 | 13 | 8 |
| | HC2 | 1 | 2 |
| | HC3 | 1 | 0 |
| | IR2 | 0 | 0 |
| | L1 | 5 | 1 |
| Burbot | HC1 | 0 | 0 |
| | HC2 | 0 | 0 |
| | HC3 | 0 | 0 |
| | IR2 | 0 | 0 |
| | L1 | 0 | 1 |
| Chinook salmon | HC1 | 2 | 0 |
| | HC2 | 0 | 0 |
| | HC3 | 5 | 0 |
| | IR2 | 0 | 0 |
| | L1 | 0 | 0 |
| Slimy sculpin | HC1 | 10 | 4 |
| | HC2 | 11 | 3 |
| | HC3 | 9 | 1 |
| | IR2 | 2 | 1 |
| | L1 | 26 | 12 |

* Electroshocking was not conducted at monitoring site IR2 in 2017.

# APPENDIX 1
# SITE SUMMARY SHEETS

# SITE – HAGGART CREEK (HC1)

**UTM Coordinates: E** 457967 **N** 7096518 **Watercourse Name:** Haggart Creek

**Surveyed Length (m):** 225 **Survey date:** September 19, 2018

**Baseline Fish-bearing Status:** Fish-bearing

UPSTREAM VIEW



DOWNSTREAM VIEW



BIOPHYSICAL DATA

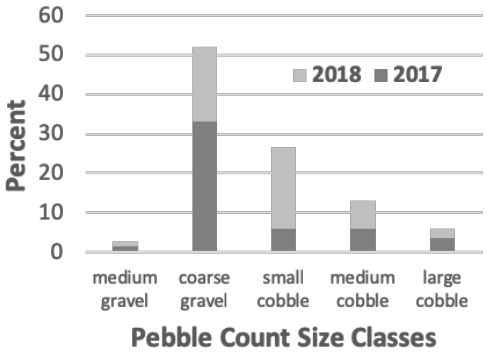
Mean channel width (m): 11.8
Mean wetted width (m): 9.1
Channel gradient (%): 1.0

Air temperature (°C): 12.0
Water temperature (°C): 1.0
Stage: Moderate
Turbidity: Clear
Conductivity ($\mu s/\mathrm{cm}$): 380
pH: 8.6

Fish cover: Moderate (15%)
Functioning LWD: Few
Dominant cover types: DP, U
Subdominant cover types: SWD, OV
Residual pool depth (m): 0.5
Crown closure (%): 0

Habitat types: Riffle, rapids and pool
Dominant surrounding land use: Forest
RB riparian vegetation: Grasses and shrubs
LB riparian vegetation: Grasses and shrubs

SUBSTRATE




Embeddedness (%): 45
Interstitial material (cm): 0.2-1.6
Periphyton thickness (mm): 1-5

MORPHOLOGY
Channel pattern: Irregular meandering
Confinement: Unconfined
Disturbance indicators: EBr, AC, MC, EBa

FISH
Sampling method(s): Electrofishing (single pass), minnow trapping and angling
Fish captured: Arctic grayling and slimy sculpin

# SITE – HAGGART CREEK (HC2)

**UTM Coordinates: E** 458085 **N** 7101152 **Watercourse Name:** Haggart Creek

**Surveyed Length (m):** 175 **Survey date:** September 20, 2018

**Baseline Fish-bearing Status:** Fish-bearing

UPSTREAM VIEW



DOWNSTREAM VIEW



BIOPHYSICAL DATA

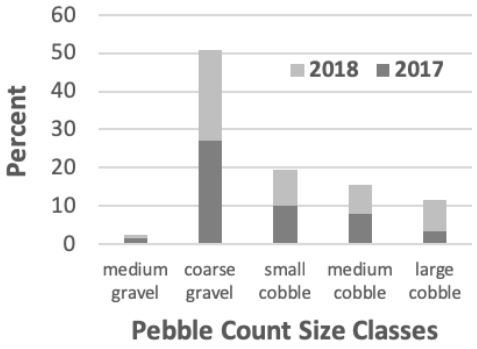
Mean channel width (m): 10.0
Mean wetted width (m): 6.9
Channel gradient (%): 1.4

Air temperature (°C): -1.0
Water temperature (°C): 0
Stage: Moderate
Turbidity: Clear
Conductivity ($\mu s/\mathrm{cm}$): 350
pH: 8.7

Fish cover: Moderate (5%)
Functioning LWD: None
Dominant cover types: B
Subdominant cover types: U, OV, DP
Residual pool depth (m): 0.5
Crown closure (%): 0

Habitat types: Riffle, rapids and pool
Dominant surrounding land use: Forest, mining
RB riparian vegetation: Grasses and shrubs
LB riparian vegetation: Grasses and shrubs

SUBSTRATE




Embeddedness (%): 53
Interstitial material (cm): 0.2-1.6
Periphyton thickness (mm): 0.5-1

MORPHOLOGY
Channel pattern: Sinuous
Confinement: Frequently confined
Disturbance indicators: AC, MC, EBr

FISH
Sampling method(s): Electrofishing (single pass) and minnow trapping
Fish captured: Arctic grayling and slimy sculpin

# SITE – HAGGART CREEK (HC3)

**UTM Coordinates: E** 458427 **N** 7101584 **Watercourse Name:** Haggart Creek

**Surveyed Length (m):** 160 **Survey date:** September 21, 2018

**Baseline Fish-bearing Status:** Fish-bearing

UPSTREAM VIEW



DOWNSTREAM VIEW



BIOPHYSICAL DATA

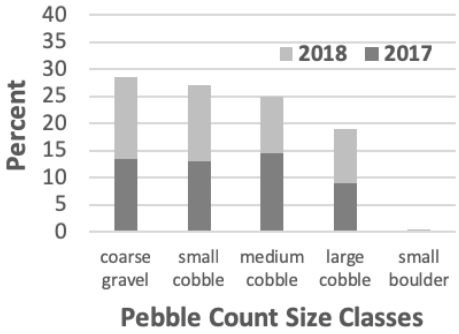
Mean channel width (m): 6.1
Mean wetted width (m): 5.6
Channel gradient (%): 1.1

Air temperature (°C): 3.0
Water temperature (°C): -1.0
Stage: Moderate
Turbidity: Clear
Conductivity ($\mu s/\mathrm{cm}$): 320
pH: 8.4

Fish cover: Moderate (10%)
Functioning LWD: None
Dominant cover types: B, U
Subdominant cover types: OV
Residual pool depth (m): 0.5
Crown closure (%): 0

Habitat types: Riffle, rapids and straight run
Dominant surrounding land use: Forest
RB riparian vegetation: Shrubs
LB riparian vegetation: Shrubs

SUBSTRATE




Embeddedness (%): 53
Interstitial material (cm): 1.6-3.2
Periphyton thickness (mm): 1-5

MORPHOLOGY
Channel pattern: Sinuous
Confinement: Occasionally confined
Disturbance indicators: None

FISH
Sampling method(s): Electrofishing (single pass) and minnow trapping
Fish captured: Slimy sculpin

# SITE – IRONRUST CREEK (IR2)

**UTM Coordinates: E** 458005 **N** 7103153 **Watercourse Name:** Ironrust Creek

**Surveyed Length (m):** 100 **Survey date:** September 20, 2018

**Baseline Fish-bearing Status:** Fish-bearing

UPSTREAM VIEW



DOWNSTREAM VIEW



BIOPHYSICAL DATA

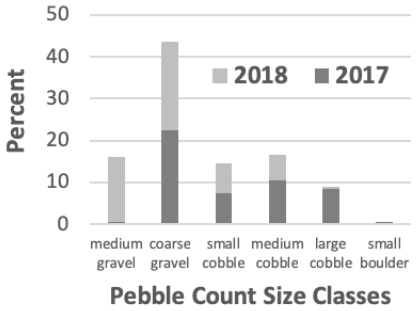
Mean channel width (m): 4.3
Mean wetted width (m): 3.2
Channel gradient (%): 2.9

Air temperature (°C): 9.0
Water temperature (°C): -1.0
Stage: Moderate
Turbidity: Clear
Conductivity ($\mu s/\mathrm{cm}$): 250
pH: 8.3

Fish cover: Moderate (5%)
Functioning LWD: None
Dominant cover types: B, OV
Subdominant cover types: U
Residual pool depth (m): <0.2
Crown closure (%): 0

Habitat types: Riffle and rapids
Dominant surrounding land use: Forest
RB riparian vegetation: Shrubs
LB riparian vegetation: Shrubs

SUBSTRATE




Embeddedness (%): 48
Interstitial material (cm): 1.6-3.2
Periphyton thickness (mm): 0.5-1

MORPHOLOGY
Channel pattern: Sinuous
Confinement: Frequently confined
Disturbance indicators: None

FISH
Sampling method(s): Minnow trapping
Fish captured: Slimy sculpin

# SITE – LYNX CREEK (L1)

**UTM Coordinates: E** 458003 **N** 7095825 **Watercourse Name:** Lynx Creek

**Surveyed Length (m):** 100 **Survey date:** September 19, 2018

**Baseline Fish-bearing Status:** Fish-bearing

UPSTREAM VIEW



DOWNSTREAM VIEW



BIOPHYSICAL DATA

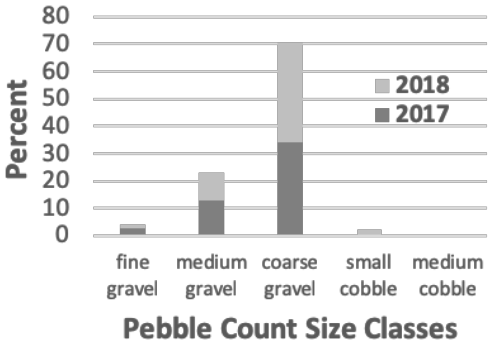
Mean channel width (m): 7.0
Mean wetted width (m): 5.0
Channel gradient (%): 0.1

Air temperature (°C): -4.0
Water temperature (°C): 0
Stage: Moderate
Turbidity: Clear
Conductivity ($\mu s/\mathrm{cm}$): 220
pH: 8.7

Fish cover: Moderate (20%)
Functioning LWD: Few
Dominant cover types: DP, U
Subdominant cover types: SWD, OV
Residual pool depth (m): 0.8
Crown closure (%): 0

Habitat types: Riffle, straight run and pool
Dominant surrounding land use: Forest
RB riparian vegetation: Grasses and shrubs
LB riparian vegetation: Grasses and shrubs

SUBSTRATE




Embeddedness (%): 6
Interstitial material (cm): < 0.1
Periphyton thickness (mm): 0.5-1

MORPHOLOGY
Channel pattern: Irregular meandering
Confinement: Unconfined
Disturbance indicators: None

FISH
Sampling method(s): Electrofishing (single pass), minnow trapping and angling
Fish captured: Arctic grayling, burbot and slimy sculpin

# APPENDIX II
# FISH CAPTURE DATA

**APPENDIX II Length and weight data of fish captured at monitoring sites within drainages associated with the Eagle Gold Project, September 2018.**

| Monitoring Site | Species | Length (mm) | Weight (gm) |
|---|---|---|---|
| HC1 | AG | 67 | 2.7 |
| HC1 | AG | 68 | 3.0 |
| HC1 | AG | 72 | 3.1 |
| HC1 | AG | 73 | 3.1 |
| HC1 | AG | 75 | 3.4 |
| HC1 | AG | 75 | 3.9 |
| HC1 | AG | 78 | 4.5 |
| HC1 | AG | 94 | 9.4 |
| HC1 | SS | 63 | 2.4 |
| HC1 | SS | 63 | 2.4 |
| HC1 | SS | 73 | 3.6 |
| HC1 | SS | 83 | 5.8 |
| HC2 | AG | 87 | 6.6 |
| HC2 | AG | 89 | 6.3 |
| HC2 | SS | 100 | 10.0 |
| HC2 | SS | 102 | 10.9 |
| HC2 | SS | 120 | 23.0 |
| HC3 | SS | 61 | 2.3 |
| IR2 | SS | 107 | 13.4 |
| L1 | AG | 77 | 4.3 |
| L1 | BB | 210 | 50.3 |
| L1 | SS | 45 | 1.0 |
| L1 | SS | 63 | 2.7 |
| L1 | SS | 68 | 3.2 |
| L1 | SS | 68 | 3.4 |
| L1 | SS | 70 | 3.9 |
| L1 | SS | 71 | 3.1 |
| L1 | SS | 72 | 3.3 |
| L1 | SS | 72 | 3.9 |
| L1 | SS | 78 | 4.8 |
| L1 | SS | 85 | 6.6 |
| L1 | SS | 92 | 6.9 |
| L1 | SS | 92 | 9.2 |

AG = Arctic grayling BB = burbot SS = slimy sculpin

# APPENDIX III
# Fisheries and Oceans Canada
# Collection Permit

Fisheries and Oceans Canada | Pêches et Océans Canada

Licence Number: XR 282 2018
Valid From: 01-Sep-2018
Expiry Date: 31-Oct-2018

This licence and/or permit is issued under the authority of SECTION 52 OF THE FISHERY (GENERAL) REGULATIONS.

This licence and/or permit authorizes the person(s) listed below, subject to the following terms and conditions, to collect the species and quantity of fish identified below for: Scientific purposes. Non-compliance with any condition of this licence and/or permit may result in the cancellation of this licence and/or permit.

**Licence/Permit Activity Description:**
To sample fish within various tributaries associated with Haggart Creek to monitor fish presence/absence/utilization and population density.

**Licence Holder:**
FIN: 125575

CAN-NIC-A-NICK
ENVIRONMENTAL SERVICES

BOX 10106, 138 ARCTIC DRIVE
WHITEHORSE YT Y1A 7A1

Contact Number: 867-668-4682

**Contact Party:**
FIN: 125576 DE GRAFF, NICHOLAS Contact Number: 867-335-4099

**Individuals or groups assisting with the authorized activity:**

Any additional assistants not listed below, must be named as part of the notification prior to sampling. Detailed information requirements is found under conditions of this licence.

| | | |
|---|---|---|
| FIN: 125576 | NICHOLAS DE GRAFF | Contact Number: 867-335-4099 |
| FIN: 129960 | JOE DE GRAFF | Contact Number: 867-668-4682 |
| FIN: 142042 | CRYSTAL DAWN | Contact Number: 867-335-4099 |
| FIN: 129730 | BONNIE BURNS | Contact Number: 867-335-4099 |

**Species, Quantity of Fish, Area(s) and Gear:**

| | |
|---|---|
| **Species:** | CHINOOK SALMON (Oncorhynchus tshawytscha); NORTHERN PIKE (Esox lucius); SLIMY SCULPIN (Cottus cognatus); ARCTIC GRAYLING (Thymallus arcticus); ARCTIC LAMPREY (Lampetra camtschatica); |
| **Gear:** | Seine Net, Beach<br>Rod & Reel (unspecified)<br>Electroshocker (Maximum Second per Site: 600 Seconds)<br>Trap, Gee/Minnow (Set Duration Max: 24 Hours) |
| **Licence Area:** | Yukon/Transboundary: Haggart Creek - inc tributaries of (Watershed code: 83199973027969) |
| **To be Retained:** | 0 |
| **Additional Descriptions:** | Note: as per conditions of this licence electrofishing is not permited in the vicinity of spawning fish or their redds. Electrofishing activities will cease if spawning-condition fish are encountered. |

**Reporting Requirements:**

**XR 282 2018 Summary Data Report** **Due Date** 31-Oct-18
See "Terms and Conditions" of this licence for detailed reqirements.

**Terms and Conditions:**

This licence authorizes collections to be made by the licensee and employees, volunteers and students of the licensee provided that all persons, other than minors who are engaged in activities under the authority of this licence, are carrying suitable photo identification to be produced upon request of a Fishery Officer or Guardian.

This license is subject to immediate termination upon written or verbal notice from a representative of the Yukon Government- Department of Environment, or of Fisheries and Oceans Canada.

**Samplers:** It is the responsibility if the license holder to ensure that samplers are experienced and competent in the fish collection methods authorized in this license.

**Need to carry and produce permit:** A copy of this license must be in the immediate possession of the samplers during sampling, and must be produced upon the request of any representative designated as a Fishery Officer or Fishery Guardian pursuant to the Fisheries Act (Canada).

**Notice**: Prior to commencing sampling, notice is to be given to:

• Fisheries and Oceans Canada, Yukon/Transboundary Rivers Area - Tel: (867) 393-6722 Fax (867) 393-6738 or Email: YTLicence@dfo-mpo.gc.ca

• Oliver Barker, YG Fisheries - Email: fisheries@gov.yk.ca

• Appropriate First Nation Government in whose Traditional Territory the activity is taking place.

The notice is to include following information:
i. The Collection License number,
ii. The watercourse or water body on which, and the location where the sampling is to take place,
iii. The dates on which sampling will occur
iv. The names of all assistants which will be engaged in the sampling.

• Note: Notice is also to be given to the Government of Yukon Conservation Officer responsible for any area where sampling is to take place at least 24 hours prior to the start of sampling.

**Release of fish:** All live fish must be released unharmed into the water body or course from which they originated and as near as possible to the location from which they were captured. Exception to this is where fish are retained for identification or forensic purposes.

**Electrofishing:** Is not permitted in the vicinity of spawning fish or their redds. A trained and certified electrofisher operator must be a part of the electrofishing crew.

**Gear:** All gear left unattended must be clearly labelled with the Licence Number and must not interfere with the public right of navigation.

**Aquatic Invasive Species** To prevent the introduction of aquatic invasive species there are a few simple things that

can be considered: a) Before leaving an area: Drain water from boat, trailer and gear, remove all plant parts and mud and b) Before entering another water body: Wash all your gear including waders with soapy water. For Further Information:
http://www.dfo-mpo.gc.ca/species-especes/index-eng.htm,
http://www.dfo-mpo.gc.ca/science/environmental-environnement/ais-eae/publications/plan/page01-eng.html

**Disposition of fish:** Any fish captured and retained under the authority of this license are not to enter any commercial markets or establishments. Any fish collected and retained, or incidental mortalities associated with non-lethal sampling, are not to be utilized for human consumption or personal use purposes unless authorized by Fisheries & Oceans Canada.

**Species at Risk:** Section 32 (1) of the federal Species at Risk Act prohibits killing, harming, harassing, capturing or taking an individual of a wildlife species which is listed on Schedule 1 as an extirpated species, an endangered species or a threatened species. Refer to the SARA Public Registry at http://www.sararegistry.gc.ca to determine if species at risk may be in your research area and to apply for a permit if required.

**Transport or transplant of live fish and/or eggs/milt**: Live fish and/or eggs (spawn) cannot be transported without prior written approval of the transplant committee or transplanted without a licence granted pursuant to Section 56 of the Fishery (General) Regulations.

**Report**: A report must be submitted after completion of sampling, in electronic spreadsheet form as provided by email with permit. The report must be in the form of the spreadsheet provided but is not limited to and may also include photocopied data sheets or field notes, or the final report for the project, and must include the following:

a. The Collection License number
b. The location(s) of the sampling with GPS coordinates (lat & long decimal degrees), where GPS coordinates were not possible a map or detailed described may be submitted;
c. Names of all individuals engaged in sampling;
d. The dates on which the sampling occurred;
e. The number of fish sampled, by species;
f. Any mortalities

If no sampling takes place a "nil report" is required in the form of a letter or identified in the mandatory spreadsheet provided.
A summary report is to be submitted by December 31, 2018 to:

Area Licensing Manager
Fisheries and Oceans Canada
100-419 Range Rd
Whitehorse Yukon
Y1A 3V1
Email: YTLicence@dfo-mpo.gc.ca

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By signing on this document, the person(s) listed below, agree to be bound by the terms and conditions that pertain to each person as an individual and to the group as a whole.

Fisheries and Oceans Canada | Pêches et Océans Canada

Licence Number: XR 282 2018
Valid From: 01-Sep-2018
Expiry Date: 31-Oct-2018

| 125575 | Nicholas de Graff | Nich. de Graff | 01/09/18 |
|---|---|---|---|
| FIN | Licence Holder - Print Name | Signature | Date |

Licence Issued: 30 August 2018

Licence Printed: 30 August 2018
Licence Issued By: LOUISE NAYLOR, Fisheries and Oceans Canada

# APPENDIX M

## Climate Data Report

Victoria GOLD CORP

# *Eagle Gold*
# *Climate Data Report*



**Project No. A445-2**
**8 March 2019**

LORAX ENVIRONMENTAL

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# 1. Introduction

Victoria
GOLD CORP

# 1 Introduction

## 1.1 Scope of Report

This report presents a summary of all climate data collected for the Eagle Gold Project (Project) since August 2007[1]. Monitoring data from two Project climate stations and three local snow courses are presented to characterize local conditions for the following variables:

- Air temperature;
- Rainfall;
- Snow depth and snow water equivalent (SWE);
- Barometric pressure;
- Relative humidity;
- Wind speed and direction, and;
- Solar radiation.

Measured data are also used to estimate potential evaporation for the Project site.

## 1.2 Previous Reports

The climate data collected at the Eagle Gold Project site from 2007, up to and including December 2017, have been previously summarized in the following reports:

- *Dublin Gulch Project - Climate and Hydrology Environmental Baseline Report* (2008), prepared by Jacques Whitford AXYS (Burnaby, BC) for StrataGold Corp. (Vancouver, BC), December 2008.
- *Snow Survey Environmental Baseline Report* (2009), prepared by Jacques Whitford Stantec AXYS (Burnaby, BC) for StrataGold Corp. (Vancouver, BC).
- *Eagle Gold Project, Environmental Baseline Report: Climate* (2010), prepared by Stantec (Burnaby, BC) for Victoria Gold Corp., February 2010.
- *Eagle Gold Project, Surface Water Balance Model Report* (2011), prepared by Stantec (Burnaby, BC) for Victoria Gold Corp., June 2011.

[1] Historic climate data collected during 1993 to 1996 for the Project area is summarized in *Eagle Gold Project, Environmental Baseline Report: Climate*, prepared by Stantec (Burnaby, BC) for Victoria Gold Corp., March 2012

- *Eagle Gold Project, Environmental Data Summary Report: Climate 2011 Update* (2011), prepared by Stantec (Burnaby, BC) for Victoria Gold Corp., June 2011.
- *Eagle Gold Project, Environmental Baseline Report: Climate* , prepared by Stantec (Burnaby, BC) for Victoria Gold Corp., March 2012.
- *Victoria Gold Corp., Eagle Gold Project – Climate Baseline Data Summary. VA101-290/6-9*, prepared by Knight Piesold Ltd. (Vancouver, BC) for Victoria Gold Corp., August 2013.
- *Victoria Gold Corp., Eagle Gold – Climate Baseline Report.* Prepared by Lorax Environmental Services Ltd., October 2016. 34 pp.
- *Victoria Gold Corp. Eagle Gold Project – Hydrometeorology Report.* A413-3, prepared by Lorax Environmental Services Ltd. (Vancouver, BC) for Victoria Gold Corp., March 2017.
- *Victoria Gold Corp., Eagle Gold – Climate Baseline Report.* Prepared by Lorax Environmental Services Ltd., March 2018. 35 pp.

# 2. Climate Monitoring Locations

Victoria
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# 2 Climate Monitoring Locations

## 2.1 Meteorological Stations

Climatic parameters are measured at the Project site by two weather stations that were originally installed by Stantec (formerly Jacques Whitford AXYS). The Potato Hills station is situated near the eastern basin divide (1420 m) and was installed in August 2007. The second station was originally installed near the camp at 823 m in August 2009, and subsequently was moved to its current location in September 2010 (782 m) following construction of new camp facilities.

The Potato Hills station uses an ONSET Hobo datalogger to measure air temperature, rainfall, wind speed and direction, barometric pressure, relative humidity, snow depth and solar radiation at 15-minute intervals. The recording interval was initially set to record at 60-minute intervals from August 14, 2007 to August 13, 2008 and then was switched to 15-minute intervals as of August 13, 2008. A snow sensor was added to the station in April 2011.

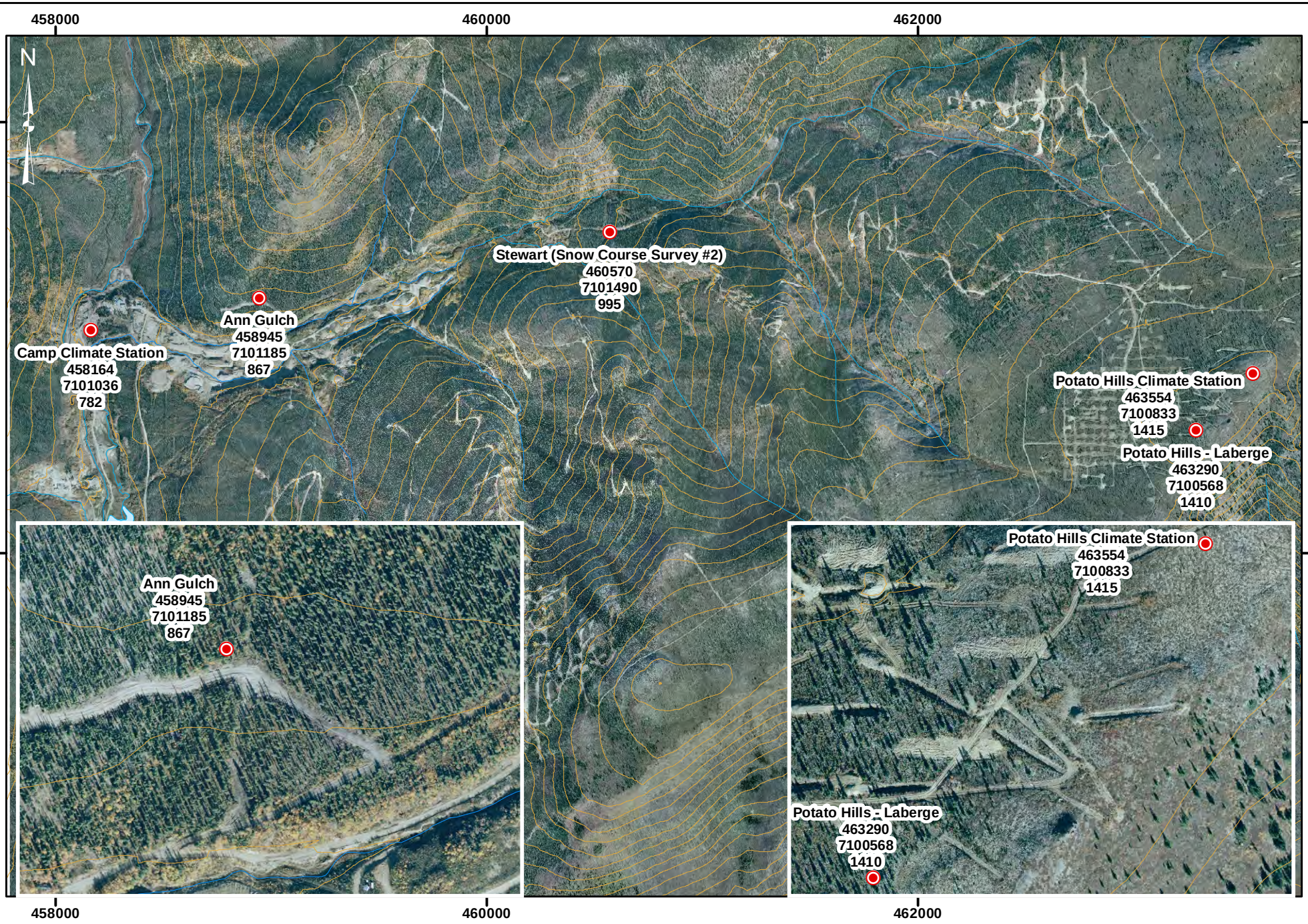
The Camp station includes a Campbell Scientific CR800 datalogger measuring air temperature, rainfall, wind speed and direction, barometric pressure, snow depth, solar radiation and relative humidity. All data are recorded at a 15-minute interval at this location. The snow sensor and pyranometer (measuring solar radiation) were added on April and October 2011, respectively.

Since snow sensor installation, the continuous snow depth data for the Potato Hills station have not been reliable and therefore these data are not presented in this report. Continuous snow depth data are provided herein for the Camp station, as are records of snow survey measurements for actively measured stations through spring 2018.

The Project climate stations and snow survey locations are presented in Table 2-1 and Figure 2-1.

**Table 2-1:**
**Climate station and snow survey locations.**

| Station | Elevation (m asl) | UTM E | UTM N | Record Period |
|---|---|---|---|---|
| *Climate Stations* | | | | |
| Camp Station | 782 | 458,164 | 7,101,036 | 2009-present |
| Potato Hills Station | 1420 | 463,544 | 7,100,833 | 2007-present |
| *Snow Surveys* | | | | |
| Camp Snow Survey | 782 | 458,164 | 7,101,036 | 2009-present |
| Ann Gulch | 875 | 458,945 | 7,101,185 | 2012-2017 |
| Stewart (Snow Survey #2) | 995 | 460,570 | 7,101,490 | Mar. 2012 only |
| Potato Hills Snow Survey | 1420 | 463,290 | 7,100,568 | 2009-present |




Legend:

Snow Survey Sites — Watercourse — Contours (25m)

StrataGold Corporation

0 150 300 600
Meters

Projection: NAD83 UTM Zone 8N

Drawn By: HC

Date: 2016/09/20

Figure:

**EAGLE GOLD PROJECT**
**YUKON TERRITORY**

**PROJECT SITE CLIMATE STATION AND SNOW SURVEY LOCATIONS**

### 2.1.1 Data Gaps for 2018

This section of the report summarizes data gaps in the climate record for the Potato Hills and Camp climate stations during the period January 2018 to December 2018. Data gaps prior to January 2018 are discussed in previous reports.

**Potato Hills Station** – Between January 2018 and December 2018, a number of data gaps exist in the Potato Hills climate station record.

- Air temperature, wind speed, relative humidity and atmospheric pressure data were not recorded to the central datalogger at Potato Hills for the following time periods in 2018: April 28 to May 16; June 7 to June 29; July 3 to July 13; August 5 to September 22; and December 2 to December 16.
- Data gaps with respect to wind direction data are essentially the same as for other sensors. Since field staff attributed power outages at the central datalogger to battery drain from the wind direction sensor, the sensor was disconnected during the October site visit.
- The snow depth sensor installed at the Potato Hills climate station did not return usable data for the period January 2017 to December 2018.
- A separate Onset event logger is used to record rainfall accumlation at the Potato Hills climate station. The event logger was deployed on May 16 and collected rainfall data without gap until October 16.

**Camp Station** – There are no data gaps for the Camp climate station in 2018.

## *2.2 Snow Surveys*

Snow surveys were completed in 2018 at the Camp (Lower) snow course and Potato Hills (Upper) snow course. The Ann Gulch station was no longer available due to construction activities in the area. A new location will be established in Ann Gulch upgradient from construction activities for the 2019 snow survey season. All snow surveys were generally conducted at, or near to the date that Water Resources Branch of Environment Yukon conducted their monthly surveys, which included the annual maximum snowpack. This peak in terms of SWE measurement typically occurs between late-March to mid-April in the Yukon.

Snow surveys are conducted following the guidelines set out in the *Snow Survey Sampling Guide* (BC Ministry of Environment, 1981). At each site, 10 sampling locations along a transect were sampled for depth and snow water equivalent [SWE] using a Federal snow sampler, and then averaged. As summarized in previous annual reports, snow courses were established at the Project site to discern effects of aspect and elevation gain on local snow accumulation (Table 2-1 and Figure 2-1).

# 3. Climate Data Summary

Victoria
GOLD CORP

# 3 Climate Data Summary

## 3.1 Temperature

Air temperatures at the Project site are consistent with those throughout the Yukon interior. Mean annual air temperature at site is -3.2°C at the Camp station (782 m) and -3.8°C at the Potato Hills station (1420 m) over their respective periods of record.

Mean, maximum and minimum monthly (based on the daily average) temperatures are presented in Table 3-1 for both stations. At the Camp station, monthly average temperature ranges from -19.9°C in December to 13.2°C in July, and -15.2°C to 10.8°C at the Potato Hills station, for the same months. The minimum (maximum) recorded daily average temperatures were -43.8°C (22.0°C) and -36.6°C (22.8°C) at the Camp and Potato Hills stations, respectively. The minimum (maximum) recorded 15-minute temperatures were -46.4°C (31.6°C) and -37.6°C (31.7°C) at the Camp and Potato Hills stations, respectively.

The monthly mean temperatures signatures for both climate stations are shown in Figure 3-1, and the pattern is consistent with the larger regional picture. During the months of March to October inclusive, the standard lapse rate applies, with temperatures decreasing with rising elevation, and are approximately 3°C cooler at the upper station, on average. However, during the winter months of November to February, temperature inversions are common at the Project site, with temperatures roughly 2.5°C cooler on average in the valley bottom than at the height of land.

The spring/summer lapse rate of -4°C/1000 m is consistent with the saturated adiabatic lapse rate of -5.0°C/1000 m. This is likely due to the increased frequency of precipitation during the summer months, when a larger portion of the annual precipitation falls, resulting in warmer and wetter air masses at the Project site. The winter lapse rate of +4°C/1000 m is consistent with that reported by Wahl *et al.* (1987), which states that during a temperature inversion, lapse rates can range from 3-5°C/1000 m of elevation gain.

**Table 3-1:**
**Project site monthly air temperature record.**

| Climate Station | Elevation (m asl) | Temperature (°C) | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Year | | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec | Annual |
| Camp Station | 782 | 2009 | Mean | - | - | - | - | - | - | - | 10.5 | 6.2 | -2.6 | -13.6 | -17.3 | - |
| | | | Maximum | - | - | - | - | - | - | - | 14.0 | 11.2 | 2.3 | -2.2 | -2.8 | - |
| | | | Minimum | - | - | - | - | - | - | - | 6.6 | -4.8 | -9.7 | -22.6 | -31.3 | - |
| | | 2010 | Mean | -17.1 | -10.8 | -6.9 | 1.1 | 8.3 | 12.1 | 13.6 | 12.1 | 4.4 | -3.4 | -13.5 | -24.1 | -2.0 |
| | | | Maximum | -6.7 | 1.0 | 1.4 | 9.4 | 16.9 | 15.7 | 18.0 | 20.5 | 11.8 | 7.1 | 4.0 | -11.2 | 20.5 |
| | | | Minimum | -33.4 | -25.0 | -17.7 | -6.8 | 1.8 | 7.2 | 10.3 | 6.2 | -6.1 | -10.5 | -28.4 | -37.7 | -37.7 |
| | | 2011 | Mean | -22.9 | -21.3 | -15.9 | -3.2 | 7.7 | 11.5 | 12.8 | 9.2 | 5.1 | -2.8 | -20.7 | M | - |
| | | | Maximum | -1.3 | -1.4 | 2.1 | 2.7 | 16.1 | 16.1 | 18.2 | 14.3 | 9.7 | 0.3 | -6.4 | M | 18.2 |
| | | | Minimum | -38.5 | -37.8 | -30.3 | -11.6 | -2.2 | 7.0 | 9.5 | 5.7 | 0.9 | -6.8 | -39.1 | M | - |
| | | 2012 | Mean | -25.2 | -12.2 | -13.4 | 0.4 | 5.9 | 13.3 | 12.6 | 10.5 | 5.0 | M | -24.1 | -25.9 | - |
| | | | Maximum | -7.2 | 0.7 | -1.4 | 4.4 | 12.6 | 19.4 | 16.7 | 15.6 | 13.6 | M | -10.3 | -8.5 | 19.4 |
| | | | Minimum | -40.4 | -24.2 | -24.4 | -7.6 | -0.4 | 8.7 | 8.7 | 4.5 | -0.6 | M | -37.1 | -41.0 | -41.0 |
| | | 2013 | Mean | -21.6 | -13.3 | -15.5 | -8.6 | 5.0 | 14.2 | 14.0 | 11.9 | 5.5 | -2.5 | -18.7 | -26.7 | -4.7 |
| | | | Maximum | -9.3 | -4.4 | 0.3 | 2.9 | 14.1 | 22.0 | 18.5 | 18.0 | 14.5 | 4.9 | -4.0 | -11.6 | 22.0 |
| | | | Minimum | -43.8 | -20.9 | -26.8 | -16.6 | -2.6 | 6.0 | 9.5 | 4.9 | 0.9 | -9.9 | -39.5 | -40.7 | -43.8 |
| | | 2014 | Mean | -14.9 | -23.4 | -13.8 | -1.8 | 7.0 | 11.0 | 13.4 | 10.6 | 3.7 | -3.5 | -15.8 | -15.2 | -3.6 |
| | | | Maximum | -1.8 | -6.4 | -3.8 | 4.5 | 12.9 | 16.5 | 18.6 | 15.1 | 9.4 | 3.4 | -3.3 | -4.6 | 18.6 |
| | | | Minimum | -34.1 | -36.8 | -24.4 | -12.4 | 2.5 | 5.4 | 8.7 | 4.5 | -3.8 | -11.9 | -33.8 | -26.4 | -36.8 |
| | | 2015 | Mean | -19.4 | -18.1 | -11.5 | -0.1 | 10.1 | 11.2 | 12.2 | 9.0 | 2.9 | -1.5 | -15.1 | -15.2 | -3.0 |
| | | | Maximum | -2.9 | -1.7 | -1.0 | 4.4 | 17.5 | 15.5 | 16.8 | 15.4 | 7.3 | 3.4 | -4.4 | -6.0 | 17.5 |
| | | | Minimum | -39.1 | -38.3 | -26.8 | -4.8 | -0.9 | 5.6 | 7.9 | 1.6 | -4.3 | -9.3 | -33.1 | -34.3 | -39.1 |
| | | 2016 | Mean | -13.1 | -13.5 | -5.1 | 2.3 | 8.2 | 12.4 | 13.6 | 11.5 | 4.1 | -8.3 | -13.7 | -21.9 | -1.9 |
| | | | Maximum | -2.0 | -2.6 | 3.9 | 7.3 | 13.7 | 16.7 | 17.0 | 16.6 | 11.4 | -0.7 | 0.8 | -5.4 | 17.0 |
| | | | Minimum | -25.4 | -29.3 | -10.3 | -3.3 | 2.6 | 8.2 | 6.1 | 6.3 | -2.5 | -20.8 | -31.3 | -37.9 | -37.9 |
| | | 2017 | Mean | -19.6 | -18.8 | -17.2 | -1.4 | 7.3 | M | M | 11.8 | 6.3 | -4.1 | -22.9 | -16.6 | - |
| | | | Maximum | -3.3 | 0.1 | 0.5 | 5.2 | 14.3 | M | M | 16.9 | 12.5 | 6.3 | -11.6 | -0.8 | - |
| | | | Minimum | -37.1 | -28.3 | -30.6 | -8.6 | 1.9 | M | M | 6.6 | 0.1 | -12.8 | -36.1 | -37.1 | -37.1 |
| | | 2018 | Mean | -19.4 | -24.3 | -11.9 | -3.7 | 5.9 | 11.8 | 13.8 | 9.9 | 1.9 | -3.8 | -12.8 | -16.0 | -3.9 |
| | | | Maximum | 3.0 | -14.0 | 0.3 | 4.4 | 11.6 | 19.2 | 17.7 | 17.0 | 7.2 | 2.8 | -0.3 | 1.2 | 19.2 |
| | | | Minimum | -38.6 | -35.8 | -26.7 | -15.0 | -2.3 | 7.8 | 9.1 | 2.9 | -2.9 | -12.1 | -26.4 | -28.8 | -38.6 |
| | | All Years | Mean | -19.3 | -17.3 | -12.4 | -1.7 | 7.3 | 12.2 | 13.2 | 10.7 | 4.5 | -3.6 | -17.1 | -19.9 | -3.2 |
| | | | Maximum | 3.0 | 1.0 | 3.9 | 9.4 | 17.5 | 22.0 | 18.6 | 20.5 | 14.5 | 7.1 | 4.0 | 1.2 | 22.0 |
| | | | Minimum | -43.8 | -38.3 | -30.6 | -16.6 | -2.6 | 5.4 | 6.1 | 1.6 | -6.1 | -20.8 | -39.5 | -41.0 | -43.8 |
| Potato Hills Station | 1420 | 2007 | Mean | - | - | - | - | - | - | - | - | 1.0 | -6.9 | -12.0 | -15.2 | - |
| | | | Maximum | - | - | - | - | - | - | - | - | 8.0 | -1.5 | -5.5 | -9.4 | - |
| | | | Minimum | - | - | - | - | - | - | - | - | -6.2 | -13.8 | -27.7 | -24.2 | - |
| | | 2008 | Mean | -17.7 | -17.2 | -11.3 | -4.8 | 3.3 | 8.7 | 8.1 | 5.3 | 1.9 | -7.7 | -10.8 | -18.6 | -5.1 |
| | | | Maximum | -9.2 | -3.4 | -2.8 | 2.7 | 12.5 | 14.3 | 13.4 | 9.2 | 6.7 | 2.4 | -5.4 | -8.4 | 14.3 |
| | | | Minimum | -33.1 | -31.9 | -29.6 | -16.8 | -0.6 | 4.6 | 2.8 | 1.7 | -7.7 | -21.3 | -19.6 | -27.2 | -33.1 |

| Climate Station | Elevation (m asl) | Temperature (°C) | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Year | | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec | Annual |
| | | 2009 | Mean | -19.3 | -17.2 | -16.7 | -4.4 | M | M | 12.6 | 7.4 | 3.3 | -5.3 | -12.8 | -11.9 | - |
| | | | Maximum | -0.5 | -10.4 | -7.0 | 9.4 | M | M | 22.8 | 16.2 | 10.4 | -1.9 | -4.9 | -3.8 | - |
| | | | Minimum | -34.8 | -30.3 | -25.2 | -13.0 | M | M | 6.6 | 3.1 | -6.3 | -14.2 | -19.1 | -21.2 | -34.8 |
| Potato Hills Station | 1420 | 2010 | Mean | -14.5 | -9.7 | -9.4 | -1.8 | 5.2 | 8.8 | 10.5 | 9.7 | 2.3 | -5.3 | -11.7 | -18.2 | -2.9 |
| | | | Maximum | -5.1 | -1.8 | -2.9 | 6.3 | 15.1 | 13.4 | 15.2 | 19.5 | 8.8 | 3.1 | -1.4 | -8.8 | 19.5 |
| | | | Minimum | -30.9 | -26.4 | -16.5 | -8.3 | -4.0 | 2.7 | 6.2 | 3.4 | -9.3 | -10.4 | -23.1 | -25.6 | -30.9 |
| | | 2011 | Mean | -15.5 | -18.3 | -13.9 | -5.6 | 4.8 | 8.8 | 10.3 | 7.0 | 4.1 | -5.7 | -18.0 | -13.0 | -4.6 |
| | | | Maximum | -5.6 | -3.6 | -1.4 | 1.3 | 15.3 | 13.9 | 15.7 | 11.4 | 20.4 | -1.2 | -9.1 | -8.8 | 20.4 |
| | | | Minimum | -28.0 | -30.2 | -23.2 | -13.0 | -7.2 | 2.2 | 5.9 | 5.3 | -5.5 | -12.1 | -29.0 | -20.0 | -30.2 |
| | | 2012 | Mean | -19.8 | -11.1 | -13.4 | -1.9 | 3.1 | 11.3 | 10.9 | M | M | -8.4 | -18.8 | -19.4 | - |
| | | | Maximum | -6.8 | -5.1 | -1.7 | 1.8 | 9.5 | 18.5 | 17.9 | M | M | 3.3 | -8.0 | -6.5 | - |
| | | | Minimum | -30.3 | -19.5 | -22.6 | -8.0 | -2.5 | 5.5 | 5.5 | M | M | -16.8 | -24.0 | -29.2 | - |
| | | 2013 | Mean | -17.6 | -11.3 | -14.2 | *-10.4* | *2.8* | 12.1 | 11.6 | 11.0 | 3.0 | -2.9 | -16.0 | -19.5 | -4.3 |
| | | | Maximum | -5.5 | -4.9 | -5.1 | *-2.5* | *13.5* | 22.2 | 17.4 | 19.9 | 10.2 | 1.3 | -4.7 | -3.4 | 22.2 |
| | | | Minimum | -36.6 | -15.5 | -24.8 | *-18.4* | *-6.2* | 2.0 | 5.3 | 1.7 | -1.8 | -8.5 | -28.9 | -29.1 | -36.6 |
| | | 2014 | Mean | -10.0 | -15.9 | -11.5 | -3.4 | *5.6* | 8.7 | 11.8 | 8.7 | 2.1 | -5.6 | -11.6 | -11.4 | -2.7 |
| | | | Maximum | 0.6 | -7.8 | -5.1 | 3.2 | *11.5* | 17.6 | 15.6 | 13.9 | 8.5 | 0.9 | -5.0 | -5.4 | 17.6 |
| | | | Minimum | -27.3 | -26.3 | -19.9 | -13.5 | *0.4* | 1.7 | 7.4 | 1.7 | -5.2 | -12.1 | -22.5 | -19.2 | -27.3 |
| | | 2015 | Mean | -14.4 | -13.8 | -9.6 | *-2.3* | *8.6* | *8.6* | *9.5* | 7.1 | 0.1 | -3.7 | -13.5 | -13.6 | -3.1 |
| | | | Maximum | -3.9 | -2.3 | -0.5 | *1.4* | *16.5* | *13.6* | *14.9* | 17.0 | 4.9 | 2.0 | -4.3 | -5.6 | 17.0 |
| | | | Minimum | -31.7 | -32.7 | -24.3 | *-6.5* | *-3.2* | *1.9* | *4.4* | -2.0 | -6.1 | -10.7 | -28.3 | -25.3 | -32.7 |
| | | 2016 | Mean | -9.2 | -10.4 | -6.2 | M | 7.2 | 12.0 | 12.2 | 9.3 | 2.8 | -6.8 | -10.1 | -16.2 | - |
| | | | Maximum | -4.4 | -5.2 | 3.4 | M | 15.4 | 19.4 | 17.7 | 13.9 | 8.5 | -0.7 | -2.0 | -8.8 | - |
| | | | Minimum | -14.0 | -20.4 | -12.4 | M | 0.5 | 5.0 | 5.3 | 3.6 | -3.4 | -15.6 | -18.2 | -25.1 | - |
| | | 2017 | Mean | -13.0 | -13.3 | -16.7 | -3.2 | 4.5 | 9.7 | M | M | M | M | -17.4 | -10.2 | - |
| | | | Maximum | -3.4 | -1.1 | -3.6 | 3.9 | 11.9 | 16.7 | M | M | M | M | -9.4 | -1.6 | - |
| | | | Minimum | -27.2 | -21.5 | -28.0 | -12.4 | -0.5 | 0.3 | M | M- | M | M | -26.5 | -22.8 | - |
| | | 2018 | Mean | -14.4 | -16.9 | -12.0 | -6.1 | M | M | M | M | M | -3.3 | -9.9 | M | - |
| | | | Maximum | 0.9 | -10.8 | 0.6 | 1.5 | M | M | M | M | M | 1.3 | -2.0 | M | - |
| | | | Minimum | -26.0 | -26.4 | -22.9 | -18.1 | M | M | M | M | M | -13.4 | -17.3 | M | - |
| | | All Years | Mean | -15.0 | -14.1 | -12.3 | -4.4 | 5.0 | 9.8 | 10.8 | 8.2 | 2.3 | -5.6 | -13.5 | -15.2 | -3.8 |
| | | | Maximum | 0.9 | -1.1 | 3.4 | 9.4 | 16.5 | 22.2 | 22.8 | 19.9 | 20.4 | 3.3 | -1.4 | -1.6 | 22.8 |
| | | | Minimum | -36.6 | -32.7 | -29.6 | -18.4 | -7.2 | 0.3 | 2.8 | -2.0 | -9.3 | -21.3 | -29.0 | -29.2 | -36.6 |

**Notes:**
1. Values are calculated from average daily temperatures.
2. Data is considered missing for a month when there are less than 25 days of data available for that month.
3. Monthly values in italics for the Potato Hills station, for the period of 2013 through 2015 have been infilled using monthly regression relationships with temperature data from the Camp station.
4. Monthly values in gray for the period of June 2014 to March 2015 and May through July 2016 were recorded by a standalone HOBO temperature sensor.
5. 'M' denotes data missing due to a sensor/datalogger malfunction.
6. Monthly temperature lapse rates presented in Section 3.1 are based on a comparison of monthly average temperature data from the Camp and Potato Hills stations.

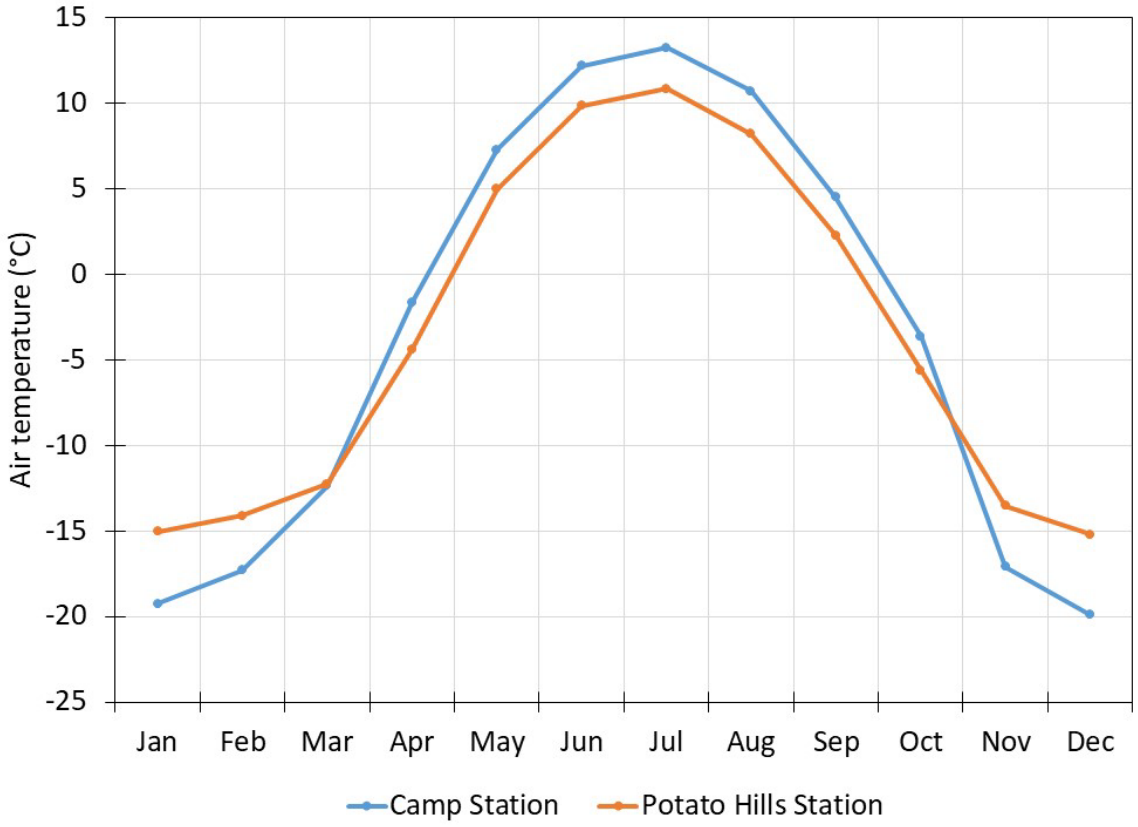



**Figure 3-1: Monthly mean air temperature for the Project climate stations for the available period of record.**

## *3.2 Rainfall*

The precipitation data is collected at the Project site using tipping bucket rain gauges, which have not been adapted to measure snowfall. Therefore, the precipitation data presented in Table 3-2 is for rainfall only, collected between the months of March and October, inclusive. Generally, precipitation falls as snow from November through March, with precipitation falling as a mix of rain and snow in April and October. Rainfall data for March is included in the table below, where the temperature record indicates that precipitation would have fallen as rain (*i.e.*, daily average air temperature was above zero).

## Table 3-2:
## Project site monthly rainfall data.

| Climate Station | Elevation (m asl) | Rainfall (mm) | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Year | | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec | Annual |
| Camp Station | 782 | 2009 | | - | - | - | - | - | - | - | - | 35.0 | *8.0* | S | S | - |
| | | 2010 | | S | S | 5.0 | 9.0 | 20.0 | 62.0 | 34.0 | 28.0 | 25.0 | *12.0* | S | S | 195.0 |
| | | 2011 | | S | S | 11.0 | 10.0 | 16.0 | 31.0 | 75.0 | 44.0 | 40.0 | *9.0* | S | S | 236.0 |
| | | 2012 | | S | S | 13.0 | 1.0 | 22.0 | 18.0 | 74.6 | 29.8 | 24.0 | *4.8* | S | S | 187.2 |
| | | 2013 | | S | S | 8.6 | 10.4 | 34.6 | 25.6 | 28.4 | 35.2 | 58.6 | *25.2* | S | S | 226.6 |
| | | 2014 | | S | S | 5.4 | 8.8 | 9.2 | 52.8 | 43.2 | 70.4 | 28.8 | *23.2* | S | S | 241.8 |
| | | 2015 | | S | S | 20.8 | 13.0 | 8.2 | 28.8 | 64.0 | 62.0 | 38.6 | *13.4* | S | S | 248.8 |
| | | 2016 | | S | S | 6.2 | 4.4 | 14.0 | 32.6 | 55.0 | 31.0 | 25.6 | *2.6* | S | S | 171.4 |
| | | 2017 | | S | S | S | 2.2 | 24.4 | M | M | 12.8 | 20.4 | *6.0* | S | S | - |
| | | 2018 | | S | S | 12.0 | 1.4 | 63.2 | 49.4 | 1.6 | 34.4 | 4.6 | *12.4* | S | S | 179.0 |
| | | All Years | Mean | S | S | 10.3 | 6.7 | 23.5 | 37.5 | 47.0 | 38.6 | 30.1 | 11.7 | S | S | 210.7 |
| | | | Maximum | S | S | 20.8 | 13.0 | 63.2 | 62.0 | 75.0 | 70.4 | 58.6 | *25.2* | S | S | 248.8 |
| | | | Minimum | S | S | 5.0 | 1.0 | 8.2 | 18.0 | 1.6 | 12.8 | 4.6 | *2.6* | S | S | 171.4 |
| Potato Hills Station | 1420 | 2007 | | S | S | S | - | - | - | - | 24.0 | 100.8 | *2.0* | S | S | - |
| | | 2008 | | S | S | 3.4 | 4.8 | 58.4 | 52.0 | 201.2 | 130.0 | 11.2 | *1.2* | S | S | 462.2 |
| | | 2009 | | S | S | S | 3.0 | M | 50.8 | 12.6 | 75.4 | 44.4 | *1.2* | S | S | - |
| | | 2010 | | S | S | 1.0 | 6.2 | 16.4 | 77.2 | 45.8 | 39.4 | 4.2 | *5.4* | S | S | 195.6 |
| | | 2011 | | S | S | 0.2 | 7.2 | 21.2 | 38.0 | 92.8 | 83.8 | 34.4 | *0.4* | S | S | 278.0 |
| | | 2012 | | S | S | S | 0.6 | 9.6 | 24.2 | 64.8 | 37.8 | 21.0 | *4.6* | S | S | 162.6 |
| | | 2013 | | S | S | 2.2 | 0.2 | 29.6 | 33.2 | 18.0 | 18.2 | 63.8 | *10.0* | S | S | 175.2 |
| | | 2014 | | S | S | S | M | M | M | M | M | M | *M* | S | S | - |
| | | 2015 | | S | S | S | M | M | M | M | 48.5 | 27.1 | *10.0* | S | S | - |
| | | 2016 | | S | S | D | D | 14.5 | 23.0 | 38.3 | 42.6 | 24.6 | *0.6* | S | S | - |
| | | 2017 | | S | S | D | D | 16.2 | 25.8 | 46.3 | 21.8 | 53.0 | *6.1* | S | S | - |
| | | 2018 | | S | S | D | D | D | 46.5 | 13.5 | 77.0 | 4.0 | *3.8* | S | S | - |
| | | All Years | Mean | S | S | 1.7 | 3.7 | 22.7 | 41.2 | 59.3 | 54.4 | 35.3 | 4.1 | S | S | 254.7 |
| | | | Maximum | S | S | 3.4 | 7.2 | 58.4 | 77.2 | 201.2 | 130.0 | 100.8 | *10.0* | S | S | 462.2 |
| | | | Minimum | S | S | 0.2 | 0.2 | 9.6 | 23.0 | 12.6 | 18.2 | 4.0 | *0.4* | S | S | 162.6 |

**Notes:**
1. Winter precipitation data (October through April in many years) are unreliable due to the majority falling as snow. The months where no rainfall was recorded due to freezing conditions are denoted by an 'S'.
2. Data for the month of October are in italics, as rainfall is not measured for the entire month.
3. 'M' denotes data missing due to a sensor malfunction.
4. In August 2015, the primary rain gauge at the Potato Hills Station was replaced by a standalone tipping bucket rain gauge. The replacement gauge is deployed each spring (i.e., in April or May) then decommissioned in the autumn (October). Missing data at Potato Hills Station denoted by 'D' indicate time periods during which the standalone tipping bucket rain gauge was not deployed.

## *3.3 Snow Water Equivalent and Continuous Snow Depth Data*

As discussed in Section 2.2, snow data have been collected at three snow courses[2] at the Project site since 2009. Furthermore, the annual maximum snow water equivalent (SWE) value generally occurs in late-March or early-April at the Project site. Field measurements from site show that snow density is generally lower earlier in the season, corresponding to colder temperatures, but increases through winter as the snow pack deepens, weathers and as snow melt progresses.

Project site snow survey data is summarized in Table 3-3 for period of record 2009 to 2018. Annual maximum SWE values range from 93 mm to 161 mm at the Camp snow course, 98 mm to 117 mm (shorter record) at the Ann Gulch snow course and from 190 mm to 410 mm at the Potato Hills snow course.

The Potato Hills snow survey was conducted in the immediate vicinity of the weather station from 2009 to 2011. However, due to the exposed location, snow redistribution resulted in variable measurements, and therefore the survey was moved to its current and more sheltered location in 2012, several hundred metres to the south-east (Figure 2-1). Note that high snowpacks did not allow access to the Potato Hills snow course in March 2012, and therefore the survey was conducted at Stewart Gulch (Snow Survey #2; see Figure 2-1).

[2] See Note 1 in Table 3-3.

## Table 3-3:
## Project site snow survey data.

| Year | Camp Station | | | | Ann Gulch (Snow Survey #2) | | | | Potato Hills Station | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Survey Date | Depth (cm) | SWE (mm) | Density (%) | Survey Date | Depth (cm) | SWE (mm) | Density (%) | Survey Date | Depth (cm) | SWE (mm) | Density (%) |
| 2009 | 2009-04-21 | 69 | 112 | 16% | - | - | - | - | 2009-04-21 | 126 | 410 | 33% |
| 2010 | 2010-03-31 | 50 | 99 | 20% | - | - | - | - | 2010-03-31 | 103 | 278 | 27% |
| | 2010-04-21 | 69 | 112 | 16% | - | - | - | - | 2010-04-21 | 126 | 405 | 32% |
| 2011 | 2011-03-28 | 55 | 93 | 17% | - | - | - | - | 2011-03-28 | 105 | 251 | 24% |
| 2012 | 2012-03-20 | 78 | 161 | 21% | - | - | - | - | 2012-03-20[1] | 99 | 237 | 24% |
| | 2012-04-20 | 56.4 | 79 | 14% | - | - | - | - | 2012-04-22 | 117 | 262 | 22% |
| 2013 | - | - | - | - | 2013-02-20 | 69.6 | 97.1 | 14% | 2013-02-28 | 95.6 | 184.9 | 19% |
| | 2013-03-02 | 60.9 | 108.3 | 18% | 2013-03-02 | 66.9 | 115 | 17% | - | - | - | - |
| | 2013-04-02 | 59.3 | 108.4 | 18% | 2013-04-02 | 61.8 | 117.2 | 19% | 2013-04-03 | 90 | 189.7 | 21% |
| | 2013-05-05 | 57.6 | 106 | 18% | 2013-04-16 | 62.2 | 85.1 | 14% | - | - | - | - |
| | - | - | - | - | 2013-05-03 | 58 | 105.3 | 18% | 2013-05-05 | 116.8 | 166.5 | 14% |
| 2014 | 2014-03-12 | 56.8 | 126 | 22% | 2014-03-12 | 51 | 94 | 18% | 2014-03-11 | 97.5 | 276 | 28% |
| | 2014-04-02 | 54.6 | 100 | 18% | 2014-04-02 | 46 | 98 | 21% | 2014-04-02 | 96.2 | 275 | 29% |
| | - | - | - | - | - | - | - | - | 2014-05-08 | 69.6 | 258 | 37% |
| 2016 | 2016-03-02 | 53 | 118 | 22% | 2016-03-02 | 52.6 | 117 | 22% | 2016-03-02 | 95.4 | 214 | 22% |
| | 2016-04-09 | 38 | 140 | 37% | 2016-04-09 | 22.2 | 115 | 52% | 2016-04-10 | 107.4 | 257 | 24% |
| | - | - | - | - | - | - | - | - | 2016-05-03 | 95 | 226 | 24% |
| 2017 | 2017-03-17 | 50.9 | 89 | 17% | 2017-03-17 | 50.3 | 100 | 20% | 2017-03-17 | 84 | 206 | 25% |
| | 2017-04-13 | 46 | 117 | 25% | 2017-04-13 | 30.1 | 82 | 27% | 2017-04-13 | 98 | 244 | 25% |
| | 2017-05-04 | 7 | 28 | 40% | 2017-05-04 | 0 | 0 | NA | 2017-05-03 | 89 | 236 | 27% |
| 2018 | 2018-02-28 | 53 | 100 | 19% | - | - | - | - | 2018-02-28 | 85.1 | 203 | 24% |
| | 2018-04-04 | 53.9 | 109 | 20% | - | - | - | - | 2018-04-04 | 90.5 | 219 | 24% |
| | 2018-05-16 | - | - | - | - | - | - | - | 2018-05-16 | 80.7 | 226 | 28% |

**Notes:**

1. Snow survey data for Potato Hills collected on 2012-03-20 is from the Stewart Gulch survey (Snow Survey #2) at 995 m asl (see Figure 2-1).
2. No snow surveys were conducted at site in 2015.

### 3.3.1 Continuous Snow Depth Data

Continuous snow depth data is summarized for the Camp climate station in Figure 3-2.

The upper panel of Figure 3-2 shows the evolution of the snowpack for the 2012 to 2018 time-period, with pack depth showing initial and appreciable accumulation through the months of November and December, typically reaching maximum depth by mid-March each year. These data then show snow pack depth remains deep and relatively stable to April.

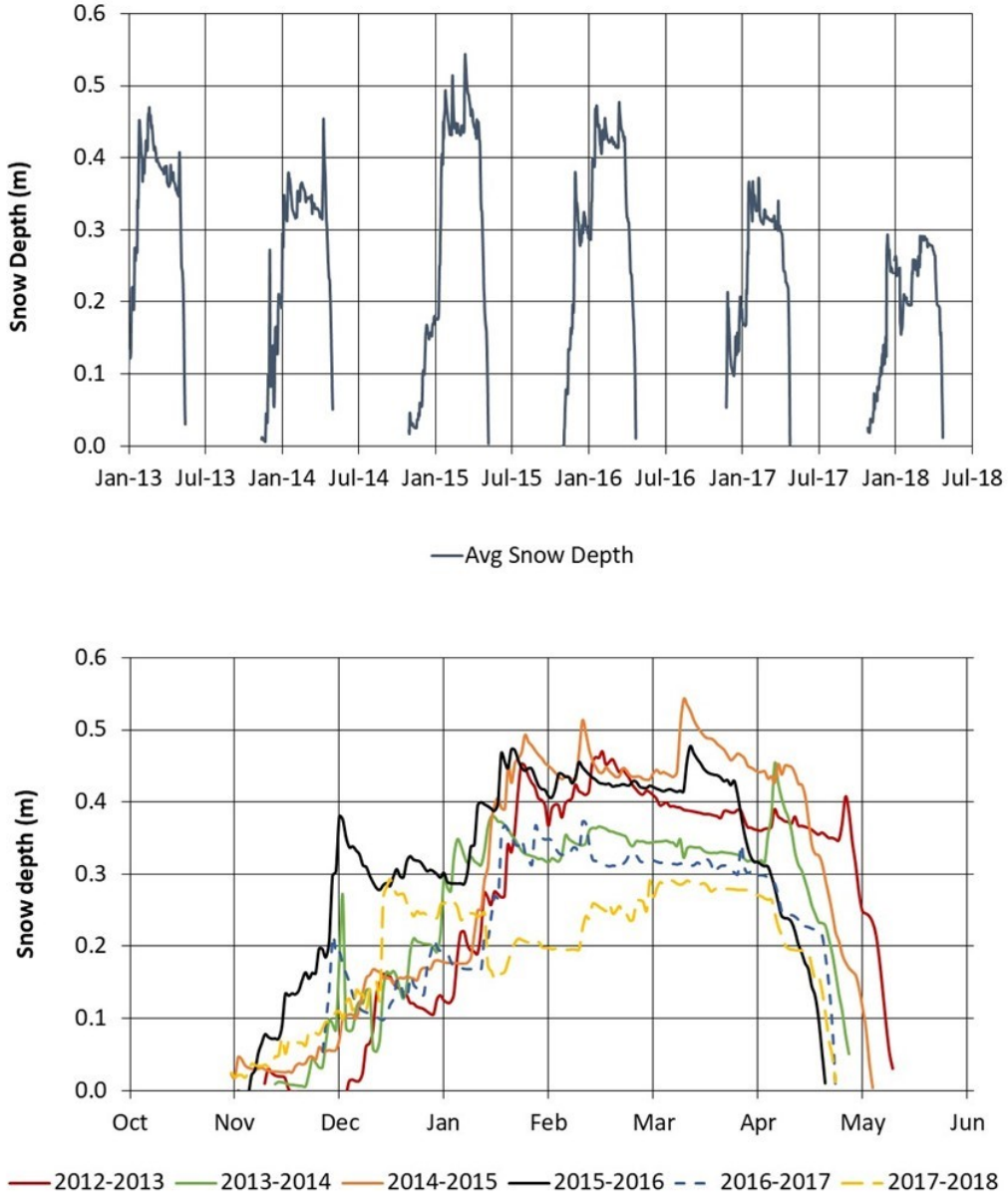



**Figure 3-2: Summary of recent (2012-2018) continuous snow depth data for the Camp climate station.**

The lower panel of Figure 3-2, illustrates the timing and rate of snowpack loss for the Camp climate station. While variable from year to year, these data show snowpack losses begin in earnest by mid- to late-April each year. Furthermore, the duration of snowmelt is short- and typically a 15-20 day process at this station elevation.

## *3.4 Barometric Pressure*

Barometric pressure provides a measure of the weight exerted by the atmosphere on the earth's surface at a point and provides a direct indication of changes in the synoptic weather pattern (*e.g.*, dropping barometric pressure can indicate the approach of a warm front). As expected, barometric pressure decreases with elevation at site, and is generally elevated during the summer months in comparison to the winter season (Table 3-4). When the Potato Hills climate station experienced a malfunction between May 2014 and July 2015, Table 3-4 was populated with data recorded by a standalone HOBO temperature/pressure logger for this time period. Annual average barometric pressure is 91.8 kPa at the Camp station, and 84.9 kPa at the Potato Hills station.

## Table 3-4:
## Project site monthly average barometric pressure.

| Climate Station | Elevation (m asl) | Barometric Pressure (kPa) | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Year | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec | Annual |
| Camp Station | 782 | 2009 | - | - | - | - | - | - | - | 91.6 | 91.3 | 91.7 | 90.1 | 91.9 | - |
| | | 2010 | 91.2 | 91.2 | 90.5 | 91.2 | 91.9 | 91.5 | 91.8 | 91.8 | 91.8 | 91.2 | 91.7 | 91.9 | 91.5 |
| | | 2011 | 91.8 | 92.2 | 91.9 | 91.6 | 92.1 | 91.9 | 91.8 | 91.8 | 91.4 | 91.3 | 91.1 | 91.2 | 91.7 |
| | | 2012 | 91.2 | 91.5 | 90.9 | 91.9 | 91.8 | 91.3 | 92.2 | 92.2 | 91.8 | 92.5 | 92.1 | 91.5 | 91.7 |
| | | 2013 | 91.9 | 91.2 | 92.3 | 92.2 | 92.2 | 92.4 | 92.5 | 92.0 | 91.4 | 91.9 | 92.1 | 92.5 | 92.1 |
| | | 2014 | 91.7 | 92.3 | 92.0 | 91.6 | 92.4 | 92.0 | 92.2 | 92.1 | 92.0 | 91.3 | 92.3 | 91.6 | 92.0 |
| | | 2015 | 92.2 | 92.5 | 91.9 | 91.4 | 92.5 | 92.2 | 92.1 | 92.0 | 91.6 | 91.7 | 91.3 | 91.0 | 91.9 |
| | | 2016 | 91.3 | 91.6 | 91.5 | 91.8 | 92.4 | 92.1 | 92.2 | 92.5 | 92.0 | 92.1 | 91.1 | 92.0 | 91.9 |
| | | 2017 | 91.8 | 91.7 | 92.0 | 92.0 | 91.9 | M | M | 91.9 | 91.9 | 91.7 | 92.1 | 92.3 | - |
| | | 2018 | 91.9 | 92.6 | 92.3 | 91.9 | 91.9 | 91.9 | 92.7 | 92.0 | 92.9 | 91.9 | 91.9 | 91.2 | 92.1 |
| | | Average | 91.7 | 91.9 | 91.7 | 91.8 | 92.1 | 91.9 | 92.2 | 92.0 | 91.8 | 91.7 | 91.6 | 91.7 | 91.8 |
| Potato Hills Station | 1420 | 2007 | - | - | - | - | - | - | - | 85.5 | 85.1 | 84.1 | 84.7 | 84.0 | - |
| | | 2008 | 84.1 | 84.3 | 84.6 | 84.9 | 85.4 | 85.4 | 85.2 | 85.4 | 85.3 | 84.4 | 84.3 | 85.0 | 84.9 |
| | | 2009 | 84.7 | 84.8 | 84.5 | 85.3 | 85.4 | 86.0 | 85.8 | 85.4 | 85.0 | 85.1 | 83.4 | 85.1 | 85.0 |
| | | 2010 | 84.4 | 84.5 | 83.9 | 84.7 | 85.5 | 85.2 | 85.5 | 85.5 | 85.3 | 84.3 | 84.6 | 84.4 | 84.8 |
| | | 2011 | 84.9 | 84.8 | 84.6 | 84.6 | 85.3 | 85.2 | 85.2 | 85.2 | 84.6 | 84.5 | 83.7 | 84.4 | 84.8 |
| | | 2012 | 83.8 | 83.3 | 84.0 | 84.9 | 84.5 | 84.8 | 85.3 | 85.5 | 85.0 | 85.4 | 84.8 | 84.1 | 84.6 |
| | | 2013 | 84.6 | 84.1 | 85.1 | 84.9 | 85.4 | 85.8 | 85.8 | 85.4 | 84.7 | 85.0 | 84.8 | 85.0 | 85.1 |
| | | 2014 | 84.6 | 85.0 | 84.8 | 84.7 | 85.8 | 85.1 | 85.6 | 85.4 | 85.2 | 84.5 | 85.4 | 84.8 | 85.1 |
| | | 2015 | 85.2 | 85.6 | 85.0 | 85.6 | M | M | 85.9 | 85.3 | 84.8 | 84.8 | 84.2 | 83.9 | - |
| | | 2016 | 84.3 | 84.5 | 84.5 | M | M | M | M | 85.9 | 85.2 | 85.1 | 84.0 | 84.7 | - |
| | | 2017 | 84.6 | 84.6 | 84.7 | 85.1 | 85.1 | 85.3 | M | M | M | M | 84.7 | 85.2 | - |
| | | 2018 | 84.7 | 85.2 | 85.2 | 84.9 | M | M | M | M | M | 85.0 | 84.7 | M | --- |
| | | Average | 84.5 | 84.6 | 84.6 | 85.0 | 85.3 | 85.4 | 85.5 | 85.4 | 85.0 | 84.7 | 84.5 | 84.6 | 84.9 |

**Notes:**
1. Monthly values in gray for the period of June 2014 to March 2015 were recorded by a standalone HOBO barometric pressure sensor.
2. 'M' denotes data missing due to a sensor malfunction.

## *3.5 Relative Humidity*

Relative humidity is a measure of the water vapour content of an air parcel, expressed as a percentage of the total water vapour required for the air to be fully saturated at a given temperature. Therefore, at colder temperatures, less water vapour is required to achieve a high relative humidity, and conversely at higher temperatures, more water vapour is required to obtain the same relative humidity value.

Given that air temperatures are well below zero during the winter, relative humidity values are elevated throughout the winter, and lower during the summer. With respect to monthly patterns for relative humidity, the annual minimum is expected to occur in the month of May. All monthly average relative humidity values from both climate stations are provided in Table 3-5 and Figure 3-3. Annual average relative humidity is 70% at the Camp station, and 77% at the Potato Hills station.

**Table 3-5:**
**Project site monthly average relative humidity.**

| Climate Station | Elevation (m asl) | Relative Humidity (%) | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Year | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec | Annual |
| Camp Station | 782 | 2009 | - | - | - | - | - | - | - | 82 | 76 | 73 | 80 | 79 | - |
| | | 2010 | 77 | 76 | 60 | 54 | 49 | 66 | 68 | 66 | 65 | 79 | 80 | 73 | 68 |
| | | 2011 | 76 | 71 | 62 | 61 | 56 | 64 | 74 | 77 | 73 | 81 | 75 | 81 | 71 |
| | | 2012 | 73 | 75 | 66 | 59 | 57 | 59 | 70 | 70 | 71 | 75 | 70 | 73 | 68 |
| | | 2013 | 75 | 80 | 64 | 52 | 61 | 60 | 63 | 70 | 76 | 84 | 77 | 71 | 69 |
| | | 2014 | 83 | 71 | 59 | 58 | 53 | 59 | 67 | 76 | 71 | 82 | 78 | 82 | 70 |
| | | 2015 | 80 | 78 | 68 | 62 | 49 | 62 | 71 | 75 | 75 | 84 | 80 | 82 | 72 |
| | | 2016 | 82 | 79 | 71 | 62 | 55 | 59 | 72 | 73 | 72 | 75 | 82 | 75 | 71 |
| | | 2017 | 78 | 73 | 59 | 56 | 58 | M | M | 70 | 79 | 83 | 75 | 81 | - |
| | | 2018 | 76 | 72 | 64 | 51 | 64 | 65 | 61 | 77 | 64 | 76 | 82 | 79 | 69 |
| | | Average | 78 | 75 | 64 | 57 | 56 | 62 | 68 | 74 | 72 | 79 | 78 | 78 | 70 |
| Potato Hills Station | 1420 | 2007 | - | - | - | - | - | - | - | 63 | 83 | 88 | 81 | 88 | - |
| | | 2008 | 82 | 79 | 74 | 69 | 67 | 60 | 77 | 82 | 83 | 91 | 90 | 74 | 77 |
| | | 2009 | 76 | 80 | 81 | 70 | 37 | 68 | 53 | 85 | 85 | 82 | 91 | 86 | 75 |
| | | 2010 | 86 | 83 | 75 | 65 | 55 | 72 | 75 | 71 | 72 | 90 | 89 | 86 | 76 |
| | | 2011 | 85 | 80 | 64 | 75 | 63 | 67 | 77 | 82 | 79 | 90 | 90 | 89 | 78 |
| | | 2012 | 93 | 90 | 87 | 73 | 73 | 69 | 74 | 71 | 73 | 84 | 82 | 86 | 80 |
| | | 2013 | 87 | 94 | 73 | 65 | 63 | 62 | 67 | 70 | 86 | 92 | 87 | 85 | 78 |
| | | 2014 | 91 | 72 | 59 | 66 | 59 | M | M | M | M | M | M | M | - |
| | | 2015 | M | M | M | M | M | M | 85 | 80 | 88 | 96 | 95 | 94 | - |
| | | 2016 | 88 | 90 | 86 | M | M | M | M | 78 | 77 | 81 | 92 | 86 | - |
| | | 2017 | 86 | 83 | 73 | 66 | 67 | 61 | M | M | M | M | 89 | 84 | - |
| | | 2018 | 84 | 77 | 73 | 61 | M | M | M | M | M | 80 | 89 | M | --- |
| | | Average | 86 | 83 | 74 | 68 | 60 | 66 | 72 | 76 | 81 | 87 | 89 | 86 | 77 |

**Notes:**
1. 'M' denotes data missing due to a sensor malfunction.

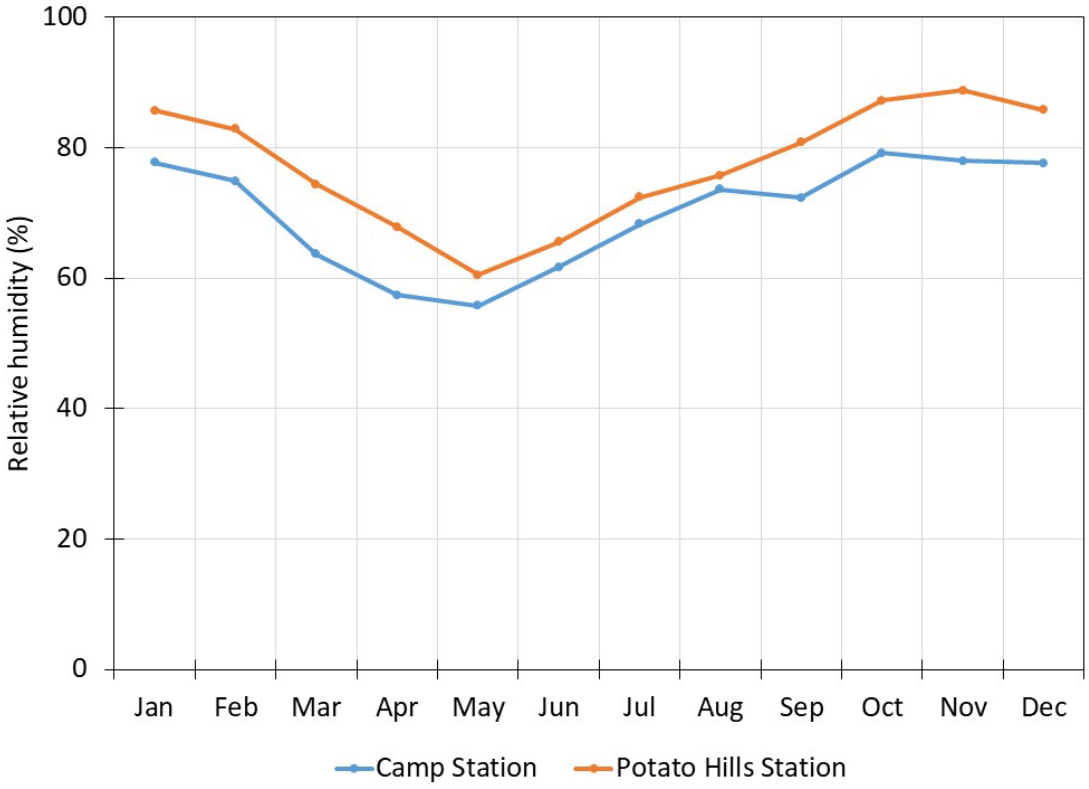



**Figure 3-3: Project site average monthly relative humidity.**

## 3.6 Wind Speed and Direction

The predominant wind direction at the site climate stations is north, and west-northwest, for the Camp and Potato Hills stations, respectively. Wind speeds average 1.2 m/s at the Camp station, and 2.4 m/s at the Potato Hills station, on an annual basis (Table 3-6; Figure 3-4). The maximum recorded gust speed at the Camp station was 23.5 m/s over a 15-minute interval (August 15, 2016). At the Potato Hills station, wind speeds averaged 23.5 m/s over a 1-hour period (November 3, 2010; 15-min maximum gust of 23.9 m/s), and during the same event, wind speeds in excess of 20 m/s were recorded for a 4.5-hour period. As shown in Table 3-6, the mean monthly wind speeds for both stations are higher in the spring, summer, and autumn months, and lower in the winter, with annual average monthly minimums occurring in December, and annual maximum winds in April and May.

## Table 3-6:
## Project site monthly average wind speeds.

| Climate Station | Elevation (m asl) | Wind Speed (m/s) | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Year | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec | Annual |
| Camp Station | 782 | 2009 | - | - | - | - | - | - | - | 1.4 | 1.2 | 1.2 | 1.1 | 0.7 | - |
| | | 2010 | 1.2 | 1.1 | 2.2 | 2.0 | 1.9 | 1.5 | 1.4 | 1.3 | 1.5 | 1.2 | 0.7 | 1.0 | 1.4 |
| | | 2011 | 0.6 | 1.2 | 1.3 | 1.8 | 1.7 | 1.5 | 1.3 | 1.2 | 1.4 | 0.9 | 0.9 | 0.2 | 1.2 |
| | | 2012 | 0.9 | 1.2 | 1.6 | 1.4 | 1.9 | 1.3 | 1.4 | 1.3 | 1.5 | 1.1 | 1.3 | 0.7 | 1.3 |
| | | 2013 | 0.8 | 0.9 | 1.2 | 2.2 | 1.5 | 1.7 | 1.5 | 1.3 | 1.6 | 0.8 | 0.7 | 0.7 | 1.2 |
| | | 2014 | 0.1 | 0.8 | 1.3 | 1.5 | 1.8 | 1.6 | 1.5 | 1.2 | 1.2 | 1.3 | 0.9 | 0.5 | 1.2 |
| | | 2015 | 0.2 | 0.3 | 1.1 | 1.4 | 1.6 | 1.6 | 1.2 | 1.2 | 1.3 | 1.1 | 0.7 | 0.0 | 1.0 |
| | | 2016 | 0.7 | 0.7 | 1.4 | 1.5 | 1.7 | 1.5 | 1.2 | 1.3 | 1.2 | 1.2 | 0.5 | 0.5 | 1.1 |
| | | 2017 | R | R | 1.6 | 1.7 | 1.6 | 2.1 | 1.3 | 1.2 | 1.0 | 0.8 | 0.5 | R | - |
| | | 2018 | 0.5 | 0.7 | 1.3 | 1.7 | 1.5 | 1.5 | 1.5 | 1.4 | 1.4 | 1.1 | 0.7 | 0.8 | 1.2 |
| | | Average | 0.6 | 0.9 | 1.5 | 1.7 | 1.7 | 1.6 | 1.4 | 1.3 | 1.3 | 1.1 | 0.8 | 0.6 | 1.2 |
| Potato Hills Station | 1420 | 2007 | - | - | - | - | - | - | - | 2.3 | 2.3 | 3.0 | 3.0 | 0.8 | - |
| | | 2008 | 2.8 | 3.7 | 3.6 | 3.6 | 3.6 | 3.1 | 3.1 | 2.8 | 1.7 | 1.3 | 2.6 | 3.1 | 2.9 |
| | | 2009 | 3.2 | 2.5 | 3.2 | 3.0 | 3.1 | 2.7 | 2.9 | 2.0 | 2.0 | 3.4 | 2.3 | 2.1 | 2.7 |
| | | 2010 | 2.1 | 2.1 | 3.9 | 3.6 | 2.7 | 2.0 | 2.6 | 2.7 | 3.0 | 2.8 | 1.5 | 1.0 | 2.5 |
| | | 2011 | 2.0 | 3.2 | 3.4 | 3.2 | 3.4 | 2.0 | 1.8 | 2.3 | 1.2 | 0.4 | 2.0 | 1.4 | 2.2 |
| | | 2012 | 0.0 | 0.2 | 1.4 | 2.0 | 2.9 | 1.8 | 1.9 | 2.0 | 2.9 | 2.5 | 2.6 | 0.7 | 1.7 |
| | | 2013 | 1.7 | 0.7 | 2.9 | 4.8 | 2.6 | 2.3 | 2.5 | 1.8 | 2.9 | 2.2 | 2.1 | 2.2 | 2.4 |
| | | 2014 | 1.6 | 2.6 | 2.5 | 3.0 | 2.7 | M | M | M | M | M | M | M | - |
| | | 2015 | M | M | M | M | M | M | 0.9 | 1.8 | 2.5 | 1.4 | 0.0 | 0.0 | - |
| | | 2016 | 1.3 | 2.7 | 2.8 | M | M | M | M | 2.1 | 2.1 | 1.6 | 1.3 | 0.6 | - |
| | | 2017 | 2.2 | 2.8 | 2.5 | 3.1 | 2.6 | 2.5 | M | M | M | M | 1.6 | 1.0 | - |
| | | 2018 | 2.8 | 2.7 | 2.7 | 3.2 | M | M | M | M | M | 2.5 | 0.7 | M | --- |
| | | Average | 2.0 | 2.3 | 2.9 | 3.3 | 3.0 | 2.3 | 2.2 | 2.2 | 2.3 | 2.1 | 1.8 | 1.3 | 2.4 |

**Notes:**
1. Zero value for January 2012 is likely due to icing of the wind sensor.
2. 'M' denotes data missing due to a sensor malfunction and R an indicator the wind sensor affected by rime.

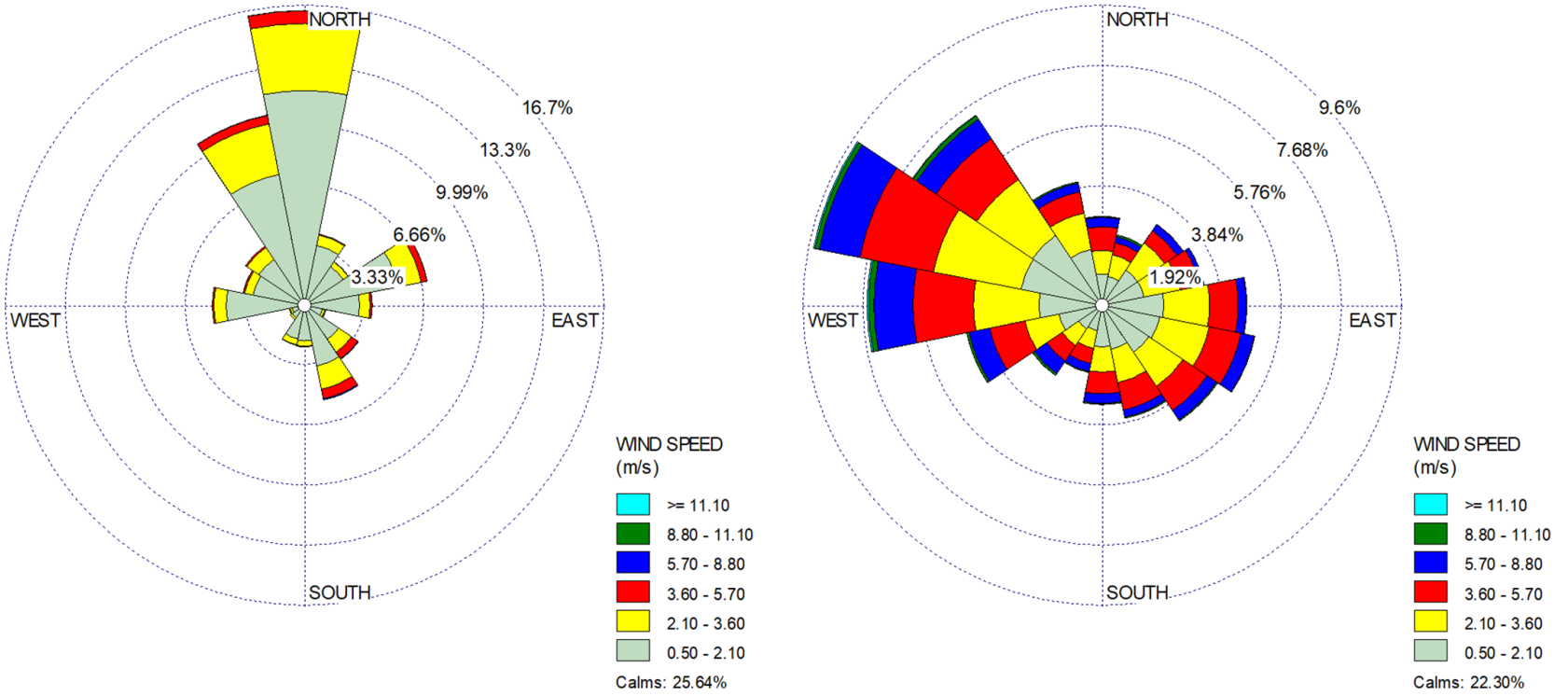



**Figure 3-4: Project site wind roses for the Camp station (a) and the Potato Hills station (b). Wind roses are based on hourly averages of 15-minute readings of wind speed and direction.**

## *3.7 Solar Radiation*

Solar radiation (or solar irradiance) is a measure of the power per unit area provided by the Sun, in watts per square meter ($W/m^2$). Given the high-latitude location of the Project site, day length, and therefore solar radiation, fluctuate greatly on a seasonal basis. The average annual minimum of 1 $W/m^2$ (Camp station) and 3 $W/m^2$ (Potato Hills station) occur in the month of December, while the average annual maximum of 208 $W/m^2$ and 224 $W/m^2$ occur in May at the Camp and Potato Hills stations, respectively. The Camp station location in the valley bottom results in slightly lower incident solar radiation, presumably due to the shading effect of the surrounding terrain. The monthly average and maximum solar radiation values for both stations are presented in Table 3-7 for their periods of record.

**Table 3-7:**
**Project site monthly maximum and average incoming solar radiation.**

| Climate Station | Elevation (m asl) | Maximum Solar Radiation (W/m²) | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Year | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec | Annual |
| Camp Station | 782 | 2011 | - | - | - | - | - | - | - | - | - | 194 | 214 | 28 | - |
| | | 2012 | 28 | 272 | 716 | 917 | 951 | 801 | 1022 | 832 | 708 | 423 | 172 | 119 | 1022 |
| | | 2013 | 181 | 291 | 718 | 748 | 951 | 920 | 1005 | 810 | 741 | 461 | 191 | 38 | 1005 |
| | | 2014 | 35 | 123 | 579 | 838 | 937 | 954 | 913 | 791 | 731 | 403 | 203 | 29 | 954 |
| | | 2015 | 39 | 398 | 629 | 845 | 950 | 991 | 965 | 867 | 634 | 470 | 215 | 8 | 991 |
| | | 2016 | 142 | 358 | 628 | 852 | 951 | 999 | 951 | 826 | 659 | 391 | 158 | 78 | 999 |
| | | 2017 | 28 | 388 | 563 | 904 | 961 | M | M | 859 | 688 | 381 | 129 | 34 | - |
| | | 2018 | 224 | 238 | 561 | 833 | 969 | 1008 | 926 | 885 | 684 | 382 | 84 | 36 | 1008 |
| | | Maximum | 224 | 398 | 718 | 917 | 969 | 1008 | 1022 | 885 | 741 | 470 | 215 | 119 | 1022 |
| Potato Hills Station | 1420 | 2007 | - | - | - | - | - | - | - | 954 | 714 | 517 | 206 | 67 | - |
| | | 2008 | 148 | 484 | 564 | 988 | 1047 | 1159 | 1162 | 1117 | 863 | 344 | 197 | 51 | 1162 |
| | | 2009 | 179 | 302 | 856 | 976 | 979 | 1118 | 1086 | 908 | 768 | 488 | 188 | 69 | 1118 |
| | | 2010 | 109 | 396 | 704 | 971 | 1069 | 1112 | 1079 | 944 | 838 | 472 | 247 | 77 | 1112 |
| | | 2011 | 184 | 377 | 802 | 957 | 1136 | 1174 | 1124 | 1037 | 767 | 441 | 201 | 131 | 1174 |
| | | 2012 | 31 | 34 | 126 | 1042 | 1126 | 1216 | 1251 | 934 | 897 | 483 | 163 | 78 | 1251 |
| | | 2013 | 124 | 252 | 938 | 787 | 1071 | 1199 | 1233 | 1026 | 838 | 564 | 243 | 103 | 1233 |
| | | 2014 | 162 | 356 | 667 | 1127 | 1021 | M | M | M | M | M | M | M | - |
| | | 2015 | M | M | M | M | M | M | 662 | 1096 | 766 | 536 | 101 | 71 | - |
| | | 2016 | 177 | 344 | 823 | M | M | M | M | M | M | M | M | M | - |
| | | 2017 | M | M | M | M | M | M | M | M | M | M | M | M | - |
| | | 2018 | M | M | M | M | M | M | M | M | M | M | M | M | - |
| | | Maximum | 184 | 484 | 938 | 1127 | 1136 | 1216 | 1251 | 1117 | 897 | 564 | 247 | 131 | 1251 |

| Climate Station | Elevation (m asl) | Average Solar Radiation (W/m$^2$) | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Year | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec | Annual |
| Camp Station | 782 | 2011 | - | - | - | - | - | - | - | - | - | 40 | 12 | 2 | - |
| | | 2012 | 3 | 44 | 165 | 263 | 237 | 174 | 184 | 153 | 84 | 42 | 10 | 2 | 113 |
| | | 2013 | 4 | 18 | 108 | 181 | 201 | 225 | 198 | 154 | 77 | 36 | 9 | 1 | 101 |
| | | 2014 | 2 | 10 | 106 | 162 | 204 | 208 | 183 | 128 | 96 | 23 | 11 | 1 | 95 |
| | | 2015 | 2 | 14 | 86 | 155 | 242 | 210 | 176 | 144 | 80 | 32 | 5 | 1 | 96 |
| | | 2016 | 4 | 27 | 76 | 150 | 200 | 228 | 170 | 148 | 102 | 49 | 7 | 2 | 97 |
| | | 2017 | 2 | 25 | 97 | 173 | 192 | M | M | 147 | 82 | 28 | 6 | 1 | - |
| | | 2018 | 6 | 21 | 93 | 178 | 178 | 195 | 204 | 128 | 117 | 44 | 4 | 1 | 98 |
| | | Average | 3 | 23 | 105 | 180 | 208 | 206 | 186 | 143 | 91 | 37 | 8 | 1 | 100 |
| Potato Hills Station | 1420 | 2007 | - | - | - | - | - | - | - | 162 | 87 | 37 | 11 | 2 | - |
| | | 2008 | 9 | 38 | 98 | 163 | 193 | 222 | 180 | 132 | 83 | 22 | 10 | 3 | 96 |
| | | 2009 | 7 | 35 | 95 | 184 | 250 | 228 | 244 | 116 | 81 | 42 | 8 | 3 | 108 |
| | | 2010 | 6 | 34 | 96 | 183 | 233 | 210 | 191 | 178 | 115 | 35 | 10 | 3 | 108 |
| | | 2011 | 8 | 35 | 106 | 187 | 250 | 221 | 199 | 152 | 100 | 46 | 13 | 7 | 110 |
| | | 2012 | 1 | 2 | 6 | 110 | 163 | 189 | 203 | 168 | 93 | 46 | 11 | 3 | 83 |
| | | 2013 | 7 | 16 | 112 | 171 | 246 | 245 | 218 | 169 | 82 | 36 | 11 | 3 | 110 |
| | | 2014 | 7 | 43 | 122 | 178 | 234 | M | M | M | M | M | M | M | - |
| | | 2015 | M | M | M | M | M | M | 185 | 163 | 89 | 35 | 5 | 1 | - |
| | | 2016 | 5 | 34 | 94 | M | M | M | M | M | M | M | M | M | - |
| | | 2017 | M | M | M | M | M | M | M | M | M | M | M | M | - |
| | | 2018 | M | M | M | M | M | M | M | M | M | M | M | M | - |
| | | Average | 6 | 30 | 91 | 168 | 224 | 219 | 203 | 155 | 91 | 37 | 10 | 3 | 102 |

**Notes:**
1. Solar radiation is zero at night.
2. Maximum values are based on an hourly/sub-hourly recording interval.
3. Zero values are not included in the calculation of averages.
4. 'M' denotes data missing due to a sensor malfunction.

## *3.8 Potential Evaporation*

15-minute potential evaporation rates were computed for the Camp station using available climate and the Ref-ET calculator - a compiled, stand-alone computer program that calculates reference evapotranspiration (ASCE, 2005). For the period of available record (Jan 2013 to Dec 2017), a 15-minute climate input file was prepared for the Eagle Gold site. The input variables required by Ref-ET are: maximum air temperature, minimum air temperature, relative humidity, incoming solar radiation, atmospheric pressure and wind speed.

From the assembled climate inputs, Ref-ET returned potential evaporation (PE) computations at daily time-step based on an array of evaporation models (*e.g.,* Penman-Monteith model, Priestley-Taylor formulation). Presented in Table 3-8 (monthly tabulations) are resulting outputs from Ref-ET for months March to October. May to end-September PE for the Camp station is estimated to range from 380-400 mm, with highest monthly rates of PE expected in May, June, July and August of each year.

**Table 3-8:**
**Potential evaporation (PE) estimates for the Camp station.**

| | | | Potential Evaporation (mm) | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **Period** | **Method** | **2012** | **2013** | **2014** | **2015** | **2016** | **2017** | **2018** | **Average (2012-2017)** |
| Mar | PM | --- | 17 | 21 | 17 | 24 | 18 | 20 | 20 |
| | P-T | --- | 16 | 19 | 16 | 16 | 13 | 25 | 17 |
| Apr | PM | --- | 40 | 47 | 47 | 57 | 56 | 51 | 50 |
| | P-T | --- | 40 | 46 | 46 | 48 | 50 | 59 | 48 |
| May | PM | --- | 78 | 91 | 113 | 106 | 97 | 78 | 94 |
| | P-T | --- | 82 | 85 | 108 | 86 | 80 | 83 | 87 |
| Jun | PM | --- | 114 | 98 | 97 | 126 | --- | 94 | 106 |
| | P-T | --- | 116 | 96 | 97 | 109 | --- | 99 | 103 |
| Jul | PM | 87 | 102 | 91 | 80 | 91 | --- | 108 | 93 |
| | P-T | 93 | 102 | 90 | 86 | 86 | --- | 113 | 95 |
| Aug | PM | 69 | 74 | 55 | 61 | 79 | 83 | 60 | 69 |
| | P-T | 70 | 73 | 56 | 63 | 67 | 68 | 67 | 66 |
| Sep | PM | 36 | 30 | 33 | 27 | 45 | 34 | 44 | 36 |
| | P-T | 26 | 24 | 28 | 23 | 30 | 25 | 49 | 29 |
| Oct | PM | 6 | 3 | 10 | 10 | 12 | 5 | 14 | 9 |
| | P-T | 4 | 3 | 4 | 5 | 5 | 4 | 17 | 6 |
| Total (Mar-Oct) | PM | --- | 461 | 441 | 455 | 541 | --- | 470 | 474 |
| | P-T | --- | 453 | 419 | 440 | 447 | --- | 511 | 454 |
| Total (May-Sep) | PM | --- | 397 | 367 | 378 | 448 | --- | 384 | 395 |
| | P-T | --- | 397 | 354 | 378 | 378 | --- | 410 | 383 |

**Notes:**
1. PM and P-T Indicate potential evaporation (PE) estimates based on Penman–Monteith and Priestley–Taylor approaches respectively.
2. PE Estimates computed using Eagle camp/lower 15-min climate data (I.E, air, temperature, relative humidity, wind speed, precipitation solar radiation, atmospheric pressure) and Ref-Et software

# 4. Closure

Victoria
GOLD CORP

# 4 Closure

We trust that this report meets your expectations at this time. Please contact the undersigned with any questions or comments.

Sincerely,

**LORAX ENVIRONMENTAL SERVICES LTD.**

Prepared by:



**Colin Fraser, M.Sc., P.Geo.**
Senior Hydrologist



**Scott Jackson, M.Sc., P.Geo.**
Hydrologist

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# APPENDIX O

## Vegetation Monitoring Report 2018

# VEGETATION MONITORING AT THE EAGLE GOLD PROJECT, 2018

**(Section 12 of the EMSAMP, Version 2018-01)**

**For**

Victoria GOLD CORP

**Submitted by**

Laberge Environmental Services

**December 2018**

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## 1.0 INTRODUCTION

The vegetation monitoring program has been designed to evaluate changes to vegetation during the construction phase of the Project. Specifically, metal burden in and on plant tissues is measured annually during the growing season in each year of the construction period to help identify whether any trends can be attributed to site activities. The 2018 survey is the first year of the program and represents baseline conditions.

The Environmental Monitoring, Surveillance and Adaptive Management Plan (EMSAMP), Version 2018-01, indicated four areas located in the Project area for the establishment of permanent vegetation plots. These sites are also the locations for the Soils Program and the dust fall installations.

## 2.0 METHODS

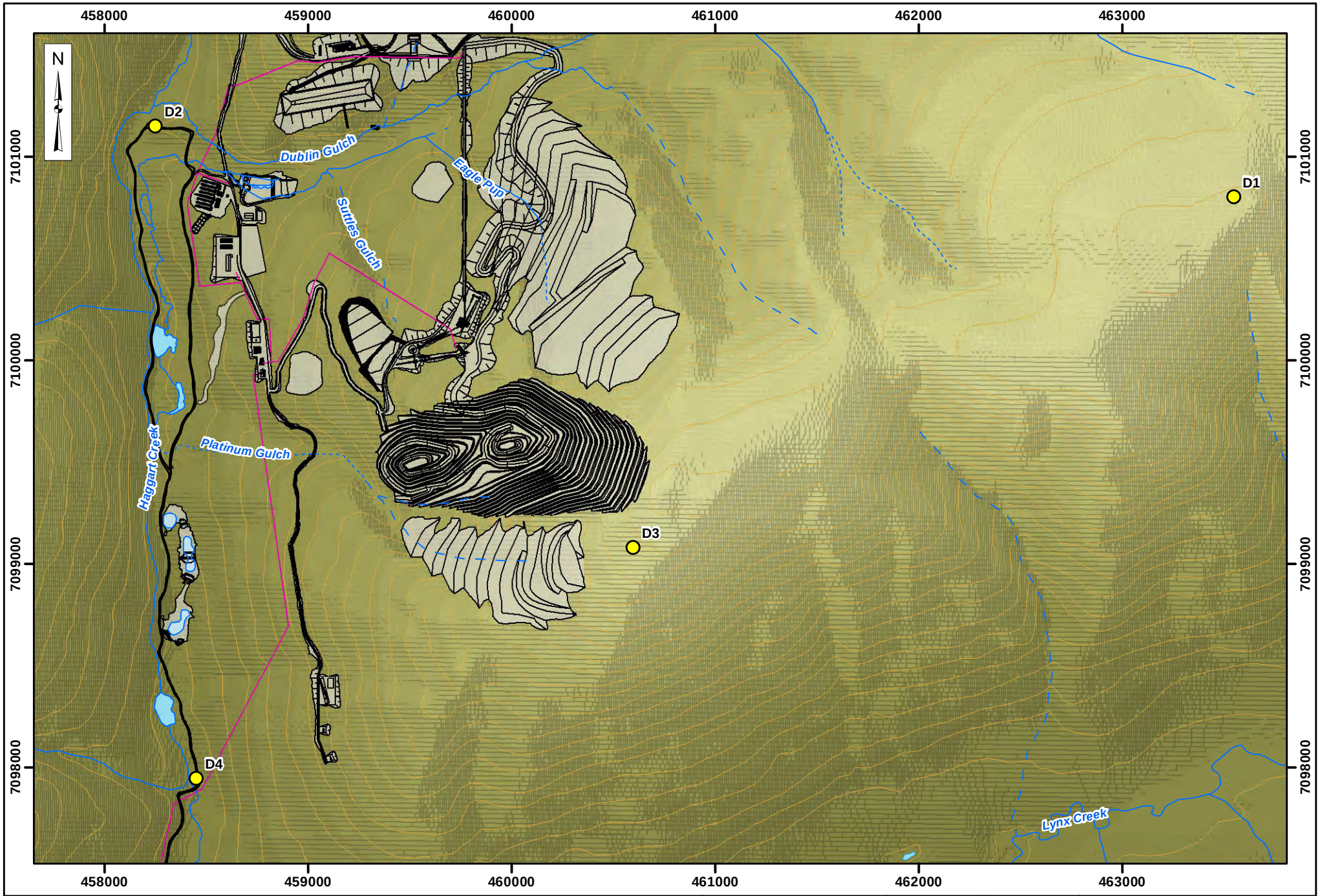
Four sites were established in each of the identified quadrants in early August 2018 and locations are detailed in Table 1 and displayed on Figure 1. The coordinates for each site represents the centre point of the site. Four corner points were then established in cardinal directions 10 metres from the centre. The plot layout is represented in Figure 2. Each of these five points were identified with fluorescent painted half-inch diameter rebar, 50 cm long. Circle plots of one-meter radius, were flagged around each rebar. The EMSAMP states that foliar samples of willow, sedge, bluejoint and northern rough fescue are to be collected within these two-meter diameter plots. As each of these four vegetation sites are located in different ecosystem units, not all species were present at each site.

**TABLE 1 LOCATION AND DESCRIPTION OF VEGETATION SITES**

| Site # | NAD 83 Zone 8W | | Aspect | Elevation (m) | Site Description |
|---|---|---|---|---|---|
| | Easting | Northing | | | |
| D 1 | 463550 | 7100803 | level | 1417 | Potato Hills near climate station |
| D 2 | 458251 | 7101150 | west | 834 | Upslope of the air quality station and the camp climate station |
| D 3 | 460598 | 7099079 | south west | 1356 | Top of Eagle Pup near the over-the-top road |
| D 4 | 458450 | 7097945 | level | 757 | On the west side of the access road just upstream of the Haggart Creek culverts, approx 3 km downwind of the Camp Climate Station |

New disposable nitrile gloves were worn for each collection. Where possible, separate samples were collected for willow leaves and the current season's growth of twigs. Willow foliar samples were collected from each quadrant. Due to their presence at most of the plots, and the fact they also have reasonable surface area for dust deposits, dwarf birch leaves were also sampled. Sedge was only present and collected at one site, D4. Fescue biomass was low throughout the four sites; populations were high enough to warrant collections at D1 only. Bluejoint was only available for collection at D4.

Samples were placed in Ziplock® bags and kept cool until delivered to the ALS laboratory in Whitehorse, Yukon. After the samples were logged in, they were frozen and shipped to the lab in Burnaby, BC, for analysis. The foliar samples were homogenized and sub-sampled prior to hot-block digestion with nitric and hydrochloric acids, in combination with the addition of hydrogen peroxide. Metals were analyzed using collision cell inductively coupled plasma-mass spectrometry. Analysis for mercury was done by atomic fluorescence or atomic absorption spectrophotometry.



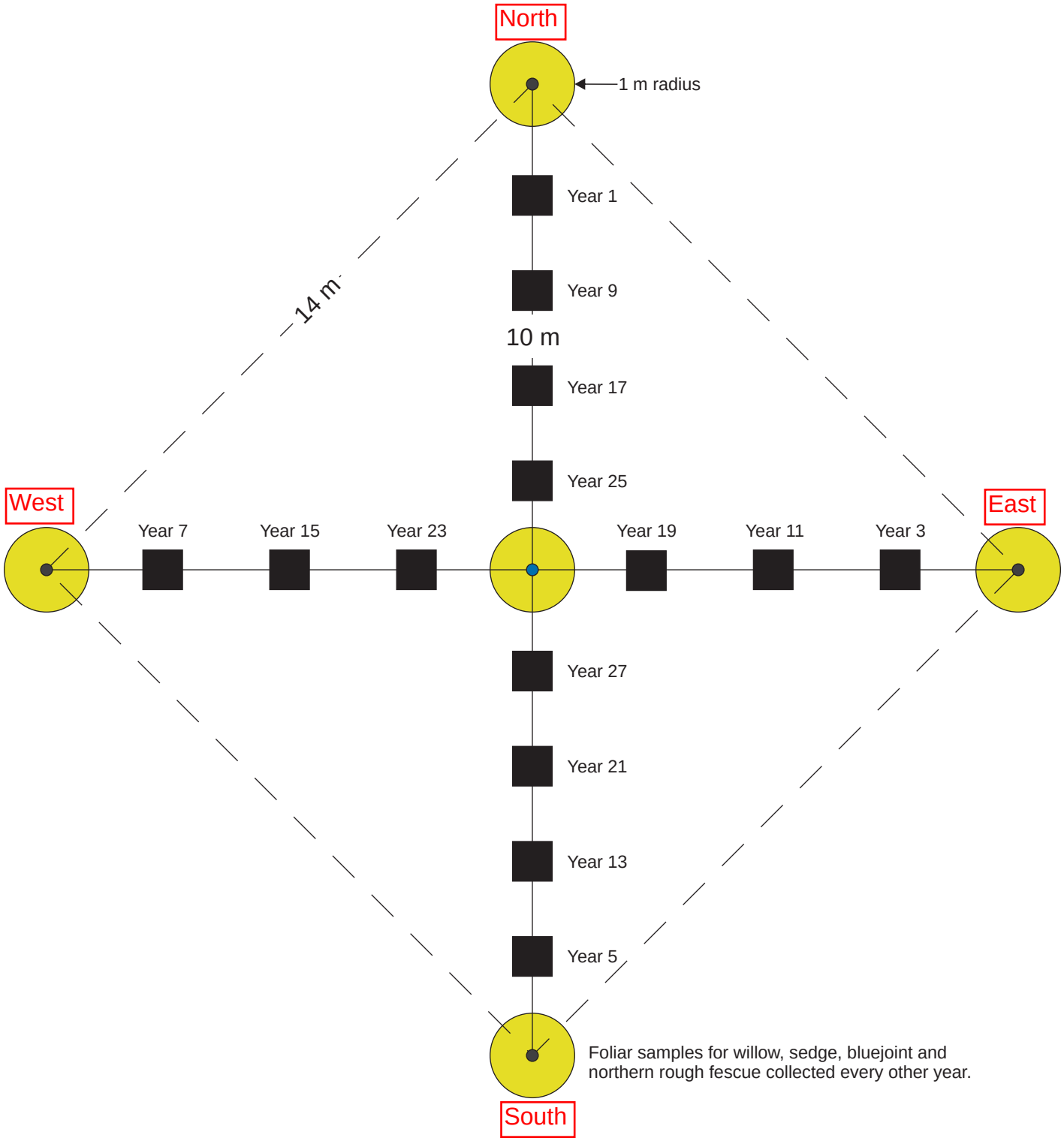

Legend:

- Vegetation & Soils Monitoring Location
- Facility
- Site Power
- Perennial
- Ephemeral
- Intermittent
- Contour (100ft)

StrataGold Corporation

0 0.375 0.75
Kilometers

| | | |
|---|---|---|
| Projection: NAD 83 UTM Zone 8N | Drawn By: HC | **EAGLE GOLD PROJECT YUKON TERRITORY** |
| Date: 2018/10/24 | Figure: 1 | **Vegetation & Soils Monitoring Locations** |




Legend:

1 m radius

Vegetation sample plot locations; painted ½ inch rebar to locate centre and corner plots; foliar samples collected every other year.

Soil sampling locations, surface horizon between 0 and 0.5 m depths; one sample every other year.

StrataGold Corporation

**EAGLE GOLD PROJECT**
**YUKON TERRITORY**

**Vegetation and Soil Monitoring Plot Layout**

| Projection: | Drawn By: | Date: | Figure: |
|---|---|---|---|
| N/A | SS | 2014/07/02 | 2 |

# 3.0 RESULTS

## 3.1 Description of the Vegetation Sites

The four roughly 200m$^2$ established sites lie within two ecological zones; the Subalpine Zone where the elevation is greater than 1225 masl and the Forested Zone which includes the treed areas on the mountain slopes and the valley bottoms (Stantec, 2011). D1 and D3 are located in the Subalpine Zone and D2 and D4 are in the Forested Zone.

**D1**

D1 is situated approximately 30 meters west of the Potato Hills Climate station. Stantec (2011) conducted ecosystem mapping throughout the Eagle Gold Project area in 2009. The polygon that contains D1 is classified as 50% Dwarf Birch and Lichen, 40% Dwarf Birch and Northern Rough Fescue and 10% Subalpine Fir, Dwarf Birch, Crowberry and Lichens (Stantec, 2011, Appendix 11, Part 1).

Within the 14 meter square boundary of D1, dwarf birch was the dominant species followed by willow. Tree species were solitary sporadic subalpine fir as well as one white spruce. There was exposed rock and talus throughout the site with the majority encrusted with lichen. A diversity of forbs was noted. The following plants were identified within D1:

| Common Name | Scientific Name |
|---|---|
| Subalpine Fir | *Abies lasiocarpa* |
| White Spruce | *Picea glauca* |
| Dwarf Birch | *Betula glandulosa* |
| Willow | *Salix* sp |
| Diamond Leaf Willow | *Salix pulcha* |
| Willow | *Salix richardsonii* |
| Labrador Tea | *Rhododendron groenlandicum* |
| Low Bush Cranberry | *Vaccinium vitis-idaea* |
| Blueberry | *Vaccinium uliginosum* |
| Arctic White Heather | *Cassiope tetragona* |
| Crowberry | *Empetrum nigrum* |
| Colt's Foot | *Petasites frigidus* var. *sagittatus* |
| Lupine | *Lupinus arcticus* |
| Mountain Sagewort | *Artemisia norvegica* |
| Spike Trisetum | *Trisetum spicatum* |
| Northern Rough Fescue | *Festuca altaica* |
| Anemone | *Anemone narcissiflora* |
| Lousewort | *Pedicularis labradorica* |
| Red Hook Moss | *Drepanocladus revolvens* |
| Finger lichen | *Dactylina arctica* |
| Caribou lichen | *Cladina stellaris* |
| Club lichen | *Cladonia* spp |
| Rockstripe lichen | *Umbilicaria torrefacta* |
| Green crusticose lichen | *Aspicilia caesiocinerea* |
| Leaf lichen | *Peltigera aphthosa* |
| Caribou horn tumbleweed lichen | *Masonhalea richardsonii* |

**D2**

D2 was established in the Forested Zone east of the camp weather station. Stantec (2011) classified the polygon where D2 is located as 80% Black spruce, Labrador Tea and Feathermoss and 20% Subalpine Fir, Crowberry and Lichen.

Tree species found within the boundary of site D2 consisted of Black Spruce, subalpine fir and paper birch. Willows and dwarf birch were the dominant shrub species. Feather moss was the dominant ground cover. Forbs and other shrubs were also present. Moose and rabbit scat were observed in the plot.

The following plants were identified at D2:

| Common Name | Scientific Name |
|---|---|
| Subalpine Fir | *Abies lasiocarpa* |
| Black Spruce | *Picea mariana* |
| Alaska Birch | *Betula neoalaskana* |
| Willow | *Salix* sp |
| Diamond Leaf Willow | *Salix pulchra* |
| Scouler's Willow | *Salix scouleriana* |
| Dwarf Birch | *Betula glandulosa* |
| Labrador Tea | *Rhododendron groenlandicum* |
| Low Bush Cranberry | *Vaccinium vitis-idaea* |
| Blueberry | *Vaccinium uliginosum* |
| Crowberry | *Empetrum nigrum* |
| Kinnikinnick | *Arctostaphylosu uva-ursi* |
| Colt's Foot | *Petasites frigidus* var*. sagittatus* |
| Fireweed | *Chamerion angustifolium* |
| Horsetail | *Equisetum* sp |
| Polar Grass | *Arctagrostis latifolia* |
| Caribou lichen | *Cladina stellaris* |
| Pelt Lichen | *Peltigera canina* |
| Black hair lichen | *Bryoria* sp |
| Feather mosses | *Pleurozium schreberi* |
| Red Hook Moss | *Drepanocladus revolvens* |

**D3**

D3 is located in a subalpine setting above Platinum Gulch accessed by the over-the-top road. The ecosystem classification in the polygon where D3 is situated is 50% Dwarf Birch and Northern Rough Fescue, 40% Dwarf birch and Lichen, and 10% Subalpine Fir, Dwarf Birch, Crowberry and lichens (Stantec, 2011).

Within the boundaries of D3, dwarf birch was the dominant species with scattered subalpine fir and white spruce. Willows, berry bushes, lichens and moss were also present.

The following plants were identified at D3:

| Common Name | Scientific Name |
|---|---|
| Subalpine Fir | *Abies lasiocarpa* |
| White Spruce | *Picea glauca* |
| Grey-leaved Willow | *Salix glauca* |
| Diamond Leaf Willow | *Salix pulchra* |
| Dwarf Birch | *Betula glandulosa* |
| Low Bush Cranberry | *Vaccinium vitis-idaea* |
| Blueberry | *Vaccinium uliginosum* |
| Crowberry | *Empetrum nigrum* |
| Labrador Lousewort | *Pedicularis labradorica* |
| Anemone | *Anemone narcissiflora* |
| Arctic Bluegrass | *Poa arctica* |
| Woodrush | *Luzula parviflora* |
| Caribou lichen | *Cladina stellaris* |
| Caribou horn | *Masonhalea richardsonii* |
| Leaf Lichen | |
| Feather mosses | |

**D4**

D4 is located in the Forested Zone in the floodplain area of Haggart Creek just upstream of the culverts at the access road crossing. Stantec (2011) has classified this area consisting mostly of rivers and large creeks and gravel bars with 20% as an ecosystem vegetation type of White Spruce and Horsetail.

The monitored site of D4 is generally a sedge covered open area with willows and alder interspersed throughout. Balsam Poplar was the only tree species although they were immature within D4. Horsetail and forbs were scattered within the site.

The following plants were identified at D4:

| Common Name | Scientific Name |
|---|---|
| Balsam Poplar | *Populus balsamifera* |
| Alder | *Alnus crispa* |
| Diamond Leaf Willow | *Salix pulchra* |
| Sweet vetch | *Hedysarum alpinum* |
| Siberian Yarrow | *Achillea sibirica* |
| Grass of Parnassus | *Parnassia palustris* |
| Green Bog Orchid | *Platanthera hyperborea* |
| Eyebright | *Euphrasia subarctica* |
| Horsetail | *Equisetum* sp |
| Bluejoint Grass | *Calamagrostis canadensis* |
| Water Sedge | *Carex aquatilis* (dominant) |
| Golden Sedge | *Carex aurea* |
| Tiny orange crusticose lichens | *Caloplaca cerina* |
| Red Hook Moss | *Drepanocladus revolvens* |

### 3.2 2018 Metals Data

Foliar samples were collected from each site and where possible from each of the five plots at each site. Willows were the only species that was collected from each of the four sites. The majority of the willows were *Salix pulchra*, diamond leaf willow, and this species was present at all of the sites. Dwarf birch (*Betula glandulosa*) was collected at three of the sites. Fescue (*Festuca altaica*), Bluejoint (*Calamagrostis canadensis*) and Sedges (*Carex aquatilis*) were collected at one site only. At some of the sites there wasn't enough biomass to create separate samples for willows and twigs so these were submitted as a single sample. There was insufficient biomass for individual samples of Bluejoint from each plot so grasses were collected throughout all of site D4. The following table depicts which samples were collected from each plot.

**TABLE 2 FOLIAR SAMPLES COLLECTED PER PLOT**

| SITE # | PLOT # | WILLOW LEAVES | WILLOW TWIGS | WILLOW LEAVES & TWIGS | DWARF BIRCH LEAVES | FESCUE | BLUE-JOINT | SEDGE |
|---|---|---|---|---|---|---|---|---|
| D 1 | Centre | √ | √ | | √ | √ | | |
| | North | √ | √ | | √ | √ | | |
| | East | √ | √ | | √ | √ | | |
| | South | √ | √ | | √ | √ | | |
| | West | √ | √ | | √ | √ | | |
| D 2 | Centre | √ | √ | | √ | | | |
| | North | √ | √ | | √ | | | |
| | East | √ | √ | | √ | | | |
| | South | | | √ | √ | | | |
| | West | √ | √ | | √ | | | |
| D 3 | Centre | | | √ | √ | | | |
| | North | | | √ | √ | | | |
| | East | | | √ | √ | | | |
| | South | | | √ | √ | | | |
| | West | √ | √ | | √ | | | |
| D 4 | Centre | √ | √ | | | | Collected throughout site | √ |
| | North | √ | √ | | | | | √ |
| | East | √ | √ | | | | | √ |
| | South | √ | √ | | | | | √ |
| | West | √ | √ | | | | | |
| # of individual samples: | | 15 | 15 | 5 | 15 | 5 | 1 | 4 |

The analytical report is presented in Appendix A. Samples were analyzed for a suite of 34 metals including mercury. The highest concentrations of many of the metals were documented in the tissue samples collected from D4. This site has the greatest impact from activities as it is located close to the access road and accumulated dust was apparent on the vegetation. The general suggested location of D4 in the EMSAMP was situated at the current location of the large equipment staging area and a more suitable site was chosen. Due to the topography of the area south of here, and zones of existing disturbance, the closest appropriate site was a flat area just upstream of the Haggart Creek culverts. This site was established as D4.

The range of concentrations of each parameter for all vegetation types per site is summarized in Table A-1 (in Appendix A). There are no guidelines regarding metal concentrations in vegetation with respect to wildlife consumption (e.g., moose and/or caribou). For reference, Stantec (2011) compared the 2009 Eagle Gold foliar data to the dietary tolerances for beef cattle. These toxic values have also been included in Table A-1. For the majority of the metals where there are toxic values, concentrations in the 2018 foliar samples were well below these levels. The exception to this was manganese where some concentrations exceeded the referenced toxicity of 2000 mg/kg but were less than 4000 mg/kg. This occurred in dwarf birch leaves collected from all of the plots in D1 and three of the plots in D3 (analytical report, Appendix A).

Potential emissions related to the gold recovery process include the metals arsenic, cadmium, chromium, mercury and lead (ENSAMP, 2018). These metals have been averaged per vegetation type for the five collection plots at each site (Table 3).

**TABLE 3 SELECTED METAL CONCENTRATIONS (mg/kg) PER TISSUE TYPE**

| Site | Tissue Type | N | Arsenic | Cadmium | Chromium | Lead | Mercury |
|---|---|---|---|---|---|---|---|
| D4 | Bluejoint | 1 | 2.27 | 0.0224 | 0.181 | 0.438 | ND |
| D1 | Festuca | 5 | 0.113 | 0.055 | 0.073 | 0.108 | ND |
| D4 | Sedge | 4 | 2.608 | 0.103 | 0.327 | 0.593 | ND |
| D1 | Dwarf Birch Leaves | 5 | 0.187 | 0.187 | ND | 0.055 | 0.0054 |
| D2 | Dwarf Birch Leaves | 5 | 2.128 | 0.255 | 0.205 | 0.395 | 0.0060 |
| D3 | Dwarf Birch Leaves | 5 | 0.410 | 0.188 | ND | 0.066 | 0.005 |
| D1 | Willow Leaves | 5 | 0.187 | 1.758 | ND | 0.082 | 0.0 |
| D2 | Willow Leaves | 4 | 2.015 | 2.700 | 0.158 | 0.381 | 0.0059 |
| D3 | Willow Leaves | 1 | 0.551 | 1.05 | ND | 0.132 | 0.0055 |
| D4 | Willow Leaves | 5 | 6.800 | 1.712 | 0.636 | 1.384 | 0.006 |
| D2 | Willow Leaves & Twigs | 1 | 2.49 | 2.38 | 0.218 | 0.439 | 0.0067 |
| D3 | Willow Leaves & Twigs | 4 | 0.460 | 2.065 | 0.051 | 0.083 | 0.006 |
| D1 | Willow Twigs | 5 | 0.135 | 1.948 | ND | 0.154 | ND |
| D2 | Willow Twigs | 4 | 0.612 | 2.490 | 0.100 | 0.188 | ND |
| D3 | Willow Twigs | 1 | 0.311 | 1.03 | 0.068 | 0.102 | ND |
| D4 | Willow Twigs | 5 | 1.848 | 1.501 | 0.225 | 0.429 | ND |

ND = not detected

Generally the highest concentrations of the selected metals occurred in the willow leaves. The highest concentration of arsenic was found in willow leaves collected from D4, however levels were not considered toxic (Table A-1). Arsenic concentrations were relatively high in the willow and dwarf birch leaves at D2, and in the Bluejoint and Sedge tissues, both collected at D4. Of the four sites, arsenic concentration in the soil at D2 was the highest (Laberge, 2018). Arsenic values in the soil exceeded the CCME and Yukon CSR guidelines for agriculture and parkland in the soil samples from all four plots (Laberge, 2018).

Cadmium concentration in the vegetation tissues was relatively similar in the willow leaves and in the willow twigs from each site. The highest concentrations were found in the willow leaves and twigs collected from D2. However, all levels were low and well below the referenced toxic level (Table A-1).

The greatest concentration of chromium was documented in the willow leaves collected from D4 followed by sedge from D4. Chromium was not detected in the willow leaves, willow twigs and dwarf birch leaves at D1, nor in the willow or dwarf birch leaves at D3.

Concentrations of lead were highest in the willow leaves and sedge collected from D4. Concentrations were generally low throughout and were well below the referenced toxic level (Table A-1).

Mercury levels were very low in the various vegetation types at all of the sites and were not detected in any of the willow twigs, sedge, bluejoint or fescue.

### 3.3 Previous Data

In 2009, Stantec (2011) had foliar tissues collected in the Eagle Gold study area analyzed for metal concentrations. Unfortunately, none of the nine sites sampled correlate to the sites established under the EMSAMP. Cantest completed the analysis and used much higher detection limits than the current study. The method detection limits (MDL) have decreased over time providing more precision for the lower concentrations of metals that are reported in the 2018 tables. Complete comparisons therefore cannot be made as non detected parameters in 2009 can now be detected in 2018. Of detected parameters in both studies, the greatest arsenic concentrations reported in the 2009 study occurred in grasses collected from a slope off the access road near Platinum Gulch, with a concentration of 0.4 mg/kg. This is much lower than the 2018 highest concentration of 6.80 mg/kg documented in willow leaves from D4. Reported cadmium levels were much lower in the tissues sampled in 2009 than in 2018.

## 4.0 DISCUSSION

The levels of metals found in the foliar samples collected in 2018 represent baseline levels and give a general idea of the metal burden (uptake in tissues as well as through dust deposition) in various species in different ecological zones. Arsenic is potentially a parameter of concern in the Eagle Gold Project area. The soil samples collected from each of the four sites indicates high ambient levels of arsenic in each of the areas. Arsenic is associated with the gold bearing anomalies in the district and these baseline concentrations reflect the natural mineralization of the Project area. As mentioned in Section 3.2, arsenic concentrations greatly exceeded the CCME and CSR guidelines, notably in the soil at D2 (Laberge, 2018). These high soil concentrations are not reflected in the plant tissues.

The toxicity of arsenic to biota depends upon the speciation with inorganic forms generally thought to be more toxic than organic forms. .Arsenate [As(V)] is the dominant form of arsenic in aerobic soils (Meharg et al, 2002). It is similar to the macronutrient phosphate and creates toxicity in plants by competing with phosphate. Processes within the plant convert arsenate to the more toxic arsenite [As(III)]. Trivalent arsenic (arsenite) is 5 to 10 times more toxic than pentavalent arsenic (arsenate). Elemental arsenic is non-toxic. There was no visible sign of stress in any of the vegetation in the plots. The arsenic concentration in the soil at D2 was 302 mg/kg (the guideline is 12 to 15 mg/kg) yet the plants at D2 appeared healthy with a broad range of biodiversity present. It is not known what species of arsenic are present in the Project's soils or the species present in the plant tissues. Investigations into the speciation of arsenic in plant tissues have shown more than one species present (Meharg et al, 2002). Therefore, the arsenic present in the soil may not be bioavailable to plants or the availability may be limited by the mycelium associated with the vegetation types, which effectively screen out toxins at the root hairs.

## 5.0 RECOMMENDATIONS

It is recommended that D4 be relocated for the 2019 sampling season. A suitable location could hopefully be located approximately 50 to 100 m downstream of the culverts and away from direct contact with the road. The results then will be more representative of dust deposition in the Haggart Creek Valley but will still be located downwind of the prevailing winds at the Camp meteorological station.

## 6.0 REFERENCES

Canadian Council of Ministers of the Environment (CCME). 2007. Canadian sediment quality guidelines for the Protection of Aquatic Life. Canadian Council of Ministers of the Environment, Winnipeg, Manitoba

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Meharg, A.A., J. Harley-Whitaker. 2002. Arsenic uptake and metabolism in arsenic resistant and nonresistant plant species. New Phytologist. 154: 29-43.

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Stantec Consulting Ltd. 2011. Appendix 11, Baseline Environmental Report: Vegetation, Parts 1 and 2. Prepared for Victoria Gold Corp. Project # 1231-10377.

StrataGold Corporation. 2018. Eagle Gold Project Environmental Monitoring, Surveillance and Adaptive Management Plan. Version 2018-01.

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# APPENDIX A

# FOLIAR TISSUES DATA

- **TABLE A-1**
- **ANALYTICAL REPORT, AUGUST 2018**

## Table A-1 Range of Detected Metals (mg/kg) in all Tissue Types

| Metal | MDL | D 1 | D 2 | D 3 | D 4 | Toxic |
|---|---|---|---|---|---|---|
| Aluminum | 2.0 | 6.2 to 41.8 | 20.4 to 144.0 | 10.7 to 46.5 | 58.6 to 342.0 | >1200 |
| Antimonyl | 0.010 | 0.010 to 0.023 | 0.035 to 0.183 | 0.010 to 0.043 | 0.071 to 0.544 | |
| Arsenic | 0.020 | 0.090 to 0.246 | 0.574 to 3.140 | 0.298 to 0.668 | 1.110 to 7.730 | >10* |
| Barium | 0.050 | 15.1 to 105.0 | 25.1 to 123.0 | 22.1 to 213.0 | 9.0 to 50.8 | >20** |
| Beryllium | 0.010 | 0.012 to 0.031 | not detected | 0.012 to 0.016 | 0.010 to 0.012 | |
| Bismuth | 0.010 | not detected | 0.011 to 0.018 | not detected | 0.012 to 0.033 | |
| Boron | 1.0 | 1.1 to 5.6 | 3.0 to 21.7 | 1.7 to 6.0 | 1.2 to 14.9 | >200 |
| Cadmium | 0.0050 | 0.0 to 3.1 | 0.090 to 4.330 | 0.140 to 3.120 | 0.022 to 2.730 | 50 - 500 |
| Calcium | 20 | 1150 to 6340 | 2990 to 11100 | 3230 to 9690 | 1410 to 11300 | |
| Cesium | 0.0050 | 0.017 to 0.301 | 0.014 to 0.059 | 0.022 to 0.194 | 0.012 to 0.061 | |
| Chromium | 0.050 | 0.055 to 0.091 | 0.062 to 0.398 | 0.051 to 0.068 | 0.115 to 0.749 | >40 |
| Cobalt | 0.020 | 0.071 to 6.910 | 0.237 to 2.410 | 0.606 to 5.960 | 0.129 to 1.080 | >30 |
| Copper | 0.10 | 1.80 to 4.54 | 1.95 to 4.48 | 2.58 to 5.18 | 3.52 to 6.33 | >100 |
| Iron | 3.0 | 22.8 to 70.6 | 61 to 370 | 55.0 to 193.0 | 150.0 to 989.0 | >4000 |
| Lead | 0.020 | 0.036 to 0.298 | 0.118 to 0.566 | 0.051 to 0.132 | 0.254 to 1.550 | >100 |
| Lithium | 0.50 | not detected | 0.600 to 0.600 | not detected | 0.720 to 1.200 | |
| Magnesium | 2.0 | 608 to 1910 | 794 to 3350 | 1150 to 3330 | 568 to 4420 | |
| Manganese | 0.050 | 243.0 to 3160.0 | 214 to 1830 | 259.0 to 2880.0 | 69.1 to 732.0 | 2000 - 4000 |
| Mercury | 0.0050 | 0.0052 to 0.0077 | 0.0052 to 0.0077 | 0.0050 to 0.0068 | 0.0052 to 0.0072 | |
| Molybdenum | 0.020 | 0.027 to 0.156 | 0.045 to 0.505 | 0.0300 to 0.1750 | 0.053 to 1.370 | 10 - 20 |
| Nickel | 0.20 | 0.450 to 7.360 | 1.53 to 8.79 | 4.4 to 17.4 | 1.080 to 4.310 | >1500 |
| Phosphorus | 10 | 1000 to 2830 | 884 to 3930 | 1800 to 3950 | 704 to 1760 | |
| Potassium | 20 | 3420 to 15600 | 4040 to 13800 | 5330 to 13600 | 4360 to 14600 | |
| Rubidium | 0.050 | 8.4 to 41.1 | 3.03 to 12.60 | 8.9 to 23.7 | 3.2 to 12.6 | |
| Selenium | 0.050 | not detected | 0.056 to 0.162 | 0.107 to 0.107 | 0.054 to 0.203 | 5 - 20 |
| Sodium | 20 | 22.0 to 22.0 | not detected | 23.0 to 23.0 | 22.0 to 22.0 | |
| Strontium | 0.050 | 5.28 to 55.90 | 6.49 to 60.90 | 8.48 to 92.80 | 6.80 to 54.20 | >2000 |
| Tellurium | 0.020 | not detected | not detected | not detected | not detected | |
| Thallium | 0.0020 | 0.002 to 0.002 | 0.0021 to 0.0027 | not detected | 0.002 to 0.008 | |
| Tin | 0.10 | 0.120 to 0.160 | not detected | not detected | 0.120 to 0.120 | |
| Uranium | 0.0020 | not detected | 0.0022 to 0.0187 | not detected | 0.007 to 0.045 | |
| Vanadium | 0.10 | not detected | 0.13 to 0.29 | not detected | 0.100 to 0.720 | |
| Zinc | 0.50 | 13.4 to 193.0 | 39 to 310 | 42.8 to 126.0 | 17.6 to 480.0 | >5000 |
| Zirconium | 0.20 | not detected | not detected | not detected | 0.25 to 0.35 | |

* There is no actual toxic value, only what is considered normal or adequate in the referenced table.

** There is no actual toxic value, only what is considered high in the referenced table.

STRATAGOLD CORPORATION
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Date Received: 06-AUG-18
Report Date: 31-AUG-18 12:33 (MT)
Version: FINAL

Client Phone: 604-682-5122

# Certificate of Analysis

## Lab Work Order #: L2141704

| | |
|---|---|
| Project P.O. #: | NOT SUBMITTED |
| Job Reference: | EAGLE GOLD |
| C of C Numbers: | 1 of 5, 2 of 5, 3 of 5, 4 of 5, 5 of 5 |
| Legal Site Desc: | Victoria Gold Corp. |

Heather McKenzie
Account Manager

[This report shall not be reproduced except in full without the written authority of the Laboratory.]

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Grouping | Analyte | L2141704-5<br>Tissue<br>01-AUG-18<br>D1-NORTH-WILLOW LEAVES | L2141704-6<br>Tissue<br>01-AUG-18<br>D1-NORTH-WILLOW TWIGS | L2141704-7<br>Tissue<br>01-AUG-18<br>D1-NORTH-DWARF BIRCH LEAVES | L2141704-8<br>Tissue<br>01-AUG-18<br>D1-NORTH-FESTUCA | L2141704-9<br>Tissue<br>01-AUG-18<br>D1-EAST-WILLOW LEAVES |
|---|---|---|---|---|---|---|
| **TISSUE** | | | | | | |
| **Metals** | Aluminum (Al)-Total (mg/kg) | 41.8 | 11.8 | 11.7 | 7.2 | 27.1 |
| | Antimony (Sb)-Total (mg/kg) | 0.012 | 0.019 | 0.010 | 0.018 | <0.010 |
| | Arsenic (As)-Total (mg/kg) | 0.214 | 0.194 | 0.218 | 0.107 | 0.154 |
| | Barium (Ba)-Total (mg/kg) | 74.7 | 105 | 47.6 | 21.1 | 15.1 |
| | Beryllium (Be)-Total (mg/kg) | 0.031 | <0.010 | <0.010 | <0.010 | 0.012 |
| | Bismuth (Bi)-Total (mg/kg) | <0.010 | <0.010 | <0.010 | <0.010 | <0.010 |
| | Boron (B)-Total (mg/kg) | 1.6 | 3.2 | 4.1 | 1.9 | 1.9 |
| | Cadmium (Cd)-Total (mg/kg) | 3.01 | 3.10 | 0.201 | 0.0378 | 1.17 |
| | Calcium (Ca)-Total (mg/kg) | 6340 | 3670 | 3790 | 1150 | 3940 |
| | Cesium (Cs)-Total (mg/kg) | 0.177 | 0.161 | 0.0480 | 0.0761 | 0.112 |
| | Chromium (Cr)-Total (mg/kg) | <0.050 | <0.050 | <0.050 | 0.070 | <0.050 |
| | Cobalt (Co)-Total (mg/kg) | 6.01 | 1.93 | 0.525 | 0.075 | 4.66 |
| | Copper (Cu)-Total (mg/kg) | 3.02 | 2.69 | 4.37 | 2.20 | 3.93 |
| | Iron (Fe)-Total (mg/kg) | 50.1 | 29.3 | 46.4 | 31.3 | 47.9 |
| | Lead (Pb)-Total (mg/kg) | 0.094 | 0.298 | 0.056 | 0.082 | 0.046 |
| | Lithium (Li)-Total (mg/kg) | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 |
| | Magnesium (Mg)-Total (mg/kg) | 1910 | 1060 | 1430 | 608 | 1450 |
| | Manganese (Mn)-Total (mg/kg) | 920 | 349 | 2080 | 859 | 756 |
| | Mercury (Hg)-Total (mg/kg) | 0.0077 | <0.0050 | 0.0052 | <0.0050 | 0.0058 |
| | Molybdenum (Mo)-Total (mg/kg) | 0.081 | 0.059 | 0.027 | 0.119 | 0.061 |
| | Nickel (Ni)-Total (mg/kg) | 7.36 | 4.12 | 3.60 | 0.47 | 5.45 |
| | Phosphorus (P)-Total (mg/kg) | 2510 | 1470 | 2640 | 1000 | 1630 |
| | Potassium (K)-Total (mg/kg) | 11900 | 5520 | 8900 | 15000 | 12900 |
| | Rubidium (Rb)-Total (mg/kg) | 23.3 | 20.9 | 14.7 | 29.3 | 29.1 |
| | Selenium (Se)-Total (mg/kg) | <0.050 | <0.050 | <0.050 | <0.050 | <0.050 |
| | Sodium (Na)-Total (mg/kg) | <20 | 22 | <20 | <20 | <20 |
| | Strontium (Sr)-Total (mg/kg) | 55.9 | 31.9 | 11.2 | 5.28 | 22.6 |
| | Tellurium (Te)-Total (mg/kg) | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 |
| | Thallium (Tl)-Total (mg/kg) | <0.0020 | <0.0020 | <0.0020 | <0.0020 | <0.0020 |
| | Tin (Sn)-Total (mg/kg) | <0.10 | <0.10 | <0.10 | <0.10 | <0.10 |
| | Uranium (U)-Total (mg/kg) | <0.0020 | <0.0020 | <0.0020 | <0.0020 | <0.0020 |
| | Vanadium (V)-Total (mg/kg) | <0.10 | <0.10 | <0.10 | <0.10 | <0.10 |
| | Zinc (Zn)-Total (mg/kg) | 84.9 | 103 | 156 | 16.1 | 58.0 |
| | Zirconium (Zr)-Total (mg/kg) | <0.20 | <0.20 | <0.20 | <0.20 | <0.20 |

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Grouping | Analyte | L2141704-10 Tissue 01-AUG-18 D1-EAST-WILLOW TWIGS | L2141704-11 Tissue 01-AUG-18 D1-EAST-DWARF BIRCH LEAVES | L2141704-12 Tissue 01-AUG-18 D1-EAST-FESTUCA | L2141704-13 Tissue 01-AUG-18 D1-SOUTH-WILLOW LEAVES | L2141704-14 Tissue 01-AUG-18 D1-SOUTH-WILLOW TWIGS |
|---|---|---|---|---|---|---|
| **TISSUE** | | | | | | |
| **Metals** | Aluminum (Al)-Total (mg/kg) | 7.5 | 9.9 | 6.2 | 32.6 | 7.6 |
| | Antimony (Sb)-Total (mg/kg) | <0.010 | 0.010 | 0.011 | <0.010 | <0.010 |
| | Arsenic (As)-Total (mg/kg) | 0.115 | 0.159 | 0.106 | 0.152 | 0.096 |
| | Barium (Ba)-Total (mg/kg) | 35.8 | 36.1 | 28.5 | 24.7 | 30.2 |
| | Beryllium (Be)-Total (mg/kg) | <0.010 | <0.010 | <0.010 | 0.020 | <0.010 |
| | Bismuth (Bi)-Total (mg/kg) | <0.010 | <0.010 | <0.010 | <0.010 | <0.010 |
| | Boron (B)-Total (mg/kg) | 3.1 | 5.6 | 1.5 | 2.5 | 3.2 |
| | Cadmium (Cd)-Total (mg/kg) | 1.55 | 0.103 | 0.0361 | 1.54 | 1.49 |
| | Calcium (Ca)-Total (mg/kg) | 2780 | 3470 | 1420 | 6080 | 2770 |
| | Cesium (Cs)-Total (mg/kg) | 0.143 | 0.0373 | 0.0958 | 0.0618 | 0.0404 |
| | Chromium (Cr)-Total (mg/kg) | <0.050 | <0.050 | 0.055 | <0.050 | <0.050 |
| | Cobalt (Co)-Total (mg/kg) | 1.78 | 0.376 | 0.071 | 3.45 | 0.570 |
| | Copper (Cu)-Total (mg/kg) | 4.17 | 4.54 | 1.93 | 2.96 | 2.63 |
| | Iron (Fe)-Total (mg/kg) | 25.3 | 49.1 | 29.9 | 57.5 | 22.8 |
| | Lead (Pb)-Total (mg/kg) | 0.076 | 0.043 | 0.097 | 0.055 | 0.036 |
| | Lithium (Li)-Total (mg/kg) | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 |
| | Magnesium (Mg)-Total (mg/kg) | 1160 | 1180 | 609 | 1530 | 708 |
| | Manganese (Mn)-Total (mg/kg) | 339 | 2140 | 733 | 900 | 243 |
| | Mercury (Hg)-Total (mg/kg) | <0.0050 | 0.0057 | <0.0050 | 0.0062 | <0.0050 |
| | Molybdenum (Mo)-Total (mg/kg) | 0.042 | 0.027 | 0.130 | 0.104 | 0.045 |
| | Nickel (Ni)-Total (mg/kg) | 2.37 | 2.64 | 0.58 | 4.21 | 2.31 |
| | Phosphorus (P)-Total (mg/kg) | 1370 | 2280 | 1070 | 1870 | 1110 |
| | Potassium (K)-Total (mg/kg) | 5650 | 7520 | 12700 | 10900 | 3420 |
| | Rubidium (Rb)-Total (mg/kg) | 26.9 | 12.5 | 28.8 | 17.7 | 11.0 |
| | Selenium (Se)-Total (mg/kg) | <0.050 | <0.050 | <0.050 | <0.050 | <0.050 |
| | Sodium (Na)-Total (mg/kg) | <20 | <20 | <20 | <20 | <20 |
| | Strontium (Sr)-Total (mg/kg) | 21.1 | 9.49 | 7.55 | 42.9 | 22.9 |
| | Tellurium (Te)-Total (mg/kg) | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 |
| | Thallium (Tl)-Total (mg/kg) | <0.0020 | <0.0020 | <0.0020 | <0.0020 | <0.0020 |
| | Tin (Sn)-Total (mg/kg) | 0.16 | <0.10 | <0.10 | <0.10 | <0.10 |
| | Uranium (U)-Total (mg/kg) | <0.0020 | <0.0020 | <0.0020 | <0.0020 | <0.0020 |
| | Vanadium (V)-Total (mg/kg) | <0.10 | <0.10 | <0.10 | <0.10 | <0.10 |
| | Zinc (Zn)-Total (mg/kg) | 95.2 | 130 | 13.6 | 48.1 | 58.7 |
| | Zirconium (Zr)-Total (mg/kg) | <0.20 | <0.20 | <0.20 | <0.20 | <0.20 |

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Grouping | Analyte | L2141704-15 Tissue 01-AUG-18 D1-SOUTH-DWARF BIRCH LEAVES | L2141704-16 Tissue 01-AUG-18 D1-SOUTH-FESTUCA | L2141704-17 Tissue 01-AUG-18 D1-WEST-WILLOW LEAVES | L2141704-18 Tissue 01-AUG-18 D1-WEST-WILLOW TWIGS | L2141704-19 Tissue 01-AUG-18 D1-WEST-DWARF BIRCH LEAVES |
|---|---|---|---|---|---|---|
| **TISSUE** | | | | | | |
| **Metals** | Aluminum (Al)-Total (mg/kg) | 10.6 | 6.6 | 34.6 | 7.3 | 11.9 |
| | Antimony (Sb)-Total (mg/kg) | <0.010 | 0.011 | <0.010 | <0.010 | 0.012 |
| | Arsenic (As)-Total (mg/kg) | 0.161 | 0.113 | 0.171 | 0.090 | 0.174 |
| | Barium (Ba)-Total (mg/kg) | 39.0 | 23.7 | 34.5 | 46.6 | 44.6 |
| | Beryllium (Be)-Total (mg/kg) | <0.010 | <0.010 | 0.019 | <0.010 | <0.010 |
| | Bismuth (Bi)-Total (mg/kg) | <0.010 | <0.010 | <0.010 | <0.010 | <0.010 |
| | Boron (B)-Total (mg/kg) | 5.0 | 1.1 | 2.8 | 3.0 | 3.6 |
| | Cadmium (Cd)-Total (mg/kg) | 0.265 | 0.0546 | 1.68 | 1.78 | 0.151 |
| | Calcium (Ca)-Total (mg/kg) | 4650 | 1290 | 5160 | 2800 | 3980 |
| | Cesium (Cs)-Total (mg/kg) | 0.0167 | 0.0844 | 0.301 | 0.204 | 0.169 |
| | Chromium (Cr)-Total (mg/kg) | <0.050 | 0.091 | <0.050 | <0.050 | <0.050 |
| | Cobalt (Co)-Total (mg/kg) | 0.577 | 0.104 | 4.20 | 1.11 | 0.338 |
| | Copper (Cu)-Total (mg/kg) | 4.38 | 1.80 | 3.32 | 3.07 | 4.48 |
| | Iron (Fe)-Total (mg/kg) | 52.4 | 29.8 | 70.1 | 24.2 | 47.9 |
| | Lead (Pb)-Total (mg/kg) | 0.043 | 0.077 | 0.078 | 0.090 | 0.057 |
| | Lithium (Li)-Total (mg/kg) | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 |
| | Magnesium (Mg)-Total (mg/kg) | 1610 | 651 | 1660 | 760 | 1870 |
| | Manganese (Mn)-Total (mg/kg) | 3160 | 655 | 1060 | 304 | 2230 |
| | Mercury (Hg)-Total (mg/kg) | 0.0052 | <0.0050 | 0.0061 | <0.0050 | <0.0050 |
| | Molybdenum (Mo)-Total (mg/kg) | 0.034 | 0.156 | 0.086 | 0.035 | 0.028 |
| | Nickel (Ni)-Total (mg/kg) | 3.48 | 0.45 | 4.55 | 2.33 | 2.87 |
| | Phosphorus (P)-Total (mg/kg) | 2520 | 1120 | 2400 | 1300 | 2830 |
| | Potassium (K)-Total (mg/kg) | 6810 | 12900 | 13000 | 4840 | 6700 |
| | Rubidium (Rb)-Total (mg/kg) | 8.39 | 23.6 | 29.0 | 19.8 | 16.3 |
| | Selenium (Se)-Total (mg/kg) | <0.050 | <0.050 | <0.050 | <0.050 | <0.050 |
| | Sodium (Na)-Total (mg/kg) | <20 | <20 | <20 | <20 | <20 |
| | Strontium (Sr)-Total (mg/kg) | 10.7 | 7.58 | 38.7 | 23.7 | 10.0 |
| | Tellurium (Te)-Total (mg/kg) | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 |
| | Thallium (Tl)-Total (mg/kg) | <0.0020 | <0.0020 | <0.0020 | <0.0020 | <0.0020 |
| | Tin (Sn)-Total (mg/kg) | <0.10 | <0.10 | <0.10 | <0.10 | <0.10 |
| | Uranium (U)-Total (mg/kg) | <0.0020 | <0.0020 | <0.0020 | <0.0020 | <0.0020 |
| | Vanadium (V)-Total (mg/kg) | <0.10 | <0.10 | <0.10 | <0.10 | <0.10 |
| | Zinc (Zn)-Total (mg/kg) | 193 | 13.4 | 46.1 | 66.6 | 106 |
| | Zirconium (Zr)-Total (mg/kg) | <0.20 | <0.20 | <0.20 | <0.20 | <0.20 |

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Grouping | Analyte | L2141704-20 Tissue 01-AUG-18 D1-WEST-FESTUCA | L2141704-21 Tissue 01-AUG-18 D1-CENTRE-WILLOW LEAVES | L2141704-22 Tissue 01-AUG-18 D1-CENTRE-WILLOW TWIGS | L2141704-23 Tissue 01-AUG-18 D1-CENTRE-DWARF BIRCH LEAVES | L2141704-24 Tissue 01-AUG-18 D1-CENTRE-FESTUCA |
|---|---|---|---|---|---|---|
| **TISSUE** | | | | | | |
| **Metals** | Aluminum (Al)-Total (mg/kg) | 6.2 | 39.9 | 11.1 | 16.0 | 7.1 |
| | Antimony (Sb)-Total (mg/kg) | 0.013 | 0.016 | 0.019 | 0.023 | 0.017 |
| | Arsenic (As)-Total (mg/kg) | 0.129 | 0.246 | 0.180 | 0.222 | 0.111 |
| | Barium (Ba)-Total (mg/kg) | 25.7 | 34.3 | 57.8 | 31.2 | 32.8 |
| | Beryllium (Be)-Total (mg/kg) | <0.010 | 0.021 | <0.010 | <0.010 | <0.010 |
| | Bismuth (Bi)-Total (mg/kg) | <0.010 | <0.010 | <0.010 | <0.010 | <0.010 |
| | Boron (B)-Total (mg/kg) | 1.2 | 2.0 | 3.6 | 5.2 | 1.4 |
| | Cadmium (Cd)-Total (mg/kg) | 0.0627 | 1.39 | 1.82 | 0.217 | 0.0848 |
| | Calcium (Ca)-Total (mg/kg) | 1280 | 5270 | 3600 | 3960 | 1460 |
| | Cesium (Cs)-Total (mg/kg) | 0.207 | 0.246 | 0.157 | 0.0520 | 0.142 |
| | Chromium (Cr)-Total (mg/kg) | 0.059 | <0.050 | <0.050 | <0.050 | 0.091 |
| | Cobalt (Co)-Total (mg/kg) | 0.099 | 6.91 | 1.67 | 0.465 | 0.115 |
| | Copper (Cu)-Total (mg/kg) | 1.95 | 3.57 | 3.58 | 4.36 | 2.13 |
| | Iron (Fe)-Total (mg/kg) | 34.4 | 70.6 | 30.4 | 54.7 | 37.9 |
| | Lead (Pb)-Total (mg/kg) | 0.095 | 0.136 | 0.271 | 0.074 | 0.188 |
| | Lithium (Li)-Total (mg/kg) | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 |
| | Magnesium (Mg)-Total (mg/kg) | 725 | 1880 | 922 | 1540 | 776 |
| | Manganese (Mn)-Total (mg/kg) | 787 | 871 | 333 | 2600 | 952 |
| | Mercury (Hg)-Total (mg/kg) | <0.0050 | <0.0050 | <0.0050 | 0.0056 | <0.0050 |
| | Molybdenum (Mo)-Total (mg/kg) | 0.127 | 0.073 | 0.033 | 0.035 | 0.129 |
| | Nickel (Ni)-Total (mg/kg) | 0.60 | 7.16 | 4.06 | 4.44 | 0.86 |
| | Phosphorus (P)-Total (mg/kg) | 1160 | 1730 | 1310 | 2370 | 1450 |
| | Potassium (K)-Total (mg/kg) | 12000 | 9140 | 4420 | 7650 | 15600 |
| | Rubidium (Rb)-Total (mg/kg) | 41.1 | 24.6 | 21.4 | 15.2 | 40.5 |
| | Selenium (Se)-Total (mg/kg) | <0.050 | <0.050 | <0.050 | <0.050 | <0.050 |
| | Sodium (Na)-Total (mg/kg) | <20 | <20 | <20 | <20 | <20 |
| | Strontium (Sr)-Total (mg/kg) | 7.49 | 40.0 | 27.4 | 9.19 | 8.71 |
| | Tellurium (Te)-Total (mg/kg) | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 |
| | Thallium (Tl)-Total (mg/kg) | 0.0022 | <0.0020 | <0.0020 | <0.0020 | 0.0024 |
| | Tin (Sn)-Total (mg/kg) | 0.12 | <0.10 | <0.10 | <0.10 | <0.10 |
| | Uranium (U)-Total (mg/kg) | <0.0020 | <0.0020 | <0.0020 | <0.0020 | <0.0020 |
| | Vanadium (V)-Total (mg/kg) | <0.10 | <0.10 | <0.10 | <0.10 | <0.10 |
| | Zinc (Zn)-Total (mg/kg) | 18.6 | 59.4 | 101 | 135 | 19.0 |
| | Zirconium (Zr)-Total (mg/kg) | <0.20 | <0.20 | <0.20 | <0.20 | <0.20 |

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Grouping | Analyte | L2141704-25 Tissue 01-AUG-18 D2-NORTH-WILLOW LEAVES | L2141704-26 Tissue 01-AUG-18 D2-NORTH-WILLOW TWIGS | L2141704-27 Tissue 01-AUG-18 D2-NORTH-DWARF BIRCH LEAVES | L2141704-28 Tissue 01-AUG-18 D2-EAST-WILLOW LEAVES | L2141704-29 Tissue 01-AUG-18 D2-EAST-WILLOW TWIGS |
|---|---|---|---|---|---|---|
| **TISSUE** | | | | | | |
| **Metals** | Aluminum (Al)-Total (mg/kg) | 86.1 | 31.2 | 77.6 | 87.4 | 20.4 |
| | Antimony (Sb)-Total (mg/kg) | 0.103 | 0.035 | 0.088 | 0.161 | 0.082 |
| | Arsenic (As)-Total (mg/kg) | 1.94 | 0.599 | 1.67 | 1.96 | 0.582 |
| | Barium (Ba)-Total (mg/kg) | 25.1 | 47.0 | 41.1 | 41.1 | 47.8 |
| | Beryllium (Be)-Total (mg/kg) | <0.010 | <0.010 | <0.010 | <0.010 | <0.010 |
| | Bismuth (Bi)-Total (mg/kg) | <0.010 | <0.010 | <0.010 | 0.018 | 0.012 |
| | Boron (B)-Total (mg/kg) | 3.7 | 4.8 | 18.8 | 4.9 | 6.9 |
| | Cadmium (Cd)-Total (mg/kg) | 2.50 | 2.18 | 0.560 | 1.03 | 1.72 |
| | Calcium (Ca)-Total (mg/kg) | 7530 | 4240 | 6300 | 6530 | 3110 |
| | Cesium (Cs)-Total (mg/kg) | 0.0276 | 0.0137 | 0.0182 | 0.0585 | 0.0183 |
| | Chromium (Cr)-Total (mg/kg) | 0.195 | 0.157 | 0.117 | 0.170 | <0.050 |
| | Cobalt (Co)-Total (mg/kg) | 1.72 | 0.293 | 0.261 | 1.50 | 0.346 |
| | Copper (Cu)-Total (mg/kg) | 1.95 | 2.93 | 3.27 | 3.21 | 2.27 |
| | Iron (Fe)-Total (mg/kg) | 253 | 82.7 | 195 | 337 | 61.4 |
| | Lead (Pb)-Total (mg/kg) | 0.342 | 0.118 | 0.312 | 0.406 | 0.195 |
| | Lithium (Li)-Total (mg/kg) | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 |
| | Magnesium (Mg)-Total (mg/kg) | 2990 | 1180 | 2730 | 3350 | 794 |
| | Manganese (Mn)-Total (mg/kg) | 615 | 218 | 1830 | 391 | 214 |
| | Mercury (Hg)-Total (mg/kg) | 0.0054 | <0.0050 | 0.0053 | 0.0052 | <0.0050 |
| | Molybdenum (Mo)-Total (mg/kg) | 0.185 | 0.085 | 0.045 | 0.198 | 0.070 |
| | Nickel (Ni)-Total (mg/kg) | 6.34 | 3.41 | 4.01 | 3.11 | 1.72 |
| | Phosphorus (P)-Total (mg/kg) | 1810 | 1310 | 2710 | 1490 | 884 |
| | Potassium (K)-Total (mg/kg) | 13800 | 6590 | 5420 | 10500 | 4170 |
| | Rubidium (Rb)-Total (mg/kg) | 12.6 | 9.54 | 3.03 | 11.7 | 7.09 |
| | Selenium (Se)-Total (mg/kg) | <0.050 | <0.050 | <0.050 | <0.050 | <0.050 |
| | Sodium (Na)-Total (mg/kg) | <20 | <20 | <20 | <20 | <20 |
| | Strontium (Sr)-Total (mg/kg) | 37.7 | 25.4 | 15.2 | 30.6 | 17.8 |
| | Tellurium (Te)-Total (mg/kg) | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 |
| | Thallium (Tl)-Total (mg/kg) | 0.0023 | <0.0020 | <0.0020 | <0.0020 | <0.0020 |
| | Tin (Sn)-Total (mg/kg) | <0.10 | <0.10 | <0.10 | <0.10 | <0.10 |
| | Uranium (U)-Total (mg/kg) | 0.0120 | 0.0031 | 0.0093 | 0.0105 | 0.0022 |
| | Vanadium (V)-Total (mg/kg) | 0.17 | <0.10 | 0.14 | 0.16 | <0.10 |
| | Zinc (Zn)-Total (mg/kg) | 103 | 122 | 310 | 63.3 | 94.3 |
| | Zirconium (Zr)-Total (mg/kg) | <0.20 | <0.20 | <0.20 | <0.20 | <0.20 |

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Grouping | Analyte | L2141704-30 Tissue 01-AUG-18 D2-EAST-DWARF BIRCH LEAVES | L2141704-31 Tissue 01-AUG-18 D2-SOUTH-WILLOW LEAVES AND TWIGS | L2141704-32 Tissue 01-AUG-18 D2-SOUTH-DWARF BIRCH LEAVES | L2141704-33 Tissue 01-AUG-18 D2-WEST-WILLOW LEAVES | L2141704-34 Tissue 01-AUG-18 D2-WEST-WILLOW TWIGS |
|---|---|---|---|---|---|---|
| **TISSUE** | | | | | | |
| **Metals** | Aluminum (Al)-Total (mg/kg) | 73.9 | 106 | 69.5 | 75.8 | 21.7 |
| | Antimony (Sb)-Total (mg/kg) | 0.095 | 0.160 | 0.089 | 0.145 | 0.096 |
| | Arsenic (As)-Total (mg/kg) | 1.72 | 2.49 | 1.58 | 2.00 | 0.574 |
| | Barium (Ba)-Total (mg/kg) | 27.9 | 123 | 46.9 | 25.5 | 38.9 |
| | Beryllium (Be)-Total (mg/kg) | <0.010 | <0.010 | <0.010 | <0.010 | <0.010 |
| | Bismuth (Bi)-Total (mg/kg) | <0.010 | 0.013 | <0.010 | 0.015 | 0.011 |
| | Boron (B)-Total (mg/kg) | 8.6 | 3.0 | 6.5 | 6.2 | 6.4 |
| | Cadmium (Cd)-Total (mg/kg) | 0.161 | 2.38 | 0.0896 | 2.94 | 2.77 |
| | Calcium (Ca)-Total (mg/kg) | 3990 | 11100 | 3040 | 6250 | 2990 |
| | Cesium (Cs)-Total (mg/kg) | 0.0555 | 0.0415 | 0.0396 | 0.0424 | 0.0212 |
| | Chromium (Cr)-Total (mg/kg) | 0.157 | 0.218 | 0.147 | 0.152 | 0.081 |
| | Cobalt (Co)-Total (mg/kg) | 0.290 | 2.18 | 0.403 | 1.77 | 0.365 |
| | Copper (Cu)-Total (mg/kg) | 3.25 | 4.48 | 3.96 | 3.80 | 3.82 |
| | Iron (Fe)-Total (mg/kg) | 238 | 284 | 217 | 248 | 66.5 |
| | Lead (Pb)-Total (mg/kg) | 0.345 | 0.439 | 0.324 | 0.388 | 0.260 |
| | Lithium (Li)-Total (mg/kg) | <0.50 | <0.50 | <0.50 | 0.60 | <0.50 |
| | Magnesium (Mg)-Total (mg/kg) | 1940 | 2220 | 1760 | 2250 | 1030 |
| | Manganese (Mn)-Total (mg/kg) | 1520 | 225 | 987 | 799 | 270 |
| | Mercury (Hg)-Total (mg/kg) | 0.0063 | 0.0067 | 0.0055 | 0.0061 | <0.0050 |
| | Molybdenum (Mo)-Total (mg/kg) | 0.064 | 0.097 | 0.063 | 0.505 | 0.149 |
| | Nickel (Ni)-Total (mg/kg) | 2.82 | 4.14 | 2.09 | 6.73 | 1.53 |
| | Phosphorus (P)-Total (mg/kg) | 2010 | 2270 | 2450 | 2630 | 1040 |
| | Potassium (K)-Total (mg/kg) | 5970 | 6790 | 5910 | 13500 | 4040 |
| | Rubidium (Rb)-Total (mg/kg) | 4.61 | 6.37 | 5.42 | 10.2 | 7.99 |
| | Selenium (Se)-Total (mg/kg) | <0.050 | 0.162 | <0.050 | <0.050 | <0.050 |
| | Sodium (Na)-Total (mg/kg) | <20 | <20 | <20 | <20 | <20 |
| | Strontium (Sr)-Total (mg/kg) | 6.49 | 60.9 | 7.47 | 30.5 | 21.8 |
| | Tellurium (Te)-Total (mg/kg) | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 |
| | Thallium (Tl)-Total (mg/kg) | 0.0021 | 0.0027 | <0.0020 | <0.0020 | <0.0020 |
| | Tin (Sn)-Total (mg/kg) | <0.10 | <0.10 | <0.10 | <0.10 | <0.10 |
| | Uranium (U)-Total (mg/kg) | 0.0107 | 0.0135 | 0.0109 | 0.0098 | 0.0027 |
| | Vanadium (V)-Total (mg/kg) | 0.16 | 0.22 | 0.13 | 0.16 | <0.10 |
| | Zinc (Zn)-Total (mg/kg) | 116 | 39.4 | 84.3 | 130 | 114 |
| | Zirconium (Zr)-Total (mg/kg) | <0.20 | <0.20 | <0.20 | <0.20 | <0.20 |

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Grouping | Analyte | L2141704-35 Tissue 01-AUG-18 D2-WEST-DWARF BIRCH LEAVES | L2141704-36 Tissue 01-AUG-18 D2-CENTRE-WILLOW LEAVES | L2141704-37 Tissue 01-AUG-18 D2-CENTRE-WILLOW TWIGS | L2141704-38 Tissue 01-AUG-18 D2-CENTRE-DWARF BIRCH LEAVES | L2141704-39 Tissue 02-AUG-18 D3-NORTH-WILLOW LEAVES AND STEMS |
|---|---|---|---|---|---|---|
| **TISSUE** | | | | | | |
| **Metals** | Aluminum (Al)-Total (mg/kg) | 106 | 75.5 | 22.0 | 144 | 32.4 |
| | Antimony (Sb)-Total (mg/kg) | 0.127 | 0.116 | 0.055 | 0.183 | 0.043 |
| | Arsenic (As)-Total (mg/kg) | 2.53 | 2.16 | 0.693 | 3.14 | 0.298 |
| | Barium (Ba)-Total (mg/kg) | 51.1 | 33.7 | 41.6 | 36.3 | 94.1 |
| | Beryllium (Be)-Total (mg/kg) | <0.010 | <0.010 | <0.010 | <0.010 | 0.013 |
| | Bismuth (Bi)-Total (mg/kg) | 0.011 | 0.012 | <0.010 | 0.016 | <0.010 |
| | Boron (B)-Total (mg/kg) | 7.0 | 6.0 | 8.0 | 21.7 | 1.7 |
| | Cadmium (Cd)-Total (mg/kg) | 0.147 | 4.33 | 3.29 | 0.316 | 1.27 |
| | Calcium (Ca)-Total (mg/kg) | 5410 | 8800 | 4790 | 6490 | 5160 |
| | Cesium (Cs)-Total (mg/kg) | 0.0278 | 0.0334 | 0.0184 | 0.0348 | 0.0499 |
| | Chromium (Cr)-Total (mg/kg) | 0.204 | 0.113 | 0.062 | 0.398 | <0.050 |
| | Cobalt (Co)-Total (mg/kg) | 0.237 | 2.41 | 0.321 | 0.261 | 4.40 |
| | Copper (Cu)-Total (mg/kg) | 3.62 | 2.93 | 3.42 | 4.05 | 2.58 |
| | Iron (Fe)-Total (mg/kg) | 302 | 339 | 82.0 | 370 | 56.9 |
| | Lead (Pb)-Total (mg/kg) | 0.426 | 0.388 | 0.177 | 0.566 | 0.054 |
| | Lithium (Li)-Total (mg/kg) | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 |
| | Magnesium (Mg)-Total (mg/kg) | 2250 | 2840 | 1230 | 2620 | 1720 |
| | Manganese (Mn)-Total (mg/kg) | 1450 | 1420 | 387 | 1620 | 577 |
| | Mercury (Hg)-Total (mg/kg) | 0.0054 | 0.0069 | <0.0050 | 0.0077 | <0.0050 |
| | Molybdenum (Mo)-Total (mg/kg) | 0.087 | 0.298 | 0.159 | 0.096 | 0.123 |
| | Nickel (Ni)-Total (mg/kg) | 3.36 | 8.79 | 3.11 | 1.78 | 7.42 |
| | Phosphorus (P)-Total (mg/kg) | 3000 | 1990 | 1250 | 3930 | 2830 |
| | Potassium (K)-Total (mg/kg) | 6010 | 11300 | 4420 | 7790 | 10600 |
| | Rubidium (Rb)-Total (mg/kg) | 4.55 | 11.3 | 8.12 | 3.67 | 12.5 |
| | Selenium (Se)-Total (mg/kg) | 0.056 | <0.050 | <0.050 | <0.050 | <0.050 |
| | Sodium (Na)-Total (mg/kg) | <20 | <20 | <20 | <20 | <20 |
| | Strontium (Sr)-Total (mg/kg) | 12.8 | 46.1 | 30.1 | 14.1 | 57.2 |
| | Tellurium (Te)-Total (mg/kg) | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 |
| | Thallium (Tl)-Total (mg/kg) | 0.0022 | <0.0020 | <0.0020 | 0.0027 | <0.0020 |
| | Tin (Sn)-Total (mg/kg) | <0.10 | <0.10 | <0.10 | <0.10 | <0.10 |
| | Uranium (U)-Total (mg/kg) | 0.0187 | 0.0100 | 0.0028 | 0.0171 | <0.0020 |
| | Vanadium (V)-Total (mg/kg) | 0.23 | 0.14 | <0.10 | 0.29 | <0.10 |
| | Zinc (Zn)-Total (mg/kg) | 121 | 226 | 141 | 181 | 61.3 |
| | Zirconium (Zr)-Total (mg/kg) | <0.20 | <0.20 | <0.20 | <0.20 | <0.20 |

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| | Sample ID | L2141704-40 | L2141704-41 | L2141704-42 | L2141704-43 | L2141704-44 |
|---|---|---|---|---|---|---|
| | Description | Tissue | Tissue | Tissue | Tissue | Tissue |
| | Sampled Date | 02-AUG-18 | 02-AUG-18 | 02-AUG-18 | 02-AUG-18 | 02-AUG-18 |
| | Sampled Time | | | | | |
| | Client ID | D3-NORTH-DWARF BIRCH LEAVES | D3-EAST WILLOW LEAVES AND STEMS | D3-EAST DWARF BIRCH LEAVES | D3-SOUTH WILLOW LEAVES AND STEMS | D3-SOUTH DWARF BIRCH LEAVES |
| **Grouping** | **Analyte** | | | | | |
| **TISSUE** | | | | | | |
| **Metals** | Aluminum (Al)-Total (mg/kg) | 15.5 | 20.6 | 11.7 | 36.2 | 12.9 |
| | Antimony (Sb)-Total (mg/kg) | 0.033 | 0.016 | <0.010 | 0.012 | 0.010 |
| | Arsenic (As)-Total (mg/kg) | 0.422 | 0.306 | 0.320 | 0.566 | 0.385 |
| | Barium (Ba)-Total (mg/kg) | 22.1 | 74.0 | 24.7 | 107 | 29.9 |
| | Beryllium (Be)-Total (mg/kg) | <0.010 | 0.012 | <0.010 | 0.015 | <0.010 |
| | Bismuth (Bi)-Total (mg/kg) | <0.010 | <0.010 | <0.010 | <0.010 | <0.010 |
| | Boron (B)-Total (mg/kg) | 5.0 | 3.2 | 2.6 | 3.0 | 2.6 |
| | Cadmium (Cd)-Total (mg/kg) | 0.144 | 3.12 | 0.140 | 2.28 | 0.202 |
| | Calcium (Ca)-Total (mg/kg) | 3470 | 6210 | 3790 | 6420 | 4040 |
| | Cesium (Cs)-Total (mg/kg) | 0.0218 | 0.0228 | 0.0472 | 0.194 | 0.156 |
| | Chromium (Cr)-Total (mg/kg) | <0.050 | <0.050 | <0.050 | <0.050 | <0.050 |
| | Cobalt (Co)-Total (mg/kg) | 0.606 | 5.11 | 0.799 | 5.05 | 0.801 |
| | Copper (Cu)-Total (mg/kg) | 4.66 | 3.57 | 5.18 | 2.88 | 3.99 |
| | Iron (Fe)-Total (mg/kg) | 74.8 | 92.2 | 56.8 | 144 | 57.0 |
| | Lead (Pb)-Total (mg/kg) | 0.096 | 0.080 | 0.051 | 0.102 | 0.054 |
| | Lithium (Li)-Total (mg/kg) | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 |
| | Magnesium (Mg)-Total (mg/kg) | 1580 | 2300 | 2170 | 2400 | 1890 |
| | Manganese (Mn)-Total (mg/kg) | 2000 | 1060 | 2260 | 992 | 1420 |
| | Mercury (Hg)-Total (mg/kg) | 0.0054 | 0.0062 | 0.0057 | 0.0068 | <0.0050 |
| | Molybdenum (Mo)-Total (mg/kg) | 0.036 | 0.125 | 0.039 | 0.175 | 0.030 |
| | Nickel (Ni)-Total (mg/kg) | 4.47 | 10.2 | 4.83 | 6.52 | 4.60 |
| | Phosphorus (P)-Total (mg/kg) | 3170 | 3950 | 3320 | 2810 | 2770 |
| | Potassium (K)-Total (mg/kg) | 8360 | 9780 | 6780 | 9840 | 8020 |
| | Rubidium (Rb)-Total (mg/kg) | 11.3 | 10.2 | 14.8 | 23.7 | 16.5 |
| | Selenium (Se)-Total (mg/kg) | <0.050 | <0.050 | <0.050 | <0.050 | <0.050 |
| | Sodium (Na)-Total (mg/kg) | <20 | <20 | <20 | <20 | <20 |
| | Strontium (Sr)-Total (mg/kg) | 8.48 | 65.2 | 8.89 | 65.8 | 11.2 |
| | Tellurium (Te)-Total (mg/kg) | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 |
| | Thallium (Tl)-Total (mg/kg) | <0.0020 | <0.0020 | <0.0020 | <0.0020 | <0.0020 |
| | Tin (Sn)-Total (mg/kg) | <0.10 | <0.10 | <0.10 | <0.10 | <0.10 |
| | Uranium (U)-Total (mg/kg) | <0.0020 | <0.0020 | <0.0020 | <0.0020 | <0.0020 |
| | Vanadium (V)-Total (mg/kg) | <0.10 | <0.10 | <0.10 | <0.10 | <0.10 |
| | Zinc (Zn)-Total (mg/kg) | 108 | 75.3 | 97.4 | 101 | 103 |
| | Zirconium (Zr)-Total (mg/kg) | <0.20 | <0.20 | <0.20 | <0.20 | <0.20 |

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Grouping | Analyte | Sample ID: L2141704-45<br>Description: Tissue<br>Sampled Date: 02-AUG-18<br>Sampled Time:<br>Client ID: D3-WEST WILLOW LEAVES | L2141704-46<br>Tissue<br>02-AUG-18<br><br>D3-WEST WILLOW STEMS | L2141704-47<br>Tissue<br>02-AUG-18<br><br>D3-WEST DWARF BIRCH LEAVES | L2141704-48<br>Tissue<br>02-AUG-18<br><br>D3-CENTRE WILLOW LEAVES AND STEMS | L2141704-49<br>Tissue<br>02-AUG-18<br><br>D3-CENTRE DWARF BIRCH LEAVES |
|---|---|---|---|---|---|---|
| **TISSUE** | | | | | | |
| **Metals** | Aluminum (Al)-Total (mg/kg) | 46.5 | 11.2 | 10.7 | 20.9 | 15.5 |
| | Antimony (Sb)-Total (mg/kg) | 0.020 | 0.036 | <0.010 | 0.030 | 0.016 |
| | Arsenic (As)-Total (mg/kg) | 0.551 | 0.311 | 0.363 | 0.668 | 0.559 |
| | Barium (Ba)-Total (mg/kg) | 88.0 | 73.2 | 39.9 | 213 | 46.8 |
| | Beryllium (Be)-Total (mg/kg) | 0.016 | <0.010 | <0.010 | <0.010 | <0.010 |
| | Bismuth (Bi)-Total (mg/kg) | <0.010 | <0.010 | <0.010 | <0.010 | <0.010 |
| | Boron (B)-Total (mg/kg) | <1.0 | 2.0 | 5.6 | 2.4 | 6.0 |
| | Cadmium (Cd)-Total (mg/kg) | 1.05 | 1.03 | 0.175 | 1.59 | 0.281 |
| | Calcium (Ca)-Total (mg/kg) | 6050 | 3230 | 4540 | 9690 | 5010 |
| | Cesium (Cs)-Total (mg/kg) | 0.0827 | 0.0598 | 0.0231 | 0.0436 | 0.0478 |
| | Chromium (Cr)-Total (mg/kg) | <0.050 | 0.068 | <0.050 | 0.051 | <0.050 |
| | Cobalt (Co)-Total (mg/kg) | 5.96 | 1.31 | 0.633 | 2.71 | 0.717 |
| | Copper (Cu)-Total (mg/kg) | 2.64 | 2.63 | 4.33 | 2.83 | 3.81 |
| | Iron (Fe)-Total (mg/kg) | 193 | 55.0 | 56.9 | 93.6 | 63.6 |
| | Lead (Pb)-Total (mg/kg) | 0.132 | 0.102 | 0.051 | 0.096 | 0.078 |
| | Lithium (Li)-Total (mg/kg) | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 |
| | Magnesium (Mg)-Total (mg/kg) | 2480 | 1150 | 2120 | 3330 | 1890 |
| | Manganese (Mn)-Total (mg/kg) | 566 | 271 | 2360 | 259 | 2880 |
| | Mercury (Hg)-Total (mg/kg) | 0.0055 | <0.0050 | <0.0050 | 0.0056 | 0.0050 |
| | Molybdenum (Mo)-Total (mg/kg) | 0.105 | 0.136 | 0.040 | 0.054 | 0.050 |
| | Nickel (Ni)-Total (mg/kg) | 8.47 | 8.28 | 4.37 | 17.4 | 5.91 |
| | Phosphorus (P)-Total (mg/kg) | 3060 | 1800 | 3670 | 3710 | 3590 |
| | Potassium (K)-Total (mg/kg) | 9990 | 5330 | 7100 | 13600 | 7010 |
| | Rubidium (Rb)-Total (mg/kg) | 16.8 | 14.2 | 8.89 | 13.1 | 11.4 |
| | Selenium (Se)-Total (mg/kg) | 0.107 | <0.050 | <0.050 | <0.050 | <0.050 |
| | Sodium (Na)-Total (mg/kg) | <20 | 23 | <20 | <20 | <20 |
| | Strontium (Sr)-Total (mg/kg) | 66.2 | 36.6 | 13.2 | 92.8 | 13.6 |
| | Tellurium (Te)-Total (mg/kg) | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 |
| | Thallium (Tl)-Total (mg/kg) | <0.0020 | <0.0020 | <0.0020 | <0.0020 | <0.0020 |
| | Tin (Sn)-Total (mg/kg) | <0.10 | <0.10 | <0.10 | <0.10 | <0.10 |
| | Uranium (U)-Total (mg/kg) | <0.0020 | <0.0020 | <0.0020 | <0.0020 | <0.0020 |
| | Vanadium (V)-Total (mg/kg) | <0.10 | <0.10 | <0.10 | <0.10 | <0.10 |
| | Zinc (Zn)-Total (mg/kg) | 42.8 | 75.8 | 97.3 | 78.4 | 126 |
| | Zirconium (Zr)-Total (mg/kg) | <0.20 | <0.20 | <0.20 | <0.20 | <0.20 |

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Grouping | Analyte | Sample ID: L2141704-50<br>Description: Tissue<br>Sampled Date: 02-AUG-18<br>Sampled Time:<br>Client ID: D4-NORTH-WILLOW LEAVES | L2141704-51<br>Tissue<br>02-AUG-18<br><br>D4-NORTH-WILLOW STEMS | L2141704-52<br>Tissue<br>02-AUG-18<br><br>D4-NORTH-SEDGE | L2141704-53<br>Tissue<br>02-AUG-18<br><br>D4-EAST-WILLOW LEAVES | L2141704-54<br>Tissue<br>02-AUG-18<br><br>D4-EAST-WILLOW STEMS |
|---|---|---|---|---|---|---|
| **TISSUE** | | | | | | |
| **Metals** | Aluminum (Al)-Total (mg/kg) | 283 | 58.6 | 126 | 303 | 93.3 |
| | Antimony (Sb)-Total (mg/kg) | 0.451 | 0.071 | 0.169 | 0.473 | 0.132 |
| | Arsenic (As)-Total (mg/kg) | 6.96 | 1.11 | 2.73 | 6.97 | 1.69 |
| | Barium (Ba)-Total (mg/kg) | 12.0 | 8.95 | 22.2 | 9.65 | 10.0 |
| | Beryllium (Be)-Total (mg/kg) | 0.010 | <0.010 | <0.010 | 0.011 | <0.010 |
| | Bismuth (Bi)-Total (mg/kg) | 0.030 | <0.010 | 0.014 | 0.033 | <0.010 |
| | Boron (B)-Total (mg/kg) | 8.7 | 8.6 | 5.3 | 14.5 | 14.9 |
| | Cadmium (Cd)-Total (mg/kg) | 2.73 | 1.80 | 0.105 | 2.46 | 2.67 |
| | Calcium (Ca)-Total (mg/kg) | 9640 | 3440 | 3460 | 10600 | 4670 |
| | Cesium (Cs)-Total (mg/kg) | 0.0526 | 0.0119 | 0.0293 | 0.0576 | 0.0197 |
| | Chromium (Cr)-Total (mg/kg) | 0.649 | 0.115 | 0.300 | 0.665 | 0.217 |
| | Cobalt (Co)-Total (mg/kg) | 1.02 | 0.166 | 0.190 | 1.08 | 0.285 |
| | Copper (Cu)-Total (mg/kg) | 4.75 | 3.61 | 5.43 | 5.00 | 4.89 |
| | Iron (Fe)-Total (mg/kg) | 898 | 150 | 334 | 908 | 234 |
| | Lead (Pb)-Total (mg/kg) | 1.40 | 0.254 | 0.634 | 1.45 | 0.389 |
| | Lithium (Li)-Total (mg/kg) | 0.74 | <0.50 | <0.50 | 0.80 | <0.50 |
| | Magnesium (Mg)-Total (mg/kg) | 4050 | 955 | 1280 | 4420 | 1400 |
| | Manganese (Mn)-Total (mg/kg) | 512 | 116 | 732 | 612 | 237 |
| | Mercury (Hg)-Total (mg/kg) | 0.0072 | <0.0050 | <0.0050 | 0.0062 | <0.0050 |
| | Molybdenum (Mo)-Total (mg/kg) | 0.351 | 0.053 | 1.22 | 0.283 | 0.066 |
| | Nickel (Ni)-Total (mg/kg) | 4.31 | 1.49 | 3.01 | 3.92 | 1.23 |
| | Phosphorus (P)-Total (mg/kg) | 1410 | 704 | 925 | 1550 | 1020 |
| | Potassium (K)-Total (mg/kg) | 14600 | 4360 | 12900 | 13900 | 5640 |
| | Rubidium (Rb)-Total (mg/kg) | 9.22 | 3.79 | 3.80 | 11.7 | 6.96 |
| | Selenium (Se)-Total (mg/kg) | 0.089 | <0.050 | 0.074 | 0.110 | 0.072 |
| | Sodium (Na)-Total (mg/kg) | <20 | <20 | <20 | <20 | <20 |
| | Strontium (Sr)-Total (mg/kg) | 41.6 | 19.9 | 16.2 | 40.0 | 27.4 |
| | Tellurium (Te)-Total (mg/kg) | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 |
| | Thallium (Tl)-Total (mg/kg) | 0.0066 | 0.0028 | 0.0044 | 0.0083 | 0.0063 |
| | Tin (Sn)-Total (mg/kg) | 0.12 | <0.10 | <0.10 | <0.10 | <0.10 |
| | Uranium (U)-Total (mg/kg) | 0.0404 | 0.0069 | 0.0320 | 0.0408 | 0.0109 |
| | Vanadium (V)-Total (mg/kg) | 0.60 | 0.10 | 0.23 | 0.63 | 0.15 |
| | Zinc (Zn)-Total (mg/kg) | 480 | 163 | 37.5 | 429 | 220 |
| | Zirconium (Zr)-Total (mg/kg) | 0.30 | <0.20 | 0.25 | 0.33 | <0.20 |

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Grouping | Analyte | L2141704-55 Tissue 02-AUG-18 D4-EAST-SEDGE | L2141704-56 Tissue 02-AUG-18 D4-SOUTH-WILLOW LEAVES | L2141704-57 Tissue 02-AUG-18 D4-SOUTH-WILLOW STEMS | L2141704-58 Tissue 02-AUG-18 D4-SOUTH-SEDGE | L2141704-59 Tissue 02-AUG-18 D4-WEST-WILLOW LEAVES |
|---|---|---|---|---|---|---|
| **TISSUE** | | | | | | |
| **Metals** | Aluminum (Al)-Total (mg/kg) | 101 | 342 | 111 | 133 | 245 |
| | Antimony (Sb)-Total (mg/kg) | 0.146 | 0.544 | 0.158 | 0.268 | 0.499 |
| | Arsenic (As)-Total (mg/kg) | 2.48 | 7.73 | 2.22 | 2.83 | 5.95 |
| | Barium (Ba)-Total (mg/kg) | 33.4 | 20.3 | 22.5 | 47.4 | 15.8 |
| | Beryllium (Be)-Total (mg/kg) | <0.010 | 0.012 | <0.010 | <0.010 | <0.010 |
| | Bismuth (Bi)-Total (mg/kg) | 0.012 | 0.032 | 0.014 | 0.012 | 0.024 |
| | Boron (B)-Total (mg/kg) | 4.6 | 13.0 | 13.4 | 6.4 | 6.1 |
| | Cadmium (Cd)-Total (mg/kg) | 0.0830 | 1.56 | 1.53 | 0.147 | 0.661 |
| | Calcium (Ca)-Total (mg/kg) | 3760 | 11300 | 6800 | 2750 | 9770 |
| | Cesium (Cs)-Total (mg/kg) | 0.0326 | 0.0548 | 0.0218 | 0.0315 | 0.0606 |
| | Chromium (Cr)-Total (mg/kg) | 0.253 | 0.749 | 0.240 | 0.530 | 0.567 |
| | Cobalt (Co)-Total (mg/kg) | 0.154 | 0.793 | 0.228 | 0.187 | 0.649 |
| | Copper (Cu)-Total (mg/kg) | 4.39 | 5.12 | 3.82 | 6.33 | 4.20 |
| | Iron (Fe)-Total (mg/kg) | 295 | 989 | 297 | 358 | 765 |
| | Lead (Pb)-Total (mg/kg) | 0.523 | 1.55 | 0.504 | 0.693 | 1.20 |
| | Lithium (Li)-Total (mg/kg) | <0.50 | 0.72 | <0.50 | <0.50 | 1.20 |
| | Magnesium (Mg)-Total (mg/kg) | 1510 | 4140 | 1510 | 1420 | 4100 |
| | Manganese (Mn)-Total (mg/kg) | 605 | 208 | 78.8 | 660 | 186 |
| | Mercury (Hg)-Total (mg/kg) | <0.0050 | 0.0061 | <0.0050 | <0.0050 | 0.0052 |
| | Molybdenum (Mo)-Total (mg/kg) | 1.23 | 0.315 | 0.115 | 0.408 | 0.193 |
| | Nickel (Ni)-Total (mg/kg) | 1.98 | 2.64 | 1.29 | 2.13 | 2.02 |
| | Phosphorus (P)-Total (mg/kg) | 884 | 1750 | 1130 | 1190 | 1230 |
| | Potassium (K)-Total (mg/kg) | 12600 | 13100 | 6000 | 14400 | 13500 |
| | Rubidium (Rb)-Total (mg/kg) | 7.32 | 5.59 | 3.15 | 7.04 | 11.5 |
| | Selenium (Se)-Total (mg/kg) | 0.062 | 0.114 | 0.056 | 0.095 | 0.075 |
| | Sodium (Na)-Total (mg/kg) | <20 | <20 | <20 | <20 | <20 |
| | Strontium (Sr)-Total (mg/kg) | 24.7 | 54.2 | 40.7 | 16.5 | 44.4 |
| | Tellurium (Te)-Total (mg/kg) | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 |
| | Thallium (Tl)-Total (mg/kg) | 0.0037 | 0.0057 | 0.0026 | 0.0030 | 0.0039 |
| | Tin (Sn)-Total (mg/kg) | <0.10 | <0.10 | <0.10 | <0.10 | <0.10 |
| | Uranium (U)-Total (mg/kg) | 0.0145 | 0.0448 | 0.0153 | 0.0210 | 0.0325 |
| | Vanadium (V)-Total (mg/kg) | 0.19 | 0.72 | 0.20 | 0.23 | 0.55 |
| | Zinc (Zn)-Total (mg/kg) | 37.9 | 376 | 293 | 44.5 | 261 |
| | Zirconium (Zr)-Total (mg/kg) | <0.20 | 0.35 | <0.20 | <0.20 | 0.33 |

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Grouping | Analyte | L2141704-60 Tissue 02-AUG-18 D4-WEST-WILLOW STEMS | L2141704-61 Tissue 02-AUG-18 D4-CENTRE-WILLOW LEAVES | L2141704-62 Tissue 02-AUG-18 D4-CENTRE-WILLOW STEMS | L2141704-63 Tissue 02-AUG-18 D4-CENTRE-SEDGE | L2141704-64 Tissue 02-AUG-18 D4-BLUEJOINT |
|---|---|---|---|---|---|---|
| **TISSUE** | | | | | | |
| **Metals** | Aluminum (Al)-Total (mg/kg) | 98.2 | 247 | 121 | 98.1 | 78.0 |
| | Antimony (Sb)-Total (mg/kg) | 0.149 | 0.438 | 0.190 | 0.151 | 0.133 |
| | Arsenic (As)-Total (mg/kg) | 1.92 | 6.39 | 2.30 | 2.39 | 2.27 |
| | Barium (Ba)-Total (mg/kg) | 23.8 | 14.5 | 14.1 | 50.8 | 10.9 |
| | Beryllium (Be)-Total (mg/kg) | <0.010 | 0.011 | <0.010 | <0.010 | <0.010 |
| | Bismuth (Bi)-Total (mg/kg) | <0.010 | 0.026 | 0.012 | <0.010 | <0.010 |
| | Boron (B)-Total (mg/kg) | 12.1 | 7.5 | 11.1 | 4.3 | 1.2 |
| | Cadmium (Cd)-Total (mg/kg) | 0.792 | 1.15 | 0.714 | 0.0759 | 0.0224 |
| | Calcium (Ca)-Total (mg/kg) | 5760 | 9970 | 4500 | 3200 | 1410 |
| | Cesium (Cs)-Total (mg/kg) | 0.0260 | 0.0553 | 0.0207 | 0.0351 | 0.0304 |
| | Chromium (Cr)-Total (mg/kg) | 0.221 | 0.548 | 0.331 | 0.224 | 0.181 |
| | Cobalt (Co)-Total (mg/kg) | 0.210 | 0.794 | 0.248 | 0.149 | 0.129 |
| | Copper (Cu)-Total (mg/kg) | 3.52 | 4.44 | 3.78 | 4.62 | 3.60 |
| | Iron (Fe)-Total (mg/kg) | 255 | 873 | 318 | 274 | 228 |
| | Lead (Pb)-Total (mg/kg) | 0.456 | 1.32 | 0.540 | 0.521 | 0.438 |
| | Lithium (Li)-Total (mg/kg) | <0.50 | 0.74 | <0.50 | <0.50 | <0.50 |
| | Magnesium (Mg)-Total (mg/kg) | 1410 | 4100 | 1220 | 926 | 568 |
| | Manganese (Mn)-Total (mg/kg) | 69.1 | 337 | 92.0 | 487 | 270 |
| | Mercury (Hg)-Total (mg/kg) | <0.0050 | 0.0054 | <0.0050 | <0.0050 | <0.0050 |
| | Molybdenum (Mo)-Total (mg/kg) | 0.058 | 0.247 | 0.093 | 1.37 | 0.349 |
| | Nickel (Ni)-Total (mg/kg) | 1.08 | 2.55 | 1.11 | 2.19 | 1.23 |
| | Phosphorus (P)-Total (mg/kg) | 900 | 1760 | 1150 | 978 | 934 |
| | Potassium (K)-Total (mg/kg) | 6760 | 12300 | 5440 | 14400 | 8740 |
| | Rubidium (Rb)-Total (mg/kg) | 7.69 | 8.52 | 5.36 | 7.70 | 12.6 |
| | Selenium (Se)-Total (mg/kg) | <0.050 | 0.116 | 0.054 | 0.203 | <0.050 |
| | Sodium (Na)-Total (mg/kg) | 22 | <20 | <20 | <20 | <20 |
| | Strontium (Sr)-Total (mg/kg) | 37.2 | 46.2 | 27.9 | 20.8 | 6.80 |
| | Tellurium (Te)-Total (mg/kg) | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 |
| | Thallium (Tl)-Total (mg/kg) | 0.0022 | 0.0044 | 0.0025 | 0.0023 | 0.0047 |
| | Tin (Sn)-Total (mg/kg) | <0.10 | <0.10 | <0.10 | <0.10 | <0.10 |
| | Uranium (U)-Total (mg/kg) | 0.0126 | 0.0369 | 0.0137 | 0.0150 | 0.0111 |
| | Vanadium (V)-Total (mg/kg) | 0.17 | 0.53 | 0.22 | 0.20 | 0.13 |
| | Zinc (Zn)-Total (mg/kg) | 238 | 318 | 228 | 21.6 | 17.6 |
| | Zirconium (Zr)-Total (mg/kg) | <0.20 | 0.32 | <0.20 | <0.20 | <0.20 |

# Reference Information

**Qualifiers for Individual Parameters Listed:**

| Qualifier | Description |
|---|---|
| DLM | Detection Limit Adjusted due to sample matrix effects (e.g. chemical interference, colour, turbidity). |

**Test Method References:**

| ALS Test Code | Matrix | Test Description | Method Reference** |
|---|---|---|---|
| **HG-200.2-CVAF-VA** | Soil | Mercury in Soil by CVAAS | EPA 200.2/1631E (mod) |

Soil samples are digested with hot nitric and hydrochloric acids, followed by CVAAS analysis. This method is fully compliant with the BC SALM strong acid leachable metals digestion method.

| | | | |
|---|---|---|---|
| **HG-DRY-CVAFS-N-VA** | Tissue | Mercury in Tissue by CVAFS (DRY) | EPA 200.3, EPA 245.7 |

This method is conducted following British Columbia Lab Manual method "Metals in Animal Tissue and Vegetation (Biota) - Prescriptive". Tissue samples are homogenized and sub-sampled prior to hotblock digestion with nitric and hydrochloric acids, in combination with addition of hydrogen peroxide. Analysis is by atomic fluorescence spectrophotometry or atomic absorption spectrophotometry, adapted from US EPA Method 245.7.

| | | | |
|---|---|---|---|
| **MET-200.2-CCMS-VA** | Soil | Metals in Soil by CRC ICPMS | EPA 200.2/6020A (mod) |

This method uses a heated strong acid digestion with HNO3 and HCl and is intended to liberate metals that may be environmentally available. Silicate minerals are not solubilized. Dependent on sample matrix, some metals may be only partially recovered, including Al, Ba, Be, Cr, Sr, Ti, Tl, V, W, and Zr. Volatile forms of sulfur (including sulfide) may not be captured, as they may be lost during sampling, storage, or digestion. Analysis is by Collision/Reaction Cell ICPMS.

| | | | |
|---|---|---|---|
| **MET-DRY-CCMS-N-VA** | Tissue | Metals in Tissue by CRC ICPMS (DRY) | EPA 200.3/6020A |

This method is conducted following British Columbia Lab Manual method "Metals in Animal Tissue and Vegetation (Biota) - Prescriptive". Tissue samples are homogenized and sub-sampled prior to hotblock digestion with nitric and hydrochloric acids, in combination with addition of hydrogen peroxide. Instrumental analysis is by collision cell inductively coupled plasma - mass spectrometry (modified from EPA Method 6020A).

Method Limitation: This method employs a strong acid/peroxide digestion, and is intended to provide a conservative estimate of bio-available metals. Near complete recoveries are achieved for most toxicologically important metals, but elements associated with recalcitrant minerals may be only partially recovered.

| | | | |
|---|---|---|---|
| **N-TOT-LECO-SK** | Soil | Total Nitrogen by combustion method | CSSS (2008) 22.4 |

The sample is ignited in a combustion analyzer where nitrogen in the reduced nitrous oxide gas is determined using a thermal conductivity detector.

| | | | |
|---|---|---|---|
| **N2/N3-AVAIL-SK** | Soil | Nitrate, Nitrite and Nitrate+Nitrite-N | APHA 4500 NO3F |

Available Nitrate and Nitrite are extracted from the soil using a dilute calcium chloride solution. Nitrate plus Nitrite is quantitatively reduced to nitrite by passage of the sample through a copperized cadmium column. The nitrite (reduced nitrate plus original nitrite) is then determined by diazotizing with sulfanilamide followed by coupling with N-(1-naphthyl) ethylenediamine dihydrochloride. The resulting water soluble dye has a magenta color which is measured at colorimetrically at 520nm. Nitrite is determined on the same extract by following the same instrumental procedure without a cadmium column.
Reference: Recommended Methods of Soil Analysis for Canadian Prairie Agricultural Soils. Alberta Agriculture (1988) p. 19 and 28

| | | | |
|---|---|---|---|
| **PH-1:2-VA** | Soil | pH in Soil (1:2 Soil:Water Extraction) | BC WLAP METHOD: PH, ELECTROMETRIC, SOIL |

This analysis is carried out in accordance with procedures described in the pH, Electrometric in Soil and Sediment method - Section B Physical/Inorganic and Misc. Constituents, BC Environmental Laboratory Manual 2007. The procedure involves mixing the dried (at <60°C) and sieved (No. 10 / 2mm) sample with deionized/distilled water at a 1:2 ratio of sediment to water. The pH of the solution is then measured using a standard pH probe.

| | | | |
|---|---|---|---|
| **PO4/K-AVAIL-SK** | Soil | Plant Available Phosphorus and Potassium | Comm. Soil Sci. Plant Anal, 25 (5&6) |

Plant available phosphorus and potassium are extracted from the soil usng Modified Kelowna solution. Phosphorous in the soil extract is determined colorimetrically at 880 nm, while potassiumis determined by flame emission at 770 nm.

| | | | |
|---|---|---|---|
| **PSA-1-SK** | Soil | Particle Size Analysis:Mini-Pipet Method | SSIR-51 Method 3.2.1 |

Dry, < 2 mm soil is treated with sodium hexametaphosphate to ensure complete dispersion of primary soil particles. The homogenized suspension is allowed to settle in accordance with Stoke's Law so that only clay particles remain in suspension.To determine the clay fraction, an aliquot of the clay suspension is removed, then dried and weighed. The sand fraction is determined by wet sieving the remaining suspension, then drying and weighing the sand retained on the sieve. The silt fraction is determined by calculation where % Silt = 100 - (%Sand+%Clay)

Reference:
Burt, R. (2009). Soil Survey Field and Laboratory Methods Manual. Soil Survey Investigations Report No. 5. Method 3.2.1.2.2. United States Department of Agriculture Natural Resources Conservation Service.

Kalra, Y.P., Maynard, D.G. 1991. Methods manual for forest soil and plant analysis. Forestry Canada. p. 42-45.

# Reference Information

| | | | |
|---|---|---|---|
| **S-TOT-LECO-SK** | Soil | Total Sulphur by combustion method | ISO 15178:2000 |

The air-dried sample is ignited in a combustion analyzer where sulfur in the reduced SO2 gas is determined using a thermal conductivity detector.

** ALS test methods may incorporate modifications from specified reference methods to improve performance.

*The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:*

| Laboratory Definition Code | Laboratory Location |
|---|---|
| SK | ALS ENVIRONMENTAL - SASKATOON, SASKATCHEWAN, CANADA |
| VA | ALS ENVIRONMENTAL - VANCOUVER, BRITISH COLUMBIA, CANADA |

**Chain of Custody Numbers:**

1 of 5 2 of 5 3 of 5 4 of 5 5 of 5

**GLOSSARY OF REPORT TERMS**

*Surrogate - A compound that is similar in behaviour to target analyte(s), but that does not occur naturally in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery.*
*mg/kg - milligrams per kilogram based on dry weight of sample.*
*mg/kg wwt - milligrams per kilogram based on wet weight of sample.*
*mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight of sample.*
*mg/L - milligrams per litre.*
*< - Less than.*
*D.L. - The reported Detection Limit, also known as the Limit of Reporting (LOR).*
*N/A - Result not available. Refer to qualifier code and definition for explanation.*

*Test results reported relate only to the samples as received by the laboratory.*
*UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.*
*Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.*

L2141704-COFC

ALS Environmental

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COC #



| Report To | | Report Format / Distribution | | Service Requested (Rush for routine analysis subject to availability) |
|---|---|---|---|---|
| Company: | StrataGold Corporation | ☒Standard ☐Other | | ●Regular (Standard Turnaround Times - Business Days) |
| Contact: | Hugh Coyle | ☒PDF ☒Excel ☒Digital ☐Fax | | ○Priority (2-4 Business Days) - 50% Surcharge - Contact ALS to Confirm TAT |
| Address: | 1000 - 1050 West Pender Street | Email 1: | hcoyle@vitgoldcorp.com | ○Emergency (1-2 Bus. Days) - 100% Surcharge - Contact ALS to Confirm TAT |
| | Vancouver, BC V6E 3S7 | Email 2: | bonnieburns@northwestel.net | ○Same Day or Weekend Emergency - Contact ALS to Confirm TAT |
| Phone: | 604-696-6600 Fax: | Email 3: | Jknox@vitgoldcorp.com, cbeaudry@vitgoldcorp.c | Analysis Request |
| Invoice To | Same as Report ? ☒ Yes ☐ No | Client / Project Information | | Please indicate below Filtered, Preserved or both (F, P, F/P) |
| Hardcopy of Invoice with Report? | ☐ Yes ☒ No | Job #: | Eagle Gold | |
| Company: | | PO / AFE: | | |
| Contact: | | LSD: | Victoria Gold Corp. | |
| Address: | | | | |
| Phone: | Fax: | Quote #: | Q69297, Dublin Gulch Samples | |
| Lab Work Order # (lab use only) | | ALS Contact: | Heather Mackenzie | Sampler: Bonnie Burns &Crystal Beaudry |

| Sample # | Sample Identification (This description will appear on the report) | Date (dd-mmm-yy) | Time (hh:mm) | Sample Type | Total Nitrogen | Nitrate, Nitrite etc | Metals, CCME | Particle Size Analysis | Total Sulphur | Plant Available P and K | | Mercury in tissue | Metals in tissue | | | | Number of Containers |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | D-1 | 01-Aug-18 | | Soil | X | X | X | X | X | X | | | | | | | 2 |
| | D-2 | 01-Aug-18 | | Soil | X | X | X | X | X | X | | | | | | | 2 |
| | D-3 | 02-Aug-18 | | Soil | X | X | X | X | X | X | | | | | | | 2 |
| | D-4 | 02-Aug-18 | | Soil | X | X | X | X | X | X | | | | | | | 2 |
| | D1-North-willow leaves | 01-Aug-18 | | Tissue | | | | | | | | X | X | | | | 1 |
| | D1-North-willow twigs | 01-Aug-18 | | " | | | | | | | | X | X | | | | 1 |
| | D1-North-dwarf birch leaves | 01-Aug-18 | | " | | | | | | | | X | X | | | | 1 |
| | D1-North-festuca | 01-Aug-18 | | " | | | | | | | | X | X | | | | 1 |
| | D1-East-willow leaves | 01-Aug-18 | | " | | | | | | | | X | X | | | | 1 |
| | D1-East-willow twigs | 01-Aug-18 | | " | | | | | | | | X | X | | | | 1 |
| | D1-East-dwarf birch leaves | 01-Aug-18 | | " | | | | | | | | X | X | | | | 1 |
| | D1-East-festuca | 01-Aug-18 | | " | | | | | | | | X | X | | | | 1 |
| | D1-South-willow leaves | 01-Aug-18 | | " | | | | | | | | X | X | | | | 1 |

**Special Instructions / Regulations with water or land use (CCME-Freshwater Aquatic Life/BC CSR - Commercial/AB Tier 1 - Natural, etc) / Hazardous Details**

DO NOT RINSE THE TISSUE SAMPLES. WE WANT THE ANALYSIS TO INCLUDE THE DUST ON THE LEAVES ETC AS WELL AS INCLUDING THE UPTAKE OF METALS IN THE PLANTS.

**Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY.**

**By the use of this form the user acknowledges and agrees with the Terms and Conditions as provided on a separate Excel tab.**

**Also provided on another Excel tab are the ALS location addresses, phone numbers and sample container / preservation / holding time table for common analyses.**

| SHIPMENT RELEASE (client use) | | | SHIPMENT RECEPTION (lab use only) | | | | SHIPMENT VERIFICATION (lab use only) | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Released by: Bonnie Burns | Date (dd-mmm-yy) | Time (hh-mm) | Received by: EHF | Date: 6 Aug 2018 | Time: 12:30 | Temperature: 5.0 °C | Verified by: HA | Date: 8/7 | Time: 2150p | Observations: Yes / No ? If Yes add SIF |

GENF 20.00 Front

Do Not Rinse ~~soil~~ Tissue Samples. Analyzing Dust

In WR Cooler

~~Exp~~

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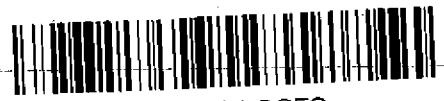

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| Hardcopy of Invoice with Report? | ☐ Yes ☑ No | Job #: | Eagle Gold | |
| Company: | | PO / AFE: | | |
| Contact: | | LSD: | Victoria Gold Corp. | |
| Address: | | | | |
| Phone: | Fax: | Quote #: | Q69297, Dublin Gulch Samples | |
| Lab Work Order # (lab use only) | | ALS Contact: | Heather Mackenzie | Sampler: Bonnie Burns & Crystal Beaudry |

| Sample # | Sample Identification (This description will appear on the report) | Date (dd-mmm-yy) | Time (hh:mm) | Sample Type | Mercury in tissue | Metals in tissue | Number of Containers |
|---|---|---|---|---|---|---|---|
| | D1-South-willow twigs | 01-Aug-18 | | Tissue | X | X | 1 |
| | D1-South-dwarf birch leaves | 01-Aug-18 | | " | X | X | 1 |
| | D1-South-festuca | 01-Aug-18 | | " | X | X | 1 |
| | D1-West-willow leaves | 01-Aug-18 | | " | X | X | 1 |
| | D1-West-willow twigs | 01-Aug-18 | | " | X | X | 1 |
| | D1-West-dwarf birch leaves | 01-Aug-18 | | " | X | X | 1 |
| | D1-West-festuca | 01-Aug-18 | | " | X | X | 1 |
| | D1-Centre-willow leaves | 01-Aug-18 | | " | X | X | 1 |
| | D1-Centre-willow twigs | 01-Aug-18 | | " | X | X | 1 |
| | D1-Centre-dwarf birch leaves | 01-Aug-18 | | " | X | X | 1 |
| | D1-Centre-festuca | 01-Aug-18 | | " | X | X | 1 |
| | D2-North-willow leaves | 01-Aug-18 | | " | X | X | 1 |
| | D2-North-willow twigs | 01-Aug-18 | | " | X | X | 1 |

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| Bonnie Burns | | | EHF | 6 Aug 2018 | 12:30 | 5.0 °C | HA | 8/7 | 2:50P | |

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| Hardcopy of Invoice with Report? | ☐ Yes ☑ No | Job #: | Eagle Gold | |
| Company: | | PO / AFE: | | |
| Contact: | | LSD: | Victoria Gold Corp. | |
| Address: | | | | |
| Phone: | Fax: | Quote #: | Q69297, Dublin Gulch Samples | |
| Lab Work Order # (lab use only) | | **ALS Contact:** | Heather Mackenzie | **Sampler:** Bonnie Burns & Crystal Beaudry |

| Sample # | Sample Identification (This description will appear on the report) | Date (dd-mmm-yy) | Time (hh:mm) | Sample Type | Mercury in tissue | Metals in tissue | | | | | | | | | | Number of Containers |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | D2-North dwarf birch leaves | 01-Aug-18 | | Tissue | X | X | | | | | | | | | | 1 |
| | D2-East-willow leaves | 01-Aug-18 | | " | X | X | | | | | | | | | | 1 |
| | D2-East-willow twigs | 01-Aug-18 | | " | X | X | | | | | | | | | | 1 |
| | D2-East-dwarf birch leaves | 01-Aug-18 | | " | X | X | | | | | | | | | | 1 |
| | D2-South-willow leaves and twigs | 01-Aug-18 | | " | X | X | | | | | | | | | | 1 |
| | D2-South-dwarf birch leaves | 01-Aug-18 | | " | X | X | | | | | | | | | | 1 |
| | D2-West-willow leaves | 01-Aug-18 | | " | X | X | | | | | | | | | | 1 |
| | D2-West-willow twigs | 01-Aug-18 | | " | X | X | | | | | | | | | | 1 |
| | D2-West-dwarf birch leaves | 01-Aug-18 | | " | X | X | | | | | | | | | | 1 |
| | D2-Centre-willow leaves | 01-Aug-18 | | " | X | X | | | | | | | | | | 1 |
| | D2-Centre-willow twigs | 01-Aug-18 | | " | X | X | | | | | | | | | | 1 |
| | D2-Centre-dwarf birch leaves | 01-Aug-18 | | " | X | X | | | | | | | | | | 1 |
| | D3-North-willow leaves and stems | 02-Aug-18 | | " | X | X | | | | | | | | | | 1 |

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|---|---|---|---|---|---|---|---|---|---|---|
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| Bonnie Burns | | | EHF | 6 Aug 2018 | 12:30 | 5.0 °C | DA | 8/8 | 2359 | |

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| | Vancouver, BC V6E 3S7. | Email 2: | bonnieburns@northwestel.net | ○ Same Day or Weekend Emergency - Contact ALS to Confirm TAT |
| Phone: | 604-696-6600 Fax: | Email 3: | jknox@vitgoldcorp.com, cbeaudry@vitgoldcorp.c | |
| Invoice To | Same as Report ? ☑ Yes ☐ No | Client / Project Information | | Analysis Request |
| Hardcopy of Invoice with Report? | ☐ Yes ☑ No | Job #: | Eagle Gold | Please indicate below Filtered, Preserved or both (F, P, F/P) |
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| Contact: | | LSD: | Victoria Gold Corp. | |
| Address: | | | | |
| Phone: | Fax: | Quote #: | Q69297, Dublin Gulch Samples | |
| Lab Work Order # (lab use only) | | ALS Contact: | Heather Mackenzie | Sampler: Bonnie Burns & Crystal Beaudry |

| Sample # | Sample Identification (This description will appear on the report) | Date (dd-mmm-yy) | Time (hh:mm) | Sample Type | Mercury in tissue | Metals in tissue | Number of Containers |
|---|---|---|---|---|---|---|---|
| | D3-North-dwarf birch leaves | 02-Aug-18 | | Tissue | X | X | 1 |
| | D3-East willow leaves and stems | 02-Aug-18 | | " | X | X | 1 |
| | D3-East dwarf birch leaves | 02-Aug-18 | | " | X | X | 1 |
| | D3-South willow leaves and stems | 02-Aug-18 | | " | X | X | 1 |
| | D3-South dwarf birch leaves | 02-Aug-18 | | " | X | X | 1 |
| | D3-West willow leaves | 02-Aug-18 | | " | X | X | 1 |
| | D3-West willow stems | 02-Aug-18 | | " | X | X | 1 |
| | D3-West Dwarf birch leaves | 02-Aug-18 | | " | X | X | 1 |
| | D3-Centre willow leaves and stems | 02-Aug-18 | | " | X | X | 1 |
| | D3-Centre dwarf birch leaves | 02-Aug-18 | | " | X | X | 1 |
| | D4-North-willow leaves | 02-Aug-18 | | " | X | X | 1 |
| | D4-North-willow stems | 02-Aug-18 | | " | X | X | 1 |
| | D4-North-sedge | 02-Aug-18 | | " | X | X | 1 |

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|---|---|---|---|---|---|---|---|---|---|---|
| Released by: Bonnie Burns | Date (dd-mmm-yy) | Time (hh-mm) | Received by: EHF | Date: 6 Aug 2018 | Time: 12:30 | Temperature: 5.0 °C | Verified by: HA | Date: 8/7 | Time: 2:15 P | Observations: Yes / No ? If Yes add SIF |

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| | Vancouver, BC V6E 3S7 | Email 2: | bonnieburns@northwestel.net | ○ Same Day or Weekend Emergency - Contact ALS to Confirm TAT |
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| Sample # | Sample Identification (This description will appear on the report) | Date (dd-mmm-yy) | Time (hh:mm) | Sample Type | Mercury in tissue | Metals in tissue | Number of Containers |
|---|---|---|---|---|---|---|---|
| | D4-East-willow leaves | 02-Aug-18 | | Tissue | X | X | 1 |
| | D4-East-willow stems | 02-Aug-18 | | " | X | X | 1 |
| | D4-East-sedge | 02-Aug-18 | | " | X | X | 1 |
| | D4-South-willow leaves | 02-Aug-18 | | " | X | X | 1 |
| | D4-South-willow stems | 02-Aug-18 | | " | X | X | 1 |
| | D4-South-sedge | 02-Aug-18 | | " | X | X | 1 |
| | D4-West-willow leaves | 02-Aug-18 | | " | X | X | 1 |
| | D4-West-willow stems | 02-Aug-18 | | " | X | X | 1 |
| | D4-Centre-willow leaves | 02-Aug-18 | | " | X | X | 1 |
| | D4-Centre-willow stems | 02-Aug-18 | | " | X | X | 1 |
| | D4-Centre-sedge | 02-Aug-18 | | " | X | X | 1 |
| | D4-Bluejoint | 02-Aug-18 | | " | X | X | 1 |
| | | | | | | | |

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| Bonnie Burns | | | EHF | 6 Aug 2018 | 12:30 | 5.0 °C | HA | 8/7 | 21:50 | |

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# APPENDIX B

# PHOTOGRAPHS, AUGUST 2018



D-1; Looking from East Plot to Centre, Potato Hills Climate Station behind fir tree



D-1; Centre Plot



D-2; South Plot showing typical ground cover of area.



D-2; Looking to Centre Plot from West Plot



D-3; East Plot, dwarf birch dominates shrub layer



D-3; *Anenome narcissiflora* gone to seed.



D-4; North Plot, sedge dominates the ground cover.



D-4; *Carex aurea*

# APPENDIX P

## Soils Monitoring Report 2018

# SOILS MONITORING AT THE EAGLE GOLD PROJECT, 2018

**(Section 13 of the EMSAMP, Version 2018-01)**

**For**

Victoria GOLD CORP

**Steve Wilbur**

**Submitted by**

Laberge Environmental Services

**November 2018**

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2.0 METHODS ..... 1

3.0 RESULTS AND DISCUSSION ..... 4
3.1 2018 Data ..... 4
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4.0 SUMMARY ..... 6

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Appendix A Soil Analytical Report and Table A-1
Appendix B Photographs, August 2018

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2 Particle Size and Texture ..... 5
3 Plant Available Nutrients ..... 5
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2 Soil Monitoring Plot Layout ..... 3

## 1.0 INTRODUCTION

The soils monitoring program was designed to provide data to determine changes to metal and nutrient levels in soils adjacent to the mine as a result of dust deposition occurring via Project activities. The Environmental Monitoring, Surveillance and Adaptive Management Plan (EMSAMP), Version 2018-01, suggested four areas located in the Project area for the establishment of permanent plots. The soil monitoring program was undertaken in conjunction with the vegetation monitoring program conducted in early August 2018.

## 2.0 METHODS

Four sites for the vegetation monitoring were established in August 2018 in each of the suggested quadrants and are displayed on Figure 1. One soil sample was collected from each site, 2.5 m in from the north plot as indicated by "Year 1" on Figure 2. Sample locations are described in Table 1.

**TABLE 1 LOCATION AND DESCRIPTION OF SOIL PLOTS**

| Plot # | Easting | Northing | Elevation (m) | Site Description |
|---|---|---|---|---|
| D 1 | 463557 | 7100803 | 1417 | Potato Hills near climate station |
| D 2 | 458251 | 7101150 | 834 | Upslope of the air quality station and the camp climate station |
| D 3 | 460598 | 7099079 | 1356 | Top of Eagle Pup near the over-the-top road |
| D 4 | 458450 | 7097945 | 757 | On the west side of the access road just upstream of the Haggart Creek culverts |

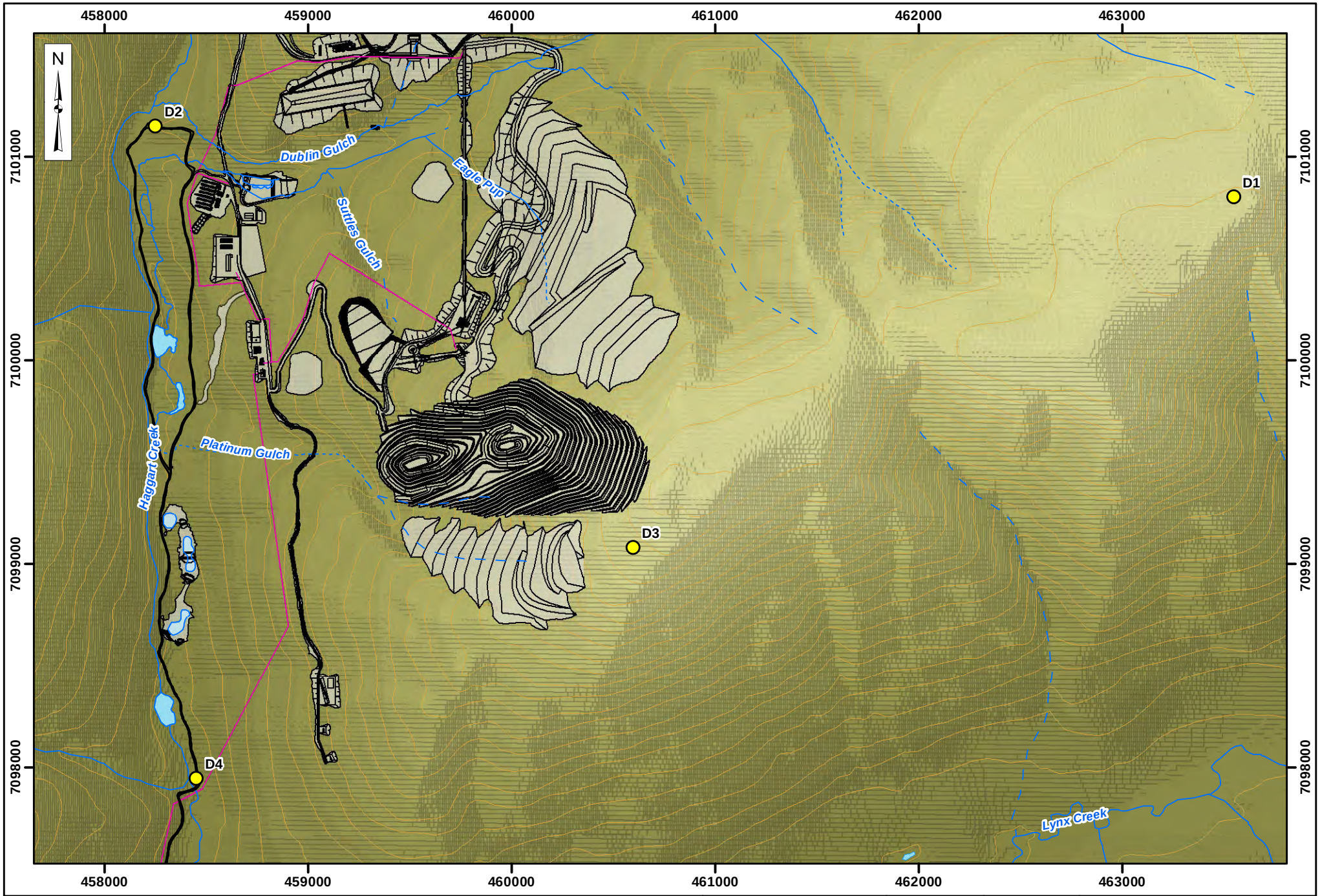
Samples were collected with a stainless steel trowel from a depth of 0 to 0.5 m below the litter layer. Samples were transferred into clean glass jars for metal analysis and into ziplock plastic bags for the remaining analyses. New nitrile gloves were worn prior to sampling to prevent cross-contamination between sites. Samples were kept cool until delivered to the ALS lab/depot in Whitehorse, Yukon.

At the laboratory the following analyses were performed:

**pH in Soil**
Analysis was performed based on procedures described in the "Manual on Soil Sampling and Methods of Analysis" (1993) published by the Canadian Society of Soil Science. The test is performed using a deionized water leach with measurement by pH meter.

**Silver, Arsenic, Cadmium, Selenium and Thallium**
Inductively, Coupled Plasma Mass Spectrometry (ICP/MS).

**Mercury**–Cold Vapour Atomic Fluorescence.




Legend:

- Vegetation & Soils Monitoring Location
- Facility
- Site Power
- Perennial
- Ephemeral
- Intermittent
- Contour (100ft)

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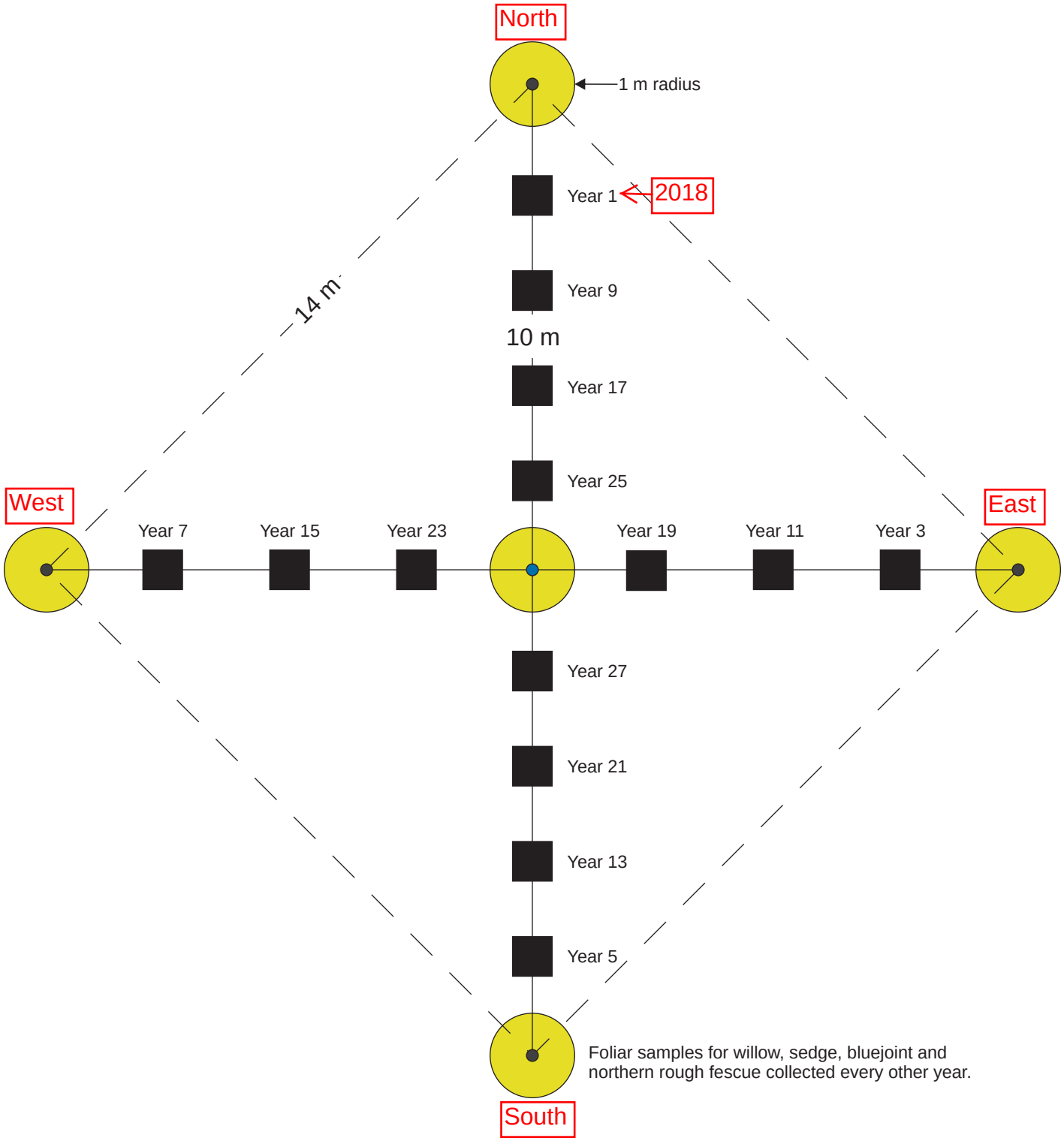
0 0.375 0.75
Kilometers

| | | |
|---|---|---|
| Projection: NAD 83 UTM Zone 8N | Drawn By: HC | **EAGLE GOLD PROJECT YUKON TERRITORY** |
| Date: 2018/10/24 | Figure: 1 | **Vegetation & Soils Monitoring Locations** |




Legend:

1 m radius

Vegetation sample plot locations; painted ½ inch rebar to locate centre and corner plots; foliar samples collected every other year.

Soil sampling locations, surface horizon between 0 and 0.5 m depths; one sample every other year.

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**EAGLE GOLD PROJECT**
**YUKON TERRITORY**

**Vegetation and Soil Monitoring Plot Layout**

| Projection: | Drawn By: | Date: | Figure: |
|---|---|---|---|
| N/A | SS | 2014/07/02 | 2 |

**Particle Size Analysis**
The particle size distribution was determined in accordance with Methods of Soil Analysis Part 1-Physical and Mineralogical Methods (2nd Ed), UBC Methods Manual for Soil Analysis (1981) and Soil Sampling and Methods of Analysis (1993). The percentage gravel, sand, slit and clay was determined by a combination of a standard dry sieve, wet sieve and pipetting techniques. Particle size limits used to define size fractions are based according to Canadian Soil Survey Committee (CSSC) and U.S. Department of Agriculture (USDA) classification scheme. Soil texture is determined according to CSSC definition of texture. The size fractions that are analyzed are 2.0, 0.250, 0.125, 0.053 and 0.002 mm. The % Sand, % Slit and % Clay are based on the <2 mm fraction of the sample by weight.

**Molybdenum**
Acid digestion followed by determination using Inductively Coupled Plasma Mass Spectrometry (ICP/MS).

**Strong Acid Leachable Metals in Soil**
B.C. MOELP Method “Strong Acid Leachable Metals in Soil Version1.0”. The method involves drying the sample at 60 C, sieving using a 2 mm (10 mesh) sieve and digestion using a mixture of hydrochloric and nitric acids. Analysis is performed using inductively Coupled Argon Plasma Spectroscopy (ICAP) or by specific techniques as described.

**Total Nitrogen and Sulfur**
Combustion analyzer where nitrogen in the reduced nitrous oxide gas is determined using a thermal conductivity detector.

**Available NO3 and Available NO2**
Available Nitrate and Nitrite was extracted from the soil sample using a dilute calcium chloride solution. Nitrate was quantitatively reduced to nitrite by passage of the sample through a copperized Cadmium column. The nitrite (reduced nitrate plus original nitrite) was then determined by diazotizing with sulfanilamide followed by coupling with N-(1-naphthyl) ethylenediamine dihydrochloride. The resulting watersoluble dye has a magenta color which, is measured colorimetrically at 520 nm.

**Available P and Available K**
Plant available phosphorus and potassium were extracted from the soil using Modified Kelowna solution. Phosphorous in the soil extract is determined colorimetrically at 880 nm, while potassium is determined by flame emission at 770 nm.

## 3.0 RESULTS AND DISCUSSION

### 3.1 2018 Data

A total of four soil samples was collected and analyzed for a range of parameters. The analytical report is presented in Appendix A.

The soil samples were sieved and based on the distribution of grain sizes less than 2mm, texture was determined (Table 2). The texture of the soil at D-1 was sandy loam, sand at D-2, and silt loam at D-3 and D-4.

| TABLE 2 | PARTICLE SIZE AND TEXTURE | | | |
|---|---|---|---|---|
| Site | **D-1** | **D-2** | **D-3** | **D-4** |
| Date Sampled | 1-Aug-2018 | 1-Aug-2018 | 2-Aug-2018 | 2-Aug-2018 |
| % Sand (2.0mm - 0.05mm) | 50.0 | 91.3 | 38.4 | 27.8 |
| % Silt (0.05mm - 2um) | 45.7 | 8.2 | 57.4 | 68.8 |
| % Clay (<2um) | 4.3 | <1.0 | 4.2 | 3.4 |
| Texture | Sandy loam | Sand | Silt loam | Silt loam |

Nutrients and available plant nutrients were analyzed and summarized in Table 3.

| TABLE 3 | PLANT AVAILABLE NUTRIENTS | | | |
|---|---|---|---|---|
| Site | **D-1** | **D-2** | **D-3** | **D-4** |
| Date Sampled | 1-Aug-2018 | 1-Aug-2018 | 2-Aug-2018 | 2-Aug-2018 |
| *Nutrients* | | | | |
| Total Nitrogen % | 0.710 | 0.026 | 0.066 | 0.098 |
| *Plant Available Nutrients* | | | | |
| Nitrate+Nitrite-N (mg/kg) | <3.0 | <2.0 | <2.0 | <2.0 |
| Nitrate-N (mg/kg) | <3.0 | <2.0 | <2.0 | <2.0 |
| Nitrite-N (mg/kg) | <1.2 | <0.40 | <0.40 | <0.40 |
| Available Phosphate-P (mg/kg) | <2.0 | 2.3 | 2.0 | <2.0 |
| Available Potassium (mg/kg) | 136 | 43 | 39 | 96 |

Soil at D-1 had the highest total nitrogen content at 0.710%. However, plant available nitrogen in the form of Nitrate+Nitrite, Nitrate and Nitrite were all below the method detection limits (MDL) in all soil samples. Available phosphate was just barely detected in the soils at D-2 and D-3. Available potassium was present in all samples and ranged from 39 mg/kg at D-3 to 136 mg/kg at D-1.

The soil samples were also analyzed for pH and a suite of 36 metals (Table A-1, Appendix A). The soils were somewhat acidic to near neutral ranging from 4.62 at D-1 to 6.42 at D-4. Boron, sulphur and tin were not detected in any of the samples.

The most recent Canadian Council of Ministers of the Environment (CCME) guidelines, which include new guidelines from 2018, and the Yukon Contaminated Sites Regulations for agriculture and parklands were tabulated and compared to the range of concentrations found throughout project area (Table 4). Arsenic was the only parameter that exceeded all of the recommended guidelines and occurred in all samples ranging from 15.1 mg/kg at D-1 to 302 mg/kg at D-2, highlighted in pink. The remaining elements met all of the guidelines.

Selected photographs of each site are provided in Appendix B.

**TABLE 4 RANGE OF RESULTS COMPARED TO CCME AND YUKON AGRICULTURE AND PARKLAND GUIDELINES FOR METALS IN SOILS**

| Element | CCME (mg/kg) | | Yukon CSR (mg/kg) | | Range of Results (mg/kg) |
|---|---|---|---|---|---|
| | Agriculture | Parkland | Agriculture | Parkland | |
| Antimony (Sb) | 20 | 20 | 20 | 20 | 2.00 to 9.03 |
| Arsenic (As) | 12 | 12 | 15 | 15 | 15.10 to 302.00 |
| Barium (Ba) | 750 | 500 | 750 | 500 | 124.00 to 205.00 |
| Beryllium (Be) | 4 | 4 | 4 | 4 | 0.38 to 0.55 |
| Cadmium (Cd) | 1.4 | 10 | 1.5 | 1.5 | 0.12 to 0.42 |
| Chromium (Cr) | 64 | 64 | 50 | 60 | 16.90 to 42.20 |
| Cobalt (Co) | 40 | 50 | 40 | 50 | 5.94 to 13.50 |
| Copper (Cu) | 63 | 63 | 90 | 90 | 18.00 to 28.90 |
| Lead (Pb) | 70 | 140 | 100 | 100 | 19.80 to 40.60 |
| Mercury (Hg) | 6.6 | 6.6 | 0.6 | 15 | 0.02 to 0.07 |
| Molybdenum (Mo) | 5 | 10 | 5 | 10 | 0.83 to 1.19 |
| Nickel (Ni) | 45 | 45 | 150 | 150 | 17.70 to 35.30 |
| Selenium (Se) | 1 | 1 | 2 | 1 | 0.25 to 0.37 |
| Silver (Ag) | 20 | 20 | 20 | 20 | 0.11 to 0.22 |
| Thallium (Tl) | 1 | 1 | 2 | -- | 0.15 to 0.25 |
| Tin (Sn) | 5 | 50 | 5 | 50 | ND |
| Uranium | 23 | 23 | | | 1.12 to 1.75 |
| Vanadium (V) | 130 | 130 | 200 | 200 | 20.90 to 55.10 |
| Zinc (Zn) | 250 | 250 | 150 | 150 | 56.60 to 90.40 |

ND = not detected

### 3.2 Previous Data

In 2009 Stantec completed baseline soil surveys (Stantec, 2011). None of the 18 soil samples (surface soil samples and overburden samples) submitted for metal analysis coincided with the locations of the four soil samples collected in 2018. As with the current survey however, arsenic also exceeded the CCME and Yukon guidelines for agriculture and parkland.

SRK conducted analysis on metasediment samples collected from 2007, consisting primarily of drill core from the exploration program and from the 2009 geotechnical drilling programs (SRK, 2014). Arsenic concentrations ranged from 24 mg/kg to 740 mg/kg for 120 samples.

Arsenic is prevalent throughout the Eagle Gold Project area and the concentrations documented in the current study are a reflection of natural concentrations found in the undisturbed soils.

## 4.0 SUMMARY

The soils at the Eagle Gold Project are nutrient poor. The sampled soils were fairly acidic to near neutral, and with the exception of arsenic had low metal concentrations that met CCME and Yukon CSR guidelines for agriculture and parkland. Arsenic concentrations in all soil samples exceeded these guidelines. Arsenic is associated with the gold bearing anomalies in the district and these baseline concentrations reflect the natural mineralization of the Project area.

## 5.0 REFERENCES

Canadian Council of Ministers of the Environment (CCME) website: http://stts.ccme.ca/en/index.html?chems=4,8,9,12,15,16,20,21,61,63,62,65,71,123,124,127,129,131,138,139,197,198,200,211,213,225,226,229&chapters=all. Accessed Oct 18, 2018.

SRK. 2014. Geochemical Characterization – Eagle Gold Project. Prepared for Victoria Gold Corp.

Stantec Consulting Ltd. 2011. Baseline Environmental Report: Surficial Geology, Terrain and Soils. Prepared for Victoria Gold Corp. Project # 1231-10377.

StrataGold Corporation. 2018. Eagle Gold Project Environmental Monitoring, Surveillance and Adaptive Management Plan. Version 2018-01.

Yukon Government, Department of Environment, Environment Act - Contaminated Sites Regulations, OIC2002/171.

# APPENDIX A

- **TABLE A-1**
- **ANALYTICAL REPORT, AUGUST 2018**

# TABLE A-1 SUMMARY OF ANALYTICAL RESULTS, 2018

| Site | D-1 | D-2 | D-3 | D-4 |
|---|---|---|---|---|
| Date Sampled | 1-Aug-2018 | 1-Aug-2018 | 2-Aug-2018 | 2-Aug-2018 |
| pH (1:2 soil:water) | 4.62 | 5.78 | 4.85 | 6.42 |
| Aluminum (Al) | 15200 | 7440 | 15500 | 8340 |
| Antimony (Sb) | 2.00 | 6.13 | 6.21 | 9.03 |
| Arsenic (As) | 15.1 | 302 | 115 | 155 |
| Barium (Ba) | 134 | 124 | 205 | 138 |
| Beryllium (Be) | 0.47 | 0.40 | 0.55 | 0.38 |
| Bismuth (Bi) | <0.20 | 0.69 | 0.64 | 0.64 |
| Boron (B) | <5.0 | <5.0 | <5.0 | <5.0 |
| Cadmium (Cd) | 0.123 | 0.402 | 0.258 | 0.421 |
| Calcium (Ca) | 1300 | 1980 | 1930 | 2930 |
| Chromium (Cr) | 26.2 | 16.9 | 42.2 | 18.3 |
| Cobalt (Co) | 5.94 | 11.6 | 11.0 | 13.5 |
| Copper (Cu) | 18.0 | 18.4 | 28.9 | 27.5 |
| Iron (Fe) | 21200 | 19800 | 28800 | 28500 |
| Lead (Pb) | 19.8 | 26.9 | 40.6 | 37.8 |
| Lithium (Li) | 13.4 | 15.9 | 19.7 | 14.5 |
| Magnesium (Mg) | 3880 | 3570 | 6050 | 3620 |
| Manganese (Mn) | 195 | 520 | 346 | 578 |
| Mercury (Hg) | 0.0543 | 0.0219 | 0.0239 | 0.0708 |
| Molybdenum (Mo) | 1.19 | 1.08 | 0.83 | 0.84 |
| Nickel (Ni) | 17.7 | 22.6 | 35.3 | 31.1 |
| Phosphorus (P) | 531 | 407 | 483 | 490 |
| Potassium (K) | 850 | 2590 | 1840 | 1060 |
| Selenium (Se) | 0.37 | <0.20 | 0.25 | 0.36 |
| Silver (Ag) | 0.11 | <0.10 | <0.10 | 0.22 |
| Sodium (Na) | 86 | 162 | 91 | 82 |
| Strontium (Sr) | 13.2 | 19.9 | 17.0 | 26.2 |
| Sulfur (S) | <1000 | <1000 | <1000 | <1000 |
| Sulfur (S)-Total | 1500 | 600 | 700 | 1000 |
| Thallium (Tl) | 0.220 | 0.252 | 0.234 | 0.152 |
| Tin (Sn) | <2.0 | <2.0 | <2.0 | <2.0 |
| Titanium (Ti) | 514 | 717 | 727 | 242 |
| Tungsten (W) | 4.35 | 16.0 | <0.50 | 3.58 |
| Uranium (U) | 1.75 | 1.46 | 1.12 | 1.47 |
| Vanadium (V) | 55.1 | 20.9 | 47.3 | 22.9 |
| Zinc (Zn) | 56.6 | 65.6 | 73.5 | 90.4 |
| Zirconium (Zr) | <1.0 | 3.1 | <1.0 | 1.7 |

Units for metals concentrations : mg/kg

STRATAGOLD CORPORATION
ATTN: Hugh Coyle
Suite 1000 - 1050 W. Pender St
Vancouver BC V6E 3S7

Date Received: 06-AUG-18
Report Date: 31-AUG-18 12:33 (MT)
Version: FINAL

Client Phone: 604-682-5122

# Certificate of Analysis

## Lab Work Order #: L2141704

| | |
|---|---|
| Project P.O. #: | NOT SUBMITTED |
| Job Reference: | EAGLE GOLD |
| C of C Numbers: | 1 of 5, 2 of 5, 3 of 5, 4 of 5, 5 of 5 |
| Legal Site Desc: | Victoria Gold Corp. |

Heather McKenzie
Account Manager

[This report shall not be reproduced except in full without the written authority of the Laboratory.]

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample ID | L2141704-1 | L2141704-2 | L2141704-3 | L2141704-4 | |
|---|---|---|---|---|---|
| Description | Soil | Soil | Soil | Soil | |
| Sampled Date | 01-AUG-18 | 01-AUG-18 | 02-AUG-18 | 02-AUG-18 | |
| Sampled Time | | | | | |
| Client ID | D-1 | D-2 | D-3 | D-4 | |
| **Grouping** / **Analyte** | | | | | |
| **SOIL** | | | | | |
| **Physical Tests** pH (1:2 soil:water) (pH) | 4.62 | 5.78 | 4.85 | 6.42 | |
| **Particle Size** % Sand (2.0mm - 0.05mm) (%) | 50.0 | 91.3 | 38.4 | 27.8 | |
| % Silt (0.05mm - 2um) (%) | 45.7 | 8.2 | 57.4 | 68.8 | |
| % Clay (<2um) (%) | 4.3 | <1.0 | 4.2 | 3.4 | |
| Texture | Sandy loam | Sand | Silt loam | Silt loam | |
| **Anions and Nutrients** Total Nitrogen by LECO (%) | 0.710 | 0.026 | 0.066 | 0.098 | |
| **Plant Available Nutrients** Nitrate+Nitrite-N (mg/kg) | <3.0 DLM | <2.0 | <2.0 | <2.0 | |
| Nitrate-N (mg/kg) | <3.0 DLM | <2.0 | <2.0 | <2.0 | |
| Nitrite-N (mg/kg) | <1.2 DLM | <0.40 | <0.40 | <0.40 | |
| Available Phosphate-P (mg/kg) | <2.0 | 2.3 | 2.0 | <2.0 | |
| Available Potassium (mg/kg) | 136 | 43 | 39 | 96 | |
| **Metals** Aluminum (Al) (mg/kg) | 15200 | 7440 | 15500 | 8340 | |
| Antimony (Sb) (mg/kg) | 2.00 | 6.13 | 6.21 | 9.03 | |
| Arsenic (As) (mg/kg) | 15.1 | 302 | 115 | 155 | |
| Barium (Ba) (mg/kg) | 134 | 124 | 205 | 138 | |
| Beryllium (Be) (mg/kg) | 0.47 | 0.40 | 0.55 | 0.38 | |
| Bismuth (Bi) (mg/kg) | <0.20 | 0.69 | 0.64 | 0.64 | |
| Boron (B) (mg/kg) | <5.0 | <5.0 | <5.0 | <5.0 | |
| Cadmium (Cd) (mg/kg) | 0.123 | 0.402 | 0.258 | 0.421 | |
| Calcium (Ca) (mg/kg) | 1300 | 1980 | 1930 | 2930 | |
| Chromium (Cr) (mg/kg) | 26.2 | 16.9 | 42.2 | 18.3 | |
| Cobalt (Co) (mg/kg) | 5.94 | 11.6 | 11.0 | 13.5 | |
| Copper (Cu) (mg/kg) | 18.0 | 18.4 | 28.9 | 27.5 | |
| Iron (Fe) (mg/kg) | 21200 | 19800 | 28800 | 28500 | |
| Lead (Pb) (mg/kg) | 19.8 | 26.9 | 40.6 | 37.8 | |
| Lithium (Li) (mg/kg) | 13.4 | 15.9 | 19.7 | 14.5 | |
| Magnesium (Mg) (mg/kg) | 3880 | 3570 | 6050 | 3620 | |
| Manganese (Mn) (mg/kg) | 195 | 520 | 346 | 578 | |
| Mercury (Hg) (mg/kg) | 0.0543 | 0.0219 | 0.0239 | 0.0708 | |
| Molybdenum (Mo) (mg/kg) | 1.19 | 1.08 | 0.83 | 0.84 | |
| Nickel (Ni) (mg/kg) | 17.7 | 22.6 | 35.3 | 31.1 | |
| Phosphorus (P) (mg/kg) | 531 | 407 | 483 | 490 | |
| Potassium (K) (mg/kg) | 850 | 2590 | 1840 | 1060 | |
| Selenium (Se) (mg/kg) | 0.37 | <0.20 | 0.25 | 0.36 | |
| Silver (Ag) (mg/kg) | 0.11 | <0.10 | <0.10 | 0.22 | |
| Sodium (Na) (mg/kg) | 86 | 162 | 91 | 82 | |

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Grouping | Analyte | Sample ID: L2141704-1<br>Description: Soil<br>Sampled Date: 01-AUG-18<br>Sampled Time:<br>Client ID: D-1 | Sample ID: L2141704-2<br>Description: Soil<br>Sampled Date: 01-AUG-18<br>Sampled Time:<br>Client ID: D-2 | Sample ID: L2141704-3<br>Description: Soil<br>Sampled Date: 02-AUG-18<br>Sampled Time:<br>Client ID: D-3 | Sample ID: L2141704-4<br>Description: Soil<br>Sampled Date: 02-AUG-18<br>Sampled Time:<br>Client ID: D-4 | |
|---|---|---|---|---|---|---|
| **SOIL** | | | | | | |
| **Metals** | Strontium (Sr) (mg/kg) | 13.2 | 19.9 | 17.0 | 26.2 | |
| | Sulfur (S) (mg/kg) | <1000 | <1000 | <1000 | <1000 | |
| | Sulfur (S)-Total (mg/kg) | 1500 | 600 | 700 | 1000 | |
| | Thallium (Tl) (mg/kg) | 0.220 | 0.252 | 0.234 | 0.152 | |
| | Tin (Sn) (mg/kg) | <2.0 | <2.0 | <2.0 | <2.0 | |
| | Titanium (Ti) (mg/kg) | 514 | 717 | 727 | 242 | |
| | Tungsten (W) (mg/kg) | 4.35 | 16.0 | <0.50 | 3.58 | |
| | Uranium (U) (mg/kg) | 1.75 | 1.46 | 1.12 | 1.47 | |
| | Vanadium (V) (mg/kg) | 55.1 | 20.9 | 47.3 | 22.9 | |
| | Zinc (Zn) (mg/kg) | 56.6 | 65.6 | 73.5 | 90.4 | |
| | Zirconium (Zr) (mg/kg) | <1.0 | 3.1 | <1.0 | 1.7 | |

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

# Reference Information

**Qualifiers for Individual Parameters Listed:**

| Qualifier | Description |
|---|---|
| DLM | Detection Limit Adjusted due to sample matrix effects (e.g. chemical interference, colour, turbidity). |

**Test Method References:**

| ALS Test Code | Matrix | Test Description | Method Reference** |
|---|---|---|---|
| **HG-200.2-CVAF-VA** | Soil | Mercury in Soil by CVAAS | EPA 200.2/1631E (mod) |

Soil samples are digested with hot nitric and hydrochloric acids, followed by CVAAS analysis. This method is fully compliant with the BC SALM strong acid leachable metals digestion method.

| | | | |
|---|---|---|---|
| **HG-DRY-CVAFS-N-VA** | Tissue | Mercury in Tissue by CVAFS (DRY) | EPA 200.3, EPA 245.7 |

This method is conducted following British Columbia Lab Manual method "Metals in Animal Tissue and Vegetation (Biota) - Prescriptive". Tissue samples are homogenized and sub-sampled prior to hotblock digestion with nitric and hydrochloric acids, in combination with addition of hydrogen peroxide. Analysis is by atomic fluorescence spectrophotometry or atomic absorption spectrophotometry, adapted from US EPA Method 245.7.

| | | | |
|---|---|---|---|
| **MET-200.2-CCMS-VA** | Soil | Metals in Soil by CRC ICPMS | EPA 200.2/6020A (mod) |

This method uses a heated strong acid digestion with HNO3 and HCl and is intended to liberate metals that may be environmentally available. Silicate minerals are not solubilized. Dependent on sample matrix, some metals may be only partially recovered, including Al, Ba, Be, Cr, Sr, Ti, Tl, V, W, and Zr. Volatile forms of sulfur (including sulfide) may not be captured, as they may be lost during sampling, storage, or digestion. Analysis is by Collision/Reaction Cell ICPMS.

| | | | |
|---|---|---|---|
| **MET-DRY-CCMS-N-VA** | Tissue | Metals in Tissue by CRC ICPMS (DRY) | EPA 200.3/6020A |

This method is conducted following British Columbia Lab Manual method "Metals in Animal Tissue and Vegetation (Biota) - Prescriptive". Tissue samples are homogenized and sub-sampled prior to hotblock digestion with nitric and hydrochloric acids, in combination with addition of hydrogen peroxide. Instrumental analysis is by collision cell inductively coupled plasma - mass spectrometry (modified from EPA Method 6020A).

Method Limitation: This method employs a strong acid/peroxide digestion, and is intended to provide a conservative estimate of bio-available metals. Near complete recoveries are achieved for most toxicologically important metals, but elements associated with recalcitrant minerals may be only partially recovered.

| | | | |
|---|---|---|---|
| **N-TOT-LECO-SK** | Soil | Total Nitrogen by combustion method | CSSS (2008) 22.4 |

The sample is ignited in a combustion analyzer where nitrogen in the reduced nitrous oxide gas is determined using a thermal conductivity detector.

| | | | |
|---|---|---|---|
| **N2/N3-AVAIL-SK** | Soil | Nitrate, Nitrite and Nitrate+Nitrite-N | APHA 4500 NO3F |

Available Nitrate and Nitrite are extracted from the soil using a dilute calcium chloride solution. Nitrate plus Nitrite is quantitatively reduced to nitrite by passage of the sample through a copperized cadmium column. The nitrite (reduced nitrate plus original nitrite) is then determined by diazotizing with sulfanilamide followed by coupling with N-(1-naphthyl) ethylenediamine dihydrochloride. The resulting water soluble dye has a magenta color which is measured at colorimetrically at 520nm. Nitrite is determined on the same extract by following the same instrumental procedure without a cadmium column.
Reference: Recommended Methods of Soil Analysis for Canadian Prairie Agricultural Soils. Alberta Agriculture (1988) p. 19 and 28

| | | | |
|---|---|---|---|
| **PH-1:2-VA** | Soil | pH in Soil (1:2 Soil:Water Extraction) | BC WLAP METHOD: PH, ELECTROMETRIC, SOIL |

This analysis is carried out in accordance with procedures described in the pH, Electrometric in Soil and Sediment method - Section B Physical/Inorganic and Misc. Constituents, BC Environmental Laboratory Manual 2007. The procedure involves mixing the dried (at <60°C) and sieved (No. 10 / 2mm) sample with deionized/distilled water at a 1:2 ratio of sediment to water. The pH of the solution is then measured using a standard pH probe.

| | | | |
|---|---|---|---|
| **PO4/K-AVAIL-SK** | Soil | Plant Available Phosphorus and Potassium | Comm. Soil Sci. Plant Anal, 25 (5&6) |

Plant available phosphorus and potassium are extracted from the soil usng Modified Kelowna solution. Phosphorous in the soil extract is determined colorimetrically at 880 nm, while potassiumis determined by flame emission at 770 nm.

| | | | |
|---|---|---|---|
| **PSA-1-SK** | Soil | Particle Size Analysis:Mini-Pipet Method | SSIR-51 Method 3.2.1 |

Dry, < 2 mm soil is treated with sodium hexametaphosphate to ensure complete dispersion of primary soil particles. The homogenized suspension is allowed to settle in accordance with Stoke's Law so that only clay particles remain in suspension.To determine the clay fraction, an aliquot of the clay suspension is removed, then dried and weighed. The sand fraction is determined by wet sieving the remaining suspension, then drying and weighing the sand retained on the sieve. The silt fraction is determined by calculation where % Silt = 100 - (%Sand+%Clay)

Reference:
Burt, R. (2009). Soil Survey Field and Laboratory Methods Manual. Soil Survey Investigations Report No. 5. Method 3.2.1.2.2. United States Department of Agriculture Natural Resources Conservation Service.

Kalra, Y.P., Maynard, D.G. 1991. Methods manual for forest soil and plant analysis. Forestry Canada. p. 42-45.

# Reference Information

| | | | |
|---|---|---|---|
| **S-TOT-LECO-SK** | Soil | Total Sulphur by combustion method | ISO 15178:2000 |

The air-dried sample is ignited in a combustion analyzer where sulfur in the reduced SO2 gas is determined using a thermal conductivity detector.

** ALS test methods may incorporate modifications from specified reference methods to improve performance.

*The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:*

| Laboratory Definition Code | Laboratory Location |
|---|---|
| SK | ALS ENVIRONMENTAL - SASKATOON, SASKATCHEWAN, CANADA |
| VA | ALS ENVIRONMENTAL - VANCOUVER, BRITISH COLUMBIA, CANADA |

**Chain of Custody Numbers:**

1 of 5 2 of 5 3 of 5 4 of 5 5 of 5

**GLOSSARY OF REPORT TERMS**

*Surrogate - A compound that is similar in behaviour to target analyte(s), but that does not occur naturally in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery.*
*mg/kg - milligrams per kilogram based on dry weight of sample.*
*mg/kg wwt - milligrams per kilogram based on wet weight of sample.*
*mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight of sample.*
*mg/L - milligrams per litre.*
*< - Less than.*
*D.L. - The reported Detection Limit, also known as the Limit of Reporting (LOR).*
*N/A - Result not available. Refer to qualifier code and definition for explanation.*

*Test results reported relate only to the samples as received by the laboratory.*
*UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.*
*Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.*

L2141704-COFC

ALS Environmental

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Canada T
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COC #



| Report To | | Report Format / Distribution | | Service Requested (Rush for routine analysis subject to availability) |
|---|---|---|---|---|
| Company: | StrataGold Corporation | ☒Standard ☐Other | | ●Regular (Standard Turnaround Times - Business Days) |
| Contact: | Hugh Coyle | ☒PDF ☒Excel ☒Digital ☐Fax | | ○Priority (2-4 Business Days) - 50% Surcharge - Contact ALS to Confirm TAT |
| Address: | 1000 - 1050 West Pender Street | Email 1: | hcoyle@vitgoldcorp.com | ○Emergency (1-2 Bus. Days) - 100% Surcharge - Contact ALS to Confirm TAT |
| | Vancouver, BC V6E 3S7 | Email 2: | bonnieburns@northwestel.net | ○Same Day or Weekend Emergency - Contact ALS to Confirm TAT |
| Phone: | 604-696-6600 Fax: | Email 3: | Jknox@vitgoldcorp.com, cbeaudry@vitgoldcorp.c | Analysis Request |
| Invoice To | Same as Report ? ☒ Yes ☐ No | Client / Project Information | | Please indicate below Filtered, Preserved or both (F, P, F/P) |
| Hardcopy of Invoice with Report? | ☐ Yes ☒ No | Job #: | Eagle Gold | |
| Company: | | PO / AFE: | | |
| Contact: | | LSD: | Victoria Gold Corp. | |
| Address: | | | | |
| Phone: | Fax: | Quote #: | Q69297, Dublin Gulch Samples | |
| Lab Work Order # (lab use only) | | ALS Contact: | Heather Mackenzie | Sampler: Bonnie Burns &Crystal Beaudry |

| Sample # | Sample Identification (This description will appear on the report) | Date (dd-mmm-yy) | Time (hh:mm) | Sample Type | Total Nitrogen | Nitrate, Nitrite etc | Metals, CCME | Particle Size Analysis | Total Sulphur | Plant Available P and K | | Mercury in tissue | Metals in tissue | | | | Number of Containers |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | D-1 | 01-Aug-18 | | Soil | X | X | X | X | X | X | | | | | | | 2 |
| | D-2 | 01-Aug-18 | | Soil | X | X | X | X | X | X | | | | | | | 2 |
| | D-3 | 02-Aug-18 | | Soil | X | X | X | X | X | X | | | | | | | 2 |
| | D-4 | 02-Aug-18 | | Soil | X | X | X | X | X | X | | | | | | | 2 |
| | D1-North-willow leaves | 01-Aug-18 | | Tissue | | | | | | | | X | X | | | | 1 |
| | D1-North-willow twigs | 01-Aug-18 | | " | | | | | | | | X | X | | | | 1 |
| | D1-North-dwarf birch leaves | 01-Aug-18 | | " | | | | | | | | X | X | | | | 1 |
| | D1-North-festuca | 01-Aug-18 | | " | | | | | | | | X | X | | | | 1 |
| | D1-East-willow leaves | 01-Aug-18 | | " | | | | | | | | X | X | | | | 1 |
| | D1-East-willow twigs | 01-Aug-18 | | " | | | | | | | | X | X | | | | 1 |
| | D1-East-dwarf birch leaves | 01-Aug-18 | | " | | | | | | | | X | X | | | | 1 |
| | D1-East-festuca | 01-Aug-18 | | " | | | | | | | | X | X | | | | 1 |
| | D1-South-willow leaves | 01-Aug-18 | | " | | | | | | | | X | X | | | | 1 |

**Special Instructions / Regulations with water or land use (CCME-Freshwater Aquatic Life/BC CSR - Commercial/AB Tier 1 - Natural, etc) / Hazardous Details**

DO NOT RINSE THE TISSUE SAMPLES. WE WANT THE ANALYSIS TO INCLUDE THE DUST ON THE LEAVES ETC AS WELL AS INCLUDING THE UPTAKE OF METALS IN THE PLANTS.

**Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY.**

**By the use of this form the user acknowledges and agrees with the Terms and Conditions as provided on a separate Excel tab.**

**Also provided on another Excel tab are the ALS location addresses, phone numbers and sample container / preservation / holding time table for common analyses.**

| SHIPMENT RELEASE (client use) | | | SHIPMENT RECEPTION (lab use only) | | | | SHIPMENT VERIFICATION (lab use only) | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Released by: Bonnie Burns | Date (dd-mmm-yy) | Time (hh-mm) | Received by: EHF | Date: 6 Aug 2018 | Time: 12:30 | Temperature: 5.0 °C | Verified by: HA | Date: 8/7 | Time: 2150p | Observations: Yes / No ? If Yes add SIF |

GENF 20.00 Front

Do Not Rinse ~~Soil~~ Tissue Samples. Analyzing Dust

In WR Cooler

~~Exp~~

6 C

# APPENDIX B

# PHOTOGRAPHS, AUGUST 2018



D-1; Looking from East Plot to Centre, Potato Hills Climate Station behind fir tree



D-1; Soil sample site



D-2; South Plot showing typical ground cover of area.



D-2; Looking to Centre Plot from West Plot



D-3; East Plot, dwarf birch dominates shrub layer



D-3; Looking from South Plot to Centre Plot



D-4; Soil sample site



D-4; North Plot, sedge dominates the ground cover.

# APPENDIX Q

## 2018 Wildlife Observations

| DATE | TIME (24 HR) | WEATHER | SPECIES | SPECIES AT RISK | NUMBER OF ANIMALS | SEX (M/F) | AGE CLASS | TYPE OF SIGN OR VISUAL | Location | BEHAVIORS | ADDITIONAL COMMENTS |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **JANUARY** | | | | | | | | | | | |
| 06-Jan-18 | NA | Cold, clear, ~-20C | Moose | NO | 2+ | F + Unknown | Adult/Juvenile | Tracks | Within Lower Dublin Sediment Pond and around Eagle Camp | NA | Tracks entered and exited LDSP at different locations. |
| Jan-18 | NA | NA | Wolf | | NA | NA | NA | Tracks | Around Eagle Camp | NA | Tracks observed during site visit Jan 5-7, 2018 |
| Jan-18 | NA | NA | Fox | | NA | NA | NA | Tracks | Around Eagle Camp | NA | Tracks observed during site visit Jan 5-7, 2018 |
| **FEBRUARY** | | | | | | | | | | | |
| No observations for February | | | | | | | | | | | |
| **MARCH** | | | | | | | | | | | |
| No observations for March | | | | | | | | | | | |
| **APRIL** | | | | | | | | | | | |
| 08-Apr-18 | | | Moose | NO | 1, maybe 2 | Unknown | Unknown | Tracks | Platinum Gulch | Likely eating willow along road | N/A |
| 13-Apr-18 | 15:30 | 3C, overcast, light showers | lynx | | 1 | Unknown | Unknown | Visual | Access Road Km 3 | Running west - east | Very slender looking |
| 24-Apr-18 | 17:40 | 7C, Overcast | Lynx | | 1 | Unknown | Unknown | Visual | Access Road Km 1 | Sitting on road | not alarmed; calm |
| 24-Apr-18 | 10:00 | 4C, sunny | Lynx | | 1 | Unknown | Unknown | Visual | Access Road Km 6.5 | Running west - east | N/A |
| 25-Apr-18 | 16:30 | Cloudy, sunny breaks | Moose | NO | 1 | Unknown | Unknown | Visual | Access Road Km 15.5 | Running on road | N/A |
| 25-Apr-18 | 21:00 | Clear | Wolf | | 1 | Unknown | Unknown | Visual | Access Road Km 20 | Running | N/A |
| 26-Apr-18 | 6:00 | -5C, cloudy | Grouse | | 8 | M & F | Unknown | Visual | Access Rd | Showing Tail | Looking for mate |
| 27-Apr-18 | 8:40 | 2C | Moose | NO | 2 | F | Cow + Calf | Visual | Rex Trail 0 | Running off road | N/A |
| 27-Apr-18 | 14:00 | | Moose | NO | 1 | M | Unknown | Visual | | Not in Hurry | N/A |
| 28-Apr-18 | 18:00 | | Moose | NO | 3 | F | 2 Cows, 1 Calf | Visual | Access Road Km 42 | Relaxed | N/A |
| 29-Apr-18 | 6:30 | -1C | Porcupine | | 1 | Unknown | Unknown | Visual | Access Road | Walking | N/A |
| 30-Apr-18 | 19:08 | 8C, Clear | Grouse | | 1 | Unknown | Unknown | Visual | Access Road Km 23.5 | Ran off road | N/A |
| 30-Apr-18 | 20:30 | | Wolf | | 1 | Unknown | Unknown | Visual | Access Road Km 35-40 | Looked hungry, cold, and confused | N/A |
| 30-Apr-18 | 18:44 | 8C, Clear | Lynx | | 1 | Unknown | Unknown | Visual | Access Road Km 17 | Laying on road | Ran off as approached |
| 30-Apr-18 | 18:30 | 5C, Sunny | Moose | NO | 3 | Unknown | Unknown | Visual | Access Road Km 23.5 | Drinking | N/A |
| **MAY** | | | | | | | | | | | |
| 01-May-18 | 15:00 | | Moose | NO | 2 | Unknown | Unknown | Visual | Access Road Km 11 | On road, Ran from vehicle | N/A |
| 01-May-18 | 18:30 | Rain | Rabbit | | 1 | Unknown | Unknown | Visual | Km 1 of Dublin Gulch trail | Running | N/A |
| 02-May-18 | 18:30 | Light Snow | Moose | NO | 2 | F | 1 Cow 1 Calf | Visual | Km 42 | Watched truck | In haggart creek near culverts |
| 02-May-18 | 9:30 | Snowing | Snowshoe Hare | | 1 | Unknown | Unknown | Visual | Km 1.5 on Dublin Gulch trail | Running | Starting to change color |
| 04-May-18 | 5:00 | 2C, Clear | Moose | NO | 1 | Unknown | Young (approximately one year) | Visual | Crusher Road | N/A | N/A |
| 04-May-18 | 15:30 | N/A | Lynx | | 1 | Unknown | Adult | Visual | Access Road Km 4 | N/A | N/A |
| 05-May-18 | 11:30 | 5C, Cloudy | Wolf | | 1 | Unknown | Unknown | Visual | Access Road Km 28 | Ran from Harggart Creek and across the road | N/A |
| 05-May-18 | | | Geese | | Multiple | M+F | Unknown | Visual | | Feeding | Don't blow horns to scare them |
| 06-May-18 | 6:30 | -1C | Moose | NO | 1 | F | Unknown | Visual | Access Road Km 23 | Standing in still water | Not afraid of traffic |
| 07-May-18 | 12:30 | 5C, Cloudy | Moose | NO | 1 | F | Unknown | Visual | Km 23.5 | Feeding on Edge of Pond | N/A |
| 07-May-18 | 13:30 | N/A | black bear | | 1 | Unknown | Adult | Visual | Camp and Mayo, YT | N/A | Lots of Golfers around roads |
| 07-May-18 | 13:30 | N/A | brown bear | | 1 | Unknown | Adult | Visual | Camp and Mayo, YT | N/A | N/A |
| 07-May-18 | 13:30 | N/A | Porcupine | | 1 | Unknown | Adult | Visual | Camp and Mayo, YT | N/A | N/A |
| 09-May-18 | 5:00 | warm, dry | Rabbit | | 1 | Unknown | Adult | Visual | Eagle Camp Shop area | travelling | on roadway |
| 09-May-18 | 7:30 | N/A | Moose | NO | 1 | Unknown | Adult | Visual | Access Road Km 41 | Standing in water along Haggart Creek bank | N/A |
| 09-May-18 | 13:00 | Dry | Owl | | 1 | Unknown | Adult | Visual | Lower camp area | Flying in open area | N/A |
| 10-May-18 | 12:00 | 10C | Moose | NO | 1 | Unknown | Adult | Visual | Across valley near creek | N/A | N/A |
| 10-May-18 | 8:00 | N/A | Moose | NO | 1 | Unknown | Adult | Visual | Access Road Km 39 | Running | N/A |
| 10-May-18 | 10:00 | Sunny 9C | Moose | NO | 2 | Unknown | Adult | Visual | Access Rd Km 24 | Two walking across road | N/A |
| 12-May-18 | 6:30 | N/A | Moose | NO | 1 | Male | Adult | Visual | Creek by Lower Pelly Laydown | crossing creek | N/A |
| 13-May-18 | 17:00 | Cloudy, sunny breaks | Porcupine | | 1 | Unknown | Adult | Visual | Access road km 1 | Running off the road | N/A |
| 13-May-18 | Afternoon | Overcast | Grizzly | YES | 1 | Unknown | Adult | Visual | Sighted at top of ADR Road area from camp | Foraging | N/A |
| 14-May-18 | 8:30 | N/A | Raptor (hawk?) | | 1 | Unknown | Adult | Visual | Access Road km 6 | Flying/hunting along road | N/A |
| 14-May-18 | 10:00 | N/A | Moose | NO | 1 | Female | Adult | Visual | Crusher Access | N/A | N/A |
| 14-May-18 | 10:00 | Raining | Rabbit | | 1 | Unknown | Adult | Visual | Core shack | Sitting under tree | N/A |
| 14-May-18 | 8:30 | Sunny | Moose | NO | 1 | Unknown | Adult | Visual | Access Road km 1 | Walking away | N/A |
| 15-May-18 | 4:00 | Light rain | Moose | NO | 2 | Female/Calf | Adult/Calf | Visual | Crusher road | N/A | N/A |
| 16-May-18 | 15:19 | Partly sunny | Porcupine | | 1 | Unknown | Unknown | Visual | Access Road Km 41.5 | Crossing road | N/A |
| 16-May-18 | | | | | | | | | | | |
| 16-May-18 | 21:30 | partly cloudy, 13C | Porcupine | | 1 | Unknown | Adult | Visual | Access Road Km 30 | On road side | N/A |
| 16-May-18 | 21:00 | partly cloudy, 15C | black bear | | 1 | Unknown | Adult | Visual | Access Road Km 13.5 | Ran away from truck | N/A |
| 17-May-18 | 8:20 | Clear, 15C | Porcupine | | 1 | Unknown | Adult | Visual | Dublin Gulch trail | Appeared calm | Feeding along watercourse |
| | | | | | | | | | | | |
| 19-May-18 | 9:45 | Sunny | Porcupine | | 1 | Unknown | Adult | Visual | Access road km. 39 | Crossing road | N/A |
| 19-May-18 | | Sunny | Moose | NO | 1 | Unknown | Adult | Visual | Old airport | Walked off | N/A |
| 19-May-18 | 9:45 | Sunny | Porcupine | | 1 | Unknown | Adult | Visual | Access Road km 39 | Crossing road | N/A |
| 19-May-18 | 21:00 | Sunny | Lynx | | 1 | Unknown | Adult | Visual | Access Road Km 6 | Walking on road | N/A |
| 19-May-18 | 21:15 | N/A | Moose | NO | 1 | Unknown | Adult | Visual | Acces Road Km 8 near Haldane Bridge | Running away off road | N/A |
| 21-May-18 | 8:00 | Clear | Bald Eagle | | 1 | Unknown | Adult | Visual | Access Road km 10 | Flying | N/A |
| 21-May-18 | 15:00 | 16 degrees | Rabbit | | 1 | Unknown | Adult | Visual | Shop Yard | N/A | Not scared |
| 22-May-18 | 9:45 | Warm/Dry | Black Bear | | 1 | Unknown | Adult | Visual | Access Road km 29 | Moved across road fast | N/A |
| 23-May-18 | 21:00 | N/A | Black Bear | | 1 | Unknown | Adult | Visual | Access Road km 31 | On the road | N/A |
| 23-May-18 | 7:55 | Overcast | Black Bear | | 1 | Unknown | Adult | Visual | Access road km 28 | Running on road and up into trees | N/A |
| 23-May-18 | 16:40 | Windy and cloudy | Moose scat | NO | 1 | Unknown | ? | Visual | W26 | N/A | N/A |
| 23-May-18 | 18:30 | Overcast | Black Bear | | 2 | 1 female and 1 cub | Adult/cub | Visual | Access road km 28 | Climbing the bank | Both climbing the bank cub rolled back Female jumped off bank and picked cub up by the neck and ran up bank |
| 24-May-18 | 10:00 | N/A | Porcupine | | 1 | Unknown | Adult | Visual | Access road km 41 | Looked suspicious | N/A |
| 24-May-18 | 8:00 | N/A | Porcupine | | 1 | Unknown | Adult | Visual | Dublin Gulch road km 20 | Crossing road | Moved across road quickly upon vehicle approach |
| 24-May-18 | 22:10 | Cloudy with light rain | Wolf | | 3 | Unknown | Adult | Visual | Access road km 30 | After seen they ran off into the bush on the west side | N/A |

| DATE | TIME (24 HR) | WEATHER | SPECIES | SPECIES AT RISK | NUMBER OF ANIMALS | SEX (M/F) | AGE CLASS | TYPE OF SIGN OR VISUAL | Location | BEHAVIORS | ADDITIONAL COMMENTS |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 24-May-18 | 9:00 | N/A | Moose Tracks | NO | 1 | Unknown | ? | Visual | W29 Sampling Location | Tracks from below security gate to Haggard Creek | N/A |
| 24-May-18 | 6:25 | Raining | Moose | NO | 1 | Female | Adult | Visual | Access road km 11 | Walaking on side of road | Not afraid |
| 25-May-18 | 8:50 | Rain and rain | Rabbits | | 2 | Unknown | Adult | Visual | Below LDSP | Feeding in the willows | |
| 26-May-18 | 23:20:00 AM | Overcast | Lynx | | 1 | Unknown | Adult | Visual | Before shop gate | Crossing the road towards the river | N/A |
| 26-May-18 | 9:00 | Overcast | Ducks | | 2 | Unknown | Adults | Visual | W45 Pond | Swimming | N/A |
| 26-May-18 | 17:15 | Warm 14 degrees | Black Bear | | 2 | Unknown | Adult | Visual | Access road km 24.5 | Crossing road | N/A |
| 27-May-18 | 12:30 | Rainy | Black Bear | | 1 | Unknown | Adult | Visual | Access road km 24.5 | Walking along road | Honked horn and it ran off |
| 27-May-18 | 14:00 | Rain | Lynx | | 1 | Unknown | Adult | Visual | Fueling pad | N/A | Not scared of traffic |
| 27-May-18 | 10:00 | Sunny | Black Bear | | 1 | Unknown | Adult | Visual | Access road km 19 | Curious - Not scared off by vehicle | N/A |
| 29-May-18 | 10:25 | Overcast | Canada Goose | | 2 | Unknown | Adult | Visual | Lower road | N/A | Mating pair |
| 30-May-18 | 3:45 | Cloudy | Black Bear | | 1 | Unknown | Adult | Visual | Access road km 37 | Eating in the ditch | N/A |
| 30-May-18 | 2:30 | Sunny | Black Bear | | 1 | Unknown | Adult | Visual | Access road km 34 | N/A | N/A |
| 30-May-18 | 7:50 | N/A | Bear | | 1 | Unknown | Adult | Visual | Access road km 32 | N/A | Made sure others knew about it |
| 30-May-18 | N/A | N/A | Black Bear | | 1 | Unknown | Adult | Visual | Access road km 32.5 | N/A | Hauled gravel about that black bear Nothing |
| 31-May-18 | 7:15 | Sunny | Black Bear | | 2 | Female/Cub | Adult/cub | Visual | Access road km 29 | Walking on side of road | Climbed bank as I drove closer |
| **JUNE** | | | | | | | | | | | |
| 01-Jun-18 | AM | Sunny, 2 | Rabbit | | 1 | Unknown | Unknown | Visual | Pelly Upper Laydown | hopping | "Very Cute" |
| 01-Jun-18 | 15:50 | Overcast, raining, 12C | Black Bear | | 1 | Unknown | Unknown | Visual | Km 24.5 | Grazing | Blew air horn, started truck, honked at it - bear was not scared away |
| 02-Jun-18 | 21:30 | Cloudy, Warm | Porcupine | | 1 | Unknown | Unknown | Visual | Km 26.5 | Walking | |
| 02-Jun-18 | 10:30 | 6C, light rain | Rabbit | | 1 | Unknown | Unknown | Visual | Outside D/C Dorm | Calm, did't move | |
| 02-Jun-18 | 14:00 | Musky | Moose | NO | 1 | Male | Unknown | Visual | Km 25.5 | Walking | |
| 02-Jun-18 | 3:30 | | Porcupine | | 1 | Male | Unknown | Visual | ADR | Walking; Scared | |
| 02-Jun-18 | 16:00 | Cloudy, Rainy | Porcupine | | 1 | Male | Unknown | Visual | Dublin Km 2 | Running up tree | |
| 02-Jun-18 | 6:15 | No rain | Porcupine | | 1 | Unknown | Unknown | Visual | ADR | Walked into trees once saw human | |
| 03-Jun-18 | 10:00 | 10C | Porcupine | | 1 | Unknown | Unknown | Visual | Km 2 | Running | |
| 03-Jun-18 | 13:30 | | Moose | NO | 1 | Male | Unknown | Visual | Between Km 25-26 | Walking | |
| 04-Jun-18 | 1:15 | | Rabbit | | 1 | Unknown | Unknown | Visual | Platinum | | |
| 04-Jun-18 | 5:00 | | Lynx | | 1 | Unknown | Unknown | Visual | ADR | | |
| 04-Jun-18 | 2:30 | | Porcupine | | 1 | Unknown | Unknown | Visual | Platinum | | |
| 04-Jun-18 | 20:00 | | Rabbit | | 1 | Unknown | Unknown | Visual | Shop | | |
| 04-Jun-18 | 21:23 | | Moose | NO | 1 | Female | Unknown | Visual | Km 23 | Running | |
| 05-Jun-18 | 18:35 | 5C, Cloudy | Moose | NO | 1 | Unknown | Unknown | Visual | Km 10.5 | Feeding in Wetland | |
| 05-Jun-18 | 22:00 | Overcast | Black Bear | | 1 | Unknown | Unknown | Visual | Km 28 | Running | |
| 05-Jun-18 | 16:30 | Light rain | Mallard Ducks | | 2 | Unknown | Unknown | Visual | Lower Placer Ponds | | |
| 05-Jun-18 | 17:00 | Overcast | Olive sided flycatcher | YES | 1 | Unknown | Unknown | Auditory | | | |
| 05-Jun-18 | | | | | | | | | | | |
| 05-Jun-18 | 16:41 | Overcast | Porcupine | | 1 | Unknown | Unknown | Visual | UTM: 459425, 7101949 | Feeding on roadside | |
| 06-Jun-18 | 16:45 | Rainy/Overcast 14C | Black Bear | | 1 | Unknown | Unknown | Visual | Km 23.5 | Grazing alongside road | Ran off road when truck approached |
| 06-Jun-18 | 18:00 | | goose/ducks | | 1 goose/3 ducks | Unknown | Unknown | Visual | | | |
| 06-Jun-18 | 9:00 | Cloudy | Lynx | | 1 | Unknown | Unknown | Visual | Crusher Road | Crossing the road | Not sure if it was forsure a lynx, card description says "not sure, a very big cat". Judging by other lynx sightings on crusher road it's most likely a lynx |
| 06-Jun-18 | 16:55 | Rainy, 13C | Black Bear | | 1 | Unknown | Unknown | Visual | Km 24.5 | Grazing alongside the road | Blew air horn 3 times and the bear did not run away; vehicle came and then the bear walked away into bushes |
| 06-Jun-18 | 9:30 | Sunny, 12 | Moose | NO | 1 | Unknown | Unknown | Visual | Km 24 | Crossing road and grazing | |
| 08-Jun-18 | 23:00 | Clear | Porcupine | | 1 | Unknown | Unknown | Visual | Security Gate | Walking | |
| 09-Jun-18 | 11:00 | Clear | Black Bear | | 1 | Unknown | Unknown | Visual | Km 6 - Km 7 | Being a bear | |
| 09-Jun-18 | 19:00 | Sunny | Porcupine | | 1 | Unknown | Unknown | Visual | Km 11 | Walking on road | |
| 09-Jun-18 | 21:15 | Km 9 | Porcupine | | 1 | Unknown | Unknown | Visual | Km 9 | Walking; not scared | |
| 09-Jun-18 | 17:00 | Sunny | American Martin | NO | 1 | Unknown | Unknown | Visual | Km 21 | Running across road | |
| 09-Jun-18 | 10:00 | Sunny | Black Bear | | 1 | Unknown | Unknown | Visual | | Eating grass on side of road | |
| 09-Jun-18 | 21:30 | Sunny | Swans | | 2 | Unknown | Unknown | Visual | Km 16 | Eating in a swamp | |
| 10-Jun-18 | 15:50 | 14C, Sunny | American Martin | NO | 1 | Unknown | Adult | Visual | Lower Dublin Creek (W21 station) | Fled at the sign of human | |
| 10-Jun-18 | 14:45 | Cloudy | Canadian Geese | | 2 | Unknown | Unknown | Visual | Lower Placer Ponds | Swimming around | |
| 10-Jun-18 | 11:00 | Cloudy/Sunny, Warm | Rabbit | | 1 | Unknown | Unknown | Visual | Fuel Farm | Running | |
| 11-Jun-18 | 1:00 | | Grizzly | YES | 1 | Unknown | Unknown | Visual | "New Camp Site" | | |
| 12-Jun-18 | 10:10 | | Porcupine | | 1 | Unknown | Unknown | Visual | Km 22 | Running | |
| 12-Jun-18 | 23:00 | 7C | Moose | NO | 1 | Female | Unknown | Visual | Pit | Walking | |
| 12-Jun-18 | 10:00 | Sunny | Moose | NO | 1 | Female | Unknown | Visual | Km 24 | Running | |
| 12-Jun-18 | 11:00 | Sunny | Moose | NO | 1 | Female | Unknown | Visual | Km 16 | Running | |
| 13-Jun-18 | 18:18 | Clear, Dry, 14C | Moose | NO | 1 | Female | Adult | Visual | Lower Pelly Road, Right Bank Haggart | Standing on river bank watching truck, moved when truck backed up for better look | |
| 13-Jun-18 | 7:15 | Sunny | Porcupine | | 1 | Unknown | Unknown | Visual | Km 32 | Walking on road | |
| 13-Jun-18 | 10:30 | Sunny | Moose | NO | 1 | Male | Unknown | Visual | Km 32 | | |
| 13-Jun-18 | 10:30 | Sunny | Lynx | | 1 | Unknown | Unknown | Visual | Km 32 | | |
| 13-Jun-18 | 10:32 | 14C, Sunny | Moose | NO | 2 | Female | Adult + Calf | Visual | Potato Hills | Alarmed by truck at a large distance away | 400m away in dwarf birch |
| 13-Jun-18 | 11:26 | 10C, Overcast | Olive sided flycatcher | YES | 1 | Unknown | Unknown | Auditory | W1 (Upper Dublin Creek) | | |
| 13-Jun-18 | 8:00 | 9C Sunny | Moose | NO | 3 | 1 Female, 2 Unknown | 1 Adult, 2 Calves | Visual | Km 23.5 | Crossing road: Kept far away from truck | |
| 13-Jun-18 | 10:00 | Sunny | Grizzly Bear | YES | 1 | Unknown | Unknown | Visual | Km 8 | Running | |
| 14-Jun-18 | 17:30 | | Lynx | | 1 | Unknown | Unknown | Visual | Event Pond Road | Crossing Road | |
| 14-Jun-18 | 12:30 | Partly Cloudy, 12 | Moose | NO | 3 | 1 Male, 2 Female | Unknown | Visual | Km 24 corner | Crossing roading and grazing; stayed in area for an hour | |
| 14-Jun-18 | 17:57 | Nice day | Lynx | | 1 | Unknown | Unknown | Visual | Dublin; First Cabin | Walking slow | Looked Ragged |
| 14-Jun-18 | 17:50 | Sunny | Lynx | | 1 | Unknown | Unknown | Visual | Event Pond Road | | |
| 14-Jun-18 | 14:00 | Sunny | Moose | NO | 1 | Female | Adult | Visual | Septic field | Walking on road | "Waiting for hunting season" |
| 15-Jun-18 | | | Moose | NO | 1 | Unknown | Unknown | Visual | Septic field | Walking on road near septic bypass | "Trying to leave I think" |
| 15-Jun-18 | 5:45 | | Porcupine | | 1 | Unknown | Unknown | Visual | Core Shack | Ran into the willows | |

| DATE | TIME (24 HR) | WEATHER | SPECIES | SPECIES AT RISK | NUMBER OF ANIMALS | SEX (M/F) | AGE CLASS | TYPE OF SIGN OR VISUAL | Location | BEHAVIORS | ADDITIONAL COMMENTS |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 15-Jun-18 | 14:30 | 14C, Partly Cloudy | Moose | NO | 1 | Male | Unknown | Visual | Km 24 | Walking down road | |
| 15-Jun-18 | 6:30 | | American Martin | NO | 1 | Unknown | Unknown | Visual | ADR Road | Crossing the road; Running; Slope habitat | |
| 15-Jun-18 | 17:00 | | Lynx | | 1 | Unknown | Unknown | Visual | Km 1 | Feeding on a rabbit | |
| 16-Jun-18 | 20:00 | Sunny, Warm | Black Bear | | 1 | Unknown | Unknown | Visual | Km 36 | Crossed road; stayed near treeline | |
| 17-Jun-18 | 14:30 | Clear, Sunny | Moose | NO | 3 | Female | 1 Adult + 2 Calf | Visual | IROSA | Cow was nervous and watched calves continuously | |
| 17-Jun-18 | 11:41 | 19C, Sunny | Wolf | | 1 | Unknown | Adult | Visual | Km 9.5 | Walking | |
| 18-Jun-18 | 21:35 | Cool, Cloudy | Rabbit | | 1 | Unknown | Unknown | Visual | Camp | Ran away | |
| 18-Jun-18 | 18:00 | Sunny | Moose | NO | 1 | Male | Adult | Visual | 32.5 | Walking on road | |
| 18-Jun-18 | 11:30 | Sunny | Black Bear | | 1 | Male | Unknown | Visual | Km 35 | Walking on road | |
| 18-Jun-18 | 10:42 | Sunny | Black Bear | | 1 | Male | Unknown | Visual | km 37 | Running across road | |
| 18-Jun-18 | 15:00 | Clear, Sunny | Black Bear | | 2 | Unknown | Unknown | Visual | Swede Creek | Saw vehicles, ran into bush | |
| 18-Jun-18 | 13:00 | Good Weather | Moose | NO | 3 | Female x1: 2 Unknown | 1 Adult, 2 Calves | Visual | Km 25 | Walking across road. Swam into pond and into the bush | |
| 18-Jun-18 | 13:00 | Warm | Moose | NO | 3 | Female x1: 2 Unknown | 2 Adult, 2 Calves | Visual | Stock pile | | |
| 18-Jun-18 | 16:30 | 20C | Moose | NO | 1 | Female | Unknown | Visual | Suttles Gultch | Not aggressive; 10-15 m away | |
| 20-Jun-18 | 16:34 | 26C, Sunny | Moose | NO | 1 | Female | Unknown | Visual | | In a wetland feeding | |
| 20-Jun-18 | 16:34 | 11C | Swans | | 2 | Unknown | Unknown | Visual | Unknown | Swimming in wetland | |
| 20-Jun-18 | 16:00 | Sunny/hot | Black Bear | | 1 | Unknown | Unknown | Visual | Km 35 | Running in Ditch | |
| 20-Jun-18 | 16:00 | Sunny, Hot | Black Bear | | 1 | Unknown | Unknown | Visual | Km 34 | Waliking on side of road | |
| 21-Jun-18 | 8:45 | Hoy/Sunny | Rabbit | | 1 | Unknown | Unknown | Visual | Pelly Lower Laydown | | Close to creek |
| 21-Jun-18 | 10:00 | Sunny | Moose | NO | 1 | Male | Unknown | Visual | Km 26 | Running | |
| 22-Jun-18 | 13:00 | Sunny | Moose | NO | 1 | Female | Unknown | Visual | Km 23 | feeding on riverbank | |
| 22-Jun-18 | 15:10 | Overcast | Rabbit | | 1 | Unknown | Unknown | Visual | "Environemental Area" | | |
| 22-Jun-18 | 15:20 | 21 | Rabbit | | 1 | Unknown | Baby-Very young | Visual | HLF | Running | |
| 23-Jun-18 | 20:00 | Sunny | Moose | NO | 1 | Male | Young | Visual | Km 23 | Standing on left bank of McQuestion River upstream of bridge. Did not scare from vehicle | |
| 24-Jun-18 | 17:15 | | Moose | NO | 3 | 1 Female, 2 Unknown | 1 Adult, 2 Calves | Visual | Bottom of 90 Day Stockpile Road | | |
| 24-Jun-18 | 22:12 | 15C Mild Precipitation | Moose | NO | 1 | Walking | Unknown | Visual | Process Plant Service Road | Appeared undisturbed | |
| 24-Jun-18 | 5:05 | Raining | Moose | NO | 2 | Female | 1 Adult + 1 Calf | Visual | Lafarge Plant: Headed to the south side of the road | Running | |
| 25-Jun-18 | 20:30 | Overcast/Rainy | Moose | NO | 1 | Female | Unknown | Visual | Km 23 | | |
| 25-Jun-18 | 12:00 | Sunny | Small sandpipers (Possibly Spotted Sandpipers) | | 5 | Unknown | Unknown | Visual | Lower Pelly Laydown | Feeding/ Hunting in shallows | |
| 26-Jun-18 | 15:15 | Rain, 14C | Olive sided flycatcher | YES | 1 | Unknown | Unknown | Visual | | Flying | |
| 26-Jun-18 | 5:00 | | Porcupine | | 1 | Unknown | Unknown | Visual | Beside Coreshack | | |
| 27-Jun-18 | 14:45 | 10C, Rain | Lynx | | 1 | Unknown | Unknown | Visual | 38.8 | Crossing Road | |
| 28-Jun-18 | 13:30 | | Wolf | | 1 | Unknown | Unknown | Visual | Km11 | Crossing Road | Black Wolf |
| 28-Jun-18 | 12:00 | Cloudy | Moose | NO | 1 | Male | Unknown | Visual | Km 23 | Stopped and looked at vehicle | |
| 28-Jun-18 | 12:30 | Overcast | Moose | NO | 2 | Male and Female | Adults | Visual | Km 23 | Cow on one side of wetland and bull on other | |
| 28-Jun-18 | 18:40 | 12, Partly cloudy | Swans | | 4 | Unknown | Unknown | Visual | Km 10.5 | Feeding | |
| 28-Jun-18 | 18:45 | | Wolf | | 1 | Unknown | Unknown | Visual | Km 4 -10 | | |
| 28-Jun-18 | 19:05 | Light rain | Moose | NO | 1 | Male | Unknown | Visual | Km23 | Feeding | |
| 30-Jun-18 | 4:30 | Morning weather | Owl | | 1 | Unknown | Unknown | Visual | Septic field | Flying | |
| 30-Jun-18 | 7:30 | Warm | Moose | NO | 1 | Female | Unknown | Visual | Platinum Road | Walking | |
| **JULY** | | | | | | | | | | | |
| 01-Jul-18 | 8:53 | Cloudy | Wolf | | 1 | Unknown | Adult | Visual | Km15 | Run across road | |
| 01-Jul-18 | 8:45 | Cloudy | Moose | NO | 1 | Male | Adult | Visual | Km 33 | Feeding | |
| 01-Jul-18 | 6:18 | Clear | Moose | NO | 2 | Male and Female | Adult | Visual | Lower Pelly Laydown | Walking calmly | |
| 02-Jul-18 | 16:00 | Raining | Lynx | | 1 | Unknown | Unknown | Visual | Fuel Farm | Traveling | Was it carrying a suitcase or… |
| 02-Jul-18 | 15:48 | Cloudy with light rain | Moose | NO | 1 | Female | Adult | Visual | Km 23 | Feeding on side of wetlands | |
| 03-Jul-18 | 17:45 | Cloudy with sunny breaks | Moose | NO | 1 | Female | Adult | Visual | Km 23 | Feeding | |
| 03-Jul-18 | 16:30 | Partly Cloudy, 17 | Moose | NO | 3 | 1 Female, 2 Unknown | 1 Adult 2 Calves | Visual | Km 42.5 | Walking in the water | Went through Cobalt Area and crossed road |
| 03-Jul-18 | 17:15 | Cloudy, sunny breaks | Moose | NO | 3 | 1 Female, 2 Unknown | 1 Adult 2 Calves | Visual | Km 42 | Running in front of truck | |
| 04-Jul-18 | 3:00 | | Porcupine | | 2 | Unknown | Unknown | Visual | Dublin KM 1 | Headed up a tree | |
| 05-Jul-18 | 13:52 | | Moose | NO | 1 | Male | Adult | Visual | Km 19.5 | Feeding | |
| 05-Jul-18 | 16:52 | | Moose | NO | 2 | Female + 1 unknown | adult and calf | Visual | Km 0 | Crossing road; cow and calf | |
| 05-Jul-18 | 13:35 | Few clouds, sunny | Moose | NO | 1 | Female | Adult | Visual | Km 23 | Feeding | |
| 07-Jul-18 | 7:40 | | Lynx | | 1 | Unknown | Unknown | Visual | km 40 | Running | |
| 07-Jul-18 | 19:30 | 20, Overcast | Moose | NO | 3 | 1 Female, 2 Unknown | Adult + 2 Calves | Visual | Lower Road After Pelly Laydown | Cow was defensive; walking on road near station W45 | |
| 08-Jul-18 | 17:00 | 22C, Clear, moderate winds | Moose | NO | 1 | Male | Adult | Visual | Km 22 | Was feeding in wetland but got spooked by trucks and ran into bush. | |
| 08-Jul-18 | 20:10 | 26C, Cloudy | Moose | NO | 1 | Male | Adult | Visual | km23 | Not concerned about traffic | |
| 08-Jul-18 | 18:00 | | Black bear & Moose | | 2 | Cow Moose, unknown blackbear | Adult | Visual | Km 23 | | |
| 08-Jul-18 | 14:40 | 25, Clear | Moose | NO | 1 | Male | 4 Years | Visual | Km 23 | Velvet Still on, looked when called at | |

| DATE | TIME (24 HR) | WEATHER | SPECIES | SPECIES AT RISK | NUMBER OF ANIMALS | SEX (M/F) | AGE CLASS | TYPE OF SIGN OR VISUAL | Location | BEHAVIORS | ADDITIONAL COMMENTS |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 08-Jul-18 | 15:02 | 25, Clear | Moose | NO | 3 | 1 Cow, 2 Unknown | 1 Adult, 2 Calves | Visual | km 32 | Fled at sight of truck | |
| 09-Jul-18 | 16:00 | Hot | Porcupine | | 1 | Unknown | Unknown | Visual | Laydown | Feeding | |
| 09-Jul-18 | 1:30 | | Fox | | 1 | Unknown | Unknown | Visual | Bottom of ADR road | | |
| 09-Jul-18 | 23:30:00 | N/A | Moose | NO | 3 | Female/2 Calves | Adult/calves | Visual | Exploration Camp | N/A | N/A |
| 10-Jul-18 | 20:45:00 | N/A | Bear | | 1 | Unknown | Adult | Visual | ADR 1km from camp | Running across road | Saw from camp most likely Blak Bear |
| 11-Jul-18 | 18:00:00 | Sunny | Porcupine | | 1 | Unknown | Adult | Visual | Old Exploration Laydown | Eating Plywood | N/A |
| 11-Jul-18 | 10:00:00 | 15 degrees | Moose | NO | 1 | Female | Adult | Visual | Access road km 21 | Walking | Walked into the bush after a truck stopped did not seemed starteled |
| 11-Jul-18 | 10:00:00 | N/A | Wolf | | 2 | Unknown | Adult | Visual | access road km 36 | Running | Ran along the road and then crossed Haggard Creek |
| 12-Jul-18 | 11:30:00 | Overcast | Bear | | 1 | Unknown | Adult | Visual | access road km 0.5 | Running | Black Bear Ran into bush after blasting airhorn |
| 13-Jul-18 | 03:10:00 | N/A | Bear | | 1 | Unknown | Adult | Visual | Upper Waste Dump | N/A | N/A |
| 13-Jul-18 | 15:10:00 | 17 degrees Sunny | American Martin | NO | 1 | Unknown | Adult | Visual | Dublin Gulch road km 2.5 | Crossing road | N/A |
| 14-Jul-18 | 08:00:00 | Sunny | Moose | NO | 1 | Female | Adult | Visual | Lower Pelly road | Feeding | N/A |
| 14-Jul-18 | 11:00:00 | Sunny 15 degrees | Moose | NO | 1 | Female | Adult | Visual | Top of Bypass Road | Walking in the ditch | Nervous when passed by vehicle |
| 14-Jul-18 | 10:45:00 | Sunny | Moose | NO | 1 | Female | Adult | Visual | Lower Pelly Access | Calm/Eating | Healthy Looking |
| 14-Jul-18 | 14:00:00 | Sunny | Moose | NO | 1 | Female | Adult | Visual | Fish Habitat | Eating | N/A |
| 14-Jul-18 | 02:30:00 | Cloudy | Moose | NO | 1 | Female | Adult | Visual | N/A | Feeding | N/A |
| 15-Jul-18 | 14:00:00 | N/A | Moose | NO | 1 | Female | Adult | Visual | Crusher Access road | Running | N/A |
| 15-Jul-18 | 12:45:00 | N/A | Moose | NO | 1 | Unknown | Adult | Visual | Helipad road | N/A | N/A |
| 15-Jul-18 | 01:10:00 | Cloudy | Moose | NO | 1 | Female | Adult | Visual | LPLR Pond | Feeding | Feeding in pond |
| 16-Jul-18 | 23:45:00 | 10 Degrees clear sky | Moose | NO | 3 | Female/2 Calves | Adult/Calves | Visual | Crusher road | Walking Slowly | |
| 16-Jul-18 | 01:00:00 | N/A | Porcupine | | 1 | Unknown | Adult | Visual | Topsoil Waste Pit | N/A | N/A |
| 16-Jul-18 | 04:00:00 | N/A | Porcupine | | 1 | Unknown | Adult | Visual | Eagle Pup | N/A | N/A |
| 16-Jul-18 | 09:00:00 | N/A | Moose | NO | 3 | Female/Male/Calf | Adults/Calf | Visual | Access road km 23 | N/A | N/A |
| 16-Jul-18 | 09:00:00 | Rain | Porcupine | | 1 | Unknown | Adult | Visual | ADR road up switchback | Running | N/A |
| 16-Jul-18 | 11:00:00 | N/A | Bear | | 1 | Unknown | Adult | Visual | Access road km 2 | Hanging around | N/A |
| 18-Jul-18 | 22:45:00 | Partly Cloudy | Moose | NO | 1 | Male | Adult | Visual | Crusher Access road | Wandering around | N/A |
| 18-Jul-18 | 09:38:00 | 11 degrees clear light winds | Moose | NO | 1 | Female | Adult | Visual | Intersection on Crusher Bypass | Standing looking around | Not scared looking at back at me |
| 18-Jul-18 | 10:00:00 | 10 Degrees Overcast | Porcupine | | 1 | Unknown | Adult | Visual | Access road km 37 | Feeding | N/A |
| 18-Jul-18 | 00:45:00 | Sunny | Moose | NO | 1 | Female | Adult | Visual | Lower road Marsh area | Feeding | N/A |
| 18-Jul-18 | 17:00:00 | Sunny | Porcupine | | 1 | Unknown | Adult | Visual | km 1.5 Dublin Guldch road | Running away from truck | N/A |
| 19-Jul-18 | 21:10:00 | Good weather | Porcupine | | 1 | Unknown | Adult | Visual | By Security Shack | Walking slowly | Just crossing road by Security Shack |
| 21-Jul-18 | 21:00:00 | Good weather | Wolf | | 1 | Unknown | Adult | Visual | Outside of Security Parking area | Crossing road | N/A |
| 22-Jul-18 | 15:45:00 | 25 degrees cloudy | Frog | | 1 | Unknown | Adult | Visual | W23 | Hopping to Haggard creek | N/A |
| 25-Jul-18 | 22:50:00 | Nice day | Lynx | | 1 | Unknown | Adult | Visual | Camp Parking Lot | N/A | 3 people by their truck so informed them |
| 27-Jul-18 | 20:43:00 | Sunny | Moose | NO | 3 | Female/2 Calves | Adult/Calves | Visual | Lower Pond | Feeding | Nothing seemed to bother them large truck went by and neither of them noticed |
| 27-Jul-18 | 21:20:00 | Good weather | Moose | NO | 3 | Female/2 Calves | Adult/Calves | Visual | Lower Pelly laydown road | Drinking water | N/A |
| 27-Jul-18 | 15:00:00 | N/A | Moose | NO | 3 | Female/2 Calves | Adult/Calves | Visual | Crusher Access road by the 90 day laydown | N/A | N/A |
| 27-Jul-18 | 03:00:00 | N/A | Porcupine | | 1 | Unknown | Adult | Visual | ADR Switchback | Running | Waddling |
| 27-Jul-18 | 19:00:00 | N/A | Moose | NO | 1 | Unknown | Adult | Visual | Fuel Farm | N/A | N/A |
| 29-Jul-18 | 07:20:00 | 12 Degrees Partly Cloudy | Moose | NO | 3 | Female/2 Calves | Adult/Calves | Visual | Crusher road 3rd Switchback | Walking/Running | Looking for spot to get off road, they seemed very nervous Mom was very alert |
| 29-Jul-18 | 20:00:00 | Good weather | Moose | NO | 1 | Female | Adult | Visual | Lower Pelly Laydown road | Walking | Walking towards pond with no babies |
| 29-Jul-18 | 18:00:00 | Hot/Sunny | Black Bear | | 3 | Female/2 Cubs | Adult/Pups | Visual | Access road km 40 | Ran | Ran off when we got close |
| 29-Jul-18 | 20:50:00 | 20 Degrees | Porcupine | | 1 | Unknown | Adult | Visual | Near shop by septic | Looked happy :) | N/A |
| 31-Jul-18 | 15:50:00 | Cloudy | Moose | NO | 1 | Unknown | Adult | Visual | Between Septic Field and Platnium | Running | Ran once it saw my truck, another vehicle coming from opposite direction, it ran up a steep bank into the trees |
| N/A | 16:10:00 | 18 Degrees Cloudy | Moose | NO | 1 | Male | Adult | Visual | Access road km 36 | Feeding/Drinking | Looked huge even at a distance |
| AUGUST | | | | | | | | | | | |
| 01-Aug-18 | 14:32:00 | 20 Degrees | Moose | NO | 1 | Female | Adult | Visual | Dublin Gulch rd km 4.5 | Walking | Stop to watch truck pass |
| 01-Aug-18 | 20:00:00 | Light rain | Moose | NO | 1 | Male | Adult | Visual | Access road km 34 | Running | Ran across road |
| 01-Aug-18 | 08:00:00 | Clear and warm | Moose | NO | 1 | Female/Calves | Adult/2 calves | Visual | Olive Switchbacks | Chillin then running | Slopes |
| 02-Aug-18 | 02:30:00 | Warm | Wolverine | | 1 | Unknown | Adult | Visual | Old Core Shack | Hiding | Hid under steps and saw my lights and went for the bush |
| 03-Aug-18 | 19:00 | N/A | Moose | NO | 1 | Female | Adult | Visual | Lower road pont | N/A | N/A |
| 03-Aug-18 | 07:45:00 | N/A | Moose | NO | 1 | Male | Adult | Visual | Next to creek | Feeding | Walking as if I was not there |
| 03-Aug-18 | 06:45:00 | N/A | Wolf | | 1 | Unknown | Adult | Visual | Access road km 31 | N/A | N/A |
| 18-Aug-18 | 15:00 | Good Weather | Black Bear | | 1 | Unknown | Unknown | Visual | Crusher Road | Walking | |
| 18-Aug-18 | 8:00 | Mild showers | Black Bear | | 1 | Unknown | Unknown | Visual | Side of Crusher Road | Walking | Shy; shot bear banger and it ran off |
| 23-Aug-18 | Unknown | | Raven | | 1 | Unknown | Unknown | Visual | Lower Pelly Laydown | | Wing was broken and unable to fly well |
| 23-Aug-18 | 11:20 | Cloudy, Rainy | Moose | NO | 1 | Male | 4 years | Visual | Potato Hills | Curious | Looking tastey |
| 24-Aug-18 | 10:30 | Rain and Overcast | Wolf | | 1 | Unknown | Unknown | Visual | Km 18 | Crossing road | |
| Unknown | 14:25 | Sunny, 22C | Black Bear | | 1 | Unknown | Unknown | Visual | Km 27.7 | Walking | |
| 26-Aug-18 | 8:45 | 10C, Sunny | Hare | | 1 | Unknown | Unknown | Visual | Km 37 | Running | |
| 26-Aug-18 | 9:00 | 10C, Sunny | Moose | NO | 1 | Female | Unknown | Visual | Km 28 | Feeding on a river bank | |
| 26-Aug-18 | 11:30 | 10C, Sunny | Grouse | | 1 | Unknown | Unknown | Visual | Km 30 | Flying | |
| 26-Aug-18 | 12:15 | 10C, Sunny | Porcupine | | 1 | Unknown | Unknown | Visual | Km 39 | Waddling | |
| 28-Aug-18 | 15:47 | 14C, Partly Cloudy | Wolf | | 2 | Unknown | Unknown | Visual | Km 13-14 | Walking on road | |
| SEPTEMBER | | | | | | | | | | | |
| 04-Sep-18 | 7:00 | 4C | Moose calf | NO | 2 | Female | Unknown | Visual | South Side Laarge Plant | | |

| DATE | TIME (24 HR) | WEATHER | SPECIES | SPECIES AT RISK | NUMBER OF ANIMALS | SEX (M/F) | AGE CLASS | TYPE OF SIGN OR VISUAL | Location | BEHAVIORS | ADDITIONAL COMMENTS |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 08-Sep-18 | 20:30 | Clear,Sunny | Moose, Calf | NO | 2 | Female | Unknown | Visual | Potatoe Hills | Walking | |
| 09-Sep-19 | 11:40 | clear, calm, 10C | Lynx | | 1 | Unknown | Unknown | Visual | camp access rd | sitting | |
| 09-Sep-18 | 17:03 | Clear,Sunny | Lynx | | 1 | Unknown | Unknown | Visual | Crusher Road | Not timid, casually walking away | |
| 09-Sep-18 | 19:14 | Cloudy,Cool | Moose | NO | 2 | Unknown | Unknown | Visual | KM23 | Feeding across the wetlands | |
| 09-Sep-18 | 20:23 | Windy, cold | Black bear | | 3 | Mother, cubs | | Visual | West of potato hills | Walking | |
| 10-Sep-18 | 21:29 | Windy,Cold | Moose | NO | 1 | Male | Adult | Visual | Poatao Hills | Feeding | |
| 10-Sep-18 | | | Black Bear | | 2 | Unknown | cubs | Visual | KM 28 | | |
| 10-Sep-18 | | | Moose | NO | 1 | Unknown | Unknown | Visual | KM34 | | |
| 11-Sep-18 | 6:30 | ? | Lynx | | 1 | Unknown | Unknown | Visual | By camp | Running | |
| 11-Sep-18 | 20:00 | Clear,Sunny | Lynx | | 1 | Unknown | | Visual | Site servies access road | Crossed roadway | |
| 11-Sep-18 | 9:00 | Cool, Cloudy | moose | NO | 1 | male | Unknown | Visual | km 36-37 | running | |
| 21-Sep-18 | 12:40 | 4C,clear,sunny | Grouse | | 1 | Unknown | adult | Visual | Iron Rust Roadd | Flying away | |
| 21-Sep-18 | ? | ? | Lynx | | 1 | Unknown | Unknown | Visual | Forest across from top of bypass | Walking | |
| 28-Sep-18 | 22:20 | | Lynx | | 1 | Unknown | Unknown | Visual | Dublin Old School | | Bank Walking |
| 28-Sep-18 | 18:30 | Overcast/Sunny | Wolf | | 1 | Unknown | Unknown | Visual | Security North 0.5km | | Crossed road and headed up hill/slope |
| 29-Sep-18 | 23:55 | Cold | Moose | | 1 | Unknown | Unknown | Visual | Platinum to Shop RD | Running | Road |
| OCTOBER | | | | | | | | | | | |
| 02-Oct-18 | 9:15 | | Wolf | | 2 | Unknown | Unknown | Visual | Access Road km 10.5 | Ttraveling | Seemed relaxed |
| 02-Oct-18 | 8:30 | Nice day | Wolf | | 2 | Unknown | Unknown | Visual | Access Road km 10.5 | | |
| 04-Oct-18 | 23:00 | minus 2 Clear | Porcupine | | 1 | Unknown | Unknown | Visual | Dublin Road km 1 | Walking | Walking on road close to forest |
| 10-Oct-18 | 9:00 | Snowing | Collard Pika | | 1 | Unknown | Unknown | Visual | Between Vic Gold/JDS | Running Under Trailer | |
| 16-Oct-18 | 14:30 | +5, clear, snow cover | Grouse | no | 10 | Unknown | Unknown | Visual | Potato Hills | Flew away after noticing presents | |
| 19-Oct-18 | 16:15 | Shitty | Lynx | no | 1 | Unknown | Unknown | Visual | Between WSL and Bypass | Calm, prolly hunting rabbits | |
| 31-Oct-18 | 16:52 | Overcast with light snow | Black wolf | no | 1 | adult | Unknown | Visual | Access road km 6.25 | Walking off road | |
| 31-Oct018 | 10:00 | -11 | Fox | no | 1 | Unknown | Unknown | Visual | access road km 43 | Running | Crossing road |
| 31-Oct-18 | ? | Overcast with light snow | Wolf | no | 1 | Adult | Unknown | Visual | Access rooad km 10 | ? | |
| NOVEMBER | | | | | | | | | | | |
| 01-Nov-18 | ? | Overcast | Lynx | no | 1 | Adult | Unknown | Visual | Access road km 42 | ? | |
| 01-Nov-18 | 21:45 | Cold and snowy | Lynx | no | 1 | Adult | Unknown | Visual | By the Security Gate | ? | |
| 01-Nov-18 | 15:00 | ? | Lynx | | 1 | adult | Unknown | Visual | Lower camp | ? | |
| 03-Nov-18 | 17:30 | sun no wind | Lynx | no | 1 | Adult | | Visual | Lower Laydown | Watching me | Watched me from behind the truck for about 3 minutes and was not scared seemed very curious |
| 03-Nov-18 | 5:30 | -20 | Lynx | no | 2 | adult | Unknown | Visual | WMA | Watching across RD to bush | Two lynx spotted same time different location |
| 03-Nov-18 | 10:00 | cold | Lynx | NO | 1 | Adult | Unknown | Visual | Warehouse tents | Traveling | |
| 06-Nov-18 | 16:15 | -25 | Lynx | | 1 | adult | Unknown | Visual | Just pass secondary | walking then ran off | looked interested in something then ran off |
| 06-Nov-18 | 5:20 | ? | Fox | | 1 | Unknown | Unknown | Visual | Secondary | Walking Around | |
| 09-Nov-18 | ? | Cold | Lynx | | 1 | Unknown | Unknown | Visual | Bridge beside Lafarge | ? | One with a mouse in his mouth |
| 09-Nov-18 | 10:00 | ? | Fox | | 1 | Unknown | Unknown | Visual | under kitchen | looking around | |
| 10-Nov-18 | 9:30 | Warm | Fox | no | 1 | Unknown | Unknown | Visual | Front enterance | Looking for food sniffing | Sniffing the buckets on back of truck |
| 11-Nov-18 | 15:00 | Snowing | Fox | | ? | Female | Adult | Visual | By the kitchen | ? | |
| 12-Nov-18 | 23:00 | Snowing | Fox | | 1 | Unknown | Unknown | Visual | Outside G bunk | just sniffing around | |
| 12-Nov-18 | 6:30 | ? | Lynx | | 1 | Unknown | Unknown | Visual | Green bin | Paw print | Workers/crew concerned. Paw print going towards hoarding |
| 18-Nov-18 | 9:30 | -18 | Fox | | 1 | Unknown | Unknown | Visual | Crusher area | Searching | Wasjust minding his buisness looking for something |
| 18-Nov-18 | 18:00 | ? | Black bear | | 1 | Unknown | Unknown | Visual | Primary | Walking toward ore bin | From primary on upper lift |
| 21-Nov-18 | 13:30 | -10, light snow, cloudy | wolverine | no | 1 | Unknown | Unknown | Visual | KM 35 | Normal | |
| 22-Nov-18 | 11:45 | ? | Wolverine | | 1 | Unknown | Unknown | Visual | Access road km 35 | ? | heard it called on the radio from security gate |
| 24-Nov-18 | 18:00 | -9, clouds | Lynx | no | 1 | Unknown | Unknown | Visual | Larfarge | Crossing road | Calm |
| 25-Nov-18 | 14:46 | overcast -4 | Lynx | | 1 | Unknown | Unknown | Visual | field swamp | hunting | not nervous of humans |
| 29-Nov-18 | 15:00 | Freezing rain | Fox | | 1 | Unknown | Unknown | Visual | Primary crusher Access road | Feeding | Eating a sandwich |
| ? | 9:00 | Cold asf | fox | no | 1 | Unknown | Unknown | Visual | Outside H Dorm | Staring at me | DON'T feed em! |
| 25-Nov-18 | 7:45 | minus 6 cloudy | Pine Martin | NO | 1 | Unknown | Unknown | Visual | Access road km 2 | Running | Running into the woods |
| DECEMBER | | | | | | | | | | | |
| 05-Dec-18 | 7:30 | -15 | Lynx | No | 1 | M | Unknown | Visual | Hagard creek roadway | Walking | walking on roadway |
| 05-Dec-18 | 7:30 | -15 | Lynx | no | 1 | Unknown | Unknown | Visual | Haggart creek road | walking on roadway | |
| 10-Dec-18 | 10:00 | Sunny | Pine Martin | NO | 1 | Unknown | Unknown | Visual | Access road km 30 | Runnin | |
| 07-Dec-18 | 16:00 | minus 5 | Wolf | NO | 2 | Unknown | Unknown | Visual | Access road km 14 | Slow trot | Slow trot to bush line |

# APPENDIX R

## 2018 Late-Winter Moose Distribution Survey

# Eagle Gold Project: 2018 Late-Winter Moose Distribution Survey

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ENVIRONMENTAL DYNAMICS INC.
Down to Earth Biology

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# EXECUTIVE SUMMARY

Following advanced exploration activities and obtaining regulatory approvals, Victoria Gold Corp.'s Eagle Gold Mine (the Project) is advancing to the construction stage. As part of their operating licence terms and conditions, Victoria Gold is required to conduct annual winter moose surveys within 10 km of the Project footprint.

The primary objective of this study was to document the distribution and abundance of moose during the late-winter season to inform adaptive management strategies to mitigate Project effects on moose. The 2018 survey is the first construction phase survey completed at the Eagle Gold Mine and builds on the baseline/pre-construction studies conducted from 2011 to 2013.

The 2018 aerial survey was conducted in the late-winter on 5 and 6 March 2018. A total of 10.8 hours of flight time was required to complete the moose survey resulting in a survey intensity of 0.49 min/km² which is consistent with standard intensive stratification survey protocols required for adequate coverage. A total of 100 moose were observed during the survey of which 75 were observed within the study area boundary. Most moose were observed as individuals or pairs.

The number of moose observed within the survey area in 2018 was higher than in previous surveys Potential factors for the variation in moose numbers could include observer bias and seasonal variability in the regional distribution of moose. The latter can be influenced by annual and regional variations in snow characteristics such as depth and hardness and could also be the result of high wolf activity preceding the survey within or near habitats seasonally important to moose. Moose distribution also differed from previous surveys where moose were often located in moderate to low elevation habitats. In 2018, most moose were located in moderate elevation burns to subalpine shrubs and spruce. No moose were located in the South McQuesten River and Haggart Creek valleys where moderate to high densities of moose are usually located.

# ACKNOWLEDGEMENTS

The 2018 Eagle Gold Project moose survey was completed with the assistance from Lindsay Rear (Victoria Gold Corp.), Stephan Walke (First Nation of Na-Cho Nyäk Dun), and Andrew Swenson (Alpine Aviation). Their professionalism, vigilance, and companionship during the survey were greatly appreciated.

# AUTHORSHIP

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# ACRONYMS AND ABBREVIATIONS

FNNND ..... First Nation of Na-Cho Nyäk Dun

the Project ..... the Eagle Gold Project

VIT ..... Victoria Gold Corporation

YESAA ..... Yukon Environmental and Socio-economic Assessment Act

YG ..... Yukon Government

ZOI ..... Zone of Influence

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# 1 BACKGROUND

Following advanced exploration activities and obtaining regulatory approvals, Victoria Gold Corp.'s (VIT) Eagle Gold Mine (the Project) is advancing to the construction stage. As part of their operating licence terms and conditions, Victoria Gold is required to conduct annual winter moose surveys within 10 km of the Project footprint. The Eagle Gold Mine will produce ore from a conventional open pit operation and gold recovery plant. The Project is located approximately 85 km by road from the village of Mayo and VIT has year-round road access to the site. The Eagle Gold Project has received all major permits required for construction and operations following the Environmental Assessment process.

As part of the environmental assessment completed under *YESAA*, VIT committed to conduct annual winter moose distribution surveys. Commitment #35 from Appendix A of the YESAB Screening Report and Recommendation (YOR 2010-0267-358-2) states:

> *VIT will implement annual aerial mapping of winter moose distribution within 5 km of the access road and mine site and in adjacent control areas. This will be conducted before construction (in 2011 and 2012), during construction, and during mine operations, to allow assessment of displacement and population reduction resulting from mine activities, and adaptive management measures if negative effects occur.*

Commitment #35 is re-iterated in the Final Screening Report and Recommendation issued by YESAB February 13, 2013. However, the YESAB recommendation specifies that the survey area be extended to 10 km from Project infrastructure. This recommendation was initially proposed August 24, 2011 by Environment Yukon's Environmental Programs Branch (YOR 2010-0267-197-1). It was recommended that the study design change to delineate a zone of influence (ZOI) extending 5 km from the Project area and access road and that a survey area extending from 5 km to 10 km beyond the ZOI be treated as the "control" area. This study design, referred to as before-after control-impact (BACI), is intended to detect changes in moose distribution near Project infrastructure due to unanticipated Project effects.

In their Screening Report and Recommendation issued on February 19, 2013, YESAB recommended to the Yukon Government that this commitment become a Term and Condition which was supported by the Yukon Government in their Decision Document (YOR 2010-0267-361-1). Term and Condition #99 states:

> *The Proponent shall, in cooperation with Government of Yukon, Department of Environment, design and conduct annual winter moose surveys consistent with methodology and study area (ten kilometres from infrastructure) used in 2011.*

Moose are the most common ungulate species in the region and occur in the Project area during all seasons. The most critical season for moose is late-winter (January–April) when availability and access to food is most limited. The Project area is identified as important moose habitat by local residents and contains some higher quality early successional and lower elevation winter habitat. Winter habitats of particular importance are the South McQuesten River and Haggart Creek valleys (Stantec Consulting Ltd. 2011b).

Studies examining the effects of disturbance on the distribution and behaviour of moose along access corridors found that these effects were limited to within 1000 m of the corridors (Colescott and Gillingham

1998, Yost and Wright 2001, Laurian et al. 2008, 2012, Shanley and Pyare 2011). If avoidance of habitat due to mining related activities was observed, this data would be useful in understanding moose distribution near and on the access road in order to implement additional mitigation measures to reduce traffic/moose interactions and potential of vehicle collisions.

In consultation with Environment Yukon, VIT agreed to conduct late-winter moose distribution monitoring relative to the Project infrastructure for a total of five years including 2 years pre-construction, 2 years of construction phase, and the first year of operations (email communication with Mark O'Donoghue, Northern Tutchone Regional Biologist, on 5 August 2010). The study was designed by Environment Yukon to monitor moose distribution within the ZOI of the proposed mine site (0 to 1 km), and to include a control area well outside of the ZOI (5 to 10 km). If no effects were observed after five years of monitoring, the parties agreed that the frequency of this monitoring could be reduced during subsequent years of the operations phase (email communication with Mark O'Donoghue, Northern Tutchone Regional Biologist, on 5 August 2010).

To date, moose surveys were conducted in early-March of 2011, 2012, and 2013. The 2011 baseline moose distribution survey was conducted in March 2011 by Stantec (Stantec Consulting Ltd. 2011a) using a 10 km buffer from the Project and access road footprints. The 2012 and 2013 surveys were conducted by EDI Environmental Dynamics Inc. (EDI) using the 2011 survey methodology and study area as per Term and Condition #99 (EDI Environmental Dynamics Inc. 2012, 2013). However, in consultation with the Environment Yukon Regional Biologist for the Northern Tutchone Region, EDI made some slight modifications to the survey methodology to improve efficiency, moose detection rates, and crew safety while maintaining the same survey intensity.

This report presents and compares the results of the 2018 late-winter moose distribution survey with those of previous surveys. The 2018 survey follows the three baseline/pre-construction and represents the first construction phase survey upon which subsequent surveys will be compared to evaluate potential changes in moose distribution and abundance in the survey area.

# 2 METHODS

## 2.1 SURVEY AREA

The Project is located approximately 45 km north of Mayo. In 2011, a 1,130 km² survey area was generated by applying a 10 km buffer to the proposed mine site and the access road footprints. In 2012, the size of the survey area was increased by 10 km² to accommodate a modified Project footprint. In 2013, a survey grid comprised of 5 minutes longitude by 2 minutes latitude blocks (approximately 4 x 4 km at this latitude) was developed to guide survey intensity. This method also aligns with the methods used by the Yukon Government for moose stratification (distribution) surveys (Environment Yukon 2010, O'Donoghue et al. 2014). The addition of blocks at the edge of the survey area increased the size of the survey area from 1,140 km² to 1,320 km². The 2018 survey followed the same survey design as the 2013 survey (Map 1).

Most of the survey area is suitable moose habitat except for small portions of rock cliffs and scree on Mount Haldane and other hill tops as well as a few small lakes. The Silver Trail Highway, which extends from Mayo to Keno City, cuts across the southeast corner of the study area. Major geographic features of the area include the valley and riparian flats of the South McQuesten River as well as Mount Haldane, a prominent mountain in the region.

The survey area lies entirely within the Yukon Plateau North ecoregion (Yukon Ecoregions Working Group 2004). The survey area consists of rolling highlands with a generally northeast-southwest orientation dissected by numerous small creeks. Vegetation cover is predominantly boreal but ranges from boreal to alpine. Alpine environments are characterized by low ericaceous shrubs, small willows (*Salix sp.*), and lichens. Subalpine environments are typically vegetated with willow and shrub birch (*Betula glandulosa*) with scattered white spruce (*Picea glauca*) and subalpine fir (*Abies lasiocarpa*). At lower elevations, black spruce (*P. mariana*) and white spruce forests grow over moist sites. Trembling aspen (*Populus tremuloides*), lodgepole pine (*Pinus contorta*), and white spruce stands grow in warmer and better-drained sites. Some nearly pure deciduous stands comprised primarily of birch and aspen can be found on south aspect slopes in southeastern portions of the study area. A riparian flat approximately 3 km wide dominated by a mix of shrub lands, grasslands, and black spruce can be found along the South McQuesten River.

The survey area is located near the Tintina Trench, which has a high incidence of thunderstorms. Consequently, the study area has a complex and diverse forest fire history contributing to the high diversity of forest covers. These burned areas have variable habitat suitability for moose depending on their age, elevation, and intensity of the burn. Two large fires have occurred recently in the study area. The most recent is a 2005 fire that burned 55 km² of forest in the headwaters of Shanghai Creek north of the South McQuesten River and that extended west to the Project area. A 1998 fire that burned 71 km² of forest from Hanson Lake to Skate Creek only partially overlaps with the study area. Other smaller fires, mainly from the mid-1990s, are scattered throughout the area.

Mean annual temperatures are –5°C, but temperatures vary widely by season and elevation. Mean January temperatures range from below -30°C in the lower valleys to above -20°C over higher terrain. This gradient

shifts in July when mean temperatures are 15°C in the valley bottoms and 8°C over higher terrain. Rain and snowfall is moderate in the region and annual precipitation amounts range from 300 to 600 mm. Winds are usually light, and only moderate to strong in thunderstorms or unusually active weather systems.

## 2.2 SURVEY DETAILS

The survey took place 5 and 6 March 2018. Surveyors included Andrew Swenson (pilot, Alpine Aviation), Alain Fontaine (navigator, EDI), Lindsay Rear (observer, VIT) and Stephan Walshe (observer, FNNND). The survey was completed with a Cessna 206 (C-FBVA) flown at 120–150 km/hr and an elevation of 100–200 m above ground level.

The design of the 2011 moose survey included forty east-west transects spaced at 1 km intervals (Stantec Consulting Ltd. 2011a). Flight lines followed the planned transects to the extent possible based on flight and terrain conditions. In 2012, EDI adjusted the survey methods used in the 2011 survey to increase their efficiency, moose sightability, and safety in mountainous terrain while maintaining the same survey intensity. The method used the same transect spacing (1 km) but did not restrict the survey crew to predetermined east-west transect lines. Instead, the survey crew flew linear transects (generally east-west) when flying over terrain with moderate topography but adjusted transects to follow contour lines over terrain with more relief and topography. This allowed the aircraft to fly at a more consistent height and speed and minimized crew discomfort which generally improves ungulate detection rates.

In 2013 and 2018, survey blocks were used to guide survey intensity while providing flexibility to fly according to terrain. This alteration in methodology improves comparability among years and with other moose surveys conducted by Environment Yukon (Environment Yukon 2010). Blocks were used to confirm that a minimum of four passes were flown through each block, which is equivalent to 1 km transect spacing and similar to previous surveys. As per the 2012 survey, linear north-south and east-west transects were flown over terrain with moderate topography while terrain guided transects in areas with more relief. A limitation of moose distribution surveys is a sightability bias toward open habitat. Moose are more easily observed in open habitat compared to dense cover and open habitat are often composed of early seral stage vegetation (i.e., burns) that contain higher browse quality (i.e., shrubs). Furthermore, monitoring of moose distribution via annual aerial surveys provides a snapshot in time of moose abundance and distribution that can be influenced by weather, snow conditions, and predation risk.

During the survey, observers recorded all moose and fresh moose track observations as well as any incidental wildlife sightings. All moose tracks and observations were recorded as waypoints using a handheld GPS (Garmin GPSMAP 64). Wildlife observations documented the species and number of animals in the group and, when possible, the age class (adult/calf) and sex of the animals. However, it is generally difficult to classify animals by age and sex during moose distribution surveys given the speed and elevation of fixed-wing aircraft. Therefore, most moose were unclassified. We estimated the distance and direction of animals relative to the position of the plane when the waypoint was recorded to correct the spatial location. Only fresh tracks that crossed directly under the flight path of the aircraft were recorded during the survey.

Consequently, tracks did not require spatial correction. The track recording protocol is consistent with methods developed by Environment Yukon for collecting moose track data (Environment Yukon 2011). The observed tracks were categorized as one, two, several (three to five), or many (more than five) track sets to indicate the relative number of animals.

## 2.3 SURVEY CONDITIONS

Survey conditions in 2018 were ideal for aerial wildlife surveys (Table 1). Weather conditions were consistent throughout the survey; winds were calm, clouds were high with low to moderate cover, light conditions were generally bright which helped to detect and assess the relative age of moose tracks (fresh vs old), and temperatures ranged from -10°C to -20°C. Light snow and low ceilings delayed the start of the survey on 6 March but conditions were clear by the time we started the survey. Survey conditions were also ideal for aerial wildlife surveys in 2012 and 2013 but old snow and flat light during afternoons in 2011 made it more difficult to sight moose (Table 1).

**Table 1. Survey conditions during the 2011-2013 and 2018 late-winter moose distribution surveys at the Eagle Gold Project.**

| Survey Conditions | 2011 | 2012 | 2013 | 2018 |
|---|---|---|---|---|
| Date | 7-9 March | 7-8 March | 4-6 March | 5-6 March |
| Snow Condition | Old (> 2 weeks) | Lots of fresh snow prior to survey | ~10 days old | Some fresh snow prior to survey and on morning of 6 March |
| Cloud Cover | Clear in morning changing to overcast by late afternoon on all days | Clear to slightly overcast on 8 March | Clear | Clear on 5 March; clear in morning changing to slightly overcast by mid-afternoon on 6 March |
| Light | Bright in morning to flat by late afternoon | Bright | Bright | Bright |
| Wind | Light to moderate | Calm | Calm | Calm |
| Temperature | -35°C to -17°C | -30°C to -10°C | -27°C to -10°C | -20°C to -10°C |
| Comment | Old snow and flat afternoon light made it difficult to sight moose | Considerable snow fall in days prior to survey | Delayed both mornings due to low fog | Light snow and low ceiling delayed start of survey on second day |

# 3 RESULTS AND DISCUSSION

A total of 12.0 hours of flight time was required to complete the survey of which 10.8 hours was spent surveying moose and 1.2 hours was needed to ferry between the survey area and Mayo. In addition, approximately 3 hours of ferry time was required to mobilize and demobilize the aircraft between Whitehorse and Mayo.

Survey intensity was consistent across years and ranged from 0.49 min/km² in 2018 to 0.53 min/km² in 2011 (Table 2). A survey intensity of 0.4 to 0.5 min/km² is required for adequate coverage of the study area and for consistency in comparing survey results between years and with other surveys across Yukon (Environment Yukon 2010). In total, 100 moose were observed during the survey of which 75 were observed within the study area boundary (Table 2). Most moose were observed as individuals or pairs with few observations of groups of three or four moose.

The number of moose observed within the survey area in 2018 was much higher than in previous surveys (Table 2). Potential factors for the variation in moose numbers could include observer bias and a change in the regional distribution of moose. The latter can be influenced by annual and regional variations in snow characteristics such as depth and hardness and could also be the result of high wolf activity preceding the survey within or near habitats seasonally important to moose.

**Table 2. Survey intensity and moose observations within the survey area for the 2011-2013 and 2018 late-winter moose distribution surveys at the Eagle Gold Project.**

| Year | Survey Intensity (min/km²) | Study Area (10 km buffer) | Total Moose Observed[1] |
|---|---|---|---|
| 2011 | 0.53 | 26 | 31 |
| 2012 | 0.52 | 48 | 61 |
| 2013 | 0.50 | 39 | 74 |
| 2018 | 0.49 | 75 | 100 |

[1]Inlcudes moose observed just outside study area, within the survey grid (2013 and 2018), and incidental moose observations in transit to and from Mayo.

Typically in Yukon, as winter progresses and snow depth increases, moose move from subalpine habitats to valley bottoms (O'Donoghue 2005, O'Donoghue et al. 2014). Local knowledge and results from Environment Yukon surveys confirm that moose in this region exhibit this typical seasonal movement from higher to lower elevation as winter advances (Stantec Consulting Ltd. 2011b, O'Donoghue et al. 2014). Although moose are well adapted to snow environments, characteristics of snow such as temperature, density, hardness, and depth, influence moose movement and habitat use (Peek 2007). Snow depth is the most frequently studied variable and depths of 70 to 99 cm have been shown to restrict moose movement (Kelsall 1969, Telfer 1970, Peek 2007).

However, despite snow depth in the range typical of those restricting moose movement (Table 3), at the time of the survey moose did not follow this pattern of altitudinal migration in 2018. High concentrations of

moose were observed on moderate and higher elevation burned plateaus on the eastern side of the survey area, namely within the 2005 Shanghai Creek drainage burn (blocks 34, 35, and 44) and in the portion of the 1998 Hanson Lake burn that overlaps the northeastern corner of the study area (blocks 19 and 27; Map 1). We also observed small clusters of moose in the small mid-1990's burns along the southern boundary of the study area. A relatively high concentration of moose was observed in a series of high elevation ridges running predominantly southwest-northeast between Haggart Creek and Red Mountain. In this broad area, moose were observed in mixed shrub and spruce in subalpine or near subalpine areas. Moose and/or fresh tracks were observed throughout the survey area; however, very few fresh moose tracks were observed near creek bottoms or river valleys. We saw no moose and few fresh tracks within the South McQuesten River flats and the Haggart Creek valley; both valleys are reported to be important for moose in late-winter (Stantec Consulting Ltd. 2011b) and are overlapped in part by a moose late-winter key area (Map 1).

We present moose densities rather than the total number of moose observed within each distance buffer to provide a better basis for comparison because the area of each buffer gets progressively larger as they get further away from the Project footprint. Selecting a moose density relative to a 100 km² area rather than per 1000 km² as they are generally reported by Environment Yukon maintained the densities relatively close to the total numbers we observed since the area covered by the buffers ranged from 104 to 130 km².

Moose densities of 0 moose per 100 km² were observed within 1 km of the proposed Project footprint along the Haggart Creek Access Road and existing advanced exploration camp in 2018, compared to 11.2 moose per 100 km² in both 2013 and 2012, and 6.1 moose per 100 km² in 2011 (Figure 1). The Haggart Creek valley contains abundant browse and cover that moose select for winter habitat. Human disturbance adjacent to the Haggart Creek Access Road has created similar high-quality habitat because of clearing associated with the road right of way and historic placer mining operations. Moose are likely to continue to use these areas as late-winter habitat; however, the intensity of use appears to be highly variable between years. Human activity along the access road and at the Project site during the winter 2018 survey was similar to that of previous surveys; construction activities occurred from August to October 2017 and were started again in April 2018. Therefore, construction activities did not influence moose distribution in early-March 2018.

The distribution of moose observed within the survey area changed throughout all survey years (Map 2). However, some important areas are noticeably important across survey years such as the 2005 Shanghai Creek burn, the 1998 Hanson Lake burn, the high elevation ridges between Red Mountain and Haggart Creek, and small burns along the southern edge of the study area. Moose made greater use of low elevation habitats during the 2011 to 2013 surveys; few moose were observed at low elevation during the 2018 survey. During the 2011 survey, moose were observed scattered throughout the survey area with the majority of animals occurring at mid to lower elevations east and south-east of the mine site between Lynx Creek and the South McQuesten River. During the 2012 survey, moose continued to be observed using the mid to low elevations, but were primarily observed in old burns, and west of the Haggart Creek Access Road and the existing advanced exploration camp operated by VIT. In 2013, moose were again observed in mid to low

elevation areas; however, most observations were east of the Haggart Creek Access Road and the camp in the moderate elevation burns (Map 2).

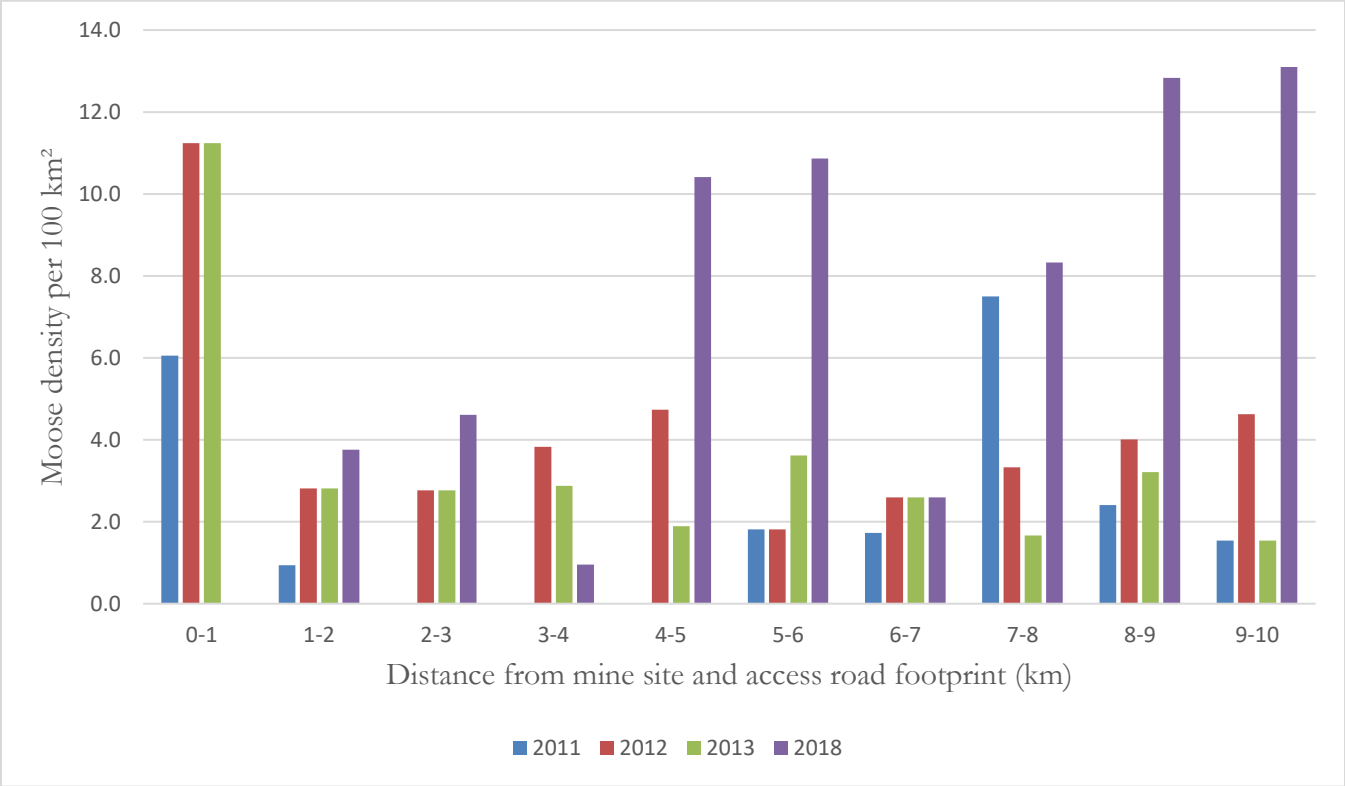


**Figure 1. Moose density per 100 km² at 1 km intervals within 10 km of the Eagle Gold Project infrastructure during late-winter 2011, 2012, 2013, and 2018 moose surveys.**

Yearly variation in the distribution of large ungulates is common. Food availability, snow depth, and risk of predation affect late-winter moose distribution (Dussault et al. 2005). Food availability is assumed to be constant year over year because there have not been major changes to moose habitat in the survey area during the survey years. We obtained snow depth data from the Water Resources Branch, Environment Yukon, for the snow course survey stations nearest to the Project (Mayo A, Mayo B, and Calumet). Snow depth was also measured at two climate stations within the Project area: Potato Hills (alpine) and Camp (valley bottom); however, the snow sensors at these two locations were not functioning at the time of the survey in 2013.

Snow depth at the end of February was 83 cm at the Calumet snow station (elevation 1310 m; Table 3) and 90 cm at VIT's Potato Hills meteorological station. The Calumet snow station is generally more representative of snow conditions in the Project area than the Mayo A and B snow stations; the latter are at lower elevations and are subject to wind scour and human disturbance related to airport activities (Email communication on 27 April 2018 with Steve Therriault, Energy, Mines and Resources, and Jonathan Kollot,

Environment Yukon). Regionally, snow depth in 2011, 2012, and 2013 was above average while 2018 was average for the region (Table 3). Furthermore, snow depth at stations located at higher elevations (Potato Hill, Calumet) was much deeper than those recorded at stations located at lower elevations (Camp, Mayo A and B; Table 3). This higher than average snow depth from 2011 to 2013, especially at higher elevations, might explain the greater use of moderate to low elevation habitats by moose in earlier surveys relative to 2018. However, snow depth in all years were higher than those reported to affect moose distribution.

**Table 3. Snow depth for 2011, 2012, 2013, 2014, and 2018 at weather stations within or near the Eagle Gold Project.**

| Year | VIT Camp (cm) | VIT Potato Hills (cm) | YG Mayo Airport A (cm)[1] | YG Mayo Airport B (cm)[1] | YG Calumet (cm)[1] |
|---|---|---|---|---|---|
| 2011 | 55 | 105 | 55 | 55 | 88 |
| 2012 | 50 | 126 | 51 | 64 | 94 |
| 2013 | n/a[2] | n/a[2] | 62 | 60 | 87 |
| 2014 | 57 | 98 | 53 | 55 | 82 |
| 2018 | 54[3] | 90[3] | 40 | 46 | 83 |
| 2009-2018 Average | n/a | n/a | 50.1 | 52.2 | 82.7 |
| 1987-2018 Average | n/a | n/a | 50.7 | 52.0 | 85.5 |

[1]Snow depth data for the Mayo A, Mayo B, and Calumet snow course stations were obtained from the Water Resources Branch, Environment Yukon.
[2]The snow sensors at the Camp and Potato Hills climate station were not functioning at the time of the 2013 survey.
[3]Data recorded on 3-4 April 2018.

## 3.1 INCIDENTAL OBSERVATIONS

Caribou cratering (i.e., digging in snow for forage and mineral rich water) was observed in a wetland complex along the South McQuesten River approximately 14 km southeast of the Project. The tracks and cratering in the snow were old since they had been snowed over on a few occasions prior to the observation but appeared to be from a moderate size group of animals (i.e., 8 to 12 caribou). A snow covered east-west travel trail from around the same time period based on snow deposition and thought to be from a group of caribou was observed on the ridge line between the South McQuesten River and the Project.

Caribou or caribou tracks were not observed during the 2011 and 2012 late-winter surveys. However, a group of five woodland caribou was observed in 2013 in an alpine area on Red Mountain which is located on the western edge of the survey area approximately 10 km from the Haggart Creek Access Road. In the Terrestrial Wildlife Environmental Baseline Report submitted to the Executive Committee as part of the Project Proposal, local knowledge indicated that caribou were known to occur in the Red Mountain area (Stantec Consulting Ltd. 2011b). However, based on the distribution of herd ranges in the region, caribou are expected to be an uncommon occurrence in the study area. The closest woodland caribou herd to the survey area is the Clear Creek caribou herd located approximately 8.5 km to the west of the study area boundary. A 2001 survey estimated the herd to be composed of 900 caribou (Environment Canada 2012).

We did not observe any wolves during the 2018 survey. However, wolf tracks, fresh and old, were common throughout the lower elevation creek and river valleys. The flats along the South McQuesten River had high densities of wolf tracks especially in the blocks west of the access road. This area also had high densities of old moose tracks but few fresh tracks were observed. No wolves were observed in 2011 and 2012; however, three packs were observed in 2013 (EDI Environmental Dynamics Inc. 2013). Two of the packs observed in 2013 were in the vicinity of the South McQuesten River area where we observed high densities of wolf tracks in 2018. Survey notes from 2013 also indicate that the survey crew observed high densities of wolf tracks in the South McQuesten River and Haggard Creek valleys.

# 4 CONCLUSIONS

The data collected as part of the 2011–2013 moose surveys were intended to reflect the baseline pre-construction distribution of moose in the study area while those of the 2018 survey were collected near the end of a 5-month halt during the construction phase. A potential effect of mine construction and operation activities may be sensory disturbance which could result in the avoidance of habitat within a zone of influence (ZOI) around the mine site and access road.

Slight changes in distribution and density were expected among years as a result of dynamic habitat variables and predation risk. However, although some areas appear to hold higher moose densities, overall moose distribution to date has been highly variable between years. No moose were observed within 1 km of the Project footprint in 2018 during a 5-month halt in construction activities and unmaintained road access conditions. If the 2018 survey had occurred during ongoing construction activities or the operation phase, a potentially erroneous conclusion could have been drawn that disturbance due to Project activities or facilitated harvest due to improved road access had led to complete avoidance or depletion of the population within 1 km of the Project footprint.

Data obtained from the surveys will be used to inform adaptive management measures to mitigate the potential effects of the Project on moose.

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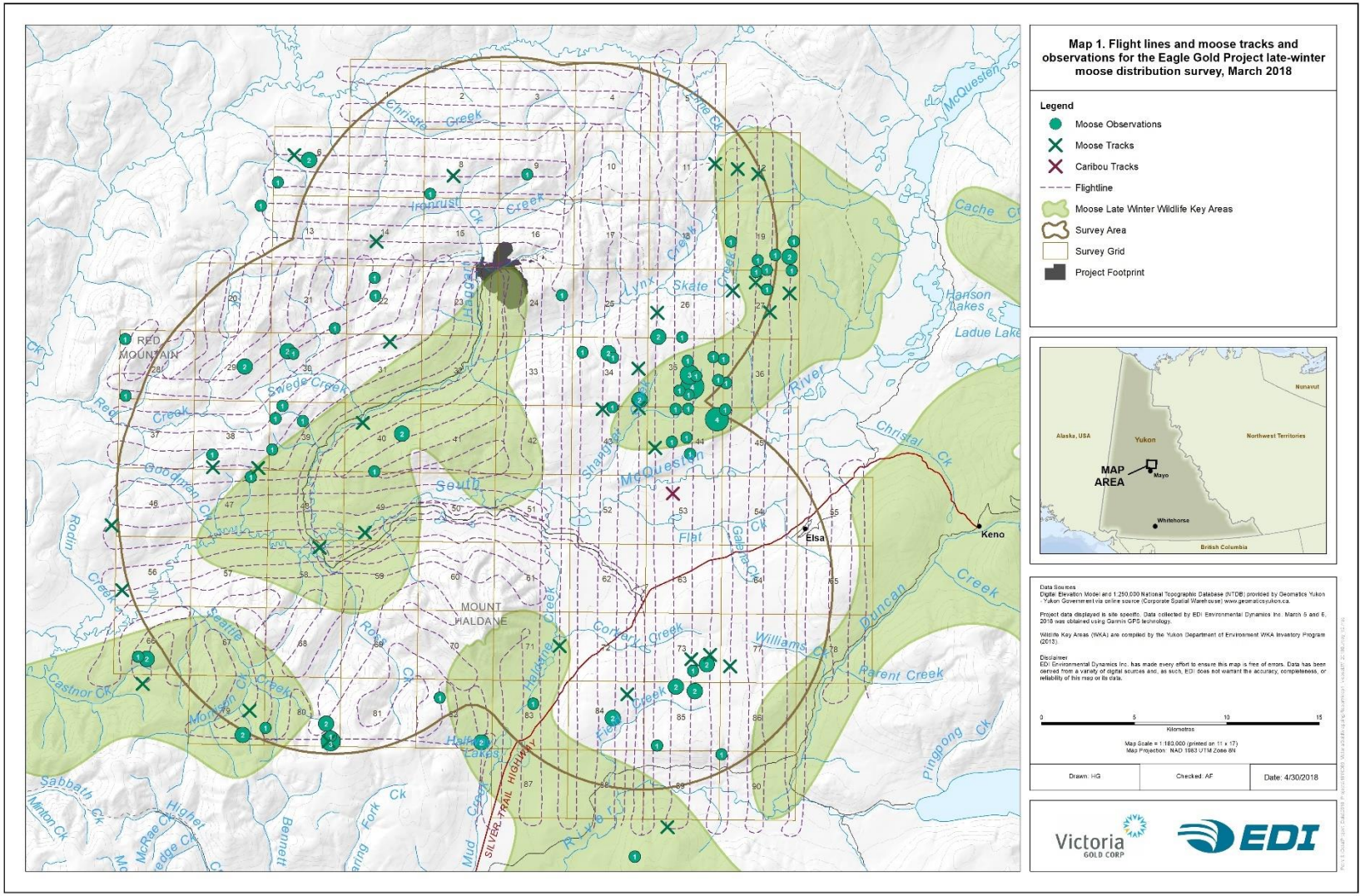
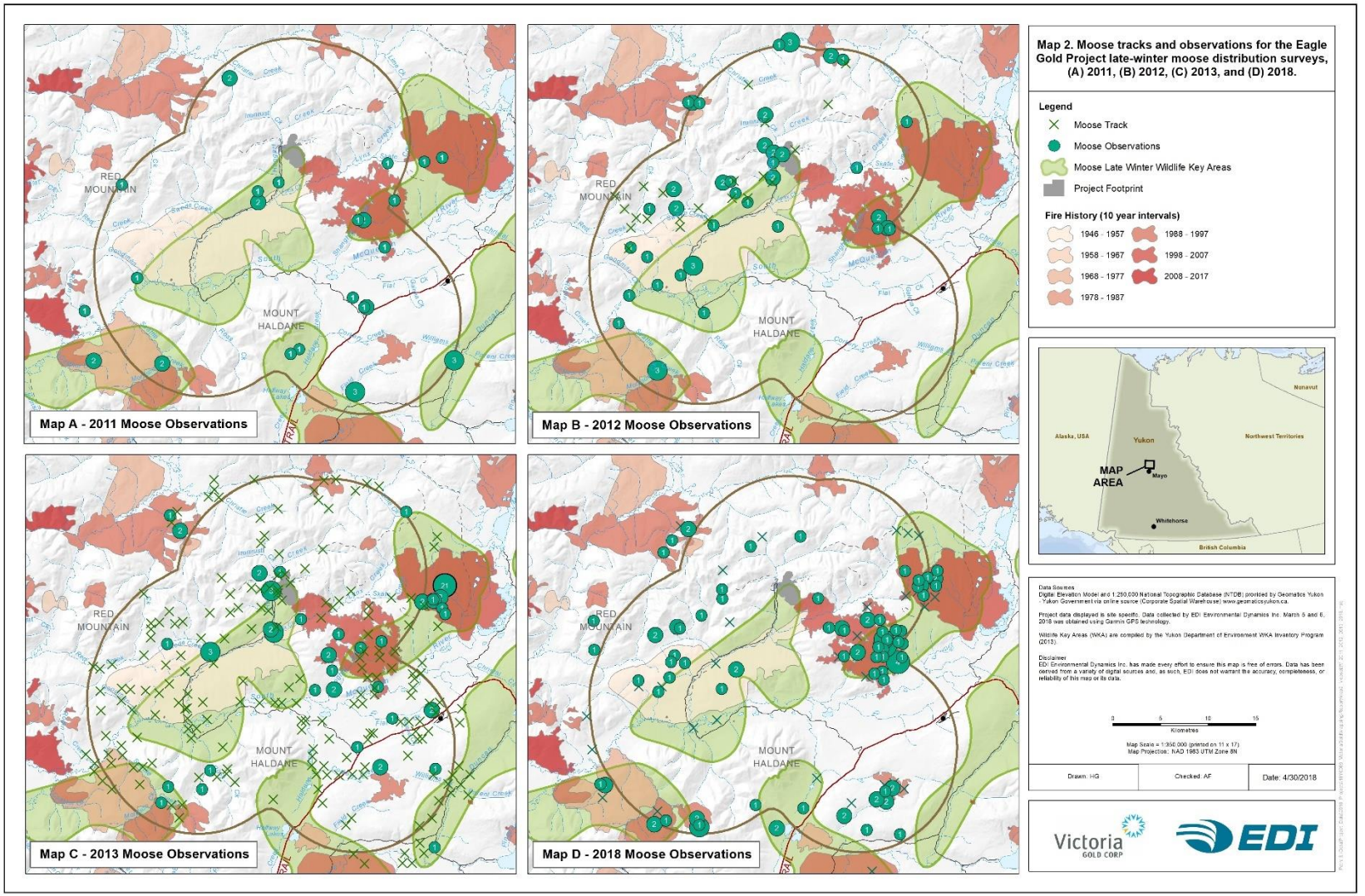

Map 1. Flight lines and moose tracks and observations for the Eagle Gold Project late-winter moose distribution survey, March 2018
Legend
Moose Observations
Moose Tracks
Caribou Tracks
Flightline
Moose Late Winter Wildlife Key Areas
Survey Area
Survey Grid
Project Footprint
MAP AREA
Alaska, USA
Yukon
Northwest Territories
Nunavut
Mayo
Whitehorse
British Columbia
Data Sources
Digital Elevation Model and 1:250,000 National Topographic Database (NTDB) provided by Geomatics Yukon - Yukon Government via online source (Corporate Spatial Warehouse) www.geomaticsyukon.ca.
Project data displayed is site specific. Data collected by EDI Environmental Dynamics Inc. March 5 and 6, 2018 was obtained using Garmin GPS technology.
Wildlife Key Areas (WKA) are compiled by the Yukon Department of Environment WKA Inventory Program (2013).
Disclaimer
EDI Environmental Dynamics Inc. has made every effort to ensure this map is free of errors. Data has been derived from a variety of digital sources and, as such, EDI does not warrant the accuracy, completeness, or reliability of this map or its data.
0
5
10
15
Kilometres
Map Scale = 1:180,000 (printed on 11 x 17)
Map Projection: NAD 1983 UTM Zone 8N
Drawn: HG
Checked: AF
Date: 4/30/2018
Victoria GOLD CORP
EDI
RED MOUNTAIN
MOUNT HALDANE
Elsa
Keno
SILVER TRAIL HIGHWAY
Christie Creek
Ironrust Creek
Lynx Creek
Skate Creek
Swede Creek
Red Creek
Goodman Ck
Rodin Creek
Castnor Ck
Sabbath Ck
Minton Ck
Highet
Bennett
Mud Creek
Haldane Creek
Corbett Creek
Williams Ck
Parent Creek
Duncan Creek
Pingpong Ck
Christal Ck
Cache Ck
Hanson Lakes
Ladue Lake
McQuesten
Shangri Creek
Flat Ck
Galena Ck
Rose Ck
Seattle Creek
Morrison Ck
Halfway Lakes
Fork Ck
South River


Map A - 2011 Moose Observations
Map B - 2012 Moose Observations
Map C - 2013 Moose Observations
Map D - 2018 Moose Observations
RED MOUNTAIN
MOUNT HALDANE
Map 2. Moose tracks and observations for the Eagle Gold Project late-winter moose distribution surveys, (A) 2011, (B) 2012, (C) 2013, and (D) 2018.
Legend
Moose Track
Moose Observations
Moose Late Winter Wildlife Key Areas
Project Footprint
Fire History (10 year intervals)
1946 - 1957
1958 - 1967
1968 - 1977
1978 - 1987
1988 - 1997
1998 - 2007
2008 - 2017
Alaska, USA
Yukon
Northwest Territories
Nunavut
British Columbia
MAP AREA
Mayo
Whitehorse
Kilometres
Drawn: HG
Checked: AF
Date: 4/30/2018
Victoria GOLD CORP
EDI

| | | |
|---|---|---|
| Serial Number | BIAA0001X | UNIT REV |
| Start Time | 18:33:40 20-Jul-2018 | |
| Run Length | 0:08:24 32256 | |

| Microphone Information | | |
|---|---|---|
| Description | Units | Value |
| Sensitivity | dB | 28 |
| Polarization | Volts | 0 |
| Meter Range | dB | 120 |
| Max Level | dB | 140 |
| Meas. Floor | dB | -20 |

| Calibration |
|---|
| Description |
| Pre-Cal |
| |
| Post-Cal |
| |
| ReCert |

| Configuration Information | | | |
|---|---|---|---|
| Description | Units | Meter 1 | Meter 2 |
| Integration Threshold | dB | 130 | 90 |
| Exchange Rate | dB | 5 | 5 |
| Criterion Level | dB | 90 | 90 |
| Upper Limit Level | dB | 140 | 115 |
| Projected Time | Hrs | 1 | 8 |
| Weighting | | Z | A |
| Time Response | | IMPULSE | IMPULSE |

| Measurement | Units | Meter 1 Broadband | Meter 2 Broadband |
|---|---|---|---|
| Lavg | dB | N/A | N/A |
| Lmax | dB | 97.2 | 60.4 |
| Lmin | dB | 47.3 | 43.1 |
| Lpk | dB | 100.6 | 81.1 |
| TWA | dB | N/A | N/A |
| PTWA | dB | N/A | N/A |
| DOSE | % | N/A | N/A |
| PDOSE | % | N/A | N/A |
| SEL | dB | N/A | N/A |
| EXP | p2s | N/A | N/A |

| Measurement | Units | Value |
|---|---|---|
| LDN | dB | N/A |
| CNEL | dB | N/A |
| TAKTMAX (3sec) | dB | 85.4 |
| LC-A | dB | N/A |

| Exceedence |
|---|
| L01 |
| L10 |
| L50 |
| L90 |

| Meter 1 | | | Meter 2 |
|---|---|---|---|
| Count | Percent | Time | Count |

| | | | | | |
|---|---|---|---|---|---|
| Overload | (OL) | 0 | 0 | 00:00:00 | 0 |
| Under-Range | (UR) | 0 | 0 | 00:00:00 | 0 |
| Upper Limit | (UL) | 0 | 0 | 00:00:00 | 0 |

Exceedence Table

| | 0 | 1 | 2 | 3 | 4 |
|---|---|---|---|---|---|
| 0 | 97.2 | 93.9 | 92.5 | 91.1 | 89.8 |
| 10 | 86 | 85.5 | 84.9 | 84.4 | 83.9 |
| 20 | 80.7 | 80.3 | 79.8 | 79.3 | 78.9 |
| 30 | 76.8 | 76.5 | 76.2 | 75.8 | 75.5 |
| 40 | 73.8 | 73.5 | 73.2 | 72.9 | 72.5 |
| 50 | 70.6 | 70.4 | 70.1 | 69.8 | 69.4 |
| 60 | 67.7 | 67.5 | 67.2 | 67 | 66.7 |
| 70 | 65.1 | 64.9 | 64.7 | 64.4 | 64.2 |
| 80 | 62.6 | 62.3 | 62 | 61.7 | 61.4 |
| 90 | 58.5 | 57.8 | 57.2 | 56.6 | 56 |

Statistics Table

| | 0 | 0.1 | 0.2 | 0.3 | 0.4 |
|---|---|---|---|---|---|
| 47 | | | | 0 | 0 |
| 48 | 0.01 | 0.01 | 0.01 | 0.01 | 0.02 |
| 49 | 0.03 | 0.03 | 0.03 | 0.02 | 0.03 |
| 50 | 0.04 | 0.04 | 0.02 | 0.03 | 0.03 |
| 51 | 0.05 | 0.06 | 0.05 | 0.05 | 0.05 |
| 52 | 0.08 | 0.09 | 0.1 | 0.11 | 0.12 |
| 53 | 0.11 | 0.09 | 0.06 | 0.08 | 0.1 |
| 54 | 0.07 | 0.07 | 0.07 | 0.08 | 0.09 |
| 55 | 0.11 | 0.11 | 0.1 | 0.11 | 0.12 |
| 56 | 0.19 | 0.2 | 0.12 | 0.18 | 0.16 |
| 57 | 0.16 | 0.15 | 0.16 | 0.16 | 0.17 |
| 58 | 0.14 | 0.15 | 0.15 | 0.14 | 0.15 |
| 59 | 0.16 | 0.19 | 0.1 | 0.17 | 0.16 |
| 60 | 0.2 | 0.22 | 0.24 | 0.22 | 0.22 |
| 61 | 0.24 | 0.23 | 0.27 | 0.24 | 0.27 |
| 62 | 0.34 | 0.35 | 0.22 | 0.33 | 0.35 |
| 63 | 0.34 | 0.35 | 0.37 | 0.36 | 0.35 |
| 64 | 0.41 | 0.39 | 0.42 | 0.43 | 0.44 |
| 65 | 0.44 | 0.46 | 0.33 | 0.43 | 0.42 |
| 66 | 0.41 | 0.39 | 0.35 | 0.35 | 0.33 |
| 67 | 0.36 | 0.36 | 0.39 | 0.38 | 0.36 |
| 68 | 0.39 | 0.42 | 0.32 | 0.36 | 0.37 |
| 69 | 0.33 | 0.35 | 0.34 | 0.31 | 0.31 |
| 70 | 0.31 | 0.31 | 0.34 | 0.35 | 0.36 |
| 71 | 0.33 | 0.35 | 0.27 | 0.18 | 0.31 |

| | | | | | |
|---|---|---|---|---|---|
| 72 | 0.29 | 0.28 | 0.29 | 0.29 | 0.32 |
| 73 | 0.32 | 0.32 | 0.33 | 0.32 | 0.33 |
| 74 | 0.39 | 0.35 | 0.41 | 0.22 | 0.36 |
| 75 | 0.35 | 0.36 | 0.33 | 0.32 | 0.31 |
| 76 | 0.33 | 0.32 | 0.32 | 0.32 | 0.33 |
| 77 | 0.33 | 0.33 | 0.35 | 0.22 | 0.29 |
| 78 | 0.27 | 0.27 | 0.26 | 0.27 | 0.26 |
| 79 | 0.23 | 0.22 | 0.22 | 0.23 | 0.22 |
| 80 | 0.21 | 0.22 | 0.21 | 0.15 | 0.21 |
| 81 | 0.18 | 0.18 | 0.17 | 0.17 | 0.18 |
| 82 | 0.19 | 0.19 | 0.19 | 0.18 | 0.18 |
| 83 | 0.22 | 0.19 | 0.21 | 0.13 | 0.17 |
| 84 | 0.18 | 0.17 | 0.19 | 0.19 | 0.21 |
| 85 | 0.18 | 0.18 | 0.17 | 0.18 | 0.17 |
| 86 | 0.19 | 0.21 | 0.2 | 0.12 | 0.15 |
| 87 | 0.15 | 0.15 | 0.14 | 0.14 | 0.15 |
| 88 | 0.16 | 0.17 | 0.16 | 0.16 | 0.18 |
| 89 | 0.17 | 0.17 | 0.14 | 0.13 | 0.13 |
| 90 | 0.1 | 0.08 | 0.09 | 0.08 | 0.07 |
| 91 | 0.06 | 0.07 | 0.07 | 0.07 | 0.08 |
| 92 | 0.07 | 0.06 | 0.07 | 0.06 | 0.05 |
| 93 | 0.08 | 0.06 | 0.06 | 0.07 | 0.07 |
| 94 | 0.07 | 0.07 | 0.06 | 0.06 | 0.05 |
| 95 | 0.05 | 0.04 | 0.03 | 0.04 | 0.02 |
| 96 | 0 | 0 | 0 | 0 | 0 |
| 97 | 0 | 0 | 0 | | |

R13H

| Information | | |
|---|---|---|
| | Units | Value |
| Level | dB | 114 |
| Date | | 18:20:48 20-Jul-2018 |
| Level | dB | |
| Date | | |
| Date | | Unavailable |

| | Units | Value |
|---|---|---|
| | dB | N/A |
| | dB | N/A |
| | dB | 70.6 |
| | dB | 58.5 |

| | |
|---|---|
| Percent | Time |

| | |
|---|---|
| 0 | 00:00:00 |
| 0 | 00:00:00 |
| 0 | 00:00:00 |

| 5 | 6 | 7 | 8 | 9 |
|---|---|---|---|---|
| 89 | 88.4 | 87.9 | 87.2 | 86.6 |
| 83.4 | 82.9 | 82.4 | 81.9 | 81.3 |
| 78.5 | 78.1 | 77.8 | 77.4 | 77.1 |
| 75.2 | 74.9 | 74.6 | 74.3 | 74 |
| 72.2 | 71.9 | 71.6 | 71.3 | 70.9 |
| 69.1 | 68.8 | 68.5 | 68.3 | 68 |
| 66.4 | 66.1 | 65.8 | 65.6 | 65.4 |
| 64 | 63.7 | 63.5 | 63.2 | 62.9 |
| 61 | 60.6 | 60.1 | 59.7 | 59.1 |
| 55.3 | 54.4 | 53.2 | 52.2 | 50.9 |

| 0.5 | 0.6 | 0.7 | 0.8 | 0.9 |
|---|---|---|---|---|
| 0.02 | 0.02 | 0.01 | 0.02 | 0.02 |
| 0.03 | 0.02 | 0.02 | 0 | 0.03 |
| 0.01 | 0.01 | 0.02 | 0.02 | 0.03 |
| 0.02 | 0.03 | 0.03 | 0.04 | 0.05 |
| 0.06 | 0.06 | 0.06 | 0.07 | 0.08 |
| 0.1 | 0.1 | 0.09 | 0.11 | 0.08 |
| 0.08 | 0.08 | 0.06 | 0.08 | 0.07 |
| 0.09 | 0.08 | 0.1 | 0.11 | 0.11 |
| 0.13 | 0.13 | 0.14 | 0.14 | 0.17 |
| 0.17 | 0.16 | 0.17 | 0.15 | 0.16 |
| 0.17 | 0.16 | 0.14 | 0.13 | 0.15 |
| 0.16 | 0.14 | 0.16 | 0.16 | 0.17 |
| 0.16 | 0.18 | 0.2 | 0.19 | 0.22 |
| 0.21 | 0.22 | 0.21 | 0.22 | 0.24 |
| 0.26 | 0.29 | 0.3 | 0.31 | 0.31 |
| 0.35 | 0.35 | 0.36 | 0.36 | 0.33 |
| 0.37 | 0.39 | 0.38 | 0.39 | 0.4 |
| 0.45 | 0.44 | 0.43 | 0.42 | 0.45 |
| 0.4 | 0.42 | 0.38 | 0.42 | 0.41 |
| 0.31 | 0.33 | 0.35 | 0.36 | 0.36 |
| 0.37 | 0.37 | 0.4 | 0.39 | 0.39 |
| 0.35 | 0.35 | 0.37 | 0.32 | 0.32 |
| 0.31 | 0.3 | 0.32 | 0.31 | 0.31 |
| 0.35 | 0.35 | 0.36 | 0.36 | 0.33 |
| 0.31 | 0.34 | 0.34 | 0.31 | 0.29 |

| Raw Stat Table | | |
|---|---|---|
| dB | Count | Stat |
| 47.3 | 1 | 0.0031 |
| 47.4 | 2 | 0.0062 |
| 47.5 | 8 | 0.024802 |
| 47.6 | 7 | 0.021701 |
| 47.7 | 6 | 0.018601 |
| 47.8 | 7 | 0.021701 |
| 47.9 | 8 | 0.024802 |
| 48 | 6 | 0.018601 |
| 48.1 | 4 | 0.012401 |
| 48.2 | 5 | 0.015501 |
| 48.3 | 4 | 0.012401 |
| 48.4 | 7 | 0.021701 |
| 48.5 | 10 | 0.031002 |
| 48.6 | 9 | 0.027902 |
| 48.7 | 9 | 0.027902 |
| 48.8 | 0 | 0 |
| 48.9 | 12 | 0.037202 |
| 49 | 12 | 0.037202 |
| 49.1 | 12 | 0.037202 |
| 49.2 | 10 | 0.031002 |
| 49.3 | 8 | 0.024802 |
| 49.4 | 10 | 0.031002 |
| 49.5 | 6 | 0.018601 |
| 49.6 | 6 | 0.018601 |
| 49.7 | 7 | 0.021701 |
| 49.8 | 8 | 0.024802 |
| 49.9 | 12 | 0.037202 |
| 50 | 15 | 0.046503 |
| 50.1 | 13 | 0.040303 |
| 50.2 | 7 | 0.021701 |
| 50.3 | 12 | 0.037202 |
| 50.4 | 12 | 0.037202 |
| 50.5 | 9 | 0.027902 |
| 50.6 | 11 | 0.034102 |
| 50.7 | 11 | 0.034102 |
| 50.8 | 16 | 0.049603 |
| 50.9 | 18 | 0.055804 |
| 51 | 18 | 0.055804 |
| 51.1 | 20 | 0.062004 |

| | | | | |
|---|---|---|---|---|
| 0.32 | 0.32 | 0.32 | 0.31 | 0.31 |
| 0.33 | 0.34 | 0.34 | 0.35 | 0.36 |
| 0.35 | 0.33 | 0.32 | 0.32 | 0.35 |
| 0.3 | 0.31 | 0.29 | 0.3 | 0.31 |
| 0.31 | 0.31 | 0.31 | 0.32 | 0.32 |
| 0.3 | 0.31 | 0.28 | 0.26 | 0.26 |
| 0.26 | 0.26 | 0.26 | 0.25 | 0.24 |
| 0.24 | 0.22 | 0.23 | 0.22 | 0.21 |
| 0.19 | 0.2 | 0.19 | 0.2 | 0.18 |
| 0.16 | 0.17 | 0.17 | 0.18 | 0.18 |
| 0.19 | 0.19 | 0.17 | 0.2 | 0.21 |
| 0.17 | 0.18 | 0.19 | 0.2 | 0.19 |
| 0.23 | 0.2 | 0.18 | 0.2 | 0.2 |
| 0.15 | 0.18 | 0.21 | 0.21 | 0.18 |
| 0.15 | 0.17 | 0.16 | 0.17 | 0.15 |
| 0.16 | 0.16 | 0.16 | 0.15 | 0.15 |
| 0.18 | 0.17 | 0.17 | 0.16 | 0.16 |
| 0.13 | 0.12 | 0.09 | 0.1 | 0.09 |
| 0.06 | 0.06 | 0.06 | 0.07 | 0.06 |
| 0.08 | 0.06 | 0.08 | 0.08 | 0.07 |
| 0.07 | 0.06 | 0.07 | 0.07 | 0.08 |
| 0.07 | 0.06 | 0.06 | 0.07 | 0.07 |
| 0.06 | 0.05 | 0.06 | 0.06 | 0.05 |
| 0.02 | 0.01 | 0.01 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 |

| | | |
|---|---|---|
| 51.2 | 18 | 0.055804 |
| 51.3 | 19 | 0.058904 |
| 51.4 | 19 | 0.058904 |
| 51.5 | 20 | 0.062004 |
| 51.6 | 20 | 0.062004 |
| 51.7 | 21 | 0.065104 |
| 51.8 | 24 | 0.074405 |
| 51.9 | 26 | 0.080605 |
| 52 | 28 | 0.086806 |
| 52.1 | 30 | 0.093006 |
| 52.2 | 33 | 0.102307 |
| 52.3 | 36 | 0.111607 |
| 52.4 | 39 | 0.120908 |
| 52.5 | 34 | 0.105407 |
| 52.6 | 34 | 0.105407 |
| 52.7 | 32 | 0.099206 |
| 52.8 | 37 | 0.114707 |
| 52.9 | 28 | 0.086806 |
| 53 | 36 | 0.111607 |
| 53.1 | 30 | 0.093006 |
| 53.2 | 22 | 0.068204 |
| 53.3 | 29 | 0.089906 |
| 53.4 | 33 | 0.102307 |
| 53.5 | 27 | 0.083705 |
| 53.6 | 29 | 0.089906 |
| 53.7 | 22 | 0.068204 |
| 53.8 | 27 | 0.083705 |
| 53.9 | 23 | 0.071305 |
| 54 | 25 | 0.077505 |
| 54.1 | 25 | 0.077505 |
| 54.2 | 24 | 0.074405 |
| 54.3 | 27 | 0.083705 |
| 54.4 | 31 | 0.096106 |
| 54.5 | 31 | 0.096106 |
| 54.6 | 29 | 0.089906 |
| 54.7 | 34 | 0.105407 |
| 54.8 | 36 | 0.111607 |
| 54.9 | 37 | 0.114707 |
| 55 | 36 | 0.111607 |
| 55.1 | 37 | 0.114707 |
| 55.2 | 35 | 0.108507 |
| 55.3 | 36 | 0.111607 |
| 55.4 | 40 | 0.124008 |
| 55.5 | 42 | 0.130208 |
| 55.6 | 43 | 0.133309 |
| 55.7 | 47 | 0.145709 |
| 55.8 | 48 | 0.14881 |

| | | |
|---|---|---|
| 55.9 | 57 | 0.176711 |
| 56 | 62 | 0.192212 |
| 56.1 | 66 | 0.204613 |
| 56.2 | 40 | 0.124008 |
| 56.3 | 59 | 0.182912 |
| 56.4 | 52 | 0.16121 |
| 56.5 | 57 | 0.176711 |
| 56.6 | 54 | 0.167411 |
| 56.7 | 55 | 0.170511 |
| 56.8 | 49 | 0.15191 |
| 56.9 | 54 | 0.167411 |
| 57 | 52 | 0.16121 |
| 57.1 | 49 | 0.15191 |
| 57.2 | 52 | 0.16121 |
| 57.3 | 54 | 0.167411 |
| 57.4 | 57 | 0.176711 |
| 57.5 | 56 | 0.173611 |
| 57.6 | 52 | 0.16121 |
| 57.7 | 47 | 0.145709 |
| 57.8 | 45 | 0.139509 |
| 57.9 | 50 | 0.15501 |
| 58 | 47 | 0.145709 |
| 58.1 | 51 | 0.15811 |
| 58.2 | 51 | 0.15811 |
| 58.3 | 48 | 0.14881 |
| 58.4 | 51 | 0.15811 |
| 58.5 | 54 | 0.167411 |
| 58.6 | 48 | 0.14881 |
| 58.7 | 52 | 0.16121 |
| 58.8 | 53 | 0.164311 |
| 58.9 | 57 | 0.176711 |
| 59 | 54 | 0.167411 |
| 59.1 | 63 | 0.195313 |
| 59.2 | 35 | 0.108507 |
| 59.3 | 55 | 0.170511 |
| 59.4 | 54 | 0.167411 |
| 59.5 | 53 | 0.164311 |
| 59.6 | 60 | 0.186012 |
| 59.7 | 65 | 0.201513 |
| 59.8 | 63 | 0.195313 |
| 59.9 | 71 | 0.220114 |
| 60 | 66 | 0.204613 |
| 60.1 | 71 | 0.220114 |
| 60.2 | 78 | 0.241815 |
| 60.3 | 71 | 0.220114 |
| 60.4 | 71 | 0.220114 |
| 60.5 | 70 | 0.217014 |

| | | |
|---|---|---|
| 60.6 | 72 | 0.223214 |
| 60.7 | 69 | 0.213914 |
| 60.8 | 74 | 0.229415 |
| 60.9 | 79 | 0.244916 |
| 61 | 78 | 0.241815 |
| 61.1 | 77 | 0.238715 |
| 61.2 | 88 | 0.272817 |
| 61.3 | 78 | 0.241815 |
| 61.4 | 88 | 0.272817 |
| 61.5 | 86 | 0.266617 |
| 61.6 | 96 | 0.297619 |
| 61.7 | 98 | 0.303819 |
| 61.8 | 100 | 0.31002 |
| 61.9 | 100 | 0.31002 |
| 62 | 111 | 0.344122 |
| 62.1 | 115 | 0.356523 |
| 62.2 | 72 | 0.223214 |
| 62.3 | 108 | 0.334821 |
| 62.4 | 114 | 0.353423 |
| 62.5 | 113 | 0.350322 |
| 62.6 | 115 | 0.356523 |
| 62.7 | 119 | 0.368924 |
| 62.8 | 117 | 0.362723 |
| 62.9 | 108 | 0.334821 |
| 63 | 112 | 0.347222 |
| 63.1 | 114 | 0.353423 |
| 63.2 | 121 | 0.375124 |
| 63.3 | 118 | 0.365823 |
| 63.4 | 116 | 0.359623 |
| 63.5 | 121 | 0.375124 |
| 63.6 | 126 | 0.390625 |
| 63.7 | 123 | 0.381324 |
| 63.8 | 126 | 0.390625 |
| 63.9 | 130 | 0.403026 |
| 64 | 135 | 0.418527 |
| 64.1 | 127 | 0.393725 |
| 64.2 | 136 | 0.421627 |
| 64.3 | 139 | 0.430928 |
| 64.4 | 142 | 0.440228 |
| 64.5 | 147 | 0.455729 |
| 64.6 | 142 | 0.440228 |
| 64.7 | 139 | 0.430928 |
| 64.8 | 138 | 0.427827 |
| 64.9 | 148 | 0.458829 |
| 65 | 143 | 0.443328 |
| 65.1 | 149 | 0.46193 |
| 65.2 | 109 | 0.337922 |

| | | |
|---|---|---|
| 65.3 | 141 | 0.437128 |
| 65.4 | 138 | 0.427827 |
| 65.5 | 132 | 0.409226 |
| 65.6 | 137 | 0.424727 |
| 65.7 | 125 | 0.387525 |
| 65.8 | 136 | 0.421627 |
| 65.9 | 134 | 0.415427 |
| 66 | 133 | 0.412326 |
| 66.1 | 127 | 0.393725 |
| 66.2 | 114 | 0.353423 |
| 66.3 | 114 | 0.353423 |
| 66.4 | 109 | 0.337922 |
| 66.5 | 102 | 0.31622 |
| 66.6 | 109 | 0.337922 |
| 66.7 | 116 | 0.359623 |
| 66.8 | 117 | 0.362723 |
| 66.9 | 118 | 0.365823 |
| 67 | 117 | 0.362723 |
| 67.1 | 119 | 0.368924 |
| 67.2 | 126 | 0.390625 |
| 67.3 | 123 | 0.381324 |
| 67.4 | 119 | 0.368924 |
| 67.5 | 122 | 0.378224 |
| 67.6 | 120 | 0.372024 |
| 67.7 | 130 | 0.403026 |
| 67.8 | 129 | 0.399926 |
| 67.9 | 127 | 0.393725 |
| 68 | 127 | 0.393725 |
| 68.1 | 136 | 0.421627 |
| 68.2 | 105 | 0.325521 |
| 68.3 | 117 | 0.362723 |
| 68.4 | 122 | 0.378224 |
| 68.5 | 116 | 0.359623 |
| 68.6 | 115 | 0.356523 |
| 68.7 | 120 | 0.372024 |
| 68.8 | 105 | 0.325521 |
| 68.9 | 105 | 0.325521 |
| 69 | 109 | 0.337922 |
| 69.1 | 113 | 0.350322 |
| 69.2 | 112 | 0.347222 |
| 69.3 | 101 | 0.31312 |
| 69.4 | 102 | 0.31622 |
| 69.5 | 103 | 0.31932 |
| 69.6 | 98 | 0.303819 |
| 69.7 | 106 | 0.328621 |
| 69.8 | 102 | 0.31622 |
| 69.9 | 102 | 0.31622 |

| | | |
|---|---|---|
| 70 | 101 | 0.31312 |
| 70.1 | 102 | 0.31622 |
| 70.2 | 110 | 0.341022 |
| 70.3 | 114 | 0.353423 |
| 70.4 | 118 | 0.365823 |
| 70.5 | 115 | 0.356523 |
| 70.6 | 116 | 0.359623 |
| 70.7 | 119 | 0.368924 |
| 70.8 | 118 | 0.365823 |
| 70.9 | 109 | 0.337922 |
| 71 | 109 | 0.337922 |
| 71.1 | 113 | 0.350322 |
| 71.2 | 90 | 0.279018 |
| 71.3 | 61 | 0.189112 |
| 71.4 | 102 | 0.31622 |
| 71.5 | 103 | 0.31932 |
| 71.6 | 111 | 0.344122 |
| 71.7 | 110 | 0.341022 |
| 71.8 | 103 | 0.31932 |
| 71.9 | 96 | 0.297619 |
| 72 | 95 | 0.294519 |
| 72.1 | 91 | 0.282118 |
| 72.2 | 96 | 0.297619 |
| 72.3 | 95 | 0.294519 |
| 72.4 | 105 | 0.325521 |
| 72.5 | 105 | 0.325521 |
| 72.6 | 105 | 0.325521 |
| 72.7 | 106 | 0.328621 |
| 72.8 | 101 | 0.31312 |
| 72.9 | 103 | 0.31932 |
| 73 | 104 | 0.322421 |
| 73.1 | 105 | 0.325521 |
| 73.2 | 107 | 0.331721 |
| 73.3 | 104 | 0.322421 |
| 73.4 | 107 | 0.331721 |
| 73.5 | 109 | 0.337922 |
| 73.6 | 112 | 0.347222 |
| 73.7 | 112 | 0.347222 |
| 73.8 | 113 | 0.350322 |
| 73.9 | 118 | 0.365823 |
| 74 | 126 | 0.390625 |
| 74.1 | 113 | 0.350322 |
| 74.2 | 133 | 0.412326 |
| 74.3 | 72 | 0.223214 |
| 74.4 | 117 | 0.362723 |
| 74.5 | 115 | 0.356523 |
| 74.6 | 109 | 0.337922 |

| | | |
|---|---|---|
| 74.7 | 104 | 0.322421 |
| 74.8 | 106 | 0.328621 |
| 74.9 | 115 | 0.356523 |
| 75 | 115 | 0.356523 |
| 75.1 | 118 | 0.365823 |
| 75.2 | 108 | 0.334821 |
| 75.3 | 105 | 0.325521 |
| 75.4 | 101 | 0.31312 |
| 75.5 | 98 | 0.303819 |
| 75.6 | 100 | 0.31002 |
| 75.7 | 96 | 0.297619 |
| 75.8 | 98 | 0.303819 |
| 75.9 | 102 | 0.31622 |
| 76 | 107 | 0.331721 |
| 76.1 | 104 | 0.322421 |
| 76.2 | 104 | 0.322421 |
| 76.3 | 105 | 0.325521 |
| 76.4 | 109 | 0.337922 |
| 76.5 | 102 | 0.31622 |
| 76.6 | 101 | 0.31312 |
| 76.7 | 103 | 0.31932 |
| 76.8 | 104 | 0.322421 |
| 76.9 | 105 | 0.325521 |
| 77 | 108 | 0.334821 |
| 77.1 | 108 | 0.334821 |
| 77.2 | 116 | 0.359623 |
| 77.3 | 72 | 0.223214 |
| 77.4 | 96 | 0.297619 |
| 77.5 | 97 | 0.300719 |
| 77.6 | 102 | 0.31622 |
| 77.7 | 92 | 0.285218 |
| 77.8 | 87 | 0.269717 |
| 77.9 | 85 | 0.263517 |
| 78 | 89 | 0.275918 |
| 78.1 | 90 | 0.279018 |
| 78.2 | 87 | 0.269717 |
| 78.3 | 88 | 0.272817 |
| 78.4 | 85 | 0.263517 |
| 78.5 | 85 | 0.263517 |
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# EAGLE GOLD PROJECT

## SPILL RESPONSE PLAN

*Version 2019-01*

MARCH 2019

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# DOCUMENT CONTROL

### Submission History

| Version Number | Version Date | Document Description and Revisions Made |
|---|---|---|
| 2013-01 | Apr 2013 (draft) | Submission of preliminary draft |
| 2013-01 | Sep 2013 | Original submission to the Department of Energy, Mines and Resources in support of an application for a Quartz Mining Licence allowing for preliminary construction activities and submitted to the Yukon Water Board in support of the application to amend Type B Water Use License QZ11-013. The amendment application considered the use of water and deposit of waste associated with preliminary construction activities and included the construction and operation of the Dublin Gulch Diversion Channel. |
| 2014-01 | Jun 2014 | Revisions made in support of an application to the Yukon Water Board for a Type A Water Use License for the full Construction, Operation and Closure of the Project. Version 2014-01 was also submitted to the Department of Energy, Mines and Resources in support of an application for a Quartz Mining Licence allowing the full Construction, Operation and Closure of the Project. |
| 2016-01 | Feb 2016 | Revisions made in support of an application to the Yukon Water Board for a renewal of the Type B Water Use Licence. |
| 2017-01 | Mar 2017 | Revisions made to address comments received during the adequacy review of the application to the Yukon Water Board for a Type A Water Use Licence and to address the conditions of the Quartz Mining Licence QML-0011. Version 2017-01 was submitted to the Department of Energy, Mines and Resources and the Yukon Water Board to satisfy SGC's annual reporting requirements. |
| 2017-02 | Jul 2017 | Revisions made to reflect the current site general arrangement and submitted as part of a consolidated application for *Environment Act* permits. |
| 2019-01 | Mar 2019 | Revisions made in accordance with Clause 8 of QZ14-041 and with Paragraph 2.5 of Schedule C, Part 2 of QML-0011, which require an annual review of the Spill Response Plan. |

Version 2017-02 of the Spill Response Plan (the Plan) for the Project has been revised in March 2019 to update Version 2017-02 submitted in July 2017. The table below is intended to identify modifications to the Plan and provide the rationale for such modifications

### Version 2019-01 Revisions

| Section | Revision/Rationale |
|---|---|
| Section 2.2 Reportable Spills | ▪ Updated the description of site personnel roles and responsibilities for reporting spills. |
| Table 2.2-1 Reportable Spill Thresholds | ▪ Updated to indicate that any amount of antifreeze released into a water course is reportable. |

| Section | Revision/Rationale |
|---|---|
| Section 2.3<br>Non-Reportable Spills | ▪ Updated to include reference to the Spill report Form used to track both reportable and non-reportable spills and describe roles and responsibilities of site personnel. |
| Section 3.0 | ▪ Updated to differentiate between small and large spill response and site personnel roles and responsibilities. |
| Section 3.1<br>Spill Response Equipment | ▪ Updated to describe roles and responsibilities of site personnel. |
| Table 3.2-1<br>Position and Responsibilities of Personnel Involved in Spill Response | ▪ Updated to include responsibility for additional external reporting, if required. |
| Section 3.6 | ▪ Updated description of the land treatment facility |
| Section 4.0<br>Internal and External Reporting | ▪ Updating external reporting responsibilities to include reporting to the Yukon Water Board Waterline online registry and FNNND (if required) |
| Appendix B | ▪ Updated Spill Report Form. |

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# 1 INTRODUCTION

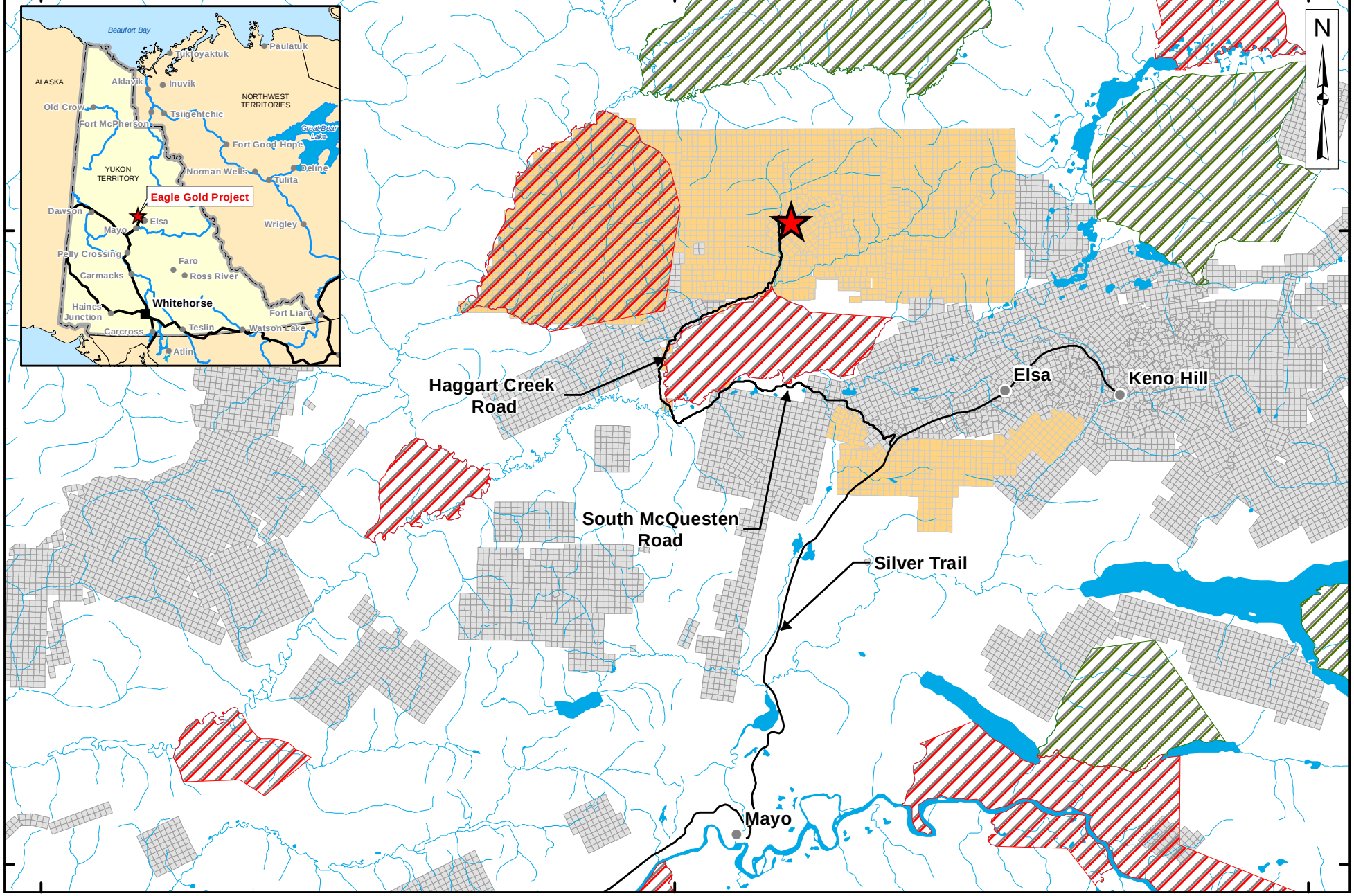
StrataGold Corporation (SGC), a directly held-wholly owned subsidiary of Victoria Gold Corp., has proposed to construct, operate, close and reclaim a gold mine in central Yukon. The Eagle Gold Project ('the Project') is located 85 km from Mayo Yukon using existing highway and access roads (Figure 1.1-1). The Project will involve open pit mining and gold extraction using a three stage crushing process, heap leaching, and a carbon adsorption, desorption, and recovery system over the mine life.

SGC is committed to exploring for, building, operating and closing mines in an environmentally, socially and financially responsible manner. SGC will endeavor to protect the environment in which it operates by providing a safe, responsible and efficient operating atmosphere through the development, and implementation of corporate policies as well as development and operational plans.

The purpose of this Spill Response Plan (the Plan) is to enable timely and effective responses to spills throughout the life of the Project. The Plan provides measures to prevent spills from occurring, and response measures to be implemented in the event of a spill.

This plan was informed by the guidelines provided by Government of Yukon's Department of Energy, Mines and Resources and the Yukon Water Board in the Plan Requirement Guidance for Quartz Mining Projects (August 2013), the Terms and Conditions of Recommendation, Proponent Commitments and Proponent Mitigations specified in the Final Screening Report and Recommendation (Yukon Environmental and Socio-economic Assessment Board Project Assessment 2010-0267), and the regulatory approvals issued for the Project

Appendix A summarizes the requirements pertaining to spill prevention and response outlined in the Final Screening Report and Recommendation and other licenses and permits issued to date.




Legend:

- Eagle Gold Project
- StrataGold Claims
- Other Claims
- Town / Village
- Road
- Watercourse
- Category A Settlement Land
- Category B Settlement Land

StrataGold Corporation

0 3 6 12 Kilometres

| Projection: | Drawn By: | EAGLE GOLD PROJECT YUKON TERRITORY |
|---|---|---|
| NAD 83 Zone 8N | HC | |
| Date: | Figure: | Project Location |
| 2017/03/28 | 1.1-1 | |

# 2 SPILL DEFINITION AND CATEGORIES

## 2.1 SPILL DEFINITION

A spill is defined under Section 132 of the *Yukon Environment Act* ("the Act") as a "release of a substance into the natural environment; from or out of a structure, vehicle or other container; and that is abnormal in quantity or quality in light of all the circumstances of the release; or in excess of an amount specified in the regulations". For the purposes of the *Act*, a "substance" means a hazardous substance, pesticide, contaminant or special waste.

## 2.2 REPORTABLE SPILLS

Schedule A of the *Yukon Spills Regulations* defines reportable spill quantities in reference to hazardous material classes defined under the *Transportation of Dangerous Goods Regulations*. The release into the environment of a hazardous material above the reportable quantities or any release into a watercourse is a reportable spill under the *Yukon Spills Regulations* and SGC is required immediately notify the 24-hour Yukon Spill Report line at:

**867-667-7244**

All reportable spills must be reported as soon as possible, within 24 hours. The reporting should be performed by the Environmental Coordinator or their designate. If the Environmental Coordinator is not on site, the Site Services Manager should perform the reporting. If there is uncertainty regarding the volume or type of material that has been spilled, it is advised that a report be made to the Spill Hotline.

Spill Reporting Forms will be completed for all spills (Appendix B).

Reporting thresholds for all substances including hazardous materials, pesticide, contaminant or special waste used or stored at the Project are provided in Table 2.2-1, Table 2.2-2 and Appendix C.

A list of emergency contact numbers is provided in Appendix D.

Material Safety Data Sheets (MSDS) for all hazardous substances used for the Project at risk of spills are provided in Appendix E.

**Table 2.2-1: Reportable Spill Thresholds**

| Substance Name | Type | TDGA Class | Reportable Threshold |
|---|---|---|---|
| Propane | Petroleum product | 2 | Any amount of gas from a container larger than 100 L, or where the spill results from equipment failure, error, or deliberate action or inaction |
| Acetylene | Petroleum product | 2 | Any amount of gas from a container larger than 100 L, or where the spill results from equipment failure, error, or deliberate action or inaction |
| Oxygen | Gas | 2 | Any amount of gas from a container larger than 100 L, or where the spill results from equipment failure, error, or deliberate action or inaction |

| Substance Name | Type | TDGA Class | Reportable Threshold |
|---|---|---|---|
| Gasoline | Petroleum product | 3 | 200 L (any amount if spilled into a watercourse) |
| Diesel | Petroleum product | 3 | 200 L (any amount if spilled into a watercourse) |
| Jet A & B Aviation Fuel | Petroleum Product | 3 | 200 L (any amount if spilled into a watercourse) |
| Antifreeze | Solvent | 9 | 5 L (any amount it spilled into a watercourse) |
| Lubricating and Hydraulic Oils | Lubricating oil | n/a | 200 L (any amount if spilled into a watercourse) |

**Table 2.2-2: Reportable Spill Thresholds for Special Waste**

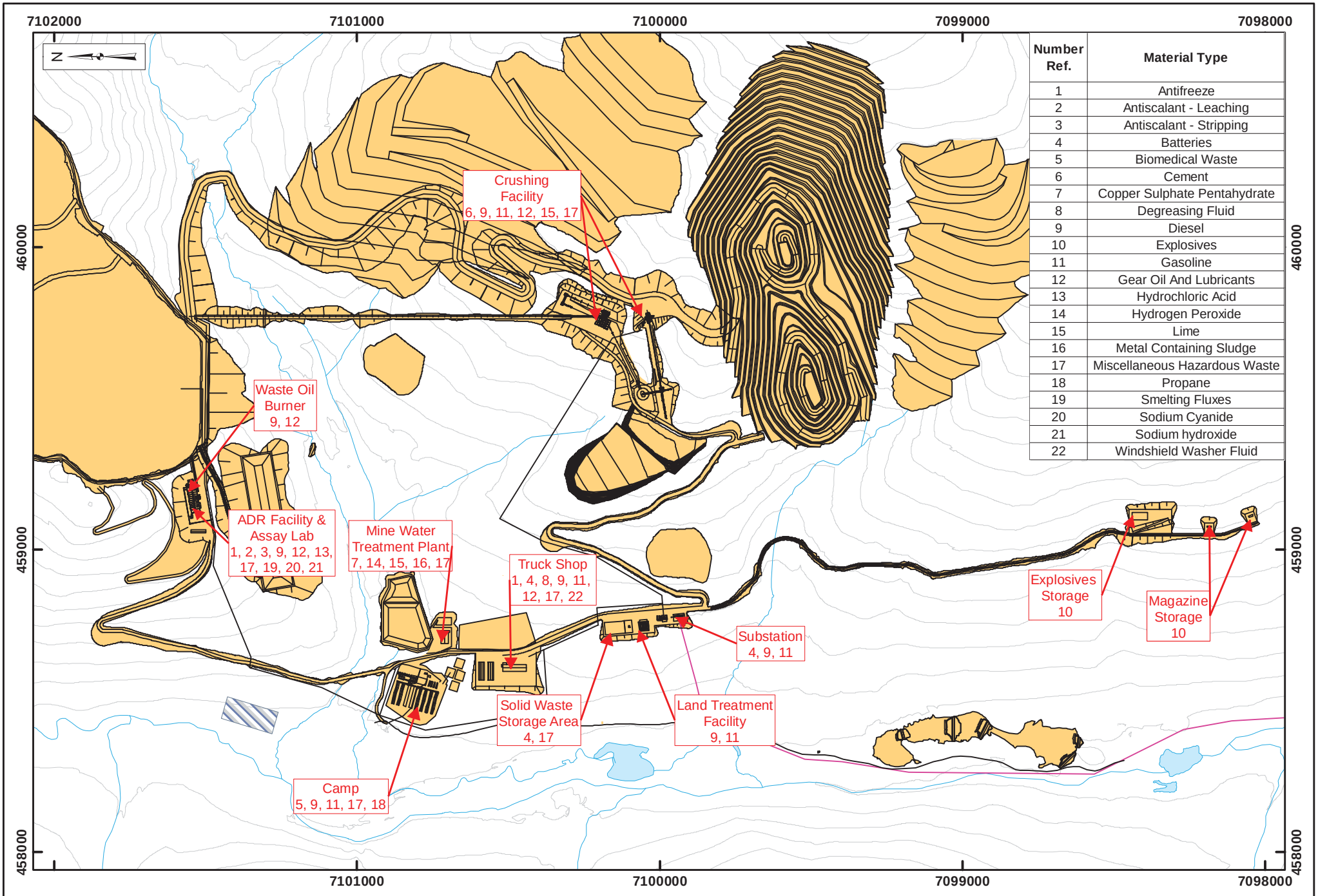
| Substance Type | Time period | Reportable Threshold |
|---|---|---|
| Special Waste that may cause an adverse effect | N/A | Any amount |
| Solid Special Waste | 24 hours | 500 g |
| | 30 days | 5 kg |
| Liquid Special Waste | 24 hours | 500 ml |
| | 30 days | 5 L |
| Mixture of Solid and Liquid Waste | 24 hours | 500 g or 500 ml whichever is less |
| | 30 days | 5 kg or 5 L whichever is less |

## 2.3 NON-REPORTABLE SPILLS

Spilled materials which are below the reporting thresholds are not required to be reported externally; however, all spills (whether reportable externally or not) must be reported internally to the SGC Environmental Department, and the SGC Environmental Department will maintain a record of all spills. The SGC Spill Report Form (Appendix B) should be used by all contractors and Victoria Gold employees who first observe a spill. Non-reportable spills will be handled according to the Spill Response Procedure described in Section 3 of this Plan. After any non-reportable spill is controlled and cleaned up, the Environmental Department will complete the Spill Response Form and perform an inspection of the area as required. Spill cleanup supplies used for the response must be replenished by area supervisors.

## 2.4 STORAGE LOCATIONS AND USE OF HAZARDOUS MATERIALS

Hazardous materials used on site and storage locations are described in the Solid Waste and Hazardous Materials Management Plan and shown on Figure 2.4-1. SGC will ensure that spill kits compatible with the type and volume of material stored and used are available at sites where hazardous materials are stored and used.




| Number Ref. | Material Type |
|---|---|
| 1 | Antifreeze |
| 2 | Antiscalant - Leaching |
| 3 | Antiscalant - Stripping |
| 4 | Batteries |
| 5 | Biomedical Waste |
| 6 | Cement |
| 7 | Copper Sulphate Pentahydrate |
| 8 | Degreasing Fluid |
| 9 | Diesel |
| 10 | Explosives |
| 11 | Gasoline |
| 12 | Gear Oil And Lubricants |
| 13 | Hydrochloric Acid |
| 14 | Hydrogen Peroxide |
| 15 | Lime |
| 16 | Metal Containing Sludge |
| 17 | Miscellaneous Hazardous Waste |
| 18 | Propane |
| 19 | Smelting Fluxes |
| 20 | Sodium Cyanide |
| 21 | Sodium hydroxide |
| 22 | Windshield Washer Fluid |

Legend:

Facility
Transmission Line
Watercourse
Contours (25m)
Reserved Area

StrataGold Corporation

0 125 250 500
Meters

Projection: NAD 83 Zone 8N
Drawn By: HC
Date: 2017/07/11
Figure: 2.4-1

**EAGLE GOLD PROJECT**
**YUKON TERRITORY**

**Storage Areas for Hazardous Materials**

# 3 SPILL RESPONSE PROCEDURE

The immediate priority in the event of a spill is to ensure the safety of any personnel in the immediate vicinity and to minimize the potential impact to the environment due to a sustained release of hazardous material. The implementation of spill containment measures and site cleanup and remediation will only be undertaken when safety is assured and the source of the release has been controlled.

In the case of a small spill, for example an overturned drip tray or a small coolant leak noticed under equipment, the first observer should immediately try to contain the spill. This can be done by using a drip tray, or placing absorbent pads under the leak.

Before responding to any large spill, it is important to first STOP and THINK:

- Identify hazards
- Assess Risks
- Control Risks

**The priority sequence for spill response is as follows:**

1. **ENSURE SAFETY**
    - Identify the spilled material (if not possible, assume dangerous)
    - Use Personal Protective Equipment (PPE)
    - Ensure the safety of nearby personnel
    - Remove all ignition sources – no smoking
2. **FIRST AID**
    - Call for assistance if necessary
    - Attend to the injured
    - Begin first aid immediately as required by following the guidelines from MSDS for the substance released
3. **STOP THE FLOW (IF POSSIBLE)**
    - Close valves, shut off pumps and plug holes or leaks (if safe to do so)
4. **NOTIFY YOUR SUPERVISOR AND/OR SPILL RESPONSE TEAM**
    - Provide basic information of spill – What, Who, Where, When and How
    - Activate Spill Response Team
5. **SECURE THE AREA**
    - Limit access to the spill area and prevent unauthorized entry

**6. CONTAIN THE RELEASE**

- Block off and protect drains, culverts, and other drainage structures which are not designated for spill management
- Use dykes, berms, trenches, ditches or sorbent material from spill kits to control the spilled substances

**7. CLEAN-UP**

- Under the direction of the Spill Response Team or Environmental Personnel, begin clean-up activities

**8. REPORT THE SPILL**

- The Environmental Manager, or designate, will report the spill to the appropriate agencies.

**9. CONDUCT INCIDENT INVESTIGATION**

- Undertake appropriate corrective and preventative action and document all activities on the Spill Report Form

## 3.1 SPILL RESPONSE EQUIPMENT

Spill kits will be available at all hazardous materials storage sites and transfer areas shown in Figure 2.4-1. Spill kits will also be available in hazardous material transporters, heavy equipment and light trucks. Spill kits will contain booms, sorbent materials, shovels and PPE, and fire extinguishers will be located in close proximity to assist in responding to a possible spill incident involving flammable materials. Spill kits will also contain a kit inventory sheet to assist with monthly inspections and the replenishment of spent supplies and equipment. The SGC Environmental Department will be responsible for monthly spill kit inspections. The area supervisors will be responsible for the replenishment of spent supplies and equipment, and ensuring that their worksite is equipped with a fully stocked 50 Gallon Spill Response Kit. Spare spill response supplies will be maintained on site to replenish spill kits and to be deployed to other locations in the event of a spill requiring additional equipment or as a replacement until spent, location specific, kits can be replenished.

If there is a risk of spills on open water, surface booms will be available for deployment.

All spill kits will include the 2016 Emergency Response Guidebook which has been developed jointly by Transport Canada (TC), the U.S. Department of Transportation (DOT), the Secretariat of Transport and Communications of Mexico (SCT) and with the collaboration of CIQUIME (Centro de Informaciòn Quìmica para Emergencias) of Argentina, for use by fire fighters, police, and other emergency services personnel who may be the first to arrive at the scene of a transportation incident involving dangerous goods.

The Emergency Response Guidebook is a guide to aid first responders in quickly identifying the specific or generic hazards of the material(s) involved in the incident, and protecting themselves and the general public during the initial response phase of the incident.

Figures 3.1-1 and 3.1-2 provide the location of Spill Response Equipment and Table 3.1-1 provides an inventory of anticipated Spill Response Equipment located around the Project Site. Area

supervisors are responsible for ensuring spill response equipment is sufficient for the substances and tasks being performed at their respective locations.

**Table 3.1-1: Inventory of Spill Response Equipment Planned for the Project**

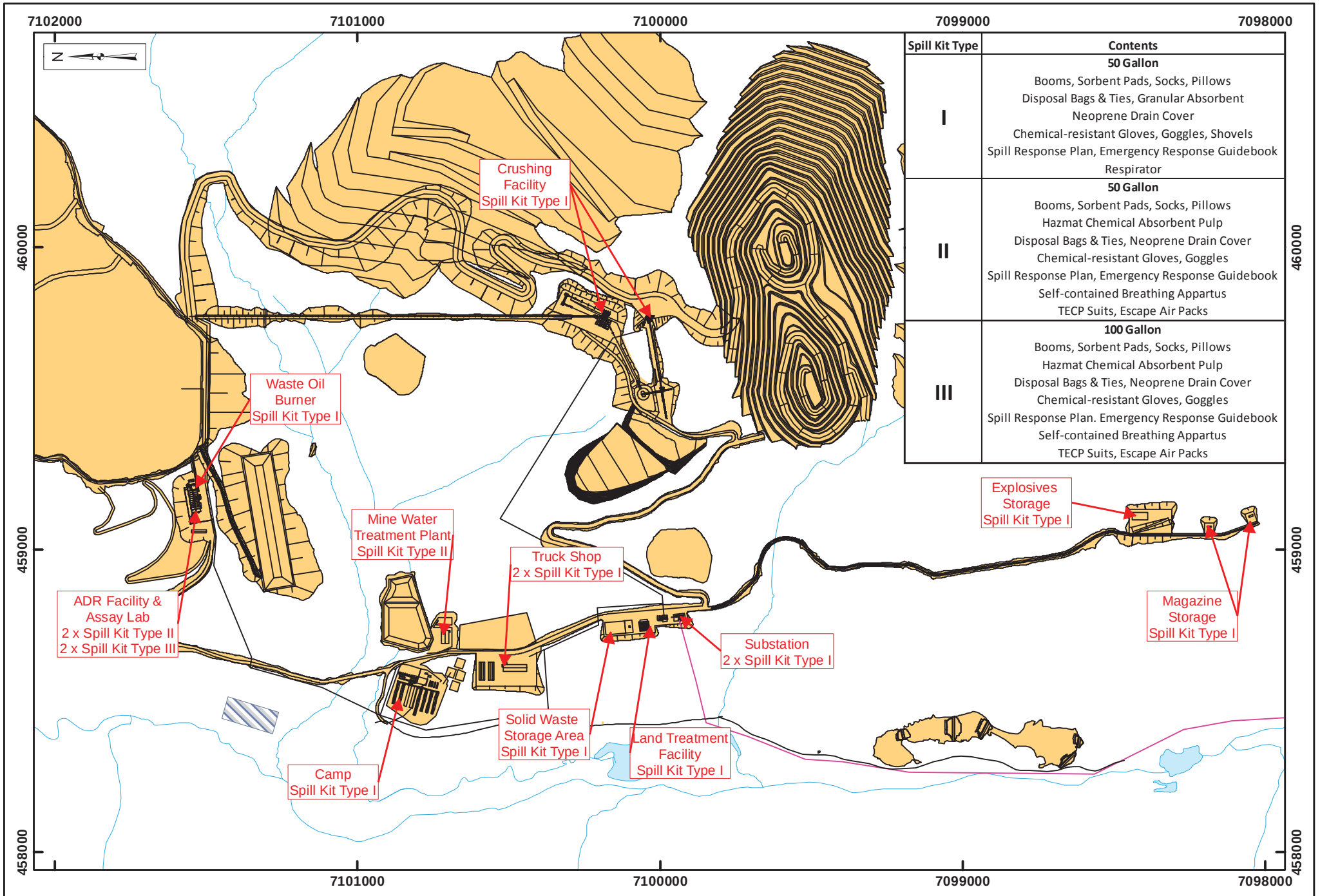
| Location | Type of Equipment |
|---|---|
| ADR Facility and Assay Lab – Reagent Storage area | 2X100 Gallon Spill response carts containing:<br>▪ Booms, sorbent pads, socks, dikes, pillows<br>▪ Hazmat Chemical Absorbent Pulp<br>▪ Disposal bags and Ties<br>▪ Neoprene Drain Cover<br>▪ Spill Response Plan<br>▪ Emergency Response Guidebook<br>▪ Chemical-resistant gloves<br>▪ Goggles<br>This location will also be equipped with the following:<br>▪ Self-contained breathing apparatus<br>▪ Totally-Encapsulating Chemical Protective (TECP) suits<br>▪ Escape air packs (10 minute) |
| ADR Facility and Assay Lab– At each reagent handling area | 2X50 Gallon Spill kits containing:<br>▪ Sorbent Pads, Socks, Pillows<br>▪ Disposal Bags and Ties<br>▪ Hazmat Chemical Absorbent Pulp<br>▪ Neoprene Drain Cover<br>▪ Chemical-resistant Gloves<br>▪ Goggles<br>▪ Spill Response Plan<br>▪ Emergency Response Guidebook<br>This location will also be equipped with the following:<br>▪ Self-contained breathing apparatus<br>▪ Totally-Encapsulating Chemical Protective (TECP) suits<br>▪ Escape air packs (10 minute) |
| Mine water treatment plant | 1X100 Gallon Spill response carts containing:<br>▪ Booms, sorbent pads, socks, dikes, pillows<br>▪ Hazmat Chemical Absorbent Pulp<br>▪ Disposal bags and Ties<br>▪ Chemical-resistant Gloves<br>▪ Goggles<br>▪ Neoprene Drain Cover<br>▪ Spill Response Plan<br>▪ Emergency Response Guidebook<br>This location will also be equipped with the following:<br>▪ Self-contained breathing apparatus<br>▪ Totally-Encapsulating Chemical Protective (TECP) suits<br>▪ Escape air packs (10 minute) |

| Location | Type of Equipment |
|---|---|
| Truck shop | 2 X 50 Gallon Spill kits containing:<br>▪ Booms, Sorbent Pads, Socks, Pillows<br>▪ Disposal Bags and Ties<br>▪ Granular Absorbent<br>▪ Neoprene Drain Cover<br>▪ Chemical-resistant Gloves<br>▪ Goggles<br>▪ Shovels<br>▪ Spill Response Plan<br>▪ Emergency Response Guidebook<br>This location will also be equipped with the following:<br>▪ Respirators |
| Crushing and screening plants | 1 X 50 Gallon Spill kits containing:<br>▪ Booms, Sorbent Pads, Socks, Pillows<br>▪ Disposal Bags and Ties<br>▪ Granular Absorbent<br>▪ Neoprene Drain Cover<br>▪ Chemical-resistant Gloves<br>▪ Goggles<br>▪ Shovels<br>▪ Spill Response Plan<br>▪ Emergency Response Guidebook<br>This location will also be equipped with the following:<br>▪ Respirators |
| Agglomerator Building | 1 X 50 Gallon Spill kits containing:<br>▪ Booms, Sorbent Pads, Socks, Pillows<br>▪ Disposal Bags and Ties<br>▪ Granular Absorbent<br>▪ Neoprene Drain Cover<br>▪ Chemical-resistant Gloves<br>▪ Goggles<br>▪ Shovels<br>▪ Spill Response Plan<br>▪ Emergency Response Guidebook<br>This location will also be equipped with the following:<br>Respirators |
| Fuel storage areas | 1 X 50 Gallon Spill kits containing:<br>▪ Booms, Sorbent Pads, Socks, Pillows<br>▪ Disposal Bags and Ties<br>▪ Granular Absorbent<br>▪ Neoprene Drain Cover<br>▪ Chemical-resistant Gloves<br>▪ Goggles |

| Location | Type of Equipment |
|---|---|
| | ▪ Shovels<br>▪ Spill Response Plan<br>▪ Emergency Response Guidebook<br>This location will also be equipped with the following:<br>▪ Respirators |
| Explosives storage facility | 1 X 50 Gallon Spill kits containing:<br>▪ Booms, Sorbent Pads, Socks, Pillows<br>▪ Disposal Bags and Ties<br>▪ Granular Absorbent<br>▪ Neoprene Drain Cover<br>▪ Chemical-resistant Gloves<br>▪ Goggles<br>▪ Shovels<br>▪ Spill Response Plan<br>▪ Emergency Response Guidebook<br>This location will also be equipped with the following:<br>▪ Respirators |
| Explosives magazine | 1 X 50 Gallon Spill kits containing:<br>▪ Booms, Sorbent Pads, Socks, Pillows<br>▪ Disposal Bags and Ties<br>▪ Granular Absorbent<br>▪ Neoprene Drain Cover<br>▪ Chemical-resistant Gloves<br>▪ Goggles<br>▪ Shovels<br>▪ Spill Response Plan<br>▪ Emergency Response Guidebook<br>This location will also be equipped with the following:<br>▪ Respirators |
| Camp | 1 X 50 Gallon Spill kits containing:<br>▪ Booms, Sorbent Pads, Socks, Pillows<br>▪ Disposal Bags and Ties<br>▪ Granular Absorbent<br>▪ Neoprene Drain Cover<br>▪ Chemical-resistant Gloves<br>▪ Goggles<br>▪ Shovels<br>▪ Spill Response Plan<br>▪ Emergency Response Guidebook<br>This location will also be equipped with the following:<br>▪ Respirators |
| Solid Waste Storage Area | 1 X 50 Gallon Spill kits containing:<br>▪ Booms, Sorbent Pads, Socks, Pillows |

| Location | Type of Equipment |
|---|---|
| | ▪ Disposal Bags and Ties<br>▪ Granular Absorbent<br>▪ Neoprene Drain Cover<br>▪ Chemical-resistant Gloves<br>▪ Goggles<br>▪ Shovels<br>▪ Spill Response Plan<br>▪ Emergency Response Guidebook<br>This location will also be equipped with the following:<br>▪ Respirators |
| Substation | 2 X 50 Gallon Spill kits containing:<br>▪ Booms, Sorbent Pads, Socks, Pillows<br>▪ Disposal Bags and Ties<br>▪ Granular Absorbent<br>▪ Neoprene Drain Cover<br>▪ Chemical-resistant Gloves<br>▪ Goggles<br>▪ Shovels<br>▪ Spill Response Plan<br>▪ Emergency Response Guidebook<br>This location will also be equipped with the following:<br>▪ Respirators |
| Inside mine vehicles:<br>Fuel carts<br>Utility vehicles<br>Explosive transport vehicles<br>Emergency response vehicles | Vehicle spill kits containing:<br>▪ Sorbent Pads, Socks and Pillows<br>▪ Disposable Bags and Ties<br>▪ Granular Absorbent<br>▪ Neoprene Drain Cover<br>▪ Chemical-resistant Gloves<br>▪ Goggles<br>▪ Shovels<br>▪ Spill Response Plan<br>▪ Emergency Response Guidebook |
| Strategic locations along access road | 1 X 50 Gallon Spill kits containing:<br>▪ Booms, Sorbent Pads, Socks, Pillows<br>▪ Disposal Bags and Ties<br>▪ Granular Absorbent<br>▪ Chemical-resistant Gloves<br>▪ Goggles<br>▪ Shovels<br>▪ Spill Response Plan<br>▪ Emergency Response Guidebook |

An inventory of spill kits will be maintained and monthly inspections will be carried out to ensure that they are suitably stocked. MSDS will be available for the substances used in the area serviced by the kit.




| Spill Kit Type | Contents |
|---|---|
| I | **50 Gallon**<br>Booms, Sorbent Pads, Socks, Pillows<br>Disposal Bags & Ties, Granular Absorbent<br>Neoprene Drain Cover<br>Chemical-resistant Gloves, Goggles, Shovels<br>Spill Response Plan, Emergency Response Guidebook<br>Respirator |
| II | **50 Gallon**<br>Booms, Sorbent Pads, Socks, Pillows<br>Hazmat Chemical Absorbent Pulp<br>Disposal Bags & Ties, Neoprene Drain Cover<br>Chemical-resistant Gloves, Goggles<br>Spill Response Plan, Emergency Response Guidebook<br>Self-contained Breathing Appartus<br>TECP Suits, Escape Air Packs |
| III | **100 Gallon**<br>Booms, Sorbent Pads, Socks, Pillows<br>Hazmat Chemical Absorbent Pulp<br>Disposal Bags & Ties, Neoprene Drain Cover<br>Chemical-resistant Gloves, Goggles<br>Spill Response Plan. Emergency Response Guidebook<br>Self-contained Breathing Appartus<br>TECP Suits, Escape Air Packs |

Legend:

Facility
Watercourse
Reserved Area
Transmission Line

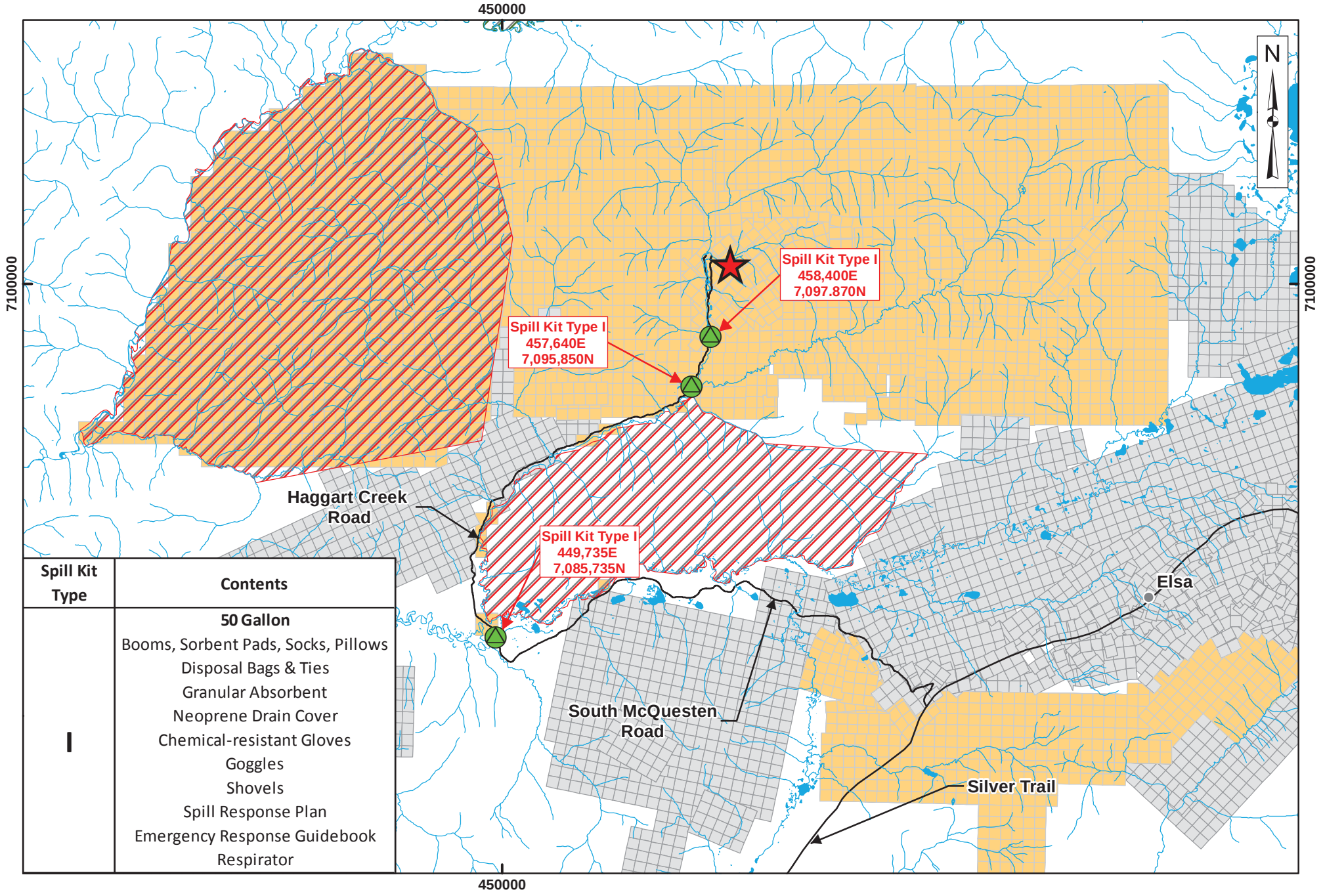
StrataGold Corporation

0 125 250 500
Meters

| Projection: | Drawn By: |
|---|---|
| NAD 83 Zone 8N | HC |
| Date: | Figure: |
| 2017/07/11 | 3.1-1 |

**EAGLE GOLD PROJECT**
**YUKON TERRITORY**

**Planned Location of Spill Response Equipment**




| Spill Kit Type | Contents |
|---|---|
| | **50 Gallon** |
| I | Booms, Sorbent Pads, Socks, Pillows |
| | Disposal Bags & Ties |
| | Granular Absorbent |
| | Neoprene Drain Cover |
| | Chemical-resistant Gloves |
| | Goggles |
| | Shovels |
| | Spill Response Plan |
| | Emergency Response Guidebook |
| | Respirator |

Legend:

- Eagle Gold Project
- Spill Kit Location
- Town / Village
- StrataGold Claims
- Other Claims
- Watercourse
- Road
- Category A Settlement Land
- Category B Settlement Land

StrataGold Corporation

0 1.25 2.5 5 Kilometres

| Projection: | Drawn By: |
|---|---|
| NAD 83 Zone 8N | HC |
| Date: | Figure: |
| 2017/03/15 | 3.1-2 |

**EAGLE GOLD PROJECT**
**YUKON TERRITORY**

**Additional Spill Response Resource Locations**

## 3.2 DUTIES AND RESPONSIBILITIES

To ensure human safety and limit potential environmental effects resulting from a spill, all site personnel will have specific responsibilities when responding to a spill. The responsibilities for spill response are summarized in Table 3.2-1 and depicted in Figure 3.2-1.

**Table 3.2-1: Position and Responsibilities of Personnel Involved in Spill Response**

| Position | Responsibilities |
|---|---|
| All Personnel (Discoverer) | ▪ Assess the initial severity of the spill and safety concerns<br>▪ Identify the source of the spill<br>▪ Ensure the safety of nearby personnel<br>▪ Begin first aid immediately as required<br>▪ Report all spills to Supervisor and Environmental Coordinator as soon as possible<br>▪ Determine the size of the spill and, if safe to do so, stop or contain it<br>▪ Remove all ignition sources if safe to do so<br>▪ Participate in spill response as a member of cleanup crew under the direction of the Spill Response Team |
| Supervisors | ▪ Contact the Mine Manager<br>▪ Report to the site of the spill<br>▪ Gather information on the spill (substance, location, approximate area/quantity, in water, etc.)<br>▪ Participate in spill response as a member of cleanup crew under the direction of the Spill Response Team |
| Emergency Response/Spill Response Team | ▪ Report to the site of the spill<br>▪ Assume primary role for first aid (Emergency Response Team)<br>▪ Stop or contain the spill<br>▪ Remove all ignition sources<br>▪ Take appropriate response measures – deploy booms, absorbents, and other equipment and materials as required<br>▪ Continue cleanup as directed by Mine Manager or Environmental Coordinator |
| Mine Manager | ▪ Report to the site of the spill or Incident Command Centre (if Emergency Response Team has been deployed)<br>▪ Coordinate initial and ongoing response efforts<br>▪ Ensure source of spill has stopped and contain spill<br>▪ Record spill information<br>▪ Ensure a log book of all spill or unauthorized discharge occurrences is maintained<br>▪ Ensure coordination of equipment and personnel as needed<br>▪ Oversee the cleanup operation until it is satisfactorily completed<br>▪ Decide with the Environmental Coordinator if mobilization of additional equipment, resources or personnel is warranted |
| Environmental Manager /Coordinator | ▪ Report to the site of the spill<br>▪ Report the spill to the Yukon 24-Hour Spill Report Line and Energy Mines and Resources - Client Services and Inspections<br>▪ Ensure timely response and cleanup of spill site and impacted areas |

| Position | Responsibilities |
|---|---|
| | ▪ With the Mine Manager, decide if additional equipment, resources or personnel is required for containment and remedial activities<br>▪ Notify senior management<br>▪ With the Mine Manager and senior management, discuss and implement additional external reporting if it is required<br>▪ Oversee completion and distribution of Spill Report<br>▪ Ensure investigation identifies measures to prevent similar spills |
| Executive Vice President | ▪ Communicate with the media for large spills when required.<br>▪ Ensure that all press releases are accurate and in accordance with policy<br>▪ Make financial decisions on major expenses during large spill response<br>▪ Oversee preventative measures to ensure risk of a similar incident is mitigated |

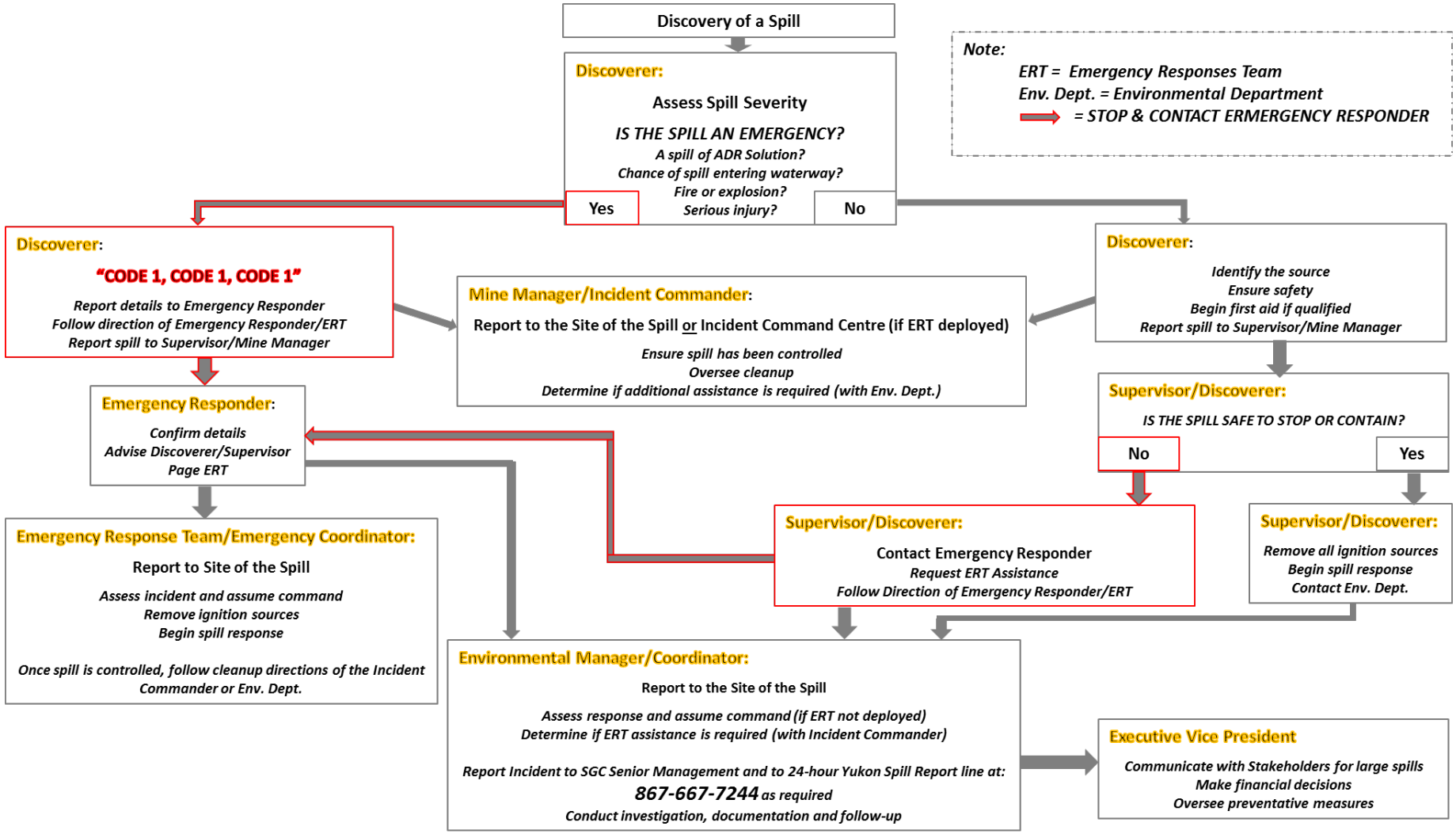



**Figure 3.2-1: Spill Response Procedure**

## 3.3 CONTAINMENT AND CLEANUP PROCEDURES

Containment methods for spills vary depending on the substance, size of the spill, location (inside buildings or outside), terrain and soil type, proximity to watercourses, climatic conditions and the availability of equipment and personnel.

Spill containment and response steps for each substance that could be spilled are summarized in Table 3.3-1 and Appendix C.

**Table 3.3-1: Spill Containment Procedures by Substance**

| Substance Name | Type | TDGA Class | PPE required for Spill Response | Cleanup or disposal method |
|---|---|---|---|---|
| Propane | Petroleum product | 2 | Insulated gloves, safety glasses, respirator if there is a possible of oxygen reduction (confined spaces with poor ventilation) | Shut off flow and remove ignition sources if safe to do so and evacuate area. Consult supplier if container needs disposal. |
| Acetylene | Petroleum product | 2 | Insulated gloves, safety glasses, respirator | Shut off flow and remove ignition sources if safe to do so and evacuate area. Consult supplier if container needs disposal. |
| Oxygen | Gas | 2 | Insulated gloves, safety glasses | Allow gas to dissipate. Consult supplier if container needs disposal. |
| Gasoline | Petroleum product | 3 | Chemical-resistant impervious gloves, safety glasses, respirator if ventilation is inadequate | Approach from upwind, contain and collect spillage with sorbents from spill kits and/or sand and gravel. Pump free liquid into containment. Arrange for transport of material to an approved facility. |
| Diesel | Petroleum product | 3 | Chemical-resistant impervious gloves, safety glasses | Approach from upwind and contain and collect spillage with sorbents from spill kits and/or sand and gravel. Pump free liquid into containment. Arrange for transport of material to an approved facility. |
| Jet A & B Aviation Fuel | Petroleum Product | 3 | Chemical resistant gloves, safety glasses | Use sorbents, pump free liquid into containment. Arrange for transport of material to an approved facility. |
| Antifreeze | Solvent | 9 | Chemical-resistant impervious gloves, safety glasses | Approach from upwind, contain and collect spillage with sorbents from spill kits and/or sand and gravel. Pump free liquid into containment. Arrange for transport of material to an approved facility. |
| Lubricating and Hydraulic Oils | Lubricating oil | n/a | Chemical-resistant gloves, safety glasses. | Approach from upwind, contain and collect spillage with sorbents from spill kits and/or sand and gravel. Pump free liquid into containment. Arrange for transport of material to an approved facility. |

Various practical methods of containment and recovery have been proven and effective for use in northern climates on land, snow ice or in open water. These methods are summarized in Table 3.3-2.

**Table 3.3-2: Spill Containment Procedures by Location**

| Spill location | Response Actions | Containment Methods | Limitations | Required resources |
|---|---|---|---|---|
| Snow and Ice | ▪ Stop spill source<br>▪ Eliminate ignition sources<br>▪ Block entry to waterways with snow dyke or other barrier<br>▪ Trench or ditch to intercept or contain spill<br>▪ Compact snow around spill to increase retention<br>▪ Contain or collect contaminated snow | Snow or Ice dykes | ▪ Best suited for flat areas in winter<br>▪ Requires sufficient snow or ice | ▪ Shovels<br>▪ Heavy equipment |
| | | Snow or Ice trench | ▪ Requires sufficient snow or ice<br>▪ Only applicable when ice is >1m thick<br>▪ Generally requires mechanical equipment for construction on ice | ▪ Shovels<br>▪ Heavy equipment<br>▪ Ice chain saws |
| | | Sorbent berm | ▪ Requires sufficient, readily available sorbent material<br>▪ Impractical for larger spills | ▪ Sorbents |
| Land | ▪ Stop spill source<br>▪ Eliminate ignition sources<br>▪ Block entry to waterways with sand or gravel dyke<br>▪ Trench or ditch to intercept or contain spill<br>▪ Deploy sorbents<br>▪ Recover liquids with pumps or vacuum equipment | Sand or gravel dykes | ▪ Best suited for flat areas<br>▪ Requires sufficient, easily excavated material if hand tools are being used | ▪ Shovels<br>▪ Heavy equipment<br>▪ Sandbags or liner material if available<br>▪ Pump out equipment |
| | | Land trench | ▪ Can be difficult to excavated if soil is frozen<br>▪ Not conducive to areas with shallow bedrock | ▪ Shovels<br>▪ Heavy equipment<br>▪ Pump out equipment |
| | | Sorbent berm | ▪ Requires sufficient, readily available sorbent material<br>▪ Impractical for larger spills | ▪ Sorbents |
| Open Water | ▪ Stop spill source<br>▪ Eliminate ignition sources<br>▪ Deploy sorbent booms or containment booms to control spread of substance | Sorbent boom | ▪ Requires sufficient, readily available sorbent material<br>▪ No suitable for fast moving watercourses | ▪ Sorbents |
| | | Containment boom | ▪ Requires sufficient, readily available sorbent material | ▪ Sorbents |

An effective way of controlling spills on land is through the construction of trenches or berms using sand and gravel. Small spills may be contained manually using shovels. More substantial spills may require the use of heavy equipment to dig trenches or place berm material.

Since snow has absorbent and containment properties, snow can be very effective for containing spills. Liquid spills typically become immobile within the snow pack and can be easily removed for transport

and disposal. Snow will be used to its advantage in the construction of snow dykes, and whenever possible, the snow pack will be left in place to avoid contaminating the underlying substrate. For spills on ice, the methods of containment are similar to those used on land.

Spills occurring on open water (e.g. water retention ponds) will spread very rapidly, and therefore, initial preventative measures such as those described in Table 3.3-1 will be taken to minimize the potential for spills to enter open water. In the event of a petroleum product spills on open water, booms will be deployed immediately to limit the spread of the product and to facilitate recovery, by absorbents or by pumping.

## 3.4 OFF-SITE RESOURCES

With the exception of medical aid incidents, external resources will be authorized only by the Mine Manager or designate, or those with a higher level of responsibility. Key municipal, territorial and federal services and contact numbers are provided in Table 3.4-1.

**Table 3.4-1: Municipal, Territorial and Federal Services and Contact Numbers**

| Name | Office | Location |
|---|---|---|
| Canutec – Emergency Response for TDG spill | **613-996-6666** or ***666 on a cellular phone** | Ottawa |
| Mayo Nursing Station | 867-996-4444 | Mayo |
| Mayo Fire & Rescue | 867-996-2222 | Mayo (Volunteer Responders) |
| Mayo RCMP | Emergency: 867-996-5555<br>Admin: 867-996-2677 | Mayo |
| Whitehorse Regional Hospital - Emergency and Admissions | 867-393-8700 | Whitehorse |
| Environment Yukon<br>Conservation Officer – Debra Morris | 867-996-2202 | Mayo |
| Environment Yukon<br>Conservation Officer Services Branch | 867-667-8005 | Whitehorse |
| First Nation of Nacho Nyäk Dun | 867-996-2265 | Mayo |
| Environment Yukon<br>Fish and Wildlife Branch | 867-667-5715 | Whitehorse |
| Fisheries and Oceans Canada | 867-393-6722 | Whitehorse |
| Yukon Energy Corporation | 867-996-2387 | Mayo |

| Name | Office | Location |
|---|---|---|
| Yukon Energy Corporation | 1-800-676-2843 | After hours Whitehorse |
| Yukon Workers' Compensation Health and Safety Board, Chief Mines Safety Officer, Occupational Health & Safety Branch - Michael Henney | 867-667-8739 | Whitehorse |
| Yukon Workers' Compensation Health and Safety Board<br>24-Hour Emergency Line for Reporting Serious Workplace Incidents and Injuries | 867-667-5450 | Whitehorse |

## 3.5 FIRE SUPPRESSION

The Fire Response Procedure in the Emergency Response Plan must be implemented in the event of a fire.

Fire suppression equipment will be located at all hazardous materials storage, transfer and dispensing areas. If a spill of a flammable substance occurs and is ignited, firefighting efforts may be required prior to spill containment and cleanup. Personnel will be made aware of substance specific dangers prior to conducting fire suppression activities.

Any individual discovering a fire is responsible for attempting to control it and notifying his or her supervisor (Note: Any attempt to control the fire should be made without exposing oneself to risk or injury).

An individual should never enter a smoke-filled environment without self-contained breathing apparatus, appropriate protective clothing and proper training. If a fire is not immediately extinguished and poses an active threat to human health or the environment, then a 'Code 1' call that describes the size and location of the fire must be activated. Immediately notify the Mine Manager in such an event.

In the event that the Mine Manager deems that site wide evacuation is necessary, all personnel must gather at the appropriate muster station so that transport from the site can be arranged, and all mine personnel can be accounted for.

The Mine Manager or designate must:

- Take and remain in charge of firefighting activities until the fire is extinguished
- Ensure all personnel not involved are evacuated to a safe zone and instructed to be on standby for deployment on firefighting duties
- Identify all fire extinguishers used in the firefighting effort and ensure they are serviced, tested, re-charged, and returned for re-use.

## 3.6 CONTAMINATED SOIL

If cleanup material contains hazardous materials, it will be prepared for transport and taken to an approved offsite facility. Caution will be taken with reactive chemicals to make sure disposal of the material does not create additional danger through potential reaction with other materials.

Hazardous materials that cannot be re-used or recycled will be handled in accordance with SGC's Solid Waste and Hazardous Materials Management Plan.

A land treatment facility will be constructed for the progressive treatment and remediation of hydrocarbon contaminated soils as and when required. The land treatment facility will be located adjacent to the landfill area and will consist of two, geo-membrane lined cells. The area will be leveled and sloped such that run-off from the area can be contained and treated prior to release to the receiving environment.

Hydrocarbon contaminated soils will be stored within the land treatment facility and remediated by regular tilling (aeration) and standard northern bioremediation practices. Runoff from the facility will be collected in a sump and treated via an oil water separator in the sump prior to discharge to ground. The construction of dual cells will allow the treatment of contaminants in cell 1 while soils are added to cell 2, remediation treatment will occur in summer months only. Contaminated soils will be tested for hydrocarbons prior to treatment and will be tested for F1/F2/F3/F4 (one test per 50 cubic meters).

# 4 INTERNAL AND EXTERNAL REPORTING

Any spill for which external reporting is required, as described in Section 2.2, will be reported to the 24-hour Yukon Spill Report Line. The reporting sequence below will be followed to allow for an efficient and effective response, completion of an accurate spill report, and timely notification of SGC management, government agencies, and First Nations.

- The First Observer (the person who discovers the spill) will identify the source and report to his/her direct supervisor.
- The supervisor will gather spill information and provide to the Mine Manager and Environmental Manager or designate.
- The Environmental Manager or designate will record the information regarding the spill and forward it to the Mine Manager.
- The Environmental Manager or Environmental Coordinator will report the spill to SGC senior management and the 24-hour Spill Report Line and the Department of Energy, Mines and Resources - Client Services and Inspections, and to the Yukon Water Board Waterline online registry, as well as overseeing the completion and distribution of spill-related information.
- The Environmental Manager and senior management will determine responsibility for reporting to the FNNND within 24 hours if required.

# 5 TRAINING REQUIREMENTS

All personnel on site involved with the handling, use, storage and transportation of hazardous substances will be trained in the procedures for responding to and reporting of spills. Training topics will include:

- Workplace Hazardous Materials Information System (WHMIS) – renewed every 3 years and mandatory for all new hires
- Transportation of Dangerous Goods
- Hazmat training will be delivered to Emergency Response Team members

The following spill related topics will be covered during site orientation for all relevant personnel:

- Responsibilities of personnel
- Causes of spills and preventative measures
- Control, containment and cleanup methods for various spill locations
- Emergency contact information and location
- Storage and disposal of materials used on site
- Reporting requirement and procedure
- Overview of Spill Response Plan
- PPE requirements for handling potential spill materials

# 6 BEST MANAGEMENT PRACTICES

SGC will incorporate best management practices (BMPs) into all work procedures and plans. BMPs relating to spills are outlined below.

## 6.1 HEALTH AND SAFETY

SGC will implement a system of workplace inspections to ensure that procedures put in place to prevent incidents and accidents relating to hazardous materials are followed. This system will identify levels of hazard, which will trigger immediate work stoppages, and levels of hazards, which will trigger notification of management. This system will ensure that work does not continue with inadequate provisions for health and safety and those personnel are empowered to address unsafe or potentially unsafe scenarios.

Specifically in relation to hazardous materials, the following will be provided:

- Engineering controls and engineered hazardous material handling mechanisms to ensure that manual handling and ergonomic issues do not exacerbate the risk associated with working with hazardous materials.
- Monitoring systems for detection of hazardous solution and gaseous leaks.
- PPE designed for use in handling the various types of hazardous materials.
- Communication systems with emergency response capabilities.
- MSDS for all hazardous materials will be readily available anywhere these products are stored or used.
- A copy of the MSDSs will be accessible in the site offices.
- Emergency contact information will be posted and kept current.

## 6.2 SPILL PREVENTION

All relevant personnel that will use or handle hazardous materials will receive WHMIS training and will be trained in proper handling, spill response, and PPE use specific to their job tasks.

No lubrication, refueling or maintenance of equipment is permitted to occur within 30 m of watercourses or wetlands. All fueling and lubrication of equipment will be conducted in a manner that minimizes the possibility of spills with containers, hoses and nozzles kept free of leaks and all fuel nozzles equipped with functional automatic shutoffs.

Sodium cyanide will be mixed with water in a well-ventilated area and maintained at a high pH to prevent the evolution of hydrogen cyanide gas.

The following mitigation measures will be implemented to minimize the potential for transportation incidents that could result in a hazardous substance spill:

- SGC will work with the Department of Highways and Public Works to ensure the access road is properly maintained.
- Speed limits will be strictly enforced for all Project vehicles.
- SGC will ensure trucking and hauling contractors have appropriate driver training, radio contact capabilities, properly maintained vehicles, and spill response capabilities.
- SGC will ensure all hazardous materials are transported and handled in accordance with the *Transportation of Dangerous Goods Act.*
- Signage will be posted along the access road to the Project to ensure non-Project traffic is aware of radio protocols.
- Wildlife migration corridors and crossings along the access road will be identified and signage provided in high risk areas.
- Wildlife crossing and escape points will be plowed in the access road snow banks.
- SGC will have on-site personnel with emergency first aid training to provide primary care in the event of an accident, and will implement the appropriate components of the Emergency Response Plan for the Project.

## 6.3 SPILL RESPONSE

All site personnel will be familiar with SGC's Spill Response Plan, and their duties and responsibilities. Storage sites will be well labeled, and MSDS are accessible in storage areas. This Spill Response Plan will be kept current, and made available to all personnel. SGC will ensure that suitable spill kits are used for spill response and that personnel are trained in using the spill response equipment.

## 6.4 STORAGE OF HAZARDOUS MATERIALS

The Solid Waste and Hazardous Materials Management Plan, describes the method of storage of hazardous materials for the Project. SGC will ensure that all hazardous materials are stored with secondary containment structures, either in the form of concrete foundations with curbed sides or double walling of the primary container. Hazardous material storage areas will be well labeled and access to the storage areas will be restricted.

Spill response equipment will be available at hazardous materials storage locations and will be inventoried, maintained and inspected monthly. Signage will be clearly visible in storage, dispensing and transfer areas. Fire extinguishers and/or fire suppression systems will be located at all hazardous material storage locations. Fuel and lubrication materials will be stored a minimum of 30 m from natural watercourses.

## 6.5 FUEL TRANSFER PROCEDURES

All personnel responsible for transfer, storage, transportation or handling of fuel will be trained in safe work practices for fuel and lubricants.

Caches of spill response materials will be placed along the South McQuesten Road and the Haggart Creek Road, including at the Haggart Creek crossing. Project personnel will have appropriate emergency response and spill contingency training and knowledge; equipment, materials and procedures will be maintained to limit consequences of releases of fuel or oil to the terrestrial or aquatic environment through prompt containment and clean-up.

### 6.5.1 Spill Protection and Prevention

Spill prevention will be undertaken through ensuring that accepted standard operating procedures are employed for the safe and secure transfer of hazardous materials from product transporters and within the Project site. Hazardous materials will be stored in areas that have containment structures such as concrete foundations with curbed sides. Hazardous material handling will be undertaken within the concrete foundations. Equipment handling hazardous materials will be inspected regularly and any inadequacies will be reported to maintenance personnel and repaired prior to continuation with work.

Spills will be responded to using the methods described in this Plan, according to what type of substance and what surface they occur on, as described in Section 3.3 and Appendix C. Routine inspections and maintenance will be conducted at hazardous material storage and transfer areas. Storage areas will be kept clean through good housekeeping practices.

### 6.5.2 Dispensing

Storage containers will be stored properly, and will not be over filled. Operating procedures will be established to minimize the potential for fuel spills during dispensing. All personnel handling fuel will be trained on these procedures.

## 6.6 ROUTINE MONITORING

Monitoring and maintenance is essential in the prevention of spills, and the effective handling of potential spills.

### 6.6.1 Maintenance

Maintenance procedures will be posted in applicable service areas. Maintenance personnel will be trained and familiar with the procedures. Regular checks will be performed on storage and dispensing equipment to identify any potential problems. If the regular checks identify issues, repairs are to be made prior to continued use of the piece of equipment. Spill response equipment will be kept stocked and maintained, and maintenance logs will be kept.

### 6.6.2 Perimeter Assessment

The following outlines items that will be identified during inspection:

- Signs of leakage from storage containers, loss of material, cracks, holes etc.
- Signs of inadequacy of secondary containment structures

- Unexpected solution or gaseous emissions will be thoroughly investigated to determine the source and nature of the emissions.
- Discoloration, oily discharges or any unusual odours.

### 6.6.3 Hazardous Material Storage and Transfer Areas

The following outlines items that will be identified during inspection:

- Spills or stains on the ground.
- Losses of material from storage containers.
- Cracks or damage to storage containers.
- Emergency shut off systems in place, functioning and clearly marked.
- Spill kits are available, adequate and accessible.
- Procedures posted for reference, MSDS are available

# APPENDIX A

## Assessment, Licence and Permit Requirements for Spill Prevention and Response

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# Assessment, Licence and Permit Requirements for Spill Prevention and Response

| Document, License or Permit | Section Number | Requirement |
|---|---|---|
| Final Screening Report and Recommendation: Terms and Condition of Recommendation | 11 | As proposed, the Proponent shall ensure a certified cyanide transporter is used and appropriate driver training, radio contact capabilities, vehicle maintenance, and emergency clean-up kits will be on trucks carrying NaCN. Furthermore, the Proponent shall ensure that emergency clean-up kits include equipment to contain NaCN as well and material to protect from, and respond to, cyanide toxicity in spill responders. |
| Final Screening Report and Recommendation: Terms and Condition of Recommendation | 23 | The proponent shall ensure that the following communication elements are in the ERP:<br>a) Notification to management, regulatory agencies, outside response providers and medical facilities of the cyanide emergency.<br>b) Notification to potentially affected communities of the cyanide related incident and any necessary response measures.<br>c) Communication protocols with the media. |
| Final Screening Report and Recommendation: Proponent Commitments | 97 | SGC will implement the following to maximize road and transport safety:<br>a) Ensure trucking/hauling contractors have appropriate driver training, radio contact capabilities, vehicle maintenance requirements, and spill response capabilities<br>b) Ensure all hazardous materials are transported and handled in accordance with the Transport of Dangerous Goods Act and Regulations |
| Final Screening Report and Recommendation: Proponent Commitments | 98 | SGC commits to the following spill prevention and response measures:<br>a) If there is any doubt regarding the size of a spill, material involved, and whether it is reportable, SGC will err on the side of caution and report the spill.<br>b) Caches of spill response materials will be placed along the access road as required by the Spill Contingency Plan, including the Haggart Creek Crossing.<br>c) Project staff will have appropriate emergency response and spill contingency training and knowledge. Equipment, materials, and procedures will be maintained to limit the consequences of releases to the environment through prompt containment and clean-up.<br>d) Fuels, hydrogen peroxide, and other hazardous liquids will be transferred from tanker trucks to storage tanks by enclosed lines, hoses, and pumps equipped with pressure transducers and volume counters to ensure tanks cannot be overfilled.<br>e) No lubrication, refuelling or maintenance of equipment will occur within 30 m of wetlands or watercourses.<br>f) All fuelling and lubrication of construction equipment will be carried out in a manner that minimizes the possibility of spills. All containers, hoses, and nozzles will be free of leaks and all fuel nozzles equipped with functional automatic shut-offs.<br>g) Where stationary equipment cannot be relocated more than 30 m from a watercourse, it will be situated in a designated area that has been bermed and lined with an impermeable barrier with a holding capacity equal to 125% of the largest tank within the berm.<br>h) Equipment operators will be appropriately trained in spill response procedures and carry spill kits capable of handling spills on land and water. |

# Assessment, Licence and Permit Requirements for Spill Prevention and Response

| Document, License or Permit | Section Number | Requirement |
|---|---|---|
| Final Screening Report and Recommendation: Proponent Commitments | 110 | SGC is committed to developing and implementing Environmental Management Plans with the following components:<br>a) Spill Contingency Plan |
| Final Screening Report and Recommendation: Proponent Commitments | 112 | The ERP will include the following commitments:<br>a) Resource inventories of personnel, equipment, first aid kits, spill kits, and clean-up materials will be maintained on-site and updated regularly. These inventories will also contain information on external resources available off-site (e.g., RCMP, fire department, other mining establishments in the vicinity).<br>b) All staff on site will receive basic training, including environmental awareness, general emergency response, spill contingency measures, and communication procedures. Truck drivers transporting hazardous materials will also receive additional training on spill response, hazardous material handling, and emergency driving techniques. All security personnel will be trained in first aid. |
| Final Screening Report and Recommendation: Proponent Mitigations | 26 | Prevent and respond to all potential spills. |
| Final Screening Report and Recommendation: Proponent Mitigations | 59 | Fuel, hazardous material and explosives will be managed according to industry standards including; storage in appropriate containers; containment areas sized to hold the larger of 110% of the largest tank or 10% of the total maximum volume of all tanks in the facility; and storage of explosives in separate buildings away from the rest of the mine activities. |
| Quartz Mining License QML-0011 | 10.3 | The Licensee must immediately implement the environmental management system if a spill or release of dangerous or hazardous substance or material occurs at the mine. |
| Class 4 Mining Lands Approval LQ00303 | 6 | All spills must be reported immediately to the 24-Hour Yukon Spill Reporting Ling (867) 667-7244 and to the Mining Inspections Division (867) 456-3882. |
| Class 4 Mining Lands Approval LQ00303 | 37 | A spill contingency plan for petroleum products and other hazardous waste must be prepared and posted in the camp and at all fuel handling locations used in carrying out the exploration program. The spill plan shall include reporting to EMR-CSI Mining Inspections and the Chief to ensure compliance with spill reporting requirements. |
| Class 4 Mining Lands Approval LQ00303 | 38 | All spill clean-up equipment and material must be maintained in a state of readiness sufficient at all times to contain and clean-up any hazardous material spills. |
| Class 4 Mining Lands Approval LQ00303 | 39 | If a spill occurs, the spill contingency plan must be immediately implemented and notice given to the 24-hour Yukon Spill Report Line. As soon as practicable, an inspector must be contacted. Whatever remedial action is required to clean-up the spill and reclaim the affected land and water must be taken. |
| Class 4 Mining Lands Approval LQ00303 | 40 | Routine maintenance areas where heavy equipment is serviced or repaired should be inspected regularly for minor spills and stored waste hydrocarbons. |
| Class 4 Mining Lands Approval LQ00303 | 41 | Any contaminated soils should be excavated and contained for eventual land farm treatment at an approved facility. |
| Type B Water Use Licence QZ16- | 19 | Where a spill or an unauthorized discharge occurs, that is of a reportable quantity under the Yukon Spills |

# Assessment, Licence and Permit Requirements for Spill Prevention and Response

| Document, License or Permit | Section Number | Requirement |
|---|---|---|
| 006 | | Regulations, the Licensee shall immediately contact the 24-hour Yukon Spill Report number, (867) 667-7244 and implement the Spill Contingency Plan. A detailed written report on any such event including, but not limited to, dates, quantities, parameters, causes and other relevant details and explanations, shall be submitted to the Board not later than 10 days after the occurrence. |
| Type B Water Use Licence QZ16-006 | 20 | The Licensee shall apply the relevant procedures in the Spill Contingency Plan. The Licensee shall review the Spill Contingency Plan annually and shall provide a summary of that review, including any revisions to the plan, as a component of the annual report. |
| Type B Water Use Licence QZ16-006 | 21 | The Licensee shall maintain a log book of all spill or unauthorized discharge occurrences, including spills that are less than the reportable quantities under the Yukon Spills Regulations. The log book shall be made available at the request of an Inspector. The log book shall include, but not necessarily be limited to the:<br>a) date and time of the spill or unauthorized discharge occurrence;<br>b) substance spilt or discharged;<br>c) approximate amount spilt or discharged;<br>d) location of the spill;<br>e) distance between the spill or discharge and the nearest Watercourse; and<br>f) remedial measures taken to contain and clean-up the spill area or to cease the unauthorized discharge. |
| Type B Water Use Licence QZ16-006 | 22 | The Licensee shall include a summary of all spills or unauthorized discharges that occurred during the year reported, as part of the annual report. |
| Type B Water Use Licence QZ16-006 | 23 | All personnel shall be trained in procedures to be followed and the equipment to be used in the containment of a spill. |
| Type B Water Use Licence QZ16-006 | 24 | Prior to the commencement of construction. the Licensee shall update the Spill Contingency Plan and provide the updated plan to the Board. |
| Type B Water Use Licence QZ16-006 | 25 | The Spill Contingency Plan shall be posted on site for the duration of the works. |
| Type B Water Use Licence QZ16-006 | 26 | Ten days prior to construction, the Licensee shall submit material safety data sheets to the Board for all petroleum products and/or hazardous materials that are to be present during this undertaking. |
| Type B Water Use Licence QZ16-006 | 13 | Fuel, lubricants, hydraulic fluids, coolants and similar substances shall be stored and/or transferred a minimum of 30 metres from the Natural Boundary of any Watercourse, in such a way that said substances are not deposited in or allowed to be deposited in waters. |
| Type A Water Use Licence QZ14-041 | 8 | The Licensee shall apply the relevant procedures in the Spill Contingency Plan. The Licensee shall review the Spill Contingency Plan annually and shall provide a summary of that review, including any revisions to the plan, as a component of the annual report. |
| Type A Water Use Licence QZ14-041 | 9 | The Licensee shall maintain a log book of all spill or unauthorized discharge occurrences, including spills that are less than the reportable quantities under the Yukon Spills Regulations. The log book shall be made available |

# Assessment, Licence and Permit Requirements for Spill Prevention and Response

| Document, License or Permit | Section Number | Requirement |
|---|---|---|
| | | at the request of an Inspector. The log book shall include, but not necessarily be limited to the:<br>g) Date and time of the spill;<br>h) Substance spilt or discharged;<br>i) Approximate amount spilt or discharged;<br>j) Location of the spill;<br>k) Distance between the spill or discharge and the nearest Watercourse; and<br>l) Remedial measures taken to contain and clean-up the spill area or to cease the unauthorized discharge. |
| Type A Water Use Licence QZ14-041 | 10 | The Licensee shall include a summary of all spills or unauthorized discharges that occurred during the year reported, as part of the annual report. |
| Type A Water Use Licence QZ14-041 | 11 | All relevant personnel shall be trained in procedures to be followed and the equipment to be used in the containment of a spill. |
| Type A Water Use Licence QZ14-041 | 12 | Prior to the commencement of Development, the Licensee shall update the Spill Contingency Plan and provide the updated plan to the Board. |
| Type A Water Use Licence QZ14-041 | 13 | The Spill Contingency Plan shall be posted on site for the duration of the works. |
| Type A Water Use Licence QZ14-041 | 14 | Ten days prior to Development, the Licensee shall submit material safety data sheets to the Board for all petroleum products and/or hazardous materials that are to be present during the Project. |
| Type A Water Use Licence QZ14-041 | 15 | Fuel, lubricants, hydraulic fluids, coolants and similar substances shall be stored and/or transferred a minimum of 30 meters from the Natural Boundary of any Watercourse, in such a way that said substances are not deposited in waters. |

# APPENDIX B

## Eagle Gold Spill Report Form

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# EAGLE GOLD PROJECT
# SPILL RESPONSE FORM

| FIRST OBSERVER | | | |
|---|---|---|---|
| **Name & Company:** | | | |
| **Date & Time Observed:** | | | |
| **Location of Spill:** | | | |
| **Distance to Waterbody:** | | **Photos Taken?** | ☐ Yes ☐ No |
| **Estimated Spill Volume:** | | **Reported to:** | |
| **COMPANY RESPONSIBLE** | | | |
| **Supervisor/Investigator:** | | | |
| **Date of Spill:** | | | |
| **Substance Spilled:** | | | |
| **Equipment Involved:** | | | |
| **Volume of Contaminated Material:** | | | |
| **Personnel Contacted for Disposal (Name):** | | | |
| **Cause of Spill:** (Equipment Failure, vehicle accident, foreign object, etc.) | | | |
| **Spill Response Actions Taken:** (Containment and/or absorbent materials used, equipment required for clean-up, Pre-trip attached, etc.) | | | |
| **ENVIRONMENTAL DEPARTMENT USE ONLY** | | | |
| **IR#:** | | **Reportable to Spill Hotline?** | ☐ Yes ☐ No |
| **Info Re. Spill Hotline:** | | | |
| **Disposal Container Labelled?** | ☐ Yes ☐ No | **Samples taken?** | ☐ Yes ☐ No |
| **Environmental areas affected:** (Watercourse, soil, etc.): | | | |
| **Method of Disposal & Further Remediation Required:** | | | |
| **Follow Up Required?** | ☐ Yes ☐ No | **Follow Up Date:** | |
| **SIGNATURES REQUIRED FOR ALL REPORTABLE SPILLS** | | | |
| **Employee:** | | **Signature:** | |
| **Supervisor:** | | **Signature:** | |
| **Safety:** | | **Signature:** | |
| **Environment:** | | **Signature:** | |

# APPENDIX C

## Reportable Spill Thresholds

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# Reportable Spill Thresholds, Personal Protective Equipment and Clean-up Method by Substance FOR UNUSED PRODUCTS

| Substance Name | Type | TDGA Class | Reportable Threshold | PPE required for Spill Response | Cleanup or disposal method |
|---|---|---|---|---|---|
| Propane | Petroleum product | 2 | Any amount of gas from a container larger than 100 L, or where the spill results from equipment failure, error, or deliberate action or inaction | Insulated gloves, safety glasses, respirator if there is a possible of oxygen reduction (confined spaces with poor ventilation) | Shut off flow and remove ignition sources if safe to do so and evacuate area. Consult supplier if container needs disposal. |
| Acetylene | Petroleum product | 2 | Any amount of gas from a container larger than 100 L, or where the spill results from equipment failure, error, or deliberate action or inaction | Insulated gloves, safety glasses, respirator | Shut off flow and remove ignition sources if safe to do so and evacuate area. Consult supplier if container needs disposal. |
| Oxygen | Gas | 2 | Any amount of gas from a container larger than 100 L, or where the spill results from equipment failure, error, or deliberate action or inaction | Insulated gloves, safety glasses | Allow gas to dissipate. Consult supplier if container needs disposal. |
| Gasoline | Petroleum product | 3 | 200 L (any amount if spilled into a watercourse | Chemical-resistant impervious gloves, safety glasses, respirator if ventilation is inadequate | Approach from upwind, contain and collect spillage with sorbents from spill kits and/or sand and gravel. Pump free liquid into containment. Arrange for transport of material to an approved facility. |
| Diesel | Petroleum product | 3 | 200 L (any amount if spilled into a watercourse) | Chemical-resistant impervious gloves, safety glasses | Approach from upwind and contain and collect spillage with sorbents from spill kits and/or sand and gravel. Pump free liquid into containment. Arrange for transport of material to an approved facility. |
| Jet A & B Aviation Fuel | Petroleum Product | 3 | 200 L (any amount if spilled into a watercourse) | Chemical resistant gloves, safety glasses | Use sorbents, pump free liquid into containment. Arrange for transport of material to an approved facility. |
| Antifreeze | Solvent | 9 | 5 L | Chemical-resistant impervious gloves, safety glasses | Approach from upwind, contain and collect spillage with sorbents from spill kits and/or sand and gravel. Pump free liquid into containment. Arrange for transport of material to an approved facility. |
| Lubricating and Hydraulic Oils | Lubricating oil | n/a | 200 L (any amount if spilled into a watercourse) | Chemical-resistant gloves, safety glasses. | Approach from upwind, contain and collect spillage with sorbents from spill kits and/or sand and gravel. Pump free liquid into containment. Arrange for transport of material to an approved facility. |

# Reportable Spill Thresholds, Personal Protective Equipment and Clean-up Method by Substance
# FOR USED/WASTE PRODUCTS

| Substance Type | Time period | Reportable Threshold |
|---|---|---|
| Special Waste that may cause an adverse effect | N/A | Any amount |
| Solid Special Waste | 24 hours | 500 g |
| | 30 days | 5 kg |
| Liquid Special Waste | 24 hours | 500 ml |
| | 30 days | 5 L |
| Mixture of Solid and Liquid Waste | 24 hours | 500 g or 500 ml whichever is less |
| | 30 days | 5 kg or 5 L whichever is less |

# APPENDIX D

## Spill Response Emergency Contact Numbers

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# EAGLE GOLD PROJECT
# SPILL RESPONSE
# EMERGENCY CONTACT NUMBERS

| Resource | Position/Division | Contact Number |
|---|---|---|
| Yukon Government - Environment | Spill Report Centre | **867-667-7244** |
| Eagle Gold Project Site | Site Manager | **Office 604-484-5665 or 778-785-0482**<br>**Cell 867-335-4928** |
| StrataGold Corporation | VP Project Execution | **Office 604-696-6618**<br>**Cell 778-386-3772** |
| StrataGold Corporation | Executive VP | **Office 604-696-6614**<br>**Cell 778-888-4010** |
| StrataGold Corporation | Lands & Permitting Manager | **Office 604-696-6600**<br>**Cell 604-349-6469** |
| Transport Canada | CANUTEC 24-hour service | **613-996-6666** or ***666 on a cellular phone** |
| Yukon Government – Energy, Mines and Resources | Client Services and Inspections – Mayo | **867-996-2568** |
| Yukon Government – Energy, Mines and Resources | Client Services and Inspections – Whitehorse | **867-456-3882** |
| Mayo Nursing Station | | **867-996-4444** |
| Mayo Fire & Rescue | | **867-996-2222** |
| Mayo RCMP | | **Emergency: 867-996-5555**<br>**Admin: 867-996-2677** |
| Yukon Government - Environment | Conservation | **867-996-2202** |
| Fisheries and Oceans Canada | | **867-393-6722** |

# APPENDIX E

## Material Safety Data Sheets
***(available upon request )***

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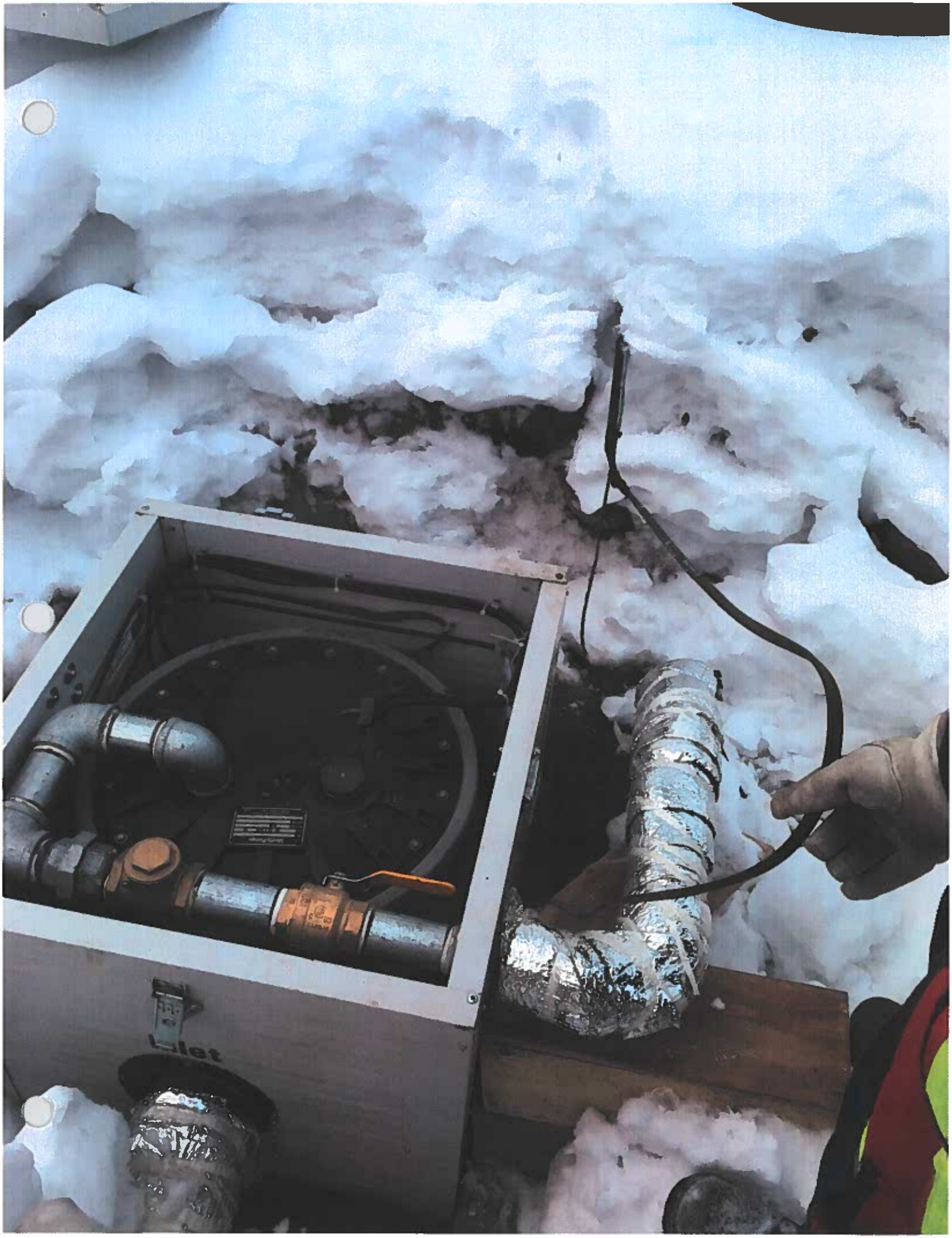
# APPENDIX U

## Reportable Spill Response Forms and Photos

# EAGLE GOLD PROJECT
# SPILL RESPONSE FORM

| | | | |
|---|---|---|---|
| **Name (first observer):** | Cliff Ruth, Kevin Raymond | **Company/Department:** | Summit Camps |
| **Date of spill:** | March 23, 2018 | **Time of spill:** | 750am |
| **Location of spill:** | Eagle Camp Dorm B | **Site conditions (temperature, wind, precipitation, etc.):** | -4C to -16C; sunny |
| **Distance to nearest watercourse:** | >400 m | | |
| **Photos (append):** | **Y / N, Attached File VIC_CA202 Pictures** | | |
| **List safety hazards (Fire, explosive substance, etc.):** | Small amount of smoke was observed from electrical line to heat trace due to malfunction. Electrical current to line was immediately shut off. | | |
| **Substance spilled:** | Black water (sewage) | | |
| **Volume of spill (Liters or kilograms):** | 100-150 L | | |
| **Machinery/equipment involved:** | Sewage discharge line on "B" dorm | | |
| **Cause of spill (Equipment malfunction, vehicle accident, etc.):** | Heat trace on sewage discharge line malfunctioned, causing line to freeze and break. | | |
| **Environmental areas affected (watercourse, soil, wetland, etc.):** | N/A | | |
| **Containment actions taken:** | The spill was contained in a localized area within the excavation of the lift station at Dorm B.<br>The spill was not absorbed by any soils, as the area around the lift station is frozen. | | |
| **Disposal method and location:** | The liquid effluent was removed using the site vacuum truck, and surrounding snow/ice was also removed and disposed of in the existing camp septic field. | | |
| **Samples taken:** | **Y / N, list** | | |
| **Further actions required:** | None – follow up conducted with Yukon Government as per spill reporting regulations.<br>Currently reviewing heat trace installation throughout site. | | |
| **Name of Supervisor informed:** | Shawn Wilson, Summit Supervisor | | |
| **Spill externally reportable:** | **Y / N** | **Name of other personnel informed (Environment Dept):** | Lindsay Rear, VIT |


Inlet

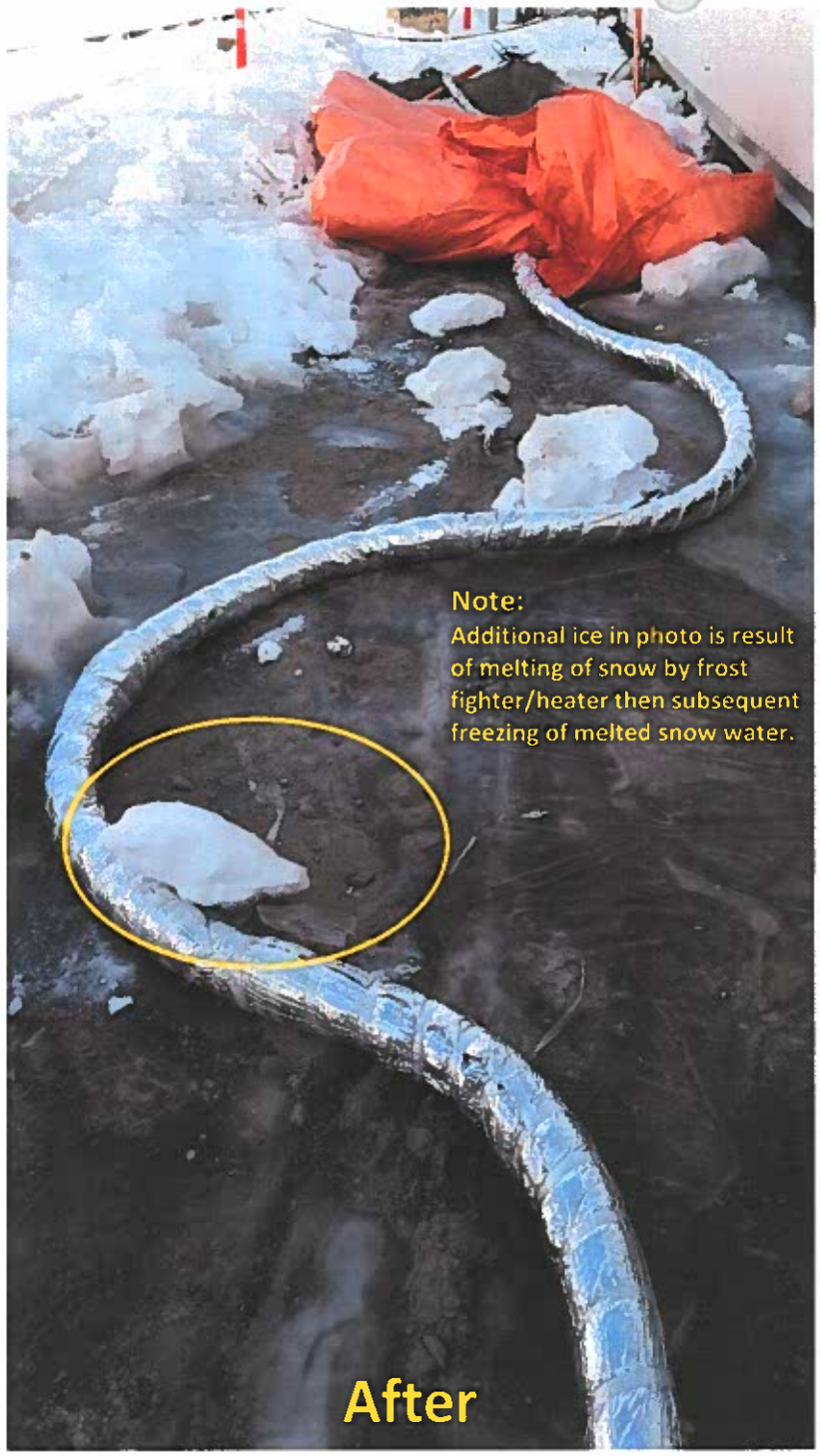
# EAGLE GOLD PROJECT
# SPILL RESPONSE FORM

StrataGold Corporation

| | | | |
|---|---|---|---|
| **Name (first observer):** | Mike Sanborn | **Department:** | Camp Construction. |
| **Date of spill:** | 2018 04 04 | **Time of spill:** | 0800 |
| **Location of spill:** | Between A+B | **Site conditions (temperature, wind, precipitations, etc.):** | -20, calm. |
| **Distance to nearest watercourse** | >1Km | | |
| **Photos: please list & append** | Attached | | |
| **Safety hazards identified (Fire, explosive substance, etc.):** | N/A | | |
| **Substance spilled:** | Blackwater | | |
| **Estimated volume of spill (Liters or kilograms):** | 1 L | | |
| **Cause of spill (Equipment malfunction, vehicle accident, etc.)** | Frozen Blackwater line. | | |
| **Environmental areas affected (watercourse, soil, wetland, etc.)** | Soil | | |
| **Containment actions taken:** | Pipe replaced, spill removed & disposed of in septic tank. | | |
| **Disposal method and location:** | " | | |
| **Samples taken:** | N/A | | |
| **Further actions required:** | Repair & Replace Blackwater pipe - Complete ff. | | |
| **Supervisor reported to:** | Ishan F. | | |
| **Is the Spill Reportable** | Yes | **Who was it reported to?** | |

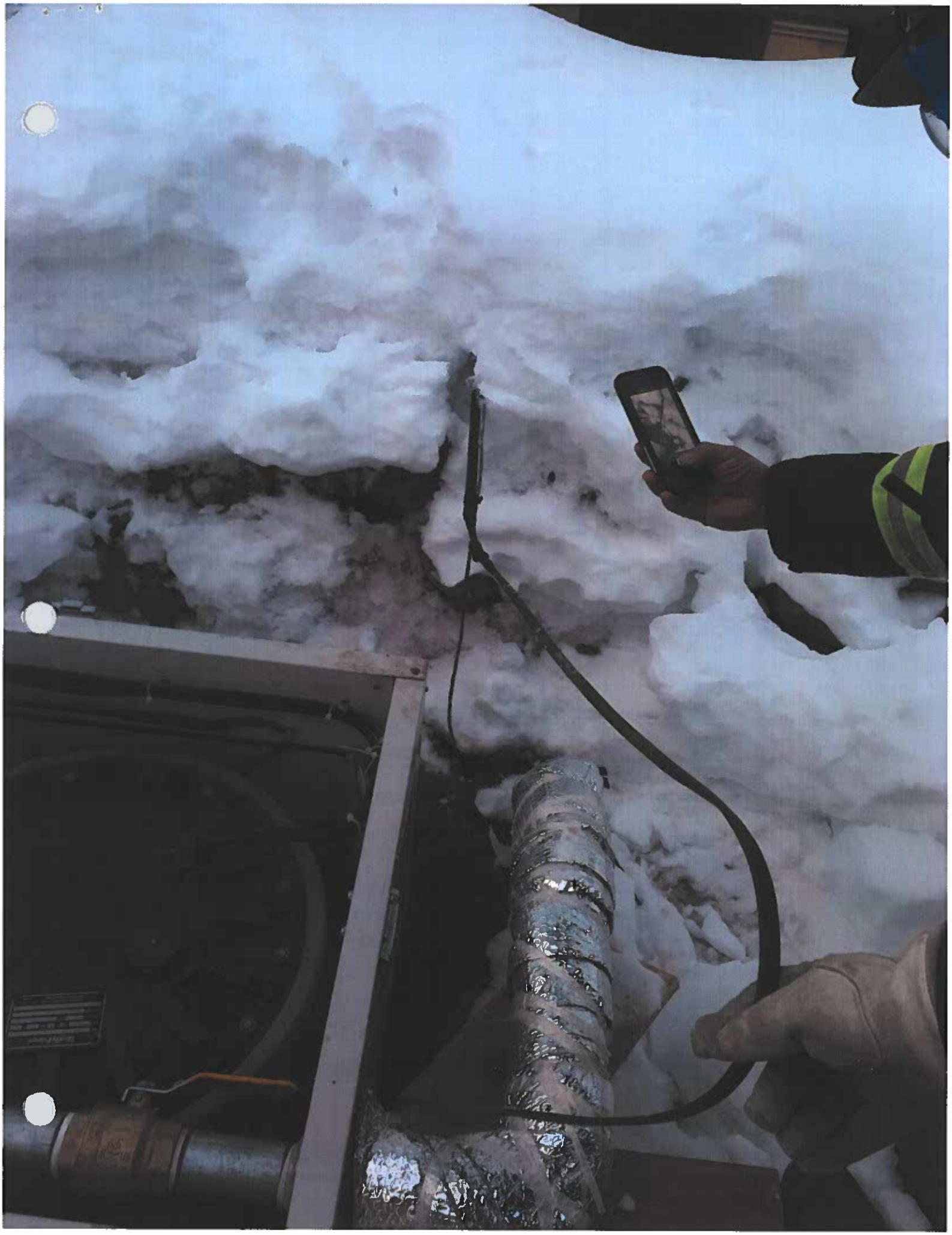



**4 April, 2018**
**Spill**
~~**0.5 L Brake Fluid**~~
1L SEPTIC
M



Outlet
LGM-927

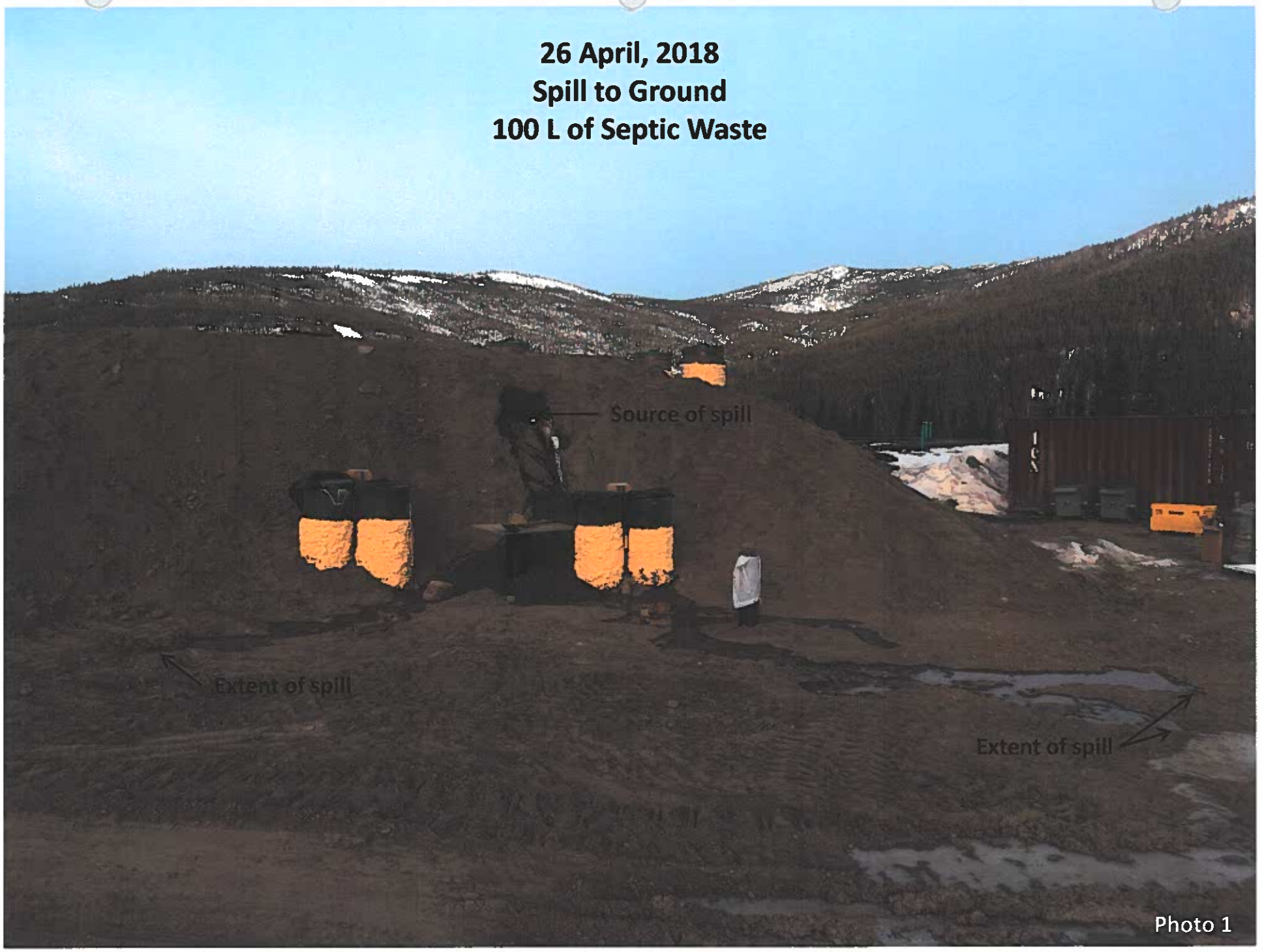
LGM-927



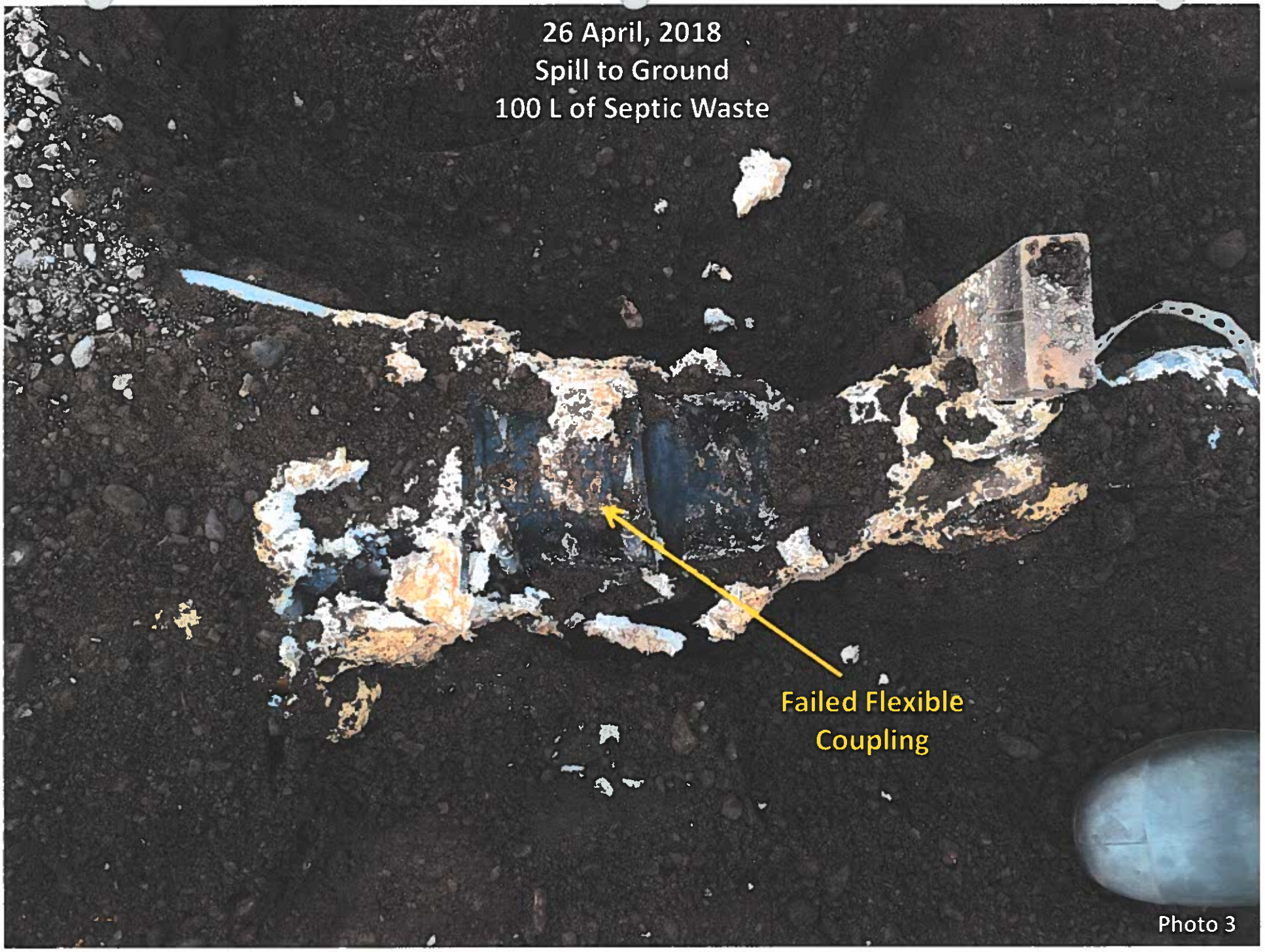
# EAGLE GOLD PROJECT
# SPILL RESPONSE FORM

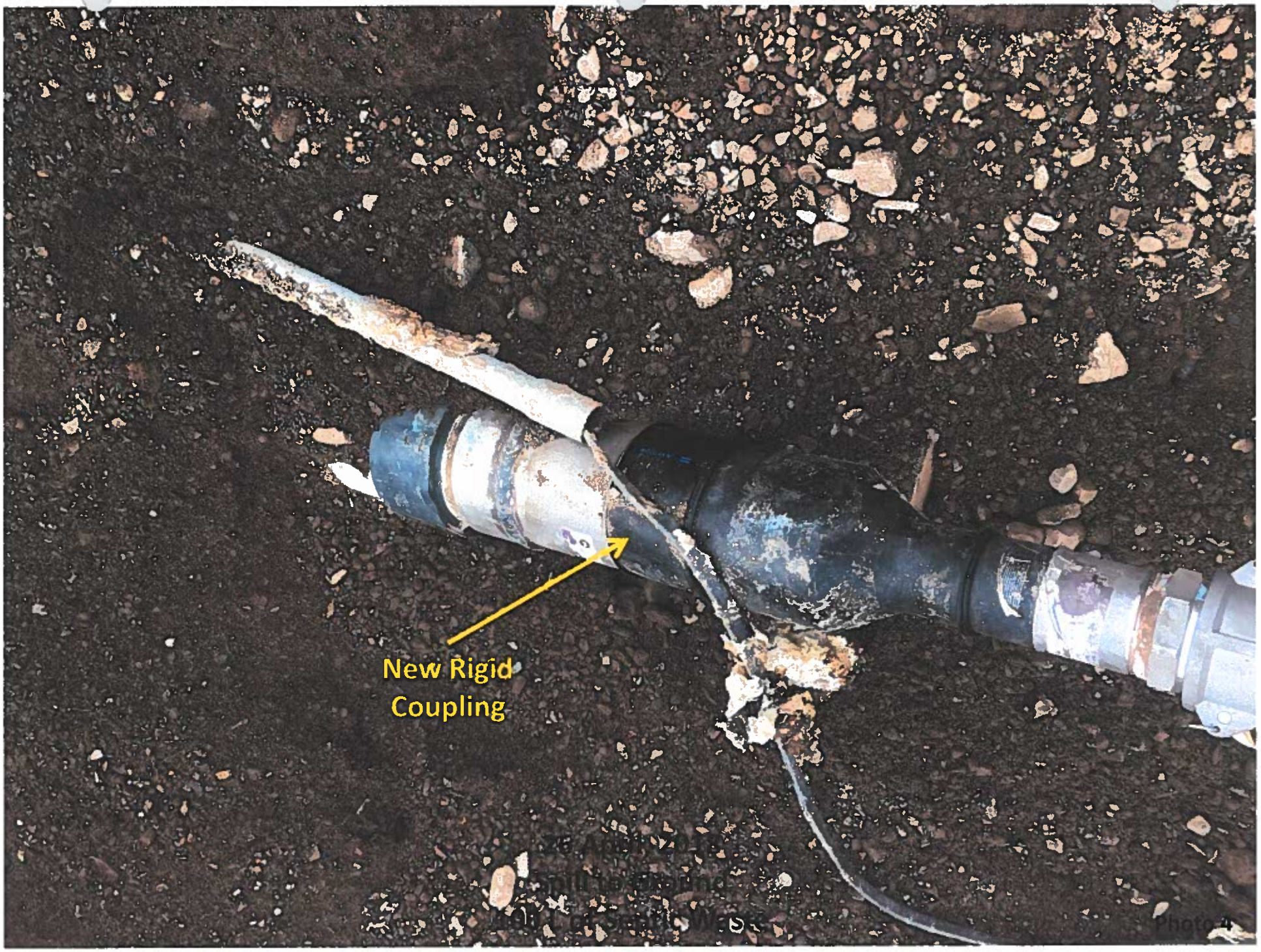
StrataGold Corporation

| | | | |
|---|---|---|---|
| **Name (first observer):** | Shayne Whipp | **Department:** | Site Services |
| **Date of spill:** | 26 April 2018 | **Time of spill:** | 6:30 am |
| **Location of spill:** | North end of septic field | **Site conditions (temperature, wind, precipitations, etc.):** | -2C / No wind |
| **Distance to nearest watercourse** | >500 meters | | |
| **Photos: please list & append** | Photo #1 - As discovered, Photo #2 - Post clean-up,<br>Photo #3 - Failed flexible coupling, Photo #4 - New ridged coupling | | |
| **Safety hazards identified (Fire, explosive substance, etc.):** | None | | |
| **Substance spilled:** | Septic waste | | |
| **Estimated volume of spill (Liters or kilograms):** | 100 liters | | |
| **Cause of spill (Equipment malfunction, vehicle accident, etc.)** | The addition of septic waste at a volume in excess of what the system can accommodate, over pressured the system resulting in a failure of the flexible coupling on the pressure side. | | |
| **Environmental areas affected (watercourse, soil, wetland, etc.)** | Unvegetated sand and gravel associated with #1 Septic field #2 Parking lot | | |
| **Containment actions taken:** | Shoveled into loader bucket and transported to the septic field.<br>The impacted ground was sprayed with a diluted water-bleach solution | | |
| **Disposal method and location:** | Impacted sand and gravel was spread over septic field and additional clean fill material was placed over contaminated material to cover. | | |
| **Samples taken:** | N/A | | |
| **Further actions required:** | None. Replaced the flexible coupling with a new ridged coupling. Communicated with site services not to pump additional septic waste into septic system in order to prevent over filling/pressurizing the capabilities of the system. | | |
| **Supervisor reported to:** | Larry LeBlanc | | |
| **Is the Spill Reportable** | Yes | **Who was it reported to?** | Lindsay Rear (Victoria Gold) |


26 April, 2018
Spill to Ground
100 L of Septic Waste
Source of spill
Extent of spill
Extent of spill
Photo 1


Area cleaned up
Photo 2


26 April, 2018
Spill to Ground
100 L of Septic Waste
Failed Flexible
Coupling
Photo 3


New Rigid
Coupling

NNDDC COBALT

# EAGLE GOLD PROJECT
# SPILL RESPONSE FORM

StrataGold Corporation

| | | | |
|---|---|---|---|
| **Name (first observer):** | Jerry | **Company/Department:** | JDS |
| **Date of spill:** | MAY 5/2018 | **Time of spill:** | 115 PM |
| **Location of spill:** | WEST SIDE OF CAMP PAD | **Site conditions (temperature, wind, precipitation, etc.):** | WET |
| **Distance to nearest watercourse:** | 450 m | | |
| **Photos (append):** | Y / N, list Yes | | |
| **List safety hazards (Fire, explosive substance, etc.):** | N/A | | |
| **Substance spilled:** | EFFLUENT | | |
| **Volume of spill (Litres or kilograms):** | 1 LITER | | |
| **Machinery/equipment involved:** | N/A | | |
| **Cause of spill (Equipment malfunction, vehicle accident, etc.):** | LEAK IN TANK VALVE | | |
| **Environmental areas affected (watercourse, soil, wetland, etc.):** | N/A | | |
| **Containment actions taken:** | ABSORBTION PADS | | |
| **Disposal method and location:** | SHOVELED CONTAINATED SOIL INTO PAIL → SEPTIC DISTRIBUTION PAD, covered with clean soil | | |
| **Samples taken:** | Y / N, list No | | |
| **Further actions required:** | N/A | | |
| **Name of Supervisor informed:** | THOMAS / DARREN / Jerry | | |
| **Spill externally reportable:** | (Y) / N | **Name of other personnel informed (Environment Dept):** | |

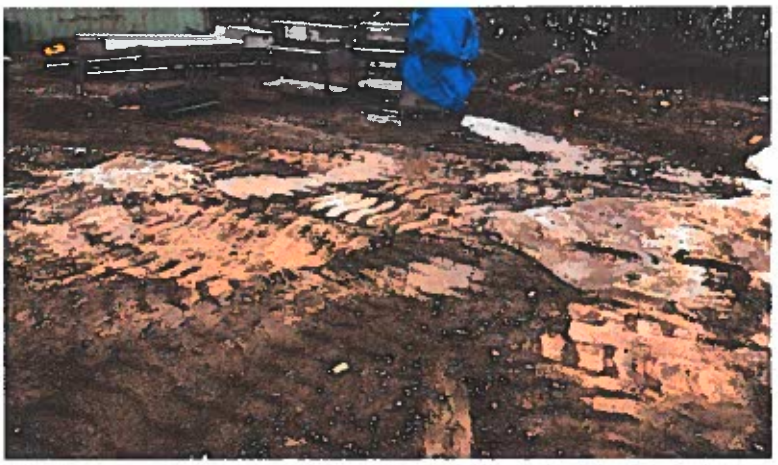
JDS TO REPORT

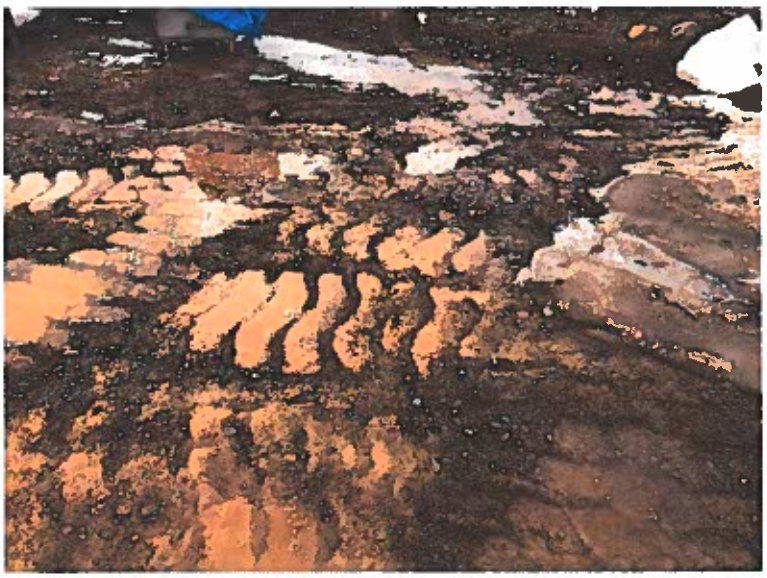
***Before Clean Up***





***Post Clean Up***





# EAGLE GOLD PROJECT
# SPILL RESPONSE FORM

StrataGold Corporation

| | | | |
|---|---|---|---|
| **Name (first observer):** | Romney Duncan | **Company/Department:** | Walters Construction |
| **Date of spill:** | 7/06/2018 | **Time of spill:** | ~ 4:00 |
| **Location of spill:** | By septic tank | **Site conditions (temperature, wind, precipitation, etc.):** | Clear |
| **Distance to nearest watercourse:** | 150 m | | |
| **Photos (append):** | (Y) / N, list | | |
| **List safety hazards (Fire, explosive substance, etc.):** | None | | |
| **Substance spilled:** | Sewage | | |
| **Volume of spill (Liters or kilograms):** | Un/known | | |
| **Machinery/equipment involved:** | Septic | | |
| **Cause of spill (Equipment malfunction, vehicle accident, etc.):** | Pipe cracked releasing approx. 20 liters into septic field | | |
| **Environmental areas affected (watercourse, soil, wetland, etc.):** | None | | |
| **Containment actions taken:** | Self contained within septic field | | |
| **Disposal method and location:** | Self contained within the septic field | | |
| **Samples taken:** | Y / (N) list | | |
| **Further actions required:** | None - Repair piping | | |
| **Name of Supervisor informed:** | Ishan | | |
| **Spill externally reportable:** | Y / N | **Name of other personnel informed (Environment Dept):** | |

# EAGLE GOLD PROJECT
# SPILL RESPONSE FORM

StrataGold Corporation

Corrected Form

| | | | |
|---|---|---|---|
| **Name (first observer):** | Stephane with Summit | **Company/Department:** | Summit |
| **Date of spill:** | June 17, 2018 | **Time of spill:** | ~6:10AM |
| **Location of spill:** | Between A & B Dorms | **Site conditions (temperature, wind, precipitation, etc.):** | Sunny, warm morning, low wind |
| **Distance to nearest watercourse:** | ~800 meters | | |
| **Photos (append):** | **Yes** | | |
| **List safety hazards (Fire, explosive substance, etc.):** | N/A | | |
| **Substance spilled:** | Grey and black water (sewage) | | |
| **Volume of spill (Liters or kilograms):** | ~15 Liters | | |
| **Machinery/equipment involved:** | Lift station | | |
| **Cause of spill (Equipment malfunction, vehicle accident, etc.):** | Lift station high level alarm, pump / shut off malfunction | | |
| **Environmental areas affected (watercourse, soil, wetland, etc.):** | Soil around the lift station/pump. Was contained in the sump | | |
| **Containment actions taken:** | Deployed vacuum truck to suck up contaminated water and soil at 6:45 AM | | |
| **Disposal method and location:** | **Pumped into new septic field** | | |
| **Samples taken:** | **No** | | |
| **Further actions required:** | Once the lift station pump is repaired, the soil around the area will be sprayed with a bleach solution as per correct practice | | |
| **Name of Supervisor informed:** | Blair Laurila (JDS) and Stephane (Summit) | | |
| **Spill externally reportable:** | **Yes** | **Name of other personnel informed (Environment Dept):** | Alex Therriault and Dean Wold |

# EAGLE GOLD PROJECT
# SPILL RESPONSE FORM

StrataGold Corporation

| | | | |
|---|---|---|---|
| **Name (first observer):** | Stephane | **Company/Department:** | Summit |
| **Date of spill:** | 06/17th | **Time of spill:** | 6:10 |
| **Location of spill:** | Between A/B Dorm | **Site conditions (temperature, wind, precipitation, etc.):** | Sunny, warm morning low wind |
| **Distance to nearest watercourse:** | 800 meters. | | |
| **Photos (append):** | (Y) / N, list See Blair, and attached | | |
| **List safety hazards (Fire, explosive substance, etc.):** | N/A | | |
| **Substance spilled:** | grey water, sewage. | | |
| **Volume of spill (Liters or kilograms):** | 15 liters. | | |
| **Machinery/equipment involved:** | Vac truck | | |
| **Cause of spill (Equipment malfunction, vehicle accident, etc.):** | lift pump sleeve high level alarm malfunctioned. (did not work) | | |
| **Environmental areas affected (watercourse, soil, wetland, etc.):** | Soil around pump contained. | | |
| **Containment actions taken:** | Deployed vac truck was sucked clean By 6:45 | | |
| **Disposal method and location:** | In new septic fied pump off location. | | |
| **Samples taken:** | Y / (N), list | | |
| **Further actions required:** | Yes. further grand clean up and lift pump maintance | | |
| **Name of Supervisor informed:** | Blair<br>Stephane. | | |
| **Spill externally reportable:** | Y / (N) | **Name of other personnel informed (Environment Dept):** | Alex Yet to have discussion before site till later today |

pics after Hydro crew.



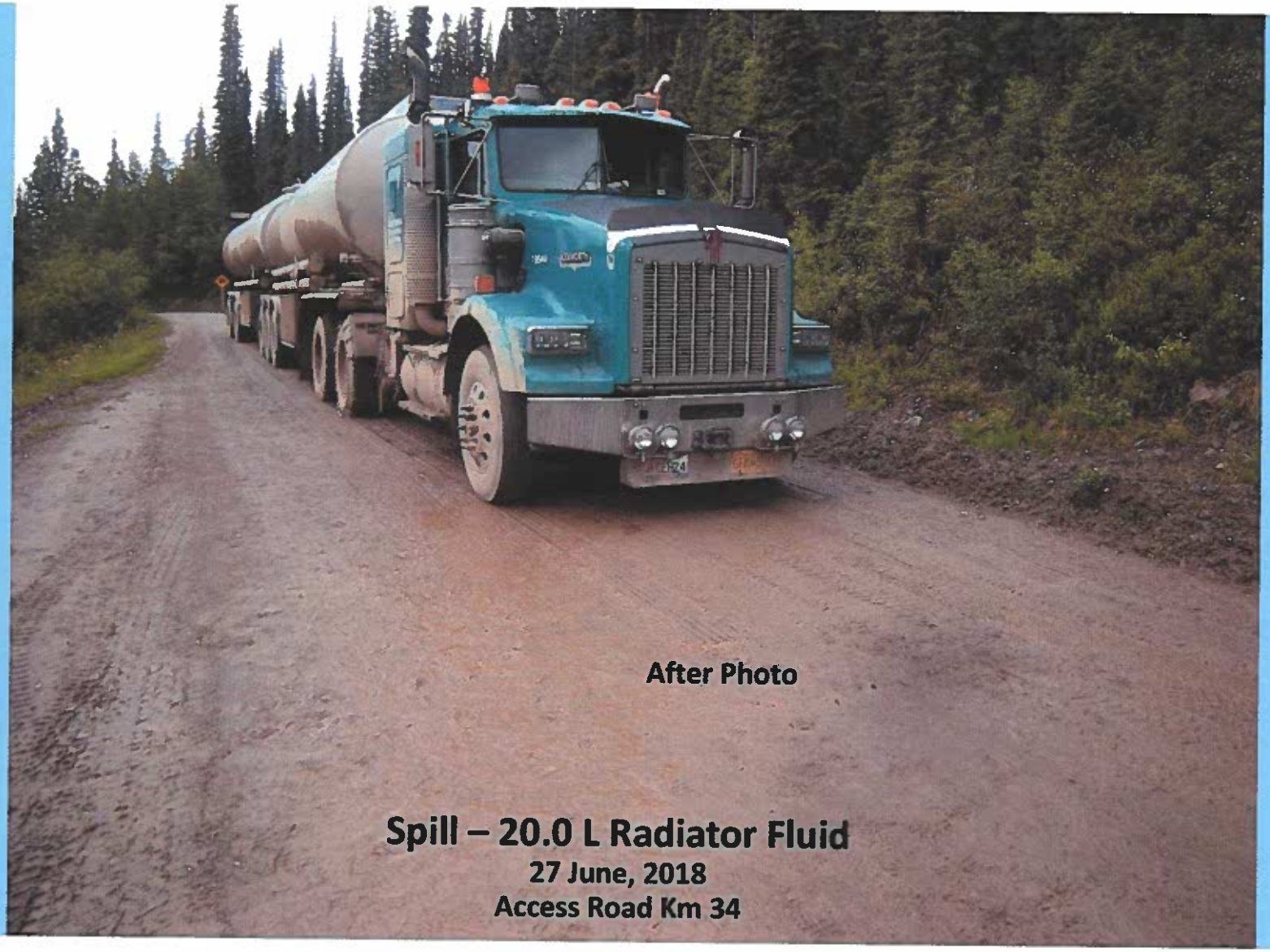




# EAGLE GOLD PROJECT
# SPILL RESPONSE FORM

StrataGold Corporation

| | | | |
|---|---|---|---|
| **Name (first observer):** | Pacesetter Driver | **Company/Department:** | Pacesetter Petroleum |
| **Date of spill:** | 27 June, 2018 | **Time of spill:** | 12:05 |
| **Location of spill:** | Access Road Km 34 | **Site conditions (temperature, wind, precipitation, etc.):** | Rain, overcast |
| **Distance to nearest watercourse:** | 300 m | | |
| **Photos (append):** | **Y / N, list** | | |
| **List safety hazards (Fire, explosive substance, etc.):** | None | | |
| **Substance spilled:** | Antifreeze (radiator fluid) | | |
| **Volume of spill (Liters or kilograms):** | 20.0 L (maximum, based on amount required to refill) | | |
| **Machinery/equipment involved:** | North 60 Petro truck #19544 hauling diesel for Pacesetter | | |
| **Cause of spill (Equipment malfunction, vehicle accident, etc.):** | Radiator hose failure | | |
| **Environmental areas affected (watercourse, soil, wetland, etc.):** | Gravel/roadbed material associated with the Access Road, non-vegetated, no impact to water | | |
| **Containment actions taken:** | Truck engine immediately shut off, spill pads immediately put down under engine compartment and where it had contacted the road | | |
| **Disposal method and location:** | Spill pads and impacted roadbed material collected and placed into large, yellow, hazardous waste bags and taken to the hazardous waste storage area by the Shop; the impacted spill pads and roadbed material will remain segregated from hydrocarbon-bearing waste | | |
| **Samples taken:** | **Y / N, list** | | |
| **Further actions required:** | A qualified mechanic replaced the hose, tested it for pressure, and the truck was deemed fully repaired and left the incident scene at 13:47 | | |
| **Name of Supervisor informed:** | Larry Leblanc (JDS), Brent Hartshorne (Pacesetter) | | |
| **Spill externally reportable:** | **Y / N** No | **Name of other personnel informed (Environment Dept):** | Terry Goodwin (JDS HSE)<br>Crystal Beaudry (Vit Gold) |



After Photo

**Spill – 20.0 L Radiator Fluid**
**27 June, 2018**
**Access Road Km 34**




**Spill – 20.0 L Radiator Fluid**

**27 June, 2018**

**Access Road Km 34**

# EAGLE GOLD PROJECT
# SPILL RESPONSE FORM

StrataGold Corporation

| | | | |
|---|---|---|---|
| **Name (first observer):** | Jay Knuff | **Company/Department:** | ~~Site Services~~ JDS |
| **Date of spill:** | Aug 6 2018 | **Time of spill:** | 6:00 pm |
| **Location of spill:** | ADR Laydown. | **Site conditions (temperature, wind, precipitation, etc.):** | 18°C moderate wind Sunny |
| **Distance to nearest watercourse:** | Estimated 1 Km | | |
| **Photos (append):** | (Y) / N, list See Alex | | |
| **List safety hazards (Fire, explosive substance, etc.):** | N/A | | |
| **Substance spilled:** | Septic | | |
| **Volume of spill (Liters or kilograms):** | 10 to 15 liters | | |
| **Machinery/equipment involved:** | wash cart | | |
| **Cause of spill (Equipment malfunction, vehicle accident, etc.):** | toilet Installation. or clogged. | | |
| **Environmental areas affected (watercourse, soil, wetland, etc.):** | Soil | | |
| **Containment actions taken:** | hydro vac and bleach solution | | |
| **Disposal method and location:** | Septic field - liquid waste was disposed in pump station @ Septic field. | | |
| **Samples taken:** | Y / (N), list | | |
| **Further actions required:** | Spill was contained and cleaned. wash cart is now fully functional again. No longer leaking | | |
| **Name of Supervisor informed:** | Jay. Knuff, Blair L., Alex. t. | | |
| **Spill externally reportable:** | (Y) N | **Name of other personnel informed (Environment Dept):** | Alex |

Toilets were just installed and one had a leak at the base. water (septic) seeped through washcart floor onto ground.

# EAGLE GOLD PROJECT
# SPILL RESPONSE FORM

Corporation

| | | | |
|---|---|---|---|
| **Name (first observer):** | Robert Seminiuk | **Company/Department:** | Site operations |
| **Date of spill:** | August 26, 2018 | **Time of spill:** | 07:15 |
| **Location of spill:** | ADR Wash Car | **Site conditions (temperature, wind, precipitation, etc.):** | Sunny, +8C |
| **Distance to nearest watercourse:** | 500 meters | | |
| **Photos (append):** | Yes | | |
| **List safety hazards (Fire, explosive substance, etc.):** | Potential for biohazards (sewage) | | |
| **Substance spilled:** | Gray water | | |
| **Volume of spill (Liters or kilograms):** | 5L | | |
| **Machinery/equipment involved:** | Wash car trailer | | |
| **Cause of spill (Equipment malfunction, vehicle accident, etc.):** | Gray water tank shifted or settled pipe came out of tank. Shifting of ground below wash car. | | |
| **Environmental areas affected (watercourse, soil, wetland, etc.):** | Gravel near gray water tank | | |
| **Containment actions taken:** | Contaminated gravel shoveled and placed into pails | | |
| **Disposal method and location:** | Pails of contaminated gravel taken down to waste management area near JDS shop. Ground area sprayed with diluted bleach solution. | | |
| **Samples taken:** | No | | |
| **Further actions required:** | No – Wash car was repaired immediately by re-attaching pipe | | |
| **Name of Supervisor informed:** | Robert Seminiuk – Larry Leblanc | | |
| **Spill externally reportable:** | **Yes** | **Name of other personnel informed (Environment Dept):** | Alex Therriault – VIT Environmental |

# EAGLE GOLD PROJECT
# ENV MONITORING

| | | | |
|---|---|---|---|
| **Name (first observer):** | Blair Laurila | **Company/Department:** | JDS/ Site Services |
| **Date of spill:** | September 14, 2018 | **Time of Spill:** | Unknown. Noticed at 16:00 |
| **Location of spill:** | Camp parking lot | **Site conditions (temperature, wind, Precipitation, etc.):** | Warm, sunny, light breeze |
| **Distance to nearest watercourse:** | 200m | | |
| **Photos (append):** | **Yes** | | |
| **List safety hazards (fire, explosive, etc.):** | Sewage effluent- contact with people | | |
| **Substance spilled:** | Sewage effluent | | |
| **Volume of spill (litres, kilograms, etc.):** | 100L | | |
| **Machinery/equipment Involved:** | Piping on old septic field was not capped and effluent leaked | | |
| **Cause of spill (equipment malfunction, vehicle accident, etc.):** | Hygiene products are being flushed down the toilets and causing the pumps to stop working. | | |
| **Environmental areas affected (watercourse, soil, wetlands, etc.):** | Piping on old septic field was not capped, pump breakers went and effluent back up and spilled out of pipe and into the parking lot ditch | | |
| **Containment actions taken:** | Material was scrapped up and worked into the septic field. | | |
| **Disposal method and location:** | **On septic field** | | |
| **Samples taken:** | **No** | | |
| **Further actions required:** | Currently site services will be checking the area twice a day until a suitable warning system can be installed | | |
| **Name of supervisor informed:** | Blair Laurila | | |
| **Spill externally reportable:** | **Yes** | **Name of other personnel informed (Environment Dept.):** | Phil Emerson |













# EAGLE GOLD PROJECT
# SPILL RESPONSE FORM

| | | | |
|---|---|---|---|
| **NAME** (FIRST OBSERVER): | Dave Scott | **COMPANY:** | Finning (Canada) |
| **DATE:** | 9/21/18 | **TIME:** | 3:30 PM |
| **LOCATION:** | Victoria Gold | **SITE CONDITIONS** (Temperature, rain, wind, etc): | Dry Road |
| **DISTANCE TO NEAREST WATERCOURSE** (m) | 1 km. | | |
| **PHOTOS** (APPEND): | (Y)/N, LIST | | |
| **LIST ANY SAFETY HAZARDS** (Fire, explosive chemicals, etc): | N/A. | | |
| **SUBSTANCE SPILLED:** | Antifreeze. | | |
| **VOLUME TO GROUND** (Litres or kilograms) | Approx 75-80 Litres | | |
| **MACHINERY/EQUIPMENT #:** | Cat 6040 Shovel. | | |
| **CAUSE** (Equipment malfunction, vehicle accident, etc): | Hose on Radiator Blew off. | | |
| **ENVIRONMENTAL AREA AFFECTED** (Soil, Watercourse, etc.): | — road material (soil) | | |
| **CONTAINMENT/MITIGATION ACTIONS:** | It misted the Road. | | |
| **DISPOSAL METHOD AND FINAL LOCATION:** | Road was scraped to collect contaminated materials and securely bagged for ~~storage~~ storage in waste management area. | | |
| **SAMPLES TAKEN:** | Y/(N), LIST | | |
| **FURTHER ACTIONS REQUIRED:** | (Y)/N, LIST Reported externally to Yukon Government Spill Line Completed Sept 22, 2018 Lindsay Rear. | | |
| **SUPERVISOR INFORMED:** | D. Scott | | |
| **SPILL EXTERNALLY REPORTABLE:** | (Y)/N | **Other Personnel Informed** (JDS/VIT ENV): | Lindsay Rear. |



# EAGLE GOLD PROJECT
# SPILL RESPONSE FORM

StrataGold Corporation

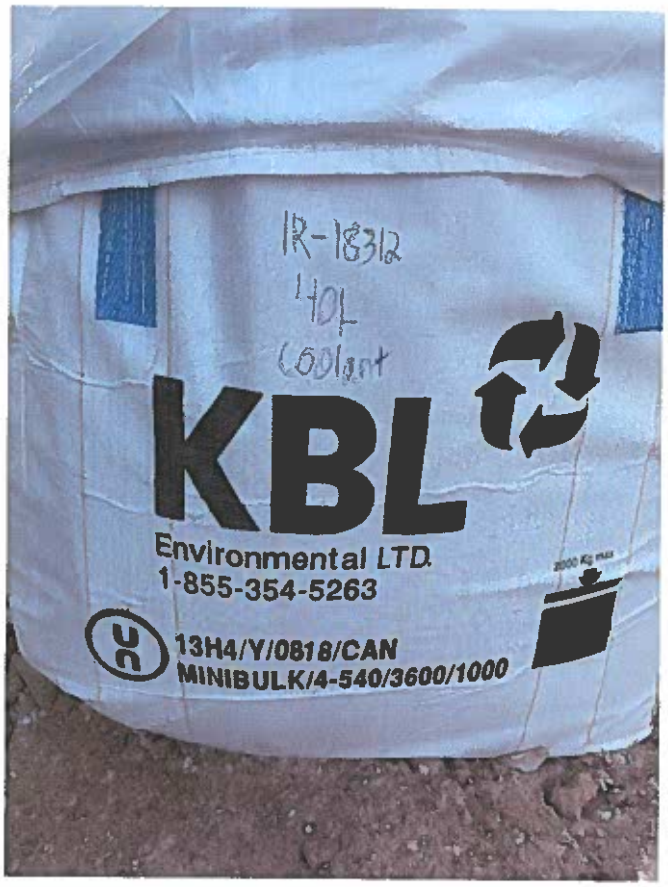
| FIRST OBSERVER | | | |
|---|---|---|---|
| **Name & Company:** | Colin Kabanak. Ewing Transport | | |
| **Date & Time Observed:** | December 8, 2018 11:48am | | |
| **Location of Spill:** | Victoria Gold mine site at the 4 inch stockpile, north of secondary | | |
| **Distance to Waterbody:** | 1.8km | **Photos Taken?** | ☒ Yes ☐ No |
| **Estimated Spill Volume:** | 40 L | **Reported to:** | JDS Safety, VIT Environmental |

| COMPANY RESPONSIBLE | |
|---|---|
| **Supervisor/Investigator:** | Dick Ewing |
| **Date of Spill:** | December 8, 2018 |
| **Substance Spilled:** | Coolant |
| **Equipment Involved:** | Cat 980 Wheel loader |
| **Volume of Contaminated Material:** | 1.5 cubic meters of material |
| **Personnel Contacted for Disposal (Name):** | Paul Medvid |
| **Cause of Spill:** (Equipment Failure, vehicle accident, foreign object, etc.) | Equipment failure - Failed heater hose |
| **Spill Response Actions Taken:** (Containment and/or absorbent materials used, equipment required for clean-up, Pre-trip attached, etc.) | Spill was reported to supervisor immediately, Soaker pads and spill tray was used for containment. Hose line was fixed and the equipment was moved. An excavator was used to clean up the majority of the spill and a track shovel was used to finish cleaning the area. |

| ENVIRONMENTAL DEPARTMENT USE ONLY | | | |
|---|---|---|---|
| **IR#:** | IR 18-312 | **Reportable to Spill Hotline?** | ☒ Yes ☐ No |
| **Info Re. Spill Hotline:** | Talked with Troy Searson at the Yukon Spill Hotline at approximately 17:00 December 8, 2018 | | |
| **Disposal Container Labelled?** | ☒ Yes ☐ No | **Samples taken?** | ☐ Yes ☒ No |
| **Environmental areas affected:** (Watercourse, soil, etc.): | Soil | | |
| **Method of Disposal & Further Remediation Required:** | Soil was moved to a spill staging area in anticipation of a land treatment facility being built early in 2019. | | |
| **Follow Up Required?** | ☐ Yes ☒ No | **Follow Up Date:** | |

| SIGNATURES REQUIRED FOR ALL REPORTABLE SPILLS | | | |
|---|---|---|---|
| **Employee:** | Colin Kabanak | **Signature:** | Colin Kabanak |
| **Supervisor:** | ~~Dick Ewing~~ Russell Meksong | **Signature:** | |
| **Safety:** | Dean Wold | **Signature:** | |
| **Environment:** | Phil Emerson | **Signature:** | |


IR-16312
40L
Coolant
KBL
Environmental LTD.
1-855-354-5263
2000 Kg max
13H4/Y/0818/CAN
MINIBULK/4-540/3600/1000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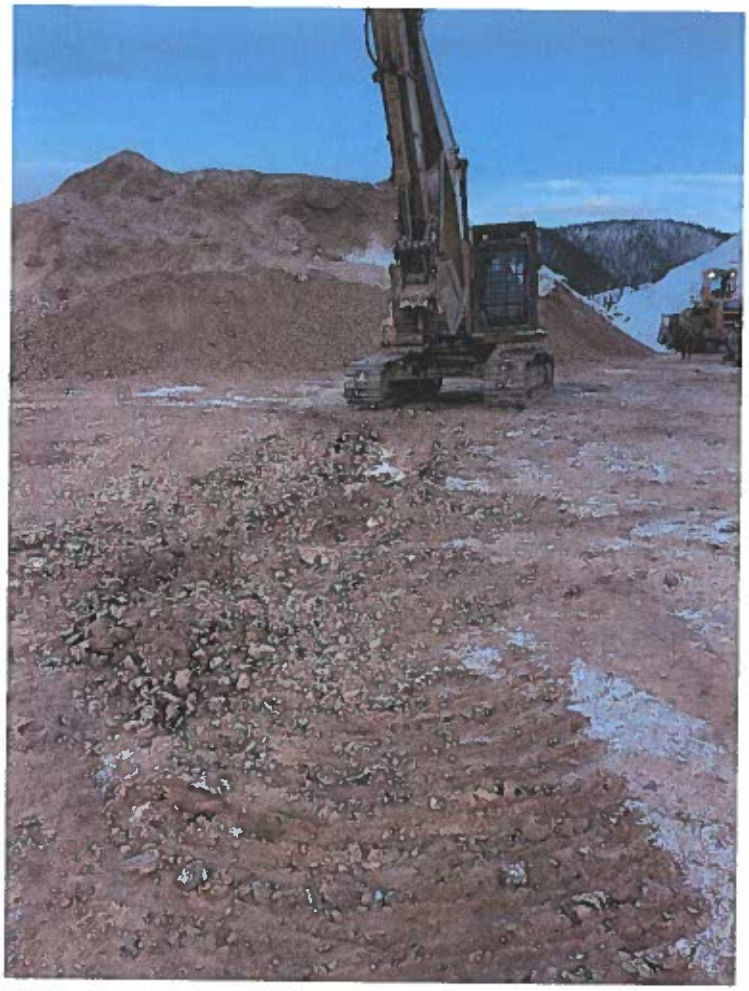

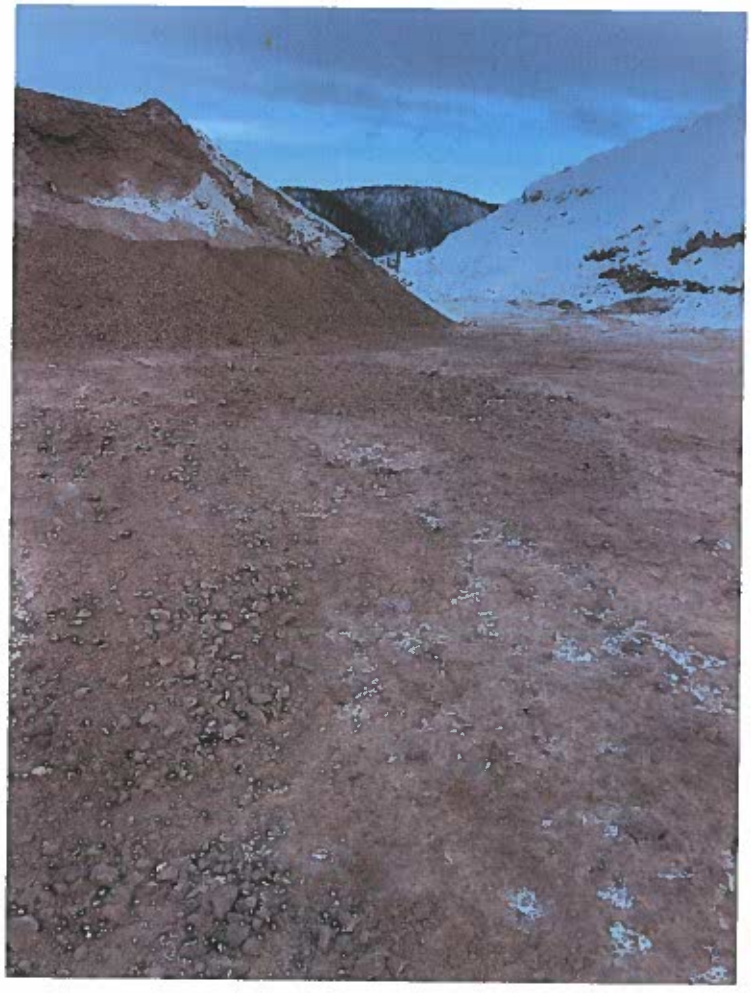

# APPENDIX V

## Annual Physical Stability Assessment Report

301-7 St. Paul Street West, Kamloops, BC V2C 1E9 Phone: 250-374-5331

| Allnorth Information | | VICTORIA GOLD CORP. | |
|---|---|---|---|
| Project #: | 18-VA-0109 | | |
| Document #: | 181003 | Client Project #: | |
| Document Rev. #: | 0 | Client Document #: | |
| Prepared By: | Rod Keetch, P. Eng.<br>James Garner, EIT | Client Doc. Rev.#: | |
| | | Client Contact: | Stephen Wilbur, Hugh Coyle |

## Document Description

Annual Physical Stability Assessment Report – Victoria Gold – Eagle Gold Project

Project Description:

Visual inspection of the following structures; Lower Dublin South Pond, Secondary Crusher – cut slopes, fill slopes and MSE wall, Primary Crusher – cut slopes and fill slopes, 90 Day Stockpile, Stockpile A, Stockpile B, Adsorption, Desorption and Recovery Plant – cut slopes, fill slopes and stockpile, Heap Leach Facility, Event Pond.

## REVISION HISTORY

| Revision | Status | Date | Revised By | Checked By | Approved By | Description of Revision |
|---|---|---|---|---|---|---|
| 0 | IFA | 20/12/2018 | RBK/JRG | RBK/JRG | BWL | Final |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |

Status:

| | | | |
|---|---|---|---|
| PRE | - Preliminary | IFP | - Issued for Procurement |
| IFR | - Issued for Review and Comment | IFC | - Issued for Construction |
| IFA | - Issued for Approval | AB | - As Built |
| IFQ | - Issued for Quotation | | |

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# 1 BACKGROUND

In September, 2018, Allnorth Consultants Limited (Allnorth) was retained by Victoria Gold Corp. (VGC) to conduct a visual physical stability assessment for their Eagle Gold mining operation located in Mayo Mining District, Yukon, Canada in support of Quartz Mining License QML-0011. Rod Keetch P. Eng. and James Garner EIT of Allnorth conducted the inspection on September 25th, 26th, and 27th, 2018. The inspection was limited to visual inspection and did not include any specific geotechnical or structural testing or evaluation. Visual inspection generally consisted of traversing the structures on foot, and viewing the structures in their entirety from accessible vantage points. Any issues that were discovered were investigated and documented with detailed notes and photographs. Allnorth inspectors were given complete freedom in determining what to look at, and were not permanently restricted for access to any locations within the site.

The mining project is currently under construction and is not currently extracting, storing, processing or refining ore at the time of inspection. As the project is in the early stages, there is no stability instrumentation monitoring program in place, nor are there historical records for survey data, or photographs to review and compare. This will likely become part of the physical stability assessment in the future.

# 2 SCOPE

This report outlines the findings of the physical stability assessment conducted from September 25th-27th of 2018. This report documents the findings of the physical stability assessment and makes recommendations for remediation, additional inspection or monitoring of the issues identified. The following structures were included in the assessment:

- Lower Dublin South Pond and outfall,
- Stockpile B,
- Stockpile A,
- 90 Day Stockpile,
- Heap Leach Facility,
- Cut and fill slopes of the primary and secondary crushers including MSE walls,
- Cut and fill slopes of the Adsorption, Desorption and Recovery Plant.

The purpose of the inspection is to identify any visual indicators associated with instability of mass earth structures, including but not limited to tension cracking, bulging, pooled water above the slope or near the toe of the slope, falling material, indications of creep, slumps, deposits of debris, or cracking in bedrock. Additionally, constructed slopes were reviewed for slope angles and compared against the recommend slope angles for known material types on site.

# 3 LOWER DUBLIN SOUTH POND (LDSP)

## 3.1 Spillway

No issues to note.

## 3.2 1500mm Spillway Outlet Culvert

1. At the inlet of the 1500mm spillway culvert that crosses under the process plant service road there is a depression with exposed soil. Water is pooling in the depression. Additionally, a very small amount of moving water is flowing from ditching adjacent to the camp road to the spillway. The flow is below the riprap, but above the geotextile. This water is not passing through the 1500mm culvert, therefore it is likely that the low volume flow is passing through the granular subgrade of the culvert.

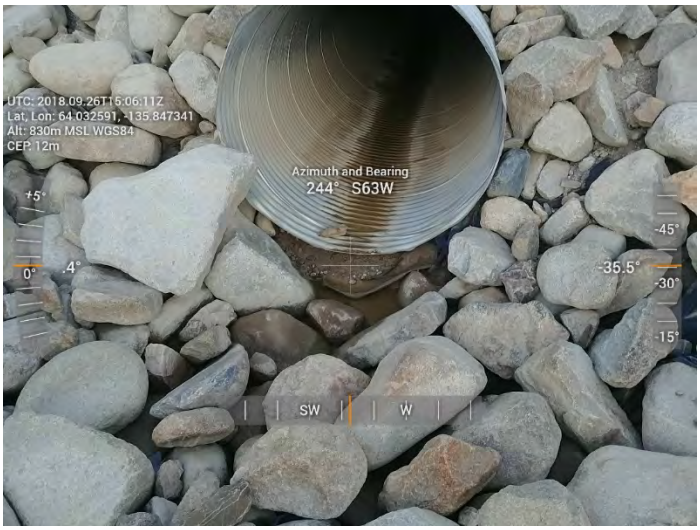


**Figure 1: LDSP - 1500mm Culvert with depression and pooling at inlet.**

## 3.3 Lower Dublin South Dam

1. Tension cracking, 0.3m deep by 5.0m long, is present on the Lower Dublin South Dam possibly associated with the settlement of new construction.




**Figure 2: LDSP - Tension cracking on south dam.**

## 3.4 Cut slopes

1. A significant amount of water and sediment is entering the collection pond and fore bay from the southern side. Some of the water and sediment is not intercepted by the fore bay prior to entering the collection pond. The water appears to be directed from a berm at a higher elevation. Erosion can be seen at the edge of the collection pond liner, in the cut slopes above the pond and fore bay, and in the bench. Comments on site indicate that a plan is already in place to address drainage in the area.



**Figure 3: LDSP - Erosion at the southern side near the fore bay berm.**




**Figure 4: LDPS - Erosion at liner.**

2. On the northeast corner of the pond water is flowing out of a culvert of unknown size. VGC staff have indicated that the culvert was uncovered during construction and is a relic from historic placer mining. The outlet is damaged, and the flow is currently captured by a diversion ditch.




**Figure 5: LDSP – Water flow from damaged culvert on northeast corner of pond.**

3. Groundwater with unknown origin has previously caused erosion on the West slope of the fore bay. No ground water flows were observed at the time of inspection.




**Figure 6: LDSP - Erosion on west slope of fore bay.**

4. A small elevated pond above the East slope of the fore bay has trapped some water. A PVC pipe is in place to drain the pond, however, the elevation of the PVC pipe to too high to fully drain the pond. Leaving perched water storage above a soil structure is non-typical. VGC staff have indicated that the pond was created to mitigate erosion of the east fore bay slope and that the pond is periodically pumped to the exfiltration sump when threshold levels in the pond are reached.




**Figure 7: LDSP - Elevated Pond above Eastern side of fore bay**

## 3.5 Low Level Outlet Channel

1. In the pond outlet area, surface water from the roadway is flowing down slope causing minor erosion. The exclusion ditching appears inadequate around pond above the v-notch weir to avoid further erosion.




**Figure 8: LDSP - Erosion at low level outlet pond.**

2. The channel has appropriately sized riprap, but the armour does not meet typical minimum thickness in many locations.




**Figure 9: LDSP - Exposed liner in low level outlet channel.**

## 3.6 LDSP Fore bay

1. The fore bay has a reduced capacity due to large quantities of material entering the pond from the South and West slopes. VGC staff have indicated that plans are currently in place to excavate the sedimentation pond and restore additional capacity.

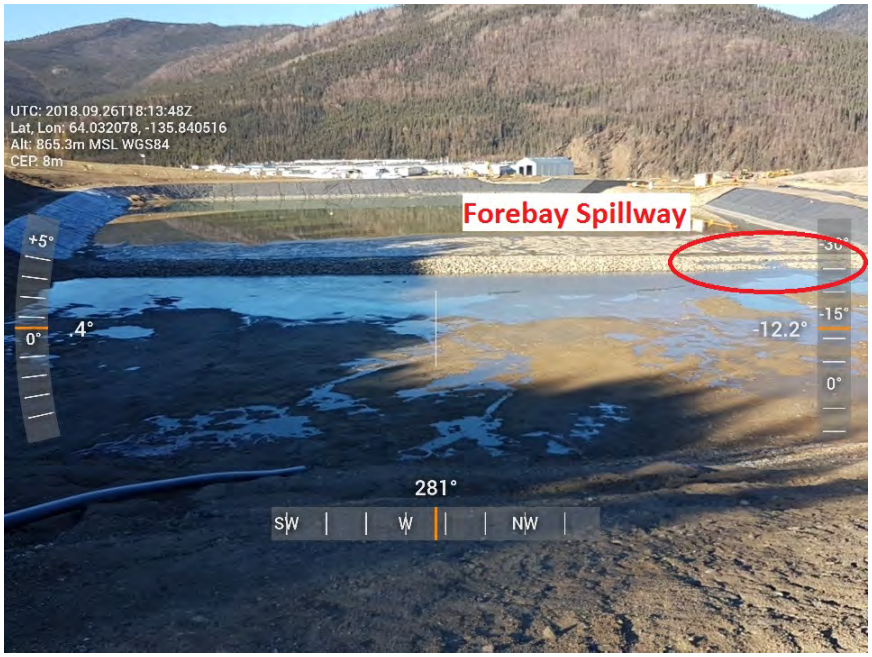


**Figure 10: LDSP - Sediment Nearing the top of the fore bay spillway.**

## 3.7 Collection Pond

1. The under drains below the LDSP storage appear to be operating as planned. There is water at the outlet, and outlet flow has stayed fairly constant since their install, according to site staff.




**Figure 11: LDSP - Low level outlet pond.**

2. Water and sediment has been carried into the pond and onto the liner at the southwest corner of the pond.




**Figure 12: Sediment carried onto collection pond liner.**

# 4 PRIMARY CRUSHER

1. The support slope for the Primary Crusher access road is over steepened at 50%, however, this appears to be for a temporary access. (No Photo).

2. The slope immediately behind the primary crusher is rip-able rock with knobs of rock that would require blasting. Measurements taken on site indicates slopes here meet recommendations and range between 50% and 64%.

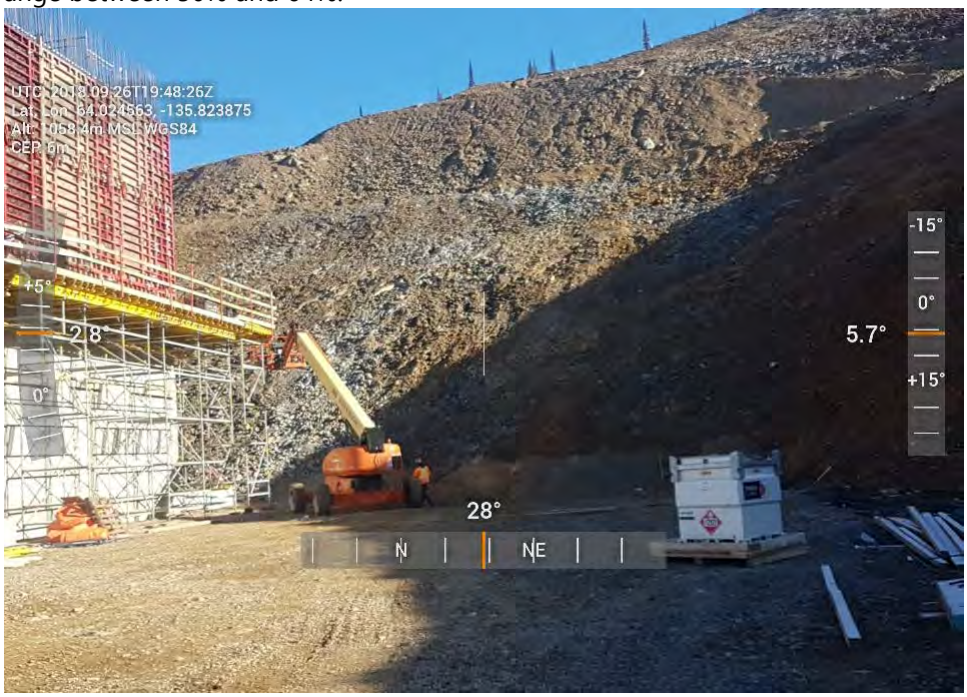


**Figure 13: Slope behind primary crusher.**

3. Road ditching is in place along the primary crusher access road which restricts over land flow from eroding the slope. (No Photo).

# 5 SECONDARY CRUSHER + MSE WALL (SC MSE)

1. Very minor ponding is present at the base of the MSE wall due to inadequate grading in some sections.




**Figure 14: SC MSE - Minor ponding at base of MSE wall.**

2. Drain outlets for the MSE wall are not visible at the face. Site staff have indicated the drain system is in place, installation has been recorded in as-built records and will be day lighted as part of the final site grading. (No Photo).

3. Construction on the MSE wall is ongoing and appears to be well compacted and placed during our inspection.




**Figure 15: SC MSE - Equipment used for MSE wall construction.**

4. Backfill behind the MSE wall varies to a maximum recorded angle of 64% and appears to be type 2 rock and blastable rock.




**Figure 16: SC MSE - Slope behind secondary crusher MSE wall.**

5. The slope below the MSE wall is well offset from both the wall and the Secondary Crusher foundations. The slope was measured at 22%-25%.




**Figure 17: SC MSE - Slope below secondary crusher pad.**

6. The MSE wall has inadequate set back and uneven layers at the bottom of the wall. This has been addressed by the owner and the wall manufacturer according to site personnel.




**Figure 18: SC MSE - Secondary crusher MSE wall.**

# 6 90 DAY STOCKPILE

1. Portions of the 90 day stockpile has been developed at this time, and the area below the current pad has been stripped of trees in preparation of the second phase. (No Photo)
2. The outside edge of the current pad development appears to have access and some evidence of recent dumping/placement in an attempt to further construct the pad, though no active dumping or earth moving was witnessed during the inspections. The placed material requires dozing and grading to deal with drainage run off in isolated locations, but there were no features identified that would store significant runoff or melt volume.




**Figure 19: 90 Day Stockpile - Ungraded material.**

3. The current 90 day stockpile fill slopes meet a 50% maximum grade where measured although there is little in the way of benching. (No Photo)

4. There are perched boulders on the fill above an access road on the south east corner of the stockpile, only a relatively narrow band of vegetation and trees separates the toe of the stockpile from the road.




**Figure 20: 90 Day Stockpile - perched boulders.**




**Figure 21: 90 Day Stockpile - perched boulders.**

5. Portions of the 90 Day Stockpile footprint have not yet had complete stripping of the organics, and there appears to be limited locations where the new placement is being completed on some built up organics near the west edge. It is unclear if this is an acceptable part of the foundation of the stockpile, or if the stripping program is complete at this time.




**Figure 22: 90 Day Stockpile – Organic layer near west edge.**




**Figure 23: 90 Day Stockpile - Organics in phase 2 foundation (typical).**

# 7 ADSORPTION, DESORPTION AND RECOVERY PLANT(ADR)

1. Vegetation is perched near to the top of the ADR Slope, though an explicit measurement was not possible due to access considerations. There is adequate space at the base of the slope to accommodate any materials that may fall, though during construction some of that space is being used as a laydown.




**Figure 24: ADR - Perched vegetation.**

2. The established slope behind the ADR building appears stable and well constructed on the face with only minor accumulation at the toe of small rock and gravels.




**Figure 25: ADR - Minor accumulation of gravel at base of cut slope.**

3. There is additional borrow happening around the corner from the ADR facility. The slope is under construction/excavation, and there does not appear to be any adverse affects to the already constructed slope above the ADR building. The final excavation should be reviewed to ensure that any altered drainage isn't directed onto critical infrastructure, or the slopes above them, or is accounted for.




**Figure 26: ADR – Borrow area.**

4. There is a temporary stockpile perched on the outside of slope on this area. The stockpile exceeds the recommended slopes for long term stability for a common fill material. The stockpile should be shaped to meet requirements if it is a long term storage solution.




**Figure 27: ADR - Common material stockpile with over steepened slopes.**




**Figure 28: ADR - Common material stockpile with over steepened slopes.**

# 8 HEAP LEACH FACILITY (HLF)

1. Phase 1 of the HLF is under construction. The confining embankment is nearly complete, and the liner is being installed. A drainage collection ditch has been constructed above current liner and is approximately 1m deep by 3m wide at the top. The measured faces of the constructed slopes were measured at an acceptable 38% grade.




**Figure 29: HLF – Collection ditch.**



**Figure 30: HFL - Confining embankment construction.**



**Figure 31: HLF - Construction (facing south).**



**Figure 32: HLF - Construction (facing north).**

2. Clearing and stripping has begun for the phase 1B areas. Slopes have been graded to approximately 33%.




**Figure 33: HLF - Phase 1B northwest slope.**

3. A small amount of water has ponded above the collection ditch. VGC staff have indicated that this will be eliminated as construction of the HLF proceeds.




**Figure 34: HLF - Ponded water above collection ditch.**




**Figure 35: HLF - Pooling above collection ditch.**

4. The free face of the HLF confining embankment is benched with some heaped material and perched rock. Typically these exposed faces are smoothed and sealed to help prevent erosion of the face once in operation, it is not clear if that is part of the final design. Perched rock does not appear to be located above any construction, infrastructure, or roadways at the time of inspection.



**Figure 36: HLF - Free face with heaped material and perched rock.**




**Figure 37: HLF - Free face with heaped material and perched rock.**

5. There is some water directed near, but not onto the HLF construction. This is west of the structure, but there does not appear to be any management plan in place for the concentration of water directed by a terminated haul road.



**Figure 38: HLF - Erosion and material flows west of confining embankment.**

# 9 EVENT POND

1. This area is under construction. Temporary excavations in rock meet the suggested slopes as laid out by the specifications provided, and determined by the geotechnical consultants in mine planning.



**Figure 39: Event pond (facing east) – rock cuts.**

2. There are some small over steepened stockpile material above the rock cuts, but there is no equipment or active work below the face.




**Figure 40: Event pond (facing west) – over steepened material.**

3. Some tension cracking and sloughing block failures can be seen in material consisting of common fill and mixed stripping organics at the SE corner of the current works. The area does not have any active drainage but is under construction. The short runout for any minor sloughing does not threaten any infrastructure. (No Photo).

# 10 STOCKPILE A

1. The Stockpile is currently being excavated with the material being used for road fill in a culvert installation on the road adjacent. There is very little stockpiled material present at the time of inspection.




**Figure 41: Stockpile A.**

2. The rear slopes of the stockpile area are composed of placed rock and engineered fill at 50% below a bench and a rock face above the bench at 65%.




**Figure 42: Stockpile A - upper slope.**




**Figure 43: Stockpile A - upper slope.**

3. The temporary faces of the remaining stockpile material are well supported and set at 50% when benching setbacks are included.




**Figure 44: Stockpile A - lower slopes.**

# 11 STOCKPILE B

1. Edges of the stockpile are extending past stripping, this could be an issue if there is a required base/foundation preparations for future loading.




**Figure 45: Stockpile B - Toe of slope encroaching on organics.**




**Figure 46: Stockpile B - Toe of slope encroaching on organics.**

2. The west portion of the stockpile is primarily organics and topsoil. Tension cracking up to 1m deep and 30m long was found on the west edge behind some slowly failing material caving off in sloughing block sections. There is no infrastructure or active work nearby, therefore, if a small failure were to occur the consequences would be very low.




**Figure 47: Stockpile B - West end tension cracking.**



**Figure 48: Stockpile B - West end tension cracking.**



**Figure 49: Stockpile B - West end tension cracking.**

3. The new material being moved to the stockpile varies significantly in material composition and moisture content. The north edge of the dump has significantly saturated soils at the time of inspection.




**Figure 50: Stockpile B - North side saturated soils**

4. There is a small failure at the north west edge of the stockpile. While the mechanism is not completely clear, it appears to be linked to a stockpile deposit of mixed ice and earth that was excavated for other works. The material failed in a flow mechanism, and the run out does not extend more than 20m past the toe of the existing stockpile. The toe of the flow is composed of ice chunks and fractured rock mixed with fines. Work is not taking place below the stockpile, but there is an active haul road accessing the stockpile adjacent to the failure path. It is unclear if any ice remains in the stockpile.



**Figure 51: Stockpile B - Northwest material flow.**




**Figure 52: Stockpile B - Northwest material flow.**




**Figure 53: Stockpile B - Ice found in northwest material flow.**

5. Sloping of the outside faces of the stockpile was found to be supported at 90% to 100%.




**Figure 54: Stockpile B - Outside slope (Typical).**

# 12 RECOMMENDATIONS

## 12.1 General

1. VGC should assign a qualified, on site, individual to be responsible for monitoring and documentation of any mass earth structures that have significant risks in the case of a failure. The individual should develop a standard operating procedure for the monitoring and risk management of these structures. This individual should be responsible for coordination with a qualified professional to review monitoring data for concerns and trends, if they are not qualified themselves.

2. All stockpiles, material storage areas, and other mass earth structures should all have formal foundation and construction designs completed by a qualified professional. Design and base preparation have been completed and documented for much of the work in progress. VGC should continue to assign individuals to document and be responsible for the monitoring and construction review to determine if such structures are constructed in accordance with design. Any variations between design documents and final construction should be included in final record drawings.

3. Any finalized construction of mass earth structures should include a final construction report that includes any operational and maintenance requirements (if any) to ensure stability of the structure.

4. VGC should consider a monitoring program to assist in early warning and detection of any movements in mass earth structures. Such a program might use permanent survey points, slope

inclinometers, piezometers, or other tools to measure internal/external movements and pore water pressures. Such a monitoring program should be developed with the assistance of and be implemented with the oversight of a qualified professional.

## 12.2 LDSP

1. Extend the existing berm along the south side of the pond further to the east to direct water into the fore bay / siltation pond, where there is no liner to disturb and where the facility is designed to capture eroded material.

## 12.3 Primary Crusher

1. No specific recommendations at this time.

## 12.4 Secondary Crusher and MSE Wall

1. No specific recommendations at this time.

## 12.5 90 Day Stockpile

1. Mitigate risks associated with perched rocks throughout the slope. Boulders should be removed in a controlled manner, or have a machine press (or bury) the boulders into the existing fill so they have a more stable base, and are less likely to become dislodged. Care should be taken during this work to ensure that critical infrastructure, workers and equipment are restricted from the fallout path, or other appropriate mitigation measures are put in place.

## 12.6 ADR

1. Reduce the outside slope of material in the stockpile above the ADR Access Road. The stockpile West Northwest of the ADR Building is composed of a mix of several materials with unknown compaction and possibly over steepened outside slopes. It is recommended that the stockpile be shaped within geotechnical design specifications, or that the location of the pile is adjusted so that there is a bench between the crest of the adjacent slope, and the toe of the stockpile. If the stockpile is to remain long term, the structure should have a design completed by a qualified professional.
2. At the time of inspection, there appeared to be over-steepened temporary cut slopes created adjacent to short term haul roads used for construction access in the area. Cut back slopes adjacent to haul roads that do not meet geotechnical specifications for the site, or have recommendations in place for temporary slopes during construction.

## 12.7 HLF

1. No specific recommendations at this time.

## 12.8 Event Pond

1. No specific recommendations at this time.

## 12.9 Stockpile A

1. No specific recommendations at this time.

## 12.10 Stockpile B

1. This stockpile should be graded on top to eliminate or seal tension cracking.
2. The extent (volume and location) of ice and other frozen materials in the stockpile should be determined based on site records and information from site staff available. A record of the resulting instability should be noted.
3. Have a qualified professional determine if ice and other frozen materials are an acceptable material for construction of a mass earth structure, and if they are, how they should be placed or incorporated in an overall stockpile design to ensure that there are no localized failures as a result.

# 13 CONCLUSION

The structures reviewed in this inspection generally show little evidence of movement or risk indicators. Where risk of movement was identified, there risk is typically low and the consequence of a small instability is managed by minimizing exposure to workers, infrastructure or high value natural resources.

Slopes reviewed meet the recommendations for slope angles in most locations except where the slopes are temporary in nature and will later be cut back under final design, this is typical in construction on major projects.

The lack of previous stability review reports due to the age of the project and no requirement for previous completion, the fact that current infrastructure is currently incomplete and in construction, and the lack of any established survey or instrumentation monitoring program leaves little baseline data for comparison, but will improve with subsequent reviews.

There are some minor erosional and stability concerns within the project, that can be addressed with some minor planning and maintenance as construction continues in order to moderate or eliminate the associated risks.

We trust this report satisfies your requirements at this time and thank you for the opportunity to work with you on the project. If you have questions or concerns do not hesitate to contact our office.

Yours truly,

**ALLNORTH CONSULTANTS LIMITED**

Prepared By:

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Any opinions of probable cost provided in the report are based on Allnorth's experience and information available to Allnorth at the time such estimates are made. Client acknowledges that due to assumptions that must be made, Allnorth shall not be liable for the accuracy of such estimates.

# APPENDIX W

## Spring 2018 Geotechnical Investigation Data Report

# Spring 2018 Geotechnical Investigation Data Report
# Eagle Gold Project



PRESENTED TO
**Victoria Gold Corp.**

SEPTEMBER 26, 2018
ISSUED FOR USE
FILE: ENG.EARC03103-02

Tetra Tech Canada Inc.
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# EXECUTIVE SUMMARY

NND EBA Land Protection Corp. operating as NELPCo Limited Partnership (NELPCo) was retained by Victoria Gold Corp. (Victoria Gold) to provide consulting services for a geotechnical permafrost investigation program at the Eagle Gold Project (the Project) site. The Project is located in the Dublin Gulch area of central Yukon Territory approximately 45 km (85 km via road) north-northeast of Mayo and 370 km (485 km by road) north of Whitehorse. A primary focus of the spring 2018 investigation was to acquire geotechnical and permafrost data, including frozen and unfrozen overburden soil and bedrock conditions, that would provide important data and information for input to the design of mine infrastructure, in particular to support the final design of the mine waste rock storage areas (WRSA): Eagle Pup WRSA, Platinum Gulch WRSA, the 90 Day Storage area, and the potential run-of-mine (ROM) stockpile area.

This data report has been prepared by Tetra Tech Canada Inc. (Tetra Tech), NELPCo's engineering service provider.

Several previous geotechnical site investigations were carried out by BGC Engineering Inc. (BGC) in 2009, 2010, 2011, and 2012. The previous site investigations were comprehensive and included numerous geotechnical drillholes, test pits, and subsequent laboratory testing programs. Based on a detailed review of the previous investigations (BGC 2009; 2010; 2011a,b; and 2012b,c) it was determined that additional information was necessary to confirm the characteristics and extent of permafrost (including frozen materials with excess ice) within the WRSA and ore stockpile footprints. The spring 2018 geotechnical investigation was designed specifically to augment the previous investigations by characterizing permafrost conditions in foundation areas critical to physical stability of the facilities.

The 2018 geotechnical site investigation program was carried out from April 5 to 15, 2018 and consisted of coring and testing frozen and unfrozen overburden soil and bedrock. A total of 13 boreholes with depths ranging from 7.9 m to 21.3 m were sonic-drilled and logged at the mine site facility locations.

An important objective of the spring 2018 program was to characterize permafrost conditions, including ground temperatures and ground ice contents (e.g., excess ice). Cores were logged according to appropriate geotechnical and permafrost standards. A total of six multi-bead ground temperature (thermistor) cables (GTCs) and seven single-bead thermistor strings were installed in the completed boreholes. GTCs were installed to 15 m to 20 m depths while single-bead thermistor strings to 8 m to 9 m depths.

This report presents the most recent geotechnical and permafrost data collected during the spring 2018 investigation, including borehole logs, geotechnical laboratory test results, GTC, and single-bead thermistor string readings collected from newly installed ground temperature monitoring instrumentation. This report is not intended to be a comprehensive summary of all geotechnical information used as the basis of the WRSA and ore stockpile designs. The BGC 2010, 2011 and 2012 site geotechnical investigation reports should be referenced for details regarding information collected from those investigations. Subsurface conditions at the WRSAs: the 90 Day Storage area, and the potential ROM stockpile area are summarized from the new data.

The new permafrost data was used to update the permafrost distribution map of the project area which was originally developed based on the previous BGC investigations and detailed air photo analysis by Tetra Tech in 2017. A discussion regarding the review of previous investigations and preparation of the initial permafrost map can be found in Tetra Tech's October 6, 2017 technical memo (issued for review) entitled "Permafrost Distribution Mapping within the Dublin Gulch Area" (Tetra Tech 2017).

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# ACRONYMS & ABBREVIATIONS

| Acronyms/Abbreviations | Definition |
|---|---|
| BGL | Below Ground Level |
| bgs | below ground surface |
| FF | Fracture Frequency |
| GTC | Ground Temperature Cable (Multi-Bead Thermistor Cable) |
| HLF | Heap Leach Facility |
| JDS | JDS Energy and Mining Inc. |
| JSN | Joint Set Number |
| MSD | Midnight Sun Drilling Ltd. |
| NAD83 | North American Datum 1983 |
| Nbe | Well bonded perennially frozen soil with non-visible excess ice |
| Nbn | Well bonded perennially frozen soil with, no excess ice |
| NELPCo | NELPCo Limited Partnership |
| Nf | Poorly bonded or friable frozen soil, no excess ice |
| PLT | Point Load Test |
| ROM | Run-of-Mine |
| RQD | Rock Quality Designation |
| SBTS | Single-Bead Thermistor String |
| Tetra Tech | Tetra Tech Canada Inc. |
| UCS | Unconfined Compressive Strength |
| UTM | Universal Transverse Mercator |
| Vc | Perennially frozen soil with excess ice visible as ice coating on particles |
| Victoria Gold | Victoria Gold Corp. |
| Vr | Perennially frozen soil with excess ice visible as random or irregularly oriented ice formations |
| Vs | Perennially frozen soil with excess ice visible as stratified or distinctly oriented ice formations |
| Vu | Perennially frozen soil with excess ice visible as ice formations uniformly distributed throughout |
| Vx | Perennially frozen soil with excess ice visible as individual ice crystals or inclusions |
| WRSA | Waste Rock Storage Area |

# GLOSSARY OF TERMS

**ACTIVE LAYER** – the top layer of ground that is subject to annual thawing and freezing in areas underlain by permafrost. The thickness of the active layer varies from year to year, depending on such factors as the ambient air temperature, vegetation, drainage, soil and rock type, water content, snow cover, slope degree, and aspect.

**CRYOSTRUCTURE** – the structural characteristics of frozen earth materials determined by the amount and distribution of pore ice and lenses of segregated ice. Can be described as massive, layered, reticulate etc.

**DEPTH ALONG AXIS (m)** – depth measured along the borehole axis from its collar.

**DEPTH OF ZERO ANNUAL AMPLITUDE (*depth of zero seasonal temperature variations*)** – the distance from the ground surface downward to the level beneath which there is practically no annual fluctuation in ground temperature (NRCC 1988).

**EXCESS ICE** – the volume of ice in the ground that exceeds the total pore volume that the ground would have under natural unfrozen conditions (NRCC 1988).

**GROUND ICE** – a general term referring to all types of ice (segregated, intrusive, vein etc.) formed in freezing and frozen ground. Occurs in pores, cavities, voids, cracks, fractures, and other openings in soil or rock.

**ICE + SOIL TYPE (ICE and SILT etc.)** – ice with soil inclusions: discrete visible ice formations in frozen soils that are greater than 50% by volume. Frozen core interval that contains more ice (>50% by volume of visible ice) than soil particles.

**ICE COATINGS** – discernible layers of ice found on or below the larger soil particles in a frozen soil mass.

**ICE CONTENT** – the amount of ice contained in frozen or partially frozen soil or rock. Ice content is normally expressed in one of two ways:

- On a dry-weight basis (gravimetric), as the ratio of the mass of the ice in a sample to the mass of the dry sample, expressed as a percentage; or
- On a volume basis (volumetric), as the ratio of the volume of ice in a sample to the volume of the whole sample, expressed as a percentage.

**ICE LENS** – a dominantly horizontal, lens-shaped body of ice ranging in thickness from hairline to 0.3 m. Ice layers more than 0.3 m in thickness are better termed massive ice beds.

**ICE WEDGE** – a massive, generally wedge-shaped body of foliated or vertically banded, commonly white, ground ice with its apex pointing downward.

**MASSIVE ICE** – A comprehensive term used to describe large masses of ground ice, including ice wedges, pingo ice, buried ice, and predominantly horizontal beds of segregated ice. Massive ice layers have a minimum thickness of 0.3 m. Ice layers less than 0.3 m in thickness are better termed ice lenses. Some massive ice beds are more than 40 m thick and extend several kilometres laterally (Mackay 1973; NRCC 1988; Tetra Tech WM4102).

**MASSIVE ICE BED** – a predominantly horizontal layer of ground ice with a minimum thickness of 0.3 m, a minimum lateral extent of at least 10 m, and an ice content of at least 250% (on an ice-to-dry-soil weight basis). If the ice content is less than 250%, the beds are termed "**massive icy beds**". The largest ice beds exceed 1 $km^2$ in area and are more than 40 m thick. Massive ice beds show every possible gradation from icy muds to pure ice (Mackay 1973; NRCC 1988; Tetra Tech WM4102).

**PERMAFROST** – ground (soil and/or rock) that remains at or below 0ºC for at least two consecutive years. Permafrost is defined exclusively on the basis of temperature. It does not necessarily contain ground ice.

**PERMAFROST BASE** – the lower boundary surface of permafrost, above which temperatures are perennially below 0°C and below which temperatures are perennially above 0°C.

**PERMAFROST, ICE-RICH** – permafrost containing excess ice.

**PERMAFROST TABLE** – the upper boundary of permafrost.

**SUPRAPERMAFROST WATER** – water occurring in the active layer above the permafrost table.

**SUBPERMAFROST WATER** – water occurring in the unfrozen ground below the permafrost base.

**TALIK** – a layer or body of unfrozen ground in a permafrost area. Several types of taliks can be distinguished on the basis of their relationship to the permafrost: closed, open, lateral, isolated etc. (NRCC 1988).

**TRUE DEPTH (m)** – depth measured from the borehole collar perpendicular (normal) to the ground surface.

## LIMITATIONS OF REPORT

This report and its contents are intended for the sole use of Victoria Gold Corp. and their agents. Tetra Tech Canada Inc. (Tetra Tech) does not accept any responsibility for the accuracy of any of the data, the analysis, or the recommendations contained or referenced in the report when the report is used or relied upon by any Party other than Victoria Gold Corp., or for any Project other than the proposed development at the subject site. Any such unauthorized use of this report is at the sole risk of the user. Use of this document is subject to the Limitations on Use of this Document attached in the Appendix or Contractual Terms and Conditions executed by both parties.

# 1.0 INTRODUCTION

NND EBA Land Protection Corp. operating as NELPCo Limited Partnership (NELPCo) was retained by Victoria Gold Corp. (Victoria Gold) to provide consulting services for a geotechnical permafrost investigation program at the Eagle Gold Project (the Project) site. The Project is located in the Dublin Gulch area of central Yukon Territory approximately 45 km (85 km by road) north-northeast of Mayo and 370 km north of Whitehorse (485 km by road) (Figure 1; "Figures" Section of this report).

This data report has been prepared by Tetra Tech Canada Inc. (Tetra Tech), NELPCo's engineering service provider.

Several previous geotechnical site investigations were carried out in the Project area by BGC Engineering Inc. (BGC) in 2009, 2010, 2011, and 2012. The previous site investigations were comprehensive and included numerous geotechnical drillholes, test pits, and subsequent laboratory testing programs. Based on a detailed review of the previous investigations (BGC 2009; 2010; 2011a,b; and 2012b,c) it was determined that additional information was necessary to confirm the characteristics and extent of permafrost (including frozen materials with excess ice) within the WRSA and ore stockpile footprints. The spring 2018 geotechnical investigation was designed specifically to augment the previous investigations by characterizing permafrost conditions in foundation areas critical to physical stability of the facilities. Specifically, the final toes and first few years of interim toes were targeted.

The 2018 geotechnical investigation program consisted of coring and testing of frozen and unfrozen overburden soil and bedrock. Although BGC (2012a) defines the overburden soil as including completely weathered bedrock, for the purpose of this report, overburden soil is described as all soils above bedrock, including organic and/or inorganic (mineral) soils in both frozen and unfrozen states.

An important objective of the spring 2018 program was to characterize the permafrost conditions as accurately as possible, including ground temperatures and ground ice contents (percent by volume of visible ice). Cores were logged according to appropriate geotechnical and permafrost standards (ASTM D4083; WM4102; WM4105; WM4400). Every completed borehole was instrumented by either a multi-bead ground temperature (thermistor) cable (GTC) installed to 15 m to 20 m depth or a single-bead thermistor string (SBTS) installed to 8 m to 9 m depth.

This report presents the most recent geotechnical and permafrost data collected during the spring 2018 site investigation, including borehole logs, geotechnical laboratory test results, ground temperatures measured with GTC and SBTS. Subsurface conditions at the two proposed WRSA locations, the 90 Day Storage area, and potential ROM stockpile area are summarized from the data collected from this study only. This report is not intended to be a comprehensive summary of all geotechnical information used as the basis for the WRSA and ore stockpile designs. The BGC 2010, 2011, and 2012 geotechnical site investigation reports (BGC 2009; 2010; 2011a,b; and 2012b,c) and the waste rock storage design report (BGC 2012a) should be referred to for details regarding information collected from the previous investigations.

The new permafrost data was used to update the permafrost distribution map of the project area. The updated map is provided as the background for Figure 2. The permafrost map was originally developed by using data from the previous BGC investigations (BGC 2009; 2010; 2011a,b; and 2012b,c) and detailed air photo analysis by Tetra Tech (Tetra Tech 2017). It has now been further refined with the subsurface data collected as part of this study.

This report incorporates and is subject to Tetra Tech's Limitations on Use of this document, which are included in Appendix A.

# 2.0 GEOTECHNICAL INVESTIGATION

## 2.1 General

The spring 2018 geotechnical site investigation program was completed from April 5 to 15, 2018 and was managed by Dr. Vladislav E. Roujanski, P.Geol., a senior project geologist-geocryologist based in Tetra Tech's Edmonton office. Field core logging, sampling, and on-site geotechnical soil core testing was conducted by Dr. Roujanski, Mr. Ernest Palczewski, P.Geo., and Mr. Ryan Okkema, E.I.T. (all based in Tetra Tech's Edmonton Office).

Technical support for the field program was provided by Mr. Kevin Jones, P.Eng., Tetra Tech's Vice President for Arctic Development, while logistical support for the field program was provided by Mr. Chad Cowan, Tetra Tech's Yukon Geotechnical Manager based in Tetra Tech's Whitehorse Office.

Victoria Gold had representatives on site helping to coordinate the drilling program. Midnight Sun Drilling Ltd. (MSD) was the drilling contractor.

Existing site roads were plowed and cleared of snow by a bulldozer where necessary to allow access to the drill pad locations. Drill pads were cleared and flattened by an excavator prior to rig mobilization. Crew access to the drill pad locations was provided by light vehicles. Construction of drill pads often required cut and fill to make a level surface for the sonic drill to move into position. To recover representative core samples of the uppermost ground layer and install thermistor cables within undisturbed terrain, the drill rig was positioned on the edge of the pad, when possible, to drill into the undisturbed native ground. However, due to space and accessibility constrains, Boreholes GT18-05, GT18-09, and GT18-10 required drilling through fill material, advancing into the cut on the original slope or otherwise previously disturbed ground.

## 2.2 Borehole Locations

To characterize the WRSA foundation materials, 20 borehole locations were initially selected for the spring 2018 program based on permafrost distribution maps and mine development plans. Thirteen boreholes were drilled as seven of the originally proposed borehole locations were inaccessible due to deep snow cover, slope steepness, or other challenging ground conditions (e.g. accumulations of large boulders).

The project area is located within Zone 8 of the Universal Transverse Mercator (UTM) Grid. The horizontal datum for this project is the North American Datum 1983 (NAD83).

Survey control for the geotechnical site investigation was provided by Tetra Tech field personnel using a handheld GPS unit (Garmin GPSMAP 62) to locate and verify the borehole locations that were staked by Victoria Gold prior to the investigation. The coordinates, depth to bedrock, and completion depth for each of the boreholes are presented on borehole logs in Appendix B and are summarized in Table 1 below. Borehole locations are also presented on Figure 2.

**Table 1: Borehole Information Summary**

| Site Infrastructure | Borehole | UTM Zone | | | Depth to Bedrock (m) | Completion Depth (m) |
|---|---|---|---|---|---|---|
| | | Northing (m) | Easting (m) | Elevation (m) | | |
| Eagle Pup WRSA | GT18-01 | 7,100,952 | 459,831 | 913.0 | 4.8 | 21.3 |
| | GT18-02 | 7,100,945 | 459,925 | 932.0 | 2.1 | 7.9 |
| | GT18-04 | 7,100,787 | 459,854 | 961.0 | 2.1 | 9.0 |
| | GT18-05 | 7,100,814 | 460,006 | 944.0 | 3.5 | 21.0 |
| | GT18-06 | 7,100,852 | 460,088 | 968.0 | 3.8 | 12.0 |
| | GT18-07 | 7,100,709 | 460,139 | 965.0 | 12.0 | 21.0 |
| Platinum Gulch WRSA | GT18-08 | 7,099,141 | 459,517 | 990.0 | N/A | 17.4 |
| | GT18-09 | 7,098,981 | 459,925 | 1,117.0 | 9.5 | 21.0 |
| | GT18-10 | 7,098,851 | 459,968 | 1,175.0 | 9.0 | 12.0 |
| | GT18-11 | 7,098,964 | 460,080 | 1,181.0 | 10.0 | 12.0 |
| Potential ROM Stockpile Area | GT18-15 | 7,100,583 | 459,597 | 961.0 | 18 | 21.0 |
| | GT18-16 | 7,100,308 | 459,607 | 982.0 | 3.5 | 9.0 |
| 90 Day Storage | GT18-17 | 7,100,290 | 459,263 | 944.0 | 5.5 | 9.0 |

## 2.3 Drilling and Coring Methodology

Thirteen completed boreholes were drilled using a Compact Crawler TerraSonic CC150 Sonic drill rig operated by MSD (Photo 1). A sonic drill was selected for the program due to its ability to consistently recover high percentages of samples in the overburden. Sonic drilling is not particularly effective in coring bedrock but this was not a concern given that the program was designed with the primary focus of soil and permafrost sampling. Bedrock was already well sampled and characterized using diamond core drilling during the previous BGC investigations (BGC 2009; 2010; 2011a,b; and 2012b,c). The maximum depth drilled by the sonic drill was 21.25 m. Overburden soil and bedrock core samples were recovered using an HQ bit (4” ID and 4.75” OD) for all boreholes.



**Photo 1: Compact crawler TerraSonic CC150 Drill Rig, Borehole GT18-05 site. Eagle Pup WRSA, looking north. Photo taken April 9, 2018**

Overburden soil recovery ranged from 90% to 100%, but in some cases, core was thermally and mechanically disturbed from the drilling process. Holes were typically only drilled far enough into bedrock to confirm that competent bedrock had been reached. Rock core recovery was variable, depending on the use of water to aid in the drilling process. Rock core recovery ranged from 90% to 100% without the use of water and decreased to 10% to 20% recovery with water aided drilling.

## 2.4 Geotechnical Logging and Sampling

Frozen and unfrozen overburden soil and bedrock core examination and logging was conducted immediately following core recovery to ensure that there was minimal thermal disturbance to the frozen core samples. This allowed accurate identification, logging, and sampling of frozen and unfrozen overburden core.

Overburden soils were logged according to the Modified Unified Soil Classification System guidelines (Appendix B) and Tetra Tech's methodology for logging frozen and unfrozen overburden, which includes soil composition, particle shape, moisture, colour, and consistency of soil (WM4400 – see Appendix E) and classify frozen soil based on whether ice is visible or not (WM4102 – see Appendix E).

All recovered core samples were placed in wooden core boxes and photographed immediately upon recovery, prior to sample removal. Close-up photographs were taken of ground ice formations and cryostructures where present. Photographs of the recovered core samples are included in the "Photographs" Section of this report, as are selected photographs (Photos 1 to 48) of the recovered overburden soil and bedrock core.

Representative disturbed soil samples were placed in plastic bags, double-bagged for moisture preservation, and transported to the onsite geotechnical laboratory.

Representative undisturbed frozen core samples were wrapped in several layers of plastic wrap and aluminum foil. The wrapped samples were temporarily stored at the drill sites in insulated coolers with ice packs to maintain their frozen undisturbed state until they were transferred to a freezer located at the Eagle Camp.

## 2.5 Geotechnical Laboratory Testing

### 2.5.1 General

Eight samples were tested in the onsite laboratory located at the camp, which was equipped with a microwave oven, electronic scale, and other basic testing equipment. On-site laboratory testing included measurements of excess ground ice content, moisture content, and porewater salinity. The remainder of the frozen core samples were shipped to Whitehorse and Edmonton for testing and storage at Tetra Tech's geotechnical laboratories. The off-site testing included natural moisture and excess ice contents, grain size analysis, bulk densities, and direct shear tests.

The testing results are summarized below in Tables 2 and 3. The results are also presented in Appendix C and are detailed on the borehole logs in Appendix B.

### 2.5.2 Classification Laboratory Testing

#### On-site Moisture Content, Excess Ice Content, and Salinity Analysis

On-site excess ice content analyses were completed on eight samples, as these samples showed potential for the presence of excess ice. Five of the selected eight samples were also tested on-site for moisture content. Salinity analysis was completed on one sample. The results are summarized in Table 2.

**Table 2: Summary of On-site Laboratory Test Results**

| Borehole No. | Sample No. | Depth | | Moisture Content (%) | Excess Ice Content (% by volume) | Porewater Salinity (ppt) |
|---|---|---|---|---|---|---|
| | | From (m) | To (m) | | | |
| GT18-02 | S1 | 0.47 | 0.64 | 29.0 | 0.0 | - |
| GT18-05 | S1 | 0.40 | 0.55 | 48.1 | 0.0 | - |
| | S2 | 0.80 | 0.90 | 23.0 | 0.0 | - |
| | S5 | 1.35 | 1.50 | 29.0 | 0.0 | - |
| GT18-08 | S2 | 0.70 | 0.75 | 139.4 | >0.0* | - |
| | S5 | 3.45 | 3.50 | - | 15.6 | 0 |
| GT18-17 | S1 | 0.60 | 0.75 | - | 52.2 | - |
| | S4 | 2.30 | 2.40 | - | 0.0 | - |

*Organic material present in the sample expanded in volume on thawing and absorbed excess water lowering the actual excess ice content (% by volume) compared to that estimated visually in the field.

#### Off-site Moisture Content, Bulk Density, Excess Ice Content, and Particle Size Analysis

Moisture content testing was completed on 32 samples from 12 boreholes. Hydrometer (particle size) analyses were completed on 12 samples, bulk density analysis was performed on 4 samples, and a wash sieve analysis was completed on 13 samples. The number of samples selected for testing and their locations along the vertical borehole profile depends on the variability of the overburden materials encountered during drilling. The intent of the laboratory

testing program was to fill in information gaps and provide sufficient geotechnical characterization of the overburden soils. The test results are summarized in Table 3.

### Table 3: Summary of Off-site Laboratory Test Results

| Borehole No. | Sample No. | Depth | | Moisture Content (%) | Bulk Density (kg/m$^3$) | Excess Ice Content (% by volume) | Clay (%) | Silt (%) | Sand (%) | Gravel (%) |
|---|---|---|---|---|---|---|---|---|---|---|
| | | From (m) | To (m) | | | | | | | |
| GT18-01 | S1 | 1.50 | 2.50 | 9.4 | - | - | 39.0 | | 41.0 | 20.0 |
| | S2 | 3.80 | 4.20 | 10.2 | - | - | 33.0 | | 35.0 | 32.0 |
| GT18-02 | S2 | 1.20 | 1.50 | 9.7 | - | - | 39.0 | | 25.0 | 36.0 |
| GT18-04 | S2 | 0.95 | 1.25 | 7.1 | - | - | 29.0 | | 31.0 | 40.0 |
| GT18-05 | S3 | 0.90 | 1.00 | 20.9 | - | - | 35.0 | | 34.0 | 31.0 |
| | S4 | 1.12 | 1.34 | - | | 0.0 | 12.0 | 73.0 | 13.0 | 2.0 |
| | S6 | 3.30 | 3.40 | 7.1 | 2076 | - | 8.0 | 14.0 | 39.0 | 39.0 |
| GT18-06 | S1 | 0.60 | 1.00 | 4.3 | - | - | 19.0 | | 30.0 | 51.0 |
| | S2 | 2.50 | 3.10 | 11.5 | - | 0.0 | 33.0 | | 27.0 | 40.0 |
| | S3 | 5.20 | 5.60 | 9.3 | - | - | 19.0 | | 37.0 | 44.0 |
| GT18-07 | S1 | 0.60 | 0.90 | 12.4 | | - | 30.0 | | 36.0 | 34.0 |
| | S2 | 2.20 | 2.60 | 12.4 | - | - | 41.0 | | 27.0 | 32.0 |
| | S3 | 4.00 | 4.40 | 4.0 | - | - | 8.0 | | 41.0 | 51.0 |
| | S5 | 11.10 | 11.40 | 8.0 | - | - | 23.0 | | 32.0 | 45.0 |
| GT18-08 | S1 | 0.55 | 0.70 | 29.6 | - | - | 22.0 | | 41.0 | 37.0 |
| | S4 | 2.45 | 2.60 | 11.8 | - | - | 17.0 | | 29.0 | 54.0 |
| | S6 | 3.50 | 3.70 | 28.3 | - | | 70.0 | | 30.0 | 0.0 |
| | S8 | 5.60 | 5.80 | 10.8 | | - | 12.0 | 31.0 | 26.0 | 31.0 |
| | S10 | 13.70 | 14.00 | 7.7 | - | - | 15.0 | 22.0 | 42.0 | 21.0 |
| GT18-09 | S1 | 2.00 | 2.20 | 4.5 | | - | 23.0 | | 38.0 | 39.0 |
| | S2 | 5.00 | 5.20 | 5.7 | - | - | 20.0 | | 30.0 | 50.0 |
| GT18-10 | S1 | 2.70 | 3.00 | 27.5 | 1860 | - | 17.0 | 68.0 | 11.0 | 3.0 |
| | S2 | 6.50 | 6.70 | 7.7 | - | - | 35.0 | | 23.0 | 43.0 |
| GT18-11 | S1 | 2.00 | 2.20 | 5.5 | - | - | 23.0 | | 31.0 | 46.0 |
| GT18-15 | S1 | 1.00 | 1.10 | 7.7 | - | - | 12.0 | 32.0 | 37.0 | 19.0 |
| | S2 | 8.80 | 9.00 | 14.5 | - | - | 12.0 | 24.0 | 41.0 | 23.0 |
| | S5 | 12.70 | 13.00 | 10.0 | 2228 | - | 14.0 | 28.0 | 34.0 | 24.0 |
| | S7 | 17.50 | 17.80 | 11.1 | 2353 | - | 22.0 | 36.0 | 27.0 | 15.0 |
| GT18-16 | S1 | 0.50 | 0.80 | 12.1 | | - | 42.0 | | 32.0 | 26.0 |
| | S2 | 2.50 | 2.80 | 10.3 | - | - | 35.0 | | 32.0 | 33.0 |
| GT18-17 | S2 | 1.10 | 1.30 | 76.6 | | 51.3 | 20.0 | 24.0 | 35.0 | 21.0 |
| | S3 | 1.60 | 1.80 | 29.8 | | 21.3 | 17.0 | 28.0 | 37.0 | 18.0 |
| | S5 | 3.70 | 3.90 | 10.9 | - | - | 19.0 | 34.0 | 35.0 | 12.0 |

## 2.5.3 Geomechanical Laboratory Testing

### Direct Shear Testing

Direct shear tests were carried out at Tetra Tech's Edmonton geotechnical laboratory on four test specimens reconstituted from seven samples following ASTM D3080. Samples GT18-01-S1 and GT18-04-S2 and samples

GT18-02-S2, GT18-06-S2, and GT18-07-S2 were reconstituted together to produce two separate test specimens. A test specimen was reconstituted from disturbed sample GT18-08-S4, and another test specimen was trimmed from sample GT18-08-S6. The samples were selected based on a high percentage of fines and high excess ice contents.

Table 4 presents a summary of the direct shear test results. The sample ring and thickness of all the test specimens was 18.92 mm.

**Table 4: Direct Shear Test Results**

| Borehole and Sample Number | Sample Depth (m) | Sample ID | Wet Density (Mg/m$^3$) | Dry Density (Mg/m$^3$) | Normal Stress (kPa) | Shear Stress (kPa) | Inferred Shear Strength Parameters – Peak | |
|---|---|---|---|---|---|---|---|---|
| | | | | | | | Cohesion Intercept (kPa) | Shearing Resistance Angle (°) |
| GT18-01-S2 & 04-S2 | 1.50–2.50, 0.95–1.25 | DS-1 | 2.220 | 1.989 | 500 | 368 | 71.0 | 32.0 |
| | | DS-2 | 2.221 | 1.994 | 1,000 | 721 | | |
| | | DS-3 | 2.222 | 1.994 | 2,000 | 1,315 | | |
| GT18-02-S2 & 06-S2 & 07-S2 | 1.20-1.50, 2.5–3.10, 2.20–2.60 | DS-4 | 2.225 | 1.951 | 500 | 349 | 54.0 | 30.6 |
| | | DS-5 | 2.225 | 1.954 | 1,000 | 648 | | |
| | | DS-6 | 2.225 | 1.956 | 2,000 | 1,238 | | |
| GT18-08-S6 | 3.50-3.70 | DS-7 | 2.051 | 1.775 | 250 | 189 | 23.5 | 33.3 |
| | | DS-8 | 2.051 | 1.792 | 500 | 351 | | |
| | | DS-9 | 2.051 | 1.789 | 1,000 | 682 | | |
| GT18-08-S4 | 2.45–2.60 | DS-10 | 2.213 | 1.961 | 250 | 221 | 12.5 | 39.6 |
| | | DS-11 | 2.213 | 1.967 | 500 | 423 | | |
| | | DS-12 | 2.214 | 1.966 | 1,000 | 840 | | |

## 2.6 Ground Temperature Cable Instrumentation Installations

Six multi-bead GTCs were installed to determine ground temperatures in locations where there is no or limited ground temperature data. GTCs were installed in the following boreholes: GT18-01 (TT# 2665), GT18-05 (TT# 2666), GT18-07 (TT# 2663), GT18-08 (TT# 2668), GT18-09 (TT# 2669), and GT18-15 (TT#2667).

The GTC boreholes were drilled to a minimum target depth of 21.0 m. A 25 mm I.D. flush couple threaded watertight PVC pipe with a bottom cap was threaded and glued together and lowered into the borehole. The annulus between the 25 mm PVC pipe and the borehole wall was backfilled with clean, dry sand to hold the PVC pipe in place. Several bags of bentonite chips were used to backfill the annulus at intervals within the sand to create a plug, preventing water from flowing down the borehole causing possible thermal irregularities along the thermistor string. GTCs were inserted inside the watertight PVC pipes at depth where the first thermistor bead is 0.5 m below ground level (BGL). An exception is Borehole GT18-08 where the drill bit hit refusal on hard granite boulders at 17.4 m depth, 3.6 m short of the minimum required depth. Therefore, GTC at this location was placed to a depth of 15.15 m, with the first thermistor bead below ground surface being the eighth thermistor bead on the string at 0.65 m BGL). Backfill was not used inside of PVC pipes. A 50 mm I.D. PVC pipe with a metal housing cabinet attached at the top was set over the 25 mm PVC pipe to protect the GTC lead. Metal housings were attached to two 2” by 4” by 4’ wood planks to provide stability. GTC cable installation reports are provided in Appendix D.

Initial GTC readings were taken immediately after installation to confirm that all the thermistor beads were working properly. Ground temperature readings were taken again several days after installation. Two subsequent sets of readings were taken by Victoria Gold site personnel on May 15 and June 8, 2018. The measured ground

temperatures at the depth of zero annual amplitude appear to have reached equilibrium and show either very warm permafrost with ground temperatures ranging from approximately 0°C at GT18-15 (Potential ROM Storage Area) to -0.5°C at GT18-08 (Platinum Gulch WRSA) or non-permafrost conditions with ground temperatures above the freezing point. Ground temperature profiles showing changes in temperatures with depth are presented in Appendix D.

Sacrificial SBTSs were installed in the remaining seven completed boreholes to depths ranging from 7.9 m to 9.0 m BGL to confirm the ground thermal condition, i.e. the presence or absence of permafrost. Borehole numbers, thermistor bead depths, installation dates, and the most recent ground temperature readings collected on June 8, 2018 are given in Table 5. Manual ground temperature readings from SBTSs were collected three times, i.e. several days after installation and again on May 15 and June 8, 2018.

**Table 5: Single Bead Thermistor Readings**

| Borehole No. | Single Bead No. | Northing (m) | Easting (m) | Elevation (m) | Bead Depth (m) | Date Installed | Most Recent Date Measured | Ground Temperature (°C) |
|---|---|---|---|---|---|---|---|---|
| GT18-02 | 14 | 7,100,945 | 459,925 | 932.0 | 7.9 | 7-Apr-18 | 8-Jun-18 | 1.21 |
| GT18-04 | 18 | 7,100,787 | 459,854 | 961.0 | 8.5 | 10-Apr-18 | 8-Jun-18 | 1.32 |
| GT18-06 | 13 | 7,100,852 | 460,088 | 968.0 | 9.0 | 8-Apr-18 | 8-Jun-18 | 0.21 |
| GT18-10 | 10 | 7,098,851 | 459,968 | 1,175.0 | 8.5 | 14-Apr-18 | 8-Jun-18 | -0.08 |
| GT18-11 | 11 | 7,098,964 | 460,080 | 1,181.0 | 8.5 | 13-Apr-18 | 8-Jun-18 | -0.05 |
| GT18-16 | 2 | 7,100,308 | 459,607 | 982.0 | 8.2 | 11-Apr-18 | 8-Jun-18 | 0.92 |
| GT18-17 | 7 | 7,100,290 | 459,263 | 944.0 | 8.5 | 12-Apr-18 | 8-Jun-18 | -0.12 |

## 2.7 Permafrost Distribution Mapping

The subsurface data collected during the spring 2018 geotechnical drilling program, as well as continued monitoring of the site ground thermal regime with GTCs and SBTSs installed in April 2018 have been used to update a preliminary map of permafrost distribution in the Dublin Gulch area that was compiled by Dr. Roujanski and Dr. McCuaig (Tetra Tech 2017). The map is provided as the background for Figure 2.

# 3.0 SUBSURFACE CONDITIONS

## 3.1 General

Observed terrain conditions are discussed in the following sections. The discussions are based on the drill site terrain observations and the data collected during the drilling, logging, field and laboratory testing phases of the investigation. Subsurface conditions are not uniform; it is expected that conditions between and surrounding the boreholes may vary from the subsurface conditions identified within the boreholes described in this report. However, the borehole data does give a general indication of the range of subsurface properties to be expected in the area.

Based on data from previous site investigations (BGC 2009; 2010; 2011a, b; and 2012b,c), the results of the current geotechnical investigation and updated permafrost distribution mapping, we find that permafrost generally occurs on north-facing slopes, and on some west- and east-facing slopes at higher elevations, and within poorly-drained

areas lower in the valleys. The distribution of permafrost is highly variable within the project area – changing from patchy occurrence and permafrost-free areas on south-facing slopes to more prevalent presence on north-facing slopes. More data is needed to refine the permafrost distribution patterns within the project area.

Permafrost conditions are very warm, even at higher elevations – hovering close to 0°C (Table 5 and Appendix D).

## 3.2 Eagle Pup WRSA

Six boreholes (GT18-01, GT18-02, GT18-04, GT18-05, GT18-06, GT18-07) were drilled within the footprint of the proposed Eagle Pup WRSA (Figure 2). These boreholes were drilled along and adjacent to the Eagle Pup Gulch.

The general terrain and subsurface conditions of the proposed Eagle Pup WRSA footprint are discussed in the following sections and are summarized in Table 6.

**Table 6: Overburden Soil Condition Summary, Eagle Pup WRSA**

| Borehole No. | Overburden Thickness (m) | Organic Layer Thickness (m) | Major Overburden Soil Types | Active Layer Thickness (m)* | Permafrost Conditions |
|---|---|---|---|---|---|
| GT18-01 | 4.2 (not including 0.6 m fill) | 0.22 | Peat; Sand and Gravel; Cobble | ~2.5; (a seasonally frozen layer) | Permafrost-free with a seasonally frozen layer (Vx up to 5%) |
| GT18-02 | 2.1 | 0.3 | Sand and Gravel; Cobble | ~1.5 to 2.0; (a seasonally frozen layer) | Permafrost-free with a seasonally frozen layer Vx 15-20% |
| GT18-04 | 2.1 | N/A | Sand and Gravel | ~2.0 to 2.5; (a seasonally frozen layer) | Permafrost-free with a seasonally frozen layer (Nbn) |
| GT18-05 | 3.15 (not including 0.35 m fill) | 0.45 | Sand and Gravel, Silt | ~2.0; (a seasonally frozen layer) | Permafrost-free with a seasonally frozen layer (Vx, Vc, Vs up to 10%) |
| GT18-06 | 9.0 | 0.3 | Peat; Gravel; Boulders | ~3.5; (a seasonally frozen layer) | Permafrost-free with a seasonally frozen layer (Vx up to 10%) |
| GT18-07 | 12.0 | 0.6 | Sand and Gravel, Silt | ~2.3; (a seasonally frozen layer) | Permafrost-free with a seasonally frozen layer (Vx 1-3%) |

* - measurements of the active layer thickness are based on interpretation of the ground temperature data and examination of the core immediately after its recovery.

### 3.2.1 General

The terrain of the proposed Eagle Pup WRSA was observed and drilled between April 7 to 10, 2018. Its footprint lies within a drainage basin with an overall northerly aspect. The drainage basin converges into Eagle Pup which drains into Eagle Creek.

Boreholes GT18-01, GT18-02, GT18-06, and GT18-07 are located on the eastern side of Eagle Pup, where the slope has a southwesterly to westerly aspect. Vegetation consists of relatively healthy aspen, pine, and spruce trees and shrub birch and willow. Boreholes GT18-04 and GT18-05 are located on the southwestern slope, where

the slope has a northern to northeastern aspect. Vegetation here lacks aspen trees and consists of moderately sparse pine, black spruce trees and shrubs.

The slope of Eagle Pup stream is on average 3° to 5°. The slope northeast of it dips 15° to 25° where the boreholes are (but more steeply above them), while the southwestern slope is mainly 15° but slope angle increases farther up the incline.

### 3.2.2 Overburden Soils

The organic layer consists mainly of dark brown to black fibrous peat up to 0.3 m thick. A trace of rootlets were found up to 0.6 m BGL into till material.

Poorly to well graded, grey to dark brown silt, sand and gravel mixtures with cobbles disseminated throughout make up the bulk of the colluvial overburden. Any of these may be the dominant soil component. Rubble zones of angular gravel and cobble make up the coarse component.

Gravimetric moisture content of the overburden material varied from 4.0% in gravel and sand at a depth of 4.0 m in GT18-07 to 48.1% at a depth of 0.4 m in GT18-05 (Tables 2 and 3).

Frozen conditions with visible excess ice (Vx, Vc, Vs, Vr) were observed in the upper 3.0 m of the overburden in four out of six boreholes. Thermistor cables installed in these boreholes confirmed non-permafrost conditions below the seasonally frozen layer (Appendix D and Table 5). Therefore, visible ice observed in these boreholes is seasonal ice present within the active layer.

### 3.2.3 Bedrock

Bedrock in all six boreholes consisted of metasedimentary rock with varying levels of oxidation. Due to the heavily mechanically disturbed condition of the recovered rock core from the Sonic drilling process, RQDs, fracture frequencies, and strength designations could not be determined. As previously discussed, RC drilling is not particularly effective at coring bedrock. Bedrock has previously been well characterized in the Eagle Pup WRSA area during the BGC 2010 and 2011 geotechnical field investigations (BGC 2010 and 2011a,b).

## 3.3 Platinum Gulch WRSA

Four boreholes (GT18-08, GT18-09, GT18-10, GT18-11) were drilled within the proposed footprint for the Platinum Gulch WRSA (Figure 2).

The general terrain and subsurface conditions of the Platinum Gulch WRSA are discussed in the following sections and are summarized in Table 7.

**Table 7: Overburden and Bedrock Condition Summary, Platinum Gulch WRSA**

| Borehole No. | Overburden Thickness (m) | Organic Layer Thickness (m) | Major Overburden Soil Types | Active Layer Thickness (m)* | Permafrost Conditions |
|---|---|---|---|---|---|
| GT18-08 | >17.4 | 1.1 | Peat; Sand and Gravel; Cobble; boulders | Undetermined | Permafrost (Vs up to 15%) |
| GT18-09 | 9.5 | 0.5 | Sand and Gravel | ~3.0 (a seasonally frozen layer) | Permafrost-free with a seasonally frozen layer (Nbn) |
| GT18-10 | 7.9 (not including 1.1 m of fill) | N/A | Sand and Gravel | Undetermined | Permafrost (Vx 1%) |
| GT18-11 | 10.0 | 0.4 | Sand and Gravel | Undetermined | Permafrost Confirmed by thermistor (-0.1°C) |

* - measurements of the active layer thickness are based on interpretation of the ground temperature data and examination of the core immediately after its recovery.

### 3.3.1 General

The proposed Platinum Gulch WRSA was drilled on April 11, 13, and 14, 2018. Its footprint lies within a watershed with an overall northerly and westerly aspect. The watershed narrows into the Platinum Gulch outlet that feeds into Haggart Creek.

Borehole GT18-08 is located at the west end of the proposed footprint, just north of Platinum Gulch stream. A granite boulder field is located 20 m south of the borehole location on the opposite bank of Platinum Gulch stream. Vegetation near the bottom of the gulch is sparse black spruce trees.

Boreholes GT18-09, GT18-10, and GT18-11 are located farther up the gulch, east of borehole GT18-08. The surrounding vegetation includes dense pine and spruce forest, but aspen dominates the west-facing slopes.

### 3.3.2 Overburden Soils

The organic layer in the area consists of dark red to brown to black fibrous peat up to 0.3 m thick. Borehole GT18-09 and GT18-10 were drilled on previously disturbed ground, resulting in removed or altered organic material. A trace of rootlets were found up to 0.6 m BGL into the till material.

Poorly to well graded, grey to dark brown silt, sand and gravel mixtures with cobbles disseminated throughout make up the bulk of the colluvial overburden. Any of these may be the dominant soil component. Angular gravel and cobble make up the coarse component.

Borehole GT18-08 encountered granite boulders at 17.4 m depth into overburden material, which caused refusal for the drill. A drill rod, shoe, and bit were damaged, so drilling at this location was terminated before the planned depth of 21.0 m could be reached.

Borehole GT18-09 was positioned on the edge of an old access road that appeared to have been unused for years. Fill material for the road contributed to the top 0.5 m of the core, with root systems, moss, and young vegetation growing in the road surface, which can be defined as native overburden for this report.

Gravimetric moisture content of the overburden material varied from 4.5% at a depth of 2.0 m in GT18-09 to 29.6% at a depth of 0.55 m in GT18-08.

Permafrost conditions with visible excess ice (Vx, Vc, Vs, Vr) were confirmed in two of the four boreholes. Excess ice contents found in GT18-08 ranged from 0.0% to 15.6%, with no excess ice measured in the remaining boreholes. Permafrost conditions were confirmed using GTC and SBTSs in boreholes GT18-08, GT18-10, and GT18-11 (Appendix D and Table 5).

### 3.3.3 Bedrock

Bedrock consisted of metasedimentary rock with varying levels of oxidation. Due to the heavily mechanically disturbed condition of the recovered rock core as part of the Sonic drilling process, RQDs, fracture frequencies, and strength designations could not be determined. As previously discussed, RC drilling is not particularly effective at coring bedrock. Bedrock has previously been characterized in the Platinum Gulch WRSA area during the BGC 2010 and 2011 geotechnical field investigations (BGC 2010 and 2011a,b).

Bedrock in borehole GT18-08 was not reached due to refusal on granite boulders.

## 3.4 90 Day Storage Area

Borehole GT18-17 was drilled within the proposed footprint for the 90 Day Storage (Figure 2).

The general terrain and subsurface conditions of the proposed 90 Day Storage area are discussed in the following sections and are summarized in Table 8.

**Table 8: Overburden and Bedrock Condition Summary, 90 Day Storage Area**

| Borehole No. | Overburden Thickness (m) | Organic Layer Thickness (m) | Major Overburden Soil Types | Active Layer Thickness (m)* | Permafrost Conditions |
|---|---|---|---|---|---|
| GT18-17 | 5.5 | 0.3 | Peat; Sand and Silt; Sand and Gravel | Undetermined | Ice-Rich Permafrost (ICE + Soil, Vx 3-5%, Nbn) |

* - measurements of the active layer thickness are based on interpretation of the ground temperature data and examination of the core immediately after its recovery.

### 3.4.1 General

The proposed 90 Day Storage area was investigated on April 12, 2018. Its footprint lies on a slope that dips towards Suttles Gulch and has an overall northerly aspect.

Suttles Gulch is densely forested with spruce, pine, and dense shrubs. Trees on the western slope of Suttles Gulch are noticeably more stunted and withered compared to trees on the eastern side of the gulch. Both slopes range from 10° to 20° in slope angle.

Borehole GT18-17 is located at the northeast corner of the 90 Day Storage area footprint, on the west bank of Suttles Gulch.

### 3.4.2 Overburden Soils

The organic layer consists of a 0.3 m thick dark brown to black peat layer with interspersed rootlets and moss. Well graded, light brown to grey silt, sand and gravel mixtures make up the bulk of the colluvial overburden. Sand is the dominant soil component, while angular gravel makes up the coarse component. The colluvium is underlain by boulders.

Gravimetric moisture contents of the overburden material varied from 10.9% in frozen silty sand with some gravel at a depth of 3.7 m to 76.6% in frozen silty, gravelly sand at a depth of 1.1 m.

Warm permafrost conditions (-0.1°C) with excess ice (Vx, Vc, Vs, Vr) were observed in the borehole and were confirmed by SBTS installed at a depth of 8.5 m (Table 5). A layer of ice with sand and silt approximately 1.3 m thick was observed at a depth of 0.3 m BGL (Photo 2). The ice mass was clear to cloudy. It is believed that this ice is a result of the borehole being located within a depression on the slope face that channels runoff, resulting in higher than normal water content. Ice coatings and inclusions (Vc, Vx 21%) were observed in silty sand with some gravel from 1.6 m to 1.8 m. Excess ice (Vx 3.0% to 5.0%) was logged in sand and gravel from 1.8 m to 2.5 m. Well-bonded permafrost (Nbn) was observed in sand and gravel from 2.5 m to the top of bedrock, which was encountered at a depth of 5.5 m.




**Photo 2: Ice and sand, silty between 1.05 m and 1.2 m in GT18-07.**

### 3.4.3 Bedrock

Bedrock in this borehole consists of metasedimentary rock. Due to the heavily mechanically disturbed condition of the recovered rock core due to the Sonic drilling process, RQDs, fracture frequencies, and strength designations could not be determined. As previously discussed, RC drilling is not particularly effective at coring bedrock. Bedrock has previously been characterized in the 90 day Storage Area during the BGC 2009 and 2011 geotechnical field investigations (BGC 2009 and 2011a,b).

## 3.5 Potential ROM Stockpile Area

Two boreholes (GT18-15, GT18-16) were drilled within the potential ROM Stockpile Area. An actual footprint for the ROM stockpile has not been developed yet in the mine facility design, therefore it is not shown on Figure 2.

The general terrain and subsurface conditions of the Potential ROM Stockpile Area are discussed in the following sections and are summarized in Table 9.

**Table 9: Overburden and Bedrock Condition Summary, Potential ROM Stockpile Area**

| Borehole No. | Overburden Thickness (m) | Organic Layer Thickness (m) | Major Overburden Soil Types | Active Layer Thickness (m)* | Permafrost Conditions |
|---|---|---|---|---|---|
| GT18-15 | 18.0 | 0.4 | Sand; Sand and Gravel; Silt; Cobble | ~2.0 | Permafrost (Vx 1-3%, Nbn) |
| GT18-16 | 3.5 | 0.3 | Peat; Sand and Gravel | Undetermined | Permafrost-free with a seasonally frozen layer (Nbn) |

* - measurements of the active layer thickness are based on interpretation of the ground temperature data and examination of the core immediately after its recovery.

### 3.5.1 General

The potential ROM Stockpile area lies east of the 90 Day Storage area, within the Suttles Gulch drainage area. Suttles Gulch is densely forested with spruce, pine, and dense shrubs. Trees situated on the west slope of Suttles Gulch are noticeably more stunted and withered compared to trees on the east side of the gulch. The slopes on either side of Suttles Gulch range from 10° to 20° in angle.

Boreholes GT18-15 and GT18-16 were drilled on the eastern slope of the gulch on April 10 and 11, 2018.

### 3.5.2 Overburden Soils

The organic layer consists of 0.3 m brown peat with rootlets down to 0.4 m into the underlying sand and gravel. Overburden consists of well to poorly graded, brown to dark grey sand and angular gravel, with increasing silt and clay content at depth in GT18-15. This material is interpreted as colluvium.

Gravimetric moisture contents of the overburden material varies from 7.7% in frozen silt and sand at a depth of 1.0 m to 14.5% in frozen sand with some silt and gravel at a depth of 8.8 m in GT18-15.

Permafrost conditions were confirmed in one of the two completed boreholes. In GT18-15, visible ice (up to 3% by volume) was observed in the frozen active layer, with well-bonded permafrost (Nbn) below. GTC installed in GT18-15 confirmed very warm permafrost conditions (0°C to -0.1°C; Appendix D), while SBTS installed in GT18-16 revealed non-permafrost ground (Table 5).

### 3.5.3 Bedrock

Bedrock encountered in these two boreholes comprises metasedimentary rock. Due to the heavily mechanically disturbed condition of the recovered rock core because of the Sonic drilling process, RQDs, fracture frequencies, and strength designations could not be determined. As previously discussed, RC drilling is not particularly effective at coring bedrock. Bedrock has previously been well characterized in the ROM Stockpile area during the BGC 2009, 2010, 2011, and 2012 geotechnical field investigations.

# 4.0 CLOSURE

We trust this report meets your present requirements. If you have any questions or comments, please contact the undersigned.

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WM4400 Geotechnical Soil Classification. Tetra Tech Canada's Work Method, p. 16.

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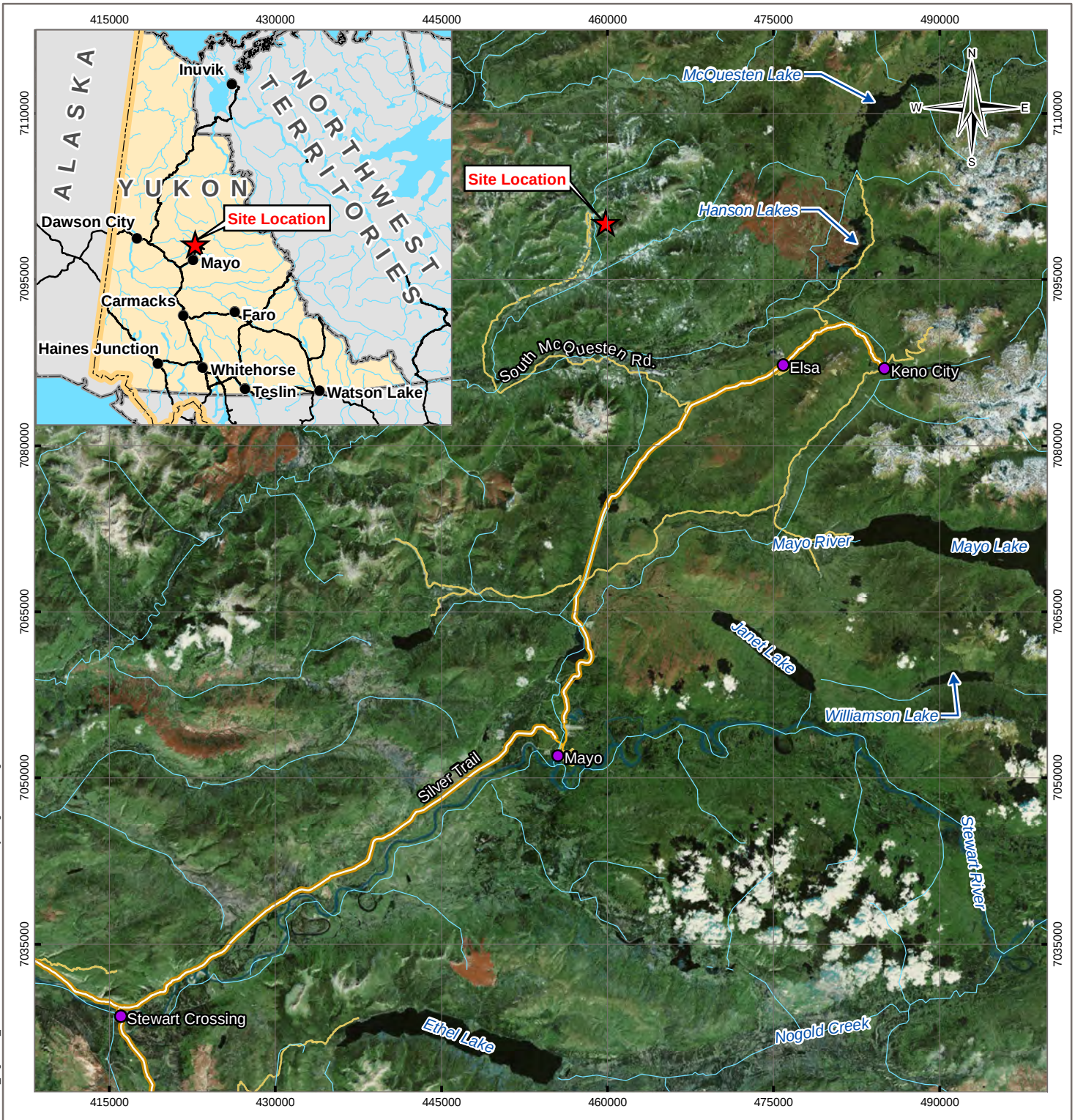
# FIGURES

Figure 1 Site Location

Figure 2 As-drilled and Proposed Borehole Locations, Dublin Gulch Area, Discontinuous Permafrost Region




## LEGEND

- Site Location
- Community
- Highway
- Main Road
- Local Road
- Resource/Recreational Road
- Watercourse

**NOTES**
Base data source: CanVec 1:1,000,000
Base imagery source: DigitalGlobe, 2010-2015

**STATUS**
ISSUED FOR USE

# EAGLE GOLD PROJECT
# SPRING 2018
# GEOTECHNICAL INVESTIGATION

## Site Location

| PROJECTION | DATUM | CLIENT |
|---|---|---|
| UTM Zone 8 | NAD83 | Victoria GOLD CORP |

Scale: 1:500,000
10 5 0 10
Kilometres

TETRA TECH

**FILE NO.**
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| OFFICE | DWN | CKD | APVD | REV |
|---|---|---|---|---|
| Tt-EDM | MRV | SL | SM | 0 |

| DATE | PROJECT NO. |
|---|---|
| September 19, 2018 | ENG.EARC03103-02 |

**Figure 1**

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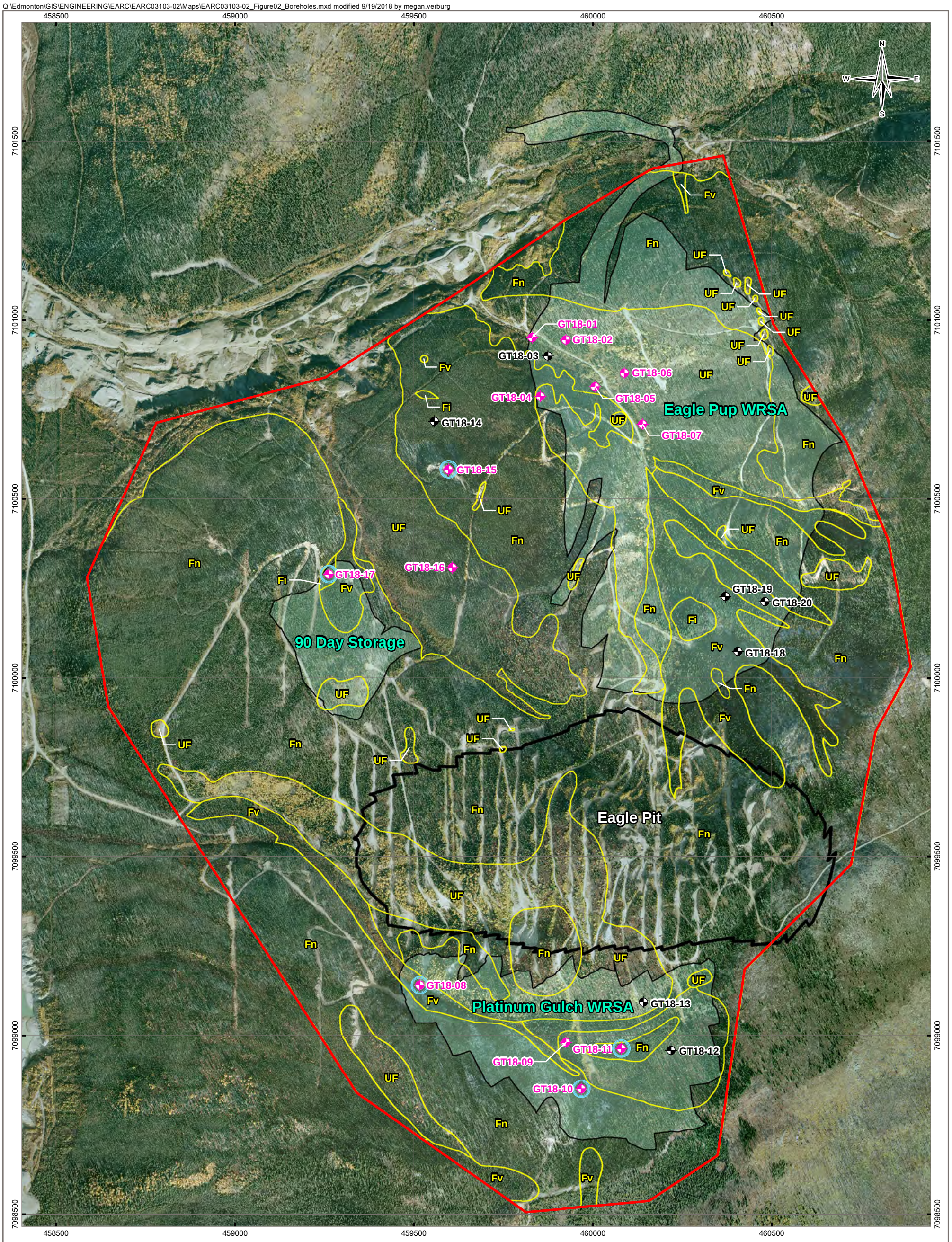


## LEGEND

- As-Drilled TT 2018 Geotechnical Borehole
- As-Drilled TT 2018 Geotechnical Borehole Thermistor Indicating Permafrost Condition
- Proposed Spring 2018 Geotechnical Borehole
- WRSA and 90 Day Storage Areas
- Pit
- Permafrost Study Area

- Boundary of Permafrost Distribution
- Fi — Perennially frozen ground – predominantly very ice-rich with ground ice content locally exceeding 50% by volume of visible ice
- Fv — Perennially frozen ground – predominantly ice-rich with ground ice content generally ranging between 10% and 50% by volume of visible ice; may include patches of ice-poor permafrost (FN) and/or unfrozen ground (UF)
- Fn — Perennially frozen ground – predominantly ice-poor with ground ice content generally less than 10% by volume of visible ice or not visible ground ice; may include patches of ice-rich permaforst (FV) and/or unfrozen ground (UF)
- UF — Predominantly permafrost-free terrain; may include patches of permafrost (Fv, Fn)

**NOTES**
Base data source:
Imagery provided by the client (2010).

**STATUS**
ISSUED FOR USE

# EAGLE GOLD PROJECT
# SPRING 2018
# GEOTECHNICAL INVESTIGATION

## As-Drilled and Proposed Borehole Locations
## Dublin Gulch Area, Discontinuous Permafrost Region

| PROJECTION | DATUM | CLIENT |
|---|---|---|
| UTM Zone 8 | NAD83 | Victoria Gold Corp |

Scale: 1:10,000
200 100 0 200
Metres

TETRA TECH

| FILE NO. | | | | |
|---|---|---|---|---|
| EARC03103-02_Figure02_Boreholes.mxd | | | | |
| **OFFICE** | **DWN** | **CKD** | **APVD** | **REV** |
| Tt-EDM | MRV | SL | SMC/VER | 0 |
| **DATE** | **PROJECT NO.** | | | |
| September 19, 2018 | ENG.EARC03103-02 | | | |

**Figure 2**

# PHOTOGRAPHS

| | |
|---|---|
| Photo 1-5 | Borehole GT18-01 |
| Photo 6-8 | Borehole GT18-02 |
| Photo 9-11 | Borehole GT18-04 |
| Photo 12-15 | Borehole GT18-05 |
| Photo 16-19 | Borehole GT18-06 |
| Photo 20-22 | Borehole GT18-07 |
| Photo 23-26 | Borehole GT18-08 |
| Photo 27-30 | Borehole GT18-09 |
| Photo 31-32 | Borehole GT18-10 |
| Photo 33-34 | Borehole GT18-11 |
| Photo 35-41 | Borehole GT18-15 |
| Photo 42-44 | Borehole GT18-16 |
| Photo 45-48 | Borehole GT18-17 |




**Photo 1:** Borehole GT18-01; Depth 0.0 - 3.0 m




**Photo 2:** Borehole GT18-01; Depth 3.0 - 6.0 m




**Photo 3:** Borehole GT18-01; Depth 6.0 - 9.0 m




**Photo 4:** Borehole GT18-01; Depth 9.0 - 18.3 m

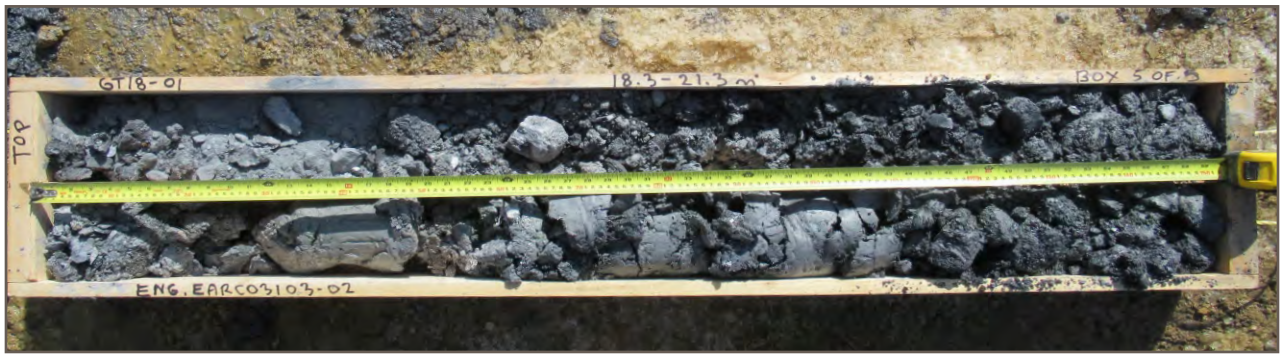


**Photo 5:** Borehole GT18-01; Depth 18.3 - 21.3 m

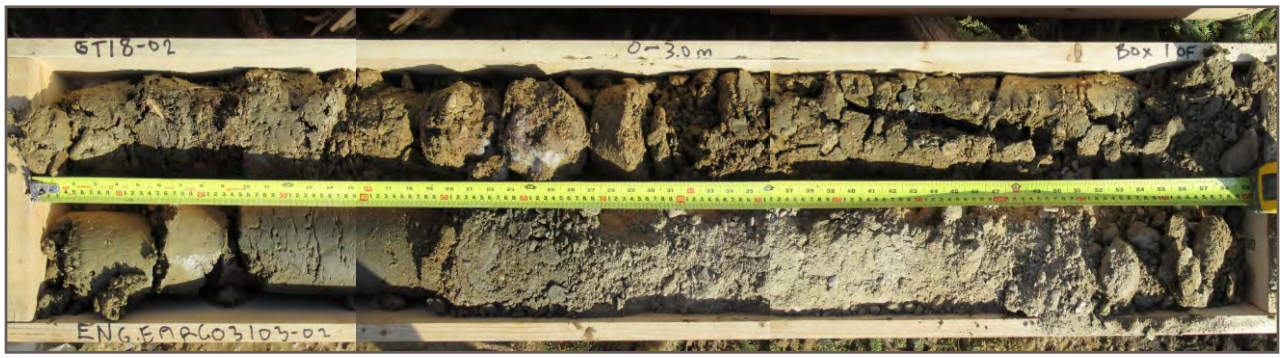


**Photo 6:** Borehole GT18-02; Depth 0.0 - 3.0 m




**Photo 7:** Borehole GT18-02; Depth 3.0 - 6.0 m




**Photo 8:** Borehole GT18-02; Depth 6.0 - 7.9 m




**Photo 9:** Borehole GT18-04; Depth 0.0 - 3.0 m

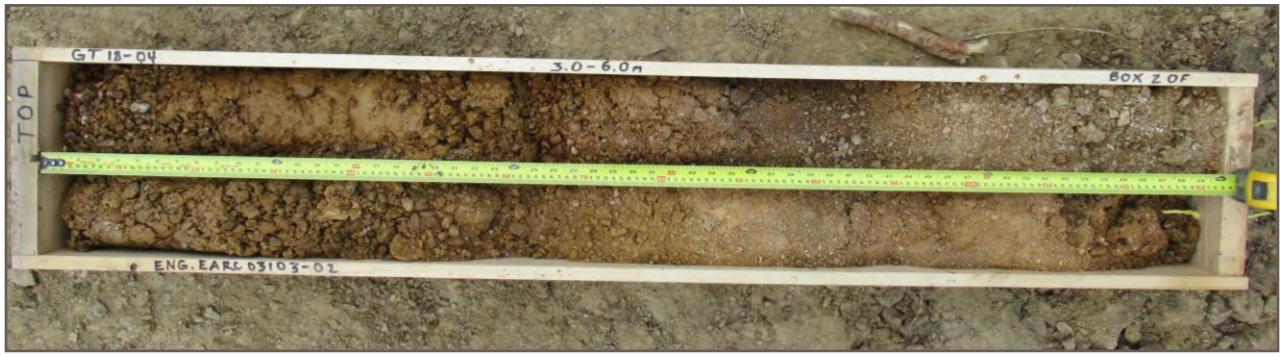


**Photo 10:** Borehole GT18-04; Depth 3.0 - 6.0 m




**Photo 11:** Borehole GT18-04; Depth 6.0 – 9.0 m

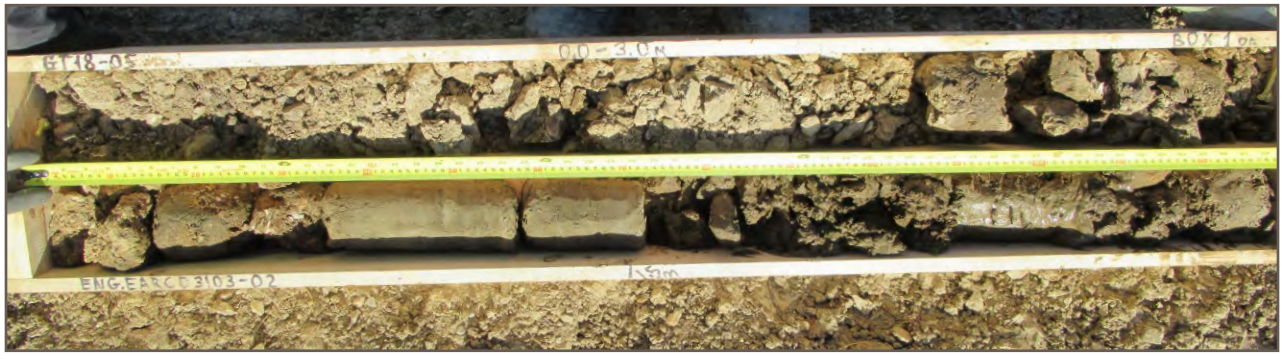


**Photo 12:** Borehole GT18-05; Depth 0.0 - 3.0 m

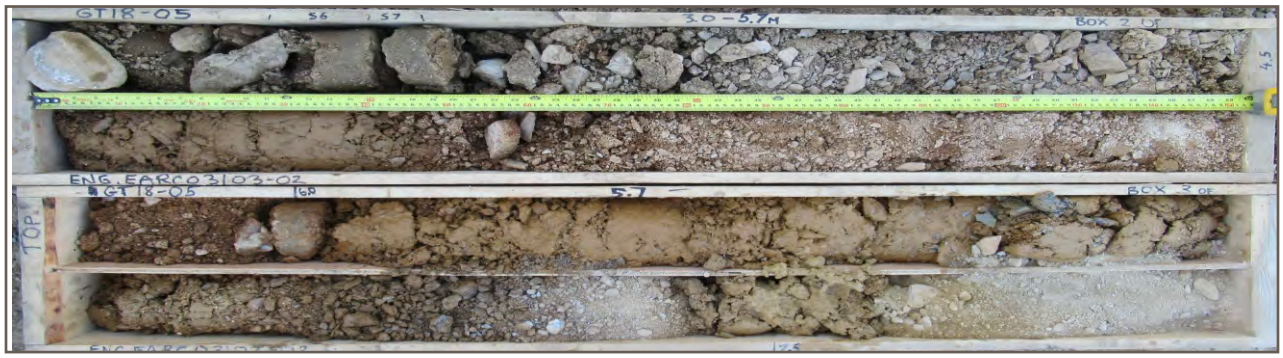


**Photo 13:** Borehole GT18-05; Depth 3.0 - 8.1 m




**Photo 14:** Borehole GT18-05; Depth 8.1 - 10.9 m

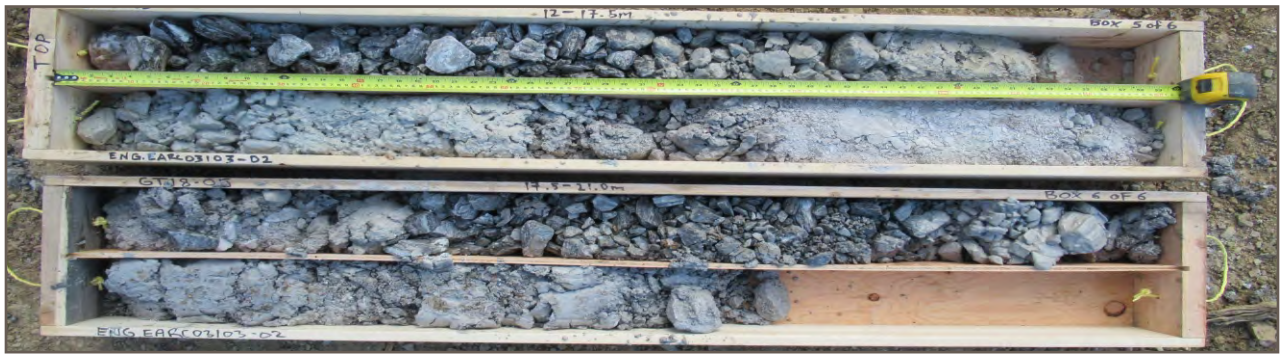


**Photo 15:** Borehole GT18-05; Depth 10.9 - 21.0 m




**Photo 16:** Borehole GT18-06; Depth 0.0 - 2.5 m




**Photo 17:** Borehole GT18-06; Depth 2.5 - 5.0 m




**Photo 18:** Borehole GT18-06; Depth 5.0 - 7.5 m




**Photo 19:** Borehole GT18-06; Depth 7.5 - 12.5 m




**Photo 20:** Borehole GT18-07; Depth 0.0 - 6.0 m

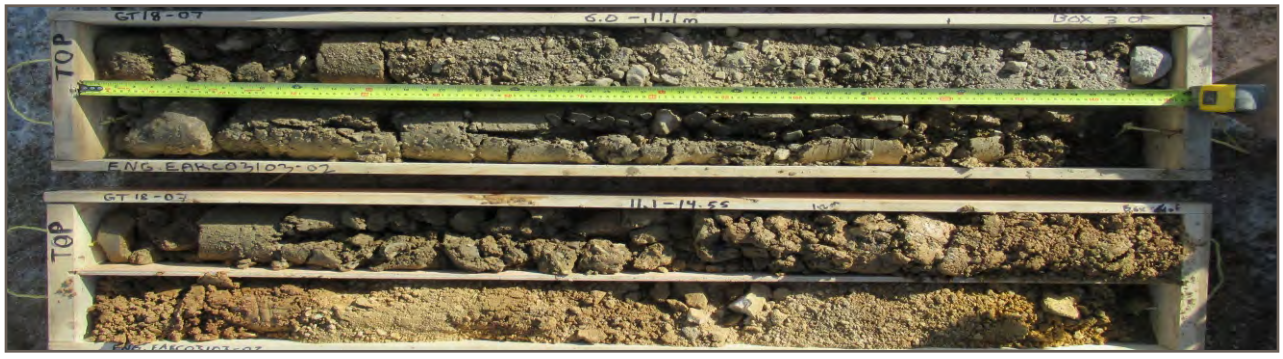


**Photo 21:** Borehole GT18-07; Depth 6.0 - 14.55 m

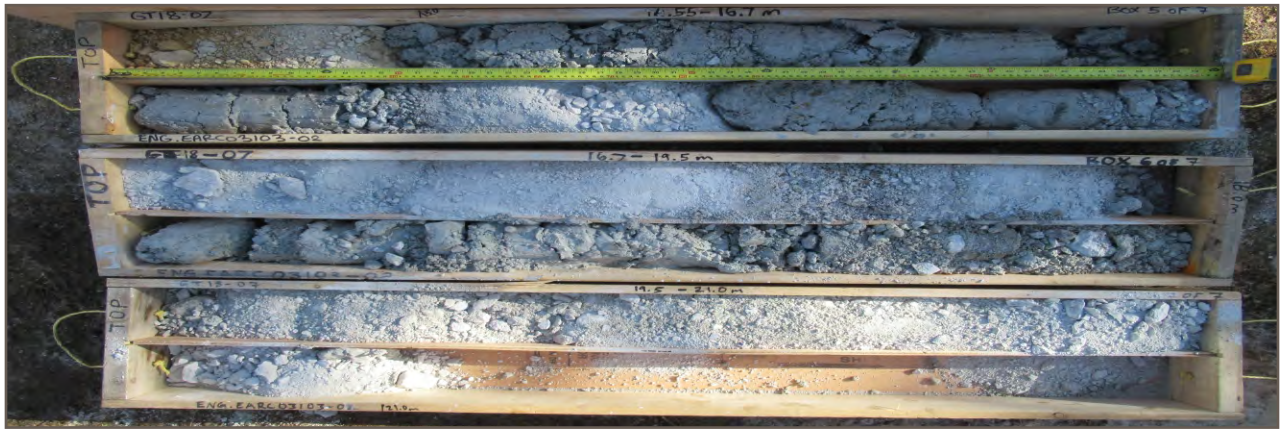


**Photo 22:** Borehole GT18-07; Depth 14.55 - 21.0 m

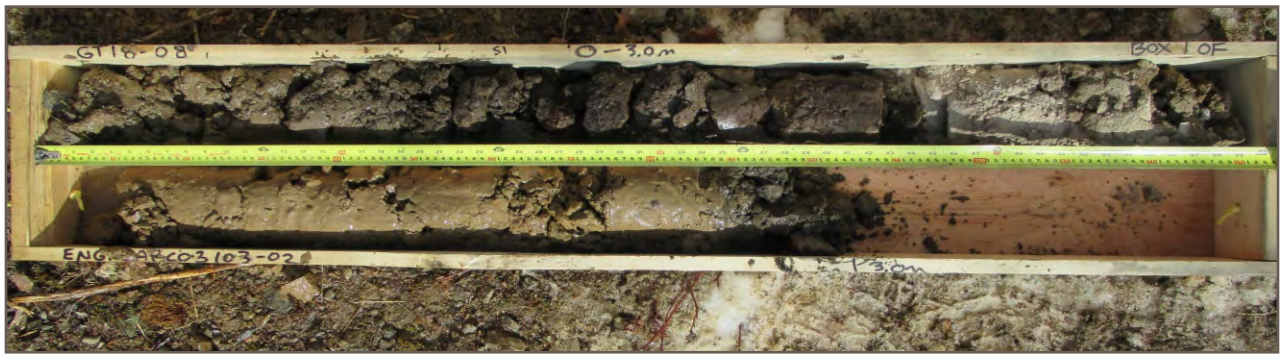


**Photo 23:** Borehole GT18-08; Depth 0.0 - 3.0 m

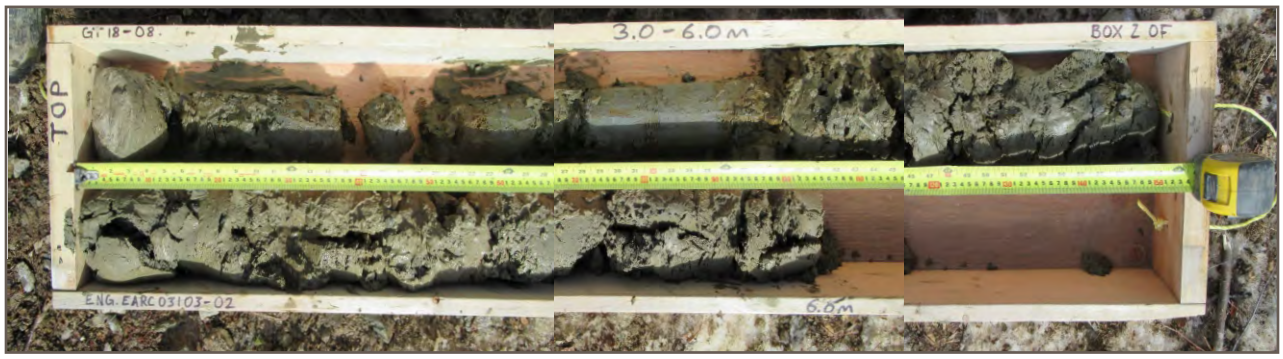


**Photo 24:** Borehole GT18-08; Depth 3.0 - 6.0 m

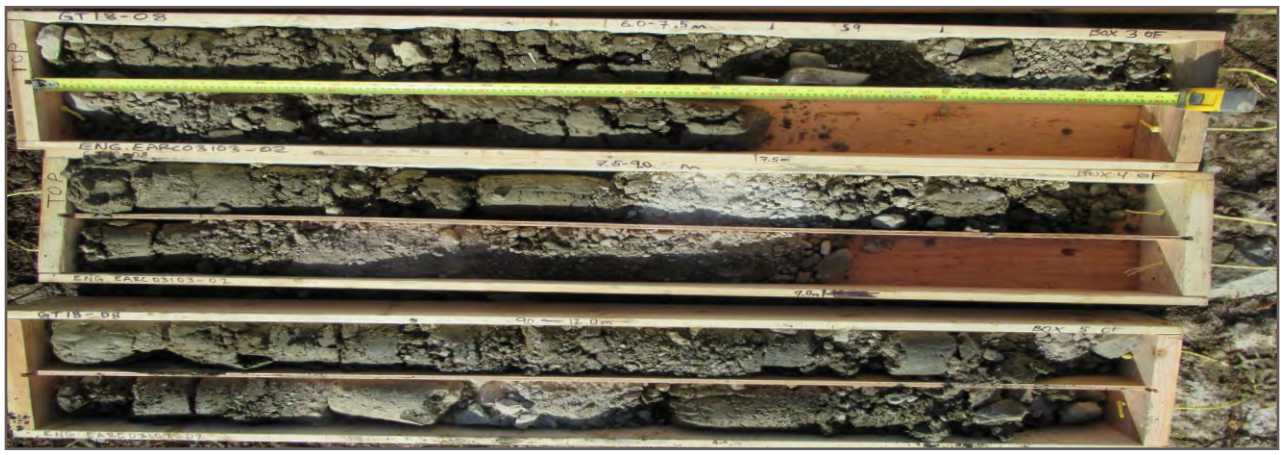


**Photo 25:** Borehole GT18-08; Depth 6.0 - 12.0 m

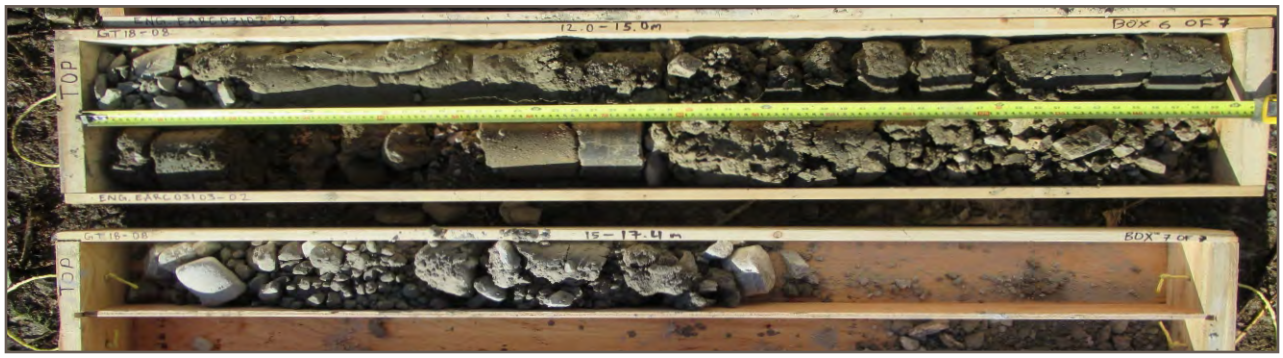


**Photo 26:** Borehole GT18-08; Depth 12.0 - 17.4 m




**Photo 27:** Borehole GT18-09; Depth 0.0 - 3.0 m




**Photo 28:** Borehole GT18-09; Depth 3.0 - 9.0 m




**Photo 29:** Borehole GT18-09; Depth 9.0 - 15.0 m

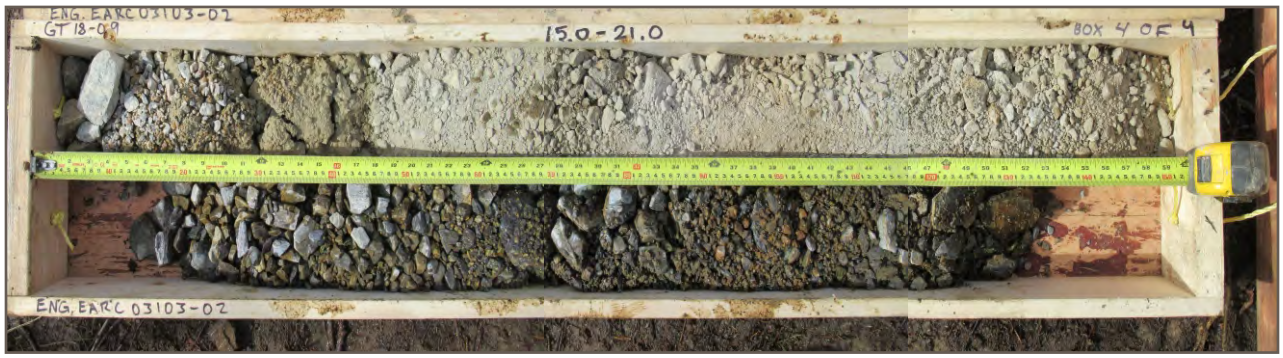


**Photo 30:** Borehole GT18-09; Depth 15.0 - 21.0 m

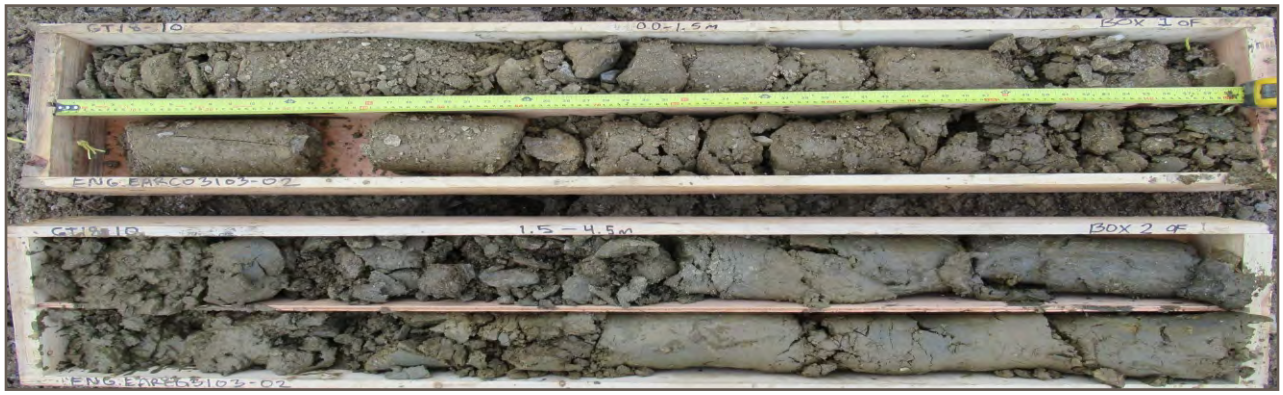


**Photo 31:** Borehole GT18-10; Depth 0.0 - 4.5 m

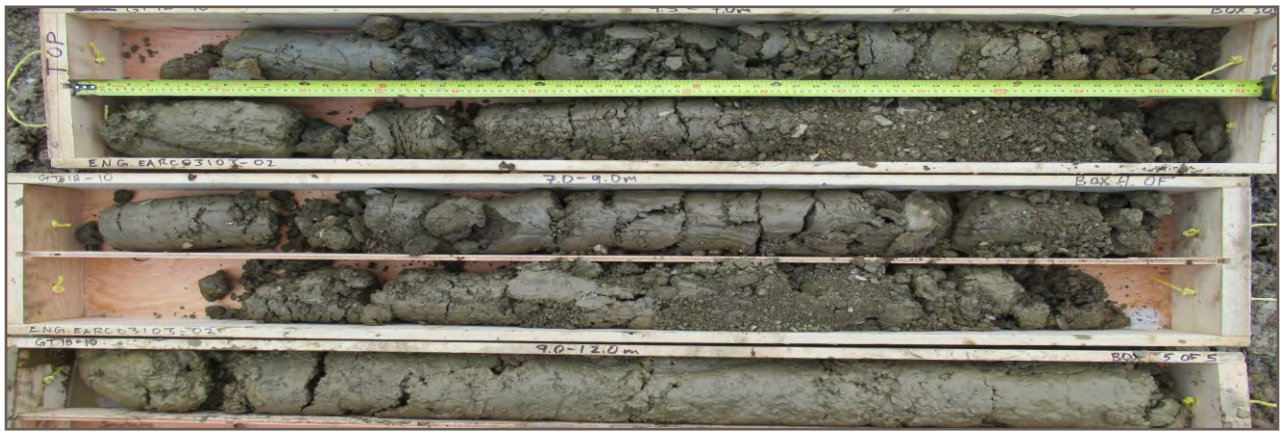


**Photo 32:** Borehole GT18-10; Depth 4.5 - 12.0 m

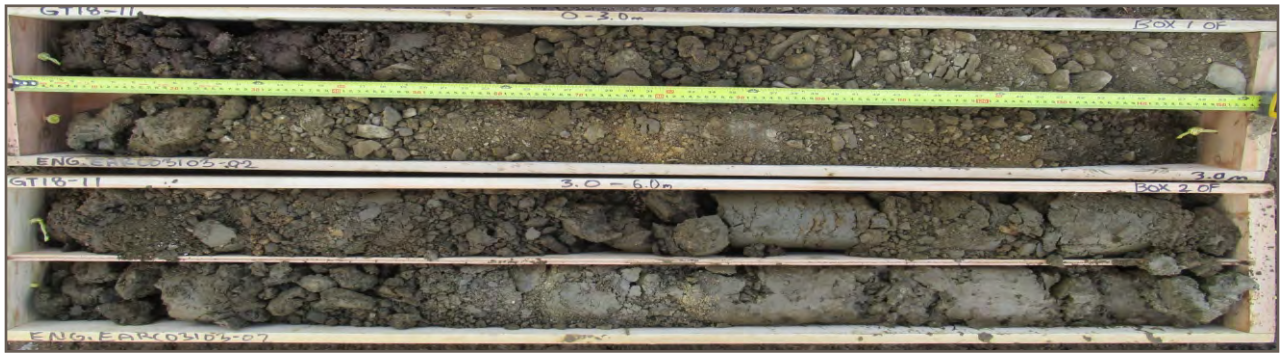


**Photo 33:** Borehole GT18-11; Depth 0.0 - 6.0 m




**Photo 34:** Borehole GT18-11; Depth 6.0 - 12.0 m




**Photo 35:** Borehole GT18-15; Depth 0.0 - 4.0 m

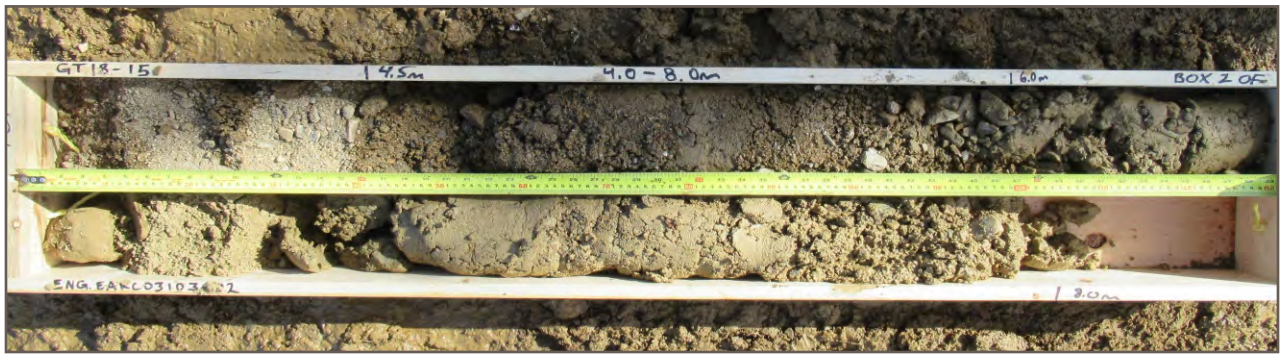


**Photo 36:** Borehole GT18-15; Depth 4.0 - 8.0 m

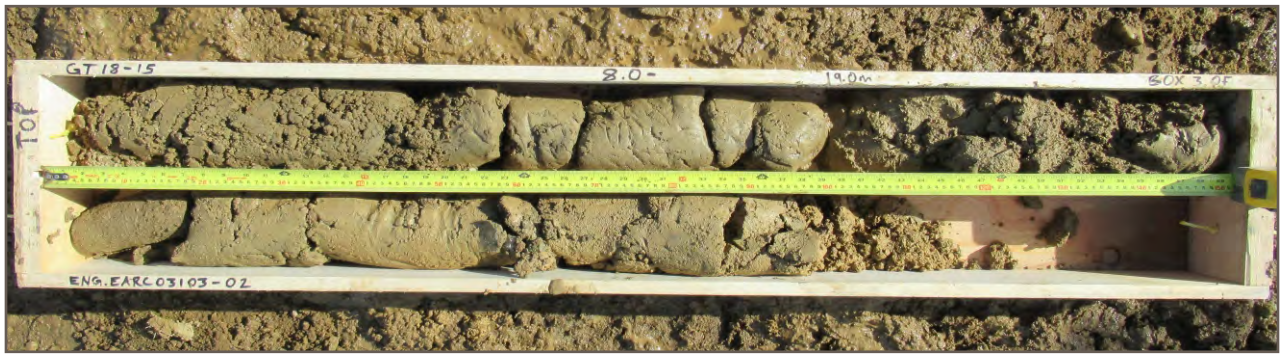


**Photo 37:** Borehole GT18-15; Depth 8.0 - 10.5 m




**Photo 38:** Borehole GT18-15; Depth 10.5 - 13.5 m

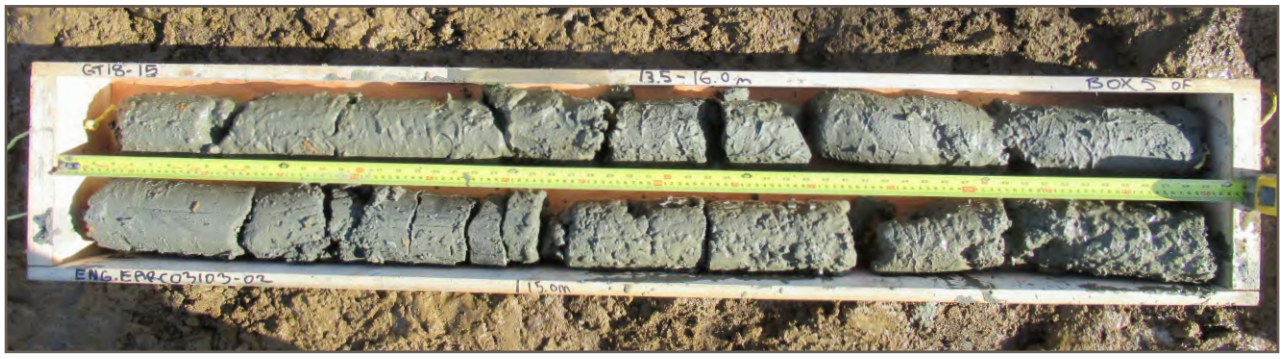


**Photo 39:** Borehole GT18-15; Depth 13.5 - 16.0 m

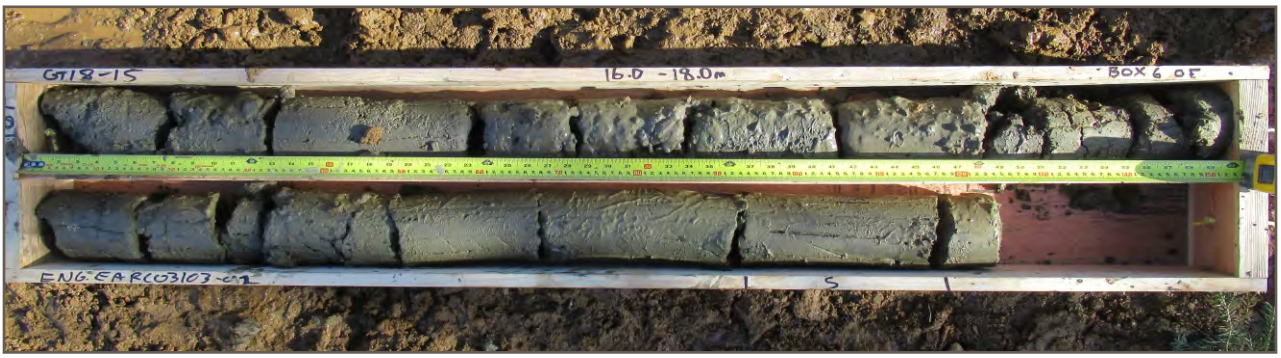


**Photo 40:** Borehole GT18-15; Depth 16.0 - 18.0 m

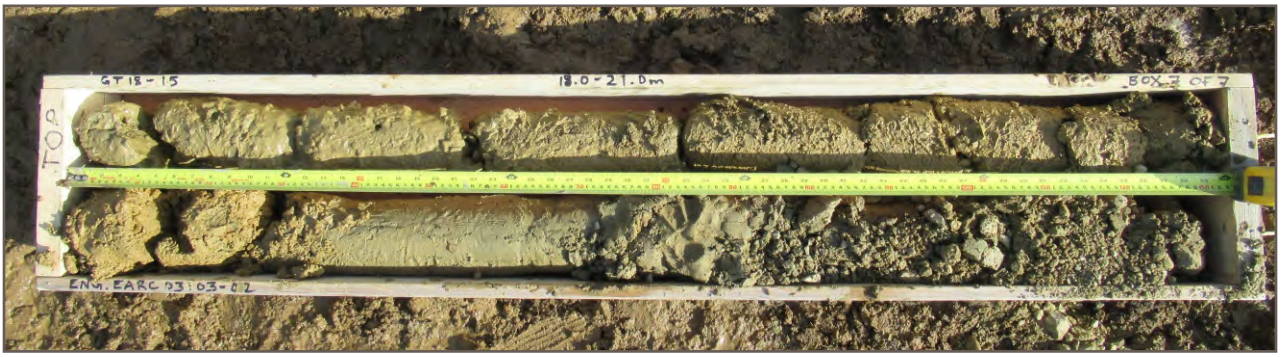


**Photo 41:** Borehole GT18-15; Depth 18.0 - 21.0 m




**Photo 42:** Borehole GT18-16; Depth 0.0 - 3.0 m




**Photo 43:** Borehole GT18-16; Depth 3.0 - 6.0 m

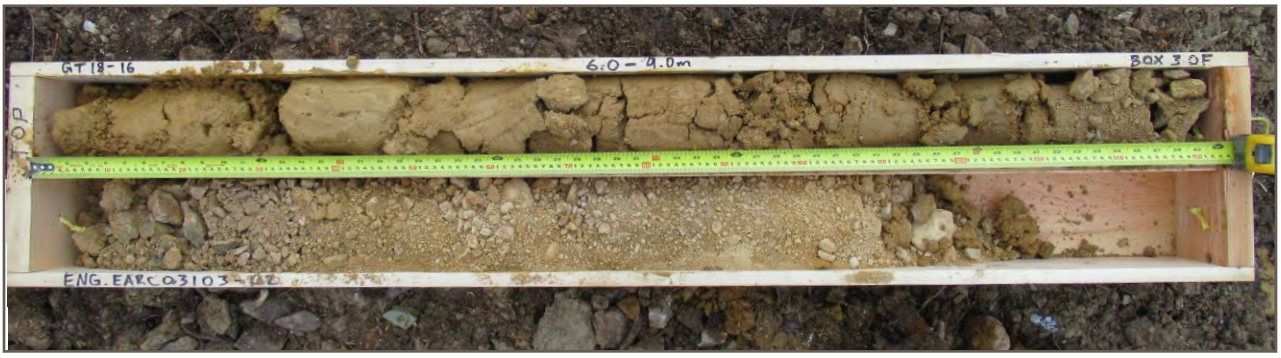


**Photo 44:** Borehole GT18-16; Depth 6.0 - 9.0 m




**Photo 45:** Borehole GT18-17; Depth 0.0 - 1.5 m

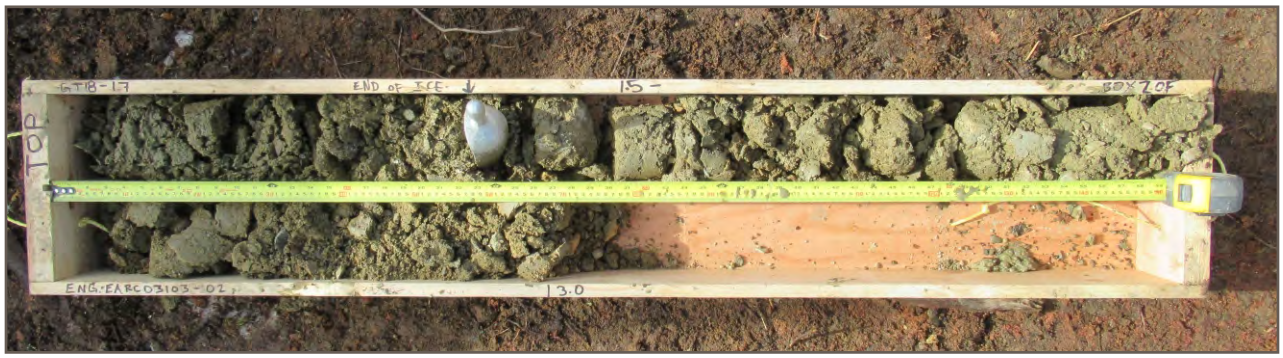


**Photo 46:** Borehole GT18-17; Depth 1.5 - 3.0 m

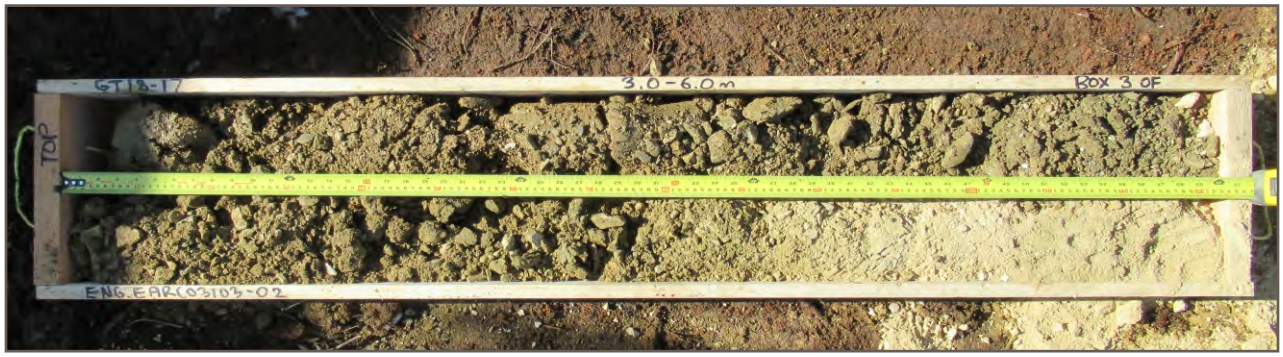


**Photo 47:** Borehole GT18-17; Depth 3.0 - 6.0 m

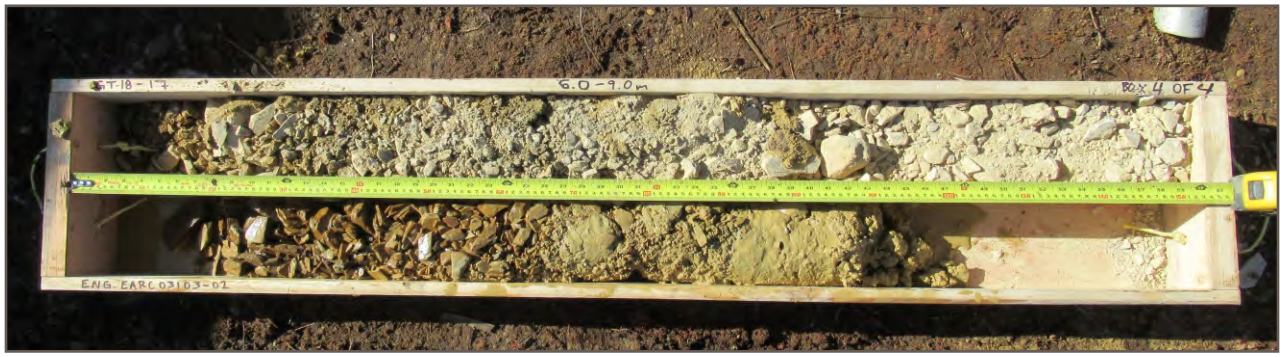


**Photo 48:** Borehole GT18-17; Depth 6.0 - 9.0 m

# APPENDIX A

## TETRA TECH'S LIMITATIONS ON USE OF THIS DOCUMENT

# LIMITATIONS ON USE OF THIS DOCUMENT

## GEOTECHNICAL

### 1.1 USE OF DOCUMENT AND OWNERSHIP

This document pertains to a specific site, a specific development, and a specific scope of work. The document may include plans, drawings, profiles and other supporting documents that collectively constitute the document (the "Professional Document").

The Professional Document is intended for the sole use of TETRA TECH's Client (the "Client") as specifically identified in the TETRA TECH Services Agreement or other Contractual Agreement entered into with the Client (either of which is termed the "Contract" herein). TETRA TECH does not accept any responsibility for the accuracy of any of the data, analyses, recommendations or other contents of the Professional Document when it is used or relied upon by any party other than the Client, unless authorized in writing by TETRA TECH.

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Where TETRA TECH submits electronic file and/or hard copy versions of the Professional Document or any drawings or other project-related documents and deliverables (collectively termed TETRA TECH's "Instruments of Professional Service"), only the signed and/or sealed versions shall be considered final. The original signed and/or sealed electronic file and/or hard copy version archived by TETRA TECH shall be deemed to be the original. TETRA TECH will archive a protected digital copy of the original signed and/or sealed version for a period of 10 years.

Both electronic file and/or hard copy versions of TETRA TECH's Instruments of Professional Service shall not, under any circumstances, be altered by any party except TETRA TECH. TETRA TECH's Instruments of Professional Service will be used only and exactly as submitted by TETRA TECH.

Electronic files submitted by TETRA TECH have been prepared and submitted using specific software and hardware systems. TETRA TECH makes no representation about the compatibility of these files with the Client's current or future software and hardware systems.

### 1.3 STANDARD OF CARE

Services performed by TETRA TECH for the Professional Document have been conducted in accordance with the Contract, in a manner consistent with the level of skill ordinarily exercised by members of the profession currently practicing under similar conditions in the jurisdiction in which the services are provided. Professional judgment has been applied in developing the conclusions and/or recommendations provided in this Professional Document. No warranty or guarantee, express or implied, is made concerning the test results, comments, recommendations, or any other portion of the Professional Document.

If any error or omission is detected by the Client or an Authorized Party, the error or omission must be immediately brought to the attention of TETRA TECH.

### 1.4 DISCLOSURE OF INFORMATION BY CLIENT

The Client acknowledges that it has fully cooperated with TETRA TECH with respect to the provision of all available information on the past, present, and proposed conditions on the site, including historical information respecting the use of the site. The Client further acknowledges that in order for TETRA TECH to properly provide the services contracted for in the Contract, TETRA TECH has relied upon the Client with respect to both the full disclosure and accuracy of any such information.

### 1.5 INFORMATION PROVIDED TO TETRA TECH BY OTHERS

During the performance of the work and the preparation of this Professional Document, TETRA TECH may have relied on information provided by persons other than the Client.

While TETRA TECH endeavours to verify the accuracy of such information, TETRA TECH accepts no responsibility for the accuracy or the reliability of such information even where inaccurate or unreliable information impacts any recommendations, design or other deliverables and causes the Client or an Authorized Party loss or damage.

### 1.6 GENERAL LIMITATIONS OF DOCUMENT

This Professional Document is based solely on the conditions presented and the data available to TETRA TECH at the time the data were collected in the field or gathered from available databases.

The Client, and any Authorized Party, acknowledges that the Professional Document is based on limited data and that the conclusions, opinions, and recommendations contained in the Professional Document are the result of the application of professional judgment to such limited data.

The Professional Document is not applicable to any other sites, nor should it be relied upon for types of development other than those to which it refers. Any variation from the site conditions present, or variation in assumed conditions which might form the basis of design or recommendations as outlined in this report, at or on the development proposed as of the date of the Professional Document requires a supplementary investigation and assessment.

TETRA TECH is neither qualified to, nor is it making, any recommendations with respect to the purchase, sale, investment or development of the property, the decisions on which are the sole responsibility of the Client.

### 1.7 ENVIRONMENTAL AND REGULATORY ISSUES

Unless stipulated in the report, TETRA TECH has not been retained to investigate, address or consider and has not investigated, addressed or considered any environmental or regulatory issues associated with development on the subject site.

### 1.8 NATURE AND EXACTNESS OF SOIL AND ROCK DESCRIPTIONS

Classification and identification of soils and rocks are based upon commonly accepted systems and methods employed in professional geotechnical practice. This report contains descriptions of the systems and methods used. Where deviations from the system or method prevail, they are specifically mentioned.

Classification and identification of geological units are judgmental in nature as to both type and condition. TETRA TECH does not warrant conditions represented herein as exact, but infers accuracy only to the extent that is common in practice.

Where subsurface conditions encountered during development are different from those described in this report, qualified geotechnical personnel should revisit the site and review recommendations in light of the actual conditions encountered.

### 1.9 LOGS OF TESTHOLES

The testhole logs are a compilation of conditions and classification of soils and rocks as obtained from field observations and laboratory testing of selected samples. Soil and rock zones have been interpreted. Change from one geological zone to the other, indicated on the logs as a distinct line, can be, in fact, transitional. The extent of transition is interpretive. Any circumstance which requires precise definition of soil or rock zone transition elevations may require further investigation and review.

### 1.10 STRATIGRAPHIC AND GEOLOGICAL INFORMATION

The stratigraphic and geological information indicated on drawings contained in this report are inferred from logs of test holes and/or soil/rock exposures. Stratigraphy is known only at the locations of the test hole or exposure. Actual geology and stratigraphy between test holes and/or exposures may vary from that shown on these drawings. Natural variations in geological conditions are inherent and are a function of the historic environment. TETRA TECH does not represent the conditions illustrated as exact but recognizes that variations will exist. Where knowledge of more precise locations of geological units is necessary, additional investigation and review may be necessary.

### 1.11 PROTECTION OF EXPOSED GROUND

Excavation and construction operations expose geological materials to climatic elements (freeze/thaw, wet/dry) and/or mechanical disturbance which can cause severe deterioration. Unless otherwise specifically indicated in this report, the walls and floors of excavations must be protected from the elements, particularly moisture, desiccation, frost action and construction traffic.

### 1.12 SUPPORT OF ADJACENT GROUND AND STRUCTURES

Unless otherwise specifically advised, support of ground and structures adjacent to the anticipated construction and preservation of adjacent ground and structures from the adverse impact of construction activity is required.

### 1.13 INFLUENCE OF CONSTRUCTION ACTIVITY

There is a direct correlation between construction activity and structural performance of adjacent buildings and other installations. The influence of all anticipated construction activities should be considered by the contractor, owner, architect and prime engineer in consultation with a geotechnical engineer when the final design and construction techniques are known.

### 1.14 OBSERVATIONS DURING CONSTRUCTION

Because of the nature of geological deposits, the judgmental nature of geotechnical engineering, as well as the potential of adverse circumstances arising from construction activity, observations during site preparation, excavation and construction should be carried out by a geotechnical engineer. These observations may then serve as the basis for confirmation and/or alteration of geotechnical recommendations or design guidelines presented herein.

### 1.15 DRAINAGE SYSTEMS

Where temporary or permanent drainage systems are installed within or around a structure, the systems which will be installed must protect the structure from loss of ground due to internal erosion and must be designed so as to assure continued performance of the drains. Specific design detail of such systems should be developed or reviewed by the geotechnical engineer. Unless otherwise specified, it is a condition of this report that effective temporary and permanent drainage systems are required and that they must be considered in relation to project purpose and function.

### 1.16 BEARING CAPACITY

Design bearing capacities, loads and allowable stresses quoted in this report relate to a specific soil or rock type and condition. Construction activity and environmental circumstances can materially change the condition of soil or rock. The elevation at which a soil or rock type occurs is variable. It is a requirement of this report that structural elements be founded in and/or upon geological materials of the type and in the condition assumed. Sufficient observations should be made by qualified geotechnical personnel during construction to assure that the soil and/or rock conditions assumed in this report in fact exist at the site.

### 1.17 SAMPLES

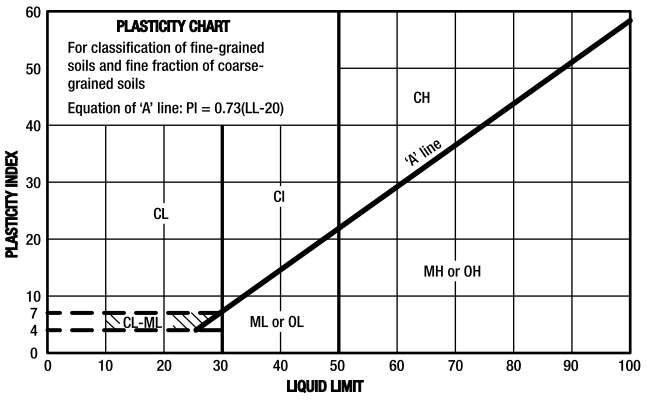
TETRA TECH will retain all soil and rock samples for 30 days after this report is issued. Further storage or transfer of samples can be made at the Client's expense upon written request, otherwise samples will be discarded.

# APPENDIX B

## BOREHOLE LOGS

# MODIFIED UNIFIED SOIL CLASSIFICATION

| MAJOR DIVISION | | | GROUP SYMBOL | TYPICAL DESCRIPTION | LABORATORY CLASSIFICATION CRITERIA |
|---|---|---|---|---|---|
| COARSE-GRAINED SOILS More than 50% retained on 75 µm sieve* | GRAVELS 50% or more of coarse fraction retained on 4.75 mm sieve | CLEAN GRAVELS | GW | Well-graded gravels and gravel-sand mixtures, little or no fines | Classification on basis of percentage of fines (GW, GP, SW, SP, GM, GC, SM, SC Borderline Classification requiring use of dual symbols; Less than 5% Pass 75 µm sieve, More than 12% Pass 75 µm sieve, 5% to 12% Pass 75 µm sieve): $C_U = D_{60}/D_{10}$ Greater than 4; $C_c = \frac{(D_{30})2}{D_{10} \times D_{60}}$ Between 1 and 3 |
| | | | GP | Poorly graded gravels and gravel-sand mixtures, little or no fines | Not meeting both criteria for GW |
| | | GRAVELS WITH FINES | GM | Silty gravels, gravel-sand-silt mixtures | Atterberg limits plot below "A" line or plasticity index less than 4 |
| | | | GC | Clayey gravels, gravel-sand-clay mixtures | Atterberg limits plot above "A" line or plasticity index greater than 7 |
| | SANDS More than 50% of coarse fraction passes 4.75 mm sieve | CLEAN SANDS | SW | Well-graded sands and gravelly sands, little or no fines | $C_U = D_{60}/D_{10}$ Greater than 6; $C_c = \frac{(D_{30})2}{D_{10} \times D_{60}}$ Between 1 and 3 |
| | | | SP | Poorly graded sands and gravelly sands, little or no fines | Not meeting both criteria for SW |
| | | SANDS WITH FINES | SM | Silty sands, sand-silt mixtures | Atterberg limits plot below "A" line or plasticity index less than 4 |
| | | | SC | Clayey sands, sand-clay mixtures | Atterberg limits plot above "A" line or plasticity index greater than 7 |
| | | | | | Atterberg limits plotting in hatched area are borderline classifications requiring use of dual symbols |
| FINE-GRAINED SOILS (by behavior) 50% or more passes 75 µm sieve* | SILTS Liquid limit <50 | | ML | Inorganic silts, very fine sands, rock flour, silty or clayey fine sands of slight plasticity | |
| | SILTS Liquid limit >50 | | MH | Inorganic silts, micaceous or diatomaceous fine sands or silts, elastic silts | |
| | CLAYS Above "A" line on plasticity chart negligible organic content; Liquid limit <30 | | CL | Inorganic clays of low plasticity, gravelly clays, sandy clays, silty clays, lean clays | |
| | CLAYS Liquid limit 30-50 | | CI | Inorganic clays of medium plasticity, silty clays | |
| | CLAYS Liquid limit >50 | | CH | Inorganic clays of high plasticity, fat clays | |
| | ORGANIC SILTS AND CLAYS Liquid limit <50 | | OL | Organic silts and organic silty clays of low plasticity | |
| | ORGANIC SILTS AND CLAYS Liquid limit >50 | | OH | Organic clays of medium to high plasticity | |
| HIGHLY ORGANIC SOILS | | | PT | Peat and other highly organic soils | |




* Based on the material passing the 75 mm sieve

† ASTM Designation D 2487, for identification procedure see D 2488 USC as modified by PFRA

## SOIL COMPONENTS

| FRACTION | SIEVE SIZE PASSING | SIEVE SIZE RETAINED | DEFINING RANGES OF PERCENTAGE BY MASS OF MINOR COMPONENTS: PERCENTAGE | DESCRIPTOR |
|---|---|---|---|---|
| GRAVEL | | | | |
| coarse | 75 mm | 19 mm | >35 % | "and" |
| fine | 19 mm | 4.75 mm | 21 to 35 % | "y-adjective" |
| SAND | | | | |
| coarse | 4.75 mm | 2.00 mm | 11 to 20 % | "some" |
| medium | 2.00 mm | 425 µm | | |
| fine | 425 µm | 75 µm | >0 to 10 % | "trace" |
| SILT (non plastic) or CLAY (plastic) | 75 µm | | as above but by behavior | |

## OVERSIZE MATERIAL

| | |
|---|---|
| Rounded or subrounded | |
| COBBLES | 75 mm to 300 mm |
| BOULDERS | > 300 mm |
| Not rounded | |
| ROCK FRAGMENTS | >75 mm |
| ROCKS | > 0.76 cubic metre in volume |

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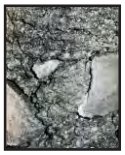
# GROUND ICE DESCRIPTION

## VISIBLE ICE LESS THAN 50% BY VOLUME

| GROUP SYMBOL | SYMBOL | SUBGROUP DESCRIPTION | SKETCH | PHOTOGRAPH |
|---|---|---|---|---|
| V | Vx | Individual ice crystals or inclusions |  |  |
| | Vc | Ice coatings on particles |  |  |
| | Vr | Random or irregularly oriented ice formations |  |  |
| | Vs | Stratified or distinctly oriented ice formations |  |  |
| | Vu | Ice formations uniformly distributed throughout frozen soil |  |  |

## ICE NOT VISIBLE

| GROUP SYMBOL | SYMBOL | SUBGROUP DESCRIPTION | SKETCH | PHOTOGRAPH |
|---|---|---|---|---|
| N | Nf | Poorly-bonded or friable |  |  |
| | Nbn | No excess ice, well-bonded |  |  |
| | Nbe | Excess ice, well-bonded |  |  |

**LEGEND:** Soil ☐ Ice ■

**NOTES:**

1. Dual symbols are used to indicate borderline or mixed ice classifications.
2. Visual estimates of ice contents indicated on borehole logs ± 5%
3. This system of ground ice description has been modified from NRC Technical Memo 79, Guide to the Field Description of Permafrost for Engineering Purposes.

## VISIBLE ICE GREATER THAN 50% BY VOLUME

| GROUP SYMBOL | SYMBOL | SUBGROUP DESCRIPTION | SKETCH | PHOTOGRAPH |
|---|---|---|---|---|
| ICE | ICE + Soil Type | Ice with soil inclusions (greater than 25 mm thick) |  |  |
| | ICE | Ice without soil inclusions (greater than 25 mm thick) |  |  |

TETRA TECH

# BOREHOLE KEYSHEET

## Water Level Measurement

 Measured in standpipe, piezometer or well

 Inferred

## Sample Types

 A-Casing

 Core

 Disturbed, Bag, Grab

 HQ Core

 Jar

 Jar and Bag

 75 mm SPT

 No Recovery

 Split Spoon/SPT

 Tube

 CRREL Core

## Backfill Materials

 Asphalt

 Bentonite

 Cement/ Grout

 Drill Cuttings

 Grout

 Gravel

 Sand

 Slough

 Topsoil Backfill

## Lithology - Graphical Legend[1]

 Asphalt

 Bedrock

 Cobbles/Boulders

 Clay

 Coal

 Concrete

 Fill

 Gravel

 Limestone

 Mudstone

 Organics

 Peat

 Sand

 Sandstone

 Shale

 Silt

 Siltstone

 Conglomerate

 Topsoil

 Till

1. The graphical legend is an approximation and for visual representation only. Soil strata may comprise a combination of the basic symbols shown above. Particle sizes are not drawn to scale

TETRA TECH

# Borehole No: **GT18-01**

| | |
|---|---|
| Project: Eagle Gold | Project No: ENG.EARC03103-02 |
| Location: Eagle Gold Mine | |
| Yukon Territory | UTM: 459831 E; 7100952 N; Z 8 |

| Depth (m) | Method | Lithological Description | Thermal Condition and Ground Ice Description | Sample Type | Sample Number | Moisture Content (%) | Plastic Limit / Moisture Content / Liquid Limit (20 40 60 80) | Recovery (%) (40 60 80 100) | GTC TT #2665 | Depth (ft) |
|---|---|---|---|---|---|---|---|---|---|---|
| 0 | | SAND AND GRAVEL (FILL) - loose to compact | | | | | | | | 0 |
| | | PEAT - rooty, black | Seasonally frozen layer<br>Vx to 30%<br>Vx <5% ice crystals | | R1 | | | | | 2 |
| 1 | | SAND AND GRAVEL - some silt, cobbles disseminated throughout, light brown, angular gravel | | | | | | | | 4 |
| | | SAND AND SILT - some gravel | | | | | | | | 6 |
| 2 | | | | | S1 | 9.4 | ● | | | |
| | | | | | R2 | | | | | 8 |
| | | | At ~2.5 m, Unfrozen, Thermal condition confirmed by GTC | | | | | | | |
| 3 | | SAND - gravelly, some silt, trace to some clay, cobbles disseminated throughout, damp, brown, angular gravel | | | | | | | | 10 |
| | | - silty | | | R3 | | | | | 12 |
| 4 | | | | | S2 | 10.2 | ● | | | |
| | | SAND AND GRAVEL - some silt, cobbles and boulders disseminated throughout, damp to moist, orangish brown, angular gravel | | | | | | | | 14 |
| 5 | | METASEDIMENTARY ROCK (BEDROCK) - pulverized | | | | | | | | 16 |
| | | | | | R4 | | | | | 18 |
| 6 | Sonic | | | | | | | | | 20 |
| | | | | | 1R | | | | | |
| | | | | | R5 | | | | | 22 |
| 7 | | | | | | | | | | 24 |
| 8 | | | | | R6 | | | | | 26 |
| | | | | | | | | | | 28 |
| 9 | | | | | | | | | | 30 |
| | | | | | R7 | | | | | |
| 10 | | | | | | | | | | 32 |
| | | | | | R8 | | | | | 34 |
| 11 | | | | | | | | | | 36 |
| 12 | | | | | | | | | | 38 |

| | |
|---|---|
| Contractor: Midnight Sun Drilling Inc. | Completion Depth: 21.25 m |
| Drilling Rig Type: Rig 9, Terrasonic | Start Date: 2018 April 7 |
| Logged By: VER/EP | Completion Date: 2018 April 7 |
| Reviewed By: VER | Page 1 of 2 |

# Borehole No: **GT18-01**

| | |
|---|---|
| Project: Eagle Gold | Project No: ENG.EARC03103-02 |
| Location: Eagle Gold Mine | |
| Yukon Territory | UTM: 459831 E; 7100952 N; Z 8 |

Victoria GOLD CORP

| Depth (m) | Method | Lithological Description | Thermal Condition and Ground Ice Description | Sample Type | Sample Number | Moisture Content (%) | Plastic Limit / Moisture Content / Liquid Limit (20 40 60 80) | Recovery (%) (40 60 80 100) | GTC TT #2665 | Depth (ft) |
|---|---|---|---|---|---|---|---|---|---|---|
| 12 | | | | | | | | | | 40 |
| 13 | | | | | R9 | | | 1 | | 42 |
| 14 | | | | | | | | | | 44 |
| 15 | | | | | | | | | | 46 |
| 16 | Sonic | | | | | | | | | 48 |
| 17 | | | | | R10 | | | | | 50 |
| 18 | | | | | | | | | | 52 |
| 19 | | | | | | | | | | 54 |
| 20 | | | | | R11 | | | | | 56 |
| 21 | | | | | | | | | | 58 |
| | | END OF BOREHOLE (21.25 metres)<br>GTC TT #2665 installed to 20 metres | | | | | | | | 60 |
| 22 | | | | | | | | | | 62 |
| 23 | | | | | | | | | | 64 |
| 24 | | | | | | | | | | 66 |
| | | | | | | | | | | 68 |
| | | | | | | | | | | 70 |
| | | | | | | | | | | 72 |
| | | | | | | | | | | 74 |
| | | | | | | | | | | 76 |
| | | | | | | | | | | 78 |

TETRA TECH

| | |
|---|---|
| Contractor: Midnight Sun Drilling Inc. | Completion Depth: 21.25 m |
| Drilling Rig Type: Rig 9, Terrasonic | Start Date: 2018 April 7 |
| Logged By: VER/EP | Completion Date: 2018 April 7 |
| Reviewed By: VER | Page 2 of 2 |

# Borehole No: **GT18-02**

| | |
|---|---|
| Project: Eagle Gold | Project No: ENG.EARC03103-02 |
| Location: Eagle Gold Mine | |
| Yukon Territory | UTM: 459925 E; 7100945 N; Z 8 |

| Depth (m) | Method | Lithological Description | Thermal Condition and Ground Ice Description | Sample Type | Sample Number | Moisture Content (%) |
|---|---|---|---|---|---|---|
| 0 | | PEAT - woody, (300 mm thick) | Seasonally frozen layer Vx 5-10% | | | |
| | | SAND AND GRAVEL - some silt, trace clay, cobbles disseminated throughout, angular gravel | Vx 15-20%, clear ice crystals to 3 mm thick/wide | | S1 R1 | |
| 1 | | SILT AND GRAVEL - sandy | | | S2 | 9.7 |
| | | | At ~ 1.5-2.0 m, Unfrozen. Thermal condition confirmed by single bead thermistor (+1.2° C, June 8, 2018) | | R2 | |
| 2 | | METASEDIMENTARY ROCK (BEDROCK) - crushed, fractured | | | | |
| 3 | Sonic | | | | R3 | |
| 4 | | | | | | |
| 5 | | | | | R4 | |
| 6 | | | | | | |
| 7 | | | | | R5 | |
| 8 | | END OF BOREHOLE (7.90 metres) Single bead thermistor #14 installed at 7.90 metres | | | | |
| 9 | | | | | | |
| 10 | | | | | | |
| 11 | | | | | | |
| 12 | | | | | | |

Excess Ice Content (% by volume): 20 40 60 80

Plastic Limit | Moisture Content | Liquid Limit: 20 40 60 80

Recovery (%): 40 60 80 100

SBTS #14

Depth (ft): 0 2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 36 38

| | |
|---|---|
| Contractor: Midnight Sun Drilling Inc. | Completion Depth: 7.9 m |
| Drilling Rig Type: Rig 9, Terrasonic | Start Date: 2018 April 7 |
| Logged By: VER/EP | Completion Date: 2018 April 7 |
| Reviewed By: VER | Page 1 of 1 |

# Borehole No: **GT18-04**

| | |
|---|---|
| Project: Eagle Gold | Project No: ENG.EARC03103-02 |
| Location: Eagle Gold Mine | |
| Yukon Territory | UTM: 459854 E; 7100787 N; Z 8 |

| Depth (m) | Method | Lithological Description | Thermal Condition and Ground Ice Description | Sample Type | Sample Number | Moisture Content (%) |
|---|---|---|---|---|---|---|
| 0 | | SAND AND GRAVEL - silty, trace organics, dark brown, angular gravel | Seasonally frozen layer | | S1 | |
| | | - some silt, rootlets, light brown | | | R1 | |
| 1 | | - sandy | Nbn | | S2 | 7.1 |
| 2 | | METASEDIMENTARY ROCK (BEDROCK) - highly weathered, orange, oxidized, pulverized, angular | At ~ 2.0-2.5 m, Unfrozen. Thermal condition confirmed by single bead thermistor (+1.3° C, June 8, 2018) | | R2 | |
| 3 | | | | | | |
| 4 | Sonic | | | | R3 | |
| 5 | | | | | R4 | |
| 6 | | | | | | |
| 7 | | | | | R5 | |
| 8 | | | | | | |
| 9 | | END OF BOREHOLE (9.00 metres) Single bead thermistor #18 installed at 8.50 metres | | | | |
| 10 | | | | | | |
| 11 | | | | | | |
| 12 | | | | | | |

Plastic Limit / Moisture Content / Liquid Limit: 20 40 60 80

Recovery (%): 40 60 80 100

SBTS #18

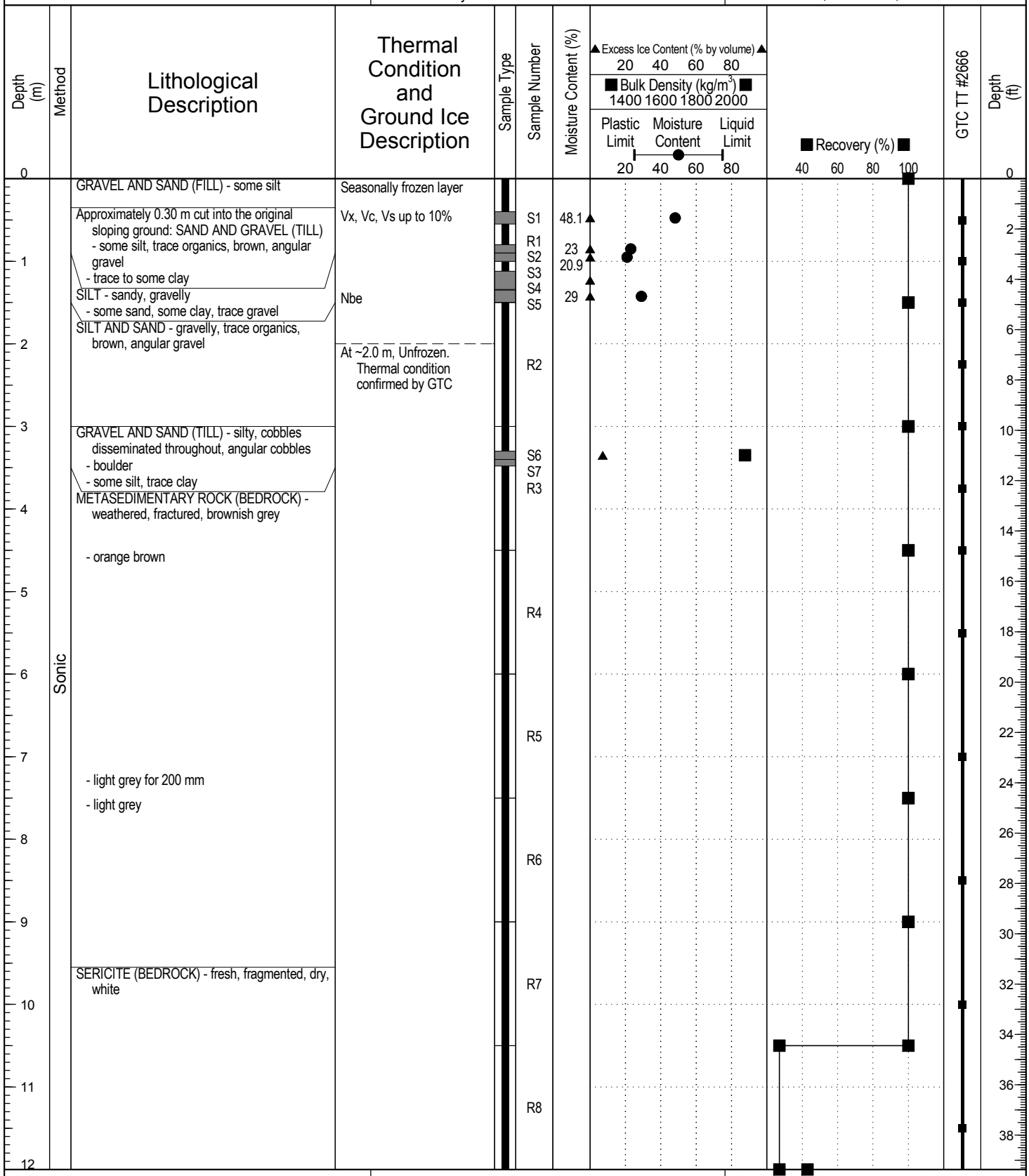
Depth (ft): 0 2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 36 38

| | |
|---|---|
| Contractor: Midnight Sun Drilling Inc. | Completion Depth: 9 m |
| Drilling Rig Type: Rig 9, Terrasonic | Start Date: 2018 April 10 |
| Logged By: EP/RO | Completion Date: 2018 April 10 |
| Reviewed By: VER | Page 1 of 1 |

# Borehole No: **GT18-05**

| | |
|---|---|
| Project: Eagle Gold | Project No: ENG.EARC03103-02 |
| Location: Eagle Gold Mine | |
| Yukon Territory | UTM: 460006 E; 7100814 N; Z 8 |

| Depth (m) | Method | Lithological Description | Thermal Condition and Ground Ice Description |
|---|---|---|---|
| 0 | | GRAVEL AND SAND (FILL) - some silt | Seasonally frozen layer |
| | | Approximately 0.30 m cut into the original sloping ground: SAND AND GRAVEL (TILL) - some silt, trace organics, brown, angular gravel - trace to some clay | Vx, Vc, Vs up to 10% |
| 1 | | SILT - sandy, gravelly - some sand, some clay, trace gravel | Nbe |
| | | SILT AND SAND - gravelly, trace organics, brown, angular gravel | |
| 2 | | | At ~2.0 m, Unfrozen. Thermal condition confirmed by GTC |
| 3 | | GRAVEL AND SAND (TILL) - silty, cobbles disseminated throughout, angular cobbles - boulder - some silt, trace clay | |
| 4 | | METASEDIMENTARY ROCK (BEDROCK) - weathered, fractured, brownish grey | |
| | | - orange brown | |
| 5 | | | |
| 6 | Sonic | | |
| 7 | | - light grey for 200 mm - light grey | |
| 8 | | | |
| 9 | | | |
| 10 | | SERICITE (BEDROCK) - fresh, fragmented, dry, white | |
| 11 | | | |
| 12 | | | |

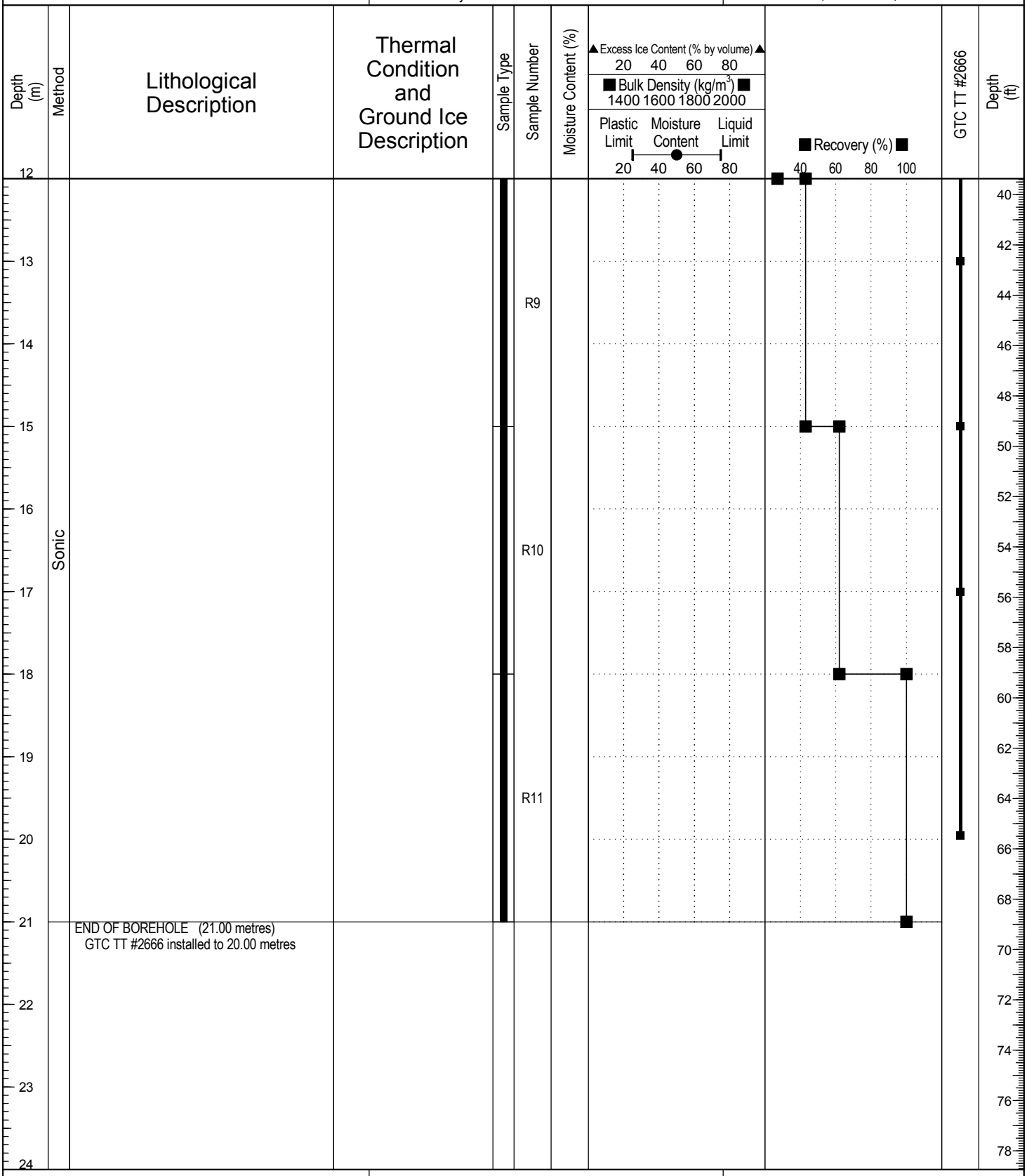



TETRA TECH

| | |
|---|---|
| Contractor: Midnight Sun Drilling Inc. | Completion Depth: 21 m |
| Drilling Rig Type: Rig 9, Terrasonic | Start Date: 2018 April 9 |
| Logged By: VER/EP/RO | Completion Date: 2018 April 9 |
| Reviewed By: VER | Page 1 of 2 |

# Borehole No: **GT18-05**

| | |
|---|---|
| Project: Eagle Gold | Project No: ENG.EARC03103-02 |
| Location: Eagle Gold Mine | |
| Yukon Territory | UTM: 460006 E; 7100814 N; Z 8 |




| | |
|---|---|
| Contractor: Midnight Sun Drilling Inc. | Completion Depth: 21 m |
| Drilling Rig Type: Rig 9, Terrasonic | Start Date: 2018 April 9 |
| Logged By: VER/EP/RO | Completion Date: 2018 April 9 |
| Reviewed By: VER | Page 2 of 2 |

# Borehole No: **GT18-06**

| | |
|---|---|
| Project: Eagle Gold | Project No: ENG.EARC03103-02 |
| Location: Eagle Gold Mine | |
| Yukon Territory | UTM: 460088 E; 7100852 N; Z 8 |

| Depth (m) | Method | Lithological Description | Thermal Condition and Ground Ice Description | Sample Type | Sample Number | Moisture Content (%) |
|---|---|---|---|---|---|---|
| 0 | | PEAT - rooty, dark brown to black, (300 mm thick) | Seasonally frozen layer | | | |
| | | GRAVEL - sandy, some silt, trace clay, grey brown, angular gravel | Vx 20-30% | | | |
| | | GRAVEL (COLLUVIUM) - sandy, some silt, trace clay, dry to damp, light brown, fractured, angular gravel | Vx 1-3%<br>Nf | | R1<br>S1 | 4.3 |
| 1 | | | | | | |
| | | - some clay | | | R2 | |
| 2 | | | | | | |
| | | - silty | | | S2 | 11.5 |
| 3 | | | Vx ~5-10%, clear ice crystals | | | |
| | | | At ~3.5-4.0 m, Unfrozen. Thermal condition confirmed by single bead thermistor (+0.2° C, June 8, 2018) | | R3 | |
| 4 | | METASEDIMENTARY BOULDER - weathered, fractured, brown, fine angular | | | | |
| | | GRAVEL AND SAND (COLLUVIUM) - some silt, trace clay, dry to damp, light brown, fractured, angular gravel | | | | |
| 5 | | | | | R4<br>S3 | 9.3 |
| | Sonic | - 300 mm boulder | | | | |
| 6 | | | | | | |
| | | | | | R5 | |
| 7 | | METASEDIMENTARY BOULDER - weathered, fractured, brown, fine angular | | | | |
| | | GRAVEL AND SAND (COLLUVIUM) - some silt, trace clay, dry to damp, light brown, fractured, angular gravel | | | | |
| 8 | | | | | R6 | |
| | | | | | | |
| 9 | | - quartz cobble | | | | |
| | | METASEDIMENTARY ROCK (BEDROCK) - highly weathered, fractured, orange, oxide weathering, angular | | | R7<br>1R | |
| 10 | | | | | | |
| | | | | | | |
| 11 | | | | | R8 | |
| 12 | | | | | | |

Plastic Limit / Moisture Content / Liquid Limit: 20 40 60 80

Recovery (%): 40 60 80 100

SBTS #13

Depth (ft): 0 2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 36 38

TETRA TECH

| | |
|---|---|
| Contractor: Midnight Sun Drilling Inc. | Completion Depth: 12 m |
| Drilling Rig Type: Rig 9, Terrasonic | Start Date: 2018 April 8 |
| Logged By: VER/EP | Completion Date: 2018 April 8 |
| Reviewed By: VER | Page 1 of 2 |

# Borehole No: **GT18-06**

| | |
|---|---|
| Project: Eagle Gold | Project No: ENG.EARC03103-02 |
| Location: Eagle Gold Mine | |
| Yukon Territory | UTM: 460088 E; 7100852 N; Z 8 |

| Depth (m) | Method | Lithological Description | Thermal Condition and Ground Ice Description | Sample Type | Sample Number | Moisture Content (%) | Plastic Limit / Moisture Content / Liquid Limit (20 40 60 80) | Recovery (%) (40 60 80 100) | SBTS #13 | Depth (ft) |
|---|---|---|---|---|---|---|---|---|---|---|
| 12 | | END OF BOREHOLE (12.00 metres)<br>Single bead thermistor #13 installed at 9.00 metres | | | | | | | | 40 |
| 13 | | | | | | | | | | 42 |
| 14 | | | | | | | | | | 46 |
| 15 | | | | | | | | | | 48 |
| 16 | | | | | | | | | | 50 |
| 17 | | | | | | | | | | 52 |
| 18 | | | | | | | | | | 54 |
| 19 | | | | | | | | | | 56 |
| 20 | | | | | | | | | | 58 |
| 21 | | | | | | | | | | 60 |
| 22 | | | | | | | | | | 62 |
| 23 | | | | | | | | | | 64 |
| 24 | | | | | | | | | | 66 |
| | | | | | | | | | | 68 |
| | | | | | | | | | | 70 |
| | | | | | | | | | | 72 |
| | | | | | | | | | | 74 |
| | | | | | | | | | | 76 |
| | | | | | | | | | | 78 |

| | |
|---|---|
| Contractor: Midnight Sun Drilling Inc. | Completion Depth: 12 m |
| Drilling Rig Type: Rig 9, Terrasonic | Start Date: 2018 April 8 |
| Logged By: VER/EP | Completion Date: 2018 April 8 |
| Reviewed By: VER | Page 2 of 2 |

# Borehole No: **GT18-07**

| | |
|---|---|
| Project: Eagle Gold | Project No: ENG.EARC03103-02 |
| Location: Eagle Gold Mine | |
| Yukon Territory | UTM: 460139 E; 7100709 N; Z 8 |

| Depth (m) | Method | Lithological Description | Thermal Condition and Ground Ice Description | Sample Type | Sample Number | Moisture Content (%) |
|---|---|---|---|---|---|---|
| 0 | | SAND AND GRAVEL - silty, trace organics, brown, dark black organic inclusions, angular gravel | Seasonally frozen layer | | | |
| | | - gravelly, less organics | Vx 1-3%, very small ice inclusions, bonded to 1.00 metre | | R1 | |
| 1 | | | | | S1 | 12.4 |
| | | - some clay | | | | |
| 2 | | | | | R2 | |
| | | SILT - gravelly, sandy | At ~2.3 m, Unfrozen. Thermal condition confirmed by GTC | | S2 | 12.4 |
| | | SAND - gravelly, silty | | | | |
| 3 | | | | | | |
| | | - trace clay | | | R3 | |
| 4 | | - trace silt | | | S3 | 4 |
| | | | | | | |
| 5 | | | | | R4 | |
| | Sonic | | | | | |
| 6 | | | | | | |
| | | | | | S4 | |
| 7 | | | | | R5 | |
| | | | | | | |
| 8 | | | | | | |
| | | | | | | |
| 9 | | | | | | |
| | | | | | | |
| 10 | | | | | R6 | |
| | | | | | | |
| 11 | | GRAVEL - sandy, silty | | | S5 | 8 |
| 12 | | | | | | |

Plastic Limit / Moisture Content / Liquid Limit: 20 40 60 80

Recovery (%): 40 60 80 100

GTC TT #2663

Depth (ft): 0 2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 36 38

| | |
|---|---|
| Contractor: Midnight Sun Drilling Inc. | Completion Depth: 21 m |
| Drilling Rig Type: Rig 9, Terrasonic | Start Date: 2018 April 8 |
| Logged By: VER/EP/RO | Completion Date: 2018 April 8 |
| Reviewed By: VER | Page 1 of 2 |

# Borehole No: **GT18-07**

| | |
|---|---|
| Project: Eagle Gold | Project No: ENG.EARC03103-02 |
| Location: Eagle Gold Mine | |
| Yukon Territory | UTM: 460139 E; 7100709 N; Z 8 |

| Depth (m) | Method | Lithological Description | Thermal Condition and Ground Ice Description | Sample Type | Sample Number | Moisture Content (%) | Plastic Limit / Moisture Content / Liquid Limit (20 40 60 80) | Recovery (%) (40 60 80 100) | GTC TT #2663 | Depth (ft) |
|---|---|---|---|---|---|---|---|---|---|---|
| 12 | | | | | | | | | | 40 |
| | | METASEDIMENTARY ROCK (BEDROCK) - highly weathered, fractured, orangish brown, orange oxide weathering, angular | | | | | | | | 42 |
| 13 | | | | | R7 | | | | | 44 |
| 14 | | | | | | | | | | 46 |
| | | - fresh, SERICITE, light grey, slight arsenopyrite alteration<br>- quartz veins | | | | | | | | 48 |
| 15 | | | | | | | | | | 50 |
| | | | | | R8 | | | | | 52 |
| 16 | Sonic | | | | | | | | | 54 |
| 17 | | | | | R9 | | | | | 56 |
| | | | | | | | | | | 58 |
| 18 | | | | | | | | | | 60 |
| | | | | | | | | | | 62 |
| 19 | | | | | R10 | | | | | 64 |
| 20 | | | | | | | | | | 66 |
| | | | | | | | | | | 68 |
| 21 | | END OF BOREHOLE (21.00 metres)<br>GTC TT #2663 installed to 20.00 metres | | | | | | | | 70 |
| 22 | | | | | | | | | | 72 |
| | | | | | | | | | | 74 |
| 23 | | | | | | | | | | 76 |
| 24 | | | | | | | | | | 78 |

TETRA TECH

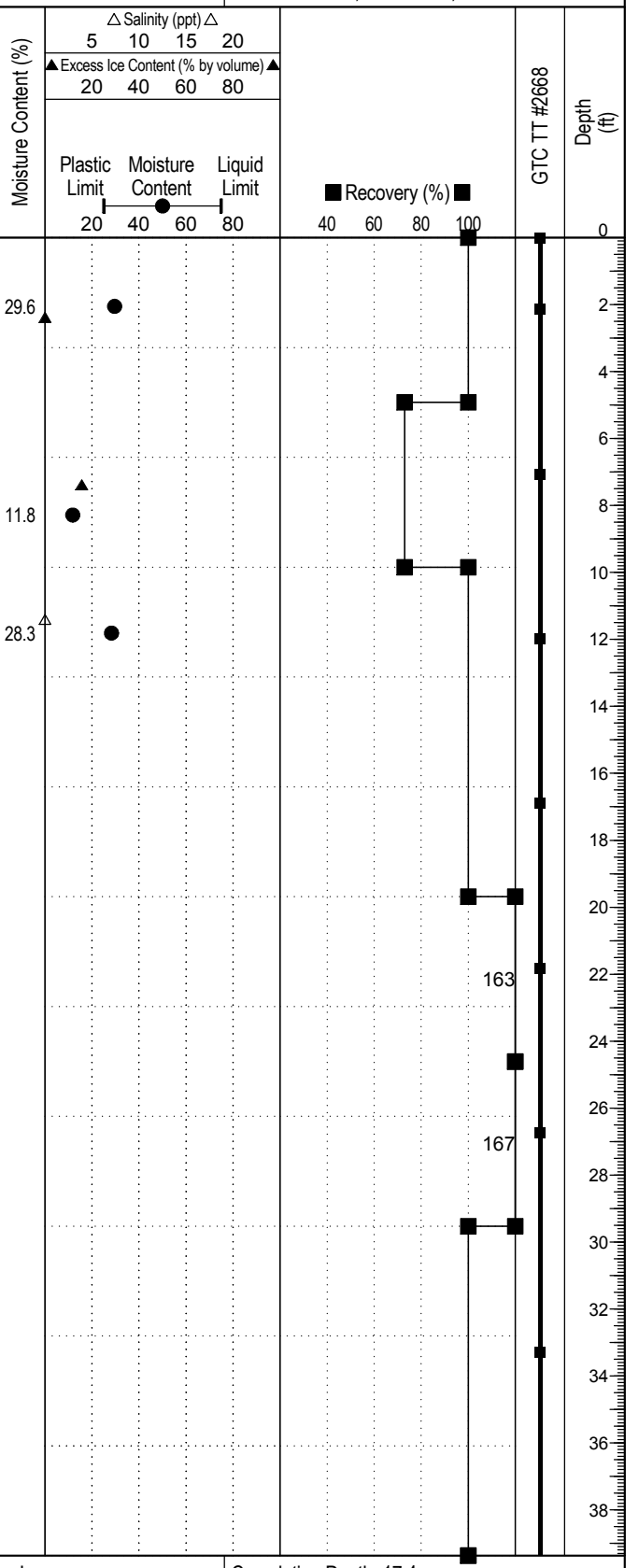
| | |
|---|---|
| Contractor: Midnight Sun Drilling Inc. | Completion Depth: 21 m |
| Drilling Rig Type: Rig 9, Terrasonic | Start Date: 2018 April 8 |
| Logged By: VER/EP/RO | Completion Date: 2018 April 8 |
| Reviewed By: VER | Page 2 of 2 |

# Borehole No: **GT18-08**

Victoria GOLD CORP

| | |
|---|---|
| Project: Eagle Gold | Project No: ENG.EARC03103-02 |
| Location: Eagle Gold Mine | |
| Yukon Territory | UTM: 459517 E; 7099141 N; Z 8 |

| Depth (m) | Method | Lithological Description | Thermal Condition and Ground Ice Description | Sample Type | Sample Number |
|---|---|---|---|---|---|
| 0 | | PEAT - sandy, some gravel, trace silt, cobbles disseminated throughout, roots, black to dark brown | Vx ~3%, clear ice crystal in frozen chunks of sample | | |
| | | SAND AND GRAVEL - silty, cobbles disseminated throughout, dry | | | S1 |
| | | | | | S2 |
| 1 | | | | | R1 |
| | | | | | S3 |
| | | - dark brown, angular gravel | Nbn | | |
| 2 | | | | | R2 |
| | | - sandy, some silt | | | S4 |
| 3 | | SILT AND SAND - some gravel, trace organics, dark grey to brown | Vx 15%, one ~3 mm wide ice lens | | |
| | | - sandy | | | S5 |
| | | | | | S6 |
| 4 | | | | | S7 |
| | | SAND AND GRAVEL - silty, trace clay, cobbles disseminated throughout, dark grey | Nbn | | R3 |
| 5 | | | | | |
| | | GRAVEL AND SILT - sandy, some clay | | | S8 |
| 6 | Sonic | SAND AND GRAVEL - silty, trace clay, cobbles disseminated throughout, dark grey | | | |
| | | | | | R4 |
| 7 | | | | | S9 |
| | | | | | |
| 8 | | | | | R5 |
| | | | | | |
| 9 | | | | | |
| | | | | | |
| 10 | | | | | R6 |
| | | | | | |
| 11 | | | | | |
| | | | | | |
| 12 | | | | | |




TETRA TECH

| | |
|---|---|
| Contractor: Midnight Sun Drilling Inc. | Completion Depth: 17.4 m |
| Drilling Rig Type: Rig 9, Terrasonic | Start Date: 2018 April 11 |
| Logged By: EP/RO | Completion Date: 2018 April 11 |
| Reviewed By: VER | Page 1 of 2 |

# Borehole No: **GT18-08**

Victoria GOLD CORP

| | |
|---|---|
| Project: Eagle Gold | Project No: ENG.EARC03103-02 |
| Location: Eagle Gold Mine | |
| Yukon Territory | UTM: 459517 E; 7099141 N; Z 8 |

| Depth (m) | Method | Lithological Description | Thermal Condition and Ground Ice Description | Sample Type | Sample Number | Moisture Content (%) | △ Salinity (ppt) △ 5 10 15 20 / ▲ Excess Ice Content (% by volume) ▲ 20 40 60 80 / Plastic Limit – Moisture Content – Liquid Limit 20 40 60 80 | ■ Recovery (%) ■ 40 60 80 100 | GTC TT #2668 | Depth (ft) |
|---|---|---|---|---|---|---|---|---|---|---|
| 12 | | | | | | | | | | 40 |
| 13 | Sonic | | | | R7 | | | | | 42 |
| | | SAND - silty, gravelly, some clay | | | S10 | 7.7 | | | | 44 |
| 14 | | | | | | | | | | 46 |
| | | | | | | | | | | 48 |
| 15 | | GRANITE BOULDERS | Permafrost condition confirmed by GTC | | | | | | | 50 |
| | | | | | | | | | | 52 |
| 16 | | | | | R8 | | | | | 54 |
| | | | | | | | | | | 56 |
| 17 | | END OF BOREHOLE (17.40 metres) GTC TT #2668 installed to 15.00 metres | | | | | | | | 58 |
| 18 | | | | | | | | | | 60 |
| | | | | | | | | | | 62 |
| 19 | | | | | | | | | | 64 |
| | | | | | | | | | | 66 |
| 20 | | | | | | | | | | 68 |
| | | | | | | | | | | 70 |
| 21 | | | | | | | | | | 72 |
| | | | | | | | | | | 74 |
| 22 | | | | | | | | | | 76 |
| | | | | | | | | | | 78 |
| 23 | | | | | | | | | | |
| 24 | | | | | | | | | | |

TETRA TECH

| | |
|---|---|
| Contractor: Midnight Sun Drilling Inc. | Completion Depth: 17.4 m |
| Drilling Rig Type: Rig 9, Terrasonic | Start Date: 2018 April 11 |
| Logged By: EP/RO | Completion Date: 2018 April 11 |
| Reviewed By: VER | Page 2 of 2 |

# Borehole No: **GT18-09**

| | |
|---|---|
| Project: Eagle Gold | Project No: ENG.EARC03103-02 |
| Location: Eagle Gold Mine | |
| Yukon Territory | UTM: 459925 E; 7098981 N; Z 8 |

| Depth (m) | Method | Lithological Description | Thermal Condition and Ground Ice Description | Sample Type | Sample Number | Moisture Content (%) |
|---|---|---|---|---|---|---|
| 0 | | SAND AND GRAVEL (FILL from old road) - some silt, includes organics, cobbles disseminated throughout | | | | |
| | | SAND AND GRAVEL - some silt, cobbles disseminated throughout, fragments, pulverized, dry, loose, orangish brown, angular gravel | Seasonally frozen layer | | R1 | |
| 2 | | - silty | | | S1<br>R2 | 4.5 |
| | | - trace clay for 200 mm | | | | |
| 3 | | - trace clay for 100 mm | At ~3.0 m, Unfrozen. Thermal condition confirmed by GTC | | | |
| | | | | | R3 | |
| 5 | | GRAVEL - sandy, some silt | | | S2 | 5.7 |
| | Sonic | | | | | |
| | | | | | R4 | |
| 9 | | | | | | |
| | | METASEDIMENTARY ROCK (BEDROCK) - highly weathered | | | | |
| | | | | | R5 | |
| 12 | | | | | | |

Plastic Limit / Moisture Content / Liquid Limit: 20 40 60 80

Recovery (%): 40 60 80 100

GTC TT #2669

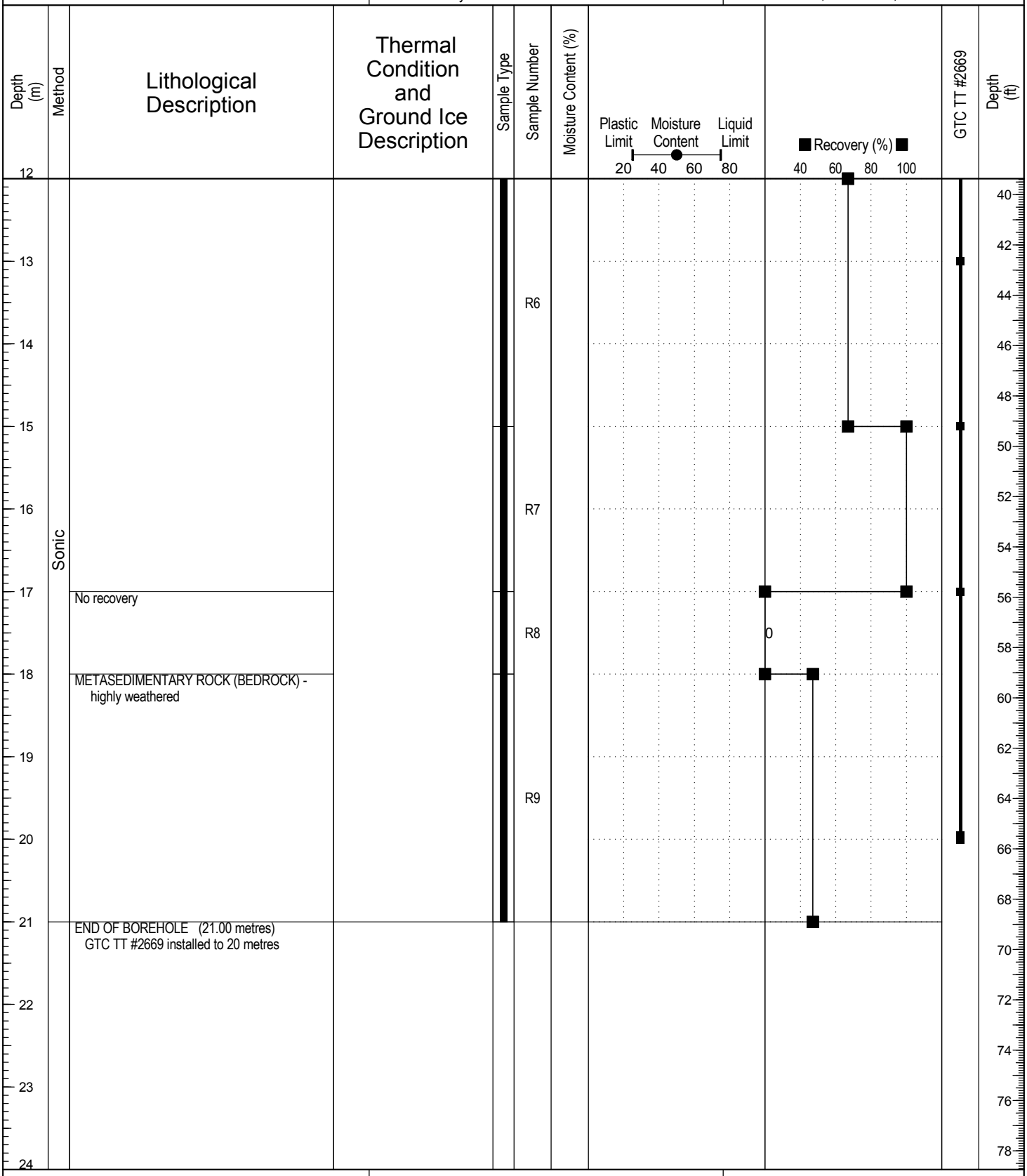
Depth (ft): 0 2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 36 38

TETRA TECH

| | |
|---|---|
| Contractor: Midnight Sun Drilling Inc. | Completion Depth: 21 m |
| Drilling Rig Type: Rig 9, Terrasonic | Start Date: 2018 April 13 |
| Logged By: EP/RO | Completion Date: 2018 April 13 |
| Reviewed By: VER | Page 1 of 2 |

# Borehole No: **GT18-09**

| | |
|---|---|
| Project: Eagle Gold | Project No: ENG.EARC03103-02 |
| Location: Eagle Gold Mine | |
| Yukon Territory | UTM: 459925 E; 7098981 N; Z 8 |




| | |
|---|---|
| Contractor: Midnight Sun Drilling Inc. | Completion Depth: 21 m |
| Drilling Rig Type: Rig 9, Terrasonic | Start Date: 2018 April 13 |
| Logged By: EP/RO | Completion Date: 2018 April 13 |
| Reviewed By: VER | Page 2 of 2 |

# Borehole No: **GT18-10**

| | |
|---|---|
| Project: Eagle Gold | Project No: ENG.EARC03103-02 |
| Location: Eagle Gold Mine | |
| Yukon Territory | UTM: 459968 E; 7098851 N; Z 8 |

| Depth (m) | Method | Lithological Description | Thermal Condition and Ground Ice Description | Sample Type | Sample Number | Moisture Content (%) |
|---|---|---|---|---|---|---|
| 0 | | SAND AND GRAVEL (FILL) - trace clay, contains snow and ice | | | R1 | |
| 1 | | Cut into the original sloping ground: SAND AND GRAVEL - trace clay, brown, angular gravel - darker brown to grey | Vx 3%<br>Vx 1% | | R2 | |
| 2 | | SILT - some clay, some sand, trace gravel | | | S1 | 27.5 |
| 3 | | | | | | |
| 4 | | - some clay for 200 mm | Nb<br>Warm permafrost condition confirmed by single bead thermistor (-0.1° C, June 8, 2018) | | R3 | |
| 5 | Sonic | | | | | |
| 6 | | GRAVEL - silty, sandy | | | S2 | 7.7 |
| 7 | | - some clay | | | R4 | |
| 8 | | - trace clay | | | | |
| 9 | | BEDROCK - highly weathered, slightly oxidized, angular | | | R5 | |
| 10 | | | | | | |
| 11 | | | | | | |
| 12 | | | | | | |

Bulk Density (kg/m$^3$): 1400 1600 1800 2000

Plastic Limit — Moisture Content — Liquid Limit: 20 40 60 80

Recovery (%): 40 60 80 100

SBTS #10: 200

Depth (ft): 0 2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 36 38

TETRA TECH

| | |
|---|---|
| Contractor: Midnight Sun Drilling Inc. | Completion Depth: 12 m |
| Drilling Rig Type: Rig 9, Terrasonic | Start Date: 2018 April 14 |
| Logged By: EP/RO | Completion Date: 2018 April 14 |
| Reviewed By: VER | Page 1 of 2 |

# Borehole No: **GT18-10**

| | |
|---|---|
| Project: Eagle Gold | Project No: ENG.EARC03103-02 |
| Location: Eagle Gold Mine | |
| Yukon Territory | UTM: 459968 E; 7098851 N; Z 8 |

| Depth (m) | Method | Lithological Description | Thermal Condition and Ground Ice Description | Sample Type | Sample Number | Moisture Content (%) | Bulk Density (kg/m$^3$) 1400 1600 1800 2000 / Plastic Limit Moisture Content Liquid Limit 20 40 60 80 | Recovery (%) 40 60 80 100 | SBTS #10 | Depth (ft) |
|---|---|---|---|---|---|---|---|---|---|---|
| 12 | | END OF BOREHOLE (12.00 metres)<br>Single bead thermistor #10 installed to 8.50 metres | | | | | | | | 40 |
| 13 | | | | | | | | | | 42 |
| | | | | | | | | | | 44 |
| 14 | | | | | | | | | | 46 |
| | | | | | | | | | | 48 |
| 15 | | | | | | | | | | 50 |
| | | | | | | | | | | 52 |
| 16 | | | | | | | | | | 54 |
| | | | | | | | | | | 56 |
| 17 | | | | | | | | | | 58 |
| | | | | | | | | | | 60 |
| 18 | | | | | | | | | | 62 |
| | | | | | | | | | | 64 |
| 19 | | | | | | | | | | 66 |
| | | | | | | | | | | 68 |
| 20 | | | | | | | | | | 70 |
| | | | | | | | | | | 72 |
| 21 | | | | | | | | | | 74 |
| | | | | | | | | | | 76 |
| 22 | | | | | | | | | | 78 |
| | | | | | | | | | | |
| 23 | | | | | | | | | | |
| | | | | | | | | | | |
| 24 | | | | | | | | | | |

| | |
|---|---|
| Contractor: Midnight Sun Drilling Inc. | Completion Depth: 12 m |
| Drilling Rig Type: Rig 9, Terrasonic | Start Date: 2018 April 14 |
| Logged By: EP/RO | Completion Date: 2018 April 14 |
| Reviewed By: VER | Page 2 of 2 |

# Borehole No: **GT18-11**

Victoria GOLD CORP

| | |
|---|---|
| Project: Eagle Gold | Project No: ENG.EARC03103-02 |
| Location: Eagle Gold Mine | |
| Yukon Territory | UTM: 460080 E; 7098964 N; Z 8 |

| Depth (m) | Method | Lithological Description | Thermal Condition and Ground Ice Description | Sample Type | Sample Number | Moisture Content (%) |
|---|---|---|---|---|---|---|
| 0 | | PEAT - sandy, some gravel, rootlets, dark brown | | | | |
| | | SAND AND GRAVEL - some silt, trace clay, light brown, angular gravel<br>- some clay for 200 mm | Frozen | | R1 | |
| 1 | | | | | | |
| 2 | | - sandy, silty | | | S1<br>R2 | 5.5 |
| 3 | | - well compacted | | | | |
| 4 | | | | | S2<br>R3 | |
| 5 | | | | | | |
| 6 | Sonic | | | | | |
| 7 | | | | | | |
| | | | Warm permafrost condition confirmed by single bead thermistor (-0.1° C, June 8, 2018) | | R4 | |
| 8 | | | | | | |
| 9 | | - increased weathering | | | | |
| 10 | | BEDROCK - highly weathered, pulverized, orange oxidation, angular gravel | | | R5 | |
| 11 | | | | | | |
| 12 | | | | | | |

Plastic Limit / Moisture Content / Liquid Limit: 20 40 60 80

Recovery (%): 40 60 80 100

SBTS #11

Depth (ft): 0 2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 36 38

TETRA TECH

| | |
|---|---|
| Contractor: Midnight Sun Drilling Inc. | Completion Depth: 12 m |
| Drilling Rig Type: Rig 9, Terrasonic | Start Date: 2018 April 13 |
| Logged By: EP/RO | Completion Date: 2018 April 13 |
| Reviewed By: VER | Page 1 of 2 |

# Borehole No: **GT18-11**

| | |
|---|---|
| Project: Eagle Gold | Project No: ENG.EARC03103-02 |
| Location: Eagle Gold Mine | |
| Yukon Territory | UTM: 460080 E; 7098964 N; Z 8 |

| Depth (m) | Method | Lithological Description | Thermal Condition and Ground Ice Description | Sample Type | Sample Number | Moisture Content (%) | Plastic Limit / Moisture Content / Liquid Limit (20 40 60 80) | Recovery (%) (40 60 80 100) | SBTS #11 | Depth (ft) |
|---|---|---|---|---|---|---|---|---|---|---|
| 12 | | END OF BOREHOLE (12.00 metres)<br>Single bead thermistor installed to 8.50 metres | | | | | | | | 40 |
| 13 | | | | | | | | | | 42 |
| 14 | | | | | | | | | | 44 |
| 15 | | | | | | | | | | 46 |
| 16 | | | | | | | | | | 48 |
| 17 | | | | | | | | | | 50 |
| 18 | | | | | | | | | | 52 |
| 19 | | | | | | | | | | 54 |
| 20 | | | | | | | | | | 56 |
| 21 | | | | | | | | | | 58 |
| 22 | | | | | | | | | | 60 |
| 23 | | | | | | | | | | 62 |
| 24 | | | | | | | | | | 64 |
| | | | | | | | | | | 66 |
| | | | | | | | | | | 68 |
| | | | | | | | | | | 70 |
| | | | | | | | | | | 72 |
| | | | | | | | | | | 74 |
| | | | | | | | | | | 76 |
| | | | | | | | | | | 78 |

| | |
|---|---|
| Contractor: Midnight Sun Drilling Inc. | Completion Depth: 12 m |
| Drilling Rig Type: Rig 9, Terrasonic | Start Date: 2018 April 13 |
| Logged By: EP/RO | Completion Date: 2018 April 13 |
| Reviewed By: VER | Page 2 of 2 |

# Borehole No: **GT18-15**

| | |
|---|---|
| Project: Eagle Gold | Project No: ENG.EARC03103-02 |
| Location: Eagle Gold Mine | |
| Yukon Territory | UTM: 459597 E; 7100583 N; Z 8 |

| Depth (m) | Method | Lithological Description | Thermal Condition and Ground Ice Description | Sample Type | Sample Number | Moisture Content (%) | Bulk Density (kg/m$^3$) 1400 1600 1800 2000 / Plastic Limit – Moisture Content – Liquid Limit 20 40 60 80 | Recovery (%) 40 60 80 100 | GTC TT #2667 | Depth (ft) |
|---|---|---|---|---|---|---|---|---|---|---|
| 0 | | | | | | | | | | 0 |
| | | SAND AND GRAVEL - silty, trace organics, roots, moss, angular gravel - loose | Vx 1-3% | | R1 | | | | | 2 |
| 1 | | SAND - silty, some gravel, some clay | Nbn | | S1 | 7.7 | | | | 4 |
| | | - slightly coarser sand | | | | | | | | 6 |
| 2 | | | | | R2 | | | | | 8 |
| 3 | | - trace silt | | | | | | | | 10 |
| | | | | | R3 | | | | | 12 |
| 4 | | | | | | | | | | 14 |
| 5 | | | | | R4 | | | | | 16 |
| | Sonic | | | | | | | | | 18 |
| 6 | | - cobble | | | | | | | | 20 |
| | | | | | | | | | | 22 |
| 7 | | | | | R5 | | | | | 24 |
| 8 | | | | | | | | | | 26 |
| | | - silty, gravelly, some clay | | | S2 | 14.5 | | | | 28 |
| 9 | | | | | | | | | | 30 |
| | | | | | S3 | | | | | 32 |
| 10 | | | | | | | | | | 34 |
| | | | | | R6 | | | | | 36 |
| 11 | | SILT - clayey, some gravel, some sand, quartz cobbles disseminated throughout, dark grey, angular gravel, frozen clay | | | | | | | | 38 |
| 12 | | | | | S4 | | | | | |

| | |
|---|---|
| Contractor: Midnight Sun Drilling Inc. | Completion Depth: 21 m |
| Drilling Rig Type: Rig 9, Terrasonic | Start Date: 2018 April 10 |
| Logged By: EP/RO | Completion Date: 2018 April 10 |
| Reviewed By: VER | Page 1 of 2 |

# Borehole No: **GT18-15**

| | |
|---|---|
| Project: Eagle Gold | Project No: ENG.EARC03103-02 |
| Location: Eagle Gold Mine | |
| Yukon Territory | UTM: 459597 E; 7100583 N; Z 8 |

| Depth (m) | Method | Lithological Description | Thermal Condition and Ground Ice Description | Sample Type | Sample Number | Moisture Content (%) | Bulk Density (kg/m$^3$) 1400 1600 1800 2000 / Plastic Limit Moisture Content Liquid Limit 20 40 60 80 | Recovery (%) 40 60 80 100 | GTC TT #2667 | Depth (ft) |
|---|---|---|---|---|---|---|---|---|---|---|
| 12 | | | | | | | | | | 40 |
| | | - slightly more clay | | | | | | | | |
| | | SAND - silty, gravelly, some clay | | | | | | | | 42 |
| 13 | | | | | S5 | 10 | | 2228 | | |
| | | | | | R7 | | | | | 44 |
| 14 | | | | | S6 | | | | | 46 |
| | | | | | | | | | | 48 |
| 15 | | | | | | | | | | 50 |
| | | | | | | | | | | 52 |
| 16 | Sonic | | | | R8 | | | | | |
| | | | | | | | | | | 54 |
| 17 | | | | | | | | | | 56 |
| | | SILT - sandy, clayey, some gravel | | | S7 | 11.1 | | 2353 | | 58 |
| 18 | | METASEDIMENTARY ROCK (BEDROCK) - highly weathered, fragmented, orangish brown, angular gravel | Very warm permafrost condition confirmed by GTC (0° to -0.1° C, June 8, 2018) | | | | | | | 60 |
| | | | | | | | | | | 62 |
| 19 | | | | | | | | | | |
| | | | | | R9 | | | | | 64 |
| 20 | | | | | | | | | | 66 |
| | | | | | | | | | | 68 |
| 21 | | END OF BOREHOLE (21.00 metres) GTC TT #2667 installed to 20.00 metres | | | | | | | | 70 |
| 22 | | | | | | | | | | 72 |
| | | | | | | | | | | 74 |
| 23 | | | | | | | | | | 76 |
| | | | | | | | | | | 78 |
| 24 | | | | | | | | | | |

| | |
|---|---|
| Contractor: Midnight Sun Drilling Inc. | Completion Depth: 21 m |
| Drilling Rig Type: Rig 9, Terrasonic | Start Date: 2018 April 10 |
| Logged By: EP/RO | Completion Date: 2018 April 10 |
| Reviewed By: VER | Page 2 of 2 |

# Borehole No: **GT18-16**

| | |
|---|---|
| Project: Eagle Gold | Project No: ENG.EARC03103-02 |
| Location: Eagle Gold Mine | |
| Yukon Territory | UTM: 459607 E; 7100308 N; Z 8 |

| Depth (m) | Method | Lithological Description | Thermal Condition and Ground Ice Description | Sample Type | Sample Number | Moisture Content (%) |
|---|---|---|---|---|---|---|
| 0 | | PEAT - rooty, snow covered, brown, (300 mm thick) | | | | |
| | | SAND AND GRAVEL - silty, trace clay, brown to orangish brown, angular gravel | Nbn | | S1 | 12.1 |
| 1 | | SILT - sandy, gravelly | | | R1 | |
| 2 | | - some clay | | | R2 | |
| | | | | | S2 | 10.3 |
| 3 | | | | | | |
| 4 | Sonic | METASEDIMENTARY ROCK (BEDROCK) - weathered, powdery, orange oxidation weathering, angular | | | R3 | |
| 5 | | | | | | |
| 6 | | | | | | |
| 7 | | | | | R4 | |
| 8 | | | Unfrozen. Thermal condition confirmed by single bead thermistor (+0.9° C, June 8, 2018) | | | |
| 9 | | END OF BOREHOLE (9.00 metres) Single bead thermistor #2 installed at 8.20 metres | | | | |
| 10 | | | | | | |
| 11 | | | | | | |
| 12 | | | | | | |

Plastic Limit / Moisture Content / Liquid Limit: 20 40 60 80

Recovery (%): 40 60 80 100

SBTS #2

Depth (ft): 0 2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 36 38

| | |
|---|---|
| Contractor: Midnight Sun Drilling Inc. | Completion Depth: 9 m |
| Drilling Rig Type: Rig 9, Terrasonic | Start Date: 2018 April 11 |
| Logged By: EP/RO | Completion Date: 2018 April 11 |
| Reviewed By: VER | Page 1 of 1 |

# Borehole No: **GT18-17**

| | |
|---|---|
| Project: Eagle Gold | Project No: ENG.EARC03103-02 |
| Location: Eagle Gold Mine | |
| Yukon Territory | UTM: 459263 E; 7100290 N; Z 8 |

| Depth (m) | Method | Lithological Description | Thermal Condition and Ground Ice Description | Sample Type | Sample Number | Moisture Content (%) |
|---|---|---|---|---|---|---|
| 0 | | PEAT - rootlets, moss, dark brown to red black, (300 mm thick) | Vx 5% | | | |
| | | ICE AND SAND AND SILT - some gravel, very light brown, angular gravel | Clear and cloudy ice, expanded twice the length of run. Borehole appears to be in small drainage gully explaining ice content in active layer | | S1<br>R1 | |
| 1 | | ICE AND SAND - silty, gravelly, some clay | | | S2 | 76.6 |
| | | SAND - silty, some gravel | Vc,Vx | | S3 | 29.8 |
| 2 | | SAND AND GRAVEL - some silt, trace clay, brown grey, angular gravel | Vc, Vx 3-5% | | R2<br>S4 | |
| | | | Nbn | | | |
| 3 | | | | | | |
| | | - silty, some clay, some gravel | | | S5 | 10.9 |
| 4 | Sonic | | | | R3 | |
| 5 | | | | | | |
| | | METASEDIMENTARY ROCK (BEDROCK) - low oxidization, pulverized, fragments | | | | |
| 6 | | | | | | |
| | | | Warm permafrost condition confirmed by single bead thermistor (-0.1° C, June 8, 2018) | | R4 | |
| 7 | | | | | | |
| | | | | | | |
| 8 | | | | | R5 | |
| 9 | | END OF BOREHOLE (9.00 metres)<br>Single bead thermistor #17 installed at 8.50 metres | | | | |
| 10 | | | | | | |
| 11 | | | | | | |
| 12 | | | | | | |

Excess Ice Content (% by volume) ▲ — 20 40 60 80

Plastic Limit — Moisture Content — Liquid Limit — 20 40 60 80

■ Recovery (%) ■ — 40 60 80 100

SBTS #17

200

133

| Depth (ft) |
|---|
| 0 |
| 2 |
| 4 |
| 6 |
| 8 |
| 10 |
| 12 |
| 14 |
| 16 |
| 18 |
| 20 |
| 22 |
| 24 |
| 26 |
| 28 |
| 30 |
| 32 |
| 34 |
| 36 |
| 38 |

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| | |
|---|---|
| Contractor: Midnight Sun Drilling Inc. | Completion Depth: 9 m |
| Drilling Rig Type: Rig 9, Terrasonic | Start Date: 2018 April 12 |
| Logged By: EP/RO | Completion Date: 2018 April 12 |
| Reviewed By: VER | Page 1 of 1 |

# APPENDIX C

## OFF-SITE GEOTECHNICAL LABORATORY SOIL TEST RESULTS

# BULK DENSITY AND ICE CONTENT TEST RESULTS

| | | | |
|---|---|---|---|
| Project: | Eagle Gold – Spring 2018 Geotechnical Investigation | Sample No.: | See below |
| Project No.: | ENG.EARC03103-02 | Date Tested: | May 10, 2018 |
| Client: | Victoria Gold Corp. | Tested By: | AMT |
| Address: | Eagle Gold Mine, Yukon | Page: | 1 of 1 |

| B.H. & Sample Number | Mass of Sample (g) | Diameter (mm) | Width (mm) | Length (mm) | Bulk Density ($kg/m^3$) | Height of Supernatant Water (mm) | Height of Saturated Sediment (mm) | Excess Ice Content % |
|---|---|---|---|---|---|---|---|---|
| GT18-05-S4 | - | - | - | - | - | 0.0 | 150.0 | 0.0 |
| GT18-05-S6 | 2242.5 | 109.1 | 105.0 | 120.0 | 2076.3 | - | - | - |
| GT18-10-S1 | 3269.3 | 92.0 | 85.2 | 285.0 | 1860.6 | - | - | - |
| GT18-15-S5 | 4657.5 | 102.2 | 97.0 | 268.3 | 2228.0 | - | - | - |
| GT18-15-S7 | 4698.8 | 104.5 | 98.0 | 248.0 | 2353.2 | - | - | - |
| GT18-17-S2 | - | - | - | - | - | 85.0 | 88.0 | 51.3 |
| GT18-17-S3 | - | - | - | - | - | 29.0 | 117.0 | 21.3 |
| | | | | | | | | |
| | | | | | | | | |
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**Remarks:**

Whitehorse, YT

**Reviewed By:** Ernst Palmieri P.Geo.

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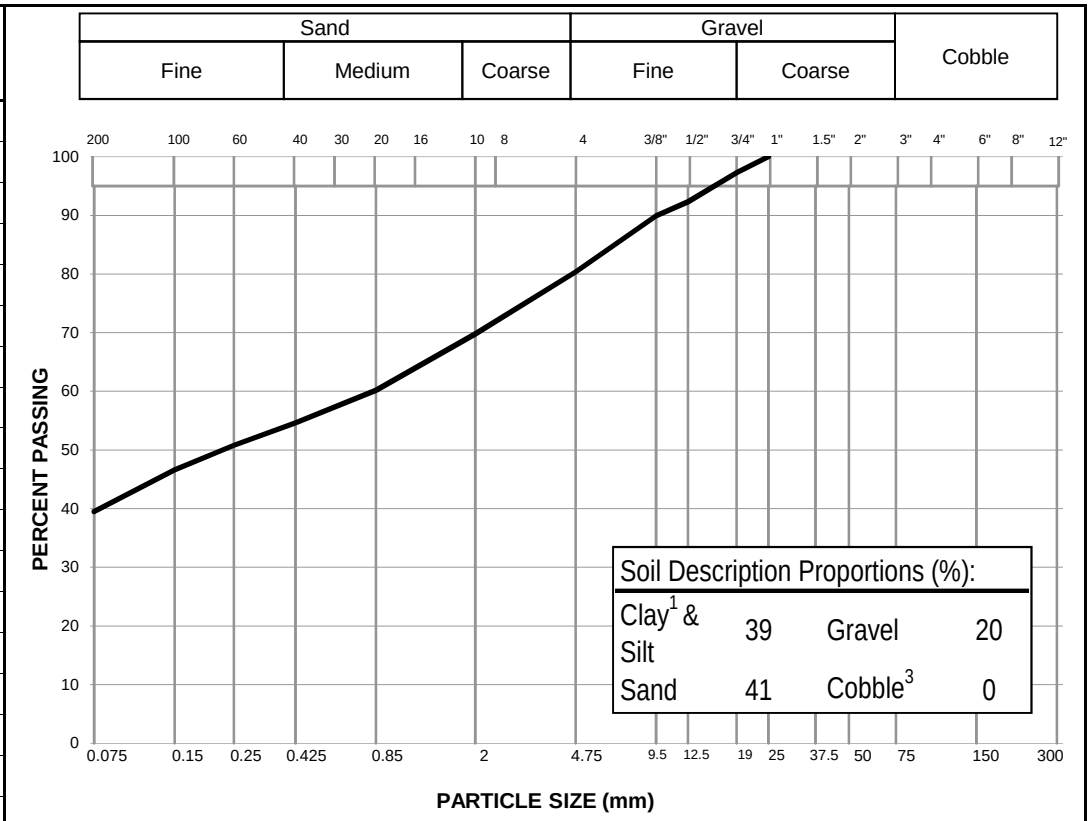
TETRA TECH

# PARTICLE SIZE ANALYSIS REPORT

ASTM D7928 & C136

| | | | |
|---|---|---|---|
| Project: | Eagle Gold - Spring 2018 Geotechnical Investigation | Sample No.: | S1 |
| Project No.: | ENG.EARC03103-02 | Material Type: | |
| Site: | Eagle Gold Mine, Yukon | Sample Loc.: | GT18-01 |
| Client: | Victoria Gold Corp. | Sample Depth: | 1.5-2.5 m |
| Client Rep.: | Dr. Stephen Wilbur | Sampling Method: | Grab |
| Date Tested: | May 23, 2018 By: OO | Date Sampled: | April 7, 2018 |
| Soil Description[2]: | SAND & SILT - some gravel | Sampled By: | EP |
| | | USC Classification: | Cu: #N/A |
| Moisture Content: | 9.4% | | Cc: #N/A |

| Particle Size (mm) | Percent Passing |
|---|---|
| 300 | |
| 200 | |
| 150 | |
| 100 | |
| 75 | |
| 50 | |
| 37.5 | |
| 25 | 100 |
| 19 | 97 |
| 12.5 | 92 |
| 9.5 | 90 |
| 4.75 | 80 |
| 2 | 70 |
| 0.85 | 60 |
| 0.425 | 55 |
| 0.25 | 51 |
| 0.15 | 47 |
| 0.075 | 39.5 |




Notes:
[1] The upper clay size of 2 um, per the Canadian Foundation Engineering Manual
[2] The description is visually based & subject to Tt WM4400 description protocols
[3] If cobbles are present, sampling procedure may not meet ASTM C702 & D75

Specification: _____

**Remarks:** _____

_____

**Reviewed By:** IDR P.Eng.

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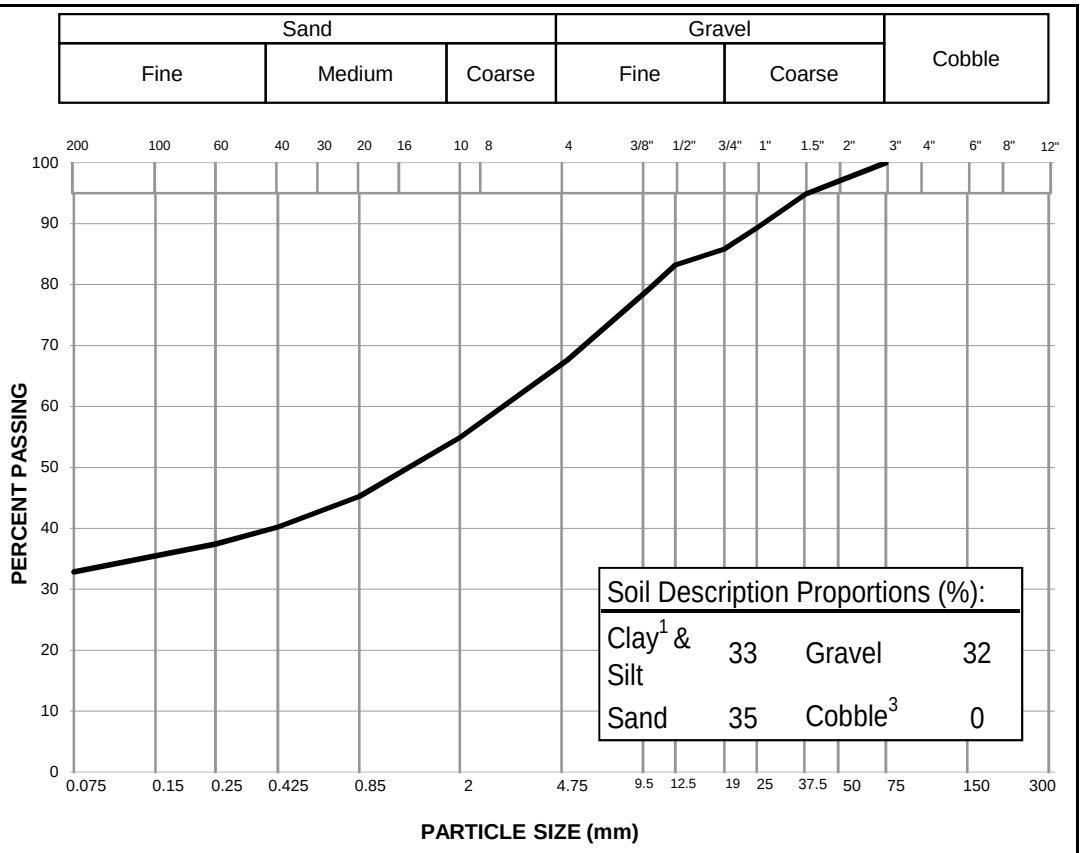
TETRA TECH

# PARTICLE SIZE ANALYSIS REPORT

ASTM D7928 & C136

| | | | |
|---|---|---|---|
| Project: | Eagle Gold – Spring 2018 Geotech. Invest. | Sample No.: | S2 |
| Project No.: | ENG.EARC03103-02 | Material Type: | - |
| Site: | Eagle Gold Mine, Yukon | Sample Loc.: | GT18-01 |
| Client: | Victoria Gold Corp. | Sample Depth: | 3.8 - 4.2 m |
| Client Rep.: | Dr. Stephen Wilbur | Sampling Method: | Grab |
| Date Tested: | May 17, 2018 By: AH | Date Sampled: | April 7, 2018 |
| Soil Description[2]: | SAND - silty, gravelly | Sampled By: | Tetra Tech Canada |
| | | USC Classification: | - Cu: #N/A |
| Moisture Content: | 10.2% | | Cc: #N/A |

| Particle Size (mm) | Percent Passing |
|---|---|
| 300 | |
| 200 | |
| 150 | |
| 100 | |
| 75 | 100 |
| 50 | |
| 38 | 95 |
| 25 | 89 |
| 19 | 86 |
| 12.5 | 83 |
| 10 | 79 |
| 5 | 68 |
| 2 | 55 |
| 0.85 | 45 |
| 0.425 | 40 |
| 0.25 | 37 |
| 0.15 | 35 |
| 0.075 | 32.9 |




Notes:
[1] The upper clay size of 2 um, per the Canadian Foundation Engineering Manual
[2] The description is visually based & subject to Tt WM4400 description protocols
[3] If cobbles are present, sampling procedure may not meet ASTM C702 & D75

Specification: _____

**Remarks:** _____

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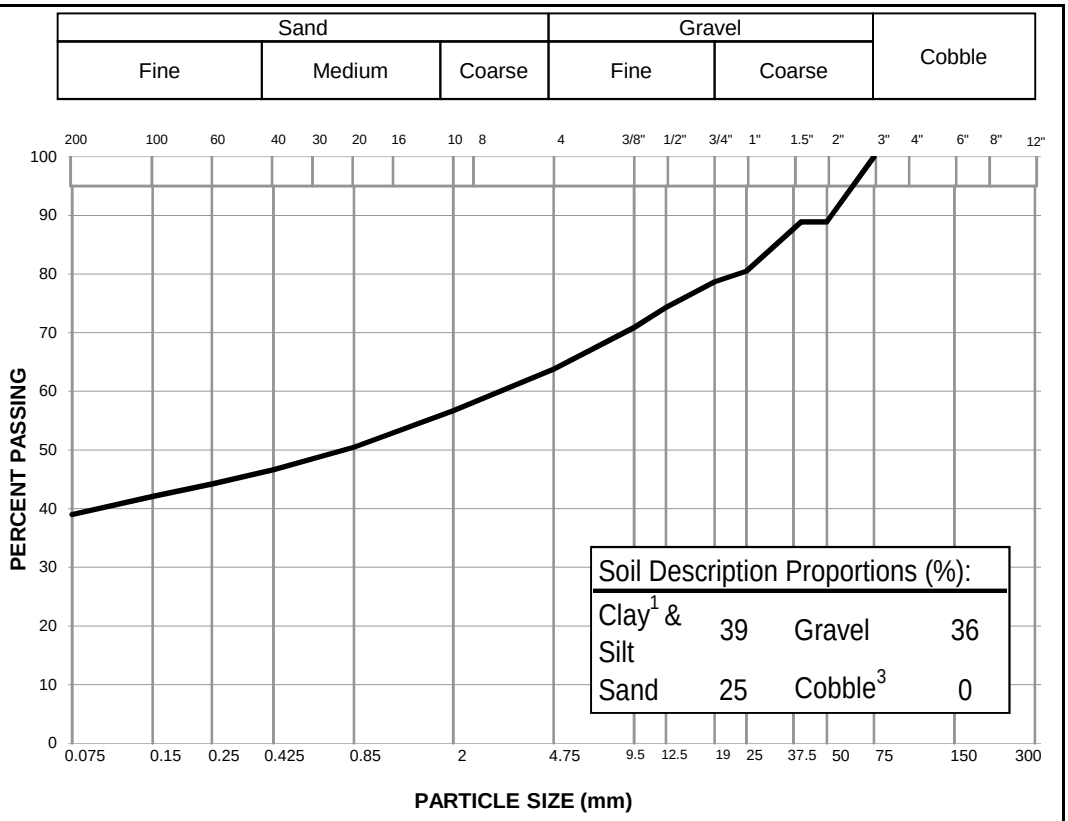
# PARTICLE SIZE ANALYSIS REPORT

ASTM D7928 & C136

| | | | |
|---|---|---|---|
| Project: | Eagle Gold - Spring 2018 Geotechnical Investigation | Sample No.: | S2 |
| Project No.: | ENG.EARC03103-02 | Material Type: | |
| Site: | Eagle Gold Mine, Yukon | Sample Loc.: | GT18-02 |
| Client: | Victoria Gold Corp. | Sample Depth: | 1.2-1.5 m |
| Client Rep.: | Dr. Stephen Wilbur | Sampling Method: | Grab |
| Date Tested: | May 23, 2018 By: OO | Date Sampled: | April 7, 2018 |
| Soil Description[2]: | SILT & GRAVEL - sandy | Sampled By: | EP |
| | | USC Classification: | Cu: #N/A |
| Moisture Content: | 9.7% | | Cc: #N/A |

| Particle Size (mm) | Percent Passing |
|---|---|
| 300 | |
| 200 | |
| 150 | |
| 100 | |
| 75 | 100 |
| 50 | 89 |
| 40 | 89 |
| 25 | 81 |
| 19 | 79 |
| 12.5 | 74 |
| 9.5 | 71 |
| 4.75 | 64 |
| 2 | 57 |
| 0.85 | 51 |
| 0.425 | 47 |
| 0.25 | 44 |
| 0.15 | 42 |
| 0.075 | 39.0 |




Notes:
[1] The upper clay size of 2 um, per the Canadian Foundation Engineering Manual
[2] The description is visually based & subject to Tt WM4400 description protocols
[3] If cobbles are present, sampling procedure may not meet ASTM C702 & D75

Specification: _____

**Remarks:** _____

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**Reviewed By:** JDR P.Eng.

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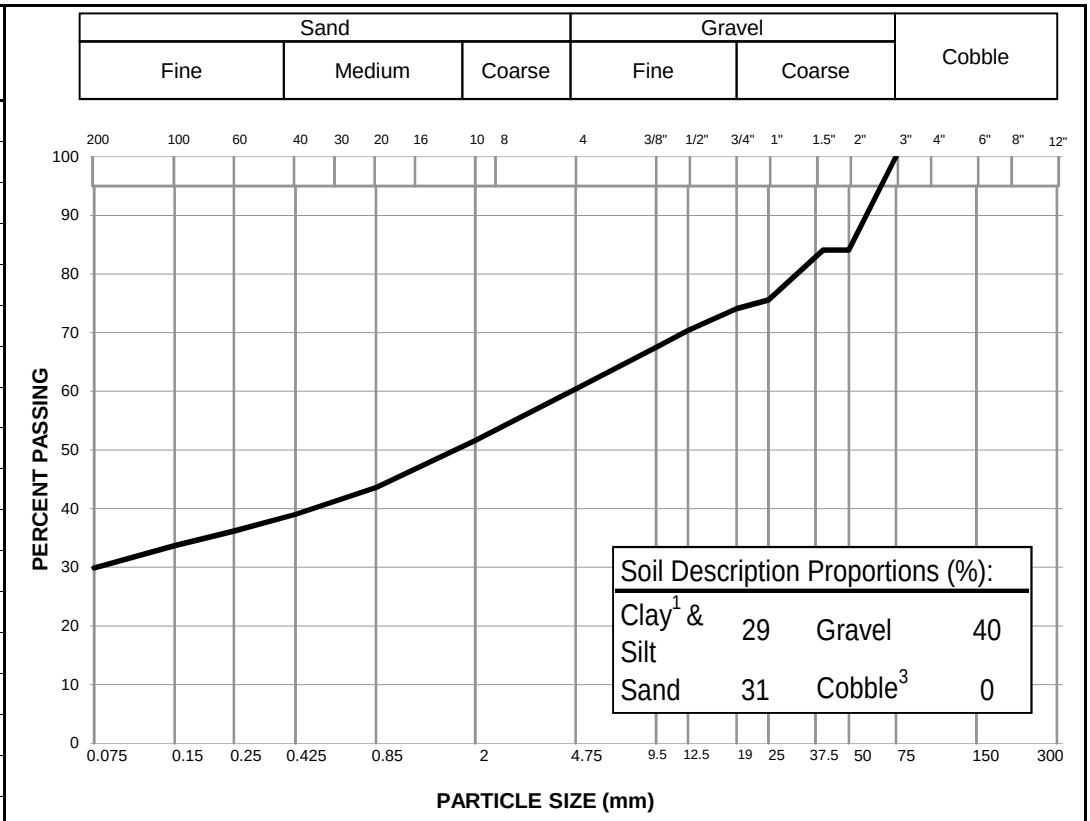
# PARTICLE SIZE ANALYSIS REPORT

ASTM D7928 & C136

| | | | |
|---|---|---|---|
| Project: | Eagle Gold - Spring 2018 Geotechnical Investigation | Sample No.: | S2 |
| Project No.: | ENG.EARC03103-02 | Material Type: | |
| Site: | Eagle Gold Mine, Yukon | Sample Loc.: | GT18-04 |
| Client: | Victoria Gold Corp. | Sample Depth: | 0.95-1.25 m |
| Client Rep.: | Dr. Stephen Wilbur | Sampling Method: | Grab |
| Date Tested: | May 23, 2018 By: OO | Date Sampled: | April 10, 2018 |
| Soil Description[2]: | GRAVEL - sandy, silty | Sampled By: | EP |
| | | USC Classification: | Cu: #N/A |
| Moisture Content: | 7.1% | | Cc: #N/A |

| Particle Size (mm) | Percent Passing |
|---|---|
| 300 | |
| 200 | |
| 150 | |
| 100 | |
| 75 | 100 |
| 50 | 84 |
| 40 | 84 |
| 25 | 76 |
| 19 | 74 |
| 12.5 | 70 |
| 9.5 | 68 |
| 4.75 | 60 |
| 2 | 52 |
| 0.85 | 44 |
| 0.425 | 39 |
| 0.25 | 36 |
| 0.15 | 34 |
| 0.075 | 29.9 |




Notes:
[1] The upper clay size of 2 um, per the Canadian Foundation Engineering Manual
[2] The description is visually based & subject to Tt WM4400 description protocols
[3] If cobbles are present, sampling procedure may not meet ASTM C702 & D75

Specification: _____

**Remarks:** _____

_____

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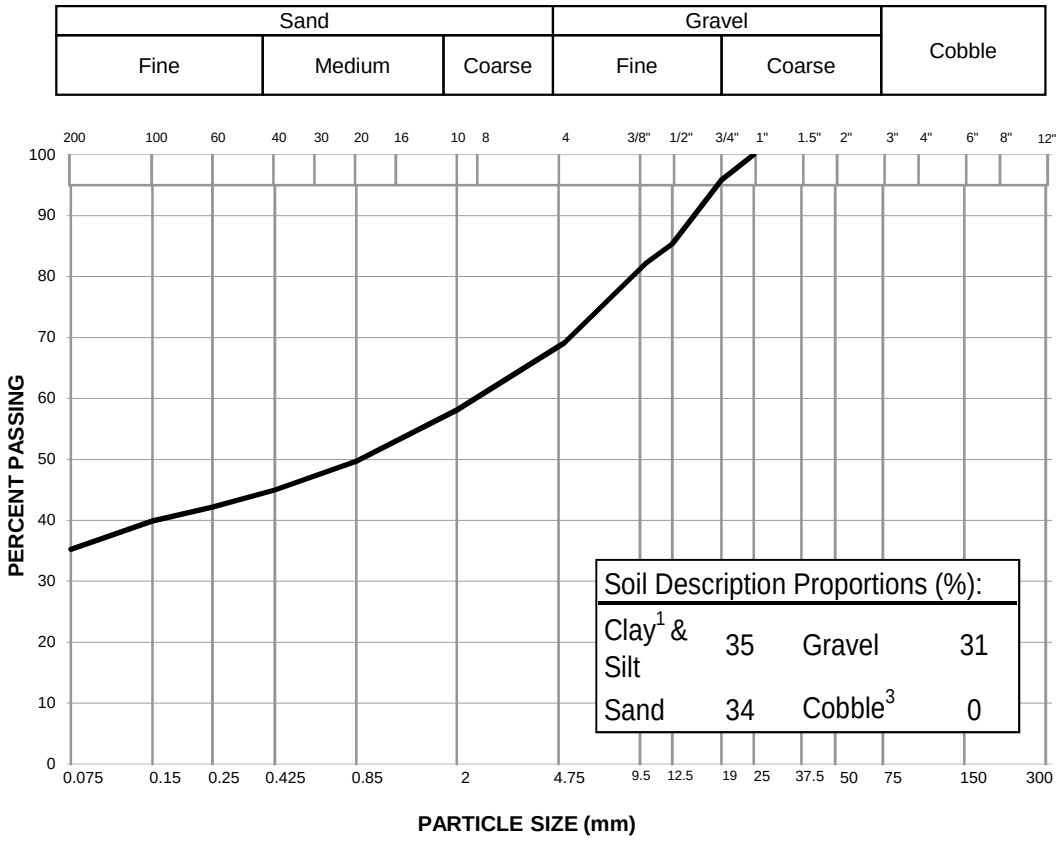
TETRA TECH

# PARTICLE SIZE ANALYSIS REPORT

ASTM D7928 & C136

| | | | |
|---|---|---|---|
| Project: | Eagle Gold – Spring 2018 Geotech. Invest. | Sample No.: | S3 |
| Project No.: | ENG.EARC03103-02 | Material Type: | - |
| Site: | Eagle Gold Mine, Yukon | Sample Loc.: | GT18-05 |
| Client: | Victoria Gold Corp. | Sample Depth: | 0.9 - 1.0 m |
| Client Rep.: | Dr. Stephen Wilbur | Sampling Method: | Grab |
| Date Tested: | May 18, 2018 By: AH | Date Sampled: | April 9, 2018 |
| Soil Description[2]: | SILT - sandy, gavelly | Sampled By: | Tetra Tech Canada |
| | | USC Classification: | - Cu: #N/A |
| Moisture Content: | 20.9% | | Cc: #N/A |

| Particle Size (mm) | Percent Passing |
|---|---|
| 300 | |
| 200 | |
| 150 | |
| 100 | |
| 75 | |
| 50 | |
| 38 | |
| 25 | 100 |
| 19 | 96 |
| 12.5 | 85 |
| 10 | 82 |
| 5 | 69 |
| 2 | 58 |
| 0.85 | 50 |
| 0.425 | 45 |
| 0.25 | 42 |
| 0.15 | 40 |
| 0.075 | 35.3 |




Notes:
[1] The upper clay size of 2 um, per the Canadian Foundation Engineering Manual
[2] The description is visually based & subject to Tt WM4400 description protocols
[3] If cobbles are present, sampling procedure may not meet ASTM C702 & D75

Specification: _____

**Remarks:** _____

**Reviewed By:** Ernst Palmli P.Geo.

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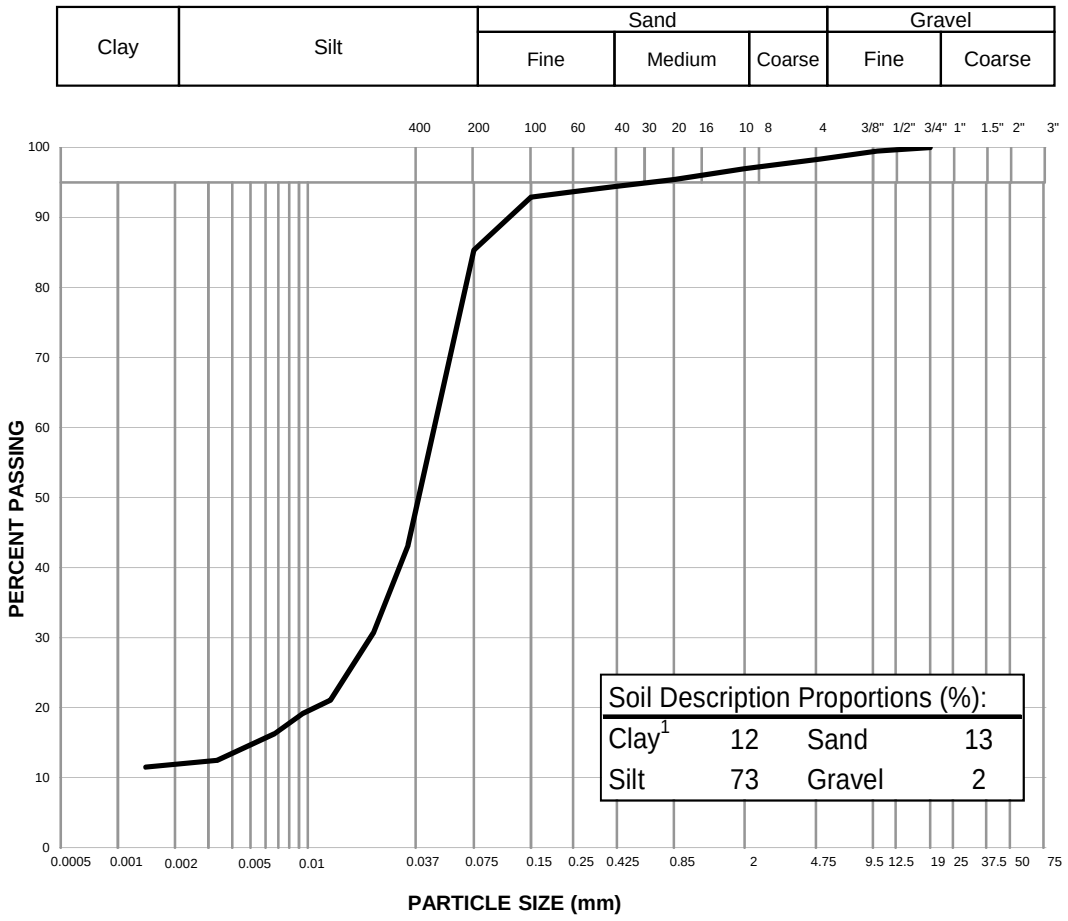
TETRA TECH

# PARTICLE SIZE ANALYSIS REPORT

ASTM D7928 & C136

| | | | |
|---|---|---|---|
| Project: | Eagle Gold – Spring 2018 Geotech. Invest. | Sample No.: | S4 |
| Project No.: | ENG.EARC03103-02 | Material Type: | - |
| Site: | Eagle Gold Mine, Yukon | Sample Loc.: | GT18-05 |
| Client: | Victoria Gold Corp. | Sample Depth: | 1.12 - 1.34 m |
| Client Rep.: | Dr. Stephen Wilbur | Sampling Method: | Grab |
| Date Tested: | May 30, 2018 By: AT | Date Sampled: | April 18, 2018 |
| Soil Description[2]: | SILT - some sand, some clay, trace gravel | Sampled By: | Tetra Tech Canada |
| | | USC Classification: | - Cu: #N/A |
| Moisture Content: | N/A | | Cc: #N/A |

| Particle Size (mm) | Percent Passing |
|---|---|
| 75 | |
| 50 | |
| 38 | |
| 25 | |
| 19 | 100 |
| 12.5 | 100 |
| 10 | 99 |
| 5 | 98 |
| 2 | 97 |
| 0.85 | 95 |
| 0.425 | 94 |
| 0.25 | 94 |
| 0.15 | 93 |
| 0.075 | 85.3 |
| 0.0337 | 43.2 |
| 0.0222 | 30.7 |
| 0.0132 | 21.1 |
| 0.0094 | 19.2 |
| 0.0067 | 16.3 |
| 0.0033 | 12.5 |
| 0.0014 | 11.5 |




Notes: [1] The upper clay size of 2 um, per the Canadian Foundation Engineering Manual

[2] The description is visually based & subject to Tetra Tech description protocols

Specification: _____

**Remarks:** _____

**Reviewed By:** Ernst Palmieri P.Geo.

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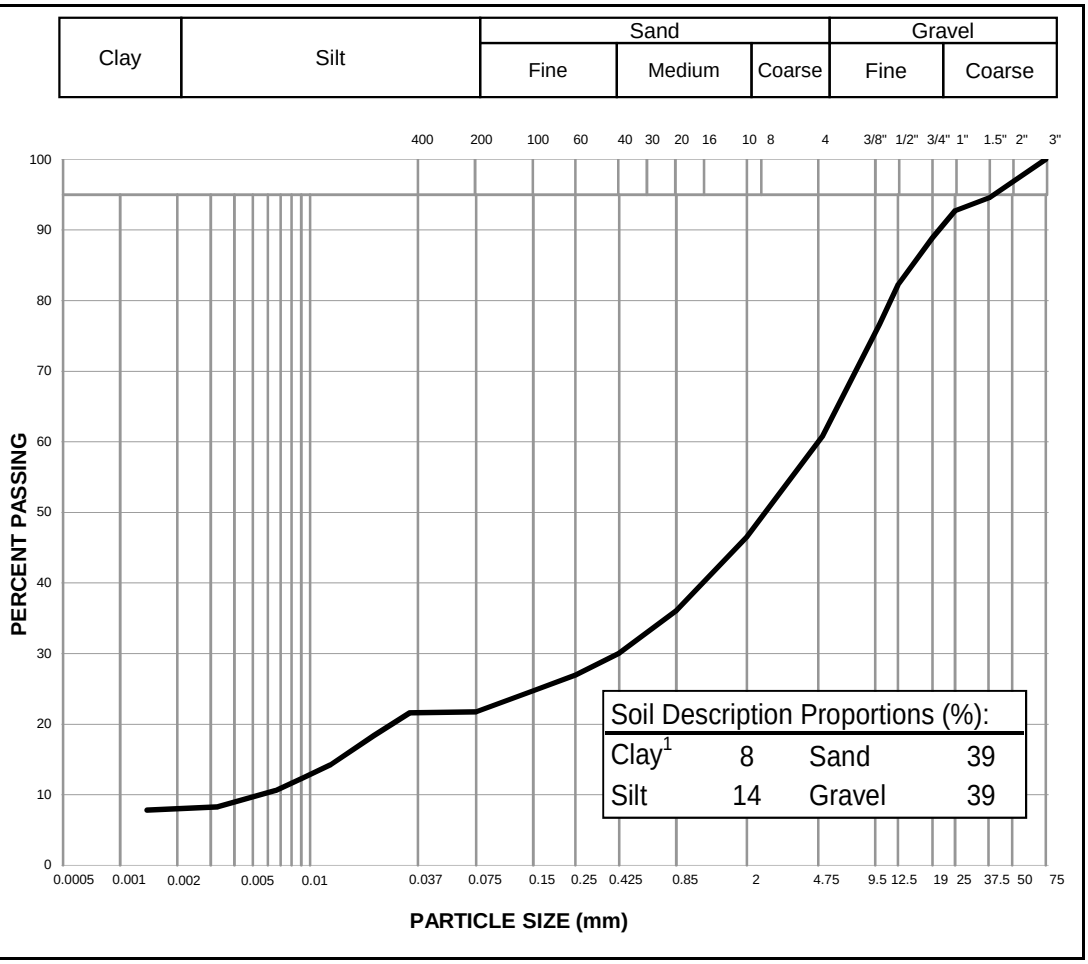
# PARTICLE SIZE ANALYSIS REPORT

ASTM D7928 & C136

| | | | |
|---|---|---|---|
| Project: | Eagle Gold – Spring 2018 Geotech. Invest. | Sample No.: | S6 |
| Project No.: | ENG.EARC03103-02 | Material Type: | - |
| Site: | Eagle Gold Mine, Yukon | Sample Loc.: | GT18-05 |
| Client: | Victoria Gold Corp. | Sample Depth: | 3.3 - 3.4 m |
| Client Rep.: | Dr. Stephen Wilbur | Sampling Method: | Grab |
| Date Tested: | May 28, 2018 By: AT | Date Sampled: | April 18, 2018 |
| Soil Description[2]: | GRAVEL and SAND - some silt, trace clay | Sampled By: | Tetra Tech Canada |
| | | USC Classification: | - Cu: 844.3 |
| Moisture Content: | 7.1% | | Cc: 6.4 |

| Particle Size (mm) | Percent Passing |
|---|---|
| 75 | 100 |
| 50 | |
| 38 | 95 |
| 25 | 93 |
| 19 | 89 |
| 12.5 | 82 |
| 10 | 77 |
| 5 | 61 |
| 2 | 46 |
| 0.85 | 36 |
| 0.425 | 30 |
| 0.25 | 27 |
| 0.15 | 25 |
| 0.075 | 21.8 |
| 0.0335 | 21.6 |
| 0.0217 | 18.4 |
| 0.0129 | 14.3 |
| 0.0092 | 12.4 |
| 0.0066 | 10.6 |
| 0.0033 | 8.3 |
| 0.0014 | 7.8 |




Notes: [1] The upper clay size of 2 um, per the Canadian Foundation Engineering Manual

[2] The description is visually based & subject to Tetra Tech description protocols

Specification: _____

**Remarks:** _____

**Reviewed By:** Ernst Palmli P.Geo.

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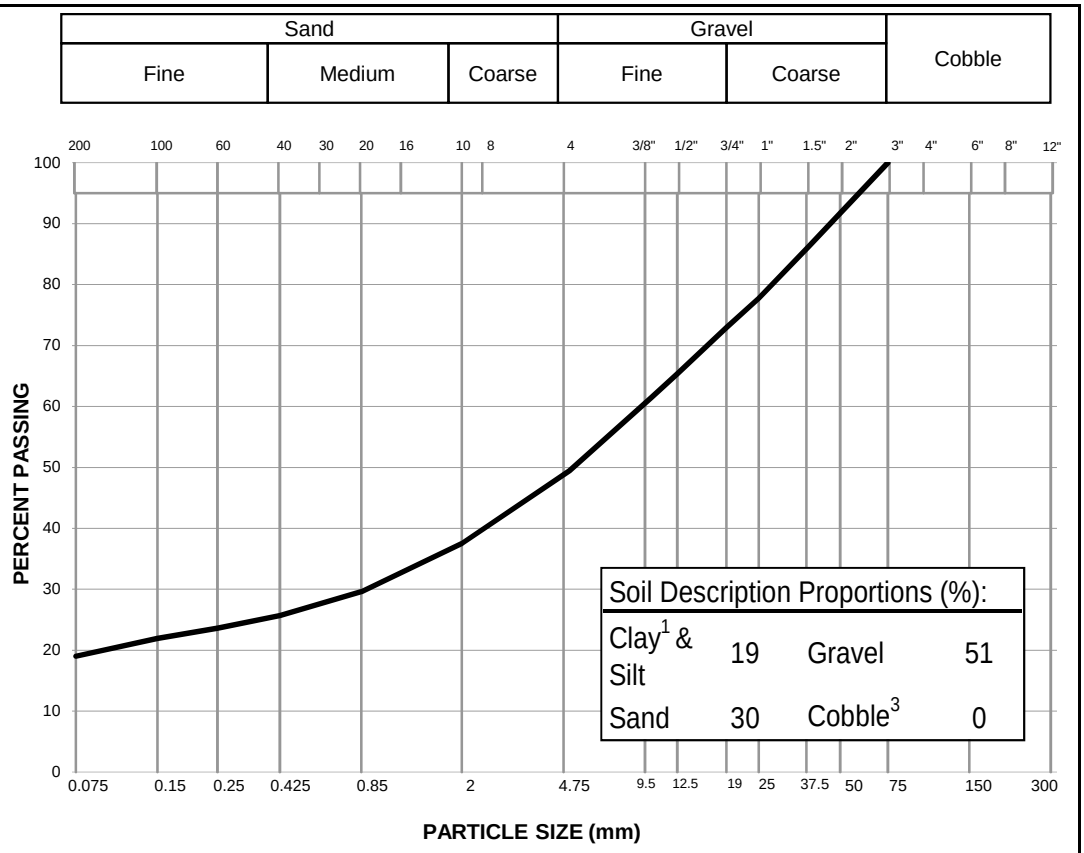
# PARTICLE SIZE ANALYSIS REPORT

ASTM D7928 & C136

| | | | |
|---|---|---|---|
| Project: | Eagle Gold – Spring 2018 Geotech. Invest. | Sample No.: | S1 |
| Project No.: | ENG.EARC03103-02 | Material Type: | - |
| Site: | Eagle Gold Mine, Yukon | Sample Loc.: | GT18-06 |
| Client: | Victoria Gold Corp. | Sample Depth: | 0.6 - 1.0 m |
| Client Rep.: | Dr. Stephen Wilbur | Sampling Method: | Grab |
| Date Tested: | May 17, 2018 By: AH | Date Sampled: | April 8, 2018 |
| Soil Description[2]: | GRAVEL - sandy, some silt | Sampled By: | Tetra Tech Canada |
| | | USC Classification: | - Cu: #N/A |
| Moisture Content: | 4.3% | | Cc: #N/A |

| Particle Size (mm) | Percent Passing |
|---|---|
| 300 | |
| 200 | |
| 150 | |
| 100 | |
| 75 | 100 |
| 50 | |
| 38 | 86 |
| 25 | 78 |
| 19 | 73 |
| 12.5 | 65 |
| 10 | 61 |
| 5 | 49 |
| 2 | 38 |
| 0.85 | 30 |
| 0.425 | 26 |
| 0.25 | 24 |
| 0.15 | 22 |
| 0.075 | 19.0 |




Notes:
[1] The upper clay size of 2 um, per the Canadian Foundation Engineering Manual
[2] The description is visually based & subject to Tt WM4400 description protocols
[3] If cobbles are present, sampling procedure may not meet ASTM C702 & D75

Specification: _____

**Remarks:** _____

**Reviewed By:** Ernst Palmli P.Geo.

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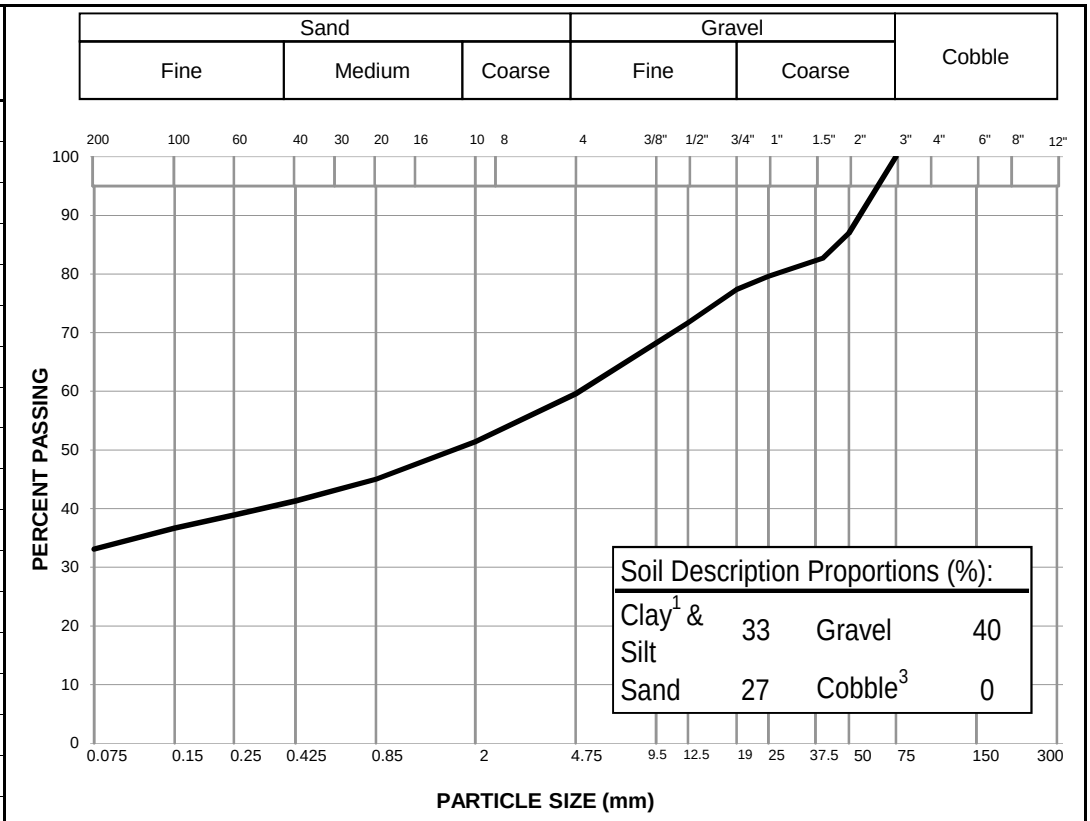
# PARTICLE SIZE ANALYSIS REPORT

ASTM D7928 & C136

| | | | |
|---|---|---|---|
| Project: | Eagle Gold - Spring 2018 Geotechnical Investigation | Sample No.: | S2 |
| Project No.: | ENG.EARC03103-02 | Material Type: | |
| Site: | Eagle Gold Mine, Yukon | Sample Loc.: | GT18-06 |
| Client: | Victoria Gold Corp. | Sample Depth: | 2.5-3.1 m |
| Client Rep.: | Dr. Stephen Wilbur | Sampling Method: | Grab |
| Date Tested: | May 24, 2018 By: OO | Date Sampled: | April 8, 2018 |
| Soil Description[2]: | GRAVEL - silty, sandy | Sampled By: | EP |
| | | USC Classification: | Cu: #N/A |
| Moisture Content: | 11.5% | | Cc: #N/A |

| Particle Size (mm) | Percent Passing |
|---|---|
| 300 | |
| 200 | |
| 150 | |
| 100 | |
| 75 | 100 |
| 50 | 87 |
| 40 | 83 |
| 25 | 80 |
| 19 | 77 |
| 12.5 | 72 |
| 9.5 | 68 |
| 4.75 | 60 |
| 2 | 51 |
| 0.85 | 45 |
| 0.425 | 41 |
| 0.25 | 39 |
| 0.15 | 37 |
| 0.075 | 33.1 |




Notes:
[1] The upper clay size of 2 um, per the Canadian Foundation Engineering Manual
[2] The description is visually based & subject to Tt WM4400 description protocols
[3] If cobbles are present, sampling procedure may not meet ASTM C702 & D75

Specification: _____

**Remarks:** _____

_____

**Reviewed By:** IDR P.Eng.

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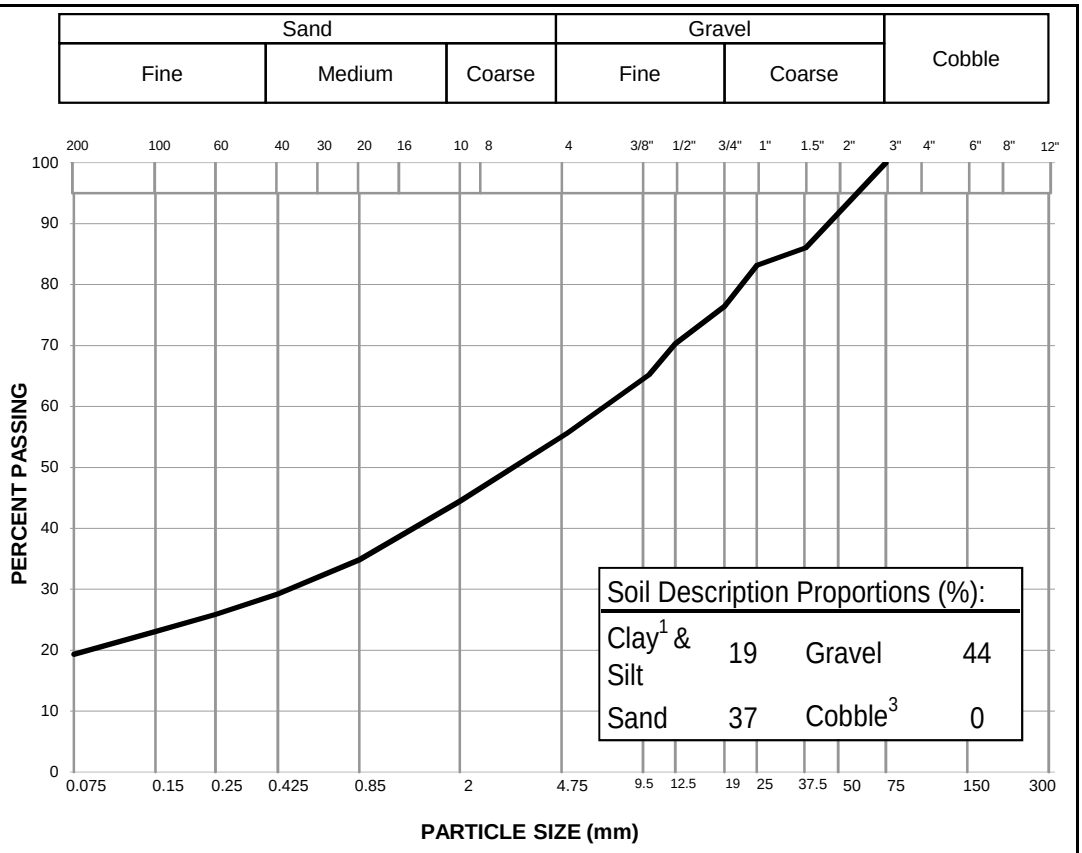
TETRA TECH

# PARTICLE SIZE ANALYSIS REPORT

ASTM D7928 & C136

| | | | |
|---|---|---|---|
| Project: | Eagle Gold – Spring 2018 Geotech. Invest. | Sample No.: | S3 |
| Project No.: | ENG.EARC03103-02 | Material Type: | - |
| Site: | Eagle Gold Mine, Yukon | Sample Loc.: | GT18-06 |
| Client: | Victoria Gold Corp. | Sample Depth: | 5.2 - 5.6 m |
| Client Rep.: | Dr. Stephen Wilbur | Sampling Method: | Grab |
| Date Tested: | May 18, 2018 By: AH | Date Sampled: | April 8, 2018 |
| Soil Description[2]: | GRAVEL and SAND - some silt | Sampled By: | Tetra Tech Canada |
| | | USC Classification: | - Cu: #N/A |
| Moisture Content: | 9.3% | | Cc: #N/A |

| Particle Size (mm) | Percent Passing |
|---|---|
| 300 | |
| 200 | |
| 150 | |
| 100 | |
| 75 | 100 |
| 50 | |
| 38 | 86 |
| 25 | 83 |
| 19 | 76 |
| 12.5 | 70 |
| 10 | 65 |
| 5 | 56 |
| 2 | 44 |
| 0.85 | 35 |
| 0.425 | 29 |
| 0.25 | 26 |
| 0.15 | 23 |
| 0.075 | 19.3 |




Notes:
[1] The upper clay size of 2 um, per the Canadian Foundation Engineering Manual
[2] The description is visually based & subject to Tt WM4400 description protocols
[3] If cobbles are present, sampling procedure may not meet ASTM C702 & D75

Specification: _____

**Remarks:** _____

**Reviewed By:** Ernst Palmli P.Geo.

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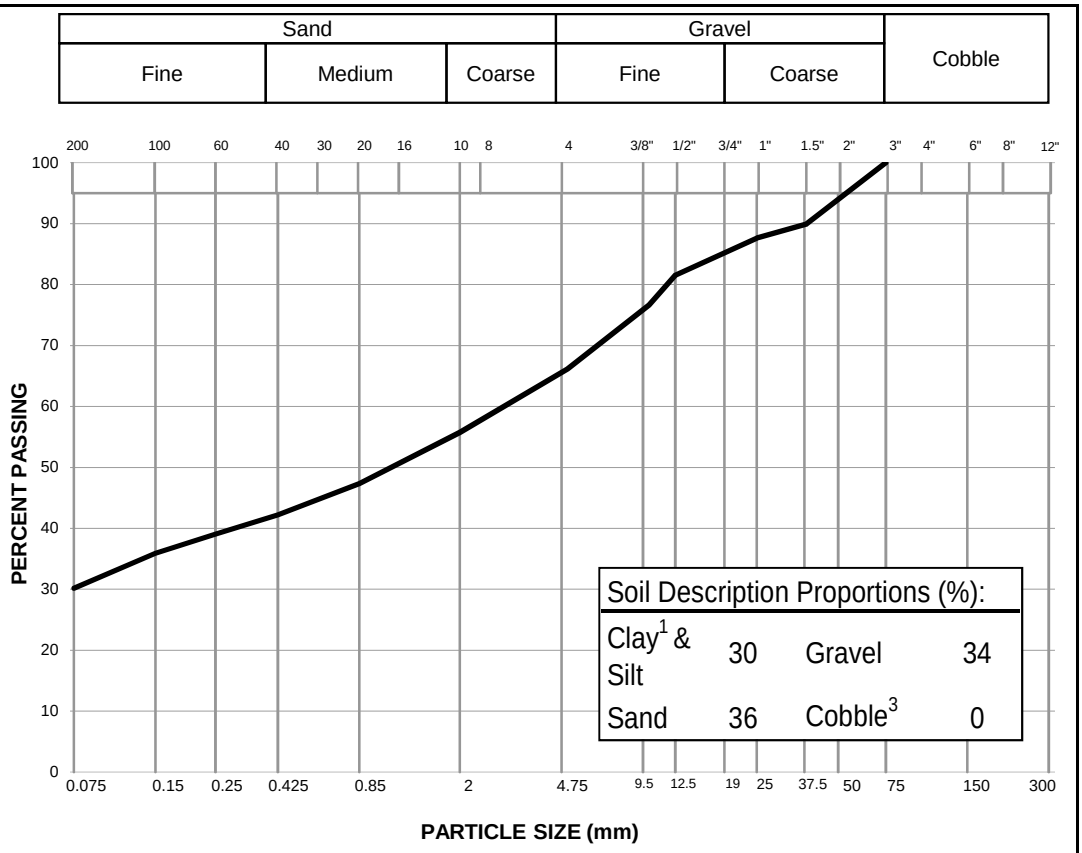
TETRA TECH

# PARTICLE SIZE ANALYSIS REPORT

ASTM D7928 & C136

| | | | |
|---|---|---|---|
| Project: | Eagle Gold – Spring 2018 Geotech. Invest. | Sample No.: | S1 |
| Project No.: | ENG.EARC03103-02 | Material Type: | - |
| Site: | Eagle Gold Mine, Yukon | Sample Loc.: | GT18-07 |
| Client: | Victoria Gold Corp. | Sample Depth: | 0.6 - 0.9 m |
| Client Rep.: | Dr. Stephen Wilbur | Sampling Method: | Grab |
| Date Tested: | May 17, 2018 By: AH | Date Sampled: | April 8, 2018 |
| Soil Description[2]: | SAND - gravelly, silty | Sampled By: | Tetra Tech Canada |
| | | USC Classification: | - Cu: #N/A |
| Moisture Content: | 12.4% | | Cc: #N/A |

| Particle Size (mm) | Percent Passing |
|---|---|
| 300 | |
| 200 | |
| 150 | |
| 100 | |
| 75 | 100 |
| 50 | |
| 38 | 90 |
| 25 | 88 |
| 19 | |
| 12.5 | 82 |
| 10 | 77 |
| 5 | 66 |
| 2 | 56 |
| 0.85 | 47 |
| 0.425 | 42 |
| 0.25 | 39 |
| 0.15 | 36 |
| 0.075 | 30.2 |




Notes:
[1] The upper clay size of 2 um, per the Canadian Foundation Engineering Manual
[2] The description is visually based & subject to Tt WM4400 description protocols
[3] If cobbles are present, sampling procedure may not meet ASTM C702 & D75

Specification: _____

**Remarks:** _____

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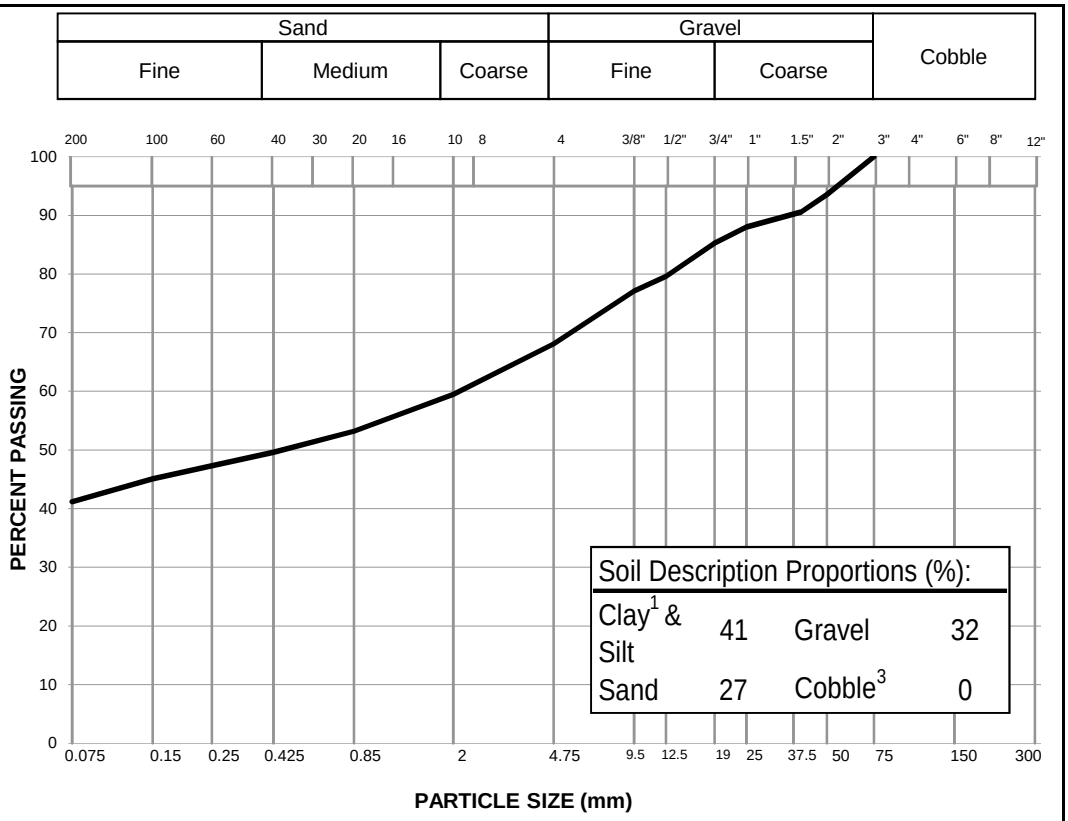
TETRA TECH

# PARTICLE SIZE ANALYSIS REPORT

ASTM D7928 & C136

| | | | |
|---|---|---|---|
| Project: | Eagle Gold - Spring 2018 Geotechnical Investigation | Sample No.: | S2 |
| Project No.: | ENG.EARC03103-02 | Material Type: | |
| Site: | Eagle Gold Mine, Yukon | Sample Loc.: | GT18-07 |
| Client: | Victoria Gold Corp. | Sample Depth: | 2.2-2.6 m |
| Client Rep.: | Dr. Stephen Wilbur | Sampling Method: | Grab |
| Date Tested: | May 24, 2018 By: OO | Date Sampled: | April 8, 2018 |
| Soil Description[2]: | SILT - gravelly, sandy | Sampled By: | EP |
| | | USC Classification: | Cu: #N/A |
| Moisture Content: | 12.4% | | Cc: #N/A |

| Particle Size (mm) | Percent Passing |
|---|---|
| 300 | |
| 200 | |
| 150 | |
| 100 | |
| 75 | 100 |
| 50 | 94 |
| 40 | 91 |
| 25 | 88 |
| 19 | 85 |
| 12.5 | 80 |
| 9.5 | 77 |
| 4.75 | 68 |
| 2 | 60 |
| 0.85 | 53 |
| 0.425 | 50 |
| 0.25 | 47 |
| 0.15 | 45 |
| 0.075 | 41.2 |




Notes:
[1] The upper clay size of 2 um, per the Canadian Foundation Engineering Manual
[2] The description is visually based & subject to Tt WM4400 description protocols
[3] If cobbles are present, sampling procedure may not meet ASTM C702 & D75

Specification: _____

**Remarks:** _____

_____

**Reviewed By:** JPR P.Eng.

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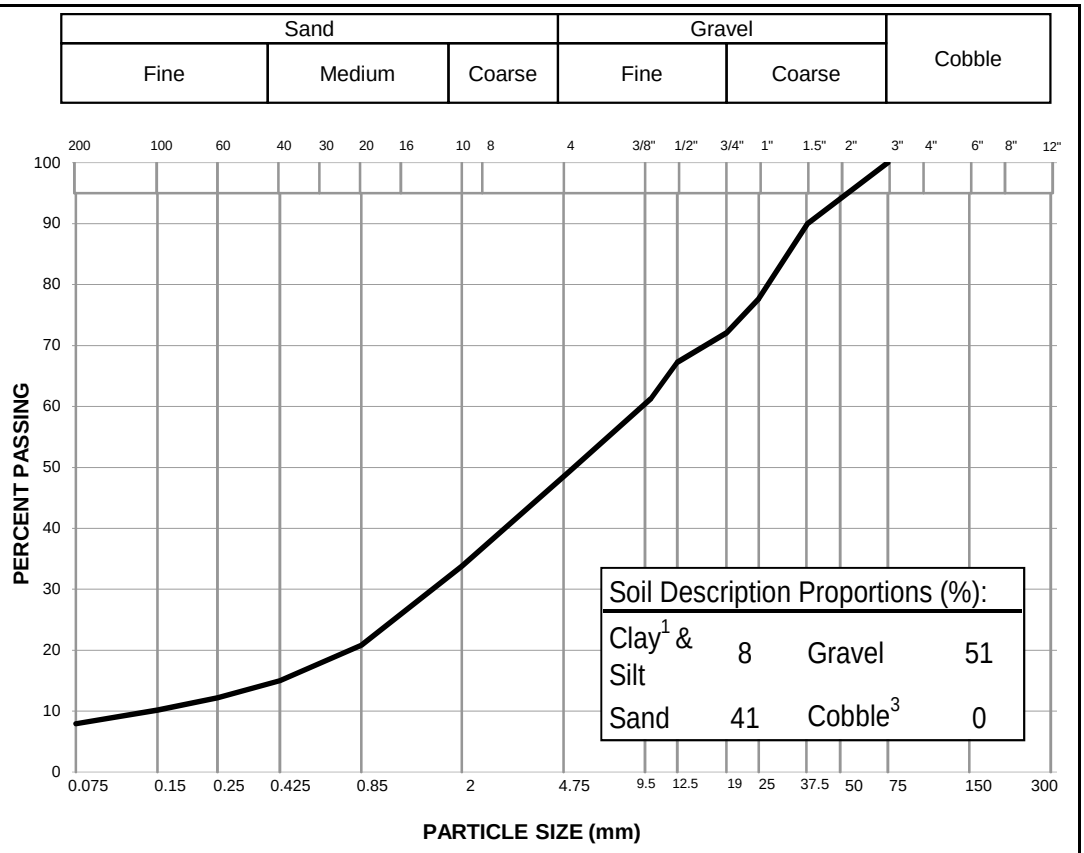
TETRA TECH

# PARTICLE SIZE ANALYSIS REPORT

ASTM D7928 & C136

| | | | |
|---|---|---|---|
| Project: | Eagle Gold – Spring 2018 Geotech. Invest. | Sample No.: | S3 |
| Project No.: | ENG.EARC03103-02 | Material Type: | - |
| Site: | Eagle Gold Mine, Yukon | Sample Loc.: | GT18-07 |
| Client: | Victoria Gold Corp. | Sample Depth: | 4.0 - 4.4 m |
| Client Rep.: | Dr. Stephen Wilbur | Sampling Method: | Grab |
| Date Tested: | May 18, 2018 By: AH | Date Sampled: | April 8, 2018 |
| Soil Description[2]: | GRAVEL and SAND - trace silt | Sampled By: | Tetra Tech Canada |
| | | USC Classification: | - Cu: 65.6 |
| Moisture Content: | 4.0% | | Cc: 2.0 |

| Particle Size (mm) | Percent Passing |
|---|---|
| 300 | |
| 200 | |
| 150 | |
| 100 | |
| 75 | 100 |
| 50 | |
| 38 | 90 |
| 25 | 78 |
| 19 | 72 |
| 12.5 | 67 |
| 10 | 61 |
| 5 | 49 |
| 2 | 34 |
| 0.85 | 21 |
| 0.425 | 15 |
| 0.25 | 12 |
| 0.15 | 10 |
| 0.075 | 7.9 |




Notes:
[1] The upper clay size of 2 um, per the Canadian Foundation Engineering Manual
[2] The description is visually based & subject to Tt WM4400 description protocols
[3] If cobbles are present, sampling procedure may not meet ASTM C702 & D75

Specification: _____

**Remarks:** _____

**Reviewed By:** Ernst Palmli P.Geo.

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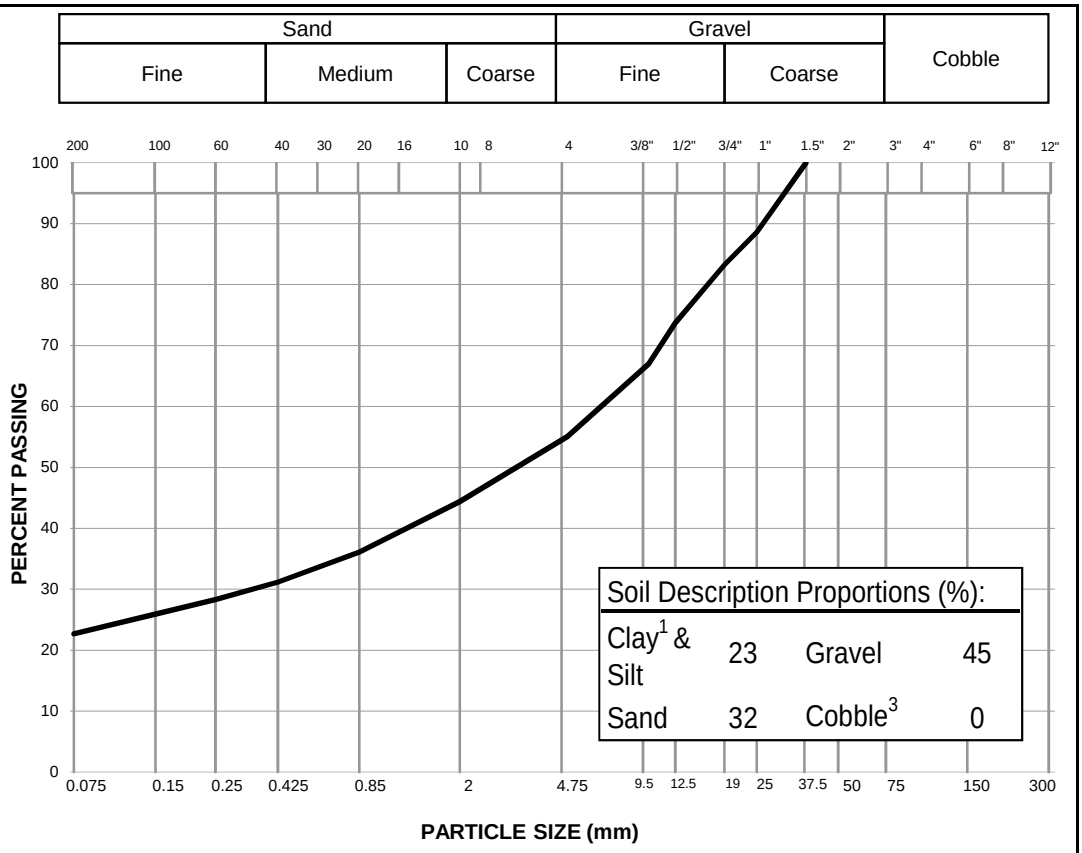
TETRA TECH

# PARTICLE SIZE ANALYSIS REPORT

ASTM D7928 & C136

| | | | |
|---|---|---|---|
| Project: | Eagle Gold – Spring 2018 Geotech. Invest. | Sample No.: | S5 |
| Project No.: | ENG.EARC03103-02 | Material Type: | - |
| Site: | Eagle Gold Mine, Yukon | Sample Loc.: | GT18-07 |
| Client: | Victoria Gold Corp. | Sample Depth: | 11.1 - 11.4 m |
| Client Rep.: | Dr. Stephen Wilbur | Sampling Method: | Grab |
| Date Tested: | May 18, 2018 By: AH | Date Sampled: | April 8, 2018 |
| Soil Description[2]: | GRAVEL - sandy, silty | Sampled By: | Tetra Tech Canada |
| | | USC Classification: | - Cu: #N/A |
| Moisture Content: | 8.0% | | Cc: #N/A |

| Particle Size (mm) | Percent Passing |
|---|---|
| 300 | |
| 200 | |
| 150 | |
| 100 | |
| 75 | |
| 50 | |
| 38 | 100 |
| 25 | 89 |
| 19 | 83 |
| 12.5 | 74 |
| 10 | 67 |
| 5 | 55 |
| 2 | 44 |
| 0.85 | 36 |
| 0.425 | 31 |
| 0.25 | 28 |
| 0.15 | 26 |
| 0.075 | 22.7 |




Notes:
[1] The upper clay size of 2 um, per the Canadian Foundation Engineering Manual
[2] The description is visually based & subject to Tt WM4400 description protocols
[3] If cobbles are present, sampling procedure may not meet ASTM C702 & D75

Specification: _____

**Remarks:** _____

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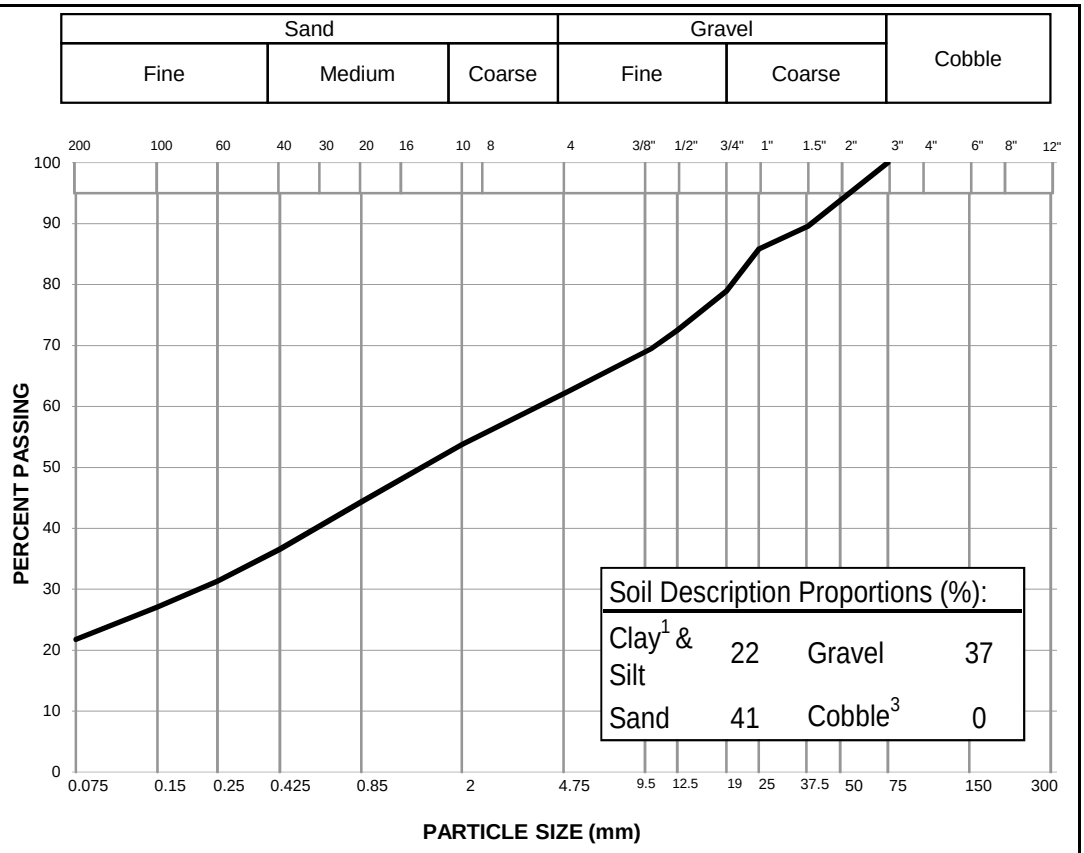
TETRA TECH

# PARTICLE SIZE ANALYSIS REPORT

ASTM D7928 & C136

| | | | |
|---|---|---|---|
| Project: | Eagle Gold – Spring 2018 Geotech. Invest. | Sample No.: | S1 |
| Project No.: | ENG.EARC03103-02 | Material Type: | - |
| Site: | Eagle Gold Mine, Yukon | Sample Loc.: | GT18-08 |
| Client: | Victoria Gold Corp. | Sample Depth: | 0.55 - 0.70 m |
| Client Rep.: | Dr. Stephen Wilbur | Sampling Method: | Grab |
| Date Tested: | May 18, 2018 By: AH | Date Sampled: | April 11, 2018 |
| Soil Description[2]: | SAND and GRAVEL - silty | Sampled By: | Tetra Tech Canada |
| | | USC Classification: | - Cu: #N/A |
| Moisture Content: | 29.6% | | Cc: #N/A |

| Particle Size (mm) | Percent Passing |
|---|---|
| 300 | |
| 200 | |
| 150 | |
| 100 | |
| 75 | 100 |
| 50 | |
| 38 | 90 |
| 25 | 86 |
| 19 | 79 |
| 12.5 | 72 |
| 10 | 69 |
| 5 | 63 |
| 2 | 54 |
| 0.85 | 44 |
| 0.425 | 37 |
| 0.25 | 31 |
| 0.15 | 27 |
| 0.075 | 21.8 |




Notes:
[1] The upper clay size of 2 um, per the Canadian Foundation Engineering Manual
[2] The description is visually based & subject to Tt WM4400 description protocols
[3] If cobbles are present, sampling procedure may not meet ASTM C702 & D75

Specification:

**Remarks:** Contains Organic Material

**Reviewed By:** Ernst Palmli P.Geo.

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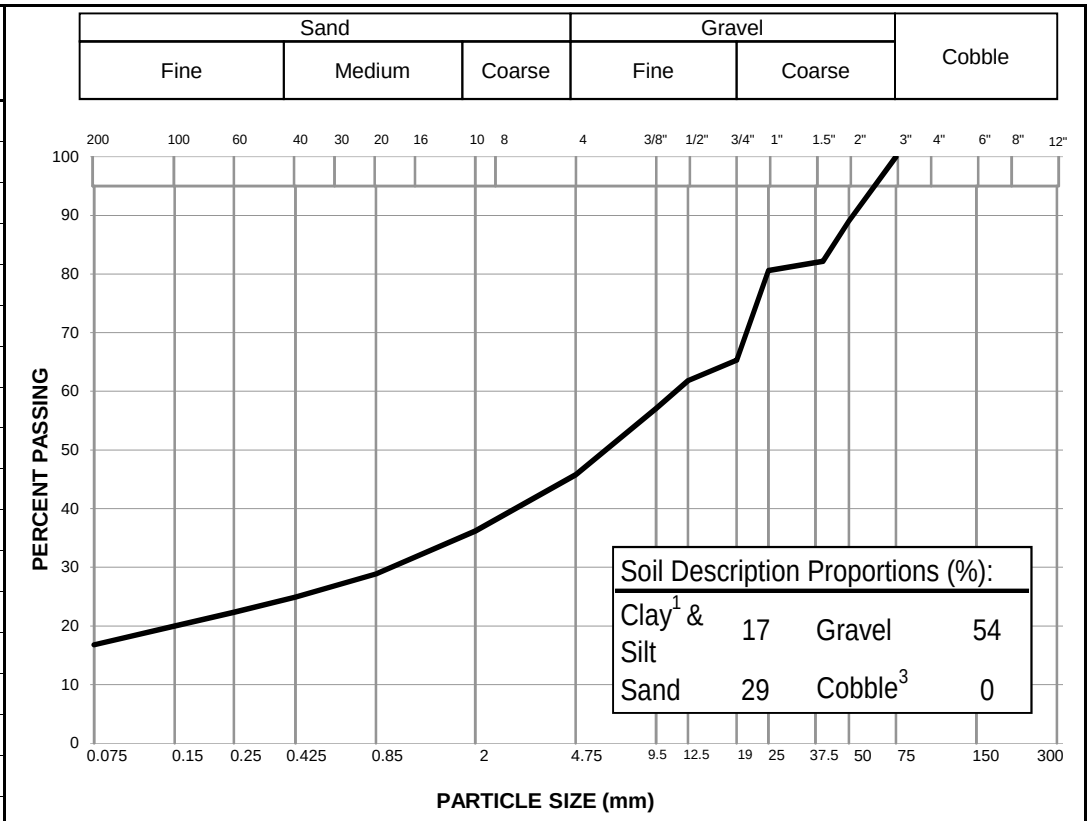
TETRA TECH

# PARTICLE SIZE ANALYSIS REPORT

ASTM D7928 & C136

| | | | |
|---|---|---|---|
| Project: | Eagle Gold - Spring 2018 Geotechnical Investigation | Sample No.: | S4 |
| Project No.: | ENG.EARC03103-02 | Material Type: | |
| Site: | Eagle Gold Mine, Yukon | Sample Loc.: | GT18-08 |
| Client: | Victoria Gold Corp. | Sample Depth: | 2.45-2.6 m |
| Client Rep.: | Dr. Stephen Wilbur | Sampling Method: | Grab |
| Date Tested: | May 24, 2018 By: OO | Date Sampled: | April 11, 2018 |
| Soil Description[2]: | GRAVEL - sandy, some silt | Sampled By: | EP |
| | | USC Classification: | Cu: #N/A |
| Moisture Content: | 11.8% | | Cc: #N/A |

| Particle Size (mm) | Percent Passing |
|---|---|
| 300 | |
| 200 | |
| 150 | |
| 100 | |
| 75 | 100 |
| 50 | 89 |
| 40 | 82 |
| 25 | 81 |
| 19 | 65 |
| 12.5 | 62 |
| 9.5 | 57 |
| 4.75 | 46 |
| 2 | 36 |
| 0.85 | 29 |
| 0.425 | 25 |
| 0.25 | 22 |
| 0.15 | 20 |
| 0.075 | 16.8 |




Notes:
[1] The upper clay size of 2 um, per the Canadian Foundation Engineering Manual
[2] The description is visually based & subject to Tt WM4400 description protocols
[3] If cobbles are present, sampling procedure may not meet ASTM C702 & D75

Specification: _____

**Remarks:** _____

_____

**Reviewed By:** JPR P.Eng.

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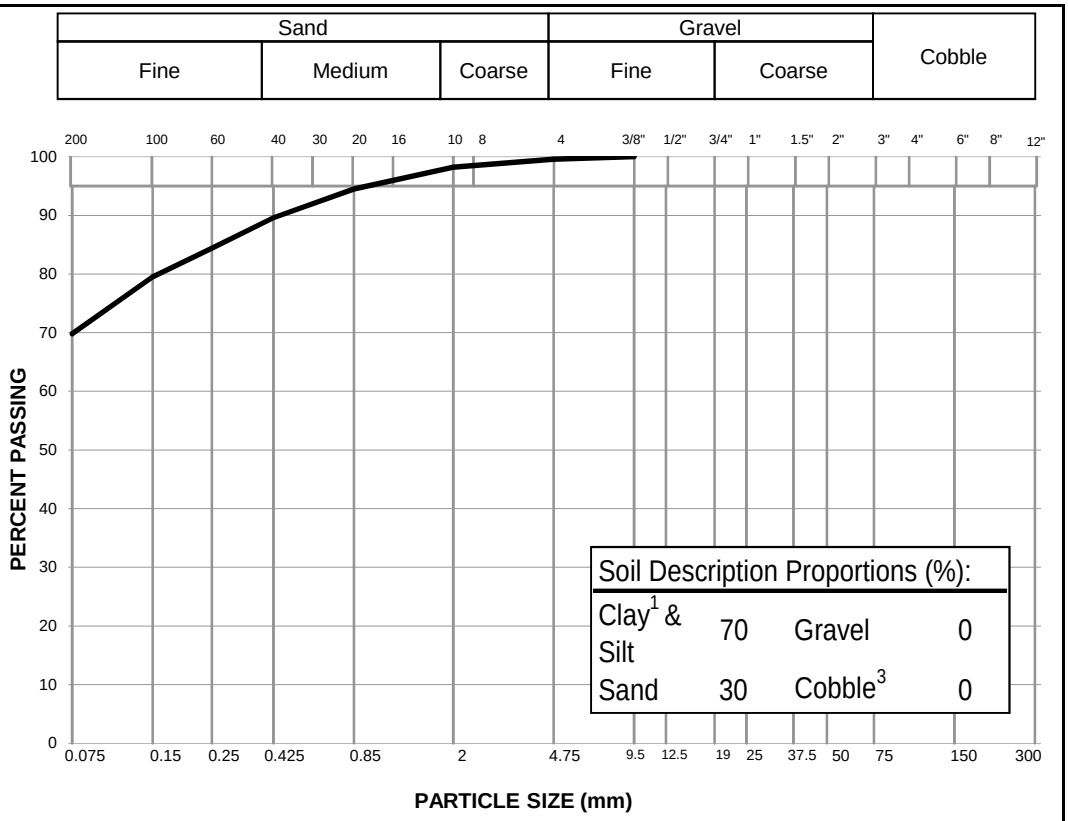
TETRA TECH

# PARTICLE SIZE ANALYSIS REPORT

ASTM D7928 & C136

| | | | |
|---|---|---|---|
| Project: | Eagle Gold - Spring 2018 Geotechnical Investigation | Sample No.: | S6 |
| Project No.: | ENG.EARC03103-02 | Material Type: | |
| Site: | Eagle Gold Mine, Yukon | Sample Loc.: | GT18-08 |
| Client: | Victoria Gold Corp. | Sample Depth: | 3.5-3.7 m |
| Client Rep.: | Dr. Stephen Wilbur | Sampling Method: | Grab |
| Date Tested: | May 24, 2018 By: OO | Date Sampled: | April 11, 2018 |
| Soil Description[2]: | SILT - sandy | Sampled By: | EP |
| | | USC Classification: | Cu: #N/A |
| Moisture Content: | 28.3% | | Cc: #N/A |

| Particle Size (mm) | Percent Passing |
|---|---|
| 300 | |
| 200 | |
| 150 | |
| 100 | |
| 75 | |
| 50 | |
| 40 | |
| 25 | |
| 19 | |
| 12.5 | |
| 9.5 | 100 |
| 4.75 | 100 |
| 2 | 98 |
| 0.85 | 95 |
| 0.425 | 90 |
| 0.25 | 84 |
| 0.15 | 80 |
| 0.075 | 69.8 |




Notes:
[1] The upper clay size of 2 um, per the Canadian Foundation Engineering Manual
[2] The description is visually based & subject to Tt WM4400 description protocols
[3] If cobbles are present, sampling procedure may not meet ASTM C702 & D75

Specification: _____

**Remarks:** _____

_____

**Reviewed By:** IDR P.Eng.

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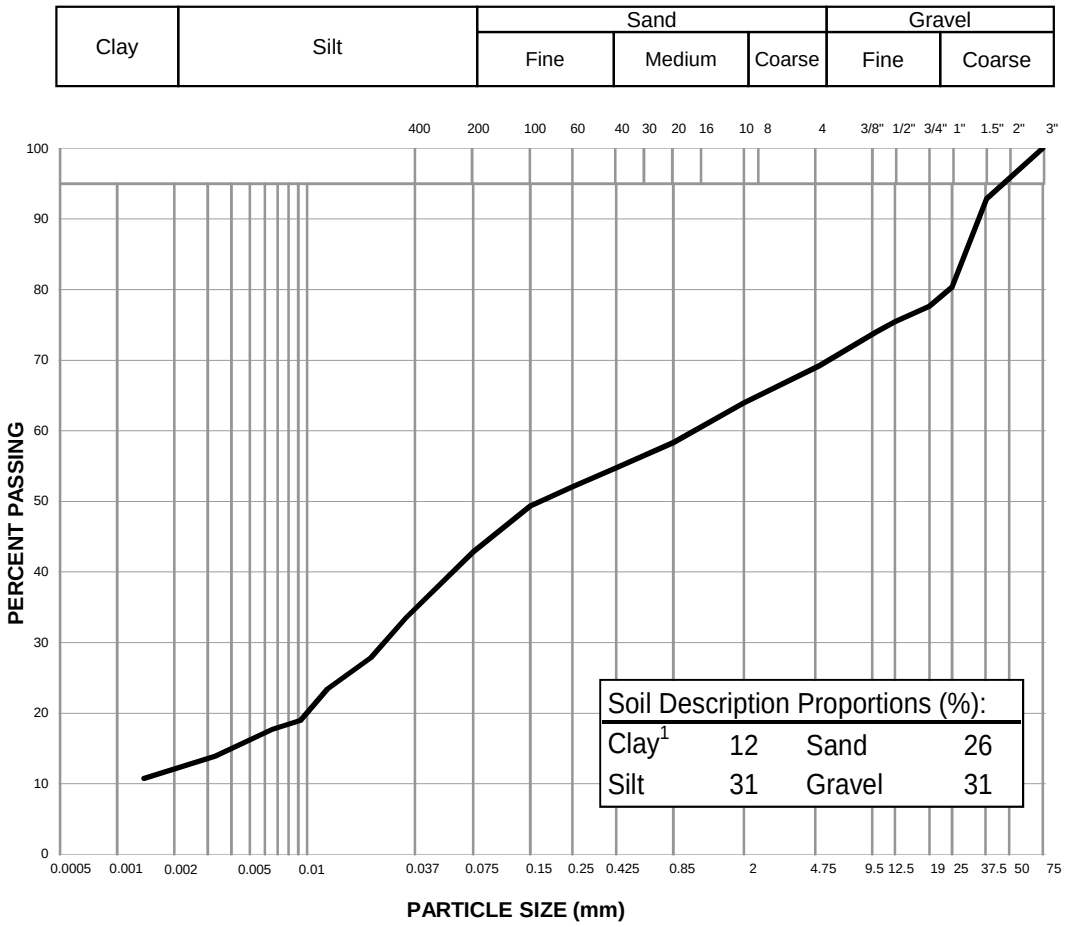
TETRA TECH

# PARTICLE SIZE ANALYSIS REPORT

ASTM D7928 & C136

| | | | |
|---|---|---|---|
| Project: | Eagle Gold – Spring 2018 Geotech. Invest. | Sample No.: | S8 |
| Project No.: | ENG.EARC03103-02 | Material Type: | - |
| Site: | Eagle Gold Mine, Yukon | Sample Loc.: | GT18-08 |
| Client: | Victoria Gold Corp. | Sample Depth: | 5.6 - 5.8 m |
| Client Rep.: | Dr. Stephen Wilbur | Sampling Method: | Grab |
| Date Tested: | May 25, 2018 By: AT | Date Sampled: | April 11, 2018 |
| Soil Description[2]: | GRAVEL and SILT - sandy, some clay | Sampled By: | Tetra Tech Canada |
| | | USC Classification: | - Cu: #N/A |
| Moisture Content: | 10.8% | | Cc: #N/A |

| Particle Size (mm) | Percent Passing |
|---|---|
| 75 | 100 |
| 50 | |
| 38 | 93 |
| 25 | 80 |
| 19 | 78 |
| 12.5 | 75 |
| 10 | 74 |
| 5 | 69 |
| 2 | 64 |
| 0.85 | 58 |
| 0.425 | 55 |
| 0.25 | 52 |
| 0.15 | 49 |
| 0.075 | 42.8 |
| 0.0333 | 33.6 |
| 0.0217 | 27.9 |
| 0.0128 | 23.4 |
| 0.0092 | 19.0 |
| 0.0066 | 17.7 |
| 0.0033 | 13.9 |
| 0.0014 | 10.8 |




Notes: [1] The upper clay size of 2 um, per the Canadian Foundation Engineering Manual

[2] The description is visually based & subject to Tetra Tech description protocols

Specification: _____

**Remarks:** _____

**Reviewed By:** Ernst Palmli P.Geo.

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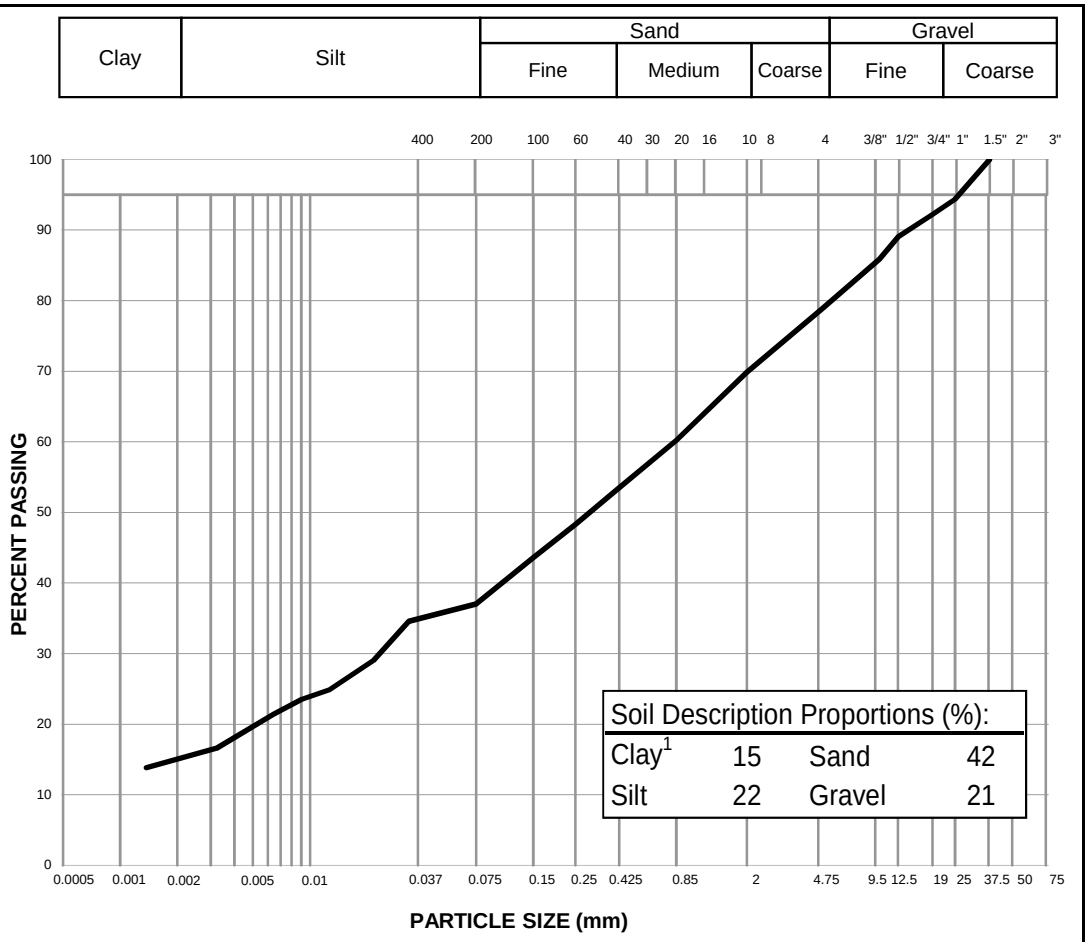
# PARTICLE SIZE ANALYSIS REPORT

ASTM D7928 & C136

| | | | |
|---|---|---|---|
| Project: | Eagle Gold – Spring 2018 Geotech. Invest. | Sample No.: | S10 |
| Project No.: | ENG.EARC03103-02 | Material Type: | - |
| Site: | Eagle Gold Mine, Yukon | Sample Loc.: | GT18-08 |
| Client: | Victoria Gold Corp. | Sample Depth: | 13.7 - 14.0 m |
| Client Rep.: | Dr. Stephen Wilbur | Sampling Method: | Grab |
| Date Tested: | May 28, 2018 By: AT | Date Sampled: | - |
| Soil Description[2]: | SAND - silty, gravelly, some clay | Sampled By: | Tetra Tech Canada |
| | | USC Classification: | - Cu: #N/A |
| Moisture Content: | 7.7% | | Cc: #N/A |

| Particle Size (mm) | Percent Passing |
|---|---|
| 75 | |
| 50 | |
| 38 | 100 |
| 25 | 94 |
| 19 | 92 |
| 12.5 | 89 |
| 10 | 86 |
| 5 | 79 |
| 2 | 70 |
| 0.85 | 60 |
| 0.425 | 53 |
| 0.25 | 48 |
| 0.15 | 44 |
| 0.075 | 37.0 |
| 0.0332 | 34.6 |
| 0.0216 | 29.0 |
| 0.0127 | 24.9 |
| 0.0090 | 23.5 |
| 0.0064 | 21.4 |
| 0.0032 | 16.6 |
| 0.0014 | 13.8 |




Notes: [1] The upper clay size of 2 um, per the Canadian Foundation Engineering Manual

[2] The description is visually based & subject to Tetra Tech description protocols

Specification: _____

**Remarks:** _____

**Reviewed By:** Ernst Palmli P.Geo.

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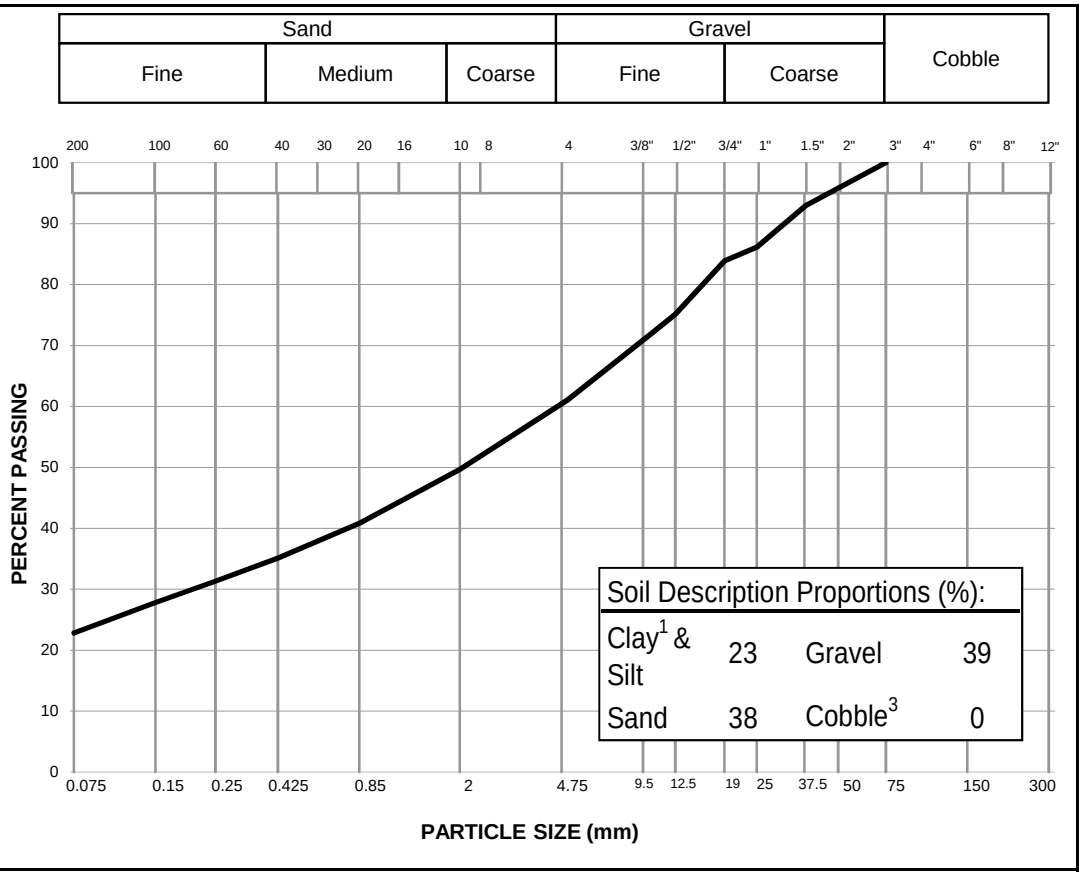
# PARTICLE SIZE ANALYSIS REPORT

ASTM D7928 & C136

| | | | |
|---|---|---|---|
| Project: | Eagle Gold – Spring 2018 Geotech. Invest. | Sample No.: | S1 |
| Project No.: | ENG.EARC03103-02 | Material Type: | - |
| Site: | Eagle Gold Mine, Yukon | Sample Loc.: | GT18-09 |
| Client: | Victoria Gold Corp. | Sample Depth: | 2.0 - 2.2 m |
| Client Rep.: | Dr. Stephen Wilbur | Sampling Method: | Grab |
| Date Tested: | May 18, 2018 By: AH | Date Sampled: | April 13, 2018 |
| Soil Description[2]: | GRAVEL and SAND - silty | Sampled By: | Tetra Tech Canada |
| | | USC Classification: | - Cu: #N/A |
| Moisture Content: | 4.5% | | Cc: #N/A |

| Particle Size (mm) | Percent Passing |
|---|---|
| 300 | |
| 200 | |
| 150 | |
| 100 | |
| 75 | 100 |
| 50 | |
| 38 | 93 |
| 25 | 86 |
| 19 | 84 |
| 12.5 | 75 |
| 10 | 72 |
| 5 | 61 |
| 2 | 50 |
| 0.85 | 41 |
| 0.425 | 35 |
| 0.25 | 31 |
| 0.15 | 28 |
| 0.075 | 22.8 |




Notes:
[1] The upper clay size of 2 um, per the Canadian Foundation Engineering Manual
[2] The description is visually based & subject to Tt WM4400 description protocols
[3] If cobbles are present, sampling procedure may not meet ASTM C702 & D75

Specification: _____

**Remarks:** _____

**Reviewed By:** Ernst Palmli P.Geo.

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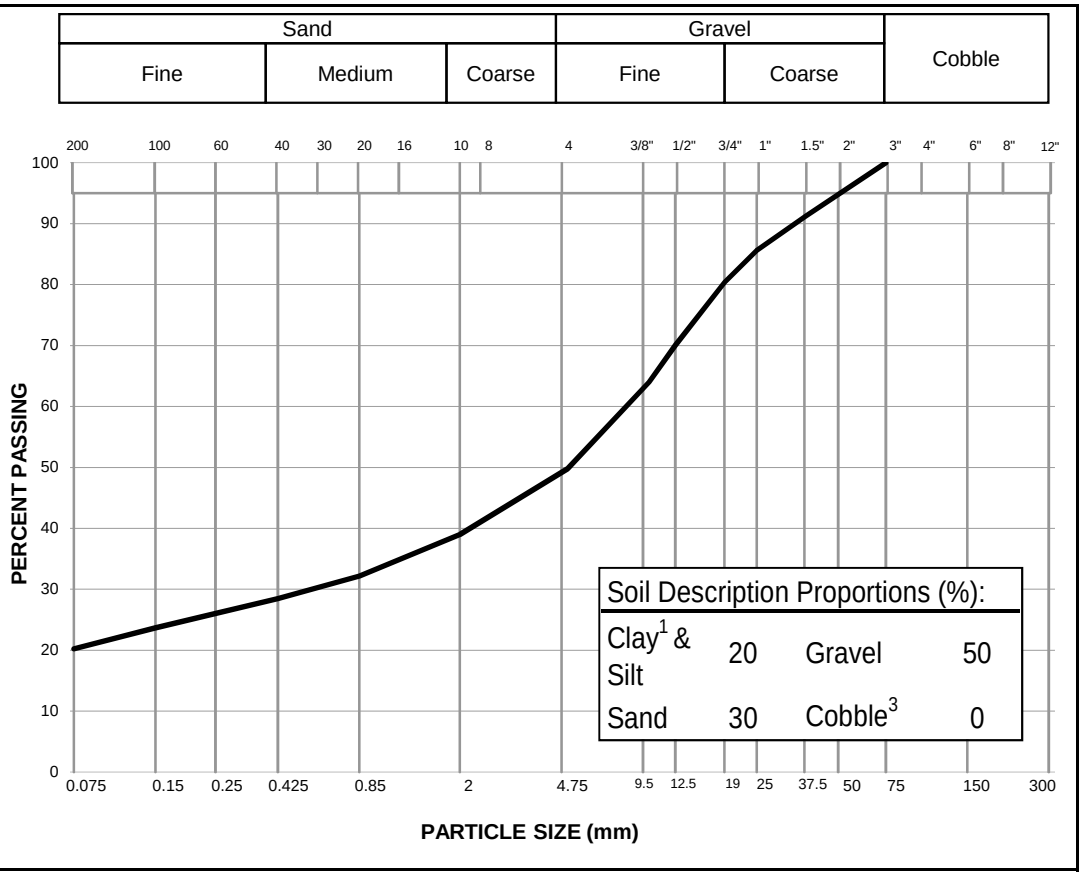
TETRA TECH

# PARTICLE SIZE ANALYSIS REPORT

ASTM D7928 & C136

| | | | |
|---|---|---|---|
| Project: | Eagle Gold – Spring 2018 Geotech. Invest. | Sample No.: | S2 |
| Project No.: | ENG.EARC03103-02 | Material Type: | - |
| Site: | Eagle Gold Mine, Yukon | Sample Loc.: | GT18-09 |
| Client: | Victoria Gold Corp. | Sample Depth: | 5.0 - 5.2 m |
| Client Rep.: | Dr. Stephen Wilbur | Sampling Method: | Grab |
| Date Tested: | May 18, 2018 By: AH | Date Sampled: | April 13, 2018 |
| Soil Description[2]: | GRAVEL - sandy, some silt | Sampled By: | Tetra Tech Canada |
| | | USC Classification: | - Cu: #N/A |
| Moisture Content: | 5.7% | | Cc: #N/A |

| Particle Size (mm) | Percent Passing |
|---|---|
| 300 | |
| 200 | |
| 150 | |
| 100 | |
| 75 | 100 |
| 50 | |
| 38 | 91 |
| 25 | 86 |
| 19 | 80 |
| 12.5 | 70 |
| 10 | 64 |
| 5 | 50 |
| 2 | 39 |
| 0.85 | 32 |
| 0.425 | 28 |
| 0.25 | 26 |
| 0.15 | 24 |
| 0.075 | 20.2 |




Notes:
[1] The upper clay size of 2 um, per the Canadian Foundation Engineering Manual
[2] The description is visually based & subject to Tt WM4400 description protocols
[3] If cobbles are present, sampling procedure may not meet ASTM C702 & D75

Specification: _____

**Remarks:** _____

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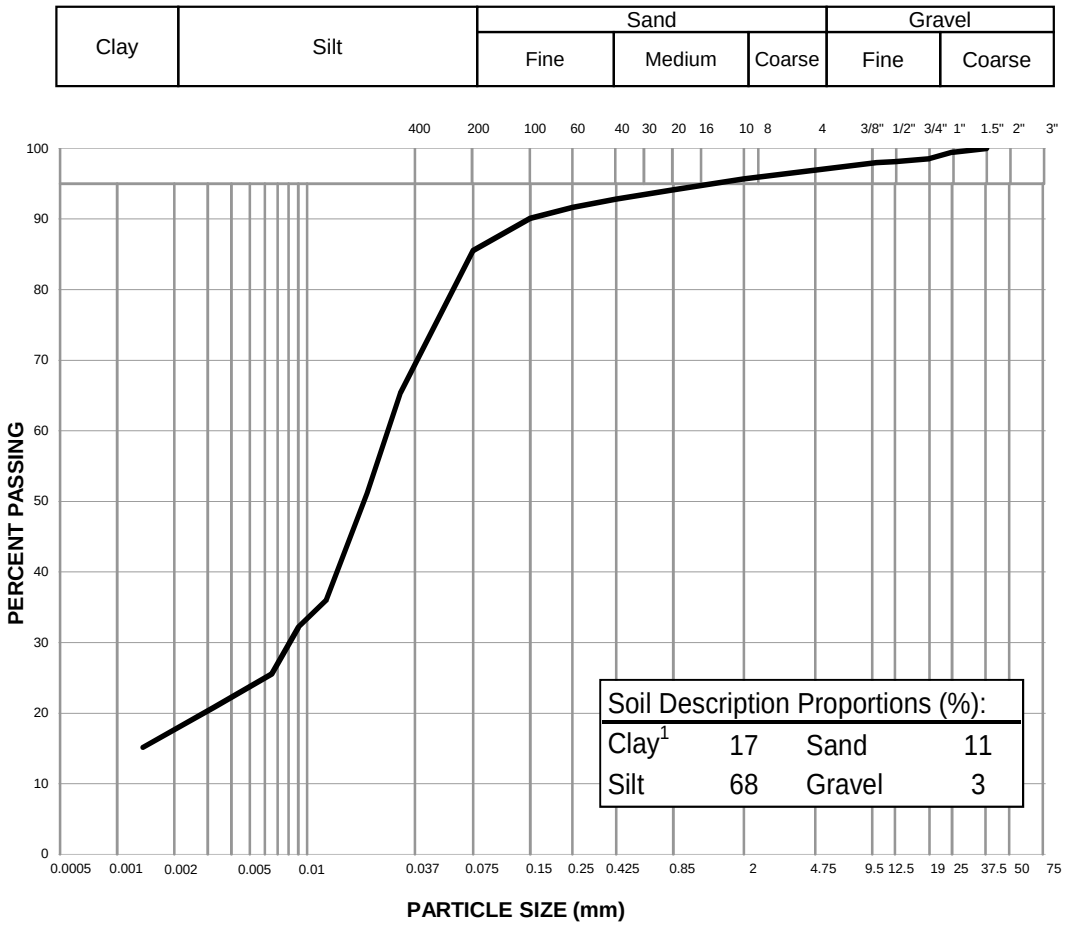
TETRA TECH

# PARTICLE SIZE ANALYSIS REPORT

ASTM D7928 & C136

| | | | |
|---|---|---|---|
| Project: | Eagle Gold – Spring 2018 Geotech. Invest. | Sample No.: | S1 |
| Project No.: | ENG.EARC03103-02 | Material Type: | - |
| Site: | Eagle Gold Mine, Yukon | Sample Loc.: | GT18-10 |
| Client: | Victoria Gold Corp. | Sample Depth: | 2.7 - 3.0 m |
| Client Rep.: | Dr. Stephen Wilbur | Sampling Method: | Grab |
| Date Tested: | May 28, 2018 By: AT | Date Sampled: | April 14, 2018 |
| Soil Description[2]: | SILT - some clay, some sand, trace gravel | Sampled By: | Tetra Tech Canada |
| | | USC Classification: | - Cu: #N/A |
| Moisture Content: | 27.5% | | Cc: #N/A |

| Particle Size (mm) | Percent Passing |
|---|---|
| 75 | |
| 50 | |
| 38 | 100 |
| 25 | 99 |
| 19 | 99 |
| 12.5 | 98 |
| 10 | 98 |
| 5 | 97 |
| 2 | 96 |
| 0.85 | 94 |
| 0.425 | 93 |
| 0.25 | 92 |
| 0.15 | 90 |
| 0.075 | 85.5 |
| 0.0310 | 65.4 |
| 0.0207 | 51.1 |
| 0.0126 | 36.0 |
| 0.0090 | 32.2 |
| 0.0065 | 25.6 |
| 0.0032 | 20.8 |
| 0.0014 | 15.2 |




Notes: [1] The upper clay size of 2 um, per the Canadian Foundation Engineering Manual

[2] The description is visually based & subject to Tetra Tech description protocols

Specification: _____

**Remarks:** _____

**Reviewed By:** _____ P.Geo.

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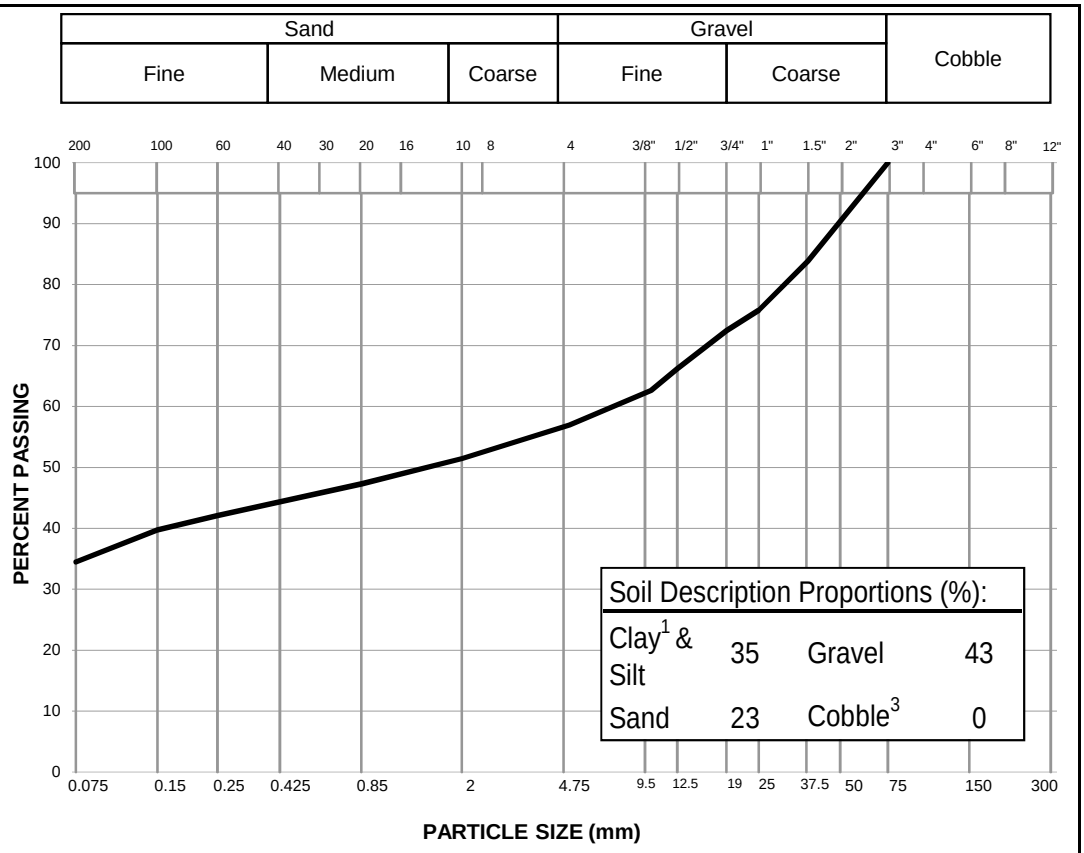
# PARTICLE SIZE ANALYSIS REPORT

ASTM D7928 & C136

| | | | |
|---|---|---|---|
| Project: | Eagle Gold – Spring 2018 Geotech. Invest. | Sample No.: | S2 |
| Project No.: | ENG.EARC03103-02 | Material Type: | - |
| Site: | Eagle Gold Mine, Yukon | Sample Loc.: | GT18-10 |
| Client: | Victoria Gold Corp. | Sample Depth: | 6.5 - 6.7 m |
| Client Rep.: | Dr. Stephen Wilbur | Sampling Method: | Grab |
| Date Tested: | May 18, 2018 By: AH | Date Sampled: | April 14, 2018 |
| Soil Description[2]: | GRAVEL - silty, sandy | Sampled By: | Tetra Tech Canada |
| | | USC Classification: | - Cu: #N/A |
| Moisture Content: | 7.7% | | Cc: #N/A |

| Particle Size (mm) | Percent Passing |
|---|---|
| 300 | |
| 200 | |
| 150 | |
| 100 | |
| 75 | 100 |
| 50 | |
| 38 | 84 |
| 25 | 76 |
| 19 | 72 |
| 12.5 | 66 |
| 10 | 63 |
| 5 | 57 |
| 2 | 51 |
| 0.85 | 47 |
| 0.425 | 44 |
| 0.25 | 42 |
| 0.15 | 40 |
| 0.075 | 34.5 |




Notes:
[1] The upper clay size of 2 um, per the Canadian Foundation Engineering Manual
[2] The description is visually based & subject to Tt WM4400 description protocols
[3] If cobbles are present, sampling procedure may not meet ASTM C702 & D75

Specification: _____

**Remarks:** _____

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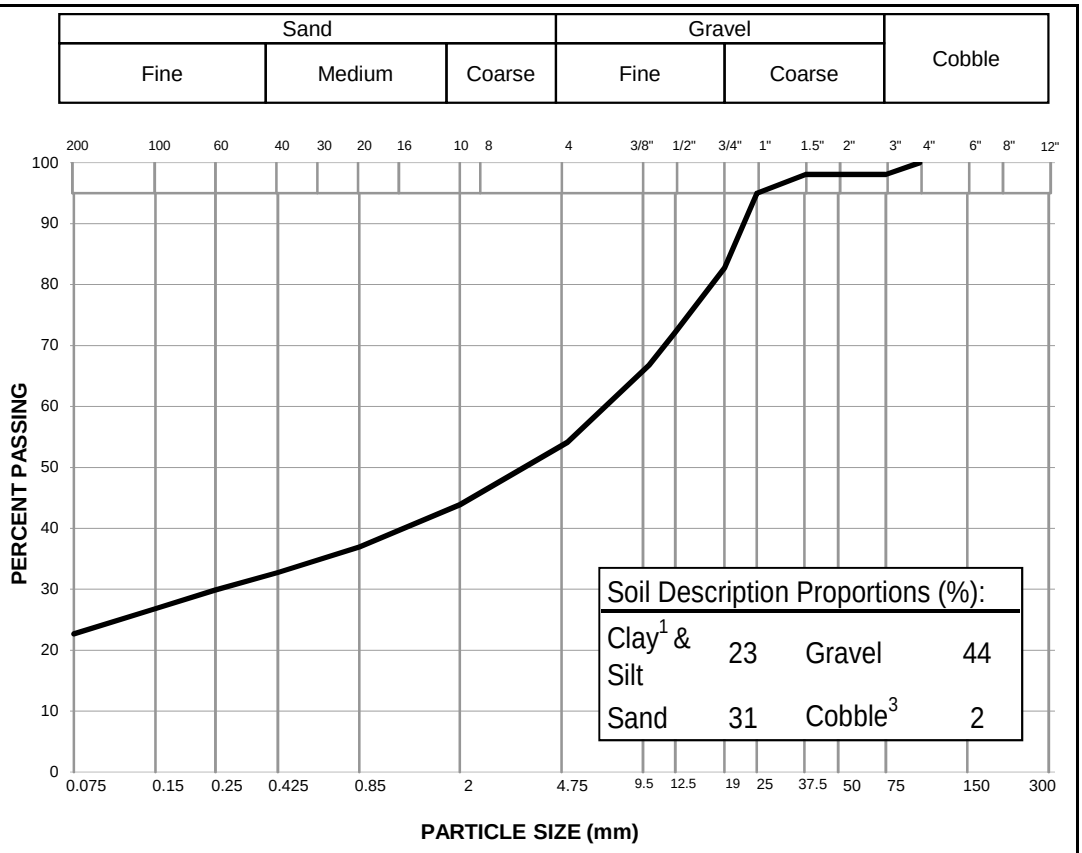
# PARTICLE SIZE ANALYSIS REPORT

ASTM D7928 & C136

| | | | |
|---|---|---|---|
| Project: | Eagle Gold – Spring 2018 Geotech. Invest. | Sample No.: | S1 |
| Project No.: | ENG.EARC03103-02 | Material Type: | - |
| Site: | Eagle Gold Mine, Yukon | Sample Loc.: | GT18-11 |
| Client: | Victoria Gold Corp. | Sample Depth: | 2.0 - 2.2 m |
| Client Rep.: | Dr. Stephen Wilbur | Sampling Method: | Grab |
| Date Tested: | May 18, 2018 By: AH | Date Sampled: | April 13, 2018 |
| Soil Description[2]: | GRAVEL - sandy, silty, trace of cobbles | Sampled By: | Tetra Tech Canada |
| | | USC Classification: | - Cu: #N/A |
| Moisture Content: | 5.5% | | Cc: #N/A |

| Particle Size (mm) | Percent Passing |
|---|---|
| 300 | |
| 200 | |
| 150 | |
| 100 | 100 |
| 75 | 98 |
| 50 | 98 |
| 38 | 98 |
| 25 | 95 |
| 19 | 83 |
| 12.5 | 72 |
| 10 | 67 |
| 5 | 54 |
| 2 | 44 |
| 0.85 | 37 |
| 0.425 | 33 |
| 0.25 | 30 |
| 0.15 | 27 |
| 0.075 | 22.7 |




Notes:
[1] The upper clay size of 2 um, per the Canadian Foundation Engineering Manual
[2] The description is visually based & subject to Tt WM4400 description protocols
[3] If cobbles are present, sampling procedure may not meet ASTM C702 & D75

Specification: _____

**Remarks:** _____

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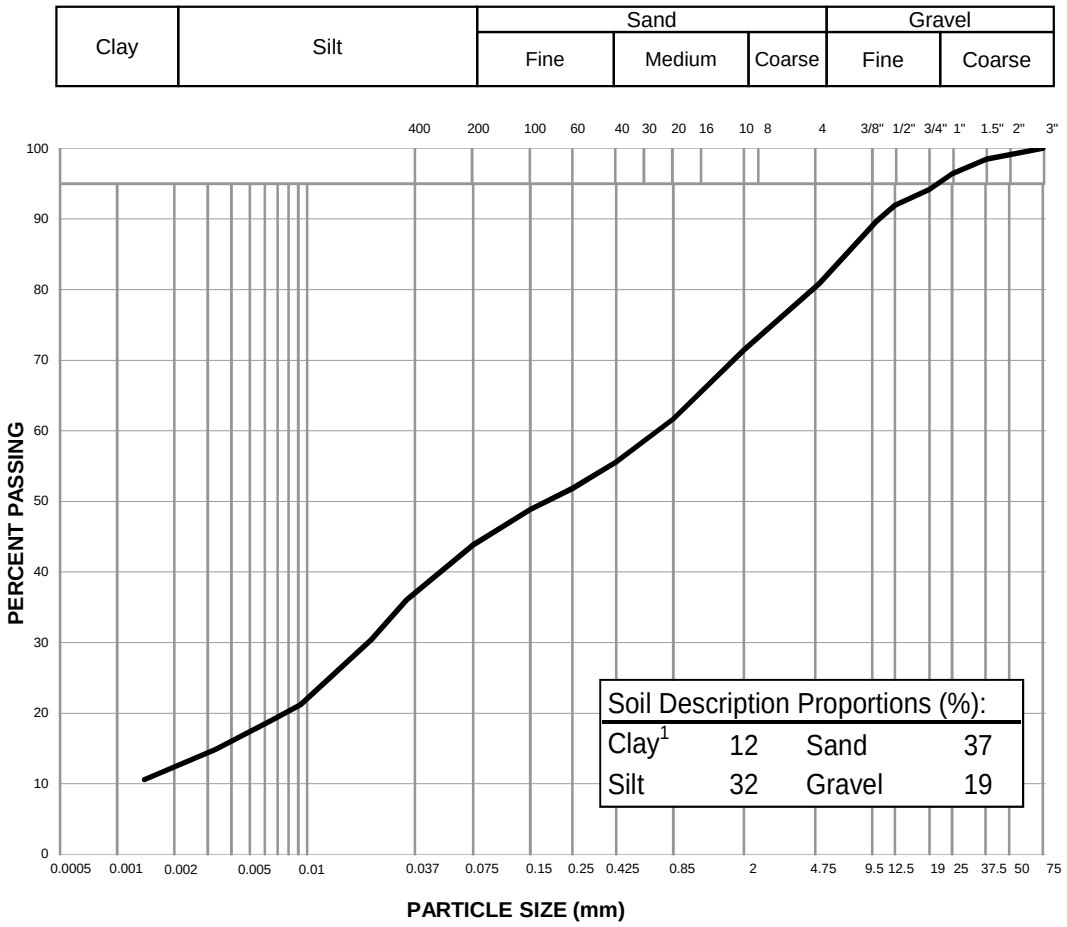
TETRA TECH

# PARTICLE SIZE ANALYSIS REPORT

ASTM D7928 & C136

| | | | |
|---|---|---|---|
| Project: | Eagle Gold – Spring 2018 Geotech. Invest. | Sample No.: | S1 |
| Project No.: | ENG.EARC03103-02 | Material Type: | - |
| Site: | Eagle Gold Mine, Yukon | Sample Loc.: | GT18-15 |
| Client: | Victoria Gold Corp. | Sample Depth: | 1.0 - 1.1 m |
| Client Rep.: | Dr. Stephen Wilbur | Sampling Method: | Grab |
| Date Tested: | May 28, 2018 By: AT | Date Sampled: | April 10, 2018 |
| Soil Description[2]: | SAND - silty, some gravel, some clay | Sampled By: | Tetra Tech Canada |
| | | USC Classification: | - Cu: #N/A |
| Moisture Content: | 7.7% | | Cc: #N/A |

| Particle Size (mm) | Percent Passing |
|---|---|
| 75 | 100 |
| 50 | |
| 38 | 98 |
| 25 | 96 |
| 19 | 94 |
| 12.5 | 92 |
| 10 | 90 |
| 5 | 81 |
| 2 | 71 |
| 0.85 | 62 |
| 0.425 | 56 |
| 0.25 | 52 |
| 0.15 | 49 |
| 0.075 | 43.8 |
| 0.0335 | 36.1 |
| 0.0218 | 30.4 |
| 0.0129 | 24.7 |
| 0.0092 | 21.2 |
| 0.0066 | 19.1 |
| 0.0033 | 14.8 |
| 0.0014 | 10.6 |




Notes: [1] The upper clay size of 2 um, per the Canadian Foundation Engineering Manual

[2] The description is visually based & subject to Tetra Tech description protocols

Specification:

**Remarks:**

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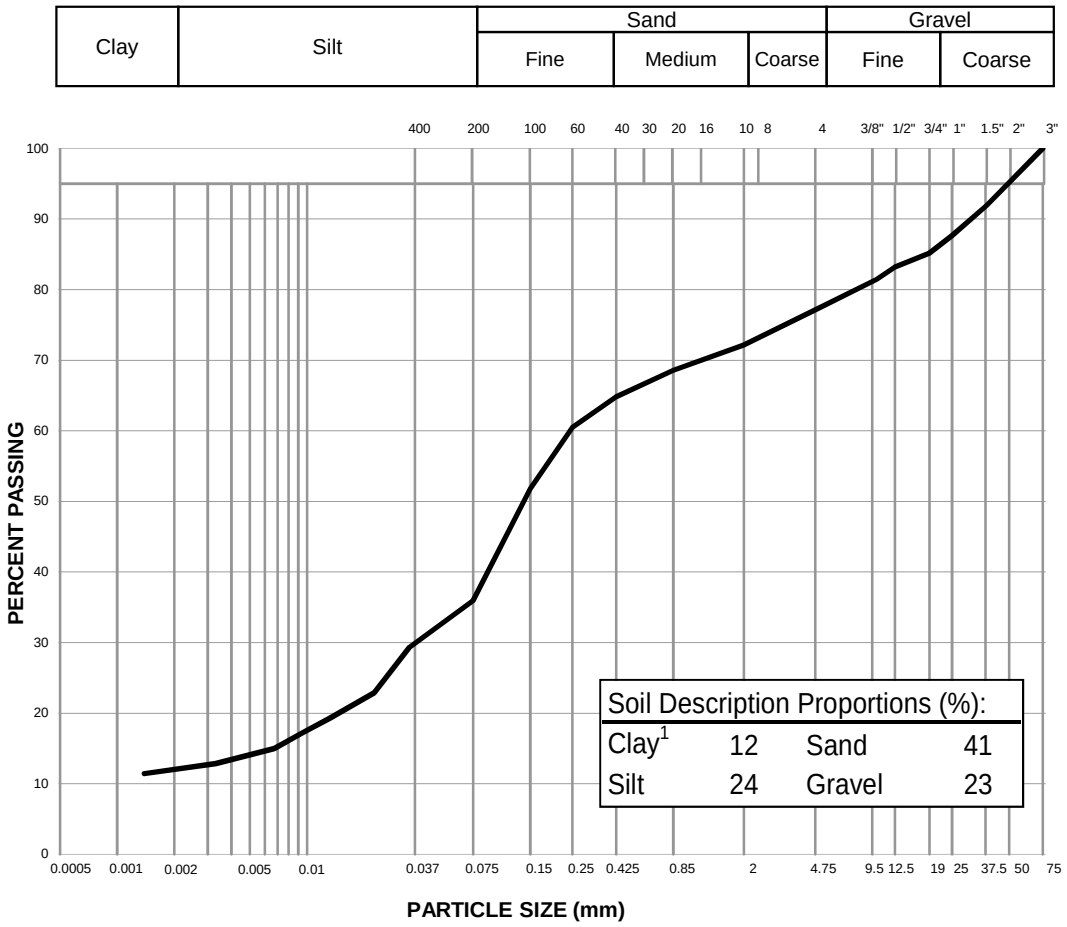
TETRA TECH

# PARTICLE SIZE ANALYSIS REPORT

ASTM D7928 & C136

| | | | |
|---|---|---|---|
| Project: | Eagle Gold – Spring 2018 Geotech. Invest. | Sample No.: | S2 |
| Project No.: | ENG.EARC03103-02 | Material Type: | - |
| Site: | Eagle Gold Mine, Yukon | Sample Loc.: | GT18-15 |
| Client: | Victoria Gold Corp. | Sample Depth: | 8.8 - 9.0 m |
| Client Rep.: | Dr. Stephen Wilbur | Sampling Method: | Grab |
| Date Tested: | May 28, 2018 By: AT | Date Sampled: | April 10, 2018 |
| Soil Description[2]: | SAND - silty, gravelly, some clay | Sampled By: | Tetra Tech Canada |
| | | USC Classification: | - Cu: #N/A |
| Moisture Content: | 14.5% | | Cc: #N/A |

| Particle Size (mm) | Percent Passing |
|---|---|
| 75 | 100 |
| 50 | |
| 38 | 92 |
| 25 | 88 |
| 19 | 85 |
| 12.5 | 83 |
| 10 | 81 |
| 5 | 77 |
| 2 | 72 |
| 0.85 | 69 |
| 0.425 | 65 |
| 0.25 | 60 |
| 0.15 | 52 |
| 0.075 | 35.9 |
| 0.0346 | 29.3 |
| 0.0225 | 22.9 |
| 0.0132 | 19.3 |
| 0.0094 | 17.2 |
| 0.0067 | 15.0 |
| 0.0033 | 12.9 |
| 0.0014 | 11.4 |




Notes: [1] The upper clay size of 2 um, per the Canadian Foundation Engineering Manual

[2] The description is visually based & subject to Tetra Tech description protocols

Specification: _____

**Remarks:** _____

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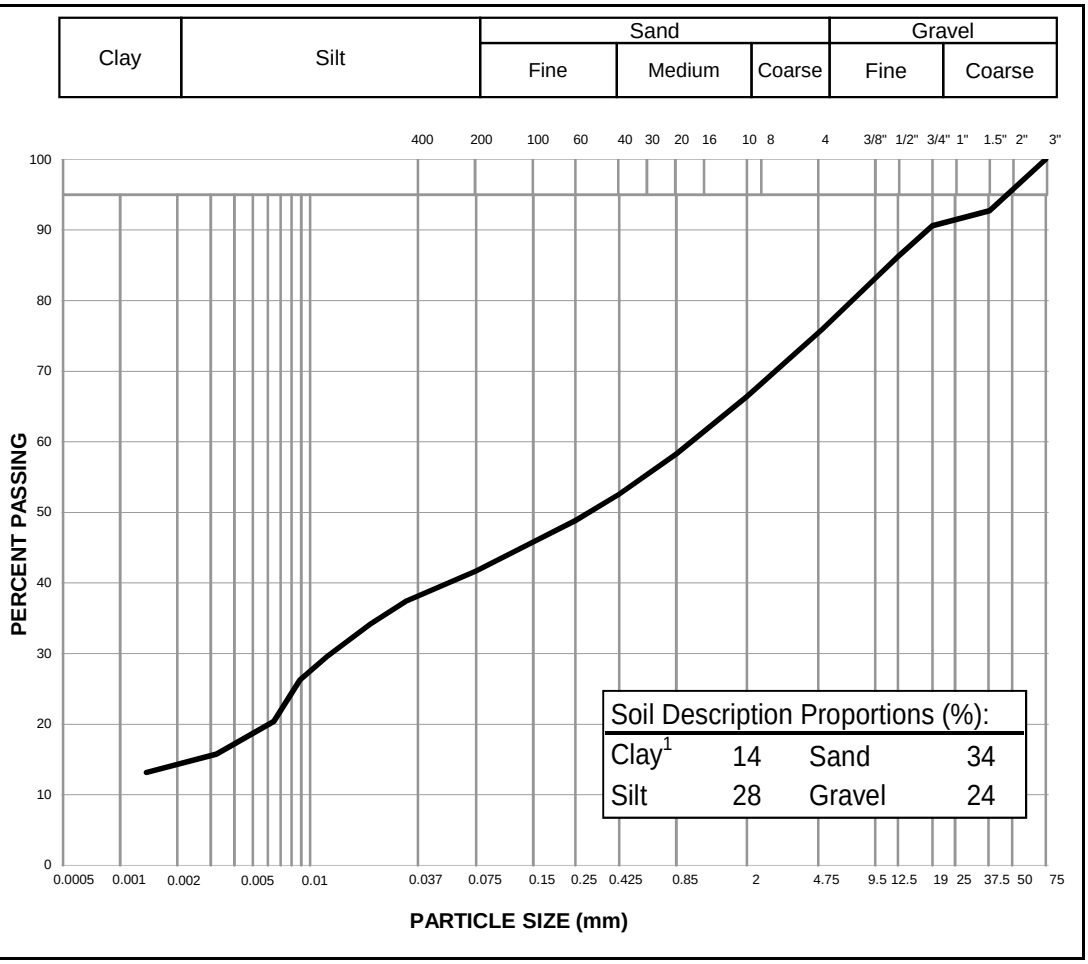
# PARTICLE SIZE ANALYSIS REPORT

ASTM D7928 & C136

| | | | |
|---|---|---|---|
| Project: | Eagle Gold – Spring 2018 Geotech. Invest. | Sample No.: | S5 |
| Project No.: | ENG.EARC03103-02 | Material Type: | - |
| Site: | Eagle Gold Mine, Yukon | Sample Loc.: | GT18-15 |
| Client: | Victoria Gold Corp. | Sample Depth: | 12.7 - 13.0 m |
| Client Rep.: | Dr. Stephen Wilbur | Sampling Method: | Grab |
| Date Tested: | May 28, 2018 By: AT | Date Sampled: | April 10, 2018 |
| Soil Description[2]: | SAND - silty, gravelly, some clay | Sampled By: | Tetra Tech Canada |
| | | USC Classification: | - Cu: #N/A |
| Moisture Content: | 10.0% | | Cc: #N/A |

| Particle Size (mm) | Percent Passing |
|---|---|
| 75 | 100 |
| 50 | |
| 38 | 93 |
| 25 | |
| 19 | 91 |
| 12.5 | 86 |
| 10 | 84 |
| 5 | 76 |
| 2 | 66 |
| 0.85 | 58 |
| 0.425 | 53 |
| 0.25 | 49 |
| 0.15 | 46 |
| 0.075 | 41.7 |
| 0.0324 | 37.5 |
| 0.0208 | 34.2 |
| 0.0123 | 29.6 |
| 0.0088 | 26.3 |
| 0.0064 | 20.4 |
| 0.0032 | 15.8 |
| 0.0014 | 13.1 |




Notes: [1] The upper clay size of 2 um, per the Canadian Foundation Engineering Manual

[2] The description is visually based & subject to Tetra Tech description protocols

Specification: _____

**Remarks:** _____

**Reviewed By:** Ernst Palmli P.Geo.

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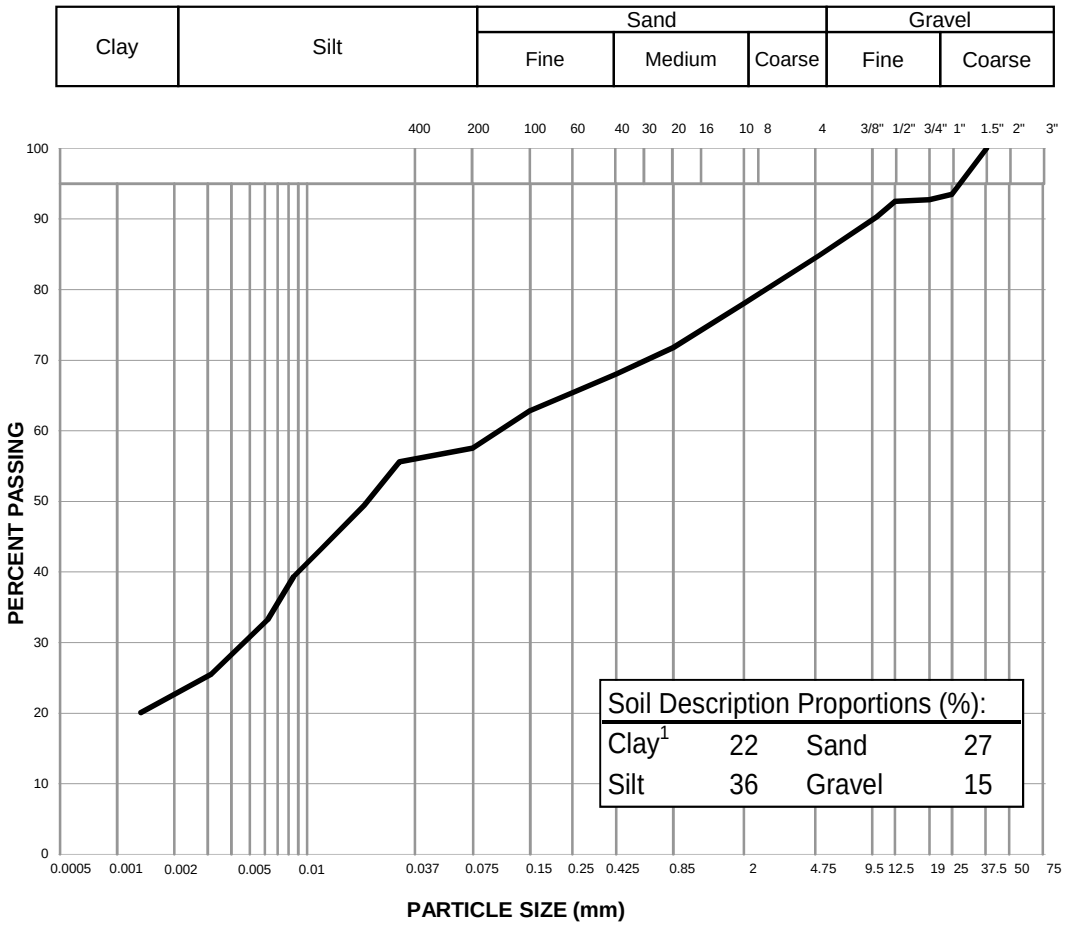
# PARTICLE SIZE ANALYSIS REPORT

ASTM D7928 & C136

| | | | |
|---|---|---|---|
| Project: | Eagle Gold – Spring 2018 Geotech. Invest. | Sample No.: | S7 |
| Project No.: | ENG.EARC03103-02 | Material Type: | - |
| Site: | Eagle Gold Mine, Yukon | Sample Loc.: | GT18-15 |
| Client: | Victoria Gold Corp. | Sample Depth: | 17.5 - 17.8 m |
| Client Rep.: | Dr. Stephen Wilbur | Sampling Method: | Grab |
| Date Tested: | May 26, 2018 By: AT | Date Sampled: | April 10, 2018 |
| Soil Description[2]: | SILT - sandy, clayey, some gravel | Sampled By: | Tetra Tech Canada |
| | | USC Classification: | - Cu: #N/A |
| Moisture Content: | 11.1% | | Cc: #N/A |

| Particle Size (mm) | Percent Passing |
|---|---|
| 75 | |
| 50 | |
| 38 | 100 |
| 25 | 94 |
| 19 | 93 |
| 12.5 | 93 |
| 10 | 90 |
| 5 | 85 |
| 2 | 78 |
| 0.85 | 72 |
| 0.425 | 68 |
| 0.25 | 65 |
| 0.15 | 63 |
| 0.075 | 57.6 |
| 0.0306 | 55.6 |
| 0.0200 | 49.4 |
| 0.0119 | 43.3 |
| 0.0085 | 39.4 |
| 0.0062 | 33.2 |
| 0.0031 | 25.5 |
| 0.0013 | 20.1 |




Notes: [1] The upper clay size of 2 um, per the Canadian Foundation Engineering Manual

[2] The description is visually based & subject to Tetra Tech description protocols

Specification: _____

**Remarks:** _____

**Reviewed By:** _____ P.Geo.

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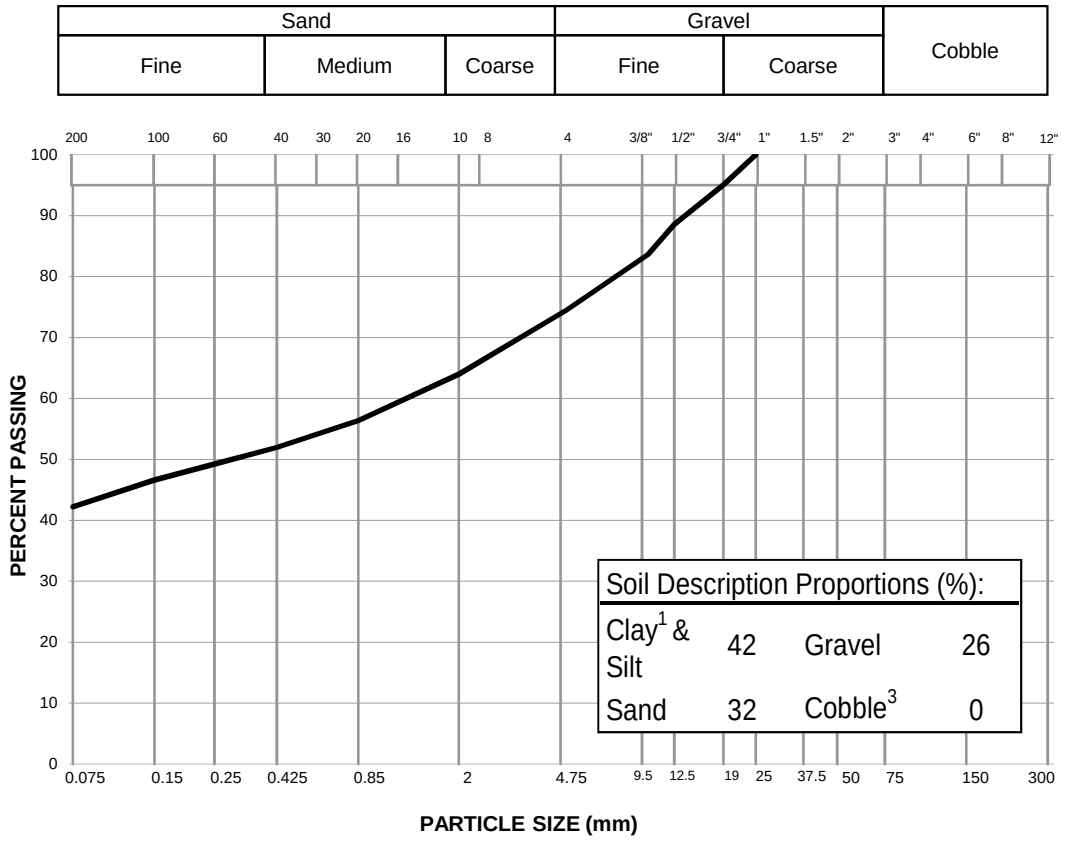
TETRA TECH

# PARTICLE SIZE ANALYSIS REPORT

ASTM D7928 & C136

| | | | |
|---|---|---|---|
| Project: | Eagle Gold – Spring 2018 Geotech. Invest. | Sample No.: | S1 |
| Project No.: | ENG.EARC03103-02 | Material Type: | - |
| Site: | Eagle Gold Mine, Yukon | Sample Loc.: | GT18-16 |
| Client: | Victoria Gold Corp. | Sample Depth: | 0.5 - 0.8 m |
| Client Rep.: | Dr. Stephen Wilbur | Sampling Method: | Grab |
| Date Tested: | May 18, 2018 By: AH | Date Sampled: | April 11, 2018 |
| Soil Description[2]: | SILT - sandy, gravelly | Sampled By: | Tetra Tech Canada |
| | | USC Classification: | - Cu: #N/A |
| Moisture Content: | 12.1% | | Cc: #N/A |

| Particle Size (mm) | Percent Passing |
|---|---|
| 300 | |
| 200 | |
| 150 | |
| 100 | |
| 75 | |
| 50 | |
| 38 | |
| 25 | 100 |
| 19 | 95 |
| 12.5 | 89 |
| 10 | 84 |
| 5 | 74 |
| 2 | 64 |
| 0.85 | 56 |
| 0.425 | 52 |
| 0.25 | 49 |
| 0.15 | 47 |
| 0.075 | 42.2 |




Notes:
[1] The upper clay size of 2 um, per the Canadian Foundation Engineering Manual
[2] The description is visually based & subject to Tt WM4400 description protocols
[3] If cobbles are present, sampling procedure may not meet ASTM C702 & D75

Specification: _____

**Remarks:** _____

**Reviewed By:** Ernst Palmli P.Geo.

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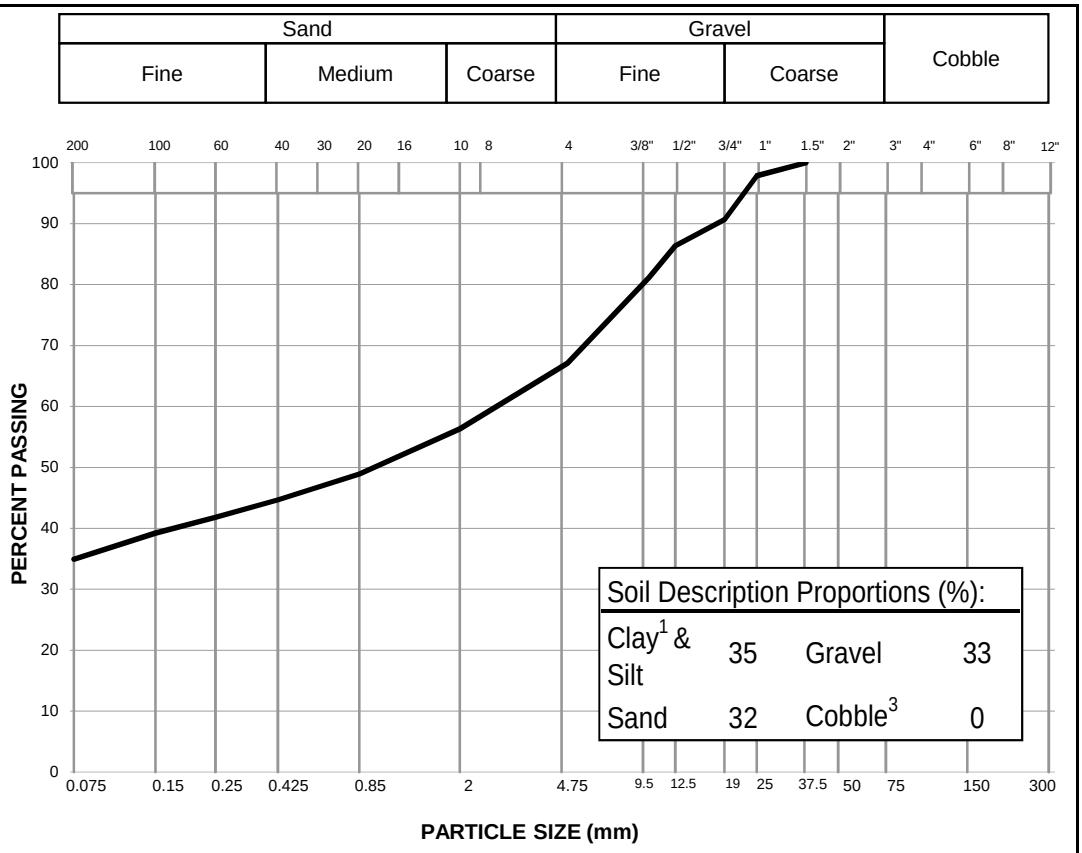
TETRA TECH

# PARTICLE SIZE ANALYSIS REPORT

ASTM D7928 & C136

| | | | |
|---|---|---|---|
| Project: | Eagle Gold – Spring 2018 Geotech. Invest. | Sample No.: | S2 |
| Project No.: | ENG.EARC03103-02 | Material Type: | - |
| Site: | Eagle Gold Mine, Yukon | Sample Loc.: | GT18-16 |
| Client: | Victoria Gold Corp. | Sample Depth: | 2.5 - 2.8 m |
| Client Rep.: | Dr. Stephen Wilbur | Sampling Method: | Grab |
| Date Tested: | May 18, 2018 By: AH | Date Sampled: | April 11, 2018 |
| Soil Description[2]: | SILT - gravelly, sandy | Sampled By: | Tetra Tech Canada |
| | | USC Classification: | - Cu: #N/A |
| Moisture Content: | 10.3% | | Cc: #N/A |

| Particle Size (mm) | Percent Passing |
|---|---|
| 300 | |
| 200 | |
| 150 | |
| 100 | |
| 75 | |
| 50 | |
| 38 | 100 |
| 25 | 98 |
| 19 | 91 |
| 12.5 | 86 |
| 10 | 81 |
| 5 | 67 |
| 2 | 56 |
| 0.85 | 49 |
| 0.425 | 45 |
| 0.25 | 42 |
| 0.15 | 39 |
| 0.075 | 34.9 |




Notes:
[1] The upper clay size of 2 um, per the Canadian Foundation Engineering Manual
[2] The description is visually based & subject to Tt WM4400 description protocols
[3] If cobbles are present, sampling procedure may not meet ASTM C702 & D75

Specification: _____

**Remarks:** _____

**Reviewed By:** Ernst Palmli P.Geo.

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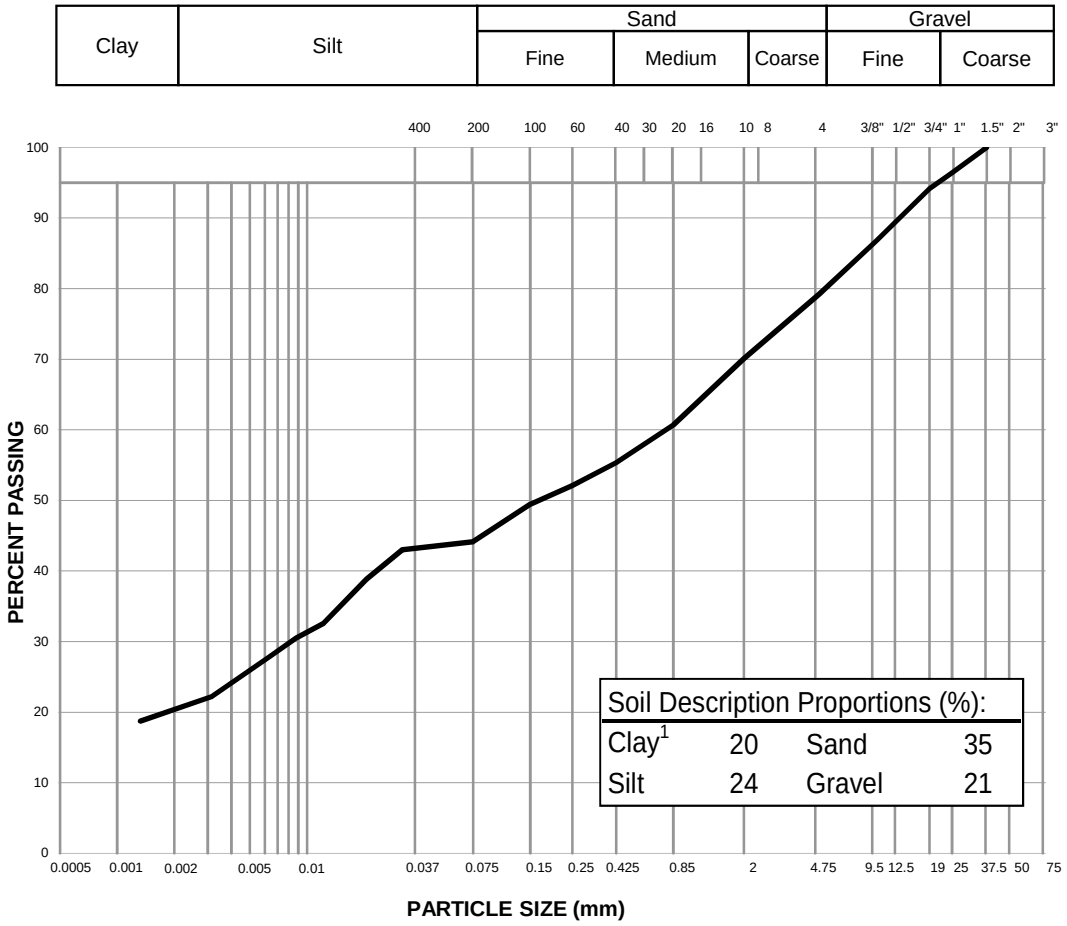
TETRA TECH

# PARTICLE SIZE ANALYSIS REPORT

ASTM D7928 & C136

| | | | |
|---|---|---|---|
| Project: | Eagle Gold – Spring 2018 Geotech. Invest. | Sample No.: | S2 |
| Project No.: | ENG.EARC03103-02 | Material Type: | - |
| Site: | Eagle Gold Mine, Yukon | Sample Loc.: | GT18-17 |
| Client: | Victoria Gold Corp. | Sample Depth: | 1.1 - 1.3 m |
| Client Rep.: | Dr. Stephen Wilbur | Sampling Method: | Grab |
| Date Tested: | May 26, 2018 By: AT | Date Sampled: | April 12, 2018 |
| Soil Description[2]: | SAND - silty, gravelly, some clay | Sampled By: | Tetra Tech Canada |
| | | USC Classification: | - Cu: #N/A |
| Moisture Content: | 76.6% | | Cc: #N/A |

| Particle Size (mm) | Percent Passing |
|---|---|
| 75 | |
| 50 | |
| 38 | 100 |
| 25 | 96 |
| 19 | 94 |
| 12.5 | 89 |
| 10 | 87 |
| 5 | 79 |
| 2 | 70 |
| 0.85 | 61 |
| 0.425 | 55 |
| 0.25 | 52 |
| 0.15 | 49 |
| 0.075 | 44.1 |
| 0.0318 | 43.0 |
| 0.0206 | 38.8 |
| 0.0122 | 32.6 |
| 0.0087 | 30.5 |
| 0.0063 | 27.7 |
| 0.0031 | 22.2 |
| 0.0013 | 18.7 |




Notes: [1] The upper clay size of 2 um, per the Canadian Foundation Engineering Manual

[2] The description is visually based & subject to Tetra Tech description protocols

Specification: _____

**Remarks:** _____

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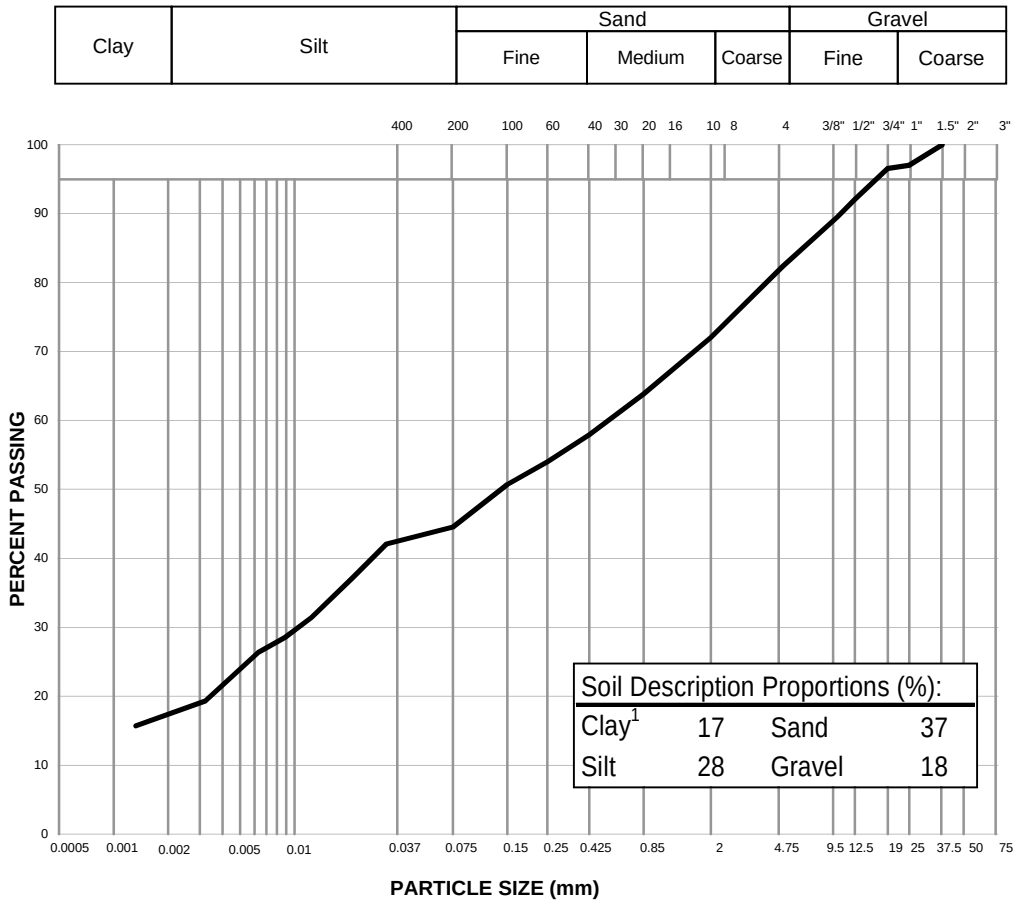
TETRA TECH

# PARTICLE SIZE ANALYSIS REPORT

ASTM D7928 & C136

| | | | |
|---|---|---|---|
| Project: | Eagle Gold – Spring 2018 Geotech. Invest. | Sample No.: | S3 |
| Project No.: | ENG.EARC03103-02 | Material Type: | - |
| Site: | Eagle Gold Mine, Yukon | Sample Loc.: | GT18-17 |
| Client: | Victoria Gold Corp. | Sample Depth: | 1.6 - 1.8 m |
| Client Rep.: | Dr. Stephen Wilbur | Sampling Method: | Grab |
| Date Tested: | May 26, 2018 By: AT | Date Sampled: | April 12, 2018 |
| Soil Description[2]: | SAND - silty, some gravel, some clay | Sampled By: | Tetra Tech Canada |
| | | USC Classification: | - Cu: #N/A |
| Moisture Content: | 29.8% | | Cc: #N/A |

| Particle Size (mm) | Percent Passing |
|---|---|
| 75 | |
| 50 | |
| 38 | 100 |
| 25 | 97 |
| 19 | 97 |
| 12.5 | 92 |
| 10 | 90 |
| 5 | 82 |
| 2 | 72 |
| 0.85 | 64 |
| 0.425 | 58 |
| 0.25 | 54 |
| 0.15 | 51 |
| 0.075 | 44.5 |
| 0.0322 | 42.1 |
| 0.0208 | 37.1 |
| 0.0124 | 31.4 |
| 0.0088 | 28.5 |
| 0.0063 | 26.4 |
| 0.0032 | 19.3 |
| 0.0013 | 15.7 |




Notes: [1] The upper clay size of 2 um, per the Canadian Foundation Engineering Manual

[2] The description is visually based & subject to Tetra Tech description protocols

Specification: _____

**Remarks:** _____

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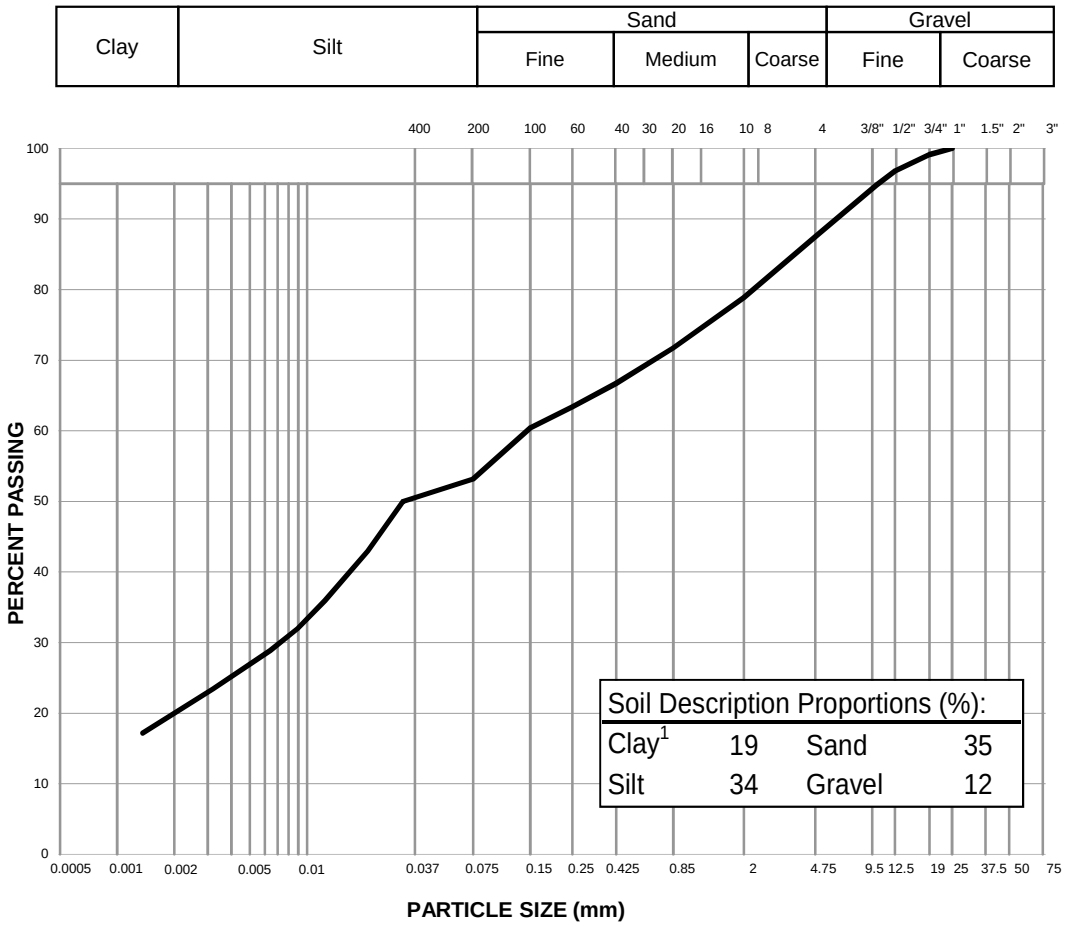
# PARTICLE SIZE ANALYSIS REPORT

ASTM D7928 & C136

| | | | |
|---|---|---|---|
| Project: | Eagle Gold – Spring 2018 Geotech. Invest. | Sample No.: | S5 |
| Project No.: | ENG.EARC03103-02 | Material Type: | - |
| Site: | Eagle Gold Mine, Yukon | Sample Loc.: | GT18-17 |
| Client: | Victoria Gold Corp. | Sample Depth: | 3.7 - 3.9 m |
| Client Rep.: | Dr. Stephen Wilbur | Sampling Method: | Grab |
| Date Tested: | May 25, 2018 By: AT | Date Sampled: | April 12, 2018 |
| Soil Description[2]: | SAND - silty, some clay, some gravel | Sampled By: | Tetra Tech Canada |
| | | USC Classification: | - Cu: #N/A |
| Moisture Content: | 10.9% | | Cc: #N/A |

| Particle Size (mm) | Percent Passing |
|---|---|
| 75 | |
| 50 | |
| 38 | |
| 25 | 100 |
| 19 | 99 |
| 12.5 | 97 |
| 10 | 95 |
| 5 | 88 |
| 2 | 79 |
| 0.85 | 72 |
| 0.425 | 67 |
| 0.25 | 63 |
| 0.15 | 60 |
| 0.075 | 53.2 |
| 0.0321 | 50.0 |
| 0.0209 | 42.9 |
| 0.0124 | 35.9 |
| 0.0089 | 32.0 |
| 0.0064 | 28.9 |
| 0.0032 | 23.4 |
| 0.0014 | 17.2 |




Notes: [1] The upper clay size of 2 um, per the Canadian Foundation Engineering Manual

[2] The description is visually based & subject to Tetra Tech description protocols

Specification:

**Remarks:**

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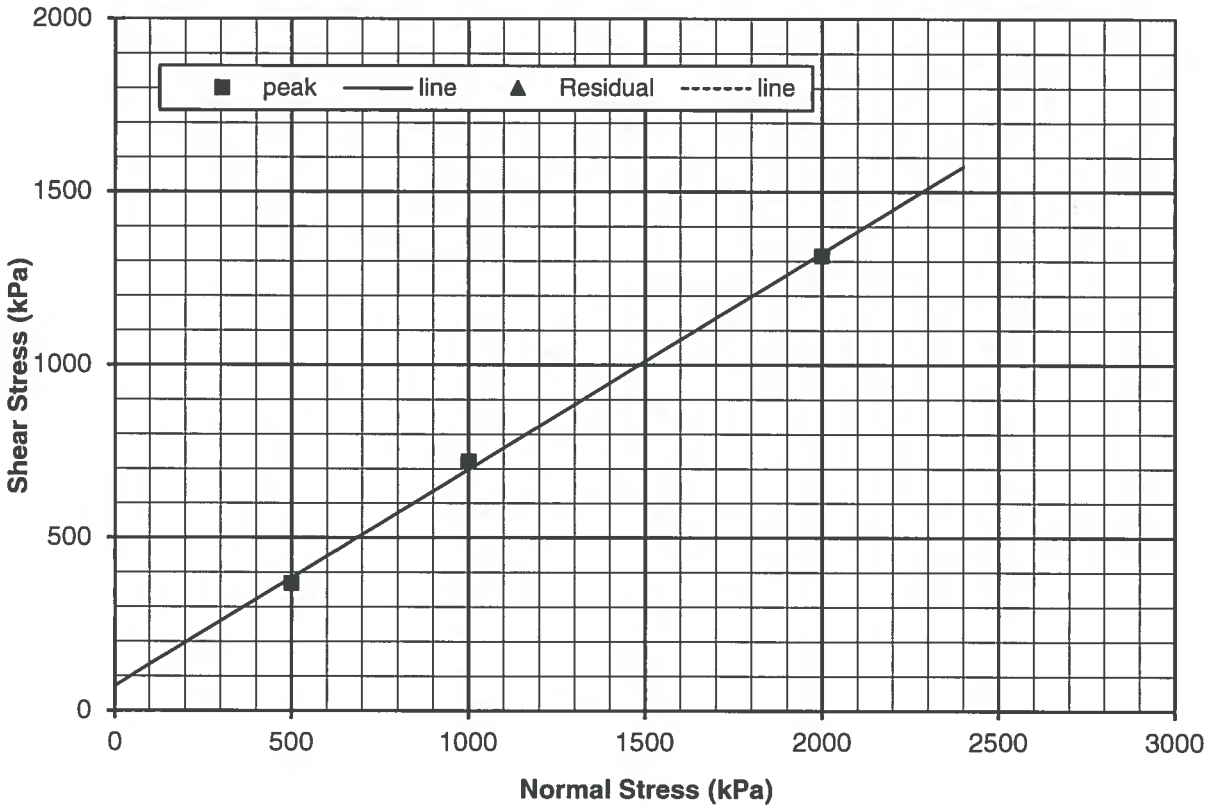
TETRA TECH

# SUMMARY of DIRECT SHEAR TEST RESULTS

**ASTM D3080**

| | | | |
|---|---|---|---|
| Project: | Eagle Gold | Test Hole: | GT18-01-S1 & 04-S2 Comb. |
| Project No.: | **ENG.EARC03103-02** | Depth: | 1.5-2.5 & 0.95-1.25 m |
| Client: | **Victoria Gold** | Date: | May 29, 2018 |
| Attention: | **Dr. Stephen Wilbur** | Tested By: | TD/SK |
| Email: | SWilbur@vitgoldcorp.com | Office: | Edmonton |




Inferred Shear Strength Parameters :-

| | Cohesion Intercept (kPa) | Inferred Angle of Shearing Resistance (Degrees) |
|---|---|---|
| **Peak Strength:** | **71.0** | **32.0** |
| **Residual Strength:** | **N/A** | **N/A** |

**Reviewed By:** _____ P.Eng.

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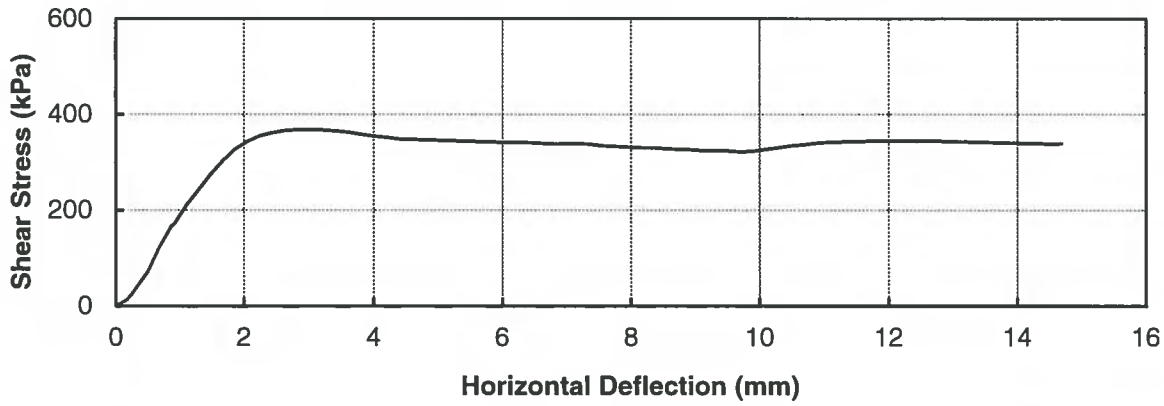
TETRA TECH

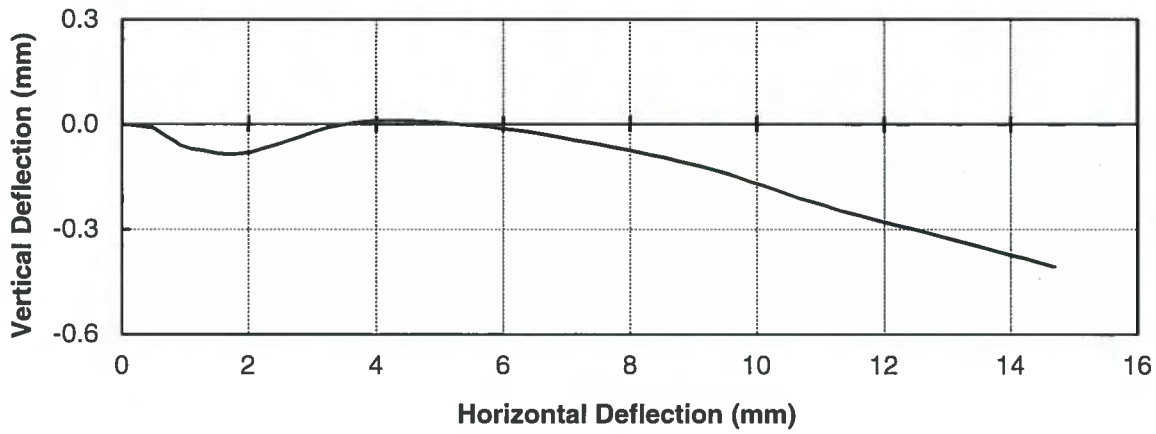
# DIRECT SHEAR TEST

ASTM D3080

| | | | |
|---|---|---|---|
| Project: | Eagle Gold | Test Hole No.: | GT18-01-S1/04-S2 Comb. |
| Project No.: | ENG.EARC03103-02 | Depth: | 1.5-2.5 and 0.95-1.25 m |
| Client: | Victoria Gold | Test No.: | DS-1 |
| Date Tested: | May 16, 2018 | Machine: | 1 |
| Descrition: | SAND & GRAVEL, clayey, some silt, brown | Preparation: | Remolded |

| | | | |
|---|---|---|---|
| Normal Stress (kPa) = | 500 | Moisture Content (%) = | 11.6 |
| Peak Stress (kPa) = | 368 | Wet Density ($Mg/m^3$) = | 2.220 |
| | | Dry Density ($Mg/m^3$) = | 1.989 |

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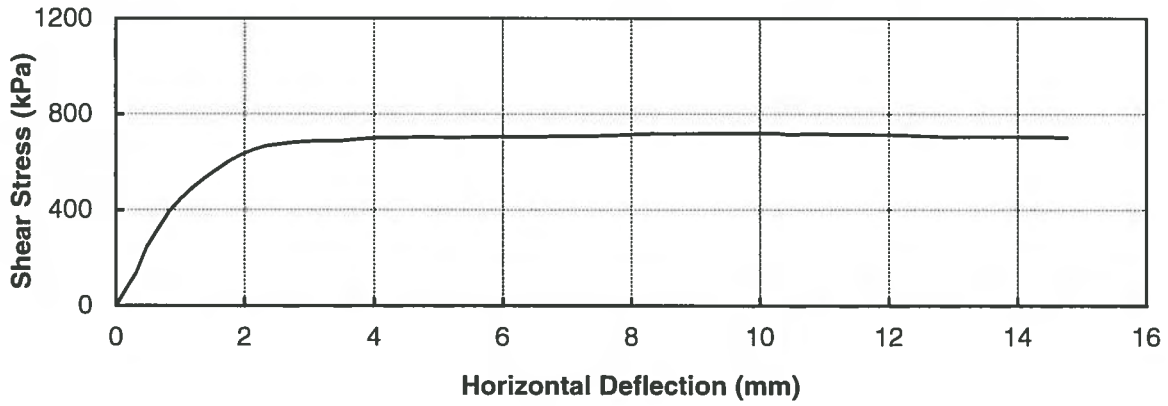
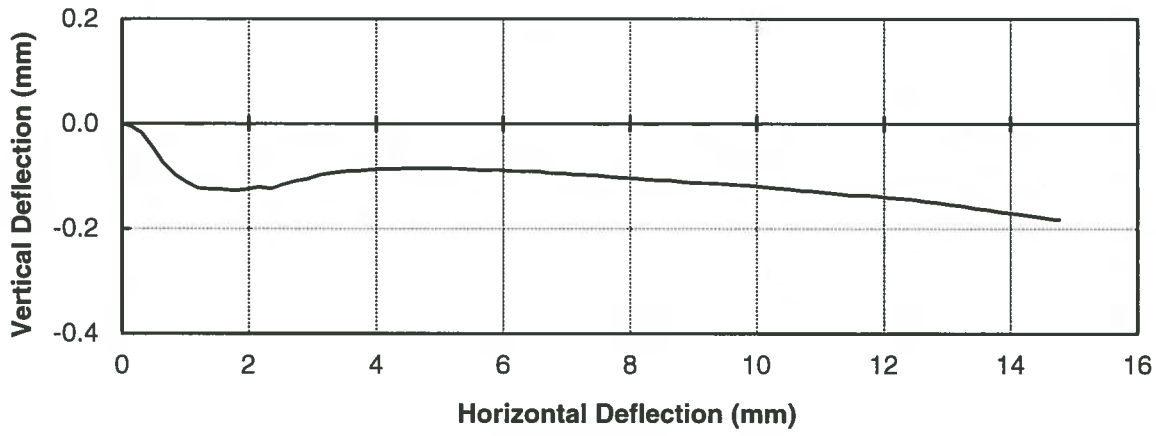
# DIRECT SHEAR TEST

ASTM D3080

| | | | |
|---|---|---|---|
| Project: | Eagle Gold | Test Hole No.: | GT18-01-S1/04-S2 Comb. |
| Project No.: | ENG.EARC03103-02 | Depth: | 1.5-2.5 and 0.95-1.25 m |
| Client: | Victoria Gold | Test No.: | DS-2 |
| Date Tested: | May 16, 2018 | Machine: | 3 |
| Descrition: | SAND & GRAVEL, clayey, some silt, brown | Preparation: | Remolded |

| | | | |
|---|---|---|---|
| Normal Stress (kPa) = | 1000 | Moisture Content (%) = | 11.4 |
| Peak Stress (kPa) = | 721 | Wet Density ($Mg/m^3$) = | 2.221 |
| | | Dry Density ($Mg/m^3$) = | 1.994 |

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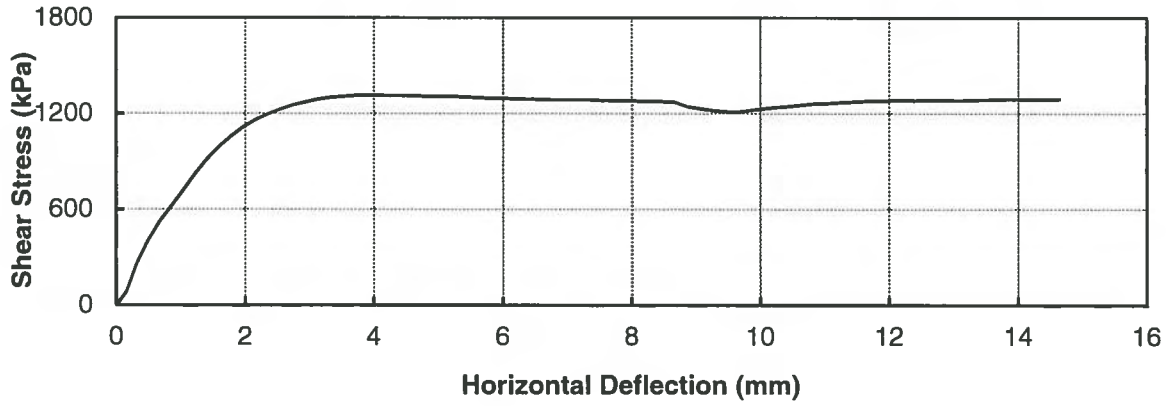
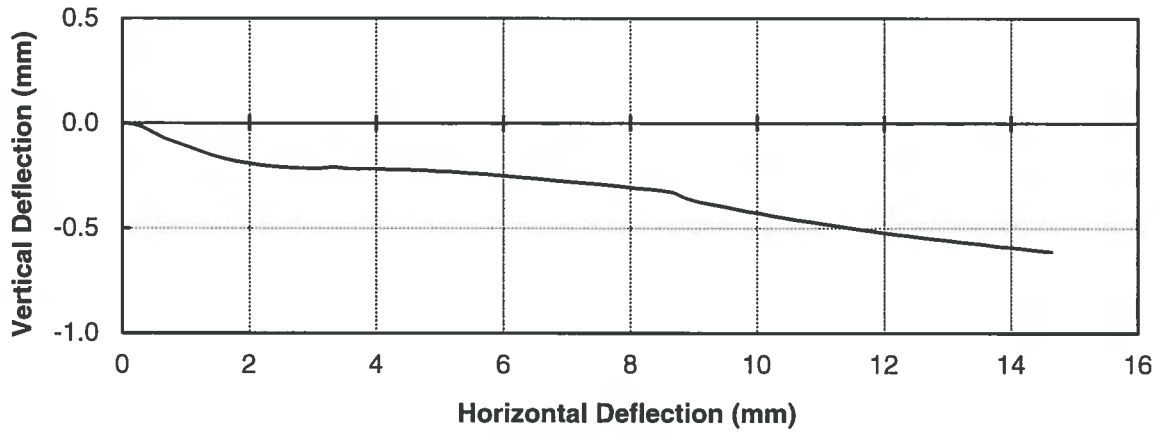
# DIRECT SHEAR TEST

ASTM D3080

| | | | |
|---|---|---|---|
| Project: | Eagle Gold | Test Hole No.: | GT18-01-S1/04-S2 Comb. |
| Project No.: | ENG.EARC03103-02 | Depth: | 1.5-2.5 and 0.95-1.25 m |
| Client: | Victoria Gold | Test No.: | DS-3 |
| Date Tested: | May 16, 2018 | Machine: | 2 |
| Descrition: | SAND & GRAVEL, clayey, some silt, brown | Preparation: | Remolded |

| | | | |
|---|---|---|---|
| Normal Stress (kPa) = | 2000 | Moisture Content (%) = | 11.4 |
| Peak Stress (kPa) = | 1315 | Wet Density ($Mg/m^3$) = | 2.222 |
| | | Dry Density ($Mg/m^3$) = | 1.994 |

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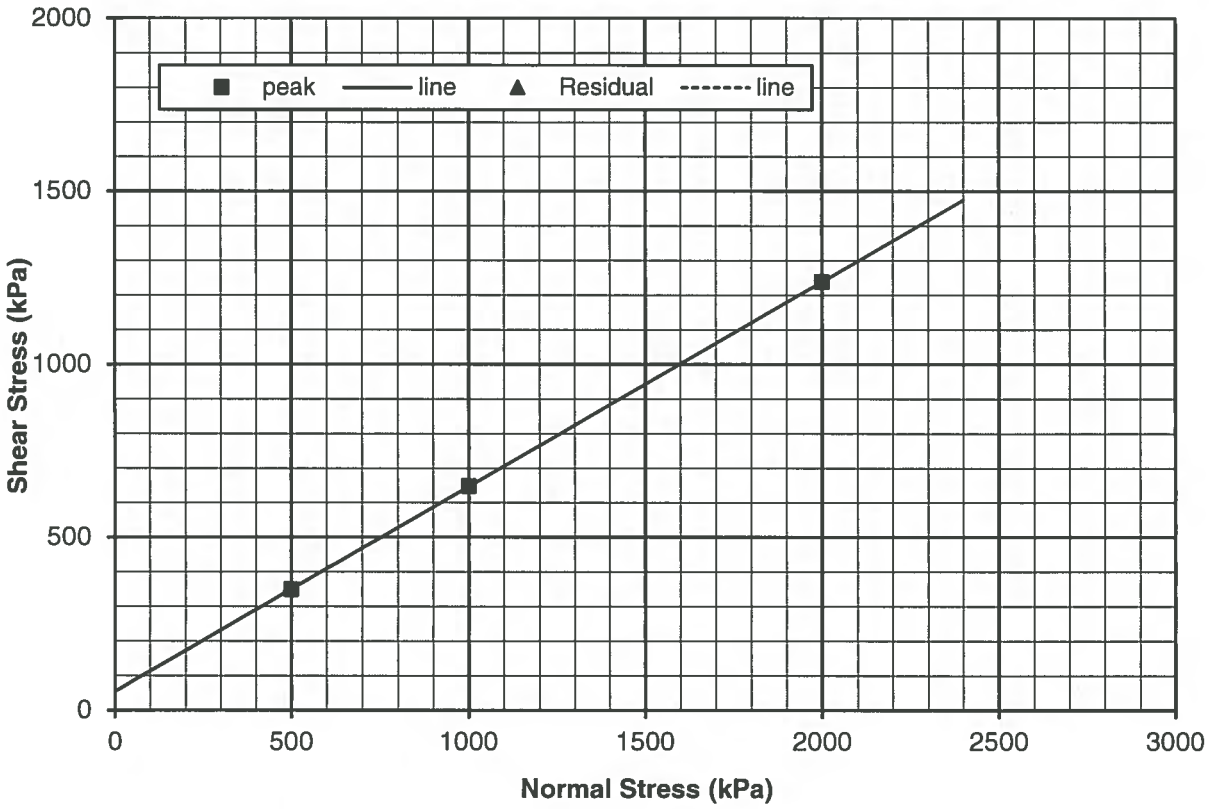
TETRA TECH

# SUMMARY of DIRECT SHEAR TEST RESULTS

**ASTM D3080**

| | | | |
|---|---|---|---|
| Project: | Eagle Gold | Test Hole: | GT18-02-S2, 06-S2 & 07-S2 |
| Project No.: | **ENG.EARC03103-02** | Depth: | 1.2-1.5, 2.5-3.1 & 2.2-2.6 m |
| Client: | **Victoria Gold** | Date: | May 30, 2018 |
| Attention: | **Dr. Stephen Wilbur** | Tested By: | TD/SK |
| Email: | SWilbur@vitgoldcorp.com | Office: | Edmonton |




Inferred Shear Strength Parameters :-

| | Cohesion Intercept (kPa) | Inferred Angle of Shearing Resistance (Degrees) |
|---|---|---|
| **Peak Strength:** | **54.0** | **30.6** |
| **Residual Strength:** | **N/A** | **N/A** |

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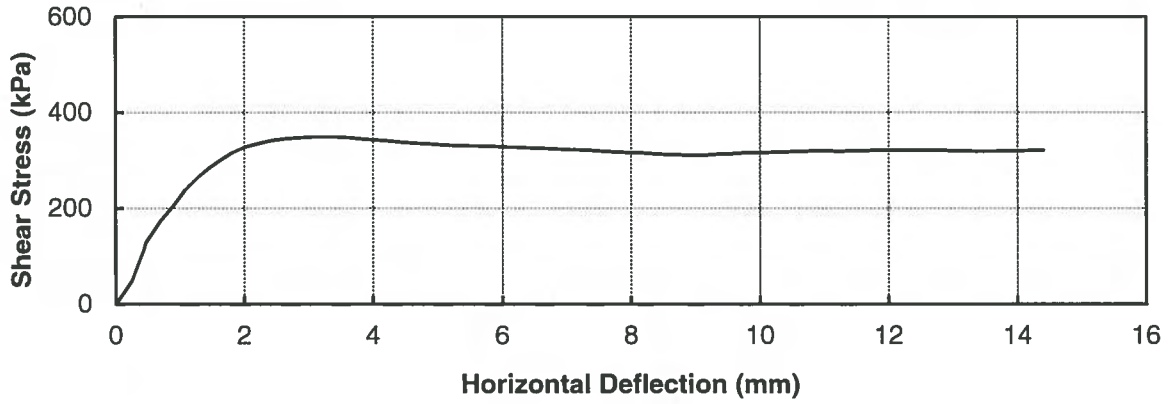
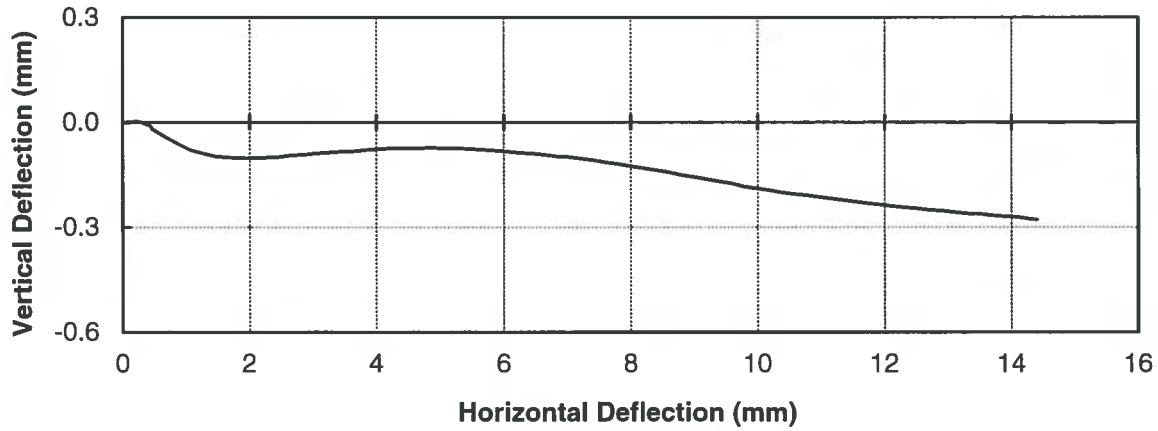
# DIRECT SHEAR TEST

ASTM D3080

| | | | |
|---|---|---|---|
| Project: | Eagle Gold | Test Hole No.: | GT18-02-S2/06-S2/07-S2 |
| Project No.: | ENG.EARC03103-02 | Depth: | 1.2-1.5, 2.5-3.1, 2.2-2.6 m |
| Client: | Victoria Gold | Test No.: | DS-4 |
| Date Tested: | May 18, 2018 | Machine: | 1 |
| Descrition: | SAND | Preparation: | Remolded |

| | | | |
|---|---|---|---|
| Normal Stress (kPa) = | 500 | Moisture Content (%) = | 14.0 |
| Peak Stress (kPa) = | 349 | Wet Density ($Mg/m^3$) = | 2.225 |
| | | Dry Density ($Mg/m^3$) = | 1.951 |

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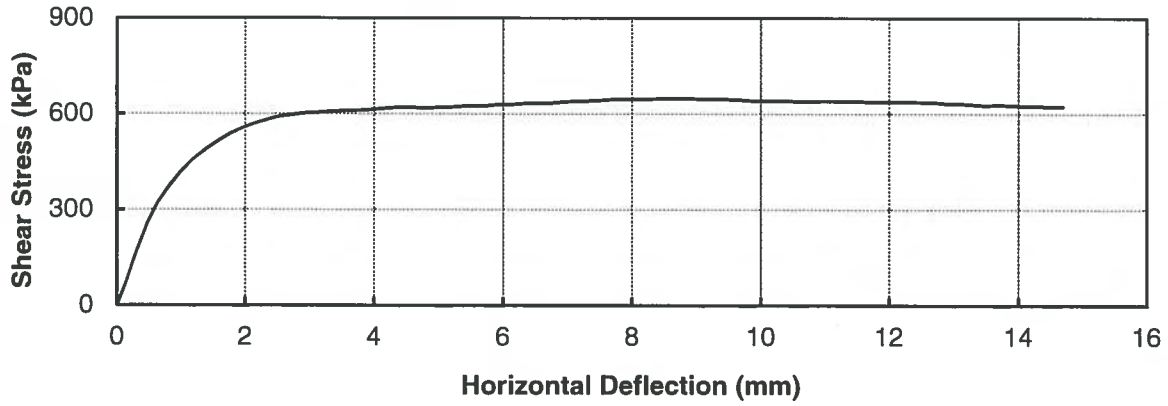
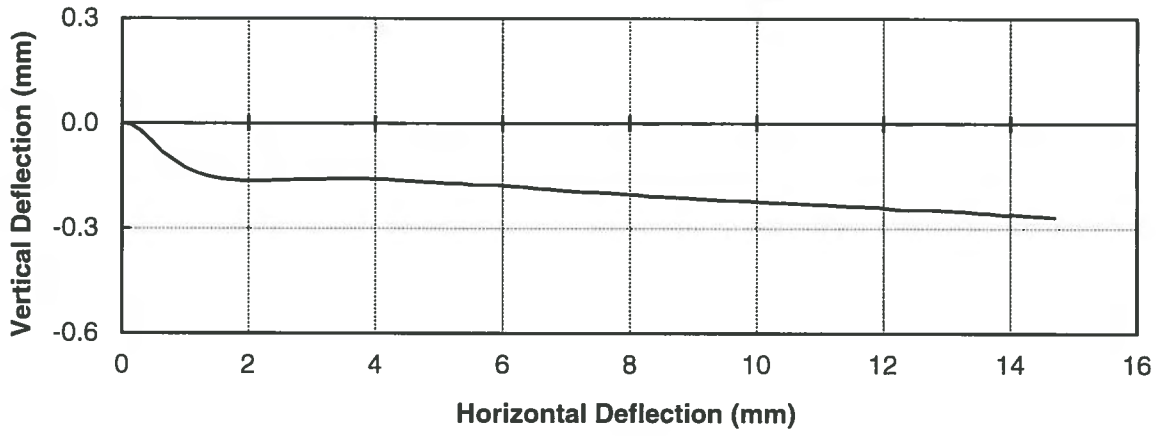
# DIRECT SHEAR TEST

ASTM D3080

| | | | |
|---|---|---|---|
| Project: | Eagle Gold | Test Hole No.: | GT18-02-S2/06-S2/07-S2 |
| Project No.: | ENG.EARC03103-02 | Depth: | 1.2-1.5, 2.5-3.1, 2.2-2.6 m |
| Client: | Victoria Gold | Test No.: | DS-5 |
| Date Tested: | May 18, 2018 | Machine: | 3 |
| Descrition: | SAND & GRAVEL, clayey, some silt, brown | Preparation: | Remolded |

| | | | |
|---|---|---|---|
| Normal Stress (kPa) = | 1000 | Moisture Content (%) = | 13.9 |
| Peak Stress (kPa) = | 648 | Wet Density ($Mg/m^3$) = | 2.225 |
| | | Dry Density ($Mg/m^3$) = | 1.954 |

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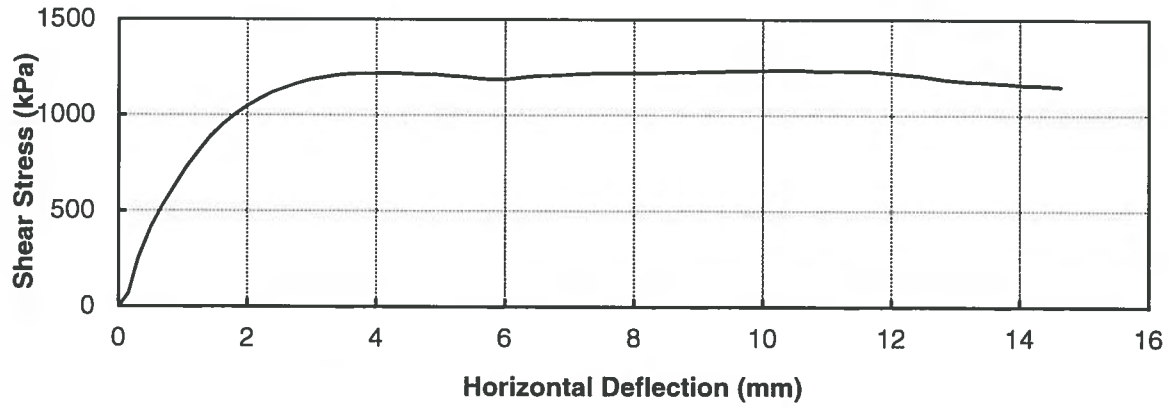
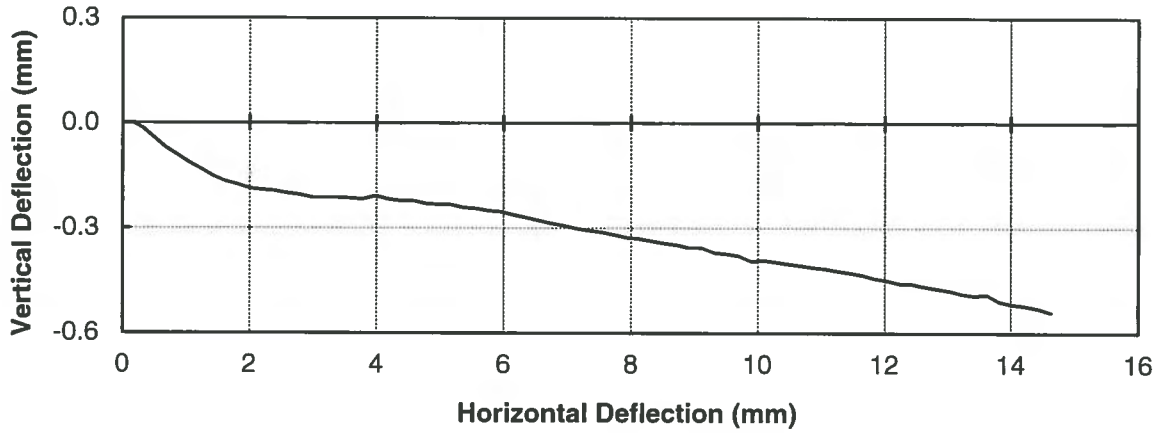
# DIRECT SHEAR TEST

ASTM D3080

| | | | |
|---|---|---|---|
| Project: | Eagle Gold | Test Hole No.: | GT18-02-S2/06-S2/07-S2 |
| Project No.: | ENG.EARC03103-02 | Depth: | 1.2-1.5, 2.5-3.1, 2.2-2.6 m |
| Client: | Victoria Gold | Test No.: | DS-6 |
| Date Tested: | May 18, 2018 | Machine: | 2 |
| Descrition: | SAND & GRAVEL, clayey, some silt, brown | Preparation: | Remolded |

| | | | |
|---|---|---|---|
| Normal Stress (kPa) = | 2000 | Moisture Content (%) = | 13.8 |
| Peak Stress (kPa) = | 1238 | Wet Density ($Mg/m^3$) = | 2.225 |
| | | Dry Density ($Mg/m^3$) = | 1.956 |

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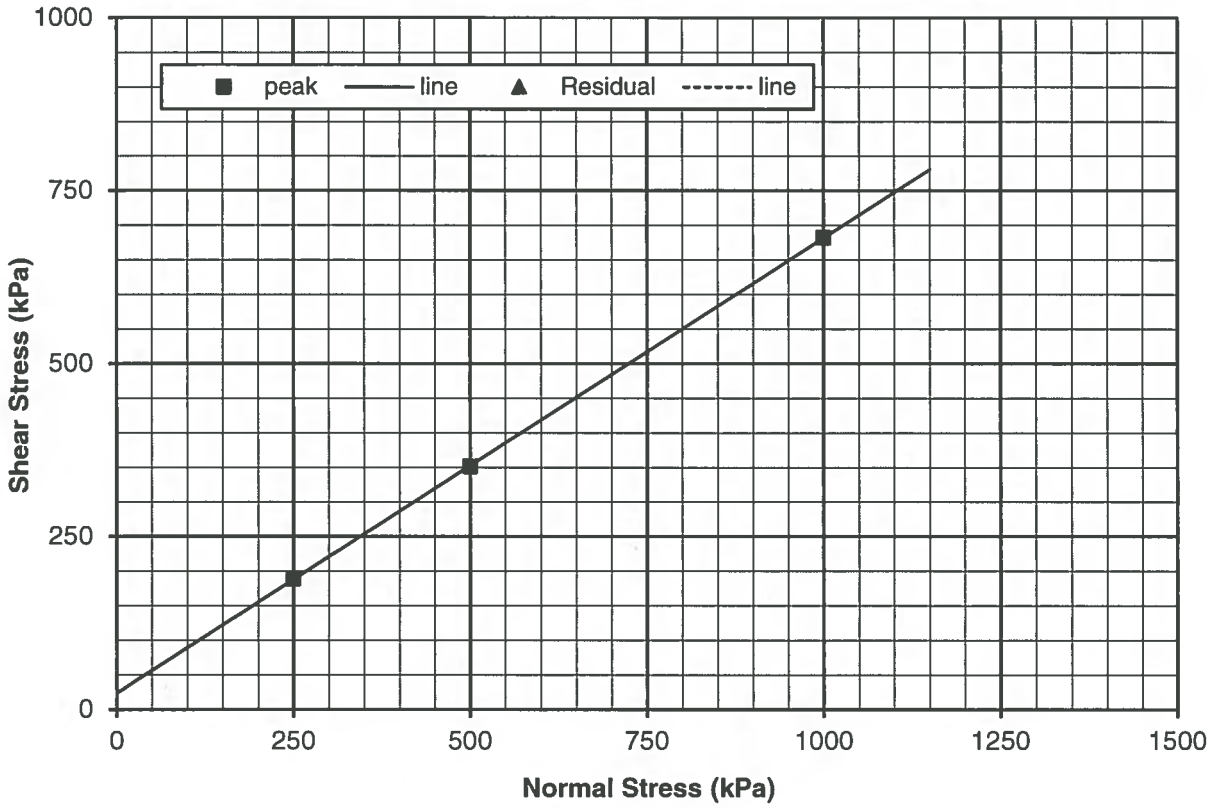
# SUMMARY of DIRECT SHEAR TEST RESULTS

**ASTM D3080**

| | | | |
|---|---|---|---|
| Project: | Eagle Gold | Test Hole: | GT18-08-S6 |
| Project No.: | **ENG.EARC03103-02** | Depth: | 3.5-3.7 m |
| Client: | **Victoria Gold** | Date: | May 31, 2018 |
| Attention: | **Dr. Stephen Wilbur** | Tested By: | TD/SK |
| Email: | SWilbur@vitgoldcorp.com | Office: | Edmonton |




Inferred Shear Strength Parameters :-

| | Cohesion Intercept (kPa) | Inferred Angle of Shearing Resistance (Degrees) |
|---|---|---|
| **Peak Strength:** | **23.5** | **33.3** |
| **Residual Strength:** | **N/A** | **N/A** |

**Reviewed By:** _____ P.Eng.

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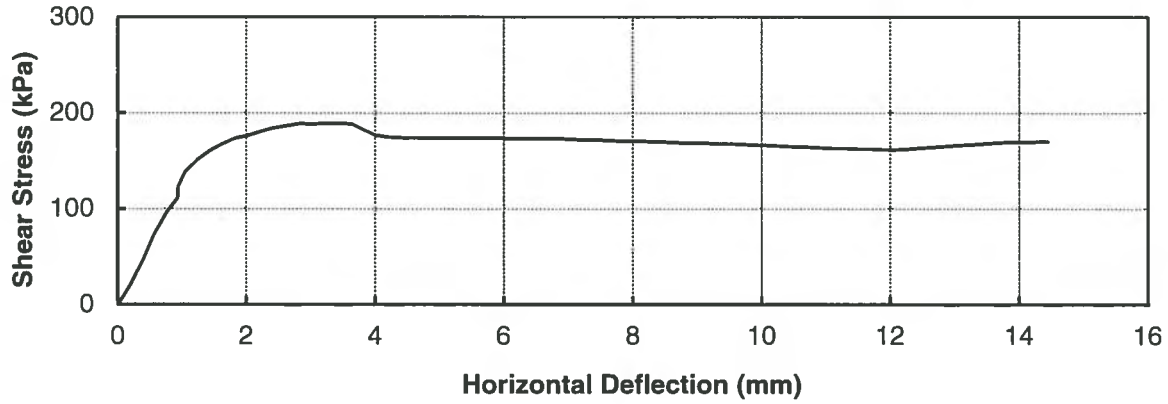
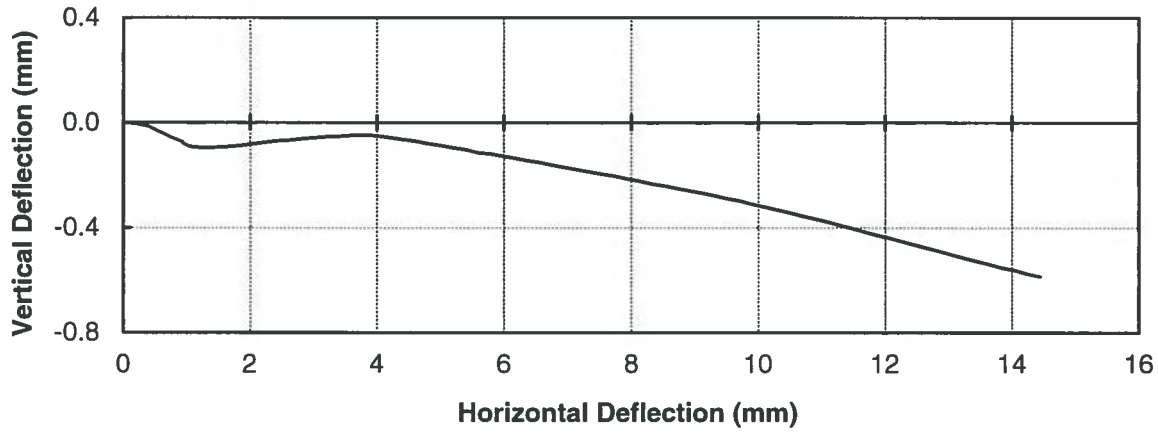
# DIRECT SHEAR TEST

ASTM D3080

| | | | |
|---|---|---|---|
| Project: | Eagle Gold | Test Hole No.: | GT18-08-S6 |
| Project No.: | ENG.EARC03103-02 | Depth: | 3.5-3.7 m |
| Client: | Victoria Gold | Test No.: | DS-7 |
| Date Tested: | May 23, 2018 | Machine: | 1 |
| Descrition: | SAND & SILT, trace clay, brown | Preparation: | Remolded |

| | | | |
|---|---|---|---|
| Normal Stress (kPa) = | 250 | Moisture Content (%) = | 15.5 |
| Peak Stress (kPa) = | 189 | Wet Density ($Mg/m^3$) = | 2.051 |
| | | Dry Density ($Mg/m^3$) = | 1.775 |




**Remarks:**

**Reviewed By:** _____ P.Eng.

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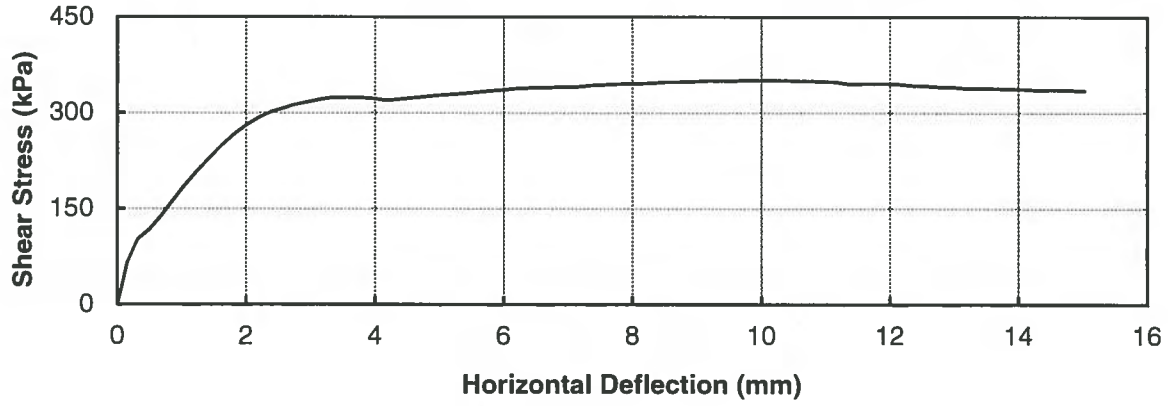
TETRA TECH

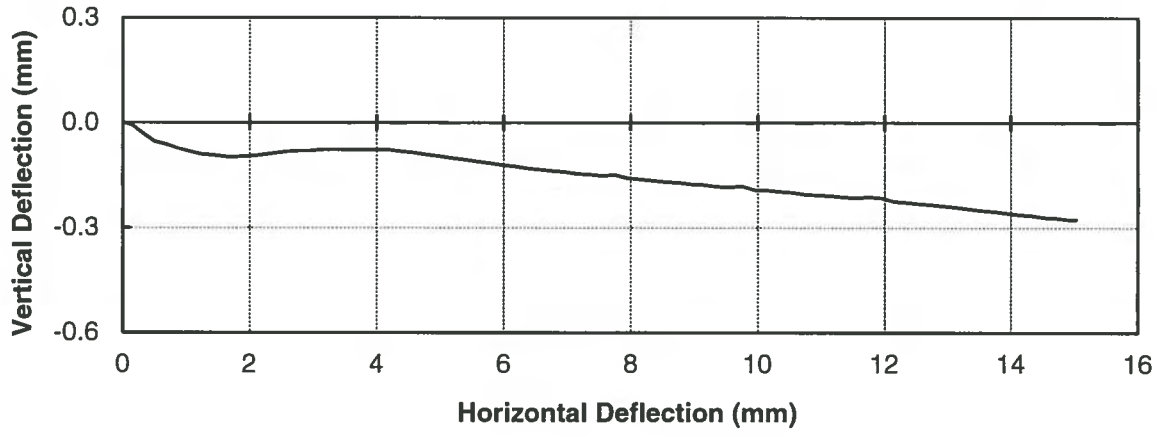
# DIRECT SHEAR TEST

ASTM D3080

| | | | |
|---|---|---|---|
| Project: | Eagle Gold | Test Hole No.: | GT18-08-S6 |
| Project No.: | ENG.EARC03103-02 | Depth: | 3.5-3.7 m |
| Client: | Victoria Gold | Test No.: | DS-8 |
| Date Tested: | May 23, 2018 | Machine: | 3 |
| Descrition: | SAND & SILT, trace clay, brown | Preparation: | Remolded |

| | | | |
|---|---|---|---|
| Normal Stress (kPa) = | 500 | Moisture Content (%) = | 14.4 |
| Peak Stress (kPa) = | 351 | Wet Density ($Mg/m^3$) = | 2.051 |
| | | Dry Density ($Mg/m^3$) = | 1.792 |




**Remarks:**

**Reviewed By:** _____ P.Eng.

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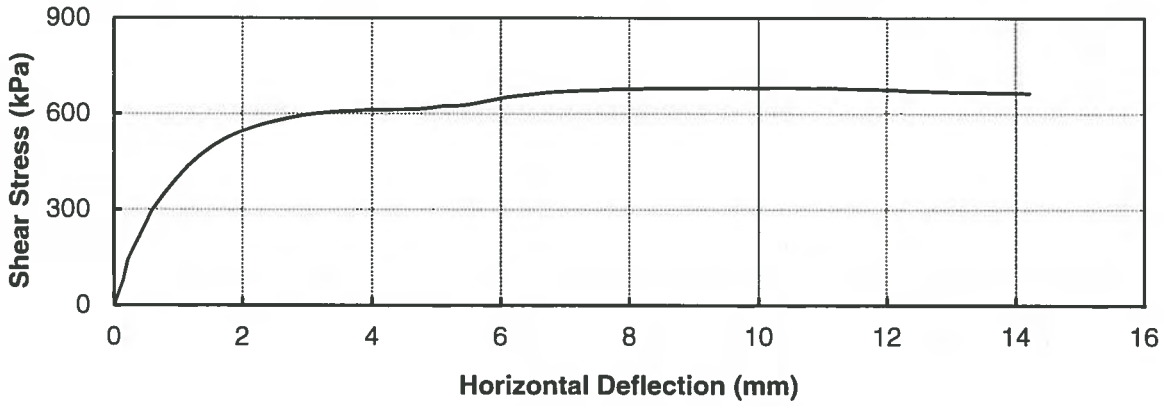
TETRA TECH

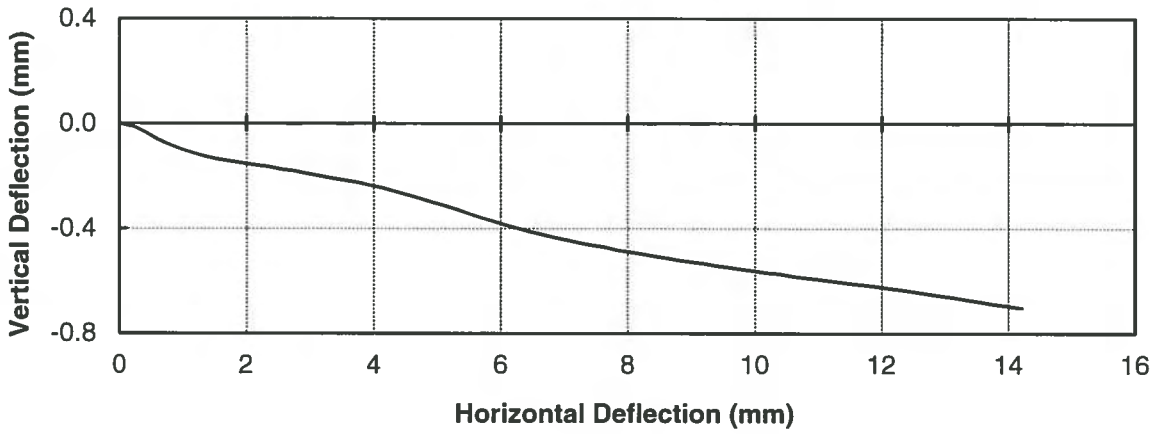
# DIRECT SHEAR TEST

ASTM D3080

| | | | |
|---|---|---|---|
| Project: | Eagle Gold | Test Hole No.: | GT18-08-S6 |
| Project No.: | ENG.EARC03103-02 | Depth: | 3.5-3.7 m |
| Client: | Victoria Gold | Test No.: | DS-9 |
| Date Tested: | May 23, 2018 | Machine: | 1 |
| Descrition: | SAND & SILT, trace clay, brown | Preparation: | Remolded |

| | | | |
|---|---|---|---|
| Normal Stress (kPa) = | 1000 | Moisture Content (%) = | 14.6 |
| Peak Stress (kPa) = | 682 | Wet Density ($Mg/m^3$) = | 2.051 |
| | | Dry Density ($Mg/m^3$) = | 1.789 |




**Remarks:**

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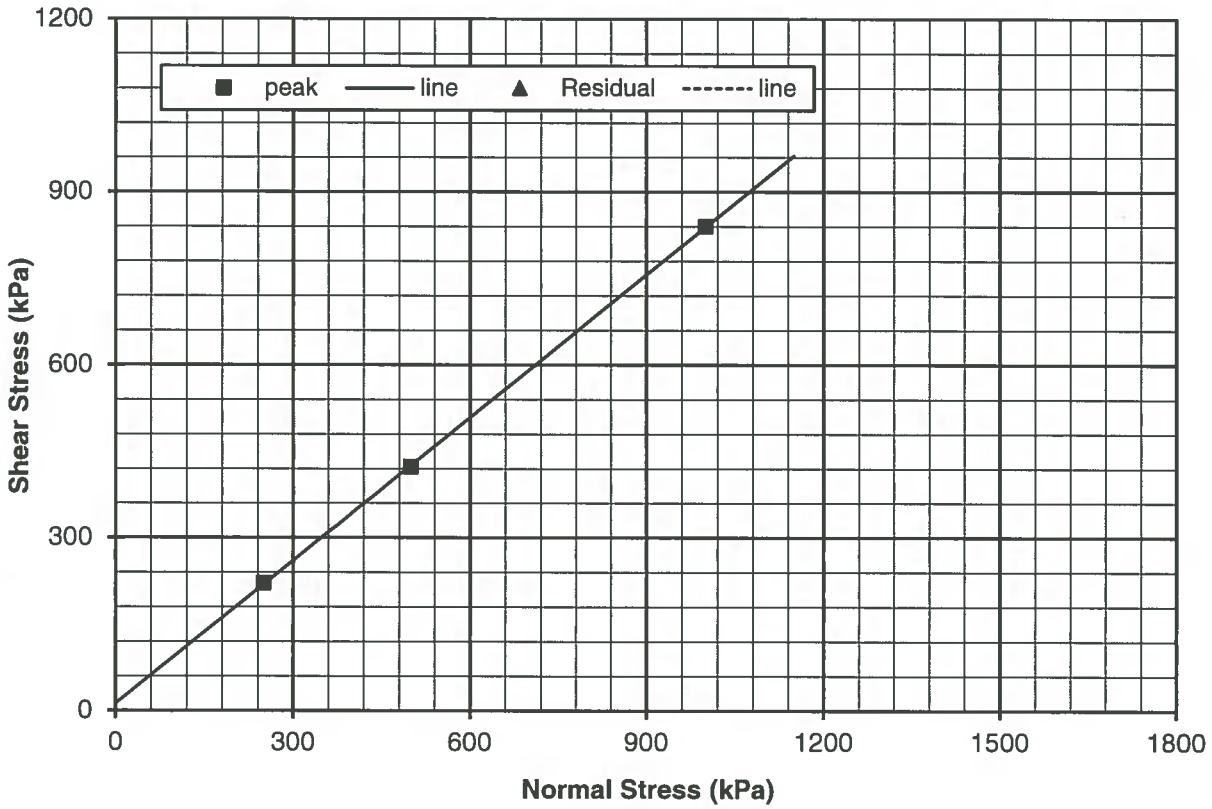
TETRA TECH

# SUMMARY of DIRECT SHEAR TEST RESULTS

**ASTM D3080**

| | | | |
|---|---|---|---|
| Project: | Eagle Gold | Test Hole: | GT18-08-S4 |
| Project No.: | **ENG.EARC03103-02** | Depth: | 2.45-2.6 m |
| Client: | **Victoria Gold** | Date: | May 31, 2018 |
| Attention: | **Dr. Stephen Wilbur** | Tested By: | TD/SK |
| Email: | SWilbur@vitgoldcorp.com | Office: | Edmonton |




Inferred Shear Strength Parameters :-

| | Cohesion Intercept (kPa) | Inferred Angle of Shearing Resistance (Degrees) |
|---|---|---|
| **Peak Strength:** | **12.5** | **39.6** |
| **Residual Strength:** | **N/A** | **N/A** |

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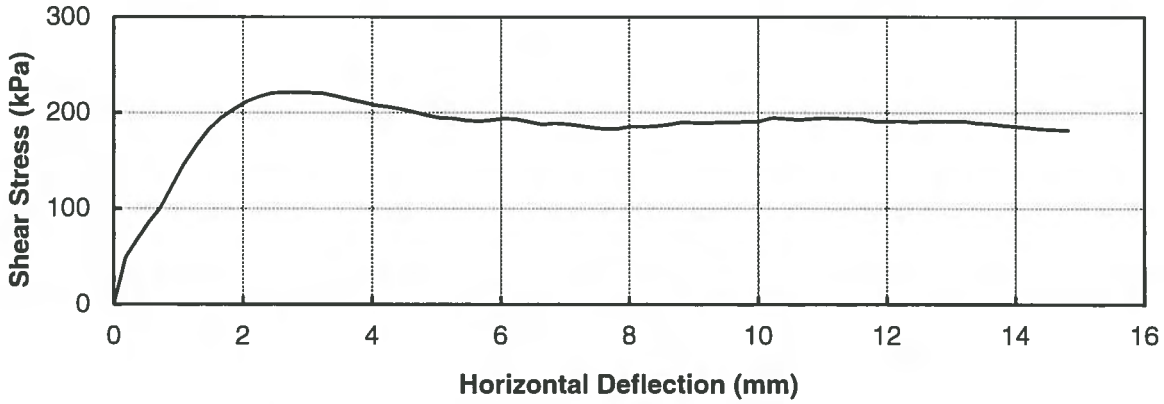
TETRA TECH

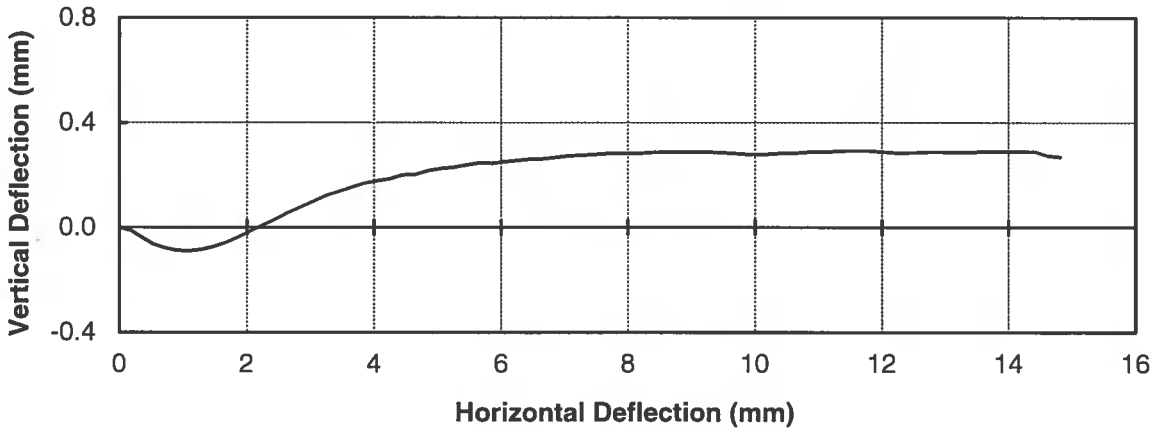
# DIRECT SHEAR TEST

ASTM D3080

| | | | |
|---|---|---|---|
| Project: | Eagle Gold | Test Hole No.: | GT18-08-S4 |
| Project No.: | ENG.EARC03103-02 | Depth: | 2.45-2.6 m |
| Client: | Victoria Gold | Test No.: | DS-10 |
| Date Tested: | May 25, 2018 | Machine: | 3 |
| Descrition: | SAND & GRAVEL, clayey, some silt, brown | Preparation: | Remolded |

| | | | |
|---|---|---|---|
| Normal Stress (kPa) = | 250 | Moisture Content (%) = | 12.9 |
| Peak Stress (kPa) = | 221 | Wet Density ($Mg/m^3$) = | 2.213 |
| | | Dry Density ($Mg/m^3$) = | 1.961 |




**Remarks:**

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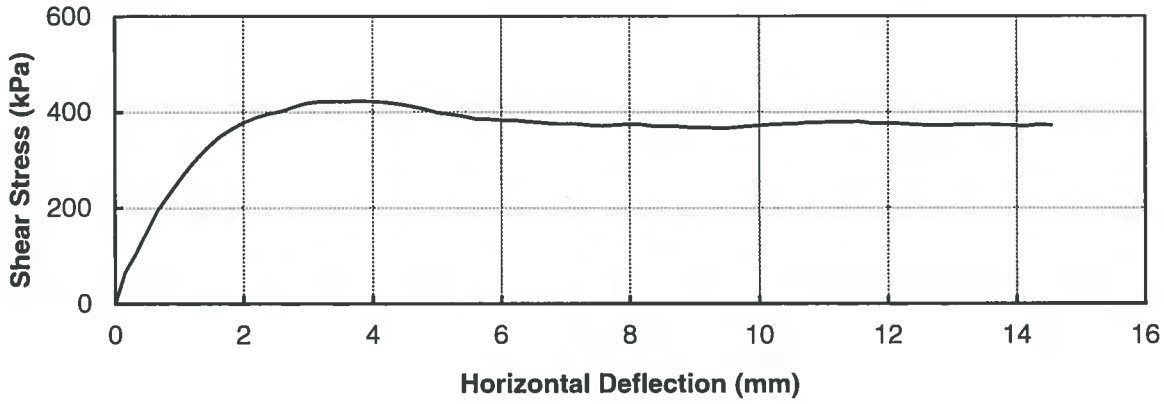
TETRA TECH

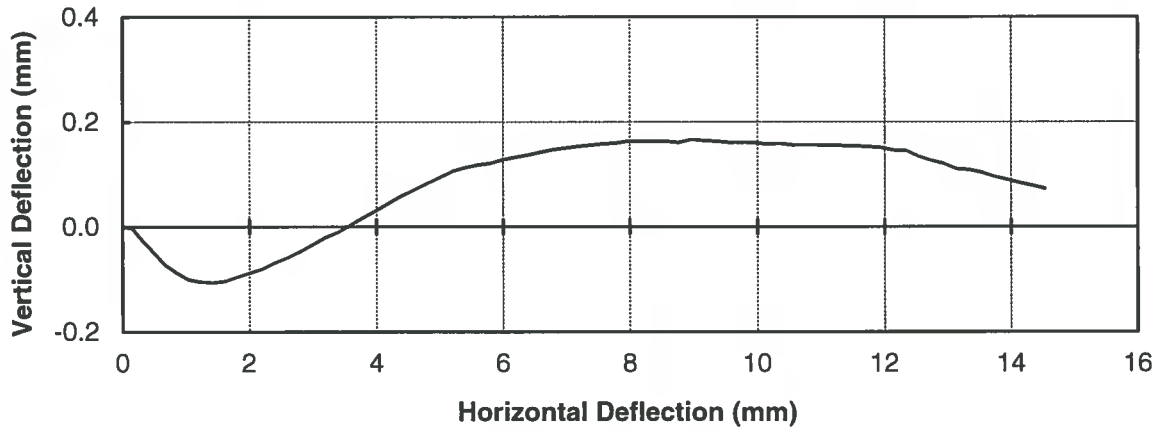
# DIRECT SHEAR TEST

ASTM D3080

| | | | |
|---|---|---|---|
| Project: | Eagle Gold | Test Hole No.: | GT18-08-S4 |
| Project No.: | ENG.EARC03103-02 | Depth: | 2.45-2.6 m |
| Client: | Victoria Gold | Test No.: | DS-11 |
| Date Tested: | May 29, 2018 | Machine: | 3 |
| Descrition: | SAND & GRAVEL, clayey, some silt, brown | Preparation: | Remolded |

| | | | |
|---|---|---|---|
| Normal Stress (kPa) = | 500 | Moisture Content (%) = | 12.5 |
| Peak Stress (kPa) = | 423 | Wet Density ($Mg/m^3$) = | 2.213 |
| | | Dry Density ($Mg/m^3$) = | 1.967 |

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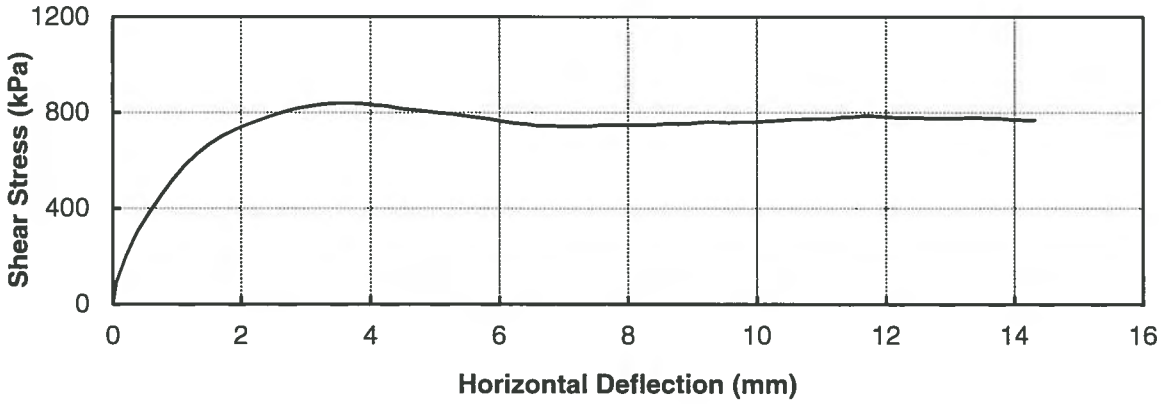
TETRA TECH

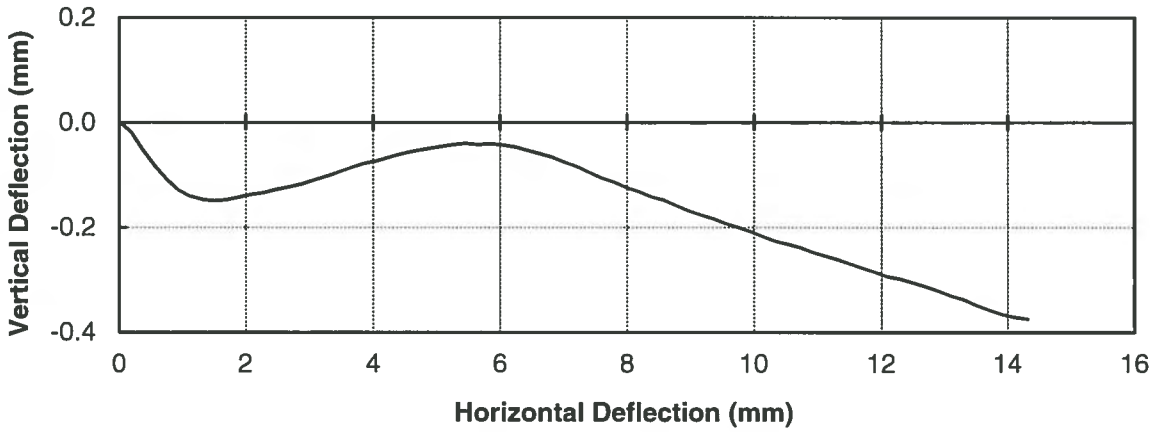
# DIRECT SHEAR TEST

ASTM D3080

| | | | |
|---|---|---|---|
| Project: | Eagle Gold | Test Hole No.: | GT18-08-S4 |
| Project No.: | ENG.EARC03103-02 | Depth: | 2.45-2.6 m |
| Client: | Victoria Gold | Test No.: | DS-12 |
| Date Tested: | May 29, 2018 | Machine: | 1 |
| Descrition: | SAND & GRAVEL, clayey, some silt, brown | Preparation: | Remolded |

| | | | |
|---|---|---|---|
| Normal Stress (kPa) = | 1000 | Moisture Content (%) = | 12.6 |
| Peak Stress (kPa) = | 840 | Wet Density ($Mg/m^3$) = | 2.214 |
| | | Dry Density ($Mg/m^3$) = | 1.966 |

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# APPENDIX D

## GTC INSTALLATION FORMS AND GROUND TEMPERATURE PROFILES

SITE: EAGLE GOLD MINE SITE, YT

LOCATION: GT18-01

COORDINATES: NORTHING: □100 952

EASTING: 459 831

GROUND ELEVATION: 913.0 □

1ST BEAD ELEVATION: 912.5 □

NUMBER OF BEADS: 16

CABLE INSTALLATION NO.: 1

CABLE SERIAL NO.: TT 2665

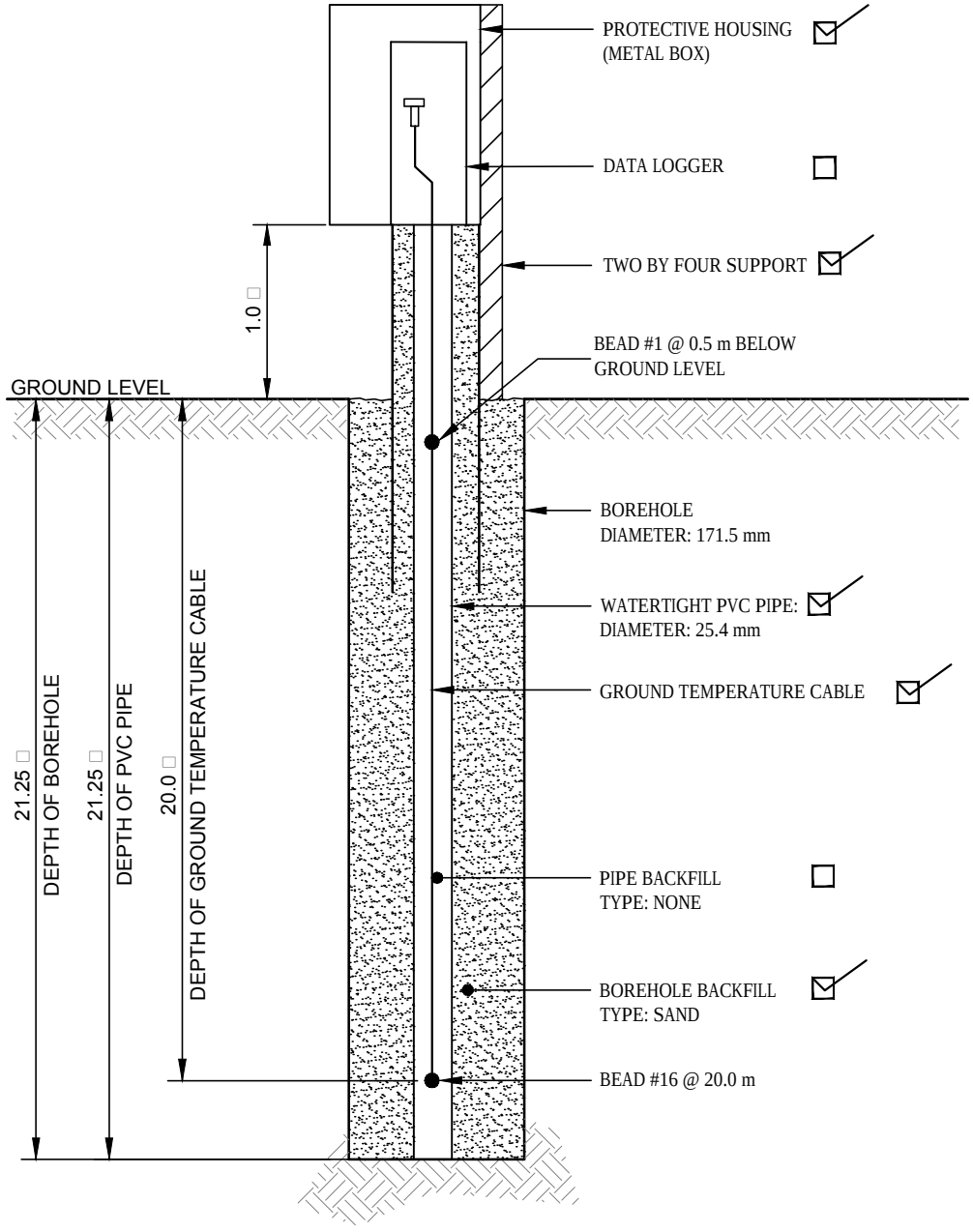
DRILLING DATE: A□r□□, 2018

INSTALLATION DATE: A□r□□, 2018

CABLE LENGTH: 21.5 □

LEAD LENGTH: 1.5 □

HOLE DEPTH: 21.25 □




| BEAD NO. | DEPTH BELOW OG (m) |
|---|---|
| 1 | 0.50 |
| 2 | 1.00 |
| 3 | 1.50 |
| 4 | 2.25 |
| 5 | 3.00 |
| 6 | 3.75 |
| 7 | 4.50 |
| 8 | 5.50 |
| 9 | 7.00 |
| 10 | 8.50 |
| 11 | 10.00 |
| 12 | 11.50 |
| 13 | 13.00 |
| 14 | 15.00 |
| 15 | 17.00 |
| 16 | 20.00 |

NOTES

1) INDICATE ORIGINAL GROUND ELEVATIONS
2) INDICATE ALL BEAD LOCATIONS
3) LEAD LENGTH IS THE LENGTH OF CABLE TO THE FIRST BEAD
4) ALL DIMENSIONS ARE IN METRES
5) DRAWING NOT TO SCALE

CLIENT

Victoria GOLD CORP

TETRA TECH

GROUND TEMPERATURE CABLE INSTALLATION REPORT
EAGLE GOLD MINE SITE, YT

GT18-01

| PROJECT NO. | DWN | CKD | REV |
|---|---|---|---|
| ENG.EARC03103-02 | RO | VER | 0 |

OFFICE: EDM

DATE: M□□2018

**GTC# TT 2665**

Q:\Edmonton\Engineering\E141\Projects\ENG.EARC03103-02 Victoria-Eagle Gold\GTC Installation Reports\Eagle Spring 2018 GTC Installation Reports.dwg [GTC# TT 2665] September 19, 2018 - 10:39:52 am (BY: OKKEMA, RYAN)

SITE: EAGLE GOLD MINE SITE, YT

LOCATION: GT18-0□

COORDINATES: NORTHING: □100 □09

EASTING: 460 139

GROUND ELEVATION: 965.0 □

1ST BEAD ELEVATION: 964.5 □

NUMBER OF BEADS: 16

CABLE INSTALLATION NO.: 2

CABLE SERIAL NO.: TT 2663

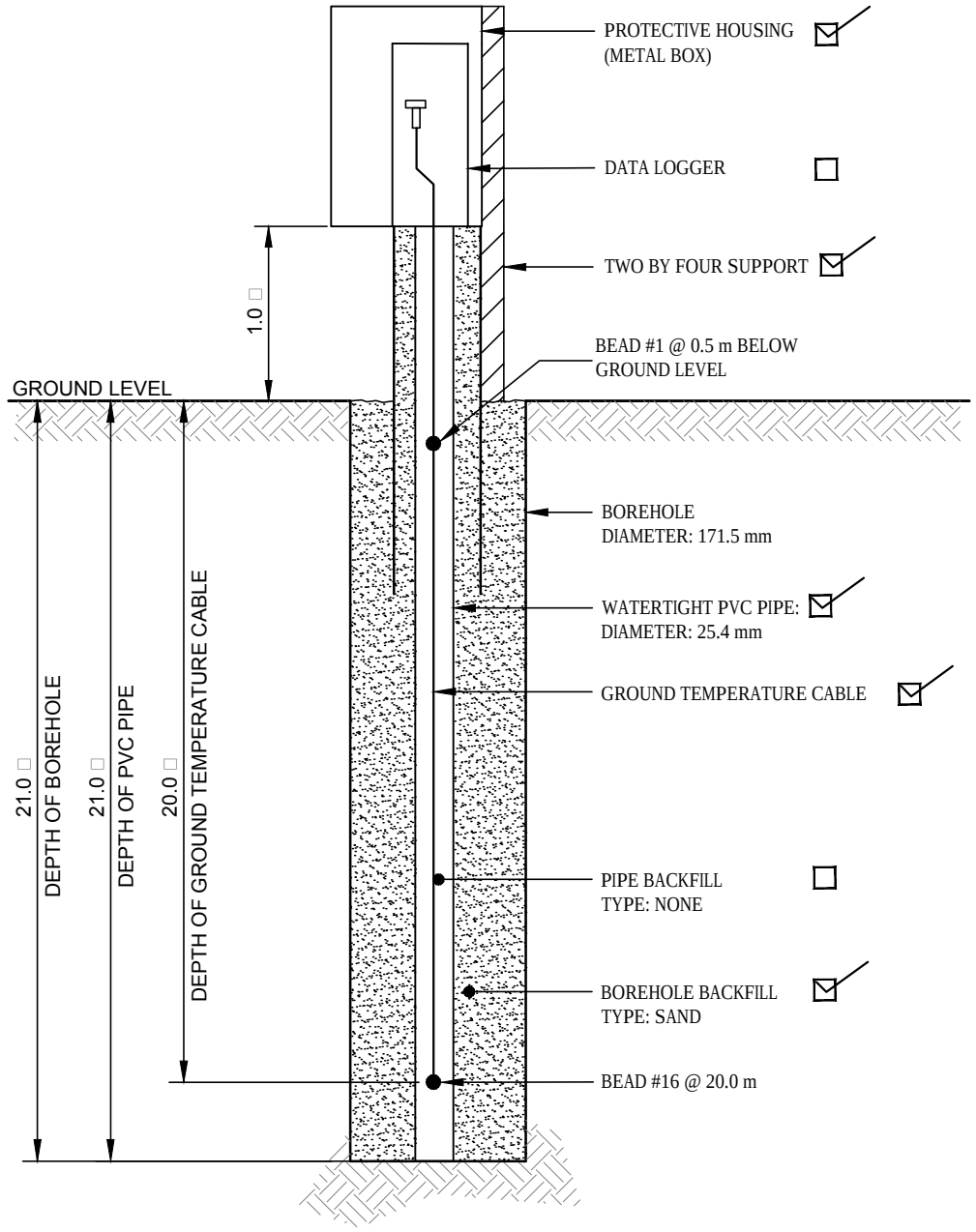
DRILLING DATE: A□r□8, 2018

INSTALLATION DATE: A□r□8, 2018

CABLE LENGTH: 21.5 □

LEAD LENGTH: 1.5 □

HOLE DEPTH: 21.0 □




| BEAD NO. | DEPTH BELOW OG (m) |
|---|---|
| 1 | 0.50 |
| 2 | 1.00 |
| 3 | 1.50 |
| 4 | 2.25 |
| 5 | 3.00 |
| 6 | 3.75 |
| 7 | 4.50 |
| 8 | 5.50 |
| 9 | 7.00 |
| 10 | 8.50 |
| 11 | 10.00 |
| 12 | 11.50 |
| 13 | 13.00 |
| 14 | 15.00 |
| 15 | 17.00 |
| 16 | 20.00 |

NOTES

1) INDICATE ORIGINAL GROUND ELEVATIONS
2) INDICATE ALL BEAD LOCATIONS
3) LEAD LENGTH IS THE LENGTH OF CABLE TO THE FIRST BEAD
4) ALL DIMENSIONS ARE IN METRES
5) DRAWING NOT TO SCALE

CLIENT

Victoria GOLD CORP

TETRA TECH

GROUND TEMPERATURE CABLE INSTALLATION REPORT
EAGLE GOLD MINE SITE, YT

GT18-07

| PROJECT NO. | DWN | CKD | REV |
|---|---|---|---|
| ENG.EARC03103-02 | RO | VER | 0 |

OFFICE: EDM

DATE: M□□2018

**GTC# TT 2663**

Q:\Edmonton\Engineering\E141\Projects\ENG.EARC03103-02 Victoria-Eagle Gold\GTC Installation Reports\Eagle Spring 2018 GTC Installation Reports.dwg [GTC# TT 2663] September 19, 2018 - 10:42:23 am (BY: OKKEMA, RYAN)

SITE: EAGLE GOLD MINE SITE, YT

LOCATION: GT18-05

COORDINATES: NORTHING: □100 814

EASTING: 460 006

GROUND ELEVATION: 944.0 □

1ST BEAD ELEVATION: 943.5 □

NUMBER OF BEADS: 16

CABLE INSTALLATION NO.: 3

CABLE SERIAL NO.: TT 2666

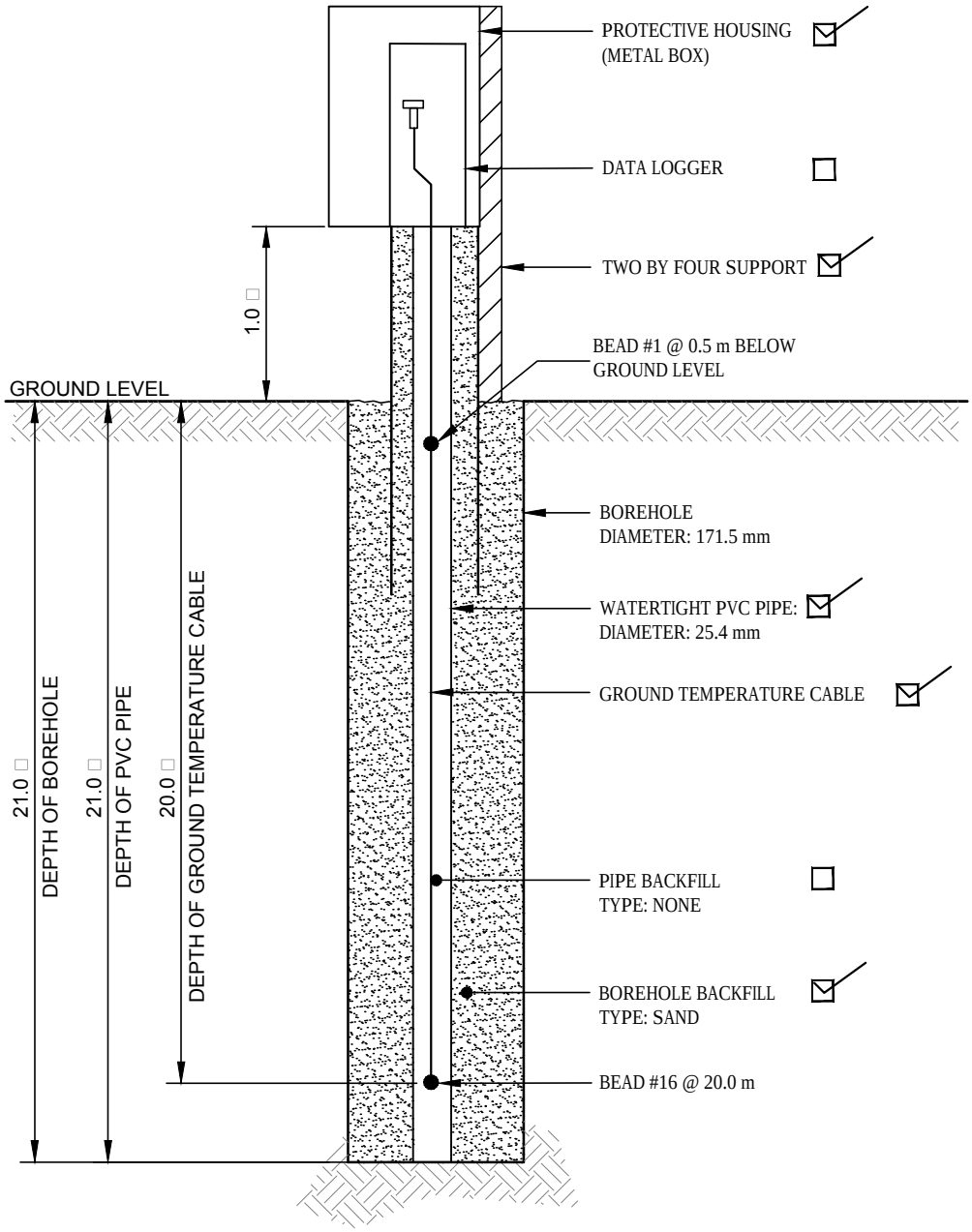
DRILLING DATE: A□r□9, 2018

INSTALLATION DATE: A□r□9, 2018

CABLE LENGTH: 21.5 □

LEAD LENGTH: 1.5 □

HOLE DEPTH: 21.0 □




| BEAD NO. | DEPTH BELOW OG (m) |
|---|---|
| 1 | 0.50 |
| 2 | 1.00 |
| 3 | 1.50 |
| 4 | 2.25 |
| 5 | 3.00 |
| 6 | 3.75 |
| 7 | 4.50 |
| 8 | 5.50 |
| 9 | 7.00 |
| 10 | 8.50 |
| 11 | 10.00 |
| 12 | 11.50 |
| 13 | 13.00 |
| 14 | 15.00 |
| 15 | 17.00 |
| 16 | 20.00 |

NOTES

1) INDICATE ORIGINAL GROUND ELEVATIONS
2) INDICATE ALL BEAD LOCATIONS
3) LEAD LENGTH IS THE LENGTH OF CABLE TO THE FIRST BEAD
4) ALL DIMENSIONS ARE IN METRES
5) DRAWING NOT TO SCALE

CLIENT

Victoria GOLD CORP

TETRA TECH

GROUND TEMPERATURE CABLE INSTALLATION REPORT
EAGLE GOLD MINE SITE, YT

GT18-05

| PROJECT NO. | DWN | CKD | REV |
|---|---|---|---|
| ENG.EARC03103-02 | RO | VER | 0 |

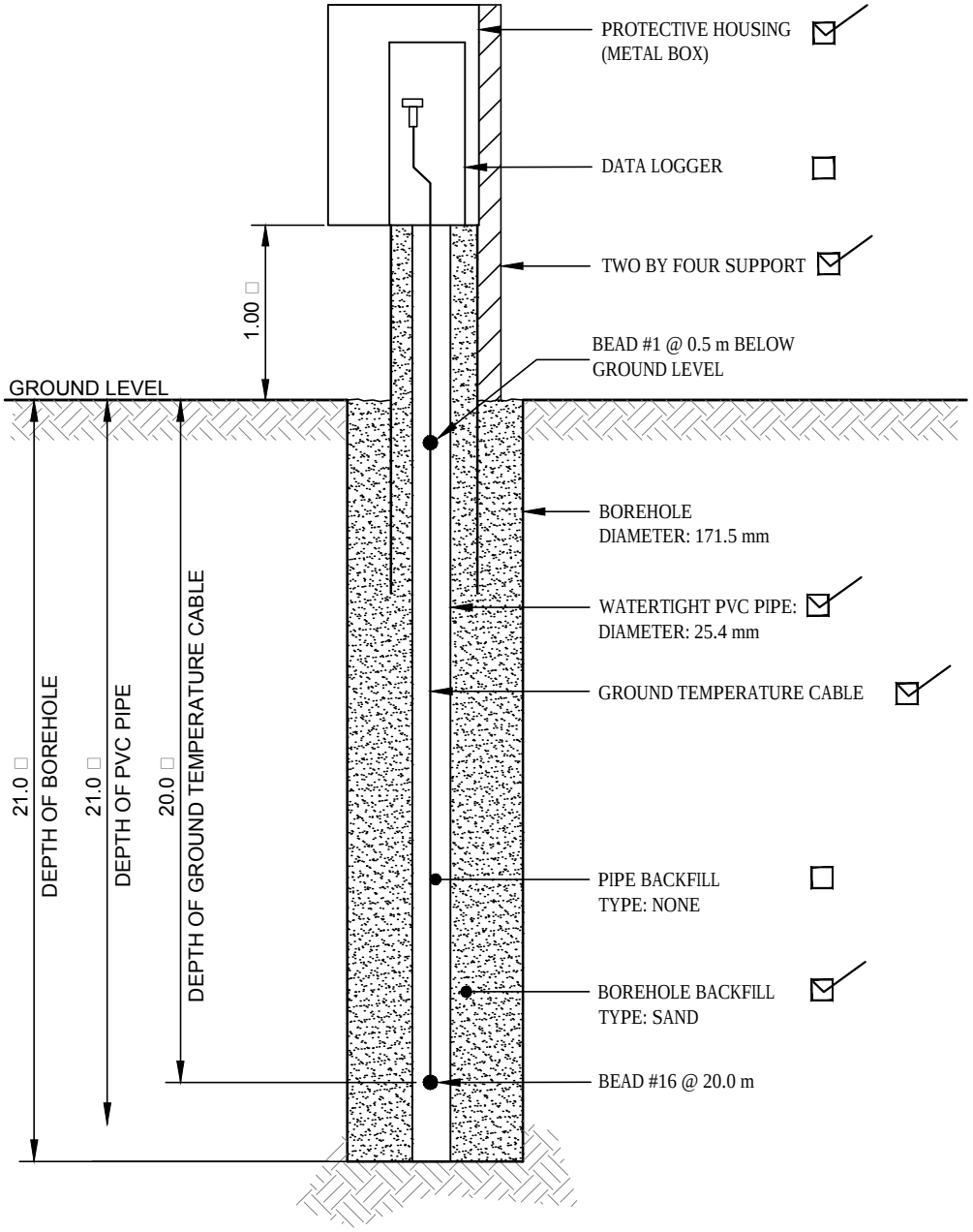
OFFICE: EDM

DATE: M□□2018

**GTC# TT 2666**

Q:\Edmonton\Engineering\E141\Projects\ENG.EARC03103-02 Victoria-Eagle Gold\GTC Installation Reports\Eagle Spring 2018 GTC Installation Reports.dwg [GTC# TT 2666] September 19, 2018 - 10:41:30 am (BY: OKKEMA, RYAN)

| | | | |
|---|---|---|---|
| SITE: | EAGLE GOLD MINE SITE, YT | CABLE INSTALLATION NO.: | 4 |
| LOCATION: | GT18-15 | CABLE SERIAL NO.: | TT 266□ |
| COORDINATES: NORTHING: | □100 583 | DRILLING DATE: | A□r□10, 2018 |
| EASTING: | 459 59□ | INSTALLATION DATE: | A□r□10, 2018 |
| GROUND ELEVATION: | 961.0 □ | CABLE LENGTH: | 21.5 □ |
| 1ST BEAD ELEVATION: | 960.5 □ | LEAD LENGTH: | 1.5 □ |
| NUMBER OF BEADS: | 16 | HOLE DEPTH: | 21.0 □ |




| BEAD NO. | DEPTH BELOW OG (m) |
|---|---|
| 1 | 0.50 |
| 2 | 1.00 |
| 3 | 1.50 |
| 4 | 2.25 |
| 5 | 3.00 |
| 6 | 3.75 |
| 7 | 4.50 |
| 8 | 5.50 |
| 9 | 7.00 |
| 10 | 8.50 |
| 11 | 10.0 |
| 12 | 11.5 |
| 13 | 13.0 |
| 14 | 15.0 |
| 15 | 17.0 |
| 16 | 20.0 |

NOTES

1) INDICATE ORIGINAL GROUND ELEVATIONS
2) INDICATE ALL BEAD LOCATIONS
3) LEAD LENGTH IS THE LENGTH OF CABLE TO THE FIRST BEAD
4) ALL DIMENSIONS ARE IN METRES
5) DRAWING NOT TO SCALE

CLIENT

Victoria GOLD CORP

TETRA TECH

GROUND TEMPERATURE CABLE INSTALLATION REPORT
EAGLE GOLD MINE SITE, YT

GT18-15

| PROJECT NO. | DWN | CKD | REV | |
|---|---|---|---|---|
| ENG.EARC03103-02 | RO | VER | 0 | **GTC# TT 2667** |
| OFFICE: EDM | DATE: M□□201□ | | | |

Q:\Edmonton\Engineering\E141\Projects\ENG.EARC03103-02 Victoria-Eagle Gold\GTC Installation Reports\Eagle Spring 2018 GTC Installation Reports.dwg [GTC# TT 2667] September 19, 2018 - 10:43:40 am (BY: OKKEMA, RYAN)

SITE: EAGLE GOLD MINE SITE, YT

LOCATION: GT18-08

COORDINATES: NORTHING: □099 141

EASTING: 459 51□

GROUND ELEVATION: 990.0 □

8TH BEAD ELEVATION: 989.35 □

NUMBER OF BEADS: 16 □□ ABOVE GL□

CABLE INSTALLATION NO.: 5

CABLE SERIAL NO.: TT 2668

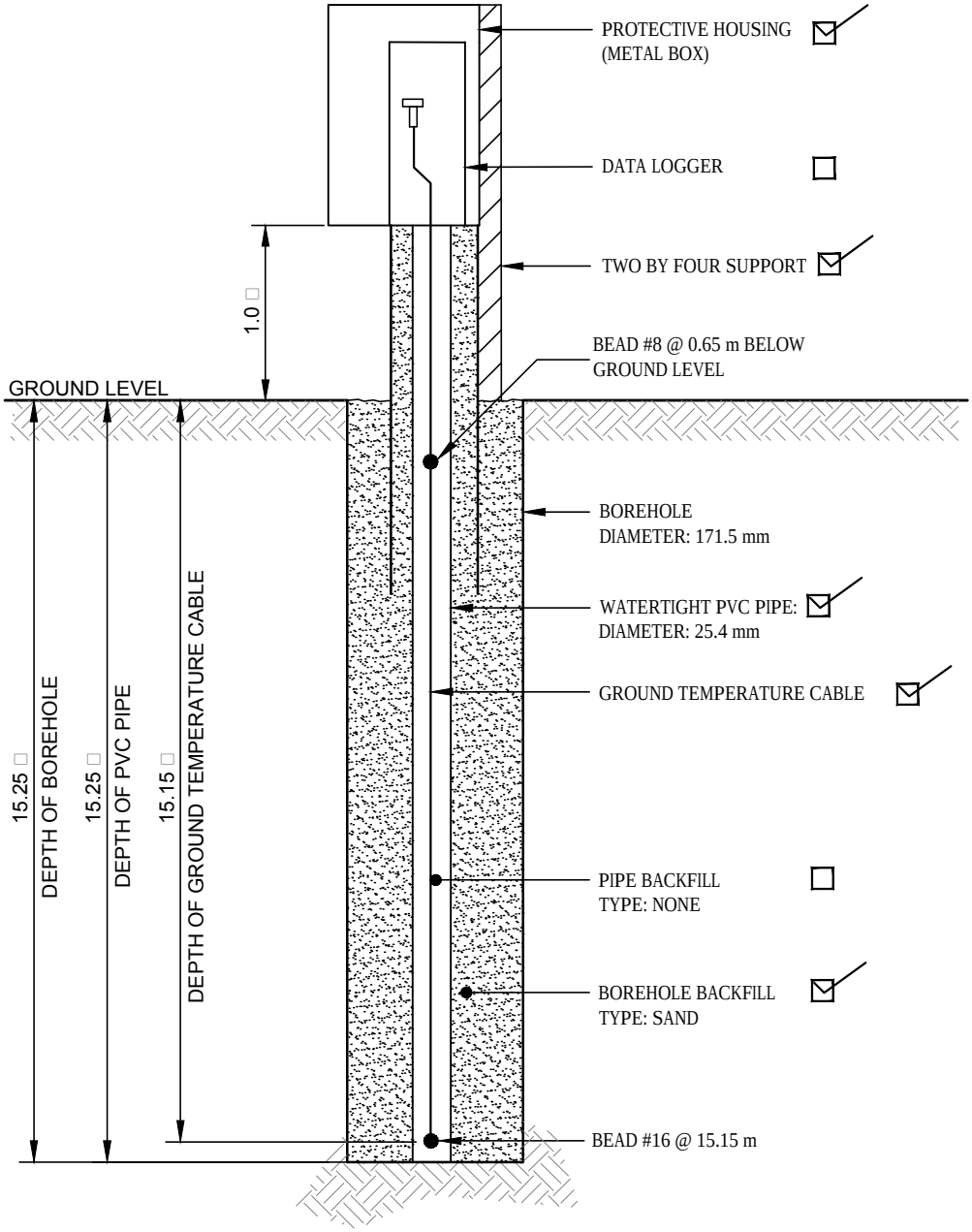
DRILLING DATE: A□r□□11, 2018

INSTALLATION DATE: A□r□□11, 2018

CABLE LENGTH: 21.5 □

LEAD LENGTH: 1.5 □

HOLE DEPTH: 15.25 □




| BEAD NO. | DEPTH BELOW OG (m) |
|---|---|
| 1 | -1.10 |
| 2 | -1.10 |
| 3 | -1.10 |
| 4 | -1.10 |
| 5 | -1.10 |
| 6 | -1.10 |
| 7 | -0.35 |
| 8 | 0.65 |
| 9 | 2.15 |
| 10 | 3.65 |
| 11 | 5.15 |
| 12 | 6.65 |
| 13 | 8.15 |
| 14 | 10.15 |
| 15 | 12.15 |
| 16 | 15.15 |

NOTES

1) INDICATE ORIGINAL GROUND ELEVATIONS
2) INDICATE ALL BEAD LOCATIONS
3) LEAD LENGTH IS THE LENGTH OF CABLE TO THE FIRST BEAD
4) ALL DIMENSIONS ARE IN METRES
5) DRAWING NOT TO SCALE

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TETRA TECH

GROUND TEMPERATURE CABLE INSTALLATION REPORT
EAGLE GOLD MINE SITE, YT

GT18-08

| PROJECT NO. | DWN | CKD | REV |
|---|---|---|---|
| ENG.EARC03103-02 | RO | VER | 0 |

OFFICE: EDM

DATE: M□□2018

**GTC# TT 2668**

Q:\Edmonton\Engineering\E141\Projects\ENG.EARC03103-02 Victoria-Eagle Gold\GTC Installation Reports\Eagle Spring 2018 GTC Installation Reports.dwg [GTC# TT 2668] September 19, 2018 - 10:42:47 am (BY: OKKEMA, RYAN)

SITE: EAGLE GOLD MINE SITE, YT

LOCATION: GT18-09

COORDINATES: NORTHING: □098 981

EASTING: 459 925

GROUND ELEVATION: 111□0 □

1ST BEAD ELEVATION: 1116.5 □

NUMBER OF BEADS: 16

CABLE INSTALLATION NO.: 6

CABLE SERIAL NO.: TT 2669

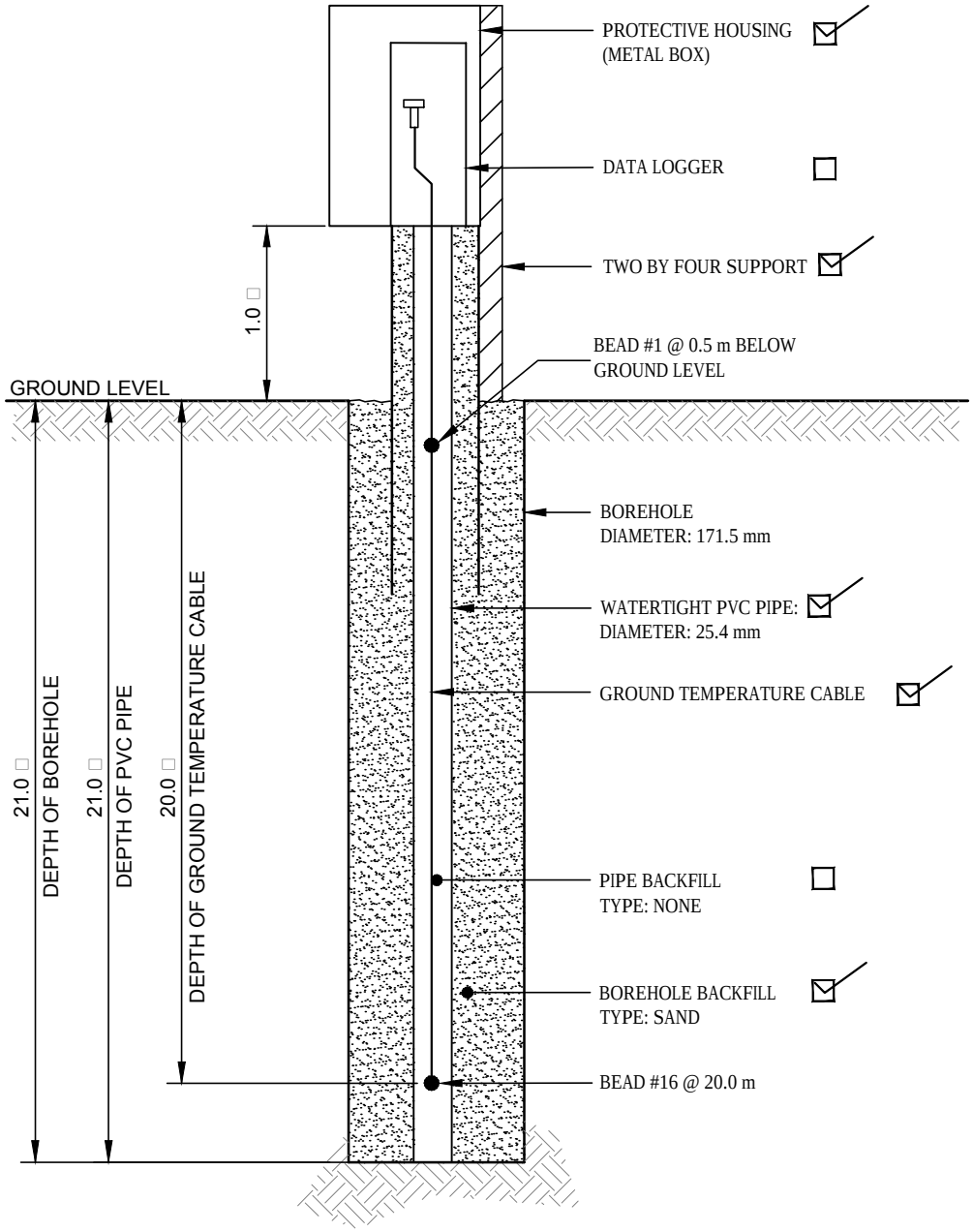
DRILLING DATE: A□r□13, 2018

INSTALLATION DATE: A□r□13, 2018

CABLE LENGTH: 21.5 □

LEAD LENGTH: 1.5 □

HOLE DEPTH: 21.0 □




| BEAD NO. | DEPTH BELOW OG (m) |
|---|---|
| 1 | 0.50 |
| 2 | 1.00 |
| 3 | 1.50 |
| 4 | 2.25 |
| 5 | 3.00 |
| 6 | 3.75 |
| 7 | 4.50 |
| 8 | 5.50 |
| 9 | 7.00 |
| 10 | 8.50 |
| 11 | 10.00 |
| 12 | 11.50 |
| 13 | 13.00 |
| 14 | 15.00 |
| 15 | 17.00 |
| 16 | 20.00 |

NOTES

1) INDICATE ORIGINAL GROUND ELEVATIONS
2) INDICATE ALL BEAD LOCATIONS
3) LEAD LENGTH IS THE LENGTH OF CABLE TO THE FIRST BEAD
4) ALL DIMENSIONS ARE IN METRES
5) DRAWING NOT TO SCALE

CLIENT

Victoria GOLD CORP

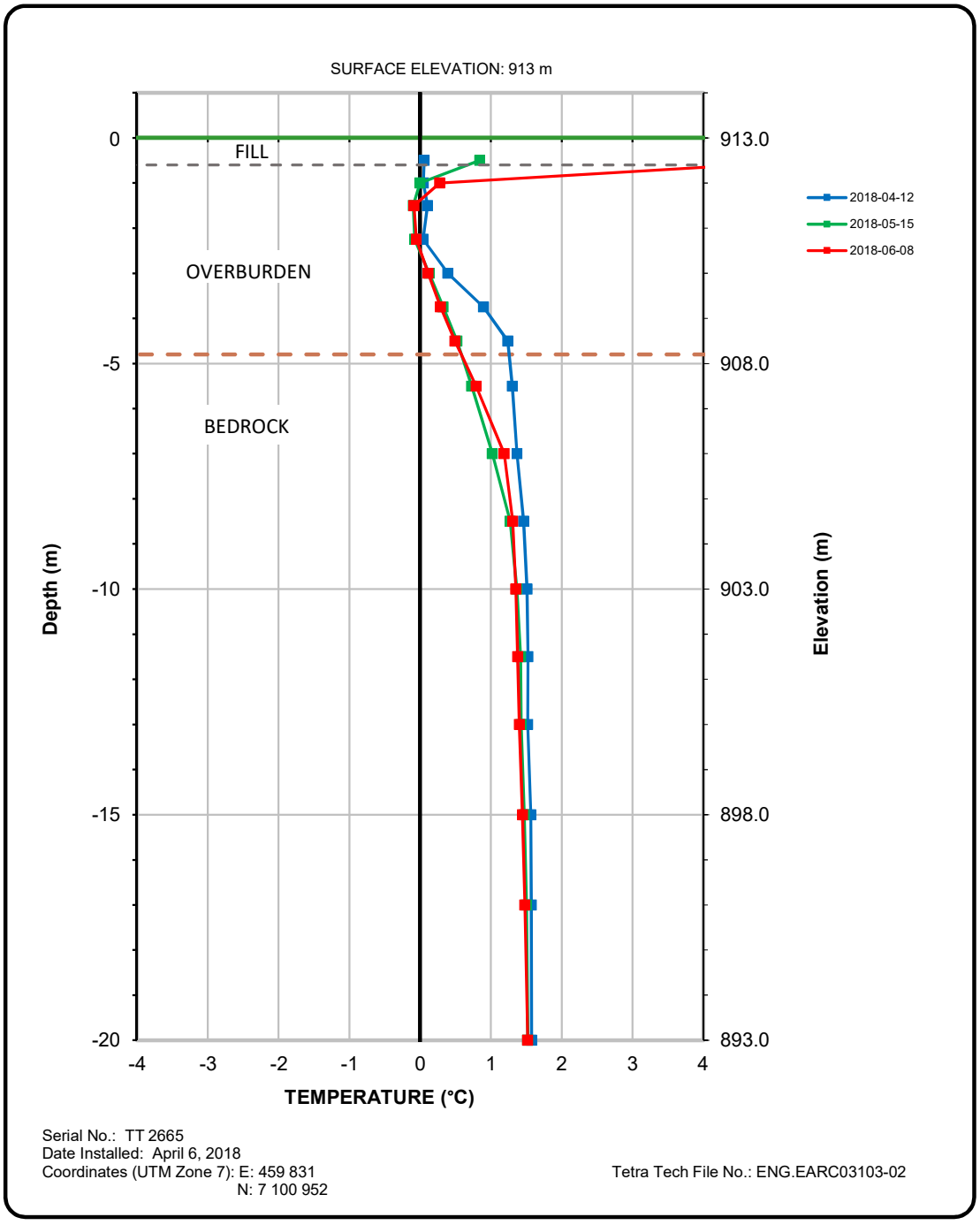
TETRA TECH

GROUND TEMPERATURE CABLE INSTALLATION REPORT
EAGLE GOLD MINE SITE, YT

GT18-09

| PROJECT NO. | DWN | CKD | REV | |
|---|---|---|---|---|
| ENG.EARC03103-02 | RO | VER | 0 | GTC# TT 2669 |
| OFFICE: EDM | DATE: M□□2018 | | | |

Q:\Edmonton\Engineering\E141\Projects\ENG.EARC03103-02 Victoria-Eagle Gold\GTC Installation Reports\Eagle Spring 2018 GTC Installation Reports.dwg [GTC# TT 2669] September 19, 2018 - 10:43:20 am (BY: OKKEMA, RYAN)

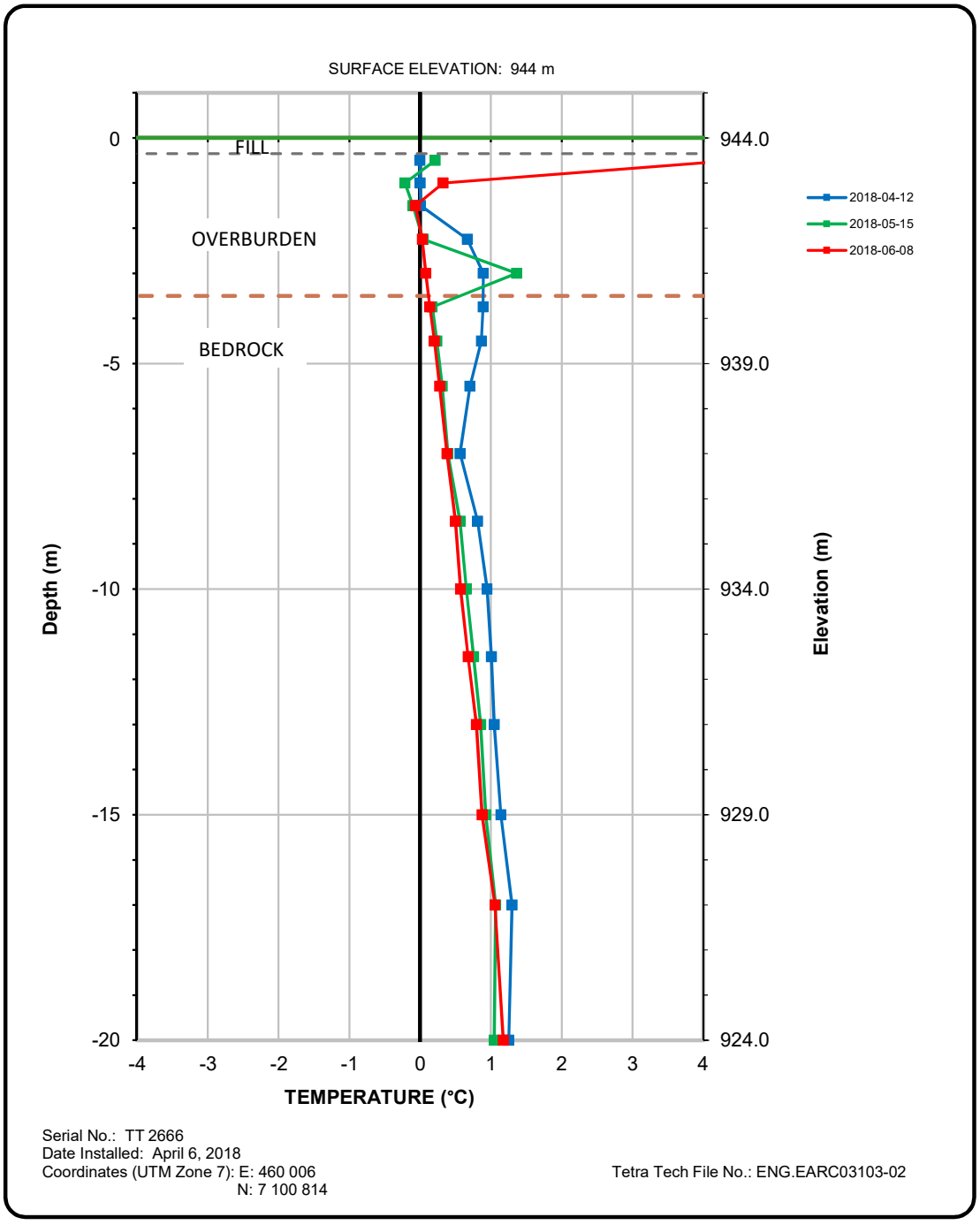



Serial No.: TT 2665
Date Installed: April 6, 2018
Coordinates (UTM Zone 7): E: 459 831
N: 7 100 952

Tetra Tech File No.: ENG.EARC03103-02

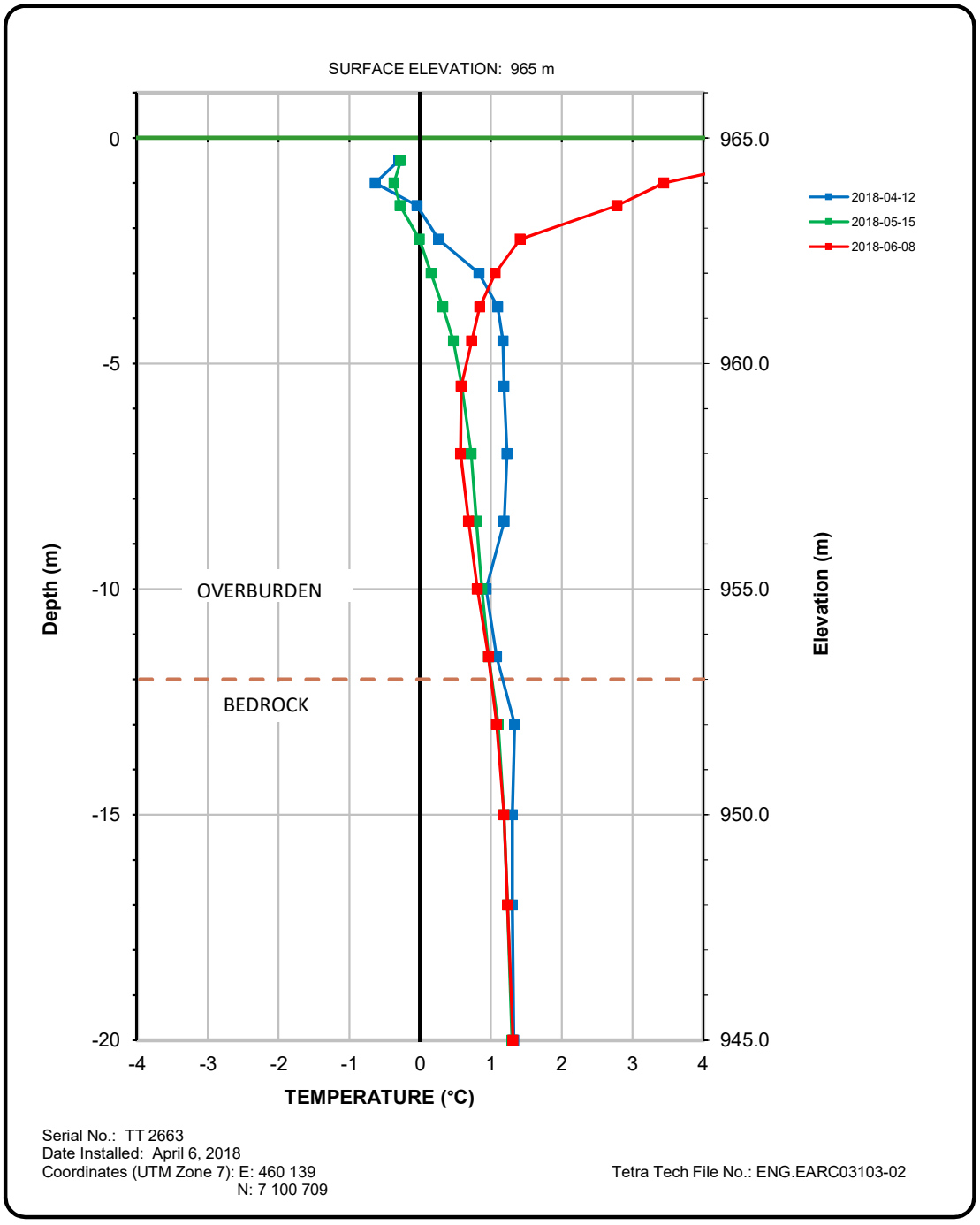
TETRA TECH

## Eagle Pup WRSA
**Ground Temperature Profile**
**Dublin Gulch, Borehole GT18-01**
**Elevation: 913 m**



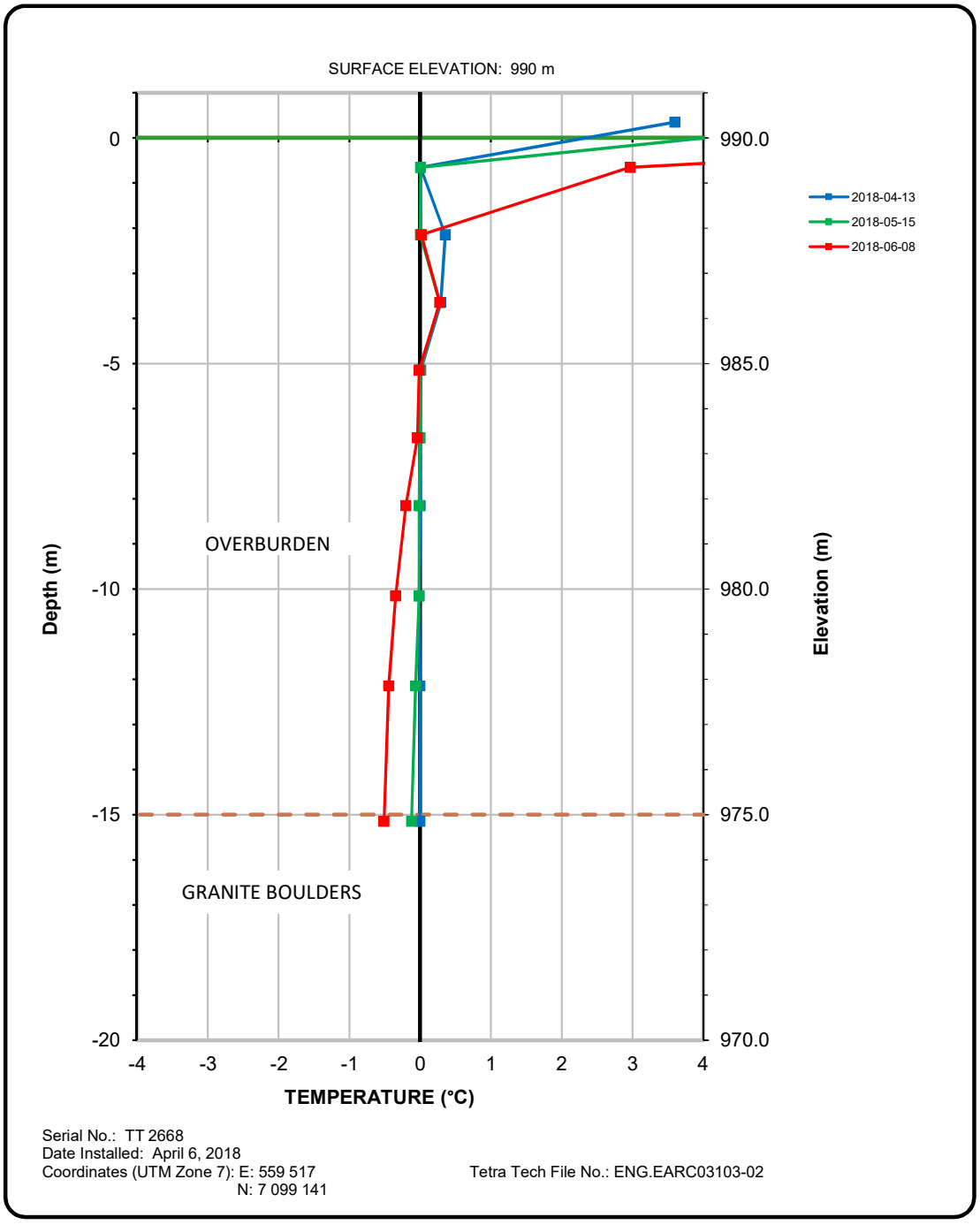

TETRA TECH

## Eagle Pup WRSA
**Ground Temperature Profile**
**Dublin Gulch, Borehole GT18-05**
**Elevation: 944 m**




TETRA TECH

**Eagle Pup WRSA**
**Ground Temperature Profile**
**Dublin Gulch, Borehole GT18-07**
**Elevation: 965 m**

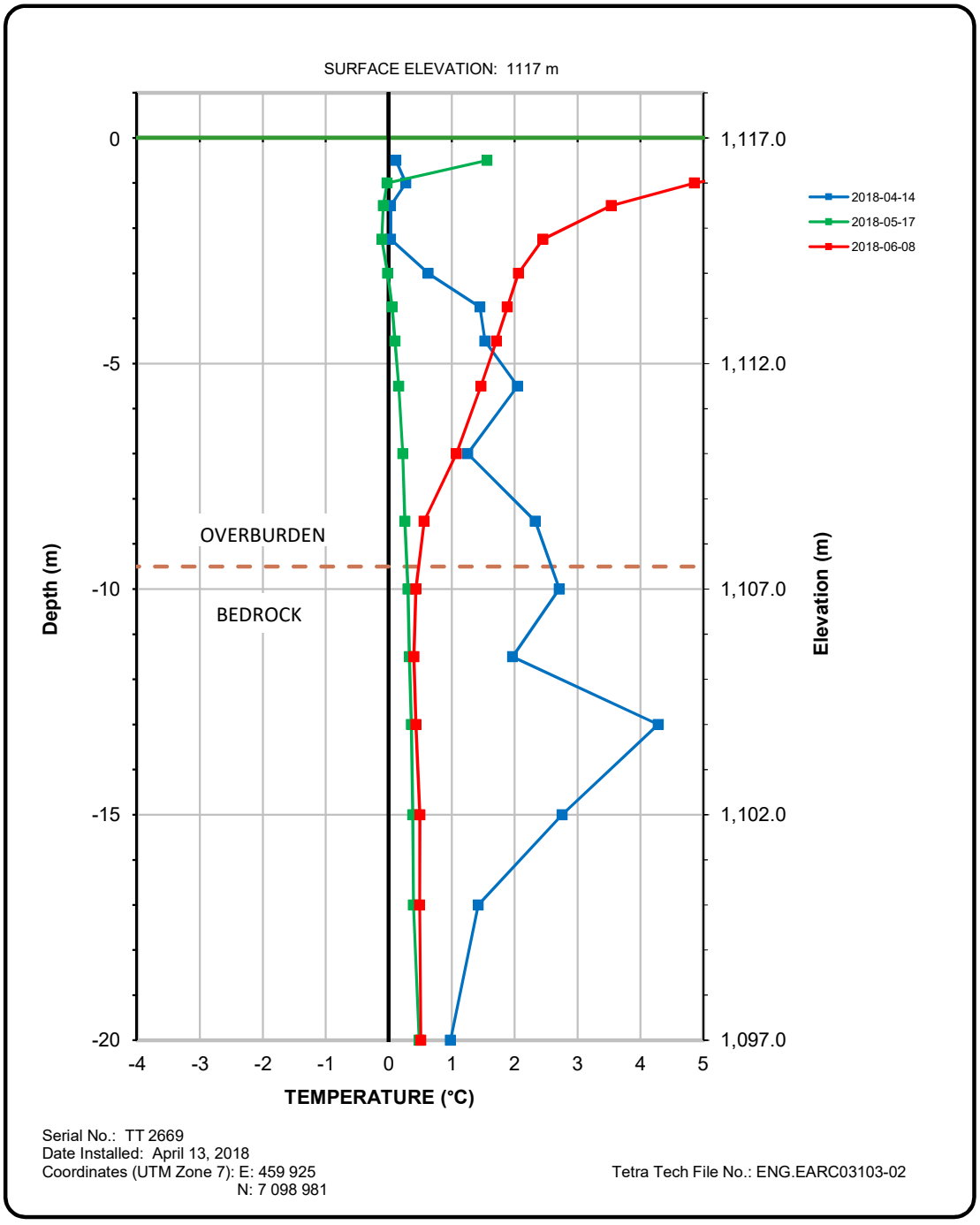



Serial No.: TT 2668
Date Installed: April 6, 2018
Coordinates (UTM Zone 7): E: 559 517
N: 7 099 141

Tetra Tech File No.: ENG.EARC03103-02

TETRA TECH

**Platinum Gulch WRSA**
**Ground Temperature Profile**
**Borehole GT18-08**
**Elevation: 990 m**

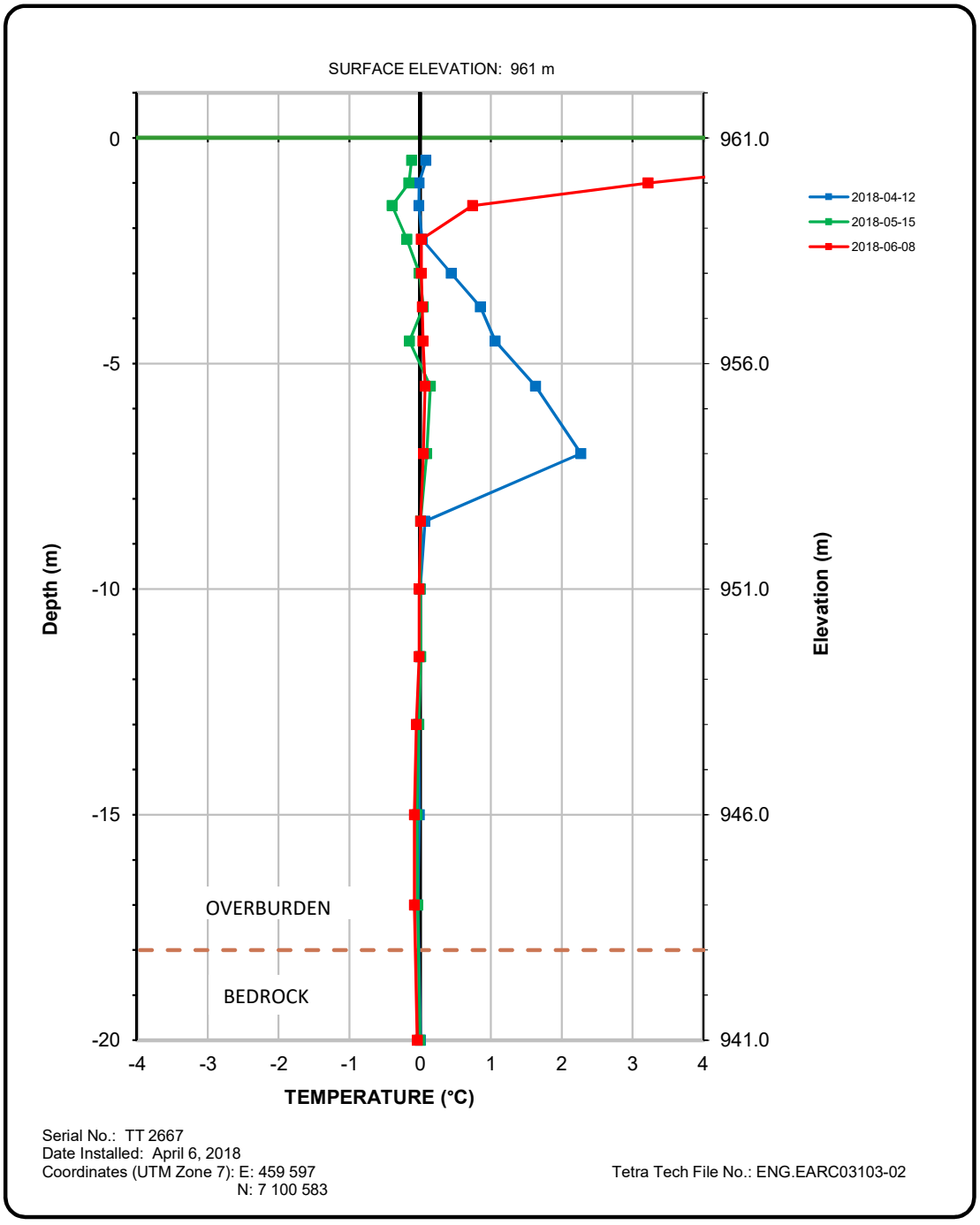



Serial No.: TT 2669
Date Installed: April 13, 2018
Coordinates (UTM Zone 7): E: 459 925
N: 7 098 981

Tetra Tech File No.: ENG.EARC03103-02

TETRA TECH

**Platinum Gulch WRSA**
**Ground Temperature Profile**
**Borehole GT18-09**
**Elevation: 1117 m**




TETRA TECH

**Potential ROM Storage**
**Ground Temperature Profile**
**Borehole GT18-15**
**Elevation: 961 m**

# APPENDIX E

## TETRA TECH WORK METHODS

# WM4400 GEOTECHNICAL SOIL CLASSIFICATION

| | | | | | |
|---|---|---|---|---|---|
| **CATEGORY:** | Field Testing/Sampling | **REVISION NO.:** | 03 | **PAGE:** | 1 of 15 |
| **SUBCATEGORY:** | Geotechnical | **REVISION DATE:** | July 2013 | **APPROVED DATE:** | June 2009 |
| | | | | **EXPIRY DATE:** | July 2017 |

## 1.0 PURPOSE

**1.1** To define the responsibilities and procedures to be used when classifying soils for geotechnical purposes. It is acknowledged that for some projects a variation from this method may be necessary. In these cases, authorization from the Manager (after consultation by the Manager with the Chief Engineer) should be obtained and documentation of the differences should be included in the report and project file.

## 2.0 SCOPE

**2.1** This work method applies to classification of soils based on inspection of samples recovered from ground investigations and laboratory testing. Soils are typically logged in the field, (generally in accordance with ASTM D2488), and then laboratory classification tests are used to confirm the description (generally in accordance with ASTM D2487-93). This work method is intended as a supplement to those standards.

**2.2** This work method is intended to provide Tetra Tech Canada (EBA OU)[1] employees with guidelines to carry out Geotechnical Soil Classification (WM4400). Significant deviation from this work method should be in collaboration with your Manager and/or a Quality Council (QC) Representative. Any variance should be documented and placed in the project file.

## 3.0 DEFINITIONS

**3.1** **EBA OU** – EBA Operating Unit of Tetra Tech Canada Inc. (Tetra Tech).

**3.2** **Boulders:** particles of rock (rounded or sub-rounded) that will not pass a 300 mm square sieve opening.

**3.3** **Cobbles:** particles of rock (rounded or sub-rounded) that will pass a 300 mm square sieve opening and be retained on a 75 mm sieve.

**3.4** **Gravel:** particles of rock that will pass a 75 mm sieve and be retained on a 4.75 mm sieve, with the following subsections:

- Coarse – passes a 75 mm sieve and is retained on a 19 mm sieve.
- Fine – passes a 19 mm sieve and is retained on a 4.75 mm sieve.

[1] Please note that as of January 1, 2017, our legal operating name changed from Tetra Tech EBA Inc. to Tetra Tech Canada Inc.

**3.5** **Sand:** particles of rock that will pass a 4.75 mm sieve and be retained on a 0.0750 mm sieve with the following subsections:

- Coarse – passes a 4.75 mm sieve and is retained on a 2 mm sieve.
- Medium – passes a 2 mm sieve and is retained on a 0.425 mm sieve.
- Fine – passes a 0.425 mm sieve and is retained on a 0.075 mm sieve.

**3.6** **Silt:** soil which passes a 0.075 mm sieve that is non-plastic or very slightly plastic (Plasticity Index <4 or plots below A line (Attachment 7.1)) and that exhibits little or no strength when air dry.

**3.7** **Clay:** soil passing a 0.002 mm sieve that exhibits plasticity (Plasticity Index >4 and plots on or above A line (Attachment 7.1)) and has considerable strength when air dry.

## 4.0 RESPONSIBILITIES AND AUTHORITIES

### 4.1 Manager

- Ensure that the project team is qualified to classify soils according to these methods.
- Ensure that the safety procedures/methods are understood and followed by project team.
- Ensure that the project team has sufficient project budget and schedule, and is aware of and meets these requirements.

### 4.2 Project Engineer

- Ensure that the field personnel and testing laboratory staff are qualified to complete the tests and classify the soils according to these methods.
- Designate the testing laboratory.
- Ensure that the field personnel have all necessary resources for the soil characterization.
- Be available for timely consultation with the field personnel and the testing laboratory.
- Review the soil classification report (borehole logs and laboratory test results) and provide timely input.
- Develop the laboratory testing program in consultation with field personnel.

### 4.3 Field Personnel

- Be familiar with this work method.
- Classify soils based on the inspection of samples recovered from geotechnical investigations and the results of laboratory testing.
- Have the equipment and supplies available to carry out the appropriate tests.
- Assist the Project Engineer in developing the laboratory testing program.

## 5.0 WORK METHOD

The following method identifies the soil properties that shall be recorded for a complete geotechnical soil description. There are two phases to the classification of soils: the initial description prepared in the field; and the refinement of the description completed after laboratory testing.

## 5.1 Soil Classification in the Field

### 5.1.1 General

Soil can generally be divided into three main groups:

- Coarse-grained soils (e.g., fluvial deposits);
- Fine-grained soils (e.g., lacustrine deposits); and
- Organic soils (e.g., topsoil).

It is the intent of this work method to make sure that the classifications of soils correlate in a general way with the engineering behaviour of soils.

**Coarse-grained:** the description's behaviour is confirmed in the laboratory with a Gradation Analysis.

**Fine-grained**: the description's behaviour is confirmed in the laboratory with the Atterberg Limits Test.

**Organic soils**: the description's behaviour is confirmed in the laboratory with Organic Content Test and Gradation Analysis.

When presented with a soil sample, the first task is to assess which of these three categories it is likely to fall into:

- If the sample contains visible organics, is dark brown or black, and has an organic smell, it will likely fall into the organic soil category (refer to Section 5.1.1.3);
- If it displays cohesion, such as a sample of till, it is likely to be a fine-grained material (refer to Section 5.1.1.2); and
- If it is non-plastic, such as pit-run granular, it is a coarse-grained soil (refer to Section 5.1.1.1).

**5.1.1.1 Coarse-grained Soils:** The behaviour is influenced mainly by sand and gravel sized particles and shall be described in the following sequence.

5.1.1.1.1 **Coarse-grained Principal Soil Constituent** is the soil component with the highest percentage by mass. This soil constituent shall be capitalized in the soil description:

Example: 52% sand, 34% silt, 12% gravel, 2% clay.

In this example, SAND will be the principal soil constituent since it has the highest percentage.

SAND, silty, some gravel and trace clay.

The percentage of cobbles and boulders in the original sample should be estimated and included in the description (e.g., 5% cobbles). Provide the maximum size of the boulder(s) evident (e.g., up to ---mm in diameter).

5.1.1.1.2 **Coarse-grained Minor Soil Constituents** include all remaining soil components that are found in the soil mass. These constituents are described according to the amount, by mass, of each component. They are described in the following manner and are listed in decreasing order of significance:

- >35% "and" (soil constituent in capital letters, e.g., …and SAND) (Note that the use of the qualifier "and" is not to be applied to SILT/CLAY Principal constituents)

- 21 to 35% “y – adjective” (e.g., silty, clayey)
- 10 to 20% “some” (soil constituent, e.g.. some sand)
- >0 to 10% “trace” (soil constituent, e.g.. trace gravel)
- “occasional” use for noting presence of isolated occurrences

Example: 40% sand, 36% silt, 21% gravel, 3% clay shall be called SAND and SILT, gravelly, trace clay

5.1.1.1.3 **Coarse-grained Grading** shall describe the particle size distribution. In general, soils with predominantly one particle size are poorly graded, while soils with a range of particle sizes are well graded.

5.1.1.1.4 **Coarse-grained Particle Size** shall further describe the size of particles of the principal soil constituent in coarse-grained soils. The principal soil constituent shall be described as any, some, or all of the following:

- *fine* and *coarse* for gravel; and
- *fine*, *medium*, and *coarse* for sand.

Note: these descriptions can also be used if the granular soils are a minor constituent.

5.1.1.1.5 **Coarse-grained Angularity/Particle Shape** shall describe the angularity and shape of the principal soil constituent in coarse-grained soils.

The angularity of coarse-grained soils shall be described as one or more of the following: *angular*, *sub-angular*, *sub-rounded*, *rounded*.

Particle shape shall be described as one or more of the following: *flat*, *elongated* (see Attachment 7.2 for a more complete description).

Note: these descriptions can also be used if the granular soils are a minor constituent.

5.1.1.1.6 **Coarse-grained Moisture** shall describe the wetness of the soil mass. The following terms shall be used to describe moisture:

- *dry* – no moisture can be seen or felt
- *damp* – a slight dampness to the touch when handling the soil
- *moist* – soil is moist to the touch but there is no free water
- *wet* – a film of water is visible around the particles
- *very wet* – there is free water, the water is separated from the soil particles

5.1.1.1.7 **Coarse-grained Consistency** shall describe the in situ density of granular soils. It is determined during drilling with Standard Penetration Testing, Dynamic Cone Penetration Testing, Becker Penetration Testing, or Cone Penetration Testing. The consistency of the soil shall be described using the following terms: *very loose*, *loose*, *compact*, *dense*, *very dense* (see Attachment 7.3 for the relationship between SPT N - index and Consistency).

5.1.1.1.8 **Coarse-grained Colour** shall describe the overall colour of the moist soil mass as well as any staining or mottling that may be present. If the colour provided in the description is for the dry soil, this should be noted. The Munsell Soil Colour Chart will be used as a reference.

5.1.1.1.9 **Coarse-grained Odour** shall describe any odour that is emitted from the soil mass. This may include a decaying smell that would indicate the presence of organics or a petroleum or chemical smell that may signal an area of contamination.

5.1.1.1.10 **Coarse-grained Inclusions** shall describe any other material that is present within the soil mass. Examples of inclusions include, but are not limited to, roots, metal pieces, glass, concrete, and precipitates.

5.1.1.1.11 **Coarse-grained Origin** shall be the geologic or anthropologic source of the deposit. This descriptor should be capitalized and bracketed, e.g., (GLACIAL TILL) or (FILL), and shall be inserted after the Principal Component, e.g. SAND (TILL)…

5.1.1.1.12 **Coarse-grained Example** of a complete soil description is as follows:

- SAND (ALLUVIUM), silty, some gravel, trace clay, occasional boulders and shell fragments, well graded, damp, compact, grey; fine to medium sand; fine to coarse rounded gravel; boulders up to 2000 mm diameter

**5.1.1.2** **Fine-grained** soil behaviour is influenced mainly by silt and clay sized particles. It must be stressed that the final (i.e., laboratory results based) description of fine-grained soil is based strictly on behaviour, not the grain size distribution. They shall be described in the following sequence:

5.1.1.2.1 **Fine-grained Principal Soil Constituent** shall be described as above for Coarse-grained Principal Soil Constituent. The principal soil constituent should describe the engineering behaviour of the soil mass.

The following field tests shall be performed to determine if the soil behaves as a SILT or as a CLAY in fine-grained soils:

- dilatancy, dry strength, toughness, thread roll test (see Attachment 7.4 for a complete description of these tests)

Example: 50% silt, 27% clay, 20% sand, and 3% gravel.

**In this example, although silt is the principal soil constituent (by size/mechanical analysis), the soil will behave as a clay due to clay content. As a general rule, clay contents over about 20% dominate soil behaviour.**

CLAY, silty, some sand, trace gravel.

Note: for fine-grained soils the description should be either Clay or Silt but not Clay and Silt.

5.1.1.2.2 **Fine-grained Minor soil constituents** include all remaining soil components that are found in the soil mass. These constituents are described according to the amount, by mass, of each component. They are described in the following manner and are listed in decreasing order of significance:

- >35% “and” (soil constituent in capital letters, e.g., …and SAND) (Note that the use of the qualifier “and” is not to be applied to SILT/CLAY Principal constituents, i.e., SILT and CLAY).
- 21 to 35% “y-adjective” (e.g., silty, clayey)
- 10 to 20% “some” (soil constituent, e.g., some sand)
- >0 to 10% “trace” (soil constituent, e.g., trace gravel)
- “occasional” use for noting presence of isolated inclusions

5.1.1.2.3 **Fine-grained Structure** describes the features that are found throughout the soil mass if any. Structure can be an indication of the process of deposition or geologic history. Examples of structures include stratification, layering, and lamination.

5.1.1.2.4 **Fine-grained Moisture** shall be described as above in Section 5.1.1.1.6 with the following changes:

- *wet* – the soil can be easily smeared or remolded between fingers
- *very wet* will not be used to describe fine-grained soils

5.1.1.2.5 **Fine-grained Consistency** shall describe the stiffness of the soil mass. The tests mentioned in Section 5.1.1.1.7 can be used to approximate the consistency of the soil. Since soil samples are usually disturbed, a lower bound estimate of the consistency can be made from the stiffness of the sample. Consistency of fine-grained soils shall be described using the following terms: *very soft*, *soft*, *firm*, *stiff*, *very stiff*, *hard*

Note: for silt, the consistency can be described as above if it displays plasticity, or as described in Section 5.1.1.1.7 if it is very low to non-plastic (see Attachment 7.5 for a more detailed description of these terms).

5.1.1.2.6 **Fine-grained Plasticity** shall describe the ability of a soil to undergo deformation without cracking or crumbling. Plasticity can be determined by performing a thread roll test in the field. The plasticity of fine grained soils shall be described using the following terms: *non-plastic*, *low plastic*, *medium plastic*, *high plastic* (see Attachment 7.6 for a more detailed description of these terms).

5.1.1.2.7 **Fine-grained Colour** shall be described as above in Section 5.1.1.1.8.

5.1.1.2.8 **Fine-grained Odour** shall be described as above in Section 5.1.1.1.9.

5.1.1.2.9 **Fine-grained Inclusions** shall be described as above in Section 5.1.1.1.10.

5.1.1.2.10 **Fine-grained Example** of a complete soil description is as follows:

- CLAY (LACUSTRINE), silty, some sand, trace gravel, occasional shell fragments, moist, firm, low plastic, brown fine sand; rounded, fine gravel.

**5.1.1.3 Organic Soils** These soils can generally be divided into three categories: transition soils, peat, and organic silt or clay.

Transition soils are topsoil and 'B' horizon soils that are typically the result of weathering of surficial soils and decay of vegetation.

Peat comprises negligible inorganic content and should be described by the method provided in P3401 – Classification of Peat.

Organic silt or clay is fine-grained soil where the organic content dominates the behaviour of the deposit. Due to the complexity of the composition of organic matter, there are no definitive guidelines as to the percentage of organics that will result in this behaviour. The organic content can influence plasticity, shrinkage, compressibility, permeability, and strength. When presented with a sample of fine-grained soil for a field description, if it is dark brown to black, lightweight, has an organic smell, and displays sponginess, it should be noted as such and the appropriate laboratory test completed to make a determination.

5.1.1.3.1 **Organic Principal Soil Constituent** shall be modified by adding the word ORGANIC in front of the Principal Component.

PEAT shall be used as the Principal Component if the soil contains negligible inorganic contents. Refer to P3401 - Classification of Peat.

5.1.1.3.2 **Organic Minor Soil Constituents** shall be described as above in Section 5.1.1.2.2.

5.1.1.3.3 **Organic Texture** shall describe the feel of the organic soil. The soil shall be described as either amorphous for fine-grained peat or fibrous for woody peat (refer to P3401).

5.1.1.3.4 **Organic Moisture** shall be described as above in Section 5.1.1.2.4.

5.1.1.3.5 **Organic Consistency** shall be described as above in Section 5.1.1.2.5.

5.1.1.3.6 **Organic Colour** shall be described as above in Section 5.1.1.1.8.

5.1.1.3.7 **Organic Odour** shall be described as above in Section 5.1.1.1.9.

5.1.1.3.8 **Organic Inclusions** shall be described as above in Section 5.1.1.1.10.

**5.1.2** Soil Class

The Modified Unified Soil Classification System provides a number of classes of soil (e.g., SM, CH). These are very useful but often do not provide sufficient information for the project engineer/designer. For example, they do not convey any information regarding consistency, colour, etc. Therefore, although the soil class can be used, it must be supplemented by the description as discussed in Sections 5.1.1.1, 5.1.1.2, and 5.1.1.3.

## 5.2 Soil Sampling

**5.2.1** Once the soil has been classified, a representative sample shall be bagged and labelled with the project number, location of the sample, and date of sampling. The bag shall be sufficiently sealed so that moisture and air cannot be transferred in or out of the sample. The sample may be sent to the laboratory for testing at the discretion of the Project Director and Project Engineer.

## 5.3 Laboratory Testing and Presentation of Laboratory Test Results

**5.3.1** Laboratory testing shall be carried out following ASTM standards and shall be used to refine the soil classification. Grain Size and Hydrometer Analysis shall be carried out following ASTM Standard D422. Plasticity testing to determine Atterberg Limits shall be carried out following ASTM Standard D4318. Preparation of soil samples for the above laboratory testing shall be carried out following ASTM Standard D2217.

For Grain Size analysis testing, an estimate of the percentage of cobbles/boulders by mass shall be recorded before they are removed from the sample for the test. The description shall include the estimate of oversize materials if it is not evident on the grain size curve.

**5.3.2** Presentation of Laboratory Data

**5.3.2.1** Grain Size Analysis

5.3.2.1.1 Percentages of each soil constituent by mass shall be recorded on the laboratory sheet; this shall include the following:

- Cobbles, Gravel, Sand, Fines (Silt and Clay)

5.3.2.1.2 Grain size analysis graphs shall include the sieve sizes in millimetres as well as the corresponding soil constituent size boundaries on the top 'x' axis. Boundaries separating the different grain sizes of each coarse-grained constituent will also be included. The following soil boundaries shall be included on the grain size analysis graphs:

- Cobbles, Gravel (fine and coarse), Sand (fine, medium, coarse), Fines (Silt and Clay)

**5.3.2.2** Hydrometer Analysis

5.3.2.2.1 Percentages of each fine-grained soil constituent (Silt and Clay) shall be provided on the laboratory report.

5.3.2.2.2 Hydrometer graphs shall include particle sizes in millimetres as well as the corresponding particle size boundaries (Silt and Clay).

**5.3.3** Classification Using Laboratory Results

**5.3.3.1** Soil Constituents

The grain size analysis can be used to confirm the percentages of the constituent materials. Care must be taken to include particles (cobbles and boulders) not represented by the sample.

The grain size analyses can also be used to provide the particle size within the constituents, i.e., fine, medium, and coarse sand or fine and coarse gravel.

**5.3.3.2** Grading

A more accurate description of the grading can be undertaken by using the following relationships:

- Coefficient of Uniformity $Cu = D_{60}/D_{10}$
- Coefficient of Curvature $Cc = (D_{30})^2 / (D_{10} \times D_{60})$

Where $D_{10}$, $D_{30}$, and $D_{60}$ are the particle sizes diameters corresponding to 10%, 30%, and 60% passivity on the cumulative particle size distribution curve.

**5.3.3.3** Moisture Content

The results of the moisture content test will give an indication of the wetness of the soil and can be compared to the Atterberg Limits to estimate behaviour characteristics for fine-grained soils.

**5.3.3.4** Plasticity

Fine-grained soils will be classified by how they plot on a plasticity chart; refer to Attachment 7.1.

## 6.0 REFERENCES

**6.1** Internal References

None

**6.2** External References


- ASTM (1998). Standard Practice for Description and Identification of Soils (Visual-Manual Procedure). Test Designation D2487 and D2488. *1998 Annual Book of ASTM Standards, American Society for Testing and Materials*, Philadelphia, vol. 04.08.
- Canadian Geotechnical Society (2006), *Canadian Foundation Engineering Manual 4th Edition*, Richmond, British Columbia.


## 7.0 ATTACHMENTS

- Attachment 7.1 – Modified Unified Soil Classification
- Attachment 7.2 – Angularity and Particle Shape of Coarse-grained Particles
- Attachment 7.3 – Consistency of Coarse-grained Soils
- Attachment 7.4 – Field Tests for Estimating Proportions of SILT and CLAY
- Attachment 7.5 – Consistency of Fine-grained Soils
- Attachment 7.6 – Plasticity of Fine-grained Soils

## 8.0 WORK METHOD CONTACT PERSON

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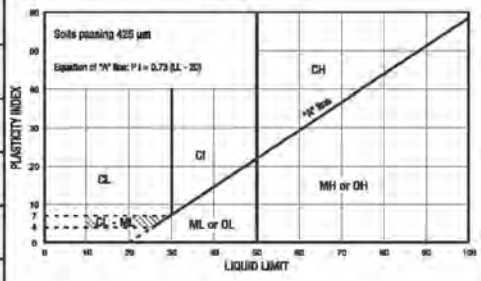
Vancouver Office (778.945.5775)
Charles.Hunt@tetratech.com

## Attachment 7.1 – Modified Unified Soil Classification

### MODIFIED UNIFIED SOIL CLASSIFICATION

| MAJOR DIVISION | | | GROUP SYMBOL | TYPICAL DESCRIPTION | LABORATORY CLASSIFICATION CRITERIA |
|---|---|---|---|---|---|
| COARSE-GRAINED SOILS More than 50% retained on 75 µm sieve* | GRAVELS 50% or more of coarse fraction retained on 4.75 mm sieve | CLEAN GRAVELS | GW | Well-graded gravels and gravel-sand mixtures, little or no fines | $C_u = D_{60}/D_{10}$ Greater than 4; $C_c = \frac{(D_{30})^2}{D_{10} \times D_{60}}$ Between 1 and 3 |
| | | | GP | Poorly graded gravels and gravel-sand mixtures, little or no fines | Not meeting both criteria for GW |
| | | GRAVELS WITH FINES | GM | Silty gravels, gravel-sand-silt mixtures | Atterberg limits plot below "A" line or plasticity index less than 4 |
| | | | GC | Clayey gravels, gravel-sand-clay mixtures | Atterberg limits plot above "A" line or plasticity index greater than 7 |
| | SANDS More than 50% of coarse fraction passes 4.75 mm sieve | CLEAN SANDS | SW | Well-graded sands and gravelly sands, little or no fines | $C_u = D_{60}/D_{10}$ Greater than 6; $C_c = \frac{(D_{30})^2}{D_{10} \times D_{60}}$ Between 1 and 3 |
| | | | SP | Poorly graded sands and gravelly sands, little or no fines | Not meeting both criteria for SW |
| | | SANDS WITH FINES | SM | Silty sands, sand-silt mixtures | Atterberg limits plot below "A" line or plasticity index less than 4 |
| | | | SC | Clayey sands, sand-clay mixtures | Atterberg limits plot above "A" line or plasticity index greater than 7 |
| FINE-GRAINED SOILS (by behavior) 50% or more passes 75 µm sieve* | SILTS | Liquid limit <50 | ML | Inorganic silts, very fine sands, rock flour, silty or clayey fine sands of slight plasticity | For classification of fine-grained soils and fine fraction of coarse-grained soils. PLASTICITY CHART |
| | | Liquid limit >50 | MH | Inorganic silts, micaceous or diatomaceous fine sands or silts, elastic silts | |
| | CLAYS Above "A" line on plasticity chart negligible organic content | Liquid limit <30 | CL | Inorganic clays of low plasticity, gravelly clays, sandy clays, silty clays, lean clays | |
| | | Liquid limit 30-50 | CI | Inorganic clays of medium plasticity, silty clays | |
| | | Liquid limit >50 | CH | Inorganic clays of high plasticity, fat clays | |
| | ORGANIC SILTS AND CLAYS | Liquid limit <50 | OL | Organic silts and organic silty clays of low plasticity | |
| | | Liquid limit >50 | OH | Organic clays of medium to high plasticity | |
| HIGHLY ORGANIC SOILS | | | PT | Peat and other highly organic soils | |




*Based on the material passing the 75 mm sieve
Reference: ASTM Designation D2487, for identification procedure see D2488. USC as modified by PFRA

| SOIL COMPONENTS | | | | | OVERSIZE MATERIAL |
|---|---|---|---|---|---|
| FRACTION | SIEVE SIZE | | DEFINING RANGES OF PERCENTAGE BY MASS OF MINOR COMPONENTS | | Rounded or subrounded |
| | PASSING | RETAINED | PERCENTAGE | DESCRIPTOR | COBBLES 75 mm to 300 mm; BOULDERS > 300 mm |
| GRAVEL | | | | | Not rounded |
| coarse | 75 mm | 19 mm | >35 % | "and" | ROCK FRAGMENTS >75 mm; ROCKS > 0.76 cubic metre in volume |
| fine | 19 mm | 4.75 mm | 21 to 35 % | "y-adjective" | |
| SAND | | | | | |
| coarse | 4.75 mm | 2.00 mm | 16 to 20 % | "some" | |
| medium | 2.00 mm | 425 µm | | | |
| fine | 425 µm | 75 µm | >0 to 10 % | "trace" | |
| SILT (non plastic) or CLAY (plastic) | 75 µm | | as above but by behavior | | |

1) Modified Unified Soil Classification.xls

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## Attachment 7.2 – Angularity and Particle Shape of Coarse-grained Particles

### Angularity:

| Description | Criteria |
|---|---|
| Angular | Particles have sharp edges and relatively plane sides with unpolished surfaces. |
| Sub-angular | Particles are similar to angular description but have rounded edges. |
| Sub-rounded | Particles have nearly plane sides but have well-rounded corners and edges. |
| Rounded | Particles have smoothly curved sides and no edges. |

### Particle Shape:

The particle shape shall be described as follows where length, width, and thickness refer to the greatest, intermediate, and least dimensions of a particle, respectively.

| Description | Criteria |
|---|---|
| Flat | Particles with width/thickness >3 |
| Elongated | Particles with length/width >3 |
| Flat and Elongated | Particles meet criteria for both flat and elongated |

### Reference:

ASTM (1998). Standard Practice for Description and Identification of Soils (Visual-Manual Procedure). Test Designation D2487 and D2488. 1998 Annual Book of ASTM Standards, American Society for Testing and Materials, Philadelphia, Vol. 04.08.

## Attachment 7.3 – Consistency of Coarse-grained Soils

| Description | SPT N-Index (blows per 0.3 m) |
|---|---|
| Very loose | 0 to 4 |
| Loose | 4 to 10 |
| Compact | 10 to 30 |
| Dense | 30 to 50 |
| Very Dense | Over 50 |

### Note:

To be of practical value, the split-spoon sampling method of indirectly determining the compactness of cohesionless soil must satisfy three conditions:

1. The SPT N-index must be independent of the operator and the boring method;
2. The correlation between the SPT N-index and the compactness condition must be accurate to within acceptable limits; and
3. The same correlation between the SPT N-index and the compactness condition must be used by all.

### Reference:

Canadian Geotechnical Society (2006) *Canadian Foundation Engineering Manual 4th Edition*, Richmond, British Columbia.

## Attachment 7.4 – Field Tests for Estimating Proportions of SILT and CLAY

### Dilatancy (reaction to shaking):

After removing particles larger than sand sizes, prepare a pat of moist soil with a volume of about 10 $cm^3$. If necessary, add enough water to make the soil soft but not sticky. Then, place the pat in the open palm of one hand and shake horizontally, striking vigorously against the other hand several times. A positive reaction consists of the appearance of water on the surface of the pat, which changes to a livery consistency and becomes glossy. When the sample is squeezed between the fingers, the water and gloss disappear from the surface, the pat stiffens, and finally cracks or crumbles. The rapidity of appearance of water during shaking and of its disappearance during squeezing assist in identifying the character of the fines in a soil. Very fine, clean sands give the quickest and most distinct reaction, whereas a plastic clay has no reaction. Inorganic silts, such as a typical rock flour, show a moderately quick reaction.

### Dry Strength (crushing characteristics):

After removing particles larger than sand sizes, mould a pat of soil to the consistency of putty, adding water if necessary. Allow the pat to dry completely by sun, or air drying, (when in the field) and then test its strength by breaking and crumbling between the fingers. This strength is a measure of the character and quantity of the clay fraction contained in the soil. The dry strength increases with increasing plasticity.

High dry strength is characteristic for inorganic clays of high plasticity. A typical inorganic silt possesses only very slight dry strength. Silty fine sands and silts have about the same slight dry strength, but can be distinguished by the feel when powdering the dried specimen. Fine sand feels gritty, whereas a typical silt has the smooth feel of flour.

### Toughness (consistency near plastic limit):

After removing particles larger than sand sizes, a specimen of soil about 10 $cm^3$ is moulded to the consistency of putty. If too dry, water must be added and, if sticky, the specimen should be spread out in a thin layer and allowed to lose some moisture by evaporation. Then the specimen is rolled out by hand on a smooth surface or between the palms into a thread about 3 mm in diameter. The thread is then folded and rolled repeatedly. During the manipulation, the moisture content is gradually reduced and the specimen stiffens, until it is no longer malleable and crumbles. This indicates that the plastic limit has been reached. After the thread has crumbled, the pieces should be lumped together and a slight kneading action continued until the lump crumbles. The tougher the thread near the plastic limit and the stiffer the lump when it finally crumbles, the more active is the colloidal clay fraction in the soil. Weakness of the thread at the plastic limit and quick loss of coherence of the lump below the plastic limit indicate either inorganic clay of low plasticity, or materials such as kaolin-type clays and organic clays

### Reference:

Canadian Geotechnical Society (2006) *Canadian Foundation Engineering Manual 4th Edition*, Richmond, British Columbia.

## Attachment 7.5 – Consistency of Fine-grained Soils

| Description | Field Identification | UCS kPa | SPT – Value (N) |
|---|---|---|---|
| Very soft | Easily penetrated several centimetres by the fist. | <25 | 0-2 |
| Soft | Easily penetrated several centimetres by the thumb. | 26-50 | 3-4 |
| Firm | Can be penetrated several centimetres by the thumb with moderate effort. | 51-100 | 5-8 |
| Stiff | Readily indented by the thumb but penetrated only with great effort. | 101-200 | 9-15 |
| Very stiff | Readily indented by the thumbnail. | 201-400 | 16-30 |
| Hard | Indented with difficulty by the thumbnail. | >400 | >30 |

### Reference:

Canadian Geotechnical Society (2006) *Canadian Foundation Engineering Manual 4th Edition*, Richmond, British Columbia.

## Attachment 7.6 – Plasticity of Fine-grained Soils

From observations made during the toughness test (Attachment 7.4), plasticity shall be defined as below:

| Description | Criteria |
|---|---|
| Non-plastic | A 3 mm thread cannot be rolled at any water content. |
| Low | The thread can barely be rolled and the lump cannot be formed when drier than the plastic limit. |
| Medium | The thread is easy to roll and not much time is required to reach the plastic limit. The thread cannot be re-rolled after reaching the plastic limit. The lump crumbles when drier than the plastic limit. |
| High | It takes considerable time rolling and kneading to reach the plastic limit. The thread can be re-rolled several times after reaching the plastic limit. The lump can be formed without crumbling when drier than the plastic limit. |

### Reference:

ASTM (1998). Standard Practice for Description and Identification of Soils (Visual-Manual Procedure). Test Designation D2488. *1998 Annual Book of ASTM Standards, American Society for Testing and Materials*, Philadelphia, Vol. 04.08.

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# WORK METHOD

ISSUED FOR USE

## WM4102 LOGGING OF PERENNIALLY FROZEN SOILS AND GROUND ICE FOR ENGINEERING PURPOSES

| | | | | | |
|---|---|---|---|---|---|
| **CATEGORY:** | Field Testing/Sampling | **REVISION NO.:** | 04 | **PAGE:** | 1 of 34 |
| **SUBCATEGORY:** | Arctic | **REVISION DATE:** | July 2018 | **APPROVED DATE:** | December 2009 |
| | | | | **EXPIRY DATE:** | July 2023 |

## 1.0 PURPOSE

**1.1** This work method provides a suggested procedure for identifying and describing perennially frozen soils and ground ice (if present) for engineering purposes based on visual examination and simple physical testing.

## 2.0 SCOPE

**2.1** This work method is intended to be used in conjunction with Tetra Tech Canada (EBA OU)1 work methods WM4400 Geotechnical Soil Classification and WM3403 Geotechnical Logging of Rock Core.

**2.2** This work method is based on ASTM Standard D4083-89 (2007): Standard Practice for Description of Frozen Soils (Visual-Manual Procedure) and the Guide to Field Description of Permafrost for Engineering Purposes, National Research Council of Canada (NRCC, 1963) and Tetra Tech's in-house field manuals and procedures for logging frozen overburden.

**2.3** This work method is intended primarily for use by geotechnical engineers, geologists, and technicians in the field, where the soil cross-section or samples from it may be observed in a relatively undisturbed frozen state.

**2.4** It may also be used in the laboratory to describe the condition of relatively undisturbed soil samples that have been maintained in a frozen condition following their acquisition in the field.

**2.5** This work method is intended to provide Tetra Tech employees with guidelines to carry out Logging of Perennially Frozen Soils and Ground Ice for Engineering Purposes (WM4102). Significant deviation from this work method should be in collaboration with your Manager and/or a Quality Council (QC) Representative. Any variance should be documented and placed in the project file.

## 3.0 DEFINITIONS

**3.1** **EBA OU** – EBA Operating Unit of Tetra Tech Canada Inc. (Tetra Tech).

**3.2** **Active Layer** – The top layer of ground that is subject to annual thawing and freezing in areas underlain by permafrost.

**3.3** **Ataxitic (Suspended) Cryostructure –** Develops in fine-grained soils and is represented predominantly by ice (up to 90% by volume) with randomly oriented soil inclusions (Photo 1).

**3.4** **Basal Cryostructure** – Develops in coarse-grained soils and in fractured rock. It is represented predominantly by ice (greater than 50% by volume) that fills in voids and open fractures.

**3.5** **Buried Ice** – Ice formed or deposited on the ground surface and later covered by sediments.

**3.6** **Candled Ice** – Ice that has rotted or otherwise formed into long columnar crystals, very loosely bonded together.

**3.7** **Clear Ice** – Ice that is transparent and contains only a moderate number of air bubbles.

**3.8** **Cloudy Ice** – Ice that is translucent or relatively opaque due to the content of air (or other reasons), but which is essentially sound and impervious.

**3.9** **Cryogenic Structure (Cryostructure)** – The structural characteristics of frozen earth materials. The structure of frozen soil may be described as massive, lenticular, layered, reticulate or ataxitic (or their combinations) based on the type and distribution of ice in the soil (Photos 1 to 5).

**3.10** **Cryopeg** – A layer of unfrozen ground that is perennially cryotic (forming part of the permafrost), in which freezing is prevented by freezing-point depression due to the dissolved-solids content of the pore water.

**3.11** **Cryotic Ground** – Soil or rock at temperatures of 0ºC or lower.

**3.12** **Cryoturbation** – Irregular structures formed in earth materials by deep frost penetration and frost action processes, and characterized by folded, broken, and dislocated beds and lenses of unconsolidated deposits, including organic horizons and even bedrock.

**3.13** **Dry Permafrost** – Permafrost containing neither free water nor ice.

**3.14** **Epigenetic permafrost** – permafrost that formed after the deposition of the soil material in which it occurs.

**3.15** **Excess Ice** – The volume of ice in the ground, which exceeds the total pore volume that the ground would have under natural unfrozen conditions.

**3.16** **Foliated Ice** – Ground ice (usually wedge ice) with parallel inclusions of soil particles and/or air bubbles.

**3.17** **Friable** – A condition under which the material is easily broken up under light to moderate finger pressure.

**3.18** **Friable Permafrost** – Ice-bearing permafrost in which the soil particles are not held together by ice.

**3.19** **Frost Action** – The process of alternate freezing and thawing of moisture in soil, rock and other materials, and the resulting effects on materials and on structures placed on, or in, the ground.

**3.20** **Frost Heave** – The upward or outward movement of the ground surface (or objects on, or in, the ground) caused by the formation of ice in the soil.

**3.21** **Frost Jacking** – Cumulative upward displacement of objects embedded in the ground, caused by frost action.

**3.22** **Frost Shattering** – The mechanical disintegration of rock by the pressure of the freezing of water in pores and along grain boundaries.

**3.23** **Frost Table** – The frozen surface, usually irregular, that represents the level to which thawing of seasonally frozen ground has penetrated.

**3.24** **Frost Weathering** – The disintegration and break up of soil or rock by the combined action of frost shattering, frost wedging, and hydration shattering.

**3.25** **Frost Wedging** – The mechanical disintegration, splitting or break-up of rock by the pressure of the freezing of water in cracks, crevices, pores, joints, or bedding planes.

**3.26** **Frozen Ground** – Soil or rock in which part or all of the porewater consists of ice.

**3.27** **Granular Ice** – Ice composed of coarse, more or less equidimensional, crystals weakly bonded together.

**3.28** **Ground Ice** – A general term referring to all types of ice formed in freezing and frozen ground.

**3.29** **Ice-Bearing Permafrost** – Permafrost that contains ice.

**3.30** **Ice-Bonded Permafrost** – Ice-bearing permafrost in which the soil particles are cemented together by ice.

**3.31** **Ice Coatings on Particles** – Discernible layers of ice found on or below the larger soil particles in a frozen soil mass.

**3.32** **Ice Content** – The amount of ice contained in frozen or partially frozen soil or rock.

Ice content is normally expressed in one of two ways:

1. On a dry-weight basis (gravimetric), as the ratio of the mass of the ice in a sample to the mass of the dry sample, expressed as a percentage.

2. On a volume basis (volumetric), as the ratio of the volume of ice in a sample to the volume of the whole sample, expressed as a percentage.

**3.33** **Crystal** – A very small individual ice particle visible in the face of a soil mass. Crystals may be present alone or in combination with other ice formations.

**3.34** **Ice Lens** – A dominantly horizontal, lens-shaped body of ice ranging in thickness from hairline to 0.3 m (Photos 1 to 5). Ice layers more than 0.3 m in the thickness are better termed massive ice beds (Photos 7 to 10). Ice lenses occur essentially parallel to each other, generally normal to the direction of heat loss, and commonly in repeated layers.

**3.35** **Ice-Rich Permafrost** – Permafrost containing excess ice.

**3.36** **Ice Segregation** – The formation of segregated ice as distinct lenses, layers, veins, and masses in mineral or organic soils (i.e., the growth of ice within soil in excess of the amount that may be produced by the in-place conversion of the original void moisture to ice). Segregated ice formations are commonly, but not always, oriented normal to the direction of heat flow.

**3.37** **3.37 Ice Vein** – A permafrost feature caused by frost action; an ice-filled crack or fissure in the ground.

**3.38** **Ice Wedge** – A permafrost feature caused by frost action; a massive, generally wedge-shaped body with its apex pointing downward, composed of foliated or vertically banded, commonly white, ice. It is usually associated with frost cracks in frozen ground.

**3.39** **Icing** – A sheet-like mass of layered ice formed on the ground surface, or on river or lake ice, by freezing of successive flows of water.

**3.40** **Intrusive Ice** – Ice formed from water injected into soils or rocks.

**3.41** **Layered Cryostructure** – Represented by distinctly oriented horizontal or inclined layers of ice alternating with soil layers that have massive cryostructure (Photos 1 to 4).

**3.42** **Lenticular Cryostructure** – Formed by discrete ice lenses that may (or may not) form continuous ice layers with soil inclusions (Photos 1 and 2).

**3.43** **Massive Cryostructure** – Characterized by the predominant presence of non-visible pore ice and by a relatively low total ice content (Photo 1).

**3.44** **Massive Ice** – A comprehensive term used to describe large masses of ground ice, including ice wedges, pingo ice, buried ice, and predominantly horizontal beds of segregated ice (Photos 6 to 9). Massive ice beds typically have an ice content of at least 250% (on an ice-to-dry-soil weight basis). If the ice content is less than 250%, the beds are better termed “massive icy beds”. Massive ice beds have a minimum thickness of 0.3 m. Ice layers less than 0.3 m in thickness are better termed ice lenses. Some massive ice beds are more than 40 m thick and extend several kilometres horizontally (Photos 7 and 8).

**3.45** **Micro-Lenticular Cryostructure** – Formed by thin and short ice lenses in perennially frozen soil matrix characterized by massive cryostructure (Photo 1).

**3.46** **Perennially Frozen Soils** – Soils, which include ground ice (visible and/or non-visible), that remain frozen for at least two years due to natural climatic conditions.

**3.47** **Permafrost** – Ground (soil or rock and included ice and organic material) that remains at or below 0°C for at least two years due to natural climatic conditions. Permafrost is defined exclusively on the basis of temperature. It is not necessarily frozen.

**3.48** **Permafrost Aggradation** – A naturally or artificially caused increase in the thickness and/or areal extent of permafrost.

**3.49** **Permafrost Table** – The upper boundary of permafrost.

**3.50** **Pingo Ice** – Massive ice forming the core of a pingo.

**3.51** **Poorly-Bonded** – A condition in which soil particles are weakly held together by ice so that the frozen soil has poor resistance to chipping and breaking (i.e., is characterized by low unconfined compressive strength).

**3.52** **Pore Ice** – Ice occurring in the pores of soils and rocks.

**3.53** **Porous Ice** – Ice that contains numerous voids, usually interconnected and usually resulting from melting of ice with air bubbles or along crystal interfaces from the presence of salt or other materials in the water, or from the freezing of saturated snow. Though porous, the mass retains its structural unity.

**3.54** **Reticulate Cryostructure** – Represented by lenses and layers of ice that form a random net in perennially frozen soil matrix characterized by massive cryostructure (Photos 1, 2, and 5).

**3.55** **Syngenetic Permafrost** – permafrost that formed more or less simultaneously with the deposition of the soil material in which it occurs.

**3.56** **Talik** – A layer or body of unfrozen ground in permafrost.

**3.57** **Thawed Ground** – Previously frozen ground in which all ice has melted.

**3.58** **Total Moisture Content** – The total amount of water (unfrozen water plus ice) contained in soil or rock.

**3.59** **Unfrozen Ground** – Soil or rock that does not contain any ice.

**3.60** **Vein Ice** – A type of ground ice occupying cracks in permafrost.

**3.61** **Wedge Ice** – A type of ground ice occurring in an ice wedge; comprises a series of ice veins formed at the same location over a period of time.

**3.62** **Well-Bonded** – A condition in which soil particles are strongly held together by ice, so that the frozen soil possesses relatively high resistance to chipping or breaking (i.e., characterized by medium to high unconfined compressive strength).

**3.63** **Work Method (WM)** – A document setting out the specific scope of work, method, and sequence of activities and organizational responsibilities relevant to a particular part of the practice.

## 4.0 RESPONSIBILITIES AND AUTHORITIES

### 4.1 Manager

- Establishes the terms of reference and project parameters with client, including contract terms;
- Confirms the project team has sufficient resources to carry out the site investigation;
- Confirms all safety procedures/methods are understood and followed by the project team;
- Confirms the project team is aware and meets the project objectives, budget and schedule requirements; and
- Reviews Issued for Use Report and authorizes it with his/her professional seal.

### 4.2 Project Engineer/Geologist

- Confirms the site investigation is appropriate for the site-specific conditions, available equipment, and proposed scope of work;
- Organizes and manages all logistical support, including subcontractors;
- Confirms field personnel have suitable qualifications and training for conducting fieldwork;
- Confirms the field personnel are aware of the objectives of the site investigation;

- Confirms field personnel are aware of their authority to adjust the site investigation;
- Is available for consultation with field personnel during the site investigation; and
- Confirms all safety procedures/methods are adhered to.

### 4.3 Technical Reviewer

- Provides timely technical input during the planning, conducting and reporting stages of the site investigation.

### 4.4 Field Engineer/Geologist

- Understands the site investigation goals and objectives;
- Is familiar with the drilling/excavating, coring, logging, and sampling methods to be used;
- Understands and accepts the authority to adapt the field program as needed;
- Informs a driller on borehole requirements or an excavator operator for test pitting or trenching requirements;
- Conducts the logging of permafrost and soil and collects the data in accordance with the procedures outlined in this work method;
- Keeps the Project Engineer/Geologist informed of any unusual conditions, such as occurrence of large bodies of massive ice, etc., or unusual performance of the equipment;
- Fosters on-site communication and team building between the Project Engineer/Geologist, the subcontractor, and the owner's representative;
- Supervises operation of field laboratory (if applicable);
- Carries out basic field testing of samples of perennially frozen soils;
- Keeps comprehensive records including quality photographs of frozen core and equipment; and
- Ensures all safety procedures/methods are followed.

## 5.0 WORK METHOD

**Required Apparatus and Supplies for Core Logging**

- Tetra Tech forms (borehole logs, sample inventory, bulk density)
- Butcher's knife, large pocket knife, or small spatula
- Hatchet
- 5 m measuring tape (steel)
- Low-power magnifying hand lens
- Graduated beakers (for excess ice content determination)
- Weigh scale with accuracy of 0.1 g (for measuring bulk density)
- Caliper (for measuring diameter of a core sample when doing bulk density calculations)
- Digital camera, memory cards, color scale chart and tripod if necessary
- A single-bead thermistor string or thermometer that can measure temperatures below 0°C
- Ohm-meter with a switch box for reading multi-bead ground temperature cables

- Permanent markers
- Pencils
- Clipboards
- White board and dry erase markers
- Field note books
- Pails
- Insulated core box
- Heavy duty coolers
- Freezer (ice) packs
- Industrial towels or rags
- Sample bags and sample tags
- Saran wrap (rolls)
- Foil (rolls)

**Useful Auxiliary Apparatus and Supplies**

- Small bottle of dilute hydrochloric acid
- Small test tube and stopper
- Munsell Soil Colour Chart or Rock Colour Chart
- Flashlight

## 5.1 Logging of Perennially Frozen Soils and Ground Ice

The system for describing and classifying perennially frozen soils and ground ice involves three steps: Parts I, II and III. Part I consists of a description of the soil composition (lithology), i.e., gravel, sand, silt, etc., and its classification independent of the frozen state. Part II describes the frozen state of the soil. Part III consists of a description of characteristic ice strata found in the soil.

### 5.1.1 Part I: Description of Soil Phase

The soil phase, whether thawed or frozen, is described independently of the frozen state according to the Modified Unified Soil Classification (MUSC) system (Appendix A) and Tetra Tech Work Method (WM4400).

### 5.1.2 Part II: Description of Frozen Soil

The perennially frozen soil is described according to the NRCC Ground Ice Classification system (1963) (Appendix A). This system is based on whether ice in the frozen soil is visible or not. Accordingly, frozen soils are divided into two major groups: soils in which ice is not visible to the unaided eye (N), and soils in which segregated ice is visible (V) (Photos 1 and 2).

#### 5.1.2.1 Frozen Soils with Non-Visible Ice

Frozen soils in which ice is not visible to the unaided eye are divided into two main subgroups: poorly bonded or friable material (Nf), and well-bonded frozen soil (Nb). The Nf condition exists when the degree of saturation is low.

The Nb soils are further divided into two subtypes: Nbn (no excess ice) and Nbe (excess ice uniformly distributed throughout the frozen soil) (Photo 1).

The Nbe condition may occur in very fine sands, silty sands or coarse silts where excess ice is present but is so uniformly distributed that it is not easily identifiable by the unaided eye. However, on close examination, the presence of ice within the soil pores may be identified by crystalline reflections or by a sheen on trimmed surfaces. It can also be verified by placing some frozen soil in a graduated beaker, allowing it to melt, and observing the quantity of supernatant water as a percentage of the total volume.

#### 5.1.2.2 Frozen Soils with Visible Ice (less than 50% by volume)

Frozen soils in which ice is visible to the unaided eye as discrete ice inclusions of measurable dimensions comprising less than 50% by volume are designated by the symbol V. These are divided into five subgroups: Vx (frozen soils, which contain individual ice crystals or inclusions); Vc (frozen soils with ice coatings on larger particles); Vr (frozen soils with random or irregularly oriented ice formations); Vs (frozen soils with stratified or distinctly oriented ice formations); and Vu (visible ice uniformly distributed throughout frozen soil) (Photos 1 to 5).

In addition to using the above symbols on the borehole logs, descriptions of cryostructures (massive, lenticular, layered, etc.) that are characteristic of perennially frozen soils should be described. Cryostructures are useful for determining the nature of the freezing process. Cryostructures are also helpful for determining the permafrost (i.e., syngenetic vs. epigenetic) and the conditions under which the sediments accumulated. The main types of cryogenic structures are defined in Section 3.0 and illustrated in Photos 1 to 5.

When logging an ice-rich frozen soil, multiple symbols may be used to indicate borderline or mixed classifications, e.g., Vr, Vc, Vx 30% (see BH 11580-TRD03, Appendix B); Vs, Vr 40% to 50% (see BH 11580.093-03, Appendix B). The percentage of volumetric ice content should be given only for visible ice symbols. It is important to include a more detailed description of the ice formations along with the ice classification. For example, Vs 10% - 2 mm thick ice lenses regularly spaced at 25 mm intervals.

Volumetric ice content of the ice-rich frozen soil should be estimated using Charts for Estimating Proportions (Appendix C) or measured if possible. A simple field test (suggested by Linell and Kaplar (1963) and Kokelj and Burn (2005)) should be conducted on frozen soil core samples to more accurately determine volumetric ice content of the ice-rich frozen soil. The test consists of placing an approximately 10 cm long frozen soil core sample into a graduated glass beaker and allowing it to thaw. The beaker should be covered with plastic wrap to prevent evaporation. The thawed saturated soil in the beaker should be thoroughly mixed and allowed to settle for 12 hours or more (Photo 6). Volumes of sediment and supernatant water are recorded to estimate excess ice content in percent ($I_c$) of the sample using the following formula:

$$I_c = [(W_v*1.09)/(S_v + (W_v*1.09))]*100$$

Where $W_v$ is the volume of supernatant water ($cm^3$), multiplied by 1.09 to estimate the equivalent volume of ice, and $S_v$ is the volume of saturated sediment ($cm^3$).

It is strongly recommended to test this same thawed sample for moisture content to compare volumetric ice content with total water content. Visual estimates of volumetric ice content as indicated on borehole logs should be within ± 5%.

Since proportions of ice and soil may vary widely, it may sometimes be difficult to decide without the excess ice beaker test whether a given material falls, for example, in the category of frozen soil or of ice with soil inclusions. Material containing as much as 80% ice by volume and 20% soil can sometimes give the appearance of being mostly soil (Linell and Kaplar 1963).

Soil and ice classifications and percentages may be altered on the field borehole logs after the laboratory testing results (moisture contents, grain size analyses, Atterberg Limits, and bulk densities) are complete.

#### 5.1.2.3 Simplified Logging of Frozen Soils with Non-Visible or Visible Ice

In those cases, when recovered frozen soil samples are disturbed and it's difficult to divide main groups of frozen soils (N and V) into subgroups (Nbn vs. Nbe and Vx, Vc, Vs, Vr or Vu) it would be satisfactory to use Nb designation without breakdown into Nbn or Nbe categories, or it might even be sufficient to use only the N and V major group designations to indicate whether or not ground ice is visible, as suggested by Linell and Kaplar (1963). However, it is important to collect such disturbed frozen soil samples and conduct an excess ice beaker test to determine their volumetric ice content.

### 5.1.3 Part III: Description of Ice Formations

Discrete visible ice formations in frozen soils that are greater than 50% by volume are designated by the symbol ICE and are divided into two subgroups: ICE + Soil Type and ICE (see BH 11580-TRD03, Appendix B; (Photos 1, 9 and 10).

If the ice formation contains soil inclusions, it is designated as ICE + Soil Type. If the ice formation contains no soil inclusions, it is designated simply as ICE (Photo 1, 9 and 10).

Description of various forms of ground ice in permafrost should preferably be made using undisturbed core samples collected by coring with a CRREL dry auger, diamond drill or sonic drill. The description should include structure (clear, cloudy, porous, candled, granular, or stratified), colour (colourless, gray, blue), and the presence of air bubbles or any soil or organic inclusions.

When appreciable masses of ice are encountered in perennially frozen ground, they are termed massive ice (see Section 3.47 for definition of massive ice). It is recommended that these ice formations be designated as ICE or ICE + Soil Type and described as "massive ice bed" or "massive icy bed", respectively, if the layer in question has a minimum thickness of 0.3 m (Photos 7, 8, 9, and 10).

## 5.2 Logging and Sampling of Frozen Core Obtained by Diamond Drilling

**5.2.1** In the case of diamond drilling, which is often used for Tetra Tech's site investigations in permafrost regions, the recovered core is extruded into a core box. The core box should be kept at a temperature below 0°C during logging and sampling to prevent thawing of the frozen core. A measuring tape should

be placed along the edge of the core and the amount of recovery noted (e.g., 1.2 m/1.5 m). A hatchet, a butcher's knife and a hammer can be used to break or split pieces of core for close examination. The ice formations in the frozen soil should be studied on the basis of observations from several directions. The Munsell Soil Colour Chart should be used to correctly describe colour of the soil phase. The core must be cleaned and wetted prior to describing the colour. When a core box is full, core photographs should be taken prior to covering the core box with a lid and removing it from the drill site.

**5.2.2** After the core is logged and photographed, several representative core samples should be taken from the entire borehole, or run, wrapped in saran and foil, double-bagged, labelled (project number, borehole number, and depth) and ideally kept frozen (i.e., stored outside if weather permits or in an insulated core box if air temperature is above 0°C). Ultimately, the project will dictate how much of the recovered core is retained.

**5.2.3** If both visible and non-visible ice is present in the frozen core, two samples of a representative frozen core interval should be acquired:

- The first sample should include both mineral layers and ice lenses. If layered or reticulate cryogenic structure is present, the sample should contain at least three ice lenses of each orientation. The weight of the sample may range from 1 kg to 3 kg. This sample will allow a total moisture content measurement to be made for frozen soil that includes visible ice formations, non-visible pore ice and unfrozen water.
- The second sample should comprise mineral soil between ice lenses that does not include visible ice. Its weight should range from 15 g to 50 g. This sample will allow moisture content of the mineral portion of the core interval to be determined.

**5.2.4** Several representative sections of the core (at least 150 mm long) should be set aside for bulk density measurements. The sections must remain frozen prior to testing. These sections should be undisturbed, perfectly cylindrical, and well preserved. It is recommended that bulk density measurements be carried out in the field since the condition of the frozen core may deteriorate when shipped to a geotechnical laboratory.

**5.2.5** Each sample should be recorded on a Sample Inventory Form (Appendix D). The sample interval and sample type should be recorded on the borehole log.

## 6.0 REFERENCES

### 6.1 Internal References

- WM3100 Site Investigation by Coring with a Diamond Drill Rig
- WM3403 Geotechnical Logging of Rock Core
- WM4400 Geotechnical Soil Classification

### 6.2 External References

- ASTM (2007). Standard D4083-89: Standard Practice for Description of Frozen Soils (Visual-Manual Procedure).
- Glossary of Permafrost and Related Ground-Ice Terms, 1988. NRCC, Technical Memorandum No. 142, 156 pp.

- Guide to a Field Description of Permafrost for Engineering Purposes, 1963. NRCC, Technical Memorandum 79, 24 pp.
- Kokelj, S.V. and Burn, C.R. 2005. Near-Surface Ground Ice in Sediments of the Mackenzie Delta, Northwest Territories, Canada. In: Permafrost and Periglacial Processes 16, pp. 291-303.
- Linell, K.A. and Kaplar, C.W. 1963. Description and Classification of Frozen Soils. In: Proceedings of International Conference on Permafrost, 11-15 November 1963, Lafayette, Indiana, pp. 481-487.

## 7.0 ATTACHMENTS

- Photographs
- Appendix A Modified Unified Soil Classification and Ground Ice Description
- Appendix B Select Borehole Logs and Sample Photographs
- Appendix C Charts for Estimating Proportions (Soil/Rock/Ice)
- Appendix D Tetra Tech Forms: Borehole Log, Sample Inventory, Bulk Density

## 8.0 WORK METHOD CONTACT PERSON

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# PHOTOGRAPHS




**Photo 1:** Photographs of simple cryostructures found in perennially frozen soils in the Colville River Delta, Alaska.

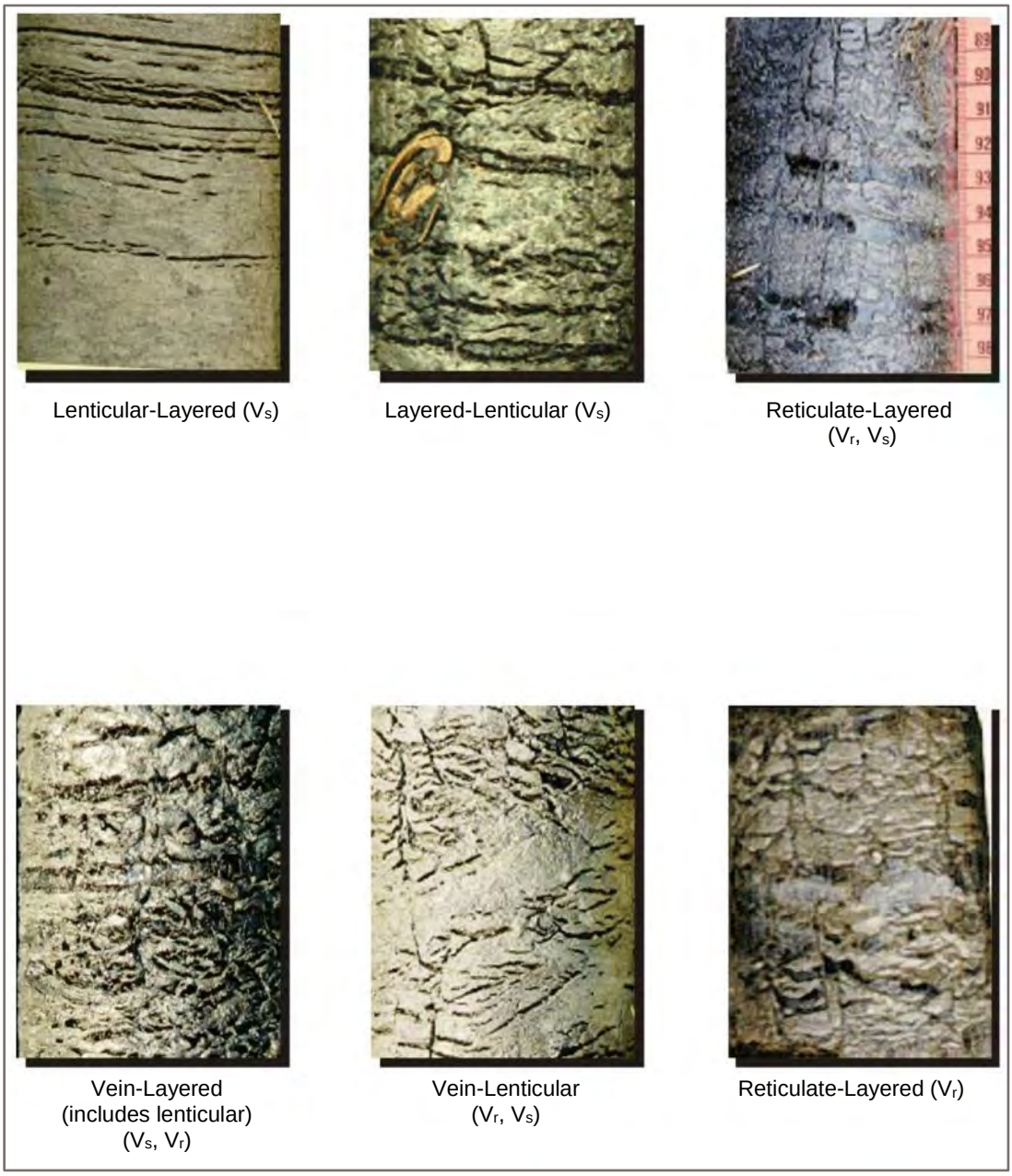



**Photo 2:** Photographs of common composite cryostructures found in perennially frozen soils in the Colville River Delta, Alaska.




**Photo 3:** Layered cryostructure (Vs 30-40%) in perennially frozen till (at depths of 1.5 m and 3.0 m). Note distinctly oriented ice lenses.

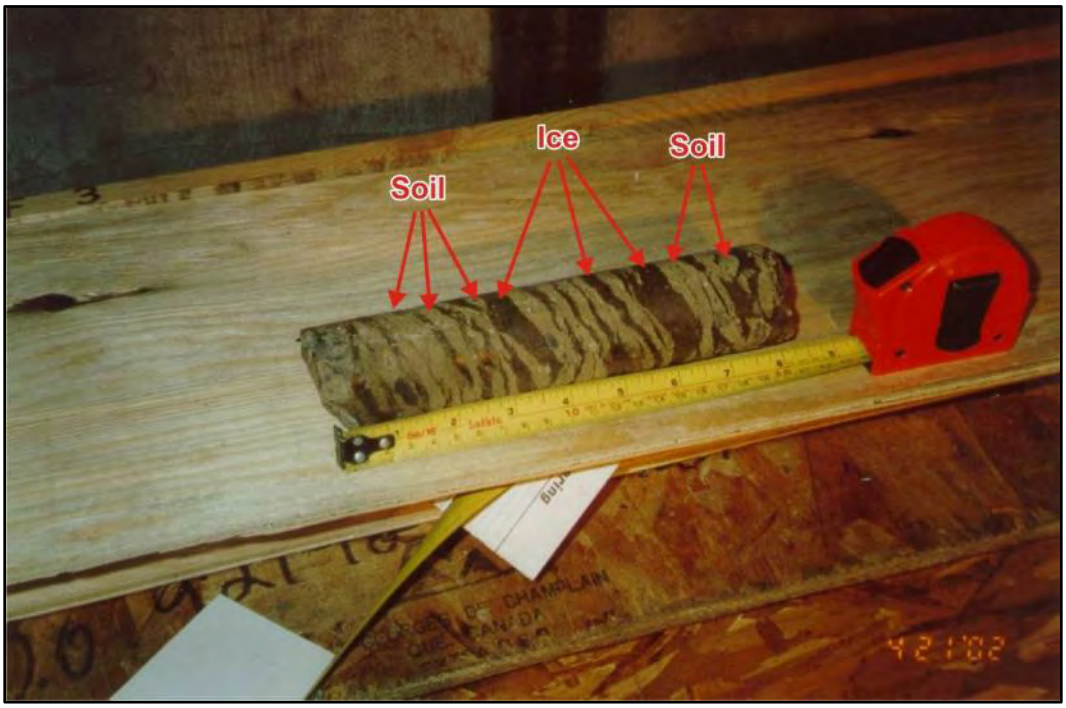



**Photo 4:** Layered cryostructure (Vs 40-50%) in perennially frozen till. Note distinctly oriented ice lenses.

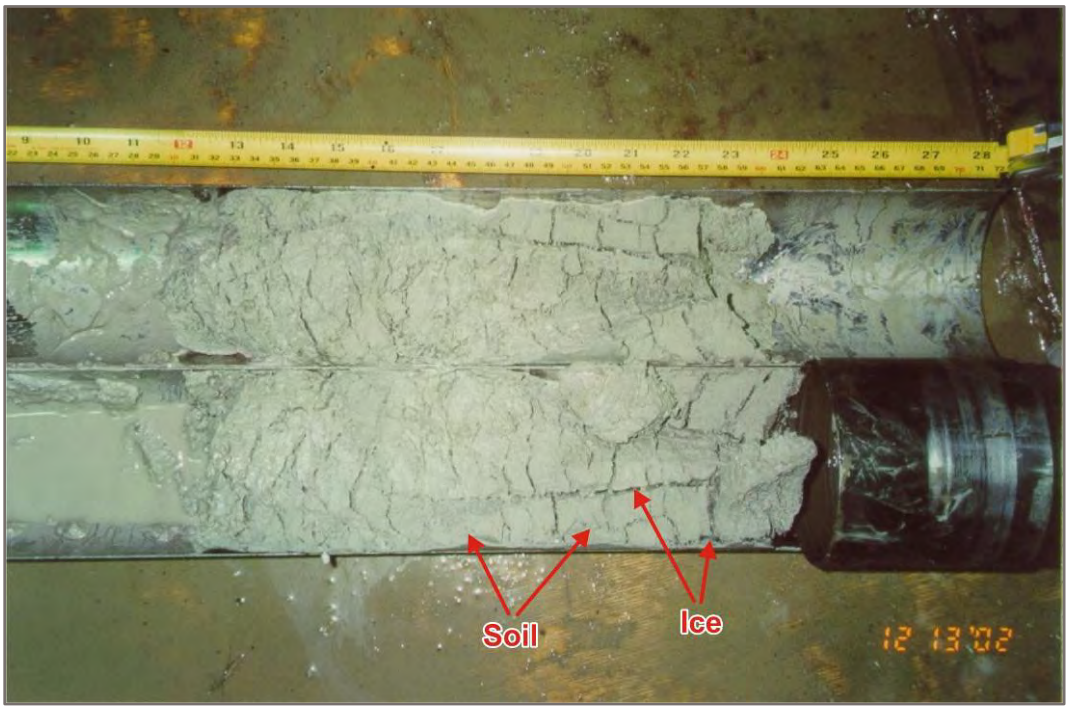



**Photo 5:** Reticulate cryostructure (Vr) in perennially frozen tailings from a gold mine in Northeastern Siberia.

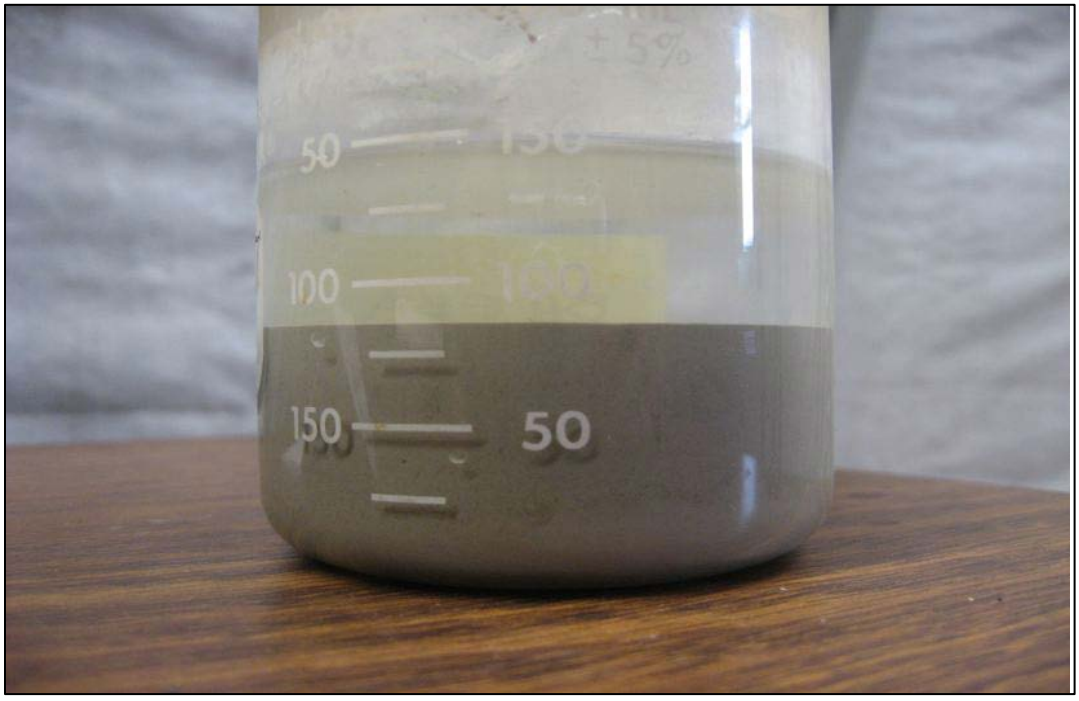



**Photo 6**: Determining excess ice content in overburden core sample




**Photo 7:** Massive ice exposed in steep bank along the Yerkota-Yakha River, Yamal Peninsula, West Siberia. Notice borrow pit development on top of the terrace.




**Photo 8:** Exposure of massive ice bed. East Yamal Peninsula, West Siberia.

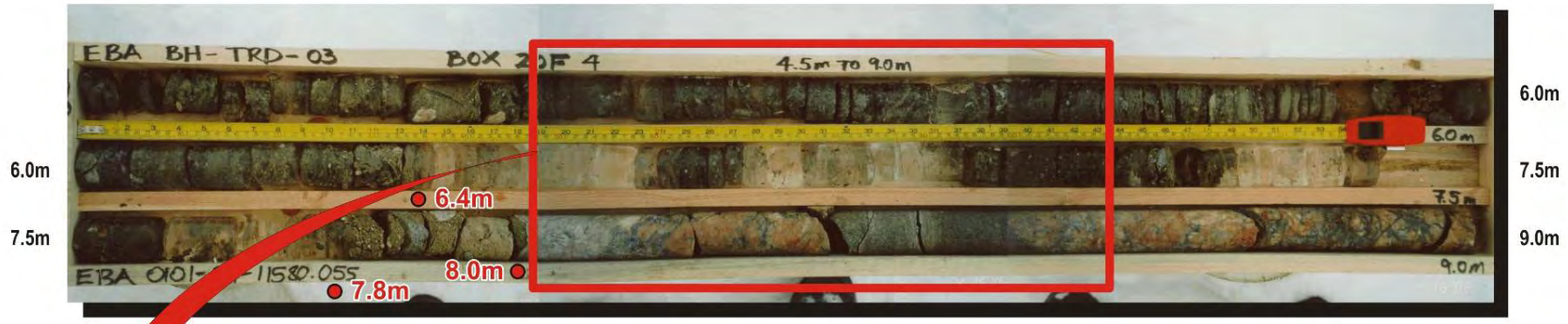



**Photo 9:** Massive ice bed in perennially frozen till underlain by pegmatite (bedrock). (See Borehole Log: BH 11580-TRD03, Appendix B).

- From 4.5 m to 6.4 m: Ice and Gravel and Silt;
- From 6.4 m to 7.8 m: Ice
- From 7.8 m to 8.0 m: Sand and Gravel
- From 8.0 m to 9.0 m: Pegmatite (Bedrock).






**Photo 10a:** Core of frozen overburden with ice wedge recovered with a CRREL core barrel. Depth: 0.5 m - 1.5 m.

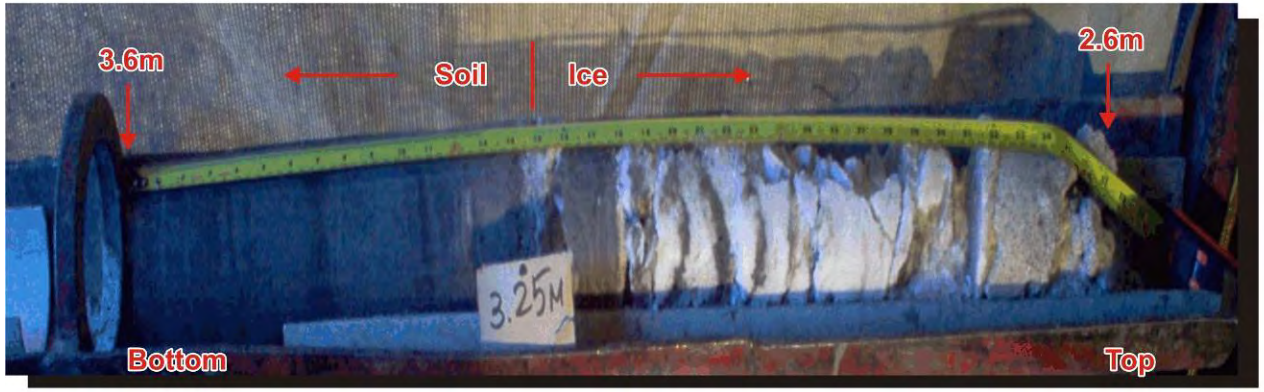



**Photo 10b:** Core of frozen overburden with ice wedge recovered with a CRREL core barrel. Depth: 2.6 m - 3.6 m.



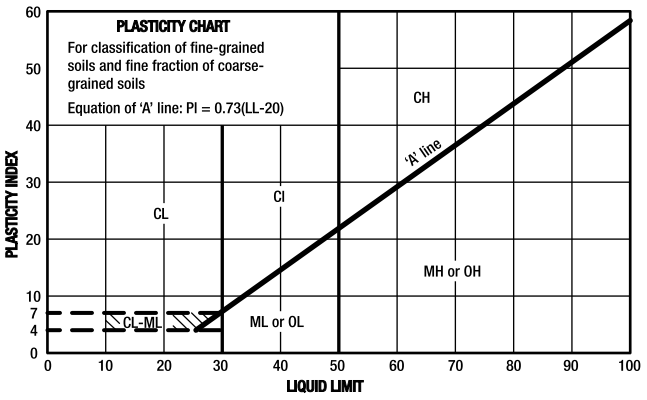
**Close Up**
Slice of an ice core. Note soil (silt) inclusions oriented vertically along vertical cracks in the ice.

# APPENDIX A

## MODIFIED UNIFIED SOIL CLASSIFICATION AND GROUND ICE DESCRIPTION

# MODIFIED UNIFIED SOIL CLASSIFICATION

| MAJOR DIVISION | | | GROUP SYMBOL | TYPICAL DESCRIPTION | LABORATORY CLASSIFICATION CRITERIA |
|---|---|---|---|---|---|
| COARSE-GRAINED SOILS More than 50% retained on 75 µm sieve* | GRAVELS 50% or more of coarse fraction retained on 4.75 mm sieve | CLEAN GRAVELS | GW | Well-graded gravels and gravel-sand mixtures, little or no fines | Classification on basis of percentage of fines (GW, GP, SW, SP, GM, GC, SM, SC Borderline Classification requiring use of dual symbols; Less than 5% Pass 75 µm sieve, More than 12% Pass 75 µm sieve, 5% to 12% Pass 75 µm sieve): $C_U = D_{60}/D_{10}$ Greater than 4; $C_c = \frac{(D_{30})2}{D_{10} \times D_{60}}$ Between 1 and 3 |
| | | | GP | Poorly graded gravels and gravel-sand mixtures, little or no fines | Not meeting both criteria for GW |
| | | GRAVELS WITH FINES | GM | Silty gravels, gravel-sand-silt mixtures | Atterberg limits plot below "A" line or plasticity index less than 4 |
| | | | GC | Clayey gravels, gravel-sand-clay mixtures | Atterberg limits plot above "A" line or plasticity index greater than 7 |
| | SANDS More than 50% of coarse fraction passes 4.75 mm sieve | CLEAN SANDS | SW | Well-graded sands and gravelly sands, little or no fines | $C_U = D_{60}/D_{10}$ Greater than 6; $C_c = \frac{(D_{30})2}{D_{10} \times D_{60}}$ Between 1 and 3 |
| | | | SP | Poorly graded sands and gravelly sands, little or no fines | Not meeting both criteria for SW |
| | | SANDS WITH FINES | SM | Silty sands, sand-silt mixtures | Atterberg limits plot below "A" line or plasticity index less than 4 |
| | | | SC | Clayey sands, sand-clay mixtures | Atterberg limits plot above "A" line or plasticity index greater than 7 |
| | | | | | Atterberg limits plotting in hatched area are borderline classifications requiring use of dual symbols |
| FINE-GRAINED SOILS (by behavior) 50% or more passes 75 µm sieve* | SILTS Liquid limit <50 | | ML | Inorganic silts, very fine sands, rock flour, silty or clayey fine sands of slight plasticity | |
| | SILTS Liquid limit >50 | | MH | Inorganic silts, micaceous or diatomaceous fine sands or silts, elastic silts | |
| | CLAYS Above "A" line on plasticity chart negligible organic content; Liquid limit <30 | | CL | Inorganic clays of low plasticity, gravelly clays, sandy clays, silty clays, lean clays | |
| | CLAYS Liquid limit 30-50 | | CI | Inorganic clays of medium plasticity, silty clays | |
| | CLAYS Liquid limit >50 | | CH | Inorganic clays of high plasticity, fat clays | |
| | ORGANIC SILTS AND CLAYS Liquid limit <50 | | OL | Organic silts and organic silty clays of low plasticity | |
| | ORGANIC SILTS AND CLAYS Liquid limit >50 | | OH | Organic clays of medium to high plasticity | |
| HIGHLY ORGANIC SOILS | | | PT | Peat and other highly organic soils | |




* Based on the material passing the 75 mm sieve

† ASTM Designation D 2487, for identification procedure see D 2488 USC as modified by PFRA

## SOIL COMPONENTS

| FRACTION | SIEVE SIZE PASSING | SIEVE SIZE RETAINED | DEFINING RANGES OF PERCENTAGE BY MASS OF MINOR COMPONENTS: PERCENTAGE | DESCRIPTOR |
|---|---|---|---|---|
| GRAVEL | | | | |
| coarse | 75 mm | 19 mm | >35 % | "and" |
| fine | 19 mm | 4.75 mm | 21 to 35 % | "y-adjective" |
| SAND | | | | |
| coarse | 4.75 mm | 2.00 mm | 11 to 20 % | "some" |
| medium | 2.00 mm | 425 µm | | |
| fine | 425 µm | 75 µm | >0 to 10 % | "trace" |
| SILT (non plastic) or CLAY (plastic) | 75 µm | | as above but by behavior | |

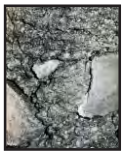
## OVERSIZE MATERIAL

| | |
|---|---|
| Rounded or subrounded | |
| COBBLES | 75 mm to 300 mm |
| BOULDERS | > 300 mm |
| Not rounded | |
| ROCK FRAGMENTS | >75 mm |
| ROCKS | > 0.76 cubic metre in volume |

TETRA TECH

# GROUND ICE DESCRIPTION

## VISIBLE ICE LESS THAN 50% BY VOLUME

| GROUP SYMBOL | SYMBOL | SUBGROUP DESCRIPTION | SKETCH | PHOTOGRAPH |
|---|---|---|---|---|
| V | Vx | Individual ice crystals or inclusions |  |  |
| | Vc | Ice coatings on particles |  |  |
| | Vr | Random or irregularly oriented ice formations |  |  |
| | Vs | Stratified or distinctly oriented ice formations |  |  |
| | Vu | Ice formations uniformly distributed throughout frozen soil |  |  |

## ICE NOT VISIBLE

| GROUP SYMBOL | SYMBOL | SUBGROUP DESCRIPTION | SKETCH | PHOTOGRAPH |
|---|---|---|---|---|
| N | Nf | Poorly-bonded or friable |  |  |
| | Nbn | No excess ice, well-bonded |  |  |
| | Nbe | Excess ice, well-bonded |  |  |

**LEGEND:** Soil ☐ Ice ■

**NOTES:**

1. Dual symbols are used to indicate borderline or mixed ice classifications.
2. Visual estimates of ice contents indicated on borehole logs ± 5%
3. This system of ground ice description has been modified from NRC Technical Memo 79, Guide to the Field Description of Permafrost for Engineering Purposes.

## VISIBLE ICE GREATER THAN 50% BY VOLUME

| GROUP SYMBOL | SYMBOL | SUBGROUP DESCRIPTION | SKETCH | PHOTOGRAPH |
|---|---|---|---|---|
| ICE | ICE + Soil Type | Ice with soil inclusions (greater than 25 mm thick) |  |  |
| | ICE | Ice without soil inclusions (greater than 25 mm thick) |  |  |

TETRA TECH

# APPENDIX B

## SELECT BOREHOLE LOGS AND SAMPLE PHOTOGRAPHS

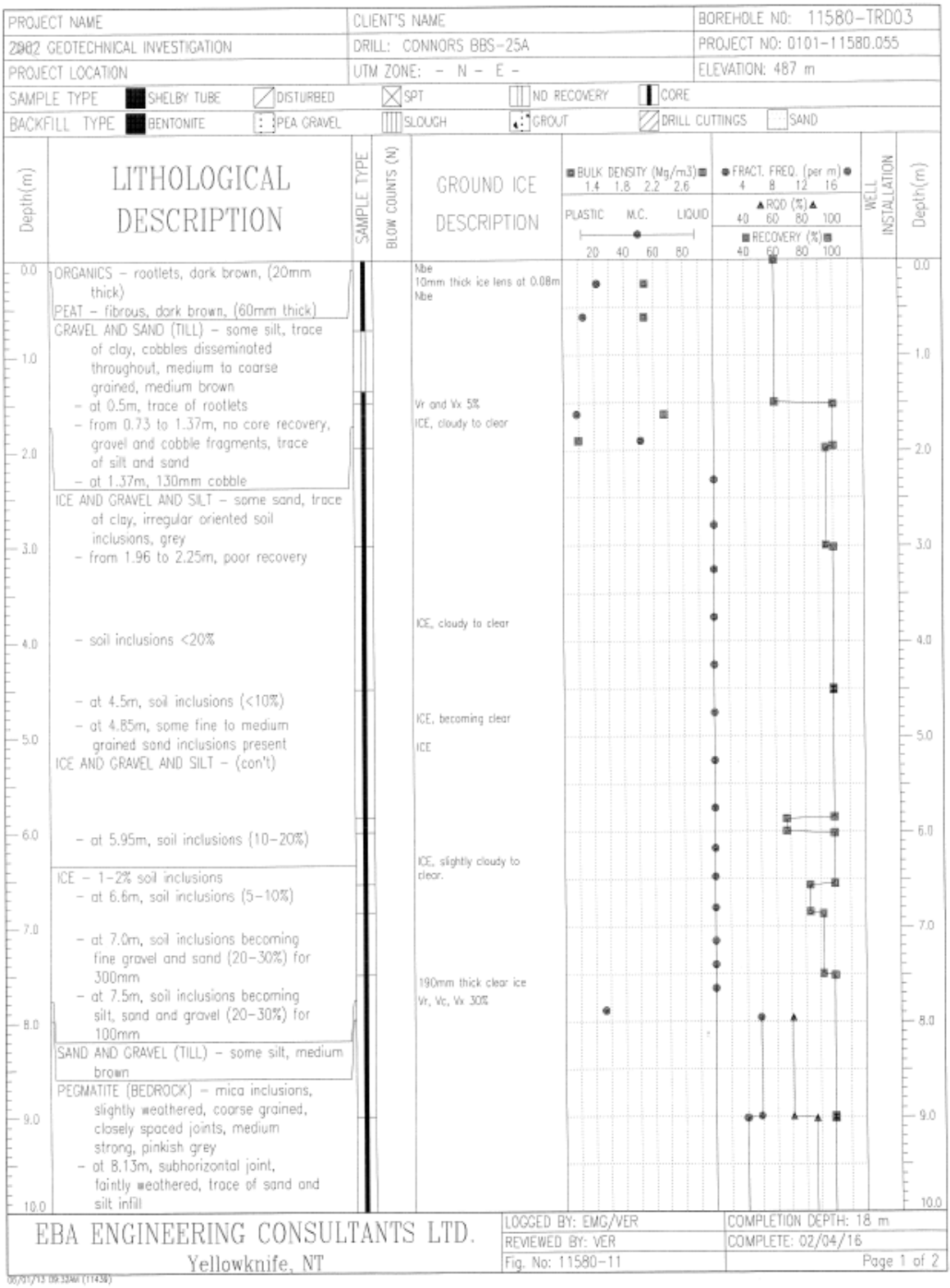

PROJECT NAME
2982 GEOTECHNICAL INVESTIGATION
PROJECT LOCATION
CLIENT'S NAME
DRILL: CONNORS BBS-25A
UTM ZONE: - N - E -
BOREHOLE NO: 11580-TRD03
PROJECT NO: 0101-11580.055
ELEVATION: 487 m
SAMPLE TYPE SHELBY TUBE DISTURBED SPT NO RECOVERY CORE
BACKFILL TYPE BENTONITE PEA GRAVEL SLOUGH GROUT DRILL CUTTINGS SAND
Depth(m)
LITHOLOGICAL DESCRIPTION
SAMPLE TYPE
BLOW COUNTS (N)
GROUND ICE DESCRIPTION
BULK DENSITY (Mg/m3) 1.4 1.8 2.2 2.6
FRACT. FREQ. (per m) 4 8 12 16
PLASTIC M.C. LIQUID 20 40 60 80
RQD (%) 40 60 80 100
RECOVERY (%) 40 60 80 100
WELL INSTALLATION
Depth(m)
0.0 ORGANICS - rootlets, dark brown, (20mm thick)
PEAT - fibrous, dark brown, (60mm thick)
GRAVEL AND SAND (TILL) - some silt, trace of clay, cobbles disseminated throughout, medium to coarse grained, medium brown
- at 0.5m, trace of rootlets
- from 0.73 to 1.37m, no core recovery, gravel and cobble fragments, trace of silt and sand
- at 1.37m, 130mm cobble
ICE AND GRAVEL AND SILT - some sand, trace of clay, irregular oriented soil inclusions, grey
- from 1.96 to 2.25m, poor recovery
- soil inclusions <20%
- at 4.5m, soil inclusions (<10%)
- at 4.85m, some fine to medium grained sand inclusions present
ICE AND GRAVEL AND SILT - (con't)
- at 5.95m, soil inclusions (10-20%)
ICE - 1-2% soil inclusions
- at 6.6m, soil inclusions (5-10%)
- at 7.0m, soil inclusions becoming fine gravel and sand (20-30%) for 300mm
- at 7.5m, soil inclusions becoming silt, sand and gravel (20-30%) for 100mm
SAND AND GRAVEL (TILL) - some silt, medium brown
PEGMATITE (BEDROCK) - mica inclusions, slightly weathered, coarse grained, closely spaced joints, medium strong, pinkish grey
- at 8.13m, subhorizontal joint, faintly weathered, trace of sand and silt infill
Nbe
10mm thick ice lens at 0.08m
Nbe
Vr and Vx 5%
ICE, cloudy to clear
ICE, cloudy to clear
ICE, becoming clear
ICE
ICE, slightly cloudy to clear.
190mm thick clear ice
Vr, Vc, Vx 30%
0.0 1.0 2.0 3.0 4.0 5.0 6.0 7.0 8.0 9.0 10.0
EBA ENGINEERING CONSULTANTS LTD.
Yellowknife, NT
LOGGED BY: EMG/VER
REVIEWED BY: VER
Fig. No: 11580-11
COMPLETION DEPTH: 18 m
COMPLETE: 02/04/16
Page 1 of 2




**Figure 1a**
BH 11580-TRD03
Core of Frozen Overburden. Depth: 0.0m - 4.5m.




**Figure 1b**
BH 11580-TRD03
Core of Frozen Overburden Underlain by Frozen Bedrock (Pegmatite). Depth: 4.5m - 9.0m.

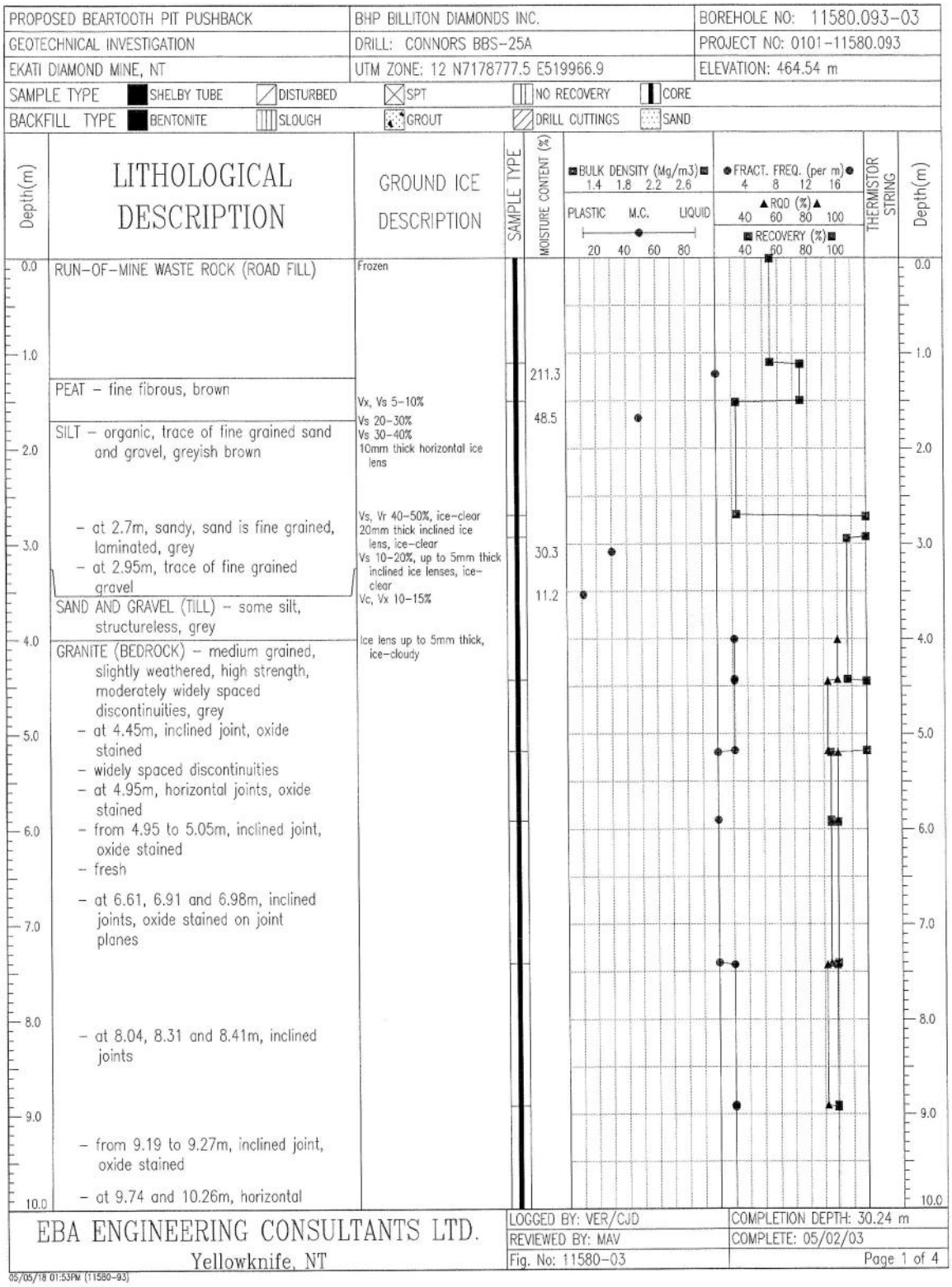

PROPOSED BEARTOOTH PIT PUSHBACK
BHP BILLITON DIAMONDS INC.
BOREHOLE NO: 11580.093-03
GEOTECHNICAL INVESTIGATION
DRILL: CONNORS BBS-25A
PROJECT NO: 0101-11580.093
EKATI DIAMOND MINE, NT
UTM ZONE: 12 N7178777.5 E519966.9
ELEVATION: 464.54 m
SAMPLE TYPE SHELBY TUBE DISTURBED SPT NO RECOVERY CORE
BACKFILL TYPE BENTONITE SLOUGH GROUT DRILL CUTTINGS SAND
Depth(m)
LITHOLOGICAL DESCRIPTION
GROUND ICE DESCRIPTION
SAMPLE TYPE
MOISTURE CONTENT (%)
BULK DENSITY (Mg/m3) 1.4 1.8 2.2 2.6
FRACT. FREQ. (per m) 4 8 12 16
PLASTIC M.C. LIQUID 20 40 60 80
RQD (%) 40 60 80 100
RECOVERY (%) 40 60 80 100
THERMISTOR STRING
Depth(m)
0.0 RUN-OF-MINE WASTE ROCK (ROAD FILL)
Frozen
1.0 PEAT - fine fibrous, brown
Vx, Vs 5-10%
211.3
2.0 SILT - organic, trace of fine grained sand and gravel, greyish brown
Vs 20-30%
Vs 30-40%
10mm thick horizontal ice lens
48.5
- at 2.7m, sandy, sand is fine grained, laminated, grey
Vs, Vr 40-50%, ice-clear
20mm thick inclined ice lens, ice-clear
3.0 - at 2.95m, trace of fine grained gravel
Vs 10-20%, up to 5mm thick inclined ice lenses, ice-clear
30.3
SAND AND GRAVEL (TILL) - some silt, structureless, grey
Vc, Vx 10-15%
11.2
4.0 GRANITE (BEDROCK) - medium grained, slightly weathered, high strength, moderately widely spaced discontinuities, grey
Ice lens up to 5mm thick, ice-cloudy
5.0 - at 4.45m, inclined joint, oxide stained
- widely spaced discontinuities
- at 4.95m, horizontal joints, oxide stained
6.0 - from 4.95 to 5.05m, inclined joint, oxide stained
- fresh
- at 6.61, 6.91 and 6.98m, inclined joints, oxide stained on joint planes
7.0
8.0 - at 8.04, 8.31 and 8.41m, inclined joints
9.0 - from 9.19 to 9.27m, inclined joint, oxide stained
10.0 - at 9.74 and 10.26m, horizontal
EBA ENGINEERING CONSULTANTS LTD.
Yellowknife, NT
LOGGED BY: VER/CJD
REVIEWED BY: MAV
Fig. No: 11580-03
COMPLETION DEPTH: 30.24 m
COMPLETE: 05/02/03
Page 1 of 4
05/05/18 01:53PM (11580-93)




**Figure 2a**
BH 11580.093-03
Core of Frozen Overburden Underlain by Frozen Granite Bedrock (left portion of the core box). Depth: 0.0m - 5.2m

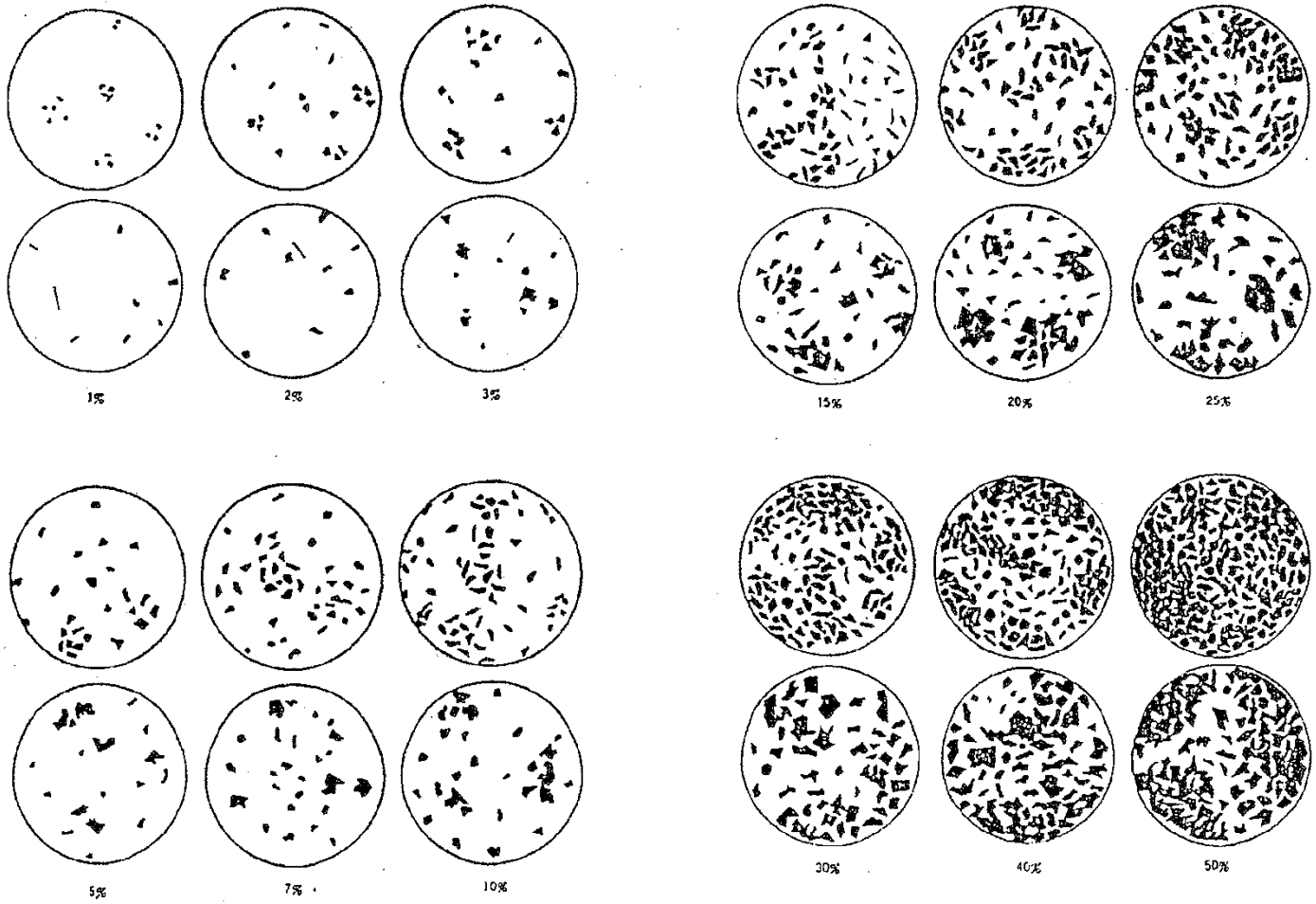



**Photo 2b**
BH 11580.093-03
Core of Frozen Overburden Underlain by Frozen Granite Bedrock (right portion of the core box). Depth: 0.0m - 5.2m.

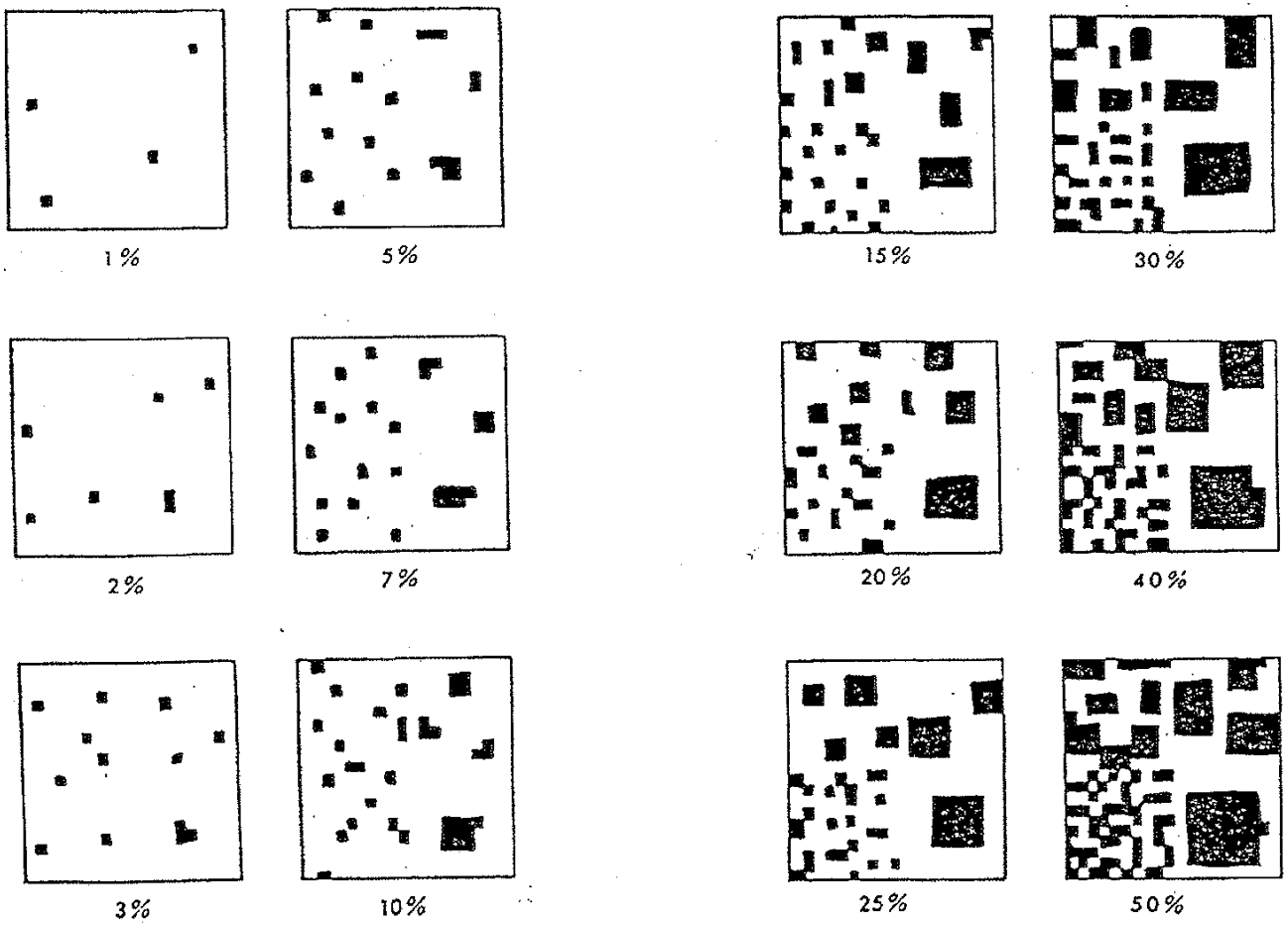
# APPENDIX C

## CHARTS FOR ESTIMATING PROPORTIONS (SOIL/ROCK/ICE

CHARTS FOR ESTIMATING PROPORTIONS
(SOILS/ROCKS/ICE)



CHARTS FOR ESTIMATING PROPORTIONS
(SOILS/ROCKS/ICE)



# APPENDIX D

## TETRA TECH FORMS: BOREHOLE LOG, SAMPLE INVENTORY, BULK DENSITY

## Tetra Tech Borehole Log

Project:
Project No.: Surface Elevation:
Drilling Contractor: Borehole No.:
Drilling Method: Location:
Date: Logged By:
Time (start): (down): (end):

| Depth (m) | | | Soil/Permafrost/Rock Description | Sample | | |
|---|---|---|---|---|---|---|
| From | At | To | Soil type (principal component and modifiers), inclusions, particle shape, structure, gradation and color; Ground ice classification (N or V), volumetric ice content, cryostructure, ground ice description. | Type | Depth | N/PP |
| | | | | | | |

Water Completion:
Slough at Completion:
Instrumentation Installed:

Page of

TETRA TECH

## SAMPLE INVENTORY

Project: _____ Borehole No.: _____

Project No.: _____ Completion Date: _____

| Sample No. | Depth (m) | | Dimensions (mm) | | Sample Type | USC | Remarks |
|---|---|---|---|---|---|---|---|
| | From | To | Diameter | Length | | | |
| | | | | | | | |
| | | | | | | | |
| | | | |

## BULK DENSITY

Project Name: _____

Project No.: _____ Date: _____

| Sample No. | Depth (m) | Length (m) | Diameter (m) | Weight (kg) | Bulk Density ($kg/m^3$) | Comments |
|---|---|---|---|---|---|---|
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TT_Bulk Density.cdr

TETRA TECH

# APPENDIX Y

## Peso Revegetation Trial Photos 2013-2018

**TRENCH – BLOCK #1**



Photo #1: Trench - Block #1 staked out, July 2012



Photo #2: Each plot was decompacted using a 5-pronged cultivator

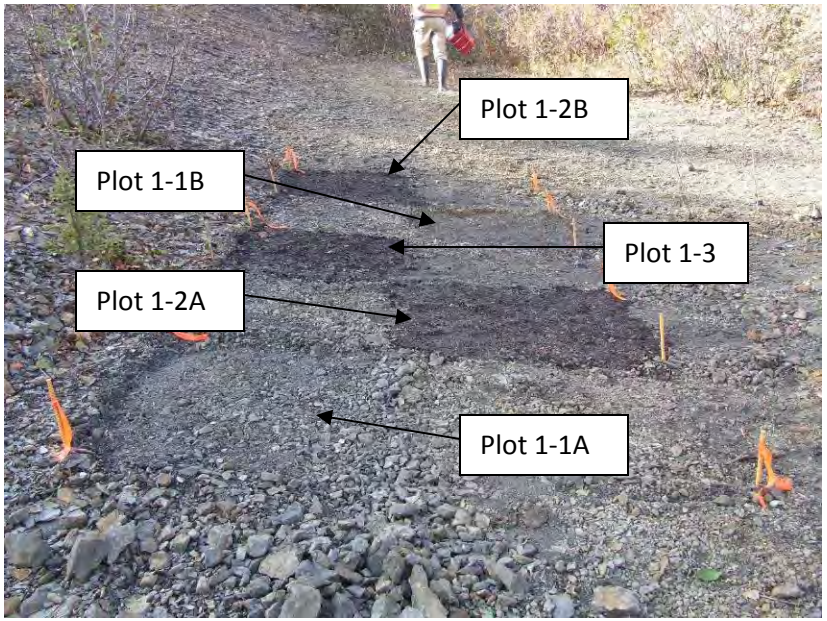



Photo #3: Trench - Block #1 plots prepared, seeded and treated.



Photo #4: Trench – Block #1, July 2013, grass has started growing.



Photo #5: Trench – Block #1, Aug 2014.



Photo #6: Trench – Block #1, alders becoming established, July 2016.



Photo #7: Trench – Block #1, increased growth of alders, Aug 2017.



Photo #8: Trench – Block #1, July 2018.



Photo #9: Trench – Plot #1-3, July 2013.



Photo #10: Trench – Plot #1-3, August 2014.



Photo #11: Trench – Plot #1-3, August 2015.



Photo #12: Trench – Plot #1-3, July 2016.



Photo #13: Trench – Plot #1-3, August 2017.



Photo #15: Trench, Block #1, young alder with long lateral root. 2018.



Photo #14: Trench – Plot #1-3, July 2018.



**TRENCH – BLOCK #2**

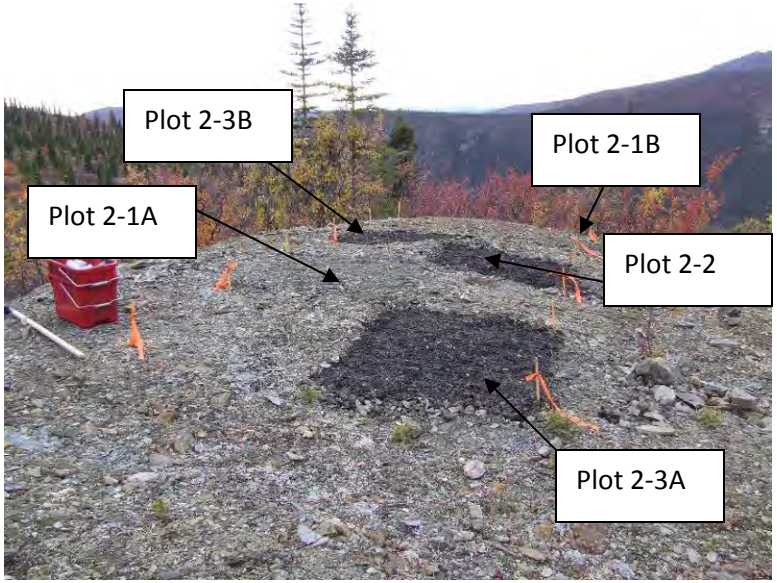



Photo #17: Trench – Block #2 prepared, seeded and treated. September 2012.




Photo #18: Trench – Block #2, July 2013.



Photo #19: Trench – Block #2, July 2016.



Photo #20: Trench – Block #2, Aug 2017.



Photo #21: Trench – Block #2, July 2018.



Photo #22: Trench, Plot #2-2, July 2013.



Photo #23: Trench, Plot #2-2, August 2014.



Photo #24: Trench, Plot #2-2, July 2015.



Photo #25: Trench, Plot #2-2, July 2016.



Photo #26: Trench, Plot #2-2, August 2017.



Photo #27: Trench, Plot #2-2, July 2018.



Photo #28: The alder in Plot #2-2 has produced seed cones in 2018.

**TRENCH – BLOCK #3**

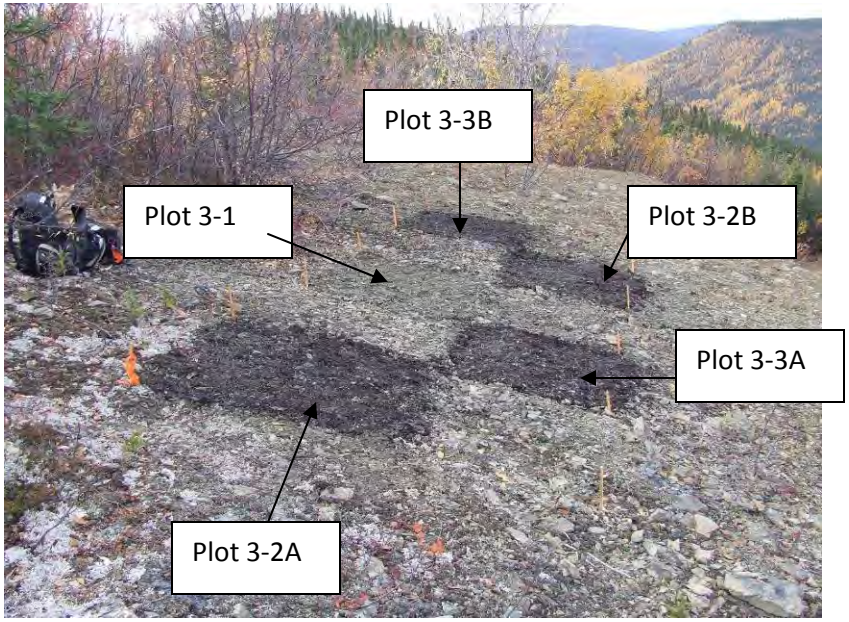



Photo #29: Trench Block #3, prepared, seeded and treated, Sept/12



Photo #30: Trench – Block #3, July 2013.



Photo #31: Trench – Block #3, August 2014, increased growth.



Photo #32: Trench – Block #3, July 2016.



Photo #33: Trench – Block #3, August 2017.



Photo #35: Trench, Plot 3-2B, July 2013.



Photo #34: Trench – Block #3, July 2018. Increase alder growth.



Photo #36: Trench, Plot 3-2B, Aug 2014, healthy grasses.



Photo #37: Trench, Plot #3-2B, August 2015.



Photo #38: Trench, Plot #3-2B, August 2017.



Photo #39: Trench, Plot #3-2B, July 2018



Photo #40: Nitrogen nodule on alder from Plot 3-2B, July 2018.

## WASTE ROCK DUMP – BLOCK #1

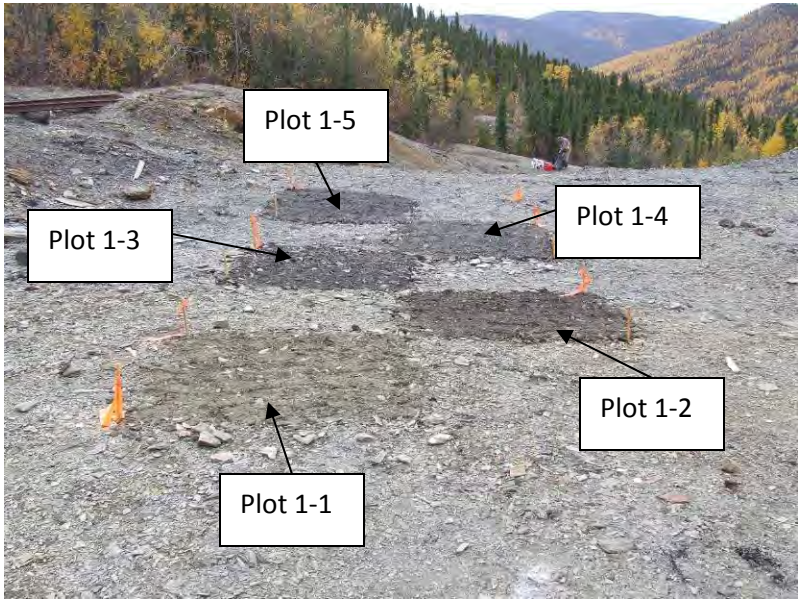



Photo #41: Waste Rock, Block #1, prepared, seeded and treated, Sept 2012.



Photo #42: Waste Rock, Block #1, July 2013.



Photo #43: Waste Rock, Block #1, August 2014, increased grass growth.



Photo #44: Waste Rock, Block #1, July 2016.



Photo #45: Waste Rock, Block #1, August 2017.



Photo #47: Waste Rock, Plot #1-5, very little growth, July 2013.



Photo #46: Waste Rock, Block #1, July 2018.



Photo #48: Waste Rock, Plot #1-5, healthy grass growth, Aug 2014.



Photo #49: Waste Rock, Plot #1-5, alders appearing, Aug 2015.



Photo #50: Waste Rock, Plot #1-5, grasses dying back, July 2016.



Photo #51: Waste Rock, Plot 1-5, August 2017.



Photo #52: Waste Rock, Plot 1-5, July 2018.



Photo #53: Waste Rock, healthy spruce growing among volunteer willow, paper birch and the alders at Plot #1-4.



Photo #54: Waste rock. Seed cones on an alder growing on Plot #1-4. July 2018.



Photo #55: Waste Rock, nitrogen nodules on alder root, Plot #1-2.

## WASTE ROCK – BLOCK #2

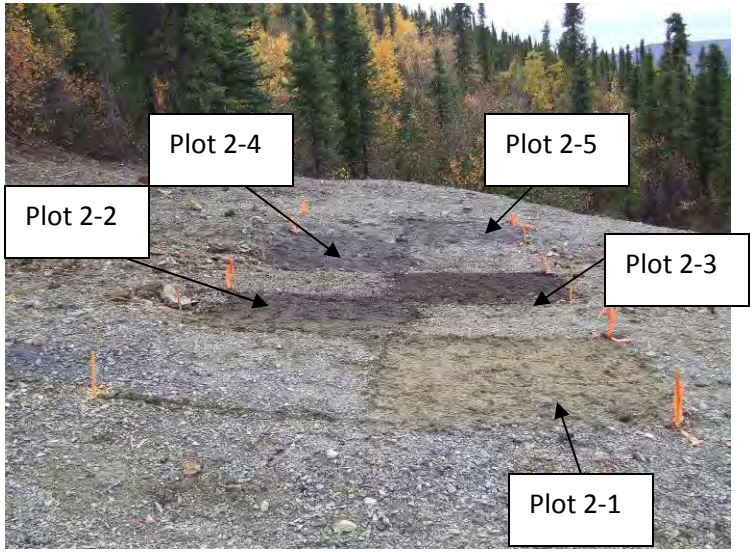



Photo #56 : Waste Rock, Block #2, prepared, seeded and treated, September 2012.



Photo #57: Waste Rock, Block #2, July 2013, good germination.



Photo #58: Waste Rock Block #2, August 2014. Healthy grasses.



Photo #59: Waste Rock, Block #2, July 2016. Alders growing.



Photo #60: Waste Rock, Block #2, August 2017. Alders have increased in growth.



Photo #61: Waste Rock, Block #2, July 2018.



Photo #62: Waste Rock, Plot 2-4, July 2013. Dolomite granules can still be seen.



Photo #63: Waste Rock, Plot 2-4, August 2014. Mature grasses.



Photo #64: Waste Rock, Plot 2-4, July 2015. Alders growing.



Photo #65:  Waste Rock, Plot 204, August 2016.

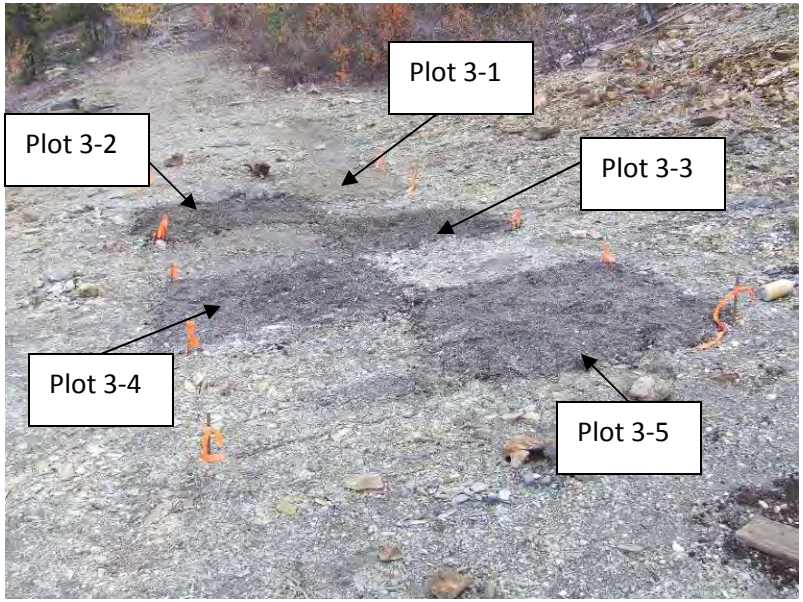


Photo #66: Waste Rock, Plot #2-4, August 2017.



Photo #67: Waste Rock, Plot #2-4, July 2018. Defoliation evident on stems both in 2017 and 2018.

## WASTE ROCK – BLOCK #3




Photo# 68: Waste Rock, Block #3, prepared, seeded and treated. September 2012.



Photo #69: Waste Rock, Block #3, July 2013.



Photo #70: Waste Rock, Block #3, August 2014.



Photo #71: Waste Rock, Block #3, July 2016.



Photo #72: Waste Rock, Block #3, August 2017.

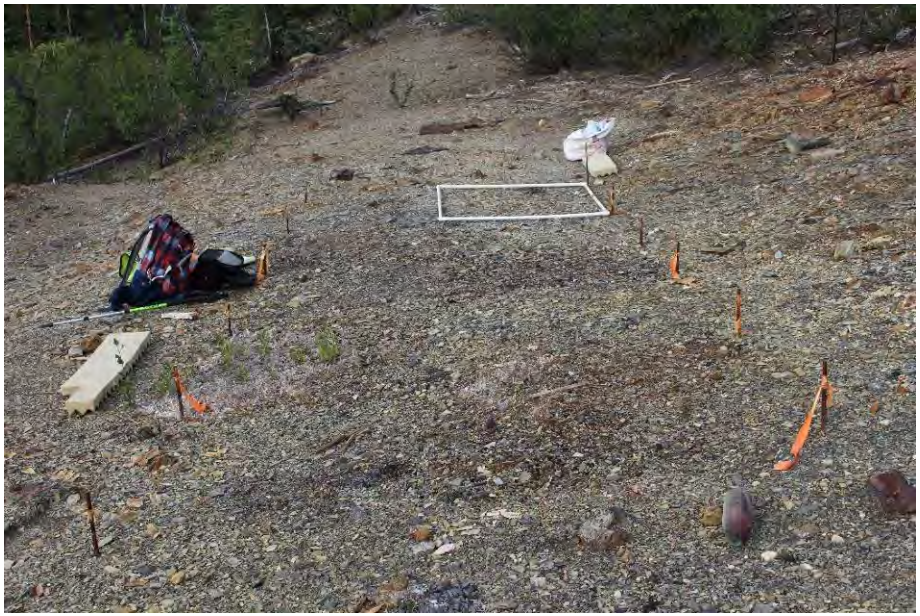


Photo #73: Waste Rock, Block #3, July 2018.



Photo #74: Waste Rock, Plot 3-4, July 2013.



Photo #75: Waste Rock, Plot #3-4, August 2014. Note mature grass.



Photo #76: Waste Rock, Plot #3-4, August 2015.



Photo #78: Waste Rock, Plot #3-4, August 2017.



Photo #77: Waste Rock, Plot #3-4, July 2016. Young willow in plot.



Photo #79: Waste Rock, Plot #3-4, July 2018.



Photo #80: Waste Rock, willows and dwarf birch in Plot 3-4, July 2018.



Photo #81: Necrosis on leaf edges on several alder at Waste Rock, Plot 2-3, July 2018.

# APPENDIX Z

## Interim Technical Memo: Update on Peso Revegetation Plots

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# TECHNICAL MEMO

To: Steve Wilbur
Victoria Gold

Date: March 20th, 2019

From: Bonnie Burns
Laberge Environmental Services

Re: **Update on Peso Vegetation Plots**

The sixth and final annual assessment of the vegetation plots at the Peso mine site was conducted on July 31st, 2018. A report outlining the complete project from commencement in 2012 to the wrap up assessment in the summer of 2018 is currently under preparation. In the interim, a summary of the Peso Project is presented below.

Revegetation trials were established at the Peso Mine site which had last been actively mined in the 1960s. After initial soil sampling, two sites were chosen for the experimentation; a trenched area and the waste rock dump below the adit. Plots were designed, seeded with native grasses and locally collected alder seeds, and prepared with various amendments including biochar, compost, leonardite and dolomite. Both sites were acidic; the trench with a pH of 5 to 6 and the waste rock dump with a pH of 2 to 3. Three blocks of plots were set up at each site.

The plots were assessed annually from 2013 to 2018. The percentage of vegetative cover, species composition and overall health were observed for each plot. In 2018, soil samples, foliar tissue samples and measurements on rooting length and depth were also undertaken.

The plots that were seeded but received no amendments supported very little, if any, growth over the six years. This is consistent with the general area as the acidic and mineral soils here have been very slow to colonize the disturbed areas. The other plots with the different amendments sustained various levels of growth over time. By year two most of the treated plots supported relatively healthy growth of the assorted grass species. Alder seeds that were also added to the plots began noticeably growing in years two and three. In year four grasses were gradually dying back and shrubs, mainly alder, were taking over. Willow, dwarf birch, Labrador tea, blueberry and paper birch were also beginning to colonize some of the plots, all of which are present in the neighbouring forest.

Soil analysis indicated that the growth medium is acidic, nutrient poor and mineralized with very high concentrations of several metals. It appeared biochar was sequestering some metals in the treated plots. Although metal concentrations were extremely high (i.e arsenic, antimony and lead), these metals were not taken up in large amounts by the plants. Concentrations in the tissues appear similar to those collected at other Yukon mine sites and at other locations at Dublin Gulch. Greater detail will be provided in the report.

In conclusion, a successful revegetation project at the Peso site would require amendments and at a minimum, biochar and compost. Biochar provides high surface area for moisture retention and metal sequestration; however it does not provide anything in the way of nutrients. Thus some form of fertilization will be required to get the growth initiated. After six years of growth on the treated plots, leaf litter and nitrogen addition through the fixation and decomposition of alder, was gradually building up the soil allowing for continued growth of the plants.

Generally, the shrubs growing at the treated plots were healthy and alder were reproducing in the final year (2018) as seed cones were observed on several of the plants. Many plots also supported healthy volunteer shrubs – willows, dwarf birch, Labrador tea etc. Initial seeding with native grasses, although not the dominant life form in the surrounding environment, served a useful purpose as they germinate quickly, assist in retaining moisture and help to build up the soil.



Volunteer spruce and shrubs growing with the alder on a plot at the Waste Rock Dump.



Alders producing seed cones on one of the Trench plots.